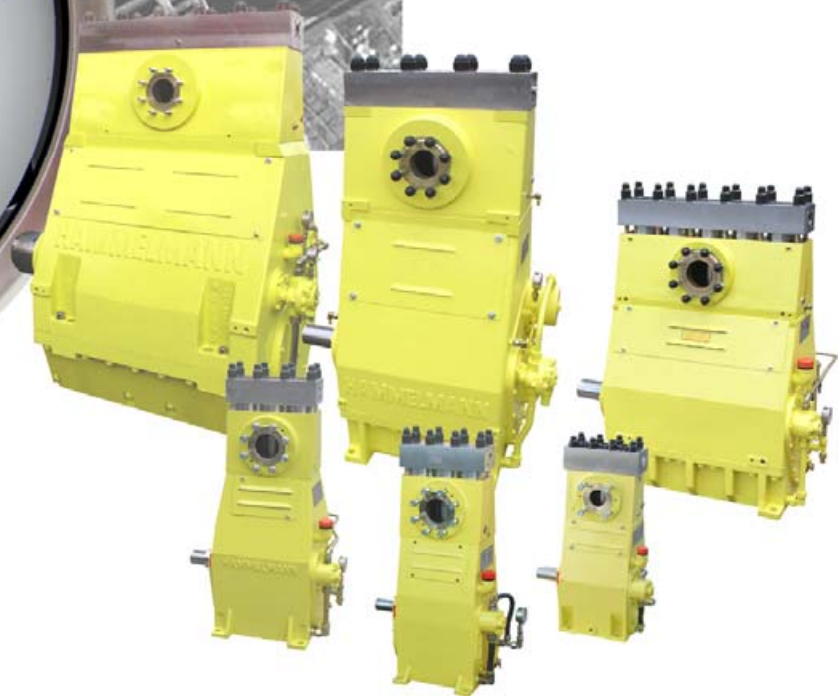


Water injection pumps



Sea water

Produced water



Hammelmann offer a wide range of high pressure pumps for the chemical, petrochemical, oil and gas industries. Visit our website.

www.hammelmann.com

HAMMELMANN®

Bellows sealing

The bellows sealing system for high pressure plunger pumps developed by Hammelmann enable reliable and safe pumping of fluids with high salt content.

The drive end of the pump is hermetically sealed off from the fluid end preventing the ingress of salt laden medium.



Hammelmann offer a wide range of high pressure pumps for the injection of aquifer water, produced water & saltwater into oil and gas fields.

The pumps offer robust construction, low space requirement and remarkable reliability.



Even the build up of crystallized salt on the surface of the bellows has no negative effect on the reliability of these components. This has been confirmed by numerous tests and in practice.

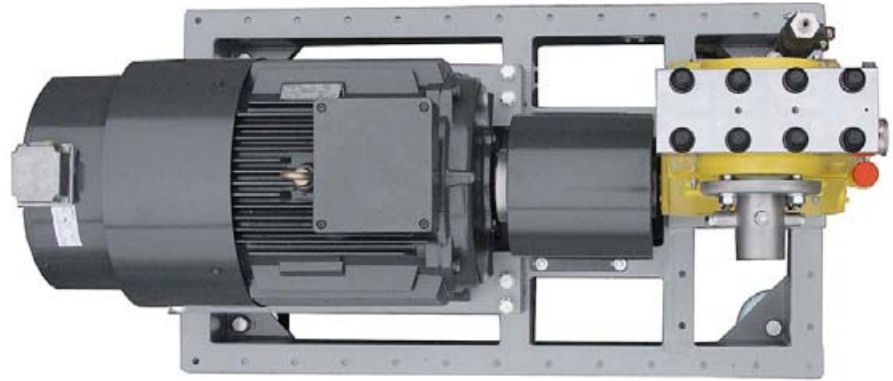
During pump operation each individual bellows fold is equally compressed. The stretching and contracting motions are within elasticity limits so that there is virtually no wear on these components.



Compact construction

Hammelmann pumps produce maximum performance from a minimal footprint which is the result of combining a compact integral speed reduction gear end with the concept of a vertical configuration.

The vertical configuration directs oscillating forces directly downwards into the base structure. Unwanted lateral oscillations as produced by horizontal pumps do not occur.



The integral speed reducer with twin helical gears arranged in a herring bone configuration ensures smooth running and even power transmission without axially loading the bearings.

