

Technical Profile

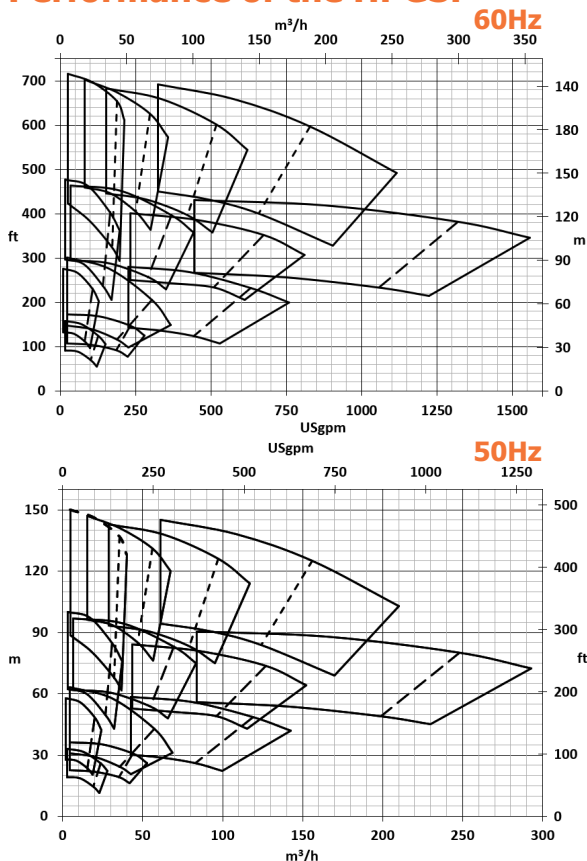
HPGSP

High Pressure GSP sealless magnetic drive pumps to API 685

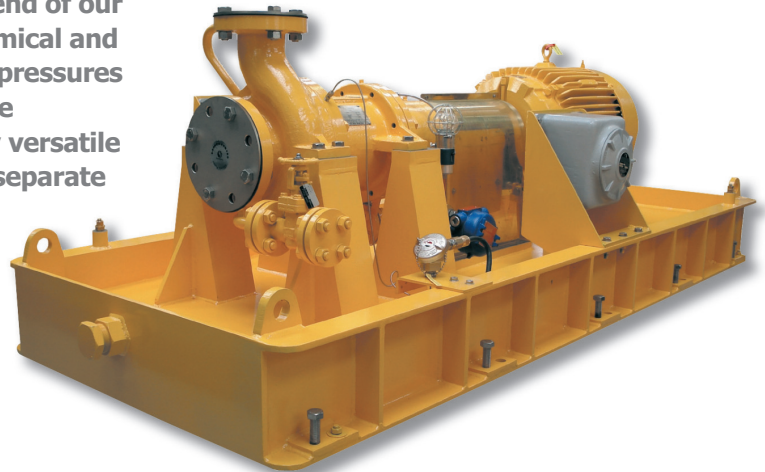
The HPGSP magnetic drive sealless pump is at the top end of our range of high pressure pumps for oil and gas, petrochemical and chemical industries. Capable of easily handling system pressures up to 2680 psi and higher, dependent upon temperature extremes, these high pressure pumps are exceptionally versatile yet safe and secure. Built to API 685 specification, the separate mounted design is available in thirteen hydraulic sizes and two basic frame sizes to suit power requirements.

- High pressure version of the successful GSP pump
- Handles system pressures up to 2680 psi
- Higher pressures possible dependent on temperature
- Exceptionally versatile, yet safe and secure
- Modular design based on established GS components

Performance of the HPGSP



HMD Kontro



Design range limits

The HPGSP pump is designed to operate from -148°F up to 500°F (-100°C up to 260°C) without the need for any ancillary cooling medium. Maximum design working pressure is 2860 psi (185 bar).

Solids handling

The unit is capable of handling solids up to 5% w/w with 100 microns.

