

Steering Control Units—Series 10

Product Description

Eaton's Series 10 Steering Control Unit (SCU) facilitates hydraulic fluid flow like no other unit on the market. This highly-engineered product is the ultimate SCU for mid-range flow applications.

Benefits

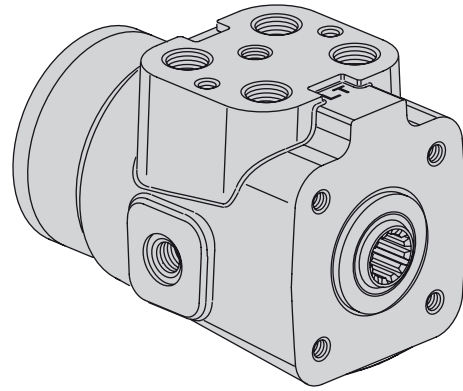
- The new Series 10 SCU has an unprecedented, continuous pressure rating of 275 bar (4000 psi), making it ideal for heavy-duty equipment, such as construction and agricultural machinery.
- Its **high-pressure rating** reduces overall equipment costs, since smaller cylinder sizes can be assigned into the system.
- The new Series 10 incorporates proven Eaton technologies. An internal, balanced architecture and a widewalled sleeve that is 40% thicker than standard designs offer **increased performance** during transient pressure conditions.

Features

- Open Center
- Power Beyond
- Closed Center
- Load Sensing
- Integral Valves
- Q-Amp
- 2-Speed
- Dual Displacement
- Versa Steer
- Wide Angle
- Cylinder Damping

Applications

- Construction Machinery
- Agriculture Machinery
- Heavy-Duty Equipment
- Marine
- Forestry Machinery
- Mining Equipment



SPECIFICATIONS

Max. System Pressure	275 bar [4000 PSI]
Max. Back Pressure	21 bar [305 PSI]
Rated Flow	
– Low	7,6 - 15 l/min [2 - 4 GPM]
– Medium	15 - 30 l/min [4 - 8 GPM]
– High	30 - 61 l/min [8 - 16 GPM]
– Low (with Q-Amp)	8 - 19 l/min [2 - 5 GPM]
– Medium (with Q-Amp)	19 - 38 l/min [5 - 10 GPM]
– High (with Q-Amp)	38 - 76 l/min [10 - 20 GPM]
Max. Differential Between Steering Unit and System Temperature	28° C [50° F]
Max. System Operating Temperature	93°C [200° F]
Input Torque Powered	1,1-2,8 Nm @ 6,9 bar back pressure [10-25 lb-in @ 100 PSI back pressure]
Non-Powered	136 Nm [100 lb-ft]
Fluid	See Eaton Technical Bulletin 3-401
Recommended Filtration	ISO 18/13 cleanliness level

PORT SIZES:

Work Ports (4)	Load Sense (LS) Port (1)*
3/4-16 (SAE)	7/16-20
M18 x 1,5 - 6H	M12 x 1,5 - 6H
G 1/2 (BSP) Straight Thread	G 1/4 (BSP) Straight Thread
STC Dash 08**	STC Dash 06**

*Top or side when applicable

**STC® Ports, Aeroquip, feature snap to connect technology

Steering Control Units—Series 10

Model Code—Ordering Information

The following 32-digit coding system has been developed to identify all of the configuration options for the Series 10 steering control units. Use this model code to specify a unit with the desired features. All 32-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	31	32
A	D	R																				A	A	A		A	A	A	1	0	A

