

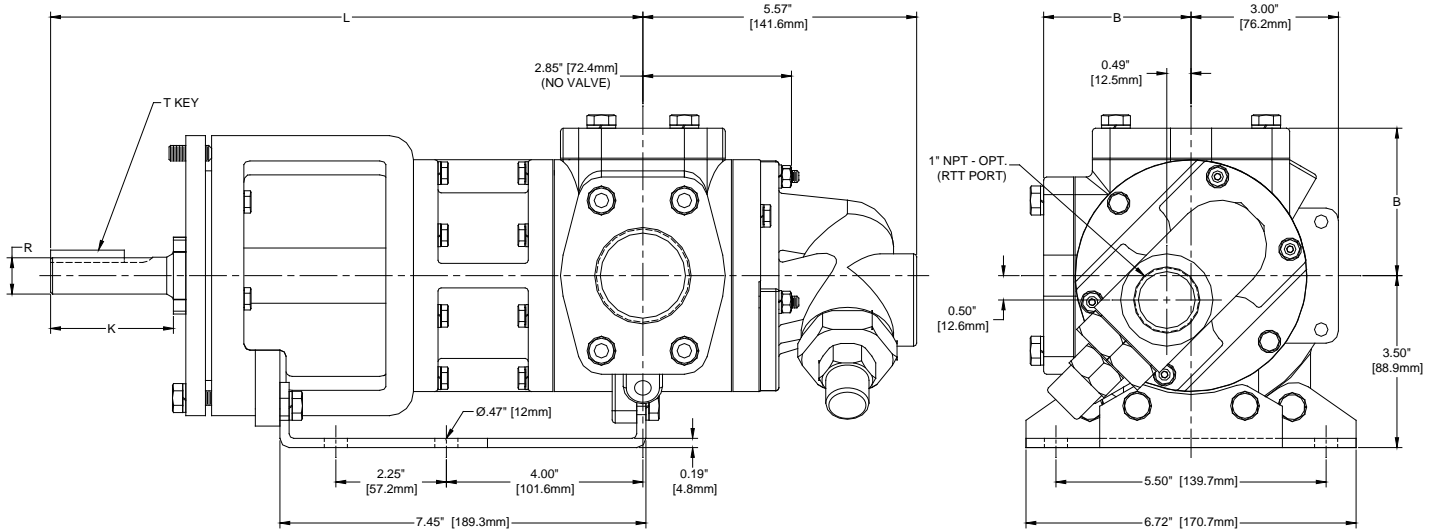


## Engineering Data Pack

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# GlobalGear® Pump Mounting Dimensions (GG015 – GG030 with Angle Ports)



## Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	2.10	0.75	3/16 x 3/16 x 1.5	12.07

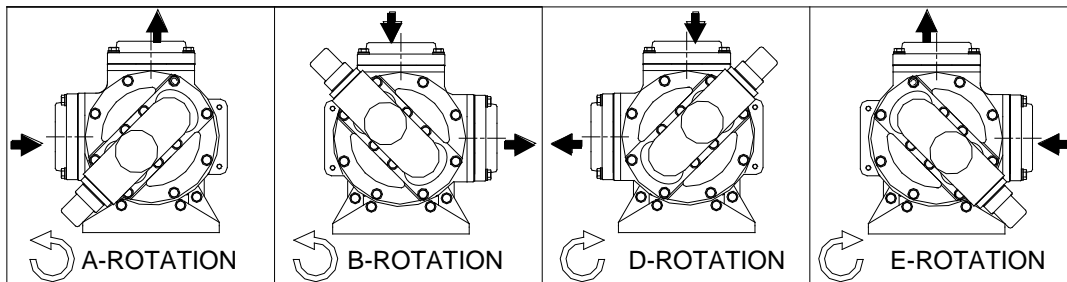
Face Type	Size-Rating
Raised Face	Any Offered Size-ANSI 250#
	Any Offered Size-ANSI 300#
Flat Face	Any Offered Size-ANSI 125#
	Any Offered Size-ANSI 150#

## Port Dimensions

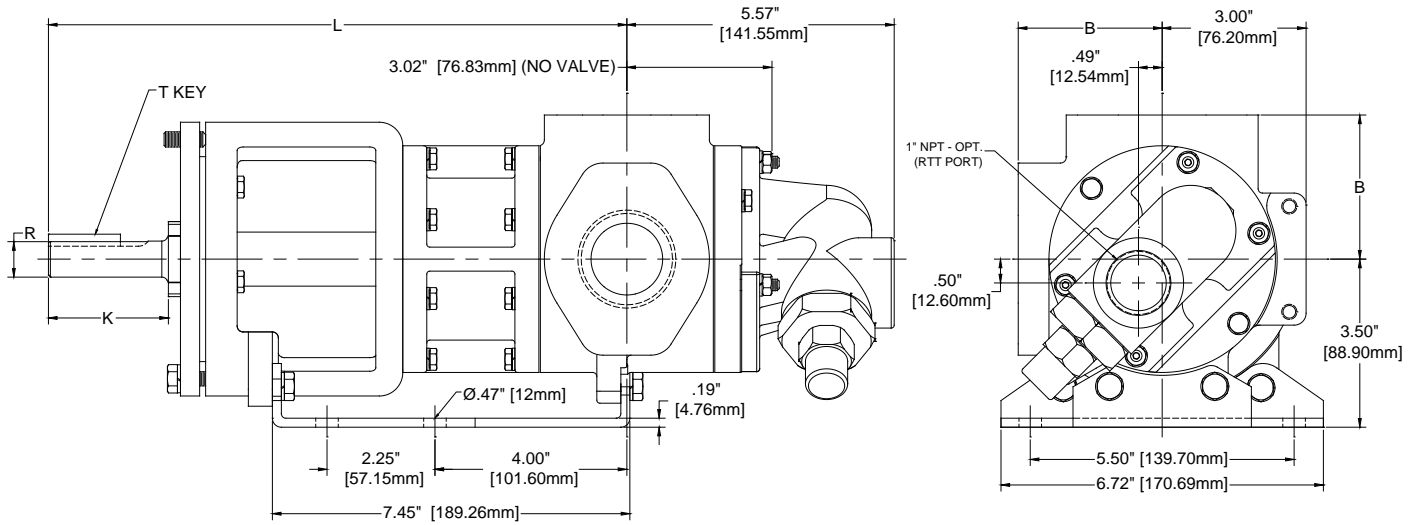
Port Type	B
1" FNPT	3.00" [76mm]
1-1/4" FNPT	3.00" [76mm]
1-1/2" FNPT (CI)	3.00" [76mm]
1-1/2" FNPT (SS)	3.50" [89mm]
2" FNPT	3.15" [80mm]
ANSI	4.00" [102mm]

## Back Pull-Out Dimensions

Size	Min Spacer
GG015	1.60" [41mm]
GG030	2.22" [56mm]



# GlobalGear® Pump Mounting Dimensions (IG015I – IG030I with Integral Angle Ports)



## Shaft Dimensions

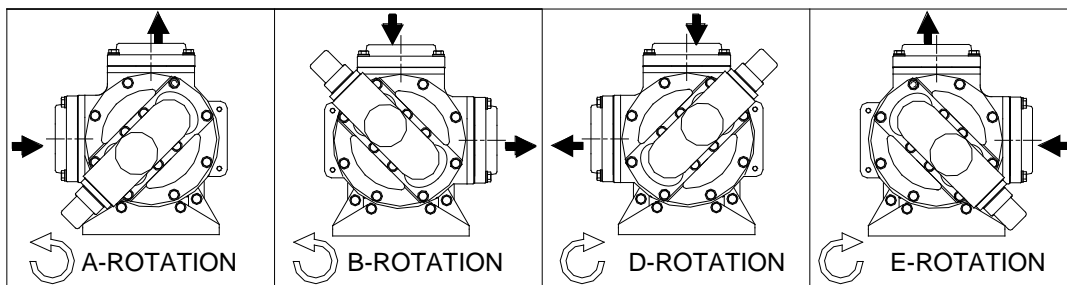
Shaft Design	K	R	T	L
Inch (")	2.10	0.75	3/16 x 3/16 x 1.5	12.07

## Port Dimensions

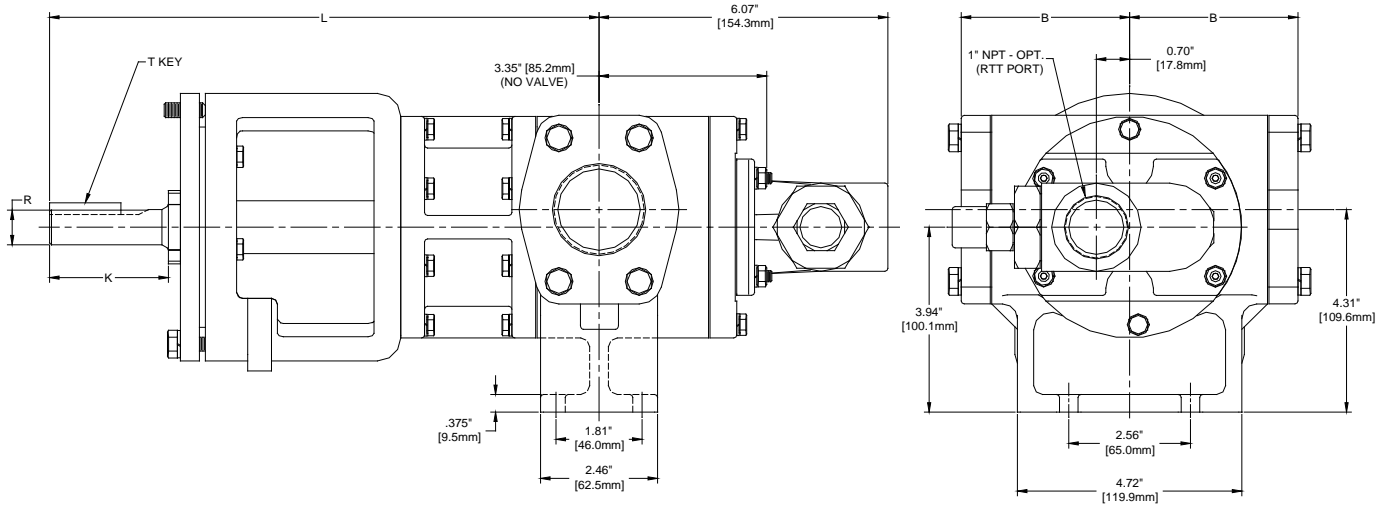
Port Type	B
1-1/2" FNPT (CI)	3.00" [76mm]

## Back Pull-Out Dimensions

Size	Min Spacer
GG015	1.60" [41mm]
GG030	2.22" [56mm]



# GlobalGear® Pump Mounting Dimensions (GG015 – GG030 with Side Ports)



### Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	2.36	0.75	3/16 x 3/16 x 1.5	11.56

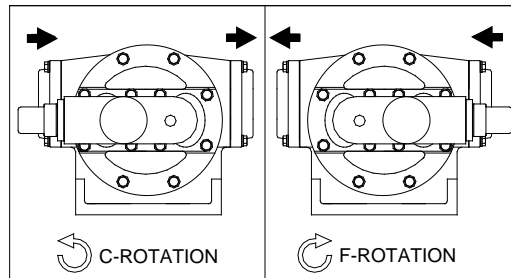
### Port Dimensions

Port Type	B
1" FNPT	3.54" [90mm]
1-1/4" FNPT	3.54" [90mm]
1-1/2" FNPT (CI)	3.54" [90mm]
1-1/2" FNPT (SS)	4.04" [103mm]
ANSI	4.54" [115mm]

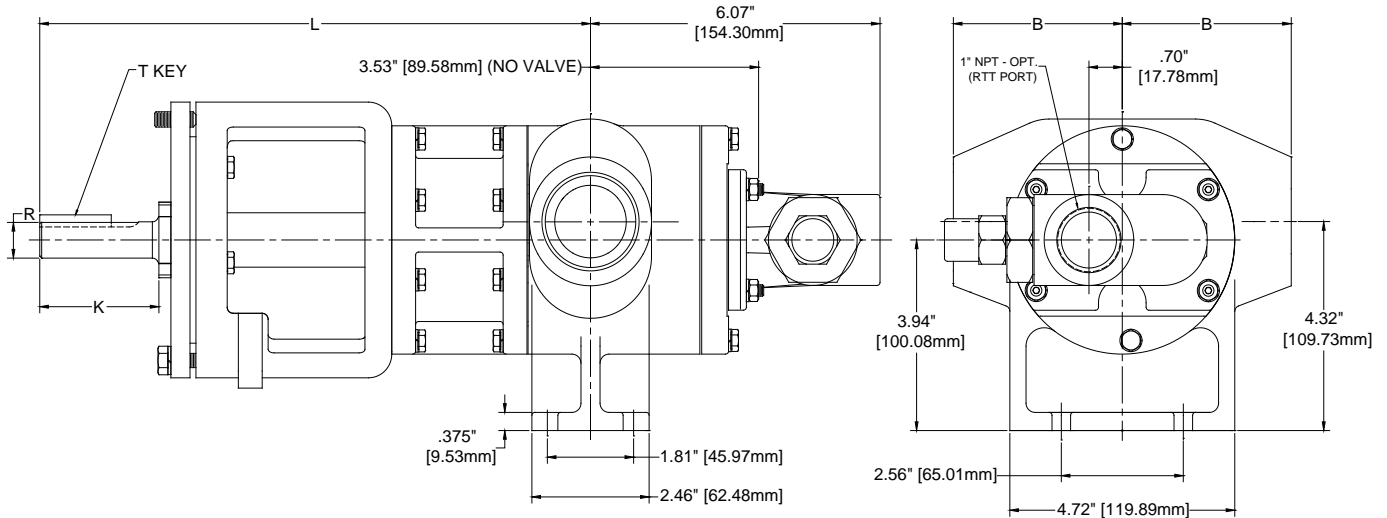
Face Type	Size-Rating
Raised Face	Any Offered Size-ANSI 250#
	Any Offered Size-ANSI 300#
Flat Face	Any Offered Size-ANSI 125#
	Any Offered Size-ANSI 150#

### Back Pull-Out Dimensions

Size	Min Spacer
GG015	1.60" [41mm]
GG030	2.22" [56mm]



# GlobalGear® Pump Mounting Dimensions (IG015I – IG030I with Integral Side Ports)



### Shaft Dimensions

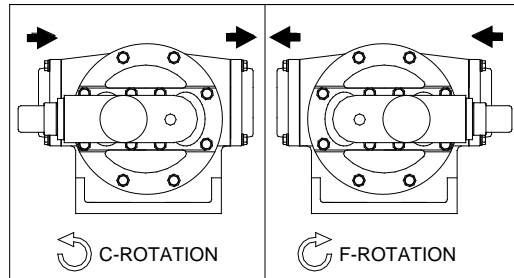
Shaft Design	K	R	T	L
Inch (")	2.36	0.75	3/16 x 3/16 x 1.5	11.56

