HIGH PRESSURE EXTERNAL GEAR PUMPS:
DUCTILE IRON CONSTRUCTION

GB-410 Series™

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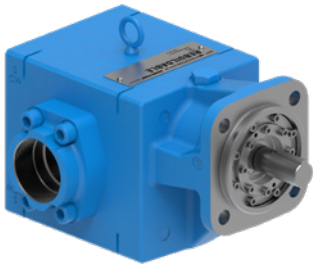
SERIES DESCRIPTION

Viking's GB-410 Series™ positive displacement pumps build on and improve Viking's rich legacy of dependable solutions for demanding applications that require high pressure when handling thin liquids. Now with an even more robust construction, with the newly built-in repairable features, Viking's new GB Series of TEG Dehydration & Pipeline Injection GB-410 Pump Series provides an even more durable and repairable solution for your oil & gas processing, pipeline injection, and high-pressure transfer needs.

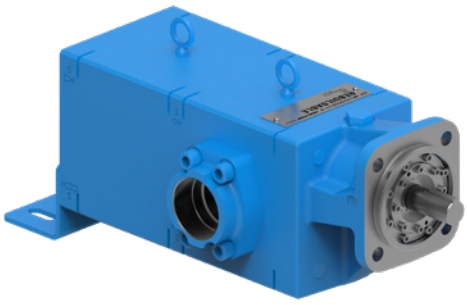
TYPICAL APPLICATIONS

This pump is designed to handle applications that are thin, clean, and lubricating liquids with high differential pressure requirements across multiple applications. Below is a subset of proven applications where these products have been applied in the field:

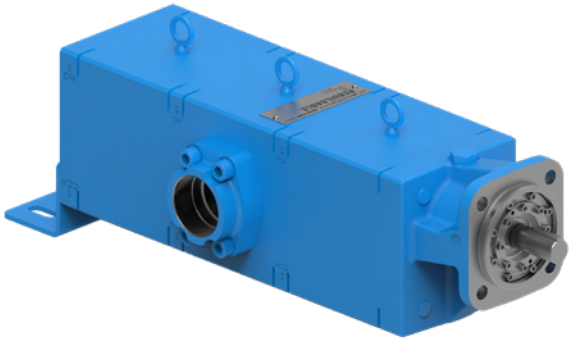
Pipelines, process, sumps, dehydration, booster, injection, and LACT Units, and many other liquids requiring high differential pressures supporting multiple application needs in the oil & gas processing industry.



GB-41013
(Single Pump)



GB-41026
(Double Pump)



GB-41039
(Triple Pump)

OPERATING RANGE

SERIES	NOMINAL FLOW		MAXIMUM PRESSURE		TEMPERATURE RANGE		VISCOSITY RANGE	
	GPM	GPH	PSI	BAR	°F	°C	SSU	cPs
GB-410	1.5 to 67	90 to 4,020	1,500	103	0 to +350	-18 to +177	28 to 2,500	1 to 550