Nos	Feature	Code	Description
1,2,3	Product Series	ADR	Series 10 Steering Control Unit
4	Unit Type	A	Standard
		B	Dual Displacement
		C	Wide Angle
		D	2-Speed
		E	2-Speed with Wide Angle
		G	Dual Displacement with Wide Angle
		V	Versa Steer, Wide Angle
5	Nominal Flow Rating	1	11 l/min [3 GPM] (Open Center)
		2	23 l/min [6 GPM] (Closed Center and LS)
		3	45 l/min [12 GPM] (OC, CC, and LS)
		4	19 l/min [5 GPM] (Q-Amp)
		5	38 l/min [10 GPM] (Q-Amp)
		6	76 l/min [20 GPM] (Q-Amp)
		7	23 l/min [6 GPM] (Open Center)
6	Inlet Pressure Rating	1	276 bar [4000 PSI]—(Load sensing and closed center)
		2	207 bar [3000 PSI]— (Open center)
7	Return Pressure Rating	A	21 bar [305 PSI] Max.— (standard rating*)
		B	10 bar [145 PSI] Max.
8-9	Displacement cm ³ /r [in ³ /r] —	01	352 [21.5] / 60 [3.6]
	Dual Displacement	02	218 [13.3] / 60 [3.6]
	Combined/Manual	03	290 [17.7] / 60 [3.6]
		04	440 [26.8] / 146 [8.9]
		05	231 [14.1] / 85 [5.2]
8-9	Displacement cm ³ /r [in ³ /r]	40	60 [3.6]
		43	75 [4.5]
		45	95 [5.9]
		48	120 [7.3]
		50	145 [8.9]
		51	160 [9.7]
		52	185 [11.3]
		54	230 [14.1]
		57	295 [17.9]
		59	370 [22.6]
		61	460 [28.2]
		64	590 [35.9]
		66	740 [45.1]

1-8 GPM

8-16 GPM

Nos	Feature	Code	Description
10	Flow Amplification**	A	None (No Q-Amp)
		B	1.6 : 1.0 Ratio†
		C	1.6 : 1.0 Ratio (with Manual Steering)†
		E	2.0 : 1.0 Ratio (with Manual Steering)†
		G	1.3 : 1.0 Ratio (with Manual Steering)†
			†Use with closed center or load sensing only.
11	Neutral Circuit	A	Open Center
		C	Closed Center
		D	Load Sensing, Static Signal
		E	Load Sensing, Dynamic Signal
		F	Open center with Power Beyond
12	Load Circuit	A	Non-Load Reaction
		B	Load Reaction (Open Center 3,8 - 30 l/min [1 - 8 GPM] Only)
13,14	Special Spool/Sleeve Modification	00	None
15,16	Valve Options		

	Manual Steering Check	Load Sensing Relief	Inlet Check Valve	Cylinder Relief Valve	Anti-Cavitation Valve	Inlet Relief Valve
01	•					
02	•		•			
03	•					•
04	•		•			•
05	•				•	
06	•		•		•	
07	•			•	•	
08	•		•	•	•	
09	•		•	•	•	•
10	•	•	•	•	•	
11	•	•	•			

* 12 GPM open center requires 145psi back pressure

** All Q-amp applications need approval from an Eaton Applications Engineer

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Steering Control Units—Series 10