### Port Dimensions

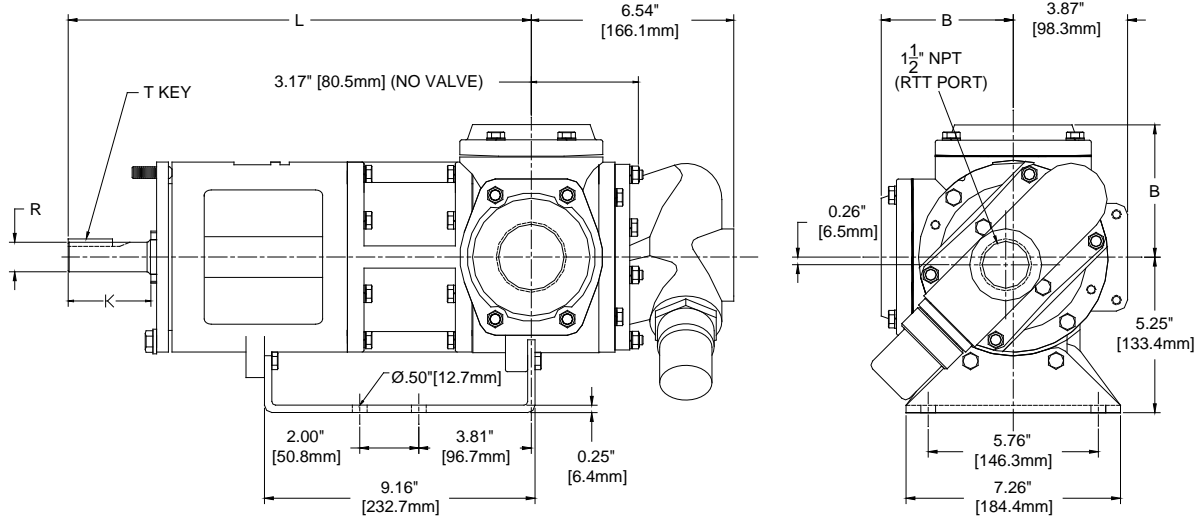
Port Type	B
1-1/2" FNPT (CI)	3.54" [90mm]

### Back Pull-Out Dimensions

Size	Min Spacer
GG015	1.60" [41mm]
GG030	2.22" [56mm]



# GlobalGear® Pump Mounting Dimensions (GG050 – GG070 with Angle Ports)



### Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	2.67	1.00	1/4 x 1/4 x 1.5	15.63

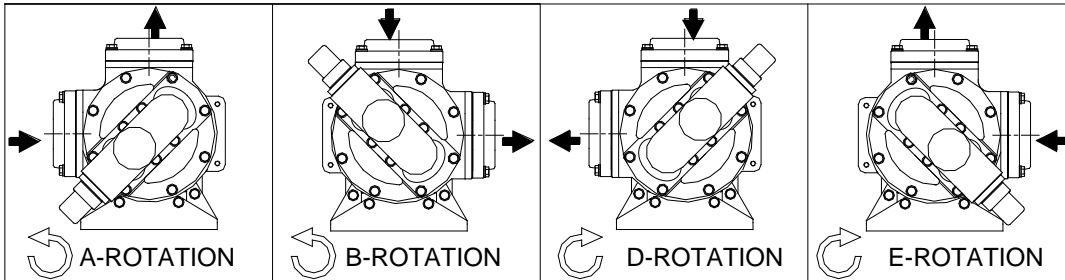
Face Type	Size-Rating
Raised Face	Any Offered Size-ANSI 250#
	Any Offered Size-ANSI 300#
Flat Face	Any Offered Size-ANSI 125#
	Any Offered Size-ANSI 150#

### Port Dimensions

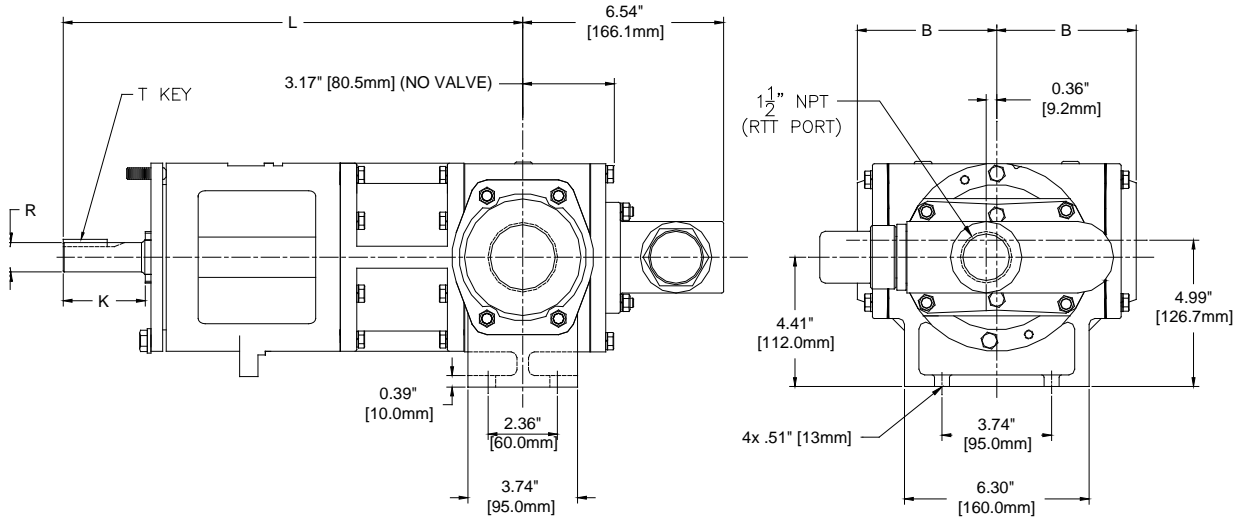
Port Type	B
1" FNPT	4.35" [110mm]
1-1/4" FNPT	4.35" [110mm]
1-1/2" FNPT (CI)	4.35" [110mm]
1-1/2" FNPT (SS)	4.85" [123mm]
2" FNPT	4.50" [114mm]
ANSI	5.35" [136mm]

### Back Pull-Out Dimensions

Size	Min Spacer
GG050	2.21" [56mm]
GG070	2.61" [66mm]



# GlobalGear® Pump Mounting Dimensions (GG050 – GG070 with Side Ports)



### Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	2.67	1	1/4 x 1/4 x 1.5	15.63

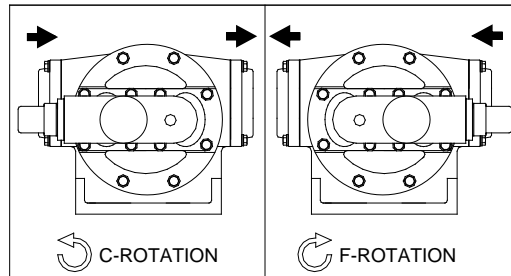
Face Type	Size-Rating
Raised Face	Any Offered Size-ANSI 250#
	Any Offered Size-ANSI 300#
Flat Face	Any Offered Size-ANSI 125#
	Any Offered Size-ANSI 150#

### Port Dimensions

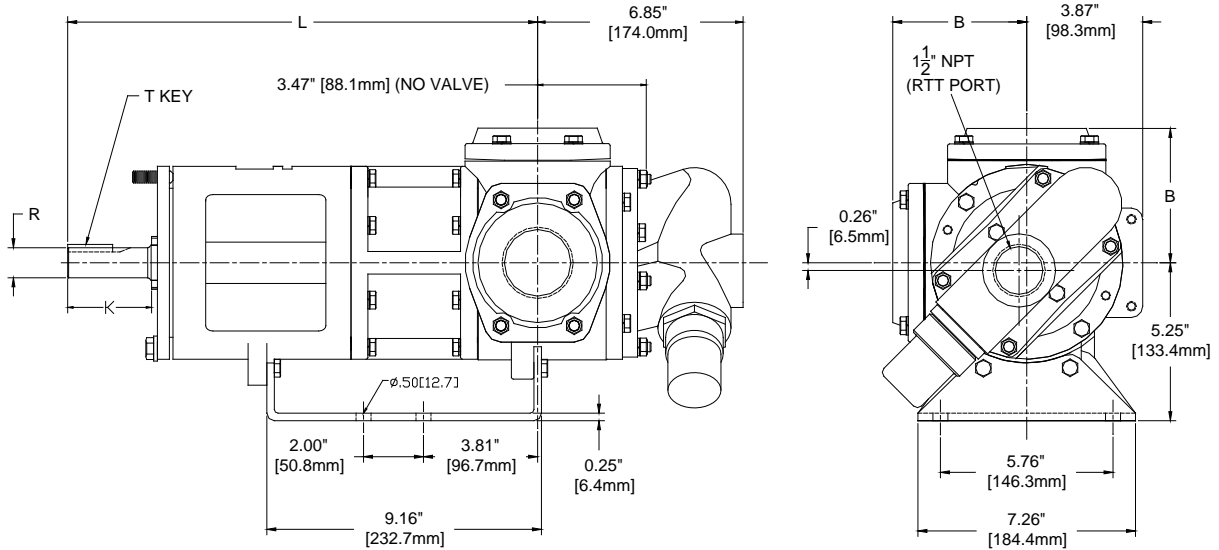
Port Type	B
1" FNPT	3.88" [99mm]
1-1/4" FNPT	3.88" [99mm]
1-1/2" FNPT (CI)	3.88" [99mm]
1-1/2" FNPT (SS)	4.38" [111mm]
2" FNPT	4.03" [102mm]
ANSI	4.88" [124mm]

### Back Pull-Out Dimensions

Size	Min Spacer
GG050	2.21" [56mm]
GG070	2.61" [66mm]



# GlobalGear® Pump Mounting Dimensions (GG080 – GG090 with Angle Ports)



## Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	2.67	1.00	1/4 x 1/4 x 1.5	15.68

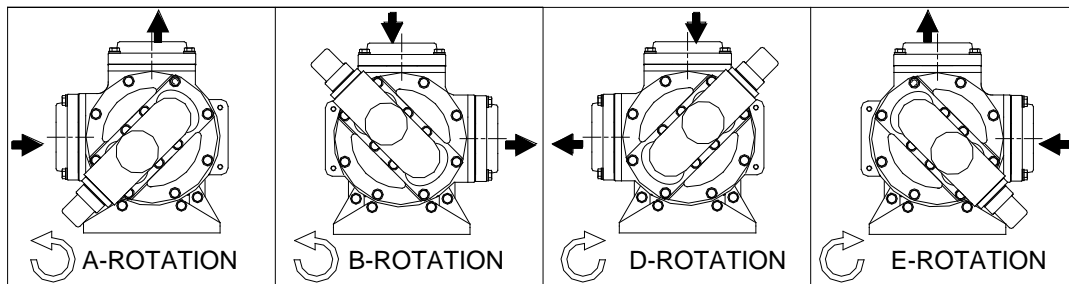
Face Type	Size-Rating
Raised Face	3"-ANSI 125# / 150#
	3"-ANSI 250# / 300#
Flat Face	2"-ANSI 125# thru 300#
	2.5"-ANSI 125# / 150#

## Port Dimensions

Port Type	B
FNPT	4.50" [114mm]
ANSI 125# /150#	4.63" [118mm]
2" ANSI 250# / 300#	5.81" [148mm]
3" ANSI 250# / 300#	5.00" [127mm]

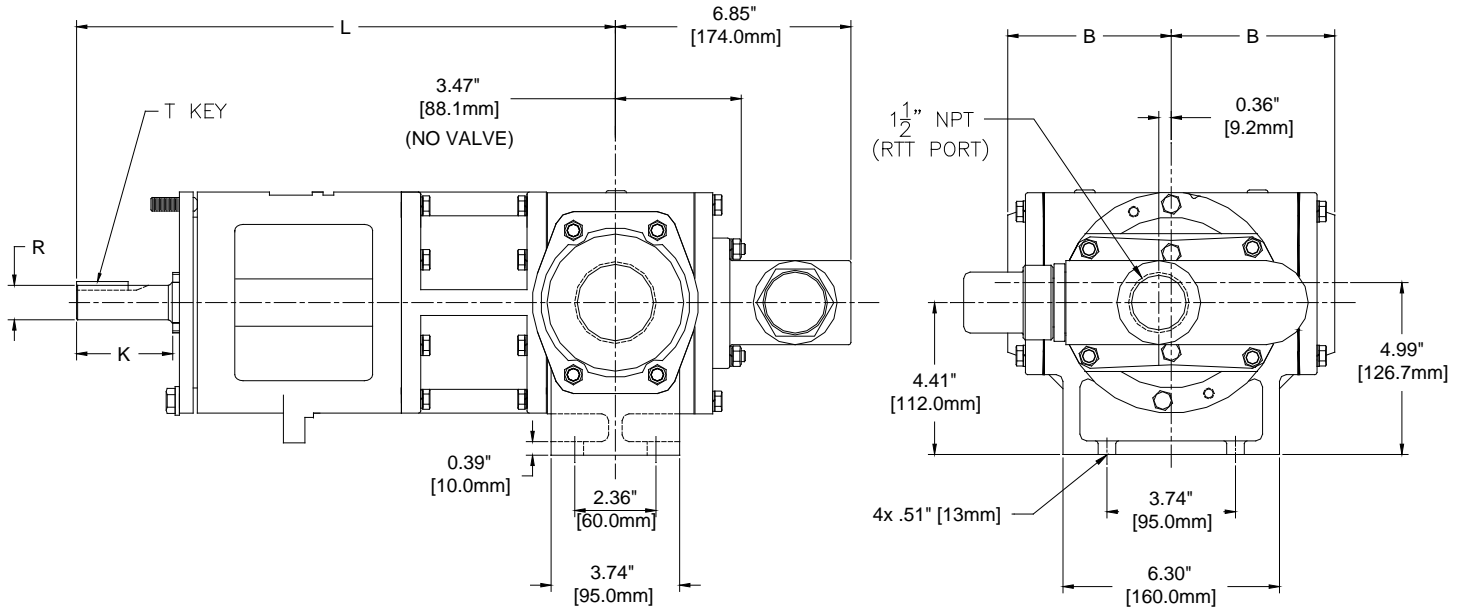
## Back Pull-Out Dimensions

Size	Min Spacer
GG080	2.80" [71mm]
GG090	3.08" [78mm]





# GlobalGear® Pump Mounting Dimensions (GG080 – GG090 with Side Ports)



## Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	2.67	1.00	1/4 x 1/4 x 1.5	15.68

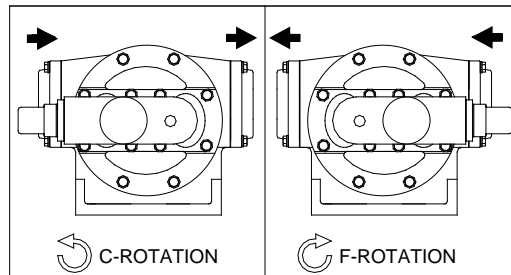
FF/RF	Size-Rating
Raised Face	3" -ANSI 125# / 150#
	3" -ANSI 250# / 300#
Flat Face	2" -ANSI 125# thru 300#
	2.5" -ANSI 1125# / 150#

