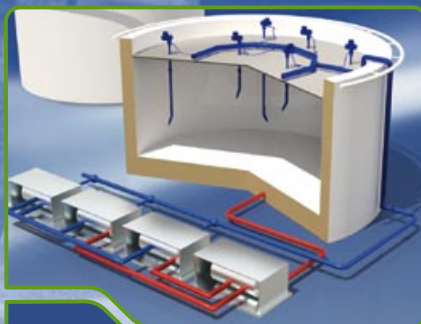




**SCHÄFER & URBACH**  
System and High Pressure Technology

# High-pressure technology

Clean systems solutions



- Pump units ◀
- High pressure technology ◀
- Water hydraulics ◀
- Service/After Sales ◀

# Systems out of conviction

*„If life has no vision to strive or long for, no vision to realize, then there is no motive for making any effort.“ (Translation of a quotation from Erich Fromm)*

## At SCHÄFER & URBACH, we live our corporate philosophy

Individually developed systems combined with standardized components manufactured by ourselves form the pivot of our corporate activities.

Systems solutions cannot be realized without a systematic, holistic approach. We look at them as an entirety of elements. At SCHÄFER & URBACH these individual elements are linked together in the value chain to form a systems solution tailored to a specific task, purpose or intention.

Self-confidence, trustworthiness and mutual trust form the basis for collaboration in people-oriented, value creating companies. These values are the foundations on which we build our customer-focused business. Quality and continuing learning are the central pillars of our economic success.

As a people-oriented, value creating and systematic enterprise, good team spirit and a high culture of discussion and communication are our key attributes. SCHÄFER & URBACH is result and customer oriented. Internal frictional loss is very low. The ethical responsibility of our employees towards our customers, other team members, the society and the environment sets the guidelines for our planning for the future and our everyday doing.

## Tradition as basis – high-pressure as motivation

For more than 80 years SCHÄFER & URBACH have developed and supplied equipment and components for systems and high-pressure plants to customers throughout the world. All of the supplied equipment is manufactured at the SCHÄFER & URBACH workshop.

The company assumes responsibility, as it supplies complete high-pressure and systems solutions made up of components which all fit together seamlessly – forming a perfect match and being

**...all from one source.**



▶ Design

▶ Manufacture

▶ Commissioning

▶ After sales service



**SCHÄFER & URBACH**

System and High Pressure Technology

As specialists for sophisticated solutions SCHÄFER & URBACH have become renowned in the following areas.

▶ **Pump Units**

- High-pressure pumps HDP
- Process pumps PPK
- Mud pumps BT
- Slurry-Pumps SPL
- Steam- and Duplex pumps
- Special pumps

▶ **High-pressure technology**

- Tank- and industrial cleaning systems
- HP Cleaning systems
- HP Cleaning accessories

▶ **Water hydraulics**

- Descaling systems
- Drive systems for presses

▶ **Service / After Sales**

- Engineering
- Welding technology
- Commissioning



**Components and competences  
– complete service!**

Our experienced, competent and flexible staff is available to our customers throughout the world for all service activities. Even large-scale maintenance and repair work can be performed independent of the weather conditions in our spacious assembly facilities. SCHÄFER & URBACH's crane for payloads up to 25 t enables safe handling of the systems and components.

