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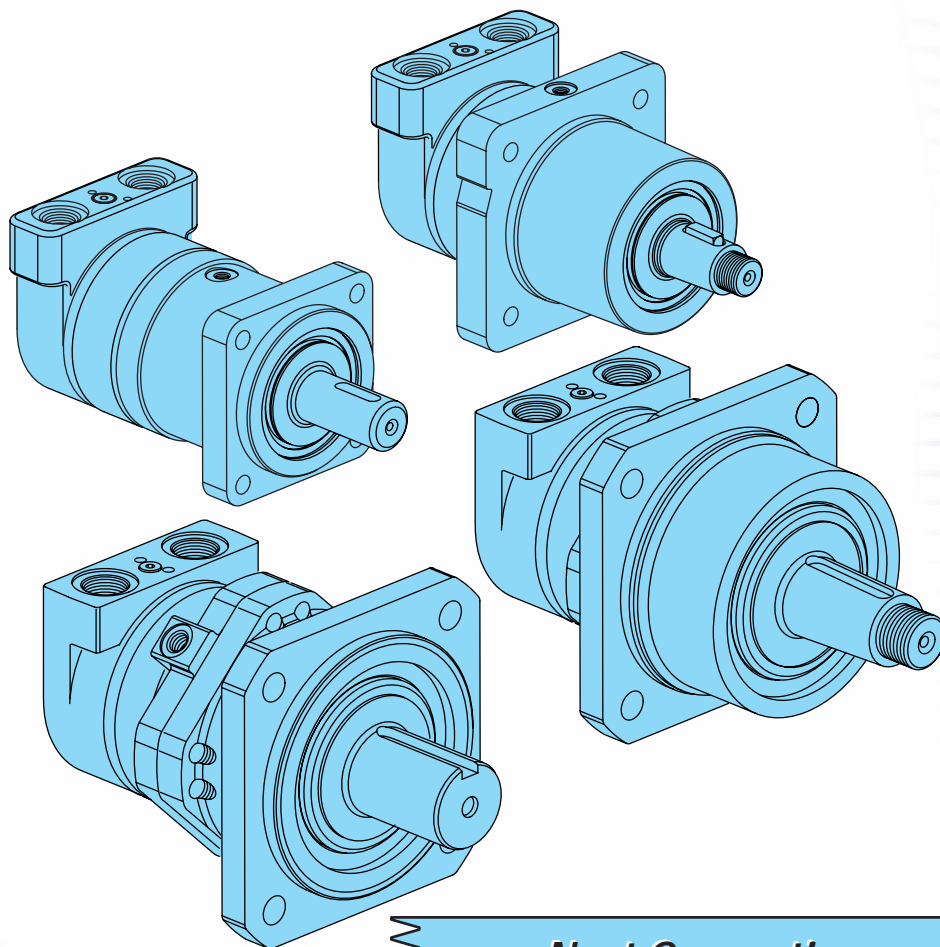
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Eaton®

VIS (Valve-In-Star) Hydraulic Motors

11-01-112
EN-0101



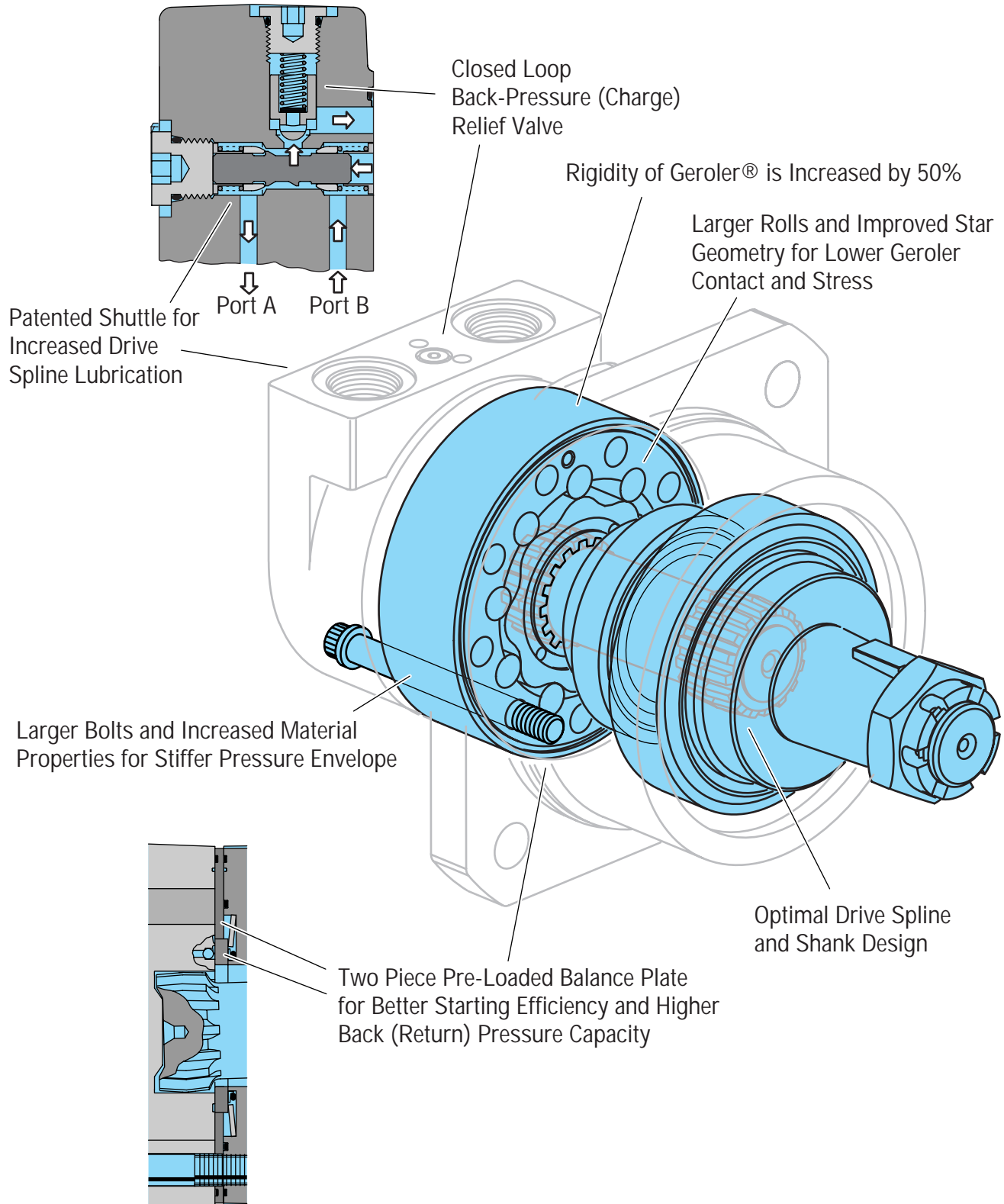
Next Generation
• *Improved Performance*

VIS 30, VIS 40 and VIS 45 Series
Hydraulic Motors

We Manufacture

Solutions

Eaton Next Generation VIS Series Motors in this Catalog



Product Description

The VIS (Valve-in-Star) Motors are the next step in the evolution of the low speed high torque (LSHT) hydraulic motors. The VIS design provides inherent improvements over other types of LSHT hydraulic motor valving which results in a more compact package with better efficiency and higher pressure capability. These improvements have shown significant packaging and performance advantages in applications such as skid steer loaders, mini excavators, trenchers and logging equipment.

VIS motors are primarily intended for use in closed loop circuit applications. Consult your Eaton representative for assistance on open loop circuit applications.

Key Features

- Very Compact Package
- Higher Output Torque
- Improved Efficiency
- Durable Design and Construction
- Quiet and Smooth Operation
- Shuttle Valve for Reliable Drive Lubrication
- Rating Compatible with Medium Duty Pumps
- Patented Technology

Optional Features

- SAE or BSP Ports Sizes
- VIS 30 and VIS 40 — SAE and ISO Style Mountings
- Many Output Shaft Configurations
- Back-Pressure Relief Valves

Applications

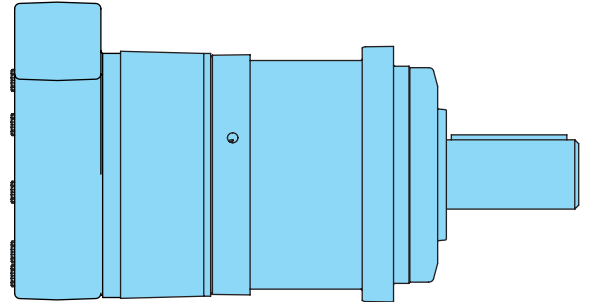
- Skid Steer Loaders
- Mini Excavators
- Trenchers
- Augers
- Logging Equipment
- Ag Combines
- Road Rollers

Get the VISible Performance Advantage for Your Application

Design Features

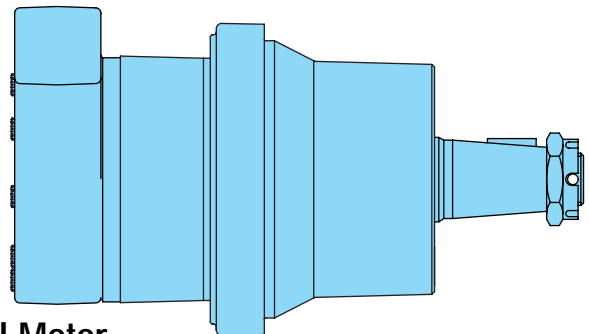
Eaton hydraulic motors provide design flexibility. All VIS motors are available with various configurations consisting of:

- Displacement (Geroler® — size)
- Output Shaft
- No Shaft/Bearing Assembly (Bearingless Motor)
- Port Configuration
- Mounting Flange
- Other Special Features



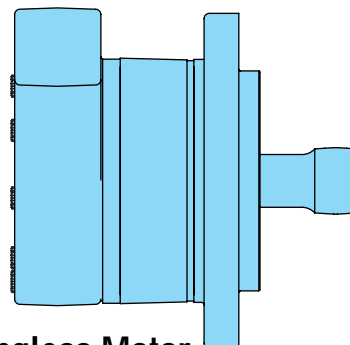
Standard Motor

The standard motor mounting flange is located as close to the output shaft as possible. This type of mounting supports the motor close to the shaft load. This mounting flange is also compatible with many standard gear boxes.



Wheel Motor

The wheel motor mounting flange is located near the center of the motor which permits part or all of the motor to be located inside the wheel or roller hub. In traction drive applications, loads can be positioned over the motor bearings for best bearing life. This wheel motor mounting flange provides design flexibility in many applications.



Bearingless Motor

This bearingless motor has the same drive components as the standard and wheel motors (with the exception that the motor is assembled without the output shaft, bearings and bearing housing). The bearingless motor is especially suited for applications such as gear boxes, winch drives, reel and roll drives. Bearingless motor applications must be designed with a bearing supported internal spline to mate with the bearingless motor drive. Product designs using these hydraulic motors provide considerable cost savings.

VIS 30, VIS 40 and VIS 45

LSHT Hydraulic Motors

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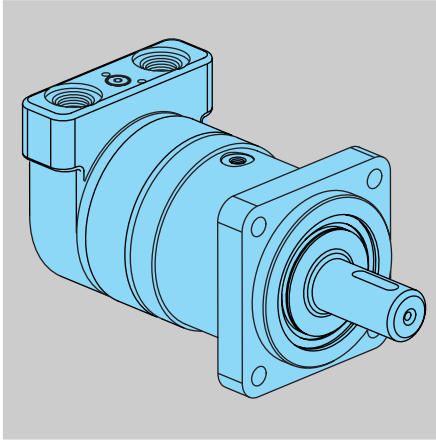
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Model Code	55

VIS 30 Series



VIS 30

VIS 30 Motors

Geroler® Element	4 Displacements
Flow l/min [GPM]	114 [30] Continuous***
	132 [35] Intermittent**
Speed (Theo.)	Up to 408 RPM
Pressure bar [PSI] ...	310 [4500] Cont.***
	345 [5000] Inter.**
	380 [5500] Peak.*
Torque Nm [lb-in]	
(Theo.)	1632 [14440] Cont.***
	2034 [18000] Inter.**

VIS 30 Motor Displacement Size = cubic centimeter per shaft revolution (cm³/r)
= cubic inch per shaft revolution ([in³/r])

- 325 [19.8]
- 400 [24.4]
- 505 [30.7]
- 570 [34.9]

Mounting Flange

- 4 Bolt (Bearingless) 127,00 [5.000] Pilot Dia. and 14,35 [.565] Dia. Mounting Holes 161,92 [6.375] Dia. B.C.
- 4 Bolt (Standard – SAE) 127,00 [5.000] Pilot Dia. and 14,32 [.564] Dia. Mounting Holes on 161,92 [6.375] Dia. B.C.
- 4 Bolt (Standard – ISO) 125,00 [4.920] Pilot Dia. and 14,00 [.551] Dia. Mounting Holes on 160,00 [6.299] Dia. B.C.
- 4 Bolt (Wheel – SAE) 139,65 [5.500] Pilot Dia. and 14,32 [.564] Dia. Mounting Holes on 184,15 [7.250] Dia. B.C.
- 4 Bolt (Wheel – ISO) 160,00 [6.300] Pilot Dia. and 18,00 [.709] Dia. Mounting Holes on 200,00 [7.874] Dia. B.C.

Output Shaft

- Bearingless
- 40mm Dia. Straight (SAE) with Straight Key, M12 x 1,75 Threaded hole and 74,7 [2.94] Max. Coupling Engagement
- 40mm Dia. Straight (ISO) with Straight Key, M12 x 1,75 Threaded hole and 76,4 [3.01] Max. Coupling Engagement
- 1–3/4 inch Dia. Tapered with Straight and 1–1/4-18 UNEF Slotted Hex Nut
- 45mm Dia. Tapered with Straight and M30 x 2-6H Slotted Hex Nut
- 1–1/2 inch Dia. Splined 17T with 39,1 [1.54] Full Spline Length and 3/8-16 UNF-2B Threaded Hole
- 38,1 mm Dia. Splined 17T with 56,6 [2.23] Full Spline Length and M12 x 1.75 Threaded Hole

Port Type

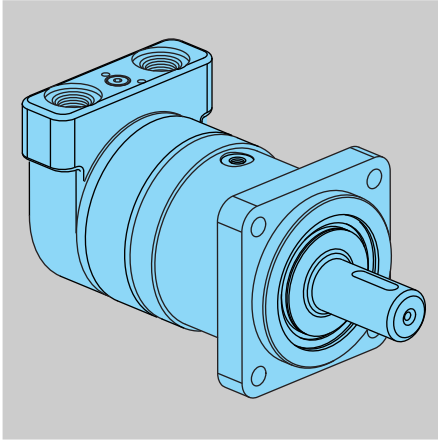
- 1–1/16-12 UN-2B SAE O-ring Port with 9/16-18 UNF 2B SAE O-ring Case Drain Port
- G 3/4 (BSP) Straight Thread with G 1/4 (BSP) Straight Thread Case Drain Port

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

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

* Peak— (Peak) Peak operation, 1% of every minute.

VIS 40 Series



VIS 40

VIS 40 Motors

Geroler® Element	6 Displacements
Flow l/min [GPM]	114 [30] Continuous***
	132 [35] Intermittent**
Speed (Theo.)	Up to 263 RPM
Pressure bar [PSI] ...	310 [4500] Cont.***
	345 [5000] Inter.**
	379 [5500] Peak.*
Torque Nm [lb-in]	
(Theo.)	2714 [24025] Cont.***
	3392 [30025] Inter.**

VIS 40 Motor Displacement Size = cubic centimeter per shaft revolution (cm³/r)
= cubic inch per shaft revolution ([in³/r])

- 505 [30.7]
- 570 [34.9]
- 630 [38.5]
- 685 [41.7]
- 785 [48.0]
- 940 [57.4]

Mounting Flange

- 4 Bolt (Bearingless) 127,00 [5.000] Pilot Dia. and 14,35 [.565] Dia. Mounting Holes 161,92 [6.375] Dia. B.C.
- 4 Bolt (Standard – SAE) 127,00 [5.000] Pilot Dia. and 14,32 [.564] Dia. Mounting Holes on 161,92 [6.375] Dia. B.C.
- 4 Bolt (Standard – ISO) 125,00 [4.920] Pilot Dia. and 14,00 [.551] Dia. Mounting Holes on 160,00 [6.299] Dia. B.C.
- 4 Bolt (Wheel – SAE) 139,65 [5.500] Pilot Dia. and 14,32 [.564] Dia. Mounting Holes on 184,15 [7.250] Dia. B.C.
- 4 Bolt (Wheel – ISO) 160,00 [6.300] Pilot Dia. and 18,00 [.709] Dia. Mounting Holes on 200,00 [7.874] Dia. B.C.
- 4 Bolt (Oversize Flange) 185,4 [7.30] Rear Pilot Dia., 169,90 [6.689], 139,93 [5.509], 127,0 [5.00] Dia. (Front Pilots) and 18,01 [.709] Dia. Mounting Holes on 224,00 [8.819] Dia. B.C.

Output Shaft

- Bearingless
- 40mm Dia. Straight (SAE) with Straight Key, M12 x 1,75 Threaded hole and 74,7 [2.94] Max. Coupling Engagement
- 40mm Dia. Straight (ISO) with Straight Key, M12 x 1,75 Threaded hole and 76,4 [3.01] Max. Coupling Engagement
- 1-3/4 inch Dia. Tapered with Straight and 1-1/4-18 UNEF Slotted Hex Nut
- 45mm Dia. Tapered with Straight and M30 x 2-6H Slotted Hex Nut
- 1-1/2 inch Dia. Splined 17T with 39,1 [1.54] Full Spline Length and 3/8-16 UNF-2B Threaded Hole
- 38,1 mm Dia. Splined 17T with 56,6 [2.23] Full Spline Length and M12 x 1.75 Threaded Hole

Port Type

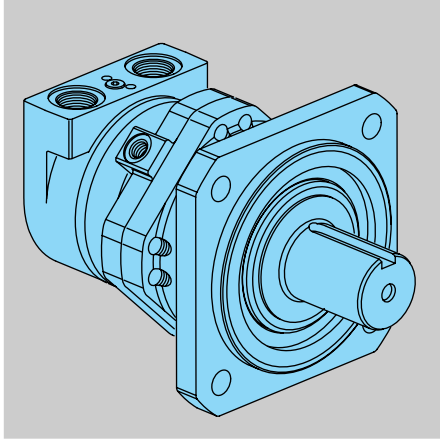
- 1-1/16-12 UN-2B SAE O-ring Port with 9/16-18 UNF 2B SAE O-ring Case Drain Port
- G 3/4 (BSP) Straight Thread with G 1/4 (BSP) Straight Thread Case Drain Port

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

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

* Peak— (Peak) Peak operation, 1% of every minute.

VIS 45 Series



VIS 45

VIS 45 Motors

Geroler® Element	5 Displacements
Flow l/min [GPM]	170 [45] Continuous***
	189 [50] Intermittent**
Speed (Theo.)	Up to 299 RPM
Pressure bar [PSI] ...	310 [4500] Cont.***
	345 [5000] Inter.**
	379 [5500] Peak*
Torque Nm [lb-in]	
(Theo.).....	4068 [36010] Cont.***
	5086 [45015] Inter.**

VIS 45 Motor Displacement Size = cubic centimeter per shaft revolution (cm³/r)
= cubic inch per shaft revolution ([in³/r])

- 630 [38.6]
- 805 [48.6]
- 990 [60.5]
- 1245 [76.0]
- 1560 [95.0]

Mounting Flange

- 4 Bolt (Brgl.) 158,70 [6.250] Pilot Dia. and 17,53 [.690] Dia. Mounting Holes on 190,50 [7.500] Dia. B.C.
- 8 Bolt (Brgl.) 158,70 [6.250] Pilot Dia. and 15,88 [.625] Dia. Mounting Holes on 190,50 [7.500] Dia. B.C.
- 4 Bolt (Whl.) 200,0 [7.87] Pilot Dia. and 20,6 [.81] Dia. Mtg. Holes on 250,0 [9.84] Dia. B.C.
- 4 Bolt (Std.) 200,0 [7.87] Pilot Dia. and 20,6 [.81] Dia. Mtg. Holes on 250,0 [9.84] Dia. B.C.