## Port Dimensions

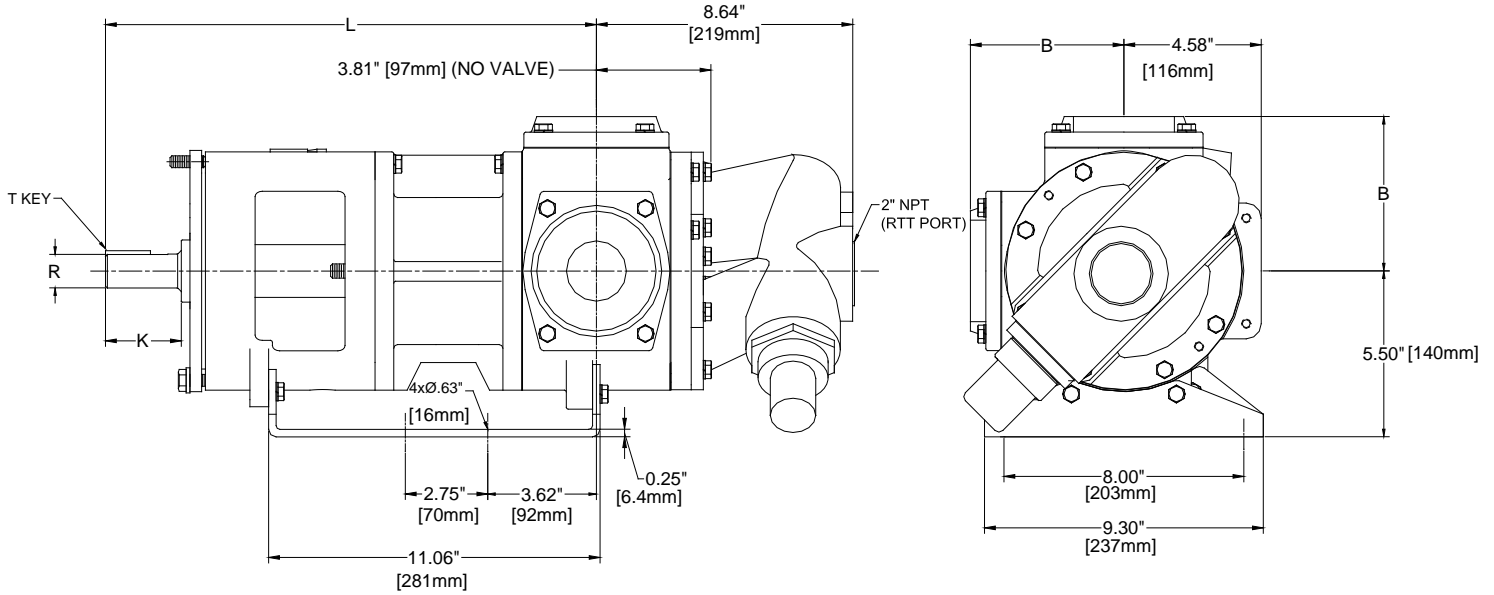
Port Type	B
FNPT	4.74" [120mm]
ANSI 125# /150#	4.87" [124mm]
2" ANSI 250# / 300#	6.05" [154mm]
3" ANSI 250# / 300#	5.24" [133mm]

## Back Pull-Out Dimensions

Size	Min Spacer
GG080	2.80" [71mm]
GG090	3.08" [78mm]



# GlobalGear® Pump Mounting Dimensions (GG120 – GG130 with Angle Ports)



### Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	2.41	1.125	1/4 x 1/4 x 2	16.38

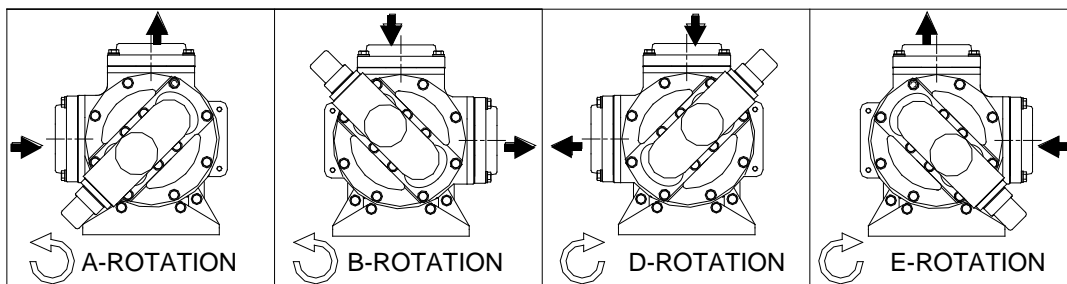
Face Type	Size-Rating
RAISED FACE	3"-ANSI 125# thru 300#
	4"-ANSI 125# thru 300#
FLAT FACE	2"-ANSI 125# thru 300#
	2.5"-ANSI 125# / 150#

### Back Pull-Out Dimensions

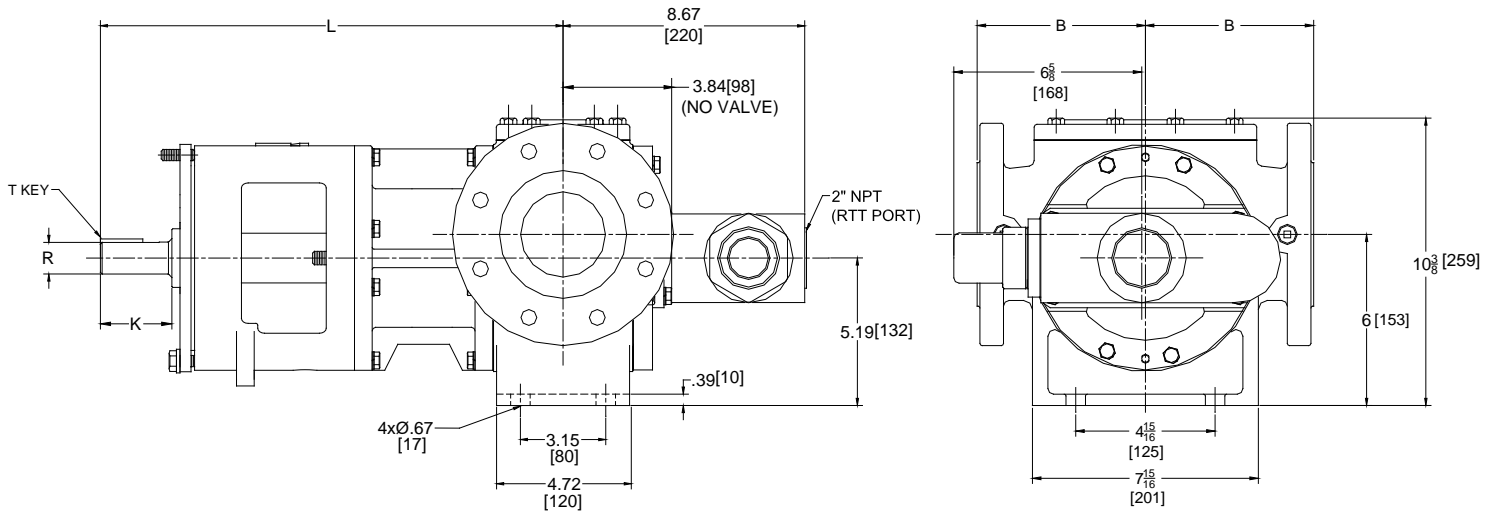
Size	Min Spacer
GG120	3.31" [84 mm]
GG130	3.73" [95 mm]

### Port Dimensions

Port Type	B
FNPT	5.12" [130mm]
2" ANSI 125# / 150#	5.25" [133mm]
2-1/2" ANSI 125# / 150#	5.25" [133mm]
3" ANSI 125# / 150#	5.25" [133mm]
4" ANSI 125# (CI)	5.25" [133mm]
4" ANSI 150# (SS)	7.19" [183mm]
2" ANSI 250# / 300#	6.43" [163mm]
3" ANSI 250# / 300#	5.62" [143mm]
4" ANSI 250# / 300#	7.19" [183mm]



# GlobalGear® Pump Mounting Dimensions (GG120 – GG130 with Side Ports)



### Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	2.41	1.125	1/4 x 1/4 x 2	16.36

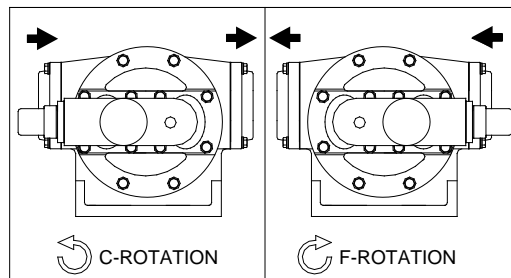
Face Type	Size-Rating
Raised Face	ALL

### Port Dimensions

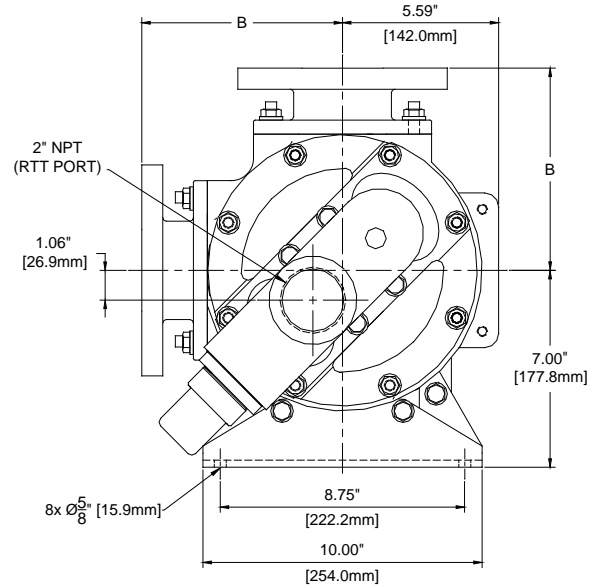
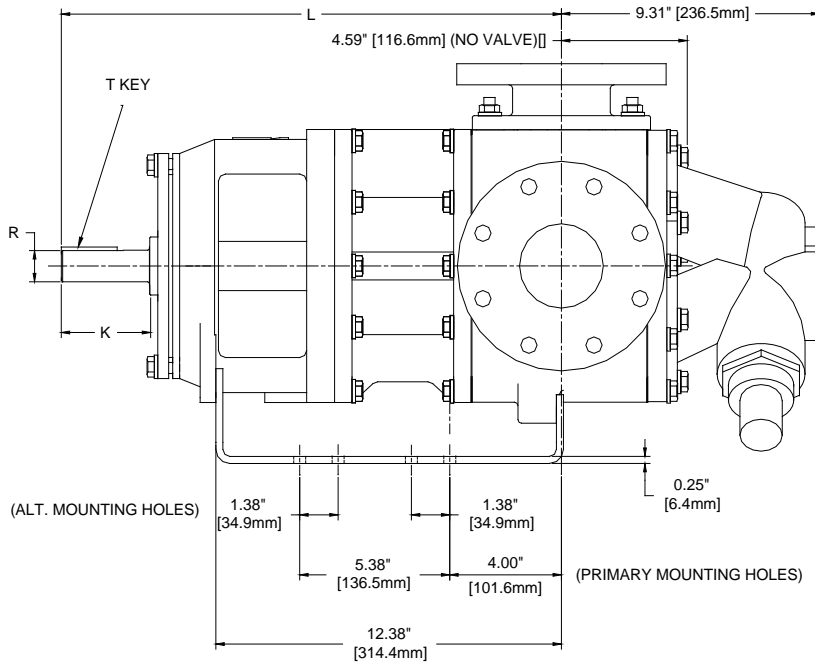
Port Type	B
3" ANSI 125# (CI)	5.95" [151mm]
3" ANSI 150# (SS)	5.87" [149mm]
3" ANSI 300# (SS)	6.22" [158mm]

### Back Pull-Out Dimensions

Size	Min Spacer
GG120	3.31" [84 mm]
GG130	3.73" [95 mm]



# GlobalGear® Pump Mounting Dimensions (GG200 – GG210 with Angle Ports)



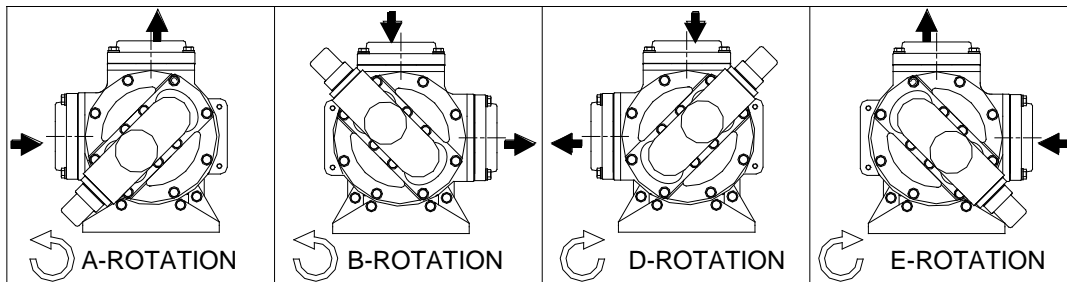
Shaft Design	K	R	T	L
Inch (")	3.04	1.125	1/4 x 1/4 x 2	17.85

Port Type	B
FNPT	6.56" [167mm]
ANSI flanged	7.19" [183mm]

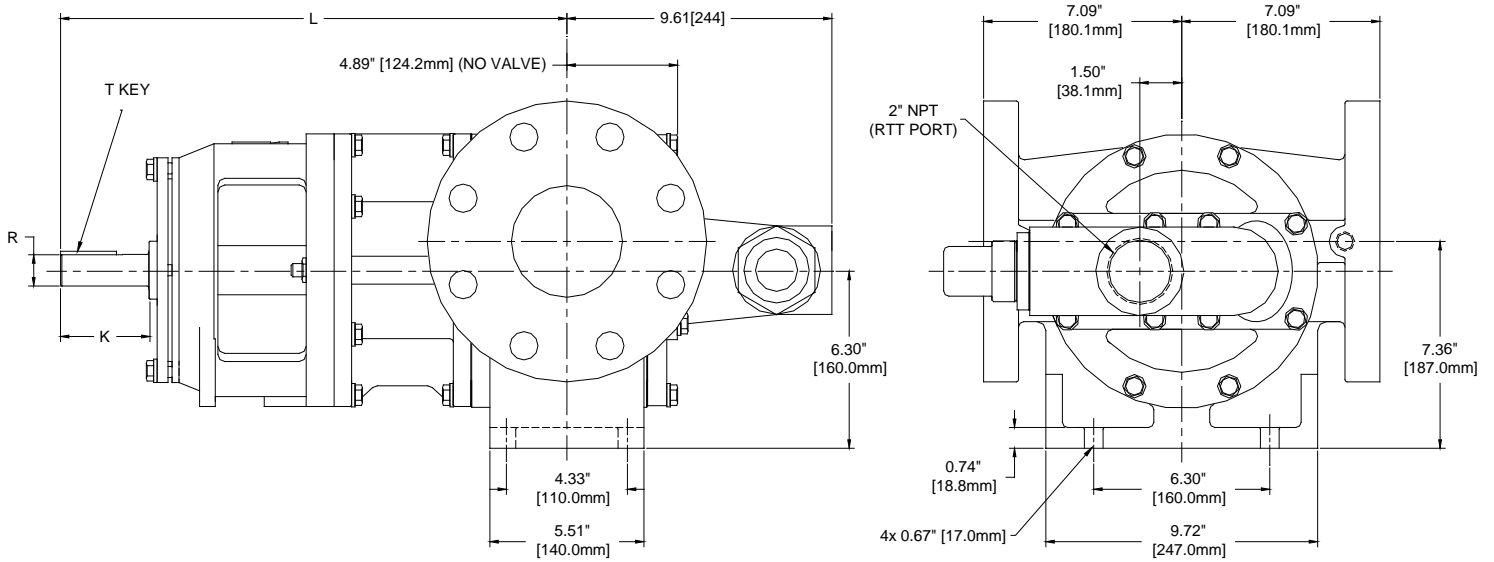
Face Type	Size-Rating
Raised Face	4"-ANSI 125# thru 300#
	2"-ANSI 125# thru 300#
Flat Face	2.5"-ANSI 125# / 150#
	3"-ANSI 125# thru 300#

