

Steering Control Units—Series 5

Product Description

The new Series 5 steering control units (SCU) are exciting new products designed for low flow, low pressure applications.

The Series 5 units are available in two compact designs:

Option 1:

Square Housing (Mount) Unit with Side Ports

Option 2:

Round Housing (Mount) Unit with End Ports

In addition to the installation flexibility provided by the two options above, this new family of products has best-in-class steering feel and provides crisp centering. These units also have better efficiency (lower pressure drop) than competitive units.

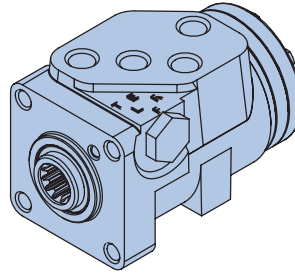
Power Beyond Models—Optional power beyond steering control units supply steering and flow to auxiliary valve functions. The power beyond unit is used in open center (fixed displacement pump) systems in the medium pressure range. When not steering, the power beyond unit directs all inlet flow to the excess flow port (power beyond) for use in the auxiliary circuit. Once steering is initiated, and since steering has priority, inlet flow will be diverted to the steering circuit as required. Flow out the excess flow port (power beyond) and tank port will vary or stop depending upon the steering requirement. The tank port of the steering unit has flow only when steering is operating.

Features

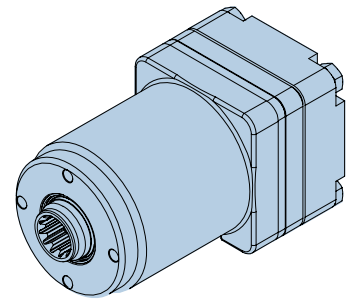
- Open Center
- Load Sensing
- Open Center Power Beyond
- Integral Column
- Manual Steering Check Valve
- Inlet Relief Valve
- Load Sense Relief Valve
- Cylinder Relief Valve
- Anti-Cavitation Valve

Applications

- Lawn and Garden Equipment
- Turf Equipment
- Golf Course Maintenance Equipment
- Lift Trucks
- Compact Utility Tractors



Option 1: Square Housing with Side Ports
refer to Model Code, page 23



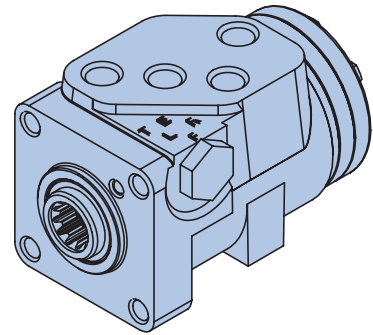
Option 2: Round Housing with End Ports
refer to Model Code, page 24

SPECIFICATIONS

Max. System Pressure	140 bar [2030 PSI]
Max. Back Pressure	21 bar [300 PSI]
Max. Flow	19 l/min [5 GPM]
Max. Differential	
Between Steering Unit and System Temperature	28° C 50° F
Max. System Operating Temperature	93°C [200° F]
Input Torque	
Powered -Standard	1,7 - 2,8 Nm @ 6,9 bar tank pressure [15 - 25 lb-in @ 100 PSI tank pressure]
Low	1,1 - 2,0 Nm @ 6,9 bar tank pressure [10 - 17.5 lb-in @ 100 PSI tank pressure]
Max. Non Powered	81,4 Nm [60 lb-ft]
Fluid	Petroleum Based Fluids
Recommended Filtration	ISO 18/13 cleanliness level
Port Options	9/16-18 SAE O-ring – 06 STC 3/8 BSP Straight thread ports
Check Valve for Manual Steering	Yes
Optional Relief Valve Settings bar [PSI]	40 [580] 50 [725] 63 [914] 70 [1015] 80 [1160] 90 [1305] 100 [1450] 125 [1812]

Steering Control Units—Series 5

Model Code – Ordering Information



Square Housing with Side Ports - Option 1

The following 30-digit coding system has been developed to identify all of the configuration options for the Series 5 steering control units. Use this model code to specify a unit with the desired features. All 30-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.

