



Specialist for Pumping Technology

INNOVATION
EFFICIENCY
QUALITY



FIRE PUMPS

Horizontal Fire Pumps / Vertical Fire Pumps / Pre-Packaged Fire Systems

For more than 60 years the name Ruhrpumpen™ has been synonymous worldwide with innovation and reliability for pumping technology

Ruhrpumpen is an innovative and efficient centrifugal pump technology company and offers operators of Pump Systems, a wide range of quality products. Ruhrpumpen is committed to global excellence with a complete range of Pumps, Fire Pump packages and related products, such as Decoking Systems and Tools to support the core markets, namely Oil & Gas, Petrochemical, Power, Heavy Industry applications, Mining and Water services. The broad product line complies with the most demanding quality specifications and go beyond stringent industry standards such as API, ANSI, Hydraulic Institute, Underwriter's Laboratories, NFPA, UL & FM, Factory Mutual and ISO 9001.

Ruhrpumpen's Fire Pumps are Listed by Underwriter's Laboratories and Approved by Factory Mutual. The complete range includes Horizontal, Vertical Fire Pumps and complete Pre-Packaged Fire Systems, in both 50 and 60 Hz. The pumps are available in electric motor, diesel engine or steam turbine driven configuration.

Ruhrpumpen's Horizontal split-case, End suction and Vertical In-Line centrifugal pumps combine the latest in hydraulic design with almost a century of application experience to meet today's industrial and municipal requirements. The Fire Pumps offer longer life, higher efficiencies, less downtime and lower maintenance costs. Heavy fabricated-steel bases, are available to mount the pump and driver. Flexible shaft coupling connects driver to pump.

The VTP (Vertical Fire Pumps) are normally designed to operate in wells, sumps or offshore. The bowl assembly consists primarily of a suction bowl & suction bell, one or more bowls, and a discharge head. The number of stages (bowls) employed is determined by the head requirements of the installation. The pump bowl assembly is positioned in the sump or well at a depth to provide the proper submergence. A pump shaft, common to all moving parts in the bowl assembly, provides mechanical linkage to the pump driver unit.

Ruhrpumpen also offers complete Pre-Packaged Fire Systems, which can vary from a pump with driver arrangement on a skid, to a fully prefabricated unit with environmental enclosures.

Intensive research and development ensures that the products of Ruhrpumpen are continuously improved to meet the latest technical requirements. Instant availability of spare parts, together with first class service, assures customers that they have selected the right partner.

Markets

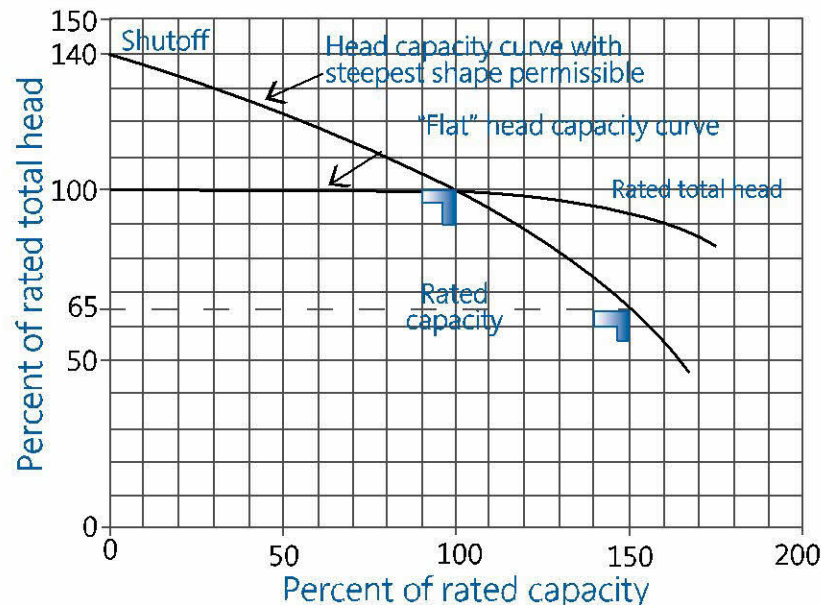
Ruhrpumpen serves a variety of markets with it's Fire Pumps, such as:

