



Gold Cup Hydrostatic Transmissions

Page

(B) Gold Cup Open & Closed Circuit Pumps & Motors for Hydrostatic Transmissions

63-74



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Gold Cup Open & Closed Circuit Pumps & Motors for Hydrostatic Transmissions



The Gold Cup Hydrostatic Transmission pumps are variable displacement piston pumps of an unparalleled rugged design. Rated to 5000 PSI (350 BAR) continuous pressure and continuous duty, the Gold Cup design has the unique feature of an internal servo/replenish and the ability to utilize system over pressure to directly control the stroking chambers. This affords the fastest and most stable control strategy available. The controls are completely modular in design and can be configured to meet most any system requirements with standard factory options.

All internal wear surfaces are hydrostatically balanced and/or hydraulically linked allowing for a long and serviceable life. The Gold Cup pump also has the ability to run in many open circuit applications and also has digital (Flow/Pressure) capability for the most difficult of control requirements.

The Gold Cup Series has been designed to operate in a wide range of industries needing closed-loop control, high pressure, high power density such as Blast Hole Drill Rigs, Shredding, Cranes, Mining, Hydraulic Test Stands, Pulp and Paper, Military, Marine, and Power Generation.

Pump Performance Data

Model Series	Displacement in ³ /rev (cc/rev)	Max Continuous Pressure PSI (BAR)	Max Intermittent Pressure** PSI (BAR)	Rated Drive Speed RPM	Flow @ 1800 RPM GPM(LPM)	Input Horsepower @ Max Continuous Pressure & 1800 RPM & 40cSt Petroleum Oil HP (KW)
P6	6.00 (98.3)	5000 (344.8)	6000 (420)	3000	47 (177.9)	153 (114.1)
P7	7.25 (118.8)	5000 (344.8)	6000 (420)	3000	57 (215.8)	183 (136.5)
P8	8.00 (131.1)	5000 (344.8)	5000 (350)	2100	62 (234.7)	145 (108.1)
P11	11.00 (180.3)	5000 (344.8)	6000 (420)	2400	86 (325.5)	275 (205.1)
P14	14.00 (229.5)	5000 (344.8)	6000 (420)	2400	109 (412.6)	348 (259.5)
P24	24.60 (403.2)	5000 (344.8)*	5000 (350)*	2100***	192 (726.8)	626 (466.8)
P30	30.60 (501.5)	5000 (344.8)*	5000 (350)*	1800	238 (900.9)	765 (570.5)

* Variable speed. Higher servo pressure may be required.

** 10% of operating time, not exceeding 6 successive seconds.

*** On HF-1 fluids, 1800 RPM max on HF-0 fluids.

Motor Performance Data

Model Series	Displacement in ³ /rev (cc/rev)	Max Continuous Pressure PSI (BAR)	Max Intermittent Pressure** PSI (BAR)	Max Rated Shaft Speed RPM	Input Flow Required for 1800 RPM GPM (LPM)	Output Torque at Maximum Rated Pressure lb-in (kg-cm)	Output Horsepower @ Max Continuous Pressure and 1800 rpm and 40cSt Petroleum Oil HP (KW)
M6	6.00 (98.3)	5000 (344.8)	6000 (420)	3000	47 (177.9)	4327 (304.2)	123 (91.7)
M7	7.25 (118.8)	5000 (344.8)	6000 (420)	3000	57 (215.8)	5348 (376.0)	153 (114.1)
M8	8.00 (131.1)	5000 (344.8)	5000 (350)	2100	62 (234.7)	4216 (296.4)	120 (89.5)
M11	11.00 (180.3)	5000 (344.8)	6000 (420)	2400	86 (325.5)	8146 (572.8)	232 (173.0)
M14	14.00 (229.5)	5000 (344.8)	6000 (420)	2400	109 (412.6)	10,410 (731.9)	297 (221.5)
M24	24.60 (403.2)	5000 (344.8)*	5000 (350)*	2100***	192 (726.8)	18,320 (1288.0)	523 (390.0)
M30	30.60 (501.5)	5000 (344.8)*	5000 (350)*	1800	238 (900.9)	23,000 (1617.1)	657 (489.89)

* Variable speed. Higher servo pressure may be required.

** 10% of operating time, not exceeding 6 successive seconds.

*** On HF-1 fluids, 1800 RPM max on HF-0 fluids.



Hydrostatic Transmissions (Mobile & Industrial)

Gold Cup Open & Closed Circuit Pumps & Motors for Hydrostatic Transmissions



Benefits/Features

- Quick change valve block - easy to service or replace
- Modular controls - easy to service and change
- Versatile controls - can be located on either side of pump or motor for maximum freedom of design
- Dampened low inertia rocker cam - more stable, quieter and faster than other designs
- Exclusive zero-backlash rotary servo design - lifetime accuracy
- Field adjustable compensator override - easily adjusted without removing from machinery
- Precision barrel bearing, a distinctive Parker Denison Hydraulics feature for over 30 years - permits high speeds, high pressure and provides long life
- Ring style replenishing checks fastest operation with no sliding poppets or parts and low pressure drop
- Hot oil shuttle available - fast, reliable operation
- Auxiliary pump can be changed without disassembling the transmission
- Standard SAE keyed or splined drive shafts are available
- High pressure mechanical shaft seals can be changed without disassembling the transmission (excluding the P24 and P30 models). Double lip seals are also available
- One piece stroking vane/cam means no lost motion, zero backlash, better control, and no linkages to wear out
- Stroking vane seals are pressure loaded for longer life
- Standard compensator vent ports allow for a wide variety of controls (See applications manual)
- Rocker cam displacement indicator helps troubleshoot the system
- Modulated servo pressure saves power
- Standard Code 62 SAE split flange connections
- Fastest compensator response: Gives maximum of 10% pressure overshoot at rated conditions (guaranteed times under all conditions faster response times possible depending upon application)
- Variable motors with reverse available for multiple speed ranges or constant power
- Certification Approvals: ATEX, ABS, MIL-P-17869A, and MIL-S-901-C Grade A

Markets

Applications

Marine	Deck Cranes, Constant Tension Winches, Steering Gear, Fin Stabilizers,
Oil & Gas	Nitrogen Pumpers, Frac Trucks, Cementers, Coil Tubing
Mining	Drill Rigs, Top Drives, Bucket Reclaimers
Power Gen	Turbine Start
Material Handling	Mixers, Dewatering, Conveyor Drives, Shredders

