Steering Control Units—Series 20

Product Description

The Series 20 steering control unit continues Eaton's tradition of innovative design and high quality that began with the first fluid linked power steering system.

You can count on this steering unit to provide the same smooth, predictable steering as the Char-Lynn steering units that provide dependable, trouble-free steering on applications around the world.

- Provides much **smoother steering** function by minimizing jerky motion on articulated vehicles.
- Jerk-reducing valves and accumulators can be eliminated on most vehicles, providing customer savings through fewer components required and **reduced system cost.**
- **Symmetrical valving** provides passageways and valving that are equally placed, and pressure areas that are staged for minimum internal leakage. This results in balance, precise servo response and uniform left or right steering action.
- Eaton's **high capacity gerotor** provides ample fluid displacement from an even more compact unit than was previously offered.
- A **thicker sleeve design** provides stability, especially during pressure and thermal transient conditions.
- The seal and centering spring designs provide **positive, low-effort steering** feel to ensure excellent vehicle control, an important feature for the vehicles for which these steering control units were designed.

Features

- Load Sensing
- Integral Valves
- Q-Amp
- Wide Angle
- Versa Steer
- Cylinder Damping

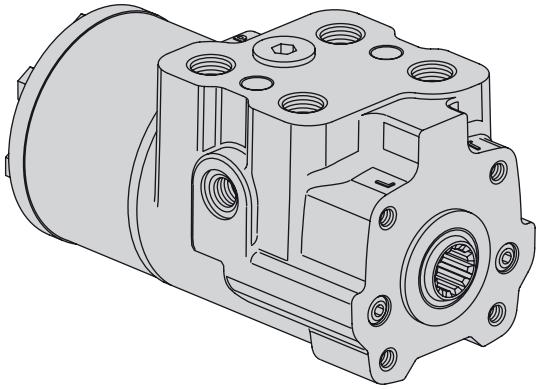
Applications

Articulated Vehicles

- Loaders
- Scrapers
- Skidders
- AG Tractors
- Dumpers
- Sprayers
- Forestry Equipment

Rigid Frame Vehicles

- Front End Loaders
- Large Graders
- Mining Trucks
- Transporters
- AG Tractors



SPECIFICATIONS

Max. System Pressure	241 bar [3500 PSI]
Max. Back Pressure	10 bar [145 PSI]
Rated Flow	95 l/min [25 GPM]
Max. Flow	125 l/min [33 GPM]
Max. Differential Between Steering Unit and System Temperature	28° C 50° F
Max. System Operating Temperature	93°C [200° F]
Input Torque Powered Non-Powered	 1,1-2,8 Nm @ 6,9 bar back pressure [10-25 lb-in @ 100 PSI back pressure] 136 Nm [100 lb-ft]
Fluid	See Eaton Technical Bulletin 3-401
Recommended Filtration	ISO 18/13 cleanliness level

Steering Control Units—Series 20

Model Code – Ordering Information

The following 29-digit coding system has been developed to identify all of the configuration options for the Series 20 steering control units. Use this model code to specify a unit with the desired features. All 29-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
A	**C**	**C**		**6**	**A**				**F**											**N**		**A**		**A**	**A**	**1**	**0**	**C**

Nos	Feature	Code	Description
1,2,3	Product Series	ACC	Series 20 Steering Control Unit
4	Nominal Flow Rating	4	38 l/min [10 GPM] (Q-Amp)
		6	76 l/min [20 GPM] (Q-Amp)
		7	95 l/min [25 GPM] (Non-Q-Amp)
		A	114 l/min [30 GPM] (Q-Amp)
5	Inlet Pressure Rating	6	241 bar [3500 PSI]
6	Return Pressure Rating	A	10 bar [145 PSI] Maximum
7-8	Displacement cm3/r [in3/r]	40	60 [3.6] — Use with 38 l/min [10 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] — Use with 76 l/min [20 GPM]
		54	230 [14.1]
		57	295 [17.9]
		59	370 [22.6]
		61	460 [28.2]
		64	590 [35.9] — Use with 114 l/min [30 GPM]
		66	740 [45.1]
		69	985 [60.0]
9	Flow Amplification	0	No Q-Amp
		1	1.6 : 1.0 Ratio (Actual Displ. 185 to 985 cm3/r [11.3 to 60.0 in3/r])
		3	2.0 : 1.0 Ratio (Actual Displ. 60 to 370 cm3/r [3.6 to 22.6 in3/r])
10	Neutral Circuit	F	Load Sensing, Dynamic Signal
11	Load Circuit	A	Non-Load Reaction
		D	Non-Load Reaction, Cylinder Damped

