EATON | Char-Lynn

Disc Valve Motors

Integral Cross Over Relief Valve

Technical Manual

2000 Series

Char-Lynn®

Introduction

Eaton Char-Lynn®, your proven low speed high torque motor supplier, now offers the Char-Lynn® 2000 Series motor with our proven Eaton Vickers® Screw-in Cartridge Valves integral to the motor. This compact and efficient package offers increased value and cost effectiveness to designing Eaton into your applications. Minimizing the use of hoses, tubing, and fittings will reduce production and assembly time significantly.

2000 Series

Geroler® Element .....9 Displacements

Flow LPM [GPM].....75 [20] Cont.**
115 [30] Inter.*

Speed .....Up to 924 RPM

Pressure Bar [PSI].....200 [3000] Cont.
300 [4500] Inter.

Torque Nm [lb-in].....845 [7470] Cont.
930 [8225] Inter.

** Continuous— (Cont.) Continuous rating, motor may be run continuously at these ratings.

* Intermittent— (Inter.) Intermittent operation, 10% of every minute.

Features and Benefits

- Complete packaged system solution, single source for motor with relief valve capability
- Relief valves as close to the Geroler® as possible, providing added protection.
- Eliminate leak points from in-line or bolt-on relief's
- Valves capable of full motor flow and full motor pressure.
- Provides added flexibility to system design by allowing motors to have individual relief valve settings.
- Simplifies assembly, purchasing, and system design requirements

Applications

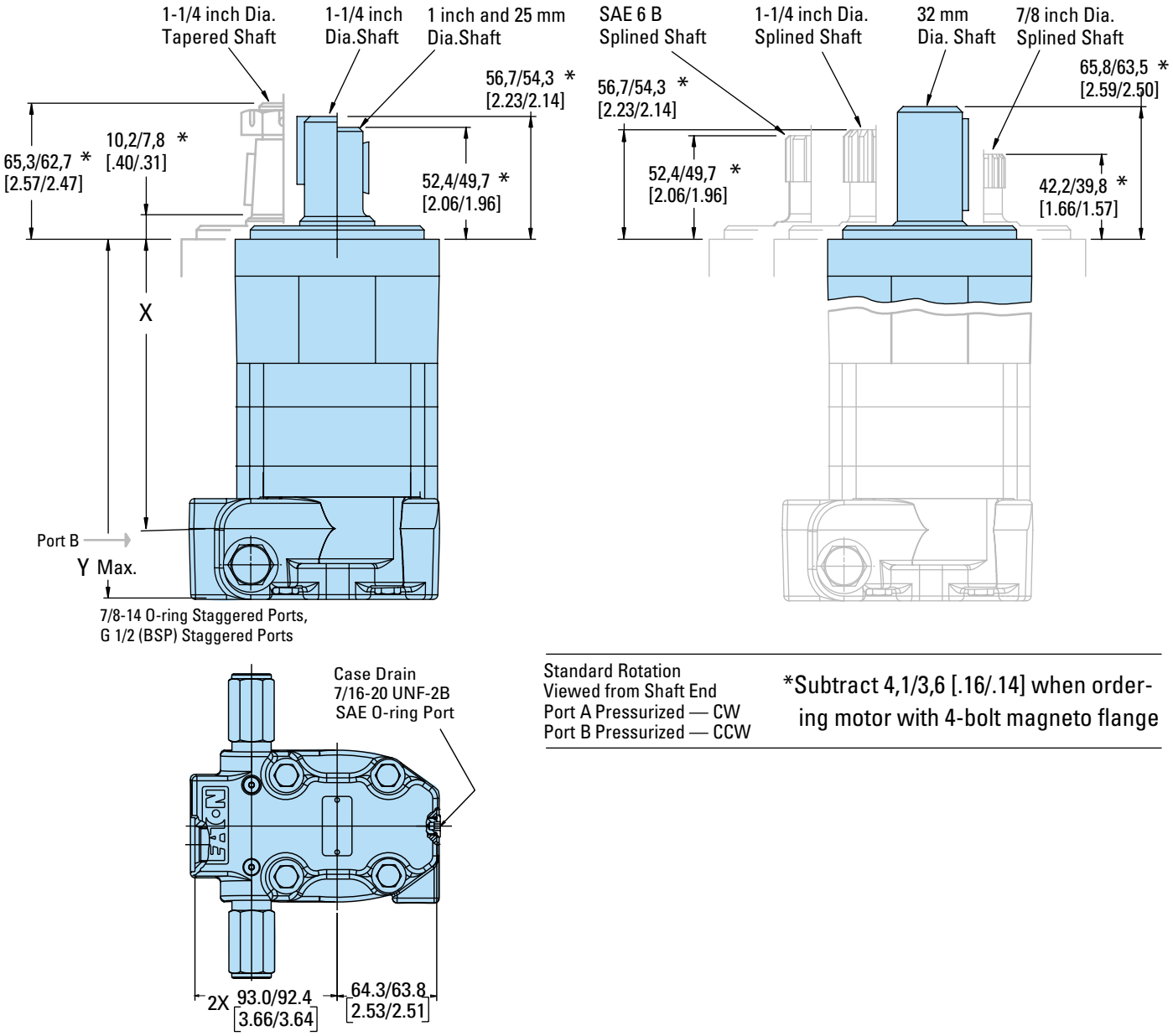
- Skid Steer Attachments
- Swing Motor
- Brush Cutters & Mowers
- Harvesting Equipment
- Directional Boring

