

# Fujikin®

## PRODUCT CATALOG

**V® COLLECTION**



Internet  
"Beyond the Flow"  
of Things.



**Fujikin® Carp® Group**

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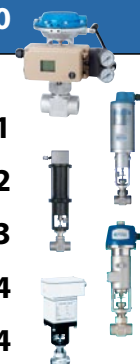
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# Introduction

Process & Instrumentation Valve Equipment for Oil & Gas and General Industries

***Fujikin Incorporated*** 's flow control technologies are state of the art everywhere: earth, ocean and sky.

## ***Fujikin Incorporated***

has become the top manufacturing corporation for not only specific-purpose valves but also super high precision flow control systems. Our cutting edge technology is used in every area that demands the highest technology.



Semiconductor



Solar and Fuel Cells



Aerospace



Marine Vessels



Iron and Steel



Nano Devices



Medical, Pharmaceutical and Food



Ocean Development



Petrochemicals



Cryogenic Equipment



# Application & Achievement

Process & Instrumentation Valve Equipment for Oil & Gas and General Industries



Oil & Gas Production



Petrochemicals & Chemicals

Holding a share of more than 80% of instrumentation valves for Oil & Gas plant in Japan,

**Fujikin**® contributes to safety, security and reliability of the nuclear power stations also.



Petroleum Refining



GTL / DME



LNG

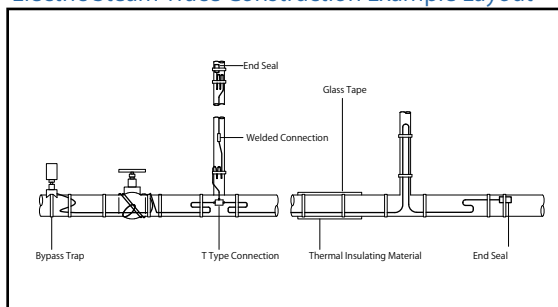


Oil Platform

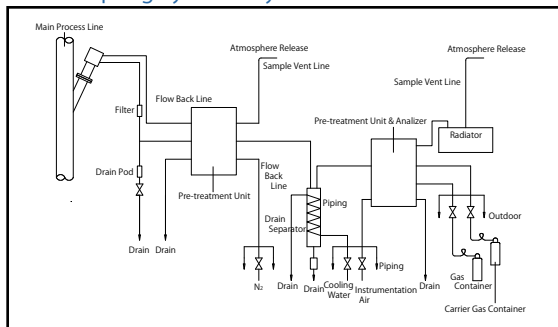
# Application



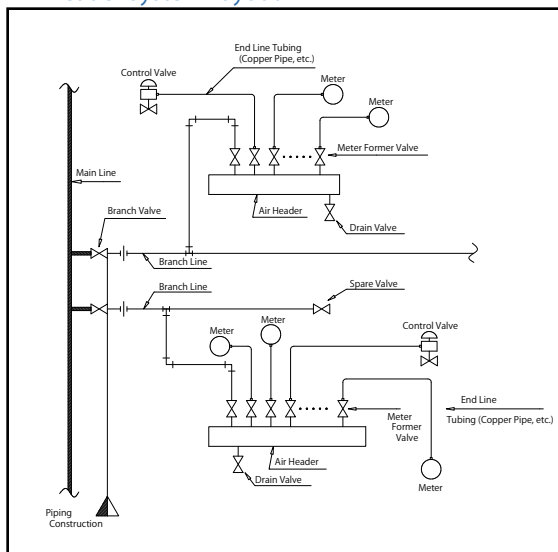
Electric Steam Trace Construction Example Layout



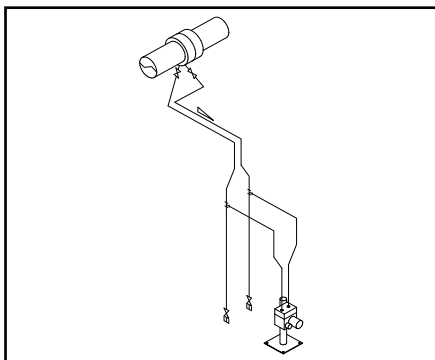
Gas Sampling System Layout



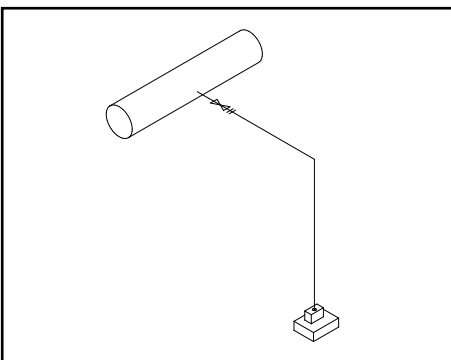
Air Header System Layout



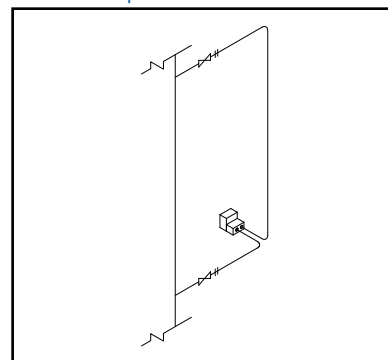
Floor Mount Line Model



Sampling Nozzle: Horizontal Direction Model



General Liquid Line Model



#### ① Differential Pressure Transmitter

- Tube Fittings : **V-Lok** SERIES **P9**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- Ball Valves : VUBV SERIES **P105**
- Instrument Manifolds/Valves : VUT SERIES **P145**

#### ② Pressure Transmitter

- Tube Fittings : **V-Lok** SERIES **P9**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- Ball Valves : VUBV SERIES **P105**
- Instrument Manifolds/Valves : VUT SERIES **P145**

#### ③ Liquid Level Meter by Differential Pressure

- Tube Fittings : **V-Lok** SERIES **P9**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- Ball Valves : VUBV SERIES **P105**
- Instrument Manifolds/Valves : VUT SERIES **P145**

#### ④ Sampling Line

- Tube Fittings : **V-Lok** SERIES **P9**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- Ball Valves : VUBV SERIES **P105**
- Bellows Valves : VUBF SERIES **P161**
- Check Valves : VUCL SERIES **P177**
- Plug Valves : VUP SERIES **P127**

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- Tube Fittings : **V-Lok** SERIES **P9**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- Ball Valves : VUBV SERIES **P105**
- Bellows Valves : VUBF SERIES **P161**
- Check Valves : VUCL SERIES **P177**
- Plug Valves : VUP SERIES **P127**
- Afcon **P181**

#### ⑥ Air Line

- Tube Fittings : **V-Lok** SERIES **P9**
- Tube Fittings : PDW **P85**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- PDS **P139**
- Ball Valves : VUBV SERIES **P105**

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- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- PDS **P139**

#### ⑧ Pilot Plant / Experiment Plant

- Tube Fittings : **V-Lok** SERIES **P9**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- Ball Valves : VUBV SERIES **P105**
- Bellows Valves : VUBF SERIES **P161**
- Check Valves : VUCL SERIES **P177**
- Plug Valves : VUP SERIES **P127**
- Afcon **P181**

#### ⑨ NACE STANDARD Line

- Tube Fittings : **V-Lok** SERIES **P9**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- Ball Valves : VUBV SERIES **P105**
- Instrument Manifolds/Valves : VUT SERIES **P145**
- Bellows Valves : VUBF SERIES **P161**
- Check Valves : VUCL SERIES **P177**
- Toggle Valves : VUK **P169**
- Plug Valves : VUP SERIES **P127**
- Afcon **P181**

#### ⑩ Differential Pressure Transmitter

- Tube Fittings : **V-Lok** SERIES **P9**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- Ball Valves : VUBV SERIES **P105**
- Instrument Manifolds/Valves : VUT SERIES **P145**

#### ⑪ Pressure Transmitter

- Tube Fittings : **V-Lok** SERIES **P9**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- Ball Valves : VUBV SERIES **P105**
- Instrument Manifolds/Valves : VUT SERIES **P145**

#### ⑫ Air Line

- Tube Fittings : **V-Lok** SERIES **P9**
- Tube Fittings : PDW **P85**
- Union-Bonnet Needle valves : VUH-934P SERIES **P135**
- PDS **P139**
- Ball Valves : VUBV SERIES **P105**



**V-Lok** Tube Fittings



PDW Tube Fittings



Ball Valves



3-Pieces Ball Valves



Trunnion Ball Valves



Plug Valves



Union-Bonnet Needle Valves



Integral-Bonnet Needle Stop Valves



Brass Needle Stop Valves



Instrument Manifolds / Gauge Valves



Bellows Valves



Toggle Valves



Relief Valves



Check Valves

# Delivery Records

Process & Instrumentation Valve Equipment for Oil & Gas and General Industries







## CHINA

EO, EG PLANT  
FGD PLANT



## JAPAN

ETHYLENE PLANT  
REFINERY  
COAL THERMAL  
POWER PLANT  
CHEMICAL GRADE  
METHANOL PLANT  
EO EG PLANT  
POLYACETAL PLANT  
PETROCHEMICAL PLANT



## TAIWAN

AROMATICS  
TEREPHTHALIC ACID PLANT  
PTA PLANT



## VIETNAM

REFINERY  
COAL THERMAL  
POWER PLANT  
STEEL PLANT  
BIOETHANOL PLANT



## SINGAPORE

PETROCHEMICAL PLANT  
ETHYLENE PLANT  
PTA PLANT  
BISPHENOL PLANT



## INDONESIA

PETROCHEMICAL PLANT  
SAP - CHEMICAL PLANT  
SURFACTANT  
- CHEMICAL PLANT



This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

# Fittings

**V-Lok** Tube Fittings Double Rings Compression and Bite Type Stainless Steel

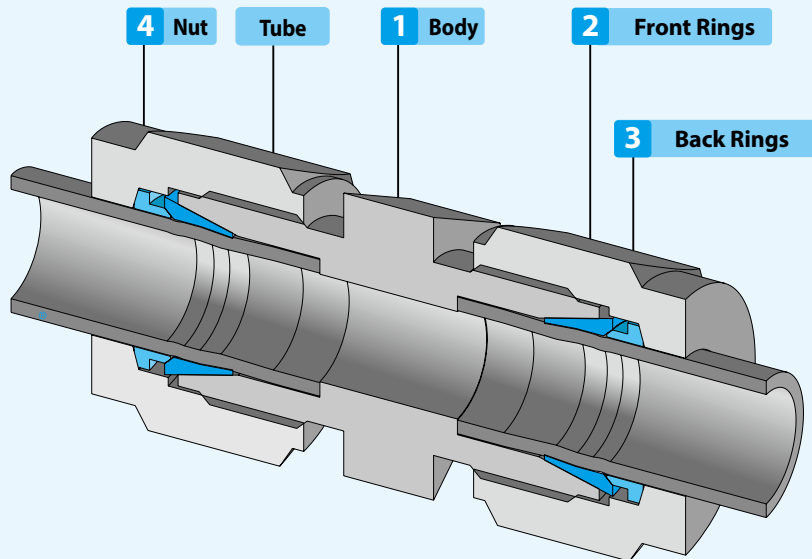
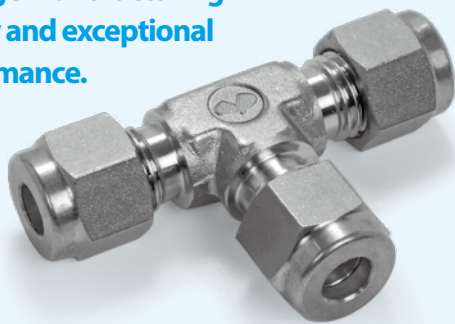
**PDW** Tube Fittings Double Rings Compression and Bite Type Brass

## Overview of V-Lok Tube Fittings

V-Lok is a high performance tube fitting that combines the sealing properties and quality control technologies required for power plant instrumentation fittings, other industries, and the ultra-pure construction required used in fittings used in semiconductor manufacturing equipment.

V-Lok is new value series that provides high performance, cost effectiveness, and quick delivery.

V-Lok tube fittings combine leading edge manufacturing technology and exceptional cost performance.



V-Lok Tube Fittings are composed of four parts:  
1. Body 2. Front Rings 3. Back Rings 4. Nut

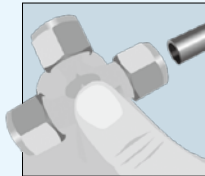
## V-Lok How Does it Works?

The V-Lok Tube Fittings is a mechanism used both to seal and to grip tubing. The mechanical advantage and geometry of this kind of fitting produces a leak-tight assembly.

To assemble, simply insert the tube into the complete assembly until the tube bottoms-out against the shoulder of the fitting body (1). The two Rings are driven forward between the nut (4) and fitting body using the mechanical force created by rotating the nut clockwise. The back Rings (3) is driven against the tapered rear of the front Rings (2) and the front Rings is driven by force into the tapered mouth of the body. The back Rings is swaged radially inwards on the tube while lifting the front Rings out to form a full-faced seal on the tapered surface of the body. The 1 1/4 turn of the nut from the hand tight position assures consistent drive of the sealing parts. This ensures an effective seal against high pressure as well as ultra high vacuum conditions.

## V-Lok Installation Instructions

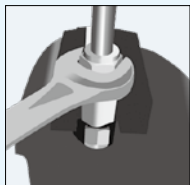
**V-Lok** fittings are supplied assembled and hand tight. Disassembly before use can allow the entry of dirt or other particles.



### Insert the tubing completely into the V-Lok tube fittings.

Check that the tube point contacts with the fitting body shoulder and that the nut is hand tight until it cannot be tightened further. At this point it is

recommended that a scribe mark be drawn on the hex of the nut extending onto the fitting body. This mark will serve as an indicator for the starting point and proper pull-up.



### Tighten the nut.

1 1/4 turn of the nut are required for 1/4" (6 mm) and larger fittings (see Fig. A). 3/4 turn of the nut is required for 3/16" (4 mm) and smaller fittings (see Fig. B). Plugs (part number:

VUWJP) and port connectors (part number: VUW-PC): First tighten the nuts manually, and then use a wrench to tighten them a further 1/4 turn only for sizes of 6 mm or more, 1/8 turn only for sizes of 3/16 in. or less. Assembly is then complete.

Figure A

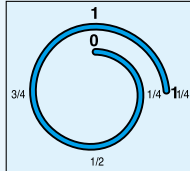
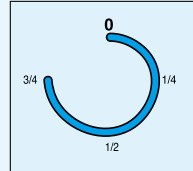


Figure B



### Reassembly Instructions

V-Lok tube fittings may be disconnected and reconnected repeatedly, without loss of the leak-tight seal.

- Before reassembling the parts, ensure that there is no foreign matter on the sealing diagonal face of the fitting body and the front Rings.
- Insert the front Rings until it reaches the body, and then manually tighten the nut enough.
- With a wrench, tighten the nut approximately 1/4 turn. Assembly is then complete.
- Plugs (part number: VUWJP) and port connectors (part number: VUW-PC): First tighten the nuts manually, and then use a wrench to tighten them a further 1/4 turn only for sizes of 6 mm or more, 1/8 turn only for sizes of 3/16 in. or less. Assembly is then complete.

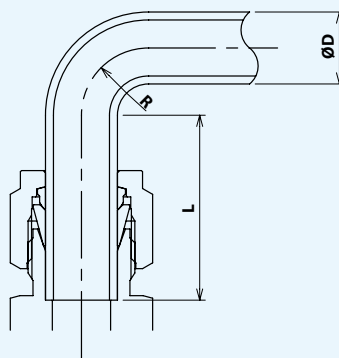
### Note:

- After reassembly, the fitting body and nut should return to their original position, or be tightened slightly further.
- For fittings with nominal diameters between 1.6mm (1/16"OD) and 4.8mm, tighten the nut 1/6 turn.
- For fittings with nominal diameters of 15.88mm (5/8"OD) or larger, it may occasionally be necessary to tighten the nut 1/4 turn or more.
- Don't use the gap inspection gauge for reassembly.

### Before Installation

- Use an austenitic stainless steel tube with a seamless bright anneal finish, a hardness of Hv200 or less, and a tolerance within  $\pm 0.1$  mm of the tube O.D..
- Please refer to "Tubing Data" on page 12 for recommended tube wall thickness.
- There should be no visible scratches 30mm from either end of the tube. Remove any foreign matter.
- Scratches on the tube may cause leaks. It is therefore important to handle the tube carefully to reduce the risk of leak. Please do not drag tube when taking out of the shelf and drag on the floor to avoid scratching on the tube.
- Before assembling the fittings, cut the tubes to the required length.
- Use a tube cutter to cut the tube. To attain a leak-free connection, the tubing must be cut squarely. A high-quality tube cutter with an appropriate blade for the tubing material is recommended. If it is necessary to use a different method, for example hacksaw cutting, be sure to cut the tube at a right angle, and then remove burrs carefully from the outer circumstance by filing at a 45° angle to the center line.
- Tube cutter blades should be replaced regularly to maintain sharpness.
- Before tightening the fitting, ensure that the tube and the fitting are properly aligned.
- Before tightening the fitting, ensure that its body has been secured using a wrench. Never hold the nut in place while attempting to tighten the body.

- Carry out tube bending with a tube bender of the required size. Refer to the following figure and the bending size shown in the right table.



### Attention!

A small amount of grease has been applied to the wetted area of this product.

Please kindly contact **Fujikin**, if you require high cleaning level.

We can recommend you F900 Tube Fittings(FINELOK-PURE), UJR Fittings, UPG<sup>®</sup> Fittings, etc. as an appropriate alternative product.

We've surely checked the safety for this product in the condition of pressurized with Oxygen at 400°C.

However, Improper handling with Oxygen gas system may result in a system failure or a serious fire accident.

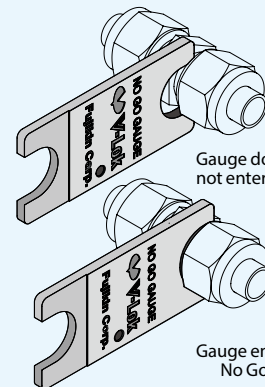
When using Oxygen gas with this product, you are kindly requested to take a proper handling for safety purpose on your own authority and responsibility.

### Post-assembly:

#### Inspection with a "No-Go" gauge (New Fittings Only)

- Position the "No-Go" gauge next to the gap between the nut and body.
- If the gauge cannot fit into the gap, the fitting is sufficiently tightened.
- If the gauge can enter the gap, additional tightening is required.

**Note:** Do not use the "No-Go" gauge on retightened or pre-tightened fittings.



Gauge does not enter gap: Go!

Gauge enters gap: No Go, tighten further.

### Ordering Information for the V-Lok "No-Go" gauge

| Part No.            | Fitting Size         |
|---------------------|----------------------|
| G-VUW - 9.52 x 6.35 | 1/4", 6mm, 3/8", 8mm |
| G-VUW - 12.7 x 10   | 10mm, 1/2", 12mm     |

### Tube bending size table

Unit: mm

| Nominal Dia.<br>(Tube O.D.) |          | Length of straight<br>tube part |      | Bend<br>Radius<br>(Min.) |
|-----------------------------|----------|---------------------------------|------|--------------------------|
| D                           |          | L                               |      |                          |
| mm                          | Inch     | L1                              | L2   | R                        |
| —                           | 1/16     | 17                              | 11   | —                        |
| 2.3                         | 1/8      | 25                              | 15   | 9.5                      |
| 4                           | 3/16     | 26                              | 16   | 11.1                     |
| 6                           | 1/4      | 28                              | 17   | 14.3                     |
| 8                           | 5/16     | 30                              | 18   | 17.5                     |
| 10                          | 3/8      | 33                              | 19.5 | 23.8                     |
| 12                          | 1/2      | 41                              | 26   | 38.1                     |
| 14, 15, 16                  | 5/8      | 42                              | 27   | 57.1                     |
| 18, 20, 22                  | 3/4, 7/8 | 44                              | 27   | 76.2                     |
| 25                          | 1        | 52                              | 33   | 88.9                     |

L1: Length recommended by **Fujikin**.

L2: Length in the case where the minimum dimension is required.

## Physical Differences and Marking

### V-Lok Metric Fittings:

Tee & Elbow (see Fig. 1)

Body marked: MM

Straight Connectors: (see Fig. 2)

Body: Stepped shoulder

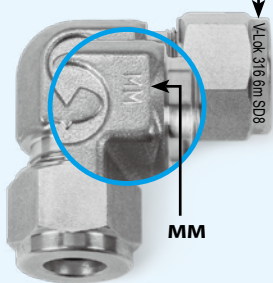
marked: F-CARP 316 AV<sup>(1)</sup>

Nut: (see Figs. 1 & 2) Stepped shoulder

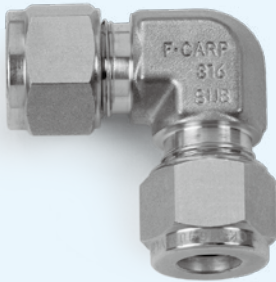
marked: V-LOK 316 6M<sup>(2)</sup> SD8<sup>(1)</sup>

**Fig. 1 Back side**

V-LOK 316 6M SD8

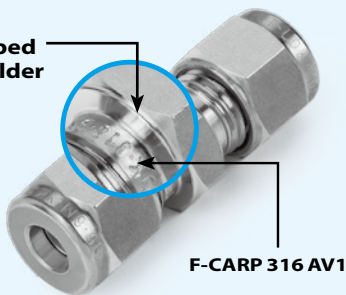


**Fig. 1 Front side**



**Fig. 2**

Stepped  
Shoulder



### V-Lok INCH FITTINGS:

Tee & Elbow: (See Fig. 3)

Straight Fittings: (see Fig. 4)

Body: Shoulder marked:

F-CARP 316 AV2<sup>(1)</sup>

Nut: (See Fig. 3 & 4): Shoulder

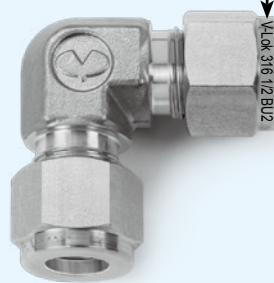
marked V-LOK 316 1/2<sup>(2)</sup> BU2<sup>(1)</sup>

(1): Material Batch

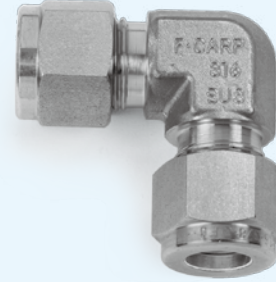
(2): Tube O.D.

**Fig. 3 Back side**

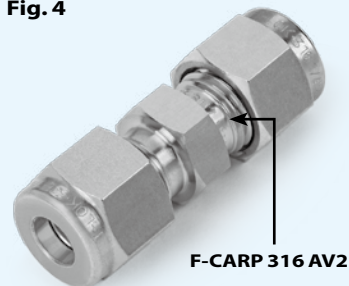
V-LOK 316 1/2 BU2



**Fig. 3 Front side**



**Fig. 4**





**Table 1-1 Maximum Allowable Working Pressure Of Stainless Steel Each Tube Wall Thickness (Inch Size)**

| Tube Wall Thickness | 0.010                                     | 0.012 | 0.014 | 0.016 | 0.020 | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 | 0.095 | 0.109 | 0.120 |
|---------------------|-------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Nom. Dia. (Inch)    | Maximum Allowable Working Pressure (psig) |       |       |       |       |       |       |       |       |       |       |       |       |
| 1/16                | 5590                                      | 6860  | 8130  | 9450  | 12060 |       |       |       |       |       |       |       |       |
| 1/8                 |                                           |       |       |       |       | 8540  | 10950 |       |       |       |       |       |       |
| 3/16                |                                           |       |       |       |       | 5490  | 7090  | 10290 |       |       |       |       |       |
| 1/4                 |                                           |       |       |       |       | 4090  | 5190  | 7590  | 10290 |       |       |       |       |
| 5/16                |                                           |       |       |       |       |       | 4090  | 5880  | 8090  |       |       |       |       |
| 3/8                 |                                           |       |       |       |       |       | 3350  | 4840  | 6540  |       |       |       |       |
| 1/2                 |                                           |       |       |       |       |       | 2630  | 3740  | 5140  | 6740  |       |       |       |
| 5/8                 |                                           |       |       |       |       |       |       | 2940  | 4040  | 5250  | 6040  |       |       |
| 3/4                 |                                           |       |       |       |       |       |       | 2430  | 3350  | 4240  | 4940  | 5840  |       |
| 7/8                 |                                           |       |       |       |       |       |       | 2040  | 2840  | 3640  | 4240  | 4840  |       |
| 1                   |                                           |       |       |       |       |       |       |       | 2390  | 3080  | 3590  | 4190  | 4690  |

(UNIT : psig)

**Table 1-2 Maximum Allowable Working Pressure Of Stainless Steel Each Tube Wall Thickness (mm Size)**

| Tube Wall Thickness | 0.028                                     | 0.031 | 0.039 | 0.047 | 0.059 | 0.071 | 0.079 | 0.087 | 0.098 | 0.11 | 0.118 |
|---------------------|-------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Nom. Dia. (mm)      | Maximum Allowable Working Pressure (psig) |       |       |       |       |       |       |       |       |      |       |
| 2                   | 7540                                      | 10870 |       |       |       |       |       |       |       |      |       |
| 3                   |                                           | 9710  |       |       |       |       |       |       |       |      |       |
| 4                   |                                           | 6960  | 9570  |       |       |       |       |       |       |      |       |
| 6                   |                                           | 4490  | 6090  | 7830  | 10290 |       |       |       |       |      |       |
| 8                   |                                           |       | 4490  | 5650  | 7540  | 8090  |       |       |       |      |       |
| 10                  |                                           |       | 3480  | 4350  | 5800  | 7390  |       |       |       |      |       |
| 12                  |                                           |       | 2900  | 3620  | 4780  | 5940  | 6810  |       |       |      |       |
| 14                  |                                           |       | 2320  | 2900  | 3910  | 4930  | 5510  | 6230  |       |      |       |
| 15                  |                                           |       | 2170  | 2750  | 3620  | 4490  | 5220  | 5800  |       |      |       |
| 16                  |                                           |       |       | 2460  | 3330  | 4200  | 4780  | 5360  | 5800  |      |       |
| 18                  |                                           |       |       | 2170  | 2900  | 3770  | 4200  | 4640  | 5360  |      |       |
| 20                  |                                           |       |       | 2030  | 2610  | 3330  | 3770  | 4200  | 4780  | 5510 |       |
| 22                  |                                           |       |       | 1740  | 2320  | 2900  | 3330  | 3770  | 4350  | 4930 |       |
| 25                  |                                           |       |       |       |       | 2610  | 2900  | 3330  | 3770  | 4200 | 4640  |

**Table 2: Factors Used To Determine Allowable Working Pressure At Higher Temperature**

| °F   | °C  | A.I.S.I. 316 |
|------|-----|--------------|
| 200  | 93  | 1            |
| 400  | 204 | 0.96         |
| 600  | 316 | 0.85         |
| 800  | 427 | 0.79         |
| 1000 | 538 | 0.76         |
| 1200 | 649 | 0.37         |

To determine allowable pressure at higher temperatures, multiply allowable working pressure from Tables 1 by factors shown in Table 2. For example: The allowable pressure for Type 316 stainless steel, size 1/2" O.D. x 0.049" wall at 800°F(427°C) would be equivalent to 3750 psi x 0.79 = 2962.5 psi. Regarding Min. Nominal Wall Thickness, please refer to Table 3.

**Table 3: Gas Application Tubing**

| in             |                             | mm        |                             |
|----------------|-----------------------------|-----------|-----------------------------|
| Tube O.D.      | Min. Nominal Wall Thickness | Tube O.D. | Min. Nominal Wall Thickness |
| 1/8" (3.17mm)  | 0.028" (0.7mm)              | 3 mm      | 0.8 mm                      |
| 3/16" (4.76mm) | 0.028" (0.7mm)              | 6 mm      | 0.8 mm                      |
| 1/4" (6.35mm)  | 0.028" (0.7mm)              | 8 mm      | 1 mm                        |
| 5/16" (7.93mm) | 0.035" (0.89mm)             | 10 mm     | 1 mm                        |
| 3/8" (9.52mm)  | 0.035" (0.89mm)             | 12 mm     | 1 mm                        |
| 1/2" (12.7mm)  | 0.049" (1.24mm)             | 14 mm     | 1.2 mm                      |
| 5/8" (15.87mm) | 0.065" (1.65mm)             | 16 mm     | 1.5 mm                      |
| 3/4" (19.05mm) | 0.065" (1.65mm)             | 18 mm     | 1.5 mm                      |
| 7/8" (22.22mm) | 0.083" (2.1mm)              | 20 mm     | 1.8 mm                      |
| 1" (25.4mm)    | 0.083" (2.1mm)              | 22 mm     | 2 mm                        |
|                |                             | 25 mm     | 2.2 mm                      |

- Attention!**
- The value of Table 1 is a maximum allowable working pressure calculated from the tube thickness. The maximum allowable working pressure of the fitting is limited from the value of this table according to the application regulations, and use it, please after considering the application regulations and the standard of used equipment.
  - There is a possibility that the seal decreases remarkably, and consult separately, please when it is used for a long time exceeding 400°C.

## Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

## V-Lok Part Number Designation

All orders should include material description and ordering information (See product table).

|                                                                                   |                 |                                        |                |                        |             |
|-----------------------------------------------------------------------------------|-----------------|----------------------------------------|----------------|------------------------|-------------|
| <b>V</b>                                                                          | <b>U</b>        | <b>W</b>                               | <b>H</b>       | <b>6.35</b>            | <b>B</b>    |
| Product Series                                                                    | Material        | Type of Tube Fittings                  | Connector Type | Nominal Diameter       | Thread Size |
|  | Stainless Steel | Double Rings Compression and Bite Type | Male Connector | Outer Diameter of Tube | R1/4        |

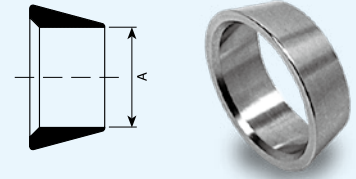
### V-Lok Index

|                                                                                                                                                |                                                                                                                                                                   |                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Front Rings</b> ..... 15<br><b>S</b>                       | <b>Tube Fittings to Female Thread Connectors (NPT)</b> ..... 24, 25<br><b>G</b>  | <b>Male Connectors (G)</b> ..... 40<br><b>H</b>        |
| <b>Back Rings</b> ..... 15<br><b>R</b>                        | <b>Tube Fittings to Female Thread Connectors (Rc)</b> ..... 26, 27<br><b>G</b>   | <b>Male Connectors (UNF)</b> ..... 41<br><b>H</b>      |
| <b>Inserts For Soft Plastic Tubing</b> ... 16<br><b>IN</b>  | <b>Tube Fittings to Female Thread Connectors (G)</b> ..... 28<br><b>G</b>      | <b>Male Connectors (NPT)</b> ..... 42<br><b>H</b>    |
| <b>Nuts</b> ..... 16<br><b>N</b>                            | <b>Reducers</b> ..... 29, 30, 31<br><b>R</b>                                   | <b>Male Connectors (UNF)</b> ..... 42<br><b>H</b>    |
| <b>Unions</b> ..... 17<br><b>F</b>                          | <b>Port Connectors</b> ..... 32<br><b>PC</b>                                   | <b>Male Pipe Weld Connectors</b> ... 43<br><b>R</b>  |
| <b>Reducing Unions</b> ..... 18, 19<br><b>F</b>             | <b>Reducing Port Connectors</b> ..... 33<br><b>PC</b>                          | <b>Tube Socket Weld Unions</b> ..... 44<br><b>R</b>  |
| <b>Union Tees</b> ..... 20<br><b>T</b>                      | <b>Male Connectors (NPT)</b> ..... 34, 35<br><b>H</b>                          | <b>Flange Unions</b> ..... 44<br><b>RF</b>           |
| <b>Reducing Union Tees</b> ..... 21, 22<br><b>T</b>         | <b>Male Connectors (R)</b> ..... 36, 37<br><b>H</b>                            |                                                                                                                                           |
| <b>Union Elbows</b> ..... 23<br><b>L</b>                    | <b>Male Connectors (G)</b> ..... 38, 39<br><b>H</b>                            |                                                                                                                                           |

| V-Lok Index                                                                                                                    |                                                                                                                                         |                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Male Elbows (NPT).....45, 46</b><br>L      | <b>Male Branch Tees (R).....57</b><br>TS               | <b>Plugs.....66</b><br>JP                                                               |
| <b>Male Elbows (R).....47, 48</b><br>L        | <b>Female Branch Tees (NPT).....58</b><br>TG           | <b>Female Tube Adapters (NPT).....67, 68</b><br>GA                                      |
| <b>Male Pipe Weld Elbows.....49</b><br>LR     | <b>Female Branch Tees (Rc).....59</b><br>TG            | <b>Female Tube Adapters (Rc).....69, 70</b><br>GA                                       |
| <b>Tube Socket Weld Elbows.....49</b><br>LR   | <b>Bulkhead Unions.....60</b><br>P                     | <b>Male Tube Adapters (NPT).....71, 72</b><br>A                                         |
| <b>Female Elbows (NPT).....50</b><br>LG       | <b>Bulkhead Female Connectors (NPT).....61</b><br>GP   | <b>Male Tube Adapters (R).....73, 74</b><br>A                                           |
| <b>Female Elbows (Rc).....51</b><br>LG      | <b>Bulkhead Female Connectors (Rc).....61</b><br>GP  | <b>Male Nuts.....75</b><br>                                                           |
| <b>Male Run Tees (NPT).....52</b><br>TL     | <b>Bulkhead Reducers.....61</b><br>RP                | <b>Unions For Chromatograph.....75</b><br>                                            |
| <b>Male Run Tees (R).....53</b><br>TL       | <b>Bulkhead Male Connectors (NPT).....62</b><br>HP   | <b>Reducing Unions For Chromatograph.....75</b><br>                                   |
| <b>Female Run Tees (NPT).....54</b><br>TLG  | <b>Bulkhead Male Connectors (R).....63</b><br>HP     | <b>Union Tees For Chromatograph.....75</b><br>                                        |
| <b>Female Run Tees (Rc).....55</b><br>TLG   | <b>Union Crosses.....64</b><br>X                     | <b>Male Positionable Branch Tees</b><br><b>Male Positionable Elbows.....76,77</b><br> |
| <b>Male Branch Tees (NPT).....56</b><br>TS  | <b>Caps.....65</b><br>JC                             | <b>Mounting Dimensions.....78</b><br><b>ISO Parallel Thread.....79,80,81</b><br><b>Stop Collar.....82</b><br><b>Pipe Fittings, Adapters.....83,84</b><br>UJB,UJS,UJN       |

## Front Rings

S



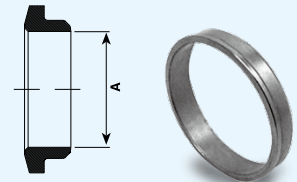
| Metric       |                | Inch         |                |       |
|--------------|----------------|--------------|----------------|-------|
| Part Numbers | A<br>Tube O.D. | Part Numbers | A<br>Tube O.D. |       |
|              | mm             |              | in             | mm    |
| VUW-2S       | 2              | VUW-1.6S     | 1/16           | 1.6   |
| VUW-3S       | 3              | VUW-3.2S     | 1/8            | 3.2   |
| VUW-4S       | 4              | VUW-4.8S     | 3/16           | 4.8   |
| VUW-6S       | 6              | VUW-6.35S    | 1/4            | 6.35  |
| VUW-8S       | 8              | VUW-7.93S    | 5/16           | 7.93  |
| VUW-10S      | 10             | VUW-9.52S    | 3/8            | 9.52  |
| VUW-12S      | 12             | VUW-12.7S    | 1/2            | 12.7  |
| VUW-14S      | 14             | VUW-15.88S   | 5/8            | 15.88 |
| VUW-15S      | 15             | VUW-19.05S   | 3/4            | 19.05 |
| VUW-16S      | 16             | VUW-22.22S   | 7/8            | 22.22 |
| VUW-18S      | 18             | VUW-25.4S    | 1              | 25.4  |
| VUW-20S      | 20             |              |                |       |
| VUW-22S      | 22             |              |                |       |
| VUW-25S      | 25             |              |                |       |

### Rings Sets

All V-Lok Rings are available as sets.

## Back Rings

R

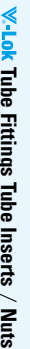


| Metric       |                | Inch         |                |       |
|--------------|----------------|--------------|----------------|-------|
| Part Numbers | A<br>Tube O.D. | Part Numbers | A<br>Tube O.D. |       |
|              | mm             |              | in             | mm    |
| VUW-2R       | 2              | VUW-1.6R     | 1/16           | 1.6   |
| VUW-3R       | 3              | VUW-3.2R     | 1/8            | 3.2   |
| VUW-4R       | 4              | VUW-4.8R     | 3/16           | 4.8   |
| VUW-6R       | 6              | VUW-6.35R    | 1/4            | 6.35  |
| VUW-8R       | 8              | VUW-7.93R    | 5/16           | 7.93  |
| VUW-10R      | 10             | VUW-9.52R    | 3/8            | 9.52  |
| VUW-12R      | 12             | VUW-12.7R    | 1/2            | 12.7  |
| VUW-14R      | 14             | VUW-15.88R   | 5/8            | 15.88 |
| VUW-15R      | 15             | VUW-19.05R   | 3/4            | 19.05 |
| VUW-16R      | 16             | VUW-22.22R   | 7/8            | 22.22 |
| VUW-18R      | 18             | VUW-25.4R    | 1              | 25.4  |
| VUW-20R      | 20             |              |                |       |
| VUW-22R      | 22             |              |                |       |
| VUW-25R      | 25             |              |                |       |

### Rings Sets

All V-Lok Rings are available as sets.

## IN



| Inch               |                |       |                 |       |      |      |
|--------------------|----------------|-------|-----------------|-------|------|------|
| Part Numbers       | A<br>Tube O.D. |       | A1<br>Tube I.D. |       | D    |      |
|                    | in             | mm    | in              | mm    | in   | mm   |
| VUW-IN-4.8X3.2     | 3/16           | 4.8   | 1/8             | 3.2   | 0.09 | 2.3  |
| VUW-IN-6.35X3.2    | 1/4            | 6.35  | 1/8             | 3.2   | 0.09 | 2.3  |
| VUW-IN-6.35X4.3    | 1/4            | 6.35  | 0.17            | 4.3   | 0.11 | 2.7  |
| VUW-IN-6.35X4.8    | 1/4            | 6.35  | 3/16            | 4.8   | 0.12 | 3.1  |
| VUW-IN-7.93X3.2    | 5/16           | 7.93  | 1/8             | 3.2   | 0.09 | 2.3  |
| VUW-IN-7.93X4.8    | 5/16           | 7.93  | 3/16            | 4.8   | 0.12 | 3    |
| VUW-IN-7.93X6.35   | 5/16           | 7.93  | 1/4             | 6.35  | 0.18 | 4.6  |
| VUW-IN-9.52X4.8    | 3/8            | 9.52  | 3/16            | 4.8   | 0.12 | 3.1  |
| VUW-IN-9.52X6.35   | 3/8            | 9.52  | 1/4             | 6.35  | 0.18 | 4.6  |
| VUW-IN-12.7X6.35   | 1/2            | 12.7  | 1/4             | 6.35  | 0.18 | 4.6  |
| VUW-IN-12.7X9.52   | 1/2            | 12.7  | 3/8             | 9.52  | 0.31 | 7.8  |
| VUW-IN-15.88X9.52  | 5/8            | 15.88 | 3/8             | 9.52  | 0.31 | 7.8  |
| VUW-IN-15.88X12.7  | 5/8            | 15.88 | 1/2             | 12.7  | 0.44 | 11.1 |
| VUW-IN-19.05X12.7  | 3/4            | 19.05 | 1/2             | 12.7  | 0.44 | 11.1 |
| VUW-IN-19.05X15.88 | 3/4            | 19.05 | 5/8             | 15.88 | 0.56 | 14.2 |
| VUW-IN-25.4X19.05  | 1              | 25.4  | 3/4             | 19.05 | 0.69 | 17.5 |

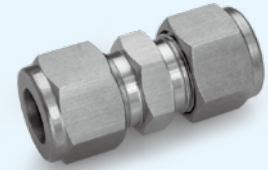
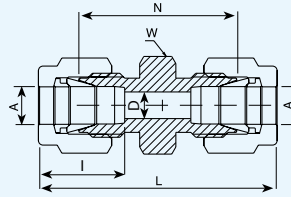


| Inch         |                |       |       |      |      |      |
|--------------|----------------|-------|-------|------|------|------|
| Part Numbers | A<br>Tube O.D. |       | W     |      | L    |      |
|              | in             | mm    | in    | mm   | in   | mm   |
| VUW-1.6N     | 1/16           | 1.6   | 5/16  | 7.9  | 0.31 | 8    |
| VUW-3.2N     | 1/8            | 3.2   | 7/16  | 11.1 | 0.47 | 11.9 |
| VUW-4.8N     | 3/16           | 4.8   | 1/2   | 12.7 | 0.47 | 11.9 |
| VUW-6.35N    | 1/4            | 6.35  | 9/16  | 14.3 | 0.5  | 12.7 |
| VUW-7.93N    | 5/16           | 7.93  | 5/8   | 15.9 | 0.53 | 13.5 |
| VUW-9.52N    | 3/8            | 9.52  | 11/16 | 17.5 | 0.56 | 14.3 |
| VUW-12.7N    | 1/2            | 12.7  | 7/8   | 22.2 | 0.69 | 17.5 |
| VUW-15.88N   | 5/8            | 15.88 | 1     | 25.4 | 0.69 | 17.5 |
| VUW-19.05N   | 3/4            | 19.05 | 1 1/8 | 28.6 | 0.69 | 17.5 |
| VUW-22.22N   | 7/8            | 22.22 | 1 1/4 | 31.8 | 0.69 | 17.5 |
| VUW-25.4N    | 1              | 25.4  | 1 1/2 | 38.1 | 0.81 | 20.6 |
|              |                |       |       |      |      |      |
|              |                |       |       |      |      |      |

 **Fujikin Carp Group** 16

## Unions

F



### Tube (Metric) To Tube (Metric)

| Part Numbers | A<br>Tube O.D. | D    |    | W  |    | N    |    | L    |    | I    |    |
|--------------|----------------|------|----|----|----|------|----|------|----|------|----|
|              | mm             | mm   | mm | mm | mm | mm   | mm | mm   | mm | mm   | mm |
| VUWF-2       | 2              | 1.7  |    | 12 |    | 22.4 |    | 35.6 |    | 12.9 |    |
| VUWF-3       | 3              | 2.4  |    | 12 |    | 22.1 |    | 35.3 |    | 12.9 |    |
| VUWF-4       | 4              | 2.4  |    | 12 |    | 24.1 |    | 37.3 |    | 13.7 |    |
| VUWF-6       | 6              | 4.8  |    | 14 |    | 26.2 |    | 41   |    | 15.3 |    |
| VUWF-8       | 8              | 6.4  |    | 15 |    | 28.2 |    | 43.2 |    | 16.2 |    |
| VUWF-10      | 10             | 7.9  |    | 18 |    | 31   |    | 46.2 |    | 17.2 |    |
| VUWF-12      | 12             | 9.5  |    | 22 |    | 31   |    | 51.2 |    | 22.8 |    |
| VUWF-14      | 14             | 11   |    | 24 |    | 31.8 |    | 52   |    | 22.8 |    |
| VUWF-15      | 15             | 12   |    | 24 |    | 31.8 |    | 52   |    | 24.4 |    |
| VUWF-16      | 16             | 12.7 |    | 24 |    | 31.8 |    | 52   |    | 24.4 |    |
| VUWF-18      | 18             | 15.1 |    | 27 |    | 33.3 |    | 53.5 |    | 24.4 |    |
| VUWF-20      | 20             | 15.9 |    | 30 |    | 34.8 |    | 55   |    | 26   |    |
| VUWF-22      | 22             | 18.3 |    | 30 |    | 34.8 |    | 55   |    | 26   |    |
| VUWF-25      | 25             | 21.8 |    | 35 |    | 40.4 |    | 65   |    | 31.3 |    |

### Tube (Inch) To Tube (Inch)

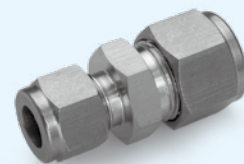
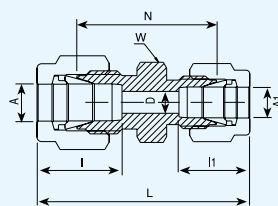
| Part Numbers | A<br>Tube O.D. |       | D    |      | W      |      | N    |      | L    |      | I    |      |
|--------------|----------------|-------|------|------|--------|------|------|------|------|------|------|------|
|              | in             | mm    | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWF-1.6     | 1/16           | 1.6   | 0.05 | 1.3  | 5/16   | 7.9  | 0.69 | 17.5 | 0.99 | 25.2 | 0.34 | 8.6  |
| VUWF-3.2     | 1/8            | 3.2   | 0.09 | 2.3  | 7/16   | 11.1 | 0.88 | 22.4 | 1.4  | 35.6 | 0.5  | 12.7 |
| VUWF-4.8     | 3/16           | 4.8   | 0.12 | 3.1  | 7/16   | 11.1 | 0.95 | 24.1 | 1.47 | 37.3 | 0.54 | 13.7 |
| VUWF-6.35    | 1/4            | 6.35  | 0.19 | 4.8  | 1/2    | 12.7 | 1.03 | 26.2 | 1.61 | 40.9 | 0.6  | 15.2 |
| VUWF-7.93    | 5/16           | 7.93  | 0.25 | 6.4  | 9/16   | 14.3 | 1.11 | 28.2 | 1.69 | 42.9 | 0.64 | 16.3 |
| VUWF-9.52    | 3/8            | 9.52  | 0.28 | 7.1  | 5/8    | 15.9 | 1.19 | 30.2 | 1.77 | 45   | 0.66 | 16.8 |
| VUWF-12.7    | 1/2            | 12.7  | 0.41 | 10.4 | 13/16  | 20.6 | 1.22 | 31   | 2.02 | 51.3 | 0.9  | 22.9 |
| VUWF-15.88   | 5/8            | 15.88 | 0.5  | 12.7 | 15/16  | 23.8 | 1.25 | 31.8 | 2.05 | 52.1 | 0.96 | 24.4 |
| VUWF-19.05   | 3/4            | 19.05 | 0.62 | 15.8 | 1 1/16 | 27   | 1.31 | 33.3 | 2.11 | 53.6 | 0.96 | 24.4 |
| VUWF-22.22   | 7/8            | 22.22 | 0.72 | 18.3 | 1 3/16 | 30.2 | 1.38 | 35.1 | 2.17 | 55.1 | 1.02 | 25.9 |
| VUWF-25.4    | 1              | 25.4  | 0.88 | 22.3 | 1 3/8  | 34.9 | 1.59 | 40.4 | 2.55 | 64.8 | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.



## Reducing Unions

F



**Tube (Metric) To Tube (Metric)**

| Part Numbers | A<br>Tube O.D. | A1<br>Tube O.D. | D    | W  | N    | L    | I    | I1   |
|--------------|----------------|-----------------|------|----|------|------|------|------|
|              | mm             | mm              | mm   | mm | mm   | mm   | mm   | mm   |
| VUWF-3X2     | 3              | 2               | 1.7  | 12 | 22.1 | 35.3 | 12.9 | 12.9 |
| VUWF-6X2     | 6              | 2               | 1.7  | 14 | 24.6 | 38.6 | 15.3 | 12.9 |
| VUWF-6X3     | 6              | 3               | 2.3  | 14 | 24.6 | 38.6 | 15.3 | 12.9 |
| VUWF-6X4     | 6              | 4               | 2.3  | 14 | 25.4 | 39.4 | 15.3 | 13.7 |
| VUWF-8X6     | 8              | 6               | 4.8  | 15 | 27.4 | 42.3 | 16.2 | 15.3 |
| VUWF-10X6    | 10             | 6               | 4.8  | 18 | 29.5 | 44.5 | 17.2 | 15.3 |
| VUWF-10X8    | 10             | 8               | 6.4  | 18 | 30   | 45.1 | 17.2 | 16.2 |
| VUWF-12X6    | 12             | 6               | 4.8  | 22 | 29.5 | 47   | 22.8 | 15.3 |
| VUWF-12X8    | 12             | 8               | 6.4  | 22 | 30.2 | 47.8 | 22.8 | 16.2 |
| VUWF-12X10   | 12             | 10              | 7.9  | 22 | 31   | 48.7 | 22.8 | 17.2 |
| VUWF-16X10   | 16             | 10              | 7.9  | 24 | 31.8 | 49.5 | 24.4 | 17.2 |
| VUWF-16X12   | 16             | 12              | 9.5  | 24 | 31.8 | 52   | 24.4 | 22.8 |
| VUWF-18X12   | 18             | 12              | 9.5  | 27 | 33.3 | 53.5 | 24.4 | 22.8 |
| VUWF-25X18   | 25             | 18              | 15.1 | 35 | 38.6 | 61   | 31.3 | 24.4 |
| VUWF-25X20   | 25             | 20              | 15.9 | 35 | 39.9 | 62.3 | 31.3 | 26   |

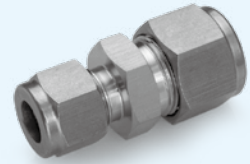
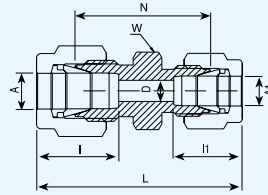
**Tube (Metric) To Tube (Inch)**

| Part Numbers  | A<br>Tube O.D. | A1<br>Tube O.D. | D    | W  | N    | L    | I    | I1   |
|---------------|----------------|-----------------|------|----|------|------|------|------|
|               | mm             | in              | mm   | mm | mm   | mm   | mm   | mm   |
| VUWF-6.35X2   | 2              | 1/4             | 1.7  | 14 | 24   | 38.6 | 12.9 | 15.2 |
| VUWF-3.2X3    | 3              | 1/8             | 2.3  | 12 | 22.1 | 35.2 | 12.9 | 12.7 |
| VUWF-4X3.2    | 4              | 1/8             | 2.4  | 12 | 23.4 | 36.5 | 13.7 | 12.7 |
| VUWF-6.35X4   | 4              | 1/4             | 2.4  | 14 | 25.4 | 39.4 | 13.7 | 15.2 |
| VUWF-6X3.2    | 6              | 1/8             | 2.4  | 14 | 24.6 | 38.5 | 15.3 | 12.7 |
| VUWF-6.35X6   | 6              | 1/4             | 4.8  | 14 | 26.2 | 41   | 15.3 | 15.2 |
| VUWF-7.93X6   | 6              | 5/16            | 4.8  | 14 | 27.4 | 42.3 | 15.3 | 16.2 |
| VUWF-8X3.2    | 8              | 1/8             | 2.4  | 15 | 25.9 | 39.9 | 16.2 | 12.7 |
| VUWF-8X6.35   | 8              | 1/4             | 4.8  | 15 | 27.4 | 42.3 | 16.2 | 15.2 |
| VUWF-9.52X8   | 8              | 3/8             | 6.4  | 16 | 29.5 | 44.3 | 16.2 | 16.8 |
| VUWF-10X3.2   | 10             | 1/8             | 2.4  | 18 | 27.7 | 41.8 | 17.2 | 12.7 |
| VUWF-10X6.35  | 10             | 1/4             | 4.8  | 18 | 29.5 | 44.5 | 17.2 | 15.2 |
| VUWF-10X7.93  | 10             | 5/16            | 6.4  | 18 | 30   | 45.1 | 17.2 | 16.2 |
| VUWF-10X9.52  | 10             | 3/8             | 7.1  | 18 | 31   | 46   | 17.2 | 16.8 |
| VUWF-12X7.93  | 12             | 5/16            | 6.4  | 22 | 30.2 | 47.8 | 22.8 | 16.2 |
| VUWF-12X9.52  | 12             | 3/8             | 7.1  | 22 | 31   | 48.4 | 22.8 | 16.8 |
| VUWF-12.7X12  | 12             | 1/2             | 9.5  | 22 | 31   | 51.2 | 22.8 | 22.9 |
| VUWF-15X12.7  | 15             | 1/2             | 10.4 | 24 | 31.8 | 52.1 | 24.4 | 22.9 |
| VUWF-16X15.88 | 16             | 5/8             | 12.7 | 24 | 31.8 | 52   | 24.4 | 24.4 |
| VUWF-19.05X18 | 18             | 3/4             | 15.1 | 27 | 33.3 | 53.5 | 24.4 | 24.4 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Reducing Unions (continued)

F



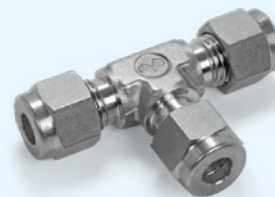
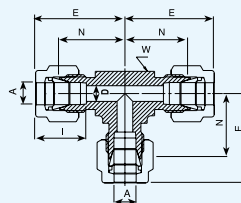
Tube (Inch) To Tube (Inch)

| Part Numbers     | A<br>Tube O.D. |       | A1<br>Tube O.D. |       | D    |      | W      |      | N    |      | L    |      | I    |      | I1   |      |
|------------------|----------------|-------|-----------------|-------|------|------|--------|------|------|------|------|------|------|------|------|------|
|                  | in             | mm    | in              | mm    | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWF-3.2X1.6     | 1/8            | 3.2   | 1/16            | 1.6   | 0.05 | 1.3  | 7/16   | 11.1 | 0.81 | 20.6 | 1.22 | 31   | 0.5  | 12.7 | 0.34 | 8.6  |
| VUWF-4.8X1.6     | 3/16           | 4.8   | 1/16            | 1.6   | 0.05 | 1.3  | 7/16   | 11.1 | 0.86 | 21.8 | 1.27 | 32.3 | 0.54 | 13.7 | 0.34 | 8.6  |
| VUWF-4.8X3.2     | 3/16           | 4.8   | 1/8             | 3.2   | 0.09 | 2.3  | 7/16   | 11.1 | 0.92 | 23.4 | 1.44 | 36.6 | 0.54 | 13.7 | 0.5  | 12.7 |
| VUWF-6.35X1.6    | 1/4            | 6.35  | 1/16            | 1.6   | 0.05 | 1.3  | 1/2    | 12.7 | 0.91 | 23.1 | 1.35 | 34.3 | 0.6  | 15.2 | 0.34 | 8.6  |
| VUWF-6.35X3.2    | 1/4            | 6.35  | 1/8             | 3.2   | 0.09 | 2.3  | 1/2    | 12.7 | 0.97 | 24.6 | 1.52 | 38.6 | 0.6  | 15.2 | 0.5  | 12.7 |
| VUWF-6.35X4.8    | 1/4            | 6.35  | 3/16            | 4.8   | 0.12 | 3.1  | 1/2    | 12.7 | 1    | 25.4 | 1.55 | 39.4 | 0.6  | 15.2 | 0.54 | 13.7 |
| VUWF-7.93X3.2    | 5/16           | 7.93  | 1/8             | 3.2   | 0.09 | 2.3  | 9/16   | 14.3 | 1.01 | 25.7 | 1.56 | 39.6 | 0.64 | 16.3 | 0.5  | 12.7 |
| VUWF-7.93X6.35   | 5/16           | 7.93  | 1/4             | 6.35  | 0.19 | 4.8  | 9/16   | 14.3 | 1.08 | 27.4 | 1.66 | 42.2 | 0.64 | 16.3 | 0.6  | 15.2 |
| VUWF-9.52X1.6    | 3/8            | 9.52  | 1/16            | 1.6   | 0.05 | 1.3  | 5/8    | 15.9 | 1    | 25.4 | 1.44 | 36.6 | 0.66 | 16.8 | 0.34 | 8.6  |
| VUWF-9.52X3.2    | 3/8            | 9.52  | 1/8             | 3.2   | 0.09 | 2.3  | 5/8    | 15.9 | 1.06 | 26.9 | 1.61 | 40.9 | 0.66 | 16.8 | 0.5  | 12.7 |
| VUWF-9.52X6.35   | 3/8            | 9.52  | 1/4             | 6.35  | 0.19 | 4.8  | 5/8    | 15.9 | 1.12 | 28.5 | 1.7  | 43.2 | 0.66 | 16.8 | 0.6  | 15.2 |
| VUWF-9.52X7.93   | 3/8            | 9.52  | 5/16            | 7.93  | 0.25 | 6.35 | 5/8    | 15.9 | 1.16 | 29.5 | 1.74 | 44.2 | 0.66 | 16.8 | 0.64 | 16.3 |
| VUWF-12.7X3.2    | 1/2            | 12.7  | 1/8             | 3.2   | 0.09 | 2.3  | 13/16  | 20.6 | 1.12 | 28.4 | 1.78 | 45.2 | 0.9  | 22.9 | 0.5  | 12.7 |
| VUWF-12.7X6.35   | 1/2            | 12.7  | 1/4             | 6.35  | 0.19 | 4.8  | 13/16  | 20.6 | 1.16 | 29.5 | 1.85 | 47   | 0.9  | 22.9 | 0.6  | 15.2 |
| VUWF-12.7X9.52   | 1/2            | 12.7  | 3/8             | 9.52  | 0.28 | 7.1  | 13/16  | 20.6 | 1.22 | 31   | 1.91 | 48.5 | 0.9  | 22.9 | 0.66 | 16.8 |
| VUWF-15.88X9.52  | 5/8            | 15.88 | 3/8             | 9.52  | 0.28 | 7.1  | 15/16  | 23.8 | 1.25 | 31.8 | 1.94 | 49.3 | 0.96 | 24.4 | 0.66 | 16.8 |
| VUWF-15.88X12.7  | 5/8            | 15.88 | 1/2             | 12.7  | 0.41 | 10.4 | 15/16  | 23.8 | 1.25 | 31.8 | 2.05 | 52.1 | 0.96 | 24.4 | 0.9  | 22.9 |
| VUWF-19.05X6.35  | 3/4            | 19.05 | 1/4             | 6.35  | 0.19 | 4.8  | 1 1/16 | 27   | 1.25 | 31.8 | 1.94 | 49.3 | 0.96 | 24.4 | 0.6  | 15.2 |
| VUWF-19.05X9.52  | 3/4            | 19.05 | 3/8             | 9.52  | 0.28 | 7.1  | 1 1/16 | 27   | 1.31 | 33.3 | 2    | 50.8 | 0.96 | 24.4 | 0.66 | 16.8 |
| VUWF-19.05X12.7  | 3/4            | 19.05 | 1/2             | 12.7  | 0.41 | 10.4 | 1 1/16 | 27   | 1.31 | 33.3 | 2.11 | 53.6 | 0.96 | 24.4 | 0.9  | 22.9 |
| VUWF-19.05X15.88 | 3/4            | 19.05 | 5/8             | 15.88 | 0.5  | 12.7 | 1 1/16 | 27   | 1.31 | 33.3 | 2.11 | 53.6 | 0.96 | 24.4 | 0.96 | 24.4 |
| VUWF-25.4X12.7   | 1              | 25.4  | 1/2             | 12.7  | 0.41 | 10.4 | 1 3/8  | 34.9 | 1.5  | 38.1 | 2.38 | 60.5 | 1.23 | 31.2 | 0.9  | 22.9 |
| VUWF-25.4X19.05  | 1              | 25.4  | 3/4             | 19.05 | 0.62 | 15.8 | 1 3/8  | 34.9 | 1.5  | 38.1 | 2.38 | 60.5 | 1.23 | 31.2 | 0.96 | 24.4 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Union Tees

T



### All Tube (Metric)

| Part Numbers | A<br>Tube O.D. | D    |  | W      |      | N    |  | E    |  | I    |  |
|--------------|----------------|------|--|--------|------|------|--|------|--|------|--|
|              | mm             | mm   |  | in     | mm   | mm   |  | mm   |  | mm   |  |
| VUWT-2       | 2              | 1.7  |  | 3/8    | 9.5  | 15.7 |  | 22.3 |  | 12.9 |  |
| VUWT-3       | 3              | 2.4  |  | 3/8    | 9.5  | 15.7 |  | 22.3 |  | 12.9 |  |
| VUWT-4       | 4              | 2.4  |  | 1/2    | 12.7 | 18.8 |  | 25.4 |  | 13.7 |  |
| VUWT-6       | 6              | 4.8  |  | 1/2    | 12.7 | 19.6 |  | 27   |  | 15.3 |  |
| VUWT-8       | 8              | 6.4  |  | 5/8    | 15.9 | 22.4 |  | 29.9 |  | 16.2 |  |
| VUWT-10      | 10             | 7.9  |  | 11/16  | 17.5 | 23.9 |  | 31.5 |  | 17.2 |  |
| VUWT-12      | 12             | 9.5  |  | 13/16  | 20.6 | 25.9 |  | 36   |  | 22.8 |  |
| VUWT-14      | 14             | 11   |  | 15/16  | 23.8 | 28.7 |  | 38.8 |  | 24.4 |  |
| VUWT-15      | 15             | 12   |  | 15/16  | 23.8 | 28.7 |  | 38.8 |  | 24.4 |  |
| VUWT-16      | 16             | 12.7 |  | 15/16  | 23.8 | 28.7 |  | 38.8 |  | 24.4 |  |
| VUWT-18      | 18             | 15.1 |  | 1 1/16 | 27   | 29.7 |  | 39.8 |  | 24.4 |  |
| VUWT-20      | 20             | 15.9 |  | 1 3/8  | 34.9 | 34.5 |  | 44.6 |  | 26   |  |
| VUWT-22      | 22             | 18.3 |  | 1 3/8  | 34.9 | 34.5 |  | 44.6 |  | 26   |  |
| VUWT-25      | 25             | 21.8 |  | 1 3/8  | 34.9 | 36.8 |  | 49.1 |  | 31.3 |  |

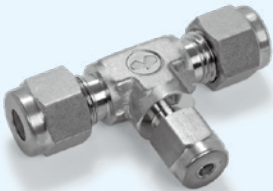
### All Tube (Inch)

| Part Numbers | A<br>Tube O.D. |       | D    |      | W      |      | N    |       | E    |      | I    |      |
|--------------|----------------|-------|------|------|--------|------|------|-------|------|------|------|------|
|              | in             | mm    | in   | mm   | in     | mm   | in   | mm    | in   | mm   | in   | mm   |
| VUWT-1.6     | 1/16           | 1.6   | 0.05 | 1.3  | 3/8    | 9.5  | 0.55 | 14    | 0.7  | 17.8 | 0.34 | 8.6  |
| VUWT-3.2     | 1/8            | 3.2   | 0.09 | 2.3  | 3/8    | 9.5  | 0.62 | 15.8  | 0.88 | 22.4 | 0.5  | 12.7 |
| VUWT-4.8     | 3/16           | 4.8   | 0.12 | 3    | 1/2    | 12.7 | 0.7  | 17.8  | 0.96 | 24.4 | 0.54 | 13.7 |
| VUWT-6.35    | 1/4            | 6.35  | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6  | 1.06 | 26.9 | 0.6  | 15.2 |
| VUWT-7.93    | 5/16           | 7.93  | 0.25 | 6.4  | 5/8    | 15.9 | 0.88 | 22.4  | 1.17 | 29.7 | 0.64 | 16.3 |
| VUWT-9.52    | 3/8            | 9.52  | 0.28 | 7.1  | 5/8    | 15.9 | 0.91 | 23.1  | 1.2  | 30.5 | 0.66 | 16.8 |
| VUWT-12.7    | 1/2            | 12.7  | 0.41 | 10.4 | 13/16  | 20.6 | 1.02 | 25.9  | 1.42 | 36.1 | 0.9  | 22.9 |
| VUWT-15.88   | 5/8            | 15.88 | 0.5  | 12.7 | 15/16  | 23.8 | 1.13 | 28.7  | 1.53 | 38.9 | 0.96 | 24.4 |
| VUWT-19.05   | 3/4            | 19.05 | 0.62 | 15.8 | 1 1/16 | 27   | 1.17 | 29.7  | 1.57 | 39.9 | 0.96 | 24.4 |
| VUWT-22.22   | 7/8            | 22.22 | 0.72 | 18.3 | 1 3/8  | 34.9 | 1.36 | 34.54 | 1.76 | 44.7 | 1.02 | 25.9 |
| VUWT-25.4    | 1              | 25.4  | 0.88 | 22.3 | 1 3/8  | 34.9 | 1.45 | 36.8  | 1.93 | 49   | 1.23 | 31.2 |

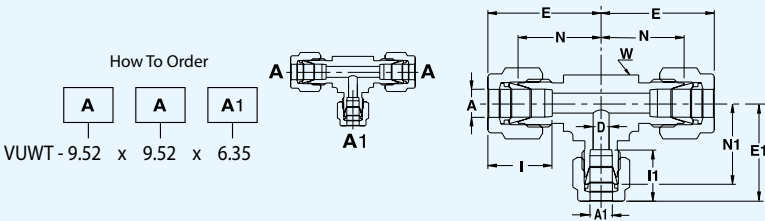
"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducing Union Tees

T



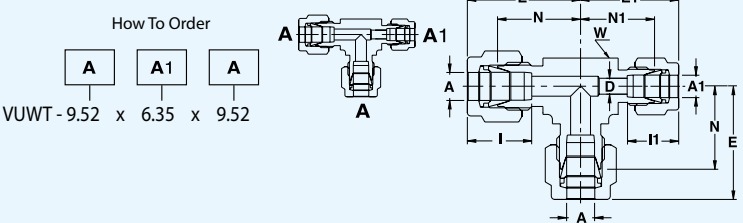
| Tube (Inch) To Tube (Inch) |                |       |                 |       |      |      |      |      |      |      |      |      |      |      |        |      |      |      |      |      |
|----------------------------|----------------|-------|-----------------|-------|------|------|------|------|------|------|------|------|------|------|--------|------|------|------|------|------|
| Part Numbers               | A<br>Tube O.D. |       | A1<br>Tube O.D. |       | E    |      | E1   |      | I    |      | I1   |      | D    |      | W      |      | N    |      | N1   |      |
|                            | in             | mm    | in              | mm    | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in     | mm   | in   | mm   | in   | mm   |
| VUWT-9.52X9.52X6.35        | 3/8            | 9.52  | 1/4             | 6.35  | 1.2  | 30.5 | 1.14 | 29   | 0.66 | 16.8 | 0.6  | 15.2 | 0.19 | 4.8  | 5/8    | 15.9 | 0.91 | 23.1 | 0.85 | 21.6 |
| VUWT-12.7X12.7X6.35        | 1/2            | 12.7  | 1/4             | 6.35  | 1.42 | 36.1 | 1.25 | 31.8 | 0.9  | 22.9 | 0.6  | 15.2 | 0.19 | 4.8  | 13/16  | 20.6 | 1.02 | 25.9 | 0.96 | 24.4 |
| VUWT-12.7X12.7X9.52        | 1/2            | 12.7  | 3/8             | 9.52  | 1.42 | 36.1 | 1.31 | 33.3 | 0.9  | 22.9 | 0.66 | 16.8 | 0.28 | 7.1  | 13/16  | 20.6 | 1.02 | 25.9 | 1.02 | 25.9 |
| VUWT-15.88X15.88X9.52      | 5/8            | 15.88 | 3/8             | 9.52  | 1.53 | 38.9 | 1.42 | 36.1 | 0.96 | 24.4 | 0.66 | 16.8 | 0.28 | 7.1  | 15/16  | 23.8 | 1.13 | 28.7 | 1.13 | 28.7 |
| VUWT-19.05X19.05X9.52      | 3/4            | 19.05 | 3/8             | 9.52  | 1.57 | 39.9 | 1.46 | 37.1 | 0.96 | 24.4 | 0.66 | 16.8 | 0.28 | 7.1  | 1 1/16 | 27   | 1.17 | 29.7 | 1.17 | 29.7 |
| VUWT-19.05X19.05X12.7      | 3/4            | 19.05 | 1/2             | 12.7  | 1.57 | 39.9 | 1.57 | 39.9 | 0.96 | 24.4 | 0.9  | 22.9 | 0.41 | 10.4 | 1 1/16 | 27   | 1.17 | 29.7 | 1.17 | 29.7 |
| VUWT-25.4X25.4X9.52        | 1              | 25.4  | 3/8             | 9.52  | 1.93 | 49   | 1.65 | 41.9 | 1.23 | 31.2 | 0.66 | 16.8 | 0.28 | 7.1  | 1 3/8  | 34.9 | 1.45 | 36.8 | 1.36 | 34.5 |
| VUWT-25.4X25.4X12.7        | 1              | 25.4  | 1/2             | 12.7  | 1.93 | 49   | 1.76 | 44.7 | 1.23 | 31.2 | 0.9  | 22.9 | 0.41 | 10.4 | 1 3/8  | 34.9 | 1.45 | 36.8 | 1.36 | 34.5 |
| VUWT-25.4X25.4X19.05       | 1              | 25.4  | 3/4             | 19.05 | 1.93 | 49   | 1.76 | 44.7 | 1.23 | 31.2 | 0.96 | 24.4 | 0.62 | 15.8 | 1 3/8  | 34.9 | 1.45 | 36.8 | 1.36 | 34.5 |



Reducing Union Tees

T

| Tube (Inch) To Tube (Inch) |                |      |                 |      |     |      |      |    |      |      |     |      |      |     |     |      |      |      |      |      |
|----------------------------|----------------|------|-----------------|------|-----|------|------|----|------|------|-----|------|------|-----|-----|------|------|------|------|------|
| Part Number                | A<br>Tube O.D. |      | A1<br>Tube O.D. |      | E   |      | E1   |    | I    |      | I1  |      | D    |     | W   |      | N    |      | N1   |      |
|                            | in             | mm   | in              | mm   | in  | mm   | in   | mm | in   | mm   | in  | mm   | in   | mm  | in  | mm   | in   | mm   | in   | mm   |
| VUWT-9.52X6.35X9.52        | 3/8            | 9.52 | 1/4             | 6.35 | 1.2 | 30.5 | 1.14 | 29 | 0.66 | 16.8 | 0.6 | 15.2 | 0.19 | 4.8 | 5/8 | 15.9 | 0.91 | 23.1 | 0.85 | 21.6 |

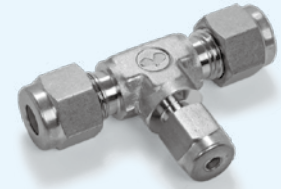


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"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Reducing Union Tees (continued)

T



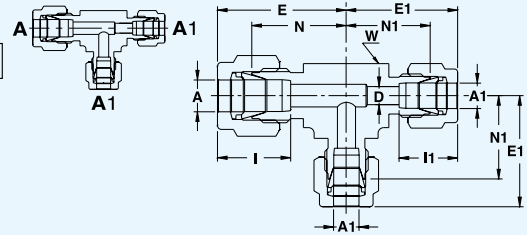
**Tube (Inch) To Tube (Inch)**

| Part Numbers         | A<br>Tube O.D. |       | A1<br>Tube O.D. |      | E    |      | E1   |      | I    |      | I1   |      | D    |     | W     |      | N    |      | N1   |      |
|----------------------|----------------|-------|-----------------|------|------|------|------|------|------|------|------|------|------|-----|-------|------|------|------|------|------|
|                      | in             | mm    | in              | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm  | in    | mm   | in   | mm   | in   | mm   |
| VUWT-12.7X9.52X9.52  | 1/2            | 12.7  | 3/8             | 9.52 | 1.42 | 36.1 | 1.31 | 33.3 | 0.9  | 22.9 | 0.66 | 16.8 | 0.28 | 7.1 | 13/16 | 20.6 | 1.02 | 25.9 | 1.02 | 25.9 |
| VUWT-15.88X9.52X9.52 | 5/8            | 15.88 | 3/8             | 9.52 | 1.53 | 38.9 | 1.42 | 36.1 | 0.96 | 24.4 | 0.66 | 16.8 | 0.28 | 7.1 | 15/16 | 23.8 | 1.13 | 28.7 | 1.13 | 28.7 |
| VUWT-19.05X9.52X9.52 | 3/4            | 19.05 | 3/8             | 9.52 | 1.57 | 39.9 | 1.46 | 37.1 | 0.96 | 24.4 | 0.66 | 16.8 | 0.28 | 7.1 | 1 1/8 | 28.6 | 1.17 | 29.7 | 1.17 | 29.7 |

How To Order

A
A1
A1

VUWT - 12.7 x 9.52 x 9.52



## Reducing Union Tees (continued)

T

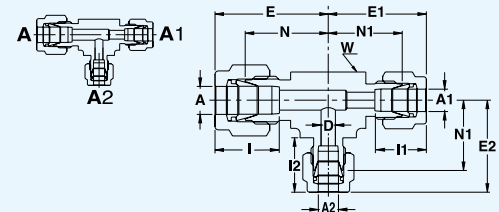
**Tube (Inch) To Tube (Inch)**

| Part Numbers         | A<br>Tube O.D. |       | A1<br>Tube O.D. |       | A2<br>Tube O.D. |      | E    |      | E1   |      | E2   |      | I    |      | I1   |      | I2   |      | D    |     | W     |      | N    |      | N1   |      |
|----------------------|----------------|-------|-----------------|-------|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-------|------|------|------|------|------|
|                      | in             | mm    | in              | mm    | in              | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm  | in    | mm   | in   | mm   | in   | mm   |
| VUWT-15.88X12.7X9.52 | 5/8            | 15.88 | 1/2             | 12.7  | 3/8             | 9.52 | 1.53 | 38.9 | 1.53 | 38.9 | 1.42 | 36.1 | 0.96 | 24.4 | 0.9  | 22.9 | 0.66 | 16.8 | 0.28 | 7.1 | 15/16 | 23.8 | 1.13 | 28.7 | 1.13 | 28.7 |
| VUWT-19.05X12.7X9.52 | 3/4            | 19.05 | 1/2             | 12.7  | 3/8             | 9.52 | 1.57 | 39.9 | 1.57 | 39.9 | 1.46 | 37.1 | 0.96 | 24.4 | 0.9  | 22.9 | 0.66 | 16.8 | 0.28 | 7.1 | 1 1/8 | 28.6 | 1.17 | 29.7 | 1.17 | 29.7 |
| VUWT-25.4X19.05X9.52 | 1              | 25.4  | 3/4             | 19.05 | 3/8             | 9.52 | 1.93 | 49   | 1.76 | 44.7 | 1.65 | 41.9 | 1.23 | 31.2 | 0.96 | 24.4 | 0.66 | 16.8 | 0.28 | 7.1 | 1 3/8 | 34.9 | 1.45 | 36.8 | 1.36 | 34.5 |

How To Order

A
A1
A2

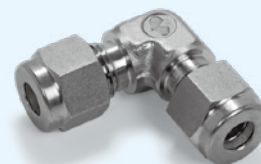
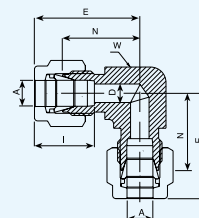
VUWT - 15.88 x 12.7 x 9.52



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Union Elbows

L



### Tube (Metric) To Tube (Metric)

| Part Numbers | A<br>Tube O.D. | D    |    | W      |      | N    |    | E    |    | I    |    |
|--------------|----------------|------|----|--------|------|------|----|------|----|------|----|
|              | mm             | mm   | mm | in     | mm   | mm   | mm | mm   | mm | mm   | mm |
| VUWL-3       | 3              | 2.4  |    | 3/8    | 9.5  | 15.7 |    | 22.3 |    | 12.9 |    |
| VUWL-4       | 4              | 2.4  |    | 1/2    | 12.7 | 18.8 |    | 25.4 |    | 13.7 |    |
| VUWL-6       | 6              | 4.8  |    | 1/2    | 12.7 | 19.6 |    | 27   |    | 15.3 |    |
| VUWL-8       | 8              | 6.4  |    | 9/16   | 14.3 | 21.3 |    | 28.8 |    | 16.2 |    |
| VUWL-10      | 10             | 7.9  |    | 11/16  | 17.5 | 23.9 |    | 31.5 |    | 17.2 |    |
| VUWL-12      | 12             | 9.5  |    | 13/16  | 20.6 | 25.9 |    | 36   |    | 22.8 |    |
| VUWL-14      | 14             | 11   |    | 15/16  | 23.8 | 27.9 |    | 38   |    | 24.4 |    |
| VUWL-15      | 15             | 12   |    | 15/16  | 23.8 | 27.9 |    | 38   |    | 24.4 |    |
| VUWL-16      | 16             | 12.7 |    | 15/16  | 23.8 | 27.9 |    | 38   |    | 24.4 |    |
| VUWL-18      | 18             | 15.1 |    | 1 1/16 | 27   | 29.7 |    | 39.8 |    | 24.4 |    |
| VUWL-20      | 20             | 15.9 |    | 1 3/8  | 34.9 | 34.5 |    | 44.6 |    | 26   |    |
| VUWL-22      | 22             | 18.3 |    | 1 3/8  | 34.9 | 34.5 |    | 44.6 |    | 26   |    |
| VUWL-25      | 25             | 21.8 |    | 1 3/8  | 34.9 | 36.8 |    | 49.1 |    | 31.3 |    |

### Tube (Inch) To Tube (Inch)

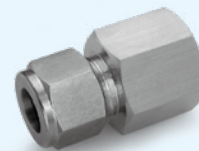
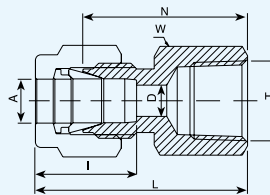
| Part Numbers | A<br>Tube O.D. |       | D    |      | W      |      | N    |      | E    |      | I    |      |
|--------------|----------------|-------|------|------|--------|------|------|------|------|------|------|------|
|              | in             | mm    | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWL-1.6     | 1/16           | 1.6   | 0.05 | 1.3  | 3/8    | 9.5  | 0.55 | 14   | 0.7  | 17.8 | 0.34 | 8.6  |
| VUWL-3.2     | 1/8            | 3.2   | 0.09 | 2.3  | 3/8    | 9.5  | 0.62 | 15.7 | 0.88 | 22.4 | 0.5  | 12.7 |
| VUWL-4.8     | 3/16           | 4.8   | 0.12 | 3    | 1/2    | 12.7 | 0.74 | 18.8 | 1    | 25.4 | 0.54 | 13.7 |
| VUWL-6.35    | 1/4            | 6.35  | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.6  | 15.2 |
| VUWL-7.93    | 5/16           | 7.93  | 0.25 | 6.4  | 9/16   | 14.3 | 0.84 | 21.3 | 1.13 | 28.7 | 0.64 | 16.3 |
| VUWL-9.52    | 3/8            | 9.52  | 0.28 | 7.1  | 5/8    | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 0.66 | 16.8 |
| VUWL-12.7    | 1/2            | 12.7  | 0.41 | 10.4 | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 0.9  | 22.9 |
| VUWL-15.88   | 5/8            | 15.88 | 0.5  | 12.7 | 15/16  | 23.8 | 1.1  | 27.9 | 1.5  | 38.1 | 0.96 | 24.4 |
| VUWL-19.05   | 3/4            | 19.05 | 0.62 | 15.8 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 0.96 | 24.4 |
| VUWL-22.22   | 7/8            | 22.22 | 0.72 | 18.3 | 1 3/8  | 34.9 | 1.36 | 34.5 | 1.76 | 44.7 | 1.02 | 25.9 |
| VUWL-25.4    | 1              | 25.4  | 0.88 | 22.3 | 1 3/8  | 34.9 | 1.45 | 36.8 | 1.93 | 49   | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.



## Female Connectors (NPT)

G



**Tube (Metric) To Female NPT Thread**

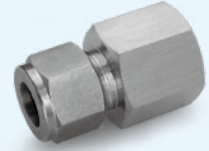
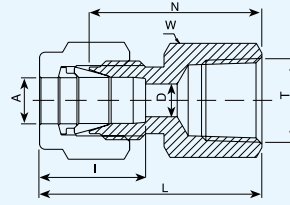
| Part Numbers | A<br>Tube O.D. | T      | D    | W  | N    | L    | I    |
|--------------|----------------|--------|------|----|------|------|------|
|              | mm             |        | mm   | mm | mm   | mm   | mm   |
| VUWG-3AN     | 3              | 1/8NPT | 2.4  | 14 | 22.1 | 28.7 | 12.7 |
| VUWG-3BN     | 3              | 1/4NPT | 2.4  | 19 | 26.9 | 33.5 | 12.7 |
| VUWG-4AN     | 4              | 1/8NPT | 2.4  | 14 | 23.1 | 29.7 | 13.7 |
| VUWG-6AN     | 6              | 1/8NPT | 4.8  | 14 | 23.9 | 31.3 | 15.3 |
| VUWG-6BN     | 6              | 1/4NPT | 4.8  | 19 | 28.4 | 35.8 | 15.3 |
| VUWG-6CN     | 6              | 3/8NPT | 4.8  | 22 | 30.2 | 37.6 | 15.3 |
| VUWG-6DN     | 6              | 1/2NPT | 4.8  | 27 | 35.1 | 42.5 | 15.3 |
| VUWG-8AN     | 8              | 1/8NPT | 6.4  | 15 | 24.6 | 32.1 | 16.2 |
| VUWG-8BN     | 8              | 1/4NPT | 6.4  | 19 | 29.5 | 37   | 16.2 |
| VUWG-8CN     | 8              | 3/8NPT | 6.4  | 22 | 31   | 38.5 | 16.2 |
| VUWG-8DN     | 8              | 1/2NPT | 6.4  | 27 | 35.8 | 43.3 | 16.2 |
| VUWG-10BN    | 10             | 1/4NPT | 7.9  | 19 | 30.2 | 37.8 | 17.2 |
| VUWG-10CN    | 10             | 3/8NPT | 7.9  | 22 | 31.8 | 39.4 | 17.2 |
| VUWG-10DN    | 10             | 1/2NPT | 7.9  | 27 | 36.6 | 44.2 | 17.2 |
| VUWG-12BN    | 12             | 1/4NPT | 9.5  | 22 | 30.2 | 40.3 | 22.8 |
| VUWG-12CN    | 12             | 3/8NPT | 9.5  | 22 | 31.8 | 41.9 | 22.8 |
| VUWG-12DN    | 12             | 1/2NPT | 9.5  | 27 | 36.6 | 46.7 | 22.8 |
| VUWG-15DN    | 15             | 1/2NPT | 11.9 | 27 | 36.6 | 46.7 | 24.4 |
| VUWG-16DN    | 16             | 1/2NPT | 12.7 | 27 | 36.8 | 46.9 | 24.4 |
| VUWG-18EN    | 18             | 3/4NPT | 15.1 | 35 | 39.6 | 49.7 | 24.4 |
| VUWG-20DN    | 20             | 1/2NPT | 15.9 | 30 | 37.8 | 47.9 | 26   |
| VUWG-20EN    | 20             | 3/4NPT | 15.9 | 35 | 39.6 | 49.7 | 26   |
| VUWG-22EN    | 22             | 3/4NPT | 18.3 | 35 | 39.6 | 49.7 | 26   |
| VUWG-22FN    | 22             | 1NPT   | 18.3 | 41 | 47.8 | 57.9 | 26   |
| VUWG-25EN    | 25             | 3/4NPT | 21.8 | 35 | 41.1 | 53.4 | 31.3 |
| VUWG-25FN    | 25             | 1NPT   | 21.8 | 41 | 50   | 62.3 | 31.3 |

Continued on next page

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Connectors (NPT) (continued)

G



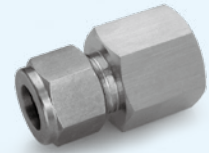
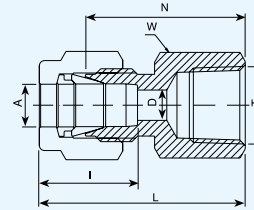
### Tube (Inch) To Female NPT Thread

| Part Numbers | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |       | L    |      | I    |      |
|--------------|----------------|-------|--------|------|------|--------|------|------|-------|------|------|------|------|
|              | in             | mm    |        | in   | mm   | in     | mm   | in   | mm    | in   | mm   | in   | mm   |
| VUWG-3.2AN   | 1/8            | 3.2   | 1/8NPT | 0.09 | 2.3  | 9/16   | 14.3 | 0.87 | 22.1  | 1.13 | 28.7 | 0.5  | 12.7 |
| VUWG-3.2BN   | 1/8            | 3.2   | 1/4NPT | 0.09 | 2.3  | 3/4    | 19.1 | 1.06 | 26.9  | 1.32 | 33.5 | 0.5  | 12.7 |
| VUWG-4.8AN   | 3/16           | 4.8   | 1/8NPT | 0.12 | 3.04 | 9/16   | 14.3 | 0.91 | 23.11 | 1.17 | 29.7 | 0.54 | 13.7 |
| VUWG-6.35AN  | 1/4            | 6.35  | 1/8NPT | 0.19 | 4.8  | 9/16   | 14.3 | 0.94 | 23.9  | 1.23 | 31.2 | 0.6  | 15.2 |
| VUWG-6.35BN  | 1/4            | 6.35  | 1/4NPT | 0.19 | 4.8  | 3/4    | 19.1 | 1.12 | 28.5  | 1.41 | 35.8 | 0.6  | 15.2 |
| VUWG-6.35CN  | 1/4            | 6.35  | 3/8NPT | 0.19 | 4.8  | 7/8    | 22.2 | 1.19 | 30.2  | 1.48 | 37.6 | 0.6  | 15.2 |
| VUWG-6.35DN  | 1/4            | 6.35  | 1/2NPT | 0.19 | 4.8  | 1 1/16 | 27   | 1.38 | 35    | 1.67 | 42.4 | 0.6  | 15.2 |
| VUWG-7.93AN  | 5/16           | 7.93  | 1/8NPT | 0.25 | 6.35 | 9/16   | 14.3 | 0.97 | 24.6  | 1.26 | 32   | 0.64 | 16.3 |
| VUWG-7.93BN  | 5/16           | 7.93  | 1/4NPT | 0.25 | 6.35 | 3/4    | 19.1 | 1.16 | 29.5  | 1.45 | 36.8 | 0.64 | 16.3 |
| VUWG-9.52AN  | 3/8            | 9.52  | 1/8NPT | 0.28 | 7.1  | 5/8    | 15.9 | 1    | 25.4  | 1.29 | 32.8 | 0.66 | 16.8 |
| VUWG-9.52BN  | 3/8            | 9.52  | 1/4NPT | 0.28 | 7.1  | 3/4    | 19.1 | 1.19 | 30.2  | 1.48 | 37.6 | 0.66 | 16.8 |
| VUWG-9.52CN  | 3/8            | 9.52  | 3/8NPT | 0.28 | 7.1  | 7/8    | 22.2 | 1.25 | 31.8  | 1.54 | 39.1 | 0.66 | 16.8 |
| VUWG-9.52DN  | 3/8            | 9.52  | 1/2NPT | 0.28 | 7.1  | 1 1/16 | 27   | 1.44 | 36.6  | 1.73 | 43.9 | 0.66 | 16.8 |
| VUWG-12.7BN  | 1/2            | 12.7  | 1/4NPT | 0.41 | 10.4 | 13/16  | 20.6 | 1.19 | 30.2  | 1.59 | 40.4 | 0.9  | 22.9 |
| VUWG-12.7CN  | 1/2            | 12.7  | 3/8NPT | 0.41 | 10.4 | 7/8    | 22.2 | 1.25 | 31.8  | 1.65 | 41.9 | 0.9  | 22.9 |
| VUWG-12.7DN  | 1/2            | 12.7  | 1/2NPT | 0.41 | 10.4 | 1 1/16 | 27   | 1.44 | 36.6  | 1.84 | 46.7 | 0.9  | 22.9 |
| VUWG-12.7EN  | 1/2            | 12.7  | 3/4NPT | 0.41 | 10.4 | 1 5/16 | 33.3 | 1.5  | 38.1  | 1.9  | 48.3 | 0.9  | 22.9 |
| VUWG-15.88CN | 5/8            | 15.88 | 3/8NPT | 0.5  | 12.7 | 15/16  | 23.8 | 1.25 | 31.8  | 1.65 | 41.9 | 0.96 | 24.4 |
| VUWG-15.88DN | 5/8            | 15.88 | 1/2NPT | 0.5  | 12.7 | 1 1/16 | 27   | 1.44 | 36.6  | 1.84 | 46.7 | 0.96 | 24.4 |
| VUWG-19.05DN | 3/4            | 19.05 | 1/2NPT | 0.62 | 15.8 | 1 1/16 | 27   | 1.44 | 36.6  | 1.84 | 46.7 | 0.96 | 24.4 |
| VUWG-19.05EN | 3/4            | 19.05 | 3/4NPT | 0.62 | 15.8 | 1 5/16 | 33.3 | 1.5  | 38.1  | 1.9  | 48.3 | 0.96 | 24.4 |
| VUWG-22.22EN | 7/8            | 22.22 | 3/4NPT | 0.72 | 18.3 | 1 5/16 | 33.3 | 1.56 | 39.6  | 1.96 | 49.8 | 1.02 | 25.9 |
| VUWG-25.4EN  | 1              | 25.4  | 3/4NPT | 0.88 | 22.3 | 1 3/8  | 34.9 | 1.62 | 41.1  | 2.1  | 53.3 | 1.23 | 31.2 |
| VUWG-25.4FN  | 1              | 25.4  | 1NPT   | 0.88 | 22.3 | 1 5/8  | 41.3 | 1.97 | 50    | 2.45 | 62.2 | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Connectors (Rc)

G



**Tube (Metric) To Female ISO Tapered Thread**

| Part Numbers | A<br>Tube O.D. | T      | D    | W  | N    | L    | I    |
|--------------|----------------|--------|------|----|------|------|------|
|              | mm             |        | mm   | mm | mm   | mm   | mm   |
| VUWG-3A      | 3              | Rc 1/8 | 2.4  | 14 | 22.1 | 28.7 | 12.9 |
| VUWG-6A      | 6              | Rc 1/8 | 4.8  | 14 | 23.9 | 31.3 | 15.3 |
| VUWG-6B      | 6              | Rc 1/4 | 4.8  | 19 | 28.4 | 35.8 | 15.3 |
| VUWG-6C      | 6              | Rc 3/8 | 4.8  | 22 | 30.2 | 37.6 | 15.3 |
| VUWG-6D      | 6              | Rc 1/2 | 4.8  | 27 | 35.1 | 42.5 | 15.3 |
| VUWG-8A      | 8              | Rc 1/8 | 6.4  | 14 | 24.6 | 32.1 | 16.2 |
| VUWG-8B      | 8              | Rc 1/4 | 6.4  | 19 | 29.5 | 37   | 16.2 |
| VUWG-8C      | 8              | Rc 3/8 | 6.4  | 22 | 31   | 38.5 | 16.2 |
| VUWG-8D      | 8              | Rc 1/2 | 6.4  | 27 | 35.8 | 43.3 | 16.2 |
| VUWG-10A     | 10             | Rc 1/8 | 7.9  | 18 | 25.4 | 33   | 17.2 |
| VUWG-10B     | 10             | Rc 1/4 | 7.9  | 19 | 30.2 | 37.8 | 17.2 |
| VUWG-10C     | 10             | Rc 3/8 | 7.9  | 22 | 31.8 | 39.4 | 17.2 |
| VUWG-10D     | 10             | Rc 1/2 | 7.9  | 27 | 36.6 | 44.2 | 17.2 |
| VUWG-12A     | 12             | Rc 1/8 | 8.3  | 22 | 25.4 | 35.5 | 22.8 |
| VUWG-12B     | 12             | Rc 1/4 | 9.5  | 22 | 30.2 | 40.3 | 22.8 |
| VUWG-12C     | 12             | Rc 3/8 | 9.5  | 22 | 31.8 | 41.9 | 22.8 |
| VUWG-12D     | 12             | Rc 1/2 | 9.5  | 27 | 36.6 | 46.7 | 22.8 |
| VUWG-12E     | 12             | Rc 3/4 | 9.5  | 35 | 38.9 | 49   | 22.8 |
| VUWG-15C     | 15             | Rc 3/8 | 11.9 | 24 | 31.8 | 41.9 | 24.4 |
| VUWG-15D     | 15             | Rc 1/2 | 11.9 | 27 | 36.6 | 46.7 | 24.4 |
| VUWG-20D     | 20             | Rc 1/2 | 15.9 | 30 | 37.8 | 47.9 | 26   |
| VUWG-20E     | 20             | Rc 3/4 | 15.9 | 35 | 39.6 | 49.7 | 26   |
| VUWG-22E     | 22             | Rc 3/4 | 18.3 | 35 | 39.6 | 49.7 | 26   |
| VUWG-22F     | 22             | Rc 1   | 18.3 | 41 | 47.8 | 57.9 | 26   |
| VUWG-25E     | 25             | Rc 3/4 | 21.8 | 35 | 41.1 | 53.4 | 31.3 |
| VUWG-25F     | 25             | Rc 1   | 21.8 | 41 | 50   | 62.3 | 31.3 |

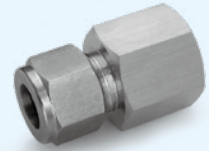
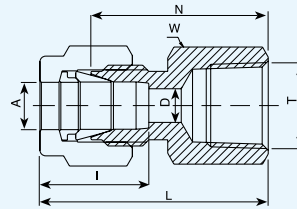
### Designation:

R marking on hex of body

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Connectors (Rc) (continued)

G



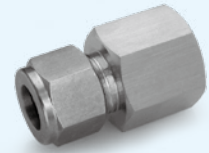
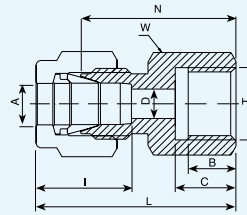
### Tube (Inch) To Female ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |       | L    |      | I    |      |
|--------------|----------------|-------|--------|------|------|--------|------|------|-------|------|------|------|------|
|              | in             | mm    |        | in   | mm   | in     | mm   | in   | mm    | in   | mm   | in   | mm   |
| VUWG-3.2A    | 1/8            | 3.2   | Rc 1/8 | 0.09 | 2.3  | 9/16   | 14.3 | 0.87 | 22.1  | 1.13 | 28.7 | 0.5  | 12.7 |
| VUWG-3.2B    | 1/8            | 3.2   | Rc 1/4 | 0.09 | 2.3  | 3/4    | 19.1 | 1.06 | 26.9  | 1.32 | 33.5 | 0.5  | 12.7 |
| VUWG-4.8A    | 3/16           | 4.8   | Rc 1/8 | 0.12 | 3.04 | 9/16   | 14.3 | 0.91 | 23.11 | 1.17 | 29.7 | 0.54 | 13.7 |
| VUWG-6.35A   | 1/4            | 6.35  | Rc 1/8 | 0.19 | 4.8  | 9/16   | 14.3 | 0.94 | 23.9  | 1.23 | 31.2 | 0.6  | 15.2 |
| VUWG-6.35B   | 1/4            | 6.35  | Rc 1/4 | 0.19 | 4.8  | 3/4    | 19.1 | 1.12 | 28.5  | 1.41 | 35.8 | 0.6  | 15.2 |
| VUWG-6.35C   | 1/4            | 6.35  | Rc 3/8 | 0.19 | 4.8  | 7/8    | 22.2 | 1.19 | 30.2  | 1.48 | 37.6 | 0.6  | 15.2 |
| VUWG-6.35D   | 1/4            | 6.35  | Rc 1/2 | 0.19 | 4.8  | 1 1/16 | 27   | 1.38 | 35    | 1.67 | 42.4 | 0.6  | 15.2 |
| VUWG-7.93A   | 5/16           | 7.93  | Rc 1/8 | 0.25 | 6.35 | 9/16   | 14.3 | 0.97 | 24.6  | 1.26 | 32   | 0.64 | 16.3 |
| VUWG-7.93B   | 5/16           | 7.93  | Rc 1/4 | 0.25 | 6.35 | 3/4    | 19.1 | 1.16 | 29.5  | 1.45 | 36.8 | 0.64 | 16.3 |
| VUWG-9.52A   | 3/8            | 9.52  | Rc 1/8 | 0.28 | 7.1  | 5/8    | 15.9 | 1    | 25.4  | 1.29 | 32.8 | 0.66 | 16.8 |
| VUWG-9.52B   | 3/8            | 9.52  | Rc 1/4 | 0.28 | 7.1  | 3/4    | 19.1 | 1.19 | 30.2  | 1.48 | 37.6 | 0.66 | 16.8 |
| VUWG-9.52C   | 3/8            | 9.52  | Rc 3/8 | 0.28 | 7.1  | 7/8    | 22.2 | 1.25 | 31.8  | 1.54 | 39.1 | 0.66 | 16.8 |
| VUWG-9.52D   | 3/8            | 9.52  | Rc 1/2 | 0.28 | 7.1  | 1 1/16 | 27   | 1.44 | 36.6  | 1.73 | 43.9 | 0.66 | 16.8 |
| VUWG-12.7B   | 1/2            | 12.7  | Rc 1/4 | 0.41 | 10.4 | 13/16  | 20.6 | 1.19 | 30.2  | 1.59 | 40.4 | 0.9  | 22.9 |
| VUWG-12.7C   | 1/2            | 12.7  | Rc 3/8 | 0.41 | 10.4 | 7/8    | 22.2 | 1.25 | 31.8  | 1.65 | 41.9 | 0.9  | 22.9 |
| VUWG-12.7D   | 1/2            | 12.7  | Rc 1/2 | 0.41 | 10.4 | 1 1/16 | 27   | 1.44 | 36.6  | 1.84 | 46.7 | 0.9  | 22.9 |
| VUWG-12.7E   | 1/2            | 12.7  | Rc 3/4 | 0.41 | 10.4 | 1 5/16 | 33.3 | 1.5  | 38.1  | 1.9  | 48.3 | 0.9  | 22.9 |
| VUWG-15.88C  | 5/8            | 15.88 | Rc 3/8 | 0.5  | 12.7 | 15/16  | 23.8 | 1.25 | 31.8  | 1.65 | 41.9 | 0.96 | 24.4 |
| VUWG-15.88D  | 5/8            | 15.88 | Rc 1/2 | 0.5  | 12.7 | 1 1/16 | 27   | 1.44 | 36.6  | 1.84 | 46.7 | 0.96 | 24.4 |
| VUWG-19.05D  | 3/4            | 19.05 | Rc 1/2 | 0.62 | 15.8 | 1 1/16 | 27   | 1.44 | 36.6  | 1.84 | 46.7 | 0.96 | 24.4 |
| VUWG-19.05E  | 3/4            | 19.05 | Rc 3/4 | 0.62 | 15.8 | 1 5/16 | 33.3 | 1.5  | 38.1  | 1.9  | 48.3 | 0.96 | 24.4 |
| VUWG-22.22E  | 7/8            | 22.22 | Rc 3/4 | 0.72 | 18.3 | 1 5/16 | 33.3 | 1.56 | 39.6  | 1.96 | 49.8 | 1.02 | 25.9 |
| VUWG-25.4E   | 1              | 25.4  | Rc 3/4 | 0.88 | 22.3 | 1 3/8  | 34.9 | 1.62 | 41.1  | 2.1  | 53.3 | 1.23 | 31.2 |
| VUWG-25.4F   | 1              | 25.4  | Rc 1   | 0.88 | 22.3 | 1 5/8  | 41.3 | 1.97 | 50    | 2.45 | 62.2 | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Connectors (G)

G



**Tube (Metric) To Female ISO Parallel Thread**

| Part Numbers | A<br>Tube O.D. |  | T     | D   | W  |  | N    | L    | I    | B  | C  |
|--------------|----------------|--|-------|-----|----|--|------|------|------|----|----|
|              | mm             |  |       |     | mm |  |      |      |      |    |    |
| VUWG-6AF-PG  | 6              |  | G 1/8 | 4.8 | 14 |  | 25   | 32.4 | 15.3 | 7  | 10 |
| VUWG-6BF-PG  | 6              |  | G 1/4 | 4.8 | 19 |  | 30.2 | 37.6 | 15.3 | 10 | 13 |
| VUWG-6CF-PG  | 6              |  | G 3/8 | 4.8 | 24 |  | 30.2 | 37.6 | 15.3 | 12 | 15 |
| VUWG-6DF-PG  | 6              |  | G 1/2 | 4.8 | 27 |  | 36.1 | 43.5 | 15.3 | 15 | 18 |
| VUWG-8BF-PG  | 8              |  | G 1/4 | 5.5 | 19 |  | 31   | 38.5 | 16.2 | 10 | 13 |
| VUWG-8CF-PG  | 8              |  | G 3/8 | 5.5 | 24 |  | 29.6 | 37.1 | 16.2 | 12 | 15 |
| VUWG-8DF-PG  | 8              |  | G 1/2 | 5.5 | 27 |  | 33.5 | 41   | 16.2 | 15 | 18 |
| VUWG-10BF-PG | 10             |  | G 1/4 | 5.5 | 19 |  | 31.8 | 39.4 | 17.2 | 10 | 13 |
| VUWG-10CF-PG | 10             |  | G 3/8 | 5.5 | 24 |  | 31.2 | 38.8 | 17.2 | 12 | 15 |
| VUWG-10DF-PG | 10             |  | G 1/2 | 5.5 | 27 |  | 34.5 | 42.1 | 17.2 | 15 | 18 |
| VUWG-12BF-PG | 12             |  | G 1/4 | 5.5 | 22 |  | 31.8 | 41.9 | 22.8 | 10 | 13 |
| VUWG-12CF-PG | 12             |  | G 3/8 | 5.5 | 24 |  | 34.3 | 44.4 | 22.8 | 12 | 15 |
| VUWG-12DF-PG | 12             |  | G 1/2 | 5.5 | 27 |  | 38.1 | 48.2 | 22.8 | 15 | 18 |

**Tube (Inch) To Female ISO Parallel Thread**

| Part Numbers   | A<br>Tube O.D. |      | T    | D    | W      |      | N    | L    | I    | B  | C  |
|----------------|----------------|------|------|------|--------|------|------|------|------|----|----|
|                | in             | mm   |      |      | in     | mm   |      |      |      | mm | mm |
| VUWG-1.6CF-PG  | 1/16           | 1.58 | G3/8 | 1.25 | 15/16  | 23.8 | 31   | 34.8 | 8.6  | 12 | 15 |
| VUWG-3.2AF-PG  | 1/8            | 3.17 | G1/8 | 2.3  | 9/16   | 14.3 | 24.5 | 31.1 | 12.7 | 7  | 10 |
| VUWG-3.2CF-PG  | 1/8            | 3.17 | G3/8 | 2.3  | 15/16  | 23.8 | 32.7 | 39.3 | 12.7 | 12 | 15 |
| VUWG-6.35AF-PG | 1/4            | 6.35 | G1/8 | 5.5  | 9/16   | 14.3 | 25   | 32.4 | 15.2 | 7  | 10 |
| VUWG-6.35BF-PG | 1/4            | 6.35 | G1/4 | 5.5  | 3/4    | 19.1 | 30.2 | 37.6 | 15.2 | 10 | 13 |
| VUWG-6.35CF-PG | 1/4            | 6.35 | G3/8 | 5.5  | 15/16  | 23.8 | 30.2 | 37.6 | 15.2 | 12 | 15 |
| VUWG-6.35DF-PG | 1/4            | 6.35 | G1/2 | 5.5  | 1-1/16 | 27   | 36.1 | 43.4 | 15.2 | 15 | 18 |
| VUWG-9.52BF-PG | 3/8            | 9.52 | G1/4 | 5.5  | 3/4    | 19.1 | 31.8 | 39.1 | 16.8 | 10 | 13 |
| VUWG-9.52CF-PG | 3/8            | 9.52 | G3/8 | 5.5  | 15/16  | 23.8 | 32.1 | 38.6 | 16.8 | 12 | 15 |
| VUWG-9.52DF-PG | 3/8            | 9.52 | G1/2 | 5.5  | 1-1/16 | 27   | 34.5 | 41.9 | 16.8 | 15 | 18 |
| VUWG-12.7BF-PG | 1/2            | 12.7 | G1/4 | 5.5  | 13/16  | 20.6 | 31.8 | 42   | 22.9 | 10 | 13 |
| VUWG-12.7CF-PG | 1/2            | 12.7 | G3/8 | 5.5  | 15/16  | 23.8 | 34.3 | 44.5 | 22.9 | 12 | 15 |
| VUWG-12.7DF-PG | 1/2            | 12.7 | G1/2 | 5.5  | 1-1/16 | 27   | 38.1 | 48.3 | 22.9 | 15 | 18 |

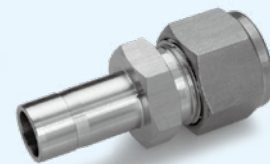
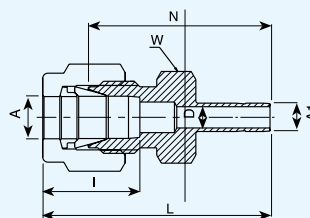
### Designation:

PG marking on hex of body

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Reducers

R



Tube (Metric) To Stub (Metric)

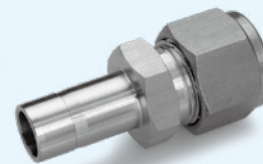
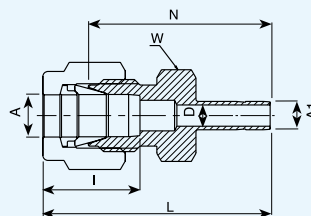
| Part Numbers | A<br>Tube O.D. | A1<br>Tube O.D. | D    | W  | N    | L    | I    |
|--------------|----------------|-----------------|------|----|------|------|------|
|              | mm             | mm              | mm   | mm | mm   | mm   | mm   |
| VUWR-2X3     | 2              | 3               | 1.7  | 12 | 26.9 | 33.5 | 12.9 |
| VUWR-3X4     | 3              | 4               | 2.4  | 12 | 28.4 | 35   | 12.9 |
| VUWR-3X6     | 3              | 6               | 2.4  | 12 | 29.5 | 36.1 | 12.9 |
| VUWR-3X10    | 3              | 10              | 2.4  | 14 | 31.8 | 38.4 | 12.9 |
| VUWR-4X6     | 4              | 6               | 2.4  | 12 | 30.5 | 37.1 | 13.7 |
| VUWR-6X3     | 6              | 3               | 1.8  | 14 | 29.5 | 36.9 | 15.3 |
| VUWR-6X8     | 6              | 8               | 4.8  | 14 | 32.5 | 39.9 | 15.3 |
| VUWR-6X10    | 6              | 10              | 4.8  | 14 | 33.3 | 40.7 | 15.3 |
| VUWR-6X12    | 6              | 12              | 4.8  | 14 | 38.9 | 46.3 | 15.3 |
| VUWR-6X18    | 6              | 18              | 4.8  | 22 | 42.2 | 49.6 | 15.3 |
| VUWR-8X6     | 8              | 6               | 4    | 15 | 32.8 | 40.3 | 16.2 |
| VUWR-8X10    | 8              | 10              | 6.4  | 15 | 34.5 | 42   | 16.2 |
| VUWR-8X12    | 8              | 12              | 6.4  | 15 | 40.1 | 47.6 | 16.2 |
| VUWR-10X6    | 10             | 6               | 4    | 18 | 34.8 | 42.4 | 17.2 |
| VUWR-10X8    | 10             | 8               | 5.6  | 18 | 35.8 | 43.4 | 17.2 |
| VUWR-10X12   | 10             | 12              | 7.9  | 18 | 42.2 | 49.8 | 17.2 |
| VUWR-10X15   | 10             | 15              | 7.9  | 18 | 43.7 | 51.3 | 17.2 |
| VUWR-10X18   | 10             | 18              | 7.9  | 22 | 43.7 | 51.3 | 17.2 |
| VUWR-12X6    | 12             | 6               | 4    | 22 | 34.8 | 44.9 | 22.8 |
| VUWR-12X10   | 12             | 10              | 7.1  | 22 | 36.6 | 46.7 | 22.8 |
| VUWR-12X16   | 12             | 16              | 9.5  | 22 | 43.7 | 53.8 | 22.8 |
| VUWR-12X18   | 12             | 18              | 9.5  | 22 | 43.7 | 53.8 | 22.8 |
| VUWR-12X20   | 12             | 20              | 9.5  | 22 | 46   | 56.1 | 22.8 |
| VUWR-12X22   | 12             | 22              | 9.5  | 24 | 46   | 56.1 | 22.8 |
| VUWR-12X25   | 12             | 25              | 9.5  | 27 | 52.3 | 62.4 | 22.8 |
| VUWR-16X12   | 16             | 12              | 8.8  | 24 | 42.9 | 53   | 24.4 |
| VUWR-18X12   | 18             | 12              | 8.8  | 27 | 44.5 | 54.6 | 24.4 |
| VUWR-18X16   | 18             | 16              | 12.7 | 27 | 46   | 56.1 | 24.4 |
| VUWR-18X20   | 18             | 20              | 15.1 | 27 | 47.5 | 57.6 | 24.4 |
| VUWR-18X22   | 18             | 22              | 15.1 | 27 | 47.5 | 57.6 | 24.4 |
| VUWR-18X25   | 18             | 25              | 15.1 | 27 | 52.3 | 62.4 | 24.4 |
| VUWR-20X16   | 20             | 16              | 12.7 | 30 | 47.8 | 57.9 | 26   |
| VUWR-20X18   | 20             | 18              | 13.9 | 30 | 47.8 | 57.9 | 26   |
| VUWR-20X22   | 20             | 22              | 15.8 | 30 | 49.3 | 59.4 | 26   |
| VUWR-20X25   | 20             | 25              | 15.9 | 30 | 54.1 | 64.2 | 26   |
| VUWR-22X18   | 22             | 18              | 13.9 | 30 | 47.8 | 57.9 | 26   |
| VUWR-22X20   | 22             | 20              | 15.1 | 30 | 49.3 | 59.4 | 26   |
| VUWR-22X25   | 22             | 25              | 18.3 | 30 | 54.1 | 64.2 | 26   |
| VUWR-25X18   | 25             | 18              | 13.9 | 35 | 50.8 | 63.1 | 31.3 |
| VUWR-25X20   | 25             | 20              | 15.1 | 35 | 52.3 | 64.6 | 31.3 |

Continued on next page

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Reducers (continued)

R



| Tube (Metric) To Stub (Inch) |                |                 |      |    |      |      |      |
|------------------------------|----------------|-----------------|------|----|------|------|------|
| Part Numbers                 | A<br>Tube O.D. | A1<br>Tube O.D. | D    | W  | N    | L    | I    |
|                              | mm             | mm              | mm   | mm | mm   | mm   | mm   |
| VUWR-2X3.2                   | 2              | 3.2             | 1.7  | 12 | 26.9 | 33.5 | 12.9 |
| VUWR-3X3.2                   | 3              | 3.2             | 2    | 12 | 26.9 | 33.5 | 12.9 |
| VUWR-3X6.35                  | 3              | 6.35            | 2.4  | 12 | 29.5 | 36.1 | 12.9 |
| VUWR-4X6.35                  | 4              | 6.35            | 2.4  | 12 | 30.5 | 37.1 | 13.7 |
| VUWR-6X3.2                   | 6              | 3.2             | 2.2  | 14 | 29.5 | 36.9 | 15.3 |
| VUWR-6X7.93                  | 6              | 7.93            | 4.8  | 14 | 32.5 | 39.9 | 15.3 |
| VUWR-6X9.52                  | 6              | 9.52            | 4.8  | 14 | 33.3 | 40.7 | 15.3 |
| VUWR-6X12.7                  | 6              | 12.7            | 4.8  | 14 | 38.9 | 46.3 | 15.3 |
| VUWR-8X9.52                  | 8              | 9.52            | 6.4  | 15 | 34.5 | 42   | 16.2 |
| VUWR-8X12.7                  | 8              | 12.7            | 6.4  | 15 | 40.1 | 47.6 | 16.2 |
| VUWR-10X9.52                 | 10             | 9.52            | 6.9  | 18 | 36.6 | 44.2 | 17.2 |
| VUWR-10X12.7                 | 10             | 12.7            | 7.9  | 18 | 42.2 | 49.8 | 17.2 |
| VUWR-12X12.7                 | 12             | 12.7            | 9.4  | 22 | 42.2 | 52.3 | 22.8 |
| VUWR-12X19.05                | 12             | 19.05           | 9.5  | 22 | 43.7 | 53.8 | 22.8 |
| VUWR-18X19.05                | 18             | 19.05           | 15.1 | 27 | 46   | 56.1 | 24.4 |
| VUWR-18X25.4                 | 18             | 25.4            | 15.1 | 27 | 52.3 | 62.4 | 24.4 |
| VUWR-25X25.4                 | 25             | 25.4            | 20.2 | 35 | 57.2 | 69.4 | 31.3 |

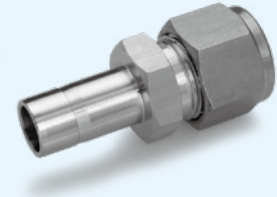
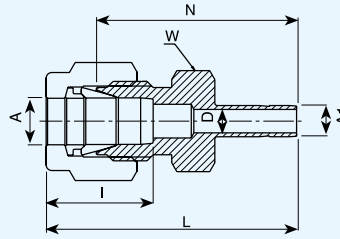
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"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.



