



F20/F30 Ferra Series Hydraulic Pumps



DESCRIPTION, FEATURES AND BENEFITS

Reliable, efficient, serviceable design

Concentric external spur gear, positive displacement pumps are offered in single, double, triple and thru-drive versions.

Single and thru-drive pumps are of a three-section modular design. Front and rear covers are cast iron for reliability, strength, and sound reduction. A **cast iron center section** allows gear tips to generate their own run-in paths, creating minimum radial gear-tip clearance for high volumetric efficiency.

The thru-drive pump is a single pump with a mounting pad and coupling spline in its rear cover, allowing a second pump to be mounted and driven in tandem.

The double pump consists of two single pumps, each having its own outlet port but sharing a common inlet port and input shaft. This compact unit can, therefore, serve two separate hydraulic circuits, or supply greater volume to a single circuit through the combined delivery of both pumps.

Besides offering greater design flexibility to hydraulic system designers, thru-drive and double pumps reduce installation costs since they allow multiple pump operation from a single mounting and drive point. Also, double pumps require only one inlet line, compared to the two required when separate pumps are used.

Convenient, economical porting arrangements

A large selection of port sizes and positions allows greater system design flexibility, provides the means for reducing costs through simplified plumbing arrangements, and facilitates the interchangeability of Concentric and competitive pumps. SAE 4-bolt split flange ports and SAE straight thread ports are standard.

Choice of shafts, rotation and couplings

Splined SAE side-fit drive shafts are standard. Other popular shafts are available. Pumps are assembled for either clockwise or counterclockwise rotation.

Thru-drive pumps are provided with output drive couplings that mate with splined SAE side-fit drive shafts.

Meets many mounting requirements

SAE standard wet flange mountings and single or double shaft seals are available on all pumps. Mounting pads meet SAE standards and are available in several sizes and types to satisfy various mounting requirements and to facilitate interchangeability of Vickers and competitive units.

Double shaft seals are ideal for applications where the pump pilot and shaft extend into a transmission case or crankcase. If either seal fails, the pump fluid remains separated from the transmission or crankcase fluid. Leakage past either seals drains to the exterior of the pump. The double seal feature thus reduces system

downtime by preventing the mixing of different fluids and providing for visual detection of seal malfunction.

The inlet of the thru-drive pump is open to the pump's rear coupling area, requiring that mating pumps have a wet-flange mounting. If the rear mounting pad is capped instead of used to mount a pump, it must be sealed to prevent fluid leakage and entrance of air.

Heavy duty construction

The drive gear and drive shaft are one piece construction, as are the driven gear and shaft, to eliminate the potential problems of fretting and stress fatigue associated with two-piece construction. The one-piece design also allows the use of large diameter journals and bearings for greater load-carrying capacity.

Gears are of AISI 8620 alloy steel for greater shaft strength and a stronger gear assembly. Gears have ten teeth to minimize pressure ripple, and gear sides and shaft journals are carburized, hardened, and ground to a fine finish.

The pumps large teflon impregnated bronze bearings are installed in precision bored covers for optimum shaft alignment. They provide a large support area that keeps bearing pressures low enough to handle most indirect drives. For applications imposing very high side loads, consult your Concentric representative.

NOTE: This catalog features our most standard single, double and triple pump capabilities. Other pump options and multiple pump combinations are available. Please contact factory or your Concentric representative for information. See bottom of page 45 for contact information.

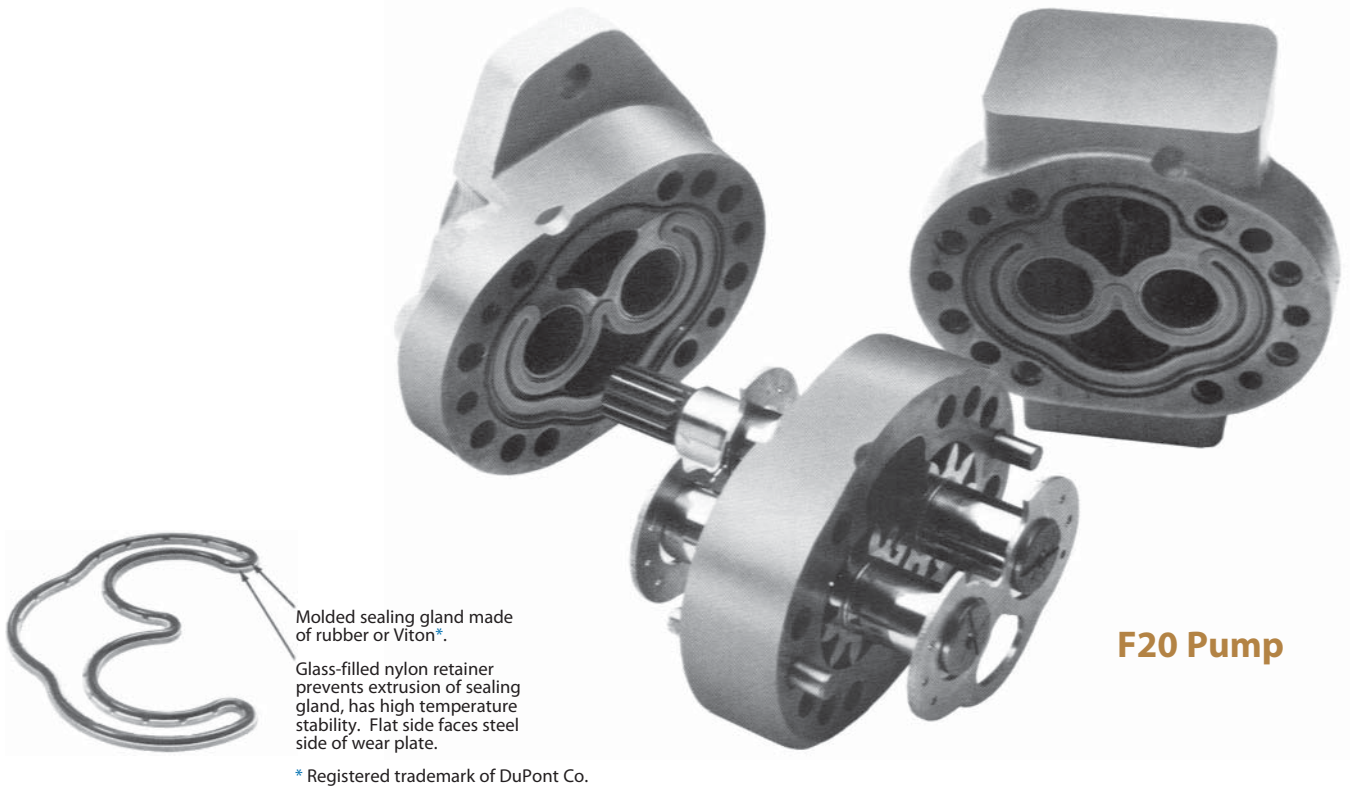
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Minimum leakage and wear

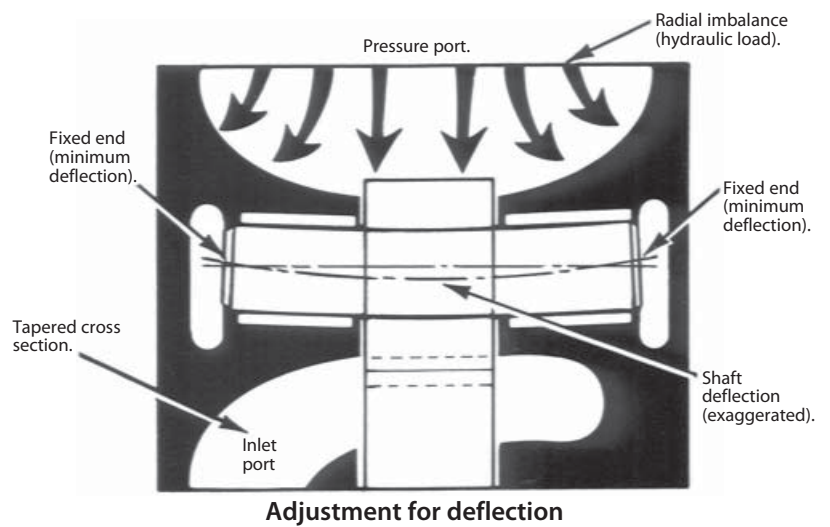
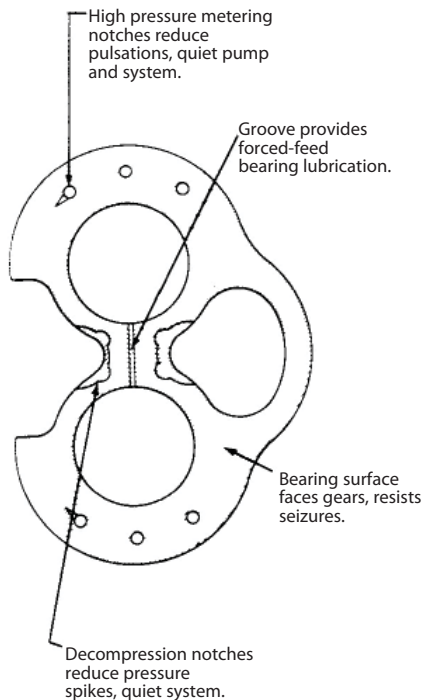
Concentric pumps utilize two seal packs and two wear plates to minimize leakage across the end faces of the gears and to reduce wear. During startup, the seal packs mechanically preload and seal a cantilever section of the plates against the ends of the gears.

The seal packs also establish the wear plate area exposed to system pressure, allowing axial pressure loading and balancing of the cantilever sections. As pressure increases, the sections deflect toward the gear faces to reduce clearances and balance opposing axial forces. Running clearances are

maintained small enough for minimum leakage across the faces, yet large enough to maintain the oil film required to minimize wear of mating surfaces.



LONG-LIFE BEARING SYSTEM



Bearings and support structures move in unison with, and adjust to, shafts that are deflected by high hydraulic loads. Optimum bearing alignment,

under load, maintains the large-area bearing support required for minimum wear and maximum life of bearings and pump.

PERFORMANCE SPECIFICATIONS FOR F20/F30 PUMPS

Single and thru-drive pumps	Theoretical displacement per revolution	Rated pressure		Rated speed @ rated pressure & .17 bar (5" Hg) vacuum inlet		Minimum speed @ rated pressure	Typical delivery @ rated speed & pressure		Typical input power @ rated speed & pressure		
		cc	cu. in.	bar	psi		rpm	rpm*	l/min	gpm	kW
F20 and FT20	7	23	1.41	276	4000	3600	1000	75.7	20	37	50
	9	29	1.79	276	4000	3400	800	90.8	24	44	59
	11	36	2.18	276	4000	3200	600	105.9	28	51	68
	13	43	2.60	276	4000	3000	600	117.3	31	57	76
	15	48	2.94	276	4000	2800	600	124.9	33	60	80
	17	55	3.33	250	3625	2500	600	128.7	34	62	83
	19	62	3.77	228	3300	2500	600	147.6	39	57	76
	21	68	4.13	207	3000	2500	600	162.7	43	57	76
24	77	4.71	190	2700	2500	600	185.4	49	53	71	
27	87	5.30	170	2375	2300	600	193.0	51	49	66	
F30 and FT30	18	58	3.54	276	4000	3000	600	166.5	44	77	104
	21	68	4.13	276	4000	3000	600	193.0	51	90	121
	25	80	4.91	276	4000	3000	600	230.9	61	107	144
	28	91	5.51	276	4000	2750	600	214.0	57	95	128
	30	97	5.89	276	4000	2500	600	230.9	61	98	131
	32	104	6.30	250	3625	2500	600	245.0	65	99	133
	35	113	6.88	250	3400	2500	600	272.5	72	95	127
	40	129	7.86	228	2900	2400	600	299.0	79	104	139
45	145	8.84	190	2550	2300	600	325.5	86	92	123	
50	161	9.82	170	2300	2200	600	344.4	91	87	116	

* Lower speeds are permissible when operating below rated pressure.

Double pump model series	Pump sizes and ratings †		† Rated speed of double pump is governed by pump with lower speed rating. If deliveries of both pumps are combined, rated pressure is governed by pump with lower pressure rating.
	Shaft-end pump	Cover-end pump	
F2020	Same as for F20 and FT20 above.	Same as for F20 and FT20 above.	
F3020	Same as for F30 and FT30 above.		
F3030		Same as for F30 and FT30 above.	

Efficiency

Depending on displacement, speed and pressure, volumetric efficiency is 81-98% and overall efficiency is 71-92% with SAE 10W oil at 49°C (120°F).

Inlet conditions

Pressure on the inlet should not exceed 1 bar (15 psi). Under continuous operation, inlet vacuum should not exceed 0.17 bar (5"Hg).

Operating temperature

Under continuous operation, a maximum of 96°C (205°F) is recommended. The maximum temperature for cyclic or intermittent operation is 107°C (225°F).

Fluids and filtration

For applications requiring fire resistant fluids, water glycols, water in-oil emulsions and synthetics may be used at slightly reduced ratings. Fluid should be selected

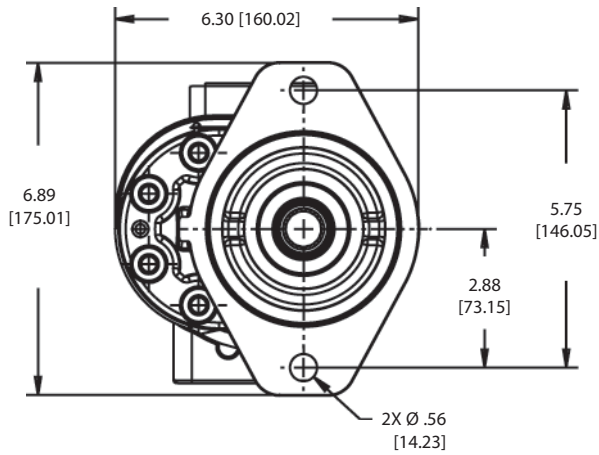
with an operating viscosity similar to the petroleum oil described above. For application assistance, consult your Concentric representative.

The system should be filtered to provide an ISO code (proposed) cleanliness level of 19/16. A 10-micron filter sized to accommodate full system return line flow, is recommended for most operating environments. Severe conditions may require greater efficiency from the filter.

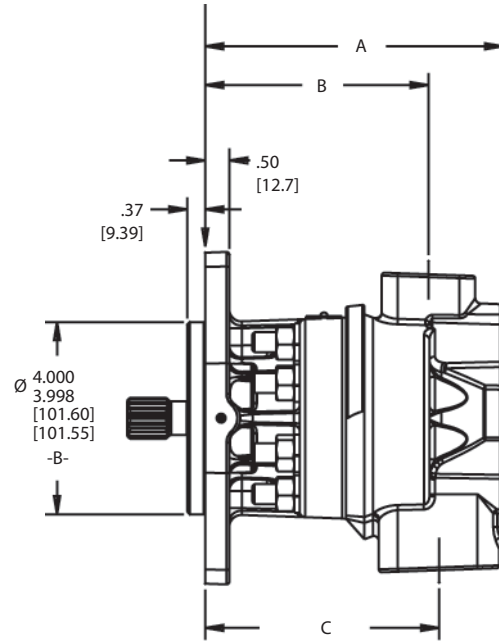
TABLE OF CONTENTS

Description, Features and Benefits	2 & 3
Specifications and Application Data	4
Installation Dimensions / Model Codes	
F20	6 - 7
F30	8 - 9
FT20	10 - 11
FT30	12 - 13
F2009.....	14 - 15
F2020.....	16 - 17
F3020.....	18 - 19
F3030.....	20 - 21
F202020.....	22 - 23
F303030.....	24 - 25
F200909.....	26 - 27
F202009.....	28 - 29
F302020.....	30 - 31
F303020.....	32 - 33
FT2020	34 - 35
FT3030	36 - 37
Mounting Flanges	38
Drive Shafts.....	39
Rear Mounting Flanges for Thru-Drive Pumps.....	40
Rear Couplings for Thru-Drive Pumps	41
Performance Curves	42
Concentric Product Offering	43

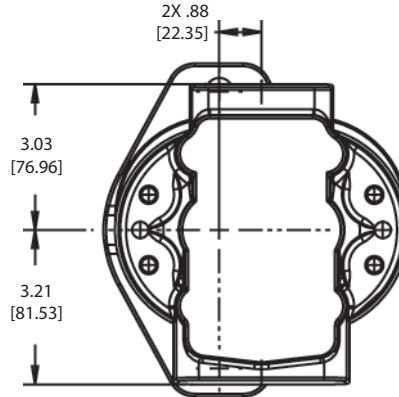
F20



FRONT VIEW



SIDE VIEW



REAR VIEW

5.30	87	27	7.95	201.9	6.40	162.6	6.62	168.1
4.71	77	24	7.70	195.6	6.15	156.2	6.37	161.8
4.13	68	21	7.43	188.7	5.88	149.4	6.10	154.9
3.77	62	19	7.26	184.4	5.71	145.0	5.93	150.6
3.33	55	17	7.06	179.3	5.51	140.0	5.73	145.5
2.94	48	15	6.89	175.0	5.34	135.6	5.56	141.2
2.60	43	13	6.73	170.9	5.18	131.6	5.40	137.2
2.18	36	11	6.54	166.1	4.99	126.7	5.21	132.3
1.79	29	9	6.36	161.5	4.81	122.2	5.03	127.8
1.41	23	7	6.18	157.0	4.63B	117.6	4.85C	123.2
CIR	CC	DISPLACEMENT CODE	A (in.)	A (mm)	(in.)	B (mm)	(in.)	C (mm)

All dimensions shown are for reference only. Consult factory for your specific configuration.

Model Code for F20 Series Single Pumps

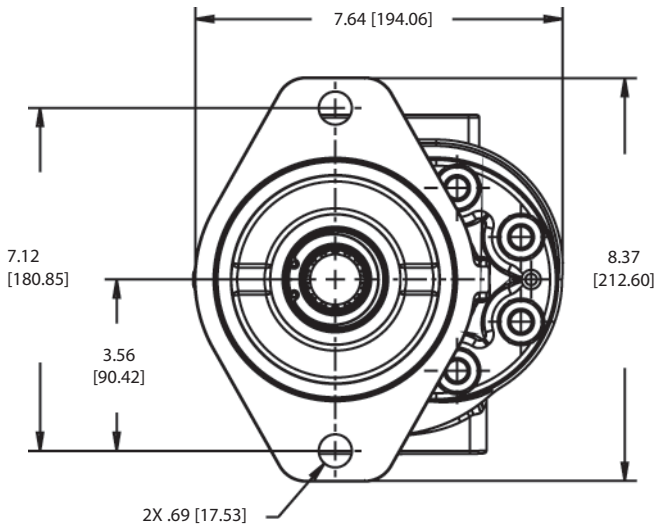
(*) Any option marked with an asterisk (*) indicates you should contact the factory for availability.

