Spool Valve motors incorporate the proven orbit motor principle to provide high torque at low speeds.

Powering Business Worldwide

Spool Valve Motors

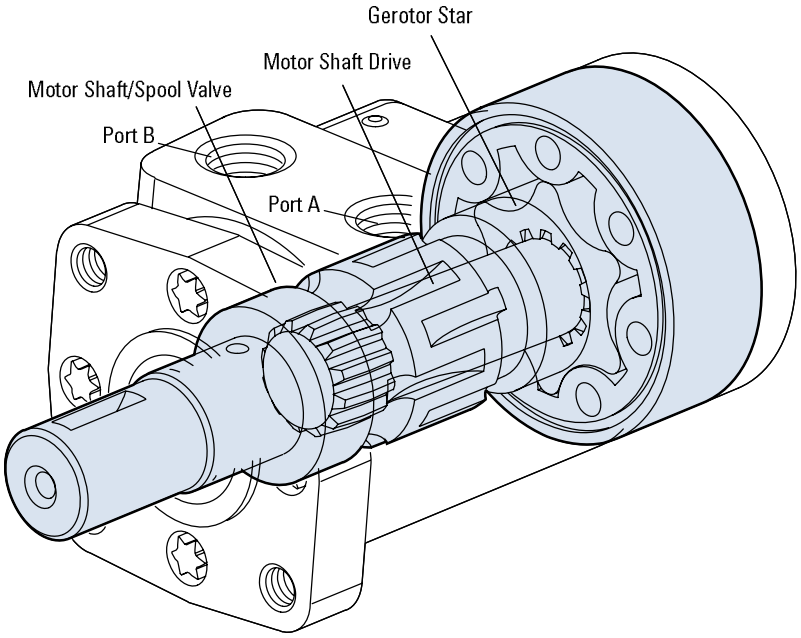
Highlights

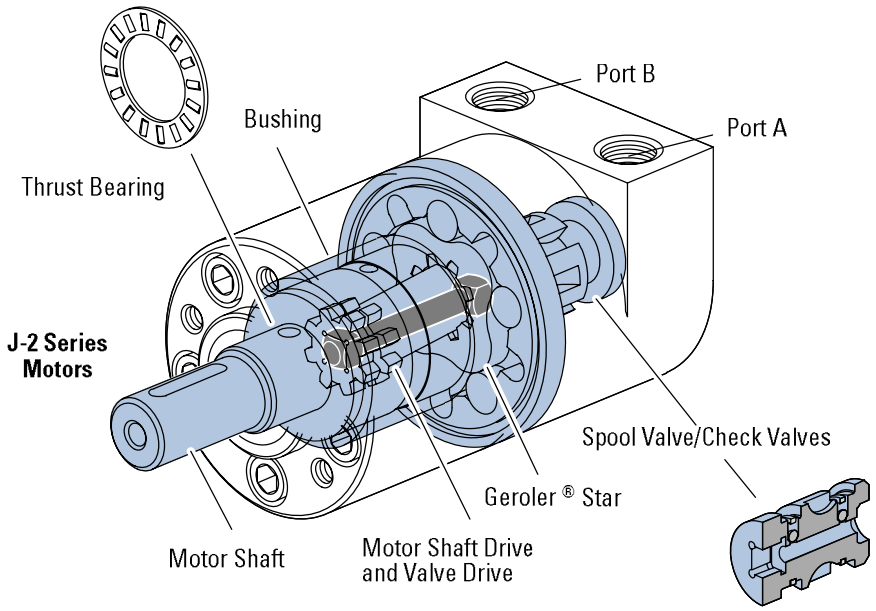
Product Description

Char-Lynn spool valve motors distribute pressurized fluid into and out of the Orbit gear set (Gerotor or Geroler) via valve slots integrated into the output shaft. The spool valve motors incorporate both valving and hydrodynamic journal bearings into a common shaft design. The valve section (spool valve) can be optimized for low flow, low speed needs using a low speed spool option to enhance smooth running performance.

These motors incorporate the proven orbit motor principle to provide high torque at low speeds.

Motor shaft rotation can be instantly reversed by changing direction of input/output flow while generating equal torque in either direction. The displacements available provide a wide variety of speeds and torques from any spool valve motor series.





Features, Benefits, and Applications

Features

- Proven Orbit Motor Principle
- Hydrodynamic Journal Bearings
- Constant Clearance Geroler
- Three-Zone Pressure Design
- Reduced drive running-angle
- High-pressure seals
- Modular design

Benefits

- Compact, powerful package
- Infinite bearing life (at rated loads)
- High efficiency
- Increases shaft seal & bearing life
- Smooth operation, increases drive life
- Reduces leakage
- Design flexibility
- Economically tailored solutions

Applications

- Harvesters
- Augers
- Spreaders
- Machine tools
- Conveyors
- Winches
- Turf care equipment
- Food processing
- Aerial Work Platforms
- Anywhere a compact drive with high output torque is needed

Design Features

Spool valve technology is typically used where compact, economical solutions are most needed. Spool valve motors use a spool valve to precisely time and control flow through the orbit gear set (Gerotor or Geroler). Inlet flow is directed into and out of the orbit set via slots in the spool and passages through the motor housing. The result is a very cost-effective compact package suited to many application requirements. The three primary components in the motor are the orbit star, drive and output shaft. H, S and T Series incorporate the spool valve and hydrodynamic bearings in the motor shaft. The W series is similar except a ball bearing is used for the front bearing for increased side-load capacity. Due to its compact size and high speed capability, the J Series is unique and utilizes a separate dedicated spool and spool valve drive. All motors utilize Eaton's constant-clearance Geroler technology except the H Series, which continues to use the time-proven H motor gerotor set. These motors all use a three-zone pressure design consisting of three unique pressure areas: 1) inlet, 2) return, 3) case. This provides the capability to limit motor case pressure and allows the use of several case pressure options for extended shaft seal and thrust bearing life.

Below is a quick-guide to help select the proper motor for your application:

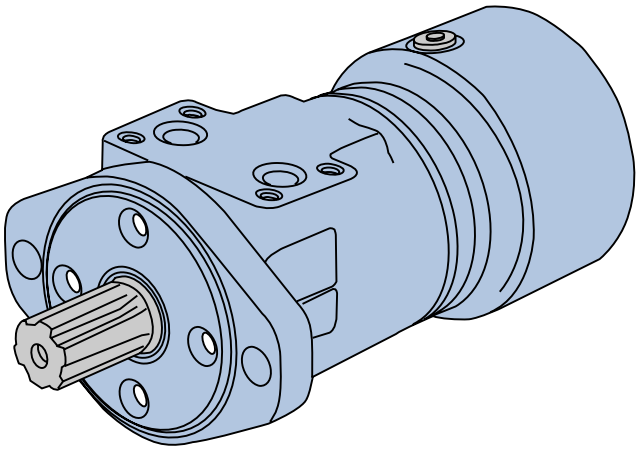
MOTOR QUICK-GUIDE (BASED ON MAXIMUM CONTINUOUS RATINGS)

Series	Output Torque Nm [lb-in]	Pressure bar [psi]	Flow lpm [gpm]	Side Load kg [lbs]
J Series	62 [550]	140 [2030]	21 [5.5]	196 [430]
H Series	407 [3607]	124 [1800]	57 [15]	635 [1400]
S Series	430 [3800]	135 [2000]	55 [15]	635 [1400]
T Series	450 [4000]	155 [2250]	55 [15]	635 [1400]
W Series	410 [3625]	165 [2400]	68 [18]	845 [1900]

* The above are provided as guidelines only. Actual ratings vary depending on final motor configuration

T Series with Parking Brake (185-)

Highlights



Description

Eaton's latest offering in LSHT motor technology is the new T Series Motor with Parking Brake.