Model Code— Ordering Information—Continued

Nos	Feature	Code	Description	Nos	Feature	Code	Description			
17,18	Inlet or Load Sense Relief Valve — bar [PSI]	00	None	21,22, 23,24	Ports and Mounting Threads	AAAA	4 x 3/4-16 (SAE) Ports			
		18	124 [1800]				None (No Additional Port)			
		19	131 [1900]				2 x M12 Mounting Threads			
						20	138 [2000]			Port Face
						21	145 [2100]			4 x M10 Mounting Threads
						22	152 [2200]			Mounting Face
						23	158 [2290]	AABA		4 x 3/4-16 (SAE) Ports
						24	165 [2390]			7/16-20 Load Sensing Port on Side
						25	172 [2490]			2 x M12 Mounting Threads
						26	179 [2600]			Port Face
						27	186 [2700]			4 x M10 Mounting Threads
						28	193 [2800]			Mounting Face
						29	200 [2900]	AACA		4 x 3/4-16 (SAE) Ports
						30	207 [3000]			7/16-20 Load Sensing Port
						31	214 [3100]			Face
						32	220 [3190]			2 x M12 Mounting Threads
						33	227 [3290]			Port Face
						34	234 [3390]			4 x M10 Mounting Threads
						35	241 [3500]			Mounting Face
						36	248 [3600]	BAAA		4 x M18 x 1,5 - 6H Metric
						37	255 [3700]			O-ring Ports
		38	262 [3800]		None (No Additional Port)					
		39	269 [3900]			2 x M12 Mounting Threads				
		40	276 [4000]			Port Face				
		99	136 [1970]			4 x M10 Mounting Threads				
19,20	Cylinder Relief Valve — bar [PSI] ** Cylinder Relief setting recommendation is 870 PSI (60 bar) above steering inlet/load sense pressure.	00	None			BADA	Mounting Face			
		23	158 [2290]				4 x M18 x 1,5 - 6H Metric			
		24	165 [2390]				O-ring Ports			
				25	172 [2490]			M12 x 1,5 - 6H Load Sensing Port		
				26	179 [2600]			on Side		
				27	186 [2700]			2 x M12 Mounting Threads		
				28	193 [2800]			Port Face		
				29	200 [2900]			4 x M10 Mounting Threads		
				30	207 [3000]			Mounting Face		
				31	214 [3100]	BAEA		4 x M18 x 1,5 - 6H Metric		
				32	220 [3190]			O-ring Ports		
				33	227 [3290]			M12 x 1,5 - 6H Load Sensing		
				34	234 [3390]			Port Face		
				35	241 [3500]			2 x M12 Mounting Threads		
				36	248 [3600]			Port Face		
				37	255 [3700]			4 x M10 Mounting Threads		
				38	262 [3800]			Mounting Face		
				39	269 [3900]	CAAA		4 x G 1/2 (BSP) Straight Thread		
				40	276 [4000]			Ports		
				41	283 [4100]			None (No Additional Port)		
				42	289 [4190]			2 x M12 Mounting Threads		
		43	296 [4290]			Port Face				
		44	303 [4390]			4 x M10 Mounting Threads				
		45	310 [4500]			Mounting Face				
		46	317 [4600]							
		47	324 [4700]							
		48	331 [4800]							
		49	338 [4900]							

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Steering Control Units—Series 10

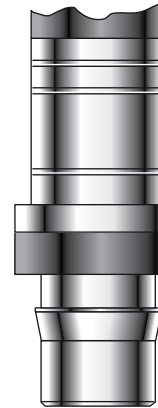
Model Code—Ordering Information—Continued

Nos	Feature	Code	Description
21,22,	Ports and Mounting Threads (continued)	CAFA	4 x G 1/2 (BSP) Straight Thread Ports G 1/4 (BSP) LS Straight Thread Port on Side 2 x M12 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		CAGA	4 x G 1/2 (BSP) Straight Thread Ports G 1/4 (BSP) LS Straight Thread Port on Port Face 2 x M12 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		DAAA	Dash 08 STC® Ports *** None (No Additional Port) 2 x M10 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		DAHA	Dash 08 STC® Ports *** Dash 06 STC® Port on Side 2 x M10 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		DAJA	Dash 08 STC® Ports *** Dash 06 STC® Port Face 2 x M10 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
25	Mechanical Interface	A	Internal Involute Spline, 12 Tooth 16/32 DP 30° PA
26	Input Torque	3	Standard
27	Fluid Type	A	See Eaton Technical Bulletin 3-401
28,29	Special Features	AA	None
30	Paints and Packaging	1	Black Primer
31	Identification	0	Eaton Product Number on Nameplate
32	Eaton Assigned Design Code	B	Assigned Design Code

*** STC with inlet check requires threaded adapter. Contact your Eaton Account Representative for assistance.

STC®—Aeroquip

STC Hose/Connector

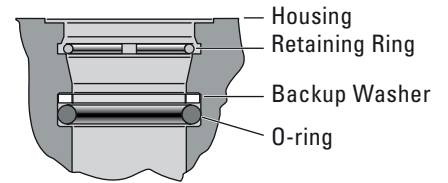


Release Sleeve

Dash 08 Port Face (4)