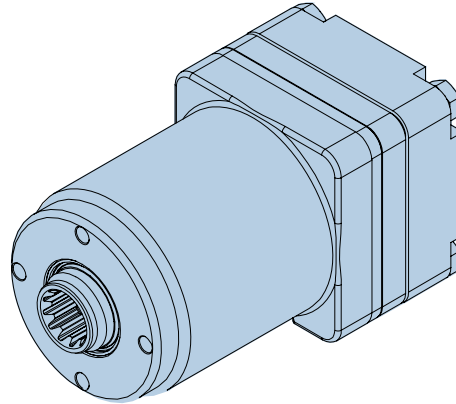
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	B	R		C	A			0		A												A	0			1	0		B

Nos	Feature	Code	Description	Nos	Feature	Code	Description
1,2,3	Product Series	ABR	Series 5 Steering Control Unit	18,19,20,21	Ports and Mounting Threads	4AAN	Square 4 x 9/16 SAE Ports, M10 x 1,5 Column Mounting Threads (Use with Open Center)
4	Nominal Flow Rating	1 B	11 l/min [3 GPM] 19 l/min [5 GPM]	4AKN		4AKN	Square 5 x 9/16 SAE Ports, M10 x 1,5 Column Mounting Threads (Use with Excess Flow)
5	Inlet Pressure Rating	C	140 bar [2030 PSI]	4AEN		4AEN	Square 5 x 9/16 SAE Ports, M10 x 1,5 Column Mounting Threads (Use with Load Sense)
6	Tank Pressure Rating	A B	10 bar [150 PSI] 21 bar [300 PSI]	UAAN		UAAN	Square 4 x -06 STC Direct Ports, M10 x 1,5 Column Mounting Threads (Use with Open Center)
7-8	Displacement	35 37 39 41 43 46 48	31.5 cm ³ /r [1.92 in ³ /r] 39.5 cm ³ /r [2.41 in ³ /r] 50.8 cm ³ /r [3.10 in ³ /r] 63.1 cm ³ /r [3.85 in ³ /r] 73.8 cm ³ /r [4.50 in ³ /r] 100 cm ³ /r [6.10 in ³ /r] 120 cm ³ /r [7.33 in ³ /r]	UBNN		UBNN	Square 5 x -06 STC Direct Ports, M10 x 1,5 Column Mounting Threads (Use with Excess Flow)
9	Flow Amplification	0	None	UBPN		UBPN	Square 5 x -06 STC Direct Ports, M10 x 1,5 Column Mounting Threads (Use with Load Sense)
10	Neutral Circuit	A B F	Open Center Open Center, Power Beyond Load Sensing, Dynamic signal	YAAN		YAAN	Square 4 x G .375 BSP Striaight Thd. Ports, M10 x 1,5 Column Mounting Threads (Use with Open Center)
11	Load Circuit	A	Non-Load Reaction	YBRN		YBRN	Square 5 x G .375 BSP Striaight Thd. Ports, M10 x 1,5 Column Mounting Threads (Use with Load Sense)
12,13	Valve Options	01 04 05 12 13	Manual Steering Check Valve Inlet Check Valve, Manual Steering Check Valve Inlet Relief Valve, Manual Steering Check Valve Cylinder Relief Valve, Anti-Cavitation Valve, Inlet Relief Valve, Inlet Check Valve, Manual Steering Check Valve. Cylinder Relief Valve, Anti-cavitation Valve, Inlet Check Valve, Load Sensing Relief Valve, Manual Steering Check Valve	22	Input Torque	1 3	Low* Standard
14,15	Integral Inlet Relief Valve Setting	00 18 1J 1Z 26 2G 2T 34 3W	None 40 bar [580 PSI] 50 bar [725 PSI] 63 bar [914 PSI] 70 bar [1015 PSI] 80 bar [1160 PSI] 90 bar [1305 PSI] 100 bar [1450 PSI] 125 bar [1812 PSI]	23	Fluid Type	A	See Eaton Technical Bulletin 3-401
16,17	Cylinder Relief Setting	00 37 42 55 68	None 103 bar [1490 PSI] 130 bar [1890 PSI] 185 bar [2680 PSI] 200 bar [2900 PSI]	24	Special Application	0	None
				25,26	Special Feature	AA	None
				27	Paint	1	Black Primer
				28	Identification	0	Eaton Product Number on Nameplate
				29	Mechanical Interface	A	Tapered 17.919mm (.7055in) diameter, .083:1 and serrated 17.5 (.688) diameter, 40 tooth, M16x1.5-6g, Extension length 65.02 (2.56)
						D	Internal involute spline 12 tooth, 16/32 DP, 30 degree PA
				30	Eaton Assigned Design Code	B	Assigned Design Code