- Refinery, Petrochemical and Offshore.
- Commercial centers
- High rise buildings
- Power stations
- Manufacturing and Chemical Industries.
- Municipal
- Mining
- Institutional



FIRE PUMPS

Selection Criteria



- Pump shall furnish not less than 150% of rated capacity at not less than 65% of total rated head.
- Shutoff head will range from a minimum of 101 percent to a maximum of 140 percent of rated head.
- As per NFPA-20 we can offer ranges over 5,000 gpm, these cases are subject to individual review by the authority having jurisdiction or a listing laboratory.
- As required by NFPA-20, each pump is tested at our factory to provide detailed performance data and to demonstrate its compliance with the required specifications.
- In compliance with NFPA-20, hydrostatic tests are performed on the pump for a period of not less than 5 minutes. In the case of vertical turbine pumps, both the discharge head and the bowl assembly are tested.
- The use of a Diesel engine requires the proper environmental temperature (minimum 4.5°C / 40°F), to ensure correct operation of the Fire System. A pump House may be required in order to meet these specific conditions, please contact the factory for more information.



FIRE PUMPS

Horizontal Split Case Fire Pumps

Single Stage Horizontal Split Case Pumps

Ruhrpumpen also designs offshore Fire Pump Systems with ABS certification for floating offshore facilities.

DESIGN FEATURES

- NFPA - 20
- FM - 1311
- UL - 448
- Special design available on request.

CHARACTERISTICS

PERFORMANCE DATA

Capacity	up to 1136 m ³ /h	5000 U.S. gpm
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Head	up to 204 m	670 ft
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Pressure	up to 20 bar	290 psig
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Temperature	10 °C to 105 °C	50 °F to 220 °F
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Note: For pump operations outside this range, please contact a Ruhrpumpen representative.

1 COMPACT DESIGN.

Heavy shaft and short bearing span reduce shaft deflection to a minimum, providing longer packing and bearing life and lower maintenance costs, while requiring less floor space. Clockwise rotation standard; counter-clockwise rotation optional.

2 CASING.

Horizontally split, upper and lower half bolted and dowelled to provide perfect alignment. Bearing supports are cast and bored integrally with lower-half casing. Upper half casing can be removed for inspection of complete rotating assembly, without disturbing bearings or alignment. Flanged suction and discharge connections are located in the lower-half casing, allowing inspection and maintenance without disturbing piping or drive alignment.

8 SHAFT SLEEVE.

Protects the shaft against corrosion and wear, extends through gland for maximum shaft protection. (Threaded against impeller hub to tighten with rotation, yet free for thermal expansion with temperature changes.)

3 IMPELLER.

Enclosed, double-suction type. Cast in one-piece and balanced to minimize thrust and to ensure longer bearing life. Keyed to shaft and locked in position by threaded shaft sleeves.

7 INTERCHANGEABLE.

Radial and Thrust Bearings with grease lubrication are (conservatively rated at 100,000 hrs "Plus" Bearing Life) guarantee, maximum life at minimum maintenance cost.

