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

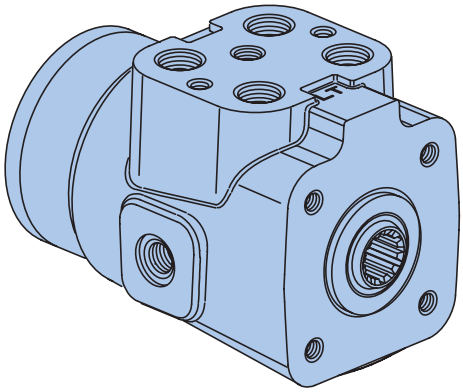
- The new Series 10 SCU has an unprecedented, continuous pressure rating of 275 bar (4000 psi), making it ideal for heavy-duty equipment, such as construction and agricultural machinery.
- Its **high-pressure rating** reduces overall equipment costs, since smaller cylinder sizes can be assigned into the system.
- The new Series 10 incorporates proven Eaton technologies. An internal, balanced architecture and a wide-walled 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 patented, 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 cm3/r [in3/r] — Dual Displacement Combined/Manual	01	352 [21.5] / 60 [3.6]
		02	218 [13.3] / 60 [3.6]
		03	290 [17.7] / 60 [3.6]
		04	440 [26.8] / 146 [8.9]
		05	231 [14.1] / 85 [5.2]
8-9	Displacement cm3/r [in3/r]	40	60 [3.6] — 1-8 GPM
		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] — 8-16 GPM
		61	460 [28.2]
		64	590 [35.9]
		66	740 [45.1]

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
		D	Non-Load Reaction, Cylinder Damped
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

Continued on next page

Steering Control Units—Series 10

Model Code—Ordering Information—Continued

Nos	Feature	Code	Description
17,18	Inlet or Load Sense Relief Valve — bar [PSI]	00	None
		18	124 [1800]
		19	131 [1900]
		20	138 [2000]
		21	145 [2100]
		22	152 [2200]
		23	158 [2290]
		24	165 [2390]
		25	172 [2490]
		26	179 [2600]
		27	186 [2700]
		28	193 [2800]
		29	200 [2900]
		30	207 [3000]
		31	214 [3100]
		32	220 [3190]
		33	227 [3290]
		34	234 [3390]
		35	241 [3500]
		36	248 [3600]
		37	255 [3700]
		38	262 [3800]
		39	269 [3900]
		40	276 [4000]
		99	136 [1970]
19,20	Cylinder Relief Valve — bar [PSI] ** Cylinder Relief setting recommendation is 870 PSI (60 bar) above steering inlet/load sense pressure.	00	None
		23	158 [2290]
		24	165 [2390]
		25	172 [2490]
		26	179 [2600]
		27	186 [2700]
		28	193 [2800]
		29	200 [2900]
		30	207 [3000]
		31	214 [3100]
		32	220 [3190]
		33	227 [3290]
		34	234 [3390]]
		35	241 [3500]
		36	248 [3600]
		37	255 [3700]
		38	262 [3800]
		39	269 [3900]
		40	276 [4000]
		41	283 [4100]
		42	289 [4190]
		43	296 [4290]
		44	303 [4390
		45	310 [4500]
		46	317 [4600]
		47	324 [4700]
		48	331 [4800]
		49	338 [4900]

Nos	Feature	Code	Description
21,22,23,24	Ports and Mounting Threads	AAAA	4 x 3/4-16 (SAE) Ports None (No Additional Port) 2 x M12 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		AABA	4 x 3/4-16 (SAE) Ports 7/16-20 Load Sensing Port on Side 2 x M12 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		AACA	4 x 3/4-16 (SAE) Ports 7/16-20 Load Sensing Port Port Face 2 x M12 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		BAAA	4 x M18 x 1,5 - 6H Metric O-ring Ports None (No Additional Port) 2 x M12 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		BADA	4 x M18 x 1,5 - 6H Metric O-ring Ports M12 x 1,5 - 6H Load Sensing Port on Side 2 x M12 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		BAEA	4 x M18 x 1,5 - 6H Metric O-ring Ports M12 x 1,5 - 6H Load Sensing Port Port Face 2 x M12 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face
		CAAA	4 x G 1/2 (BSP) Straight Thread Ports None (No Additional Port) 2 x M12 Mounting Threads Port Face 4 x M10 Mounting Threads Mounting Face

