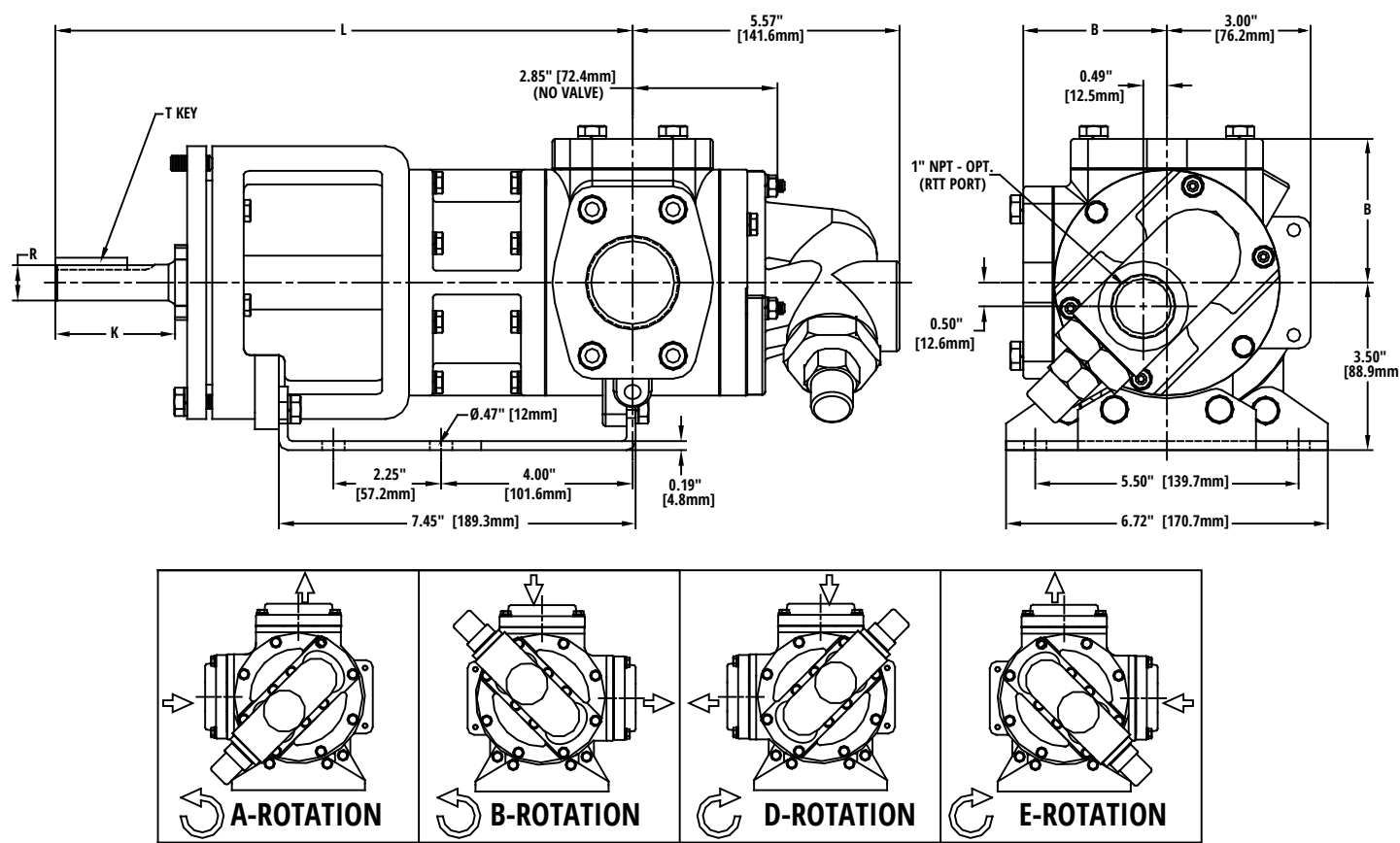




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GG015 - GG030 with Angle Ports (Flanged Only) Mounting Dimensions



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
ANSI	4.00" [102mm]

Back Pull-Out Dimensions

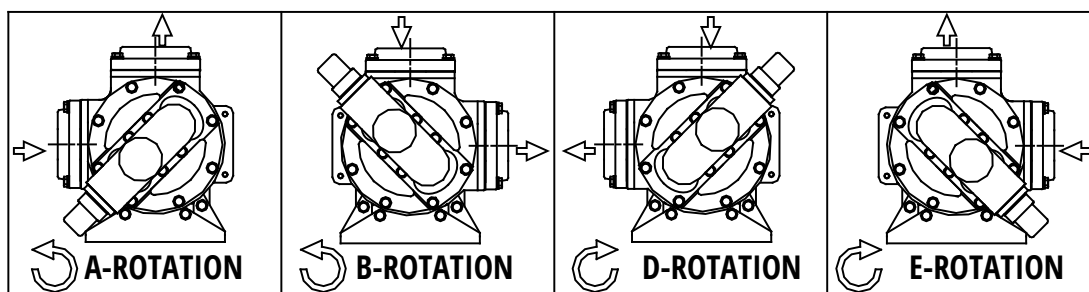
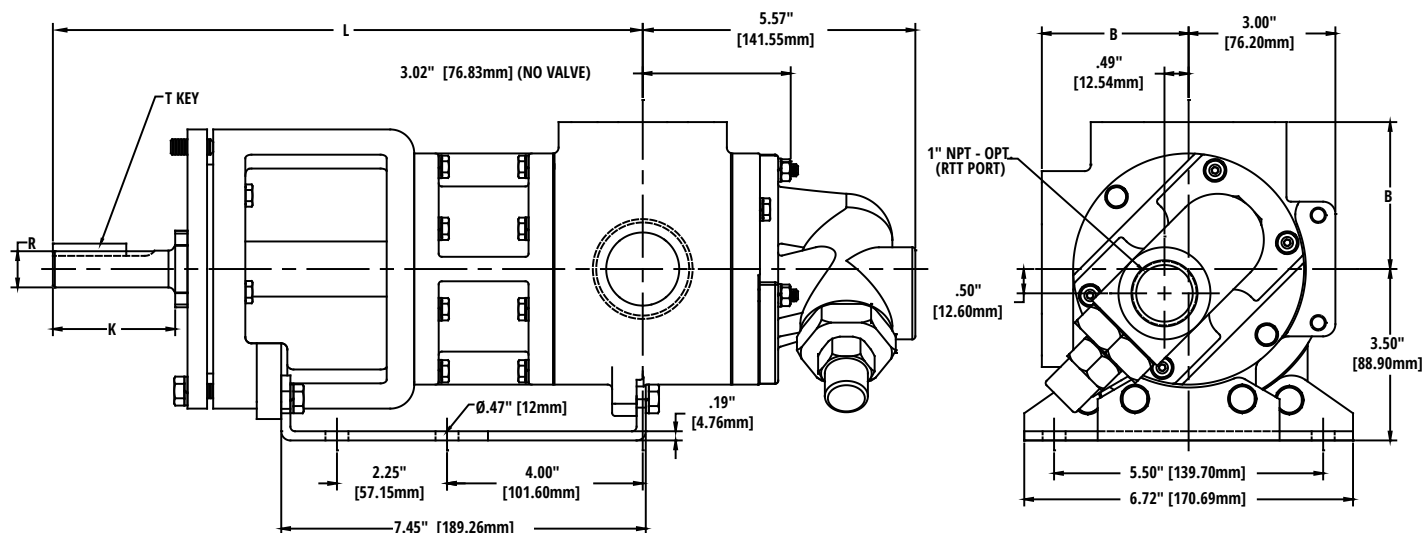
Size	Min Spacer
GG015	1.60" [41mm]
GG030	2.22" [56mm]

Face Type

	Size-Rating
Raised Face	1 1/2" & 2" - ANSI 250#
Flat Face	1 1/2" & 2" - ANSI 125#
	2" - ANSI 150#



IG015I - IG030I with Integral Angle Ports (NPT Only) Mounting Dimensions



Shaft Dimensions

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

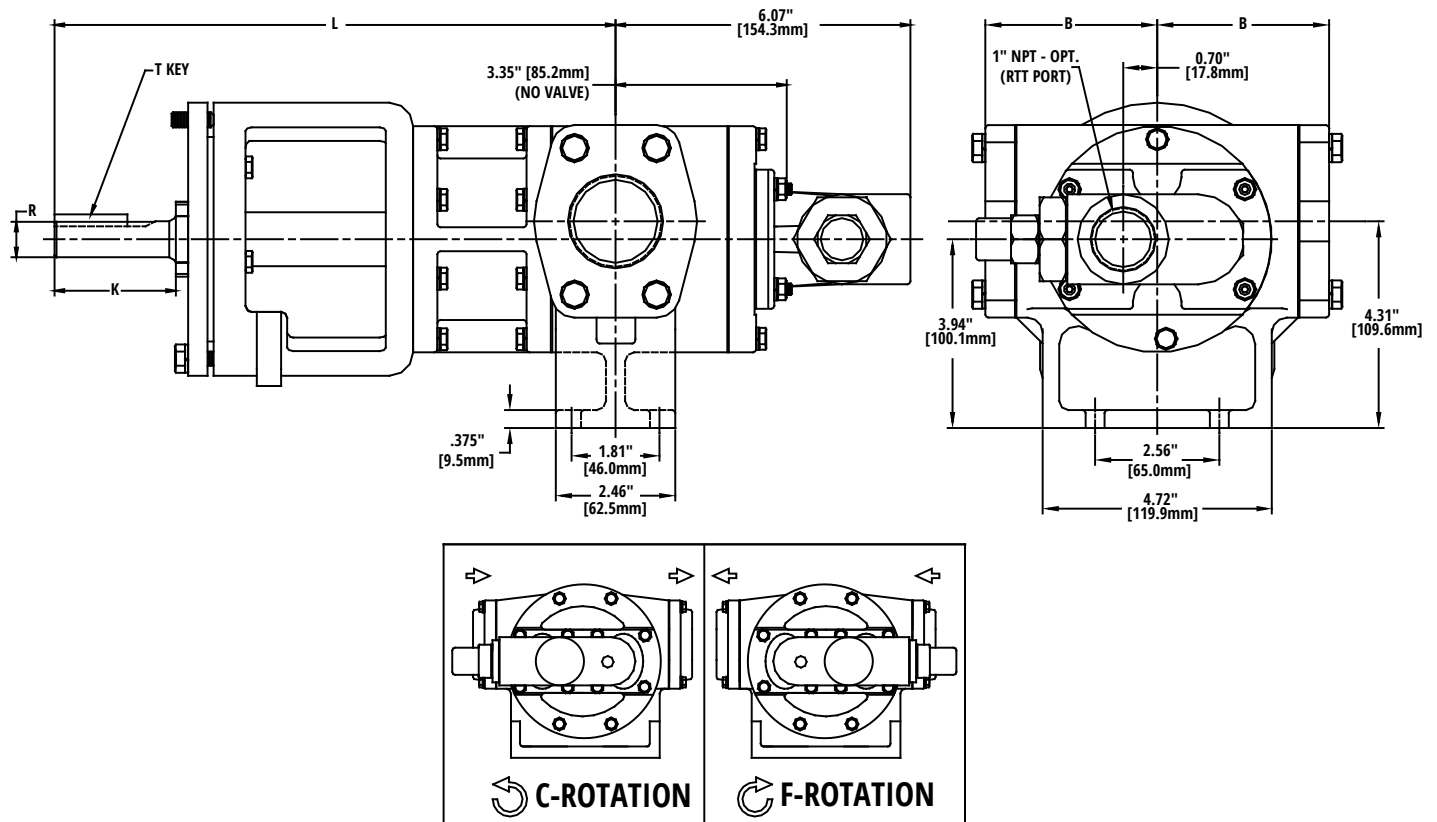
Port Dimensions

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]

GG015 - GG030 with Side Ports (Flange Only) Mounting Dimensions



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
ANSI	4.54" [115mm]