* All low torque units need approval from an Eaton Steering Engineer.

Steering Control Units—Series 5

Model Code – Ordering Information



Round Housing with End Ports - Option 2

The following 30-digit coding system has been developed to identify all of the configuration options for the Series 5 steering control units. Use this model code to specify a unit with the desired features. All 30-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.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
A	B	R			A			0		A					0	0						A	0			1	0			B

Nos	Feature	Code	Description	Nos	Feature	Code	Description
1,2,3	Product Series	ABR	Series 5 Steering Control Unit	18,19,20,21	Ports and Mounting Threads	VAAH	Round 4 x 9/16 SAE Ports, M6 x 1,0 Column Mounting Threads (Use with Open Center)
4	Nominal Flow Rating	1 B	11 l/min [3 GPM] 19 l/min [5 GPM]			VAKH	Round 5 x 9/16 SAE Ports, M6 x 1,0 Column Mounting Threads (Use with Excess Flow)
5	Inlet Pressure Rating	C	140 bar [2030 PSI]			VAEH	Round 5 x 9/16 SAE Ports, M6 x 1,0 Column Mounting
6	Tank Pressure Rating	A	10 bar [150 PSI]			WAAH	Round 4 x -06 STC Direct Ports, M6 x 1,0 Column Mounting Threads (Use with Open Center)
7-8	Displacement	35 37 39 41 43 46 48	31.5 cm3/r [1.92 in3/r] 39.5 cm3/r [2.41 in3/r] 50.8 cm3/r [3.10 in3/r] 63.1 cm3/r [3.85 in3/r] 73.8 cm3/r [4.50 in3/r] 100 cm3/r [6.10 in3/r] 120 cm3/r [7.33 in3/r]			WBNH	Round 5 x -06 STC Direct Ports, M6 x 1,0 Column Mounting Threads (Use with Excess Flow)
9	Flow Amplification	0	None			WBPH	Round 5 x -06 STC Direct Ports, M6 x 1,0 Column Mounting Threads (Use with Load Sense)
10	Neutral Circuit	A B C F	Open Center Open Center, Power Beyond Closed Center Load Sensing, Dynamic signal	22	Input Torque	1 3	Low* Standard
11	Load Circuit	A	Non-Load Reaction	23	Fluid Type	A	See Eaton Technical Bulletin 3-401
12,13	Valve Options	01 04 05 12	Manual Steering Check Valve Inlet Check Valve, Manual Steering Check Valve Inlet Relief Valve, Manual Steering Check Valve Cylinder Relief Valve, Anti-cavitation Valve, Inlet Relief Valve, Inlet Check Valve, Manual Steering Check Valve.	24 25,26 27 28	Special Application Special Feature Paint Identification	0 AA 1 0	None None Black Primer Eaton Product Number on Nameplate
14,15	Integral Inlet Relief Valve Setting	00 18 1J 1Z 26 2G 2T 34 3W 4C	None 40 bar [580 PSI] 50 bar [725 PSI] 63 bar [914 PSI] 70 bar [1020 PSI] 80 bar [1160 PSI] 90 bar [1310 PSI] 100 bar [1450 PSI] 125 bar [1812 PSI] 140 Bar [2030 PSI]	29 30	Mechanical Interface Eaton Assigned Design Code	A B	Tapered 17.919mm (.7055in) diameter, .083:1 and serrated 175 (.688) diameter, 40 tooth, M16x1.5-6g, Extension length 65.02 (2.56) Internal involute spline 12 tooth, 16/32 DP, 30 degree PA Assigned Design Code
16,17	Cylinder Relief Setting	00	None				