Output Shaft

- Bearingless
- 2-5/8 inch Dia. Straight with Straight Key, 5/8-18 UNF - 2B Threaded Hole
- 60mm Dia. Tapered (10:1 Taper per ISO R775) with Straight Key and M42 x 3 -6H Slotted Hex Nut
- 70mm Dia. Splined 22T with 45,7 [1.80] Min. Full Spline Length and M16 x 1,5 Threaded Hole
- 2-3/4 inch Dia. Splined 32T with 52,07 [2.050] Min. Full Spline Length and 5/8-18 UNF - 2B Threaded Hole

Port Type

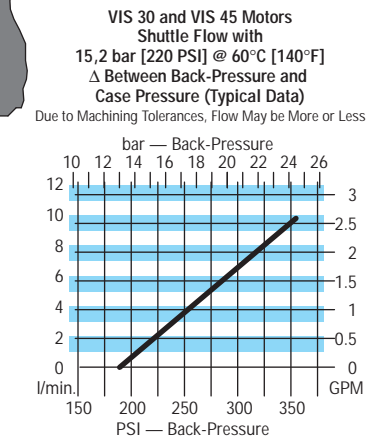
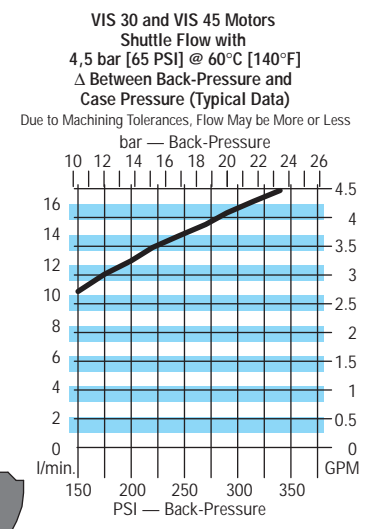
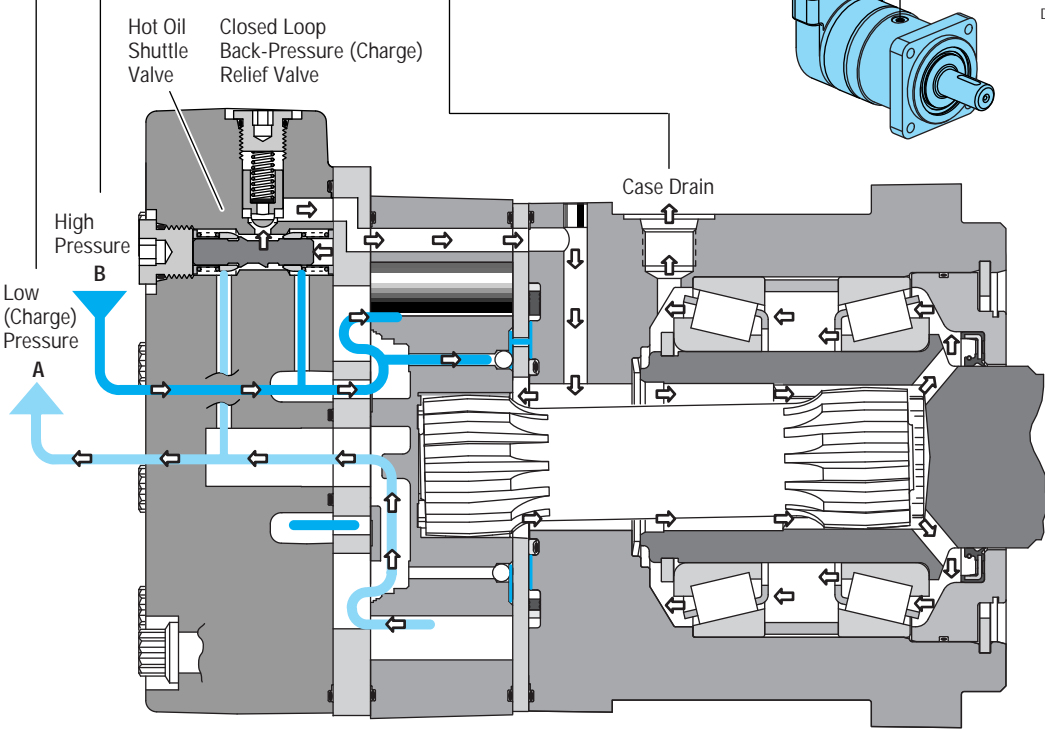
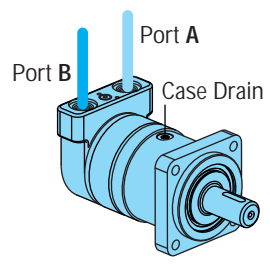
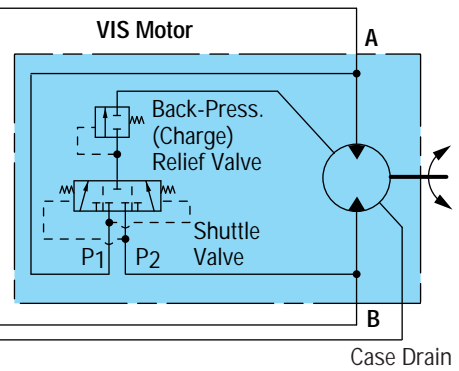
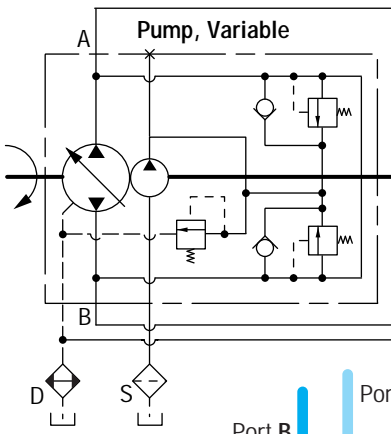
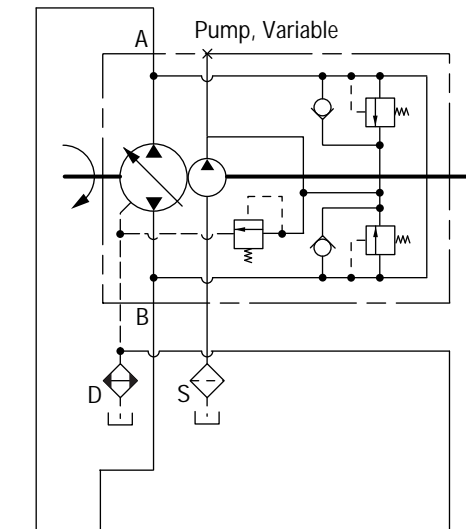
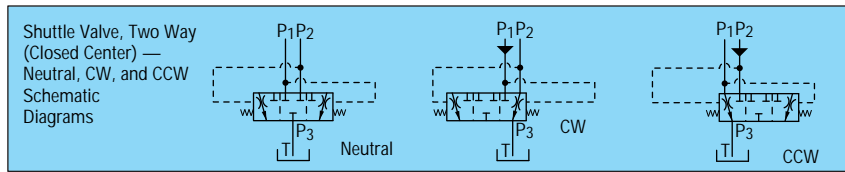
- 1-5/16-12 UN SAE O-ring Port with 9/16-18 UNC SAE O-ring Case Drain Port
- G 1 (BSP) Straight Thread Port with G 1/4 (BSP) Straight Thread Case Drain Port

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

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

* Peak— (Peak) Peak operation, 1% of every minute.

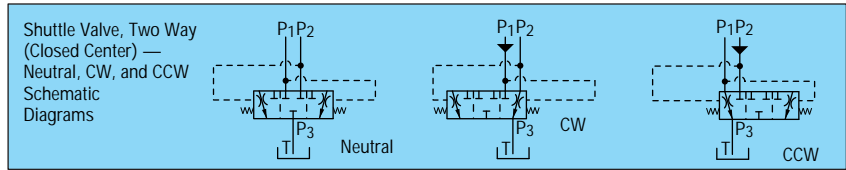
Typical (Closed Loop) Hydraulic Circuit VIS 30, 40 and 45 Series



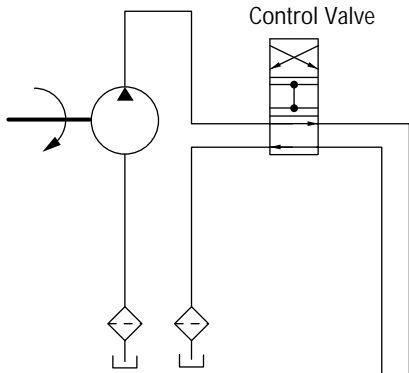
Low Speed High Torque Hydraulic Motors with Shuttle — Patent No. U.S. 4,645,438

Note: VIS motors applied in closed loop circuit applications, must have a case drain line to tank, without this drain line the internal drive spline will not have adequate lubrication. VIS motors are not recommended for series circuit application.

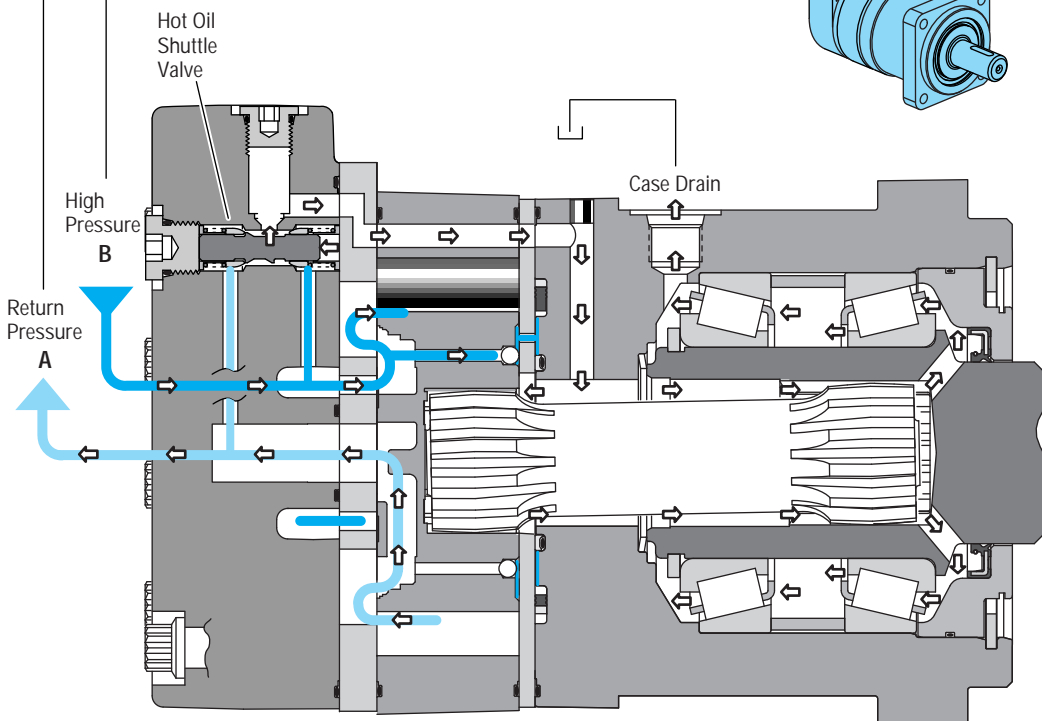
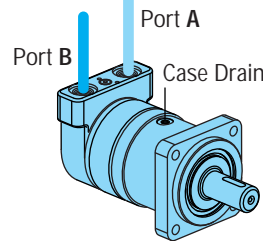
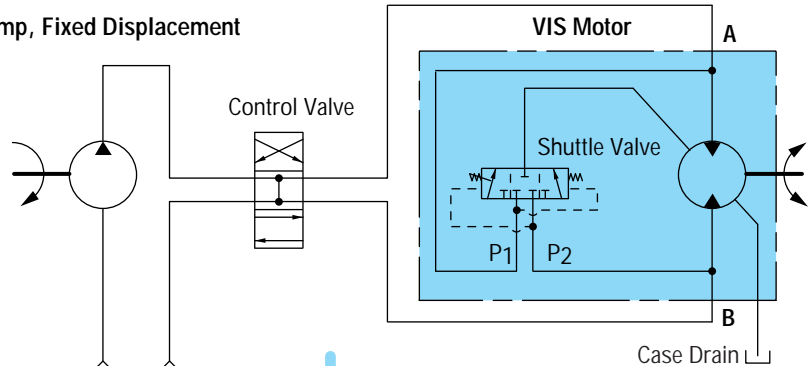
Typical (Open Loop) Hydraulic Circuit VIS 30, 40 and 45 Series



Pump, Fixed Displacement



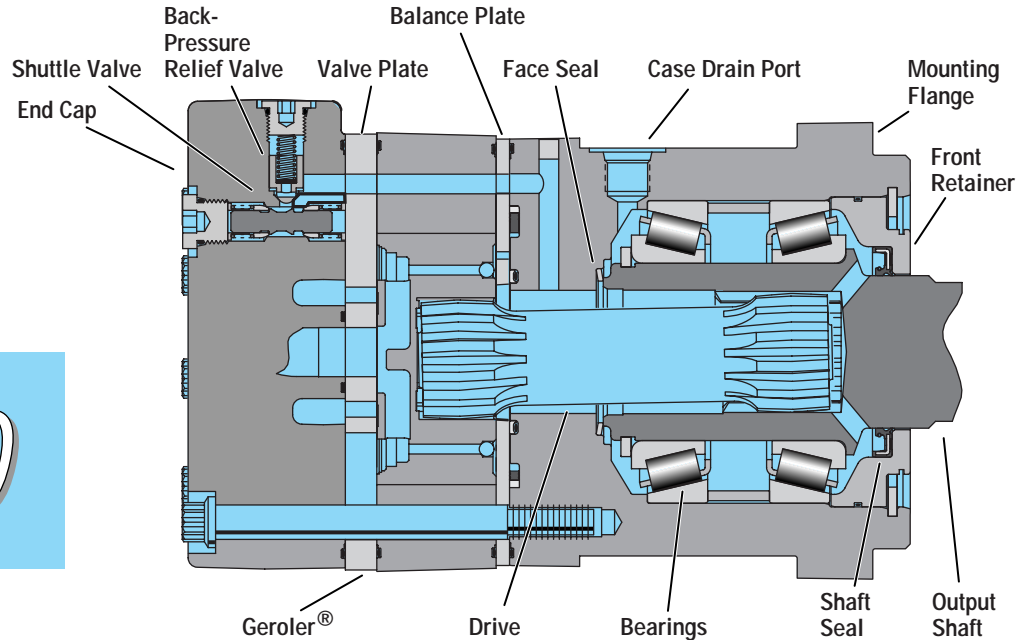
Pump, Fixed Displacement



Low Speed High Torque Hydraulic Motors with Shuttle — Patent No. U.S. 4,645,438

Note: VIS motors applied in open loop circuit require 3,5 bar [50 PSI] minimum back (return) pressure over the case pressure to properly lubricate the internal drive. VIS motors must have a case drain line to tank. VIS motors are not recommended for series circuit application.

Specifications VIS 30 Series



VIS 30

Theoretical Specification Data — VIS 30 Motors (for Efficiency Corrected Data see Performance Charts)

Displ. cm ³ /r [in ³ /r]		325 [19.8]	400 [24.4]	505 [30.7]	570 [34.9]
Theo. Max. Speed (RPM) @ Flow	Continuous	350	284	226	199
	Intermittent	408	331	263	231
Flow l/min [GPM]	Continuous	114 [30]	114 [30]	114 [30]	114 [30]
	Intermittent	132 [35]	132 [35]	132 [35]	132 [35]
Theo. Torque Nm [lb-in]	Continuous	1602 [14180]	1624 [14370]	1629 [14415]	1632 [14440]
	Intermittent	1780 [15750]	2034 [18000]	2034 [18000]	2034 [18000]
Pressure Δ bar [Δ PSI]	Continuous	310 [4500]	255 [3700]	203 [2950]	179 [2600]
	Intermittent	345 [5000]	320 [4635]	254 [3685]	223 [3240]
	Peak	380 [5500]	380 [5500]	305 [4420]	268 [3890]

A simultaneous maximum torque and maximum speed NOT recommended.

Maximum Inlet Pressure — 400 bar [5800 PSI]. **Do Not Exceed A Pressure Rating** (for displacement size see chart above).

Return Pressure (Back-Pressure):

Minimum — 3,5 bar [50 PSI]

Maximum — 21 bar [300 PSI]

Note — Return (back-pressure) must be 3,5 bar [50 PSI] greater than the case pressure.

Case Pressure:

Minimum — No Pressure

Maximum — 3,5 bar [50 PSI]

Note — The case must be full when the motor is operating (case drain out the top). A case drain is required.

Δ Pressure — The true Δ bar [Δ PSI] 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 70 SUS at operating temperature.

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

Recommended Filtration — per ISO Cleanliness Code, level 18/13

Shuttle — Standard

Back-Pressure Relief Valve — Required for closed loop circuit.

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.

Performance Data

VIS 30 Series

Motors run with high efficiency in all areas designated with a number for torque and speed, *however for best motor life select a motor to run with a torque and speed range printed in the white background area.*

	Continuous
	Intermittent

VIS 30 - 325 cm³/r [19.8 in³/r] Δ Pressure
PSI
bar

	250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
	15	35	70	105	140	170	205	240	275	310	345
4	530	1300	2680	4050	5380	6660	8080	9390	11050	13030	13270
	60	147	303	458	608	753	913	1061	1249	1472	1500
15	46	46	45	44	43	43	42	41	39	37	35
8	580	1310	2710	4060	5470	6820	8180	9410	11150	13220	13330
	66	148	306	459	618	771	924	1063	1260	1494	1506
30	93	92	90	88	85	84	83	82	78	73	70
12	630	1400	2730	4090	5400	6780	7960	9180	10430	11580	12710
	71	158	308	462	610	766	899	1037	1179	1309	1436
45	139	135	133	131	128	128	127	125	124	124	122
16	790	1490	2660	4020	5370	6740	8130	9240	10480	11980	12500
	89	168	301	454	607	762	919	1044	1184	1354	1413
61	186	183	180	177	172	169	166	166	165	159	159
20	790	1430	2630	3980	5310	6730	8120	9230	10450	11940	
	89	162	297	450	600	760	918	1043	1181	1349	
76	233	229	225	221	215	212	208	208	207	201	
25	740	1410	2560	3890	5180	6660	7840	9200	10430		
	84	159	289	440	585	753	886	1040	1179		
95	291	286	282	279	276	268	263	261	259		
30		1390	2510	3840	5170	6570	8030	9190	10420		
		157	284	434	584	742	907	1038	1177		
114		343	338	334	331	321	315	312	311		
35		1370	2500	3830	5140	6530	8000	9180			
		155	283	433	581	738	904	1037			
132		400	394	391	386	375	367	365			

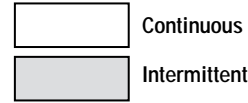
9180	Torque [lb-in]
1037	Torque (Nm)
365	Speed (RPM)

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

Performance Data

VIS 30 Series

Motors run with high efficiency in all areas designated with a number for torque and speed, however for best motor life select a motor to run with a torque and speed range printed in the white background area.