T Series Motor with Parking Brake utilizes brake pads that rotate at 6 times the speed of the output shaft, thereby giving the brake a 6-to-1 mechanical advantage. The T Series Motor with Parking Brake utilizes the same Geroler, and Spool Valve technologies as the standard Char-Lynn motors. Therefore, in addition to providing dependable load-holding capability, T Series Motor with Parking Brake provides the same smooth, reliable operation, with similar performance, as the T Series Motor.

Specifications

Geroler Element	11 Displacements
Flow l/min [GPM]	55 [15] Continuous***
	75 [20] Intermittent**
Speed	Up to 1055 RPM
Pressure bar [PSI]	155 [2250] Cont.***
	190 [2750] Inter.**
Torque Nm [lb-in]	441 [3905] Cont.***
	486 [4300] Inter.**

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

Features

- Integrated, Compact, Patented Design
- Capability of Combining 4 inventory items into a single assembly (motor, brake, counter-balance valve, brake release line)
- Rear-mounted integrated brake with 6:1 torque advantage
- Access port for manual brake release (for over-riding brake in the event of loss of release pressure.)

Benefits

- Cost-effective Packaged System Solution
- Simplifies ordering and inventory requirements
- Reduces assembly labor
- Design Flexibility
- Wet brake is environmentally protected and provides long life

Applications

- Truck-Mounted Equipment (boom rotate and winch)
- Conveyors – Positioners – Indexers
- Marine Cranes (boom rotate and winch)
- Fishing Winches
- Recycling and Refuse Equipment
- Vehicle Recovery Winches
- Mining Equipment
- Specialty Utility Vehicles/ Machines
- Forestry Grapples
- Agricultural Equipment
- Railroad Equipment
- Airport Support Vehicles
- Lawn & Turf Equipment
- Anywhere Load-Holding is Needed in a Low-Speed High-Torque Drive System

Crane and winches

Boom Lift (Swing)

Maintenance Equipment

T Series with Parking Brake (185-)

Application Information

Principle of Operation

The wet brake is a spring-applied / pressure release design. Load-holding is applied by a mechanical spring and released by hydraulic pressure. The spring force holds the brake on when hydraulic pressure is absent.

Release Pressure

Release pressure is defined as the amount of pressure required to fully release the brake. The brake pressure cavity is common (shared) with the motor case. As a result, maximum release pressure is constrained by the motor case-pressure capability. The T Series Motor with Parking Brake incorporates a shaft seal capable up to 1500 psi (see page B-4-15). However, seal life is reduced at higher case pressure.

Residual Pressure

Residual pressure is the pressure trapped in the system by restrictions or long return lines.

Residual pressure in the motor case will lower the rated load holding torque of the brake.

Therefore, special attention needs to be given when applying this product. Keep in mind that long return lines create higher pressure that will reduce brake holding torque. In applications with high system pressures, the use of a pressure reducing valve to limit case and release pressure is recommended.

Holding Torque and Motor Output Torque

Holding torque is based on grade holding requirements for a vehicle or other load holding requirements in the application. System pressure and motor displacement are the factors in determining motor output torque. Motor displacement, measured in cubic centimeters or cubic inches, is the volume of fluid required to make one revolution. Motor output torque is the rotary force and is usually measured in inch pounds, newton meters or foot pounds. Maximum motor torque depends on pressure and motor displacement. Both output shaft size and shaft type can also affect motor torque. The T Series Motor with Parking Brake load holding capacity is factory set to match any limiting factor in each specific motor configuration (e.g. displacement, output shaft, etc).

Note:

Eaton Corporation does not approve any products for customer applications. It is the sole responsibility of the customer to qualify and verify the correct operation of products in their systems.

Note:

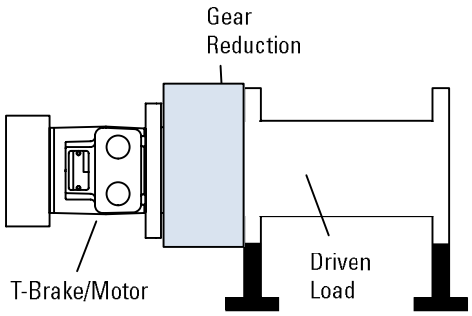
Special attention should be given to system back pressure. System back pressure directly affects brake release pressure and can cause the brake to release at undesired conditions.

Note:

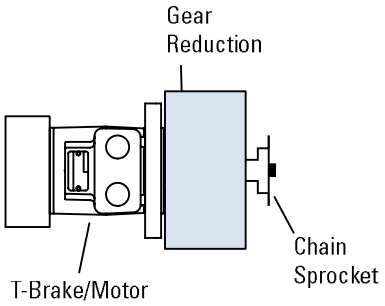
The T Series with parking brake is not compatible with water based fluids.

Typical Applications

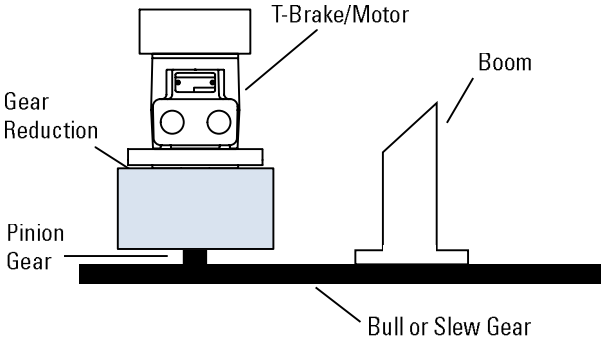
Winch



Machine Drive

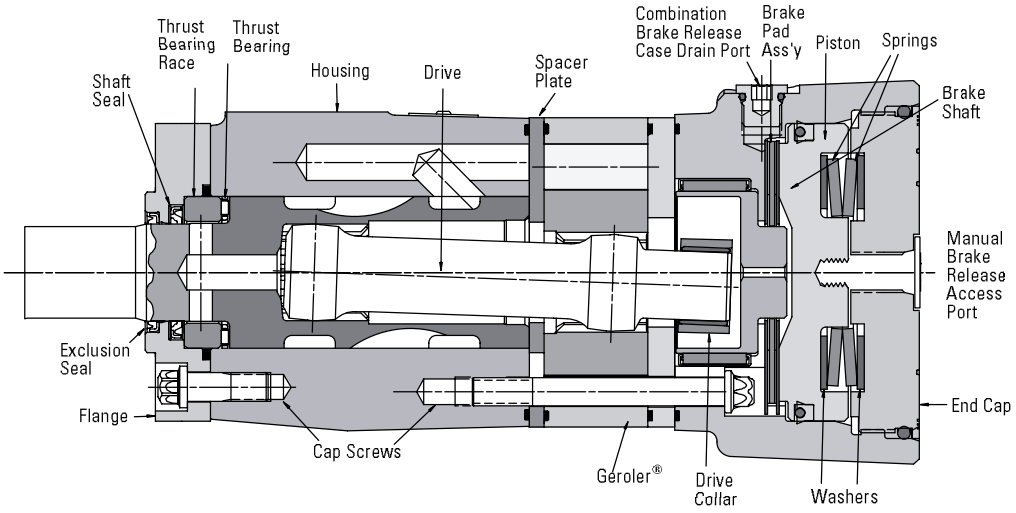


Swing Boom



T Series with Parking Brake (185-)

Specifications



SPECIFICATION DATA — T SERIES WITH PARKING BRAKE MOTORS

Displ. cm³/r [in³/r]		36 [2.2]	49 [3.0]	66 [4.0]	80 [4.9]	102 [6.2]	131 [8.0]	157 [9.6]	195 [11.9]	244 [14.9]	306 [18.7]	370 [22.6]
Max. Speed (RPM) @ Continuous Flow		1021	906	849	694	550	426	355	287	229	183	152
Flow LPM [GPM]	Continuous	38 [10]	45 [12]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]
	Intermittent	38 [10]	57 [15]	68 [18]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]
Torque Nm [lb-in]	Continuous	76 [672]	105 [928]	138 [1222	174 [1541]	219 [1936]	251 [2226]	297 [2628]	359 [3178]	410 [3633]	441 [3905]	430 [3811]
	Intermittent **	93 [824]	118 [1131]	168 [1488]	212 [1872]	264 [2339]	307 [2718]	359 [3178]	437 [3864]	485 [4290]	483 [4275]	486 [4300]
Pressure Δ Bar [Δ PSI]	Continuous *	155 [2250]	155 [2250]	155 [2250]	155 [2250]	155 [2250]	138 [2000]	138 [2000]	138 [2000]	127 [1850]	110 [1600]	90 [1300]
	Intermittent * **	190 [2750]	190 [2750]	190 [2750]	190 [2750]	190 [2750]	172 [2500]	172 [2500]	172 [2500]	155 [2250]	124 [1800]	103 [1500]

Note:

See page B-4-2 for additional motor specification notes and definitions. The T Series with Parking Brake performance is similar to the standard T Series motor. High speed conditions may reduce performance on T Series with Parking Brake.

