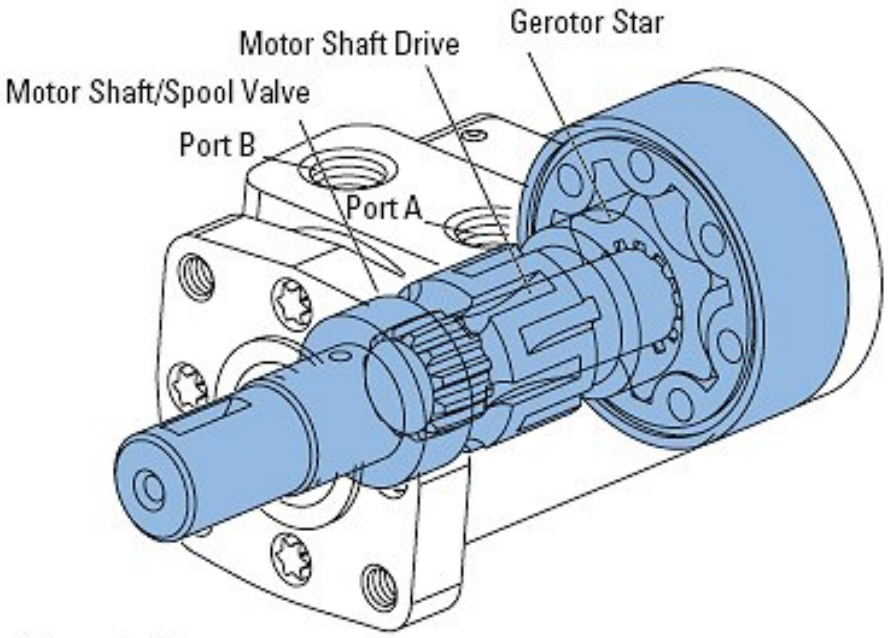
Char-Lynn 'H' Series Motors

Standard Rotation Viewed from Shaft End

Port A Pressurized — CW

Port B Pressurized — CCW



Description

Designed for medium duty applications, these motors use industry-proven spool valve technology combined with state-of-the-art gerotors. In addition, a wide variety of mounting flanges, shafts, Ports and valving options provide design flexibility. Direction of shaft rotation and shaft speed can be controlled easily and smoothly throughout the speed range of the motor, and equipment can be driven direct, eliminating costly mechanical components.

Specifications

Gerotor Element	13 Displacements
Flow l/min [GPM]	57 [15] Continuous***
	76 [20] Intermittent**
Speed	Up to 1100 RPM
Pressure bar [PSI]	125 [1800] Cont.***
	165 [2400] Inter.**
Torque Nm [lb-in]	407 [3604] Cont.***
	520 [4600] Inter.**

*** Continuous— (Cont.) Continuous rating, motor may be run continuously at these ratings.
** Intermittent— (Inter.) Intermittent operation, 10% of every minute.

Features:

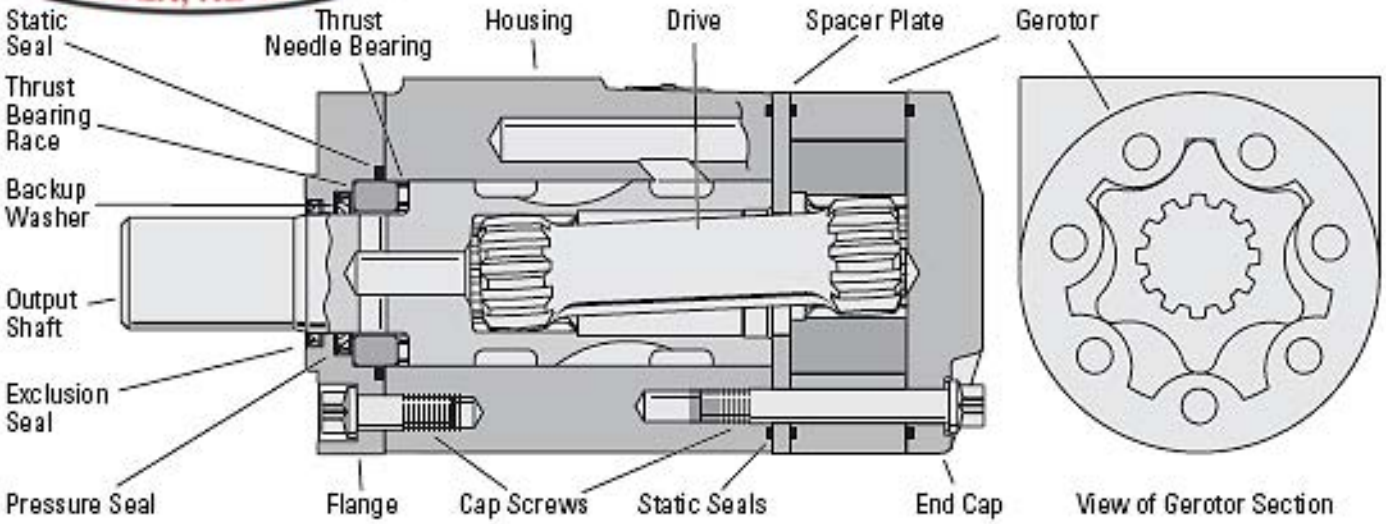
- Time-tested Char-Lynn drive set
- Three moving components (gerotor-star, drive, and shaft)
- Optimized drive running angle
- Three-zone pressure design (inlet, return and case)
- Variety of displacements, shafts and mounts

