

TOTAL SYSTEMS SOLUTIONS WORLDWIDE™

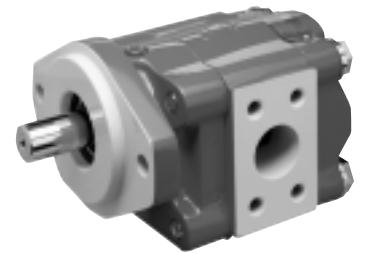


P30/31™, P50/51™, P75/76™ Series Single and Multiple Pumps and Motors

*Pressure to 3000 PSI/175
BAR*

*Output to 120 GPM/
454 LPM*

Motors up to 135 HP



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Average Output Flow - Pumps

Flow data at 2500 PSI (172 bar) unless noted.

P30/31

Speed RPM	Gear Width Inches				
	1"	1 1/4"	1 1/2"	1 3/4"	2"
900	6.5	8	10	12	13.5
	24.5	30	38	45.5	51
1200	9	11.5	14	16	18.5
	34	43.5	53	60.5	70
1500	11.5	14.5	17.5	20.5	23.5
	43.5	55	66	77.5	89
1800	14	18	21.5	25	29
	53	68	81.5	94.5	110
2100	16.5	21	25	29.5	34
	62.5	79.5	94.5	112	129
2400	19	24	29	34	39
	72	91	110	129	148

gpm/lpm

P50/51

Speed RPM	Gear Width Inches						
	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/4"	2 1/2"
900	8.5	10.5	13	15	17.5	20	22
	32	39.5	49	57	66	75.5	83.5
1200	12	15	18	21	24	27	30
	45.5	57	68	79.5	91	102	114
1500	15	19	23	27	31	35	39
	57	72	87	102	117	132	148
1800	18	23	27.5	32.5	37.5	42	47
	68	87	104	123	142	159	178
2100	21.5	27	32.5	38.5	44	49.5	55
	81.5	102	123	146	167	187	208
2400	25	31	37	44	51	57	63.5
	94.5	117	140	167	193	216	240

gpm/lpm

P75/76

Speed RPM	Gear Width Inches								
	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/4"	2 1/2"	2 3/4"*	3"*
900	11.5	15.5	19.5	23	27	30.5	34.5	38	42
	43.5	58.5	74	87	102	115.5	130.5	144	159
1200	17	22	27	32	37.5	42	48	52.5	58
	64.5	83.5	102	121	142	159	182	199	220
1500	22	29	35.5	41.5	48	54.5	61	67	74
	83.5	110	134	157	182	206	231	254	280
1800	27.5	35.5	43.5	51	59	66	74	81.5	90
	104	134	165	193	223	250	280	308	341
2100	33	42	51.5	60	69.5	78	87	96.5	106
	125	159	195	227	263	295	329	365	401
2400	38	49	59.5	70	80	90	101	111	122
	144	185	225	265	303	341	382	420	462

gpm/lpm

* Flow data at 2000 PSI (138 bar) rated pressure.

Average Input Power - Pumps

Power data at 2500 PSI (172 bar) unless noted.

P30/31

Speed RPM	Gear Width Inches				
	1"	1 1/4"	1 1/2"	1 3/4"	2"
900	14	17	20	23	25
	11	13	15	17	19
1200	19	22	26	30	33
	14	17	20	22	25
1500	23	28	33	37	42
	17	21	24	27	31
1800	27	33	39	44	50
	20	25	29	33	37
2100	32	38	45	51	58
	24	29	34	38	43
2400	36	44	51	58	66
	26	33	38	43	49

HP/kW

P50/51

Speed RPM	Gear Width Inches						
	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/4"	2 1/2"
900	19	22	26	30	34	38	42
	14	17	20	23	26	29	32
1200	25	30	34	40	45	51	56
	18	22	26	30	34	38	42
1500	31	37	43	50	56	63	69
	23	27	32	37	42	47	51
1800	36	44	51	59	67	75	82
	27	33	38	44	50	56	61
2100	42	51	60	69	78	87	96
	31	38	44	51	58	65	72
2400	47	57	68	79	89	99	110
	35	43	51	59	66	74	82

HP/kW

PL Chart		
Shaft Style	Integral Shaft & Gear	Two Piece Style
30/31		
SAE "A" Spline	2,600	2,600
SAE "B" Spline	7,900	5,850
SAE "B" Key	4,850	4,850
SAE "BB" Spline	12,150	--
SAE "BB" Key	7,250	5,850
SAE "C" Spline	--	5,850
Connecting Shaft	--	5,850
50/51		
SAE "B" Spline	6,100	6,100
SAE "B-B" Spline	9,400	--
SAE "B-B" Key	5,600	5,600
SAE "C" Spline	12,900	8,500
SAE "C" Key	10,900	8,500
Connecting Shaft	--	8,500
75/76		
SAE "C" Single	8,000	8,000
SAE "C" Tandem	12,500	--
SAE "C" Key	7,500	7,500
Connecting Shaft	--	10,000

PL FACTOR

Each section of a multiple pump or motor should be regarded as a single unit with corresponding delivery and power input requirements. Since the entire input horsepower is fed through a common drive shaft, the power delivered to or from the unit is limited by the physical strength of the shaft. This limit is defined as a "PL" factor; "P" being the operating pressure and "L" the summation of gear widths.

In multiple units the "PL" must be calculated for the first connecting shaft as well as the drive shaft. Each style or type of shaft has a unique "PL" factor as noted in the table below.

Pressure X Total Gear Width = PL
PL MUST NOT EXCEED NUMBER SHOWN IN
CHART FOR APPROPRIATE SHAFT.

P75/76

Speed RPM	Gear Width Inches								
	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/4"	2 1/2"	2 3/4"*	3"*
900	26	32	39	45	51	58	64	57	62
	19	24	29	34	38	43	48	42	46
1200	35	43	52	60	69	78	86	76	83
	26	32	39	45	51	58	64	57	62
1500	44	55	65	76	87	98	109	96	105
	33	41	49	57	65	73	81	72	78
1800	53	66	79	93	106	119	132	116	127
	39	49	59	69	79	89	99	87	95
2100	62	77	93	108	124	139	154	136	148
	46	58	69	81	92	104	115	101	111
2400	71	88	106	124	141	159	176	155	169
	53	66	79	92	105	118	132	116	126

HP/kW

* Input data at 2000 PSI (138 bar) rated pressure.

Average Performance Data - Motors

Motor performance data at 2000 PSI (138 bar).

M30

Speed RPM	1" Gear			1 1/2" Gear			2" Gear		
	Output		Input	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow
800	550	7	9	870	11	13	1150	14.5	17
	62	5	34	98.5	8	49	130	11	64.5
1200	550	10.5	13	870	16.5	18	1150	22	23.5
	62	8	49	98.5	12.5	68	130	16.5	89
1600	550	14	16	860	22	23	1140	29	30.5
	62	10.5	60.5	97	16.5	87	129	21.5	115
2000	550	17.5	19.5	850	27	28	1125	36	37
	62	13	74	96	20	106	127	27	140

U.S./Metric Torque: In.-lbs. Flow: GPM Power: HP
Nm LPM kW

M50

Speed RPM	1" Gear			1 1/2" Gear			2" Gear		
	Output		Input	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow
800	670	8.5	10.5	1070	13.5	15.5	1450	18	21
	75.5	6.5	39.5	121	10	58.5	164	13.5	79.5
1200	680	13	15.5	1075	20.5	22.5	1450	27.5	30.5
	77	9.5	58.5	121.5	15	85	164	20.5	115
1600	670	17	20	1045	26.5	30	1440	36.5	40
	75.5	12.5	75.5	118	20	114	162.5	27	151
2000	660	21	25	1030	32.5	37	1415	44.5	49
	74.5	15.5	94.5	116.5	24	140	160	33	185

U.S./Metric Torque: In.-lbs. Flow: GPM Power: HP
Nm LPM kW

M75

Speed RPM	1" Gear			1 1/2" Gear			2" Gear		
	Output		Input	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow
800	1050	13.5	20.5	1650	21	28	2200	28	35.5
	118.5	10	77.5	186.5	15.5	106	248.5	21	134
1200	1025	19.5	27.5	1600	30.5	38	2200	42	49.5
	116	14.5	104	181	22.5	144	248.5	31.5	187
1600	1000	25.5	34	1575	40	49	2175	55	64
	113	19	129	178	30	185	245.5	41	242
2000	950	30	41.5	1550	49	59	2175	67.5	78
	107.5	22.5	157	175	36.5	223	245.5	50.5	295

U.S./Metric Torque: In.-lbs. Flow: GPM Power: HP
Nm LPM kW

M50 (continued)

Speed RPM	2 1/2" Gear		
	Output		Input
	Torque	Power	Flow
800	1850	23.5	26
	209	17.5	98.5
1200	1840	35	37.5
	208	26	142
1600	1750	44.5	49.5
	197.5	33	187
2000	1720	54.5	61.5
	194.5	40.5	233

M75 (continued)

Speed RPM	2 1/2" Gear			3" Gear		
	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow
800	2875	36.5	43	3625	46	50.5
	325	27	163	409.5	34.5	191
1200	2850	54	60.5	3575	68	72
	322	40.5	229	404	50.5	273
1600	2800	71	78.5	3500	89	93
	316.5	53	297	395.5	66.5	352
2000	2750	87	96.5	3425	109	114
	310.5	65	365	387	81.5	431

Average Performance Data - Motors

Motor performance data at 2500 PSI (172 bar) unless noted.