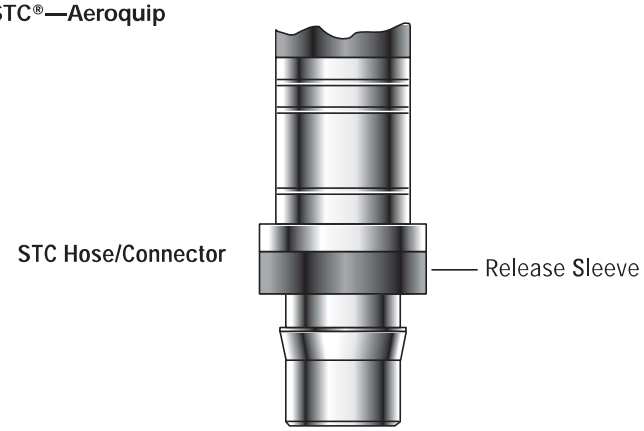
Continued on next page

Steering Control Units—Series 10

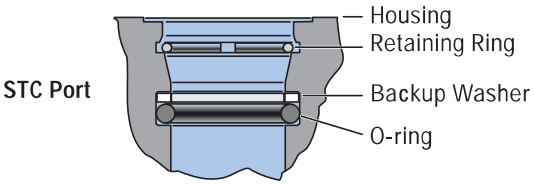
Model Code—Ordering Information—Continued

Nos	Feature	Code	Description
21,22,23,24	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®—Aeroquip



Dash 08 Port Face (4)
Dash 06 LS Port Side (1)



