HIGH PRESSURE EXTERNAL GEAR PUMPS: DUCTILE IRON CONSTRUCTION

SERIES GP-425

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SERIES DESCRIPTION

Viking's GP-425 external gear positive displacement pumps are designed for the demanding applications that require high discharge pressures on thin liquids in the medium to higher flow capasity ranges. These pumps were created with fixed end clearance, ease of preventative maintenance, and motor speed operation. There are 5 models available for this series, all standard in Ductile Iron externals, spur gear style gears, and hardened internal components. The porting utilizes a 6" suction and discharge port on all models and available with adaptable weldneck style flange adapters to meet any system need.

TYPICAL APPLICATIONS

This pump is designed to handle applications that are thin, clean, and lubricating liquids with high differential pressure requirements. Sometimes referred to as: Shipping Pump, Booster Pump, Pipeline Injection Pump, and/or LACT Injection Pump.

Typical Applications: Shipping Pump, Booster Pump, Pipeline Injection Pump, Crude oil Injection Pump, tank transfer, sump pump applications, and many other liquids requiring high differential pressures supporting multiple application needs



OPERATING RANGE

	NOMINAL FLOW		MAXIMUM PRESSURE	TEMPERATURE RANGE	VISCOSITY RANGE	
SERIES	GPM	BPD	PSI	°F	SSU	cP
GP-425	200 - 800	6,900 - 27,600	1,500	0 to +350	28 to 100	1 to 20

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MODEL NUMBER KEY



MATERIALS OF CONSTRUCTION

Component	Standard Offering	Options
Bracket	Ductile Iron (ASTM A536) with Surface Hardening (Vitek)	
Casing	Ductile Iron (ASTM A536)	
Head / Separation Plate	Ductile Iron (ASTM A536) with Surface Hardening (Vitek)	
Gears	Heat Treated Steel (ASTM A322)	
Shafts	Heat Treated Steel (ASTM A322)	
Bushings	Bushings DU (PTFE-Impregnated Bronze with Steel Reinforcement)	
Bearings - Outboard Bearing Steel		
O-Rings FKM		
Mechanical Seal	Tungsten Carbide / Antimony Filled Carbon ①	2 3

① Standard Mechanical Seal - Champion Tungsten Carbide / Antimony Filled Carbon Single Cartridge Seal

② Optional Mechanical Seal - John Crane Type 1648 API 682 Category II Cartridge Seal

③ Optional Mechanical Seal - John Crane Type 5611Q Cartridge Seal

PERFORMANCE

Pump Model	① Ports	Nomir (1,1	lominal Flow @ 750PSI (1,190 rpm) on 4 cP		Nomina (1,11	al Flow @ 1, I90 rpm) on	,500PSI 4 cP	Maximum Continuous Pressure	Maximum Recommended Temperature	Approximate Shipping Weight (Pump Only)
Ductile Iron	Inch	GPM	BPH	BPD	GPM	BPH	BPD	PSI	°F	Lb.
GP-425021	6"	170	245	5,890	150	212	5,100	1,500	350	1,370
GP-425052	6"	345	490	11,770	298	425	10,200	1,500	350	1,815
GP-425073	6"	515	735	17,655	446	638	15,300	1,500	350	2,500
GP-425051	6"	340	488	11,720	-	-	-	750	350	1,485
GP-425102	6"	685	975	23,440	_	-	_	750	350	2,065

① 6" 4-bolt port uses 3000 Series Square Flange.

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COMPONENT IDENTIFICATION – GP-425021 & GP-425051



ltem	Name of Part	ltem	Name of Part	ltem	Name of Part
1	Bracket	13	Driven Shaft	20	Studs
2	Bearing Housing Assembly	15	Gear Pin (Driven Gear)	22	Seal Nuts
8	Mechanical Seal	15A	Gear Pin (Driver Gear)	23	Lock Washers
10	Seal Studs	17	Alignment Pins	29	Head & Bushing Assembly
11	O-Rings	18	Casing		
12	Driver Shaft	19	Gear Set		

COMPONENT IDENTIFICATION – GP-425052 & GP-425102



ltem	Name of Part	ltem	Name of Part	ltem	Name of Part
1	Bracket	13	Driven Shaft	20	Studs
2	Bearing Housing Assembly	15	Gear Pin (Driven Gear)	22	Seal Nuts
8	Mechanical Seal	15A	Gear Pin (Driver Gear)	23	Lock Washers
10	Seal Studs	17	Alignment Pins	27	Head
11	O-Rings	18	Casing	29	Separation Plate
12	Driver Shaft	19	Gear Set	30	Bushing Set

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COMPONENT IDENTIFICATION – GP-425073



ltem	Name of Part	ltem	Name of Part	ltem	Name of Part
1	Bracket	13	Driven Shaft	20	Studs
2	Bearing Housing Assembly	15	Gear Pin (Driven Gear)	22	Seal Nuts
8	Mechanical Seal	15A	Gear Pin (Driver Gear)	23	Lock Washers
10	Seal Studs	17	Alignment Pins	27	Head
11	O-Rings	18	Casing	29	Separation Plate
12	Driver Shaft	19	Gear Set	30	Bushing Set

DRIVE OPTIONS



Base Mounted Units ("D" Drive)

GP-425 Series external gear pumps can be mounted to a Viking structural steel base providing solid mounting for all of the drive equipment (pump and motor). Available as complete unit with spec motor, JC A Series spacer coupling, aluminum coupling guards, and alignment jacking bolts.