M31

Speed RPM	1" Gear			1 1/2" Gear			2" Gear		
	Output		Input	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow
800	675	8.5	9	1035	13	13	1385	17.5	17
	76.5	6.5	34	117	9.5	49	156.5	13	64.5
1200	685	13	13	1055	20	18	1410	27	23.5
	77.5	9.5	49	119	15	68	159.5	20	89
1600	680	17.5	16	1030	26	23	1390	35	30.5
	77	13	60.5	116.5	19.5	87	157	26	115
2000	660	21	19.5	1010	32	28	1370	43.5	37
	74.5	15.5	74	114	24	106	155	32.5	140

U.S./Metric Torque: In.-lbs. Flow: GPM Power: HP
Nm LPM kW

M51

Speed RPM	1" Gear			1 1/2" Gear			2" Gear		
	Output		Input	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow
800	825	10.5	10.5	1310	16.5	15.5	1810	23	21
	93	8	39.5	148	12.5	58.5	204.5	17	79.5
1200	850	16	15.5	1340	25.5	22.5	1830	35	30.5
	96	12	58.5	151.5	19	85	207	26	115
1600	830	21	20	1330	34	30	1805	46	40
	94	15.5	75.5	150.5	25.5	114	204	34.5	151
2000	800	25.5	25	1290	41	37	1770	56	49
	90.5	19	94.5	146	30.5	140	200	42	185

U.S./Metric Torque: In.-lbs. Flow: GPM Power: HP
Nm LPM kW

M76

Speed RPM	1" Gear			1 1/2" Gear			2" Gear		
	Output		Input	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow
800	1410	18	20.5	2140	27	28	2875	36.5	35.5
	159.5	13.5	77.5	242	20	106	325	27	134
1200	1400	26.5	27.5	2140	41	38	2870	54.5	49.5
	158	20	104	242	30.5	144	324.5	40.5	187
1600	1375	35	34	2110	53.5	49	2830	72	64
	155.5	26	129	238.5	40	185	319.5	53.5	242
2000	1350	43	41.5	2090	66.5	59	2800	89	78
	152.5	32	157	236	49.5	223	316.5	66.5	295

U.S./Metric Torque: In.-lbs. Flow: GPM Power: HP
Nm LPM kW

M51 (continued)

Speed RPM	2 1/2" Gear		
	Output		Input
	Torque	Power	Flow
800	2330	29.5	26
	263.5	22	98.5
1200	2340	44.5	37.5
	264.5	33	142
1600	2300	58.5	49.5
	260	43.5	187
2000	2250	71.5	61.5
	254	53.5	233

M76 (continued)

Speed RPM	2 1/2" Gear			3" Gear*		
	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow
800	3650	46.5	43	3625	46	50.5
	412.5	34.6	163	409.5	34.5	191
1200	3650	69.5	60.5	3575	68	72
	412.5	52	229	404	50.5	273
1600	3600	91.5	78.5	3500	89	93
	406.5	68	297	395.5	66.5	352
2000	3500	111	96.5	3425	109	114
	395.5	83	365	387	81.5	431

* Motor performance data at 2000 PSI (138 bar) rated pressure.

Dimensional Data

Model		A ⁽¹⁾	Bs ⁽²⁾⁽³⁾	Bm ⁽³⁾⁽⁴⁾	C ⁽⁵⁾⁽⁶⁾	D ⁽⁵⁾⁽⁷⁾	E ⁽³⁾	F ⁽²⁾	G	H	I	J	K
P30/31	in.	1.62	5.44	8.69	5.44	5.88	2.94	0.75	1.75	2.50	0.88	2.69	5.38
	mm.	41.3	138.1	220.7	138.1	149.2	74.6	19.1	44.5	63.5	22.2	68.3	136.5
P50/51	in.	2.19	5.88	9.50	5.44	5.88	3.38	0.75	1.75	2.88	1.00	3.00	6.00
	mm.	55.6	149.2	241.3	138.1	149.2	85.7	19.1	44.5	73.0	25.4	76.2	152.4
P75/76	in.	2.19	6.75	10.75	7.75	7.94	3.75	1.00	2.00	3.00	1.25	3.94	7.88
	mm.	55.6	171.5	273.1	196.9	201.6	95.3	25.4	50.8	76.2	31.8	100.0	200.0

U.S./Metric

NOTES

1. Dimension will vary with shaft type
2. Dimension + gear width
3. Dimension is for Type 1 SEC. For Type 2: subtract 1.12" (28.4 mm) for 30/31; subtract 1.00" (25.4 mm) for 50/51.
4. Dimension + total gear width
5. Dimension will vary with port type. Subtract 0.25" (6.4 mm) for S.F. ports.
6. For 2.25" and 2.50" gear width in 50/51 series, dimension is 6.75" (171.5 mm).
7. Dimension is for wide B-C. Narrow B-C dimensions: 5.00" (127 mm) for 30/31 and 50/51; 7.19" (182.6 mm) for 75/76.
8. Dimension + 1/2 front section gear width

Model		L ⁽³⁾⁽⁸⁾	M ⁽⁴⁾
P30/31	in.	3.31	3.25
	mm.	84.1	82.6
P50/51	in.	3.75	3.62
	mm.	95.3	92.1
P75/76	in.	4.75	4.00
	mm.	120.7	101.6

Approximate Weight

Single Unit

Model	Unit Weight	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/4"	2 1/2"	2 3/4"	3"
P30/31	Pounds	33	34	35	36	37	-	-	-	-
	KG	15	15.5	16	16.5	17	-	-	-	-
P50/51	Pounds	37	38.5	40	41.5	43	48.5	50	-	-
	KG	17	17.5	18	19	19.5	22	22.5	-	-
P75/76	Pounds	72	75	77	80	82	85	87	90	92
	KG	33	34	35	36	37	39	40	41	42

Approximate Weight

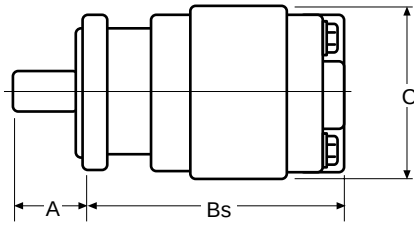
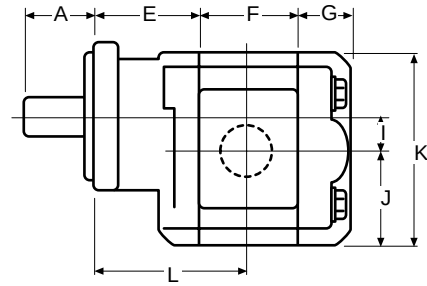
Multiple Unit*

Model	Add per gear section	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/4"	2 1/2"	2 3/4"	3"
P30/31	Pounds	27	28	29	31	32	-	-	-	-
	KG	12	12.5	13	14	14.5	-	-	-	-
P50/51	Pounds	31	32.5	34	35.5	37	42.5	44	-	-
	KG	14	15	15.5	16	17	19	20	-	-
P75/76	Pounds	59	62	64	67	69	72	74	77	79
	KG	27	28	29	31	32	33	34	35	36

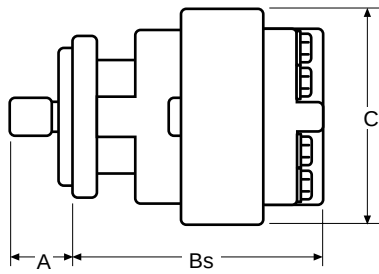
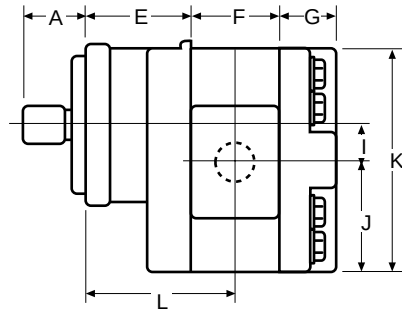
*Determine the approximate weight from Single Unit chart and add weight of each additional assembly from this chart.

Dimensional Data

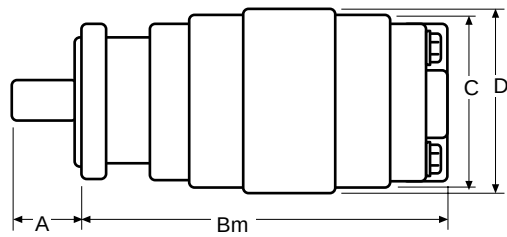
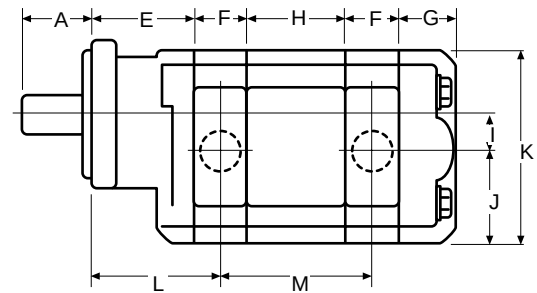
Single Unit - P30/31/50/51



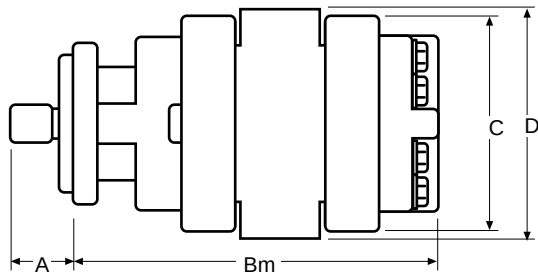
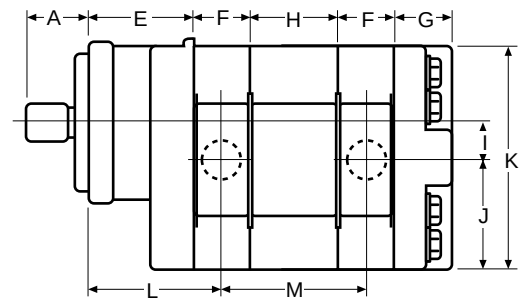
Single Unit - P75/76



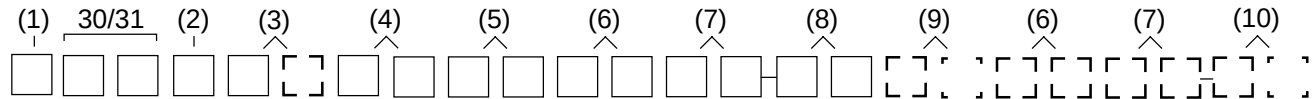
Multiple Unit - P30/31/50/51



Multiple Unit - P75/76



30/31 Series Coding



Pump/Motor (1)

P Pump

M Motor

Unit (2)

A Single Unit

B Tandem Unit

C Single or Tandem w. two-piece shaft (O.B. bearing required)

Shaft End Cover (3)