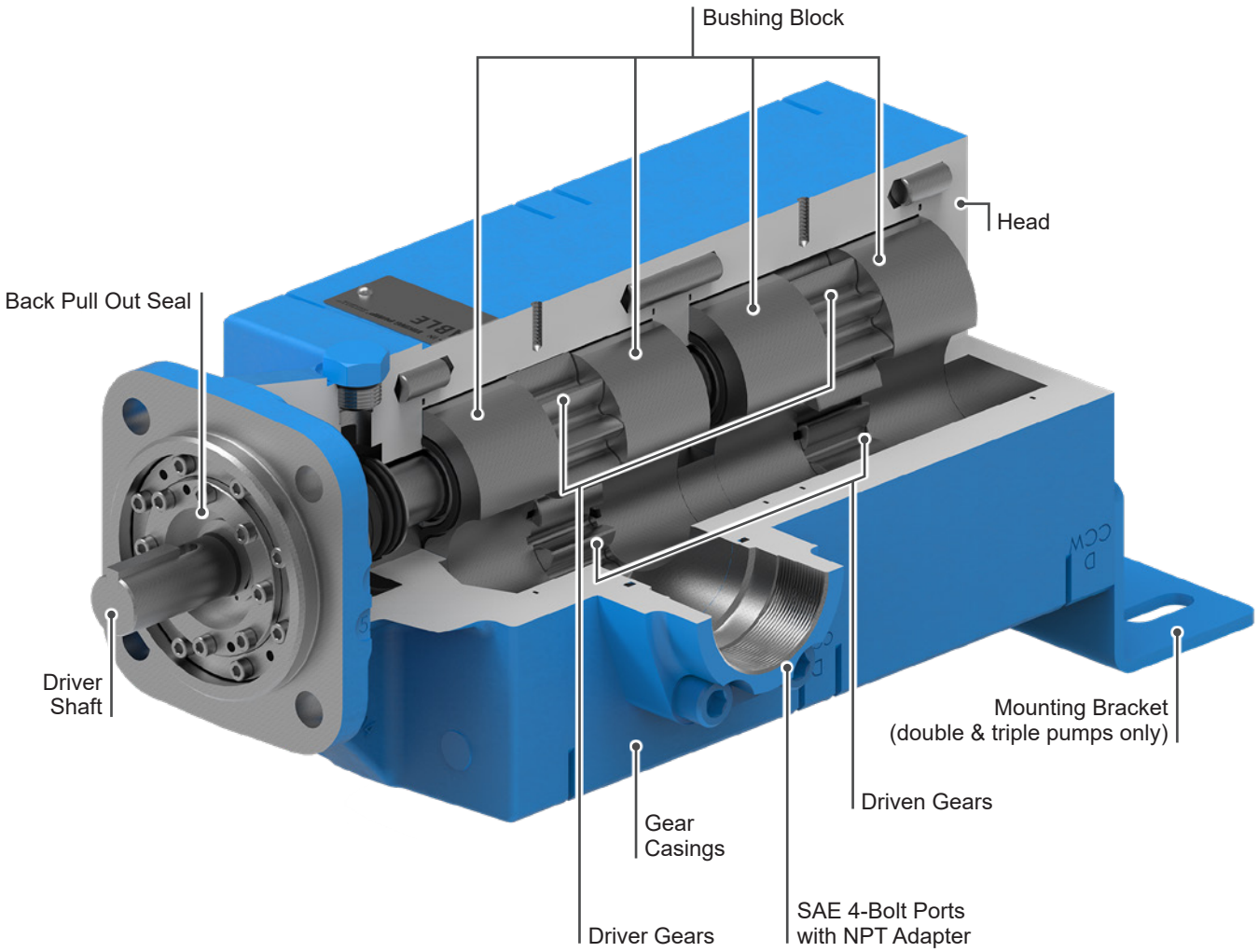
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MODEL NUMBER KEY

G B - 4 1 0 0 9 - G 0 O

- **G** — **External Gear Principle**
- **B** — **Pump**
- **4** — **Shaft Seal**: 4 = Mechanical Seal
- **1 0** — **Gear O.D.**
- **0 9** — **Pump Size**: "10" 05, "10" 07, "10" 09, "10" 13, "10" 18, "10" 22, "10" 26, "10" 39
- **G** — **Design Series**: G = Type 1 Mech Seal; K = Type 8B5 Mech Seal
- **0** — **Shaft Rotation**: 0 = Clockwise; 1 = Counter-Clockwise
- **O** — **Relief Valve**: O = No Relief Valve



