

Twin Screw Pumps

High Pressure HP-Series

Pumps for a high differential pressure

U2



R5



B Bornemann
Pumps



Bornemann was established in 1853 and has been designing and constructing pumps and pump systems for over 75 years.

In 1934, Bornemann began designing and manufacturing our Twin Screw Pumps with external bearings, which today are still the foundation of our production and the premier pump in our product line.

Agencies and subsidiaries throughout the world guarantee immediate and professional support in all phases of business from extensive consulting through professional engineering to the installation and reliable maintenance of the installed pump and system. Bornemann is certified under DIN EN ISO 9001.

Since 1853: tradition and innovation.

R5

HP Series

The High Pressure Pumps

The HP pump range was developed by Bornemann in the late eighties for high pressure crude oil transfer applications (all crude oils and crude oil mixtures of medium and high viscosity).

The heavy duty design has meanwhile proven its superior performance in various applications and countries over the last 15 years. More than 100 pumps of different sizes are in operation already and are running extremely well to their purpose and to the satisfaction of our clients.

The HP pump model is providing significant operational advantages compared to high pressure pumps of other different designs (centrifugal pumps/piston pumps etc.).

Main advantages are:

- Self-priming capability
- Smooth and pulsation-free operation
- Low starting torque even against high back pressures
- Low vibrations on pump casings/bearing housings even at high back-pressures
- Speed related capacity control by speed control
- Handling fluids up to a gas content of 30 % (GVF)
- Handling fluids of variable (low/high) viscosities during operation
- High range of pressure variation
- An external cooling/forced tube oil system on bearings is not required, even not with installations in desert/high ambient temperature regions
- Pipeline evacuation is possible
- High flow rates at high back pressures
- Extremely low suction pressures can be handled (low NPSH req. figures)

