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1964

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HYDRAULIC POWER APPLICATIONS FOR CONSTRUCTION SECTOR

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1964 yılında Hidromekanik kollektif şirketi adıyla kurulan firmamız, kuruluşunun ilk yıllarında ağırlıklı olarak iş makinası yedek parçaları, yüksek tonajlı hidrolik krikolar ve iş makinası revizyonunda kullanılan hidrolik ekipmanlar imal etmiştir. Bu konulardaki faliyetini 1980'li yılların ortalarına kadar yoğun olarak sürdürmüştür.

Aynı dönemde Türkiye'de altyapı inşaat sektörünün gelişmeye başlamasıyla birlikte, firmamız bu sektörün ihtiyaçlarına yönelik hidrolik ekipmanlar ve yardımcı elemanların imalatına başlamıştır. Çok uzun bir süredir içinde bulunduğumuz ve gelişimini başlangıcından bugüne adım adım takip ettiğimiz altyapı inşaat sektörü, bu alanda kullanılan hidrolik ekipman ve yardımcı elemanların imalatı konusunda bizi uzmanlaştırmakla birlikte bir o kadar da ürettiğimiz bu ürünlerin kullanım alanlarında bilgi ve tecrübe sahibi yapmıştır.

Gün geçtikçe yaygınlaşan inşaat sektöründeki "Hidrolik Güç" uygulamalarını geniş kapsamlı bir katalog da toplayarak, yaklaşık 50 yıllık tecrübe ve birikimlerimizi sektörle paylaşmayı amaçlamış bulunmaktayız.

Our company which has established in 1964; whereas manufactured mainly spare parts for construction machines and oil exploration sites in early years, extended it's scope of work and has been manufacturing hydraulic equipments for construction sector & industry.

In this catolog which is prepared with experience of half century, you will find various usage of hydraulic equipments mainly in construction sector together with wide application examples.

The main target of our company is to produce high quality products and to give high quality service in most suitable conditions to supply maximum customer satisfaction.

HYDRAULIC POWER APPLICATIONS

FOR CONSTRUCTION SECTOR





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SİLİNDİR, POMPA VE AKSESUARLAR
CYLINDERS, PUMPS AND ACCESSORIES

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İKE Yazılım

Kalibrasyon işlemi Strainstall marka 1000 ton kapasiteli compression tip kalibrasyon cihazında yapılmaktadır.

Calibration is done Strainstall branded 1000 tons of capacity compression type of equipment.

CALIBRATION CERTIFICATE

Şirketimizde üretilmekte olan PTH serisi kazık test silindirleri, SJM serisi ankraj germe silindirleri, LJ serisi Lift-Off jackler, CHBS serisi bulon çekme silindirleri, CHFT serisi filiz çekme silindirleri ve müşteriler tarafından tercih edilen tüm silindirlere kalibrasyon işlemi yapılmakta ve düzenlenen kalibrasyon sertifikası ürünle birlikte verilmektedir.

PTH series of pile test cylinders, SJM series of multi-strand stressing cylinders, LJ series of Lift-Off jacks, CHBS series of bar stressing cylinders produced in our company are calibrated together with all other types of cylinders prefered by our customers. The calibration certificate is given together with the product.

ISO 9001:2008

For the scope of activities described below; the designe, production, sales and services of high pressure hydraulic systems and mechanical systems.

Certificate Number : 4703
Date first registered : 05.01.2005


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PILE TEST HYDRAULIC SYSTEM
KAZIK TEST HİDROLİK SİSTEMLERİ

PILE TEST HYDRAULIC SYSTEM

2006 senesinde İstanbul Maslak da bulunan Mashattan şantiyesinde yapılan hidrolik kazık yükleme testinde hidro-mekanik marka 2 adet 400 ton kapasiteli (2x400=800 ton) PTH-40015 model kazık yükleme test silindiri ile, EPP-257 model 700 bar elektrikli hidrolik güç ünitesi kullanılmıştır. 800 mm çapında ve 12 mt boyunda olan kazığa test süresince değişik kademelerde yük tatbiki yapılmış olup, bir defada en fazla 600 ton test yüküne çıkılmıştır. Bu yük toplam silindir kapasitesinin %75'ine tekabül etmektedir.

In 2006, during the hydraulic pile loading test done at Maslak - Mashattan construction site in İstanbul, 2 items of 400 tons (2x400=800 tons) capacity hidro-mekanik PTH - 40015 model pile loading test cylinders are used together with EPP-257 model 700 bars of electrical hydraulic power pack. During the test period, various levels of load has been applied to 800 mm diameter and 12 mt length of test pile, and reached to maximum 600 tons of test level. This load correspondences 75% of the total cylinders load capacity.

PILE TEST HYDRAULIC SYSTEM

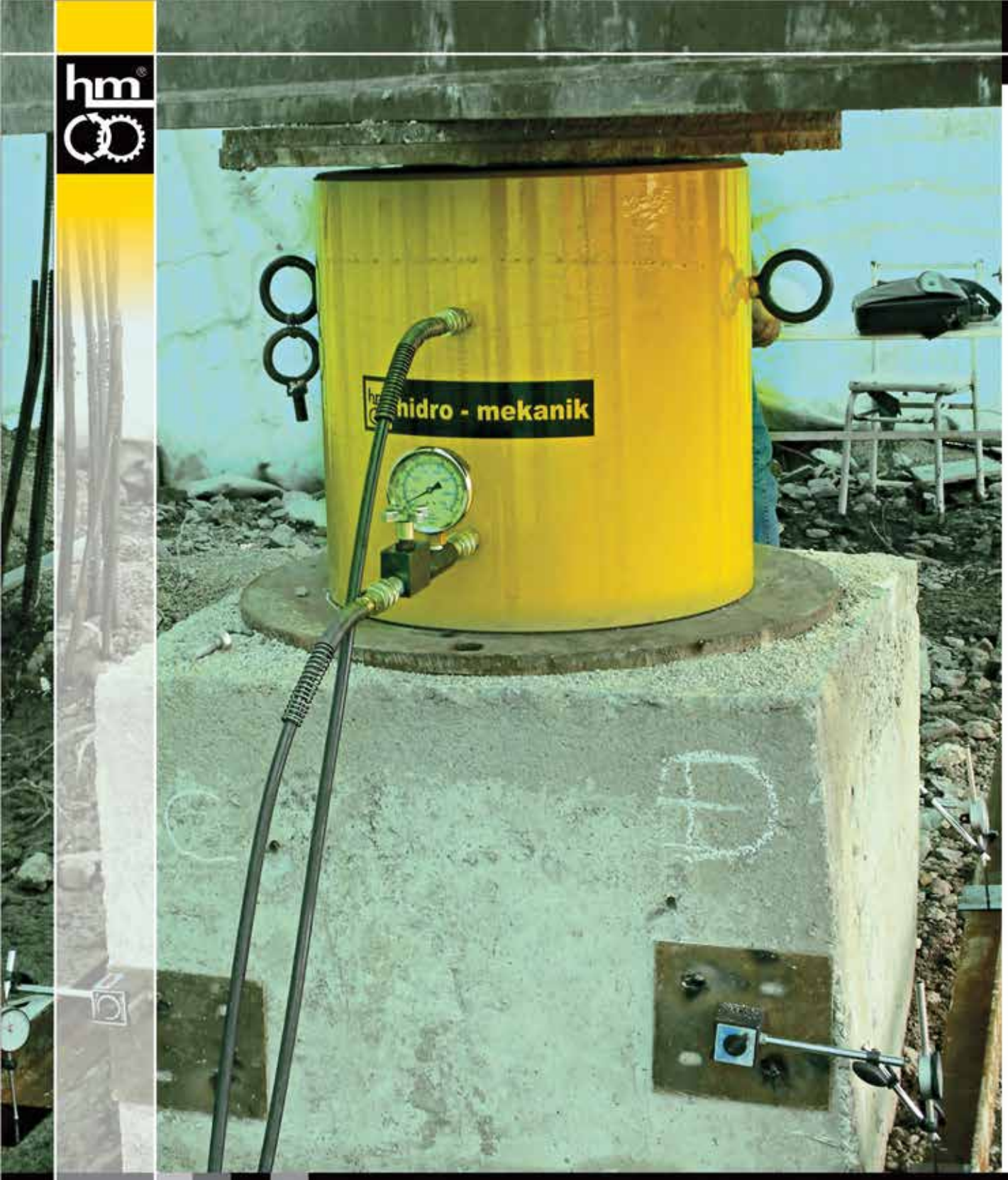
2006 senesinde Zonguldak da bulunan Elektrik Enerji Üretim şantiyesinde yapılan hidrolik kazık yükleme testinde 500 ton kapasiteli PTH-50015 model kazık yükleme test silindiri ile, EPP-257 model 700 bar elektrikli hidrolik güç ünitesi kullanılmıştır. 1000 mm çapında ve 36 mt boyunda olan kazığa test süresince değişik kademelerde yük tatbiki yapılmıştır. Test süresince bir defada en çok 412,50 ton test yüküne çıkılmıştır.

In 2006, during the hydraulic pile loading test done in Electrical Power Generation site in Zonguldak, 500 tons of capacity PTH-50015 model hydraulic pile testing cylinder is used together with 700bars of EPP-257 model electrical hydraulic power pack. During the test, it has been reached to maximum 412,50 tons of test load capacity.

PILE TEST HYDRAULIC SYSTEM

2007 senesinde EMAAR Toskana Vadisi şantiyesinde yapılan hidrolik kazık yükleme testinde hidro-mekanik marka 1 adet 500 ton kapasiteli PTH-50015 model kazık yükleme test silindiri ile EPP-257 model 700 bar elektrikli hidrolik güç ünitesi kullanılmıştır. 650 mm çapında ve 15 mt boyunda olan kazığa test süresince değişik kademelerde yük tatbiki yapılmış olup, bir defada en çok 300 ton yüke çıkılmıştır.

In 2007, during the hydraulic pile loading test done at EMAAR-Toscana Valley construction site, 500 tons of capacity hidro-mekanik PTH-60015 model test cylinder is used together with 700bars of EPP-257 electrical hydraulic power pack. At various levels, up to 300 tons of load has been applied to 650 mm diameter and 15 mt length of test pile.



Deney kazığında test sırasında gerçekleşen dikey hareketler, kazığın her iki tarafına yerleştirilmiş ve etki alanı dışına sabitlenmiş freym demirlerine monte edilen standart tip komparatörlerle gözlemlenmektedir.

The vertical motions occured on test pile are observed with standart type gauges which are placed to the two sides of pile and installed on the frame bars fixed outside of the impact area.

PILE TEST HYDRAULIC SYSTEM

Statik kazık yükleme test uygulamalarında, hidrolik silindirlerin uygulama freymine montajı yapılırken, kazık başlığı ile arasına kalınlığı tonaja uygun olarak hesaplanmış plaka yerleştirilmektedir. Bu sayede gerek silindirlerin kazık üzerindeki merkezi dağılımı kolay biçimde yapılabilmekte, gerekse silindirin beton kazık başlığına zımbalama yaparak kırma ihtimali ortadan kalkmaktadır.

During static pile loading tests, a plate is placed between hydraulic cylinder and pile head. The thickness of the plate should be calculated depending on the tonnage applied. This easily provides the central weight distribution of cylinder on pile and prevents possibility of breaking the cylinder by punching the pile head.

PILE TEST HYDRAULIC SYSTEM

2004 senesinde Adana Ceyhan'da bulunan deniz iskelesi şantiyesinde yapılan hidrolik kazık yükleme testinde 4 adet 600 ton (4x600=2400 ton) kapasiteli PTH-60020 model kazık yükleme test silindiri ile, EPP-667 model 700 bar elektrikli hidrolik güç ünitesi kullanılmıştır. Yaklaşık 1400 mm çapında ve 60 mt boyunda olan kazığa test süresince değişik kademelerde yük tatbiki yapılmış olup, bir defa da en çok 1500 ton test yüküne çıkılmıştır.

In 2004, during the hydraulic pile test done in sea port construction in Adana-Ceyhan, 4 items of 600 tons (4x600=2400 tons) of capacity PTH-60020 model hydraulic pile testing cylinders are used together with 700 bars of EPP 667 model electrical hyraulic power pack. During the test period, various levels of load has been applied to test pile having 1400 mm diameter and 60 mt length and it has been reached to maximum 1500 tons of test load level .

2007 senesinde Giresun'da bulunan Gülburnu Köprüsü şantiyesinde yapılan hidrolik kazık yükleme testinde 4 adet 400 ton (4x400=1600 ton) kapasiteli PTH-40015 model kazık yükleme test silindiri ve 2 adet 1000 ton (2x1000=2000 ton) kapasiteli PTH 100015 model test silindirleri ile 1 adet EPP-807 model 700 bar elektrikli hidrolik güç ünitesi kullanılmıştır. 2000 mm çapında ve 12 mt boyunda olan kazığa test süresince değişik kademelerde yük tatbiki yapılmıştır. Test süresince bir defa da en çok 3000 ton test yüküne çıkılmıştır.

In 2007, during the hydraulic pile test done in Gülburnu Bridge Construction in Giresun, 4 items of 400 tons (4x400tons=1600 tons) of capacity PTH-40015 model hydraulic pile test cylinders and 2 units of 1000 tons (2x1000tons=2000 tons) of capacity PTH-100015 model test cylinders are used together with 1 item 700 bars of EPP-807 model electrical hydraulic power pack. During the test period, various levels of load have been applied to test pile having 2000 mm diameter and 12 m length and it has been reached to maximum 3000 tons of test load.

PILE TEST HYDRAULIC SYSTEM

Ard öngermeli betonerme olarak serbest dengeli konsol metodu ile inşa edilen Gülburnu Köprüsü 165 mt orta açıklıklı ve 2x82,5 mt kenar açıklıklı olmak üzere toplam 330 mt uzunluğunda olup, Türkiye'nin tek açıklıklı en uzun betonarme köprüsü olma özelliğini taşımaktadır.

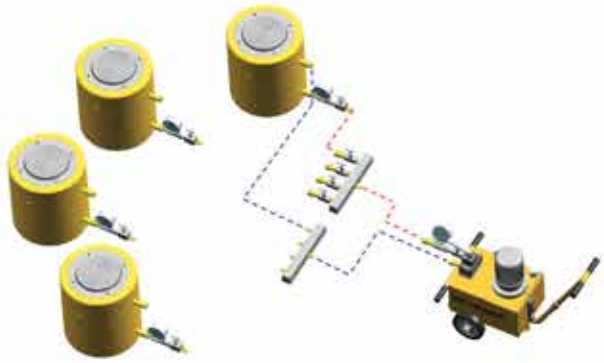
Gülburnu Bridge is prestressed reinforced concrete bridge built with free-balanced consol method. It has 330 mt of length having 165 mt central span and 2x82,5 mt wing span. It has the property of being the longest reinforced concrete bridge of Turkey.

Bu sistemde bulunan 4 adet hidrolik kazık yükleme test silindiri, tek bir pompaya bağlı olduğu için sistemde bir adet MD4 model shut-off valfli 4 çıkışlı manifold sistemi ve MS4 4 çıkışlı manifold bloku (dönüş hattı için) kullanılmıştır.

As 4 items of hyraulic pile loading test cyliders are connected to one pump in the system, one MD4 model 4 ports of manifold having shut-off valve is used together with MS4 model 4 ports of manifold block for return.

Çoklu silindir grupları ile yapılan kazık yükleme testlerinde silindirler kapasiteye uygun dizayn edilmiş 1 adet elektrikli hidrolik güç ünitesi ile çalıştırılırlar. Silindir sayısına göre seçilen manifoldlar yardımı ile çalışan sistemde, silindirlerin hepsi aynı anda yada birbirinden bağımsız olarak da kullanılabilmektedir. Bu sayede farklı testlerde farklı sayıda silindirlerle, aynı elektrikli güç ünitesi (kapasitesi müsait olduğu sürece) kullanılabilmektedir.

Pile Loading Tests done with multi-cylinder groups are operated with single electrical hydraulic power pack designed suitable with the determined capacity according to the number of cylinders and tonnage.



PILE TEST HYDRAULIC SYSTEM

2007 senesinde Ankara-İstanbul hattında bulunan hızlı tren şantiyesinde yapılan hidrolik kazık yükleme testinde 1000 ton kapasiteli PTH-100015 model kazık yükleme test silindiri ile, EPP-257 model 700 bar elektrikli hidrolik güç ünitesi kullanılmıştır. 800 mm çapında ve 36 mt boyunda olan kazığa test süresince değişik kademelerde yük tatbiki yapılmış olup, bir defa da en çok 830 ton test yüküne çıkılmıştır.

In 2007, during the hydraulic pile loading test done in Ankara-Istanbul high-speed rail line construction site, 1000 tons of capacity PTH-100015 model pile loading test cylinder is used together with 700 bars of EPP-257 model electrical hydraulic power pack. During the test, various levels of load have been applied to 800 mm diameter and 36 mt length of test pile and reached to maximum 830 tons of test load.

hidro-mekanik elektrikli hidrolik güç ünitelerinde 220/380 V, 50 Hz, 3-phase elektrik sistemi mevcuttur. Ayrıca ünite üzerinde bu elektrik sistemini koruyan termik şalter ve elektrik motorunu uzaktan açıp/kapatmayı sağlayan uzaktan kumanda (start/stop) mevcuttur.

In hidro-mekanik electric powered packs 220/380 V, 50 Hz, three-phase electrical system exists.
Besides, on this unit, there is thermal switch protecting this electric system and remote motor control pendant.

Kazık yükleme test sistemlerinde, elektrikli güç ünitesinin basınç hattı çıkışına takılan shut-off valf sayesinde kademeli yük düşüşleri rahatlıkla yapılabilmektedir. Ancak mevcut valfler yüksek basınç da uzun süre yük tutarak beklemeye uygun valfler değildir. Sadece debi ayarlamakta ve kademeli yük düşüşlerinde kullanılması tavsiye edilmektedir.

In pile loading test systems, gradual load reduction can be done easily by installing shut-off valve through pressure line port of the electrical power pack. But existing valves are not suitable to keep waiting long by holding load under high pressure. It is only recomended to adjust flow and use in gradually load reduction.

Test sırasında kazığın dikey hareketini gözlemlemek ve periyodik okuma almak için kurulan ve freymi etki alanı dışına sabitlenmiş komparatör saati.

The gauge set-up aiming to observe the vertical motions at the top of the pile during the test, to get periodical records and it's frame is fixed to the outside of the impact area.

Bakü-Tiflis-Ceyhan petrol boru hattı Ceyhan iskele terminali kazık testi sırasında kullanılan EPP-807 model, 700 bar kapasiteli elektrikli hidrolik güç ünitesi.

700 bars of EPP-807 model electrical hydraulic power pack used at pile testing in Baku-Tiflisi-Ceyhan pipe line / Ceyhan port construction site.

PILE TEST HYDRAULIC SYSTEM

Resim 1

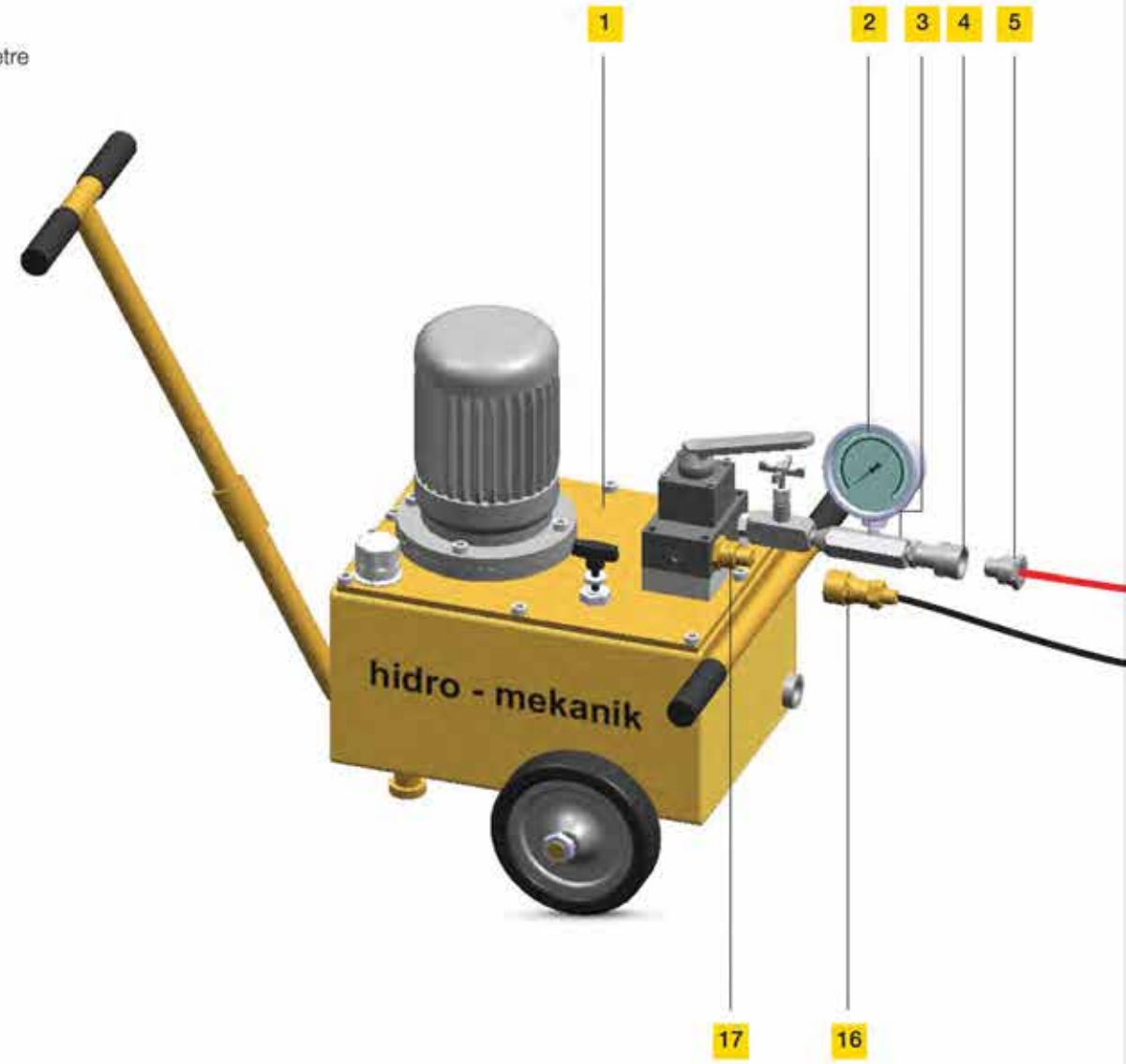
Statik kazık yükleme testlerinde dikkat edilmesi gereken en önemli noktalardan bir tanesi yük-basınç-hareket ilişkisidir. Testden sağlıklı bir netice alabilmek için referans alınacak okuma, kuvvet (yük-basınç) ve kazığın hareketidir. Ancak bu noktada birbirinden ayrışması gereken önemli bir husus vardır. Test esnasında bir kazığın hareket edebilmesi için, o kazığa taşıma kapasitesinin üzerinde bir yük uygulanması gerekmektedir. Eğer testde kullanılan hidrolik sistemin kapasitesi yeterliyse ve projede belirtilen test yükü o kazığın taşıma kapasitesinden fazla ise kazık mutlak surette batma hareketi yapacaktır. Bu da, kazığın hareketini gözlemlemek için kurulan düzeneğe bağlı komparatör saatlerinden görülecektir. *(Resim 1)* Kazığın hareketine bağlı olarak sistemde o anda bulunan basınç, karşı direnç azaldığı için düşme eğilimi gösterecektir. Burada dikkat edilmesi gereken nokta ise, test esnasında sistemin basınç saatinde gözlemlenecek her düşüşün sadece kazığın hareketinden kaynaklanmayabileceği ihtimalidir. Basınç, karşı direncin azalmasıyla düşmektedir. Ancak karşı direnç sadece kazığın hareketiyle değişmez. Çekme kazıklarında meydana gelebilecek herhangi bir hareket, freymde meydana gelebilecek bir esneme, çekme kazıklarıyla, freym arasındaki bağlantıyı sağlayan demir çubuklarda herhangi bir uzama veya kopma sistemin karşısında bulunan toplam direnci azaltacaktır. Bu sebeple test esnasında sistemi bir bütün olarak gözlemlemeli ve tüm bu detaylara dikkat edilmelidir.

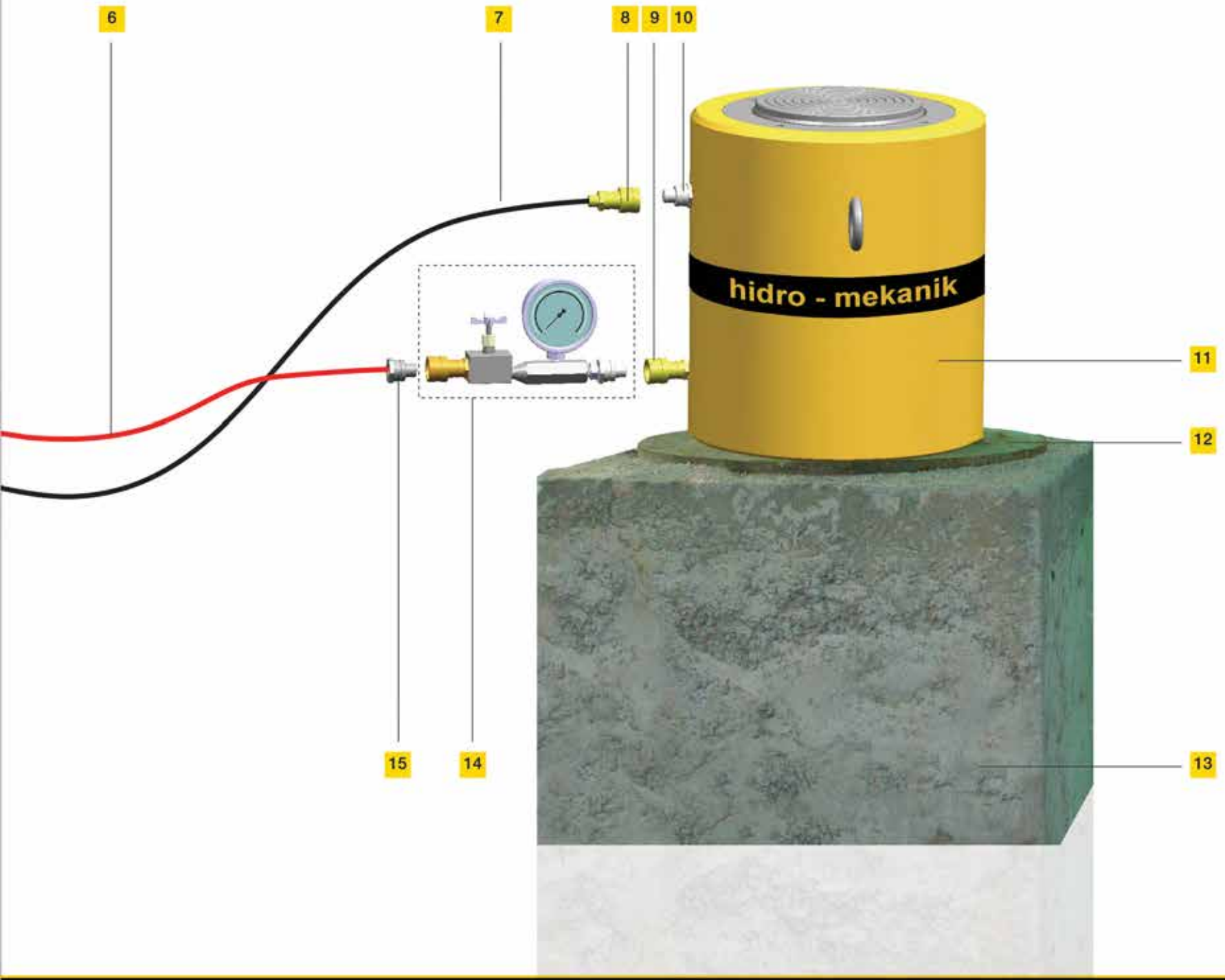
During static pile loading tests, one of the most important points should be noticed is, load-pressure-motion relation. In order to get good result from the tests pressure and pile motions should be well observed and should be taken as referance. Pressure decreases with the reducing of resistance. But resistance does not change with only pile motions. Any motion occuring on the tension pile, any flexion arising on the frame, any extention or breakerage on the iron bars supplying the connection between tension pile and frame will reduce the total resistance against the system.

TEKLİ SİLİNDİR SİSTEMİ

SINGLE CYLINDER SET

1. Elektrikli güç ünitesi
   Electric powered pump
2. Ø100 - 0/700 bar gliserinli manometre
   Ø100 - 0/700 bar pressure gauge
3. Manometre adaptörü
   Gauge adoptor
4. Dişi tip çabuk bağlantı rakoru
   Femail coupler
5. Erkek tip çabuk bağlantı rakoru
   Mail coupler
6. Basınç hattı hortumu
   Pressure line hose
7. Dönüş hattı hortumu
   Return line hose
8. Dişi tip çabuk bağlantı rakoru
   Female coupler
9. Dişi tip çabuk bağlantı rakoru
   Female coupler
10. Erkek tip çabuk bağlantı rakoru
    Male coupler
11. Kazık yükleme test silindiri
    Pile test cylinder
12. Alt plaka
    Plate
13. Test kazığı
    Test pile
14. Kilitleme grubu (Sf:34)
    Locking group (Page:34)
15. Erkek tip çabuk bağlantı rakoru
    Male coupler
16. Dişi tip çabuk bağlantı rakoru
    Female coupler
17. Erkek tip çabuk bağlantı rakoru
    Male coupler

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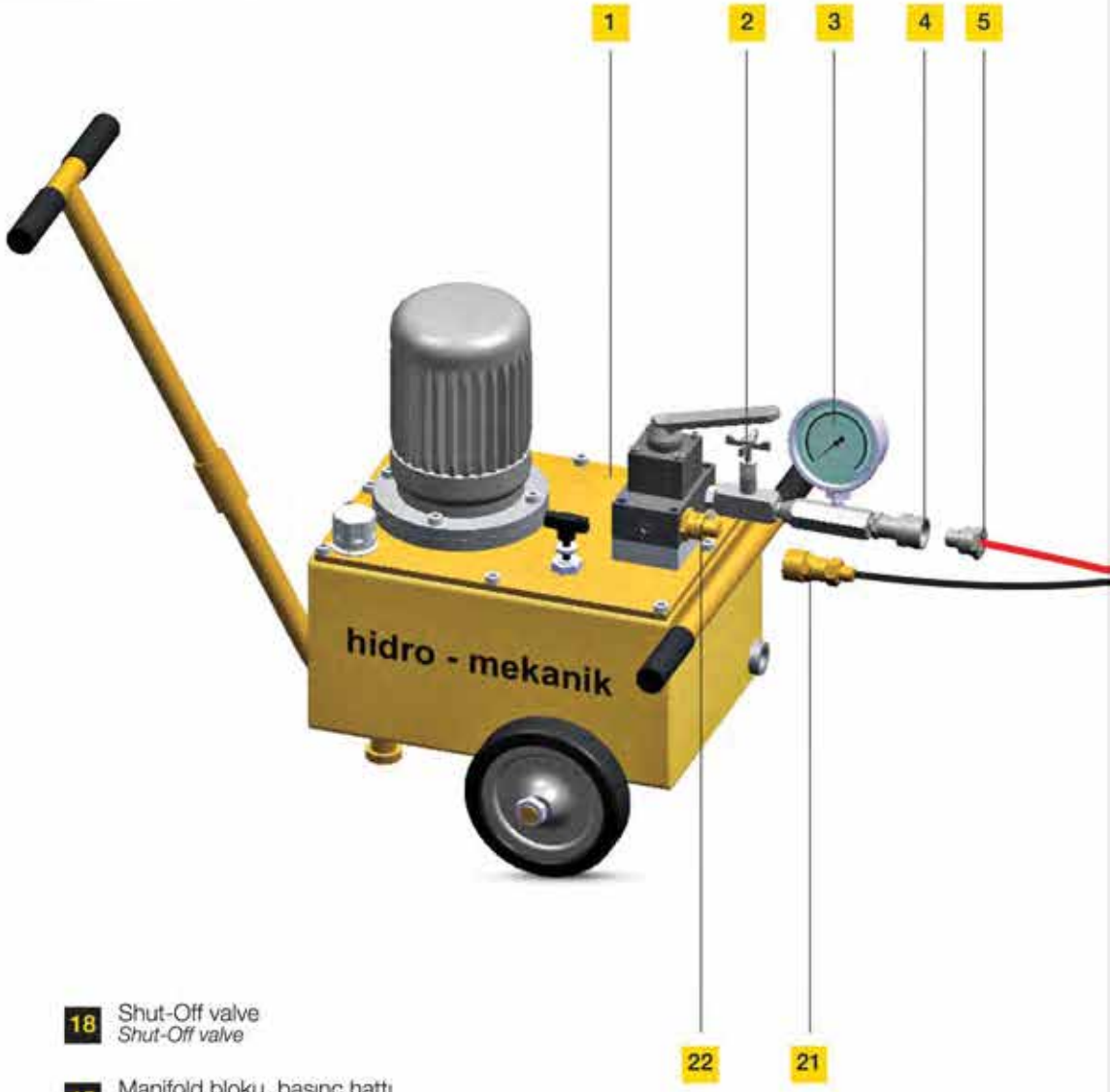
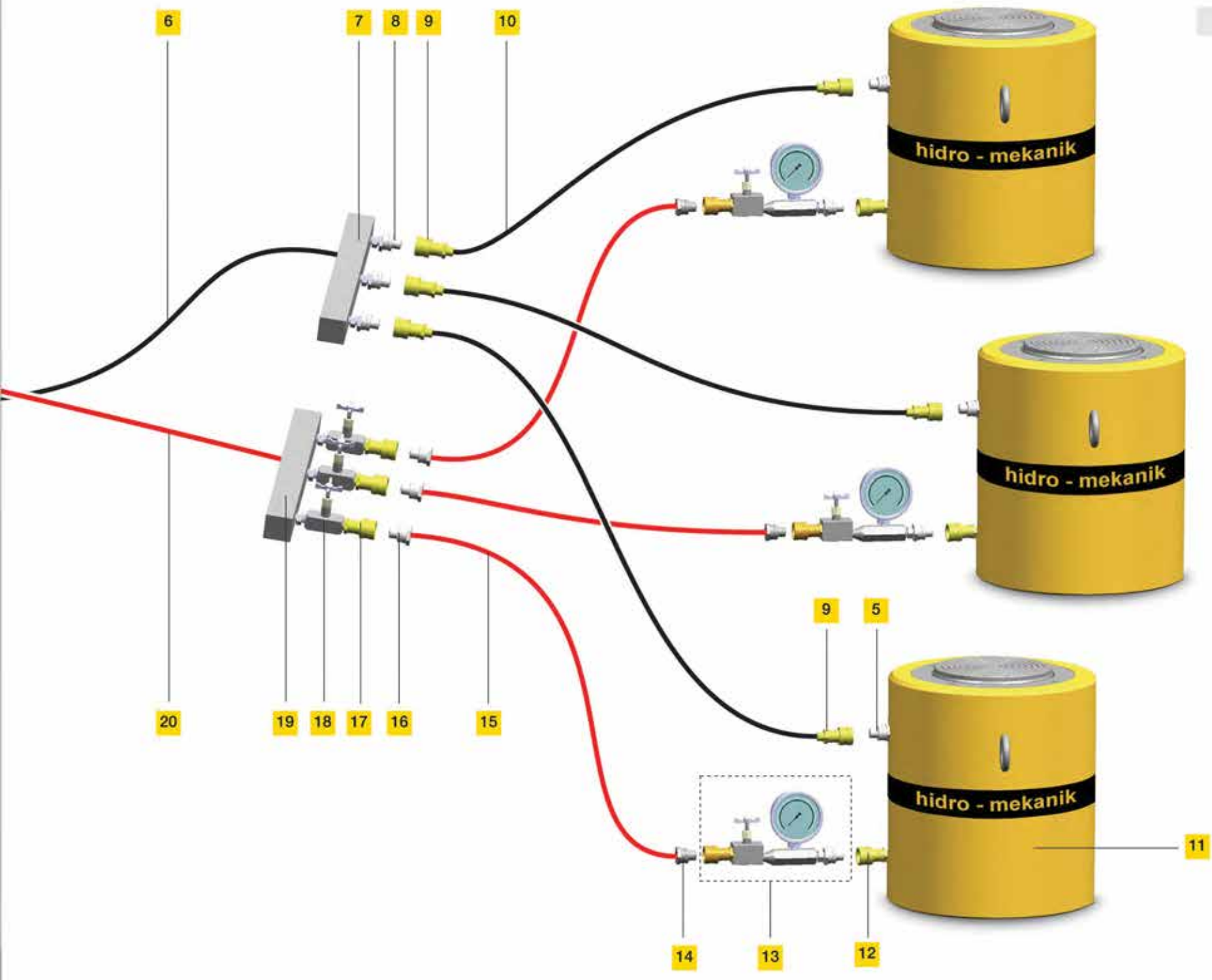
ÇOKLU SİLİNDİR SİSTEMİ

MULTI CYLINDER SET



1. Elektrikli güç ünitesi *Electric powered pump*
2. Kademeli yük düşürme valfi *Shut-Off valve*
3. Ø100 - 0/700 bar gliserinli manometre *Ø100 - 0/700 bar pressure gauge*
4. Dişi tip çabuk bağlantı rakoru *Femail coupler*
5. Erkek tip çabuk bağlantı rakoru *Mail coupler*
6. Dönüş hattı, manifold hortumu *Return line manifold hose*
7. Manifold bloku, dönüş hattı *Return line manifold block*
8. Erkek tip çabuk bağlantı rakoru *Male coupler*
9. Dişi tip çabuk bağlantı rakoru *Femail coupler*
10. Dönüş hattı hortumu (manifold-silindir) *Return line house (manifold to cylinder)*
11. Kazık yükleme test silindiri *Pile test cylinder*
12. Dişi tip çabuk bağlantı rakoru *Female coupler*
13. Kilitleme grubu (Sf:34) *Locking group (Page:34)*
14. Erkek tip çabuk bağlantı rakoru *Male coupler*
15. Basınç hattı hortumu (manifold-silindir) *Pressure line hose (manifold-cylinder)*
16. Erkek tip çabuk bağlantı rakoru *Mail coupler*
17. Dişi tip çabuk bağlantı rakoru *Female coupler*
18. Shut-Off valve *Shut-Off valve*
19. Manifold bloku, basınç hattı *Pressure line manifold block*
20. Basınç hattı, manifold hortumu *Pressure line manifold hose*
21. Dişi tip çabuk bağlantı rakoru *Female coupler*
22. Erkek tip çabuk bağlantı rakoru *Male coupler*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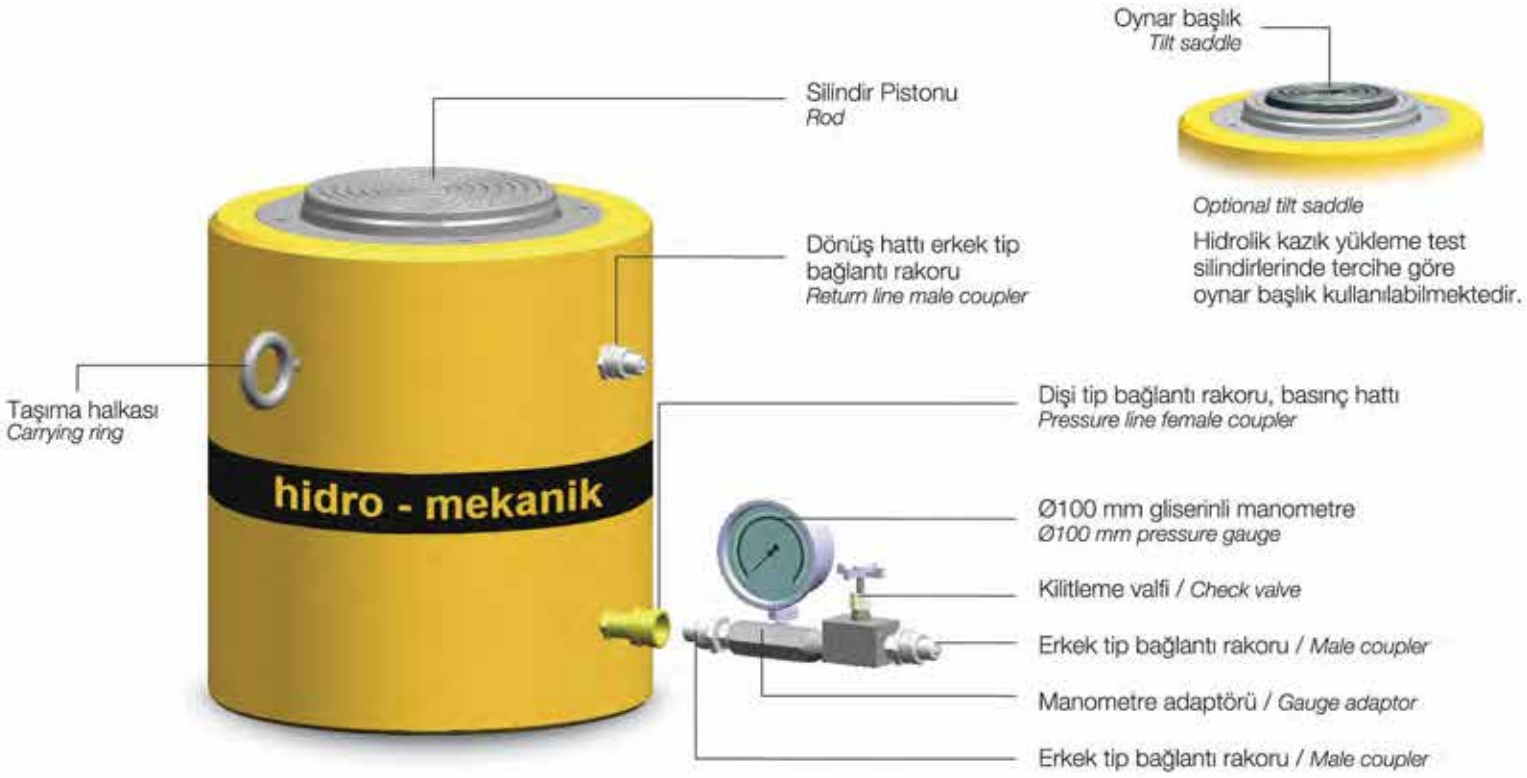


Kilitleme Grubu / *Locking Group*

Kazık yükleme testlerinde gerekli uygulama hassasiyetinin sağlanabilmesi için gerek sistemdeki basıncın doğru okunabilmesi, gerekse uygulama güvenliğinin sağlanması üst düzeyde önem arz etmektedir. Hidrolik silindirin basınç hattı girişine monte edilen kilitleme grubu bu iki durumu sağlamaktadır.

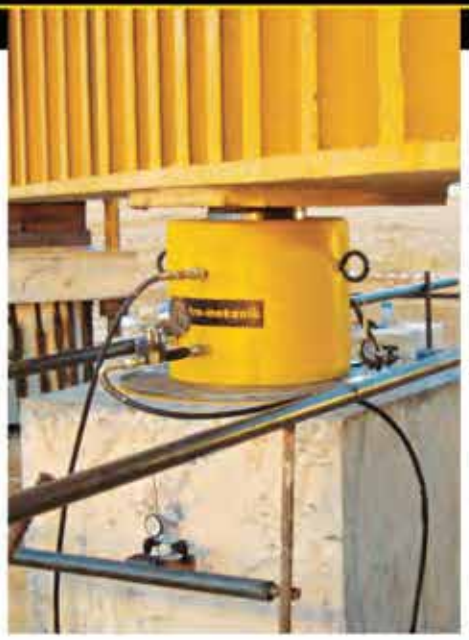
In order to supply the necessary operation sensitivity during the pile loading tests, it has utmost importance of correct pressure reading and application security maintanence. The locking group installed on the pressure line port of cylinder enables these two conditions.

1 **Silindir içerisindeki basıncı gösteren manometre;** Tek yada çok silindirli uygulamalarda kazığa uygulanan toplam yükü takip edebilmek için kazığa kuvvet uygulayan hidrolik silindirlerin basınçlarını tekil olarak göstermeye yarar. Bu sayede hangi silindirde ne kadar basınç olduğunu öğrenerek o silindire ait kalibrasyon belgesinden uygulanan kuvveti hesaplayabilirsiniz.

Pressure gauge; *In single or multi cylindered operations, it maintains to show seperately the pressure of hydraulic cylinders applied on pile. So each of the cylinder pressure can be observed and the force applied on that cylinder can be calculated from calibration certificate.*

2 **Kilitleme valfi;** Kazık yükleme uygulamalarında 72 saate kadar yükte bekleme yapılabilmektedir. Bu süre zarfında sistemin herhangi bir noktasındaki olası hortum patlaması, kaçak yada sızıntılardan testin zarar görmemesi için silindirin basınç hattına monte edilmekte olan bu valf gerek çalışırken gerekse yükte bekleme esnasında hidrolik silindirin içersindeki basıncı hapseder ve size sadece silindir içersindeki basıncı okuma imkanı verir.

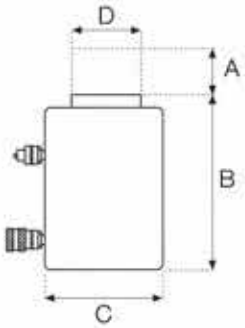
Locking valve; *During this time period, this locking valve is installed to the cylinder pressure line to avoid possible burst at hose in any part of the system and leakage that may to give harm to test result. Thus, it locks the pressure in hydraulic cylinder both during operation and waiting period and gives the possibility to read the pressure only in cylinder.*



- Silindir kovanı alaşımlı çelikten imal edilmiş ve iç yüzeyi honlanmıştır.
- Rod, yüksek alaşımlı çelikten imal edilmiş ve yüzeyi sertleştirilmiştir.
- Rod yüzeyi 100 mikron kalınlığında sert krom kaplanmıştır.
- Pistonda ve boğaz kapağında bronz yataklama yapılmıştır.
- Silindir çıkışlarında hatalı bağlantıyı engelleyen farklı tip çabuk bağlantı rakorları kullanılmıştır.
- Sızdırmazlık elemanları 700 bar basınçta emniyetli çalışabilecek özelliktedir.
- Silindirler, 800 bar çalışma basıncında ve tam strokta test edilmektedir.
- Her bir kazık yükleme silindiri fiili olarak kalibrasyona tabi tutulup, belgelendirilmektedir.

CALIBRATION CERTIFICATE page 05

- *Cylinder body produced by alloyed steel and inner surface is honed.*
- *Rod produced by high-alloy steel and case-hardened.*
- *Rod surface is plated with 100micron thickness of hard chrome.*
- *Bronze bearing is done in piston and retainning nut.*
- *Different types of quick-couples are used to avoid false connection in cylinder ports.*
- *Sealing components has characteristic to work at 700 bars safely.*
- *Cylinders are tested under 800 bar working pressure and exact stroke.*
- *Each of every pile loading test cylinder is calibrated and certified .*



Model No.	Capacity	A Stroke	B Closed Height	C Outside Diameter	D Rod Diameter	Effective Area	Oil Capacity	Weight
	ton	mm	mm	mm	mm	cm^2	cm^3	kg
PTH-20015	200	150	330	260	150	283,40	2650	123
PTH-20020		200	380				3533	140
PTH-20025		250	430				4416	157
PTH-30015	300	150	360	320	185	433,50	4030	204
PTH-30020		200	410				5373	230
PTH-30025		250	460				6717	256
PTH-40015	400	150	405	380	215	572,30	5444	330
PTH-40020		200	455				7258	366
PTH-40025		250	505				9073	402
PTH-50015	500	150	440	420	240	706,50	6783	434
PTH-50020		200	490				9043	479
PTH-50025		250	540				11305	524
PTH-60015	600	150	465	470	260	854,90	7962	575
PTH-60020		200	515				10616	630
PTH-60025		250	565				13270	685
PTH-80015	800	150	490	530	300	1133,55	10598	770
PTH-80020		200	540				14131	840
PTH-80025		250	590				17664	910
PTH-100015	1000	150	545	610	360	1451,50	15262	1165
PTH-100020		200	595				20348	1263
PTH-100025		250	645				25435	1361

EPP Serisi Elektrikli Güç Ünitesi

EPP Series Electric Power Pack

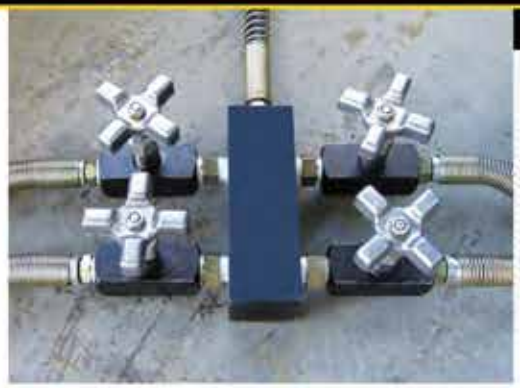
- Tek kademeli elektrikli hidrolik güç ünitesi
- Debilerine göre 5 ayrı model
- 4 yollu - 3 pozisyonlu manuel tip yön valf
- Ayarlanabilir basınç kontrol valfi
- 700 bar maksimum çalışma basıncı

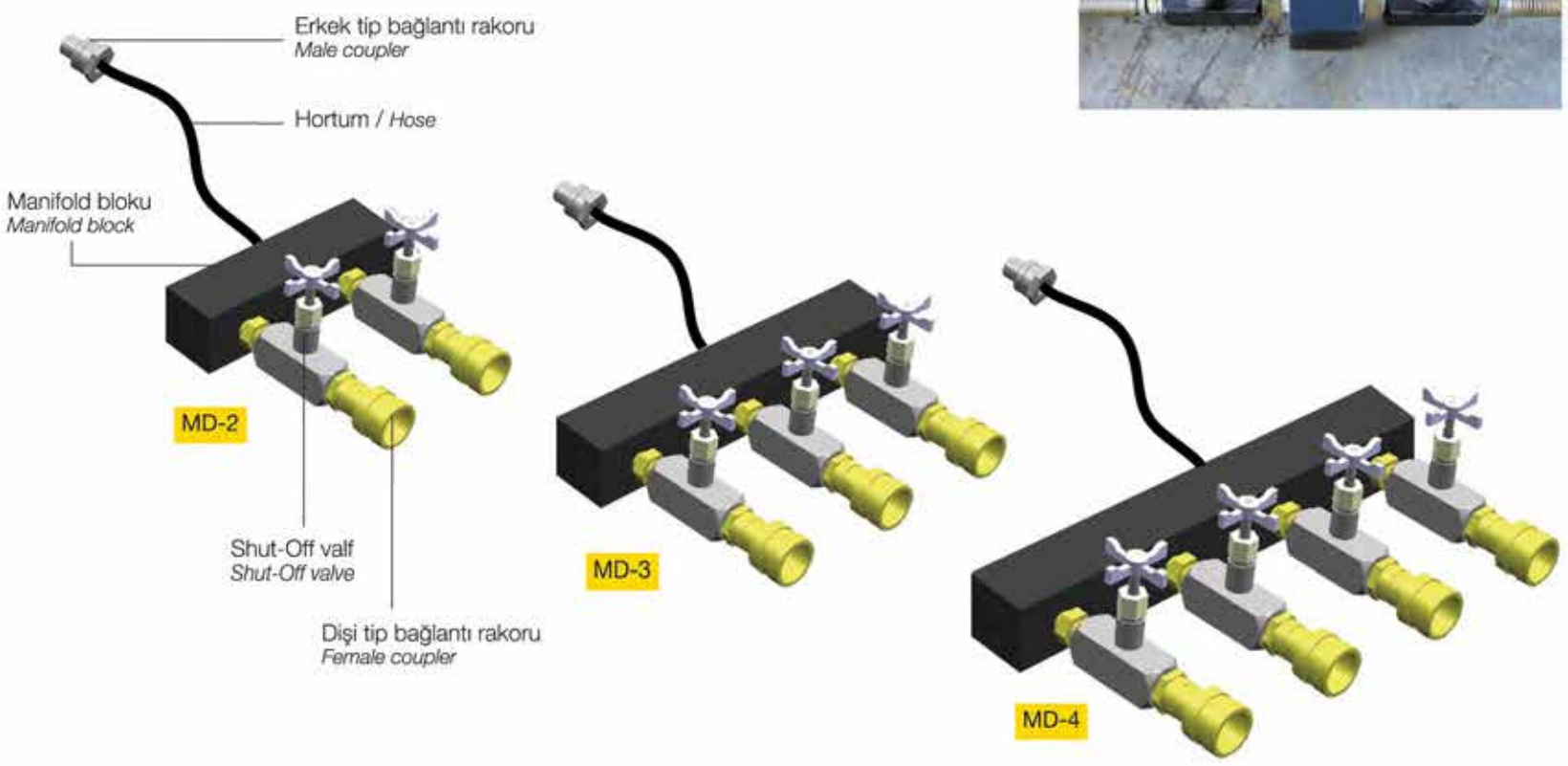
- *Single stage electrical power pack*
- *5 different models due to flow rates*
- *4 way - 3 position manual type valve*
- *Adjustable pressure control valve*
- *Maximum 700 bar working pressure*

Power Unit Model No.		EPP-257	EPP-367	EPP-507	EPP-667	EPP-807
Power Pump Type		Single Stage Special Design for Pile Testing Applications				
Pump Type		Radial 3 Piston Pump		Radial 5 Piston Pump		Radial 7 Piston Pump
Working Pressure (Max.)	bar	700				
Displacement	l/min	2,5	3,6	5,0	6,6	8
Motor Power	kw	3	4	5,5	7,5	9
Motor Rpm	rpm	1400				
Reservoir Capacity	liter	32	60	87	120	158
Usable Oil Capacity	liter	25	48	70	96	130
Reservoir Sizes	mm	330 x 450 x 230	410 x 560 x 260	480 x 660 x 280	550 x 750 x 300	600 x 820 x 330
Pressure Gauge		G-7: 100 mm x 0-700 bar (glycerine filled) & GD-1: 64 mm x 0-700 bar Digital				
Return Line Pressure	bar	150				
Directional Control Valve		4 Way - 3 Position Manual				
Pressure Control Valve		20 - 700 bar Adjustable Pressure Regulator Valve				
Motor Specifications		220/380 V., 50 Hz., 3-Phaze				
Motor Remote Control		Start / Stop - With 3 Meter Cord				
Wheel Diameter	mm	250	300	300	350	350
Weight	kg	90	131	178	231	282

MD Serisi Manifold Sistemleri

MD Series Manifold Systems for Pressure Line

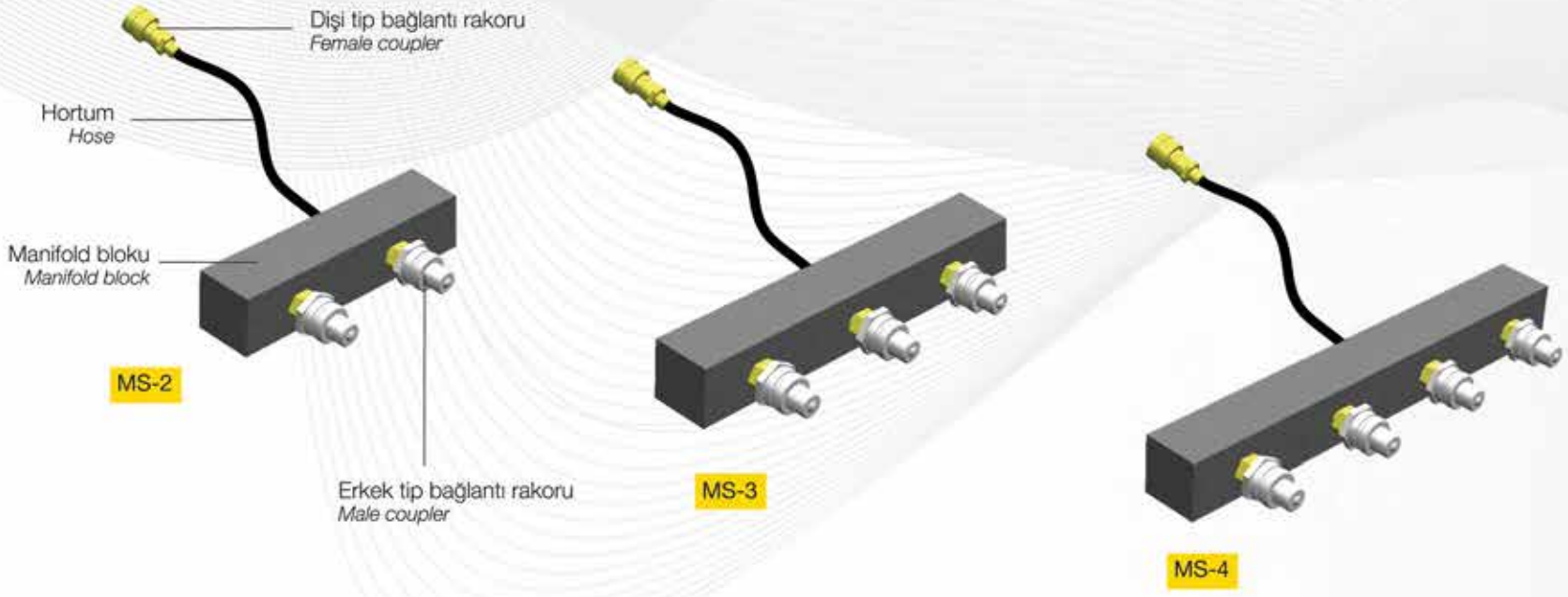




Model No.	Manifold Type	Valve Type	Port Pcs	Dimensions	Working Pressure	Weight
				mm	bar	kg
MD - 2	Manifold System for Pressure Line	Shut-Off valve	2	50x50x215	700	6,10
MD - 3			3	50x50x295		8,40
MD - 4			4	50x50x370		10,70

MS Serisi Manifold Blokları

MS Series Manifold Blocks for Return Line



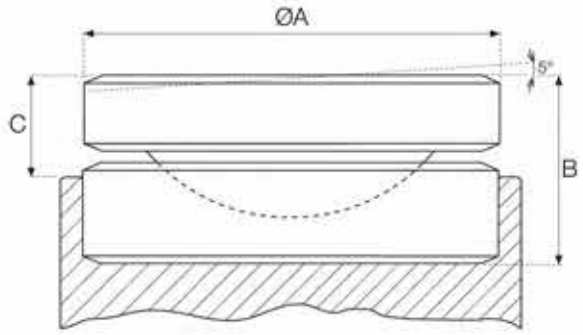
Model No.	Manifold Type	Port Pcs	Dimensions	Working Pressure	Weight
			mm	bar	kg
MS - 2	Manifold System for Return Line	2	50x50x175	700	4,10
MS - 3		3	50x50x235		5,30
MS - 4		4	50x50x295		6,50

OSB Serisi Oynar Başlık

OSB SeriesTilt Saddle

- Opsiyonel
- Dik olmayan yükler için
- 5° maksimum hareket açısı

- *Optional*
- *Recommended for use under sideload forces*
- *Inclination of 5° is accepted*



Model No.	Cylinder Capacity	A	B	C	Weight
	ton	mm	mm	mm	kg
OBP-200	200	111	52	40	4,2
OBP-300	300	131	57	45	6,5
OBP-400	400	178	67	47	13,5
OBP-500	500	200	79	57	20,5
OBP-600	600	220	90	67	30,5
OBP-800	800	250	105	75	41
OBP-1000	1000	310	160	115	105

Hortumlar / *Hoses*

Basınç hattı bağlantı hortumu
Pressure line hose with male coupler

Dönüş hattı bağlantı hortumu
Return line hose with female coupler

Model No.	Length	Internal Diameter	Weight
	m	mm	kg
HS - 2208	8	6,40	4,10
HS - 2210	10		5,00
HS - 2212	12		5,90
HS - 2215	15		7,25

Çalışma basıncı / *Working pressure* : 700 bar
Patlama basıncı / *Burst pressure* : 2170 bar

Basınç hattı hortumlarının iki ucuna erkek tip bağlantı rakoru, dönüş hattı hortumlarının iki ucuna dişi tip bağlantı rakoru monte edilmiştir.