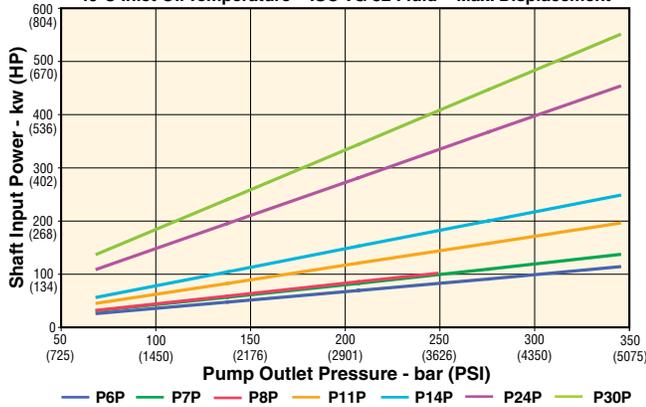


Gold Cup Open & Closed Circuit Pumps & Motors for Hydrostatic Transmissions

Gold Cup Performance Data

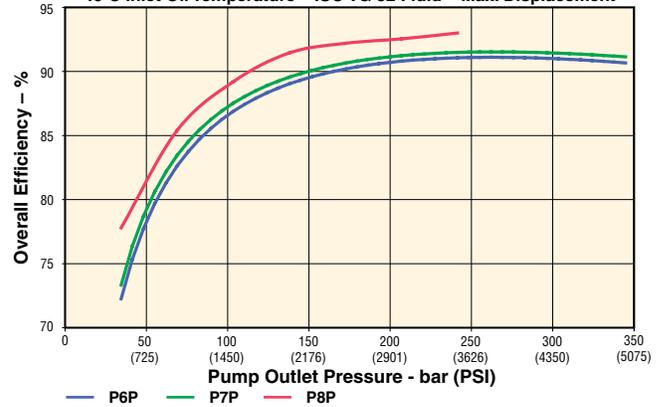
Gold Cup Shaft Input Power - 1800 RPM

40°C Inlet Oil Temperature – ISO VG 32 Fluid – Max. Displacement



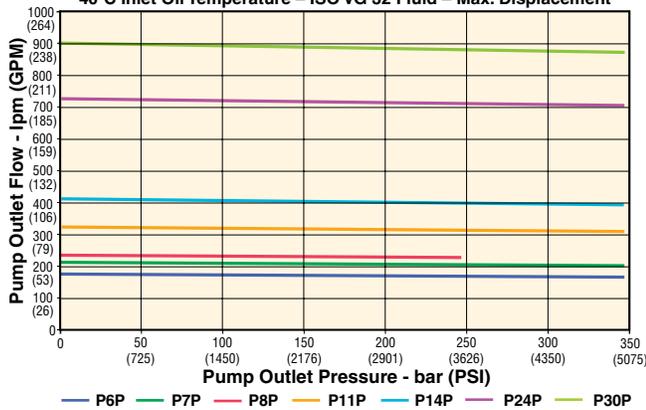
Gold Cup Overall Efficiency - 1800 RPM

40°C Inlet Oil Temperature – ISO VG 32 Fluid – Max. Displacement



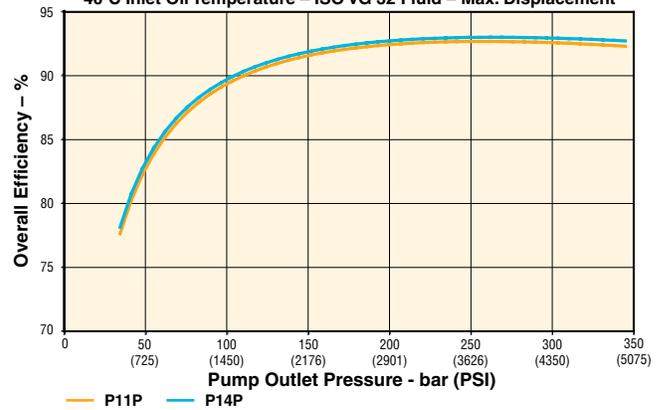
Gold Cup Pump Outlet Flow - 1800 RPM

40°C Inlet Oil Temperature – ISO VG 32 Fluid – Max. Displacement



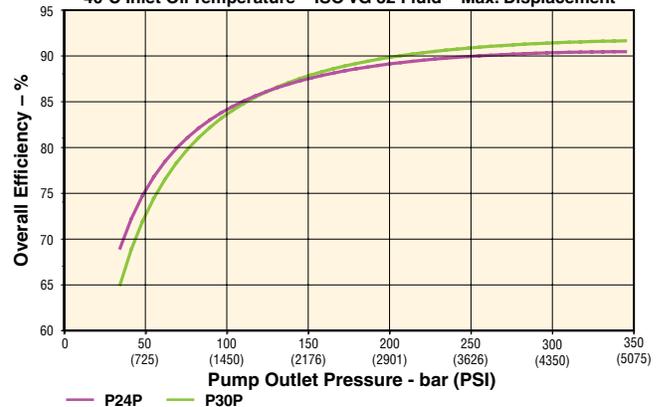
Gold Cup Overall Efficiency - 1800 RPM

40°C Inlet Oil Temperature – ISO VG 32 Fluid – Max. Displacement



Gold Cup Overall Efficiency - 1800 RPM

40°C Inlet Oil Temperature – ISO VG 32 Fluid – Max. Displacement





Hydrostatic Transmissions (Mobile & Industrial)

Gold Cup Open & Closed Circuit Pumps & Motors for Hydrostatic Transmissions

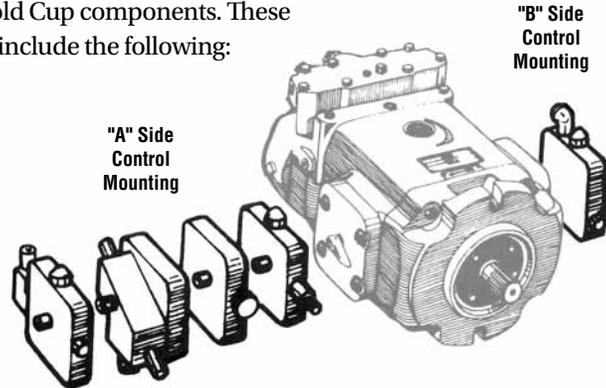
Gold Cup Controls

The spring centered rotary servo input, pressure compensator override, and displacement indicator are all standard features on all Gold Cup package pumps.