HIGH PRESSURE EXTERNAL GEAR PUMPS:
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MATERIALS OF CONSTRUCTION

Component	Standard Offering	Options
Bracket	Ductile Iron (ASTM A536)	— — —
Casing	Ductile Iron (ASTM A536)	— — —
Head / Separation Plate	Ductile Iron (ASTM A536)	— — —
Bushing Block	Gray Iron (ASTM A823) with DLC Surface Hardening	— — —
Gears	Heat Treated Steel (ASTM A322) with DLC Surface Hardening	— — —
Shaft	Heat Treated Steel (ASTM A322)	— — —
Bushings	DU (PTFE-Impregnated Bronze w/ Steel Reinforcement)	— — —
O-Rings	TFT/P	— — —
Mechanical Seal	Carbon / Silicon Carbide ①	Carbon / Silicon Carbide Balanced ②

① Standard Mechanical Seal - Single Component Elastomer Bellows Seal (Note: Max inlet pressure is 150 PSI)

② Balanced Mechanical Seal - John Crane Type 8B5 Balanced Seal (Note: Max inlet pressure is 450 PSI)

PERFORMANCE

Pump Model	Ports	Nominal Flow at 1500 PSI, 1765 RPM on 150°F 8 cPs TEG		Nominal Flow at 1500 PSI, 1765 RPM on 250°F 1.2 cPs TEG		Maximum Continuous Pressure		Maximum Recommended Temperature		Approximate Shipping Weight (Pump Only)**	
Ductile Iron Externals	Inch	GPM	GPH	GPM	GPH	PSI	BAR	°F	°C	Lbs.	Kg
GB-41005	2" NPT	7.9	474	7.6	456	1500	103	350	177	70	32
GB-41007	2" NPT	11.2	672	10.7	642	1500	103	350	177	72	33
GB-41009	2" NPT*	13.6	816	13.1	786	1500	103	350	177	73	33
GB-41013	2" NPT*	21.2	1272	20.2	1212	1500	103	350	177	77	35
GB-41018	2" NPT*	28.1	1686	26.8	1608	1500	103	350	177	117	53
GB-41022	2" NPT*	36.8	2208	34.6	2076	1500	103	350	177	120	54
GB-41026	2" NPT*	44	2640	40.9	2454	1500	103	350	177	124	56
GB-41039	2" NPT*	66.8	4008	63.7	3822	1500	103	350	177	170	77

* Pumps comes standard with NPT adapters bolted on to J518 Code 61 SAE Flange Ports. Butt-Weld/Weld-Neck Bolt-on Adapters also available.

** Weights are with port adapters.

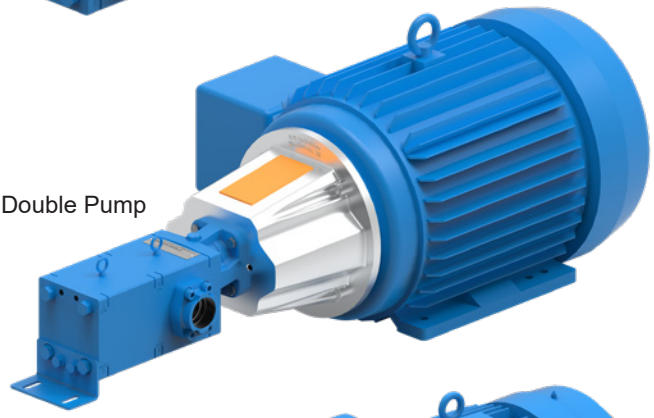
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DRIVE OPTIONS