Dash 06 LS Port Side (1)

STC Port



Housing
Retaining Ring
Backup Washer
O-ring

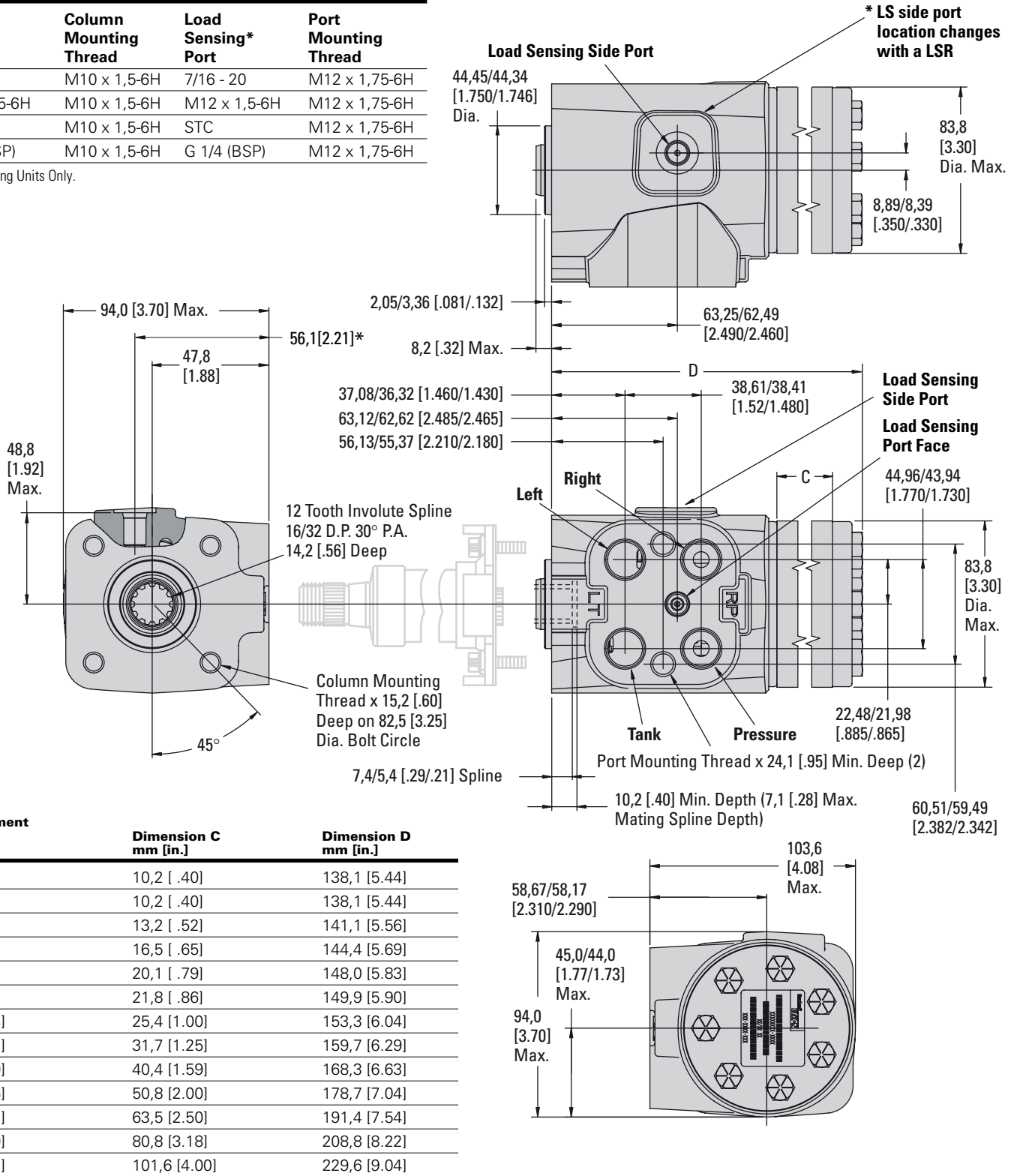
Steering Control Units—Series 10

Installation Drawing

PORT AND MOUNTING THREAD COMBINATIONS

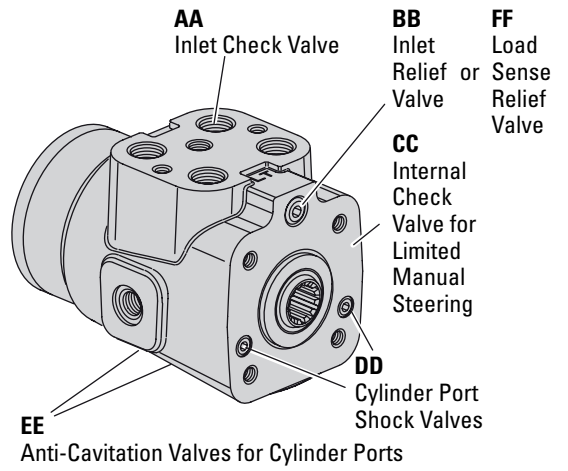
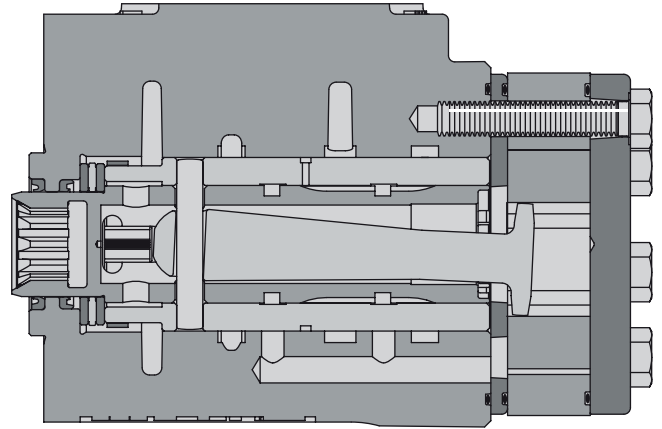