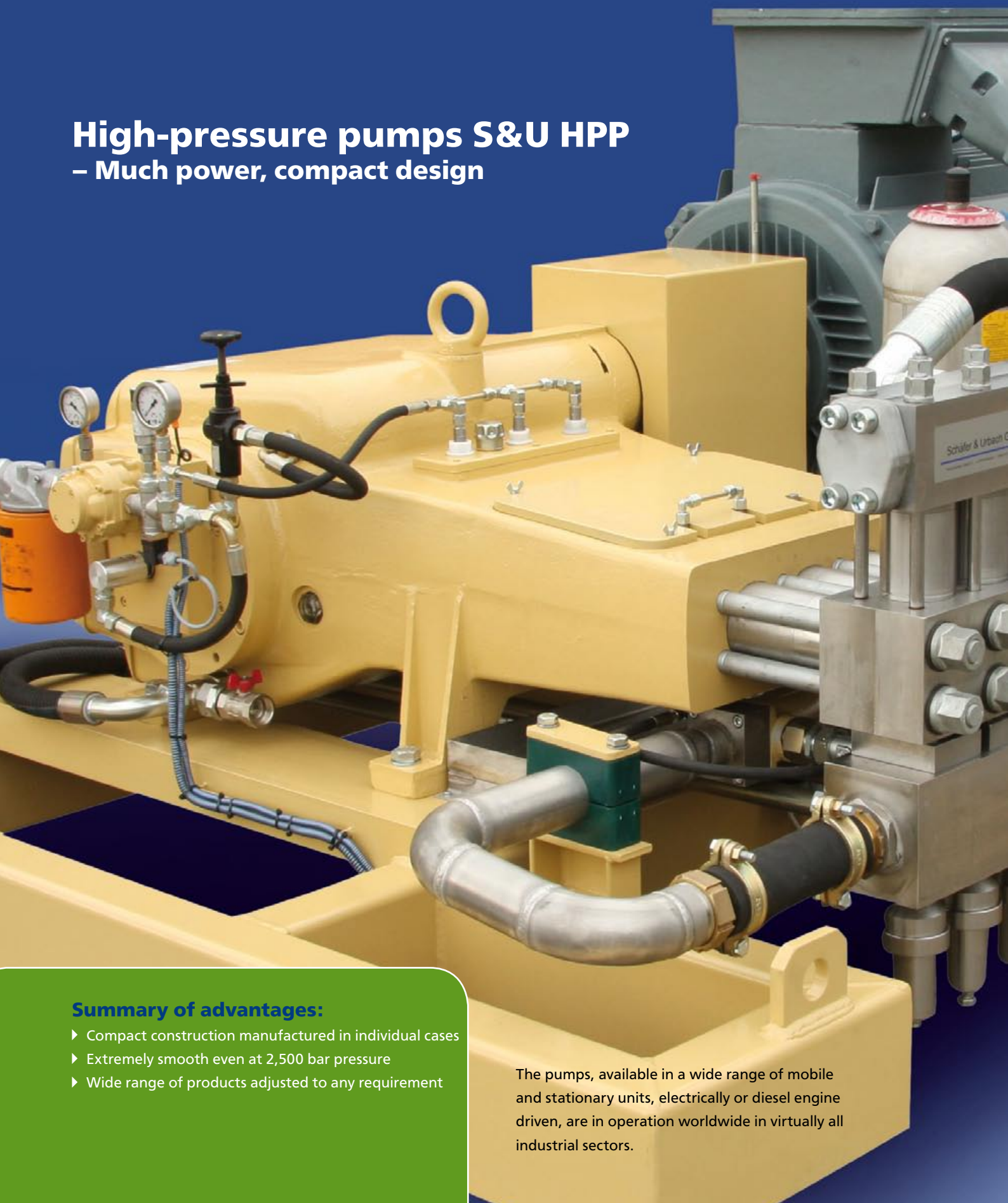
We have on stock parts and components, such as pistons and seals, for our standard products to guarantee 24 h service. SCHÄFER & URBACH's state-of-the-art workshop enables fast and flexible machining of repair parts such as spray headers or valves.

- ▶ Service and handling
- ▶ Spare parts storage for „Just-in-Time“-works
- ▶ Modern machinery
- ▶ Vehicle fleet for assembling and delivery



# High-pressure pumps S&U HPP

– Much power, compact design



## Summary of advantages:

- ▶ Compact construction manufactured in individual cases
- ▶ Extremely smooth even at 2,500 bar pressure
- ▶ Wide range of products adjusted to any requirement

The pumps, available in a wide range of mobile and stationary units, electrically or diesel engine driven, are in operation worldwide in virtually all industrial sectors.



**SCHÄFER & URBACH**

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## Drive unit

- ▶ Lying Triplex crankshaft drives in casting construction with integrated gear reducer for 1,000 to 2,100 rpm.

## Fluid section

- ▶ They are primarily used for high-pressure water pumping in cleaning and material removal operations by water jets; occasionally also for other low-viscosity fluids. The pumps, available in a wide range of mobile and stationary units, electrically or diesel engine driven, are in operation worldwide in virtually all industrial sectors.

## Specifications and standards

- ▶ The pumps are laid out according to the generally applicable standards, including EN 809, and EN ISO 16330 or DIN EN 1829 Part 1 and Part 2.