* All low torque units need approval from an Eaton Steering Engineer.

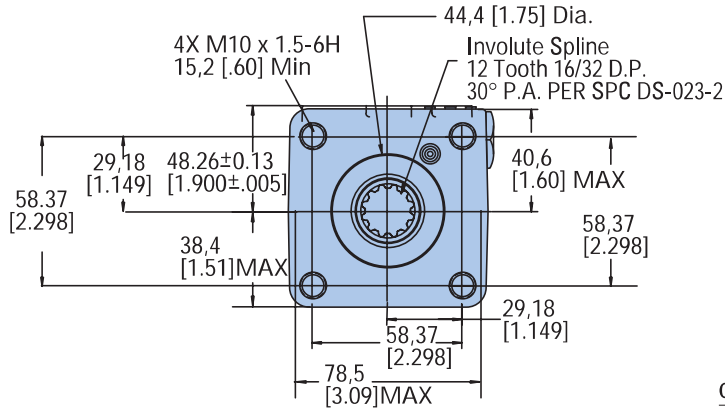
** Plug-O ports rated to 103 bar [1500PSI]

Steering Control Units—Series 5

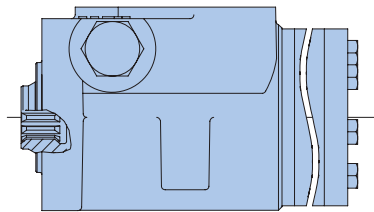
Installation Drawing

Option 1: Square Housing with Side Ports

refer to Model Code, page 23

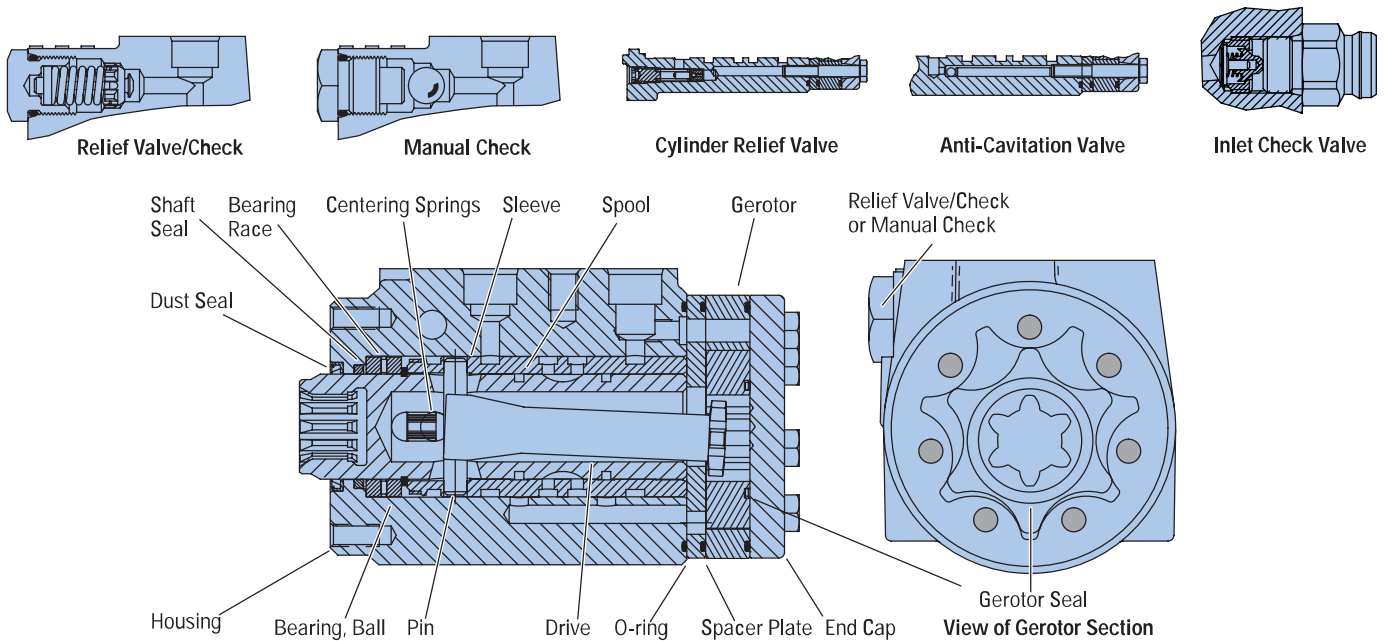


Side View



Code	Displacement cm ³ /r [in ³ /r]	Dim. A Max. mm [inch]
35	31.5 [1.92]	123.4 [4.86]
37	39.5 [2.41]	125.2 [4.93]
39	50.8 [3.10]	124.2 [4.89]
41	63.1 [3.85]	126.2 [4.97]
43	73.8 [4.50]	128.0 [5.04]
46	100.0 [6.10]	132.3 [5.21]
48	120.0 [7.33]	135.4 [5.33]