A selection of gear ratios is available to allow the optimal choice of driver. The compact construction eliminates the need for an external gear box and prevents rotary oscillation. Mechanical efficiency is in excess of 95%.



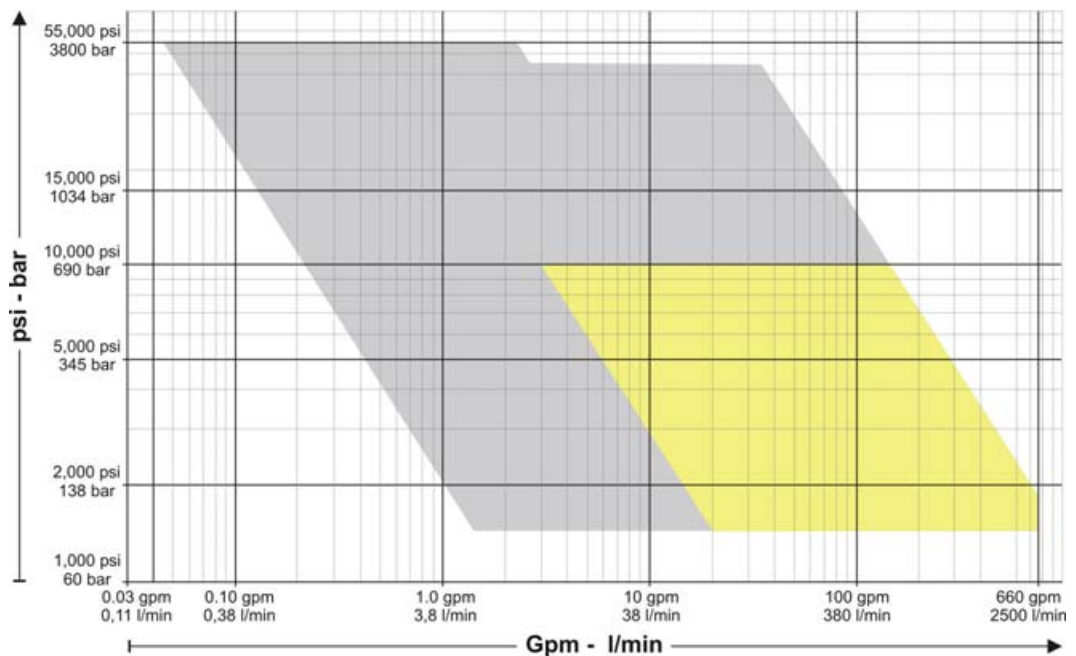
Extensive performance range

With both Triplex and Quintuplex pumps available we can supply a very extensive range of flow rates and operating pressures.

Power ratings
up to 1000 HP
up to 750 kW

Flow rates
up to 660 gpm
up to 2500 l/min

Operating pressures
up to 55,000 psi
up to 3800 bar



Hammelmann pump range

Water injection

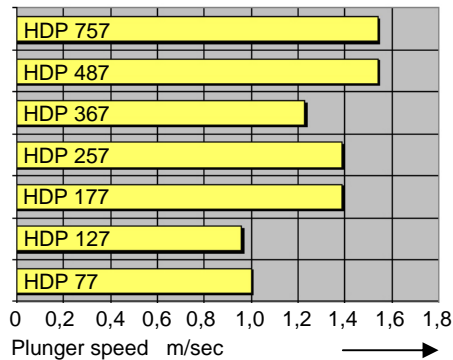
Industrial pumps, series 7

Features

The 7 series pumps basically use tried and tested components from the Hammelmann standard pump range.

They are extremely compact with low maintenance costs and high operational efficiency.

Plunger speed



Moderate plunger speeds result in low plunger and sealing element wear characteristics.