4 SHAFT.

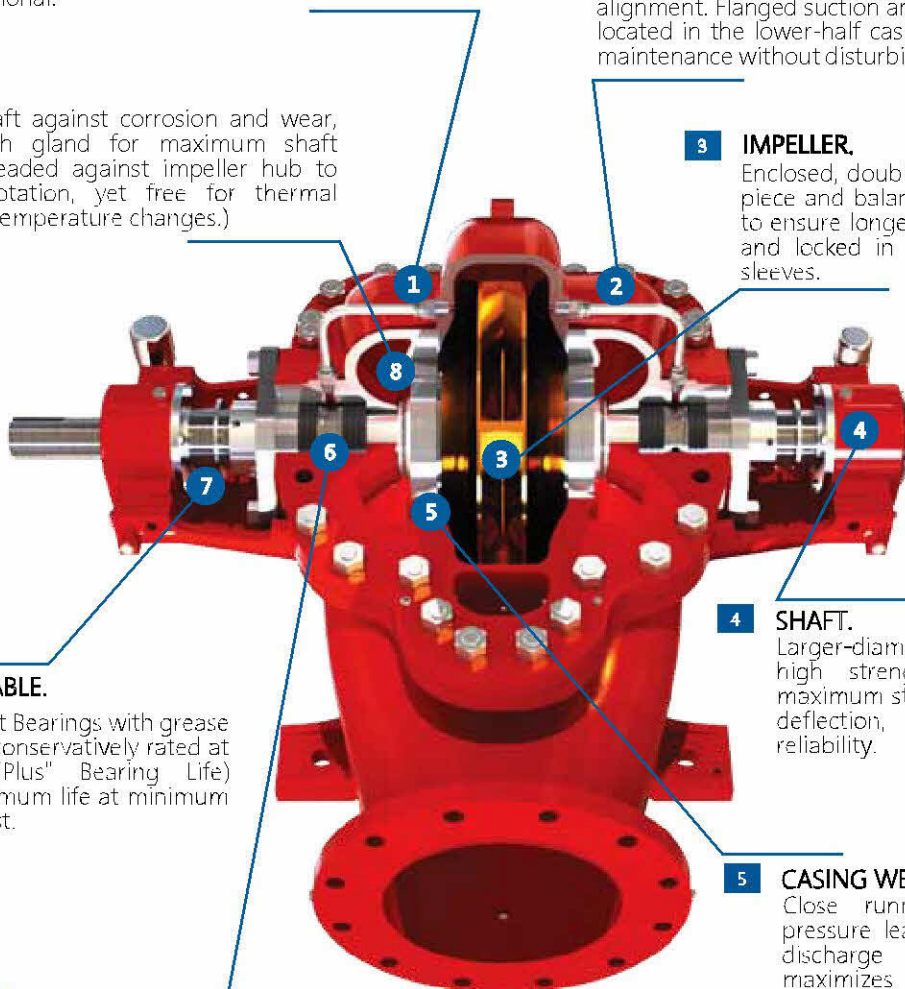
Larger-diameter, precision-machined, high strength steel shaft provides maximum strength with minimum shaft deflection, so ensuring maximum reliability.

5 CASING WEAR RINGS.

Close running clearance minimizes pressure leakage between suction and discharge chambers of the casing, maximizes efficiency and are easily replaceable.

6 STUFFING BOX.

Deep Stuffing boxes are designed to accept a minimum of five rings of packing with lantern ring. Internally drilled liquid passage in upper-half casing provides lubrication to the packing area.



Images for illustration purposes, not actual construction

End Suction Fire Fighting Pumps

Our End Suction Fire Pumps are designed according to ANSI (ASME B73.1) and are Certified by Factory Mutual and UL. Ruhrpumpen also designs offshore Fire Pump Systems with ABS certification for floating offshore facilities.

DESIGN FEATURES

- NFPA - 20
- UL - 448
- FM - 1319

PRODUCT DESCRIPTION

- Single stage horizontal centrifugal pump.
- Radially split casing with flanged connections.
- Horizontal end suction and vertical discharge on the center line. Enclosed impeller, clock - wise rotation (viewed from coupling end).
- The end suction pump is also available as Jockey Pump. Ask your Ruhrpumpen representative for design features and available materials of construction.