T SERIES BRAKE HOLDING TORQUE SETTINGS:

Shaft Code	Output Shaft Description [in³/r]	2.2	3.0	4.0	4.9	6.2	8.0	9.6	11.9	14.9	18.7	22.6
18	1 Tapered w/key and nut	2,000	2,000	2,000	3,500	3,500	3,500	5,000	5,000	5,000	5,000	5,000
02	1 SAE 6B Splined	2,000	2,000	2,000	3,500	3,500	3,500	5,000	5,000	5,000	5,000	5,000
24	25mm Straight w/key	2,000	2,000	2,000	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
01	1 Straight w/key	2,000	2,000	2,000	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
07	1 Straight w/.31 dia. crosshole	2,000	2,000	2,000	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
08	1 Straight w/.40 dia. crosshole	2,000	2,000	2,000	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
16	7/8 SAE B 13T Splined	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
17	7/8 SAE B Straight w/key	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000

in-lbs Full Capacity Brake

in-lbs Limited Capacity Brake

Note:

The factory setting values are used for each motor based on motor displacement and shaft type.

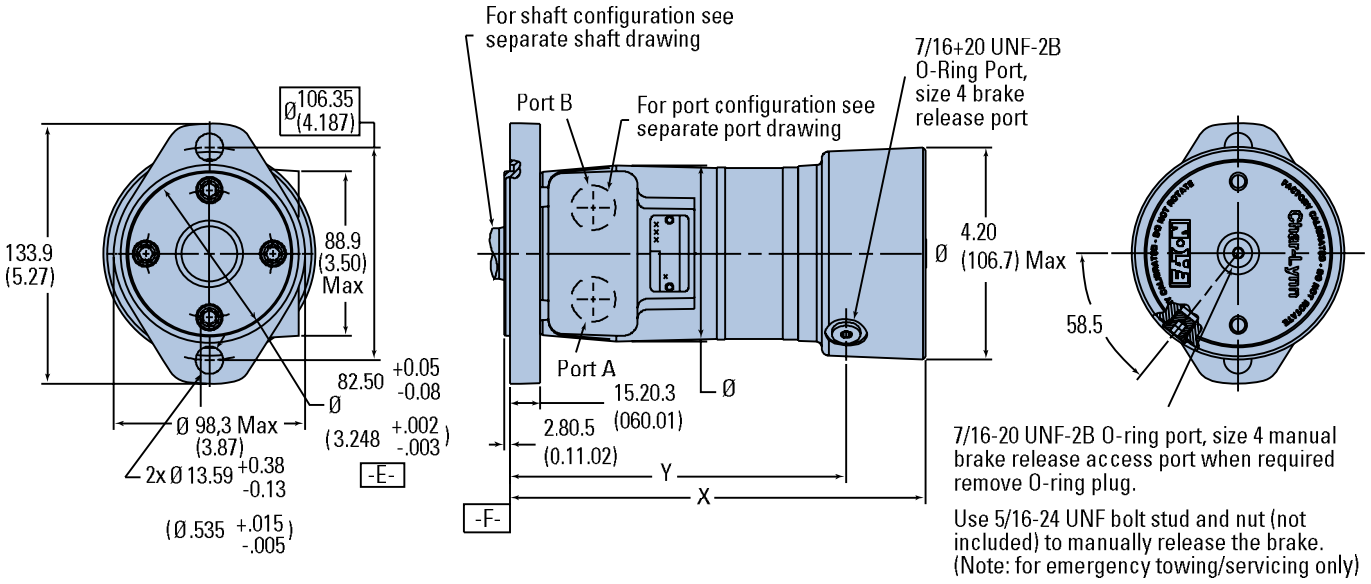
T Series with Parking Brake (185-)

Dimensions

(Refer to pages B-4-19 thru B-4-22 for shaft and port dimensions.)

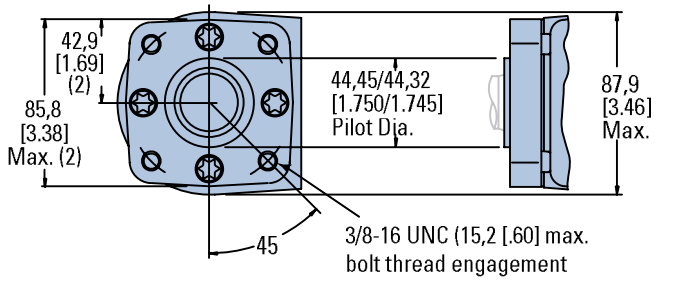
Standard Rotation Viewed from Shaft End

Port A Pressurized — CW
Port B Pressurized — CCW



7/16-20 UNF-2B O-ring port, size 4 manual brake release access port when required remove O-ring plug.

Use 5/16-24 UNF bolt stud and nut (not included) to manually release the brake. (Note: for emergency towing/servicing only)



T-SERIES WITH PARKING BRAKE DIMENSIONS

Displacement cm^3/r [in^3/r]	X mm [inch]	Y mm [inch]
02	190.2 [7.49]	143.9±0.9 [5.66±0.3]
A2	190.8 [7.51]	144.5±0.9 [5.69±0.3]
03	192.5 [7.58]	146.3±0.9 [5.76±0.3]
A3	194.3 [7.65]	148.1±0.9 [5.83±0.3]
04	195.6 [7.70]	149.3±0.9 [5.88±0.3]
05	198.4 [7.81]	152.0±0.9 [5.98±0.3]
06	202.2 [7.96]	155.9±0.9 [6.14±0.3]
08	207.5 [8.17]	161.3±0.9 [6.35±0.3]
10	212.6 [8.37]	166.2±0.9 [6.54±0.3]
12	219.2 [8.63]	172.9±0.9 [6.81±0.3]
15	228.3 [8.99]	181.9±0.9 [7.16±0.3]
19	239.5 [9.43]	193.3±0.9 [7.61±0.3]
23	251.2 [9.89]	205.0±0.9 [8.07±0.3]

Note:

Standard Rotation
When facing shaft end of motor shaft to rotate clockwise when port "A" is pressurized, counterclockwise when port "B" is pressurized

Reverse Rotation
When facing shaft end of motor shaft will rotate clockwise when port "B" is pressurized, counterclockwise when port "A" is pressurized

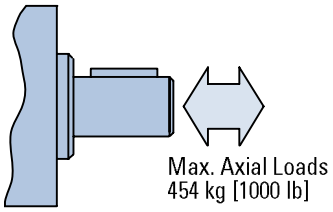
T Series with Parking Brake (185-)

Brake Release and Motor Case Pressure

The T Series Motor with Parking Brake is durable and has long life as long as the recommended case pressure is not exceeded. Allowable case pressure is highest at low shaft speeds.

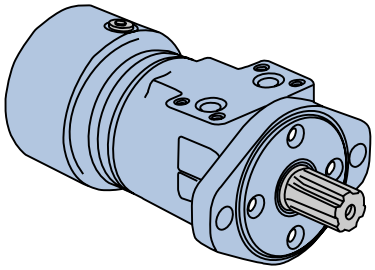
Motor life will be shortened if case pressure exceeds recommended ratings (acceptability may vary with application).

