

4000 Compact Series

Highlights

Description:

This new compact addition in a family of disc valve hydraulic motors produces the same amount of torque as the current 4000 Series. Yet, it is housed in an envelope similar to its smaller counterpart, the 2000 Series. The unit's intermittent torque rating is 1220 Nm [10800 lb-in]. A variety of mounting options include two 2 bolt mounts (SAE A, SAE B), and four 4 bolt mounts (magneto, standard and wheel mounts.) For added flexibility, the motor can be specified with either the larger size shafts of the 2000 Series or standard output shaft sizes of the 4000 Series.

Features:

- Shuttle valve with back-pressure relief valve
- Speed sensors
- End ports
- Two Speed option

Benefits:

- Higher bearing capacity than 2000 Series
- Torque of 4000 Series

Applications:

- Skid steer loaders
- Fairway mowers
- Harvesters
- Vehicles where space is at a premium

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Specifications

Geroler element	6 Displacements
Flow l/min [GPM]	75 [20] Continuous** 115 [30] Intermittent*
Speed RPM	464 Cont.** 699 Inter.*
Pressure bar [PSI]	225 [3250] Cont.** 310 [4500] Inter.*
Torque Nm [lb-in]	975 [8627] Cont.** 1218 [10788] Inter.*

** Continuous— (Cont.) Continuous rating, motor may be run continuously at these ratings.

* Intermittent— (Inter.) Intermittent operation, 10% of every minute.



Lawn and Turf



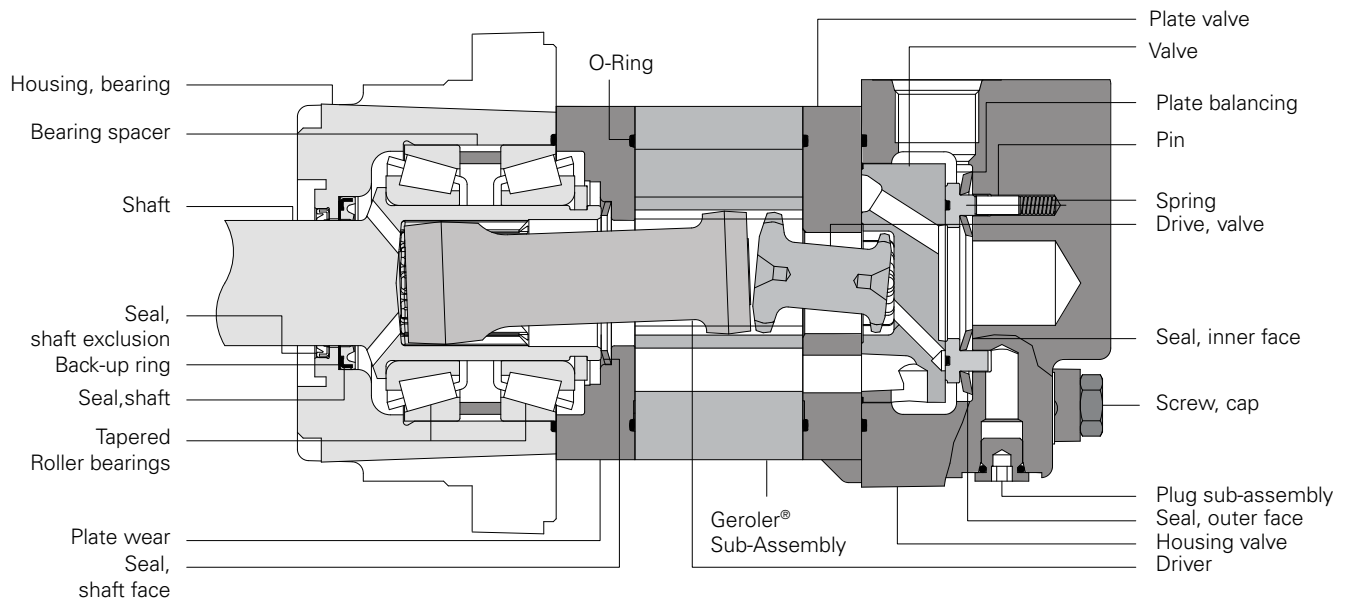
Paving equipment



Boom lift



Skid steer



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Specification data – 4000 Compact Series motors

Displ. cm ³ /r [in ³ /r]		160 [9.8]	200 [12.3]	250 [15.4]	325 [19.8]	405 [24.6]	490 [29.8]
Max. Speed (RPM) @ Flow	Continuous	464	375	300	234	188	155
	Intermittent	699	563	450	351	282	232
Flow l/min [GPM]	Continuous	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]	75 [20]
	Intermittent	115 [30]	115 [30]	115 [30]	115 [30]	115 [30]	115 [30]
Torque* Nm [lb - in]	Continuous	510 [4514]	646 [5715]	734 [6500]	793 [7021]	800 [7079]	975 [8627]
	Intermittent	690 [6108]	840 [7436]	935 [8272]	1053[9320]	921[8153]	1218 [10778]
Pressure Δ bar [Δ PSI]	Continuous	225 [3250]	225 [3250]	205 [3000]	170 [2500]	140 [2000]	140 [2000]
	Intermittent	310 [4500]	295 [4250]	260 [3750]	240 [3500]	170 [2500]	170 [2500]
	Peak	310 [4500]	310 [4500]	310 [4500]	310 [4500]	275 [4000]	260 [3750]
Weight kg [lb]	Standard or Wheel mount	10.4 [23.0]	10.9 [24.0]	11.3 [25.0]	11.8 [26.0]	12.2 [27.0]	12.2 [27.0]
	Bearingless	8.4 [18.5]	8.8 [19.5]	9.3 [20.5]	9.8 [21.5]	10.2 [22.5]	10.2 [22.5]

Maximum case pressure: See case pressure seal limitation graph.

*See shaft torque ratings for limitations.

Note: To assure best motor life, run motor in low speed high torque mode at approximately 30% of continuous pressure and 50% of continuous flow for 30 minutes in each direction before application of full load. Ensure that motor is filled with fluid prior to operation.

Maximum inlet pressure:

310 bar [4500 PSI] Do not exceed Δ pressure rating (see chart above).

Maximum return pressure:

310 bar [4500 PSI] with case drain line installed.

Do not exceed Δ pressure rating (see chart above).

Δ bar [Δ PSI]:

The true pressure difference between inlet port and outlet port

Continuous rating: Motor may be run continuously at these ratings

Intermittent operation: 10% of every minute

Peak operation: 1% of every minute

Recommended fluids:

Premium quality, anti-wear type hydraulic oil with a viscosity of not less than 13 cSt [70 SUS] at operating temperature.

Recommended system operating temp:

-34°C to 82°C [-30°F to 180°F]

Recommended filtration:

Per ISO Cleanliness code, 4406: 20/18/13

Thermal shock warning:

Do not operate the motor with fluid that is 70F or more above the motor temperature.

Minimum delta pressure warning:

Motors must not run with equal inlet and outlet pressure 50 PSID minimum delta pressure between motor ports is required at all times (except when switching direction of rotation)

4000 Compact Series

Performance data

Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

Performance data is typical at 25 cSt [120 SUS]. Actual data may vary slightly from unit to unit in production.

	Continuous		Peak
	Intermittent		No operation

**Δ Pressure bar [PSI]
325 cm³/r [19.8 in³/r]**

[250]	[500]	[750]	[1000]	[1250]	[1500]	[1750]	[2000]	[2250]	[2500]	[2750]	[3000]	[3250]	[3500]
15	35	50	70	85	105	120	140	155	170	190	205	225	240

[0.5]	[536]	[1152]												
1.9	61	130												
3.8	5	4												
[1]	[555]	[1220]	[1900]	[2559]	[3222]	[3862]	[4522]	[5061]	[5580]	[6106]				
7.5	63	138	215	289	364	436	511	572	630	690				
[2]	[643]	[1349]	[2025]	[2712]	[3378]	[4051]	[4696]	[5335]	[5889]	[6366]	[6876]			
15	73	152	229	306	382	458	531	603	665	719	777			
[4]	[679]	[1420]	[2140]	[2852]	[3557]	[4259]	[4947]	[5628]	[6300]	[6960]	[7596]	[8201]	[8767]	[9320]
23	77	160	242	322	402	481	559	636	712	786	858	927	991	1053
[6]	[654]	[1400]	[2132]	[2859]	[3575]	[4281]	[4977]	[5668]	[6346]	[7021]	[7678]	[8244]	[8792]	
30	74	158	241	323	404	484	562	640	717	793	868	931	993	
[8]	[629]	[1379]	[2125]	[2866]	[3592]	[4304]	[5007]	[5707]	[6392]	[7082]	[7760]	[8400]		
38	71	156	240	324	406	486	566	645	722	800	877	949		
[10]	[587]	[1337]	[2082]	[2827]	[3556]	[4272]	[4976]	[5672]	[6362]	[7053]				
45	66	151	235	319	402	483	562	641	719	797				
[12]	[546]	[1295]	[2040]	[2787]	[3520]	[4240]	[4944]	[5638]	[6332]	[7023]				
53	62	146	230	315	398	479	559	637	715	794				
[14]	[489]	[1238]	[1984]	[2729]	[3467]	[4193]	[4903]	[5600]	[6293]					
61	55	140	224	308	392	474	554	633	711					
[16]	[431]	[1182]	[1929]	[2671]	[3415]	[4145]	[4861]	[5562]	[6254]					
68	49	134	218	302	386	468	549	628	707					
[18]	[360]	[1110]	[1856]	[2600]	[3343]	[4073]	[4794]	[5499]						
76	41	125	210	294	378	460	542	621						
[20]	[288]	[1038]	[1784]	[2529]	[3271]	[4001]	[4726]	[5436]						
83	33	117	202	286	370	452	534	614						
[24]	[878]	[1628]	[2373]	[3116]	[3850]	[4574]	[5285]							
91	234	232	230	228	224	220	214	207						
[25]		[958]	[1706]	[2451]	[3194]	[3926]	[4650]	[5360]						
95		108	193	277	361	444	525	606						
[30]		[826]	[1576]	[2320]	[3063]	[3798]	[4523]							
114		93	178	262	346	429	511							
		[566]	[1314]	[2056]	[2799]	[3536]	[4268]							
		64	148	232	316	399	482							
		351	349	346	342	337	332							

[2799] } Torque [lb-in]
 316 } Nm
 342 } Speed RPM

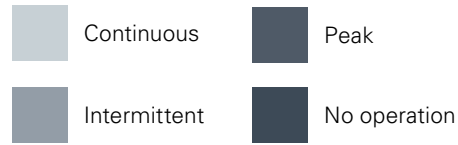
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4000 Compact Series

Performance data

Motors run with high efficiency in all areas designated with a number for torque and speed. For best motor life select a motor to run with a torque and speed range shown in the light shaded area.

Performance data is typical at 25 cSt [120 SUS]. Actual data may vary slightly from unit to unit in production.