CHARACTERISTICS

- 1 Bearing vibration monitoring ports standard.
- 2 The heavy-duty power frame of the CPP-21 incorporates an integrated fin design for additional oil cooling and heat dissipation; bearing housing heat exchanger is an available option.
- 3 The UL/FM Listed ANSI pumps will be supplied in FF. ANSI 150 # or 300 # flange drilling is available based on material selection.
- 4 Casing wear ring is standard for the certified ANSI pumps.
- 5 Enclosed impeller design ensures maximum efficiency. The impeller itself is threaded against rotation and is positively locked onto shaft, and sealed with an o-ring.
- 6 Stuffing box cover for packing.
- 7 A robust 316SS sleeved shaft as standard for extended seal life.
- 8 Standard Inpro/Seal® bearing Isolators.
- 9 Grease lubrication without adjustments or different parts.
- 10 The double row thrust bearing provides minimal shaft end play for extended mechanical seal life.

PERFORMANCE DATA

Capacity	up to 114 m ³ /h	500 U.S. gpm
Head	up to 198 m	650 ft
Pressure	up to 19 bar	280 psig
Temperature	-45 °C to 315 °C	-50 °F to 600 °F

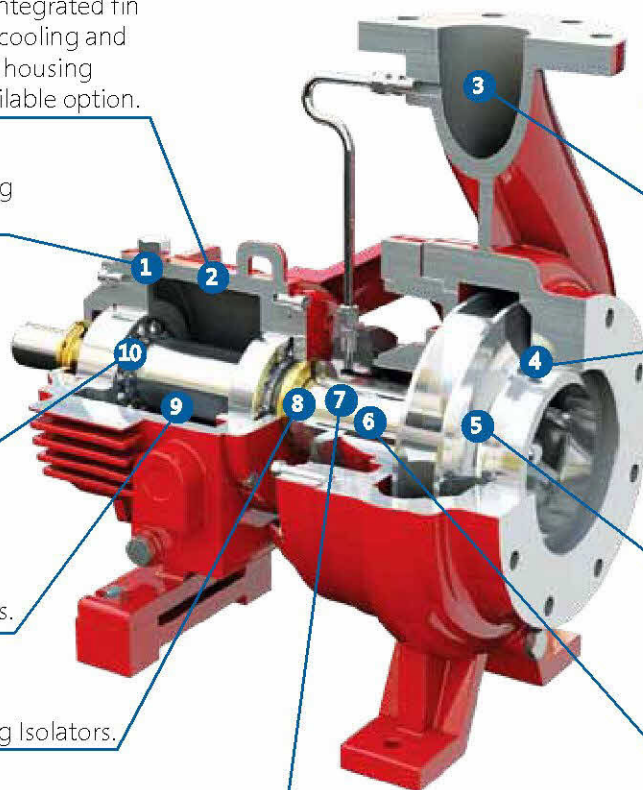
Note: For pump operations outside this range, please contact a Ruhrpumpen representative.

- Foot mounted.
- ASME B 73.1 (ANSI Pump Standard).
- "Back pull-out" design allows pump disassembly without disturbing pipe connections.

MATERIALS OF CONSTRUCTION

The certified ANSI pumps are supplied in:

- Ductile Iron / Stainless Steel (CF8M)



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Vertical Turbine Pumps

Ruhrpumpen can design an offshore Fire Pump System with ABS certification for floating offshore facilities.

- 1** Discharge head provides support for motor and entire pump and column assembly. Available in cast iron or fabricated steel.
- 2** Column connections are flanged or threaded, and include replaceable bearing retainer.
- 3** Column assembly is manufactured in-plant to ensure accurate fit. Available in different materials and coatings.
- 4** Line shaft is in carbon steel and threaded with coupling. Other materials available for various applications.
- 5** Suction bowl provides a rigid support of the lower end of the pump shaft. Suction bell is available for special applications.
- 6** Strainer prevents entry of foreign objects into pump suction. Designed in accordance with NFPA-20.
- 7** Machined stuffing box with bushing to guide shaft.
- 8** Bearings are available in a variety of materials to meet pumping needs.
- 9** Line shaft couplings are machined from solid steel stock.
- 10** Sleeve bearings operate in conjunction with pump shaft to provide long life and low friction.
- 11** Enclosed impellers are designed for long life and high efficiency. Each is precision machined and balanced for vibration free operation; the vanes and guide passages are hand finished to improve the efficiency.
- 12** Standard tapered collets secure impeller to pump shaft. Keyed impellers available for some sizes.