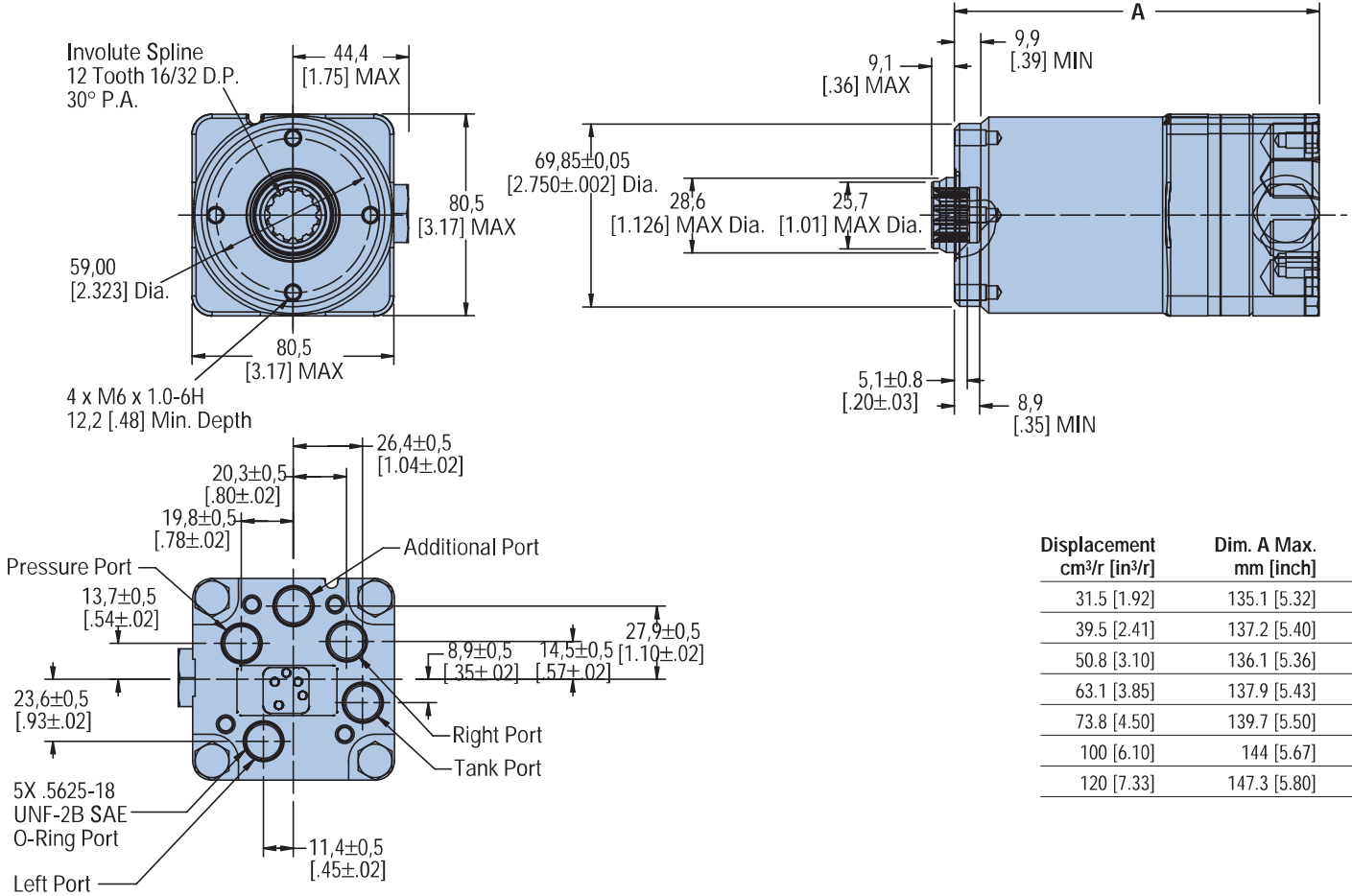
Sectional Drawing



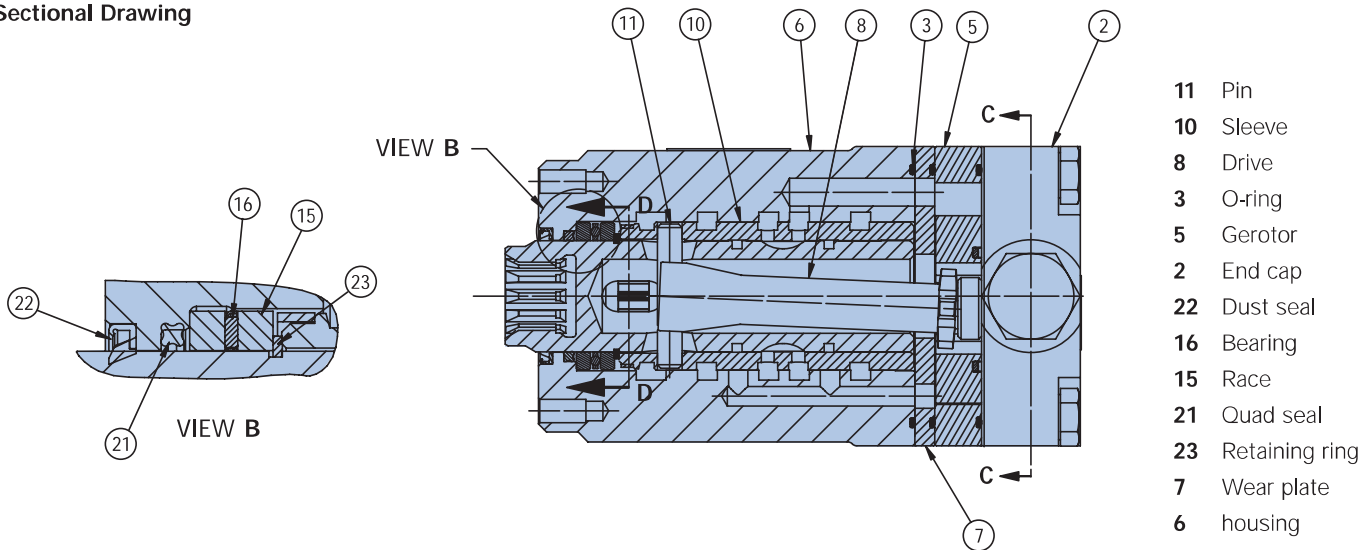
Steering Control Units—Series 5