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F20	F20 Series Single Gear Pump		
3 (Mount Type)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
1	SAE "A" 2-Bolt Mount (G20W only)		
2	SAE "B" 2-Bolt Flange		
6	SAE "B" 2/4-Bolt Combination Mount (G20W only)		
8	SAE "C" 2/4-Bolt Mount		
31(*)	SAE "A" 2-Bolt Mount w/Outboard Ball Bearing		
32(*)	SAE "B" 2-Bolt Mount w/Outboard Ball Bearing		
5 (Inlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
C	1.25", SAE 4-Bolt Split Flange		
CM	1.25", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
7 (Outlet Port)			
Order Code	Description		
A	.750", SAE 4-Bolt Split Flange		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
S	#10 SAE (.875" - 14) Straight Thread		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Rear Cover)			
Order Code	Description		
1	Standard Single Pump Rear Cover (no options)		
9 (Shaft Seal)			
Order Code	Description		
A	Single Shaft Seal (30 PSI)		
D	High Pressure (100 PSI)		
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)		
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)		
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)		
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)		
X	None		

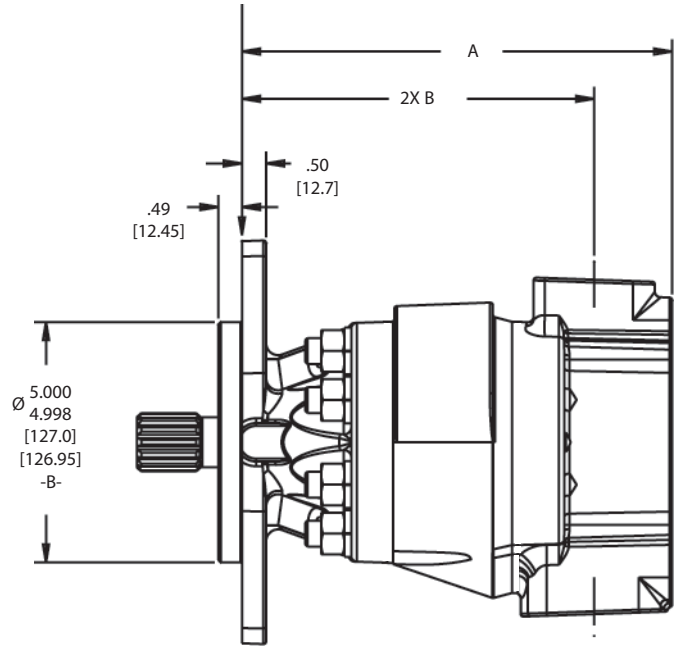
EXAMPLE:												
(F3)-	F20-	W- 2 -	D- 15-	B - 1-	A -12-	A-	10 -	L				
1	2	3	4	5	6	7	8	9	10	11	12	13
Special Seals	Series	Mount Type	Front Cover	Inlet Port	Displacements	Outlet Port	Rear Cover	Shaft Seal	Drive Shaft	Port Locations	Design	Rotation

10 (Drive Shaft)	
Order Code	Description
1	SAE "B" Straight Keyed, .875" Diameter, 1.312" Ext.
3(*)	Straight Keyed with Thread (.625" - 18 UNC)
5(*)	Tapered Threaded (1.50" taper per foot)
7	Tapered Keyed/Threaded (.625" - 18 UNC, 1.50" taper per foot)
12	SAE "B" 13-Tooth Spline, Flat Root-Side Fit
17(*)	SAE "A" 9-Tooth Spline, Flat Root-Side Fit
18(*)	SAE "A" 9-Tooth Spline, Major Dia. Fit
21	SAE "BB" Straight Keyed, 1.00" diameter, 1.50" ext.
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	
11 (Port Locations)	
Order Code	Description
A	Side Inlet / Side Outlet
B	Side Inlet / Rear Outlet
C	Rear Inlet / Side Outlet
D	Rear Inlet / Rear Outlet
12 (Design Designation)	
Order Code	Description
10	Standard
13 (Rotation)	
Order Code	Description
Omit	Clockwise Rotation
L	Counterclockwise Rotation

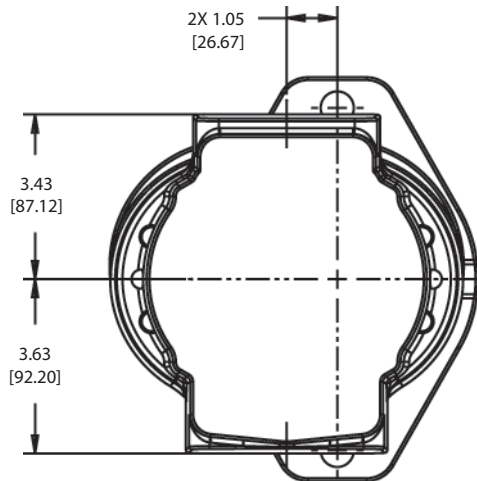
F30



FRONT VIEW



SIDE VIEW



REAR VIEW

161	9.82	50	9.56	242.8	7.94	201.7
145	8.84	45	9.25	235.0	7.63	193.8
129	7.86	40	8.94	227.1	7.32	185.9
113	6.88	35	8.63	219.2	7.01	178.1
103	6.30	32	8.45	214.6	6.83	173.5
97	5.89	30	8.33	211.6	6.71	170.4
90	5.51	28	8.21	208.5	6.59	167.4
81	4.91	25	8.02	203.7	6.40	162.6
68	4.13	21	7.77	197.4	6.15	156.2
58	3.54	18	7.58	192.5	5.96B	151.4
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	(in.)	B (mm)

All dimensions shown are for reference only. Consult factory for your specific configuration.

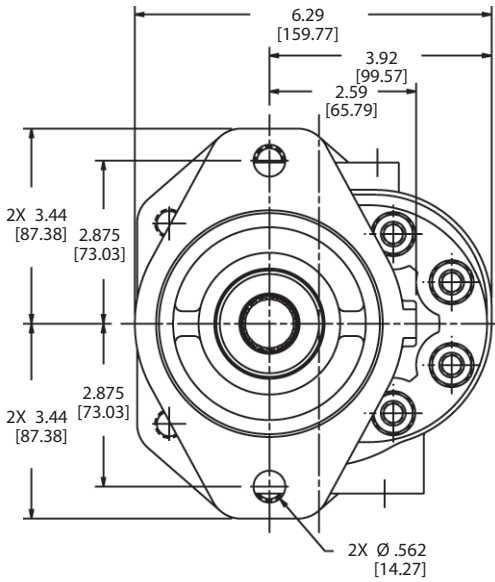
Model Code for F30 Series Single Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F30	F30 Series Single Gear Pump		
3 (Mount Type)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
4	SAE "C" 4-Bolt Mount		
6	SAE "B" 2/4-Bolt Combination Mount		
7	SAE "C" 2-Bolt Mount		
8	SAE "C" 2/4-Bolt Combination Mount		
5 (Inlet Port)			
Order Code	Description		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
E	2.00", SAE 4-Bolt Split Flange		
EM	2.00", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Y	#30 SAE (2 1/2" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
7 (Outlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Y	#30 SAE (2 1/2" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Rear Cover)			
Order Code	Description		
2	Standard Single Pump Rear Cover (no options)		
9 (Shaft Seal)			
Order Code	Description		
A	Single Shaft Seal (30 PSI)		
D	High Pressure (100 PSI)		
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)		
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)		
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)		
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)		
X	None		

EXAMPLE:												
(F3)-	F30-	C-	4-	E-	30-	C-	2-	A-	12-	A-	10-	L
1	2	3	4	5	6	7	8	9	10	11	12	13
Special Seals	Series	Mount Type	Front Cover	Inlet Port	Displacements	Outlet Port	Rear Cover	Shaft Seal	Drive Shaft	Port Positions	Design	Rotation

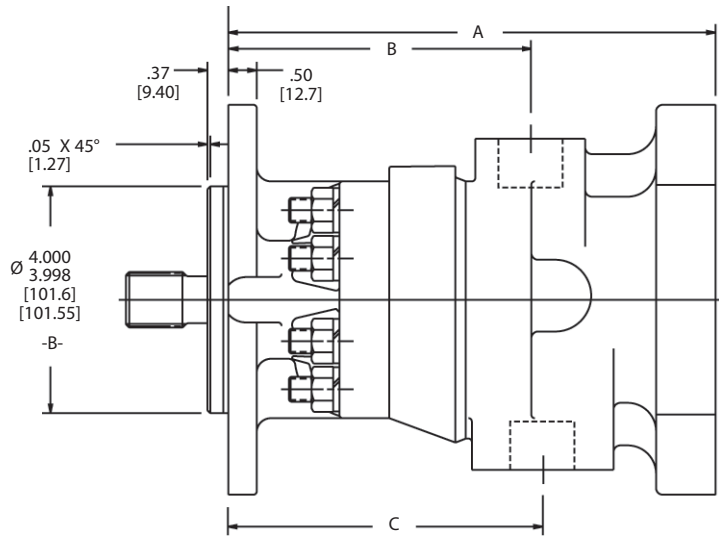
10 (Drive Shaft)	
Order Code	Description
1	SAE "C" Straight Keyed, 1.250" Diameter, 1.875" Ext.
5	Tapered Threaded (1.50" taper per foot)
12	SAE "C" 14-Tooth Spline, Flat Root-Side Fit
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	
11 (Port Positions)	
Order Code	Description
A	Side Inlet / Side Outlet
B	Side Inlet / Rear Outlet
C	Rear Inlet / Side Outlet
D	Rear Inlet / Rear Outlet
12 (Design Designation)	
Order Code	Description
10	Standard
13 (Rotation)	
Order Code	Description
L	Counterclockwise Rotation
R	Clockwise Rotation

FT20

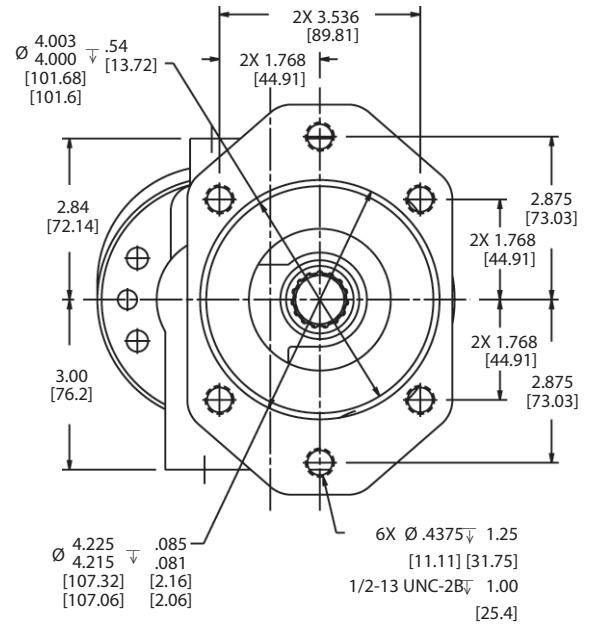


ROTATION
CW

FRONT VIEW



SIDE VIEW



REAR VIEW

87	5.30	27	9.689	245.9	6.42	163.1	6.646	168.7
77	4.71	24	419.1	239.0	6.15	156.2	376.1	161.8
68	4.13	21	48.97	232.2	5.88	149.4	05.93	154.9
62	3.77	19	8.788	227.8	5.71	145.0	5.735	150.6
55	3.33	17	608.4	223.0	5.51	140.0	.565	145.5
48	2.94	15	48.25	218.4	5.34	135.6	405.2	141.2
43	2.60	13	8.077	214.4	5.18	131.6	15.03	137.2
36	2.18	11	90	209.6	4.99	126.7	4.85C	132.3
29	1.79	9	A	205.0	4.81	122.2	(in.)	127.8
23	1.41	7	(in.)	200.7	4.63	117.6		123.2
CC	CIR	DISPLACEMENT CODE		A (mm)	B (in.)	B (mm)		C (mm)

All dimensions shown are for reference only. Consult factory for your specific configuration.

Model Code for FT20 Series Thru Drive Pumps

(*) Any option marked with an asterisk (*) indicates you should contact the factory for availability.

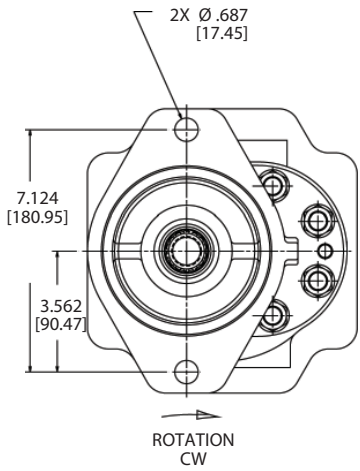
ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
FT20	FT20 Thru Drive Series Single Gear Pump		
3 (Mount Type)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
1	SAE "A" 2-Bolt Mount		
2	SAE "B" 2-Bolt Mount		
4(*)	SAE "C" 4-Bolt Mount (Contact Factory)		
6	SAE "B" 2/4-Bolt Combination Mount (Wet Mount Only)		
8	SAE "C" 2/4-Bolt Combination Mount		
5 (Inlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
C	1.25", SAE 4-Bolt Split Flange		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements)			
Order Code	Cm ³ /in. ³	Order Code	Cm ³ /in. ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
7 (Outlet Port)			
Order Code	Description		
A	.750", SAE 4-Bolt Split Flange		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
S	#10 SAE (.875" - 14) Straight Thread		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Rear Mounting Pad)			
Order Code	Description		
1	SAE "A" 2-Bolt Rear Mounting Pad		
6	SAE "B" 2/4-Bolt Rear Mounting Pad		
Note: A shorter length SAE "A" rear mounting pad option is available, contact factory for information.			
9 (Shaft Seal)			
Order Code	Description		
A	Single Shaft Seal (30 PSI)		
D	High Pressure (100 PSI)		
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)		
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)		
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)		
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)		
X	None		

EXAMPLE:												
(F3)-	FT20-	W-	2-	D-	9-	B-	1-	A-12-	A-	10-	L	
1	2	3	4	5	6	7	8	9	10	11	12	13
Special Seals	Series	Mount Type	Front Cover	Inlet Port	Displacements	Outlet Port	Rear Mounting Pad	Shaft Seal	Drive Shaft	Rear Coupling	Design	Rotation

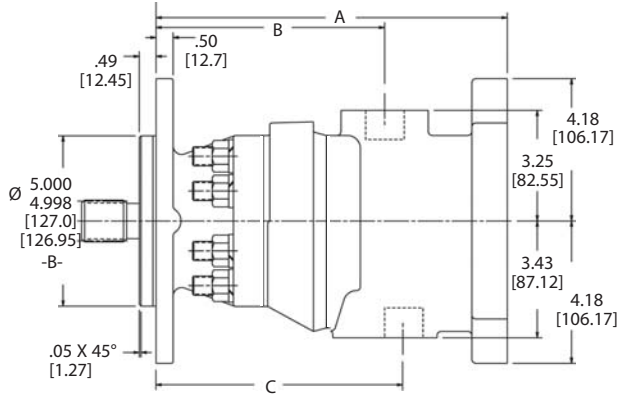
10 (Drive Shaft)	
Order Code	Description
1	SAE "B" Straight Keyed, .875" diameter, 1.312" ext.
12	SAE "B" 13-Tooth Spline, Flat Root-Side Fit
21	SAE "BB" Straight Keyed, 1.00" diameter, 1.50" ext.
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	
11 (Rear Coupling)	
Order Code	Description
A	SAE "A" Coupling
B	SAE "B" Coupling
BB	SAE "BB" Coupling
G	SAE "A" Coupling 11-Tooth 16/32 DP, Flat Root-Side Fit
X	No Coupling
12 (Design Designation)	
Order Code	Description
10	Standard
13 (Rotation)	
Order Code	Description
L	Counterclockwise Rotation
R	Clockwise Rotation

FT30

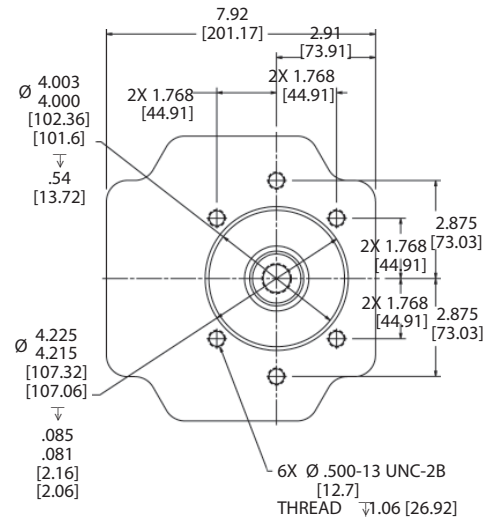
SAE "B" 2/4-BOLT REAR MOUNTING PAD



FRONT VIEW



SIDE VIEW

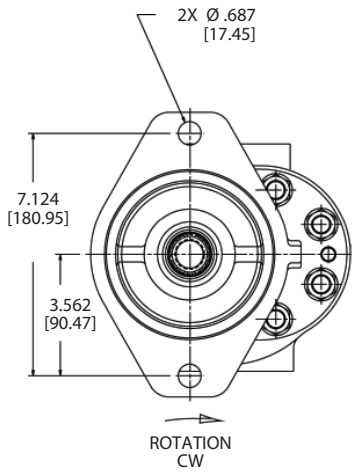


REAR VIEW

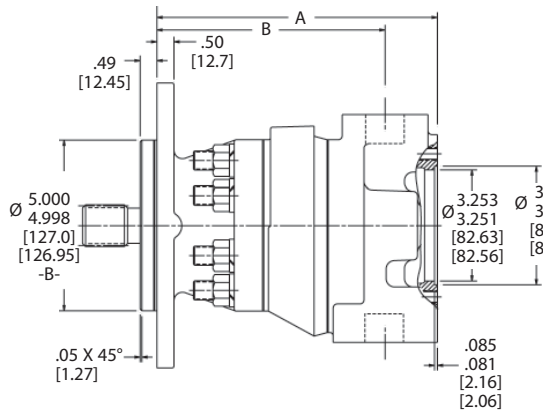
161	9.82	50	11.54	293.1	7.95	201.9	8.48	215.4
145	8.84	45	11.23	285.2	7.64	194.1	8.17	207.5
129	7.86	40	10.92	277.4	7.33	186.2	7.86	199.6
113	6.88	35	10.62	269.7	7.02	178.3	7.55	191.8
103	6.30	32	10.43	264.9	6.84	173.7	7.37	187.2
97	5.89	30	10.31	261.9	6.71	170.4	7.24	183.9
90	5.51	28	10.19	258.8	6.59	167.4	7.12	180.8
81	4.91	25	10.00	254.0	6.40	162.6	6.93	176.0
68	4.13	21	9.75	247.7	6.15	156.2	6.68	169.7
58	3.54	18	9.56	242.8	5.97	151.6	6.50	165.1
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)	C (in.)	C (mm)

All dimensions shown are for reference only. Consult factory for your specific configuration.

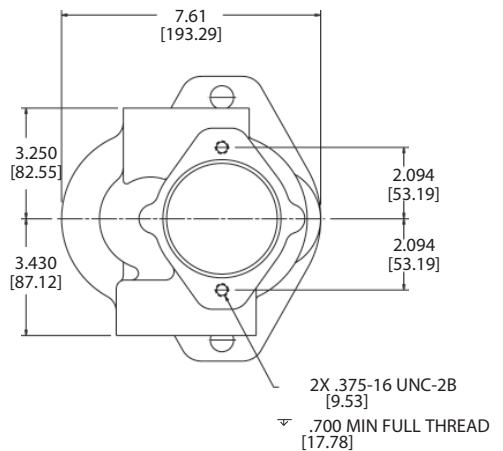
SAE "A" 2-BOLT REAR MOUNTING PAD



FRONT VIEW



SIDE VIEW



REAR VIEW

161	9.82	50	9.48	240.8	7.94	201.7
145	8.84	45	9.17	232.9	7.63	193.8
129	7.86	40	8.86	225.0	7.33	186.2
113	6.88	35	8.55	217.2	7.02	178.3
103	6.30	32	8.37	212.6	6.84	173.7
97	5.89	30	8.24	209.3	6.71	170.4
90	5.51	28	8.12	206.2	6.59	167.4
81	4.91	25	7.93	201.4	6.40	162.6
68	4.13	21	7.69	195.3	6.15	156.2
58	3.54	18	7.50	190.5	5.97	151.6
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)

All dimensions shown are for reference only. Consult factory for your specific configuration.