## Reducers (continued)

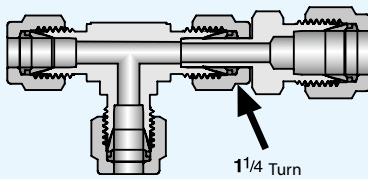
R



### Tube (Inch) To Stub (Inch)

| Part Numbers     | A<br>Tube O.D. |       | A1<br>Tube O.D. |       | D    |      | W      |      | N    |      | L    |      | I    |      |
|------------------|----------------|-------|-----------------|-------|------|------|--------|------|------|------|------|------|------|------|
|                  | in             | mm    | in              | mm    | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWR-1.6X3.2     | 1/16           | 1.6   | 1/8             | 3.2   | 0.05 | 1.3  | 5/16   | 7.9  | 1    | 25.4 | 1.15 | 29.2 | 0.34 | 8.6  |
| VUWR-1.6X6.35    | 1/16           | 1.6   | 1/4             | 6.35  | 0.05 | 1.3  | 5/16   | 7.9  | 1.09 | 27.7 | 1.24 | 31.5 | 0.34 | 8.6  |
| VUWR-3.2X1.6     | 1/8            | 3.2   | 1/16            | 1.6   | 0.03 | 0.8  | 7/16   | 11.1 | 0.88 | 22.4 | 1.14 | 29   | 0.5  | 12.7 |
| VUWR-3.2X4.8     | 1/8            | 3.2   | 3/16            | 4.8   | 0.09 | 2.3  | 7/16   | 11.1 | 1.09 | 27.7 | 1.35 | 34.3 | 0.5  | 12.7 |
| VUWR-3.2X6.35    | 1/8            | 3.2   | 1/4             | 6.35  | 0.09 | 2.3  | 7/16   | 11.1 | 1.16 | 29.5 | 1.42 | 36.1 | 0.5  | 12.7 |
| VUWR-3.2X9.52    | 1/8            | 3.2   | 3/8             | 9.52  | 0.09 | 2.3  | 7/16   | 11.1 | 1.22 | 31   | 1.48 | 37.6 | 0.5  | 12.7 |
| VUWR-3.2X12.7    | 1/8            | 3.2   | 1/2             | 12.7  | 0.09 | 2.3  | 9/16   | 14.3 | 1.48 | 37.6 | 1.74 | 44.2 | 0.5  | 12.7 |
| VUWR-4.8X3.2     | 3/16           | 4.8   | 1/8             | 3.2   | 0.09 | 2.3  | 7/16   | 11.1 | 1.11 | 28.2 | 1.37 | 34.8 | 0.54 | 13.7 |
| VUWR-4.8X6.35    | 3/16           | 4.8   | 1/4             | 6.35  | 0.12 | 3.1  | 7/16   | 11.1 | 1.2  | 30.5 | 1.46 | 37.1 | 0.6  | 13.7 |
| VUWR-6.35X3.2    | 1/4            | 6.35  | 1/8             | 3.2   | 0.09 | 2.3  | 1/2    | 12.7 | 1.16 | 29.5 | 1.45 | 36.8 | 0.6  | 15.2 |
| VUWR-6.35X4.8    | 1/4            | 6.35  | 3/16            | 4.8   | 0.12 | 3    | 1/2    | 12.7 | 1.19 | 30.2 | 1.48 | 37.6 | 0.6  | 15.2 |
| VUWR-6.35X6.35   | 1/4            | 6.35  | 1/4             | 6.35  | 0.17 | 4.2  | 1/2    | 12.7 | 1.25 | 31.8 | 1.54 | 39.1 | 0.6  | 15.2 |
| VUWR-6.35X7.93   | 1/4            | 6.35  | 5/16            | 7.93  | 0.19 | 4.8  | 1/2    | 12.7 | 1.28 | 32.5 | 1.57 | 39.9 | 0.6  | 15.2 |
| VUWR-6.35X9.52   | 1/4            | 6.35  | 3/8             | 9.52  | 0.19 | 4.8  | 1/2    | 12.7 | 1.31 | 33.3 | 1.6  | 40.6 | 0.6  | 15.2 |
| VUWR-6.35X12.7   | 1/4            | 6.35  | 1/2             | 12.7  | 0.19 | 4.8  | 9/16   | 14.3 | 1.53 | 38.9 | 1.82 | 46.2 | 0.6  | 15.2 |
| VUWR-6.35X15.88  | 1/4            | 6.35  | 5/8             | 15.88 | 0.19 | 4.8  | 11/16  | 17.5 | 1.6  | 40.6 | 1.89 | 48   | 0.6  | 15.2 |
| VUWR-6.35X19.05  | 1/4            | 6.35  | 3/4             | 19.05 | 0.19 | 4.8  | 13/16  | 20.6 | 1.59 | 40.4 | 1.88 | 47.8 | 0.6  | 15.2 |
| VUWR-7.93X9.52   | 5/16           | 7.93  | 3/8             | 9.52  | 0.25 | 6.4  | 9/16   | 14.3 | 1.36 | 34.5 | 1.65 | 41.9 | 0.64 | 16.3 |
| VUWR-7.93X12.7   | 5/16           | 7.93  | 1/2             | 12.7  | 0.25 | 6.4  | 9/16   | 14.3 | 1.58 | 40.1 | 1.87 | 47.5 | 0.64 | 16.3 |
| VUWR-9.52X6.35   | 3/8            | 9.52  | 1/4             | 6.35  | 0.17 | 4.2  | 5/8    | 15.9 | 1.34 | 34   | 1.63 | 41.4 | 0.66 | 16.8 |
| VUWR-9.52X9.52   | 3/8            | 9.52  | 3/8             | 9.52  | 0.27 | 6.9  | 5/8    | 15.9 | 1.41 | 35.8 | 1.7  | 43.2 | 0.66 | 16.8 |
| VUWR-9.52X12.7   | 3/8            | 9.52  | 1/2             | 12.7  | 0.28 | 7.1  | 5/8    | 15.9 | 1.62 | 41.2 | 1.91 | 48.5 | 0.66 | 16.8 |
| VUWR-9.52X15.88  | 3/8            | 9.52  | 5/8             | 15.88 | 0.28 | 7.1  | 11/16  | 17.5 | 1.69 | 42.9 | 1.98 | 50.3 | 0.66 | 16.8 |
| VUWR-9.52X19.05  | 3/8            | 9.52  | 3/4             | 19.05 | 0.28 | 7.1  | 13/16  | 20.6 | 1.69 | 42.9 | 1.98 | 50.3 | 0.66 | 16.8 |
| VUWR-12.7X6.35   | 1/2            | 12.7  | 1/4             | 6.35  | 0.17 | 4.2  | 13/16  | 20.6 | 1.37 | 34.8 | 1.77 | 45   | 0.9  | 22.9 |
| VUWR-12.7X9.52   | 1/2            | 12.7  | 3/8             | 9.52  | 0.27 | 6.9  | 13/16  | 20.6 | 1.44 | 36.6 | 1.84 | 46.7 | 0.9  | 22.9 |
| VUWR-12.7X12.7   | 1/2            | 12.7  | 1/2             | 12.7  | 0.37 | 9.4  | 13/16  | 20.6 | 1.66 | 42.2 | 2.06 | 52.3 | 0.9  | 22.9 |
| VUWR-12.7X15.88  | 1/2            | 12.7  | 5/8             | 15.88 | 0.41 | 10.4 | 13/16  | 20.6 | 1.72 | 43.7 | 2.12 | 53.8 | 0.9  | 22.9 |
| VUWR-12.7X19.05  | 1/2            | 12.7  | 3/4             | 19.05 | 0.41 | 10.4 | 13/16  | 20.6 | 1.72 | 43.7 | 2.12 | 53.9 | 0.9  | 22.9 |
| VUWR-12.7X25.4   | 1/2            | 12.7  | 1               | 25.4  | 0.41 | 10.4 | 1 1/16 | 27   | 1.97 | 50   | 2.37 | 60.2 | 0.9  | 22.9 |
| VUWR-15.88X19.05 | 5/8            | 15.88 | 3/4             | 19.05 | 0.5  | 12.7 | 15/16  | 23.8 | 1.75 | 44.5 | 2.15 | 54.6 | 0.96 | 24.4 |
| VUWR-15.88X22.22 | 5/8            | 15.88 | 7/8             | 22.22 | 0.5  | 12.7 | 15/16  | 23.8 | 1.81 | 46   | 2.21 | 56.1 | 0.96 | 24.4 |
| VUWR-15.88X25.4  | 5/8            | 15.88 | 1               | 25.4  | 0.5  | 12.7 | 1 1/16 | 27   | 2    | 50.8 | 2.4  | 61   | 0.96 | 24.4 |
| VUWR-19.05X12.7  | 3/4            | 19.05 | 1/2             | 12.7  | 0.37 | 9.4  | 1 1/16 | 27   | 1.75 | 44.5 | 2.15 | 54.6 | 0.96 | 24.4 |
| VUWR-19.05X25.4  | 3/4            | 19.05 | 1               | 25.4  | 0.62 | 15.8 | 1 1/16 | 27   | 2.06 | 52.3 | 2.46 | 62.5 | 0.96 | 24.4 |

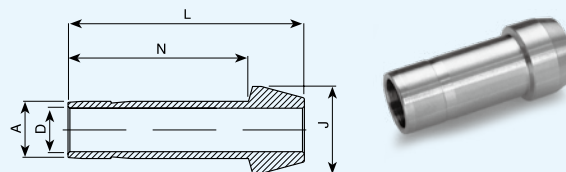
### Assembly Instructions



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Port Connectors

### PC



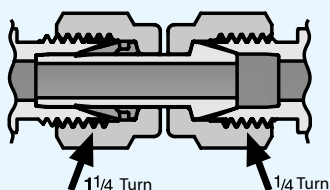
#### Connects Two V<sup>®</sup>-Lok Ports (Metric)

| Part Numbers | A<br>Tube O.D. | D    | N    | L    | J    |
|--------------|----------------|------|------|------|------|
|              | mm             | mm   | mm   | mm   | mm   |
| VUW-PC-3     | 3              | 2.1  | 15.7 | 22.2 | 6    |
| VUW-PC-6     | 6              | 4    | 19.1 | 25   | 9    |
| VUW-PC-8     | 8              | 5.6  | 20   | 25.9 | 11   |
| VUW-PC-10    | 10             | 7.1  | 21.2 | 27.1 | 13.1 |
| VUW-PC-12    | 12             | 8.8  | 26.4 | 36.2 | 15   |
| VUW-PC-16    | 16             | 12.7 | 27.6 | 37.4 | 19   |
| VUW-PC-18    | 18             | 13.9 | 27.6 | 37.4 | 21.1 |

#### Connects Two V<sup>®</sup>-Lok Ports (Inch)

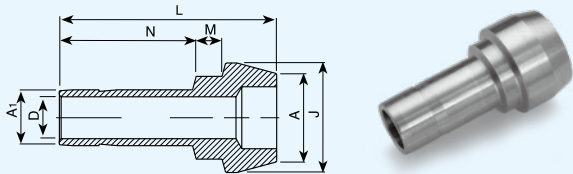
| Part Numbers | A<br>Tube O.D. |       | D    |      | N    |      | L    |      | J    |      |
|--------------|----------------|-------|------|------|------|------|------|------|------|------|
|              | in             | mm    | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUW-PC-1.6   | 1/16           | 1.6   | 0.03 | 0.8  | 0.42 | 10.7 | 0.54 | 13.7 | 0.13 | 3.3  |
| VUW-PC-3.2   | 1/8            | 3.2   | 0.09 | 2.2  | 0.62 | 15.7 | 0.88 | 22.4 | 0.24 | 6.1  |
| VUW-PC-6.35  | 1/4            | 6.35  | 0.17 | 4.2  | 0.75 | 19   | 0.98 | 24.9 | 0.37 | 9.4  |
| VUW-PC-7.93  | 5/16           | 7.93  | 0.24 | 6    | 0.79 | 20   | 1.02 | 25.9 | 0.43 | 10.9 |
| VUW-PC-9.52  | 3/8            | 9.52  | 0.27 | 6.9  | 0.8  | 20.3 | 1.03 | 26.2 | 0.49 | 12.6 |
| VUW-PC-12.7  | 1/2            | 12.7  | 0.37 | 9.4  | 1.02 | 25.9 | 1.41 | 35.8 | 0.62 | 15.7 |
| VUW-PC-19.05 | 3/4            | 19.05 | 0.59 | 15   | 1.09 | 27.7 | 1.47 | 37.3 | 0.87 | 22.1 |
| VUW-PC-25.4  | 1              | 25.4  | 0.8  | 20.3 | 1.37 | 34.7 | 1.9  | 48.1 | 1.12 | 28.5 |

#### Assembly Instructions



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Reducing Port Connectors  
PC



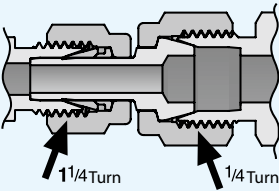
Connects Two V<sub>®</sub>-Lok Ports (Metric)

| Part Numbers | A<br>Tube O.D. |    | A1<br>Tube O.D. |    | D   |    | N    |    | L    |    | J    |    | M   |    |
|--------------|----------------|----|-----------------|----|-----|----|------|----|------|----|------|----|-----|----|
|              | mm             | mm | mm              | mm | mm  | mm | mm   | mm | mm   | mm | mm   | mm | mm  | mm |
| VUW-PC-6X3   | 6              |    | 3               |    | 2.1 |    | 13.5 |    | 22.9 |    | 9    |    | 3.2 |    |
| VUW-PC-8X6   | 8              |    | 6               |    | 4   |    | 15.7 |    | 24.7 |    | 11   |    | 3.1 |    |
| VUW-PC-10X6  | 10             |    | 6               |    | 4   |    | 15.7 |    | 25.8 |    | 13.1 |    | 3.4 |    |
| VUW-PC-10X8  | 10             |    | 8               |    | 5.6 |    | 16.8 |    | 26.1 |    | 13.1 |    | 3.1 |    |
| VUW-PC-12X6  | 12             |    | 6               |    | 4   |    | 15.7 |    | 29.1 |    | 15   |    | 3.6 |    |
| VUW-PC-12X8  | 12             |    | 8               |    | 5.6 |    | 16.8 |    | 30.1 |    | 15   |    | 3.4 |    |
| VUW-PC-12X10 | 12             |    | 10              |    | 7.1 |    | 17.5 |    | 30.6 |    | 15   |    | 3.1 |    |
| VUW-PC-16X12 | 16             |    | 12              |    | 8.8 |    | 23.1 |    | 37.5 |    | 19   |    | 3.4 |    |

Connects Two V<sub>®</sub>-Lok Ports (Inch)

| Part Numbers      | A<br>Tube O.D. |       | A1<br>Tube O.D. |      | D    |     | N    |      | L    |      | J    |      | M    |     |
|-------------------|----------------|-------|-----------------|------|------|-----|------|------|------|------|------|------|------|-----|
|                   | in             | mm    | in              | mm   | in   | mm  | in   | mm   | in   | mm   | in   | mm   | in   | mm  |
| VUW-PC-3.2X1.6    | 1/8            | 3.2   | 1/16            | 1.6  | 0.03 | 0.8 | 0.34 | 8.6  | 0.68 | 17.3 | 0.24 | 6.1  | 0.08 | 2   |
| VUW-PC-6.35X1.6   | 1/4            | 6.35  | 1/16            | 1.6  | 0.03 | 0.8 | 0.34 | 8.6  | 0.71 | 18   | 0.37 | 9.4  | 0.14 | 3.6 |
| VUW-PC-6.35X3.2   | 1/4            | 6.35  | 1/8             | 3.2  | 0.09 | 2.2 | 0.53 | 13.5 | 0.89 | 22.6 | 0.37 | 9.4  | 0.13 | 3.3 |
| VUW-PC-9.52X3.2   | 3/8            | 9.52  | 1/8             | 3.2  | 0.09 | 2.2 | 0.53 | 13.5 | 0.91 | 23.2 | 0.49 | 12.6 | 0.15 | 3.9 |
| VUW-PC-9.52X6.35  | 3/8            | 9.52  | 1/4             | 6.35 | 0.17 | 4.2 | 0.62 | 15.7 | 0.98 | 24.9 | 0.49 | 12.6 | 0.13 | 3.3 |
| VUW-PC-12.7X6.35  | 1/2            | 12.7  | 1/4             | 6.35 | 0.17 | 4.2 | 0.62 | 15.7 | 1.15 | 29.2 | 0.62 | 15.7 | 0.15 | 3.8 |
| VUW-PC-12.7X9.52  | 1/2            | 12.7  | 3/8             | 9.52 | 0.27 | 6.9 | 0.69 | 17.5 | 1.2  | 30.5 | 0.62 | 15.7 | 0.13 | 3.3 |
| VUW-PC-19.05X12.7 | 3/4            | 19.05 | 1/2             | 12.7 | 0.37 | 9.4 | 0.96 | 24.4 | 1.49 | 37.9 | 0.87 | 22.1 | 0.15 | 3.8 |

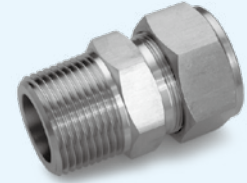
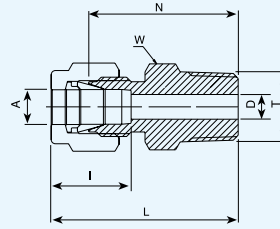
Assembly Instructions



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Connectors (NPT)

H



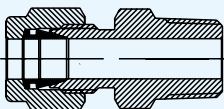
**Tube (Metric) Male NPT Thread**

| Part Numbers | A<br>Tube O.D. | T      | D    | W  | N    | L    | I    |
|--------------|----------------|--------|------|----|------|------|------|
|              | mm             |        | mm   | mm | mm   | mm   | mm   |
| VUWH-3AN     | 3              | 1/8NPT | 2.4  | 12 | 23.9 | 30.5 | 12.9 |
| VUWH-3BN     | 3              | 1/4NPT | 2.4  | 14 | 29   | 35.6 | 12.9 |
| VUWH-4AN     | 4              | 1/8NPT | 2.4  | 12 | 24.6 | 31.2 | 13.7 |
| VUWH-4BN     | 4              | 1/4NPT | 2.4  | 14 | 29.7 | 36.3 | 13.7 |
| VUWH-6AN     | 6              | 1/8NPT | 4.8  | 14 | 25.4 | 32.8 | 15.3 |
| VUWH-6BN     | 6              | 1/4NPT | 4.8  | 14 | 30.5 | 37.9 | 15.3 |
| VUWH-6CN     | 6              | 3/8NPT | 4.8  | 18 | 31   | 38.4 | 15.3 |
| VUWH-6DN     | 6              | 1/2NPT | 4.8  | 22 | 37.3 | 44.7 | 15.3 |
| VUWH-8AN     | 8              | 1/8NPT | 4.8  | 15 | 26.7 | 34.2 | 16.2 |
| VUWH-8BN     | 8              | 1/4NPT | 6.4  | 15 | 31.2 | 38.7 | 16.2 |
| VUWH-8CN     | 8              | 3/8NPT | 6.4  | 18 | 31.8 | 39.3 | 16.2 |
| VUWH-8DN     | 8              | 1/2NPT | 6.4  | 22 | 38.1 | 45.6 | 16.2 |
| VUWH-10AN    | 10             | 1/8NPT | 4.8  | 18 | 28.7 | 36.3 | 17.2 |
| VUWH-10BN    | 10             | 1/4NPT | 7.9  | 18 | 33.3 | 40.9 | 17.2 |
| VUWH-10CN    | 10             | 3/8NPT | 7.9  | 18 | 33.3 | 40.9 | 17.2 |
| VUWH-10DN    | 10             | 1/2NPT | 7.9  | 22 | 38.9 | 46.5 | 17.2 |
| VUWH-10EN    | 10             | 3/4NPT | 7.9  | 27 | 40.4 | 48   | 17.2 |
| VUWH-12AN    | 12             | 1/8NPT | 4.8  | 22 | 28.7 | 38.8 | 22.8 |
| VUWH-12BN    | 12             | 1/4NPT | 7.1  | 22 | 33.3 | 43.4 | 22.8 |
| VUWH-12CN    | 12             | 3/8NPT | 9.5  | 22 | 33.3 | 43.4 | 22.8 |
| VUWH-12DN    | 12             | 1/2NPT | 9.5  | 22 | 38.9 | 49   | 22.8 |
| VUWH-12EN    | 12             | 3/4NPT | 9.5  | 27 | 40.4 | 50.5 | 22.8 |
| VUWH-14BN    | 14             | 1/4NPT | 7.1  | 24 | 34   | 44.1 | 24.4 |
| VUWH-14CN    | 14             | 3/8NPT | 9.5  | 24 | 34   | 44.1 | 24.4 |
| VUWH-14DN    | 14             | 1/2NPT | 11   | 24 | 38.9 | 49   | 24.4 |
| VUWH-15DN    | 15             | 1/2NPT | 12   | 24 | 38.9 | 49   | 24.4 |
| VUWH-16CN    | 16             | 3/8NPT | 9.5  | 24 | 34   | 44.1 | 24.4 |
| VUWH-16DN    | 16             | 1/2NPT | 11.9 | 24 | 38.9 | 49   | 24.4 |
| VUWH-16EN    | 16             | 3/4NPT | 12.7 | 27 | 40.4 | 50.5 | 24.4 |
| VUWH-18DN    | 18             | 1/2NPT | 11.9 | 27 | 40.4 | 50.5 | 24.4 |
| VUWH-18EN    | 18             | 3/4NPT | 15.1 | 27 | 40.4 | 50.5 | 24.4 |
| VUWH-20DN    | 20             | 1/2NPT | 11.9 | 30 | 42.2 | 52.3 | 26   |
| VUWH-20EN    | 20             | 3/4NPT | 15.9 | 30 | 42.2 | 52.3 | 26   |
| VUWH-22EN    | 22             | 3/4NPT | 15.9 | 30 | 42.2 | 52.3 | 26   |
| VUWH-22FN    | 22             | 1NPT   | 18.3 | 35 | 47   | 57.1 | 26   |
| VUWH-25DN    | 25             | 1/2NPT | 11.9 | 35 | 45.2 | 57.5 | 31.3 |
| VUWH-25EN    | 25             | 3/4NPT | 15.9 | 35 | 45.2 | 57.5 | 31.3 |
| VUWH-25FN    | 25             | 1NPT   | 21.8 | 35 | 50   | 62.3 | 31.3 |

For inches, see next page

### Thermoelement

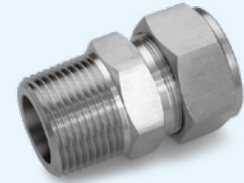
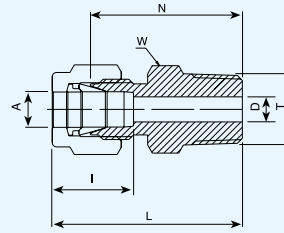
For ordering: use catalog number of the selected fitting and add the suffix T/C.  
Example: VUWH - 6.35 BN - T/C



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Connectors (NPT) (continued)

H

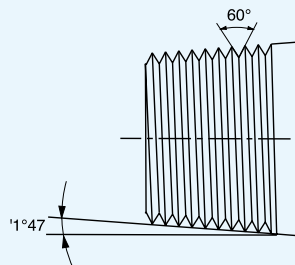


### Tube (Inch) Male NPT Thread

| Part Numbers | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |       | L    |      | I    |      |
|--------------|----------------|-------|--------|------|------|--------|------|------|-------|------|------|------|------|
|              | in             | mm    |        | in   | mm   | in     | mm   | in   | mm    | in   | mm   | in   | mm   |
| VUWH-1.6AN   | 1/16           | 1.6   | 1/8NPT | 0.05 | 1.3  | 7/16   | 11.1 | 0.88 | 22.35 | 1.03 | 26.2 | 0.34 | 8.6  |
| VUWH-3.2AN   | 1/8            | 3.2   | 1/8NPT | 0.09 | 2.3  | 7/16   | 11.1 | 0.94 | 23.9  | 1.2  | 30.5 | 0.5  | 12.7 |
| VUWH-3.2BN   | 1/8            | 3.2   | 1/4NPT | 0.09 | 2.3  | 9/16   | 14.3 | 1.14 | 29    | 1.4  | 35.6 | 0.5  | 12.7 |
| VUWH-4.8AN   | 3/16           | 4.8   | 1/8NPT | 0.12 | 3.1  | 7/16   | 11.1 | 0.97 | 24.6  | 1.23 | 31.2 | 0.54 | 13.7 |
| VUWH-4.8BN   | 3/16           | 4.8   | 1/4NPT | 0.12 | 3.1  | 9/16   | 14.3 | 1.17 | 29.7  | 1.43 | 36.3 | 0.54 | 13.7 |
| VUWH-6.35AN  | 1/4            | 6.35  | 1/8NPT | 0.19 | 4.8  | 1/2    | 12.7 | 1    | 25.4  | 1.29 | 32.8 | 0.6  | 15.2 |
| VUWH-6.35BN  | 1/4            | 6.35  | 1/4NPT | 0.19 | 4.8  | 9/16   | 14.3 | 1.2  | 30.5  | 1.49 | 37.9 | 0.6  | 15.2 |
| VUWH-6.35CN  | 1/4            | 6.35  | 3/8NPT | 0.19 | 4.8  | 11/16  | 17.5 | 1.22 | 31    | 1.51 | 38.4 | 0.6  | 15.2 |
| VUWH-6.35DN  | 1/4            | 6.35  | 1/2NPT | 0.19 | 4.8  | 7/8    | 22.2 | 1.47 | 37.3  | 1.76 | 44.7 | 0.6  | 15.2 |
| VUWH-7.93AN  | 5/16           | 7.93  | 1/8NPT | 0.19 | 4.8  | 9/16   | 14.3 | 1.05 | 26.7  | 1.34 | 34   | 0.64 | 16.2 |
| VUWH-7.93BN  | 5/16           | 7.93  | 1/4NPT | 0.25 | 6.4  | 9/16   | 14.3 | 1.23 | 31.2  | 1.52 | 38.6 | 0.64 | 16.2 |
| VUWH-9.52AN  | 3/8            | 9.52  | 1/8NPT | 0.19 | 4.8  | 5/8    | 15.9 | 1.1  | 27.9  | 1.39 | 35.3 | 0.66 | 16.8 |
| VUWH-9.52BN  | 3/8            | 9.52  | 1/4NPT | 0.28 | 7.1  | 5/8    | 15.9 | 1.28 | 32.5  | 1.57 | 39.9 | 0.66 | 16.8 |
| VUWH-9.52CN  | 3/8            | 9.52  | 3/8NPT | 0.28 | 7.1  | 11/16  | 17.5 | 1.28 | 32.5  | 1.57 | 39.9 | 0.66 | 16.8 |
| VUWH-9.52DN  | 3/8            | 9.52  | 1/2NPT | 0.28 | 7.1  | 7/8    | 22.2 | 1.52 | 38.9  | 1.82 | 46.2 | 0.66 | 16.8 |
| VUWH-9.52EN  | 3/8            | 9.52  | 3/4NPT | 0.28 | 7.1  | 1 1/16 | 27   | 1.59 | 40.4  | 1.88 | 47.8 | 0.66 | 16.8 |
| VUWH-12.7AN  | 1/2            | 12.7  | 1/8NPT | 0.19 | 4.8  | 13/16  | 20.6 | 1.13 | 28.7  | 1.53 | 38.9 | 0.9  | 22.9 |
| VUWH-12.7BN  | 1/2            | 12.7  | 1/4NPT | 0.28 | 7.1  | 13/16  | 20.6 | 1.31 | 33.3  | 1.71 | 43.4 | 0.9  | 22.9 |
| VUWH-12.7CN  | 1/2            | 12.7  | 3/8NPT | 0.38 | 9.6  | 13/16  | 20.6 | 1.31 | 33.3  | 1.71 | 43.4 | 0.9  | 22.9 |
| VUWH-12.7DN  | 1/2            | 12.7  | 1/2NPT | 0.41 | 10.4 | 7/8    | 22.2 | 1.53 | 38.9  | 1.93 | 49   | 0.9  | 22.9 |
| VUWH-12.7EN  | 1/2            | 12.7  | 3/4NPT | 0.41 | 10.4 | 1 1/16 | 27   | 1.59 | 40.4  | 1.99 | 50.5 | 0.9  | 22.9 |
| VUWH-12.7FN  | 1/2            | 12.7  | 1NPT   | 0.41 | 10.4 | 1 3/8  | 34.9 | 1.85 | 47    | 2.25 | 57.2 | 0.9  | 22.9 |
| VUWH-15.88CN | 5/8            | 15.88 | 3/8NPT | 0.38 | 9.6  | 15/16  | 23.8 | 1.34 | 34    | 1.74 | 44.2 | 0.96 | 24.4 |
| VUWH-15.88DN | 5/8            | 15.88 | 1/2NPT | 0.47 | 11.9 | 15/16  | 23.8 | 1.53 | 38.9  | 1.93 | 49   | 0.96 | 24.4 |
| VUWH-15.88EN | 5/8            | 15.88 | 3/4NPT | 0.5  | 12.7 | 1 1/16 | 27   | 1.59 | 40.4  | 1.99 | 50.5 | 0.96 | 24.4 |
| VUWH-19.05DN | 3/4            | 19.05 | 1/2NPT | 0.5  | 11.9 | 1 1/16 | 27   | 1.59 | 40.4  | 1.99 | 50.5 | 0.96 | 24.4 |
| VUWH-19.05EN | 3/4            | 19.05 | 3/4NPT | 0.62 | 15.8 | 1 1/16 | 27   | 1.59 | 40.4  | 1.99 | 50.5 | 0.96 | 24.4 |
| VUWH-19.05FN | 3/4            | 19.05 | 1NPT   | 0.62 | 15.8 | 1 3/8  | 34.9 | 1.85 | 47    | 2.25 | 57.2 | 0.96 | 24.4 |
| VUWH-22.22EN | 7/8            | 22.22 | 3/4NPT | 0.72 | 18.3 | 1 3/16 | 30.2 | 1.59 | 40.4  | 1.99 | 50.5 | 1.02 | 25.9 |
| VUWH-25.4EN  | 1              | 25.4  | 3/4NPT | 0.72 | 15.8 | 1 3/8  | 34.9 | 1.78 | 45.2  | 2.26 | 57.4 | 1.23 | 31.2 |
| VUWH-25.4FN  | 1              | 25.4  | 1NPT   | 0.88 | 22.3 | 1 3/8  | 34.9 | 1.97 | 50    | 2.45 | 62.2 | 1.23 | 31.2 |

### Reference Specifications:

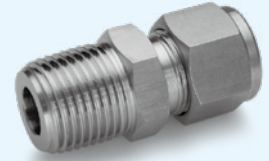
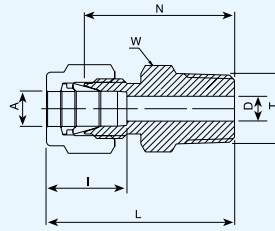
American Standard Pipe Thread (NPT).  
NPT (National Pipe Tapered) is made to specifications outlined in ANSI B1.20.1.



"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Connectors (R)

H



**Tube (Metric) ISO Tapered Thread**

| Part Numbers | A<br>Tube O.D. | T     | D    | W  | N    | L    | I    |
|--------------|----------------|-------|------|----|------|------|------|
|              | mm             |       | mm   | mm | mm   | mm   | mm   |
| VUWH-2A      | 2              | R 1/8 | 1.7  | 12 | 23.9 | 30.5 | 12.9 |
| VUWH-3A      | 3              | R 1/8 | 2.4  | 12 | 23.9 | 30.5 | 12.9 |
| VUWH-3B      | 3              | R 1/4 | 2.4  | 14 | 29   | 35.6 | 12.9 |
| VUWH-4A      | 4              | R 1/8 | 2.4  | 12 | 24.6 | 31.2 | 13.7 |
| VUWH-4B      | 4              | R 1/4 | 2.4  | 14 | 29.7 | 36.3 | 13.7 |
| VUWH-6A      | 6              | R 1/8 | 4.8  | 14 | 25.4 | 32.8 | 15.3 |
| VUWH-6B      | 6              | R 1/4 | 4.8  | 14 | 30.5 | 37.9 | 15.3 |
| VUWH-6C      | 6              | R 3/8 | 4.8  | 18 | 31   | 38.4 | 15.3 |
| VUWH-6D      | 6              | R 1/2 | 4.8  | 22 | 37.3 | 44.7 | 15.3 |
| VUWH-8A      | 8              | R 1/8 | 4.8  | 15 | 26.7 | 34.2 | 16.2 |
| VUWH-8B      | 8              | R 1/4 | 6.4  | 15 | 31.2 | 38.7 | 16.2 |
| VUWH-8C      | 8              | R 3/8 | 6.4  | 18 | 31.8 | 39.3 | 16.2 |
| VUWH-8D      | 8              | R 1/2 | 6.4  | 22 | 38.1 | 45.6 | 16.2 |
| VUWH-10A     | 10             | R 1/8 | 4.8  | 18 | 28.7 | 36.3 | 17.2 |
| VUWH-10B     | 10             | R 1/4 | 7.9  | 18 | 33.3 | 40.9 | 17.2 |
| VUWH-10C     | 10             | R 3/8 | 7.9  | 18 | 33.3 | 40.9 | 17.2 |
| VUWH-10D     | 10             | R 1/2 | 7.9  | 22 | 38.9 | 46.5 | 17.2 |
| VUWH-12B     | 12             | R 1/4 | 7.1  | 22 | 33.3 | 43.4 | 22.8 |
| VUWH-12C     | 12             | R 3/8 | 9.5  | 22 | 33.3 | 43.4 | 22.8 |
| VUWH-12D     | 12             | R 1/2 | 9.5  | 22 | 38.9 | 49   | 22.8 |
| VUWH-12E     | 12             | R 3/4 | 9.5  | 27 | 40.4 | 50.5 | 22.8 |
| VUWH-15D     | 15             | R 1/2 | 11.9 | 24 | 38.9 | 49   | 24.4 |
| VUWH-16B     | 16             | R 1/4 | 7.1  | 24 | 34   | 44.1 | 24.4 |
| VUWH-16C     | 16             | R 3/8 | 9.5  | 24 | 34   | 44.1 | 24.4 |
| VUWH-16D     | 16             | R 1/2 | 11.9 | 24 | 38.9 | 49   | 24.4 |
| VUWH-16E     | 16             | R 3/4 | 12.7 | 27 | 40.4 | 50.5 | 24.4 |
| VUWH-18D     | 18             | R 1/2 | 11.9 | 27 | 40.4 | 50.5 | 24.4 |
| VUWH-18E     | 18             | R 3/4 | 15.1 | 27 | 40.4 | 50.5 | 24.4 |
| VUWH-20D     | 20             | R 1/2 | 11.9 | 30 | 42.2 | 52.3 | 26   |
| VUWH-20E     | 20             | R 3/4 | 15.9 | 30 | 42.2 | 52.3 | 26   |
| VUWH-22E     | 22             | R 3/4 | 15.9 | 30 | 42.2 | 52.3 | 26   |
| VUWH-22F     | 22             | R 1   | 18.3 | 35 | 47   | 57.1 | 26   |
| VUWH-25E     | 25             | R 3/4 | 15.9 | 35 | 45.2 | 57.5 | 31.3 |
| VUWH-25F     | 25             | R 1   | 21.8 | 35 | 50   | 62.3 | 31.3 |

### Reference Specifications:

DIN - ISO 2999

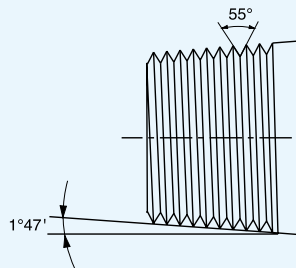
BS - 21

JIS - B0203

ISO - 7/1-BSP-T

### Designation:

R marking on hex.

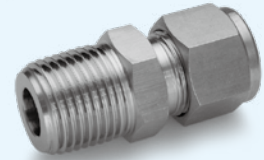
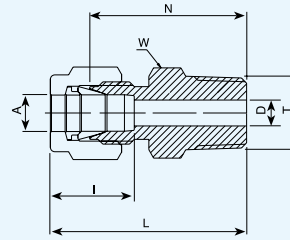


For inches, see next page

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Connectors (R) (continued)

H



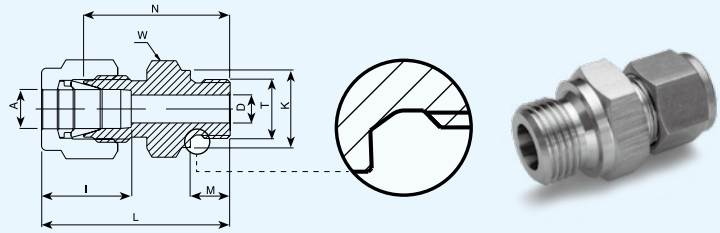
### Tube (Inch) ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |       | T     | D    |      | W      |      | N    |      | L    |      | I    |      |
|--------------|----------------|-------|-------|------|------|--------|------|------|------|------|------|------|------|
|              | in             | mm    |       | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWH-3.2A    | 1/8            | 3.2   | R 1/8 | 0.09 | 2.3  | 7/16   | 11.1 | 0.94 | 23.9 | 1.2  | 30.5 | 0.5  | 12.7 |
| VUWH-3.2B    | 1/8            | 3.2   | R 1/4 | 0.09 | 2.3  | 9/16   | 14.3 | 1.14 | 29   | 1.4  | 35.6 | 0.5  | 12.7 |
| VUWH-6.35A   | 1/4            | 6.35  | R 1/8 | 0.19 | 4.8  | 1/2    | 12.7 | 1    | 25.4 | 1.29 | 32.8 | 0.6  | 15.2 |
| VUWH-6.35B   | 1/4            | 6.35  | R 1/4 | 0.19 | 4.8  | 9/16   | 14.3 | 1.2  | 30.5 | 1.49 | 37.8 | 0.6  | 15.2 |
| VUWH-6.35C   | 1/4            | 6.35  | R 3/8 | 0.19 | 4.8  | 11/16  | 17.5 | 1.22 | 31   | 1.51 | 38.4 | 0.6  | 15.2 |
| VUWH-6.35D   | 1/4            | 6.35  | R 1/2 | 0.19 | 4.8  | 7/8    | 22.2 | 1.47 | 37.3 | 1.76 | 44.7 | 0.6  | 15.2 |
| VUWH-7.93A   | 5/16           | 7.93  | R 1/8 | 0.19 | 4.8  | 9/16   | 14.3 | 1.05 | 26.7 | 1.34 | 34   | 0.64 | 16.2 |
| VUWH-7.93B   | 5/16           | 7.93  | R 1/4 | 0.25 | 6.35 | 9/16   | 14.3 | 1.23 | 31.2 | 1.52 | 38.6 | 0.64 | 16.2 |
| VUWH-9.52A   | 3/8            | 9.52  | R 1/8 | 0.19 | 4.8  | 5/8    | 15.9 | 1.1  | 27.9 | 1.39 | 35.3 | 0.66 | 16.8 |
| VUWH-9.52B   | 3/8            | 9.52  | R 1/4 | 0.28 | 7.1  | 5/8    | 15.9 | 1.28 | 32.5 | 1.57 | 39.9 | 0.66 | 16.8 |
| VUWH-9.52C   | 3/8            | 9.52  | R 3/8 | 0.28 | 7.1  | 11/16  | 17.5 | 1.28 | 32.5 | 1.57 | 39.9 | 0.66 | 16.8 |
| VUWH-9.52D   | 3/8            | 9.52  | R 1/2 | 0.28 | 7.1  | 7/8    | 22.2 | 1.53 | 38.9 | 1.82 | 46.2 | 0.66 | 16.8 |
| VUWH-12.7B   | 1/2            | 12.7  | R 1/4 | 0.28 | 7.1  | 13/16  | 20.6 | 1.31 | 33.3 | 1.71 | 43.4 | 0.9  | 22.9 |
| VUWH-12.7C   | 1/2            | 12.7  | R 3/8 | 0.38 | 9.6  | 13/16  | 20.6 | 1.31 | 33.3 | 1.71 | 43.4 | 0.9  | 22.9 |
| VUWH-12.7D   | 1/2            | 12.7  | R 1/2 | 0.41 | 10.4 | 7/8    | 22.2 | 1.53 | 38.9 | 1.93 | 49   | 0.9  | 22.9 |
| VUWH-12.7E   | 1/2            | 12.7  | R 3/4 | 0.41 | 10.4 | 1 1/16 | 27   | 1.59 | 40.4 | 1.99 | 50.5 | 0.9  | 22.9 |
| VUWH-19.05E  | 3/4            | 19.05 | R 3/4 | 0.62 | 15.8 | 1 1/16 | 27   | 1.59 | 40.4 | 1.99 | 50.5 | 0.96 | 24.4 |
| VUWH-25.4F   | 1              | 25.4  | R 1   | 0.88 | 22.3 | 1 3/8  | 34.9 | 1.97 | 50   | 2.45 | 62.2 | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Connectors (G)

H



**Tube (Metric) ISO Parallel Thread**

| Part Numbers  | A<br>Tube O.D. | T     | D    | K    | W  | N    | M    | L    | I    |
|---------------|----------------|-------|------|------|----|------|------|------|------|
|               | mm             |       | mm   | mm   | mm | mm   | mm   | mm   | mm   |
| VUWH-2AF-FJS  | 2              | G 1/8 | 1.7  | 13.8 | 14 | 23.4 | 7.1  | 30   | 12.9 |
| VUWH-3AF-FJS  | 3              | G 1/8 | 2.4  | 13.8 | 14 | 23.4 | 7.1  | 30   | 12.9 |
| VUWH-3BF-FJS  | 3              | G 1/4 | 2.4  | 18   | 19 | 28.7 | 11.2 | 35.3 | 12.9 |
| VUWH-4AF-FJS  | 4              | G 1/8 | 2.4  | 13.8 | 14 | 24.1 | 7.1  | 30.7 | 13.7 |
| VUWH-6AF-FJS  | 6              | G 1/8 | 4    | 13.8 | 14 | 24.9 | 7.1  | 32.3 | 15.3 |
| VUWH-6BF-FJS  | 6              | G 1/4 | 4.8  | 18   | 19 | 30.2 | 11.2 | 37.6 | 15.3 |
| VUWH-6CF-FJS  | 6              | G 3/8 | 4.8  | 21.8 | 22 | 31.5 | 11.2 | 38.9 | 15.3 |
| VUWH-6DF-FJS  | 6              | G 1/2 | 4.8  | 26   | 27 | 37.3 | 14.2 | 44.7 | 15.3 |
| VUWH-8AF-FJS  | 8              | G 1/8 | 4    | 13.8 | 15 | 25.7 | 7.1  | 33.2 | 16.2 |
| VUWH-8BF-FJS  | 8              | G 1/4 | 6.4  | 13.8 | 19 | 31   | 11.2 | 38.5 | 16.2 |
| VUWH-8CF-FJS  | 8              | G 3/8 | 6.4  | 21.8 | 22 | 32.3 | 11.2 | 39.8 | 16.2 |
| VUWH-8DF-FJS  | 8              | G 1/2 | 6.4  | 26   | 27 | 38.1 | 14.2 | 45.6 | 16.2 |
| VUWH-10BF-FJS | 10             | G 1/4 | 5.9  | 18   | 19 | 31.8 | 11.2 | 39.4 | 17.2 |
| VUWH-10CF-FJS | 10             | G 3/8 | 7.9  | 21.8 | 22 | 33   | 11.2 | 40.6 | 17.2 |
| VUWH-10DF-FJS | 10             | G 1/2 | 7.9  | 26   | 27 | 38.9 | 14.2 | 46.5 | 17.2 |
| VUWH-12BF-FJS | 12             | G 1/4 | 5.9  | 18   | 22 | 32.5 | 11.2 | 42.6 | 22.8 |
| VUWH-12CF-FJS | 12             | G 3/8 | 7.9  | 21.8 | 22 | 33   | 11.2 | 43.1 | 22.8 |
| VUWH-12DF-FJS | 12             | G 1/2 | 9.5  | 26   | 27 | 38.9 | 14.2 | 49   | 22.8 |
| VUWH-12EF-FJS | 12             | G 3/4 | 9.5  | 32   | 35 | 42.7 | 15.7 | 52.8 | 22.8 |
| VUWH-16CF-FJS | 16             | G 3/8 | 7.9  | 21.8 | 24 | 33.8 | 11.2 | 43.9 | 24.4 |
| VUWH-16DF-FJS | 16             | G 1/2 | 11.9 | 26   | 27 | 38.9 | 14.2 | 49   | 24.4 |
| VUWH-18DF-FJS | 18             | G 1/2 | 11.9 | 26   | 27 | 38.9 | 14.2 | 49   | 24.4 |
| VUWH-18EF-FJS | 18             | G 3/4 | 15.1 | 32   | 35 | 42.7 | 15.7 | 52.8 | 24.4 |
| VUWH-20DF-FJS | 20             | G 1/2 | 11.9 | 26   | 30 | 40.4 | 14.2 | 50.5 | 26   |
| VUWH-20EF-FJS | 20             | G 3/4 | 15.9 | 32   | 35 | 42.7 | 15.7 | 52.8 | 26   |
| VUWH-22EF-FJS | 22             | G 3/4 | 15.9 | 32   | 35 | 42.7 | 15.7 | 52.8 | 26   |
| VUWH-22FF-FJS | 22             | G 1   | 18.3 | 39   | 41 | 45.2 | 18.3 | 55.3 | 26   |
| VUWH-25EF-FJS | 25             | G 3/4 | 15.9 | 32   | 35 | 45.2 | 15.7 | 57.5 | 31.3 |
| VUWH-25FF-FJS | 25             | G 1   | 19.8 | 39   | 41 | 47.8 | 18.3 | 60.1 | 31.3 |

For inches, see next page

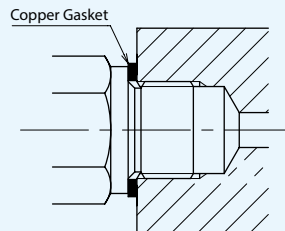
### Reference Specifications:

DIN - ISO 228/1  
BS - 2779  
JIS - B0202  
ISO - 228/1-BSP-P

### Designation:

G marking on hex.

### Seal Method (Male G Thread Side)



### Note:

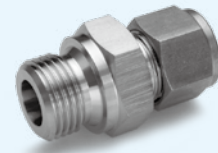
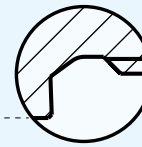
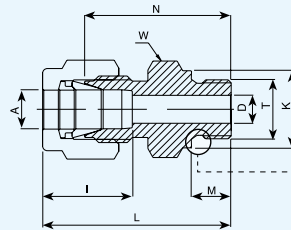
After checking G male thread size, please order a suitable gasket separately.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.



## Male Connectors (G) (continued)

H



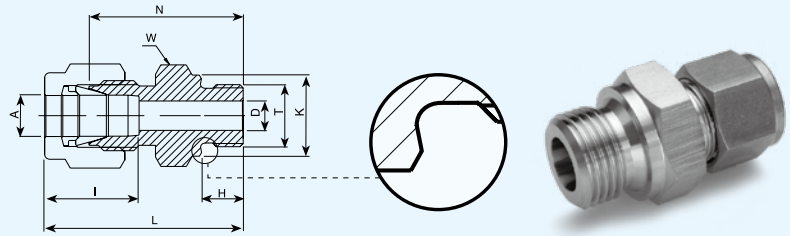
### Tube (Inch) ISO Parallel Thread

| Part Numbers     | A<br>Tube O.D. |       | T     | D    |      | K    |      | W      |      | N    |      | M    |      | L    |      | I    |      |
|------------------|----------------|-------|-------|------|------|------|------|--------|------|------|------|------|------|------|------|------|------|
|                  | in             | mm    |       | in   | mm   | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWH-3.2AF-FJS   | 1/8            | 3.2   | G 1/8 | 0.09 | 2.3  | 0.54 | 13.8 | 9/16   | 14.3 | 0.92 | 23.4 | 0.28 | 7.1  | 1.18 | 30   | 0.5  | 12.7 |
| VUWH-3.2BF-FJS   | 1/8            | 3.2   | G 1/4 | 0.09 | 2.3  | 0.71 | 18   | 3/4    | 19.1 | 1.13 | 28.7 | 0.44 | 11.2 | 1.39 | 35.3 | 0.5  | 12.7 |
| VUWH-3.2CF-FJS   | 1/8            | 3.2   | G 3/8 | 0.09 | 2.3  | 0.86 | 21.8 | 7/8    | 22.2 | 1.17 | 29.7 | 0.44 | 11.2 | 1.46 | 37   | 0.5  | 12.7 |
| VUWH-3.2DF-FJS   | 1/8            | 3.2   | G 1/2 | 0.09 | 2.3  | 1.02 | 26   | 1 1/16 | 27   | 1.4  | 35.7 | 0.56 | 14.2 | 1.69 | 43   | 0.5  | 12.7 |
| VUWH-4.8AF-FJS   | 3/16           | 4.8   | G 1/8 | 0.12 | 3.1  | 0.54 | 13.8 | 9/16   | 14.3 | 0.95 | 24.1 | 0.28 | 7.1  | 1.2  | 30.7 | 0.54 | 13.7 |
| VUWH-6.35AF-FJS  | 1/4            | 6.35  | G 1/8 | 0.16 | 4    | 0.54 | 13.8 | 9/16   | 14.3 | 0.98 | 24.9 | 0.28 | 7.1  | 1.27 | 32.3 | 0.6  | 15.2 |
| VUWH-6.35BF-FJS  | 1/4            | 6.35  | G 1/4 | 0.19 | 4.8  | 0.71 | 18   | 3/4    | 19.1 | 1.19 | 30.2 | 0.44 | 11.2 | 1.48 | 37.6 | 0.6  | 15.2 |
| VUWH-6.35CF-FJS  | 1/4            | 6.35  | G 3/8 | 0.19 | 4.8  | 0.86 | 21.8 | 7/8    | 22.2 | 1.24 | 31.5 | 0.44 | 11.2 | 1.53 | 38.9 | 0.6  | 15.2 |
| VUWH-6.35DF-FJS  | 1/4            | 6.35  | G 1/2 | 0.19 | 4.8  | 1.02 | 26   | 1 1/16 | 27   | 1.47 | 37.3 | 0.56 | 14.2 | 1.76 | 44.7 | 0.6  | 15.2 |
| VUWH-7.93BF-FJS  | 5/16           | 7.93  | G 1/4 | 0.25 | 6.4  | 0.71 | 18   | 3/4    | 19.1 | 1.22 | 31   | 0.44 | 11.2 | 1.51 | 38.4 | 0.63 | 16   |
| VUWH-7.93CF-FJS  | 5/16           | 7.93  | G 3/8 | 0.25 | 6.4  | 0.86 | 21.8 | 7/8    | 22.2 | 1.27 | 32.3 | 0.44 | 11.2 | 1.56 | 39.6 | 0.63 | 16   |
| VUWH-9.52BF-FJS  | 3/8            | 9.52  | G 1/4 | 0.23 | 5.8  | 0.71 | 18   | 3/4    | 19.1 | 1.25 | 31.8 | 0.44 | 11.2 | 1.54 | 39.1 | 0.66 | 16.8 |
| VUWH-9.52CF-FJS  | 3/8            | 9.52  | G 3/8 | 0.28 | 7.1  | 0.86 | 21.8 | 7/8    | 22.2 | 1.3  | 33   | 0.44 | 11.2 | 1.59 | 40.4 | 0.66 | 16.8 |
| VUWH-9.52DF-FJS  | 3/8            | 9.52  | G 1/2 | 0.28 | 7.1  | 1.02 | 26   | 1 1/16 | 27   | 1.53 | 38.9 | 0.56 | 14.2 | 1.82 | 46.3 | 0.66 | 16.8 |
| VUWH-12.7BF-FJS  | 1/2            | 12.7  | G 1/4 | 0.23 | 5.8  | 0.71 | 18   | 13/16  | 20.6 | 1.28 | 32.5 | 0.44 | 11.2 | 1.68 | 42.7 | 0.9  | 22.9 |
| VUWH-12.7CF-FJS  | 1/2            | 12.7  | G 3/8 | 0.31 | 7.9  | 0.86 | 21.8 | 7/8    | 22.2 | 1.3  | 33   | 0.44 | 11.2 | 1.7  | 43.2 | 0.9  | 22.9 |
| VUWH-12.7DF-FJS  | 1/2            | 12.7  | G 1/2 | 0.41 | 10.4 | 1.02 | 26   | 1 1/16 | 27   | 1.47 | 37.3 | 0.56 | 14.2 | 1.87 | 47.5 | 0.9  | 22.9 |
| VUWH-12.7EF-FJS  | 1/2            | 12.7  | G 3/4 | 0.41 | 10.4 | 1.26 | 32   | 1 5/16 | 33.3 | 1.68 | 42.7 | 0.62 | 15.7 | 2.08 | 52.8 | 0.9  | 22.9 |
| VUWH-15.88CF-FJS | 5/8            | 15.88 | G 3/8 | 0.31 | 7.9  | 0.86 | 21.8 | 15/16  | 23.8 | 1.33 | 33.8 | 0.44 | 11.2 | 1.73 | 43.9 | 0.96 | 24.4 |
| VUWH-15.88DF-FJS | 5/8            | 15.88 | G 1/2 | 0.47 | 11.9 | 1.02 | 26   | 1 1/16 | 27   | 1.53 | 38.9 | 0.56 | 14.2 | 1.93 | 49   | 0.96 | 24.4 |
| VUWH-19.05DF-FJS | 3/4            | 19.05 | G 1/2 | 0.47 | 11.9 | 1.02 | 26   | 1 1/16 | 27   | 1.53 | 38.9 | 0.56 | 14.2 | 1.93 | 49   | 0.96 | 24.4 |
| VUWH-19.05EF-FJS | 3/4            | 19.05 | G 3/4 | 0.62 | 15.7 | 1.26 | 32   | 1 5/16 | 33.3 | 1.68 | 42.7 | 0.62 | 15.7 | 2.08 | 52.8 | 0.96 | 24.4 |
| VUWH-25.4DF-FJS  | 1              | 25.4  | G 1/2 | 0.47 | 11.9 | 1.02 | 26   | 1 3/8  | 34.9 | 1.72 | 43.7 | 0.56 | 14.2 | 2.2  | 55.8 | 1.23 | 31.2 |
| VUWH-25.4EF-FJS  | 1              | 25.4  | G 3/4 | 0.62 | 15.9 | 1.26 | 32   | 1 3/8  | 34.9 | 1.78 | 45.2 | 0.62 | 15.7 | 2.65 | 67.3 | 1.23 | 31.2 |
| VUWH-25.4FF-FJS  | 1              | 25.4  | G 1   | 0.78 | 19.8 | 1.54 | 39   | 1 5/8  | 41.3 | 1.88 | 47.8 | 0.72 | 18.3 | 2.36 | 59.9 | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Connectors (G)

H



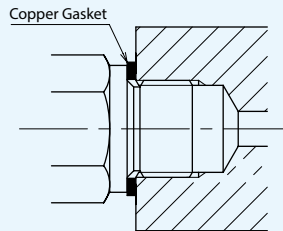
### ISO Parallel Thread

| Part Numbers  | A<br>Tube O.D. | T     | D    | K    | W  | N    | H    | L    | I    |
|---------------|----------------|-------|------|------|----|------|------|------|------|
|               | mm             |       | mm   | mm   | mm | mm   | mm   | mm   | mm   |
| VUWH-3AF-FJT  | 3              | G 1/8 | 2.4  | 13.8 | 14 | 23.4 | 7.1  | 30   | 12.9 |
| VUWH-3BF-FJT  | 3              | G 1/4 | 2.4  | 18   | 19 | 28.7 | 11.2 | 35.3 | 12.9 |
| VUWH-4AF-FJT  | 4              | G 1/8 | 2.4  | 13.8 | 14 | 24.1 | 7.1  | 30.7 | 13.7 |
| VUWH-6AF-FJT  | 6              | G 1/8 | 4    | 13.8 | 14 | 24.9 | 7.1  | 32.3 | 15.3 |
| VUWH-6BF-FJT  | 6              | G 1/4 | 4.8  | 18   | 19 | 30.2 | 11.2 | 37.6 | 15.3 |
| VUWH-6CF-FJT  | 6              | G 3/8 | 4.8  | 21.8 | 22 | 31.5 | 11.2 | 38.9 | 15.3 |
| VUWH-6DF-FJT  | 6              | G 1/2 | 4.8  | 26   | 27 | 37.3 | 14.2 | 44.7 | 15.3 |
| VUWH-8AF-FJT  | 8              | G 1/8 | 4    | 13.8 | 15 | 25.7 | 7.1  | 33.2 | 16.2 |
| VUWH-8BF-FJT  | 8              | G 1/4 | 6.4  | 18   | 19 | 31   | 11.2 | 38.5 | 16.2 |
| VUWH-8CF-FJT  | 8              | G 3/8 | 6.4  | 21.8 | 22 | 32.3 | 11.2 | 39.8 | 16.2 |
| VUWH-8DF-FJT  | 8              | G 1/2 | 6.4  | 26   | 27 | 38.1 | 14.2 | 45.6 | 16.2 |
| VUWH-10BF-FJT | 10             | G 1/4 | 5.9  | 18   | 19 | 31.8 | 11.2 | 39.4 | 17.2 |
| VUWH-10CF-FJT | 10             | G 3/8 | 7.9  | 21.8 | 22 | 33   | 11.2 | 40.6 | 17.2 |
| VUWH-10DF-FJT | 10             | G 1/2 | 7.9  | 26   | 27 | 38.9 | 14.2 | 46.5 | 19.5 |
| VUWH-12BF-FJT | 12             | G 1/4 | 5.9  | 18   | 22 | 32.5 | 11.2 | 42.6 | 17.2 |
| VUWH-12CF-FJT | 12             | G 3/8 | 7.9  | 21.8 | 22 | 33   | 11.2 | 43.1 | 22.8 |
| VUWH-12DF-FJT | 12             | G 1/2 | 9.5  | 26   | 27 | 38.9 | 14.2 | 49   | 22.8 |
| VUWH-12EF-FJT | 12             | G 3/4 | 9.5  | 32   | 35 | 42.7 | 15.7 | 52.8 | 22.8 |
| VUWH-15DF-FJT | 15             | G 1/2 | 11.9 | 26   | 27 | 38.9 | 14.2 | 49   | 22.8 |
| VUWH-16CF-FJT | 16             | G 3/8 | 7.9  | 21.8 | 24 | 33.8 | 11.2 | 43.9 | 22.4 |
| VUWH-16DF-FJT | 16             | G 1/2 | 11.9 | 26   | 27 | 38.9 | 14.2 | 49   | 22.4 |
| VUWH-18DF-FJT | 18             | G 1/2 | 11.9 | 26   | 27 | 38.9 | 14.2 | 49   | 22.4 |
| VUWH-18EF-FJT | 18             | G 3/4 | 15.1 | 32   | 35 | 42.7 | 15.7 | 52.8 | 22.4 |
| VUWH-20DF-FJT | 20             | G 1/2 | 11.9 | 26   | 30 | 40.4 | 14.2 | 50.5 | 26   |
| VUWH-20EF-FJT | 20             | G 3/4 | 15.9 | 32   | 35 | 42.7 | 15.7 | 52.8 | 26   |
| VUWH-22EF-FJT | 22             | G 3/4 | 15.9 | 32   | 35 | 42.7 | 15.7 | 52.8 | 26   |
| VUWH-22FF-FJT | 22             | G 1   | 18.3 | 39   | 40 | 45.2 | 18.3 | 55.3 | 26   |
| VUWH-25EF-FJT | 25             | G 3/4 | 15.9 | 32   | 35 | 45.2 | 15.7 | 57.5 | 31.3 |
| VUWH-25FF-FJT | 25             | G 1   | 19.8 | 39   | 40 | 47.8 | 18.3 | 60.1 | 31.3 |

### Reference Specifications:

DIN - ISO 228/1  
BS - 2779  
JIS - B0202  
ISO - 228/1-BSP-P

### Seal Method (Male G Thread Side)



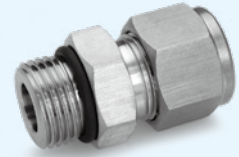
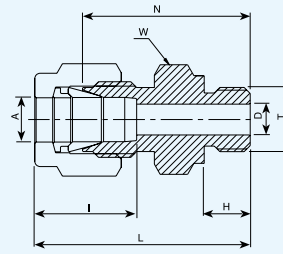
#### Note:

After checking G male thread size, please order a suitable gasket separately.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Connectors (UNF)

H



### SAE/MS Straight Thread BOSS ※

| Part Numbers      | A<br>Tube O.D. |       | T         | D    |      | W      |      | N    |      | H    |      | L    |      | I    |      | O-ring ※<br>size<br>AS568 |
|-------------------|----------------|-------|-----------|------|------|--------|------|------|------|------|------|------|------|------|------|---------------------------|
|                   | in             | mm    |           | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |                           |
| VUWH-3.2X5/16     | 1/8            | 3.2   | 5/16-24   | 0.09 | 2.3  | 7/16   | 11.1 | 0.92 | 23.4 | 0.3  | 7.6  | 1.18 | 30   | 0.5  | 12.7 | -902                      |
| VUWH-6.35X7/16    | 1/4            | 6.35  | 7/16-20   | 0.19 | 4.8  | 9/16   | 14.3 | 1.05 | 26.7 | 0.36 | 9.1  | 1.34 | 34   | 0.6  | 15.2 | -904                      |
| VUWH-6.35X9/16    | 1/4            | 6.35  | 9/16-18   | 0.19 | 4.8  | 11/16  | 17.5 | 1.11 | 28.2 | 0.39 | 9.9  | 1.4  | 35.6 | 0.6  | 15.2 | -906                      |
| VUWH-6.35X3/4     | 1/4            | 6.35  | 3/4-16    | 0.19 | 4.8  | 7/8    | 22.2 | 1.19 | 30.2 | 0.44 | 11.2 | 1.48 | 37.6 | 0.6  | 15.2 | -908                      |
| VUWH-6.35X7/8     | 1/4            | 6.35  | 7/8-14    | 0.19 | 4.8  | 1      | 25.4 | 1.31 | 33.3 | 0.5  | 12.7 | 1.6  | 40.6 | 0.6  | 15.2 | -910                      |
| VUWH-7.93X1/2     | 5/16           | 7.93  | 1/2-20    | 0.25 | 6.4  | 5/8    | 15.9 | 1.08 | 27.4 | 0.36 | 9.1  | 1.37 | 34.8 | 0.64 | 16.2 | -905                      |
| VUWH-9.52X7/16    | 3/8            | 9.52  | 7/16-20   | 0.2  | 5.1  | 5/8    | 15.9 | 1.11 | 28.2 | 0.36 | 9.1  | 1.4  | 35.6 | 0.66 | 16.8 | -904                      |
| VUWH-9.52X9/16    | 3/8            | 9.52  | 9/16-18   | 0.28 | 7.1  | 11/16  | 17.5 | 1.17 | 29.7 | 0.39 | 9.9  | 1.46 | 37.1 | 0.66 | 16.8 | -906                      |
| VUWH-9.52X3/4     | 3/8            | 9.52  | 3/4-16    | 0.28 | 7.1  | 7/8    | 22.2 | 1.25 | 31.8 | 0.44 | 11.2 | 1.54 | 39.1 | 0.66 | 16.8 | -908                      |
| VUWH-9.52X7/8     | 3/8            | 9.52  | 7/8-14    | 0.28 | 7.1  | 1      | 25.4 | 1.37 | 34.8 | 0.5  | 12.7 | 1.66 | 42.2 | 0.66 | 16.8 | -910                      |
| VUWH-12.7X9/16    | 1/2            | 12.7  | 9/16-18   | 0.28 | 7.1  | 13/16  | 20.6 | 1.14 | 29   | 0.39 | 9.9  | 1.54 | 39.1 | 0.9  | 22.9 | -906                      |
| VUWH-12.7X3/4     | 1/2            | 12.7  | 3/4-16    | 0.41 | 10.4 | 7/8    | 22.2 | 1.25 | 31.8 | 0.44 | 11.2 | 1.65 | 41.9 | 0.9  | 22.9 | -908                      |
| VUWH-12.7X7/8     | 1/2            | 12.7  | 7/8-14    | 0.41 | 10.4 | 1      | 25.4 | 1.37 | 34.8 | 0.5  | 12.7 | 1.77 | 45   | 0.9  | 22.9 | -910                      |
| VUWH-12.7X1-1/16  | 1/2            | 12.7  | 1 1/16-12 | 0.41 | 10.4 | 1 1/4  | 31.8 | 1.53 | 38.9 | 0.59 | 15   | 1.93 | 49   | 0.9  | 22.9 | -912                      |
| VUWH-15.88X3/4    | 5/8            | 15.88 | 3/4-16    | 0.42 | 10.7 | 15/16  | 23.8 | 1.25 | 31.8 | 0.44 | 11.2 | 1.65 | 41.9 | 0.96 | 22.4 | -908                      |
| VUWH-15.88X7/8    | 5/8            | 15.88 | 7/8-14    | 0.5  | 12.7 | 1      | 25.4 | 1.38 | 35   | 0.5  | 12.7 | 1.78 | 45.2 | 0.96 | 22.4 | -910                      |
| VUWH-19.05X3/4    | 3/4            | 19.05 | 3/4-16    | 0.42 | 10.7 | 1 1/16 | 27   | 1.41 | 35.8 | 0.44 | 11.2 | 1.81 | 46   | 0.96 | 22.4 | -908                      |
| VUWH-19.05X1-1/16 | 3/4            | 19.05 | 1 1/16-12 | 0.62 | 15.8 | 1 1/4  | 31.8 | 1.53 | 38.9 | 0.59 | 15   | 1.93 | 49   | 0.96 | 22.4 | -912                      |
| VUWH-22.22X1-3/16 | 7/8            | 22.22 | 1 3/16-12 | 0.72 | 18.3 | 1 3/8  | 34.9 | 1.53 | 38.9 | 0.59 | 15   | 1.93 | 49   | 1.02 | 25.9 | -914                      |
| VUWH-25.4X1-1/16  | 1              | 25.4  | 1 1/16-12 | 0.66 | 16.8 | 1 3/8  | 34.9 | 1.62 | 41.1 | 0.59 | 15   | 2.1  | 53.3 | 1.23 | 31.2 | -912                      |
| VUWH-25.4X1-5/16  | 1              | 25.4  | 1 5/16-12 | 0.88 | 22.3 | 1 1/2  | 38.1 | 1.66 | 42.2 | 0.59 | 15   | 2.14 | 54.4 | 1.23 | 31.2 | -916                      |

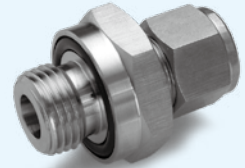
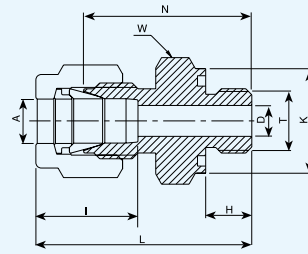
※ : Per SAE J1926 and MS 16142. See page 78 for mounting dimensions.

※※ : O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Connectors

H

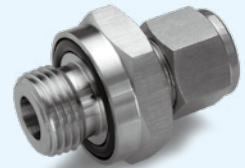
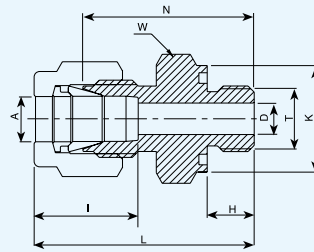


### O-Seal NPT Tapered Thread

| Part Numbers   | A<br>Tube O.D. |      | T      | D    |      | K    |      | W      |      | N    |      | H    |      | L    |      | I    |      | O-ring ※※<br>size<br>AS568 |
|----------------|----------------|------|--------|------|------|------|------|--------|------|------|------|------|------|------|------|------|------|----------------------------|
|                | in             | mm   |        | in   | mm   | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |                            |
| VUWH-3.2AN-OR  | 1/8            | 3.2  | 1/8NPT | 0.09 | 2.3  | 0.74 | 18.8 | 3/4    | 19.1 | 1.03 | 26.2 | 0.28 | 7.1  | 1.29 | 32.8 | 0.5  | 12.7 | -111                       |
| VUWH-6.35AN-OR | 1/4            | 6.35 | 1/8NPT | 0.19 | 4.8  | 0.74 | 18.8 | 3/4    | 19.1 | 1.09 | 27.7 | 0.28 | 7.1  | 1.38 | 35.1 | 0.6  | 15.2 | -111                       |
| VUWH-6.35BN-OR | 1/4            | 6.35 | 1/4NPT | 0.19 | 4.8  | 0.93 | 23.6 | 15/16  | 23.8 | 1.22 | 31   | 0.38 | 9.7  | 1.51 | 38.4 | 0.6  | 15.2 | -113                       |
| VUWH-9.52BN-OR | 3/8            | 9.52 | 1/4NPT | 0.28 | 7.1  | 0.93 | 23.6 | 15/16  | 23.8 | 1.28 | 32.5 | 0.38 | 9.7  | 1.57 | 39.9 | 0.66 | 16.8 | -113                       |
| VUWH-9.52CN-OR | 3/8            | 9.52 | 3/8NPT | 0.28 | 7.1  | 1.12 | 28.4 | 1 1/8  | 28.6 | 1.34 | 34   | 0.41 | 10.4 | 1.63 | 41.4 | 0.66 | 16.8 | -116                       |
| VUWH-9.52DN-OR | 3/8            | 9.52 | 1/2NPT | 0.28 | 7.1  | 1.3  | 33   | 1 5/16 | 33.3 | 1.56 | 39.6 | 0.53 | 13.5 | 1.85 | 47   | 0.66 | 16.8 | -212                       |
| VUWH-12.7DN-OR | 1/2            | 12.7 | 1/2NPT | 0.41 | 10.4 | 1.3  | 33   | 1 5/16 | 33.3 | 1.56 | 39.6 | 0.53 | 13.5 | 1.96 | 49.8 | 0.9  | 22.9 | -212                       |

## Male Connectors

H



### O-Seal Male UNF Thread

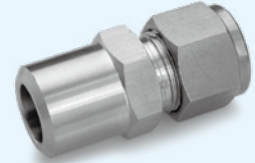
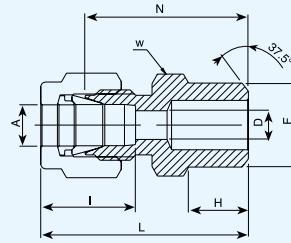
| Part Numbers         | A<br>Tube O.D. |       | T         | D    |      | K    |      | W     |      | N    |      | H    |      | L    |      | I    |      | O-ring ※※<br>size<br>AS568 |
|----------------------|----------------|-------|-----------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|----------------------------|
|                      | in             | mm    |           | in   | mm   | in   | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |                            |
| VUWH-1.6X5/16-OR     | 1/16           | 1.6   | 5/16-24   | 0.05 | 1.3  | 0.55 | 14   | 9/16  | 14.3 | 0.9  | 22.9 | 0.34 | 8.6  | 1.05 | 26.7 | 0.34 | 8.6  | -011                       |
| VUWH-3.2X5/16-OR     | 1/8            | 3.2   | 5/16-24   | 0.09 | 2.3  | 0.55 | 14   | 9/16  | 14.3 | 1.03 | 26.2 | 0.34 | 8.6  | 1.29 | 32.8 | 0.5  | 12.7 | -011                       |
| VUWH-4.8X3/8-OR      | 3/16           | 4.8   | 3/8-24    | 0.12 | 3    | 0.62 | 15.7 | 5/8   | 15.9 | 1.09 | 27.7 | 0.38 | 9.7  | 1.35 | 34.3 | 0.54 | 13.7 | -012                       |
| VUWH-6.35X7/16-OR    | 1/4            | 6.35  | 7/16-20   | 0.19 | 4.8  | 0.74 | 18.8 | 3/4   | 19.1 | 1.22 | 31   | 0.41 | 10.4 | 1.51 | 38.4 | 0.6  | 15.2 | -111                       |
| VUWH-7.93X1/2-OR     | 5/16           | 7.93  | 1/2-20    | 0.25 | 6.35 | 0.86 | 21.8 | 7/8   | 22.2 | 1.31 | 33.3 | 0.44 | 11.2 | 1.6  | 40.6 | 0.64 | 16.3 | -112                       |
| VUWH-9.52X9/16-OR    | 3/8            | 9.52  | 9/16-18   | 0.28 | 7.1  | 0.93 | 23.6 | 15/16 | 23.8 | 1.38 | 35.1 | 0.47 | 11.9 | 1.67 | 42.4 | 0.66 | 16.8 | -113                       |
| VUWH-12.7X3/4-OR     | 1/2            | 12.7  | 3/4-16    | 0.41 | 10.4 | 1.12 | 28.4 | 1 1/8 | 28.6 | 1.41 | 35.8 | 0.47 | 11.9 | 1.81 | 46   | 0.9  | 22.9 | -116                       |
| VUWH-19.05X1-1/16-OR | 3/4            | 19.05 | 1 1/16-12 | 0.62 | 15.7 | 1.49 | 37.8 | 1 1/2 | 38.1 | 1.66 | 42.2 | 0.56 | 14.2 | 2.06 | 52.3 | 0.96 | 24.4 | -215                       |
| VUWH-25.4X1-5/16-OR  | 1              | 25.4  | 1 5/16-12 | 0.88 | 22.3 | 1.74 | 44.2 | 1 3/4 | 44.5 | 1.81 | 46   | 0.56 | 14.2 | 2.29 | 58.2 | 1.23 | 31.2 | -219                       |

※※: O-rings used are BUNA 70 Durometer.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Pipe Weld Connectors

R



### Tube (Metric)

| Part Numbers | A<br>Tube O.D. |  | F<br>Tube size |      | D    |  | W  |  | N    |  | H    |  | L    |  | I    |  |
|--------------|----------------|--|----------------|------|------|--|----|--|------|--|------|--|------|--|------|--|
|              | mm             |  | in             | mm   | mm   |  | mm |  | mm   |  | mm   |  | mm   |  | mm   |  |
| VUWR-3x10.3  | 3              |  | 1/8            | 10.3 | 2.4  |  | 12 |  | 23.9 |  | 9.7  |  | 30.5 |  | 12.9 |  |
| VUWR-4x10.3  | 4              |  | 1/8            | 10.3 | 2.4  |  | 12 |  | 24.1 |  | 9.7  |  | 31.2 |  | 13.7 |  |
| VUWR-6x10.3  | 6              |  | 1/8            | 10.3 | 4.8  |  | 14 |  | 25.4 |  | 9.7  |  | 32.8 |  | 15.3 |  |
| VUWR-6x13.7  | 6              |  | 1/4            | 13.7 | 4.8  |  | 14 |  | 30.5 |  | 14.2 |  | 37.9 |  | 15.3 |  |
| VUWR-8x10.3  | 8              |  | 1/8            | 10.3 | 5.1  |  | 15 |  | 26.7 |  | 9.7  |  | 34.2 |  | 16.2 |  |
| VUWR-8x13.7  | 8              |  | 1/4            | 13.7 | 6.4  |  | 15 |  | 31.2 |  | 14.2 |  | 38.7 |  | 16.2 |  |
| VUWR-8x21.3  | 8              |  | 1/2            | 21.3 | 6.4  |  | 22 |  | 37.3 |  | 19   |  | 45.6 |  | 16.2 |  |
| VUWR-10x13.7 | 10             |  | 1/4            | 13.7 | 7.1  |  | 18 |  | 33.3 |  | 14.2 |  | 40.9 |  | 17.2 |  |
| VUWR-10x17.1 | 10             |  | 3/8            | 17.1 | 7.9  |  | 18 |  | 33.3 |  | 14.2 |  | 40.9 |  | 17.2 |  |
| VUWR-10x21.3 | 10             |  | 1/2            | 21.3 | 7.9  |  | 22 |  | 38.9 |  | 19   |  | 46.5 |  | 17.2 |  |
| VUWR-12x13.7 | 12             |  | 1/4            | 13.7 | 7.1  |  | 22 |  | 33.3 |  | 14.2 |  | 43.4 |  | 22.8 |  |
| VUWR-12x17.1 | 12             |  | 3/8            | 17.1 | 9.5  |  | 22 |  | 33.3 |  | 14.2 |  | 43.4 |  | 22.8 |  |
| VUWR-12x21.3 | 12             |  | 1/2            | 21.3 | 9.5  |  | 22 |  | 38.9 |  | 19   |  | 49   |  | 22.8 |  |
| VUWR-15x21.3 | 15             |  | 1/2            | 21.3 | 11.9 |  | 24 |  | 38.9 |  | 19   |  | 49   |  | 24.4 |  |
| VUWR-16x21.3 | 16             |  | 1/2            | 21.3 | 12.7 |  | 24 |  | 38.9 |  | 19   |  | 49   |  | 24.4 |  |
| VUWR-18x21.3 | 18             |  | 1/2            | 21.3 | 13.5 |  | 27 |  | 40.4 |  | 19   |  | 50.5 |  | 24.4 |  |

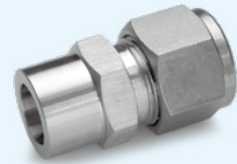
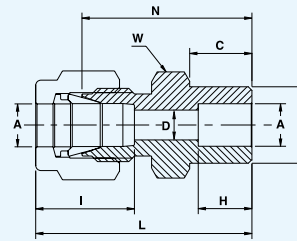
### Tube (Inch)

| Part Numbers    | A<br>Tube O.D. |       | F<br>Tube size |      | D    |      | W      |      | N    |      | H    |      | L    |      | I    |      |
|-----------------|----------------|-------|----------------|------|------|------|--------|------|------|------|------|------|------|------|------|------|
|                 | in             | mm    | in             | mm   | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWR-3.2x10.3   | 1/8            | 3.2   | 1/8            | 10.3 | 0.09 | 2.3  | 7/16   | 11.1 | 0.94 | 23.9 | 0.38 | 9.7  | 1.2  | 30.5 | 0.5  | 12.7 |
| VUWR-4.8x10.3   | 3/16           | 4.8   | 1/8            | 10.3 | 0.12 | 3.1  | 7/16   | 11.1 | 0.97 | 24.6 | 0.38 | 9.7  | 1.23 | 31.2 | 0.54 | 13.7 |
| VUWR-6.35x10.3  | 1/4            | 6.35  | 1/8            | 10.3 | 0.19 | 4.8  | 1/2    | 12.7 | 1    | 25.4 | 0.38 | 9.7  | 1.29 | 32.8 | 0.6  | 15.2 |
| VUWR-6.35x13.7  | 1/4            | 6.35  | 1/4            | 13.7 | 0.19 | 4.8  | 9/16   | 14.3 | 1.2  | 30.5 | 0.56 | 14.2 | 1.49 | 37.8 | 0.6  | 15.2 |
| VUWR-7.93x10.3  | 5/16           | 7.93  | 1/8            | 10.3 | 0.2  | 5.1  | 9/16   | 14.3 | 1.05 | 26.7 | 0.38 | 9.65 | 1.34 | 34   | 0.64 | 16.3 |
| VUWR-7.93x13.7  | 5/16           | 7.93  | 1/4            | 13.7 | 0.25 | 6.35 | 9/16   | 14.3 | 1.23 | 31.2 | 0.56 | 14.2 | 1.52 | 38.6 | 0.64 | 16.3 |
| VUWR-9.52x13.7  | 3/8            | 9.52  | 1/4            | 13.7 | 0.28 | 7.1  | 5/8    | 15.9 | 1.28 | 32.5 | 0.56 | 14.2 | 1.57 | 39.9 | 0.66 | 16.8 |
| VUWR-9.52x17.1  | 3/8            | 9.52  | 3/8            | 17.1 | 0.28 | 7.1  | 11/16  | 17.5 | 1.28 | 32.5 | 0.56 | 14.2 | 1.57 | 39.9 | 0.66 | 16.8 |
| VUWR-9.52x21.3  | 3/8            | 9.52  | 1/2            | 21.3 | 0.28 | 7.1  | 7/8    | 22.2 | 1.53 | 38.9 | 0.75 | 19   | 1.82 | 46.2 | 0.66 | 16.8 |
| VUWR-12.7x17.1  | 1/2            | 12.7  | 3/8            | 17.1 | 0.41 | 10.4 | 13/16  | 20.6 | 1.31 | 33.3 | 0.56 | 14.2 | 1.71 | 44.4 | 0.9  | 22.9 |
| VUWR-12.7x21.3  | 1/2            | 12.7  | 1/2            | 21.3 | 0.41 | 10.4 | 7/8    | 22.2 | 1.53 | 38.9 | 0.75 | 19   | 1.93 | 49   | 0.9  | 22.9 |
| VUWR-12.7x26.7  | 1/2            | 12.7  | 3/4            | 26.7 | 0.41 | 10.4 | 1 1/16 | 27   | 1.59 | 40.4 | 0.75 | 19   | 1.99 | 50.5 | 0.9  | 22.9 |
| VUWR-15.88x21.3 | 5/8            | 15.88 | 1/2            | 21.3 | 0.5  | 12.7 | 15/16  | 23.8 | 1.53 | 38.9 | 0.75 | 19   | 1.93 | 49   | 0.96 | 24.4 |
| VUWR-19.05x26.7 | 3/4            | 19.05 | 3/4            | 26.7 | 0.62 | 15.8 | 1 1/16 | 27   | 1.59 | 40.4 | 0.75 | 19   | 1.99 | 50.5 | 0.96 | 24.4 |
| VUWR-25.4x33.4  | 1              | 25.4  | 1              | 33.4 | 0.88 | 22.4 | 1 3/8  | 34.9 | 1.97 | 50   | 0.94 | 23.9 | 2.45 | 62.2 | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Tube Socket Weld Unions

R

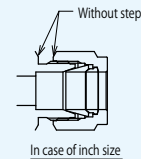
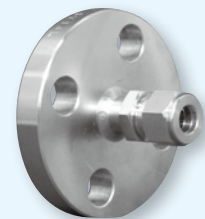
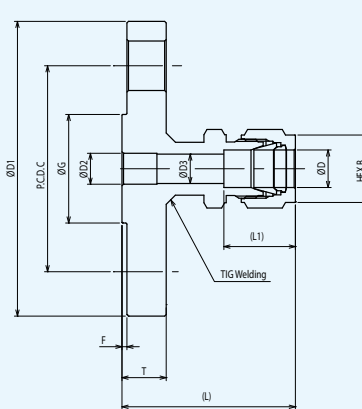
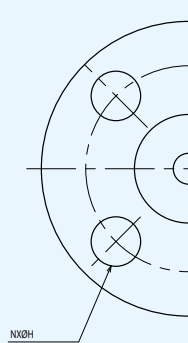


Tube (Inch)

| Part Numbers      | A<br>Tube O.D. |       | D    |      | W      |      | N    |      | F    |       | C    |      | H    |      | L    |      | I    |      |
|-------------------|----------------|-------|------|------|--------|------|------|------|------|-------|------|------|------|------|------|------|------|------|
|                   | in             | mm    | in   | mm   | in     | mm   | in   | mm   | in   | mm    | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWR-3.2X3.2F     | 1/8            | 3.2   | 0.09 | 2.3  | 7/16   | 11.1 | 0.88 | 22.4 | 0.31 | 7.8   | 0.34 | 8.6  | 0.25 | 6.35 | 1.14 | 29   | 0.5  | 12.7 |
| VUWR-6.35X6.35F   | 1/4            | 6.35  | 0.19 | 4.8  | 1/2    | 12.7 | 1.03 | 26.2 | 0.44 | 11.2  | 0.41 | 10.4 | 0.31 | 7.9  | 1.32 | 33.5 | 0.6  | 15.2 |
| VUWR-9.52X9.52F   | 3/8            | 9.52  | 0.28 | 7.1  | 5/8    | 15.9 | 1.19 | 30.2 | 0.62 | 15.8  | 0.47 | 11.9 | 0.38 | 9.65 | 1.48 | 37.6 | 0.66 | 16.8 |
| VUWR-12.7X12.7F   | 1/2            | 12.7  | 0.41 | 10.4 | 13/16  | 20.6 | 1.26 | 32   | 0.75 | 19.05 | 0.47 | 11.9 | 0.5  | 12.7 | 1.62 | 41.1 | 0.9  | 22.9 |
| VUWR-19.05X19.05F | 3/4            | 19.05 | 0.62 | 15.8 | 1 1/16 | 27   | 1.31 | 33.3 | 1.05 | 26.7  | 0.47 | 11.9 | 0.56 | 14.2 | 1.71 | 43.4 | 0.96 | 24.4 |
| VUWR-25.4X25.4F   | 1              | 25.4  | 0.88 | 22.3 | 1 3/8  | 34.9 | 1.59 | 40.4 | 1.31 | 33.3  | 0.56 | 14.2 | 0.76 | 19.2 | 2.07 | 52.6 | 1.23 | 31.2 |

## Flange Unions

RF

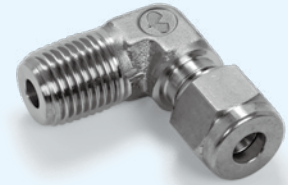
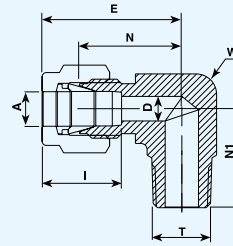


| Part Numbers    | Connection<br>Flange<br>Standard | Nominal Diameter         |                | Dimensions inch (mm) |               |                |                |                |                |                |   |                |              |               |                |   |
|-----------------|----------------------------------|--------------------------|----------------|----------------------|---------------|----------------|----------------|----------------|----------------|----------------|---|----------------|--------------|---------------|----------------|---|
|                 |                                  | Fittings<br>inch<br>(mm) | Flanges<br>(A) | L                    | L1            | Flange         |                |                |                |                |   |                |              | D2            | D3             | B |
|                 |                                  |                          |                |                      |               | D1             | T              | F              | G              | Bolt Holes     |   |                |              |               |                |   |
|                 |                                  |                          |                |                      |               |                |                |                |                | C              | N | H              |              |               |                |   |
| VUWRF-12D-J10R  | JIS 10K                          | —<br>(12)                | 15             | 2.1<br>(53.4)        | 0.9<br>(22.8) | 3.74<br>(95)   | 0.47<br>(12)   | 0.039<br>(1)   | 2.01<br>(51)   | 2.76<br>(70)   | 4 | 0.59<br>(15)   | 0.39<br>(10) | 0.37<br>(9.5) | 0.87<br>(22)   |   |
| VUWRF-12D-J20R  | JIS 20K                          | —<br>(12)                | 15             | 2.18<br>(55.4)       | 0.9<br>(22.8) | 3.74<br>(95)   | 0.47<br>(14)   | 0.039<br>(1)   | 2.01<br>(51)   | 2.76<br>(70)   | 4 | 0.59<br>(15)   | 0.39<br>(10) | 0.37<br>(9.5) | 0.87<br>(22)   |   |
| VUWRF-12D-A2R   | ANSI 150                         | —<br>(12)                | 15             | 2.07<br>(52.6)       | 0.9<br>(22.8) | 3.5<br>(88.9)  | 0.44<br>(11.2) | 0.063<br>(1.6) | 1.38<br>(35.1) | 2.38<br>(60.5) | 4 | 0.63<br>(16)   | 0.39<br>(10) | 0.37<br>(9.5) | 0.87<br>(22)   |   |
| VUWRF-12.7D-A2R |                                  | 1/2<br>(12.7)            | 15             | 2.07<br>(52.6)       | 0.9<br>(22.9) |                |                |                |                |                |   |                |              |               | 0.87<br>(22.2) |   |
| VUWRF-12.7F-A2R |                                  |                          | 25             | 2.19<br>(55.7)       | 0.9<br>(22.9) | 4.25<br>(108)  | 0.56<br>(14.3) | 0.063<br>(1.6) | 2<br>(50.8)    | 3.12<br>(79.3) | 4 | 0.63<br>(16)   | 0.39<br>(10) | 0.37<br>(9.5) | 0.87<br>(22.2) |   |
| VUWRF-12D-A3R   | ANSI 300                         | —<br>(12)                | 15             | 2.19<br>(55.7)       | 0.9<br>(22.8) | 3.75<br>(95.3) | 0.56<br>(14.3) | 0.063<br>(1.6) | 1.38<br>(35.1) | 2.62<br>(66.6) | 4 | 0.63<br>(16)   | 0.39<br>(10) | 0.37<br>(9.5) | 0.87<br>(22)   |   |
| VUWRF-12.7D-A3R |                                  | 1/2<br>(12.7)            |                | 2.19<br>(55.7)       | 0.9<br>(22.9) |                |                |                |                |                |   |                |              |               | 0.87<br>(22.2) |   |
| VUWRF-12.7F-A3R |                                  | 1/2<br>(12.7)            | 25             | 2.32<br>(59)         | 0.9<br>(22.9) | 4.88<br>(124)  | 0.69<br>(17.6) | 0.063<br>(1.6) | 2<br>(50.8)    | 3.5<br>(88.9)  | 4 | 0.77<br>(19.5) | 0.39<br>(10) | 0.37<br>(9.5) | 0.87<br>(22.2) |   |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Elbows

L



Tube (Metric) Male NPT Thread

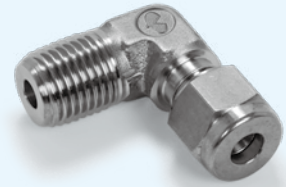
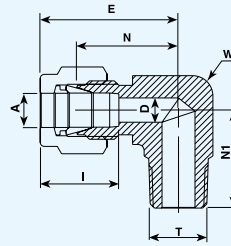
| Part Numbers | A<br>Tube O.D. | T      | D    | W     |      | N    | E    | N1   | I    |
|--------------|----------------|--------|------|-------|------|------|------|------|------|
|              | mm             |        | mm   | in    | mm   | mm   | mm   | mm   | mm   |
| VUWL-3AN     | 3              | 1/8NPT | 2.4  | 7/16  | 11.1 | 17   | 23.6 | 17.8 | 12.9 |
| VUWL-3BN     | 3              | 1/4NPT | 2.4  | 1/2   | 12.7 | 18   | 24.6 | 23.4 | 12.9 |
| VUWL-4AN     | 4              | 1/8NPT | 2.4  | 1/2   | 12.7 | 18.8 | 25.4 | 18.8 | 13.7 |
| VUWL-4BN     | 4              | 1/4NPT | 2.4  | 1/2   | 12.7 | 18.8 | 25.4 | 23.4 | 13.7 |
| VUWL-6AN     | 6              | 1/8NPT | 4.8  | 1/2   | 12.7 | 19.6 | 27   | 18.8 | 15.3 |
| VUWL-6BN     | 6              | 1/4NPT | 4.8  | 1/2   | 12.7 | 19.6 | 27   | 23.4 | 15.3 |
| VUWL-6CN     | 6              | 3/8NPT | 4.8  | 11/16 | 17.5 | 22.4 | 29.8 | 26.2 | 15.3 |
| VUWL-6DN     | 6              | 1/2NPT | 4.8  | 13/16 | 20.6 | 24.4 | 31.8 | 33   | 15.3 |
| VUWL-8AN     | 8              | 1/8NPT | 4.8  | 9/16  | 14.3 | 21.3 | 28.8 | 19.8 | 16.2 |
| VUWL-8BN     | 8              | 1/4NPT | 6.4  | 9/16  | 14.3 | 21.3 | 28.8 | 24.4 | 16.2 |
| VUWL-8CN     | 8              | 3/8NPT | 6.4  | 11/16 | 17.5 | 23.1 | 30.6 | 26.2 | 16.2 |
| VUWL-8DN     | 8              | 1/2NPT | 6.4  | 13/16 | 20.6 | 25.1 | 32.6 | 33   | 16.2 |
| VUWL-10AN    | 10             | 1/8NPT | 4.8  | 11/16 | 17.5 | 23.9 | 31.5 | 21.6 | 17.2 |
| VUWL-10BN    | 10             | 1/4NPT | 7.1  | 11/16 | 17.5 | 23.9 | 31.5 | 26.2 | 17.2 |
| VUWL-10CN    | 10             | 3/8NPT | 7.9  | 11/16 | 17.5 | 23.9 | 31.5 | 26.2 | 17.2 |
| VUWL-10DN    | 10             | 1/2NPT | 7.9  | 13/16 | 20.6 | 25.9 | 33.5 | 33   | 17.2 |
| VUWL-12AN    | 12             | 1/8NPT | 4.8  | 13/16 | 20.6 | 25.9 | 36   | 23.6 | 22.8 |
| VUWL-12BN    | 12             | 1/4NPT | 7.1  | 13/16 | 20.6 | 25.9 | 36   | 28.2 | 22.8 |
| VUWL-12CN    | 12             | 3/8NPT | 9.5  | 13/16 | 20.6 | 25.9 | 36   | 28.2 | 22.8 |
| VUWL-12DN    | 12             | 1/2NPT | 9.5  | 13/16 | 20.6 | 25.9 | 36   | 33   | 22.8 |
| VUWL-12EN    | 12             | 3/4NPT | 9.5  | 1 1/8 | 28.6 | 29.7 | 39.8 | 36.8 | 22.8 |
| VUWL-15DN    | 15             | 1/2NPT | 11.9 | 15/16 | 23.8 | 27.9 | 38   | 35.1 | 24.4 |
| VUWL-16CN    | 16             | 3/8NPT | 9.5  | 15/16 | 23.8 | 27.9 | 38   | 30.2 | 24.4 |
| VUWL-16DN    | 16             | 1/2NPT | 11.9 | 15/16 | 23.8 | 27.9 | 38   | 35.1 | 24.4 |
| VUWL-16EN    | 16             | 3/4NPT | 12.7 | 1 1/8 | 28.6 | 29.7 | 39.8 | 36.8 | 24.4 |
| VUWL-18DN    | 18             | 1/2NPT | 11.9 | 1 1/8 | 28.6 | 29.7 | 39.8 | 36.8 | 24.4 |
| VUWL-18EN    | 18             | 3/4NPT | 15.1 | 1 1/8 | 28.6 | 29.7 | 39.8 | 36.8 | 24.4 |
| VUWL-20DN    | 20             | 1/2NPT | 11.9 | 1 3/8 | 34.9 | 34.5 | 44.6 | 41.7 | 26   |
| VUWL-20EN    | 20             | 3/4NPT | 15.9 | 1 3/8 | 34.9 | 34.5 | 44.6 | 41.7 | 26   |
| VUWL-22EN    | 22             | 3/4NPT | 15.9 | 1 3/8 | 34.9 | 34.5 | 44.6 | 41.7 | 26   |
| VUWL-22FN    | 22             | 1NPT   | 18.3 | 1 3/8 | 34.9 | 34.5 | 44.6 | 46.5 | 26   |
| VUWL-25EN    | 25             | 3/4NPT | 15.9 | 1 3/8 | 34.9 | 36.8 | 49.1 | 41.7 | 31.3 |
| VUWL-25FN    | 25             | 1NPT   | 21.8 | 1 3/8 | 34.9 | 36.8 | 49.1 | 46.5 | 31.3 |

For inches, see next page

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Elbows (continued)

L



Tube (Inch) Male NPT Thread

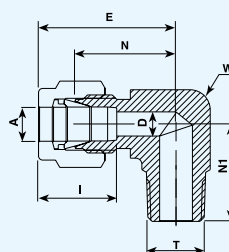
| Part Numbers | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |      | E    |      | N1   |      | I    |      |
|--------------|----------------|-------|--------|------|------|--------|------|------|------|------|------|------|------|------|------|
|              | in             | mm    |        | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWL-1.6AN   | 1/16           | 1.6   | 1/8NPT | 0.05 | 1.3  | 7/16   | 11.1 | 0.6  | 15.2 | 0.75 | 19.1 | 0.7  | 17.8 | 0.34 | 8.6  |
| VUWL-3.2AN   | 1/8            | 3.2   | 1/8NPT | 0.09 | 2.3  | 7/16   | 11.1 | 0.67 | 17   | 0.93 | 23.6 | 0.7  | 17.8 | 0.5  | 12.7 |
| VUWL-3.2BN   | 1/8            | 3.2   | 1/4NPT | 0.09 | 2.3  | 1/2    | 12.7 | 0.71 | 18   | 0.97 | 24.6 | 0.92 | 23.4 | 0.5  | 12.7 |
| VUWL-4.8AN   | 3/16           | 4.8   | 1/8NPT | 0.12 | 3    | 1/2    | 12.7 | 0.74 | 18.8 | 1    | 25.4 | 0.74 | 18.8 | 0.54 | 13.7 |
| VUWL-4.8BN   | 3/16           | 4.8   | 1/4NPT | 0.12 | 3    | 1/2    | 12.7 | 0.74 | 18.8 | 1    | 25.4 | 0.92 | 23.4 | 0.54 | 13.7 |
| VUWL-6.35AN  | 1/4            | 6.35  | 1/8NPT | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.74 | 18.8 | 0.6  | 15.2 |
| VUWL-6.35BN  | 1/4            | 6.35  | 1/4NPT | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.92 | 23.4 | 0.6  | 15.2 |
| VUWL-6.35CN  | 1/4            | 6.35  | 3/8NPT | 0.19 | 4.8  | 11/16  | 17.5 | 0.88 | 22.4 | 1.17 | 29.7 | 1.03 | 26.2 | 0.6  | 15.2 |
| VUWL-6.35DN  | 1/4            | 6.35  | 1/2NPT | 0.19 | 4.8  | 13/16  | 20.6 | 0.96 | 24.4 | 1.25 | 31.8 | 1.3  | 33   | 0.6  | 15.2 |
| VUWL-7.93AN  | 5/16           | 7.93  | 1/8NPT | 0.19 | 4.8  | 9/16   | 14.3 | 0.84 | 21.3 | 1.13 | 28.7 | 0.78 | 19.8 | 0.64 | 16.2 |
| VUWL-7.93BN  | 5/16           | 7.93  | 1/4NPT | 0.25 | 6.4  | 9/16   | 14.3 | 0.84 | 21.3 | 1.13 | 28.7 | 0.96 | 24.4 | 0.64 | 16.2 |
| VUWL-7.93CN  | 5/16           | 7.93  | 3/8NPT | 0.25 | 6.4  | 11/16  | 17.5 | 0.91 | 23.1 | 1.2  | 30.5 | 1.03 | 26.2 | 0.64 | 16.2 |
| VUWL-9.52AN  | 3/8            | 9.52  | 1/8NPT | 0.19 | 4.8  | 5/8    | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 0.82 | 20.8 | 0.66 | 16.8 |
| VUWL-9.52BN  | 3/8            | 9.52  | 1/4NPT | 0.28 | 7.1  | 5/8    | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 1    | 25.4 | 0.66 | 16.8 |
| VUWL-9.52CN  | 3/8            | 9.52  | 3/8NPT | 0.28 | 7.1  | 11/16  | 17.5 | 0.94 | 23.9 | 1.23 | 31.2 | 1.03 | 26.2 | 0.66 | 16.8 |
| VUWL-9.52DN  | 3/8            | 9.52  | 1/2NPT | 0.28 | 7.1  | 13/16  | 20.6 | 1.02 | 25.9 | 1.31 | 33.3 | 1.3  | 33   | 0.66 | 16.8 |
| VUWL-9.52EN  | 3/8            | 9.52  | 3/4NPT | 0.28 | 7.1  | 1 1/16 | 27   | 1.17 | 29.7 | 1.46 | 37.1 | 1.45 | 36.8 | 0.66 | 16.8 |
| VUWL-12.7BN  | 1/2            | 12.7  | 1/4NPT | 0.28 | 7.1  | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.11 | 28.2 | 0.9  | 22.9 |
| VUWL-12.7CN  | 1/2            | 12.7  | 3/8NPT | 0.37 | 9.5  | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.11 | 28.2 | 0.9  | 22.9 |
| VUWL-12.7DN  | 1/2            | 12.7  | 1/2NPT | 0.41 | 10.4 | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.3  | 33   | 0.9  | 22.9 |
| VUWL-12.7EN  | 1/2            | 12.7  | 3/4NPT | 0.41 | 10.4 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.9  | 22.9 |
| VUWL-15.88CN | 5/8            | 15.88 | 3/8NPT | 0.37 | 9.6  | 15/16  | 23.8 | 1.1  | 27.9 | 1.5  | 38.1 | 1.19 | 30.2 | 0.96 | 24.4 |
| VUWL-15.88DN | 5/8            | 15.88 | 1/2NPT | 0.47 | 11.9 | 15/16  | 23.8 | 1.1  | 27.9 | 1.5  | 38.1 | 1.38 | 35.1 | 0.96 | 24.4 |
| VUWL-15.88EN | 5/8            | 15.88 | 3/4NPT | 0.50 | 12.7 | 1 1/8  | 28.6 | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |
| VUWL-19.05DN | 3/4            | 19.05 | 1/2NPT | 0.47 | 11.9 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |
| VUWL-19.05EN | 3/4            | 19.05 | 3/4NPT | 0.62 | 15.8 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |
| VUWL-22.22EN | 7/8            | 22.22 | 3/4NPT | 0.62 | 15.8 | 1 3/8  | 34.9 | 1.36 | 34.5 | 1.76 | 44.7 | 1.64 | 41.7 | 1.02 | 25.9 |
| VUWL-25.4EN  | 1              | 25.4  | 3/4NPT | 0.62 | 15.8 | 1 3/8  | 34.9 | 1.45 | 36.8 | 1.93 | 49   | 1.64 | 41.7 | 1.23 | 31.2 |
| VUWL-25.4FN  | 1              | 25.4  | 1NPT   | 0.86 | 21.8 | 1 3/8  | 34.9 | 1.45 | 36.8 | 1.93 | 49   | 1.83 | 46.5 | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.