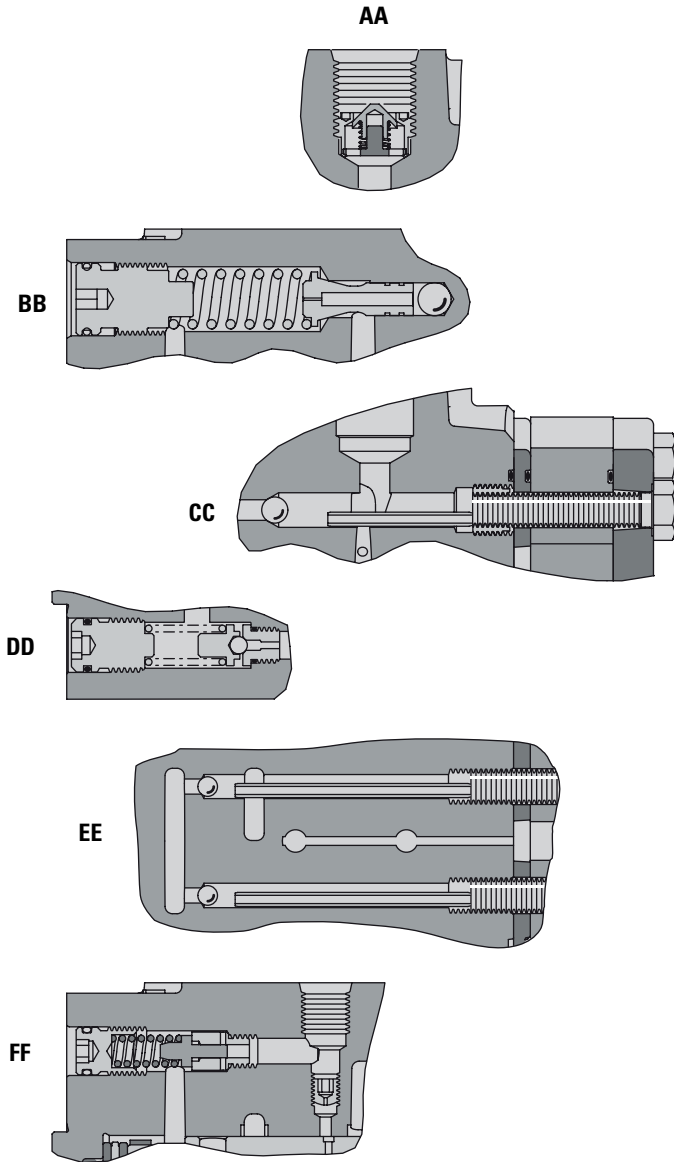
Port	Column Mounting Thread	Load Sensing* Port	Port Mounting Thread
3/4 -16	M10 x 1,5-6H	7/16 - 20	M12 x 1,75-6H
M18 x 1,5-6H	M10 x 1,5-6H	M12 x 1,5-6H	M12 x 1,75-6H
STC	M10 x 1,5-6H	STC	M12 x 1,75-6H
G 1/2 (BSP)	M10 x 1,5-6H	G 1/4 (BSP)	M12 x 1,75-6H