Spring centering is used in addition to the rotary servo input control to provide a positive return-to-neutral action. It includes an adjustable neutral position to allow fine tuning the neutral position, or offsetting the neutral position. Variable motors have spring offset rotary servo inputs,

cylinder controls and displacement indicators as standard features.

Additional, optional controls are available which increase the utility of the Gold Cup components. These controls include the following:



Primary Controls

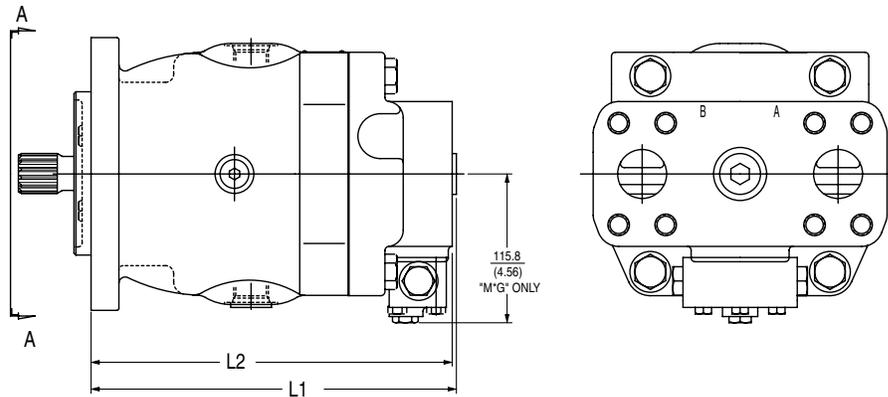
Rotary servo	The rotary servo is a mechanically actuated shaft that proportionally positions the pump to the desired flow (all variable units) and direction. A lever is commonly attached and an external mechanical signal of $\pm 19^\circ$ is applied to overcome the spring centering mechanism (20 in lbs spring force) and is directly proportional to the resulting cam angle of the pump.
Hydraulic stroker	The hydraulic stroker is used on both pump and motors. This control positions the rotary servo proportionally to externally controlled pilot pressure.
Electrohydraulic stroker	The electrohydraulic stroker is used on both pumps and motors. It provides an input rotary servo position proportional to input current. It is used primarily with remote electrical controllers. It may be used with programmed controllers as long as the system does not require rapid response.
Electrohydraulic servo	The electrohydraulic servo provides a control for electrohydraulic systems requiring rapid response and precise control. RVDT feedback or Potentiometer feedback are available options.
3-Position cylinder control	The three position cylinder control permits a pump to be offset to an adjustable displacement on either side of center by supplying a pilot signal to the appropriate control port. With no signal the pump returns to an adjustable zero stroke position.
2-Position cylinder control	The two position pump cylinder control permits a pump to be offset to an adjustable displacement on one side of center by supplying a pilot signal to the appropriate control port. With no signal the pump returns to an adjustable zero position. The two position motor cylinder control permits a motor to be stroked to a reduced displacement by supplying a pilot signal to the appropriate control port. With no signal the motor returns to an adjustable maximum stroke position.
Electrohydraulic cylinder control	By mounting an electric directional control valve on the cylinder control, the pump or motor stroke may be controlled by energizing the appropriate solenoid valve, eliminating the need for separate mounting and fluid connections to the control valve.

Options and Secondary Controls

Adjustable displacement stops	Adjustable stops are available as an option. They provide an adjustment to limit the maximum displacement of the rotary servo input between zero and full displacement on both sides of center.
Manual screw adjustment	A manual screw adjustment is available to provide an easily set pump displacement which will not move during operation. It is used when pump displacement will be adjusted infrequently.
Automatic brake and neutral bypass control	The automatic brake and neutral bypass control is used to actuate a spring set pressure released parking brake and open a small channel between the system ports when the rotary servo input and rocker cam are coincident in the neutral position. If one or the other device is not in the neutral position, the control will not shift into the brake and bypass mode. This control is used on track drives, swing drives, hoist drives and any other system where creeping is intolerable. In some cases this control may be used for the bypass function alone.
Torque limit override	The torque limit override control is used for limiting the input shaft torque. At constant speeds it serves as a horsepower limit override. This control maintains a relationship between displacement and pressure which results in a limitation of the input torque.

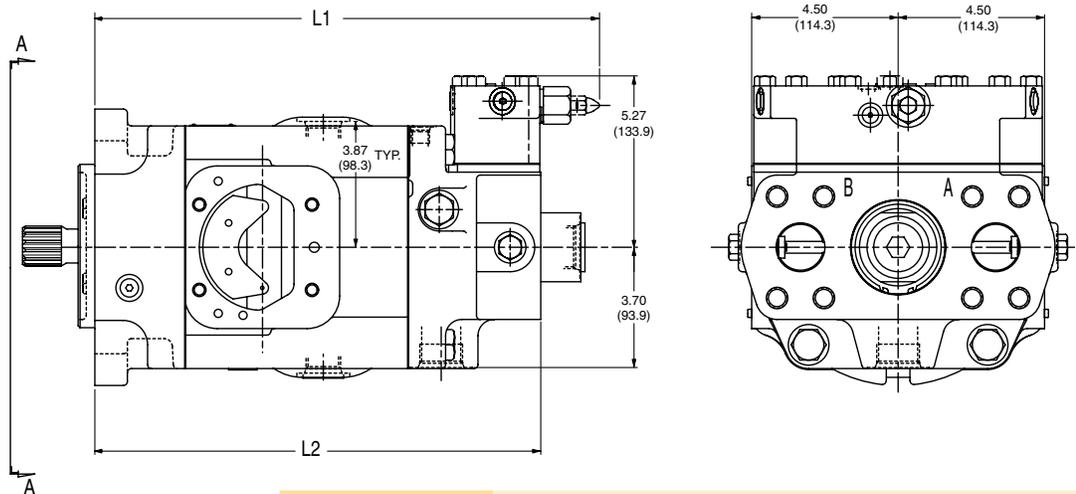
Gold Cup Open & Closed Circuit Pumps & Motors for Hydrostatic Transmissions

**M6
M7
M8
M*F Shown**



Mounting	L1	L2
SAE127-2 (SAE-C)	11.19 (284.2)	11.06 (280.9)
SAE 152-4 (SAE-D)	11.59 (294.3)	11.46 (291.1)

**P6
P7
P8
P*P Shown**



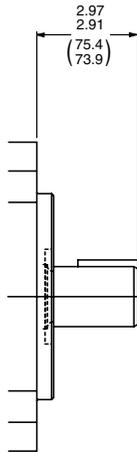
Mounting	L1	L2
SAE127-2 (SAE-C)	15.51 (393.9)	13.70 (348.0)
SAE 152-4 (SAE-D)	16.85 (427.9)	15.04 (382.1)