Refer to the Case Pressure/ Shaft Seal chart below. This chart is based on case pressure and motor shaft speed. A minimum release pressure of 17 Bar [250 PSI] must be maintained to fully release the brake.

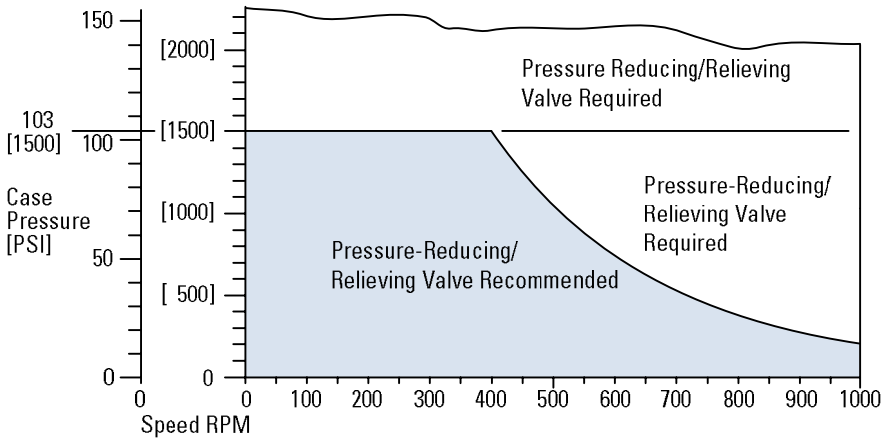


$P_C \approx .6\ DP + P_2$

P_C = Case Pressure
P_1 = Inlet Line Pressure
P_2 = Back Pressure
$DP = P_1 - P_2$



Case Pressure/Shaft Seal



T Series with Parking Brake (185-)

Product Numbers

Use digit prefix — 185 plus four digit number from charts for complete product number — Example 185-2068.

Orders will not be accepted without three digit prefix.

Standard Valving

MOUNTING	SHAFT	PORT SIZE	DISPL. cm^3/r [in^3/r] / PRODUCT NUMBER									
			3.0	4.0	4.9	6.2	8.0	9.6	11.9	14.9	18.7	22.6
2-Bolt	1 Keyed	7/8-14 O-Ring Manifold	185-2000 185-2010	2001 2011	2002 2012	2003 2013	2004 2014	2005 2015	2006 2016	2007 2017	2008 2018	2009 2019
	6B Splined	7/8-14 O-Ring Manifold	185-2020 185-2030	2021 2031	2022 2032	2023 2033	2024 2034	2025 2035	2026 2036	2027 2037	2028 2038	2029 2039
	13T Splined 16/32 pitch	7/8-14 O-Ring Manifold	185-2040 185-2050	2041 2051	2042 2052	2043 2053	2044 2054	2045 2055	2046 2056	2047 2057	2048 2058	2049 2059
4-Bolt	1 Keyed	7/8-14 O-Ring Manifold	185-2060 185-2070	2061 2071	2062 2072	2063 2073	2064 2074	2065 2075	2066 2076	2067 2077	2068 2078	2069 2079
	6B Splined	7/8-14 O-Ring Manifold	185-2080 185-2090	2081 2091	2082 2092	2083 2093	2084 2094	2085 2095	2086 2096	2087 2097	2088 2098	2089 2099
	13T Splined 16/32 pitch	7/8-14 O-Ring Manifold	185-2100 185-2110	2101 2111	2102 2112	2103 2113	2104 2114	2105 2115	2106 2116	2107 2117	2108 2118	2109 2119
2-Bolt SAE B	1 Keyed	7/8-14 O-Ring Manifold	185-2120 185-2130	2121 2131	2122 2132	2123 2133	2124 2134	2125 2135	2126 2136	2127 2137	2128 2138	2129 2139
	6B Splined	7/8-14 O-Ring Manifold	185-2140 185-2150	2141 2151	2142 2152	2143 2153	2144 2154	2145 2155	2146 2156	2147 2157	2148 2158	2149 2159
	13T Splined 16/32 pitch	7/8-14 O-Ring Manifold	185-2160 185-2170	2161 2171	2162 2172	2163 2173	2164 2174	2165 2175	2166 2176	2167 2177	2168 2178	2169 2179

Low Speed Valving

MOUNTING	SHAFT	PORT SIZE	DISPL. cm^3/r [in^3/r] / PRODUCT NUMBER									
			3.0	4.0	4.9	6.2	8.0	9.6	11.9	14.9	18.7	22.6
2-Bolt	1 Keyed	7/8-14 O-Ring Manifold	185-2180 185-2190	2181 2191	2182 2192	2183 2193	2184 2194	2185 2195	2186 2196	2187 2197	2188 2198	2189 2199
	6B Splined	7/8-14 O-Ring Manifold	185-2200 185-2210	2201 2211	2202 2212	2203 2213	2204 2214	2205 2215	2206 2216	2207 2217	2208 2218	2209 2219
	13T Splined 16/32 pitch	7/8-14 O-Ring Manifold	185-2220 185-2230	2221 2231	2222 2232	2223 2233	2224 2234	2225 2235	2226 2236	2227 2237	2228 2238	2229 223
4-Bolt	1 Keyed	7/8-14 O-Ring Manifold	185-2240 185-2250	2241 2251	2242 2252	2243 2253	2244 2254	2245 2255	2246 2256	2247 2257	2248 2258	2249 2259
	6B Splined	7/8-14 O-Ring Manifold	185-2260 185-2270	2261 2271	2262 2272	2263 2273	2264 2274	2265 2275	2266 2276	2267 2277	2268 2278	2269 2279
	13T Splined 16/32 pitch	7/8-14 O-Ring Manifold	185-2280 185-2290	2281 2291	2282 2292	2283 2293	2284 2294	2285 2295	2286 2296	2287 2297	2288 2298	2289 2299
2-Bolt SAE B	1 Keyed	7/8-14 O-Ring Manifold	185-2300 185-2310	2301 2311	2302 2312	2303 2313	2304 2314	2305 2315	2306 2316	2307 2317	2308 2318	2309 2319
	6B Splined	7/8-14 O-Ring Manifold	185-2320 185-2330	2321 2331	2322 2332	2323 2333	2324 2334	2325 2335	2326 2336	2327 2337	2328 2338	2329 2339
	13T Splined 16/32 pitch	7/8-14 O-Ring Manifold	185-2340 185-2350	2341 2351	2342 2352	2343 2353	2344 2354	2345 2355	2346 2356	2347 2357	2348 2358	2349 2359

185-2357

Motors with the low speed valving option enable very smooth low speed operation while maintaining high torque.

Designed to run continuously at up to 200 RPM at standard rated pressures and reduced flows, this option provides smooth operation at low speeds. Furthermore, they resist slippage and have more momentary load holding ability than the standard motors.

Motors with this valving are not intended for low pressure applications (41 Bar [600 PSI] Minimum).

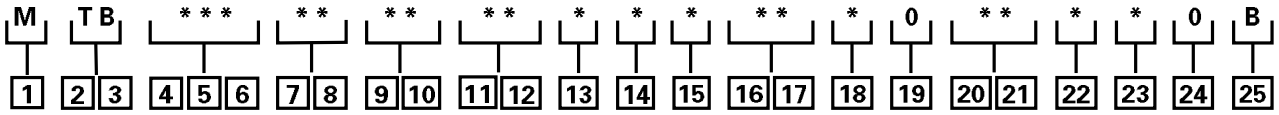
Shaft side / radial load ratings are not affected by this valving.

For a T Series motor with parking brake configuration not shown in the charts above use the model code system on page B-4-17 to specify the product in detail.