Δ Pressure bar [PSI] 405 cm³/r [24.6 in³/r]

[250]	[500]	[750]	[1000]	[1250]	[1500]	[1750]	[2000]	[2250]	[2500]
15	35	50	70	85	105	120	140	155	170

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[0.5]	[719]	[1458]								
1.9	81 3	165 2								
[1]	[777]	[1631]	[2423]	[3148]	[3690]					
3.8	88 8	184 7	274 5	356 4	417 3					
[2]	[853]	[1812]	[2596]	[3375]	[4179]	[4845]	[5375]	[5841]	[6501]	
7.5	96 17	205 15	293 14	381 12	472 11	547 9	607 8	660 3	735 2	
[4]	[878]	[1859]	[2687]	[3667]	[4554]	[5388]	[6232]	[7004]	[7660]	[8153]
15	99 35	210 34	304 32	414 30	515 28	609 25	704 23	791 19	865 16	921 11
[6]	[882]	[1836]	[2716]	[3680]	[4577]	[5388]	[6269]	[7079]	[7856]	
23	100 54	207 52	307 51	416 48	517 46	609 42	708 39	800 35	888 31	
[8]	[885]	[1813]	[2746]	[3694]	[4600]	[5388]	[6307]	[7153]	[8052]	
30	100 73	205 72	310 70	417 68	520 65	609 62	713 58	808 55	910 50	
[10]	[810]	[1736]	[2693]	[3639]	[4540]	[5390]	[6310]	[7151]	[7994]	
38	92 92	196 90	304 89	411 86	513 84	609 80	713 75	808 71	903 67	
[12]	[735]	[1660]	[2640]	[3584]	[4480]	[5391]	[6314]	[7149]		
45	83 111	188 110	298 108	405 106	506 103	609 98	713 93	808 88		
[14]	[661]	[1622]	[2560]	[3512]	[4412]	[5330]	[6242]	[7059]		
53	75 130	183 128	289 127	397 124	498 121	602 117	705 112	798 108		
[16]	[587]	[1585]	[2480]	[3440]	[4343]	[5268]	[6170]			
61	66 149	179 147	280 146	389 143	491 141	595 137	697 131			
[18]	[492]	[1472]	[2379]	[3333]	[4270]	[5190]	[6084]			
68	56 168	166 167	269 165	377 162	482 160	586 156	687 150			
[20]	[397]	[1359]	[2279]	[3226]	[4197]	[5112]	[5999]			
76	45 188	153 186	257 184	365 182	474 179	578 175	678 170			
[22]		[1264]	[2194]	[3124]	[4093]	[5008]	[5904]			
83		143 205	248 203	353 201	462 198	566 193	667 188			
[24]		[1169]	[2110]	[3023]	[3989]	[4904]	[5810]			
91		132 224	238 222	342 220	451 216	554 212	656 207			
[25]		[1106]	[2049]	[2961]	[3929]	[4851]	[5766]			
95		125 233	231 232	335 229	444 226	548 222	651 217			
[30]		[790]	[1744]	[2655]	[3634]	[4587]	[5543]			
114		89 282	197 280	300 277	411 274	518 270	626 266			





[2655]
300 } Torque [lb-in]
227 } Nm
Speed RPM

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Performance data

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Performance data is typical at 25 cSt [120 SUS]. Actual data may vary slightly from unit to unit in production.

	Continuous		Peak
	Intermittent		No operation

**Δ Pressure bar [PSI]
490 cm³/r [29.8 in³/r]**

[250]	[500]	[750]	[1000]	[1250]	[1500]	[1750]	[2000]	[2250]	[2500]
15	35	50	70	85	105	120	140	155	170

Flow LPM [GPM]	[0.5]	[375]	[1669]																			
	1.9	42	189																			
	[1]	59	199	333	448	576	670	759	848													
	3.8	7	7	6	6	6	5	4	3													
	[2]	72	238	371	471	612	742	812	937	1012												
	7.5	14	14	13	13	11	11	9	6	5												
	[4]	111	249	377	517	628	750	869	975	1081	1175											
	15	30	29	29	28	27	26	24	21	18	13											
	[6]	119	251	376	518	633	754	871	984	1096	1196											
	23	45	45	44	43	42	40	38	35	31	26											
	[8]	126	253	376	519	638	758	873	994	1110	1218											
	30	61	60	60	59	58	56	54	51	48	44											
	[10]	120	252	373	509	633	756	872	998													
	38	76	76	75	75	73	72	69	66													
	[12]	113	251	370	499	629	755	872	1003													
	45	92	91	91	90	89	88	85	82													
	[14]	97	240	354	488	621	739	865														
	53	108	107	107	106	105	103	100														
	[16]	81	229	339	477	613	723	858														
	61	124	123	122	122	121	119	115														
[18]	71	215	332	467	602	716	840															
68	139	139	138	137	136	134	130															
[20]	62	202	325	457	591	709	832															
76	155	154	153	153	152	150	148															
[22]		[1669]	[2704]	[3928]	[5048]	[6124]	[7208]															
83		189	306	444	570	692	814															
		170	169	169	168	166	164															
[24]		[1553]	[2536]	[3816]	[4864]	[5972]	[7055]															
91		175	287	431	550	675	797															
		186	185	185	184	182	179															
[25]		[1469]	[2475]	[3737]	[4810]	[5909]	[6959]															
95		166	280	422	543	668	786															
		193	193	193	192	190	187															
[30]		[1047]	[2172]	[3341]	[4538]	[5592]	[6482]															
114		118	245	378	513	632	732															
		232	232	232	231	229	227															

{3341} Torque [lb-in]
378 } Nm
232 } Speed RPM

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4000 Compact Series

Dimensions

Standard mount

Ports

- 7/8 -14 UNF-2B SAE O-ring staggered ports (2)
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)
- 1 1/16 -12 UN-2B SAE O-ring ports (positioned 180° apart) (2)
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)
- 7/8 -14 UNF-2B SAE O-ring end ports (2)
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)
- G 1/2 (BSP) staggered ports (2)
- G 1/4 (BSP) case drain port (1)

Manifold Mount

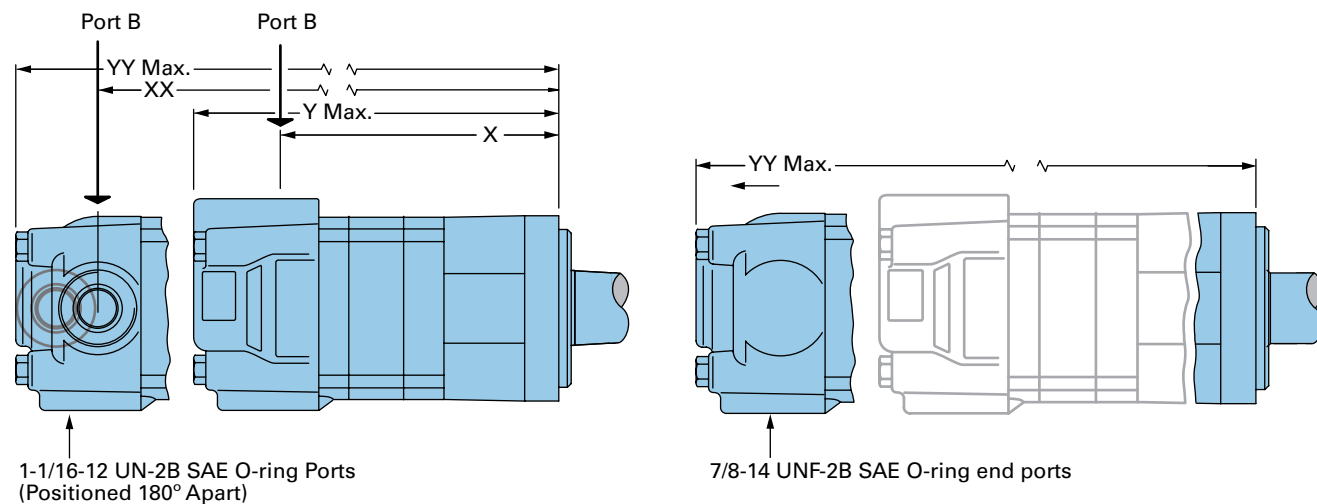
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)

Standard rotation viewed from shaft end

- Port A pressurized — CW
- Port B pressurized — CCW

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Standard mount



Standard mount motor dimensions

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]	XX mm [inch]	YY mm [inch]
160 [9.8]	154.7 [6.09]	201.9 [7.95]	157.0 [6.18]	203.3 [8.00]
200 [12.3]	163.8 [6.45]	211.1 [8.31]	166.1 [6.54]	212.3 [8.36]
250 [15.4]	175.3 [6.90]	222.5 [8.76]	177.5 [6.99]	223.8 [8.81]
325 [19.8]	191.0 [7.52]	238.5 [9.39]	193.3 [7.61]	239.8 [9.44]
405 [24.6]	208.5 [8.21]	255.8 [10.07]	210.8 [8.30]	257.0 [10.12]
490 [29.8]	208.5 [8.21]	255.8 [10.07]	210.8 [8.30]	257.0 [10.12]

Wheel mount

Ports

- 7/8 -14 UNF-2B SAE O-ring staggered ports (2)
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)
- 1 1/16 -12 UN-2B SAE O-ring ports (positioned 180° apart) (2)
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)
- 7/8 -14 UNF-2B SAE O-ring end ports (2)
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)
- G 1/2 (BSP) staggered ports (2)
- G 1/4 (BSP) case drain port (1)

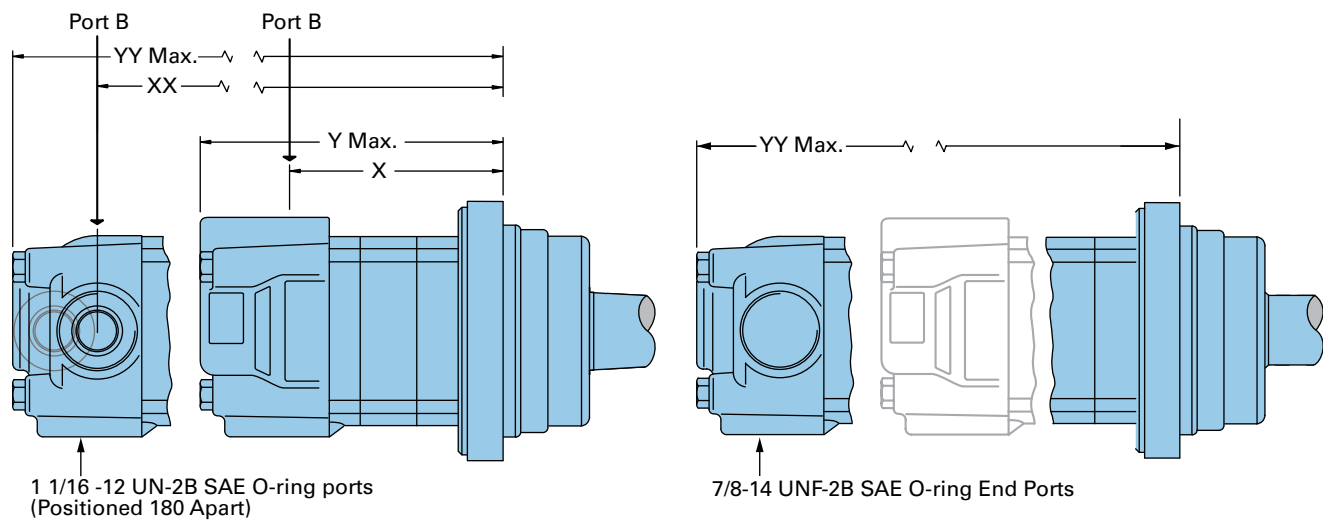
Manifold Mount

- 7/16 -20 UNF-2B SAE O-ring case drain port (1)

