INTO HANDEL LTD
API INDUSTRIAL PUMPS & COMPRESSORS

Sundyne

Technical Profile

HMD Kontro GSP frames I & II

HMD Kontro

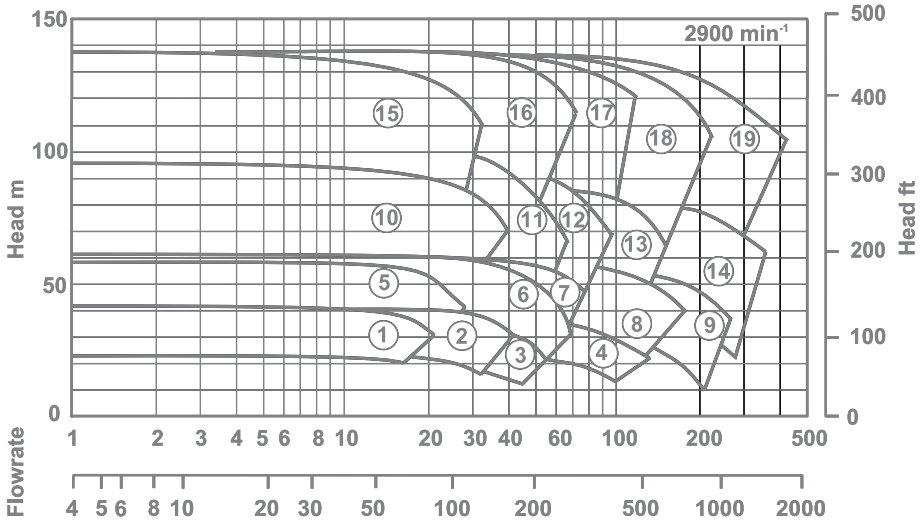
Magnet drive, end suction, centrifugal pumps to API 685 (2nd edition)

The GSP is a heavy-duty centreline-mounted process pump that complies with API 685 and refinery applications for sealless pumps. The GSP product covers a hydraulic range that is split between four frame sizes, Frames I, II, III & IV.

The pumps are offered with a range of Synchronous Magnet Drives rated to match prime mover performance. A corresponding range of Torque Ring drives is available for high temperature operation. Prime mover specifications of all denominations can be catered for.

The standard materials of construction are A8 and S5 with silicon carbide internal bearings.

Performance of the GSP frames I & II



Pump model

1	1.5 x 1 x 6	6	3 x 1.5 x 8H	11	3 x 1.5 x 10	16	3 x 1.5 x 13
2	3 x 1.5 x 6H	7	3 x 2 x 8	12	3 x 2 x 10	17	3 x 2 x 13
3	3 x 2 x 6	8	4 x 3 x 8H	13	4 x 3 x 10H	18	4 x 3 x 13
4	4 x 3 x 6	9	6 x 4 x 8H	14	6 x 4 x 10	19	6 x 4 x 13
5	1.5 x 1 x 8	10	2 x 1 x 10	15	2 x 1 x 13		

Design range limits

The GSP pump is designed to operate from -40°C up to+350°C, -40°F up to +660°F without the need for any ancillary cooling medium. Design working pressure is 40 bar, 580 psi.

Solids handling capability

The unit is capable of handling solids up to 5% w/w with 150microns.

Options

Materials of construction

Wetted parts	Alloy 20, Alloy C276
Internal bearings	SiC / Carbon
Gasket	PTFE

Other options

Casing drains flanged or screwed
Jacketed pump casing
Torque ring drive
Secondary Control
Coupling housing drain
Full range of pump protection