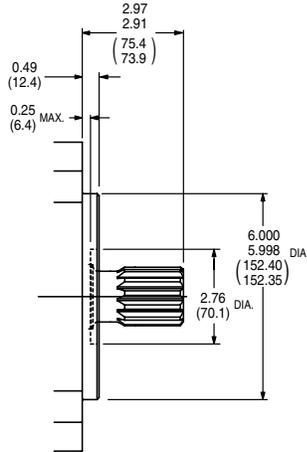
Hydrostatic Transmissions (Mobile & Industrial)

Gold Cup Open & Closed Circuit Pumps & Motors for Hydrostatic Transmissions

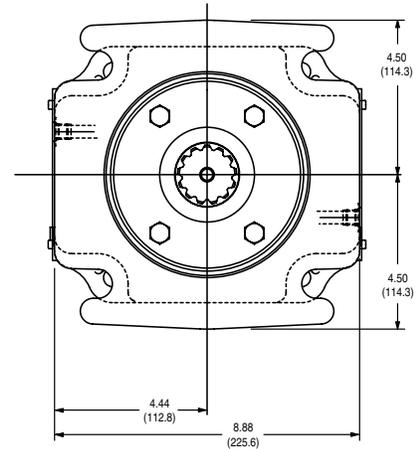
Size 6, 7 and 8 Flange and Shaft Detail



Shaft Code 04
SAE D Keyed

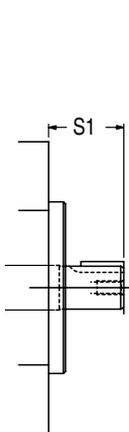


Shaft Code 05
SAE D Spline

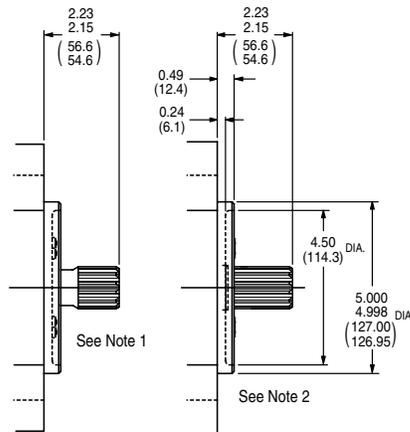


VIEW A-A
FOR SAE 152-4
(\"D\" 4-BOLT)

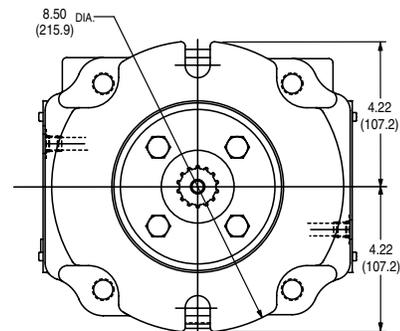
Code	S1
02, 07	2.23 (56.6) 2.15 (54.6)
09, 10	3.36 (85.3) 3.28 (83.3)



Shaft Codes
02, 07, 09, 10
SAE C Keyed



Shaft Codes 03 or 08
SAE C Spline



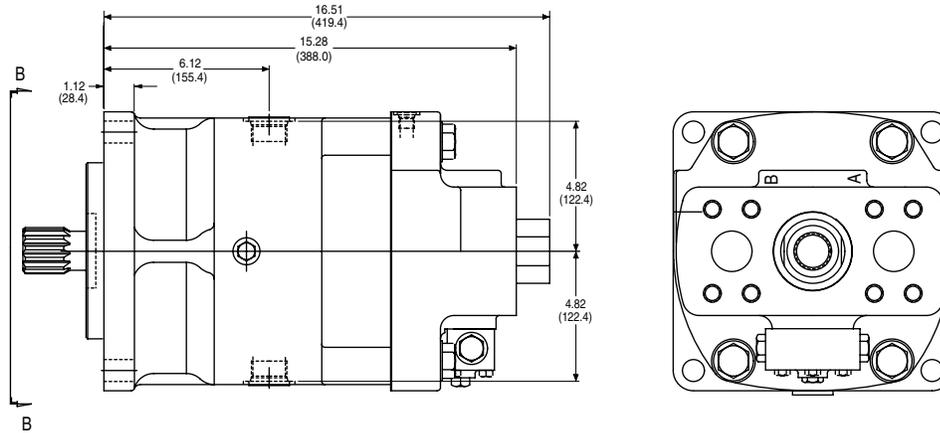
VIEW A-A
FOR SAE 127-2
(\"C\" 2-BOLT)

NOTES

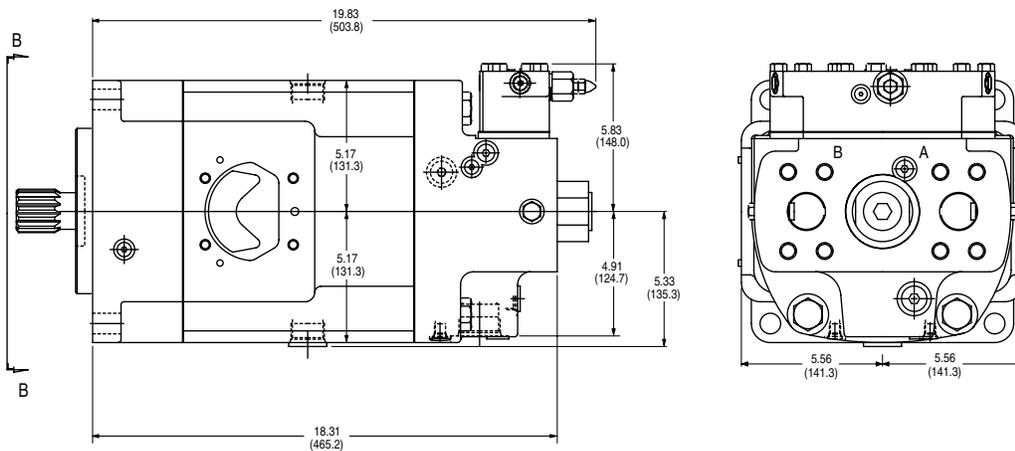
- 1 Spline length for M*F, M*G, M*H, M*V, P*S, P*X, P*D, P*P, P*V & P*F.
- 2 Spline length for M*R, M*L, M*M, M*N, P*L, P*R.