- Suction pressure
- Pressurisation chamber
- High pressure

Units

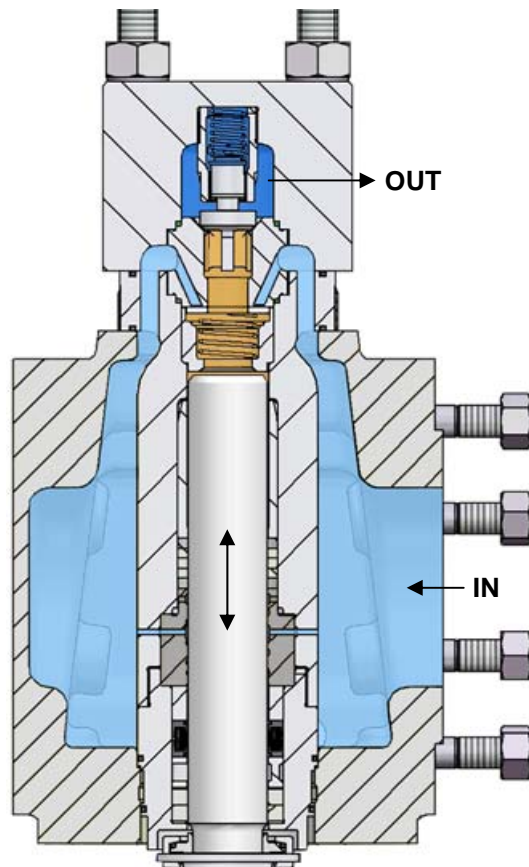
Our high pressure pump units can be supplied with electric motor, a choice of controls, safety valves and suction side/discharge side pulsation dampers.



Pump head

Clearance volume is minimised due to the co-axially arranged pump valves. This results in higher volumetric efficiency and low pulsation.

The coaxial valve arrangement eliminates alternating stress within the valve block.



Suction chamber

The process fluid enters the pump via the suction chamber. This totally encloses the high pressure components in a protective barrier and prevents emission of medium to atmosphere.

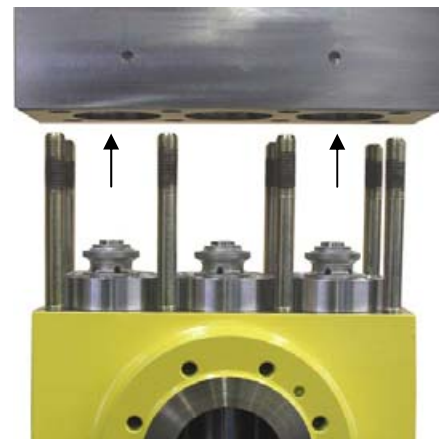


Valves

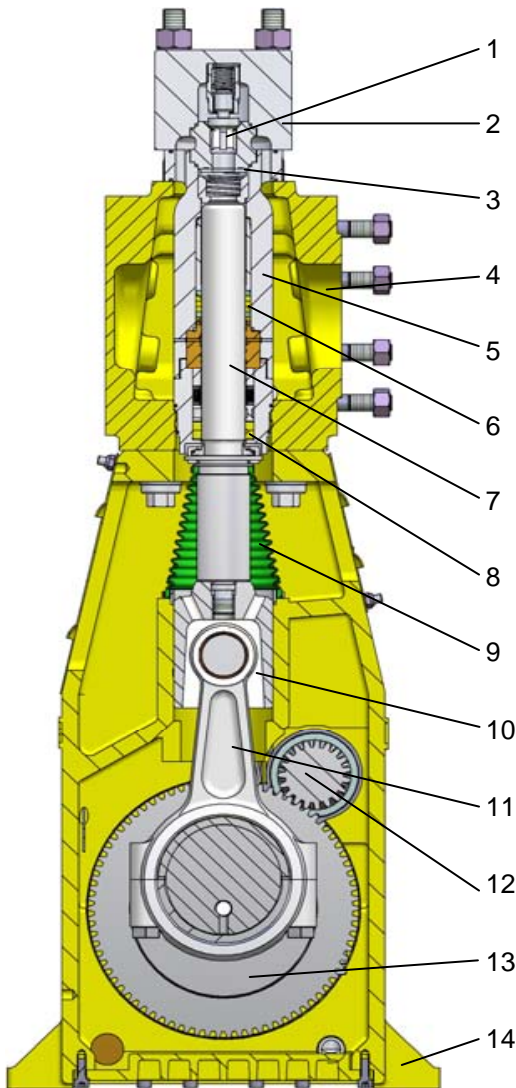
The suction valve is a disc ring design incorporating a one piece suction and discharge valve seat.

Maintenance

Pump maintenance is carried out from above. Once the pump head is removed you have complete, uncomplicated access to all high pressure components.