Benefits:

- High efficiency
- Powerful compact package
- Design flexibility
- Extended leak-free performance

Applications:

- Agricultural augers, harvesters, seeders
- Car wash brushes
- Food processing
- Railroad maintenance equipment
- Machine tools
- Conveyors
- Industrial sweepers and floor polishers
- Saw mill works
- Turf equipment
- Concrete and asphalt equipment
- Skid steer attachments
- Many more



SPECIFICATION DATA — H MOTORS

Displ. cm³/r [in³/r]		46 [2.8]	74 [4.5]	97 [5.9]	159 [9.7]	185 [11.3]	231 [14.1]	293 [17.9]	370 [22.6]
Max. Speed (RPM) @ Continuous Flow		969	760	585	353	304	243	192	152
Flow LPM [GPM]	Continuous	45 [12]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]
	Intermittent	53 [14]	68 [18]	68 [18]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]
Torque Nm [lb-in]	Continuous	73 [650]	118 [1044]	155 [1368]	233 [2059]	265 [2343]	302 [2669]	351 [3110]	407 [3604]
	Intermittent	99 [876]	158 [1401]	207 [1829]	319 [2824]	356 [3151]	415 [3671]	466 [4121]	484 [4283]
Min. Starting Torque Nm [lb-in]	@ Cont. Pressure	59 [520]	95 [840]	124 [1100]	186 [1650]	211 [1870]	238 [2110]	282 [2500]	330 [2920]
	@ Int. Pressure	81 [720]	130 [1150]	171 [1510]	262] [2320	293 [2590]	339 [3000]	388 [3430]	408 [3610]
Pressure ΔBar [Δ PSI]	Continuous	124 [1800]	124 [1800]	124 [1800]	114 [1650]	110 [1600]	100 [1450]	93 [1350]	86 [1250]
	Intermittent	165 [2400]	165 [2400]	165 [2400]	155 [2250]	148 [2150]	138 [2000]	124 [1800]	103 [1500]
Weight kg [lb]		5,1 [11.2]	5,2 [11.5]	5,4 [11.8]	5,7 [12.5]	5,8 [12.8]	6,0 [13.3]	6,3 [14.0]	6,7 [14.7]

A simultaneous maximum torque and maximum speed NOT recommended.

Note:

To assure best motor life, run motor for approximately one hour at 30% of rated pressure before application to full load. Be sure motor is filled with fluid prior to any load applications.

Maximum Inlet Pressure:

172 Bar [2500 PSI] without regard to Δ Bar [Δ PSI] and/or back pressure ratings or combination thereof.

6B splined or Tapered shafts are recommended whenever operation above 282 NM [2500 lb-in] of torque, especially for those applications subject to frequent reversals.