Gold Cup Open & Closed Circuit Pumps & Motors for Hydrostatic Transmissions

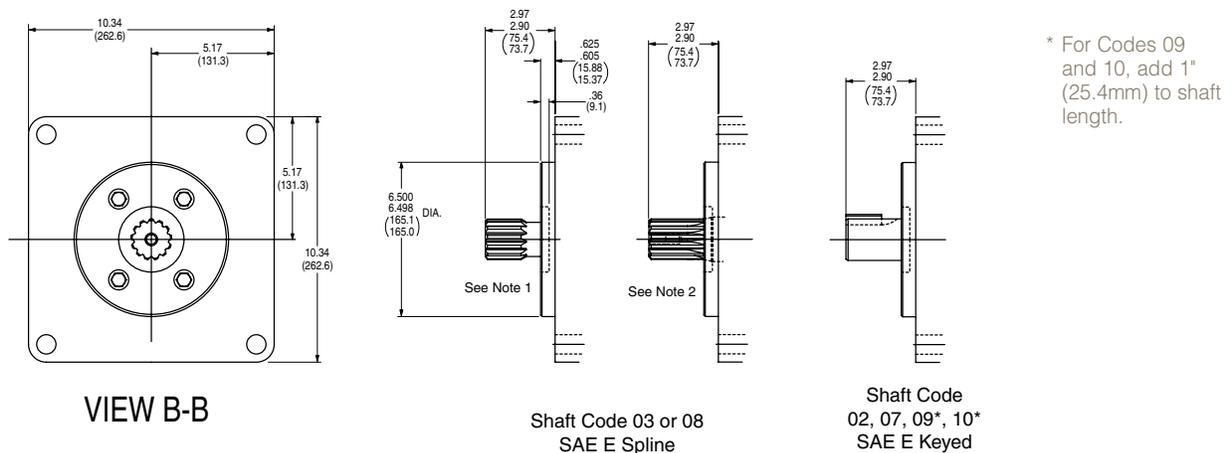
M11
M14
M*F Shown



P11
P14
P*P Shown



Size 11 and 14 Flange and Shaft Detail



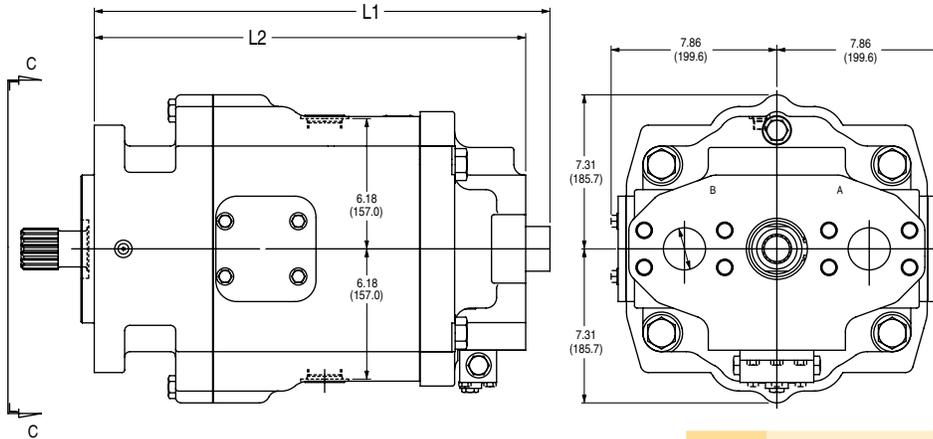
NOTES
1 Spline length for M*F, M*G, M*H, M*V, P*S, P*X, P*D, P*P, P*V & P*F.
2 Spline length for M*R, M*L, M*M, M*N, P*L, P*R.



Hydrostatic Transmissions (Mobile & Industrial)

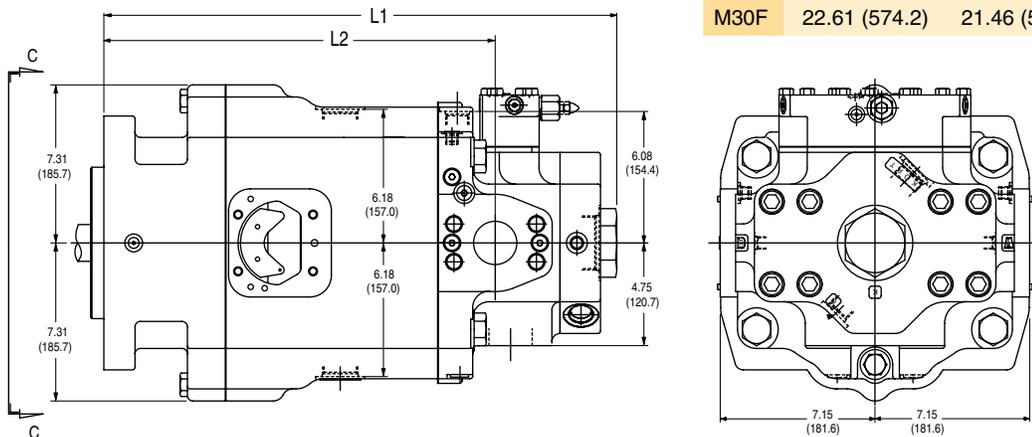
Gold Cup Open & Closed Circuit Pumps & Motors for Hydrostatic Transmissions

**M24
M30
M*F Shown**



Model	L1	L2
M24F	21.61 (548.8)	20.46 (519.6)
M30F	22.61 (574.2)	21.46 (545.0)

**P24
P30
P*P Shown**

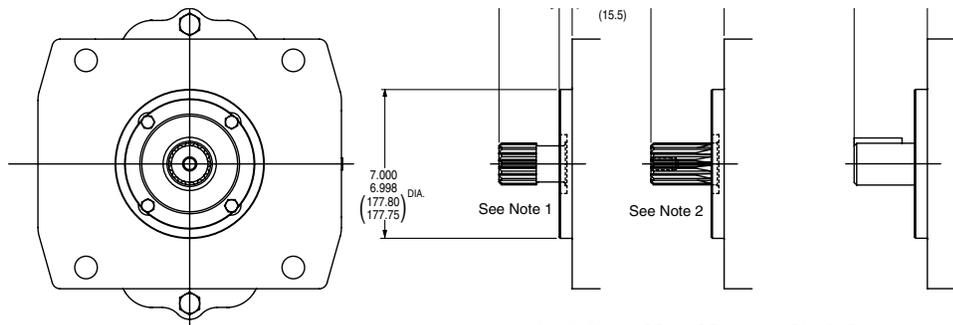


Model	L1	L2
P24P	23.70 (602.1)	18.08 (459.4)
P30P	24.70 (627.5)	19.08 (484.7)

Size 24 and 30 Flange and Shaft Detail

NOTES

- Spline length for M*F, M*G, M*H, M*V, P*S, P*X, P*D, P*P, P*V & P*F.
- Spline length for M*R, M*L, M*M, M*N, P*L, P*R.