Patent numbers: 5,553,895
5,226,682
5,570,910

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

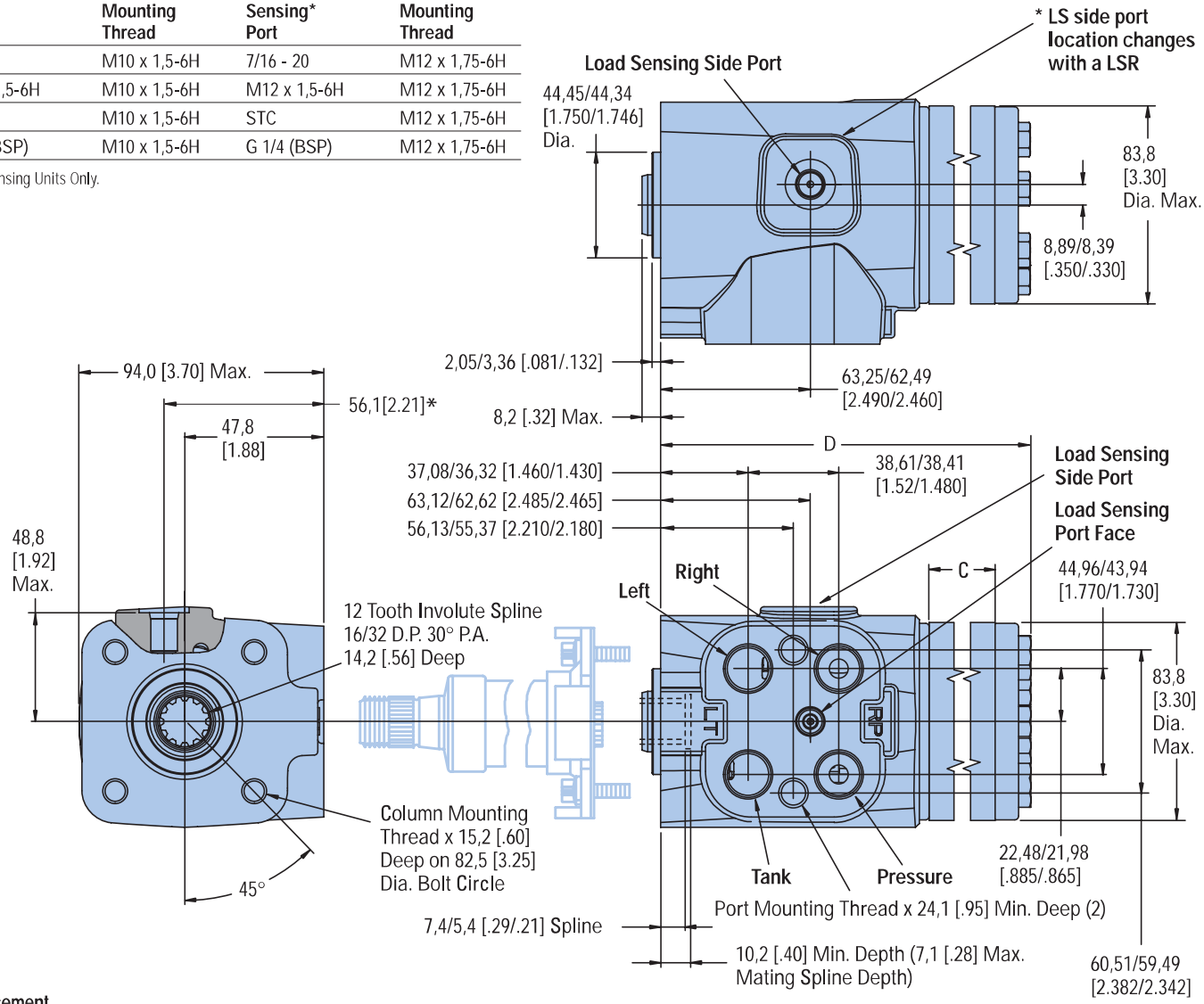
Steering Control Units—Series 10

Installation Drawing

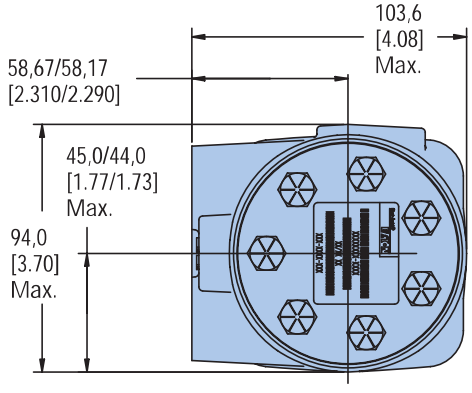
PORT AND MOUNTING THREAD COMBINATIONS

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.

