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Hydraulics Division  
Char-Lynn® Hydraulic Products

November 1998



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Hydraulics



We Manufacture

Solutions

S o l u t i o n s

- 
- Experienced system design engineers - Systems-based solutions to all your hydraulic needs.
  - Global manufacturing capability - Manufacturing plants and joint ventures in the U.S., Europe, Japan and China.
  - Global sales support - Sales offices in the U.S., Scotland, Germany, Singapore, China and Korea.
  - World's largest distributor network - Over 100 distributors in 50 different countries.
  - Reliable, robust products - Field-proven leader in the hydraulics industry.
  - Exceptional product quality - All products manufactured in ISO 9001-certified sites.



## Char-Lynn® Motors

### Spool Valve Low-Speed/High-Torque Motors

J Series .....	4
H Series .....	4
S Series .....	4
T Series .....	5
W Series .....	5

### Disc Valve Low-Speed/High-Torque Motors

2000 Series .....	6
4000 Series .....	6
6000 Series .....	6
10,000 Series .....	7
2000, 2-Speed .....	7
10,000, 2-Speed .....	7

## Char-Lynn® Power Steering Units

### Steering Control Units

Flex 4 .....	8
Series 2 .....	8
Series 3 .....	9
Series 6 .....	9
Series 12 .....	9
Series 4 .....	10
Series 110 .....	10
Series 230 .....	10
Series 450 .....	11
Series 20 .....	11
Series 25 .....	12
Series 40 .....	12

Torque Generators .....	13
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Steering Columns .....	13
------------------------	----

Important Note: Information in this catalog is accurate as of the publication date and is subject to change without notice. Performance values are typical values. Customers are responsible for selecting products for their applications using conventional engineering methods. Contact your Eaton representative for current information.

## Char-Lynn® Spool Valve Low-Speed/High-Torque Motors



### J Series

Motor Element .....	Geroler®
Displacement (4) .....	8,2 cm <sup>3</sup> /r [ .50 in <sup>3</sup> /r] 12,9 cm <sup>3</sup> /r [ .79 in <sup>3</sup> /r] 19,8 cm <sup>3</sup> /r [1.21 in <sup>3</sup> /r] 31,6 cm <sup>3</sup> /r [1.93 in <sup>3</sup> /r]
Flow Range - L/Min. [GPM]	
Continuous ....	17 - 21 [14.5 - 5.5]
Intermittent ....	21 - 25 [ 5.5 - 6.5]
Speed Range .....	2065 - 657 RPM (Max.)
Pressure Range - ΔBar [ΔPSI]	
Continuous ....	140 - 120 [2030 - 1740]
Intermittent ....	165 - 150 [2400 - 2175]
Torque Range - Nm [lb-in]	
Continuous ....	14 - 52 [123 - 440]
Intermittent ....	16 - 65 [145 - 550]



### H Series

Motor Element .....	Gerotor
Displacement (13) .....	36 cm <sup>3</sup> /r [ 2.2 in <sup>3</sup> /r] 46 cm <sup>3</sup> /r [ 2.8 in <sup>3</sup> /r] 59 cm <sup>3</sup> /r [ 3.6 in <sup>3</sup> /r] 74 cm <sup>3</sup> /r [ 4.5 in <sup>3</sup> /r] 97 cm <sup>3</sup> /r [ 5.9 in <sup>3</sup> /r] 120 cm <sup>3</sup> /r [ 7.3 in <sup>3</sup> /r] 146 cm <sup>3</sup> /r [ 8.9 in <sup>3</sup> /r] 159 cm <sup>3</sup> /r [ 9.7 in <sup>3</sup> /r] 185 cm <sup>3</sup> /r [11.3 in <sup>3</sup> /r] 231 cm <sup>3</sup> /r [14.1 in <sup>3</sup> /r] 293 cm <sup>3</sup> /r [17.9 in <sup>3</sup> /r] 370 cm <sup>3</sup> /r [22.6 in <sup>3</sup> /r] 739 cm <sup>3</sup> /r [45.1 in <sup>3</sup> /r]
Flow Range - L/Min. [GPM]	
Continuous ....	38 - 57 [10 - 15]
Intermittent ....	38 - 76 [10 - 20]
Speed Range .....	1021 - 74 RPM (Max.)
Pressure Range - Δ Bar [ΔPSI]	
Continuous ....	125 - 40 [1800 - 600]
Intermittent ....	165 - 55 [2400 - 800]
Torque Range - Nm [lb-in]	
Continuous ....	55 - 405 [495 - 3605]
Intermittent ....	75 - 520 [670 - 4600]

*NOTE: For illustration purposes, all photographs in this catalog show Eaton and Char-Lynn products painted blue with chrome plating. Products are shipped from the factory unpainted or with primer. Corrosion-resistant coatings are available on some product lines.*





