The high performance long distance runners
Hammelmann high pressure pumps, units and components
The high performance long distance runners

Ten thousands of Hammelmann high pressure pumps are operating worldwide and in almost all industry sectors. Whether running around the clock or just intermittently what counts for our customers are energy efficiency, reliability, performance, service and innovative solutions. We see these challenges as our daily obligation.

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Catalogues

Online
hammelmann.com/hdp
hammelmann.com/catalogue
hammelmann.com/ship
hammelmann.com/process
High pressure pump range

**HDP 20 V**
High pressure pump with variable stroke
up to 3300 bar
0 – 111 l/min
up to 18.5 kW
3 cylinders
205 kg
788 x 323 x 707 mm

**HDP 30**
up to 3800 bar
2.2 – 103 l/min
up to 30 kW
3 cylinders
190 kg
523 x 303 x 780 mm

**HDP 40**
up to 3800 bar
5.5 – 155 l/min
up to 45 kW
3 cylinders
200 kg
523 x 303 x 779 mm

**HDP 70 V**
up to 3800 bar
7.2 – 246 l/min
up to 75 kW
3 cylinders
263 kg
850 x 303 x 813 mm

**HDP 70**
up to 3800 bar
7.2 – 246 l/min
up to 75 kW
3 cylinders
215 kg
495 x 303 x 813 mm

**HDP 80**
for Aquajet 08 unit
up to 2500 bar
174 l/min
up to 80 kW
3 cylinders
215 kg
495 x 303 x 813 mm

Test stations for all pump models, collation, evaluation and documentation of all relevant operating data.

[READ ONLINE: HAMMELMANN.COM/HDP]
High pressure pump range

HDP 140
up to 4000 bar
13 – 343 l/min
up to 140 kW
3 cylinders
380 kg
586 x 394 x 1031 mm

HDP 200
up to 4000 bar
20 – 489 l/min
up to 200 kW
3 cylinders
525 kg
674 x 474 x 1091 mm

HDP 300
up to 3200 bar
33 – 1069 l/min
up to 300 kW
5 cylinders
1070 kg
968 x 480 x 1120 mm

The matching pump performance for every task.

High pressure pumps in the aluminium industry. In operation since 2009 with an average of 5000 operating hours per year.
High pressure pump range

**HDP 400**
- up to 3000 bar
- 45 – 1289 l/min
- up to 400 kW
- 3 cylinders
- 1700 kg
- 914 x 634 x 1449 mm

**HDP 500**
- up to 3000 bar
- 52 – 1280 l/min
- up to 500 kW
- 3 cylinders
- 1960 kg
- 1053 x 630 x 1568 mm

**HDP 800**
- up to 3000 bar
- 87 – 2133 l/min
- up to 800 kW
- 5 cylinders
- 3700 kg
- 1390 x 760 x 1592 mm

**HDP MC**
- up to 3000 bar
- 126 – 2987 l/min
- up to 1100 kW
- 7 cylinders
- 5361 kg
- 1764 x 874 x 1699 mm
Valve housing

The valves are housed in the pump head. The stress reversal free valve housing delivers the water flow to a central discharge connection.

Suction chamber

The medium is fed to the pump via a central inlet in the suction chamber. The dynamic components of the sealing system are located inside the suction chamber. This closed system provides an optimal fluid feed to the high pressure pump and additionally increases safety.

Valve technology

Suction and discharge valves are arranged coaxially. The compact design ensures a considerably higher efficiency than conventional high pressure pumps.
High pressure pump technology

High pressure seals

The various plunger seal systems employed by Hammelmann enable safe and reliable, continuous duty at operating pressures up to 4000 bar.

The choice of seal system used is dependant upon the pump application.

Labyrinth sealing up to 2000 bar

The friction free sealing comprises a labyrinth seal and ceramic plunger system. The labyrinth sealing design stands out for its operational reliability, and the service intervals can be planned precisely.

Packing seals up to 3000 bar

Packing rings are used for this high pressure seal arrangement. The ceramic plunger is guided by a separate bushing. Packing seals can be used for various media.

Dynamic plunger sealing up to 4000 bar

The dynamic plunger sealing system is used mainly for ultra high operating pressures. The design and material composition of this sealing system results in high efficiency, extreme wear resistance and high reliability.