Nos	Feature	Code	Description
12,13	Valve Options*		

	Manual** Steering Check	Load Sensing Relief	Inlet** Check Valve	Cylinder Relief Valve	Anti-Cavitation Valve
00					
01	•				
02					•
09	•			•	•
10	•		•	•	•
13	•	•	•	•	•
21				•	•
24			•	•	•
40		•	•	•	•

*Not all valve options will work with all unit combinations

**76 l/min [20 GPM] Max.

14,15	Load Sensing Relief Valve Setting	00	None
		4N	150 bar [2180 PSI]
		50	160 bar [2320 PSI]
		5A	170 bar [2470 PSI]
		5L	180 bar [2610 PSI]
		5Y	190 bar [2760 PSI]
		68	200 bar [2900 PSI]
		6J	210 bar [3050 PSI]
		6V	220 bar [3190 PSI]
		76	230 bar [3340 PSI]
		7G	240 bar [3480 PSI]

Steering Control Units—Series 20

Model Code—Ordering Information—Continued

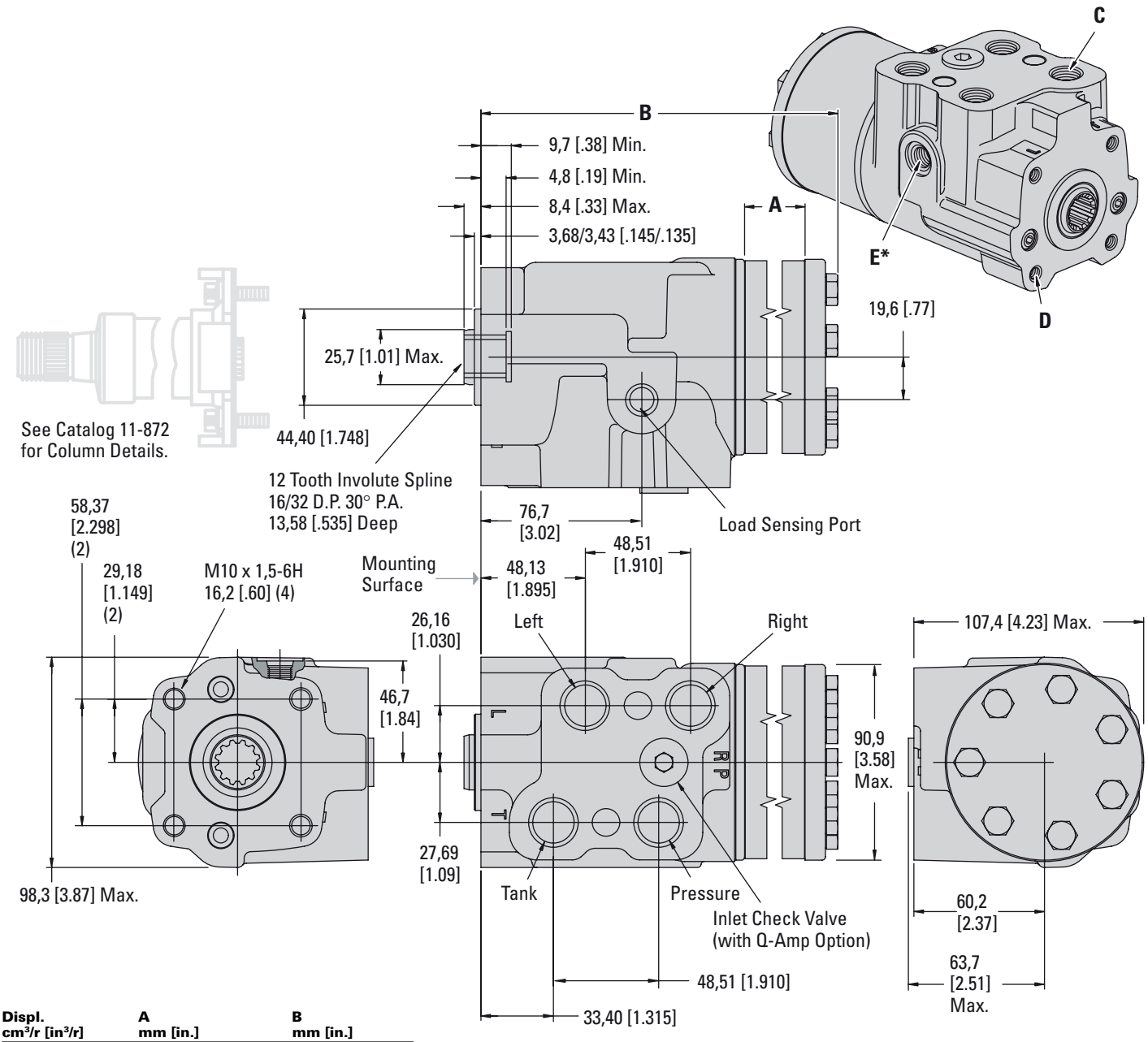
Nos	Feature	Code	Description
16,17	Cylinder Relief Valve Setting **Cylinder Relief Setting recommendation is 870 PSI (60 bar) above steering inlet/load sense pressure.	00 6J 6V 76	None 210 bar [3050 PSI] 220 bar [3190 PSI] 230 bar [3340 PSI] 7G 240 bar [3480 PSI] 7T 250 bar [3630 PSI] 84 260 bar [3770 PSI] 8E 270 bar [3920 PSI] 8R 280 bar [4060 PSI] 92 290 bar [4210 PSI] 9C 300 bar [4350 PSI]
18,19, 20,21	Ports and Mounting Threads	AABN	4 x G 1/2 (BSP) Ports with G 1/4 (BSP) Load Sensing Port on Side, M10 Mounting Threads
		DACN	4 x 3/4 (SAE) Ports with 7/16 (SAE) Load Sensing Port on Side, M10 Mounting Threads
		FAFN	4 x M18 (Metric) Ports with M12 (Metric) Load Sensing Port on Side, M10 Mounting Threads
		FBFN	4 x M18 (Metric) Ports with M14 (Metric) Load Sensing Port on Side, M10 Mounting Threads
		RACN*	4 x 7/8 (SAE) Ports with 7/16 (SAE) Load Sensing Port on Side, M10 Mounting Threads
		SAFN*	4 x M22 (Metric) Ports with M12 (Metric) Load Sensing Port on Side, M10 Mounting Threads
		SBFN*	4 x M22 (Metric) Ports with M14 (Metric) Load Sensing Port on Side, M10 Mounting Threads
18,19, 20,21	Ports and Mounting Threads (Load Sensing Relief Only)	DADN	4 x 3/4 (SAE) Ports with 7/16 (SAE) Load Sensing Port on Port Face, M10 Mounting Threads
		AAWN	4 x G 1/2 (BSP) Ports with G 1/4 (BSP) Load Sensing Port on Port Face, M10 Mounting Threads
		RADN*	4 x 7/8 (SAE) Ports with 7/16 (SAE) Load Sensing Port on Port Face, M10 Mounting Threads
		FAVN	4 x M18 (Metric) Ports with M12 (Metric) Load Sensing Port on Port Face, M10 Mounting Threads
		SAVN*	4 x M22 (Metric) Ports with M12 (Metric) Load Sensing Port on Port Face, M10 Mounting Threads