*Load Sensing Units Only.



Steering Control Units—Series 10

Sectional Drawing and Integral Valves

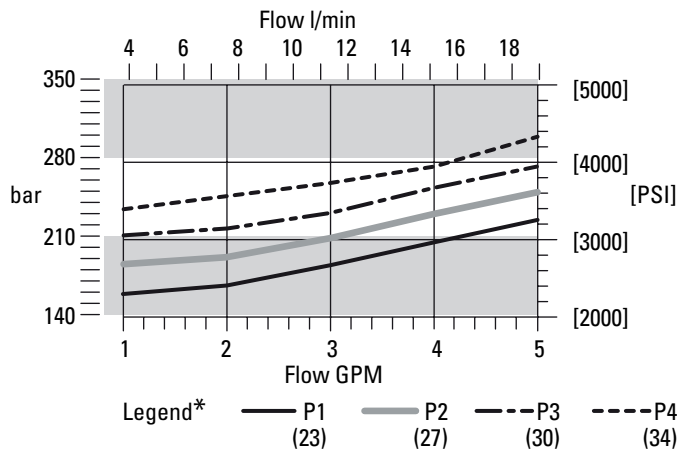


Steering Control Units—Series 10

Performance Data

Cylinder Relief Valve

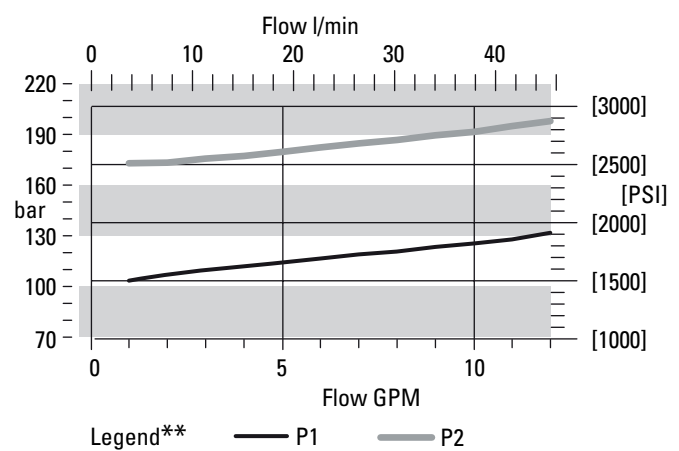
Pressure Drop versus Flow



*The examples above are 4 of 27 pressure settings shown in model code page 30 Position 19, 20