Belows system

The bellows sealing system hermetically separates the fluid end from the power end thus preventing the ingress of liquids or gases.

Crank section

The integral reduction gear with double helical gears ensures smooth running and even power distribution. The various gear ratios allow the optimal selection to suit the customers’ requirements.

The compact design eliminates the need for an external gear box or an oversized flywheel. The mechanical efficiency of the continuous duty crank section is in excess of 95 %.

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High pressure pump technology

Compact vertical design

The vertical pump design has many advantages: minimum space required due to very small footprint, neutral weight loading is gentle on the components, the beneficial flow pattern of the medium and the low stress to the base frame eliminate unwanted lateral oscillations.

Conversion kits

All Hammelmann pumps can be converted to other operational performances (flow rate and operating pressure).

If there is a regular need to change the performance, the required pump head and plunger seal sets can be pre-assembled as a compact unit for a quick change. This increases the reliability of the conversion and greatly reduces the time required.

Training

Training by experts is particularly important for your operatives. Hands on, practice-oriented training ensures successful implementation on the job.

Maintenance

Hammelmann high pressure pumps are very maintenance friendly. An examination of all wearing parts can be carried out with standard tools in easy steps. The well planned construction of the high pressure pump and the clearly arranged components simplify assembly.

Service

The acknowledged Hammelmann Service is based on a close-knit worldwide service network, readily available spare parts and short reaction times.

Customer requirements have foremost priority whereby questions can often be solved by telephone. For this we offer a 24-hour service hotline. Our specialists are glad to help you either with instant fault analysis, give you trouble shooting tips to point you in the right direction, or directly process spare parts orders.

Service hotline: +49 (0)171 4707265

Hammelmann high pressure pumps are designed for long-life operation. Maintenance intervals depend on the individual local conditions, e.g. continuous duty operation, performance parameters and circumstances on site. Flexible, competent and experienced employees are available for all maintenance and repair work.

The vertical configuration of the Hammelmann pumps allows maintenance at typical working heights.
Quality

Development technology
The most modern design and simulation technologies provide for the optimal design of components.

Materials
All materials and bought-in parts are subjected to the strict control of our quality management system. The high quality materials come from reliable sources. The material and processing quality are checked and documented. Hammelmann has extensive experience in the selection and processing of special materials.

Quality control
Hammelmann products and supplies are subject to the strictest quality control. For this purpose, we have the latest measurement methods available.

Acceptance test
All high pressure pumps are subjected to an extensive final quality assurance test in our modern test centre prior to delivery. The test results are part of the machine documentation. On request special acceptance tests can additionally be carried out by external inspectors.

During new development work comprehensive stress and long term fatigue testing is carried out under true operating conditions. The resultant data is analyzed and optimizations implemented as required.
Controls

**ES3 Controls**
- Intuitive remote control
- Clear display of all operating conditions
- Selectability of various operating modes
- Colour display with touch screen
- International character sets allow all languages to be shown
- Updates possible via USB
- Central monitoring and storage of motor and pump data
- The ES3 control can be supplemented by additional safety monitors
- Ready for Ethernet interface
- Direct pre-selection of the gear ratios possible with integral electric intermediate gear boxes
- The ES3ioBox offers additional freely definable inputs for the evaluation of further data and for communication with other controllers
- The ES3 display can be installed in various positions on the high pressure system
- Robust industrial model
- High computing capacity

**JetControl controller (PLC)**
Controls and monitors constant speed, electrically powered pump units (star delta or soft start).
- Pump monitoring with analogue sensors
- Information menu with actual unit status (bar/°C)
- Fault announcements in clear text
- Special projects and control tasks are also viable with the JetControl PLC, for example, high pressure pumps for cutting systems, high pressure pumps with variable stroke, servomotor controls, etc.

### Basic functions

**Operation**
- Controller On/Off
- Engine Start/Stop
- Preheat On
- Set value +/-
- High pressure On/Off

**Regulating**
- Engine speed regulation
- Engine speed control
- Pressure regulation
- Variable regulation
- Customer specified regulation

**Monitoring**
- Engine oil pressure
- Engine temperature
- Pump oil pressure
- Boost water pressure
- Water filter
- High pressure
Telematics

Hammelmann telematics enables permanent access to the operating parameter data of one or more high pressure pump unit(s) in the field wherever the location.