1 Pump, cw w/o O.B. bearing

2 Pump, ccw w/o O.B. bearing

3 Pump, bi-rotational w/o O.B. bearing (30 series only)

4 Pump, cw with O.B. bearing

5 Pump, ccw with O.B. bearing

6 Pump, bi-rotational with O.B. bearing (30 series only)

8 Motor, bi-rot. with O.B. bearing + 1/4" NPT drain

9 Motor, bi-rot. w/o O.B. bearing + 1/4" NPT drain

18 Motor, bi-rot. with O.B. bearing + 1/4" BSPP drain

19 Motor, bi-rot. w/o O.B. bearing + 1/4" BSPP drain

Shaft End Cover (4) (type 1 unless noted)

00 Pad mount

05 6 bolt flange - 3.25" dia. bolt circle

42 SAE 4 bolt "B" ANSI 101-4

78 SAE 4 bolt "C" ANSI 127-4

91 30-30, 31-31, & 50-30, 51-31 for piggyback

92 75-30, 76-31 for piggyback

94 SAE 2 bolt "A" ANSI 82-2

96 SAE 2 bolt "B" ANSI 101-2, **type 2** (not available with O.B. bearing)

97 SAE 2 bolt "B" ANSI 101-2

Port End Cover (5) (Rear Ported)

Left **Right** **Single** **Tandem** **Extended Studs**

Unported

- - BE BI BY

NPT Porting (30 series only)

3/4" - KE KI KY

- 3/4" LE LI LY

3/4" 3/4" ME MI MY

NPT Porting (30 series only) - Modified Casting*

1" 1" QU QU -

* Modified PEC casting is for higher pressure/larger port applications.

Port End Cover (5) (Rear Ported) continued

Left **Right** **Single** **Tandem** **Extended Studs**

O.D.T. Porting

3/4" - CE CI CY

- 3/4" DE DI DY

3/4" 3/4" FE FI FY

1" 3/4" GE GI GY

3/4" 1" HE HI HY

O.D.Tube Porting (30 series only)

1" 1" JE JI JY

O.D.Tube Porting - Modified Casting*

3/4" - CA CU CO

- 3/4" DA DU DO

3/4" 3/4" JA JU BO

1" 3/4" KA KU -

3/4" 1" LA LU -

1" - MA MU YO

- 1" RA SU RO

1" 1" ZA ZU ZO

1 1/4" 1" GU GU -

1" 1 1/4" HU HU -

BSPP Porting

3/4" - WE WI WY

- 3/4" XE XI XY

3/4" 3/4" ZE ZI ZY

Metric Straight Thread

3/4" - NE NI NY

- 3/4" PE PI PY

3/4" 3/4" QE QI QY

1" 3/4" RE RI RY

3/4" 1" SE SI SY

Port End Cover (5) (Side Ported)

Left **Right** **Single** **Tandem** **Extended Studs**

O.D.Tube Porting - Modified Casting*

1 1/4" 1" TU TU -

1" 1 1/4" XU XU -

CW CCW Double

I I I

Piggyback Port End - Pump Only

Type 30-30, 31-31 (double 30-30 only) **KO LO MO**

For All Units

To determine direction of shaft rotation, view the unit with the shaft pointing toward you, and the idler (driven) gear beneath the shaft. With clockwise rotation, flow will be left to right. The pump inlet port will be on the left, outlet on the right. The flow is in the opposite direction with counter-clockwise rotation. Inverting the pump will reverse the inlet and outlet ports but not the direction of rotation.

Gear Housing (6)

Series	30	30	30	30	30	30	31	31	31	31	31
Housing Code	07	10	12	15	17	20	10	12	15	17	20
Displacement (C.I.R.)	1.48	1.97	2.46	2.96	3.45	3.94	1.97	2.46	2.96	3.45	3.94
Maximum (PSI)	2500	2500	2500	2500	2250	2250	3000	3000	3000	2500	2500
IN	OUT	CW	CCW								
I	I	I	I	I	I	I	I	I	I	I	I
-	-	AB	AB	X	X	X	X	X	X	X	X
No Porting											
NPT Porting											
1/2"	-	IL	IM	X	X						
-	1/2"	IM	IL	X	X						
1/2"	1/2"	IR	IR	X							
3/4"	-	IC	ID		X	X	X	X	X		
-	3/4"	ID	IC		X	X	X	X	X		
3/4"	3/4"	IF	IF		X	X	X	X	X		
1"	3/4"	IJ	IG		X*	X	X	X			
1 1/4"	3/4"	IK	IH				X*	X			
1"	-	YC	YD		X*	X	X	X			
-	1"	YD	YC			X	X	X			
1"	1"	YF	YF			X	X	X	X		
1 1/4"	1"	YJ	YG				X*	X	X		
1 1/4"	-	IA	IB				X*	X	X		
-	1 1/4"	IB	IA					X	X		
1 1/4"	1 1/4"	YL	YL					X	X		
1 1/2"	-	YA	YB						X*		
1 1/2"	1 1/4"	YP	YM						X*		
OD Tube Porting											
3/4"	-	EC	ED		2000	X	X	X		X*	X
-	3/4"	ED	EC		2000	X	X	X		X	X
3/4"	3/4"	EF	EF		2000	X	X	X	X	X	X
1"	3/4"	EJ	EG		2000*	X*	X	X	X	X*	X*
1 1/4"	3/4"	EK	EH				X*	X*		X*	X*
1 1/2"	3/4"	IP	IN					X*	X*		X*
7/8"	-	EZ	-			X					
-	7/8"	-	EZ			X					
1"	7/8"	EM	EL			X*					
1"	-	AC	AD		X*	2000	X	X	X	X*	X*
-	1"	AD	AC			2000	X	X	X	2500	X
1"	1"	AF	AF				X	X	X	2500	X
1 1/4"	1"	AJ	AG				X*	X*	X	2500*	X*
1 1/2"	1"	AK	AH					X*	X*		X*
1 1/4"	-	AA	AO			X*	2000			X*	X*
-	1 1/4"	AO	AA				2000				
1 1/4"	1 1/4"	AL	AL				2000	X			X
1 1/2"	1 1/4"	AP	AM				2000*	X*			X*
1 1/2"	-	AE	AU				X*	2000			X*
-	1 1/2"	AU	AE					2000			

NOTES

Shaded cells are acceptable for motor codes.

* This porting is acceptable for low pressure inlet port only.

NPT ports are not recommended for use at pressures in excess of 1500 PSI.

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

Gear Housing (6) continued

Series	30	30	30	30	30	30	31	31	31	31	31
Housing Code	07	10	12	15	17	20	10	12	15	17	20
Displacement (C.I.R.)	1.48	1.97	2.46	2.96	3.45	3.94	1.97	2.46	2.96	3.45	3.94
Maximum (PSI)	2500	2500	2500	2500	2250	2250	3000	3000	3000	2500	2500
IN	OUT	CW	CCW								
I	I	I	I	I	I	I	I	I	I	I	I
Split Flange Porting											
3/4"	-	UC	UD	X	X	UD	X	X	X	X	
-	3/4"	UD	UC	X	X	UD	X	X	X	X	
3/4"	3/4"	UF	UF	X	X		X	X	X		
1"	3/4"	UJ	UG	X	X	UJ	UJ	X	X*	X	
1 1/4"	3/4"	UK	UH		X	X	X	X	X*	X*	
1"	-	OC	OD		X	X	X	OD	2500	X	X
-	1"	OD	OC		X	X	X	OD	2500	X	X
1"	1"	OF	OF	X	X	X	X	X	2500	X	X
1 1/4"	1"	OJ	OG		X*	X	X	X		X*	X*
1 1/2"	1"	OK	OH				X*	X		X*	X*
1 1/4"	-	OA	OB		2000	X	X	X	X*	2500	
-	1 1/4"	OB	OA		2000	X	X	X		2500	
1 1/4"	1 1/4"	OL	OL			X	X	X		X	X
1 1/2"	1 1/4"	OP	OM				X*	X		X*	X*
1 1/2"	-	OE	OU			2000	X			X*	X
-	1 1/2"	OU	OE			2000	X				X
BSPP Porting											
3/4"	-	YN	YQ	X*	X	X	X	X	2500	X	YQ
-	3/4"	YQ	YN		X	X	X	X	2500	X	YQ
3/4"	3/4"	YS	YS		X	X		X	2500	X	X
1"	3/4"	YV	YT	X*	X*	YV	YV		2500*	X*	YV
1 1/4"	3/4"	YW	YU				X*	X*		YU*	X*
1"	-	SL	RQ		2000	X	X	X	SL*	2500	X
-	1"	RQ	SL		2000	X	X	X		2500	X
1"	1"	MP	MP		2000	X	X			X	X
1 1/4"	1"	IX	VY			X*	X*	X*		2500*	X*
1 1/4"	-	NJ	UI				2000	X			X*
-	1 1/4"	UI	NJ				2000	X			
1 1/4"	1 1/4"	PF	PF				2000				
1 1/2"	1"	VI	HW							X*	X*
Metric Straight Thread Porting											
3/4"	-	EN	TQ	X	X	TQ			2500	X	
-	3/4"	TQ	EN	X	X	TQ			2500	X	
3/4"	3/4"	ES	ES	X	X				2500	X	
1"	3/4"	EV	ET	X*	X*	EV	EV			X*	X*
1 1/4"	3/4"	EW	EU							X*	
1"	-	NL	ER	X*		X	ER	ER		2500	
-	1"	ER	NL			X	ER	ER		2500	
1"	1"	CM	CM		2000	X				2500	
1 1/4"	1"	EX	VE			X*	X*	X*		2500*	
1 1/2"	1"	VA	HA			X*	X*	X*			X*
1 1/4"	1 1/4"	PA	PA			2000	X				
1 1/2"	1 1/4"	SA	QA				X*				

NOTES

Shaded cells are acceptable for motor codes.

* This porting is acceptable for low pressure inlet port only.