Standard rotation viewed from shaft end

- Port A pressurized — CW
- Port B pressurized — CCW

Standard wheel



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Wheel mount motor dimensions

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]	XX mm [inch]	YY mm [inch]
160 [9.8]	114.6 [4.51]	161.8 [6.37]	114.6 [4.51]	161.8 [6.37]
200 [12.3]	123.7 [4.87]	170.9 [6.73]	123.7 [4.87]	170.9 [6.73]
250 [15.4]	135.1 [5.32]	182.4 [7.18]	135.1 [5.32]	182.4 [7.18]
325 [19.8]	150.9 [5.94]	198.4 [7.81]	150.9 [5.94]	198.4 [7.81]
405 [24.6]	168.4 [6.63]	215.6 [8.49]	168.4 [6.63]	215.6 [8.49]
490 [29.8]	168.4 [6.63]	215.6 [8.49]	168.4 [6.63]	215.6 [8.49]

4000 Compact Series

Dimensions

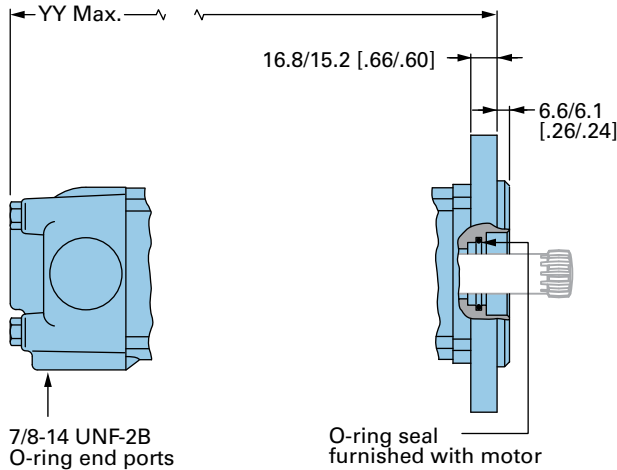
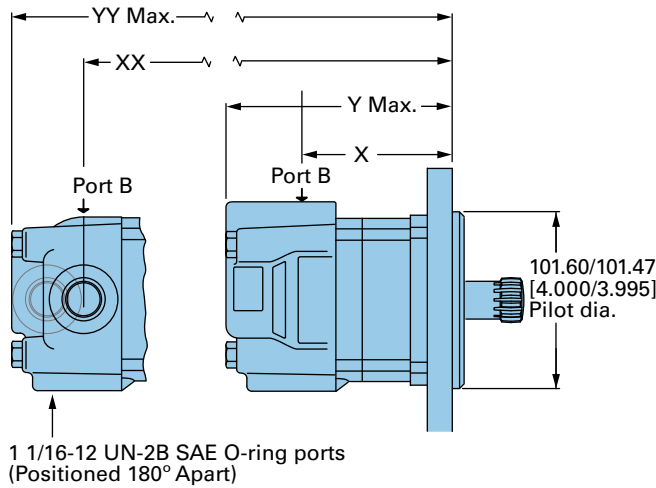
Bearingless

Ports

- 7/8 -14 UNF-2B SAE O-ring staggered ports (2)
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)r
- 1 1/16 -12 UN-2B SAE O-ring ports (positioned 180° apart) (2)
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)
- 7/8 -14 UNF-2B SAE O-ring end ports (2)
- 7/16 -20 UNF-2B SAE O-ring case drain port (1)
- G 1/2 (BSP) staggered ports (2)
- G 1/4 (BSP) case drain port (1)

Bearingless

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Bearingless motor dimensions

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]	XX mm [inch]	YY mm [inch]
160 [9.8]	96.8 [3.81]	144.3 [5.68]	99.1 [3.90]	145.5 [5.73]
200 [12.3]	105.7 [4.16]	153.4 [6.04]	108.0 [4.25]	154.7 [6.09]
250 [15.4]	117.1 [4.61]	164.8 [6.49]	119.4 [4.70]	166.1 [6.54]
325 [19.8]	133.1 [5.24]	180.8 [7.12]	135.4 [5.33]	182.1 [7.17]
405 [24.6]	150.4 [5.92]	198.1 [7.80]	152.7 [6.01]	199.4 [7.85]
490 [29.8]	150.4 [5.92]	198.1 [7.80]	152.7 [6.01]	199.4 [7.85]

Manifold mount

- 7/16 -20 UNF-2B SAE O-ring case drain port (1)

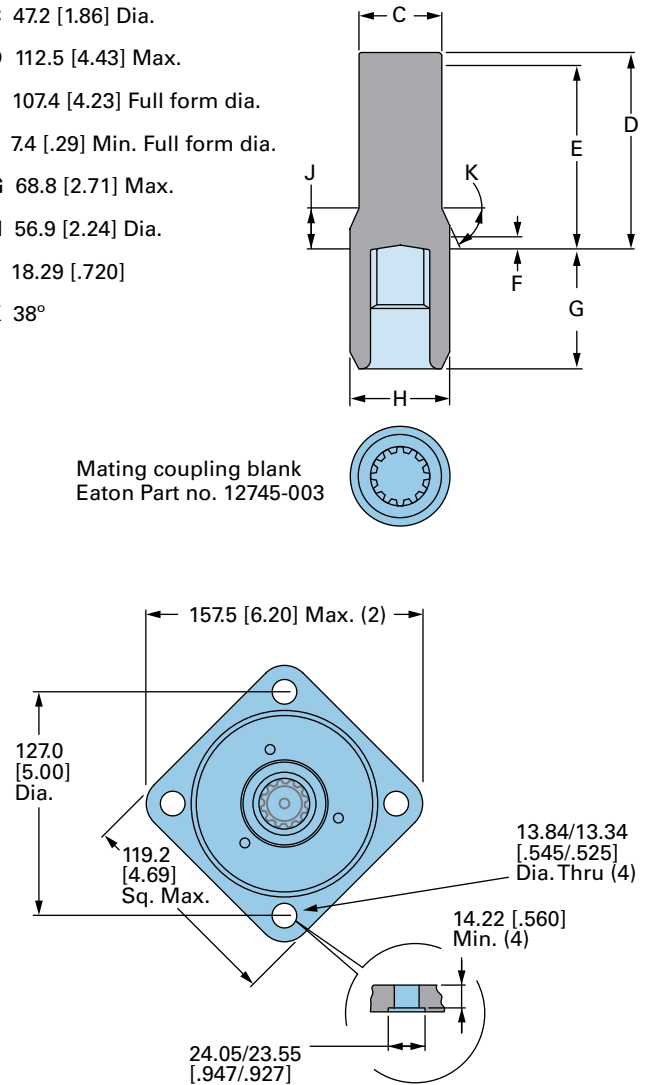
Standard rotation viewed from drive end

- Port A pressurized — CW
- Port B pressurized — CCW

Shaft blank dimensions

- C 47.2 [1.86] Dia.
- D 112.5 [4.43] Max.
- E 107.4 [4.23] Full form dia.
- F 7.4 [.29] Min. Full form dia.
- G 68.8 [2.71] Max.
- H 56.9 [2.24] Dia.
- J 18.29 [.720]
- K 38°

Mating coupling blank
Eaton Part no. 12745-003

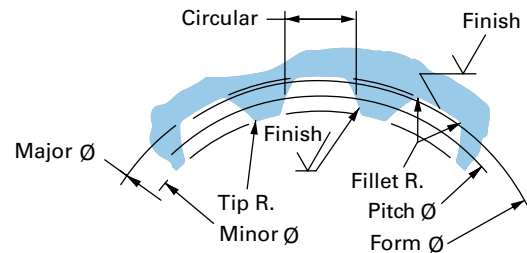
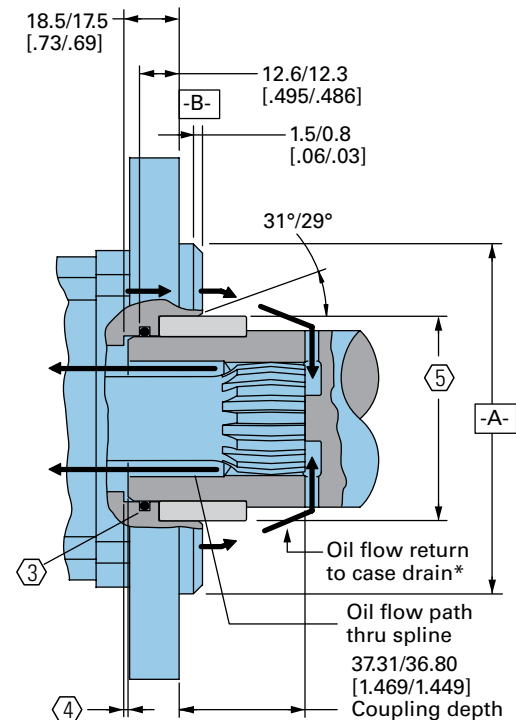
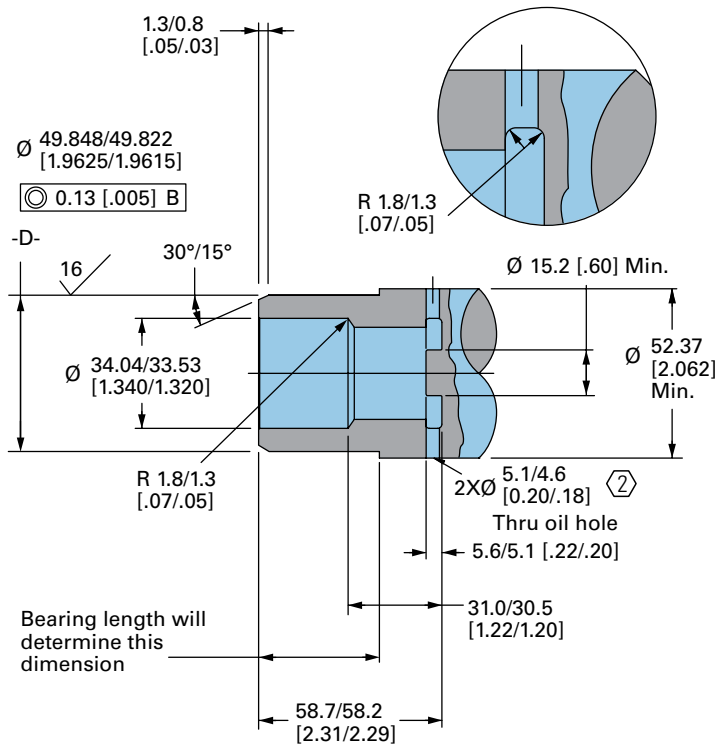


For 4000 compact series bearingless motor application information, contact your Eaton representative (mating coupling blanks available from Eaton Hydraulics).