## Male Elbows

L



### Tube (Metric) ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. | T     | D    | W      |      | N    | E    | N <sub>1</sub> | I    |
|--------------|----------------|-------|------|--------|------|------|------|----------------|------|
|              | mm             |       | mm   | in     | mm   | mm   | mm   | mm             | mm   |
| VUWL-3A      | 3              | R 1/8 | 2.4  | 7/16   | 11.1 | 17   | 23.6 | 17.8           | 12.9 |
| VUWL-3B      | 3              | R 1/4 | 2.4  | 1/2    | 12.7 | 18   | 24.6 | 23.4           | 12.9 |
| VUWL-4A      | 4              | R 1/8 | 2.4  | 1/2    | 12.7 | 18.8 | 25.4 | 18.8           | 13.7 |
| VUWL-4B      | 4              | R 1/4 | 2.4  | 1/2    | 12.7 | 18.8 | 25.4 | 23.4           | 13.7 |
| VUWL-6A      | 6              | R 1/8 | 4.8  | 1/2    | 12.7 | 19.6 | 27   | 18.8           | 15.3 |
| VUWL-6B      | 6              | R 1/4 | 4.8  | 1/2    | 12.7 | 19.6 | 27   | 23.4           | 15.3 |
| VUWL-6C      | 6              | R 3/8 | 4.8  | 11/16  | 17.5 | 22.4 | 29.8 | 26.2           | 15.3 |
| VUWL-6D      | 6              | R 1/2 | 4.8  | 13/16  | 20.6 | 24.4 | 31.8 | 33             | 15.3 |
| VUWL-8A      | 8              | R 1/8 | 4.8  | 9/16   | 14.3 | 21.3 | 28.8 | 19.8           | 16.2 |
| VUWL-8B      | 8              | R 1/4 | 6.4  | 9/16   | 14.3 | 21.3 | 28.8 | 24.4           | 16.2 |
| VUWL-8C      | 8              | R 3/8 | 6.4  | 11/16  | 17.5 | 23.1 | 30.6 | 26.2           | 16.2 |
| VUWL-8D      | 8              | R 1/2 | 6.4  | 13/16  | 20.6 | 25.1 | 32.6 | 33             | 16.2 |
| VUWL-10A     | 10             | R 1/8 | 4.8  | 11/16  | 17.5 | 23.9 | 31.5 | 21.6           | 17.2 |
| VUWL-10B     | 10             | R 1/4 | 7.1  | 11/16  | 17.5 | 23.9 | 31.5 | 26.2           | 17.2 |
| VUWL-10C     | 10             | R 3/8 | 7.9  | 11/16  | 17.5 | 23.9 | 31.5 | 26.2           | 17.2 |
| VUWL-10D     | 10             | R 1/2 | 7.9  | 13/16  | 20.6 | 25.9 | 33.5 | 33             | 17.2 |
| VUWL-12A     | 12             | R 1/8 | 4.8  | 13/16  | 20.6 | 25.9 | 36   | 23.6           | 22.8 |
| VUWL-12B     | 12             | R 1/4 | 7.1  | 13/16  | 20.6 | 25.9 | 36   | 28.2           | 22.8 |
| VUWL-12C     | 12             | R 3/8 | 9.5  | 13/16  | 20.6 | 25.9 | 36   | 28.2           | 22.8 |
| VUWL-12D     | 12             | R 1/2 | 9.5  | 13/16  | 20.6 | 25.9 | 36   | 33             | 22.8 |
| VUWL-12E     | 12             | R 3/4 | 9.5  | 1 1/16 | 27   | 29.7 | 39.8 | 36.8           | 22.8 |
| VUWL-16C     | 16             | R 3/8 | 9.5  | 15/16  | 23.8 | 27.9 | 38   | 30.2           | 24.4 |
| VUWL-16D     | 16             | R 1/2 | 11.9 | 15/16  | 23.8 | 27.9 | 38   | 35.1           | 24.4 |
| VUWL-18D     | 18             | R 1/2 | 11.9 | 1 1/8  | 28.6 | 29.7 | 39.8 | 36.8           | 24.4 |
| VUWL-18E     | 18             | R 3/4 | 15.1 | 1 1/16 | 27   | 29.7 | 39.8 | 36.8           | 24.4 |
| VUWL-20D     | 20             | R 1/2 | 11.9 | 1 3/8  | 34.9 | 34.5 | 44.6 | 41.7           | 26   |
| VUWL-20E     | 20             | R 3/4 | 15.9 | 1 3/8  | 34.9 | 34.5 | 44.6 | 41.7           | 26   |
| VUWL-22E     | 22             | R 3/4 | 15.9 | 1 3/8  | 34.9 | 34.5 | 44.6 | 41.7           | 26   |
| VUWL-22F     | 22             | R 1   | 18.3 | 1 3/8  | 34.9 | 34.5 | 44.6 | 46.5           | 26   |
| VUWL-25E     | 25             | R 3/4 | 15.9 | 1 3/8  | 34.9 | 36.8 | 49.1 | 41.7           | 31.3 |
| VUWL-25F     | 25             | R 1   | 21.8 | 1 3/8  | 34.9 | 36.8 | 49.1 | 46.5           | 31.3 |

### Reference Specifications:

DIN - 2999  
BS - 21  
JIS - B0203  
ISO - 1/7-BSP-T

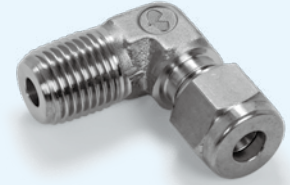
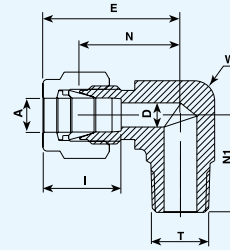
### Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Elbows (R)

L



Tube (Inch) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |       | T     | D    |      | W      |      | N    |      | E    |      | N1   |      | I    |      |
|--------------|----------------|-------|-------|------|------|--------|------|------|------|------|------|------|------|------|------|
|              | in             | mm    |       | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWL-1.6A    | 1/16           | 1.6   | R 1/8 | 0.05 | 1.3  | 7/16   | 11.1 | 0.6  | 15.2 | 0.75 | 19.1 | 0.7  | 17.8 | 0.34 | 8.6  |
| VUWL-3,2A    | 1/8            | 3.2   | R 1/8 | 0.09 | 2.3  | 7/16   | 11.1 | 0.67 | 17   | 0.93 | 23.6 | 0.7  | 17.8 | 0.5  | 12.7 |
| VUWL-3,2B    | 1/8            | 3.2   | R 1/4 | 0.09 | 2.3  | 1/2    | 12.7 | 0.71 | 18   | 0.97 | 24.6 | 0.92 | 23.4 | 0.5  | 12.7 |
| VUWL-4.8A    | 3/16           | 4.8   | R 1/8 | 0.12 | 3    | 1/2    | 12.7 | 0.74 | 18.8 | 1    | 25.4 | 0.74 | 18.8 | 0.54 | 13.7 |
| VUWL-4.8B    | 3/16           | 4.8   | R 1/4 | 0.12 | 3    | 1/2    | 12.7 | 0.74 | 18.8 | 1    | 25.4 | 0.92 | 23.4 | 0.54 | 13.7 |
| VUWL-6.35A   | 1/4            | 6.35  | R 1/8 | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.74 | 18.8 | 0.6  | 15.2 |
| VUWL-6.35B   | 1/4            | 6.35  | R 1/4 | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.92 | 23.4 | 0.6  | 15.2 |
| VUWL-6.35C   | 1/4            | 6.35  | R 3/8 | 0.19 | 4.8  | 11/16  | 17.5 | 0.88 | 22.4 | 1.17 | 29.7 | 1.03 | 26.2 | 0.6  | 15.2 |
| VUWL-6.35D   | 1/4            | 6.35  | R 1/2 | 0.19 | 4.8  | 13/16  | 20.6 | 0.96 | 24.4 | 1.25 | 31.8 | 1.3  | 33   | 0.6  | 15.2 |
| VUWL-7.93A   | 5/16           | 7.93  | R 1/8 | 0.19 | 4.8  | 9/16   | 14.3 | 0.84 | 21.3 | 1.13 | 28.7 | 0.78 | 19.8 | 0.64 | 16.2 |
| VUWL-7.93B   | 5/16           | 7.93  | R 1/4 | 0.25 | 6.35 | 9/16   | 14.3 | 0.84 | 21.3 | 1.13 | 28.7 | 0.96 | 24.4 | 0.64 | 16.2 |
| VUWL-7.93C   | 5/16           | 7.93  | R 3/8 | 0.25 | 6.35 | 11/16  | 17.5 | 0.91 | 23.1 | 1.2  | 30.5 | 1.03 | 26.2 | 0.64 | 16.2 |
| VUWL-9.52A   | 3/8            | 9.52  | R 1/8 | 0.19 | 4.8  | 5/8    | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 0.82 | 20.8 | 0.66 | 16.8 |
| VUWL-9.52B   | 3/8            | 9.52  | R 1/4 | 0.28 | 7.1  | 5/8    | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 1    | 25.4 | 0.66 | 16.8 |
| VUWL-9.52C   | 3/8            | 9.52  | R 3/8 | 0.28 | 7.1  | 11/16  | 17.5 | 0.94 | 23.9 | 1.23 | 31.2 | 1.03 | 26.2 | 0.66 | 16.8 |
| VUWL-9.52D   | 3/8            | 9.52  | R 1/2 | 0.28 | 7.1  | 13/16  | 20.6 | 1.02 | 25.9 | 1.31 | 33.3 | 1.3  | 33   | 0.66 | 16.8 |
| VUWL-9.52E   | 3/8            | 9.52  | R 3/4 | 0.28 | 7.1  | 1 1/8  | 28.6 | 1.17 | 29.7 | 1.46 | 37.1 | 1.45 | 36.8 | 0.66 | 16.8 |
| VUWL-12.7B   | 1/2            | 12.7  | R 1/4 | 0.28 | 7.1  | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.11 | 28.2 | 0.9  | 22.9 |
| VUWL-12.7C   | 1/2            | 12.7  | R 3/8 | 0.37 | 9.5  | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.11 | 28.2 | 0.9  | 22.9 |
| VUWL-12.7D   | 1/2            | 12.7  | R 1/2 | 0.41 | 10.4 | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.3  | 33   | 0.9  | 22.9 |
| VUWL-12.7E   | 1/2            | 12.7  | R 3/4 | 0.41 | 10.4 | 1 1/8  | 28.6 | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.9  | 22.9 |
| VUWL-15.88C  | 5/8            | 15.88 | R 3/8 | 0.38 | 9.6  | 15/16  | 23.8 | 1.1  | 27.9 | 1.5  | 38.1 | 1.19 | 30.2 | 0.96 | 24.4 |
| VUWL-15.88D  | 5/8            | 15.88 | R 1/2 | 0.47 | 11.9 | 15/16  | 23.8 | 1.1  | 27.9 | 1.5  | 38.1 | 1.38 | 35.1 | 0.96 | 24.4 |
| VUWL-15.88E  | 5/8            | 15.88 | R 3/4 | 0.5  | 12.7 | 1 1/8  | 28.6 | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |
| VUWL-19.05D  | 3/4            | 19.05 | R 1/2 | 0.47 | 11.9 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |
| VUWL-19.05E  | 3/4            | 19.05 | R 3/4 | 0.62 | 15.8 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |
| VUWL-22.22E  | 7/8            | 22.22 | R 3/4 | 0.62 | 15.8 | 1 3/8  | 34.9 | 1.36 | 34.5 | 1.76 | 44.7 | 1.64 | 41.7 | 1.02 | 25.9 |
| VUWL-25.4E   | 1              | 25.4  | R 3/4 | 0.62 | 15.8 | 1 3/8  | 34.9 | 1.45 | 36.8 | 1.93 | 49   | 1.64 | 41.7 | 1.23 | 31.2 |
| VUWL-25.4F   | 1              | 25.4  | R 1   | 0.86 | 21.8 | 1 3/8  | 34.9 | 1.45 | 36.8 | 1.93 | 49   | 1.83 | 46.5 | 1.23 | 31.2 |

### Reference Specifications:

DIN - 2999  
BS - 21  
JIS - B0203  
ISO - 1/7-BSP-T

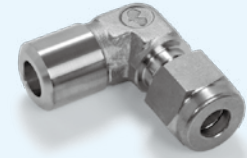
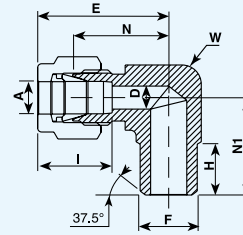
### Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Pipe Weld Elbows

LR

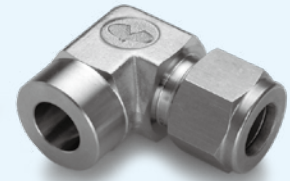
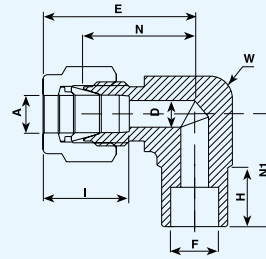


Tube (Inch) To Pipe (Inch)

| Part Numbers     | A<br>Tube O.D. |       | F<br>Tube size. |      | D    |      | W     |      | N    |      | H    |      | E    |      | N1   |      | I    |      |
|------------------|----------------|-------|-----------------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|
|                  | in             | mm    | in              | mm   | in   | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWLR-6.35X10.3  | 1/4            | 6.35  | 1/8             | 10.3 | 0.19 | 4.8  | 1/2   | 12.7 | 0.77 | 19.6 | 0.38 | 9.7  | 1.06 | 26.9 | 0.74 | 18.8 | 0.6  | 15.2 |
| VUWLR-6.35X13.7  | 1/4            | 6.35  | 1/4             | 13.7 | 0.19 | 4.8  | 1/2   | 12.7 | 0.77 | 19.6 | 0.56 | 14.2 | 1.06 | 26.9 | 0.92 | 23.4 | 0.6  | 15.2 |
| VUWLR-9.52X13.7  | 3/8            | 9.52  | 1/4             | 13.7 | 0.28 | 7.1  | 5/8   | 15.9 | 0.91 | 23.1 | 0.56 | 14.2 | 1.2  | 30.5 | 1    | 25.4 | 0.66 | 16.8 |
| VUWLR-12.7X21.3  | 1/2            | 12.7  | 1/2             | 21.3 | 0.41 | 10.4 | 13/16 | 20.6 | 1.02 | 25.9 | 0.75 | 19.1 | 1.42 | 36.1 | 1.3  | 33   | 0.9  | 22.9 |
| VUWLR-19.05X26.7 | 3/4            | 19.05 | 3/4             | 26.7 | 0.62 | 15.8 | 1 1/8 | 28.6 | 1.17 | 29.7 | 0.75 | 19.1 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |

## Tube Socket Weld Elbows

LR



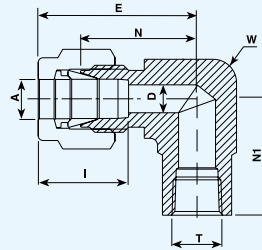
Tube (Inch) To Pipe (Inch)

| Part Numbers     | A<br>Tube O.D. |      | F<br>Tube size. |      | D    |      | W     |      | N    |      | H    |      | E    |      | N1   |      | I    |      |
|------------------|----------------|------|-----------------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|
|                  | in             | mm   | in              | mm   | in   | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWLR-6.35X6.35F | 1/4            | 6.35 | 1/4             | 6.35 | 0.19 | 4.8  | 1/2   | 12.7 | 0.77 | 19.6 | 0.31 | 7.9  | 1.06 | 26.9 | 0.77 | 19.6 | 0.6  | 15.2 |
| VUWLR-9.52X9.52F | 3/8            | 9.52 | 3/8             | 9.52 | 0.28 | 7.1  | 5/8   | 15.9 | 0.91 | 23.1 | 0.38 | 9.7  | 1.2  | 30.5 | 0.91 | 23.1 | 0.66 | 16.8 |
| VUWLR-12.7X12.7F | 1/2            | 12.7 | 1/2             | 12.7 | 0.41 | 10.4 | 15/16 | 23.8 | 1.02 | 25.9 | 0.5  | 12.7 | 1.42 | 36.1 | 1.02 | 25.9 | 0.9  | 22.9 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Elbows

LG



**Tube (Metric) To Female NPT Thread**

| Part Numbers | A<br>Tube O.D. |    | T      | D  |     | W     |      | N  |      | E  |      | N <sub>1</sub> |      | I  |      |
|--------------|----------------|----|--------|----|-----|-------|------|----|------|----|------|----------------|------|----|------|
|              | in             | mm |        | in | mm  | in    | mm   | in | mm   | in | mm   | in             | mm   | in | mm   |
| VUWLG-6AN    |                | 6  | 1/8NPT |    | 4.8 | 5/8   | 15.9 |    | 19.6 |    | 27   |                | 21.6 |    | 15.3 |
| VUWLG-6BN    |                | 6  | 1/4NPT |    | 4.8 | 11/16 | 17.5 |    | 22.4 |    | 29.8 |                | 22.4 |    | 15.3 |
| VUWLG-10BN   |                | 10 | 1/4NPT |    | 7.9 | 13/16 | 20.6 |    | 25.9 |    | 33.5 |                | 22.4 |    | 17.2 |
| VUWLG-12BN   |                | 12 | 1/4NPT |    | 9.5 | 13/16 | 20.6 |    | 25.9 |    | 36   |                | 22.4 |    | 22.8 |
| VUWLG-12DN   |                | 12 | 1/2NPT |    | 9.5 | 1 1/8 | 28.6 |    | 28.7 |    | 38.5 |                | 28.4 |    | 22.8 |

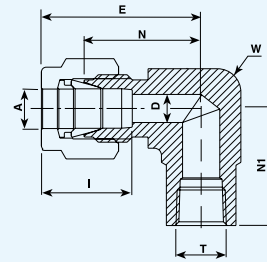
**Tube (Inch) To Female NPT Thread**

| Part Numbers  | A<br>Tube O.D. |       | T      | D    |      | W       |      | N    |      | E    |      | N <sub>1</sub> |      | I    |      |
|---------------|----------------|-------|--------|------|------|---------|------|------|------|------|------|----------------|------|------|------|
|               | in             | mm    |        | in   | mm   | in      | mm   | in   | mm   | in   | mm   | in             | mm   | in   | mm   |
| VUWLG-3.2AN   | 1/8            | 3.2   | 1/8NPT | 0.09 | 2.3  | 5/8     | 15.9 | 0.71 | 18   | 0.97 | 24.6 | 0.75           | 19.1 | 0.5  | 12.7 |
| VUWLG-3.2BN   | 1/8            | 3.2   | 1/4NPT | 0.09 | 2.3  | 13/16   | 20.6 | 0.82 | 20.8 | 1.08 | 27.4 | 0.94           | 23.8 | 0.5  | 12.7 |
| VUWLG-4.8AN   | 3/16           | 4.8   | 1/8NPT | 0.12 | 3    | 5/8     | 15.9 | 0.74 | 18.8 | 1    | 25.4 | 0.75           | 19.1 | 0.54 | 13.7 |
| VUWLG-6.35AN  | 1/4            | 6.35  | 1/8NPT | 0.19 | 4.8  | 1/2     | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.75           | 19.1 | 0.6  | 15.3 |
| VUWLG-6.35BN  | 1/4            | 6.35  | 1/4NPT | 0.19 | 4.8  | 11/16   | 17.5 | 0.88 | 22.4 | 1.17 | 29.7 | 0.88           | 22.4 | 0.6  | 15.3 |
| VUWLG-6.35CN  | 1/4            | 6.35  | 3/8NPT | 0.19 | 4.8  | 15/16   | 23.8 | 0.96 | 24.4 | 1.25 | 31.8 | 0.88           | 22.4 | 0.6  | 15.3 |
| VUWLG-6.35DN  | 1/4            | 6.35  | 1/2NPT | 0.19 | 4.8  | 1 1/8   | 28.6 | 1.07 | 27.2 | 1.36 | 34.5 | 1.12           | 28.5 | 0.6  | 15.3 |
| VUWLG-7.93AN  | 5/16           | 7.93  | 1/8NPT | 0.25 | 6.35 | 9/16    | 14.3 | 0.84 | 21.3 | 1.13 | 28.7 | 0.75           | 19.1 | 0.64 | 16.2 |
| VUWLG-7.93BN  | 5/16           | 7.93  | 1/4NPT | 0.25 | 6.35 | 13/16   | 20.6 | 0.91 | 23.1 | 1.2  | 30.5 | 0.88           | 22.4 | 0.64 | 16.2 |
| VUWLG-9.52AN  | 3/8            | 9.52  | 1/8NPT | 0.28 | 7.1  | 5/8     | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 0.75           | 19.1 | 0.66 | 16.9 |
| VUWLG-9.52BN  | 3/8            | 9.52  | 1/4NPT | 0.28 | 7.1  | 11/16   | 20.6 | 0.94 | 23.9 | 1.23 | 31.2 | 0.88           | 22.4 | 0.66 | 16.9 |
| VUWLG-9.52CN  | 3/8            | 9.52  | 3/8NPT | 0.28 | 7.1  | 15/16   | 23.8 | 1.02 | 25.9 | 1.31 | 33.3 | 0.88           | 22.4 | 0.66 | 16.9 |
| VUWLG-9.52DN  | 3/8            | 9.52  | 1/2NPT | 0.28 | 7.1  | 1 1/16  | 27   | 1.12 | 28.7 | 1.42 | 36.1 | 1.12           | 28.5 | 0.66 | 16.9 |
| VUWLG-12.7BN  | 1/2            | 12.7  | 1/4NPT | 0.41 | 10.4 | 13/16   | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88           | 22.4 | 0.9  | 22.9 |
| VUWLG-12.7CN  | 1/2            | 12.7  | 3/8NPT | 0.41 | 10.4 | 15/16   | 23.8 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88           | 22.4 | 0.9  | 22.9 |
| VUWLG-12.7DN  | 1/2            | 12.7  | 1/2NPT | 0.41 | 10.4 | 1 1/16  | 27   | 1.12 | 28.7 | 1.53 | 36.9 | 1.12           | 28   | 0.9  | 22.9 |
| VUWLG-15.88CN | 5/8            | 15.88 | 3/8NPT | 0.5  | 12.7 | 15/16   | 23.8 | 1.1  | 27.9 | 1.5  | 38.1 | 0.88           | 22.4 | 0.96 | 24.4 |
| VUWLG-15.88DN | 5/8            | 15.88 | 1/2NPT | 0.5  | 12.7 | 1 1/8   | 28.6 | 1.17 | 29.7 | 1.57 | 39.9 | 1.12           | 28.5 | 0.96 | 24.4 |
| VUWLG-19.05DN | 3/4            | 19.05 | 1/2NPT | 0.62 | 15.7 | 1 1/8   | 28.6 | 1.17 | 29.7 | 1.57 | 39.9 | 1.12           | 28.5 | 0.96 | 24.4 |
| VUWLG-19.05EN | 3/4            | 19.05 | 3/4NPT | 0.62 | 15.7 | 1 3/8   | 34.9 | 1.36 | 34.5 | 1.76 | 44.7 | 1.25           | 31.8 | 0.96 | 24.4 |
| VUWLG-22.22EN | 7/8            | 22.22 | 3/4NPT | 0.72 | 18.3 | 1 3/8   | 34.9 | 1.25 | 31.8 | 1.76 | 44.7 | 1.25           | 31.8 | 1.02 | 25.9 |
| VUWLG-25.4EN  | 1              | 25.4  | 3/4NPT | 0.88 | 22.3 | 1 3/8   | 34.9 | 1.25 | 31.8 | 1.93 | 49   | 1.25           | 31.8 | 1.23 | 31.2 |
| VUWLG-25.4FN  | 1              | 25.4  | 1NPT   | 0.88 | 22.3 | 1 11/16 | 42.9 | 1.63 | 41.4 | 2.11 | 53.6 | 1.5            | 38.1 | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Elbows (Rc)

LG



### Tube (Metric) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |    | T      | D  |     | W     |      | N  |      | E  |      | N1 |      | I  |      |
|--------------|----------------|----|--------|----|-----|-------|------|----|------|----|------|----|------|----|------|
|              | in             | mm |        | in | mm  | in    | mm   | in | mm   | in | mm   | in | mm   | in | mm   |
| VUWLG-6A     |                | 6  | Rc 1/8 |    | 4.8 | 5/8   | 15.9 |    | 19.6 |    | 27   |    | 21.6 |    | 15.3 |
| VUWLG-6B     |                | 6  | Rc 1/4 |    | 4.8 | 11/16 | 17.5 |    | 22.4 |    | 29.8 |    | 22.4 |    | 15.3 |
| VUWLG-10B    |                | 10 | Rc 1/4 |    | 7.9 | 13/16 | 20.6 |    | 25.9 |    | 33.5 |    | 22.4 |    | 17.2 |
| VUWLG-12B    |                | 12 | Rc 1/4 |    | 9.5 | 13/16 | 20.6 |    | 25.9 |    | 36   |    | 22.4 |    | 22.8 |
| VUWLG-12D    |                | 12 | Rc 1/2 |    | 9.5 | 1 1/8 | 28.6 |    | 28.7 |    | 38.5 |    | 28.4 |    | 22.8 |

### Tube (Inch) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |       | T      | D    |      | W       |      | N    |      | E    |      | N1   |      | I    |      |
|--------------|----------------|-------|--------|------|------|---------|------|------|------|------|------|------|------|------|------|
|              | in             | mm    |        | in   | mm   | in      | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWLG-3.2A   | 1/8            | 3.2   | Rc 1/8 | 0.09 | 2.3  | 5/8     | 15.9 | 0.71 | 18   | 0.97 | 24.6 | 0.75 | 19.1 | 0.5  | 12.7 |
| VUWLG-3.2B   | 1/8            | 3.2   | Rc 1/4 | 0.09 | 2.3  | 13/16   | 20.6 | 0.82 | 20.8 | 1.08 | 27.4 | 0.94 | 23.8 | 0.5  | 12.7 |
| VUWLG-4.8A   | 3/16           | 4.8   | Rc 1/8 | 0.12 | 3    | 5/8     | 15.9 | 0.74 | 18.8 | 1    | 25.4 | 0.75 | 19.1 | 0.54 | 13.7 |
| VUWLG-6.35A  | 1/4            | 6.35  | Rc 1/8 | 0.19 | 4.8  | 1/2     | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.75 | 19.1 | 0.6  | 15.3 |
| VUWLG-6.35B  | 1/4            | 6.35  | Rc 1/4 | 0.19 | 4.8  | 11/16   | 17.5 | 0.88 | 22.4 | 1.17 | 29.7 | 0.88 | 22.4 | 0.6  | 15.3 |
| VUWLG-6.35C  | 1/4            | 6.35  | Rc 3/8 | 0.19 | 4.8  | 15/16   | 23.8 | 0.96 | 24.4 | 1.25 | 31.8 | 0.88 | 22.4 | 0.6  | 15.3 |
| VUWLG-6.35D  | 1/4            | 6.35  | Rc 1/2 | 0.19 | 4.8  | 1 1/8   | 28.6 | 1.07 | 27.2 | 1.36 | 34.5 | 1.12 | 28.5 | 0.6  | 15.3 |
| VUWLG-7.93A  | 5/16           | 7.93  | Rc 1/8 | 0.25 | 6.35 | 9/16    | 14.3 | 0.84 | 21.3 | 1.13 | 28.7 | 0.75 | 19.1 | 0.64 | 16.2 |
| VUWLG-7.93B  | 5/16           | 7.93  | Rc 1/4 | 0.25 | 6.35 | 13/16   | 20.6 | 0.91 | 23.1 | 1.2  | 30.5 | 0.88 | 22.4 | 0.64 | 16.2 |
| VUWLG-9.52A  | 3/8            | 9.52  | Rc 1/8 | 0.28 | 7.1  | 5/8     | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 0.75 | 19.1 | 0.66 | 16.9 |
| VUWLG-9.52B  | 3/8            | 9.52  | Rc 1/4 | 0.28 | 7.1  | 11/16   | 20.6 | 0.94 | 23.9 | 1.23 | 31.2 | 0.88 | 22.4 | 0.66 | 16.9 |
| VUWLG-9.52C  | 3/8            | 9.52  | Rc 3/8 | 0.28 | 7.1  | 15/16   | 23.8 | 1.02 | 25.9 | 1.31 | 33.3 | 0.88 | 22.4 | 0.66 | 16.9 |
| VUWLG-9.52D  | 3/8            | 9.52  | Rc 1/2 | 0.28 | 7.1  | 1 1/16  | 27   | 1.12 | 28.7 | 1.42 | 36.1 | 1.12 | 28.5 | 0.66 | 16.9 |
| VUWLG-12.7B  | 1/2            | 12.7  | Rc 1/4 | 0.41 | 10.4 | 13/16   | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88 | 22.4 | 0.9  | 22.9 |
| VUWLG-12.7C  | 1/2            | 12.7  | Rc 3/8 | 0.41 | 10.4 | 15/16   | 23.8 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88 | 22.4 | 0.9  | 22.9 |
| VUWLG-12.7D  | 1/2            | 12.7  | Rc 1/2 | 0.41 | 10.4 | 1 1/16  | 27   | 1.12 | 28.7 | 1.53 | 36.9 | 1.12 | 28.5 | 0.9  | 22.9 |
| VUWLG-15.88C | 5/8            | 15.88 | Rc 3/8 | 0.5  | 12.7 | 15/16   | 23.8 | 1.1  | 27.9 | 1.5  | 38.1 | 0.88 | 22.4 | 0.96 | 24.4 |
| VUWLG-15.88D | 5/8            | 15.88 | Rc 1/2 | 0.5  | 12.7 | 1 1/8   | 28.6 | 1.17 | 29.7 | 1.57 | 39.9 | 1.12 | 28.5 | 0.96 | 24.4 |
| VUWLG-19.05D | 3/4            | 19.05 | Rc 1/2 | 0.62 | 15.7 | 1 1/8   | 28.6 | 1.17 | 29.7 | 1.57 | 39.9 | 1.12 | 28.5 | 0.96 | 24.4 |
| VUWLG-19.05E | 3/4            | 19.05 | Rc 3/4 | 0.62 | 15.8 | 1 3/8   | 34.9 | 1.36 | 34.5 | 1.76 | 44.7 | 1.25 | 31.8 | 0.96 | 24.4 |
| VUWLG-22.22E | 7/8            | 22.22 | Rc 3/4 | 0.72 | 18.3 | 1 3/8   | 34.9 | 1.25 | 31.8 | 1.76 | 44.7 | 1.25 | 31.8 | 1.02 | 25.9 |
| VUWLG-25.4E  | 1              | 25.4  | Rc 3/4 | 0.88 | 22.3 | 1 3/8   | 34.9 | 1.25 | 31.8 | 1.93 | 49   | 1.25 | 31.8 | 1.23 | 31.2 |
| VUWLG-25.4F  | 1              | 25.4  | Rc 1   | 0.88 | 22.3 | 1 11/16 | 42.9 | 1.63 | 41.4 | 2.11 | 53.6 | 1.5  | 38.1 | 1.23 | 31.2 |

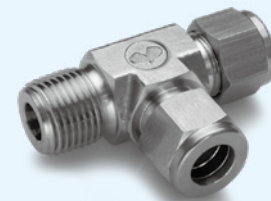
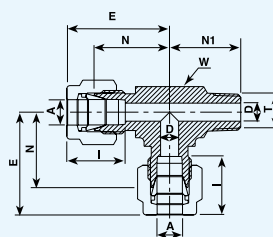
### Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Run Tees (NPT)

TL



### Tube (Metric) To Male NPT Thread

| Part Numbers | A<br>Tube O.D. | T      | D    | W     |      | N  |      | E  |      | N1 |      | I  |      |
|--------------|----------------|--------|------|-------|------|----|------|----|------|----|------|----|------|
|              | mm             |        | mm   | in    | mm   | mm | mm   | mm | mm   | mm | mm   | mm | mm   |
| VUWTL-6AN    | 6              | 1/8NPT | 4.8  | 1/2   | 12.7 |    | 19.6 |    | 27   |    | 18.8 |    | 15.3 |
| VUWTL-6BN    | 6              | 1/4NPT | 4.8  | 1/2   | 12.7 |    | 19.6 |    | 27   |    | 23.4 |    | 15.3 |
| VUWTL-8AN    | 8              | 1/8NPT | 4.8  | 5/8   | 15.9 |    | 22.4 |    | 29.9 |    | 20.8 |    | 16.2 |
| VUWTL-8BN    | 8              | 1/4NPT | 6.4  | 5/8   | 15.9 |    | 22.4 |    | 29.9 |    | 25.4 |    | 16.2 |
| VUWTL-10BN   | 10             | 1/4NPT | 7.1  | 13/16 | 20.6 |    | 25.9 |    | 33.5 |    | 28.2 |    | 16.2 |
| VUWTL-12BN   | 12             | 1/4NPT | 7.1  | 13/16 | 20.6 |    | 25.9 |    | 36   |    | 28.2 |    | 22.8 |
| VUWTL-12CN   | 12             | 3/8NPT | 9.5  | 13/16 | 20.6 |    | 25.9 |    | 36   |    | 28.2 |    | 22.8 |
| VUWTL-12DN   | 12             | 1/2NPT | 9.5  | 15/16 | 23.8 |    | 25.9 |    | 36   |    | 33   |    | 22.8 |
| VUWTL-16DN   | 16             | 1/2NPT | 11.9 | 15/16 | 23.8 |    | 27.9 |    | 38   |    | 35   |    | 24.4 |

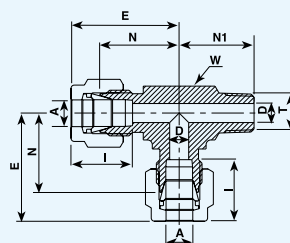
### Tube (Inch) To Male NPT Thread

| Part Numbers  | A<br>Tube O.D. |       | T      | D    |      | W     |      | N    |      | E    |      | N1   |      | I    |      |
|---------------|----------------|-------|--------|------|------|-------|------|------|------|------|------|------|------|------|------|
|               | in             | mm    |        | in   | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWTL-3.2AN   | 1/8            | 3.2   | 1/8NPT | 0.09 | 2.3  | 7/16  | 11.1 | 0.67 | 17   | 0.93 | 23.6 | 0.7  | 17.8 | 0.5  | 12.7 |
| VUWTL-3.2BN   | 1/8            | 3.2   | 1/4NPT | 0.09 | 2.3  | 1/2   | 12.7 | 0.71 | 18   | 0.97 | 24.6 | 0.92 | 23.4 | 0.5  | 12.7 |
| VUWTL-4.8AN   | 3/16           | 4.8   | 1/8NPT | 0.12 | 3.1  | 7/16  | 11.1 | 0.7  | 17.8 | 0.96 | 24.4 | 0.7  | 17.8 | 0.54 | 13.7 |
| VUWTL-6.35AN  | 1/4            | 6.35  | 1/8NPT | 0.19 | 4.8  | 1/2   | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.74 | 18.8 | 0.6  | 15.2 |
| VUWTL-6.35BN  | 1/4            | 6.35  | 1/4NPT | 0.19 | 4.8  | 1/2   | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.92 | 23.4 | 0.6  | 15.2 |
| VUWTL-7.93AN  | 5/16           | 7.93  | 1/8NPT | 0.19 | 4.8  | 5/8   | 15.9 | 0.88 | 22.4 | 1.17 | 29.7 | 0.82 | 20.8 | 0.64 | 16.3 |
| VUWTL-9.52BN  | 3/8            | 9.52  | 1/4NPT | 0.28 | 7.1  | 5/8   | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 1    | 25.4 | 0.66 | 16.8 |
| VUWTL-9.52CN  | 3/8            | 9.52  | 3/8NPT | 0.28 | 7.1  | 13/16 | 20.6 | 1.02 | 25.9 | 1.31 | 33.3 | 1.11 | 28.2 | 0.66 | 16.8 |
| VUWTL-12.7CN  | 1/2            | 12.7  | 3/8NPT | 0.38 | 9.5  | 13/16 | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.11 | 28.2 | 0.9  | 22.9 |
| VUWTL-12.7DN  | 1/2            | 12.7  | 1/2NPT | 0.41 | 10.4 | 13/16 | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.3  | 33   | 0.9  | 22.9 |
| VUWTL-15.88DN | 5/8            | 15.88 | 1/2NPT | 0.47 | 11.9 | 15/16 | 23.8 | 1.1  | 27.9 | 1.5  | 38.1 | 1.38 | 35.1 | 0.96 | 24.4 |
| VUWTL-19.05EN | 3/4            | 19.05 | 3/4NPT | 0.62 | 15.8 | 1 1/8 | 28.6 | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Run Tees (R)

TL



### Tube (Metric) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |    | T     | D  |      | W     |      | N  |      | E  |      | N1 |      | I  |      |
|--------------|----------------|----|-------|----|------|-------|------|----|------|----|------|----|------|----|------|
|              | in             | mm |       | in | mm   | in    | mm   | in | mm   | in | mm   | in | mm   | in | mm   |
| VUWTL-6A     |                | 6  | R 1/8 |    | 4.8  | 1/2   | 12.7 |    | 19.6 |    | 27   |    | 18.8 |    | 15.3 |
| VUWTL-6B     |                | 6  | R 1/4 |    | 4.8  | 1/2   | 12.7 |    | 19.6 |    | 27   |    | 23.4 |    | 15.3 |
| VUWTL-8A     |                | 8  | R 1/8 |    | 4.8  | 5/8   | 15.9 |    | 22.4 |    | 29.9 |    | 20.8 |    | 16.2 |
| VUWTL-8B     |                | 8  | R 1/4 |    | 6.4  | 5/8   | 15.9 |    | 22.4 |    | 29.9 |    | 25.4 |    | 16.2 |
| VUWTL-10B    |                | 10 | R 1/4 |    | 7.1  | 13/16 | 20.6 |    | 25.9 |    | 33.5 |    | 28.2 |    | 16.2 |
| VUWTL-12B    |                | 12 | R 1/4 |    | 7.1  | 13/16 | 20.6 |    | 25.9 |    | 36   |    | 28.2 |    | 22.8 |
| VUWTL-12C    |                | 12 | R 3/8 |    | 9.5  | 13/16 | 20.6 |    | 25.9 |    | 36   |    | 28.2 |    | 22.8 |
| VUWTL-12D    |                | 12 | R 1/2 |    | 9.5  | 15/16 | 23.8 |    | 25.9 |    | 36   |    | 33   |    | 22.8 |
| VUWTL-16D    |                | 16 | R 1/2 |    | 11.9 | 15/16 | 23.8 |    | 27.9 |    | 38   |    | 35   |    | 24.4 |

### Tube (Inch) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |       | T     | D    |      | W     |      | N    |      | E    |      | N1   |      | I    |      |
|--------------|----------------|-------|-------|------|------|-------|------|------|------|------|------|------|------|------|------|
|              | in             | mm    |       | in   | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWTL-3.2A   | 1/8            | 3.2   | R 1/8 | 0.09 | 2.3  | 7/16  | 11.1 | 0.67 | 17   | 0.93 | 23.6 | 0.7  | 17.8 | 0.5  | 12.7 |
| VUWTL-3.2B   | 1/8            | 3.2   | R 1/4 | 0.09 | 2.3  | 1/2   | 12.7 | 0.71 | 18   | 0.97 | 24.6 | 0.92 | 23.4 | 0.5  | 12.7 |
| VUWTL-4.8A   | 3/16           | 4.8   | R 1/8 | 0.12 | 3.1  | 7/16  | 11.1 | 0.7  | 17.8 | 0.96 | 24.4 | 0.7  | 17.8 | 0.54 | 13.7 |
| VUWTL-6.35A  | 1/4            | 6.35  | R 1/8 | 0.19 | 4.8  | 1/2   | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.74 | 18.8 | 0.6  | 15.2 |
| VUWTL-6.35B  | 1/4            | 6.35  | R 1/4 | 0.19 | 4.8  | 1/2   | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.92 | 23.4 | 0.6  | 15.2 |
| VUWTL-7.93A  | 5/16           | 7.93  | R 1/8 | 0.19 | 4.8  | 5/8   | 15.9 | 0.88 | 22.4 | 1.17 | 29.7 | 0.82 | 20.8 | 0.64 | 16.3 |
| VUWTL-9.52B  | 3/8            | 9.52  | R 1/4 | 0.28 | 7.1  | 5/8   | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 1    | 25.4 | 0.66 | 16.8 |
| VUWTL-9.52C  | 3/8            | 9.52  | R 3/8 | 0.28 | 7.1  | 13/16 | 20.6 | 1.02 | 25.9 | 1.31 | 33.3 | 1.11 | 28.2 | 0.66 | 16.8 |
| VUWTL-12.7C  | 1/2            | 12.7  | R 3/8 | 0.38 | 9.5  | 13/16 | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.11 | 28.2 | 0.9  | 22.9 |
| VUWTL-12.7D  | 1/2            | 12.7  | R 1/2 | 0.41 | 10.4 | 13/16 | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.3  | 33   | 0.9  | 22.9 |
| VUWTL-15.88D | 5/8            | 15.88 | R 1/2 | 0.47 | 11.9 | 15/16 | 23.8 | 1.1  | 27.9 | 1.5  | 38.1 | 1.38 | 35.1 | 0.96 | 24.4 |
| VUWTL-19.05E | 3/4            | 19.05 | R 3/4 | 0.62 | 15.8 | 1 1/8 | 28.6 | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |

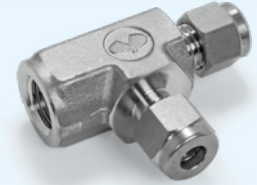
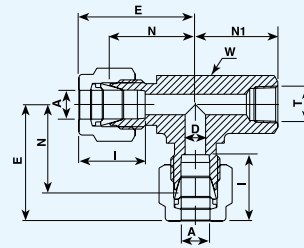
### Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Run Tees (NPT)

TLG



### Tube (Metric) To Female NPT Thread

| Part Numbers | A<br>Tube O.D. | T      | D    |     | W     |      | N    |      | E    |      | N1   |      | I    |      |
|--------------|----------------|--------|------|-----|-------|------|------|------|------|------|------|------|------|------|
|              | mm             |        | in   | mm  | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWTLG-6AN   | 6              | 1/8NPT | 0.19 | 4.8 | 5/8   | 15.9 | 0.77 | 19.6 | 1.06 | 27   | 0.74 | 19   | 0.6  | 15.3 |
| VUWTLG-6BN   | 6              | 1/4NPT | 0.19 | 4.8 | 13/16 | 20.6 | 0.88 | 22.4 | 1.17 | 29.8 | 0.88 | 22.4 | 0.6  | 15.3 |
| VUWTLG-12BN  | 12             | 1/4NPT | 0.37 | 9.5 | 13/16 | 20.6 | 1.01 | 25.9 | 1.41 | 36   | 0.88 | 22.4 | 0.89 | 22.8 |
| VUWTLG-12DN  | 12             | 1/2NPT | 0.37 | 9.5 | 1 1/8 | 28.6 | 1.16 | 29.7 | 1.57 | 39.8 | 1.12 | 28.5 | 0.89 | 22.8 |

### Tube (Metric) To Female NPT Thread

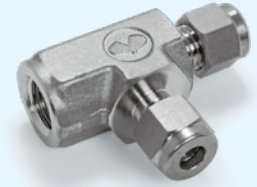
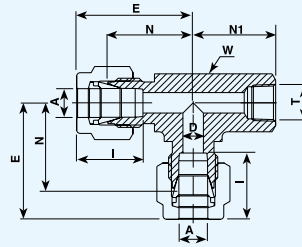
| Part Numbers   | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |      | E    |      | N1   |      | I    |      |
|----------------|----------------|-------|--------|------|------|--------|------|------|------|------|------|------|------|------|------|
|                | in             | mm    |        | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWTLG-3.2AN   | 1/8            | 3.2   | 1/8NPT | 0.09 | 2.3  | 5/8    | 15.9 | 0.71 | 18   | 0.97 | 24.4 | 0.75 | 19.1 | 0.5  | 12.7 |
| VUWTLG-6.35AN  | 1/4            | 6.35  | 1/8NPT | 0.19 | 4.8  | 5/8    | 15.9 | 0.77 | 19.6 | 1.06 | 26.9 | 0.75 | 19.1 | 0.6  | 15.2 |
| VUWTLG-6.35BN  | 1/4            | 6.35  | 1/4NPT | 0.19 | 4.8  | 13/16  | 20.6 | 0.88 | 22.4 | 1.17 | 29.7 | 0.88 | 22.4 | 0.6  | 15.2 |
| VUWTLG-9.52BN  | 3/8            | 9.52  | 1/4NPT | 0.28 | 7.1  | 13/16  | 20.6 | 0.94 | 23.9 | 1.23 | 31.2 | 0.88 | 22.4 | 0.66 | 16.8 |
| VUWTLG-12.7CN  | 1/2            | 12.7  | 3/8NPT | 0.41 | 10.4 | 15/16  | 23.8 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88 | 22.4 | 0.9  | 22.9 |
| VUWTLG-12.7DN  | 1/2            | 12.7  | 1/2NPT | 0.41 | 10.4 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 1.12 | 28.5 | 0.9  | 22.9 |
| VUWTLG-19.05EN | 3/4            | 19.05 | 3/4NPT | 0.62 | 15.8 | 1 3/8  | 34.9 | 1.36 | 34.5 | 1.76 | 44.7 | 1.25 | 31.8 | 0.9  | 24.4 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.



## Female Run Tees (Rc)

TLG



### Tube (Metric) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |    | T      | D    |     | W     |      | N    |      | E    |      | N <sub>1</sub> |      | I    |      |
|--------------|----------------|----|--------|------|-----|-------|------|------|------|------|------|----------------|------|------|------|
|              | in             | mm |        | in   | mm  | in    | mm   | in   | mm   | in   | mm   | in             | mm   | in   | mm   |
| VUWTLG-6A    |                | 6  | Rc 1/8 | 0.19 | 4.8 | 5/8   | 15.9 | 0.77 | 19.6 | 1.06 | 27   | 0.74           | 19   | 0.6  | 15.3 |
| VUWTLG-6B    |                | 6  | Rc 1/4 | 0.19 | 4.8 | 13/16 | 20.6 | 0.88 | 22.4 | 1.17 | 29.8 | 0.88           | 22.4 | 0.6  | 15.3 |
| VUWTLG-12B   |                | 12 | Rc 1/4 | 0.37 | 9.5 | 13/16 | 20.6 | 1.01 | 25.9 | 1.41 | 36   | 0.88           | 22.4 | 0.89 | 22.8 |
| VUWTLG-12D   |                | 12 | Rc 1/2 | 0.37 | 9.5 | 1 1/8 | 28.6 | 1.16 | 29.7 | 1.57 | 39.8 | 1.12           | 28.5 | 0.89 | 22.8 |

### Tube (Inch) To ISO Tapered Thread

| Part Numbers  | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |      | E    |      | N <sub>1</sub> |      | I    |      |
|---------------|----------------|-------|--------|------|------|--------|------|------|------|------|------|----------------|------|------|------|
|               | in             | mm    |        | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in             | mm   | in   | mm   |
| VUWTLG-3.2A   | 1/8            | 3.2   | Rc 1/8 | 0.09 | 2.3  | 5/8    | 15.9 | 0.71 | 18   | 0.97 | 24.4 | 0.75           | 19.1 | 0.5  | 12.7 |
| VUWTLG-6.35A  | 1/4            | 6.35  | Rc 1/8 | 0.19 | 4.8  | 5/8    | 15.9 | 0.77 | 19.6 | 1.06 | 26.9 | 0.75           | 19.1 | 0.6  | 15.2 |
| VUWTLG-6.35B  | 1/4            | 6.35  | Rc 1/4 | 0.19 | 4.8  | 13/16  | 20.6 | 0.88 | 22.4 | 1.17 | 29.7 | 0.88           | 22.4 | 0.6  | 15.2 |
| VUWTLG-9.52B  | 3/8            | 9.52  | Rc 1/4 | 0.28 | 7.1  | 13/16  | 20.6 | 0.94 | 23.9 | 1.23 | 31.2 | 0.88           | 22.4 | 0.66 | 16.8 |
| VUWTLG-12.7C  | 1/2            | 12.7  | Rc 3/8 | 0.41 | 10.4 | 15/16  | 23.8 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88           | 22.4 | 0.9  | 22.9 |
| VUWTLG-12.7D  | 1/2            | 12.7  | Rc 1/2 | 0.41 | 10.4 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 1.12           | 28.5 | 0.9  | 22.9 |
| VUWTLG-19.05E | 3/4            | 19.05 | Rc 3/4 | 0.62 | 15.8 | 1 3/8  | 34.9 | 1.36 | 34.5 | 1.76 | 44.7 | 1.25           | 31.8 | 0.9  | 24.4 |

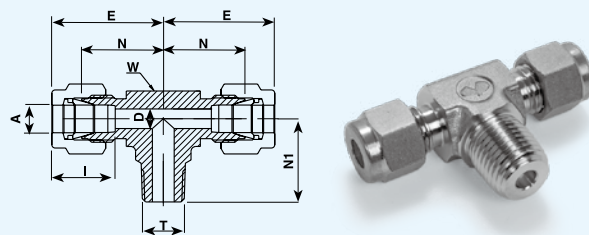
### Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Branch Tees (NPT)

TS



### Tube (Metric) To Male NPT Thread

| Part Numbers | A<br>Tube O.D. | T      | D    | W     |      | N    |      | E    | N <sub>1</sub> | I  |
|--------------|----------------|--------|------|-------|------|------|------|------|----------------|----|
|              | mm             |        | mm   | in    | mm   | mm   | mm   | mm   | mm             | mm |
| VUWTS-6AN    | 6              | 1/8NPT | 4.8  | 1/2   | 12.7 | 19.6 | 27   | 18.8 | 15.3           |    |
| VUWTS-6BN    | 6              | 1/4NPT | 4.8  | 1/2   | 12.7 | 19.6 | 27   | 23.4 | 15.3           |    |
| VUWTS-8AN    | 8              | 1/8NPT | 4.8  | 5/8   | 15.9 | 22.4 | 29.9 | 20.8 | 16.2           |    |
| VUWTS-8BN    | 8              | 1/4NPT | 6.4  | 5/8   | 15.9 | 22.4 | 29.9 | 25.4 | 16.2           |    |
| VUWTS-10BN   | 10             | 1/4NPT | 7.1  | 13/16 | 20.6 | 25.9 | 33.5 | 28.2 | 17.2           |    |
| VUWTS-12BN   | 12             | 1/4NPT | 7.1  | 13/16 | 20.6 | 25.9 | 36   | 28.2 | 22.8           |    |
| VUWTS-12CN   | 12             | 3/8NPT | 9.5  | 13/16 | 20.6 | 25.9 | 36   | 28.2 | 22.8           |    |
| VUWTS-12DN   | 12             | 1/2NPT | 9.5  | 13/16 | 20.6 | 25.9 | 36   | 33   | 22.8           |    |
| VUWTS-16DN   | 16             | 1/2NPT | 11.9 | 15/16 | 23.8 | 28.7 | 38.8 | 35.8 | 24.4           |    |

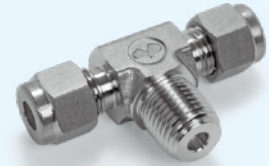
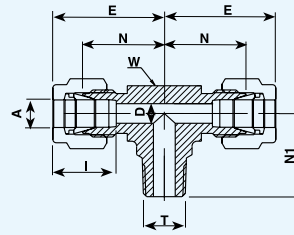
### Tube (Inch) To Male NPT Thread

| Part Numbers  | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |      | E    |      | N <sub>1</sub> |      | I    |      |
|---------------|----------------|-------|--------|------|------|--------|------|------|------|------|------|----------------|------|------|------|
|               | in             | mm    |        | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in             | mm   | in   | mm   |
| VUWTS-3.2AN   | 1/8            | 3.2   | 1/8NPT | 0.09 | 2.3  | 7/16   | 11.1 | 0.67 | 17   | 0.93 | 23.6 | 0.7            | 17.8 | 0.5  | 12.7 |
| VUWTS-3.2BN   | 1/8            | 3.2   | 1/4NPT | 0.09 | 2.3  | 1/2    | 12.7 | 0.71 | 18   | 0.97 | 24.6 | 0.92           | 23.3 | 0.5  | 12.7 |
| VUWTS-4.8AN   | 3/16           | 4.8   | 1/8NPT | 0.12 | 3    | 7/16   | 11.1 | 0.7  | 17.8 | 0.96 | 24.4 | 0.7            | 17.8 | 0.54 | 13.7 |
| VUWTS-6.35AN  | 1/4            | 6.35  | 1/8NPT | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.74           | 18.8 | 0.6  | 15.2 |
| VUWTS-6.35BN  | 1/4            | 6.35  | 1/4NPT | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.92           | 23.4 | 0.6  | 15.2 |
| VUWTS-7.93AN  | 5/16           | 7.93  | 1/8NPT | 0.19 | 4.8  | 5/8    | 15.9 | 0.88 | 22.4 | 1.17 | 29.7 | 0.82           | 20.8 | 0.64 | 16.2 |
| VUWTS-9.52BN  | 3/8            | 9.52  | 1/4NPT | 0.28 | 7.1  | 5/8    | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 1              | 25.4 | 0.66 | 16.8 |
| VUWTS-9.52CN  | 3/8            | 9.52  | 3/8NPT | 0.28 | 7.1  | 13/16  | 20.6 | 1.02 | 25.9 | 1.31 | 33.3 | 1.11           | 28.2 | 0.66 | 16.8 |
| VUWTS-12.7CN  | 1/2            | 12.7  | 3/8NPT | 0.38 | 9.5  | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.11           | 28.2 | 0.9  | 22.9 |
| VUWTS-12.7DN  | 1/2            | 12.7  | 1/2NPT | 0.41 | 10.4 | 13/16  | 20.6 | 1.02 | 26   | 1.42 | 36.1 | 1.3            | 33   | 0.9  | 22.9 |
| VUWTS-15.88DN | 5/8            | 15.88 | 1/2NPT | 0.47 | 11.9 | 15/16  | 23.8 | 1.13 | 28.7 | 1.53 | 38.9 | 1.41           | 35.8 | 0.96 | 24.4 |
| VUWTS-19.05EN | 3/4            | 19.05 | 3/4NPT | 0.62 | 15.8 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 1.45           | 36.8 | 0.96 | 24.4 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Branch Tees (R)

TS



### Tube (Metric) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |    | T     | D  |      | W     |      | N  |      | E  |      | N1 |      | I  |      |
|--------------|----------------|----|-------|----|------|-------|------|----|------|----|------|----|------|----|------|
|              | in             | mm |       | in | mm   | in    | mm   | in | mm   | in | mm   | in | mm   | in | mm   |
| VUWTS-6A     |                | 6  | R 1/8 |    | 4.8  | 1/2   | 12.7 |    | 19.6 |    | 27   |    | 18.8 |    | 15.3 |
| VUWTS-6B     |                | 6  | R 1/4 |    | 4.8  | 1/2   | 12.7 |    | 19.6 |    | 27   |    | 23.4 |    | 15.3 |
| VUWTS-8A     |                | 8  | R 1/8 |    | 4.8  | 5/8   | 15.9 |    | 22.4 |    | 29.9 |    | 20.8 |    | 16.2 |
| VUWTS-8B     |                | 8  | R 1/4 |    | 6.4  | 5/8   | 15.9 |    | 22.4 |    | 29.9 |    | 25.4 |    | 16.2 |
| VUWTS-10B    |                | 10 | R 1/4 |    | 7.1  | 13/16 | 20.6 |    | 25.9 |    | 33.5 |    | 28.2 |    | 17.2 |
| VUWTS-12B    |                | 12 | R 1/4 |    | 7.1  | 13/16 | 20.6 |    | 25.9 |    | 36   |    | 28.2 |    | 22.8 |
| VUWTS-12C    |                | 12 | R 3/8 |    | 9.5  | 13/16 | 20.6 |    | 25.9 |    | 36   |    | 28.2 |    | 22.8 |
| VUWTS-12D    |                | 12 | R 1/2 |    | 9.5  | 13/16 | 20.6 |    | 25.9 |    | 36   |    | 33   |    | 22.8 |
| VUWTS-16D    |                | 16 | R 1/2 |    | 11.9 | 15/16 | 23.8 |    | 28.7 |    | 38.8 |    | 35.8 |    | 24.4 |

### Tube (Inch) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |       | T     | D    |      | W      |      | N    |      | E    |      | N1   |      | I    |      |
|--------------|----------------|-------|-------|------|------|--------|------|------|------|------|------|------|------|------|------|
|              | in             | mm    |       | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWTS-3.2A   | 1/8            | 3.2   | R 1/8 | 0.09 | 2.3  | 7/16   | 11.1 | 0.67 | 17   | 0.93 | 23.6 | 0.7  | 17.8 | 0.5  | 12.7 |
| VUWTS-3.2B   | 1/8            | 3.2   | R 1/4 | 0.09 | 2.3  | 1/2    | 12.7 | 0.71 | 18   | 0.97 | 24.6 | 0.92 | 23.4 | 0.5  | 12.7 |
| VUWTS-4.8A   | 3/16           | 4.8   | R 1/8 | 0.12 | 3    | 7/16   | 11.1 | 0.7  | 17.8 | 0.96 | 24.4 | 0.7  | 17.8 | 0.54 | 13.7 |
| VUWTS-6.35A  | 1/4            | 6.35  | R 1/8 | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.74 | 18.8 | 0.6  | 15.2 |
| VUWTS-6.35B  | 1/4            | 6.35  | R 1/4 | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.92 | 23.4 | 0.6  | 15.2 |
| VUWTS-7.93A  | 5/16           | 7.93  | R 1/8 | 0.19 | 4.8  | 5/8    | 15.9 | 0.88 | 22.4 | 1.17 | 29.7 | 0.82 | 20.8 | 0.64 | 16.2 |
| VUWTS-9.52B  | 3/8            | 9.52  | R 1/4 | 0.28 | 7.1  | 5/8    | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 1    | 25.4 | 0.66 | 16.8 |
| VUWTS-9.52C  | 3/8            | 9.52  | R 3/8 | 0.28 | 7.1  | 13/16  | 20.6 | 1.02 | 25.9 | 1.31 | 33.3 | 1.11 | 28.2 | 0.66 | 16.8 |
| VUWTS-12.7C  | 1/2            | 12.7  | R 3/8 | 0.38 | 9.5  | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 1.11 | 28.2 | 0.9  | 22.9 |
| VUWTS-12.7D  | 1/2            | 12.7  | R 1/2 | 0.41 | 10.4 | 13/16  | 20.6 | 1.02 | 26   | 1.42 | 36.1 | 1.3  | 33   | 0.9  | 22.9 |
| VUWTS-15.88D | 5/8            | 15.88 | R 1/2 | 0.47 | 11.9 | 15/16  | 23.8 | 1.13 | 28.7 | 1.53 | 38.9 | 1.41 | 35.8 | 0.96 | 24.4 |
| VUWTS-19.05E | 3/4            | 19.05 | R 3/4 | 0.62 | 15.8 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 1.45 | 36.8 | 0.96 | 24.4 |

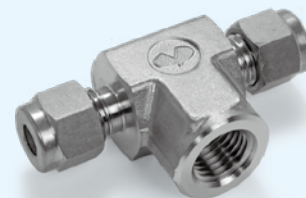
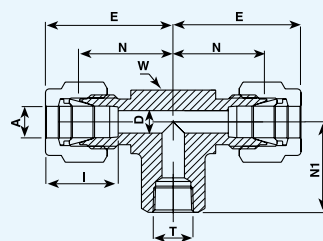
### Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Branch Tees (NPT)

TG



### Tube (Metric) To Female NPT Thread

| Part Numbers | A<br>Tube O.D. |    | T      | D  |      | W      |      | N  |      | E  |      | N1 |      | I  |      |
|--------------|----------------|----|--------|----|------|--------|------|----|------|----|------|----|------|----|------|
|              | in             | mm |        | in | mm   | in     | mm   | in | mm   | in | mm   | in | mm   | in | mm   |
| VUWTG-6AN    |                | 6  | 1/8NPT |    | 4.8  | 5/8    | 15.9 |    | 19.6 |    | 27   |    | 19   |    | 15.3 |
| VUWTG-6BN    |                | 6  | 1/4NPT |    | 4.8  | 13/16  | 20.6 |    | 22.4 |    | 29.8 |    | 22.4 |    | 15.3 |
| VUWTG-10BN   |                | 10 | 1/4NPT |    | 7.9  | 13/16  | 20.6 |    | 25.9 |    | 33.5 |    | 22.4 |    | 17.2 |
| VUWTG-10CN   |                | 10 | 3/8NPT |    | 7.9  | 15/16  | 23.8 |    | 25.9 |    | 33.5 |    | 22.4 |    | 17.2 |
| VUWTG-12BN   |                | 12 | 1/4NPT |    | 9.5  | 13/16  | 20.6 |    | 25.9 |    | 36   |    | 22.4 |    | 22.8 |
| VUWTG-12DN   |                | 12 | 1/2NPT |    | 9.5  | 1 1/16 | 27   |    | 28.7 |    | 38.8 |    | 28.4 |    | 22.8 |
| VUWTG-16DN   |                | 16 | 1/2NPT |    | 12.7 | 1 1/8  | 28.6 |    | 28.7 |    | 38.8 |    | 28.4 |    | 24.4 |

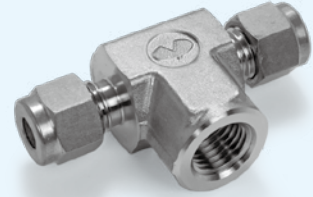
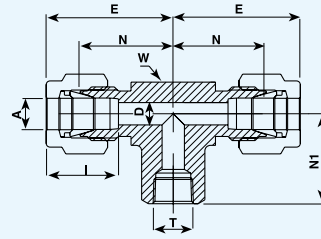
### Tube (Inch) To Female NPT Thread

| Part Numbers  | A<br>Tube O.D. |       | T      | D    |      | W       |      | N    |      | E    |      | N1   |      | I    |      |
|---------------|----------------|-------|--------|------|------|---------|------|------|------|------|------|------|------|------|------|
|               | in             | mm    |        | in   | mm   | in      | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWTG-3.2AN   | 1/8            | 3.2   | 1/8NPT | 0.09 | 2.3  | 5/8     | 15.9 | 0.7  | 18   | 0.97 | 24.6 | 0.75 | 19.1 | 0.5  | 12.7 |
| VUWTG-6.35AN  | 1/4            | 6.35  | 1/8NPT | 0.19 | 4.8  | 5/8     | 15.9 | 0.77 | 19.6 | 1.06 | 26.9 | 0.75 | 19.1 | 0.6  | 15.2 |
| VUWTG-6.35BN  | 1/4            | 6.35  | 1/4NPT | 0.19 | 4.8  | 13/16   | 20.6 | 0.88 | 22.4 | 1.17 | 29.7 | 0.88 | 22.4 | 0.6  | 15.2 |
| VUWTG-9.52BN  | 3/8            | 9.52  | 1/4NPT | 0.28 | 7.1  | 13/16   | 20.6 | 0.94 | 23.9 | 1.23 | 31.2 | 0.88 | 22.4 | 0.66 | 16.8 |
| VUWTG-12.7BN  | 1/2            | 12.7  | 1/4NPT | 0.41 | 10.4 | 13/16   | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88 | 22.4 | 0.9  | 22.9 |
| VUWTG-12.7CN  | 1/2            | 12.7  | 3/8NPT | 0.41 | 10.4 | 15/16   | 23.8 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88 | 22.4 | 0.9  | 22.9 |
| VUWTG-12.7DN  | 1/2            | 12.7  | 1/2NPT | 0.41 | 10.4 | 1 1/16  | 27   | 1.13 | 28.7 | 1.53 | 38.9 | 1.12 | 28.5 | 0.9  | 22.9 |
| VUWTG-15.88DN | 5/8            | 15.88 | 1/2NPT | 0.5  | 12.7 | 1 1/16  | 27   | 1.13 | 28.7 | 1.53 | 38.9 | 1.12 | 28.4 | 0.96 | 24.4 |
| VUWTG-19.05EN | 3/4            | 19.05 | 3/4NPT | 0.62 | 15.8 | 1 3/8   | 34.9 | 1.36 | 34.5 | 1.76 | 44.7 | 1.25 | 31.8 | 0.96 | 24.4 |
| VUWTG-25.4EN  | 1              | 25.4  | 3/4NPT | 0.88 | 22.3 | 1 3/8   | 34.9 | 1.45 | 36.8 | 1.93 | 49   | 1.25 | 31.8 | 1.23 | 31.2 |
| VUWTG-25.4FN  | 1              | 25.4  | 1NPT   | 0.88 | 22.3 | 1 11/16 | 42.9 | 1.63 | 41.4 | 2.11 | 53.6 | 1.5  | 38.1 | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Branch Tees (Rc)

TG



### Tube (Metric) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |    | T      | D  |      | W      |      | N  |      | E  |      | N <sub>1</sub> |      | I  |      |
|--------------|----------------|----|--------|----|------|--------|------|----|------|----|------|----------------|------|----|------|
|              | in             | mm |        | in | mm   | in     | mm   | in | mm   | in | mm   | in             | mm   | in | mm   |
| VUWTG-6A     |                | 6  | Rc 1/8 |    | 4.8  | 5/8    | 15.9 |    | 19.6 |    | 27   |                | 19   |    | 15.3 |
| VUWTG-6B     |                | 6  | Rc 1/4 |    | 4.8  | 13/16  | 20.6 |    | 22.4 |    | 29.8 |                | 22.4 |    | 15.3 |
| VUWTG-10B    |                | 10 | Rc 1/4 |    | 7.9  | 13/16  | 20.6 |    | 25.9 |    | 33.5 |                | 22.4 |    | 17.2 |
| VUWTG-10C    |                | 10 | Rc 3/8 |    | 7.9  | 15/16  | 23.8 |    | 25.9 |    | 33.5 |                | 22.4 |    | 17.2 |
| VUWTG-12B    |                | 12 | Rc 1/4 |    | 9.5  | 13/16  | 20.6 |    | 25.9 |    | 36   |                | 22.4 |    | 22.8 |
| VUWTG-12D    |                | 12 | Rc 1/2 |    | 9.5  | 1 1/16 | 27   |    | 28.7 |    | 38.8 |                | 28.4 |    | 22.8 |
| VUWTG-16D    |                | 16 | Rc 1/2 |    | 12.7 | 1 1/8  | 28.6 |    | 28.7 |    | 38.8 |                | 28.4 |    | 24.4 |

### Tube (Inch) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |       | T      | D    |      | W       |      | N    |      | E    |      | N <sub>1</sub> |      | I    |      |
|--------------|----------------|-------|--------|------|------|---------|------|------|------|------|------|----------------|------|------|------|
|              | in             | mm    |        | in   | mm   | in      | mm   | in   | mm   | in   | mm   | in             | mm   | in   | mm   |
| VUWTG-3.2A   | 1/8            | 3.2   | Rc 1/8 | 0.09 | 2.3  | 5/8     | 15.9 | 0.7  | 18   | 0.97 | 24.6 | 0.75           | 19.1 | 0.5  | 12.7 |
| VUWTG-6.35A  | 1/4            | 6.35  | Rc 1/8 | 0.19 | 4.8  | 5/8     | 15.9 | 0.77 | 19.6 | 1.06 | 26.9 | 0.75           | 19.1 | 0.6  | 15.2 |
| VUWTG-6.35B  | 1/4            | 6.35  | Rc 1/4 | 0.19 | 4.8  | 13/16   | 20.6 | 0.88 | 22.4 | 1.17 | 29.7 | 0.88           | 22.4 | 0.6  | 15.2 |
| VUWTG-9.52B  | 3/8            | 9.52  | Rc 1/4 | 0.28 | 7.1  | 13/16   | 20.6 | 0.94 | 23.9 | 1.23 | 31.2 | 0.88           | 22.4 | 0.66 | 16.8 |
| VUWTG-12.7B  | 1/2            | 12.7  | Rc 1/4 | 0.41 | 10.4 | 13/16   | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88           | 22.4 | 0.9  | 22.9 |
| VUWTG-12.7C  | 1/2            | 12.7  | Rc 3/8 | 0.41 | 10.4 | 15/16   | 23.8 | 1.02 | 25.9 | 1.42 | 36.1 | 0.88           | 22.4 | 0.9  | 22.9 |
| VUWTG-12.7D  | 1/2            | 12.7  | Rc 1/2 | 0.41 | 10.4 | 1 1/16  | 27   | 1.13 | 28.7 | 1.53 | 38.9 | 1.12           | 28.5 | 0.9  | 22.9 |
| VUWTG-15.88D | 5/8            | 15.88 | Rc 1/2 | 0.5  | 12.7 | 1 1/16  | 27   | 1.13 | 28.7 | 1.53 | 38.9 | 1.12           | 28.4 | 0.96 | 24.4 |
| VUWTG-19.05E | 3/4            | 19.05 | Rc 3/4 | 0.62 | 15.8 | 1 3/8   | 34.9 | 1.36 | 34.5 | 1.76 | 44.7 | 1.25           | 31.8 | 0.96 | 24.4 |
| VUWTG-25.4E  | 1              | 25.4  | Rc 3/4 | 0.88 | 22.3 | 1 3/8   | 34.9 | 1.45 | 36.8 | 1.93 | 49   | 1.25           | 31.8 | 1.23 | 31.2 |
| VUWTG-25.4F  | 1              | 25.4  | Rc 1   | 0.88 | 22.3 | 1 11/16 | 42.9 | 1.63 | 41.4 | 2.11 | 53.6 | 1.5            | 38.1 | 1.23 | 31.2 |

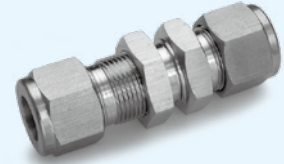
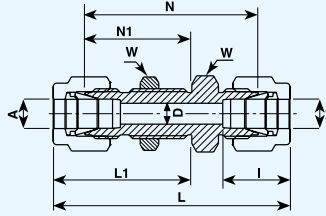
### Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Bulkhead Unions

P



**Tube (Metric) To Tube (Metric)**

| Part Numbers | A<br>Tube O.D. |    | D  |      | W  |    | N  |      | N1 |      | L  |      | L1 |      | I  |      | Panel hole<br>drill size |       | Max. Panel<br>thickness |      |
|--------------|----------------|----|----|------|----|----|----|------|----|------|----|------|----|------|----|------|--------------------------|-------|-------------------------|------|
|              | in             | mm | in | mm   | in | mm | in | mm   | in | mm   | in | mm   | in | mm   | in | mm   | in                       | mm    | in                      | mm   |
| VUWP-3       |                | 3  |    | 2.4  |    | 14 |    | 38.1 |    | 24.6 |    | 51.3 |    | 31.2 |    | 12.9 |                          | 8.3   |                         | 12.7 |
| VUWP-4       |                | 4  |    | 2.4  |    | 14 |    | 40.4 |    | 25.4 |    | 53.6 |    | 32   |    | 13.7 |                          | 9.9   |                         | 12.7 |
| VUWP-6       |                | 6  |    | 4.8  |    | 16 |    | 42.9 |    | 26.2 |    | 57.7 |    | 33.6 |    | 15.3 |                          | 11.5  |                         | 10.2 |
| VUWP-8       |                | 8  |    | 6.4  |    | 18 |    | 46   |    | 28.6 |    | 61   |    | 36.1 |    | 16.2 |                          | 13.1  |                         | 11.2 |
| VUWP-10      |                | 10 |    | 7.9  |    | 22 |    | 48.5 |    | 29.4 |    | 63.7 |    | 37   |    | 17.2 |                          | 16.25 |                         | 11.2 |
| VUWP-12      |                | 12 |    | 9.5  |    | 24 |    | 50.8 |    | 31.8 |    | 71   |    | 41.9 |    | 22.8 |                          | 19.5  |                         | 12.7 |
| VUWP-15      |                | 15 |    | 11.9 |    | 27 |    | 52.3 |    | 32.5 |    | 72.5 |    | 42.6 |    | 24.4 |                          | 22.8  |                         | 12.7 |
| VUWP-16      |                | 16 |    | 12.7 |    | 27 |    | 52.3 |    | 32.5 |    | 72.5 |    | 42.6 |    | 24.4 |                          | 22.8  |                         | 12.7 |
| VUWP-18      |                | 18 |    | 15.1 |    | 30 |    | 58.7 |    | 37.3 |    | 78.9 |    | 47.4 |    | 24.4 |                          | 26    |                         | 16.8 |
| VUWP-20      |                | 20 |    | 15.9 |    | 35 |    | 64.3 |    | 42.9 |    | 84.5 |    | 53   |    | 26   |                          | 29    |                         | 23.9 |
| VUWP-25      |                | 25 |    | 21.8 |    | 41 |    | 71.4 |    | 45.2 |    | 86.6 |    | 52.8 |    | 26.6 |                          | 33.7  |                         | 19   |

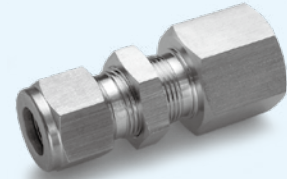
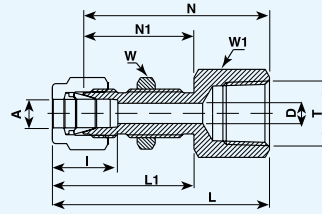
**Tube (Inch) To Tube (Inch)**

| Part Numbers | A<br>Tube O.D. |       | D    |      | W      |      | N    |      | N1   |      | L    |      | L1   |      | I    |      | Panel hole<br>drill size |      | Max. Panel<br>thickness |      |
|--------------|----------------|-------|------|------|--------|------|------|------|------|------|------|------|------|------|------|------|--------------------------|------|-------------------------|------|
|              | in             | mm    | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in                       | mm   | in                      | mm   |
| VUWP-1.6     | 1/16           | 1.6   | 0.05 | 1.3  | 5/16   | 7.9  | 0.94 | 23.9 | 0.53 | 13.5 | 1.24 | 31.5 | 0.68 | 17.3 | 0.34 | 8.6  | 13/64                    | 5.2  | 0.12                    | 3.1  |
| VUWP-3.2     | 1/8            | 3.2   | 0.09 | 2.3  | 1/2    | 12.7 | 1.5  | 38.1 | 0.97 | 24.6 | 2.02 | 51.3 | 1.23 | 31.2 | 0.5  | 12.7 | 21/64                    | 8.3  | 0.5                     | 12.7 |
| VUWP-4.8     | 3/16           | 4.8   | 0.12 | 3    | 9/16   | 14.3 | 1.59 | 40.4 | 1    | 25.4 | 2.11 | 53.6 | 1.26 | 32   | 0.54 | 13.7 | 25/64                    | 9.9  | 0.5                     | 12.7 |
| VUWP-6.35    | 1/4            | 6.35  | 0.19 | 4.8  | 5/8    | 15.9 | 1.69 | 42.9 | 1.03 | 26.2 | 2.27 | 57.7 | 1.32 | 33.5 | 0.6  | 15.2 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWP-7.93    | 5/16           | 7.93  | 0.25 | 6.4  | 11/16  | 17.5 | 1.81 | 46   | 1.12 | 28.4 | 2.39 | 60.7 | 1.41 | 35.8 | 0.64 | 16.2 | 33/64                    | 13.1 | 0.44                    | 11.2 |
| VUWP-9.52    | 3/8            | 9.52  | 0.28 | 7.1  | 3/4    | 19.1 | 1.87 | 47.5 | 1.16 | 29.5 | 2.45 | 62.2 | 1.45 | 36.8 | 0.66 | 16.8 | 37/64                    | 14.7 | 0.44                    | 11.2 |
| VUWP-12.7    | 1/2            | 12.7  | 0.41 | 10.4 | 15/16  | 23.8 | 2    | 50.8 | 1.25 | 31.8 | 2.8  | 71.1 | 1.65 | 41.9 | 0.9  | 22.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |
| VUWP-15.88   | 5/8            | 15.88 | 0.5  | 12.7 | 1 1/16 | 27   | 2.06 | 52.3 | 1.28 | 32.5 | 2.86 | 72.6 | 1.68 | 42.7 | 0.96 | 24.4 | 57/64                    | 22.6 | 0.5                     | 12.7 |
| VUWP-19.05   | 3/4            | 19.05 | 0.62 | 15.9 | 1 3/16 | 30.2 | 2.31 | 58.7 | 1.47 | 37.3 | 3.11 | 79   | 1.87 | 47.5 | 0.96 | 24.4 | 1 1/64                   | 25.8 | 0.66                    | 16.8 |
| VUWP-25.4    | 1              | 25.4  | 0.88 | 22.3 | 1 5/8  | 41.3 | 2.81 | 71.4 | 1.78 | 45.2 | 3.77 | 95.8 | 2.26 | 57.4 | 1.23 | 31.2 | 1 21/64                  | 33.7 | 0.75                    | 19.1 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Bulkhead Female Connectors (NPT)

GP

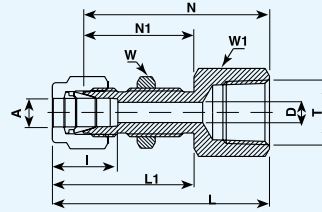


Tube (Inch) To Male NPT Thread

| Part Numbers | A<br>Tube O.D. |      | T      | D    |      | W      |      | W <sub>1</sub> |      | N    |      | N <sub>1</sub> |      | L    |      | L <sub>1</sub> |      | I    |      | Panel hole<br>drill size |      | Max. Panel<br>thickness |      |
|--------------|----------------|------|--------|------|------|--------|------|----------------|------|------|------|----------------|------|------|------|----------------|------|------|------|--------------------------|------|-------------------------|------|
|              | in             | mm   |        | in   | mm   | in     | mm   | in             | mm   | in   | mm   | in             | mm   | in   | mm   | in             | mm   | in   | mm   | in                       | mm   | in                      | mm   |
| VUWGP-3.2AN  | 1/8            | 3.2  | 1/8NPT | 0.09 | 2.3  | 9/16   | 14.3 | 1/2            | 12.7 | 1.5  | 38.1 | 0.97           | 24.6 | 1.76 | 44.7 | 1.23           | 31.2 | 0.5  | 12.7 | 21/64                    | 8.3  | 0.5                     | 12.7 |
| VUWGP-6.35AN | 1/4            | 6.35 | 1/8NPT | 0.19 | 4.8  | 5/8    | 15.9 | 5/8            | 15.9 | 1.56 | 39.6 | 1.03           | 26.2 | 1.85 | 47   | 1.32           | 33.5 | 0.6  | 15.2 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWGP-6.35BN | 1/4            | 6.35 | 1/4NPT | 0.19 | 4.8  | 3/4    | 19.1 | 3/4            | 19.1 | 1.75 | 44.5 | 1.03           | 26.2 | 2.04 | 51.8 | 1.32           | 33.5 | 0.6  | 15.2 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWGP-9.52BN | 3/8            | 9.52 | 1/4NPT | 0.28 | 7.1  | 3/4    | 19.1 | 3/4            | 19.1 | 1.88 | 47.8 | 1.16           | 29.5 | 2.17 | 55.1 | 1.45           | 36.8 | 0.66 | 16.8 | 37/64                    | 14.7 | 0.44                    | 11.2 |
| VUWGP-12.7CN | 1/2            | 12.7 | 3/8NPT | 0.41 | 10.4 | 15/16  | 23.8 | 15/16          | 23.8 | 2.03 | 51.6 | 1.25           | 31.8 | 2.43 | 61.7 | 1.65           | 41.9 | 0.9  | 22.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |
| VUWGP-12.7DN | 1/2            | 12.7 | 1/2NPT | 0.41 | 10.4 | 1 1/16 | 27   | 15/16          | 23.8 | 2.22 | 56.4 | 1.25           | 31.8 | 2.62 | 66.6 | 1.65           | 41.9 | 0.9  | 22.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |

## Bulkhead Female Connectors (Rc)

GP



Tube (Inch) To ISO Tapered Thread (Rc)

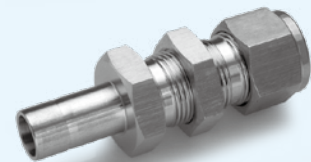
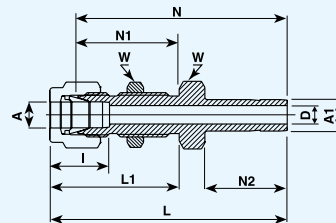
| Part Numbers | A<br>Tube O.D. |      | T      | D    |      | W      |      | W <sub>1</sub> |      | N    |      | N <sub>1</sub> |      | L    |      | L <sub>1</sub> |      | I    |      | Panel hole<br>drill size |      | Max. Panel<br>thickness |      |
|--------------|----------------|------|--------|------|------|--------|------|----------------|------|------|------|----------------|------|------|------|----------------|------|------|------|--------------------------|------|-------------------------|------|
|              | in             | mm   |        | in   | mm   | in     | mm   | in             | mm   | in   | mm   | in             | mm   | in   | mm   | in             | mm   | in   | mm   | in                       | mm   | in                      | mm   |
| VUWGP-3.2A   | 1/8            | 3.2  | Rc 1/8 | 0.09 | 2.3  | 9/16   | 14.3 | 1/2            | 12.7 | 1.5  | 38.1 | 0.97           | 24.6 | 1.76 | 44.7 | 1.23           | 31.2 | 0.5  | 12.7 | 21/64                    | 8.3  | 0.5                     | 12.7 |
| VUWGP-6.35A  | 1/4            | 6.35 | Rc 1/8 | 0.19 | 4.8  | 5/8    | 15.9 | 5/8            | 15.9 | 1.56 | 39.6 | 1.03           | 26.2 | 1.85 | 47   | 1.32           | 33.5 | 0.6  | 15.2 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWGP-6.35B  | 1/4            | 6.35 | Rc 1/4 | 0.19 | 4.8  | 3/4    | 19.1 | 5/8            | 15.9 | 1.75 | 44.5 | 1.03           | 26.2 | 2.04 | 51.8 | 1.32           | 33.5 | 0.6  | 15.2 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWGP-9.52B  | 3/8            | 9.52 | Rc 1/4 | 0.28 | 7.1  | 3/4    | 19.1 | 3/4            | 19.1 | 1.88 | 47.8 | 1.16           | 29.5 | 2.17 | 55.1 | 1.45           | 36.8 | 0.66 | 16.8 | 37/64                    | 14.7 | 0.44                    | 11.2 |
| VUWGP-12.7C  | 1/2            | 12.7 | Rc 3/8 | 0.41 | 10.4 | 15/16  | 23.8 | 15/16          | 23.8 | 2.03 | 51.6 | 1.25           | 31.8 | 2.43 | 61.7 | 1.65           | 41.9 | 0.9  | 22.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |
| VUWGP-12.7D  | 1/2            | 12.7 | Rc 1/2 | 0.41 | 10.4 | 1 1/16 | 27   | 15/16          | 23.8 | 2.22 | 56.4 | 1.25           | 31.8 | 2.62 | 66.6 | 1.65           | 41.9 | 0.9  | 22.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |

### Designation:

R marking on hex.

## Bulkhead Reducers

RP



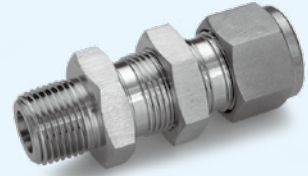
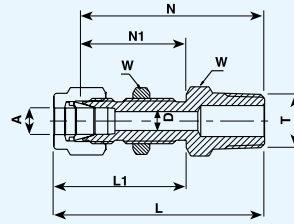
Tube (Inch) To Tube (Inch)

| Part Numbers    | A<br>Tube O.D. |      | A <sub>1</sub><br>Tube O.D. |      | D    |     | W     |      | N    |      | N <sub>1</sub> |      | N <sub>2</sub> |      | L    |      | L <sub>1</sub> |      | I    |      | Panel hole<br>drill size |      | Max. Panel<br>thickness |      |
|-----------------|----------------|------|-----------------------------|------|------|-----|-------|------|------|------|----------------|------|----------------|------|------|------|----------------|------|------|------|--------------------------|------|-------------------------|------|
|                 | in             | mm   | in                          | mm   | in   | mm  | in    | mm   | in   | mm   | in             | mm   | in             | mm   | in   | mm   | in             | mm   | in   | mm   | in                       | mm   | in                      | mm   |
| VUWRP-3.2X3.2   | 1/8            | 3.2  | 1/8                         | 3.2  | 0.08 | 2   | 1/2   | 12.7 | 1.69 | 42.9 | 0.97           | 24.6 | 0.53           | 13.5 | 1.95 | 49.5 | 1.23           | 31.2 | 0.5  | 12.7 | 21/64                    | 8.3  | 0.5                     | 12.7 |
| VUWRP-6.35X6.35 | 1/4            | 6.35 | 1/4                         | 6.35 | 0.17 | 4.2 | 5/8   | 15.9 | 1.91 | 48.5 | 1.03           | 26.1 | 0.62           | 15.7 | 2.2  | 55.9 | 1.32           | 33.5 | 0.6  | 15.2 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWRP-9.52X9.52 | 3/8            | 9.52 | 3/8                         | 9.52 | 0.28 | 7.1 | 3/4   | 19.1 | 2.12 | 53.9 | 1.16           | 29.5 | 0.69           | 17.5 | 2.41 | 61.2 | 1.45           | 36.8 | 0.66 | 16.8 | 37/64                    | 14.7 | 0.44                    | 11.2 |
| VUWRP-12.7X12.7 | 1/2            | 12.7 | 1/2                         | 12.7 | 0.39 | 9.9 | 15/16 | 23.8 | 2.47 | 62.7 | 1.25           | 31.8 | 0.91           | 23.1 | 2.87 | 72.9 | 1.65           | 41.9 | 0.9  | 22.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Bulkhead Male Connectors (NPT)

HP



### Tube (Metric) To Male NPT Thread

| Part Numbers | A<br>Tube O.D. | T      | D   | W  | N    | N1   | L    | L1   | Panel hole<br>drill size | Max. Panel<br>thickness |
|--------------|----------------|--------|-----|----|------|------|------|------|--------------------------|-------------------------|
|              | mm             |        | mm  | mm | mm   | mm   | mm   | mm   | mm                       | mm                      |
| VUWHP-6AN    | 6              | 1/8NPT | 4.8 | 16 | 42.1 | 26.2 | 49.5 | 33.6 | 11.5                     | 10.2                    |
| VUWHP-6BN    | 6              | 1/4NPT | 4.8 | 16 | 46.2 | 26.2 | 53.6 | 33.6 | 11.5                     | 10.2                    |
| VUWHP-12DN   | 12             | 1/2NPT | 9.5 | 24 | 58.7 | 31.8 | 68.8 | 41.9 | 19.5                     | 12.7                    |

### Tube (Inch) To Male NPT Thread

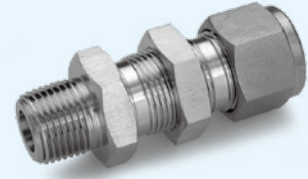
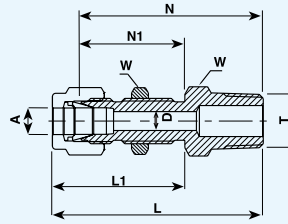
| Part Numbers | A<br>Tube O.D. |      | T      | D    |      | W     |      | N    |      | N1   |      | L    |      | L1   |      | Panel hole<br>drill size |      | Max. Panel<br>thickness |      |
|--------------|----------------|------|--------|------|------|-------|------|------|------|------|------|------|------|------|------|--------------------------|------|-------------------------|------|
|              | in             | mm   |        | in   | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in                       | mm   | in                      | mm   |
| VUWHP-3.2AN  | 1/8            | 3.2  | 1/8NPT | 0.09 | 2.3  | 1/2   | 12.7 | 1.57 | 39.9 | 0.97 | 24.6 | 1.83 | 46.5 | 1.23 | 31.2 | 21/64                    | 8.3  | 0.5                     | 12.7 |
| VUWHP-6.35AN | 1/4            | 6.35 | 1/8NPT | 0.19 | 4.8  | 5/8   | 15.9 | 1.66 | 42.2 | 1.03 | 26.2 | 1.95 | 49.5 | 1.32 | 33.5 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWHP-6.35BN | 1/4            | 6.35 | 1/4NPT | 0.19 | 4.8  | 5/8   | 15.9 | 1.84 | 46.7 | 1.03 | 26.2 | 2.13 | 54.1 | 1.32 | 33.5 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWHP-9.52BN | 3/8            | 9.52 | 1/4NPT | 0.28 | 7.1  | 3/4   | 19.1 | 1.97 | 50   | 1.16 | 29.5 | 2.26 | 57.4 | 1.45 | 36.8 | 37/64                    | 14.7 | 0.44                    | 11.2 |
| VUWHP-12.7CN | 1/2            | 12.7 | 3/8NPT | 0.4  | 10.4 | 15/16 | 23.8 | 2.09 | 53.1 | 1.25 | 31.8 | 2.49 | 63.3 | 1.65 | 41.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |
| VUWHP-12.7DN | 1/2            | 12.7 | 1/2NPT | 0.4  | 10.4 | 15/16 | 23.8 | 2.31 | 58.7 | 1.25 | 31.8 | 2.71 | 68.8 | 1.65 | 41.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.  
Note: Materials and dimensions are subject to change without notice.