Any place pressure relief protection is optimal for system or motor performance and life

Replacement cartridges can be obtained by ordering the Item Part Number as listed below.

ITEM PART #	ITEM DESC.	RELIEF VALVE SETTING
02-199291	RV5A-10-F-0-35/15	1500 PSI
02-199292	RV5A-10-F-0-35/17.5	1750 PSI
02-199293	RV5A-10-F-0-35/20	2000 PSI
02-199295	RV5A-10-F-0-35/22.5	2250 PSI
02-198563	RV5A-10-F-0-35/25	2500 PSI
02-199294	RV5A-10-F-0-35/27.5	2750 PSI
02-199296	RV5A-10-F-0-35/30	3000 PSI

Standard Mount Motors



Standard Rotation
Viewed from Shaft End
Port A Pressurized — CW
Port B Pressurized — CCW

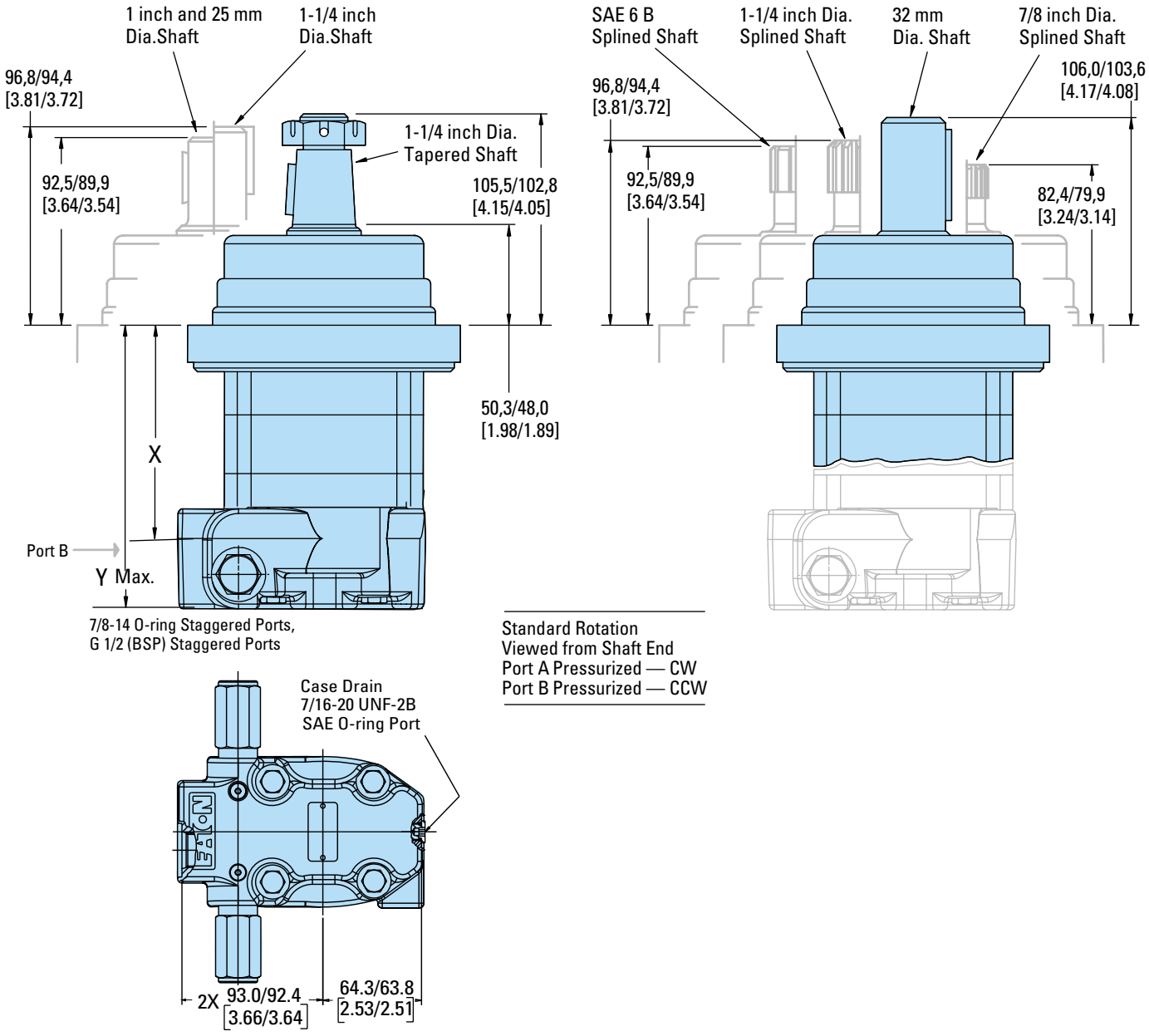
*Subtract 4,1/3,6 [.16/.14] when ordering motor with 4-bolt magneto flange

2000 Series Standard Motor with 7/8-14 O-Ring Staggered Ports or G1/2 (BSP) Staggered Ports

DISPLACEMENT

cm3/r [in3/r]	80 [4.9]	100 [6.2]	130 [8.0]	160 [9.6]	195 [11.9]	245 [14.9]	305 [18.7]	395 [24.0]	490 [29.8]
Dim. X mm [in]	137,0 [5.40]	141,6 [5.58]	147,9 [5.83]	147,9 [5.83]	154,8 [6.10]	163,7 [6.45]	175,1 [6.90]	191,1 [7.53]	208,4 [8.21]
Dim. Y mm [in]	184,5 [7.26]	189,0 [7.44]	195,4 [7.69]	195,4 [7.69]	202,2 [7.96]	211,1[8.31]	222,6 [8.76]	238,6 [9.39]	255,8[10.07]

