

# GHPD Rotary Lobe Positive Displacement Pump

The GHPD rotary lobe positive displacement pump was designed to meet specific processing needs in the Dairy, Food, Beverage, Chemical, Pharmaceutical, and Biotech industries. Meeting the demands of the sanitary industry, the GHPD is authorized to carry the 3A symbol, and is the first rotary lobe pump to be USDA-Dairy accepted for CIP (clean in place). The GHPD has also been installed in egg processing lines with USDA acceptance for CIP. An innovative design allows for gentle product handling, while providing efficient transport of viscous liquids.

## Working Principle

The GHPD has two stainless steel rotors that operate by the principle illustrated in Figure 4. When operating at optimum speeds, this pump provides gentle handling of both viscous and water-like products.

Figure 1. GHPD, vertical ports

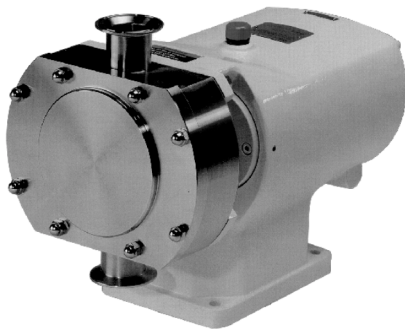


Figure 2. GHPD, horizontal ports



## Design

### Gearcase

The gearcase is constructed of epoxy-coated cast iron. The main drive shaft is accurately timed with an auxiliary shaft, each of which drives a single rotor. This precise timing allows for tight tolerances between the rotors and rotorcase, allowing the most efficient transport of product. Both shafts are supported by heavy-duty load bearings.

### Rotorcase (product contact surfaces)

All product contact surfaces are AISI T316 stainless steel. Trilobe, T316 stainless steel rotors are standard. The HyClean Shaft seals allow for complete cleaning of the seal area during CIP operations. Vertical porting is standard and offers special advantages, including:

- Self draining capability
- Self venting capability
- Utilize bottom port for inlet when tanks have low outlet
- Utilize top port for inlet when connecting direct from bottom of tanks
- Ideal entrance for hopper-feed applications, when equipped with enlarged, rectangular inlets

Figure 3. HyClean seal

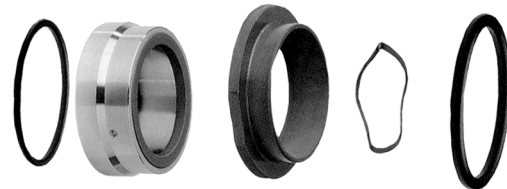
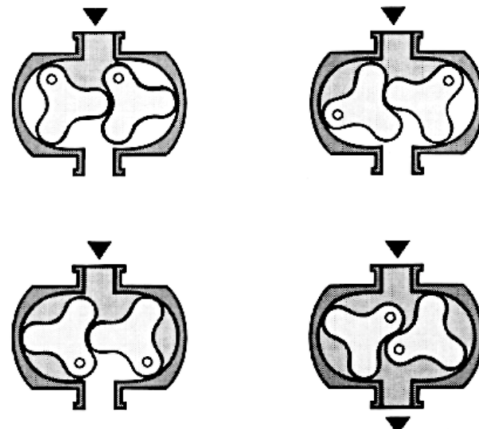
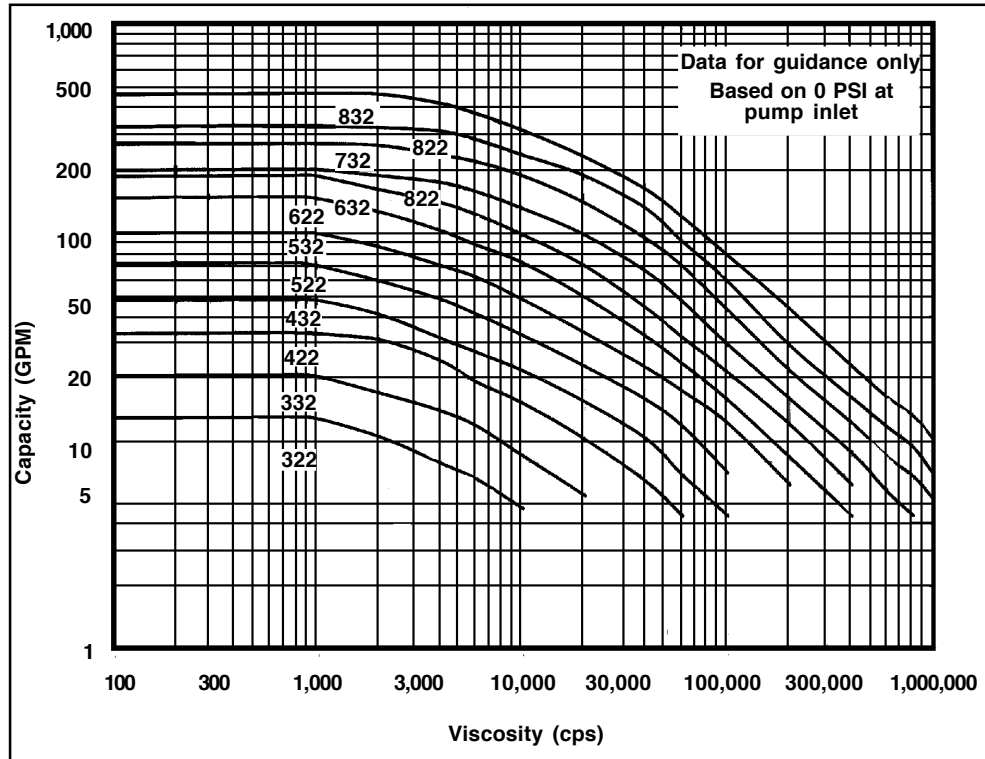