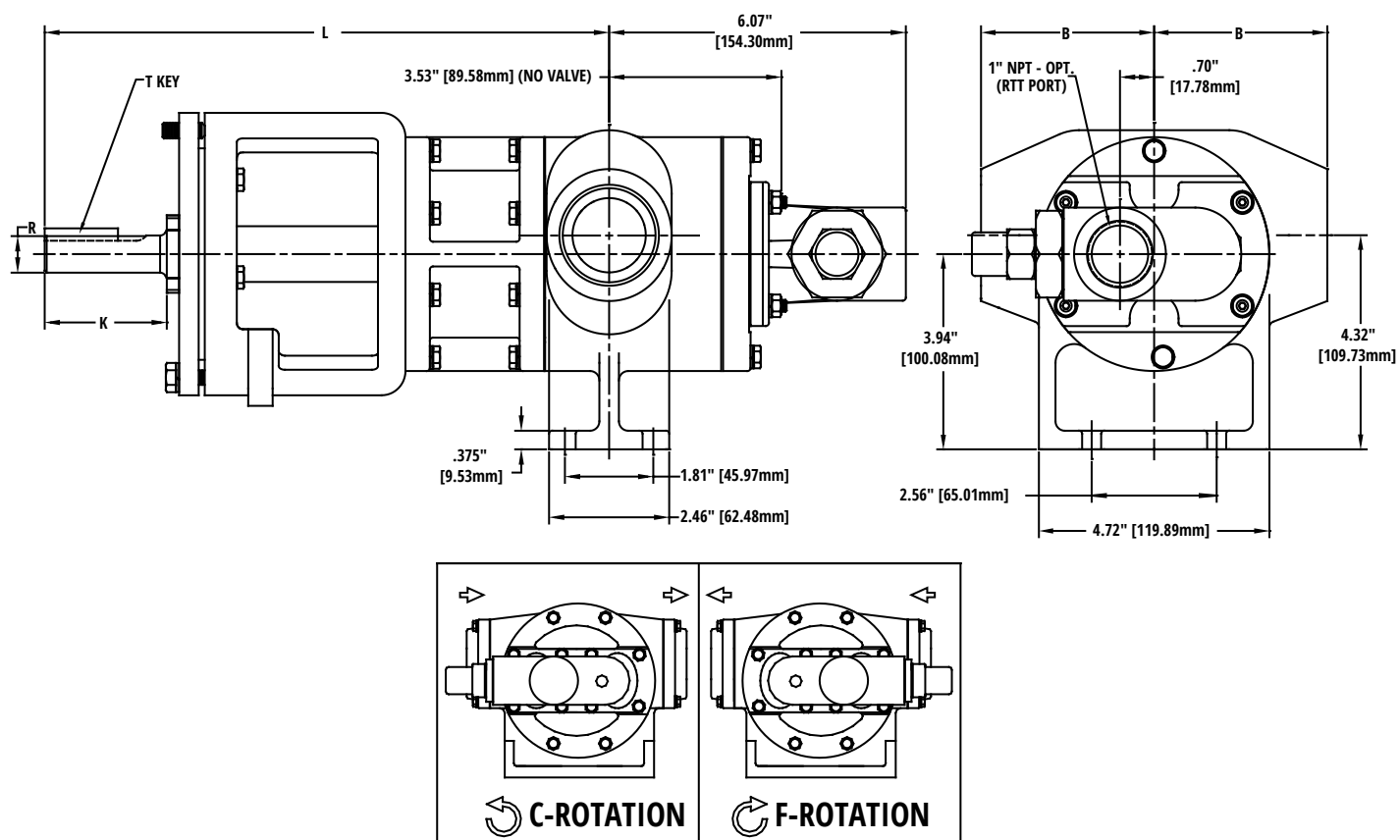
Back Pull-Out Dimensions

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

Face Type

	Size-Rating
Flat Face	Any Offered Size - ANSI 125#
	Any Offered Size - ANSI 150#

IG015I - IG030I with Integral Side Ports Mounting Dimensions



Shaft Dimensions

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

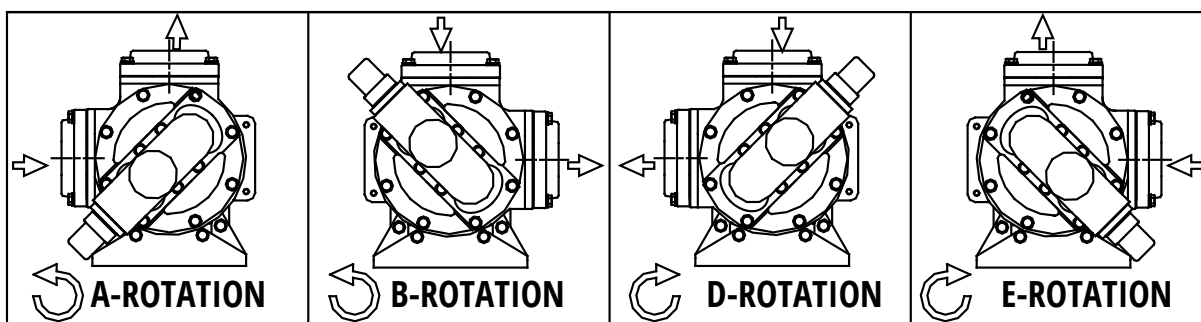
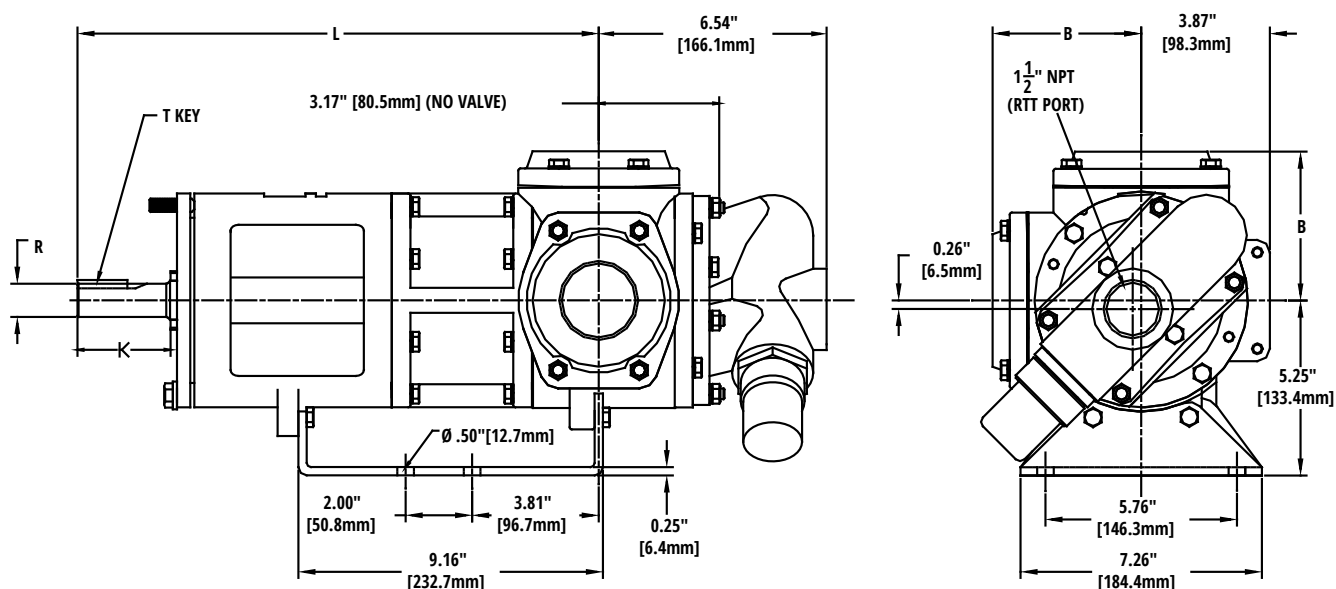
Port Dimensions

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]

GG050 - GG070 with Angle Ports (NPT & Flange/Iron Only) Mounting Dimensions



Shaft Dimensions

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

Port Dimensions

Port Type	B
2" FNPT	4.50" [114mm]
ANSI	5.35" [136mm]

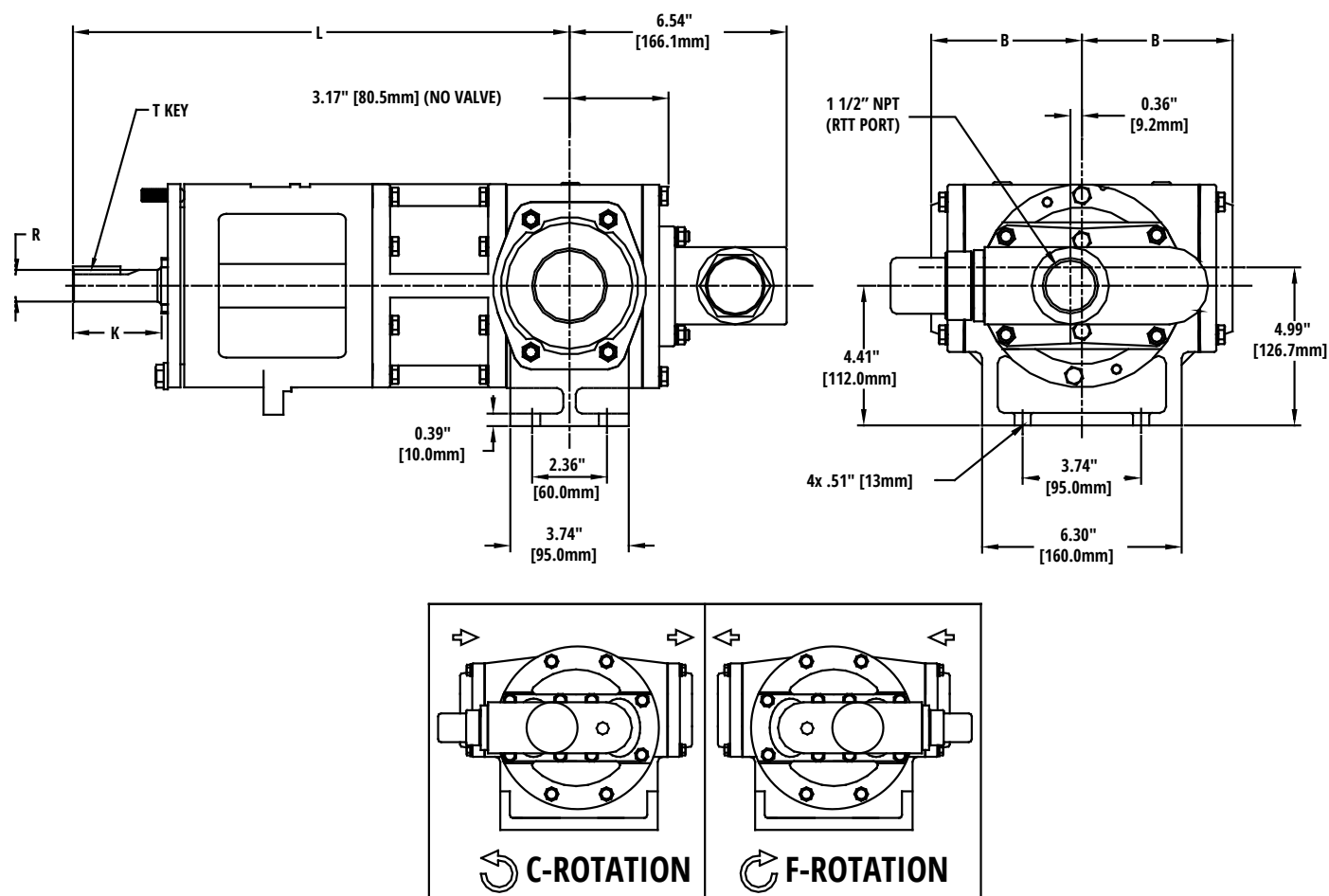
Back Pull-Out Dimensions

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

Face Type

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

GG050 - GG070 with Side Ports (NPT & Flange) Mounting Dimensions



Shaft Dimensions

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

Port Dimensions

Port Type	B
2" FNPT	4.03" [102mm]
ANSI	4.88" [124mm]

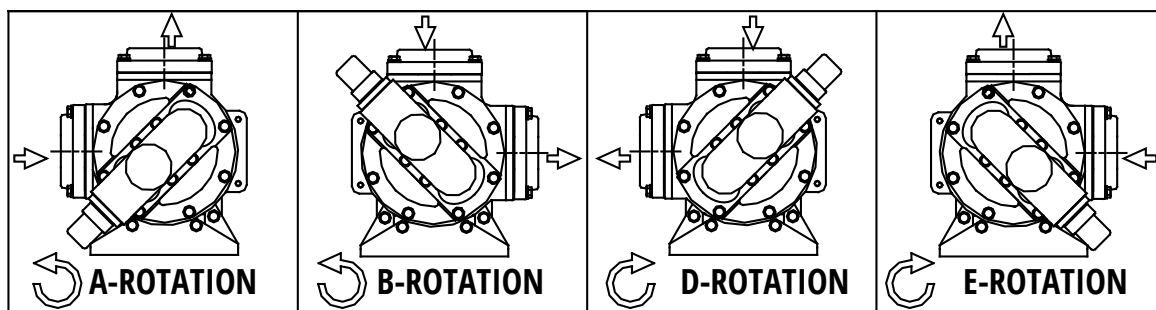
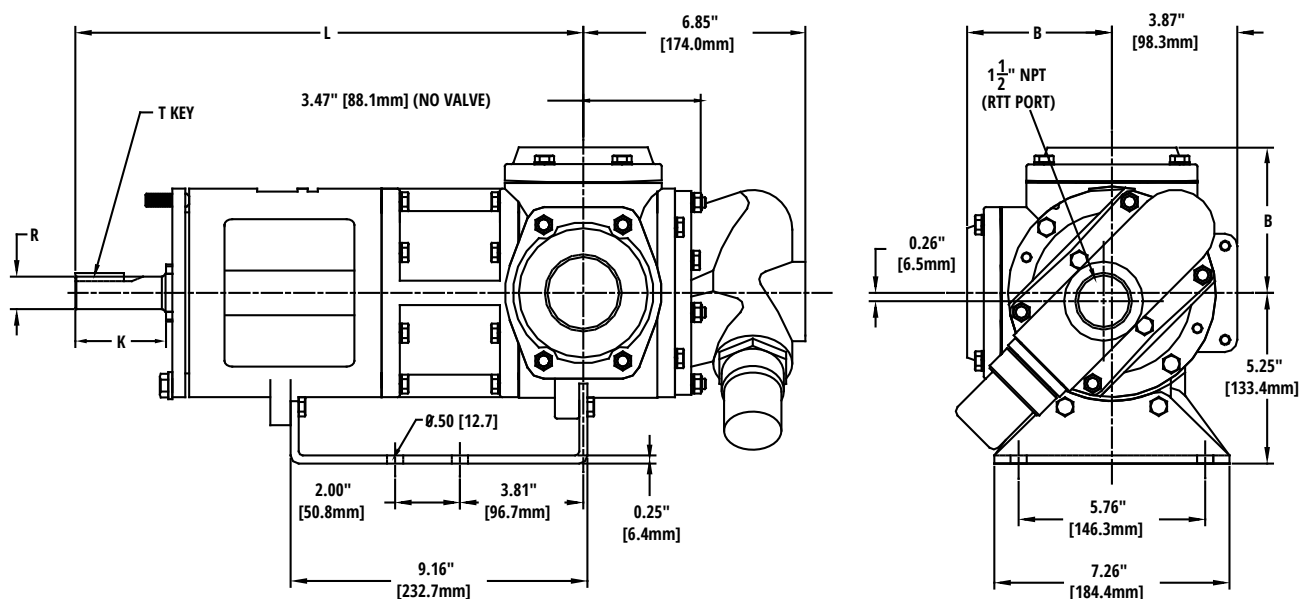
Back Pull-Out Dimensions