## Bulkhead Male Connectors (R)

HP



### Tube (Metric) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |    | T     | D  |     | W  |    | N  |      | N1 |      | L  |      | L1 |      | Panel hole<br>drill size |      | Max. Panel<br>thickness |      |
|--------------|----------------|----|-------|----|-----|----|----|----|------|----|------|----|------|----|------|--------------------------|------|-------------------------|------|
|              | in             | mm |       | in | mm  | in | mm | in | mm   | in | mm   | in | mm   | in | mm   | in                       | mm   | in                      | mm   |
| VUWHP-6A     |                | 6  | R 1/8 |    | 4.8 |    | 16 |    | 42.1 |    | 26.2 |    | 49.5 |    | 33.6 |                          | 11.5 |                         | 10.2 |
| VUWHP-6B     |                | 6  | R 1/4 |    | 4.8 |    | 16 |    | 46.2 |    | 26.2 |    | 53.6 |    | 33.6 |                          | 11.5 |                         | 10.2 |
| VUWHP-12D    |                | 12 | R 1/2 |    | 9.5 |    | 24 |    | 58.7 |    | 31.8 |    | 68.8 |    | 41.9 |                          | 19.5 |                         | 12.7 |

### Tube (Inch) To ISO Tapered Thread

| Part Numbers | A<br>Tube O.D. |      | T     | D    |      | W     |      | N    |      | N1   |      | L    |      | L1   |      | Panel hole<br>drill size |      | Max. Panel<br>thickness |      |
|--------------|----------------|------|-------|------|------|-------|------|------|------|------|------|------|------|------|------|--------------------------|------|-------------------------|------|
|              | in             | mm   |       | in   | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in                       | mm   | in                      | mm   |
| VUWHP-3.2A   | 1/8            | 3.2  | R 1/8 | 0.09 | 2.3  | 1/2   | 12.7 | 1.57 | 39.9 | 0.97 | 24.6 | 1.83 | 46.5 | 1.23 | 31.2 | 21/64                    | 8.3  | 0.5                     | 12.7 |
| VUWHP-6.35A  | 1/4            | 6.35 | R 1/8 | 0.19 | 4.8  | 5/8   | 15.9 | 1.66 | 42.2 | 1.03 | 26.2 | 1.95 | 49.5 | 1.32 | 33.5 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWHP-6.35B  | 1/4            | 6.35 | R 1/4 | 0.19 | 4.8  | 5/8   | 15.9 | 1.84 | 46.7 | 1.03 | 26.2 | 2.13 | 54.1 | 1.32 | 33.5 | 29/64                    | 11.5 | 0.4                     | 10.2 |
| VUWHP-9.52B  | 3/8            | 9.52 | R 1/4 | 0.28 | 7.1  | 3/4   | 19.1 | 1.97 | 50   | 1.16 | 29.5 | 2.26 | 57.4 | 1.45 | 36.8 | 37/64                    | 14.7 | 0.44                    | 11.2 |
| VUWHP-12.7C  | 1/2            | 12.7 | R 3/8 | 0.4  | 10.4 | 15/16 | 23.8 | 2.09 | 53.1 | 1.25 | 31.8 | 2.49 | 83.3 | 1.65 | 41.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |
| VUWHP-12.7D  | 1/2            | 12.7 | R 1/2 | 0.4  | 10.4 | 15/16 | 23.8 | 2.31 | 58.7 | 1.25 | 31.8 | 2.71 | 68.8 | 1.65 | 41.9 | 49/64                    | 19.4 | 0.5                     | 12.7 |

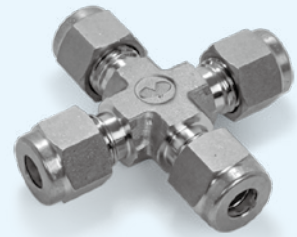
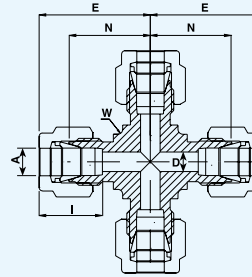
### Designation:

R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Union Crosses

X



### All Tubes (Metric)

| Part Numbers | A<br>Tube O.D. |    | D    |    | W      |      | N  |      | E  |      | I  |      |
|--------------|----------------|----|------|----|--------|------|----|------|----|------|----|------|
|              | mm             | mm | mm   | mm | in     | mm   | mm | mm   | mm | mm   | mm | mm   |
| VUWX-3       | 3              |    | 2.4  |    | 3/8    | 9.5  |    | 15.7 |    | 22.3 |    | 12.9 |
| VUWX-6       | 6              |    | 4.8  |    | 1/2    | 12.7 |    | 19.6 |    | 27   |    | 15.3 |
| VUWX-8       | 8              |    | 6.4  |    | 5/8    | 15.9 |    | 22.4 |    | 29.9 |    | 16.2 |
| VUWX-10      | 10             |    | 7.9  |    | 13/16  | 20.6 |    | 25.9 |    | 33.5 |    | 17.2 |
| VUWX-12      | 12             |    | 9.5  |    | 13/16  | 20.6 |    | 25.9 |    | 36   |    | 22.8 |
| VUWX-18      | 18             |    | 15.1 |    | 1 1/16 | 27   |    | 28.2 |    | 38.3 |    | 24.4 |
| VUWX-20      | 20             |    | 15.9 |    | 1 3/8  | 34.9 |    | 34.5 |    | 44.6 |    | 26   |

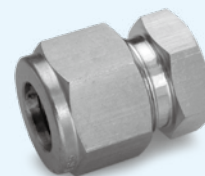
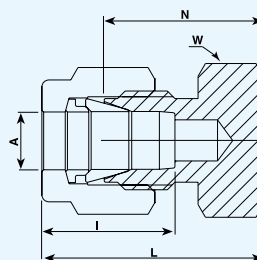
### All Tubes (Inch)

| Part Numbers | A<br>Tube O.D. |       | D    |      | W      |      | N    |      | E    |      | I    |      |
|--------------|----------------|-------|------|------|--------|------|------|------|------|------|------|------|
|              | in             | mm    | in   | mm   | in     | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWX-3.2     | 1/8            | 3.2   | 0.09 | 2.3  | 3/8    | 9.5  | 0.62 | 15.8 | 0.88 | 22.4 | 0.5  | 12.7 |
| VUWX-6.35    | 1/4            | 6.35  | 0.19 | 4.8  | 1/2    | 12.7 | 0.77 | 19.6 | 1.06 | 26.9 | 0.6  | 15.2 |
| VUWX-7.93    | 5/16           | 7.93  | 0.25 | 6.4  | 5/8    | 15.9 | 0.88 | 22.4 | 1.17 | 29.7 | 0.64 | 16.2 |
| VUWX-9.52    | 3/8            | 9.52  | 0.28 | 7.1  | 5/8    | 15.9 | 0.91 | 23.1 | 1.2  | 30.5 | 0.66 | 16.8 |
| VUWX-12.7    | 1/2            | 12.7  | 0.41 | 10.4 | 13/16  | 20.6 | 1.02 | 25.9 | 1.42 | 36.1 | 0.9  | 22.9 |
| VUWX-19.05   | 3/4            | 19.05 | 0.62 | 15.8 | 1 1/16 | 27   | 1.17 | 29.7 | 1.57 | 39.9 | 0.96 | 24.4 |
| VUWX-25.4    | 1              | 25.4  | 0.88 | 22.3 | 1 3/8  | 34.9 | 1.45 | 36.8 | 1.93 | 49   | 1.23 | 31.2 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Caps

JC



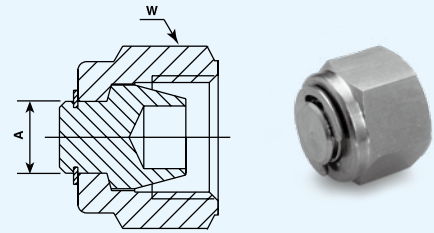
### Capping End Of Tube (Metric)

| Part Numbers | A<br>Tube O.D. |    | W  |    | N  |      | L  |      | I  |      |
|--------------|----------------|----|----|----|----|------|----|------|----|------|
|              | in             | mm | in | mm | in | mm   | in | mm   | in | mm   |
| VUWJC-2      |                | 2  |    | 12 |    | 13.5 |    | 20.1 |    | 12.9 |
| VUWJC-3      |                | 3  |    | 12 |    | 13.5 |    | 20.1 |    | 12.9 |
| VUWJC-4      |                | 4  |    | 12 |    | 14.7 |    | 21.3 |    | 13.7 |
| VUWJC-6      |                | 6  |    | 14 |    | 15.7 |    | 23.1 |    | 15.3 |
| VUWJC-8      |                | 8  |    | 15 |    | 17   |    | 24.5 |    | 16.2 |
| VUWJC-10     |                | 10 |    | 18 |    | 19   |    | 26.6 |    | 17.2 |
| VUWJC-12     |                | 12 |    | 22 |    | 19   |    | 29.1 |    | 22.8 |
| VUWJC-15     |                | 15 |    | 24 |    | 19.8 |    | 29.9 |    | 24.4 |
| VUWJC-16     |                | 16 |    | 24 |    | 19.8 |    | 29.9 |    | 24.4 |
| VUWJC-18     |                | 18 |    | 27 |    | 21.3 |    | 31.4 |    | 24.4 |
| VUWJC-20     |                | 20 |    | 30 |    | 23.9 |    | 34   |    | 26   |
| VUWJC-22     |                | 22 |    | 30 |    | 23.9 |    | 34   |    | 26   |
| VUWJC-25     |                | 25 |    | 35 |    | 26.2 |    | 38.5 |    | 31.3 |

### Capping End Of Tube (Inch)

| Part Numbers | A<br>Tube O.D. |       | W      |      | N    |      | L    |      | I    |      |
|--------------|----------------|-------|--------|------|------|------|------|------|------|------|
|              | in             | mm    | in     | mm   | in   | mm   | in   | mm   | in   | mm   |
| VUWJC-1.6    | 1/16           | 1.6   | 5/16   | 7.9  | 0.44 | 11.2 | 0.59 | 15   | 0.34 | 8.6  |
| VUWJC-3.2    | 1/8            | 3.2   | 7/16   | 11.1 | 0.53 | 13.5 | 0.79 | 20.1 | 0.5  | 12.7 |
| VUWJC-4.8    | 3/16           | 4.8   | 7/16   | 11.1 | 0.58 | 14.7 | 0.84 | 21.8 | 0.54 | 13.7 |
| VUWJC-6.35   | 1/4            | 6.35  | 1/2    | 12.7 | 0.63 | 16   | 0.92 | 23.4 | 0.6  | 15.2 |
| VUWJC-7.93   | 5/16           | 7.93  | 9/16   | 14.3 | 0.67 | 17   | 0.96 | 24.4 | 0.64 | 16.2 |
| VUWJC-9.52   | 3/8            | 9.52  | 5/8    | 15.9 | 0.72 | 18.3 | 1.01 | 26.7 | 0.66 | 16.8 |
| VUWJC-12.7   | 1/2            | 12.7  | 13/16  | 20.6 | 0.75 | 19.1 | 1.15 | 29.2 | 0.9  | 22.9 |
| VUWJC-15.88  | 5/8            | 15.88 | 15/16  | 23.8 | 0.78 | 19.8 | 1.18 | 30   | 0.96 | 24.4 |
| VUWJC-19.05  | 3/4            | 19.05 | 1 1/16 | 27   | 0.84 | 21.3 | 1.24 | 31.5 | 0.96 | 24.4 |
| VUWJC-22.22  | 7/8            | 22.22 | 1 3/16 | 30.2 | 0.94 | 23.9 | 1.34 | 34   | 1.02 | 25.9 |
| VUWJC-25.4   | 1              | 25.4  | 1 3/8  | 34.9 | 1.03 | 26.2 | 1.51 | 38.4 | 1.23 | 31.2 |

## Plugs JP



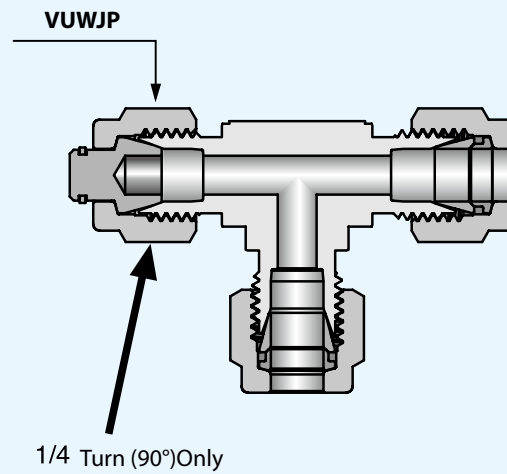
### Plugging Unused Port Of Fitting (Metric)

| Part Numbers | A  |    | W  |    |
|--------------|----|----|----|----|
|              | in | mm | in | mm |
| VUWJP-3      |    | 3  |    | 12 |
| VUWJP-4      |    | 4  |    | 12 |
| VUWJP-6      |    | 6  |    | 14 |
| VUWJP-8      |    | 8  |    | 16 |
| VUWJP-10     |    | 10 |    | 19 |
| VUWJP-12     |    | 12 |    | 22 |
| VUWJP-15     |    | 15 |    | 25 |
| VUWJP-16     |    | 16 |    | 25 |
| VUWJP-18     |    | 18 |    | 30 |
| VUWJP-20     |    | 20 |    | 32 |
| VUWJP-22     |    | 22 |    | 32 |
| VUWJP-25     |    | 25 |    | 38 |

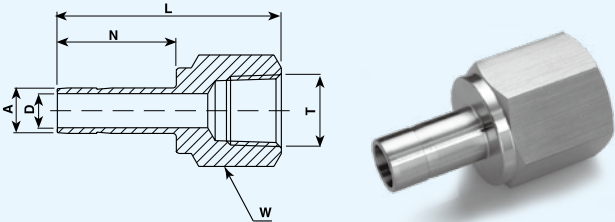
### Plugging Unused Port Of Fitting (Inch)

| Part Numbers | A    |      | W     |      |
|--------------|------|------|-------|------|
|              | in   | mm   | in    | mm   |
| VUWJP-1.6    | 1/16 | 1.5  | 5/16  | 7.9  |
| VUWJP-3.2    | 1/8  | 3.1  | 7/16  | 11.1 |
| VUWJP-4.8    | 3/16 | 4.8  | 1/2   | 12.7 |
| VUWJP-6.35   | 1/4  | 6.35 | 9/16  | 14.3 |
| VUWJP-7.93   | 5/16 | 7.93 | 5/8   | 15.9 |
| VUWJP-9.52   | 3/8  | 9.52 | 11/16 | 17.5 |
| VUWJP-12.7   | 1/2  | 12.7 | 7/8   | 22.2 |
| VUWJP-15.88  | 5/8  | 15.8 | 1     | 25.4 |
| VUWJP-19.05  | 3/4  | 19   | 1 1/8 | 28.6 |
| VUWJP-25.4   | 1    | 25.4 | 1 1/2 | 38.1 |

### Plug Assembly Instructions



Female Adapters  
Tube To Pipe (NPT)  
GA

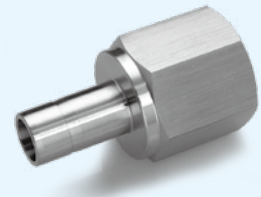
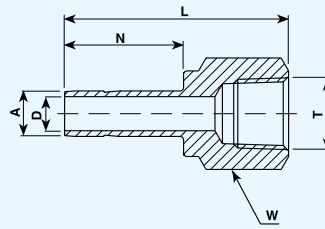


| Tube (Metric) Female Pipe |                 |        |      |    |      |      |
|---------------------------|-----------------|--------|------|----|------|------|
| Part Numbers              | A               | T      | D    | W  | N    | L    |
|                           | Tube O.D.<br>mm |        | mm   | mm | mm   | mm   |
| VUW-GA-3AN                | 3               | 1/8NPT | 2.1  | 14 | 13.5 | 31.5 |
| VUW-GA-3BN                | 3               | 1/4NPT | 2.1  | 19 | 13.5 | 35.3 |
| VUW-GA-4BN                | 4               | 1/4NPT | 2.2  | 19 | 14.2 | 35   |
| VUW-GA-6AN                | 6               | 1/8NPT | 4    | 14 | 15.7 | 32.5 |
| VUW-GA-6BN                | 6               | 1/4NPT | 4    | 19 | 15.7 | 37.1 |
| VUW-GA-6CN                | 6               | 3/8NPT | 4    | 22 | 15.7 | 39.6 |
| VUW-GA-6DN                | 6               | 1/2NPT | 4    | 27 | 15.7 | 45.5 |
| VUW-GA-8AN                | 8               | 1/8NPT | 5.6  | 14 | 16.8 | 34.3 |
| VUW-GA-8BN                | 8               | 1/4NPT | 5.6  | 19 | 16.8 | 37.6 |
| VUW-GA-8DN                | 8               | 1/2NPT | 5.6  | 27 | 16.8 | 46   |
| VUW-GA-10BN               | 10              | 1/4NPT | 7.1  | 19 | 17.5 | 38.1 |
| VUW-GA-10CN               | 10              | 3/8NPT | 7.1  | 22 | 17.5 | 40.1 |
| VUW-GA-10DN               | 10              | 1/2NPT | 7.1  | 27 | 17.5 | 46.5 |
| VUW-GA-12BN               | 12              | 1/4NPT | 8.8  | 19 | 23.1 | 43.7 |
| VUW-GA-12CN               | 12              | 3/8NPT | 8.8  | 22 | 23.1 | 45.5 |
| VUW-GA-12DN               | 12              | 1/2NPT | 8.8  | 27 | 23.1 | 52.3 |
| VUW-GA-16CN               | 16              | 3/8NPT | 12.7 | 24 | 24.7 | 48   |
| VUW-GA-16DN               | 16              | 1/2NPT | 12.7 | 27 | 24.7 | 53.1 |
| VUW-GA-20DN               | 20              | 1/2NPT | 15.1 | 27 | 26.6 | 56   |
| VUW-GA-20EN               | 20              | 3/4NPT | 15.1 | 35 | 26.6 | 56   |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Adapters Tube To Pipe (NPT) (continued)

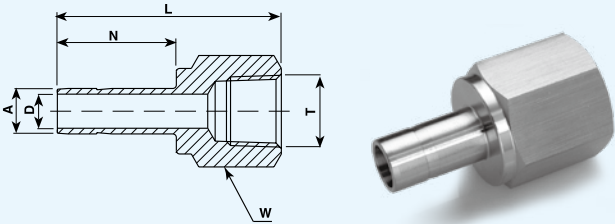
GA



| Tube (Inch) Female Pipe |                |       |        |      |      |        |      |      |      |      |      |
|-------------------------|----------------|-------|--------|------|------|--------|------|------|------|------|------|
| Part Numbers            | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |      | L    |      |
|                         | in             | mm    |        | in   | mm   | in     | mm   | in   | mm   | in   | mm   |
| VUW-GA-3.2AN            | 1/8            | 3.2   | 1/8NPT | 0.08 | 2.3  | 9/16   | 14.3 | 0.53 | 13.5 | 1.24 | 31.5 |
| VUW-GA-3.2BN            | 1/8            | 3.2   | 1/4NPT | 0.08 | 2.3  | 3/4    | 19.1 | 0.53 | 13.5 | 1.39 | 35.3 |
| VUW-GA-4.8BN            | 3/16           | 4.8   | 1/4NPT | 0.12 | 3    | 3/4    | 19.1 | 0.56 | 14.2 | 1.41 | 35.8 |
| VUW-GA-6.35AN           | 1/4            | 6.35  | 1/8NPT | 0.17 | 4.2  | 9/16   | 14.3 | 0.62 | 15.8 | 1.3  | 33   |
| VUW-GA-6.35BN           | 1/4            | 6.35  | 1/4NPT | 0.17 | 4.2  | 3/4    | 19.1 | 0.62 | 15.8 | 1.46 | 37.1 |
| VUW-GA-6.35CN           | 1/4            | 6.35  | 3/8NPT | 0.17 | 4.2  | 7/8    | 22.2 | 0.62 | 15.8 | 1.55 | 39.4 |
| VUW-GA-6.35DN           | 1/4            | 6.35  | 1/2NPT | 0.17 | 4.2  | 1 1/16 | 27   | 0.62 | 15.8 | 1.79 | 45.5 |
| VUW-GA-7.93BN           | 5/16           | 7.93  | 1/4NPT | 0.24 | 6    | 3/4    | 19.1 | 0.66 | 16.8 | 1.48 | 37.6 |
| VUW-GA-9.52AN           | 3/8            | 9.52  | 1/8NPT | 0.28 | 7.1  | 9/16   | 14.3 | 0.69 | 17.5 | 1.35 | 34.3 |
| VUW-GA-9.52BN           | 3/8            | 9.52  | 1/4NPT | 0.27 | 6.9  | 3/4    | 19.1 | 0.69 | 17.5 | 1.5  | 38.1 |
| VUW-GA-9.52CN           | 3/8            | 9.52  | 3/8NPT | 0.27 | 6.9  | 7/8    | 22.2 | 0.69 | 17.5 | 1.59 | 40.4 |
| VUW-GA-9.52DN           | 3/8            | 9.52  | 1/2NPT | 0.27 | 6.9  | 1 1/16 | 27   | 0.69 | 17.5 | 1.84 | 46.7 |
| VUW-GA-12.7BN           | 1/2            | 12.7  | 1/4NPT | 0.37 | 9.4  | 3/4    | 19.1 | 0.91 | 23.1 | 1.71 | 43.4 |
| VUW-GA-12.7CN           | 1/2            | 12.7  | 3/8NPT | 0.37 | 9.4  | 7/8    | 22.2 | 0.91 | 23.1 | 1.79 | 45.5 |
| VUW-GA-12.7DN           | 1/2            | 12.7  | 1/2NPT | 0.37 | 9.4  | 1 1/16 | 27   | 0.91 | 23.1 | 2.04 | 52.1 |
| VUW-GA-15.88DN          | 5/8            | 15.88 | 1/2NPT | 0.5  | 12.7 | 1 1/16 | 27   | 0.97 | 24.7 | 2.09 | 53.1 |
| VUW-GA-19.05DN          | 3/4            | 19.05 | 1/2NPT | 0.59 | 15   | 1 1/16 | 27   | 0.97 | 24.7 | 2.08 | 52.8 |
| VUW-GA-19.05EN          | 3/4            | 19.05 | 3/4NPT | 0.59 | 15   | 1 5/16 | 33.3 | 0.97 | 24.7 | 2.16 | 54.9 |
| VUW-GA-19.05FN          | 3/4            | 19.05 | 1NPT   | 0.59 | 15   | 1 5/8  | 41.3 | 0.97 | 24.7 | 2.3  | 58.4 |
| VUW-GA-25.4EN           | 1              | 25.4  | 3/4NPT | 0.8  | 20.3 | 1 5/16 | 33.3 | 1.23 | 31.2 | 2.39 | 60.7 |
| VUW-GA-25.4FN           | 1              | 25.4  | 1NPT   | 0.8  | 20.3 | 1 5/8  | 41.3 | 1.23 | 31.2 | 2.53 | 64.3 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

Female Adapters  
Tube To Pipe (Rc)  
GA



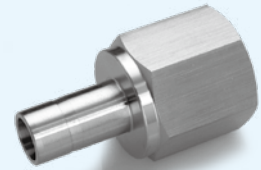
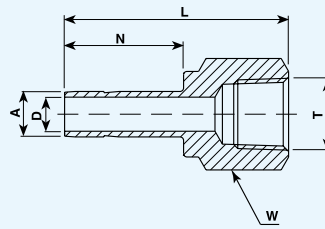
| Tube (Metric) To ISO Tapered Thread |                |        |      |    |      |      |
|-------------------------------------|----------------|--------|------|----|------|------|
| Part Numbers                        | A<br>Tube O.D. | T      | D    | W  | N    | L    |
|                                     | mm             |        | mm   | mm | mm   | mm   |
| VUW-GA-3A                           | 3              | Rc 1/8 | 2.1  | 14 | 13.5 | 31.5 |
| VUW-GA-3B                           | 3              | Rc 1/4 | 2.1  | 19 | 13.5 | 35.3 |
| VUW-GA-4B                           | 4              | Rc 1/4 | 2.2  | 19 | 14.2 | 35   |
| VUW-GA-6A                           | 6              | Rc 1/8 | 4    | 14 | 15.7 | 32.5 |
| VUW-GA-6B                           | 6              | Rc 1/4 | 4    | 19 | 15.7 | 37.1 |
| VUW-GA-6C                           | 6              | Rc 3/8 | 4    | 22 | 15.7 | 39.6 |
| VUW-GA-6D                           | 6              | Rc 1/2 | 4    | 27 | 15.7 | 45.5 |
| VUW-GA-8A                           | 8              | Rc 1/8 | 5.6  | 14 | 16.8 | 34.3 |
| VUW-GA-8B                           | 8              | Rc 1/4 | 5.6  | 19 | 16.8 | 37.6 |
| VUW-GA-8D                           | 8              | Rc 1/2 | 5.6  | 27 | 16.8 | 46   |
| VUW-GA-10B                          | 10             | Rc 1/4 | 7.1  | 19 | 17.5 | 38.1 |
| VUW-GA-10C                          | 10             | Rc 3/8 | 7.1  | 22 | 17.5 | 40.1 |
| VUW-GA-10D                          | 10             | Rc 1/2 | 7.1  | 27 | 17.5 | 46.5 |
| VUW-GA-12B                          | 12             | Rc 1/4 | 8.8  | 19 | 23.1 | 43.7 |
| VUW-GA-12C                          | 12             | Rc 3/8 | 8.8  | 22 | 23.1 | 45.5 |
| VUW-GA-12D                          | 12             | Rc 1/2 | 8.8  | 27 | 23.1 | 52.3 |
| VUW-GA-16C                          | 16             | Rc 3/8 | 12.7 | 24 | 24.7 | 48   |
| VUW-GA-16D                          | 16             | Rc 1/2 | 12.7 | 27 | 24.7 | 53.1 |
| VUW-GA-20D                          | 20             | Rc 1/2 | 15.1 | 27 | 26.6 | 56   |
| VUW-GA-20E                          | 20             | Rc 3/4 | 15.1 | 35 | 26.6 | 56   |

**Designation:**  
R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Female Adapters Tube To Pipe (Rc) (continued)

GA



**Tube (Inch) To ISO Tapered Thread**

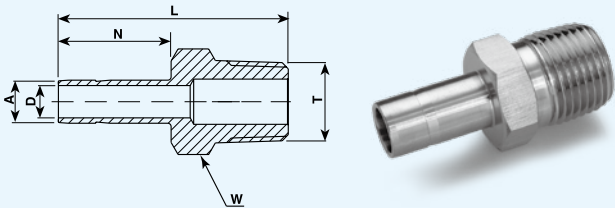
| Part Numbers  | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |      | L    |      |
|---------------|----------------|-------|--------|------|------|--------|------|------|------|------|------|
|               | in             | mm    |        | in   | mm   | in     | mm   | in   | mm   | in   | mm   |
| VUW-GA-3.2A   | 1/8            | 3.2   | Rc 1/8 | 0.08 | 2.3  | 9/16   | 14.3 | 0.53 | 13.5 | 1.24 | 31.5 |
| VUW-GA-3.2B   | 1/8            | 3.2   | Rc 1/4 | 0.08 | 2.3  | 3/4    | 19.1 | 0.53 | 13.5 | 1.39 | 35.3 |
| VUW-GA-4.8B   | 3/16           | 4.8   | Rc 1/4 | 0.12 | 3    | 3/4    | 19.1 | 0.56 | 14.2 | 1.41 | 35.8 |
| VUW-GA-6.35A  | 1/4            | 6.35  | Rc 1/8 | 0.17 | 4.2  | 9/16   | 14.3 | 0.62 | 15.8 | 1.30 | 33   |
| VUW-GA-6.35B  | 1/4            | 6.35  | Rc 1/4 | 0.17 | 4.2  | 3/4    | 19.1 | 0.62 | 15.8 | 1.46 | 37.1 |
| VUW-GA-6.35C  | 1/4            | 6.35  | Rc 3/8 | 0.17 | 4.2  | 7/8    | 22.2 | 0.62 | 15.8 | 1.55 | 39.4 |
| VUW-GA-6.35D  | 1/4            | 6.35  | Rc 1/2 | 0.17 | 4.2  | 1 1/16 | 27   | 0.62 | 15.8 | 1.79 | 45.5 |
| VUW-GA-7.93B  | 5/16           | 7.93  | Rc 1/4 | 0.24 | 6    | 3/4    | 19.1 | 0.66 | 16.8 | 1.48 | 37.6 |
| VUW-GA-9.52A  | 3/8            | 9.52  | Rc 1/8 | 0.28 | 7.1  | 9/16   | 14.3 | 0.69 | 17.5 | 1.35 | 34.3 |
| VUW-GA-9.52B  | 3/8            | 9.52  | Rc 1/4 | 0.27 | 6.9  | 3/4    | 19.1 | 0.69 | 17.5 | 1.5  | 38.1 |
| VUW-GA-9.52C  | 3/8            | 9.52  | Rc 3/8 | 0.27 | 6.9  | 7/8    | 22.2 | 0.69 | 17.5 | 1.59 | 40.4 |
| VUW-GA-9.52D  | 3/8            | 9.52  | Rc 1/2 | 0.27 | 6.9  | 1 1/16 | 27   | 0.69 | 17.5 | 1.84 | 46.7 |
| VUW-GA-12.7B  | 1/2            | 12.7  | Rc 1/4 | 0.37 | 9.4  | 3/4    | 19.1 | 0.91 | 23.1 | 1.71 | 43.4 |
| VUW-GA-12.7C  | 1/2            | 12.7  | Rc 3/8 | 0.37 | 9.4  | 7/8    | 22.2 | 0.91 | 23.1 | 1.79 | 45.5 |
| VUW-GA-12.7D  | 1/2            | 12.7  | Rc 1/2 | 0.37 | 9.4  | 1 1/16 | 27   | 0.91 | 23.1 | 2.04 | 52.1 |
| VUW-GA-15.88D | 5/8            | 15.88 | Rc 1/2 | 0.5  | 12.7 | 1 1/16 | 27   | 0.97 | 24.7 | 2.09 | 53.1 |
| VUW-GA-19.05D | 3/4            | 19.05 | Rc 1/2 | 0.59 | 15   | 1 1/16 | 27   | 0.97 | 24.7 | 2.08 | 52.8 |
| VUW-GA-19.05E | 3/4            | 19.05 | Rc 3/4 | 0.59 | 15   | 1 5/16 | 33.3 | 0.97 | 24.7 | 2.16 | 54.9 |
| VUW-GA-19.05F | 3/4            | 19.05 | Rc 1   | 0.59 | 15   | 1 5/8  | 41.3 | 0.97 | 24.7 | 2.3  | 58.4 |
| VUW-GA-25.4E  | 1              | 25.4  | Rc 3/4 | 0.8  | 20.3 | 1 5/16 | 33.3 | 1.23 | 31.2 | 2.39 | 60.7 |
| VUW-GA-25.4F  | 1              | 25.4  | Rc 1   | 0.8  | 20.3 | 1 5/8  | 41.3 | 1.23 | 31.2 | 2.53 | 64.3 |

**Designation:**  
R marking on hex.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.



Male Adapters  
Tube To Pipe (NPT)  
A

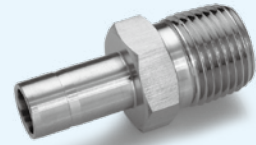
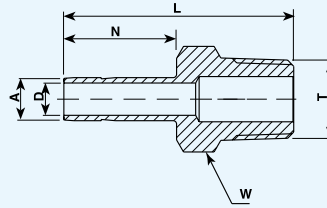


| Tube (Metric) Male Pipe |                |        |      |       |      |      |      |
|-------------------------|----------------|--------|------|-------|------|------|------|
| Part Numbers            | A<br>Tube O.D. | T      | D    | W     |      | N    | L    |
|                         | mm             |        | mm   | in    | mm   | mm   | mm   |
| VUW-A-3AN               | 3              | 1/8NPT | 2.1  | -     | 12   | 13.5 | 30   |
| VUW-A-3BN               | 3              | 1/4NPT | 2.1  | -     | 14   | 13.5 | 35.3 |
| VUW-A-6AN               | 6              | 1/8NPT | 4    | -     | 12   | 15.7 | 32.8 |
| VUW-A-6BN               | 6              | 1/4NPT | 4    | -     | 14   | 15.7 | 38.1 |
| VUW-A-6CN               | 6              | 3/8NPT | 4    | 11/16 | 17.5 | 15.7 | 37   |
| VUW-A-6DN               | 6              | 1/2NPT | 4    | -     | 22   | 15.7 | 43.4 |
| VUW-A-8AN               | 8              | 1/8NPT | 5.6  | -     | 12   | 16.8 | 33.5 |
| VUW-A-8BN               | 8              | 1/4NPT | 5.6  | -     | 14   | 16.8 | 39.1 |
| VUW-A-8DN               | 8              | 1/2NPT | 5.6  | -     | 22   | 16.8 | 43   |
| VUW-A-10BN              | 10             | 1/4NPT | 7.1  | 9/16  | 14   | 17.5 | 39.9 |
| VUW-A-10CN              | 10             | 3/8NPT | 7.1  | -     | 18   | 17.5 | 40.6 |
| VUW-A-10DN              | 10             | 1/2NPT | 7.1  | -     | 22   | 17.5 | 46.2 |
| VUW-A-12BN              | 12             | 1/4NPT | 8.8  | -     | 16   | 23.1 | 46.5 |
| VUW-A-12CN              | 12             | 3/8NPT | 8.8  | -     | 18   | 23.1 | 46.5 |
| VUW-A-12DN              | 12             | 1/2NPT | 8.8  | -     | 22   | 23.1 | 52   |
| VUW-A-16DN              | 16             | 1/2NPT | 11.9 | -     | 22   | 24.7 | 50.5 |
| VUW-A-20EN              | 20             | 3/4NPT | 15.1 | -     | 27   | 26.6 | 54.3 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Adapters Tube To Pipe (NPT) (continued)

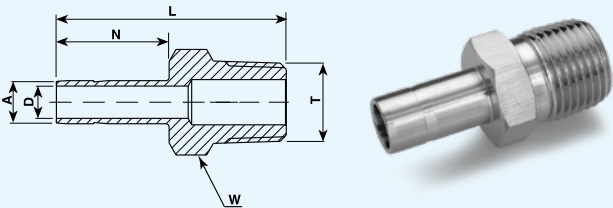
A



| Tube (Inch) Male Pipe |                |       |        |      |      |        |      |      |      |      |      |
|-----------------------|----------------|-------|--------|------|------|--------|------|------|------|------|------|
| Part Numbers          | A<br>Tube O.D. |       | T      | D    |      | W      |      | N    |      | L    |      |
|                       | in             | mm    |        | in   | mm   | in     | mm   | in   | mm   | in   | mm   |
| VUW-A-3.2AN           | 1/8            | 3.2   | 1/8NPT | 0.09 | 2.2  | 7/16   | 11.1 | 0.53 | 13.5 | 1.16 | 29.5 |
| VUW-A-3.2BN           | 1/8            | 3.2   | 1/4NPT | 0.09 | 2.2  | 9/16   | 14.3 | 0.53 | 13.5 | 1.37 | 34.8 |
| VUW-A-4.8AN           | 3/16           | 4.8   | 1/8NPT | 0.12 | 3    | 7/16   | 11.1 | 0.56 | 14.2 | 1.19 | 30.2 |
| VUW-A-4.8BN           | 3/16           | 4.8   | 1/4NPT | 0.12 | 3    | 9/16   | 14.3 | 0.56 | 14.2 | 1.4  | 35.6 |
| VUW-A-6.35AN          | 1/4            | 6.35  | 1/8NPT | 0.17 | 4.2  | 7/16   | 11.1 | 0.62 | 15.8 | 1.25 | 31.8 |
| VUW-A-6.35BN          | 1/4            | 6.35  | 1/4NPT | 0.17 | 4.2  | 9/16   | 14.3 | 0.62 | 15.8 | 1.46 | 37.1 |
| VUW-A-6.35CN          | 1/4            | 6.35  | 3/8NPT | 0.17 | 4.2  | 11/16  | 17.5 | 0.62 | 15.8 | 1.49 | 37.9 |
| VUW-A-6.35DN          | 1/4            | 6.35  | 1/2NPT | 0.17 | 4.2  | 7/8    | 22.2 | 0.62 | 15.8 | 1.71 | 43.4 |
| VUW-A-7.93AN          | 5/16           | 7.93  | 1/8NPT | 0.24 | 6    | 7/16   | 11.1 | 0.66 | 16.8 | 1.29 | 32.7 |
| VUW-A-7.93BN          | 5/16           | 7.93  | 1/4NPT | 0.24 | 6    | 9/16   | 14.3 | 0.66 | 16.8 | 1.5  | 38.1 |
| VUW-A-9.52AN          | 3/8            | 9.52  | 1/8NPT | 0.27 | 6.9  | 7/16   | 11.1 | 0.69 | 17.5 | 1.32 | 33.5 |
| VUW-A-9.52BN          | 3/8            | 9.52  | 1/4NPT | 0.27 | 6.9  | 9/16   | 14.3 | 0.69 | 17.5 | 1.53 | 38.9 |
| VUW-A-9.52CN          | 3/8            | 9.52  | 3/8NPT | 0.27 | 6.9  | 11/16  | 17.5 | 0.69 | 17.5 | 1.56 | 39.6 |
| VUW-A-9.52DN          | 3/8            | 9.52  | 1/2NPT | 0.27 | 6.9  | 7/8    | 22.2 | 0.69 | 17.5 | 1.78 | 45.2 |
| VUW-A-12.7BN          | 1/2            | 12.7  | 1/4NPT | 0.37 | 9.4  | 9/16   | 14.3 | 0.91 | 23.1 | 1.75 | 44.5 |
| VUW-A-12.7CN          | 1/2            | 12.7  | 3/8NPT | 0.37 | 9.4  | 11/16  | 17.5 | 0.91 | 23.1 | 1.78 | 45.2 |
| VUW-A-12.7DN          | 1/2            | 12.7  | 1/2NPT | 0.37 | 9.4  | 7/8    | 22.2 | 0.91 | 23.1 | 2    | 50.8 |
| VUW-A-15.88CN         | 5/8            | 15.88 | 3/8NPT | 0.37 | 9.5  | 11/16  | 17.5 | 0.97 | 24.7 | 1.81 | 47.6 |
| VUW-A-15.88DN         | 5/8            | 15.88 | 1/2NPT | 0.47 | 11.9 | 7/8    | 22.2 | 0.97 | 24.7 | 2.06 | 52.3 |
| VUW-A-15.88EN         | 5/8            | 15.88 | 3/4NPT | 0.5  | 12.7 | 1 1/16 | 27   | 0.97 | 24.7 | 2.06 | 52.3 |
| VUW-A-19.05DN         | 3/4            | 19.05 | 1/2NPT | 0.47 | 11.9 | 7/8    | 22.2 | 0.97 | 24.7 | 2.06 | 52.3 |
| VUW-A-19.05EN         | 3/4            | 19.05 | 3/4NPT | 0.59 | 15   | 1 1/16 | 27   | 0.97 | 24.7 | 2.06 | 52.3 |
| VUW-A-19.05FN         | 3/4            | 19.05 | 1NPT   | 0.59 | 15   | 1 3/8  | 34.9 | 0.97 | 24.7 | 2.28 | 57.3 |
| VUW-A-22.22EN         | 7/8            | 22.22 | 3/4NPT | 0.6  | 15.9 | 1 1/16 | 27   | 1.05 | 26.6 | 2.09 | 54.3 |
| VUW-A-25.4EN          | 1              | 25.4  | 3/4NPT | 0.62 | 15.8 | 1 1/16 | 27   | 1.3  | 33   | 2.31 | 58.7 |
| VUW-A-25.4FN          | 1              | 25.4  | 1NPT   | 0.8  | 20.3 | 1 3/8  | 34.9 | 1.3  | 33   | 2.6  | 66.4 |

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Male Adapters  
Tube To Pipe (R)  
A

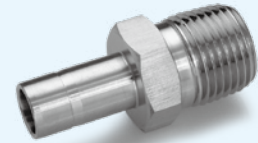
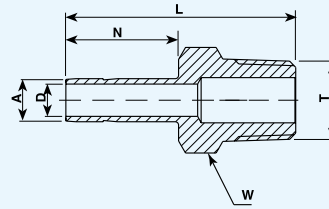


| Tube (Metric) To ISO Tapered Thread |                |       |      |       |      |      |      |
|-------------------------------------|----------------|-------|------|-------|------|------|------|
| Part Numbers                        | A<br>Tube O.D. | T     | D    | W     |      | N    | L    |
|                                     | mm             |       | mm   | in    | mm   | mm   | mm   |
| VUW-A-3A                            | 3              | R 1/8 | 2.1  | -     | 12   | 13.5 | 30   |
| VUW-A-3B                            | 3              | R 1/4 | 2.1  | -     | 14   | 13.5 | 35.3 |
| VUW-A-6A                            | 6              | R 1/8 | 4    | -     | 12   | 15.7 | 32.8 |
| VUW-A-6B                            | 6              | R 1/4 | 4    | -     | 14   | 15.7 | 38.1 |
| VUW-A-6C                            | 6              | R 3/8 | 4    | 11/16 | 17.5 | 15.7 | 37   |
| VUW-A-6D                            | 6              | R 1/2 | 4    | -     | 22   | 15.7 | 43.4 |
| VUW-A-8A                            | 8              | R 1/8 | 5.6  | -     | 12   | 16.8 | 33.5 |
| VUW-A-8B                            | 8              | R 1/4 | 5.6  | -     | 14   | 16.8 | 39.1 |
| VUW-A-8D                            | 8              | R 1/2 | 5.6  | -     | 22   | 16.8 | 43   |
| VUW-A-10B                           | 10             | R 1/4 | 7.1  | 9/16  | 14   | 17.5 | 39.9 |
| VUW-A-10C                           | 10             | R 3/8 | 7.1  | -     | 18   | 17.5 | 40.6 |
| VUW-A-10D                           | 10             | R 1/2 | 7.1  | -     | 22   | 17.5 | 46.2 |
| VUW-A-12B                           | 12             | R 1/4 | 8.8  | -     | 16   | 23.1 | 46.5 |
| VUW-A-12C                           | 12             | R 3/8 | 8.8  | -     | 18   | 23.1 | 46.5 |
| VUW-A-12D                           | 12             | R 1/2 | 8.8  | -     | 22   | 23.1 | 52   |
| VUW-A-16D                           | 16             | R 1/2 | 11.9 | -     | 22   | 24.7 | 50.5 |
| VUW-A-20E                           | 20             | R 3/4 | 15.1 | -     | 27   | 26.6 | 54.3 |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Male Adapters Tube To Pipe (R) (continued)

A



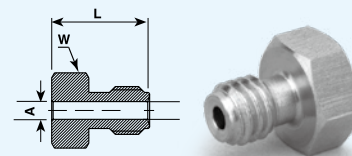
V-Lok Tube Fittings Male Adapters Tube To Pipe (R) (continued)

| Tube (Inch) To ISO Tapered Thread |                |       |       |      |      |        |      |      |      |      |       |
|-----------------------------------|----------------|-------|-------|------|------|--------|------|------|------|------|-------|
| Part Numbers                      | A<br>Tube O.D. |       | T     | D    |      | W      |      | N    |      | L    |       |
|                                   | in             | mm    |       | in   | mm   | in     | mm   | in   | mm   | in   | mm    |
| VUW-A-3.2A                        | 1/8            | 3.2   | R 1/8 | 0.09 | 2.2  | 7/16   | 11.1 | 0.53 | 13.5 | 1.16 | 29.5  |
| VUW-A-3.2B                        | 1/8            | 3.2   | R 1/4 | 0.09 | 2.2  | 9/16   | 14.3 | 0.53 | 13.5 | 1.37 | 34.8  |
| VUW-A-4.8A                        | 3/16           | 4.8   | R 1/8 | 0.12 | 3    | 7/16   | 11.1 | 0.56 | 14.2 | 1.19 | 30.2  |
| VUW-A-4.8B                        | 3/16           | 4.8   | R 1/4 | 0.12 | 3    | 9/16   | 14.3 | 0.56 | 14.2 | 1.4  | 35.6  |
| VUW-A-6.35A                       | 1/4            | 6.35  | R 1/8 | 0.17 | 4.2  | 7/16   | 11.1 | 0.62 | 15.8 | 1.25 | 31.8  |
| VUW-A-6.35B                       | 1/4            | 6.35  | R 1/4 | 0.17 | 4.2  | 9/16   | 14.3 | 0.62 | 15.8 | 1.46 | 37.1  |
| VUW-A-6.35C                       | 1/4            | 6.35  | R 3/8 | 0.17 | 4.2  | 11/16  | 17.5 | 0.62 | 15.8 | 1.49 | 37.9  |
| VUW-A-6.35D                       | 1/4            | 6.35  | R 1/2 | 0.17 | 4.2  | 7/8    | 22.2 | 0.62 | 15.8 | 1.71 | 43.4  |
| VUW-A-7.93A                       | 5/16           | 7.93  | R 1/8 | 0.24 | 6    | 7/16   | 11.1 | 0.66 | 16.8 | 1.29 | 32.7  |
| VUW-A-7.93B                       | 5/16           | 7.93  | R 1/4 | 0.24 | 6    | 9/16   | 14.3 | 0.66 | 16.8 | 1.5  | 38.1  |
| VUW-A-9.52A                       | 3/8            | 9.52  | R 1/8 | 0.27 | 6.9  | 7/16   | 11.1 | 0.69 | 17.5 | 1.32 | 33.5  |
| VUW-A-9.52B                       | 3/8            | 9.52  | R 1/4 | 0.27 | 6.9  | 9/16   | 14.3 | 0.69 | 17.5 | 1.53 | 38.9  |
| VUW-A-9.52C                       | 3/8            | 9.52  | R 3/8 | 0.27 | 6.9  | 11/16  | 17.5 | 0.69 | 17.5 | 1.56 | 39.6  |
| VUW-A-9.52D                       | 3/8            | 9.52  | R 1/2 | 0.27 | 6.9  | 7/8    | 22.2 | 0.69 | 17.5 | 1.78 | 45.2  |
| VUW-A-12.7B                       | 1/2            | 12.7  | R 1/4 | 0.37 | 9.4  | 9/16   | 14.3 | 0.91 | 23.1 | 1.75 | 44.5  |
| VUW-A-12.7C                       | 1/2            | 12.7  | R 3/8 | 0.37 | 9.4  | 11/16  | 17.5 | 0.91 | 23.1 | 1.78 | 45.2  |
| VUW-A-12.7D                       | 1/2            | 12.7  | R 1/2 | 0.37 | 9.4  | 7/8    | 22.2 | 0.91 | 23.1 | 2    | 50.8  |
| VUW-A-15.88C                      | 5/8            | 15.88 | R 3/8 | 0.37 | 9.5  | 11/16  | 17.5 | 0.97 | 24.7 | 1.81 | 47.6  |
| VUW-A-15.88D                      | 5/8            | 15.88 | R 1/2 | 0.47 | 11.9 | 7/8    | 22.2 | 0.97 | 24.7 | 2.06 | 52.3  |
| VUW-A-15.88E                      | 5/8            | 15.88 | R 3/4 | 0.5  | 12.7 | 1 1/16 | 27   | 0.97 | 24.7 | 2.06 | 52.3  |
| VUW-A-19.05D                      | 3/4            | 19.05 | R 1/2 | 0.47 | 11.9 | 7/8    | 22.2 | 0.97 | 24.7 | 2.06 | 52.32 |
| VUW-A-19.05E                      | 3/4            | 19.05 | R 3/4 | 0.59 | 15   | 1 1/16 | 27   | 0.97 | 24.7 | 2.06 | 52.32 |
| VUW-A-19.05F                      | 3/4            | 19.05 | R 1   | 0.59 | 15   | 1 3/8  | 34.9 | 0.97 | 24.7 | 2.28 | 57.3  |
| VUW-A-22.22E                      | 7/8            | 22.22 | R 3/4 | 0.6  | 15.9 | 1 1/16 | 27   | 1.05 | 26.6 | 2.09 | 54.3  |
| VUW-A-25.4E                       | 1              | 25.4  | R 3/4 | 0.62 | 15.8 | 1 1/16 | 27   | 1.3  | 33   | 2.31 | 58.7  |
| VUW-A-25.4F                       | 1              | 25.4  | R 1   | 0.8  | 20.3 | 1 3/8  | 34.9 | 1.3  | 33   | 2.6  | 66.4  |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

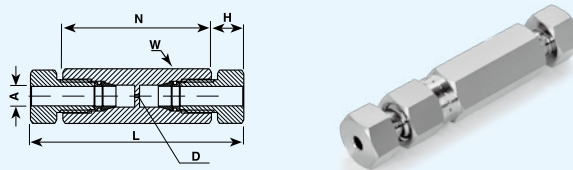
## Chromatograph Fittings

### Male Nuts



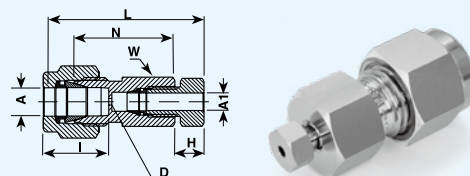
| Part Number | A<br>Tube O.D. |     | W   |     | L   |     |
|-------------|----------------|-----|-----|-----|-----|-----|
|             | in             | mm  | in  | mm  | in  | mm  |
| VUW-1.6MN   | 1/16           | 1.6 | 1/4 | 6.4 | 3/8 | 9.5 |

### Unions



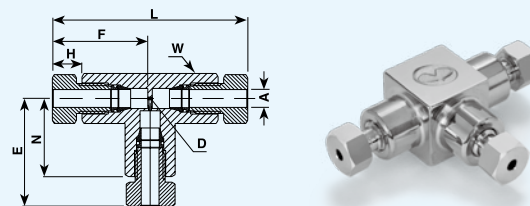
| Part Number | A<br>Tube O.D. |     | D     |     | W   |     | N    |      | H   |     | L    |      | Dead Space                |
|-------------|----------------|-----|-------|-----|-----|-----|------|------|-----|-----|------|------|---------------------------|
|             | in             | mm  | in    | mm  | in  | mm  | in   | mm   | in  | mm  | in   | mm   |                           |
| VUWF-1.6-MN | 1/16           | 1.6 | 0.013 | 0.3 | 1/4 | 6.4 | 0.84 | 21.3 | 0.2 | 5.1 | 1.24 | 31.5 | 6.6 x 10 <sup>-5</sup> cc |

### Reducing Unions



| Part Numbers     | A<br>Tube O.D. |      | A1<br>Tube O.D. |     | D     |     | W   |      | N    |      | L    |      | H   |     | I    |      | Dead Space                |
|------------------|----------------|------|-----------------|-----|-------|-----|-----|------|------|------|------|------|-----|-----|------|------|---------------------------|
|                  | in             | mm   | in              | mm  | in    | mm  | in  | mm   | in   | mm   | in   | mm   | in  | mm  | in   | mm   |                           |
| VUWF-6.35X1.6-MN | 1/4            | 6.35 | 1/16            | 1.6 | 0.013 | 0.3 | 1/2 | 12.7 | 0.75 | 19.1 | 1.24 | 31.5 | 0.2 | 5.1 | 0.6  | 15.2 | 6.8 x 10 <sup>-5</sup> cc |
| VUWF-9.52X1.6-MN | 3/8            | 9.52 | 1/16            | 1.6 | 0.013 | 0.3 | 5/8 | 15.9 | 0.81 | 20.6 | 1.3  | 33.1 | 0.2 | 5.1 | 0.66 | 16.8 | 6.8 x 10 <sup>-5</sup> cc |

### Union Tees



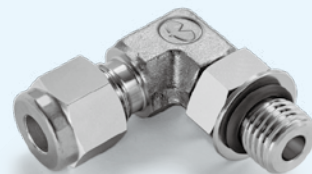
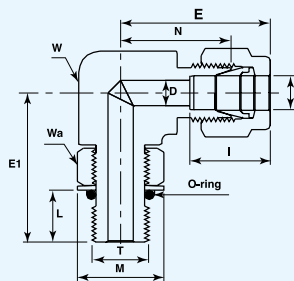
| Part Number | A<br>Tube O.D. |     | D     |     | W   |     | N    |      | H   |     | F    |      | E    |      | L   |    | Dead Space                |
|-------------|----------------|-----|-------|-----|-----|-----|------|------|-----|-----|------|------|------|------|-----|----|---------------------------|
|             | in             | mm  | in    | mm  | in  | mm  | in   | mm   | in  | mm  | in   | mm   | in   | mm   | in  | mm |                           |
| VUWT-1.6-MN | 1/16           | 1.6 | 0.013 | 0.3 | 3/8 | 9.5 | 0.45 | 11.4 | 0.2 | 5.1 | 0.61 | 15.5 | 0.65 | 16.5 | 1.3 | 33 | 2.8 x 10 <sup>-5</sup> cc |

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Positionables PER SAE J1926 & MS 16142

### Male Elbows

PL

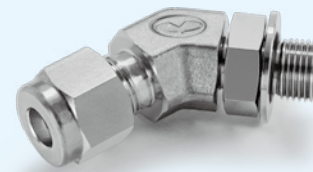
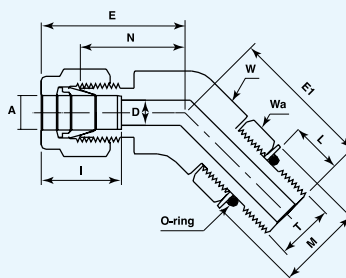


Tube To SAE/MS Straight Thread Boss (Positionable) ※

| Part Numbers    | A<br>Tube O.D. |      | T       | D    |     | W   |      | Wa    |      | N    |       | E    |       | E1   |      | L    |     | M    |      | I    |      | O-ring ※※<br>size<br>AS568 |
|-----------------|----------------|------|---------|------|-----|-----|------|-------|------|------|-------|------|-------|------|------|------|-----|------|------|------|------|----------------------------|
|                 | in             | mm   |         | in   | mm  | in  | mm   | in    | mm   | in   | mm    | in   | mm    | in   | mm   | in   | mm  | in   | mm   | in   | mm   |                            |
| VUWPL-6.35X7/16 | 1/4            | 6.35 | 7/16-20 | 0.19 | 4.8 | 1/2 | 12.7 | 9/16  | 14.3 | 0.79 | 20    | 1.08 | 27.4  | 1.12 | 28.5 | 0.39 | 9.9 | 0.65 | 16.5 | 0.6  | 15.2 | -904                       |
| VUWPL-6.35X9/16 | 1/4            | 6.35 | 9/16-18 | 0.19 | 4.8 | 5/8 | 15.9 | 11/16 | 17.5 | 0.91 | 23.11 | 1.2  | 30.48 | 1.27 | 32.3 | 0.44 | 11  | 0.79 | 20.1 | 0.6  | 15.2 | -906                       |
| VUWPL-9.52X9/16 | 3/8            | 9.52 | 9/16-18 | 0.28 | 7.1 | 5/8 | 15.9 | 11/16 | 17.5 | 0.97 | 24.6  | 1.26 | 32    | 1.27 | 32.3 | 0.44 | 11  | 0.79 | 20.1 | 0.66 | 16.8 | -906                       |

### Male Elbows 45°

PL



Tube To SAE/MS Straight Thread Boss (Positionable) ※

| Part Numbers       | A<br>Tube O.D. |      | T       | D    |     | W     |      | Wa    |      | N    |      | E    |      | E1   |      | L    |      | M    |      | I    |      | O-ring ※※<br>size<br>AS568 |
|--------------------|----------------|------|---------|------|-----|-------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------------------------|
|                    | in             | mm   |         | in   | mm  | in    | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |                            |
| VUWPL-6.35X7/16-45 | 1/4            | 6.35 | 7/16-20 | 0.19 | 4.8 | 9/16  | 14.3 | 9/16  | 14.3 | 0.72 | 18.3 | 1.01 | 25.7 | 1.01 | 25.7 | 0.39 | 9.9  | 0.65 | 16.5 | 0.6  | 15.2 | -904                       |
| VUWPL-9.52X9/16-45 | 3/8            | 9.52 | 9/16-18 | 0.28 | 7.1 | 13/16 | 20.6 | 11/16 | 17.5 | 0.81 | 20.1 | 1.1  | 28   | 1.06 | 27   | 0.44 | 11.2 | 0.79 | 20.1 | 0.66 | 16.8 | -906                       |

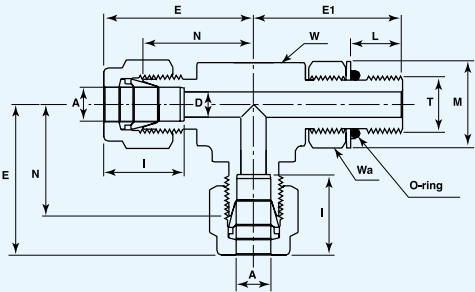
※ : Per SAE J1926 and MS 16142. See page 78 for mounting dimensions.

※※ : O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

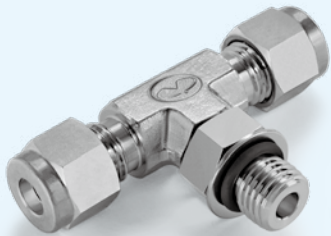
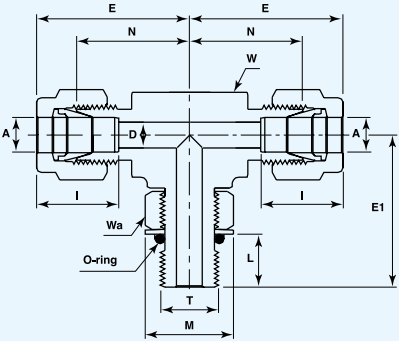
**Positionables**  
**PER SAE J1926 & MS 16142**

**Male Run Tees**  
**PTL**



| Tube To SAE/MS Straight Thread Boss (Positionable) ※ |     |      |         |      |     |     |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |                            |
|------------------------------------------------------|-----|------|---------|------|-----|-----|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------------------------|
| Part Numbers                                         | A   |      | T       | D    |     | W   |      | Wa    |      | N    |      | E    |      | E1   |      | L    |      | M    |      | I    |      | O-ring ※※<br>size<br>AS568 |
|                                                      | in  | mm   |         | in   | mm  | in  | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |                            |
| VUWPTL-6.35X7/16                                     | 1/4 | 6.35 | 7/16-20 | 0.19 | 4.8 | 1/2 | 12.7 | 9/16  | 14.3 | 0.83 | 21.1 | 1.12 | 28.5 | 1.12 | 28.5 | 0.39 | 9.9  | 0.65 | 16.5 | 0.6  | 15.2 | -904                       |
| VUWPTL-9.52X9/16                                     | 3/8 | 9.52 | 9/16-18 | 0.28 | 7.1 | 5/8 | 15.9 | 11/16 | 17.5 | 0.97 | 24.6 | 1.26 | 32   | 1.27 | 32.3 | 0.44 | 11.2 | 0.79 | 20.1 | 0.66 | 16.8 | -906                       |

**Male Branch tees**  
**PTS**

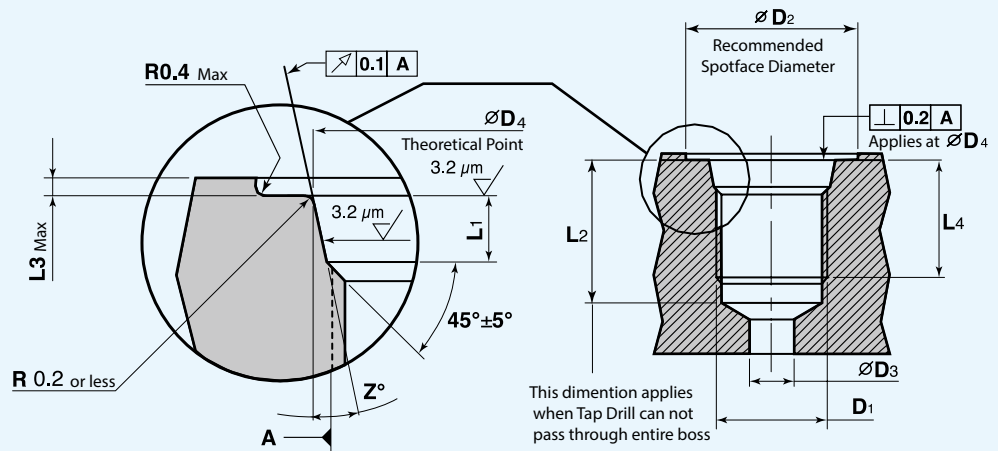


| Tube To SAE/MS Straight Thread Boss (Positionable) ※ |     |      |         |      |     |     |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |                            |
|------------------------------------------------------|-----|------|---------|------|-----|-----|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------------------------|
| Part Numbers                                         | A   |      | T       | D    |     | W   |      | Wa    |      | N    |      | E    |      | E1   |      | L    |      | M    |      | I    |      | O-ring ※※<br>size<br>AS568 |
|                                                      | in  | mm   |         | in   | mm  | in  | mm   | in    | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   |                            |
| VUWPTS-6.35X7/16                                     | 1/4 | 6.35 | 7/16-20 | 0.19 | 4.8 | 1/2 | 12.7 | 9/16  | 14.3 | 0.83 | 21.1 | 1.12 | 28.5 | 1.12 | 28.5 | 0.39 | 9.9  | 0.65 | 16.5 | 0.6  | 15.2 | -904                       |
| VUWPTS-9.52X9/16                                     | 3/8 | 9.52 | 9/16-18 | 0.28 | 7.1 | 5/8 | 15.9 | 11/16 | 17.5 | 0.97 | 24.6 | 1.26 | 32   | 1.27 | 32.3 | 0.44 | 11.2 | 0.79 | 20.1 | 0.66 | 16.8 | -906                       |

※ :Per SAE J1926 and MS 16142. See page 78 for mounting dimensions.  
※※ :O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Mounting Dimensions FOR SAE J1926 & MS 16142 BOSS



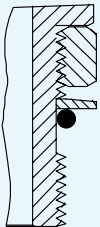
**Mounting Dimensions For O-ring - Seal Connectors (SAE/MS)**

| D1<br>Thread Size    | D2<br>Min. Diameter | D3<br>Min. Diameter | D4<br>± 0.05 | L1<br>± 0.02 | L2<br>Min. | L3<br>Max. | L4<br>Min. Full Thread | Z<br>± 1° |
|----------------------|---------------------|---------------------|--------------|--------------|------------|------------|------------------------|-----------|
|                      | mm                  | mm                  | mm           | mm           | mm         | mm         | mm                     | °         |
| 5/16 - 24 UNF - 2B   | 17                  | 1.6                 | 9.15         | 2.1          | 12         | 1.6        | 10                     | 12        |
| 3/8 - 24 UNF - 2B    | 19                  | 3.5                 | 10.75        | 2.1          | 12         | 1.6        | 10                     | 12        |
| 7/16 - 20 UNF - 2B   | 21                  | 4.5                 | 12.45        | 2.6          | 14         | 1.6        | 11.5                   | 12        |
| 1/2 - 20 UNF - 2B    | 23                  | 6                   | 14.05        | 2.6          | 14         | 1.6        | 11.5                   | 12        |
| 9/16 - 18 UNF - 2B   | 25                  | 7.5                 | 15.7         | 2.7          | 15.5       | 1.6        | 12.7                   | 12        |
| 3/4 - 16 UNF - 2B    | 30                  | 10                  | 20.65        | 2.7          | 17.5       | 2.4        | 14.3                   | 15        |
| 7/8 - 14 UNF - 2B    | 34                  | 12.5                | 24           | 2.7          | 20         | 2.4        | 16.7                   | 15        |
| 1 1/16 - 12 UNF - 2B | 41                  | 16                  | 29.2         | 3.5          | 23         | 2.4        | 19                     | 15        |
| 1 3/16 - 12 UN - 2B  | 45                  | 18                  | 32.4         | 3.5          | 23         | 2.4        | 19                     | 15        |
| 1 5/16 - 12 UN - 2B  | 49                  | 21                  | 35.55        | 3.5          | 23         | 3.2        | 19                     | 15        |

## Installation Instructions:

**Figure 1**

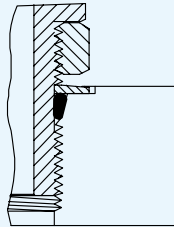
Locking backed off



Lubricate the O-ring by inserting it into the groove adjacent to the face of the metal back - up washer which is assembled at the extreme end of the groove as shown in Figure 1.

**Figure 2**

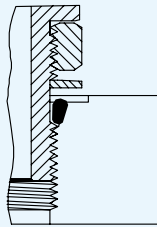
Fitting install hand tight



Install the fitting into the S.A.E. straight thread boss, figure 2, until the metal back - up washer contacts the face of the boss as shown in Figure 2.

**Figure 3**

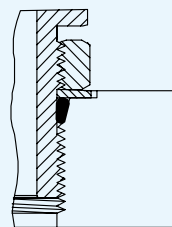
Fittings backed-off for alignment (1 turn maximum)



Position the fitting by turning it counter clockwise up to a maximum of one turn (see Figure 3).

**Figure 4**

Fitting locknut tight to appropriate torque



Holding the pad of the fitting with a wrench, tighten the locknut and washer against the face as shown in Figure 4.

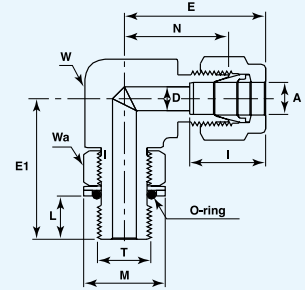
"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.



## Positionables ISO Parallel Thread

### Male Elbows

#### PL

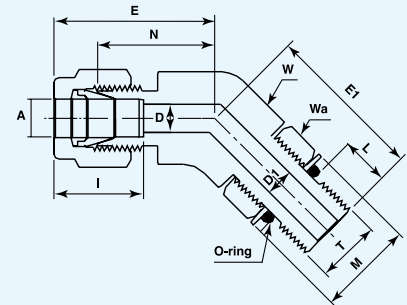


Tube (Inch) To ISO Parallel Thread (Positionable) ※

| Part Number  | A<br>Tube O.D. |      | T |      | D    |     | W   |      | Wa   |      | N    |      | E    |      | E1   |      | L    |     | M    |      | I   |      | O-ring ※※<br>size I.D. |
|--------------|----------------|------|---|------|------|-----|-----|------|------|------|------|------|------|------|------|------|------|-----|------|------|-----|------|------------------------|
|              | in             | mm   |   |      | in   | mm  | in  | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm  | in   | mm   | in  | mm   |                        |
| VUWPL-6.35AF | 1/4            | 6.35 |   | G1/8 | 0.16 | 3.9 | 1/2 | 12.7 | 9/16 | 14.3 | 0.77 | 19.6 | 1.06 | 26.9 | 1.04 | 26.4 | 0.32 | 8.1 | 0.68 | 17.3 | 0.6 | 15.2 | 8x1.8-G                |

Tube (Metric) To ISO Parallel Thread (Positionable) ※

| Part Numbers | A         | T    | D   | W   |      | Wa   |      | N    | E    | E1   | L   | M    | I    | O-ring ※※<br>size I.D. |
|--------------|-----------|------|-----|-----|------|------|------|------|------|------|-----|------|------|------------------------|
|              | Tube O.D. |      |     |     |      |      |      |      |      |      |     |      |      |                        |
|              | mm        |      | mm  | in  | mm   | in   | mm   | mm   | mm   | mm   | mm  | mm   | mm   |                        |
| VUWPL-6AF    | 6         | G1/8 | 3.9 | 1/2 | 12.7 | 9/16 | 14.3 | 19.6 | 27   | 26.4 | 8.1 | 17.3 | 15.3 |                        |
| VUWPL-8AF    | 8         | G1/8 | 3.9 | 5/8 | 15.9 | 9/16 | 14.3 | 21.3 | 28.8 | 27.4 | 8.1 | 17.3 | 16.2 | 8x1.8-G                |



### Male Elbows 45°

#### PL

Tube (Inch) To ISO Parallel Thread (Positionable) ※

| Part Number     | A<br>Tube O.D. |      | T |      | D    |    | D1   |     | W    |      | Wa   |      | N    |      | E    |      | E1   |      | L    |     | M    |      | I   |      | O-ring ※※<br>size I.D. |
|-----------------|----------------|------|---|------|------|----|------|-----|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|-----|------|------------------------|
|                 | in             | mm   |   |      | in   | mm | in   | mm  | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm  | in   | mm   | in  | mm   |                        |
| VUWPL-6.35AF-45 | 1/4            | 6.35 |   | G1/8 | 0.16 | 4  | 0.19 | 4.8 | 9/16 | 14.3 | 9/16 | 14.3 | 0.69 | 17.6 | 0.98 | 24.9 | 0.94 | 25.3 | 0.32 | 8.1 | 0.68 | 17.3 | 0.6 | 15.2 | 8x1.8-G                |

Tube (Metric) To ISO Parallel Thread (Positionable) ※

| Part Number  | A<br>Tube O.D. | T    | D  | D1   |     | W    |      | Wa   |      | N     | E  | E1   | L   | M    | I    | O-ring ※※<br>size I.D. |
|--------------|----------------|------|----|------|-----|------|------|------|------|-------|----|------|-----|------|------|------------------------|
|              | mm             |      | mm | in   | mm  | in   | mm   | in   | mm   | mm    | mm | mm   | mm  | mm   | mm   |                        |
| VUWPL-6AF-45 | 6              | G1/8 | 4  | 0.19 | 4.8 | 9/16 | 14.3 | 9/16 | 14.3 | 17.55 | 25 | 25.3 | 8.1 | 17.3 | 15.3 | 8x1.8-G                |

※ : Per SAE J1926 and MS 16142. See page 81 for mounting dimensions.

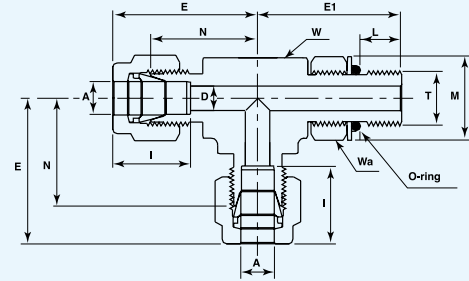
※※ : O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

## Positionables ISO Parallel Thread

### Male Run Tees

#### PTL



#### Tube (Inch) To ISO Parallel Thread (Positionable) ※

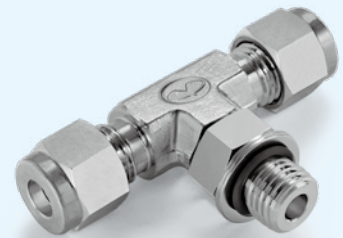
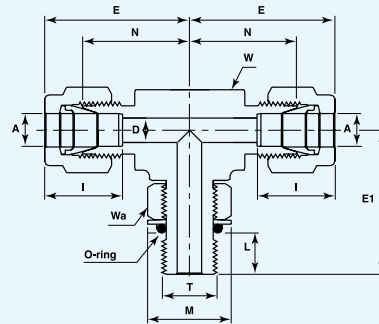
| Part Number   | A<br>Tube O.D. |      | T    | D    |    | W   |      | Wa   |      | N    |      | E    |      | E1   |      | L    |     | M    |      | I   |      | O-ring ※<br>size<br>I.D. |
|---------------|----------------|------|------|------|----|-----|------|------|------|------|------|------|------|------|------|------|-----|------|------|-----|------|--------------------------|
|               | in             | mm   |      | in   | mm | in  | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm  | in   | mm   | in  | mm   |                          |
| VUWPTL-6.35AF | 1/4            | 6.35 | G1/8 | 0.16 | 4  | 1/2 | 12.7 | 9/16 | 14.3 | 0.77 | 19.6 | 1.06 | 26.9 | 1.04 | 26.4 | 0.32 | 8.1 | 0.68 | 17.3 | 0.6 | 15.2 | 8×1.8-G                  |

#### Tube (Metric) To ISO Parallel Thread (Positionable) ※

| Part Number | A<br>Tube O.D. | T    | D  | W   |      | Wa   |      | N    | E  | Ei   | L   | M    | I    | O-ring ※※<br>size<br>I.D. |
|-------------|----------------|------|----|-----|------|------|------|------|----|------|-----|------|------|---------------------------|
|             | mm             |      | mm | in  | mm   | in   | mm   | mm   | mm | mm   | mm  | mm   | mm   |                           |
| VUWPTL-6AF  | 6              | G1/8 | 4  | 1/2 | 12.7 | 9/16 | 14.3 | 19.6 | 27 | 26.4 | 8.1 | 17.3 | 15.3 | 8x1.8-G                   |

## Male Branch Tees

#### PTS



#### Tube (Inch) To ISO Parallel Thread (Positionable) ※

| Part Number   | A<br>Tube O.D. |      | T    | D    |    | W   |      | Wa   |      | N    |      | E    |      | E1   |      | L    |     | M    |      | I   |      | O-ring ※<br>size<br>I.D. |
|---------------|----------------|------|------|------|----|-----|------|------|------|------|------|------|------|------|------|------|-----|------|------|-----|------|--------------------------|
|               | in             | mm   |      | in   | mm | in  | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm   | in   | mm  | in   | mm   | in  | mm   |                          |
| VUWPTS-6.35AF | 1/4            | 6.35 | G1/8 | 0.16 | 4  | 1/2 | 12.7 | 9/16 | 14.3 | 0.77 | 19.6 | 1.06 | 26.9 | 1.04 | 26.4 | 0.32 | 8.1 | 0.68 | 17.3 | 0.6 | 15.2 | 8×1.8-G                  |

#### Tube (Metric) To ISO Parallel Thread (Positionable) ※

| Part Number | A<br>Tube O.D. | T    | D  | W   |      | Wa   |      | N    | E  | E1   | L   | M    | I    | O-ring ※<br>size<br>I.D. |
|-------------|----------------|------|----|-----|------|------|------|------|----|------|-----|------|------|--------------------------|
|             | mm             |      | mm | in  | mm   | in   | mm   | mm   | mm | mm   | mm  | mm   | mm   |                          |
| VUWPTS-6AF  | 6              | G1/8 | 4  | 1/2 | 12.7 | 9/16 | 14.3 | 19.6 | 27 | 26.4 | 8.1 | 17.3 | 15.3 | 8x1.8-G                  |

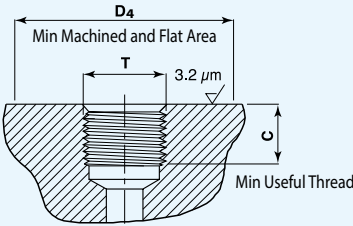
※ : Per SAE J1926 and MS 16142. See page 81 for mounting dimensions.

※※ : O-rings used are Viton 90 Durometer. Other O-ring materials are available on request.

"D" - Dimension is minimum hole diameter - dimensions are for reference only, and are subject to change without notice.

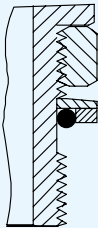
ISO Parallel Thread (Reference)

| Mounting Dimensions Of Connectors |      |      |                   |    |
|-----------------------------------|------|------|-------------------|----|
| T                                 | D4   |      | C                 |    |
|                                   | in   | mm   | Min useful Thread |    |
|                                   |      |      | in                | mm |
| G1/8                              | 0.53 | 13.5 | 0.28              | 7  |



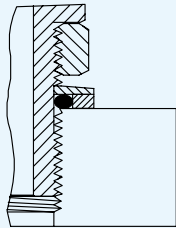
Installation Instructions:

**Figure 1**  
Locking backed off



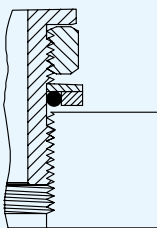
Set the O-ring by inserting it into the groove adjacent to the face of the metal back - up washer which is assembled at the extreme end of the groove as shown in Figure 1.

**Figure 2**  
Fittings install hand tight



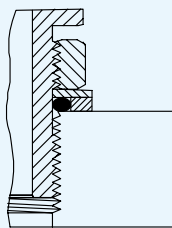
Install the fitting into the ISQ straight thread boss untill the metal back - up washer contacts the face of the boss as shown in Figure 2.

**Figure 3**  
Fittings backed-off for O-ring alignment (1 turn maximum)



Position the fitting by turning it counter clockwise up to a maximum of one turn. See Figure 3.

**Figure 4**  
Fittings locknut tight to appropriate torque



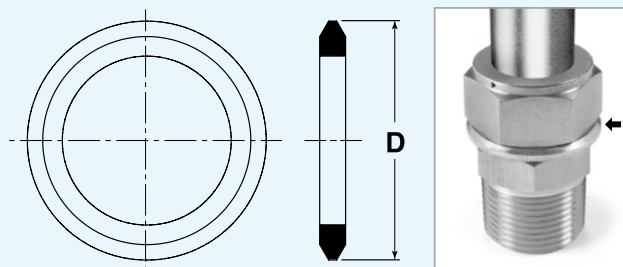
Holding the body of the fitting with a wrench, tighten the locknut and washer against the face as shown in Figure 4.

The contents of the description are reference, and are subject to change without notice.

## Stop Collar

| Ψ-Lok |       | D    |      |
|-------|-------|------|------|
| in    | mm    | in   | mm   |
| 1/4   | 6.35  | 0.69 | 17.5 |
| 3/8   | 9.52  | 0.84 | 20.6 |
| 1/2   | 12.7  | 1.1  | 27   |
| 3/4   | 19.05 | 1.31 | 33.3 |
| 1     | 25.4  | 1.68 | 42.7 |

1. Remove the nut and Rings from the fitting.
2. Insert the stop collar.



## Ordering Information For Assembled Stop Collar (With Fitting)

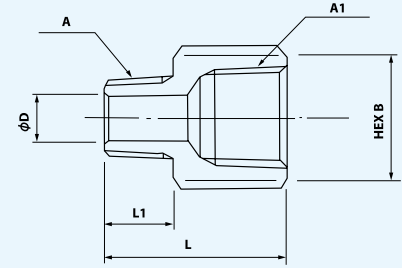
|                                       |   |                                                                 |   |             |   |                                                             |
|---------------------------------------|---|-----------------------------------------------------------------|---|-------------|---|-------------------------------------------------------------|
| <b>V U W H</b>                        | - | <b>6.35 BN</b>                                                  | - | <b>SC</b>   | - | <b>S</b> = Stainless Steel<br><b>B</b> = Carbon Zinc Plated |
| Fitting type<br>(male Ψ-Lok Fittings) |   | Tube O.D.<br>The O.D. size is always the first to be described. |   | Stop Collar |   | Stop Collar Material                                        |

## How To Order Stop Collar Only

|                    |   |                                                             |
|--------------------|---|-------------------------------------------------------------|
| <b>VUW-6.35 SC</b> | - | <b>S</b> = Stainless Steel<br><b>B</b> = Carbon Zinc Plated |
|--------------------|---|-------------------------------------------------------------|

## Adapters

When hoping for change in the connection, when you buy the following adapter separately, you're quite able to connect various kinds very easily.



## Stainless Steel Pipe Fittings, Adapters

### R x Rc Type

| Part Numbers | Nominal Dia. | A    | A1    | B    |    | D    |     | L    |    | L1   |    |
|--------------|--------------|------|-------|------|----|------|-----|------|----|------|----|
|              |              |      |       | in   | mm | in   | mm  | in   | mm | in   | mm |
| UJB-A x B    | R1/8 x Rc1/4 | R1/8 | Rc1/4 | 0.75 | 19 | 0.18 | 4.5 | 1.06 | 27 | 0.39 | 10 |
| UJB-B x A    | R1/4 x Rc1/8 | R1/4 | Rc1/8 | 0.55 | 14 | 0.18 | 4.5 | 1.02 | 26 | 0.51 | 13 |
| UJB-B x C    | R1/4 x Rc3/8 | R1/4 | Rc3/8 | 0.91 | 23 | 0.28 | 7   | 1.22 | 31 | 0.51 | 13 |
| UJB-C x B    | R3/8 x Rc1/4 | R3/8 | Rc1/4 | 0.75 | 19 | 0.28 | 7   | 1.18 | 30 | 0.55 | 14 |
| UJB-C x D    | R3/8 x Rc1/2 | R3/8 | Rc1/2 | 1.06 | 27 | 0.39 | 10  | 1.42 | 36 | 0.55 | 14 |
| UJB-D x C    | R1/2 x Rc3/8 | R1/2 | Rc3/8 | 0.91 | 23 | 0.39 | 10  | 1.34 | 34 | 0.67 | 17 |
| UJB-D x E    | R1/2 x Rc3/4 | R1/2 | Rc3/4 | 1.26 | 32 | 0.47 | 12  | 1.69 | 43 | 0.67 | 17 |
| UJB-E x D    | R3/4 x Rc1/2 | R3/4 | Rc1/2 | 1.14 | 29 | 0.47 | 12  | 1.61 | 41 | 0.75 | 19 |
| UJB-E x F    | R3/4 x Rc1   | R3/4 | Rc1   | 1.61 | 41 | 0.63 | 16  | 1.93 | 49 | 0.75 | 19 |
| UJB-F x E    | R1 x Rc3/4   | R1   | Rc3/4 | 1.42 | 36 | 0.63 | 16  | 1.81 | 46 | 0.87 | 22 |

### R x NPT Type

| Part Numbers | Nominal Dia.  | A    | A1     | B    |    | D    |     | L    |    | L1   |    |
|--------------|---------------|------|--------|------|----|------|-----|------|----|------|----|
|              |               |      |        | in   | mm | in   | mm  | in   | mm | in   | mm |
| UJB-A x AN   | R1/8 x 1/8NPT | R1/8 | 1/8NPT | 0.55 | 14 | 0.18 | 4.5 | 0.91 | 23 | 0.39 | 10 |
| UJB-B x AN   | R1/4 x 1/8NPT | R1/4 | 1/8NPT | 0.55 | 14 | 0.18 | 4.5 | 1.02 | 26 | 0.51 | 13 |
| UJB-B x BN   | R1/4 x 1/4NPT | R1/4 | 1/4NPT | 0.75 | 19 | 0.28 | 7   | 1.14 | 29 | 0.51 | 13 |
| UJB-C x BN   | R3/8 x 1/4NPT | R3/8 | 1/4NPT | 0.75 | 19 | 0.28 | 7   | 1.18 | 30 | 0.55 | 14 |
| UJB-C x CN   | R3/8 x 3/8NPT | R3/8 | 3/8NPT | 0.91 | 23 | 0.39 | 10  | 1.26 | 32 | 0.55 | 14 |
| UJB-D x CN   | R1/2 x 3/8NPT | R1/2 | 3/8NPT | 0.91 | 23 | 0.39 | 10  | 1.34 | 34 | 0.67 | 17 |
| UJB-D x DN   | R1/2 x 1/2NPT | R1/2 | 1/2NPT | 1.06 | 27 | 0.47 | 12  | 1.54 | 39 | 0.67 | 17 |
| UJB-E x DN   | R3/4 x 1/2NPT | R3/4 | 1/2NPT | 1.14 | 29 | 0.47 | 12  | 1.61 | 41 | 0.75 | 19 |
| UJB-E x EN   | R3/4 x 3/4NPT | R3/4 | 3/4NPT | 1.26 | 32 | 0.63 | 16  | 1.77 | 45 | 0.75 | 19 |
| UJB-F x EN   | R1 x 3/4NPT   | R1   | 3/4NPT | 1.42 | 36 | 0.63 | 16  | 1.81 | 46 | 0.87 | 22 |
| UJB-F x FN   | R1 x 1NPT     | R1   | 1NPT   | 1.61 | 41 | 0.79 | 20  | 2.05 | 52 | 0.87 | 22 |

## Stainless Steel Pipe Fittings, Hex Couplings

### Rc x Rc (Same Diameter A1=A)

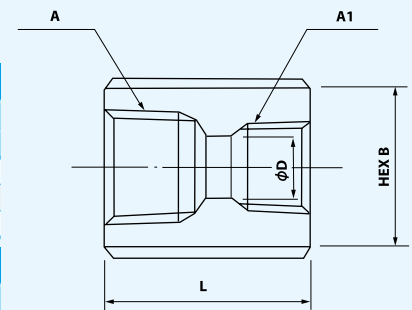
| Part Numbers | Nominal Dia. | A     | B    |    | D    |    | L    |    |
|--------------|--------------|-------|------|----|------|----|------|----|
|              |              |       | in   | mm | in   | mm | in   | mm |
| UJS-A        | Rc1/8        | Rc1/8 | 0.55 | 14 | 0.24 | 6  | 0.91 | 23 |
| UJS-B        | Rc1/4        | Rc1/4 | 0.75 | 19 | 0.31 | 8  | 1.18 | 30 |
| UJS-C        | Rc3/8        | Rc3/8 | 0.91 | 23 | 0.39 | 10 | 1.34 | 34 |

### Rc x NPT

| Part Numbers | Nominal Dia.   | A      | A1    | B    |    | D    |    | L    |    |
|--------------|----------------|--------|-------|------|----|------|----|------|----|
|              |                |        |       | in   | mm | in   | mm | in   | mm |
| UJS-B x BN   | Rc1/4 x 1/4NPT | 1/4NPT | Rc1/4 | 0.75 | 19 | 0.31 | 8  | 1.18 | 30 |
| UJS-B x CN   | Rc1/4 x 3/8NPT | 3/8NPT | Rc1/4 | 0.91 | 23 | 0.31 | 8  | 1.26 | 32 |
| UJS-B x DN   | Rc1/4 x 1/2NPT | 1/2NPT | Rc1/4 | 1.06 | 27 | 0.31 | 8  | 1.42 | 36 |

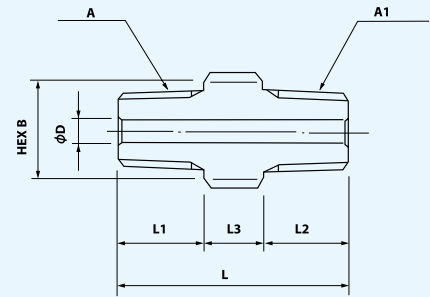
### NPT x NPT (Same Diameter A1=A)

| Part Numbers | Nominal Dia. | A, A1  | B    |    | D    |    | L    |    |
|--------------|--------------|--------|------|----|------|----|------|----|
|              |              |        | in   | mm | in   | mm | in   | mm |
| UJS-BN-AM    | 1/4NPT       | 1/4NPT | 0.75 | 19 | 0.31 | 8  | 1.18 | 30 |
| UJS-CN-AM    | 3/8NPT       | 3/8NPT | 0.91 | 23 | 0.39 | 10 | 1.34 | 34 |
| UJS-DN-AM    | 1/2NPT       | 1/2NPT | 1.06 | 27 | 0.47 | 12 | 1.65 | 42 |
| UJS-EN-AM    | 3/4NPT       | 3/4NPT | 1.26 | 32 | 0.63 | 16 | 1.97 | 50 |



Note : Materials and dimensions are subject to change without notice.

## Stainless Steel Pipe Fittings, Nipples, Plugs



### Nipples

#### R x R(Same Diameter A1=A, L2=L1)

| Part Numbers | Nominal Dia. | d     |    | A, A1 | B    |    | L    |    | L1, L2 |    | L3   |    |
|--------------|--------------|-------|----|-------|------|----|------|----|--------|----|------|----|
|              |              | in    | mm |       | in   | mm | in   | mm | in     | mm | in   | mm |
| UJN-A        | R1/8         | 0.157 | 4  | R1/8  | 0.47 | 12 | 0.98 | 25 | 0.39   | 10 | 0.2  | 5  |
| UJN-B        | R1/4         | 0.236 | 6  | R1/4  | 0.55 | 14 | 1.22 | 31 | 0.51   | 13 | 0.2  | 5  |
| UJN-C        | R3/8         | 0.354 | 9  | R3/8  | 0.67 | 17 | 1.38 | 35 | 0.55   | 14 | 0.28 | 7  |
| UJN-D        | R1/2         | 0.472 | 12 | R1/2  | 0.91 | 23 | 1.73 | 44 | 0.67   | 17 | 0.39 | 10 |

#### R x NPT

| Part Numbers | Nominal Dia.  | d     |    | A    | A1     | B    |    | L    |    | L1   |    | L2   |    | L3   |    |
|--------------|---------------|-------|----|------|--------|------|----|------|----|------|----|------|----|------|----|
|              |               | in    | mm |      |        | in   | mm | in   | mm | in   | mm | in   | mm | in   | mm |
| UJN-A x AN   | R1/8 x 1/8NPT | 0.157 | 4  | R1/8 | 1/8NPT | 0.98 | 12 | 0.98 | 25 | 0.39 | 10 | 0.39 | 10 | 0.2  | 5  |
| UJN-B x BN   | R1/4 x 1/4NPT | 0.236 | 6  | R1/4 | 1/4NPT | 0.55 | 14 | 1.22 | 31 | 0.51 | 13 | 0.51 | 13 | 0.2  | 5  |
| UJN-C x CN   | R3/8 x 3/8NPT | 0.354 | 9  | R3/8 | 3/8NPT | 0.75 | 19 | 1.38 | 35 | 0.55 | 14 | 0.55 | 14 | 0.28 | 7  |
| UJN-D x DN   | R1/2 x 1/2NPT | 0.472 | 12 | R1/2 | 1/2NPT | 0.91 | 23 | 1.73 | 44 | 0.67 | 17 | 0.67 | 17 | 0.39 | 10 |

#### NPT x NPT(Same Diameter A1=A)

| Part Numbers | Nominal Dia. | A, A1  | D    |    | B    |    | L    |    | L1, L2 |    | L3   |    |
|--------------|--------------|--------|------|----|------|----|------|----|--------|----|------|----|
|              |              |        | in   | mm | in   | mm | in   | mm | in     | mm | in   | mm |
| UJN-BN-AM    | 1/4NPT       | 1/4NPT | 0.24 | 6  | 0.55 | 14 | 1.22 | 31 | 0.51   | 13 | 0.2  | 5  |
| UJN-CN-AM    | 3/8NPT       | 3/8NPT | 0.35 | 9  | 0.67 | 17 | 1.38 | 35 | 0.55   | 14 | 0.28 | 7  |
| UJN-DN-AM    | 1/2NPT       | 1/2NPT | 0.47 | 12 | 0.91 | 23 | 1.73 | 44 | 0.67   | 17 | 0.39 | 10 |
| UJN-EN-AM    | 3/4NPT       | 3/4NPT | 0.63 | 16 | 1.14 | 29 | 1.89 | 48 | 0.75   | 19 | 0.39 | 10 |

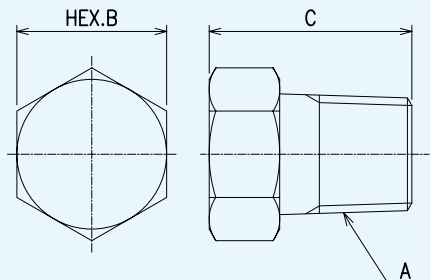
### Plugs

#### R

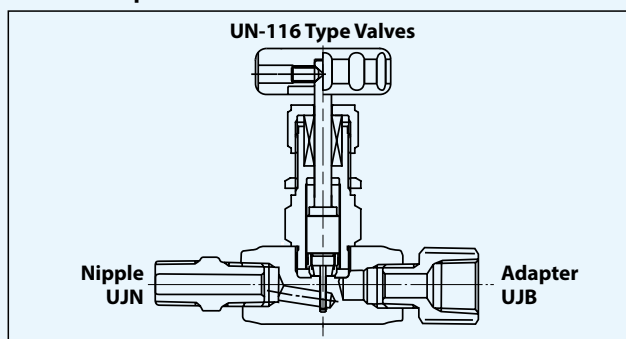
| Part Numbers | Nominal Dia. | A     | B    |    | D    |    |
|--------------|--------------|-------|------|----|------|----|
|              |              |       | in   | mm | in   | mm |
| UJP-B-AM     | Rc1/4        | Rc1/4 | 0.67 | 17 | 0.91 | 23 |
| UJP-D-AM     | Rc1/2        | Rc1/2 | 0.91 | 23 | 1.18 | 30 |

#### NPT

| Part Numbers | Nominal Dia. | A      | B    |    | D    |    |
|--------------|--------------|--------|------|----|------|----|
|              |              |        | in   | mm | in   | mm |
| UJP-AN-AM    | 1/8NPT       | 1/8NPT | 0.47 | 12 | 0.67 | 17 |
| UJP-BN-AM    | 1/4NPT       | 1/4NPT | 0.67 | 17 | 0.91 | 23 |
| UJP-CN-AM    | 3/8NPT       | 3/8NPT | 0.75 | 19 | 0.94 | 24 |
| UJP-DN-AM    | 1/2NPT       | 1/2NPT | 0.91 | 23 | 1.18 | 30 |
| UJP-FN-AM    | 1NPT         | 1NPT   | 1.38 | 35 | 1.5  | 38 |



#### ● Use Example



※ : In other ones above-mentioned, some kinds, **Fujikin** has a large selection, so please consult **Fujikin**.

Note : Materials and dimensions are subject to change without notice.

## Overview

The **POWERFULOK** is a tube fitting with excellent performance and quality. It is manufactured utilizing the design expertise and production technology that we have accumulated through our many years of experience as a precision fitting manufacturer. The brass **POWERFULOK** is a flareless double Rings compression fitting that does not require tube thread cutting. It consists of a brass (C3771B, C3604B, C3602B) body, front ferrule, back ferrule, and nut.

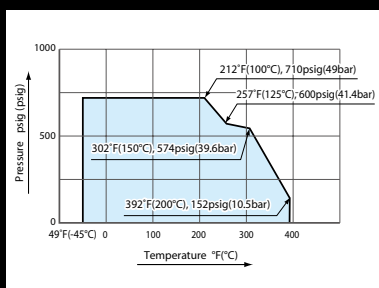
### Reliability

Product performance and reliability are dependent on proper assembly. Before installing the product, please read the Installation Guide on page 103 carefully. Contact Fujikin if you have any questions about assembly procedures.

### Features / Applications

- This flareless fitting is easy to install; simply insert the tube into the fitting and tight the nut. No welding is required.
- The Double-Rings connection creates a strong bond. By applying a compressive force to the tube, it achieves extremely high pressure resistance.
- The metal sealing parts, which undergo precision finishing, ensure an airtight seal.
- This compact, lightweight fitting requires low tightening torque, and is easy to disassemble and retighten.
- The tube size is stamped on the body for quick and easy identification.

### Pressure and Temperature Ratings



Notes At the maximum operating pressure, the maximum operating temperature is 212°F (100°C) for most fluids. However, air, hot water, and steam have a higher maximum operating temperature 392°F (200°C) . when they are used at lower pressures. Consult with Fujikin before using the POWERFULOK at temperatures greater than 212°F (100°C) .

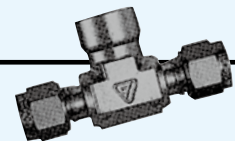
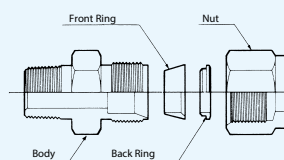
### Applicable Fluid

- Air, Nitrogen gas, Inert gas like Helium, and non-corrosive gas and liquid.

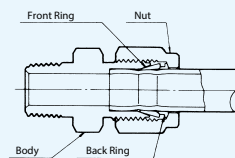
### Other

- The front and back Rings are available in metric (mm) and fractional inch sizes. Make sure that you use ferrules of the correct size, or the sealing performance will be compromised.
- Materials and dimensions are subject to change without notice.
- Avoid potential problems by notifying Fujikin before changing the conditions of use.

### Parts



### Cross-section after Assembly



### Thread Size

#### Taper Pipe Thread (JIS)

| Designation             | A     | B     | C     | D     |
|-------------------------|-------|-------|-------|-------|
| <b>JIS B0203 (1982)</b> |       |       |       |       |
| Male thread             | R1/8  | R1/4  | R3/8  | R1/2  |
| Female thread           | Rc1/8 | Rc1/4 | Rc3/8 | Rc1/2 |

#### Parallel Pipe Thread (JIS)

| Designation             | AF   | BF   | CF   | DF   |
|-------------------------|------|------|------|------|
| <b>JIS B0203 (1982)</b> | G1/8 | G1/4 | G3/8 | G1/2 |

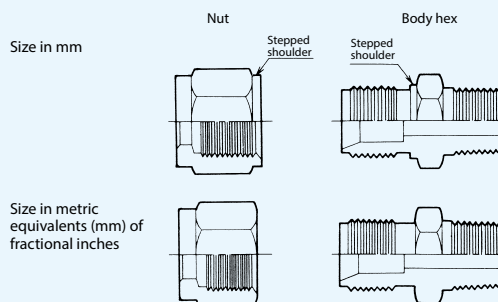
#### National Pipe Taper Thread (ANSI)

| Designation      | AN     | BN     | CN     | DN     |
|------------------|--------|--------|--------|--------|
| <b>ANSI B2.1</b> | 1/8NPT | 1/4NPT | 3/8NPT | 1/2NPT |

### Nominal Diameter

| Size in mm   | Size in fractional inches |
|--------------|---------------------------|
| 3 = 3mm OD   | 3.2 = 3.2mm (1/8") OD     |
| 4 = 4mm OD   | 6.35 = 6.35mm (1/4") OD   |
| 6 = 6mm OD   | 9.52 = 9.52mm (3/8") OD   |
| 8 = 8mm OD   | 12.7 = 12.7mm (1/2") OD   |
| 10 = 10mm OD |                           |
| 12 = 12mm OD |                           |

Identification of sizes in mm and metric equivalents (mm) of fractional inches For easy size identification, fitting diameters (expressed in millimeters) are stamped on the body hex and the nut. In addition, metric fittings have stepped shoulders to distinguish them from fractional fittings.



## Part Number Designation

# P D W H - 6 B - R

Product Series:  
POWERFULLOK  
Tube Fittings

Material:  
Brass

Fitting Type:  
Double-Rings  
Compression Fitting

Connection Type:  
Male Connector

Nominal Diameter:  
Outer Diameter of  
Tube (mm)

Thread Size:  
R 1/4"

Corresponding  
to RoHS

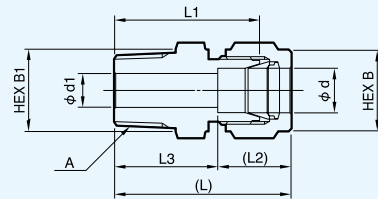
Please use the part number designations below when placing an order or making an inquiry.

## Connector Type

|           |                                                                                     | Page                                              |    |           | Page                                                                                |                                                  |    | Page      |                                                                                       |                                    |     |
|-----------|-------------------------------------------------------------------------------------|---------------------------------------------------|----|-----------|-------------------------------------------------------------------------------------|--------------------------------------------------|----|-----------|---------------------------------------------------------------------------------------|------------------------------------|-----|
| <b>H</b>  |    | <b>MALE CONNECTORS</b>                            | 87 | <b>GP</b> |    | <b>BULKHEAD FEMALE CONNECTORS</b><br>(Rc thread) | 93 | <b>TL</b> |    | <b>MALE RUN TEES</b><br>(R thread) | 99  |
| <b>HP</b> |   | <b>BULKHEAD MALE CONNECTORS</b>                   | 88 | <b>L</b>  |   | <b>ELBOW UNIONS</b>                              | 94 | <b>JC</b> |   | <b>CAP UNIONS</b>                  | 100 |
| <b>F</b>  |  | <b>STRAIGHT UNIONS</b>                            | 89 | <b>L</b>  |  | <b>MALE ELBOWS</b><br>(R thread)                 | 95 | <b>JP</b> |  | <b>PLUG UNIONS</b>                 | 100 |
| <b>F</b>  |  | <b>REDUCING UNIONS</b>                            | 89 | <b>T</b>  |  | <b>TEE UNIONS</b>                                | 96 | <b>S</b>  |  | <b>FRONT Rings</b>                 | 101 |
| <b>P</b>  |  | <b>BULKHEAD UNIONS</b>                            | 90 | <b>T</b>  |  | <b>REDUCING TEE UNIONS</b>                       | 96 | <b>R</b>  |  | <b>BACK Rings</b>                  | 101 |
| <b>G</b>  |  | <b>FEMALE CONNECTORS</b><br>(Rc thread)           | 91 | <b>TG</b> |  | <b>FEMALE BRANCH TEES</b><br>(Rc thread)         | 97 | <b>N</b>  |  | <b>NUTS</b>                        | 102 |
| <b>G</b>  |  | <b>FEMALE CONNECTORS</b><br>(ISO Parallel Thread) | 92 | <b>TS</b> |  | <b>MALE BRANCH TEES</b><br>(R thread)            | 98 |           |                                                                                       |                                    |     |



## MALE CONNECTORS



Size in mm

| Part numbers | Nominal dia. d | A    | d1  | B  | B1 | L    | L1   | L2   | L3   |
|--------------|----------------|------|-----|----|----|------|------|------|------|
| PDWH-3A-R    | 3              | R1/8 | 2.4 | 10 | 12 | 29.5 | 23.1 | 12.7 | 16.8 |
| PDWH-3B-R    | 3              | R1/4 | 2.4 | 10 | 14 | 35.4 | 29   | 12.7 | 22.7 |
| PDWH-4A-R    | 4              | R1/8 | 2.4 | 12 | 12 | 31.1 | 24.6 | 13.6 | 17.5 |
| PDWH-4B-R    | 4              | R1/4 | 2.4 | 12 | 14 | 36.2 | 29.7 | 13.6 | 22.6 |
| PDWH-6A-R    | 6              | R1/8 | 4.8 | 14 | 14 | 32.6 | 25.4 | 15.2 | 17.4 |
| PDWH-6B-R    | 6              | R1/4 | 4.8 | 14 | 14 | 37.4 | 30.2 | 15.2 | 22.2 |
| PDWH-6C-R    | 6              | R3/8 | 4.8 | 14 | 17 | 38.2 | 31   | 15.2 | 23   |
| PDWH-6D-R    | 6              | R1/2 | 4.8 | 14 | 22 | 43.8 | 36.6 | 15.2 | 28.6 |
| PDWH-8A-R    | 8              | R1/8 | 4.8 | 16 | 16 | 34.2 | 26.7 | 16.2 | 18   |
| PDWH-8B-R    | 8              | R1/4 | 6.4 | 16 | 16 | 38.7 | 31.2 | 16.2 | 22.5 |
| PDWH-8C-R    | 8              | R3/8 | 6.4 | 16 | 17 | 39.3 | 31.8 | 16.2 | 23.1 |
| PDWH-8D-R    | 8              | R1/2 | 6.4 | 16 | 22 | 44.8 | 37.3 | 16.2 | 28.6 |
| PDWH-10A-R   | 10             | R1/8 | 4.8 | 19 | 19 | 36.1 | 28.7 | 17   | 19.1 |
| PDWH-10B-R   | 10             | R1/4 | 7.9 | 19 | 19 | 40.7 | 33.3 | 17   | 23.7 |
| PDWH-10C-R   | 10             | R3/8 | 7.9 | 19 | 19 | 40.7 | 33.3 | 17   | 23.7 |
| PDWH-10D-R   | 10             | R1/2 | 7.9 | 19 | 22 | 45.5 | 38.1 | 17   | 28.5 |
| PDWH-12A-R   | 12             | R1/8 | 4.8 | 22 | 22 | 38.5 | 28.7 | 22.5 | 16   |
| PDWH-12B-R   | 12             | R1/4 | 7.1 | 22 | 22 | 43.1 | 33.3 | 22.5 | 20.6 |
| PDWH-12C-R   | 12             | R3/8 | 9.5 | 22 | 22 | 43.1 | 33.3 | 22.5 | 20.6 |
| PDWH-12D-R   | 12             | R1/2 | 9.5 | 22 | 22 | 47.9 | 38.1 | 22.5 | 25.4 |

Also available with NPT (ANSI) threads.

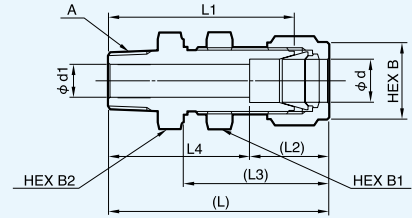
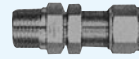
Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | A    | d1   | B  | B1 | L    | L1   | L2   | L3   |
|--------------|----------------|------|------|----|----|------|------|------|------|
| PDWH-3.2A-R  | 3.2            | R1/8 | 2.3  | 12 | 12 | 30.6 | 23.9 | 13   | 17.6 |
| PDWH-3.2B-R  | 3.2            | R1/4 | 2.3  | 12 | 14 | 35.7 | 29   | 13   | 22.7 |
| PDWH-6.35A-R | 6.35           | R1/8 | 4.8  | 14 | 14 | 32.8 | 25.4 | 15.4 | 17.4 |
| PDWH-6.35B-R | 6.35           | R1/4 | 4.8  | 14 | 14 | 37.9 | 30.5 | 15.4 | 22.5 |
| PDWH-6.35C-R | 6.35           | R3/8 | 4.8  | 14 | 17 | 38.4 | 31   | 15.4 | 23   |
| PDWH-6.35D-R | 6.35           | R1/2 | 4.8  | 14 | 22 | 44.7 | 37.3 | 15.4 | 29.3 |
| PDWH-9.52A-R | 9.52           | R1/8 | 4.8  | 17 | 17 | 35.5 | 27.9 | 17.2 | 18.3 |
| PDWH-9.52B-R | 9.52           | R1/4 | 7.1  | 17 | 17 | 40.1 | 32.5 | 17.2 | 22.9 |
| PDWH-9.52C-R | 9.52           | R3/8 | 7.1  | 17 | 17 | 40.1 | 32.5 | 17.2 | 22.9 |
| PDWH-9.52D-R | 9.52           | R1/2 | 7.1  | 17 | 22 | 46.5 | 38.9 | 17.2 | 29.3 |
| PDWH-12.7A-R | 12.7           | R1/8 | 4.8  | 22 | 22 | 39   | 28.7 | 23   | 16   |
| PDWH-12.7B-R | 12.7           | R1/4 | 7.1  | 22 | 22 | 43.6 | 33.3 | 23   | 20.6 |
| PDWH-12.7C-R | 12.7           | R3/8 | 9.7  | 22 | 22 | 43.6 | 33.3 | 23   | 20.6 |
| PDWH-12.7D-R | 12.7           | R1/2 | 10.4 | 22 | 22 | 49.2 | 38.9 | 23   | 26.2 |

Also available with NPT (ANSI) threads.

Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

## BULKHEAD MALE CONNECTORS



Size in mm

| Part numbers | Nominal dia.<br>d | A    | Panel hole<br>dia. | d1  | B  | B1 | B2 | L    | L1   | L2   | L3   | L4   |
|--------------|-------------------|------|--------------------|-----|----|----|----|------|------|------|------|------|
| PDWHP-3A-R   | 3                 | R1/8 | 8                  | 2.4 | 10 | 14 | 14 | 46.3 | 39.9 | 12.7 | 30.7 | 33.6 |
| PDWHP-3B-R   | 3                 | R1/4 | 8                  | 2.4 | 10 | 14 | 14 | 51.4 | 45   | 12.7 | 30.7 | 38.7 |
| PDWHP-6A-R   | 6                 | R1/8 | 11.2               | 4.8 | 14 | 16 | 16 | 49.4 | 42.2 | 15.2 | 33.7 | 34.2 |
| PDWHP-6B-R   | 6                 | R1/4 | 11.2               | 4.8 | 14 | 16 | 16 | 53.2 | 46   | 15.2 | 33.7 | 38   |
| PDWHP-6C-R   | 6                 | R3/8 | 11.2               | 4.8 | 14 | 16 | 17 | 54.3 | 47.1 | 15.2 | 33.7 | 39.1 |
| PDWHP-6D-R   | 6                 | R1/2 | 11.2               | 4.8 | 14 | 16 | 22 | 60.6 | 53.4 | 15.2 | 33.7 | 45.4 |
| PDWHP-8A-R   | 8                 | R1/8 | 12.8               | 4.8 | 16 | 19 | 19 | 51.7 | 44.2 | 16.2 | 36.1 | 35.5 |
| PDWHP-8B-R   | 8                 | R1/4 | 12.8               | 6.4 | 16 | 19 | 19 | 56.2 | 48.7 | 16.2 | 36.1 | 40   |
| PDWHP-8C-R   | 8                 | R3/8 | 12.8               | 6.4 | 16 | 19 | 19 | 56.8 | 49.3 | 16.2 | 36.1 | 40.6 |
| PDWHP-8D-R   | 8                 | R1/2 | 12.8               | 6.4 | 16 | 19 | 22 | 62.3 | 54.8 | 16.2 | 36.1 | 46.1 |
| PDWHP-10A-R  | 10                | R1/8 | 16                 | 4.8 | 19 | 22 | 22 | 53.6 | 46.2 | 17   | 36.8 | 36.6 |
| PDWHP-10B-R  | 10                | R1/4 | 16                 | 7.1 | 19 | 22 | 22 | 58.2 | 50.8 | 17   | 36.8 | 41.2 |
| PDWHP-10C-R  | 10                | R3/8 | 16                 | 7.9 | 19 | 22 | 22 | 58.2 | 50.8 | 17   | 36.8 | 41.2 |
| PDWHP-10D-R  | 10                | R1/2 | 16                 | 7.9 | 19 | 22 | 22 | 63   | 55.6 | 17   | 36.8 | 46   |
| PDWHP-12A-R  | 12                | R1/8 | 19.1               | 4.8 | 22 | 24 | 24 | 58.3 | 48.5 | 22.5 | 41.5 | 35.8 |
| PDWHP-12B-R  | 12                | R1/4 | 19.1               | 7.1 | 22 | 24 | 24 | 62.9 | 53.1 | 22.5 | 41.5 | 40.4 |
| PDWHP-12C-R  | 12                | R3/8 | 19.1               | 9.5 | 22 | 24 | 24 | 62.9 | 53.1 | 22.5 | 41.5 | 40.4 |
| PDWHP-12D-R  | 12                | R1/2 | 19.1               | 9.5 | 22 | 24 | 24 | 68.5 | 58.7 | 22.5 | 41.5 | 46   |

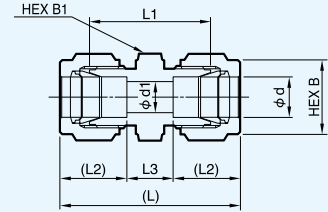
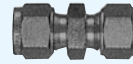
Also available with NPT (ANSI) threads.

Size in metric equivalents  
(mm) of fractional inches

| Part numbers  | Nominal dia.<br>d | A    | Panel hole<br>dia. | d1   | B  | B1 | B2 | L    | L1   | L2   | L3   | L4   |
|---------------|-------------------|------|--------------------|------|----|----|----|------|------|------|------|------|
| PDWHP-3.2A-R  | 3.2               | R1/8 | 8                  | 2.3  | 12 | 14 | 14 | 46.6 | 39.9 | 13   | 31   | 33.6 |
| PDWHP-3.2B-R  | 3.2               | R1/4 | 8                  | 2.3  | 12 | 14 | 14 | 51.7 | 45   | 13   | 31   | 38.7 |
| PDWHP-6.35A-R | 6.35              | R1/8 | 11.2               | 4.8  | 14 | 16 | 16 | 49.6 | 44.2 | 15.4 | 33.9 | 34.2 |
| PDWHP-6.35B-R | 6.35              | R1/4 | 11.2               | 4.8  | 14 | 16 | 16 | 53.4 | 46   | 15.4 | 33.9 | 38   |
| PDWHP-6.35C-R | 6.35              | R3/8 | 11.2               | 4.8  | 14 | 16 | 17 | 54.5 | 47.1 | 15.4 | 33.9 | 39.1 |
| PDWHP-6.35D-R | 6.35              | R1/2 | 11.2               | 4.8  | 14 | 16 | 22 | 60.8 | 53.4 | 15.4 | 33.9 | 45.4 |
| PDWHP-9.52A-R | 9.52              | R1/8 | 14.3               | 4.8  | 17 | 22 | 22 | 53.1 | 45.5 | 17.2 | 37.1 | 35.9 |
| PDWHP-9.52B-R | 9.52              | R1/4 | 14.3               | 7.1  | 17 | 22 | 22 | 57.6 | 50   | 17.2 | 37.1 | 40.4 |
| PDWHP-9.52C-R | 9.52              | R3/8 | 14.3               | 7.1  | 17 | 22 | 22 | 57.6 | 50   | 17.2 | 37.1 | 40.4 |
| PDWHP-9.52D-R | 9.52              | R1/2 | 14.3               | 7.1  | 17 | 22 | 22 | 64.1 | 56.5 | 17.2 | 37.1 | 46.9 |
| PDWHP-12.7A-R | 12.7              | R1/8 | 19.1               | 4.8  | 22 | 24 | 24 | 58.8 | 48.5 | 23   | 42   | 35.8 |
| PDWHP-12.7B-R | 12.7              | R1/4 | 19.1               | 7.1  | 22 | 24 | 24 | 63.4 | 53.1 | 23   | 42   | 40.4 |
| PDWHP-12.7C-R | 12.7              | R3/8 | 19.1               | 9.4  | 22 | 24 | 24 | 63.4 | 53.1 | 23   | 42   | 40.4 |
| PDWHP-12.7D-R | 12.7              | R1/2 | 19.1               | 10.4 | 22 | 24 | 24 | 69   | 58.7 | 23   | 42   | 46   |

Also available with NPT (ANSI) threads.

## STRAIGHT UNIONS



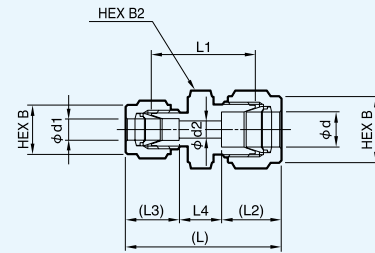
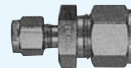
Size in mm

| Part numbers | Nominal dia. d | d1  | B  | B1 | L    | L1   | L2   | L3   |
|--------------|----------------|-----|----|----|------|------|------|------|
| PDWF-3-R     | 3              | 2.4 | 10 | 12 | 34.9 | 22.1 | 12.7 | 9.5  |
| PDWF-4-R     | 4              | 2.4 | 12 | 12 | 37.1 | 24.1 | 13.6 | 9.9  |
| PDWF-6-R     | 6              | 4.8 | 14 | 14 | 40.6 | 26.2 | 15.2 | 10.2 |
| PDWF-8-R     | 8              | 6.4 | 16 | 16 | 43.1 | 28.2 | 16.2 | 10.7 |
| PDWF-10-R    | 10             | 7.9 | 19 | 19 | 45.8 | 31   | 17   | 11.8 |
| PDWF-12-R    | 12             | 9.5 | 22 | 22 | 50.6 | 31   | 22.5 | 5.6  |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | d1   | B  | B1 | L    | L1   | L2   | L3   |
|--------------|----------------|------|----|----|------|------|------|------|
| PDWF-3.2-R   | 3.2            | 2.3  | 12 | 12 | 35.7 | 22.4 | 13   | 9.7  |
| PDWF-6.35-R  | 6.35           | 4.8  | 14 | 14 | 40.9 | 26.2 | 15.4 | 10.1 |
| PDWF-9.52-R  | 9.52           | 7.1  | 17 | 17 | 45.4 | 30.2 | 17.2 | 11   |
| PDWF-12.7-R  | 12.7           | 10.4 | 22 | 22 | 51.5 | 31   | 23   | 5.5  |

## REDUCING UNIONS



Size in mm

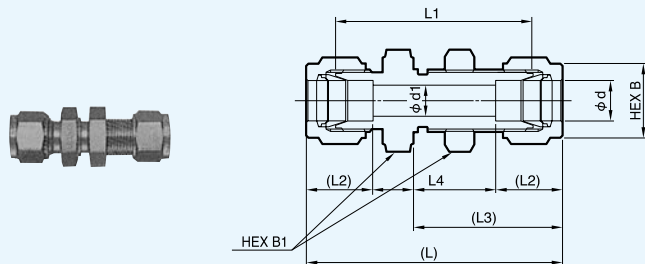
| Part numbers | Nominal dia. d | Nominal dia. d1 | d2  | B  | B1 | B2 | L    | L1   | L2   | L3   | L4   |
|--------------|----------------|-----------------|-----|----|----|----|------|------|------|------|------|
| PDWF-4x3-R   | 4              | 3               | 2.4 | 12 | 10 | 12 | 36.5 | 23.6 | 13.6 | 12.7 | 10.2 |
| PDWF-6x3-R   | 6              | 3               | 2.4 | 14 | 10 | 14 | 38.2 | 24.6 | 15.2 | 12.7 | 10.3 |
| PDWF-6x4-R   | 6              | 4               | 2.4 | 14 | 12 | 14 | 39.1 | 25.4 | 15.2 | 13.6 | 10.3 |
| PDWF-8x6-R   | 8              | 6               | 4.8 | 16 | 14 | 16 | 42.1 | 27.4 | 16.2 | 15.2 | 10.7 |
| PDWF-10x6-R  | 10             | 6               | 4.8 | 19 | 14 | 19 | 44.1 | 29.5 | 17   | 15.2 | 11.9 |
| PDWF-10x8-R  | 10             | 8               | 6.4 | 19 | 16 | 19 | 44.9 | 30   | 17   | 16.2 | 11.7 |
| PDWF-12x6-R  | 12             | 6               | 4.8 | 22 | 14 | 22 | 46.5 | 29.5 | 22.5 | 15.2 | 8.8  |
| PDWF-12x8-R  | 12             | 8               | 6.4 | 22 | 16 | 22 | 47.5 | 30.2 | 22.5 | 16.2 | 8.8  |
| PDWF-12x10-R | 12             | 10              | 7.9 | 22 | 19 | 22 | 48.2 | 31   | 22.5 | 17   | 8.7  |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers     | Nominal dia. d | Nominal dia. d1 | d2  | B  | B1 | B2 | L    | L1   | L2   | L3   | L4   |
|------------------|----------------|-----------------|-----|----|----|----|------|------|------|------|------|
| PDWF-6.35x3.2-R  | 6.35           | 3.2             | 2.3 | 14 | 12 | 14 | 38.7 | 24.6 | 15.4 | 13   | 10.3 |
| PDWF-9.52x6.35-R | 9.52           | 6.35            | 4.8 | 17 | 14 | 17 | 43.4 | 28.4 | 17.2 | 15.4 | 10.8 |
| PDWF-12.7x6.35-R | 12.7           | 6.35            | 4.8 | 22 | 14 | 22 | 47.2 | 29.5 | 23   | 15.4 | 8.8  |
| PDWF-12.7x9.52-R | 12.7           | 9.52            | 7.1 | 22 | 17 | 22 | 48.9 | 31   | 23   | 17.2 | 8.7  |

Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

## BULKHEAD UNIONS



Size in mm

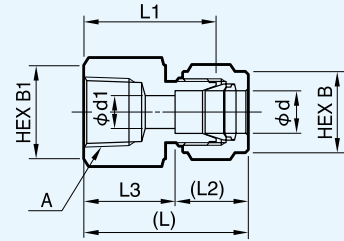
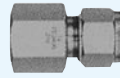
| Part numbers | Nominal dia. d | Panel hole dia. | d1  | B  | B1 | L    | L1   | L2   | L3   | L4   |
|--------------|----------------|-----------------|-----|----|----|------|------|------|------|------|
| PDWP-3-R     | 3              | 8               | 2.4 | 10 | 14 | 50.9 | 38.1 | 12.7 | 30.7 | 25.5 |
| PDWP-4-R     | 4              | 9.6             | 2.4 | 12 | 14 | 53.4 | 40.4 | 13.6 | 31.9 | 26.2 |
| PDWP-6-R     | 6              | 11.2            | 4.8 | 14 | 16 | 57.3 | 42.9 | 15.2 | 33.7 | 26.9 |
| PDWP-8-R     | 8              | 12.8            | 6.4 | 16 | 19 | 60.9 | 46   | 16.2 | 36.1 | 28.5 |
| PDWP-10-R    | 10             | 16              | 7.9 | 19 | 22 | 63.3 | 48.5 | 17   | 36.8 | 29.3 |
| PDWP-12-R    | 12             | 19.1            | 9.5 | 22 | 24 | 70.4 | 50.8 | 22.5 | 41.5 | 25.4 |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | Panel hole dia. | d1   | B  | B1 | L    | L1   | L2   | L3   | L4   |
|--------------|----------------|-----------------|------|----|----|------|------|------|------|------|
| PDWP-3.2-R   | 3.2            | 8               | 2.3  | 12 | 14 | 51.4 | 38.1 | 13   | 31   | 25.4 |
| PDWP-6.35-R  | 6.35           | 11.2            | 4.8  | 14 | 16 | 57.6 | 42.9 | 15.4 | 33.9 | 26.8 |
| PDWP-9.52-R  | 9.52           | 14.3            | 7.1  | 17 | 22 | 62.7 | 47.5 | 17.2 | 37.1 | 28.3 |
| PDWP-12.7-R  | 12.7           | 19.1            | 10.4 | 22 | 24 | 71.3 | 50.8 | 23   | 42   | 25.3 |

## FEMALE CONNECTORS

### Rc Thread



Size in mm

| Part numbers | Nominal dia. d | A     | d1  | B  | B1 | L    | L1   | L2   | L3   |
|--------------|----------------|-------|-----|----|----|------|------|------|------|
| PDWG-3A-R    | 3              | Rc1/8 | 2.4 | 10 | 14 | 28.5 | 22.1 | 12.7 | 15.8 |
| PDWG-3B-R    | 3              | Rc1/4 | 2.4 | 10 | 19 | 33.3 | 26.9 | 12.7 | 20.6 |
| PDWG-4A-R    | 4              | Rc1/8 | 2.4 | 12 | 14 | 29.6 | 23.1 | 13.6 | 16   |
| PDWG-4B-R    | 4              | Rc1/4 | 2.4 | 12 | 19 | 34.2 | 27.7 | 13.6 | 20.6 |
| PDWG-6A-R    | 6              | Rc1/8 | 4.8 | 14 | 14 | 31.1 | 23.9 | 15.2 | 15.9 |
| PDWG-6B-R    | 6              | Rc1/4 | 4.8 | 14 | 19 | 35.6 | 28.4 | 15.2 | 20.4 |
| PDWG-6C-R    | 6              | Rc3/8 | 4.8 | 14 | 22 | 36.7 | 29.5 | 15.2 | 21.5 |
| PDWG-6D-R    | 6              | Rc1/2 | 4.8 | 14 | 26 | 42.3 | 35.1 | 15.2 | 27.1 |
| PDWG-8A-R    | 8              | Rc1/8 | 6.4 | 16 | 16 | 32.1 | 24.6 | 16.2 | 15.9 |
| PDWG-8B-R    | 8              | Rc1/4 | 6.4 | 16 | 19 | 37   | 29.5 | 16.2 | 20.8 |
| PDWG-8C-R    | 8              | Rc3/8 | 6.4 | 16 | 22 | 37.7 | 30.2 | 16.2 | 21.5 |
| PDWG-8D-R    | 8              | Rc1/2 | 6.4 | 16 | 26 | 43.3 | 35.8 | 16.2 | 27.1 |
| PDWG-10A-R   | 10             | Rc1/8 | 7.9 | 19 | 19 | 32.8 | 25.4 | 17   | 15.8 |
| PDWG-10B-R   | 10             | Rc1/4 | 7.9 | 19 | 19 | 37.6 | 30.2 | 17   | 20.6 |
| PDWG-10C-R   | 10             | Rc3/8 | 7.9 | 19 | 22 | 38.4 | 31   | 17   | 21.4 |
| PDWG-10D-R   | 10             | Rc1/2 | 7.9 | 19 | 26 | 44   | 36.6 | 17   | 27   |
| PDWG-12A-R   | 12             | Rc1/8 | 8.3 | 22 | 22 | 38.2 | 28.4 | 22.5 | 15.7 |
| PDWG-12B-R   | 12             | Rc1/4 | 9.5 | 22 | 22 | 40   | 30.2 | 22.5 | 17.5 |
| PDWG-12C-R   | 12             | Rc3/8 | 9.5 | 22 | 22 | 40.8 | 31   | 22.5 | 18.3 |
| PDWG-12D-R   | 12             | Rc1/2 | 9.5 | 22 | 26 | 46.4 | 36.6 | 22.5 | 23.9 |

Also available with NPT (ANSI) threads.

Size in metric equivalents  
(mm) of fractional inches

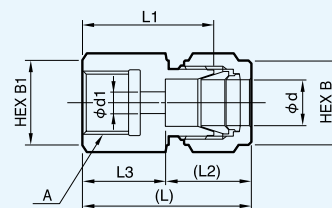
| Part numbers | Nominal dia. d | A     | d1   | B  | B1 | L    | L1   | L2   | L3   |
|--------------|----------------|-------|------|----|----|------|------|------|------|
| PDWG-3.2A-R  | 3.2            | Rc1/8 | 2.3  | 12 | 14 | 28.8 | 22.1 | 13   | 15.8 |
| PDWG-3.2B-R  | 3.2            | Rc1/4 | 2.3  | 12 | 19 | 33.6 | 26.9 | 13   | 20.6 |
| PDWG-6.35A-R | 6.35           | Rc1/8 | 4.8  | 14 | 14 | 31.3 | 23.9 | 15.4 | 15.9 |
| PDWG-6.35B-R | 6.35           | Rc1/4 | 4.8  | 14 | 19 | 35.8 | 28.4 | 15.4 | 20.4 |
| PDWG-6.35C-R | 6.35           | Rc3/8 | 4.8  | 14 | 22 | 37.6 | 30.2 | 15.4 | 22.2 |
| PDWG-6.35D-R | 6.35           | Rc1/2 | 4.8  | 14 | 26 | 42.5 | 35.1 | 15.4 | 27.1 |
| PDWG-9.52A-R | 9.52           | Rc1/8 | 7.1  | 17 | 16 | 33   | 25.4 | 17.2 | 15.8 |
| PDWG-9.52B-R | 9.52           | Rc1/4 | 7.1  | 17 | 19 | 37.8 | 30.2 | 17.2 | 20.6 |
| PDWG-9.52C-R | 9.52           | Rc3/8 | 7.1  | 17 | 22 | 39.4 | 31.8 | 17.2 | 22.2 |
| PDWG-9.52D-R | 9.52           | Rc1/2 | 7.1  | 17 | 26 | 44.2 | 36.6 | 17.2 | 27   |
| PDWG-12.7A-R | 12.7           | Rc1/8 | 7    | 22 | 22 | 38.7 | 28.4 | 23   | 15.7 |
| PDWG-12.7B-R | 12.7           | Rc1/4 | 10.4 | 22 | 22 | 40.5 | 30.2 | 23   | 17.5 |
| PDWG-12.7C-R | 12.7           | Rc3/8 | 10.4 | 22 | 22 | 42.1 | 31.8 | 23   | 19.1 |
| PDWG-12.7D-R | 12.7           | Rc1/2 | 10.4 | 22 | 26 | 46.9 | 36.6 | 23   | 23.9 |

Also available with NPT (ANSI) threads.

Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

## FEMALE CONNECTORS

### ISO Parallel Thread



Size in mm

| Part numbers | Nominal dia. d | A    | d1    | B  | B1 | L    | L1   | L2   | L3     |
|--------------|----------------|------|-------|----|----|------|------|------|--------|
| PDWG-3AF-R   | 3              | G1/8 | 5.5 ※ | 10 | 14 | 32.1 | 25.7 | 12.7 | 19.4   |
| PDWG-3BF-R   | 3              | G1/4 | 5.5 ※ | 10 | 19 | 35.1 | 28.7 | 12.7 | 22.4   |
| PDWG-4AF-R   | 4              | G1/8 | 5.5 ※ | 12 | 14 | 33.2 | 26.7 | 13.6 | 19.6   |
| PDWG-4BF-R   | 4              | G1/4 | 5.5 ※ | 12 | 19 | 36.2 | 29.7 | 13.6 | 22.6   |
| PDWG-6AF-R   | 6              | G1/8 | 5.5 ※ | 14 | 14 | 34.4 | 27.2 | 15.2 | 19.2   |
| PDWG-6BF-R   | 6              | G1/4 | 5.5 ※ | 14 | 19 | 37.4 | 30.2 | 15.2 | 22.2   |
| PDWG-6CF-R   | 6              | G3/8 | 5.5 ※ | 14 | 22 | 37.4 | 30.2 | 15.2 | 22.2   |
| PDWG-6DF-R   | 6              | G1/2 | 5.5 ※ | 14 | 26 | 42.8 | 35.6 | 15.2 | 27.6   |
| PDWG-8AF-R   | 8              | G1/8 | 5.5   | 16 | 16 | 35.5 | 28   | 16.2 | 19.3   |
| PDWG-8BF-R   | 8              | G1/4 | 5.5   | 16 | 19 | 38.5 | 31   | 16.2 | 22.3   |
| PDWG-8CF-R   | 8              | G3/8 | 5.5   | 16 | 22 | 36.2 | 28.7 | 16.2 | 20     |
| PDWG-8DF-R   | 8              | G1/2 | 5.5   | 16 | 26 | 40.5 | 33   | 16.2 | 24.3   |
| PDWG-10AF-R  | 10             | G1/8 | 5.5   | 19 | 19 | 36.2 | 28.8 | 17   | 19.2   |
| PDWG-10BF-R  | 10             | G1/4 | 5.5   | 19 | 19 | 39.2 | 31.8 | 17   | 22.2   |
| PDWG-10CF-R  | 10             | G3/8 | 5.5   | 19 | 22 | 38.6 | 31.2 | 17   | 21.6   |
| PDWG-10DF-R  | 10             | G1/2 | 5.5   | 19 | 26 | 41.2 | 33.8 | 17   | 24.2   |
| PDWG-12AF-R  | 12             | G1/8 | 5.5   | 22 | 22 | 38.6 | 28.8 | 22.5 | 16.1   |
| PDWG-12BF-R  | 12             | G1/4 | 5.5   | 22 | 22 | 41.6 | 31.8 | 22.5 | 19.1   |
| PDWG-12CF-R  | 12             | G3/8 | 5.5   | 22 | 22 | 44.1 | 34.3 | 22.5 | 21.6   |
| PDWG-12DF-R  | 12             | G1/2 | 5.5   | 22 | 26 | 47.9 | 38.1 | 22.5 | 25.4 ※ |

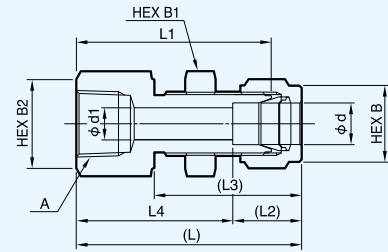
Size in metric equivalents  
(mm) of fractional inches

| Part numbers  | Nominal dia. d | A    | d1    | B  | B1 | L    | L1   | L2   | L3   |
|---------------|----------------|------|-------|----|----|------|------|------|------|
| PDWG-3.2AF-R  | 3.2            | G1/8 | 5.5 ※ | 12 | 14 | 32.4 | 25.7 | 13   | 19.4 |
| PDWG-3.2BF-R  | 3.2            | G1/4 | 5.5 ※ | 12 | 19 | 35.4 | 28.7 | 13   | 22.4 |
| PDWG-6.35AF-R | 6.35           | G1/8 | 5.5   | 14 | 14 | 34.6 | 27.2 | 15.4 | 19.2 |
| PDWG-6.35BF-R | 6.35           | G1/4 | 5.5   | 14 | 19 | 37.6 | 30.2 | 15.4 | 22.2 |
| PDWG-6.35CF-R | 6.35           | G3/8 | 5.5   | 14 | 22 | 37.6 | 30.2 | 15.4 | 22.2 |
| PDWG-6.35DF-R | 6.35           | G1/2 | 5.5   | 14 | 26 | 43   | 35.6 | 15.4 | 27.6 |
| PDWG-9.52AF-R | 9.52           | G1/8 | 5.5   | 17 | 16 | 36.4 | 28.8 | 17.2 | 19.2 |
| PDWG-9.52BF-R | 9.52           | G1/4 | 5.5   | 17 | 19 | 39.4 | 31.8 | 17.2 | 22.2 |
| PDWG-9.52CF-R | 9.52           | G3/8 | 5.5   | 17 | 22 | 38.8 | 31.2 | 17.2 | 21.6 |
| PDWG-9.52DF-R | 9.52           | G1/2 | 5.5   | 17 | 26 | 41.4 | 33.8 | 17.2 | 24.2 |
| PDWG-12.7AF-R | 12.7           | G1/8 | 5.5   | 22 | 22 | 39.1 | 28.8 | 23   | 16.1 |
| PDWG-12.7BF-R | 12.7           | G1/4 | 5.5   | 22 | 22 | 42.1 | 31.8 | 23   | 19.1 |
| PDWG-12.7CF-R | 12.7           | G3/8 | 5.5   | 22 | 22 | 44.6 | 34.3 | 23   | 21.6 |
| PDWG-12.7DF-R | 12.7           | G1/2 | 5.5   | 22 | 26 | 48.4 | 38.1 | 23   | 25.4 |

For fittings with a nominal diameter of 3mm, 3.2mm (1/8"), 4mm, and 6mm, the inner diameter of the gasket ( $\phi D1$ ) is 5.5mm. However, the interior of the fitting's body is stepped such that the portion directly behind the gasket and in front of the tube is as follows : Tube OD (mm): 3.4, 3.2, 6 Fitting ID (mm): 2.4, 2.3, 4.8

## BULKHEAD FEMALE CONNECTORS

### Rc Thread



Panel Hole Dia : +0.0315 in. (+0.5mm),  
+0

Size in mm

| Part numbers | Nominal dia.<br>d | A     | Panel hole<br>dia. | d1  | B  | B1 | B2 | L    | L1   | L2   | L3   | L4   |
|--------------|-------------------|-------|--------------------|-----|----|----|----|------|------|------|------|------|
| PDWGP-3A-R   | 3                 | Rc1/8 | 8                  | 2.4 | 10 | 14 | 14 | 44.2 | 37.8 | 12.7 | 30.7 | 31.5 |
| PDWGP-3B-R   | 3                 | Rc1/4 | 8                  | 2.4 | 10 | 14 | 19 | 49   | 42.6 | 12.7 | 30.7 | 36.3 |
| PDWGP-4A-R   | 4                 | Rc1/8 | 9.6                | 2.4 | 12 | 14 | 14 | 45.4 | 38.9 | 13.6 | 31.9 | 31.8 |
| PDWGP-4B-R   | 4                 | Rc1/4 | 9.6                | 2.4 | 12 | 14 | 19 | 50   | 43.5 | 13.6 | 31.9 | 36.4 |
| PDWGP-6A-R   | 6                 | Rc1/8 | 11.2               | 4.8 | 14 | 16 | 14 | 47.2 | 40   | 15.2 | 33.7 | 32   |
| PDWGP-6B-R   | 6                 | Rc1/4 | 11.2               | 4.8 | 14 | 16 | 19 | 51.7 | 44.5 | 15.2 | 33.7 | 36.5 |
| PDWGP-6C-R   | 6                 | Rc3/8 | 11.2               | 4.8 | 14 | 16 | 22 | 52.8 | 45.6 | 15.2 | 33.7 | 37.6 |
| PDWGP-6D-R   | 6                 | Rc1/2 | 11.2               | 4.8 | 14 | 16 | 26 | 58.4 | 51.2 | 15.2 | 33.7 | 43.2 |
| PDWGP-8A-R   | 8                 | Rc1/8 | 12.8               | 6.4 | 16 | 19 | 16 | 49.6 | 42.1 | 16.2 | 36.1 | 33.4 |
| PDWGP-8B-R   | 8                 | Rc1/4 | 12.8               | 6.4 | 16 | 19 | 19 | 54.5 | 47   | 16.2 | 36.1 | 38.3 |
| PDWGP-8C-R   | 8                 | Rc3/8 | 12.8               | 6.4 | 16 | 19 | 22 | 55.2 | 47.7 | 16.2 | 36.1 | 39   |
| PDWGP-8D-R   | 8                 | Rc1/2 | 12.8               | 6.4 | 16 | 19 | 26 | 60.8 | 53.5 | 16.2 | 36.1 | 44.6 |
| PDWGP-10A-R  | 10                | Rc1/8 | 16                 | 7.9 | 19 | 22 | 19 | 50.3 | 42.9 | 17   | 36.8 | 33.3 |
| PDWGP-10B-R  | 10                | Rc1/4 | 16                 | 7.9 | 19 | 22 | 19 | 55.1 | 47.7 | 17   | 36.8 | 38.1 |
| PDWGP-10C-R  | 10                | Rc3/8 | 16                 | 7.9 | 19 | 22 | 22 | 55.9 | 48.5 | 17   | 36.8 | 38.9 |
| PDWGP-10D-R  | 10                | Rc1/2 | 16                 | 7.9 | 19 | 22 | 26 | 61.5 | 54.1 | 17   | 36.8 | 44.5 |
| PDWGP-12A-R  | 12                | Rc1/8 | 19.1               | 8.3 | 22 | 24 | 22 | 58   | 48.2 | 22.5 | 41.5 | 35.5 |
| PDWGP-12B-R  | 12                | Rc1/4 | 19.1               | 9.5 | 22 | 24 | 22 | 59.8 | 50   | 22.5 | 41.5 | 37.3 |
| PDWGP-12C-R  | 12                | Rc3/8 | 19.1               | 9.5 | 22 | 24 | 22 | 60.6 | 50.8 | 22.5 | 41.5 | 38.1 |
| PDWGP-12D-R  | 12                | Rc1/2 | 19.1               | 9.5 | 22 | 24 | 26 | 66.2 | 56.4 | 22.5 | 41.5 | 43.7 |

Also available with NPT (ANSI) threads.

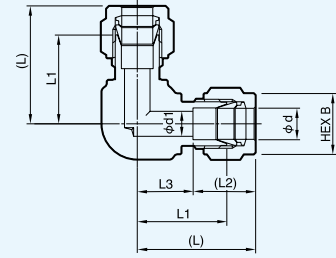
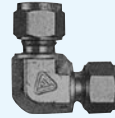
Size in metric equivalents  
(mm) of fractional inches

| Part numbers  | Nominal dia.<br>d | A     | Panel hole<br>dia. | d1   | B  | B1 | B2 | L    | L1   | L2   | L3   | L4   |
|---------------|-------------------|-------|--------------------|------|----|----|----|------|------|------|------|------|
| PDWGP-3.2A-R  | 3.2               | Rc1/8 | 8                  | 2.3  | 12 | 14 | 14 | 44.5 | 37.8 | 13   | 31   | 31.5 |
| PDWGP-3.2B-R  | 3.2               | Rc1/4 | 8                  | 2.3  | 12 | 14 | 19 | 49.3 | 42.6 | 13   | 31   | 36.3 |
| PDWGP-6.35A-R | 6.35              | Rc1/8 | 11.2               | 4.8  | 14 | 16 | 14 | 47.4 | 40   | 15.4 | 33.9 | 32   |
| PDWGP-6.35B-R | 6.35              | Rc1/4 | 11.2               | 4.8  | 14 | 16 | 19 | 51.9 | 44.5 | 15.4 | 33.9 | 36.5 |
| PDWGP-6.35C-R | 6.35              | Rc3/8 | 11.2               | 4.8  | 14 | 16 | 22 | 53.7 | 46.3 | 15.4 | 33.9 | 38.3 |
| PDWGP-6.35D-R | 6.35              | Rc1/2 | 11.2               | 4.8  | 14 | 16 | 26 | 58.6 | 51.2 | 15.4 | 33.9 | 43.2 |
| PDWGP-9.52A-R | 9.52              | Rc1/8 | 14.3               | 7.1  | 17 | 22 | 16 | 50.6 | 43   | 17.2 | 37.1 | 33.4 |
| PDWGP-9.52B-R | 9.52              | Rc1/4 | 14.3               | 7.1  | 17 | 22 | 19 | 55.4 | 47.8 | 17.2 | 37.1 | 38.2 |
| PDWGP-9.52C-R | 9.52              | Rc3/8 | 14.3               | 7.1  | 17 | 22 | 22 | 57   | 49.4 | 17.2 | 37.1 | 39.8 |
| PDWGP-9.52D-R | 9.52              | Rc1/2 | 14.3               | 7.1  | 17 | 22 | 26 | 61.8 | 54.2 | 17.2 | 37.1 | 44.6 |
| PDWGP-12.7A-R | 12.7              | Rc1/8 | 19.1               | 8.8  | 22 | 24 | 22 | 58.5 | 48.2 | 23   | 42   | 35.5 |
| PDWGP-12.7B-R | 12.7              | Rc1/4 | 19.1               | 10.4 | 22 | 24 | 22 | 60.3 | 50   | 23   | 42   | 37.3 |
| PDWGP-12.7C-R | 12.7              | Rc3/8 | 19.1               | 10.4 | 22 | 24 | 22 | 61.9 | 51.6 | 23   | 42   | 38.9 |
| PDWGP-12.7D-R | 12.7              | Rc1/2 | 19.1               | 10.4 | 22 | 24 | 26 | 66.7 | 56.4 | 23   | 42   | 43.7 |

Also available with NPT (ANSI) threads.

Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

## ELBOW UNIONS



Size in mm

| Part numbers | Nominal dia. d | d1  | B  | L    | L1   | L2   | L3   |
|--------------|----------------|-----|----|------|------|------|------|
| PDWL-3-R     | 3              | 2.4 | 10 | 22.1 | 15.7 | 12.7 | 9.4  |
| PDWL-4-R     | 4              | 2.4 | 12 | 25.3 | 18.8 | 13.6 | 11.7 |
| PDWL-6-R     | 6              | 4.8 | 14 | 26.8 | 19.6 | 15.2 | 11.6 |
| PDWL-8-R     | 8              | 6.4 | 16 | 28.8 | 21.3 | 16.2 | 12.6 |
| PDWL-10-R    | 10             | 7.9 | 19 | 33.3 | 25.9 | 17   | 16.3 |
| PDWL-12-R    | 12             | 9.5 | 22 | 35.7 | 25.9 | 22.5 | 13.2 |

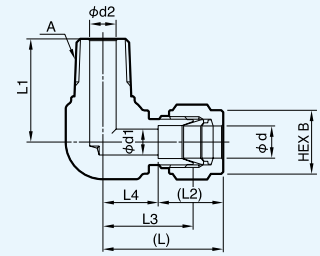
Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | d1   | B  | L    | L1   | L2   | L3   |
|--------------|----------------|------|----|------|------|------|------|
| PDWL-3.2-R   | 3.2            | 2.3  | 12 | 22.4 | 15.7 | 13   | 9.4  |
| PDWL-6.35-R  | 6.35           | 4.8  | 14 | 27   | 19.6 | 15.4 | 11.6 |
| PDWL-9.52-R  | 9.52           | 7.1  | 17 | 30.7 | 23.1 | 17.2 | 13.5 |
| PDWL-12.7-R  | 12.7           | 10.4 | 22 | 36.2 | 25.9 | 23   | 13.2 |



## MALE ELBOWS

### R Thread



Size in mm

| Part numbers | Nominal dia. d | A    | d1  | B  | L    | L1   | L2   | L3   | L4   |
|--------------|----------------|------|-----|----|------|------|------|------|------|
| PDWL-3A-R    | 3              | R1/8 | 2.4 | 10 | 23.4 | 17.8 | 12.7 | 17   | 10.7 |
| PDWL-3B-R    | 3              | R1/4 | 2.4 | 10 | 24.4 | 23.4 | 12.7 | 18   | 11.7 |
| PDWL-4A-R    | 4              | R1/8 | 2.4 | 12 | 25.3 | 18.8 | 13.6 | 18.8 | 11.7 |
| PDWL-4B-R    | 4              | R1/4 | 2.4 | 12 | 25.3 | 23.4 | 13.6 | 18.8 | 11.7 |
| PDWL-6A-R    | 6              | R1/8 | 4.8 | 14 | 26.8 | 18.8 | 15.2 | 19.6 | 11.6 |
| PDWL-6B-R    | 6              | R1/4 | 4.8 | 14 | 26.8 | 23.4 | 15.2 | 19.6 | 11.6 |
| PDWL-6C-R    | 6              | R3/8 | 4.8 | 14 | 29.6 | 26.2 | 15.2 | 22.4 | 14.4 |
| PDWL-6D-R    | 6              | R1/2 | 4.8 | 14 | 31.6 | 33   | 15.2 | 24.4 | 16.4 |
| PDWL-8A-R    | 8              | R1/8 | 4.8 | 16 | 28.8 | 19.8 | 16.2 | 21.3 | 12.6 |
| PDWL-8B-R    | 8              | R1/4 | 6.4 | 16 | 28.8 | 24.4 | 16.2 | 21.3 | 12.6 |
| PDWL-8C-R    | 8              | R3/8 | 6.4 | 16 | 30.6 | 26.2 | 16.2 | 23.1 | 14.4 |
| PDWL-8D-R    | 8              | R1/2 | 6.4 | 16 | 32.6 | 33   | 16.2 | 25.1 | 16.4 |
| PDWL-10A-R   | 10             | R1/8 | 4.8 | 19 | 33.3 | 23.6 | 17   | 25.9 | 16.3 |
| PDWL-10B-R   | 10             | R1/4 | 7.1 | 19 | 33.3 | 28.2 | 17   | 25.9 | 16.3 |
| PDWL-10C-R   | 10             | R3/8 | 7.9 | 19 | 33.3 | 28.2 | 17   | 25.9 | 16.3 |
| PDWL-10D-R   | 10             | R1/2 | 7.9 | 19 | 33.3 | 33   | 17   | 25.9 | 16.3 |
| PDWL-12A-R   | 12             | R1/8 | 4.8 | 22 | 35.7 | 23.6 | 22.5 | 25.9 | 13.2 |
| PDWL-12B-R   | 12             | R1/4 | 7.1 | 22 | 35.7 | 28.2 | 22.5 | 25.9 | 13.2 |
| PDWL-12C-R   | 12             | R3/8 | 9.5 | 22 | 35.7 | 28.2 | 22.5 | 25.9 | 13.2 |
| PDWL-12D-R   | 12             | R1/2 | 9.5 | 22 | 35.7 | 33   | 22.5 | 25.9 | 13.2 |

Also available with NPT (ANSI) threads.

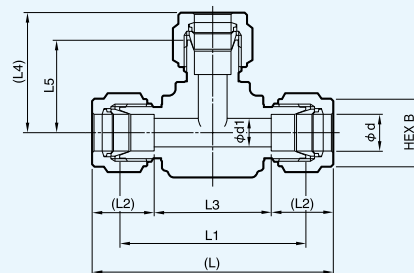
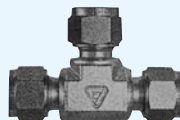
Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | A    | d1   | B  | L    | L1   | L2   | L3   | L4   |
|--------------|----------------|------|------|----|------|------|------|------|------|
| PDWL-3.2A-R  | 3.2            | R1/8 | 2.3  | 12 | 23.7 | 17.8 | 13   | 17   | 10.7 |
| PDWL-3.2B-R  | 3.2            | R1/4 | 2.3  | 12 | 24.7 | 23.4 | 13   | 18   | 11.7 |
| PDWL-6.35A-R | 6.35           | R1/8 | 4.8  | 14 | 27   | 18.8 | 15.4 | 19.6 | 11.6 |
| PDWL-6.35B-R | 6.35           | R1/4 | 4.8  | 14 | 27   | 23.4 | 15.4 | 19.6 | 11.6 |
| PDWL-6.35C-R | 6.35           | R3/8 | 4.8  | 14 | 29.8 | 26.2 | 15.4 | 22.4 | 14.4 |
| PDWL-6.35D-R | 6.35           | R1/2 | 4.8  | 14 | 31.8 | 33   | 15.4 | 24.4 | 16.4 |
| PDWL-9.52A-R | 9.52           | R1/8 | 4.8  | 17 | 30.7 | 20.8 | 17.2 | 23.1 | 13.5 |
| PDWL-9.52B-R | 9.52           | R1/4 | 7.1  | 17 | 30.7 | 25.4 | 17.2 | 23.1 | 13.5 |
| PDWL-9.52C-R | 9.52           | R3/8 | 7.1  | 17 | 31.5 | 26.2 | 17.2 | 23.9 | 14.3 |
| PDWL-9.52D-R | 9.52           | R1/2 | 7.1  | 17 | 33.5 | 33   | 17.2 | 25.9 | 16.3 |
| PDWL-12.7A-R | 12.7           | R1/8 | 4.8  | 22 | 36.2 | 23.6 | 23   | 25.9 | 13.2 |
| PDWL-12.7B-R | 12.7           | R1/4 | 7.1  | 22 | 36.2 | 28.2 | 23   | 25.9 | 13.2 |
| PDWL-12.7C-R | 12.7           | R3/8 | 9.7  | 22 | 36.2 | 28.2 | 23   | 25.9 | 13.2 |
| PDWL-12.7D-R | 12.7           | R1/2 | 10.4 | 22 | 36.2 | 33   | 23   | 25.9 | 13.2 |

Also available with NPT (ANSI) threads.

Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

## TEE UNIONS



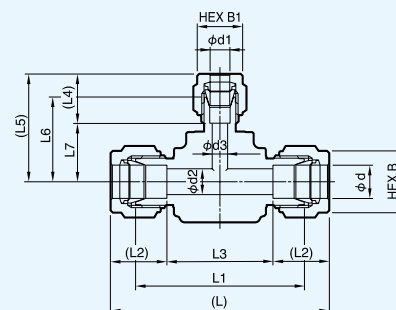
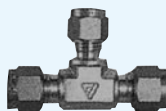
Size in mm

| Part numbers | Nominal dia. d | d1  | B  | L    | L1   | L2   | L3   | L4   | L5   |
|--------------|----------------|-----|----|------|------|------|------|------|------|
| PDWT-3-R     | 3              | 2.4 | 10 | 44.2 | 31.4 | 12.7 | 18.8 | 22.1 | 15.7 |
| PDWT-4-R     | 4              | 2.4 | 12 | 50.6 | 37.6 | 13.6 | 23.4 | 25.3 | 18.8 |
| PDWT-6-R     | 6              | 4.8 | 14 | 53.4 | 39   | 15.2 | 23   | 26.7 | 19.5 |
| PDWT-8-R     | 8              | 6.4 | 16 | 59.7 | 44.8 | 16.2 | 27.3 | 29.9 | 22.4 |
| PDWT-10-R    | 10             | 7.9 | 19 | 66.6 | 51.8 | 17   | 32.6 | 33.3 | 25.9 |
| PDWT-12-R    | 12             | 9.5 | 22 | 71.4 | 51.8 | 22.5 | 26.4 | 35.7 | 25.9 |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | d1   | B  | L    | L1   | L2   | L3   | L4   | L5   |
|--------------|----------------|------|----|------|------|------|------|------|------|
| PDWT-3.2-R   | 3.2            | 2.3  | 12 | 44.9 | 31.6 | 13   | 18.9 | 22.5 | 15.8 |
| PDWT-6.35-R  | 6.35           | 4.8  | 14 | 53.7 | 39   | 15.4 | 22.9 | 26.9 | 19.5 |
| PDWT-9.52-R  | 9.52           | 7.1  | 17 | 61.4 | 46.2 | 17.2 | 27   | 30.7 | 23.1 |
| PDWT-12.7-R  | 12.7           | 10.4 | 22 | 72.3 | 51.8 | 23   | 26.3 | 36.2 | 25.9 |

## REDUCING TEE UNIONS



Size in mm

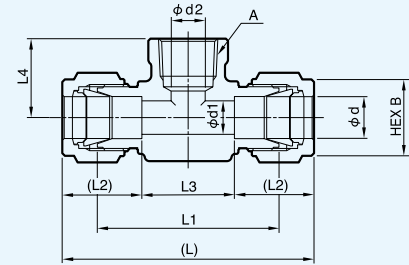
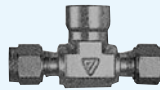
| Part numbers    | Nominal dia. d | Nominal dia. d1 | d2  | d3  | B  | B1 | L    | L1   | L2   | L3   | L4   | L5   | L6   | L7   |
|-----------------|----------------|-----------------|-----|-----|----|----|------|------|------|------|------|------|------|------|
| PDWT-8x8x6-R    | 8              | 6               | 6.4 | 4.8 | 16 | 14 | 59.7 | 44.8 | 16.2 | 27.3 | 15.2 | 29.6 | 22.4 | 14.4 |
| PDWT-10x10x6-R  | 10             | 6               | 7.9 | 4.8 | 19 | 14 | 66.6 | 51.8 | 17   | 32.6 | 15.2 | 33.1 | 25.9 | 17.9 |
| PDWT-10x10x8-R  | 10             | 8               | 7.9 | 6.4 | 19 | 16 | 66.6 | 51.8 | 17   | 32.6 | 16.2 | 33.4 | 25.9 | 17.2 |
| PDWT-12x12x6-R  | 12             | 6               | 9.5 | 4.8 | 22 | 14 | 71.4 | 51.8 | 22.5 | 26.4 | 15.2 | 33.1 | 25.9 | 17.9 |
| PDWT-12x12x8-R  | 12             | 8               | 9.5 | 6.4 | 22 | 16 | 71.4 | 51.8 | 22.5 | 26.4 | 16.2 | 33.4 | 25.9 | 17.2 |
| PDWT-12x12x10-R | 12             | 10              | 9.5 | 7.9 | 22 | 19 | 71.4 | 51.8 | 22.5 | 26.4 | 17   | 33.3 | 25.9 | 16.3 |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers          | Nominal dia. d | Nominal dia. d1 | d2   | d3  | B  | B1 | L    | L1   | L2   | L3   | L4   | L5   | L6   | L7   |
|-----------------------|----------------|-----------------|------|-----|----|----|------|------|------|------|------|------|------|------|
| PDWT-9.52x9.52x6.35-R | 9.52           | 6.35            | 7.1  | 4.8 | 17 | 14 | 61.4 | 46.2 | 17.2 | 27   | 15.4 | 30.5 | 23.1 | 15.1 |
| PDWT-12.7x12.7x6.35-R | 12.7           | 6.35            | 10.4 | 4.8 | 22 | 14 | 72.3 | 51.8 | 23   | 26.3 | 15.4 | 33.3 | 25.9 | 17.9 |
| PDWT-12.7x12.7x9.52-R | 12.7           | 9.52            | 10.4 | 7.1 | 22 | 17 | 72.3 | 51.8 | 23   | 26.3 | 17.2 | 33.5 | 25.9 | 16.3 |

## FEMALE BRANCH TEES

### Rc Thread



Size in mm

| Part numbers | Nominal dia. d | A     | d1  | d2  | B  | L    | L1   | L2   | L3   | L4   |
|--------------|----------------|-------|-----|-----|----|------|------|------|------|------|
| PDWTG-3A-R   | 3              | Rc1/8 | 2.4 | 7   | 10 | 48.9 | 36.1 | 12.7 | 22.7 | 19.1 |
| PDWTG-3B-R   | 3              | Rc1/4 | 2.4 | 7   | 10 | 54.4 | 41.6 | 12.7 | 29   | 22.4 |
| PDWTG-4A-R   | 4              | Rc1/8 | 2.4 | 7   | 12 | 50.6 | 37.6 | 13.6 | 23.4 | 19.1 |
| PDWTG-4B-R   | 4              | Rc1/4 | 2.4 | 7   | 12 | 54.6 | 41.6 | 13.6 | 27.4 | 22.4 |
| PDWTG-6A-R   | 6              | Rc1/8 | 4.8 | 7   | 14 | 53.5 | 39.1 | 15.2 | 22.5 | 19.1 |
| PDWTG-6B-R   | 6              | Rc1/4 | 4.8 | 7   | 14 | 59.1 | 44.7 | 15.2 | 28.1 | 22.4 |
| PDWTG-6C-R   | 6              | Rc3/8 | 4.8 | 7   | 14 | 63.2 | 48.8 | 15.2 | 32.8 | 22.4 |
| PDWTG-8A-R   | 8              | Rc1/8 | 6.4 | 7   | 16 | 57.5 | 42.6 | 16.2 | 25.1 | 19.1 |
| PDWTG-8B-R   | 8              | Rc1/4 | 6.4 | 7   | 16 | 61.1 | 46.2 | 16.2 | 28.7 | 22.4 |
| PDWTG-8C-R   | 8              | Rc3/8 | 6.4 | 7   | 16 | 63.7 | 48.8 | 16.2 | 31.3 | 22.4 |
| PDWTG-10A-R  | 10             | Rc1/8 | 7.9 | 7   | 19 | 66.6 | 51.8 | 17   | 32.6 | 22.4 |
| PDWTG-10B-R  | 10             | Rc1/4 | 7.9 | 7.9 | 19 | 66.6 | 51.8 | 17   | 32.6 | 22.4 |
| PDWTG-10C-R  | 10             | Rc3/8 | 7.9 | 7.9 | 19 | 66.6 | 51.8 | 17   | 32.6 | 22.4 |
| PDWTG-12A-R  | 12             | Rc1/8 | 8.3 | 7   | 22 | 71.4 | 51.8 | 22.5 | 26.4 | 22.4 |
| PDWTG-12B-R  | 12             | Rc1/4 | 9.5 | 9.5 | 22 | 71.4 | 51.8 | 22.5 | 26.4 | 22.4 |
| PDWTG-12C-R  | 12             | Rc3/8 | 9.5 | 9.5 | 22 | 71.4 | 51.8 | 22.5 | 26.4 | 22.4 |

Also available with NPT (ANSI) threads.

Size in metric equivalents  
(mm) of fractional inches

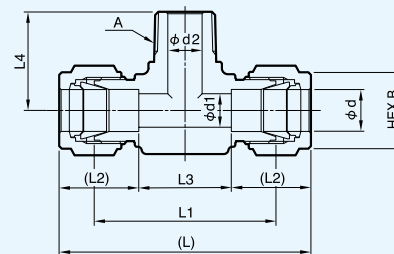
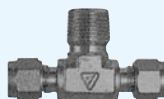
| Part numbers  | Nominal dia. d | A     | d1   | d2   | B  | L    | L1   | L2   | L3   | L4   |
|---------------|----------------|-------|------|------|----|------|------|------|------|------|
| PDWTG-3.2A-R  | 3.2            | Rc1/8 | 2.3  | 7.1  | 12 | 49.4 | 36.1 | 13   | 23.4 | 19.1 |
| PDWTG-3.2B-R  | 3.2            | Rc1/4 | 2.3  | 7.1  | 12 | 54.9 | 41.6 | 13   | 28.9 | 22.4 |
| PDWTG-6.35A-R | 6.35           | Rc1/8 | 4.8  | 7.1  | 14 | 53.8 | 39.1 | 15.4 | 23   | 19.1 |
| PDWTG-6.35B-R | 6.35           | Rc1/4 | 4.8  | 7.1  | 14 | 59.4 | 44.7 | 15.4 | 28.6 | 22.4 |
| PDWTG-6.35C-R | 6.35           | Rc3/8 | 4.8  | 7.1  | 14 | 63.5 | 48.8 | 15.4 | 32.7 | 22.4 |
| PDWTG-9.52A-R | 9.52           | Rc1/8 | 7.1  | 7.1  | 17 | 61.4 | 46.2 | 17.2 | 27   | 19.1 |
| PDWTG-9.52B-R | 9.52           | Rc1/4 | 7.1  | 7.1  | 17 | 63   | 47.8 | 17.2 | 28.6 | 22.4 |
| PDWTG-9.52C-R | 9.52           | Rc3/8 | 7.1  | 7.1  | 17 | 67   | 51.8 | 17.2 | 32.6 | 22.4 |
| PDWTG-12.7A-R | 12.7           | Rc1/8 | 10.4 | 7.1  | 22 | 72.3 | 51.8 | 23   | 26.3 | 22.4 |
| PDWTG-12.7B-R | 12.7           | Rc1/4 | 10.4 | 9.5  | 22 | 72.3 | 51.8 | 23   | 26.3 | 22.4 |
| PDWTG-12.7C-R | 12.7           | Rc3/8 | 10.4 | 10.4 | 22 | 72.3 | 51.8 | 23   | 26.3 | 22.4 |

Also available with NPT (ANSI) threads.

Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

## MALE BRANCH TEES

### R Thread



Size in mm

| Part numbers | Nominal dia. d | A    | d1  | d2  | B  | L    | L1   | L2   | L3   | L4   |
|--------------|----------------|------|-----|-----|----|------|------|------|------|------|
| PDWTS-3A-R   | 3              | R1/8 | 2.4 | 4.8 | 10 | 46.8 | 34   | 12.7 | 21.4 | 17.8 |
| PDWTS-3B-R   | 3              | R1/4 | 2.4 | 4.8 | 10 | 48.9 | 36.1 | 12.7 | 23.5 | 23.4 |
| PDWTS-4A-R   | 4              | R1/8 | 2.4 | 4.8 | 12 | 48.6 | 35.6 | 13.6 | 21.4 | 17.8 |
| PDWTS-4B-R   | 4              | R1/4 | 2.4 | 4.8 | 12 | 48.6 | 35.6 | 13.6 | 21.4 | 23.4 |
| PDWTS-6A-R   | 6              | R1/8 | 4.8 | 4.8 | 14 | 53.5 | 39.1 | 15.2 | 23.1 | 18.8 |
| PDWTS-6B-R   | 6              | R1/4 | 4.8 | 4.8 | 14 | 53.5 | 39.1 | 15.2 | 23.1 | 23.4 |
| PDWTS-6C-R   | 6              | R3/8 | 4.8 | 4.8 | 14 | 59.2 | 44.8 | 15.2 | 28.8 | 26.2 |
| PDWTS-6D-R   | 6              | R1/2 | 4.8 | 4.8 | 14 | 63.2 | 48.8 | 15.2 | 32.8 | 33   |
| PDWTS-8A-R   | 8              | R1/8 | 6.4 | 4.8 | 16 | 59.6 | 44.7 | 16.2 | 27.2 | 20.8 |
| PDWTS-8B-R   | 8              | R1/4 | 6.4 | 6.4 | 16 | 59.6 | 44.7 | 16.2 | 27.2 | 25.4 |
| PDWTS-8C-R   | 8              | R3/8 | 6.4 | 6.4 | 16 | 61.1 | 46.2 | 16.2 | 28.7 | 26.2 |
| PDWTS-8D-R   | 8              | R1/2 | 6.4 | 6.4 | 16 | 65.1 | 50.2 | 16.2 | 32.7 | 33   |
| PDWTS-10A-R  | 10             | R1/8 | 7.9 | 4.8 | 19 | 66.6 | 51.8 | 17   | 32.6 | 23.6 |
| PDWTS-10B-R  | 10             | R1/4 | 7.9 | 7.1 | 19 | 66.6 | 51.8 | 17   | 32.6 | 28.2 |
| PDWTS-10C-R  | 10             | R3/8 | 7.9 | 7.9 | 19 | 66.6 | 51.8 | 17   | 32.6 | 28.2 |
| PDWTS-10D-R  | 10             | R1/2 | 7.9 | 7.9 | 19 | 66.6 | 51.8 | 17   | 32.6 | 33   |
| PDWTS-12A-R  | 12             | R1/8 | 9.5 | 4.8 | 22 | 71.4 | 51.8 | 22.5 | 26.4 | 23.6 |
| PDWTS-12B-R  | 12             | R1/4 | 9.5 | 7.1 | 22 | 71.4 | 51.8 | 22.5 | 26.4 | 28.2 |
| PDWTS-12C-R  | 12             | R3/8 | 9.5 | 9.5 | 22 | 71.4 | 51.8 | 22.5 | 26.4 | 28.2 |
| PDWTS-12D-R  | 12             | R1/2 | 9.5 | 9.5 | 22 | 71.4 | 51.8 | 22.5 | 26.4 | 33   |

Also available with NPT (ANSI) threads.

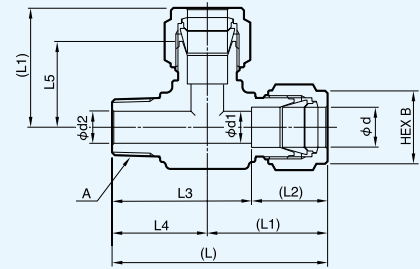
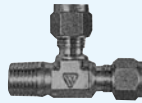
Size in metric equivalents  
(mm) of fractional inches

| Part numbers  | Nominal dia. d | A    | d1   | d2   | B  | L    | L1   | L2   | L3   | L4   |
|---------------|----------------|------|------|------|----|------|------|------|------|------|
| PDWTS-3.2A-R  | 3.2            | R1/8 | 2.3  | 4.8  | 12 | 47.3 | 34   | 13   | 21.3 | 17.8 |
| PDWTS-3.2B-R  | 3.2            | R1/4 | 2.3  | 4.8  | 12 | 49.4 | 36.1 | 13   | 23.4 | 23.4 |
| PDWTS-6.35A-R | 6.35           | R1/8 | 4.8  | 4.8  | 14 | 53.8 | 39.1 | 15.4 | 23   | 18.8 |
| PDWTS-6.35B-R | 6.35           | R1/4 | 4.8  | 4.8  | 14 | 53.8 | 39.1 | 15.4 | 23   | 23.4 |
| PDWTS-6.35C-R | 6.35           | R3/8 | 4.8  | 4.8  | 14 | 59.5 | 44.8 | 15.4 | 28.7 | 26.2 |
| PDWTS-6.35D-R | 6.35           | R1/2 | 4.8  | 4.8  | 14 | 63.5 | 48.8 | 15.4 | 32.7 | 33   |
| PDWTS-9.52A-R | 9.52           | R1/8 | 7.1  | 4.8  | 17 | 61.4 | 46.2 | 17.2 | 27   | 20.8 |
| PDWTS-9.52B-R | 9.52           | R1/4 | 7.1  | 7.1  | 17 | 61.4 | 46.2 | 17.2 | 27   | 25.4 |
| PDWTS-9.52C-R | 9.52           | R3/8 | 7.1  | 7.1  | 17 | 67   | 51.8 | 17.2 | 32.6 | 28.2 |
| PDWTS-9.52D-R | 9.52           | R1/2 | 7.1  | 7.1  | 17 | 67   | 51.8 | 17.2 | 32.6 | 33   |
| PDWTS-12.7A-R | 12.7           | R1/8 | 10.4 | 4.8  | 22 | 72.3 | 51.8 | 23   | 26.3 | 23.6 |
| PDWTS-12.7B-R | 12.7           | R1/4 | 10.4 | 7.1  | 22 | 72.3 | 51.8 | 23   | 26.3 | 28.2 |
| PDWTS-12.7C-R | 12.7           | R3/8 | 10.4 | 9.7  | 22 | 72.3 | 51.8 | 23   | 26.3 | 28.2 |
| PDWTS-12.7D-R | 12.7           | R1/2 | 10.4 | 10.4 | 22 | 72.3 | 51.8 | 23   | 26.3 | 33   |

Also available with NPT (ANSI) threads.

## MALE RUN TEES

### R Thread



Size in mm

| Part numbers | Nominal dia. d | A    | d1  | d2  | B  | L    | L1   | L2   | L3   | L4   | L5   |
|--------------|----------------|------|-----|-----|----|------|------|------|------|------|------|
| PDWTL-3A-R   | 3              | R1/8 | 2.4 | 4.8 | 10 | 41.2 | 23.4 | 12.7 | 28.5 | 17.8 | 17   |
| PDWTL-3B-R   | 3              | R1/4 | 2.4 | 4.8 | 10 | 47.8 | 24.4 | 12.7 | 35.1 | 23.4 | 18   |
| PDWTL-4A-R   | 4              | R1/8 | 2.4 | 4.8 | 12 | 42.1 | 24.3 | 13.6 | 28.5 | 17.8 | 17.8 |
| PDWTL-4B-R   | 4              | R1/4 | 2.4 | 4.8 | 12 | 47.7 | 24.3 | 13.6 | 34.1 | 23.4 | 17.8 |
| PDWTL-6A-R   | 6              | R1/8 | 4.8 | 4.8 | 14 | 45.6 | 26.8 | 15.2 | 30.4 | 18.8 | 19.6 |
| PDWTL-6B-R   | 6              | R1/4 | 4.8 | 4.8 | 14 | 50.2 | 26.8 | 15.2 | 35   | 23.4 | 19.6 |
| PDWTL-6C-R   | 6              | R3/8 | 4.8 | 4.8 | 14 | 55.8 | 29.6 | 15.2 | 40.6 | 26.2 | 22.4 |
| PDWTL-6D-R   | 6              | R1/2 | 4.8 | 4.8 | 14 | 64.6 | 31.6 | 15.2 | 49.4 | 33   | 24.4 |
| PDWTL-8A-R   | 8              | R1/8 | 6.4 | 4.8 | 16 | 50.7 | 29.9 | 16.2 | 34.5 | 20.8 | 22.4 |
| PDWTL-8B-R   | 8              | R1/4 | 6.4 | 6.4 | 16 | 55.3 | 29.9 | 16.2 | 39.1 | 25.4 | 22.4 |
| PDWTL-8C-R   | 8              | R3/8 | 6.4 | 6.4 | 16 | 56.8 | 30.6 | 16.2 | 40.6 | 26.2 | 23.1 |
| PDWTL-8D-R   | 8              | R1/2 | 6.4 | 6.4 | 16 | 65.6 | 32.6 | 16.2 | 49.4 | 33   | 25.1 |
| PDWTL-10A-R  | 10             | R1/8 | 7.9 | 4.8 | 19 | 56.9 | 33.3 | 17   | 39.9 | 23.6 | 25.9 |
| PDWTL-10B-R  | 10             | R1/4 | 7.9 | 7.1 | 19 | 61.5 | 33.3 | 17   | 44.5 | 28.2 | 25.9 |
| PDWTL-10C-R  | 10             | R3/8 | 7.9 | 7.9 | 19 | 61.5 | 33.3 | 17   | 44.5 | 28.2 | 25.9 |
| PDWTL-10D-R  | 10             | R1/2 | 7.9 | 7.9 | 19 | 66.3 | 33.3 | 17   | 49.3 | 33   | 25.9 |
| PDWTL-12A-R  | 12             | R1/8 | 9.5 | 4.8 | 22 | 59.3 | 35.7 | 22.5 | 36.8 | 23.6 | 25.9 |
| PDWTL-12B-R  | 12             | R1/4 | 9.5 | 7.1 | 22 | 63.9 | 35.7 | 22.5 | 41.4 | 28.2 | 25.9 |
| PDWTL-12C-R  | 12             | R3/8 | 9.5 | 9.5 | 22 | 63.9 | 35.7 | 22.5 | 41.4 | 28.2 | 25.9 |
| PDWTL-12D-R  | 12             | R1/2 | 9.5 | 9.5 | 22 | 68.7 | 35.7 | 22.5 | 46.2 | 33   | 25.9 |

Also available with NPT (ANSI) threads.

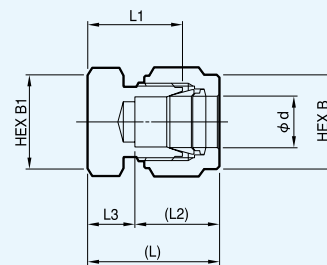
Size in metric equivalents  
(mm) of fractional inches

| Part numbers  | Nominal dia. d | A    | d1   | d2   | B  | L    | L1   | L2   | L3   | L4   | L5   |
|---------------|----------------|------|------|------|----|------|------|------|------|------|------|
| PDWTL-3.2A-R  | 3.2            | R1/8 | 2.3  | 4.8  | 12 | 41.5 | 23.7 | 13   | 28.5 | 17.8 | 17   |
| PDWTL-3.2B-R  | 3.2            | R1/4 | 2.3  | 4.8  | 12 | 48.1 | 24.7 | 13   | 35.1 | 23.4 | 18   |
| PDWTL-6.35A-R | 6.35           | R1/8 | 4.8  | 4.8  | 14 | 45.8 | 27   | 15.4 | 30.4 | 18.8 | 19.6 |
| PDWTL-6.35B-R | 6.35           | R1/4 | 4.8  | 4.8  | 14 | 50.4 | 27   | 15.4 | 35   | 23.4 | 19.6 |
| PDWTL-6.35C-R | 6.35           | R3/8 | 4.8  | 4.8  | 14 | 56   | 29.8 | 15.4 | 40.6 | 26.2 | 22.4 |
| PDWTL-6.35D-R | 6.35           | R1/2 | 4.8  | 4.8  | 14 | 64.8 | 31.8 | 15.4 | 49.4 | 33   | 24.4 |
| PDWTL-9.52A-R | 9.52           | R1/8 | 7.1  | 4.8  | 17 | 51.5 | 30.7 | 17.2 | 34.3 | 20.8 | 23.1 |
| PDWTL-9.52B-R | 9.52           | R1/4 | 7.1  | 7.1  | 17 | 56.1 | 30.7 | 17.2 | 38.9 | 25.4 | 23.1 |
| PDWTL-9.52C-R | 9.52           | R3/8 | 7.1  | 7.1  | 17 | 61.7 | 33.5 | 17.2 | 44.5 | 28.2 | 25.9 |
| PDWTL-9.52D-R | 9.52           | R1/2 | 7.1  | 7.1  | 17 | 66.5 | 33.5 | 17.2 | 49.3 | 33   | 25.9 |
| PDWTL-12.7A-R | 12.7           | R1/8 | 10.4 | 4.8  | 22 | 59.8 | 36.2 | 23   | 36.8 | 23.6 | 25.9 |
| PDWTL-12.7B-R | 12.7           | R1/4 | 10.4 | 7.1  | 22 | 64.4 | 36.2 | 23   | 41.4 | 28.2 | 25.9 |
| PDWTL-12.7C-R | 12.7           | R3/8 | 10.4 | 9.7  | 22 | 64.6 | 36.4 | 23   | 41.6 | 28.2 | 25.9 |
| PDWTL-12.7D-R | 12.7           | R1/2 | 10.4 | 10.4 | 22 | 69.4 | 36.4 | 23   | 46.4 | 33   | 25.9 |

Also available with NPT (ANSI) threads.

Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

## CAP UNIONS



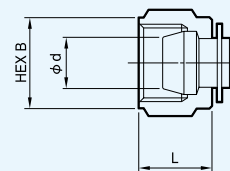
Size in mm

| Part numbers | Nominal dia. d | B  | B1 | L    | L1   | L2   | L3  |
|--------------|----------------|----|----|------|------|------|-----|
| PDWJC-3-R    | 3              | 10 | 12 | 19.9 | 13.5 | 12.7 | 7.2 |
| PDWJC-4-R    | 4              | 12 | 12 | 21.2 | 14.7 | 13.6 | 7.6 |
| PDWJC-6-R    | 6              | 14 | 14 | 22.9 | 15.7 | 15.2 | 7.7 |
| PDWJC-8-R    | 8              | 16 | 16 | 24.5 | 17   | 16.2 | 8.3 |
| PDWJC-10-R   | 10             | 19 | 19 | 26.4 | 19   | 17   | 9.4 |
| PDWJC-12-R   | 12             | 22 | 22 | 28.8 | 19   | 22.5 | 6.3 |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | B  | B1 | L    | L1   | L2   | L3  |
|--------------|----------------|----|----|------|------|------|-----|
| PDWJC-3.2-R  | 3.2            | 12 | 12 | 20.2 | 13.5 | 13   | 7.2 |
| PDWJC-6.35-R | 6.35           | 14 | 14 | 23.4 | 16   | 15.4 | 8   |
| PDWJC-9.52-R | 9.52           | 17 | 17 | 25.9 | 18.3 | 17.2 | 8.7 |
| PDWJC-12.7-R | 12.7           | 22 | 22 | 29.4 | 19.1 | 23   | 6.4 |

## PLUG UNIONS



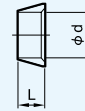
Size in mm

| Part numbers | Nominal dia. d | B  | L    |
|--------------|----------------|----|------|
| PDWJP-3-R    | 3              | 10 | 11.8 |
| PDWJP-4-R    | 4              | 12 | 11.9 |
| PDWJP-6-R    | 6              | 14 | 12.6 |
| PDWJP-8-R    | 8              | 16 | 13.4 |
| PDWJP-10-R   | 10             | 19 | 15   |
| PDWJP-12-R   | 12             | 22 | 17.4 |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | B  | L    |
|--------------|----------------|----|------|
| PDWJP-3.2-R  | 3.2            | 12 | 11.8 |
| PDWJP-6.35-R | 6.35           | 14 | 12.6 |
| PDWJP-9.52-R | 9.52           | 17 | 14.2 |
| PDWJP-12.7-R | 12.7           | 22 | 17.4 |

## FRONT Rings



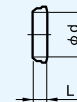
Size in mm

| Part numbers | Nominal dia. d | L   |
|--------------|----------------|-----|
| PDW-3S-R     | 3              | 4.9 |
| PDW-4S-R     | 4              | 4.9 |
| PDW-6S-R     | 6              | 4.9 |
| PDW-8S-R     | 8              | 4.9 |
| PDW-10S-R    | 10             | 4.9 |
| PDW-12S-R    | 12             | 7.3 |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | L   |
|--------------|----------------|-----|
| PDW-3.2S-R   | 3.2            | 4.9 |
| PDW-6.35S-R  | 6.35           | 4.9 |
| PDW-9.52S-R  | 9.52           | 4.9 |
| PDW-12.7S-R  | 12.7           | 7.3 |

## BACK Rings



Size in mm

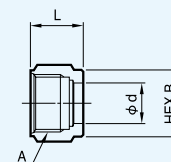
| Part numbers | Nominal dia. d | L   |
|--------------|----------------|-----|
| PDW-3R-R     | 3              | 2.6 |
| PDW-4R-R     | 4              | 2.6 |
| PDW-6R-R     | 6              | 2.6 |
| PDW-8R-R     | 8              | 2.6 |
| PDW-10R-R    | 10             | 2.6 |
| PDW-12R-R    | 12             | 3.8 |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | L   |
|--------------|----------------|-----|
| PDW-3.2R-R   | 3.2            | 2.6 |
| PDW-6.35R-R  | 6.35           | 2.6 |
| PDW-9.52R-R  | 9.52           | 2.6 |
| PDW-12.7R-R  | 12.7           | 3.8 |

Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

## NUTS



Size in mm

| Part numbers | Nominal dia. d | A          | B  | L    |
|--------------|----------------|------------|----|------|
| PDW-3N-R     | 3              | 5/16-20UN  | 10 | 11.8 |
| PDW-4N-R     | 4              | 3/8-20UN   | 12 | 11.9 |
| PDW-6N-R     | 6              | 7/16-20UNF | 14 | 12.6 |
| PDW-8N-R     | 8              | 1/2-20UNF  | 16 | 13.4 |
| PDW-10N-R    | 10             | 5/8-20UN   | 19 | 15   |
| PDW-12N-R    | 12             | 3/4-20UNEF | 22 | 17.4 |

Size in metric equivalents  
(mm) of fractional inches

| Part numbers | Nominal dia. d | A          | B  | L    |
|--------------|----------------|------------|----|------|
| PDW-3.2N-R   | 3.2            | 5/16-20UN  | 12 | 11.8 |
| PDW-6.35N-R  | 6.35           | 7/16-20UNF | 14 | 12.6 |
| PDW-9.52N-R  | 9.52           | 9/16-20UN  | 17 | 14.2 |
| PDW-12.7N-R  | 12.7           | 3/4-20UNEF | 22 | 17.4 |



## ● Before Installation

- The tubes used must:
  - Be made of soft (O, annealed) or hard (1/2H) copper.
  - Have a tolerance within  $\pm 0.1$  mm of the tube OD.
  - Be free of visible scratches 30 mm from either end of the tube.
  - Refer a wall thickness listed in the table below.
- Before assembling the fittings, cut the tubes to the required length. Cutting tubes after fitting assembly will cause bending stress at the fitting seals and may result in leakage.

### In case of using "O (annealed)" copper tube

| Nominal Dia.<br>mm | Nominal Wall Thicknesses<br>of tubes (mm) |
|--------------------|-------------------------------------------|
| 3                  | 0.5                                       |
| 4                  | 0.8                                       |
| 6                  | 1 ~ 1.5                                   |
| 8, 10              | 1 ~ 1.5                                   |
| 12                 | 1.2 ~ 1.5                                 |
| —                  | 1.5 ~ 2                                   |

### In case of using "1/2 H" copper tube

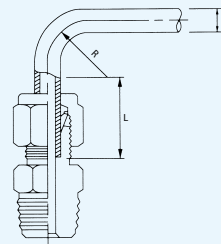
| Nominal Dia.<br>mm | Nominal Wall Thicknesses<br>of tubes (mm) |
|--------------------|-------------------------------------------|
| 6                  | 0.8                                       |
| 8, 10              | 0.8                                       |
| 12                 | 1.2                                       |

- Use a tube cutter to cut the tubes to the required length. If it is necessary to use a different method, be sure to cut the tubes at a right angle, and then remove burrs carefully from the outer circumference by filing at a 45° angle to the centerline. Use a scraper or a round file to remove burrs inside the tubes. Ensure that no burrs remain.
- When installing fittings near tube bends, there must be a sufficient straight length of tubing to allow for proper installation (see the table to the left; units in millimeters).

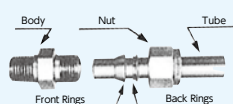
| D (mm)   | L (mm) |      | R (mm) |
|----------|--------|------|--------|
|          | L1     | L2   |        |
| 6, 6.35  | 21     | 17   | 14.3   |
| 8        | 22     | 18   | 17.5   |
| 10, 9.52 | 24     | 19.5 | 23.8   |
| 12, 12.7 | 31     | 26   | 38.1   |

L1: Recommended straight tube length.

L2: Minimum straight tube length.

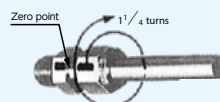


## ● Assembly



Ensure that the parts are installed in the order shown in the picture (left). Assembling them in the wrong order may result in leakage.

Insert the tube completely until it makes contact with the body. Hand-tighten the nut until it cannot be tightened further. After manually tightening the nut, mark both the body and the nut. This point is the zero point.



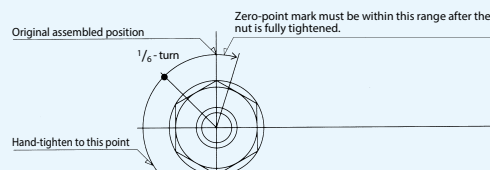
With a wrench, tighten the nut 1 1/4 turns from the zero point. Assembly is then complete.

Exceptions:

- Fittings with nominal diameters of 4 mm, 3.2 mm (1/8" OD) or smaller: Tighten the nut a 3/4 turn.
- Plug unions (product number: PDWJP): Tighten the nut a 1/4 turn, regardless of size.

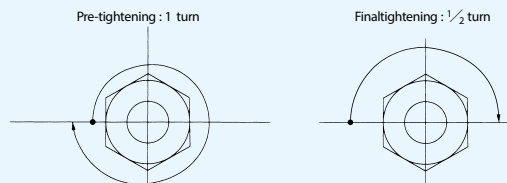
## ● Reassembly

- Hand-tighten the nut until it cannot be tightened further. Then use a wrench to tighten it another 1/8 turn.
- Note: After reassembly, the body and the nut should return to their original position, or be tightened slightly further.



## ● Preswaging

- In situations where it may be difficult to tighten the ferrules (e.g., in installation locations where a wrench cannot be used), the fittings may not be assembled correctly. In such situations, attach the front ferrule, back ferrule, and nut to the tube beforehand.
- Hand-tighten the nut until it cannot be tightened further (zero point). With a wrench, further tighten the nut 1 turn. Next, loosen the nut until it can be manually turned. At the fitting's actual installation location, use a wrench to tighten the nut another 1/2 turn from the zero point. Assembly is then complete.

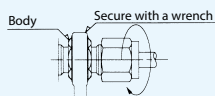


## ● Preparations: Before Operation

- For tightening, use the appropriate wrench.
- Before tightening the fitting, ensure that its body has been secured using a wrench. Never hold the nut in place while attempting to tighten the body.

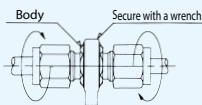
### a. Assembling Male Connectors

Use a wrench to secure the body.



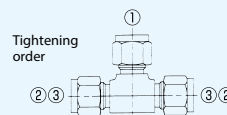
### b. Assembling Straight Unions

Secure the body and tighten either the left nut or the right nut. Then tighten the other nut. Do not attempt to tighten one nut while holding onto the other.



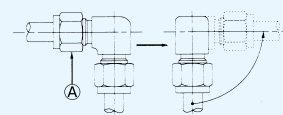
### c. Assembling Tee Unions

Secure the body. Always start tightening from Position 1. Preswaging the nut and ferrules at Position 1 facilitates installation.



### d. Changing the Orientation of an Assembled Elbow Union

Loosen the fitting at Location A before attempting to change its orientation. Failure to do so will strip the threads and result in leakage that cannot be stopped by retightening the fitting.



- Support longer tubes to control vibration and prevent movement. If there is minor vibration, the line should be supported at every 2 m interval. If there is significant vibration, the line should be supported at every 1 m interval.

## ● Troubleshooting

Fujikin POWERFUL FULOK fittings are manufactured to the most rigorous quality control standards. Leakage should not occur if the fittings are installed and used properly. However, should leakage occur, take the following measures.

- Leakage may occur if there is difficult installation or slant tubing. In this case, please relieve the pressure without untightening the nut, and take additional tightening by 1/8 turn. If there is still leakage, take the procedure "Reassembly" in the above, after untightening the nut.

- If leakage persists after the nut has been tightened, it may be caused by the following:

- Fitting damage caused by forcible overtightening.
- Fitting eroded or corroded by the fluid media.
- Corrosion caused by a reaction between leak detection fluid and the fluid media.
- Incorrect fitting assembly.
- Fitting and tube size mismatch.

Review the conditions of use, and consult with **Fujikin** if you have any questions.

# Valves

**Ball Valves**

**3-Pieces Ball Valves**

**Trunnion Ball Valves**

**Plug Valves**

**Union-Bonnet Needle Valves**

**Integral-Bonnet Needle Stop Valves**

**Brass Needle Stop Valves**

**Instrument Manifolds / Gauge Valves**

**Bellows Valves**

**Toggle Valves**

**Relief Valves**

**Check Valves**



## Features

### VUBV-920 Series

1. Simple design with one piece body
2. Tight and smooth, low torque and easy operation
3. One-piece ball stem
4. Panel mountable
5. End Connections **V-Lok**, Female pipe (NPT)

### VUBVS, VUBVST-920 Series

1. Reduction the parts which may leak by one-piece seat
2. Self-compensation of the wear of a seat by the spring structure of a gland
3. Simple design with one piece body
4. Tight and smooth, low torque and easy operation
5. One-piece ball stem
6. Panel mountable
7. End Connections **V-Lok**, Rc, Female pipe (NPT)

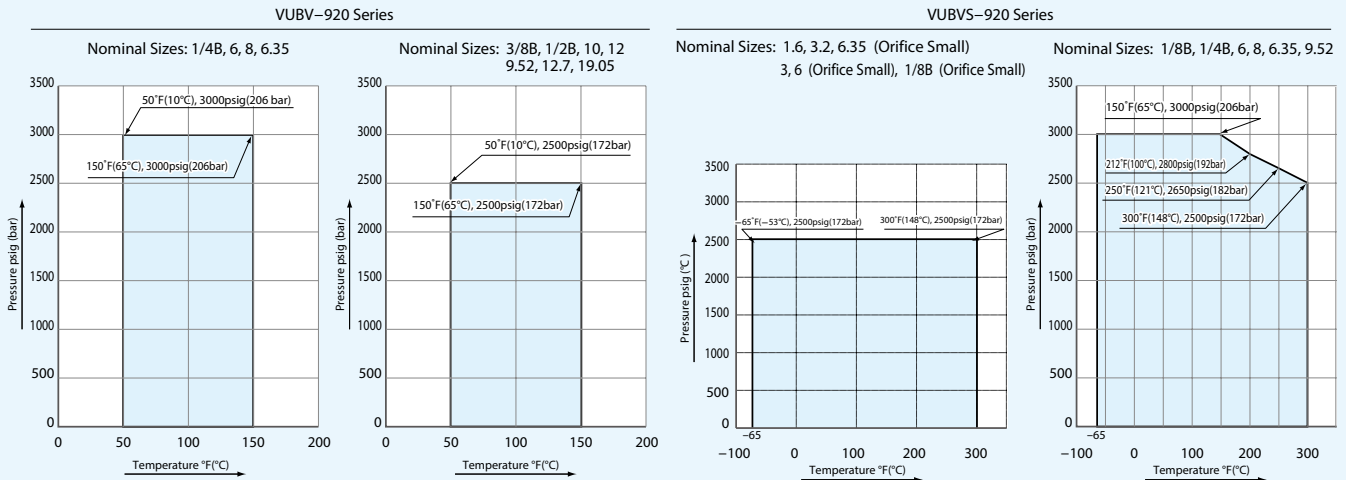
## Technical Data

### Working Pressure, Temperature Rating

| Types             | Nominal Sizes                                                                  | Working Pressure<br>psig (bar) | Temperature<br>°F (°C)  |
|-------------------|--------------------------------------------------------------------------------|--------------------------------|-------------------------|
| VUBV-920 Series   | 1/4B, 6, 8, 6.35                                                               | 3000 (206)                     | 50 (10) – 150 (65)      |
|                   | 3/8B, 1/2B, 10, 12, 9.52, 12.7 19.05                                           | 2500 (172)                     |                         |
| VUBVS-920 Series  | 1/8B, 1/4B, 6, 8, 6.35, 9.52                                                   | 3000 (206)                     | -65 (-53) – +300 (+148) |
|                   | 1.6, 3.2, 6.35 (Orifice Small)<br>3, 6 (Orifice Small)<br>1/8B (Orifice Small) | 2500 (172)                     |                         |
| VUBVST-920 Series | 1.6, 3.2, 6.35 (Orifice Small)<br>3.6 (Orifice Small)                          | 2500 (172)                     | -65 (-53) – +300 (+148) |

※ : Working Pressure: Please refer to following Temperature and Pressure Rating.

### Temperature and Pressure Rating



Note: If the end connection is **V-Lok** type, the working pressure may be low depending on the tube used.  
For details, please refer to 1-1, 1-2 in the table of P12.

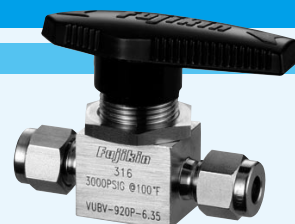
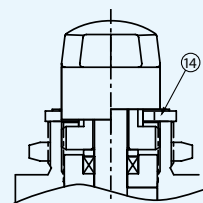
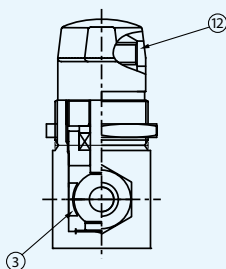
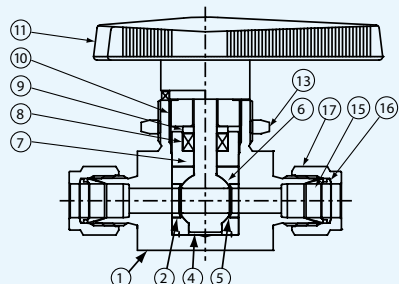
### Applicable Fluid

Water, Air, Nitrogen gas, Inert gas like Helium, and non-corrosive gas and liquid.

Note : Materials and dimensions are subject to change without notice.

## Materials of Construction

### VUBV-920 Series

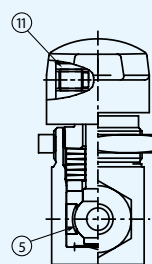
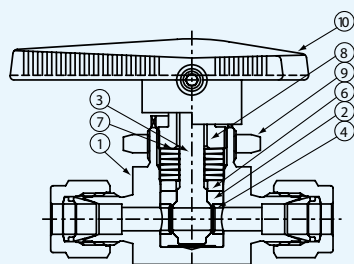


| No. | Description         | Materials                      |
|-----|---------------------|--------------------------------|
| 1   | BODY                | ※ ASTM A479 316                |
| 2   | RETAINER1           | ※ SUS316L                      |
| 3   | RETAINER2           | ※ SUS316L                      |
| 4   | STEM                | ※ ASTM A276 316                |
| 5   | SEAT1               | ※ PTFE                         |
| 6   | SEAT2               | ※ PTFE                         |
| 7   | PACKING BOX         | ※ ASTM A276 316                |
| 8   | GLAND PACKING       | ※ PTFE                         |
| 9   | PACKING GLAND BUSH  | ASTM A276 316                  |
| 10  | PACKING GLAND SCREW | ASTM A276 316                  |
| 11  | HANDLE              | NYLON6 + ADC6                  |
| 12  | SET SCREW           | S17400 or SUS630               |
| 13  | PANEL NUT           | ASTM A276 304 or ASTM A276 316 |
| 14  | SPACER              | ※ ※ ASTM A276 304              |

※ : Wetted Parts

※※ : End Connections: V-Lok Tube Fitting types, 12.7, 19.05, 12, 1/2in. Female pipe (NPT), Rc1/2

### VUBVS-920 Series



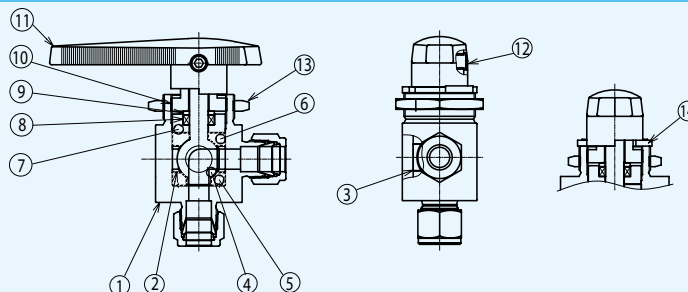
| No. | Description         | Materials                               |
|-----|---------------------|-----------------------------------------|
| 1   | BODY                | ※ ASTM A479 316                         |
| 2   | SEAT                | ※ PTFE                                  |
| 3   | STEM                | ※ ASTM A276 316                         |
| 4   | RETAINER1           | ※ SUS316L                               |
| 5   | RETAINER2           | ※ SUS316L                               |
| 6   | GLAND               | ASTM A276 316                           |
| 7   | DISH SPRING         | S17700 or SUS631                        |
| 8   | PACKING GLAND SCREW | ASTM A276 316                           |
| 9   | PANEL NUT           | ASTM A276 304 or 316                    |
| 10  | HANDLE              | NYLON6 + SUS316L                        |
| 11  | SET SCREW           | S17400 or SUS630/SUS304 (ORIFICE SMALL) |

※ : Wetted Parts

## Materials of Construction

### VUBV-020 Series ※

※ : Getting ready. Begin to sell it soon.



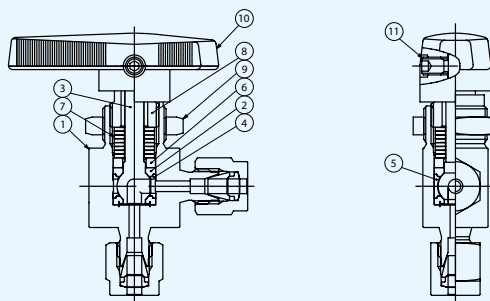
| No. | Description         | Materials            |
|-----|---------------------|----------------------|
| 1   | BODY ※              | ASTM A479 316        |
| 2   | RETAINER1 ※         | SUS316L              |
| 3   | RETAINER2 ※         | SUS316L              |
| 4   | STEM ※              | ASTM A276 316        |
| 5   | SEAT1 ※             | PTFE                 |
| 6   | SEAT2 ※             | PTFE                 |
| 7   | PACKING BOX ※       | ASTM A276 316        |
| 8   | GLAND PACKING ※     | PTFE                 |
| 9   | PACKING GLAND BUSH  | ASTM A276 316        |
| 10  | PACKING GLAND SCREW | ASTM A276 316        |
| 11  | HANDLE              | NYLON6 + ADC6        |
| 12  | SET SCREW           | S17400 or SUS630     |
| 13  | PANEL NUT           | ASTM A276 304 or 316 |
| 14  | SPACER ※※           | ASTM A276 304        |

※ : Wetted Parts

※※ : End Connections: V-Lok Tube Fitting types, 12.7, 19.05, 12, 1/2in. Female pipe (NPT), Rc1/2

### VUBVS-020 Series ※

※ : Getting ready. Begin to sell it soon.



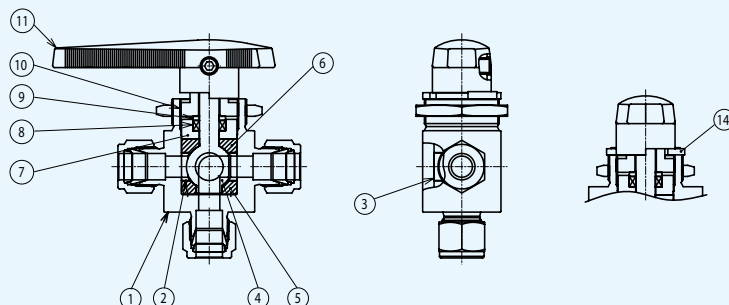
| No. | Description         | Materials                               |
|-----|---------------------|-----------------------------------------|
| 1   | BODY ※              | ASTM A479 316                           |
| 2   | SEAT ※              | PTFE                                    |
| 3   | STEM ※              | ASTM A276 316                           |
| 4   | RETAINER1 ※         | SUS316L                                 |
| 5   | RETAINER2 ※         | SUS316L                                 |
| 6   | GLAND               | ASTM A276 316                           |
| 7   | DISH SPRING         | S17700 or SUS631                        |
| 8   | PACKING GLAND SCREW | ASTM A276 316                           |
| 9   | PANEL NUT           | ASTM A276 304 or 316                    |
| 10  | HANDLE              | NYLON6 + SUS316                         |
| 11  | SET SCREW           | S17400 or SUS630/SUS304 (ORIFICE SMALL) |

※ : Wetted Parts

## Materials of Construction

## VUBVT-920 Series ※

※ : Getting ready. Begin to sell it soon.



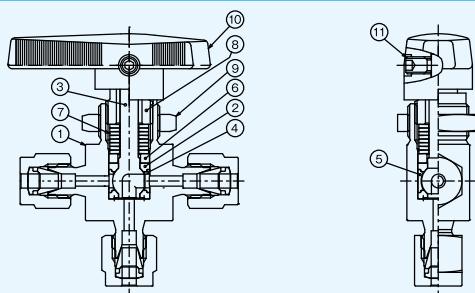
| No. | Description         | Materials            |
|-----|---------------------|----------------------|
| 1   | BODY ※              | ASTM A479 316        |
| 2   | RETAINER1 ※         | SUS316L              |
| 3   | RETAINER2 ※         | SUS316L              |
| 4   | STEM ※              | ASTM A276 316        |
| 5   | SEAT1 ※             | PTFE                 |
| 6   | SEAT2 ※             | PTFE                 |
| 7   | PACKING BOX ※       | ASTM A276 316        |
| 8   | GLAND PACKING ※     | PTFE                 |
| 9   | PACKING GLAND BUSH  | ASTM A276 316        |
| 10  | PACKING GLAND SCREW | ASTM A276 316        |
| 11  | HANDLE              | NYLON6 + ADC6        |
| 12  | SET SCREW           | S17400 or SUS630     |
| 13  | PANEL NUT           | ASTM A276 304 or 316 |
| 14  | SPACER ※※           | ASTM A276 304        |

※ : Wetted Parts

※※ : End Connections: V-Lok Tube Fitting types, 12.7, 19.05, 12, 1/2in. Female pipe (NPT), Rc1/2

## VUBVST-920 Series ※

※ : Getting ready. Begin to sell it soon.



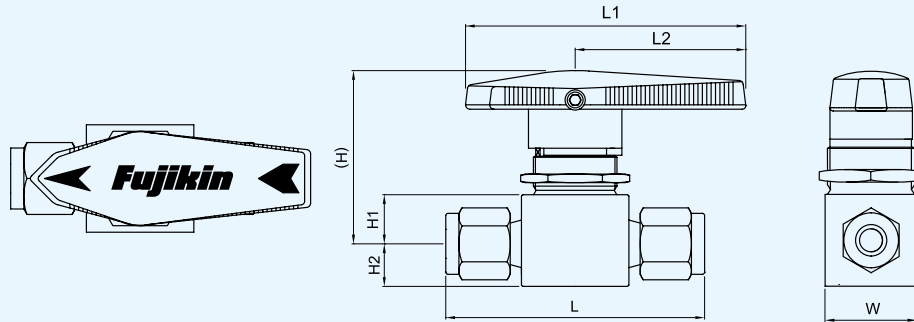
| No. | Description         | Materials                               |
|-----|---------------------|-----------------------------------------|
| 1   | BODY ※              | ASTM A479 316                           |
| 2   | SEAT ※              | PTFE                                    |
| 3   | STEM ※              | ASTM A276 316                           |
| 4   | RETAINER1 ※         | SUS316L                                 |
| 5   | RETAINER2 ※         | SUS316L                                 |
| 6   | GLAND               | ASTM A276 316                           |
| 7   | DISH SPRING         | S17700 or SUS631                        |
| 8   | PACKING GLAND SCREW | ASTM A276 316                           |
| 9   | PANEL NUT           | ASTM A276 304 or 316                    |
| 10  | HANDLE              | NYLON6 + SUS316                         |
| 11  | SET SCREW           | S17400 or SUS630/SUS304 (ORIFICE SMALL) |

※ : Wetted Parts

## Dimensions

### Manual Valves

#### VUBV / VUBVS-920 Series



| Connections | Nominal Dia. inch (mm) | Working Pressure psig (bar) | Orifice inch (mm) | Dimensions inch (mm) |              |             |             |             |            |             | Ordering Numbers |                       |
|-------------|------------------------|-----------------------------|-------------------|----------------------|--------------|-------------|-------------|-------------|------------|-------------|------------------|-----------------------|
|             |                        |                             |                   | L                    | L1           | L2          | H           | H1          | H2         | W           | VUBV-920 Series  | VUBVS-920 Series      |
| V-Lok       | 1/16 (1.6)             | 2500 (172)                  | 0.051 (1.3)       | 1.68 (42.7)          |              |             |             |             |            |             | -                | VUBVS-920P-1.6-B ※    |
|             | 1/8 (3.2)              |                             | 0.094 (2.4)       | 2.01 (51.1)          | 1.87 (47.4)  | 1.12 (28.4) | 1.36 (34.5) | 0.34 (8.6)  | 0.28 (7.1) | 0.58 (14.7) | -                | VUBVS-920P-3.2-B ※    |
|             | 1/4 (6.35)             |                             | 0.13 (3.2)        | 2.21 (56.1)          |              |             |             |             |            |             | -                | VUBVS-920P-6.35-S-B ※ |
|             | 1/4 (6.35)             | 3000 (206)                  | 0.19 (4.8)        | 2.39 (60.7)          | 2.52 (63.9)  | 1.53 (38.9) | 1.47 (37.3) | 0.44 (11.2) | 0.38 (9.7) | 0.78 (19.8) | VUBV-920P-6.35   | VUBVS-920P-6.35       |
|             | 3/8 (9.52)             |                             |                   | 2.58 (65.5)          |              |             |             |             |            |             | -                | VUBVS-920P-9.52       |
|             | 3/8 (9.52)             | 2500 (172)                  | 0.28 (7.1)        | 3.05 (77.5)          | 3.26 (82.8)  | 2 (50.8)    | 2.07 (52.6) | 0.56 (14.2) |            | 1.12 (28.4) | VUBV-920P-9.52   | -                     |
|             | 1/2 (12.7)             |                             | 0.41 (10.3)       | 3.92 (99.6)          | 4.26 (108.2) | 3 (76.2)    | 2.43 (61.7) | 0.69 (17.5) |            | 1.5 (38.1)  | VUBV-920P-12.7   | -                     |
|             | 3/4 (19.05)            |                             |                   |                      |              |             |             |             |            |             | VUBV-920P-19.05  | -                     |
|             | - (3)                  |                             | 0.094 (2.4)       | 2.01 (51.1)          | 1.87 (47.4)  | 1.12 (28.4) | 1.36 (34.5) | 0.34 (8.6)  | 0.28 (7.1) | 0.58 (14.7) | -                | VUBVS-920P-3-B ※      |
|             | - (6)                  |                             | 0.13 (3.2)        | 2.21 (56.1)          |              |             |             |             |            |             | -                | VUBVS-920P-6-S-B ※    |
|             | - (6)                  | 3000 (206)                  | 0.19 (4.8)        | 2.39 (60.7)          | 2.52 (63.9)  | 1.53 (38.9) | 1.47 (37.3) | 0.44 (11.2) | 0.38 (9.7) | 0.78 (19.8) | VUBV-920P-6      | VUBVS-920P-6          |
|             | - (8)                  |                             |                   | 2.46 (62.5)          |              |             |             |             |            |             | VUBV-920P-8      | VUBVS-920P-8          |
|             | - (10)                 | 2500 (172)                  | 0.28 (7.1)        | 3.07 (78)            | 3.26 (82.8)  | 2 (50.8)    | 2.07 (52.6) | 0.56 (14.2) |            | 1.12 (28.4) | VUBV-920P-10     | -                     |
|             | - (12)                 |                             | 0.41 (10.3)       | 3.92 (99.6)          | 4.26 (108.2) | 3 (76.2)    | 2.43 (61.7) | 0.69 (17.5) |            | 1.5 (38.1)  | VUBV-920P-12     | -                     |
| Female NPT  | 1/8                    | 2500 (172)                  | 0.13 (3.2)        | 1.63 (41.4)          | 1.87 (47.4)  | 1.12 (28.4) | 1.36 (34.5) | 0.34 (8.6)  | 0.28 (7.1) | 0.58 (14.7) | -                | VUBVS-120PAN-S-B ※    |
|             | 1/8                    | 3000 (206)                  | 0.19 (4.8)        | 2 (50.8)             | 2.52 (63.9)  | 1.53 (38.9) | 1.47 (37.3) | 0.44 (11.2) | 0.38 (9.7) | 0.78 (19.8) | -                | VUBVS-120PAN          |
|             | 1/4                    |                             |                   | 2.06 (52.3)          |              |             |             |             |            |             | VUBV-120PBN      | VUBVS-120PBN          |
|             | 3/8                    | 2500 (172)                  | 0.28 (7.1)        | 2.5 (63.5)           | 3.26 (82.8)  | 2 (50.8)    | 2.07 (52.6) | 0.56 (14.2) |            | 1.12 (28.4) | VUBV-120PCN      | -                     |
|             | 1/2                    |                             | 0.41 (10.3)       | 3.012 (79.2)         | 4.26 (108.2) | 3 (76.2)    | 2.43 (61.7) | 0.69 (17.5) |            | 1.5 (38.1)  | VUBV-120PDN      | -                     |
| Rc          | 1/8                    | 2500 (172)                  | 0.13 (3.2)        | 1.63 (41.4)          | 1.87 (47.4)  | 1.12 (28.4) | 1.36 (34.5) | 0.34 (8.6)  | 0.28 (7.1) | 0.58 (14.7) | -                | VUBVS-120PA-S-B ※     |
|             | 1/8                    | 3000 (206)                  | 0.19 (4.8)        | 2 (50.8)             | 2.52 (63.9)  | 1.53 (38.9) | 1.47 (37.3) | 0.44 (11.2) | 0.38 (9.7) | 0.78 (19.8) | -                | VUBVS-120PA           |
|             | 1/4                    |                             |                   | 2.06 (52.3)          |              |             |             |             |            |             | VUBV-120PB       | VUBVS-120PB           |
|             | 3/8                    | 2500 (172)                  | 0.28 (7.1)        | 2.5 (63.5)           | 3.26 (82.8)  | 2 (50.8)    | 2.07 (52.6) | 0.56 (14.2) |            | 1.12 (28.4) | VUBV-120PC       | -                     |
|             | 1/2                    |                             | 0.41 (10.3)       | 3.012 (79.2)         | 4.26 (108.2) | 3 (76.2)    | 2.43 (61.7) | 0.69 (17.5) |            | 1.5 (38.1)  | VUBV-120PD       | -                     |

Note1: It's possible to be interchangeable about a Ordering Number mentioned in parallel (background color: Light blue) and change.  
 Note2: VUBV can be distinguished from VUBVS by handle direction.

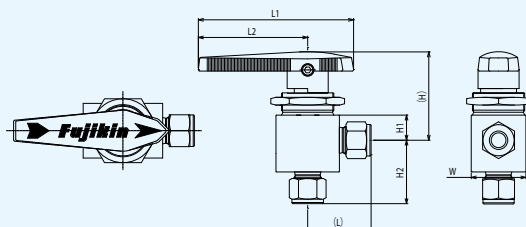
※ : Getting ready. Begin to sell it soon.

Note : Materials and dimensions are subject to change without notice.