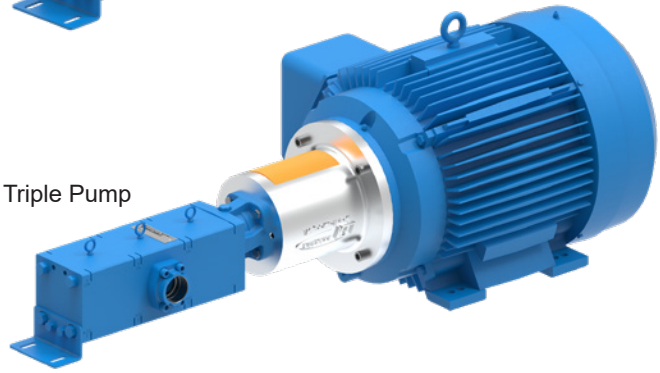
Single Pump



Double Pump



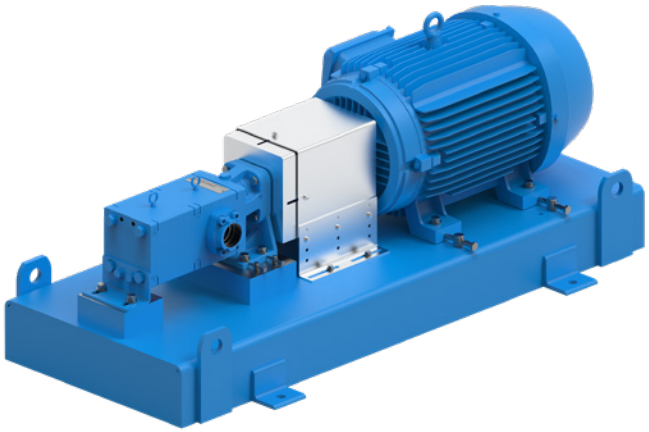
Triple Pump



Motor Mounted Units (“M” Drive)

GB-410 Series™ external gear pumps are available for easy field installation by mounting to C-Face motor, using the Viking M-Drive bracket and dry jaw type coupling, on NEMA C-Face Motors up to 75 HP (365TC). These compact, motor mounted units allow for a small installation footprint and allow for easy conversion in the field from competitor motor-mounted units, to the dry-coupled Viking M-Drive solution, using the Viking M-Drive housing.

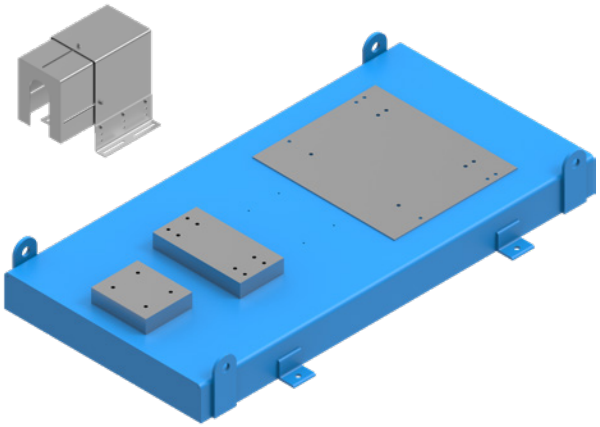
Dimensions for Base Mounted Pumps (“M” Drive) — See Pages 1654.6 - 1654.8.



Base Mounted Units (“D” Drive)

GB-410 Series™ external gear pumps are available mounted to a Viking formed steel base providing solid mounting for the pump, motor, and coupling guard. Available as complete unit with spec motor, spacer-coupling, coupling guards, and alignment jacking bolts.