T Series with Parking Brake (185-)

Model Code

The following 25-digit coding system has been developed to identify all of the configuration options for the T Series Motor with Parking Brake. Use this model code to specify a motor with the desired features. All 25-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 Product

M – Motor

2, 3 Series

T B – T Series Motor with Parking Brake

4, 5, 6 Displacement cm^3/r [in^3/r]

022 – 36 [2.2]

030 – 49 [3.0]

040 – 66 [4.0]

049 – 80 [4.9]

062 – 102 [6.2]

080 – 131 [8.0]

096 – 157 [9.6]

119 – 195 [11.9]

149 – 244 [14.9]

187 – 306 [18.7]

226 – 370 [22.6]

7, 8 Mounting Type

AA – 2 Bolt (Standard) 82,5 [3.248] Dia. and 3,05 [.120] pilot, 13,59 [.535] Dia. Mounting Holes 106,35 [4.187] Dia. B.C.

BA – 4 Bolt (Standard) 44,40 [1.748] Dia. x 3,05 [.120] pilot, .375-16 UNC-2B Mounting Holes 82,55 [3.250] Dia. B.C.

CA – 2 Bolt (Standard) 82,50 [3.248] Dia. x 6,10 [.240] pilot, 10,41 [.410] Dia. Mounting Holes 106,35 [4.187] Dia. B.C. (SAE A)

DA – 2 Bolt (Std.) 101,60 [4.000] Dia. x 6.10 [.240] pilot, 14,35 [.565] Dia. Mounting Holes 146,05 [5.750] Dia. B.C. (SAE B)

EA – 4 Bolt Magneto 82,50 [3.248] Dia. x 3,05 [.120] Pilot, 13,59 [.535] Dia. Mounting Holes 106,35 [4.187] Dia. B.C.

FA – 4 Bolt (Standard) 44,40 [1.748] Dia. x 3,05 [.120] pilot, M10 x 1.5-6H Mounting Holes on 82,55 [3.250] Dia. B.C.

9, 10 Output Shaft Description

01 – 25,4 [1.00] Dia. Straight, Woodruff Key, .250-20 UNC-2B Hole in Shaft End

02 – 25,4 [1.00] Dia. SAE 6B Spline, .25-20 UNC-2B Hole in Shaft End

16 – SAE 13 Tooth Spline, 16/32 Pitch, 21,74 (.856) Dia. (SAE B)

18 – 25,4 [1.00] Dia. Tapered, Woodruff Key and Nut, 34,92 [1.375] Taper Length

24 – 25.00 [.984] Dia. Straight, 8.0 [.315] Key, MB x 1.25-6H Hole in Shaft End

11, 12 Port Type

AA – .875-14 UNF-2B SAE O-Ring Ports

AB – .500-14 NPTF Dryseal Pipe Thread Ports

AC – Manifold (.3125-18 UNC-2B Mounting Holes)

AD – Manifold Ports (MB x 1.25-6H Mounting Holes)

13 Case Flow Options

0 – None Specified

3 – Manifold Case Drain

14 Geroler Options

A – Standard

B – Free Running

15 Shaft Options

0 – None

N – Electroless Nickel Plated

16, 17 Seal Options

00 – Standard Seals

03 – Vitron Seals

05 – Vented Two-Stage Seal

07 – High Pressure Shaft Seal

18 Speed Sensor Options

0 – None

A – 12 mm Digital Speed Pickup (15 Pulse) without Lead Wire

(A=Power, B=Common, C=Signal)

19 Valve Options

A – None

20, 21 Special Features (Hardware)

00 – None Specified

AB – Low Speed Valving

22 Special Assembly Instructions

0 – None

2 – Flange Rotation 90°

23 Paint/Packaging Options

0 – No Paint

A – Painted Low Gloss Black

24 Customer ID/ Nameplate Options

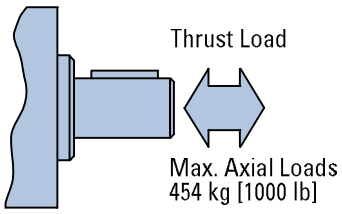
0 – None Specified

25 Design Code

B – Two (2)

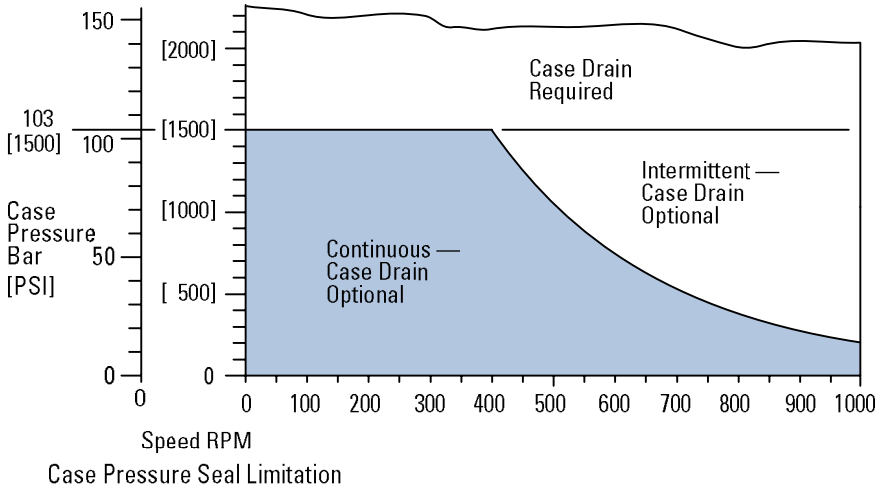
Case Pressure and Case Drain — H, S, and T Series

Char-Lynn H Series, S Series and T Series motors are durable and have long life as long as the recommended case pressure is not exceeded. Allowable case pressure is highest at low shaft speeds. Consequently, motor life will be shortened if case pressure exceeds these ratings (acceptability may vary with application). Determine if an external case drain is required from the case pressure seal limitation chart below — chart based on case pressure and shaft speed. If a case drain line is needed, connect drain line to assure that the motor will always remain full of fluid. A pressure restriction should be added to the case drain line, during which a motor case pressure of 3,5 Bar [50 PSI] is maintained.

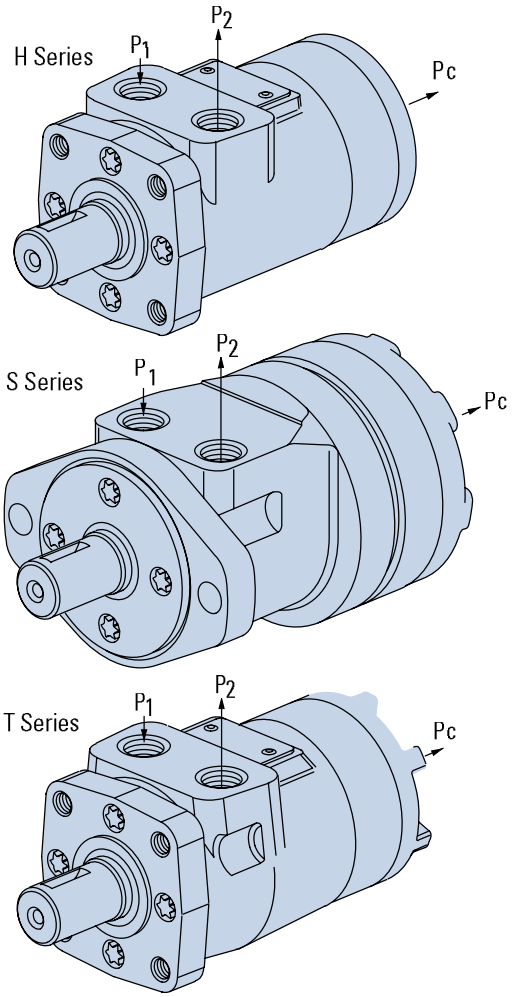


$P_C \approx .6 ? P + P_2$

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



Case Pressure Seal Limitation



H, S and T Series (101-, 103-, 158-, 185-)

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%.