### Back Pull-Out Dimensions

Size	Min Spacer
GG200	4.01" [102mm]
GG210	4.61" [117mm]



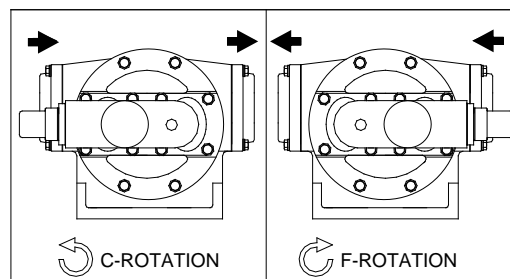
# GlobalGear® Pump Mounting Dimensions (GG200 – GG210 with Side Ports)



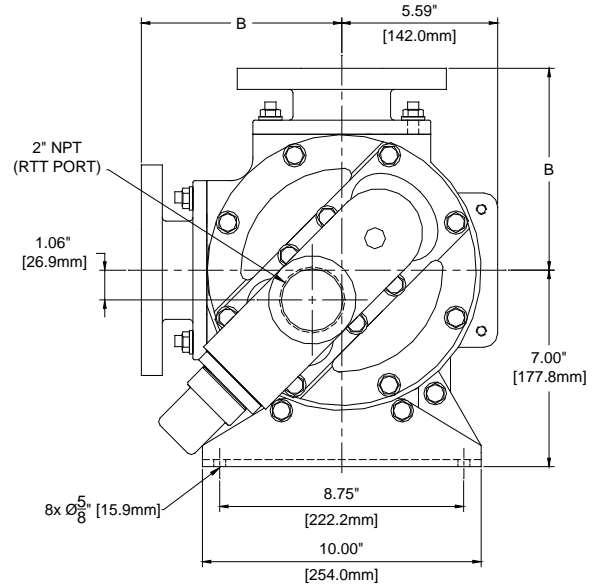
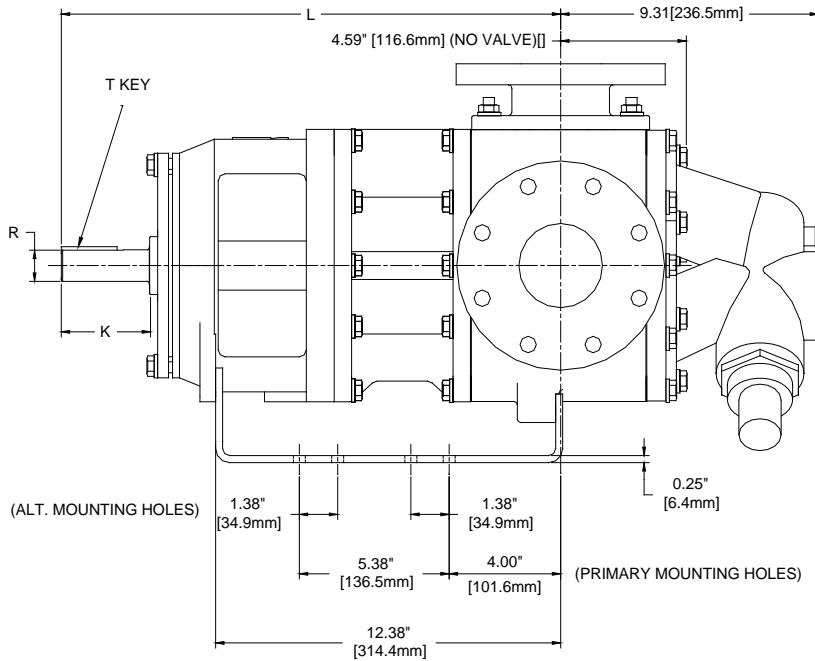
Shaft Design	K	R	T	L
Inch (")	3.04	1.125	1/4 x 1/4 x 2	17.56

Size	Min Spacer
GG200	4.01" [102mm]
GG210	4.61" [117mm]

Face Type	Size-Rating
Flat Face	4" -ANSI 125# thru 300#



# GlobalGear® Pump Mounting Dimensions (GG250 with Angle Ports)



### Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	4.30	1.438	3/8 x 3/8 x 2.5	19.25

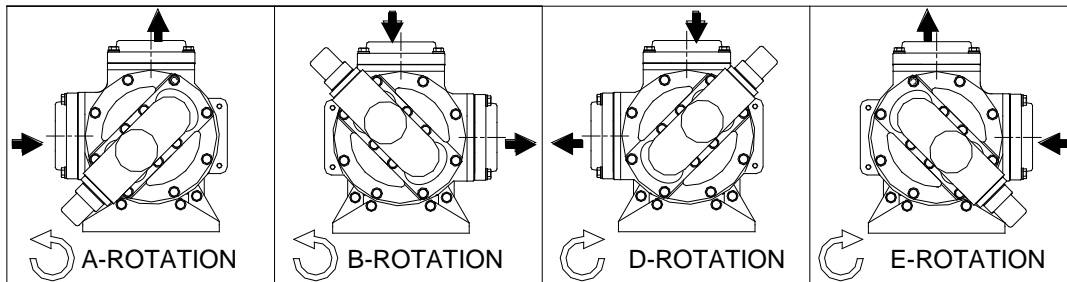
FF/RF	Size-Rating
RAISED FACE	4"-ANSI 125# thru 300#
FLAT FACE	2"-ANSI 125# thru 300#
	2.5"-ANSI 125# / #
	3"-ANSI 125# thru 300#

### Port Dimensions

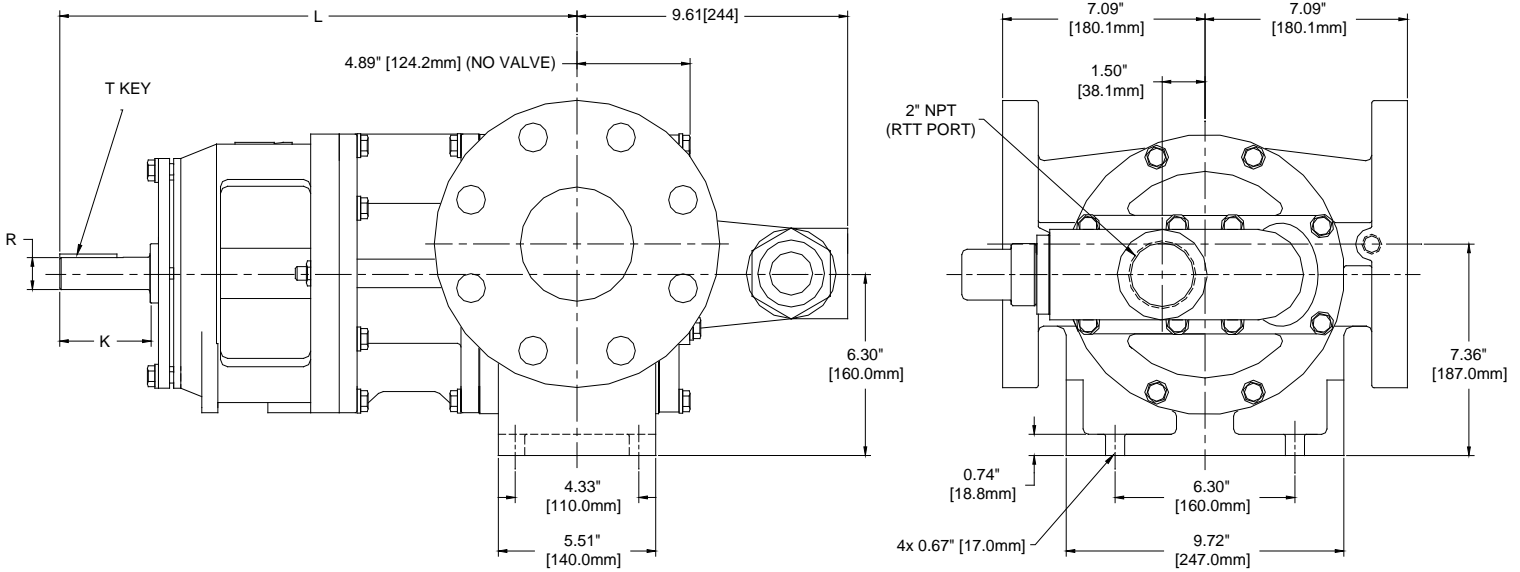
Port Type	B
FNPT	6.56" [167mm]
ANSI flanged	7.19" [183mm]

### Back Pull-Out Dimensions

Size	Min Spacer
GG250	4.73" [120mm]



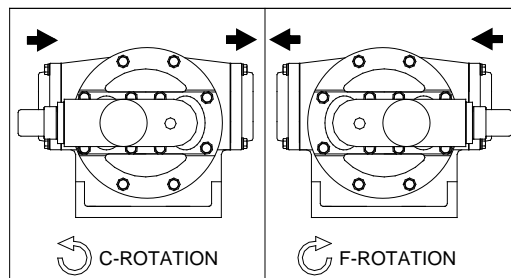
# GlobalGear® Pump Mounting Dimensions (GG250 with Side Ports)



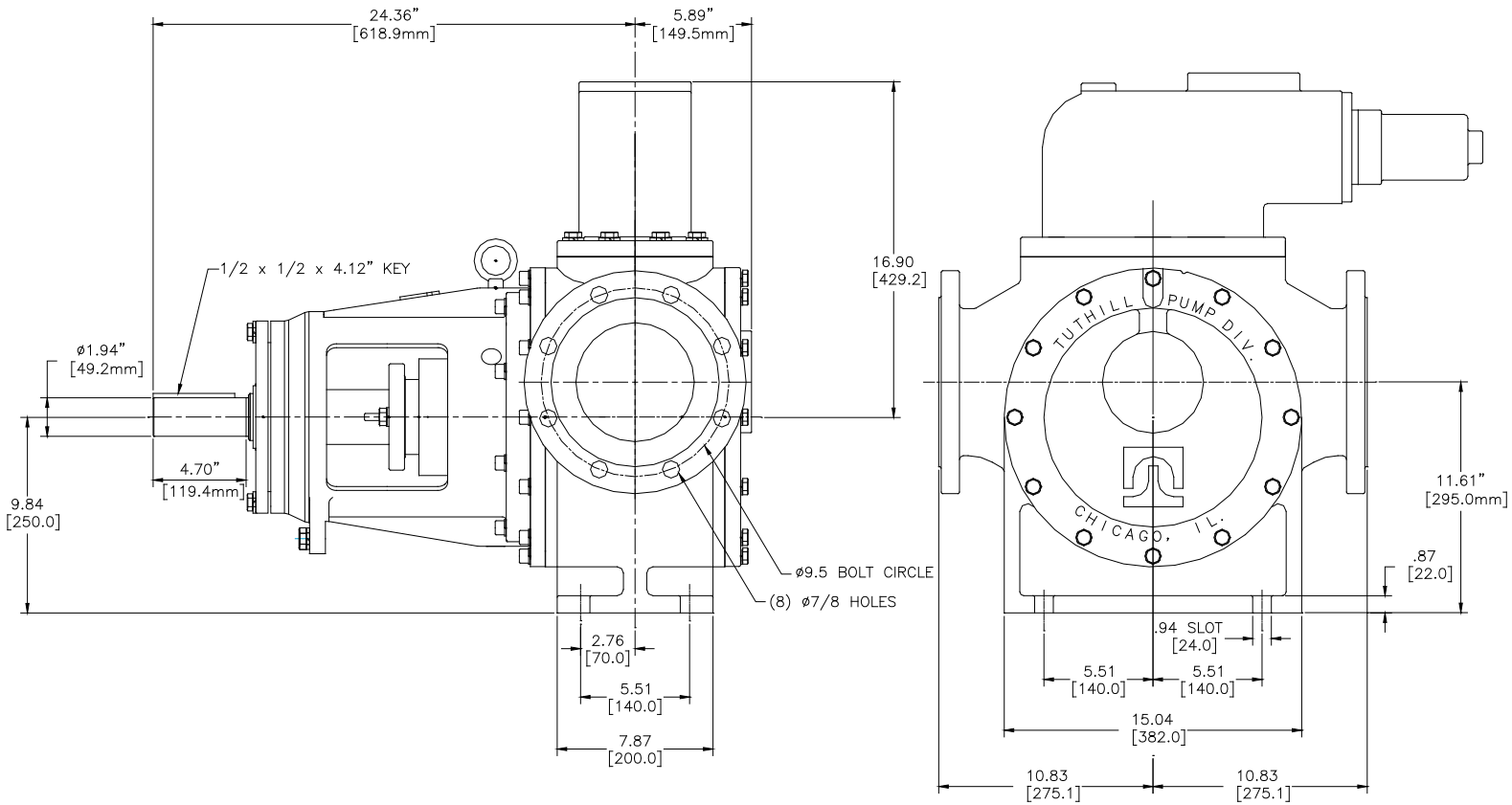
Shaft Design	K	R	T	L
Inch (")	4.30	1.438	3/8 x 3/8 x 2.5	18.96

Size	Min Spacer
GG250	4.73" [120mm]