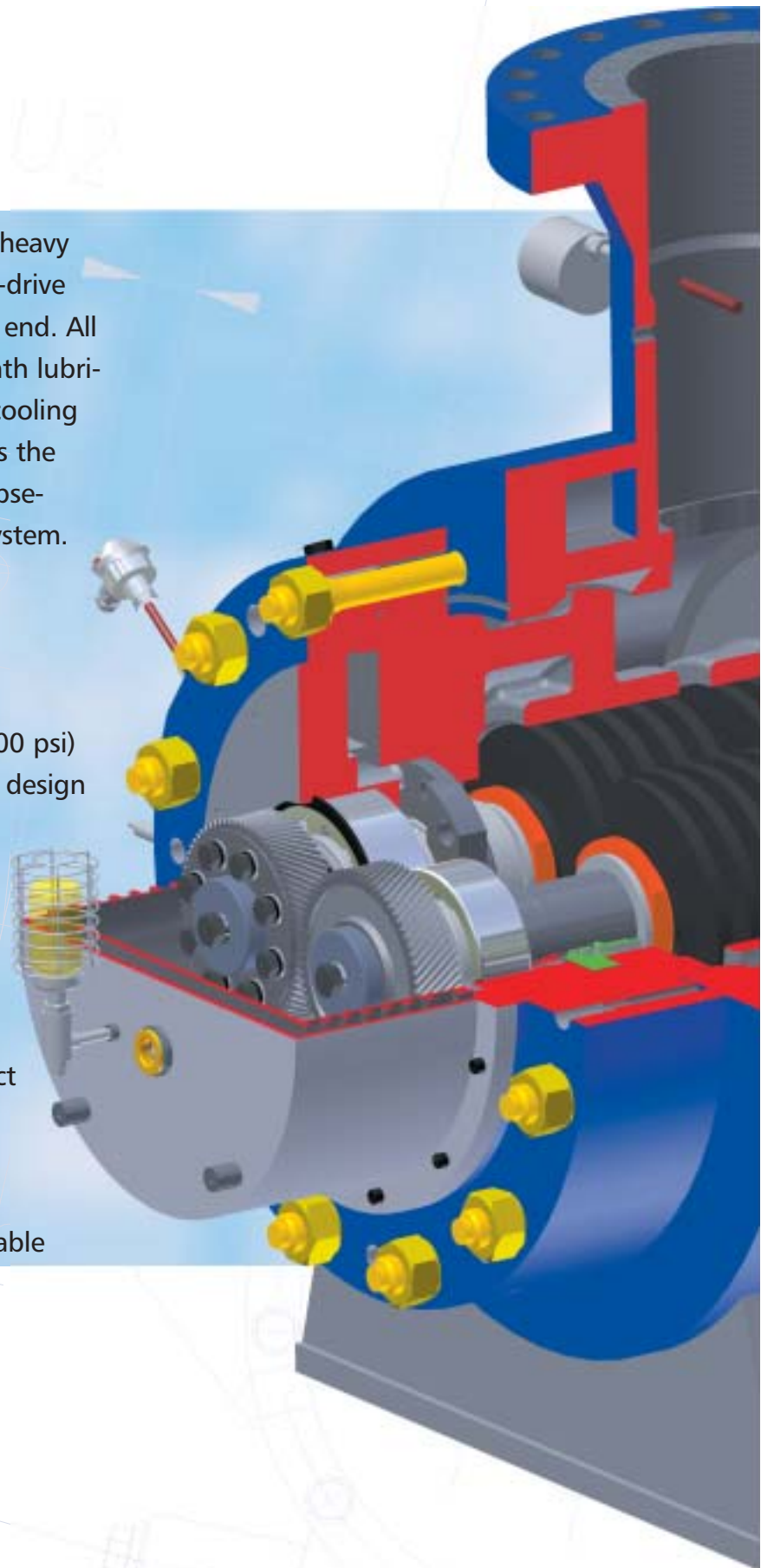


Pump Design

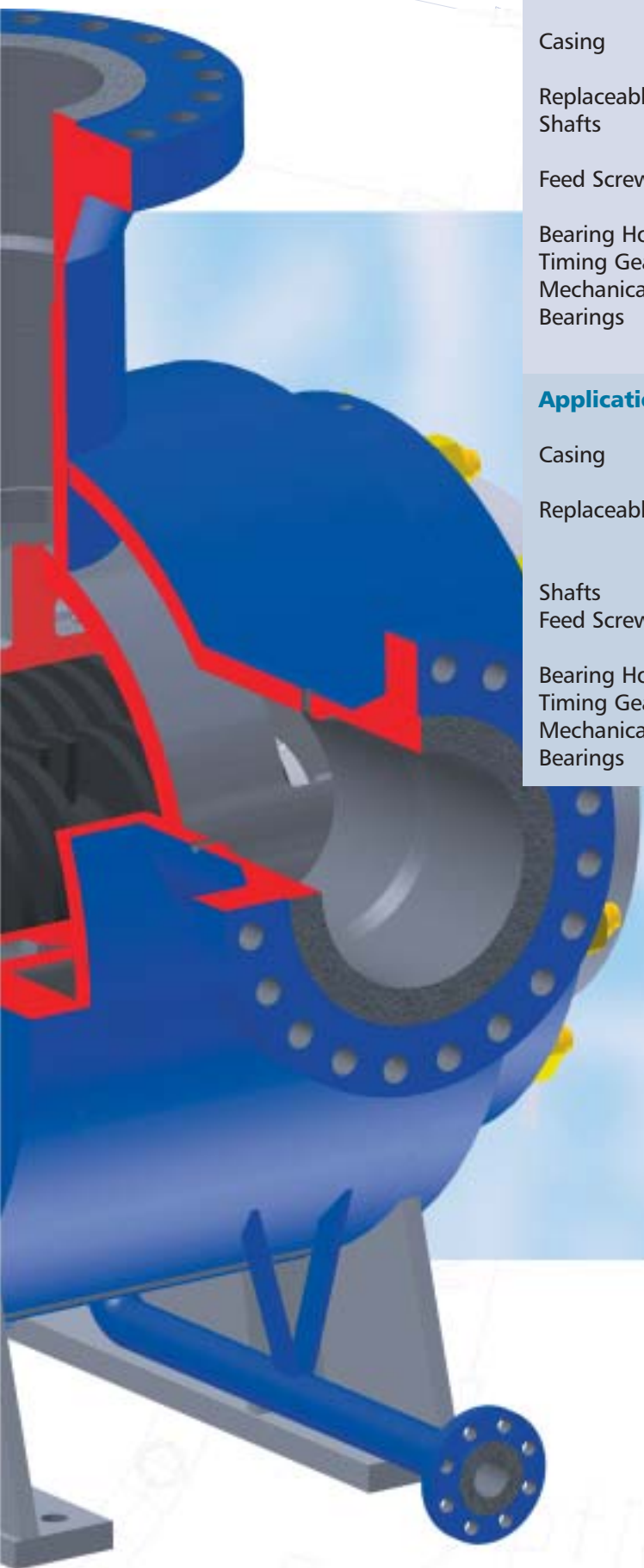
The HP pump is designed with external heavy duty radial bearings (drive end and non-drive end) and timing gears on the non-drive end. All bearings and the timing gears are oil bath lubricated for which an external lube oil or cooling system is not required. The design keeps the pump unit as simple as possible and subsequently increases the reliability of the system.