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

Face Type

	Size-Rating
Flat Face	Any Offered Size - ANSI 125#

GG080 - GG090 with Angle Ports (NPT & Flange) Mounting Dimensions



Shaft Dimensions

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

Port Dimensions

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

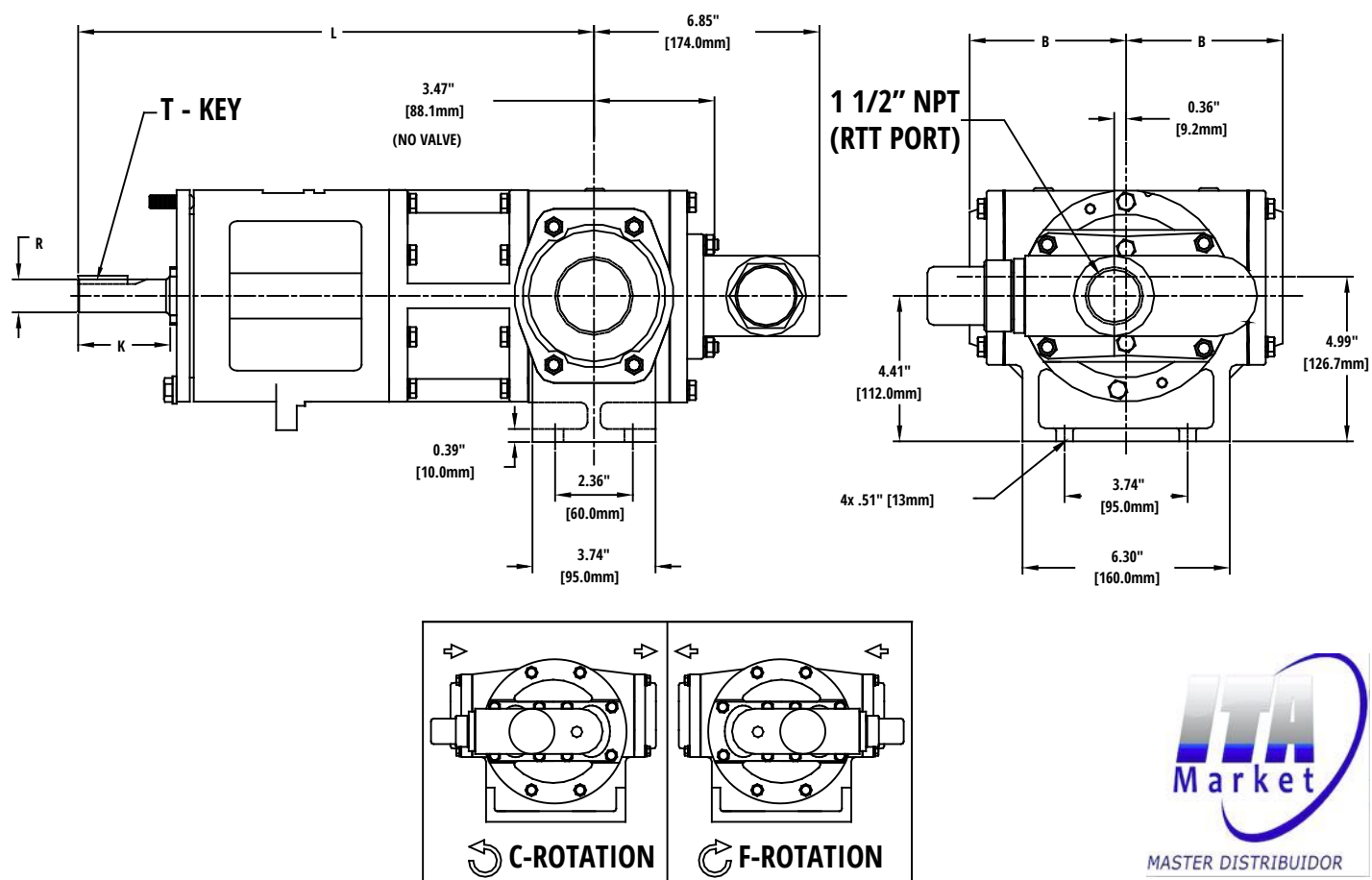
Back Pull-Out Dimensions

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

Face Type

	Size-Rating
Raised Face	3" ANSI - 150#
	2" - ANSI 250#
Flat Face	3" - ANSI 125#
	2" & 3" - ANSI 150#
	2" - ANSI 250#

GG080 - GG090 with Side Ports (NPT & Flange) Mounting Dimensions



Shaft Dimensions

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

Port Dimensions

Port Type	B
FNPT (CI)	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

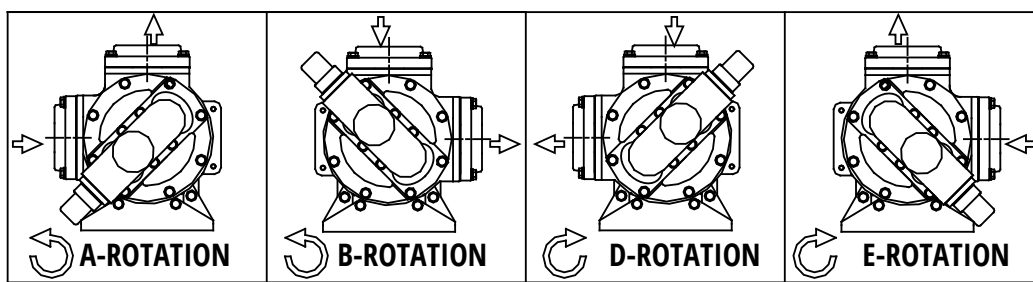
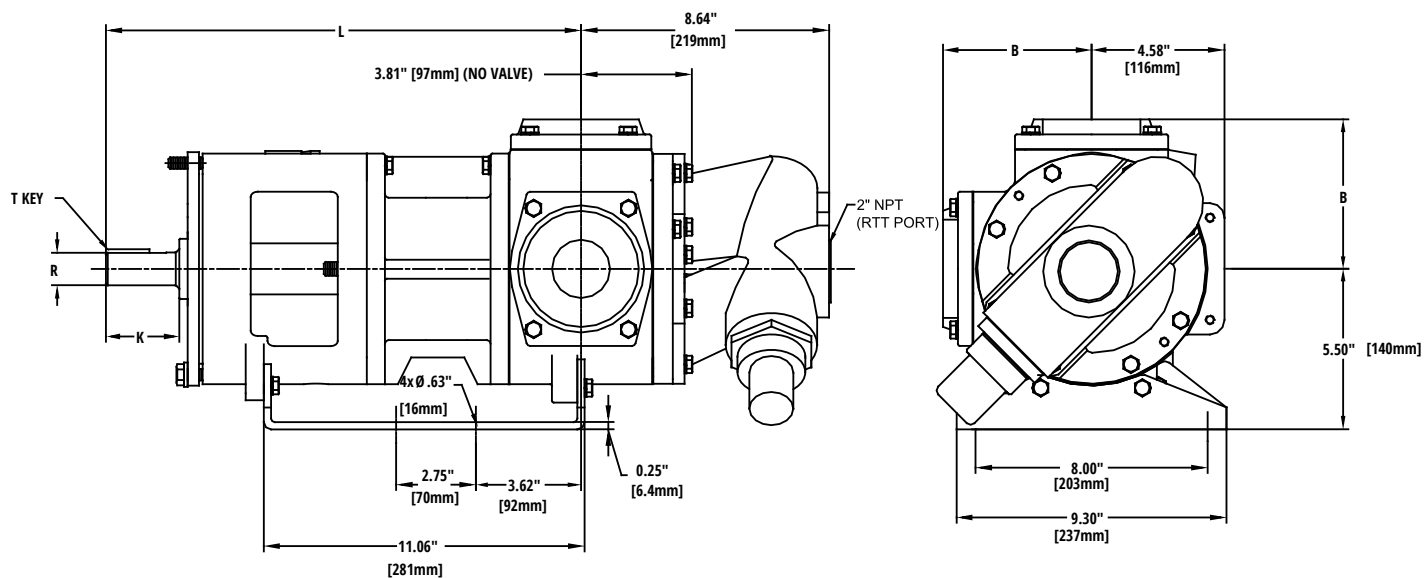
Size	Min Spacer
GG080	2.80" [71mm]
GG090	3.08" [78mm]

FF/RF

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

Note: GG080 in Cast Iron or SS (Flanged only) GG090 CI only.

GG120 - GG130 with Angle Ports (CI & SS Only) Mounting Dimensions



Shaft Dimensions

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

Port Dimensions

Port Type	B
2" FNPT	5.12" [130mm]
2" ANSI 150#	5.25" [133mm]
3" ANSI 125# / 150#	5.25" [133mm]
3" ANSI 250# / 300#	5.62" [143mm]