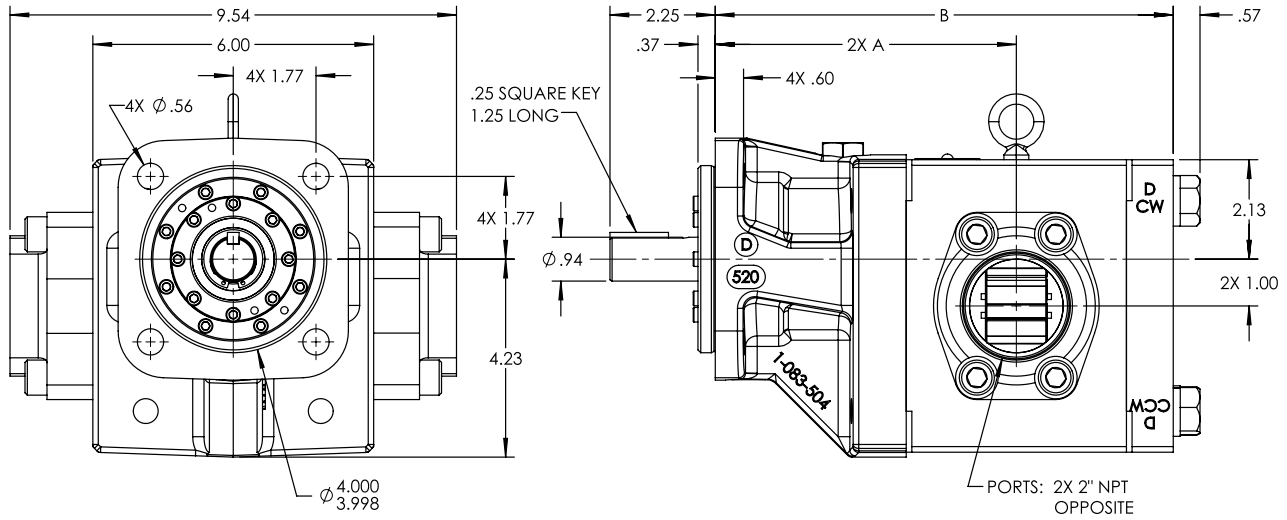
NOTE: This mounting arrangement requires on-site coupling alignment.



Base Package Standard Features

GB-410 Series™ Base Packages are available from Viking as a turn key pump and motor package to allow maximum flexibility for future pump needs, ease of alignment with jacking bolts and milled mounting pads, and integrated lifting lugs for proper rigging and unit mobility. The Viking base package also includes a standard adjustable aluminum coupling guard covering our 5” / 8” spacer coupling for easy seal access.

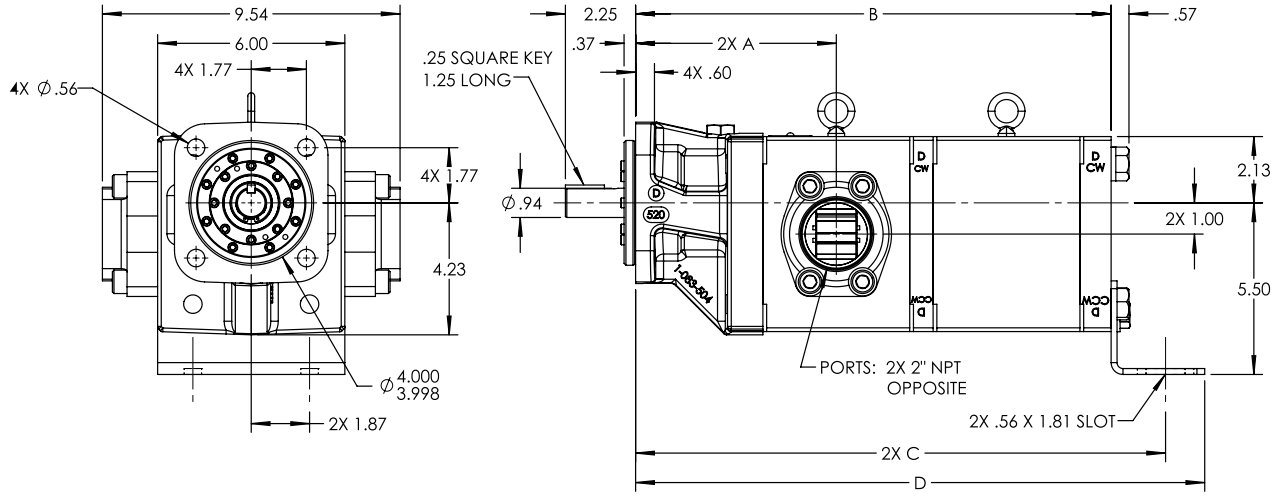
DIMENSIONS – GB-41005, GB-41007, GB-41009, GB-41013 (BARE SHAFT PUMP)



