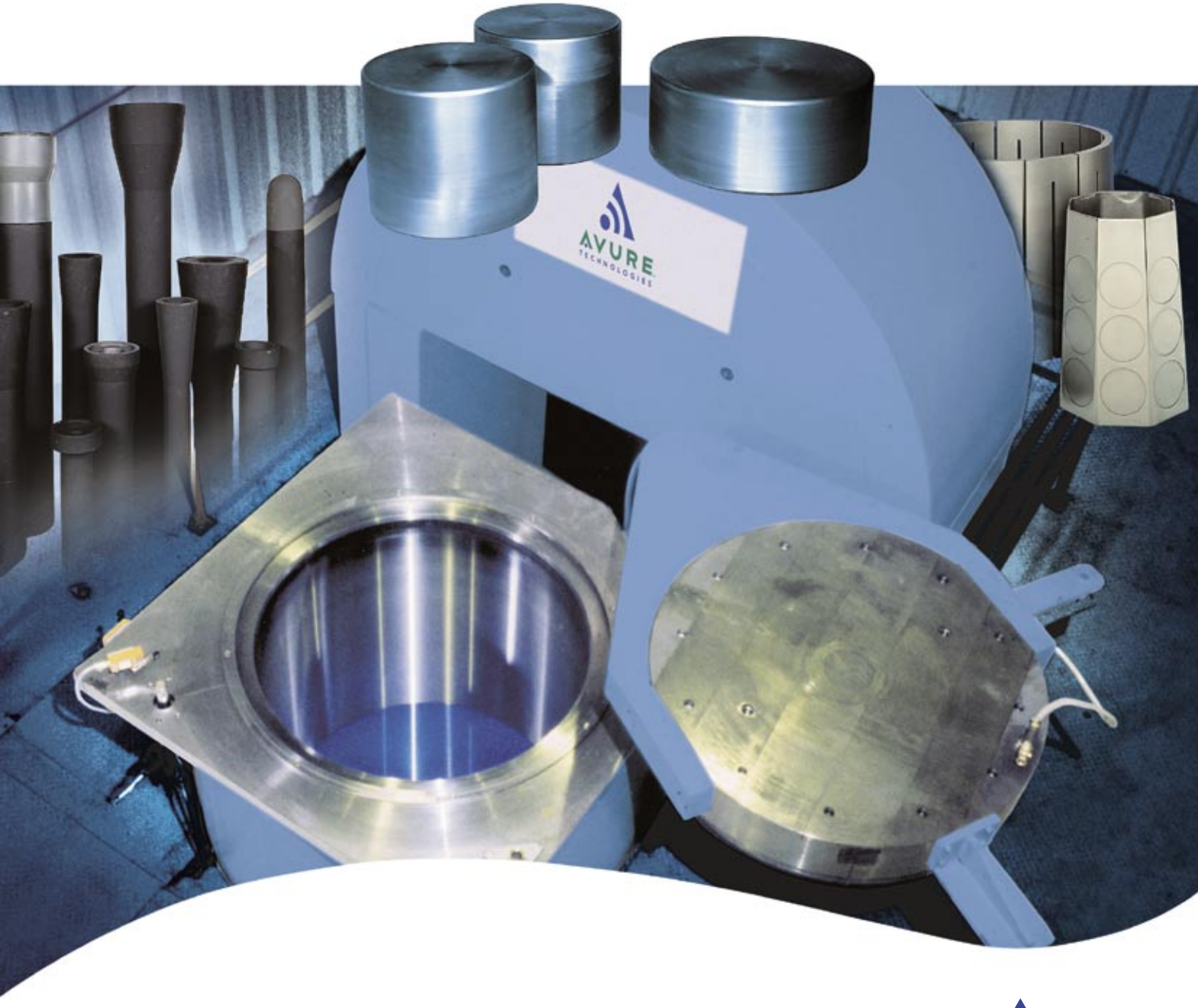
QUINTUS®
HIGH PRESSURE
TECHNOLOGY

For high quality and consistent material properties

Cold Isostatic presses



AVURE TECHNOLOGIES

AVURE™
TECHNOLOGIES

Wire-wound Design

High up-time

Avure Technologies laboratory units and production systems are characterised by their high up-time, gained from more than 50 years of diversified experience and research in the high pressure field and 1000 deliveries of wire-wound equipment ranging from research systems to the largest presses in the world.

Service is available through Avure Technologies's extensive world-wide service network.

Low installation cost

The unique pre-stressed press design results in weight savings of up to 50 % compared with conventionally designed presses. This simplifies the foundation, building and installation.