Manometreler / *Pressure Gauges*

G7

GD1

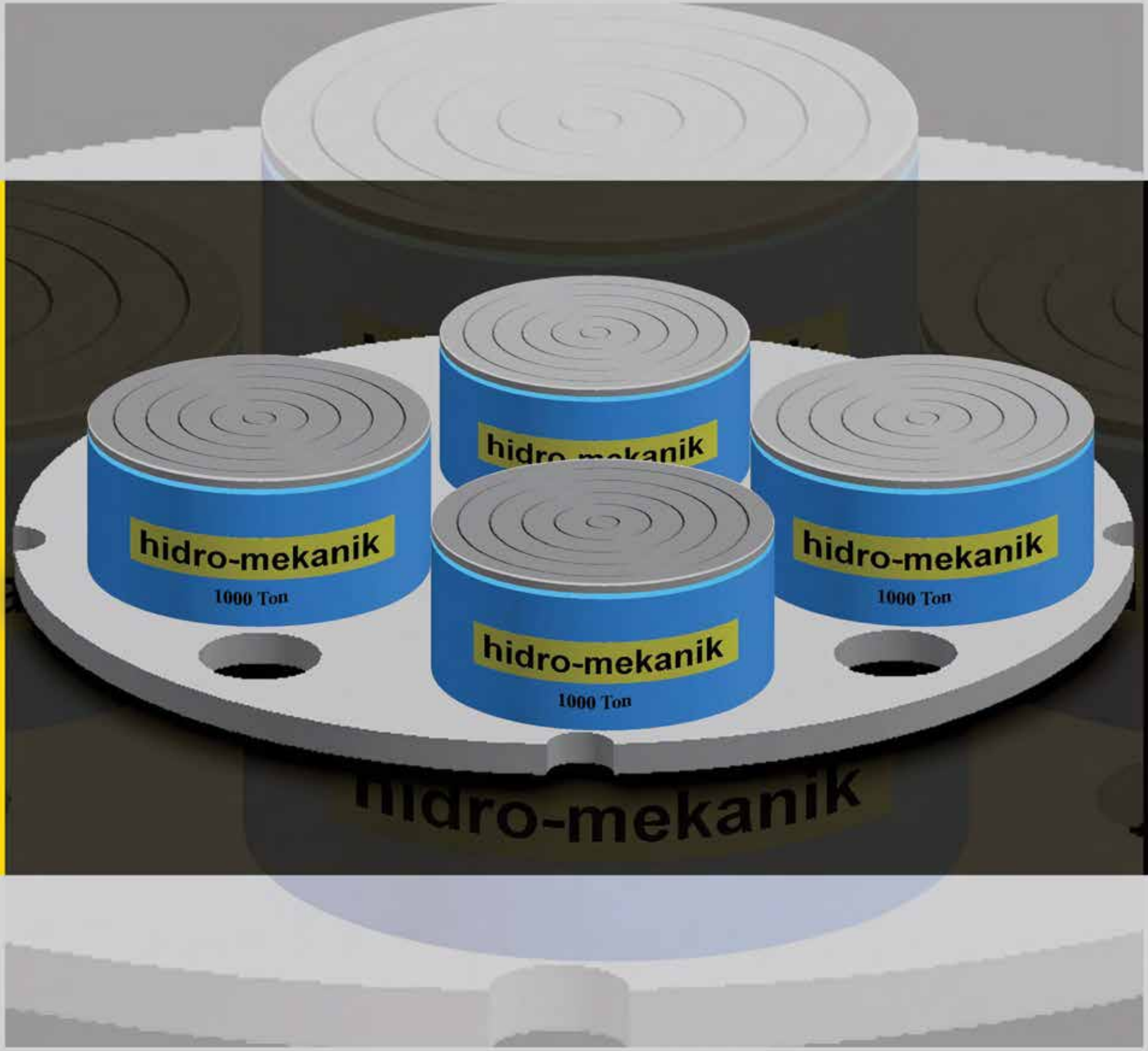
Model No.	Capacity	Scale Diameter	Oil Port	Gauge Type
	bar	mm		
G7	0-700	100	1/4" NPT	Glycerine Filled
GD1		63		Digital

Çabuk Bağlantı Rakorları / *Couplers*

C-209

C-213 C-211

Model No.	Description	Weight
		kg
C-213	Coupler half, male with 3/8" NPT inner connection thread	0,150
C-211	Coupler half, female with 3/8" NPT outher connection thread	0,225
C-209	Coupler complate	0,375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1000 Ton
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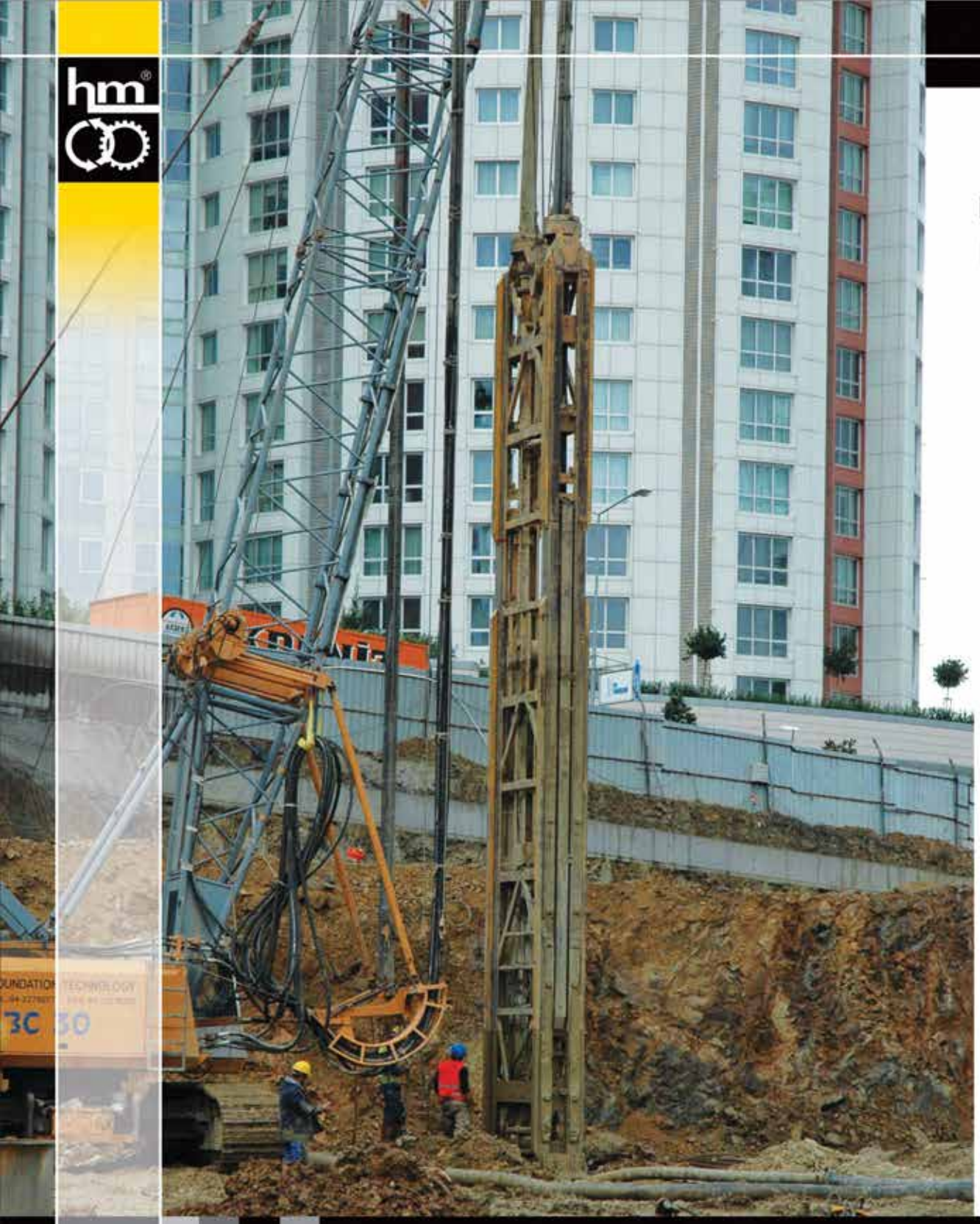
BI-DIRECTIONAL TYPE PILE TEST SYSTEM

BI-DIRECTIONAL TİPİ KAZIK TEST SİSTEMLERİ



Bi-Directional Kazık Test Metodu

Bi-Directional test metodu, bilinen kazık test metodlarına göre çok ciddi avantajlar sağlayan bir test metodudur. Bi-Directional test metodunda test kazığı için reaksiyon kazıklarına ya da ankraja gereksinim duyulmaz.

Bi-Directional Load Test

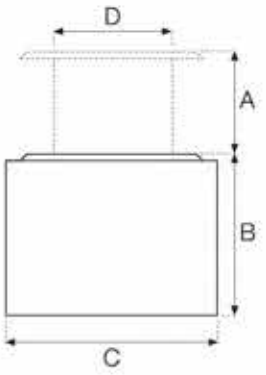
Bi-Directional Static Load Test is truly an innovative static load testing technique. It is the only load test that provides separate measurement of a pile's end bearing and skin friction. The reaction system in Bi-Directional Static Load Test derived from the soil and/or rock along and below the drilled shaft, hence the system is not restricted by the limits of overhead structural beams, large kentledge, tie-down reaction piles and deep cut of level as in the conventional top loaded static load test system.


700

PTO Serisi

- Tek tesirli, yük dönüşlü
- 200 - 1000 ton kapasite
- 165 mm strok
- Toplam 10 model
- Özel dizayn
- 700 bar maksimum çalışma basıncı

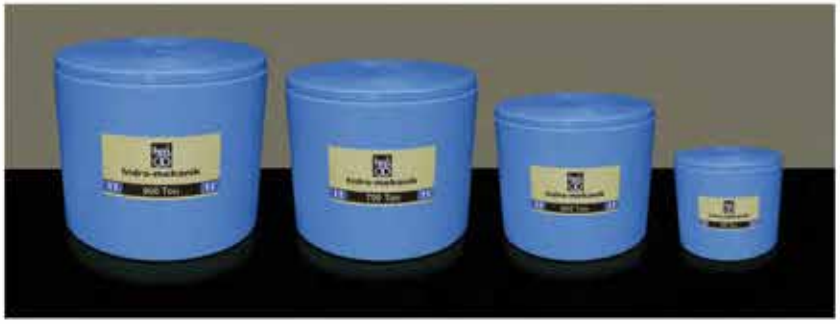
- *Single acting - load return*
- *200 - 1000 tons capacity*
- *165 mm stroke*
- *Totally 10 models*
- *Special design*
- *Maximum 700 bar working pressure*



Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm^2	cm^3	kg
PTO-20017	200	165	365	267	190	283,39	4676	161
PTO-25017	250		375	297	215	362,87	5987	202
PTO-30017	300		380	327	235	433,52	7153	248
PTO-40017	400		395	367	270	572,27	9443	328
PTO-50017	500		420	417	300	706,50	11657	449
PTO-60017	600		425	457	330	854,87	14105	548
PTO-70017	700		435	497	360	1017,36	16786	664
PTO-80017	800		445	527	380	1133,54	18703	763
PTO-90017	900		450	547	400	1256,00	20724	832
PTO-100017	1000		460	595	430	1451,47	23949	1036

Bu uygulamada kullanılan özel tip Bi-Directional hidrolik test silindirleri kazığın tabanına yakın bir kısmına kazık imalatı sırasında yerleştirilir. Bu hidrolik silindir test sırasında bulunduğu nokta itibariyle kazığa çift yönlü kuvvet uygulamaktadır. Bu çift yönlü kuvvet aktarımı sayesinde kazığın uç mukavemet testi ile kazığın sürtünme mukavemet testi aynı anda fakat birbirlerinden bağımsız olarak yapılabilmektedir. Test kazığına birden fazla Bi-Directional hidrolik test silindiri yerleştirerek çok yüksek tonajlı testlerde yapılabilmektedir. Gerekli olan çalışma alanı diğer bilinen yöntemlere göre çok daha az olduğundan test, üst geçit altlarında, bina içlerinde ve benzer dar ve alçak alanlarda yapılabilmektedir. Kazık uç taşıma ile sürtünme mukavemeti test sonuçları birbirinden bağımsız raporlanabildiğinden, Bi-Directional test metodu diğer test metodlarına göre çok daha fazla güvenilir kabul edilmektedir.

Hydraulically-driven, high-capacity, sacrificial Bi-Directional hydraulic jacks are pre-installed in the test pile. Loading is applied in equal and opposite directions: upwards against upper skin friction and downward against lower skin friction and/or end bearing. By using multiple Bi-Directional jacks on a single horizontal plane, the available test capacity can be more than 100 MN. By utilizing multiple Bi-Directional jacks on different planes, distinct elements within a shaft can be isolated for testing. Since the end-bearing and upward skin friction are measured separately, there is no guesswork in how much load was carried by each section. We can also incorporate strain gauges within the shaft and analyze data and prepare engineering report to determine the distribution of load throughout the shaft length. The speed and accuracy of testing have made the Bi-Directional Static Load Test a valuable tool for value engineering.

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MULTI - STRAND STRESSING JACKS

ÇOKLU HALAT GERME KRİKOSU

MULTI - STRAND STRESSING JACKS

SJM serisi 100 ton kapasiteli maksimum 5 halat germe kapasiteli hidrolik ankraj germe krikosu.

SJM series 100 ton capacity multi-strand stressing jack.

MULTI - STRAND STRESSING JACKS

hidro-mekanik marka kilitleme sistemli ankraj germe krikosunun en önemli özelliği; bütün halatları aynı anda ve eşit yükle germesi ve mümkün olan en az kayıpla kilitleme işlemini yapabilmesidir. Kilitleme silindiri tek tesirli yay dönüşlüdür. Bu sebeple kilitleme işlemi bittikten sonra piston yay etkisiyle otomatik olarak geri döner.

The main characteristic of hidro-mekanik multi strand stressing jack with locking system is; stressing all strand at the same time with equal load and locking with minimum possible loss. Locking system is single acting and spring return. Thus, when the locking operation is completed it automatically returns it's initial position.

Ø100 mm 0-700 bar kapasiteli gliserinli manometre; elektrikli güç ünitesi çıkışına takılı olan germe manometresi üzerinde kalibrasyon numarası bulunmaktadır. Bu numaraya ait olan kalibrasyon sertifikası ürünle birlikte verilmektedir.

Glycerin filled gauge manometer with Ø100 mm 0-700 bar capacity mounted to electrical hydraulic power pump, stressing port. The calibration certificate belonging on this number is given together with the product.

700 bar kapasiteli tek kademeli elektrikli hidrolik güç ünitesi.

The single stage electrical hydraulic power units with 700 bars capacity.
For multi-strand stressing applications.


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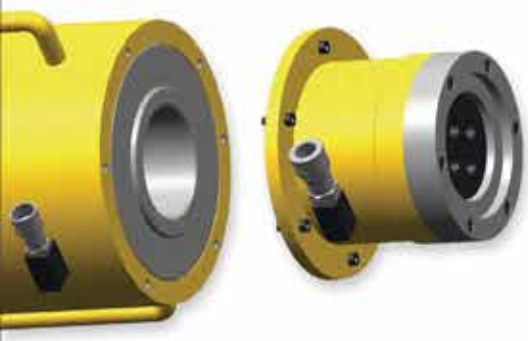
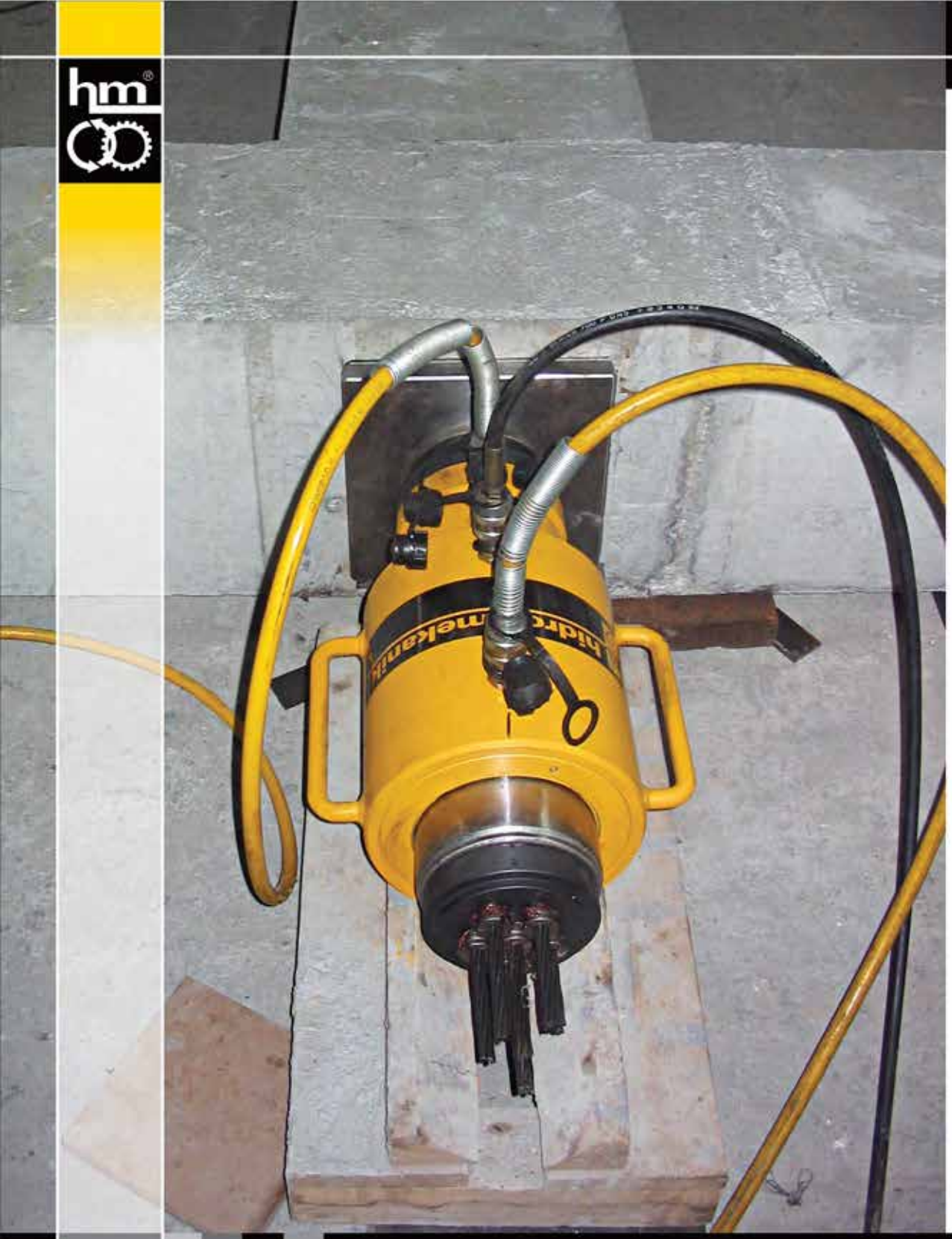


hidro-mekanik ankraj germe krikoları uygulama emniyeti sağlanabildiği sürece her türlü açıda çalışabilecek özellikte krikolardır. Ek olarak, herhangi bir germe testinde yada kilitlemesiz herhangi bir uygulamada kilitleme silindiri germe krikosundan sökülerek çalışma kolaylığı sağlanabilir. Sistemin çalışma emniyetini zora sokmayacak bir özenle kilitleme bölümü germe bölümünden sökülüp uygulama sadece germe krikosu bölümüyle yapılabilir.

hidro-mekanik multi stressing jacks has characteristic to work in any angle as long as operation safety provided. Besides, in any stressing test or in any operation without locking, locking cylinder can be removed from stressing jack which facilitates the operation. Locking cylinder can be removed from stressing part safely so the application can just be with stressing jack.

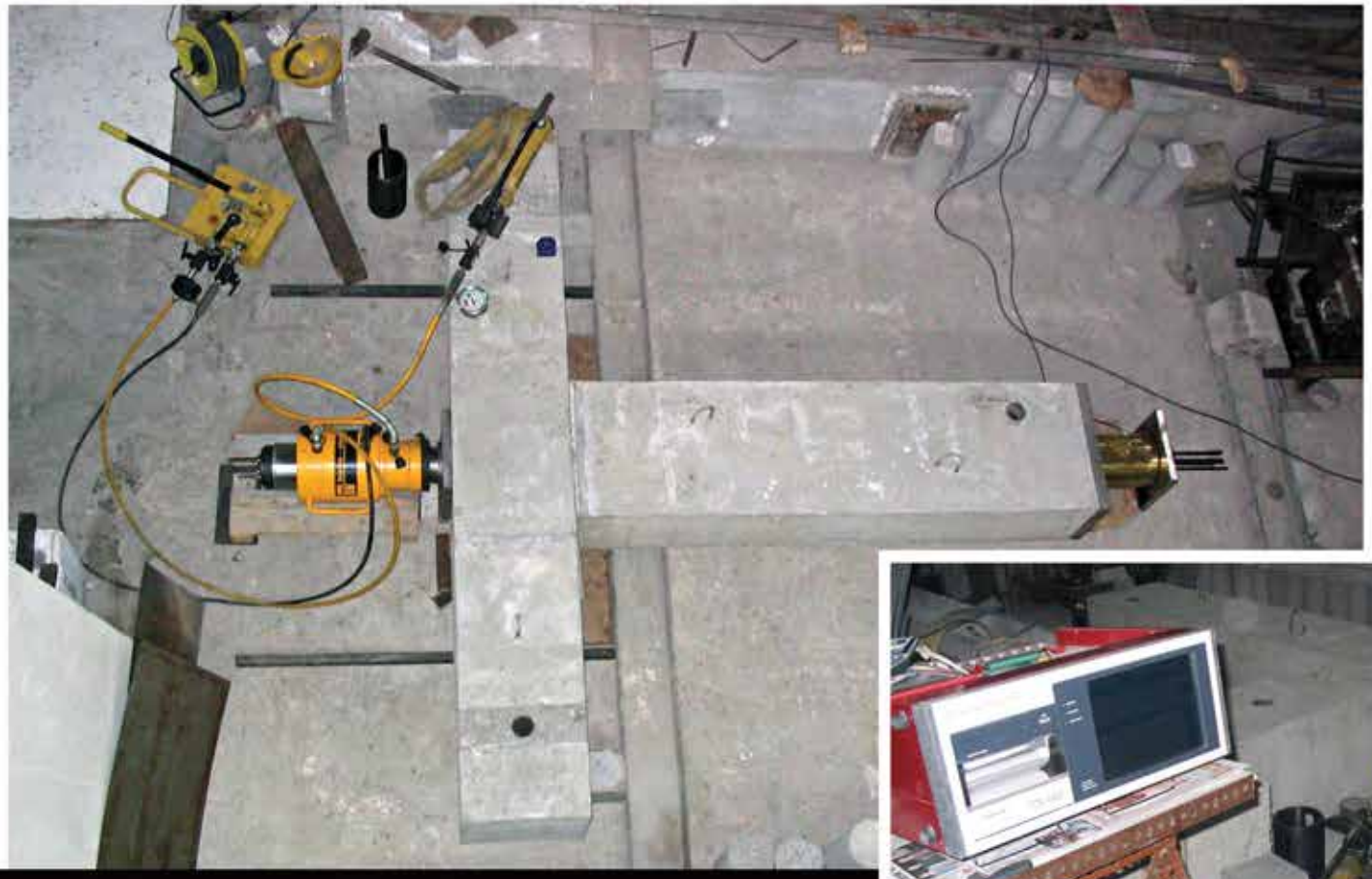


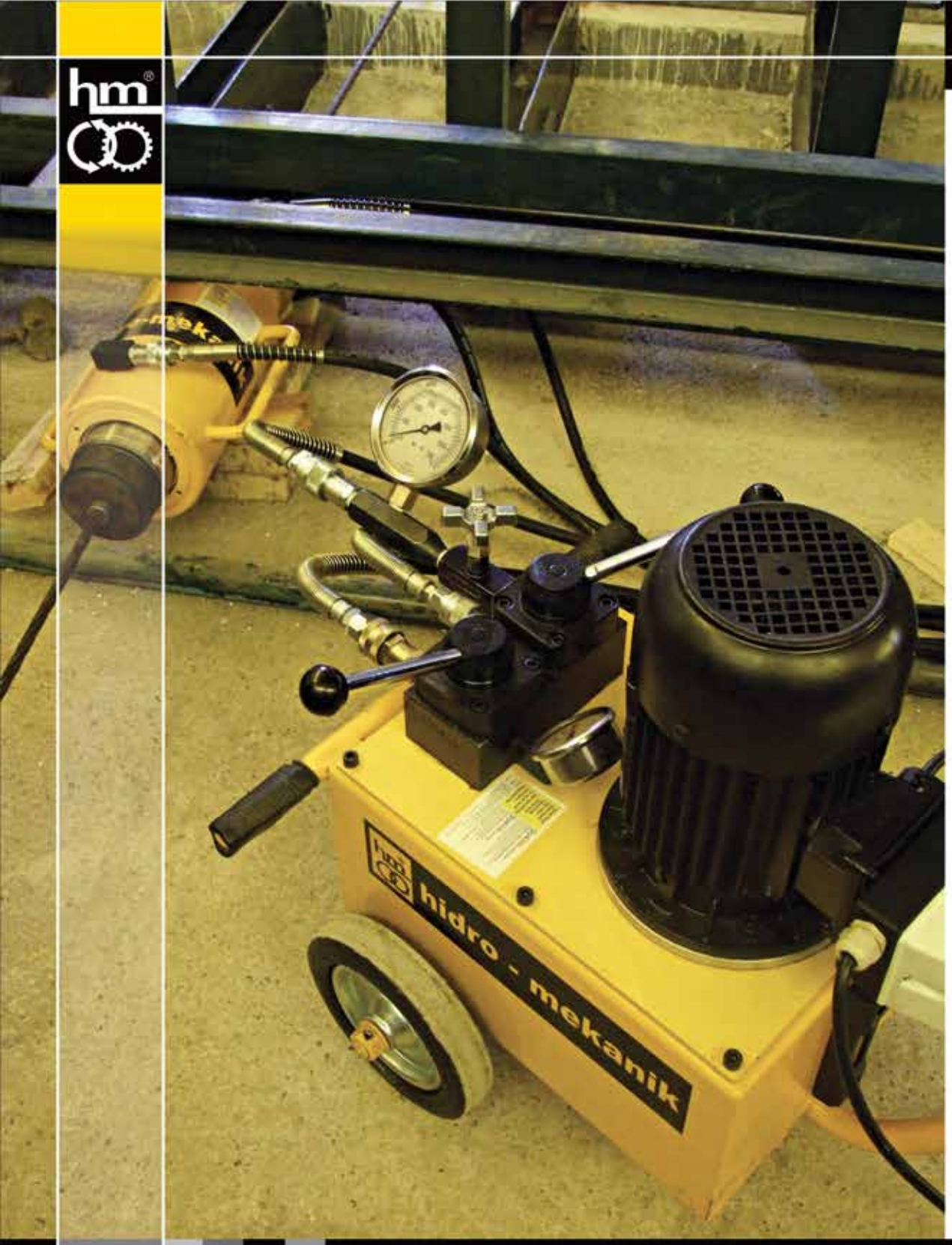
SJM serisi hidrolik ankraj germe krikosu ve HPYV-136 hidrolik el pompası ile yapılan kolon kiriş birleşim deneyi.

Post-and-beam connection test done with SJM series hydraulic multi strand stressing jack and HPYV-136 hydraulic hand pump.

Teknik üniversitelerin yapı ve denetim mühendislik bölümlerine ait labaratuarlarda yapılan kolon kiriş birleşim deneyleri ve kolon kiriş dayanım deneylerinde değişik kapasitelerde hidro-mekanik ankraj germe kriko setleri kullanılmaktadır.

In post-and-beam connection and durability tests done at Laboratories of Building Audit Engineering Sections of Technical Universities, different capacities of multi strand stressing jack sets are used.





Bu uygulamada görülebildiği gibi hidro-mekanik ankraj germe krikoları ile değiştirilebilir kitleme ve germe adaptörleri sayesinde maksimum germe kapasitesine kadar olan halat sayılarında germe yapılabilmektedir.

As it can be seen on the picture, stressing can be done with hidro-mekanik multi stressing jacks through changeable locking and stressing adaptors and in the number of strands up to the maximum stressing capacity.

SJM serisi hidro-mekanik ankraj germe krikolarının modellerine göre farklı uzunlukta strokları bulunmaktadır. Hemen her projede değişkenlik gösteren ankraj boyları başta olmak üzere, germe esnasında halatın uzama mesafesini doğrudan etkileyen birbirinden bağımsız birçok sebep vardır. Uzama boylarının öngörülenden fazla olma ihtimalinin olduğu projelerde (örneğin ankraj boylarının 35 mt ve üzeri olan) uzun stroklu modelleri seçmeniz önerilir.

SJM series of hidro-mekanik multi strand stressing jacks has different length of stroke due to their models. Particularly, including the anchorage length changeable in every project, there are many reasons directly effecting the strand extension during stressing. All these reasons are free from each other. It is recommended to choose long stroked models in the projectshaving the possibility of extention length more than foreseen (ie anchorage length 35 mt and above).

Dikkat! Hidrolik ankraj germe krikosu ile germe yapılırken, halatların gerilme yönünde hiçbir suretle durulmamalıdır.

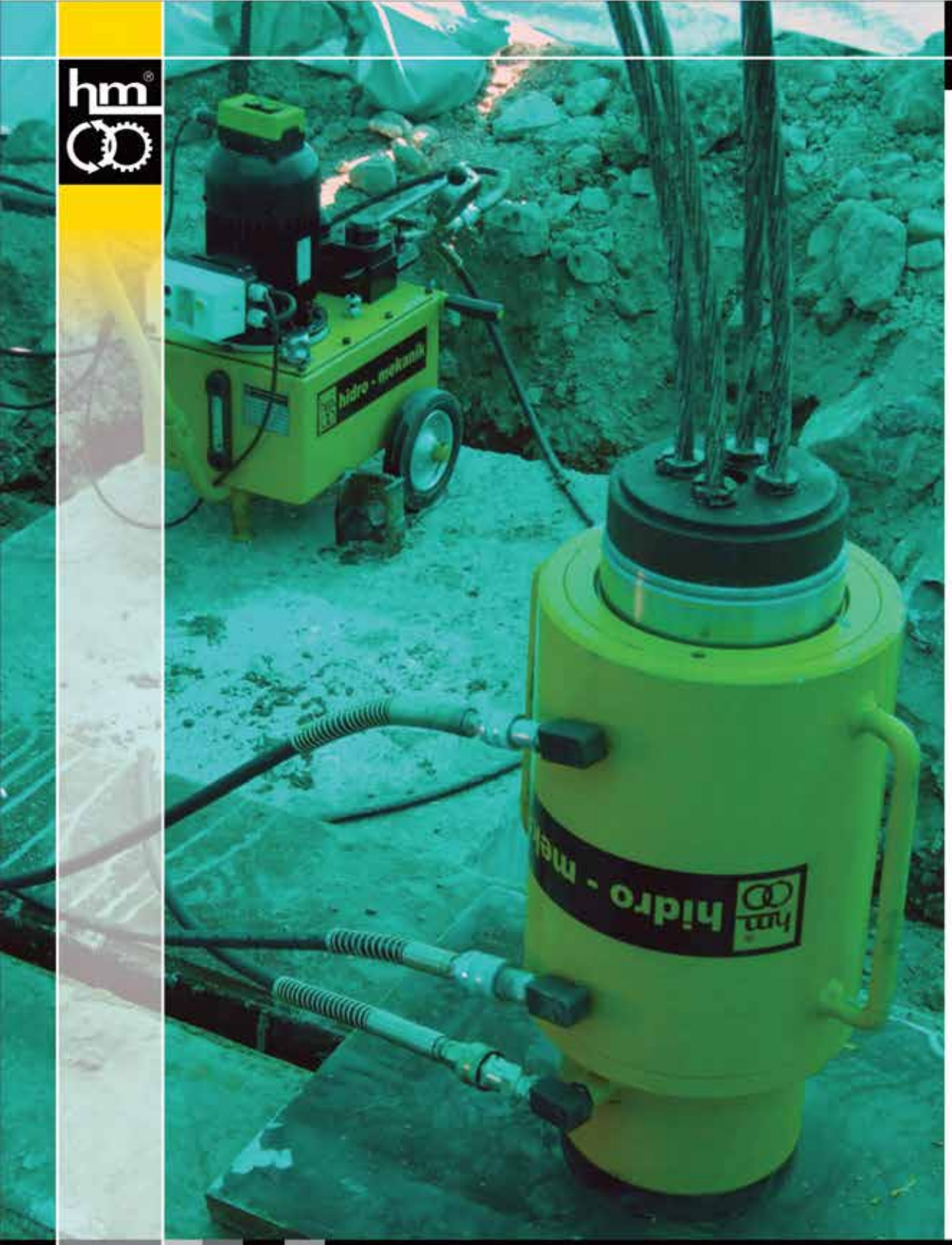
Attention! While doing stressing with multi strand stressing jack, it should never be standed on strand stessing direction.

hidro-mekanik ankraj germe krikoları ankraj germe uygulamalarının dışında farklı tip test ve deney uygulamalarında da kullanılabilmektedir. Örneğin resimdeki uygulamada SJM serisi hidrolik ankraj germe krikosu ile bir kazık çekme deneyi yapılmaktadır.

Apart from multi stressing applications, hidro-mekanik multi strand stressing jacks can also be used in different types of test applications. As it is seen on above application, a pile pulling test done with SJM series of multi-stressing jack.

Bazı kazık deneyleri uç mukavemet ve taşıma kapasite testinden (Standart Kazık Yükleme Testi) ayrı olarak kazığın sadece sürtünme mukavemetinin belirlenmesi içinde deneye tabi tutulmaktadır.
Bu uygulama CH yada HCH serisi ortası delik silindirlerle yapılabildiği gibi SJM serisi ankraj germe krikosu ile de yapılabilmektdir.

Some of piles, apart from extreme resistance and bearing capacity (Standart Static Pile Loading Test) can also be tested just for determining frictional resistance. This test can be done with CH or HCH sesies of center hole cylinders or with SJM series of multi strand stressing jacks.



Sistemin içersinde bulunan hidrolik yağ ortam ısısından doğrudan etkilenmektedir. Güneş ışığı veya değişken ortam ısısı ile benzer diğer dış etkenlerden uygulamayı korumak amacıyla bazı testler uygulama çadırı ile kapatılırlar. Bu sayede dış etkenlerin uygulama üzerindeki etkisi en aza indirilir.

Both mechanical motions and hydraulic oil circulance are effected directly by the environment temperature. In order to prevent these effects occured by sunlight, high or changeable temperature etc, the test area is covered with an application tent. This helps to reduce the external effects to minimum on the test.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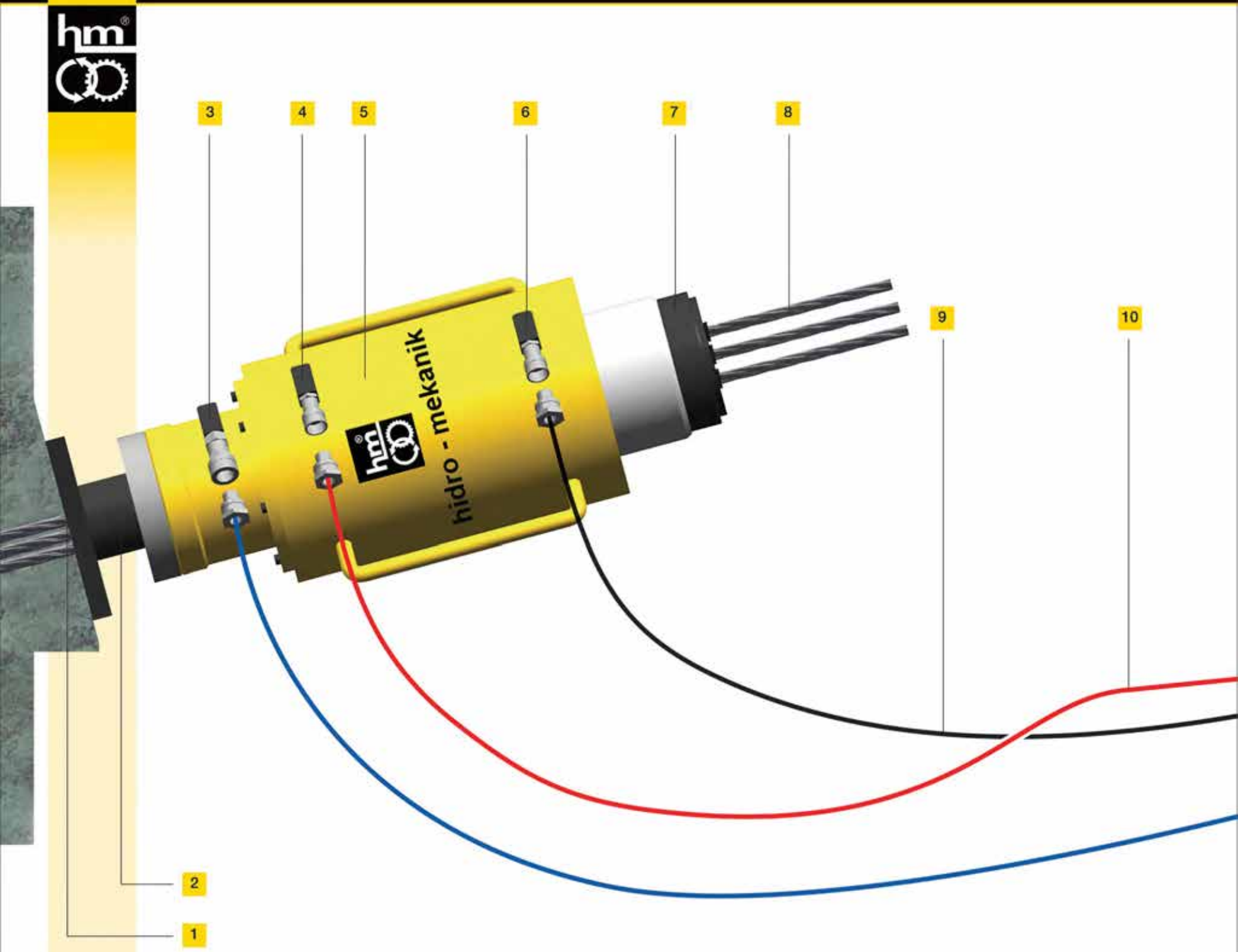
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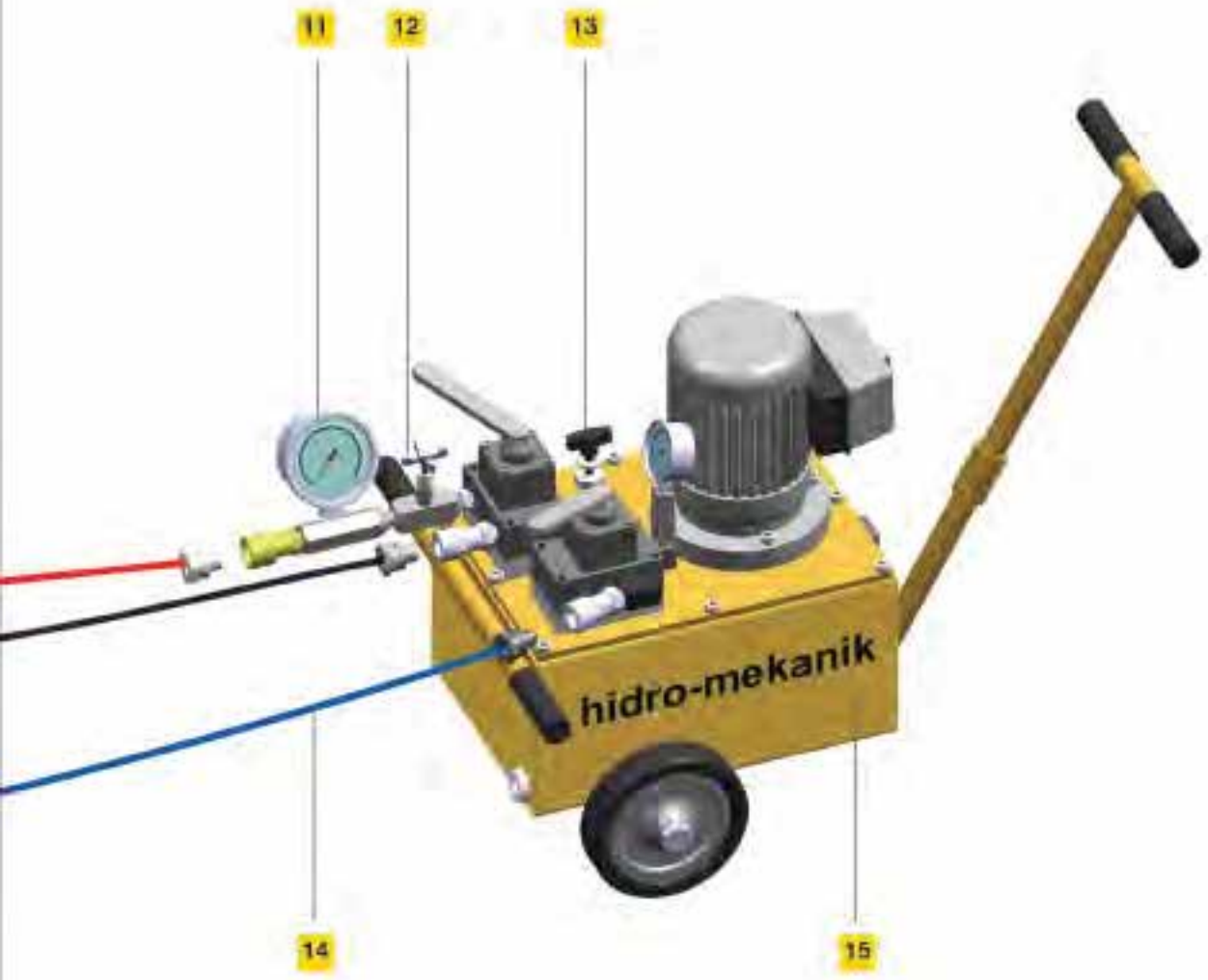
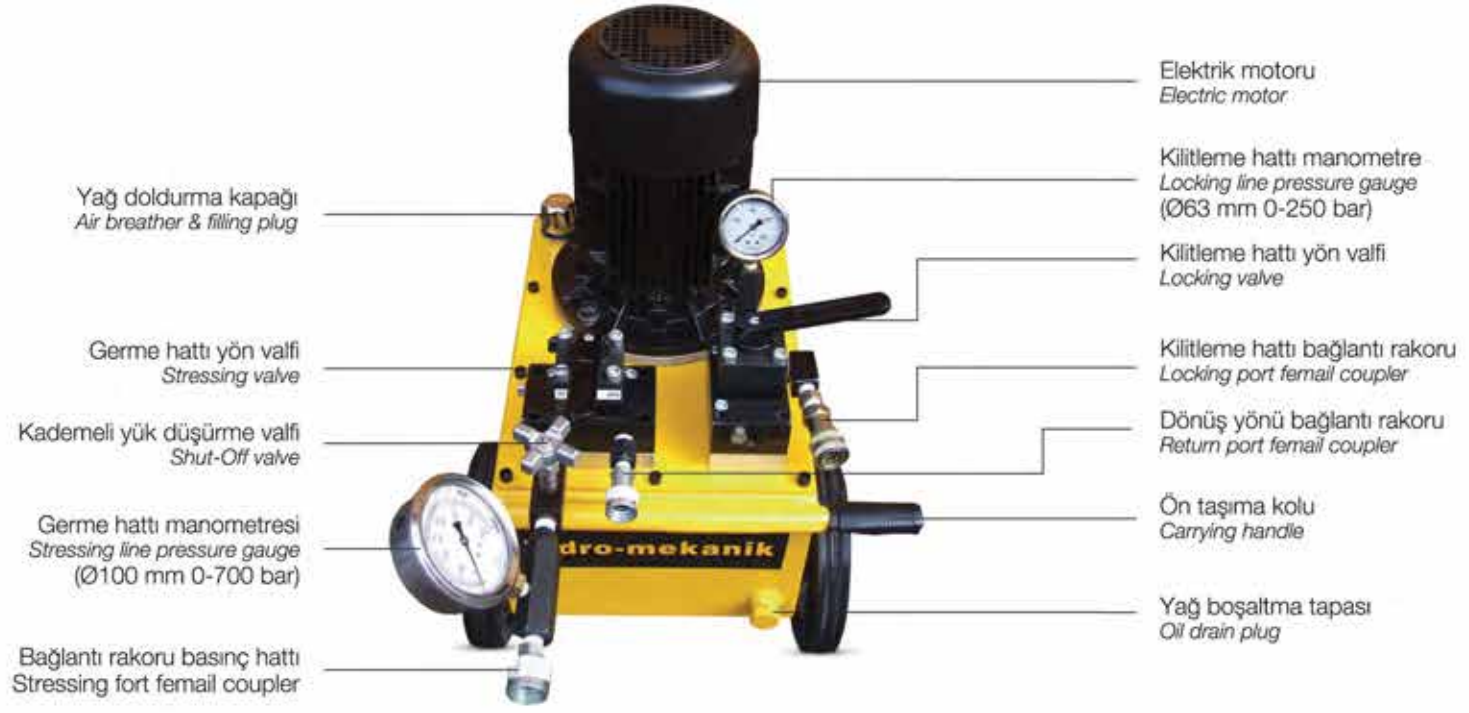
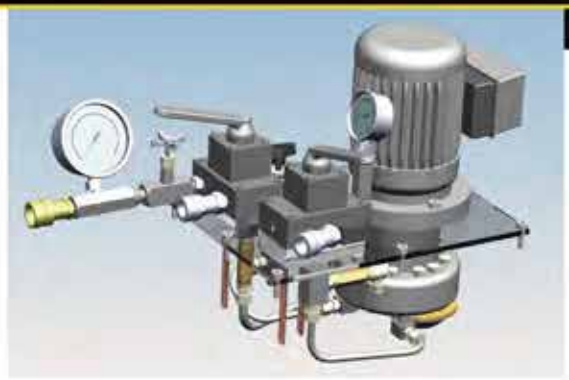


1. Ankraj plakası
   Anchor plate
2. Ankraj kafası
   Anchor head
3. Kilitleme hattı hortum bağlantı rakoru
   Jack locking port female coupler
4. Basınç hattı bağlantı rakoru
   Jack stressing port female coupler
5. Germe krikosu
   Stressing Jack
6. Dönüş hattı bağlantı rakoru
   Jack return port female coupler
7. Ankraj germe plakası
   Stressing plate
8. Ankraj halatı
   Strand
9. Dönüş hattı hortumu
   Return line hose
10. Basınç hattı hortumu
    Stressing line house
11. Ø100 mm 0-700 bar gliserinli manometre
    Ø100 mm 0-700 bar pressure gauge
12. Kademeli yük düşürme valfi
    Shut-Off valve
13. Ayarlanabilir basınç kontrol valfi
    Adjustable pressure control valve
14. Kilitleme hattı hidrolik hortum
    Locking line hose
15. Elektrikli güç ünitesi
    Electric power pump


Arka taşıma kolu
Carrying handle
Manyetik termik şalter
Starter box
Yağ seviyesi göstergesi
Oil level indicator
Motor uzaktan kumandası
Motor remote control (start/stop)
Ayarlanabilir basınç kontrol valfi
Adjustable pressure regulator valve
Tekerlek
Wheel