- Standard Material: Cast Iron / Bronze, special material available on request.
- Counter clockwise rotation viewed from Coupling End.
- Large Bowl shaft sizing provides longer life.

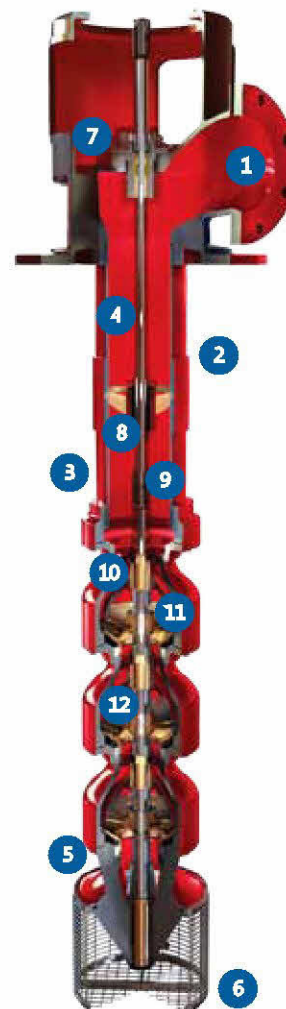
DESIGN FEATURES

- NFPA - 20
- UL - 448
- FM - 1312
- Special design available on request.

PERFORMANCE DATA

Capacity	up to 1136 m ³ /h	to 5000 U.S. gpm
Head	up to 202 m	663 ft
Pressure	up to 19 bar	280 psig
Temperature	10 °C to 105 °C	50 °F to 220 °F

Note: For pump operations outside this range, please contact a Ruhrpumpen representative.



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FIRE PUMPS

Pre-Packaged Fire Systems

In - Line Pumps

All Vertical In - Line pumps from Ruhrpumpen are also available for fire fighting applications.

- Compact space saving design.
- Top pull - out simplifies maintenance.
- In-Line design ensures ease of installation.



Pre-Packaged Fire Systems

Ruhrpumpen offers packaged fire pump systems that can be designed and built to the requirements of the customer. These Pre-Packaged systems can be supplied with an electric motor or diesel engine. As a customer you can choose Pre-fabricated skid mounted units or pump housed units. System designers appreciate the time savings and the Ruhrpumpen expertise built into each project.



End Suction Pump on
Pre-Packaged Skid - Mining Market



In Line Skid

BENEFITS PRE-PACKAGED FIRE SYSTEM

- Single source responsibility.
- Pre-fabricated and Factory tested.
- Reduced field cost installation.
- Delivered to site in a single shipment.
- International distribution and start up capabilities.
- Compactness & Space Efficiency.