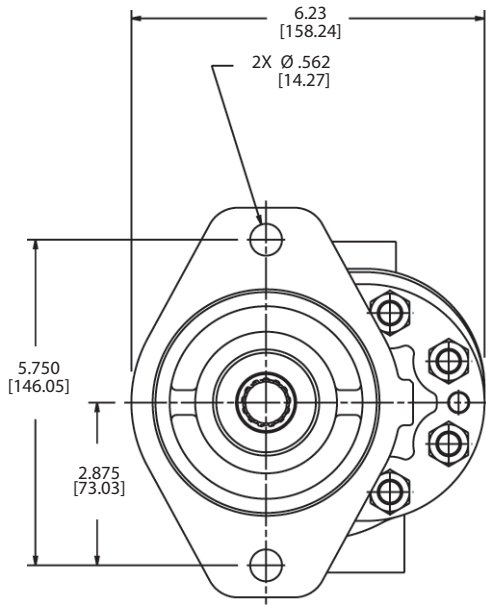
Model Code for FT30 Series Thru Drive Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
FT30	FT30 Thru Drive Series Gear Pump		
3 (Mount Type)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
4	SAE "C" 4-Bolt Mount		
6	SAE "B" 2/4-Bolt Combination Mount		
7	SAE "C" 2-Bolt Mount		
8	SAE "C" 2/4-Bolt Combination Mount		
5 (Inlet Port)			
Order Code	Description		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
E	2.00", SAE 4-Bolt Split Flange		
EM	2.00", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Y	#30 SAE (2 1/2" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
7 (Outlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.25", SAE 4-Bolt Split Flange		
CM	1.25", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Rear Mounting Pad)			
Order Code	Description		
1	SAE "A" 2-Bolt Rear Mounting Pad		
6	SAE "B" 2/4-Bolt Combination Rear Mounting Pad		
8	SAE "C" 2/4-Bolt Combination Rear Mounting Pad		
9 (Shaft Seal)			
Order Code	Description		
A	Single Shaft Seal (30 PSI)		
D	High Pressure (100 PSI)		
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)		
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)		
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)		
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)		
X	None		

EXAMPLE:													
(F3)-	FT30	-	C-	4-	E-	30-	C-	6-	A-	12-	B-	10-	L
1	2	3	4	5	6	7	8	9	10	11	12	13	
Special Seals	Series	Mount Type	Front Cover	Inlet Port	Displacements	Outlet Port	Rear Mounting Pad	Shaft Seal	Drive Shaft	Rear Coupling	Design	Rotation	

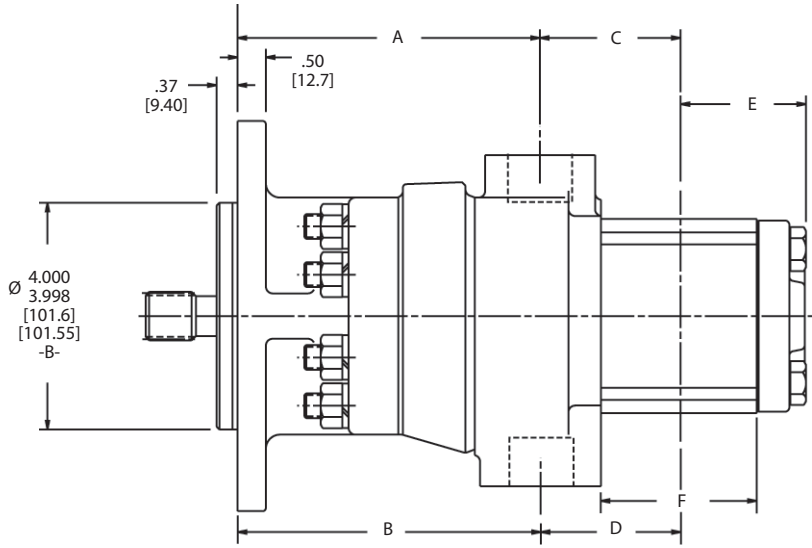
10 (Drive Shaft)	
Order Code	Description
1	SAE "C" Straight Keyed, 1.250" diameter, 1.875" ext.
12	SAE "C" 14-Tooth Spline, Flat Root-Side Fit
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	
11 (Rear Coupling)	
Order Code	Description
A	SAE "A" Coupling
B	SAE "B" Coupling
BB	SAE "BB" Coupling
C	SAE "C" Coupling
X	No Coupling
12 (Design Designation)	
Order Code	Description
10	Standard
13 (Rotation)	
Order Code	Description
L	Counterclockwise Rotation
R	Clockwise Rotation

F2009



ROTATION
CCW

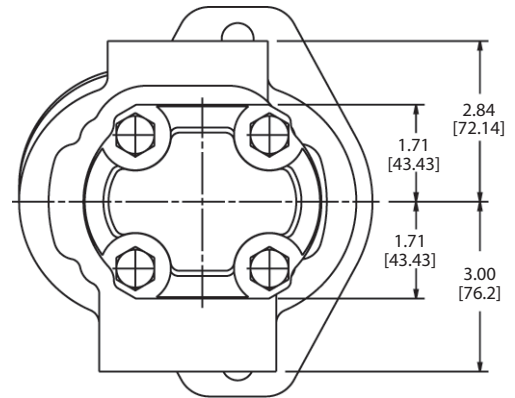
FRONT VIEW



SIDE VIEW

87	5.30	27	6.41	162.8	6.43	163.3
77	4.71	24	6.14	156.0	6.16	156.5
68	4.13	21	5.87	149.1	5.89	149.6
62	3.77	19	5.71	145.0	5.73	145.5
55	3.33	17	5.51	140.0	5.53	140.5
48	2.94	15	5.33	135.4	5.35	135.9
43	2.60	13	5.17	131.3	5.19	131.8
36	2.18	11	4.98	126.5	5.00	127.0
29	1.79	9	4.80	121.9	4.82	122.4
23	1.41	7	4.63	117.6	4.65	118.1
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)

F20 SECTIONS



REAR VIEW

28	1.709	28	2.73	69.3	2.72	69.1	2.52	64.0	3.30	83.8
27	1.647	27	2.70	68.6	2.69	68.3	2.49	63.2	3.24	82.3
23	1.403	23	2.58	65.5	2.57	65.3	2.38	60.5	3.01	76.5
19	1.159	19	2.47	62.7	2.46	62.5	2.26	57.4	2.78	70.6
16	.976	16	2.38	60.5	2.37	60.2	2.17	55.1	2.60	66.0
14	.854	14	2.32	58.9	2.31	58.7	2.12	53.8	2.49	63.2
11	.671	11	2.23	56.6	2.22	56.4	2.03	51.6	2.31	58.7
10	.610	10	2.20	55.9	2.19	55.6	2.00	50.8	2.25	57.2
8	.488	8	2.15	54.6	2.14	54.4	1.94	49.3	2.14	54.4
6	.366	6	2.09	53.1	2.08	52.8	1.86	47.2	2.02	51.3
CC	CIR	DISPLACEMENT CODE	C (in.)	C (mm)	D (in.)	D (mm)	E (in.)	E (mm)	F (in.)	F (mm)

W900 SECTIONS

All dimensions shown are for reference only. Consult factory for your specific configuration.

Model Code for F2009 Series Double Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F2009	F2009 Series Double Gear Pump		
3 (Mount Type)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
2	SAE "B" 2-Bolt Mount		
4(*)	SAE "C" 4-Bolt Mount (contact factory)		
6	SAE "B" 2/4-Bolt Combination Mount (wet mount only)		
8(*)	SAE "C" 2/4-Bolt Mount (contact factory)		
5 (Front Section Inlet Port)			
Order Code	Description		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
E	2.0", SAE 4-Bolt Split Flange		
EM	2.0", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
7 (Front Section Outlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
NOTE: Metric ports available, contact factory. Contact factory for other requirements.			
8 (Displacements, Rear Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
6-	6 cc/.366 in. ³	16-	16 cc/.976 in. ³
8-	8 cc/.488 in. ³	19-	19 cc/1.159 in. ³
10-	10 cc/.610 in. ³	23-	23 cc/1.403 in. ³
11-	11 cc/.671 in. ³	27-	27 cc/1.647 in. ³
14-	14 cc/.854 in. ³	28-	28 cc/1.709 in. ³
9 (Rear Section Inlet Port)			
Order Code	Description		
X	No Rear Inlet Port (single inlet for double pump)		
Rear Inlet Port Options (dual inlet for double pump):			
S	6 cc, #10 SAE (7/8" - 14) Straight Thread		
T	8 cc, #12 SAE (1 1/16" - 12) Straight Thread		
V	19 cc - 28 cc, #16 SAE (1 5/16" - 12) Straight Thread		
A	16 cc - 19 cc, .750", SAE 4-Bolt Split Flange		
B	23 cc - 28 cc, 1.00", SAE 4-Bolt Split Flange		
NOTES: Split flange ports are not available for 6cc - 14 cc sizes. Metric ports available, contact factory.			

(*) Any option marked with an asterisk (*) indicates you should contact the factory for availability.

EXAMPLE:															
(F3)- F2009- W- 2 - W-13- T - 23- X- A - X- 12- E- C - 10 - L															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Special Seals	Series	Mount Type	Front Cover	Front Inlet Port	Displacements	Front Outlet Port	Displacements	Rear Inlet Port	Rear Outlet Port	Shaft Seal	Drive Shaft	Valve Options	Relief Valve Setting	Design	Rotation

10 (Rear Section Outlet Porting)	
Order Code	Description
Q	6 cc, #8 SAE (3/4" - 16) Straight Thread
S	8 cc - 16 cc, #10 SAE (7/8" - 14) Straight Thread
T	19 cc - 28 cc, #12 SAE (1 1/16" - 12) Straight Thread
Y	16 cc - 19 cc, .500", SAE 4-Bolt Split Flange
A	23 cc - 28 cc, .750", SAE 4-Bolt Split Flange
NOTES: Split flange ports are not available for 6cc - 14 cc sizes. Metric ports available, contact factory.	

11 (Shaft Seal)	
Order Code	Description
A	Single Shaft Seal (30 PSI)
D	High Pressure (100 PSI)
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)
X	None

12 (Drive Shaft)	
Order Code	Description
1	SAE "B" Straight Keyed, .875" Diameter, 1.312" Ext.
12	SAE "B" 13-Tooth Spline, Flat Root-Side Fit
21	SAE "BB" Straight Keyed, 1.00" Diameter, 1.50" Ext.
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	

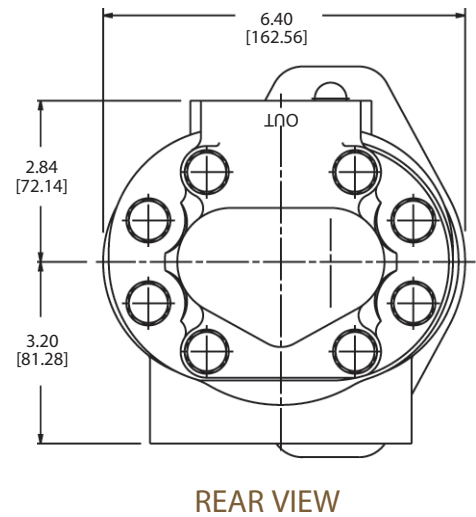
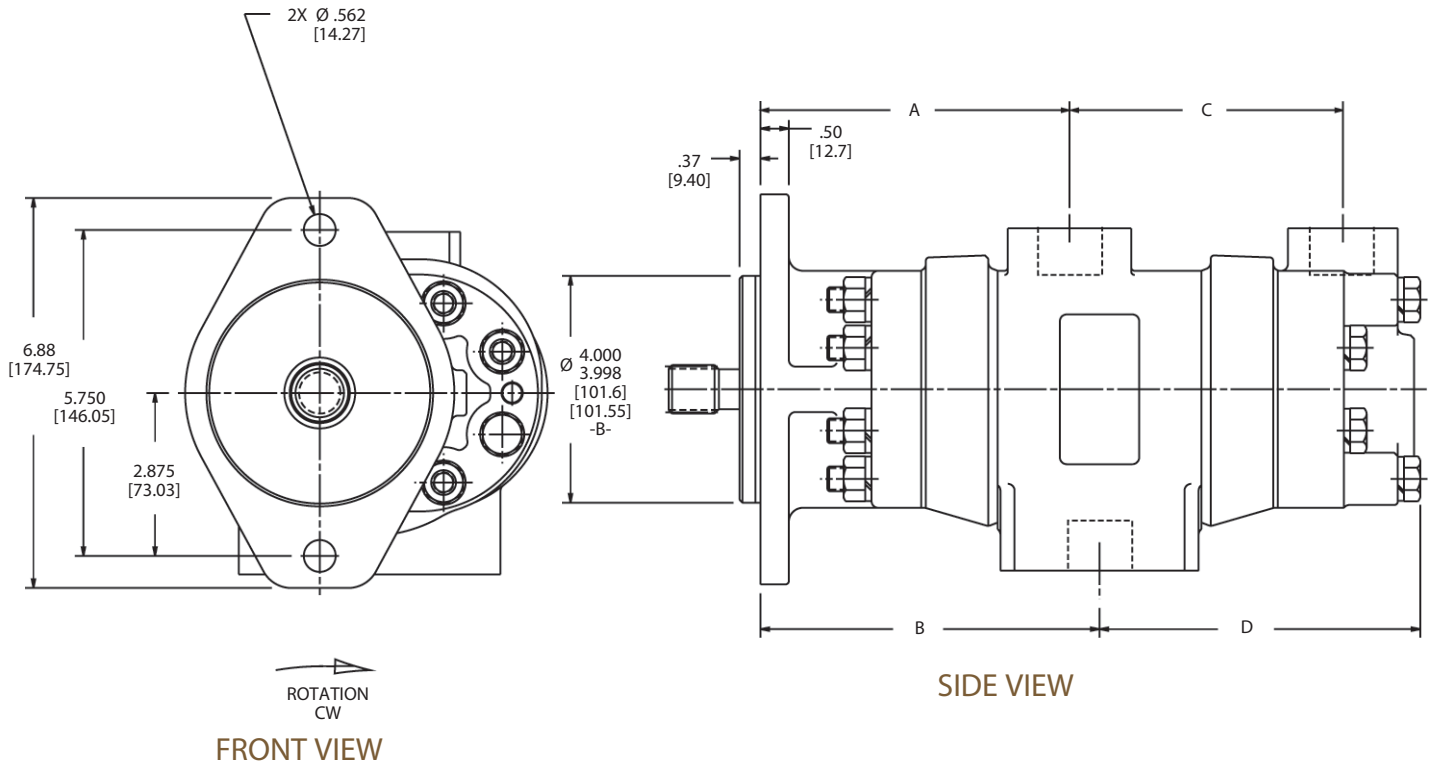
13 (Valve Options)**	
Order Code	Description
A	Tuneable Priority Flow Control Valve, Secondary Flow Loadable
B	Tuneable Priority Flow Control Valve, Secondary Bypass to Pump Inlet
C	Tuneable Priority Flow Control Valve w/Relief Valve on Priority Flow Only, Secondary Flow Loadable (> 4 GPM)
CC	Tuneable Priority Flow Control Valve w/Relief Valve on Priority Flow Only, Secondary Flow Loadable (< 4 GPM)
D	Load Sense Priority Flow Control, Priority Flow Relief Bypass to Pump Inlet
E	Pilot-Operated Relief Valve, Bypass to Tank External
X	No Valve Option
** Contact factory for availability and minimum quantity requirements for above valve options.	

14 (Relief Valve Setting)			
Order Code	Description	Order Code	Description
A	69 BAR (1000 PSI)	G	190 BAR (2750 PSI)
B	103 BAR (1500 PSI)	H	207 BAR (3000 PSI)
C	121 BAR (1750 PSI)	I	224 BAR (3250 PSI)
D	138 BAR (2000 PSI)	J	241 BAR (3500 PSI)
E	155 BAR (2250 PSI)	K	250 BAR (3750 PSI)
F	172 BAR (2500 PSI)	L	275 BAR (4000 PSI)

15 (Design Designation)	
Order Code	Description
10	Standard

16 (Rotation)	
Order Code	Description
Omit	Clockwise Rotation
L	Counterclockwise Rotation

F2020



87	5.30	27	6.54	166.1	7.076	179.6	5.90	149.9	6.74	171.2
77	4.71	24	6.27	159.3	.806	172.7	5.68	144.3	6.47	164.3
68	4.13	21	6.00	152.4	536.3	165.9	5.36	136.1	6.20	157.5
62	3.77	19	5.83	148.1	66.16	161.5	5.21	132.3	6.05	153.7
55	3.33	17	5.63	143.0	5.995	156.5	5.01	127.3	5.85	148.6
48	2.94	15	5.46	138.7	.835	152.1	4.82	122.4	5.66	143.8
43	2.60	13	5.30	134.6	645.4	148.1	4.67	118.6	5.51	140.0
36	2.18	11	5.11	129.8	65.2	143.3	4.47	113.5	5.31	134.9
29	1.79	9	4.93	125.2	8B	138.7	4.30	109.2	5.14	130.6
23	1.41	7	4.85	123.2	(in.)	134.1	4.03	102.4	5.02	127.5
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)		B (mm)	C (in.)	C (mm)	D (in.)	D (mm)

All dimensions shown are for reference only. Consult factory for your specific configuration.

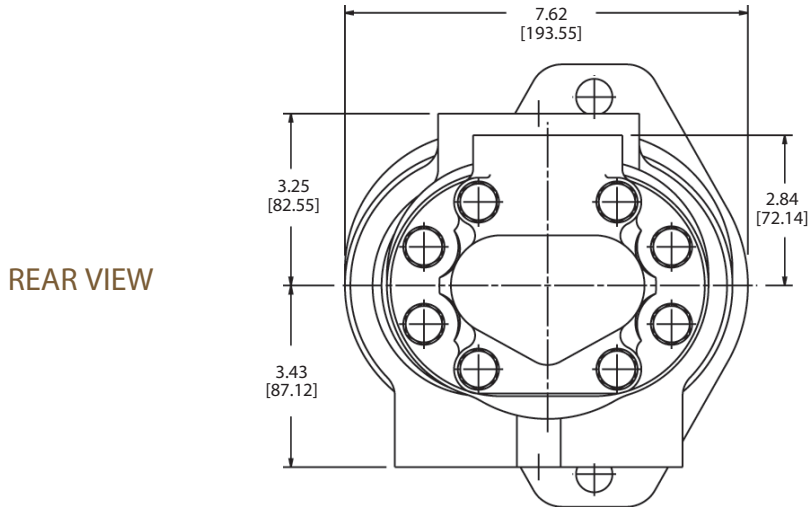
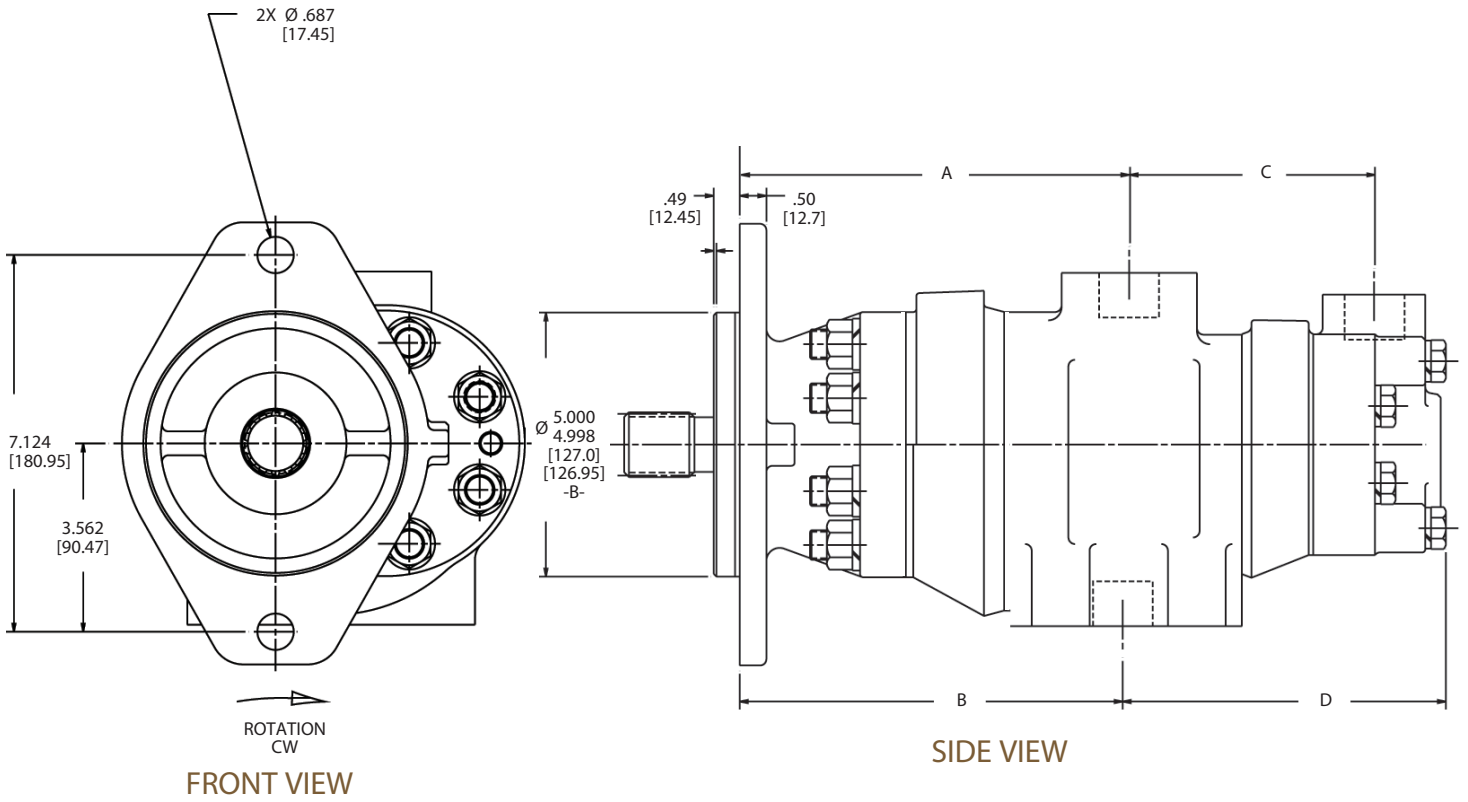
Model Code for F2020 Series Double Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F2020	F2020 Series Double Gear Pump		
3 (Mount)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
2	SAE "B" 2-Bolt Mount		
3	SAE "B" 4-Bolt Mount (Contact Factory)		
6	SAE "B" 2/4-Bolt Combination Mount (wet mount only)		
8	SAE "C" 2/4-Bolt Mount		
5 (Inlet Port)			
Order Code	Description		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
E	2.00", SAE 4-Bolt Split Flange		
EM	2.00", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.50", SAE 4-Bolt Split Flange		
FM	2.50", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
SAE Rated Flow, GPM @ 1200 RPM, 100 PSI			
7 (Front Section Outlet)			
Order Code	Description		
A	.750", SAE 4-Bolt Split Flange		
AM	.750", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
S	#10 SAE (.875" - 12) Straight Thread		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Rear Section Inlet) (Contact factory)			
Order Code	Description		
+	None		
9 (Displacements, Rear Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
SAE Rated Flow, GPM @ 1200 RPM, 100 PSI			

EXAMPLE:													
(F3)-	F2020-	W-	6-	E-	15-	B-	+	+	11-B-	12-	A-	10-	L
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Special Seals	Series	Mount	Front Cover	Inlet Port	Displacements	Front Section Outlet	Rear Section Inlet	Displacements	Rear Section Outlet	Drive Shaft	Shaft Seal	Design Designation	Rotation

10 (Rear Section Outlet)	
Order Code	Description
A	.750", SAE 4-Bolt Split Flange
AM	.750", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)
B	1.00", SAE 4-Bolt Split Flange
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)
S	#10 SAE (.875" - 12) Straight Thread
T	#12 SAE (1 1/16" - 12) Straight Thread
V	#16 SAE (1 5/16" - 12) Straight Thread
Contact factory for other requirements.	
11 (Drive Shaft)	
Order Code	Description
1	SAE "B" Straight Keyed, .875" Diameter, 1.312" Ext.
12	SAE "B" 14-Tooth Spline, Flat Root-Side Fit
21	SAE "BB" Straight Keyed, 1.00" Diameter, 1.50" Ext.
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	
12 (Shaft Seal)	
Order Code	Description
A	Single Shaft Seal (30 PSI)
D	High Pressure (100 PSI)
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)
X	None
13 (Design Designation)	
Order Code	Description
10	Standard
14 (Rotation)	
Order Code	Description
R	Clockwise Rotation
L	Counterclockwise Rotation

F3020



All dimensions shown are for reference only. Consult factory for your specific configuration.