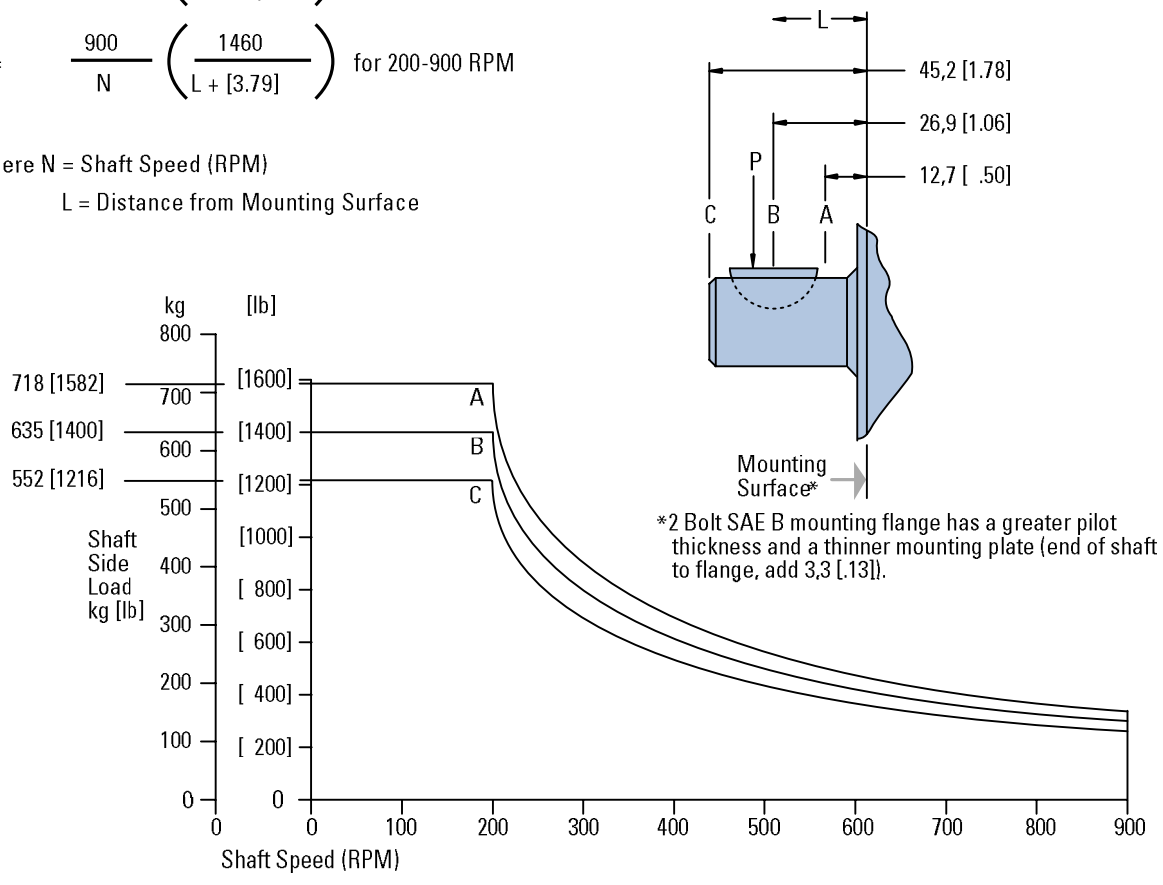
RPM	ALLOWABLE SHAFT SIDE LOAD — KG [LB]		
	A	B	C
900	154 [339]	136 [300]	118 [261]
625	205 [452]	181 [400]	158 [348]
500	256 [565]	227 [500]	197 [435]
400	307 [678]	272 [600]	237 [522]
300	410 [904]	363 [800]	316 [696]
200	718 [1582]	635 [1400]	552 [1216]

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

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

Where N = Shaft Speed (RPM)

L = Distance from Mounting Surface

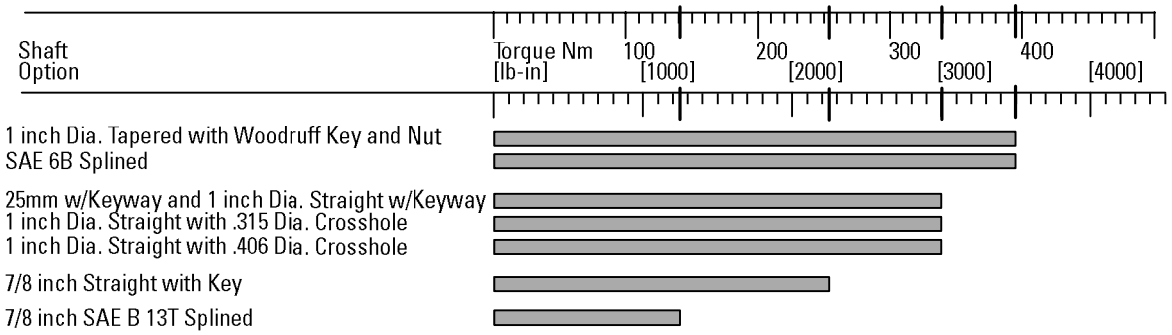


H, S and T Series (101, 103- 158, 185)

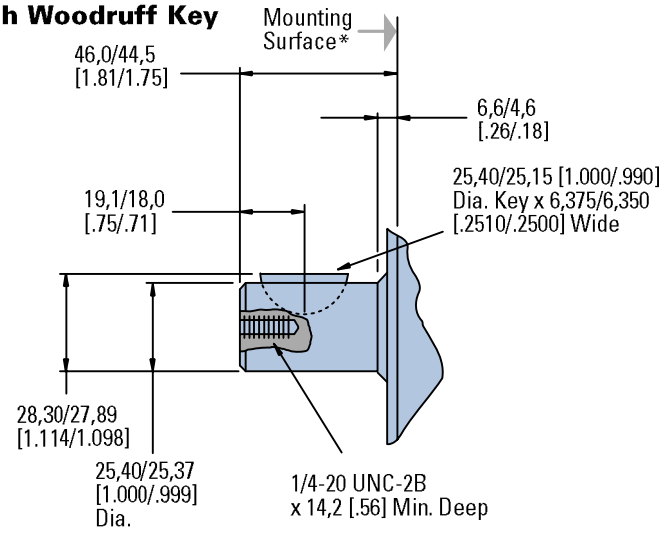
Dimensions

Shafts

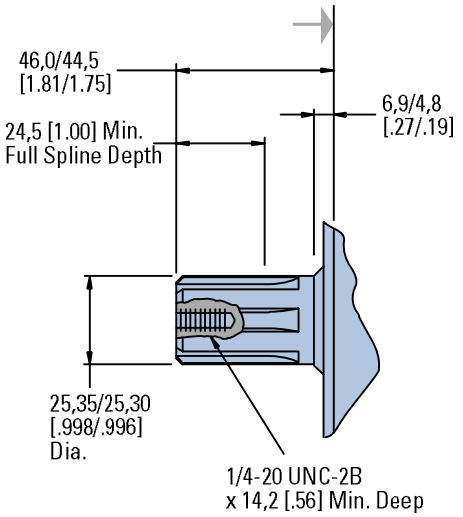
Shaft Size Motor Torque Combination Limit Guide