## Accessory equipment

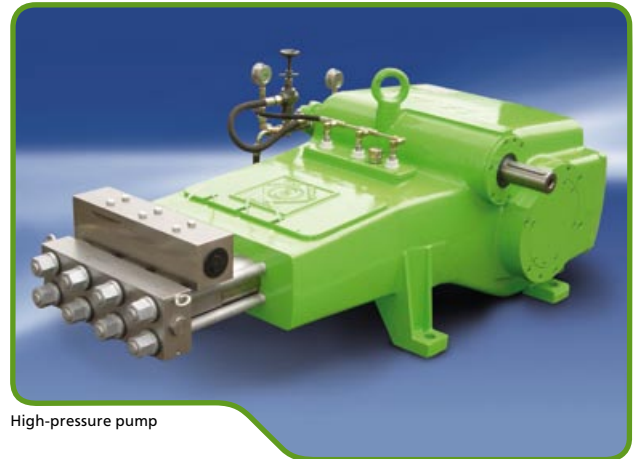
- ▶ **Resonators – Pulsation dampening for piston and plunger pumps**

Pump speed: >100 1/min/h

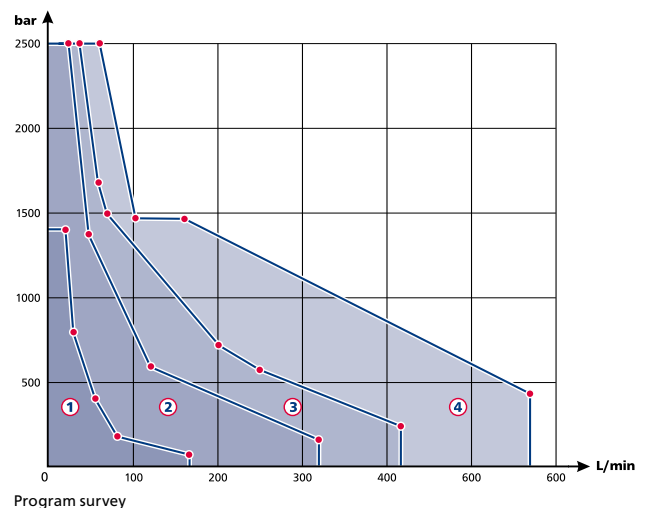
Pressure range: up to 500 bar

Pumping rate: < 3,000 l/min

Temperature: -10 up to 200 °C



High-pressure pump



# Cleaning of heat exchangers

## inro 1200 and exro 1200

„Jet-liner inro and exro 1200“ were developed by SCHÄFER & URBACH for professional cleaning of tube bundle heat exchangers. Through constant collaboration with leading users, these semiautomatic systems are always kept at the latest state of the art.

### Jet-liner inro 1200

#### – Inside cleaning of tube bundles

To ensure that the plant is highly resistant to the sometimes very aggressive mixtures of cleaning water and product residues, it is as far as possible made of stainless steel materials. In connection with a SCHÄFER & URBACH high-pressure pump the device effectively removes material deposits on the inside surfaces of the tubes and is even capable of boring open completely blocked tubes. The heat exchanger is placed on two dollies and cleaned by means of horizontally travelling lances.

### Jet-liner exro 1200

#### – Outside cleaning of tube bundles

The heat exchanger is placed on two dollies and cleaned by means of a horizontally travelling spray header, which can be moved vertically and transversely relative to the heat exchanger.



inro 1200



inro 1200



exro 1200

### Summary of advantages:

- ▶ Replaces manual cleaning
- ▶ Minimizes safety hazards
- ▶ No personnel inside the tank
- ▶ Reduces cleaning times

\* Technical data of the standard design (special design on request)



## Bundle Puller

The bundle puller is used for extracting and installing tube bundles in plants and installations (refineries, chemical works, etc).

Thanks to a Diesel engine driven hydraulic unit it is completely independent of external energy sources. By the stepless speed control of the drive engine it is possible to infinitely regulate the operating speeds for all functions and adjust them to the specific operating conditions. The mechanical layout gives the machine an extremely high degree of stability. Modern control technology provides very high operating security and a high degree of user friendliness.