CE Ex

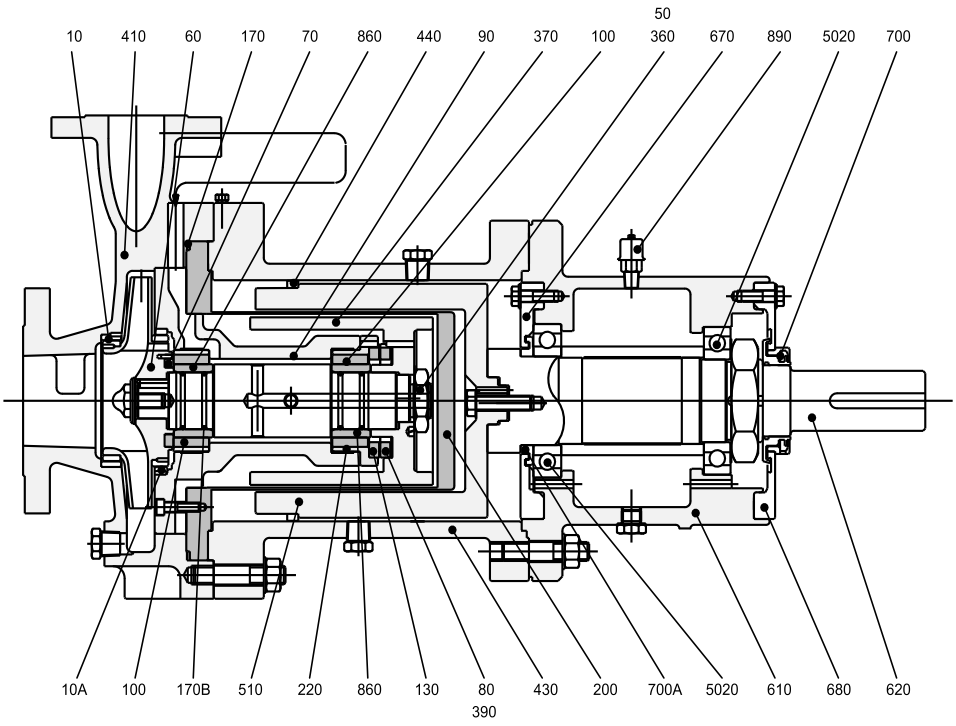
Key Design Features

- **No seals:** To minimise maintenance, all of the associated costs and eliminate potential leaks.
- **Sealless design:** For total containment, essential for hazardous, aggressive or valuable product.
- **Interchangeability of components:** For maximum convenience and reduced stock holding, operator training etc.
- **High efficiency wet end:** To benefit maximum flow / head coverage.
- **Wide choice of materials:** To allow a choice of various metals in the construction of your pump.
- **Casing gasket fully confined:** So eliminating risk of blowout.
- **Universal connection options:** So that suction and discharge flange connections can be configured to your exact requirements.
- **Modular rotating element cartridge:** Providing the most efficient way to perform replacements and manage your spare part inventory.

Benefits of GSP pump range

- Conforms to API 685 for sealless pumps.
- Design ensures safe, leak free operation.
- Increased efficiency, Low running costs.
- Minimal spares holding and maintenance.
- Maximises on-line process time.
- No costly seal support systems to maintain.
- Reduced installation costs.

Construction of GSP frames I & II



10	Neck Ring [Front]	Stainless Steel
10A	Neck Ring [Back]	Stainless Steel
50	Coupling Washer	Stainless Steel
60	Impeller	Stainless Steel
70	Front Thrust Washer	Alpha SiC
80	Back Thrust Washer	Alpha SiC
90	Bush Holder	Stainless Steel
100	Bush	Alpha SiC
130	Thrust Pad	Alpha SiC
170	Casing Gasket	CSF
170B	'O' Ring	Viton A
200	Containment Shroud	Alloy C & SS
220	Rear Bush Housing	Stainless Steel
360	Coupling Nut	Stainless Steel
370	Inner Magnet Ring	Stainless Steel
390	Support Gasket	Exfoliated Graphite & SS
410	Casing	Stainless Steel
430	Coupling Housing	Carbon Steel
440	Bump Ring	Phosphor Bronze
510	Outer Magnet Ring	Carbon Steel
610	Bearing Housing	Carbon Steel
620	Drive Shaft	Carbon Steel
670	Front Cap	Carbon Steel
680	Back Cap	Carbon Steel
700	Labyrinth Seal [Kit]	Brass
700A	Sec. Containment Seal	Proprietary
860	Shaft Sleeve	Alpha SiC
890	Breather	Stainless Steel
5020	Race	Steel
****	Fixings [Kit]	Various

Flanges and Connections

Casing

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

ANSI B16.5 Class 300	Machined with 1.5mm (0.06") high raised face having a continuous spiral groove.
DIN 2545 PN40	Machined with 2mm high raised face with a continuous spiral groove. (Note: these flanges are identical to BS 4504 PN40).