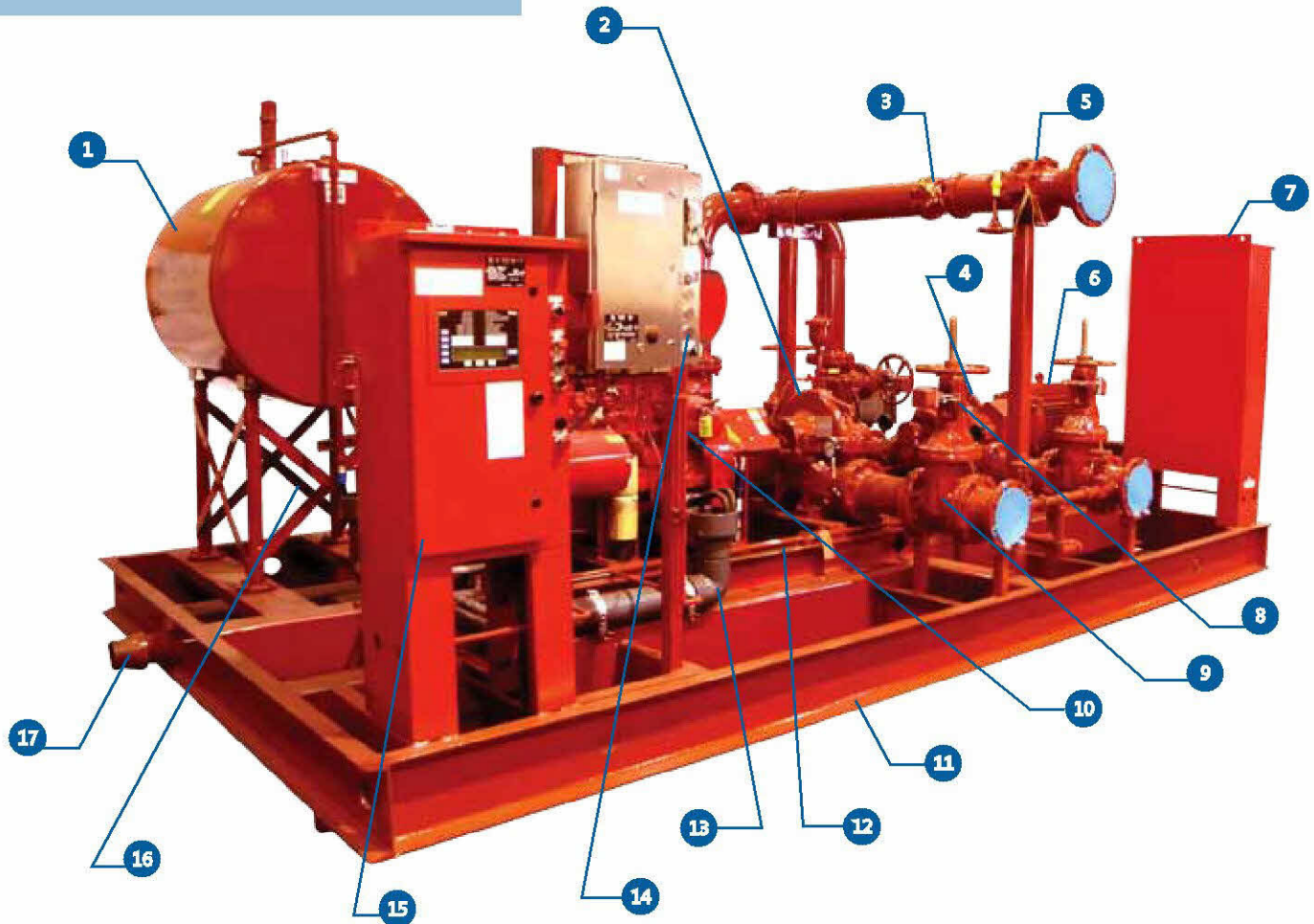


- Completely wired.
- ETL/C-ETL Third Party Listing.
- UL/FM approved components.
- NFPA 20 full compliance.
- NFPA 850 Compliant.
- Certified ASME section IX welding, AWS D1.1 certified structural welders.