VIS 30 - 400 cm³/r [24.4 in³/r]

Δ Pressure
PSI
bar

	250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
	15	35	70	105	140	170	205	240	275	310	345
4	730	1590	3280	4900	6570	8030	9780	11180	12800	14340	15600
	82	180	371	554	742	907	1105	1263	1446	1620	1763
15	37	37	37	36	35	35	34	34	32	30	29
8	780	1630	3360	4960	6730	8200	10130	11360	13020	14410	15780
	88	184	380	560	760	927	1145	1284	1471	1628	1783
30	75	74	73	71	69	68	67	66	63	60	57
12	790	1690	3340	5020	6770	8260	10280	11560	13270	14610	
	89	191	377	567	765	933	1162	1306	1500	1651	
45	113	111	108	107	105	105	103	102	101	101	
16	850	1750	3320	4970	6630	8260	10330	11510	13370	14630	
	96	198	375	562	749	933	1167	1301	1511	1653	
61	151	149	147	145	141	138	136	136	135	131	
20	810	1640	3310	4920	6490	8260	10370	11460	13470		
	92	185	374	556	733	933	1172	1295	1522		
76	189	186	183	181	176	173	170	170	169		
25	670	1560	3260	4900	6470	8210	10210	11370			
	76	176	368	554	731	928	1154	1285			
95	236	233	230	227	225	218	214	212			
30		1450	3210	4890	6450	8170	10050	11270			
		164	363	553	729	923	1136	1274			
114		280	276	273	270	262	257	255			
35		1410	3120	4880	6420	8170	9790	11240			
		159	353	551	725	923	1106	1270			
132		326	321	318	314	305	302	298			

11140 Torque [lb-in]
1270 Torque (Nm)
298 Speed (RPM)

VIS 30 - 505 cm³/r [30.7 in³/r]

Δ Pressure
PSI
bar

	250	500	1000	1500	2000	2500	3000	3500	4000	4500
	15	35	70	105	140	170	205	240	275	310
4	990	2010	4130	6180	8260	10080	12050	13670	16180	18050
	112	227	467	698	933	1139	1362	1545	1828	2040
15	29	29	28	28	27	27	26	26	24	23
8	1050	2110	4350	6480	8720	10760	13040	14350	16450	
	119	238	492	732	985	1216	1474	1622	1859	
30	60	59	58	56	55	55	54	53	53	
12	1020	2120	4330	6580	8780	10830	13180	14640	16760	
	115	240	489	744	992	1224	1489	1654	1894	
45	86	82	80	79	79	78	76	76	75	
16	940	2130	4320	6510	8680	10810	13260	14740		
	106	241	488	736	981	1222	1498	1666		
61	116	111	109	107	107	107	106	106		
20	810	1950	4220	6400	8520	10750	13180	15170		
	92	220	477	723	963	1215	1489	1714		
76	147	144	141	137	136	133	132	127		
25	520	1800	4040	6220	8360	10630	12930	15350		
	59	203	457	703	945	1201	1461	1735		
95	183	180	176	171	170	166	164	158		
30		1530	3770	6020	8160	10400	12650	14240		
		173	426	680	922	1175	1429	1609		
114		215	211	208	203	199	197	191		
35			3510	5790	7900	10180	12300			
			397	654	893	1150	1390			
132			246	243	236	233	231			

12300 Torque [lb-in]
1390 Torque (Nm)
231 Speed (RPM)

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

Performance Data

VIS 30 Series

Motors run with high efficiency in all areas designated with a number for torque and speed, *however for best motor life select a motor to run with a torque and speed range printed in the white background area.*

	Continuous
	Intermittent

VIS 30 - 570 cm³/r [34.9 in³/r]

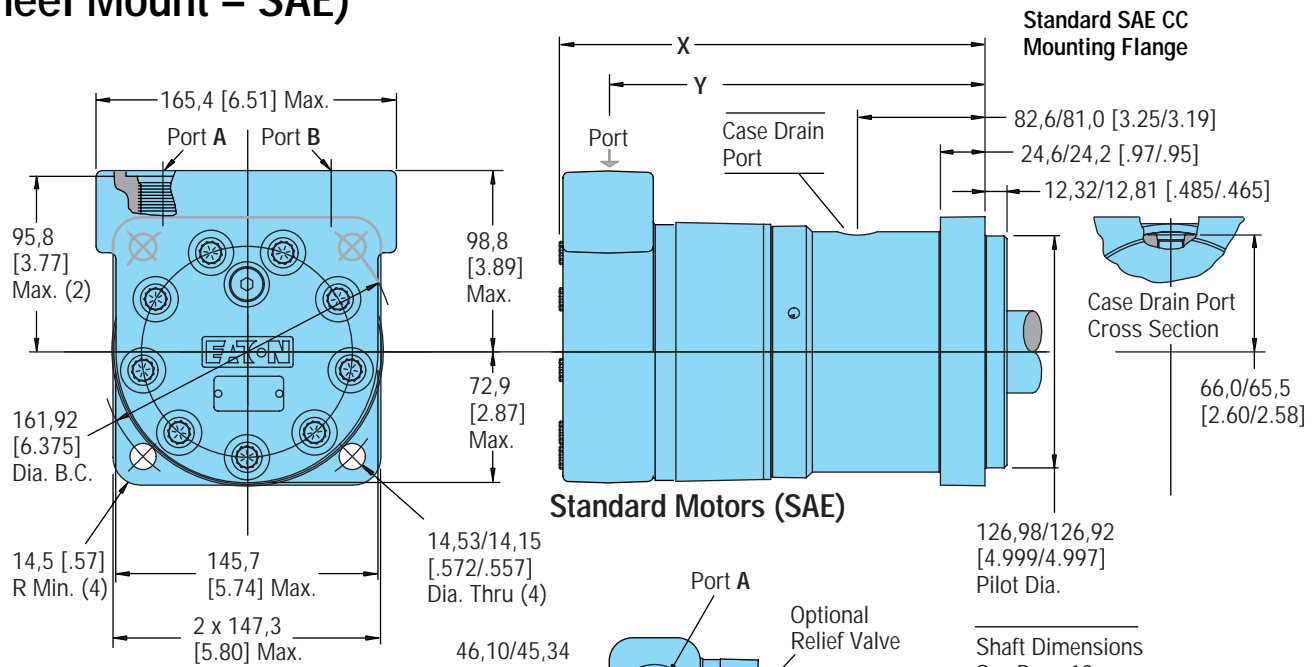
Δ Pressure
PSI
bar

	250	500	1000	1500	2000	2500	3000	3250	3750
	15	35	70	105	140	170	205	225	260
4	1206	2275	4687	7034	9355	11404	13407	14658	16707
	136	257	529	795	1057	1288	1515	1656	1888
15	25	22	22	22	21	21	20	19	19
8	1251	2429	5049	7578	10126	12627	15066	16389	18693
	141	274	570	856	1144	1427	1702	1852	2112
30	50	47	47	47	46	46	45	45	45
12	1188	2384	5031	7714	10198	12700	15184	16734	19110
	134	269	568	872	1152	1435	1715	1891	2159
45	74	72	71	69	69	68	67	67	67
16	934	2339	5031	7624	10153	12673	15293	16689	
	105	264	568	861	1147	1432	1728	1885	
61	100	98	97	95	95	94	94	93	
20	725	2094	4850	7470	9990	12537	15066	16616	
	82	237	548	844	1129	1416	1702	1877	
76	127	126	125	121	120	118	117	113	
25	390	1867	4505	7080	9699	12328	14721	14919	
	44	211	509	800	1097	1393	1663	1685	
95	161	158	156	154	151	147	146	138	
30		1459	4025	6690	9282	11902	14341	14846	
		165	455	756	1049	1345	1620	1677	
114		188	186	185	181	177	179	163	
35			3572	6209	8784	11440			
			404	702	992	1292			
132			218	216	213	207			

11440	Torque [lb-in]
1292	Torque (Nm)
207	Speed (RPM)

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

Dimension — VIS 30 Series (Standard and Wheel Mount – SAE)

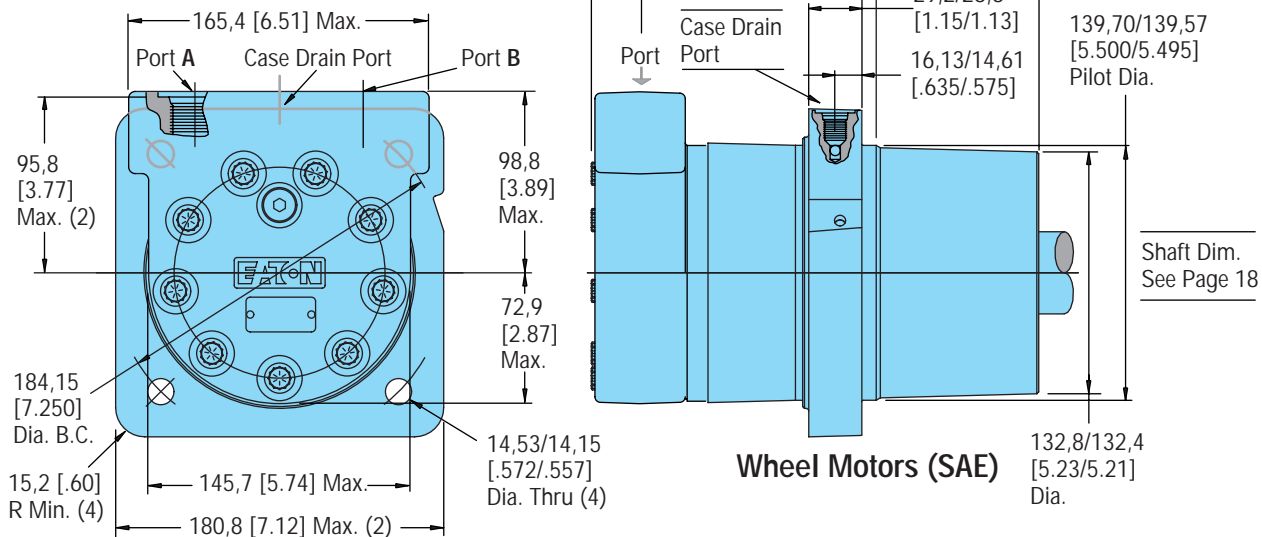
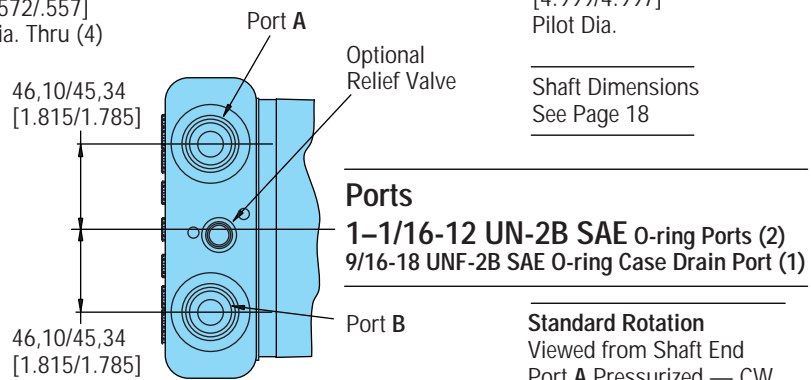


Standard Motors (SAE)

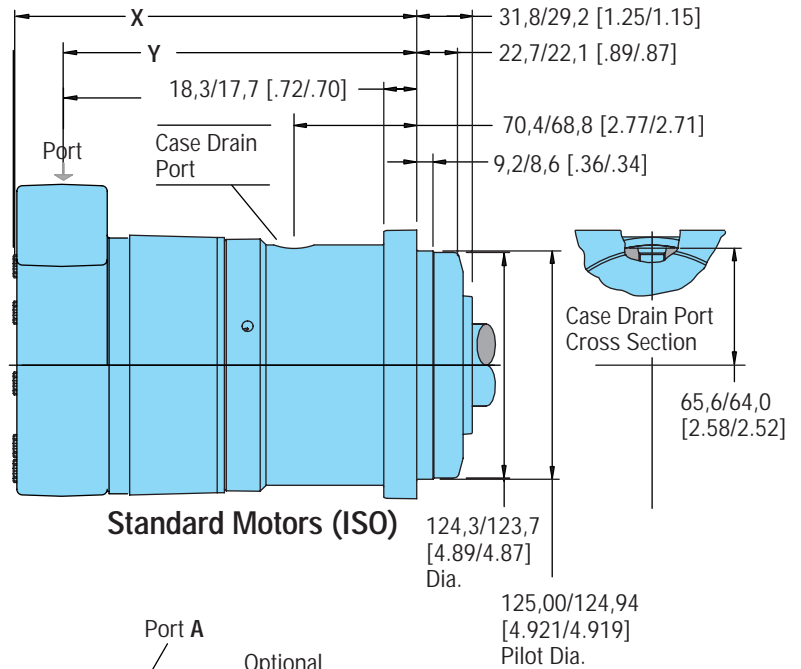
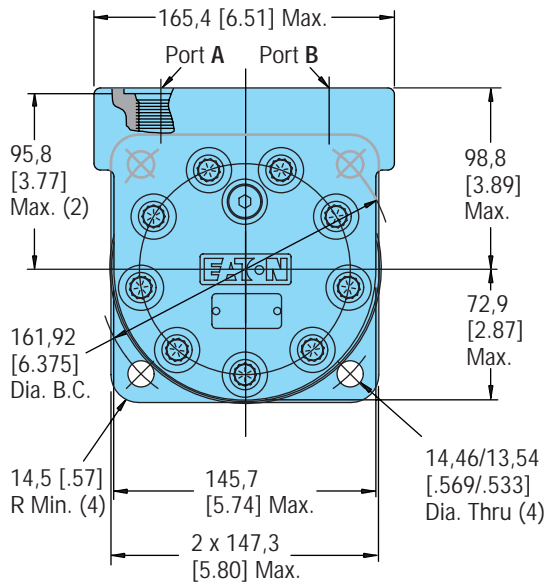
Displ. cm ³ /r [in ³ /r]	Y mm [inch]	X mm [inch]
325 [19.8]	188,7 [7.43]	214,7 [8.45]
400 [24.4]	195,6 [7.70]	221,3 [8.71]
505 [30.7]	204,5 [8.05]	230,4 [9.07]
570 [34.9]	210,6 [8.29]	236,5 [9.31]

Wheel Motors (SAE)

325 [19.8]	103,9 [4.09]	129,8 [5.11]
400 [24.4]	110,8 [4.36]	136,4 [5.37]
505 [30.7]	119,7 [4.71]	145,6 [5.73]
570 [34.9]	125,7 [4.95]	151,6 [5.97]



Dimension — VIS 30 Series (Standard and Wheel Mount – ISO)

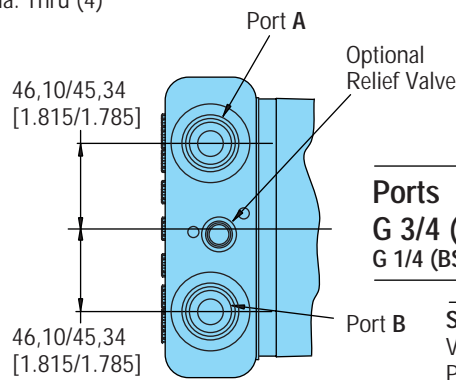


VIS 30 Standard Motor (ISO)

Displ. cm ³ /r [in ³ /r]	Y mm [inch]	X mm [inch]
325 [19.8]	176,8 [6.96]	202,7 [7.98]
400 [24.4]	183,4 [7.22]	209,0 [8.23]
505 [30.7]	192,5 [7.58]	218,4 [8.60]
570 [34.9]	198,6 [7.82]	224,5 [8.84]

VIS 30 Wheel Motor (ISO)

Displ. cm ³ /r [in ³ /r]	Y mm [inch]	X mm [inch]
325 [19.8]	102,4 [4.03]	128,5 [5.06]
400 [24.4]	109,2 [4.30]	135,1 [5.32]
505 [30.7]	118,4 [4.66]	144,3 [5.68]
570 [34.9]	124,5 [4.90]	150,4 [5.92]



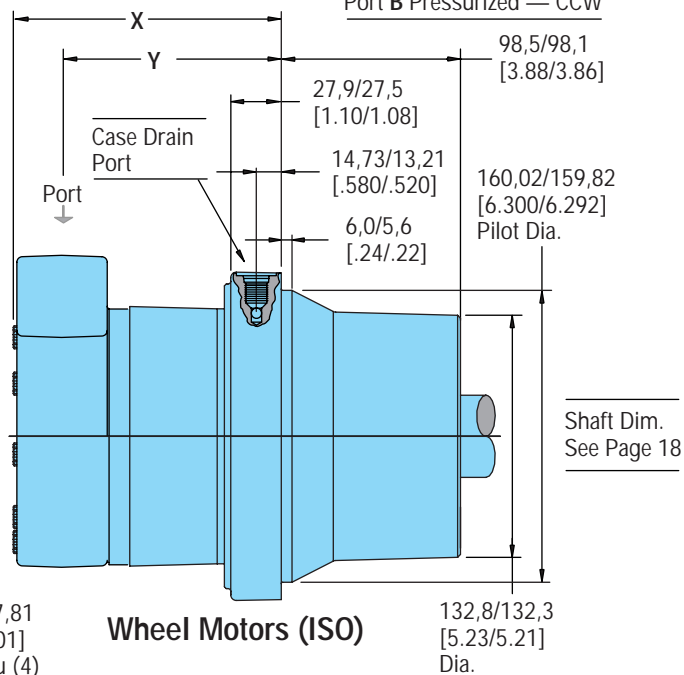
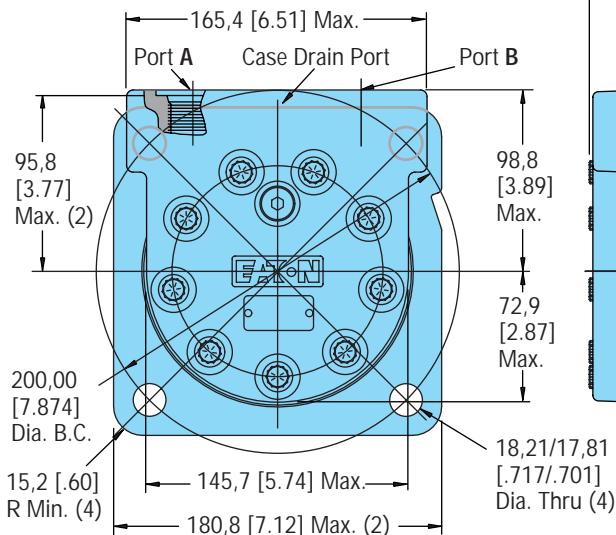
Ports

G 3/4 (BSP) O-ring Ports (2)
G 1/4 (BSP) O-ring Case Drain Port (1)