Materials of construction

S-5, A-8, D-1, D-2

Options

Build Options:

- Inducers for low NPSH
- External filtration
- NACE compliant materials
- Vertical (OH5) derivative

Instrumentation Options:

- Power control monitor
- RTD temperature sensing
- Secondary housing monitoring (liquid or pressure)
- VapourView® 'gas-in-liquid' detection

Key design features

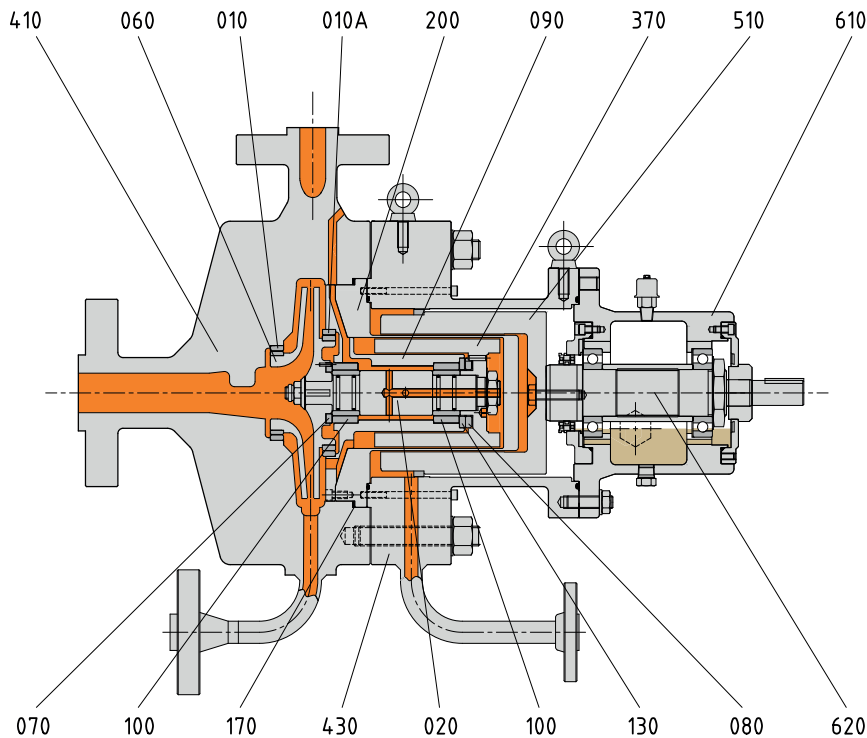
- **No seals:** eliminates leaks and minimizes maintenance and all associated costs
- **Sealless design:** provides total containment of hazardous, aggressive or valuable products
- **Interchangeable components:** maximizes convenience and reduces stock holding, operator training etc.
- **High efficiency wet end:** benefits maximum flow and head coverage
- **Wide choice of materials:** allows the pump to be constructed from a variety of metals
- **Casing gasket fully confined:** eliminates the risk of blowout
- **Universal connection options:** allows the suction and discharge flange connections to be configured to exact requirements
- **Modular rotating element cartridge:** provides the most efficient way to replace parts and manage the spares inventory

HPGSP pump models

No.	Hydraulic	Frame
1	3 x 1.5 x 6	1
2	3 x 2 x 6	1
3	1.5 x 1 x 8	1
4	3 x 1.5 x 8H	1

No.	Hydraulic	Frame
1	4 x 3 x 8H	2
2	2 x 1 x 10	2
3	3 x 2 x 10	2
4	4 x 3 x 10H	2
5	6 x 4 x 10	2
6	2 x 1 x 13	2
7	3 x 1.5 x 13	2
8	3 x 2 x 13	2
9	4 x 3 x 13	2

Construction of HPGSP pump



010	Neck Ring (Front)
010A	Neck Ring (Back)
020	Pump Shaft
060	Impeller
070	Thrust Washer (Front)
080	Thrust Washer (Back) / Alignment Pad
090	Bush Holder Assembly
100	Bush
130	Thrust Pad
170	Casing Gasket
200	Containment Shell Assembly
370	Inner Magnet Ring
410	Casing Assembly
430	Coupling Housing Assembly
510	Outer Magnet Ring
610	Bearing Housing
620	Drive Shaft

Flanges and Connections

Casing

Suction and discharge flanges are designed in accordance with the following relevant standards:

ANSI B16.5 Class 600	Machined with 1/4" (7mm) high raised face having a continuous spiral groove
ANSI B16.5 Class 900	Machined with 1/4" (7mm) high raised face having a continuous spiral groove
ANSI B16.5 Class 1500	Machined with 1/4" (7mm) high raised face having a continuous spiral groove

Flange Loadings

Allowable flange loadings imposed by pipework are in accordance with Table 4 of API 685 2nd edition.