Inlet Relief Valve

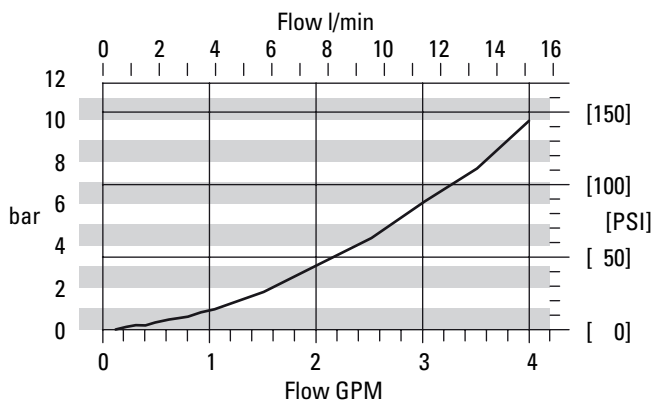
Pressure Drop versus Flow



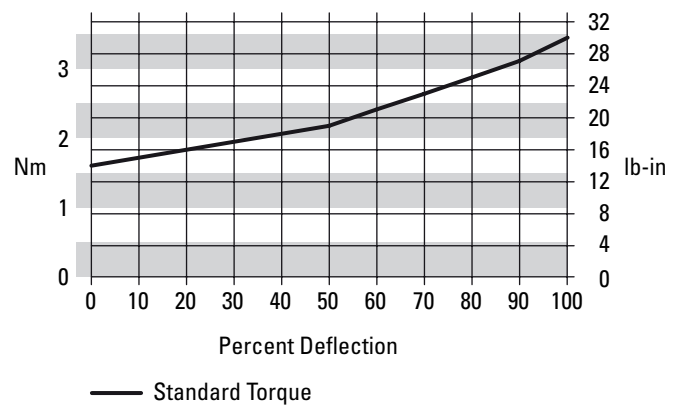
**The examples above are 2 of 24 pressure settings shown in model code page 30 Position 17, 18