Note: After machining blank, part must be hardened per Eaton specification.

Bearingless

1. Internal spline in mating part to be per spline data specification. Material to be ASTM A304, 8620H vacuum degassed alloy steel carbonize to a hardness of 59-62 HRc with case depth (to 50HRc) of 0.76 - 1.02 [.030 - .040] dimensions apply after heat treat.
2. Mating part to have critical dimensions as shown. Oil holes must be provided and open for proper oil circulation.
3. Seal to be furnished with motor for proper oil circulation thru splines.
4. Some means of maintaining clearance between shaft and mounting flange must be provided.
5. Counter bore designed to adapt to a standard sleeve bearing 50.010 - 50.040 [1.9689 - 1.9700] ID by 60.050 - 60.080 [2.3642 - 2.3653] (Oilite bronze sleeve bearing) Source: Beemer Precision Inc. www.oilite.com, 1-800-836-2340 AAM 50 mm ID - 60 mm OD Length Determined by the Customer. Stock bearing lengths: 35 mm, 50 mm, 60 mm, 70 mm, 75 mm



Spline pitch	10/20
Pressure angle	30°
Number of teeth	12
Class of fit	Ref. 5
Type of fit	Side
Pitch diameter	Ref. 30.480000 [1.2000000]
Base diameter	Ref. 26.396455 [1.0392305] ∇ 0.21 [0.008] D
Major diameter	(33.43 [1.316] Max. 33.23 [1.308] Min.)
Minor diameter	28.40 - 25.58 [1.118 - 1.125]
Form diameter, Min	32.59 [1.283]
Fillet radius	0.63 - 0.76 [0.025 - 0.030]
Tip radius	0.26 - 0.51 [0.010 - 0.020]

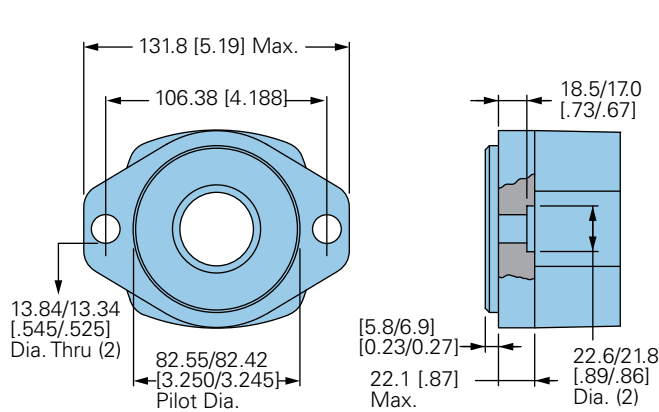
Finish	1.6 (63)
Involute profile variation	+0.000 -0.025 [+0.0000 -0.0010]
Total index variation	0.038 [0.0015]
Lead variation	0.013 [0.0005]
Circular space width:	
Maximum actual	5.045 [1.986]
Minimum effective	4.995 [1.951]
Maximum effective	Ref. 5.009 [1.972]
Minimum actual	Ref. 4.986 [1.963]
Dimension between two pins	Ref. 22.783 - 22.929 [.8970 - .9027]
Pin diameter	5.334 [2.100] Pins to Have 3.73 [1.47]
	Wide flat for root clearance

4000 Compact Series

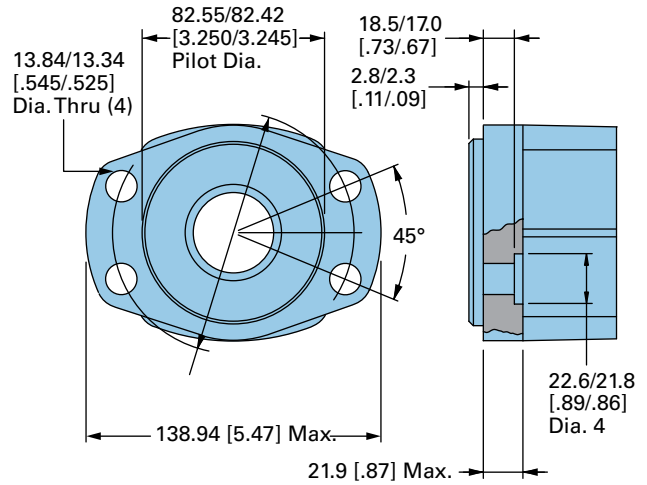
Dimensions

Mounting options

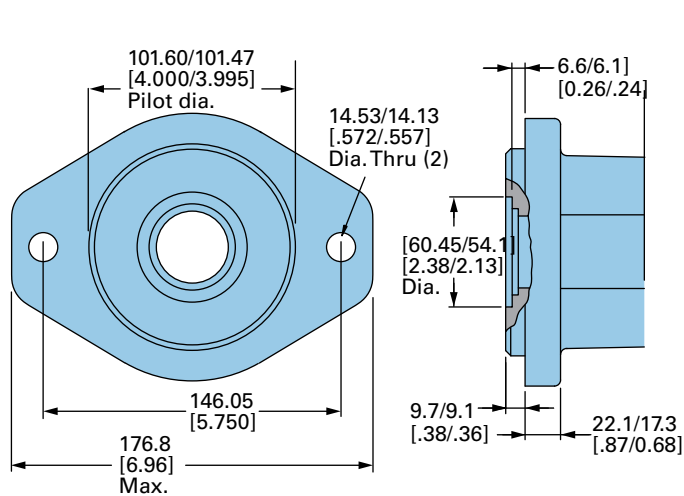
Code: AC SAE A - Two bolt (Standard motor)



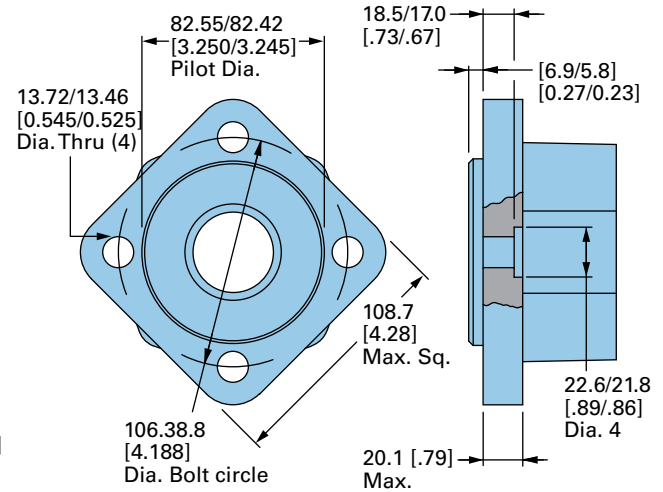
Code: AJ Four bolt magneto



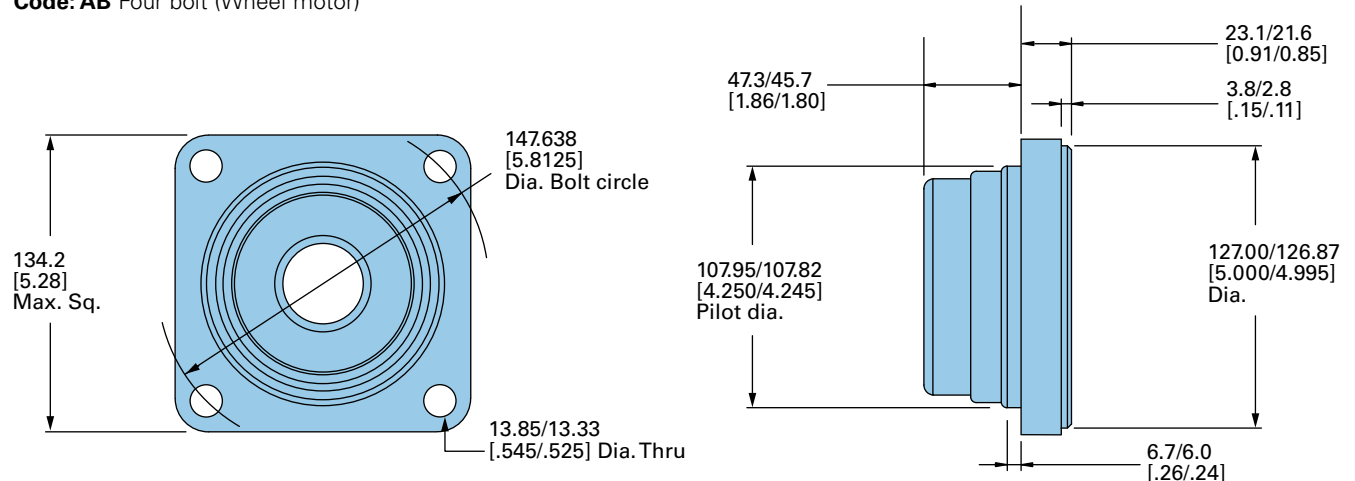
Code: AF Two bolt SAE B



Code: AH Four bolt



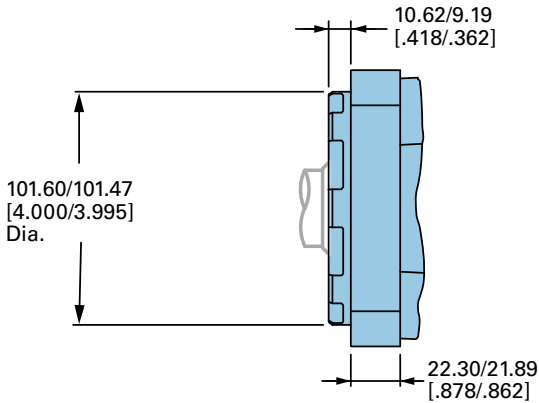
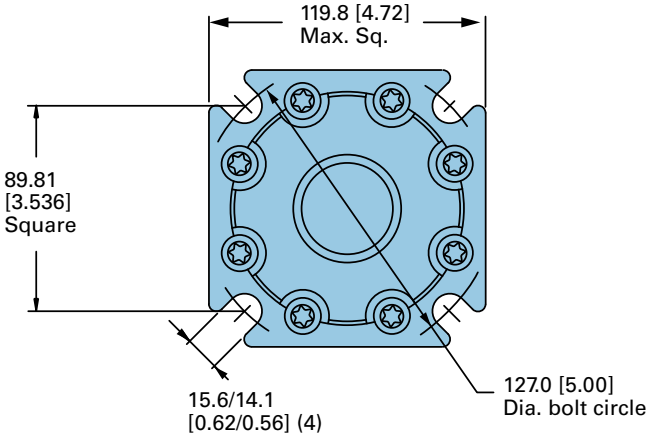
Code: AB Four bolt (Wheel motor)