Wire winding of a large cylinder in Avure Technologies's factory. Vessel sizes up to 2.5 m (98 in.) in inner diameter and 5.5 m (216 in.) in height for pressures up to 620 MPa (90,000 psi) can be manufactured in the standard winding machine.

F87309

A press for 250 MPa (36,000 psi) pressure with a diameter of 1.3 m (51 in.) and height of 3 m (118 in.).

SE880555

for Long Life and Safety

Safe and secure

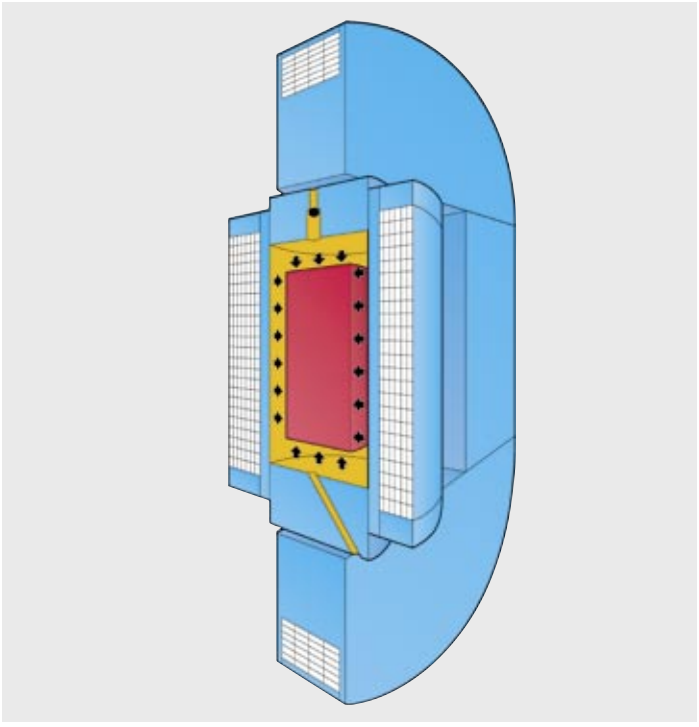
The QUINTUS wire-wound pre-stressed design eliminates stress concentrations in the pressure vessel and frame. Furthermore, very favourable fatigue properties are obtained. Crack propagation is made difficult and in most cases the vessel can be designed for leak-rather-than-break.

Easy periodic inspection of pre-stress and smoothness of surfaces provides essential information about the press condition.

Special presses for extreme pressures or of special design can also be supplied.

Our **Quality Management System** is approved according to ISO 9001. We are also authorised according to ASME Boiler & Pressure Vessel Code, Section VIII, Div. 3.

A QUINTUS wire-wound press consists of a wire-wound pre-stressed vessel with end closures that slide axially. The end closures are supported by a wire-wound frame. All ducts for press fluid and automatic air bleeding are in the end closures. Opening and closing of the pressure vessel is carried out with the aid of hydraulic cylinders.



SE902199

Cold Isostatic Pressing

High quality and consistent material properties.

When using a cold isostatic press (CIP) for pressing powder into parts, a high quality and consistent material properties are achieved. The density and green strength obtained allow mechanical machining in the green state.

Predictable shrinkage during sintering due to the uniform density reduces the cost of post machining.