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:

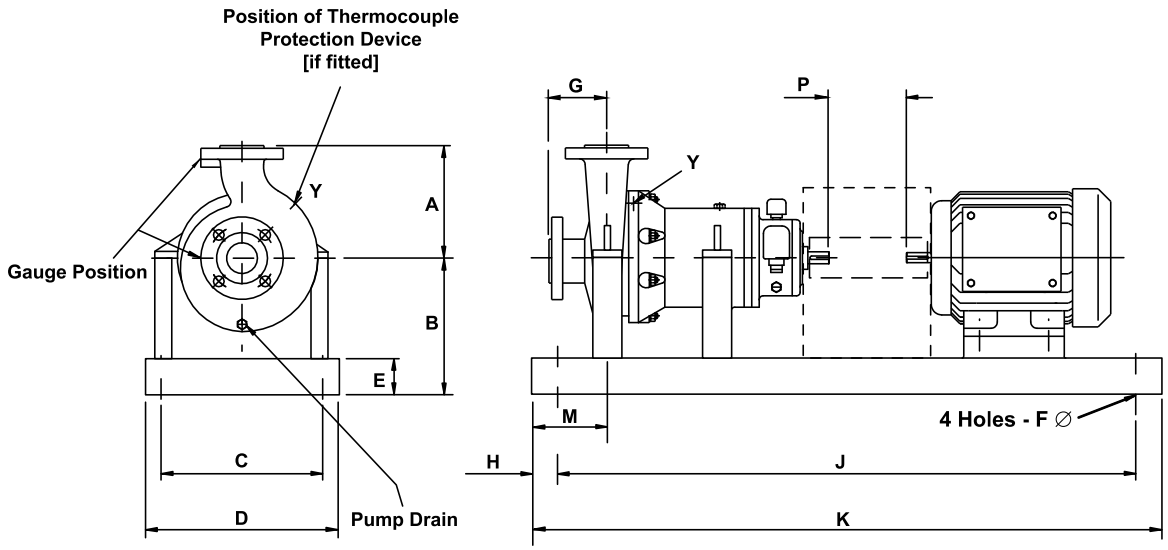
Standard: Socket welded flanged drain rated to the casing flanges, fully braced in 2 planes.
Option 1: 3/8" BSP drain plug fitted with fully trapped gasket.
Option 2: 1/2" NPT plug.
Option 3: No drain.

Gauge Connections:

Suction and discharge flanges are fitted with bosses suitable for drilling.

Dimensions of GSP frames I & II

Dimensions are for guidance only



Pump size	A	G	M	B1
1.5x1x6	190/7.5"	102/4"	119.4/4.5"	5.25
3x1.5x6H	190/7.5"	102/4"	119.4/4.5"	5.25
3x2x6	190/7.5"	102/4"	119.4/4.5"	5.25
1.5x1x8	200/7.87"	102/4"	119.4/4.5"	5.25
3x1.5x8H	200/7.87"	102/4"	119.4/4.5"	5.25
4x3x6	228/9"	102/4"	119.4/4.5"	8.25

Pump size	A	G	M	B1
3x2x8	241/9.5"	102/4"	119.4/4.5"	8.25
4x3x8H	300/11.8"	102/4"	119.4/4.5"	8.25
6x4x8H	280/11"	102/4"	119.4/4.5"	8.25
2x1x10	228/9"	102/4"	119.4/4.5"	8.25
3x1.5x10	228/9"	102/4"	119.4/4.5"	8.25
3x2x10	241/9.5"	102/4"	119.4/4.5"	8.25

Pump size	A	G	M	B1
4x3x10H	300/11.8"	102/4"	119.4/4.5"	8.25
6x4x10	343/13.5"	102/4"	119.4/4.5"	10
2x1x13	266/10.5"	102/4"	119.4/4.5"	10
3x1.5x13	275/10.8"	102/4"	119.4/4.5"	10
3x2x13	292/11.5"	102/4"	119.4/4.5"	10
4x3x13	320/13"	102/4"	119.4/4.5"	10

GSP Frames I & II

Dimension **P**= 25.4/1" for non spacer type and 100/4" for spacer type.