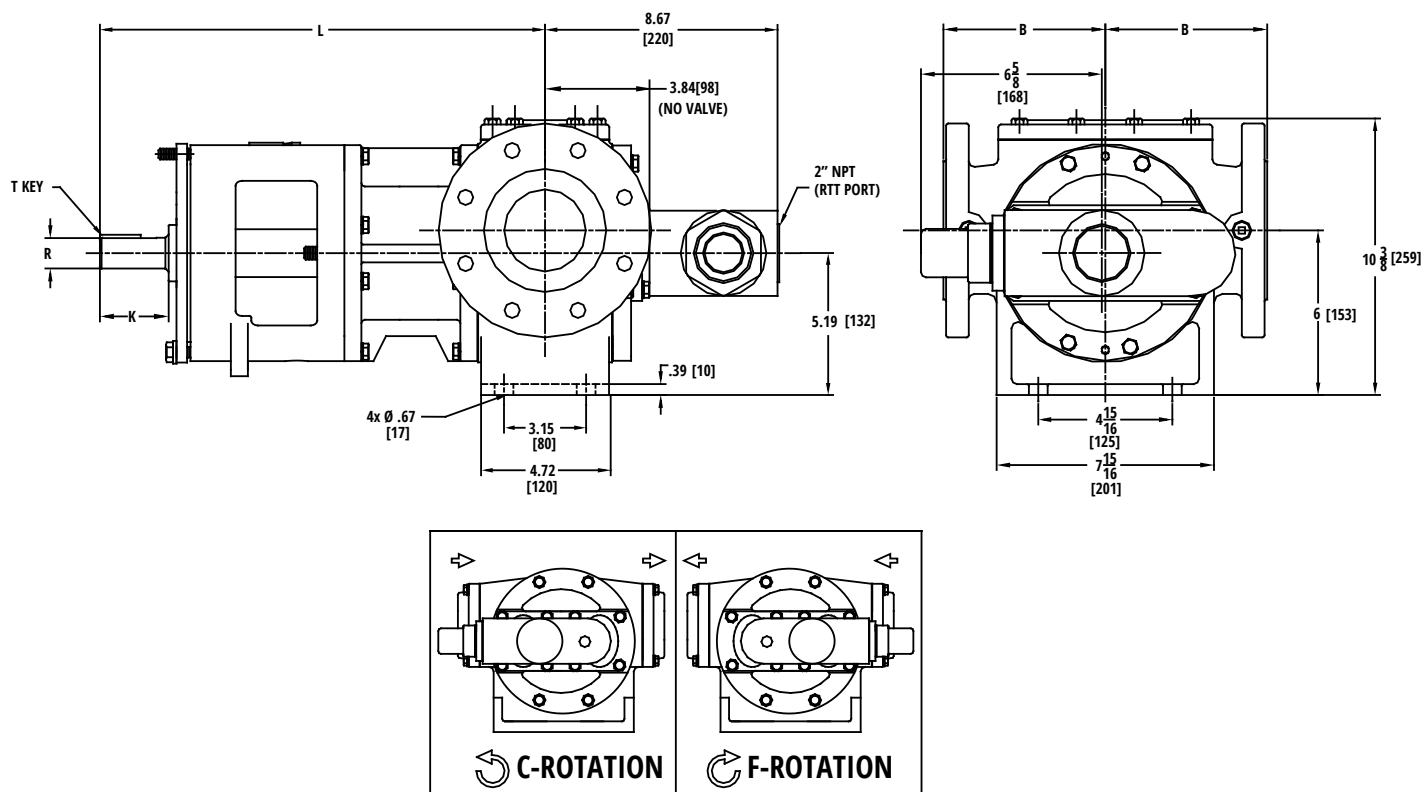
Back Pull-Out Dimensions

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

Face Type

	Size-Rating
Raised Face	3"- ANSI 125#, 150#, & 250#
Flat Face	2"- ANSI 150#

GG120 - GG130 with Side Ports (CI, SS, & CS) Mounting Dimensions



Shaft Dimensions

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

Port Dimensions

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

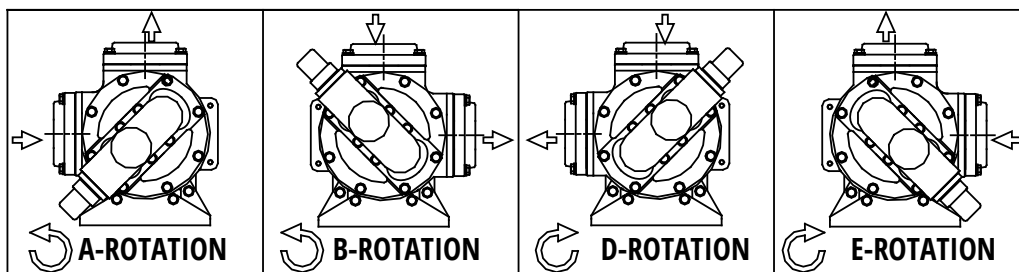
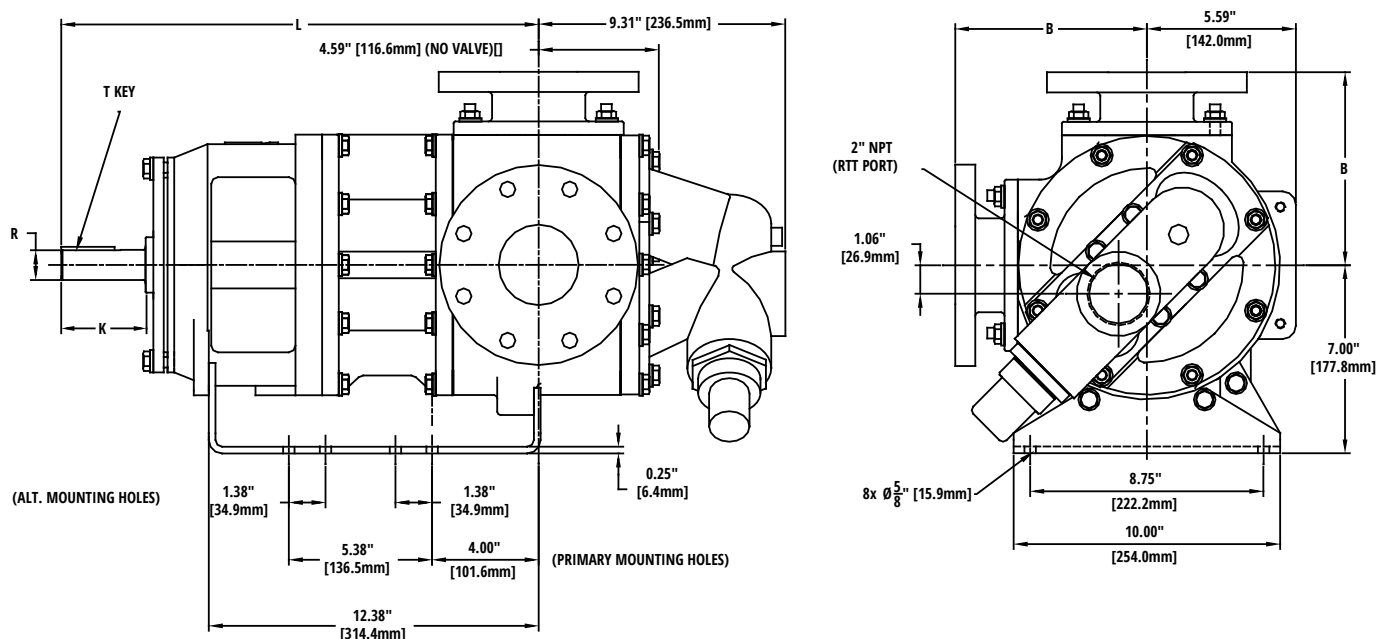
Back Pull-Out Dimensions

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

Face Type

	Size-Rating
Raised Face	All

GG200 - GG210 with Angle Ports Mounting Dimensions



Shaft Dimensions

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

Port Dimensions

Port Type	B
2" FNPT (200 Size only)	6.56" [167mm]
ANSI flanged	7.19" [183mm]

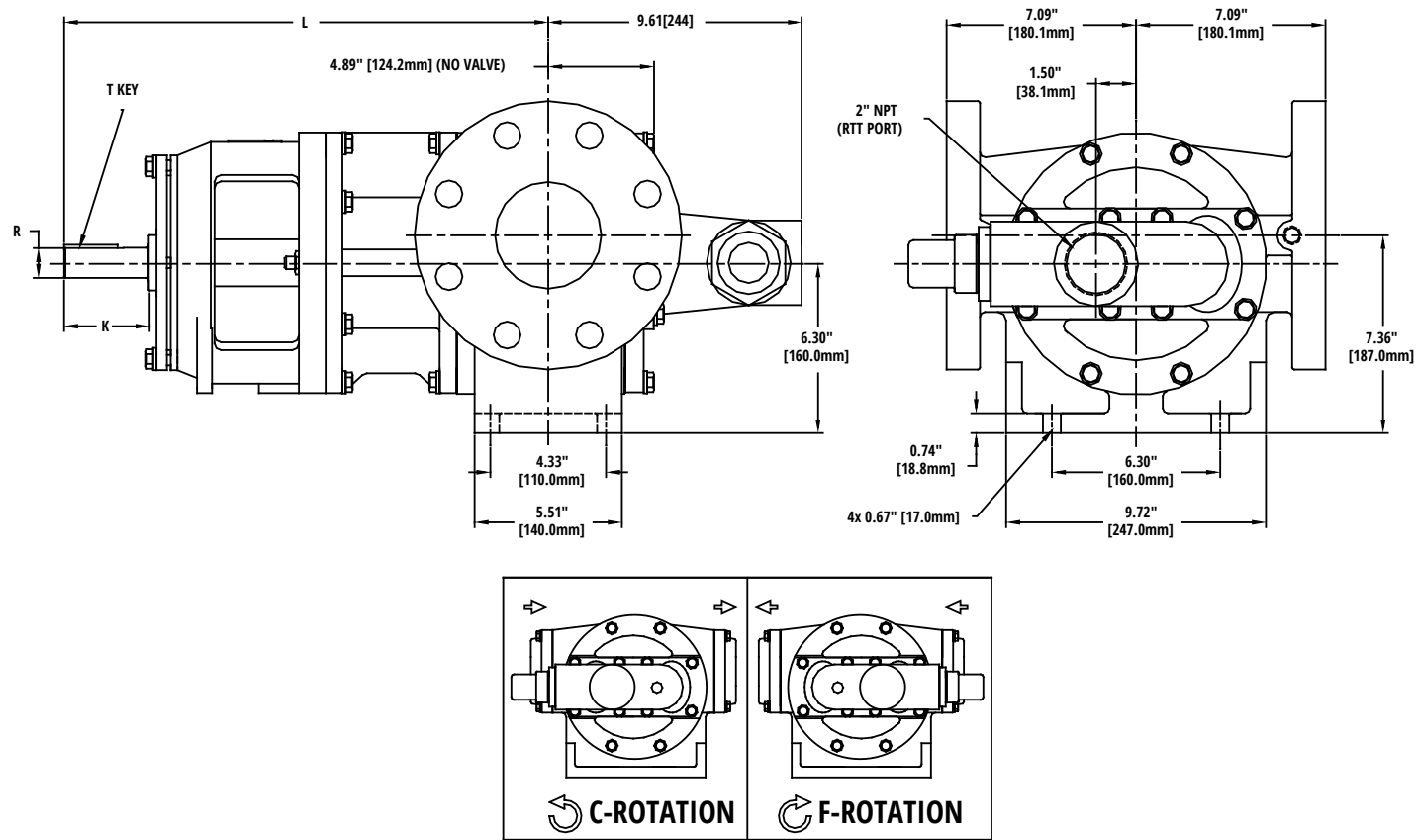
Back Pull-Out Dimensions

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

Face Type

	Size-Rating
Raised Face	4"- ANSI 125# / (150# 210 only)
	3"- ANSI 250# - 210 Size Only
	4"- ANSI 250# - 210 Size Only
Flat Face	2.5"- ANSI 125# - 200 Size Only
	3"- ANSI 125# thru #250

GG200 - GG210 with Side Ports Mounting Dimensions



Shaft Dimensions

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

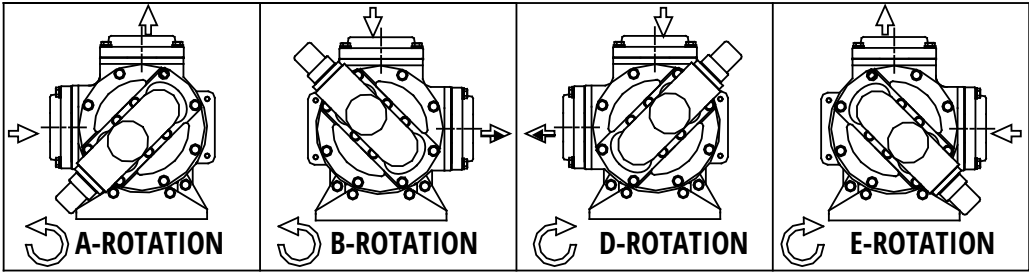
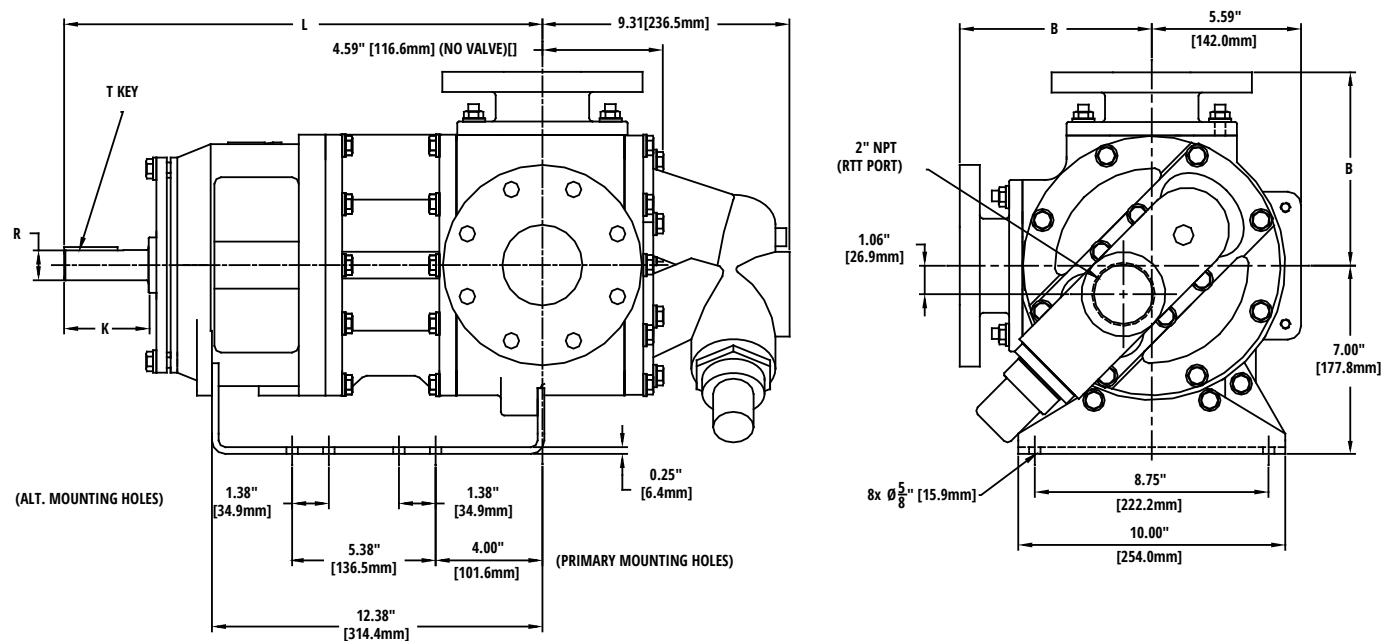
Back Pull-Out Dimensions

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

Face Type

	Size-Rating
Flat Face	4" - ANSI 125#
	4" - ANSI 150# (210 Offered in SS)

GG250 with Angle Ports Mounting Dimensions



Shaft Dimensions

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

Port Dimensions

Port Type	B
ANSI flanged	7.19" [183mm]