Standard Rotation

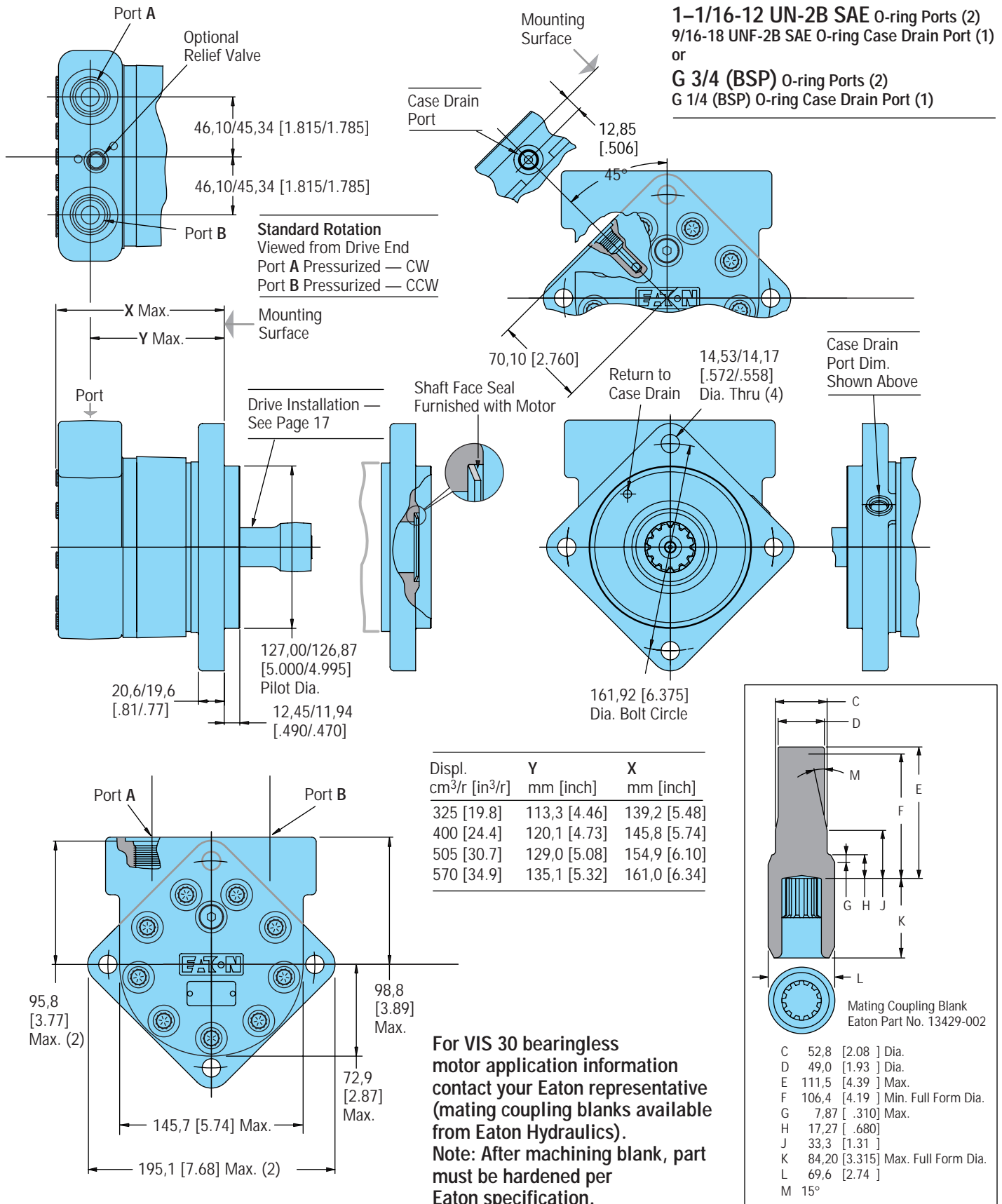
Viewed from Shaft End
Port A Pressurized — CW
Port B Pressurized — CCW

Shaft Dimensions
See Page 18

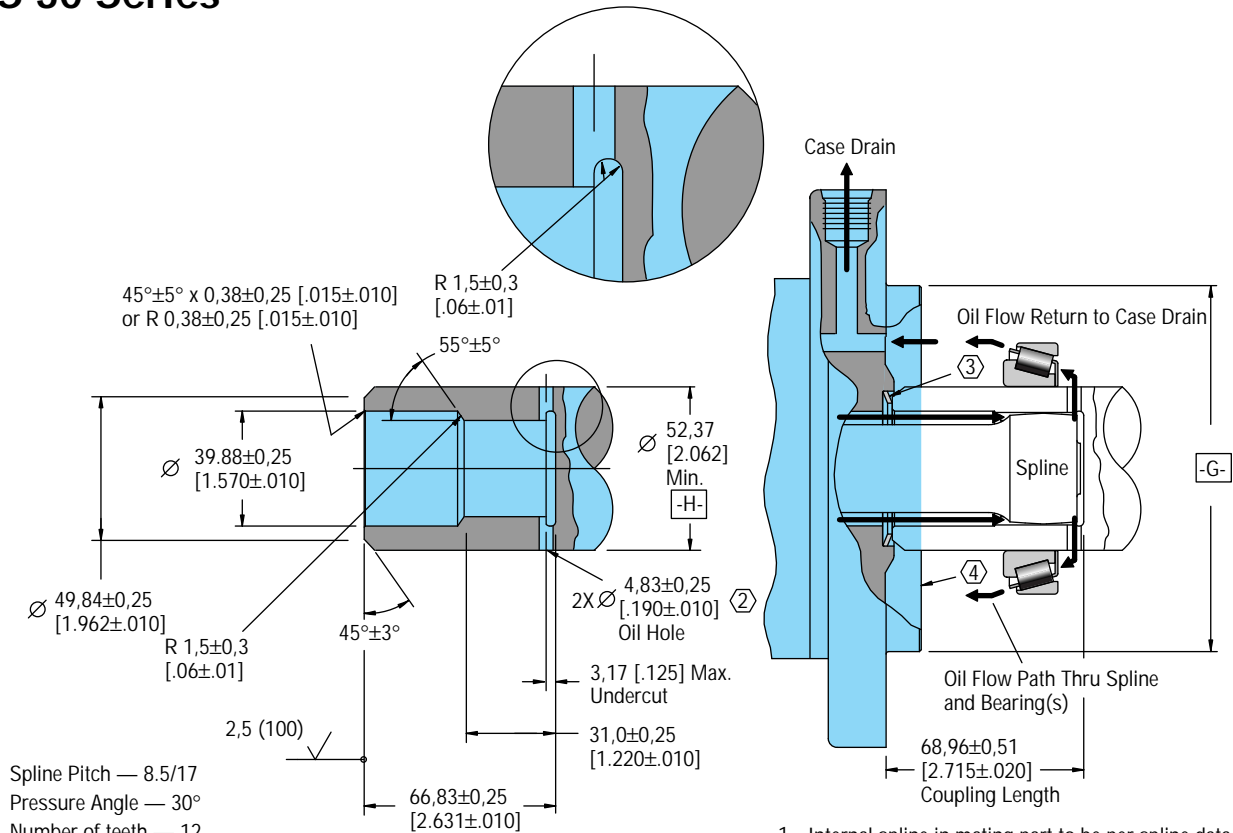


Wheel Motors (ISO)

Dimensions — VIS 30 Series (Bearingless)

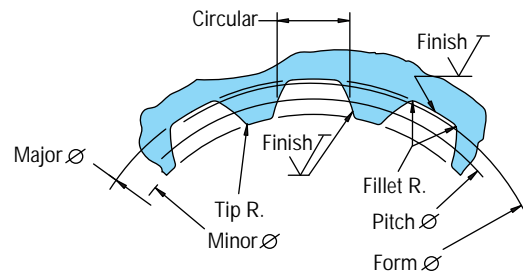


Installation Information for Bearingless Motor — VIS 30 Series



Spline Pitch — 8.5/17
 Pressure Angle — 30°
 Number of teeth — 12
 Class of Fit — Ref. 5
 Type of Fit — Side
 Pitch Diameter — Ref. 35,858823 [1.4117647] $\text{Ⓢ} 0,20 [0.008] H$
 Base Diameter — Ref. 31,054652 [1.2226241]
 Major Diameter — 39,17 [1.542] Max. 38,97 [1.534] Min.
 Minor Diameter — 33,30 - 33,48 [1.311 - 1.318]
 Form Diameter, Min. — 38,33 [1.509]
 Fillet Radius — 0,64 - 0,76 [0.025 - 0.030]
 Tip Radius — 0,25 - 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 — 5,898 [0.2322]
 Minimum Effective — 5,804 [0.2285]
 Maximum Effective — Ref. 5,857 [0.2306]
 Minimum Actual — Ref. 5,834 [0.2297]
 Dimension Between Two Pins — Ref. 26,929 - 27,084 [1.0602 - 1.0663]
 Pin Diameter — 6,223 [0.2450] Pins to Have 4,0 [0.160] Wide Flat for Root Clearance

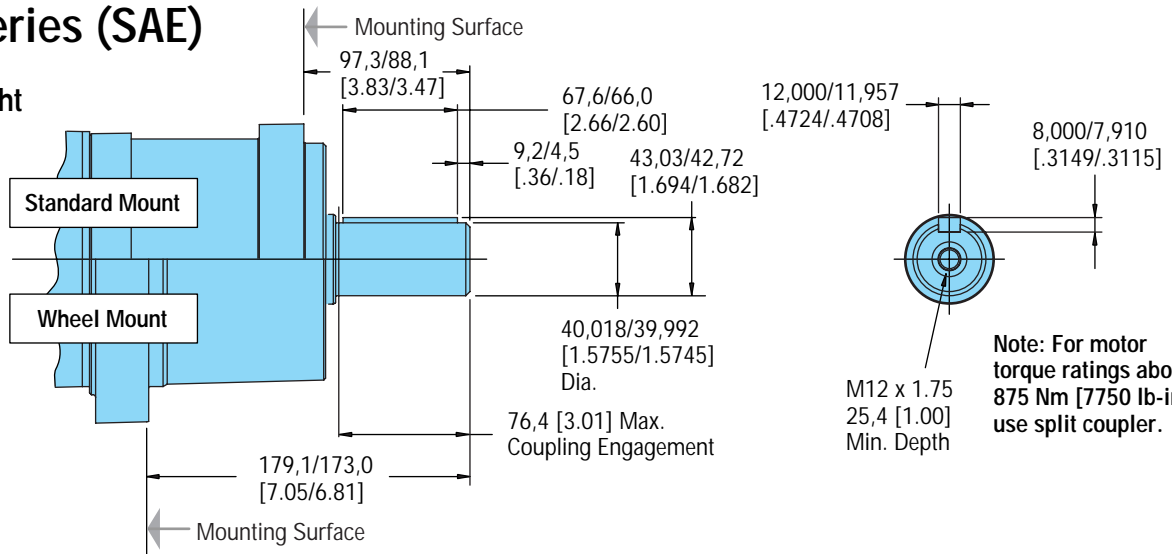
- 1 Internal spline in mating part to be per spline data. Specification material to be ASTM A304, 8620H carburize to a hardness of 60-64 HRC with case depth (to 50HRC) of 0,076 - 1,27 [0.030 - 0.050]. Dimensions apply after heat treat.
- 2 Mating part to have critical dimensions as shown. Oil holes must be provided and open for proper oil circulation.
- 3 Seal to be furnished with motor for proper oil circulation thru splines.
- 4 Similar to SAE "C" Four Bolt Flange.



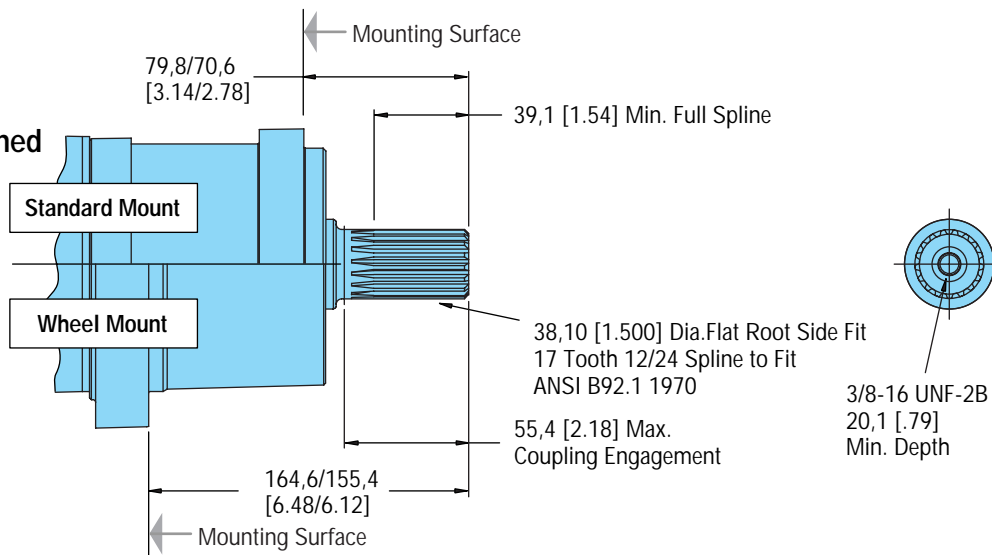
Dimensions — Shafts

VIS 30 Series (SAE)

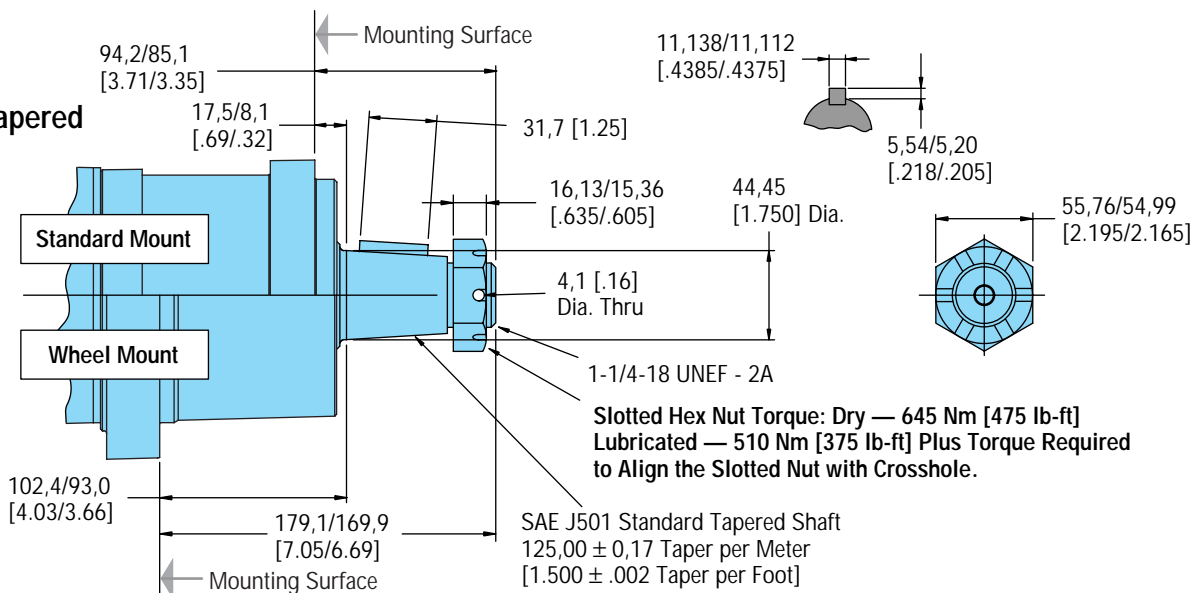
40 mm Straight



1-1/2 Inch 17 Tooth Splined



1-3/4 Inch Tapered



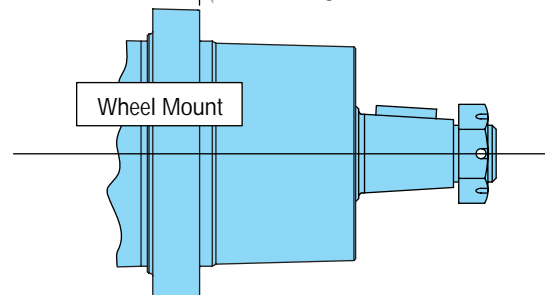
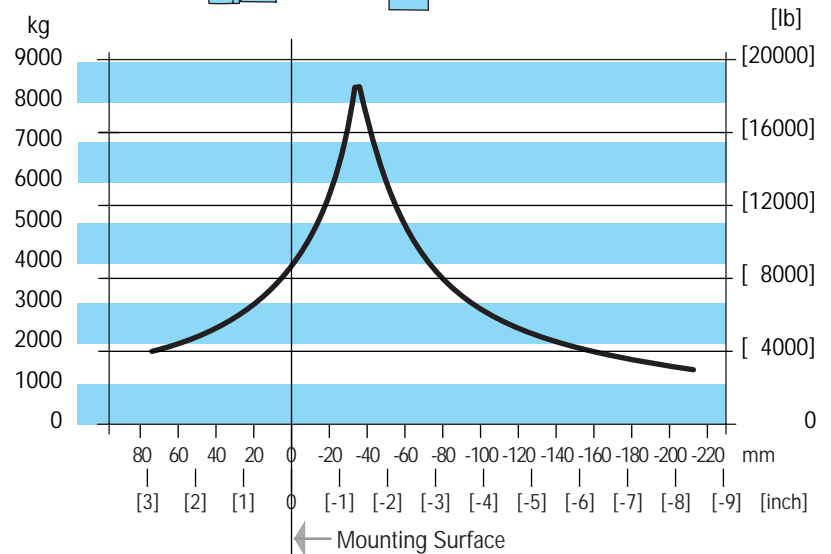
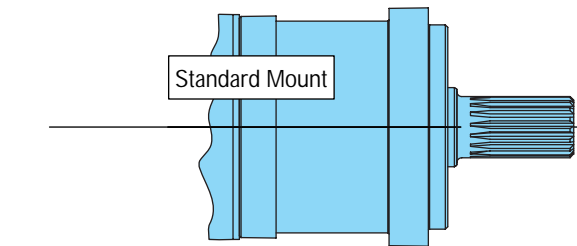
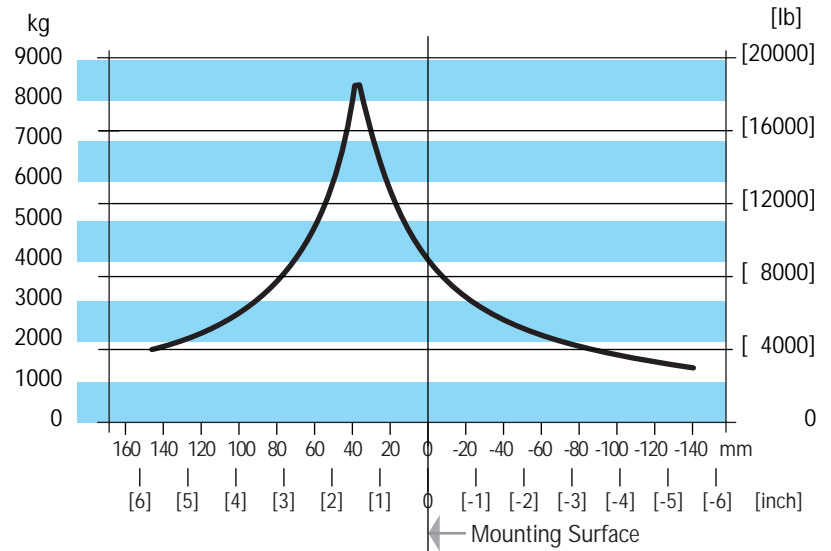
Shaft Side Load Capacity VIS 30 Series (SAE)

These curves indicate the radial load capacity on the motor shaft(s) at various locations.