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

Gear Housing (6) continued

Series	30	30	30	30	30	30	31	31	31	31	31
Housing Code	07	10	12	15	17	20	10	12	15	17	20
Displacement (C.I.R.)	1.48	1.97	2.46	2.96	3.45	3.94	1.97	2.46	2.96	3.45	3.94
Maximum (PSI)	2500	2500	2500	2500	2250	2250	3000	3000	3000	2500	2500
IN	OUT	CW	CCW								
I	I	I	I	I	I	I	I	I	I	I	I
							Metric Straight Thread Porting				
3/4"	-	VN	VQ	X	X	X	X	X			X
-	3/4"	VQ	VN	X	X	X	X	X			X
3/4"	3/4"	VS	VS	X	X			X			
1"	3/4"	RV	VT	X	X	X	X	X*	X		
1 1/4"	3/4"	RW	RU		X*		X		X*	X*	
1"	-	UL	UR	X	X	X	X	X	2500	X	X
-	1"	UR	UL	X	X	X	X	X	2500	X	X
1"	1"	UM	UM		X	X	X		X	X	X
1 1/4"	1"	UX	VU		X*	X	X	X	X*	X*	X
1 1/2"	1"	VO	HO				X*	X		X*	X*
1 1/4"	-	NO	UO			X		X	X*	2500	
-	1 1/4"	UO	NO			X		X	X*	2500	
1 1/4"	1 1/4"	PO	PO			X	X	X		X	X
1 1/2"	1 1/4"	SO	QO				X*	X		X*	X*
1 1/2"	-	UY	TO			X*	2000			X*	X
-	1 1/2"	TO	UY				2000				X

NOTES:

Shaded cells are acceptable for motor codes.

* This porting is acceptable for low pressure inlet port only.

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

Gear Width (7)
30 Series

	Gear Width	in.³/rev.	cm³/rev.	Max Pressure
05	1/2"	0.99	16.1	2500 psi (172 bar)
07	3/4"	1.48	24.2	2500 psi (172 bar)
10	1"	1.97	32.3	2500 psi (172 bar)
12	1 1/4"	2.46	40.4	2500 psi (172 bar)
15	1 1/2"	2.96	48.4	2500 psi (172 bar)
17	1 3/4"	3.45	56.5	2250 psi (155 bar)
20	2"	3.94	64.6	2250 psi (155 bar)

31 Series

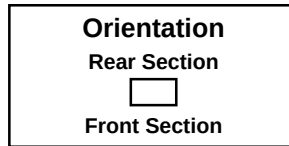
	Gear Width	in.³/rev.	cm³/rev.	Max Pressure
05	1/2"	0.99	16.1	3000 psi (207 bar)
07	3/4"	1.48	24.2	3000 psi (207 bar)
10	1"	1.97	32.3	3000 psi (207 bar)
12	1 1/4"	2.46	40.4	3000 psi (207 bar)
15	1 1/2"	2.96	48.4	3000 psi (207 bar)
17	1 3/4"	3.45	56.5	2500 psi (172 bar)
20	2"	3.94	64.6	2500 psi (172 bar)

Shaft Type (8) (type 1 unless noted)

For single, tandem, or two piece shaft unless noted.

07	SAE "C" 14 tooth spline 1.25" dia., ANSI 32-4 (two piece only)
12	Keyed shaft .75 dia., .19"X.19"X1.56" key (two piece only)
14	30-30, 31-31 piggyback shaft
22	50-30, 51-31 piggyback shaft
23	75-30, 76-31 piggyback shaft
25	SAE "B" 13 tooth spline .88" dia., ANSI 22-4
30	SAE "B" keyed .88" dia., 1/4"X3/8" X 1" key, ANSI 22-1
32	Clutch pump shaft, tapered & keyed, 1:4 taper (single & two piece), #6 woodruff key
43	SAE "B-B" keyed 1.00" dia. 1/4"X3/8"X1 1/4" key, ANSI 25-1 modified length
65	SAE "B" 13 tooth spline .875" dia., ANSI 22-4, type 2 (single & tandem)
66	SAE "B" keyed .88" dia, 1/4"X3/8"X1" key, type 2 (single & tandem)
67	SAE "B-B" keyed 1.00" dia., 1/4"X3/8"X1 1/4" key, ANSI 25-1 modified length, type 2 (single & tandem)
68	6 tooth spline 1.00" dia.
90	SAE "B" keyed w/ 5/8"-18 thread, .875" dia, ANSI 22-2 modified length (single & tandem)
95	SAE "A" 9 tooth spline, .62" dia. ANSI 16-4 (single only)
98	SAE "B-B" 15 tooth spline, 1.00" dia., ANSI 25-4 (single & tandem)

Bearing Carriers (9) Pump Only



Common Inlet Passage

IN	OUT	CW	CCW
I	I	I	I
-	-	C	D
* -	-	A	U

* 31 Series only. Used when only one adjacent gear housing has an inlet port.

NPT Porting (30 Series only)

IN	OUT	CW	CCW
1"	-	TB	BT
1 1/4"	-	VB	BV
1"	3/4"	TX	XT
1 1/4"	3/4"	VX	XV
1 1/4"	1"	VZ	ZV
1"	3/4"	TJ	JT
1 1/4"	3/4"	VJ	JV
1 1/4"	1"	VK	KV
1 1/2"	1"	KW	-
1"	3/4"	ZX	XZ
1"	3/4"	ZS	SZ

ODT Porting

IN	OUT	CW	CCW
1"	-	CB	BC
1 1/4"	-	DB	BD
1 1/2"	-	FB	BF
* -	3/4"	-	JP
1"	3/4"	CJ	JC
1 1/4"	3/4"	DJ	JD
1 1/2"	3/4"	FJ	JF
1 1/4"	1"	DK	KD
1 1/2"	1"	FK	KF
* 30 Series only.			
1"	3/4"	CR	RC
1 1/4"	3/4"	DR	RD
* 1 1/2"	3/4"	FR	RF
1 1/4"	1"	DS	SD
1 1/2"	1"	FS	SF
* 30 Series only.			
1"	3/4"	KJ	JK
1"	3/4"	KX	XK

Split Flange Porting

IN	OUT	CW	CCW
I	I	I	I
1"	-	LB	BL
1 1/4"	-	MB	BM
1 1/2"	-	NB	BN
-	3/4"	BR	RB
1"	3/4"	LR	RL
1 1/4"	3/4"	MR	RM
1 1/2"	3/4"	NR	RN
1 1/4"	1"	MS	SM
1 1/2"	1"	NS	SN
1"	3/4"	LX	XL
1 1/4"	3/4"	MX	XM
* 1 1/2"	3/4"	NX	XN
1 1/4"	1"	MZ	ZM
1 1/2"	1"	NZ	ZN
* 30 Series only.			
1"	3/4"	SR	RS
1"	3/4"	RZ	ZR

BSPP Porting

IN	OUT	CW	CCW
1"	-	CX	XC
1 1/4"	-	DX	XD
1 1/2"	-	FX	XF
* -	3/4"	-	TL
1"	3/4"	CT	TC
1 1/4"	3/4"	DT	TD
1 1/2"	3/4"	FT	TF
1 1/4"	1"	DV	VD
1 1/2"	1"	FV	VF
* 31 Series only.			
1"	3/4"	GM	MG
1 1/4"	3/4"	HM	MH
1 1/4"	1"	HN	NH
1 1/2"	1"	WN	NW
1"	3/4"	PN	NP
1"	3/4"	SX	XS

Bearing Carriers (9) (Pump Only) - continued

Metric Split Flange Porting

IN	OUT	CW	CCW
I	I		
1"	-	CH	HC
1 1/4"	-	DH	HD
1 1/2"	-	FH	HF
-	3/4"		
1"	3/4"	CW	WC
1 1/4"	3/4"	DW	WD
1 1/2"	3/4"	FW	WF
1 1/4"	1"	DC	CD
1 1/2"	1"	FC	CF
1"	3/4"		
1 1/4"	3/4"	HQ	QH
1 1/4"	1"	HS	SH
1 1/2"	1"	WS	SW
1"	3/4"		
1"	3/4"		

Metric Straight Thread Porting

IN	OUT	CW	CCW
I	I		
1"	-	CL	LC
1 1/4"	-	DL	LD
1 1/2"	-	FL	LF
1"	3/4"		
1 1/4"	3/4"	DZ	ZD
1 1/2"	3/4"	FZ	ZF
1 1/4"	1"	DN	ND
1 1/2"	1"	FN	NF
1"	3/4"		
1 1/4"	3/4"	HT	TH
1 1/4"	1"	HV	VH
1 1/2"	1"	WV	VW
1"	3/4"		
1"	3/4"		

Connecting Shaft (10)

For connecting tandem units.

1 Connecting Shaft - Multiple Units

14 Piggyback Pump Connecting Shaft P30 to P30, P31 to P31

22 Piggyback Pump Connecting Shaft P50 to P30, P51 to P31

23 Piggyback Pump Connecting Shaft P75 to P30, P76 to P31

NOTE

Split flange thread depths may be more shallow than S.A.E. standard. Contact Product Support Department for actual dimensions.