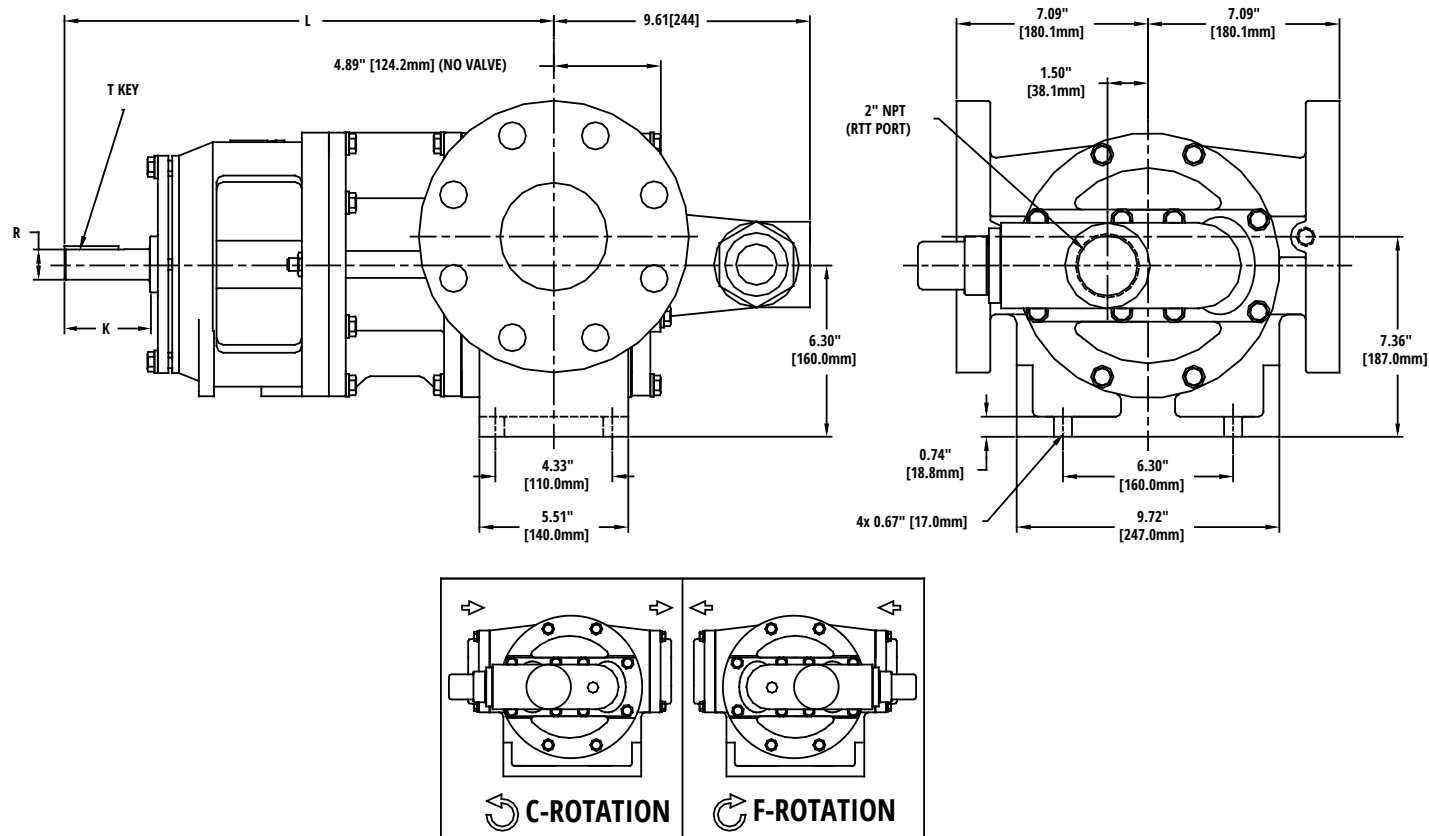
Back Pull-Out Dimensions

Size	Min Spacer
GG250	4.73" [120mm]

Face Type

	Size-Rating
Raised Face	4"- ANSI 125#, 150#, & 250#
Flat Face	3"- ANSI 125#, 150, & 250#

GG250 with Side Ports Mounting Dimensions



Shaft Dimensions

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

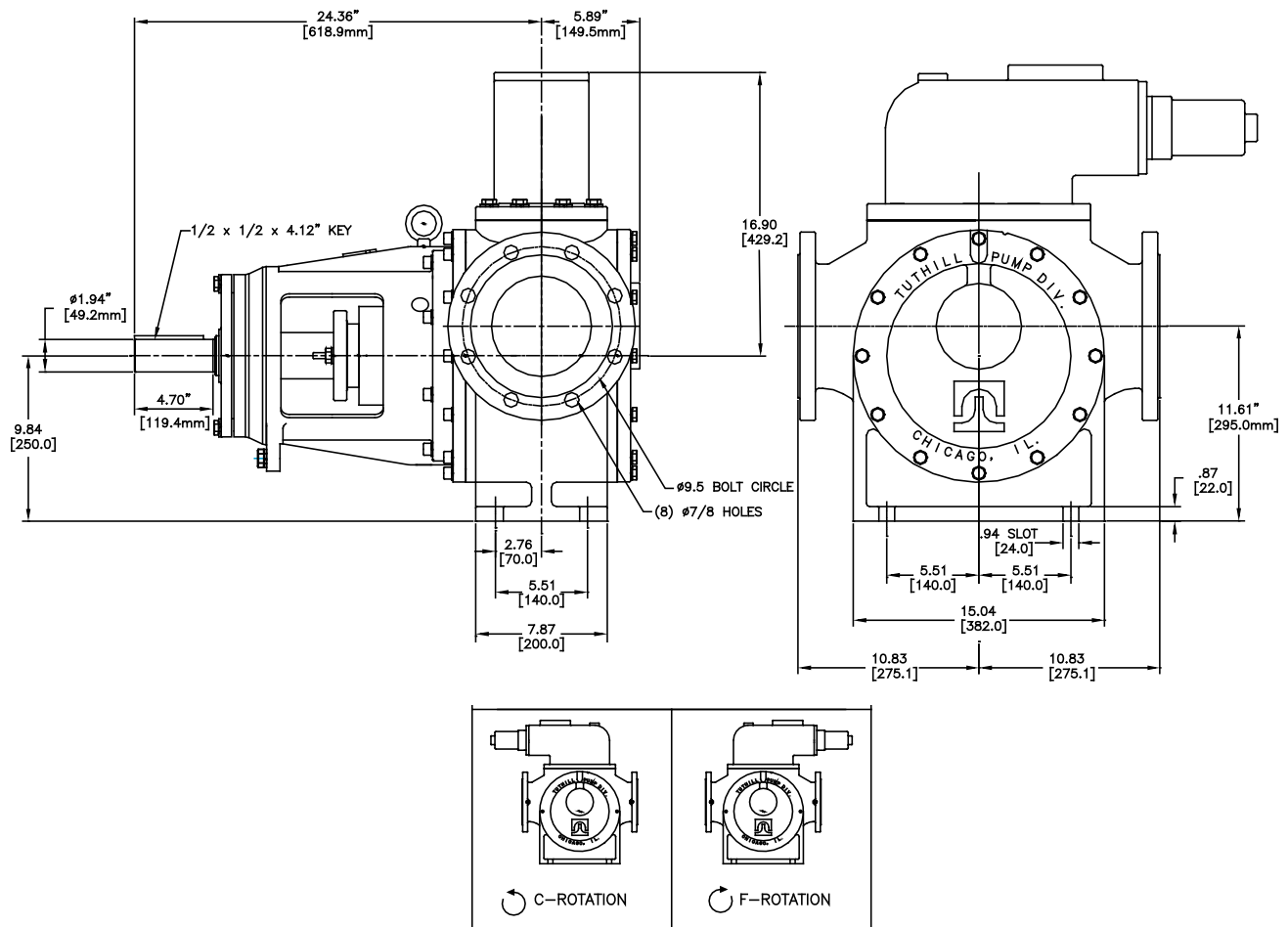
Back Pull-Out Dimensions

Size	Min Spacer
GG250	4.73" [120mm]

Face Type

Face Type	Size-Rating
Flat Face	4" - ANSI 125# thru 150#

GG550 with 6" Side Ports (CI, SS, & CS) Mounting Dimensions



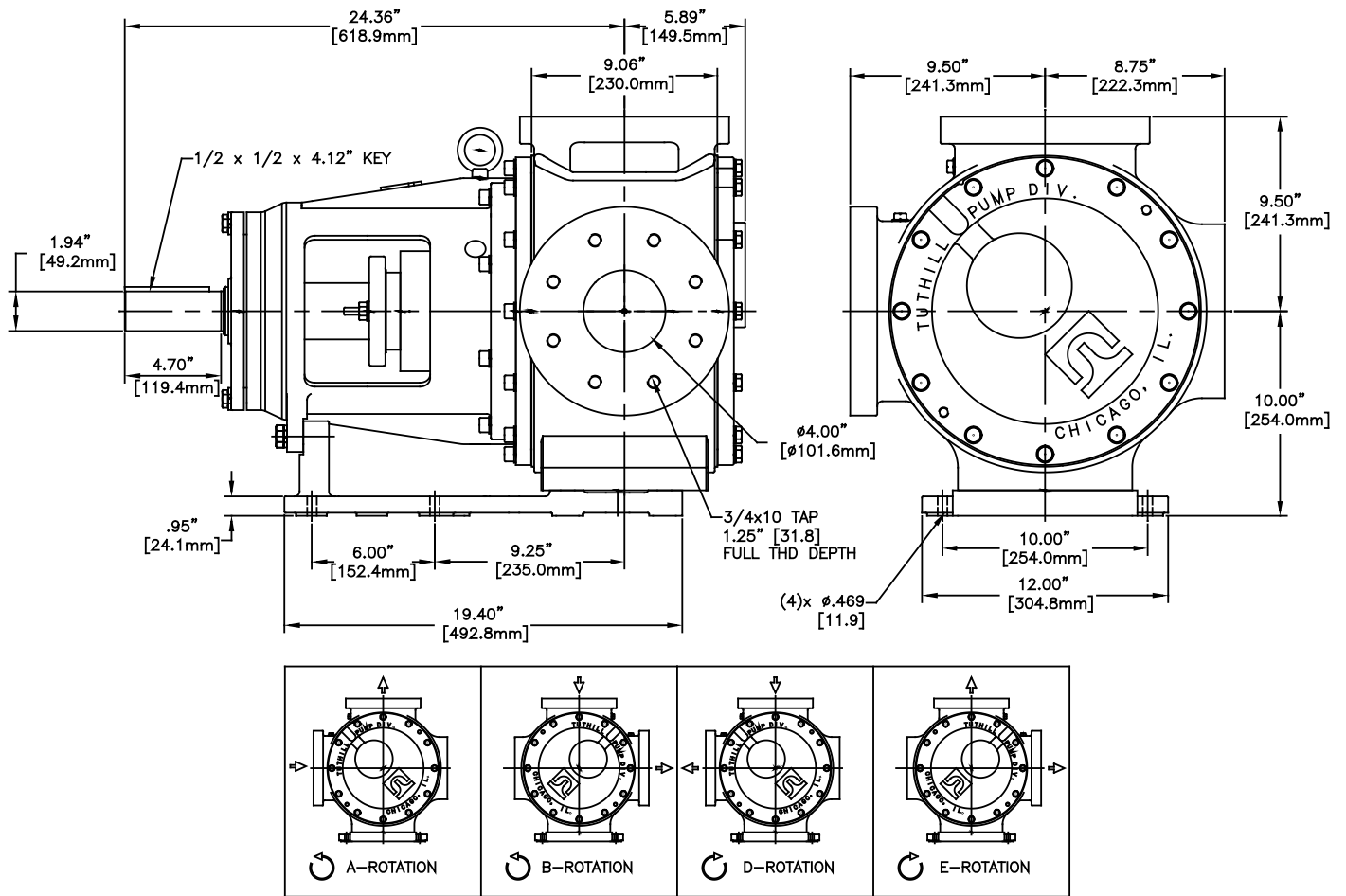
Back Pull-Out Dimensions

Size	Min Spacer
GG550	7.18" [182.4mm]

Face Type

	Size-Rating
Flat Face	6" - ANSI 125# & 150#

GG550 with 4" Angle Ports (CI Only) Mounting Dimensions



Back Pull-Out Dimensions

Size	Min Spacer
GG550	7.18" [182.4mm]

Face Type

	Size-Rating
Flat Face	4" - ANSI 125# & 250#

GlobalGear® Model Number System

For Special Pumps with a Feature not Described Below

Pump Series	Pump Size	Material	Special Indicator	Year of Design	Sequential Special Number
GG	210	I	- X	01	56

	Pump Series		Pump Size			Material of Construction	Port Position & Rotation	Relief Valve	Sealing Method	Sealing Type	Seal Flush	Port Type	Port Size	Shaft Dimensions	Bushing Pin	Tutriding	Jackets	Clearances
	G	G	2	1	0	I	A	V	M	A	1	A	K	I	A	0	0	0
Position	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

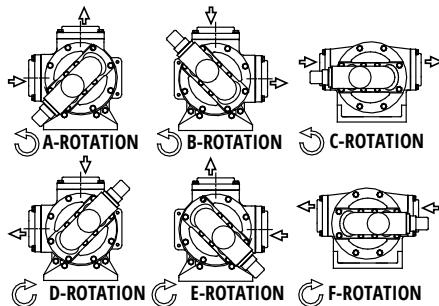
Pump Size

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 = nominal 420 GPM at 420 RPM
550 = nominal 550 GPM at 500 RPM

Material of Construction

I = iron
S = stainless steel
C = cast steel

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 = gen. purp. 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 = TuffSeal cartridge lip seal (Viton O-rings)
K = Triple Lip - PMF PTFE - Viton
P = Hard Faces Cartridge Single Mech. Seal (Tungsten Carbide/Silicar - Viton) Quench Drain

Seal Flush

0 = none
1 = internal vent to suction (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

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 (<7,500 SSU, 20° to 150°F)
A = 7,500 to 75,000 SSU
B = 75,000 to 750,000 SSU
G* = 300°F to 400°F (see note)
H* = 400°F to 500°F (see note)

***Note:** Pumps with G, H or I 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

GlobalGear® Material of Construction

Size	Port	CI	CS	SS	HG	CD
015	Angle	X		X	X	X
	Side	X		X	X	X
030	Angle	X		X	X	X
	Side	X		X	X	X
050	Angle	X			X	X
	Side	X			X	X
070	Angle	X			X	X
	Side	X			X	X
080	Angle	X		X	X	X
	Side	X		X	X	X
090	Angle	X			X	X
	Side	X			X	X
120	Angle	X			X	X
	Side	X			X	X
130	Angle	X		X	X	X
	Side	X	X	X	X	X
200	Angle	X			X	X
	Side	X			X	X
210	Angle	X		X	X	X
	Side	X		X	X	X
250	Angle	X		X	X	X
	Side	X	X	X	X	X
550	Angle	X		X	X	X
	Side	X	X	X	X	X