Installation Drawing

Option 2: Round Housing with End Ports



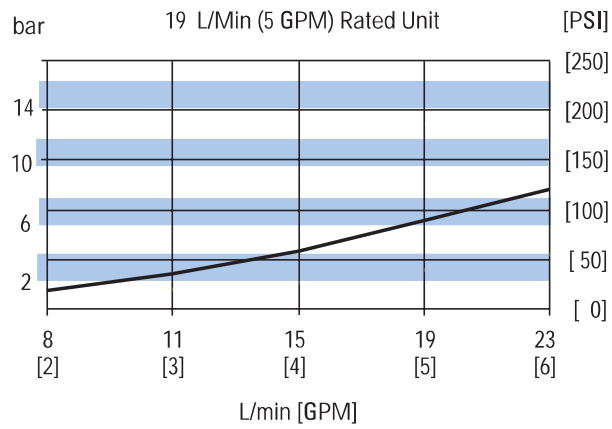
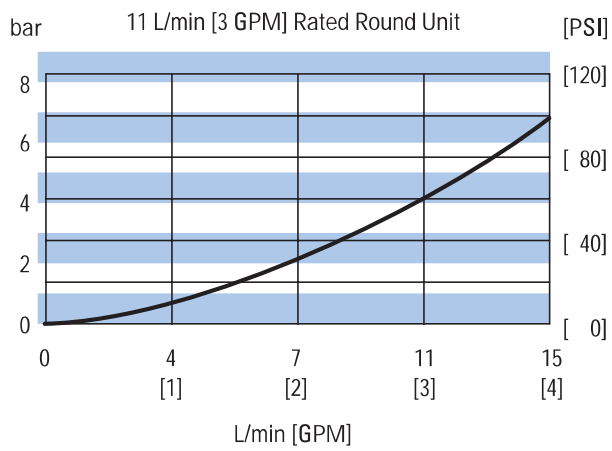