Model No.	A	B	Approximate Shipping Weight in Pounds
GB-41005	6.03	8.99	70
GB-41007	6.13	9.19	72
GB-41009	6.21	9.34	73
GB-41013	6.43	9.79	77

NOTE: Dimensions in inches

DIMENSIONS – GB-41018, GB-41022, GB-41026 (BARE SHAFT PUMP)



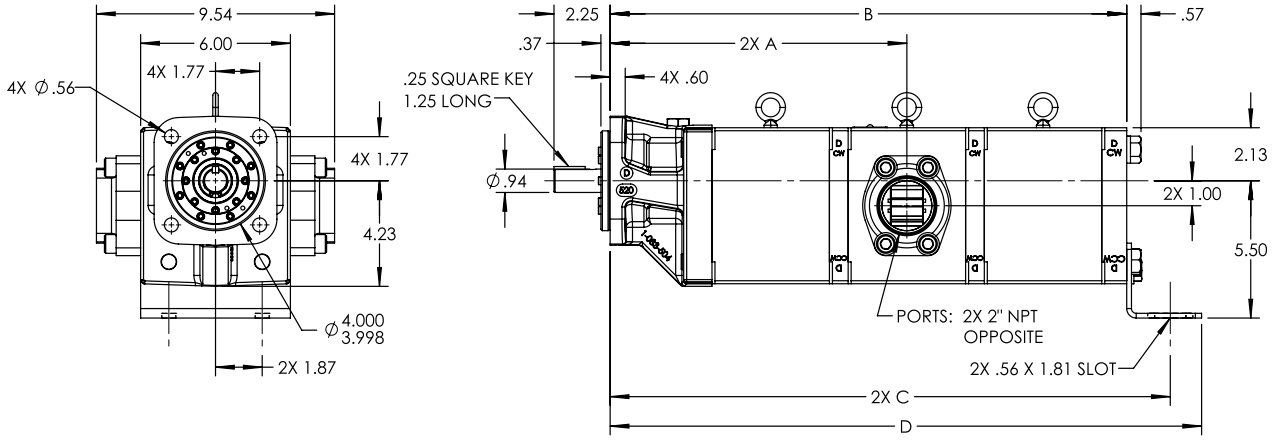
Model No.	A	B	C	D	Approximate Shipping Weight in Pounds
GB-41018	6.21	14.34	16.09	17.34	117
GB-41022	6.43	14.79	16.54	17.79	120
GB-41026	6.43	15.24	16.99	18.24	124

NOTE: Dimensions in inches

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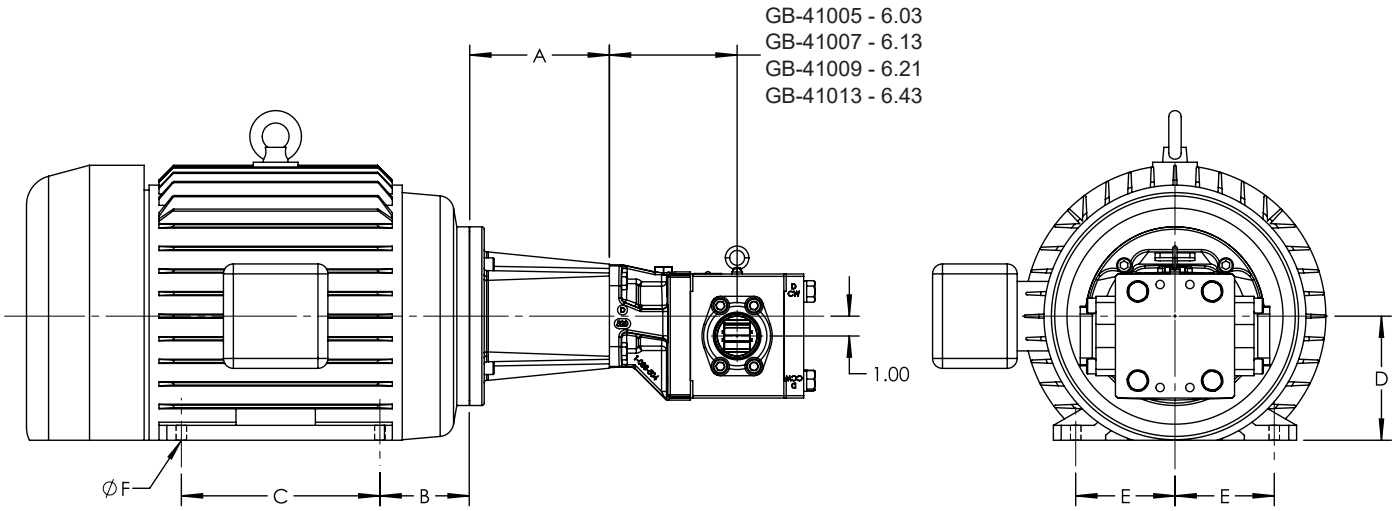
DIMENSIONS – GB-41039 (BARE SHAFT PUMP)