GlobalGear® Clearance Viscosity Limits

Viscosity SSU	750,000	B	B						B		B	B	B
	75,000	A	A						A		A	A	A
	7,500	0	0	0	0	0	0	0	0	0	0	0	0
	0	015	030	050	070	080	090	120	130	200	210	250	550

GlobalGear® Temperature Limits

°F	Clearances	Pump Series			Bushings			Seal Elastomers		Packing		HT Opts	°C					
600	Class H	Cast Iron Construction	Cast Steel Construction		HT Carbon Bushings					475°F	HT Ball Bearing, Gaskets, and Paint	316						
550									288									
500									260									
450	Class G			Stainless Steel Construction	Bronze Bushings	HT Tungsten Carbide Bushing (CI)							232					
400													204					
390													199					
380													193					
370													188					
360													182					
350													177					
300	Class A				Standard Carbon Bushings	HT TC Bushes (SS)	Viton	PTFE (See Note 3)	Standard Packing (PTFE/Graphite)	Food-Grade Packing (PTFE)	Standard Ball Bearing, Gaskets, and Paint	149						
250												121						
200	Class 0											Std. Tungsten Carbide Bushings (CI)	Std. Tungsten Carbide Bushing (SS)	PTFE (See Note 3)	Standard Packing (PTFE/Graphite)	Food-Grade Packing (PTFE)	Standard Ball Bearing, Gaskets, and Paint	93
150																		66
100																		38
50																		10
0																		-18
-10																		-23
-20																		-29
-30																		-34
-40																		-40
-50																		-46
-100																		-73

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)

Part Name	Material	Standard	Comments	Availability			Compressor Duty
				GGI	GGs*	GGC*	
Housing, Cover	cast iron (CI)	ASTM A48		S			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	O
Bracket, Valve Body	cast iron (CI)	ASTM A48		S			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	S
	Tutrided DI	ASTM A536, grade 80-55-06	surface hardened	O		O	
	stainless steel (SS)	ASTM A494, grade CY5SnBiM	"Nitronic 60"		S		
Rotor Shaft	carbon steel (CS)	AISI 4140		S		S	
	hardened steel	AISI 4140	induction hardened	O		O	S
	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 A276, grade 316		O	S		
	tungsten carbide	grade C2		O	O	O	
Bushings	bronze	SAE CA932		S			
	standard carbon	carbon graphite resin		O	S	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 A276, grade 316			O		

Availability Codes	Pump Models
S= Standard material for this pump series	GGI= GlobalGear®, Iron
O= Optional material for this pump series	GGs= GlobalGear®, Stainless Steel
* Not available with GG550 pumps	GGC= GlobalGear®, Cast Steel
Relief valves not available with GG550 angle ported pumps	Compressor Duty: Stadard Viton O-ring

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	FC	21	Viton®	Carbon	Ceramic	304 S.S.
("F") PTFE Mechanical Seal (PTFE, carbon vs. ceramic)	G015UI9-9T-F	FC	9T	PTFE	Carbon	Ceramic	304 S.S.
("H") Abrasion-Resistant Mech Seal (Viton, SiC vs. SiC)	G015UI9-31-H	FC	31	Viton	Silicon Carbide	Silicon Carbide	304 S.S.
("L") General Purpose Single Cartridge Mech. Seal	G015UI9-91GP-L	FC	91	Viton	Silicon Carbide	Carbon	302 S.S.
("T") Cartridge Lip Seal	G015UI9-4422-T	FC	122	Viton	Silicon Carbide	Filled PTFE	316 S.S.
("Q") Heavy Duty Slurry Seal (Viton)	G015UI9-FLDL-82	FC	82	Viton	Tungsten Carbide	Silicon Carbide	416 S.S.
("R") Heavy Duty Slurry Seal (Chemraz)	G015UI9-FLDL-82C	FC	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	FC	5610	Viton	Tungsten Carbide	Tungsten Carbide	316 S.S.
					Lips	Sleeve	Hardware
("K") Triple Lip PMF-PTFE Viton	G015UI9-4232-K	FC	42	Viton	Filled PTFE	Zirconium	316 S. S.

Packing for 1 1/8" Shaft

Packing Description	Part Number	Vendor	Packing Style	Material Description
(A) Standard Packing (graphite/PTFE)	G015II94	FC	ML4002 or ML8002	Braided PTFE with graphite impregnation.
(C) Food-Grade Packing (PTFE)	G015II94-FG	FC	ML2236FDA	Braided pure PTFE. FDA approved.

Viton®-Registered trademark of DuPont De Nemours & Company/Gylon®-Registered trademark of Garlock, Inc./FC=Factory Choice (Flowserve, Fluidol, John Crane, Sepco)

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	FC	21	Viton®	Carbon	Ceramic	304 S.S.
("F") PTFE Mechanical Seal (PTFE, carbon vs. ceramic)"	G050UI9-9T-F	FC	9T	PTFE	Carbon	Ceramic	304 S.S.
("H")Abrasion-Resistant Mech Seal (Viton, SiC vs. SiC)"	G050UI9-31-H	FC	31	Viton	Silicon Carbide	Silicon Carbide	304 S.S.
("L") General Purpose Single Cartridge Mech. Seal	G050UI9-91GP-L	FC	91	Viton	Silicon Carbide	Carbon	302 S.S.
("T") Cartridge Lip Seal	G050UI9-4422-T	FC	122	Viton	Silicon Carbide	Filled PTFE	316 S.S.
("Q") Heavy Duty Slurry Seal (Viton)	G050UI9-FLDL-82	FC	82	Viton	Tungsten Carbide	Silicon Carbide	416 S.S.
("R") Heavy Duty Slurry Seal (Chemraz)	G050UI9-FLDL-82C	FC	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	FC	5610	Viton	Tungsten Carbide	Silicon Carbide	316 S.S.
					Lips	Sleeve	Hardware
("K") Triple Lip PMF-PTFE Viton	G050UI9-4232-K	FC	42	Viton	Filled PTFE	Zirconium	316 S. S.

Packing for 1 3/8" Shaft

Packing Description	PartNumber	Vendor	Packing Style	Material Description
(A) Standard Packing (graphite/PTFE)	G050II94	FC	ML4002 or ML8002	Braided PTFE with graphite impregnation.
(C) Food-Grade Packing (PTFE)	G050II94-FG	FC	ML2236FDA	Braided pure PTFE. FDA approved.

Viton®-Registered trademark of DuPont De Nemours & Company/Gylon®-Registered trademark of Garlock, Inc./FC=Factory Choice (Flowserve, Fluidol, John Crane, Sepco)

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	FC	21	Viton®	Carbon	Ceramic	304 S.S.
("F") PTFE Mechanical Seal (PTFE, carbon vs. ceramic)"	G120UI9-9T-F	FC	9T	PTFE	Carbon	Ceramic	304 S.S.
("H")Abrasion-Resistant Mech Seal (Viton, SiC vs. SiC)"	G120UI9-31-H	FC	31	Viton	Silicon Carbide	Silicon Carbide	304 S.S.
("L") General Purpose Single Cartridge Mech. Seal	G120UI9-91GP-L	FC	91	Viton	Silicon Carbide	Carbon	302 S.S.
("T") Cartridge Lip Seal	G120UI9-4422-T	FC	122	Viton	Silicon Carbide	Filled PTFE	316 S.S.
("Q") Heavy Duty Slurry Seal (Viton)	G120UI9-FLDL-82	FC	82	Viton	Tungsten Carbide	Silicon Carbide	416 S.S.
("R") Heavy Duty Slurry Seal (Chemraz)	G120UI9-FLDL-82C	FC	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	FC	5610	Viton	Tungsten Carbide	Tungsten Carbide	316 S.S.
					Lips	Sleeve	Hardware
("K") Triple Lip PMF-PTFE Viton	G120UI9-4232-K	FC	42	Viton	Filled PTFE	Zirconium	316 S. S.

Packing for 1 3/4" Shaft

Packing Description	PartNumber	Vendor	Packing Style	Material Description
(A) Standard Packing (graphite/PTFE)	G120II94	FC	ML4002 or ML8002	Braided PTFE with graphite impregnation.
(C) Food-Grade Packing (PTFE)	G120II94-FG	FC	ML2236FDA	Braided pure PTFE. FDA approved.

Viton®-Registered trademark of DuPont De Nemours & Company/Gylon®-Registered trademark of Garlock, Inc./FC=Factory Choice (Flowserve, Fluidol, John Crane, Sepco)

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
("F") PTFE Mechanical Seal (PTFE, carbon vs. ceramic)	G500UI9-9T-F	FC	9T	PTFE	Carbon	Ceramic	316 S.S.
("L") General Purpose Single Cartridge Mech. Seal	G500UI9-4610-L	FC	4610	Viton	Carbon	Silicon Carbide	316 S.S.
("T") Cartridge Lip Seal	G500UI9-4422-T	FC	122	Viton	Silicon Carbide	Filled PTFE	316 S.S.
("Q") Heavy Duty Slurry Seal (Viton)	G500UI9-FLDL-82	FC	82	Viton	Tungsten Carbide	Silicon Carbide	416 S.S.
("P") Hard Face Cartridge Single Seal Mech. TC-5.C-Viton w/ Q.ED	G500UI9-5610-P	FC	5610	Viton	Tungsten Carbide	Tungsten Carbide	316 S.S.
					Lips	Sleeve	Hardware
("K") Triple Lip PMF-PTFE Viton	G500UI9-4232-K	FC	42	Viton	Filled PTFE	Zirconium	316 S. S.

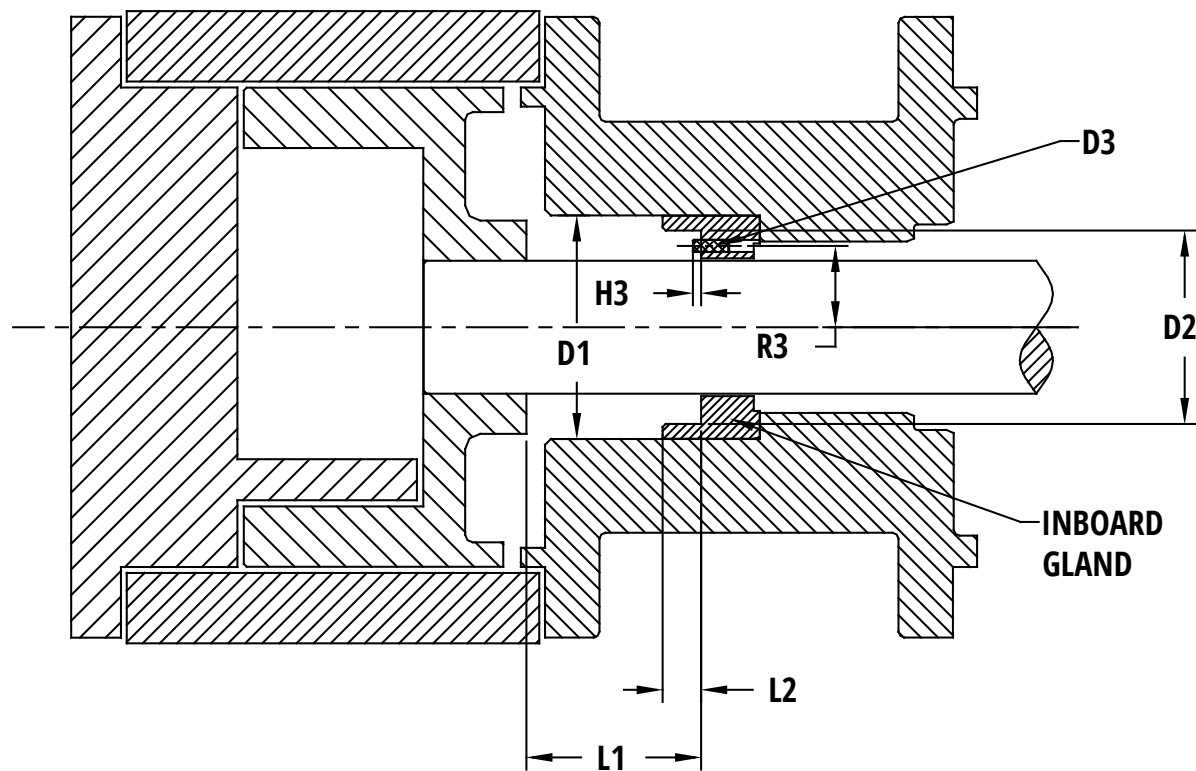
Packing for 2 3/4" Shaft

Packing Description	PartNumber	Vendor	Packing Style	Material Description
(A) Standard Packing (graphite/PTFE)	G500II94	FC	ML4002 or ML8002	Braided PTFE with graphite impregnation.
(C) Food-Grade Packing (PTFE)	G500II94-FG	FC	ML2236FDA	Braided pure PTFE. FDA approved.