*Use with 114 l/min [30 GPM]

Nos	Feature	Code	Description
22	Input Torque	1	Low
		3	Standard (Includes Stiffer Springs)
23	Fluid Type	A	See Eaton Technical Bulletin 3-401
24	Special Application Options	1 V	Wide Angle Deflection Versa Steer, Wide Angle.
25,26	Special Features	AA	None
27	Paints and Packaging	1	Black Paint
28	Identification	0	Eaton Product Number on Nameplate
29	Eaton Assigned Design Code	C	Assigned Design Code

Steering Control Units—Series 20

Installation Drawing



Displ. cm³/r [in³/r]	A mm [in.]	B mm [in.]
60 [3.6]	6,1 [.24]	143,3 [5.64]
75 [4.5]	7,9 [.31]	145,0 [5.71]
95 [5.9]	10,2 [.40]	147,3 [5.80]
120 [7.3]	12,7 [.50]	149,9 [5.90]
145 [8.9]	15,5 [.61]	152,7 [6.01]
160 [9.7]	16,8 [.66]	153,9 [6.06]
185 [11.3]	19,6 [.77]	156,7 [6.17]
230 [14.1]	24,4 [.96]	161,5 [6.36]
295 [17.9]	31,0 [1.22]	168,1 [6.62]
370 [22.6]	39,1 [1.54]	176,3 [6.94]
460 [28.2]	48,8 [1.92]	185,9 [7.32]
590 [35.9]	62,2 [2.45]	199,3 [7.85]
740 [45.1]	78,2 [3.08]	215,3 [8.48]
985 [60.0]	103,9 [4.09]	241,0 [9.49]