161	9.82	50	8.60	218.4	7.36	186.9
145	8.84	45	8.29	210.6	8.17	207.5
129	7.86	40	7.80	198.1	7.86	199.6
113	6.88	35	7.61	193.3	7.52	191.0
103	6.30	32	7.49	190.2	7.37	187.2
97	5.89	30	7.36	186.9	7.24	183.9
90	5.51	28	7.24	183.9	7.12	180.8
81	4.91	25	7.05	179.1	6.93	176.0
68	4.13	21	6.81	173.0	6.68	169.7
58	3.54	18	6.62	168.1	6.50	165.1
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)
F30 SECTIONS						

87	5.30	27	5.71	145.0	7.19	182.6
77	4.71	24	5.44	138.2	6.92	175.8
68	4.13	21	5.17	131.3	6.65	168.9
62	3.77	19	5.01	127.3	5.71	145.0
55	3.33	17	4.81	122.2	6.29	159.8
48	2.94	15	4.63	117.6	6.11	155.2
43	2.60	13	4.47	113.5	5.96	151.4
36	2.18	11	4.28	108.7	5.76	146.3
29	1.79	9	4.10	104.1	5.59	142.0
23	1.41	7	3.93	99.8	5.41	137.4
CC	CIR	DISPLACEMENT CODE	C (in.)	C (mm)	D (in.)	D (mm)
F20 SECTIONS						

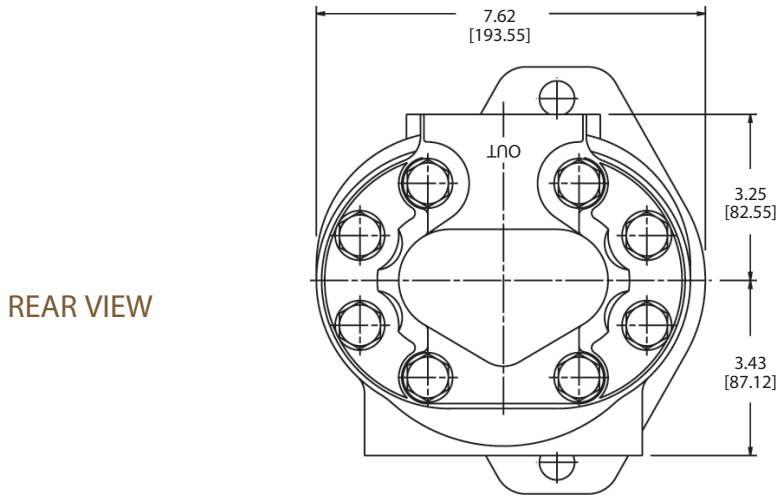
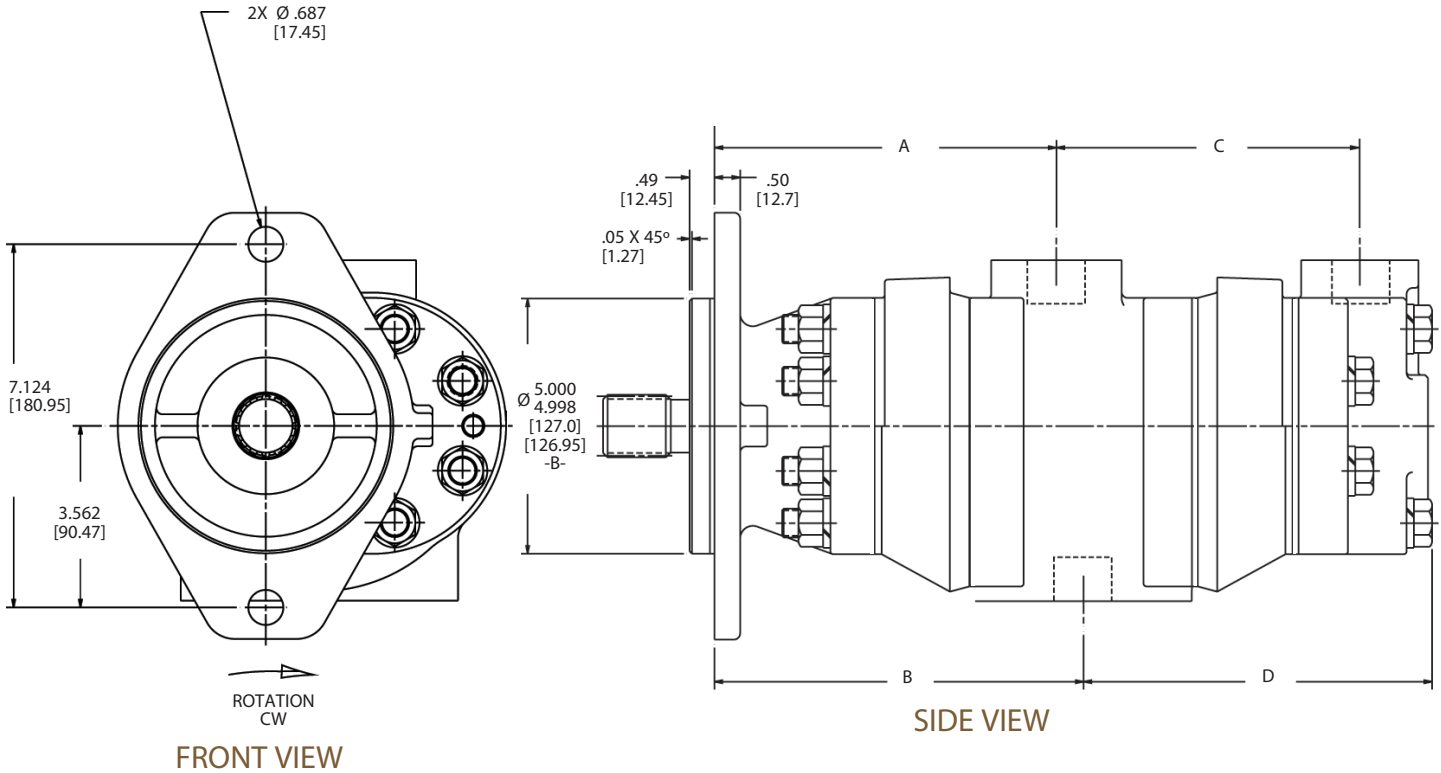
Model Code for F3020 Series Double Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F3020	F3020 Series Double Gear Pump		
3 (Mount)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
4	SAE "C" 4-Bolt Mount		
7	SAE "C" 2-Bolt Mount		
8	SAE "C" 2/4-Bolt Combination Mount		
5 (Inlet Port)			
Order Code	Description		
E	2.00", SAE 4-Bolt Split Flange		
EM	2.00", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.50", SAE 4-Bolt Split Flange		
FM	2.50", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
G	3.00", SAE 4-Bolt Split Flange		
GM	3.00", 4-Bolt Metric Split Flange (M16 x 2.0" threads)		
Y	#30 SAE (2 1/2" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /in. ³	Order Code	Cm ³ /in. ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
7 (Front Section Outlet)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
D	2.00", SAE 4-Bolt Split Flange		
DM	2.00", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Rear Inlet Port) (Contact Factory)			
Order Code	Description		
+	None		
9 (Displacements, Rear Section)			
Order Code	Cm ³ /in. ³	Order Code	Cm ³ /in. ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³

EXAMPLE:													
(F3)- F3020- W- 7- E- 18- B- +- 11- B- 12- A- 10- L													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Special Seals	Series	Mount	Front Cover	Inlet Port	Displacements	Front Section Outlet	Rear Inlet Port	Displacements	Rear Section Outlet	Drive Shaft	Shaft Seal	Design Designation	Rotation

10 (Rear Section Outlet)	
Order Code	Description
A	.750", SAE 4-Bolt Split Flange
AM	.750", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)
B	1.00", SAE 4-Bolt Split Flange
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)
S	#10 SAE (.875" - 12) Straight Thread
T	#12 SAE (1 1/16" - 12) Straight Thread
V	#16 SAE (1 5/16" - 12) Straight Thread
Contact factory for other requirements.	
11 (Drive Shaft)	
Order Code	Description
1	SAE "C" Straight Keyed, 1.250" Diameter, 1.875" Ext.
12	SAE "C" 14-Tooth Spline, Flat Root-Side Fit
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	
12 (Shaft Seal)	
Order Code	Description
A	Single Shaft Seal (30 PSI)
D	High Pressure (100 PSI)
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)
X	None
13 (Design Designation)	
Order Code	Description
10	Standard
14 (Rotation)	
Order Code	Description
R	Clockwise Rotation
L	Counterclockwise Rotation

F3030



161	9.82	50	7.94	201.7	8.488	215.4	7.19	182.6	8.07	205.0
145	8.84	45	7.63	193.8	.167.	207.3	6.89	175.0	7.77	197.4
129	7.86	40	7.33	186.2	867.5	199.6	6.57	166.9	7.46	189.5
113	6.88	35	7.02	178.3	57.37	191.8	6.26	159.0	7.15	181.6
103	6.30	32	6.84	173.7	7.247	187.2	6.08	154.4	6.97	177.0
97	5.89	30	6.71	170.4	.126.	183.9	5.95	151.1	6.84	173.7
90	5.51	28	6.59	167.4	936.6	180.8	5.83	148.1	6.72	170.7
81	4.91	25	6.40	162.6	86.5	176.0	5.64	143.3	6.53	165.9
68	4.13	21	6.15	156.2	0B	169.7	5.40	137.2	6.29	159.8
58	3.54	18	5.96	151.4	(in.)	165.1	5.22	132.6	6.10	154.9
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)		B (mm)	C (in.)	C (mm)	D (in.)	D (mm)

All dimensions shown are for reference only. Consult factory for your specific configuration.

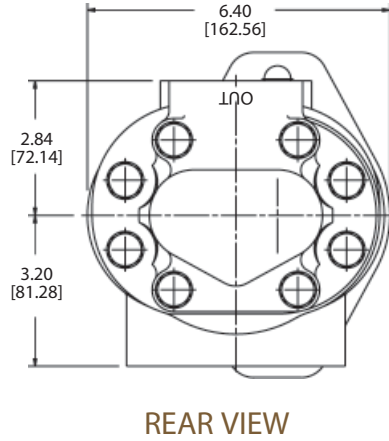
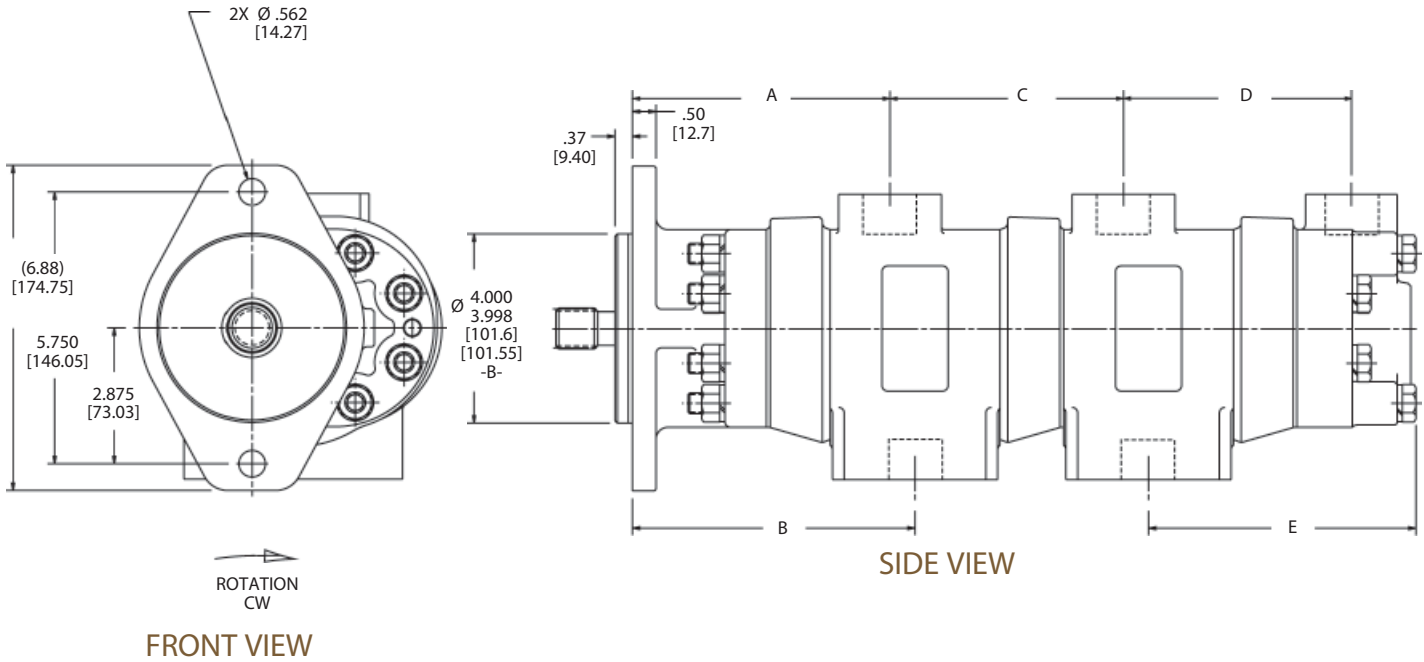
Model Code for F3030 Series Double Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F3030	F3030 Series Double Gear Pump		
3 (Mount)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
4	SAE "C" 4-Bolt Mount		
7	SAE "C" 2-Bolt Mount		
8	SAE "C" 2/4-Bolt Combination Mount		
5 (Inlet Port)			
Order Code	Description		
E	2.00", SAE 4-Bolt Split Flange		
EM	2.00", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.50", SAE 4-Bolt Split Flange		
FM	2.50", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
G	3.00", SAE 4-Bolt Split Flange		
GM	3.00", 4-Bolt Metric Split Flange (M16 x 2.0" threads)		
Y	#30 SAE (2 1/2" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
7 (Front Outlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
D	2.00", SAE 4-Bolt Split Flange		
DM	2.00", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Rear Inlet Port) (Contact Factory)			
Order Code	Description		
+	None		
9 (Displacements, Rear Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³

EXAMPLE:													
(F3)- F3030- W- 7- E- 30- B- +- 30- B- 12- A- 10- L													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Special Seals	Series	Mount	Front Cover	Inlet Port	Displacements	Front Outlet Port	Rear Inlet Port	Displacements	Rear Outlet Port	Drive Shaft	Shaft Seal	Design Designation	Rotation

10 (Rear Outlet Port)	
Order Code	Description
A	.750", SAE 4-Bolt Split Flange
AM	.750", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)
B	1.00", SAE 4-Bolt Split Flange
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)
C	1.250", SAE 4-Bolt Split Flange
CM	1.250", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)
V	#16 SAE (1 5/16" - 12) Straight Thread
Contact factory for other requirements.	
11 (Drive Shaft)	
Order Code	Description
1	SAE "C" Straight Keyed, 1.250" Diameter, 1.875" Ext.
12	SAE "C" 14-Tooth Spline, Flat Root-Side Fit
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	
12 (Shaft Seal)	
Order Code	Description
A	Single Shaft Seal (30 PSI)
D	High Pressure (100 PSI)
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)
X	None
13 (Design Designation)	
Order Code	Description
10	Standard
14 (Rotation)	
Order Code	Description
R	Clockwise Rotation
L	Counterclockwise Rotation

F202020



All dimensions shown are for reference only. Consult factory for your specific configuration.

87	5.30	27	6.54	166.1	7.07	179.6	6.03	153.2	5.38	136.7	6.74	171.2
77	4.71	24	6.27	159.3	6.80	172.7	5.78	146.8	5.11	129.8	6.47	164.3
68	4.13	21	6.00	152.4	6.53	165.9	5.49	139.4	4.84	122.9	6.20	157.5
62	3.77	19	5.83	148.1	6.36	161.5	5.32	135.1	4.67	118.6	6.03	153.2
55	3.33	17	5.63	143.0	6.16	156.5	5.12	130.0	4.47	113.5	5.83	148.1
48	2.94	15	5.46	138.7	5.99	152.1	4.95	125.7	4.30	109.2	5.66	143.8
43	2.60	13	5.30	134.6	5.83	148.1	4.79	121.7	4.14	105.2	5.50	139.7
36	2.18	11	5.11	129.8	5.64	143.3	4.60	116.8	3.95	100.3	5.31	134.9
29	1.79	9	4.93	125.2	5.46	138.7	4.42	112.3	3.77	95.8	5.13	130.3
23	1.41	7	4.75	120.7	5.28	134.1	4.24	107.7	3.59	91.2	4.95	125.7
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)	C (in.)	C (mm)	D (in.)	D (mm)	E (in.)	E (mm)

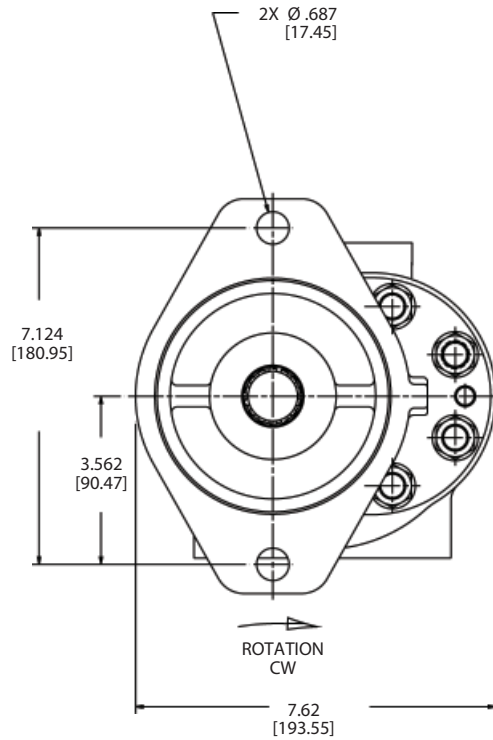
Model Code for F2020 Series Triple Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F202020	F202020 Series Triple Gear Pump		
3 (Mount)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
6	SAE "B" 2/4-Bolt Combination Mount (wet mount only)		
8	SAE "C" 2/4-Bolt Mount		
5 (First Inlet Port)			
Order Code	Description		
E	2.00", SAE 4-Bolt Split Flange		
EM	2.00", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.50", SAE 4-Bolt Split Flange		
FM	2.50", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
7 (Front Section Outlet)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Second Section Inlet)			
Order Code	Description		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
E	2.00", SAE 4-Bolt Split Flange		
EM	2.00", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.50", SAE 4-Bolt Split Flange		
FM	2.50", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
Contact factory for other requirements.			
9 (Displacements, Center Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
10 (Second Outlet)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			

EXAMPLE:																
(F3) F202020- W- 6- E- 15- B- E- 11- B- + - 9- B- 99- A- 10- L																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Special Seals	Series	Mount	Front Cover	First Inlet Port	Displacements	Front Section Outlet	Second Section Inlet	Displacements	Second Outlet	Third Section Inlet	Displacements	Third Outlet	Drive Shaft	Shaft Seal	Design	Rotation

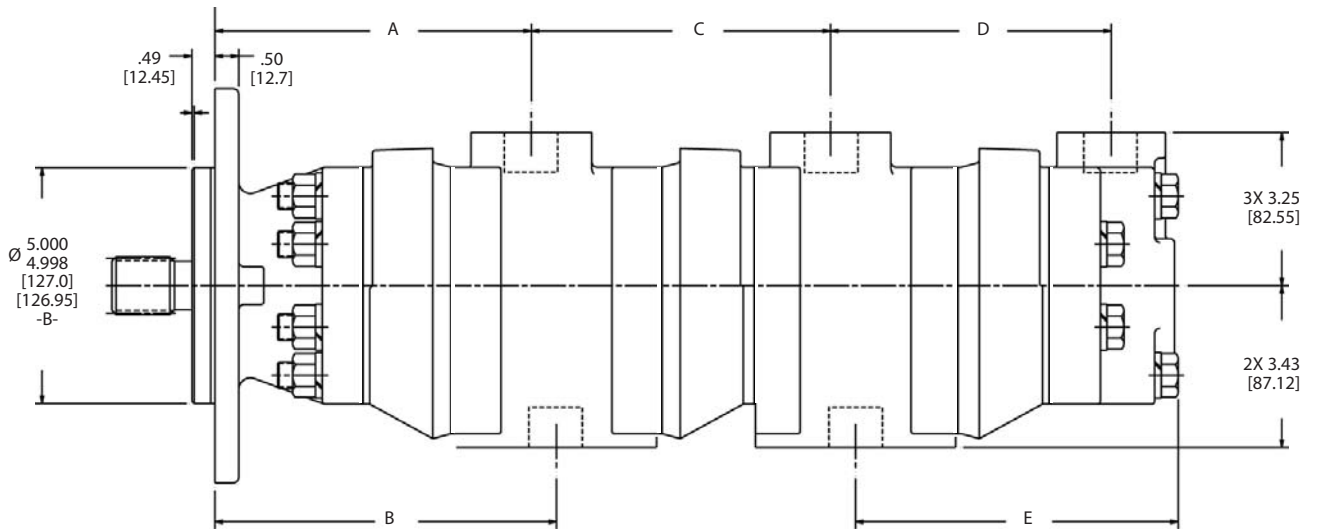
11 (Third Section Inlet) (Contact Factory)			
Order Code	Description		
+	None		
12 (Displacements, Rear Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
13 (Third Outlet)			
Order Code	Description		
A	.750", SAE 4-Bolt Split Flange		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
S	#10 SAE (.875" - 12) Straight Thread		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
14 (Drive Shaft)			
Order Code	Description		
21	SAE "BB" Straight Keyed, 1.00" Diameter, 1.50" Ext.		
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit		
Contact factory for other requirements			
15 (Shaft Seal)			
Order Code	Description		
A	Single Shaft Seal (30 PSI)		
D	High Pressure (100 PSI)		
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)		
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)		
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)		
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)		
X	None		
16 (Design Designation)			
Order Code	Description		
10	Standard		
17 (Rotation)			
Order Code	Description		
Omit	Clockwise Rotation		
L	Counterclockwise Rotation		

F303030



All dimensions shown are for reference only. Consult factory for your specific configuration.