C-2

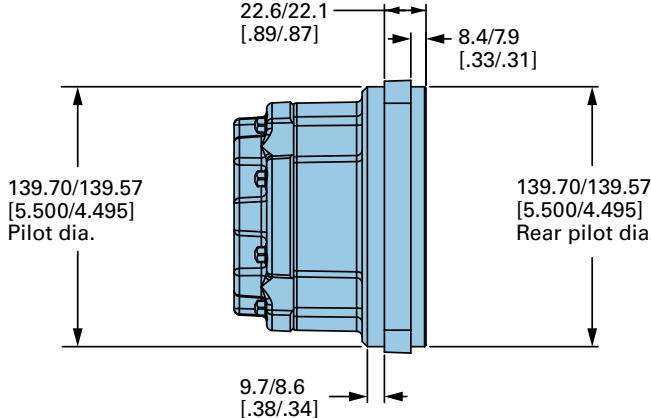
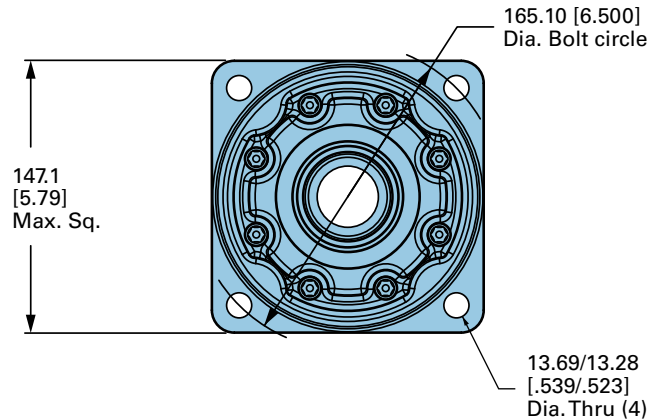
Mounting options for use with enhanced bearings

Code: BB Standard flange- Similar to SAE B type

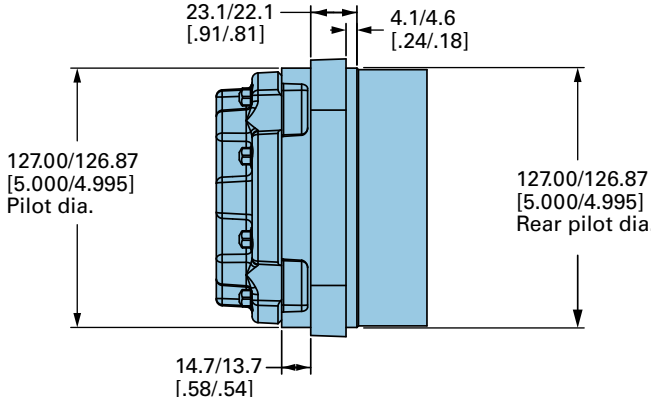
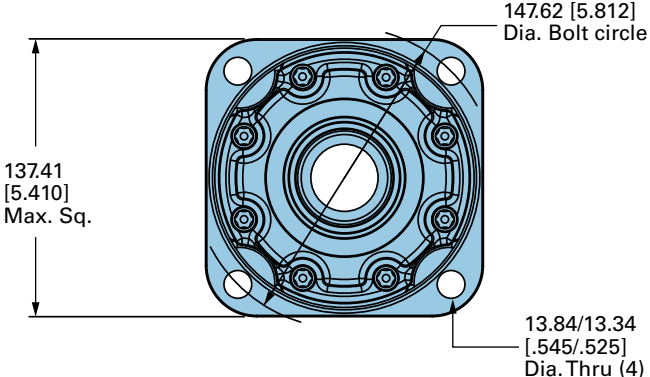


C-2

Code: BE Four bolt (Wheel motor)



Code: BG Four bolt (Wheel motor- short)



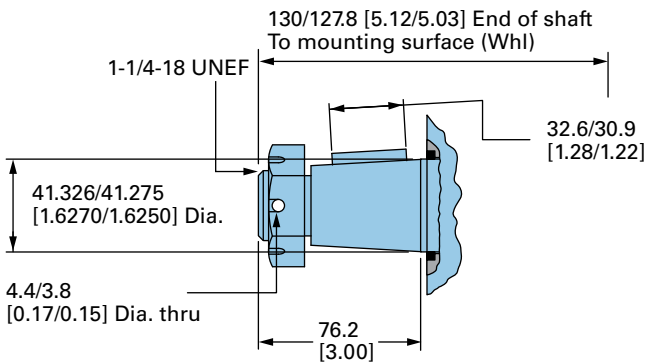
4000 Compact Series

Dimensions

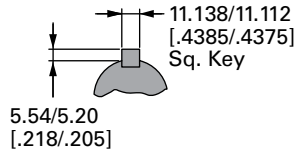
Shafts

Code: 98 1-5/8 Inch tapered

972 [8600] Max. Torque Nm [lb-in]

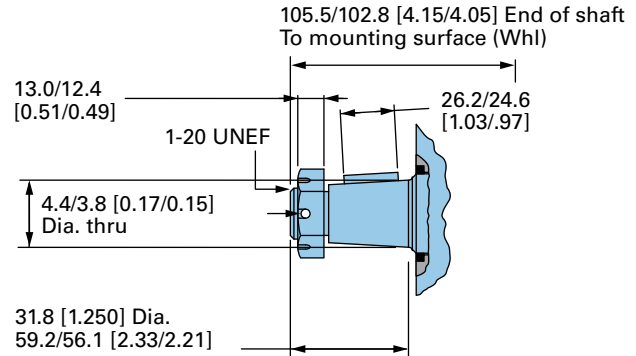


SAE J501 Standard Tapered Shaft
125.00 0.17 Taper per Meter
[1.500±.002 Taper per Foot]

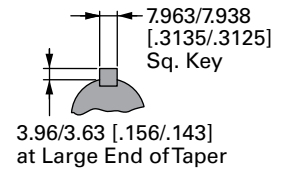


Code: 03 1-1/4 Inch tapered

768 [6800] Max. Torque Nm [lb-in]



SAE J501 Standard tapered shaft
125.00 0.17 Taper per Meter
[1.500±.002 Taper per Foot]

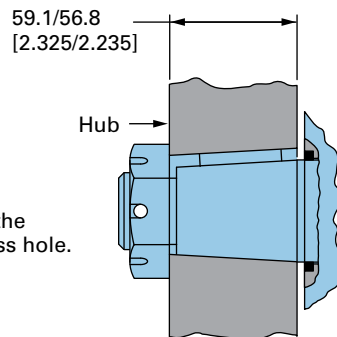


C-2

Tapered shaft hub data

Recommended torque:
(645 Nm [475 lb-ft] Dry)
(510 Nm [375 lb-ft] Lub)

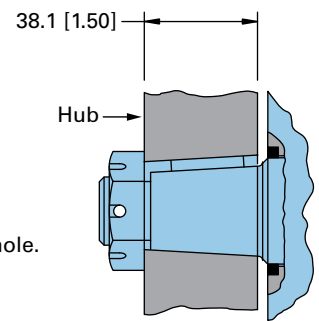
Plus torque required to align the
slotted nut with the Shaft Cross hole.



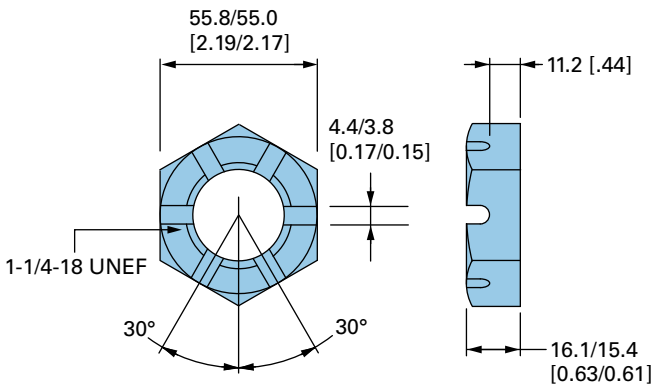
Tapered shaft hub data

Recommended torque:
(373 Nm [275 lb-ft] Dry)
(305 Nm [225 lb-ft] Lub)

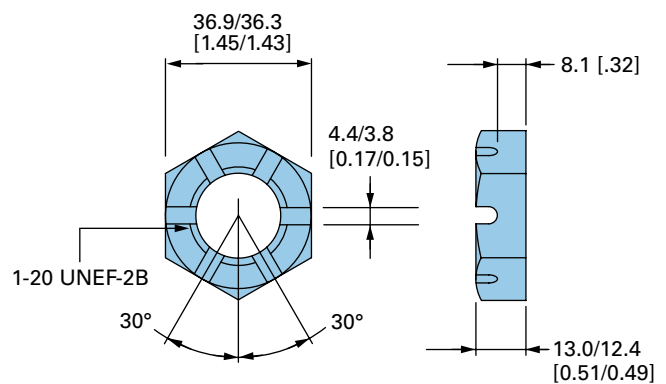
Plus torque required to align the
slotted nut with the Shaft Cross hole.



Tapered shaft hub data



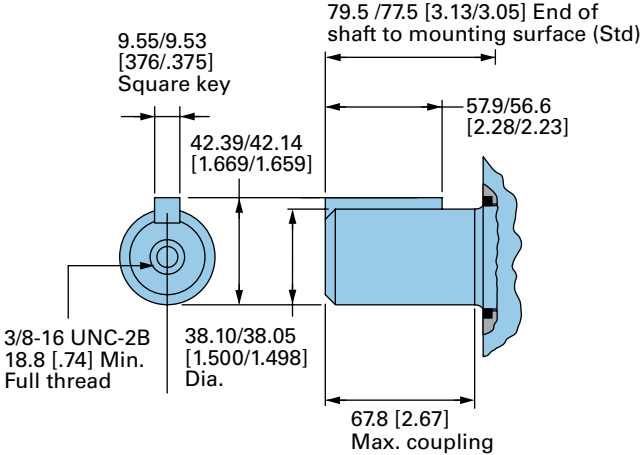
Tapered shaft hub data



Shafts

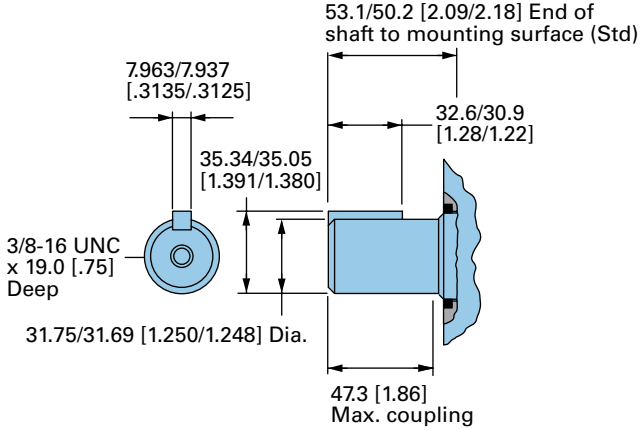
Code: 11 1-1/2 Inch straight

972 [8600] Max. torque Nm [lb-in]



Code: 02 1-1/4 Inch straight

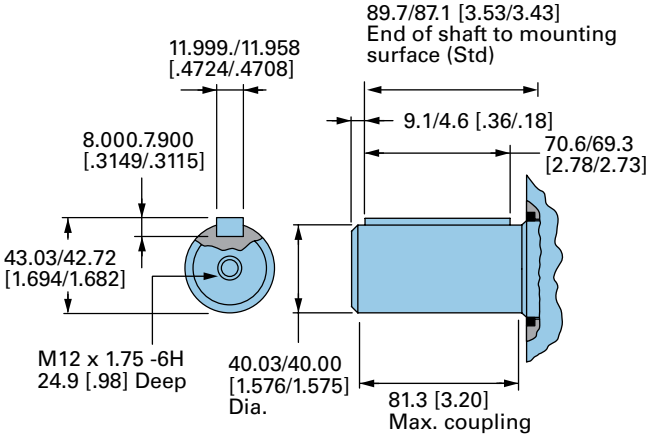
768 [6800] Max. torque Nm [lb-in]