Model No.	A	B	C	D	Approximate Shipping Weight in Pounds
GB-41039	11.89	20.70	22.44	23.70	170

NOTE: Dimensions in inches

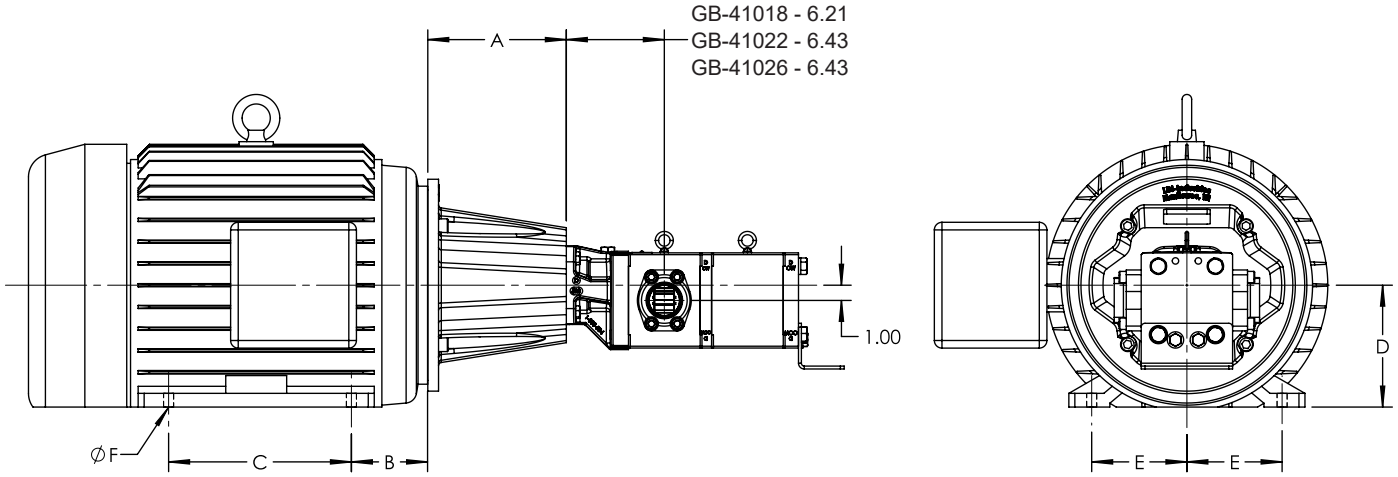
DIMENSIONS – GB-41005, GB-41007, GB-41009, GB-41013 (PUMP & MOTOR)



Motor Frame Size	A	B	C	D	E	F
182TC	5.69	3.50	4.50	4.50	3.75	.41
184TC			5.50			
213TC	6.61	4.25	5.50	5.25	4.25	.41
215TC			7.00			
254TC	7.04	4.50	8.25	6.25	5.00	.53
256TC			10.00			
284TC	8.11	4.50	9.50	7.00	5.50	.53
286TC			11.00			
324TC	9.10	5.00	10.50	8.00	6.25	.66
326TC			12.00			