**S Series**

Motor Element .....	Geroler
Displacement (10) .....	59 cm <sup>3</sup> /r [ 3.6 in <sup>3</sup> /r] 74 cm <sup>3</sup> /r [ 4.5 in <sup>3</sup> /r] 97 cm <sup>3</sup> /r [ 5.9 in <sup>3</sup> /r] 120 cm <sup>3</sup> /r [ 7.3 in <sup>3</sup> /r] 146 cm <sup>3</sup> /r [ 8.9 in <sup>3</sup> /r] 159 cm <sup>3</sup> /r [ 9.7 in <sup>3</sup> /r] 185 cm <sup>3</sup> /r [11.3 in <sup>3</sup> /r] 231 cm <sup>3</sup> /r [14.1 in <sup>3</sup> /r] 293 cm <sup>3</sup> /r [17.9 in <sup>3</sup> /r] 370 cm <sup>3</sup> /r [22.6 in <sup>3</sup> /r]
Flow Range - L/Min. [GPM]	
Continuous ....	57 - 57 [15-15]
Intermittent ....	68 - 76 [18-20]
Speed Range .....	962 - 153 RPM (Max.)
Pressure Range - ΔBar [ΔPSI]	
Continuous ....	140 - 90 [2000 - 1300]
Intermittent ....	170 - 105 [2500 - 1500]
Torque Range - Nm [lb-in]	
Continuous ....	105 - 450 [945 - 4000]
Intermittent ....	135 - 515 [1175 - 4550]



**T Series**

Motor Element .....	Geroler
Displacement (11) .....	36 cm <sup>3</sup> /r [ 2.2 in <sup>3</sup> /r] 49 cm <sup>3</sup> /r [ 3.0 in <sup>3</sup> /r] 66 cm <sup>3</sup> /r [ 4.0 in <sup>3</sup> /r] 80 cm <sup>3</sup> /r [ 4.9 in <sup>3</sup> /r] 102 cm <sup>3</sup> /r [ 6.2 in <sup>3</sup> /r] 131 cm <sup>3</sup> /r [ 8.0 in <sup>3</sup> /r] 157 cm <sup>3</sup> /r [ 9.6 in <sup>3</sup> /r] 195 cm <sup>3</sup> /r [11.9 in <sup>3</sup> /r] 244 cm <sup>3</sup> /r [14.9 in <sup>3</sup> /r] 306 cm <sup>3</sup> /r [18.7 in <sup>3</sup> /r] 370 cm <sup>3</sup> /r [22.6 in <sup>3</sup> /r]
Flow Range - L/Min. [GPM]	
Continuous ....	38 - 57 [10 - 15]
Intermittent ....	38 - 76 [10 - 20]
Speed Range .....	1021 - 152 RPM (Max.)
Pressure Range - ΔBar [ΔPSI]	
Continuous ....	155 - 90 [2250 - 1300]
Intermittent ....	190 - 105 [2750 - 1500]
Torque Range - Nm [lb-in]	
Continuous ....	75 - 440 [670 - 3905]
Intermittent ....	95 - 510 [825 - 4515]



**W Series**

Motor Element .....	Geroler®
Displacement (11) .....	80 cm <sup>3</sup> /r [ 4.9 in <sup>3</sup> /r] 126 cm <sup>3</sup> /r [ 7.7 in <sup>3</sup> /r] 154 cm <sup>3</sup> /r [ 9.4 in <sup>3</sup> /r] 195 cm <sup>3</sup> /r [11.9 in <sup>3</sup> /r] 251 cm <sup>3</sup> /r [15.3 in <sup>3</sup> /r] 303 cm <sup>3</sup> /r [18.5 in <sup>3</sup> /r] 374 cm <sup>3</sup> /r [22.8 in <sup>3</sup> /r]
Flow Range - L/Min. [GPM]	
Continuous ....	17 - 57 [4.5 - 15]
Intermittent ....	17 - 76 [4.5 - 20]
Speed Range .....	200 - 200 RPM (Max.)
Pressure Range - Δ Bar [Δ PSI]	
Continuous ....	155 - 90 [2250 - 1300]
Intermittent ....	172 - 103 [2500 - 1500]
Torque Range - Nm [lb-in]	
Continuous ....	173 - 473 [1532 - 4186]
Intermittent ....	191 - 500 [1692 - 4427]



W Series Motor with optional brake.



## Char-Lynn® Disc Valve Low-Speed/High-Torque Motors



### 2000 Series

Motor Element .....	Geroler
Displacements (9) .....	80 cm <sup>3</sup> /r [ 4.9 in <sup>3</sup> /r] 100 cm <sup>3</sup> /r [ 8.21 in <sup>3</sup> /r] 130 cm <sup>3</sup> /r [ 8.0 in <sup>3</sup> /r] 160 cm <sup>3</sup> /r [ 9.6 in <sup>3</sup> /r] 195 cm <sup>3</sup> /r [11.9 in <sup>3</sup> /r] 245 cm <sup>3</sup> /r [14.9 in <sup>3</sup> /r] 305 cm <sup>3</sup> /r [18.7 in <sup>3</sup> /r] 395 cm <sup>3</sup> /r [24.0 in <sup>3</sup> /r] 490 cm <sup>3</sup> /r [29.8 in <sup>3</sup> /r]
Flow Range - L/Min [GPM]	
Continuous .....	75 - 75 [20 - 20]
Intermittent .....	75 - 130 [20 - 35]
Speed Range	
Continuous .....	908 - 153 RPM (Max.)
Intermittent .....	924 - 230 RPM (Max.)
Pressure Range - ΔBar [ΔPSI]	
Continuous .....	205 - 120 [3000 - 1750]
Intermittent .....	310 - 140 [4500 - 2000]
Peak .....	310 - 170 [4500 - 2500]
Torque Range - Nm [lb-in]	
Continuous .....	235 - 845 [2065 - 7470]
Intermittent .....	345 - 930 [3035 - 8225]



