HMD KONTRO Sealless Pumps

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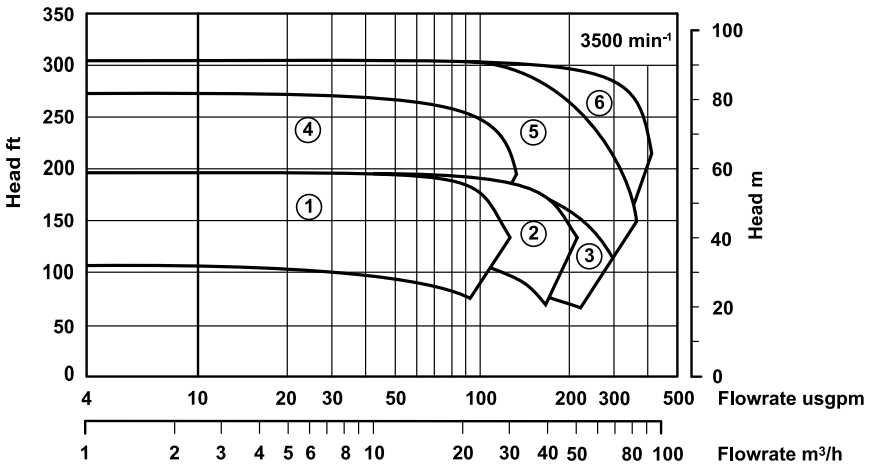
GSA/GSI frame I

Technical Profile

Magnet drive, end suction, centrifugal pumps
to ISO 2858 / DIN. EN 22858:1993 / ANSI B73.3M

Performance of the GSA/GSI frame I



Pump model

	GSA	GSI
1	1.5 x 1 x 6H	50-32-160H
2	3 x 1.5 x 6H	65-50-160H
3	3 x 2 x 6	80-65-160
4	1.5 x 1 x 8	50-32-200
5	3 x 1.5 x 8H	65-40-200H
6	–	80-50-200

Range capabilities

Model	Head	Flow	Temperature	Pressure	Viscosity Cst	Mounting
GSA 1	61 m 200 ft	70 m³/h 308 usgpm	-40 to +260°C -40 to +500°F	18.9 bar 275 psi	200	Close coupled (CC) Separate Mounted (SM)
GSI 1	61 m 200 ft	78 m³/h 343 usgpm	-40 to +260°C -40 to +500°F	16 bar 232 psi	200	Close coupled (CC) Separate Mounted (SM)

Product overview

The GSA(ANSI) and GSI(ISO) product covers a hydraulic range that is split between three frame sizes, Frames 0, I, & II. (For frame sizes 0 & II refer to separate Technical Profiles)

Technical Profiles are available for the complete range of HMD/Kontro GS based pumps up to frame IV.

The pumps are offered with a range of Synchronous Magnet Drives rated to match prime mover performance. Prime mover specifications of all denominations can be catered for.

This range is based on sizes conforming to ANSI & ISO performance and dimensional standards.

The standard materials of construction are Stainless Steel with silicon carbide internal bearings.

Design range limits

The GSA/GSI pump is designed to operate from -40°C up to +260°C, -40°C up to +500°F without the need for any ancillary cooling medium. Design working pressure is 18.9 bar, 275 psi.

