

Technical Profile

GSPVS

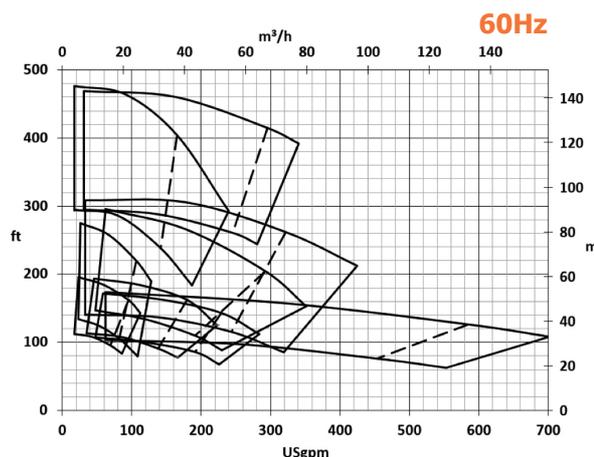
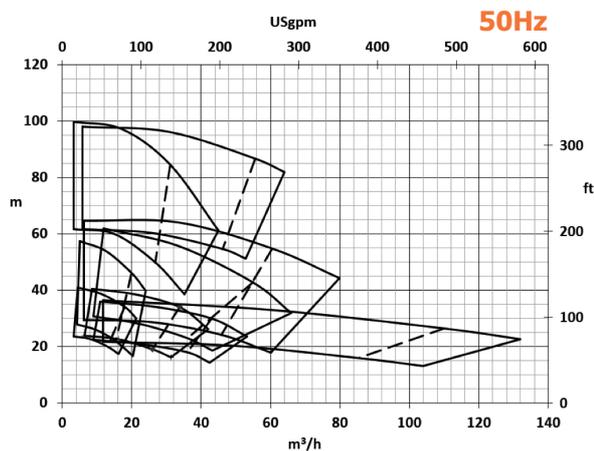
Vertically suspended, line shaft driven, sealless magnetic drive sump pumps to API 685 (2nd edition)

The vertically suspended GSPVS pump provides all of the benefits of a magnetic drive sealless pump in a compact package, using fewer parts with no seal systems for reduced cost operation and installation. The GSPVS meets the requirements of API 685 (as applicable to this style of pump) and is fully ATEX compliant, making it ideal for tank farms, oil and gas refineries, chemical and petrochemical applications.

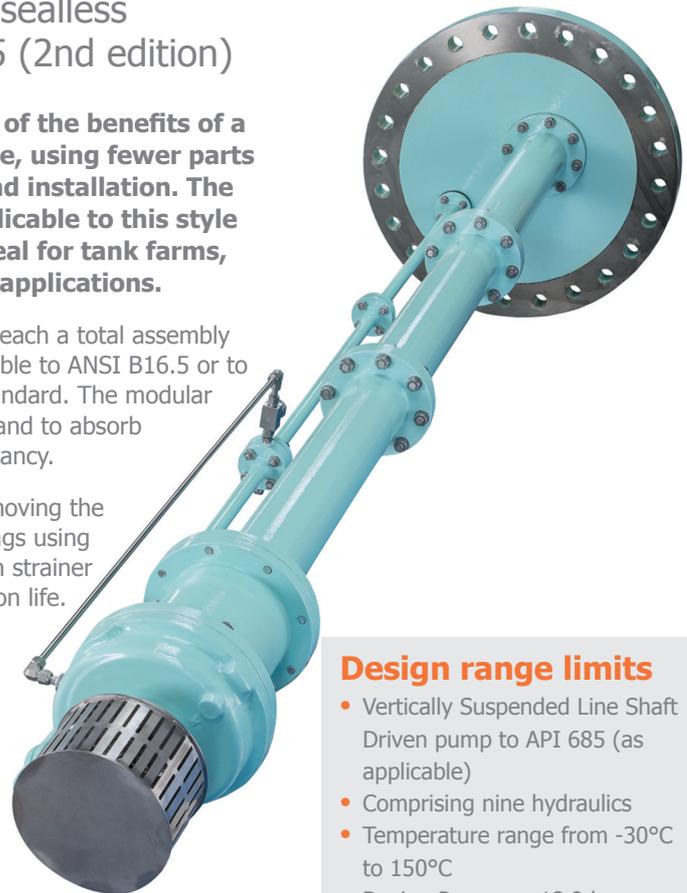
The GSPVS is composed of modules which can be joined to reach a total assembly length up to 6m/20ft and is mounted on a base/flange available to ANSI B16.5 or to customer specific requirements, including lifting points as standard. The modular construction uses a flexible jaw coupling to join drive shafts and to absorb misalignment, decreasing vibration and increasing life expectancy.

Greased for life ball bearings are used along the column, removing the need for lubricating or cooling the intermediate sleeve bearings using system fluid. The use of labyrinth bearing seals and a suction strainer avoids external contamination to maximise seal and lubrication life.