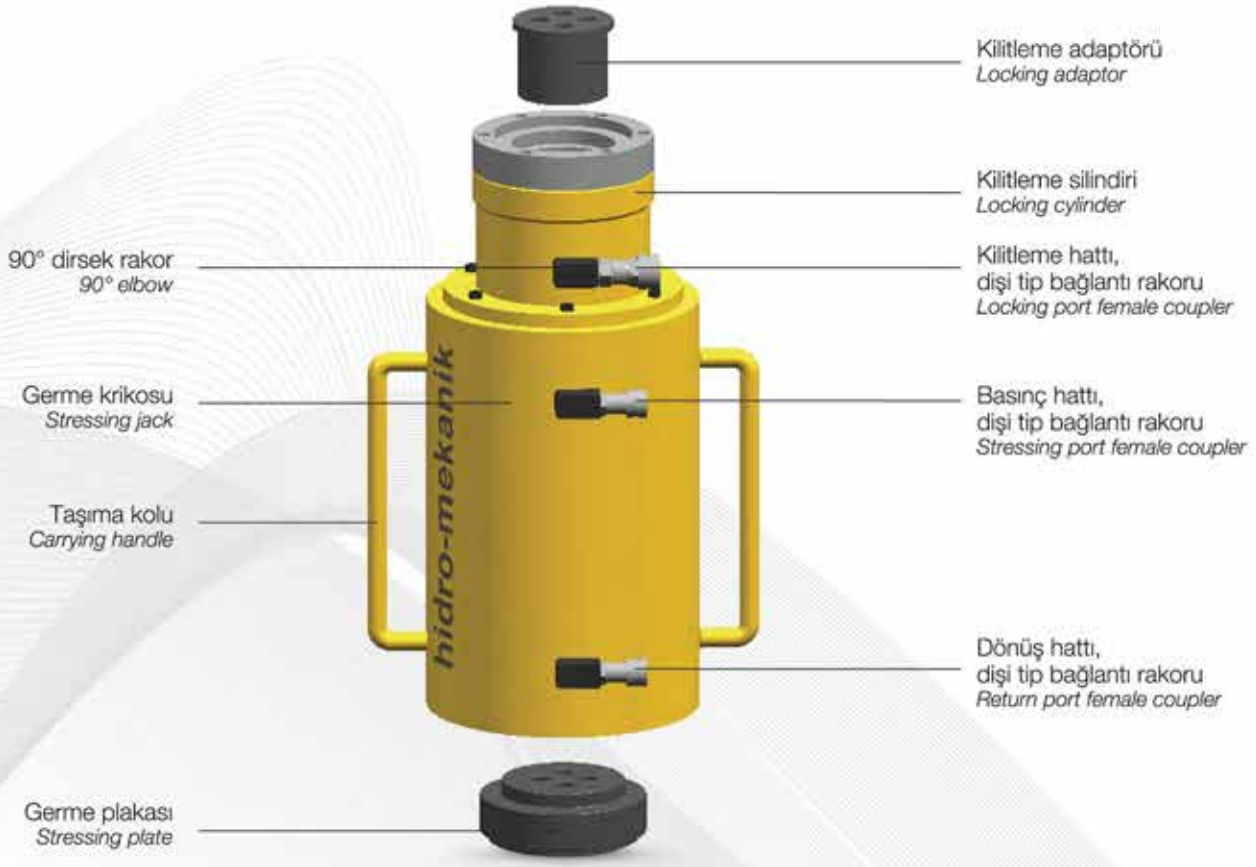

Yağ doldurma kapağı
Air breather & filling plug
Germe hattı yön valfi
Stressing valve
Kademeli yük düşürme valfi
Shut-Off valve
Germe hattı manometresi
Stressing line pressure gauge
(Ø100 mm 0-700 bar)
Bağlantı rakoru basınç hattı
Stressing fort femail coupler
Elektrik motoru
Electric motor
Kilitleme hattı manometre
Locking line pressure gauge
(Ø63 mm 0-250 bar)
Kilitleme hattı yön valfi
Locking valve
Kilitleme hattı bağlantı rakoru
Locking port femail coupler
Dönüş yönü bağlantı rakoru
Return port femail coupler
Ön taşıma kolu
Carrying handle
Yağ boşaltma tapası
Oil drain plug



- Deplasmanlarına göre 5 ayrı model
- Manuel ayarlanabilir germe basınç kontrol valfi
- Elektrik sistemini koruyan termik şalter tertibatı
- Taşıma ve kullanma kolaylığı sağlayan şase dizaynı
- 700 bar maksimum çalışma basıncı

- *5 different models due to flow rates*
- *Manuely adjustable pressure control valve*
- *Thermal switch set-up protecting electric system*
- *Design for practical use and carriage*
- *Maximum 700 bar working pressure*

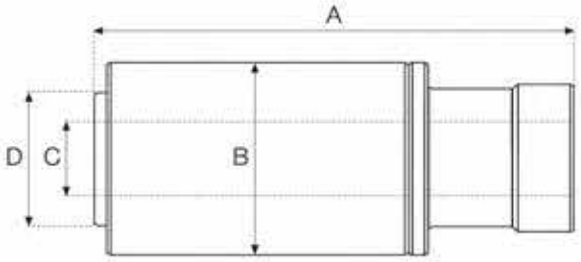
Güç Ünitesi Model No.		EPMS-107	EPMS-137	EPMS-187	EPMS-257	EPMS-367
Power Pump Type		Single Stage; Special Design for Strand Stressing Applications				
Pump Type		Radial 2 Piston Pump	Radial 3 Piston Pump			
Working Pressure (Max.)	bar	700				
Displacement	l / min	1,0	1,3	1,8	2,5	3,6
Motor Power	kw	1,1	1,5	2,2	3,0	4,0
Motor Rpm	rpm	1400				
Reservoir Capacity	liter	24		32		
Usable Oil Capacity	liter	20		25		
Reservoir Sizes	mm	300 x 405 x 210		330 x 450 x 230		
Pressure Gauge	stressing	G-7: 100 mm x 0-700 bar (glycerine filled) & GD-1: 64 mm x 0-700 bar Digital				
	locking	63 mm x 0 - 250 bar (Glycerine filled)				
Locking Line Pressure	bar	160				
Return Line Pressure	bar	120				
Directional Control Valve	stressing	4 Way - 3 Position Manual				
	locking	3 Way - 3 Position Manual				
Pressure Control Valve		20 - 700 bar Adjustable Pressure Regulator Valve				
Motor Specifications		220 / 380 V. , 50Hz. , 3-Phaze				
Motor Remote Control		Start / Stop - With 3 Meter Cord				
Wheel Diameter	mm	200		250		
Weight (Full)	kg	71	76	93	97	106


Kilitleme adaptörü
Locking adaptor
Kilitleme silindiri
Locking cylinder
90° dirsek rakor
90° elbow
Kilitleme hattı,
dişi tip bağlantı rakoru
Locking port female coupler
Germe krikosu
Stressing jack
Basınç hattı,
dişi tip bağlantı rakoru
Stressing port female coupler
Taşıma kolu
Carrying handle
Dönüş hattı,
dişi tip bağlantı rakoru
Return port female coupler
Germe plakası
Stressing plate
hidro-mekanik

- 62 - 250 ton kapasite
- 175 - 225 - 250 mm strok
- 3 - 12 halat germe kapasitesi
- Toplam 14 model
- 700 bar çalışma basıncı

- *62 - 250 tons capacity*
- *175 - 225 - 250 mm stroke*
- *3 - 12 strands stressing capacity*
- *Totally 14 models*
- *700 bar working pressure*

CALIBRATION CERTIFICATE page 05



Model No.	Capacity	Number of Strand	Stroke	A	B	C	D	Effective Area	Oil Capacity	Weight	Suggested Power Pump
				Closed Height	Outside Diameter	Center Hole Diameter	Rod Diameter				
	ton	pcs	mm	mm	mm	mm	mm	cm^2	cm^3	kg	
SJM-6218/60	62	3	175	460	175	60	105	88,50	741	58	EPMS - 107
SJM-6223/60			225	510					953	62	
SJM-8018/70	80	3-4	175	480	195	70	125	113,50	1035	74	EPMS - 137
SJM-8023/70			225	530					1331	81	
SJM-10418/80	104	3-4-5	175	490	217	80	140	148,40	1320	89	EPMS - 187
SJM-10423/80			225	540					1697	98	
SJM-12218/90	122	4-5-6	175	510	235	90	155	173,70	1640	105	EPMS - 187
SJM-12223/90			225	560					2110	115	
SJM-14318/90	143	5-6-7	175	515	246	90	160	203,55	1855	115	EPMS - 187/257
SJM-14323/90			225	565					2355	127	
SJM-19020/110	190	7-8-9	200	555	286	110	185	272,20	2512	170	EPMS - 257
SJM-19025/110			250	605					3140	185	
SJM-25020/135	250	10-11-12	200	575	332	135	220	358,55	3325	233	EPMS - 367
SJM-25025/135			250	625					4156	254	

Germe Plakası Çizelgesi / *Stressing Plate Table*

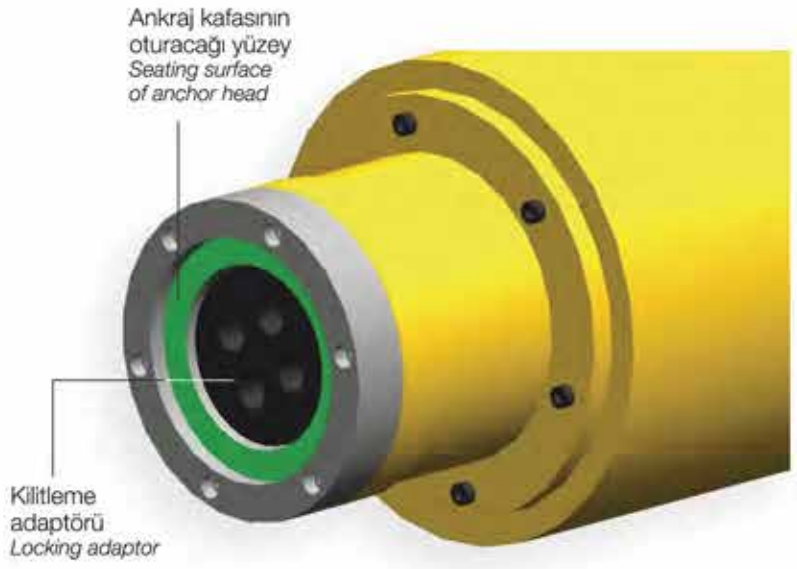
	SJM-62	SJM-80	SJM-104	SJM-122	SJM-143	SJM-190	SJM-250
	62 ton	80 ton	104 ton	122 ton	143 ton	190 ton	250 ton
3 Hole	SP-3/62	SP-3/80	SP-3/100	-	-	-	-
4 Hole	-	SP-4/80	SP-4/104	SP-4/122	-	-	-
5 Hole	-	-	SP-5/104	SP-5/122	SP-5/143	-	-
6 Hole	-	-	-	SP-6/122	SP-6/143	-	-
7 Hole	-	-	-	-	SP-7/143	SP-7/190	-
8 Hole	-	-	-	-	-	SP-8/190	-
9 Hole	-	-	-	-	-	SP-9/190	-
10 Hole	-	-	-	-	-	-	SP-10/250
11-12 Hole	-	-	-	-	-	-	SP-12/250

Kilitleme Adaptörü Çizelgesi / *Locking Adaptor Table*

	SJM-62	SJM-80	SJM-104	SJM-122	SJM-143	SJM-190	SJM-250
	62 ton	80 ton	104 ton	122 ton	143 ton	190 ton	250 ton
3 Hole	LA-3/62	LA-3/80	LA-3/100	-	-	-	-
4 Hole	-	LA-4/80	LA-4/104	LA-4/122	-	-	-
5 Hole	-	-	LA-5/104	LA-5/122	LA-5/143	-	-
6 Hole	-	-	-	LA-6/122	LA-6/143	-	-
7 Hole	-	-	-	-	LA-7/143	LA-7/190	-
8 Hole	-	-	-	-	-	LA-8/190	-
9 Hole	-	-	-	-	-	LA-9/190	-
10 Hole	-	-	-	-	-	-	LA-10/250
11-12 Hole	-	-	-	-	-	-	LA-12/250

Ankraj germe uygulaması sırasında önemle dikkat edilmesi gereken bir konuda ankraj kafalarının dış çaplarıdır. Kilitleme bölümünün ön flanşında bulunan yüzeye temas eden ankraj kafasının dış çapı, kilitleme silindiri içerisinde yer alan ve gripleri kilitleme esnasında ankraj kafasının içerisine sıkıştıracak kilitleme adaptöründen en az 15 mm büyük olmalıdır. Aksi takdirde ankraj kafası, germe başladığında o anda sabit olan kilitleme adaptörünün üzerine baskı yapacak ve gripler germenin henüz başında ankraj kafasının koniklerine oturacak ve halatı kilitleyecektir. Bu durumda germe işlemi başladığı anda kilitlemede başlamış sayılacağından halat kopmasına kadar varabilecek çok ciddi problemlerin çıkması kaçınılmazdır.

During multi-stressing jack applications, one of the most important thing should be noticed is the ouside diameter of anchor heads. The outside diameter of anchor head should be minimum 15 mm more than the locking adaptor. Otherwise, anchor head will press on locking adaptor which is fixed at that moment and wedges will install in the conic holes of anchor head and lock strands. In this case, since the locking will start at the moment the stressing starts, it will cause many problems like strand snapping.



Ankraj Kafalarının Kullanılan Krikoya Uygun Dış Çapları / *Anchor Head's Outside Diameter for Stressing Jacks*

Model No.	Capacity ton	3 hole	4 hole	5 hole	6 hole	7 hole	8 hole	9 hole	10 hole	11-12 hole
SJM-62	62	95 mm	-	-	-	-	-	-	-	-
SJM-80	80	100 mm	100 mm	-	-	-	-	-	-	-
SJM-104	104	110 mm	110 mm	110 mm	-	-	-	-	-	-
SJM-122	122	-	120 mm	120 mm	120 mm	-	-	-	-	-
SJM-143	143	-	-	120 mm	120 mm	120 mm	-	-	-	-
SJM-190	190	-	-	-	-	147 mm	147 mm	147 mm	-	-
SJM-250	250	-	-	-	-	-	-	-	160 mm	160 mm

Hortumlar / *Hoses*

Germe hattı bağlantı hortumu / *Stressing line hose*

Dönüş hattı bağlantı hortumu / *Return line hose*

Kilitleme hattı bağlantı hortumu / *Locking line hose*

Model No.	Length	Internal Diameter	Weight
	m	mm	mm
HS - 2208	8	6,40	4,10
HS - 2210	10		5,00
HS - 2212	12		5,90
HS - 2215	15		7,25

Çalışma basıncı / *Working pressure* : 700 bar
Patlama basıncı / *Burst pressure* : 2170 bar

Manometreler / *Pressure Gauges*

G7

G632

GD1

Model No.	Capacity	Scale Diameter	Port Diameter	Gauge Type
	bar	mm		
G7	0-700	100	1/4" NPT	Liquid Filled
G632	0-250	63		
GD1	0-700	63		Digital

Çabuk Bağlantı Rakorları / *Coupler*

C-509

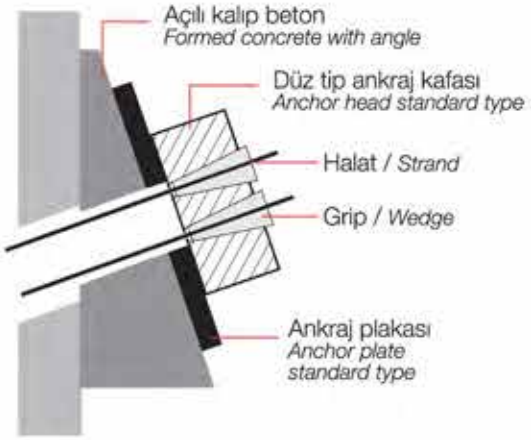
C-209

C-200

Model No.			Description
Complete Set	Female Half	Male Half	
C-209	C-211	C-213	3/8" coupler for stressing line hose
C-200	C-201	CT-202	1/4" coupler for return line hose
C-509	C-511	C-513	3/8" coupler for locking line hose

Ankraj Germe Uygulama Metodları

Stressing Operation Methods

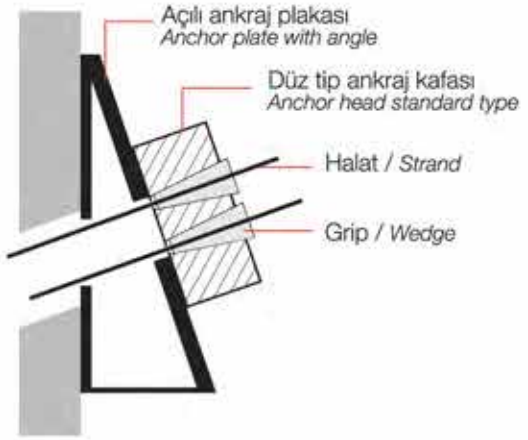


Açılı Kalıp Beton

Formed Concrete with Angle

Açılı kalıp beton kullanılan ankraj germe uygulamalarında, germe kuvveti uygulanacak duvar imal edilirken projede belirtilen açıda beton dökülür. Açılı beton kullanılan uygulamalarda ankraj plakası ve ankraj kafası düz tiptir.

In these type of stressing operations formed concrete with angles are used. While producing the wall which the stressing power will be applied, it is built due to the angle mentioned in the project. In these type of operations, standard type anchorage plate and heads are used.

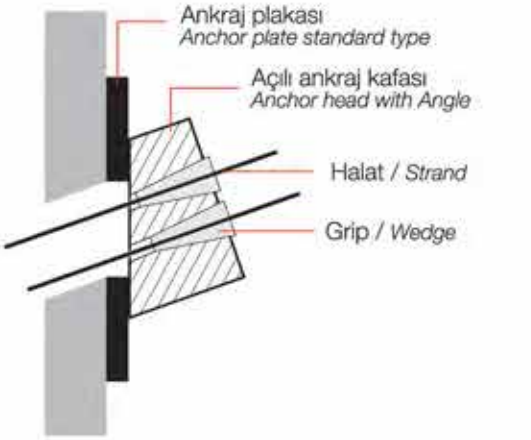


Açılı Plaka

Anchor Plate with Angle

Açılı kalıp beton kullanılmayan uygulamalarda açılı germe yapabilmek için kullanılması gereken metodlardan biri açılı germe plakasıdır.
Bu uygulamada duvar ve ankraj kafası düz tiptir.

In order to make angle stressing during the appliations where formed concrete with angles are not used, an other method should be used is "stressing plate with angle method". In this application, the wall and the anchor head taken strength is flat type .

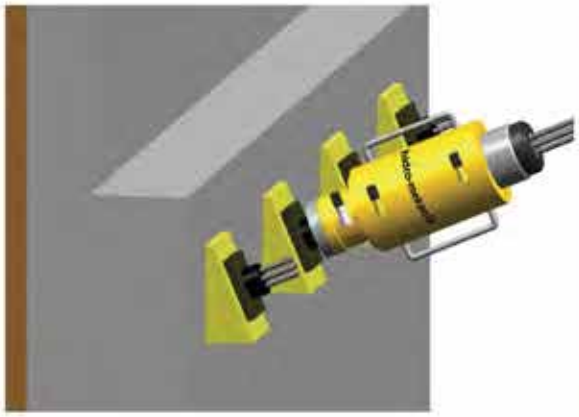


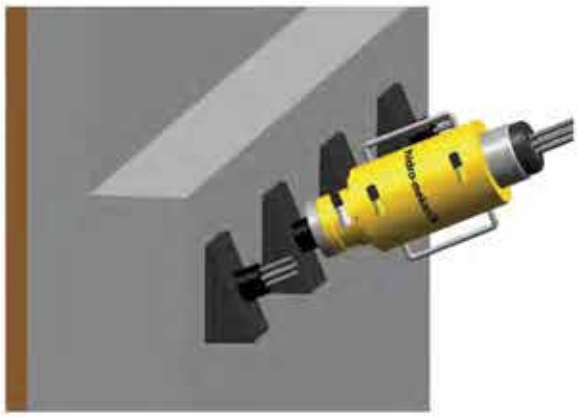
Açılı Ankraj Kafası

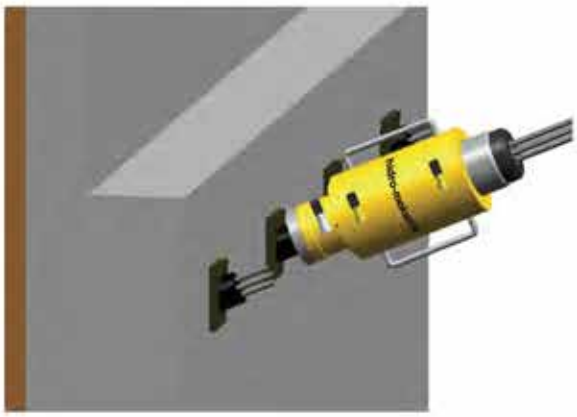
Anchor Head with Angle

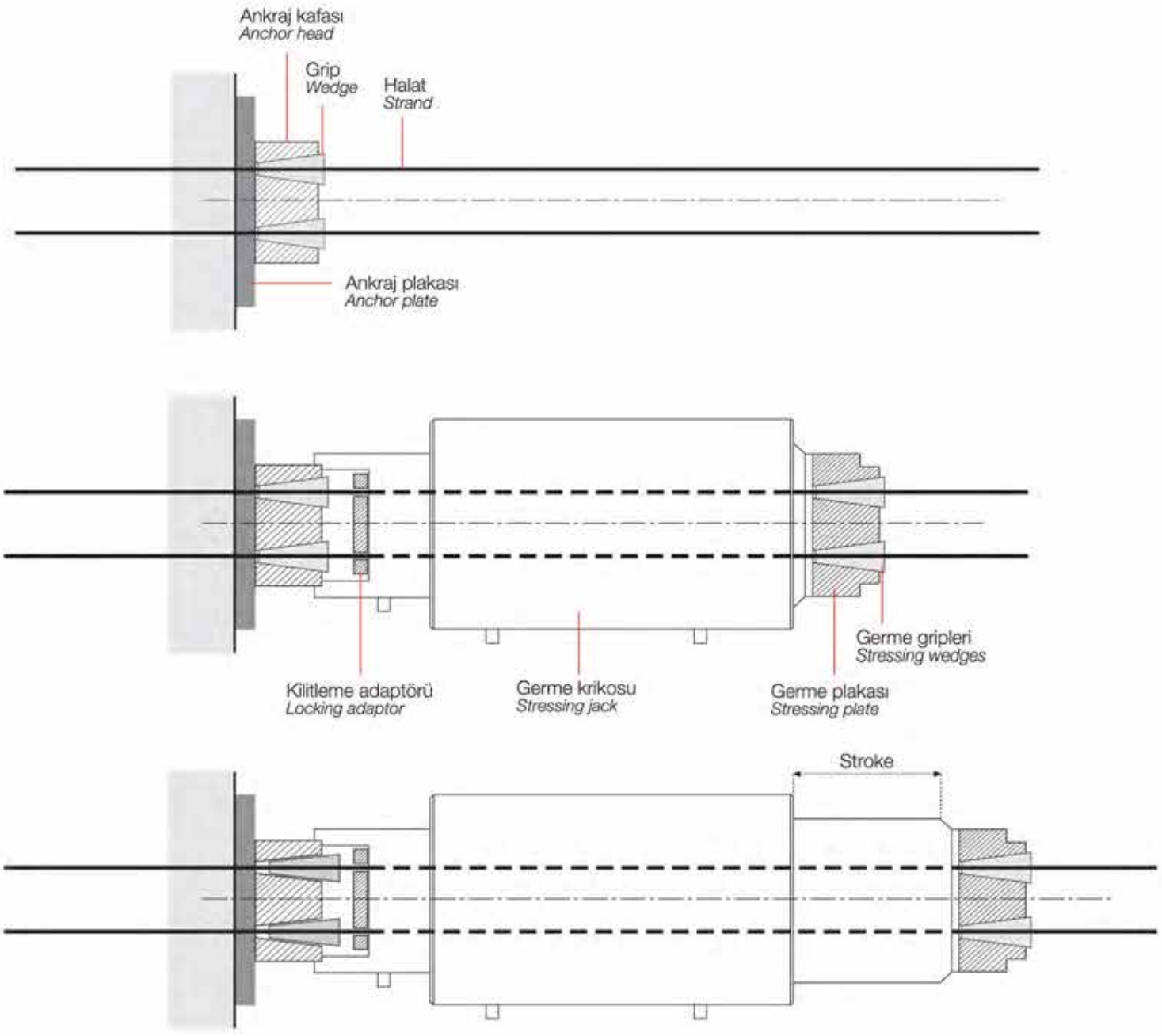
Açılı ankraj kafası, arka zeminin ve ankraj plakasının düz olduğu durumlarda kullanılır. Ankraj kafasına imalat sırasında verilen açı sayesinde uygulama istenildiği gibi yapılabilir. Bu uygulamada arka duvar ve ankraj plakası düz tiptir.

It is used where back wall is flat and anchorage plate is standart. (Both back wall and anchorage plate are flat). The application can be operated easily with the angle given to the anchorage head during manufacture.



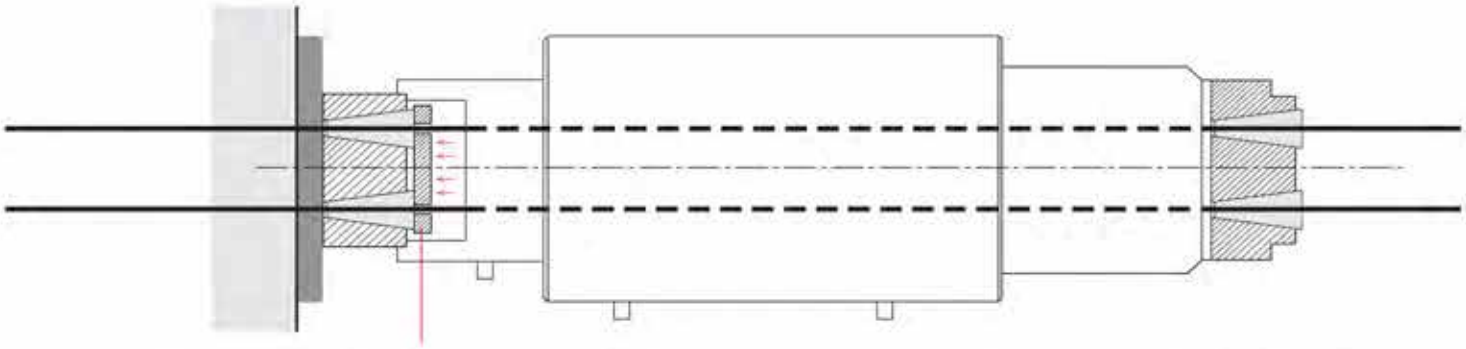




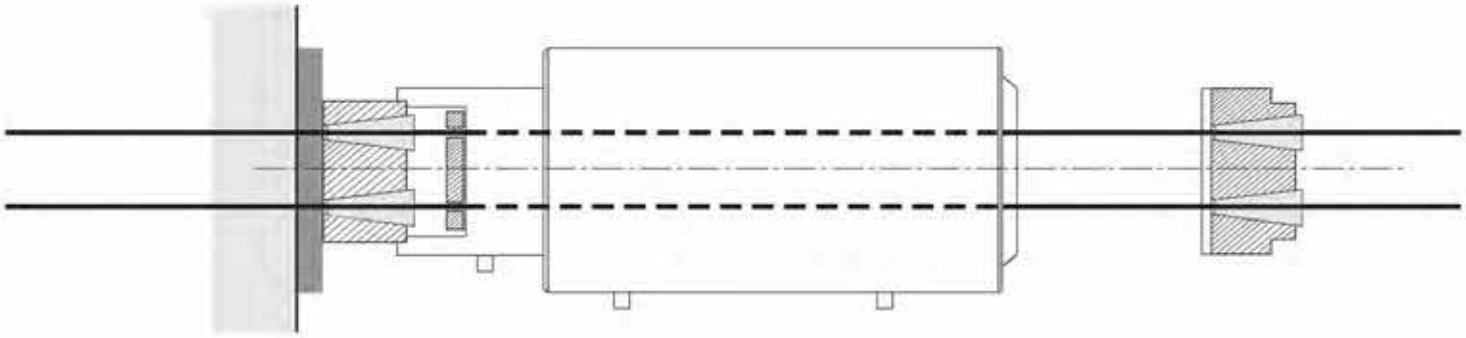


Germe pozisyonu; piston ileriye doğru hareket eder ve germe işlemi başlar. Sistem basıncı istenilen değere ulaşana kadar hareket devam eder.

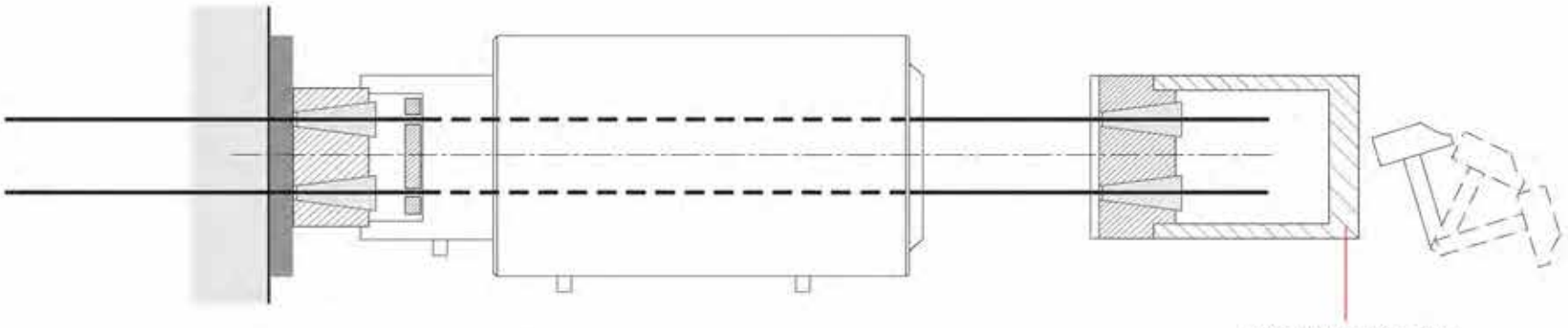
Stressing Period; *piston moves forward and stressing operation starts. The stroke continues until the system pressure reached to desired level.*



Kilitleme pozisyonu; halatlar gerili durumda iken kilitleme pistonu ileriye doğru hareket eder ve gripler ankraj kafasındaki yuvalara oturur.
Locking Period; *locking piston moves forward while the strands are stressed. And the wedges place in the holes on the anchor head.*



Boşaltma pozisyonu; germe krikosundaki basınç sıfırlanır. Piston geriye doğru hareket eder ve işlem tamamlanır.
Return Period; *the pressure in stressing jack sets to zero. The piston moves backward and the operation is completed.*



Son olarak germe gripleri adaptör yardımıyla sökülür.
At the end the stressing wedges are removed by using the adaptor

Grip sökme adaptörü
Stressing wedge remove adaptor

ANCHOR HEADS - WEDGES - PLATES
ANKRAJ KAFALARI - GRİPLER - PLAKALAR

Ankraj Gripleri

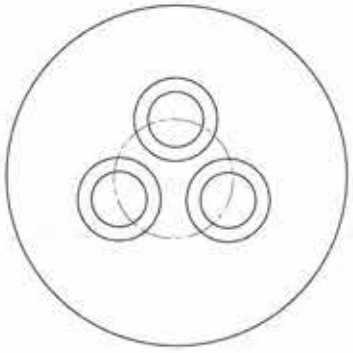
Anchor Wedges

Post - Tensioning Wedges

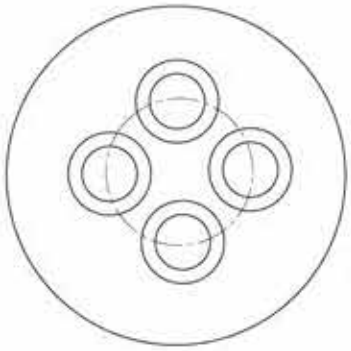
Model No.	Strand Type	Diameter Range	Number of Segments	Wedge Length	Tooth Pitch	Tested Breaking Load	Weight Per Set
		mm		mm	mm	kN	gr
HWM-2711937	0,5"	12,50-13,00	3	36	1,0	171	87
HWM-2914445	0,6"	14,70-15,30		45		238	103

Ankraj Kafaları - Delik Dağılımları

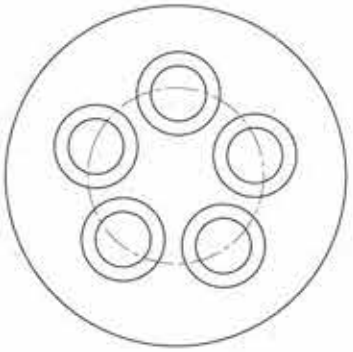
Anchor Heads - Hole Distributions



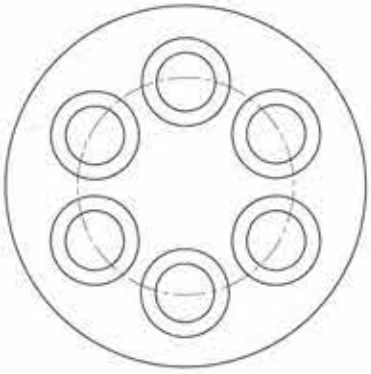
3 Hole



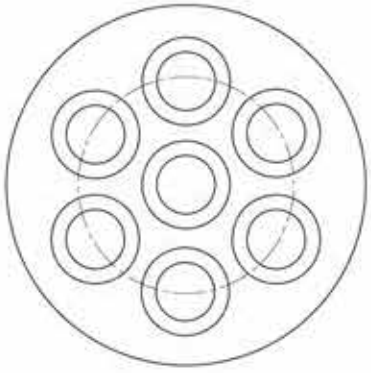
4 Hole



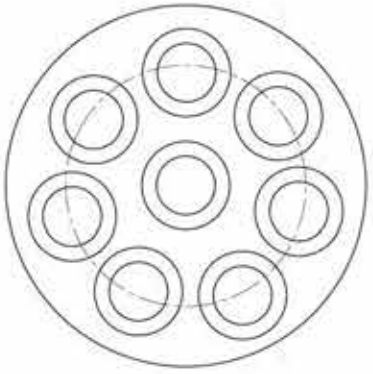
5 Hole



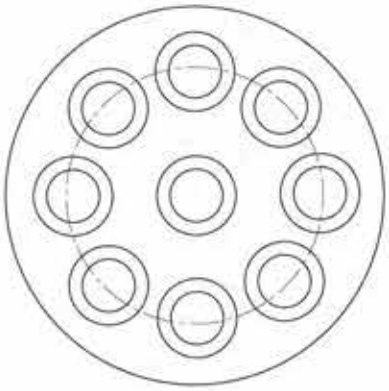
6 Hole



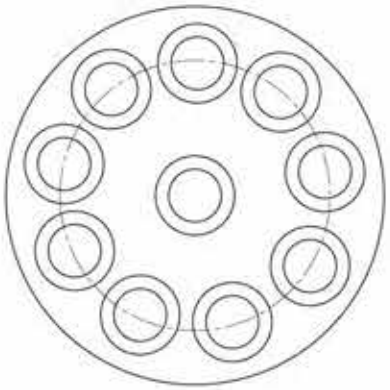
7 Hole



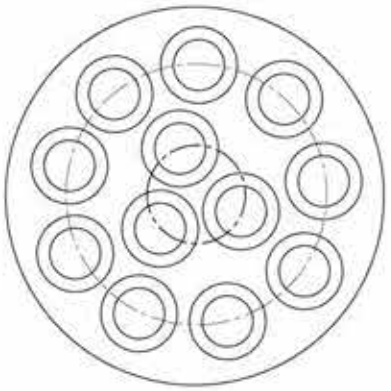
8 Hole



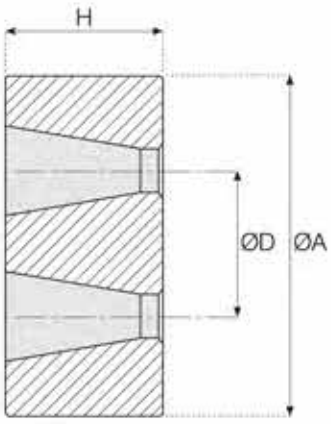
9 Hole

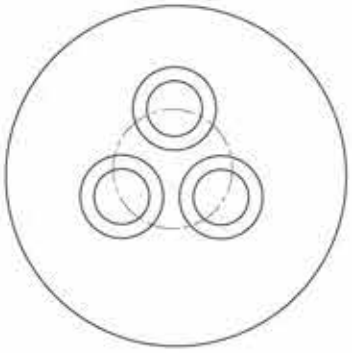


10 Hole



12 Hole





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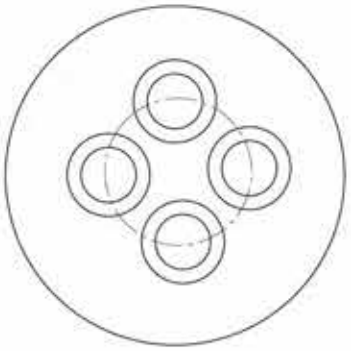
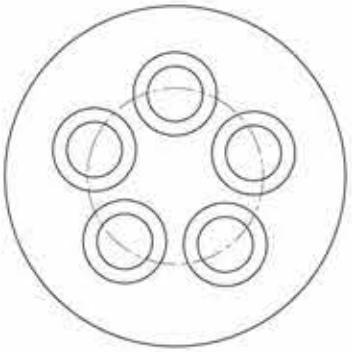


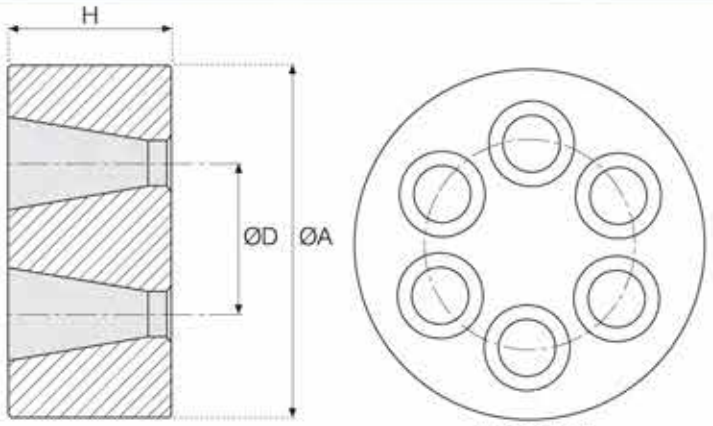
AH-4.6/100



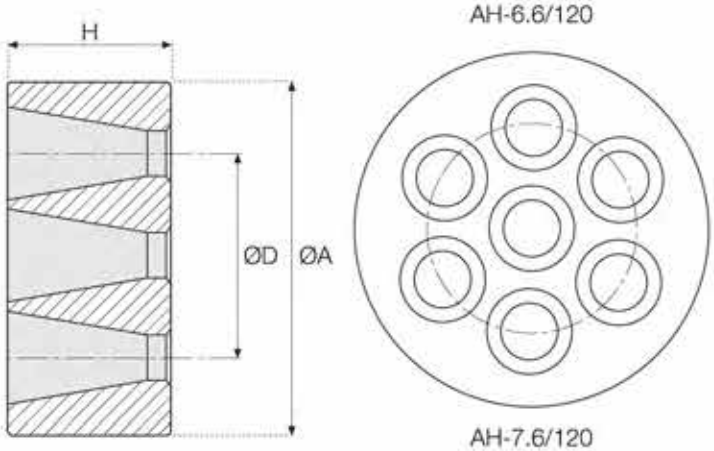
AH-5.6/110

Model No.	Anchor Head Type	A	Stressing Jack Model No.	H	D	Weight
		mm		mm	mm	kg
AH-3.5/95	0,5" x 3 Hole	95	SJM-62	50	41	2,40
AH-3.5/100		100	SJM-80			2,70
AH-3.5/110		110	SJM-104			3,35
AH-3.6/95	0,6" x 3	95	SJM-62			2,30
AH-3.6/100		100	SJM-80			2,60
AH-3.6/110		110	SJM-104			3,25
AH-4.5/100	0,5" x 4	100	SJM-80		50	2,55
AH-4.5/110		110	SJM-104			3,20
AH-4.6/100	0,6" x 4	100	SJM-80			2,40
AH-4.6/110		110	SJM-104			3,05
AH-5.5/110	0,5" x 5	110	SJM-104	55	60	3,40
AH-5.5/120		120	SJM-122			4,15
			SJM-143			
AH-5.6/110	0,6" x 5	110	SJM-104			3,20
AH-5.6/120		120	SJM-122			4,00
			SJM-143			

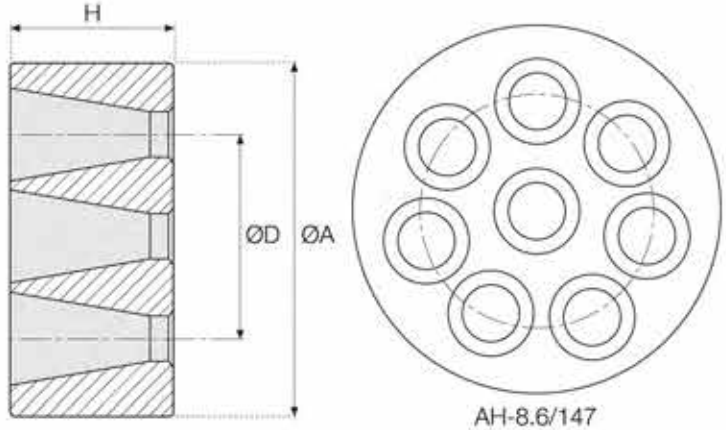
ANCHOR HEADS / STANDARD TYPE



AH-6.6/120

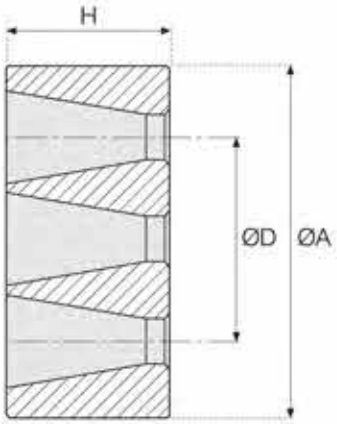


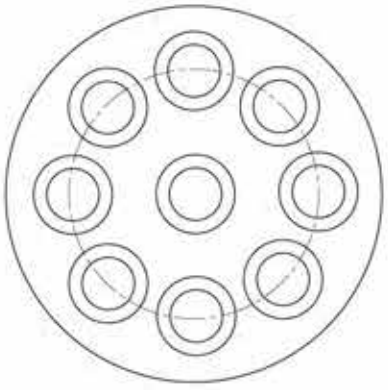
AH-7.6/120



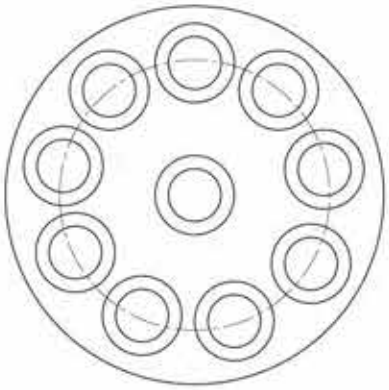
AH-8.6/147

Model No.	Anchor Head Type	A	Stressing Jack Model No.	H	D	Weight
		mm		mm	mm	kg
AH-6.5/120	0,5" x 6 Hole	120	SJM-122	55	70	4,00
			SJM-143			
AH-6.6/120	0,6" x 6	120	SJM-122			3,80
			SJM-143			
AH-7.5/120	0,5" x 7	120	SJM-143			3,90
AH-7.5/147		147	SJM-190			6,35
AH-7.6/120	0,6" x 7	120	SJM-143			3,60
AH-7.6/147		147	SJM-190			6,10
AH-8.5/147	0,5" x 8	147	SJM-190	60	80	6,80
AH-8.6/147	0,6" x 8					6,40

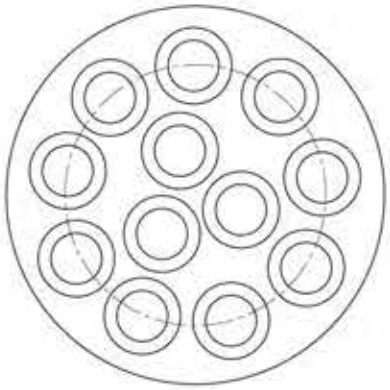




AH-9.6/147

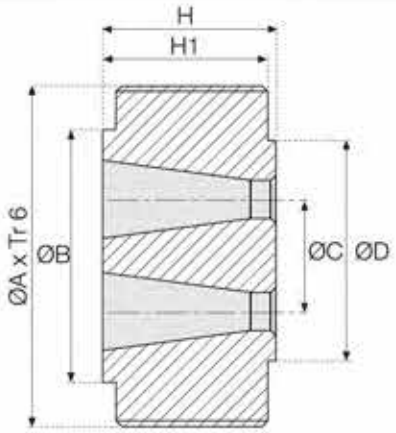


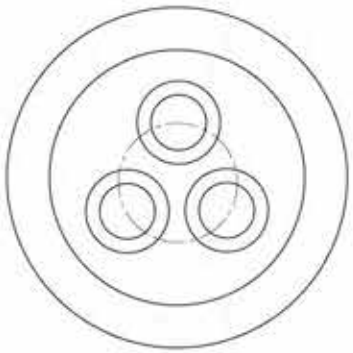
AH-10.6/160



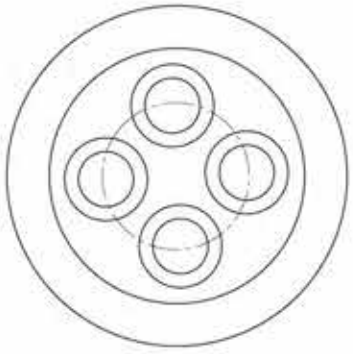
AH-12.6/160

Model No.	Anchor Head Type	A	Stressing Jack Model No.	H	D	Weight
		mm		mm	mm	kg
AH-9.5/147	0,5'' x 9 Hole	147	SJM-190	60	90	6,60
AH-9.6/147	0,6'' x 9					6,20
AH-10.5/160	0,5'' x 10	160	SJM-250	65	105	8,65
AH-10.6/160	0,6'' x 10					8,25
AH-12.5/160	0,5'' x 12			70	41/105	9,00
AH-12.6/160	0,6'' x 12					8,50

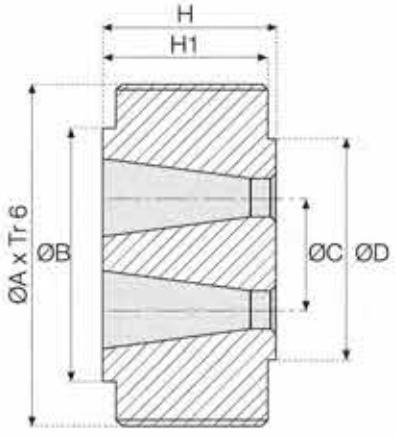


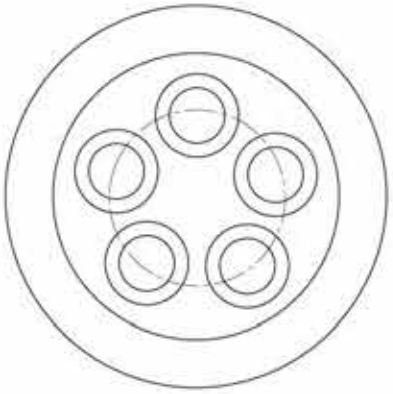


AHS-3.6



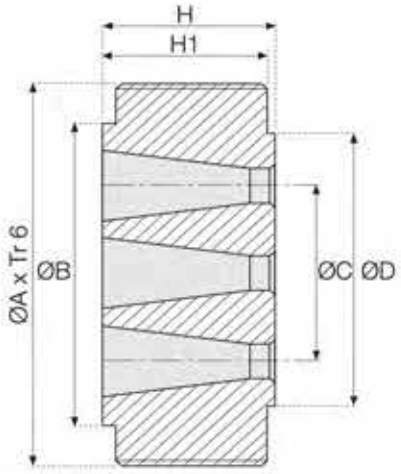
AHS-4.6

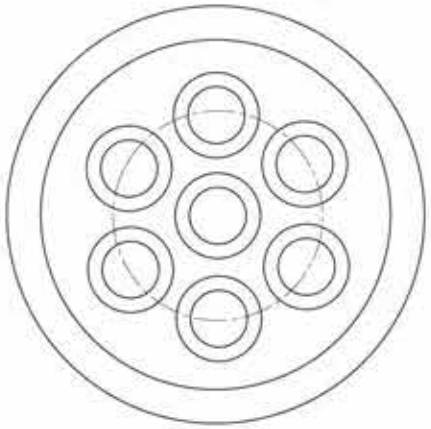




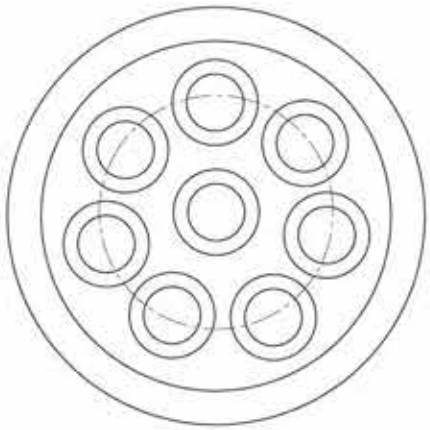
AHS-5.6

Model No.	Anchor Head Type	A	Stressing Jack Model No.	B	C	D	H	H1	Weight
		mm		mm	mm	mm	mm	mm	kg
AHS-3.5	0,5" x 3 Hole	116	SJM-60	91	41	77	55	50	4,00
AHS-3.6	0,6" x 3		SJM-80						3,90
AHS-4.5	0,5" x 4	116	SJM-80	91	50	77	55	50	3,85
AHS-4.6	0,6" x 4		SJM-104						3,70
AHS-5.5	0,5" x 5	136	SJM-104	111	60	97	60	55	5,20
AHS-5.6	0,6" x 5		SJM-122						5,00
AHS-6.5	0,5" x 6	136	SJM-122	111	70	97	60	55	5,05
AHS-6.6	0,6" x 6		SJM-143						4,80

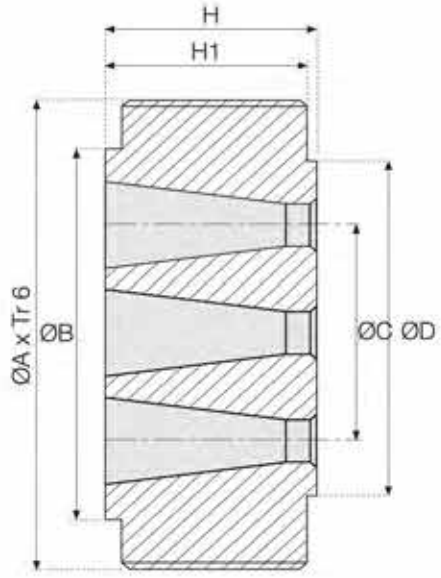


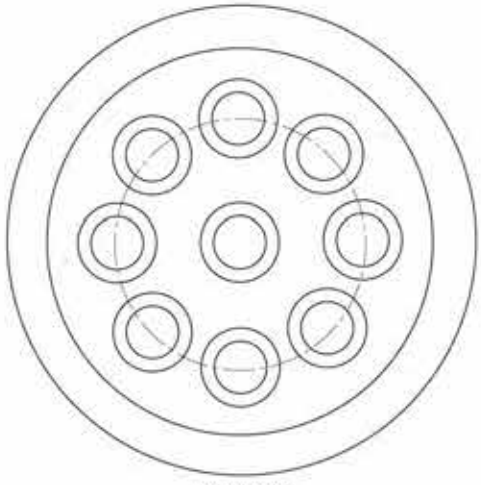


AHS-7.6



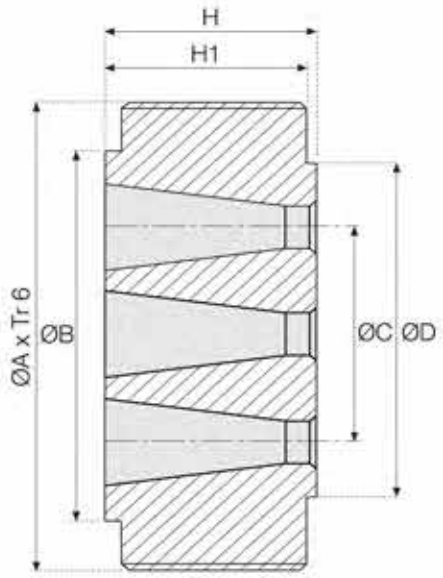
AHS-8.6

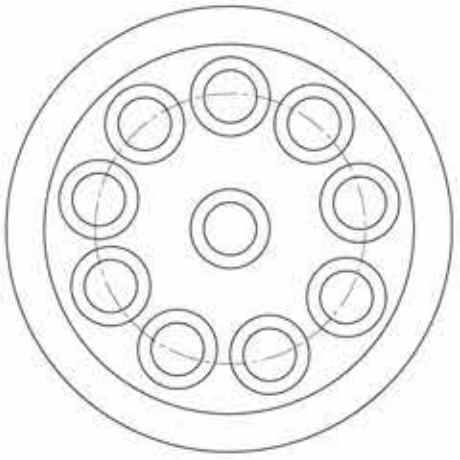




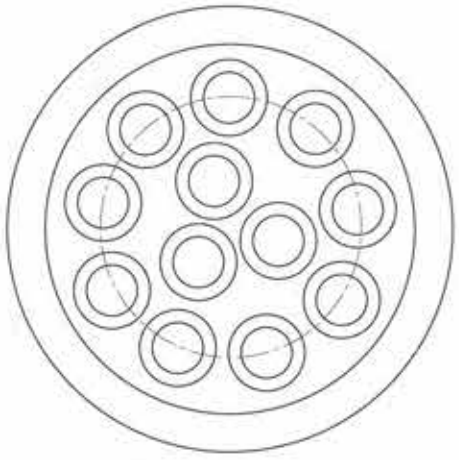
AHS-9.6

Model No.	Anchor Head Type	A	Stressing Jack Model No.	B	C	D	H	H1	Weight
		mm		mm	mm	mm	mm	mm	kg
AHS-7.5	0,5" x 7 Hole	136	SJM-143	111	70	97	60	55	4,90
AHS-7.6	0,6" x 7		SJM-190						4,60
AHS-8.5	0,5" x 8	156	SJM-190	131	90	117	65	60	7,45
AHS-8.6	0,6" x 8								7,15
AHS-9.5	0,5" x 9	156		131	90	117	65	60	7,25
AHS-9.6	0,6" x 9								6,90



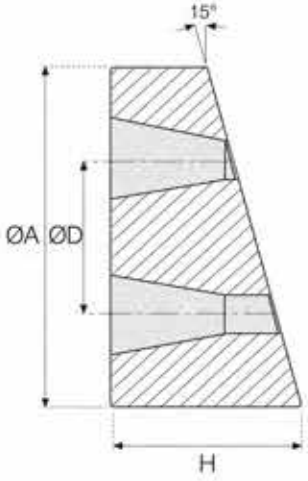


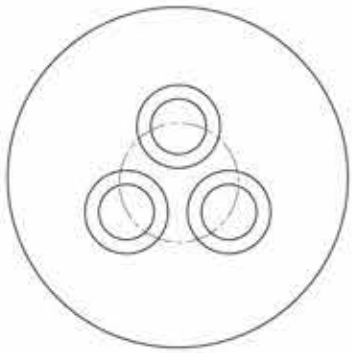
AHS-10.6



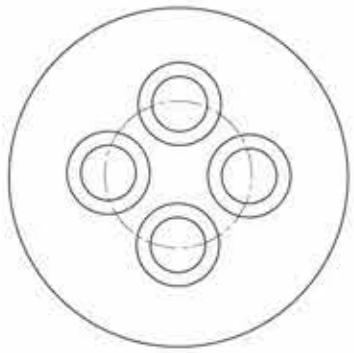
AHS-12.6

Model No.	Anchor Head Type	A	Stressing Jack Model No.	B	C	D	H	H1	Weight
		mm		mm	mm	mm	mm	mm	kg
AHS-10.5	0,5" x 10 Hole	176	SJM-250	146	105	132	75	70	11,30
AHS-10.6	0,6" x 10								10,80
AHS-12.5	0,5" x 12	176	SJM-250	146	105	132	75	70	10,85
AHS-12.6	0,6" x 12								10,30