FRONT VIEW



SIDE VIEW

161	9.82	50	7.94	201.7	8.48	215.4	7.58	192.5	7.19	182.6	8.08	205.2
145	8.84	45	7.63	193.8	8.16	207.3	7.27	184.7	6.88	174.8	7.77	197.4
129	7.86	40	7.33	186.2	7.86	199.6	6.96	176.8	6.57	166.9	7.46	189.5
113	6.88	35	7.02	178.3	7.55	191.8	6.65	168.9	6.26	159.0	7.15	181.6
103	6.30	32	6.84	173.7	7.37	187.2	6.47	164.3	6.08	154.4	6.97	177.0
97	5.89	30	6.71	170.4	7.24	183.9	6.34	161.0	5.95	151.1	6.84	173.7
90	5.51	28	6.59	167.4	7.12	180.9	6.23	158.2	5.84	148.3	6.72	170.7
81	4.91	25	6.40	162.6	6.93	176.0	6.04	153.4	5.65	143.5	6.53	165.9
68	4.13	21	6.15	156.2	6.68	169.7	5.79	147.1	5.40	137.2	6.28	159.5
58	3.54	18	5.96	151.4	6.50	165.1	5.60	142.2	5.21	132.3	6.10	154.9
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)	C (in.)	C (mm)	D (in.)	D (mm)	E (in.)	E (mm)

Model Code for F303030 Series Triple Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F303030	F303030 Series Triple Gear Pump		
3 (Mount)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
4	SAE "C" 4-Bolt Mount		
7	SAE "C" 2-Bolt Mount		
8	SAE "C" 2/4-Bolt Combination Mount		
5 (First Inlet Port)			
Order Code	Description		
E	2.00", SAE 4-Bolt Split Flange		
EM	2.00", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.50", SAE 4-Bolt Split Flange		
FM	2.50", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
G	3.00", SAE 4-Bolt Split Flange		
GM	3.00", 4-Bolt Metric Split Flange (M16 x 2.0" threads)		
Y	#30 SAE (2 1/2" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
7 (First Outlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Second Inlet Port)			
Order Code	Description		
E	2.00", SAE 4-Bolt Split Flange		
EM	2.00", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.50", SAE 4-Bolt Split Flange		
FM	2.50", 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
G	3.00", SAE 4-Bolt Split Flange		
GM	3.00", 4-Bolt Metric Split Flange (M16 x 2.0" threads)		
9 (Displacements, Center Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³

EXAMPLE:																
(F3) F303030- W- 7 - E- 30- B - E - 25- B - + - 9 - B- 12- A- 10- L																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Special Seals	Series	Mount	Front Cover	First Inlet Port	Displacements	First Outlet Port	Second Inlet Port	Displacements	Second Outlet Port	Third Inlet Port	Displacements	Third Outlet Port	Drive Shaft	Shaft Seal	Design	Rotation

10 (Second Outlet Port)	
Order Code	Description
B	1.00", SAE 4-Bolt Split Flange
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)
C	1.250", SAE 4-Bolt Split Flange
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)
D	1.50", SAE 4-Bolt Split Flange
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)
V	#16 SAE (1 5/16" - 12) Straight Thread
W	#20 SAE (1 5/8" - 12) Straight Thread
Contact factory for other requirements.	

11 (Third Inlet Port) (Contact Factory)	
Order Code	Description
+	None

12 (Displacements, Rear Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³

13 (Third Outlet Port)	
Order Code	Description
B	1.00", SAE 4-Bolt Split Flange
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)
C	1.250", SAE 4-Bolt Split Flange
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)
D	1.50", SAE 4-Bolt Split Flange
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)
V	#16 SAE (1 5/16" - 12) Straight Thread
W	#20 SAE (1 5/8" - 12) Straight Thread
Contact factory for other requirements.	

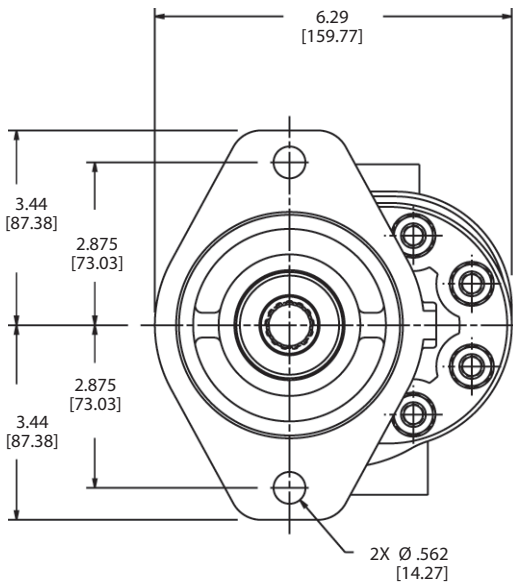
14 (Drive Shaft)	
Order Code	Description
1	SAE "C" Straight Keyed, 1.250" Diameter, 1.875" Ext.
12	SAE "C" 14-Tooth Spline, Flat Root-Side Fit
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements	

15 (Shaft Seal)	
Order Code	Description
A	Single Shaft Seal (30 PSI)
D	High Pressure (100 PSI)
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)
X	None

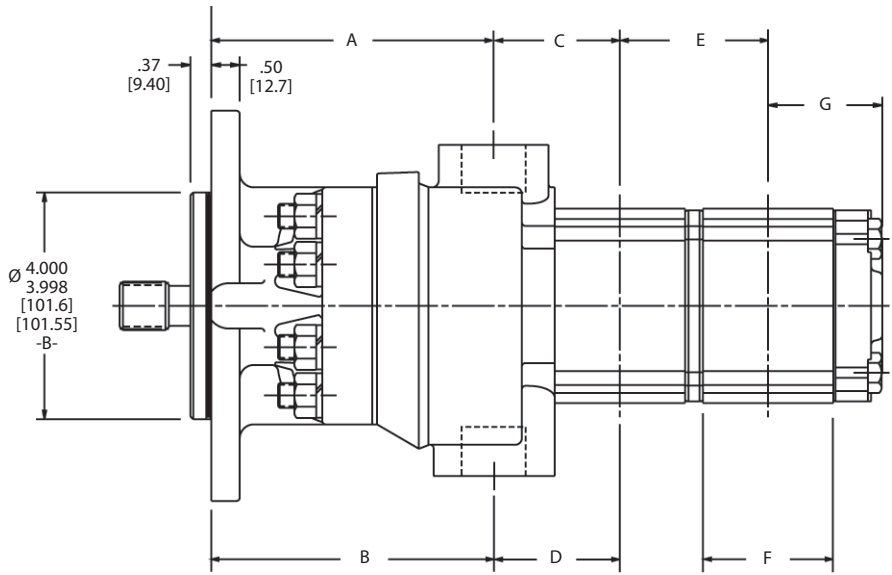
16 (Design Designation)	
Order Code	Description
10	Standard

17 (Rotation)	
Order Code	Description
R	Clockwise Rotation
L	Counterclockwise Rotation

F200909



FRONT VIEW

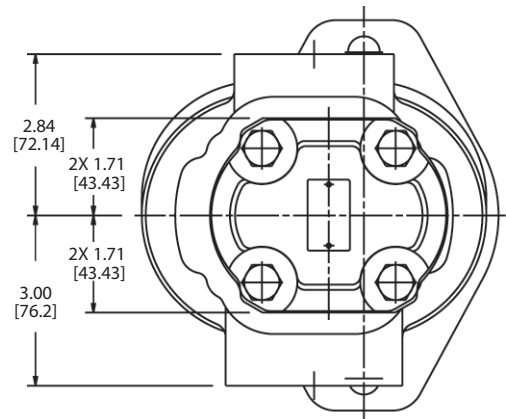


SIDE VIEW

87	5.30	27	6.41	162.8	6.43	163.3
77	4.71	24	6.14	156.0	6.16	156.5
68	4.13	21	5.87	149.1	5.89	149.6
62	3.77	19	5.71	145.0	5.73	145.5
55	3.33	17	5.51	140.0	5.53	140.5
48	2.94	15	5.33	135.4	5.35	135.9
43	2.60	13	5.17	131.3	5.19	131.8
36	2.18	11	4.98	126.5	5.00	127.0
29	1.79	9	4.80	121.9	4.82	122.4
23	1.41	7	4.63	117.6	4.65	118.1

CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)
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F20 SECTIONS



REAR VIEW

All dimensions shown are for reference only. Consult factory for your specific configuration.

28	1.709	28	2.73	69.3	2.72	69.1	3.62	91.9	3.30	83.8	2.52	64.0
27	1.647	27	2.70	68.6	2.69	68.3	3.54	89.9	3.24	82.3	2.49	63.2
23	1.403	23	2.58	65.5	2.57	65.3	3.33	84.6	3.01	76.5	2.38	60.5
19	1.159	19	2.47	62.7	2.46	62.5	3.09	78.5	2.78	70.6	2.26	57.4
16	.976	16	2.38	60.5	2.37	60.2	2.91	73.9	2.60	66.0	2.17	55.1
14	.854	14	2.32	58.9	2.31	58.7	2.80	71.1	2.49	63.2	2.12	53.8
11	.671	11	2.23	56.6	2.22	56.4	2.61	66.3	2.31	58.7	2.03	51.6
10	.610	10	2.20	55.9	2.19	55.6	2.56	65.0	2.25	57.2	2.00	50.8
8	.488	8	2.15	54.6	2.14	54.4	2.44	62.0	2.14	54.4	1.94	49.3
6	.366	6	2.09	53.1	2.08	52.8	2.34	59.4	2.02	51.3	1.86	47.2

CC	CIR	DISPLACEMENT CODE	C (in.)	C (mm)	D (in.)	D (mm)	E (in.)	E (mm)	F (in.)	F (mm)	G (in.)	G (mm)
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W900 SECTIONS

Model Code for F200909 Series Triple Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F200909	F200909 Series Triple Gear Pump		
3 (Mount Type)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
2	SAE "B" 2-Bolt Mount		
4(*)	SAE "C" 4-Bolt Mount (contact factory)		
6	SAE "B" 2/4-Bolt Combination Mount (wet mount only)		
8(*)	SAE "C" 2/4-Bolt Mount (contact factory)		
5 (Front Section Inlet Port)			
Order Code	Description		
C	1.250", SAE 4-Bolt Split Flange		
CM	1.250", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
GPM @ 1200 RPM, 100 PSI			
7 (Front Section Outlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Displacements, Center Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
6-	6 cc/.366 in. ³	16-	16 cc/.976 in. ³
8-	8 cc/.488 in. ³	19-	19 cc/1.159 in. ³
10-	10 cc/.610 in. ³	23-	23 cc/1.403 in. ³
11-	11 cc/.671 in. ³	27-	27 cc/1.647 in. ³
14-	14 cc/.854 in. ³	28-	28 cc/1.709 in. ³
GPM @ 1200 RPM, 100 PSI			
9 (Rear Section Outlet Porting)			
Order Code	Description		
A	23 cc - 28 cc, .750", SAE 4-Bolt Split Flange		
Q	6 cc, #8 SAE (3/4" - 16) Straight Thread		
S	8 cc - 16 cc, #10 SAE (7/8" - 14) Straight Thread		
T	19 cc - 28 cc, #12 SAE (1 1/16" - 12) Straight Thread		
Y	16 cc - 19 cc, .5", SAE 4-Bolt Split Flange		
Contact factory for other requirements.			

(*) Any option marked with an asterisk (*) indicates you should contact the factory for availability.

EXAMPLE:															
(F3)- F200909- W- 2 - W- 13- T -23- Y- Q -11- A- 1 - B - 10- L															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Special Seals	Series	Mount Type	Front Cover	Front Section Inlet Port	Front Section Displacements, Front Section	Front Section Outlet Port	Displacements, Center Section	Rear Section Outlet Porting	Center Section Outlet Porting	Displacements, Rear Section	Rear Section Outlet Port	Drive Shaft	Shaft Seal	Design Designation	Design Designation

10 (Center Section Outlet Porting)	
Order Code	Description
A	23 cc - 28 cc, .750", SAE 4-Bolt Split Flange
Q	6 cc, #8 SAE (3/4" - 16) Straight Thread
S	8 cc - 16 cc, #10 SAE (7/8" - 14) Straight Thread
T	19 cc - 28 cc, #12 SAE (1 1/16" - 12) Straight Thread
V	19 cc - 28 cc, #16 SAE (1 5/16" - 14) Straight Thread
Y	16 cc - 19 cc, .5", SAE 4-Bolt Split Flange

11 (Displacements, Rear Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
6-	6 cc/.366 in. ³	16-	16 cc/.976 in. ³
8-	8 cc/.488 in. ³	19-	19 cc/1.159 in. ³
10-	10 cc/.610 in. ³	23-	23 cc/1.403 in. ³
11-	11 cc/.671 in. ³	27-	27 cc/1.647 in. ³
14-	14 cc/.854 in. ³	28-	28 cc/1.709 in. ³
GPM @ 1200 RPM, 100 PSI			

12 (Rear Section Outlet Port)	
Order Code	Description
A	23 cc - 28 cc, .750", SAE 4-Bolt Split Flange
Q	6 cc, #8 SAE (3/4" - 16) Straight Thread
S	8 cc - 16 cc, #10 SAE (7/8" - 14) Straight Thread
T	19 cc - 28 cc, #12 SAE (1 1/16" - 12) Straight Thread
Y	16 cc - 19 cc, .5", SAE 4-Bolt Split Flange
Contact factory for other requirements.	

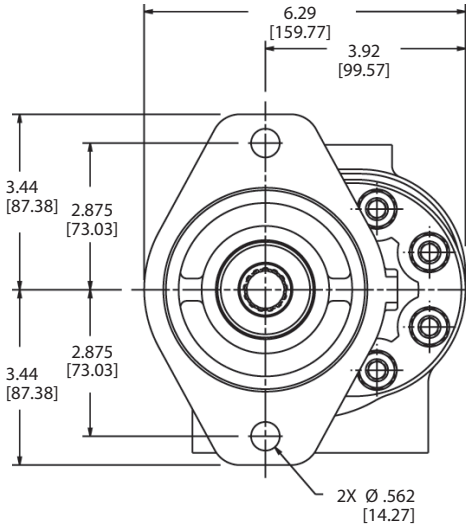
13 (Drive Shaft)	
Order Code	Description
1	SAE "B" Straight Keyed, .875" Diameter, 1.312" Ext.
12	SAE "B" 13-Tooth Spline, Flat Root-Side Fit
21	SAE "BB" Straight Keyed, 1.00" Diameter, 1.50" Ext.
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	

14 (Shaft Seal)	
Order Code	Description
A	Single Shaft Seal (30 PSI)
D	High Pressure (100 PSI)
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)
X	None
Contact Applications Engineer for Valve Options.	

15 (Design Designation)	
Order Code	Description
10	Standard
11	Sealed Between Sections

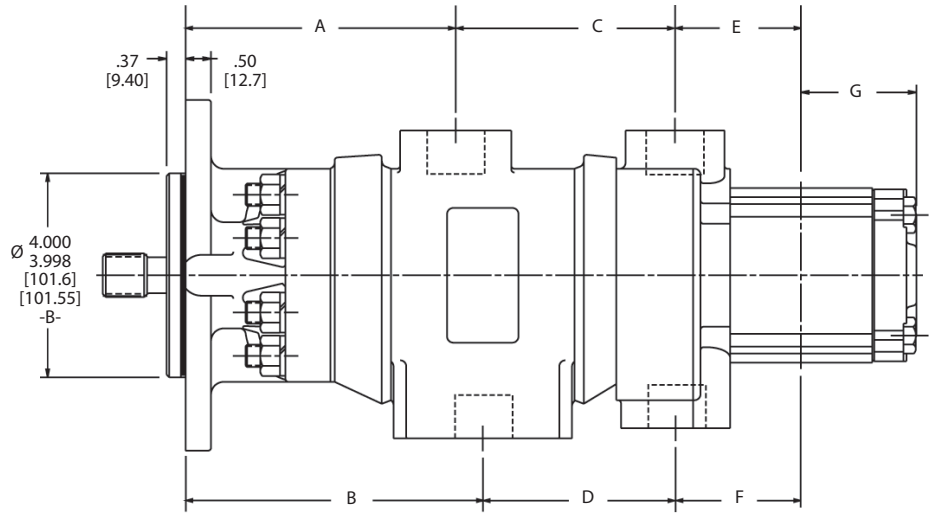
16 (Rotation)	
Order Code	Description
L	Counterclockwise Rotation
R	Clockwise Rotation

F202009



ROTATION
CW

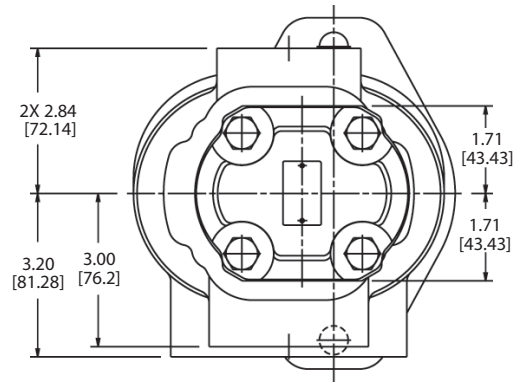
FRONT VIEW



SIDE VIEW

28	1.709	28	2.73	69.3	2.72	69.1	2.52	64.0
27	1.647	27	2.70	68.6	2.69	68.3	2.49	63.2
23	1.403	23	2.58	65.5	2.57	65.3	2.38	6.05
19	1.159	19	2.47	62.7	2.46	62.5	2.26	57.4
16	.976	16	2.38	60.5	2.37	60.2	2.17	55.1
14	.854	14	2.32	58.9	2.31	58.7	2.12	53.8
11	.671	11	2.24	56.9	2.23	56.6	2.03	51.6
10	.610	10	2.21	56.1	2.49	63.2	2.00	50.8
8	.488	8	2.15	54.6	2.14	54.4	1.94	49.3
6	.366	6	2.09	53.1	2.08	52.8	1.86	47.2

CC	CIR	DISPLACEMENT CODE	E (in.)	E (mm)	F (in.)	F (mm)	G (in.)	G (mm)
W900 SECTIONS								



REAR VIEW

All dimensions shown are for reference only. Consult factory for your specific configuration.

87	5.30	27	6.53	165.9	7.06	179.3	5.90	149.9	5.38	136.7
77	4.71	24	6.27	159.3	6.80	172.7	5.64	143.3	5.12	130.0
68	4.13	21	6.00	152.4	6.53	165.9	5.37	136.4	4.85	123.2
62	3.77	19	5.83	148.1	6.36	161.5	5.20	132.1	4.68	118.9
55	3.33	17	5.63	143.0	6.16	156.5	5.00	127.0	4.48	113.8
48	2.94	15	5.46	138.7	5.99	152.1	4.83	122.7	4.31	109.5
43	2.60	13	5.30	134.6	5.83	148.1	4.67	118.6	4.15	105.4
36	2.18	11	5.11	129.8	5.64	143.3	4.48	113.8	3.96	100.6
29	1.79	9	4.93	125.2	5.46	138.7	4.30	109.2	3.78	96.0
23	1.41	7	4.75	120.7	5.28	134.1	4.12	104.6	3.60	91.4

CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)	C (in.)	C (mm)	D (in.)	D (mm)
F20 SECTIONS										

Model Code for F202009 Series Triple Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F202009	F202009 Series Triple Gear Pump		
3 (Mount Type)			
Order Code	Description		
W	Standard Mount		
Contact factory for other requirements.			
4 (Front Cover)			
Order Code	Description		
2	SAE "B" 2-Bolt Mount		
4(*)	SAE "C" 4-Bolt Mount		
6	SAE "B" 2/4-Bolt Combination Mount (wet mount only)		
8(*)	SAE "C" 2/4-Bolt Mount		
5 (Front Section Inlet Port)			
Order Code	Description		
E	2", SAE 4-Bolt Split Flange		
EM	2", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.5", SAE 4-Bolt Split Flange		
FM	2.5", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
GPM @ 1200 RPM, 100 PSI			
7 (Front Section Outlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.25", SAE 4-Bolt Split Flange		
CM	1.25", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Displacements, Center Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
GPM @ 1200 RPM, 100 PSI			
9 (Center Section Outlet Porting)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.25", SAE 4-Bolt Split Flange		
CM	1.25", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			

(*) Any option marked with an asterisk (*) indicates you should contact the factory for availability.