Bearing Carriers (9) Motor Only

No Ports

IN	OUT	DUAL
I	I	
-	-	B

NPT Porting (30 Series only)

1"	1"	
1 1/4"	1 1/4"	VV

ODT Porting

1"	1"	
1 1/4"	1 1/4"	BB
1 1/2"	1 1/2"	FF

Split Flange Porting

1"	1"	
1 1/4"	1 1/4"	MM
1 1/2"	1 1/2"	NN

BSPP Porting

1"	1"	
1 1/4"	1 1/4"	GG

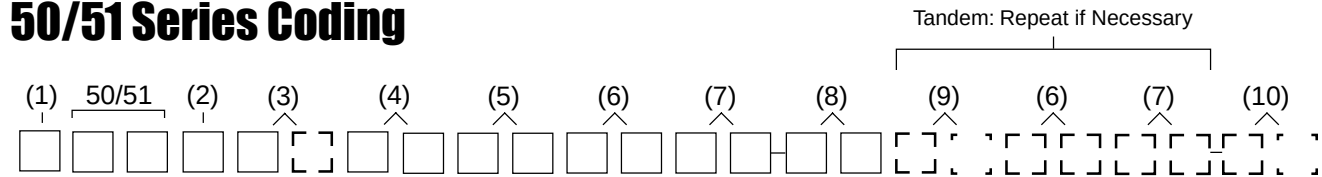
Metric Split Flange Porting

IN	OUT	DUAL
I	I	
1"	1"	RR
1 1/4"	1 1/4"	SS

Metric Straight Thread Porting

1"	1"	
1 1/4"	1 1/4"	JJ

50/51 Series Coding



Pump/Motor (1)

P	Pump
M	Motor

Unit (2)

A	Single Unit
B	Tandem Unit
C	Single or Tandem w. two-piece shaft (O.B. bearing required)

Shaft End Cover (3)

1	Pump, cw w/o O.B. bearing
2	Pump, ccw w/o O.B. bearing
3	Pump, bi-rotational w/o O.B. bearing (50 series only)
4	Pump, cw with O.B. bearing
5	Pump, ccw with O.B. bearing
6	Pump, bi-rotational with O.B. bearing (50 series only)
8	Motor, bi-rot. with O.B. bearing + 1/4" NPT drain
9	Motor, bi-rot. w/o O.B. bearing + 1/4" NPT drain
18	Motor, bi-rot. with O.B. bearing + 1/4" BSPP drain
19	Motor, bi-rot. w/o O.B. bearing + 1/4" BSPP drain

Shaft End Cover (4) (type 1 unless noted)

00	4 bolt pad mount
42	SAE 4 bolt "B" ANSI 101-4
78	SAE 4 bolt "C" ANSI 127-4
91	50-50, 51-51 for piggyback
92	75-50, 76-51 for piggyback
96	SAE 2 bolt "B" ANSI 101-2, type 2
97	SAE 2 bolt "B" ANSI 101-2
98	SAE 2 bolt "C" ANSI 127-2
99	SAE 2 bolt "C" ANSI 127-2, type 2

Port End Cover (5) (Rear Ported)

Left	Right	Single	Tandem	Extended Studs
I	I	I	I	I
Unported				
-	-	BE	BI	BY

NPT Porting (50 series only)

3/4"	-	KE	KI	KY
-	3/4"	LE	LI	LY
3/4"	3/4"	ME	MI	MY

O.D.T. Porting

3/4"	-	CE	CI	CY
-	3/4"	DE	DI	DY
3/4"	3/4"	FE	FI	FY

Port End Cover (5) continued

Left	Right	Single	Tandem	Extended Studs
I	I	I	I	I
BSPP Porting				
3/4"	-	WE	WI	WY
-	3/4"	XE	XI	XY
3/4"	3/4"	ZE	ZI	ZY

Metric Straight Thread

3/4"	-	NE	NI	NY
-	3/4"	PE	PI	PY
3/4"	3/4"	QE	QI	QY

Note: 3/4" PEC ports are rated to 2500 PSI max.

	CW	CCW	Double
	I	I	I
<i>Piggyback Port End - Pump Only</i>			
Type 50-50, 51-51 & 50-30, 51-31	KO	LO	MO

Optional:

- Port end cover with integral R/V
- Larger rear ports
 - 1 1/4 x 1 S.F. or ODT
- Larger side ports
 - 1 1/4 S.F. or ODT inlet
 - 1" ODT outlet
- Larger rear ports, but requires special gear housing and cap screws
 - 1 1/2 x 1 1/2 NPT up to 1500 PSI

Contact Product Support Development for additional information.

FOR ALL UNITS

To determine direction of shaft rotation, view the unit with the shaft pointing toward you, and the idler (driven) gear beneath the shaft. With clockwise rotation, flow will be left to right. The inlet pump port will be on the left, outlet on the right. The flow is in the opposite direction with counter-clockwise rotation. Inverting the pump will reverse the inlet and outlet ports but not the direction of rotation.

Gear Housing (6)

Series												50	50	50	50	50	50	50	50	50	51	51	51	51	51	51	51					
Housing Code												07	10	12	15	17	20	22	25		10	12	15	17	20	22	25					
Displacement (C.I.R.)												1.91	2.55	3.19	3.83	4.46	5.10	5.74	6.38		2.55	3.19	3.83	4.46	5.10	5.74	6.38					
Maximum (PSI)												2500	2500	2500	2500	2000	2000	2000	2000		3000	3000	3000	3000	2500	2500	2500					
IN OUT CW CCW												I	I	I	I	I	I	I	I	I	I	I	I	I	I	I						
												-	-	AB	AB	X	X	X	X	X	X	X	X	X	X	X	X					
												No Porting																				
												NPT Porting																				
3/4"												-	IC	ID		X	ID	ID	ID													
-												3/4"	ID	IC		X	ID	ID	ID													
3/4"												3/4"	IF	IF		X	X	X	X	X												
1"												3/4"	IJ	IG		X*	X	X	IJ	IJ												
1 1/4"												3/4"	IK	IH				X														
1"												-	YC	YD		X	YD	YD	YD	YD												
-												1"	YD	YC		X	YD	YD	YD	YD												
1"												1"	YF	YF		X	X	X	X	X	X											
1 1/4"												1"	YJ	YG			X*	X	X	X	X	YJ										
1 1/4"												-	IA	IB			X*	X*	X	IB	IB											
-												1 1/4"	IB	IA				X	IB	IB												
1 1/4"												1 1/4"	YL	YL			X	X	X	X												
1 1/2"												1"	YK	YH							X											
1 1/2"												1 1/4"	YP	YM				X*	X	X												
1 1/2"												1 1/2"	YR	YR						X												
												OD Tube Porting																				
3/4"												-	EC	ED		2000	2000	X	ED	X		X*	X*		X							
-												3/4"	ED	EC		2000	2000	X	ED	X					X							
3/4"												3/4"	EF	EF		2000	2000	X	X	X			2500	X								
1"												3/4"	EJ	EG		2000*	2000*	X	EJ*	EJ				X								
1 1/4"												3/4"	EK	EH				X*	X*			2500*	X*									
1"												-	AC	AD		X*	X*	2000	X	AD	AD	AD	X*	X*	X*	X*	X					
-												1"	AD	AC				2000	X	AD	AD	AD				X						
1"												1"	AF	AF				2000	X	X		X			X	X	X					
1 1/4"												1"	AJ	AG			2000*	X*	X*	AJ	AJ			X*								
1 1/2"												1"	AK	AH				X*	X*	X*				X*		X						
1 1/4"												-	AA	AO			X*	X*	X*	AO	AO			X*	X*		X	X				
-												1 1/4"	AO	AA						AO	AO					X	X					
1 1/4"												1 1/4"	AL	AL					X	X	X				X	X						
1 1/2"												1 1/4"	AP	AM				X*	X*	X					X*	X*						
1 1/2"												-	AE	AU				X*	X*					X*	X*	X						
-												1 1/2"	AU	AE												X						
1 1/2"												1 1/2"	AR	AR						X						X						

NOTES

NPT ports are not recommended for use at pressures in excess of 1500 PSI.

Shaded cells are acceptable for motor codes.

* This porting is acceptable for low pressure inlet port only.

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

Gear Housing (6) continued

Series	50	50	50	50	50	50	50	51	51	51	51	51	51	51	51
Housing Code	10	12	15	17	20	22	25	10	12	15	17	20	22	25	25
Displacement (C.I.R.)	2.55	3.19	3.83	4.46	5.10	5.74	6.38	2.55	3.19	3.62	4.46	5.10	5.74	6.38	6.38
Maximum (PSI)	2500	2500	2500	2000	2000	2000	2000	3000	3000	3000	3000	2500	2500	2500	2500
IN	OUT	CW	CCW	Split Flange Porting											
3/4"	-	UC	UD	X	X	UD	UD	2500	X						
-	3/4"	UD	UC	X	X	UD	UD	2500	X						
3/4"	3/4"	UF	UF					2500	X	X					
1"	3/4"	UJ	UG	X*	X*	UJ	UJ	2500*	X*	X*					
1 1/4"	3/4"	UK	UH						X*	X*	X*				
1"	-	OC	OD	2000	X*	X	X	X	OD	X					
-	1"	OD	OC	2000	2000	X	X	X	OD	X					
1"	1"	OF	OF		2000	X	X	X	X	X				X	X
1 1/4"	1"	OJ	OG		2000*	X*	X*	X	OJ	OJ					
1 1/2"	1"	OK	OH			X*	X*	X*	X	X					
1 1/4"	-	OA	OB		X*	X*	X*	X	OB	OB					
-	1 1/4"	OA	OB					X	OB	OB					
1 1/4"	1 1/4"	OL	OL			2000	X	X	X	X			X	X	X
1 1/2"	1 1/4"	OP	OM			2000*	X*	X*	X	X			X*	X	X
1 1/2"	-	OE	OU			X*	X*	X	X	X			X*	X*	X*
-	1 1/2"	OU	OE					X	X	X					
1 1/2"	1 1/2"	OR	OR					X	X	X				X	X
2"	-	XB	ZB										X*		
2"	1"	UQ	UB					X*	X*	X*					
2"	1 1/4"	OQ	ON					X*	X*	ON*			X*	X*	X*
2"	1 1/2"	OV	OS					X*	X*	X*				X*	X*
2"	2"	OX	OX							X					
BSPP Porting															
3/4"	-	YN	YQ	X*	X	YQ	YQ	X*	2500	2500	YQ	YQ			
-	3/4"	YQ	YN		X	YQ	YQ		2500	2500	YQ	YQ			
3/4"	3/4"	YS	YS	2000	X	X		X	2500	2500		X			
1"	3/4"	YV	YT	2000*	X*	YV*	YV*	YV	2500*	2500*	YV*	YV*			
1 1/4"	3/4"	YW	YU			YW*									
1"	-	SL	RQ		SL*	RQ*	RQ*	RQ	RQ	RQ	RQ*	SL*	RQ*	RQ*	RQ
-	1"	RQ	SL					RQ	RQ	RQ			2500	RQ	RQ
1"	1"	MP	MP			2000	X	X	X	X			2500		X
1 1/4"	1"	IX	VY			2000*	X*	VY*	IX	IX			2500*	IX	IX
1 1/2"	1"	VI	HW							X					
1 1/4"	-	NJ	UI				NJ*		UI	UI				UI	UI
-	1 1/4"	UI	NJ						UI	UI				UI	UI
1 1/4"	1 1/4"	PF	PF					X	X	X				X	X
1 1/2"	1 1/4"	IS	IQ							X					X*
Metric Straight Thread															
3/4"	-	EN	TQ	X*	TQ	TQ	TQ	X*	TQ*	TQ*	TQ				
-	3/4"	TQ	EN		TQ	TQ	TQ		2500	2500	TQ				
3/4"	3/4"	ES	ES	2000	X				2500						
1"	3/4"	EV	ET	2000*	X*	EV*	EV	EV	2500*	2500*	EV*	EV*			
1"	-	NL	ER			ER*	ER	ER		ER*	ER*	ER*	ER		
-	1"	ER	NL				ER	ER							
1"	1"	CM	CM			2000	X	X			2500				
1 1/4"	-	UA						UA*	UA	UA			UA*	UA	UA
1 1/4"	1"	EX	VE			2000*	X*	EX*	EX	EX			2500*	X*	EX
1 1/4"	1 1/4"	PA	PA					X	X	X				X	X
1 1/2"	1 1/4"	SA	QA					X*	X*	X				X*	X*

NOTES: Shaded cells are acceptable for motor codes. * This porting is acceptable for low pressure inlet port only. "X" Means both codes are available.
 "2000" or "2500" indicates maximum pressure rating on port.