NOTE: Dimensions in inches

DIMENSIONS – GB-41018, GB-41022, GB-41026 (PUMP & MOTOR)



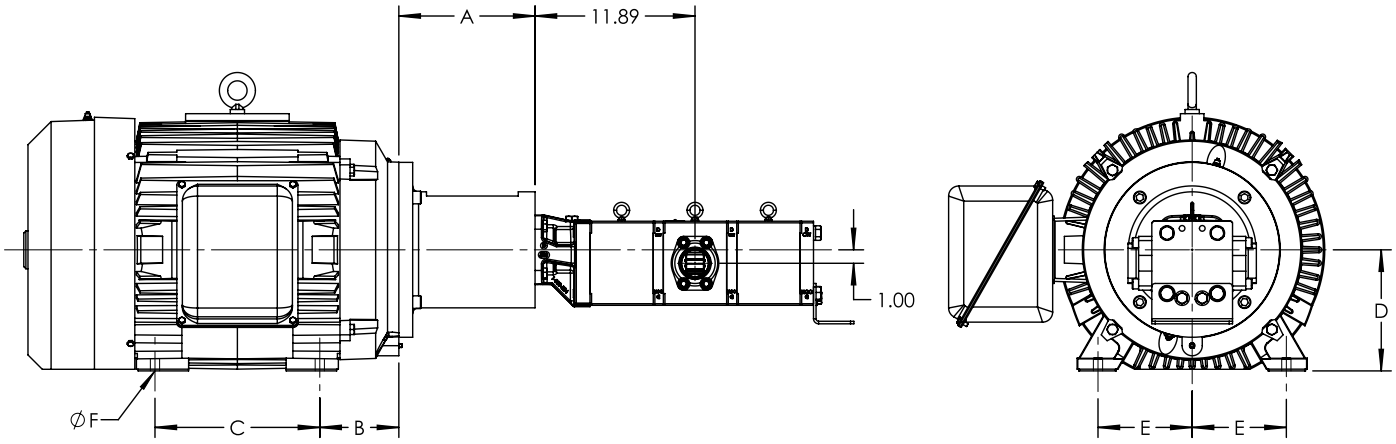
NOTE: Dimensions in inches

Motor Frame Size	A	B	C	D	E	F
254TC	7.04	4.50	8.25	6.25	5.00	.53
256TC			10.00			
284TC	8.11	4.50	9.50	7.00	5.50	.53
286TC			11.00			
324TC	9.10	5.00	10.50	8.00	6.25	.66
326TC			12.00			
364TC	10.13	5.88	11.25	9.00	7.00	.69
365TC			12.25			

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DIMENSIONS – GB-41039 (PUMP & MOTOR)



Motor Frame Size	A	B	C	D	E	F
284TC	8.11	4.50	9.50	7.00	5.50	.53
286TC			11.00			
324TC	9.10	5.00	10.50	8.00	6.25	.66
326TC			12.00			
364TC	10.13	5.88	11.25	9.00	7.00	.69
365TC			12.25			

NOTE: Dimensions in inches

PERFORMANCE CURVES

Contact Viking Pump for performance curves for specific application conditions.

NPSH (NET POSITIVE SUCTION HEAD)

The $NPSH_R$ (Net Positive Suction Head Required by the pump) for each GB-410 pump model is available on the pump performance curves. Please consult the specific curve for your application conditions for the $NPSH_R$ value for your system.

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

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 1510 for information helpful in determining suction line size.)

Mechanical Efficiency:

The Mechanical Efficiency (expressed in percent) can be calculated by using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI})\,(\text{Capacity, GPM})\,(100)}{(\text{Horsepower, BHP})\,(1715)}$$