Face Type	Size-Rating
Flat Face	4" -ANSI 125# thru 300#

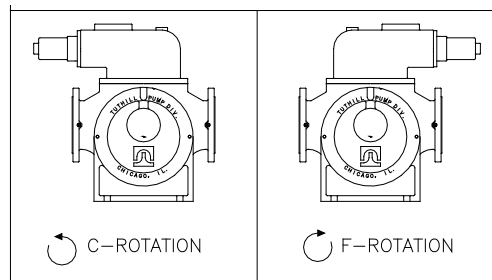


# GlobalGear<sup>®</sup> Pump Mounting Dimensions (GG550 with 6" Side Ports)



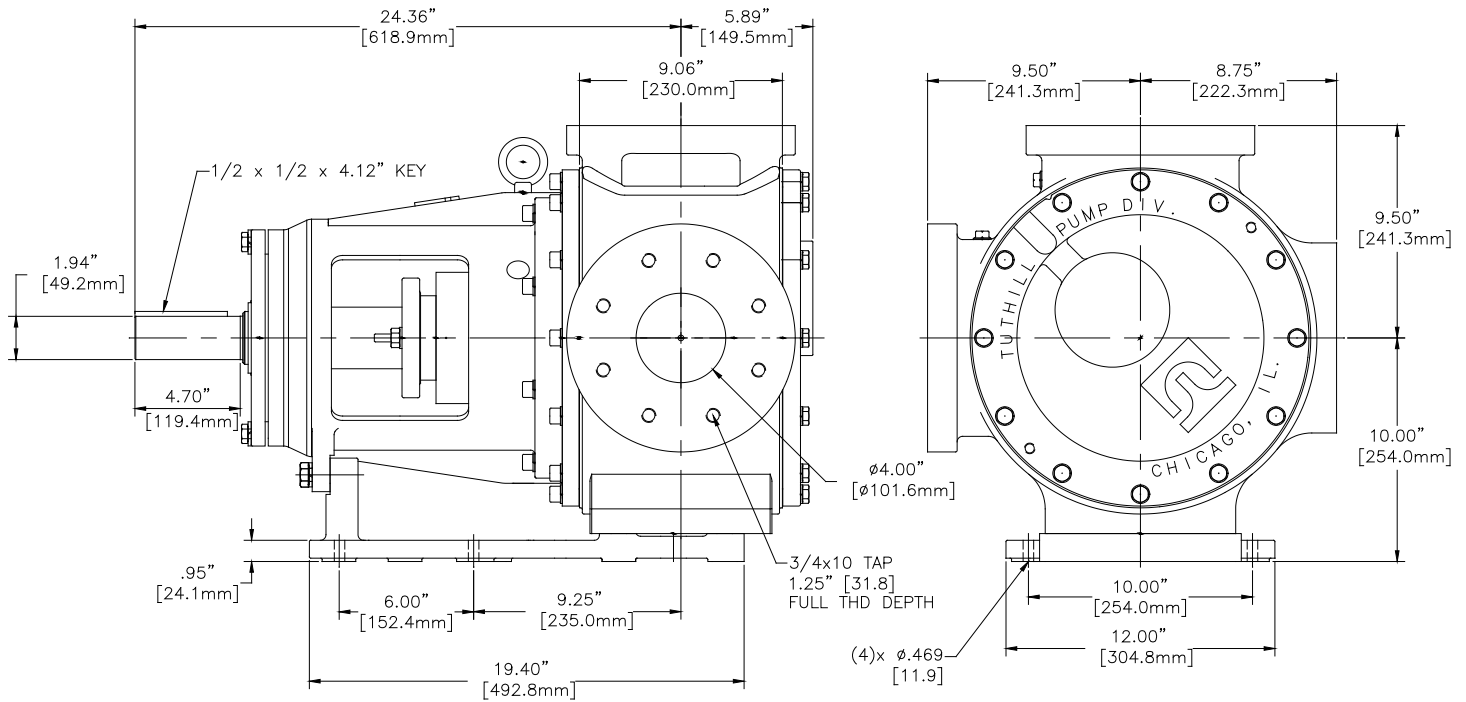
## Back Pull-Out Dimensions

Size	Min Spacer
GG550	7.18" [182.4mm]



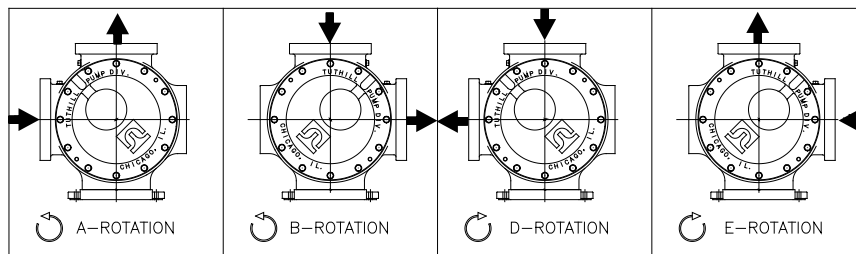


# GlobalGear<sup>®</sup> Pump Mounting Dimensions (GG550 with 4" Angle Ports)



### Back Pull-Out Dimensions

Size	Min Spacer
GG550	7.18" [182.4mm]



# GlobalGear® Model Number System

Pump Series	Pump Size	Material of Construction	Port Position & Rotation	Relief Valve	Sealing Method	Seal Type	Seal Flush	Port Type	Port Size	Shaft Dimensions	Bushings & Pin	Tutriding	Jackets	Clearances			
<b>G G</b>	<b>2 1 0</b>	<b>I</b>	<b>A</b>	<b>V</b>	<b>M</b>	<b>A</b>	<b>1</b>	<b>A</b>	<b>K</b>	<b>I</b>	<b>A</b>	<b>0</b>	<b>0</b>	<b>0</b>			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

## Pump Series

GG = complete pump  
 GD = drive module  
 IG = Integral ported pump (Available only on 015 & 030 sizes with 1-1/2" NPT & BSP port).

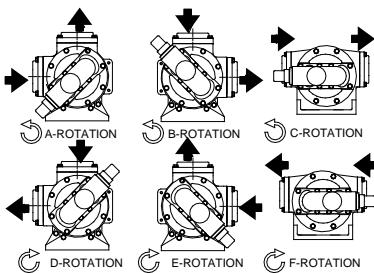
## Pump Size

015 = nominal 15 GPM at 1800 RPM  
 030 = nominal 30 GPM at 1800 RPM  
 050 = nominal 50 GPM at 1500 RPM  
 070 = nominal 70 GPM at 1500 RPM  
 080 = nominal 80 GPM at 1500 RPM  
 090 = nominal 90 GPM at 1500 RPM  
 120 = nominal 120 GPM at 1200 RPM  
 130 = nominal 130 GPM at 1000 RPM  
 200 = nominal 200 GPM at 1000 RPM  
 210 = nominal 210 GPM at 800 RPM  
 250 = nominal 200 GPM at 640 RPM  
 550 = 4" - nominal 420 GPM at 420 RPM  
 550 = 6" - nominal 550 GPM at 500 RPM

## Material of Construction

I = Iron  
 S = Stainless Steel  
 Not Available in 050, 070, 090, 120, 200 or 550 Size  
 C = Cast Steel  
 Available only in 130, 250 & 550 Sizes

## Port Position & Rotation



## Relief Valve

0 = none  
 V = internal

## Sealing Method

P = packing  
 I = IB mechanical seal (behind rotor)  
 M = OB mechanical seal (in stuffing box)  
 C = cartridge mechanical seal

## Seal Type

0 = no gland or packing  
 A = standard packing (graphite/PTFE)\*\*  
 C = food-grade packing (pure PTFE)  
 E = Viton mechanical seal  
 F = PTFE mechanical seal  
 H = abrasion-resistant mech. seal (Viton)  
 L = general purpose single cartridge seal (<7,500 SSU)  
 M = hard face cartridge seal  
 N = process single cartridge seal (<75,000 SSU)  
 Q = Heavy Duty Slurry (Viton)  
 R = Heavy Duty Slurry (Chemraz)  
 T = TuffSeall cartridge lip seal (Viton)  
 K = Triple Lip - PMF PTFE- Viton  
 P = Hard Faces Cartridge Single Mech. Seal-(Tungsten Carbide/Silicar-Viton) w/ Quench & Drain

## Seal Flush

0 = none  
 1 = internal vent to suction (API Plan 13)

## Port Type

0 = none  
 A = FNPT  
 C = ANSI 125# flanged (C.I. only)  
 D = ANSI 150# flanged  
 E = ANSI 250# flanged (C.I. only)  
 F = ANSI 300# flanged

## Port Size

0 = none  
 H = 1-1/2" or 40mm  
 I = 2" or 50mm  
 J = 2-1/2" or 65mm  
 K = 3" or 80mm  
 L = 4" or 100mm  
 N = 6" or 150mm

## Shaft Dimensions

I = Inch seal & coupling  
 M = Metric seal & coupling

## Bushings & Pin

A = bronze idler & bracket  
 C = carbon idler, bronze bracket  
 D = carbon idler & bracket  
 E = hi-temp carbon idler & bracket  
 G = T.C. idler with T.C. pin, bronze bracket  
 I = T.C. idler & bracket with T.C. pin & hardened shaft

## Tutriding

0 = none  
 1 = Tuttrided rotor head, idler, cover  
 2 = Tuttrided rotor head, idler, cover, housing

## Jackets

0 = none  
 1 = cover only  
 2 = bracket only  
 3 = cover and bracket

## Clearances

0 = standard (<7500 SSU, -100° to 200°F)  
 A = 7500 to 75,000 SSU OR 200° to 300°F  
 B = 75,000 to 750,000 SSU  
 G\* = 300°F to 450°F (see note)  
 H\* = 450°F to 600°F (see note)

\* Note: Pumps with G, H in this position include hi-temp package (paint, bearing & gaskets).

\*\*Note: Standard packing is good to 600°F

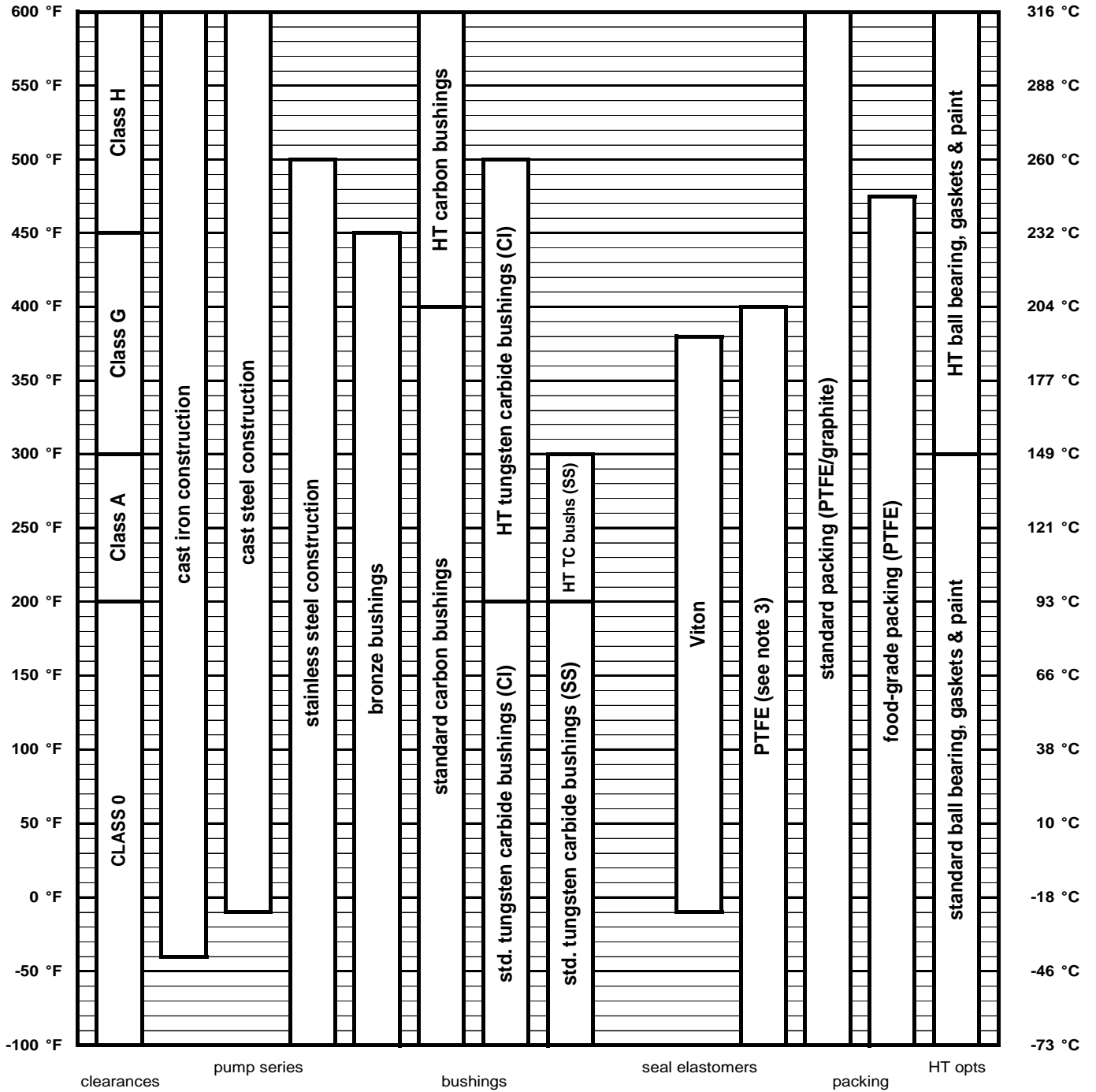
## Abbreviations:

C.I. = Cast Iron  
 T.C. = Tungsten Carbide

## For special pumps with any feature not described above

Pump Series	Pump Size	Matl	Special Indicator	Year of Design	Sequential Special Number
<b>G G</b>	<b>2 1 0</b>	<b>I</b>	<b>- X</b>	<b>0 1</b>	<b>5 6</b>

# GlobalGear® Temperature Limits



**Notes:**

1. A pump's performance is dependent on more than just the temperature ranges of the component materials.
2. Pumps with extra clearances may have reduced flow rates when operated at lower temperatures.
3. Pumps with PTFE seals also have PTFE-encapsulated Viton O-rings which are limited to 400°F (204°C)

# GlobalGear® Materials of Construction

Part Name	Material	Standard	Comments	Availability		
				GGI	GGs*	GGC*
Housing, Cover	cast iron (CI)	ASTM A48		S		
	Tutrided CI	ASTM A48	surface hardened	O		
	stainless steel (SS)	ASTM A743, grade CF8M	cast version of 316 SS		S	
	cast steel (CS)	ASTM A216, grade WCB				S
Bracket, Valve Body	cast iron (CI)	ASTM A48		S		
	stainless steel (SS)	ASTM A743, grade CF8M	cast version of 316 SS		S	
	cast steel (CS)	ASTM A216, grade WCB				S
Valve Block-Off Plate	steel	AISI 1018	no contact with pumpage	S*	S	S
Rotor Head, Idler Gear	ductile iron (DI)	ASTM A536, grade 80-55-06		S		S
	Tutrided DI	ASTM A536, grade 80-55-06	surface hardened	O		O
	stainless steel (SS)	ASTM A743, grade CF10SMnN	"Nitronic 60"		S	
Rotor Shaft	carbon steel (CS)	AISI 4140		S		S
	hardened steel	AISI 4140	induction hardened	O		O
	stainless steel (SS)	ASTM A564, grade 630	"Armco 17-4PH"		S	
	hard-coated SS	ASTM A564, grade 630	chrome oxide coated		O	
Idler Pin	hardened steel	AISI 1117	case hardened	S		S
	stainless steel (SS)	ASTM A564, grade 630	"Armco 17-4PH"	O	S	
	tungsten carbide	grade C2		O	O	O
Bushings	bronze	SAE CA932		S		
	standard carbon	carbon graphite resin		O	S	S
	high-temp carbon	carbon graphite		O	O	O
	tungsten carbide	grade C2		O	O	O
Gaskets	standard	fiber with nitrile binder	"Garlock" Style 3000	S		
	high-temp	graphite/316 SS	"Garlock" Style 3125TC/SS	O	S	S
Bearing Carrier	cast iron (CI)	ASTM A48	no contact with pumpage	S	S	S
Cover Jacket	ductile iron (DI)	ASTM A536, grade 80-55-06	no contact with pumpage	O	O	
Jacketed Bracket	cast iron (CI)	ASTM A48		O*		
	stainless steel (SS)	ASTM A743, grade CF8M			O	

**Availability Codes**

S = Standard material for this pump series.  
 O = Optional material for this pump series.  
 \* not available with GG550 pumps  
 Relief valves not available with GG550 angle ported pumps