Δ Pressure:

The true Δ bar [Δ PSI] difference between inlet port and outlet port

Continuous Rating:

Motor may be run continuously at these ratings

Intermittent Operation:

10% of every minute

Recommended Filtration:
per ISO Cleanliness Code 4406, level 20/18/13

Recommended Fluids:

Recommended Fluids — Premium quality, anti-wear type hydraulic oil. Minimum oil viscosity (at operating-temperature) should be the highest of the following:
100 SUS or

$$\left[\frac{300 \times \text{Bar}}{\text{RPM}} = \text{SUS}\right.$$

$$\left.\frac{20 \times \text{PSI}}{\text{RPM}} = \text{SUS}\right]$$

Recommended Maximum System Operating Temp.:
82°C [180°F]

Standard Rotation Viewed from Shaft End

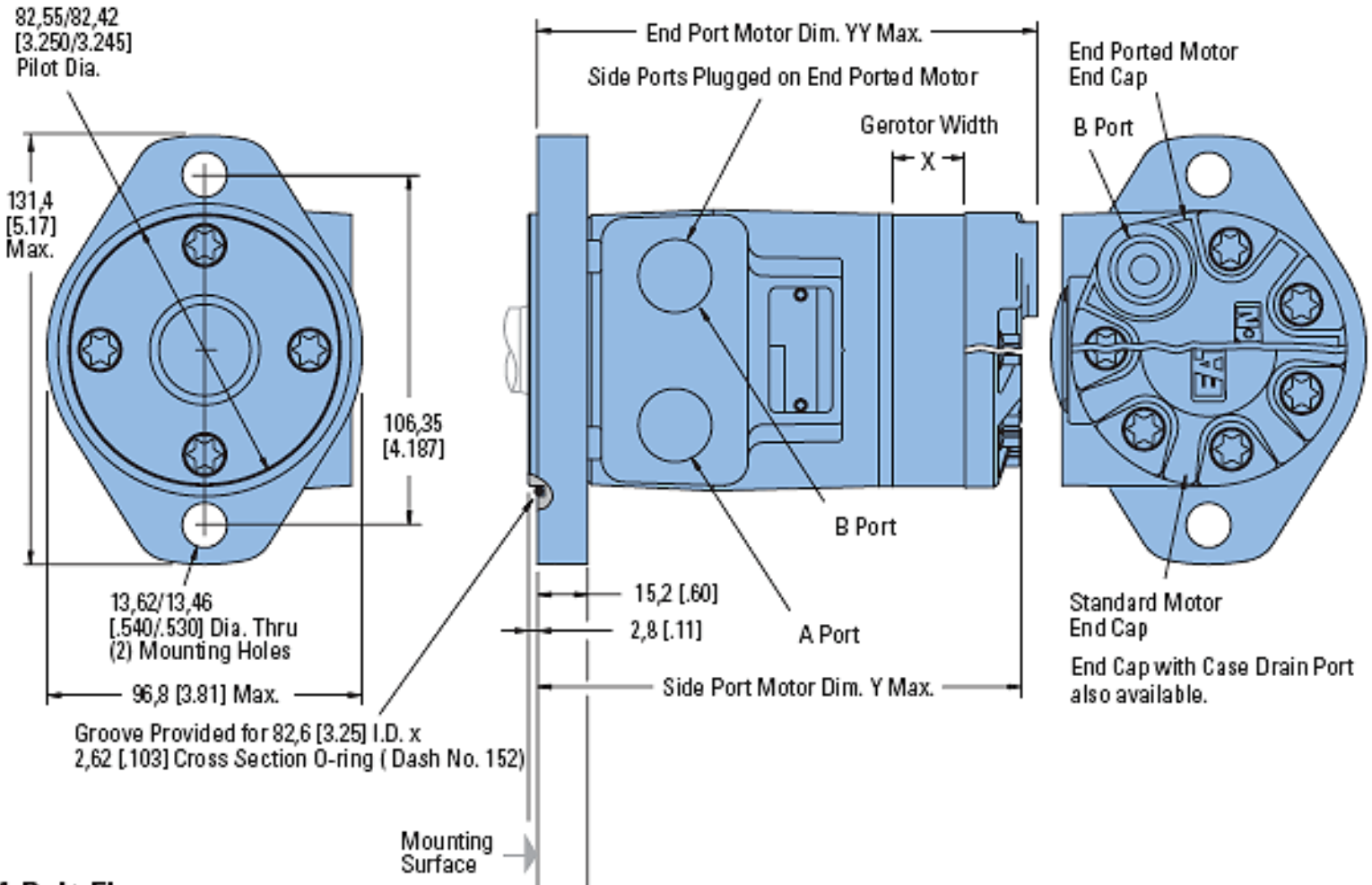
Port A Pressurized — CW

Port B Pressurized — CCW

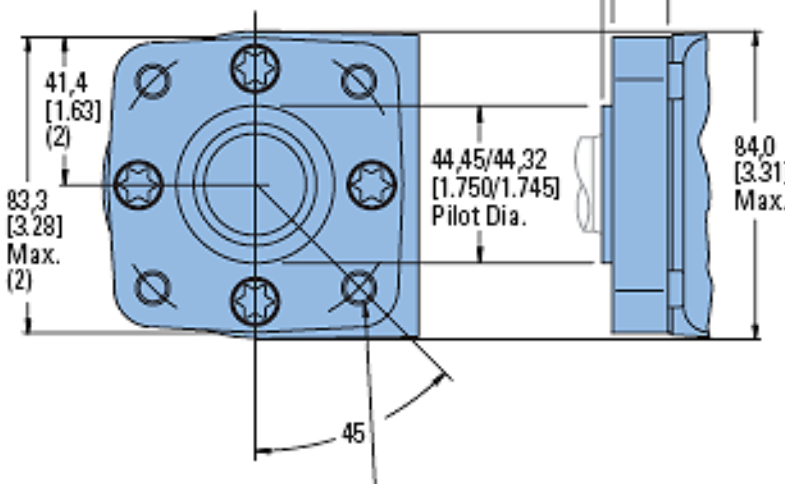
Note:

Mounting surface flatness requirement is ▱ ,13 mm [.005 inch] Max.

2 Bolt Flange



4 Bolt Flange