Motor Frame	B(B1=5.25)	B(B1=8.25)	B(B1=10)	C	D	E	F	H	J	K
90-100-112	229/9"	311/12.25"	356/14"	229/9"	305/12"	90/3.5"	19/0.75"	32/1.25"	927/36.5"	990/39"
132	229/9"	311/12.25"	356/14"	229/9"	305/12"	90/3.5"	19/0.75"	32/1.25"	927/36.5"	990/39"
160-180	281/11"	311/12.25"	356/14"	305/12"	381/15"	102/4"	19/0.75"	32/1.25"	1257/49.5"	1321/52"
200	311/12.25"	356/14"	381/15"	381/15"	457/18"	102/4"	25/1"	32/1.25"	1472/58"	1535/60.5"
225	311/12.25"	356/14"	381/15"	381/15"	457/18"	102/4"	25/1"	32/1.25"	1490/59"	1560/61.5"
250	311/12.25"	381/15"	381/15"	533/21"	609/24"	102/4"	25/1"	32/1.25"	1638/64.5"	1700/67"
143-145	229/9"	311/12.25"	356/14"	229/9"	305/12"	90/3.5"	19/0.75"	32/1.25"	927/36.5"	990/39"
182-184	229/9"	311/12.25"	356/14"	229/9"	305/12"	90/3.5"	19/0.75"	32/1.25"	927/36.5"	990/39"
213-215	229/9"	311/12.25"	356/14"	229/9"	305/12"	90/3.5"	19/0.75"	32/1.25"	927/36.5"	990/39"
254-256	281/11"	311/12.25"	356/14"	305/12"	381/15"	102/4"	19/0.75"	32/1.25"	1257/49.5"	1321/52"
284-286	311/12.25"	356/14"	381/15"	381/15"	457/18"	102/4"	25/1"	32/1.25"	1472/58"	1535/60.5"
324-326	311/12.25"	356/14"	381/15"	381/15"	457/18"	102/4"	25/1"	32/1.25"	1490/59"	1560/61.5"
364-365	311/12.25"	381/15"	381/15"	533/21"	609/24"	102/4"	25/1"	32/1.25"	1638/64.5"	1700/67"

Range capabilities

Model	Head	Flow	Temperature	Pressure	Viscosity Cst	Mounting
GSP I	60 m 196 ft	52 m^3/h 229 usgpm	-40 to +350°C -40 to +660°F	40 bar 580 psi	200	Separate Mounted (SM)
GSP II	138 m 452 ft	405 m^3/h 1784 usgpm	-40 to +350°C -40 to +660°F	40 bar 580 psi	200	Separate Mounted (SM)

Pressure Limits

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

Flange standard	Design pressure		
	A8/S5	Alloy 20	Alloy C
ANSI B16.5 Class 300	4.0 N/mm2 580 psi	3.4 N/mm2 488 psi	2.00 N/mm2 290 psi
Component	**Hydrostatic test value**		
	A8S/5	Alloy 20	Alloy C
Casing (ANSI 300lb)	6.0N/mm2 425 psi	5.1 N/mm2 732 psi4	3.10 N/mm2 50 psi
Containment Shroud/Shell			
Tested in accordance with the relevant casing			

Temperature limits

	Synchronus Coupling	Torque Ring Coupling
Standard Range	-40°C to +205°C (-40°F to +400°F)	-40°C to +350°C (-40°F to +660°F)
Option	-40°C to +260°C (-40°F to +500°F)	-40°C to +400°C (-40°F to +750°F)

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