Locating

The telematics modules receive positional data from the GPS*. These are transmitted at regular intervals to an internet server and saved. The pump owner/operator can constantly track the position(s) of the unit(s).

Operational data transmittal

The operational data is permanently transmitted by GPRS* via local radio masts to an internet server and saved.

Operational data display

The data on the server is displayed on a website accessed by user name and password. The following data is available through the web page:

- High pressure
- Engine RPM
- Unit operating hours
- Pump operating hours
- Fuel tank content
- Fuel consumption
- Fault memory
- Other values if required

Hammelmann Service

If requested Hammelmann can make a live connection to the pump unit ES2 / ES3 controls via the server enabling the following servicing functions:

- Operational data diagnosis
- Fault protocol read out
- Set/adjust operating parameters
- Remote maintenance

* GPS = Global Positioning System
* GPRS = General Packet Radio Service

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High pressure pumps for industrial cleaning

High pressure pumps in every design size for manual and automated industrial cleaning.

Examples for the use of high pressure water for industrial cleaning:

- Cleaning heat exchangers, condensers, coolers, valves
- Cleaning vessels, reactors, autoclaves, tanks
- Cleaning production and transportation equipment, machine parks, storage areas, contaminated flooring, furnaces
- Cleaning machinery, structural steelwork
- Decontamination, disinfection
- Cleaning scaffolding, shuttering machinery etc.

Electric motor powered high pressure pumps in every design size with frequency inverters and other system components

Sound damping hoods for stationary and mobile high pressure units

Units with gear box
High pressure pumps for corrosion protection

From bridge railings to supertanker the Hammelmann range includes the right high pressure pumps for all manner of preparation work for corrosion protection.

Use of high pressure water for
• Paint removal
• De-coating
• De-rusting

Online catalogue: hammelmann.com/ship

Modern diesel engines meet the requirements of local exhaust gas legislation.

High pressure pumps for concrete rehabilitation

Hammelmann high pressure units offer a wide performance range, for hand-lancing operation and up to heavy concrete removal with robots.

• Selective removal of surfaces, e.g. spalled concrete, plaster, rendering, asphalt
• Cutting doorways, access ways in tunnels and concrete structures
• Roughening and preparing concrete and stone surfaces
• Reinforcing bar exposure

Hammelmann Super-Silent Container, with greatly reduced sound emission due to special speed-reduced motors and super-sound insulation

• Cleaning natural stone walling
• Expansion joint removal
• Laitance removal
• Cold cutting metal structures
High pressure pumps for the automotive industry

Compact high pressure units in various sizes for use in the automotive industry, for example for engine component deburring, swarf removal and roughening of cylinder surfaces.

Hammelmann pumps make especially economic use of the energy utilized. Intelligent design, the use of high strength materials and precise manufacturing of components ensure long service life at pressures up to 4000 bar.

Hammelmann pumps for cutting applications can be combined with any cutting table.

With Hammelmann high pressure equipment it is possible to use only the exact motor power necessary for the actual cutting task in progress. This results in significant energy savings.

The high pressure pump together with its direct drive allows an increase in efficiency of up to 30 percent compared to pressure intensifier systems.

<table>
<thead>
<tr>
<th>HDP Typ</th>
<th>max. bar</th>
<th>max. l/min</th>
<th>kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>3800</td>
<td>4.3</td>
<td>15</td>
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<td></td>
<td>19</td>
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<td>44</td>
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<td>74</td>
<td>3800</td>
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<td>55</td>
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<td>75</td>
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<td>144</td>
<td>4000</td>
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<td>110</td>
</tr>
<tr>
<td>204</td>
<td>4000</td>
<td>18</td>
<td>132</td>
</tr>
</tbody>
</table>
Hot water high pressure pump units

The fluid end components of Hammelmann high pressure pumps have been designed specially for hot water operation by selecting heat-resistant materials and sealing systems. The high water temperatures allow, for example, the cleaning of tanks, heat exchangers and other surfaces contaminated with oils, greases, bitumen and resins. The fields of application are predominantly in the oil and gas and chemical industries.