The curve is based on B 10 bearing life (2000 hours or 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	.81
300	.72
400	.66
500	.62
600	.58
700	.56
800	.54

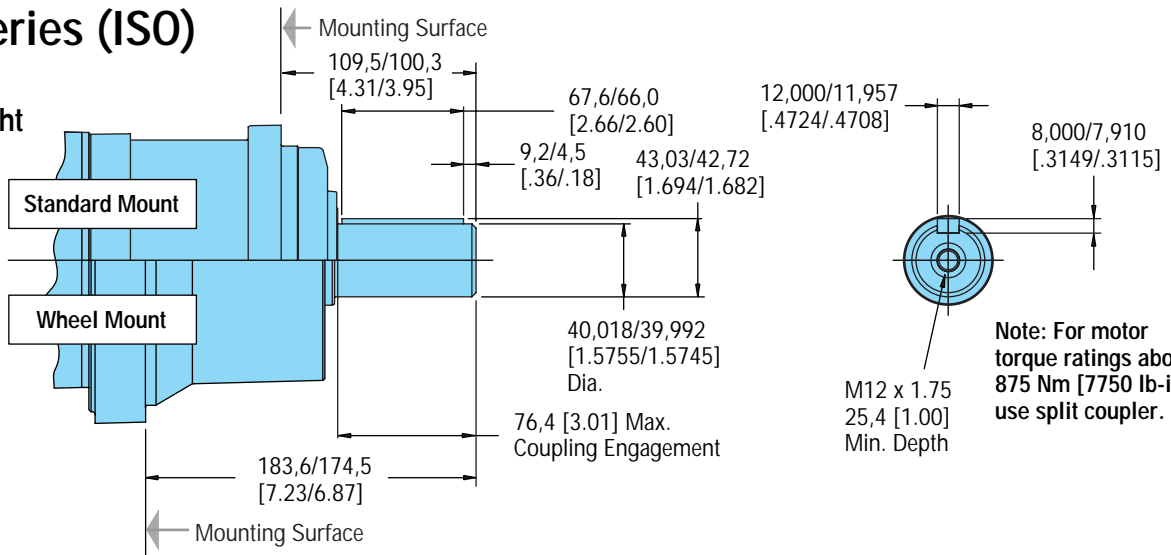
For 3,000,000 shaft revolutions or 500 hours — Increase these shaft loads 52%.



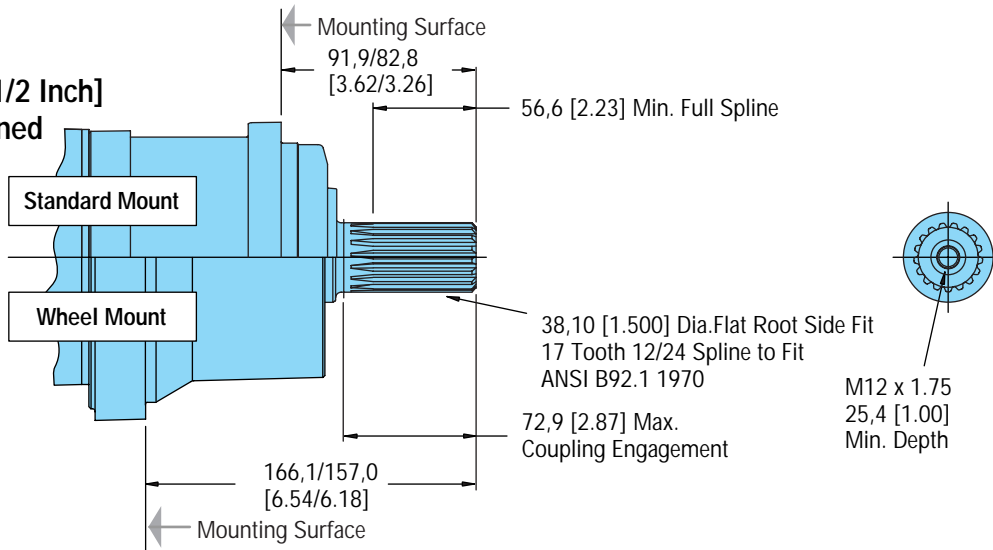
Dimensions — Shafts

VIS 30 Series (ISO)

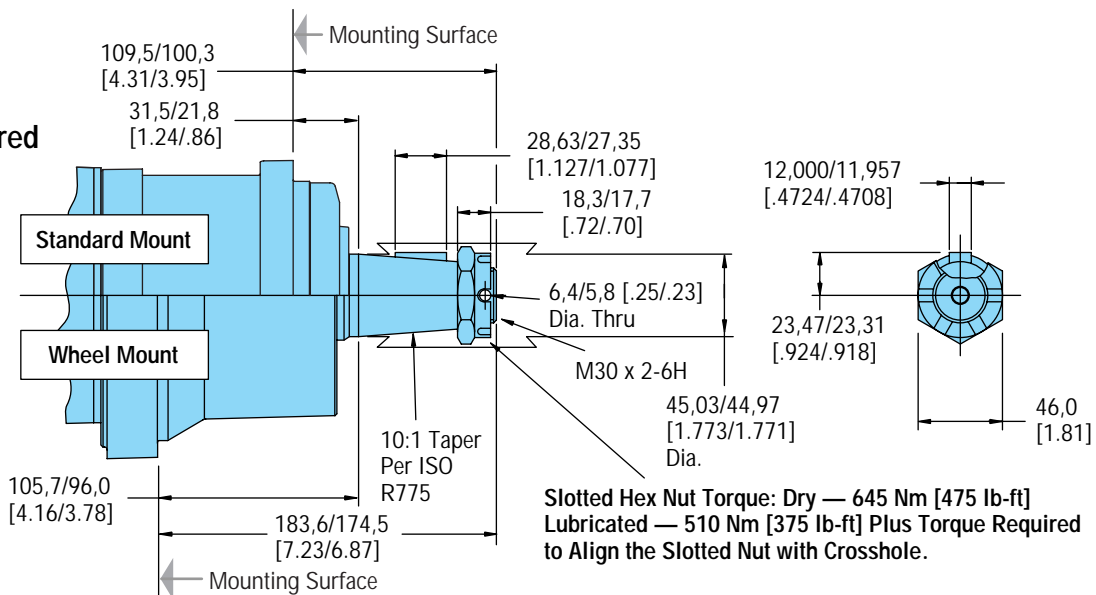
40 mm Straight



38,1 mm [1-1/2 Inch] 17 Tooth Splined



45 mm Tapered



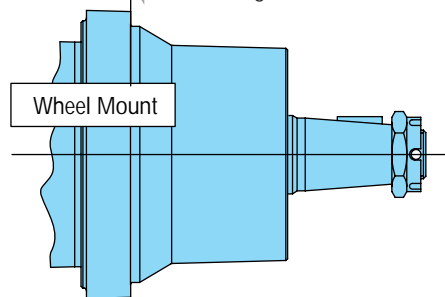
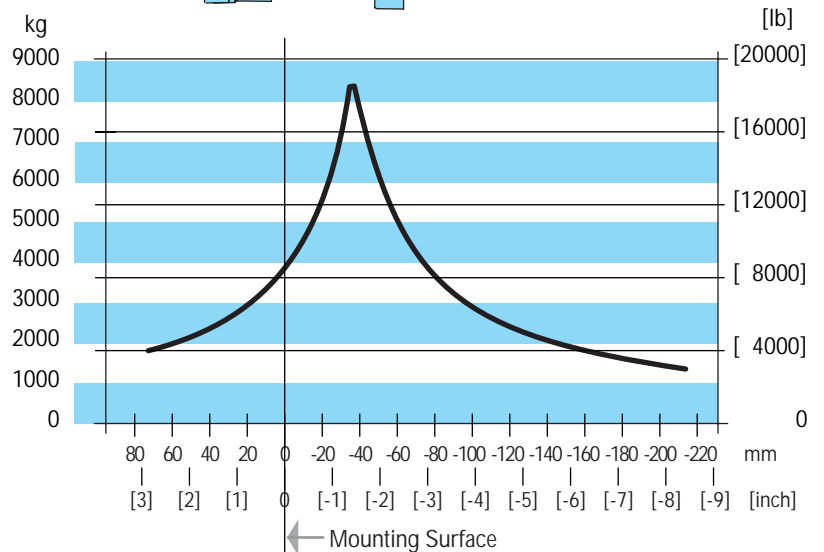
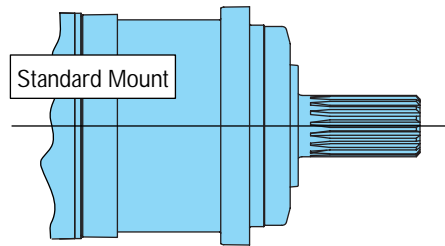
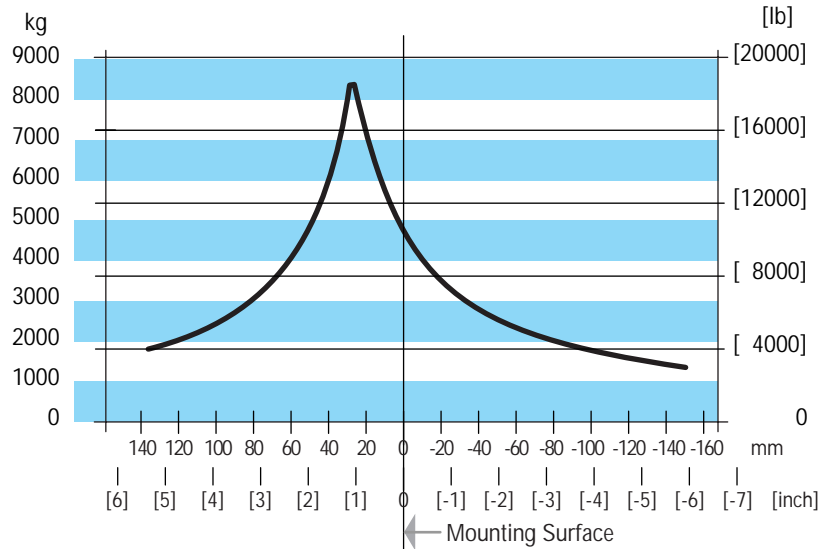
Shaft Side Load Capacity VIS 30 Series (ISO)

These curves indicate the radial load capacity on the motor shaft(s) at various locations.

The curve is based on B 10 bearing life (2000 hours or 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	.81
300	.72
400	.66
500	.62
600	.58
700	.56
800	.54

For 3,000,000 shaft revolutions or 500 hours — Increase these shaft loads 52%.



Product Numbers

VIS 30 Series (Closed Loop)

Use digit prefix —**159-**, **160-**, or **161-** plus four digit number from charts for complete product number—Example **161-0064**.
Orders will not be accepted without three digit prefix.

SAE

Mounting	Shaft	Port Size	Displ. cm ³ /r [in ³ /r] / Product Number			
			325 [19.8]	400 [24.4]	505 [30.7]	570 [34.9]
Standard	40 mm Straight	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	159-0103	-0094	-0104	-0105
	1-1/2 inch 17 Tooth Splined	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	159-0107	-0108	-0109	-0110
	1-3/4 inch Tapered	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	159-0112	-0113	-0114	-0115
Wheel	40 mm Straight	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	160-0054	-0055	-0056	-0057
	1-1/2 inch 17 Tooth Splined	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	160-0059	-0060	-0061	-0062
	1-3/4 inch Tapered	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	160-0064	-0065	-0066	-0067
Bearingless		1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	161-0045	-0064	-0065	-0076

161-0064

ISO

Mounting	Shaft	Port Size	Displ. cm ³ /r [in ³ /r] / Product Number			
			325 [19.8]	400 [24.4]	505 [30.7]	570 [34.9]
Standard	40 mm Straight	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	159-0117	-0118	-0119	-0120
	1-1/2 inch 17 Tooth Splined	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	159-0122	-0123	-0124	-0125
	45 mm Tapered	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	159-0127	-0128	-0129	-0130
Wheel	40 mm Straight	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	160-0069	-0070	-0071	-0072
	1-1/2 inch 17 Tooth Splined	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	160-0074	-0075	-0076	-0077
	45 mm Tapered	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	160-0079	-0080	-0081	-0082
Bearingless		G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	161-0067	-0068	-0069	-0070

161-0068

Note: All product numbers in the charts (above) are motors **with** back-pressure relief. These motors with relief valve would be used in Closed loop circuits. The back-pressure relief is set at 4,5 bar [65 PSI].

- VIS motors must have a case drain to tank.
- The maximum case pressure for the VIS motor is 3,5 bar [50 PSI].

Product Numbers

VIS 30 Series (Open Loop)

Use digit prefix —159-, 160-, or 161- plus four digit number from charts for complete product number—Example 161-0034. Orders will not be accepted without three digit prefix.

SAE

Mounting	Shaft	Port Size	Displ. cm ³ /r [in ³ /r] / Product Number			
			325 [19.8]	400 [24.4]	505 [30.7]	570 [34.9]
Standard	40 mm Straight	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	159-0035	-0038	-0041	-0131
	1-1/2 inch 17 Tooth Splined	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	159-0036	-0039	-0042	-0132
	1-3/4 inch Tapered	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	159-0034	-0037	-0040	-0133
Wheel	40 mm Straight	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	160-0021	-0024	-0027	-0083
	1-1/2 inch 17 Tooth Splined	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	160-0022	-0025	-0028	-0084
	1-3/4 inch Tapered	1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	160-0020	-0023	-0026	-0085
Bearingless		1-1/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	161-0030	-0034	-0020	-0077

161-0034

ISO

Mounting	Shaft	Port Size	Displ. cm ³ /r [in ³ /r] / Product Number			
			325 [19.8]	400 [24.4]	505 [30.7]	570 [34.9]
Standard	40 mm Straight	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	159-0051	-0054	-0057	-0134
	1-1/2 inch 17 Tooth Splined	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	159-0050	-0053	-0056	-0135
	45 mm Tapered	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	159-0049	-0052	-0055	-0136
Wheel	40 mm Straight	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	160-0037	-0040	-0043	-0086
	1-1/2 inch 17 Tooth Splined	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	160-0036	-0039	-0042	-0087
	45 mm Tapered	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	160-0035	-0038	-0041	-0088
Bearingless		G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	161-0035	-0036	-0037	-0078

161-0036

Note: All product numbers in the charts (above) are motors **without** back-pressure relief. These motors without relief valve would generally be used in open loop circuits.

For closed loop circuit as shown on page 6, a motor with a back-pressure relief valve **is required** (see product no.'s for these motors on page 22).

- VIS motors must have a case drain to tank.
- The maximum case pressure for the VIS motor is 3,5 bar [50 PSI].
- VIS motors in an open loop circuit must have 3,5 bar [50 PSI] greater return pressure than the pressure in the case to properly lubricate the internal drive (see page 9).

Model Code

VIS 30 Series

The following 16-digit coding system has been developed to identify all of the configuration options for the VIS 30 motor. Use this model code to specify a motor with the desired features. All 16-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.

Model Code — VIS 30 Motors

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	C	D												0	0

Positions 1, 2, 3 Product Series

ACD VIS 30 Motor

Positions 4, 5 Displacement cm³/r [in³/r]

- 20 325 [19.8]
- 24 400 [24.4]
- 30 505 [30.7]
- 35 570 [34.9]

Position 6 Mounting Type

- A 4 Bolt Bearingless 127,00 [5.000] Pilot Dia. with 12,19 [.480] Pilot Length and 14,35 [.565] Dia. Holes on 161,92 [6.375] Dia. Bolt Circle
- B 4 Bolt Wheel Mount 160 [6.3] Pilot Dia. with 5,8 [.23] Pilot Length and 18,00 [.709] Dia. Holes on 200,00 [7.874] Dia. Bolt Circle (ISO Compatible)
- F 4 Bolt Standard Mount (SAE CC) 127,00 [5.000] Pilot Dia. with 12,2 [.48] Pilot Length and 14,32 [.564] Dia. Holes on 161,92 [6.375] Dia. Bolt Circle
- G 4 Bolt Wheel Mount 139,7 [5.50] Pilot Dia. with 7,9 [.31] Pilot Length and 14,32 [.564] Dia. Holes on 184,15 [7.250] Dia. Bolt Circle (SAE Compatible)
- H 4 Bolt Standard Mount 125,0 [4.92] Pilot Dia. with 8,9 [.35] Pilot Length and 14,00 [.551] Dia. Holes on 160,00 [6.299] Dia. Bolt Circle (ISO Compatible)

Positions 7, 8 Output Shaft

- 00 None (Bearingless)
- 01 45 mm Dia. 10:1 Tapered Shaft Per ISO R775 with M30 x 2-6H Threaded Shaft End, 12W x 8H x 28L [.472W x .313H x 1.102L] Key
- 02 1-3/4 inch Dia. .125:1 Tapered Shaft Per SAE J501 with 1-1/4-18 UNEF-2A Threaded Shaft End, 11,11 [.4375] Square x 31,8 [1.25] Straight Key
- 07 40 mm Dia. Straight Shaft with M12 x 1,75-6H Thread in End, 12W x 8H x 63L [.472W x .313H x 2.480L] Key (SAE Compatible)
- 08 1-1/2 inch Dia. Flat Root Side Fit, 17 Tooth, 12/24 DP 30 Degree Involute Spline, 39,1 [1.54] Minimum Full Spline with 3/8-16 UNC-2B Thread in End (SAE Compatible)
- 09 1-1/2 inch Dia. Flat Root Side Fit, 17 Tooth, 12/24 DP30 Degree Involute Spline, 56,6 [2.23] Minimum Full Spline with M12 x 1,75-6H Thread in End (ISO Compatible)
- 10 40 mm Dia. Straight Shaft with M12 x 1,75-6H Thread in End, 12W x 8H x 67L [.472W x .313H x 2.630L] Key (ISO Compatible)

Position 9 Ports

- A 1-1/16-12 UN-2B Size 12 O-ring Port, Accepts Fittings for SAE J1926
- B G3/4 (BSP) Straight Thread Port

Position 10 Case Flow Options

- A Shuttle Valve with 9/16-18 UNF-2B, Size 6 O-ring Port Case Drain, Accepts Fittings for SAE J1926
- B Shuttle Valve with G1/4 (BSP) Straight Thread Port Case Drain

Position 11 Back-Pressure Relief

- 0 None (for Open Loop Only)*
- 1 Set at 4,5 bar [65 PSI] (for Manual Pumps)
- 2 Set at 15,2 bar [220 PSI] (for Servo Pumps)

Positions 12, 13 Special Features

- 00 None

Position 14 Paint/ Special Packaging

- 0 No Paint, Individual Box
- A Painted Low Gloss Black, Individual Box
- B No Paint, Bulk Box Option
- C Painted Low Gloss Black, Bulk Box Option

Position 15 Eaton Assigned Code when Applicable

- 0 Assigned Code

Position 16 Eaton Assigned Design Code

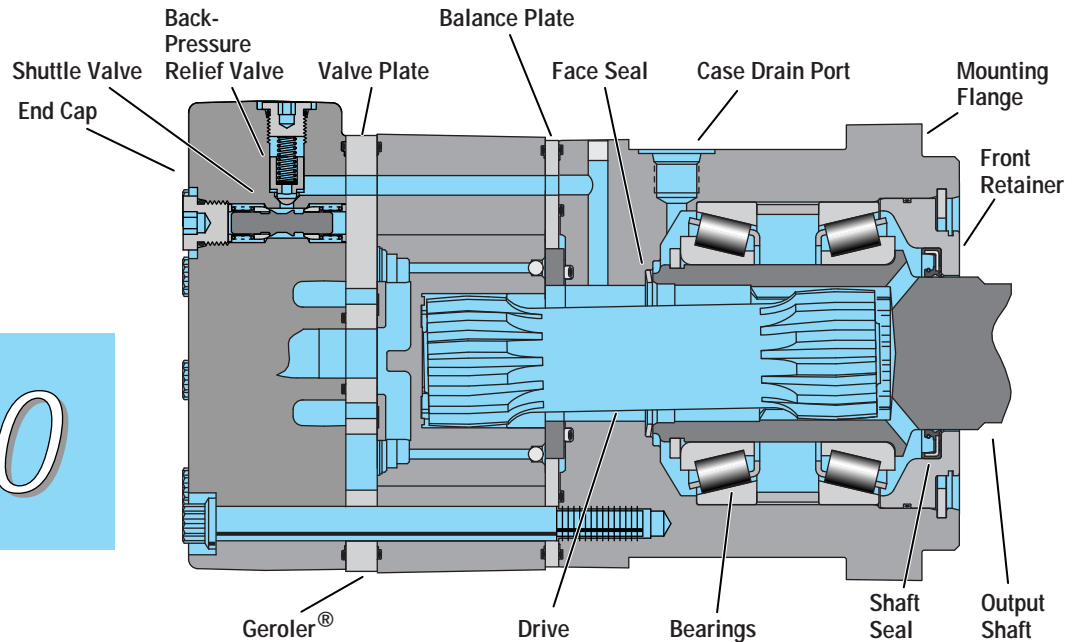
- C Assigned Design Code

*** For Open Loop**

- VIS motors must have a case drain to tank.
- The maximum case pressure for the VIS motor is 3,5 bar [50 PSI].
- VIS motors in an open loop circuit must have 3,5 bar [50 PSI] greater return pressure than the pressure in the case to properly lubricate the internal drive (see page 9).