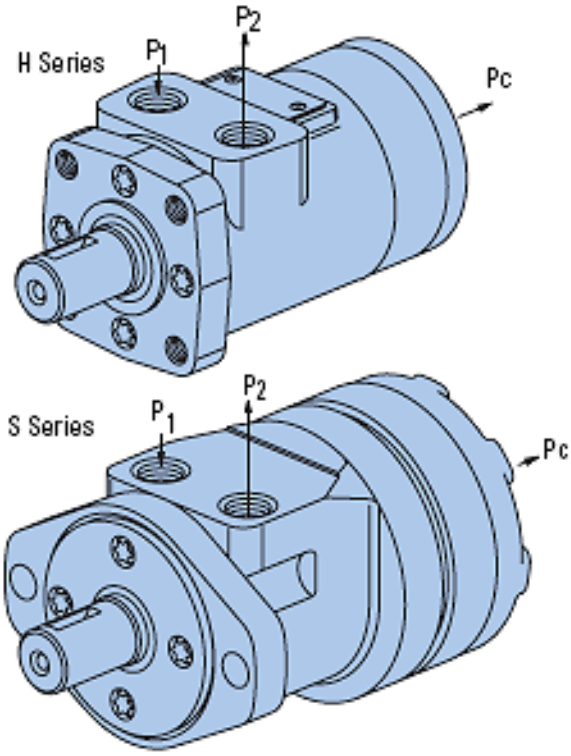
3/8-16 UNC (15,2 [.60] Max. Bolt Thread Engagement) Mounting Holes (4) Equally Spaced on 82,6 [3.25] Dia. Bolt Circle
or
M10 x 1,5 (15,2 [.60] Max. Bolt Thread Engagement) Mounting Holes (4) Equally Spaced on 82,6 [3.25] Dia. Bolt Circle

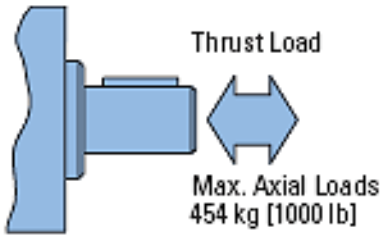
2 AND 4 BOLT FLANGE

Displacement cm³/r [in³/r]	X mm [inch]	Y mm [inch]	YY mm [inch]
36 [2.2]	6,4 [.25]	132,1 [5.20]	138,5 [5.45]
46 [2.8]	6,4 [.25]	132,1 [5.20]	138,5 [5.45]
59 [3.6]	10,2 [.40]	135,9 [5.35]	142,3 [5.60]
74 [4.5]	10,2 [.40]	135,9 [5.35]	142,3 [5.60]
97 [5.9]	13,2 [.52]	139,0 [5.47]	145,3 [5.72]
120 [7.3]	16,5 [.65]	142,3 [5.60]	148,6 [5.85]
146 [8.9]	20,1 [.79]	145,8 [5.74]	152,2 [5.99]
159 [9.7]	21,9 [.86]	147,6 [5.81]	154,0 [6.06]
185 [11.3]	25,4 [1.00]	151,2 [5.95]	157,5 [6.20]
231 [14.1]	31,8 [1.25]	157,5 [6.20]	
293 [17.9]	40,4 [1.59]	166,2 [6.54]	
370 [22.6]	50,8 [2.00]	176,6 [6.95]	
739 [45.1]	101,6 [4.00]	227,4 [8.95]	