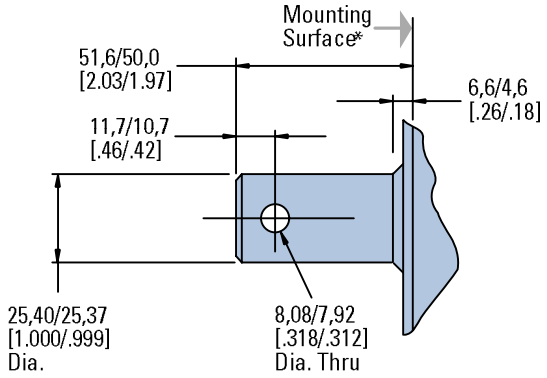
1 in. Dia. Straight with Woodruff Key



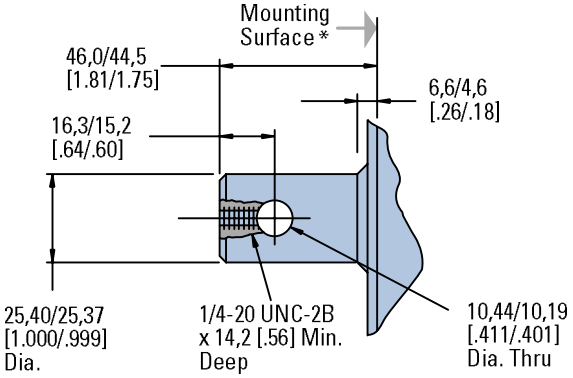
SAE 6B Splined Shaft



1 in. Dia. Straight Shaft with .315 Dia. Crosshole



1 in. Dia. Straight Shaft with .406 Dia. Crosshole



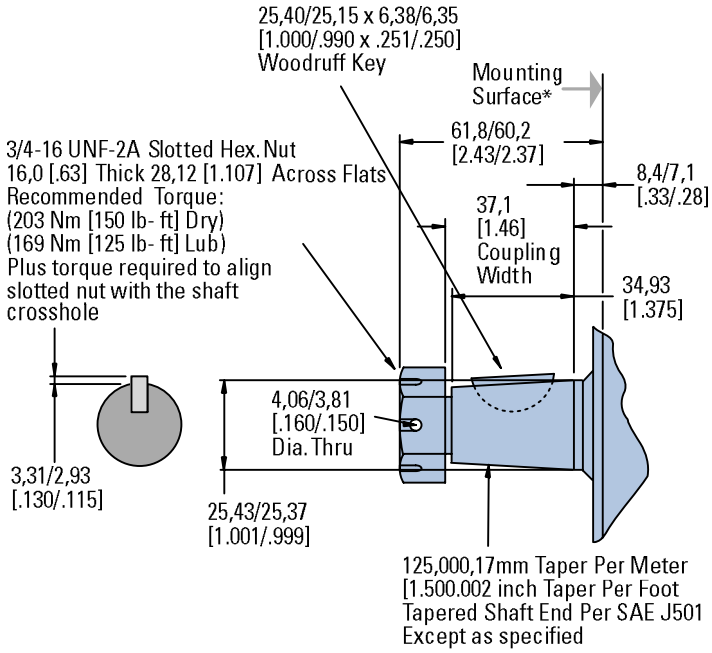
* 2 Bolt SAE B mounting flange has a greater pilot thickness and a thinner mounting plate (end of shaft to flange, add 3,3 [.13]).

H, S and T Series (101-, 103- 158-, 185-)

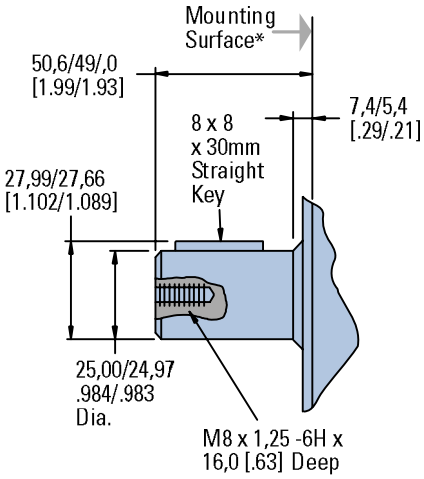
Dimensions

Shafts

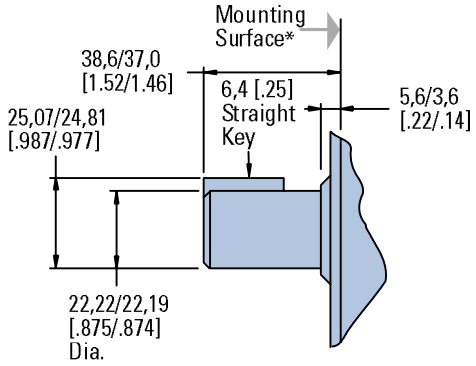
1 in. Dia. Tapered Shaft with Woodruff Key and Nut



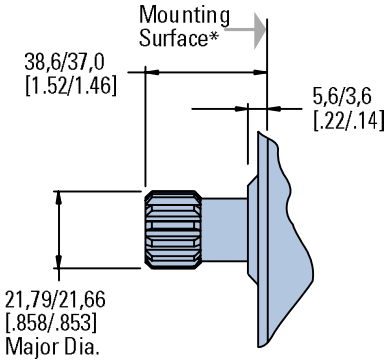
25mm Dia. Straight Shaft with 8mm Keyway



7/8 in. Dia. Straight Shaft with Key



7/8 in. Dia. SAE B Shaft 13 T Spline d



* 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]).

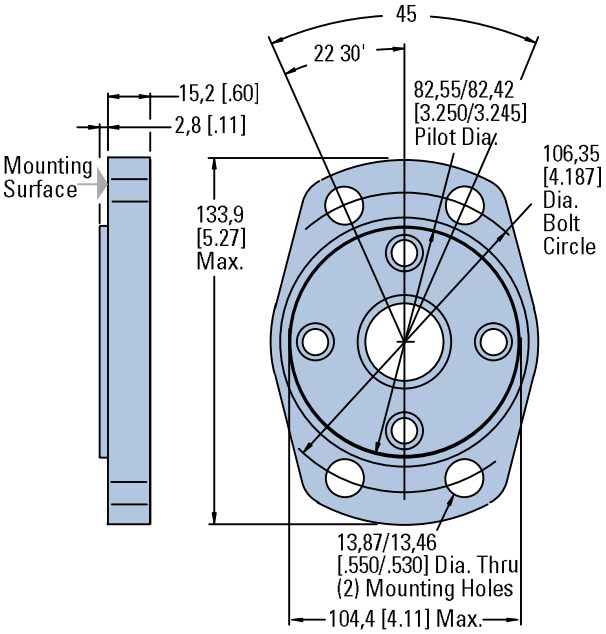
H, S and T Series (101-, 103- 158-, 185-)

Mounting Options

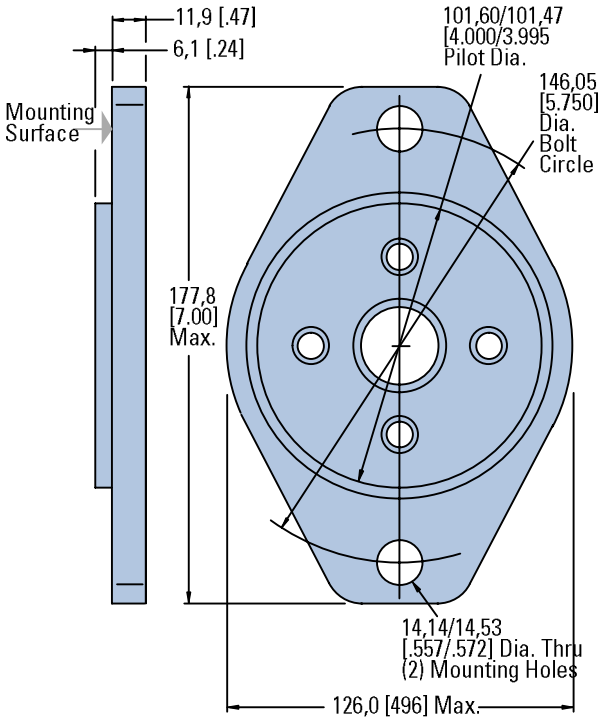
Note:

Mounting Surface Flatness Requirement is ▱,13mm [.005 inch] Max.