Up to 95°C high pressure pump models HDP 400, 500, 800
Up to 110°C high pressure pump models HDP 40, 70, 140, 200, 300

A separate water heating unit supplies hot water at boost pressure. High pressure is generated by the high pressure pump.

<table>
<thead>
<tr>
<th>Model</th>
<th>Plunger Ø</th>
<th>Operating pressure</th>
<th>Flow rate</th>
<th>Engine power</th>
<th>Pump power</th>
</tr>
</thead>
<tbody>
<tr>
<td>THERMOJET</td>
<td>26 mm</td>
<td>500 bar</td>
<td>28 l/min</td>
<td>37 kW</td>
<td>26 kW</td>
</tr>
</tbody>
</table>

High pressure pumps for underwater applications

Proven Onshore technologies are also increasingly being used subsea.

Application examples:
- Pipeline inspection and cleaning work
- Demolishing concrete foundations
- High pressure cutting
- Water-assisted dredging
- Coating removal

Hammelmann high pressure pumps are advancing this forward-looking trend and have already proven their worth under the water surface. The seawater can be used as the pumped medium.

The basis for reliable functioning is specially selected and approved materials. The pressure control valves are actuated hydraulically. The pumps are driven by an electric underwater motor. With the hermetically sealed intermediate chamber Hammelmann high pressure pumps offer a “clean” technology.

For subsea applications at great depths of up to 3000 m special solutions are offered. All Hammelmann pump models are convertible for underwater applications.
Process pump HAMPRO series

Pumps in the HAMPRO series satisfy the highest demands of safety and reliability. A wide range of suitable materials and designs are available for pumping diverse media.

Chemical Industry
- Media pumped:
  - Methyl ester
  - Meth acrylic acid
  - Waste water
  - Solvents
  - Boiler feed water
  - Liquid ammonia
  - Carbon dioxide

Oil & Gas Industry
- Media pumped / Process:
  - Condensates
  - Diesel
  - Glycol
  - Hot water
  - Inhibitors
  - Methanol
  - Produced water
  - Hydraulic fluids
  - Scale squeeze
  - Sea water
  - Flowline service
  - Leak tests

Steel Industry
- Media pumped:
  - Mill scale removal
  - High pressure bearing lubrication

Fluid temperatures: -40 up to +200 °C
Viscosities: up to 2000 mPa s

HAMPRO Series performance data

<table>
<thead>
<tr>
<th>Type</th>
<th>max. bar</th>
<th>max. m³/h</th>
<th>kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>2300</td>
<td>6.2</td>
<td>11</td>
</tr>
<tr>
<td>20</td>
<td>3200</td>
<td>6.7</td>
<td>18.5</td>
</tr>
<tr>
<td>20 V</td>
<td>3270</td>
<td>6.7</td>
<td>18.5</td>
</tr>
<tr>
<td>40</td>
<td>3400</td>
<td>9.3</td>
<td>37</td>
</tr>
<tr>
<td>70</td>
<td>3500</td>
<td>12.1</td>
<td>70</td>
</tr>
<tr>
<td>70 V</td>
<td>3000</td>
<td>12.5</td>
<td>70</td>
</tr>
<tr>
<td>140</td>
<td>3600</td>
<td>20.6</td>
<td>140</td>
</tr>
<tr>
<td>200</td>
<td>3200</td>
<td>29.3</td>
<td>200</td>
</tr>
<tr>
<td>300</td>
<td>3200</td>
<td>64</td>
<td>200</td>
</tr>
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<td>3200</td>
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<td>500</td>
<td>3000</td>
<td>77</td>
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<tr>
<td>800</td>
<td>3000</td>
<td>128</td>
<td>800</td>
</tr>
<tr>
<td>MC</td>
<td>3000</td>
<td>180</td>
<td>1000</td>
</tr>
</tbody>
</table>

Online catalogue “Process plunger pumps”: hammelmann.com/process

READ ONLINE: HAMMELMANN.COM/HDP
Sewer cleaning pumps

HDP 146  
- Flow rate: 270 – 462 l/min  
- Power rating max.: 135 kW  
- Sealing system: Packing  
- Design: horizontal, vertical

HDP 196  
- Op. pressure: 160 – 210 bar  
- Flow rate: 386 – 605 l/min  
- Power rating max.: 180 kW  
- Sealing system: Packing  
- Design: horizontal, vertical

Mining pumps

High pressure pumps with high flow rates suitable for use in recycling systems. The plungers are made of ceramic. A hermetic piston rod seal using bellows prevents oil leakage.