Technical data, series 7



Pos.	Part name	Pos.	Part name
1	Discharge valve	8	Low pressure seal
2	Valve housing	9	Bellow
3	Suction valve	10	Crosshead
4	Suction chamber	11	Connection rod
5	Sleeve	12	Reduction gear
6	High pressure seal	13	Crank shaft
7	Plunger	14	Crank housing

Wetted parts materials *

	Standard	Option
Plunger	Ceramic	-
Valve housing	17% Chromium steel	22% Duplex steel
Seals	NBR / Polyamide	FKM / PEEK
Suction chamber	Bronze	18 – 10 Chromium Nickel steel

* Right reserved to make technical modifications

Recommendations and standards

Machine directive 2006/42/EC
ATEX 94/9/EC
API 674 (with exceptions)

Performance data, series 7 (Selection)

Pump model	2500 psi	170 bar	5000 psi	345 bar	10000 psi	690 bar	Crank speed
	D 55		D 35		D 26		
HDP 77	53 gpm	201 l/min	21 gpm	81 l/min	11,5 gpm	45 l/min	750 rpm
HDP 127	D 70		D 50		D 35		530 rpm
	86 gpm	326 l/min	43 gpm	165 l/min	20,5 gpm	78 l/min	
HDP 177	D 70		D 50		D 35		555 rpm
	121 gpm	460 l/min	62 gpm	237 l/min	29 gpm	113 l/min	
HDP 257	D 70		D 50		D 35		555 rpm
	202 gpm	766 l/min	105 gpm	398 l/min	50 gpm	189 l/min	
HDP 367	D 120		D 80		D 55		490 rpm
	317 gpm	1200 l/min	142 gpm	538 l/min	65 gpm	249 l/min	
HDP 487	D 120		D 80		D 60		465 rpm
	401 gpm	1520 l/min	178 gpm	677 l/min	99 gpm	377 l/min	
HDP 757	D 120		D 80		D 55		465 rpm
	668 gpm	2530 l/min	298 gpm	1128 l/min	138 gpm	522 l/min	

D = Piston dia [mm]

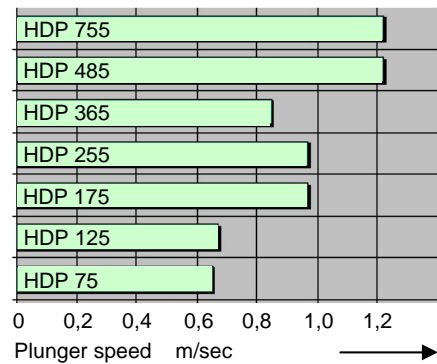
Process pumps, series 5

Features

Series 5 pumps are built to the highest standards of safety and reliability. We can supply components from a wide range of materials to suit the pumped medium.

For pumping produced water we select high grade duplex steel or nickel based alloys dependent upon the chloride and H₂S content.

Plunger speed



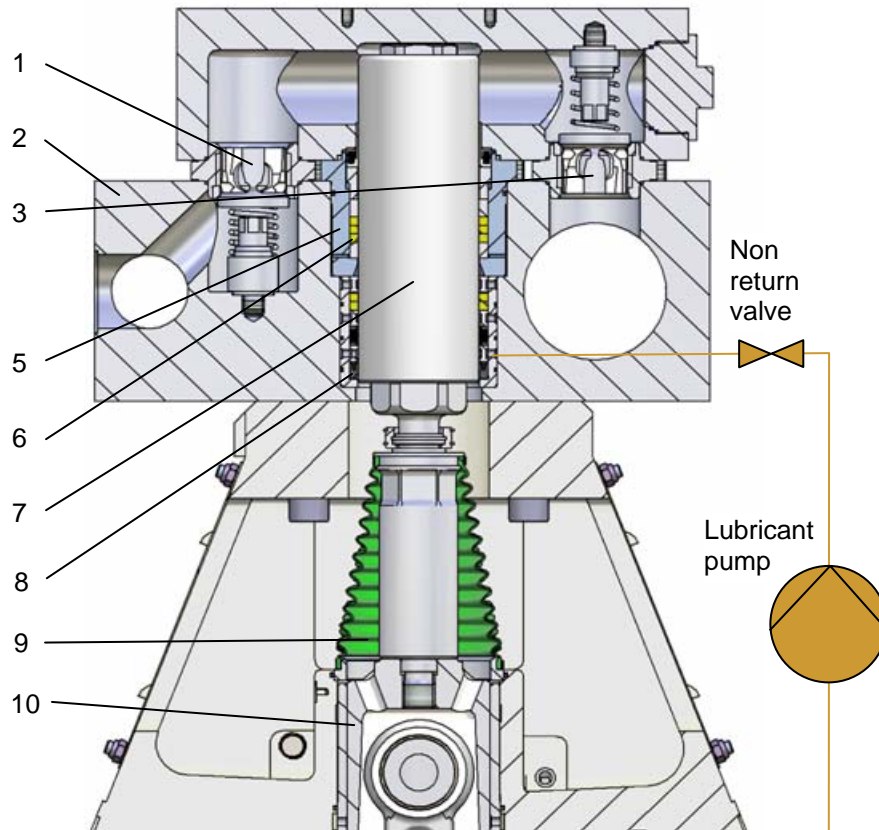
The series 5 pumps are conservatively rated for power with low plunger speeds ensuring limited wear of plungers and sealing elements.