## Dimensions

### Manual Valves

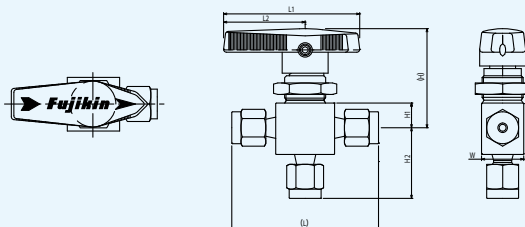
#### VUBV / VUBVS-020 Series



| Connections | Nominal Dia.<br>inch (mm) | Working Pressure<br>psig (bar) | Orifice<br>inch (mm) | Dimensions<br>inch (mm) |                |                |                |                |                |                | Ordering Numbers |                       |
|-------------|---------------------------|--------------------------------|----------------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|-----------------------|
|             |                           |                                |                      | L                       | L1             | L2             | H              | H1             | H2             | W              | VUBV-020 Series  | VUBVS-020 Series      |
| V-Lok       | 1/8<br>(3.2)              | 2500<br>(172)                  | 0.094<br>(2.4)       | 0.97<br>(24.6)          | 1.87<br>(47.4) | 1.12<br>(28.4) | 1.36<br>(34.5) | 0.34<br>(8.6)  | 0.97<br>(24.6) | 0.58<br>(14.7) | —                | VUBVS-020P-3.2-B ※    |
|             | 1/4<br>(6.35)             |                                | 0.13<br>(3.2)        | 1.07<br>(27.2)          |                |                |                |                | 1.07<br>(27.2) |                | —                | VUBVS-020P-6.35-S-B ※ |
|             | 3/8<br>(9.52)             |                                | 0.28<br>(7.1)        | 1.43<br>(36.3)          | 3.26<br>(82.8) | 2<br>(50.8)    | 2.07<br>(52.6) | 0.56<br>(14.2) | 1.43<br>(36.3) | 1.12<br>(28.4) | VUBV-020P-9.52-B | — ※                   |
|             | 0.12<br>(3)               |                                | 0.094<br>(2.4)       | 2.01<br>(51.1)          | 1.87<br>(47.4) | 1.12<br>(28.4) | 1.36<br>(34.5) | 0.34<br>(8.6)  | 0.97<br>(24.6) | 0.58<br>(14.7) | —                | VUBVS-020P-3-B ※      |
|             | 0.24<br>(6)               |                                | 0.13<br>(3.2)        | 2.21<br>(56.1)          |                |                |                |                | 1.07<br>(27.2) |                | —                | VUBVS-020P-6-S-B ※    |
| Female NPT  | 1/8<br>(—)                |                                | 0.13<br>(3.2)        | 1.63<br>(41.4)          | 1.87<br>(47.4) | 1.12<br>(28.4) | 1.36<br>(34.5) | 0.34<br>(8.6)  | 0.81<br>(20.6) | 0.58<br>(14.7) | —                | VUBVS-320PAN-S-B ※    |
| Rc          | 1/8<br>(—)                |                                | 0.13<br>(3.2)        | 1.63<br>(41.4)          | 1.87<br>(47.4) | 1.12<br>(28.4) | 1.36<br>(34.5) | 0.34<br>(8.6)  | 0.81<br>(20.6) | 0.58<br>(14.7) | —                | VUBVS-320PA-S-B ※     |

※ : Getting ready. Begin to sell it soon.

#### VUBVT / VUBVST-920 Series



| Connections | Nominal Dia.<br>inch (mm) | Working Pressure<br>psig (bar) | Orifice<br>inch (mm) | Dimensions<br>inch (mm) |                |                |                |                |                |                | Ordering Numbers  |                      |
|-------------|---------------------------|--------------------------------|----------------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|----------------------|
|             |                           |                                |                      | L                       | L1             | L2             | H              | H1             | H2             | W              | VUBVT-920 Series  | VUBVST-920 Series    |
| V-Lok       | 1/16<br>(1.6)             | 2500<br>(172)                  | 0.051<br>(1.3)       | 1.68<br>(42.7)          | 1.87<br>(47.4) | 1.12<br>(28.4) | 1.36<br>(34.5) | 0.34<br>(8.6)  | 0.81<br>(20.6) | 0.58<br>(14.7) | —                 | VUBVST-920P-1.6-B    |
|             | 1/8<br>(3.2)              |                                | 0.094<br>(2.4)       | 2.01<br>(51.1)          |                |                |                |                | 0.97<br>(24.6) |                | —                 | VUBVST-920P-3.2-B    |
|             | 1/4<br>(6.35)             |                                | 0.13<br>(3.2)        | 2.21<br>(56.1)          |                |                |                |                | 1.07<br>(27.2) |                | —                 | VUBVST-920P-6.35-S-B |
|             | 3/8<br>(9.52)             |                                | 0.28<br>(7.1)        | 2.89<br>(73.4)          | 3.26<br>(82.8) | 2<br>(50.8)    | 2.07<br>(52.6) | 0.56<br>(14.2) | 1.43<br>(36.3) | 1.12<br>(28.4) | VUBVT-920P-9.52-B | — ※                  |
|             | 0.12<br>(3)               |                                | 0.094<br>(2.4)       | 2.01<br>(51.1)          | 1.87<br>(47.4) | 1.12<br>(28.4) | 1.36<br>(34.5) | 0.34<br>(8.6)  | 0.97<br>(24.6) | 0.58<br>(14.7) | —                 | VUBVST-920P-3-B      |
|             | 0.24<br>(6)               |                                | 0.13<br>(3.2)        | 2.21<br>(56.1)          |                |                |                |                | 1.07<br>(27.2) |                | —                 | VUBVST-920P-6-S-B    |
| Female NPT  | 1/8<br>(—)                |                                | 0.13<br>(3.2)        | 1.63<br>(41.4)          | 1.87<br>(47.4) | 1.12<br>(28.4) | 1.36<br>(34.5) | 0.34<br>(8.6)  | 0.81<br>(20.6) | 0.58<br>(14.7) | —                 | VUBVST-120PAN-S-B    |
| Rc          | 1/8<br>(—)                |                                | 0.13<br>(3.2)        | 1.63<br>(41.4)          | 1.87<br>(47.4) | 1.12<br>(28.4) | 1.36<br>(34.5) | 0.34<br>(8.6)  | 0.81<br>(20.6) | 0.58<br>(14.7) | —                 | VUBVST-120PA-S-B     |

※ : Getting ready. Begin to sell it soon.

Note : Materials and dimensions are subject to change without notice.

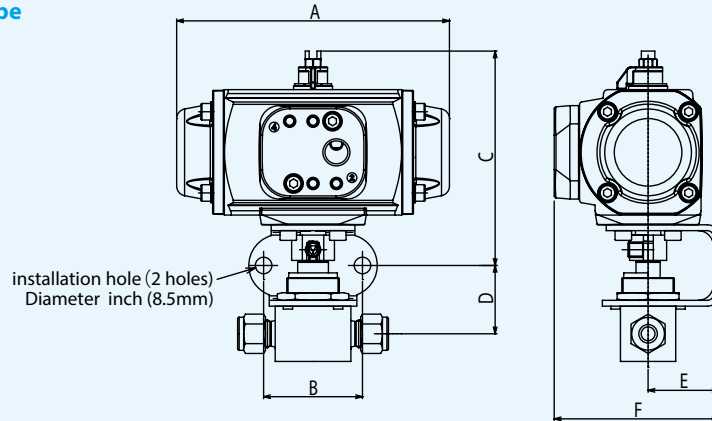


## Dimensions

### Automated Valves

#### APR-VUBV / VUBVS-920 Series

#### Spring Return Type



| Connections | Nominal Dia.<br>inch<br>(mm) | Actuator Type | Dimensions<br>inch<br>(mm) |                |                 |                |                |               | Ordering Numbers    |                      |
|-------------|------------------------------|---------------|----------------------------|----------------|-----------------|----------------|----------------|---------------|---------------------|----------------------|
|             |                              |               | A                          | B              | C               | D              | E              | F             | APR-VUBV-920 Series | APR-VUBVS-920 Series |
| V-Lok       | 1/4<br>(6.35)                | AC2S          | 5.52<br>(140.2)            | 2<br>(50.8)    | 4.18<br>(106.1) | 1.1<br>(27.9)  | 1.44<br>(36.5) | 3.66<br>(93)  | -                   | APR-VUBVS-920P-6.35  |
|             | 3/8<br>(9.52)                |               |                            |                | 4.33<br>(109.9) | 1.38<br>(35.1) |                |               | -                   | APR-VUBVS-920P-9.52  |
|             | 3/8<br>(9.52)                |               |                            |                |                 |                |                |               | APR-VUBV-920P-9.52  | -                    |
|             | 1/2<br>(12.7)                | AC3S          | 6<br>(152.3)               | 2.19<br>(55.6) | 4.93<br>(125.1) | 1.61<br>(40.9) | 1.73<br>(44)   | 4.13<br>(105) | APR-VUBV-920P-12.7  | -                    |
|             | 3/4<br>(19.05)               |               |                            |                |                 |                |                |               | APR-VUBV-920P-19.05 | -                    |
|             | -<br>(6)                     | AC2S          | 5.52<br>(140.2)            | 2<br>(50.8)    | 4.18<br>(106.1) | 1.1<br>(27.9)  | 1.44<br>(36.5) | 3.66<br>(93)  | -                   | APR-VUBVS-920P-6     |
|             | -<br>(8)                     |               |                            |                |                 |                |                |               | -                   | APR-VUBVS-920P-8     |
|             | -<br>(10)                    |               |                            |                | 4.33<br>(109.9) | 1.38<br>(35.1) |                |               | APR-VUBV-920P-10    | -                    |
|             | -<br>(12)                    | AC3S          | 6<br>(152.3)               | 2.19<br>(55.6) | 4.93<br>(125.1) | 1.61<br>(40.9) | 1.73<br>(44)   | 4.13<br>(105) | APR-VUBV-920P-12    | -                    |
| Female NPT  | 1/8<br>(-)                   | AC2S          | 5.52<br>(140.2)            | 2<br>(50.8)    | 4.18<br>(106.1) | 1.1<br>(27.9)  | 1.44<br>(36.5) | 3.66<br>(93)  | -                   | APR-VUBVS-120PAN     |
|             | 1/4<br>(-)                   |               |                            |                |                 |                |                |               | -                   | APR-VUBVS-120PBN     |
|             | 3/8<br>(-)                   |               |                            |                | 4.33<br>(109.9) | 1.38<br>(35.1) |                |               | APR-VUBV-120PCN     | -                    |
|             | 1/2<br>(-)                   | AC3S          | 6<br>(152.3)               | 2.19<br>(55.6) | 4.93<br>(125.1) | 1.61<br>(40.9) | 1.73<br>(44)   | 4.13<br>(105) | APR-VUBV-120PDN     | -                    |
| Rc          | 1/8<br>(-)                   | AC2S          | 5.52<br>(140.2)            | 2<br>(50.8)    | 4.18<br>(106.1) | 1.1<br>(27.9)  | 1.44<br>(36.5) | 3.66<br>(93)  | -                   | APR-VUBVS-120PA-S    |
|             | 1/8<br>(-)                   |               |                            |                |                 |                |                |               | -                   | APR-VUBVS-120PA      |
|             | 1/4<br>(-)                   |               |                            |                |                 |                |                |               | -                   | APR-VUBVS-120PB      |
|             | 3/8<br>(-)                   |               |                            |                | 4.33<br>(109.9) | 1.38<br>(35.1) |                |               | APR-VUBV-120PC      | -                    |
|             | 1/2<br>(-)                   | AC3S          | 6<br>(152.3)               | 2.19<br>(55.6) | 4.93<br>(125.1) | 1.61<br>(40.9) | 1.73<br>(44)   | 4.13<br>(105) | APR-VUBV-120PD      | -                    |

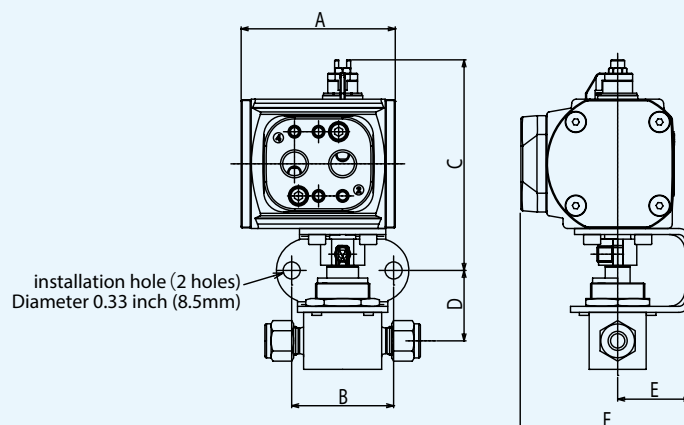
Note : Materials and dimensions are subject to change without notice.

## Dimensions

### Automated Valves

#### APDM-VUBV / VUBVS-920 Series

#### Double Acting Type



| Connections | Nominal Dia.<br>inch<br>(mm) | Actuator Type | Dimensions<br>inch<br>(mm) |                |                 |                |                |                | Ordering Numbers     |                       |
|-------------|------------------------------|---------------|----------------------------|----------------|-----------------|----------------|----------------|----------------|----------------------|-----------------------|
|             |                              |               | A                          | B              | C               | D              | E              | F              | APDM-VUBV-920 Series | APDM-VUBVS-920 Series |
| V-Lok       | 1/4<br>(6.35)                | AC1           | 3.02<br>(76.8)             | 2<br>(50.8)    | 3.98<br>(101.1) | 1.1<br>(27.9)  | 1.44<br>(36.5) | 3.33<br>(84.7) | —                    | APDM-VUBVS-920P-6.35  |
|             | 3/8<br>(9.52)                |               |                            |                | 4.13<br>(104.9) | 1.38<br>(35.1) |                |                | —                    | APDM-VUBVS-920P-9.52  |
|             | 3/8<br>(9.52)                |               |                            |                |                 |                |                |                | APDM-VUBV-920P-9.52  | —                     |
|             | 1/2<br>(12.7)                | AC2           | 3.98<br>(101)              | 2.19<br>(55.6) | 4.45<br>(113.1) | 1.61<br>(40.9) | 1.73<br>(44)   | 3.63<br>(92.2) | APDM-VUBV-920P-12.7  | —                     |
|             | 3/8<br>(19.05)               |               |                            |                |                 |                |                |                | APDM-VUBV-920P-19.05 | —                     |
|             | —<br>(6)                     | AC1           | 3.02<br>(76.8)             | 2<br>(50.8)    | 3.98<br>(101.1) | 1.1<br>(27.9)  | 1.44<br>(36.5) | 3.33<br>(84.7) | —                    | APDM-VUBVS-920P-6     |
|             | —<br>(8)                     |               |                            |                |                 |                |                |                | —                    | APDM-VUBVS-920P-8     |
|             | —<br>(10)                    |               |                            |                | 4.13<br>(104.9) | 1.38<br>(35.1) |                |                | APDM-VUBV-920P-10    | —                     |
|             | —<br>(12)                    | AC2           | 3.98<br>(101)              | 2.19<br>(55.6) | 4.45<br>(113.1) | 1.61<br>(40.9) | 1.73<br>(44)   | 3.63<br>(92.2) | APDM-VUBV-920P-12    | —                     |
| Female NPT  | 1/8<br>(—)                   | AC1           | 3.02<br>(76.8)             | 2<br>(50.8)    | 3.98<br>(101.1) | 1.1<br>(27.9)  | 1.44<br>(36.5) | 3.33<br>(84.7) | —                    | APDM-VUBVS-120PAN     |
|             | 1/4<br>(—)                   |               |                            |                |                 |                |                |                | —                    | APDM-VUBVS-120PBN     |
|             | 3/8<br>(—)                   |               |                            |                | 4.13<br>(104.9) | 1.38<br>(35.1) |                |                | APDM-VUBV-120PCN     | —                     |
|             | 1/2<br>(—)                   | AC2           | 3.98<br>(101)              | 2.19<br>(55.6) | 4.45<br>(113.1) | 1.61<br>(40.9) | 1.73<br>(44)   | 3.63<br>(92.2) | APDM-VUBV-120PDN     | —                     |
| Rc          | 1/8<br>(—)                   | AC1           | 3.02<br>(76.8)             | 2<br>(50.8)    | 3.98<br>(101.1) | 1.1<br>(27.9)  | 1.44<br>(36.5) | 3.33<br>(84.7) | —                    | APDM-VUBVS-120PA-S    |
|             | 1/8<br>(—)                   |               |                            |                |                 |                |                |                | —                    | APDM-VUBVS-120PA      |
|             | 1/4<br>(—)                   |               |                            |                |                 |                |                |                | —                    | APDM-VUBVS-120PB      |
|             | 3/8<br>(—)                   |               |                            |                |                 |                |                |                | APDM-VUBV-120PC      | —                     |
|             | 1/2<br>(—)                   | AC2           | 3.98<br>(101)              | 2.19<br>(55.6) | 4.45<br>(113.1) | 1.61<br>(40.9) | 1.73<br>(44)   | 3.63<br>(92.2) | APDM-VUBV-120PD      | —                     |

Note : Materials and dimensions are subject to change without notice.

## Ordering Information

APR

①

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V U BVT

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KL

⑫

### ① Actuator Type

APR : Spring Back Type  
APDM : Double Acting Type  
Blank: Manual Type

### ② Valve Series

### ③ Body Material

Stainless Steel

### ④ Valve Type

BV: Ball Valves  
BVS: One-piece Seat  
Ball Valves

### ⑤ Valve Type

Blank: 2-Way Valve  
T : 3-Way Valve

### ⑥ End Connections

1: Thread Type  
9: V-Lok Type

### ⑦ Working Pressure

20 : 206 bar

### ⑧ Panel Mount Type

### ⑨ Connection Sizes

1.6 : V-Lok 1.6  
3.2 : V-Lok 3.2  
6.35 : V-Lok 6.35  
9.52 : V-Lok 9.52  
12.7 : V-Lok 12.7  
19.05 : V-Lok 19.05  
3 : V-Lok 3  
6 : V-Lok 6  
8 : V-Lok 8  
10 : V-Lok 10  
12 : V-Lok 12

### ⑩ Orifice

Blank : Standard  
S : Small

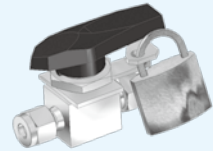
### ⑪ Handle Color

AN : 1/8 NPT  
BN : 1/4 NPT  
CN : 3/8 NPT  
DN : 1/2 NPT  
A : Rc 1/8  
B : Rc 1/4  
C : Rc 3/8  
D : Rc 1/2

| Handle Color | Code |
|--------------|------|
| Blue         | -B   |
| Green        | -G   |
| Orange       | -YR  |
| Red          | -RE  |
| Yellow       | -Y   |
| Black        | -    |

### ⑫ Key Lock

Blank : without Key Lock  
KL : with Key Lock





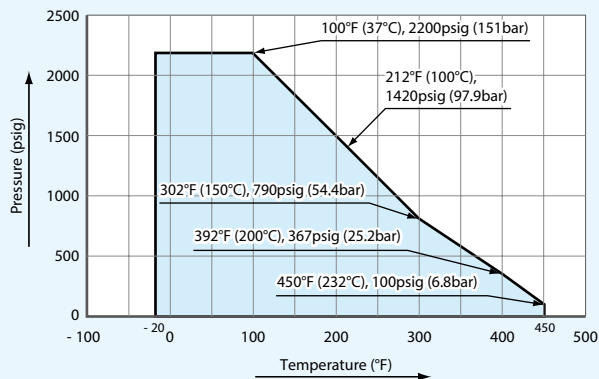
## Features

1. Large flowrate with 3 pieces body.
2. ON-OFF by operation of quarter turn.
3. End Connections: **V-Lok** Type, Rc, NPT Female
4. Manual Valves, Automated Valves  
(Spring Back, Double Action Type)



## Technical Data

### Temperature and Pressure Rating

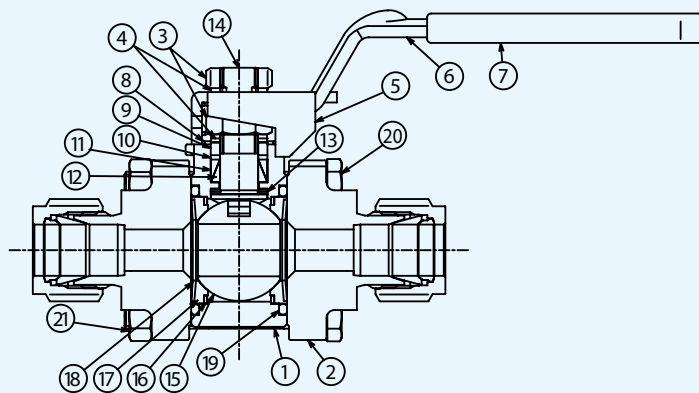


Note: If the end connection is **V-Lok** type, the working pressure may be low depending on the tube used.  
For details, please refer to 1-1, 1-2 in the table of P12.

### Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non-corrosive gas and liquid.

## Materials of Construction



| No. | Description     | Materials        | No. | Description    | Materials                         |
|-----|-----------------|------------------|-----|----------------|-----------------------------------|
| 1   | BODY            | ※ ASTM A351 CF3M | 12  | BOTTOM PACKING | ※ C - PTFE                        |
| 2   | FLANGE          | ※ ASTM A351 CF3M | 13  | STEM BEARING   | ※ SUS316                          |
| 3   | STEM NUT        | ASTM A276 316    | 14  | STEM           | ※ ASTM A240 316                   |
| 4   | STEM SPRING     | SUS304 - CSP     | 15  | BALL           | ※ ASTM A240 316 or ASTM A351 CF8M |
| 5   | STOP PLATE      | ASTM A240 304    | 16  | SUPPORT RING   | ※ ASTM A240 316                   |
| 6   | HANDLE          | ASTM A240 304    | 17  | SEAT           | ※ C - PTFE                        |
| 7   | HANDLE SLEEVE   | VINYL            | 18  | SEAT SPRING    | ※ SUS304 - CSP                    |
| 8   | EARTH SPRING    | ASTM A313 302    | 19  | O-RING         | ※ FKM                             |
| 9   | GLAND           | ASTM B783 316    | 20  | BOLT           | SUS316                            |
| 10  | PACKING SUPPORT | PEEK             | 21  | BOLT NUT       | SUS316                            |
| 11  | TOP PACKING     | ※ C - PTFE       |     |                |                                   |

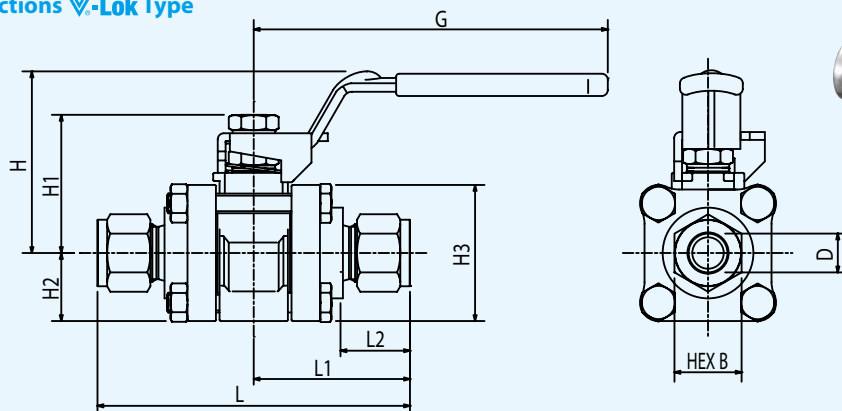
※ :Wetted Parts

Note : Materials and dimensions are subject to change without notice.

## Dimensions

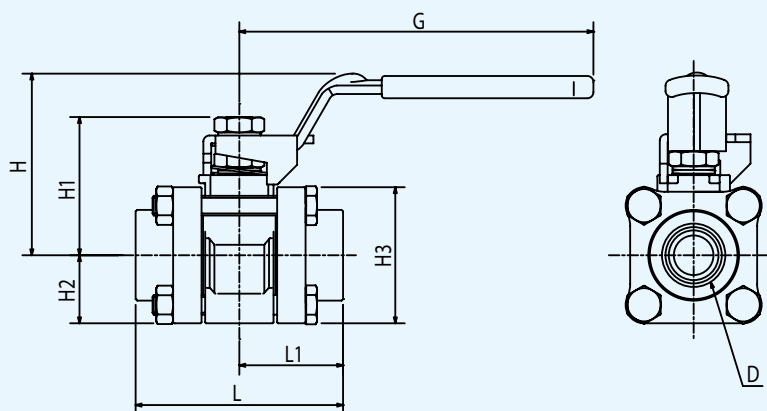
### Manual Valves

#### End Connections V-Lok Type



| Sizes<br>D    | Orifice<br>in. (mm) | Dimensions inch (mm) |             |             |             |             |             |             |             |             | Ordering Numbers   |
|---------------|---------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------------|
|               |                     | L                    | L1          | L2          | B           | H           | H1          | H2          | H3          | G           |                    |
| 1/4in.(6.35)  | 0.189 (4.8)         | 3.17 (80.5)          | 1.59 (40.4) | 0.6 (15.2)  | 9/16 in.    | 1.66 (42.2) | 1.26 (32)   | 0.68 (17.3) | 1.35 (34.3) | 2.37 (60.2) | VUBV - 915 - 6.35  |
| 3/8in.(9.52)  | 0.28 (7.1)          | 3.17 (80.5)          | 1.59 (40.4) | 0.66 (16.8) | 11/16 in.   | 1.66 (42.2) | 1.26 (32)   | 0.68 (17.3) | 1.35 (34.3) | 2.37 (60.2) | VUBV - 915 - 9.52  |
| 1/2in.(12.7)  | 0.406 (10.3)        | 4.06 (103)           | 2.02 (51.3) | 0.9 (22.9)  | 7/8 in.     | 2.35 (59.7) | 1.79 (45.5) | 0.89 (22.6) | 1.78 (45.2) | 4.49 (114)  | VUBV - 915 - 12.7  |
| 3/4in.(19.05) | 0.516 (13.1)        | 4.06 (103)           | 2.02 (51.3) | 0.96 (24.4) | 1 - 1/8 in. | 2.35 (59.7) | 1.79 (45.5) | 0.89 (22.6) | 1.78 (45.2) | 4.49 (114)  | VUBV - 915 - 19.05 |
| 1in.(25.4)    | 0.874 (22.2)        | 5.35 (136)           | 2.68 (68.1) | 1.23 (31.2) | 1 - 1/2 in. | 2.94 (74.7) | 2.52 (64)   | 1.25 (31.8) | 2.5 (63.5)  | 5.98 (152)  | VUBV - 915 - 25.4  |
| 6             | 0.189 (4.8)         | 3.17 (80.5)          | 1.59 (40.4) | 0.6 (15.3)  | 0.55 (14)   | 1.66 (42.2) | 1.26 (32)   | 0.68 (17.3) | 1.35 (34.3) | 2.37 (60.2) | VUBV - 915 - 6     |
| 8             | 0.252 (6.4)         | 3.17 (80.5)          | 1.59 (40.4) | 0.64 (16.2) | 0.63 (16)   | 1.66 (42.2) | 1.26 (32)   | 0.68 (17.3) | 1.35 (34.3) | 2.37 (60.2) | VUBV - 915 - 8     |
| 10            | 0.28 (7.1)          | 3.2 (81.3)           | 1.6 (40.6)  | 0.68 (17.2) | 0.75 (19)   | 1.66 (42.2) | 1.26 (32)   | 0.68 (17.3) | 1.35 (34.3) | 2.37 (60.2) | VUBV - 915 - 10    |
| 12            | 0.374 (9.5)         | 4.06 (103)           | 2.02 (51.3) | 0.9 (22.8)  | 0.87 (22)   | 2.35 (59.7) | 1.79 (45.5) | 0.89 (22.6) | 1.78 (45.2) | 4.49 (114)  | VUBV - 915 - 12    |

#### End Connections: Rc Type

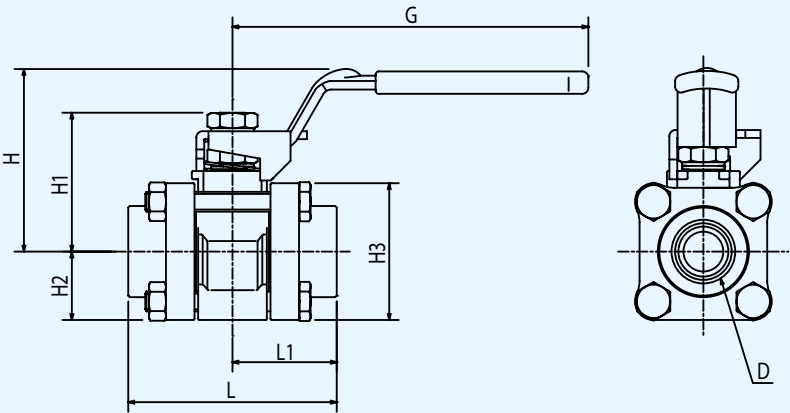


| Sizes   | Orifice<br>in. (mm) | End Connections<br>D | Dimensions inch (mm) |             |             |             |             |             |             | Ordering Numbers |
|---------|---------------------|----------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|------------------|
|         |                     |                      | L                    | L1          | H           | H1          | H2          | H3          | G           |                  |
| 1/4 in. | 0.28 (7.1)          | Rc 1/4               | 2.16 (54.9)          | 1.08 (27.4) | 1.66 (42.2) | 1.26 (32)   | 0.68 (17.3) | 1.35 (34.3) | 2.37 (60.2) | VUBV - 115B      |
| 3/8 in. | 0.516 (13.1)        | Rc 3/8               | 2.7 (68.6)           | 1.35 (34.3) | 2.35 (59.7) | 1.79 (45.5) | 0.89 (22.6) | 1.78 (45.2) | 4.49 (114)  | VUBV - 115C      |
| 1/2 in. | 0.516 (13.1)        | Rc 1/2               | 2.7 (68.6)           | 1.35 (34.3) | 2.35 (59.7) | 1.79 (45.5) | 0.89 (22.6) | 1.78 (45.2) | 4.49 (114)  | VUBV - 115D      |
| 3/4 in. | 0.874 (22.2)        | Rc 3/4               | 3.59 (91.2)          | 1.8 (45.7)  | 2.94 (74.7) | 2.52 (64)   | 1.25 (31.8) | 2.5 (63.5)  | 5.98 (152)  | VUBV - 115E      |
| 1 in.   | 0.874 (22.2)        | Rc 1                 | 4.45 (113)           | 2.23 (56.6) | 2.94 (74.7) | 2.52 (64)   | 1.25 (31.8) | 2.5 (63.5)  | 5.98 (152)  | VUBV - 115F      |

Dimensions

Manual Valves

End Connections: Female NPT Type

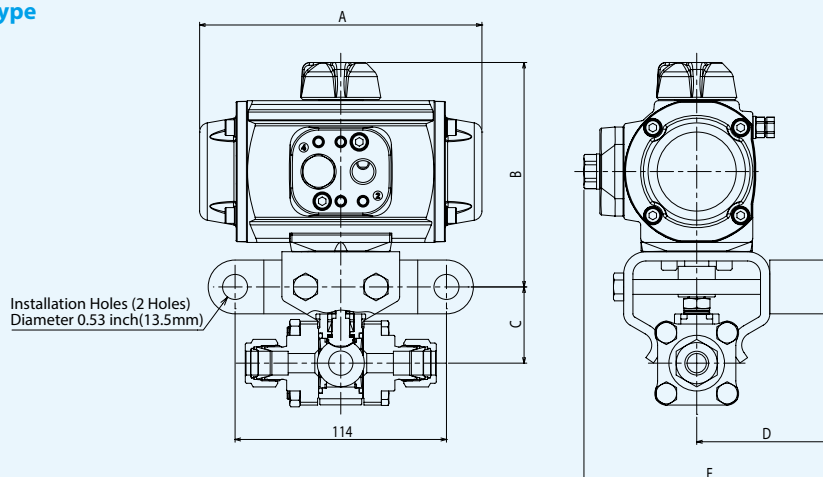


| Sizes   | Orifice<br>in. (mm) | End Connections<br>D | Dimensions inch (mm) |             |             |             |             |             |             | Ordering Numbers |
|---------|---------------------|----------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|------------------|
|         |                     |                      | L                    | L1          | H           | H1          | H2          | H3          | G           |                  |
| 1/4 in. | 0.28 (7.1)          | 1/4 NPT              | 2.16 (54.9)          | 1.08 (27.4) | 1.66 (42.2) | 1.26 (32)   | 0.68 (17.3) | 1.35 (34.3) | 2.37 (60.2) | VUBV - 115BN     |
| 3/8 in. | 0.516 (13.1)        | 3/8 NPT              | 2.7 (68.6)           | 1.35 (34.3) | 2.35 (59.7) | 1.79 (45.5) | 0.89 (22.6) | 1.78 (45.2) | 4.49 (114)  | VUBV - 115CN     |
| 1/2 in. | 0.516 (13.1)        | 1/2 NPT              | 2.7 (68.6)           | 1.35 (34.3) | 2.35 (59.7) | 1.79 (45.5) | 0.89 (22.6) | 1.78 (45.2) | 4.49 (114)  | VUBV - 115DN     |
| 3/4 in. | 0.874 (22.2)        | 3/4 NPT              | 3.59 (91.2)          | 1.8 (45.7)  | 2.94 (74.7) | 2.52 (64)   | 1.25 (31.8) | 2.5 (63.5)  | 5.98 (152)  | VUBV - 115EN     |
| 1 in.   | 0.874 (22.2)        | 1 NPT                | 4.45 (113)           | 2.23 (56.6) | 2.94 (74.7) | 2.52 (64)   | 1.25 (31.8) | 2.5 (63.5)  | 5.98 (152)  | VUBV - 115FN     |

## Dimensions

### Automated Valves

#### Spring Return Type



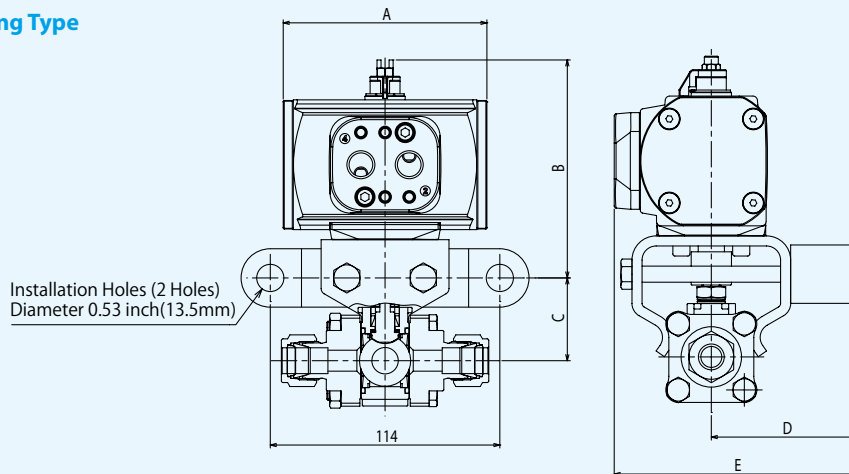
| Connection Type | Nominal Diameter<br>Inch (mm) | Actuator Type | Dimensions Inch (mm) |                 |                |                |                 | Ordering Numbers   |
|-----------------|-------------------------------|---------------|----------------------|-----------------|----------------|----------------|-----------------|--------------------|
|                 |                               |               | A                    | B               | C              | D              | E               |                    |
| V-Lok           | 1/4<br>(6.35)                 | AC2S          | 5.52<br>(140.2)      | 4.26<br>(108.3) | 1.54<br>(39.1) | 2.9<br>(73.7)  | 5.14<br>(130.5) | APR-VUBV-915-6.35  |
|                 | 3/8<br>(9.52)                 |               |                      |                 |                |                |                 | APR-VUBV-915-9.52  |
|                 | 1/2<br>(12.7)                 | AC3S          | 6<br>(152.3)         | 4.77<br>(121.1) | 1.62<br>(41.1) | 2.92<br>(74.2) | 5.34<br>(135)   | APR-VUBV-915-12.7  |
|                 | 3/4<br>(19.05)                |               |                      |                 |                |                |                 | APR-VUBV-915-19.05 |
|                 | 1<br>(25.4)                   | AC4S          | 7.93<br>(201.3)      | 6.05<br>(153.6) | 2.18<br>(55.4) | 3.3<br>(83.8)  | 6.07<br>(154.1) | APR-VUBV-915-25.4  |
|                 | —<br>(6)                      | AC2S          | 5.52<br>(140.2)      | 4.26<br>(108.3) | 1.54<br>(39.1) | 2.9<br>(73.7)  | 5.14<br>(130.5) | APR-VUBV-915-6     |
|                 | —<br>(8)                      |               |                      |                 |                |                |                 | APR-VUBV-915-8     |
|                 | —<br>(10)                     |               |                      |                 |                |                |                 | APR-VUBV-915-10    |
|                 | —<br>(12)                     | AC3S          | 6<br>(152.3)         | 4.77<br>(121.1) | 1.62<br>(41.1) | 2.92<br>(74.2) | 5.34<br>(135)   | APR-VUBV-915-12    |
| Rc              | 1/4                           | AC2S          | 5.52<br>(140.2)      | 4.26<br>(108.3) | 1.54<br>(39.1) | 2.9<br>(73.7)  | 5.14<br>(130.5) | APR-VUBV-115B      |
|                 | 3/8                           | AC3S          | 6<br>(152.3)         | 4.77<br>(121.1) | 1.62<br>(41.1) | 2.92<br>(74.2) | 5.34<br>(135)   | APR-VUBV-115C      |
|                 | 1/2                           |               |                      |                 |                |                |                 | APR-VUBV-115D      |
|                 | 3/4                           | AC4S          | 7.93<br>(201.3)      | 6.05<br>(153.6) | 2.18<br>(55.4) | 3.3<br>(83.8)  | 6.07<br>(154.1) | APR-VUBV-115E      |
|                 | 1                             |               |                      |                 |                |                |                 | APR-VUBV-115F      |
|                 |                               |               |                      |                 |                |                |                 |                    |
| Female NPT      | 1/4                           | AC2S          | 5.52<br>(140.2)      | 4.26<br>(108.3) | 1.54<br>(39.1) | 2.9<br>(73.7)  | 5.14<br>(130.5) | APR-VUBV-115BN     |
|                 | 3/8                           | AC3S          | 6<br>(152.3)         | 4.77<br>(121.1) | 1.62<br>(41.1) | 2.92<br>(74.2) | 5.34<br>(135)   | APR-VUBV-115CN     |
|                 | 1/2                           |               |                      |                 |                |                |                 | APR-VUBV-115DN     |
|                 | 3/4                           | AC4S          | 7.93<br>(201.3)      | 6.05<br>(153.6) | 2.18<br>(55.4) | 3.3<br>(83.8)  | 6.07<br>(154.1) | APR-VUBV-115EN     |
|                 | 1                             |               |                      |                 |                |                |                 | APR-VUBV-115FN     |
|                 |                               |               |                      |                 |                |                |                 |                    |



## Dimensions

### Automated Valves

#### Double Acting Type



| Connection Type | Nominal Diameter<br>Inch (mm) | Actuator Type | Dimensions Inch (mm) |                 |                |                |                 | Ordering Numbers    |
|-----------------|-------------------------------|---------------|----------------------|-----------------|----------------|----------------|-----------------|---------------------|
|                 |                               |               | A                    | B               | C              | D              | E               |                     |
| V-Lok           | 1/4<br>(6.35)                 | AC2S          | 3.02<br>(76.8)       | 4.06<br>(103.1) | 1.54<br>(39.1) | 2.9<br>(73.7)  | 4.8<br>(121.9)  | APDM-VUBV-915-6.35  |
|                 | 3/8<br>(9.52)                 |               |                      |                 |                |                |                 | APDM-VUBV-915-9.52  |
|                 | 1/2<br>(12.7)                 | AC3S          | 3.98<br>(101.2)      | 4.26<br>(108.3) | 1.62<br>(41.1) | 2.92<br>(74.2) | 4.82<br>(122.4) | APDM-VUBV-915-12.7  |
|                 | 3/4<br>(19.05)                |               |                      |                 |                |                |                 | APDM-VUBV-915-19.05 |
|                 | 1<br>(25.4)                   | AC4S          | 5.98<br>(152.2)      | 5.38<br>(136.6) | 2.18<br>(55.4) | 3.3<br>(83.8)  | 5.35<br>(136)   | APDM-VUBV-915-25.4  |
|                 | —<br>(6)                      | AC2S          |                      |                 |                |                |                 | APDM-VUBV-915-6     |
|                 | —<br>(8)                      |               | 3.02<br>(76.8)       | 4.06<br>(103.1) | 1.54<br>(39.1) | 2.9<br>(73.7)  | 4.8<br>(121.9)  | APDM-VUBV-915-8     |
|                 | —<br>(10)                     |               |                      |                 |                |                |                 | APDM-VUBV-915-10    |
|                 | —<br>(12)                     |               | 3.98<br>(101.5)      | 4.26<br>(108.3) | 1.62<br>(41.1) | 2.92<br>(74.2) | 4.82<br>(122.4) | APDM-VUBV-915-12    |
|                 |                               | AC3S          |                      |                 |                |                |                 |                     |
| Rc              | 1/4                           | AC2S          | 3.02<br>(76.8)       | 4.06<br>(103.1) | 1.54<br>(39.1) | 2.9<br>(73.7)  | 4.8<br>(121.9)  | APDM-VUBV-115B      |
|                 | 3/8                           | AC3S          | 3.98<br>(101.2)      | 4.26<br>(108.3) | 1.62<br>(41.1) | 2.92<br>(74.2) | 4.82<br>(122.4) | APDM-VUBV-115C      |
|                 | 1/2                           |               |                      |                 |                |                |                 | APDM-VUBV-115D      |
|                 | 3/4                           | AC4S          | 5.98<br>(152.2)      | 5.38<br>(136.6) | 2.18<br>(55.4) | 3.3<br>(83.8)  | 5.35<br>(136)   | APDM-VUBV-115E      |
|                 | 1                             |               |                      |                 |                |                |                 | APDM-VUBV-115F      |
|                 |                               |               |                      |                 |                |                |                 |                     |
| Female NPT      | 1/4                           | AC2S          | 3.02<br>(76.8)       | 4.06<br>(103.1) | 1.54<br>(39.1) | 2.9<br>(73.7)  | 4.8<br>(121.9)  | APDM-VUBV-115BN     |
|                 | 3/8                           | AC3S          | 3.98<br>(101.2)      | 4.26<br>(108.3) | 1.62<br>(41.1) | 2.92<br>(74.2) | 4.82<br>(122.4) | APDM-VUBV-115CN     |
|                 | 1/2                           |               |                      |                 |                |                |                 | APDM-VUBV-115DN     |
|                 | 3/4                           | AC4S          | 6<br>(152.3)         | 5.38<br>(136.6) | 2.18<br>(55.4) | 3.3<br>(83.8)  | 5.35<br>(136)   | APDM-VUBV-115EN     |
|                 | 1                             |               |                      |                 |                |                |                 | APDM-VUBV-115FN     |
|                 |                               |               |                      |                 |                |                |                 |                     |

## Ordering Information

|                 |   |                        |   |                    |   |                  |   |               |   |                |
|-----------------|---|------------------------|---|--------------------|---|------------------|---|---------------|---|----------------|
| <u>APR</u><br>① | — | <u>V U BV</u><br>② ③ ④ | — | <u>9 15</u><br>⑤ ⑥ | — | <u>6.35</u><br>⑦ | — | <u>B</u><br>⑧ | — | <u>KL</u><br>⑨ |
|-----------------|---|------------------------|---|--------------------|---|------------------|---|---------------|---|----------------|

- |                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>① Actuator Type<br/>APR : Spring Return Type<br/>APDM : Double Acting type<br/>Blank : Manual Type</p> <p>② Valve Series</p> <p>③ Body Material<br/>Stainless Steel</p> <p>④ Valve Type<br/>Ball Valves</p> <p>⑤ End Connections<br/>1 : Thread Type<br/>9 : <b>V-Lok</b> Type</p> | <p>⑥ Working Pressure<br/>2200 psig<br/>(151 bar)</p> <p>⑦ Connection Sizes<br/>6.35 : <b>V-Lok</b> 1/4<br/>9.52 : <b>V-Lok</b> 3/8<br/>12.7 : <b>V-Lok</b> 1/2<br/>19.05 : <b>V-Lok</b> 3/4<br/>25.4 : <b>V-Lok</b> 1<br/>6 : <b>V-Lok</b> 6<br/>8 : <b>V-Lok</b> 8<br/>10 : <b>V-Lok</b> 10<br/>12 : <b>V-Lok</b> 12</p> | <p>⑧ Handle Color<br/>— : Black<br/>B : Blue<br/>G : Green<br/>YR : Orange<br/>RE : Red<br/>Y : Yellow</p> <p>⑨ Key Lock Type<br/>Blank : without Key Lock<br/>KL : with Key Lock</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Option

### Handle Color

Standard Handle Color is black.

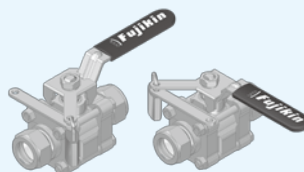
When you ordered a colored handle besides the black.  
Please put the relevant symbol to the part number end from beside table.

Ex. Ordering Number in case of you will order blue handle  
VUBV-941P-6.35-B

| HANDLE Color | The end of Ordering Numbers |
|--------------|-----------------------------|
| Black        | —                           |
| Blue         | -B                          |
| Green        | -G                          |
| Orange       | -YR                         |
| Red          | -RE                         |
| Yellow       | -Y                          |

### Key Lock & Bracket

- Locking with standard parts for lock , and with a handle of flow direction locking certainly at open or close for 2-way valves
- Possible to fix a locking part on the hole in the bracket or install a distinction tag.
- After installing to a panel, it isn't possible to install a bracket.



When a bracket for Key Locks is installed,  
it's possible to fix a valve open or shut.

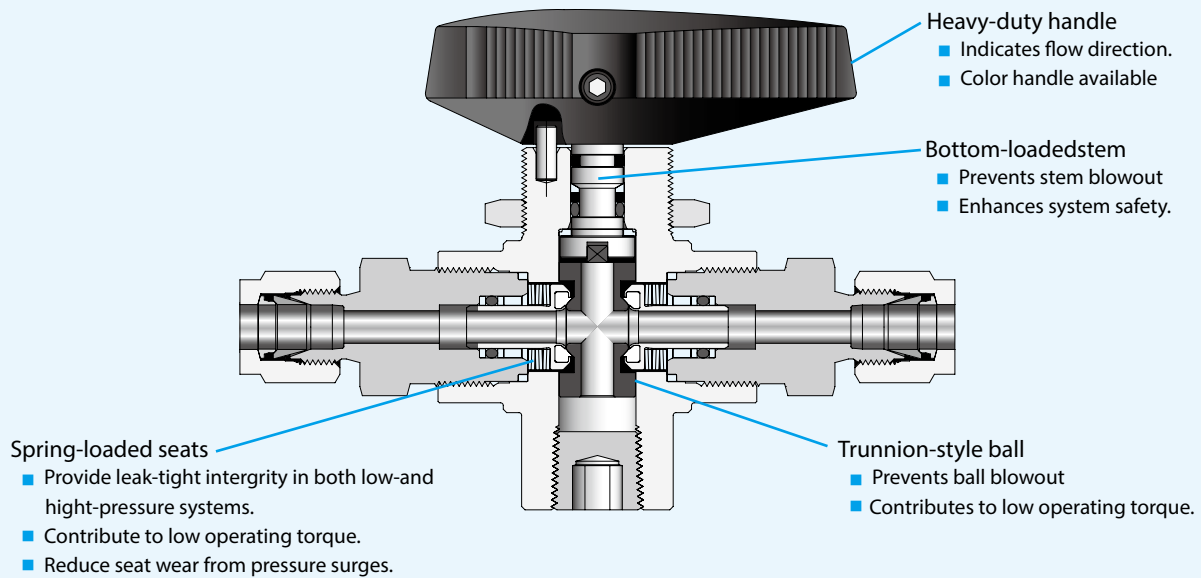
### Seal Kit

You can buy a Seal Kit at the valve maintenance time.

| Valve Series                 | Kit Contents                                                                                                                                                                                |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VUBV-915 Series (2-way Type) | <ul style="list-style-type: none"> <li>• INSTRUCTION MANUAL</li> <li>• Ball</li> <li>• STEM BEARING</li> <li>• O-RING(1), O-RING(2)</li> </ul>                                              |
| VUBV-115 Series (2-way Type) | <ul style="list-style-type: none"> <li>• SEAT ASSEMBLY (SEAT + SEAT CARRIERS)</li> <li>• DISC SPRING</li> <li>• END SCREW SEALS</li> <li>• LUBRICANT</li> <li>• SDS of LUBRICANT</li> </ul> |

## Features

1. Compact, maximum-flow design
2. Low operating torque
3. Flow Pattern: 2-way Type, 3-way Type
4. Panel mountable



## Important Information About Ball Valves

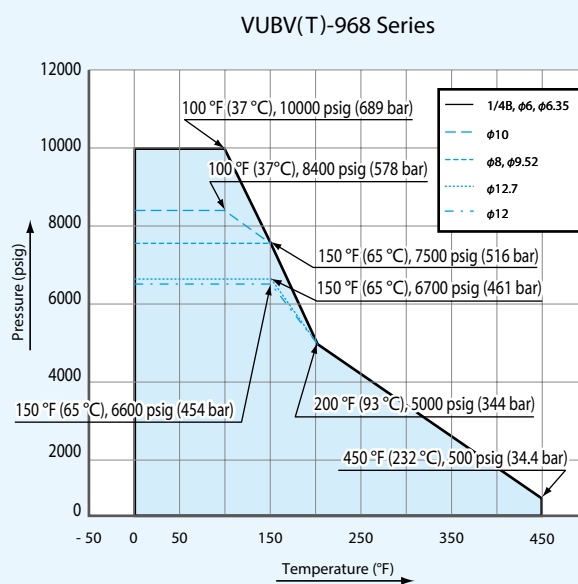
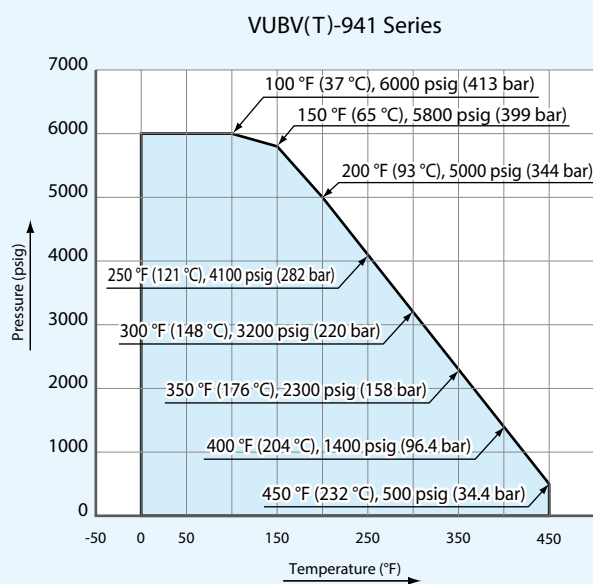
1. **Fujikin** ball valves are designed to be used in a fully open or fully closed position.
2. Valves that have not been cycled for a period of time may have a higher initial actuation torque.

## Technical Data

### Working Pressure, Temperature Rating

| Types               | Seat Material | Temperature Rating<br>°F<br>(°C) | Pressure Rating<br>psig<br>(bar) |
|---------------------|---------------|----------------------------------|----------------------------------|
| VUBV -941 Series    | PEEK          | 0 to 450<br>(-17 to 232)         | 6000 (413)                       |
| VUBV (T)-968 Series |               |                                  | 6600 to 10000<br>(454 to 689)    |

### Temperature and Pressure Rating



Note1: Please contact Fujikin beforehand if you are planning to use these valves at lower temperature than 32 °F (0°C).

Note2: If the end connection is **V-Lok** type, the working pressure may be low depending on the tube used.

For details, please refer to 1-1, 1-2 in the table of P12.

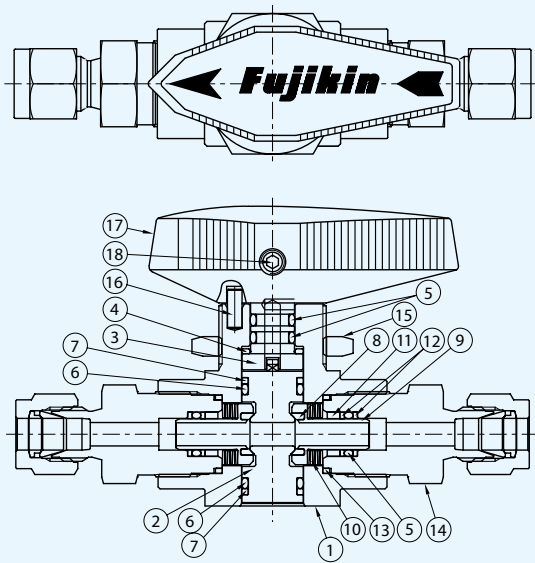
### Applicable Fluid

Air, Nitrogeh gas, Inert gas like Helium, and non-corrosive gas and liquid.

Materials of Construction

VUBV-941 Sereis

2-way Type



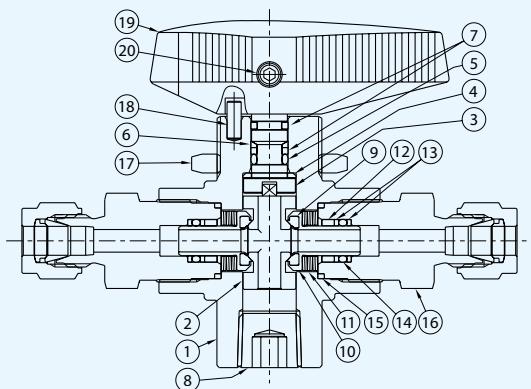
| No. | Description                 | Materials                         |
|-----|-----------------------------|-----------------------------------|
| 1   | BODY ※                      | ASTM A479 316                     |
| 2   | BALL ※1 ※                   | ASTM A276 316                     |
| 3   | STEM                        | ASTM A276 316                     |
| 4   | STEM BEARING                | C-PTFE                            |
| 5   | O-RINGS(1) ※                | FKM                               |
| 6   | O-RINGS(2) ※                | FKM                               |
| 7   | BACKUP RINGS                | C-PTFE                            |
| 8   | SEATS ※                     | PEEK                              |
| 9   | SEAT CARRIERS ※             | ASTM A276 316                     |
| 10  | DISC SPRINGS ※              | ALLOY X-750                       |
| 11  | SEAT CARRIER GUIDES ※       | ASTM A276 316                     |
| 12  | SEAT CARRIER BACKUP RINGS ※ | C-PTFE                            |
| 13  | END SCREW SEALS ※           | PTFE                              |
| 14  | END SCREWS ※                | ASTM A479 316                     |
| 15  | PANEL NUT                   | ASTM A276 304 or<br>ASTM A276 316 |
| 16  | STOP PIN                    | SUS304                            |
| 17  | HANDLE                      | PHENOLIC RESIN<br>+ C3604B        |
| 18  | SET SCREW                   | S17400 or SUS630                  |

※ : Wetted part  
※1 : Ball trunnions are PTFE coated.

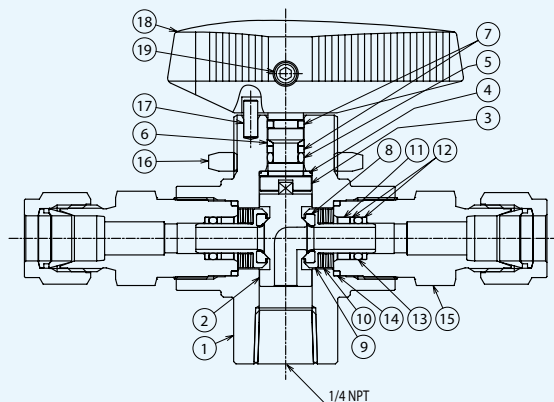
## Materials of Construction

### VUBV,VUBVT-968 Sereis

2-way Type



3-way Type



| No. | Description                  | Materials                         |
|-----|------------------------------|-----------------------------------|
| 1   | BODY ※1                      | ASTM A479 316                     |
| 2   | BALL ※1 ※2                   | ASTM A276 316                     |
| 3   | STEM                         | ASTM A276 316                     |
| 4   | STEM BEARING                 | PEEK                              |
| 5   | STEM O-RING ※1               | FKM                               |
| 6   | STEM BACKUP RING1            | PEEK                              |
| 7   | STEM BACKUP RING2            | PTFE                              |
| 8   | PLUG ※1                      | ASTM A479 316                     |
| 9   | SEATS ※1                     | PEEK                              |
| 10  | SEAT CARRIERS ※1             | ASTM A276 316                     |
| 11  | DISC SPRINGS ※1              | ALLOY X-750                       |
| 12  | SEAT CARRIER GUIDES ※1       | ASTM A276 316                     |
| 13  | SEAT CARRIER BACKUP RINGS ※1 | C-PTFE                            |
| 14  | SEAT CARRIER O-RINGS ※1      | FKM                               |
| 15  | END SCREW SEALS ※1           | PTFE                              |
| 16  | END SCREWS ※1                | ASTM A479 316                     |
| 17  | PANEL NUT                    | ASTM A276 304 or<br>ASTM A276 316 |
| 18  | STOP PIN                     | SUS304                            |
| 19  | HANDLE                       | PHENOLIC RESIN + C3604B           |
| 20  | SET SCREW                    | S17400 or SUS630                  |

※1 : Wetted part

※2 : Ball trunnions are PTFE coated.

| No. | Description                  | Materials                         |
|-----|------------------------------|-----------------------------------|
| 1   | BODY ※1                      | ASTM A479 316                     |
| 2   | BALL ※1 ※2                   | ASTM A276 316                     |
| 3   | STEM                         | ASTM A276 316                     |
| 4   | STEM BEARING                 | PEEK                              |
| 5   | STEM O-RING ※1               | FKM                               |
| 6   | STEM BACKUP RING1            | PEEK                              |
| 7   | STEM BACKUP RING2            | PTFE                              |
| 8   | SEATS ※1                     | PEEK                              |
| 9   | SEAT CARRIERS ※1             | ASTM A276 316                     |
| 10  | DISC SPRINGS ※1              | ALLOY X-750                       |
| 11  | SEAT CARRIER GUIDES ※1       | ASTM A276 316                     |
| 12  | SEAT CARRIER BACKUP RINGS ※1 | C-PTFE                            |
| 13  | SEAT CARRIER O-RINGS ※1      | FKM                               |
| 14  | END SCREW SEALS ※1           | PTFE                              |
| 15  | END SCREWS ※1                | ASTM A479 316                     |
| 16  | PANEL NUT                    | ASTM A276 304 or<br>ASTM A276 316 |
| 17  | STOP PIN                     | SUS304                            |
| 18  | HANDLE                       | PHENOLIC RESIN + C3604B           |
| 19  | SET SCREW                    | S17400 or SUS630                  |

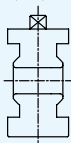
※1 : Wetted part

※2 : Ball trunnions are PTFE coated.

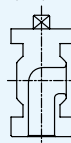
### About a BALL shape

There is no No.8 PLUG when being 2-way Type, and it's different shape of No.2 BALL in 3-way Type.

2-way Type Ball

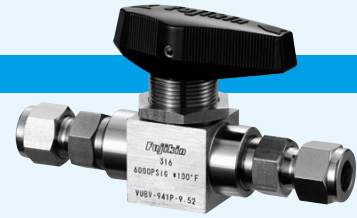


3-way Type Ball

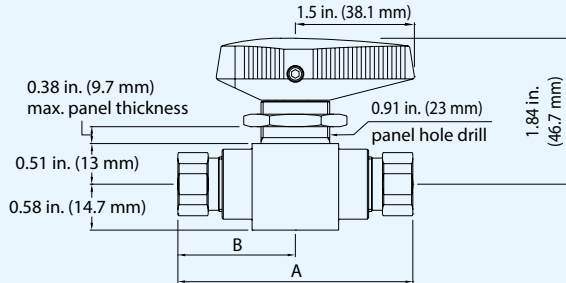


## Ordering Information and Dimensions

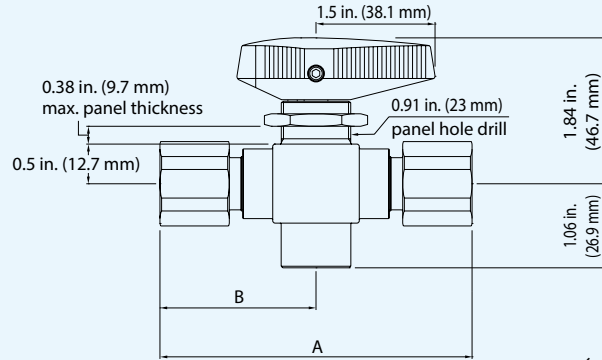
1. Dimensions, in inches (millimeters), are for reference only and are subject to change.
2. Dimensions shown with V-Lok tube fitting nuts finger-tight.



VUBV-141, 941 Type



VUBV, VUBVT-168, 968 Type



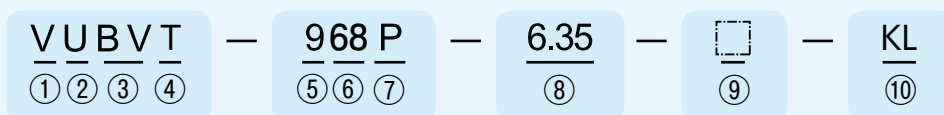
(Unit: mm)

| Flow Pattern | Connection | Nominal Dia.<br>Inch (mm) | Orifice Dia.<br>Inch (mm) | Dimensions Inch (mm) |             | Ordering Numbers |                   |
|--------------|------------|---------------------------|---------------------------|----------------------|-------------|------------------|-------------------|
|              |            |                           |                           | A                    | B           |                  |                   |
| 2-way Type   | V-Lok      | 1/4 (6.35)                | 4.8                       | 4.13 (105)           | 2.07 (52.6) | VUBV-941P-6.35   | VUBV-968P-6.35    |
|              |            | 3/8 (9.52)                |                           | 4.41 (112)           | 2.19 (55.6) | VUBV-941P-9.52   | VUBV-968P-9.52    |
|              |            | 1/2 (12.7)                |                           | 4.61 (117)           | 2.3 (58.4)  | VUBV-941P-12.7   | VUBV-968P-12.7    |
|              |            | - (6)                     |                           | 4.13 (105)           | 2.07 (52.6) | VUBV-941P-6      | VUBV-968P-6       |
|              |            | - (8)                     |                           |                      |             | VUBV-941P-8      | VUBV-968P-8       |
|              |            | - (10)                    |                           | 4.41 (112)           | 2.2 (55.9)  | VUBV-941P-10     | VUBV-968P-10      |
|              |            | - (12)                    |                           | 4.61 (117)           | 2.3 (58.4)  | VUBV-941P-12     | VUBV-968P-12      |
|              | Female NPT | 1/4                       |                           | 2.94 (74.7)          | 1.47 (37.3) | VUBV-141PBN      | -                 |
|              |            |                           |                           | 3.93 (99.8)          | 1.97 (50)   | -                | VUBV-168PBN       |
| 3-way Type   | V-Lok      | 6.35 (-)                  | 4.8                       | 4.13 (105)           | 2.07 (52.6) | -                | VUBVT-968P-6.35 ※ |
|              |            | 9.52 (-)                  |                           | 4.41 (112)           | 2.19 (55.6) | -                | VUBVT-968P-9.52 ※ |
|              |            | 12.7 (-)                  |                           | 4.61 (117)           | 2.3 (58.4)  | -                | VUBVT-968P-12.7 ※ |
|              |            | - (6)                     |                           | 4.13 (105)           | 2.07 (52.6) | -                | VUBVT-968P-6 ※    |
|              |            | - (8)                     |                           |                      |             | -                | VUBVT-968P-8 ※    |
|              |            | - (10)                    |                           | 4.41 (112)           | 2.2 (55.9)  | -                | VUBVT-968P-10 ※   |
|              |            | - (12)                    |                           | 4.61 (117)           | 2.3 (58.4)  | -                | VUBVT-968P-12 ※   |
|              | Female NPT | 1/4                       |                           | 3.93 (99.8)          | 1.97 (50)   | -                | VUBVT-168PBN ※    |

※ : Bottom port of all 3-way type valves are 1/4 Female NPT.

※ : Getting ready. Begin to sell it soon.

## Ordering Information



- |                                                        |                                                               |                                                                                                                                                                                                                            |                                                                                                   |
|--------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| ① Valve Series                                         | ⑤ End Connections<br>1 : Thread Type<br>9 : <b>V-Lok</b> Type | ⑧ Connection Sizes<br>6.35 : <b>V-Lok</b> 1/4<br>9.52 : <b>V-Lok</b> 3/8<br>12.7 : <b>V-Lok</b> 1/2<br>6 : <b>V-Lok</b> 6<br>8 : <b>V-Lok</b> 8<br>10 : <b>V-Lok</b> 10<br>12 : <b>V-Lok</b> 12<br>BN : Female NPT 1/4 in. | ⑨ Handle Color<br>Blank : Black<br>B : Blue<br>G : Green<br>YR : Orange<br>RE : Red<br>Y : Yellow |
| ② Body Material<br>Stainless Steel                     | ⑥ Working Pressure<br>68 : 10000 psi (689 bar)                |                                                                                                                                                                                                                            | ⑩ Key Lock Type<br>Blank : without Key Lock<br>KL : with Key Lock                                 |
| ③ Valve Type<br>Ball Valves                            | ⑦ Panel Nut                                                   |                                                                                                                                                                                                                            |                                                                                                   |
| ④ Flow Pattern<br>Blank : 2-way Type<br>T : 3-way Type |                                                               |                                                                                                                                                                                                                            |                                                                                                   |

## Option

## HANDLE COLOR

Standard Handle Color is black.

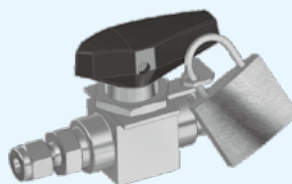
When you ordered a colored handle besides the black.  
Please put the relevant symbol to the part number end from beside table.

Ex. Ordering Number in case of you will order blue handle  
VUBV-941P-6.35-B

| HANDLE Color | The end of<br>Ordering Number |
|--------------|-------------------------------|
| Black        | —                             |
| Blue         | -B                            |
| Green        | -G                            |
| Orange       | -YR                           |
| Red          | -RE                           |
| Yellow       | -Y                            |

## Key Lock &amp; Bracket

- Locking with standard parts for lock, and with a handle of flow direction locking certainly at open or close for 2-way valves
- Possible to fix a locking part on the hole in the bracket or install a distinction tag.
- After installing to a panel, it isn't possible to install a bracket.

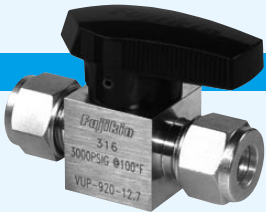


## Seal Kit

You can buy a Seal Kit at the valve maintenance time.

| Valve Series                  | Kit Contents                                                                                                                                                                                                                                                                                                                             |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VUBV-941 Series (2-way Type)  | <ul style="list-style-type: none"> <li>• INSTRUCTION MANUAL</li> <li>• BALL</li> <li>• STEM BEARING</li> <li>• O-RING(1), O-RING(2)</li> <li>• SEAT ASSEMBLY (SEAT + SEAT CARRIERS)</li> <li>• DISC SPRING</li> <li>• END SCREW SEALS</li> <li>• LUBRICANT</li> <li>• SDS of LUBRICANT</li> </ul>                                        |
| VUBV-968 Series (2-way Type)  | <ul style="list-style-type: none"> <li>• INSTRUCTION MANUAL</li> <li>• BALL</li> <li>• STEM</li> <li>• STEM BEARING</li> <li>• STEM O-RING</li> <li>• STEM BACKUP RING1, 2</li> <li>• SEAT ASSEMBLY (SEAT + SEAT CARRIERS)</li> <li>• DISC SPRING</li> <li>• END SCREW SEALS</li> <li>• LUBRICANT</li> <li>• SDS of LUBRICANT</li> </ul> |
| VUBVT-968 Series (3-way Type) | <ul style="list-style-type: none"> <li>• INSTRUCTION MANUAL</li> <li>• BALL</li> <li>• STEM BEARING</li> <li>• STEM O-RING</li> <li>• STEM BACKUP RING1, 2</li> <li>• SEAT ASSEMBLY (SEAT + SEAT CARRIERS)</li> <li>• DISC SPRING</li> <li>• END SCREW SEALS</li> <li>• LUBRICANT</li> <li>• SDS of LUBRICANT</li> </ul>                 |



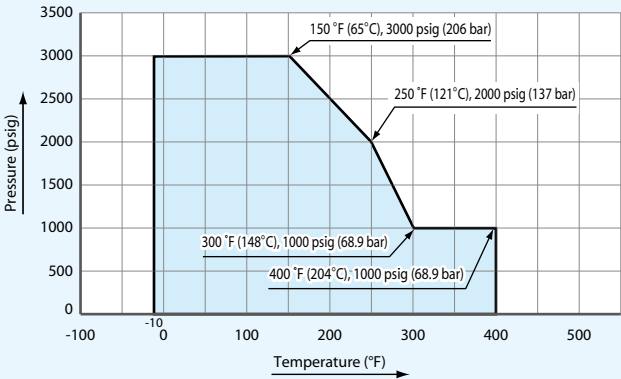


Features

- 1. Simple, Compact Design
- 2. Low Operating Torque
- 3. Quarter Turn Operation

Technical Data

Temperature and Pressure Rating



Note: If the end connection is **V-Lok** type, the working pressure may be low depending on the tube used.  
For details, please refer to 1-1, 1-2 in the table of P12.

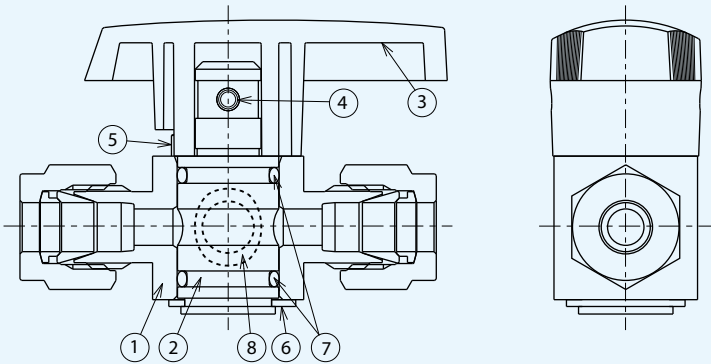
Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non-corrosive gas and liquid.

Attention

- 1. Differential pressure is limited to 150 psig (10.3 bar) maximum if reverse-flow occurs.
- 2. Reverse-flow throttling may damage O-Ring.

Materials of Construction



| No.        | Description     | Materials                 |
|------------|-----------------|---------------------------|
| 1          | BODY ※ 1        | ASTM A479 316             |
| 2          | PLUG ※ 1        | PTFE-Coated ASTM A479 316 |
| 3          | HANDLE          | POLYETHERIMIDE            |
| 4          | ROLL SPRING PIN | SUS304                    |
| 5          | STOP PIN        | SUS304                    |
| 6          | C-RING          | SUS304                    |
| 7          | O-RING ※ 1, ※ 2 | PTFE-Coated FKM           |
| 8          | O-RING ※ 1      |                           |
| Lubricants |                 | Silicone-based            |

※ 1 : Wetted parts  
※ 2 : Please refer to the maintenance stock number of parts of P129 in case of ordering No.7 or 8 parts element.

## Operation

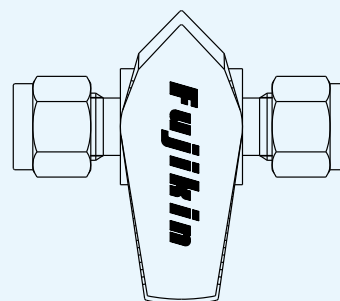
Open



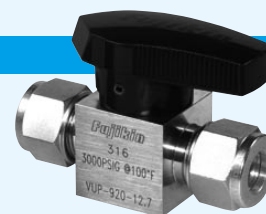
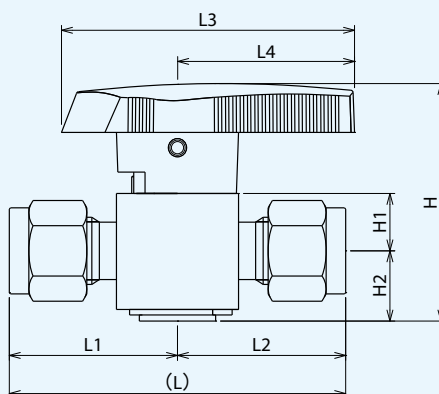
Forward-Flow Throttling



Closed

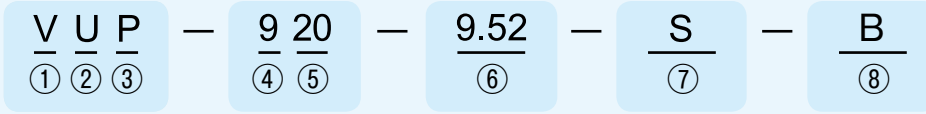


## Dimensions



| End Connections | Nominal Sizes  | Working Pressure<br>psig (bar) | Orifice<br>in. (mm) | Dimensions in. (mm) |                |                |                |                |                |               |                |              | Ordering Numbers |
|-----------------|----------------|--------------------------------|---------------------|---------------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|--------------|------------------|
|                 |                |                                |                     | L                   | L1             | L2             | H              | H1             | H2             | L3            | L4             | W            |                  |
| V-Lok           | 1/4 in.        | 3000<br>(206)                  | 0.173<br>(4.4)      | 2.17<br>(55.1)      | 1.08<br>(27.6) | 1.54<br>(39.1) | 0.37<br>(9.4)  | 0.46<br>(11.7) | 1.89<br>(48)   | 1.14<br>(29)  | 0.75<br>(19.1) | VUP-920-6.35 |                  |
|                 | 2.29<br>(58.2) |                                |                     | 1.15<br>(29.1)      | VUP-920-9.52-S |                |                |                |                |               |                |              |                  |
|                 | 3/8 in.        |                                | 0.283<br>(7.2)      | 2.66<br>(67.6)      | 1.33<br>(33.8) | 2.14<br>(54.4) | 0.56<br>(14.2) | 0.66<br>(16.8) | 2.47<br>(62.7) | 1.5<br>(38.1) | 1.12<br>(28.4) | VUP-920-9.52 |                  |
|                 | 1/2 in.        |                                |                     | 2.88<br>(73.2)      | 1.44<br>(36.6) |                |                |                |                |               |                | VUP-920-12.7 |                  |
| Female NPT      | 1/4 in.        |                                | 0.173<br>(4.4)      | 2.09<br>(53.1)      | 1.05<br>(26.6) | 1.54<br>(39.1) | 0.37<br>(9.4)  | 0.46<br>(11.7) | 1.89<br>(48)   | 1.14<br>(29)  | 0.75<br>(19.1) | VUP-120BN    |                  |
|                 | 1/2 in.        |                                | 0.283<br>(7.2)      | 2.88<br>(73.2)      | 1.44<br>(36.6) | 2.14<br>(54.4) | 0.56<br>(14.2) | 0.66<br>(16.8) | 2.47<br>(62.7) | 1.5<br>(38.1) | 1.12<br>(28.4) | VUP-120DN    |                  |
| Rc              | 1/4            |                                | 0.173<br>(4.4)      | 2.21<br>(56.1)      | 1.1<br>(28.1)  | 1.54<br>(39.1) | 0.37<br>(9.4)  | 0.46<br>(11.7) | 1.89<br>(48)   | 1.14<br>(29)  | 0.75<br>(19.1) | VUP-120B     |                  |
|                 | 1/2            |                                | 0.283<br>(7.2)      | 3.14<br>(79.8)      | 1.57<br>(39.9) | 2.14<br>(54.4) | 0.56<br>(14.2) | 0.66<br>(16.8) | 2.47<br>(62.7) | 1.5<br>(38.1) | 1.12<br>(28.4) | VUP-120D     |                  |

## Ordering Information



① Valve Series

② Body Material  
Stainless Steel

③ Valve Type  
Plug Valves

④ End Connections  
1: Thread Type  
9: **V-Lok** Type

⑤ Working Pressure  
3000 psig (206 bar)

⑥ Connection Sizes  
6.35: **V-Lok** 1/4 in.  
9.52: **V-Lok** 3/8 in.  
12.7: **V-Lok** 1/2 in.  
BN: 1/4 NPT  
DN: 1/2 NPT  
B: Rc1/4  
D: Rc1/2

⑦ Body Sizes  
BLANK: STD  
S: Small Size

⑧ Handle Color  
Blank: Green  
B: Blue ※  
BK: Black ※  
RE: Red ※  
Y: Yellow ※  
YR: Orange ※

Attention  
The handle color change after shipment can't be available.  
Please order the Plug Valves with color handle when you need.

※ : Getting ready. Begin to sell it soon.

## Maintenance Parts (O-Rings) Ordering Numbers

| Orifice Diameter<br>in. (mm) | Valve Ordering Numbers | O-Ring Ordering Numbers |
|------------------------------|------------------------|-------------------------|
| 0.173<br>(4.4)               | VUP-920-6.35           | GT O-Ring VUP-920-6.35  |
|                              | VUP-920-9.52-S         |                         |
|                              | VUP-120BN              |                         |
|                              | VUP-120B               |                         |
| 0.283<br>(7.2)               | VUP-920-9.52           | GT O-Ring VUP-920-9.52  |
|                              | VUP-920-12.7           |                         |
|                              | VUP-120-DN             |                         |
|                              | VUP-120D               |                         |

Please refer the procedure on the instruction manual (No. TKS01-120910-01) before deassembling and checking it.



## Features

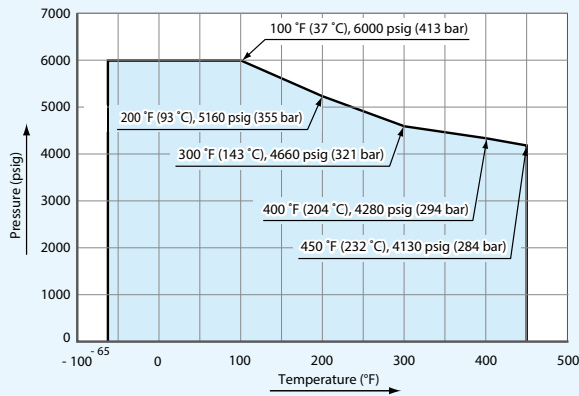
1. Panel Mountable
2. Nonrotating Ball Stem Tip
3. Regulating Stem Tip Available
4. End Connections **V-Lok** Tube Fittings



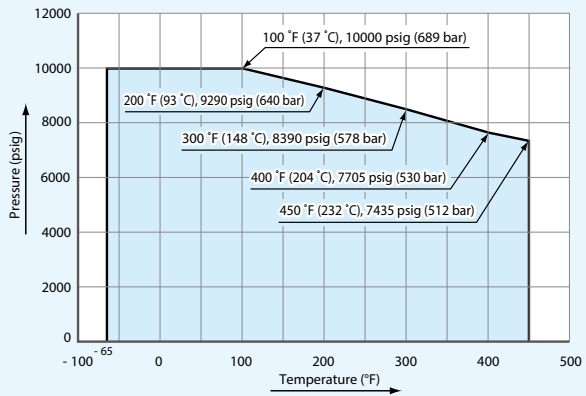
## Technical Data

### Temperature and Pressure Rating

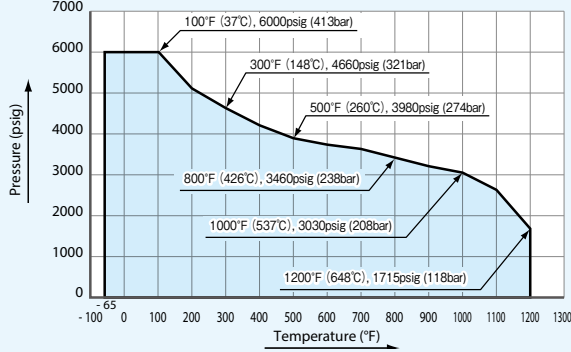
**VUH-941 Series PTFE Packing Type**



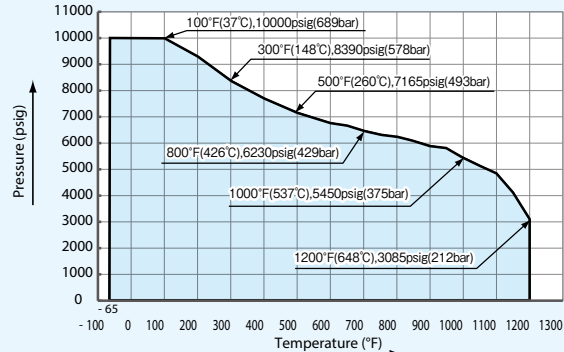
**VUH-968 Series PTFE Packing Type**



**VUH-941 Series Grafoil Packing Type**



**VUH-968 Series Grafoil Packing Type**



Note: If the end connection is **V-Lok** type, the working pressure may be low depending on the tube used.  
For details, please refer to 1-1, 1-2 in the table of P12.

## Applicable Fluid

### PTFE Packing Type

Air, Nitrogen gas, Inert gas like Helium, and non-corrosive gas and liquid.

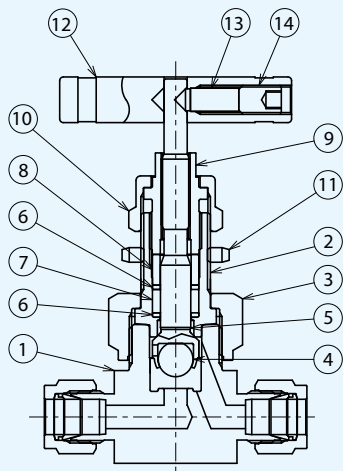
### Grafoil Packing Type

Steam, Water and non-corrosive gas and liquid.

Note : Materials and dimensions are subject to change without notice.

## Material of Construction

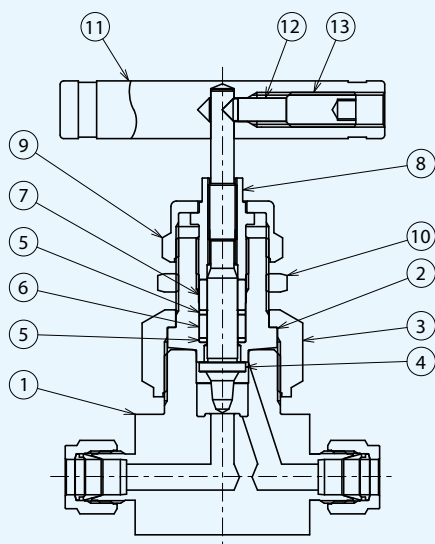
## VUH-941 Series



| No. | Description       | Materials                         |
|-----|-------------------|-----------------------------------|
| 1   | BODY ※            | ASTM A479 316                     |
| 2   | BONNET ※          | ASTM A479 316                     |
| 3   | BONNET NUT        | ASTM A276 316                     |
| 4   | BALL TIP ※        | ASTM A276 316                     |
| 5   | STEM ※            | ASTM A276 316                     |
| 6   | PACKING SUPPORT ※ | C-PTFE                            |
| 7   | PACKING ※         | PTFE                              |
| 8   | GLAND             | ASTM A276 316                     |
| 9   | PACKING BOLT      | ASTM A276 316                     |
| 10  | LOCK NUT          | ASTM A276 316                     |
| 11  | PANEL NUT         | ASTM A276 304 or<br>ASTM A276 316 |
| 12  | HANDLE            | A6061B                            |
| 13  | PIN               | SUS316                            |
| 14  | SET SCREW         | SUSXM7                            |

※ : Wetted part

## VUH-968 Series

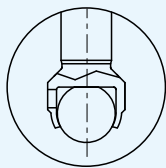


| No. | Description       | Materials                         |
|-----|-------------------|-----------------------------------|
| 1   | BODY ※            | ASTM A479 316                     |
| 2   | BONNET ※          | ASTM A479 316                     |
| 3   | BONNET NUT        | ASTM A276 316                     |
| 4   | STEM ※            | ASTM A276 316                     |
| 5   | PACKING SUPPORT ※ | C-PTFE                            |
| 6   | PACKING ※         | PTFE                              |
| 7   | GLAND             | ASTM A276 316                     |
| 8   | PACKING BOLT      | ASTM A276 316                     |
| 9   | LOCK NUT          | ASTM A276 316                     |
| 10  | PANEL NUT         | ASTM A276 304 or<br>ASTM A276 316 |
| 11  | HANDLE            | A6061B                            |
| 12  | PIN               | SUS316                            |
| 13  | SET SCREW         | SUSXM7                            |

※ : Wetted part

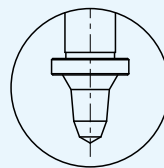
## Stem Types

## VUH-941 Series



Nonrotating Stem Tip

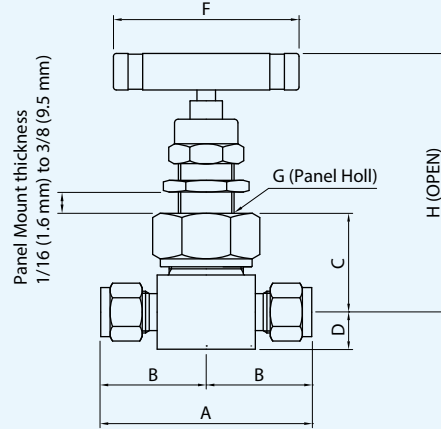
## VUH-968 Series



Regulating Stem Tip

## Dimensions

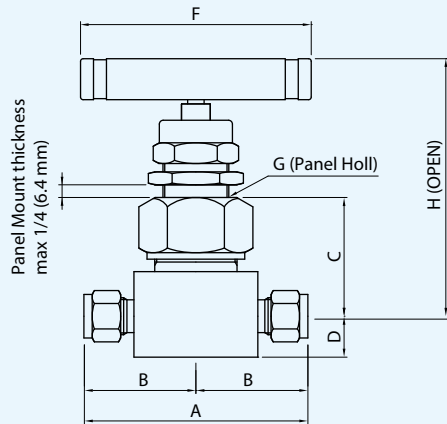
### VUH-941 Series



| Connection Types | Nominal Diameter inch (mm) | Operating Pressure psi (bar) | Orifice inch (mm) | Dimensions inch (mm) |             |             |             |             |             |             | Ordering Numbers |
|------------------|----------------------------|------------------------------|-------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|------------------|
|                  |                            |                              |                   | A                    | B           | C           | D           | F           | G           | H           |                  |
| V-Lok            | 1/4 (6.35)                 | 6000 (413)                   | 0.16 (4)          | 2.4 (61)             | 1.2 (30.5)  | 1.09 (27.7) | 0.38 (9.7)  | 1.75 (44.4) | 0.59 (15.1) | 3.04 (77.2) | VUH-941P-6.35    |
|                  | 3/8 (9.52)                 |                              | 0.25 (6.4)        | 2.83 (71.9)          | 1.41 (35.8) | 1.34 (34)   | 0.5 (12.7)  | 2.5 (63.5)  | 0.78 (19.8) | 3.7 (94)    | VUH-941P-9.52    |
|                  |                            |                              |                   | 3.04 (77.2)          | 1.52 (38.6) |             |             |             |             |             | VUH-941P-12.7-S  |
|                  | 1/2 (12.7)                 |                              | 0.44 (11.1)       | 3.92 (99.6)          | 1.96 (49.8) | 1.82 (46.2) | 0.62 (15.7) | 3.5 (88.9)  | 1.03 (26.2) | 4.76 (121)  | VUH-941P-12.7    |
| Female NPT       | 1/4                        |                              | 0.16 (4)          | 2.06 (52.3)          | 1.03 (26.2) | 1.09 (27.7) | 0.39 (9.9)  | 1.75 (44.4) | 0.59 (15.1) | 3.04 (77.2) | VUH-141PBN ※     |
|                  | 3/8                        |                              | 0.25 (6.4)        | 2.25 (57.2)          | 1.12 (28.4) | 1.34 (34)   | 0.5 (12.7)  | 2.5 (63.5)  | 0.78 (19.8) | 3.7 (94)    | VUH-141PCN ※     |
|                  | 1/2                        |                              | 0.44 (11.1)       | 3.12 (79.2)          | 1.56 (39.6) | 1.82 (46.2) | 0.62 (15.7) | 3.5 (88.9)  | 1.03 (26.2) | 4.76 (121)  | VUH-141PDN ※     |
| Rc               | 1/4                        |                              | 0.16 (4)          | 2.06 (52.3)          | 1.03 (26.2) | 1.09 (27.7) | 0.39 (9.9)  | 1.75 (44.4) | 0.59 (15.1) | 3.04 (77.2) | VUH-141PB ※      |
|                  | 3/8                        |                              | 0.25 (6.4)        | 2.25 (57.2)          | 1.12 (28.4) | 1.34 (34)   | 0.5 (12.7)  | 2.5 (63.5)  | 0.78 (19.8) | 3.7 (94)    | VUH-141PC ※      |
|                  | 1/2                        |                              | 0.44 (11.1)       | 3.12 (79.2)          | 1.56 (39.6) | 1.82 (46.2) | 0.62 (15.7) | 3.5 (88.9)  | 1.03 (26.2) | 4.76 (121)  | VUH-141PD ※      |

※ : Getting ready. Begin to sell it soon.

## VUH-968 Series



| Connection Types  | Nominal Diameter inch (mm) | Operating Pressure psi (bar) | Orifice inch (mm) | Dimensions inch (mm) |             |             |             |            |             |             | Ordering Numbers |
|-------------------|----------------------------|------------------------------|-------------------|----------------------|-------------|-------------|-------------|------------|-------------|-------------|------------------|
|                   |                            |                              |                   | A                    | B           | C           | D           | F          | G           | H           |                  |
| <b>V-Lok</b>      | 1/4 (6.35)                 | 10000 (689)                  | 0.44 (11.1)       | 2.82 (71.6)          | 1.41 (35.8) | 1.38 (35.1) | 0.5 (12.7)  | 2.5 (63.5) | 0.81 (20.6) | 3.31 (84.1) | VUH-968P-6.35    |
|                   | 3/8 (9.52)                 |                              | 0.25 (6.4)        | 3.39 (86.1)          | 1.69 (43)   | 1.8 (45.8)  | 0.62 (15.8) | 3.5 (88.9) | 1.06 (26.9) | 4.25 (108)  | VUH-968P-9.52    |
| <b>Female NPT</b> | 1/4                        |                              | 0.44 (11.1)       | 2.25 (57.2)          | 1.13 (28.6) | 1.38 (35.1) | 0.5 (12.7)  | 2.5 (63.5) | 0.81 (20.6) | 3.31 (84.1) | VUH-168PBN ※     |
|                   | 3/8                        |                              | 0.25 (6.4)        | 3.25 (82.6)          | 1.63 (41.3) | 1.94 (49.3) | 0.78 (19.8) | 3.5 (88.9) | 1.06 (26.9) | 4.25 (108)  | VUH-168PCN ※     |
|                   | 1/2                        |                              |                   |                      |             |             |             |            |             |             | VUH-168PDN ※     |
| <b>Rc</b>         | 1/4                        |                              | 0.44 (11.1)       | 2.25 (57.2)          | 1.13 (28.6) | 1.41 (35.8) | 0.5 (12.7)  | 2.5 (63.5) | 0.81 (20.6) | 3.31 (84.1) | VUH-168PB ※      |
|                   | 3/8                        |                              | 0.25 (6.4)        | 3.25 (82.6)          | 1.63 (41.3) | 1.94 (49.3) | 0.78 (19.8) | 3.5 (88.9) | 1.06 (26.9) | 4.25 (108)  | VUH-168PC ※      |
|                   | 1/2                        |                              |                   |                      |             |             |             |            |             |             | VUH-168PD ※      |

※ : Getting ready. Begin to sell it soon.

## Ordering Information

|            |   |               |   |           |   |           |
|------------|---|---------------|---|-----------|---|-----------|
| <b>VUH</b> | — | <b>1 41 P</b> | — | <b>BN</b> | — | <b>GR</b> |
| ① ② ③      |   | ④ ⑤ ⑥         |   | ⑦         |   | ⑧         |

① Valve Series

④ End Connection

1: Thread Type

9: **V-Lok** Type

⑦ Connection Sizes

B: Rc1/4

C: Rc3/8

D: Rc1/2

BN: 1/4NPT

CN: 3/8NPT

DN: 1/2NPT

–6.35: **V-Lok** 1/4

–9.52: **V-Lok** 3/8

–12.7: **V-Lok** 1/2

⑧ Gland Packing materials

Blank: PTFE+C-PTFE

GR: Graphoil

② Body Material

Stainless Steel

⑤ Working Pressure

41: 6000 psi (413 bar)

68: 10000 psi (689 bar)

③ Valve Type

Needle Valves

⑥ Panel Mount Type



## Features

1. Integrate-type Body & Compact Design
2. Excellent Operability with Small Operating Torque
3. Panel Mount Type
4. Linear Flow Control
5. Available with Round Handle Type & Bar Handle Type
6. 2-Stem Design

VEE Type

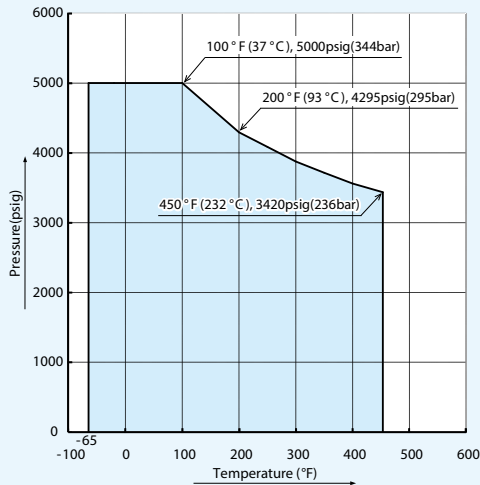


Regulating Type



## Technical Data

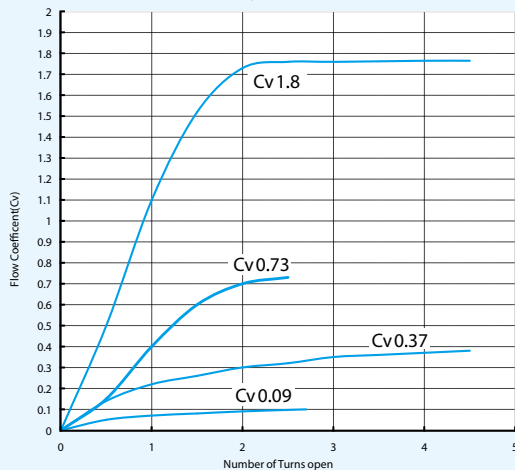
### Temperature and Pressure Rating



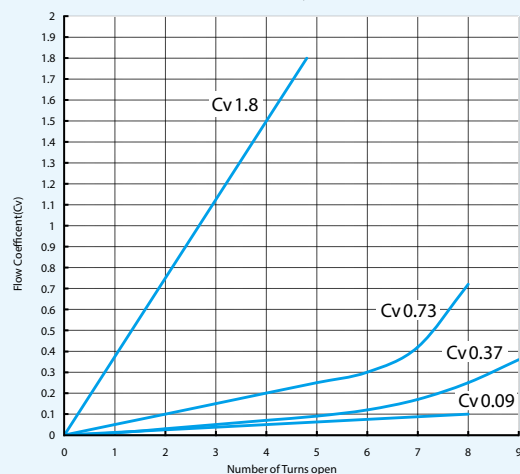
Note: If the end connection is **V-Lok** type, the working pressure may be low depending on the tube used.  
For details, please refer to 1-1, 1-2 in the table of P12.

### Flow Coefficient (Cv Value)

VEE Type Stem



Regulating Type Stem

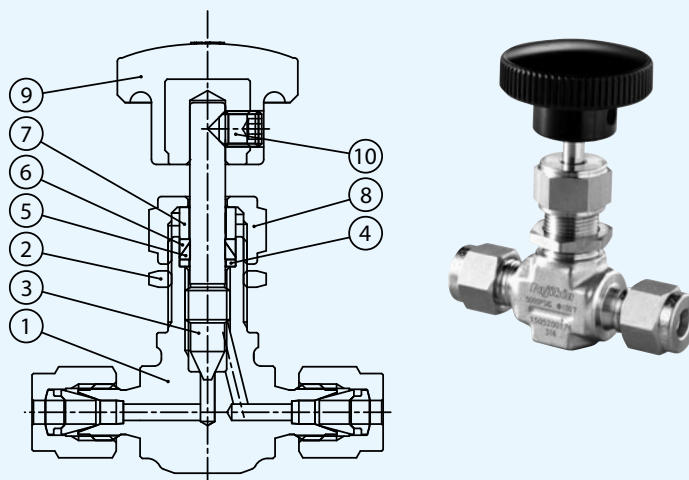


### Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

Note : Materials and dimensions are subject to change without notice.

## Material of Construction



| No. | Description   |                 | Material                   |
|-----|---------------|-----------------|----------------------------|
| 1   | BODY          | ※               | ASTM A182 316              |
| 2   | PANEL NUT     |                 | ASTM A276 316              |
| 3   | STEM          | VEE TYPE        | ASTM A276 316 (Cr Plated)  |
|     |               | REGULATING TYPE | ※                          |
| 4   | LOWER GLAND   | ※               | ASTM A276 316              |
| 5   | LOWER PACKING | ※               | PTFE                       |
| 6   | UPPER PACKING | ※               | PTFE                       |
| 7   | PACKING GLAND |                 | ASTM A276 316              |
| 8   | LOCK NUT      |                 | ASTM A276 316              |
| 9   | HANDLE        |                 | Phenolic with brass insert |
| 10  | SET SCREW     |                 | 316 SS                     |

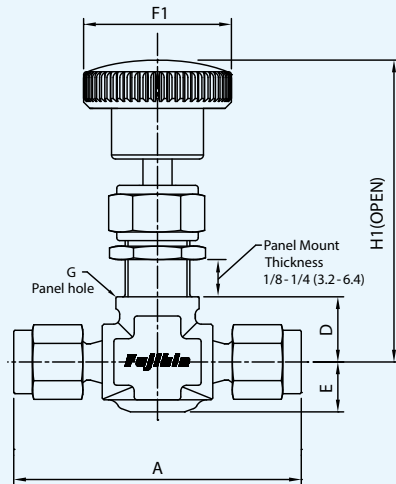
※ : Wetted Parts



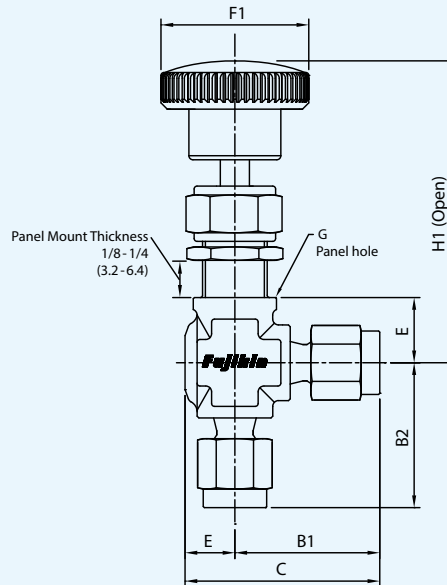
## Dimensions



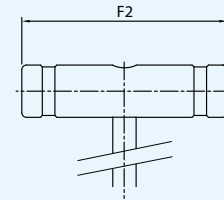
Globe Type



Angle Type



Bar Handle Type

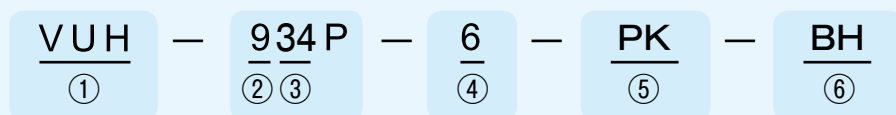


| End Connections | Nominal Sizes<br>inch (mm) | Working Pressure<br>psig(bar) | Orifice<br>inch (mm) | Dimensions inch (mm) |               |                |                |                |                |                |              |                |                |                | Ordering Numbers |    |
|-----------------|----------------------------|-------------------------------|----------------------|----------------------|---------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------|----------------|----------------|------------------|----|
|                 |                            |                               |                      | Cv                   | A             | B1             | B2             | C              | D              | E              | F1           | F2             | G              | H1             |                  | H2 |
| V-Lok           | 1/8 (3.2)                  | 5000<br>(344)                 | 0.079<br>(2)         | 0.09                 | 1.94(49.3)    | 0.98<br>(24.9) | 1.29<br>(32.8) | 0.44<br>(11.2) | 0.31<br>(7.9)  | 1<br>(25.4)    | 1.73<br>(44) | 0.47<br>(11.9) | 2.28<br>(57.9) | 1.91<br>(48.4) | VUH-934P-3.2     | ※  |
|                 | — (3)                      |                               |                      |                      | 2.27(57.6)    |                |                |                |                |                |              |                |                |                | VUH-934P-3       | ※  |
| Female NPT      | 1/8 (—)                    |                               |                      | 1.88(47.8)           | 0.94(23.9)    | 1.25(31.8)     |                |                |                |                |              |                | VUH-134PAN-S   | ※              |                  |    |
| V-Lok           | 1/4 (6.35)                 |                               | 0.173<br>(4.4)       | 0.37                 | 2.27(57.6)    | 1.13<br>(28.7) | 1.51<br>(38.4) |                | 0.38<br>(9.7)  | 1.38<br>(35.1) |              | 0.53<br>(13.5) | 2.5<br>(63.5)  | 2.02<br>(51.4) | VUH-934P-6.35    |    |
|                 | — (6)                      |                               |                      |                      | 2.34(59.4)    | 1.17(29.7)     | 1.54(39.1)     | VUH-934P-6     |                |                |              |                |                |                |                  |    |
| Female NPT      | 1/8 (—)                    |                               |                      | 1.62(41.1)           | 0.81(20.6)    | 1.19(30.2)     |                |                |                |                |              |                | VUH-934P-8     |                |                  |    |
|                 |                            |                               |                      |                      |               |                |                |                |                |                |              |                |                | VUH-134PAN     | ※                |    |
| V-Lok           | 3/8 (9.52)                 |                               | 0.252<br>(6.4)       | 0.73                 | 2.58(65.5)    | 1.29(32.8)     | 1.79<br>(45.5) | 0.55<br>(14)   | 0.5<br>(12.7)  | 1.88<br>(47.8) | 2.52<br>(64) | 0.78<br>(19.8) | 2.97<br>(75.4) | 2.43<br>(61.7) | VUH-934P-9.52    |    |
|                 | 1/2 (12.7)                 |                               |                      |                      | 2.8(71.1)     | 1.4(35.6)      | 1.8(45.7)      |                |                |                |              |                |                |                | VUH-934P-12.7-S  |    |
|                 | — (10)                     |                               |                      | 2.6(66)              | 1.3(33)       | 1.8(45.7)      |                |                |                |                |              |                |                | VUH-934P-10    |                  |    |
|                 | — (12)                     |                               |                      | 2.8(71.1)            | 1.4(35.6)     | 1.9(48.3)      |                |                |                |                |              |                |                | VUH-934P-12-S  | ※                |    |
| Female NPT      | 1/4 (—)                    |                               |                      | 2.12(53.8)           | 1.06(26.9)    | 1.56(39.6)     |                |                |                |                |              |                |                | VUH-134PBN     |                  |    |
| V-Lok           | 1/2 (12.7)                 |                               | 0.374<br>(9.5)       | 1.8                  |               | 3.8<br>(96.5)  | 1.9<br>(48.3)  | 2.65<br>(67.3) | 0.75<br>(19.1) | —              | 3<br>(76.2)  | 1.03<br>(26.2) | 3.91<br>(99.3) | 3.83<br>(97.4) | VUH-934P-12.7    |    |
|                 | 3/4 (19.05)                |                               |                      |                      |               |                |                |                |                |                |              |                |                |                | VUH-934P-19.05   |    |
|                 | — (12)                     |                               |                      |                      |               |                |                |                |                |                |              |                |                |                | VUH-934P-12      |    |
|                 | — (18)                     |                               |                      |                      |               |                |                |                |                |                |              |                |                |                | VUH-934P-18      | ※  |
| Female NPT      | 3/8 (—)                    |                               |                      | 3<br>(76.2)          | 1.5<br>(38.1) | 2.25<br>(57.2) |                |                |                |                |              | 3.88<br>(98.6) | VUH-134PCN     |                |                  |    |
|                 | 1/2 (—)                    |                               |                      |                      |               |                |                |                |                |                |              |                | VUH-134PDN     |                |                  |    |

※ : Getting ready. Begin to sell it soon.