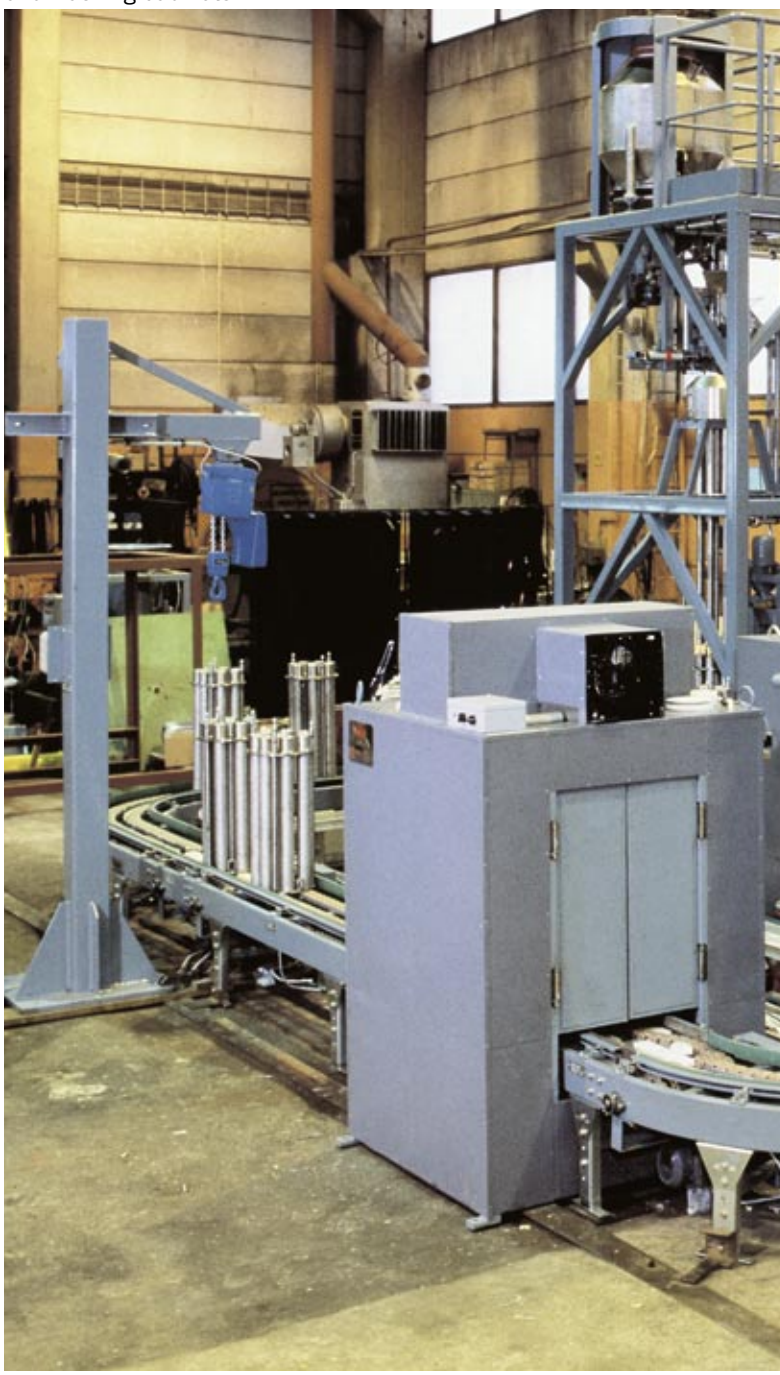
Isotropic properties in the final product are useful in many applications.

Flexibility to produce a variety of parts and shapes in the same batch characterises the process. Large parts, products with large height/diameter ratios, and complex shapes like nozzles, tubes, filters, insulators, etc., can be produced.

A press for 414 MPa (60,000 psi) with a diameter of 0.61 m (24 in) and height of 2.03 m (80 in).

SE040101

Complete line for automatic filling of moulds, transfer to the press and washing cabinets.