Code	S1
02, 07	3.47 (88.1) 3.41 (86.6)
09, 10	5.35 (135.9) 5.29 (134.4)

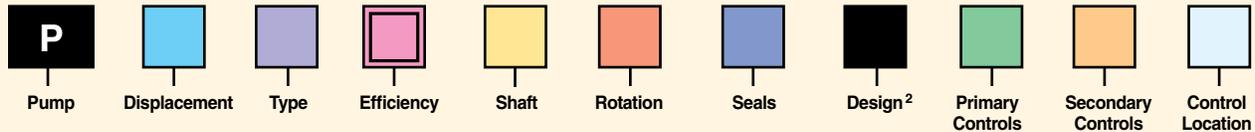
VIEW C-C

Shaft Code 03 or 08
SAE F Spline

Shaft Code 02, 07, 09, 10
SAE F Keyed

Hydrostatic Transmissions

GOLD CUP® Pump Model Ordering Code



Code	Displacement
6	6.00 in ³ /rev (98 cc/rev)
7	7.25 in ³ /rev (119 cc/rev)
8	8.00 in ³ /rev (131 cc/rev)
11	11.0 in ³ /rev (180 cc/rev)
14	14.0 in ³ /rev (229 cc/rev)
24	24.6 in ³ /rev (403 cc/rev)
30	30.6 in ³ /rev (501 cc/rev)

Code	Type
F	Fixed Displacement, Open/Closed Circuit
M	Fixed Displacement with High Torque Thru-Drive, Open/Closed Circuit
P	Variable Displacement, Closed Circuit
X	Variable Displacement with Medium Torque Thru-Drive, Closed Circuit
S	Variable Displacement with Medium Torque Thru-Drive & Shuttle Package, Closed Circuit
R	Variable Displacement with High Torque Thru-Drive, Closed Circuit
L	Variable Displacement with High Torque Thru-Drive & Shuttle Package, Closed Circuit
V	Variable Displacement, Open Circuit (P6, 7, 8, 11 & 14 only)
D	Variable Displacement, Open & Closed Circuit (P6, 7 & 8 only)

Code	Efficiency
H	High Efficiency (P24 only)
Omit	Standard Efficiency

Code	Shaft
2	Keyed SAE – Mechanical Shaft Seal (Single Lip Seal on P6, 7, 8F/M)
3	Splined SAE – Mechanical Shaft Seal (Single Lip Seal on P6, 7, 8F/M)
4	Keyed SAE-D (Mounting & Shaft) – Mechanical Shaft Seal (P6, 7 & 8 only, Single Lip Seal on Fixed Displacement Pumps)
-5	Splined SAE-D (Mounting & Shaft) – Mechanical Shaft Seal (P6, 7 & 8 only, Single Lip Seal on Fixed Displacement Pumps)
7	Keyed SAE – Double Lip Shaft Seal
8	Splined SAE – Double Lip Shaft Seal
9	Keyed (long) SAE – Double Lip Shaft Seal
10	Keyed (long) SAE – Mechanical Shaft Seal

Code	Rotation
R	Clockwise
L	Counterclockwise

Code	Seals
1	Nitrile (Buna-N)
4	EPR ^{1,3}
5	Fluorocarbon

Code	Primary Controls
Omit	None (Fixed Displacement only)
10	Screw Adjustment (Spring Offset to Maximum Displacement)
2A	Cylinder Control w/Adjustable Maximum Volume Stops
2H	Cylinder Control – 3-Position (Spring Control with Zero Adjustment)
2M	Cylinder Control – 2-Position Electrohydraulic w/Adjustable Maximum Volume Stop (Spring Offset to Maximum Displacement) ¹
2N	Cylinder Control – 3-Position (Spring Centered) Electrohydraulic ¹
40	Rotary Servo – Spring Centered
4A	Rotary Servo – Spring Centered w/Adjustable Maximum Volume Stops
4B	Rotary Servo – Spring Centered w/Automatic Brake Control
4C	Rotary Servo – Spring centered w/Adjustable Maximum Volume Stops & Automatic Brake Control
5A	Electrohydraulic Stroker w/Adjustable Maximum Volume Stops ¹
5C	Electrohydraulic Stroker w/Adjustable Maximum Volume Stops & Automatic Brake Control ¹
7D	High IQ with 10 GPM Servo Valve & Volume Indicator ¹
7F	High IQ with 10 GPM Servo Valve & 4A (Rotary Servo) Control ¹
7J	High IQ with DF+ Valve & Volume Indicator ¹
7K	High IQ with DF+ Valve & 4A (Rotary Servo) Control ¹
8A	Hydraulic Stroker w/Adjustable Maximum Volume Stops
8C	Hydraulic Stroker w/Adjustable Maximum Volume Stops & Automatic Brake Control
9A	Electrohydraulic Stroker w/Adjustable Maximum Volume Stops ¹
9C	Electrohydraulic Stroker w/Adjustable Maximum Volume Stops & Automatic Brake Control ¹
9D	Electro-hydraulic stroker w/adjustable maximum volume stops

Code	Secondary Controls
Omit	None (Fixed Displacement only)
2	Volume Indicator
4	Torque Limiter & Volume Indicator
6	Cam Position Feedback Potentiometer ¹
7	Cam Position Feedback RVD (AC) ¹
8	Cam Position Feedback RVD (DC) ¹

Code	Control Location
Omit	None (Fixed Displacement only)
A	Primary Control on Port A Side
B	Primary Control on Port B Side

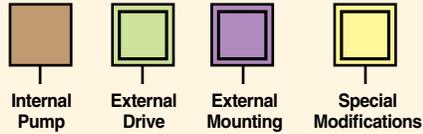
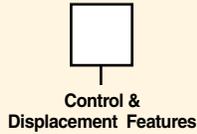
- 1 Not ATEX approved.
- 2 Assigned by manufacturer
- 3 Not available when using "5A" or "5C" primary controls. Pump will be unpainted unless otherwise specified.