The main design features are:

- High pressure design (up to 100 bar/1500 psi)
- Rotary and positive displacement pump design
- Double flow design
- Very compact design
- Minimized overall construction volume (especially compared to piston pumps with similar performances)
- Contact free rotating elements (contact free between rotors and contact free between rotor and casing liner)
- External bearings/timing gears
- No external lubrication/cooling required
- Two different pressure designs are available



D1



Possible material executions

Standard

Casing	welded carbon steel (H II, equivalent to ASTM A 285, Grade C)
Replaceable Liner	Ni-Resist D2S
Shafts	stainless steel DIN 1.4542 (equivalent to ASTM A 564)
Feed Screws (Rotors)	stainless steel DIN 1.4057 (equivalent to ASTM A 276-75)
Bearing Housing	cast iron/carbon steel
Timing Gears	tool steel
Mechanical Seals	single acting mechanical seal
Bearings	heavy duty antifriction bearings

Application related/Customer requested

Casing	stainless steel/duplex stainless steel/ super duplex stainless steel
Replaceable Liner	Ni-Resist D5S/stainless steel/ duplex stainless steel/super duplex stainless steel
Shafts	stainless steel DIN 1.4542
Feed Screws (Rotors)	stainless steel/duplex stainless steel/ super duplex stainless steel
Bearing Housing	cast iron/carbon steel
Timing Gears	tool steel
Mechanical Seals	application related
Bearings	heavy duty antifriction bearings

Standard Design:

suction side with max. MAWP
(Maximum Allowable Working Pressure)
of about 15 bar

Special Design (on request):

suction side with max. MAWP
(Maximum Allowable Working Pressure)
of about 100 bar

Accessories:

Instruments on pumps like:

- Temperature transmitter on bearings
- Temperature transmitter on pump casing
- Vibration probes/switches on bearings
- Suction and discharge pressure gauges/-transmitter/-switches

All drive systems like:

- Electric motor, fixed speed
- Electric motor, variable speed driven by variable frequency drive (VFD) or variable speed coupling/torque converter
- Diesel engine
- Steam turbine
- Gas turbine
- Others

Baseplates like:

- Standard execution of welded carbon steel construction
- Carbon steel/stainless steel construction acc. to customer request
- According to API 676 specification

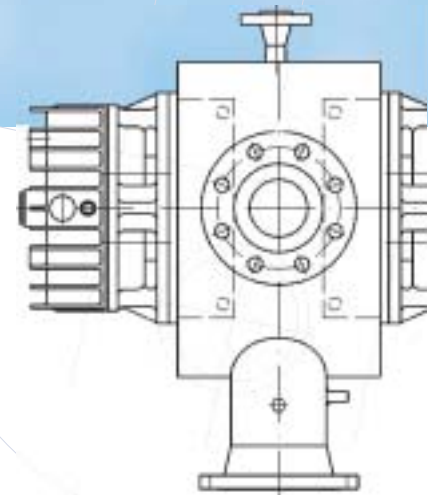
Couplings:

- Standard flexible coupling
- Special couplings acc. to customer request

Other accessories like:

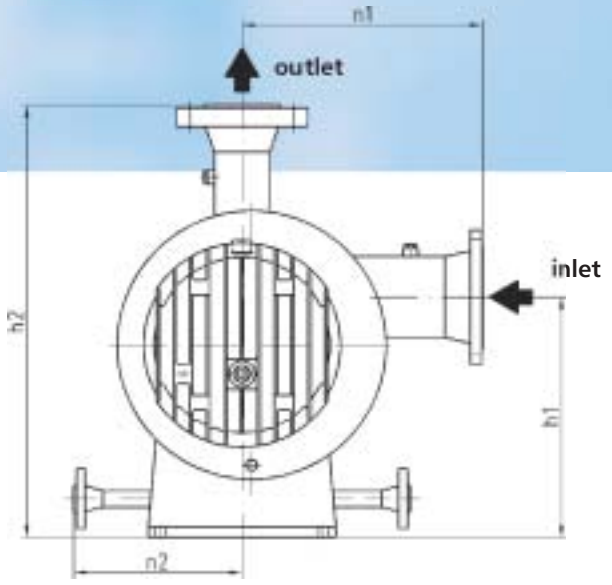
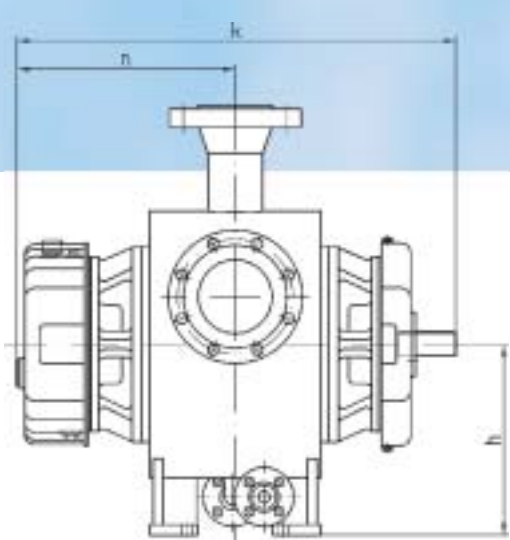
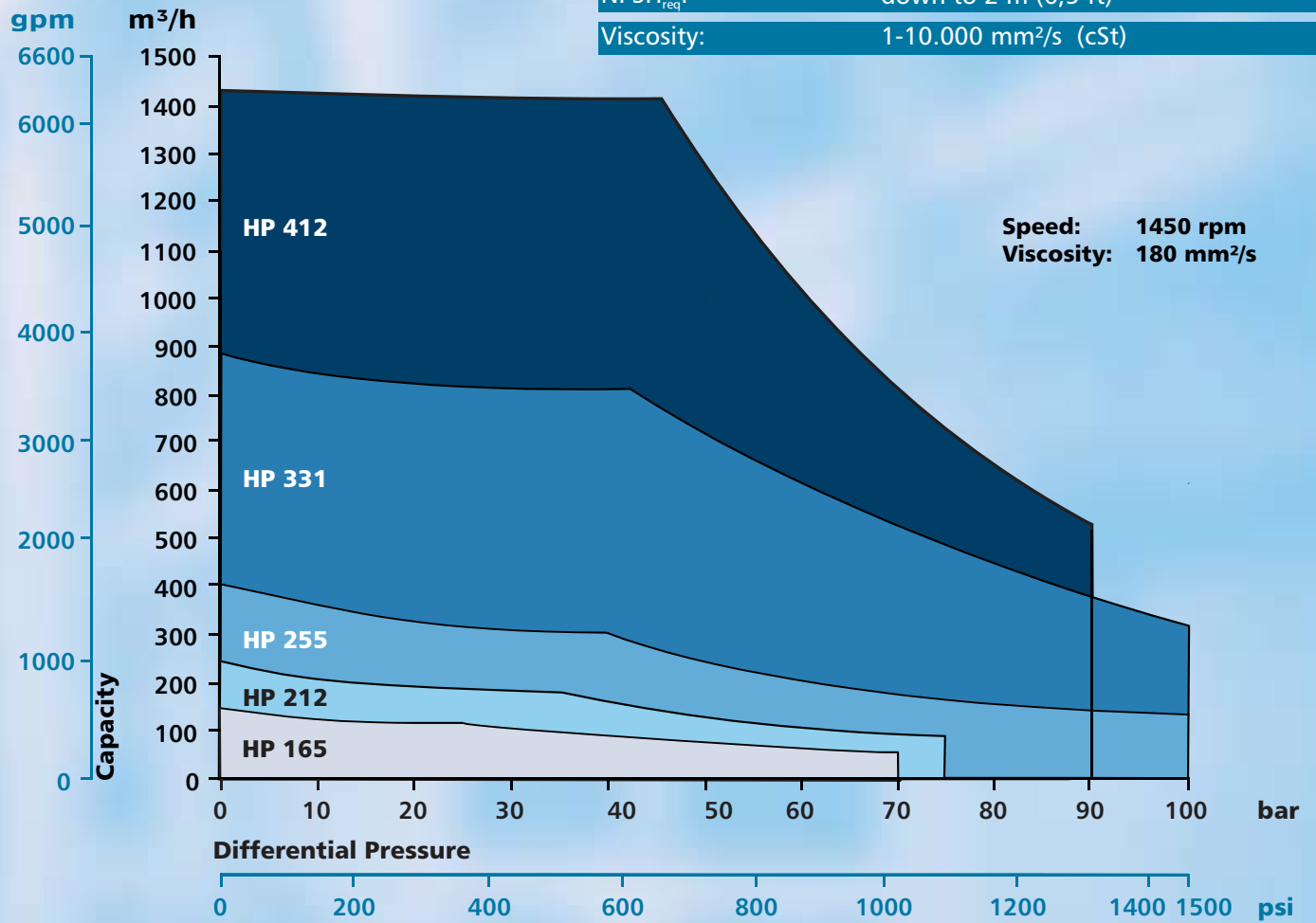
- Suction strainer
- External relief valves
- Drain valves, block valves, non-return valves, piping etc.