Anti-Cavitation Valve

Pressure Drop versus Flow



Input Torque



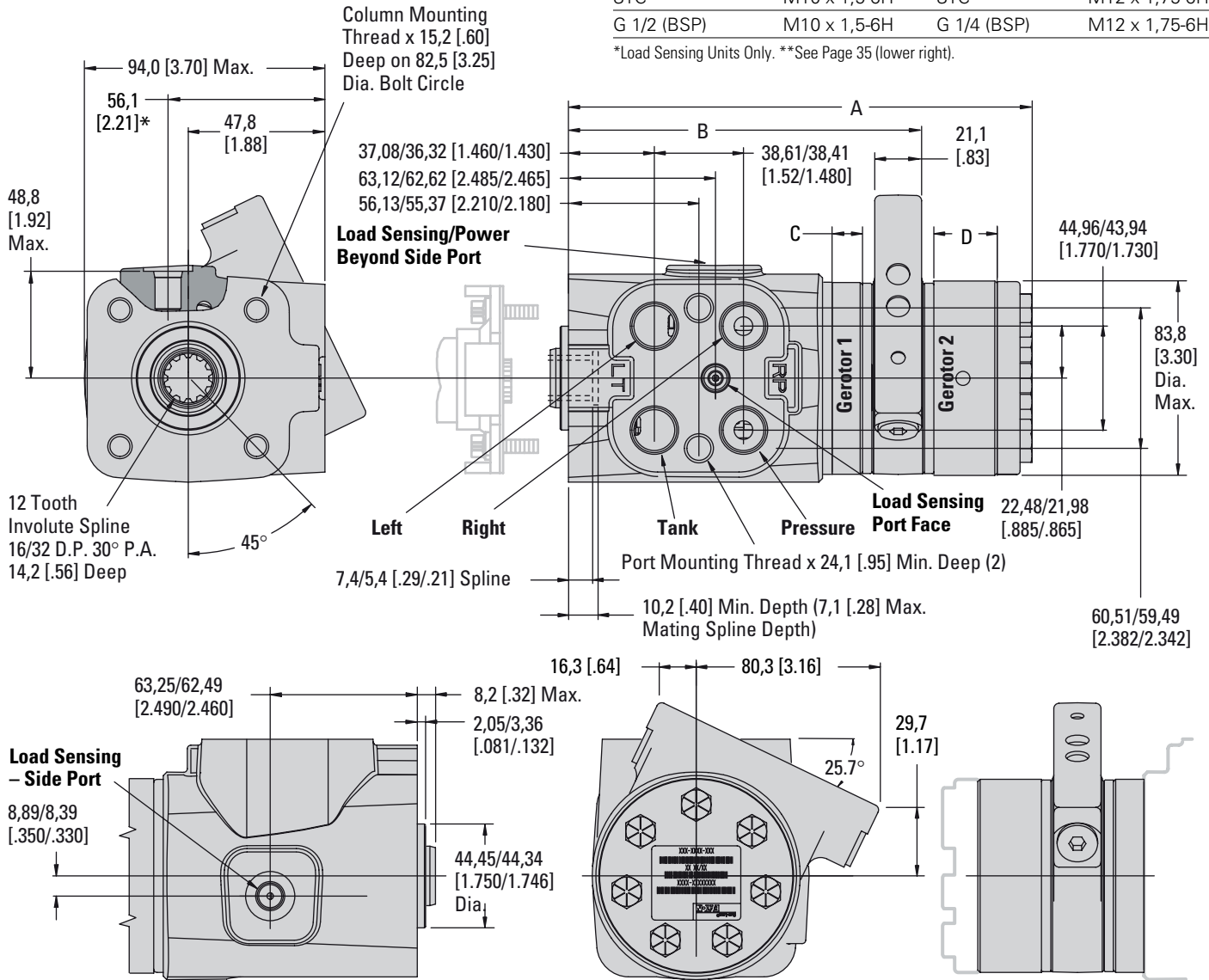
Steering Control Units— Series 10 Dual Displacement

Installation Drawing

PORT AND MOUNTING THREAD COMBINATIONS

Port	Column Mounting Thread	Load Sensing* Port	Port Mounting Thread
3/4 -16	M10 x 1,5-6H	7/16 - 20	M12 x 1,75-6H
M18 x 1,5-6H	M10 x 1,5-6H	M12 x 1,5-6H	M12 x 1,75-6H
STC**	M10 x 1,5-6H	STC**	M12 x 1,75-6H
G 1/2 (BSP)	M10 x 1,5-6H	G 1/4 (BSP)	M12 x 1,75-6H

*Load Sensing Units Only. **See Page 35 (lower right).



Powered Displacement cm ³ /r [in ³ /r] Gerotor 1 and 2	Dimension B mm [in.]	Dimension A mm [in.]
156 [9.5]	146,5 [5.77]	182,9 [7.20]
179 [10.9]	146,5 [5.77]	186,2 [7.33]
205 [12.5]	146,5 [5.77]	189,7 [7.47]
218 [13.3]	146,5 [5.77]	191,5 [7.54]
244 [14.9]	146,5 [5.77]	195,1 [7.68]

Manual Displacement cm ³ /r [in ³ /r] Gerotor 1	Dimension C mm [in.]
60 [3.6]	10,2 [.40]
60 [3.6]	10,2 [.40]
60 [3.6]	10,2 [.40]
60 [3.6]	10,2 [.40]
60 [3.6]	10,2 [.40]

Manual Displacement cm ³ /r [in ³ /r] Gerotor 2	Dimension C mm [in.]
95 [5.9]	13,2 [.52]
120 [7.3]	16,5 [.65]
145 [8.9]	20,0 [.79]
160 [9.7]	21,8 [.86]
185 [11.3]	25,4 [1.00]