Units

Your complete pump unit can be outfitted with suction and/or discharge pulsation dampers dimensioned, manufactured, tested and certified to your specification.

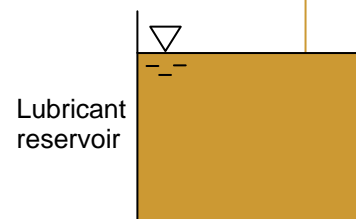


High flow pump head



Plunger lubrication

To prevent salt build up on the plunger surfaces we offer a system that delivers a film of lubricant to the surfaces and at the same time maintains the effectiveness of the sealing elements and prolongs their working life. Quantity of lubricant is controlled to minimise consumption.



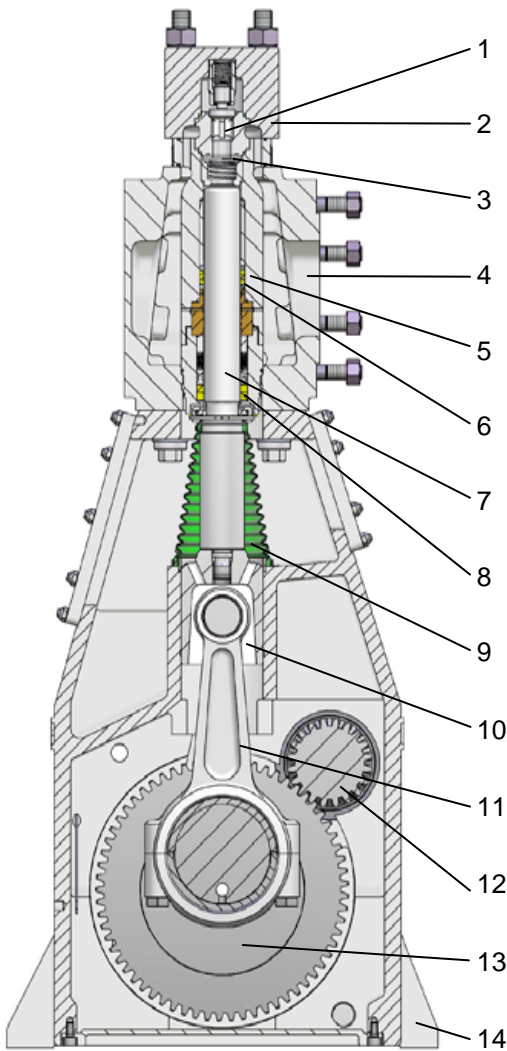
Pump models HDP 360, HDP 480 and HDP 750 with plunger diameters of 90 mm and above are outfitted with high flow pump heads.

These were especially developed to handle very high volumes and distinguish themselves from other Hammelmann pump heads by having side mounted valve sets.

This design concept enables the use of valves with very large cross section dimensions which results in low flow velocities and consequently greatly reduced wear.

The valve sets and plungers can be easily accessed for maintenance by simply removing a top cover plate.

