RUHRPumpen
Specialist for Pumping Technology

Innovation
Efficiency
Quality

Vertical Sump Pumps
The VSP is a sump pump with a semi open impeller, designed for clean water, and the VSP Non-Clog is a solids handling sump pump with an enclosed impeller, designed to handle water with solids as big as 4” of diameter. Standard construction for both types of pumps is Cast Iron.

Ruhrpumpen has 28 different sizes of Clean Water Sump Pumps, and 18 sizes of Solid Handling Sump Pumps, but with the engineering experience from Ruhrpumpen, any other size and material can be manufactured according to your necessities.

Sump pumps are vertically suspended single casing pumps with separated discharge, semi open or enclosed impeller designed for wet pit applications. They are designed to provide dependable, economical drainage service on medium capacity installations in commercial buildings and general industrial applications. Sump pumps can be built according API 610 latest edition, type VS4.

Ruhrpumpen manufactures sump pumps for clean water applications (model VSP) sump pumps for water with solids (model VSP Non-Clog) and sump pumps for chemicals and petrochemicals (model VSP Chem).

### Sump Pumps

- Sump drainage
- Flood control
- Air wash systems
- Power plants
- Industrial processes
- Condensation control
- Pollution control
- Dewatering service
- Process plants
- Utility service
- Wet pit
- Water treatment
- Effluent
- Hydrocarbon processing
- General industry
- Automotive Solvents
- Polymers
- Plating and electroplating
- Pharmaceuticals
- Chemical / Petrochemical industry

### VSP Chem

The VSP Chem is a chemical sump pump with a semi open impeller, designed for corrosive wet pit applications. This heavy duty pump can also be constructed with an API design upon request.

Ruhrpumpen manufactures a total of 19 standard sizes of the Chemical Sump Pump, but with our engineering experience; any other size and material can be manufactured according to your requirements.
Sump Pumps for Clean Water and Water with Solids

Selection Chart VSP and VSP NON-CLOG

Selection Chart VSP CHEM

Various Poles
- 50 Hz
- 60 Hz

TOTAL HEAD

FLOW
SUMP PUMP

DESCRIPTION AND STANDARD MATERIALS

• Single stage centrifugal sump pump
• Volute type case
• Cast iron motor support
• Flexible shaft coupling
• Steel cover plate
• Up to 20 ft sump depth
• 416SS Shaft
• Cast iron casing
• Cast iron semi-open impeller; other materials available
• Steel basket strainer
• Grease lubricated line bearings with bronze bushing as standard
• These pumps require horizontal motor flange "C" to work in vertical position

PERFORMANCE DATA VSP & VSP CHEM

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>1,200 m³/h</td>
</tr>
<tr>
<td>Head</td>
<td>100 m</td>
</tr>
<tr>
<td>Temperature</td>
<td>0 °C to 205 °C</td>
</tr>
<tr>
<td>Pressure</td>
<td>40 bar</td>
</tr>
<tr>
<td>Sump depth</td>
<td>6.1 m</td>
</tr>
<tr>
<td>Solids</td>
<td>10.16 cm</td>
</tr>
</tbody>
</table>

* The performance is not limited. For pump operations outside this range, please contact a Ruhrpumpen Representative.

Cross Sectional Drawing VSP

VSP NON-CLOG

For solid handling processes, the VSP non-clog is available with an enclosed, accurately balanced, keyed impeller which is securely locked to the shaft for a smooth operation. As a standard the impeller comes in cast iron but other materials are also available.
Cross Sectional Drawing VSP CHEM

1. Discharge flange (as 150# standard / 300# optional available)
2. Flexible shaft coupling
3. Frame support motor
4. Mechanical seal (optional design)
5. Optional sole plate designs are available such as ANSI flange type or customized base specific to customer requirements.
6. Standard bearing arrangement
7. Column with materials according to the latest API - 610 version (optional design).
8. Bearing housing with guide bearings
9. Line bearings lubricated by pumped product. Grease or clean fluid from external source lubrication is also available.
10. Line shaft with materials according to the latest version of API - 610 (optional design)
11. Lubrication tube
12. Discharge pipe
13. Casing with materials according to the latest version of API - 610 Line shaft with materials according to the latest version of API - 610 (optional design).
14. Semi-open impeller with materials according to the latest version of API - 610 (optional design).
15. Steel basket strainer