Specifications VIS 40 Series

VIS 40



Theoretical Specification Data — VIS 40 Motors

Displ. cm ³ /r [in ³ /r]		505 [30.7]	570 [34.9]	630 [38.5]	685 [41.7]	785 [48.0]	940 [57.4]
Theo. Max. Speed (RPM) @ Flow	Continuous	225	198	180	166	144	120
	Intermittent	263	231	210	194	168	140
Flow l/min [GPM]	Continuous	114 [30]	114 [30]	114 [30]	114 [30]	114 [30]	114 [30]
	Intermittent	132 [35]	132 [35]	132 [35]	132 [35]	132 [35]	132 [35]
Theo. Torque Nm [lb-in]	Continuous	2485 [22000]	2711 [23995]	2714 [24020]	2714 [24025]	2711 [23990]	2714 [24025]
	Intermittent	2760 [24430]	3138 [27775]	3392 [30025]	3390 [30000]	3392 [30020]	3390 [30000]
Pressure Δ bar [Δ PSI]	Continuous	310 [4500]	298 [4320]	270 [3920]	250 [3620]	216 [3140]	181 [2630]
	Intermittent	345 [5000]	345 [5000]	338 [4900]	312 [4520]	271 [3930]	226 [3285]
	Peak	379 [5500]	379 [5500]	379 [5500]	372 [5400]	324 [4700]	272 [3950]

A simultaneous maximum torque and maximum speed NOT recommended.

Maximum Inlet Pressure — 400 bar [5800 PSI]. **Do Not Exceed A Pressure Rating** (for displacement size see chart above).

Return Pressure (Back-Pressure):

Minimum — 3,5 bar [50 PSI]

Maximum — 21 bar [300 PSI]

Note — Return (back-pressure) must be 3,5 bar [50 PSI] greater than the case pressure.

Case Pressure:

Minimum — No Pressure

Maximum — 3,5 bar [50 PSI]

Note — The case must be full when the motor is operating (case drain out the top). A case drain is required.

Δ Pressure — The true Δ bar [Δ PSI] 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 70 SUS at operating temperature.

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

Recommended Filtration — per ISO Cleanliness Code, level 18/13

Shuttle — Standard

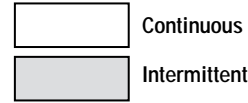
Back-Pressure Relief Valve — Required for closed loop circuit.

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.

Performance Data

VIS 40 Series

Motors run with high efficiency in all areas designated with a number for torque and speed, however for best motor life select a motor to run with a torque and speed range printed in the white background area.



VIS 40 - 505 cm³/r [30.7 in³/r] Δ Pressure

		Psi bar										
		250 17	500 34	1000 69	1500 103	2000 138	2500 172	3000 207	3500 241	4000 276	4500 310	5000 345
Flow GPM l/min	4	866 98	2003 226	4191 473	6337 716	8403 949	10479 1184	12486 1411	14442 1632	16381 1851	17999 2033	19999 2259
	15	29	29	28	28	27	27	26	25	25	24	24
	8	873 99	2021 228	4275 483	6520 737	8732 986	10908 1232	13080 1478	15212 1718	17236 1947	18961 2142	21068 2380
	30	55	58	58	57	56	55	55	54	54	52	52
	12	829 94	1979 224	4266 482	6537 738	8785 992	11031 1246	13243 1496	15427 1743	17555 1983	19320 2183	21466 2425
	45	85	85	87	85	84	84	83	83	82	79	79
	16	833 94	1880 212	4207 475	6495 734	8758 989	11006 1243	13261 1498	15483 1749	17664 1996	19442 2196	21603 2440
	61	111	113	114	115	113	112	112	111	112	108	108
	20	803 91	1768 200	4110 464	6405 724	8701 983	10982 1241	13243 1496	15485 1749	17666 1996	19445 2197	21605 2441
	76	141	142	142	143	142	141	140	139	140	135	135
25	754 85	1670 189	3948 446	6274 709	8569 968	10875 1229	13163 1487	15393 1739	17561 1984	19327 2183		
95	178	176	177	179	178	177	176	175	177	170		
30		1433 162	3744 423	6091 688	8379 947	10674 1206	12964 1465	15275 1726	17426 1969	19175 2166		
114		213	212	212	214	214	212	211	213	205		
35		1409 159	3645 412	5842 660	8164 922	10475 1183	12790 1445	15029 1698	17145 1937			
132		250	246	246	248	249	248	249	251			

15029 Torque [lb-in]
1698 Torque (Nm)
249 Speed (RPM)

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

VIS 40 - 570 cm³/r [34.9 in³/r] Δ Pressure

		PSI bar										
		250 17	500 34	1000 69	1500 103	2000 138	2500 172	3000 207	3500 241	4000 276	4500 310	5000 345
Flow GPM l/min	4	984 111	2277 257	4764 538	7204 814	9553 1079	11913 1346	14194 1604	16418 1855	18622 2104	20461 2312	22735 2568
	15	26	26	25	25	24	24	23	22	22	21	21
	8	992 112	2297 260	4860 549	7412 837	9927 1121	12400 1401	14869 1680	17293 1954	19594 2214	21555 2435	23950 2706
	30	48	51	51	50	49	48	48	48	48	46	46
	12	942 106	2250 254	4850 548	7431 840	9987 1128	12540 1417	15055 1701	17538 1981	19957 2255	21963 2481	24403 2757
	45	75	75	77	75	74	74	73	73	72	69	69
	16	947 107	2137 241	4783 540	7384 834	9956 1125	12512 1413	15075 1703	17601 1988	20081 2269	22102 2497	
	61	98	99	100	101	99	99	99	98	99	95	
	20	913 103	2010 227	4672 528	7281 823	9891 1117	12484 1410	15055 1701	17603 1989	20083 2269	22105 2497	
	76	124	125	125	126	125	124	123	122	123	119	
25	858 97	1899 215	4488 507	7132 806	9741 1100	12363 1397	14964 1690	17499 1977	19964 2255			
95	157	155	156	157	157	156	155	154	155			
30		1629 184	4256 481	6924 782	9525 1076	12134 1371	14738 1665	17365 1962	19810 2238			
114		188	186	186	188	188	186	186	187			
35		1602 181	4144 468	6641 750	9281 1048	11908 1345	14540 1643	17085 1930				
132		220	216	216	218	219	218	219				

17085 Torque [lb-in]
1930 Torque (Nm)
219 Speed (RPM)

Performance Data

VIS 40 Series

Motors run with high efficiency in all areas designated with a number for torque and speed, however for best motor life select a motor to run with a torque and speed range printed in the white background area.

Continuous
 Intermittent

VIS 40 - 630 cm³/r [38.5 in³/r] Δ Pressure
PSI
bar

	250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
	17	34	69	103	138	172	207	241	276	310	345
4	1086	2512	5256	7947	10538	13141	15658	18111	20543	22572	25080
	123	284	594	898	1190	1485	1769	2046	2321	2550	2833
15	23	23	22	22	22	22	21	20	20	19	19
8	1095	2534	5361	8177	10951	13679	16403	19077	21615	23778	26420
	124	286	606	924	1237	1545	1853	2155	2442	2686	2985
30	44	46	46	45	45	44	44	43	43	41	41
12	1040	2482	5350	8198	11017	13834	16608	19347	22015	24228	26920
	117	280	604	926	1245	1563	1876	2186	2487	2737	3041
45	68	68	69	68	67	67	66	66	65	63	63
16	1044	2358	5276	8145	10983	13802	16630	19417	22152	24382	
	118	266	596	920	1241	1559	1879	2194	2503	2754	
61	89	90	91	92	90	89	89	89	89	86	
20	1007	2217	5154	8032	10912	13772	16608	19419	22155		
	114	250	582	907	1233	1556	1876	2194	2503		
76	112	113	113	114	113	112	112	111	112		
25	946	2095	4951	7868	10746	13638	16507	19304			
	107	237	559	889	1214	1541	1865	2181			
95	142	141	141	143	142	141	140	140			
30		1797	4695	7639	10508	13386	16258	19156			
		203	530	863	1187	1512	1837	2164			
114		170	169	169	171	171	169	168			
35		1767	4571	7326	10238	13136	16040	18847			
		200	516	828	1157	1484	1812	2129			
132		199	196	196	198	199	198	199			

16040 Torque [lb-in]
 1812 Torque (Nm)
 198 Speed (RPM)

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

VIS 40 - 685 cm³/r [41.7 in³/r] Δ Pressure
PSI
bar

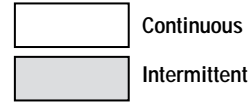
	250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
	17	34	69	103	138	172	207	241	276	310	345
4	1176	2721	5693	8608	11414	14234	16960	19617	22250	24448	27165
	133	307	643	972	1289	1608	1916	2216	2514	2762	3069
15	21	21	21	21	20	20	19	18	18	18	18
8	1186	2745	5807	8856	11861	14816	17767	20663	23412	25755	28616
	134	310	656	1000	1340	1674	2007	2334	2645	2910	3233
30	40	43	43	42	41	40	40	40	40	38	38
12	1126	2688	5795	8879	11933	14983	17988	20955	23845	26242	
	127	304	655	1003	1348	1693	2032	2367	2694	2965	
45	63	63	64	63	62	62	61	61	60	58	
16	1131	2554	5714	8822	11896	14950	18012	21031	23993		
	128	288	646	997	1344	1689	2035	2376	2711		
61	82	83	84	85	83	82	82	82	82		
20	1091	2401	5583	8700	11819	14917	17988	21033			
	123	271	631	983	1335	1685	2032	2376			
76	104	105	105	105	105	104	103	102			
25	1025	2269	5363	8522	11639	14772	17879	20908			
	116	256	606	963	1315	1669	2020	2362			
95	131	130	130	132	131	130	130	129			
30		1947	5085	8273	11381	14499	17609	20748			
		220	575	935	1286	1638	1989	2344			
114		157	156	156	158	158	156	155			
35		1914	4951	7935	11089	14228	17373				
		216	559	896	1253	1607	1963				
132		184	181	181	183	183	183				

17373 Torque [lb-in]
 1963 Torque (Nm)
 183 Speed (RPM)

Performance Data

VIS 40 Series

Motors run with high efficiency in all areas designated with a number for torque and speed, however for best motor life select a motor to run with a torque and speed range printed in the white background area.



VIS 40 - 785 cm³/r [48.0 in³/r]

Δ Pressure
PSI
bar

		250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
		17	34	69	103	138	172	207	241	276	310	345
4		1354	3132	6553	9908	13138	16384	19522	22580	25612	28142	31269
	15	153	354	740	1119	1484	1851	2205	2551	2893	3179	3532
8		1365	3160	6684	10194	13653	17055	20451	23784	26949	29646	32940
	15	154	357	755	1152	1542	1927	2310	2687	3044	3349	3721
12		1296	3094	6670	10221	13736	17247	20706	24120	27448		
	15	146	350	754	1155	1552	1948	2339	2725	3101		
16		1302	2939	6578	10155	13693	17208	20734	24208			
	15	147	332	743	1147	1547	1944	2342	2735			
20		1256	2764	6426	10014	13604	17171	20706	24211			
	15	142	312	726	1131	1537	1940	2339	2735			
25		1180	2612	6173	9810	13398	17003	20581				
	15	133	295	697	1108	1514	1921	2325				
30			2241	5854	9523	13101	16689	20269				
	15		253	661	1076	1480	1885	2290				
35			2203	5699	9134	12765	16378	19997				
	15		249	644	1032	1442	1850	2259				

19997 Torque [lb-in]
2259 Torque (Nm)
159 Speed (RPM)

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

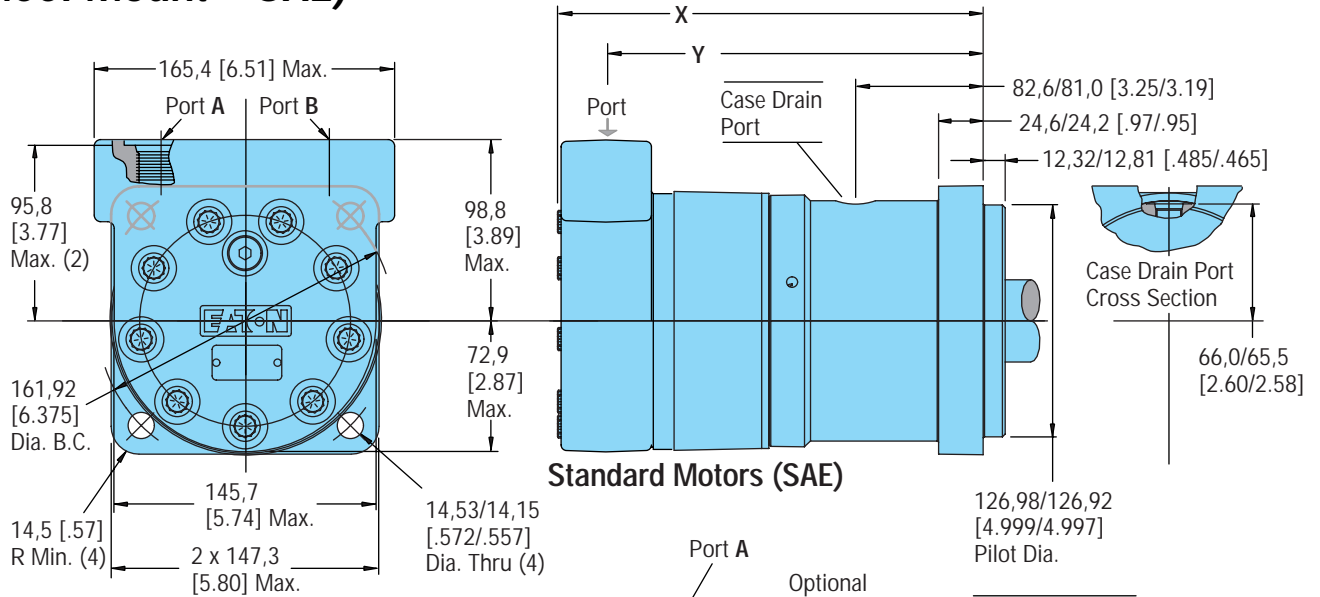
VIS 40 - 940 cm³/r [57.4 in³/r]

Δ Pressure
PSI
bar

		250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
		17	34	69	103	138	172	207	241	276	310	345
4		1619	3745	7836	11848	15711	19593	23345	27002	30628	33653	37392
	15	183	423	885	1339	1775	2213	2637	3050	3460	3802	4224
8		1632	3779	7993	12190	16326	20395	24456	28442	32226		
	15	184	427	903	1377	1844	2304	2763	3213	3641		
12		1550	3700	7976	12222	16425	20625	24761	28844			
	15	175	418	901	1381	1856	2330	2797	3259			
16		1557	3515	7866	12144	16375	20578	24794				
	15	176	397	889	1372	1850	2325	2801				
20		1502	3306	7684	11975	16268	20533	24761				
	15	170	373	868	1353	1838	2320	2797				
25		1411	3123	7382	11731	16022	20333					
	15	159	353	834	1325	1810	2297					
30			2680	7000	11388	15666	19957					
	15		303	791	1287	1770	2255					
35			2634	6815	10923	15264	19585					
	15		298	770	1234	1724	2213					

19585 Torque [lb-in]
2213 Torque (Nm)
133 Speed RPM

Dimension — VIS 40 Series (Standard and Wheel Mount – SAE)

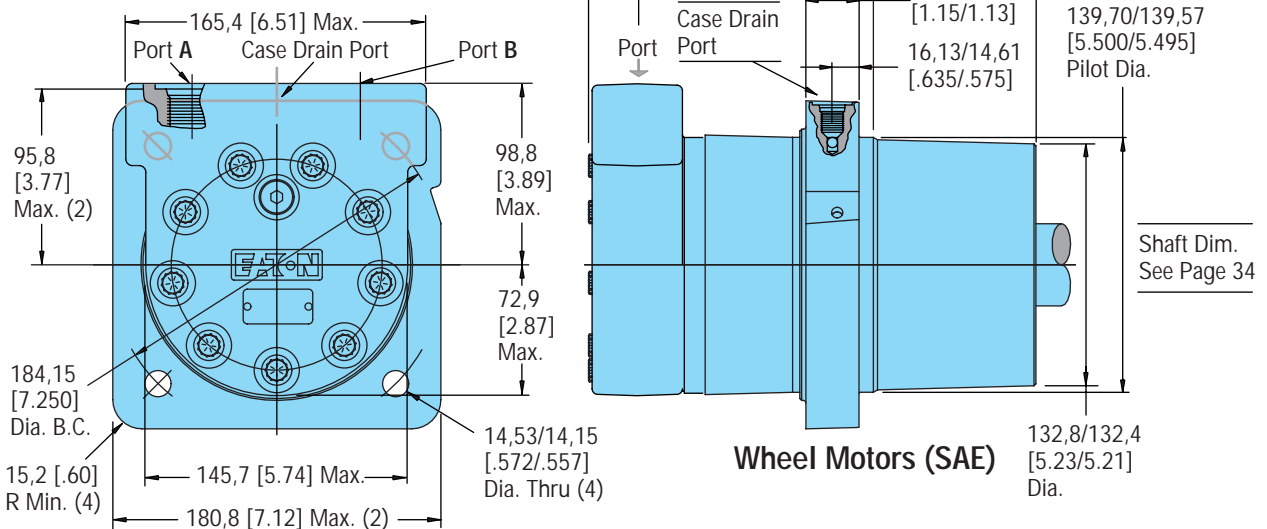
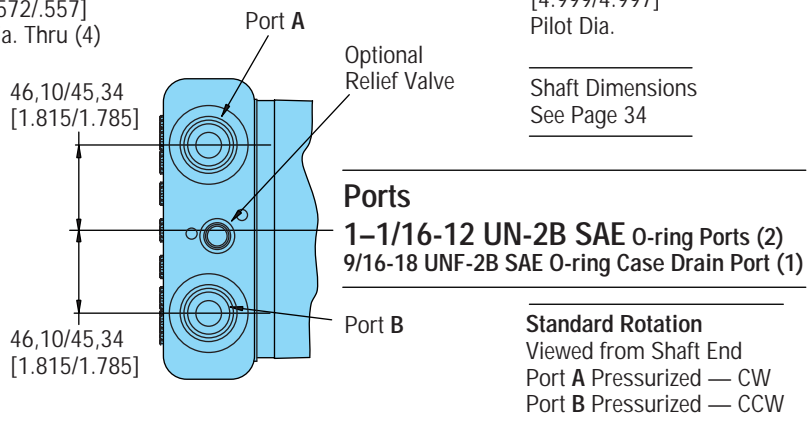