Pump Size	k	h	h1	h2	n	n1	n2
HP 165	915	400	500	900	455,5	500	350
HP 212	1140	475	600	1225	570	700	350
HP 255	1437,5	610	760	1400	747,5	850	450
HP 331	1737,5	710	910	1660	887,5	900	550
HP 412	2357,5	800	1050	1900	1027,5	1000	622,5



Performance Data:

Capacity:	20-1500 m ³ /h (90-6600 gpm)
Inlet Pressure:	15 bar (220 psi), max 100 bar (1500psi)
Differential Pressure:	up to 100 bar (1500 psi)
Medium Temperature:	up to 150 °C (300 °F)
NPSH _{req} :	down to 2 m (6,5 ft)
Viscosity:	1-10.000 mm ² /s (cSt)





Pumps and Systems for Industry,
Environmental and Shipbuilding

www.bornemann.com

Joh. Heinr. Bornemann GmbH
Postfach 1162
31676 Obernkirchen
Germany
Fon +49 5724 390-0
Fax +49 5724 390290
info@bornemann.com



Good communication with our customers is an important feature in Bornemann's Quality Program, from initial project consultation to maintenance. Professional support and fast service are top priorities. Specialists in pumps and systems located in our company headquarters and in nearly 100 representatives

and agencies through the world provide professional quality support on a local level. Our employees and representatives are trained at our training center in order to stay current on new technologies and provide the best support available to our customers.

www.esprit-werbeagentur.de

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USA:

Bornemann Pumps Inc.
P.O. Box 1769
Matthews, NC 28106
USA

Fon:
+1 704 8498636
Fax:
+1 704 8498637
info.usa@bornemann.com

Canada:

Bornemann Inc. Canada
320 441, 5th Avenue, S. W.
Calgary, Alberta
Canada T2P 2V1

Fon:
+1 403 6680552
Fax:
+1 403 2624073
info.cdn@bornemann.com

Argentina:

Bombas Bornemann S.R.L.
Armenia 2898
B1605CDP Munro
Prov. Buenos Aires
Argentina

Fon:
+54 11 47568008
Fax:
+54 11 47565541
info.ar@bornemann.com
www.bornemann-ar.com

China:

Bornemann Pumps & Systems (Tianjin) Co., Ltd.
Jinbin General Building No. 6,
No. 45 Muning Road
TEDA, Tianjin
P. R. China 300457

Fon:
+86 22 66297800
Fax:
+86 22 25326799
info.cn@bornemann.com
www.bornemann-cn.com

Singapore:

Bornemann Pumps Asia Pte. Ltd.
25 Intern. Business Park
German Centre, # 04-08
Singapore 609916
Singapore

Fon:
+65 6 5616782
Fax:
+65 6 5616784
info.sg@bornemann.com