### 4000 Series

Motor Element .....	Geroler
Displacements (9) .....	110 cm <sup>3</sup> /r [ 6.7 in <sup>3</sup> /r] 130 cm <sup>3</sup> /r [ 7.9 in <sup>3</sup> /r] 160 cm <sup>3</sup> /r [ 9.9 in <sup>3</sup> /r] 205 cm <sup>3</sup> /r [12.5 in <sup>3</sup> /r] 245 cm <sup>3</sup> /r [15.0 in <sup>3</sup> /r] 310 cm <sup>3</sup> /r [19.0 in <sup>3</sup> /r] 395 cm <sup>3</sup> /r [24.0 in <sup>3</sup> /r] 495 cm <sup>3</sup> /r [30.0 in <sup>3</sup> /r] 625 cm <sup>3</sup> /r [38.0 in <sup>3</sup> /r]
Flow Range - L/Min [GPM]	
Continuous .....	75 - 95 [20 - 25] Cont.
Intermittent .....	95 - 150 [25 - 40] Inter.
Speed Range	
Continuous .....	697 - 151 RPM (Max.)
Intermittent .....	868 - 241 RPM (Max.)
Pressure Range - ΔBar [ΔPSI]	
Continuous .....	205 - 115 [3000 - 1700]
Intermittent .....	310 - 140 [4500 - 2000]
Peak .....	310 - 295 [4500 - 4250]
Torque Range - Nm [lb-in]	
Continuous .....	320 - 970 [2850 - 8605]
Intermittent .....	470 - 1185 [4160 - 1047]



### 6000 Series

Motor Element .....	Geroler
Displacements (7) ..	195 cm <sup>3</sup> /r [11.9 in <sup>3</sup> /r] 245 cm <sup>3</sup> /r [15.0 in <sup>3</sup> /r] 310 cm <sup>3</sup> /r [19.0 in <sup>3</sup> /r] 390 cm <sup>3</sup> /r [23.9 in <sup>3</sup> /r] 490 cm <sup>3</sup> /r [30.0 in <sup>3</sup> /r] 625 cm <sup>3</sup> /r [38.0 in <sup>3</sup> /r] 985 cm <sup>3</sup> /r [60.0 in <sup>3</sup> /r]
Flow Range - L/Min [GPM]	
Continuous .....	150 - 150 [40 - 40]
Intermittent .....	170 - 225 [45 - 60]
Speed Range	
Continuous .....	775 - 153 RPM (Max.)
Intermittent .....	866 - 230 RPM (Max.)
Pressure Range - Δ Bar [ΔPSI]	
Continuous .....	205 - 140 [3000 - 2000]
Intermittent .....	310 - 404 [4500 - 2000]
Peak .....	310 - 170 [4500 - 2252]
Torque Range - Nm [lb-in]	
Continuous .....	575 - 1685 [5100-14920]
Intermittent .....	860 - 1873 [7620-16580]





**10,000 Series**

Motor Element .....	Geroler
Displacements (4) .....	345 cm <sup>3</sup> /r [21.0 in <sup>3</sup> /r] 480 cm <sup>3</sup> /r [29.3 in <sup>3</sup> /r] 665 cm <sup>3</sup> /r [40.5 in <sup>3</sup> /r] 940 cm <sup>3</sup> /r [57.4 in <sup>3</sup> /r]
Flow Range (No) - L/Min. [GPM]	
Continuous .....	170 - 170 [45 - 45]
Intermittent .....	265 - 265 [70 - 70]
Speed Range	
Continuous .....	501 - 179 RPM (Max.)
Intermittent .....	784 - 279 RPM (Max.)
Pressure Range - Δ Bar [ΔPSI]	
Continuous .....	205 - 190 [3000 - 2750]
Intermittent .....	275 - 240 [4000 - 3500]
Peak .....	275 - 260 [4000 - 3750]
Torque Range - Nm [lb-in]	
Continuous .....	1040 - 2700 [9220 - 23910]
Intermittent .....	1390 - 3440 [12310 - 30460]