Solids handling capability

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

Options

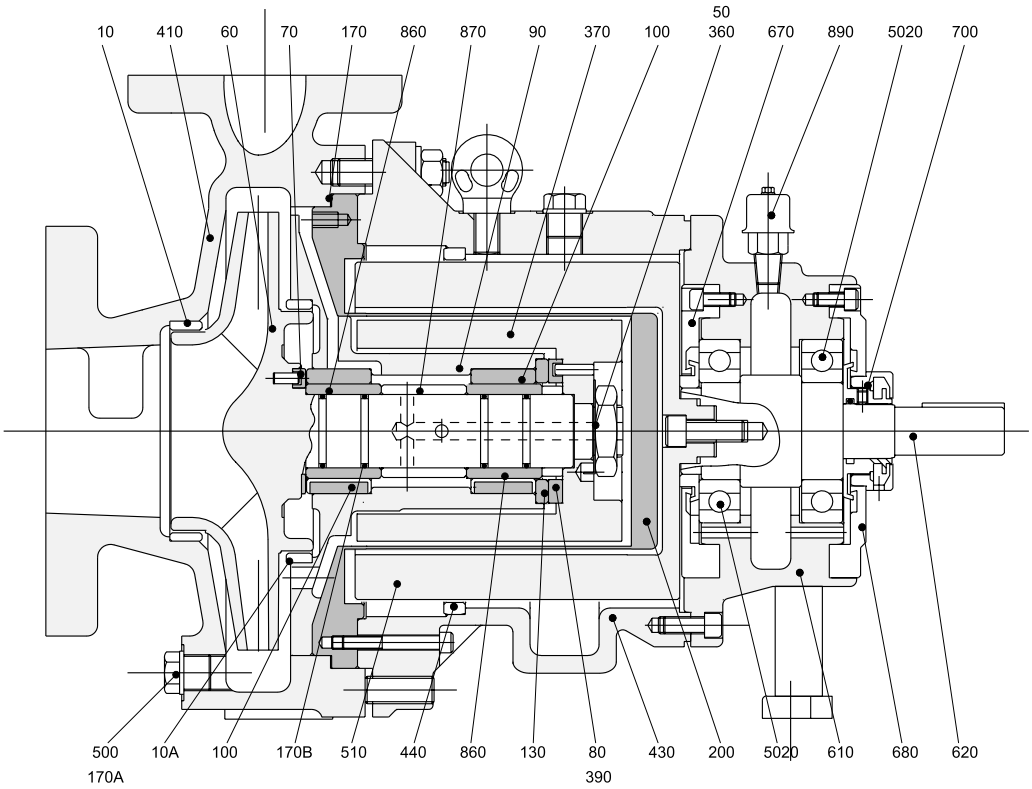
Materials of construction

Wetted parts	Alloy 20, C, B
Internal bearings	SiC / Carbon
Gaskets	PTFE

Other options

Casing drains flanged or screwed
Jacketed pump casing
Coupling housing drain
Large range of pump protection

Construction of GSA/GSI frame I



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	Gasket [Casing]	CSF / PTFE
170A	Gasket [Drain]	CSF / PTFE
170B	'O' Ring	Viton A / PFR
200	Containment Shroud/Shell	Alloy C & SS
360	Coupling Nut	Stainless Steel
370	Inner Magnet Ring	Stainless Steel
390	Support Gasket	Exfoliated Graphite & SS
410	Casing	Stainless Steel
430	Coupling Housing	SG Iron
440	Bump Ring	Phosphor Bronze
500	Drain Plug	Stainless Steel
510	Outer Magnet Ring	Carbon Steel
610	Bearing Housing	SG Iron
620	Drive Shaft	Carbon Steel
670	Front Cap	Carbon Steel
680	Back Cap	Carbon Steel
700	Labyrinth Seal [Kit]	Brass
870	Shaft Sleeve Spacer	Stainless Steel
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 150 + 300 — Machined with 1.5mm (0.06") high raised face having a continuous spiral groove.

BS 4504
PN16 + PN40 — Machined with 1.5mm (0.06") high raised face having a continuous spiral groove.

DIN 2543/2545
PN16 + PN40 — Machined with a 2mm high raised face with a continuous spiral groove. (Note: these flanges are identical to BS 4504 PN4O.)

Flange Loadings

Allowable flange loadings imposed by pipework are in accordance with Table 2 of API 610 8th edition and exceed the values in ISO 5199 Annex C.

Drain Connections

The following drain options are available:

Standard: ⅜" BSP drain plug fitted with fully trapped gaskets.
Option1: No drain, boss left undrilled.
Option 2: ½" NPT plug.
Option 3: ½" flanged drain rated to the casing flanges.

Gauge Connections:

Suction and discharge flanges are fitted with bosses for drilling/tapping: ⅜" NPT

Features and user benefits of the GSA/GSI Pump range

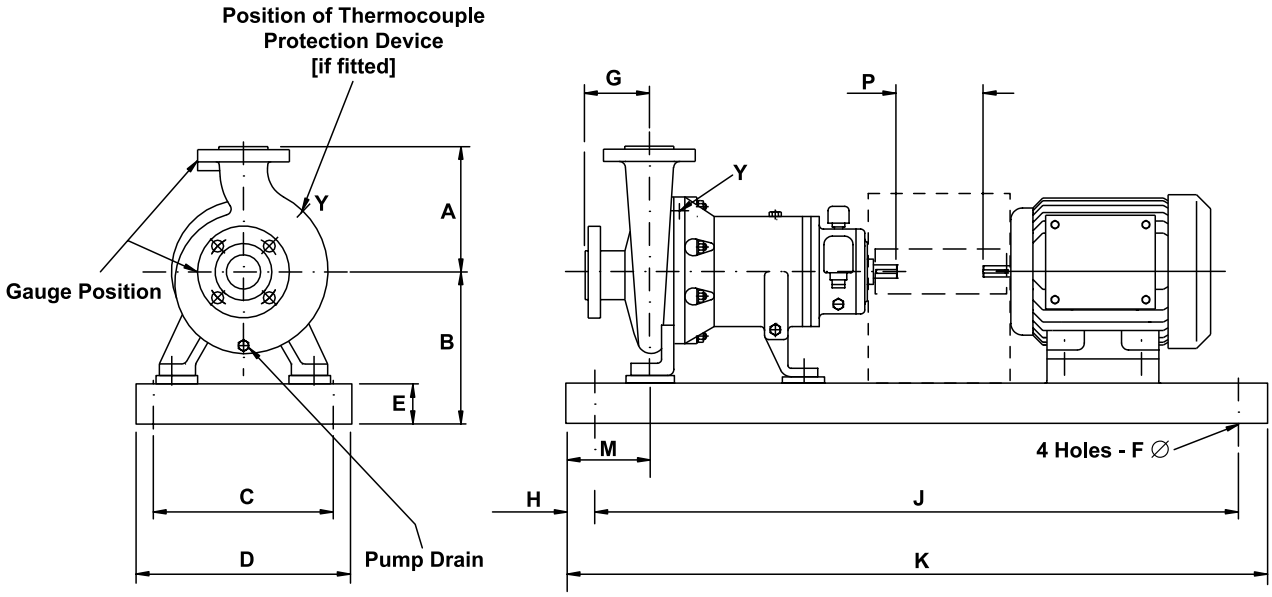
- **Seal/less design** - total product containment - ideal for hydrocarbon, petrochemical, toxic, aggressive, hot, crystallising and valuable product.
- Modular/Interchangeable high efficiency wet end, designed to ensure maximum flow/head coverage across all GS product ranges.
- Modular/Interchangeable high efficiency magnetic couplings.
- Choice of various metallic materials of construction.
- One joint casing/containment shroud/shell design
- Casing gasket fully confined to eliminate 'Blowout' risk.
- Various suction and discharge flange connection options.
- Maximum interchangeability exists between spare parts for the entire range.
- Cartridge assemblies allowing fast replacement of the rotating element.
- Internationally approved pressure vessel standard: ASME VIII code.