Case Pressure and Case Drain — H and S Series

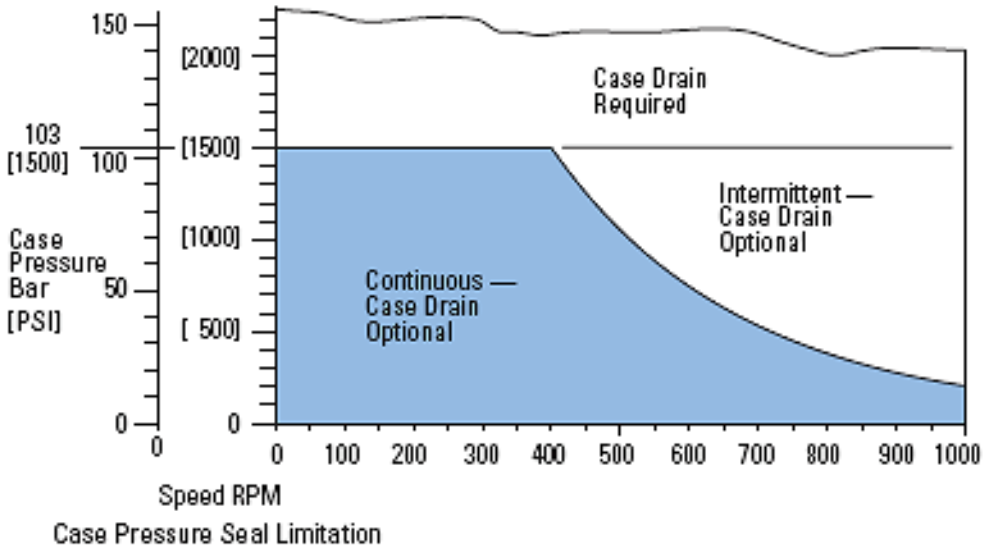
Char-Lynn H Series, S Series and T Series motors are durable andhave long life as long as the recommended case pressure is notexceeded. Allowable case pressure is highest at low shaft speeds. Consequently, motor life will be shortened if case pressure exceedsthese ratings (acceptability may vary with application). Determine if anexternal case drain is required from the case pressure seal limition-chart below — chart based on case pressure and shaft speed. If acase drain line is needed, connect drain line to assure that the motorwill always remain full of fluid. A pressure restriction should be addedto the case drain line, during which a motor case pressure of 3,5 Bar[50 PSI] is maintained.





$P_C \approx .6 ? P + P_2$

P_C = Case Pressure
P_1 = Inlet Line Pressure
P_2 = Back Pressure
$? P = P_1 - P_2$



Case Pressure Seal Limitation

H and S Series (101-, 103-,)

Side Load Capacity

The hydrodynamic bearing has infinite life when shaft load ratings are not exceeded. Hence, the shaft side load capacity is more than adequate to handle most externally applied loads (such as belts, chains, etc.), providing the motor to shaft size is applied within its torque rating.

Allowable side load chart, shaft load location drawing and load curves (below) are based on the side / radial loads being applied to shaft at locations A, B, and C, to determine the shaft side load capacity at locations other than those shown use the formula (shown below).

For more information about shaft side loads on Char-Lynn motors contact your Eaton representative.

Note:

When the speed sensor option is used, side load ratings are reduced 25%.

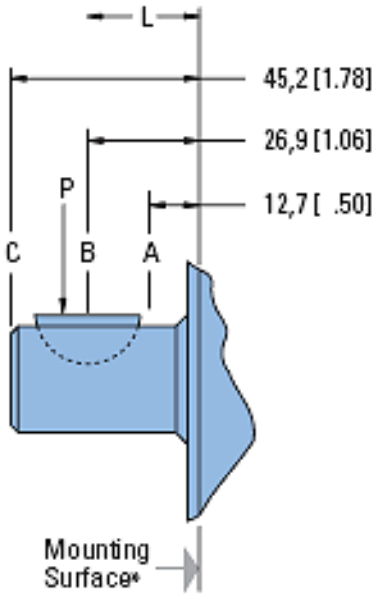
RPM	ALLOWABLE SHAFT SIDE LOAD — KG [LB]		
	A	B	C
900	154 [339]	136 [300]	118 [261]
625	205 [452]	181 [400]	158 [348]
500	256 [565]	227 [500]	197 [435]
400	307 [678]	272 [600]	237 [522]
300	410 [904]	363 [800]	316 [696]
200	718 [1582]	635 [1400]	552 [1216]

$$\text{Sideload P kg} = \frac{900}{N}\left(\frac{16800}{L + 96{,}3}\right) \quad \text{for 200-900 RPM}$$