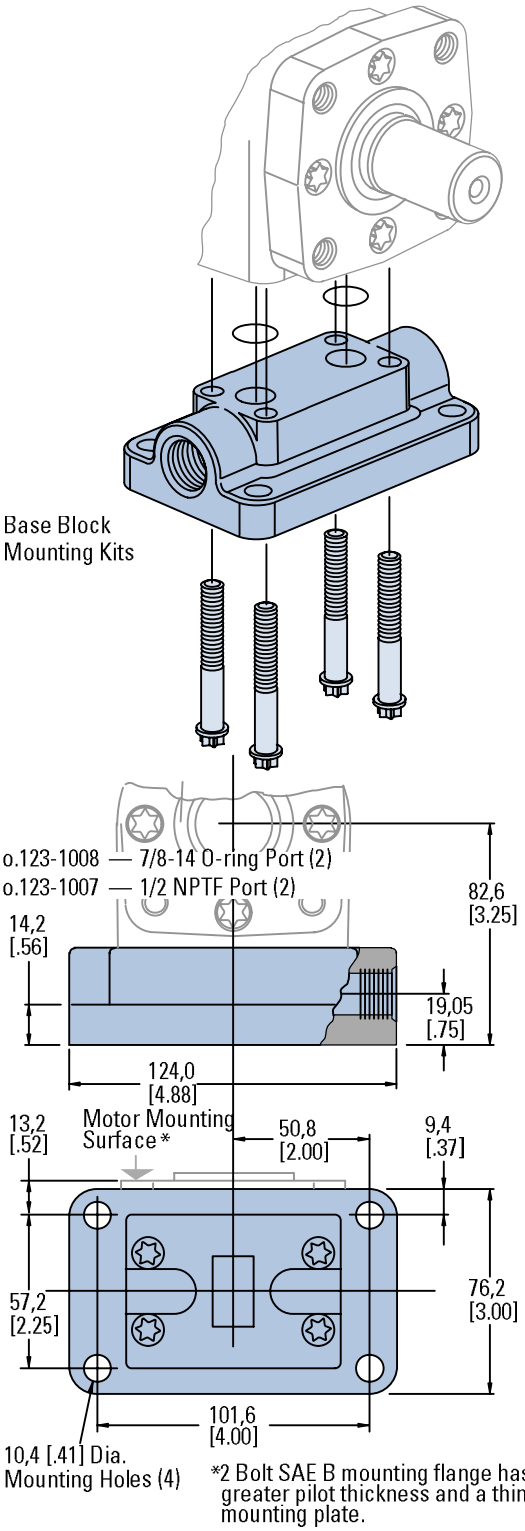
4 Bolt Magneto



2 Bolt SAE B



Base Bock Mounting Kits



*2 Bolt SAE B mounting flange has a greater pilot thickness and a thinner mounting plate.

H, S and T Series (101-, 103-, 158-, 185-)

Dimensions

Ports

Ports

End Ports — H Series only

G 1/2 (BSP) (2)

or 3/4-16 O-Ring (2)

Standard Rotation Viewed from Drive End

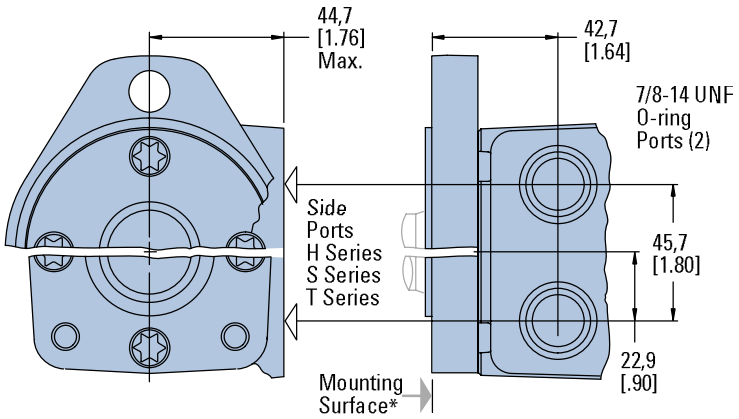
Port A Pressurized — CW

Port B Pressurized — CCW

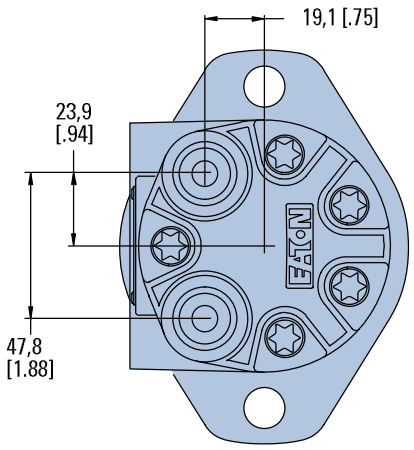
Note:

End ported motor pressure is derated. Reference page B-2-2 for ratings.

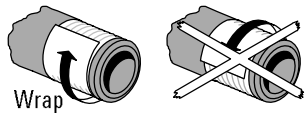
7/8-14 ports



End Ports (H Series only)



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

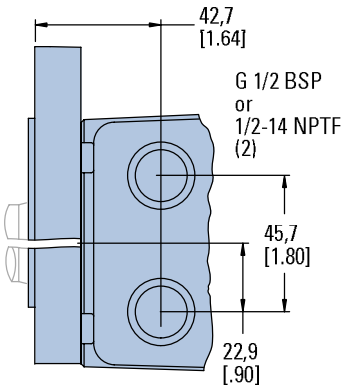


When using fittings with Teflon tape, be careful when taping and tightening. Over tightening or improperly taped fittings can cause damage to housing or leakage.

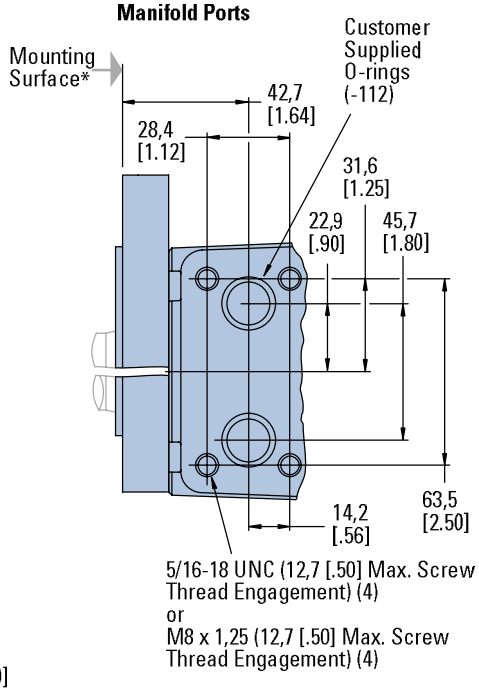
Use the following procedures:

- 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.

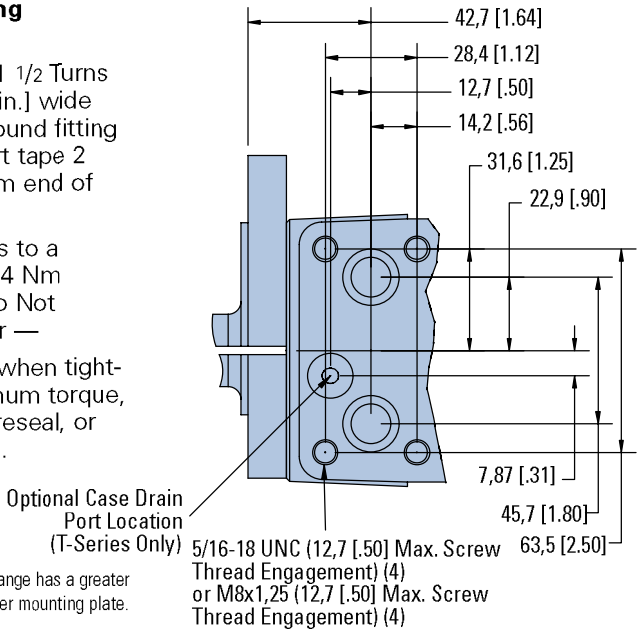
6-1/2 or 1/2 NPTF ports



Manifold Ports



Manifold Ports w/manifold case port



Note:

End ported motor option is derated to 1400 continuous, 1700 psi intermittent.

*2 Bolt SAE B mounting flange has a greater pilot thickness and a thinner mounting plate.

Notes