Figure 4. Principle



# GHPD Rotary Lobe Positive Displacement Pump

## Performance Data



## Flows/Pressures/Connections

GHPD	Port Size (inches)		Maximum Pressure (PSIG)		Maximum Capacity (GPM)	Nominal Displacement (USG/100 rev.)	Maximum Speed (RPM)
	Standard	Optional	Standard	High			
322	1		115	-	14	1.4	1000
332	1.5		75	-	22	2.2	1000
422	1.5		150	220	34	3.4	1000
432	2	1.5	100	150	47	4.8	1000
522	2	1.5	150	220	71	7.0	1000
532	2.5	2	100	150	100	10.1	1000
622	2.5	2	150	300	145	14.6	1000
632	3		100	220	208	20.9	1000
722	3		150	300	184	30.6	600
732	4		100	220	266	44.4	600
822	4		150	300	324	65.0	500
832	6		100	220	466	93.2	500

### \*\* Standard connections-GC Clamp

Sanitary connections are available according to required standard (SMS, DIN, BS).

Flanged connections and BSP available.

Enlarged and rectangular inlets available.



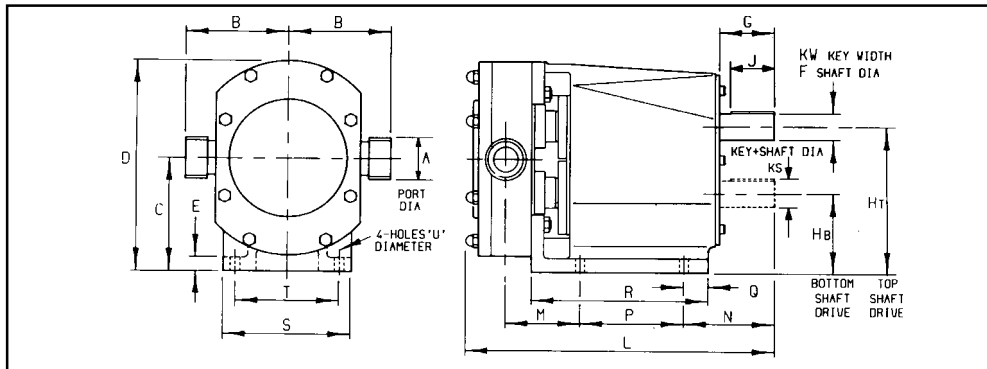
**CSI**

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## Dimensions (inches)