Performance of the GSPVS



HMD Kontro



Design range limits

- Vertically Suspended Line Shaft Driven pump to API 685 (as applicable)
- Comprising nine hydraulics
- Temperature range from -30°C to 150°C
- Design Pressure: 18.9 bar

Solids handling

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

Materials of construction

Pump material available as standard in A-8 stainless steel and S-5 carbon steel

Options

Power control monitor

Pump models

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

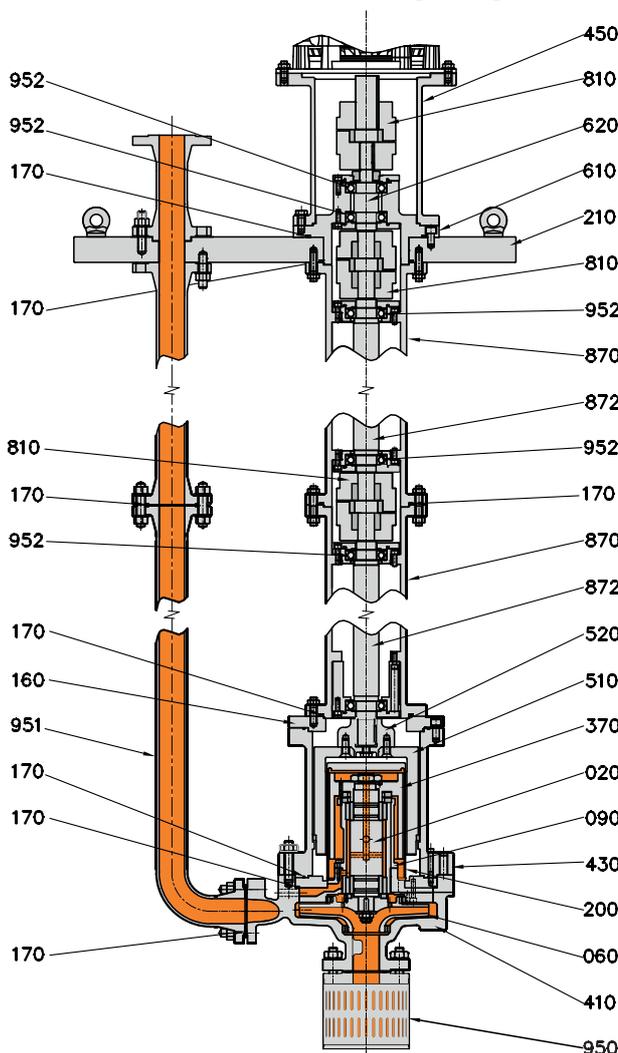
Key design features

- **Modular Construction:** Up to 6m (20ft) total assembly length. Large degree of interchangeability. Assembly and maintenance simplified.
- **Labyrinth Seal:** Prevents external particles entering the column and the risk of contaminating the process liquid.
- **Flexible Jaw Couplings:** Couplings contribute to reducing shafts misalignment and vibrations. Decreased vibration extends life expectancy.
- **Greased for Life Ball Bearings:** Removes the need of lubrication. Simplifies maintenance and assembly. Long life expectancy minimising maintenance required.
- **Renewable Front and Rear Wear Rings:** Located by tack welding (locking pins on request).
- **Rotor Vertical Alignment:** Manual vertical alignment of rotor is not required with magnet coupling arrangement.
- **Pump Sleeves:** Concentrically located internal bearing sleeves. Design compensates for thermal expansion. Concentrically located with O rings.
- **Impeller:** Fully enclosed single-piece cast with solid hubs. Keyed to shaft.
- **Casing Gasket:** Confined controlled compression gasket.
- **Outer Magnet Ring:** Magnets are fully sheathed to prevent damage during assembly or disassembly.
- **OMR Bump Ring:** Non-sparking bump ring used to prevent outer magnet ring contacting with containment shell in the event of an external bearing assembly failure.
- **Containment Shell:** Constructed in accordance with applicable standards. Contains the liquid inside the pump and prevents process liquid from entering the column modules.
- **Internal Thrust Bearings:** Designed for capacity in both directions.
- **Shaft Sleeve Bearings:** Grooved for heat removal and particle flushing.
- **Venting Method:** Venting provided to ensure the pump is fully primed.
- **Suction Strainer:** Prevents external contamination. Stops big particles from entering the pump and damaging internals. Vortex prevention.

Benefits of the GSPVS

- Modular construction
- Full ATEX compliance
- Easy-to-assemble flexible couplings used in column modules
- Greased for life ball bearings used in column modules
- No need to lubricate external bearings
- Mounting flange to ASME dimensions or adapted to suite customer installation
- Design ensures safe, leak free operation
- Dimensionally flexible to fit customer application (mounting flange and pump length)
- Discharge pipe arrangement allows for axial adjustment preventing vibration issues and bending on the pump column, consequentially preventing premature failure of the pump.

Construction of GSPVS pumps



020	Pump Shaft
060	Impeller
090	Bush Holder Assembly
160	Adapter flange
170	Gasket
200	Containment Shell Assembly
210	Top Plate
370	Inner Magnet Ring
410	Casing Assembly
430	Coupling Housing Assembly
450	Motor Adaptor
510	Outer Magnet Ring
520	Drive Flange Adaptor
610	Bearing Housing
620	Drive Shaft
810	Flexible Coupling
870	Spacer Module
872	Module Shaft
950	Inlet Filter
951	Discharge Pipe
952	Ball Bearing

Pressure limits

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

Flange standard	Design pressure	
	S-5	A-8
ASME B16.5	18.9 bar	18.9 bar
Class 150	274 psi	274 psi

Component	Hydrostatic test values	
	S-5	A-8
Casing	29.3 bar 425 psi	29.3 bar 425 psi
Containment Shell	29.3 bar 425 psi	29.3 bar 425 psi

Temperature limits

	S-5	A-8
	-30°C to 150°C	-30°C to 150°C
	(-22°F to 302°F)	(-22°F to 302°F)

Note: Maximum Allowable Pressure must be de-rated for elevated temperatures, above 40°C (104°F)

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