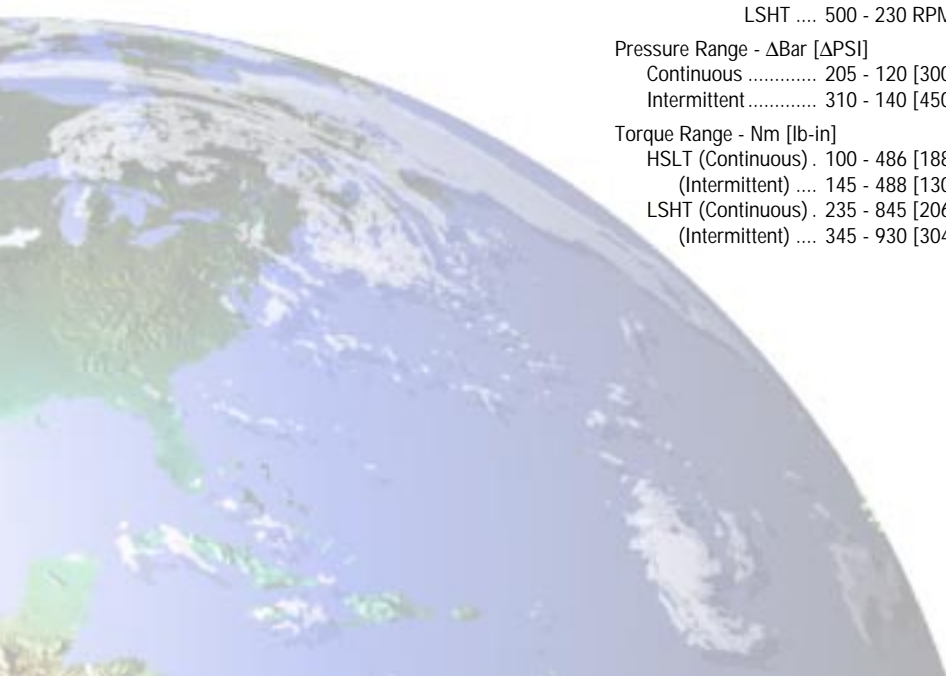
**2000 Series Two Speed**

Motor Element .....	Geroler
Displ. HSLT (9) .....	40 cm <sup>3</sup> /r [ 2.4 in <sup>3</sup> /r] 50 cm <sup>3</sup> /r [ 3.1 in <sup>3</sup> /r] 65 cm <sup>3</sup> /r [ 4.0 in <sup>3</sup> /r] 80 cm <sup>3</sup> /r [ 4.0 in <sup>3</sup> /r] 95 cm <sup>3</sup> /r [ 5.9 in <sup>3</sup> /r] 120 cm <sup>3</sup> /r [ 7.4 in <sup>3</sup> /r] 155 cm <sup>3</sup> /r [ 9.3 in <sup>3</sup> /r] 195 cm <sup>3</sup> /r [12.0 in <sup>3</sup> /r] 245 cm <sup>3</sup> /r [15.0 in <sup>3</sup> /r]
Displ. LSHT (9) .....	80 cm <sup>3</sup> /r [ 4.0 in <sup>3</sup> /r] 100 cm <sup>3</sup> /r [ 6.2 in <sup>3</sup> /r] 130 cm <sup>3</sup> /r [ 8.0 in <sup>3</sup> /r] 160 cm <sup>3</sup> /r [ 9.6 in <sup>3</sup> /r] 195 cm <sup>3</sup> /r [11.9 in <sup>3</sup> /r] 245 cm <sup>3</sup> /r [14.9 in <sup>3</sup> /r] 305 cm <sup>3</sup> /r [18.7 in <sup>3</sup> /r] 395 cm <sup>3</sup> /r [24.0 in <sup>3</sup> /r] 490 cm <sup>3</sup> /r [29.8 in <sup>3</sup> /r]
Flow Range (No) - L/iMin. [GPM]	
HSLT .....	45 - 75 [12 - 20]
LSHT .....	45 - 75 [12 - 20]
Speed Range	
HSLT .....	100 - 115 RPM (Max.)
LSHT .....	500 - 230 RPM (Max.)
Pressure Range - ΔBar [ΔPSI]	
Continuous .....	205 - 120 [3000 - 1750]
Intermittent .....	310 - 140 [4500 - 2000]
Torque Range - Nm [lb-in]	
HSLT (Continuous) .	100 - 486 [1880 - 4300]
(Intermittent) .....	145 - 488 [1300 - 3970]
LSHT (Continuous) .	235 - 845 [2065-7470]
(Intermittent) .....	345 - 930 [3040 - 8225]



**10,000 Series - Two Speed**

Motor Element .....	Geroler
Displ. HSLT (4) .....	169 cm <sup>3</sup> /r [10.3 in <sup>3</sup> /r] 239 cm <sup>3</sup> /r [14.6 in <sup>3</sup> /r] 333 cm <sup>3</sup> /r [20.3 in <sup>3</sup> /r] 470 cm <sup>3</sup> /r [28.7 in <sup>3</sup> /r]
Displ. LSHT (4) .....	345 cm <sup>3</sup> /r [21.0 in <sup>3</sup> /r] 480 cm <sup>3</sup> /r [29.3 in <sup>3</sup> /r] 665 cm <sup>3</sup> /r [40.6 in <sup>3</sup> /r] 940 cm <sup>3</sup> /r [57.4 in <sup>3</sup> /r]
Flow Range (No) - L/Min. [GPM]	
HSLT .....	130 - 170 [35 - 45]
LSHT .....	130 - 170 [35 - 45]
Speed Range	
HSLT .....	750 - 400 RPM (Max.)
LSHT .....	375 - 200 RPM (Max.)
Pressure Range - ΔBar [ΔPSI]	
Continuous .....	205 - 190 [3000 - 2750]
Intermittent .....	275 - 240 [4000 - 3500]
Torque Range - Nm [lb-in]	
HSLT (Continuous) .	440 - 1175 [3900 - 10400]
(Intermittent) .....	585 - 1470 [5200 - 13000]
Nm [lb-in]	
LSHT (Continuous) .	1015 - 2710 [9000-24000]
(Intermittent) .....	1355 - 3445 [12000 - 30500]



## Char-Lynn® Power Steering Units

### Steering Control Units

Eaton steering control units are designed and intended for use only at speed under 40 mph. For assistance in applications exceeding this limit, please call your Eaton sales representative.