= Omit if not required



Hydrostatic Transmissions

GOLD CUP® Pump Model Ordering Code



Control	Code	Control & Displacement Features
2M* & 2N*	00	CETOP3, NG6 Valve, 110VAC/60Hz with Hirschmann Connector ¹
	01	CETOP3, NG6 Valve, 12VDC with Hirschmann Connector ¹
	02	CETOP3, NG6 Valve, 240VAC/50Hz with Hirschmann Connector ¹
	03	CETOP3, NG6 Valve, 110VAC/60Hz, Wiring Box ¹
	04	CETOP3, NG6 Valve, 12VDC, Wiring Box ¹
	05	CETOP3 (D03, NG6) Interface, No Valve ¹
	06	CETOP3, NG6 Valve, 24VDC with Hirschmann Connector ¹
	07	CETOP3, NG6 Valve, 110VAC/50Hz with Hirschmann Connector ¹
5**	00	With Deadband ¹
	01	Without Deadband ¹
7**	00	Without Manual Override Shutoff ¹
	01	With Manual Override Shutoff ¹ (required for F & K primary options)
8**	00	75-350 PSI (5-24 Bar)
	01	75-435 PSI (5-30 Bar)
	02	100-380 PSI (7-26 Bar)
	03	150-400 PSI (10-28 Bar)
	04	75-250 PSI (5-17 Bar)
g**	00	24VDC
	01	12VDC
All Other	00	None ¹
Pump	Code	Reduced Displacement
P**F & P**M	00	Standard Cam (19°)
	10	P6 with 17° Cam – 5.3 in ³ /rev (87cc/rev)
		P7 with 17° Cam – 6.4 in ³ /rev (105 cc/rev)
		P8 with 17° Cam – 7.1 in ³ /rev (116 cc/rev)
		P11 with 17° Cam – 9.7 in ³ /rev (160 cc/rev)
		P14 with 17° Cam – 12.5 in ³ /rev (205 cc/rev)
		P24 with 17° Cam – 22.0 in ³ /rev (360 cc/rev)
	P30 with 17° Cam – 27.2 in ³ /rev (446 cc/rev)	
	20	P6 with 15° Cam – 4.6 in ³ /rev (76 cc/rev)
P7 with 15° Cam – 5.6 in ³ /rev (92 cc/rev)		
P8 with 15° Cam – 6.2 in ³ /rev (102 cc/rev)		
P11 with 15° Cam – 8.5 in ³ /rev (140 cc/rev)		
30	P6 with 13° Cam – 4.0 in ³ /rev (66 cc/rev)	
	P7 with 13° Cam – 4.8 in ³ /rev (79 cc/rev)	
	P8 with 13° Cam – 5.3 in ³ /rev (88 cc/rev)	

Code	Internal Pump
0	1.07 in ³ /rev (17.5 cc/rev) – P6, 7, 8P/S/X/V/D & P11, 14V only** 2.14 in ³ /rev (35 cc/rev) – P11, 14P/S/X only** 2.81 in ³ /rev (46 cc/rev) – P24, 30P/S/X only (standard)**
1	1.61 in ³ /rev (26.4 cc/rev) – P24, 30P/S/X only (auxiliary external replenishing flow required)
2	1.05 in ³ /rev (17.2 cc/rev) – P24, 30P/S/X only (auxiliary external replenishing flow required)
3	3.56 in ³ /rev (58.3 cc/rev) – P24, 30P/S/X only
4	4.84 in ³ /rev (79.3 cc/rev) – P24, 30P/S/X only
5	5.42 in ³ /rev (88.8 cc/rev) – P24, 30P/S/X only
6	6.10 in ³ /rev (100.0 cc/rev) – P24, 30P/S/X only
X	No Internal Pump (standard on P*R/L/F/M)

** Omit code if no external drive is required.

Code	External Drive
Omit	None ¹
M	Blanking plate – for P6, 7, 8, 11, 14S/X only
A	SAE-A (SAE 82-2) – P6, 7, 8, 11, 14S/X/R/L/M only
B	SAE-B (SAE 101-2) – P6, 7, 8, 11, 14, 24, 30S/X/R/L/M SAE-B (SAE 101-4) – P11, 14, 24, 30R/L/M
C	SAE-C (SAE 127-2) – P6, 7, 8, 11, 14, 24, 30R/L/M & P24, 30S/X SAE-C (SAE 127-4) – P11, 14, 24, 30R/L/M
D	SAE-D (SAE 152-4) – P11, 14, 24, 30R/L/M only
E	SAE-E (SAE 165-4) – P11, 14, 24, 30R/L/M only
F	SAE-F (SAE 177-4) – P24, 30R/L/M only

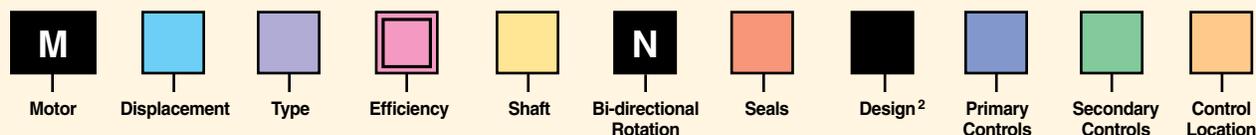
Code	External Mounting
Omit	No External Drive Required
0	No External Pump Mounted
1	External Pump Mounted (must be separately specified) – Requires Special Modification “-M2” ¹
2	ATEX Externally Mounted Pump

Code	Special Modifications
Omit	None
NP	No Paint ¹
EX	ATEX APPROVED PUMP (May contain additional modifications. Contact tech support.)
M2	Other Special Modification (example: bronze caged barrel bearing for low viscosity fluids, tandem pumps, etc.) ¹

= Omit if not required

Hydrostatic Transmissions

GOLD CUP® Motor Model Ordering Code



Code	Displacement
6	6.00 in³/rev (98cc/rev)
7	7.25 in³/rev (119 cc/rev)
8	8.00 in³/rev (131 cc/rev)
11	11.0 in³/rev (180 cc/rev)
14	14.0 in³/rev (229 cc/rev)
24	24.6 in³/rev (403 cc/rev)
30	30.6 in³/rev (501 cc/rev)

Code	Type
F	Fixed Displacement
G	Fixed Displacement with Shuttle Package
M	Fixed Displacement with Thru-Drive
N	Fixed Displacement with Thru-Drive & Shuttle Package
V	Variable Displacement
H	Variable Displacement with Shuttle Package
R	Variable Displacement with Thru-Drive
L	Variable Displacement with Thru-Drive & Shuttle Package