**Pump Models**

GGI = Global Gear, Iron  
 GGs = Global Gear, Stainless Steel  
 GGC = Global Gear, Cast Steel

# GlobalGear® Standard Seal Specifications (GG015 – GG030)

## Mechanical Seals for 1 1/8" shaft

Seal Description	Part number	Vendor	Seal Type	Material of Construction			
				Secondary Seal	Rotary Face	Stationary Face	Wetted Hardware
("E") Viton Mechanical Seal (Viton, carbon vs. ceramic)	G015UI9-21-E	FLOWSERVE	21	Viton®	Carbon	Ceramic	304 S.S.
("F") PTFE Mechanical Seal (PTFE, carbon vs. ceramic)	G015UI9-9T-F	FLOWSERVE	9T	PTFE	Carbon	Ceramic	304 S.S.
("H") Abrasion-Resistant Mech Seal (Viton, SiC vs. SiC)	G015UI9-31-H	FLOWSERVE	31	Viton	Silicon Carbide	Silicon Carbide	304 S.S.
("L") General Purpose Single Cartridge Mech. Seal	G015UI9-91GP-L	FLUIDOL	91	Viton	Silicon Carbide	Carbon	302 S.S.
("N") Process Single Cartridge Mech. Seal	G015UI9-5610-N	JOHN CRANE	5610	Viton	Silicon Carbide	Silicon Carbide	316 S.S.
("T") Cartridge Lip Seal	G015UI9-4422-T	FLUIDOL	122	Viton	Silicon Carbide	Filled PTFE	316 S.S.
("Q") Heavy Duty Slurry Seal (Viton)	G015UI9-FLDL-82	FLUIDOL	82	Viton	Tungsten Carbide	Silicon Carbide	416 S.S.
("R") Heavy Duty Slurry Seal (Chemraz)	G015UI9-FLDL-82C	FLUIDOL	82	Chemraz	Tungsten Carbide	Silicon Carbide	416 S.S.
("P") Hard Face Cartridge Single Seal Mech. TC-5.C-Viton w/ Q,ED	G015UI9-5610-P	JOHN CRANE	5610	Viton	Tungsten Carbide	Tungsten Carbide	316 S.S.
					<b>Lips</b>	<b>Sleeve</b>	<b>Hardware</b>
("K") Triple Lip PMF-PTFE Viton	G015UI9-4232-K	FLUIDOL	42	Viton	Filled Teflon	Zirconium	316 S. S.

Viton® - Registered trademark of E.I. DuPont De Nemours & Company  
 Gylon® - Registered trademark of Garlock, Inc.

# GlobalGear® Standard Seal Specifications (GG050 – GG090)

## Mechanical Seals for 1 3/8" shaft

Seal Description	Part number	Vendor	Seal Type	Material of Construction			
				Secondary Seal	Rotary Face	Stationary Face	Wetted Hardware
("E") Viton Mechanical Seal (Viton, carbon vs. ceramic)	G050UI9-21-E	FLOWSERVE	21	Viton®	Carbon	Ceramic	304 S.S.
("F") PTFE Mechanical Seal (PTFE, carbon vs. ceramic)	G050UI9-9T-F	FLOWSERVE	9T	PTFE	Carbon	Ceramic	304 S.S.
("H") Abrasion-Resistant Mech Seal (Viton, SiC vs. SiC)	G050UI9-31-H	FLOWSERVE	31	Viton	Silicon Carbide	Silicon Carbide	304 S.S.
("L") General Purpose Single Cartridge Mech. Seal	G050UI9-91GP-L	FLUIDOL	91	Viton	Silicon Carbide	Carbon	302 S.S.
("N") Process Single Cartridge Mech. Seal	G050UI9-5610-N	JOHN CRANE	5610	Viton	Silicon Carbide	Silicon Carbide	316 S.S.
("T") Cartridge Lip Seal	G050UI9-4422-T	FLUIDOL	122	Viton	Silicon Carbide	Filled PTFE	316 S.S.
("Q") Heavy Duty Slurry Seal (Viton)	G050UI9-FLDL-82	FLUIDOL	82	Viton	Tungsten Carbide	Silicon Carbide	416 S.S.
("R") Heavy Duty Slurry Seal (Chemraz)	G050UI9-FLDL-82C	FLUIDOL	82	Chemraz	Tungsten Carbide	Silicon Carbide	416 S.S.
("P") Hard Face Cartridge Single Seal Mech. TC-5.C-Viton w/ Q.ED	G050UI9-5610-P	JOHN CRANE	5610	Viton	Tungsten Carbide	Silicon Carbide	316 S.S.

					Lips	Sleeve	Hardware
("K") Triple Lip PMF-PTFE Viton	G050UI9-4232-K	FLUIDOL	42	Viton	Filled Teflon	Zirconium	316 S. S.

Viton® - Registered trademark of E.I. DuPont De Nemours & Company  
 Gylon® - Registered trademark of Garlock, Inc.

# GlobalGear® Standard Seal Specifications (GG120 – GG250)

## Mechanical Seals for 1 3/4" shaft

Seal Description	Part number	Vendor	Seal Type	Material of Construction			
				Secondary Seal	Rotary Face	Stationary Face	Wetted Hardware
("E") Viton Mechanical Seal (Viton, carbon vs. ceramic)	G120UI9-21-E	FLOWSERVE	21	Viton®	Carbon	Ceramic	304 S.S.
("F") PTFE Mechanical Seal (PTFE, carbon vs. ceramic)	G120UI9-9T-F	FLOWSERVE	9T	PTFE	Carbon	Ceramic	304 S.S.
("H") Abrasion-Resistant Mech Seal (Viton, SiC vs. SiC)	G120UI9-31-H	FLOWSERVE	31	Viton	Silicon Carbide	Silicon Carbide	304 S.S.
("L") General Purpose Single Cartridge Mech. Seal	G120UI9-91GP-L	FLUIDOL	91	Viton	Silicon Carbide	Carbon	302 S.S.
("N") Process Single Cartridge Mech. Seal	G120UI9-5610-N	JOHN CRANE	5610	Viton	Silicon Carbide	Silicon Carbide	316 S.S.
("T") Cartridge Lip Seal	G120UI9-4422-T	FLUIDOL	122	Viton	Silicon Carbide	Filled PTFE	316 S.S.
("Q") Heavy Duty Slurry Seal (Viton)	G120UI9-FLDL-82	FLUIDOL	82	Viton	Tungsten Carbide	Silicon Carbide	416 S.S.
("R") Heavy Duty Slurry Seal (Chemraz)	G120UI9-FLDL-82C	FLUIDOL	82	Chemraz	Tungsten Carbide	Silicon Carbide	416 S.S.
("P") Hard Face Cartridge Single Seal Mech. TC-5.C-Viton w/ Q.ED	G120UI9-5610-P	JOHN CRANE	5610	Viton	Tungsten Carbide	Tungsten Carbide	316 S.S.

					Lips	Sleeve	Hardware
("K") Triple Lip PMF-PTFE Viton	G120UI9-4232-K	FLUIDOL	42	Viton	Filled Teflon	Zirconium	316 S. S.

Viton® - Registered trademark of E.I. DuPont De Nemours & Company  
 Gylon® - Registered trademark of Garlock, Inc.

# GlobalGear® Standard Seal Specifications (GG550)

## Mechanical Seals for 2 3/4" shaft

Seal Description	Part number	Vendor	Seal Type	Material of Construction			
				Secondary Seal	Rotary Face	Stationary Face	Wetted Hardware
("E") Viton Mechanical Seal (Viton, carbon vs. ceramic)	G500UI9-21-E	JOHN CRANE	2	Viton®	Carbon	Ni-Resist	Plated Steel
("F") PTFE Mechanical Seal (PTFE, carbon vs. ceramic)	G500UI9-9T-F	JOHN CRANE	9T	PTFE	Carbon	Ceramic	316 S.S.
("L") General Purpose Single Cartridge Mech. Seal	G500UI9-4610-L	JOHN CRANE	4610	Viton	Carbon	Silicon Carbide	316 S.S.
("N") Process Single Cartridge Mech. Seal	G500UI9-5610-N	JOHN CRANE	5610	Viton	Silicon Carbide	Silicon Carbide	316 S.S.
("T") Cartridge Lip Seal	G500UI9-4422-T	FLUIDOL	122	Viton	Silicon Carbide	Filled PTFE	316 S.S.
("Q") Heavy Duty Slurry Seal (Viton)	G500UI9-FLDL-82	FLUIDOL	82	Viton	Tungsten Carbide	Silicon Carbide	416 S.S.
("R") Heavy Duty Slurry Seal (Chemraz)	G500UI9-FLDL-82C	FLUIDOL	82	Chemraz	Tungsten Carbide	Silicon Carbide	416 S.S.
("P") Hard Face Cartridge Single Seal Mech. TC-5.C-Viton w/ Q.ED	G500UI9-5610-P	John Crane	5610	Viton	Tungsten Carbide	Tungsten Carbide	316 S.S.
					<i>Lips</i>	<i>Sleeve</i>	<i>Hardware</i>
("K") Triple Lip PMF-PTFE Viton	G500UI9-4232-K	FLUIDOL	42	Viton	Filled Teflon	Zirconium	316 S. S.

## Packings for 2 3/4" shaft

Packing Description	Part number	Vendor	Packing Style	Material Description
Standard Packing (graphite/PTFE)	G500II94	SEPCO	ML4002 or ML8002	Braided PTFE with graphite impregnation.
Food-Grade Packing (PTFE)	G500II94-FG	SEPCO	ML2236 FDA	Braided pure PTFE. FDA approved.

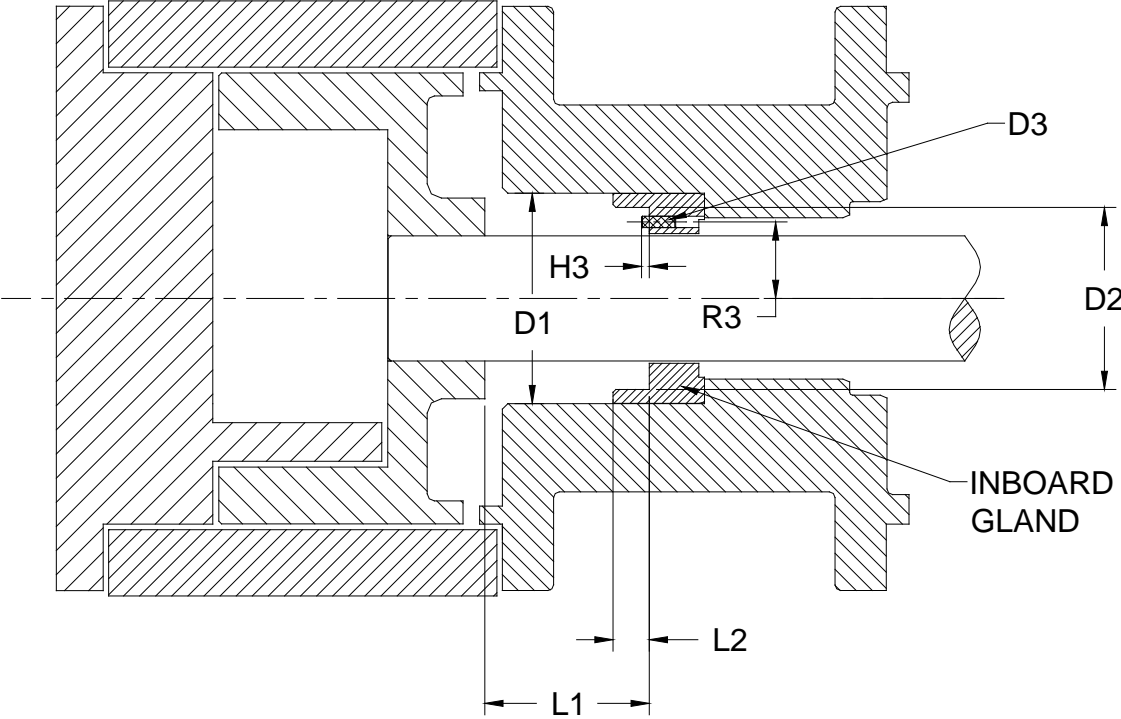
Viton® - Registered trademark of E.I. DuPont De Nemours & Company  
 Gylon® - Registered trademark of Garlock, Inc.



# GlobalGear® Seal Chamber Dimensions

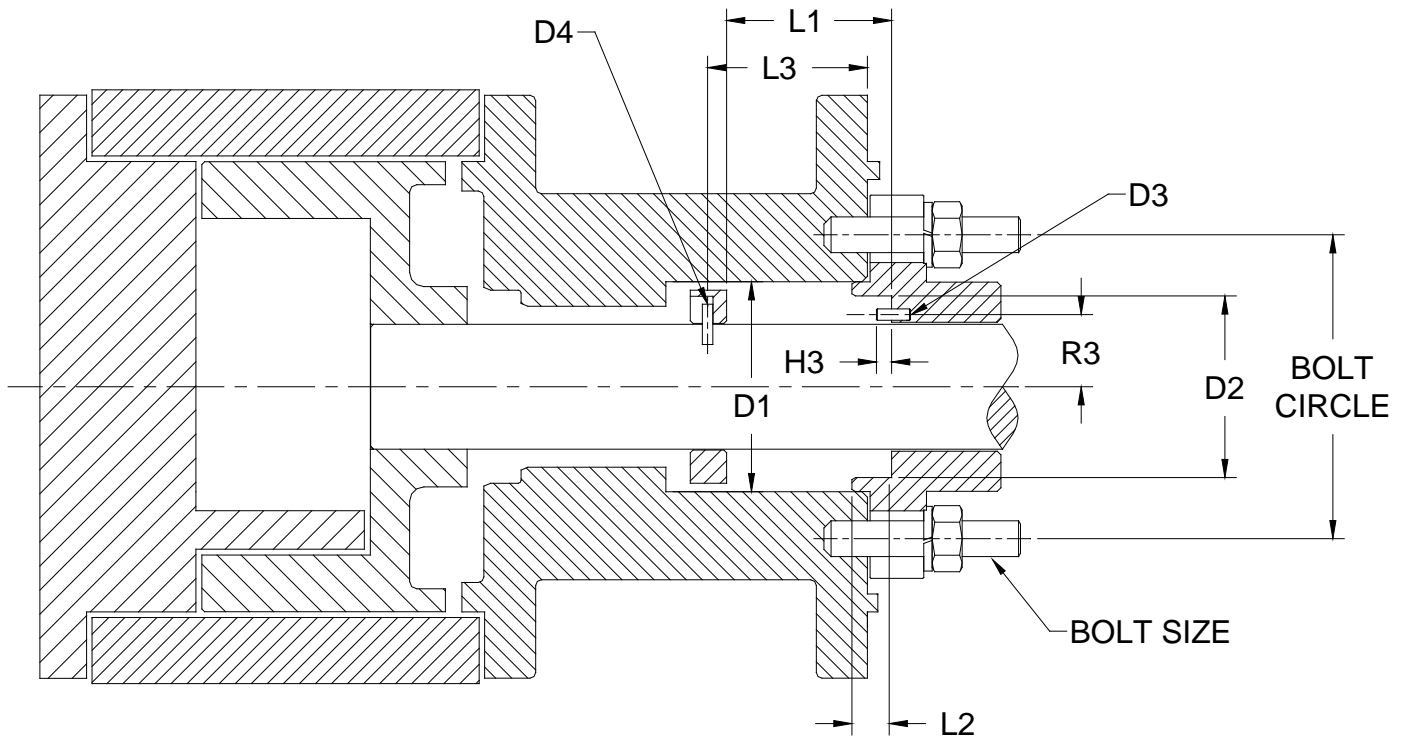
## Mech Seal (Inboard Location, Inch Shaft)