Viton®-Registered trademark of DuPont De Nemours & Company/Gylon®-Registered trademark of Garlock, Inc./FC=Factory Choice (Flowserve, Fluidol, John Crane, Sepco)

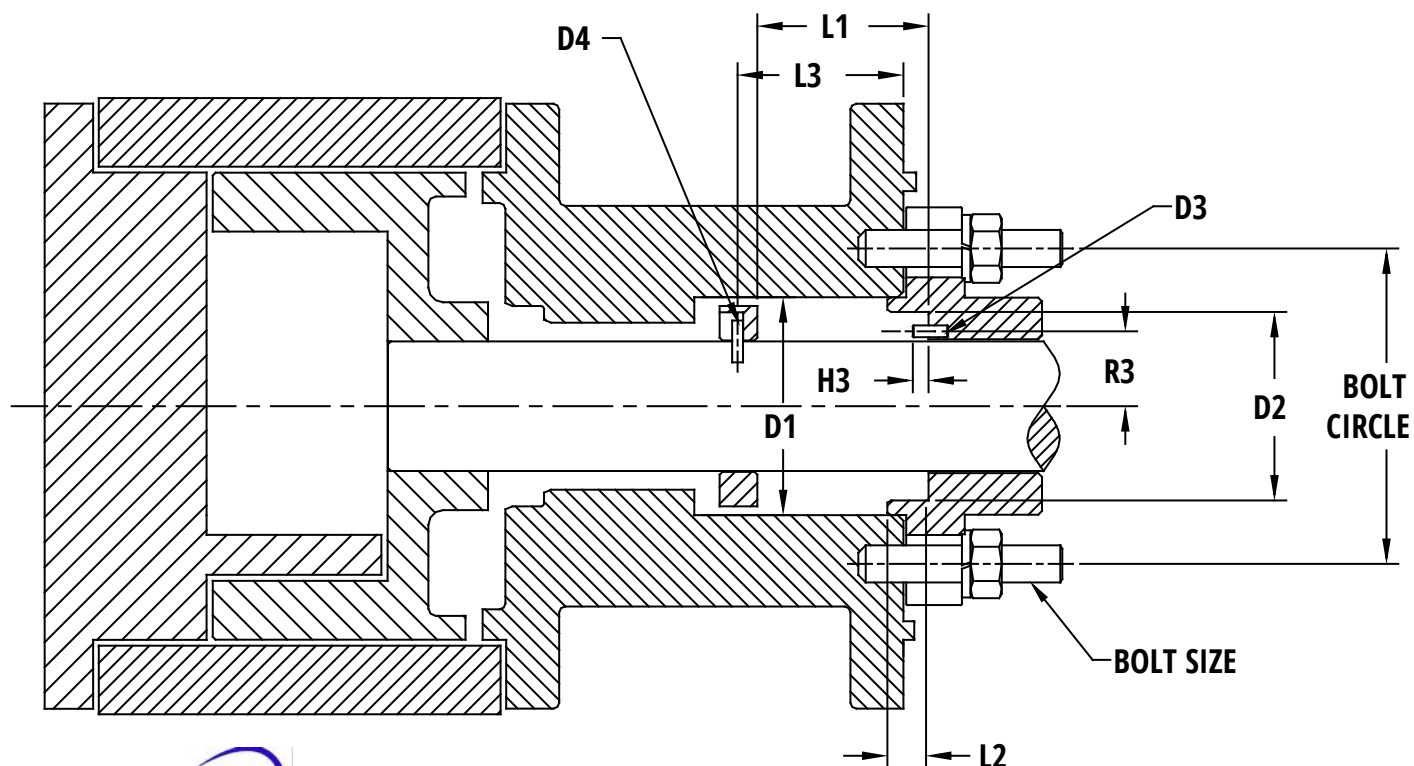
GlobalGear® Seal Chamber Dimensions Mech Seal (Inboard Location, Inch Shaft)

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"	



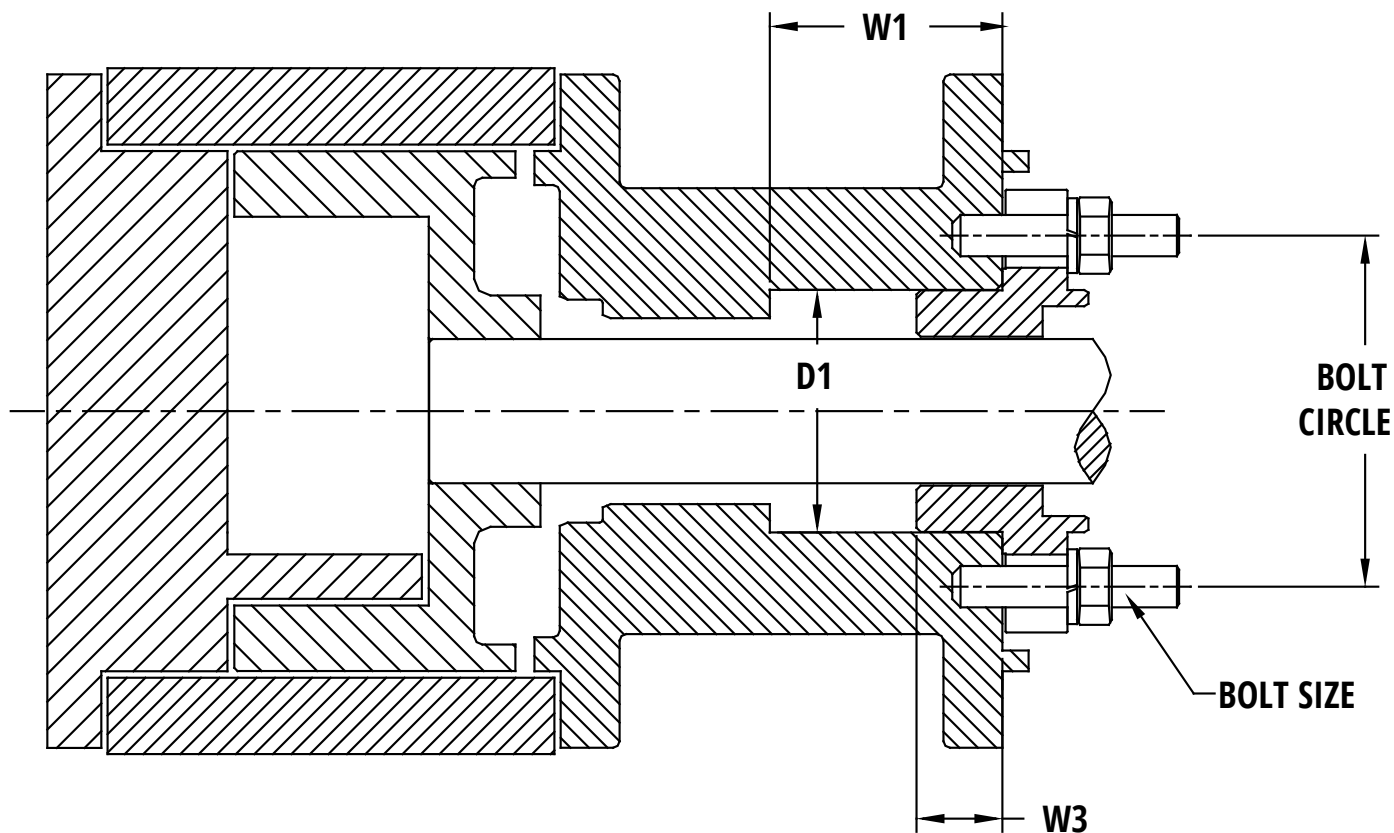
GlobalGear® Seal Chamber Dimensions Mech Seal (Outboard Location, Inch Shaft)

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



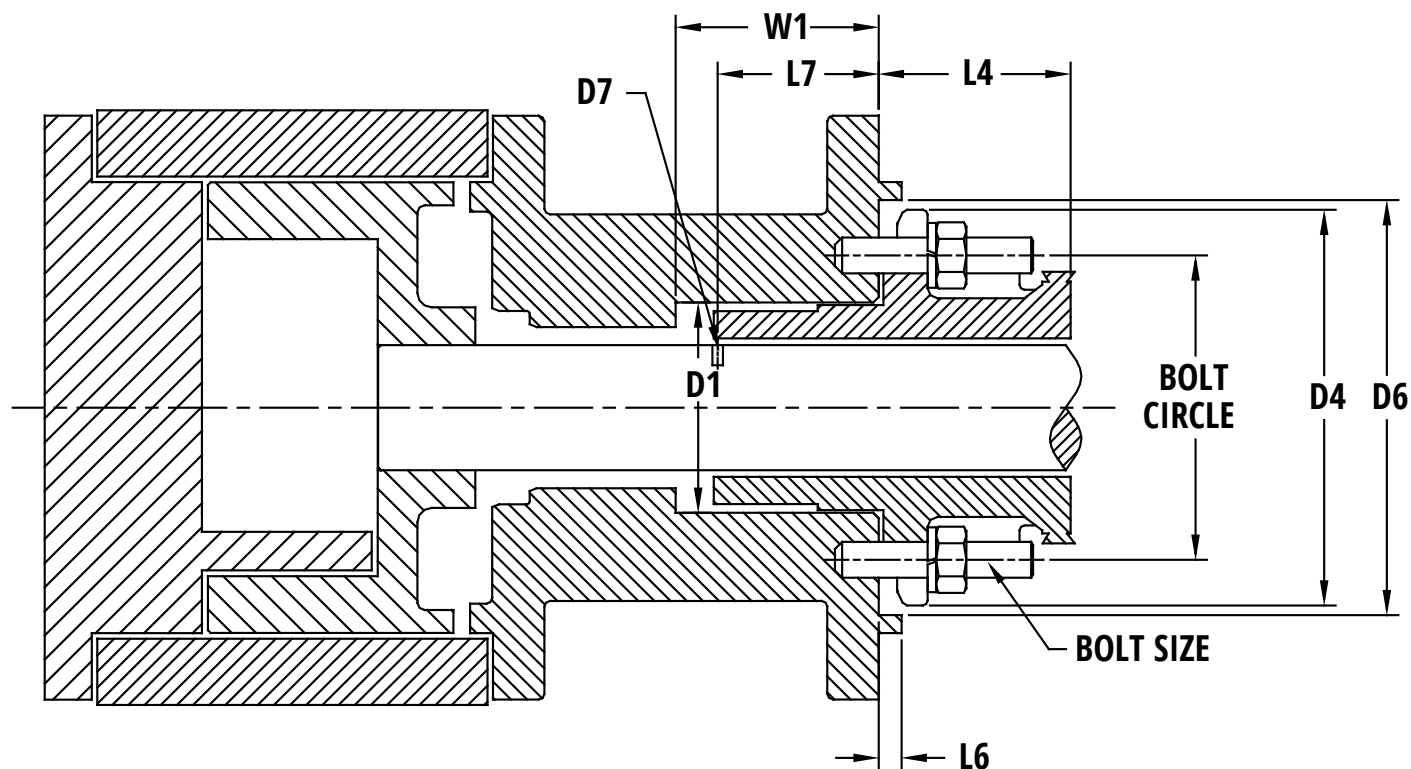
GlobalGear® Seal Chamber Dimensions Packing

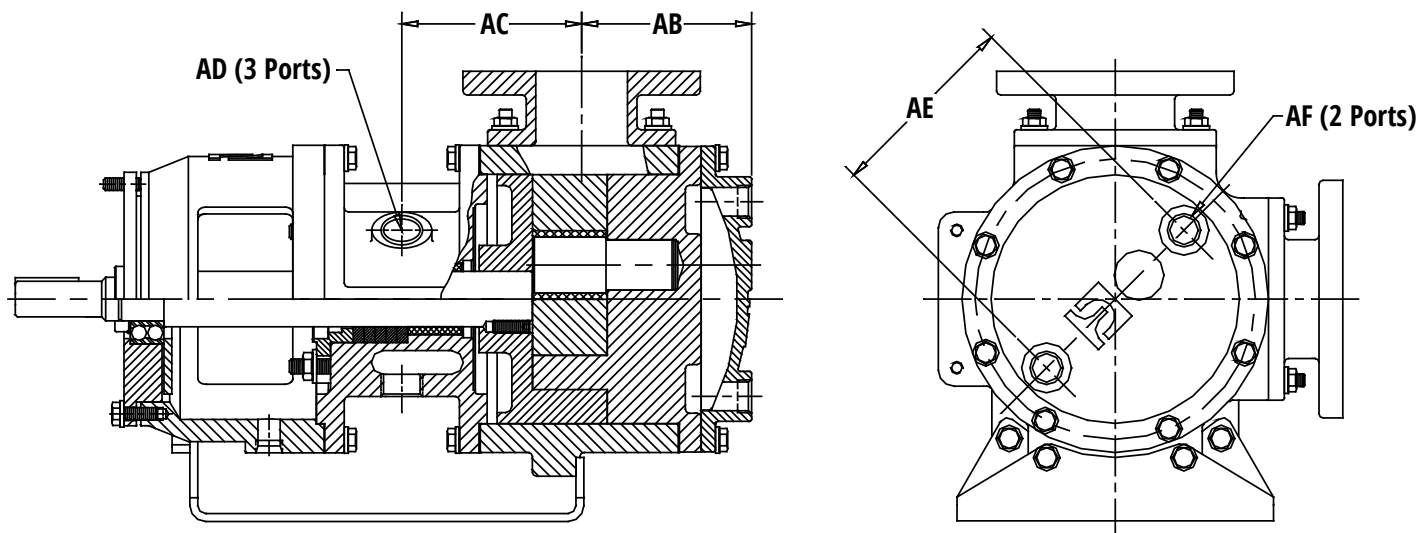
Dimension (Inch Shaft)		GG15/30	"GG50/70/80/90"	GG120/130	GG200/210/250	GG550
Shaft Diameter	-	1.125"	1.375"	1.750"	1.750"	2.75"
Bolt Size	-	4 x M10	2 x M10	2 x M12	2 x M12	2 x M12
Bolt Circle	-	3.13"	3.35"	4.25"	4.25"	5.90"
Chamber Diameter	D1	2.000"	2.313"	2.750"	2.750"	3.78"
Chamber Length	W1	1.69"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