FIRE PUMPS

Pre-Packaged Fire Systems

Characteristics



1 UL-142 Double wall day tank.

2 UL/FM Fire Pump.

3 FM Flow Meter.

4 Jockey Pump.

5 Throttling Valve.

6 UL Electric Motor.

7 UL/FM Electric Control Panel.

8 Tamper Switches.

9 UL/FM Listed OS&Y gate valves.

10 UL/FM Listed Diesel Engine.

11 ASTM A36 Structural Steel Skid.

12 Copper Sensing Lines.

13 Schedule 8-CPVC containment piping for fuel piping.

14 UL Listed Jockey Pump Controllers.

15 UL/FM Diesel Control Panel.

16 Seismic bracing on fuel tank.

17 Floor Drain System.

FIRE PUMPS

Pre-Packaged Fire Systems

NOTHING IS LEFT TO CHANCE WITH A RUHRPUMPEN PRE-PACKAGED FIRE SYSTEM

If your customer needs a packaged fire system to be completely housed, Ruhrpumpen can supply this enclosure. The buildings include the following (optional) features.

- Interior Lighting.
- Exterior Flood Lighting.
- Pre-wired and pre-piped.
- Pre-piped sprinkler systems for pump house interior.
- Exhaust Fan.
- Mini Power Zone.
- Electric Heaters with Built-in Thermostat.
- Wall or Floor Penetration.
- Containment piping.
- Floor Drain.
- Architectural finishes.
- Safety Equipment.
- Grating Floor Deck design.
- Seismic Calculations with PE Stamps.
- Open Skid design.
- Diamond Plate Floor Deck design.



Pump House Fire System



Interior Pump House Fire System

OPTIONAL FEATURES PRE-PACKAGED FIRE SYSTEMS

- Ruhrpumpen can give start up and field training.
- Option for PE Stamps on all drawings.
- Leveling bolts optional.
- High performance coating systems for corrosive or costal environments.
- Stainless steel sensing lines.
- Stainless piping for salt or brackish water applications.
- Mobile systems available.
- Custom alarm panels available.



Mobile Pre-Packaged System

FIRE PUMPS

Panel Options

Ruhrpumpen can offer Electric / Diesel and Jockey control panels. Panels are available for configurations with one or more drivers and the panels can be programmed for either fully automatic or manual operation. All models are listed by UL and ULC, and approved by Factory Mutual (except the Jockey panel) and CSA, as well as meeting or exceeding the requirements of NFPA 20 and NFPA 70.

DIESEL PANELS



Diesel control panels are available for 12 volt (120, 220 / 240 VAC) or 24 volt (120, 220 VAC) diesel fire pump engines.

ELECTRIC PANELS

Configurations LV:

- Across the line
- Soft Start
- Delta open / closed
- Primary resistor
- Auto-transformer
- Part Winding

Configurations MV:

- Across the line



JOCKEY PANELS



Single or three phases Jockey Fire Pump Panels designed for 50 & 60 Hz in a variety of voltages.

Baseplates

The Fire Pumps will be mounted on a rigid single piece standard baseplate or a heavy duty baseplate. A drip rim or extension for a control panel can be added depending on customer requirements.



Other Ruhrpumpen Products



Sump Pump

Vertical arrangement, single suction, single stage.
Water, Hydrocarbons and Chemical Solutions.



Vertical Barrel Pump

Low NPSH "Shockless Entry" first stage impeller (single or double suction), Single or multi-stage. Standard construction materials according to API latest edition (type VS6).
Condensate, Power plants, Municipal, Hydrocarbons, Pipeline and Refineries.



Volute Casing Centrifugal Pump

Axially split, horizontal single or two stage, double volute casing, double suction, closed impeller. Heavy duty process design according to API 610 latest edition (type BB1).
Pipeline Service-Mainline and Booster, Oil Extraction, Refinery, Chemical, Petrochemical, Metallurgical Industry and Power Stations.



Horizontal Multi-Stage Process Pump

Axially split, horizontal multi-stage centrifugal pump. Near centerline mounted. Heavy duty process design according to API 610 latest edition (type BB3).
Refinery, Oil Fields, Petrochemical, and Chemical Applications.



With every project you can count on **QUALITY, SERVICE, EXPERTISE, INNOVATION** and **COMPETITIVENESS**.
Because we have a commitment to each customer, the community, and the world.
We are Ruhrpumpen, the specialist for pumping technology!