Wheel Mount Motors

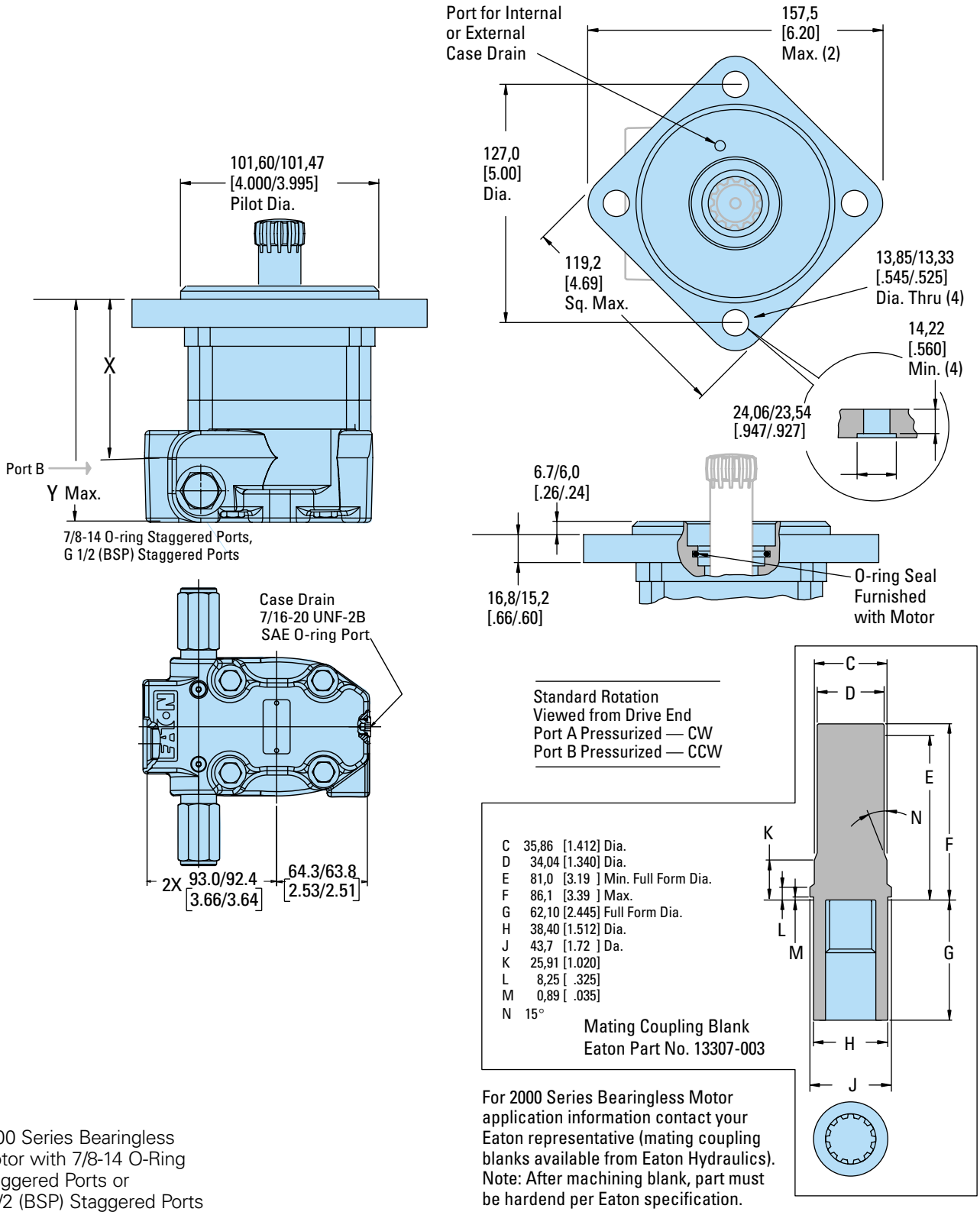


2000 Series Wheel Motor with 7/8-14 O-Ring Staggered Ports or G1/2 (BSP) Staggered Ports

DISPLACEMENT

cm3/r [in3/r]	80 [4.9]	100 [6.2]	130 [8.0]	160 [9.6]	195 [11.9]	245 [14.9]	305 [18.7]	395 [24.0]	490 [29.8]
Dim. X mm [in]	96,9 [3.82]	101,4 [4.00]	107,8 [4.25]	107,8 [4.25]	114,6 [4.52]	123,5 [4.87]	135,0 [5.32]	151,0 [5.95]	168,2 [6.63]
Dim. Y mm [in]	144,3 [5.68]	148,9 [5.86]	155,2[6.11]	155,2 [6.11]	162,1[6.38]	171,0 [6.73]	182,4 [7.18]	198,4 [7.81]	215,7[8.49]

Bearingless Motors



2000 Series Bearingless Motor with 7/8-14 O-Ring Staggered Ports or G1/2 (BSP) Staggered Ports

For 2000 Series Bearingless Motor application information contact your Eaton representative (mating coupling blanks available from Eaton Hydraulics). Note: After machining blank, part must be hardend per Eaton specification.