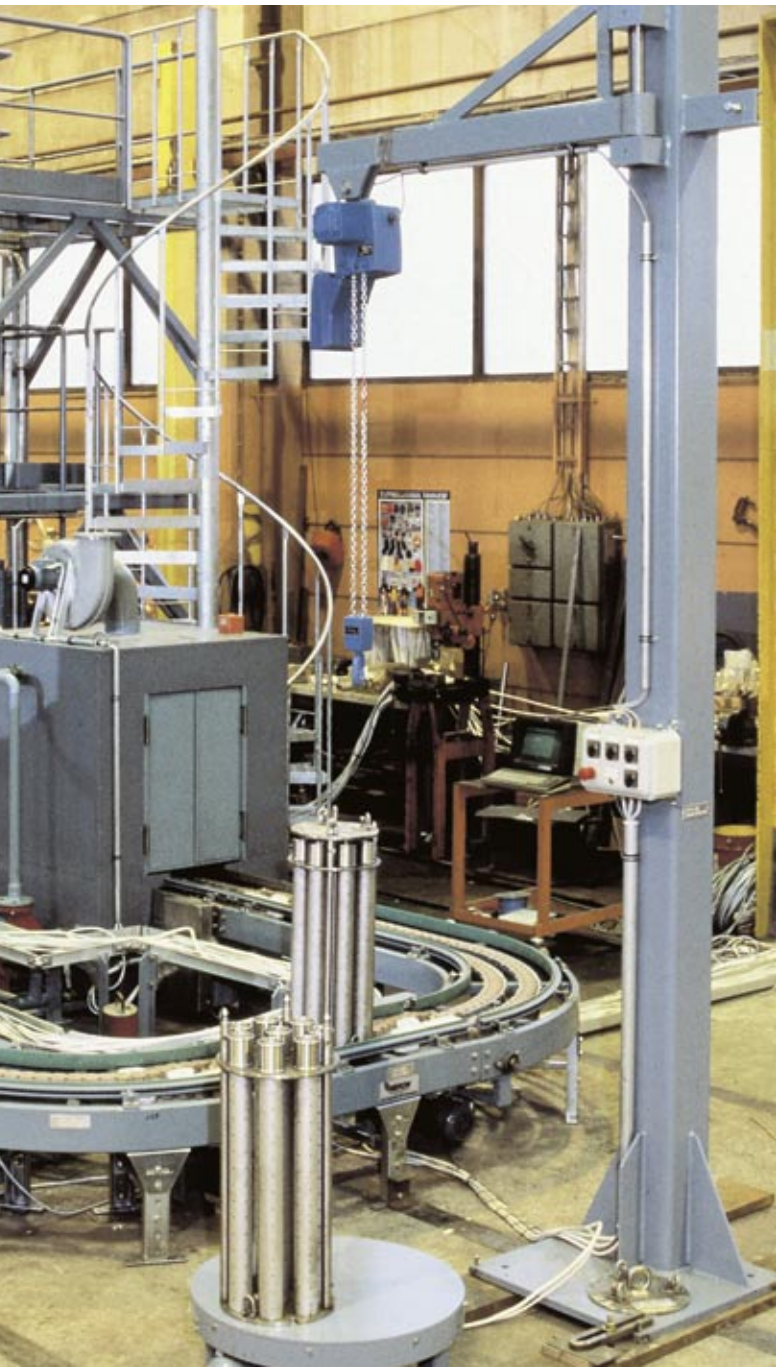
SE880214

Handling and Charging Systems

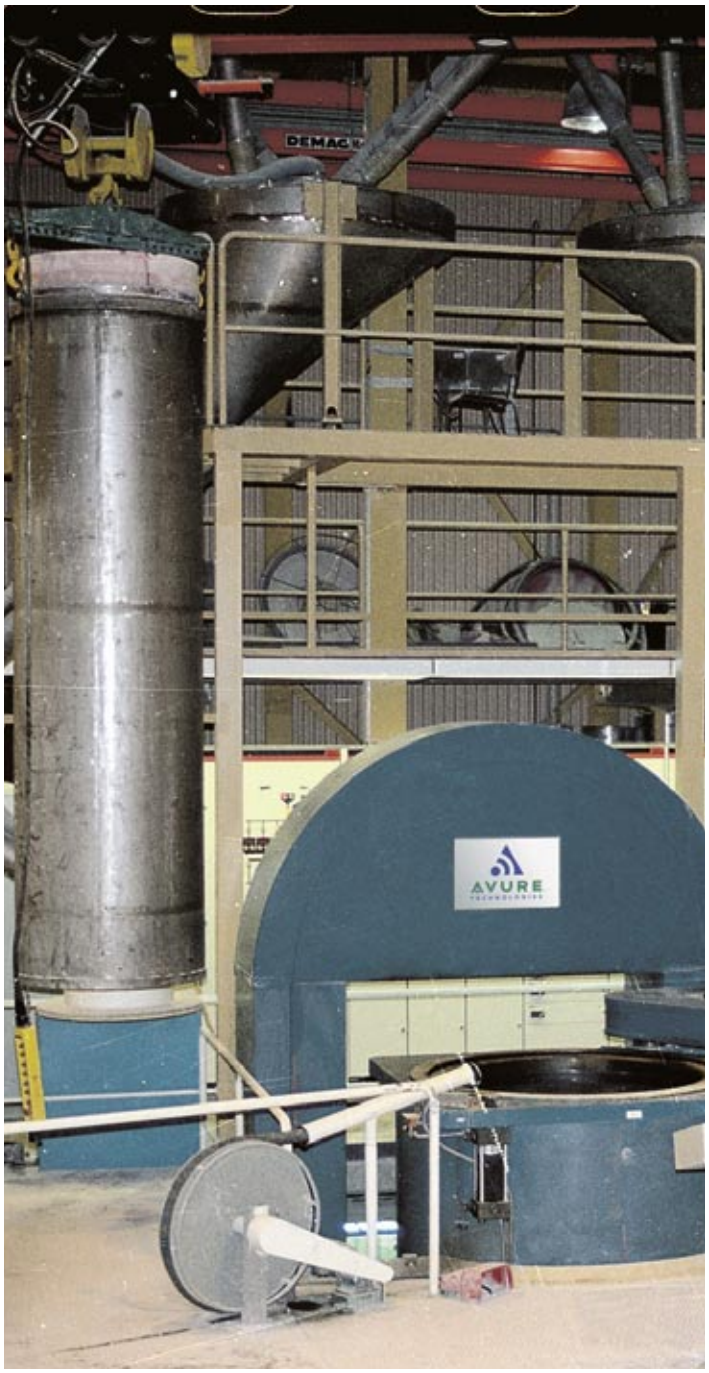
Complete equipment

The production of parts from powder involves a number of operations, such as storing blended powder, filling moulds to correct weight or volume and sealing the filled moulds. A number of the sealed moulds are then pressed in one cycle.