Sectional Drawing



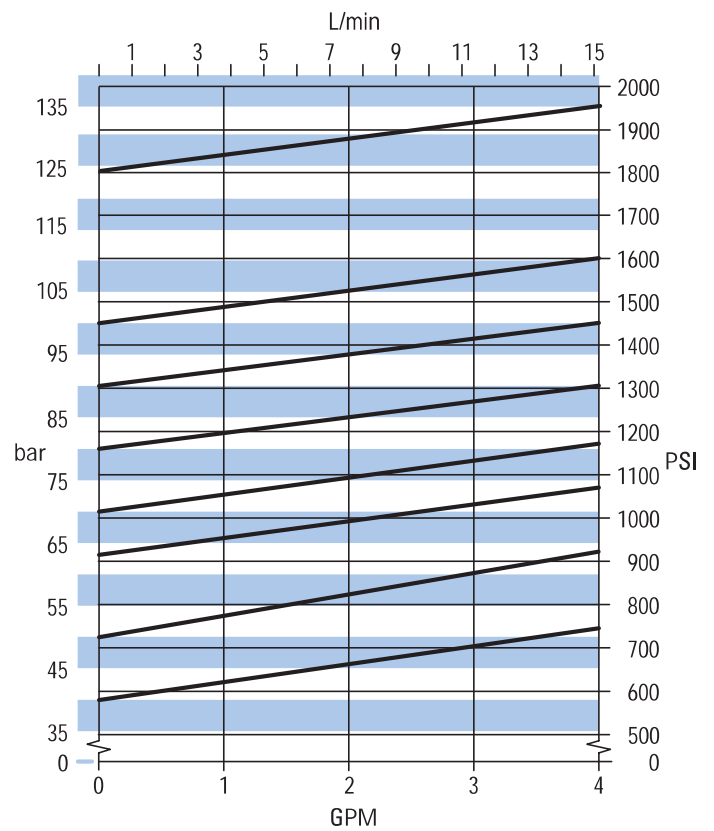
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Performance Data