Drain Connections

The following drain options are available:

Frame 1 - 1/2" Pipe with Weld Neck Flange, gusseted in two planes.
Frame 2 - 3/4" Pipe with Weld Neck Flange, gusseted in two planes.

Vent Connections

Not required.

Gauge Connections

No provision for gauge connections has been made on this range of pumps.

Dimensions of a typical HPGSP pump

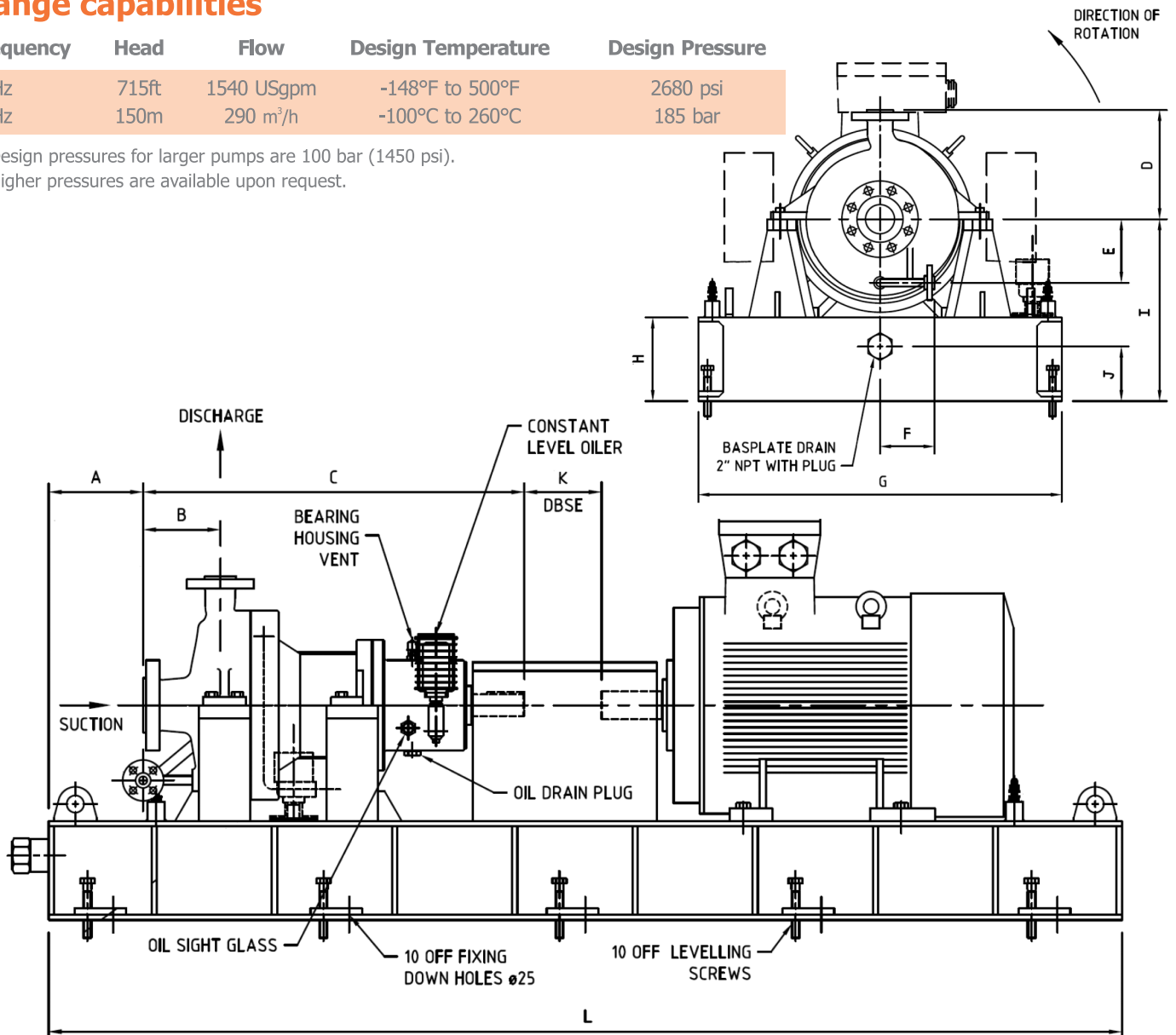
Note: the dimensions tabulated below apply to HPGSP Frame 2 and are for guidance only. For Frame 1 dimensions contact Sundyne HMD Kontro for specific requirements.