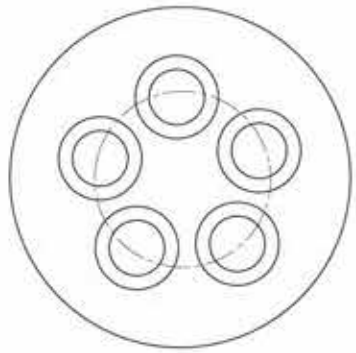




AH-3.6/95-15A



AH-4.6/100-15A



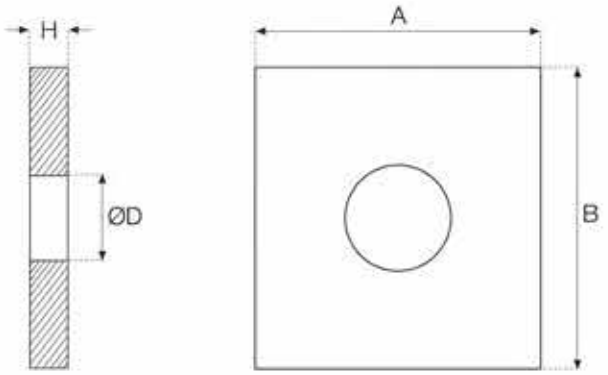
AH-5.6/110-15A

Model No.	Anchor Head Type	A	Stressing Jack Model No.	H	D	Weight
		mm		mm	mm	kg
AH-3.5/95-15A	0,5" x 3 Hole 15° Angled	95	SJM-62	65	41	2,55
AH-3.5/100-15A		100	SJM-80			2,95
AH-3.5/110-15A		110	SJM-104	70		3,60
AH-3.6/95-15A	0,6" x 3 Hole 15° Angled	95	SJM-62	65		2,40
AH-3.6/100-15A		100	SJM-80			2,75
AH-3.6/110-15A		110	SJM-104	70		3,40
AH-4.5/100-15A	0,5" x 4 Hole 15° Angled	100	SJM-80	65	50	2,75
AH-4.5/110-15A		110	SJM-104	70		3,45
AH-4.6/100-15A	0,6" x 4 Hole 15° Angled	100	SJM-80	65		2,60
AH-4.6/110-15A		110	SJM-104	70		3,40
AH-5.5/110-15A	0,5" x 5 Hole 15° Angled	110	SJM-104	70	60	3,45
AH-5.5/120-15A		120	SJM-122	75		4,50
			SJM-143			
AH-5.6/110-15A	0,6" x 5 Hole 15° Angled	110	SJM-104	70		3,25
AH-5.6/120-15A		120	SJM-122	75		4,30
			SJM-143			

ANCHOR HEADS / ANGLED TYPE

Standart Tip Ankraj Plakaları

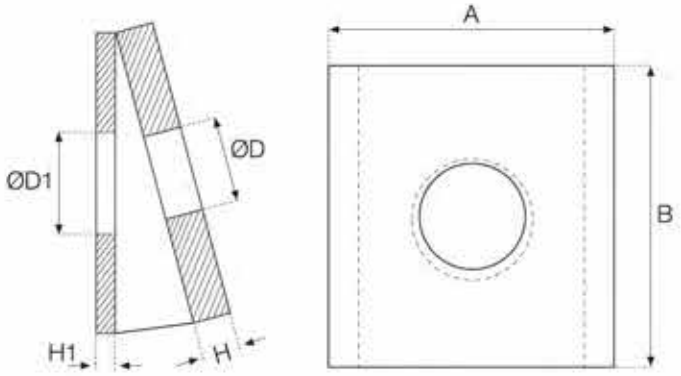
Anchor Plates Standard Type



Model No.	A x B	H	D	Weight	Number of Strand
	mm	mm	mm	kg	
ABP-2020/65	200 x 200	20	65	5,90	3
ABP-2025/65	200 x 200	25	65	7,35	3
ABP-2520/65	250 x 250	20	65	9,50	3
ABP-2525/65	250 x 250	25	65	11,85	3
ABP-2525/75	250 x 250	25	75	11,60	4
ABP-2530/75	250 x 250	30	75	14,00	4
ABP-2525/85	250 x 250	25	85	11,40	5
ABP-2530/85	250 x 250	30	85	13,65	5
ABP-2530/95	250 x 250	30	95	13,30	6-7
ABP-3030/85	300 x 300	30	85	20,25	5
ABP-3030/95	300 x 300	30	95	19,90	6-7
ABP-3035/95	300 x 300	35	95	23,25	6-7
ABP-3040/95	300 x 300	40	95	26,55	6-7
ABP-3540/95	350 x 350	40	95	37,00	6-7

Açılı Ankraj Plakaları

Anchor Plates With Angle



Model No.	AxB	H	H1	D	D1	Weight	Number of Strand
	mm	mm	mm	mm	mm	kg	
ABP-2020/65-A	200 x 200	20	10	65	90	10,30	3
ABP-2025/65-A	200 x 200	25	12	65	90	12,50	3
ABP-2520/65-A	250 x 250	20	10	65	90	17,00	3
ABP-2525/65-A	250 x 250	25	12	65	90	20,00	3
ABP-2525/75-A	250 x 250	25	12	75	105	19,60	4
ABP-2530/75-A	250 x 250	30	15	75	105	25,40	4
ABP-2525/85-A	250 x 250	25	12	85	115	19,20	5
ABP-2530/85-A	250 x 250	30	15	85	115	24,90	5
ABP-2530/95-A	250 x 250	30	15	95	130	24,20	6-7
ABP-3030/85-A	300 x 300	30	15	85	120	35,60	5
ABP-3030/95-A	300 x 300	30	15	95	135	35,00	6-7
ABP-3035/95-A	300 x 300	35	18	95	135	40,00	6-7
ABP-3040/95-A	300 x 300	40	20	95	135	44,80	6-7
ABP-3540/95-A	350 x 350	40	20	95	135	62,50	6-7

hidro - mekanik

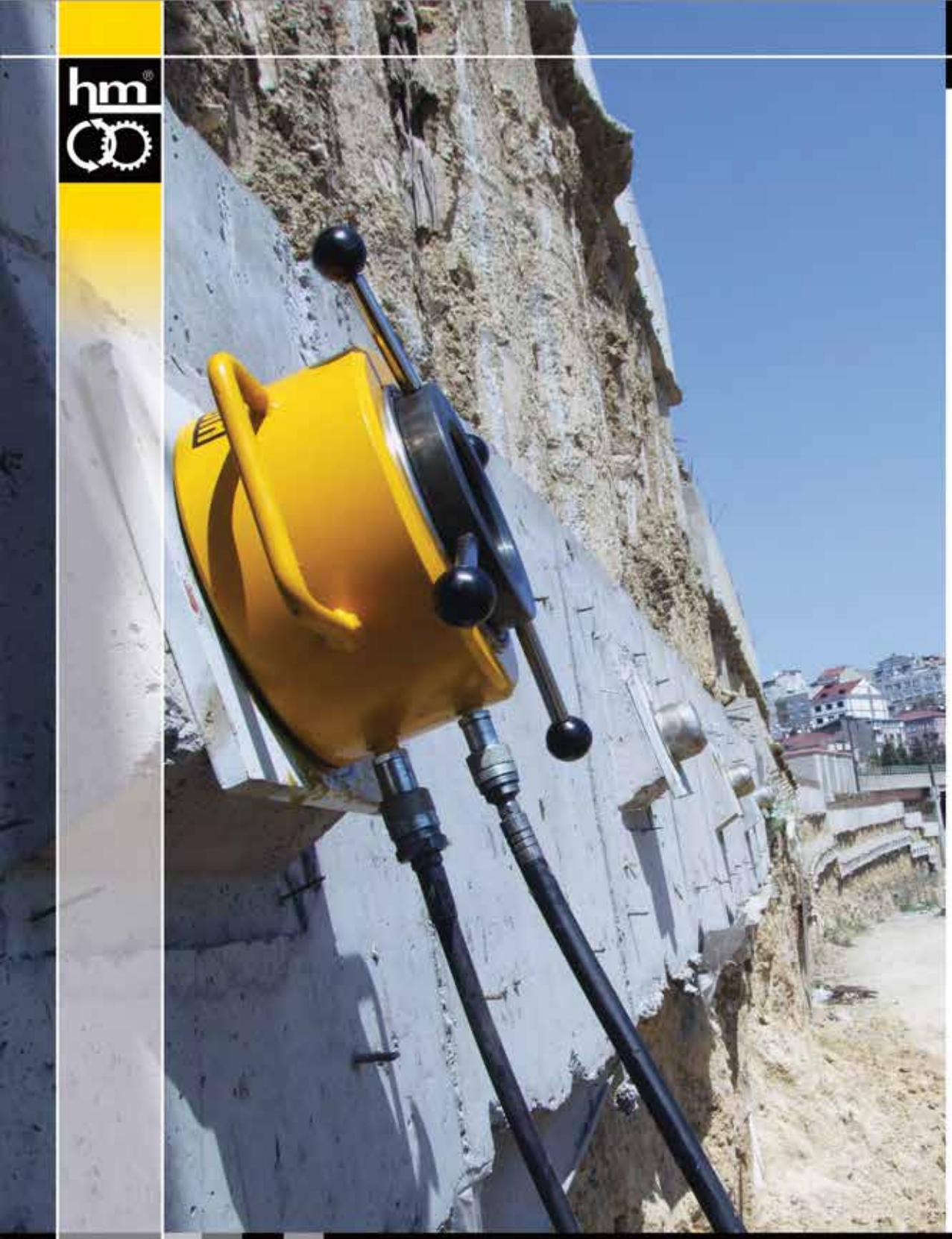
LIFT - OFF JACK SYSTEM

LIFT - OFF JACK SİSTEM

Maksimum 5-7 ay serviste kalacak olan ankrajlar geçici ankraj sınıfına giren uygulamalardır. Yarı kalıcı destekler gibi bazı uygulamalarda bu süre 18 aya kadar uzayabilmektedir. 18 ayı geçen uygulamalar ise kalıcı ankraj sınıfında olup genelde ankraj davranışları ve değişkenlikleri yakından gözlemlenmektedir. Ankrajın gerilmesi esnasında ankraj plakası ile,ankraj kafası arasına yerleştirilen bir Load Cell vasıtası ile olası yük değişkenleri periyodik okuma alınarak takip edildiği gibi Lift-Off Jack yardımı ile ankraj gerili durumda yeni bir çekme testine de tabi tutulabilmektedir. hidro-mekanik Lift-Off Jack daha önce gerilmiş ve kilitlenmiş ankrajların projede belirtilen kuvvetlerde tekrar test edilebilmesine olanak sağlayan bir özel tip çift tesirli ortası delik hidrolik silindirdir. Bu ürünün kullanılabilmesi için ankrajın gerilmiş ve kilitlenmiş olması, ankraj kafasının Lift-Off Jack sistemine uygun olması gerekmektedir. Lift-Off Jack sistemi bir ankraj germe sistemidir. Bu sistem bir adet çift tesirli ortası delik hidrolik silindir (tonajı projeye göre belirlenir), bir adet tahrik pompası, hortum ve germe adaptörlerinden meydana gelmektedir. hidro-mekanik Lift-Off Jack, hidro-mekanik ankraj germesistemine ait bir elektrikli hidrolik güç ünitesi ile de kullanılabilmektedir.

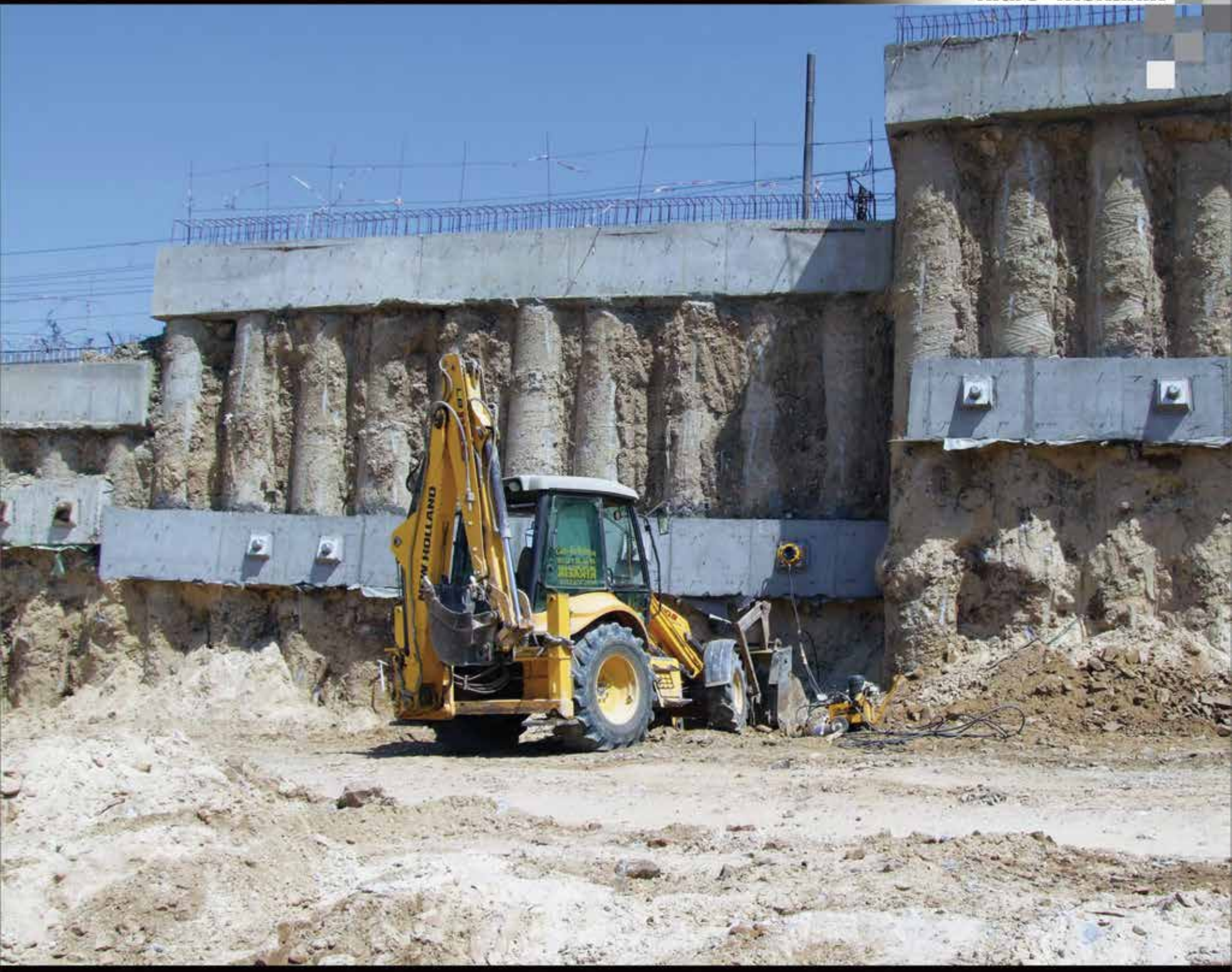
hidro-mekanik Lift-Off Jack is a special type of double acting, center hole hydraulic cylinder providing re-testing previously stressed and locked anchorages in the loads mentioned in project. In order to use this product, the anchorage should be stressed and locked and the anchor head should be suitable with Lift-Off Jack system. This system consist of one unit of Lift-Off Jack, one unit of electrical hydraulic power pack, hose and stressing adaptors. hidro-mekanik Lift-Off Jack can be used with an electrical hydraulic power pack belonging to hidro-mekanik anchorage stressing system.

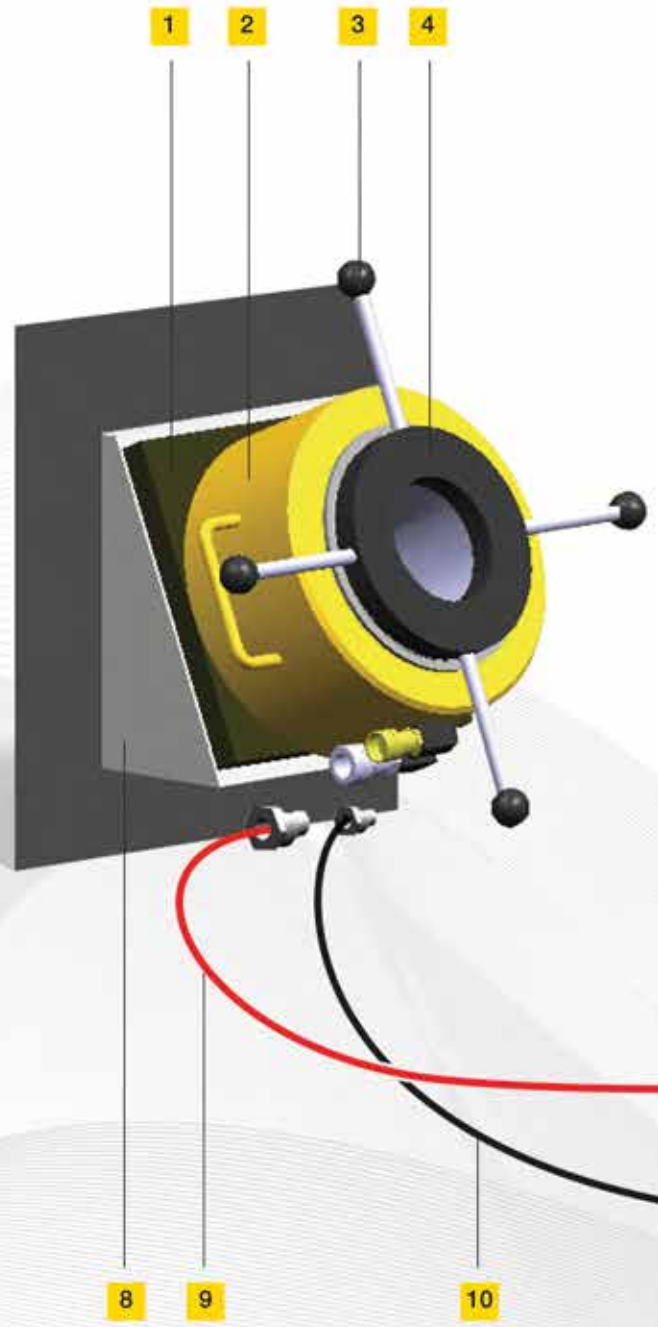
Lift-Off Jack için örnek ankraj kafası
Anchor head sample for Lift-Off Jack



hidro-mekanik Lift-Off Jack ile birlikte verilmekte olan kalibrasyon sertifikasında hangi basınçta ne kadarlık bir çekme kuvveti uygulandığı belirtilmektedir. Bu sebeple test edilecek yüke erişebilmek için kalibrasyon çizelgesinde belirtilen basınca çıkmak gerekmektedir. Hidrolik silindire tatbik edilen basınç halatlara uygulanan çekme kuvvetini, silindirin o basınç etkisinde iken yaptığı strok ise o kuvvete bağlı uzamayı gösterir.

In calibration certifiate given together with hidro-mekanik Lift-Off Jack, it is mentioned the pressure applied in relation with the pulling force applied in the system. Therefore, in order to reach the load value should be tested, it is necessary to reach the pressure value mentioned in the calibration certificate. The pressure applied to the hydraulic cylinder shows the pulling force applied on the strands; the stroke done by cylinder through the effect of pressure shows the extention depending on that power.


NEW HOLLAND



1 Ankraj germe plakası
Anchor plate

2 Lift-Off Jack
Lift-Off Jack

3 Sıkma adaptörü çevirme kolu
Rotation handle

4 Germe adaptörü
Stressing adaptor

5 Ø100 mm 0-700 bar gliserinli manometre
Ø100 mm 0-700 bar pressure gauge

6 Shut-Off valf
Shut-Off valve

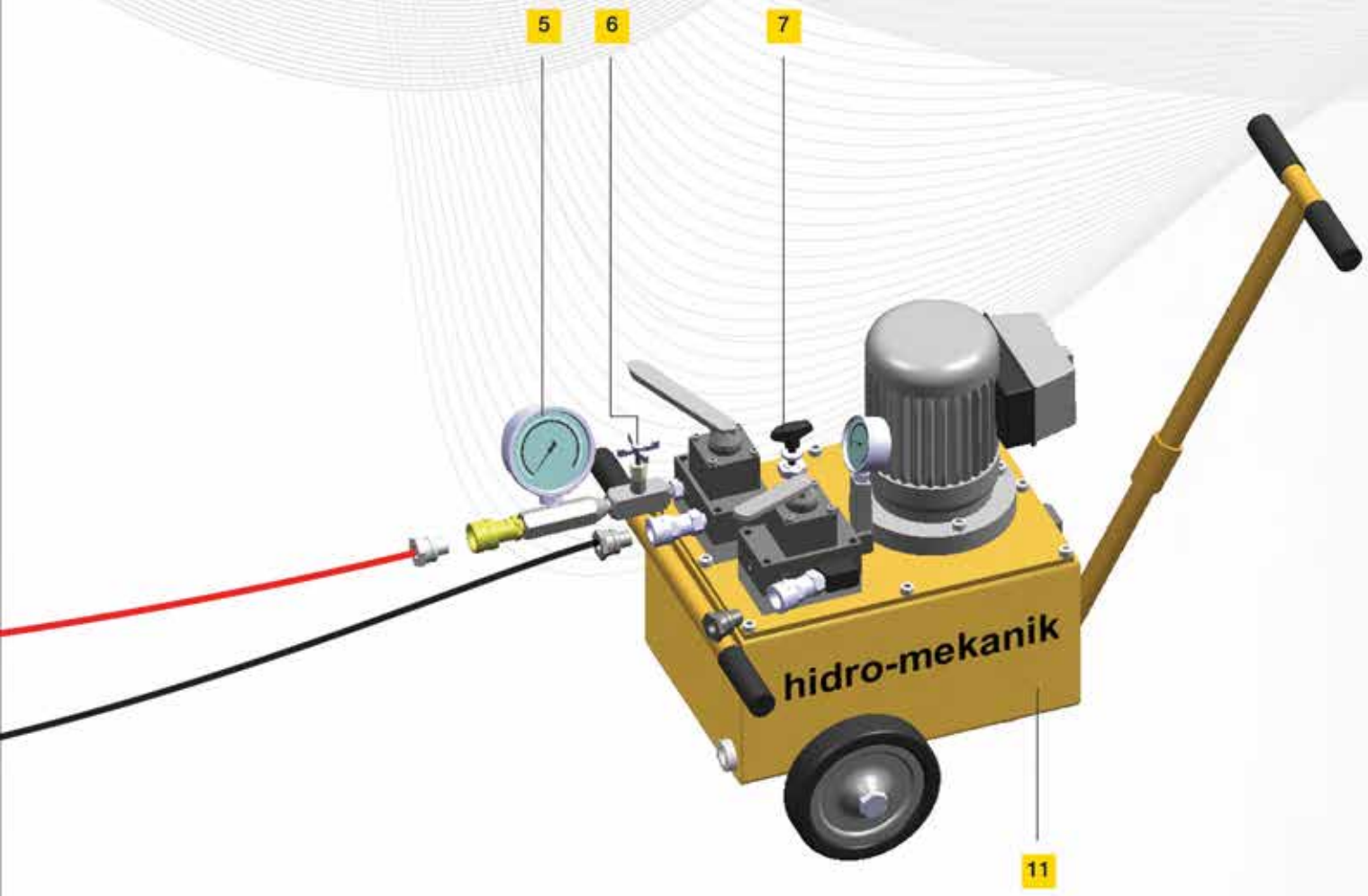
7 Ayarlanabilir basınç kontrol valfi
Adjustable pressure control valve

8 Açılı kalıp beton
Formed concrete with angle

9 Lift-Off Jack basınç hattı hidrolik hortum
Stressing line house

10 Lift-Off Jack dönüş hattı hidrolik hortum
Return line house

11 Elektrikli güç ünitesi
Electric power pump


5
6
7
hidro-mekanik
11

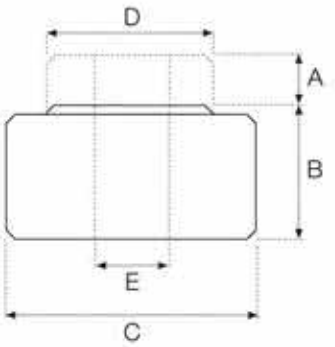

Germe adaptörü
Stressing adaptor
Sıkma kolu
Rotation handle
Çabuk bağlantı rakoru
Couplers
Lift-Off Jack
Lift-Off Jack
Taşıma kolu
Carrying handle
Ankraj kafası dişli tip
Anchor head threaded type
hidro

LJ Series

- Çift tesirli hidrolik dönüşlü
- Ortası delik
- 81 - 250 ton kapasite
- 30 mm strok
- Toplam 4 model
- 700 bar maxsimum çalışma basıncı

- *Double acting hydraulic return*
- *Center hole*
- *81 - 250 ton capacity*
- *30 mm stroke*
- *Totally 4 models*
- *Maximum 700 bar working pressure*

1964 hm CALIBRATION CERTIFICATE page 05



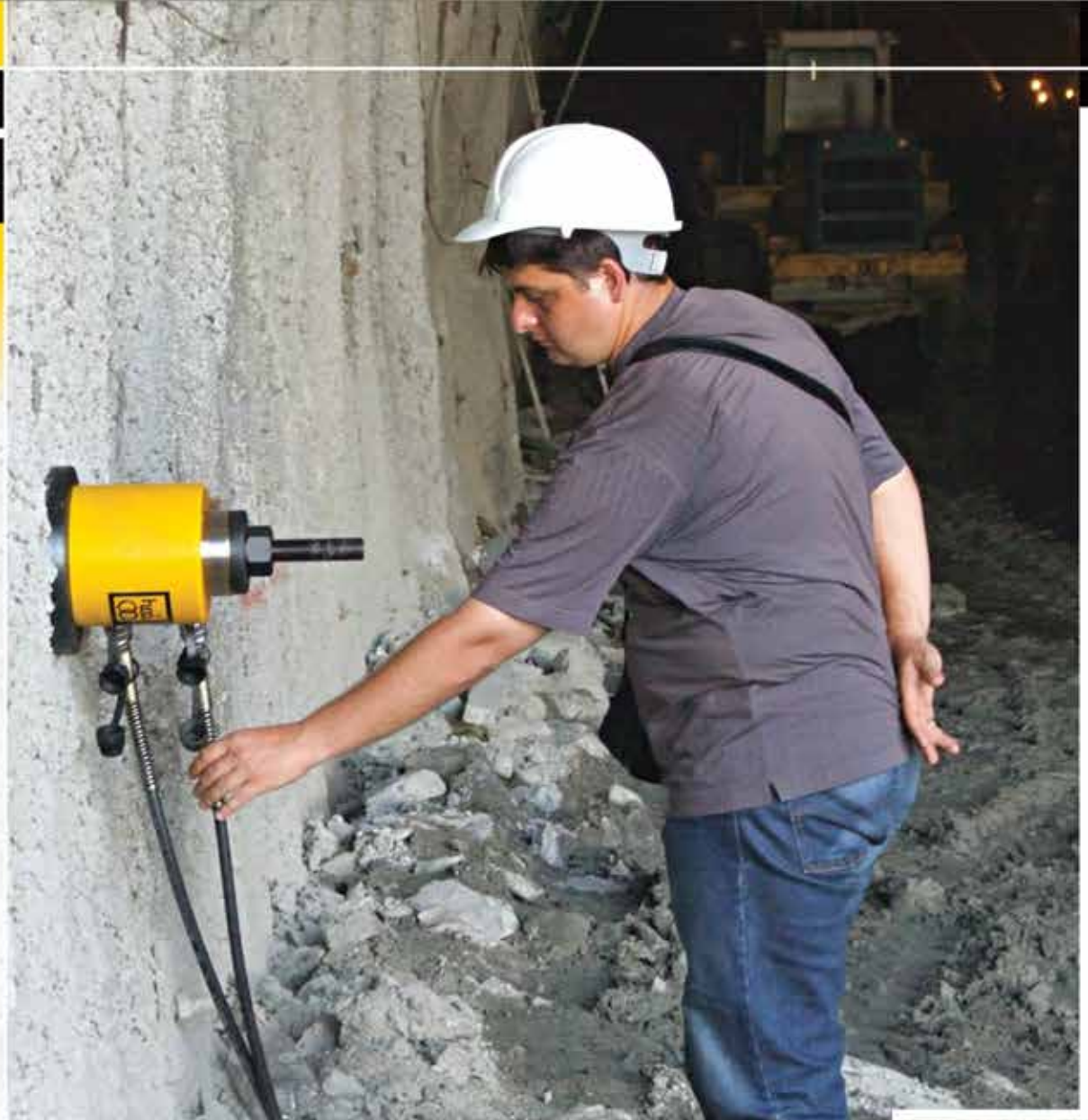
Model No.	Capacity	Anchor Head Model No.	A	B	C	D	E	Effective Area	Oil Capacity	Working Pressure	Weight
			Stroke	Closed Height	Outside Diameter	Rod Diameter	Center Hole Diameter				
	ton		mm	mm	mm	mm	mm	cm^2	cm^3	bar	kg
LJ-81/145	81	AHS-3.5/3.6	30	135	255	195	145	116,20	349	700	34
		AHS-4.5/4.6									
LJ-145/170	145	AHS-5.5/5.6		155	305	230	170	207,30	622		58
		AHS-6.5/6.6									
		AHS-7.5/7.6									
LJ-185/200	185	AHS-8.5/8.6		165	355	270	200	262,80	788		79
		AHS-9.5/9.6									
LJ-250/240	250	AHS-10.5/10.6		175	415	320	240	356,20	1069		115
		AHS-12.5/12.6									


mekanik

hidro - mekanik

BAR STRESSING JACKS (1)

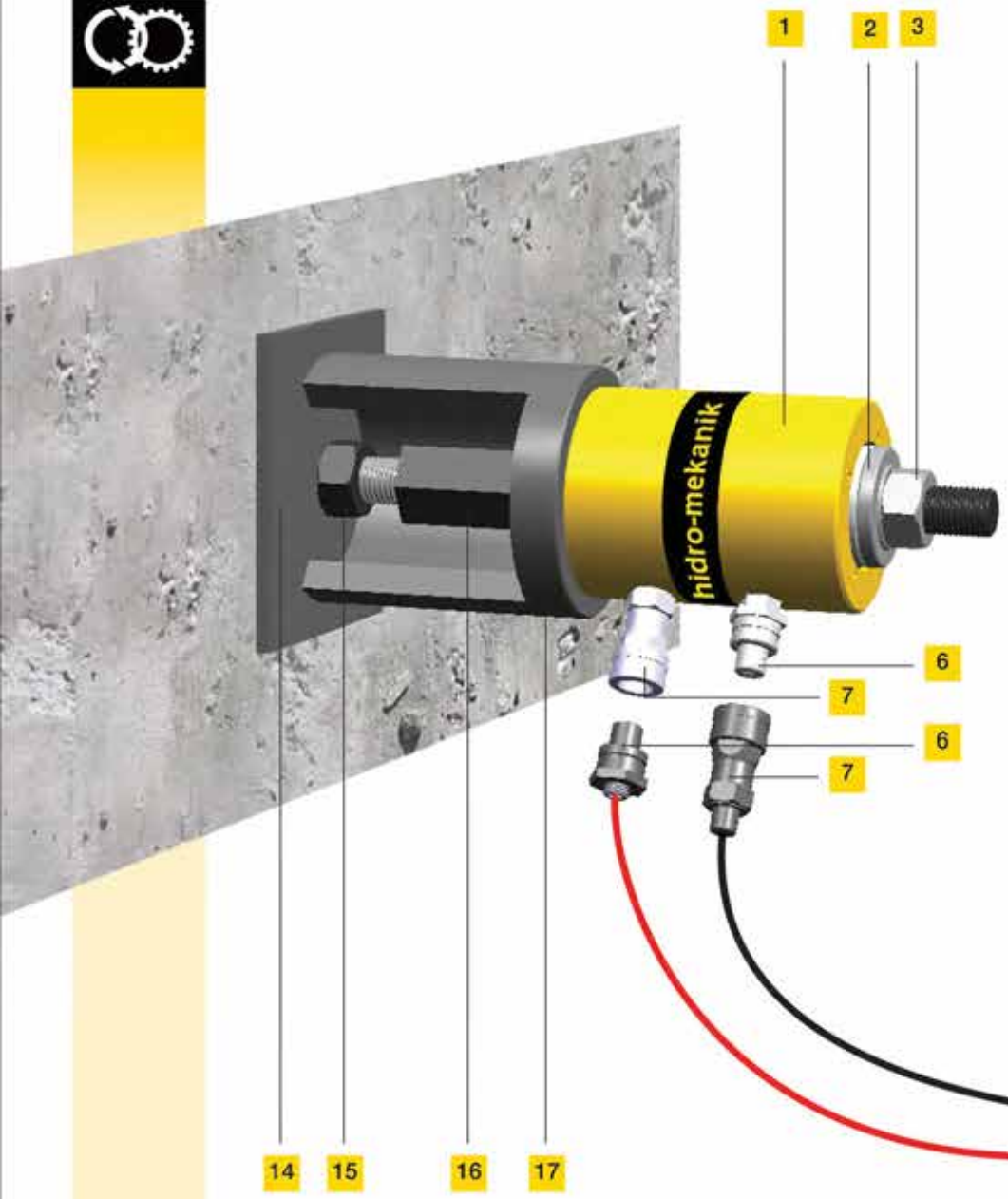
BULON ÇEKME SİSTEMİ



BAR STRESSING JACKS (1)

Toplam uzunluğu 4000 mt'nin üzerinde olan bu tünelin birinci etabı Kağıthane / Piyalepaşa arası toplam 1450 metre uzunluğunda olup, yaklaşık 4500 adet bulon atılmıştır. Bu uygulamada 1 adet hidro-mekanik marka CHBS-558/60 model no'lu 55 ton kapasiteli çift tesirli ortası delik silindir ve PYV-127 model no'lu 700 bar kapasiteli hidrolik el pompası kullanılmıştır.

During 1.450 mt length of Kağıthane / Piyale Pasha Tunnel construction which is the first phase of totally 4.000 mt of length tunnel; approximately 4.500 bars are used. At this stage where each bar is tested, 1 unit hidro-mekanik CHBS-558/60 model 55 tons of capacity, double acting, center hole cylinder and PYV-127 model 700 bars of capacity hydraulic hand pump are used.



1 Hidrolik bulon germe silindiri
Bar stressing jack

2 Pul
Washer

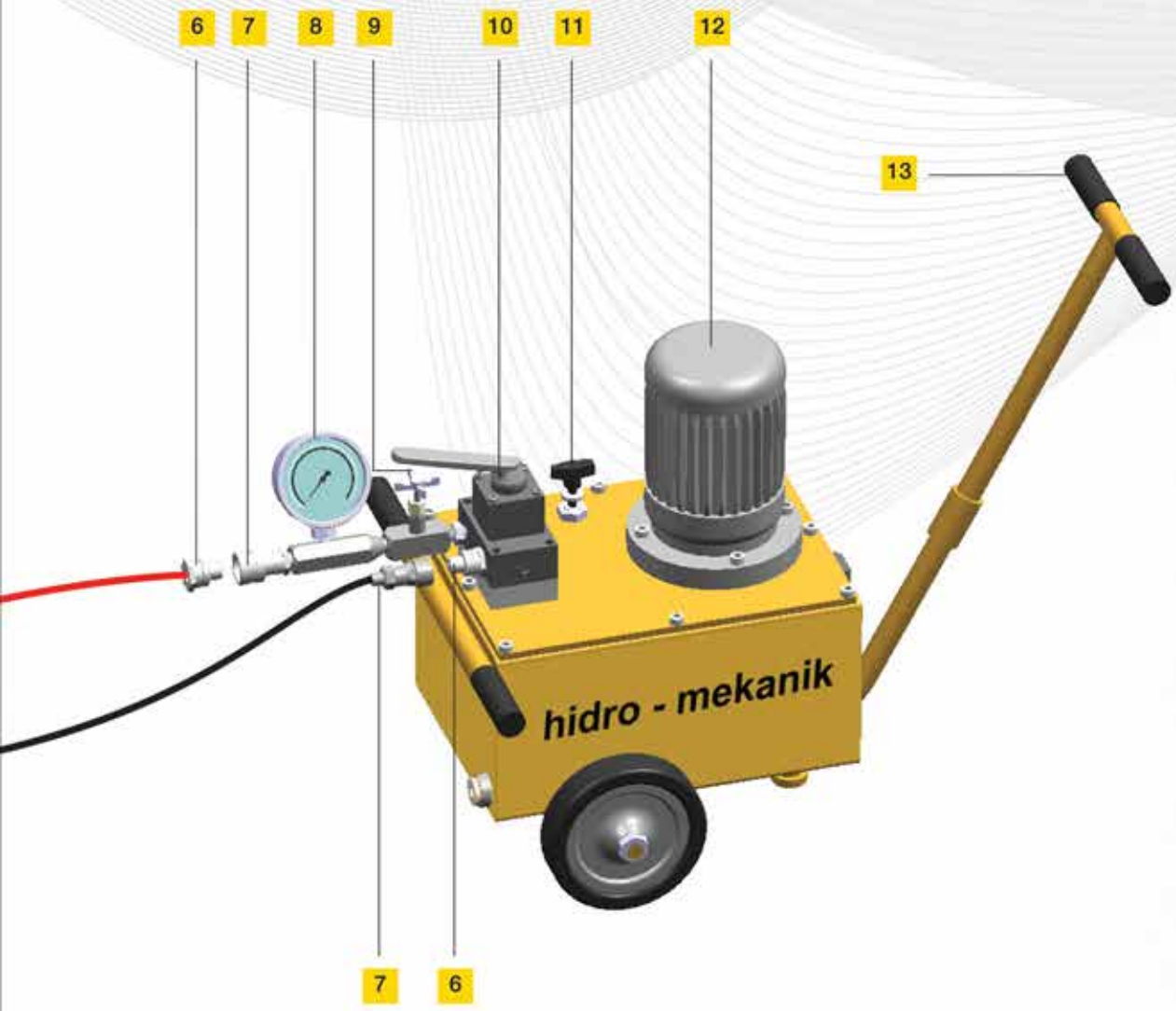
3 Germe somunu
Stressing nut

4 Hidrolik hortum, dönüş hattı
Return line hose

5 Hidrolik hortum, basınç hattı
Stressing line hose

6 Erkek tip bağlantı rakoru
Male coupler

7 Dişi tip bağlantı rakoru
Female coupler



8 Ø100 mm 0-700 bar gliserinli manometre
Ø100 mm 0-700 bar pressure gauge

9 Shut-Off valf
Shut-Off valve

10 Manuel yön valfi
Directional control valve manuel

11 Basınç kontrol valfi
Adjustable pressure control valve

12 Elektrik motoru
Motor

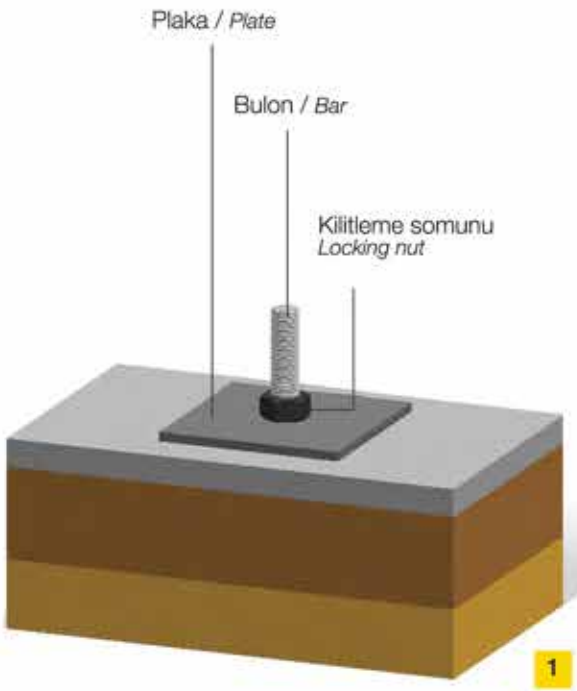
13 Taşıma kolu
Carrying handle

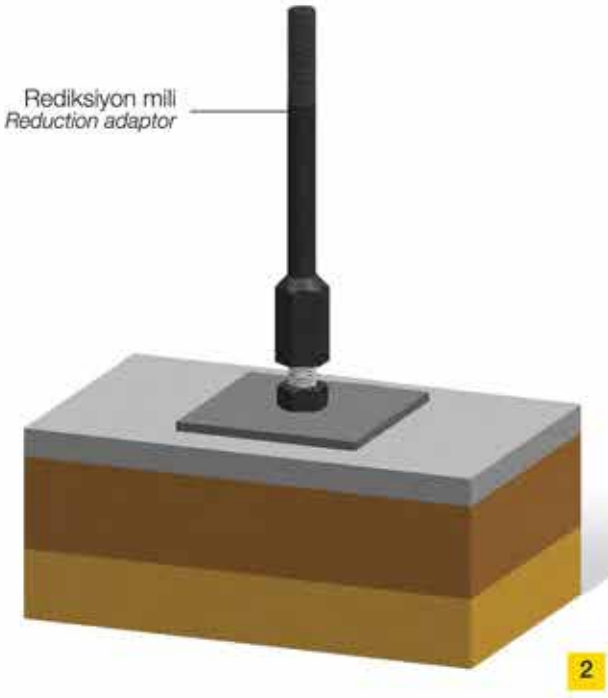
14 Plaka
Plate

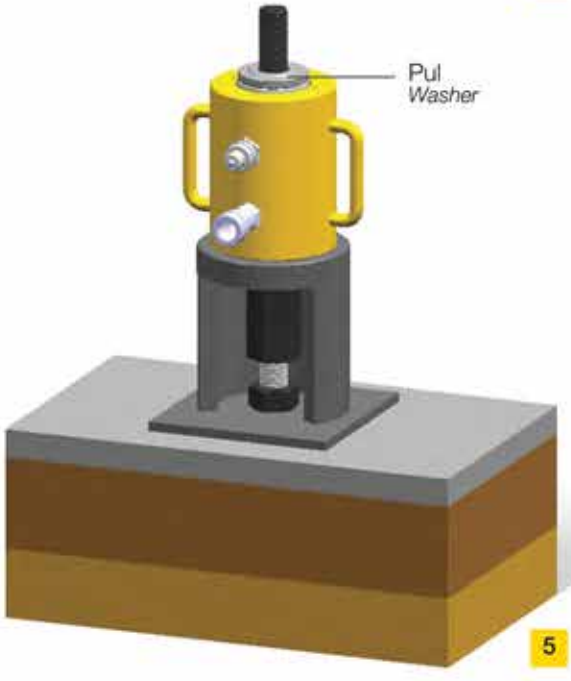
15 Kilitleme somunu
Lucking nut

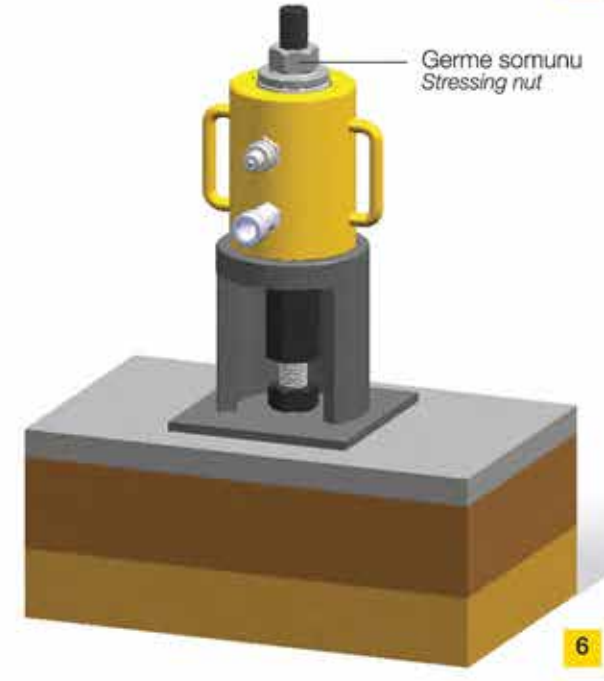
16 Redüksiyon mili
Reduction adaptor

17 Pencere adaptör
Frame adaptor

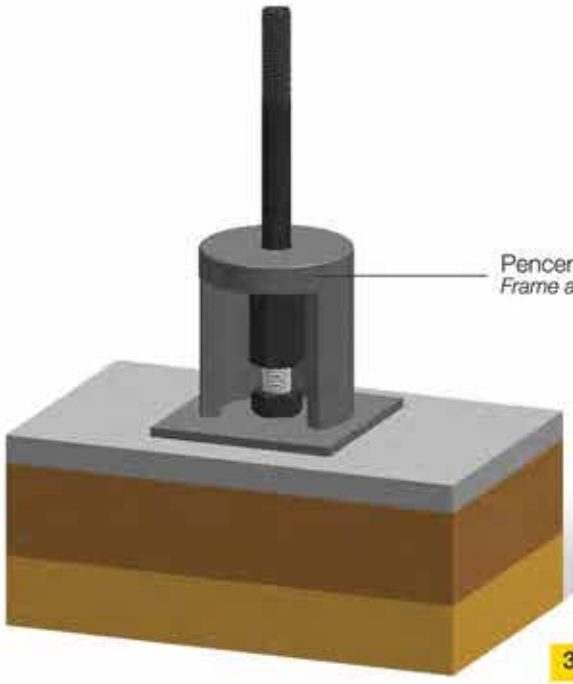








BAR STRESSING JACKS (1)



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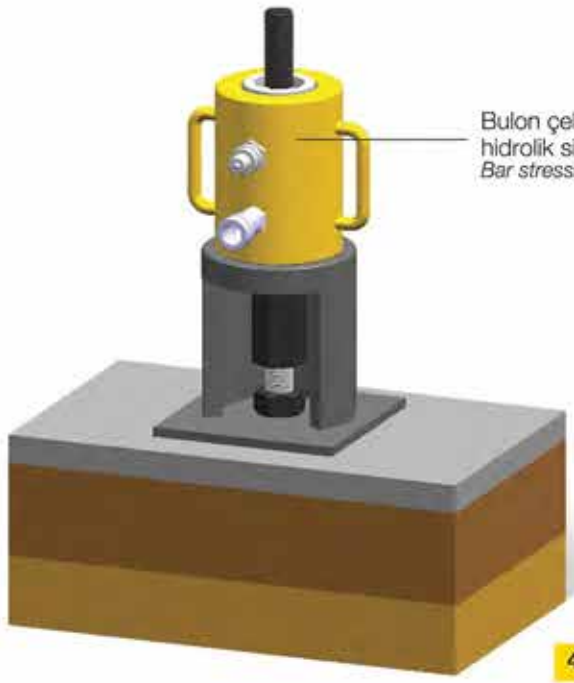

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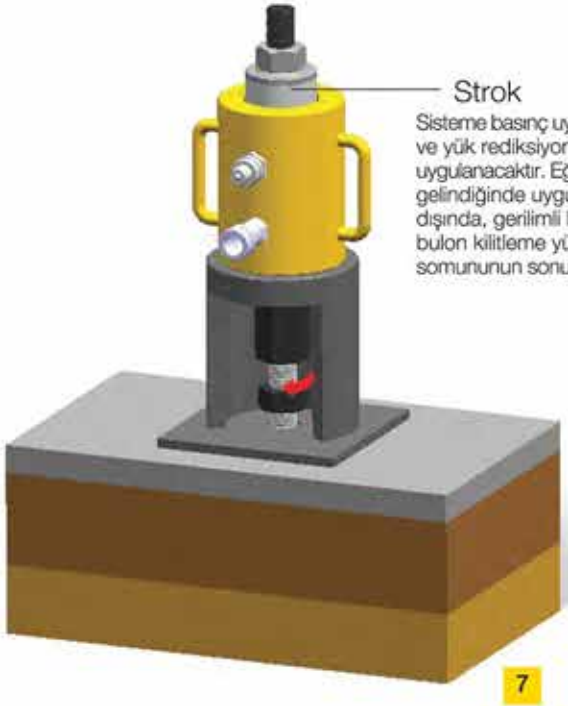


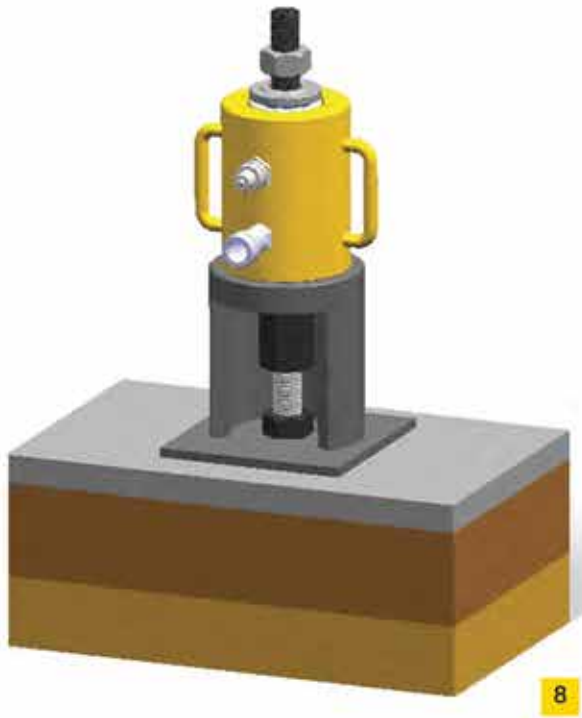
7

Strok

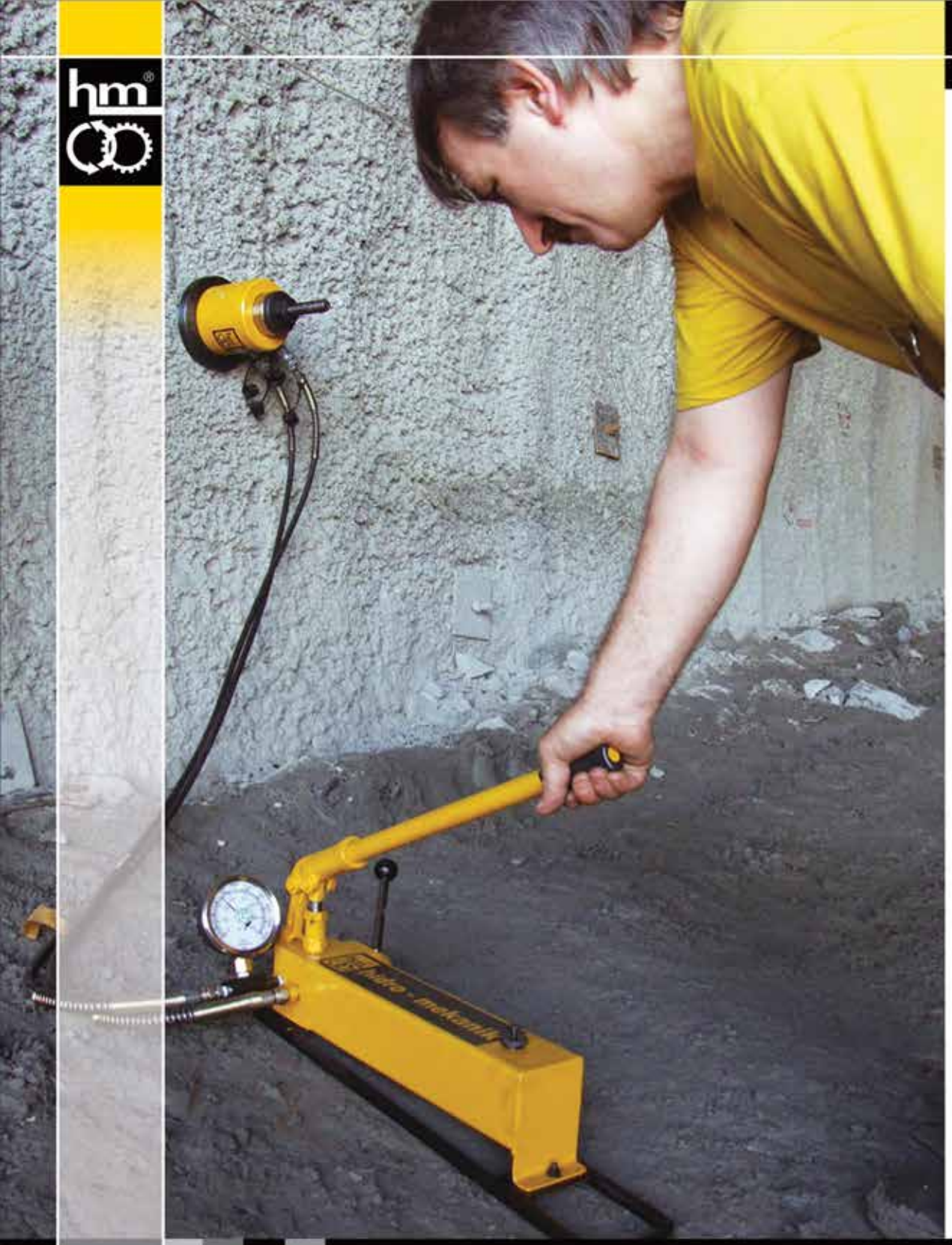
Sisteme basınç uygulandığında silindir strok yapacak ve yük rediksiyon mili vasıtası ile bulona uygulanacaktır. Eğer test yapılyorsa istenilen basınca gelindiğinde uygulama son bulur. Bulonu testin dışında, gerilimli bir şekilde bırakmak istiyorsanız bulon kilitleme yükü altındayken bulon kilitleme somununun sonuna kadar sıkılması gerekmektedir.

Stroke

When pressure applied to system, cylinder will make stroke and load will be applied to bar through reduction adaptor. If test being done, the application ends on reaching the required pressure. If you want to leave the bolt outside of the test as stressed, bar locking nut should be squeezed very tightly.



8



hidro-mekanik hidrolik bulon çekme test setinde bulunan CHBS model çift tesirli ortası delik silindir ile birlikte kalibrasyon sertifikası verilmektedir. Bu sertifika, hidrolik silindirin 700 bar çalışma basıncında test edildiğini gösterdiği gibi aynı zamanda silindirin hangi basınçta ne kadar kuvvet ürettiğini belgeler. Sistemin üzerinde yer alan G serisi Ø100 mm gliserinli manometre ile birlikte tıpkı hidrolik silindirle verildiği gibi kalibrasyon belgesi verilmektedir.