EXAMPLE:															
(F3)- F202009- W- 2 - F- 13- T 13- V- A - 23- Q- 21 - B -10- L															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Special Seals	Series	Mount Type	Front Cover	Front Inlet Port	Displacements, Front Section	Front Outlet Port	Displacements, Center Section	Center Section Outlet Porting	Rear Section Inlet Port	Displacements, Rear Section	Rear Section Outlet Porting	Drive Shaft	Shaft Seal	Design Designation	Rotation

10 (Rear Section Inlet Port)	
Order Code	Description
A	16 cc - 19 cc, .75", SAE 4-Bolt Split Flange
B	23 cc - 28 cc, 1", SAE 4-Bolt Split Flange Straight Thread
S	6 cc, #10 SAE (7/8" - 14) Straight Thread
T	8 cc - 16 cc, #12 SAE (1 1/16" - 12) Straight Thread
V	19 cc - 28 cc, #16 SAE (1 5/16" - 14) Straight Thread

11 (Displacements, Rear Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
6-	6 cc/366 in. ³	16-	16 cc/976 in. ³
8-	8 cc/488 in. ³	19-	19 cc/1,159 in. ³
10-	10 cc/610 in. ³	23-	23 cc/1,403 in. ³
11-	11 cc/671 in. ³	27-	27 cc/1,647 in. ³
14-	14 cc/854 in. ³	28-	28 cc/1,709 in. ³
GPM @ 1200 RPM, 100 PSI			

12 (Rear Section Outlet Port)	
Order Code	Description
A	23 cc - 28 cc, .75", SAE 4-Bolt Split Flange
Q	6 cc, #8 SAE (3/4" - 16) Straight Thread
S	8 cc - 16 cc, #10 SAE (7/8" - 14) Straight Thread
T	19 cc - 28 cc, #12 SAE (1 1/16" - 12) Straight Thread
Y	16 cc - 19 cc, .5", SAE 4-Bolt Split Flange
Contact factory for other requirements.	

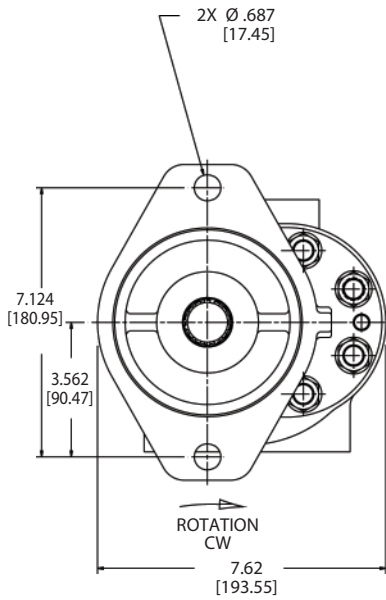
13 (Drive Shaft)	
Order Code	Description
21	SAE "BB" Straight Keyed, 1.00" Diameter, 1.50" Ext.
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	

14 (Shaft Seal)	
Order Code	Description
A	Single Shaft Seal (30 PSI)
D	High Pressure (100 PSI)
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)
X	None

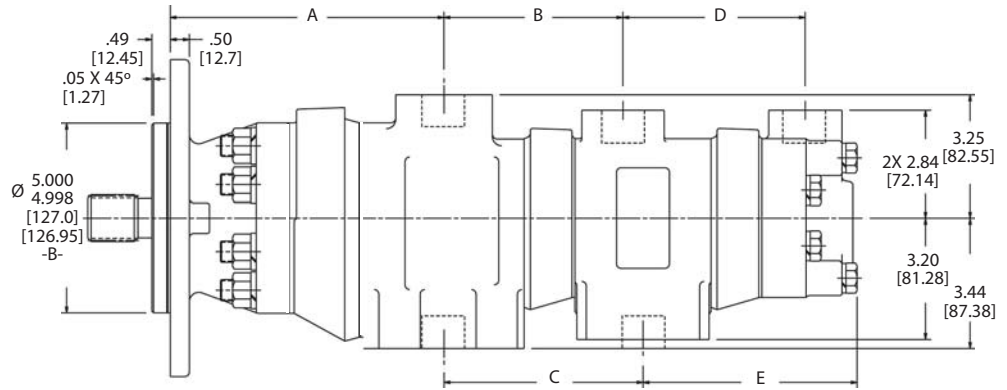
15 (Design Designation)	
Order Code	Description
10	Standard
11	Sealed Between G20 and 09 Sections

16 (Rotation)	
Order Code	Description
L	Counterclockwise Rotation
R	Clockwise Rotation
Contact factory for other requirements.	

F302020



FRONT VIEW



SIDE VIEW

161	9.82	50	8.48	215.4
145	8.84	45	8.17	207.5
129	7.86	40	7.87	199.9
113	6.88	35	7.56	192.0
103	6.30	32	7.38	187.5
97	5.89	30	7.25	184.2
90	5.51	28	7.13	181.1
81	4.91	25	6.94	176.3
68	4.13	21	6.69	169.9
58	3.54	18	6.51	165.4
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)
F30 SECTIONS				

87	5.30	27	5.82	147.8	6.35	161.3	5.91	150.1	6.75	171.5
77	4.71	24	5.55	141.0	6.08	154.4	5.64	143.3	6.48	164.6
68	4.13	21	5.28	134.1	5.81	147.6	5.37	136.4	6.21	157.7
62	3.77	19	5.11	129.8	5.64	143.3	5.20	132.1	6.04	153.4
55	3.33	17	4.91	124.7	5.44	138.2	5.00	127.0	5.84	148.3
48	2.94	15	4.74	120.4	5.27	133.9	4.83	122.7	5.67	144.0
43	2.60	13	4.58	116.3	5.11	129.8	4.67	118.6	5.51	140.0
36	2.18	11	4.39	111.5	4.92	125.0	4.48	113.8	5.32	135.1
29	1.79	9	4.21	106.9	4.74	120.4	4.30	109.2	5.14	130.6
23	1.41	7	4.03	102.4	4.56	115.8	4.12	104.6	4.96	126.0
CC	CIR	DISPLACEMENT CODE	B (in.)	B (mm)	C (in.)	C (mm)	D (in.)	D (mm)	E (in.)	E (mm)
F20 SECTIONS										

All dimensions shown are for reference only. Consult factory for your specific configuration.

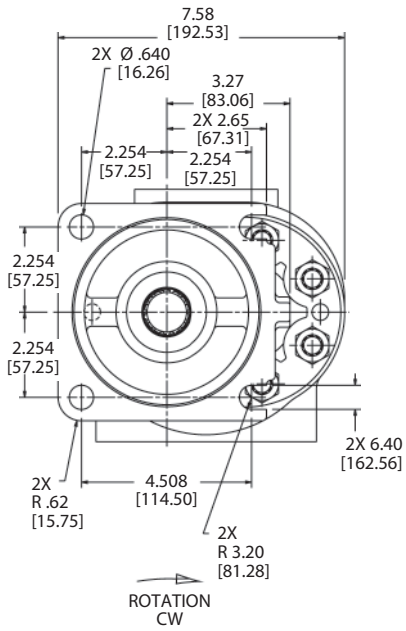
Model Code for F302020 Series Triple Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F302020	F302020 Series Triple Gear Pump		
3 (Mount Type)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
4	SAE "C" 4-Bolt Mount		
7	SAE "C" 2-Bolt Mount		
8	SAE "C" 2/4-Bolt Combination Mount		
5 (First Inlet Port)			
Order Code	Description		
E	2", SAE 4-Bolt Split Flange		
EM	2", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.5", SAE 4-Bolt Split Flange		
FM	2.5", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
G	3", SAE 4-Bolt Split Flange		
GM	3", SAE 4-Bolt Metric Split Flange (M16 x 2.0" threads)		
Y	#30 SAE (2-1/2" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
GPM @ 1200 RPM, 100 PSI			
7 (First Outlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.25", SAE 4-Bolt Split Flange		
CM	1.25", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Second Inlet Port)			
Order Code	Description		
E	2", SAE 4-Bolt Split Flange		
EM	2", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.5", SAE 4-Bolt Split Flange		
FM	2.5", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
Contact factory for other requirements.			
9 (Displacements, Center Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
GPM @ 1200 RPM, 100 PSI			

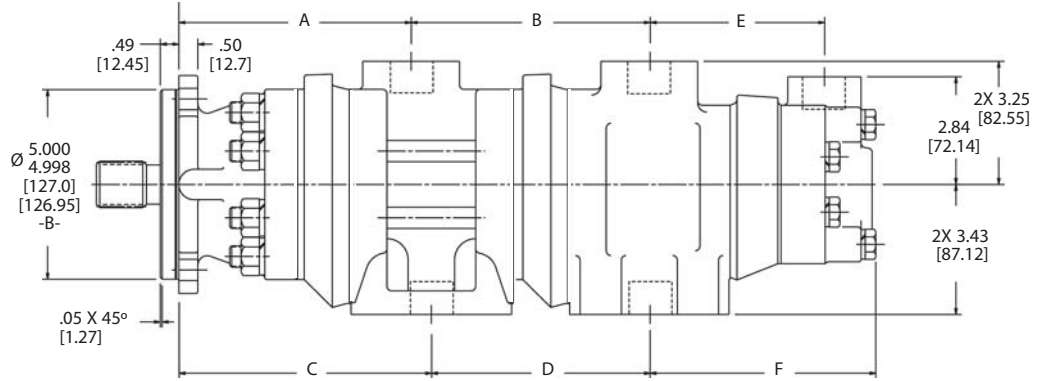
EXAMPLE:																
(F3)- F302020- W- 7- E- 25- B- E- 11- B- + - 9- B- 12- A- 10- L																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Special Seals	Series	Mount Type	Front Cover	First Inlet Port	Displacements, Front	First Outlet Port	Second Inlet Port	Displacements, Center	Second Outlet Port	Third Inlet Port	Displacements, Rear	Third Outlet Port	Drive Shaft	Shaft Seal	Design Designation	Rotation

10 (Second Outlet Port)			
Order Code	Description		
A	.75", SAE 4-Bolt Split Flange		
AM	.75", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
S	#10 SAE (.875" - 14) Straight Thread		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
11 (Third Inlet Port)			
Order Code	Description		
+	None		
12 (Displacements, Rear Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
GPM @ 1200 RPM, 100 PSI			
13 (Third Outlet Port)			
Order Code	Description		
A	.75", SAE 4-Bolt Split Flange		
AM	.75", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
S	#10 SAE (.875" - 14) Straight Thread		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
14 (Drive Shaft)			
Order Code	Description		
1	SAE "C" Straight Keyed, 1.25" Dia., 1.875" Ext.		
12	SAE "C" 14-Tooth Spline, Flat Root-Side Fit		
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit		
Contact factory for other requirements.			
15 (Shaft Seal)			
Order Code	Description		
A	Single Shaft Seal (30 PSI)		
D	High Pressure (100 PSI)		
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)		
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)		
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)		
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)		
X	None		
16 (Design Designation)			
Order Code	Description		
10	Standard		
17 (Rotation)			
Order Code	Description		
L	Counterclockwise Rotation		
R	Clockwise Rotation		

F303020



FRONT VIEW



SIDE VIEW

161	9.82	50	7.94	201.7	8.12	206.2	8.47	215.1	7.59	192.8
145	8.84	45	7.63	193.8	7.81	198.4	8.16	207.3	7.28	184.9
129	7.86	40	7.33	186.2	7.50	190.5	7.86	199.6	6.97	177.0
113	6.88	35	7.02	178.3	7.19	182.6	7.55	191.8	6.66	169.2
103	6.30	32	6.84	173.7	7.01	178.1	7.37	187.2	6.48	164.6
97	5.89	30	6.71	170.4	6.88	174.8	7.24	183.9	6.35	161.3
90	5.51	28	6.59	167.4	6.77	172.0	7.12	180.8	6.24	158.5
81	4.91	25	6.40	162.6	6.58	167.1	6.93	176.0	6.05	153.7
68	4.13	21	6.15	156.2	6.33	160.8	6.68	169.7	5.80	147.3
58	3.54	18	5.97	151.6	6.14	156.0	6.50	165.1	5.61	142.5

F30 SECTIONS

87	5.30	27	5.70	144.8	7.07	179.6
77	4.71	24	5.43	137.9	6.80	172.7
68	4.13	21	5.16	131.1	6.53	165.9
62	3.77	19	4.99	126.7	6.36	161.5
55	3.33	17	4.79	121.7	6.16	156.5
48	2.94	15	4.62	117.3	5.99	152.1
43	2.60	13	4.46	113.3	5.83	148.1
36	2.18	11	4.39	111.5	5.64	143.3
29	1.79	9	4.09	103.9	5.46	138.7
23	1.41	7	3.91	99.3	5.28	134.1
CC	CIR	DISPLACEMENT CODE	E	E	F	F
			(in.)	(mm)	(in.)	(mm)

F20 SECTIONS

All dimensions shown are for reference only. Consult factory for your specific configuration.

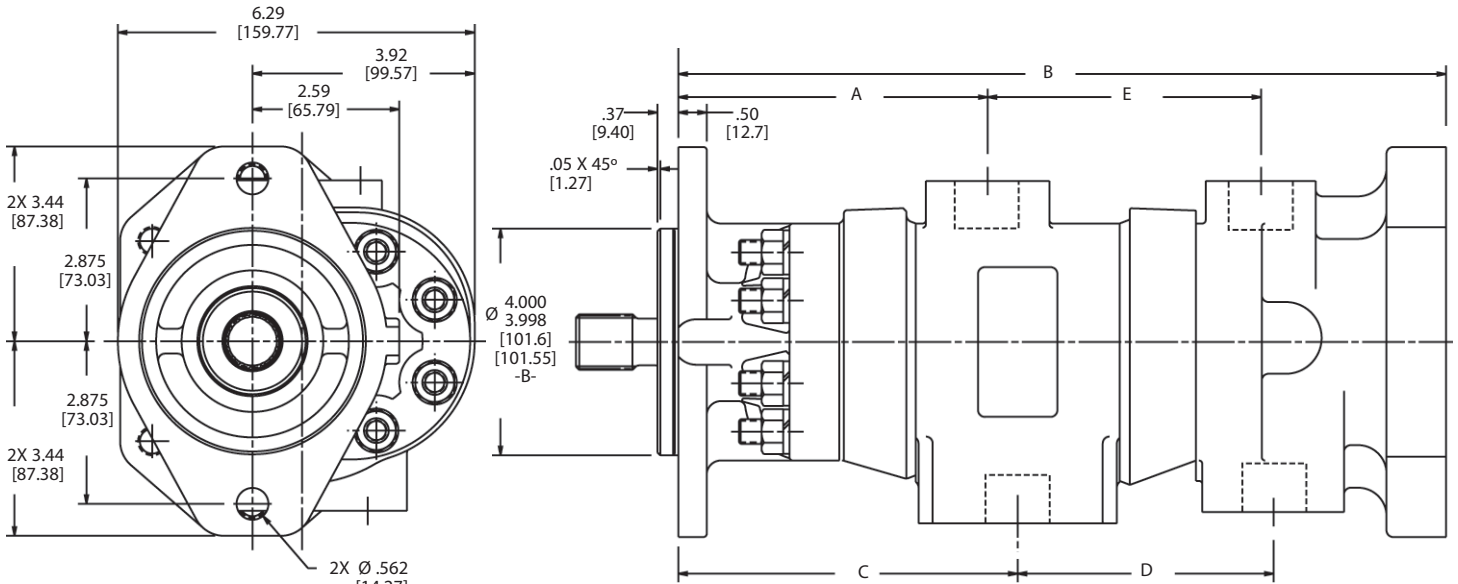
Model Code for F303020 Series Triple Pumps

ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
F303020	F303020 Series Triple Gear Pump		
3 (Mount Type)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
4	SAE "C" 4-Bolt Mount		
7	SAE "C" 2-Bolt Mount		
8	SAE "C" 2/4-Bolt Combination Mount		
5 (First Inlet Port)			
Order Code	Description		
E	2", SAE 4-Bolt Split Flange		
EM	2", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.5", SAE 4-Bolt Split Flange		
FM	2.5", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
G	3", SAE 4-Bolt Split Flange		
GM	3", SAE 4-Bolt Metric Split Flange (M16 x 2.0" threads)		
Y	#30 SAE (2-1/2" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
GPM @ 1200 RPM, 100 PSI			
7 (First Outlet Port)			
Order Code	Description		
C	1.25", SAE 4-Bolt Split Flange		
CM	1.25", SAE 4-Bolt Metric Split Flange (M10 x 1.5" threads)		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Second Inlet Port)			
Order Code	Description		
E	2", SAE 4-Bolt Split Flange		
EM	2", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.5", SAE 4-Bolt Split Flange		
FM	2.5", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
G	3", SAE 4-Bolt Split Flange		
GM	3", SAE 4-Bolt Metric Split Flange (M16 x 2.0" threads)		
Contact factory for other requirements.			
9 (Displacements, Center Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
GPM @ 1200 RPM, 100 PSI			

EXAMPLE:																
(F3)- F303020- W- 7 - E- 30- B - E- 25- B- +- 9- B- 12 - A - 10- L																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Special Seals	Series	Mount Type	Front Cover	First Inlet Port	Displacements, Front	First Outlet Port	Second Inlet Port	Displacements, Center	Second Outlet Port	Third Inlet Port	Displacements, Rear	Third Outlet Port	Drive Shaft	Shaft Seal	Design Designation	Rotation

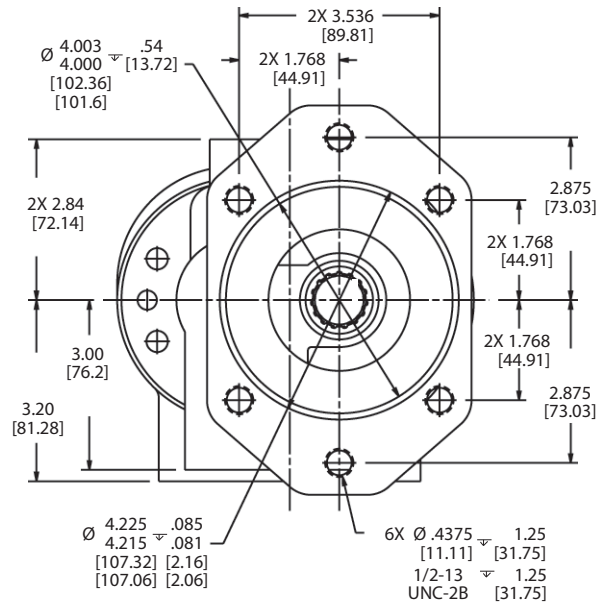
10 (Second Outlet Port)			
Order Code	Description		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
C	1.25", SAE 4-Bolt Split Flange		
CM	1.25", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
D	1.50", SAE 4-Bolt Split Flange		
DM	1.50", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
Contact factory for other requirements.			
11 (Third Inlet Port) (Contact Factory)			
Order Code	Description		
+	None		
12 (Displacements, Rear Section)			
Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³
GPM @ 1200 RPM, 100 PSI			
13 (Third Outlet Port)			
Order Code	Description		
A	.75", SAE 4-Bolt Split Flange		
AM	.75", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
B	1.00", SAE 4-Bolt Split Flange		
BM	1.00", SAE 4-Bolt Metric Split Flange (M10 x 1.50" threads)		
S	#10 SAE (.875" - 14) Straight Thread		
T	#12 SAE (1 1/16" - 12) Straight Thread		
V	#16 SAE (1 5/16" - 12) Straight Thread		
Contact factory for other requirements.			
14 (Drive Shaft)			
Order Code	Description		
1	SAE "C" Straight Keyed, 1.25" Dia., 1.875" Ext.		
12	SAE "C" 14-Tooth Spline, Flat Root-Side Fit		
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit		
Contact factory for other requirements.			
15 (Shaft Seal)			
Order Code	Description		
A	Single Shaft Seal (30 PSI)		
D	High Pressure (100 PSI)		
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)		
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)		
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)		
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)		
X	None		
16 (Design Designation)			
Order Code	Description		
10	Standard		
17 (Rotation)			
Order Code	Description		
L	Counterclockwise Rotation		
R	Clockwise Rotation		

FT2020



ROTATION
CW
FRONT VIEW

SIDE VIEW



REAR VIEW

87	5.30	27	6.54	166.1	5.91	150.1	7.07	179.6	5.60	142.2	15.70	398.8
77	4.71	24	6.27	159.3	5.64	143.3	6.80	172.7	5.33	135.4	15.17	385.3
68	4.13	21	6.00	152.4	5.37	136.4	6.53	165.9	5.06	128.5	14.63	371.6
62	3.77	19	5.83	148.1	5.20	132.1	6.36	161.5	4.89	124.2	14.30	363.2
55	3.33	17	5.63	143.0	5.00	127.0	6.16	156.5	4.69	119.1	13.90	353.1
48	2.94	15	5.46	138.7	4.83	122.7	5.99	152.1	4.52	114.8	13.55	344.2
43	2.60	13	5.30	134.6	4.67	118.6	5.83	148.1	4.36	110.7	13.23	336.0
36	2.18	11	5.11	129.8	4.48	113.8	5.64	143.3	4.17	105.9	12.84	326.1
29	1.79	9	4.93	125.2	4.30	109.2	5.46	138.7	3.99	101.3	12.49	317.2
23	1.41	7	4.75	120.7	4.12	104.6	5.28	134.1	3.81	96.8	12.14	308.4
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)	C (in.)	C (mm)	D (in.)	D (mm)	E (in.)	E (mm)

F20 SECTIONS

All dimensions shown are for reference only. Consult factory for your specific configuration.