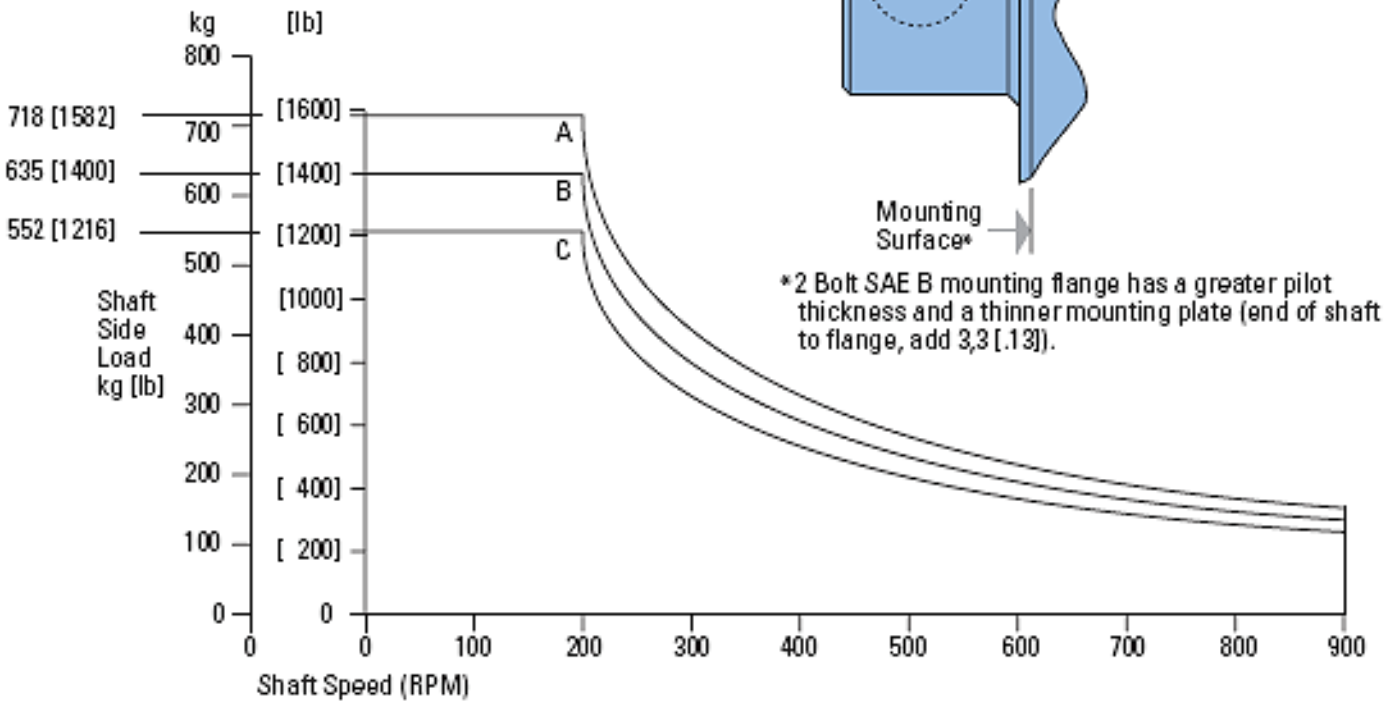
$$\text{Sideload P [lb]} = \frac{900}{N}\left(\frac{1460}{L + [3.79]}\right) \quad \text{for 200-900 RPM}$$

Where N = Shaft Speed (RPM)

L = Distance from Mounting Surface



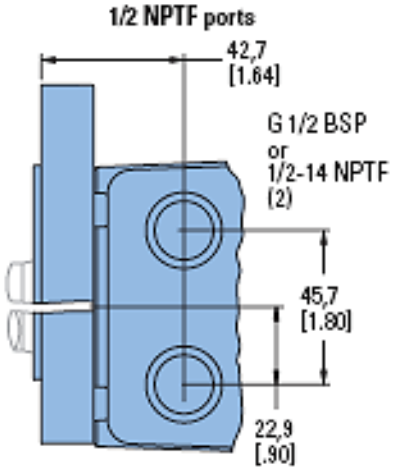
*2 Bolt SAE B mounting flange has a greater pilot thickness and a thinner mounting plate (end of shaft to flange, add 3,3 [.13]).