#### Flex 4

Meter Element .....	Gerotor
Displacement (6) .....	58 cm <sup>3</sup> /r [3.58 in <sup>3</sup> /r]
	74 cm <sup>3</sup> /r [4.50 in <sup>3</sup> /r]
	100 cm <sup>3</sup> /r [5.86 in <sup>3</sup> /r]
	120 cm <sup>3</sup> /r [7.33 in <sup>3</sup> /r]
System	
Open Center .....	Non-Load Reaction
Power Beyond .....	Non-Load Reaction
Load Sensing	
(Dynamic Signal) ..	Non-Load Reaction
System Pressure	
(Standard Units) .....	125 Bar [1800 PSI]
Back Pressure (Max.) ...	10 Bar [150 PSI]
Flow L/Min. [GPM] .....	23 [6] (Max.)
Max. Operating Temp. ...	93°C [200°F]
Temperature Differential	
Input Torque Back Pressure @ 7 Bar [100 PSI]	
Powered .....	1,7 - 2,8 Nm [15 - 25 lb-ft]
Non-Powered .....	81,4 Nm [60 lb-ft] (Max.)
Check Valve for Emergency	
Manual Steering .....	Yes
Optional Valves .....	Relief, Inlet Check, Cylinder Relief, Anti Cavitation



#### Series 2

Meter Element .....	Gerotor
Displacement (6) .....	31 cm <sup>3</sup> /r [1.9 in <sup>3</sup> /r]
	39 cm <sup>3</sup> /r [2.4 in <sup>3</sup> /r]
	51 cm <sup>3</sup> /r [3.1 in <sup>3</sup> /r]
	63 cm <sup>3</sup> /r [3.8 in <sup>3</sup> /r]
	74 cm <sup>3</sup> /r [4.5 in <sup>3</sup> /r]
	100 cm <sup>3</sup> /r [6.1 in <sup>3</sup> /r]
System	
Open Center .....	Non-Load Reaction
Power Beyond .....	Non-Load Reaction
Load Sensing	
Dynamic Signal ...	Non-Load Reaction
System Pressure - Bar [PSI]	
Standard Units .....	70 [1000]
High Press. Units .....	103 [1500]
Back Pressure	
Bar [PSI] .....	10 [150] (Max.)
Flow - L/Min. [GPM] .....	15 [4] (Max.)
Operating Temp. .....	93°C [200°F] (Max.)
Temperature Differential	
(Between Steering	
Unit & System) .....	28°C [50°F]
Input Torque Back Pressure @ 7 Bar [100 PSI]	
Nm [lb-ft]	
Powered .....	1,7 - 2,8 [15 - 25]
Non-Powered .....	81,4 [60] (Max.)
Check Valve for Emergency	
Manual Steering .....	Yes
Optional Relief Valve Settings (7)	
Range - Bar [PSI] ...	40 - 100 [580 - 1450]





**Series 3**

Meter Element .....	Gerotor
Displacement (5) .....	75 cm <sup>3</sup> /r [4.5 in <sup>3</sup> /r] 95 cm <sup>3</sup> /r [5.9 in <sup>3</sup> /r] 120 cm <sup>3</sup> /r [7.3 in <sup>3</sup> /r] 145 cm <sup>3</sup> /r [8.9 in <sup>3</sup> /r] 160 cm <sup>3</sup> /r [9.7 in <sup>3</sup> /r]
System	
Open Center .....	Non-Load Reaction
System Pressure	
Bar [PSI] .....	172 [2500]
Back Pressure	
Bar [PSI] .....	21 [300] (Max.)
Rated Flow	
L/Min. [GPM] .....	7,5 - 15 [2 - 4]
Operating Temp. ....	93°C [200°F] (Max.)
Temperature Differential (Between Steering Unit & System) .....	28°C [50°F]
Input Torque Back Pressure @ 7 Bar [100 PSI]	
Nm [lb-ft]	
Powered .....	2,8 - 4,0 [25 - 35]
Non-Powered .....	136 [100] (Max.)
Check Valve for Emergency Manual Steering .....	Yes

**Series 6**

Meter Element .....	Gerotor
Displacement (8) .....	75 cm <sup>3</sup> /r [4.5 in <sup>3</sup> /r] 95 cm <sup>3</sup> /r [5.9 in <sup>3</sup> /r] 120 cm <sup>3</sup> /r [7.3 in <sup>3</sup> /r] 145 cm <sup>3</sup> /r [8.9 in <sup>3</sup> /r] 160 cm <sup>3</sup> /r [9.7 in <sup>3</sup> /r] 185 cm <sup>3</sup> /r [11.3 in <sup>3</sup> /r] 230 cm <sup>3</sup> /r [14.1 in <sup>3</sup> /r] 295 cm <sup>3</sup> /r [17.9 in <sup>3</sup> /r]
System	
Open Center .....	Non-Load Reaction or Load Reaction
Load Sensing	
Dynamic Signal ....	Non-Load Reaction
Static Signal .....	Non-Load Reaction
System Pressure - Bar [PSI]	
Standard Units .....	172 [2500]
Back Pressure	
Bar [PSI] .....	21 [300] (Max.)
Rated Flow	
L/Min. [GPM] .....	15 - 30 [4 - 8] (Max.)*
Operating Temp. ....	93°C [200°F] (Max.)
Temperature Differential (Between Steering Unit & System) .....	28°C [50°F]
Input Torque Back Pressure @ 7 Bar [100 PSI]	
Nm [lb-ft]	
Powered .....	2,8 - 4,0 [25 - 35]
Non-Powered .....	136 [100] (Max.)
Check Valve for Emergency Manual Steering .....	Yes

**Series 12**

Meter Element .....	Gerotor
Displacement (4) .....	370 cm <sup>3</sup> /r [22.6 in <sup>3</sup> /r] 460 cm <sup>3</sup> /r [28.2 in <sup>3</sup> /r] 590 cm <sup>3</sup> /r [35.9 in <sup>3</sup> /r] 740 cm <sup>3</sup> /r [45.1 in <sup>3</sup> /r]
System	
Open Center .....	Non-Load Reaction
Load Sensing	
Dynamic Signal ...	Non-Load Reaction
Static Signal .....	Non-Load Reaction
System Pressure - Bar [PSI]	
Standard Units .....	172 [2500]
Back Pressure	
Bar [PSI] .....	21 [300] (Max.)
Rated Flow	
L/Min. [GPM] .....	30 - 60 [8 - 16] (Max.)*
Operating Temp. ....	93°C [200°F] (Max.)
Temperature Differential (Between Steering Unit & System) .....	28°C [50°F]
Input Torque Back Pressure @ 7 Bar [100 PSI]	
Nm [lb-ft]	
Powered .....	2,8 - 4,0 [25 - 35]
Non-Powered .....	136 [100] (Max.)
Check Valve for Emergency Manual Steering .....	Yes

\*For closed-center unit, rated flow is measured at 70 Bar [1000 PSI] pressure drop at full valve deflection.