BUNDLE PULLER

### Functional description:

- ▶ Attach bundle puller to a suitable crane and lift slightly
- ▶ Balance out the centre of gravity
- ▶ Lift up close to the open heat exchanger
- ▶ Fasten steel ropes to the heat exchanger and pull the device into position
- ▶ Fix pulling frame by fixing claws
- ▶ Move puller car in front of the bundle and fasten steel ropes between the bundle and the puller car
- ▶ Pull the bundle out of the exchanger until the end of stroke by means of the puller car

- ▶ Move lifting device into front position
- ▶ Release the fixing claws
- ▶ Release positioning devices
- ▶ Lower the puller carefully, balance out the centre of gravity, then continue lowering

### Optional control features:

- ▶ Control cabinet at the pulling frame
- ▶ OP7 on-site operator terminal for manual actuation of all functions and display of various values and messages
- ▶ Radio remote control with a range of up to 100 m

<b>Maximum length of tube bundle</b>	6,500 mm	8,000 mm	10,000 mm	12,000 mm
<b>Maximum diameter of tube bundle</b>	2,500 mm	2,500 mm	2,500 mm	2,500 mm
<b>Maximum weight of tube bundle</b>	21,000 kg	26,000 kg	33,000 kg	40,000 kg
<b>Puller length</b>	9,000 mm	10,500 mm	12,500 mm	14,500 mm
<b>Puller width</b>	3,000 mm	3,000 mm	3,000 mm	3,000 mm
<b>Puller height with suspension bar</b>	3,700 mm	3,700 mm	3,700 mm	3,700 mm
<b>Puller height without suspension bar</b>	2,400 mm	2,400 mm	2,400 mm	2,400 mm
<b>Puller weight</b>	7,000 kg	10,000 kg	12,500 kg	14,500 kg

## High-pressure pump units

SCHÄFER & URBACH designs and manufactures high-pressure pumping units tailored to specific customer requests and the requirements of the task to be realized. No matter whether the unit is to be stationary or mobile, driven by an electric motor or Diesel engine, explosion-proof or conventional - SCHÄFER & URBACH has always the right solution.

### Summary of advantages:

- ▶ Compact construction manufactured in individual cases.
- ▶ Extremely smooth even at 2,500 bar pressure
- ▶ Wide range of products adjusted to any requirement





**SCHÄFER & URBACH**  
System and High Pressure Technology

## S&U HWG 1000 Hot-water high-pressure pumping unit

The hot-water high-pressure pumping unit, which ideally combines the effects of the kinetic energy of the water jet with the high water temperature, is an extremely effective cleaning tool.

The innovative use of a heat exchanger on the low pressure side provide a new pressure stage (1,000 bar) at markedly enhanced operating safety and service life.

### Design variants:

- ▶ Stationary unit on base frame equipped with dampers
- ▶ Mobile unit on trailer with noise protection hood

### Technical specifications overview:

- ▶ Drive Power max.: 55 kW
- ▶ Nom. engine speed: 2,600 min<sup>-1</sup>
- ▶ Water temperature max.: 95 °C

Pump head (Type)	Plunger Ø (mm)	Theoretic Pumping rate (l/min)	Max. Pressure (bar)
<b>PK HD 65</b>	14	20.3	1,000
<b>PK HD 65</b>	16	26.5	750
<b>PK HD 65</b>	18	33.5	600
<b>PK HD 65</b>	20	41.5	480

Other speeds and capacities on request.

### Dimensions and weight:

	Length (mm)	Width (mm)	Height (mm)	Weight
<b>Stationary</b>	2,900	1,500	1,500	1,530 kg
<b>Mobile</b>	5,100	2,260	2,800	2,780 kg



Stationary unit



Mobile unit

# LUVO

## – Cleaning of rotary air preheaters

### Cleaning parameters:

- ▶ Approx. 400 bar at about 500 l/min (distributed over 2 spray headers each, which are arranged below and above the lamellae to be cleaned)

### Cleaning time:

- ▶ Depends on diameter and speed of the heat exchanger, radial forward feed is about 5 mm / revolution



Spray headers

## Grid cleaning

Designed and developed in constant collaboration with the equipment users, the complete solutions offered by SCHÄFER & URBACH incorporate cleaning systems and high-pressure plants operating at up to 2,000 bar and 35 l/min.

### Fields of application

- ▶ Cleaning of grids used in the automotive industry (paint removal; suitable for all types of paints and substrates)

### Additional equipment

- ▶ The addition of a spray cannon makes the machine highly suitable for cleaning skids and miscellaneous small parts (hooks, clamps, etc.)