Note : Materials and dimensions are subject to change without notice.

## Ordering Information



## ① Valve Series

VUH : VEE Type Stem  
 VUN : Regulating Type Stem ※  
 ( VUD : Soft Seat Type Stem) ※

## ② End Connection Types

0 : **V-Lok** Angle Type ※  
 1 : Thread Globe Type  
 3 : Thread Angle Type ※  
 9 : **V-Lok** Globe Type

## ③ Working Pressure

5000 psig (344 bar)

## ④ Connection Sizes

3.2 : **V-Lok** 1/8 ※  
 6.35 : **V-Lok** 1/4  
 9.52 : **V-Lok** 3/8  
 12.7 : **V-Lok** 1/2  
 12.7-S : **V-Lok** 1/2 (Small Body Size Type)  
 19.05 : **V-Lok** 3/4  
 3 : **V-Lok** 3 ※  
 6 : **V-Lok** 6  
 8 : **V-Lok** 8  
 10 : **V-Lok** 10  
 12 : **V-Lok** 12  
 12-S : **V-Lok** 12 (Small Body Size Type) ※

## ⑤ Packing Materials

Blank : PTFE  
 PK : PEEK ※  
 PA : PFA ※  
 PE : Polyethylene ※

## ⑥ Handle Types

Blank : Round Handle Type  
 BH : Bar Handle Type

When there are two kinds of Body Size to the same Connection Size,  
 please add to ordering number of Small Type Body Size “-S”  
 behind the character which shows the Connection Size.

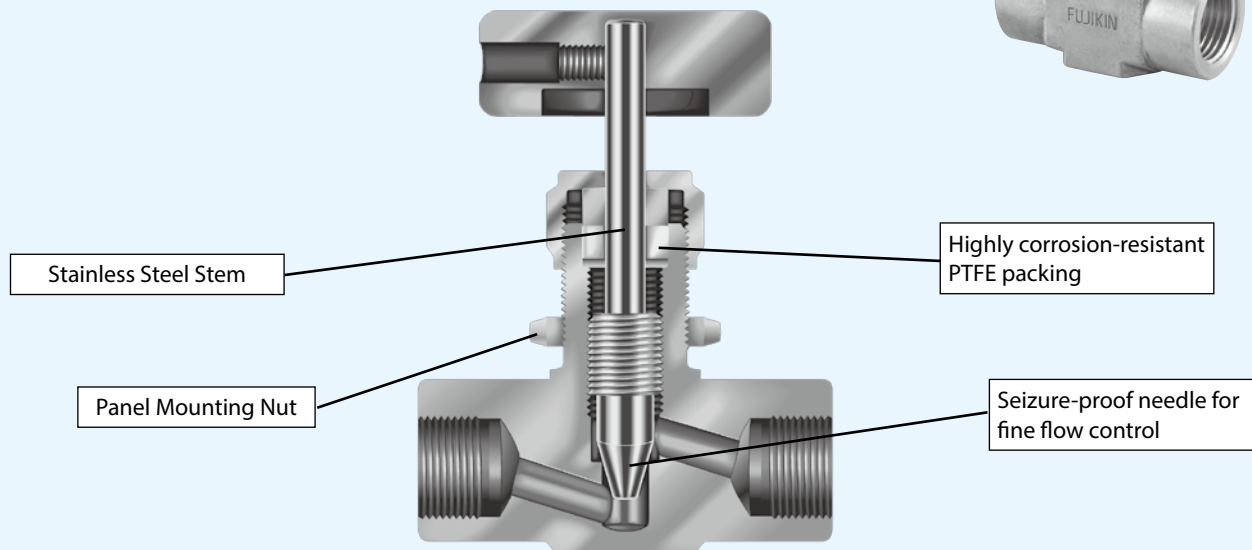
Ex. 12-S, 12.7-S, AN-S

AN : 1/8NPT ※  
 AN-S : 1/8NPT (Small Body Size Type) ※  
 BN : 1/4NPT  
 CN : 3/8NPT  
 DN : 1/2NPT

※ : Getting ready. Begin to sell it soon.

## Brass Needle Stop Valves

With Color-coded Handles & Panel Mounting Nut



### Features

1. Robust forged body and compact bonnet-less construction.
2. Needle design enhances ease of flow adjustment.
3. Packing and gland design reduce handle torque and enhance seal performance.

In the standard configuration, the valve comes with a black handle. blue, red, and green handles are also available.

※ It's popular for customers to use different colours for different fluids and flow lines.

Note: Materials and dimensions are subject to change without notice.

## Ordering Number Designation

Threaded Connector Type

# PDS-15B-SH-R

P: POWERFULL Series  
 D: Brass  
 S: Needle Stop Valves  
 -15: 713 psig (49bar)  
 B: Threaded Connector, Globe Pattern  
 -S: Thread Size (When a connection in one side is thread.) ※ 2  
 (In case of a NPT thread connection, the character "N" is attached additionally at the end.)  
 H: Please see ※ 2 Thread Sizes Table  
 R: Corresponding RoHS

※ 2: Thread Sizes Table

| Taper<br>Pipe<br>Thread | Designation                   |                              | A             | B             | C             | D             |
|-------------------------|-------------------------------|------------------------------|---------------|---------------|---------------|---------------|
|                         | JIS B 0203 (1982)<br>(ISO7/1) | Male thread<br>Female thread | R1/8<br>Rc1/8 | R1/4<br>Rc1/4 | Rc3/8<br>R3/8 | R1/2<br>Rc1/2 |

Thread designation complies with JIS B0203 (1982) (ISO7/1).  
 Sizes as per JIS B0203 (1981) are shown for reference purpose.

## Construction



## Materials

| No. | Description                   | Materials            |
|-----|-------------------------------|----------------------|
| 1   | Body ※                        | C3771B               |
| 2   | Panel Nut                     | C3604B               |
| 3   | Stem ※                        | SUS303 or SUS316 ※ 1 |
| 4   | Ring ※                        | SUS316               |
| 5   | Gland Packing ※               | P T F E              |
| 6   | Gland                         | C3604B               |
| 7   | Gland Nut                     | C3604B               |
| 8   | Hexagon Socket Head Set Screw | SUS304 equivalent    |
| 9   | Handwheel                     | A5056B ※ 2           |

※ : Wetted Parts

Exceptions:

1: Applicable fluid: Water, Air, Nitrogen gas, inter gas like Helium, and non-corrosive gas and liquid.

※ 1: SUS materials may use ASTM standard material(SUS equivalent material)

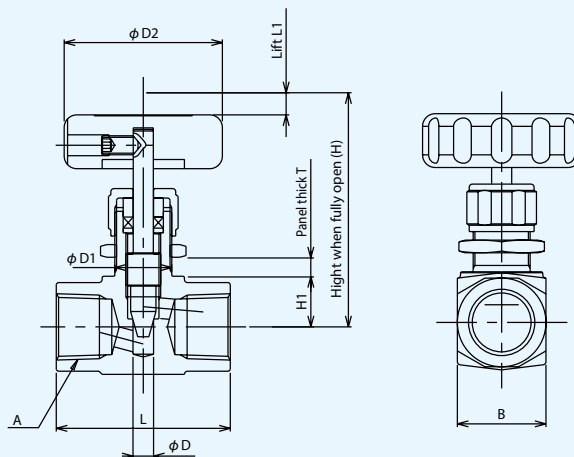
※ 2: Standard color of the Handwheel is black. A Nameplate (material: Tetoron) is stuck to the Handle.

A seat will be corroded on early by the Langerear index when you use a brass valve for tap water, **Fujikin** recommends use of a stainless steel valve.

Quoting : Japan Valve Manufacturer's Association Publication.

## Brass 4.9 MPa POWERFULL SERIES Needle Stop Valves

Threaded Connector Type



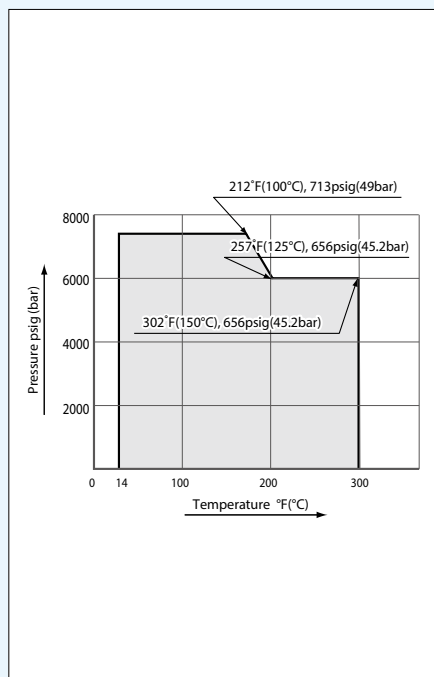
Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

### Dimension

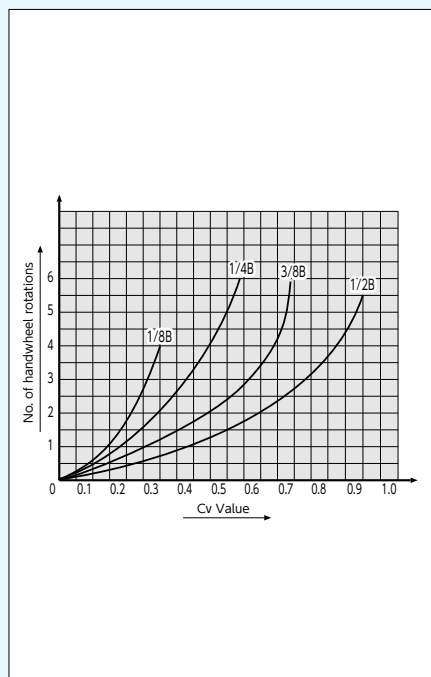
UNIT(mm)

| Nominal Dia. (B) | Orifice Dia. D | Face to face Dimension L | Connection Port A | Panel Mounting |      | H  | L1 | D2 | B    | T    |      | Cv Value MAX. | Weight approx. (kg) | Ordering Numbers |
|------------------|----------------|--------------------------|-------------------|----------------|------|----|----|----|------|------|------|---------------|---------------------|------------------|
|                  |                |                          |                   | D1             | H1   |    |    |    |      | MIN. | MAX. |               |                     |                  |
| 1/8              | 5              | 40                       | Rc 1/8            | 13.2           | 10.5 | 55 | 4  | 40 | 18.5 | 2    | 6    | 0.3           | 0.2                 | PDS-15A-SH-R     |
| 1/4              | 6.5            | 45                       | Rc 1/4            | 18.5           | 14   | 71 | 6  | 50 | 21   | 2    | 8    | 0.55          | 0.3                 | PDS-15B-SH-R     |
| 3/8              | 6.5            | 50                       | Rc 3/8            | 18.5           | 16   | 73 | 6  | 50 | 28   | 2    | 8    | 0.7           | 0.4                 | PDS-15C-SH-R     |
| 1/2              | 6.5            | 55                       | Rc 1/2            | 18.5           | 16   | 73 | 6  | 50 | 28   | 2    | 8    | 0.9           | 0.4                 | PDS-15D-SH-R     |

### Temperature-Pressure Curve



### Cv Curves



### Specifications

| Working Pressure<br>psig<br>(bar) | Temperature<br>°F<br>(°C) |
|-----------------------------------|---------------------------|
| 713<br>(49) ※ 1, 2                | 14 ~ +302<br>(-10 ~ +150) |

※ 1: Please refer to Temperature-Pressure Curve.

※ 2: Consult with **Fujikin** before using hydrogen, helium, or toxic gases, and in vacume state.

Exceptions:

Applicable fluid: Water, Air, Nitrogen gas, inter gas like Helium, and non-corrosive gas and liquid.

### Panel Mounting Procedures

If you are panel-mounting the valve, follow these instructions:

1. Ensure that the bracket hole on the panel is ≤ 0.5mm wider than the valve's Panel-Mounting Diameter (refer to the CAD drawing).
2. Use an adjustable wrench to loosen the Hex Nut securing the Handle. Remove the Handle.
3. Remove the Gland Nut and the Panel Nut.
4. Mount the valve on the panel and secure it with the Panel Nut. Reattach the Gland Nut and the Handle.
5. Tighten the Gland Nut with an adjustable wrench to the torque shown in the table below.

### Gland Nut Tightening Torque (Reference Value)

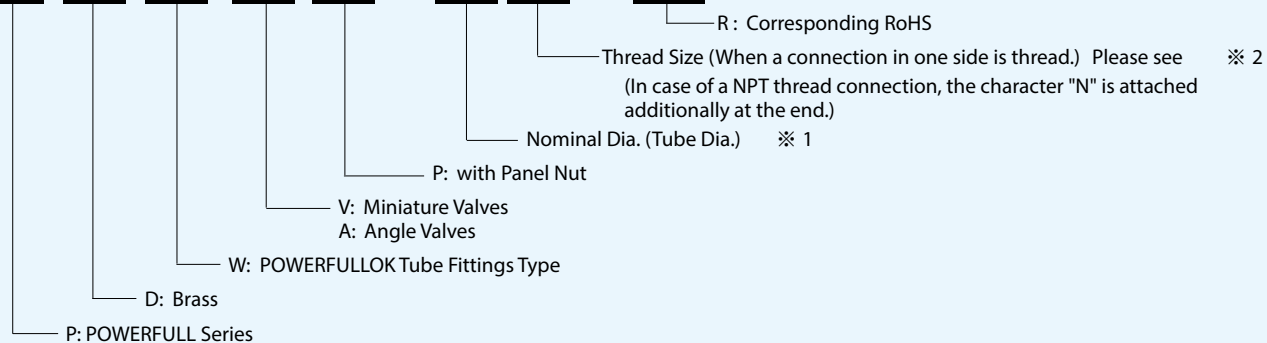
| Nominal Dia. (B) | Tightening Torque (N·m) |
|------------------|-------------------------|
| 1/8              | 8                       |
| 1/4              | 18                      |
| 3/8              | 18                      |
| 1/2              | 18                      |

Note: Materials and dimensions are subject to change without notice.

# Brass 2 MPa POWERFULL SERIES Miniature Valves with POWERFULLOK Fittings

## Ordering Number Designation

# P D W V P - 6 B - R



※ 1: Nominal Diameter (Tube Dia.)

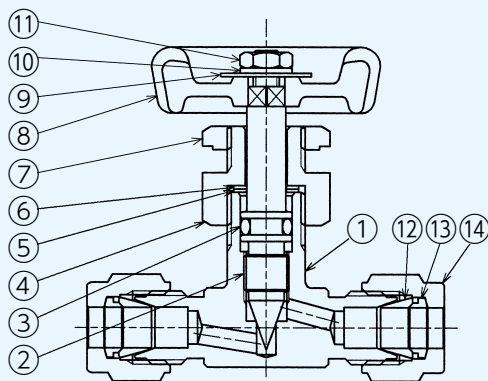
|                              | inch Sizes                                                                                | mm Sizes                                                                                             |
|------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Nominal Diameter (Tube Dia.) | 6.35 : connection part 6.35<br>9.52 : connection part 9.52<br>12.7 : connection part 12.7 | 6 : connection part 6<br>8 : connection part 8<br>10 : connection part 10<br>12 : connection part 12 |

※ 2: Thread Sizes Table

| Taper Pipe Thread | Designation                |               | A     | B     | C     |
|-------------------|----------------------------|---------------|-------|-------|-------|
|                   | JIS B 0203 (1982) (ISO7/1) | Male thread   | R1/8  | R1/4  | Rc3/8 |
|                   |                            | Female thread | Rc1/8 | Rc1/4 | R3/8  |

Thread designation complies with JIS B0203 (1982) (ISO7/1).  
 Sizes as per JIS B0203 (1981) are shown for reference purpose.

## Construction



## Materials

| No. | Description   | Materials          |
|-----|---------------|--------------------|
| 1   | Body ※        | C3771B             |
| 2   | Stem          | SUS304 or 303 ※3※4 |
| 3   | O-Ring ※      | NBR                |
| 4   | Gland Nut     | C3604B             |
| 5   | Ring ※        | A5052P             |
| 6   | Sheet Packing | Nylon              |
| 7   | Panel Nut     | C3604B             |
| 8   | Handle        | ADC12              |
| 9   | Name Plate    | A5052P             |
| 10  | Washer        | SK85 (MF Ni)       |
| 11  | Hex Nut       | C3604B             |
| 12  | Front Ring    | C3602B             |
| 13  | Back Ring     | C3602B             |
| 14  | Nut           | C3604B             |

※ : Wetted Part

Exceptions:

Applicable fluid: Water, Air, Nitrogen gas, inter gas like Helium, and non-corrosive gas and liquid.

※ 3: Stainless Steel : Nominal Dia. 9.52 or more,

C3604B : Rc Thread 3/8 or more

※ 4: SUS materials may use ASTM standard material(SUS equivalent material)

A seat will be corroded on early by the Langerear index when you use a brass valve for tap water, **Fujikin** recommends use of a stainless steel valve.

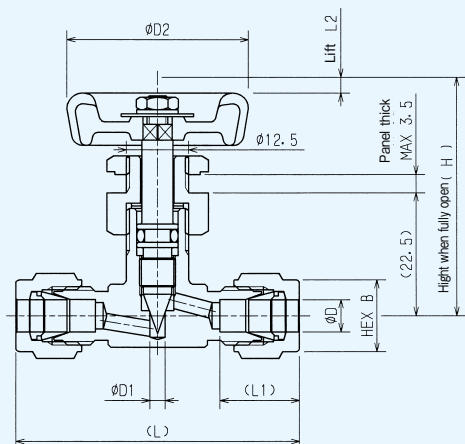
Quoting : Japan Valve Manufacturer's Association Publication.



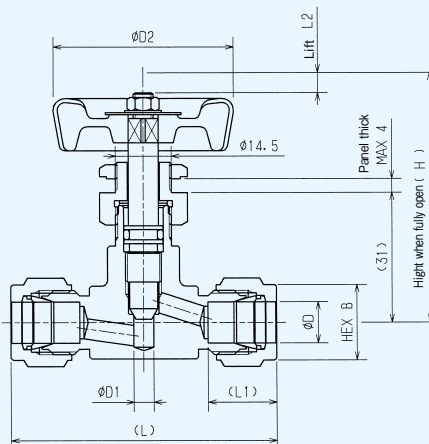
## Brass 2 MPa POWERFULL SERIES Miniature Valves

POWERFULLOK Fittings Connection Type

Nom. Dia. 6, 6.35, 8 Type



Nom. Dia. 9.52, 10, 12, 12.7 Type



Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

### ● Dimensions (inch size)

UNIT (mm)

| Nominal Dia.<br>D | D1 | D2 | L    | L1   | L2 | B  | H  | Ordering Numbers |
|-------------------|----|----|------|------|----|----|----|------------------|
| 6.35              | 3  | 35 | 54.8 | 15.4 | 3  | 14 | 45 | PDWVP-6.35-R     |
| 9.52              | 5  | 45 | 66.4 | 17.2 | 5  | 17 | 62 | PDWVP-9.52-R     |
| 12.7              | 5  | 45 | 78.6 | 23   | 5  | 22 | 62 | PDWVP-12.7-R     |

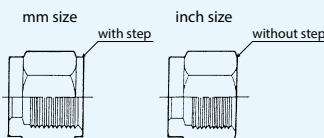
### ● Dimensions (mm size)

UNIT (mm)

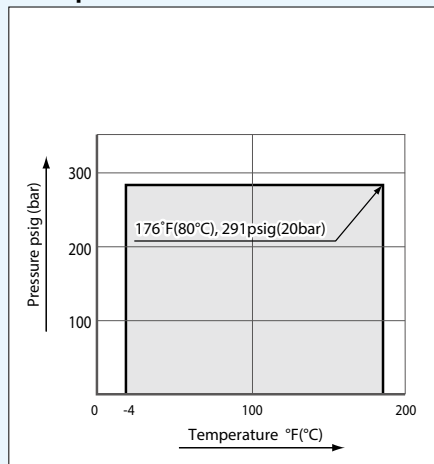
| Nominal Dia.<br>D | D1 | D2 | L    | L1   | L2 | B  | H  | Ordering Numbers |
|-------------------|----|----|------|------|----|----|----|------------------|
| 6                 | 3  | 35 | 54.5 | 15.2 | 3  | 14 | 45 | PDWVP-6-R        |
| 8                 | 3  | 35 | 58.9 | 16.2 | 3  | 16 | 45 | PDWVP-8-R        |
| 10                | 5  | 45 | 65.9 | 17   | 5  | 19 | 62 | PDWVP-10-R       |
| 12                | 5  | 45 | 77.6 | 22.5 | 5  | 22 | 62 | PDWVP-12-R       |

### About size distinction of the mm size and inch size

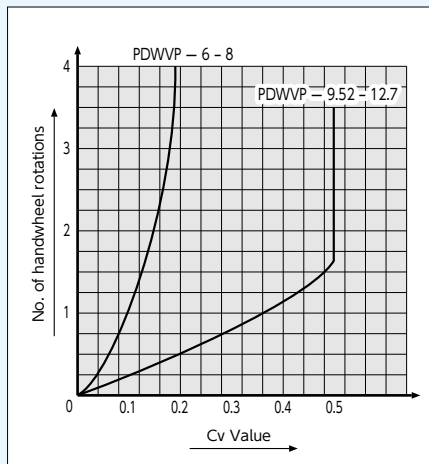
In order to distinguish easily from outside, edge of metric Nut is dented. Nut has size-marking.



### ● Temperature-Pressure Curve



### ● Cv Curves



### ● Specifications

| Working Pressure<br>psig<br>(bar) | Temperature<br>°F<br>(°C)  |
|-----------------------------------|----------------------------|
| 291<br>(20)                       | -4 ~ +176<br>(-20 ~ +80) ※ |

※ : Valves up to 392°F(200°C) are available.  
Please contact **Fujikin** for more information.

Exceptions:  
Applicable fluid: Water, Air, Nitrogen gas, inert gas like Helium, and non-corrosive gas and liquid.

### Panel Mounting Procedures

If you are panel-mounting the valve, follow these instructions:

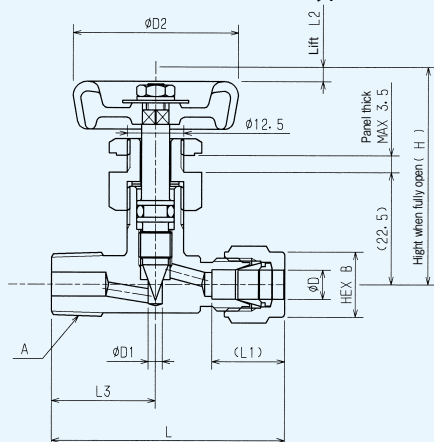
1. Ensure that the bracket hole on the panel is ≤ 0.5mm wider than the valve's Panel-Mounting Diameter (refer to the CAD drawing).
2. Use an adjustable wrench to loosen the Hex Nut securing the Handle. Remove the Handle.
3. Remove the Gland Nut and the Panel Nut.
4. Mount the valve on the panel and secure it with the Panel Nut. Reattach the Gland Nut and the Handle.
5. Please assemble the Handle at the end.

Note: Materials and dimensions are subject to change without notice.

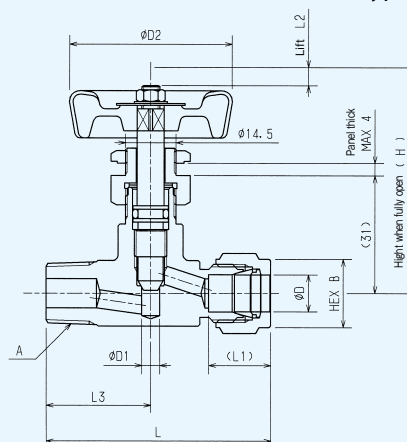
## Brass 2 MPa POWERFULL SERIES Miniature Valves

### POWERFULLOK Fittings Connection Type

Nom. Dia. 6, 6.35, 8 Type



Nom. Dia. 9.52, 10, 12, 12.7 Type



Individual drawings may be downloaded from the CAD Data Service section of the Fujikin website. [http://www.fujikin.co.jp/fujikinhp\\_e/cad\\_s/](http://www.fujikin.co.jp/fujikinhp_e/cad_s/)

#### ● Dimensions (inch size)

UNIT (mm)

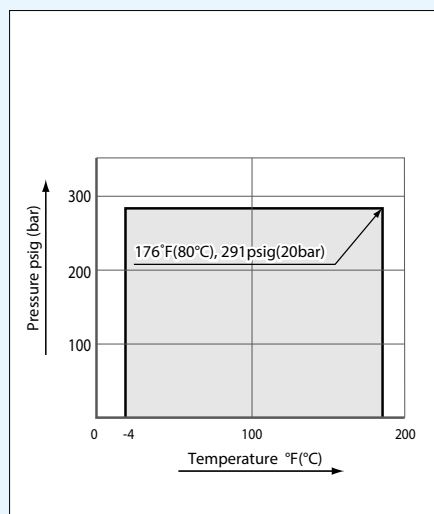
| Nominal Dia.<br>D | A    | D1 | D2 | L    | L1   | L2 | L3 | B  | H  | Ordering<br>Numbers |
|-------------------|------|----|----|------|------|----|----|----|----|---------------------|
| 6.35              | R1/8 | 3  | 35 | 47.4 | 15.4 | 3  | 20 | 14 | 45 | PDWVP-6.35A-R       |
| 6.35              | R1/4 | 3  | 35 | 49.4 | 15.4 | 3  | 22 | 14 | 45 | PDWVP-6.35B-R       |
| 9.52              | R1/4 | 5  | 45 | 62.1 | 17.2 | 5  | 29 | 17 | 62 | PDWVP-9.52B-R       |
| 9.52              | R3/8 | 5  | 45 | 62.1 | 17.2 | 5  | 29 | 17 | 62 | PDWVP-9.52C-R       |
| 12.7              | R1/4 | 5  | 45 | 68.3 | 23   | 5  | 29 | 22 | 62 | PDWVP-12.7B-R       |
| 12.7              | R3/8 | 5  | 45 | 68.3 | 23   | 5  | 29 | 22 | 62 | PDWVP-12.7C-R       |

#### ● Dimensions (mm size)

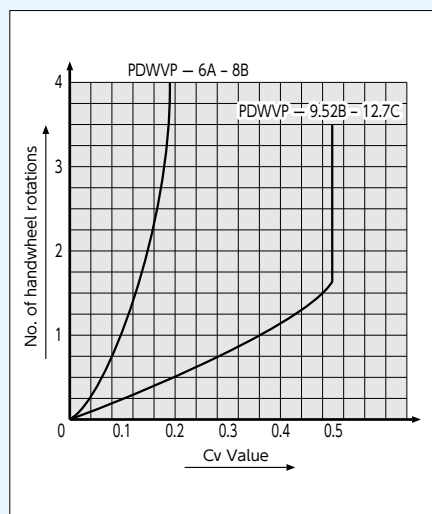
UNIT (mm)

| Nominal Dia.<br>D | A    | D1 | D2 | L    | L1   | L2 | L3 | B  | H  | Ordering<br>Numbers |
|-------------------|------|----|----|------|------|----|----|----|----|---------------------|
| 6                 | R1/8 | 3  | 35 | 47.2 | 15.2 | 3  | 20 | 14 | 45 | PDWVP-6A-R          |
| 6                 | R1/4 | 3  | 35 | 49.2 | 15.2 | 3  | 22 | 14 | 45 | PDWVP-6B-R          |
| 8                 | R1/8 | 3  | 35 | 49.5 | 16.2 | 3  | 20 | 16 | 45 | PDWVP-8A-R          |
| 8                 | R1/4 | 3  | 35 | 51.5 | 16.2 | 3  | 22 | 16 | 45 | PDWVP-8B-R          |
| 10                | R1/4 | 5  | 45 | 61.9 | 17   | 5  | 29 | 19 | 62 | PDWVP-10B-R         |
| 10                | R3/8 | 5  | 45 | 61.9 | 17   | 5  | 29 | 19 | 62 | PDWVP-10C-R         |
| 12                | R1/4 | 5  | 45 | 67.8 | 22.5 | 5  | 29 | 22 | 62 | PDWVP-12B-R         |
| 12                | R3/8 | 5  | 45 | 67.8 | 22.5 | 5  | 29 | 22 | 62 | PDWVP-12C-R         |

#### ● Temperature-Pressure Curve



#### ● Cv Curves



#### ● Specifications

| Working Pressure<br>psig<br>(bar) | Temperature<br>°F<br>(°C)  |
|-----------------------------------|----------------------------|
| 291<br>(20)                       | -4 ~ +176<br>(-20 ~ +80) ※ |

※ : Valves up to 392°F(200°C) are available.  
Please contact **Fujikin** for more information.

Exceptions:  
Applicable fluid: Water, Air, Nitrogen gas, inter gas like Helium, and non-corrosive gas and liquid.

#### Panel Mounting Procedures

If you are panel-mounting the valve, follow these instructions:

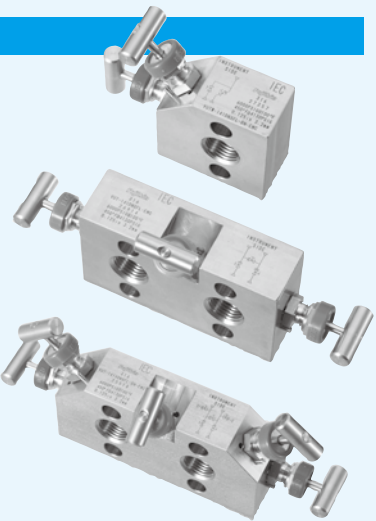
1. Ensure that the bracket hole on the panel is ≤ 0.5mm wider than the valve's Panel-Mounting Diameter (refer to the CAD drawing).
2. Use an adjustable wrench to loosen the Hex Nut securing the Handle. Remove the Handle.
3. Remove the Gland Nut and the Panel Nut.
4. Mount the valve on the panel and secure it with the Panel Nut. Reattach the Gland Nut and the Handle.
5. Please assemble the Handle at the end.

Note: Materials and dimensions are subject to change without notice.

# Instrument Manifolds

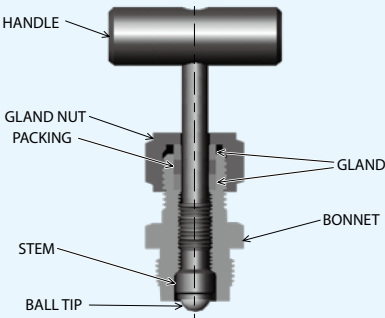
## Features

1. **Fujikin** offers a variety of 2-, 3-, and 5-Valve Instrument Manifolds.
2. The 2-Valve Manifolds are designed for static pressure and liquid level applications ; the 3- and 5-Valve Manifolds are designed for differential pressure applications.
3. The flow through a **Fujikin** manifold is controlled by a series of stainless steel needle valves.
4. Each valve has a specific function — to block pressure, to bleed off pressure, or to equalize pressure — depending on its location on the manifold.  
The control of all these functions is shared by two needle valve designs  
a large bonnet needle valve for manifold orifices of 0.156 in. (4 mm)  
a small bonnet needle valve for manifold orifices of 0.125 in. (3.2 mm).
5. End connections - 1/2 in. female pipe (NPT) ; flange (MSS) (Please refer to P149)
6. The bonnet is prevented from loosening from a body with a lock plate. (standard)  
(There is also pin lock type. Please refer to P149)
7. On both designs, the stem packing is externally adjustable in the open position.  
PTFE is the standard packing material.
8. Distinguished by different colors according to use. with color caps  
BLOCK: Blue, BLEED: Red, EQUALIZE: Green



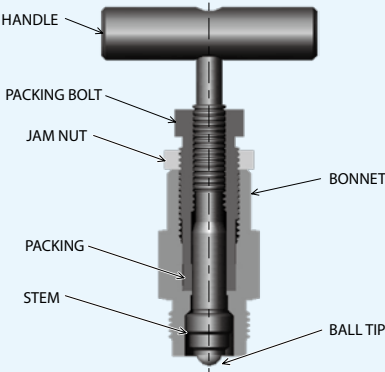
## Bonnet Design

Small Bonnet Needle Valves



| Description | Materials     |
|-------------|---------------|
| HANDLE      | ASTM A276 304 |
| GLAND NUT   | ASTM A276 316 |
| PACKING     | PTFE          |
| GLAND       | ASTM A276 316 |
| BONNET      | ASTM A479 316 |
| STEM        | ASTM A276 316 |
| BALL TIP    | ASTM A276 316 |

Large Bonnet Needle Valves

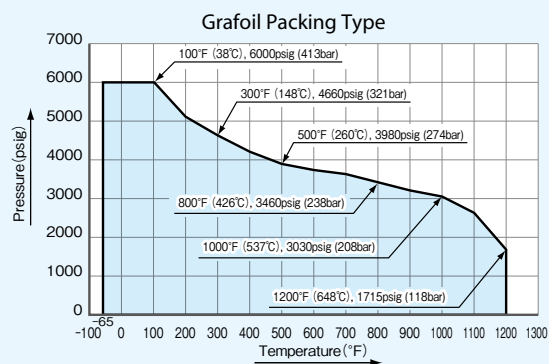
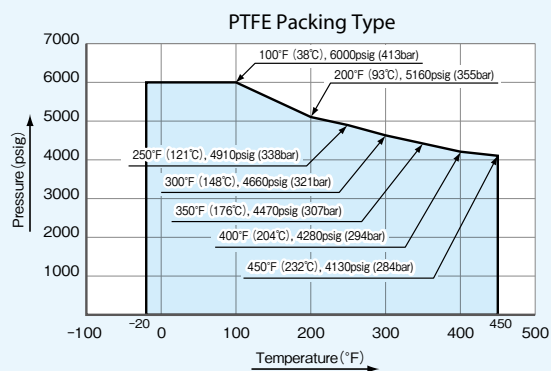


| Description  | Materials     |
|--------------|---------------|
| HANDLE       | ASTM A276 304 |
| JAM NUT      | ASTM A276 304 |
| PACKING BOLT | ASTM A276 316 |
| BONNET       | ASTM A479 316 |
| PACKING      | PTFE          |
| STEM         | ASTM A276 316 |
| BALL TIP     | ASTM A276 316 |

Cautions: ASTM A276 material may use SUS (ASTM A276 equivalent material).

## Technical Data

### Temperature and Pressure Rating

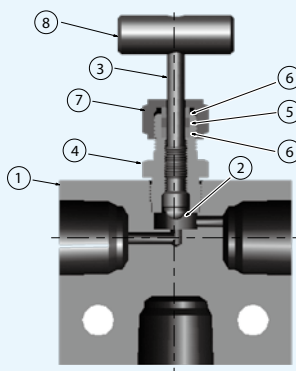


### Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

### Material of Construction

#### Small Bonnet Manifolds

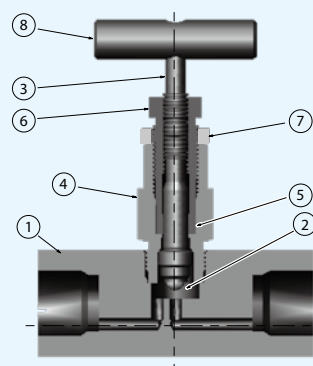


| No. | Description | ※ | Materials     |
|-----|-------------|---|---------------|
| 1   | BODY        | ※ | ASTM A479 316 |
| 2   | BALLTIP     | ※ | ASTM A276 316 |
| 3   | STEM        | ※ | ASTM A276 316 |
| 4   | BONNET      | ※ | ASTM A479 316 |
| 5   | PACKING     | ※ | PTFE          |
| 6   | GLAND       | ※ | ASTM A276 316 |
| 6   | GLAND NUT   |   | ASTM A276 304 |
| 8   | HANDLE      |   | ASTM A276 304 |

※ : Wetted Parts

Cautions: ASTM A276 material may use SUS (ASTM A276 equivalent material).

#### Large Bonnet Manifolds



| No. | Description  | ※ | Materials     |
|-----|--------------|---|---------------|
| 1   | BODY         | ※ | ASTM A479 316 |
| 2   | BALL TIP     | ※ | ASTM A276 316 |
| 3   | STEM         | ※ | ASTM A276 316 |
| 4   | BONNET       | ※ | ASTM A479 316 |
| 5   | PACKING      | ※ | PTFE          |
| 6   | PACKING BOLT |   | ASTM A276 316 |
| 7   | JAM NUT      |   | ASTM A276 304 |
| 8   | HANDLE       |   | ASTM A276 304 |

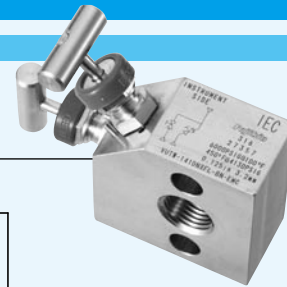
※ : Wetted Parts

Cautions: ASTM A276 material may use SUS (ASTM A276 equivalent material).

## Dimensions, Flow and Ordering Numbers

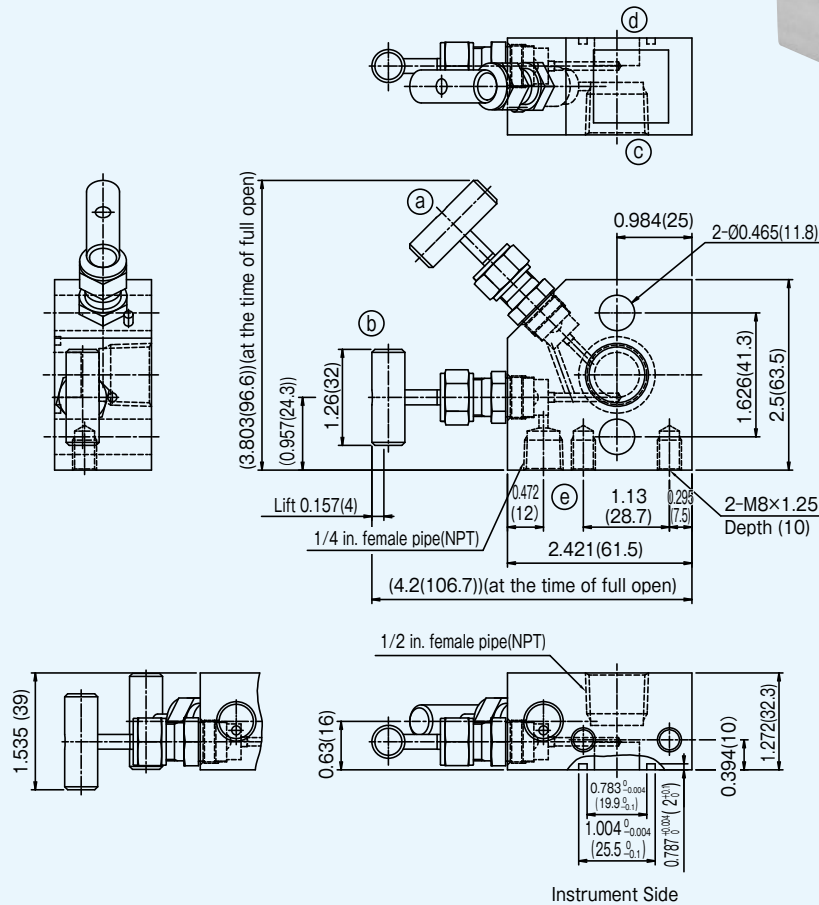
### 2-Valve Manifolds (Consist of one block valve and one vent valve)

#### Direct Mounting Type

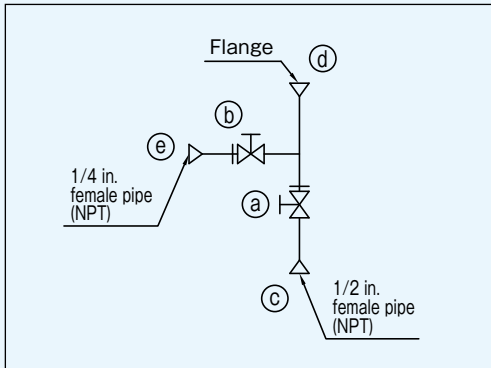


UNIT: in. (mm)

#### Dimensions



#### Flow



#### Ordering Number:

- VUTW-141DNxFL-BN-EMC:  
Standard (PTFE Packing & no Blind Type)
- VUTW-141DNxFL-BN-EMC-GR:  
Graphite Packing Type
- VUTW-141DNxFL-BN-EMC-BL:  
with Vent Port Blind Type

#### Remarks

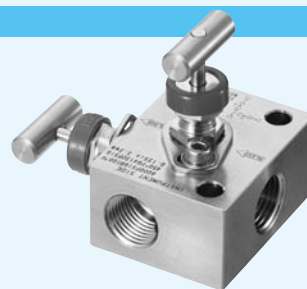
A gasket and two bolts are attached with this product.

## Dimensions, Flow and Ordering Numbers

### 2-Valve Manifolds (Consist of one block valve and one bleed valve)

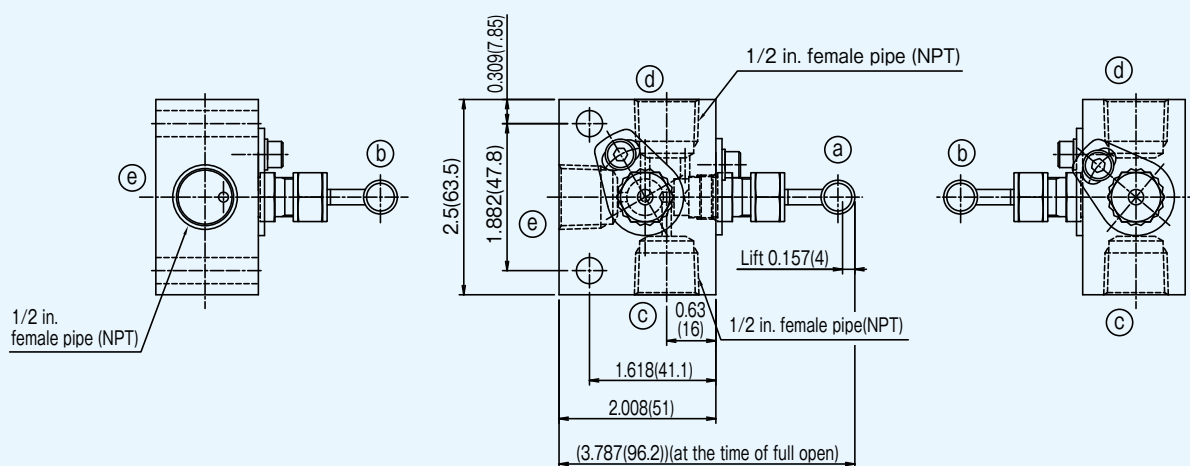
#### Remote Mounting Type

End Connections of Process side, Instrument side:  
1/2 in. Female Pipe (NPT)

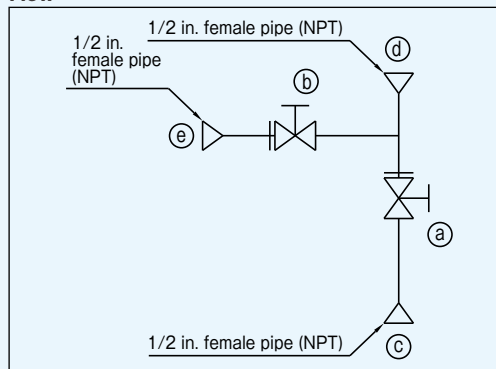


#### Dimensions

UNIT: in. (mm)



#### Flow



#### Ordering Number:

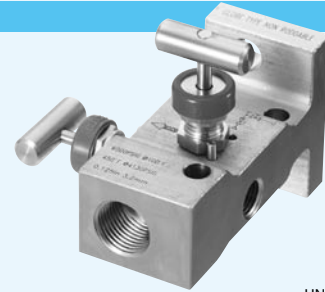
- **VUTW-141LDN:**  
Standard (PTFE Packing & no Blind Type)
- **VUTW-141LDN-GR:**  
Graphite Packing Type
- **VUTW-141LDN-BL:**  
with Vent Port Blind Type

## Dimensions, Flow and Ordering Numbers

### 2-Valve Manifolds (Consist of one block valve and one bleed valve)

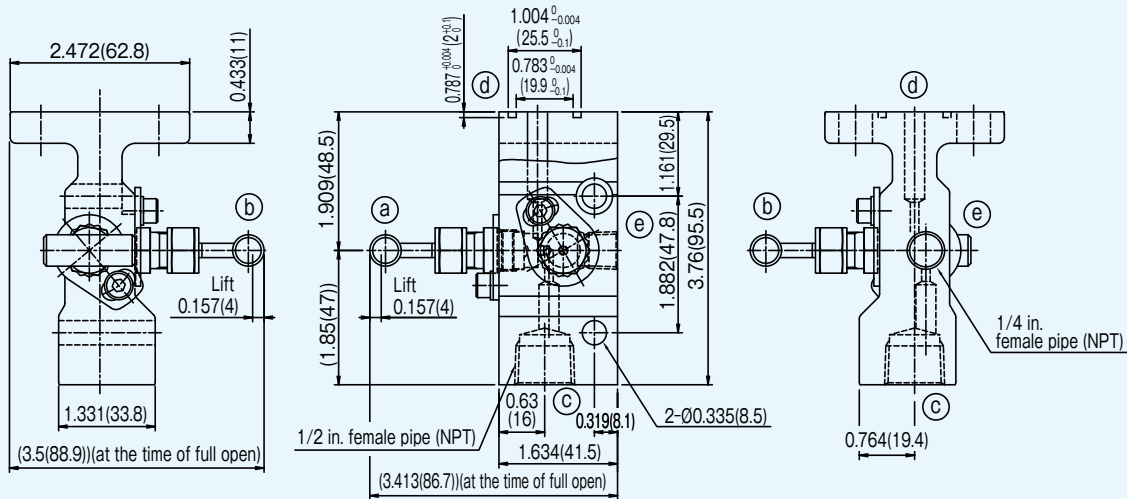
#### Direct Mounting Type

End Connections of Process Side: 1/2 in. Female Pipe (NPT),  
Instrument side: Flange (MSS)

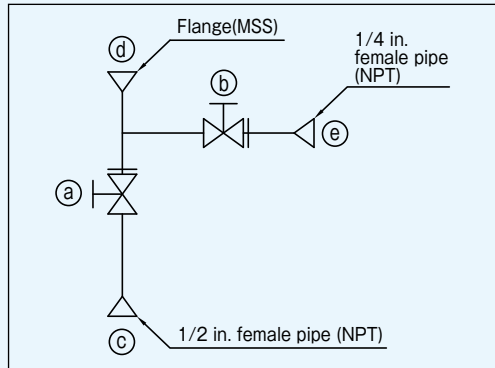


#### Dimensions

UNIT: in. (mm)



#### Flow



#### Ordering Number:

- **VUTW-141LDN×FL-BN:**  
Standard (PTFE Packing & no Blind Type)
- **VUTW-141LDN×FL-BN-GR:**  
Graphite Packing Type
- **VUTW-141LDN×FL-BN-BL:**  
with Vent Port Blind Type

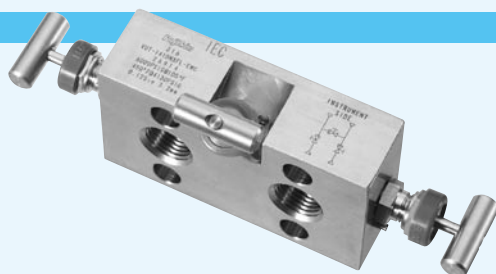
#### Remarks

A gasket and two bolts are attached with this product.

## Dimensions, Flow and Ordering Numbers

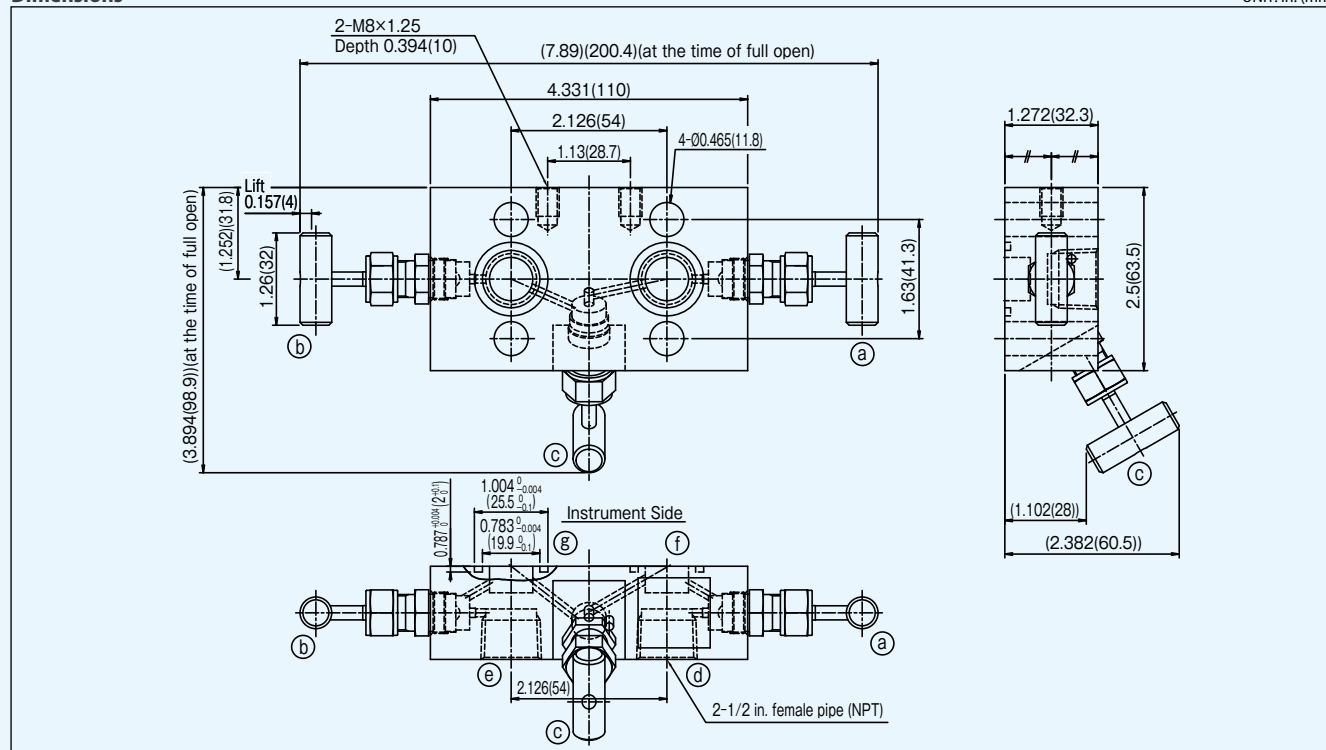
### 3-Valve Manifolds (Consist of two block valves and one equalizer valve)

#### Direct Mounting Type

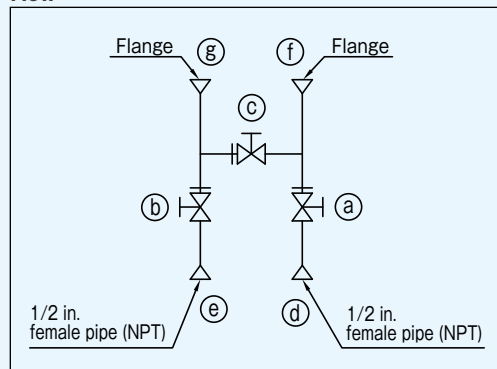


#### Dimensions

UNIT: in. (mm)



#### Flow



#### Ordering Number:

- **VUT-141DN×FL-EMC:**  
Standard (PTFE Packing & no Blind Type)
- **VUT-141DN×FL-EMC-GR:**  
Graphite Packing Type

#### Remarks

A gasket and two bolts are attached with this product.

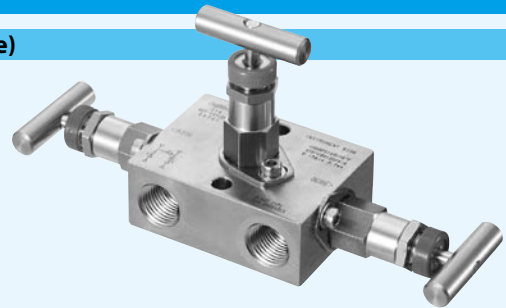


## Dimensions, Flow and Ordering Numbers

### 3-Valve Manifolds (Consist of two block valves and one equalizer valve)

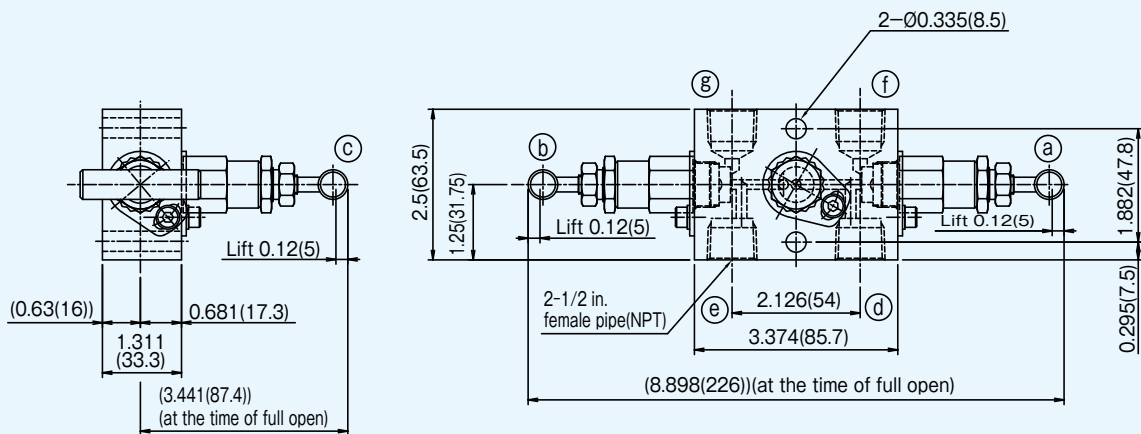
#### Remote Mounting Type

End connections of Process side, Instrument side:  
1/2 in. Female Pipe (NPT)

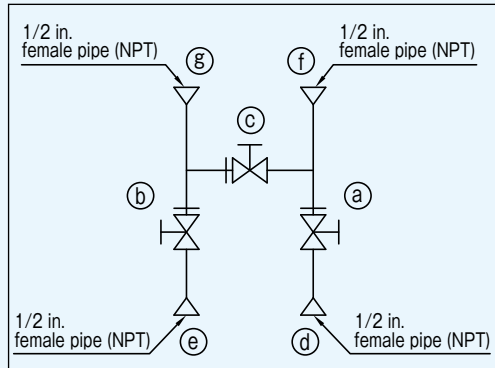


#### Dimensions

UNIT: in. (mm)



#### Flow



#### Ordering Number:

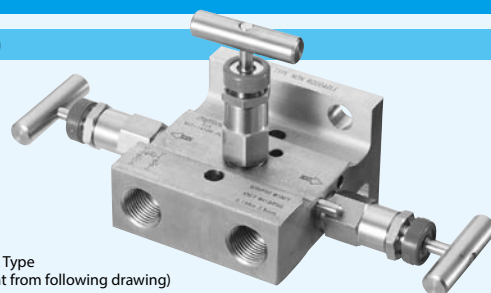
- **VUT-141LDN:**  
Standard (PTFE Packing & no Blind Type)
- **VUT-141LDN-GR:**  
Graphite Packing Type

## Dimensions, Flow and Ordering Numbers

### 3-Valve Manifolds (Consist of two block valves and one equalizer valve)

#### Direct Mounting Type

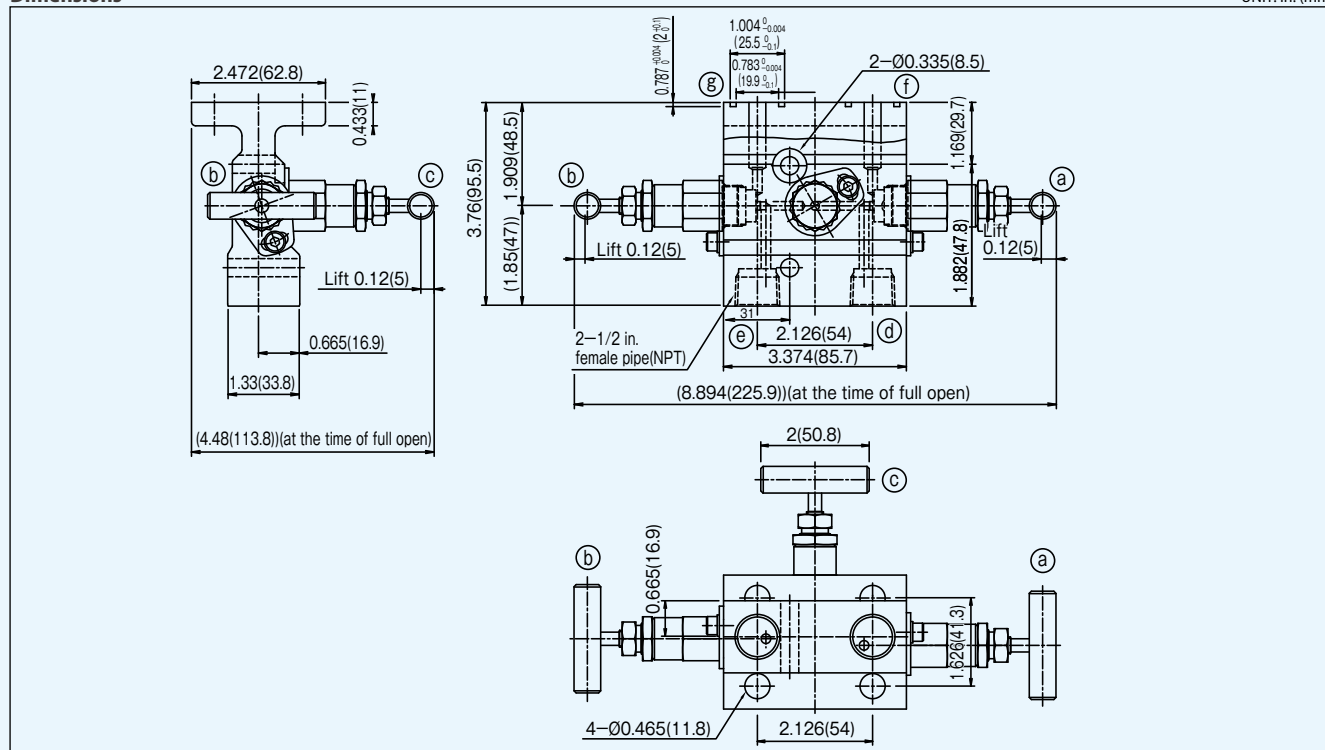
End Connections of Process Side: 1/2 in. Female Pipe (NPT),  
Instrument side: Flange (MSS)



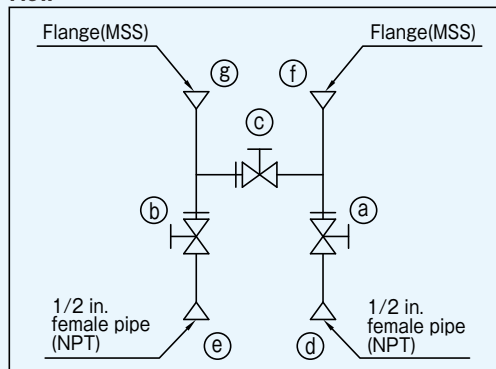
Pin Lock Type  
(different from following drawing)

#### Dimensions

UNIT: in. (mm)



#### Flow



#### Ordering Number:

- **VUT-141LDN×FL:**  
Standard (PTFE Packing & no Blind Type)
- **VUT-141LDN×FL-GR:**  
Graphite Packing Type

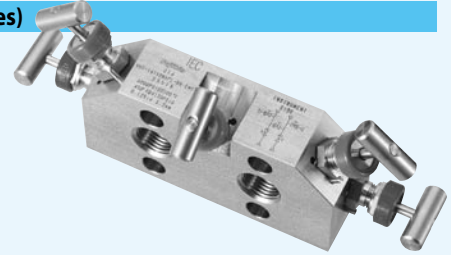
#### Remarks

A gasket and two bolts are attached with this product.

## Dimensions, Flow and Ordering Numbers

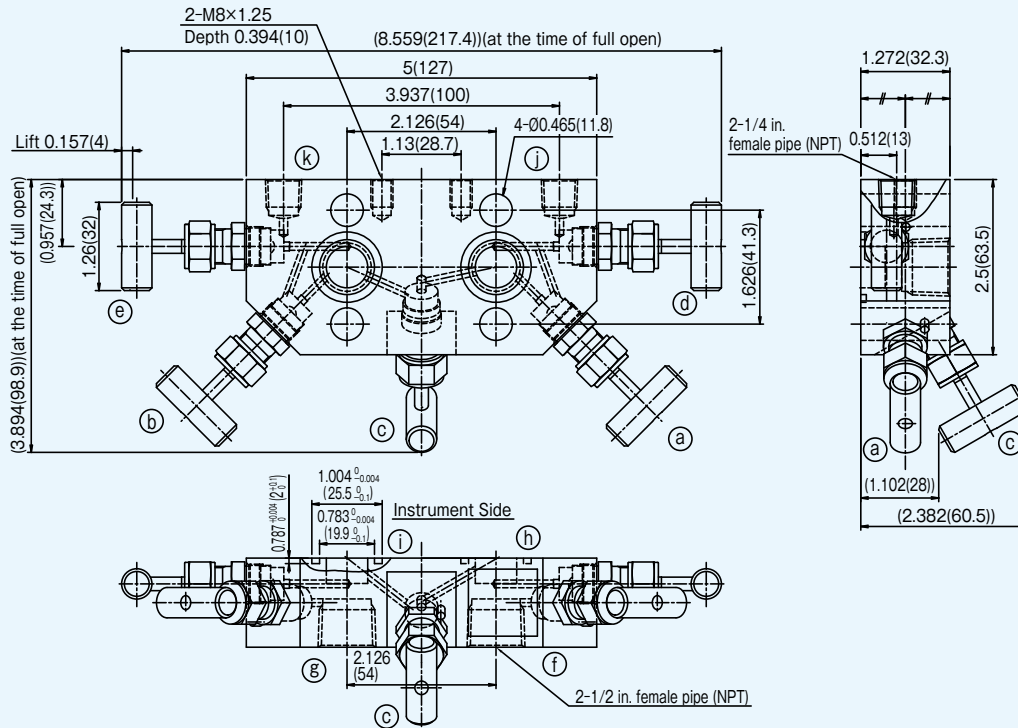
### 5-Valve Manifolds (Consist of two block valves, one equalizer valve and two bleed valves)

#### Direct Mounting Type

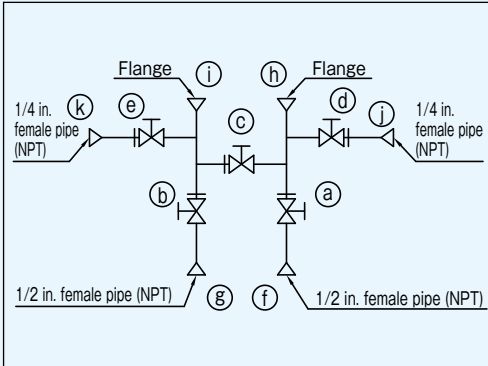


#### Dimensions

UNIT: in. (mm)



#### Flow



#### Ordering Number:

- **VUT-141VDN×FL-BN-EMC:**  
Standard (PTFE Packing & no Blind Type)
- **VUT-141VDN×FL-BN-EMC-GR:**  
Graphite Packing Type
- **VUT-141VDN×FL-BN-EMC-BL:**  
with Vent Port Blind Type

#### Remarks

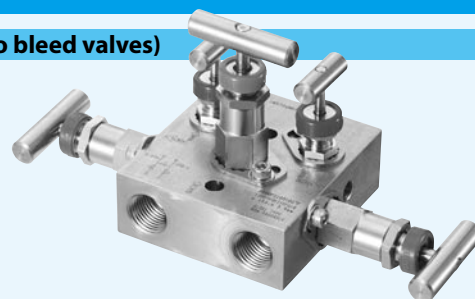
A gasket and two bolts are attached with this product.

## Dimensions, Flow and Ordering Numbers

### 5-Valve Manifolds (Consist of two block valves, one equalizer valve and two bleed valves)

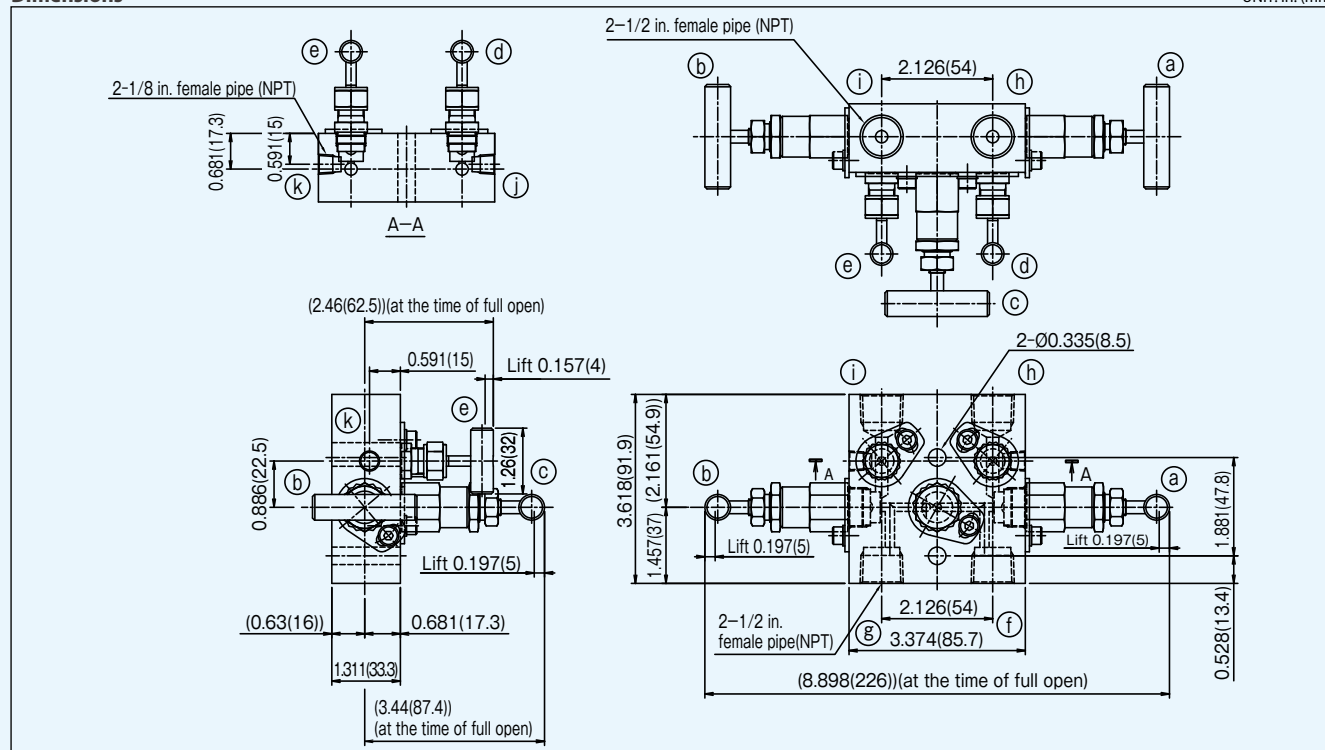
#### Remote Mounting Type

End Connections of Process Side, Instrument Side: 1/2 in. Female Pipe (NPT)

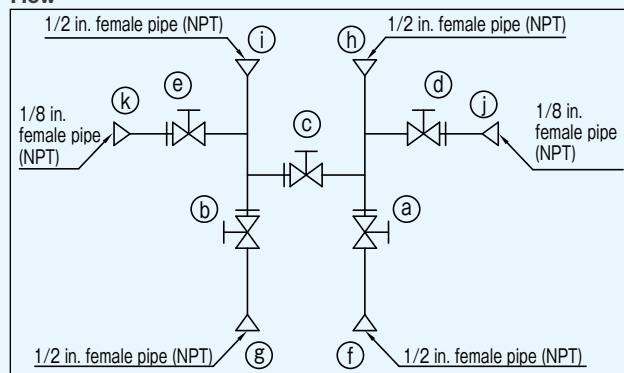


#### Dimensions

UNIT: in. (mm)



#### Flow



#### Ordering Number:

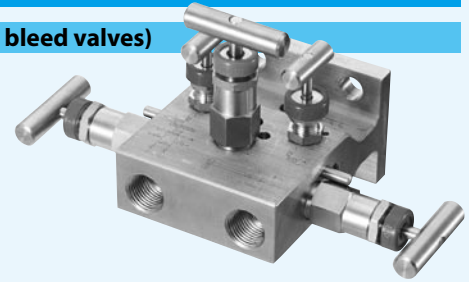
- **VUT-141LVDN-AN:**  
Standard (PTFE Packing & no Blind Type)
- **VUT-141LVDN-AN-GR:**  
Graphite Packing Type
- **VUT-141LVDN-AN-BL:**  
with Vent Port Blind Type

## Dimensions, Flow and Ordering Numbers

### 5-Valve Manifolds (Consist of two block valves, one equalizer valve and two bleed valves)

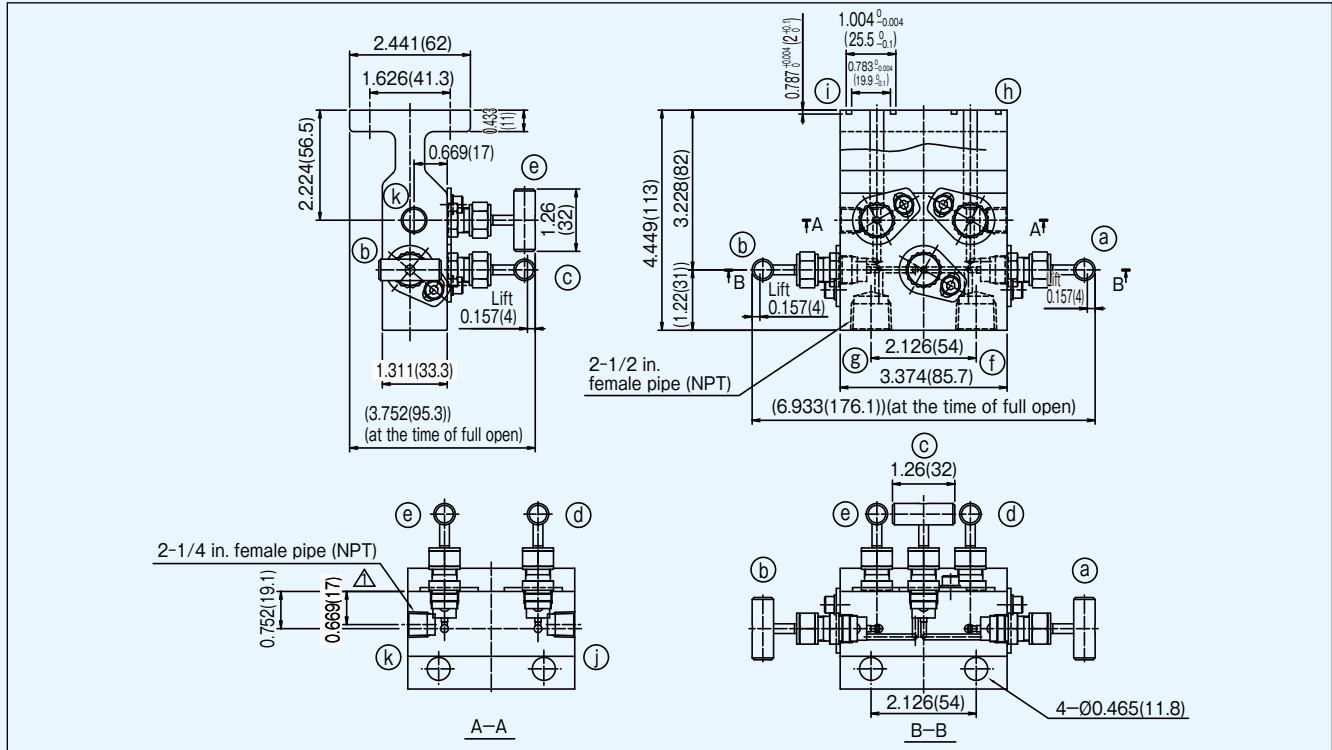
#### Direct Mounting Type

End Connections of Process Side: 1/2 in. Female Pipe (NPT),  
Instrument side: Flange (MSS)

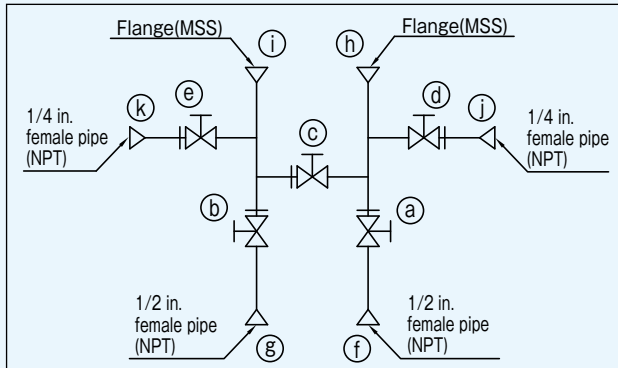


#### Dimensions

UNIT: in. (mm)



#### Flow



#### Ordering Number:

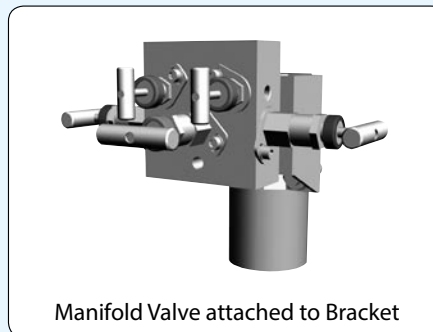
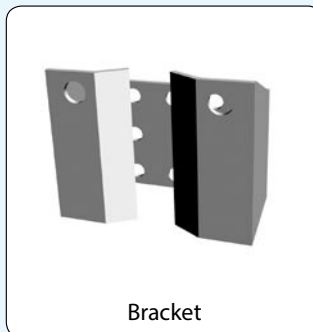
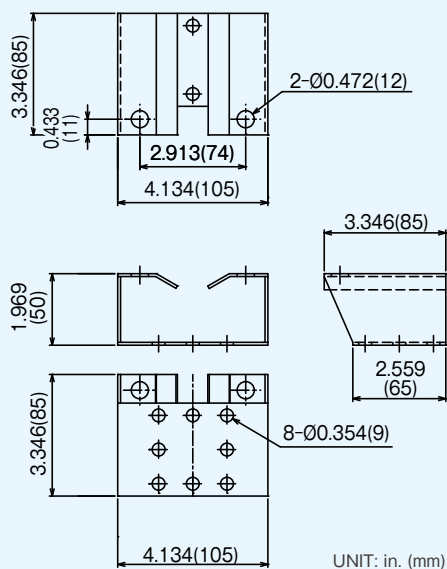
- VUT-141LVDN × FL-BN-GUU  
Standard (PTFE Packing & no Blind Type)
- VUT-141LVDN × FL-BN-GUU-GR:  
Graphite Packing Type
- VUT-141LVDN × FL-BN-GUU-BL:  
with Vent Port Blind Type

#### Remarks

Two gaskets and four bolts are attached with this product.

## Option Parts

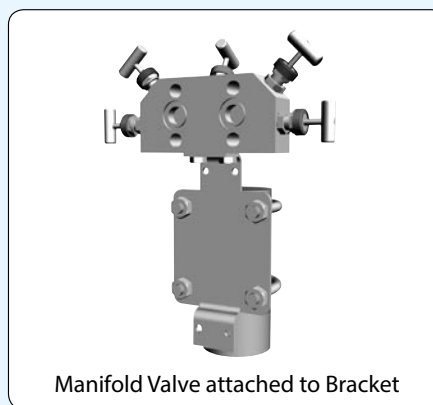
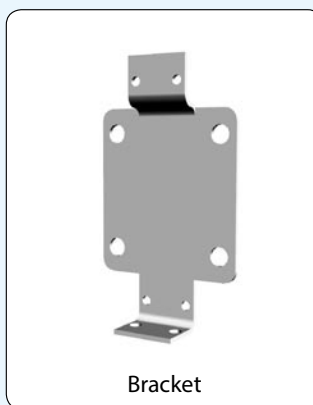
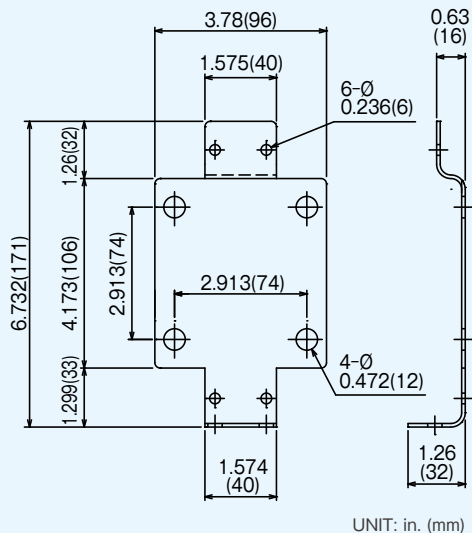
## MANIFOLD BRACKET KIT for Remote Type Manifold Valves (apply to 2 inch pipe)



| Parts Name    | Materials | Q'ty | Remarks               |
|---------------|-----------|------|-----------------------|
| Bracket       | SUS304    | 1    |                       |
| U-Bolt        | SS400     | 1    | MFZn, for 2 In. (M10) |
| Spring Washer | SS400     | 2    | MFZn, Nominal 10      |
| Hex Nut       | SS400     | 2    | MFZn, M10             |
| Hex Bolt      | SS400     | 2    | MFZn, M8 x 45         |
| Spring Washer | SS400     | 2    | MFZn, Nominal 8       |
| Hex Nut       | SS400     | 2    | MFZn, M8 x 45         |

The set of a Bracket includes U-Bolt•Spring Washers•Hex Nuts (for Bracket), Hex Bolts•Spring Washers•Hex Nuts(for Valve)

## MANIFOLD BRACKET KIT for Direct Mount Type Manifold Valves (-EMC Type) (apply to 2 inch pipe)

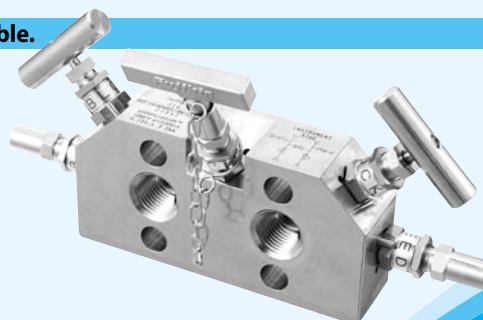


| Parts Name    | Materials | Q'ty | Remarks               |
|---------------|-----------|------|-----------------------|
| Bracket       | SUS304    | 1    |                       |
| U-Bolt        | SS400     | 2    | MFZn, for 2 In. (M10) |
| Spring Washer | SS400     | 4    | MFZn, Nominal 10      |
| Hex Nut       | SS400     | 4    | MFZn, M10             |
| Hex Bolt      | SS400     | 2    | MFZn, M5 x 8          |
| Spring Washer | SS400     | 2    | MFZn, Nominal 8       |

The set of a Bracket includes U-Bolts•Spring Washers•Hex Nuts (for Bracket), Hex Bolts•Spring Washers

## Anti Tamper Handle Type (Small Bonnet Mount Type) is available.

Please remove the special handle from valve at the time of installation.  
Please manage to use it only during open/close of valve.



## Other Types

### Pin Lock Types

| Types                                                                                                | End Connections           |              | Flow | Appearance |
|------------------------------------------------------------------------------------------------------|---------------------------|--------------|------|------------|
|                                                                                                      | Process                   | Instrument   |      |            |
| <b>2-Valve Manifolds</b><br>(Consists of one block valve and one bleed valve)                        | 1/2 in. female pipe (NPT) | flange (MSS) |      |            |
| <b>3-Valve Manifolds</b><br>(Consists of two block valves and one equalizer valve)                   | 1/2 in. female pipe (NPT) | flange (MSS) |      |            |
| <b>5-Valve Manifolds</b><br>(Consists of two block valves, one equalizer valve and two bleed valves) | 1/2 in. female pipe (NPT) | flange (MSS) |      |            |

## Ordering Numbers

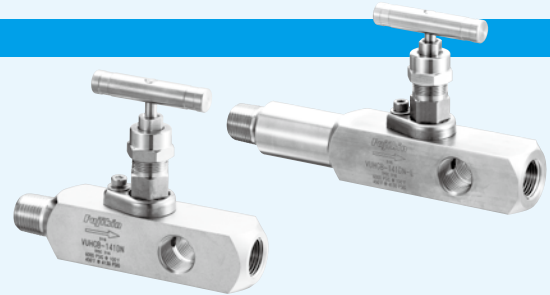
**V** **U** **TW** **-** **1** **41** **L** **V** **DN** **×** **FL** **-** **BN** **-** **EMC** **-** **GR** **-** **BL**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

|                                                                                                                                                                                                                                                                              |                                                                         |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                         |                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>① Series</b><br>V:  -Series                                                                                                                                                            | <b>② Wetted Part (Body) Material</b><br>U : Stainless steel<br>M: Monel | <b>③ Valve Basic Structure</b><br>TW: 2-Valve Manifolds<br>T : 3-Valve Manifolds<br><br>(However, in the item of ⑦, when you choose "V", two Vent Valves are added and it is set to 5-Valve Manifolds.) | <b>④ Inlet Connections</b><br>1: Thread Type<br>2: Flange Type                                                                                                                                                                                                                                          | <b>⑤ Design Pressure</b><br>41: Design Pressure<br>6000psig (413bar)                                           |
| <b>⑥ Bonnet Lock Structure</b><br>L: Bonnet; Lock Plate Type (not apply to EMC type)<br>(Blank) : Bonnet; Pin Lock Type                                                                                                                                                      |                                                                         | <b>⑦ with Vent Valve</b><br>V: 5-Valve Manifolds<br>(add two vent valves to 3-Valve Manifolds)<br>(Blank): 3-Valve Manifolds                                                                            |                                                                                                                                                                                                                                                                                                         | <b>⑧ Inlet Connections</b><br>DN: Nominal Diameter 1/2 in. female pipe (NPT)<br>EN : 3/4 in. female pipe (NPT) |
| <b>⑨ Outlet connections</b> (Since various connections are available, please consult us.)<br>(Blank) : Same as Inlet Connections<br>XFL : Flange<br>XBN: Thread Size (refer to ⑦)                                                                                            |                                                                         |                                                                                                                                                                                                         | <b>⑩ Vent Port Connections</b> (Since various connections are available, please consult us.)<br>(Blank) : Same as Inlet Connections<br>AN: Bleed connection; 1/8 in. female pipe (NPT)<br>BN: Bleed connection for bleed valve; 1/4 in. female pipe (NPT)<br>DN: 1/2 in. female pipe (NPT)<br>B : Rc1/4 |                                                                                                                |
| <b>⑪ Body Form Supplement</b><br>(Blank) : Standard Product<br>EMC: Direct Mount Compact Type<br>EME: Anti Tamper Handle Type (Small Bonnet Mount Type)<br><br>In the case that outlet connection is flange (⑨: XFL) and EME, EMC Type,<br>Body should be Direct Mount Type. |                                                                         | <b>⑫ Packing Material</b><br>(Blank) : PTFE Packing (Standard)<br>GR: Graphite Packing (In the case that outlet connecting is Flange, accessory gasket also should be graphite.)                        |                                                                                                                                                                                                                                                                                                         |                                                                                                                |
|                                                                                                                                                                                                                                                                              |                                                                         | <b>⑬ Blind</b><br>(Blank) : Standard (no Blind)<br>BL: with Vent Port Blind                                                                                                                             |                                                                                                                                                                                                                                                                                                         |                                                                                                                |

# Gauge Valves

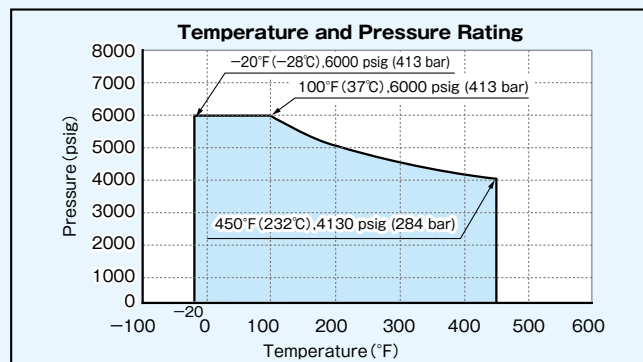
## Features

1. Stainless steel construction.
2. Nonrotating ball-tip stem design.
3. Lagging extension body available for insulation clearance.
4. 1/2 and 3/4 in. male to 1/2 in. female pipe (NPT) end connections.
5. 1/2 in. female gauge ports standard.
6. Schedule 160 pipe wall or heavier on valve inlet fitting for strength.
7. Bonnet lock plate standard.



## Technical Data

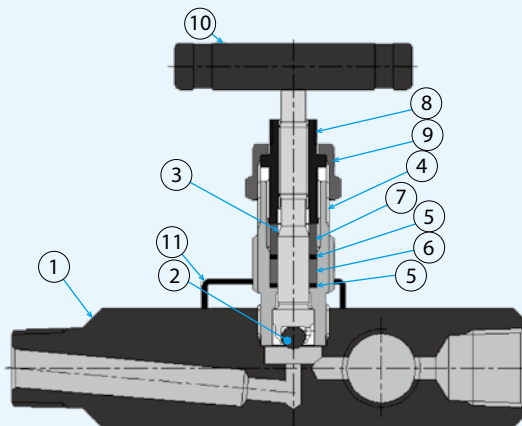
### Temperature and Pressure Rating



### Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

### Material of Construction



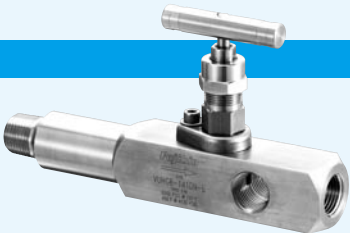
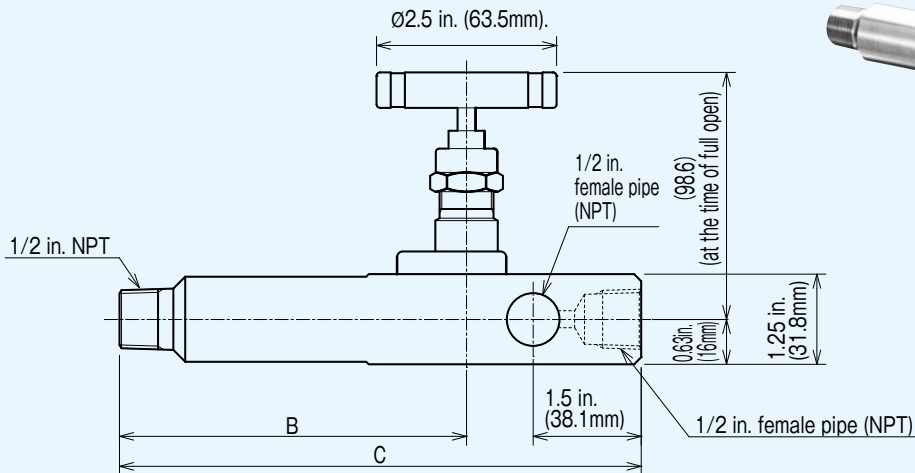
| No. | Description     | Materials       |
|-----|-----------------|-----------------|
| 1   | BODY            | ※ ASTM A479 316 |
| 2   | BALL            | ※ ASTM A276 316 |
| 3   | STEM            | ※ ASTM A276 316 |
| 4   | BONNET          | ※ ASTM A479 316 |
| 5   | SUPPORT PACKING | ※ C-PTFE        |
| 6   | GLAND PACKING   | ※ PTFE          |
| 7   | GLAND           | ASTM A276 316   |
| 8   | PACKING BOLT    | ASTM A276 316   |
| 9   | LOCK NUT        | ASTM A276 316   |
| 10  | HANDLE          | ASTM A276 316   |
| 11  | LOCK PLATE      | SUS304          |

※ : Wetted Parts

Cautions: ASTM A276 material may use SUS (ASTM A276 equivalent material).



Dimensions and Ordering Numbers



| End Connections           | Ordering Numbers | Dimensions in. (mm) |           | Remarks                                      |
|---------------------------|------------------|---------------------|-----------|----------------------------------------------|
|                           |                  | B                   | C         |                                              |
| 1/2 in. female pipe (NPT) | VUHGB-141DN      | 2.97(75.4)          | 5.39(137) | std. body type                               |
| 1/2 in. female pipe (NPT) | VUHGB-141DN-L    | 4.82(122.4)         | 7.24(184) | extension body type for insulation clearance |

# Manifold Valves Ordering Number Selection

## Request for Quotation & Purchase Order (For attachment)

of the under within the limit indicates, and as attachment data at the time of a request for proposal or order, etc., please utilize after copying this page.

V U TW - 1 41 L V DN x FL - BN - EMC - GR - BL  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

- ① **Series** V: V-Series
- ② **Wetted Part (Body) Material** U: Stainless steel  
M: Monel
- ③ **Valve Basic Structure** TW: 2-Valve Manifolds  
T : 3-Valve Manifolds  
(However, in the item of ⑦, when you choose "V", two Vent Valves are added and it is set to 5-Valve Manifolds.)
- ④ **Inlet Connections** 1: Thread Type  
2: Flange Type
- ⑤ **Design Pressure** 41: Design Pressure 6000psig (413bar)
- ⑥ **Bonnet Lock Structure** L: Bonnet; Lock Plate Type (not apply to EMC type)  
(Blank): Bonnet; Pin Lock Type
- ⑦ **with Vent Valve** V: 5-Valve Manifolds (add two vent valves to 3-Valve Manifolds)  
(Blank): 3-Valve Manifolds
- ⑧ **Inlet Connections** DN: Nominal Diameter 1/2 in. female pipe (NPT)  
EN: 3/4 in. female pipe (NPT)
- ⑨ **Outlet connections**  
(Since various connections are available, please consult us.) (Blank): Same as Inlet Connections  
XFL: Flange  
XBN: Thread Size (refer to ⑦)
- ⑩ **Vent Port Connections**  
(Since various connections are available, please consult us.) (Blank): Same as Inlet Connections  
AN: Bleed connection; 1/8 in. female pipe (NPT)  
BN: Bleed connection for bleed valve; 1/4 in. female pipe (NPT)  
DN: 1/2 in. female pipe (NPT)  
B : Rc1/4
- ⑪ **Body Form Supplement** (Blank): Standard Product  
EMC: Direct Mount Compact Type  
EME: Anti Tamper Handle Type (Small Bonnet Mount Type)  
In the case that outlet connection is flange (⑨: XFL) and EME, EMC Type, Body should be Direct Mount Type.
- ⑫ **Packing Material** (Blank): PTFE Packing (Standard)  
GR: Graphite Packing (In the case that outlet connecting is Flange, accessory gasket also should be graphite.)
- ⑬ **Blind** (Blank): Standard (no Blind)  
BL: with Vent Port Blind

### Manifold Valves Ordering Number Selection

V   -  41    x  -  -  -  -   
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

Please put a check mark "✓" into either following check box ☐.

☐ Estimate Request for Quotation

☐ Order

Please indicate quantity either following check box ☐.

Q'ty  pcs.

Q'ty  pcs.

# 1000 psig (68.9 bar) Type (VUBF-96P、VUBFD-96P Type)

## Features

1. Precision-formed metal bellows provides reliable seal to atmosphere.
2. Sealed between body and bellows by gasket.
3. A positive seal is repeatedly possible with nonrotating spherical disk.  
(Metal Seal Type, Soft Seal Type)
4. Panel and bottom mounting.
5. End Connections: **V-Lok** Tube Fittings 1/4, 3/8, 1/2



## Metal Seal Type (VUBF-96P Type)

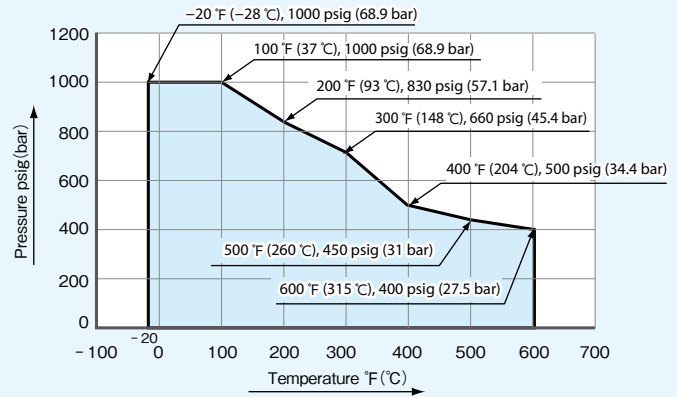
## Technical Data

### Temperature and Pressure Rating

| Nominal Sizes               | 1/4                   | 3/8 | 1/2 |
|-----------------------------|-----------------------|-----|-----|
| Temperature °F (°C)         | -20 (-28) ~ 600 (315) |     |     |
| Working Pressure psig (bar) | 1000 (68.9)           |     |     |

### Outside Leakage, Seat Leakage

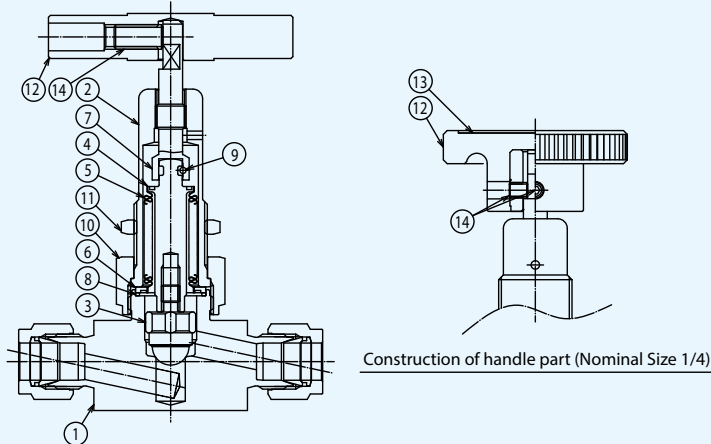
After Pressurise test, we do He leakage test.  
We confirm at the time of test that the leakage amount is less than  $4.0 \times 10^{-10}$  Pa·m<sup>3</sup>/sec. (Vacuum process)



## Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

## Materials of Construction



| No. | Description                  | Materials                                                                                    |
|-----|------------------------------|----------------------------------------------------------------------------------------------|
| 1   | BODY ※                       | ASTM A479 316                                                                                |
| 2   | BONNET                       | ASTM A479 316                                                                                |
| 3   | DISK ※                       | COBALT - BASED ALLOY + ASTM A479 316                                                         |
| 4   | STEM(1) ※                    | ASTM A479 316                                                                                |
| 5   | BELLOWS ※                    | ASTM A240 321 or AMS5510 TYPE321                                                             |
| 6   | WELD RING ※                  | ASTM A479 316                                                                                |
| 7   | STEM(2)                      | ASTM A582 416 or ASTM A582 410                                                               |
| 8   | GASKET ※                     | ASTM A580 316                                                                                |
| 9   | STOP PIN                     | ASTM A276 304                                                                                |
| 10  | BONNET NUT                   | ASTM A479 316                                                                                |
| 11  | PANEL NUT                    | ASTM A276 304 or ASTM A276 316                                                               |
| 12  | HANDLE                       | Nom. Size 6.35: PHENOLIC RESIN + ZDC2<br>Nom. Size 9.52, 12.7: ALUMINUM A5056B or A6061B(T6) |
| 13  | NAME PLATE(Nominal Size 1/4) | POLYESTER                                                                                    |
| 14  | SET SCREW                    | ASTM A276 304                                                                                |

※ : Wetted Parts

## Soft Seal Type (VUBFD-96P Type)

### Technical Data

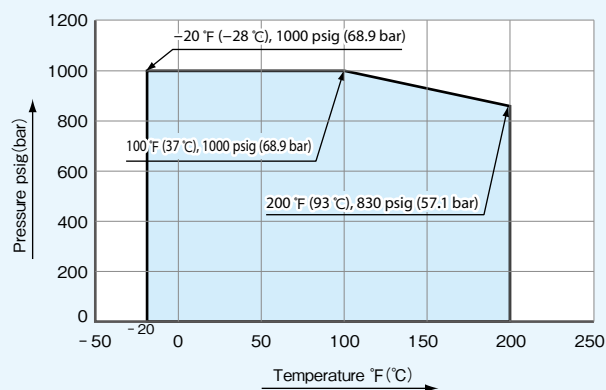
#### Temperature and Pressure Rating

| Nominal Sizes               | 1/4                    | 3/8 | 1/2 |
|-----------------------------|------------------------|-----|-----|
| Temperature °F (°C)         | - 20 (- 28) ~ 200 (93) |     |     |
| Working Pressure psig (bar) | 1000 (68.9)            |     |     |

#### Outside Leakage, Seat Leakage

After Pressurise test, we do He leakage test.