Avure Technologies can advise on or supply equipment for powder blending and mould filling, vibrators and evacuation equipment for precompaction of powder, transfer lines and cranes, washing cabinets and charge baskets. Equipment for making the moulds can also be supplied.



Overhead conveyor crane operating between fill station, washing station and press.



SE880554

Integrated Charging Basket

Charging baskets can be integrated in both small and large presses.

Powerful

Reliable and safe

The hydraulic pumping system is designed to protect the system from overpressure and to pressurise and decompress the pressure vessel in a controlled manner.

Optimised design based on experience from more than 1000 deliveries. Selection of types and sizes of pumps, pressure intensifiers and other components is based on the specific powder characteristics. High pressure valves are block-mounted to reduce piping work.

Precisely controlled pressurisation and decompression rates can be achieved combining variable flow pumps and servo valves with programmable electronic control.

Flexible charging basket integrated in the press.

SE890207

SE880209

Subsystems

Warm liquid can be used as pressure medium to enhance the compaction of the powder.

Press inserts of rubber are used when pressing abrasive powders in order to separate the press water from the hydraulic pump fluid, resulting in long life of wear parts.

Automatic operation using a flexible electrical system with built-in safety system, alarms and pressure recording.

Hydraulic system using pressure intensifier and block-mounted valves.

Research Scale

Low cost

Standard laboratory and pilot-scale isostatic presses offer the possibility to start cold isostatic pressing powders in an inexpensive and convenient way.

Fully self-contained units, with the pressure vessel, pressurising system, fluid reservoir and all instrumentation and controls installed in the one cabinet.

Select from several models for working pressures from 70 MPa (10,000 psi) to 620 MPa (90,000 psi) and pressure vessel diameters from 50 mm (2 in.) to 400 mm (16 in.).

Research-scale isostatic press from Flow Autoclave System, USA.

SE837000002

Manufactured by Avure Technologies

The world's largest HIPper at Bodycote – IMT, USA, with a diameter of 1.67 m (66 in.) and a max pressure of 103 MPa (15,000 psi), with Uniform Rapid Cooling (URC).

Cold and hot isostatic presses

Cold and hot isostatic presses (CIP and HIP) for compaction of metallic and ceramic powders and for defect healing of castings and sintered products. Pressures for CIP between 100 and 600 MPa (14,500 and 87,000 psi); for HIP up to 300 MPa (43,500 psi) and temperatures up to 3,000 °C (5,400 °F).

AVURE ultrahigh-pressure food production press with a maximum pressure of 600 MPa (87,000 psi). (Courtesy of Avomex, Inc.)

Ultrahigh-pressure presses

High pressure can be used instead of thermal treatments on food, creating new, safe and improved products with long shelf life.

Wire wound frames for diamond manufacturing presses ready for delivery from the AVURE workshop.

Special high tonnage presses

Our unique wire wound design and high pressure know-how can also be utilised for customised presses and components as well as special presses.

The world's most powerful press for Flexforming of sheet metal parts for automotive prototypes and short series production. (Courtesy of DaimlerChrysler).

Sheet metal forming presses

Flexforming is AVURE's high pressure flexible die forming method – a modern, economical sheet metal forming technique for both short and medium size series production in the aerospace and automotive industries. Forming pressures up to 140 MPa (20,000 psi) and areas up to 2 m x 4 m (79 in. x 157 in.).

Avure Technologies AB with head office and manufacturing facilities in Västerås, Sweden is a wholly owned subsidiary of Avure Technologies Incorporated, based in Kent, WA, USA.

AVURE is a member of the Flow group, the world's leading developer and manufacturer of ultrahigh-pressure equipment and pumps for waterjet cutting, cleaning and food safety applications as well as of isostatic and Flexform presses.

FLOW provides total system solutions for various industries, including automotive, aerospace, paper, job shop, surface preparation and food production.

Avure Technologies uses a network of AVURE and FLOW offices as well as specially appointed and trained agents for sales and service worldwide.

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