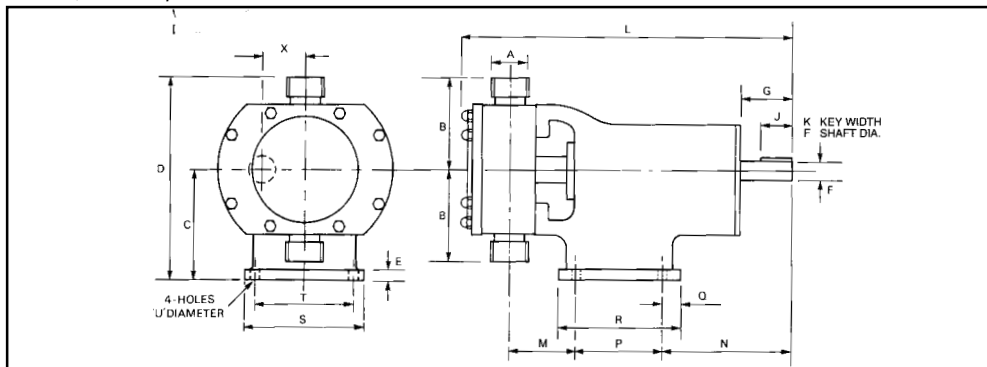
Figure 5. Dimensions, horizontal ports



Size	A	B	C	D	E	F	G	HB	HT	J	KS	KW	L	M	N	P	Q	R	S	T	U
322	1	3.74	3.54	6.61	0.39	16	1.57	2.68	4.45	1.18	0.71	5	11.12	1.71	4.88	3.15	0.59	4.92	3.94	3.15	0.39
332	1.5	3.74	3.54	6.61	0.39	16	1.57	2.68	4.45	1.18	0.71	5	11.52	1.91	4.88	3.15	0.59	4.92	3.94	3.15	0.39
422	1.5	4.13	4.53	8.35	0.63	22	1.97	3.35	5.71	1.26	0.96	6	13.39	2.38	5.16	3.94	0.75	6.06	4.88	3.94	0.47
432	2	4.13	4.53	8.35	0.63	22	1.97	3.35	5.71	1.26	0.96	6	13.74	2.52	5.16	3.94	0.75	6.06	4.88	3.94	0.47
522	2	4.92	5.43	9.96	0.71	28	2.36	3.94	6.89	1.57	1.22	8	17.13	3.25	6.89	4.92	1.18	8.27	6.06	4.92	0.55
532	2.5	4.92	5.43	9.96	0.71	28	2.36	3.94	6.89	1.57	1.22	8	17.64	3.43	6.89	4.92	1.18	8.27	6.06	4.92	0.55
622	2.5	5.91	6.42	11.93	0.79	38	3.15	4.53	8.31	2.48	1.61	10	21.30	3.98	8.86	5.91	1.38	10.04	7.24	5.91	0.55
632	3	5.91	6.42	11.93	0.79	38	3.15	4.53	8.31	2.48	1.61	10	21.97	4.33	8.86	5.91	1.38	10.04	7.24	5.91	0.55
722	3	6.89	7.68	14.45	0.79	45	4.33	5.31	10.04	2.76	1.91	14	24.67	3.82	10.98	7.09	1.38	10.83	8.27	7.09	0.55
732	4	6.89	7.68	14.45	0.79	45	4.33	5.31	10.04	2.76	1.91	14	25.57	4.25	10.98	7.09	1.38	10.83	8.27	7.09	0.55
822	4	7.48	8.86	16.73	0.79	48	4.33	6.10	11.61	2.76	2.03	14	29.09	4.90	10.47	10.24	1.57	14.57	8.66	7.48	0.55
832	6	7.48	8.86	16.73	0.79	48	4.33	6.10	11.61	2.76	2.03	14	30.43	5.51	10.47	10.24	1.57	14.57	8.66	7.48	0.55

All dimensions in inches except "F" and "KW" (mm)