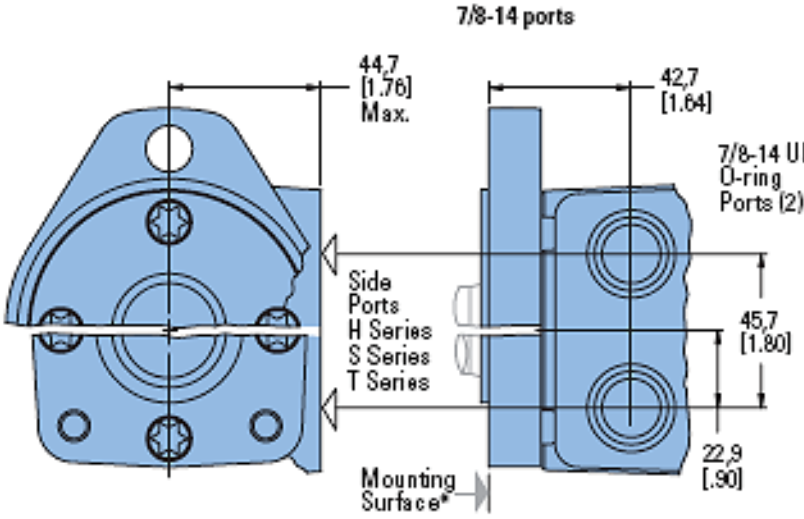


H and S Series (101-, 103-)

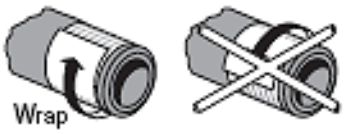
Dimensions

Ports





Use of Teflon Tape Sealant/ Lubricant (with 1/2 14 NPTF Port Connectors only).



When using fittings with Teflon tape, be careful when taping and tightening. Over tightening or improperly taped fittings can cause damage to housing or leakage.

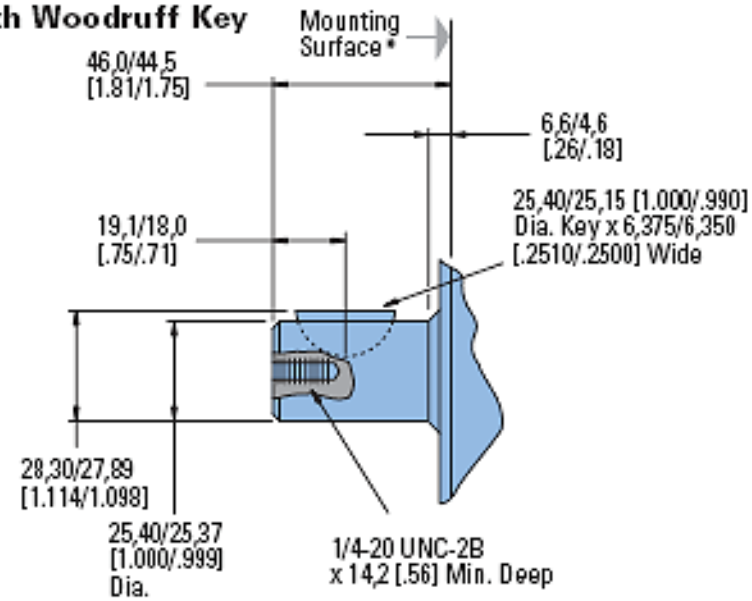
Use the following procedures:

- Wrap approx. 1 1/2 Turns of 13 mm [1/2 in.] wide Teflon Tape around fitting threads — start tape 2 threads up from end of fitting.
- Tighten threads to a Maximum of 34 Nm [25 lb-ft]. — Do Not Tighten Further —
- If fittings leak when tightened to maximum torque, either retape, reseal, or replace fittings.

Dimensions

Shafts

1 in. Dia. Straight with Woodruff Key



Shaft Size Motor Torque Combination Limit Guide