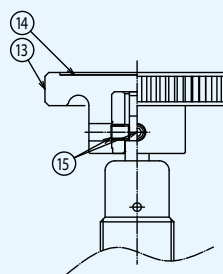
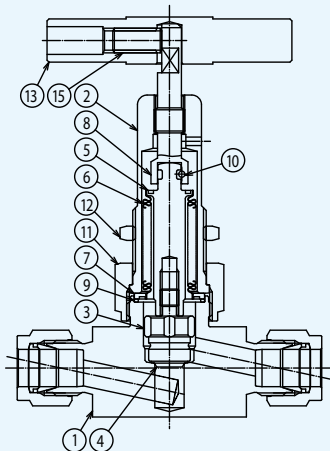
We confirm at the time of test that the leakage amount is less than  $4.0 \times 10^{-10}$  Pa·m<sup>3</sup>/sec. (Vacuum process)



### Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

### Materials of Construction



Construction of handle part (Nominal Size 1/4)

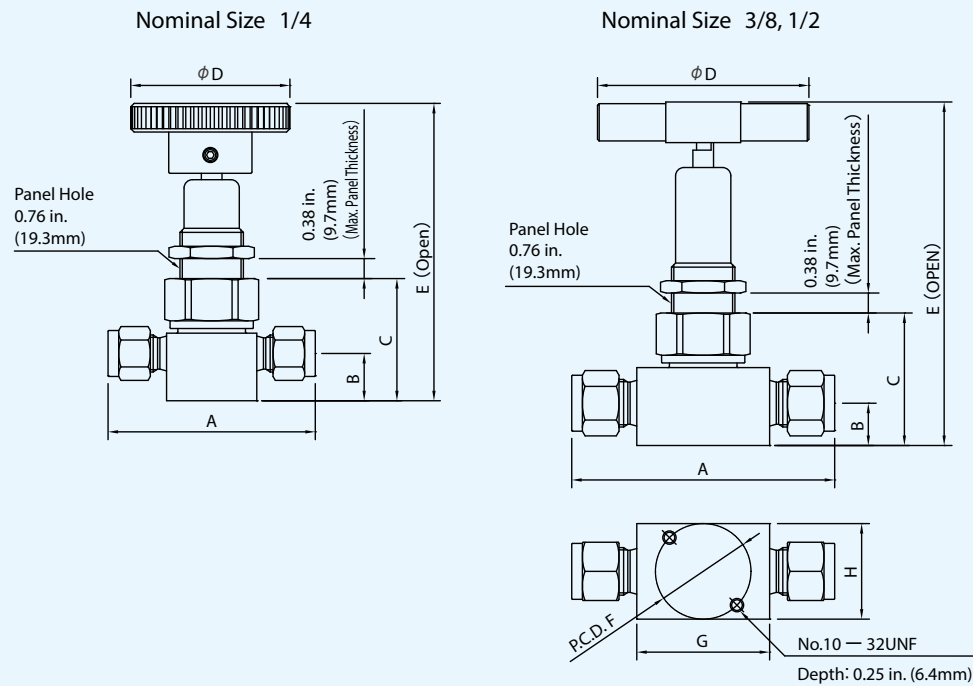
| No. | Description    | Materials                          |
|-----|----------------|------------------------------------|
| 1   | BODY ※         | ASTM A479 316                      |
| 2   | BONNET         | ASTM A479 316                      |
| 3   | DISK ※         | ASTM A479 316                      |
| 4   | DISK PACKING ※ | PCTFE                              |
| 5   | STEM(1) ※      | ASTM A479 316                      |
| 6   | BELLOWS ※      | ASTM A240 321 or AMS 5510 TYPE 321 |
| 7   | WELD RING ※    | ASTM A479 316                      |
| 8   | STEM(2)        | ASTM A582 416 or ASTM A582 410     |

※ : Wetted Parts

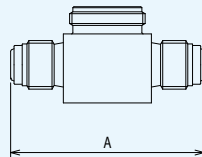
| No. | Description           | Materials                                                                                    |
|-----|-----------------------|----------------------------------------------------------------------------------------------|
| 9   | GASKET ※              | ASTM A580 316                                                                                |
| 10  | STOP PIN              | ASTM A276 304                                                                                |
| 11  | BONNET NUT            | ASTM A276 304 or ASTM A276 316                                                               |
| 12  | PANEL NUT             | ASTM A276 316                                                                                |
| 13  | HANDLE                | Nom. Size 6.35: PHENOLIC RESIN + ZDC2<br>Nom. Size 9.52, 12.7: ALUMINUM A5056B or A6061B(T6) |
| 14  | NAME PLATE(Size 6.35) | POLYESTER                                                                                    |
| 15  | SET SCREW             | ASTM A276 304                                                                                |

Dimensions and Ordering Numbers

End Connection V-Lok Tube Fitting Type



End Connection UJR Tube Fitting Type



| End Connections (Inlet/Outlet) | Nominal Diameter | Orifice inch (mm) | Dimensions inch (mm) |             |             |             |             |             |             |             | Ordering Numbers |
|--------------------------------|------------------|-------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------------|
|                                |                  |                   | A                    | B           | C           | D           | E           | F           | G           | H           |                  |
| V-Lok                          | 1/4              | 0.16 (4.1)        | 2.46 (62.5)          | 0.56 (14.2) | 1.45 (36.8) | 1.88 (47.8) | 3.64 (92.5) | 1 (25.4)    | 1.06 (26.9) | 1 (25.4)    | VUBF-96P-6.35    |
|                                |                  |                   |                      |             |             |             |             |             |             |             | VUBFD-96P-6.35   |
|                                | 3/8              | 0.3 (7.6)         | 3.09 (78.5)          | 0.5 (12.7)  | 1.57 (39.9) | 2.5 (63.5)  | 4.17 (106)  | 1.13 (28.7) | 1.57 (39.9) | 1.13 (28.6) | VUBF-96P-9.52    |
|                                |                  |                   |                      |             |             |             |             |             |             |             | VUBFD-96P-9.52   |
|                                | 1/2              | 3.3 (83.8)        |                      |             |             |             |             |             |             |             | VUBF-96P-12.7    |
|                                |                  |                   |                      |             |             |             |             |             |             |             | VUBFD-96P-12.7   |
| UJR                            | 1/4              | 0.16 (4.1)        | 2.24 (56.9)          | 0.44 (11.2) | 1.45 (36.8) | 1.88 (47.8) | 3.64 (92.5) | 1 (25.4)    | 1.02 (25.9) | 1 (25.4)    | VUBF-76P-6.35    |
|                                |                  |                   |                      |             |             |             |             |             |             |             | VUBFD-76P-6.35   |
|                                | 3/8              | 0.3 (7.6)         | 3 (76.2)             | 0.46 (11.7) | 1.57 (39.9) | 2.5 (63.5)  | 4.17 (106)  | 1.13 (28.7) | 1.5 (38)    | 1.13 (28.7) | VUBF-76P-9.52    |
|                                |                  |                   |                      |             |             |             |             |             |             |             | VUBFD-76P-9.52   |

# 1000 psig (68.9 bar) Compact Type (VUBFH-96P Type)

## Features

1. Precision-formed metal bellows provides reliable seal to atmosphere.
2. Welded bonnet to body provides perfect seal to atmosphere.
3. A positive seal is repeatedly possible with nonrotating spherical disk.
4. Panel and bottom mounting.
5. End Connections: **V-Lok** Tube Fittings 1/16, 1/4



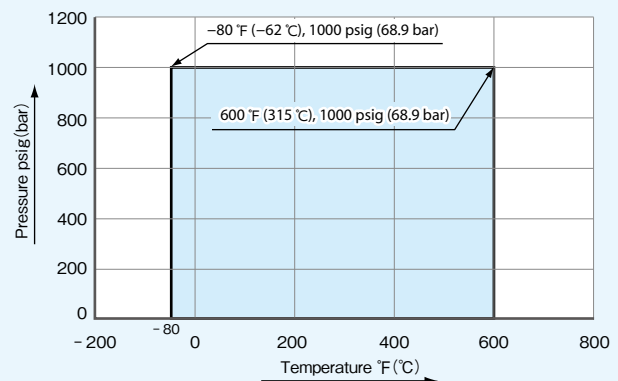
## Technical Data

### Temperature and Pressure Rating

| Size                        | 1/16                  | 1/4 |
|-----------------------------|-----------------------|-----|
| Temperature °F (°C)         | -80 (-62) ~ 600 (315) |     |
| Working Pressure psig (bar) | 1000 (68.9)           |     |

### Outside Leakage, Seat Leakage

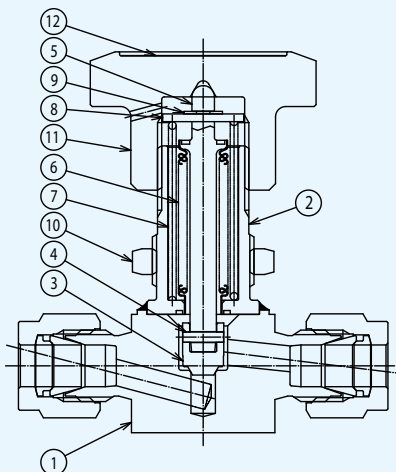
After Pressurise test, we do He leakage test.  
We confirm at the time of test that the leakage amount is less than  $4.0 \times 10^{-10}$  Pa·m<sup>3</sup>/sec. (Vacuum process)



## Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

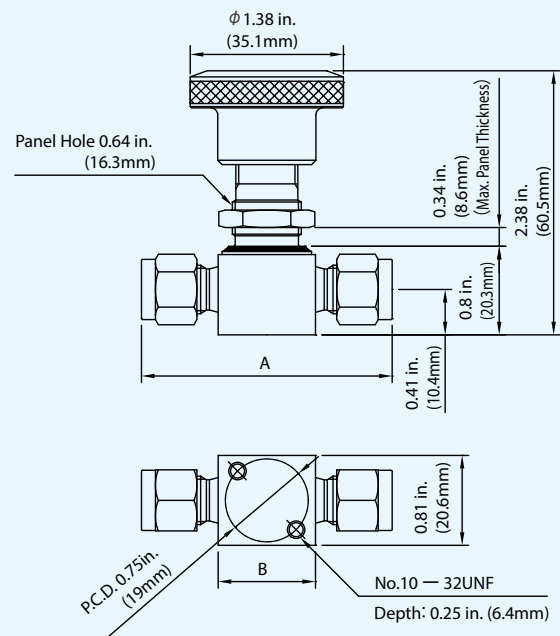
## Materials of Construction



| No. | Description | Materials                          |
|-----|-------------|------------------------------------|
| 1   | BODY ※      | ASTM A479 316                      |
| 2   | BONNET ※    | ASTM A479 316                      |
| 3   | DISK ※      | S17400 or ASTM A276 630            |
| 4   | STOP PIN ※  | SUS304                             |
| 5   | STEM ※      | ASTM A479 316                      |
| 6   | BELLOWS ※   | ASTM A240 321 or AMS 5510 TYPE 321 |
| 7   | SPRING      | S17700 or ASTM A276 631            |
| 8   | WASHER      | ASTM A240 316                      |
| 9   | E - RING    | ASTM A276 304                      |
| 10  | PANEL NUT   | ASTM A276 304 or ASTM A479 316     |
| 11  | HANDLE      | ALUMINUM A5056B or A6061B(T6)      |
| 12  | NAME PLATE  | TETORON                            |

※ : Wetted Parts

Dimensions and Ordering Numbers



| End Connections | Nominal Sizes | Orifice<br>inch<br>(mm) | Dimensions<br>inch<br>(mm) |                | Ordering Numbers   |
|-----------------|---------------|-------------------------|----------------------------|----------------|--------------------|
|                 |               |                         | A                          | B              |                    |
| Inlet / Outlet  | 1/8           | 0.15<br>(3.8)           | 2.09<br>(53.1)             | 0.88<br>(22.3) | VUBFH - 96P - 3.2  |
|                 | 1/4           |                         | 2.27<br>(57.7)             |                | VUBFH - 96P - 6.35 |

# 700 psig (48.2 bar) Metering Needle Bellows Valves (VUBFN-94MP Type)

## Features

1. Minutes flow control type disk.
2. Micrometer handles provide precise flow control repeatedly.
3. Precision- formed metal bellows provides reliable seal to atmosphere.
4. Valves open to maximum flow in six turns.
5. Slotted handle tops enable adjustments with screwdriver.
6. Sealed between body and bellows by gaskets.
7. Panel and bottom mounting.
8. End Connection: **V-Lok** Tube Fitting 1/4



## Technical Data

### Temperature and Pressure Rating

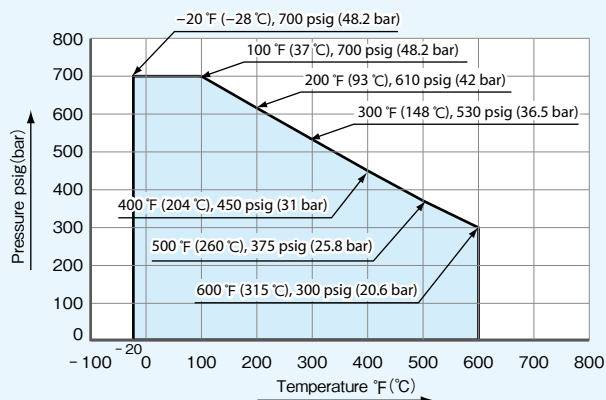
| Nominal Size                | 1/4                     |
|-----------------------------|-------------------------|
| Temperature °F(°C)          | - 20 (- 28) ~ 600 (315) |
| Working Pressure psig (bar) | 700 (48.2)              |

### Outside Leakage, Seat Leakage

After Pressurise test, we do He leakage test.  
We confirm at the time of test that the leakage amount is less than  $4.0 \times 10^{-10}$  Pa·m<sup>3</sup>/sec. (Vacuum process)

### Flow Rate at the shut time

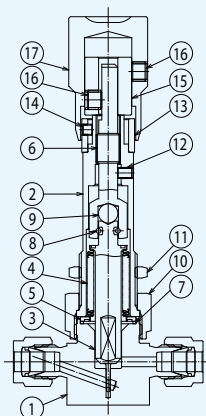
We adjust the flow rate of 9.86psig (0.68bar) Nitrogen gas  
10-15cm<sup>3</sup>/min. (At the shipment time)



## Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

## Materials of Construction

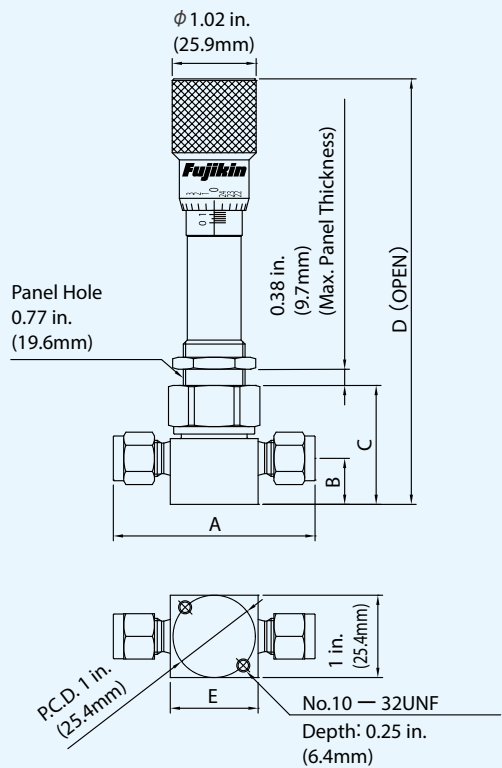


| No. | Description     | Materials                          |
|-----|-----------------|------------------------------------|
| 1   | BODY ※          | ASTM A479 316                      |
| 2   | BONNET          | ASTM A479 316                      |
| 3   | DISK ※          | ASTM A479 316                      |
| 4   | BELLOWS ※       | ASTM A240 321 or AMS 5510 TYPE 321 |
| 5   | WELD RING ※     | ASTM A479 316                      |
| 6   | STEM            | ASTM A582 416 or ASTM A582 410     |
| 7   | GASKET ※        | ASTM A580 316                      |
| 8   | STOP PIN        | SUS304                             |
| 9   | BALL            | SUS420C                            |
| 10  | BONNET NUT      | ASTM A479 316                      |
| 11  | PANEL NUT       | ASTM A276 304 or ASTM A276 316     |
| 12  | SET SCREW       | ASTM A276 304                      |
| 13  | INDICATOR SCALE | ASTM A582 303                      |
| 14  | SET SCREW       | ASTM A276 304                      |
| 15  | BUSH            | ASTM A582 303                      |
| 16  | SET SCREW       | ASTM A276 304                      |
| 17  | HANDLE          | ASTM A582 313                      |

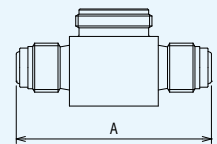
※ : Wetted Parts



Dimensions and Ordering Numbers



V-Lok Type



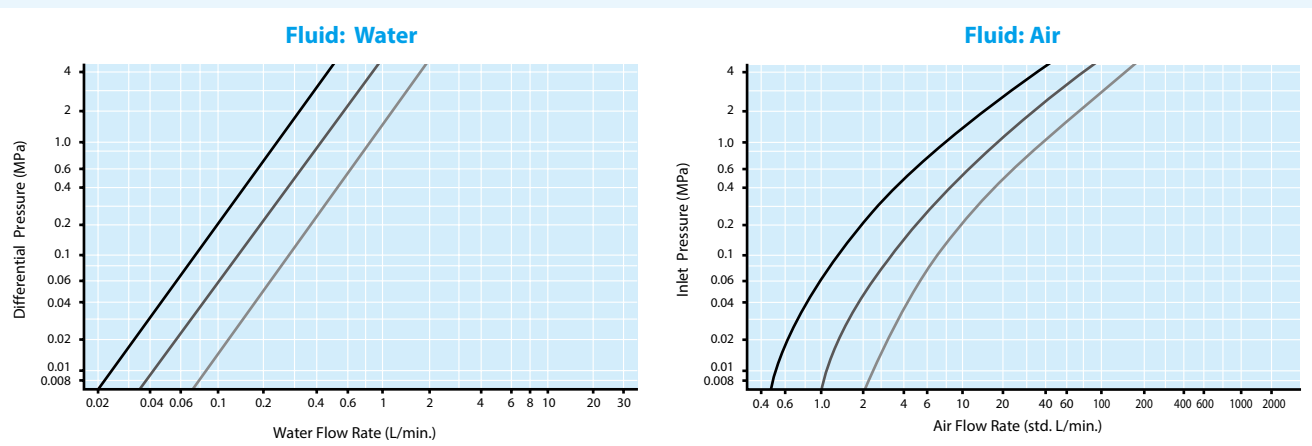
UJR Type



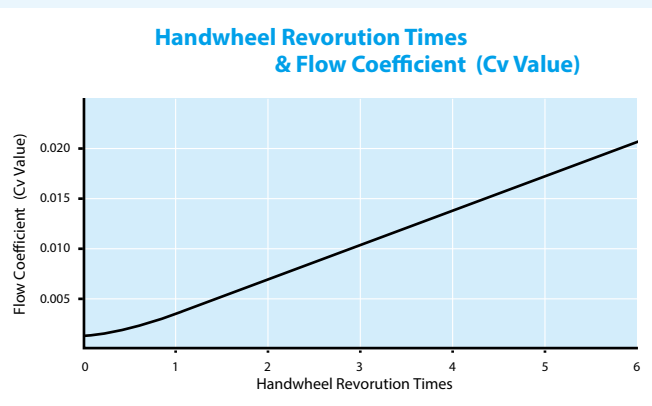
| End Connections | Nominal Diameter | Orifice inch (mm) | Dimensions inch (mm) |             |             |            |             | Ordering Numbers |
|-----------------|------------------|-------------------|----------------------|-------------|-------------|------------|-------------|------------------|
|                 |                  |                   | A                    | B           | C           | D          | E           |                  |
| V-Lok           | 1/4              | 0.055 (1.4)       | 2.46 (62.5)          | 0.56 (14.2) | 1.45 (36.8) | 5.24 (133) | 0.07 (27.1) | VUBFN-94MP-6.35  |
| UJR             | 1/4              | 0.055 (1.4)       | 2.24 (56.9)          | 0.44 (11.2) | 1.45 (36.8) | 5.16 (131) | 1.02 (25.9) | VUBFN-74MP-6.35  |

## Flow Rate Curve & Cv Value

### Flow Rate Curve

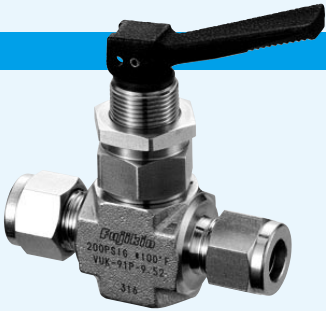
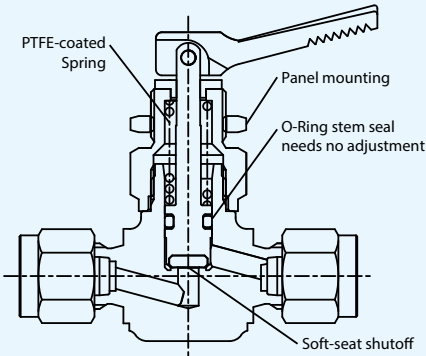


### Cv Value



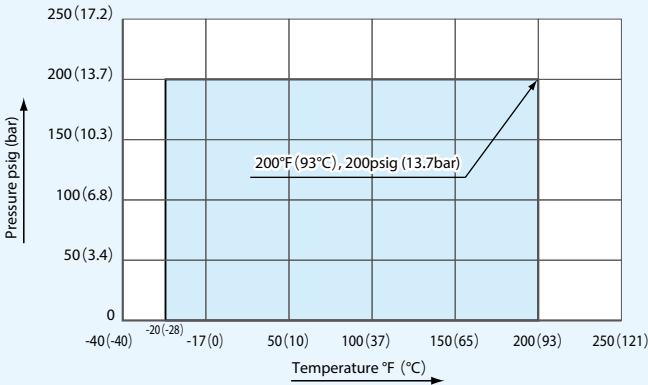
Features

- 1. Compact Design
- 2. Open and Close quickly
- 3. Panel Mounting
- 4. End Connections V-Lok Tube Fittings



Technical Data

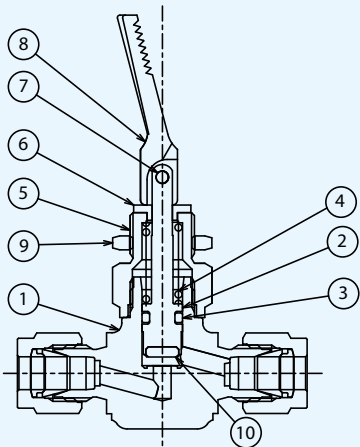
Temperature and Pressure Rating



Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

Materials of Construction

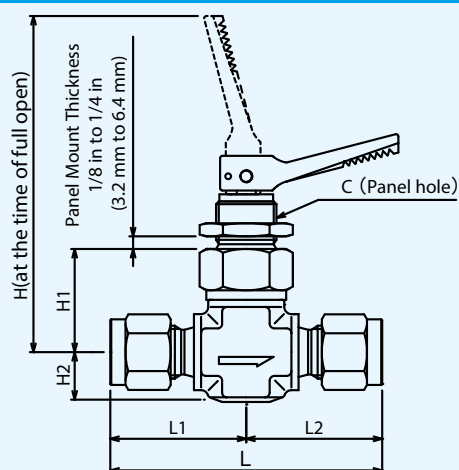


| No.        | Description | Material                       |
|------------|-------------|--------------------------------|
| 1          | BODY        | ※ ASTM A182 316                |
| 2          | STEM        | ※ ASTM A276 316                |
| 3          | O-RING      | ※ FKM                          |
| 4          | SPRING      | SUS631J1                       |
| 5          | PACKING NUT | ASTM A276 316                  |
| 6          | WASHER      | NYLON                          |
| 7          | ROLL PIN    | SUS304                         |
| 8          | HANDLE      | NYLON                          |
| 9          | PANEL NUT   | ASTM A276 304 or ASTM A276 316 |
| 10         | STEM TIP    | ※ PTFE                         |
| Lubricants |             | Fluorinated-based              |

※ : Wetted Parts

## Dimensions

### Globe Type

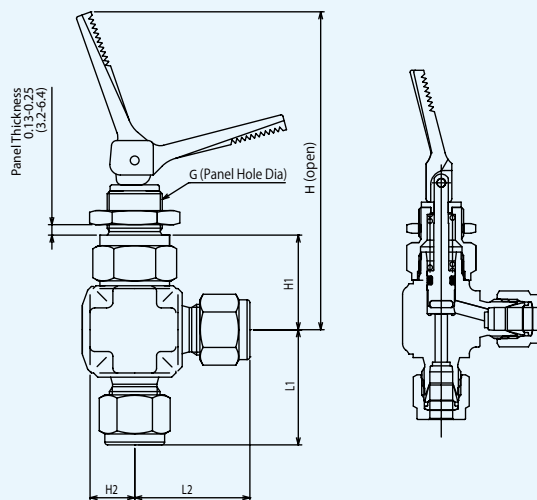


| Connection Types | Nominal Diameter inch (mm) | Operating Pressure psi (bar) | Orifice inch (mm) | Dimensions inch (mm) |             |             |             |             |             | Ordering Numbers |
|------------------|----------------------------|------------------------------|-------------------|----------------------|-------------|-------------|-------------|-------------|-------------|------------------|
|                  |                            |                              |                   | L                    | L1          | L2          | H           | H1          | H2          |                  |
| V-Lok            | 1/4 (6.35)                 | 200 (137)                    | 0.126 (3.2)       | 2.26 (57.4)          | 1.13 (28.7) | 2.81 (71.4) | 0.68 (21.8) | 0.37 (9.5)  | 0.53 (13.5) | VUK-91P-6.35     |
|                  | 3/8 (9.52)                 |                              | 0.252 (6.4)       | 2.58 (65.5)          | 1.29 (32.8) | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7)  | 0.66 (16.8) | VUK-91P-9.52     |
|                  | 1/2 (12.7)                 |                              |                   | 2.8 (71.1)           | 1.4 (35.6)  |             |             |             |             | VUK-91P-12.7     |
|                  | - (6)                      |                              | 0.126 (3.2)       | 2.26 (57.4)          | 1.13 (28.7) | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5)  | 0.53 (13.5) | VUK-91P-6        |
|                  | - (8)                      |                              |                   | 2.22 (56.4)          | 1.11 (28.2) |             |             |             |             | VUK-91P-8        |
|                  | - (10)                     |                              | 0.252 (6.4)       | 2.72 (69.1)          | 1.36 (34.5) | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7)  | 0.66 (16.8) | VUK-91P-10       |
|                  | - (12)                     |                              |                   | 2.92 (74.2)          | 1.46 (37.1) |             |             |             |             | VUK-91P-12       |
|                  | Rc                         |                              | 1/8               | 0.126 (3.2)          | 1.63 (41.4) | 0.81 (20.6) | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5)  | 0.53 (13.5)      |
| 1/4              |                            |                              | 0.252 (6.4)       | 2.12 (53.8)          | 1.06 (26.9) | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7)  | 0.66 (16.8) | VUK-11PB         |
| R                | 1/8                        |                              | 0.126 (3.2)       | 1.72 (43.7)          | 0.86 (21.8) | 2.83 (71.4) | 0.86 (21.8) | 0.37 (9.5)  | 0.53 (13.5) | VUK-11PAM        |
|                  | 1/4                        |                              |                   | 1.96 (49.8)          | 0.98 (24.9) |             |             |             |             | VUK-11PBM        |
|                  | 3/8                        |                              | 0.252 (6.4)       | 2.25 (57.2)          | 1.12 (28.4) | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7)  | 0.66 (16.8) | VUK-11PCM        |
| Female NPT       | 1/8                        |                              | 0.126 (3.2)       | 1.63 (41.4)          | 0.81 (20.6) | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5)  | 0.53 (13.5) | VUK-11PAN        |
|                  | 1/4                        |                              | 0.252 (6.4)       | 2.12 (53.8)          | 1.06 (26.9) | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7)  | 0.66 (16.8) | VUK-11PBN        |
| Male NPT         | 1/8                        |                              | 0.126 (3.2)       | 1.72 (43.7)          | 0.86 (21.8) | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5)  | 0.53 (13.5) | VUK-11PANM       |
|                  | 1/4                        |                              |                   | 1.96 (49.8)          | 0.98 (24.9) |             |             |             |             | VUK-11PBNM       |
|                  | 3/8                        | 0.252 (6.4)                  | 2.25 (57.2)       | 1.12 (28.4)          | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7)  | 0.66 (16.8) | VUK-11PCNM  |                  |

※ : Getting ready. Begin to sell it soon.

## Dimensions

### Angle Type



| Connection Types | Nominal Diameter inch (mm) | Operating Pressure psi (bar) | Orifice inch (mm) | Dimensions inch (mm) |    |             |             |            |             | Ordering Numbers |
|------------------|----------------------------|------------------------------|-------------------|----------------------|----|-------------|-------------|------------|-------------|------------------|
|                  |                            |                              |                   | L1                   | L2 | H           | H1          | H2         | G           |                  |
| V-Lok            | 1/4 (-)                    | 200 (137)                    | 0.13 (3.2)        | 1.13 (28.7)          |    | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5) | 0.53 (13.5) | VUK-01P-6.35 ※   |
|                  | 3/8 (-)                    |                              | 0.25 (6.4)        | 1.29 (32.8)          |    | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7) | 0.66 (16.8) | VUK-01P-9.52 ※   |
|                  | 1/2 (-)                    |                              |                   | 1.4 (35.6)           |    |             |             |            |             | VUK-01P-12.7 ※   |
|                  | - (6)                      |                              | 0.13 (3.2)        | 1.13 (28.7)          |    | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5) | 0.53 (13.5) | VUK-01P-6 ※      |
|                  | - (8)                      |                              |                   | 1.11 (28.2)          |    |             |             |            |             | VUK-01P-8 ※      |
|                  | - (10)                     |                              | 0.25 (6.4)        | 1.36 (34.5)          |    | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7) | 0.66 (16.8) | VUK-01P-10 ※     |
|                  | - (12)                     |                              |                   | 1.46 (37.1)          |    |             |             |            |             | VUK-01P-12 ※     |
| Rc               | 1/8                        |                              | 0.13 (3.2)        | 0.81 (20.6)          |    | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5) | 0.53 (13.5) | VUK-31PA ※       |
|                  | 1/4                        |                              | 0.25 (6.4)        | 1.06 (26.9)          |    | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7) | 0.66 (16.8) | VUK-31PB ※       |
| R                | 1/8                        |                              | 0.13 (3.2)        | 0.86 (21.8)          |    | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5) | 0.53 (13.5) | VUK-31PAM ※      |
|                  | 1/4                        |                              |                   | 0.98 (24.9)          |    |             |             |            |             | VUK-31PBM ※      |
|                  | 3/8                        |                              | 0.25 (6.4)        | 1.12 (28.4)          |    | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7) | 0.66 (16.8) | VUK-31PCM ※      |
| Female NPT       | 1/8                        |                              | 0.13 (3.2)        | 0.81 (20.6)          |    | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5) | 0.53 (13.5) | VUK-31PAN ※      |
|                  | 1/4                        |                              | 0.25 (6.4)        | 1.06 (26.9)          |    | 90.4        | 1.06 (26.9) | 0.5 (12.7) | 0.66 (16.8) | VUK-31PBN ※      |
| Male NPT         | 1/8                        |                              | 0.13 (3.2)        | 0.86 (21.8)          |    | 2.81 (71.4) | 0.86 (21.8) | 0.37 (9.5) | 0.53 (13.5) | VUK-31PANM ※     |
|                  | 1/4                        |                              |                   | 0.98 (24.9)          |    |             |             |            |             | VUK-31PBNM ※     |
|                  | 3/8                        |                              | 0.25 (6.4)        | 1.12 (28.4)          |    | 3.56 (90.4) | 1.06 (26.9) | 0.5 (12.7) | 0.66 (16.8) | VUK-31PCNM ※     |

※ : Getting ready. Begin to sell it soon.

Note : Materials and dimensions are subject to change without notice.

## Ordering Information

**VUK** — **91PA** — **6.35**  
 ①②③      ④⑤⑥⑦      ⑧

### ① Valve Series

### ② Body Material

Stainless Steel

### ③ Valve Type

Toggle Valves

### ④ End Connections

0 : **V-Lok** Type (Angle Type) ※

1 : Thread Type (Globe Type) ※

3 : Thread Type (Angle Type) ※

9 : **V-Lok** Type (Globe Type)

### ⑤ Working Pressure

200psig (1.37 bar)

### ⑥ Panel Nut

### ⑦ Connection1

A : Rc1/8 ※

B : Rc1/4 ※

Blank : **V-Lok** Type

### ⑧ Connection Sizes

Blank : Thread Type

6 : **V-Lok** 6

8 : **V-Lok** 8

10 : **V-Lok** 10

12 : **V-Lok** 12 ※

6.35 : **V-Lok** 1/4

9.52 : **V-Lok** 3/8

12.7 : **V-Lok** 1/2

※ : Getting ready. Begin to sell it soon.



## Features

1. Service up to 6000 psig (413 bar)
2. By 8 kinds of springs for Nominal Size 1/4, possible to set the cracking pressure for your request
3. By 3 kinds of springs for Nominal Size 1/2, possible to set the cracking pressure for your request

## Technical Data

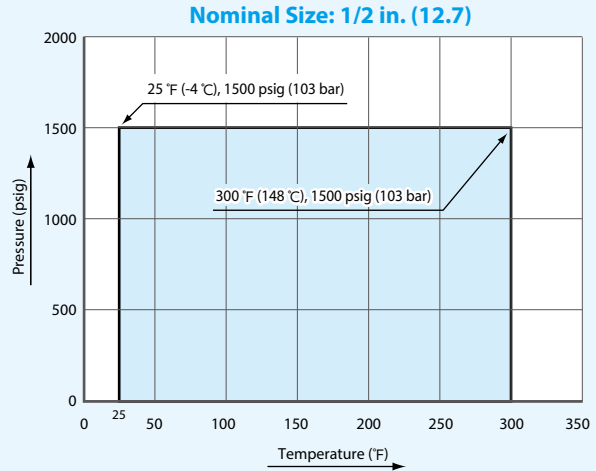
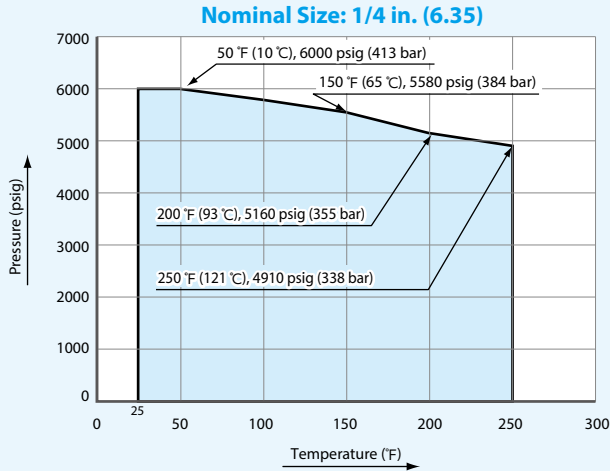
### Working Pressure

|                                   |     | Nominal Sizes inch(mm)                                             |                                     |
|-----------------------------------|-----|--------------------------------------------------------------------|-------------------------------------|
|                                   |     | 1/4 (6.35)                                                         | 1/2 (12.7)                          |
| Working pressure at 70 °F (20 °C) |     | 6000 psig (413 bar):<br>up to 8000 psig (551 bar)<br>during relief | 6000 psig (413 bar)                 |
| Set Pressure                      | ※ 1 | 50 to 6000 psig<br>(3.4 to 413 bar)                                | 50 to 1500 psig<br>(3.4 to 103 bar) |
| Outlet pressure                   | ※ 2 | 1500 psig (103 bar)                                                | 2500 psig (172 bar)                 |
| Seat Material                     |     | FKM, Chloroprene Rubber, Kalrez®                                   | FKM, Chloroprene Rubber, FFKM       |

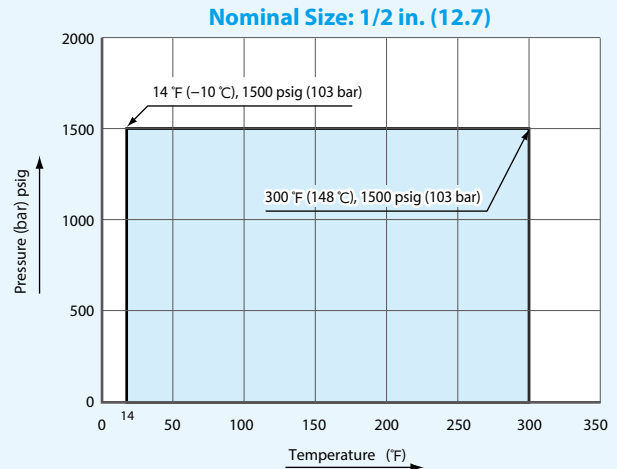
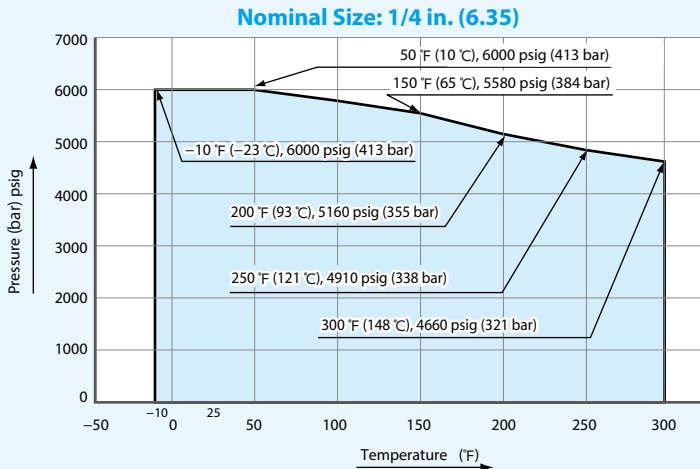
- ※ 1: Please confirm the maximum setting pressure in each temperature from the Temperature and Pressure Rating. The pressure-temperature ratings are based upon laboratory testing to ensure that the cracking pressure (※ 3) does not deviate by more than 20 % from the Initial room-temperature set pressure.
- ※ 2: Outlet pressure should not exceed Inlet pressure.
- ※ 3: Cracking pressure means the inlet pressure at the time of showing the indication of the flow starting. The flow starting indicates the flow level that bubbles are generated continuously from outlet piping in the water, when pressurizing from inlet piping.

## Temperature and Pressure Rating

### Seat Materials: FKM, FFKM



### Seat Material: Chloroprene Rubber



Note: If the end connection is V-Lok type, the working pressure may be low depending on the tube used.  
For details, please refer to 1-1, 1-2 in the table of P12.

Note: Materials and dimensions are subject to change without notice.

### Applicable Fluid

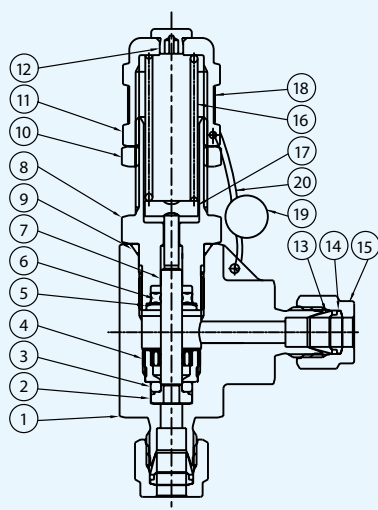
Air, Nitrogen gas, Inert gas like Helium, and non-corrosive gas and Liquid.

### Attention and asking in selection

1. The spring isn't built in the valve, so please order the spring kit separately. (Please refer to the P.176 "Ordering Information")
2. This product opens gradually as the pressure increases. There is no designated capacity rating at a given pressure (accumulation), therefore, the product does not confirm to ASME standard or any other standards.
3. A higher relief pressure than the set pressure may be required for opening the product initially, when the product is not in use for a long period of time.
4. This product is a relief valve, therefore, do not use it as a safety valve.

### Materials of Construction

#### Nominal size: 1/4 in. (6.35)



| No. | Description       | Materials      |
|-----|-------------------|----------------|
| 1   | BODY ※ 1          | ASTM A182 F316 |
| 2   | INSERT ※ 1        | ASTM A479 316  |
| 3   | O-RING ※ 1        | FKM ※ 3        |
| 4   | SEAT RETAINER ※ 1 | ASTM A479 316  |
| 5   | RETAINER ※ 1      | SUS304         |
| 6   | X-RING ※ 1        | FKM ※ 3        |
| 7   | STEM ※ 1          | ASTM A479 316  |
| 8   | BONNET ※ 1        | ASTM A479 316  |
| 9   | O-RING ※ 1        | FKM ※ 3        |
| 10  | LOCK NUT          | ASTM A276 316  |

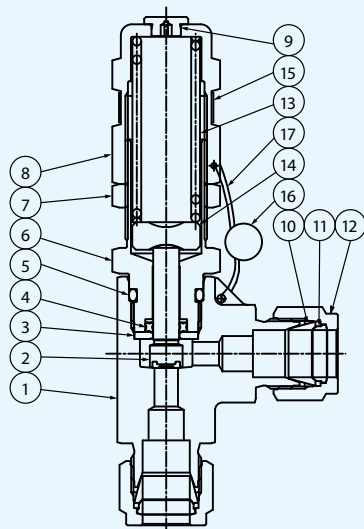
※ 1: Wetted Part

※ 2: Parts of No.16-20 aren't built in the valve. Please order the spring kit of another sales separately. (Please refer to P.176 "Ordering Information")

※ 3: Available Chloroprene Rubber, Kalrez® for option.

| No. | Description        | Materials     |
|-----|--------------------|---------------|
| 11  | CAP                | ASTM A479 316 |
| 12  | PLUG               | NYLON6        |
| 13  | FRONT RING ※ 1     | ASTM A276 316 |
| 14  | BACK RING ※ 1      | ASTM A276 316 |
| 15  | NUT                | ASTM A276 316 |
| 16  | SPRING ※ 2         | SUS631        |
| 17  | SPRING SUPPORT ※ 2 | ASTM A276 316 |
| 18  | LABEL ※ 2          | PET           |
| 19  | CORD SEAL ※ 2      | Pb            |
| 20  | WIRE ※ 2           | SUS304-W1     |

#### Nominal size: 1/2 in. (12.7)



| No. | Description  | Materials         |
|-----|--------------|-------------------|
| 1   | BODY ※ 1     | ASTM A182 F316    |
| 2   | STEM ※ 1     | ASTM A479 316+FKM |
| 3   | RETAINER ※ 1 | ASTM A479 316     |
| 4   | X-RING ※ 1   | FKM ※ 3           |
| 5   | O-RING ※ 1   | FKM ※ 3           |
| 6   | BONNET ※ 1   | ASTM A479 316     |
| 7   | LOCK NUT     | ASTM A276 316     |
| 8   | CAP          | ASTM A479 316     |
| 9   | PLUG         | NYLON 6           |

※ 1: Wetted Part

※ 2: Parts of No.13-17 aren't built in the valve. Please order the spring kit of another sales separately. (Please refer to P.176 "Ordering Information")

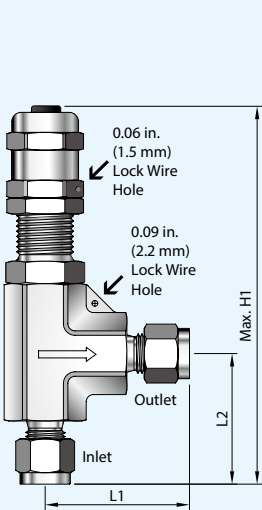
※ 3: Available Chloroprene Rubber, Kalrez® for option.

| No. | Description        | Materials     |
|-----|--------------------|---------------|
| 10  | FRONT RING ※ 1     | ASTM A276 316 |
| 11  | BACK RING ※ 1      | ASTM A276 316 |
| 12  | NUT                | ASTM A276 316 |
| 13  | SPRING ※ 2         | SUS631        |
| 14  | SPRING SUPPORT ※ 2 | ASTM A276 316 |
| 15  | LABEL ※ 2          | PET           |
| 16  | CORD SEAL ※ 2      | Pb            |
| 17  | WIRE ※ 2           | SUS304-W1     |

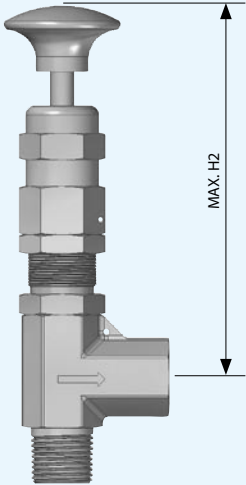


Dimensions

Standard Type



with Pressure Relief Handle Type



Nominal Size: 1/4 Type

| End Connection<br>Inlet/Outlet | Nominal<br>Sizes | Working Pressure<br>psig<br>(bar) | Orifice<br>inch<br>(mm) | Dimensions    inch (mm) |                |                |               | Ordering Numbers |
|--------------------------------|------------------|-----------------------------------|-------------------------|-------------------------|----------------|----------------|---------------|------------------|
|                                |                  |                                   |                         | L1                      | L2             | H              | H2            |                  |
| <b>V-Lok</b>                   | 1/4<br>(6.35)    | 6000<br>(413)                     | 0.14<br>(3.6)           | 1.6<br>(40.6)           | 1.44<br>(36.6) | 4.13<br>(105)  | 4.09<br>(104) | VURF-041L-6.35   |
| NPT ※                          | 1/4              |                                   |                         | 1.17<br>(29.7)          | 1.19<br>(30.2) | 3.89<br>(98.8) |               | VURF-341LBNM×BNF |

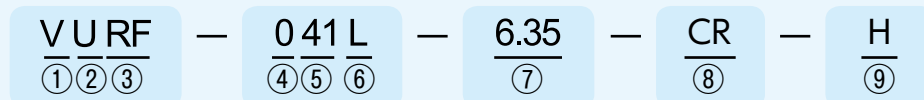
Nominal Size: 1/2 Type

| End Connection<br>Inlet/Outlet | Nominal<br>Sizes | Working Pressure<br>psig<br>(bar) | Orifice<br>inch<br>(mm) | Dimensions    inch (mm) |                |               |               | Ordering Numbers |
|--------------------------------|------------------|-----------------------------------|-------------------------|-------------------------|----------------|---------------|---------------|------------------|
|                                |                  |                                   |                         | L1                      | L2             | H             | H2            |                  |
| <b>V-Lok</b>                   | 1/2<br>(12.7)    | 6000<br>(413)                     | 0.252<br>(6.4)          | 1.83<br>(46.5)          | 1.83<br>(46.5) | 5.91<br>(150) | 5.35<br>(136) | VURF-041L-12.7   |
| NPT ※                          | 1/2              |                                   |                         | 1.43<br>(36.3)          | 1.43<br>(36.3) | 5.51<br>(140) |               | VURF-341LDNM×DNF |

※ : Inlet: Male, Outlet: Femalea

## Ordering Information

### Relief Valves



### Spring kit

| Set Pressure<br>psig(bar)   | Spring<br>Color | Ordering<br>Numbers |
|-----------------------------|-----------------|---------------------|
| Nominal Sizes 1/4 in.       |                 |                     |
| 50-350 psig (3.4-24.1bar)   | Blue            | SK-VURF-6.35-A      |
| 350-750 psig (24.1-51.7bar) | Yellow          | SK-VURF-6.35-B      |
| 750-1500 psig (51.7-103bar) | Purple          | SK-VURF-6.35-C      |
| 1500-2250 psig (103-155bar) | Orange          | SK-VURF-6.35-D      |
| 2250-3000 psig (155-206bar) | Brown           | SK-VURF-6.35-E      |
| 3000-4000 psig (206-275bar) | White           | SK-VURF-6.35-F      |
| 4000-5000 psig (275-344bar) | Red             | SK-VURF-6.35-G      |
| 5000-6000 psig (344-413bar) | Green           | SK-VURF-6.35-H      |
| Nominal Sizes 1/2 in.       |                 |                     |
| 50-350 psig (3.4-24.1bar)   | Blue            | SK-VURF-12.7-A      |
| 350-750 psig (24.1-51.7bar) | Yellow          | SK-VURF-12.7-B      |
| 750-1500 psig (51.7-103bar) | Purple          | SK-VURF-12.7-C      |

① Valve Series

② Body Material  
Stainless Steel

③ Valve Type  
Relief Valves

④ End Connections  
V-Lok, Angle Type

⑤ Working Pressure  
6000 psig (413 bar)

⑥ Lock Nut

⑦ Connection Sizes  
6.35 : V-Lok 1/4 in.  
12.7 : V-Lok 1/2 in.  
BNM × BNF : 1/4 in. (NPT)  
Inlet: Male Pipe  
Outlet: Female Pipe  
DNM × DNF : 1/2 in. (NPT)  
Inlet: Male Pipe  
Outlet: Female Pipe

⑧ Seal Material  
Blank : FKM (Standard)  
CR : Chloroprene Rubber  
KA : FFKM ※

⑨ Blank : Standard  
HA : with Pressure Relief Handle Type

※ : Getting ready. Begin to sell it soon.

### Factory-Set Relief Valves

Relief valves are available with springs factory-set to a special set pressure.  
Valves are set, tested locked, and stuck a label with the set pressure.  
Inspection certificate is also attached.

To order, add the alphabet A-H of Ordering Numbers whose includes the desired set pressure to the valve ordering number; specify the desired set pressure.

Example: VURF-041L-6.35-A

### Manual Override Handle Kits

A manual override handle opens the valve without changing the set pressure.

kits contain handle, pull rod, spring support, and instructions.  
To order, select the desired kit ordering number.

| Nominal Sizes | Ordering<br>Numbers | Applicable Spring kit<br>(Ordering Number at the end) |
|---------------|---------------------|-------------------------------------------------------|
| 1/4<br>(6.35) | HK-VURF-6.35        | A, B, C                                               |
| 1/2<br>(12.7) | HK-VURF-12.7        | A                                                     |

Note : Materials and dimensions are subject to change without notice.

## Features

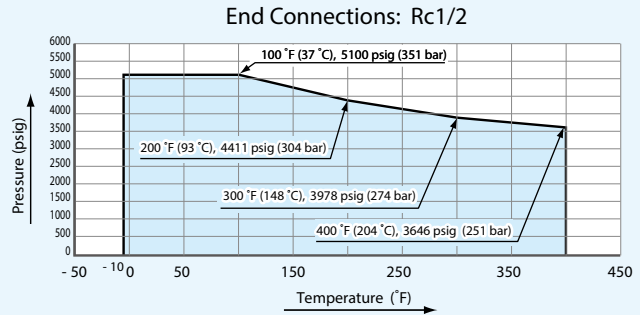
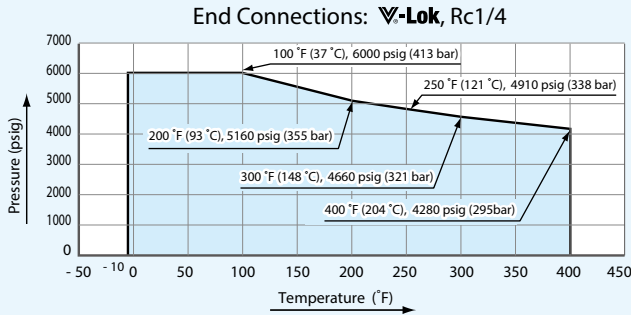
### Fixed Cracking Pressures

From 1/3 to 25 psi (0.03 to 1.8 bar) (Standard: 1 psi)



## Technical Data

### Temperature and Pressure Rating



Note: If the end connection is **V-Lok** type, the working pressure may be low depending on the tube used.  
For details, please refer to 1-1, 1-2 in the table of P12.

### Cracking and Reseal Pressures at 70 °F (20 °C)

| Nominal Cracking Pressure<br>psig (bar) | Cracking Pressure Range<br>psig (bar) ※1 | Reseal Pressure<br>psig (bar) ※2   |
|-----------------------------------------|------------------------------------------|------------------------------------|
| 1/3 (0.03)                              | Up to 3 (0.21)                           | Up to 6 (0.42) back pressure       |
| 1 (0.07)                                | Up to 4 (0.28)                           | Up to 5 (0.35) back pressure       |
| 5 (0.35)                                | 3 to 9 (0.21 to 0.63)                    | Up to 2 (0.14) back pressure       |
| 10 (0.69)                               | 7 to 15 (0.49 to 1.1)                    | 3 (0.21) or more upstream pressure |
| 25 (1.8)                                | 20 to 30 (1.4 to 2.1)                    | 17 (1.2) or more upstream pressure |

※ 1: Inlet pressure at the beginning of flow

The beginning of flow refers to a flow that produces continuous bubbles from the outlet side when the outlet piping is placed in water and pressurized from the inlet side.

※ 2: Pressure when the flow is no longer confirmed.

[Cracking pressure (nominal): 0.003 to 0.035 MPa]

Reverse pressure according to cracking pressure is required for the seal of the valve seat, respectively.

Reverse pressure is the pressure obtained by subtracting the inlet pressure from the outlet pressure.

[Cracking pressure (nominal): 0.069 to 0.18 MPa]

If the inlet pressure falls below the value shown in the table, the valve seat is resealed.

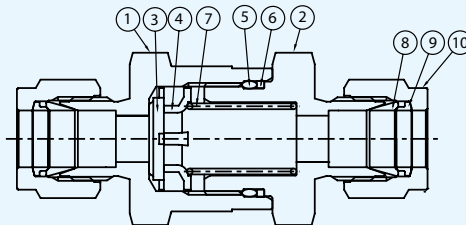
### Applicable Fluid

Air, Nitrogen gas, Inert gas like Helium, and non - corrosive gas and liquid.

### Attention and asking in selection

- For valves not actuated for a period of time, initial cracking pressure may be higher than the set cracking pressure.
- In general Check Valves are used for only direction control of flow. Please don't use Check Valves for ON - OFF Valves and Relief Valves.

### Materials of Construction



| No. | Description | Materials        |
|-----|-------------|------------------|
| 1   | BODY1       | ※ ASTM A479 316  |
| 2   | BODY2       | ※ ASTM A479 316  |
| 3   | POPPET      | ※ SUS 316L + FKM |
| 4   | POPPET STOP | ※ ASTM A276 316  |
| 5   | O-RING      | ※ FKM            |

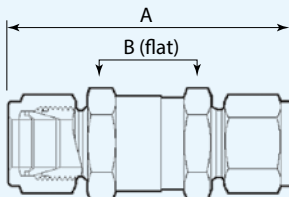
| No. | Description | Materials       |
|-----|-------------|-----------------|
| 6   | BACKUP RING | PTFE            |
| 7   | SPRING      | ※ SUS316        |
| 8   | FRONT RING  | ※ ASTM A276 316 |
| 9   | BACK RING   | ※ ASTM A276 316 |
| 10  | NUT         | ASTM A276 316   |

※ : Wetted Part

Note : Materials and dimensions are subject to change without notice.

## Dimensions

Dimensions, shown with **V-Lok** tube fitting nuts finger-tight, are for reference only and are subject to change.



| End Connections   | Nominal Sizes<br>inch<br>(mm) | Working Pressure<br>psig<br>(bar) | Dimensions inch (mm) |                 | Cracking Pressure<br>psig (bar) | Ordering Numbers   |
|-------------------|-------------------------------|-----------------------------------|----------------------|-----------------|---------------------------------|--------------------|
|                   |                               |                                   | A                    | B               |                                 |                    |
| <b>V-Lok</b>      | 1/4<br>(6.35)                 | 6000<br>(413)                     | 2.43<br>(61.7)       | 11/16<br>(17.5) | 1<br>(0.07)<br>※1               | VUCL-941-6.35-0.07 |
|                   | 3/8<br>(9.52)                 |                                   | 2.75<br>(69.9)       | 1<br>(25.4)     |                                 | VUCL-941-9.52-0.07 |
|                   | 1/2<br>(12.7)                 |                                   | 2.96<br>(75.2)       | 1<br>(25.4)     |                                 | VUCL-941-12.7-0.07 |
|                   | —<br>(6)                      |                                   | 2.43<br>(61.7)       | 11/16<br>(17.5) |                                 | VUCL-941-6-0.07    |
|                   | —<br>(8)                      |                                   | 2.7<br>(68.6)        | 1<br>(25.4)     |                                 | VUCL-941-8-0.07    |
|                   | —<br>(10)                     |                                   | 2.8<br>(71.1)        | 1<br>(25.4)     |                                 | VUCL-941-10-0.07   |
|                   | —<br>(12)                     |                                   | 2.96<br>(75.2)       | 1<br>(25.4)     |                                 | VUCL-941-12-0.07   |
|                   | —<br>(12)                     |                                   | 2.96<br>(75.2)       | 1<br>(25.4)     |                                 | VUCL-941-12-0.07   |
| <b>Rc</b>         | 1/4                           | 5100<br>(351)                     | 2.28<br>(57.9)       | 11/16<br>(17.5) |                                 | VUCL-141B-0.07     |
|                   | 1/2                           |                                   | 3.29<br>(83.6)       | 1-1/16<br>(27)  |                                 | VUCL-141D-0.07     |
| <b>Female NPT</b> | 1/4                           | 6000<br>(413)                     | 2.13<br>(54.1)       | 11/16<br>(17.5) |                                 | VUCL-141BN ※       |
|                   | 3/8                           | 5300<br>(365)                     | 2.55<br>(64.8)       | 1<br>(25.4)     |                                 | VUCL-141CN ※       |
|                   | 1/2                           | 4896<br>(337)                     | 3.03<br>(77)         | 1-1/16<br>(27)  |                                 | VUCL-141DN ※       |
| <b>Male NPT</b>   | 1/8                           | 6000<br>(413)                     | 1.79<br>(45.5)       | 11/16<br>(17.5) |                                 | VUCL-141ANM ※      |
|                   | 1/4                           |                                   | 2.17<br>(55.1)       | 11/16<br>(17.5) |                                 | VUCL-141BNM ※      |
|                   | 3/8                           |                                   | 2.36<br>(59.9)       | 1<br>(25.4)     |                                 | VUCL-141CNM ※      |
|                   | 1/2                           |                                   | 2.73<br>(69.3)       | 1<br>(25.4)     |                                 | VUCL-141DNM ※      |

※ : Getting ready. Begin to sell it soon.

## Ordering Information

**VUCL** — **941** — **6.35** — **0.07**  
 ① ② ③ ④ ⑤ ⑥ ⑦

① Valve Series

④ End Connections

⑥ Connection Sizes

⑦ Cracking Pressures

1: Thread Type  
9: **V-Lok** Type

6.35: **V-Lok** 6.35  
9.52: **V-Lok** 9.52  
12.7: **V-Lok** 12.7  
6: **V-Lok** 6  
8: **V-Lok** 8  
10: **V-Lok** 10  
12: **V-Lok** 12

B: Rc1/4  
D: Rc1/2  
BN: 1/4in. Female NPT  
CN: 1/8in. Female NPT  
DN: 1/2in. Female NPT  
ANM: 1/8in. Male NPT  
BNM: 1/4in. Male NPT  
CNM: 3/8in. Male NPT  
DNM: 1/2in. Male NPT

0.07: 1 psig (0.07 bar)  
0.03: 1/3 psig (0.03 bar)  
0.35: 5 psig (0.35 bar)  
0.69: 10 psig (0.69 bar)  
1.8: 25 psig (1.8 bar)

② Body Material  
Stainless Steel

⑤ Working Pressure  
6000 psig (413 bar)

③ Valve Type  
Check Valves

Note : Materials and dimensions are subject to change without notice.

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# Other Related Products

## Automatic Flow Control Valve Series

|                |                     |                |
|----------------|---------------------|----------------|
| Diaphragm Type | Mini Control Valves | MINUCON Series |
|                | Electric Valves     | SR100 Series   |
|                | Electric Valves     | SR100E Series  |
|                | Electric Valves     | AR2000 Series  |
|                | Electric Valves     | SR100M Series  |

## Others

|             |                      |
|-------------|----------------------|
| FINE BUBBLE | Leak Detection Fluid |
|-------------|----------------------|

## MINUCON

**MINUCON** is the pneumatic operating control valves which concentrated the aggregate power of this craftsmanship of **Fujikin** and was manufactured.

The precision of control and the certainty of the operation are suitable for precise flow control of various kinds of research experiments, process lines, etc.

Wide Cv Value selection range 0.0000015 - 5 is available.

### Features

#### The High Sensitivity Diaphragm Type Actuator

Realizes outstanding control performance

#### Compact Design

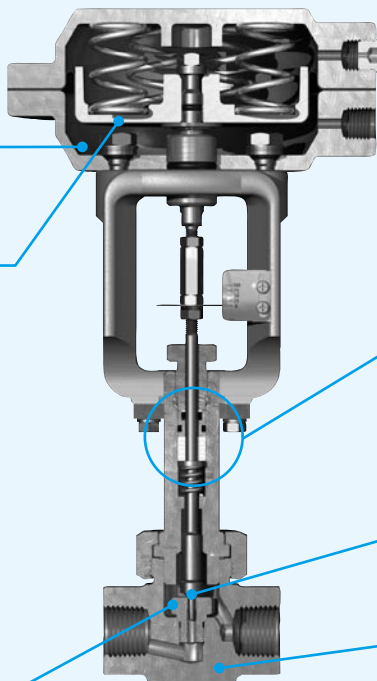
Adopted the multi - spring system (M3 Type)



#### Close Control Hysteresis

1.5 % or less is realized by adoption of a positioner. (Less than 0.00025 Cv Value is less than hysteresis 2 %.)

The material of Disc & Seat is SUS316+Stellite cladding, and is excellent against abrasion.



#### Double Seal Structure

A gland part is the double seal structure of the gland packing made from PTFE, and O-Rings made of fluorocarbon rubber.

#### Wide Cv Value Selection Range

Stem & Disk are made by SUS316+Stellite cladding, excellent for against abrasion. Wide range of Cv Value available, 0.0000015 to 5. ※

Body made from forged Stainless steel body (SUSF316) ※

※ ASTM standard (equivalent to SUS316 & SUS304) may be used instead of SUS316 & SUS304 materials.

### Application

- Various Research / Experiment Equipment
- Precise Fluid Control of Process Line
- For flow control of Calorie Meter Coolant

## SR100

**SR100** is the electronic valve which concentrated the aggregate power of this craftsmanship of **Fujikin** and was manufactured. Adoption of the stepping motor excellent in position accuracy realized the high-speed response, close control, and high resolution which are not in the conventional electric motor valve. Wide Cv Value selection range 0.0000015 – 5 is available.

**Fujikin** satisfy flexibly the demand of all precise flow control of various kinds of research experimental devices, a process line, etc.

### Features

#### Close Controlability

A high precision sensor is built in, By feeding back valve travel, close control, excellent in reproducibility and hysteresis characteristics is realized!

#### Wide Cv Value Selection Range

Stem & Disk are made by SUS316 + Stellite cladding, excellent against abrasion. ※

Wide range of Cv Value available, 0.0000015 to 5.

Body made from forged Stainless Steel (SUSF316) ※

※ ASTM standard (equivalent to SUS316 & SUS304) may be used instead of SUS316 & SUS304 materials.

#### Special Proportional Solenoid Actuator

By adopting special proportional solenoid as a drive source, the high - speed response was realized as the time from full open to close is 0.6 sec or less. (normal open type: 0.8 sec or less)

#### Spring Back Structure

Since SR100 has a spring back structure, in an emergency, the valve operates in full open or a closed position.

PTFE Gland Packing

#### Drive Unit

If an electric signal 4 – 20mA is inputted into a drive unit for exclusive use, the valve will operate to predetermined valve travel.



### Application

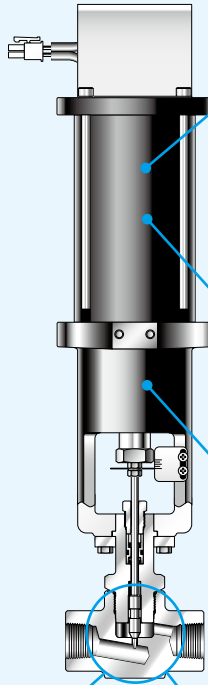
- Cogeneration • For fuel control of generator
- For flow control of Calorie Meter Coolant
- For pressure control in the evaluation equipment of fuel cell
- For the equipment which cannot install the source of air



## SR100E

**SR100E** is the electric flow control valve which has excellent performance in position accuracy, the high speed response, close control, and high resolution.

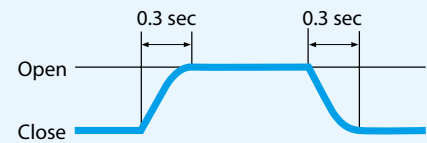
### Features



#### 1. High Speed Response

By adopting special solenoid as a drive source, the high speed response was realized as the time from full open to close is 0.3 sec or less. It's excellent compared with air operate and motor drive valve.

|                         |                             |
|-------------------------|-----------------------------|
| Open / Close Time (sec) | approximately 0.3 (One way) |
| Resolution              | 500 : 1                     |
| Hysteresis (%)          | 1.5 or less                 |



#### 2. Close Controllability

A high precision sensor is built in, By feeding back valve travel, close control, excellent in reproducibility and hysteresis characteristics is realized!

#### 3. Spring Back Structure

Since SR100E has a spring back structure, in an emergency, the valve operates in full open or a closed position.

#### 5. Input Signal

DC 4 – 20 mA  
DC 1 – 5 V

#### 6. Air Source Unnecessary

#### 7. Compact Design

30% compact than SR100  
60% light weight than SR100

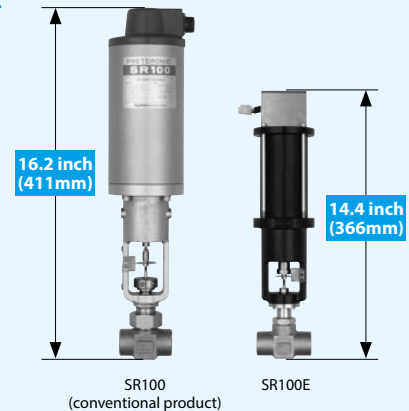
Body made from forged Stainless Steel (SUSF316) ※

※ ASTM standard (equivalent to SUS316 & SUS304) may be used instead of SUS316 & SUS304 materials.

#### 4. Wide Cv Value Selection Range

Stem & Disk are made by SUS316 + Stellite cladding, excellent against abrasion. ※

Wide range of Cv Value available, 0.0000015 to 5.



### Application

- Cogeneration • For fuel control of generator
- For flow control of Calorie Meter Coolant
- For pressure control in the evaluation equipment of fuel cell
- For the equipment which cannot install the source of air

## AR2000

**AR2000** is the electronic valve which concentrated the aggregate power of this craftsmanship of **Fujikin**, and was manufactured. Adoption of the stepping motor excellent in position accuracy realized the high-speed response, close control, and high resolution which are not in the conventional electric motor valve. Wide Cv Value selection range 0.0000015 – 5 is available.

### Features

#### Wide Cv Value Selection Range

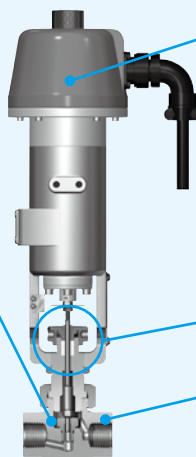
Stem & Disk are made by SUS316 + Stellite cladding, excellent against abrasion.

Wide Cv Value range available, 0.0000015 to 5. ※



#### Drive Unit

If an electric signal 4 – 20mA is inputted into a drive unit for exclusive use, the valve will operate to predetermined valve travel.



#### Resolution: 2000: 1

High resolution by adopting stepping motor driven actuator.

#### Explosion – proof model is also available

d2G4 explosion – proof type actuator is available.

PTFE Gland Packing

Body made from forged Stainless Steel (SUSF316) ※

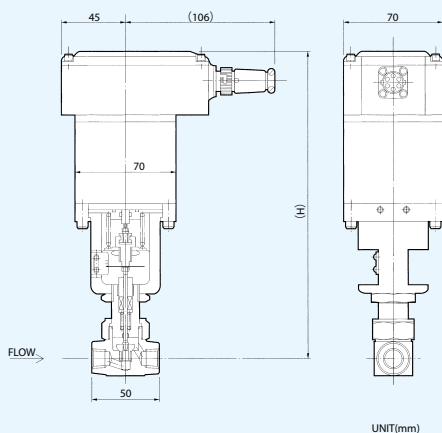
※ ASTM standard (equivalent to SUS316 & SUS304) may be used instead of SUS316 & SUS304 materials.

### Application

- Cogeneration For fuel control of generator
- For the equipment which cannot install the source of air
- For flow control of Calorie Meter Coolant
- For flow control of a compressed natural gas automobile filling machine
- For pressure control in the evaluation equipment of fuel cell

## SR100M

**SR100M** is the ultra compact electric valve which concentrated the aggregate power of this craftsmanship of **Fujikin**, was manufactured, and has united drive unit and actuator.



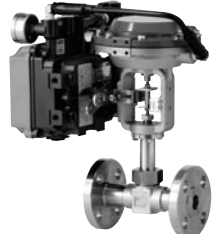
### Features

1. High Speed Operation
2. Spring Back Structure
3. Compact Design  
compact & Lightweight
4. Air Source Unnecessary
5. Input Signal  
DC 4 – 20 mA  
DC 1 – 5 V
6. Feed Back Mechanism

### Application

- Hyperbaric Oxygen Therapy
- Micro Reactor

## Automatic Flow Control Valves

| Product Series                | MINUCON                                                                                                                                                                                                                                                                                                                                                                     |                                        |                                                                                                                                             |                                                                                                               |                                                                                     |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Type                          | ON-OFF Type                                                                                                                                                                                                                                                                                                                                                                 | without Positioner Type                | with E/P SAMSON Positioner Type                                                                                                             | with E/P SSS Positioner Type                                                                                  | wirh P/P SIEMENS Positioner Type                                                    |
| Outkook                       |                                                                                                                                                                                                                                                                                            |                                        |                                                            |                            |  |
| Signal                        | —                                                                                                                                                                                                                                                                                                                                                                           | 20 – 100 kPa                           | 4 – 20 mA DC                                                                                                                                |                                                                                                               | 20 – 100 kPa                                                                        |
| Electric Source               | —                                                                                                                                                                                                                                                                                                                                                                           |                                        |                                                                                                                                             |                                                                                                               |                                                                                     |
| Supply Pressure (kPa)         | 100 / 200 / 400                                                                                                                                                                                                                                                                                                                                                             | —                                      | 140 / 240 / 400                                                                                                                             |                                                                                                               |                                                                                     |
| Hysteresis (%)                | —                                                                                                                                                                                                                                                                                                                                                                           | 15 or less                             | 1.5% or less                                                                                                                                |                                                                                                               |                                                                                     |
| Full Open to Close Time (sec) | —                                                                                                                                                                                                                                                                                                                                                                           | —                                      | 3 or less (One way) 140kPa<br>2 or less (One way) 240kPa<br>1 or less (One way) 400kPa                                                      | 140kPa → 13 or below (One way)<br>240kPa → 12 or below (One way)<br>400kPa → 9 or below (One way)             | —                                                                                   |
| Resolution / Stroke (mm)      | —                                                                                                                                                                                                                                                                                                                                                                           | —                                      | 850 (M2 Type)<br>1000 (M3 Type)                                                                                                             | 350 (M2, M3 Type )                                                                                            | —                                                                                   |
| Range-ability                 | —                                                                                                                                                                                                                                                                                                                                                                           | 20 : 1 (standard) available to 100 : 1 |                                                                                                                                             |                                                                                                               |                                                                                     |
| Rated Cv Value                | 0.25 – 5                                                                                                                                                                                                                                                                                                                                                                    | 0.01 – 5                               | 0.0000015 – 5                                                                                                                               |                                                                                                               |                                                                                     |
| Max. Opr. Pres. (MPa)         | 14.7 / 29.4 / 49                                                                                                                                                                                                                                                                                                                                                            | 14.7                                   | 14.7 / 29.4 / 49                                                                                                                            |                                                                                                               |                                                                                     |
| Fluid Temperature (°C )       | –50 – +150 (Standard Type)<br>–50 – +230 (C-PTFE Gland Packing Type)<br>–50 – +500 (High Temperature Type)<br>–253 – +150 (Low temperature Type)                                                                                                                                                                                                                            | –50 – +150                             | –50 – +150 (Standard Type)<br>–50 – +230 (C-PTFE Gland Packing)<br>–50 – +500 (High temperature Type)<br>–253 – +150 (Low temperature Type) |                                                                                                               |                                                                                     |
| Explosion Proof               | —                                                                                                                                                                                                                                                                                                                                                                           | —                                      | II 2G EEx d IICT6 (ATEX)<br>Pressure / Explosion Proof<br>Ex II 2G EEx ia IICT6 (ATEX)<br>Intrinsically Safe Explosion Proof                | Exd II BT6(Pressure / Explosion Proof)<br>Exd II B+H2T6(Pressure – resistant & Explosion Proof for Hydrogen ) | —                                                                                   |
| Actuator Type                 | Diaphragm                                                                                                                                                                                                                                                                                                                                                                   |                                        |                                                                                                                                             |                                                                                                               |                                                                                     |
| Oprating Type                 | N.O. / N.C.                                                                                                                                                                                                                                                                                                                                                                 |                                        |                                                                                                                                             |                                                                                                               |                                                                                     |
| Failure Position              | Full Open / Full Close                                                                                                                                                                                                                                                                                                                                                      |                                        |                                                                                                                                             |                                                                                                               |                                                                                     |
| Cable Connection              | —                                                                                                                                                                                                                                                                                                                                                                           |                                        | Terminal Box                                                                                                                                |                                                                                                               | —                                                                                   |
| Height (mm)                   | 250                                                                                                                                                                                                                                                                                                                                                                         |                                        | 250                                                                                                                                         | 270                                                                                                           | 380                                                                                 |
| Weight (Kg)                   | 2.5                                                                                                                                                                                                                                                                                                                                                                         |                                        | 4.5                                                                                                                                         | 6                                                                                                             | —                                                                                   |
| Features                      | Minutes Flow Contol Valves for High Pressure                                                                                                                                                                                                                                                                                                                                |                                        |                                                                                                                                             |                                                                                                               |                                                                                     |
| Applications                  | Pressure control for calorie meters / High degree of purity nitrogen refinement equipment<br>Hydrogen producing device / Hydrogen and oxygen supply installation<br>Hydrogen absorbing alloys evaluation equipment / Ammonia supply equipment<br>Pressure control for carbonic acid gas super-criticality / Oxygen gas filling equipment<br>Flow control & pressure control |                                        |                                                                                                                                             |                                                                                                               |                                                                                     |

## Automatic Flow Control Valves

| Product Series                | SR100                                                                                                                                                                                                                                                                                                                               |                     | SR100E                                                                            | AR2000                                                                                                                                                                                                                                                                                                                                                                     |                   |                                   |                  | SR100M                                                                                                                                          |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                          | S2                                                                                                                                                                                                                                                                                                                                  | S3                  | —                                                                                 | C1                                                                                                                                                                                                                                                                                                                                                                         | C3                | C1E                               | C3E              | —                                                                                                                                               |
| Outlook                       |                                                                                                                                                                                                                                                    |                     |  |                                                                                                                                                                                                                                                                                          |                   |                                   |                  |                                                              |
| Signal                        | DC4 – 20mA / DC1 – 5V / DC1 – 10V                                                                                                                                                                                                                                                                                                   |                     |                                                                                   | DC4 – 20mA / DC1 – 5V / DC1 – 10V                                                                                                                                                                                                                                                                                                                                          |                   |                                   |                  | DC4 – 20mA / DC1 – 5V / DC1 – 10V                                                                                                               |
| Electric Source               | AC100V (85 – 132V)<br>DC24V ±10%(2.1A)                                                                                                                                                                                                                                                                                              |                     | DC24V±10% (2.1A)                                                                  | DC24V±10% (2.4A)                                                                                                                                                                                                                                                                                                                                                           | DC24V±10% (3.4A)  | DC24V±10% (2.4A)                  | DC24V±10% (3.4A) | DC24V±10% 2.1A(2.4A)                                                                                                                            |
| Supply Pressure (kPa)         | —                                                                                                                                                                                                                                                                                                                                   |                     |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                            |                   |                                   |                  |                                                                                                                                                 |
| Hysteresis (%)                | 1.5 or less                                                                                                                                                                                                                                                                                                                         |                     | 1.5 or less                                                                       | 1.5 or less (Actual : 0.1 or less)                                                                                                                                                                                                                                                                                                                                         |                   |                                   |                  | 3.0 or less                                                                                                                                     |
| Full Open to Close Time (sec) | 0.6 or less (F.S. 8mm)<br>1 or less (N.O. Type)                                                                                                                                                                                                                                                                                     |                     | Approx 0.3                                                                        | 1.7 or less                                                                                                                                                                                                                                                                                                                                                                |                   |                                   |                  | 0.5 or less                                                                                                                                     |
| Resolution / Stroke (mm)      | 500 : 1 / 8                                                                                                                                                                                                                                                                                                                         |                     | 500 : 1 / 5                                                                       | 約 2000 : 1/8                                                                                                                                                                                                                                                                                                                                                               |                   |                                   |                  | 200 : 1 / 4                                                                                                                                     |
| Range-ability                 | 20 : 1 (Standard)<br>100 : 1 (Option)                                                                                                                                                                                                                                                                                               |                     | 20 : 1                                                                            | 20 : 1 (Standard)<br>100 : 1 (Option)                                                                                                                                                                                                                                                                                                                                      |                   |                                   |                  | 20 : 1                                                                                                                                          |
| Rated Cv Value                | 0.01 – 5                                                                                                                                                                                                                                                                                                                            | 0.0000015 – 5       | 0.0000015 – 5                                                                     | 0.0000015 – 5                                                                                                                                                                                                                                                                                                                                                              |                   |                                   |                  | 0.01 – 0.5                                                                                                                                      |
| Max. Opr. Pres. (MPa)         | 14.7                                                                                                                                                                                                                                                                                                                                |                     | 1                                                                                 | 14.7 / 29.4 / 49                                                                                                                                                                                                                                                                                                                                                           |                   |                                   |                  | 2.94                                                                                                                                            |
| Fluid Temperature (℃ )        | -50 – +150 (Standard Type)<br>-50 – +230 (C-PTFE Gland Packing Type)<br>-50 – +500 (High Temp. Type)<br>-253 – +150 ( Low Temp. Type)                                                                                                                                                                                               |                     | -20 – 150℃                                                                        | -50 – +150 (Standard Type)<br>-50 – +230 (C-PTFE Gland Packing Type)<br>-50 – +500 (High Temp. Type)<br>-253 – +150 ( Low Temp. Type)                                                                                                                                                                                                                                      |                   |                                   |                  | -10 – 150℃                                                                                                                                      |
| Explosion Proof               | NON                                                                                                                                                                                                                                                                                                                                 |                     |                                                                                   | NON                                                                                                                                                                                                                                                                                                                                                                        |                   | d2G4 (Pressure / Explosion Proof) |                  | —                                                                                                                                               |
| Actuator Type                 | Proportional Solenoid                                                                                                                                                                                                                                                                                                               |                     |                                                                                   | Stepping Motor                                                                                                                                                                                                                                                                                                                                                             |                   |                                   |                  | Proportional Solenoid                                                                                                                           |
| Oprating Type                 | N.O / N.C                                                                                                                                                                                                                                                                                                                           |                     | N.C                                                                               | Signal to open                                                                                                                                                                                                                                                                                                                                                             |                   |                                   |                  | N.O / N.C                                                                                                                                       |
| Failure Position              | Full Open / Full Close                                                                                                                                                                                                                                                                                                              |                     | Full Close                                                                        | keeping as                                                                                                                                                                                                                                                                                                                                                                 |                   |                                   |                  | Full Open / Full Close                                                                                                                          |
| Cable Connection              | Connector / Terminal Block                                                                                                                                                                                                                                                                                                          |                     | Connector<br>※ with control cable 1m                                              | Connector                                                                                                                                                                                                                                                                                                                                                                  |                   | Terminal Block                    |                  | Connector                                                                                                                                       |
| Height (mm)                   | 440                                                                                                                                                                                                                                                                                                                                 | 460m                | 370                                                                               | 340                                                                                                                                                                                                                                                                                                                                                                        | 390               | 430                               | 490              | 230                                                                                                                                             |
| Weight (Kg)                   | 11<br>Drive Unit: 1                                                                                                                                                                                                                                                                                                                 | 18<br>Drive Unit: 1 | 5<br>Drive Unit: 0.3                                                              | 4<br>Drive unit:1                                                                                                                                                                                                                                                                                                                                                          | 5<br>Drive unit:1 | —                                 | —                | 3.5<br>United Drive Unit and Actuator                                                                                                           |
| Features                      | High Speed Response                                                                                                                                                                                                                                                                                                                 |                     | High Speed Response<br>Good Cost Performane                                       | High Resolution for High Pressure                                                                                                                                                                                                                                                                                                                                          |                   |                                   |                  | High Speed Response<br>United Drive Unit and Actuator                                                                                           |
| Applications                  | Pressure control for calorie meters /<br>Control for refrigeration machine of<br>refrigerating installation /<br>Air pressure control for low pressure<br>casting machine /<br>Fuel control for Gas turbine /<br>Small gas turbine Fuel control /<br>Flow control for NOx reduction water injection /<br>Fuel cell evaluation units |                     | For water supply equipment /<br>Fuel control for Gas turbine                      | Fuel control for Gas turbine /<br>Small gas turbine Fuel control /<br>Pressure control for calorie meters /<br>Pressure control for injection checks /<br>Flow rate control for compressed natural gas<br>dispensers /<br>Flow rate control for resin production units /<br>Pressure control for carbonic acid gas super-<br>criticality /<br>Oxygen gas filling equipment |                   |                                   |                  | For cold control systems /<br>Cultivation Tank /<br>Airflow control valve /<br>Flow rate control for high-pressure oxygen<br>treatment machines |

## FINE BUBBLE Leak Detection Fluid

### Concentration of Impurities (Units: ppm)

| Impurities    | Na | K  | Ca | Cl | F  |
|---------------|----|----|----|----|----|
| Concentration | <1 | <1 | <1 | <1 | <1 |

| Ordering No. | Container Size | Quantity per Pack | Container                      |
|--------------|----------------|-------------------|--------------------------------|
| LL-S-1       | 60mL           | 6 bottles/pack    | Squeeze bottle                 |
| LL-M-1       | 300mL          | 1 bottle/pack     | Squeeze bottle with nozzle cap |
| LL-L-1       | 4 L            | 1 container/pack  | Refill container               |



60mL

300mL

4 L

### Features

- With its viscosity and rapid foaming action, FINE BUBBLE detects the smallest leaks even when it is applied in small amounts.
- Noncorrosive; does not react with metal, coatings, rubber, or plastic surfaces.
- Dries clean and without staining.
- Minimal impurities such as sodium, potassium, calcium, chlorine, fluorine, bromine, and sulfur compounds.
- Nonflammable; does not react with oxygen.
- Available in three convenient sizes: 60mL (squeeze bottle), 300mL (squeeze bottle with nozzle cap), and 4L (refill container).
- Read the instructions carefully before use.

### FINE BUBBLE Test Data

#### Corrosion Test Results

| Tube Material<br>(25 x 50 x 15t<br>#400 finish) | Leak Detection Fluid |                |                  |           |
|-------------------------------------------------|----------------------|----------------|------------------|-----------|
|                                                 | FINE BUBBLE          | Brand B        | Brand C          | Duration  |
| S55C                                            | ○                    | X3             | X3               | 24 hours  |
| A1050P                                          | ○                    | ○              | △ <sub>120</sub> | 120 hours |
| C2801P                                          | △ <sub>3</sub>       | △ <sub>3</sub> | △ <sub>3</sub>   | 120 hours |
| SUS304                                          | ○                    | ○              | ○                | 120 hours |

Key: ○: Almost no changes at the end of the test

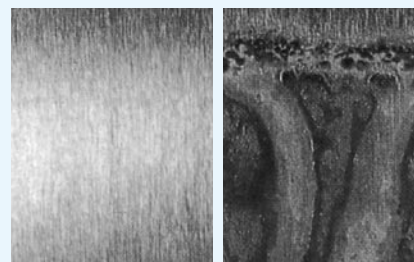
△: Discolored or slightly corroded

x: Corroded

\* Numbers next to the icon indicate when (in terms of hours) changes to the metal were visually observed.

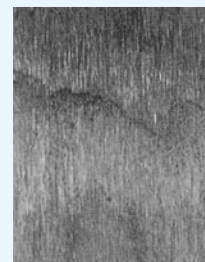
#### Immersion Corrosion Test

The metal samples were immersed in the leak detection fluids at 30°C and inspected for changes.



FINE BUBBLE

Brand B



Brand C

S55C samples after 24 hours of immersion in the leak detection fluids

**Note:** Materials and dimension are subject to change without notice.

The contents of the description are reference, and are subject to change without notice.

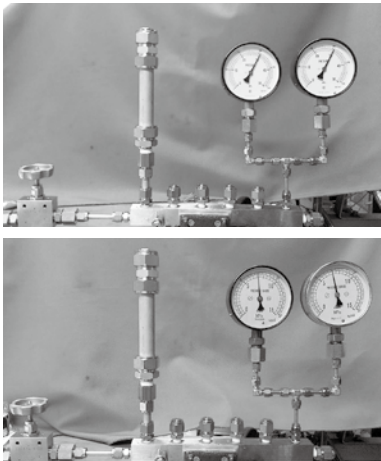
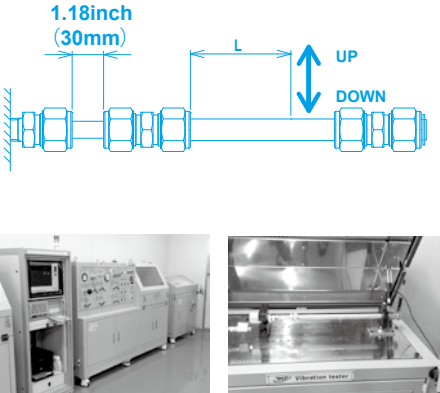
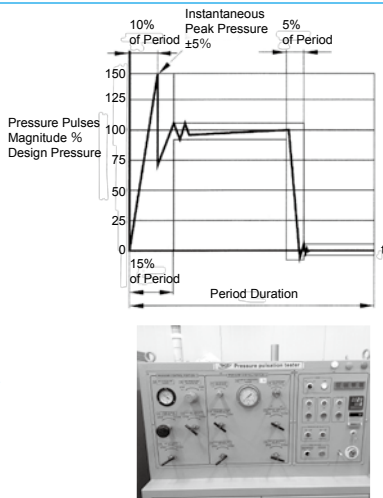
# Technical Data

|                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>Tube Fittings</b> PERFORMANCE CONFIRMATION TEST RESULTS |
|----------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------|
| CERTIFICATE  <b>Tube Fittings</b> |
|----------------------------------------------------------------------------------------------------------------------|

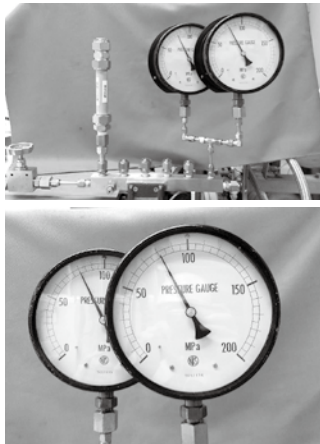
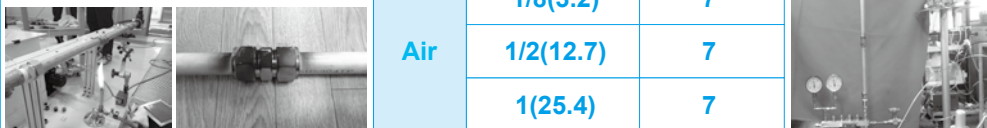
|                                                   |
|---------------------------------------------------|
| REMARKS    Special Materials<br>Oil-free Products |
|---------------------------------------------------|

## 1. V-Lok PERFORMANCE CONFIRMATION TEST RESULTS (1/3)

| Test Items                                              | Test Conditions & Landscape                                                                                                                                                                                                                                                                                                                                                                                            |                       | Results               |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|------------------|------------------|----------|----|-----------|----|---------|----|-------------------------------------------------------------------------------------------------|----------------------|---|-----------|---|---------|---|-----------------------------------------------------------------------------------------------|----------------------|
| Tightness Test                                          | <table><thead><tr><th>Test Fluid</th><th>Nominal Dia. inch(mm)</th><th>Test Pres. (MPa)</th></tr></thead><tbody><tr><td rowspan="3">H<sub>2</sub>O</td><td>1/8(3.2)</td><td>45</td></tr><tr><td>1/2(12.7)</td><td>45</td></tr><tr><td>1(25.4)</td><td>30</td></tr><tr><td rowspan="3">Air</td><td>1/8(3.2)</td><td>7</td></tr><tr><td>1/2(12.7)</td><td>7</td></tr><tr><td>1(25.4)</td><td>7</td></tr></tbody></table> | Test Fluid            | Nominal Dia. inch(mm) | Test Pres. (MPa) | H <sub>2</sub> O | 1/8(3.2) | 45 | 1/2(12.7) | 45 | 1(25.4) | 30 | Air                                                                                             | 1/8(3.2)             | 7 | 1/2(12.7) | 7 | 1(25.4) | 7 | <div></div> | good<br>(No Leakage) |
|                                                         | Test Fluid                                                                                                                                                                                                                                                                                                                                                                                                             | Nominal Dia. inch(mm) | Test Pres. (MPa)      |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         | H <sub>2</sub> O                                                                                                                                                                                                                                                                                                                                                                                                       | 1/8(3.2)              | 45                    |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        | 1/2(12.7)             | 45                    |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| 1(25.4)                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                        | 30                    |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| Air                                                     | 1/8(3.2)                                                                                                                                                                                                                                                                                                                                                                                                               | 7                     |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         | 1/2(12.7)                                                                                                                                                                                                                                                                                                                                                                                                              | 7                     |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         | 1(25.4)                                                                                                                                                                                                                                                                                                                                                                                                                | 7                     |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| Retaining Period: 5 minutes                             |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| Vibration (Fatigue) Test                                | <table><thead><tr><th>Test Fluid</th><th>Nominal Dia. inch(mm)</th><th>Test Pres. (MPa)</th></tr></thead><tbody><tr><td rowspan="3">Oil</td><td>1/8(3.2)</td><td>30</td></tr><tr><td>1/2(12.7)</td><td>30</td></tr><tr><td>1(25.4)</td><td>20</td></tr></tbody></table>                                                                                                                                                | Test Fluid            | Nominal Dia. inch(mm) | Test Pres. (MPa) | Oil              | 1/8(3.2) | 30 | 1/2(12.7) | 30 | 1(25.4) | 20 | <div></div>  | good<br>(No Leakage) |   |           |   |         |   |                                                                                               |                      |
|                                                         | Test Fluid                                                                                                                                                                                                                                                                                                                                                                                                             | Nominal Dia. inch(mm) | Test Pres. (MPa)      |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         | Oil                                                                                                                                                                                                                                                                                                                                                                                                                    | 1/8(3.2)              | 30                    |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        | 1/2(12.7)             | 30                    |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| 1(25.4)                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                        | 20                    |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| Number of Cycle: 10 <sup>7</sup> cycles                 |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| Amplitude (One side) : 0.066 inch (1.68mm)              |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| Frequency: 20Hz                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| Pressure Pulsation Test                                 | <table><thead><tr><th>Test Fluid</th><th>Nominal Dia. inch(mm)</th><th>Test Pres. (MPa)</th></tr></thead><tbody><tr><td rowspan="3">Oil</td><td>1/8(3.2)</td><td>45</td></tr><tr><td>1/2(12.7)</td><td>45</td></tr><tr><td>1(25.4)</td><td>30</td></tr></tbody></table>                                                                                                                                                | Test Fluid            | Nominal Dia. inch(mm) | Test Pres. (MPa) | Oil              | 1/8(3.2) | 45 | 1/2(12.7) | 45 | 1(25.4) | 30 | <div></div> | good<br>(No Leakage) |   |           |   |         |   |                                                                                               |                      |
|                                                         | Test Fluid                                                                                                                                                                                                                                                                                                                                                                                                             | Nominal Dia. inch(mm) | Test Pres. (MPa)      |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         | Oil                                                                                                                                                                                                                                                                                                                                                                                                                    | 1/8(3.2)              | 45                    |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
|                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                        | 1/2(12.7)             | 45                    |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| 1(25.4)                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                        | 30                    |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| Number of Cycle: 5×10 <sup>5</sup> Cycles               |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| Frequency: 30 - 100 cycles per minute                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |
| ※ Putting into effect with the Vibration (Fatigue)Test. |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                  |                  |          |    |           |    |         |    |                                                                                                 |                      |   |           |   |         |   |                                                                                               |                      |

※ Please refer to the test report for details about each test.

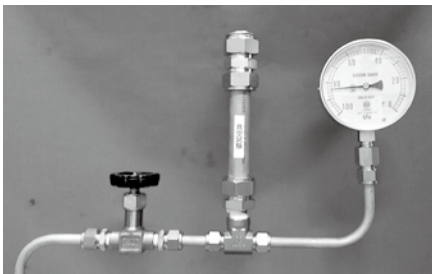
## 1. V-Lok PERFORMANCE CONFIRMATION TEST RESULTS (2/3)

| Test Items          | Test Conditions & Landscape                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       | Results               |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|------------------|----------|-----------|-----------|---------|---------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------|---|-----------|---|---------|---|--------------------------------------------------------------------------------------|----------------------|
| Burst Pressure Test | <table><tr><th>Test Fluid</th><th>Nominal Dia. inch(mm)</th><th>Test Pres. (MPa)</th></tr><tr><td rowspan="3">H<sub>2</sub>O</td><td>1/8(3.2)</td><td>45</td></tr><tr><td>1/2(12.7)</td><td>45</td></tr><tr><td>1(25.4)</td><td>30</td></tr></table> <p>Retaining Period: 5 minutes</p>                                                                                                                                                                                                                                                                                                                                                                                                                       | Test Fluid            | Nominal Dia. inch(mm) | Test Pres. (MPa)      | H <sub>2</sub> O | 1/8(3.2)         | 45       | 1/2(12.7) | 45        | 1(25.4) | 30      |   | good<br>(No Leakage)                                                               |          |   |           |   |         |   |                                                                                      |                      |
|                     | Test Fluid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Nominal Dia. inch(mm) | Test Pres. (MPa)      |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
| H <sub>2</sub> O    | 1/8(3.2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 45                    |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
|                     | 1/2(12.7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 45                    |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
|                     | 1(25.4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 30                    |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
| Pull-out Test       | <table><tr><th>Test Fluid</th><th>Nominal Dia. inch(mm)</th><th>Test Pres. (MPa)</th></tr><tr><td rowspan="3">H<sub>2</sub>O</td><td>1/8(3.2)</td><td>30</td></tr><tr><td>1/2(12.7)</td><td>30</td></tr><tr><td>1(25.4)</td><td>20</td></tr></table> <p>Axial Load: 15,202N<br/>Retaining Period: 5 minutes</p>                                                                                                                                                                                                                                                                                                                                                                                               | Test Fluid            | Nominal Dia. inch(mm) | Test Pres. (MPa)      | H <sub>2</sub> O | 1/8(3.2)         | 30       | 1/2(12.7) | 30        | 1(25.4) | 20      |  | good<br>(No Leakage,<br>No Damage,<br>No Displacement<br>of Fittings and<br>Pipes) |          |   |           |   |         |   |                                                                                      |                      |
|                     | Test Fluid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Nominal Dia. inch(mm) | Test Pres. (MPa)      |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
| H <sub>2</sub> O    | 1/8(3.2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 30                    |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
|                     | 1/2(12.7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30                    |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
|                     | 1(25.4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20                    |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
| Fire Endurance Test | <div>① Fire Test</div> <div>with ISO19921: 2005(E) Retaining Period: 5 minutes</div> <div>ISO19922: 2005(E)</div> <div>Test Period: 30 minutes</div> <div>Test Temperature: 80℃</div> <div>Test Pressure:</div> <div>500~1000KPa</div> <div>※ Confirming no destruction during Fire Endurance Test.</div> <div><table><tr><th>Test Fluid</th><th>Nominal Dia. inch(mm)</th><th>Test Pres. (MPa)</th></tr><tr><td rowspan="3">H<sub>2</sub>O</td><td>1/8(3.2)</td><td>45</td></tr><tr><td>1/2(12.7)</td><td>45</td></tr><tr><td>1(25.4)</td><td>30</td></tr><tr><td rowspan="3">Air</td><td>1/8(3.2)</td><td>7</td></tr><tr><td>1/2(12.7)</td><td>7</td></tr><tr><td>1(25.4)</td><td>7</td></tr></table></div> |                       | Test Fluid            | Nominal Dia. inch(mm) | Test Pres. (MPa) | H <sub>2</sub> O | 1/8(3.2) | 45        | 1/2(12.7) | 45      | 1(25.4) | 30                                                                                  | Air                                                                                | 1/8(3.2) | 7 | 1/2(12.7) | 7 | 1(25.4) | 7 |  | good<br>(No Leakage) |
|                     | Test Fluid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Nominal Dia. inch(mm) | Test Pres. (MPa)      |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
| H <sub>2</sub> O    | 1/8(3.2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 45                    |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
|                     | 1/2(12.7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 45                    |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
|                     | 1(25.4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 30                    |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
| Air                 | 1/8(3.2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7                     |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
|                     | 1/2(12.7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7                     |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |
|                     | 1(25.4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7                     |                       |                       |                  |                  |          |           |           |         |         |                                                                                     |                                                                                    |          |   |           |   |         |   |                                                                                      |                      |

※ Please refer to the test report for details about each test.



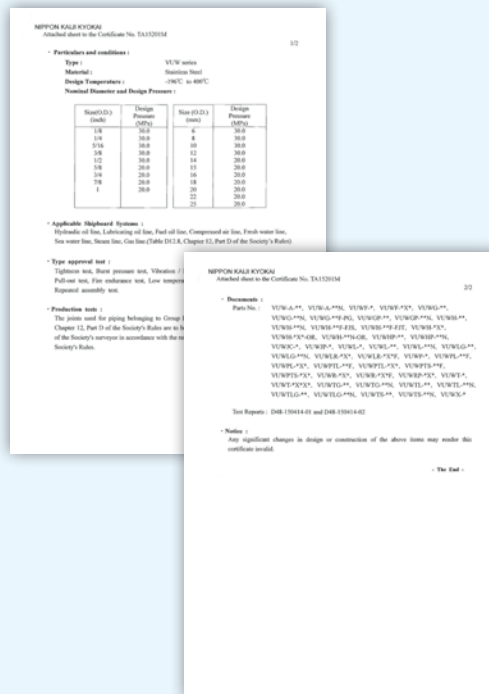
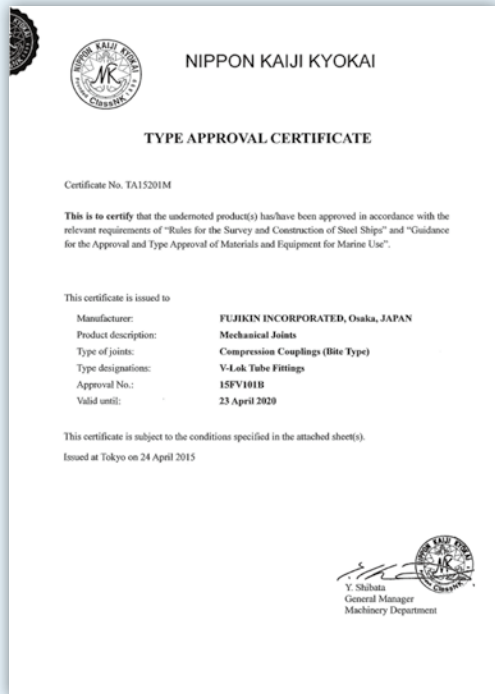
## 1. V-Lok PERFORMANCE CONFIRMATION TEST RESULTS (3/3)

| Test Items  | Test Conditions & Landscape                                                                                                                                                                                                                              |                       | Results               |                      |                  |          |    |           |    |         |    |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| Vacuum Test | <table><tr><th>Test Fluid</th><th>Nominal Dia. inch(mm)</th><th>Test Pres. (kPa abs)</th></tr><tr><td rowspan="3">H<sub>2</sub>O</td><td>1/8(3.2)</td><td>17</td></tr><tr><td>1/2(12.7)</td><td>17</td></tr><tr><td>1(25.4)</td><td>17</td></tr></table> | Test Fluid            | Nominal Dia. inch(mm) | Test Pres. (kPa abs) | H <sub>2</sub> O | 1/8(3.2) | 17 | 1/2(12.7) | 17 | 1(25.4) | 17 | <p>Retaining Period: 5 minutes</p> | 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|
|             | Test Fluid                                                                                                                                                                                                                                               | Nominal Dia. inch(mm) | Test Pres. (kPa abs)  |                      |                  |          |    |           |    |         |    |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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|             | H <sub>2</sub> O                                                                                                                                                                                                                                         | 1/8(3.2)              | 17                    |                      |                  |          |    |           |    |         |    |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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|             |                                                                                                                                                                                                                                                          | 1/2(12.7)             | 17                    |                      |                  |          |    |           |    |         |    |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| 1(25.4)     |                                                                                                                                                                                                                                                          | 17                    |                       |                      |                  |          |    |           |    |         |    |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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※ Please refer to the test report for details about each test.

## 2.CERTIFICATE V®-Lok Fittings

V®-Lok Fitting has acquired NK(NIPPON KAIJI KYOKAI) TYPE APPROVAL CERTIFICATE.



V®-Lok Fitting has acquired DNV-GL CERTIFICATE COMPLIANCE OF ASTM F1387 & CERTIFICATE FOR ABS TYPE APPROVAL.



CERTIFICATE COMPLIANCE OF  
ASTM F1387 (DNV-GL)

CERTIFICATE FOR ABS TYPE APPROVAL.

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Marine & Offshore  
Division

Certificate number: A4337A1/BV  
File number: ACN 15027001  
Product code: 21304

This certificate is not valid unless accompanied without fail by document certifying compliance of product

[www.bureau-veritas.com](http://www.bureau-veritas.com)

## TYPE APPROVAL CERTIFICATE

This  
**FUJIKIN INCORPORATED**  
Osaka, - JAPAN

has been awarded  
**SCREW COUPLINGS**  
V-Lok VUV series

### Requirements:

- Bureau Veritas Rules for the Classification of Steel Ships

This certificate is issued to attest that BUREAU VERITAS has performed the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: **05 May 2021**

For BUREAU VERITAS,

By BV CODE, on 03 Jan 2016,

Tamara Tompaeva

This certificate remains valid until the date last update, unless cancelled or renewed, provided the conditions indicated in the aforementioned request are complied with and the product continues conforming to its definition. This certificate will be void if the supplier makes any changes or modifications to the approved product, except those that have neither an effect nor impact on the BUREAU VERITAS. Should the supplier introduce any change or modification to the approved product, he/she must inform the nearest office of the division responsible for the certification of the product. The validity of this certificate is limited to the scope of the parameters of BUREAU VERITAS marks & Offshore Division available at the moment of the awarding of the certificate. Any further extension of the approval shall require the written agreement of the customer and a new grant from the Bureau Veritas. BUREAU VERITAS does not assume any liability for the arguments established in this document, and is not engaged in any way, either as a negotiator, mediator, or guarantor of the validity or of the conformity of the product with the applicable standards or regulations, and in connection with any activities for which it may provide.

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BY Mail, At 13/01/2016 09:14

This certificate consists of 3 pages(s)

Lloyd's  
Register

## Type Approval Certificate

This is to certify that the underlisted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

**PRODUCER**

Hughes Incorporated

**PLACE OF  
PRODUCTION**

Hughes Incorporated,  
Osaka Plant Kashihara  
1000-45, Enmyo-cho, Kashihara, Osaka, Japan

**DESCRIPTION**

Stainless steel compression type mechanical tube fittings

**TYPE**

V-Lok series mechanical tube fittings

**APPLICATION**

Hydraulic & pneumatic fluid gas, lubricating oil, fuel and instrument connections

**STANDARD**

Lloyd's Register Rules and Regulations for Classification of Ships Part 5,  
Chapter 12 - January 2014

**RATINGS**

Nominal Diameter: from 1/8" to 1" (from 3mm to 25 mm)  
Design Pressure(s): from 2.4 MPa to 75.5 MPa  
(depending on Nominal Diameter)

**PERFORMANCE TEST**

- 1) Vibration test
- 2) Pressure pulsation test
- 3) Tightness test
- 4) Pull-out test
- 5) Vacuum test
- 6) Repeated assembly test
- 7) Burst pressure test

**Certificate No.**

16/20022

**Issue Date**

22 May 2016

**Expiry Date**

22 May 2021

**Sheet**

1 of 2

N. Nagamine  
Yokohama Technical Support Office  
Lloyd's Register Group Limited

Lloyd's Register Group Limited  
17 Fenchurch Street, London EC3A 4BS

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[illegible]

**3-1. Special materials(Tantalum, Titanium, Hastelloy, Monel ) are available. Please contact *Fujikin*®.**

3-2. When needing for perfect oil-free products, please inform **Fujikin®** with use conditions beforehand.

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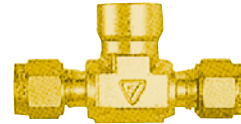
## Fittings

V-Lok Tube Fittings - Stainless Steel  
PDW Tube Fittings - Brass

### V-Lok Tube Fittings Stainless Steel



### PDW Tube Fittings Brass



## Valves

|                                     |
|-------------------------------------|
| Ball Valves                         |
| 3-Pieces Ball Valves                |
| Trunnion Ball Valves                |
| Plug Valves                         |
| Union-Bonnet Needle Valves          |
| Integral-Bonnet Needle Stop Valves  |
| Brass Needle Stop Valves            |
| Instrument Manifolds / Gauge Valves |
| Bellows Valves                      |
| Toggle Valves                       |
| Relief Valves                       |
| Check Valves                        |

### Ball Valves



### 3-Pieces Ball Valves



### Trunnion Ball Valves



### Plug Valves



### Union-Bonnet Needle Valves



### Integral-Bonnet Needle Stop Valves



### Brass Needle Stop Valves



### Instrument Manifolds / Gauge Valves



### Bellows Valves



### Toggle Valves



### Relief Valves



### Check Valves



## Other Related Products

|                                                      |
|------------------------------------------------------|
| Diaphragm Type Micro Control Valves - MMS2000 Series |
| Electric Valves - MMS2000 Series                     |
| Electric Valves - MMS2000 Series                     |
| Electric Valves - MMS2000 Series                     |
| Electric Valves - MMS2000 Series                     |
| Others                                               |
| FINE BUBBLE - Leak Detection Fluid                   |

### Automatic Flow Control Valve Series



### FINE BUBBLE Leak Detection Fluid



## Technical Data

|                                                              |
|--------------------------------------------------------------|
| VALVE TYPE: Solenoid, Diaphragm, Manual, Electric, Pneumatic |
| PORT SIZE: 1/8" to 2"                                        |
| MAXIMUM PRESSURE: 1500 PSI                                   |
| TEMPERATURE: -20°C to 100°C                                  |





***Fujikin Carp Group***



The Year 2013 Prime Minister's Prize  
The 5th Monodzukuri Nippon Grand Award  
Overseas Operation "Excellence Prize"

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