Technical data, series 5



Pos.	Part name	Pos.	Part name
1	Discharge valve	8	Low pressure seal
2	Valve housing	9	Bellow
3	Suction valve	10	Crosshead
4	Suction chamber	11	Connection rod
5	Sleeve	12	Reduction gear
6	High pressure seal	13	Crank shaft
7	Plunger	14	Crank housing

Wetted parts materials *

	Standard	Option
Plunger	Ceramic	-
Valve housing	22% Duplex steel	25% Super duplex steel
Seals	NBR / Polyamide	FFKM / PEEK
Suction chamber	18-10 Chromium Nickel steel	25% Super duplex steel

* Right reserved to make technical modifications
Other materials available.

Recommendations and standards

Machine directive 2006/42/EC
ATEX 94/9/EC
API 674 (with exceptions)

Other customer specified standards, i.e.
NORSOK M501
NORSOK M650
NACE MR 0175

Performance data, series 5 (Selection)

Pump model	2500 psi	170 bar	5000 psi	345 bar	10000 psi	690 bar	Crank speed
HDP 75	D 55		D 35		D 26		490 rpm
	35 gpm	135 l/min	14 gpm	54 l/min	7,7 gpm	29 l/min	
HDP 125	D 70		D 50		D 35		365 rpm
	59 gpm	225 l/min	30 gpm	114 l/min	14 gpm	54 l/min	
HDP 175	D 70		D 50		D 35		385 rpm
	85 gpm	324 l/min	43 gpm	166 l/min	20 gpm	78 l/min	
HDP 255	D 70		D 50		D 35		390 rpm
	144 gpm	543 l/min	73 gpm	277 l/min	34 gpm	131 l/min	
HDP 365	D 120		D 80		D 60		340 rpm
	222 gpm	843 l/min	98 gpm	374 l/min	54 gpm	208 l/min	
HDP 485	D 120		D 80		D 60		365 rpm
	317 gpm	1200 l/min	141 gpm	534 l/min	78 gpm	297 l/min	
HDP 755	D 120		D 80		D 60		365 rpm
	528 gpm	2000 l/min	234 gpm	889 l/min	130 gpm	495 l/min	

D = Piston dia [mm]

The compact design of Hammelmann pumps is a space saving advantage for installation on offshore platforms and FPSO's. They are increasingly specified as the pumps of choice for offshore installations.

Round the clock operation

Asgard	Kristin
Agbami	Longhorn
Aker 1-6	Mad Dog
Allegheny	Magnolia
Anna Platform	Marco Polo
Atlantis	Max-Stena-Drill
Auger	Mobile Rig
Auger Apit	Morvin Asgard
Baton Rouge	Neptune
Black Widow	Nile
Brazil	Noonan
Brutus/Glider	Norse Marchand
BS4	Panama City
Cabida Block	Pegasus
Canyon Express	Perdido
Conger Salsa	Petrorig
Demos	Producer
Forvie	Scarebo
Garden Banks	Schahin
Garnet	Sevan
Gjoa Semi	S. Timbalier
Groupo R	Staffjord B & C
Hickory	Tahiti
Holstein	Talisman
Horn Mountain	Tanzanite
Houma	Tarantula
Indep. Hub 3	TMT 1
Independence	Tweedsmuir
Janice	Typhon
K2 Green Canyon	Ursa-Princess
K-Fels	Valifornia
Kikeh-Gusto	Vega
King Kong	West Edrill
Kings Peek	

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<http://www.hammelmann.com>



Pump unit HDP 257
Pumping produced water
Temperature: 95° F / 35°C
Chlorides: 15.000 ppm
Op. pressure 1160 psi - 80 bar
Flow rate 200 gpm - 760 l/min



Pump unit HDP 755
Pumping produced water
Temperature: 158° F / 70°C
Chlorides: 140.000 ppm
Op. pressure 3050 psi - 210 bar
Flow rate 438 gpm - 1660 l/min



Pump unit HDP 755
Pumping produced water
Temperature: 149° F / 65°C
Chlorides: 110.000 ppm
H₂S: 190 ppm
Op. pressure 6200 psi - 430 bar
Flow rate 150 gpm - 570 l/min



Pump unit HDP 755
Pumping seawater

Temperature: 86° F / 30°C
Chlorides: 35.000 ppm
Op. pressure 2600 psi - 180 bar
Flow rate 365 gpm - 1380 l/min



Pump unit HDP 125
Pumping produced water
Temperature: 212° F / 100°C
Chlorides: 180.000 ppm
H₂S: 6.100 ppm
Op. pressure 1800 psi - 125 bar
Flow rate 45 gpm - 170 l/min