In hidro-mekanik hydraulic bar stressing testing sets where CHBS model double acting center hole cylinder is used, a calibration certificate is given. This calibration certificate shows the hydraulic cylinder is tested under 700 bars of maximum working pressure and certifies the force composed by cylinder under the mentioned pressures.

hidro-mekanik bulon çekme test seti; bir adet CHBS serisi ortası delik çift tesirli hidrolik silindir, sistemin kapasitesine göre seçilmiş hidrolik el pompası yada talebe uygun elektrikli güç ünitesi, hortum, manometre, çabuk bağlantı rakorları ve diğer bağlantı elemanları ile birlikte arka dayama plakası, pul, germe somunu ve redüksiyon uzatma mili gibi adaptörlerden meydana gelmektedir.

hidro-mekanik bar stressing testing sets consist of; 1 unit CHBS series double acting center hole hydraulic cylinder, hydraulic hand pump chosen due to the system capacity or electric powered pack convenient to demand, hose, gauge, quick couplings and adaptors like stressing nut, washer and reduction adaptor together with other connector members.

Bulon Çekme Adaptörleri
Bar Stressing Adaptors

- Deplasmanlarına göre 2 ayrı model
- Ayarlanabilir basınç kontrol valfi
- Elektrik sistemini koruyan termik manyetik şalter
- Taşıma ve kullanma kolaylığı sağlayan şase dizaynı
- 700 bar maksimum çalışma basıncı

- *2 Different models according to their displacement*
- *Adjustable pressure control valve*
- *Thermal switch set-up protecting electrical system*
- *Chassis design providing carriage and usage facility*
- *Maximum 700 bar working pressure*

Power Unit Model No.		EPBS-107	EPBS-137
Power Pump Type		Single Stage, Special Designe for Bar Stressing Applications	
Pump Type		Radial 2 Piston Pump	Radial 3 Piston Pump
Working Pressure (Max.)	bar	700	
Displacement	l / min	1,0	1,3
Motor Power	kW	1,1	1,5
Motor Rpm	rpm	1400	
Reservoir Capacity	liter	20	
Reservoir Sizes	mm	300 x 405 x 210	
Pressure Gauge		G-7: 100 mm x 0-700 bar (glycerine filled) & GD-1: 64 mm x 0-700 bar Digital	
Directional Control Valve		4 Way - 3 Position Manual Valve	
Pressure Control Valve		20 - 700 bar Adjustable Pressure Regulator Valve	
Motor Specifications		220/380 V., 50 Hz., 3-Phaze	
Motor Remote Control		Start / Stop - With 3 Meter Cord	
Wheel Diameter	mm	200	
Weight	kg	71	76

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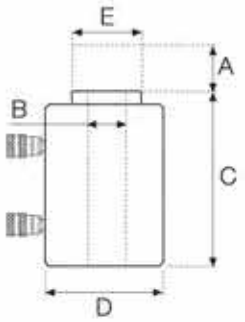
- Hidrolik bulon germe silindirleri
- Çift tesirli / ortası delik
- 18 - 135 ton kapasite
- 75 - 125 mm strok
- Toplam 8 model
- 700 bar maksimum çalışma basıncı

- *Hydraulic bar stressing cylinders*
- *Double acting / center hole*
- *18-135 tons of capacity*
- *75-125 mm of stroke*
- *Totally 8 models*
- *Maximum 700 bar working pressure*



Model No.	Capacity	Cylinder Type	A	B	C	D	E	Effective Area	Oil Capacity	Max. Bar Diameter	Weight
			Stroke	Center Hole Diameter	Closed Height	Outside Diameter	Rod Diameter				
	ton		mm	mm	mm	mm	mm	cm^2	cm^3	mm	kg
CHBS-188/27	18	Single Acting Spring Return	75	27	154	102	70	25,30	193	22	9,5
CHBS-308/40	30	Double Acting	75	40	172	137	85	42,60	320	32	17,0
CHBS-558/60	55		75	60	175	177	110	82,40	618	52	27,5
CHBS-5513/60			125		225				1030		34,0
CHBS-908/75	90		75	75	185	207	135	130,10	976	64	38,5
CHBS-9013/13			125		235				1626		47,0
CHBS-1358/90	135		75	90	215	242	160	189,40	1421	80	59,5
CHBS-13513/90			125		265				2368		71,5

PYV - 127

Tek kademeli, tek pistonlu 4 yollu, 3 pozisyonlu manuel tip yön valfli hidrolik el pompasıdır. 30 ve 55 ton kapasiteli bulon germe silindirleriyle birlikte kullanılır.

Hydraulic hand pump with single-stage, single piston, 4 way-3 positions manual type return valve. It is used together with 30 and 55 tons capacity bar stressing jacks.

PYV - 133

Çift kademeli, iki pistonlu, 4 yollu 3 pozisyonlu manuel tip yön valfli hidrolik el pompasıdır. 90 ton kapasiteli bulon germe silindiriyle birlikte kullanılır.

Hydraulic hand pump with two-stage, two piston, 4way-3 positions manual type diverter valve. It is used together with 90 tons capacity bar stressing jacks.

P - 42

Çift kademeli, hidrolik el pompasıdır. CHBS -188/27 model nolu bulon germe silindiri ile kullanılır.

Hydraulic hand pump with two stage. It is used with CHBS-188/27 model number bar stressing jack.

Model No.		P-42	PYV-127	PYV-133
Pump Type		Double Speed for Single Acting Cylinders	Double Speed for Double Acting Cylinders	
Capacity	bar	700		
Reservoir Capacity	cm^3	1000	3000	5000
Displacement	cm^3/stok	14 / 2,6	3,5	15 / 3,5
Directional Control Valve		2 Way - 2 Position Manual	4 Way - 3 Position Manual	
Pressure Gauge		G-7: 100 mm x 0-700 bar (glycerine filled) & GD-1: 64 mm x 700 bar Digital		
Weight	kg	8,5	18,0	24,0

Hortumlar / *Hoses*

Basınç hattı bağlantı hortumu / *Pressure line hose*

Dönüş hattı bağlantı hortumu / *Return line hose*

Model No.	Lenght	Internal Diameter	Weight
	m	mm	kg
HS - 2208	8	6,40	4,10
HS - 2210	10		5,00
HS - 2212	12		5,90
HS - 2215	15		7,25

Çalışma basıncı / *Working pressure* : 700 bar
Patlama basıncı / *Burst pressure* : 2170 bar

Manometreler / *Pressure Gauges*

G7

GD1

Model No.	Capacity	Scale Diameter	Oil Port	Gauge Type
	bar	mm		
G7	0-700	100	1/4" NPT	Glycerine Filled
GD1		63		Digital

Çabuk Bağlantı Rakorları / *Couplers*

C-209

C-213 C-211

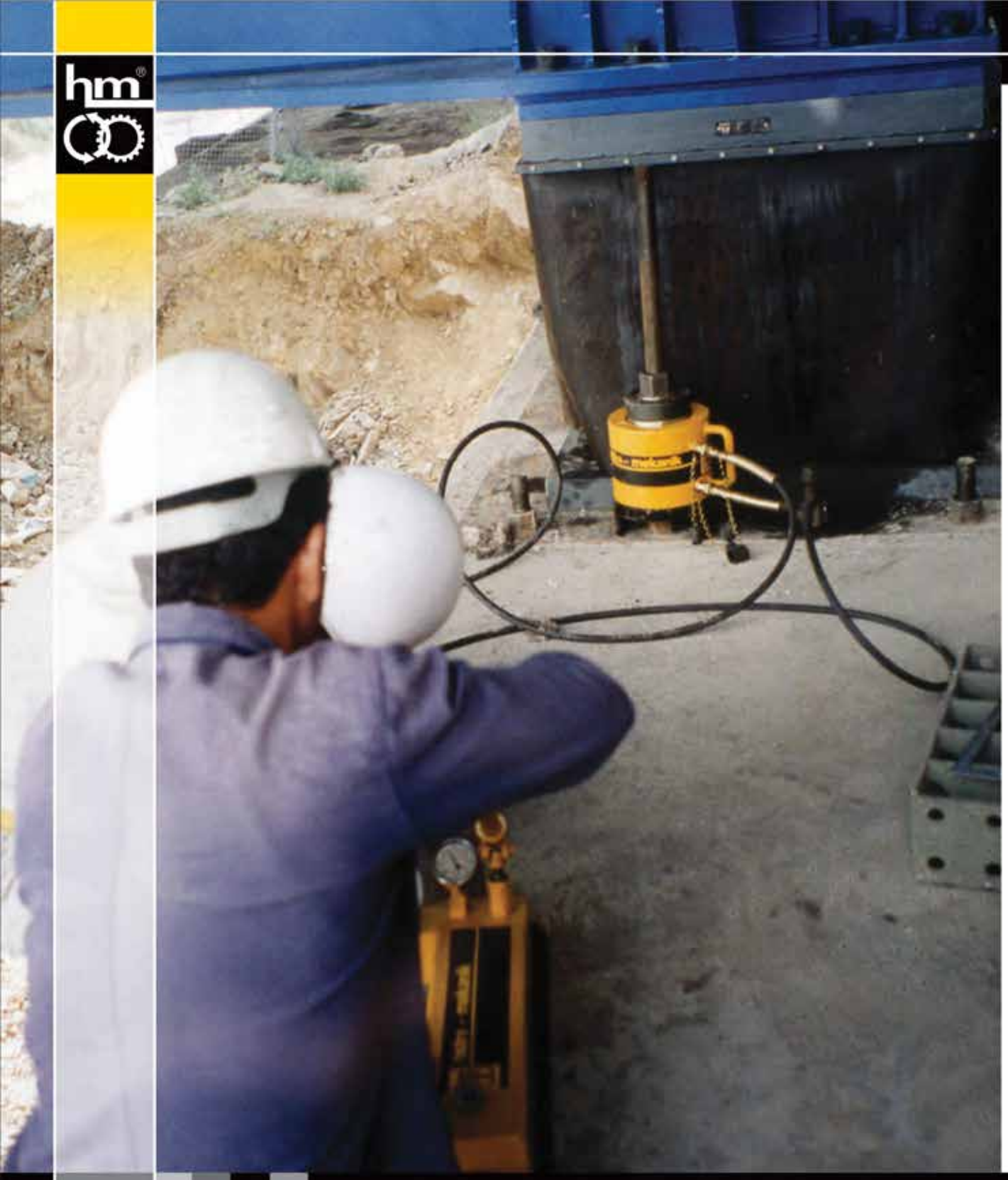
Model No.	Description	Weight
		kg
C-213	Coupler half, male with 3/8" NPT inner connection thread	0,150
C-211	Coupler half, female with 3/8" NPT outher connection thread	0,225
C-209	Coupler complate	0,375

Japon firması IHI Ishikawajima - Harima Heavy Industries Co. Ltd. tarafından yapılan İstanbul haliç köprüsü genişletme çalışmalarında, köprünün kemer (sabit) ayağında gerçekleştirilen öngerme uygulamalarında 8 adet hidro-mekanik marka CHBS-908/75 model no'lu 90 ton çift tesirli ortası delik silindir ve 8 adet PYV-127 model no'lu 700 bar kapasiteli hidrolik el pompası kullanılmıştır.

In Istanbul Golden Horn Bridge expension work done by IHI Ishikawajima - Harima Heavy Industries Co. Ltd, during pre-stressing applications realised to bridge pier (abutment), 8 units of hidro-mekanik CHBS-908/75 model number, 8 units of PYV-133 model hydraulic hand pump with 700 bars capacity, and all other stressing adaptors are used.

hidro-mekanik bulon çekme test seti ile binlerce bulon çekme testi yapılabilmektedir. Bu sürecin kesintiye uğramaması ve sistemin performansının düşmemesi için test setinin mutlak suretle kullanma talimatına uygun kullanılması, yılda en az bir kez servis ve bakıma tabi tutulması ve kalibrasyonun yenilenmesi tavsiye edilmektedir.

Thousands of bar stressing tests can be realized by hidro-mekanik bar stressing jacks. While using test sets with the highest performance, it is strongly recommended to obey directions for use, serviced at least once a year and renewing the calibration.



hidro-mekanik bulon çekme seti, bulon çekmeye ek olarak, köprü-kiriş birleştirmelerinde, ayak zemin montajlarında ve benzer çelik konstrüksiyon montajlarında da kullanılmaktadır.

In addition to bar stressings, hidro-mekanik bar stressing testing sets can also be used in bridge-beam connections, feet & ground installations and similar steel construction installations.

Bulon çekme sisteminde, bulonlar çekilip test edildiği gibi aynı zamanda proje gereği gerili biçimde de bırakılabilmektedir. Bu uygulama standart tip hidro-mekanik bulon çekme sistemine bazı adaptörler eklenerek yapılabilmektedir.

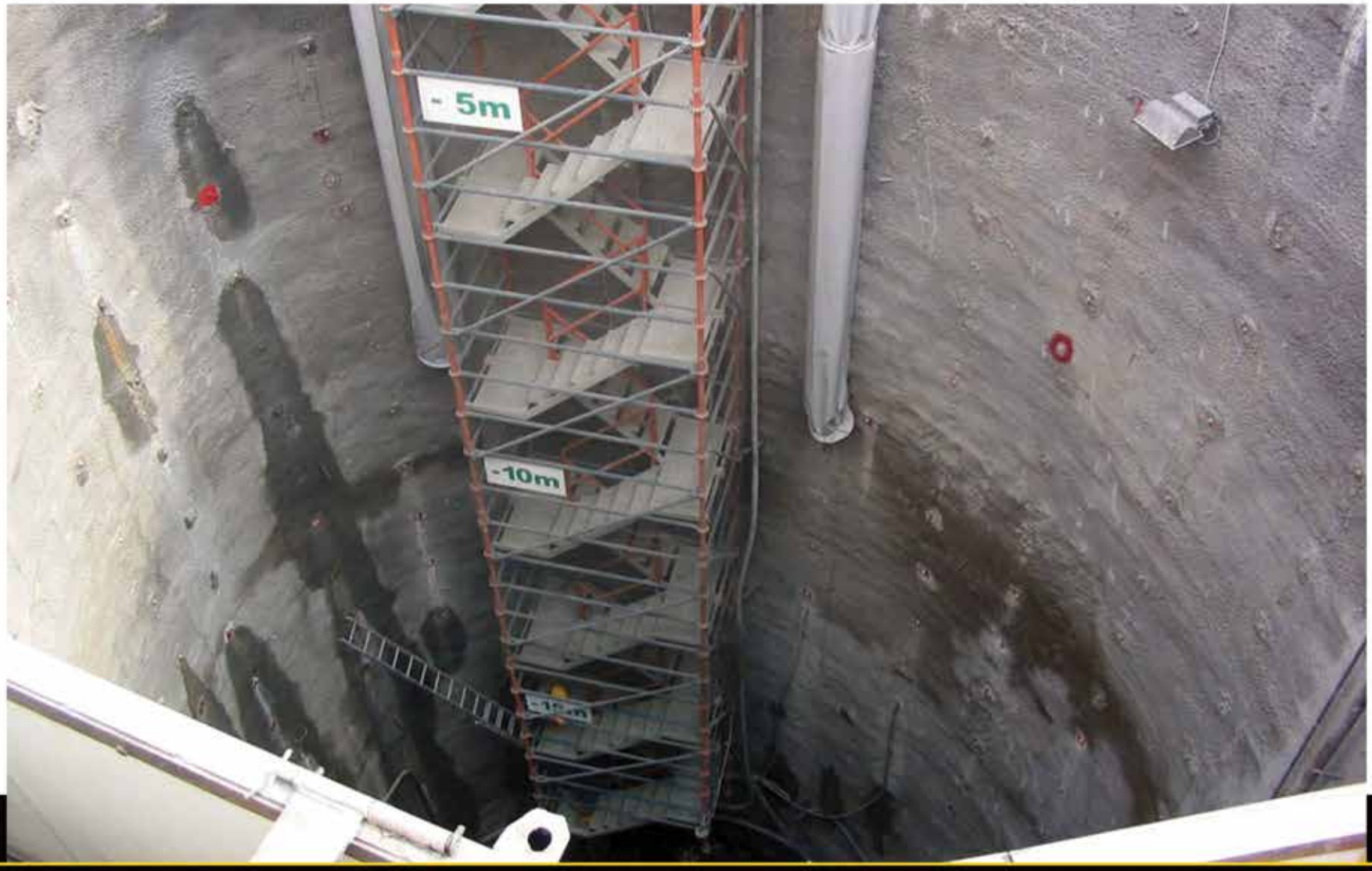
In bar stressing system, bars can be tested by stressing and also left as stressed related with the project. This application can be done by adding some adaptors to standart type hidro-mekanik bar stressing system.

CHBS serisi çift tesirli ortası delik hidrolik bulon test silindiri,
PYV-127 model 700 bar hidrolik el pompası.

CHBS series of double acting center hole hydraulic bar stressing cylinder and PYV-127 hydraulic hand pump with 700 bars of capacity.

Japon firması Taisei Co. Ltd. tarafından yapılan İstanbul Boğazı tüp geçidi projesi Üsküdar yaklaşım tüneli.

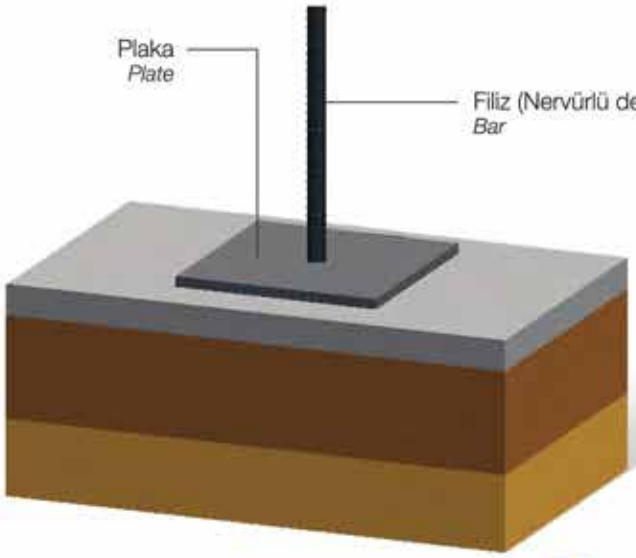
Istanbul Bosphorous sub-sea tunnel Project Uskudar approach adit realizing by Japan Company, Taisei Co. Ltd.



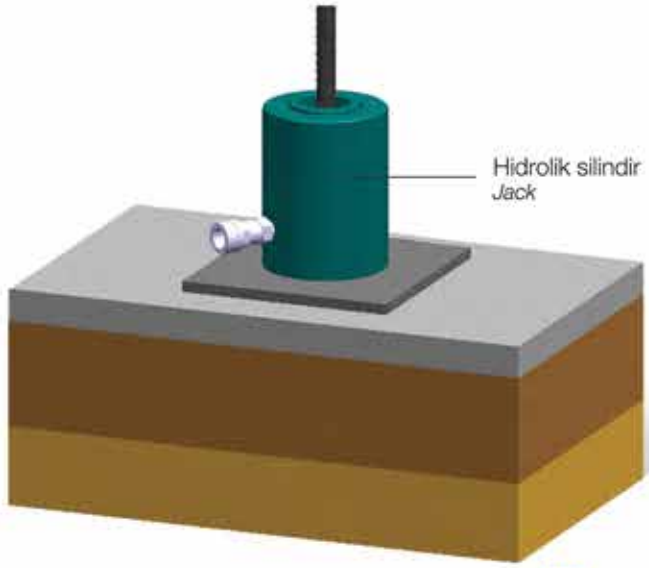
hidro - mekanik

BAR STRESSING JACK (2)

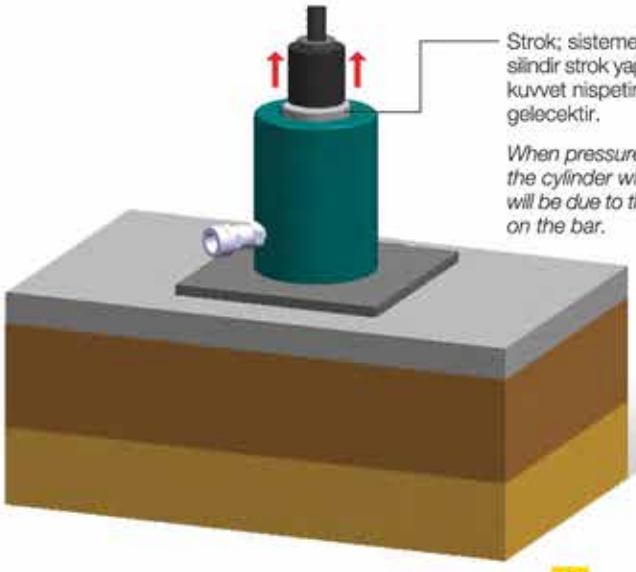
FİLİZ TEST SİSTEMİ


Plaka
Plate
Filiz (Nervürlü demir)
Bar

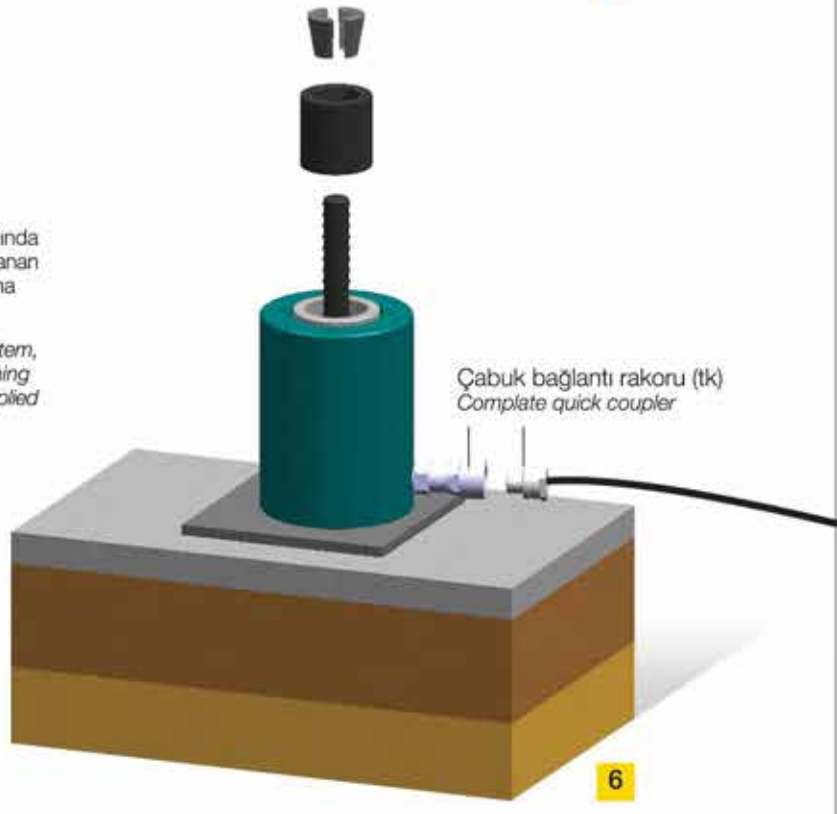
1


Hidrolik silindir
Jack

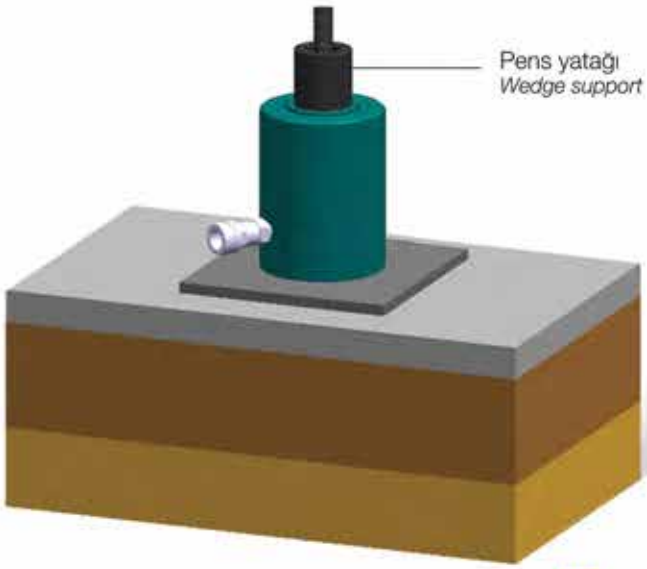
2


Strok; sisteme basınç uygulandığında silindir strok yapacak ve filize uygulanan kuvvet nispetinde uzama meydana gelecektir.
When pressure applied to the system, the cylinder will stroke and streching will be due to the rate of power applied on the bar.

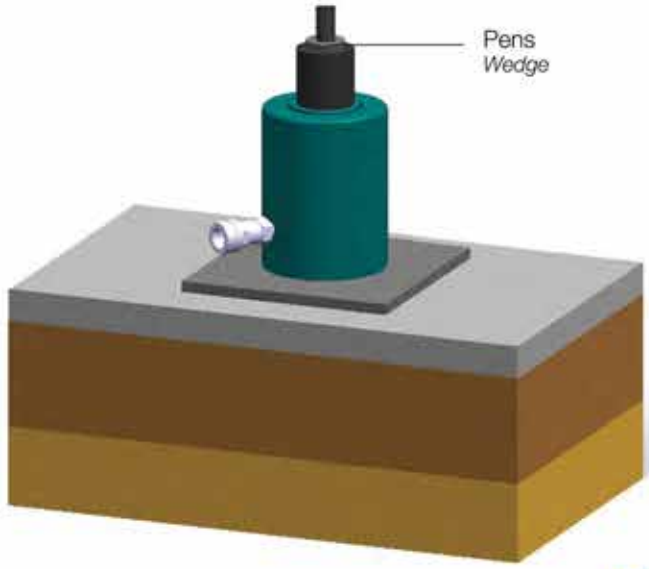
5


Çabuk bağlantı rakoru (tk)
Complate quick coupler

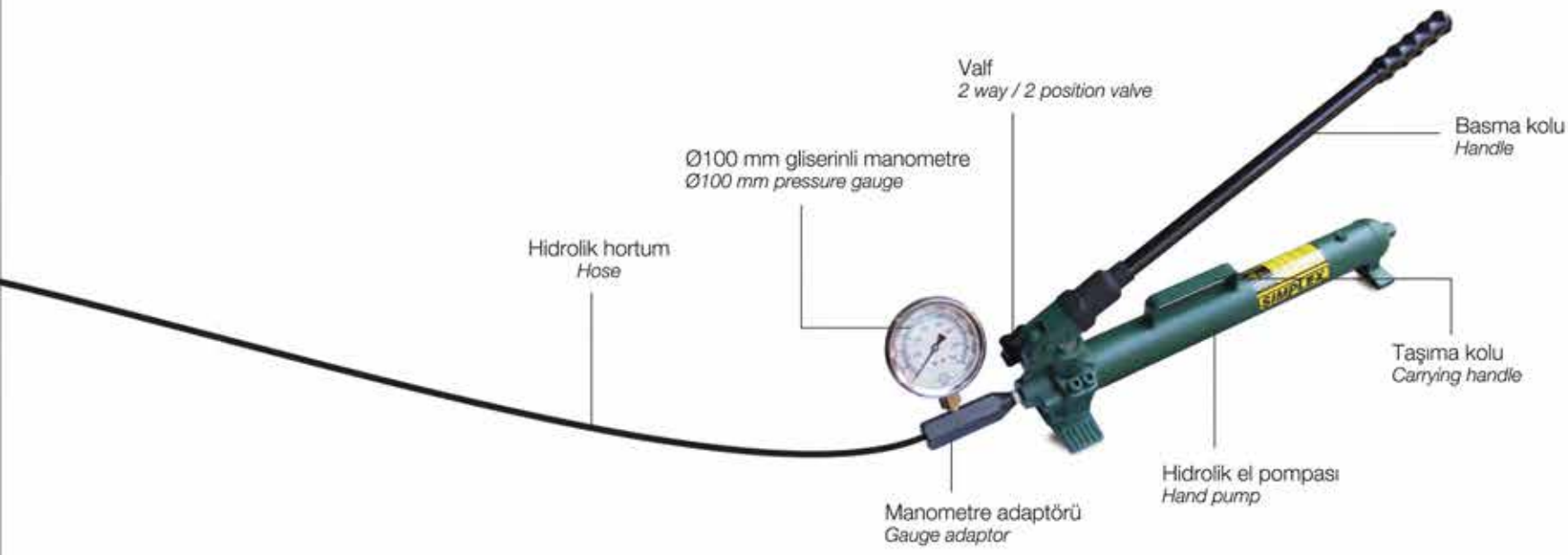
6


Pens yatağı
Wedge support

3

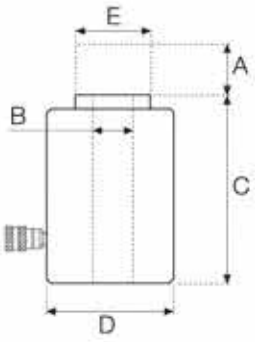

Pens
Wedge

4


Valf
2 way / 2 position valve
Basma kolu
Handle
Ø100 mm gliserinli manometre
Ø100 mm pressure gauge
Hidrolik hortum
Hose
Taşıma kolu
Carrying handle
Hidrolik el pompası
Hand pump
Manometre adaptörü
Gauge adaptor

CALIBRATION CERTIFICATE page 05

Filiz Çekme El Pompası - 700 bar / *Bar Stressing Hand Pump - 700 bar*



Model No.	Capacity	Type	Usable Oil Capacity	Displacement	Valve	Gauge	Weight
	bar		cm^3	cm^3/stok			kg
P-42	700	Two Speed for Single Acting Cylinders	737,5	13,4 / 2,6	2 Way 2 Position	G-7 & GD-1	8,2

Filiz Çekme Hidrolik Silindiri (35 ton kapasite) / *Single Acting Spring Return Center Hole Cylinder (35 ton capacity)*

Model No.	Capacity	Cylinder Type	A	B	C	D	E	Effective Area	Oil Capacity	Working Pressure	Weight
			Stroke	Center Hole Diameter	Closed Height	Outside Diameter	Rod Diameter				
	ton		mm	mm	mm	mm	mm	cm^2	cm^3	bar	kg
CHFT-357	35	Single Acting Spring Return	65	33	178	127	64	55,7	362	700	12

Hortumlar / *Hoses*

Model No.	Length	Internal Diameter	Weight
	m	mm	kg
HS - 2202	2	6,40	1,25
HS - 2203	3		1,65
HS - 2204	4		2,15
HS - 2205	5		2,65

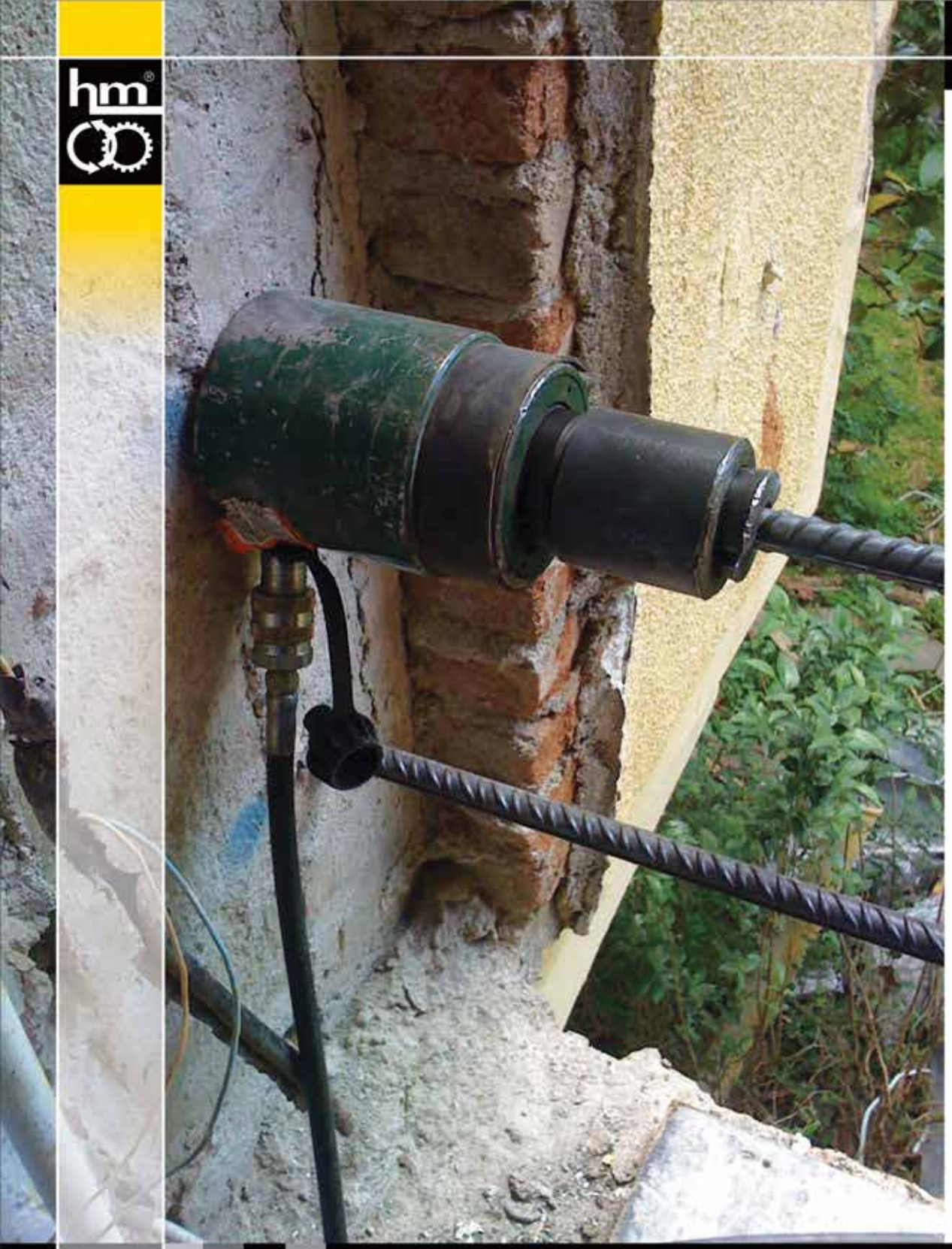
Çalışma basıncı / *Working pressure* : 700 bar
Patlama basıncı / *Burst pressure* : 2170 bar

Manometreler / *Pressure Gauges*

Model No.	Capacity	Scale Diameter	Oil Port	Gauge Type
	bar	mm		
G7	0-700	100	1/4" NPT	Glycerine Filled
GD1		63		Digital

Çabuk Bağlantı Rakorları / *Coupler*

Model No.	Description	Weight
		kg
C-213	Coupler half, male with 3/8" NPT inner connection thread	0,150
C-211	Coupler half, female with 3/8" NPT outher connection thread	0,225
C-209	Coupler complate	0,375



Filiz çekme test sistemi betonarme binalarda yapı güvenliğinin arttırılmasına yönelik yapılan filiz ekimlerinin testinde kullanılan bir sistemdir. Hidrolik filiz test sistemi, var olan yapıların güçlendirilmesinde kullanılan ek yapı elemanlarının mevcut yapı ile bütünleşmesini sağlayan filizlerin dayanımının test edilmesinde son derece hayati bir rol oynamaktadır.

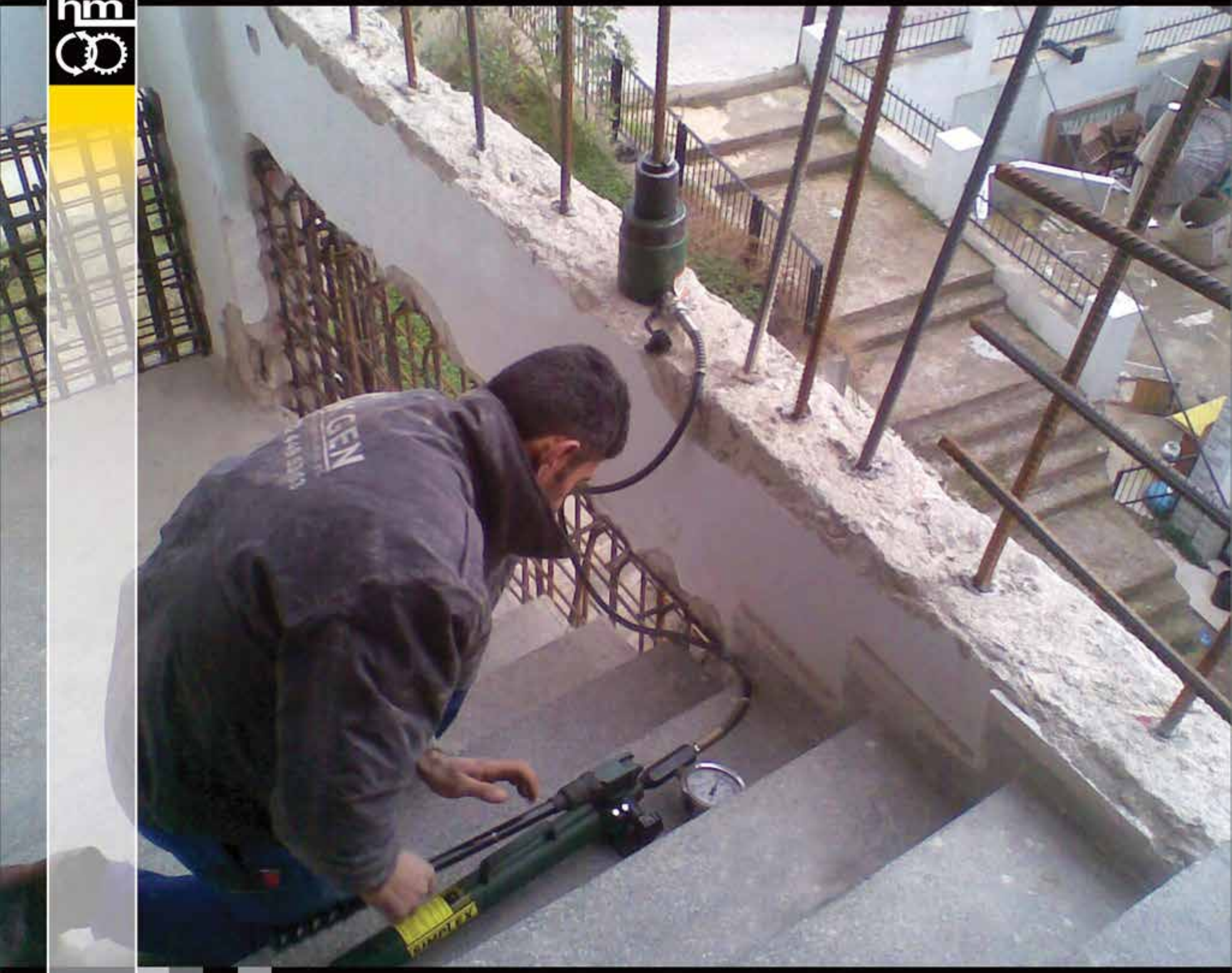
It is a system used in bar placement tests for increasing building safety of reinforced concrete buildings. Hydraulic bar test system plays a vital role to test the durability of bars which provides to combine the existing building and additional structural members for reinforcing the building.

Hidrolik filiz test sistemi kullanılan yapı kimyasalını ve ekilen filizin çekme dayanımını test etme imkanı verir. Genellikle 12-22 mm çapında nervürlü demirlerden oluşan filizler yer yer 30-32 mm'ye kadar çıkabilmektedir. Doğrudan çekme yöntemi ile yapılan test için kullanılan bu sistem, sisteme basınçlı yağ tahriki yapan bir adet hidrolik el pompası, yüksek basınçlı hidrolik hortum, çekme kapasitesi test için yeterli ortası delik hidrolik silindir ve çekilen filizlerin çaplarına uygun çekme adaptörlerinden ve diğer bağlantı elemanlarından oluşmaktadır.

Hydraulic bar test system, gives the possibility to test the building chemicals and bar placement durability. Generally the diameter of the ribbed bars are 12-22 mm or 30-32 mm. This system consist of 1 unit of hydraulic hand pump (doing pressure oil driving to system), high pressured hydraulic hose, center hole hydraulic cylinder with sufficient pulling force, and pulling adaptors suitable with the diameter of the pulled bars.

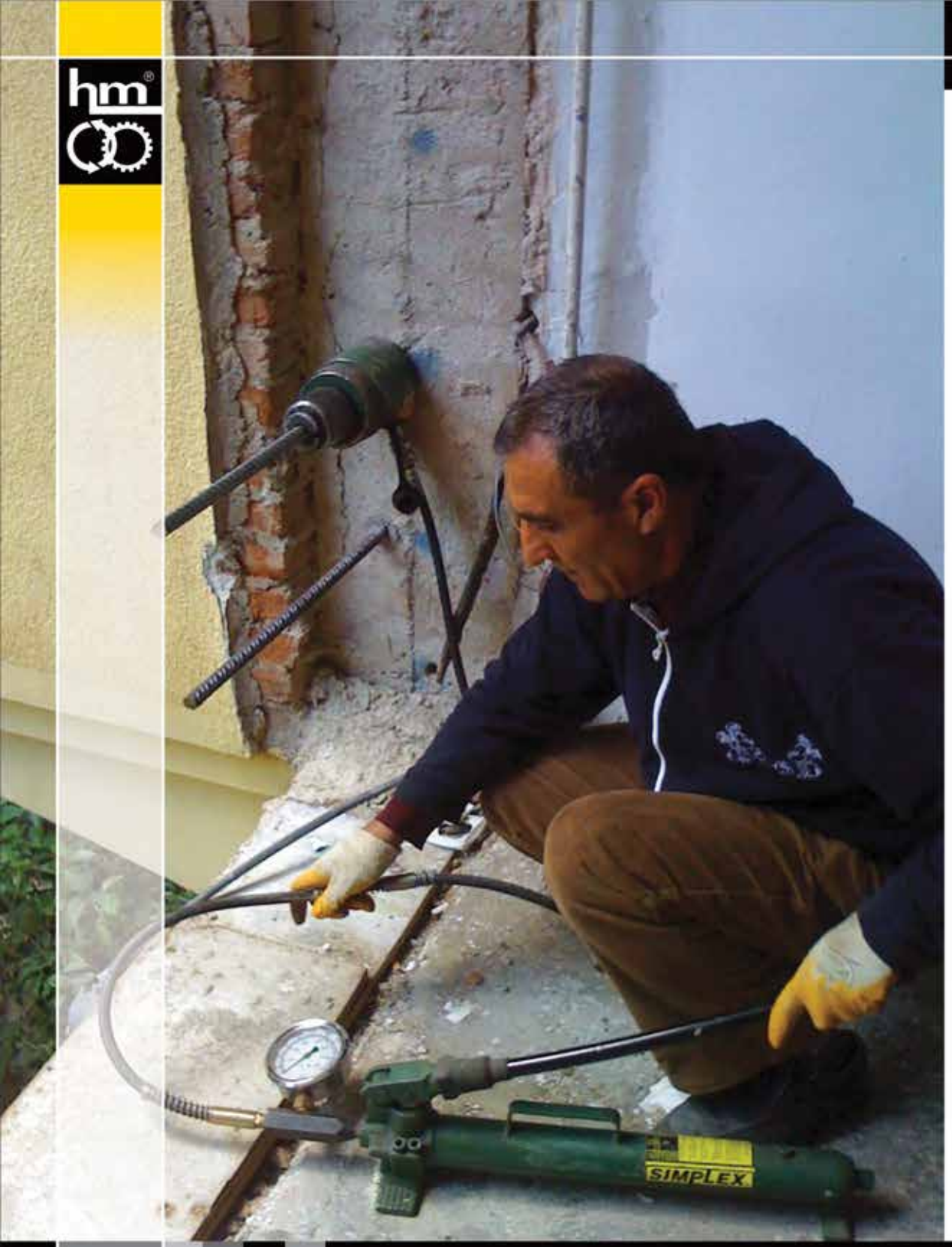
Hidrolik filiz test sisteminde bulunan her çekme adaptörü, değişen filiz çapları için gereklidir. Sabit pens yatağına uygun imal edilen pensler 12 mm'den başlar ve 22 mm'ye kadar devam eder. (12-14-16-18-20-22 mm) Sistemde kullanılan hidrolik silindir 35 ton kapasiteli tek tesirli yay dönüşlü ve ortası delik tiptir. Orta delik çapı 33 mm'dir. Hidrolik silindir ile birlikte verilen kalibrasyon belgesinde silindirin hangi basınçta kaç ton yük ürettiği belirtilmektedir.

Each pulling adaptor in hydraulic bar testing system is necessary for the changing rod diameters. Wedge diameters which are produced convenient to wedge support, starts from 12 mm up to 22 mm (12, 14, 16, 18, 20, 22). Bar stressing cylinder is 35 ton maximum pulling capacity, single acting spring return and center hole designed. Center hole diameter is 33 mm. In the calibration certificate given together with hydraulic cylinder, it shows the force produced by the cylinder under the mentioned pressure.



BAR STRESSING JACKS (2)


SIMPLEX



Testten önce yapılması gereken, sistem üzerinde bulunan manometrenin göstereceği basıncın, kalibrasyon belgesinden tonaj karşılığını bularak filize uygulanacak çekme kuvvetini tespit etmektir. Elde edilen veriler ışığında teste başlanır ve test projesinde yer alan çekme kuvvetlerine çıkılır. Dikkat edilmesi gereken noktalardan bir tanesi de testte filizin çapına uygun olan adaptörün kullanılmasıdır.

Before starting to test, the pressure shown in manometer (which is attached to the system) should be noted and corresponding tonnage to that pressure value should be found from the calibration certificate. This will help you to determine the pulling force should be applied to the bar. The other important point here is to use the relevant wedge for the diameter of bar.

Penslerin üzerlerinde çekilecek filiz çapları yazılmıştır. Buna dikkat edilmemesi durumunda test işlemi başarısız olur. Hidrolik filiz test sistemi hidrolik bir sistemdir ve bir test ekipmanıdır. Çalışma hassasiyeti bu doğrultuda düşünülmeli ve ekipman uygun koşullarda muhafaza edilmelidir. Özellikle sistem üzerinde bulunan ve kalibrasyon belgesi ile birlikte teslim edilen manometrenin darbelere karşı korunması son derece önemlidir.

The measurement values are written on the clips. The test operation will be unsuccessful if enough attention not payed. The working sensitivity should be taken into consideration accordingly and all equipments should be kept in proper conditions.
It is very important to save especially the manometer from impacts which is given together with calibration certificate.


İŞ ELDİVENİ KULLAN

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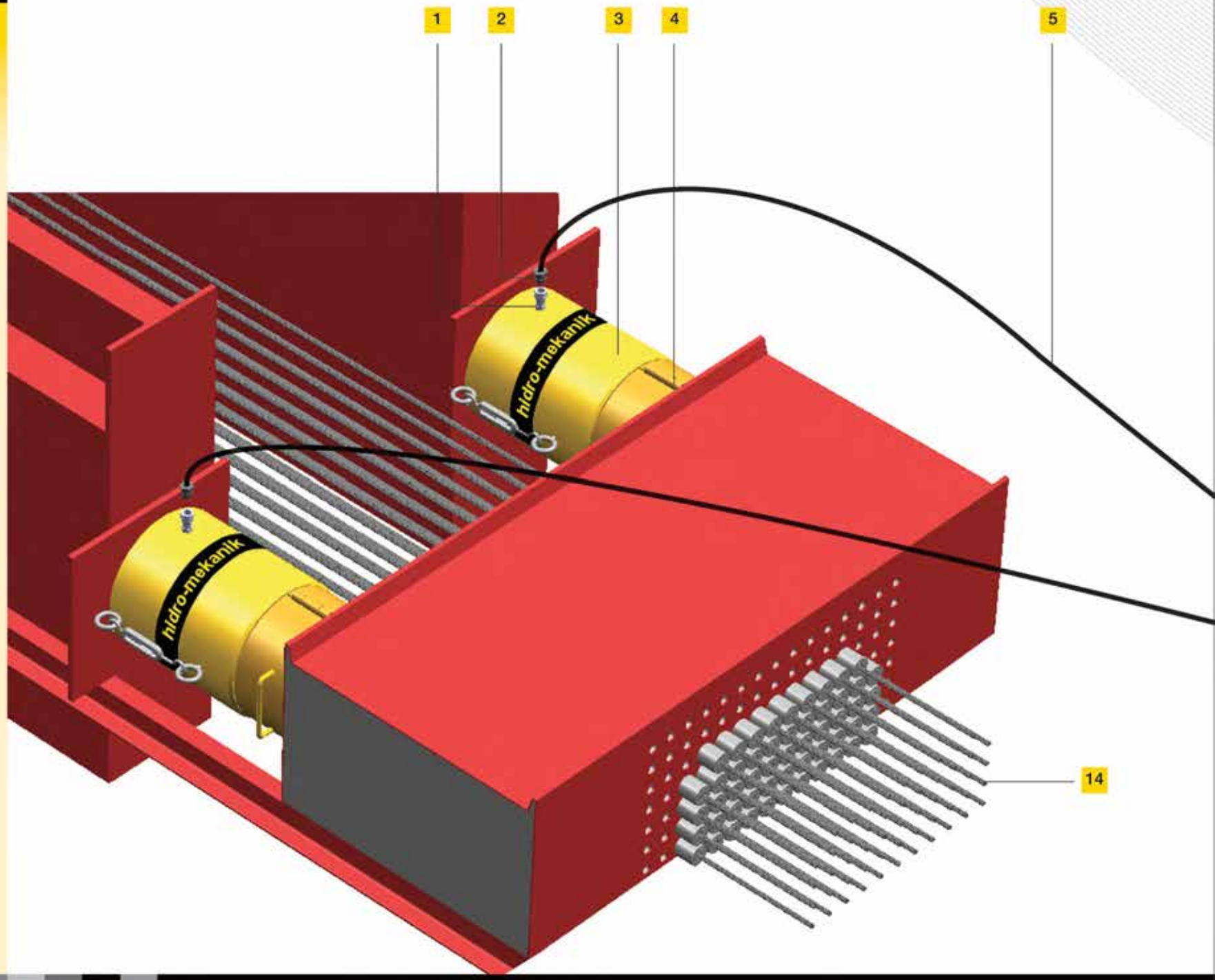
RELAXATION JACKS
RELAKSİYON SİLİNDİRLERİ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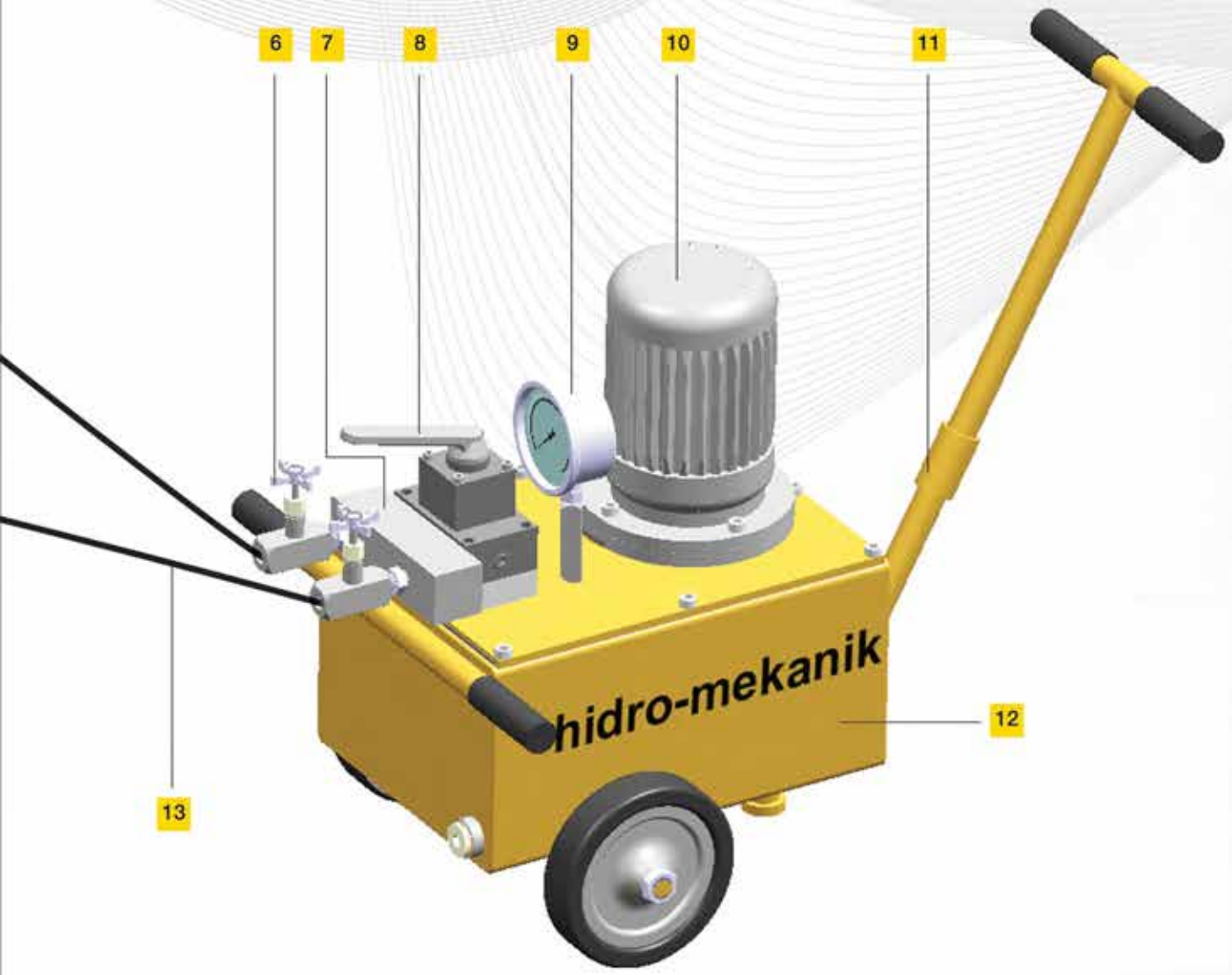


1 Dişi tip bağlantı rakoru
Femail coupler

2 Erkek tip bağlantı rakoru
Mail coupler

3 Hidrolik relaksiyon silindiri
Relaxation jack

4 Kelepçe
Support ring

5 Hidrolik hortum 1.Silindir
Hose for 1.Jack

6 Shut-Off valf
Shut-Off valf

7 2 çıkışlı manifold sistemi
Two way manifold system

8 Manuel yön valfi
Directional control valve (manuel)

9 Ø100 mm gliserinli manometre
Pressure gauge

10 Elektrik motoru
Motor

11 Arka taşıma kolu
Carrying handle

12 Elektrikli güç ünitesi
Power pack

13 Hidrolik hortum 2.Silindir
Hose for 2. jack

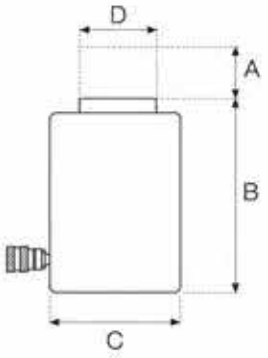
14 Halat
Strand

Hidrolik kalıp gevşetme sistemi bir adet elektrikli güç ünitesi, 2 adet özel tip hidrolik silindir, 2 adet bu silindirlere uygun kelepçe, hortumlar, monifold ve diğer bağlantı elemanlarından meydana gelmektedir. 100-600 ton kapasite aralığında 14 model bulunmaktadır.