Pump Size	A	B	C	D	E	F	G	H	I	J	K	L
	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
4 x 3 x 8H	9.8	6.0	33.9	12.0	7.7	5.9	39.4	9.1	19.7	5.9	7.1	98.4
2 x 1 x 10	10.5	5.2	33.1	9.3	5.0	5.9	39.4	9.1	19.7	5.9	7.1	98.4
3 x 2 x 10	9.6	6.1	34.0	10.2	5.6	5.9	39.4	9.1	19.7	5.9	7.1	98.4
4 x 3 x 10H	9.3	6.5	34.4	12.2	6.4	5.9	39.4	9.1	19.7	5.9	7.1	98.4
6 X 4 X 10	7.8	7.0	35.9	13.5	8.1	5.9	39.4	9.1	19.7	5.9	7.1	98.4
2 x 1 x 13	8.7	7.1	35.0	11.8	6.8	5.9	39.4	9.1	19.7	5.9	7.1	98.4
3 x 1.5 x 13	8.7	7.1	35.0	11.8	6.9	5.9	39.4	9.1	19.7 <td 5.9	7.1	98.4	
3 x 2 x 13	8.7	7.1	35.0	13.8	7.5	5.9	39.4	9.1	19.7	5.9	7.1	98.4
4 x 3 x 13	7.9	7.9	35.7	13.8	8.0	5.9	39.4	9.1	19.7	5.9	7.1	98.4

Range capabilities

Frequency	Head	Flow	Design Temperature	Design Pressure
60Hz	715ft	1540 USgpm	-148°F to 500°F	2680 psi
50Hz	150m	290 m ³ /h	-100°C to 260°C	185 bar

* Design pressures for larger pumps are 100 bar (1450 psi). Higher pressures are available upon request.



Pressure Limits

All parts are to be rated to the pressures shown below at 100°F / 38°C

Flange standard	Design pressure			
	S-5	A-8	D-1	D-2
ANSI B16.5 Class 600	1450 psi 10.0 MPa	1450 psi 10.0 MPa	1450 psi 10.0 MPa	1450 psi 10.0 MPa
ANSI B16.5 Class 900/1500	2683 psi 18.5 MPa	2683 psi 18.5 MPa	2683 psi 18.5 MPa	2683 psi 18.5 MPa

Component	Hydrostatic test values			
	S-5	A-8	D-1	D-2
Casing Class 600	2175 psi 15.0 MPa	2175 psi 15.0 MPa	2175 psi 15.0 MPa	2175 psi 15.0 MPa
Casing Class 900/1500	4025 psi 27.75 MPa	4025 psi 27.75 MPa	4025 psi 27.75 MPa	4025 psi 27.75 MPa
Containment Shell Class 600	2175 psi 15.0 MPa	2175 psi 15.0 MPa	2175 psi 15.0 MPa	2175 psi 15.0 MPa
Containment Shell Class 900/1500	4025 psi 27.75 MPa	4025 psi 27.75 MPa	4025 psi 27.75 MPa	4025 psi 27.75 MPa

Temperature limits

S-5	A-8	D-1	D-2
-20°F to 500°F	-148°F to 500°F	-40°F to 500°F	-40°F to 500°F
(-29°C to 260°C)	(-100°C to 260°C)	(-40°C to 260°C)	(-40°C to 260°C)

For sub zero temperatures a suitable sealing compound (Loctite Multi Gasket or similar) is used to prevent the ingress of moisture into the coupling housing between the containment shroud/shell, coupling/bearing and motor adaptor assembly interface.

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