## Char-Lynn® Power Steering Units

*Steering Control Units (continued)*



### Series 4

Meter Element .....	Gerotor
Displacement (5) .....	45 cm <sup>3</sup> /r [2.8 in <sup>3</sup> /r] 60 cm <sup>3</sup> /r [3.6 in <sup>3</sup> /r] 75 cm <sup>3</sup> /r [4.5 in <sup>3</sup> /r] 95 cm <sup>3</sup> /r [5.9 in <sup>3</sup> /r] 120 cm <sup>3</sup> /r [7.3 in <sup>3</sup> /r]
System	
Open Center .....	Non-Load Reaction
Power Beyond .....	Non-Load Reaction
Load Sensing	
Dynamic Signal ....	Non-Load Reaction
System Pressure - Bar [PSI]	
Standard Units .....	124 [1800]
Back Pressure	
Bar [PSI] .....	21 [300] (Max.)
Rated Flow	
L/Min. [GPM] .....	15 [4] (Max.)
Operating Temp. ....	93°C [200°F] (Max.)
Temperature Differential	
(Between Steering	
Unit & System) ....	28°C [50°F]
Input Torque Back Pressure @ 7 Bar [100 PSI]	
Nm [lb-ft]	
Powered .....	1,7 - 2,8 [15 - 25]
Non-Powered .....	81,4 [60] (Max.)
Check Valve for Emergency	
Manual Steering .....	Yes



### Series 110

Meter Element .....	Gerotor
Displacement (5) .....	45 cm <sup>3</sup> /r [2.8 in <sup>3</sup> /r] 60 cm <sup>3</sup> /r [3.6 in <sup>3</sup> /r] 75 cm <sup>3</sup> /r [4.5 in <sup>3</sup> /r] 95 cm <sup>3</sup> /r [5.9 in <sup>3</sup> /r] 120 cm <sup>3</sup> /r [7.3 in <sup>3</sup> /r]
System	
Open Center .....	Non-Load Reaction or Load Reaction
System Pressure - Bar [PSI]	
Standard Units .....	172 [2500]
High Press. Units ....	240 [3500]
Back Pressure	
Bar [PSI] .....	21 [300] (Max.)
Rated Flow	
L/Min. [GPM] .....	7,5 - 12 [2 - 4]
Operating Temp. ....	93°C [200°F] (Max.)
Temperature Differential	
(Between Steering	
Unit & System) ....	28°C [50°F]
Input Torque Back Pressure @ 7 Bar [100 PSI]	
Nm [lb-ft]	
Powered .....	2,8 - 4,0 [25 - 35]
Non-Powered .....	136 [100] (Max.)
Check Valve for Emergency	
Manual Steering .....	Yes

### Series 230

Meter Element .....	Gerotor
Displacement (8) .....	75 cm <sup>3</sup> /r [4.5 in <sup>3</sup> /r] 95 cm <sup>3</sup> /r [5.9 in <sup>3</sup> /r] 120 cm <sup>3</sup> /r [7.3 in <sup>3</sup> /r] 145 cm <sup>3</sup> /r [8.9 in <sup>3</sup> /r] 160 cm <sup>3</sup> /r [9.7 in <sup>3</sup> /r] 185 cm <sup>3</sup> /r [11.3 in <sup>3</sup> /r] 230 cm <sup>3</sup> /r [14.1 in <sup>3</sup> /r] 295 cm <sup>3</sup> /r [17.9 in <sup>3</sup> /r]
System	
Open Center .....	Non-Load Reaction or Load Reaction
Load Sensing	
Dynamic Signal ....	Non-Load Reaction
Static Signal .....	Non-Load Reaction
System Pressure - Bar [PSI]	
Standard Units .....	172 [2500]
High Press. Units ....	240 [3500]
Back Pressure	
Bar [PSI] .....	21 [300] (Max.)
Rated Flow	
L/Min. [GPM] .....	15 - 30 [4 - 8] (Max.)
Operating Temp. ....	93°C [200°F] (Max.)
Temperature Differential	
(Between Steering	
Unit & System) ....	28°C [50°F]
Input Torque Back Pressure @ 7 Bar [100 PSI]	
Nm [lb-ft]	
Powered .....	2,8 - 4,0 [25 - 35]
Non-Powered .....	136 [100] (Max.)
Check Valve for Emergency	
Manual Steering .....	Yes