DESCRIPTION AND STANDARD MATERIALS
• Designed to meet Hydraulic Institute Standards. API 610 latest edition compliance available with optional design features.
• Single stage vertical centrifugal pump
• Cast iron or cast steel motor support assembly
• 316SS or Alloy 20 column and discharge pipe
• Line shaft (316SS or Alloy 20)
• 316SS or Alloy 20 balanced, low NPSH semi-open impeller
• Bearing housing with bronze guide bearings (optional materials available)
• Many optional mechanical seal types available

PERFORMANCE DATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>to 2,317 m³/h (10,200 gpm)</td>
</tr>
<tr>
<td>Head</td>
<td>to 160 m (525 ft)</td>
</tr>
<tr>
<td>Temperature</td>
<td>0 °C to 205 °C (32 °F to 400 °F)</td>
</tr>
<tr>
<td>Pressure</td>
<td>40 bar (to 580 psi)</td>
</tr>
<tr>
<td>Sump depth</td>
<td>to 6.1 m (20 ft)</td>
</tr>
</tbody>
</table>

* The performance is not limited. For pump operations outside this range, please contact Ruhrpumpen Sales.
Optional Features

Ruhrpumpen offers you a wide range of features to meet your specific requirements. Please contact us to help you choose the best feature for your pump application.

STEAM JACKET

Some fluids, such as molten sulphur, need to maintain a certain temperature in the pump and this is possible with the help of a steam jacket. The steam flows through the whole pump heating the fluid avoiding crystallization or any change in the operational conditions.

- Pressure of jacket: Up to 14 bar (200 psi)
- Materials: Available in all principal alloys according to API
- Vapor-proof construction
- Self-lubricating system inside the jacket to avoid solidification of the fluid in the bearings (in case the pump stops).

COLUMN BEARINGS

Specific applications require specific characteristics and Ruhrpumpen offers a range of column bearings. Optional fluted rubber with rigid shell, bronze, carbon and other special alloys are available. Petro-coke cartridge is also available.
GUIDE BEARING DESIGNS

FOR STANDARD DRAINAGE SERVICE
Noncorrosive liquids without abrasives or vapors

**TOP**
This is the standard cast iron column top closure.

**INTERMEDIATE**
This is the standard intermediate shaft guide bearing assembly with cast iron bushings and grease lubrication. This is normally used with settings over 6 feet.

**BOTTOM**
The picture shows the standard bottom shaft bearing assembly. The choker ring resists lubricant flushing by the liquid pumped.

FOR SPECIAL PUMPING SERVICES
When pumping abrasive, corrosive or hot liquids, a special arrangement for the shaft guide assemblies must be applied to meet the requirements of a particular installation

**TOP**
This design for noncorrosive vapors which can be contained by a grease-lubricated top column closure.

**BOTTOM**
This design for hot or corrosive vapors can be contained by a stuffing box. It can also be fitted with inlet and outlet connections for pressurizing inside of the column with water, air or steam to keep abrasive or corrosive liquids out of the bearing assemblies.

LEVEL MEASURING INSTRUMENTS AND CONTROLS
Ruhrpumpen can provide customers with a complete line of level measuring instruments, controls and starters for each Sump Pump to suit specific requirements.

OPTIONS
- Multi-point level switch
- Liquid level electric switch for tanks
- Floating controls
- Magnetic float switches
- Vibrating level switches
- Ultrasonic Level Transmitter
RUHRPUMPEN PLANTS

- USA, Tulsa & Orland
- MEXICO, Monterrey
- BRAZIL, Rio De Janeiro
- ARGENTINA, Buenos Aires
- GERMANY, Witten
- EGYPT, Suez
- INDIA, Chennai
- CHINA, Changzhou
- UK, Lancing