DISPLACEMENT

cm3/r [in3/r]	80 [4.9]	100 [6.2]	130 [8.0]	160 [9.6]	195 [11.9]	245 [14.9]	305 [18.7]	395 [24.0]	490 [29.8]
Dim. X mm [in]	79,0 [3.11]	83,5 [3.29]	89,9 [3.54]	89,9 [3.54]	96,8 [3.81]	105,6 [4.16]	117,1 [4.61]	133,1 [5.24]	150,3 [5.92]
Dim. Y mm [in]	126,8 [4.99]	131,4 [5.17]	137,7[5.42]	137,7 [5.42]	144,6[5.69]	153,5 [6.04]	164,9 [6.49]	180,9 [7.12]	198,2 [7.80]

Model Code

Model Code for 2000 Series Motors

The following 24-digit coding system has been developed to identify all of the configuration options for the 2000 Series motor

Use this model code to specify a motor with the desired features. All 24-digits of the code must be present when ordering.

You may want to photocopy the matrix below to ensure that each number is entered in the correct box.

Sample Model Code:

Model Code — 2000 Series Disc Valve Motors

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
M	**0**	**2**												**0**	**0**							**0**	**0**

Nos	Feature	Code	Description
1	Product Series	M	Motor
2, 3	2000 Series	02	2000 Series
4, 5	Displacement cm^3/r [in^3/r]		
		05	80 [4.9]
		06	100 [6.2]
		08	130 [8.0]
		10	160 [9.6]
		12	195 [11.9]
		15	245 [14.9]
		19	305 [18.7]
		24	395 [24.0]
		30	490 [29.8]
6, 7	Mounting Flange		
		AD	4 Bolt (Bearingless) 101,6 [4.00] Pilot Dia. and 13,59 [.535] Dia. Mounting Holes on 127,0 [5.00] Dia. B.C.
		AC	2 Bolt SAE A (Std.) 82,5 [3.25] Pilot Dia and 13,59 [.535] Dia. Mtg. Holes on 106,4 [4.19] Dia. B.C.
		AB	4 Bolt (Wheel) 108,0 [4.25] Pilot Dia. and 13,59 [.535] Dia. Mounting Holes on 147,6 [5.81] Dia. B.C.
		AH	4 Bolt (Standard) 82,5 [3.25] Pilot Dia. and 14,59 [.535] Dia. Mounting Holes on 106,4 [4.19] Dia. B.C.
		AJ	4 Bolt Magneto (Std.) 82,5 [3.25] Pilot Dia. and 13,59 [.535] Dia. Mtg. Holes on 106,4 [4.19] Dia. B.C.
		AF	2 Bolt SAE B (Std.) 101,6 [4.00] Pilot Dia. and 14,35 [.565] Dia. Mtg. Holes on 146,0 [5.75] Dia. B.C.
		AP	4 Bolt (wheel compatible for HAYES BRAKE) 107,9 [4.25] Pilot Dia. and 13,59 [.535] Dia. Mounting Holes on 147,6 [5.81] Dia. B.C. with Turned Down Housing to 88,9 [3.50] Dia.