C-2

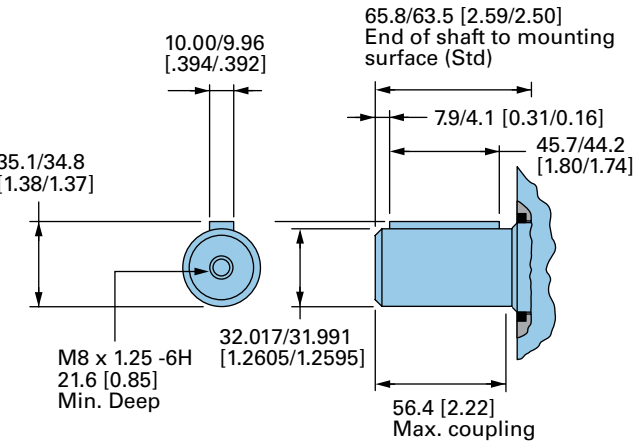
Code: 08 40 mm straight

972 [8600] Max. torque Nm [lb-in]



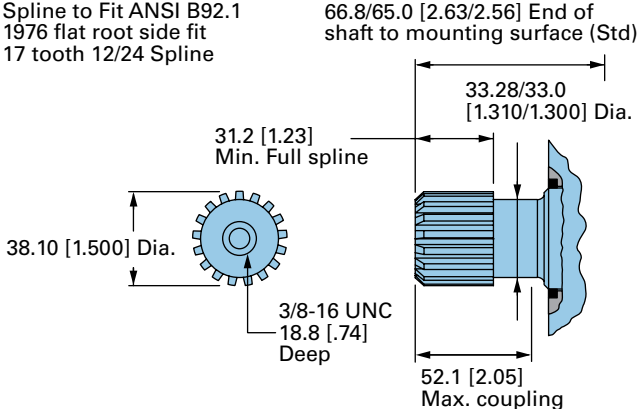
Code: 10 32 mm straight

768 [6800] Max. torque Nm [lb-in]



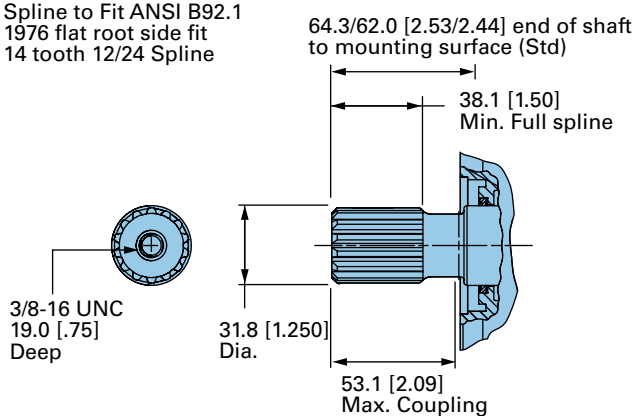
Code: 99 1-1/2 Inch 17 tooth straight

972 [8600] Max. torque Nm [lb-in]



Code: 06 1-1/4 Inch 14 tooth splined

768 [6800] Max. torque Nm [lb-in]



4000 Compact Series

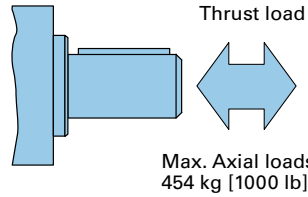
Shaft side load capacity

These curves indicate the radial load capacity on the motor shaft at various locations with an allowable external thrust load of 454 kg [1000 lb].

Note: Case pressure will increase the allowable inward thrust load and decrease the allowable outward thrust load. Case pressure will push outward on the shaft at 94 kg/7 Bar [208 lb/100 PSI].

Each curve is based on B 10 bearing life (2000 Hours of 12,000,000 shaft revolutions at 100 RPM) at rated output torque.

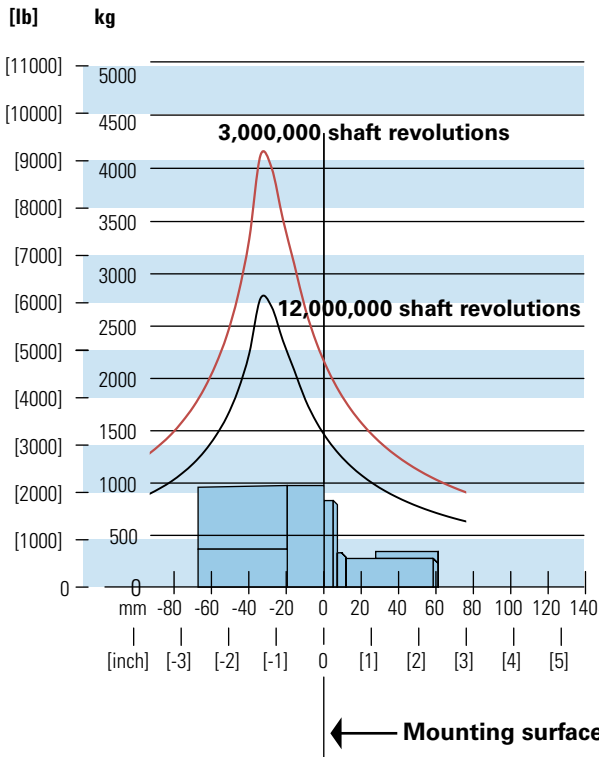
To determine radial load at speeds other than 100 RPM, multiply the load values given on the bearing curve by the factors in the chart below.



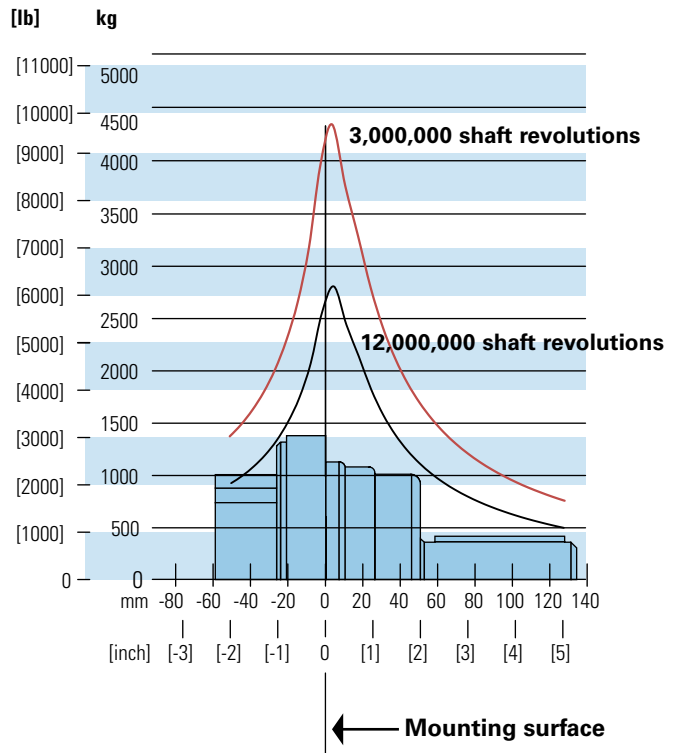
RPM	Multiplication factor
50	1.23
100	1.00
200	0.81
300	0.72
400	0.66
500	0.62
600	0.58
700	0.56
800	0.54

C-2

Standard mount- all shaft options 1-1/4 inch and larger



Wheel mount- all shaft options 1-1/4 inch and larger

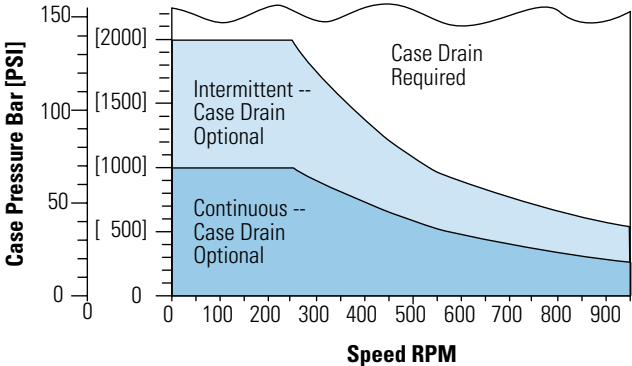


Char-Lynn 4000 Compact Series motors are durable and have long life as long as the recommended case pressure is not exceeded. Allowable case pressure is highest at low shaft speeds. Consequently, motor life will be shortened if case pressure exceeds these ratings (acceptability may vary with application). Determine if an external case drain is required from the case pressure seal limitation charts.

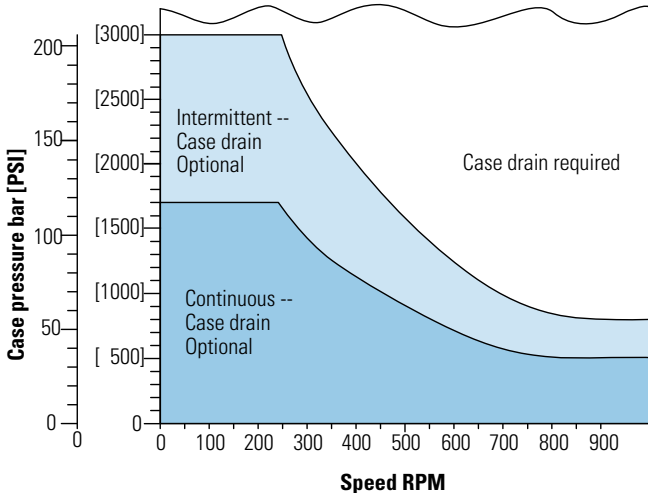
All shaft options 1-1/4 inch and smaller

Case pressure seal limitation

Standard shaft seal



High Pressure Shaft seal



Case porting advantage

Contamination control — flushing the motor case.

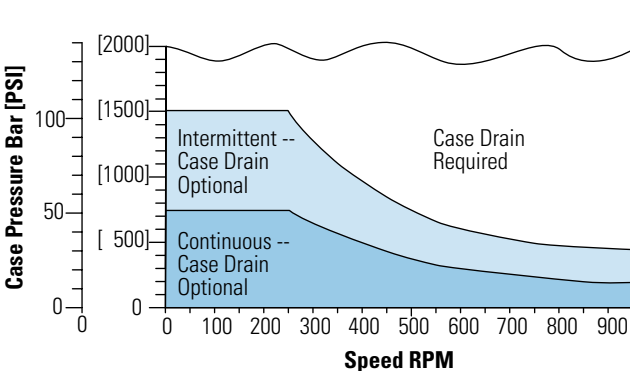
Cooler motor — exiting oil draws motor heat away.

Extend motor seal life — maintain low case pressure with a preset restriction in the case drain line.