### Series 450

Meter Element .....	Gerotor
Displacement (4) .....	370 cm <sup>3</sup> /r [22.6 in <sup>3</sup> /r] 460 cm <sup>3</sup> /r [28.2 in <sup>3</sup> /r] 590 cm <sup>3</sup> /r [35.9 in <sup>3</sup> /r] 740 cm <sup>3</sup> /r [45.1 in <sup>3</sup> /r]
System	
Open Center .....	Non-Load Reaction
Closed Center .....	Non-Load Reaction
Load Sensing	
Dynamic Signal ..	Non-Load Reaction
Static Signal .....	Non-Load Reaction
System Pressure - Bar [PSI]	
Standard Units .....	172 [2500]
High Press. Units .....	240 [3500]
Back Pressure	
Bar [PSI] .....	21 [300] (Max.)
Rated Flow	
L/Min. [GPM] .....	30 - 60 [6 - 16] (Max.)
Operating Temp. ....	93°C [200°F] (Max.)
Temperature Differential (Between Steering Unit & System) .....	28°C [50°F]
Input Torque Back Pressure @ 7 Bar [100 PSI]	
Nm [lb-ft]	
Powered .....	2,8 - 4,0 [25 - 35]
Non-Powered .....	136 [100] (Max.)
Check Valve for Emergency Manual Steering .....	Yes

### Optional Valves

- Inlet Check Valve
- Inlet Relief Valve
- Anti-Cavitation Valve
- Cylinder Port Shock Valves
- Load Sensing Relief Valve



### Series 20

Meter Element .....	Gerotor
Displacement (14) .....	60 cm <sup>3</sup> /r [3.6 in <sup>3</sup> /r] 75 cm <sup>3</sup> /r [4.5 in <sup>3</sup> /r] 95 cm <sup>3</sup> /r [5.9 in <sup>3</sup> /r] 120 cm <sup>3</sup> /r [7.3 in <sup>3</sup> /r] 145 cm <sup>3</sup> /r [8.9 in <sup>3</sup> /r] 160 cm <sup>3</sup> /r [9.7 in <sup>3</sup> /r] 185 cm <sup>3</sup> /r [11.3 in <sup>3</sup> /r] 230 cm <sup>3</sup> /r [14.1 in <sup>3</sup> /r] 295 cm <sup>3</sup> /r [17.9 in <sup>3</sup> /r] 370 cm <sup>3</sup> /r [22.6 in <sup>3</sup> /r] 460 cm <sup>3</sup> /r [28.2 in <sup>3</sup> /r] 590 cm <sup>3</sup> /r [35.9 in <sup>3</sup> /r] 740 cm <sup>3</sup> /r [45.1 in <sup>3</sup> /r] 985 cm <sup>3</sup> /r [60.0 in <sup>3</sup> /r]
System	
Load Sensing	
Dynamic Signal ....	Non-Load Reaction
System Pressure - Bar [PSI]	
Standard Units .....	172 [2500]
High Press. Unit .....	240 [3500]
Back Pressure	
Bar [PSI] .....	10 [145] (Max.)
Rated Flow	
L/Min. [GPM] .....	95 [25]



## Char-Lynn® Power Steering Units

*Steering Control Units (continued)*



### Series 25

Meter Element ..... Gerotor  
 Displacement (5) ..... 490 cm<sup>3</sup>/r [30 in<sup>3</sup>/r]  
   625 cm<sup>3</sup>/r [38 in<sup>3</sup>/r]  
   795 cm<sup>3</sup>/r [48 in<sup>3</sup>/r]  
   985 cm<sup>3</sup>/r [60 in<sup>3</sup>/r]  
   1230 cm<sup>3</sup>/r [75 in<sup>3</sup>/r]

System  
 Open Center ..... Non-Load Reaction  
 Closed Center ..... Non-Load Reaction

Load Sensing  
 Dynamic Signal ..... Non-Load Reaction

System Pressure  
 Bar [PSI] ..... 240 [3500]

Back Pressure  
 Bar [PSI] ..... 21 [300] (Max.)

Rated Flow  
 L/Min. [GPM] ..... 95 [25] (Max.)

Operating Temp. .... 93°C [200°F] (Max.)

Temperature Differential  
 Between Steering  
 Unit & System ..... 28°C [50°F]

Input Torque Back Pressure @ 7 Bar [100 PSI]  
 Nm [lb-ft]  
 Powered ..... 2,8 - 3,4 [25 - 30]  
 Non-Powered ..... Manual steering is not  
   possible without  
   hydraulic power.



### Series 40

Meter Element ..... Gerotor  
 Displacement (5) ..... 1230 cm<sup>3</sup>/r [75 in<sup>3</sup>/r]  
   1555 cm<sup>3</sup>/r [95 in<sup>3</sup>/r]  
   1965 cm<sup>3</sup>/r [120 in<sup>3</sup>/r]  
   2460 cm<sup>3</sup>/r [150 in<sup>3</sup>/r]  
   3030 cm<sup>3</sup>/r [185 in<sup>3</sup>/r]

System  
 Open Center ..... Non-Load Reaction  
 Closed Center ..... Non-Load Reaction  
 Load Sensing  
 Dynamic Signal ... Non-Load Reaction

System Pressure  
 Bar [PSI] ..... 240 [3500]

Back Pressure  
 Bar [PSI] ..... 21 [300]

Rated Flow  
 L/Min. [GPM] ..... 151 [40]

Maximum Flow  
 L/Min. [GPM] ..... 212 [56]

Operating Temp. .... 93°C [200°F] (Max.)

Temperature Differential  
 (Between Steering  
 Unit & System) ..... 28°C [50°F]

Input Torque Back Pressure @ 7 Bar [100 PSI]  
 Nm [lb-ft]  
 Powered ..... 2,8 - 3,4 [25 - 30]  
 Non-Powered ..... Manual steering is not  
   possible without hydraulic  
   power.