The system consist of 1 unit of electric powered pack, 2 units of hydraulic cylinder, 2 units of support rings, hoses, manifold and other fittings. There are totally 14 models for relaxation jacks having 100-600 tons of capacity.

- Tek tesirli
- Yük dönüşlü
- 100 - 600 ton kapasite
- 225 - 300 mm stroke
- Toplam 14 model

- *Single acting*
- *Load return*
- *100 - 600 ton capacity*
- *225 - 300 mm stroke*
- *Totally 14 models*

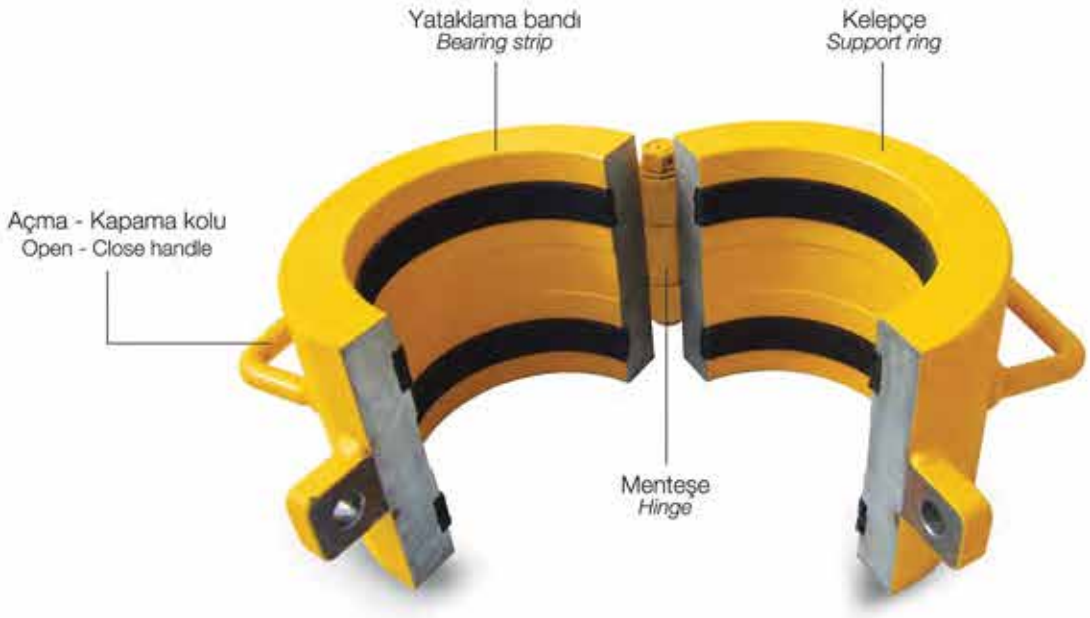


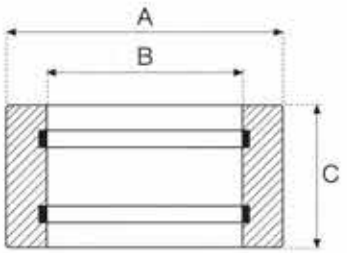
Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Working Pressure	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter				
	ton	mm	mm	mm	mm	cm^2	cm^3	bar	kg
CRKG-10023	100	225	450	260	165	254,34	5723	394	178
CRKG-10030		300	525				7630		207
CRKG-15023	150	225	460	305	195	362,87	8165	414	258
CRKG-15030		300	535				10886		297
CRKG-20023	200	225	480	350	225	490,63	11039	408	342
CRKG-20030		300	555				14719		393
CRKG-30023	300	225	500	410	275	706,50	15896	425	494
CRKG-30030		300	575				21195		565
CRKG-40023	400	225	510	455	310	907,46	20418	441	618
CRKG-40030		300	585				27224		701
CRKG-50023	500	225	545	515	350	1133,54	25505	441	853
CRKG-50030		300	620				34006		976
CRKG-60023	600	225	560	595	400	1451,47	32658	414	1178
CRKG-60030		300	635				43544		1331

Kelepçeler / *Support Rings*

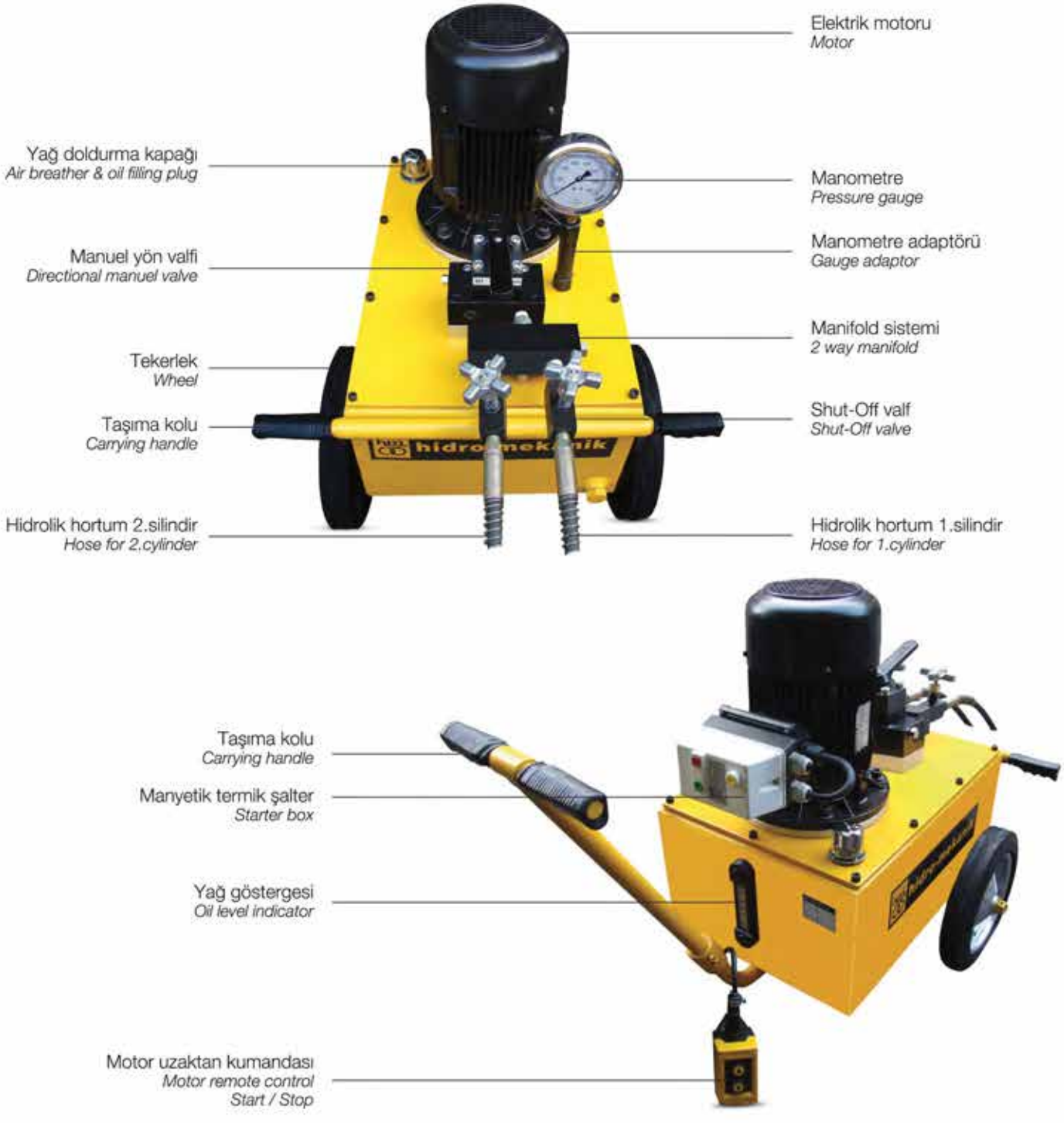
Kalıp gevşetme sisteminde yer alan kelepçeler, germe işleminin hemen ardından halatlara yüklenen toplam germe yükünün mekanik bir düzlemde bekletilmesini sağlamaktadır. Dökülen betonun kuruması için gereken sürede hidrolik silindirlerin yük altında beklememesi için silindirlerle kalıbın hareketli ön kısmı arasına yerleştirilir. hidro-mekanik kalıp gevşetme sisteminde bulunan tüm silindirler için birbirinden ayrı kelepçeler kullanılmaktadır. Yandaki çizelgede de görebileceğiniz gibi silindir ve kelepçe modelleri birlikte referans edilmişlerdir. Kelepçelerin uzunluğu, kullanıldığı kalıp gevşetme silindirinin strokuna göre ölçülendirilmiştir. Kelepçelerde uygulama sırasında piston yüzeyini zedelememesi için yataklama bantları bulunmaktadır.

Support rings placed in the system, provides to keep the total stressing loaded on strands waiting in mechanical plane right after stressing. During the drying period of concrete, in order not to keep hydraulic cylinders waiting under the pressure, support rings are placed between the cylinders and moving front part of the mold. The support ring length is adjusted due to the measurement of stroke used in relaxation jacks. There are bearing strips to protect piston surface from support rings damage during application.





Support Ring Model No.	Cylinder Model No.	A	B	C	Weight
		Outside Diameter	Inside Diameter	Height	
		mm	mm	mm	kg
KSS-100/23	CRKG-10023	250	170	200	44
KSS-100/30	CRKG-10030			275	60
KSS-150/23	CRKG-15023	285	200	200	51
KSS-150/30	CRKG-15030			275	69
KSS-200/23	CRKG-20023	315	230	200	56
KSS-200/30	CRKG-20030			275	77
KSS-300/23	CRKG-30023	375	280	200	75
KSS-300/30	CRKG-30030			275	103
KSS-400/23	CRKG-40023	420	315	200	91
KSS-400/30	CRKG-40030			275	126
KSS-500/23	CRKG-50023	480	355	200	127
KSS-500/30	CRKG-50030			275	175
KSS-600/23	CRKG-60023	530	405	200	135
KSS-600/30	CRKG-60030			275	186


Elektrik motoru
Motor
Yağ doldurma kapağı
Air breather & oil filling plug
Manometre
Pressure gauge
Manometre adaptörü
Gauge adaptor
Manuel yön valfi
Directional manuel valve
Manifold sistemi
2 way manifold
Tekerlek
Wheel
Shut-Off valf
Shut-Off valve
Taşıma kolu
Carrying handle
Hidrolik hortum 2.silindir
Hose for 2.cylinder
Hidrolik hortum 1.silindir
Hose for 1.cylinder
Taşıma kolu
Carrying handle
Manyetik termik şalter
Starter box
Yağ göstergesi
Oil level indicator
Motor uzaktan kumandası
Motor remote control
Start / Stop

- Tek kademeli elektrikli hidrolik güç ünitesi
- Tek tesirli silindirler için
- Debilerine göre toplam 5 model
- İki silindiri birlikte çalıştıran manifold sistemi
- 450 bar maksimum çalışma basıncı

- *Single stage electrical hydraulic power pack*
- *For single acting cylinders*
- *5 different models due to their flow*
- *2 way manifold system.*
- *Maximum 450 bar working pressure*

Güç Ünitesi Model No.		EPP-257	EPP-427	EPP-607	EPP-757	EPP-907
Power Pump Type		Single Stage; Special Design for Relaxation Jacks				
Pump Type		Radial 3 Piston Pump		Radial 5 Piston Pump		Radial 7 Piston Pump
Working Pressure (max.)	bar	450				
Displacement 1/min.	l / min	2,5	4,2	6,0	7,5	9,0
Motor Power	kw	2,2	3	4	5,5	7,5
Motor Rpm	rpm	1400				
Reservoir Capacity	liter	32	60	87	120	158
Usable Oil Capacity	liter	25	48	70	96	130
Reservoir Sizes	mm	330 x 450 x 230	410 x 560 x 260	480 x 660 x 280	550 x 750 x 300	600 x 820 x 330
Pressure Gauge		G-7: 100 mm x 0-700 bar (glycerine filled)				
Manifold		2 Way Manifold System				
Directional Control Valve		3 Way - 3 Position Manuel Type				
Pressure Control Valve		In-line pressure relief valve fixed 450 bar				
Motor Specifications		220/380 V., 50Hz., 3-Phaze				
Motor Remote Control		With 3 meter Cord				
Wheel Diameter	mm	250	300	300	350	350
Weight	kg	86	122	169	223	267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Hortumlar / *Hoses*

Model No.	Length	Internal Diameter	Weight
	m		kg
HS - 2206	6	9,70	3,15
HS - 2208	8		4,15
HS - 2210	10		5,15

Çalışma basıncı / *Working pressure* : 700 bar
Patlama basıncı / *Burst pressure* : 2170 bar

Manometreler / *Pressure Gauges*

G7

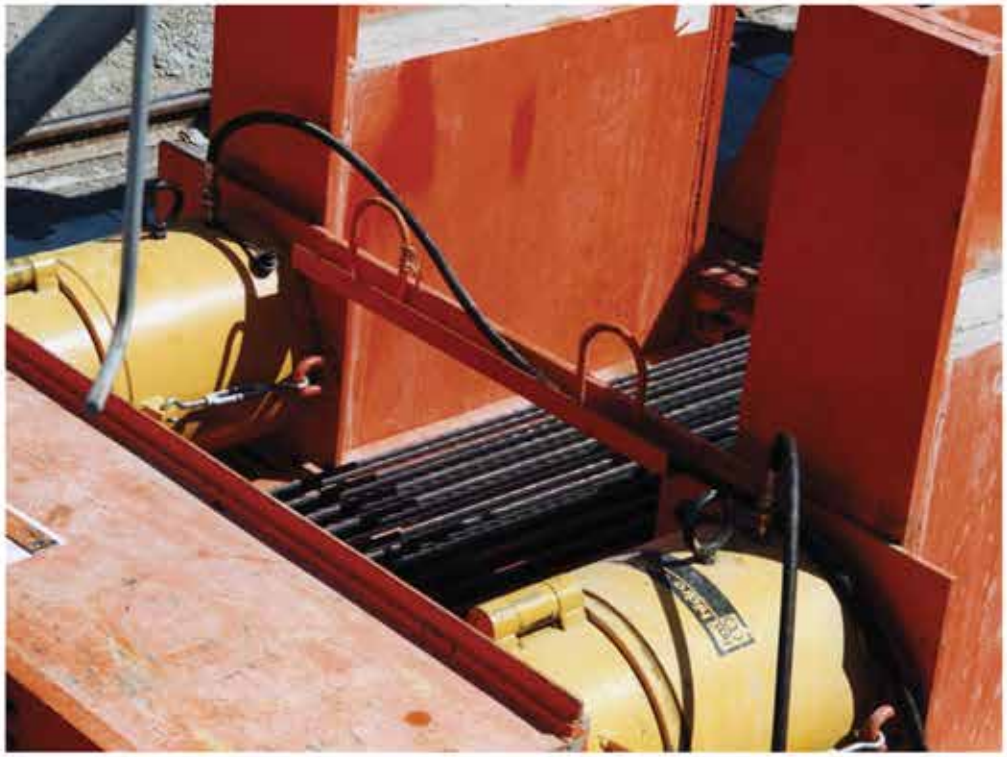
Model No.	Capacity	Scale Diameter	Oil Port	Gauge Type
	bar	mm		
G7	0-700	100	1/4" NPT	Glycerine Filled

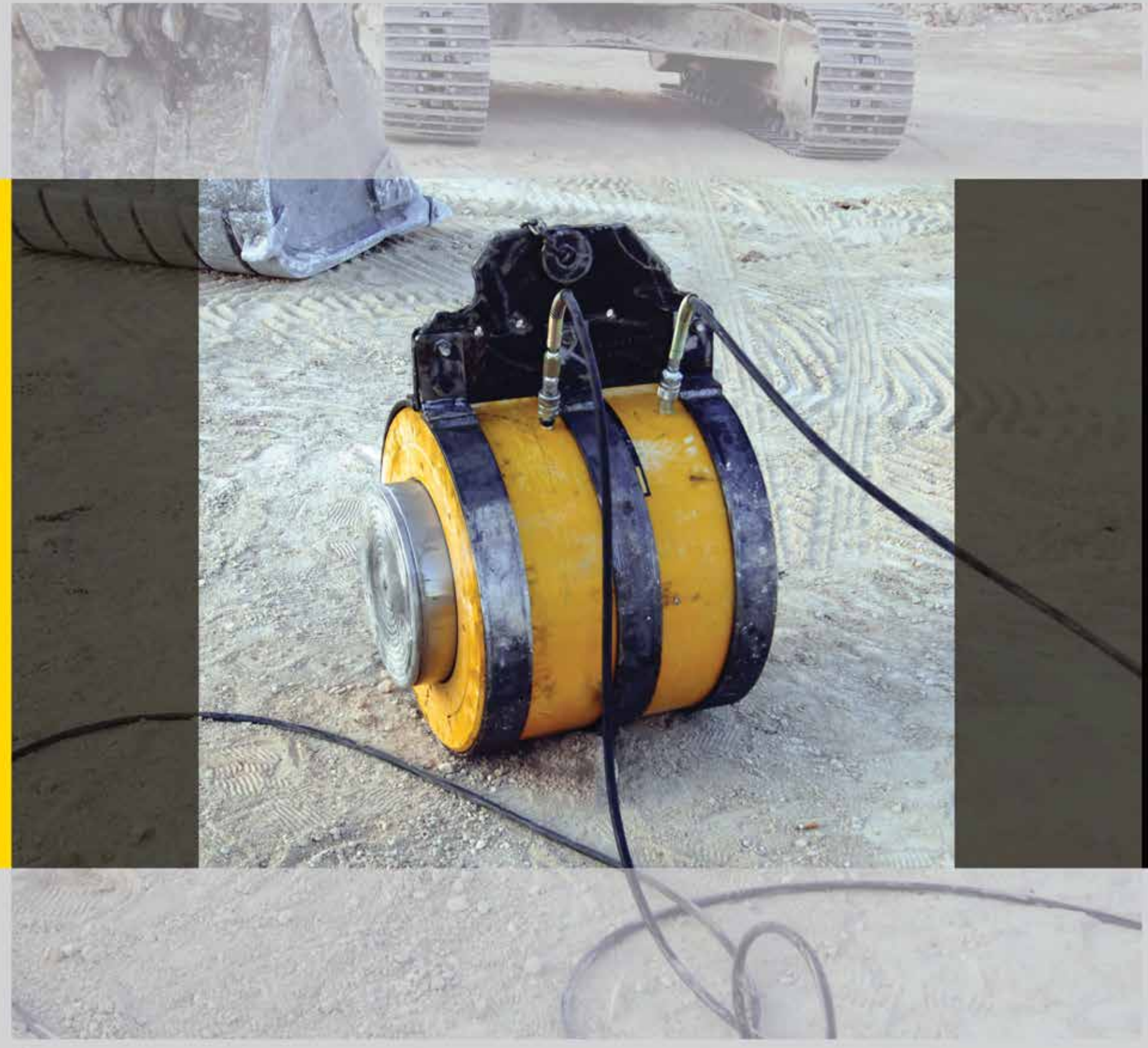
Çabuk Bağlantı Rakorları / *Coupler*

Model No.	Description	Weight
		kg
C-213	Coupler half, male with 3/8" NPT inner connection thread	0,150
C-211	Coupler half, female with 3/8" NPT outher connection thread	0,225
C-209	Coupler complate	0,375

Yandaki resimde tekli halat germe krikosu kullanılarak halatların teker teker gerilme işlemi görülmektedir.

As seen on the left picture the strands are stressed one by one using single-strand stressing jack.





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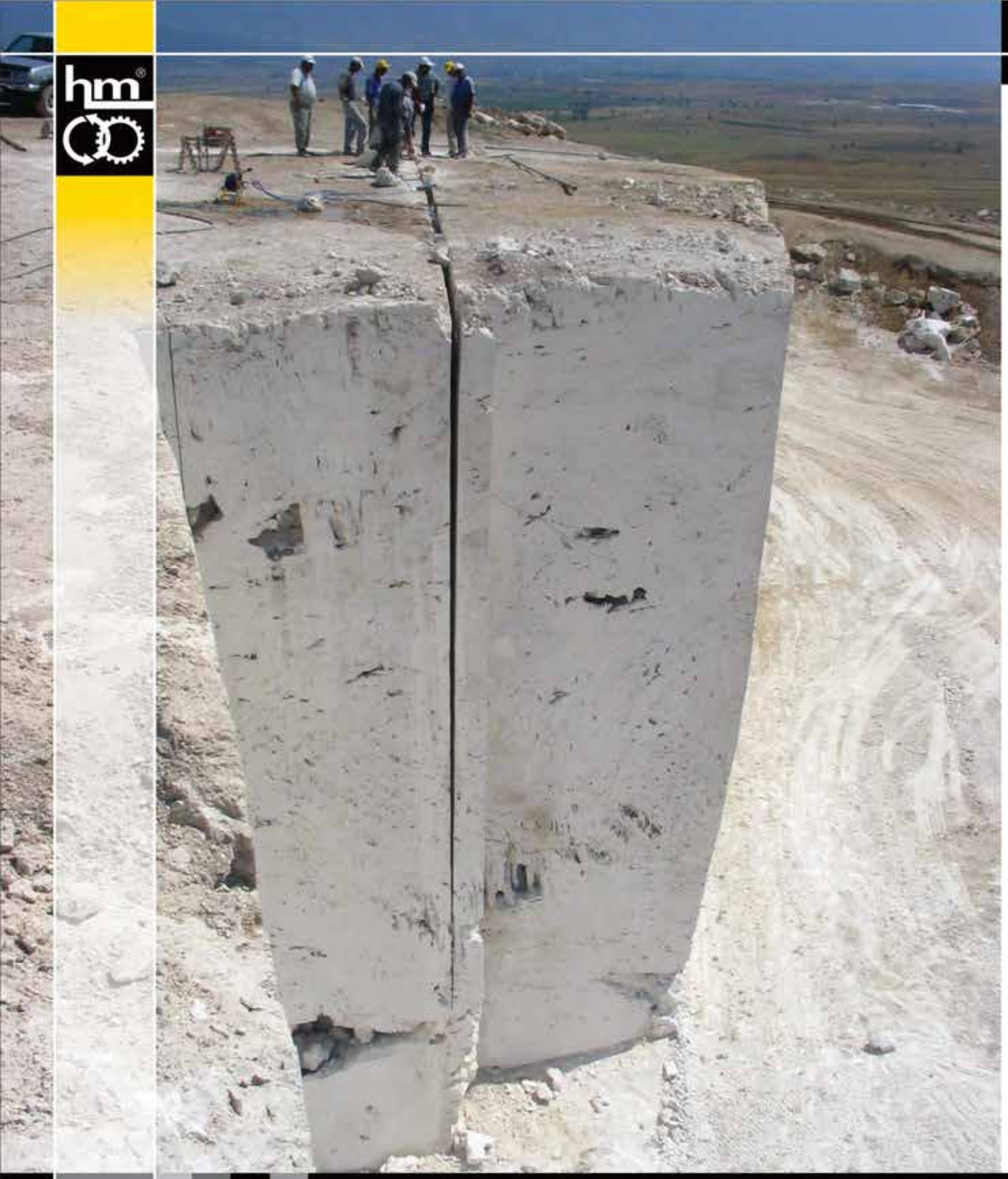
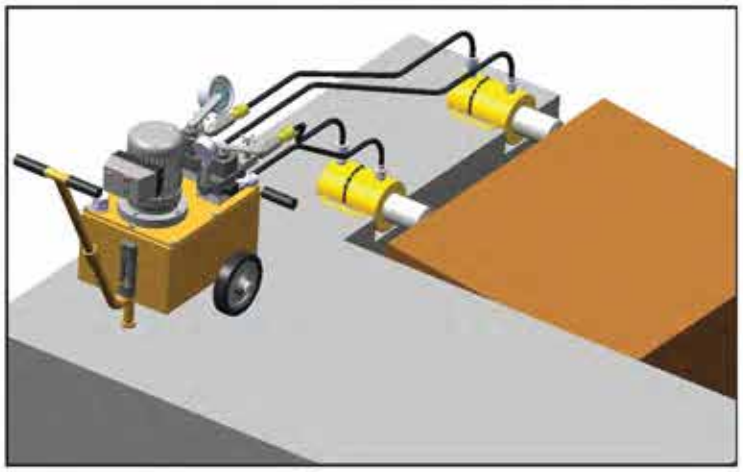
MARBLE BLOCK SEPARATION & TILTING JACK

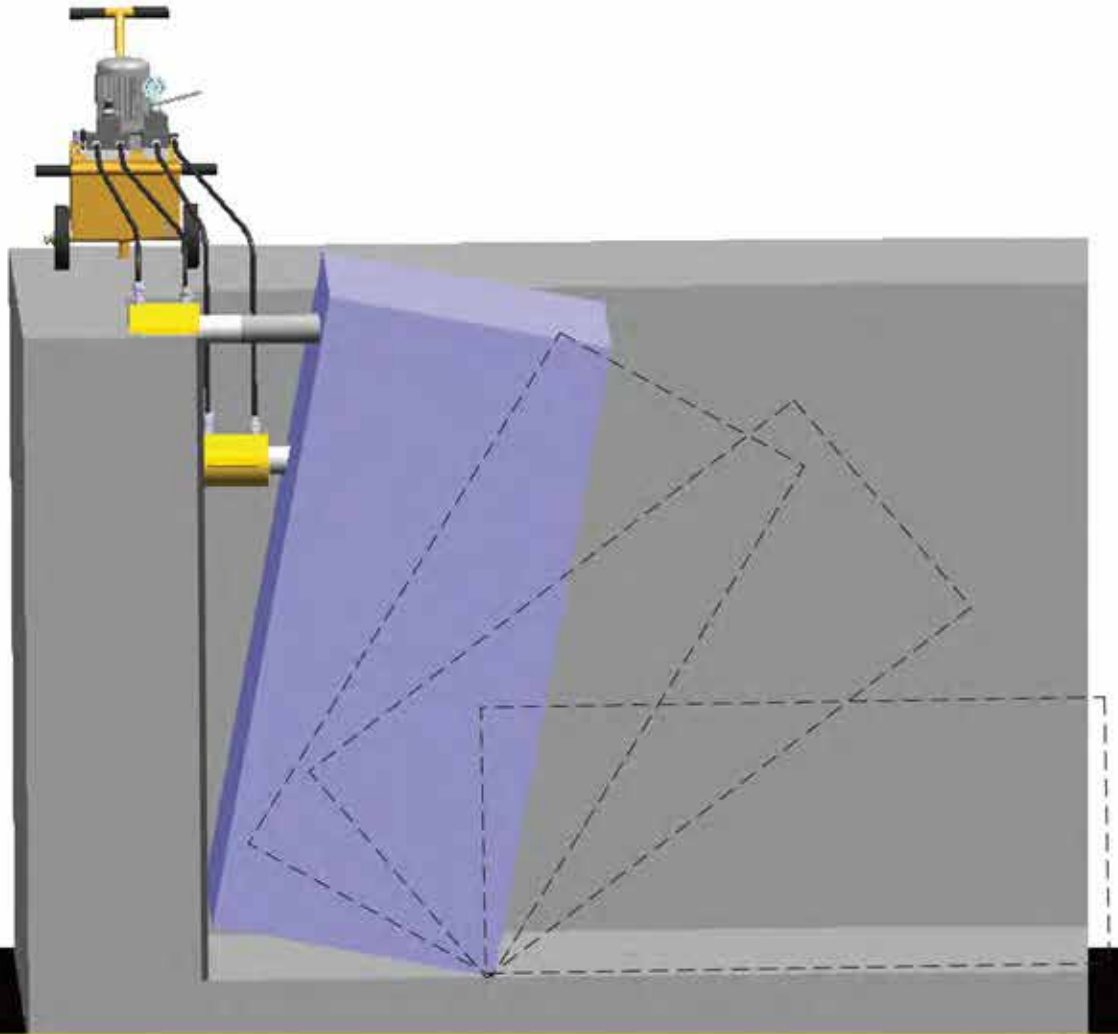
MERMER BLOK AYIRMA & DEVİRME



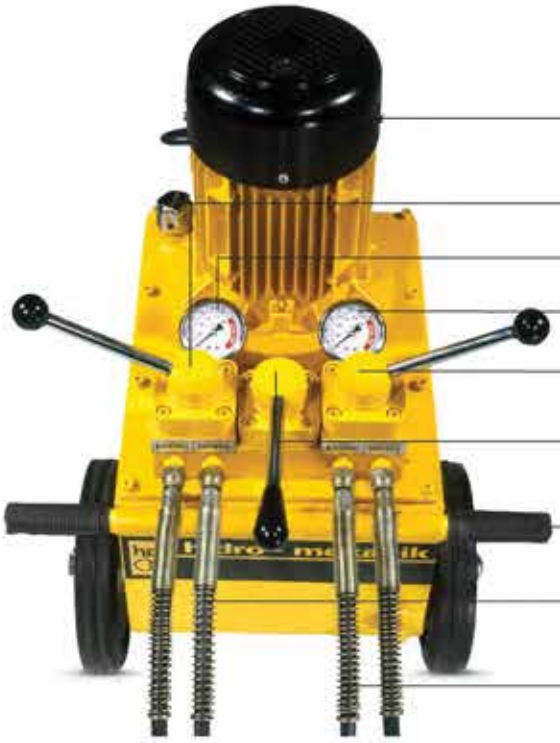
MARBLE BLOCK SEPARATION & TILTING JACK

Bir titano elektrikli güç ünitesi ile birlikte 2 adet MDA serisi hidrolik silindir kullanılmaktadır. Dağıtıcı merkez valfi sayesinde silindirler aynı anda yada birbirinden bağımsız olarak kullanılabilmektedir. Hidrolik silindirlerden elde edilen güce özellikle taşı ilk ayırma esnasında ihtiyaç duyulmaktadır. Blok için, ilk hareketi gerçekleştirdikten sonra hareket devam ettikçe ihtiyaç olan tonaj da azalmaktadır. Kademeli olarak yapılan devirme işlemi esnasında çok defa silindirler maksimum kapasitelerine çıkmaktadırlar.





2 units of MDA series hydraulic cylinder is used together with 1 Titano set. The cyinders can be used at the same time or free from each other through centeral distributor valve. It is especially needed to the power produced by hydraulic cylinders for the first seperation of stone. After having the first motion, the need of tonnage decreases with the continuing of motion.



Elektrik motoru (3 Kw)
Elektric motor

1. Sistem manuel valf / *Manuel valve for 1.system*

1. Sistem manometre - 63 mm 0-1000 bar / *Pressure gauge 1.system*

2. Sistem manometre - 63 mm 0-1000 bar / *Pressure gauge 2.system*

2. Sistem manuel valf / *Manuel valve for 2.system*

Merkez dağıtıcı valf / *Central distributor valve*

Ön taşıma kolu / *Carrying handle*

1. Sistem hortum gurubu / Hose group for 1.system

2. Sistem hortum gurubu / Hose group for 2.system

Termik manyetik şalter
Starter box

Sökülebilir arka taşıma kolu
Carrying handle

Yağ doldurma kapağı
Air breather filling plug

Yağ göstergesi
Oil level indicator

Motor uzaktan kumandası
Motor remote control start / stop

MARBLE BLOCK SEPARATION & TILTING JACK

Mermer blok ayırma-devirme işleminde kullanılan hidrolik silindirlerin ocaklarda insan gücüyle taşınması, silindirlerin hafif ve tonajlarının yüksek olmasını gerektirmektedir. Bir silindirin tonajının yüksek olması ona güç veren titanonun çalışma basıncıyla doğru orantılıdır. Örneğin aynı ebatlara ve ağırlığa sahip bir hidrolik silindir 350 bar'lık bir titano elektrikli güç ünitesi ile çalıştırıldığında elde edilecek maksimum güç 70 ton iken, aynı hidrolik silindir 700 bar'lık bir titano elektrikli güç ünitesi ile çalıştırıldığında elde edilecek güç 140 ton'dur. Sonuç olarak 700 bar yüksek çalışma basıncına sahip hidro-mekanik titano seti, iki adet 350 bar'lık titano setinin gücüne eşittir.

Hydraulic cylinders used in marble block parting-tipping operation in quarries are transported by man power. Therefore they needed to be light in weight and high in tonnage capacity. The high tonnage capacity of cylinder has direct proportion to the working pressure of titano giving power to it.

Model No.	EPM-277
Pompa Tipi / *Pump Type*	Radyal 3 pistonlu pompa / *Radial 3 piston pump.*
Çalışma Basıncı / *Working Pressure*	700 bar
Deplasman / *Displacement*	2,7 litre / dakika *(liter/min)*
Motor Devri / *Motor Rpm*	1400 devir / dakika *(rpm)*
Tank Hacmi / *Reservoir Capacity*	35 litre *(liter)*
Kullanılabilir Yağ Miktarı / *Usable Oil Capacity*	25 litre *(liter)*
Tank Boyutları / *Reservoir Sizes*	325 x 445 x 230 (mm)
Manometreler / *Pressure Gauges*	Ø 63 mm; O - 1000 bar
Dönüş Hattı Basıncı / *Return Line Pressure*	150 bar
Hortumlar / *Hoses*	1/4" yüksek basınç,12 metre (4 adet) *1/4" - 12 meter long 4 pcs.*
Yön Valfi / *Directional Control Valve*	3'lü özel dizayn manuel valf gurubu *Special design manuel valve*
Ağırlık / *Weight*	81 kg

1 Rod / *Rod*

2 Boğaz kapağı / *Retaining nut*

3 Toz keçesi / *Scraper*

4 Taşıma kolu / *Carrying handle*

5 Boğaz keçesi / *Rod seal*

6 Dönüş hattı silindir giriş rakoru
Return line port

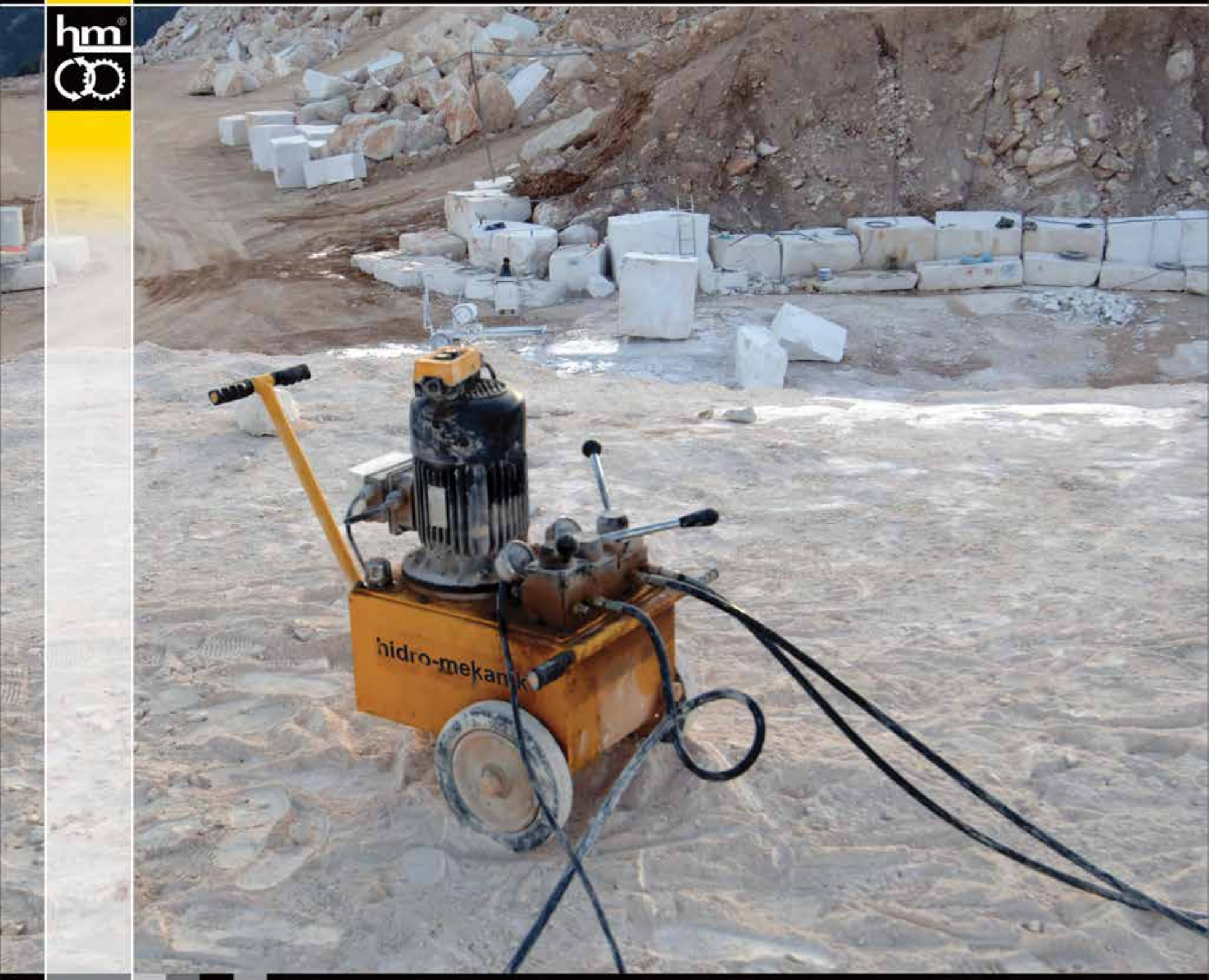
7 Piston / *Piston*

8 Piston keçesi
Piston seal

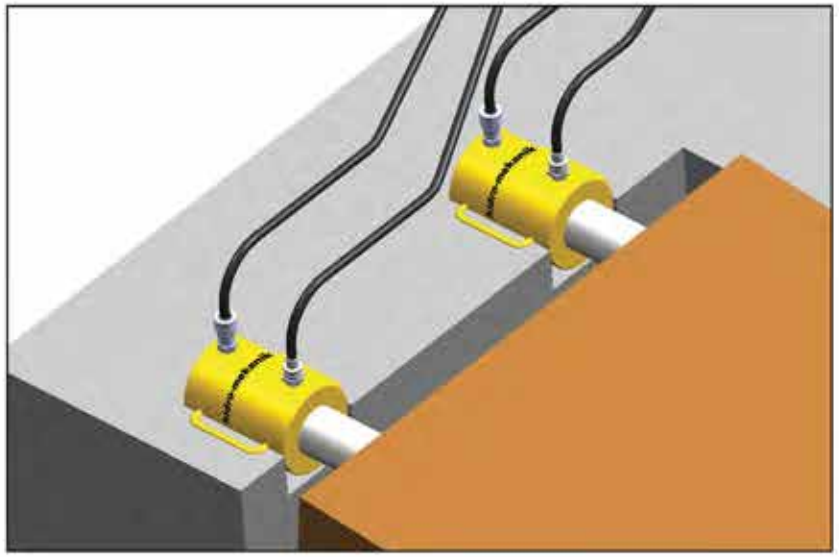
9 Basınç hattı silindir giriş rakoru
Pressure line port

10 Takoz silindir yağ hattı girişlerini tek merkezde toplar.
Plate for pressure and return line ports

11 Silindir gövdesi
Cylinder body



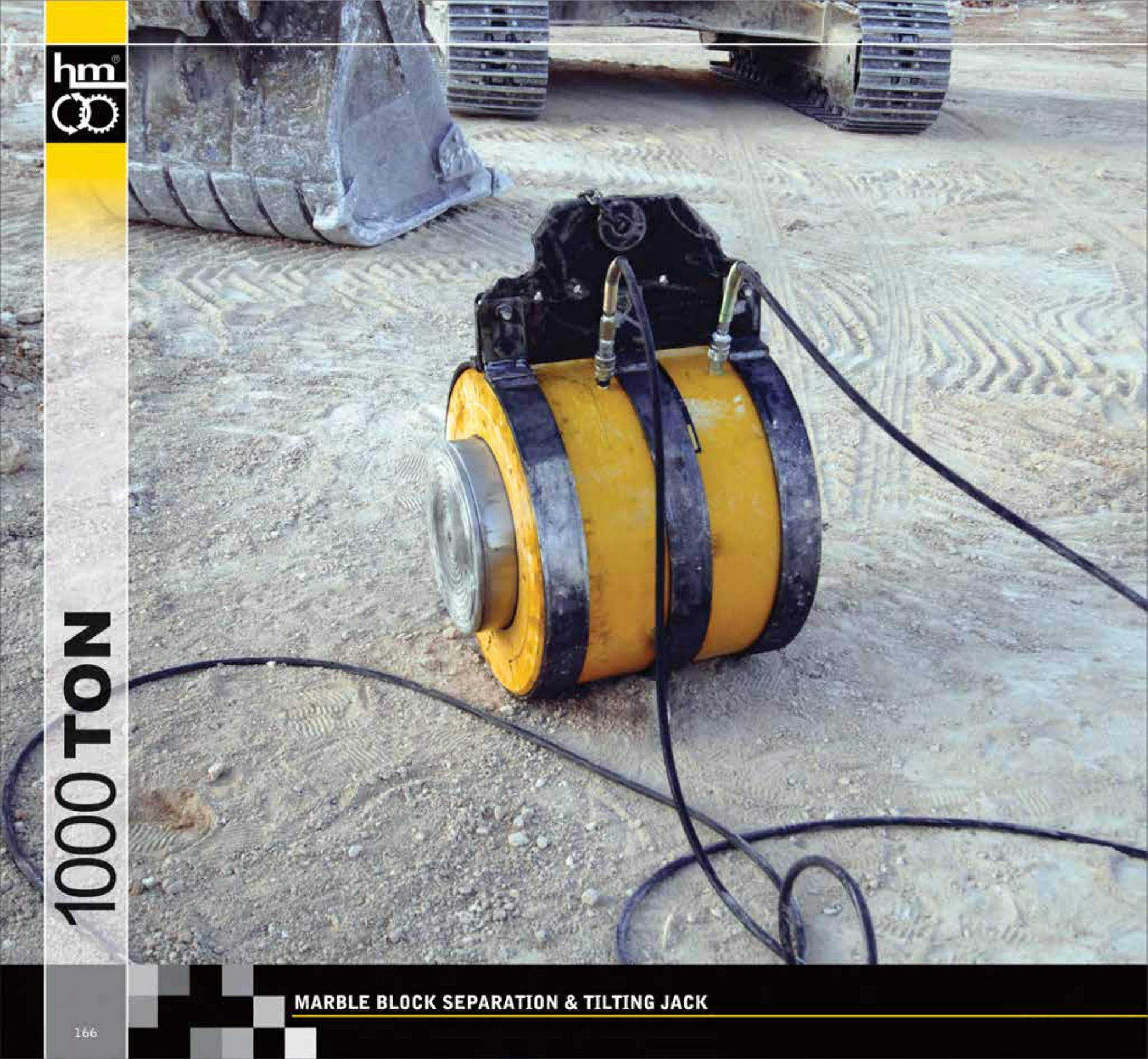
MARBLE BLOCK SEPARATION & TILTING JACK



- Piston+Rod yekpare olarak imal edilmiş ve komple sertleştirilmiştir.
- Rod yüzeyi 100 mikron krom kaplanmıştır.
- Pistonda eksenel yükleri minimize etmek için çift bronz yataklama yapılmıştır.
- Silindir gövdesi sürekli 700 bar yüksek basınca ve ağır çalışma şartlarına uygun dayanıklılıkta imal edilmiştir.
- Silindir iç yüzeyi Ra 10-20 mikron minumum yüzey pürüzlülük değerinde honlanmıştır.
- Boğaz kapağı silindir gövdesine vidalı tip dizayn edilmiş olup, silindir maksimum kapasitesindeki yükü taşıyacak mukavemettedir.
- Boğaz kapağında çift bronz yataklama yapılmıştır.
- Silindirde sürekli 800 bar basınca mukavim sızdırmazlık elemanları kullanılmıştır.

- *Piston+Rod is produced as single piece and completely hardened.*
- *Rod surface is 100 micron thickness chrome plated.*
- *Double bronze bearing is done in piston to minimize the axial load.*
- *Cylinder body is produced in convenient durability for constant 700 bars of high pressure and hard working conditions.*
- *Internal surface of cylinder is honed with minimum Ra-10-20 micron surface roughness level.*
- *Retaining nut is produced as screw type for cylinder body and cylinder has maximum load carriage durability.*
- *Double bronz bearing is done retaining nut to minimize the axial loads.*
- *The sealing components are used in cylinder durable for constant 800 bars of pressure.*

Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm^2	cm^3	kg
MDA - 15011	150	115	265	230	125	214	2461	64
MDA - 15017		170	330				3638	80
MDA - 6034	60	340	490	160	85	87	2958	72
MDA - 6050		500	645				4350	79



1000 TON

MARBLE BLOCK SEPARATION & TILTING JACK


hidro - mekanik

hidro - mekanik

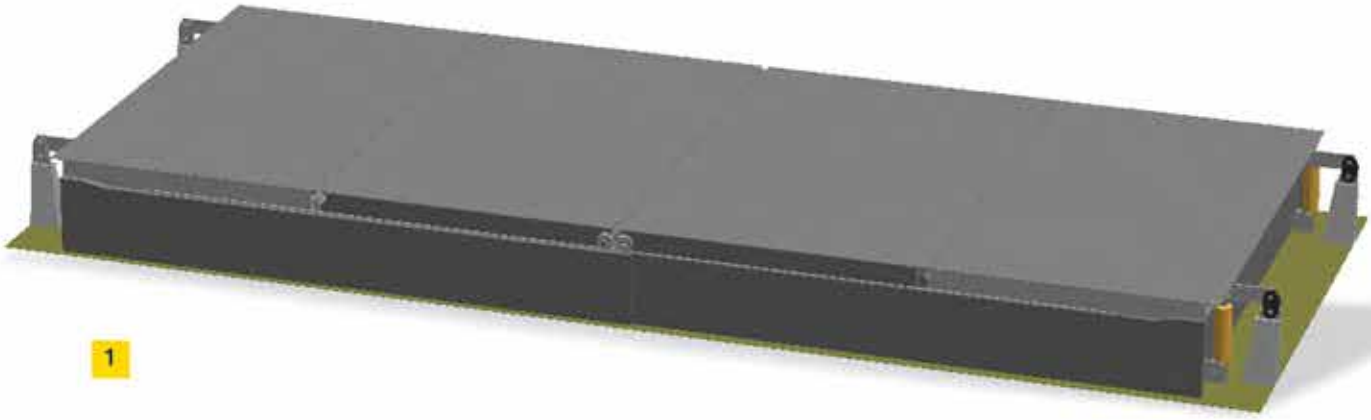
HATCH COVER HYDRAULIC SYSTEM

GEMİ AMBAR KAPAĞI HİDROLİK SİSTEMLERİ


hidro - mekanik

Hidrolik Ambar Kapağı Açma - Kapatma Sistemi

Hydraulic Hatch Cover On-Off System



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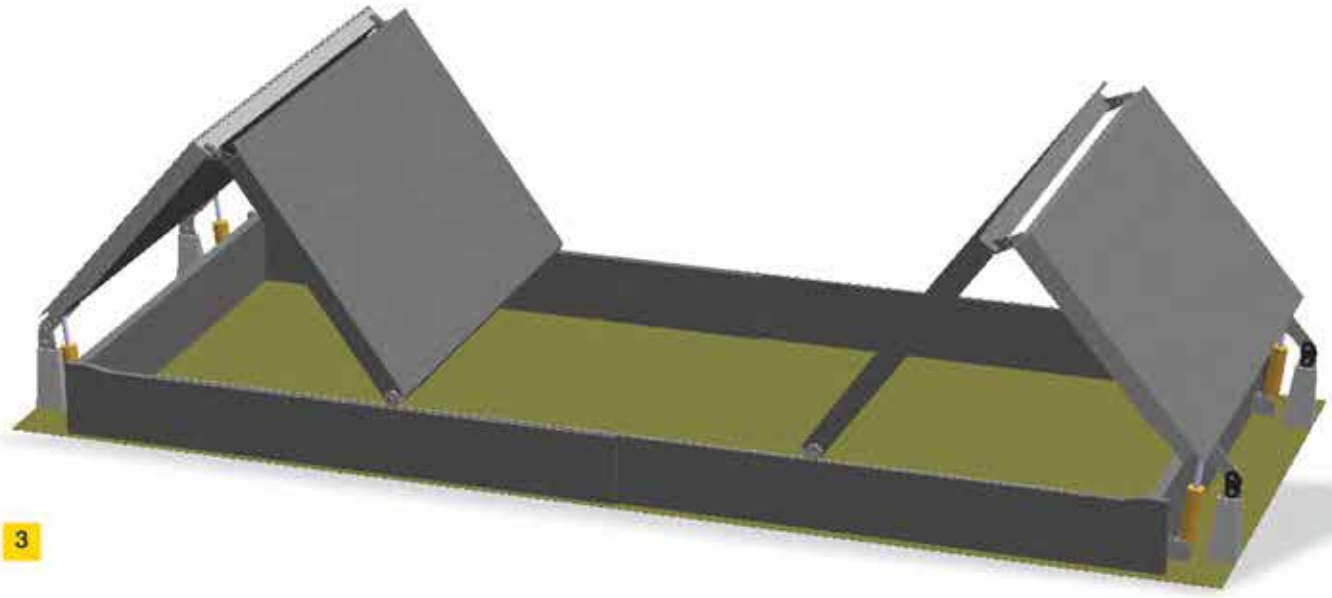

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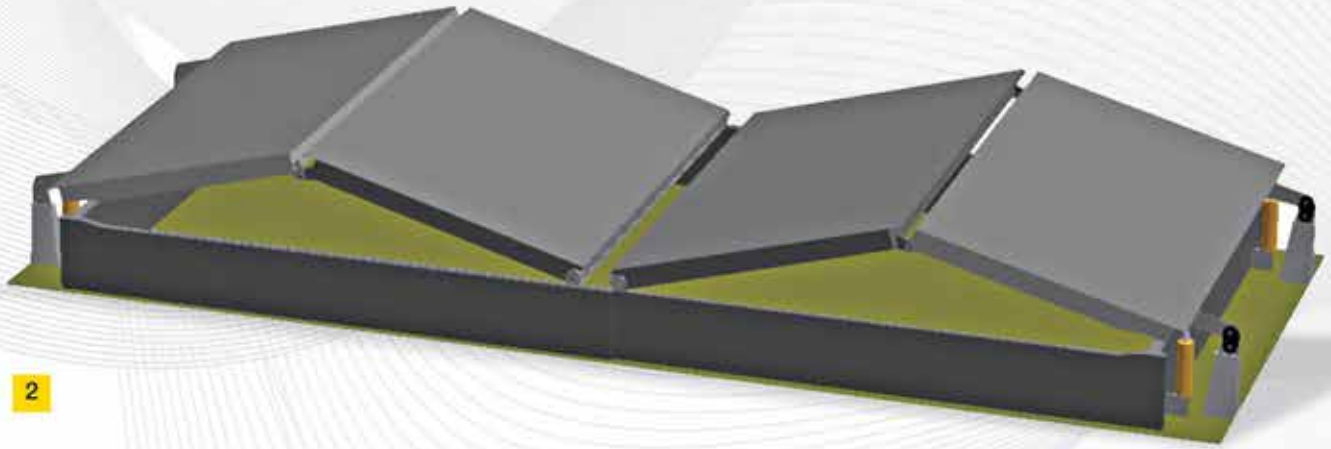

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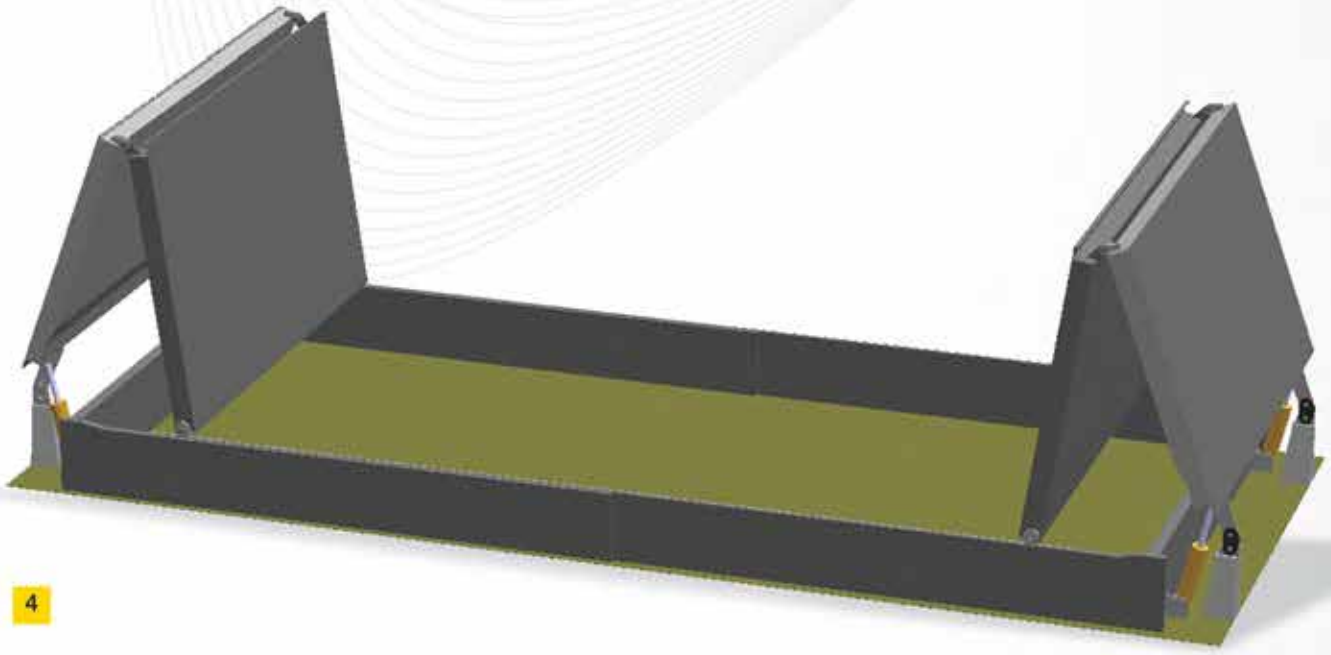
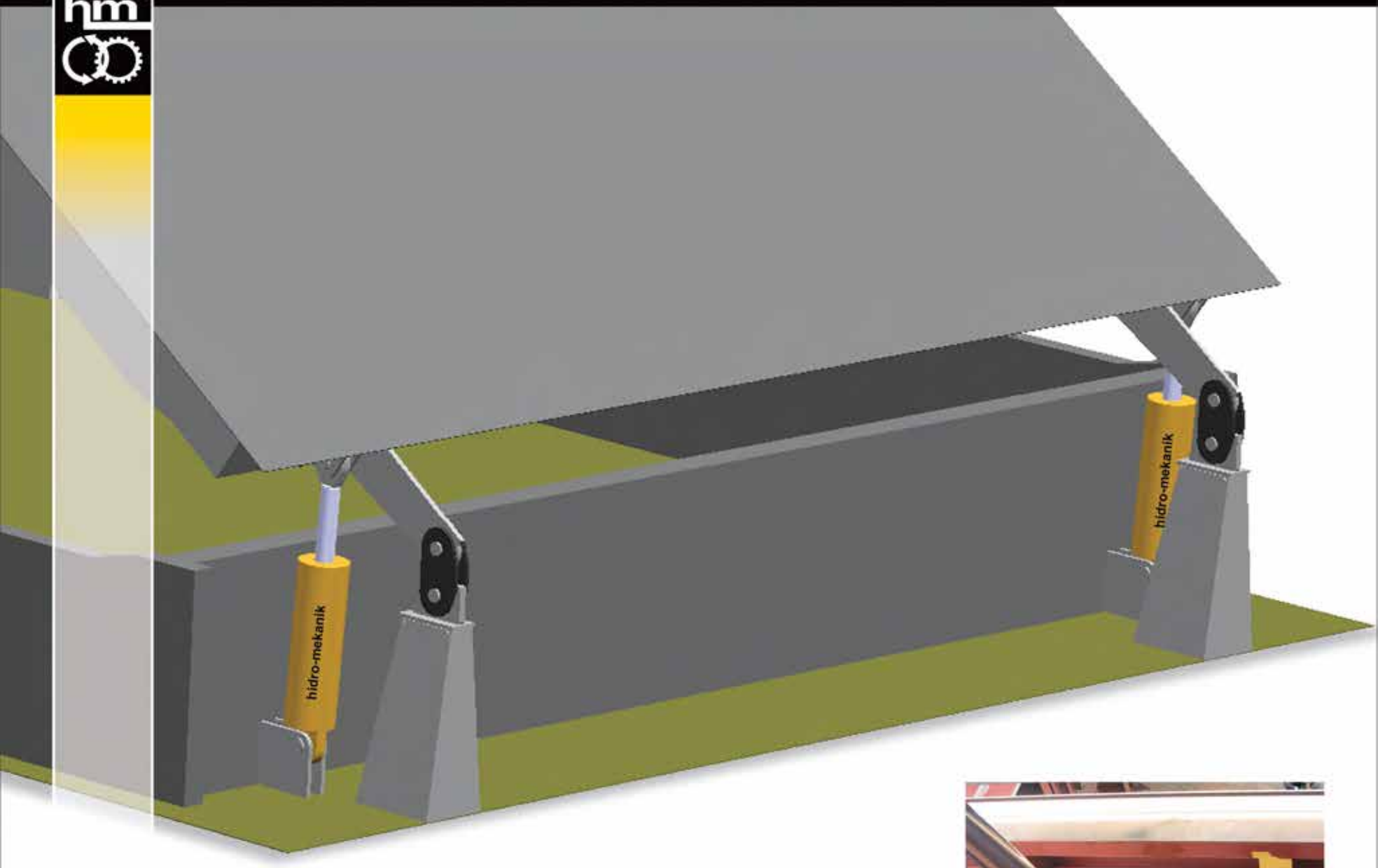


4


hidro - mekanik

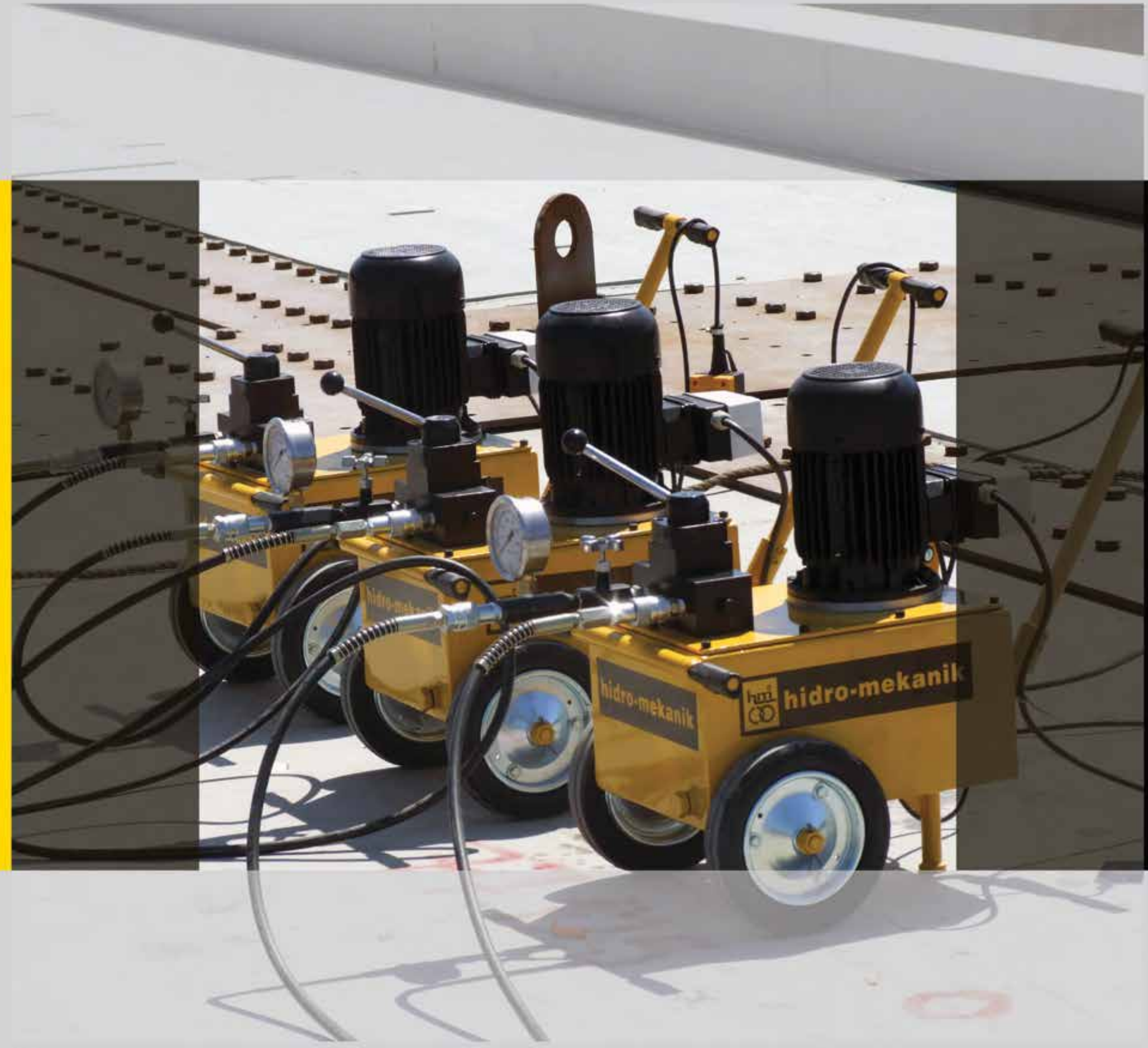

CİVRA



HATCH COVER HYDRAULIC SYSTEM

Daha çok kuru yük taşımacılığı yapan gemilerde bulunan ambarlarda, taşıdıkları yükleri dış etkenlerden korumak amaçlı kapaklar bulunmaktadır. Bu kapaklar geniş ebatlı ve ağır kapaklar olması sebebiyle açma/kapama işlemleri çoğunlukla hidrolik silindirler ile yapılır. Ambar kapaklarını açıp / kapatmaya yarayan bu sistem, sayısı kapak adedine göre belirlenmiş hidrolik silindir, her kapak için bir adet hidrolik valf grubu, tüm silindirlerin bağlı olduğu bir adet elektrikli güç ünitesi ve diğer bağlantı ekipmanlarından meydana gelmektedir. Silindirlerin tonajları, açıp kapayacağı kapağın ağırlığına ve sürtünmelere uygun olarak hesaplanır. Tonajları ve strokları belirlenen silindirlerin adetlerine göre elektrikli güç ünitesi tasarlanır.