Dimension		GG015/ 030	GG050/070/ 080/090	GG120/ 130	GG200/ 210/250	GG550
Shaft Diameter	-	1.125"	1.375"	1.75"	1.75"	N/A
Chamber Diameter	D1	2.000"	2.313"	2.750"	2.750"	
Seal Working Length (std. gland)	L1	1.490"	1.562"	1.875"	1.875"	
Seal Working Length (opt. gland)	L1	1.440"	1.812"	n/a	n/a	
Seat Bore Diameter	D2	1.75"	2.000"	2.500"	2.500"	
Seat Bore Length (min)	L2	0.437	0.398"	0.50"	0.50"	
Optional Gland Pin	D3	0.125"	0.125"	0.125"	0.125"	
	R3	0.75"	0.86"	1.17"	1.17"	
	H3	0.08"	0.08	0.18"	0.18"	



## GlobalGear® Seal Chamber Dimensions Mech Seal (Outboard Location, Inch Shaft)

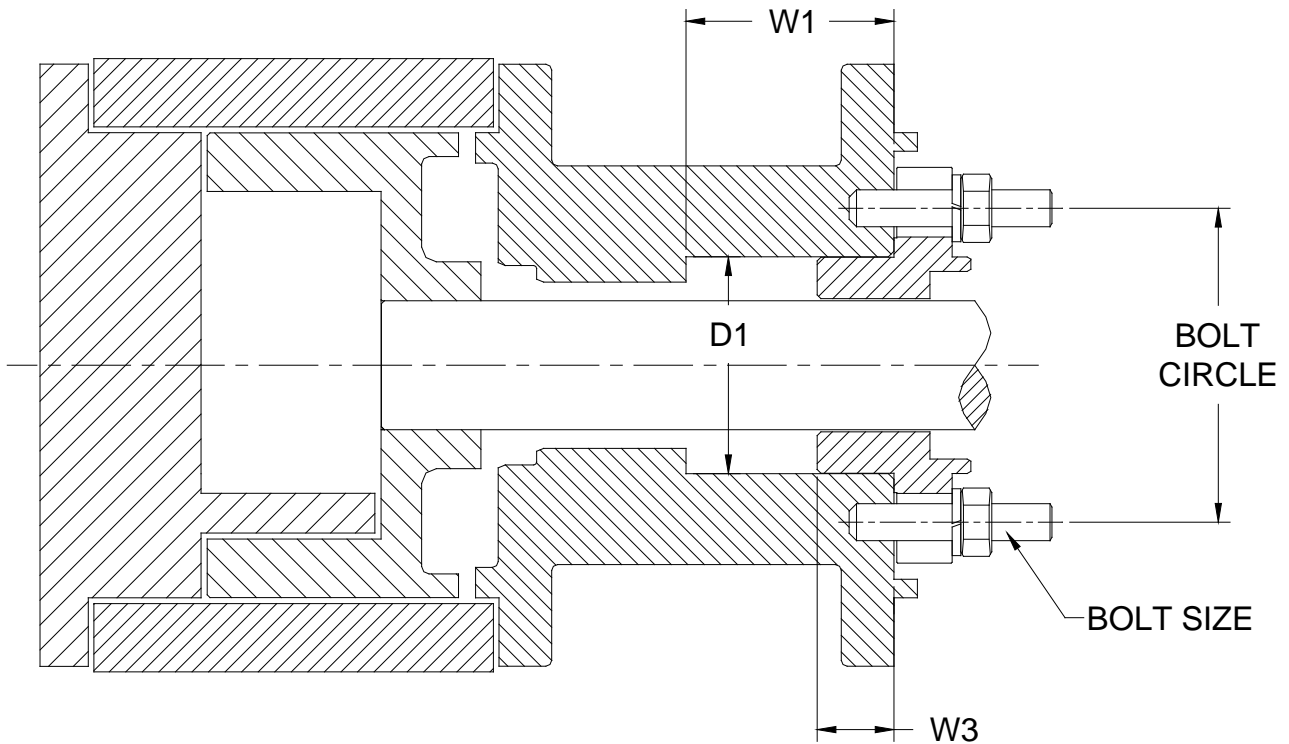
Dimension		GG15/30	GG50/70/ 80/90	GG120/130	GG200/210/ 250	GG550
Shaft Diameter	-	1.125"	1.375"	1.750"	1.750"	2.75"
Bolt Size	-	4 x M10	2 x M10	2 x M12	2 x M12	2 x M12
Bolt Circle	-	3.13"	3.35"	4.25"	4.25"	5.90"
Chamber Diameter	D1	2.000"	2.313"	2.750"	2.750"	4.50"
Seal Working Length (std. gland)	L1	1.490"	1.562"	1.860"	1.860"	2.630"
Seal Working Length (opt. gland)	L1	1.440"	1.812"	n/a	n/a	n/a
Seat Bore Diameter	D2	1.750"	2.000"	2.500"	2.500"	3.500"
Seat Bore Length (min.)	L2	0.616"	0.437"	0.50"	0.50"	0.55"
Optional Gland Pin	D3	0.125"	0.125"	0.125"	0.125"	0.125"
	R3	0.75"	0.86"	1.13"	1.13"	1.54"
	H3	0.08"	0.08"	0.12"	0.12"	0.094"
Chamber Depth to Pin Hole	L3	1.26"	1.77"	1.89"	1.89"	n/a
Pin Hole Dia.	D4	0.13"	0.13"	0.13"	0.13"	n/a



# GlobalGear® Seal Chamber Dimensions

## Packing

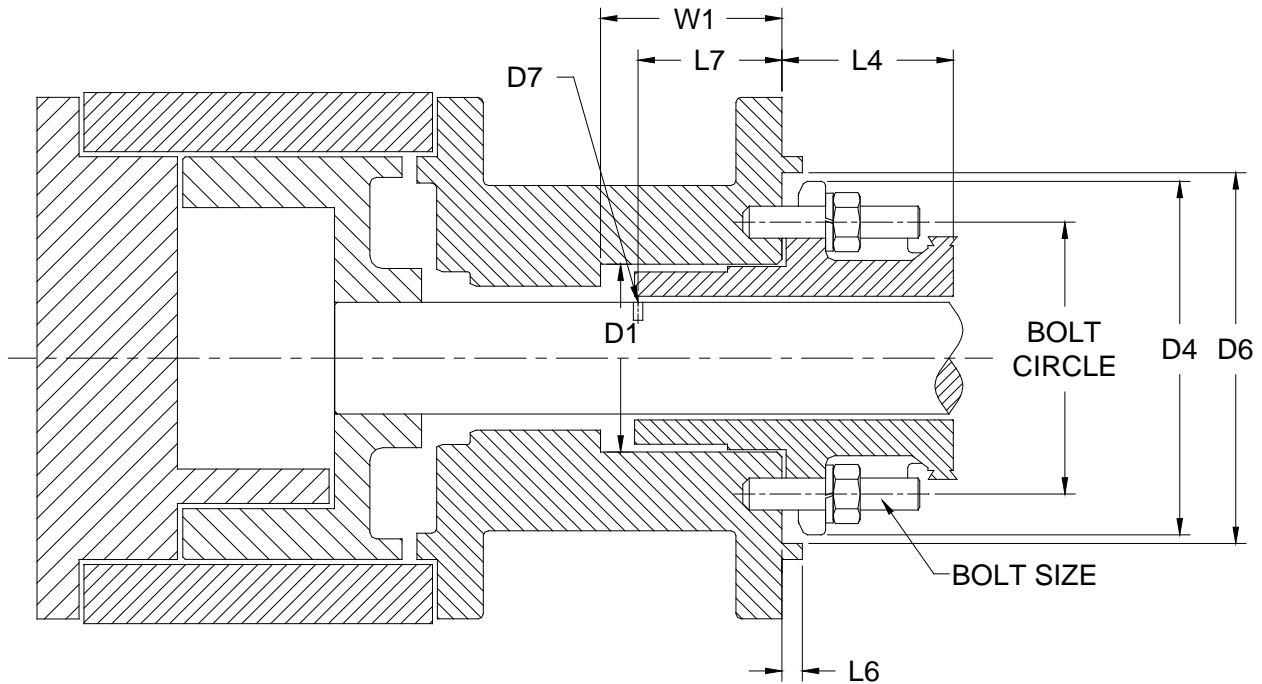
Dimension (Inch Shaft)		GG15/30	GG50/70/ 80/90	GG120/130	GG200/210/ 250	GG550
Shaft Diameter	-	1.125"	1.375"	1.750"	1.750"	2.75"
Bolt Size	-	4 x M10	2 x M10	2 x M12	2 x M12	2 x M12
Bolt Circle	-	3.13"	3.35"	4.25"	4.25"	5.90"
Chamber Diameter	D1	2.000"	2.313"	2.750"	2.750"	3.78"
Chamber Length	W1	1.69"	2.22"	2.43"	2.43"	2.95"
Gland Length	W3	0.64"	0.82"	0.68"	0.68"	1.14"



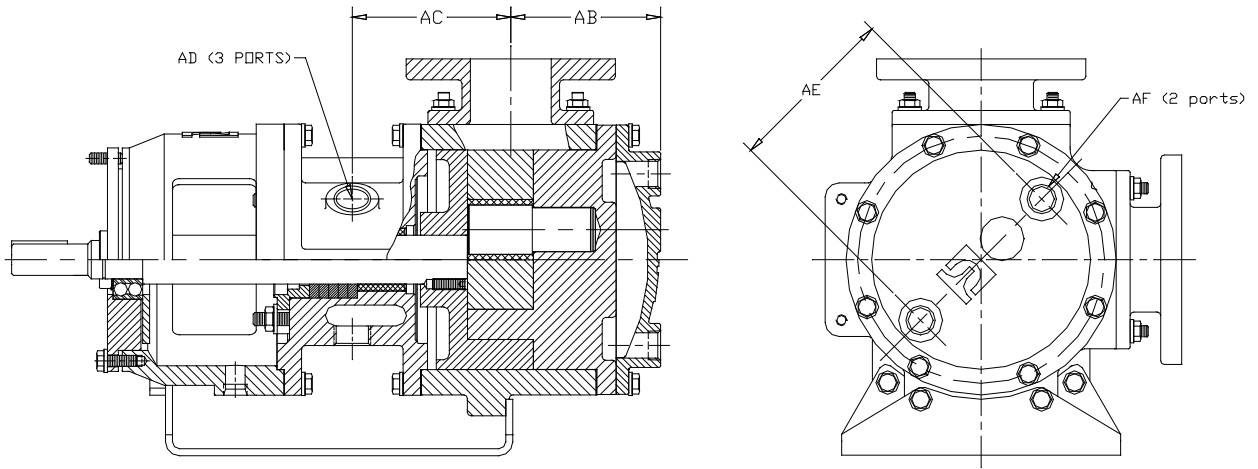
# GlobalGear® Seal Chamber Dimensions

## Cartridge Seal

Dimension (Inch Shaft)		GG15/30	GG50/70/ 80/90	GG120/130	GG200/210/ 250	GG550
Shaft Diameter	-	1.125"	1.375"	1.750"	1.750"	2.750"
Bolt Size	-	4 x M10	2 x M10	2 x M12	2 x M12	2 x M14
Bolt Circle	-	3.13"	3.35"	4.25"	4.25"	5.906"
Chamber Diameter	D1	2.000"	2.313"	2.750"	2.750"	3.78"
Chamber Length	W1	1.69"	2.22"	2.43"	2.43"	2.95"
Max Seal Diameter	D4	3.75"	4.88"	5.60"	5.75"	-----
Max Seal Length	L4	2.95"	2.62"	4.40"	4.40"	4.66
Gland Obstruction Dia.	D6	2.87"	4.56"	5.65"	5.75"	-----
Gland Obstruction Length	L6	0.25"	0.25"	0.44"	0.44"	-----
Chamber Depth to Pin Hole	L7	1.26"	1.77"	1.89"	1.89"	-----
Pin Hole Dia.	D7	0.13"	0.13"	.13"	.13"	-----



# GlobalGear® Jackets Data & Dimensions



## Dimensions - 90° Ports

pump size	Jacketed Cover				AF	Jacketed Bracket		
	AB		AE			AC	AD	
	inch	mm	inch	mm				inch
GG15/30 IB seal	3.67	93	2.04	52	1/2" NPT	3.58	91	3/8" NPT
GG15/30 OB seal	3.67	93	2.04	52	1/2" NPT	2.93	74	3/8" NPT
GG50/70 Iron IB seal	3.65	93	3.23	82	1/2" NPT	4.77	121	1/2" NPT
GG50/70 Iron OB seal	3.65	93	3.23	82	1/2" NPT	3.36	85	1/2" NPT
GG80/90 Iron IB seal	4.01	102	3.23	82	1/2" NPT	3.22	82	1/2" NPT
GG80/90 Iron OB seal	4.01	102	3.23	82	1/2" NPT	4.12	105	1/2" NPT
GG80 Stainless	4.01	102	3.23	82	1/2" NPT	3.22	82	3/4" NPT
GG120/130	4.37	111	4.72	120	3/4" NPT	4.93	125	1" NPT
GG200/210	5.31	135	6.14	156	3/4" NPT	5.62	143	1" NPT
GG250	5.31	135	6.14	156	3/4" NPT	5.62	143	1" NPT
GG550	8.49	216	9.45	240	3/4" NPT	N/A	N/A	N/A

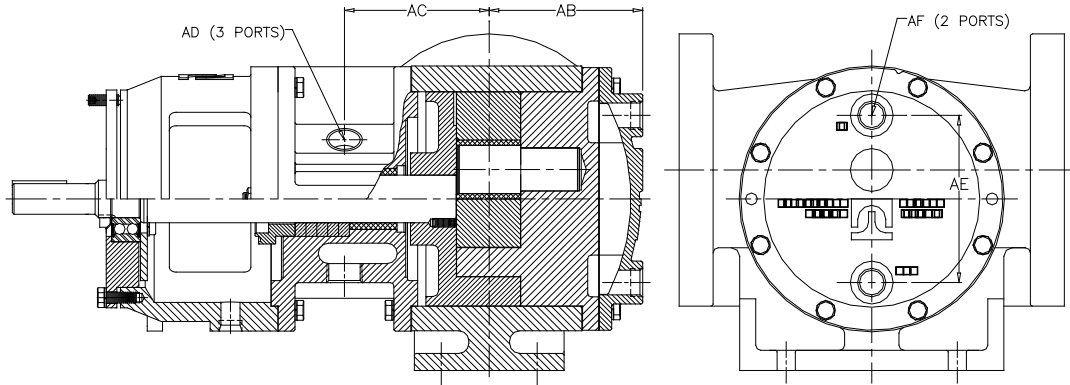
## Ratings

Jacket Ratings		steam	heat transfer fluid
max temperature	deg F	365	600
	deg C	185	316
max pressure	psig	150	150
	bar g	10.3	10.3

### Notes:

1. Jacketed covers are not available with pumps with relief valves.
2. Brackets also contain additional ports that access the seal chamber. Do not connect them to steam or H.T.F.