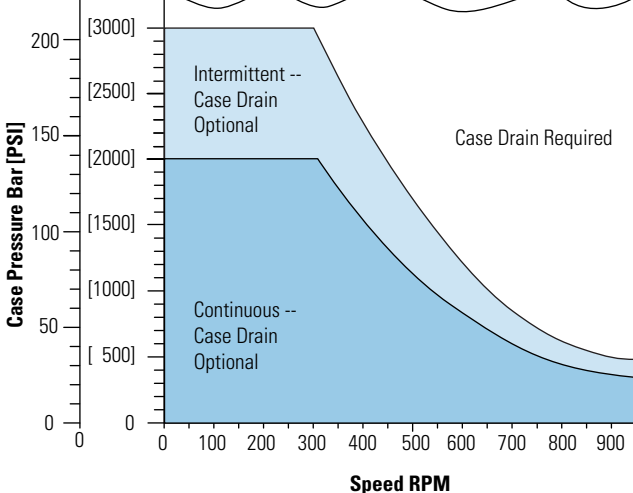
All shaft options larger than 1-1/4 inch.

Case pressure seal limitation

Standard shaft seal

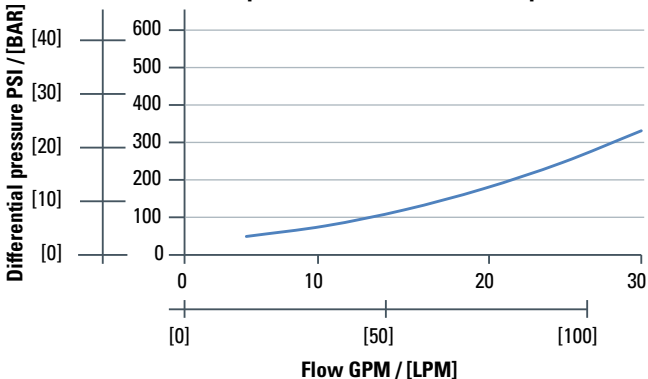


High Pressure Shaft seal



C-2

4000 compact series NLPD No load pressure drop

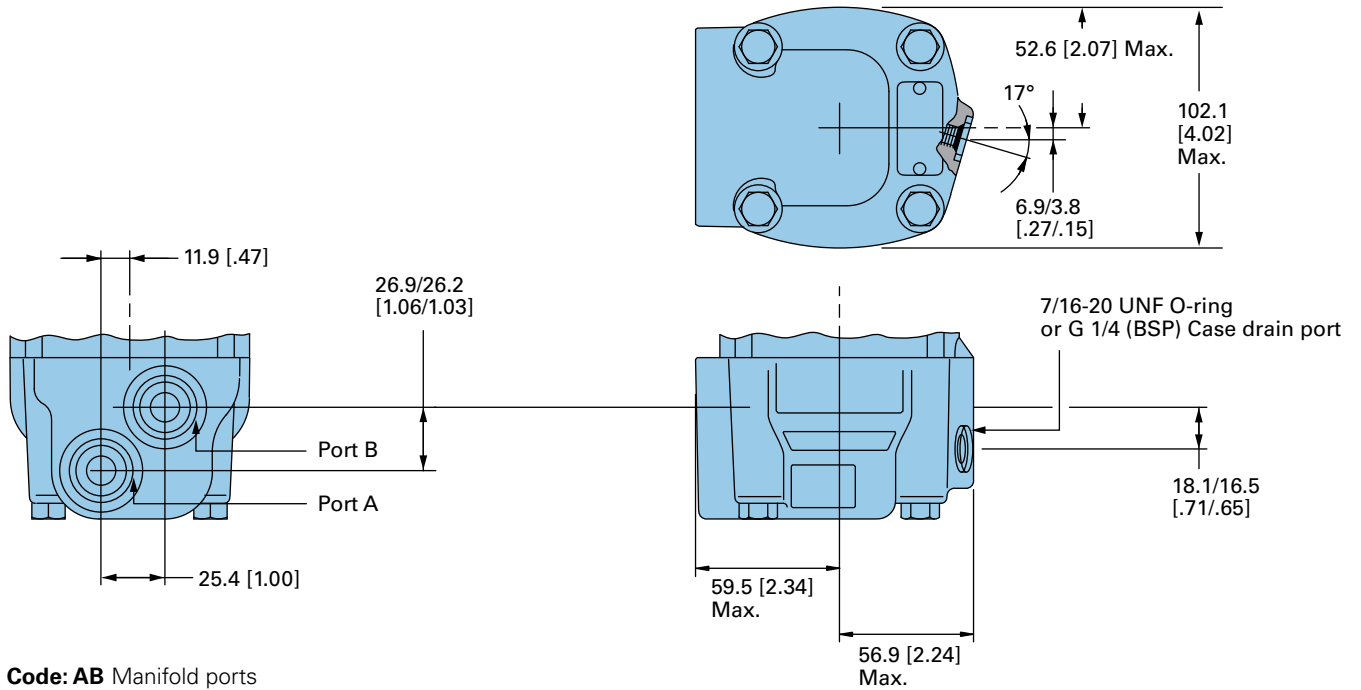


4000 Compact Series

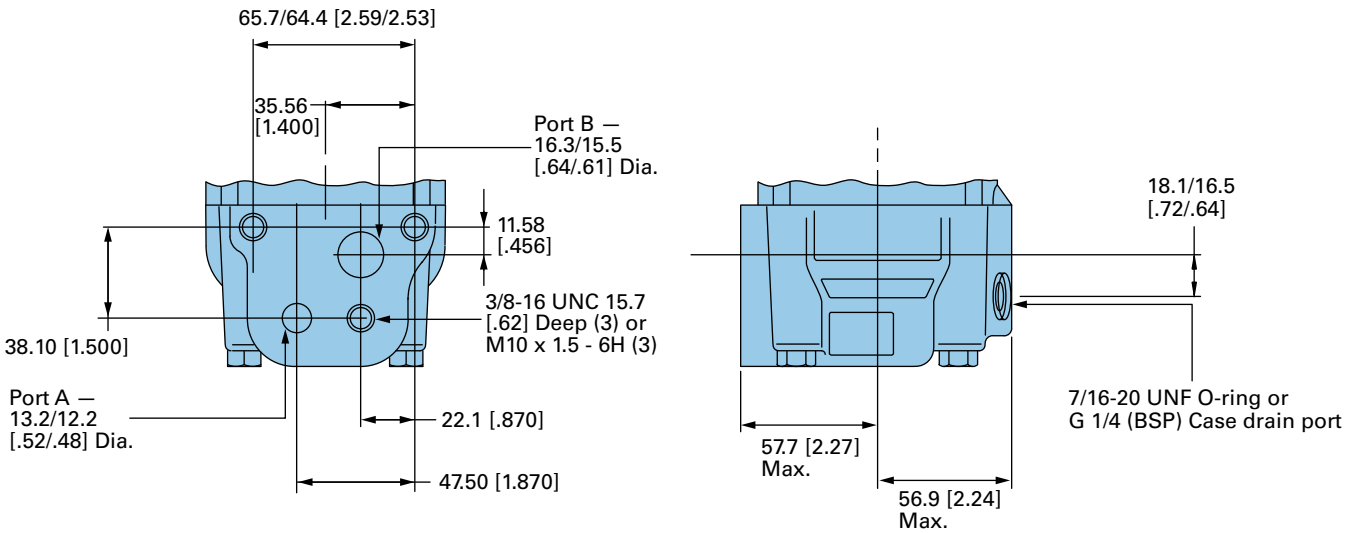
Dimensions

Ports

Code: AA Standard flange- Similar to SAE B type



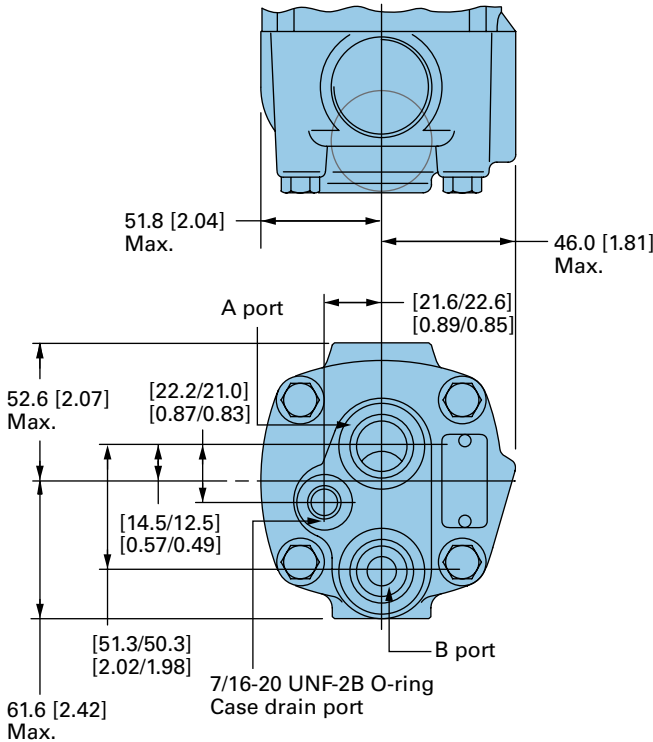
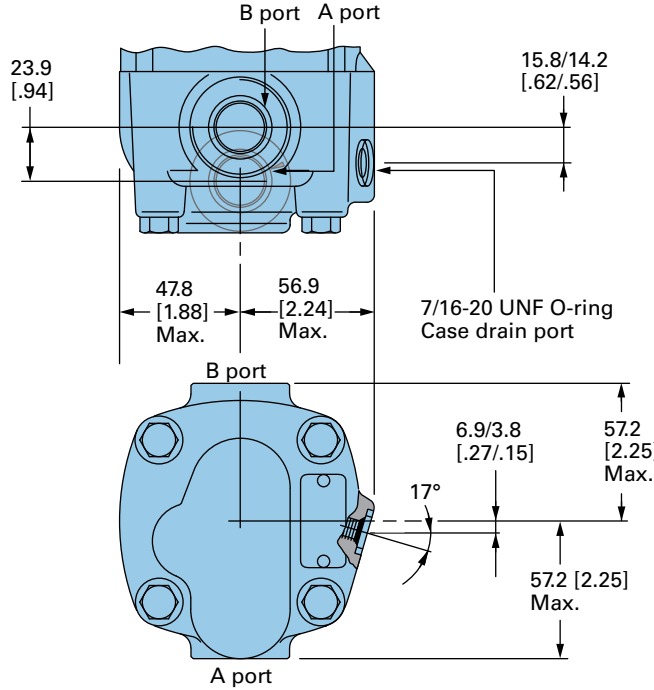
Code: AB Manifold ports