Gear Housing (6) *continued*

Series	50	50	50	50	50	50	50	51	51	51	51	51	51	51
Housing Code	10	12	15	17	20	22	25	10	12	15	17	20	22	25
Displacement (C.I.R.)	2.55	3.19	3.83	4.46	5.10	5.74	6.38	2.55	3.19	3.62	4.46	5.10	5.74	6.38
Maximum (PSI)	2500	2500	2500	2000	2000	2000	2000	3000	3000	3000	3000	2500	2500	2500
IN	OUT	CW	CCW	Metric Split Flange Porting										
3/4"*	-	VN	VQ	VQ	VQ	VQ	VQ	X*						
-	3/4"	VQ	VN	VQ	VQ	VQ	VQ							
1"	3/4"	RV	VT	X*	RV*	RV	RV	RV	RV	RV	RV	RV	RV	RV
1 1/4"	3/4"	RW	RU											
1"	-	UL	UR		UR*	UR	UR	UR	UR	UR	UR	UR	UR	UR
-	1"	UR	UL			UR	UR	UR	UR	UR	UR	UR	UR	UR
1"	1"	UM	UM		2000	X	X	X	X	X	X	X	X	X
1 1/4"	1"	UX	VU		2000*	UX*	UX*	UX	UX	UX	UX	UX	UX	UX
1 1/2"	1"	VO	HO			X*	X*	X*	X*	X*	X*	X*	X*	X*
1 1/4"	-	NO	UO				UO*	UO	UO	UO	UO	UO	UO	UO
-	1 1/4"	UO	NO					UO	UO	UO	UO	UO	UO	UO
1 1/4"	1 1/4"	PO	PO		2000	X	X	X	X	X	X	X	X	X
1 1/2"	1 1/4"	SO	QO		2000*	X*	X*	X	X	X	X	X	X	X
1 1/2"	-	UY	TO			X*	X*	X	X	X	X	X	X	X
-	1 1/2"	TO	UY					X	X	X	X	X	X	X
1 1/2"	1 1/2"	SV	SV					X	X	X	X	X	X	X
2"	1 1/4"	JM	JR					X*	X*	X*	X*	X*	X*	X*
2"	1 1/2"	JQ	JN					X*	X*	X*	X*	X*	X*	X*

NOTES

Shaded cells are acceptable for motor codes.

* This porting is acceptable for low pressure inlet port only.

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

Gear Width (7)

50 Series

	Gear Width	in. ³ /rev.	cm ³ /rev.	Max Pressure
05	1/2"	1.28	20.9	2500 psi (172 bar)
07	3/4"	1.91	31.3	2500 psi (172 bar)
10	1"	2.55	41.8	2500 psi (172 bar)
12	1 1/4"	3.19	52.2	2500 psi (172 bar)
15	1 1/2"	3.83	62.7	2500 psi (172 bar)
17	1 3/4"	4.46	73.1	2000 psi (138 bar)
20	2"	5.10	83.6	2000 psi (138 bar)
22	2 1/4"	5.74	94.0	2000 psi (138 bar)
25	2 1/2"	6.38	104.5	2000 psi (138 bar)

51 Series

	Gear Width	in. ³ /rev.	cm ³ /rev.	Max Pressure
05	1/2"	1.28	20.9	3000 psi (207 bar)
07	3/4"	1.91	31.3	3000 psi (207 bar)
10	1"	2.55	41.8	3000 psi (207 bar)
12	1 1/4"	3.19	52.2	3000 psi (207 bar)
15	1 1/2"	3.83	62.7	3000 psi (207 bar)
17	1 3/4"	4.46	73.1	3000 psi (207 bar)
20	2"	5.10	83.6	2500 psi (172 bar)
22	2 1/4"	5.74	94.0	2500 psi (172 bar)
25	2 1/2"	6.38	104.5	2500 psi (172 bar)

Shaft Type (8) *(type 1 unless noted)*

For single, tandem, or two piece shaft unless noted.

07	SAE "C" 14 tooth spline 1.25" dia., ANSI 32-4
11	SAE "C" keyed 1.25" dia., 5/16"x15/32"x1 1/2" key, ANSI 32-1
22	50-50, 51-51 piggyback shaft
23	75-50, 76-51 piggyback shaft
25	SAE "B" 13 tooth spline .88" dia., ANSI 22-4
43	SAE "B-B" keyed 1.00" dia. 1/4"x3/8"x1 1/4" key, ANSI 25-1
53	SAE "C" 14 tooth spline 1.25" dia., ANSI-32-4, type 2 (single & tandem)
65	SAE "B" 13 tooth spline .88" dia., ANSI 22-4, type 2 (single & tandem)
67	SAE "B-B" keyed 1.00" dia., 1/4"x3/8"x1 1/4" key, ANSI 25-1, type 2 (single & tandem)
73	SAE "C" keyed 1.25" dia., 5/16" x 15/32" x 2 1/4" key, extended length (two-piece only)
98	SAE "B-B" 15 tooth spline, 1.00" dia., ANSI 25-4 (single & tandem)

Bearing Carriers (9) Pump Only

Common Inlet Passage

IN	OUT	CW	CCW
I	I	I	I
-	-	C	D
* -	-	A	U

* 51 Series only. Used when only one adjacent gear housing has an inlet port.

NPT Porting (50 Series only)

IN	OUT	CW	CCW
1"	-	TB	BT
1 1/4"	-	VB	BV
1 1/2"	-	WB	BW
1"	3/4"	TX	XT
1 1/4"	3/4"	VX	XV
1 1/2"	3/4"	WX	XW
1 1/4"	1"	VZ	ZV
1 1/2"	1"	WZ	ZW
1"	3/4"	TJ	JT
1 1/4"	3/4"	VJ	JV
1 1/4"	1"	VK	KV
1 1/2"	1"	WK	KW
1"	3/4"	ZX	XZ

ODT Porting

IN	OUT	CW	CCW
1"	-	CB	BC
1 1/4"	-	DB	BD
1 1/2"	-	FB	BF
-	3/4"	PJ	*JP
1"	3/4"	CJ	JC
1 1/4"	3/4"	DJ	JD
1 1/2"	3/4"	FJ	JF
1 1/4"	1"	DK	KD
1 1/2"	1"	FK	KF
1"	3/4"	CR	RC
1 1/4"	3/4"	DR	RD
* 1 1/2"	3/4"	FR	RF
1 1/4"	1"	DS	SD
1 1/2"	1"	FS	SF
-	1"	HZ	*ZH

* 51 Series only.

IN	OUT	CW	CCW
1"	3/4"	KJ	JK

NOTE

Split flange thread depths may be more shallow than S.A.E. standard. Contact Product Support Department for actual dimensions.

Split Flange Porting

IN	OUT	CW	CCW
1"	-	LB	BL
1 1/4"	-	MB	BM
1 1/2"	-	NB	BN
-	3/4"	BR	RB
1"	3/4"	LR	RL
1 1/4"	3/4"	MR	RM
1 1/2"	3/4"	NR	RN
1 1/4"	1"	MS	SM
1 1/2"	1"	NS	SN
1"	3/4"	LX	XL
1 1/4"	3/4"	MX	XM
1 1/4"	1"	MZ	ZM
1 1/2"	1"	NZ	ZN
1"	3/4"	SR	RS

BSPP Porting

IN	OUT	CW	CCW
1"	-	CX	XC
1 1/4"	-	DX	XD
1 1/2"	-	FX	XF
* -	3/4"	-	TL
1"	3/4"	CT	TC
1 1/4"	3/4"	DT	TD
1 1/2"	3/4"	FT	TF
1 1/4"	1"	DV	VD
1 1/2"	1"	FV	VF
1"	3/4"	GM	MG
1 1/4"	3/4"	HM	MH
1 1/2"	3/4"	WM	MW
1 1/4"	1"	HN	NH
1 1/2"	1"	WN	NW
1"	3/4"	PN	NP

* 50 Series only.