Torque Generators



Series 217

Meter Element .....	Gerotor
Displacement (3) .....	76 cm <sup>3</sup> /r [4.7 in <sup>3</sup> /r] 96 cm <sup>3</sup> /r [5.9 in <sup>3</sup> /r] 160 cm <sup>3</sup> /r [9.7 in <sup>3</sup> /r]

227 Series

Meter Element .....	Geroler
Displacement (3) .....	80 cm <sup>3</sup> /r [4.9 in <sup>3</sup> /r] 102 cm <sup>3</sup> /r [6.2 in <sup>3</sup> /r] 160 cm <sup>3</sup> /r [9.7 in <sup>3</sup> /r]

Rated Flow

L/Min. [GPM] ..... 15,1 [4]

Recommended Flow

L/Min. [GPM] ..... 11,4 - 18,9 [3 - 5]

Operating Speed ..... 125 - 102 RPM (Max.)

Operating Temp. .... 93°C [200°F] (Max.)

Input Torque - Nm [lb-in]

Powered ..... 1,6 - 2,5 [14-22]

Non-Powered ..... 136 [100] (Max.)

Torque Output Range @ 70 Bar [1000 PSI]

Nm [lb-in] ..... 62 - 131 [550-1160]

Rated Pressure (See Circuit Type Below)

Open Center - Bar [PSI]

In Port ..... 70 [1000]

Out Port ..... 3 [50]

Power Beyond - Bar [PSI]

In Port ..... 138 [2000]

Out Port ..... 3 [50]

Auxiliary Port ..... 138 [2000]

In Port (Minus),

Out Port ..... 70 [1000] (Max.)

Load Sensing - Bar [PSI]

In Port ..... 70 [1000]

Out Port ..... 3 [50]

Auxiliary Port ..... 70 [1000]

Open Center With Case Drain - Bar [PSI]

In Port ..... 172 [2500]

Out Port ..... 130 [1500]

Auxiliary Port ..... 3 [50]

In Port (Minus),

Out Port ..... 70 [1000] (Max.)

Char-Lynn® Steering Columns

Steering columns are available for use with Char-Lynn Steering Control Units.

For Series 2 — Serrated (No Wires) - mm [in.]  
Column Lengths (6) ..... 198-452 [7.8-17.8]

For Series 3 thru 40 — Serrated or Keyed  
(With or Without Horn Wires) - mm [in.]  
Column Lengths (16) ... 120-1034 [4.1-40.7]





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## Product Catalogs

To order catalogs, call your Eaton representative

- |  |   |
|--|---|
| 11-104 - Char-Lynn Hydraulic Motors, J Series  | 70422, 70423 and 70523  |
| 11-107 - Medium Duty Piston Motors, Models 74111, 74118, 74318 and 74348                   | 11-605 - Gear Pumps, L2 Series Model 25500 through 25508  |
| 11-111 - Char-Lynn Hydraulic Motors, W Series  | 11-606 - Medium Duty Piston Pumps, Model 70142/70144 and Model 70145 Variable Displacement Pump   |
| 11-112 - VIS Hydraulic Motors  | 11-609 - Gear Pumps, 26 Series Model 26000  |
| 11-301 - Power Steering, Char-Lynn, 2 Series   | 11-700 - Cylinders, Wyr-Loc, Model 580  |
| 11-302 - Char-Lynn Torque Generator, 217 Series and 227 Series                             | 11-866 - Heavy Duty Hydrostatic Transmissions, Models 33 - 76; Includes description of Pump and Motor Controls  |
| 11-303 - Power Steering, Char-Lynn, 20 Series  | 11-872 - Char-Lynn Power Steering - 3,6,12, 4, 110, 230, 450, 25, and 40 Series; Includes Priority Valves, Cushion Crossover Relief Anticavitation Valves, Inlet check Valve, Steering Columns, Steering Wheels, Sizing and Application |
| 11-500 - Directional Control Valves, Model 31920 and 31930                                 | 11-878 - Char-Lynn Disc Valve Hydraulic Motors, 2000, 4000, 6000 and 10000 Series   |
| 11-501 - Directional Control Valves, Models 31520 and 31530                                | 11-879 - Hydraulic Motors, ME Series  |
| 11-503 - In-line Self-Level Valves, Model 39055  | 11-880 - Light Duty Hydrostatic Transmission, Model 6, 7, 11 and Model 11 Pump  |
| 11-504 - In-line Flow Control Valves, Part no. 32604                                       | 11-882 - Controls for Model 33 through 76 Hydrostatic Transmissions   |
| 11-506 - Directional Control Valves, Model 30540   | 11-885 - Char-Lynn General Purpose Hydraulic Motors, H, S and T Series  |
| 11-507 - Directional Control Valves, Model 30920 and 30930                                 | 11-888 - Hydrostatic Transaxles, Models 751, 851, 771, and 781  |
| 11-508 - Priority, Proportional, Variable Priority and Load Sensing Priority Flow Dividers | 1-144 - Hydraulic Gear Motors, B1 Series Model 21300  |
| 11-509 - Manually Operated Selector Valves   | 1-406 - Hydrostatic Right Angle Transaxles, Model 778   |
| 11-510 - Relief Valve Assemblies and Cartridges  |   |
| 11-600 - Medium Duty Piston Pumps, Model 70342 and 70344                                   |   |
| 11-601 - Medium Duty Piston Pumps, model 72400 (Servo Controlled)                          |   |
| 11-603 - Medium Duty Piston Pumps, Model 70122,  |   |

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