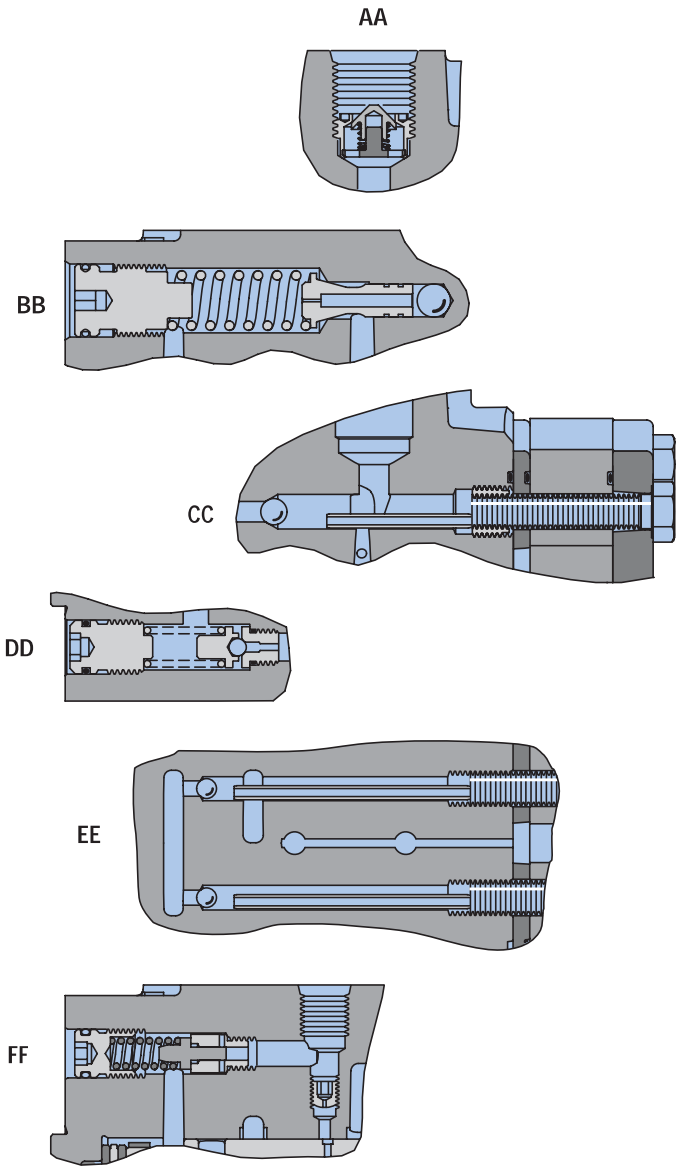


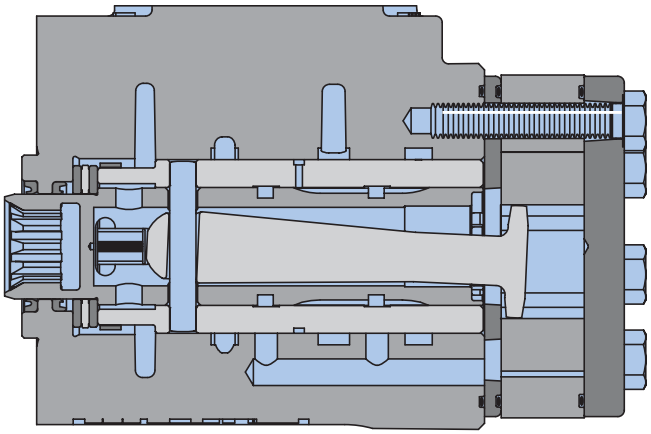
Displacement cm³/r [in³/r]	Dimension C mm [in.]	Dimension D mm [in.]
60 [3.6]	10,2 [.40]	138,1 [5.44]
75 [4.5]	10,2 [.40]	138,1 [5.44]
95 [5.9]	13,2 [.52]	141,1 [5.56]
120 [7.3]	16,5 [.65]	144,4 [5.69]
146 [8.9]	20,1 [.79]	148,0 [5.83]
159 [9.7]	21,8 [.86]	149,9 [5.90]
185 [11.3]	25,4 [1.00]	153,3 [6.04]
231 [14.1]	31,7 [1.25]	159,7 [6.29]
293 [17.9]	40,4 [1.59]	168,3 [6.63]
370 [22.6]	50,8 [2.00]	178,7 [7.04]
462 [28.2]	63,5 [2.50]	191,4 [7.54]
588 [35.9]	80,8 [3.18]	208,8 [8.22]
739 [45.1]	101,6 [4.00]	229,6 [9.04]