Ports

Code: AH 1-1/16-12 O-ring Ports Positioned 180 apart

Code: AD 7/8-14 O-ring end ports



C-2

4000 Compact Series

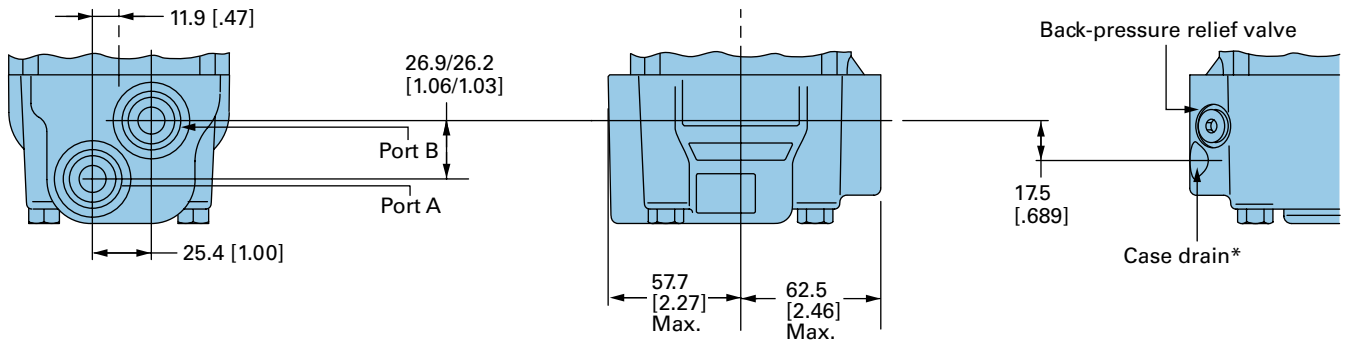
Dimensions

Ports with shuttle

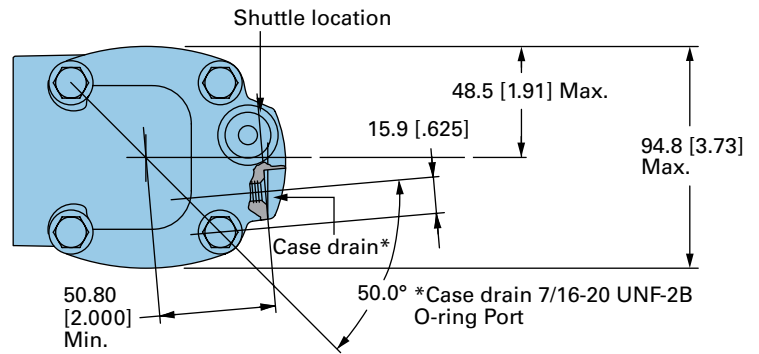
7/8-14 O-ring ports (2)

G 1/2 (BSP) ports (2)

C-2

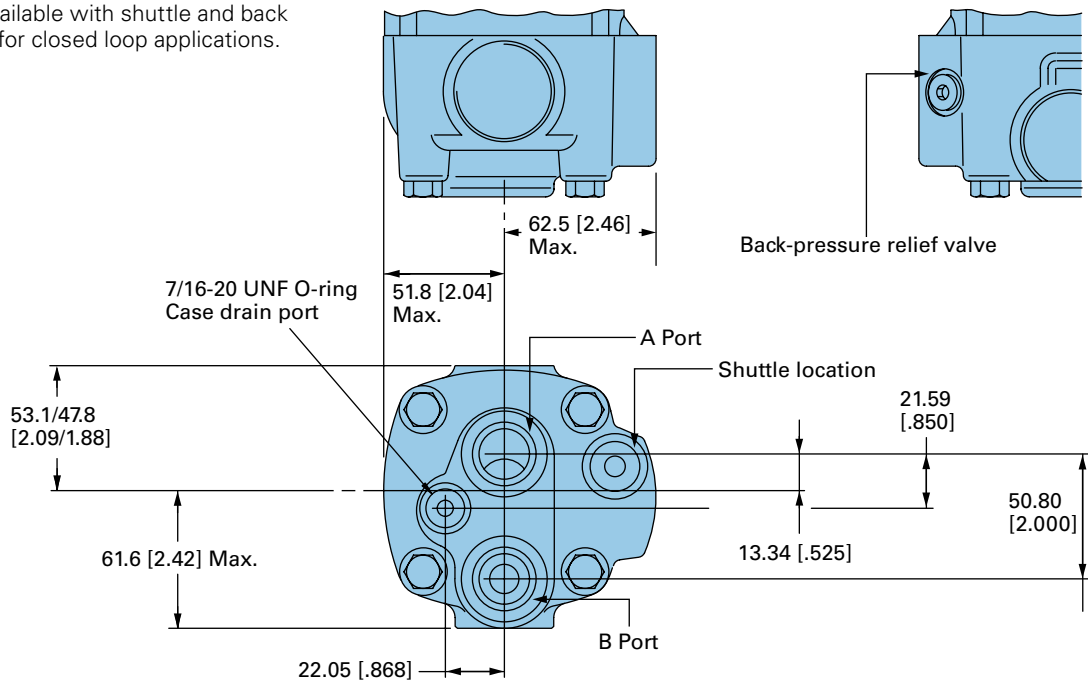


This port option is available with shuttle and back pressure relief valve for closed loop applications.

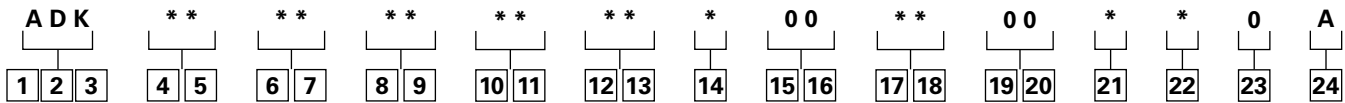


7/8-14 O-ring end ports (2)

This port option is available with shuttle and back pressure relief valve for closed loop applications.



The following 24-digit coding system has been developed to identify all of the configuration options for the 4000 Compact Series motor. Use this model code to specify a motor with the desired features. All 24 digits of the code must be present when ordering.



1 2 3

Product series

ADK 4000 Compact Series Motor

4 5

Displacement cm³/r [in³/r]

- 10** 160 [9.8]
- 12** 200 [12.3]
- 15** 250 [15.4]
- 20** 325 [19.8]
- 25** 405 [24.6]
- 30** 490 [29.8]

6 7

Mounting type

- AB** 4 Bolt (Wheel) 108,0 [4.25] Pilot Dia. and 13,59 [.535] Dia. Mounting Holes on 147,6 [5.81] Dia. B.C. 127,0 [5.00] Dia. Rear Mount Pilot
- AC** 2 Bolt SAE A (Std.) 82,5 [3.25] pilot dia and 13,59 [.535] Dia. Mtg. Holes on 106,4 [4.19] Dia. B.C.
- AF** 2 Bolt SAE B (Std.) 101,6 [4.00] Pilot Dia. and 14,35 [.565] Dia. Mtg. Holes on 146,0 [5.75] Dia. B.C.
- AH** 4 Bolt (standard) 82,5 [3.25] pilot Dia. and 14,59 [.535] Dia. Mounting holes on 106,4 [4.19] Dia. B.C.
- AJ** 4 Bolt magneto (Std.) 82,6 [3.25] pilot Dia. and 13,59 [.535] dia. Mtg. Holes on 106,4 [4.19] Dia. B.C. 2,79 [.110] pilot length
- AG** 4 Bolt (wheel - short) 91,9 [3.62] pilot Dia. 14.35 [.565] Dia. Holes on 147.6 [5.81] Dia. Bolt circle with O-ring groove
- BB*** 4 Bolt (SAE B) (standard) 101,6 [4.00] Pilot Dia. and 14,7 [.58] Dia. Mounting slots on 127,0 [5.00] Dia. Bolt circle
- BE*** 4 Bolt (Wheel) 139,7 [5.50] front and rear pilot Dia. and 13,49 [.531] Dia. Mounting holes on 165,1 [6.50] Dia. Bolt circle

* These mounting options are available with shaft options 08, 11, 98 and 99.

8 9

Output shaft

- 00** None (Bearingless)
- 02** 1 1/4 inch Dia. Straight with 3/8 -16 thread in end, 7,938 [.3125] Sq. x 31,75 [1.250] straight Key
- 03** 1 1/4 inch Dia. .125 : 1 Tapered shaft per SAE J501 with 1-20 UNEF -2A threaded shaft end, and slotted hex nut, 7,938 [.3125] Sq. x 25,40 [1.000] Straight Key
- 04** 31.75 [1.250] Dia. Flat root side fit, 14 tooth, 12/24 DP 30° involute spline with .375-16 UNC-2B Thread in End, 33.0 [1.30] minimum full spline length
- 06** 1 1/4 inch Dia. Splined 14T with 38,1 [1.50] Min. Full spline length and 53,1 [2.09] Max. Coupling length
- 08** 40 mm Dia. Straight (with straight key) M12 x 1,75 - 6H thread in end
- 10** 32 mm dia. Straight (with Straight Key) M8 x 1,25 -6H Thread in end, and 56,4 [2.22] Max. Coupling Length
- 11** 1 1/2 inch Dia. Straight (with Straight Key) 3/8 -16 Thread in end
- 17** 28.22 [1.111] Dia. Flat root side fit, 17 tooth, 16/32 DP 30° involute spline, 28.58 [1.125] Minimum full spline length
- 98** 1 5/8 inch Dia. Tapered with straight key and 1/4 -18 UNEF slotted hex. Nut
- 99** 1 1/2 inch Dia. Splined 17T with 31,2 [1.23] Min. Full spline length

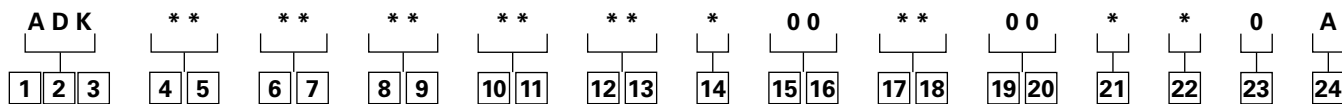
10 11

Ports

- AA** 7/8 -14 UNF -2B SAE O-ring (Staggered)
- AB** 12,70 [.500] and 15,88 [.625] Dia. Ports (Manifold) and 3x 3/8 -16 UNC port block mounting holes
- AD** 7/8 -14 UNF -2B SAE O-ring (end ports)
- AE** 12,70 [.500] and 15,88 [.625] Dia. Ports (manifold) and 3 x M10 x 1,5-6H port block mounting holes
- AG** G 1/2 BSP straight thread ports (staggered)

4000 Compact Series

Model code



12 13	Case flow options
00	None
01	7/16 -20 UNF -2B SAE O-ring Port (Case Drain)
02	G 1/4 (BSP) Straight Thread Port (Case Drain)

14	Back-pressure relief valve
0	None
A	Set at 4,5 bar [65 PSI]

15 16	Valve options
00	None

17 18	Accessories
00	None
AA	Seal guard
AF	M12 threaded connector, (two 30 pulse per rev signals, Pin 1=Power, Pin 2=Output 1, Pin 3=Common, Pin 4=Output 2)
AG	M12 threaded connector, digital speed and direction pickup (one 60 pulse per rev speed signal and one directional signal (Pin 1=Power, Pin 2=Direction, Pin 3=Common, Pin 4=Speed)

19 20	Special features (hardware)
00	None

21	Special features (assembly)
0	None
A	Flange rotated 90°
B	Reverse rotation

22	Paint/ special packaging
0	No Paint, Individual Box
A	Low gloss black primer, individual box
S	Epoxy coated black, individual box

23	Eaton assigned code when applicable
0	None

24	Eaton assigned design code
A	First

See Eatonpowersource.com/ for more options and configurations.