Model Code for FT2020 Series Double Pumps

ORDERING INFORMATION

Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.

1 (Special Seals)

Order Code	Description
F3	Viton Seal
Omit	Standard

2 (Series)

Order Code	Description
FT2020	FT2020 Series Double Thru Drive Pump

3 (Mount Type)

Order Code	Description
W	Standard Mount

4 (Front Cover)

Order Code	Description
1	SAE "A" 2-Bolt Mount
2	SAE "B" 2-Bolt Mount
4(*)	SAE "C" 4-Bolt Mount (Contact Factory)
6	SAE "B" 2/4-Bolt Combination Mount
8(*)	SAE "C" 2/4-Bolt Combination Mount

5 (Inlet Port)

Order Code	Description
E	2", SAE 4-Bolt Split Flange
EM	2", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)
F	2.5", SAE 4-Bolt Split Flange
FM	2.5", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)

Contact factory for other requirements.

6 (Displacements, Front Section)

Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³

GPM @ 1200 RPM, 100 PSI

7 (Outlet Port)

Order Code	Description
A	.75", SAE 4-Bolt Split Flange
B	1", SAE 4-Bolt Split Flange (M10 x 1.5" threads)
BM	1", SAE 4-Bolt Metric Split Flange (M10 x 1.5" threads)
S	#10 SAE (.875" - 14) Straight Thread
T	#12 SAE (1 1/16" - 12) Straight Thread
V	#16 SAE (1 5/16" - 12) Straight Thread

Contact factory for other requirements.

8 (Displacements, Rear Section)

Order Code	Cm ³ /In ³	Order Code	Cm ³ /In ³
7-	23 cc/1.41 in. ³	17-	55 cc/3.33 in. ³
9-	29 cc/1.79 in. ³	19-	62 cc/3.77 in. ³
11-	36 cc/2.18 in. ³	21-	68 cc/4.13 in. ³
13-	43 cc/2.60 in. ³	24-	77 cc/4.71 in. ³
15-	48 cc/2.94 in. ³	27-	87 cc/5.30 in. ³

GPM @ 1200 RPM, 100 PSI

9 (Rear Section Outlet Port)

Order Code	Description
A	.75", SAE 4-Bolt Split Flange
B	1", SAE 4-Bolt Split Flange (M10 x 1.5" threads)
BM	1", SAE 4-Bolt Metric Split Flange (M10 x 1.5" threads)
S	#10 SAE (.875" - 14) Straight Thread
T	#12 SAE (1 1/16" - 12) Straight Thread
V	#16 SAE (1 5/16" - 12) Straight Thread

Contact factory for other requirements.

EXAMPLE:

(F3)- FT2020- W- 2 - E- 13- T - 21 - V- 1 - B - 11- A -10- L														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Special Seals	Series	Mount Type	Front Cover	Inlet Port	Displacements, Front Section	Outlet Port	Displacements, Rear Section	Rear Section Outlet Port	Rear Mounting Pad	Shaft Seal	Drive Shaft	Rear Coupling	Design Designation	Rotation

10 (Rear Mounting Pad)

Order Code	Description
1	SAE "A" 2-Bolt Rear Mounting Pad
6	SAE "B" 2/4-Bolt Rear Mounting Pad

Note: SAE "A" rear mounting pad is available with GT30 - 41st design. Contact factory for information.

11 (Shaft Seal)

Order Code	Description
A	Single Shaft Seal (30 PSI)
D	High Pressure (100 PSI)
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)
X	None

12 (Drive Shaft)

Order Code	Description
1	SAE "B" Straight Keyed, .875" Dia., 1.312" Ext.
12	SAE "B" 13-Tooth Spline, Flat Root-Side Fit
21	SAE "BB" Straight Keyed, 1" Dia., 1.5" Ext.
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit

Contact factory for other requirements.

13 (Rear Coupling)

Order Code	Description
A	SAE "A" Coupling
B	SAE "B" Coupling

14 (Design Designation)

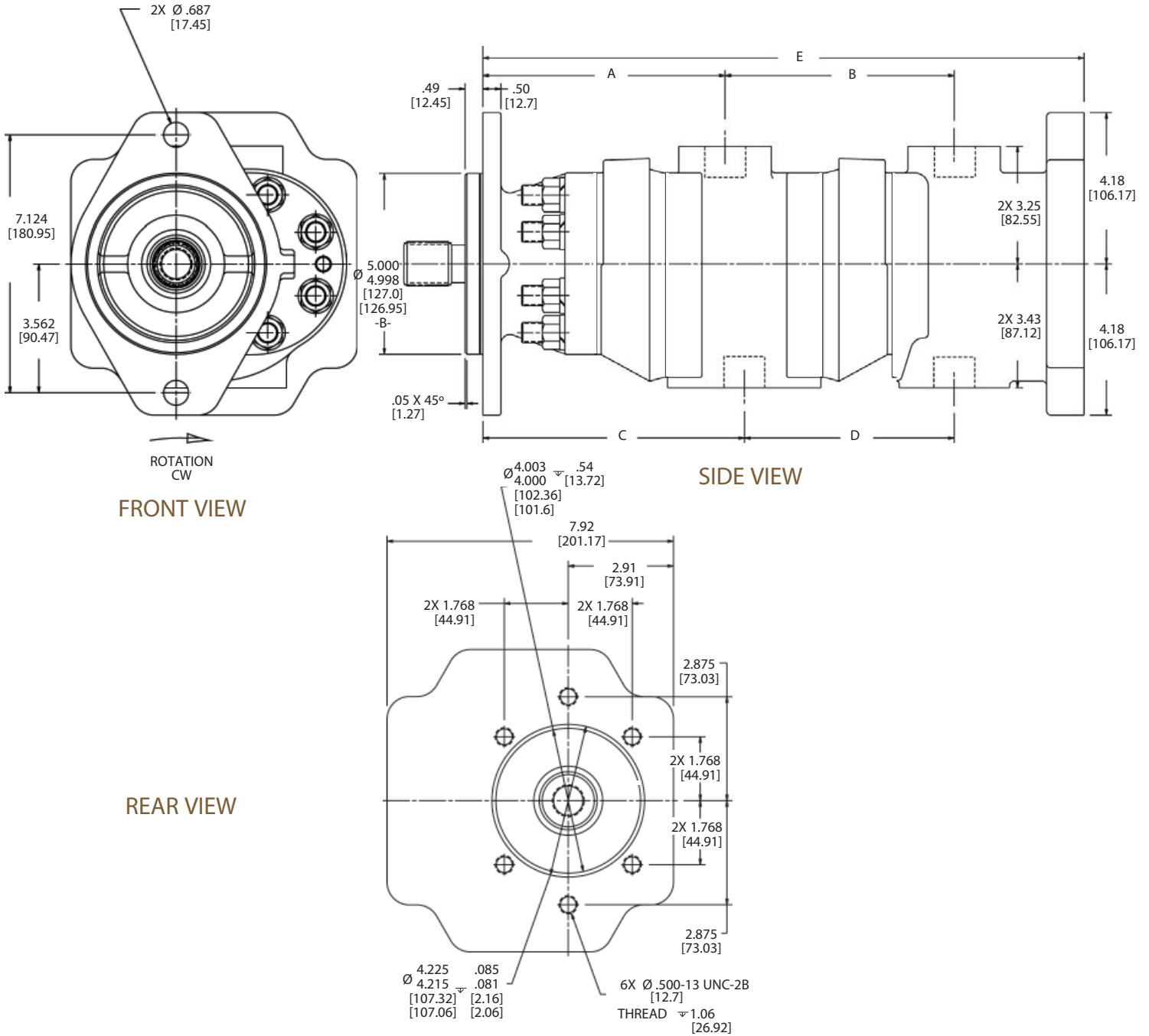
Order Code	Description
10	Standard

15 (Rotation)

Order Code	Description
L	Counterclockwise Rotation
R	Clockwise Rotation

(*) Any option marked with an asterisk (*) indicates you should contact the factory for availability.

FT3030



161	9.82	50	7.94	201.7	7.58	192.5	8.48	215.4	6.81	173.0	19.13	485.9
145	8.84	45	7.63	193.8	7.27	184.7	8.17	207.5	6.50	165.1	18.51	470.2
129	7.86	40	7.33	186.2	6.96	176.8	7.86	199.6	6.19	157.2	17.89	454.4
113	6.88	35	7.02	178.3	6.65	168.9	7.55	191.8	5.89	149.6	17.27	438.7
103	6.30	32	6.84	173.7	6.47	164.3	7.37	187.2	5.70	144.8	16.92	429.8
97	5.89	30	6.71	170.4	6.34	161.0	7.24	183.9	5.58	141.7	16.65	422.9
90	5.51	28	6.59	167.4	6.23	158.2	7.12	180.8	5.46	138.7	16.41	416.8
81	4.91	25	6.40	162.6	6.04	153.4	6.93	176.0	5.27	133.9	16.03	407.2
68	4.13	21	6.15	156.2	5.79	147.1	6.69	169.9	5.02	127.5	15.54	394.7
58	3.54	18	5.97	151.6	5.60	142.4	6.50	165.1	4.83	122.7	15.17	385.3
CC	CIR	DISPLACEMENT CODE	A (in.)	A (mm)	B (in.)	B (mm)	C (in.)	C (mm)	D (in.)	D (mm)	E (in.)	E (mm)

All dimensions shown are for reference only. Consult factory for your specific configuration.

Model Code for FT3030 Double Thru Drive Pumps

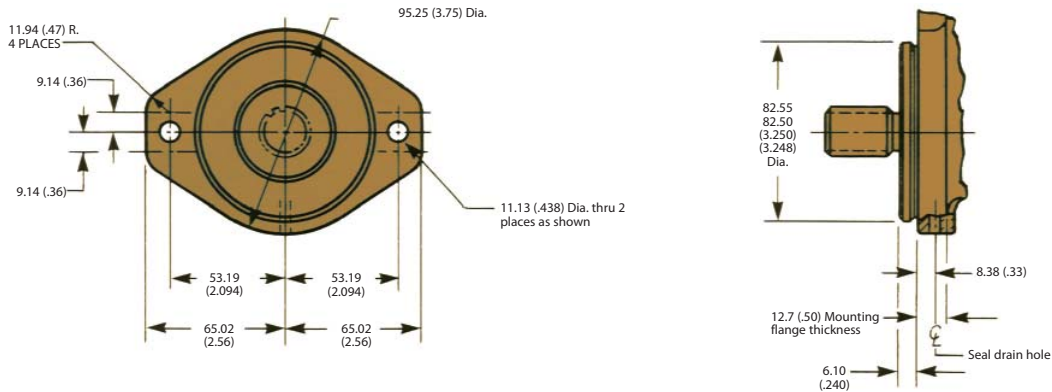
ORDERING INFORMATION			
Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown at right.			
1 (Special Seals)			
Order Code	Description		
F3	Viton Seal		
Omit	Standard		
2 (Series)			
Order Code	Description		
FT3030	FT3030 Series Double Thru Drive Pump		
Contact factory for other requirements.			
3 (Standard Designation)			
Order Code	Description		
W	Standard Mount		
4 (Front Cover)			
Order Code	Description		
4	SAE "C" 4-Bolt Mount		
7	SAE "C" 2-Bolt Mount		
8	SAE "C" 2/4-Bolt Combination Mount		
5 (Inlet Port)			
Order Code	Description		
E	2", SAE 4-Bolt Split Flange		
EM	2", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
F	2.5", SAE 4-Bolt Split Flange		
FM	2.5", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
G	3", SAE 4-Bolt Split Flange		
GM	3", SAE 4-Bolt Metric Split Flange (M16 x 2.0" threads)		
Y	#30 SAE (2 1/2" - 12) Straight Thread		
Contact factory for other requirements.			
6 (Displacements, Front Section)			
Order Code	Description	Order Code	Description
18 -	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
GPM @ 1200 RPM, 100 PSI			
7 (Front Section Outlet Port)			
Order Code	Description		
B	1", SAE 4-Bolt Split Flange		
BM	1", SAE 4-Bolt Metric Split Flange (M10 x 1.5" threads)		
C	1.25", SAE 4-Bolt Split Flange		
CM	1.25", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)		
D	1.5", SAE 4-Bolt Split Flange		
DM	1.5", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)		
V	#16 SAE (1 5/16" - 12) Straight Thread		
W	#20 SAE (1 5/8" - 12) Straight Thread		
X	#24 SAE (1 7/8" - 12) Straight Thread		
Contact factory for other requirements.			
8 (Displacements, Rear Section)			
Order Code	Description	Order Code	Description
18-	58 cc/3.54 in. ³	32-	104 cc/6.30 in. ³
21-	68 cc/4.13 in. ³	35-	113 cc/6.88 in. ³
25-	80 cc/4.91 in. ³	40-	129 cc/7.86 in. ³
28-	91 cc/5.51 in. ³	45-	145 cc/8.84 in. ³
30-	97 cc/5.89 in. ³	50-	161 cc/9.82 in. ³
GPM @ 1200 RPM, 100 PSI			

EXAMPLE:														
(F3) - FT3030 - C- 4- E- 18- B- 28 -X- 6- A- 12- B-10- L														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Special Seals	Series	Standard Designation	Front Cover	Inlet Port	Displacements, Front Section	Front Section Outlet Port	Displacements, Rear Section	Rear Section Outlet Port	Rear Mounting Pad	Shaft Seal	Drive Shaft	Rear Coupling	Design Designation	Rotation

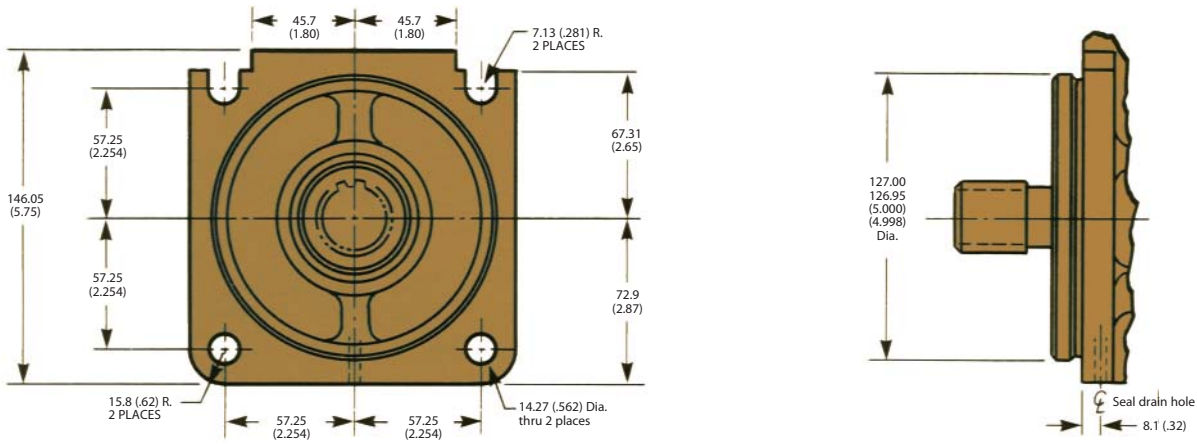
9 (Rear Section Outlet Port)	
Order Code	Description
B	1", SAE 4-Bolt Split Flange
BM	1", SAE 4-Bolt Metric Split Flange (M10 x 1.5" threads)
C	1.25", SAE 4-Bolt Split Flange
CM	1.25", SAE 4-Bolt Metric Split Flange (M12 x 1.75" threads)
D	1.5", SAE 4-Bolt Split Flange
DM	1.5", SAE 4-Bolt Metric Split Flange (M14 x 2.0" threads)
W	#20 SAE (1 5/8" - 12) Straight Thread
X	#24 SAE (1 7/8" - 12) Straight Thread
Contact factory for other requirements.	
10 (Rear Mounting Pad)	
Order Code	Description
1	SAE "A" 2-Bolt Rear Mounting Pad
6	SAE "B" 2/4-Bolt Rear Mounting Pad
8	SAE "C" 2/4-Bolt Rear Mounting Pad
11 (Shaft Seal)	
Order Code	Description
A	Single Shaft Seal (30 PSI)
D	High Pressure (100 PSI)
G	Double Shaft Seals, Outer Inverted, Buna (for wet mounting applications)
H	Double Shaft Seals, Outer Inverted, Viton (for wet mounting applications)
K	Double Shaft Seals, Excluder Outer, Buna Inner (for dry mounting applications)
M	Double Shaft Seals, Excluder Outer, Viton Inner (for dry mounting applications)
X	None
12 (Drive Shaft)	
Order Code	Description
1	SAE "C" Straight Keyed, 1.25" Dia., 1.875" Ext.
12	SAE "C" 14-Tooth Spline, Flat Root-Side Fit
99	SAE "BB" 15-Tooth Spline, Flat Root-Side Fit
Contact factory for other requirements.	
13 (Rear Coupling)	
Order Code	Description
B	SAE "B" Coupling
C	SAE "C" Coupling
14 (Design Designation)	
Order Code	Description
10	Standard
15 (Rotation)	
Order Code	Description
L	Counterclockwise Rotation
R	Clockwise Rotation

MOUNTING FLANGES

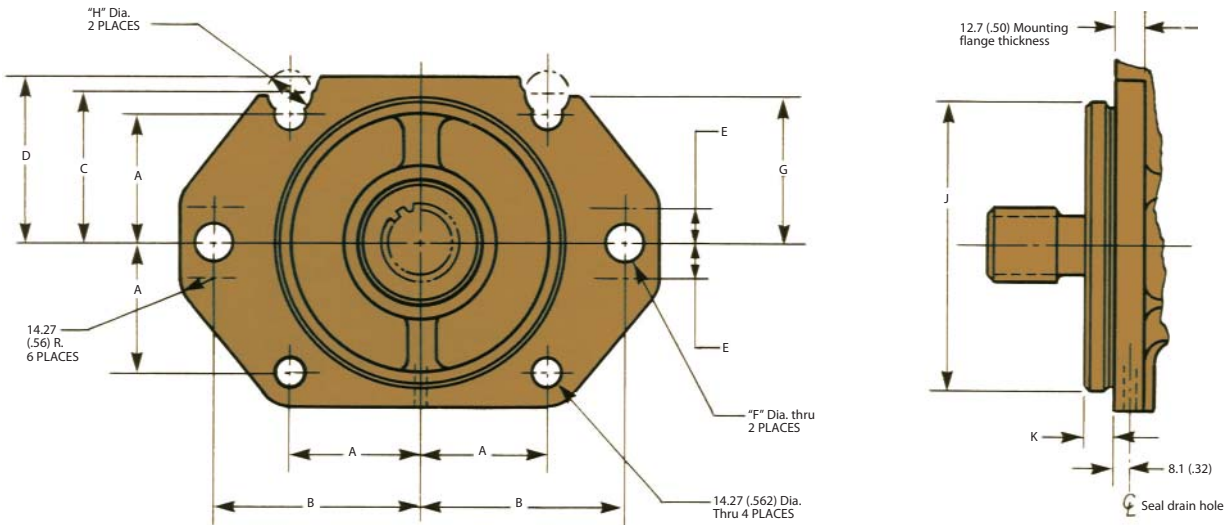
SAE "A" 2-BOLT



SAE "C" 4-BOLT



SAE 2/4-BOLT

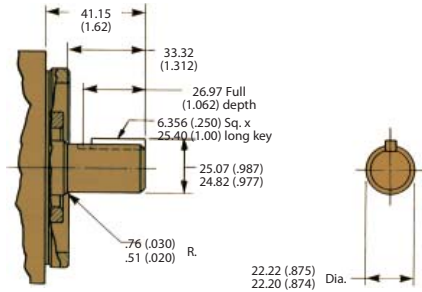


Pump series	2-Bolt/4-Bolt combination flange	A	B	C	D	E	F	G	H	J	K
F20, F2020, FT20	SAE "B"	44.91 (1.768)	87.38 (3.44)	54.61 (2.15)	59.18 (2.33)	12.7 (.50)	14.27 (.562)	52.02 (2.048)	19.05 (.750)	101.60 101.54 (4.000) (3.998)	9.40 (.370)
F30, F3020, F3030, FT30	SAE "C"	57.25 (2.254)	90.48 (3.56)	67.30 (2.65)	72.90 (2.87)	15.5 (.61)	17.48 (.688)	65.99 (2.598)	19.94 (.785)	127.00 126.95 (5.000) (4.998)	12.45 (.490)