Figure 6. Dimensions, vertical ports



Size	A	B	C	D	E	F	G	J	K	L	M	N	P	Q	R	S	T	U	X
322	1	3.74	4.45	8.19	0.63	16	1.54	1.18	5	11.06	1.97	4.57	3.15	0.47	4.09	4.09	3.15	0.39	0.89
332	1.5	3.74	4.45	8.19	0.63	16	1.54	1.18	5	11.42	2.17	4.57	3.15	0.47	4.09	4.09	3.15	0.39	0.89
422	1.5	4.13	5.77	9.90	0.79	22	1.97	1.26	6	13.50	2.64	4.88	3.94	0.47	4.88	4.88	3.94	0.47	1.18
432	2	4.13	5.77	9.90	0.79	22	1.97	1.26	6	13.90	2.80	4.88	3.94	0.47	4.88	4.88	3.94	0.47	1.18
522	2	4.92	6.89	11.81	0.87	28	2.28	1.57	8	17.28	2.68	6.02	6.10	0.59	7.28	6.06	4.92	0.47	1.48
532	2.5	4.92	6.89	11.81	0.87	28	2.28	1.57	8	17.68	2.83	6.02	6.10	0.59	7.28	6.06	4.92	0.47	1.48
622	2.5	5.91	8.39	14.61	0.98	38	3.15	2.48	10	21.26	3.07	7.76	7.87	0.67	9.21	7.24	5.91	0.55	1.89
632	3	5.91	8.39	14.61	0.98	38	3.15	2.48	10	21.93	3.39	7.76	7.87	0.67	9.21	7.24	5.91	0.55	1.89
722	3	6.89	10.12	17.01	1.18	45	4.33	2.76	14	24.69	3.62	10.40	7.87	0.79	9.45	8.66	7.09	0.55	2.36
732	4	6.89	10.12	17.01	1.18	45	4.33	2.76	14	25.99	4.06	10.40	7.87	0.79	9.45	8.66	7.09	0.55	2.36
822	4	7.48	11.61	19.09	1.18	48	4.33	2.76	14	29.09	4.72	10.51	10.24	0.79	11.81	9.84	8.27	0.55	2.76
832	6	7.48	11.61	19.09	1.18	48	4.33	2.76	14	30.43	5.47	10.51	10.24	0.79	11.81	9.84	8.27	0.55	2.76



## Maximum Size of Solids

GHPD	Maximum size of solids (inches)	
	Bi-lobed rotors	Tri-lobed rotors
322	5/16	7/32
332	5/16	7/32
422	5/16	7/32
432	1/2	7/32
522	1/2	11/32
532	5/8	7/16
622	5/8	7/16
632	7/8	19/32
722	7/8	19/32
732	1 1/16	23/32
822	1 1/16	23/32
832	1 7/16	15/16

## Shaft Seals

- Single HyClean seal (standard), with rotating face (stainless steel) and stationary face (carbon)
- Single flushed HyClean seal
- Double flushed mechanical seal
- Steam barrier for aseptic pumping
- O-ring seal
- Packed Gland
- Packed Gland with flush

## Elastomers

EPDM (standard), nitrile (NBR), FPM, PTFE encapsulates, and silicone

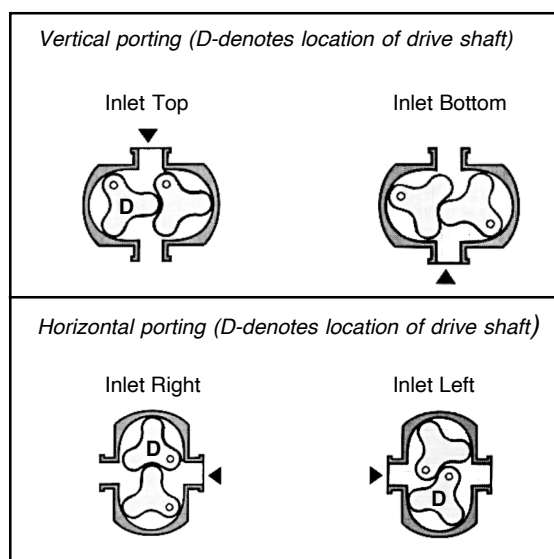
## Options

### Equipment

- Built-in pressure-relief valve cover
- Heating/cooling saddles (applied to rotorcase)
- Heating/cooling jacket (applied to front cover, not available with relief valve)
- Horizontal porting
- Bilobe rotors
- Non-galling bilobe alloy rotors
- High temperature SS rotors (up to 392°F)
- Complete pump units: pump, SS base plate complete with coupling and guard, gearmotor, mechanical variable speed drive, variable frequency drive
- Electropolish surface finish

**Note!** Contact Alfa Laval Flow for application assistance.

Figure 7. Direction of Flow



## Material Grades

- Elastomers (see under shaft seals)
- Shaft seal stationary-silicon carbide or silicon carbide inserted
- Shaft seal rotary-silicon carbide

## Ordering

The selection of the size and speed of a rotary lobe pump depends upon many product characteristics. Contact your pump supplier for selection of the correct pump and drive unit.

Please provide the following for accurate selection of your pump:

- Product to be pumped
- Capacity (during process and CIP/SIP)
- Discharge pressure
- Suction conditions
- Line size
- Viscosity
- Specific gravity
- Operating temperature
- Maximum temperature and pressure (during process and CIP/SIP)
- Connection type
- Drive specification

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