Standard Motors (SAE)

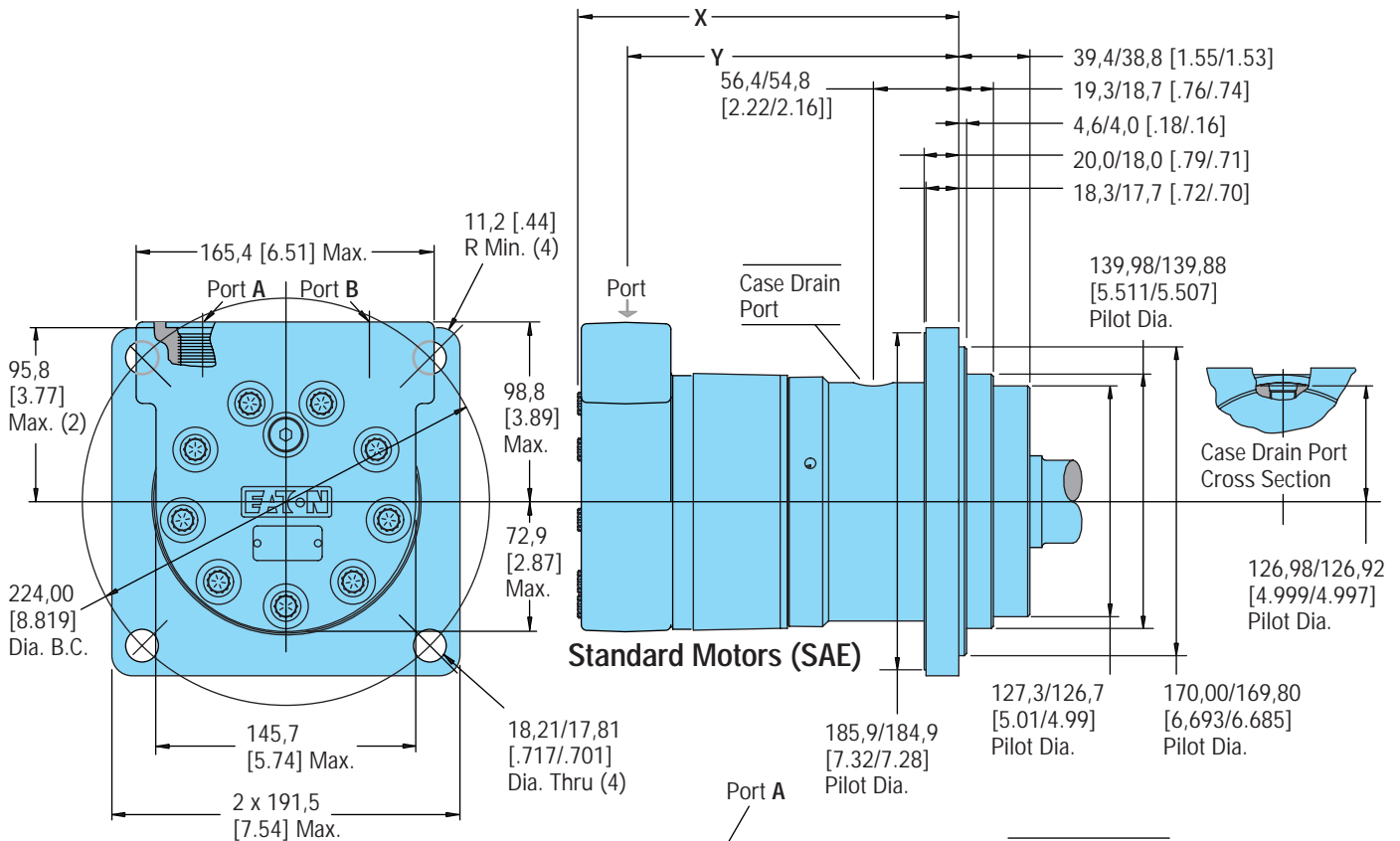
Displ. cm ³ /r [in ³ /r]	Y mm [inch]	X mm [inch]
505 [30.7]	204,5 [8.05]	230,4 [9.07]
570 [34.9]	210,6 [8.29]	236,5 [9.31]
630 [38.5]	215,9 [8.50]	241,9 [9.52]
685 [41.7]	220,5 [8.68]	246,4 [9.70]
785 [48.0]	229,9 [9.05]	255,8 [10.07]
940 [57.4]	243,3 [9.58]	269,2 [10.60]

Wheel Motors (SAE)

505 [30.7]	119,7 [4.71]	145,6 [5.73]
570 [34.9]	125,7 [4.95]	151,6 [5.97]
630 [38.5]	131,1 [5.16]	157,0 [6.18]
685 [41.7]	135,6 [5.34]	161,5 [6.36]
785 [48.0]	145,0 [5.71]	170,9 [6.73]
940 [57.4]	158,5 [6.24]	184,4 [7.26]

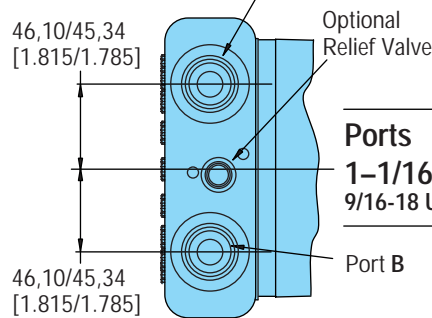


Dimension — VIS 40 Series Oversize Flange 224,0 [8.82] B.C.



Standard Motors

Displ. cm ³ /r [in ³ /r]	Y mm [inch]	X mm [inch]
505 [30.7]	181,4 [7.14]	213,1 [8.39]
570 [34.9]	187,4 [7.38]	219,2 [8.63]
630 [38.5]	192,5 [7.58]	224,5 [8.84]
685 [41.7]	197,6 [7.78]	229,1 [9.02]
785 [48.0]	206,8 [8.14]	238,5 [9.39]
940 [57.4]	220,5 [8.68]	252,0 [9.92]



Ports

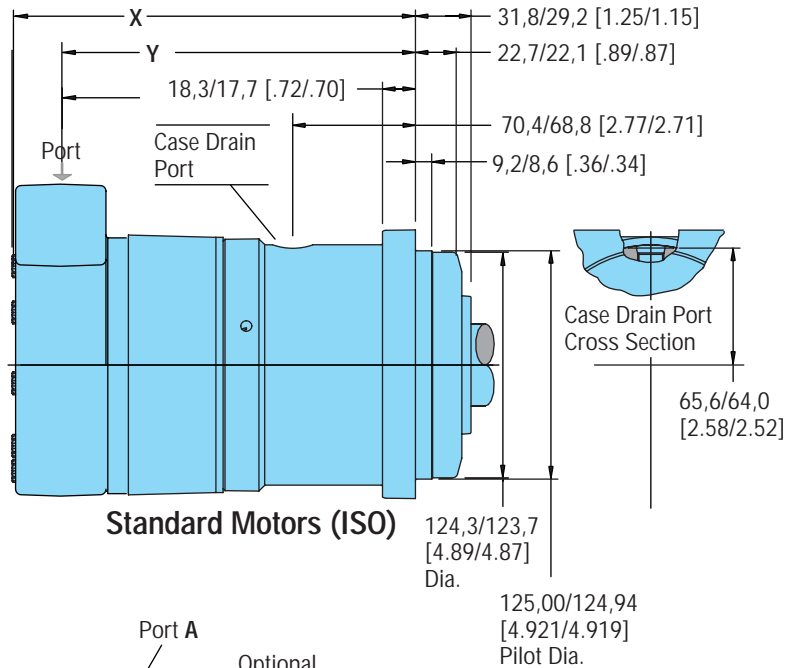
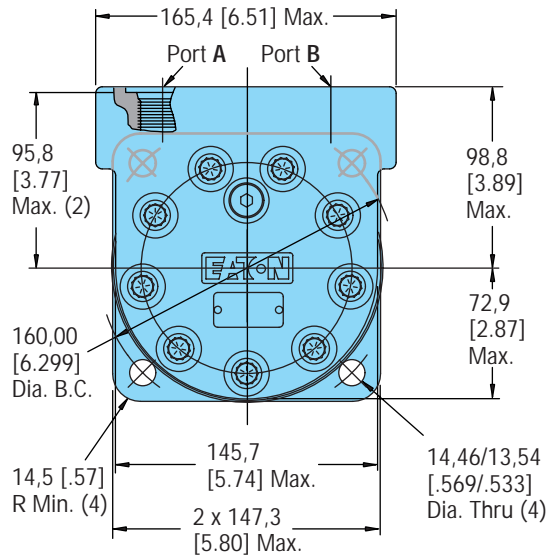
- 1-1/16-12 UN-2B SAE O-ring Ports (2)
- 9/16-18 UNF-2B SAE O-ring Case Drain Port (1)

Standard Rotation

Viewed from Shaft End
Port A Pressurized — CW
Port B Pressurized — CCW

Shaft Dimensions
See Page 34

Dimension — VIS 40 Series (Standard and Wheel Mount – ISO)

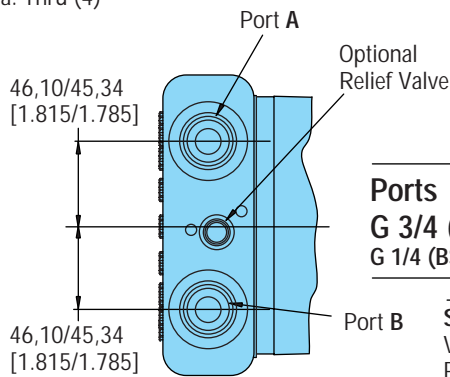


VIS 40 Standard Motors (ISO)

Displ. cm ³ /r [in ³ /r]	Y mm [inch]	X mm [inch]
505 [30.7]	192,5 [7.58]	218,4 [8.60]
570 [34.9]	198,6 [7.82]	224,5 [8.84]
630 [38.5]	203,7 [8.02]	229,6 [9.04]
685 [41.7]	208,8 [8.22]	234,7 [9.24]
785 [48.0]	217,9 [8.58]	243,8 [9.60]
940 [57.4]	231,1 [9.10]	257,0 [10,12]

VIS 40 Wheel Motors (ISO)

505 [30.7]	118,4 [4.66]	144,3 [5.68]
570 [34.9]	124,5 [4.90]	150,4 [5.92]
630 [38.5]	129,5 [5.10]	155,4 [6.12]
685 [41.7]	134,6 [5.30]	160,5 [6.32]
785 [48.0]	143,8 [5.66]	169,7 [6.68]
940 [57.4]	157,0 [6.18]	182,9 [7.20]



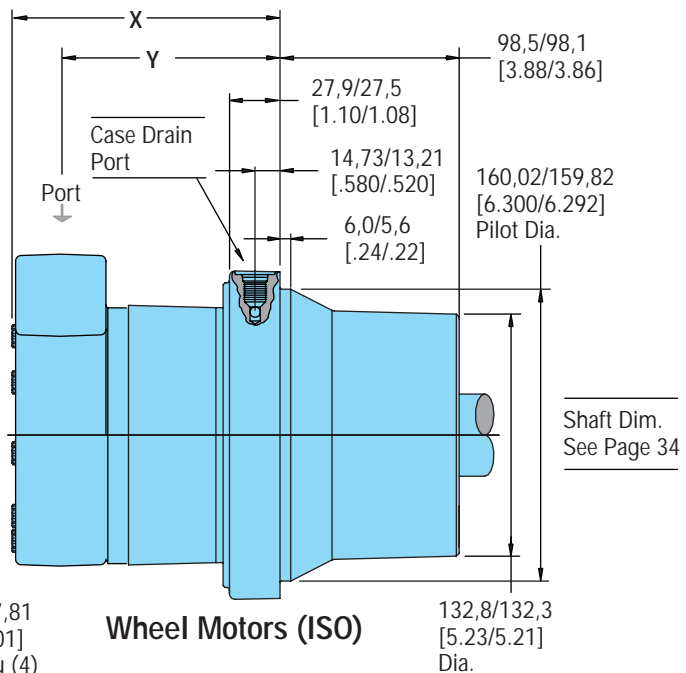
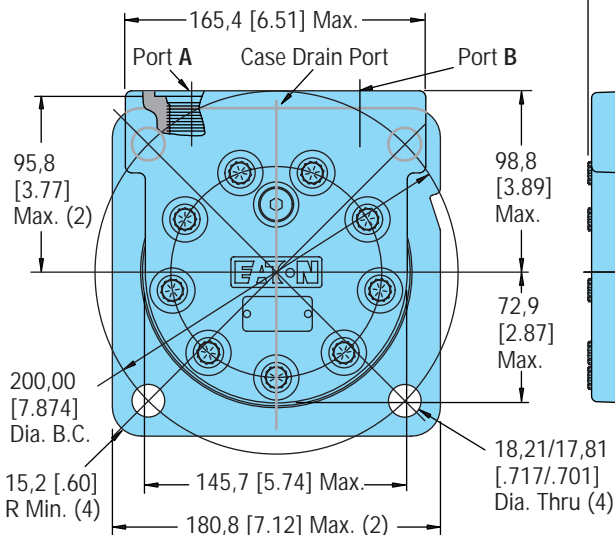
Shaft Dimensions
See Page 34

Ports

G 3/4 (BSP) O-ring Ports (2)
G 1/4 (BSP) O-ring Case Drain Port (1)

Standard Rotation

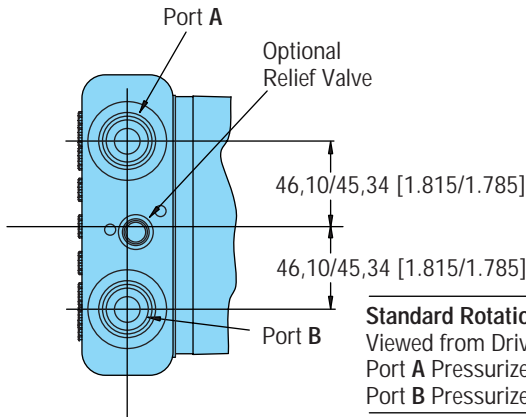
Viewed from Shaft End
Port A Pressurized — CW
Port B Pressurized — CCW



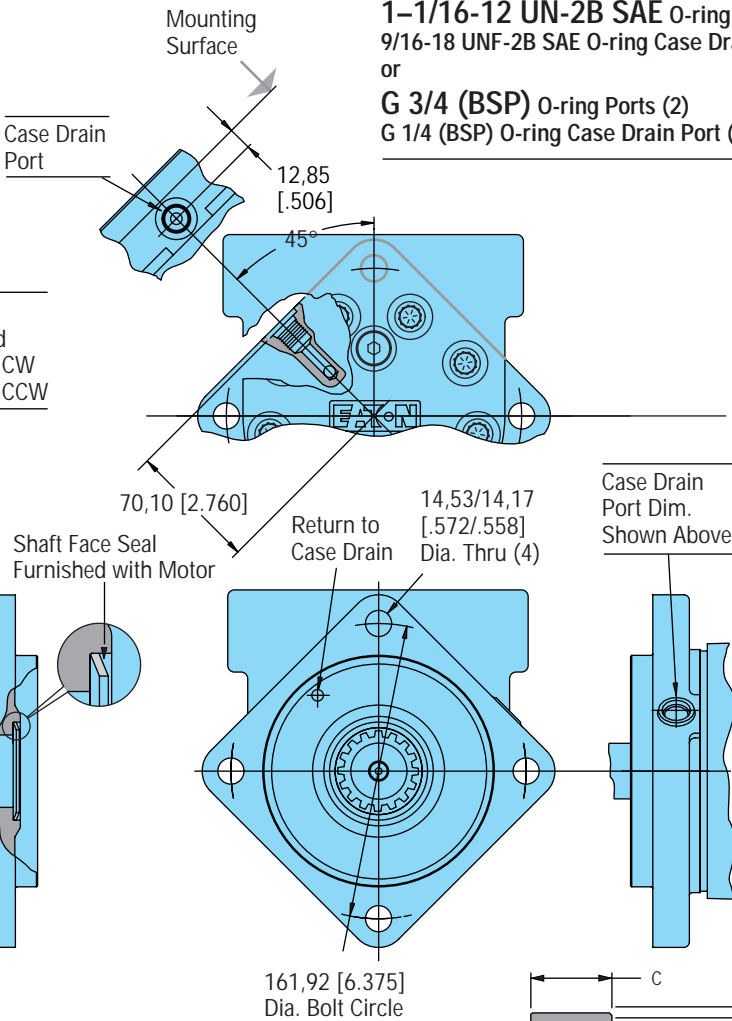
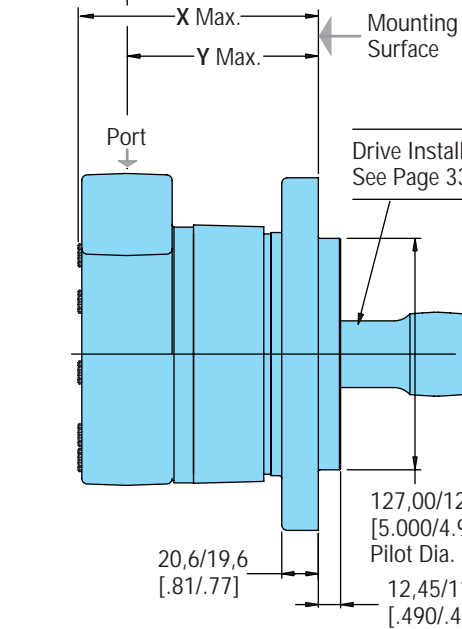
Shaft Dim.
See Page 34

Wheel Motors (ISO)

Dimensions — VIS 40 Series (Bearingless)

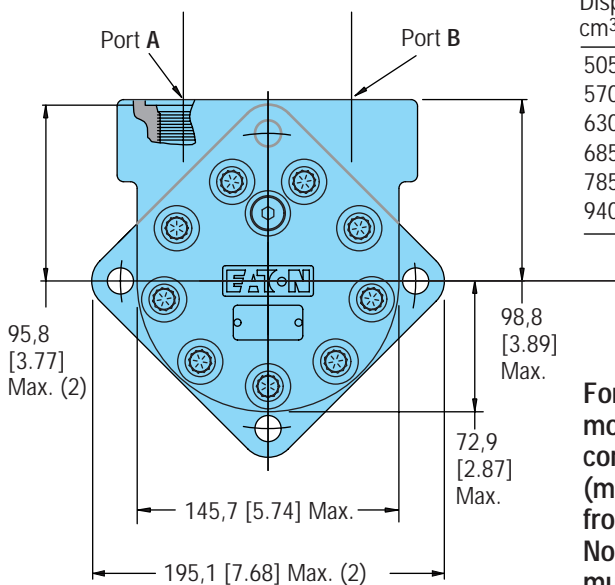


Standard Rotation
Viewed from Drive End
Port A Pressurized — CW
Port B Pressurized — CCW