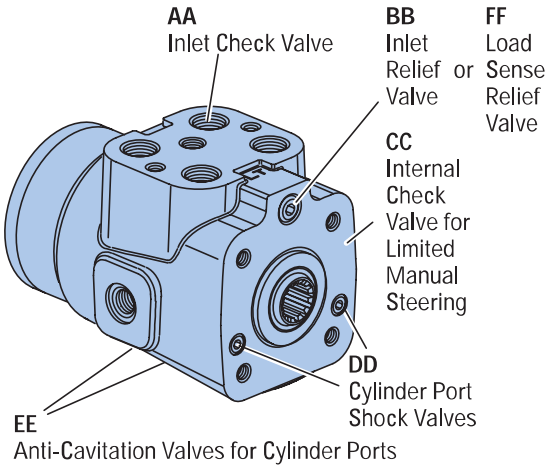


Steering Control Units—Series 10

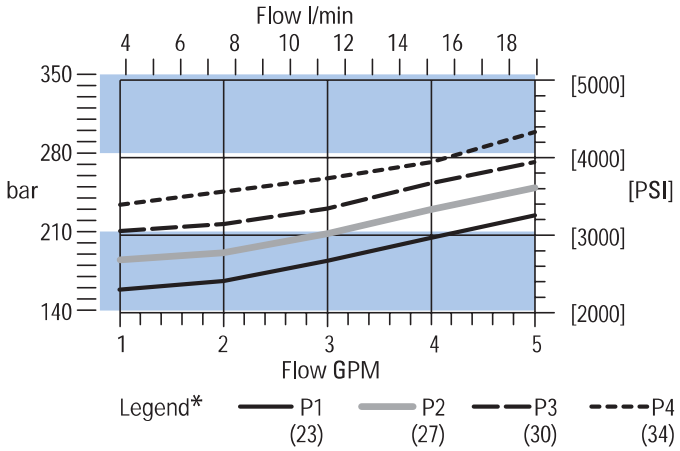
Sectional Drawing and Integral Valves





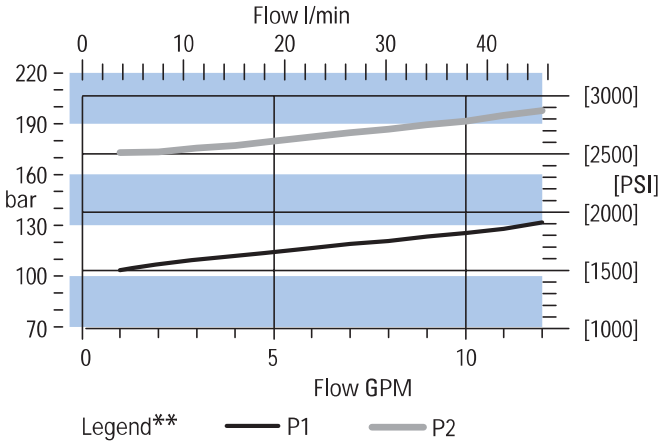


Cylinder Relief Valve
Pressure Drop versus Flow



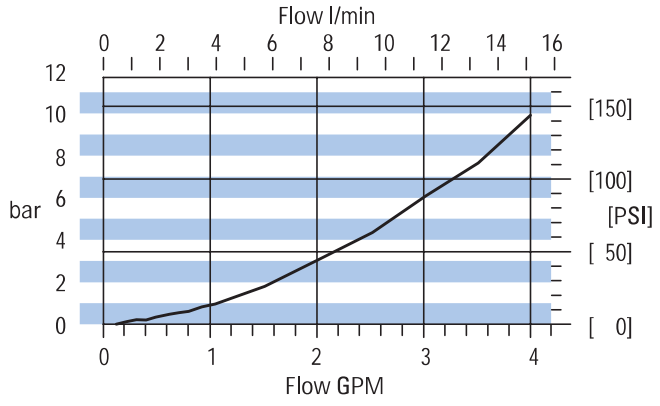
*The examples above are 4 of 27 pressure settings shown in model code page 30 Position 19, 20