DRIVE SHAFTS

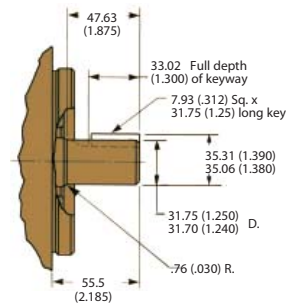
SAE "B" STRAIGHT KEY

Shaft No. 1: For F20, F2020 & FT20 Pumps
292.6 Nm (2590 in. lb.) torsional capacity.*



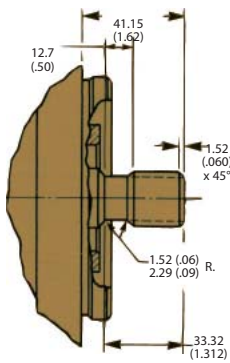
SAE "C" STRAIGHT KEY

Shaft No. 1: For F30, F3020, F3030 & FT30 Pumps
720.8 Nm (6380 in. lb.) torsional capacity.*



SAE "B" INVOLUTE SPLINE

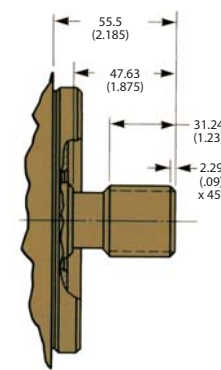
Shaft No. 12: For F20, F2020 & FT20 Pumps
279.6 Nm (2475 in. lb.) torsional capacity.*



Flat Root - Side Fit
No. of Teeth - 13
Diametral Pitch - 16/32
Pressure Angle - 30°

SAE "C" INVOLUTE SPLINE

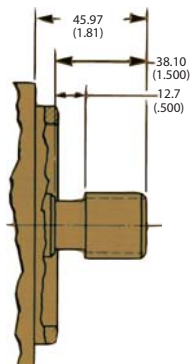
Shaft No. 12: For F30, F3020, F3030 & FT30 Pumps
819.1 Nm (7250 in. lb.) torsional capacity.*



Flat Root - Side Fit
No. of Teeth - 14
Diametral Pitch - 12/24
Pressure Angle - 30°

SAE "B-B" INVOLUTE SPLINE

Shaft No. 99: For F20, F2020 & FT20 Pumps
451.9 Nm (4000 in. lb.) torsional capacity.*



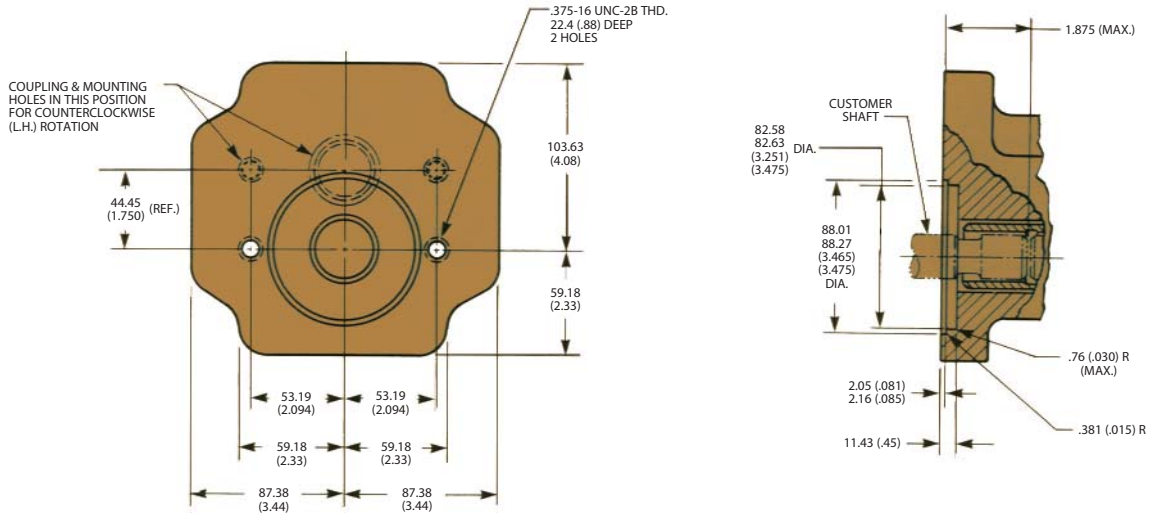
Flat Root - Side Fit
No. of Teeth - 15
Diametral Pitch - 16/32
Pressure Angle - 30°

* Applies to coaxial applications only. Consult representative if application requires greater capacity or has side loads.

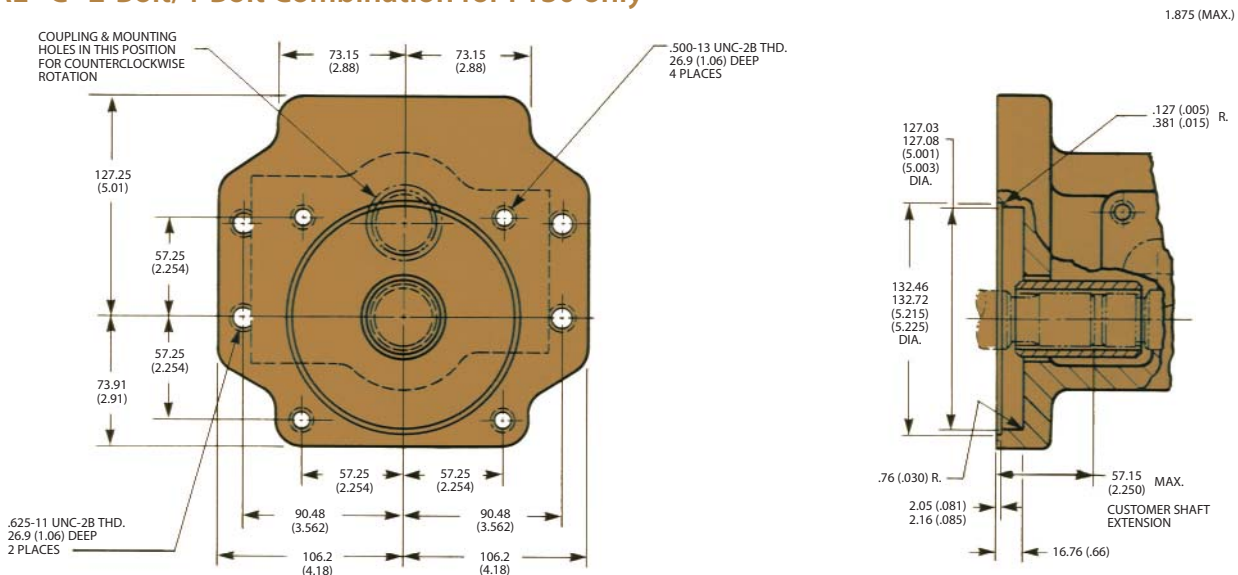
For shaft options not shown, contact factory for specific shaft information.

Rear Mounting Flanges for Thru-Drive Pumps

SAE "A" 2-Bolt



SAE "C" 2-Bolt/4-Bolt Combination for FT30 only

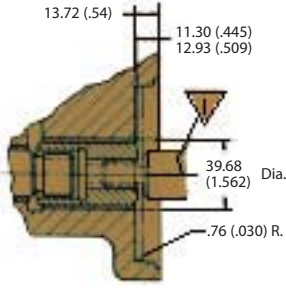


4-Bolt Flange Port Connections

Port size (model code designation)	Dimensions - mm (inch)						
	H	J	K	L	M	N	P
A	19.05 (.750)	11.13 (.438)	22.22 (.875)	23.82 (.938)	47.62 (1.875)	(.375-16)	22.35 (.88)
B	25.40 (1.000)	13.09 (.515)	26.19 (1.031)	26.19 (1.031)	52.37 (2.062)	(.375-16)	22.35 (.88)
C	31.75 (1.250)	15.09 (.594)	30.18 (1.199)	29.36 (1.156)	58.72 (2.312)	(.438-14)	25.40 (1.00)
D	38.10 (1.500)	17.86 (.703)	35.71 (1.406)	34.93 (1.375)	69.85 (2.750)	(.500-13)	25.40 (1.00)
E	50.80 (2.000)	21.44 (.844)	42.87 (1.688)	38.89 (1.531)	77.77 (3.062)	(.500-13)	25.40 (1.00)
F	63.50 (2.500)	25.40 (1.000)	50.80 (2.000)	44.45 (1.750)	88.90 (3.500)	(.500-13)	30.23 (1.19)
G	76.20 (3.000)	30.96 (1.219)	61.93 (2.438)	53.19 (2.094)	106.38 (4.188)	(.625-11)	30.23 (1.19)

Rear Couplings for Thru-Drive Pumps

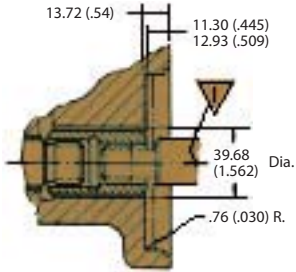
SAE "A" SIZE COUPLING



Coupling Spline Data - mm (inches)

Internal Involute Spline
 Flat Root - Side Fit
 No. of Teeth - 9
 Diametral Pitch - 16/32
 Pressure Angle - 30°

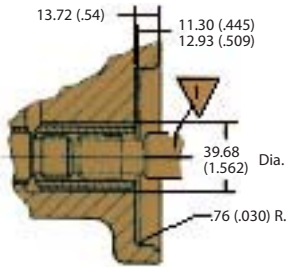
SAE "B" SIZE COUPLING



Coupling Spline Data - mm (inches)

Internal Involute Spline
 Flat Root - Side Fit
 No. of Teeth - 13
 Diametral Pitch - 16/32
 Pressure Angle - 30°

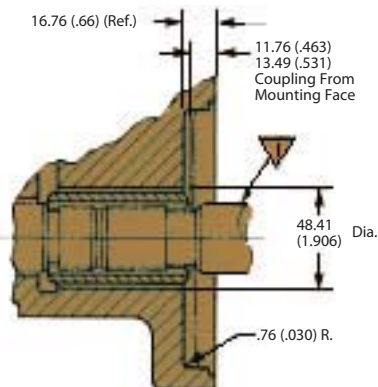
SAE "B-B" SIZE COUPLING



Coupling Spline Data - mm (inches)

Internal Involute Spline
 Flat Root - Side Fit
 No. of Teeth - 15
 Diametral Pitch - 16/32
 Pressure Angle - 30°

SAE "C" SIZE COUPLING



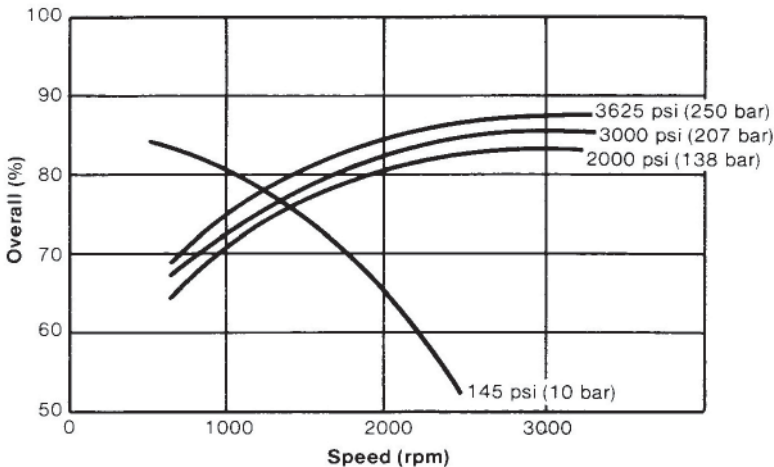
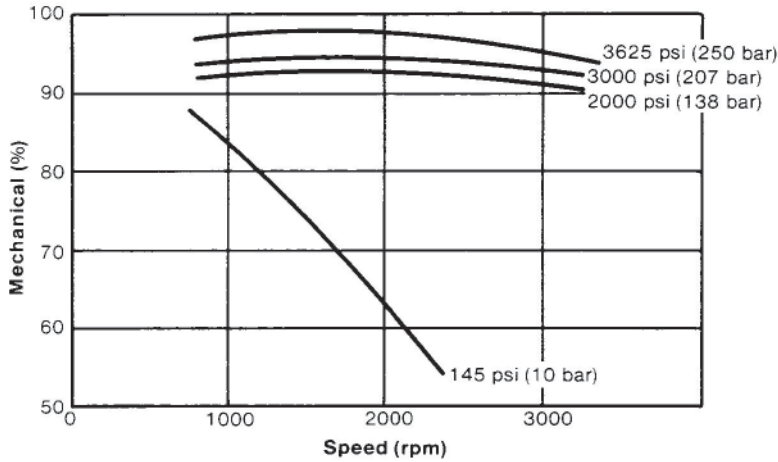
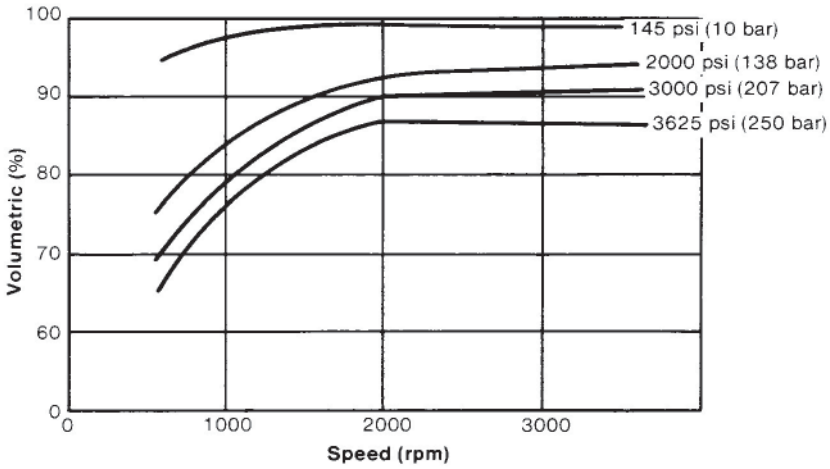
Coupling Spline Data - mm (inches)

Internal Involute Spline
 Flat Root - Side Fit
 No. of Teeth - 14
 Diametral Pitch - 12/24
 Pressure Angle - 30°

The customer shaft extension must conform, in all respects, to SAE J744 "Hydraulic Pump Mounting & Drive Dimensions" standards as they apply to external splines.

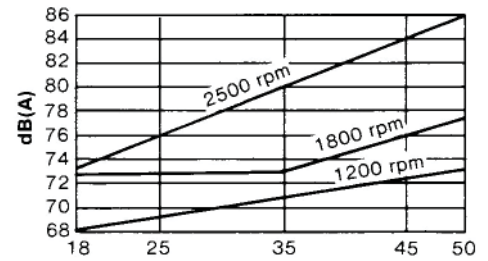
Technical Performance Data F20 & F30 Pumps

Typical efficiency



Sound levels dB(A)

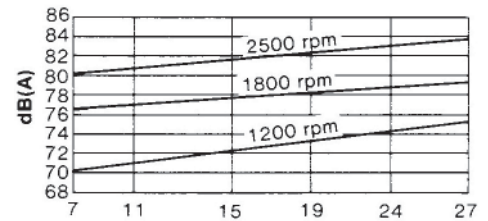
Data per NFPA T.3.9.70.12



F30 Single pump sizes (gpm)
@ 2000 psi, 5" hg

Sound levels dB(A)

Data per NFPA T.3.9.70.12



F20 Single pump sizes (gpm)
@ 2000 psi, 5" hg

PUMPS & MOTORS

Cast Iron Pumps Heavy Duty



GC Series Pumps

Displacements
0.065 to 0.711 cu. In. (1.06 to 11.65 cc)

GC Series High/Low Pumps

High Pressure Displacements
0.065 to 0.258 cu. In. (1.06 to 4.22 cc)

Low Pressure Displacements
0.258 to 0.776 cu. In. (4.22 to 12.71 cc)

Maximum Pressure
4,000 psi (276 bar)

Maximum Speed
4,000 rpm



F12 & F15 Ferra Series Pumps

F12 Displacements
0.976 to 2.502 cu. In. (16 – 41 cc)

F15 Displacements
1.159 to 3.051 cu. In. (19 to 50 cc)

Maximum Pressure
4,000 psi (276 bar)

Maximum Speed
3,600 rpm



F20/F30 Pumps & F20-LS/F30-LS Load Sense Ferra Series Pumps

Displacements
1.41 to 9.82 cu. In. (23 to 161 cc)

Maximum Pressure
4,000 psi (276 bar)

Maximum Speed
3,600 rpm



D Series Pumps

Displacements
0.232 to 1.395 cu. In. (3.80 to 22.85 cc)

D Series High/Low Pumps

High Pressure Displacements
0.465 cu. In. (7.62 cc)

Low Pressure Displacements
0.930 to 1.395 cu. In. (15.24 to 22.86 cc)

Maximum Pressure
3,000 – 4,000 psi (207 – 276 bar)

Maximum Speed
3,600 – 4,000 rpm

Aluminum Pumps Medium/Light Duty



W-Series Pumps

W100 Displacements
0.031 to 0.122 cu. In. (0.50 to 2.00 cc)

W300 Displacements
0.049 to 0.347 cu. In. (0.80 to 5.70 cc)

W600 Displacements
0.244 to 0.732 cu. In. (4 to 12 cc)

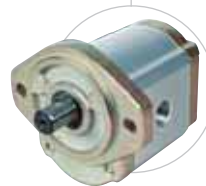
W900 Displacements
0.305 to 1.891 cu. In. (5 to 31 cc)

W1200 Displacements
1.526 to 2.014 cu. In. (25 to 33 cc)

W1500 Displacements
1.159 to 3.051 cu. In. (19 to 50 cc)

Maximum Pressure
4,000 psi (276 bar)

Maximum Speed
500 to 4,000 rpm



WK900 CALMA Pumps

Displacements
0.305 to 1.648 cu. In. (5 to 27 cc)

Maximum Pressure
3,336 psi (230 bar)

Maximum Speed
4,000 rpm

Fluid Motors



Cast Iron

Displacements
0.065 to 9.82 cu. In. (1.06 to 161 cc)

Speed
Up to 10,000 rpm

Aluminum

Displacements
0.244 to 3.050 cu. In. (4 to 50 cc)

Speed
Up to 4,000 rpm

Flow Dividers



GC & D Series

GC Displacements
0.097 to 0.517 cu. In. (1.58 to 8.47 cc)

D Displacements
0.232 to 0.813 cu. in. (3.8 to 13.32 cc)

Maximum Pressure
4,500 psi (310 bar)

Maximum Input Flow Per Section
14 gpm (53 lpm)



Call us for more information

For application assistance or detailed literature on any Concentric product line, call us toll-free: **1-800-572-7867**.

Visit our web site: <http://www.concentricAB.com>

E-mail us: info.usro@concentricAB.com

PRODUCT RANGE
HE Powerpacks

12/24/48 VDC 0.3 – 4.5 kW and
0.75 – 3 kW AC modular power packs

HE Box Powerpacks

12/24/48 VDC modular powerpacks
in weatherproof boxes

Pressure Switches

5 - 350 bar, connecting/disconnecting

W100 Hydraulic pumps

0,5 - 2,0 cc 227 bar

W300 Hydraulic pumps

0,8 – 5,7 cc 230 bar

W600 Hydraulic pumps / motors

3 – 12 cc 276 bar

W900 Hydraulic pumps / motors

5 – 31 cc/section 276 bar

Calma The new quiet pumps

6,2 - 23,7 cc/section 250 bar

WQ900 The quiet pumps

5 - 23 cc/section 230 bar

WP900X Hydraulic pumps

16 - 31 cc/section 276 bar

W1500 Hydraulic pumps / motors

19 - 50 cc/section 276 bar

F12 FERRA Heavy duty pumps

16 - 41 cc/section 276 bar

F15 FERRA Heavy duty pumps

19 - 50 cc/section 276 bar

F20/F30 (LS) Hydraulic pumps / motors

23 – 161 cc/section 276 bar

GPA Internal Gear pumps

1,7 – 63 cc/section 100 bar

GC Hydraulic pumps / motors

1,06 – 11,65 cc/section 276 bar

D Hydraulic pumps

3,8 – 22,9 cc/section 207 bar

H Hydraulic pumps

9,8 – 39,4 cc/section 207 bar

II-Stage Hydraulic pumps

4,2 – 22,8 cc/section 276 bar

Rotary Flow Dividers

3,8 – 13,3 cc/section 300 bar

Transmission pumps

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