Special Hammelmann high pressure pump units for use underground have a base frame with high torsional rigidity. The filters and control elements have firedamp protection. The valve technology is designed for use in mining applications.

Application examples:
- Underground high pressure stations for controlling the roof supports in longwall mining
- Spray systems for dust suppression

Example pressure station  
- Op. pressure: 340 bar  
- Flow rate: 400 l/min  
- Power rating: 250 kW

Viscosities: 0.5 up to 100 cSt  
Fluid temperatures: 0 up to 70°C  
Media: water, emulsion, HFA (High water fluid additive)
High pressure pumps for pressure and impulse testing

Pressure testing of boilers
State-of-the-art system solutions using high pressure pumps with appropriate valve and control technology enable pressure and impulse tests for a wide range of applications.
Hammelmann offers special solutions according to individual work definition. Together with the measurement data logging and documentation we create complete testing systems.

Impulse testing
For the strength testing of components Hammelmann offers variable stroke high pressure pumps in energy efficient design.
With the stroke adjustment, the pulsator can be precisely adjusted to the test pressure. The test frequency is adjustable between 2.5 and 20 Hz. The pulsator features an extremely low energy consumption at all test frequencies.

Application examples:
- Pressure fatigue tests
- Dynamic testing
- Determination of component strength
- Determination of material characteristics
- Internal pressure tests
- Dynamic leakage tests
- Component strength analysis
- Fatigue testing of common-rail components

<table>
<thead>
<tr>
<th>Speed [l/min]</th>
<th>Test frequency [Hz]</th>
<th>Test pressure [bar]</th>
<th>Power rating [kW]</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>5</td>
<td>1000</td>
<td>0.8</td>
</tr>
<tr>
<td>600</td>
<td>10</td>
<td>2000</td>
<td>2.0</td>
</tr>
<tr>
<td>1200</td>
<td>20</td>
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<td>6.2</td>
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Diesel units

Stationary units

Road trailer, sound damped units

Stationary unit with exhaust treatment system

Unit with gear box

Installations in 10, 20 or 25 foot containers

Special and truck installations

READ ONLINE: HAMMELMANN.COM/HDP
Electric units

Extra narrow units for on-board applications

3-module unit for transporting in elevators

Compact units with control panel and jetting tools

Mobile units with control panel

Stationary units

Installation in various container layouts

READ ONLINE: HAMMELMANN.COM/HDP
Industrial high pressure application systems

Aquamat - Tank cleaning units

Aquarex - Tank cleaning devices

Nozzles for heat exchanger cleaning

High pressure spray guns

Nozzles for pipe cleaning

Guide skids for rotor jets

Custom-made cleaning devices

Rotor jets

Jetmate - reaction force free jetting tool

Jetboy - mechanical support for manual work

Online catalogue "High Pressure Application Systems": hammelmann.com/catalogue
Industrial high pressure application systems

- **Aquablast Drive** - Cleaning of large industrial sites surfaces
- **Dockmate** - ship cleaning system
- **Dockboy** - surface preparation on ship hull bottoms
- **Water jet cutting with high pressure water**
- **Mobile abrasive cutting injectors and handling equipment**

**Aquablast Line** - Cleaning of specific small areas

**Spiderjet M** - magnetically adhering surface cleaning device

**Handheld Aquablast** - manual surface cleaning equipment

**Aquablast** - manual surface cleaning equipment

Online catalogue "High Pressure Application Systems": hammelmann.com/catalogue
The factory - Oelde

Hammelmann service worldwide
Subsidiaries in USA, China, Australia, Brazil, Spain and 40 agents and distributors worldwide

Certification
- DIN EN ISO 9001
- DIN EN ISO 14001
- DIN EN ISO 50001
- BS OHSAS 18001
- TÜV ATEX 2524 X
- ASME-U
- Achilles