Inlet Relief Valve
Pressure Drop versus Flow

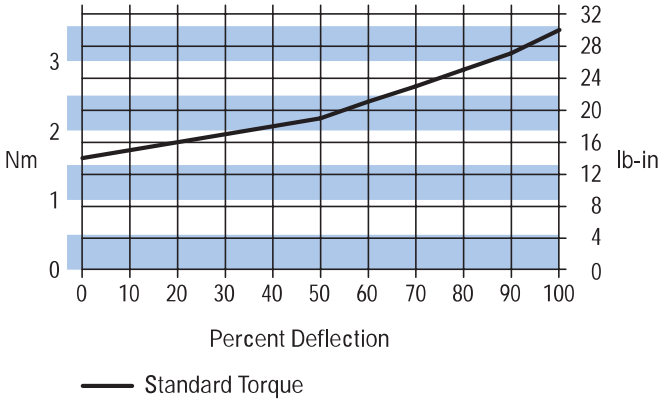


**The examples above are 2 of 24 pressure settings shown in model code page 30 Position 17, 18

Anti-Cavitation Valve
Pressure Drop versus Flow



Input Torque



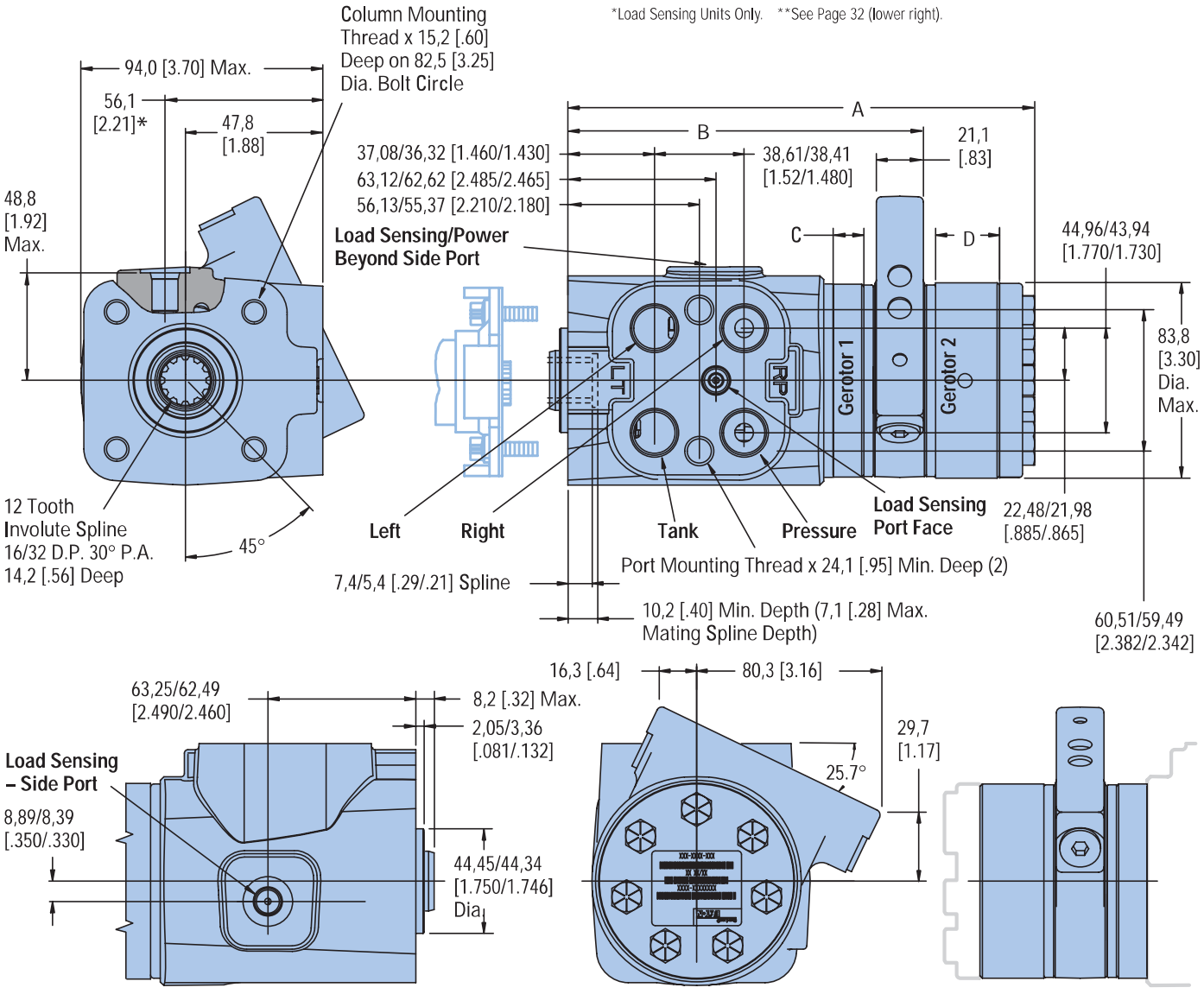
Steering Control Units— Series 10 Dual Displacement

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 32 (lower right).



Powered Displacement cm³/r [in³/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 cm³/r [in³/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]

Displacement cm³/r [in³/r] Gerotor 2	Dimension D 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]