PORT AND MOUNTING THREAD COMBINATIONS

C	D	E*
3/4–16 UNF 2B**	M10 x 1,5–6H	7/16–20 UNF 2B**
G 1/2***	M10 x 1,5–6H	G 1/4***
M18 x 1,5–6H	M10 x 1,5–6H	M12 x 1,5–6H, M14
M22 x 1,5–6H	M10 x 1,5–6H	M12 x 1,5–6H, M14

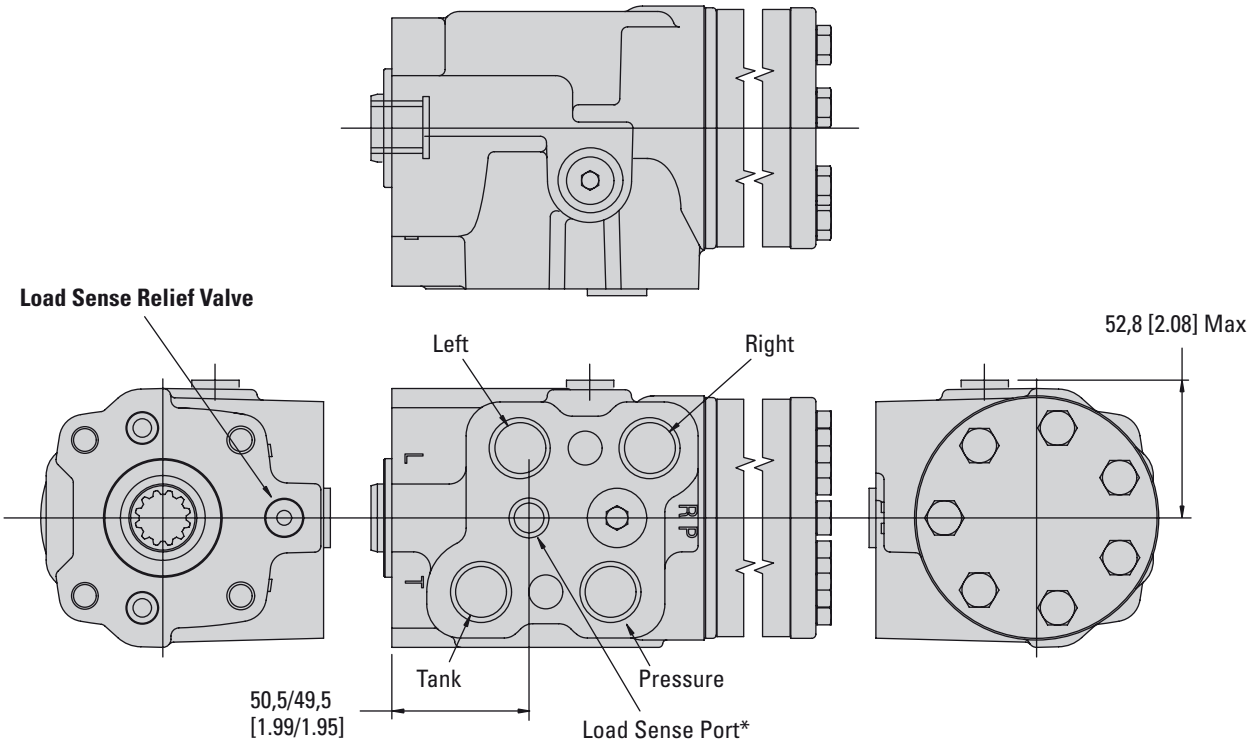
*Load sensing port option—on side (load sense relief port face only - see page 44).

**SAE O-ring Port Port

***BSP Straight Thread Port

Steering Control Units—Series 20

Installation Drawing (Load Sense Relief Option)