# GlobalGear® Jackets Data & Dimensions



## Dimensions - 180° Ports

pump size	Jacketed Cover				AF	Jacketed Bracket		
	AB		AE			AC		AD
	inch	mm	inch	mm		inch	mm	
GG15/30 IB seal	3.17	81	2.04	52	1/2" NPT	4.08	104	3/8" NPT
GG15/30 OB seal	3.17	81	2.04	52	1/2" NPT	4.08	104	3/8" NPT
GG50/70 Iron IB seal	3.65	93	3.23	82	1/2" NPT	4.77	121	1/2" NPT
GG50/70 Iron OB seal	3.65	93	3.23	82	1/2" NPT	3.36	85	1/2" NPT
GG80/90 Iron IB seal	4.01	102	3.23	82	1/2" NPT	3.22	82	1/2" NPT
GG80/90 Iron OB seal	4.01	102	3.23	82	1/2" NPT	4.12	105	1/2" NPT
GG80 Stainless	4.01	102	3.23	82	1/2" NPT	3.22	82	3/4" NPT
GG120/130	4.37	111	4.72	120	3/4" NPT	4.37	111	1" NPT
GG200/210	5.65	144	6.14	156	3/4" NPT	5.33	135	1" NPT
GG250	5.65	144	6.14	156	3/4" NPT	5.33	135	1" NPT
GG500	8.49	216	9.45	240	3/4" NPT	N/A	N/A	N/A

## Ratings

Jacket Ratings		steam	heat transfer fluid
max temperature	deg F	365	600
	deg C	185	316
max pressure	psig	150	150
	bar g	10.3	10.3

### Notes:

1. Jacketed covers are not available with pumps with relief valves.
2. Brackets also contain additional ports that access the seal chamber. Do not connect them to steam or H.T.F.

## GlobalGear® NPSH Data

NPSHr for up to 750 ssu (feet of water)

pump size	pump speed (rpm)									
	150	250	350	450	550	750	950	1150	1450	1750
GG015	1.4	1.6	1.8	2.1	2.4	3.0	4.5	6.2	8.6	11.3
GG030	1.4	1.6	1.8	2.1	2.4	3.0	4.5	6.2	8.6	11.3
GG050	1.5	1.8	2.2	2.7	3.4	5.2	7.7	11.2	15.0	
GG070	1.5	1.8	2.2	2.7	3.4	5.2	7.7	11.2	15.0	
GG080	1.5	1.8	2.2	2.7	3.4	5.2	7.7	11.2	15.0	
GG090	1.5	1.8	2.2	2.7	3.4	5.2	7.7	11.2	15.0	
GG120	1.6	1.9	2.7	3.5	4.7	7.7	11.7	16.4		
GG130	1.6	1.9	2.7	3.5	4.7	7.7	11.7			
GG200	1.8	2.4	3.6	4.8	6.9	11.9	17.4			
GG210	1.8	2.4	3.6	4.8	6.9	11.9				
GG250	1.8	2.4	3.6	4.8	6.9	11.9				
GG550	3.4	6.2	10.5	15.8	24.0					

### NPSHr for up to 165 cst. (meters of water)

pump size	pump speed (rpm)									
	150	250	350	450	550	750	950	1150	1450	1750
GG015	0.4	0.5	0.5	0.6	0.7	0.9	1.4	1.9	2.6	3.4
GG030	0.4	0.5	0.5	0.6	0.7	0.9	1.4	1.9	2.6	3.4
GG050	0.5	0.5	0.7	0.8	1.0	1.6	2.3	3.4	4.6	
GG070	0.5	0.5	0.7	0.8	1.0	1.6	2.3	3.4	4.6	
GG080	0.5	0.5	0.7	0.8	1.0	1.6	2.3	3.4	4.6	
GG090	0.5	0.5	0.7	0.8	1.0	1.6	2.3	3.4	4.6	
GG120	0.5	0.6	0.8	1.1	1.4	2.3	3.6	5.0		
GG130	0.5	0.6	0.8	1.1	1.4	2.3	3.6			
GG200	0.5	0.7	1.1	1.5	2.1	3.6	5.3			
GG210	0.5	0.7	1.1	1.5	2.1	3.6				
GG250	0.5	0.7	1.1	1.5	2.1	3.6				
GG550	1.0	1.9	3.2	4.8	7.3					

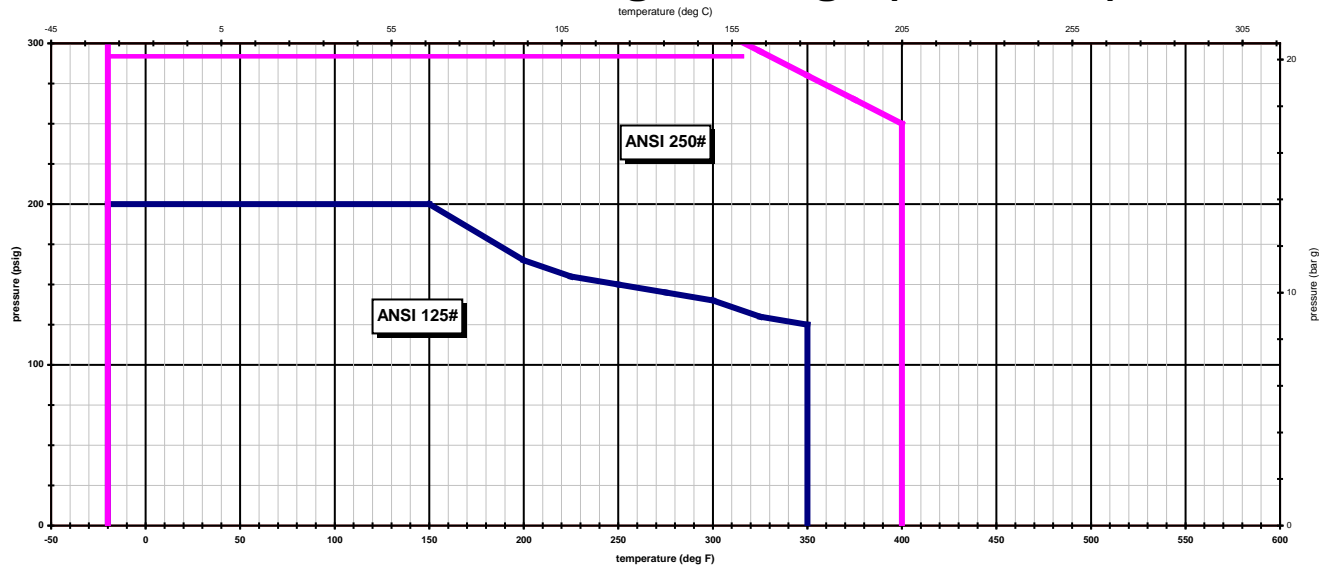
### High Viscosity Correction Factors

viscosity	CF	viscosity	CF	viscosity	CF
2500 ssu	1.3	25,000 ssu	2.7	250,000 ssu	5.3
550 cst		5500 cst		55,000 cst	
5000 ssu	1.7	50,000 ssu	3.1	500,000 ssu	6.7
1100 cst		11,000 cst		110,000 cst	
10,000 ssu	2.0	100,000 ssu	4.0	1,000,000 ssu	10.7
2200 cst		22,000 cst		220,000 cst	

**Notes:**

1. For viscosity above 750 ssu (165 cst), multiply the charted NPSHr value by the appropriate correction factor.
2. NPSHa (available) must be greater than NPSHr (required) for proper pump operation.
3. Data shown here is for pumps with standard ports. Optional ports of different sizes may affect NPSHr.

# GlobalGear<sup>®</sup> Flange Ratings (Cast Iron)

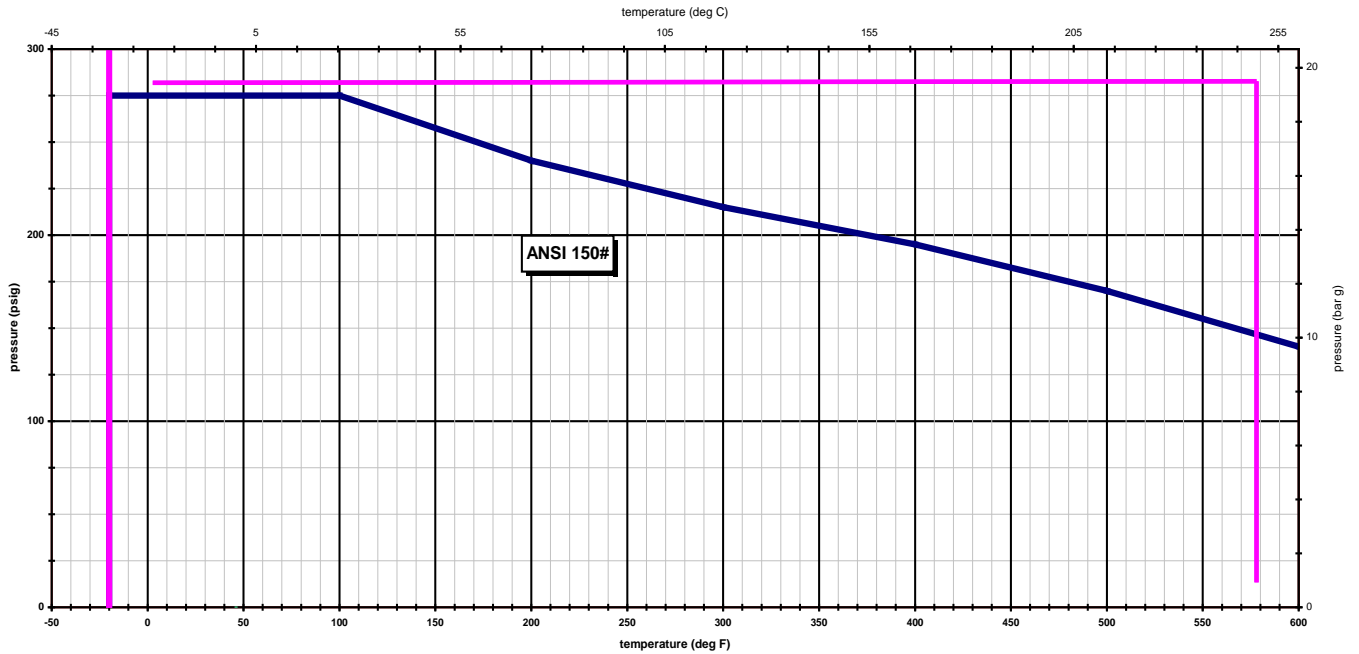


**NOTES:**

- 1) These charts show the ratings for flanges only - the maximum pump operating conditions must also be checked.
- 2) Consult the appropriate Tuthill catalog for maximum allowable operating pressures and temperatures, based on pump application conditions and pump features.
- 3) These ratings are based on non-shock pressures.
- 4) ANSI data is from ASME/ANSI B16.1 - 1989 (class A). Consult this spec for more information.
- 5) ISO data is from ISO 7005-2 : 1988 (gray iron). Consult this spec for more information.



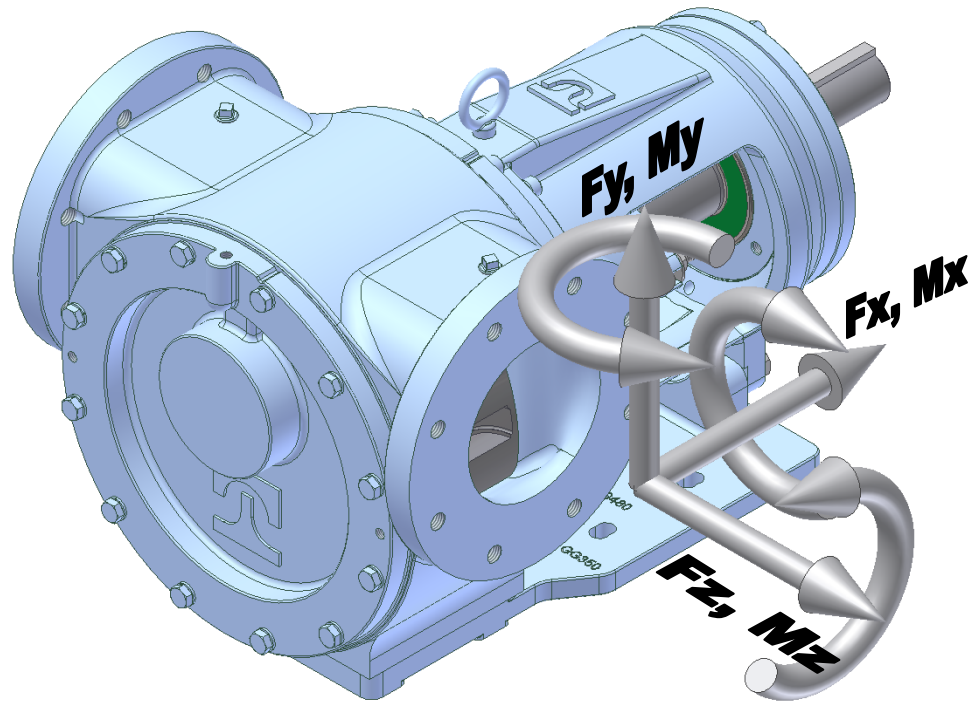
# GlobalGear<sup>®</sup> Flange Ratings (Stainless Steel)



## NOTES:

- 1) These charts show the ratings for flanges only - the maximum pump operating conditions must also be checked.
- 2) Consult the appropriate Tuthill catalog for maximum allowable operating pressures and temperatures, based on pump application conditions and pump features.
- 3) These ratings are based on non-shock pressures.
- 4) ANSI data is from ASME/ANSI B16.5 - 1988 (matl group 2.2). Consult this spec for more information.
- 5) ISO data is from ISO 7005-1 : 1992 (matl group 13E0). Consult this spec for more information.

## GG Series Pumps Nozzle Loading Data



Pump Size	Nominal Port Size		Max. Fx, Fy & Fz		Max. Mx, My, & Mz	
	Inch	mm	Lbs.	N	Lb-ft.	N-m
GG015-030	1.5	40	113	500	188	255
	2	50	150	667	250	339
GG050-070	2	50	150	667	250	339
GG080-090	2	50	150	667	250	339
	3	80	225	1001	375	508
GG120-130	2	50	150	667	250	339
	2.5	65	150	667	312	424
	3	80	225	1001	375	508
GG200-210-250	4	100	300	1334	500	678
	2	50	150	667	250	339
	2.5	65	150	667	312	424
	3	80	225	1001	375	508
GG550	4	100	300	1334	500	678
	6	150	450	2002	750	1017

Notes:

1. We always recommend proper pipe support. Hydraulic Institute standards state, "... both suction and discharge piping should be independently supported near the pump so that when the flange bolts are tightened, no strain will be transmitted to the pump casing."
2. For GG Iron Series, multiply the above values by 0.35.
3. These maximum values are not valid for combined forces and moments.