In hatches where mostly used in dry cargo vessels, there are covers to protect the cargo from external effects. As these covers are wide in size and heavy in weight, on/off operations mostly done with hydraulic cylinders. This system maintaining to open/close the hatch covers consists of; hydraulic cylinder where it's quantity is adjusted due to the number of hatch covers, hydraulic control valve group for each of hatch cover, an electrical power pack where all cylinders are connected and other connection equipments. The tonnage of cylinders are calculated according to the weight of cover and friction. Electrical power pack is designed due to the cylinder quantities of which tonnage and strokes are determined.


hidro-mekanik
hidro-mekanik

hidro - mekanik

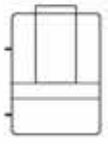
CYLINDERS, PUMPS AND ACCESSORIES

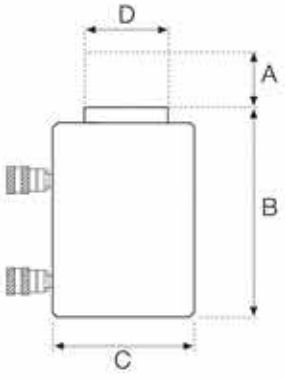
SİLİNDİR, POMPA VE AKSESUARLAR

DA Series

DA Series

Double acting
Hydraulic return
30 - 100 ton capacity
100 - 350 mm stroke
Totally 30 models
700 bar maximum operating pressure





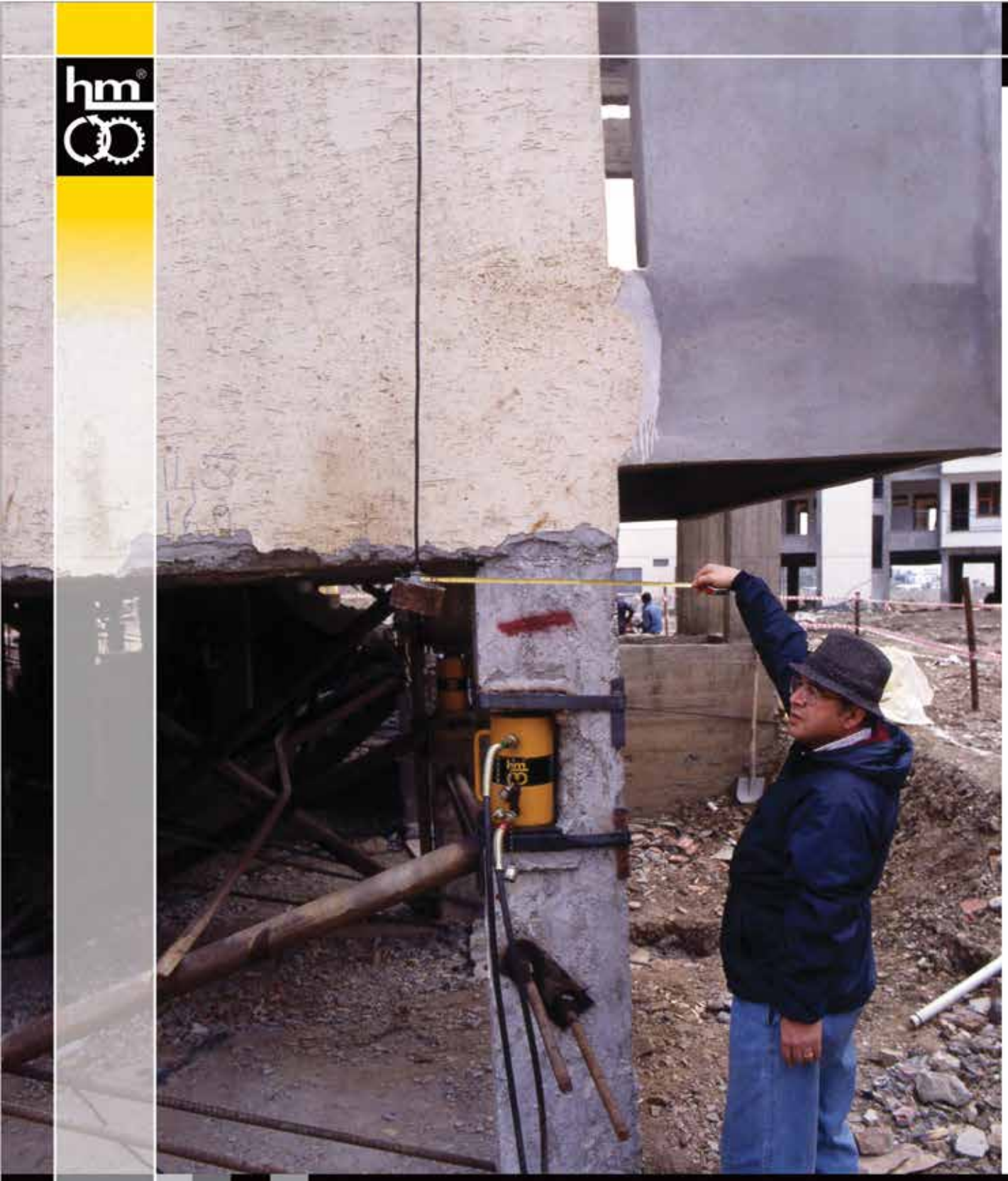
Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm^2	cm^3	kg
DA-3010	30	100	255	112	60	44,18	283	18,0
DA-3015		150	305				425	21,5
DA-3020		200	355				567	25,0
DA-3025		250	405				714	28,5
DA-3030		300	455				861	31,5
DA-3035		350	505				1008	35,0
DA-3040		400	555				1155	38,5
DA-5010	50	100	260	139	75	70,88	442	28,0
DA-5015		150	310				663	33,0
DA-5020		200	360				884	38,0
DA-5025		250	410				1105	43,0
DA-5030		300	460				1326	48,0
DA-5035		350	510				1547	53,0
DA-5040		400	560				1768	58,0
DA-5050		500	660				2210	68,0
DA-7510	75	100	265	161	90	103,87	637	36,5
DA-7515		150	315				956	43,0
DA-7520		200	365				1275	49,5
DA-7525		250	415				1594	56,0
DA-7530		300	465				1913	62,5
DA-7535		350	515				2232	69,0
DA-7540		400	565				2551	75,0
DA-7550		500	665				3188	88,5
DA-10010	100	100	275	188	100	143,14	785	50,5
DA-10015		150	325				1177	59,0
DA-10020		200	375				1569	67,5
DA-10025		250	425				1961	76,0
DA-10030		300	475				2353	84,5
DA-10035		350	525				2745	93,0
DA-10040		400	575				3137	101,5


S 8
S8
S12

Zemin kaymasından dolayı yan yatmış olan 5 katlı 6 adet bina temel takviyesi yapıldıktan sonra krikolarla kaldırılarak düzeltilmiştir. 1992 yılında Türkiye'de ilk kez yapılan, binaların kaldırılarak düzeltilmesi işleminde 38 adet hidro-mekanik DA-10015 model no'lu 100 ton kapasiteli çift tesirli hidrolik silindir, 10 adet HPYV-136 model no'lu hidrolik el pompası ve 10 adet MD-4 model no'lu 4 çıkışlı manifold sistemi kullanılmıştır.

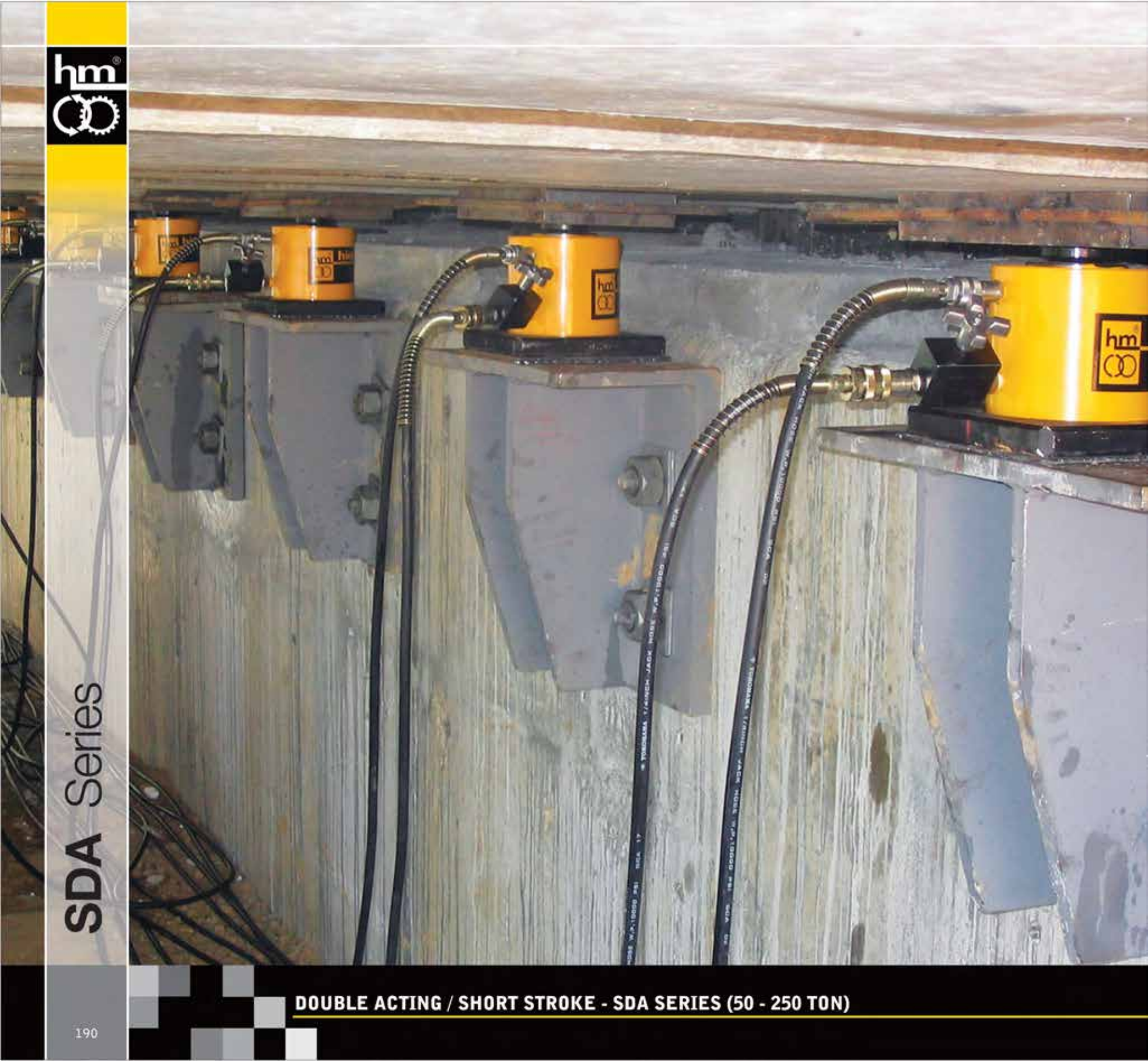
6 buildings with 5-storeys which have leaned a side because of subsidence of ground are fixed by jacking-ups after strengthening the foundation. This fixing operation by removal of the building is done in Turkey for the first time in 1992. 38 units of hidro-mekanik DA-10015 model 100 tons of capacity double acting hydraulic cylinders, 10 units of MD-4 model 4 way manifold system are used during this operation.

DOUBLE ACTING - DA SERIES (30 - 100 TON)



Yük kaldırma sınıfında en hassaslar grubuna giren bina kaldırma uygulamasında hidrolik sistem tüm uygulamanın en önemli noktasıdır. Binlerce tonla ifade edilebilecek bir ağırlığın hidrolik silindirlerle kaldırılması ve istenilen açıya getirilmesi son derece emniyet ve tecrübe isteyen bir uygulamadır. Sistemde bulunan tüm hidrolik silindirlerin, pompaların, hortumların, emniyet valflerinin, manifoldların ve tüm diğer ara parçaların sıfır hata ile görevlerini yerine getirmeleri son derece önemlidir.

Building lifting applications are the most sensitive applications among the load lifting class and hydraulic systems are the most important part of these applications. Lifting thousands tons of load with hydraulic cylinders and bringing to the right angle requires utmost attention, experience and security. All hydraulic cylinders, pumps, hoses, security valves, manifolds and all other intermediate members must work with at zero error.

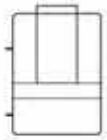


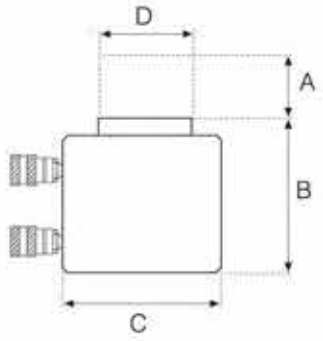
SDA Series

DOUBLE ACTING / SHORT STROKE - SDA SERIES (50 - 250 TON)

SDA Series

Double acting, short stroke
Hydraulic return
50 - 250 ton capacity
50 - 75 mm stroke
Totally 12 models
700 bar maximum operating pressure





Model No.	Capacity	A Stroke	B Closed Height	C Outside Diameter	D Rod Diameter	Effective Area	Oil Capacity	Weight
	ton	mm	mm	mm	mm	cm²	cm³	kg
SDA-505	50	50	130	137	80	70,85	354	15,0
SDA-508		75	155				532	18,5
SDA-755	75	50	133	157	100	103,82	519	20,0
SDA-758		75	158				779	23,5
SDA-1005	100	50	138	185	115	143,07	715	27,5
SDA-1008		75	163				1073	32,0
SDA-1505	150	50	145	217	140	213,72	1069	39,5
SDA-1508		75	170				1603	45,5
SDA-2005	200	50	155	247	165	283,40	1417	55,0
SDA-2008		75	180				2125	63,0
SDA-2505	250	50	165	278	185	362,87	1814	76,0
SDA-2508		75	190				2722	85,5

DOUBLE ACTING / SHORT STROKE - SDA SERIES (50 - 250 TON)

Bu köprü kaldırma uygulamasında 9 adet SDA-755 model nolu 75 ton kapasiteli silindir 1 adet EPS-367M35 model nolu elektrikli güç ünitesi ve 9 çıkışlı 1 adet manifold sistemi kullanılmıştır.

In this bridge lifting application 9 units of SDA-755 model 75 tons of capacity cylinder, 1 unit of EPS-367M35 model electrical power pack and 1 unit 9 way manifold system are used.

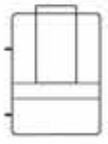
Köprü kaldırma uygulamalarında en dikkat edilmesi gereken noktalardan bir tanesi hidrolik sistemin kapasitesinin belirlenmesi aşamasıdır. Sadece köprü kaldırma uygulamasına özel durumlar söz konusudur. Örneğin kiriş bağlantılarının tamamının birbirlerinden ayrılmamış olması ihtimali ve daha da önemlisi kaldırılan kısım ile sabit kısım arasındaki sürtünmeden kaynaklanan ek yük ihtiyacı hidrolik sistemin kapasitesini belirlerken mutlaka düşünülmesi gereken çok önemli bir detaydır. Mevcut köprünün projesinde belirtilen ağırlığın en az %50 üzerinde bir hidrolik sistem kapasitesi öngörmek hem kaldırma esnasında karşılaşılabilecek problemleri aşmanızı sağlayacak hemde sistemi çok yüksek basınçta çalıştırarak düşük emniyetli bir kaldırma yapmanızı önleyecektir.

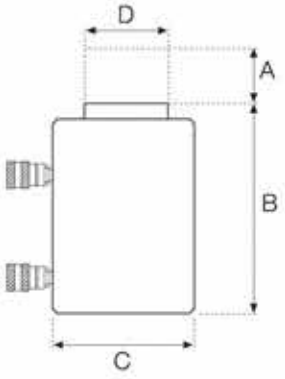
One of the important stage of bridge lifting operations is determining the capacity of hydraulic system. There are some special cases only in bridge lifting operations. Foreseeing hydraulic system capacity at least over 50% of the weight mentioned in the project of existing bridge helps to overcome the problems can be faced during lifting and prevents doing low secured liftings under very high pressure.

HDA Series

HDA Series

Double acting
Hydraulic return
150 - 400 ton capacity
100 - 350 mm stroke
Totally 28 models
700 bar maximum operating pressure

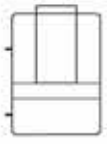


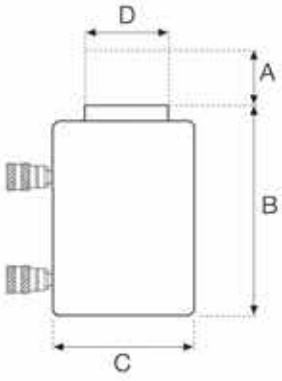


Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm²	cm³	kg
HDA-15010	150	100	275	225	120	213,82	1132	74,0
HDA-15015		150	325				1698	85,5
HDA-15020		200	375				2264	97,0
HDA-15025		250	425				2830	108,5
HDA-15030		300	475				3396	120,0
HDA-15035		350	525				3962	131,5
HDA-20010	200	100	290	255	140	283,53	1540	101,0
HDA-20015		150	340				2310	116,0
HDA-20020		200	390				3080	131,0
HDA-20025		250	440				3850	146,0
HDA-20030		300	490				4620	161,0
HDA-20035		350	540				5390	176,0
HDA-25010	250	100	300	290	165	363,05	2140	137,0
HDA-25015		150	350				3210	157,0
HDA-25020		200	400				4280	177,0
HDA-25025		250	450				5350	197,0
HDA-25030		300	500				6420	217,0
HDA-25035		350	550				7490	237,0
HDA-30010	300	100	325	320	190	433,74	2836	183,0
HDA-30015		150	375				4254	209,0
HDA-30020		200	425				5672	235,0
HDA-30025		250	475				7090	261,0
HDA-30030		300	525				8508	287,0
HDA-40010	400	100	365	380	215	572,56	3629	290,0
HDA-40015		150	415				5443	326,5
HDA-40020		200	465				7257	363,0
HDA-40025		250	515				9072	399,0
HDA-40030		300	565				10886	434,5

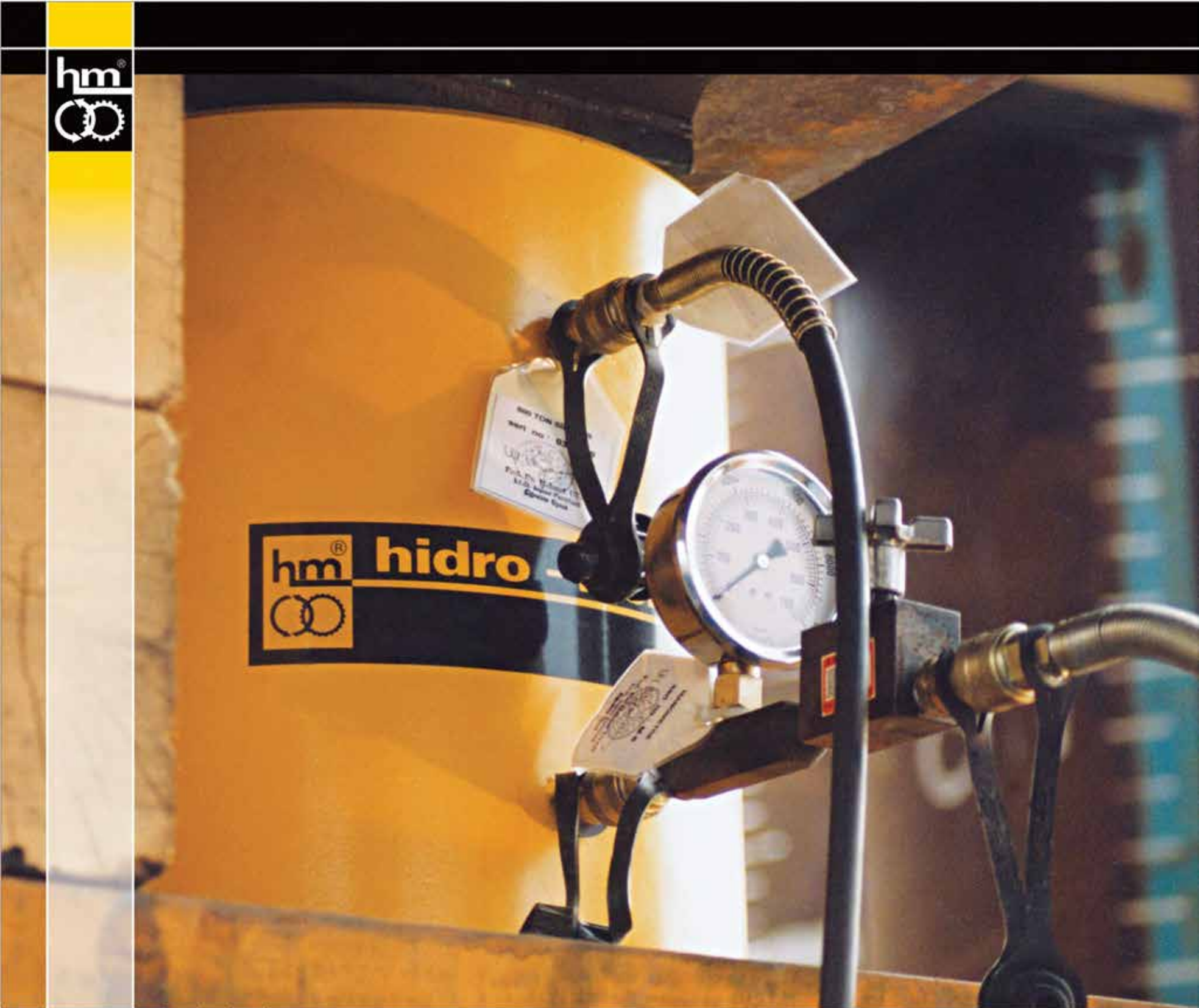
HDA Series

Double acting
Hydraulic return
500 - 1000 ton capacity
100 - 300 mm stroke
Totally 25 models
700 bar maximum operating pressure





Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm^2	cm^3	kg
HDA-50010	500	100	390	420	240	706,86	4524	390
HDA-50015		150	440				6786	435
HDA-50020		200	490				9048	480
HDA-50025		250	540				11310	525
HDA-50030		300	590				13542	570
HDA-60010	600	100	415	465	260	855,30	5310	515
HDA-60015		150	465				7965	570
HDA-60020		200	515				10620	625
HDA-60025		250	565				13275	680
HDA-60030		300	615				15930	735
HDA-70010	700	100	430	500	290	1017,88	6606	621
HDA-70015		150	480				9909	662
HDA-70020		200	530				13212	703
HDA-70025		250	580				16515	744
HDA-70030		300	630				19818	785
HDA-80010	800	100	450	530	300	1134,11	7068	720
HDA-80015		150	500				10602	791
HDA-80020		200	550				14136	862
HDA-80025		250	600				17670	933
HDA-80030		300	650				21204	1004
HDA-100010	1000	100	500	605	340	1452,20	9080	1058
HDA-100015		150	550				13620	1151
HDA-100020		200	600				18160	1244
HDA-100025		250	650				22700	1337
HDA-100030		300	700				27240	1430

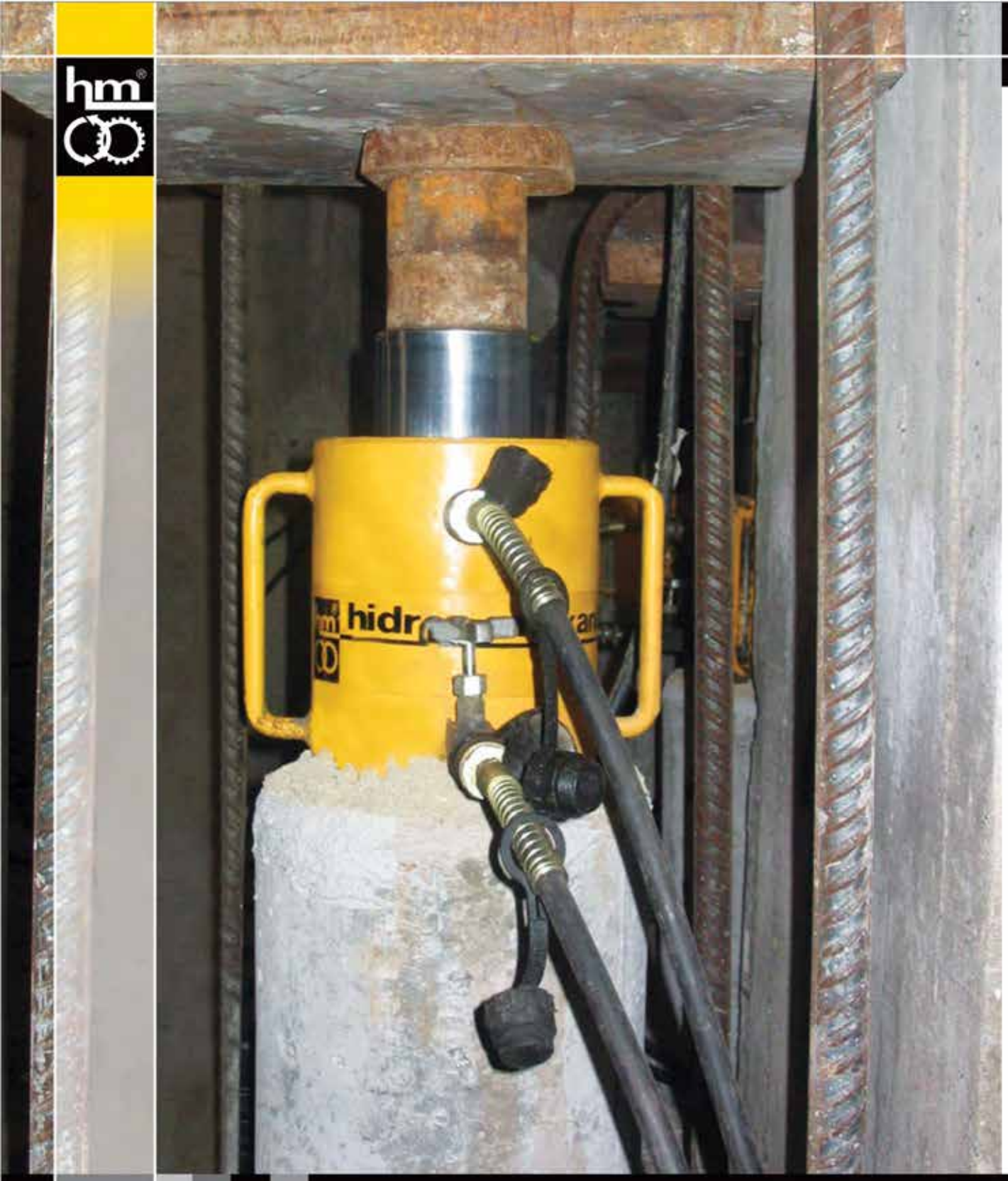


DOUBLE ACTING - HDA SERIES (500 - 1000 TON)


hidro-mekanik

Zemin kaymasından dolayı yan yatmış olan 8 katlı bir bina temel takviyesi yapıldıktan sonra krikolarla kaldırılarak düzeltilmiştir. 2006 yılında yapılan bu düzeltme işleminde 30 adet hidro-mekanik HDA-15020 model no'lu 150 ton kapasiteli çift tesirli hidrolik silindir, 6 adet EPP-207 model no'lu elektrikli hidrolik güç ünitesi ve 5 adet MD-4 model no'lu 4 çıkışlı monifold sistemi kullanılmıştır.

8-storey building which has leaned a side because of subsidence of ground is fixed by jacking-ups after strengthening the foundation. During this fixing operation done in 2006, 30 items of hidro-mekanik HDA-15020 model double acting hydraulic cylinder with 150tons capacity, 6 items of EPS-207 model electrical hydraulic power unit and 5 items of MD-4 model 4 way manifold systems are used.



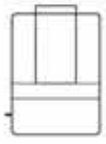
DOUBLE ACTING - HDA SERIES (150 - 400 TON)

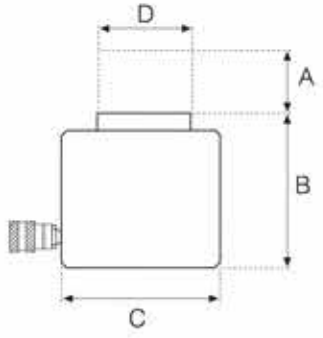

hidro

SSA Series

SSA Series

Single acting, short stroke
Load return
20 - 100 ton capacity
40 - 75 mm stroke
Totally 28 models
700 bar maximum operating pressure



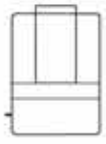


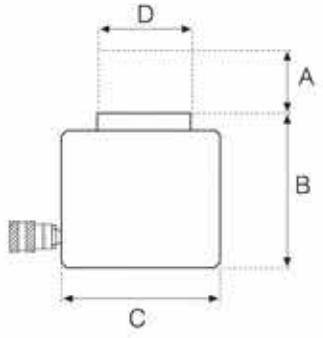
Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm²	cm³	kg
SSA-204	20	40	94	98	55	33,18	133	4,6
SSA-205		50	104				166	5,4
SSA-206		60	114				199	6,1
SSA-208		75	129				249	7,1
SSA-304	30	40	101	119	70	50,26	201	7,5
SSA-305		50	111				251	8,2
SSA-306		60	121				302	8,9
SSA-308		75	136				377	9,9
SSA-404	40	40	102	129	80	63,62	255	9,3
SSA-405		50	112				318	10,4
SSA-406		60	122				382	11,5
SSA-408		75	137				477	13,0
SSA-504	50	40	106	143	90	78,54	314	11,5
SSA-505		50	116				393	12,5
SSA-506		60	126				471	13,6
SSA-508		75	141				589	15,2
SSA-604	60	40	109	155	95	95,03	380	14,1
SSA-605		50	119				475	15,0
SSA-606		60	129				570	16,5
SSA-608		75	144				713	18,2
SSA-804	80	40	113	169	110	113,10	453	18,3
SSA-805		50	123				566	20,2
SSA-806		60	133				679	21,9
SSA-808		75	148				848	24,0
SSA-1004	100	40	120	186	120	143,13	573	23,3
SSA-1005		50	130				716	24,3
SSA-1006		60	140				859	27,0
SSA-1008		75	155				1074	29,0

SAS Series

SAS Series

Single acting, short stroke
Load return
30 - 200 ton capacity
50 - 100 mm stroke
Totally 18 models
700 bar maximum operating pressure



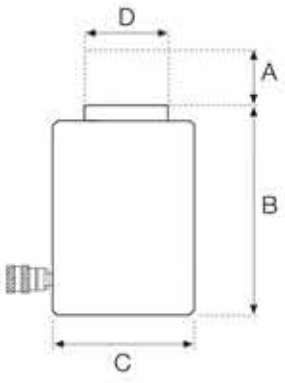


Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm²	cm³	kg
SAS-305	30	50	125	112	65	44,18	221	9,7
SAS-308		75	150				332	11,4
SAS-3010		100	175				442	13,2
SAS-505	50	50	125	138	85	70,88	355	14,5
SAS-508		75	150				532	17,2
SAS-5010		100	175				709	20,0
SAS-755	75	50	130	158	105	103,87	520	19,5
SAS-758		75	155				779	23,0
SAS-7510		100	180				1039	26,5
SAS-1005	100	50	135	185	125	143,14	716	28,0
SAS-1008		75	160				1074	33,0
SAS-10010		100	185				1431	38,0
SAS-1505	150	50	142	218	150	213,82	1069	40,5
SAS-1508		75	167				1604	47,0
SAS-15010		100	192				2138	53,5
SAS-2005	200	50	150	248	175	283,53	1418	55,5
SAS-2008		75	175				2126	64,0
SAS-20010		100	200				2835	72,5

SA Series

SA Series

Single acting
Load return
30 - 100 ton capacity
100 - 400 mm stroke
Totally 28 models
700 bar maximum operating pressure



Model No.	Capacity	A Stroke	B Closed Height	C Outside Diameter	D Rod Diameter	Effective Area	Oil Capacity	Weight
	ton	mm	mm	mm	mm	cm²	cm³	kg
SA-3010	30	100	215	112	65	44,18	442	16,0
SA-3015		150	265				663	19,5
SA-3020		200	315				884	23,0
SA-3025		250	365				1105	26,5
SA-3030		300	415				1325	30,0
SA-3035		350	465				1546	33,5
SA-3040		400	515				1767	37,0
SA-5010	50	100	220	138	85	70,88	709	25,0
SA-5015		150	270				1063	30,5
SA-5020		200	320				1418	36,0
SA-5025		250	370				1772	41,5
SA-5030		300	420				2126	47,0
SA-5035		350	470				2481	52,5
SA-5040		400	520				2835	58,0
SA-7510	75	100	225	158	105	103,87	1039	33,5
SA-7515		150	275				1558	40,5
SA-7520		200	325				2077	47,5
SA-7525		250	375				2597	54,5
SA-7530		300	425				3116	61,5
SA-7535		350	475				3635	68,5
SA-7540		400	525				4155	75,5
SA-10010	100	100	225	185	120	143,14	1432	45,5
SA-10015		150	275				2147	55,0
SA-10020		200	325				2863	64,5
SA-10025		250	375				3588	74,0
SA-10030		300	425				4294	83,5
SA-10035		350	475				5010	93,0
SA-10040		400	525				5726	102,5

D-100 Karayolunda bulunan Edirnekapı tünelinin köprüye dönüştürülmesi işlemi sırasında yapılan 70 metre uzunluğunda 4 adet çelik köprünün kaldırılmasında hidro-mekanik marka 12 adet SA-10015 model no'lu 100 ton kapasiteli tek tesirli hidrolik silindir ile 3 adet EPS-207M25 model no'lu 700 bar elektrikli güç ünitesi kullanılmıştır. Toplam 12 adet hidrolik silindir 3 elektrikli güç ünitesinden, 4'lü manifold sistemleri ile birlikte kullanılmıştır.

During the transformation of Edirnekapı tunnel into bridge in D-100 highway, 4 steel bridges each having 70 meter of length are lifted. During this operation, 12 units of hidro-mekanik SA-10015 model double acting hydraulic cylinders with 100 tons of capacity and 3 units of EPS-207M25 model 700 bars of electrical power pack are used. Totally 12 hydraulic cylinders, 3 power pumps and 3 unit 4 way manifold system are used in coordination.

SINGLE ACTING / LOAD RETURN - SA SERIES (30 - 100 TON)

Özellikle köprü kaldırma uygulamalarında, emniyeti sağlayabilmek için silindirlere 5° hareket açısı olan oynar başlıklar takılmaktadır. Bu sayede hidrolik silindirlere değişik açılardan gelebilecek kontrolsüz yükler engellenmektedir.

In order to provide the security especially on bridge lifting applications, tilt saddles with 5° moving angle are mounted to the cylinders. This maintains the prevent uncontrolled loads might come from various angles.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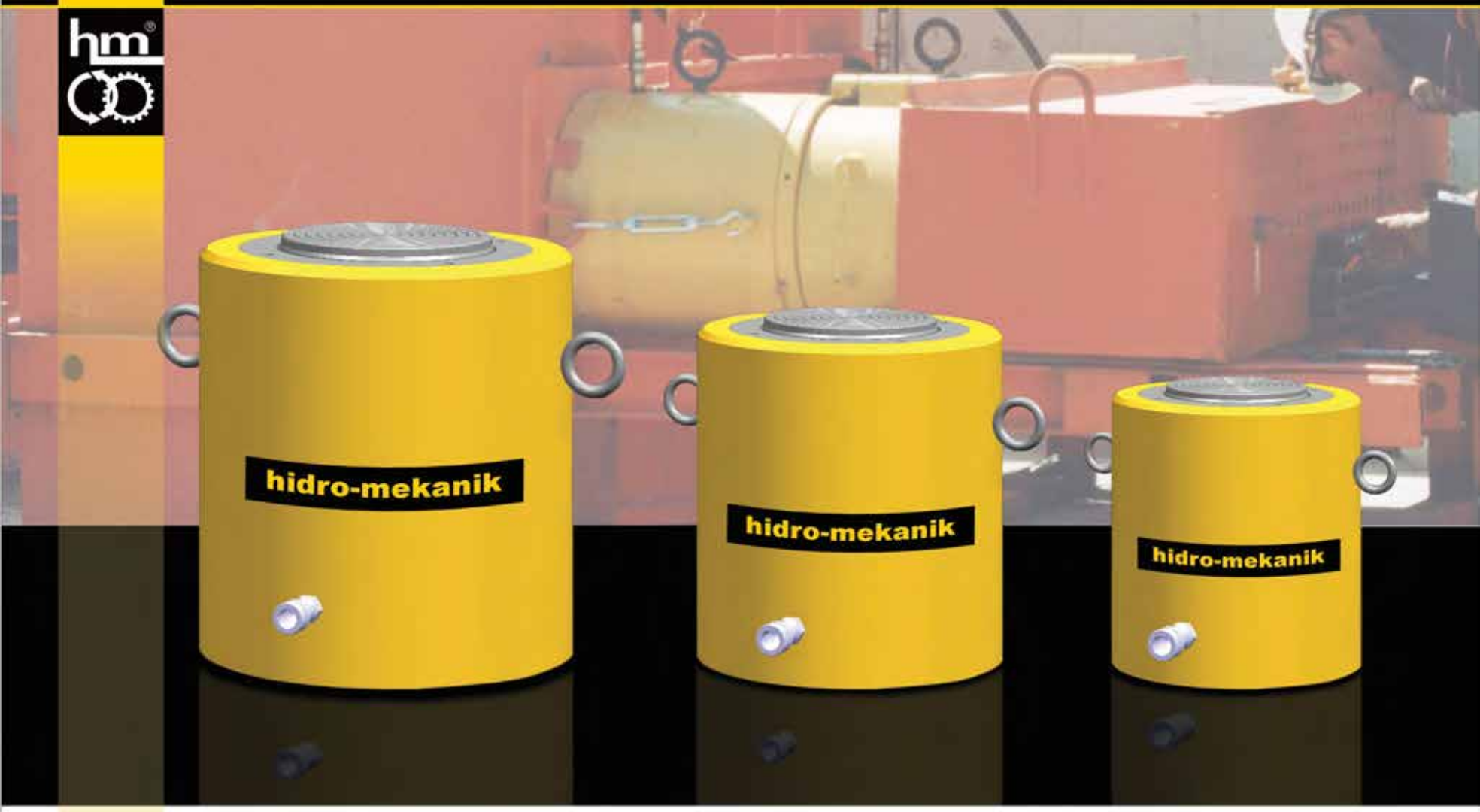
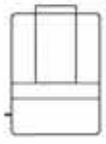
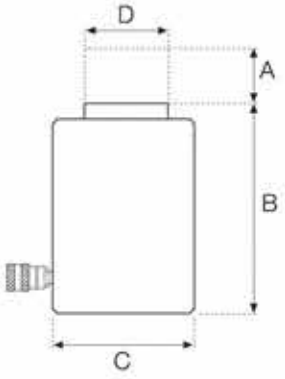


HSA Series

HSA Series

Single acting
Load return
150 - 400 ton capacity
100 - 350 mm stroke
Totally 28 models
700 bar maximum operating pressure

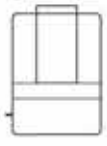


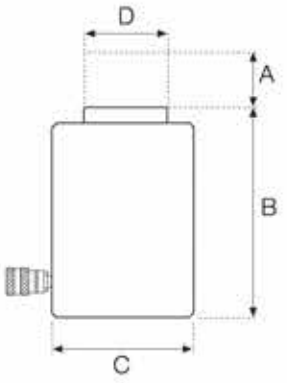


Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm²	cm³	kg
HSA-15010	150	100	252	225	150	213,82	2138	73,5
HSA-15015		150	302				3207	88,0
HSA-15020		200	352				4276	102,5
HSA-15025		250	402				5345	117,0
HSA-15030		300	452				6415	131,5
HSA-15035		350	502				7484	146,0
HSA-20010	200	100	266	255	170	283,53	2835	99,0
HSA-20015		150	316				4253	117,0
HSA-20020		200	366				5671	135,0
HSA-20025		250	416				7088	153,0
HSA-20030		300	466				8506	171,0
HSA-20035		350	516				9924	189,0
HSA-25010	250	100	277	290	190	363,05	3631	133,5
HSA-25015		150	327				5446	157,0
HSA-25020		200	377				7261	180,5
HSA-25025		250	427				9076	204,0
HSA-25030		300	477				10892	227,5
HSA-25035		350	527				12707	251,0
HSA-30010	300	100	296	320	210	433,74	4337	175,5
HSA-30015		150	346				6506	204,0
HSA-30020		200	396				8675	232,5
HSA-30025		250	446				10844	261,0
HSA-30030		300	496				13012	289,5
HSA-40010	400	100	337	380	240	572,56	5726	283,0
HSA-40015		150	387				8588	323,0
HSA-40020		200	437				11451	363,0
HSA-40025		250	487				14314	403,0
HSA-40030		300	537				17177	443,0

HSA Series

Single acting
Load return
500 - 1000 ton capacity
100 - 300 mm stroke
Totally 25 models
700 bar maximum operating pressure





Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm^2	cm^3	kg
HSA-50010	500	100	358	420	270	706,86	7069	371,0
HSA-50015		150	408				10603	420,5
HSA-50020		200	458				14137	470,0
HSA-50025		250	508				17672	519,5
HSA-50030		300	558				21206	569,0
HSA-60010	600	100	382	465	300	855,30	8553	488,0
HSA-60015		150	432				12830	549,0
HSA-60020		200	482				17106	610,0
HSA-60025		250	532				21383	671,0
HSA-60030		300	582				25659	732,0
HSA-70010	700	100	398	500	330	1017,88	10179	587,0
HSA-70015		150	448				15268	658,0
HSA-70020		200	498				20358	729,0
HSA-70025		250	548				25447	800,0
HSA-70030		300	598				30536	871,0
HSA-80010	800	100	417	530	345	1134,11	11341	691,0
HSA-80015		150	467				17012	771,0
HSA-80020		200	517				22682	851,0
HSA-80025		250	567				28353	931,0
HSA-80030		300	617				34023	1011,0
HSA-100010	1000	100	468	605	390	1452,20	14522	1015,0
HSA-100015		150	518				21783	1119,0
HSA-100020		200	568				29044	1223,0
HSA-100025		250	618				36305	1327,0
HSA-100030		300	668				43566	1431,0


mekanik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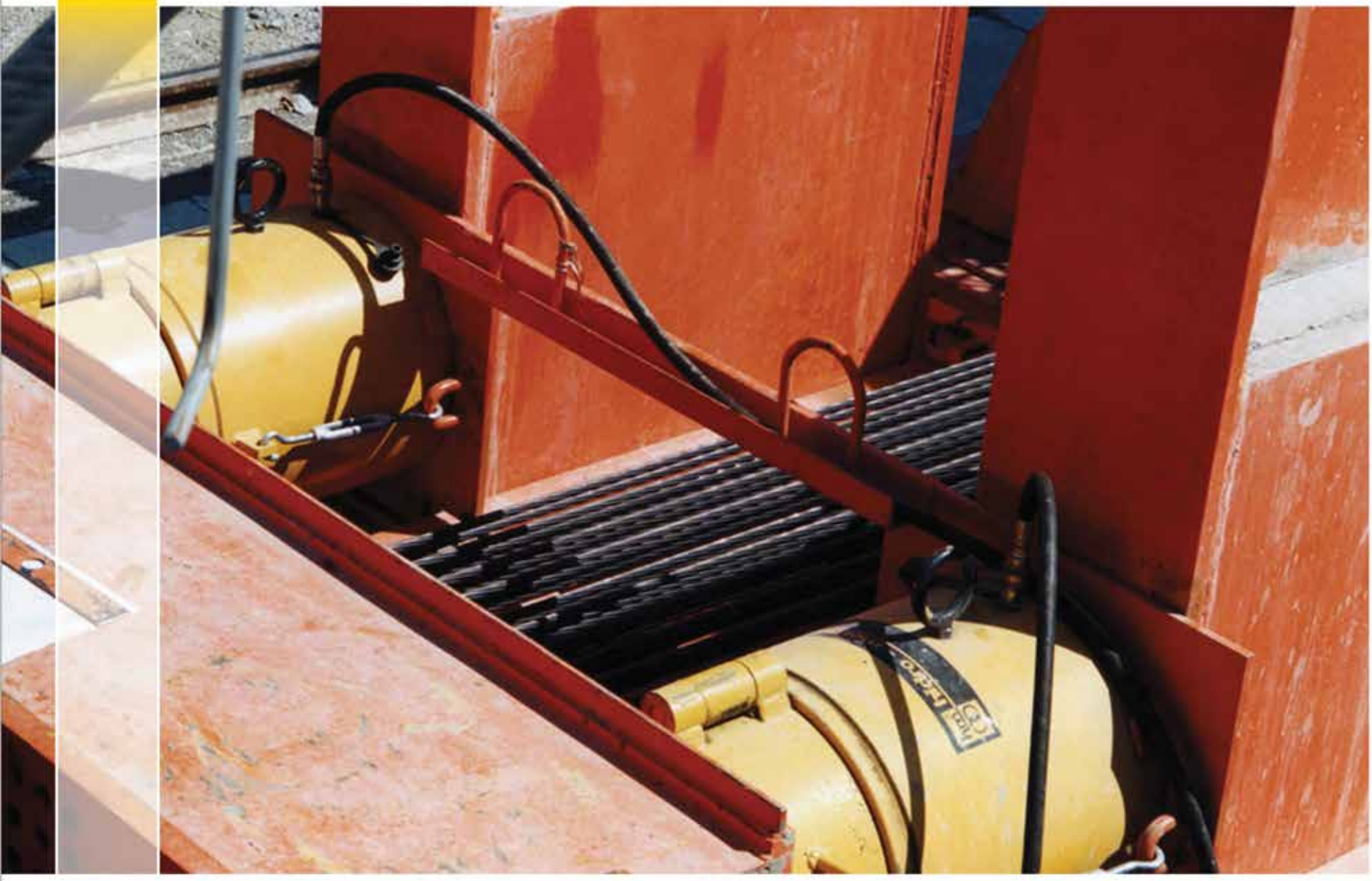