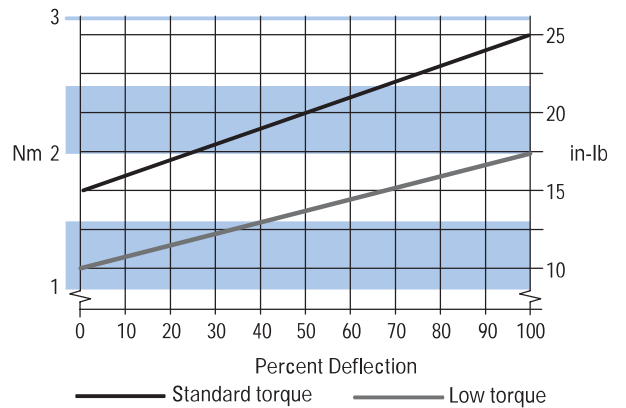
**Neutral Pressure Drop
Inlet to Auxiliary**



Relief Valve Curve



Input Torque Curve

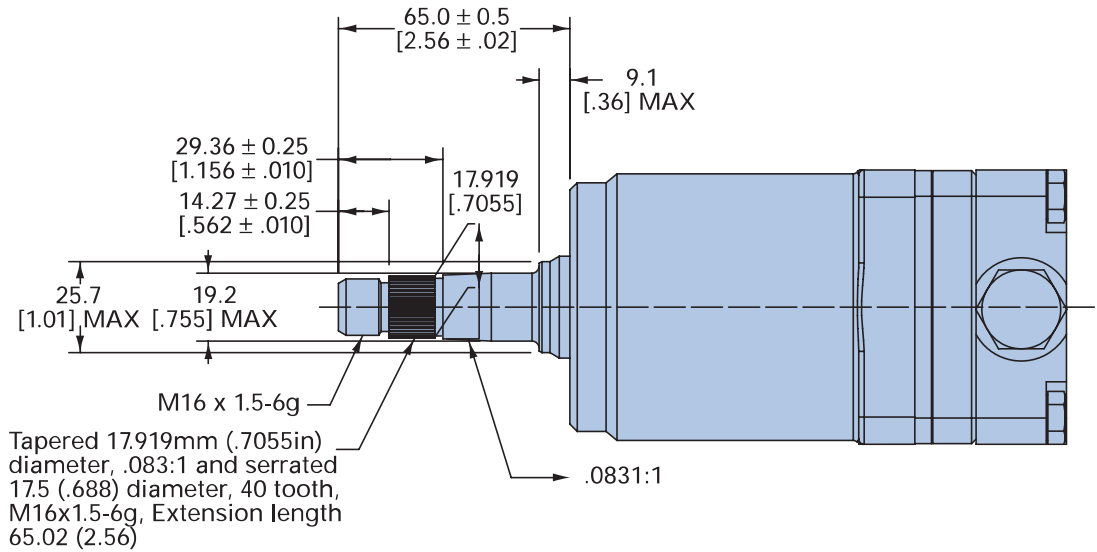


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Integral Column Option

Integral Column Option Available in Square Housing with Side Ports, and Round Housing with End Ports

40 Tooth Serrated Integral Column Option (Shown on Round Housing with End Ports)



12 Tooth Internal Spline Standard Mechanical Interface (Shown on Round Housing with End Ports)