### Summary of advantages:

- ▶ Replaces manual cleaning
- ▶ Minimizes safety hazards
- ▶ No personnel inside the tank
- ▶ Reduces cleaning times



**SCHÄFER & URBACH**  
System and High Pressure Technology

## And more high-pressure

### Tank cleaning systems

#### Modular tank flushing system

The innovative, modular crude oil tank flushing system developed by SCHÄFER & URBACH complies with the requirements of EU Guidelines 94/9/EG (ATEX) and 97/23/EG (DGRL). It is designed for cleaning mineral oil tanks with a maximum diameter of 100 m. The cleaning medium is mineral oil.

#### Mobile tank flushing and cleaning vehicle

The mobile inside tank cleaning process is designed for small, decentralized storage tanks, e.g. at petrol stations, with maximum diameters of 25 m. The flushing medium is Diesel oil or hot water. A special cleaning lance cleans the tank without the need for personnel being inside the tank.

#### Spray cannon

The mobile, automated inside tank cleaning process using the innovative spray cannon is suitable for tanks with a maximum diameter of 40 m.

#### Cleaning lances

Cleaning lances are used for cleaning oil tanks or similar containers. The impinging liquid jet breaks up and loosens the deposited oil sludge, maximizing the amount of recyclable material.

### Cleaning accessories

Designed and developed in constant collaboration with the equipment users, the turnkey cleaning solutions and plants offered by SCHÄFER & URBACH operate at up to 2,000 bar and 35 l/min.

#### Nozzles, available complete with nozzle holding devices and various fittings:

- ▶ Round and flat nozzles, rotary nozzles, mono-jet nozzles for gunning operations.

#### Sewer cleaning nozzles

#### Hoses

- ▶ Hydraulic hoses, water high-pressure hoses in any diameter and for all pressure stages (rubber and plastic hoses); can be delivered complete with fittings.

#### Spray guns

- ▶ available in different pressure stages up to 2,500 bar; mechanical or electrical (galvanized or ex-proof).

#### Foot valves / Foot switches

- ▶ Foot operated valves up to 1,000 bar, also electrically actuated; foot operated switches in galvanized or ex-proof design.

#### Remote controls

- ▶ for remote control of various high-pressure water devices: available in different versions (range of functions, design, switching mode).

#### Tank cleaning heads

- ▶ various pressure stages up to 1,500 bar, various geometric shapes, various materials.

#### Additional equipment

- ▶ High-pressure screwed connections, manometers
- ▶ High-pressure valves and fittings (ball valves, throttle valves, etc.)
- ▶ High-pressure lances
- ▶ Swivel joints, rotary penetrations
- ▶ Safety valves
- ▶ Bursting discs
- ▶ Pulsation dampeners, suction flow stabilizers
- ▶ Protective clothing (proof resistant up to 2,000 bar)
- ▶ and much more



**SCHÄFER & URBACH**

System and High Pressure Technology

**Tradition as basis – high-pressure as motivation**



**SCHÄFER & URBACH GmbH**

► **Headquarters:**

Kaiserswerther Straße 74  
40878 Ratingen - Germany  
Phone: (+49) 21 02 / 45 07 - 0  
Fax: (+49) 21 02 / 45 07 - 45

► **Branch Office:**

Breitenseer Weg 2-6  
97633 Hoechheim - Germany  
Phone: (+49) 97 64 / 91 91 - 0  
Fax: (+49) 97 64 / 91 91 - 40

► E-Mail: [info@schaefer-urbach.com](mailto:info@schaefer-urbach.com)  
► Internet: [www.schaefer-urbach.com](http://www.schaefer-urbach.com)

DIN EN ISO 9001:2008 ◀

EU Guidelines: 97/23/EG pressure equipment ◀

EU Guidelines: 94/9/EG ATEX for  
cleaning lances and high-pressure equipment ◀

EU Guidelines: ZH 1/406 for  
liquid jets ◀

Qualification according  
to DIN 18800 Part 7 ◀

Certificate according to  
DIN EN 3834-2 for welded structures ◀

Certificate according to  
AD Guidelines HP 0 (TRB 200), TRD and TRR 100 ◀

Specialist firm according to §19 WHG ◀