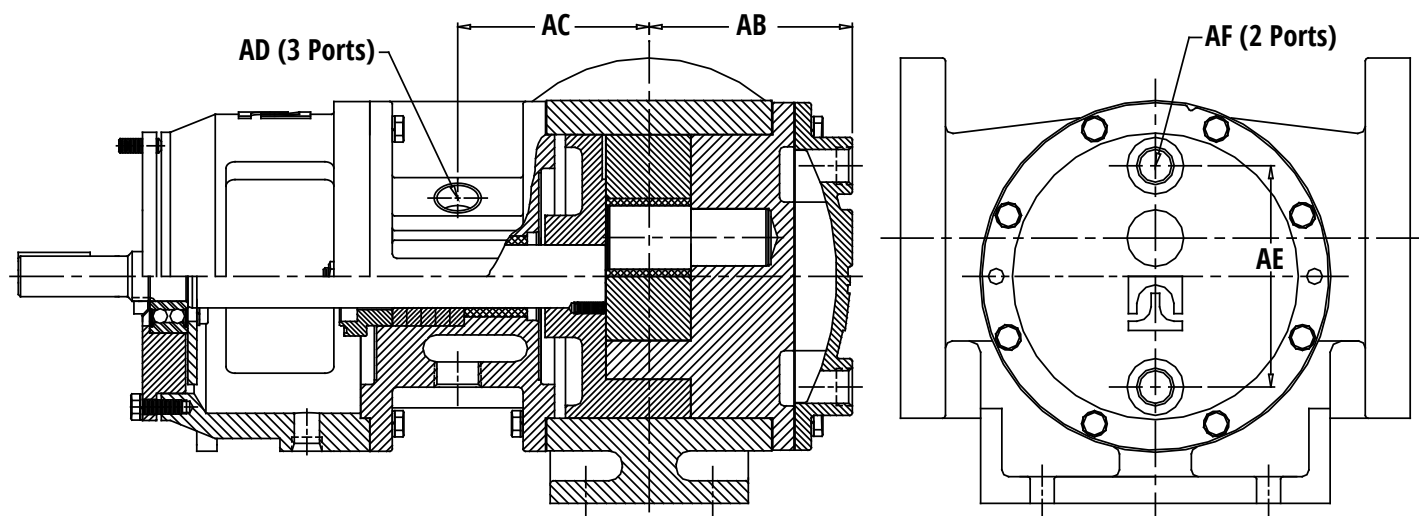


Dimensions - 90° Ports

Pump Size	Jacketed Cover					Jacketed Bracket		
	AB		AE		AF	AC		AD
	inch	mm	inch	mm		inch	mm	
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
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

Jacket Ratings		Steam	Heat Transfer Fluid
Max Temperature	° F	365	600
	° C	185	316
Max Pressure	psig	150	150
	bar g	10.3	10.3

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



Dimensions - 180° Ports

pump size	Jacketed Cover					Jacketed Bracket		
	AB		AE		AF	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
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

Jacket Ratings		Steam	Heat Transfer Fluid
Max Temperature	° F	365	600
	° C	185	316
Max Pressure	psig	150	150
	bar g	10.3	10.3

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

NPSHr for up to 750 ssu (Feet of Water)

Size	150 rpm	250 rpm	350 rpm	450 rpm	550 rpm	750 rpm	950 rpm	1150 rpm	1450 rpm	1750 rpm
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)

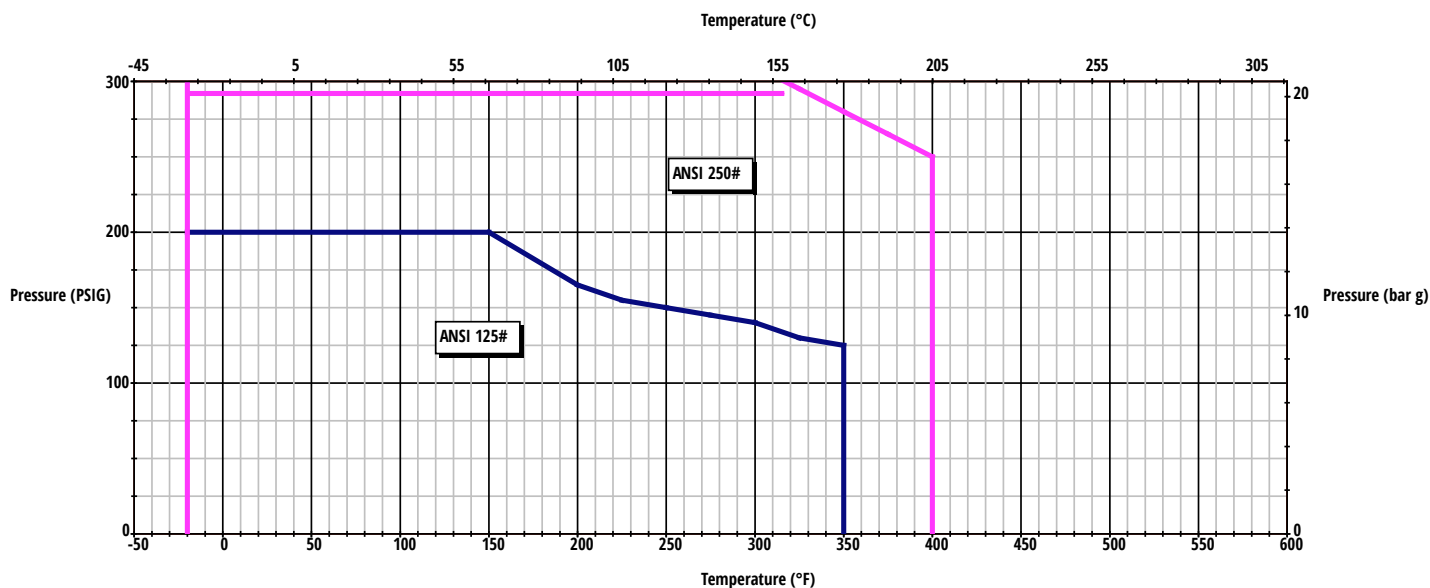
Size	150 rpm	250 rpm	350 rpm	450 rpm	550 rpm	750 rpm	950 rpm	1150 rpm	1450 rpm	1750 rpm
GG015	0.4	0.5	0.5	0.6	0.7	0.9	1.4	1.9	2.6	3.4
GG030	0.4	0.5	0.5	0.6	0.7	0.9	1.4	1.9	2.6	3.4
GG050	0.5	0.5	0.7	0.8	1.0	1.6	2.3	3.4	4.6	
GG070	0.5	0.5	0.7	0.8	1.0	1.6	2.3	3.4	4.6	
GG080	0.5	0.5	0.7	0.8	1.0	1.6	2.3	3.4	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 / 550 cst	1.3	25,000 ssu / 5500 cst	2.7	250,000 ssu / 55,000 cst	5.3
5000 ssu / 1100 cst	1.7	50,000 ssu / 11,000 cst	3.1	500,000 ssu / 110,000 cst	6.7
10,000 ssu / 2200 cst	2.0	100,000 ssu / 22,000 cst	4.0	1,000,000 ssu / 220,000 cst	10.7

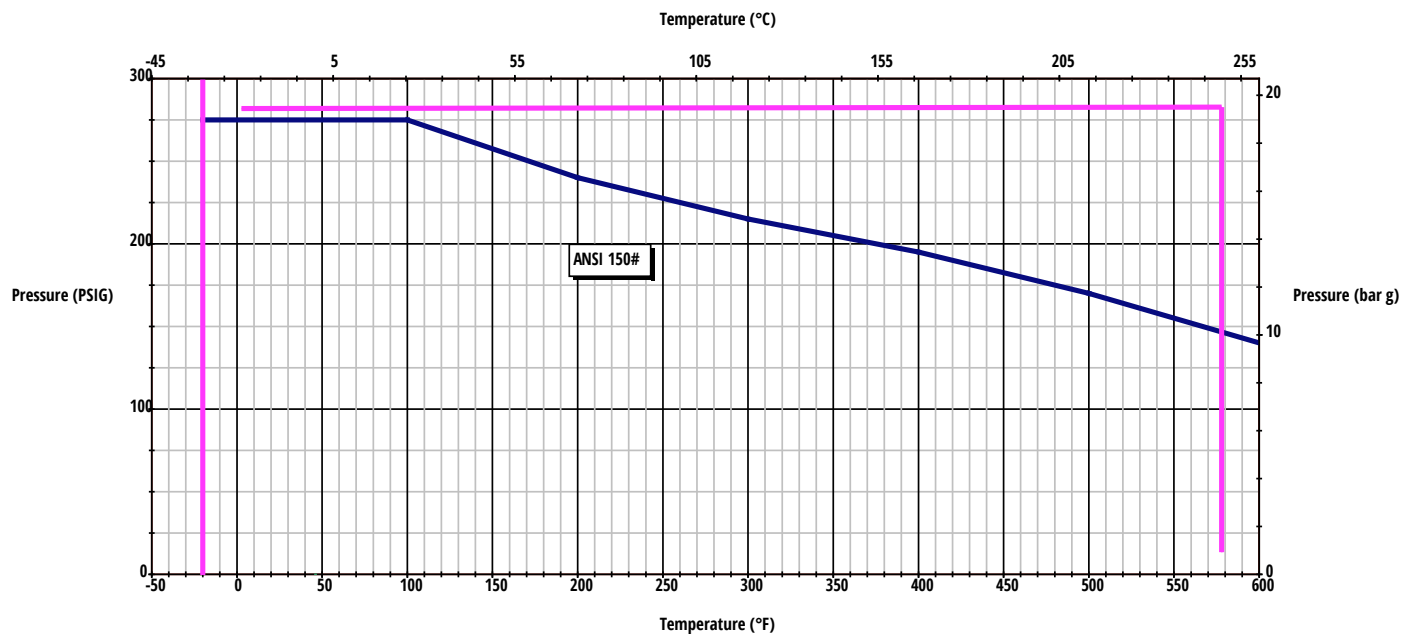
Notes: For viscosity above 750 ssu (165 cst), multiply the charted NPSHr value by the appropriate correction factor. NPSHa (available) must be greater than NPSHr (required) for proper pump operation. Data shown here is for pumps with standard ports. Optional ports of different sizes may affect NPSHr.

GlobalGear® Flange Ratings (Cast Iron)



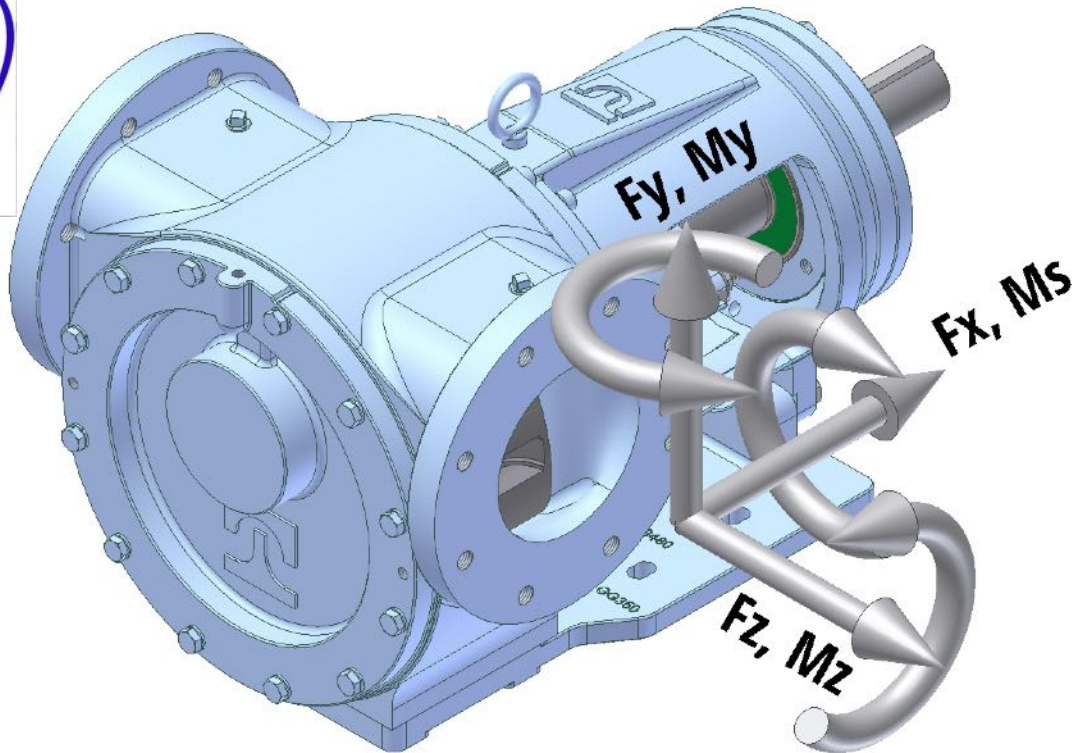
Note: These charts show the ratings for flanges only - the maximum pump operating conditions must also be checked. Consult the appropriate Tuthill catalog for maximum allowable operating pressures and temperatures, based on pump application conditions and pump features. These ratings are based on non-shock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

GlobalGear® Flange Ratings (Stainless Steel)



Note: These charts show the ratings for flanges only - the maximum pump operating conditions must also be checked. Consult the appropriate Tuthill catalog for maximum allowable operating pressures and temperatures, based on pump application conditions and pump features. These ratings are based on non-shock pressures. ANSI data is from ASME/ANSI B16.5 - 1988 (matl group 2.2). Consult this spec for more information. 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
	4	100	300	1334	500	678
GG200-210-250	2	50	150	667	250	339
	2.5	65	150	667	312	424
	3	80	225	1001	375	508
	4	100	300	1334	500	678
GG550	6	150	450	2002	750	1017

Notes: 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." For GG Iron Series, multiply the above values by 0.35. These maximum values are not valid for combined forces and moments.