NOTE: This mounting arrangement requires on-site coupling alignment.

Dimensions for Base Mounted Pumps ("D" Drive) — See Pages 1658.6 - 1658.7.

Base Package Standard Features

GP-425 Series Base packages are available from Viking as a turn key pump and motor package to allow maximum flexibility for future pump needs (CPL), ease of alignment with jacking bolts and milled mounting pads, and integrated swivel lifting lugs for proper rigging and unit mobility. The Viking base package also includes a standard adjustable aluminum coupling guard covering our spacer coupling for easy seal access.

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DIMENSIONS - GP-425021 & GP-425051 (PUMP ONLY)



NOTE: Dimensions in inches

Model No.	А	В	C	D
GP-425021	33.33	38.58	26.00	43.58
GP-425051	35.84	41.09	20.76	46.09

DIMENSIONS - GP-425052 & GP-42102 (PUMP ONLY)



NOTE: Dimensions in inches

Model No.	А	В	C	D
GP-425052	33.33	46.58	34.01	51.59
GP-425102	35.84	51.59	39.01	56.59

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DIMENSIONS – GP-425073 (PUMP ONLY)



NOTE: Dimensions in inches

Model No.	A	В	C	D
GP-425073	33.33	59.59	47.01	64.59

DIMENSIONS – GP-425021 (PUMP & MOTOR)



NOTE: Dimensions in inches

Motor Frame Size	Pump Model No.	A	В	С	D	E	F	G	Н	J	к	Approx. Shipping Weight (Pump, Drive & Motor) In Pounds
364-365T	GP-425021	38.00	6.00	88.00	14.25	8.00	6.25	36.00	1.00	33.50	1.25	3,500
404-405T	GP-425021	42.00	6.00	96.00	14.25	8.00	6.25	36.00	1.00	33.50	1.25	4,040
444-449T	GP-425021	48.00	6.00	108.00	14.25	8.00	6.25	36.00	1.00	33.50	1.25	6,550

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DIMENSIONS – GP-425051 & GP-425052 (PUMP & MOTOR)



NOTE: Dimensions in inches

Motor Frame Size	Pump Model No.	Α	В	С	D	E	F	G	Н	J	к	Approx. Shipping Weight (Pump, Drive & Motor) In Pounds
444-449T	GP-425051	52.00	6.00	116.00	14.25	8.00	11.75	36.00	1.00	33.50	1.25	6,735
444-449T	GP-425052	52.00	6.00	116.00	14.25	8.00	14.25	36.00	1.00	33.50	1.25	7,050
586-589T	GP-425052	60.00	6.00	132.00	16.25	8.00	14.00	48.00	1.00	45.50	1.25	9,750

DIMENSIONS – GP-425073 & GP-425102 (PUMP & MOTOR)



NOTE: Dimensions in inches

Motor Frame Size	Pump Model No.	A	В	С	D	E	F	G	Н	J	к	Approx. Shipping Weight (Pump, Drive & Motor) In Pounds
444-449T	GP-425073	59.00	6.00	130.00	14.25	8.00	27.25	36.00	1.00	33.50	1.25	7,900
586-589T	GP-425073	66.50	6.00	145.00	16.25	8.00	27.00	48.00	1.00	45.50	1.25	10,700
444-449T	GP-425102	59.00	6.00	130.00	14.25	8.00	24.75	36.00	1.00	33.50	1.25	7,475
586-589T	GP-425102	66.50	6.00	145.00	16.25	8.00	24.75	48.00	1.00	45.50	1.25	10,275

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PERFORMANCE CURVES

Contact Viking Pump for performance curves for specific application conditions.

NPSH (NET POSITIVE SUCTION HEAD)

The NPSHR (Net Positive Suction Head Required by the pump) is given in the table below and applies to viscosities through 750 SSU. NPSHA (Net Positive Suction Head Available in the system) must be greater than NPSHR.

For a complete explanation of NPSH, see Viking Application Data Sheet, AD-19.

GP Series
Net Positive Suction Head Required (NPSHR) ①
Feet of Liquid (S.G. 1.0)
Viscosities - 38 SSU to 750 SSU

Bump Sizo	Pump Speed (RPM)								
Pullip Size	640	780	950	1150					
GP-425021	7.2	8.1	10.7	15.9					
GP-425051	7.5	8.5	11.3	16.7					
GP-425052	7.4	8.4	11.2	16.6					
GP-425073	7.6	8.6	11.4	16.8					
GP-425102	8.0	9.2	12.1	17.7					

1 m = 3.28 feet 1 foot = 0.305 m

① - At pump suction port

For Viscosities Above 750 SSU (NPSHR Data Not Available):

The performance curves are based on 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less, when measured at the pump suction port. Vacuum above 20 In.-Hg. should be avoided. (Refer to "Engineering Data" Catalog Section 510 for information helpful in determining suction line size.)

Mechanical Efficiency:

The Mechanical Efficiency (expressed in percent) can be calculated by using the following formula: Mechanical Efficiency = (Differential Pressure, PSI) (Capacity, GPM) (100) (Horsepower, BHP) (1715)

CPL (COMMON PORT LOCATION) OPTION

Viking's Common Port Location (CPL) base units allow for ease of downsizing pumps and flexability to use a exiting base to drop in smaller pumps without a new base or piping modifications. This allows customers to drop in smaller flow rated pumps into the exact base and drive as the original with no piping changes required based on the drop in port locations designed by Viking. Contact Viking Pump for more information on this drive package option.



* Nominal Flow