Bearing Carriers (9) Pump Only - continued

Metric Split Flange Porting

IN	OUT	CW	CCW
1"	-	CH	HC
1 1/4"	-	DH	HD
1 1/2"	-	FH	HF
-	3/4"	PW	WP
1"	3/4"	CW	WC
1 1/4"	3/4"	DW	WD
1 1/2"	3/4"	FW	WF
1 1/4"	1"	DC	CD
1 1/2"	1"	FC	CF
1"	3/4"	GQ	QG
1 1/4"	3/4"	HQ	QH
1 1/2"	3/4"	WQ	QW
1 1/4"	1"	HS	SH
1 1/2"	1"	WS	SW
1"	3/4"	ST	TS

Metric Straight Thread Porting

IN	OUT	CW	CCW
1"	-	CL	LC
1 1/4"	-	DL	LD
1 1/2"	-	FL	LF
1"	3/4"	CZ	ZC
1 1/4"	3/4"	DZ	ZD
1 1/2"	3/4"	FZ	ZF
1 1/4"	1"	DN	ND
1 1/2"	1"	FN	NF
1"	3/4"	GT	TG
1 1/4"	3/4"	HT	TH
1 1/2"	3/4"	WT	TW
1 1/4"	1"	HV	VH
1 1/2"	1"	WV	VW
1"	3/4"	KL	LK

Bearing Carriers (9) (Motor Only)

No Ports

IN	OUT	DUAL
I	I	I
-	-	B

NPT Porting (30 Series only)

IN	OUT	CW	CCW
1"	1"	TT	
1 1/4"	1 1/4"	VV	
1 1/2"	1 1/2"	WW	

ODT Porting

IN	OUT	CW	CCW
1"	1"	CC	
1 1/4"	1 1/4"	BB	
1 1/2"	1 1/2"	FF	

Split Flange Porting

IN	OUT	CW	CCW
1"	1"	LL	
1 1/4"	1 1/4"	MM	
1 1/2"	1 1/2"	NN	

BSPP Porting

IN	OUT	DUAL
I	I	I
1"	1"	EE
1 1/4"	1 1/4"	GG

Metric Split Flange Porting

IN	OUT	CW	CCW
1"	1"	RR	
1 1/4"	1 1/4"	SS	

Metric Straight Thread Porting

IN	OUT	CW	CCW
1"	1"	KK	
1 1/4"	1 1/4"	JJ	

Connecting Shaft (10)

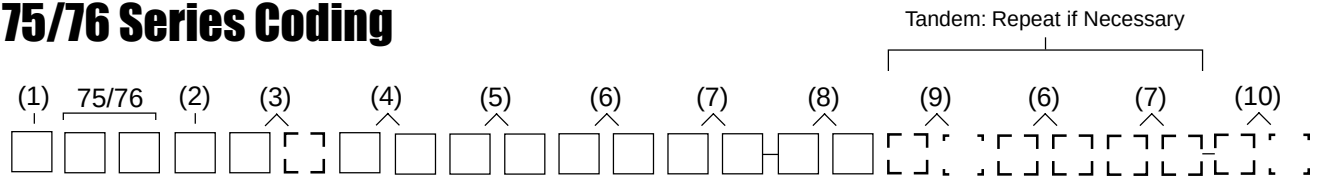
For connecting tandem units.

1 Connecting Shaft - Multiple Units

22 Piggyback Pump Connecting Shaft for P50 to P50, P51 to P51

23 Piggyback Pump Connecting Shaft for P75 to P50, P76 to P51

75/76 Series Coding



Pump/Motor (1)

P Pump

M Motor

Unit (2)

A Single Unit

B Tandem Unit

C Single or Tandem w/ two-piece shaft (O.B. bearing required)

Shaft End Cover (3)

1 Pump, cw w/o O.B. bearing

2 Pump, ccw w/o O.B. bearing

3 Pump, bi-rotational w/o O.B. bearing (75 series only)

4 Pump, cw with O.B. bearing

5 Pump, ccw with O.B. bearing

6 Pump, bi-rotational w/ O.B. bearing (75 series only)

8 Motor, bi-rot. with O.B. bearing + 1/4" NPT drain

9 Motor, bi-rot. w/o O.B. bearing + 1/4" NPT drain

18 Motor, bi-rot. with O.B. bearing + 1/4" BSPP drain

19 Motor, bi-rot. w/o O.B. bearing + 1/4" BSPP drain

Shaft End Cover (4) (type 1 only)

42 SAE 4 bolt "B" ANSI 101-4

78 SAE 4 bolt "C" ANSI 127-4

80 SAE 4 bolt "D" ANSI 152-4

98 SAE 2 bolt "C" ANSI 127-2

Port End Cover (5) (Rear Ported)

Left **Right** **Single** **Tandem** **Extended Studs**

Unported

- **-** **BE** **BI** **BY**

O.D.T. Porting

1" **1"** **JE** **JI** **JY**

Metric Straight Thread

1" **1"** **TE** **TI** **TY**

CW **CCW** **Double**

Piggyback Port End - Pump Only

Type 75-50, 76-51 & 75-30, 76-31 **KO** **LO** **MO**

For All Units

To determine direction of shaft rotation, view the unit with the shaft pointing toward you, and the idler (driven) gear beneath the shaft. With clockwise rotation, flow will be left to right. The inlet pump port will be on the left, outlet on the right. The flow is in the opposite direction with counter-clockwise rotation. Inverting the pump will reverse the inlet and outlet ports but not the direction of rotation.

Gear Housing (6)

Series	75	75	75	75	75	75/76	75	75	75/76	75/76	76	76	76	76	76	76	
Housing Code	07	10	12	15	17	20	22	25	27	30	10	12	15	17	22	25	
Displacement (C.I.R.)	3.07	4.1	5.12	6.15	7.17	8.2	9.22	10.25	11.275	12.3	4.1	5.12	6.15	7.17	9.22	10.25	
Maximum (PSI)	2500	2500	2500	2500	2500	2500	2250	2250	2000	2000	3000	3000	3000	3000	2500	2500	
IN	OUT	CW	CCW													No Porting	
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	
-	-	AB	AB	X	X	X	X	X	X	X	X	X	X	X	X	X	
												NPT Porting					
3/4"	-	IC	ID	ID	ID	ID	ID										
-	3/4"	ID	IC	ID	ID	ID	ID										
1"	3/4"	IJ	IG		X	IJ	IJ										
1"	-	YC	YD			YD	YD	X/-									
-	1"	YD	YC			YD	YD	X/-									
1"	1"	YF	YF		X	X											
1 1/4"	1"	YJ	YG			X	X										
1 1/4"	1 1/4"	YL	YL			X	X	X									
												OD Tube Porting					
3/4"	-	EC	ED	ED	ED	ED	ED										
1"*	3/4"	EJ	EG	X*		EJ	EJ	2500*									
1 1/4"*	3/4"	EK	EH		X*												
1"*	-	AC	AD			AD	AD	2500									
-	1"	AD	AC			AD	AD	2500									
1"	1"	AF	AF		2000	X	X	X	X/-	2500							
1 1/4"*	1"	AJ	AG		2000*	X*	2500*										
1 1/2"*	1"	AK	AH				X*	X*									
1 1/4"	1 1/4"	AL	AL			2000	2000	2000/-	X	X		X/-					
1 1/2"*	1 1/4"	AP	AM			2000*	2000*										
1 1/2"	1 1/2"	AR	AR					X	X								
												Split Flange Porting					
3/4"	-	UC	UD	UD	UD	UD	UD										
-	3/4"	UD	UC	UD	UD	UD	UD										
1"	3/4"	UJ	UG	X	X	UJ	UJ	UJ	UJ	X							
1"	-	OC	OD		OD	X	OD	OD	OD								
-	1"	OD	OC		OD	X	OD	OD	OD								
1"	1"	OF	OF		X	X	X	X	X/X	X	X/-	X/-	X	X	X	X	
1 1/4"*	1"	OJ	OG		2000*	X	X	OJ	OJ/-	OJ	OJ	-/X	X*	X*			
1 1/2"*	1"	OK	OH			X*	X*	X*	X/-	X							
1 1/4"	-	OA	OB			OB	OB	OB	OB/-	OB	OB						
-	1 1/4"	OB	OA			OB	OB	OB	OB/-	OB	OB						
1 1/4"	1 1/4"	OL	OL		2000	X	X	X	X/X	X	X	X/X	X/X	2500	X	X	
1 1/2"*	1 1/4"	OP	OM			X*	X*	X*	X/X	X	X	OP/-	OP/-	2500*	X*	X	
1 1/2"	-	OE	OU					X/X	X	OU	OU/-	OU/-	X				
-	1 1/2"	OU	OE					X/X	X	OU	OU/-	OU/-	X				
1 1/2"	1 1/2"	OR	OR			2000	2000	X/X	X	X	X/X	X/X	X				
2"*	1"	UQ	-					X*/-									
2"*	1 1/4"	OQ	ON				X*	X*/X*	X*	X*	X/X	X/X	X*				
2"*	1 1/2"	OV	OS			2000*	X*/X*	X*	X*	X*	X/X	X/X	X*				
2"	2"	OX	OX						X	X/X	X/X						
2 1/2"*	1 1/4"	US	UN						X*								
2 1/2"*	1 1/2"	OW	OT						X*	X*/X*	X*/X*	X*					
2 1/2"*	2"	OZ	OY								X*/-						

NOTES

NPT ports are not recommended for use at pressures in excess of 1500 PSI.

Shaded cells are acceptable for motor codes.

* This porting is acceptable for low pressure inlet port only.