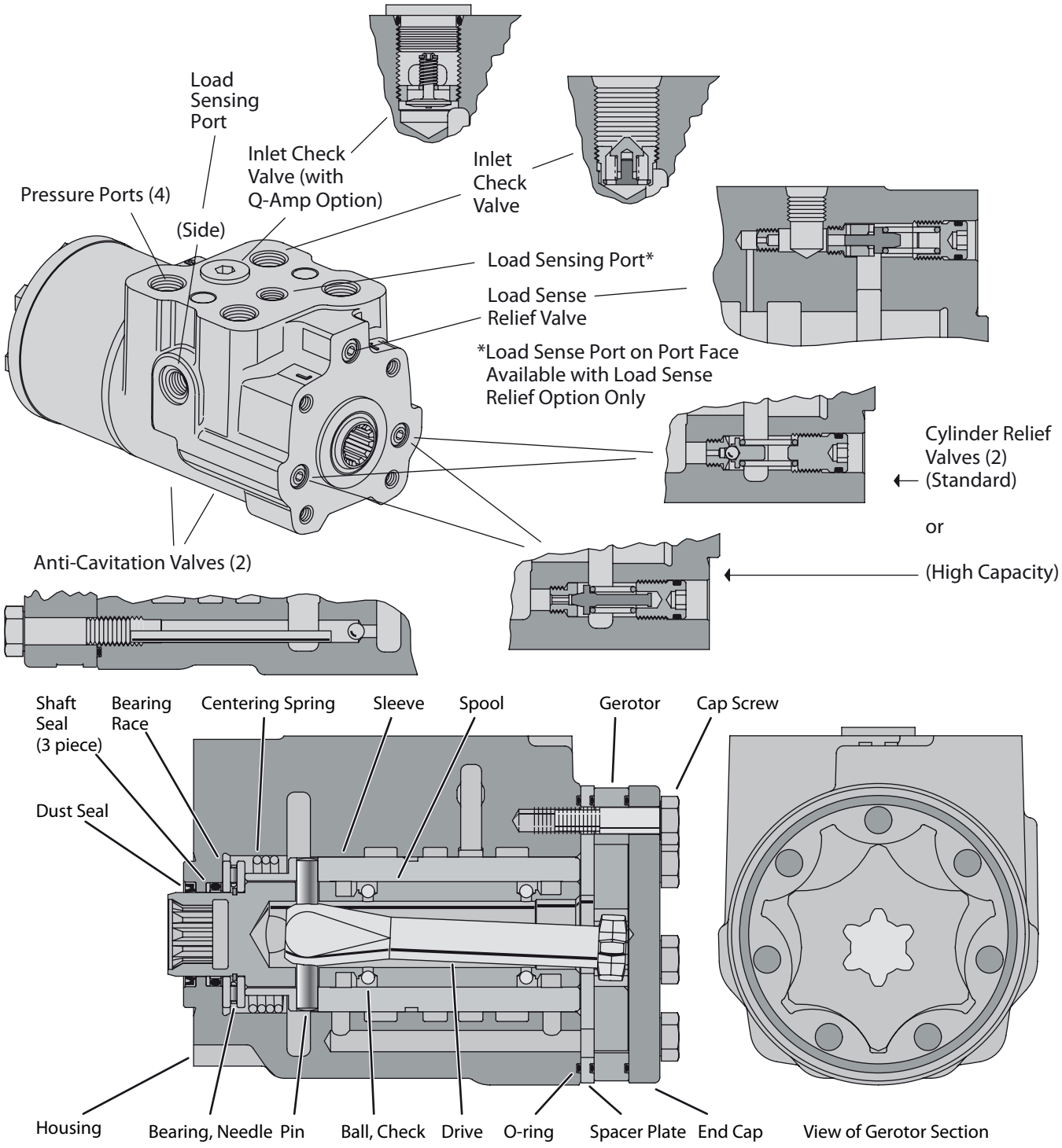
Load Sense Port*

- 7/16-20 UNF-2B (SAE) O-ring Port
- G 1/4 (BSP) Straight Thread Port
- M12 x 1,5 -6H (Metric) O-ring Port

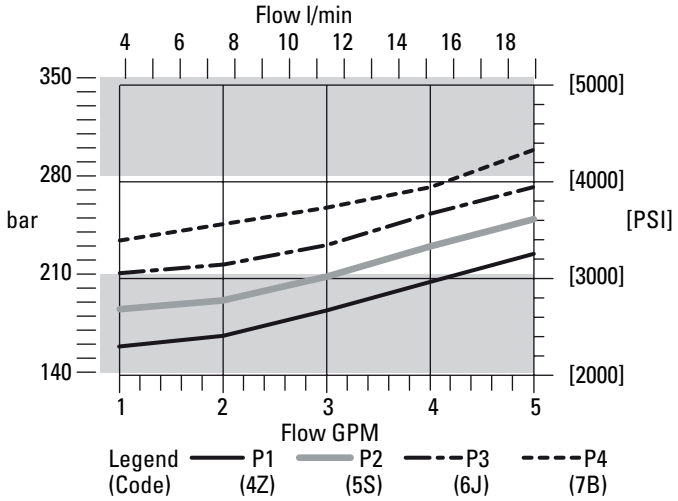
***Load sense port on port face (is only available on units with load sense relief valve).**

Steering Control Units—Series 20

Sectional Drawing and Integral Valves



Cylinder Relief Valve Pressure Drop versus Flow



Input Torque