Nos	Feature	Code	Description
8, 9	Output Shaft	00	Bearingless
		01	1 inch Dia. Straight with Woodruff Key, 1/4-20 Threaded Hole and 38,4 [1.51] Max. Coupling Length
		02	1–1/4 inch Dia. Straight with Straight Key, 3/8-16 Threaded Hole and 47,3 [1.86] Max. Coupling Length
		23	32 mm dia. Straight with Straight Key, M8 x 1,25 -6H Threaded Hole and 56,4 [2.22] Max. Coupling Length
		04	1-1/4 inch Dia. Splined 14 T, 3/8-16 Threaded Hole and 33,0 [1.30] Min. Full Spline Length and 45,5 [1.79] Max. Coupling Length
		03	1-1/4 inch Dia. Tapered with Straight Key and Nut
		05	1 inch SAE 6B Splined 6T, 1/4-20 Threaded Hole and 22,8 [.90] Min. Full Spline Length and 28,8 [1.13] Max. Coupling Length
		07	7/8 inch Dia. Splined 13T, 15,2 [.60] Min. Full Spline Length and 30,8 [1.21] Max. Coupling Length
		24	1–1/4 inch Dia. Straight with Straight Key, 3/8-16 Threaded Hole and Corrosion Resistant (seal area to shaft end)
		25	1–1/4 inch Dia. Tapered with Straight Key and Nut, Corrosion Resistant (under seal area only)
		26	25 mm Dia. Straight with Straight Key, M8 x 1,25 -6H Threaded Hole and 38,4 [1.51] Max. Coupling Length

Model Code

Sample Model Code:

Model Code — 2000 Series Disc Valve Motors

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
M	0	2												0	0							0	0

Nos	Feature	Code	Description
10, 11	Port Type	AA	7/8-14 UNF –2B SAE O-ring (Staggered)
		AG	G 1/2 BSP Straight Thread ports (Staggered)
		AB	Manifold Mount with 3/8-16 UNC Mounting Threads (3)
		AE	Manifold Mount with M10 x 1,5 -6H Mounting Threads (3)
		AD	7/8-14 UNF –2B SAE O-ring (End Ports)
		AF	1–1/16 - 12 UN-2B O-ring ports (Positioned 180∞ Apart)
12, 13	Case Flow (Shuttles available with port code AA or AD only)		
		01	7/16-20 UNF –2B SAE O-ring (Case Drain)
		02	G 1/4 (BSP) straight thread port (Case Drain)
		04	Shuttle Valve with 7/16-20 UNF –2B SAE O-ring (Case Drain)
		05	Shuttle Valve with G 1/4 (BSP) straight thread port (Case Drain)
14	Low Pressure Relief (LPR available with a combination of case flow code 04 or 05 and port code AA or AD only)		
		0	None
		A	Set @ 4,5 bar [65 psi]∞
		B	Set @ 15,2 bar [220 psi]∞
		C	Set @ 20,7 bar [300 psi]∞
15, 16	Valve Option	00	None
17, 18	Accessories	00	None
		AA	Seal Guard
		AB	Speed Sensor (Std. With Weatherpack shroud connector)
		AH	Speed Sensor (Std. With M12 connector)
		AL	Quadrature Speed Sensor Version 2 with M12

Nos	Feature	Code	Description
19, 20	Special Features (Hardware)		
		00	None
		01	Viton Seals
		10	Viton Shaft Seal
		57	105 bar [1500 psi] Internal Cross Over Relief Valve (staggered 7/8" o-ring ports only)
		58	120 bar [1750 psi] Internal Cross Over Relief Valve (staggered 7/8" o-ring ports only)
		59	140 bar [2000 psi] Internal Cross Over Relief Valve (staggered 7/8" o-ring ports only)
		60	155 bar [2250 psi] Internal Cross Over Relief Valve (staggered 7/8" o-ring ports only)
		61	170 bar [2500 psi] Internal Cross Over Relief Valve (staggered 7/8" o-ring ports only)
		62	190 bar [2750 psi] Internal Cross Over Relief Valve (staggered 7/8" o-ring ports only)
		63	205 bar [3000 psi] Internal Cross Over Relief Valve (staggered 7/8" o-ring ports only)
21	Special Features (Assembly)		
		0	None
		A	Flange Rotated 90∞
		B	Reverse Rotation
22	Paint/Special Packaging		
		0	No Paint
		A	Painted Low Gloss Black
		B	Corrosion Protected
23	Eaton Assigned Code when Applicable		
		0	Assigned Code
24	Eaton Assigned Design Code		
		0	Assigned Design Code

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