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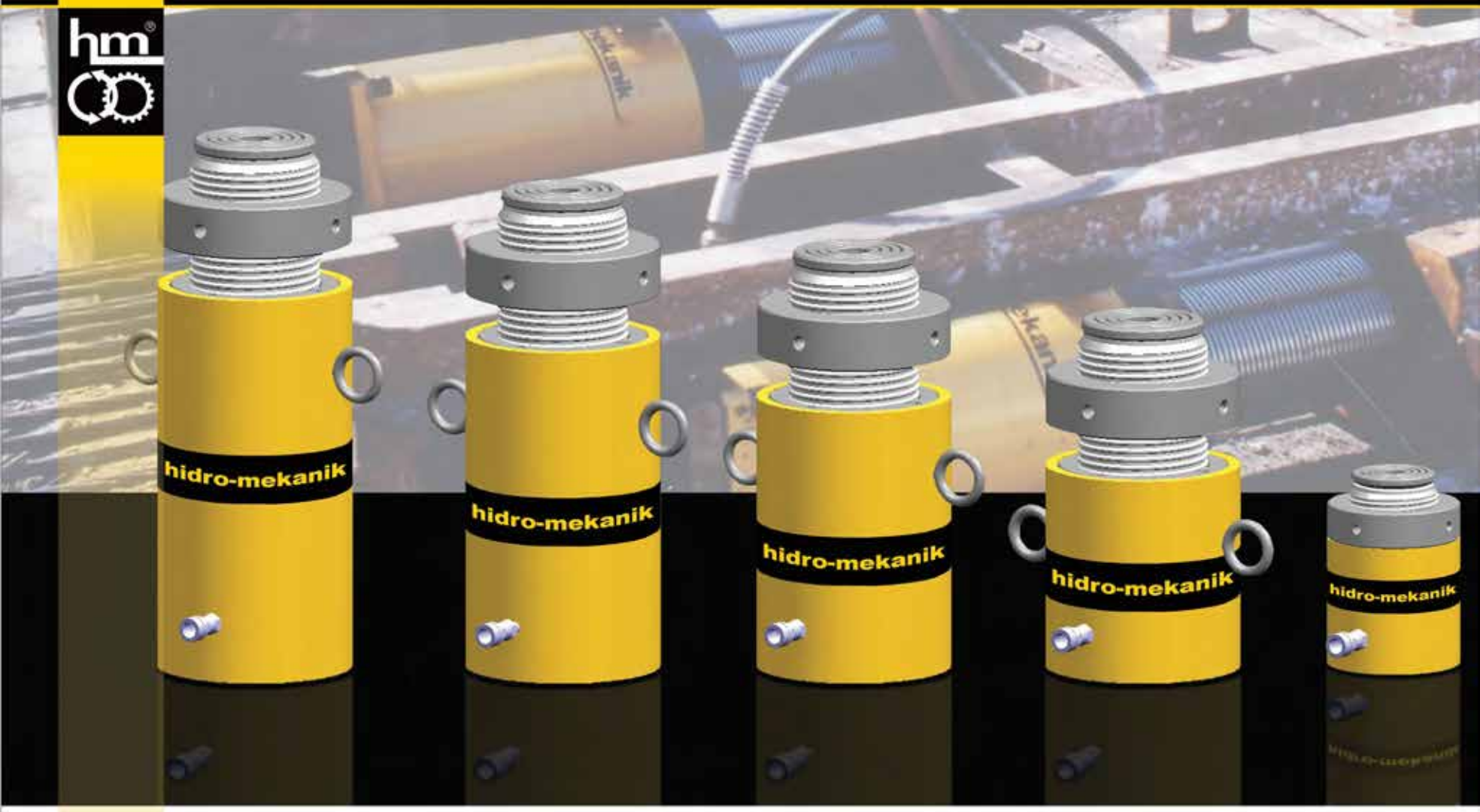
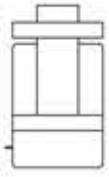
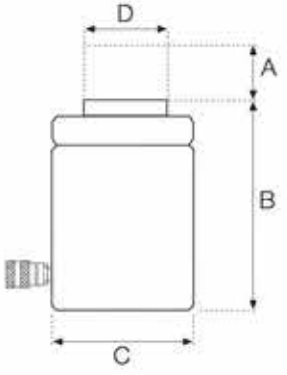


NSA Series

NSA Series

Single acting, load return
Lock nut
50 - 500 ton capacity
100 - 250 mm stroke
Totally 32 models
700 bar maximum operating pressure



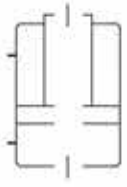


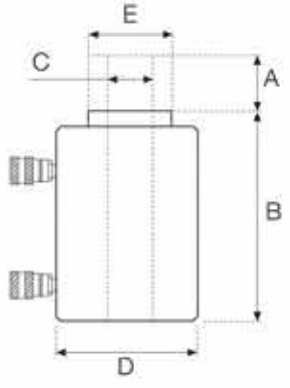
Model No.	Capacity	A	B	C	D	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	cm²	cm³	kg
NSA-5010	50	100	240	138	85	70,88	709	28,0
NSA-5015		150	290				1063	33,5
NSA-5020		200	340				1418	39,0
NSA-5025		250	390				1772	44,5
NSA-10010	100	100	270	185	120	143,14	1432	54,5
NSA-10015		150	320				2147	64,0
NSA-10020		200	370				2863	73,5
NSA-10025		250	420				3588	83,0
NSA-15010	150	100	293	225	150	213,82	2138	88,0
NSA-15015		150	343				3207	102,0
NSA-15020		200	393				4276	116,0
NSA-15025		250	443				5345	130,0
NSA-20010	200	100	308	255	170	283,53	2835	118,0
NSA-20015		150	358				4253	135,0
NSA-20020		200	408				5671	153,0
NSA-20025		250	458				7088	170,5
NSA-25010	250	100	327	290	195	363,05	3631	164,0
NSA-25015		150	377				5446	187,5
NSA-25020		200	427				7261	211,0
NSA-25025		250	477				9076	234,5
NSA-30010	300	100	348	320	210	433,74	4337	211,5
NSA-30015		150	398				6506	239,0
NSA-30020		200	448				8675	266,5
NSA-30025		250	498				10844	294,0
NSA-40010	400	100	398	380	245	572,56	5726	345,0
NSA-40015		150	448				8588	385,5
NSA-40020		200	498				11451	426,0
NSA-40025		250	548				14314	466,5
NSA-50010	500	100	427	420	275	706,86	7069	454,0
NSA-50015		150	477				10603	504,0
NSA-50020		200	527				14137	554,0
NSA-50025		250	577				17672	604,0

CH Series

CH Series

Double acting
Hydraulic return
Center hole
30 - 100 ton capacity
50 - 350 mm stroke
Totally 35 models
700 bar maximum operating pressure



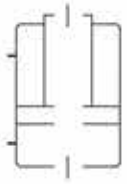


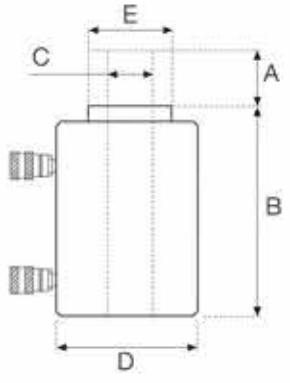
Model No.	Capacity	A	B	C	D	E	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Center Hole Diameter	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	mm	cm²	cm³	kg
CH-305/33	30	50	134	33	133	75	43,96	123	12,5
CH-3010/33		100	185					245	16,3
CH-3015/33		150	290					368	29,0
CH-3020/33		200	340					490	33,5
CH-3025/33		250	390					615	38,0
CH-3030/33		300	440					736	42,5
CH-3035/33		350	490					858	47,0
CH-505/33	50	50	136	33	155	90	75,36	220	19,0
CH-5010/33		100	186					440	25,0
CH-5015/33		150	290					660	37,0
CH-5020/33		200	340					880	43,0
CH-5025/33		250	390					1100	49,0
CH-5030/33		300	440					1320	55,0
CH-5035/33		350	490					1540	61,0
CH-605/54	60	50	146	54	173	105	84,20	240	23,0
CH-6010/54		100	196					480	30,0
CH-6015/54		150	292					720	43,0
CH-6020/54		200	342					960	50,0
CH-6025/54		250	392					1200	57,0
CH-6030/54		300	442					1440	64,0
CH-6035/54		350	492					1680	71,0
CH-805/60	80	50	151	60	194	120	114,80	314	30,0
CH-8010/60		100	201					628	38,5
CH-8015/60		150	300					942	55,0
CH-8020/60		200	350					1256	63,5
CH-8025/60		250	400					1570	72,0
CH-8030/60		300	450					1884	80,5
CH-8035/60		350	500					2198	89,0
CH-1005/65	100	50	155	65	212	130	144,24	380	36,5
CH-10010/65		100	205					760	46,5
CH-10015/65		150	310					1140	68,5
CH-10020/65		200	360					1520	79,0
CH-10025/65		250	410					1860	89,0
CH-10030/65		300	460					2200	99,0
CH-10035/65		350	510					2540	109,0

HCH Series

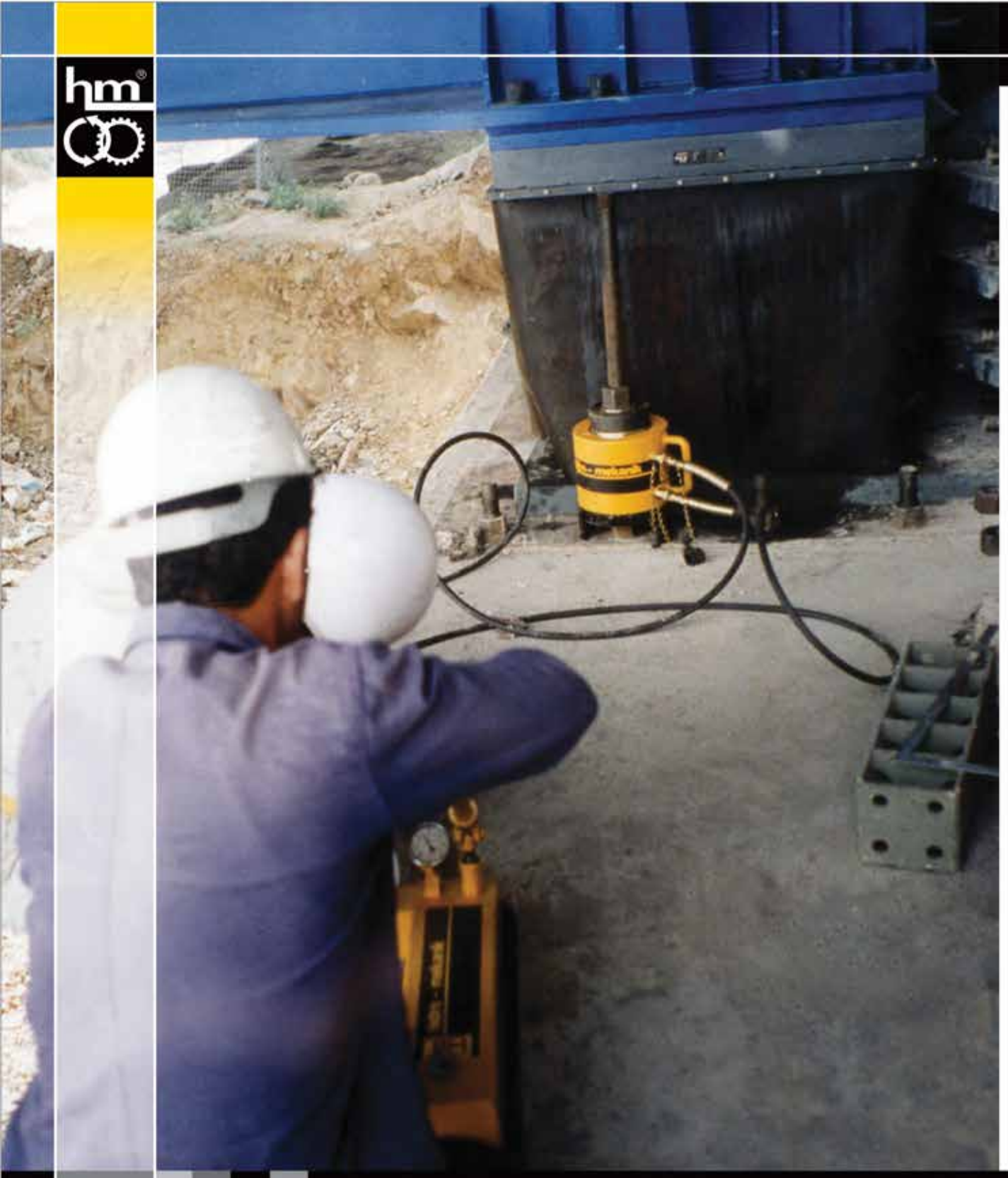
HCH Series

Double acting
Hydraulic return
Center hole
150 - 300 ton capacity
50 - 300 mm stroke
Totally 24 models
700 bar maximum operating pressure





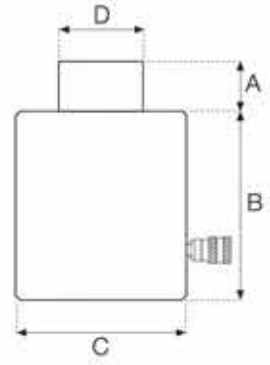
Model No.	Capacity	A	B	C	D	E	Effective Area	Oil Capacity	Weight
		Stroke	Closed Height	Center Hole Diameter	Outside Diameter	Rod Diameter			
	ton	mm	mm	mm	mm	mm	cm^2	cm^3	kg
HCH-1505/78	150	50	167	78	245	155	205,00	551	51,0
HCH-15010/78		100	275					1102	79,5
HCH-15015/78		150	325					1653	92,5
HCH-15020/78		200	375					2204	105,5
HCH-15025/78		250	425					2755	108,5
HCH-15030/78		300	475					3306	131,5
HCH-2005/92	200	50	191	92	287	175	293,74	684	80,0
HCH-20010/92		100	300					1368	117,0
HCH-20015/92		150	350					2052	134,0
HCH-20020/92		200	400					2736	151,0
HCH-20025/92		250	450					3420	168,0
HCH-20030/92		300	500					4104	185,0
HCH-2505/106	250	50	200	106	320	200	358,14	908	103,0
HCH-25010/106		100	315					1816	153,5
HCH-25015/106		150	365					2724	175,0
HCH-25020/106		200	415					3632	196,5
HCH-25025/106		250	465					4540	218,0
HCH-25030/106		300	515					5448	239,5
HCH-3005/125	300	50	210	125	347	225	417,25	1106	126,0
HCH-30010/125		100	325					2212	200,5
HCH-30015/125		150	375					3318	225,0
HCH-30020/125		200	425					4424	250,5
HCH-30025/125		250	475					5530	275,0
HCH-30030/125		300	525					6636	300,5



SIMPLEX

RLS Series

Single acting
Spring return
10 - 100 ton capacity
38 - 57 mm stroke
Low profile
Totally 5 models
700 bar maximum operating pressure

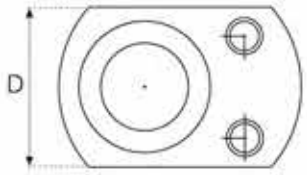


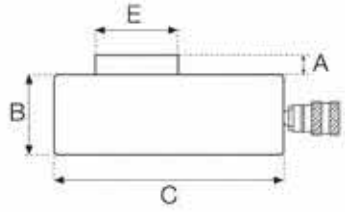
Model No.	Capacity	A	B	Ram Bore Diameter	Effective Area	Oil Capacity	C	D	Weight	Suggested Hand Pump
		Stroke	Closed Height				Outside Diameter	Rod Diameter		
	ton	mm	mm	mm	cm^2	cm^3	mm	mm	kg	
RLS101	10	38	88	43	14,4	55,7	70	38	4,1	P42
RLS201	20	44	98	60	28,6	127,8	92	50,8	4,8	
RLS302	30	62	117	73	41,9	259	102	66,5	6,2	
RLS502	50	60	122	89	62,2	373,7	127	68,8	10,3	
RLS1002	100	57	141	127	126,6	724,4	165	92	20,2	P140

SIMPLEX

RFS Series

Single acting
Spring return
5 - 150 ton capacity
41 - 100 mm stroke
Flat Jack
Totally 8 models
700 bar maximum operating pressure



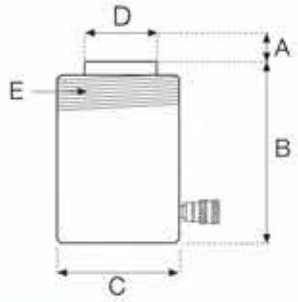


Model No.	Capacity	A Stroke	B Closed Height	Ram Bore Diameter	Effective Area	Oil Capacity	C Body Length	D Body Width	E Piston O.D. Spring Ret.	Weight	Suggested Hand Pump
	ton	mm	mm	mm	cm^2	cm^3	mm	mm	mm	kg	
R50	5	16	41	29	6,4	9,2	65	41	25	2,5	P42
RFS10	10	11	43	43	14,5	16,4	83	56	19	3,3	
RFS20	20		52	60	28,6	31,1	102	76	29	6,0	
RFS30	30	12	59	73	41,9	52,4	114	95	35	8,5	P41
RFS50	50	16	67	89	62,1	98,3	140	114	44	14,3	
RFS75	75		79	114	102,6	163,9	165	140	54	24,5	
RFS100	100		86	127	126,6	201,6	178	152	64	31,0	
RFS150	150		100	159	197,8	310	216	190	76	50,5	

SIMPLEX / FLAT JACKS 5 - 150 TON

R Series

Single acting
Spring return
5 - 10 ton capacity
16 - 356 mm stroke
Totally 14 models
700 bar maximum operating pressure

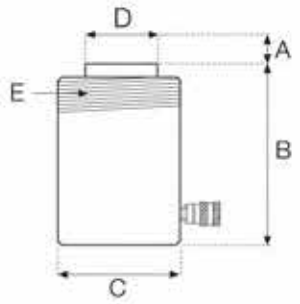


Model No.	Capacity	A Stroke	B Closed Height	Ram Bore Diameter	Effective Area	Oil Capacity	C Outside Diameter	D Rod Diameter	E Collar Thrds.	E Collar Thrd. Lgth.	Weight	Suggested Hand Pump
	tons	mm	mm	mm	cm^2	cm^3	mm	mm	in	in	kg	
R50	5	16	41	29	6,4	9,8	41x58	25	None	None	1,1	P41
R51		25	110			16,4	38		1 1/2x16	1 1/8	1,1	
R53		76	165			49,2					1,5	
R55		127	216			81,9					1,8	P42
R57		178	270			114,7					2,3	
R59		232	324			148,7					2,5	
R101	10	25	90	43	14,5	36,1	57	38	2 1/4x14		1,6	
R102		54	121			78,3					2,2	
R104		105	171			150,8					3,3	
R106		156	247			224,5					4,4	
R108		203	298			295					5,4	
R1010		257	349			372,1					6,4	
R1012		305	400			442,5					7,1	
R1014		356	451			516,3					8,2	

SIMPLEX

R Series

Single acting
Spring return
15 - 25 ton capacity
25 - 362 mm stroke
Totally 13 models
700 bar maximum operating pressure



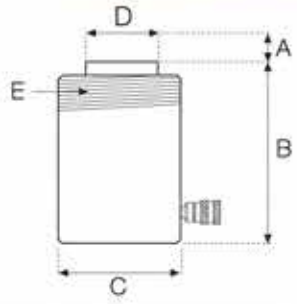
Model No.	Capacity	A	B	Ram Bore Diameter	Effective Area	Oil Capacity	C	D	E		Weight	Suggested Hand Pump
		Stroke	Closed Height				Outside Diameter	Rod Diameter	Collar Thrds.	Collar Thrd. Lgth.		
	ton	mm	mm	mm	cm^2	cm^3	mm	mm	in	in	kg	
R152	15	51	149	51	20,4	103,3	70	41	None	None	3,7	P41
R154		102	200			206,5			23/4 x16	13/16	4,9	
R156		152	271			311,4					6,6	
R1510		254	373			514,6					8,8	P140
R1514		356	475			721,2					11,1	
R251	25	25	140	65	33,20	85,2	85,7	57	35/16x12	115/16	5,4	P42
R252		51	165			168,8					6,8	
R254		102	216			337,6					8,2	
R256		159	273			527,8					10,4	
R258		210	324			696,6					12,2	P140
R2510		260	375			865,4					14,1	
R2512		311	425			1034,2					15,9	
R2514		362	476			1203					17,7	

SIMPLEX / SPRING RETURN 15 - 25 TON

SIMPLEX

R Series

Single acting
Spring return
30 - 100 ton capacity
51 - 337 mm stroke
Totally 9 models
700 bar maximum operating pressure



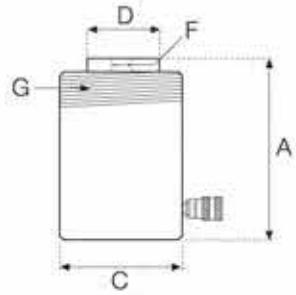
Model No.	Capacity	A Stroke	B Closed Height	Ram Bore Diameter	Effective Area	Oil Capacity	C Outside Diameter	D Rod Diameter	E Collar Thrds.	E Collar Thrd. Lgth.	Weight	Suggested Hand Pump
	tons	mm	mm	mm	cm²	cm³	mm	mm	in	in	kg	
R308	30	210	387	73	41,9	878,5	102	57	3 5/16x12	1 15/16	18,1	P82
R552	55	51	176	95	71,3	362,2	127	79	5x12	2 1/8	14,5	P42
R554		102	227			729					19,1	P82
R556		159	283			1130,9					22,7	*
R5513		337	460			2397,9					35,4	
R756	75	156	286	114	102,6	1596,4	146	95	5 3/4x12	1 3/4	28,6	
R7513		333	492			3409,1					59,1	
R1006	100	168	337	130	133,1	2245,4	159	105	6 1/4x12	2 1/4	59	
R10010		261	429			3474,7					72	

** Power pumps are suggested for these units*

SIMPLEX

RC Series

Single acting
Spring return
Center Hole
12 - 100 ton capacity
8 - 156 mm stroke
Totally 10 models
700 bar maximum operating pressure



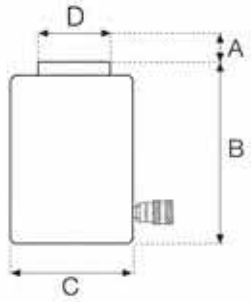
Model No.	Capacity	Stroke	A	Effective Area	Oil Capacity	C	D	F	G		Weight
			Closed Height			Outside Diameter	Rod Diameter	Center Hole Diameter	Collar Thrds.	Collar Thrd. Lgth.	
	tons	mm	mm	cm^2	cm^3	mm	mm	in	in	in	kg
RC120	12	8	56	17,9	14,3	70	35	19,4	2 3/4 -16	1 13/16	1,4
RCQ120											
RC121		41	121		73,8						3
RC1211											
RC123		76	184		136						4,5
RC202	20	51	157	34,2	180,3	102	54	27	3 7/8 -12	1 1/2	7,7
RC206		152	284		524,5						14,1
RC302	30	64	178	55,7	360,6	127	64	33,3	4 1/2 -12	1 3/4	11,8
RC306		156	311		869						23,6
RC603	60	76	220	94,1	715	171	102	54	6 1/2 -12	2	31
RC606		152	322		1442,3						36,4
RC1003	100	76	229	132,9	1016,2	210	127	79,4	.....	.....	45

SIMPLEX / SPRING RETURN HOLLOW 12 - 100 TON

SIMPLEX

RAS Series

Single acting
Spring return
Aluminum
30 - 150 ton capacity
50 - 254 mm stroke
Totally 13 models
700 bar maximum operating pressure



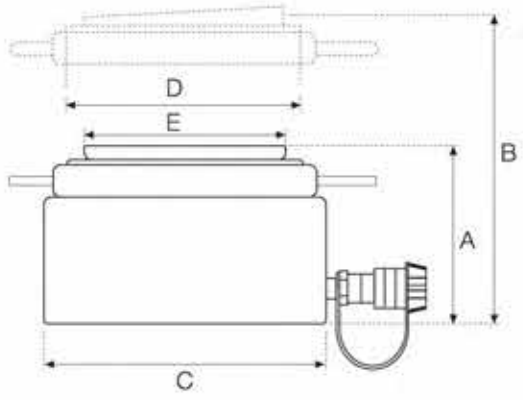
Model No.	Capacity	A	B	Effective Area	Oil Capacity	C	D	Weight	Suggested Hand Pump
		Stroke	Closed Height			Outside Diameter	Rod Diameter		
	tons	mm	mm	cm^2	cm^3	mm	mm	kg	
RAS302B	30	50	165	41,9	213	101	64	6,4	P42
RAS306B		152	267		639			8,2	P82
RAS502B	50	50	165	71,2	360	133	79	5,9	P82
RAS504B		100	216		712			7,7	P82
RAS506B		152	267		1085			12,7	P140
RAS5010B		254	368		1809			16,4	*
RAS1002B	100	50	165	133	665	190	108	18,2	P82
RAS1004B		100	216		1330			20,5	P140
RAS1006B		152	267		2027			22,7	*
RAS10010B		254	368		3379			30,9	*
RAS1502B	150	50	165	198	990	254	127	26,4	P140
RAS1506B		152	267		3016			39,1	*
RAS15010B		254	368		5027			50	*

** Power pumps are suggested for these units*

SIMPLEX

CLP Series

Single acting
Spring return
Extra low profile
Lock nut
60 - 500 ton capacity
45 - 50 mm stroke
Totally 7 models
700 bar maximum operating pressure



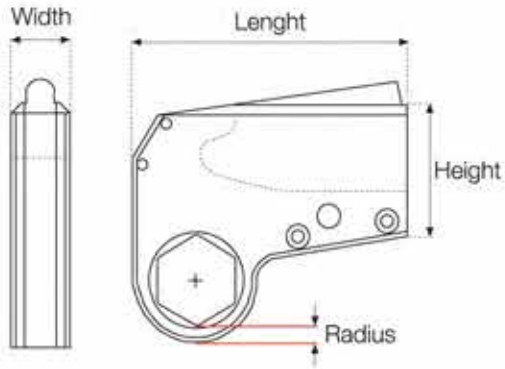
Model No.	Capacity	Stroke	Oil Capacity	Ram Bore Diameter	Effective Area	A Closed Height	B Extended Height	C Outside Diameter	D Rod Diameter	E Saddle Diameter	Weight
	tons	mm	cm^3	mm	cm^2	mm	mm	mm	mm	mm	kg
CLP-602	60	50	433	105	86,6	125	175	140	105x6	96	15
CLP-1002	100	50	716	135	143,1	137	187	175	135x6	126	26
CLP-1502	150	45	962	165	213,8	148	193	220	165x6	150	44
CLP-2002	200		1276	190	283,5	155	200	245	190x6	180	57
CLP-2502	250		1634	215	363,2	159	204	275	215x6	200	75
CLP-4002	400		2576	270	572,5	178	223	350	270x8	250	135
CLP-5002	500		3180	300	706,8	192	237	400	300x8	285	190

SIMPLEX / LOW PROFILE 60 - 500 TON

SIMPLEX

Low Clearance Wrenches

Patented piston design for lower profile
Wide range of links in 1/16'' increments
In-line reaction for maximum strength.
Light weight, high torque ratio.
Quick and easy interchangeable links requiring no tools.
Slim nose radius for easy positioning in close quarters.
No leak couplers that swivel on double axis for easy operation.
Plated wrenches resist corrosion.
Links in both imperial and metric measurements.
Optionel reducer inserts available in imperial and metric sizes.
Custom wrenches available upon request.



Model No.	Length	Height	Radius	Max. Tool Witdh	Output	Weight	Available Link Sizes in./mm	
	mm	mm	mm	mm	Nm	kg	From	To
WX-2	144,0	101,6	9,1	27,9	2617,1	1,6	3/4"/19 mm	2 3/8"/60 mm
WX-4	198,1	142,2	11,7	41,4	5356,2	2,7	1"/19 mm	3 1/8"/80 mm
WX-8	248,9	177,8	13,7	50,8	11702,3	5,3	1 7/8"/50 mm	4"/90 mm
WX-16	302,3	215,9	19,3	61,0	21153,6	7,3	2 5/8"/65 mm	4 5/8"/115 mm
WX-32	388,6	276,9	23,6	78,7	42849,2	15,5	3 1/8"/80 mm	6 1/8"/155 mm

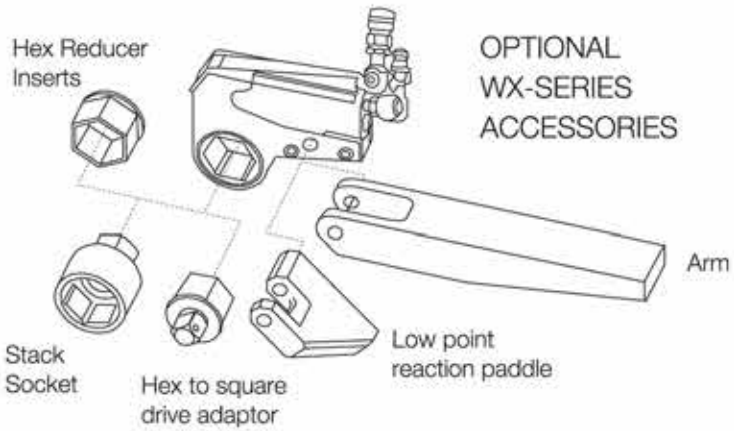
**Weights are for drive units only. Weight on links will vary by size.*

Drive Unit

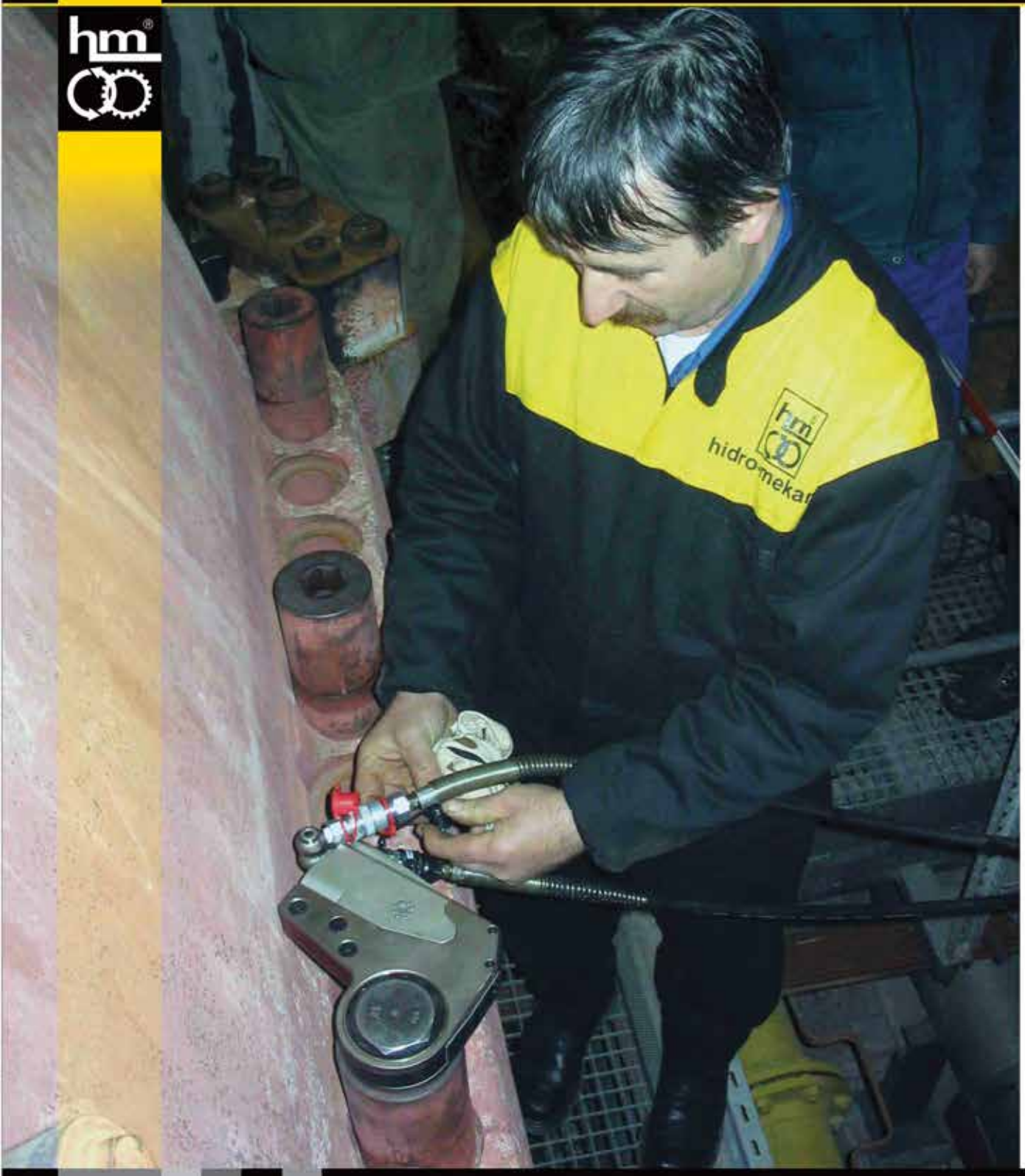
Link

1. Select a WX drive unit that will give you the amount of torque you are looking for.

2. Couple your WX drive unit with the WXL hex link that you will need. See chart below for specific WXL link.



In-line reaction and compact design allows quick and easy torquing in close quarters.



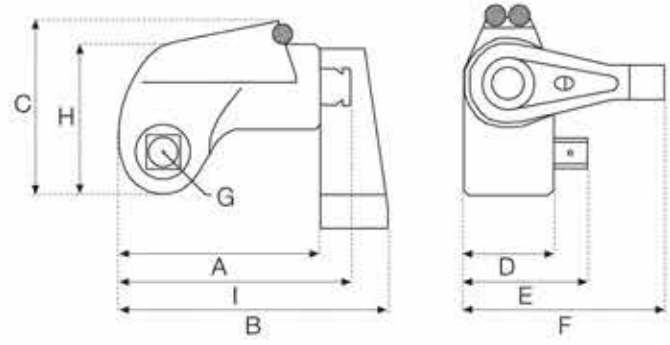
When this power plant needed flange maintenance, engineers called on Simplex for solutions. Changing out flange seals requires precision torquing and minimal down time. Simplex power units and low clearance wrenches filled the plant's needs, saving significant cost and down time.

SIMPLEX

Model Number For WX-2 Links	Hex Size (in.)	Model Number For WX-4 Links	Hex Size (in.)	Model Number For WX-4 Links	Hex Size (in.)	Model Number For WX-8 Links	Hex Size (in.)	Model Number For WX-8 Links	Hex Size (in.)	Model Number For WX-16 Links	Hex Size (in.)	Model Number For WX-32 Links	Hex Size (in.)	Model Number For WX-32 Links	Hex Size (in.)
WXL2-12	3/4	WXL4-16	1	WXL4-43	2 11/16	WXL8-30	1 7/8	WXL8-57	3 9/16	WXL16-42	2 5/8	WXL32-50	3 1/8	WXL32-87	5 7/16
WXL2-13	13/16	WXL4-17	1 1/16	WXL4-44	2 3/4	WXL8-31	1 15/16	WXL8-58	3 5/8	WXL16-43	2 11/16	WXL32-51	3 3/16	WXL32-88	5 1/2
WXL2-14	7/8	WXL4-18	1 1/8	WXL4-45	2 13/16	WXL8-32	2	WXL8-59	3 11/16	WXL16-44	2 3/4	WXL32-52	3 1/4	WXL32-89	5 9/16
WXL2-15	15/16	WXL4-19	1 3/16	WXL4-46	2 7/8	WXL8-33	2 1/16	WXL8-60	3 3/4	WXL16-45	2 13/16	WXL32-53	3 5/16	WXL32-90	5 5/8
WXL2-16	1	WXL4-20	1 1/4	WXL4-47	2 15/16	WXL8-34	2 1/8	WXL8-61	3 13/16	WXL16-46	2 7/8	WXL32-54	3 3/8	WXL32-91	5 11/16
WXL2-17	1 1/16	WXL4-21	1 5/16	WXL4-48	3	WXL8-35	2 3/16	WXL8-62	3 7/8	WXL16-47	2 15/16	WXL32-55	3 7/16	WXL32-92	5 3/4
WXL2-18	1 1/8	WXL4-22	1 3/8	WXL4-49	3 1/16	WXL8-36	2 1/4	WXL8-63	3 15/16	WXL16-48	3	WXL32-56	3 1/2	WXL32-93	5 13/16
WXL2-19	1 3/16	WXL4-23	1 7/16	WXL4-50	3 1/8	WXL8-37	2 5/16	WXL8-64	4	WXL16-49	3 1/16	WXL32-57	3 9/16	WXL32-94	5 7/8
WXL2-20	1 1/4	WXL4-24	1 1/2			WXL8-38	2 3/8			WXL16-50	3 1/8	WXL32-58	3 5/8	WXL32-95	5 15/16
WXL2-21	1 5/16	WXL4-25	1 9/16			WXL8-39	2 7/16			WXL16-51	3 3/16	WXL32-59	3 11/16	WXL32-96	6
WXL2-22	1 3/8	WXL4-26	1 5/8			WXL8-40	2 1/2			WXL16-52	3 1/4	WXL32-60	3 3/4	WXL32-97	6 1/16
WXL2-23	1 7/16	WXL4-27	1 11/16			WXL8-41	2 9/16			WXL16-53	3 5/16	WXL32-61	3 13/16	WXL32-98	6 1/8
WXL2-24	1 1/2	WXL4-28	1 3/4			WXL8-42	2 5/8			WXL16-54	3 3/8	WXL32-62	3 7/8		
WXL2-25	1 9/16	WXL4-29	1 13/16			WXL8-43	2 11/16			WXL16-55	3 7/16	WXL32-63	3 15/16		
WXL2-26	1 5/8	WXL4-30	1 7/8			WXL8-44	2 3/4			WXL16-56	3 1/2	WXL32-64	4		
WXL2-27	1 11/16	WXL4-31	1 15/16			WXL8-45	2 13/16			WXL16-58	3 5/8	WXL32-65	4 1/16		
WXL2-28	1 3/4	WXL4-32	2			WXL8-46	2 7/8			WXL16-60	3 3/4	WXL32-66	4 1/8		
WXL2-29	1 13/16	WXL4-33	2 1/16			WXL8-47	2 15/16			WXL16-62	3 7/8	WXL32-68	4 1/4		
WXL2-30	1 7/8	WXL4-34	2 1/8			WXL8-48	3			WXL16-64	4	WXL32-70	4 3/8		
WXL2-31	1 15/16	WXL4-35	2 3/16			WXL8-49	3 1/16			WXL16-66	4 1/8	WXL32-72	4 1/2		
WXL2-32	2	WXL4-36	2 1/4			WXL8-50	3 1/8			WXL16-68	4 1/4	WXL32-74	4 5/8		
WXL2-33	2 1/16	WXL4-37	2 5/16			WXL8-51	3 3/16			WXL16-70	4 3/8	WXL32-76	4 3/4		
WXL2-34	2 1/8	WXL4-38	2 3/8			WXL8-52	3 1/4			WXL16-72	4 1/2	WXL32-78	4 7/8		
WXL2-35	2 3/16	WXL4-39	2 7/16			WXL8-53	3 5/16			WXL16-74	4 5/8	WXL32-80	5		
WXL2-36	2 1/4	WXL4-40	2 1/2			WXL8-54	3 3/8					WXL32-82	5 1/8		
WXL2-37	2 5/16	WXL4-41	2 9/16			WXL8-55	3 7/16					WXL32-84	5 1/4		
WXL2-38	2 3/8	WXL4-42	2 5/8			WXL8-56	3 1/2					WXL32-86	5 3/8		

Square Drive Wrenches

Harden alloy square drive provide long life.
No reaction pawl, ELIMINATES tool lockup.
Torque chart&safety information angraved on the tool.
Light weight, high torque ratio.
Compact Uni-Body design for maximum strength.
Slim nose radius for easy positioning in close quarters.
No leak couplers that swivel on double axis for easy operation.
Custom wrenches available upon request.
Special reaction arms and reaction arm extensions available.



Model No.	A Length	B Length	C Height	D Width	E Width	F Width	G Radius	H Height	I Length	Weight	Output	Square Drive	Available Socket Size
	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	Nm	in	mm
WT-2	118,9	154,9	166,7	50,8	70,1	112,3	24,9	86,9	135,1	1,8	1722,1	3/4	13-60
WT-3	154,9	205,7	134,6	66,5	93,5	147,6	33,0	115,3	169,7	4,1	4515,5	1	19-114
WT-5	203,2	272,8	177,5	91,7	128,5	202,7	43,2	153,7	240,8	8,6	9722,5	1 1/2	33-137
WT-10	233,9	310,1	197,9	99,8	137,9	221,5	49,5	170,2	263,1	13,2	14929,6	1 1/2	33-137
WT-27	312,2	413,8	258,8	133,6	196,3	295,4	61,7	224,0	352,3	31,8	36883,2	2 1/2	41-235

Rail car shock mounting bolts require fast & accurate torquing for change out & maintenance. This rail car maintenance shop relies on a Simplex torque wrench to quickly & easily torque bolts to demanding railroad specifications. The compact size fits where other wrenches would not & provides more than enough power to the job right.

When roller coasters at a popular theme park needed maintenance, park engineers called on Simplex for solutions. Assembly of a critical drive shaft required precision torquing and minimal down time Simplex power unitas and square drive wrenches filled the park's needs, saving significant cost and down time.

G1171T

G3173T

G5173T

G Series 0,8 Kw Torque Wrench Electric Power Units

Model	Pressure Rating (bar)		Output Flow (l/min.)		Motor Spec.		Valve Type	Pendant Control	Reservoir Capacity	Weight
	1st Stage	2nd Stage	1st Stage	2nd Stage	(vac)	(amps)			liter	kg
G1171T	27	700	4,1	0,3	230	10	4 way 2 Position	Motor / Solenoid	3,8	16,5
G3173T	75		11,5	0,75		16				26
G5173T				0,90		18			9,5	39

SIMPLEX

Pressure Gaurge

Model No.	Pressure Range (bar)	Scale Dramater (mm)	Oil Port	Gurge Type
G7	0-700	100	1/4" NPT	Glycerine Filled

Hose

Model No.	Length (m)	Hose Type
WH-15	4,6	Blue & Yellow Duplex Hose w / Quick Disconnect Couplers
WH-20	6	
WH-40	12	

Couplers

Model No.	NPTF (in)	Coupler Type
CT210	1/4	10,000 PSI/700 Bar Male Coupler
CT211		10,000 PSI/700 Bar Female Coupler
CT212		10,000 PSI/700 Bar Coupler Complete

Heavy Duty Air Torque Wrench Pump

Model No.	Pressure Rating (psi)		Output Flow (l/min.)		Motor Spec.		Valve Type	Pendant Control	Reservoir Capacity (liter)	Weight (kg)
	1st Stage	2nd Stage	1st Stage	2nd Stage	(vac)	(amps)				
G5773T	75	700	11,5	0,90	90	50	4 way 2 Position	Motor / Solenoid	9,5	39

4 Models
Low, back saving handle effort.
High displacements of oil per stroke.
Adjustable handle effort / dual pivot points.
Heavy duty, all metal construction for durability.
Handly latch for easy carrying.
Large, easy fill reservoirs.
External adjustable relief valves.

Two Speed Hand Pumps For Single Acting Cylinders

Model No.	Type Of Cyl.	Pump Type	Pressure Rating	Oil Volume Per Stroke	Usable Oil Capacity	Weight
			bar	cm^3 / strok	cm^3	kg
P42	Single Acting	Two Speed	1 Stage 13,8 2 Stage 700	13,4 2,6	737,5	8,2
P82					2.376,5	10,9
P300			1 Stage 27,6 2 Stage 700	45,9 3,9	4917	16,8
P461				126,2 3,9	2.950,2	27,7

PYV - 127

Tek kademeli, tek pistonlu 4 yollu, 3 pozisyonlu manuel tip yön valfli hidrolik el pompasıdır. 60 ton'a kadar olan çift tesirli hidrolik silindirlerde kullanılır.

Hydraulic hand pump with single staged, single piston. It is used together with single acting hydraulic cylinders having up to 60 tons of capacity.

PYV - 133

Çift kademeli, iki pistonlu, 4 yollu 3 pozisyonlu manuel tip yön valfli hidrolik el pompasıdır. 80-100 ve 150 ton kapasiteli çift tesirli hidrolik silindirlerde kullanılır.

Hydraulic hand pump with double staged, double piston, 4-way-3 positioned, manuel type of direction valve. It is used together with double acting hydraulic cylinders having 80-100 and 150 tons of capacity.

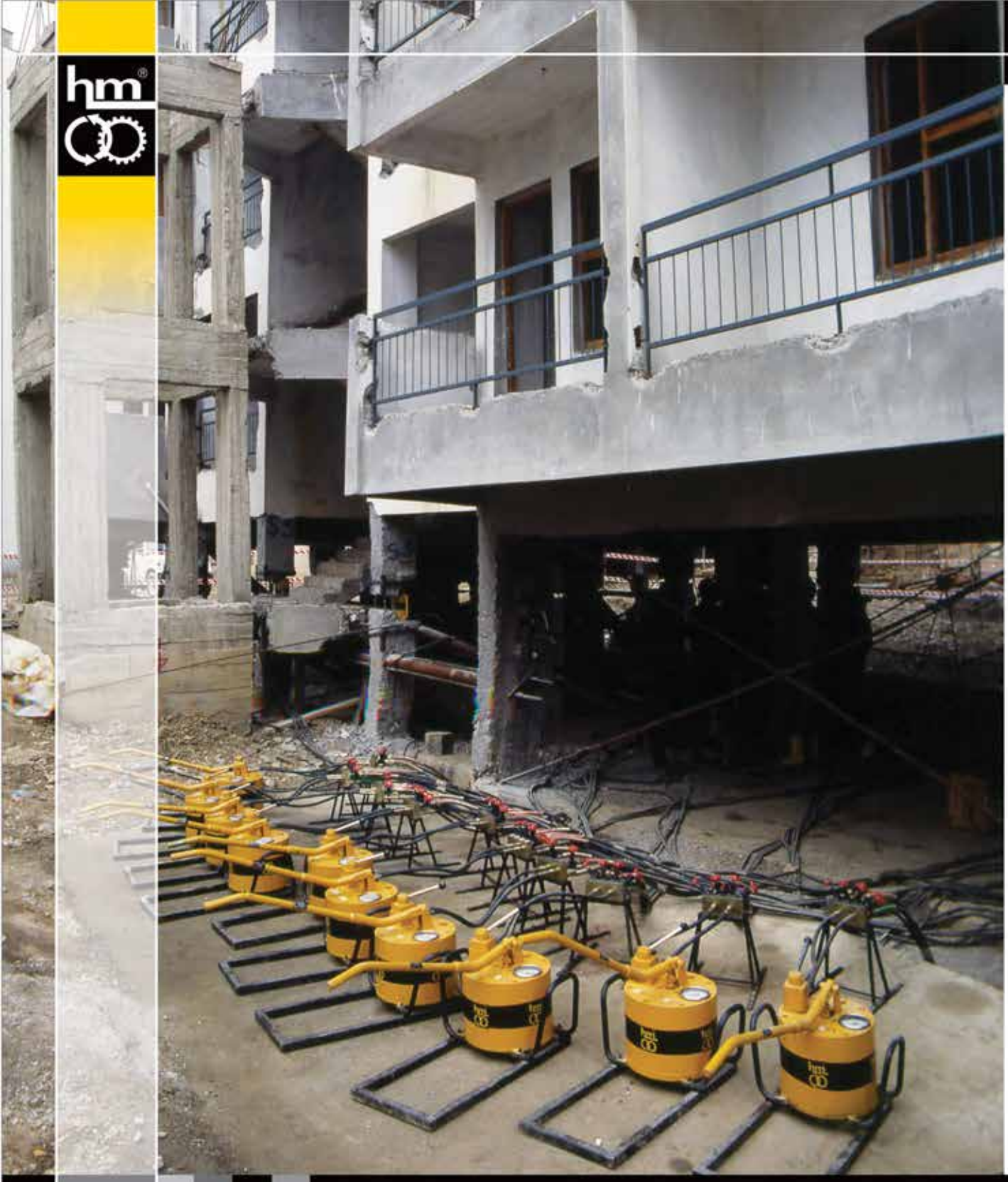
HPYV - 136

Çift kademeli, tek pistonlu, 4 yollu 3 pozisyonlu manuel tip yön valfli hidrolik el pompasıdır. 200 ton ve üstü kapasiteli çift tesirli hidrolik silindirlerde kullanılır.

Hydraulic hand pump with double staged, single piston, 4-way-3 positioned, manuel type of direction valve. It is used together with double acting hydraulic cylinders having 200 tons of capacity.

Two and Single Speed Hand Pumps For Double Acting Cylinders

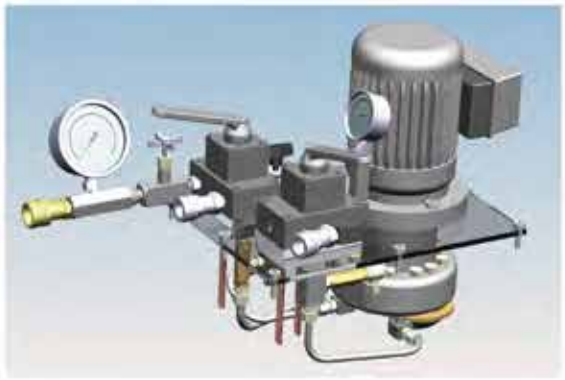
Model No.	Type Of Cylinder	Pump Type	Pressure Rating	Oil Volume Per Stroke	Usable Oil Capacity	Weight
			bar	cm^3	cm^3	kg
PYV-127	Double Acting	Single Speed	700	3,8	3.000	18
PYV-133		Two Speed	1 Stage 100 2 Stage 700	15 3,8	4.500	24
HPYV-136			1 Stage 100 2 Stage 700	97 4,4	8.000	28



EPS Series

Single Stage
8 different models due to their flow
High pressure, radial piston pump
2 different types of valve for single and double acting cylinders
220/380V, 50Hz, 3-phase electric system
Design supplying carriage and usage facility
Maximum 700 bar working pressure

Model No.		EPS-107M20	EPS-137M20
Power Pump Type			
Working Pressure	bar		
Displacement	l / min	1,0	1,3
Motor Power	kw	1,1	1,5
Motor Rpm	rpm		
Reservoir Capacity	liter	24	
Usable Oil Capacity	liter	20	
Reservoir Sizes	mm	300x405x210	
Return Line Pressure	bar		
Directional Control Valve			
Pressure Control Valve			
Motor Specifications			
Motor Remote Control			
Weight	kg	65	70



EPS-207M25	EPS-257M25	EPS-367M35	EPS-507M48	EPS-667M70	EPS-807M96
Single Stage					
700					
2,0	2,5	3,6	5,0	6,6	8,0
2,2	3,0	4,0	5,5	7,5	9,0
1400					
32		44	60	87	120
25		35	48	70	96
330x450x230		370x505x245	410x560x260	480x660x280	550x750x300
150					
4 Way - 3 Position Manual					
20-700 bar Adjustable Pressure Regulator Valve					
220/380 V., 50Hz, 3-phaze					
With 3 meter Cord					
85	90	119	155	203	249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Bu sistemde bulunan 3 adet EPS-157 model no'lu elektrikli hidrolik güç ünitesinin her biri 4 adet 100 ton kapasiteli çift tesirli hidrolik silindiri birlikte çalıştırmıştır. Manuel yön valfinin çıkışına bağlanan G7 Ø100 mm gliserinli manometre sayesinde sistemin basıncı sürekli takip edilmiş ve bu basınç hidrolik silindirlerle birlikte verilmiş olan kalibrasyon belgeleriyle karşılaştırılarak yüke uygulanmakta olan tonajın tespiti sağlanmıştır.

Each of 3 units of EPS-157 model electrical hydraulic power pack in the system activates 4 units 100 tons of capacity double acting hdraulic cylinder. The pressure of system is continiously checked with the help of G7 Ø100 mm glycerine manometer attached to the outlet of manuel direction valve and the weight applied to load is determined by comparison of calibration certificate given together with hydraulic cylinders.


OIL
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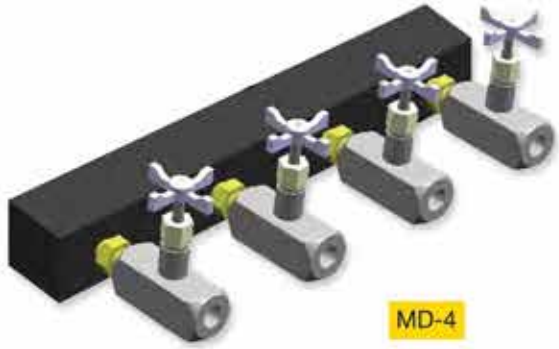
Manifold blocks are used when several hydraulic cylinders have to be connected to one hydraulic pump.

All manifold blocks are equipped with 3/8" NPT inner oil ports

Model No.	Manifold Type	Oil Port No.	Dimensions	Working Pressure	Weight
			mm	bar	kg
MS-2	Manifold block with 3 x 3/8" NPT female ports	3	40x40x100	700	1,30
MS-3	Manifold block with 4 x 3/8" NPT female ports	4	40x40x140		1,80
MS-4	Manifold block with 5 x 3/8" NPT female ports	5	40x40x180		2,30
MS-5	Manifold block with 6 x 3/8" NPT female ports	6	50x50x150		3,00
MS-6	Manifold block with 7 x 3/8" NPT female ports	7	50x50x150		3,00


MD-2


MD-3


MD-4

Manifold with shut-off valves are when different pressures must be maintained in each hydraulic line and therefore allow the lifting of unequal loads.

Model No.	Manifold Type	Oil Port No.	Dimensions	Working Pressure	Weight
			mm	bar	kg
MD-2	Manifold with 2 shut-off valves	3	50x50x140	700	3,80
MD-3	Manifold with 3 shut-off valves	4	50x50x220		5,90
MD-4	Manifold with 4 shut-off valves	5	50x50x300		8,00
MD-5	Manifold with 5 shut-off valves	6	50x50x230		7,10
MD-6	Manifold with 6 shut-off valves	7	50x50x240		7,80

Gauge

Model No.	Pressure Range bar	Scale Diameter mm	Oil Port	Description
G-637D	0-700	63	1/4"	Glycerine filled. 0-700 bar calibrated scale 700-1000 bar as a danger zone. 50 bar increment.
G-1007D		100		
G-1007				Glycerine filled. 0-700 bar calibrated scale 10 bar increment.
GD-1		63		Digital gauge

Couplers

C-209

C-213 C-211

CT-200

CT-201 CT-202

Model No.			Description
Complate Set	Female	Male	
C-209	C-211	C-213	Coupler 3/8" NPT threads max. flow capacity 35 l/min
CT-200	CT-202	CT-201	Coupler 1/4" NPT threads max. flow capacity 8 l/min

Model No.	Hose Length	Hose End	Hose End	Internal Diameter	Max. Working Pressure
	m			mm	bar
HS-2201	1	 3/8" NPT male	 3/8" NPT male	6,40	700
HS-2202	2				
HS-2203	3				
HS-2204	4				
HS-2206	6				
HS-2208	8				
HS-2210	10				
HS-2212	12				
HS-2215	15				
HSC-2201	1	 3/8" NPT male	 C - 213 male coupler	6,40	700
HSC-2202	2				
HSC-2203	3				
HSC-2204	4				
HSC-2206	6				
HSC-2208	8				
HSC-2210	10				
HSC-2212	12				
HSC-2215	15				

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