Code	Efficiency
H	High Efficiency (M24 only)
Omit	Standard Efficiency

Code	Shaft
2	Keyed SAE – Mechanical Shaft Seal (Single Lip Seal on M6, 7, 8F/G/M/N)
3	Splined SAE – Mechanical Shaft Seal (Single Lip Seal on M6, 7, 8F/G/M/N)
4	Keyed SAE-D (Mounting & Shaft) – Mechanical Shaft Seal (M6, 7 & 8 only, Single Lip Seal on Fixed Displacement Motors)
5	Splined SAE-D (Mounting & Shaft) – Mechanical Shaft Seal (P6, 7 & 8 only, Single Lip Seal on Fixed Displacement Motors)
7	Keyed SAE – Double Lip Shaft Seal
8	Splined SAE – Double Lip Shaft Seal
9	Keyed (long) SAE – Double Lip Shaft Seal
10	Keyed (long) SAE – Mechanical Shaft Seal

Code	Seals
1	Nitrile (Buna-N)
4	EPR ³
5	Fluorocarbon

Code	Primary Controls
Omit	None (Fixed Displacement only)
2A	Cylinder Control w/Adjustable Maximum Volume Stops
2M	Cylinder Control – 2-Position Electrohydraulic w/Adjustable Maximum Volume Stop (Spring Offset to Maximum Displacement) ¹
5A	Electrohydraulic Stroker w/ Adjustable Maximum Volume Stops ¹
8A	Hydraulic Stroker w/Adjustable Maximum Volume Stops
9A	Electrohydraulic Stroker w/ Adjustable Maximum Volume Stops ¹

Code	Secondary Controls
Omit	None (Fixed Displacement only)
0	Volume Indicator
3	Reverse Compensator (spring offset to maximum displacement) + Volume Indicator
5	Reverse Compensator (spring offset to minimum displacement) + Volume Indicator
6	Cam Position Feedback Potentiometer ¹
7	Cam Position Feedback RVDT (AC) ¹
8	Cam Position Feedback RVDT (DC) ¹
U	Reverse Compensator (3) + Cam Position Feedback Potentiometer (6) ¹
W	Reverse Compensator (3) + Cam Position Feedback RVDT (8) ¹
X	Reverse Compensator (5) + Cam Position Feedback Potentiometer (6) ¹
Z	Reverse Compensator (5) + Cam Position Feedback RVDT (8) ¹

Code	Control Location
Omit	None (Fixed Displacement only)
A	Primary Control on Port A Side
B	Primary Control on Port B Side

1 Not ATEX approved.
 2 Assigned by manufacturer.
 3 Not available when using "5A" primary control. Motor will be unpainted unless otherwise specified.

= Omit if not required



Hydrostatic Transmissions

GOLD CUP® Motor Model Ordering Code



Control & Displacement Features



Shuttle Valve Features



External Drive



External Mounting



Special Modifications

Control	Code	Control & Displacement Features
2M	0	CETOP3, NG6 Valve, 110AC/60Hz with Hirschmann Connector ¹
	1	CETOP3, NG6 Valve, 12VDC with Hirschmann Connector ¹
	2	CETOP3, NG6 Valve, 240VAC/50Hz with Hirschmann Connector ¹
	3	CETOP3, NG6 Valve, 110VAC/60Hz, Wiring Box ¹
	4	CETOP3, NG6 Valve, 12VDC, Wiring Box ¹
	5	CETOP3 (D03, NG6) Interface, No Valve ¹
	6	CETOP3, NG6 Valve, 24VDC with Hirschmann Connector ¹
	7	CETOP3, NG6 Valve, 110VAC/50Hz with Hirschmann Connector ¹
5A	0	With Deadband ¹
	1	Without Deadband ¹
8A	0	75-250 PSI (5-17 Bar)
	1	250-450 PSI (17-31 Bar)
9A	0	24VDC ¹
	1	12VDC ¹
All Other	0	None
Motor	Code	Reduced Displacement
M*F M*G M*M M*N	0	Standard Cam (19°)
	1	M6 with 17° Cam – 5.3 in ³ /rev (87cc/rev) M7 with 17° Cam – 6.4 in ³ /rev (105 cc/rev) M8 with 17° Cam – 7.1 in ³ /rev (116 cc/rev) M11 with 17° Cam – 9.7 in ³ /rev (160 cc/rev) M14 with 17° Cam – 12.5 in ³ /rev (205 cc/rev) M24 with 17° Cam – 22.0 in ³ /rev (360 cc/rev) M30 with 17° Cam – 27.2 in ³ /rev (446 cc/rev)
	2	M6 with 15° Cam – 4.6 in ³ /rev (76 cc/rev) M7 with 15° Cam – 5.6 in ³ /rev (92 cc/rev) M8 with 15° Cam – 6.2 in ³ /rev (102 cc/rev) M11 with 15° Cam – 8.5 in ³ /rev (140 cc/rev) M14 with 15° Cam – 10.9 in ³ /rev (179 cc/rev)
	3	M6 with 13° Cam – 4.0 in ³ /rev (66 cc/rev) M7 with 13° Cam – 4.8 in ³ /rev (79 cc/rev) M8 with 13° Cam – 5.3 in ³ /rev (88 cc/rev)

Code	Shuttle Valve Features
Omit	M*F/M/V/R Motors only
0	Without Orifices
2	With Orifices

Code	External Drive
Omit	None (M*F/G/V/H units only)
A	SAE-A (SAE 82-2) – M6, 7, 8, 11, 14M/N/R/L only
B	SAE-B (SAE 101-2) – M6, 7, 8M/N/R/L SAE-B (SAE 101-2 & 101-4) – M11, 14, 24, 30M/N/R/L
C	SAE-C (SAE 127-2) – M6, 7, 8M/N/R/L SAE-C (SAE 127-2 & 127-4) – M11, 14, 24, 30M/N/R/L
D	SAE-D (SAE 152-4) – M11, 14, 24, 30M/N/R/L only
E	SAE-E (SAE 165-4) – M11, 14, 24, 30M/N/R/L only
F	SAE-F (SAE 177-4) – M24, 30M/N/R/L only
M	Blanking Plate-less Coupling

Code	External Mounting
0	No External Motor Mounted
1	External Motor Mounted (must be separately specified) – Requires Special Modification “-M2”
2	ATEX Externally Mounted Motor

Code	Special Modifications
Omit	None
NP	No Paint
M2	Other Special Modification (example: bronze caged barrel bearing for low viscosity fluids, tandem motors, etc.)
EX	ATEX APPROVED (May contain additional modifications. Contact tech support.)

= Omit if not required