Overall benefits to the user

- Ease of application
- Low capital cost
- Design ensures safe, leak free operation
- Low running costs
- Minimal spares holding
- Minimal downtime/fast maintenance
- Maximises on-line process time
- Interchangeable with mechanically sealed pumps

Dimensions of GSA/GSI frame I

Dimensions are for guidance only



GSA frame I

Dimension **P** is 25.4/1" for non-spacer type coupling and 101.6/4" for spacer type

Pump size	A	C	D	E	F	G	H	M
1.5x1x6H	165/6.5"	229/9"	305/12"	89/3.5"	19/0.75"	101.6/4"	31.75/1.25"	119.4/4.5"
3x1.5x6H	165/6.5"	229/9"	305/12"	89/3.5"	19/0.75"	101.6/4"	31.75/1.25"	119.4/4.5"
3x2x6	165/6.5"	229/9"	305/12"	89/3.5"	19/0.75"	101.6/4"	31.75/1.25"	119.4/4.5"
1.5x1x8	165/6.5"	229/9"	305/12"	89/3.5"	19/0.75"	101.6/4"	31.75/1.25"	119.4/4.5"
3x1.5x8H	165/6.5"	229/9"	305/12"	89/3.5"	19/0.75"	101.6/4"	31.75/1.25"	119.4/4.5"

Motor Frame	J	K	B
90-100	927/36.5"	990/39"	229/9"
112-132	927/36.5"	990/39"	229/9"
160-180	1258/49.5"	1321/52"	280/11"
182-184	927/36.5"	990/39"	214/8.4"
213-215	1258/49.5	1321/52"	248/9.8"
254-256	1258/49.5"	1321/52"	267/10.5"
284-286	1258/49.5"	1321/52"	267/10.5"
324-326	1410/55.5"	1473/58"	293/11.5"

GSI frame I

Pump size	A	G	M
50-32-160H	160/6.3"	80/3.1"	60/2.4"
50-32-200	180/7.1"	80/3.1"	60/2.4"
65-50-160H	160/6.3"	80/3.1"	60/2.4"
65-40-200	180/7.1"	100/3.9"	60/2.4"
80-65-160	180/7.1"	100/3.9"	60/2.4"
80-50-200	200/7.9"	100/3.9"	60/2.4"

Motor Frame	B	C	D	E	F	H	J	K
90-100-112	252/9.9"	350/13.8"	390/15.3"	90/3.5"	19/0.75"	150/5.9"	600/23.6"	900/35.4"
132-160-/180	265/10.4"	440/17.3"	490/19.3"	102/4"	24/1"	190/7.5"	740/29.1"	1120/44.1"

Dimensions shown are metric/imperial (inches).

Pressure limits

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

Flange standard		Design pressure	
	316 St St	**Alloy 20**	**Alloy C**
ANSI B16.5 Class 150 + 300	1.89 N/mm2 275 psi	1.59 N/mm2 230 psi	2.00 N/mm2 290 psi
BS 4504 PN 16 + PN 40	1.60 N/mm2 232 psi	1.52 N/mm2 220 psi	1.60 N/mm2 232 psi
DIN 2543 PN 16 + PN 40	1.60 N/mm2 232 psi	1.52 N/mm2 220 psi	1.60 N/mm2 232 psi

Component	Hydrostatic test value		
	316 St St	**Alloy 20**	**Alloy C**
Casing (ANSI 150 + 300 lb)	2.93N/mm2 425 psi	2.41 N/mm2 350 psi	3.10 N/mm2 450 psi
Casing (PN 16 + PN 40)	2.40 N/mm2 348 psi	2.30 N/mm2 325 psi	2.40 N/mm2 348 psi
Containment Shroud/Shell	2.93 N/mm2 425 psi	2.41 N/mm2 350 psi	3.10 N/mm2 450 psi

Temperature limits

Standard Range	-40°C to +150°C (-40°F to +300°F)
Option	-40°C to +260°C (40°F to +500°F)

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

HMD KONTRO Sealless Pumps

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