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

Gear Housing (6) *continued*

Series	75	75	75	75	75	75/76	75	75	75/76	75/76	76	76	76	76	76	76
Housing Code	07	10	12	15	17	20	22	25	27	30	10	12	15	17	22	25
Displacement (C.I.R.)	3.07	4.1	5.12	6.15	7.17	8.2	9.22	10.25	11.275	12.3	4.1	5.12	6.15	7.17	9.22	10.25
Maximum (PSI)	2500	2500	2500	2500	2500	2500	2250	2250	2000	2000	3000	3000	3000	3000	2500	2500
IN	OUT	CW CCW									BSPP Porting					
3/4"	-	YN	YQ	YQ	YQ	YQ	YQ	YQ	YQ/-		YQ	YQ	YQ			
-	3/4"	YQ	YN	YQ	YQ	YQ	YQ	YQ	YQ/-		YQ	YQ	YQ			
3/4"	3/4"	YS	YS								X					
1"	3/4"	YV	YT	X*	YV*	YV	YV		YV/YV		X*	YV*	YV		YV	
1"	-	SL	RQ			X	RQ	RQ	RQ/RQ	RQ	SL*	RQ*	RQ			RQ
-	1"	RQ	SL			X	RQ	RQ	RQ/RQ	RQ			RQ			RQ
1"	1"	MP	MP		2000	X	X									
1 1/4"	1"	IX	VY		2000*	X*	IX*		IX/-	IX						
1 1/4"	-	NJ	UI			UI*										UI
-	1 1/4"	UI	NJ													UI
1 1/4"	1 1/4"	PF	PF			2000	2000	X/-		X					X	X
1 1/2"	1"	VI	HW			X*	VI*	-/VI*					VI*			
1 1/2"	1 1/4"	IS	IQ			2000*	2000*	-/IX*							X*	
											Metric Straight Thread					
3/4"	-	EN	TQ	TQ	TQ	TQ	TQ				TQ	TQ	TQ			
-	3/4"	TQ	EN	TQ	TQ	TQ	TQ				TQ	TQ	TQ			
1"	3/4"	EV	ET	X*		EV	EV					EV*	EV			
1"	-	NL	ER									ER*	ER			
-	1"	ER	NL			ER	ER					2500	ER			
1"	1"	CM	CM		2000	X	X					2500	X			
											Metric Split Flange Porting					
3/4"	-	VN	VQ	VQ	VQ	VQ	VQ									
-	3/4"	VQ	VN	VQ	VQ	VQ	VQ									
1"	3/4"	RV	VT	X	X	RV	RV	RV	RV/-		X					
1"	-	UL	UR		UR	UR	UR	UR	UR/-							
-	1"	UR	UL		UR	UR	UR	UR	UR/-							
1"	1"	UM	UM		X	X	X	X	X/X		X	X	X	X		
1 1/4"	1"	UX	VU		X*	X	UX	UX	UX/-	UX	X*	X*				
1 1/2"	1"	VO	HO			X*	X*					X*	X*			
1 1/4"	-	NO	UO			UO	UO	UO	UO/-	UO						
-	1 1/4"	UO	NO			UO	UO	UO	UO/-	UO						
1 1/4"	1 1/4"	PO	PO			X	X	X	X/X	X		2500	X	X	X	X
1 1/2"	1 1/4"	SO	QO			X*	X*	X/X	X	SO	SO	2500*	X*	X*		
1 1/2"	-	UY	TO					X/X	X	X	TO	TO		X*	X	
-	1 1/2"	TO	UY					X/X	X	X	TO	TO			X	
1 1/2"	1 1/2"	SV	SV				2000	X/X	X	X	X/X	X/X			X	X
2"	1 1/4"	JM	JR			X*	X*/X*	X*	X*	-/X*	-/X*			X*	X*	X*
2"	1 1/2"	JQ	JN				2000*	X*/X*	X*	X*	X/X	X/X			X*	X*
2"	2"	JS	JS							-/X	X/X					
2 1/2"	1 1/2"	LJ	JX							X*/X*	X*/X*					X*

NOTES

Shaded cells are acceptable for motor codes.

* This porting is acceptable for low pressure inlet port only.

"X" Means both codes are available.

"2000" or "2500" indicates maximum pressure rating on port.

Gear Width (7)

75 Series

	Gear Width	in. ³ /rev.	cm ³ /rev.	Max Pressure
07	3/4"	3.08	50.4	2500 psi (172 bar)
10	1"	4.10	67.2	2500 psi (172 bar)
12	1 1/4"	5.13	84.0	2500 psi (172 bar)
15	1 1/2"	6.15	100.8	2500 psi (172 bar)
17	1 3/4"	7.18	117.6	2500 psi (172 bar)
20	2"	8.20	134.4	2500 psi (172 bar)
22	2 1/4"	9.23	151.2	2250 psi (155 bar)
25	2 1/2"	10.25	168.0	2250 psi (155 bar)
27	2 3/4"	11.28	184.8	2000 psi (138 bar)
30	3"	12.30	201.6	2000 psi (138 bar)

76 Series

	Gear Width	in. ³ /rev.	cm ³ /rev.	Max Pressure
07	3/4"	3.08	50.4	3000 psi (207 bar)
10	1"	4.10	67.2	3000 psi (207 bar)
12	1 1/4"	5.13	84.0	3000 psi (207 bar)
15	1 1/2"	6.15	100.8	3000 psi (207 bar)
17	1 3/4"	7.18	117.6	3000 psi (207 bar)
20	2"	8.20	134.4	2500 psi (172 bar)
22	2 1/4"	9.23	151.2	2500 psi (172 bar)
25	2 1/2"	10.25	168.0	2500 psi (172 bar)
27	2 3/4"	11.28	184.8	2000 psi (138 bar)
30	3"	12.30	201.6	2000 psi (138 bar)

Shaft Type (8)

For single, tandem, or two piece shaft unless noted.

07	SAE "C" 14 tooth spline 1.25" dia., ANSI 32-4
11	SAE "C" keyed 1.25" dia., 5/16"X15/32"X1 1/2" key, ANSI 32-1

Bearing Carriers (9) (Pump Only)

Common Inlet Passage

-	-	C D
* -	-	A U

* 76 Series only. Used when only one adjacent gear housing has an inlet port.

Bearing Carriers (9) (Motor Only)

No Ports

IN	OUT	DUAL
I	I	I
-	-	B

ODT Porting

1"	1"	CC
1 1/4"	1 1/4"	BB

Split Flange Porting

* 1"	1"	LL
1 1/4"	1 1/4"	MM
1 1/2"	1 1/2"	NN

* 76 Series only.

BSPP Porting

1"	1"	EE
1 1/4"	1 1/4"	GG
1 1/2"	1 1/2"	HH

Metric Split Flange Porting

IN	OUT	DUAL
I	I	I
1"	1"	RR
1 1/4"	1 1/4"	SS
1 1/2"	1 1/2"	XX

Metric Straight Thread Porting

1"	1"	KK
1 1/4"	1 1/4"	JJ
1 1/2"	1 1/2"	ZZ

Connecting Shaft (10)

For connecting tandem units.

1 Connecting Shaft - Multiple Units

23 Piggyback Pump Connecting Shaft for P75 to P75

NOTE

Split flange thread depths may be more shallow than S.A.E. standard. Contact Product Support Department for actual dimensions.



Commercial Hydraulics

AUSTRALIA

Commercial Hydraulics

265 Ingles Street, P.O. Box 191
Port Melbourne, Victoria 3207
Phone: ++ 61 39 646 2017
Fax: ++ 61 39 646 2257

BRAZIL

Commercial Intertech do Brazil

Rua AMF do Brazil, 251
18120 Mairinque, Sao Paulo
Phone: ++ 55 11 7998 2333
Fax: ++ 55 11 7998 2099

CANADA

Commercial Hydraulics

294 Queen St. East, Suite C
P.O. Box 450
Acton, Ontario L7J 2M6
Phone: ++ 519 853 0770
Phone: ++ 519 853 3837

FRANCE

Commercial Hydraulics

Astron S.a.r.l. BP 73
20, rue Pierre Mendès-France, Torcy
77202 Marne La Vallée, Cedex 01
Phone: ++ 33 1 64 62 11 00
Fax: ++ 33 1 64 62 10 93

GERMANY

Commercial Hydraulics/Rochlitz

Dresdener Str. 115
09326 Geringswalde
Telefon: ++ 49 - 37382 82 0
Fax: ++ 49 - 37382 82 210

Commercial Hydraulics/ Sachsenhydraulik

Postfach 1153 09070 Chemnitz
Neefestraße 96 09116 Chemnitz
Phone: ++ 49 - 371 39 37 0
Fax: ++ 49 - 371 30 13 88

GREAT BRITAIN

Commercial Hydraulics/Kontak

Belton Park, Londonthorpe Rd.
Grantham NG31 9SJ, Lincolnshire
Phone: ++ 44 1476 564105
Fax: ++ 44 1476 592739

Commercial Hydraulics/Ultra

Anson Business Park,
Cheltenham Road East, Nr Staverton
Airport, Gloucester. GL2 9QN
Phone: ++ 44 1452 857711
Fax: ++ 44 1452 858222

Commercial Hydraulics/Keelavite

Tachbrook Park Drive, Tachbrook Park
Warwick CV34 6TU
Phone: ++ 44 1926 889 000
Fax: ++ 44 1926 889 239

ITALY

Commercial Hydraulics

Via dell' Agricoltura I/A
I- 37012 Bussolengo, Verona
Phone: ++ 39 45 676 7250
Fax: ++ 39 45 676 7229

SWEDEN

Commercial Hydraulics

Veddestavägen 24
S-175 62 Järfälla
Phone: ++ 46 8 445 7470
Fax: ++ 46 8 445 7475

USA

Commercial Hydraulics/ Cylinder City

1532 93rd Lane, N.E.
P.O. Box 49920
Minneapolis, Minnesota 55449
Phone: ++ 612 780 2550
Fax: ++ 612 780 2565

Commercial Hydraulics/Oildyne

5520 North Highway 169
Minneapolis, Minnesota 55428 4998
Phone: ++ 612 533 1600
Fax: ++ 612 533 0082

Commercial Hydraulics/ Cylinder Division

20138 I-30; P.O. Box 647
Benton, Arkansas 72018 0647
Phone: ++ 501 794 0334
Fax: ++ 501 794 0732

Commercial Hydraulics

7600 S. County Line Road, Suite #5
Burr Ridge, Illinois 60521
Phone: ++ 630 734 0014
Fax: ++ 630 734 0015

Commercial Hydraulics

2655 Villa Creek Drive, Suite 299
Dallas, Texas 75234 7311
Phone: ++ 214 241 1975
Fax: ++ 214 241 2128

Commercial Hydraulics/ Controls Division

373 Meuse Argonne
Hicksville, Ohio 43526
Phone: ++ 419 542 6611
Fax: ++ 419 542 8871

USA

Commercial Hydraulics/ Pump Division

101 Canterbury Road, P.O. Box 219
Kings Mountain, North Carolina
28086
Phone: ++ 704 739 8232
Fax: ++ 704 739 2269

Commercial Hydraulics/ Pump Division

1775 Logan Ave.
Youngstown, Ohio 44501
Phone: ++ 330 740 8376
Fax: ++ 330 740 8704

Commercial Hydraulics/ Cylinder Division

2701 Intertech Drive
Channahassen, Minnesota 55317
Phone: ++ 330 740 8670
Fax: ++ 330 740 8636

Commercial Hydraulics/CEC

7850 Park Drive
Channahassen, Minnesota 55317
Phone: ++ 612 474 0909
Fax: ++ 612 474 7908

CORPORATE HEADQUARTERS

Commercial Intertech Corp.

1775 Logan Ave.
Youngstown, Ohio 44501
PO Box 239
Phone: ++ 330 746 8011
Fax: ++ 330 746 1148