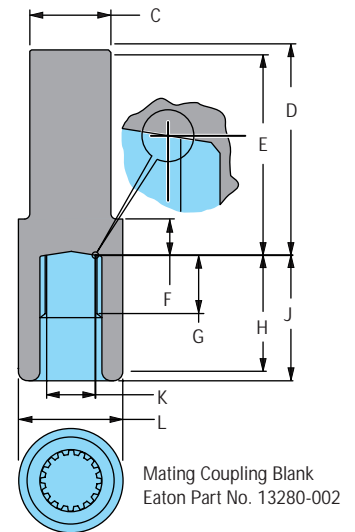


Ports

1-1/16-12 UN-2B SAE O-ring Ports (2)
9/16-18 UNF-2B SAE O-ring Case Drain Port (1)
or
G 3/4 (BSP) O-ring Ports (2)
G 1/4 (BSP) O-ring Case Drain Port (1)



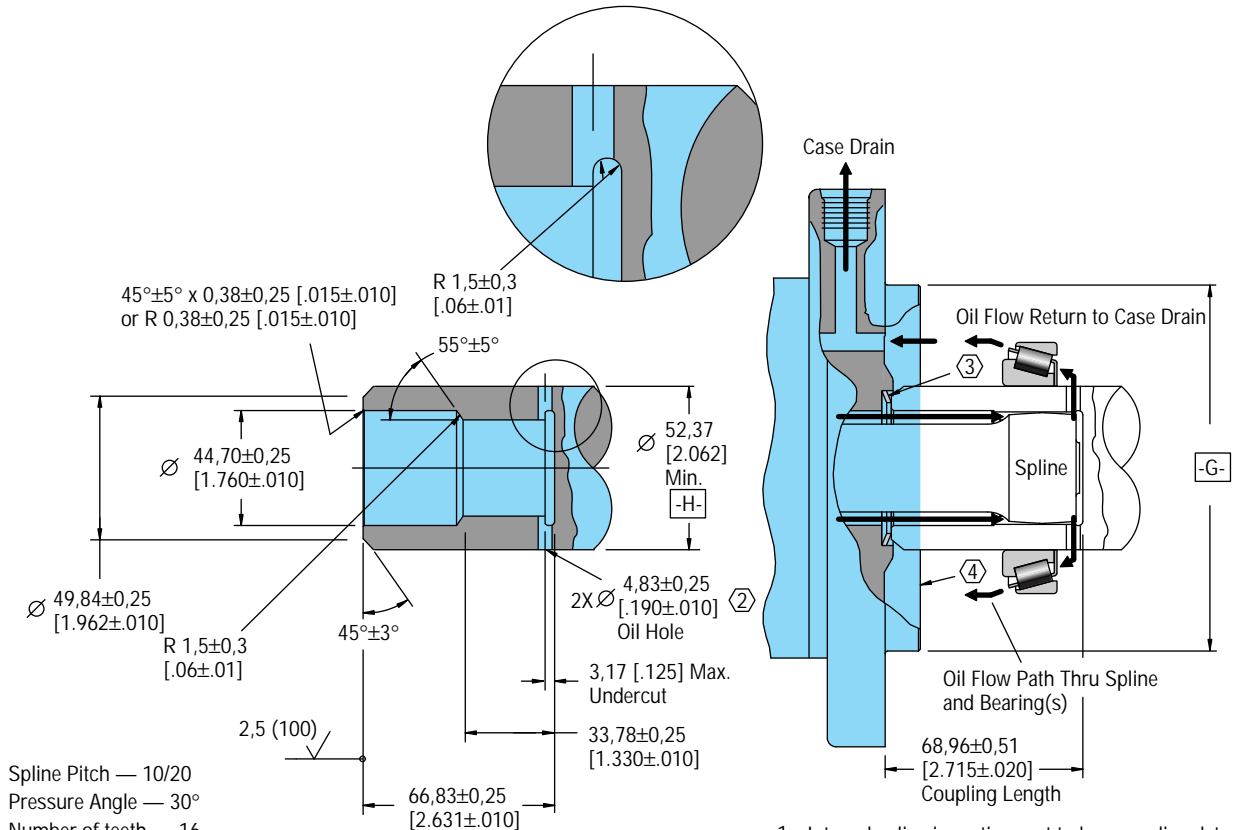
Displ. cm ³ /r [in ³ /r]	Y mm [inch]	X mm [inch]
505 [30.7]	129,0 [5.08]	154,9 [6.10]
570 [34.9]	135,1 [5.32]	161,0 [6.34]
630 [38.5]	140,5 [5.53]	166,4 [6.55]
685 [41.7]	145,3 [5.72]	171,2 [6.74]
785 [48,0]	154,4 [6.08]	180,3 [7.10]
940 [57,4]	168,1 [6.62]	194,0 [7.64]



For VIS 40 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.

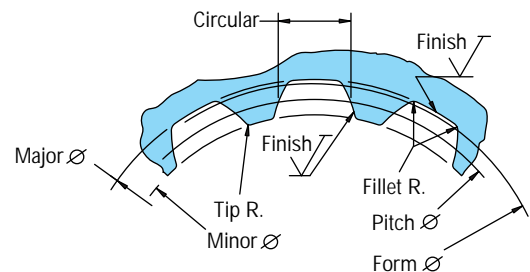
- C 60,5/59,7 [2.38/2.35] Dia.
- D 156,0 [6.14] Max.
- E 150,9 [5.94] Min. Full Form Dia.
- F 27,9/25,9 [1.10/1.02]
- G 36,3/31,2 [1.43/1.23]
- H 106,4 [4.19] Min. Full Form Dia.
- J 112,8 [4.44] Max.
- K 34,92 [1.375] Dia.
- L 72,9/72,1 [2.87/2.84] Dia.

Installation Information for Bearingless Motor — VIS 40 Series



Spline Pitch — 10/20
 Pressure Angle — 30°
 Number of teeth — 16
 Class of Fit — Ref. 5
 Type of Fit — Side
 Pitch Diameter — Ref. 40,640000 [1.6000000] $\text{Ⓢ} 0,20$ [0.008] H
 Base Diameter — Ref. 35,195272 [1.3856406]
 Major Diameter — 43,56 [1.715] Max. 43,18 [1.700] Min.
 Minor Diameter — 36,83 - 37,08 [1.450 - 1.460]
 Form Diameter, Min. — 42,47 [1.672]
 Fillet Radius — 0,64 - 0,76 [0.025 - 0.030]
 Tip Radius — 0,25 - 0,51 [0.010 - 0.020]
 Finish — 1,6 (63)
 Involute Profile Variation — +0,000 - 0,025 [+0.0000 - 0.0010]
 Total Index Variation — 0,040 [0.0016]
 Lead Variation — 0,013 [0.0005]
 Circular Space Width:
 Maximum Actual — 4,105 [1.616]
 Minimum Effective — 3,995 [1.573]
 Maximum Effective — Ref. 4,056 [1.597]
 Minimum Actual — Ref. 4,081 [1.582]
 Dimension Between Two Pins — Ref. 34,272 - 34,450 [1.3493 - 1.3563]
 Pin Diameter — 4,389 [1.728]

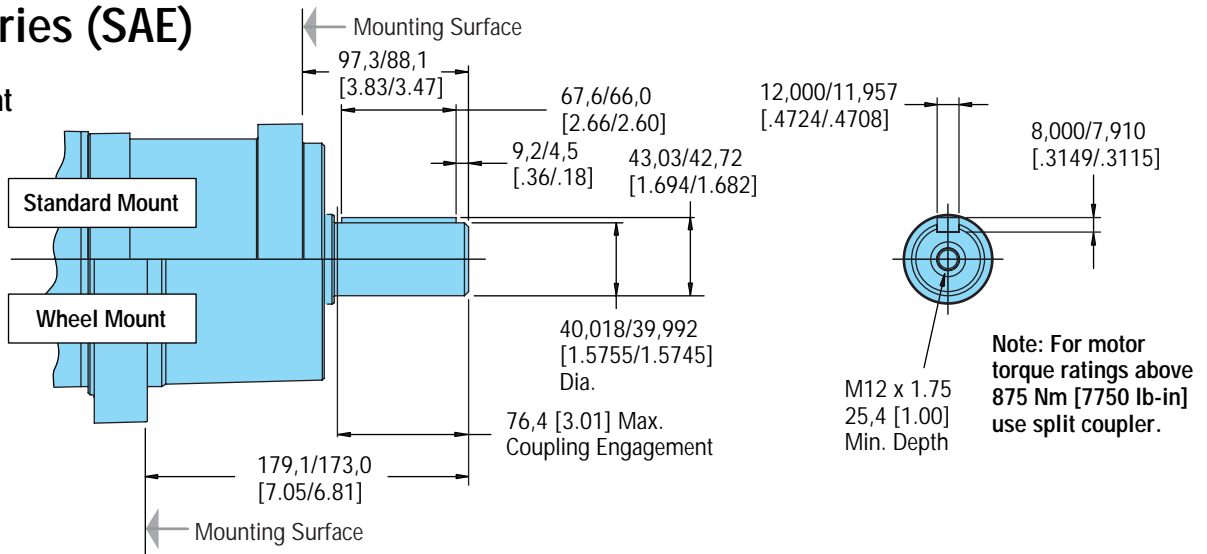
- 1 Internal spline in mating part to be per spline data. Specification material to be ASTM A304, 8620H carburize to a hardness of 60-64 HRC with case depth (to 50HRC) of 0,076 - 1,02 [0.030 - 0.040]. Dimensions apply after heat treat.
- 2 Mating part to have critical dimensions as shown. Oil holes must be provided and open for proper oil circulation.
- 3 Seal to be furnished with motor for proper oil circulation thru splines.
- 4 Similar to SAE "C" Four Bolt Flange.



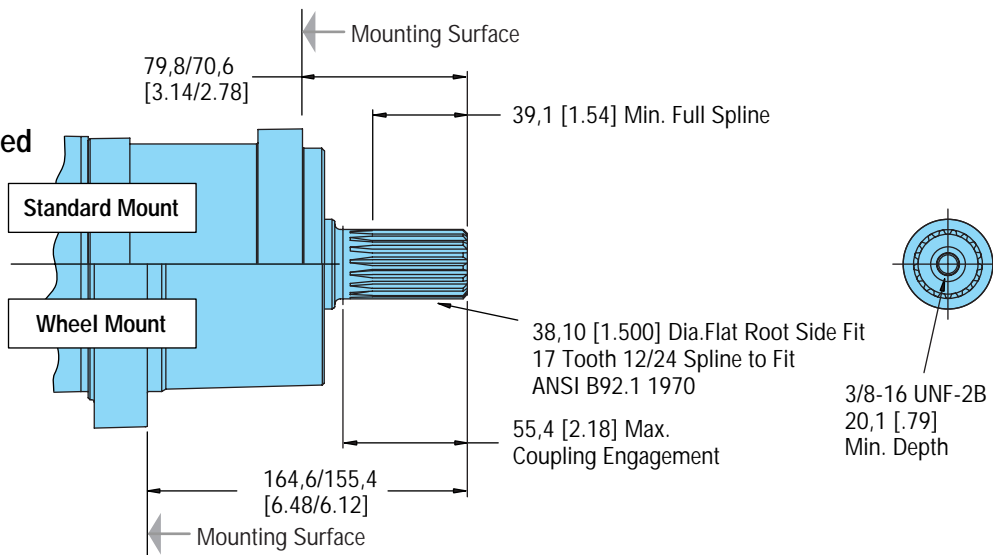
Dimensions — Shafts

VIS 40 Series (SAE)

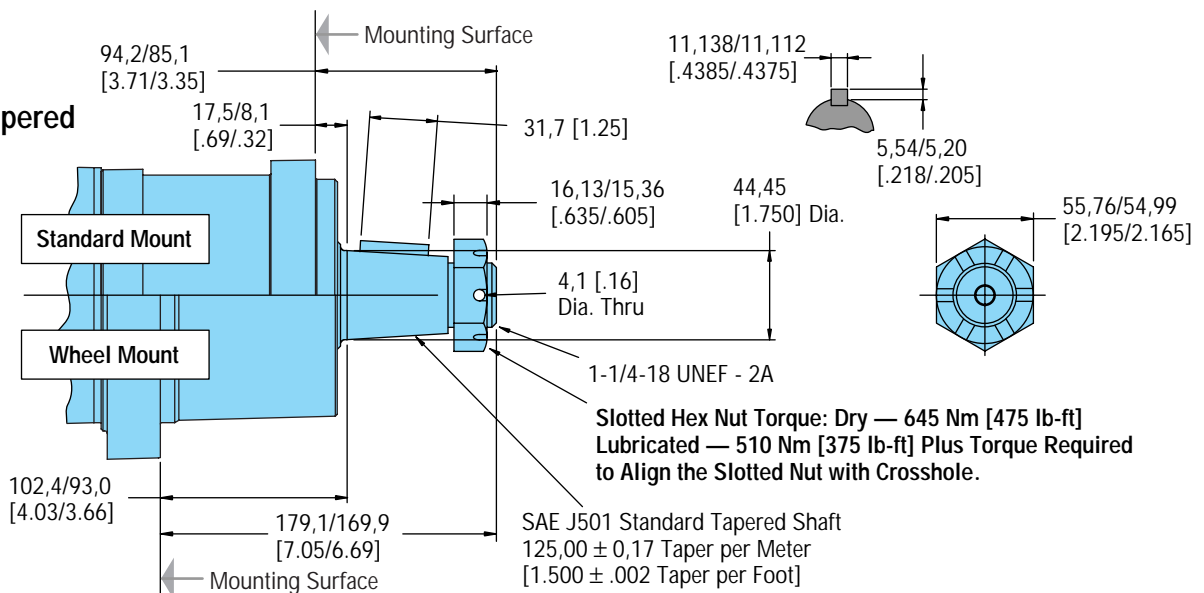
40 mm Straight



1-1/2 Inch 17 Tooth Splined



1-3/4 Inch Tapered



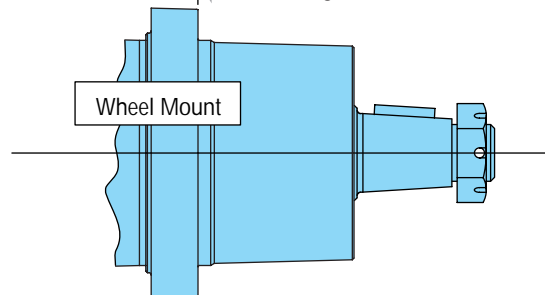
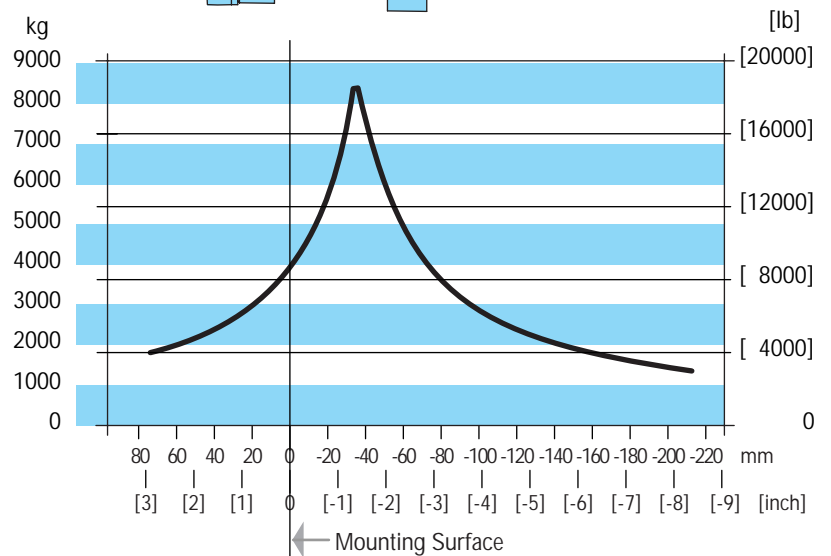
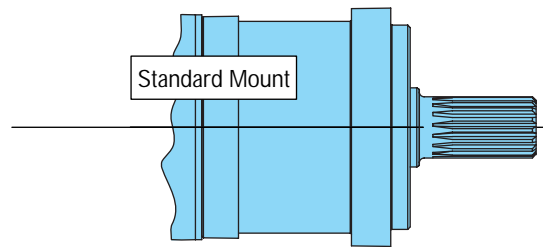
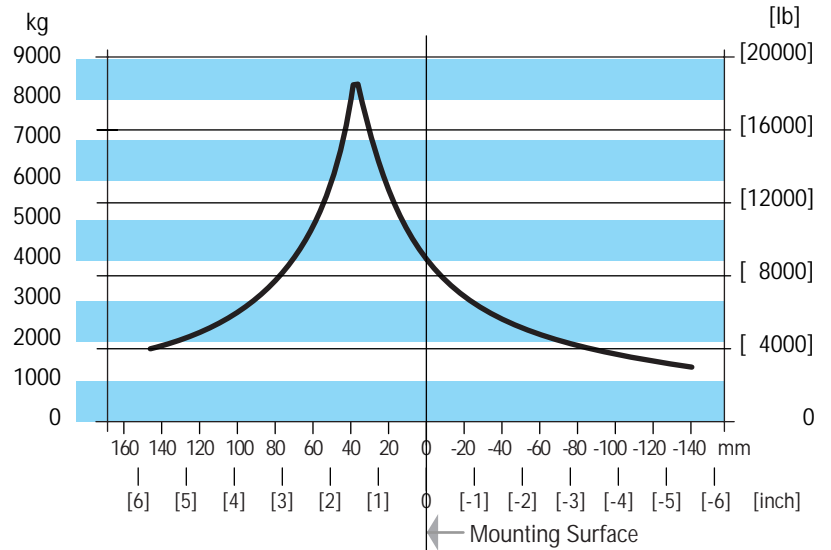
Shaft Side Load Capacity VIS 40 Series (SAE)

These curves indicate the radial load capacity on the motor shaft(s) at various locations.

The curve is based on B 10 bearing life (2000 hours or 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	.81
300	.72
400	.66
500	.62
600	.58
700	.56
800	.54

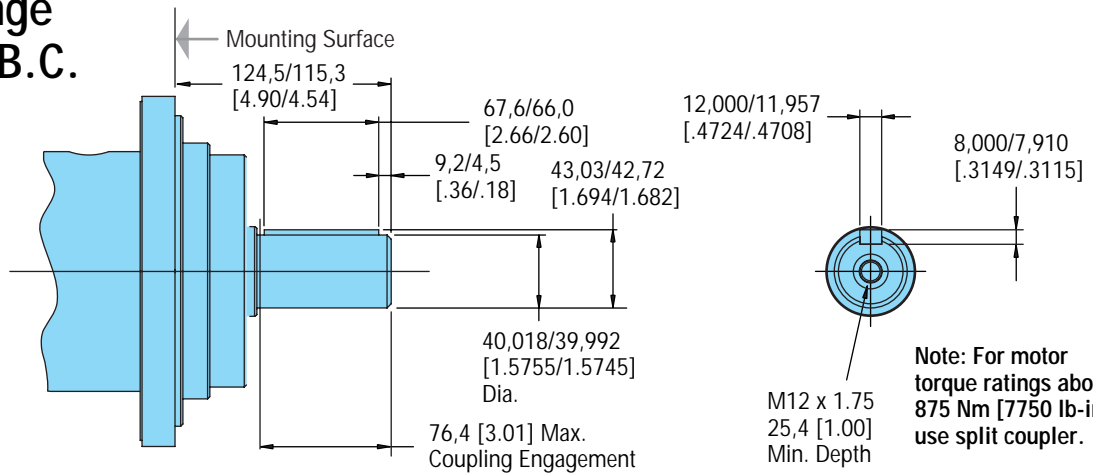
For 3,000,000 shaft revolutions or 500 hours — Increase these shaft loads 52%.



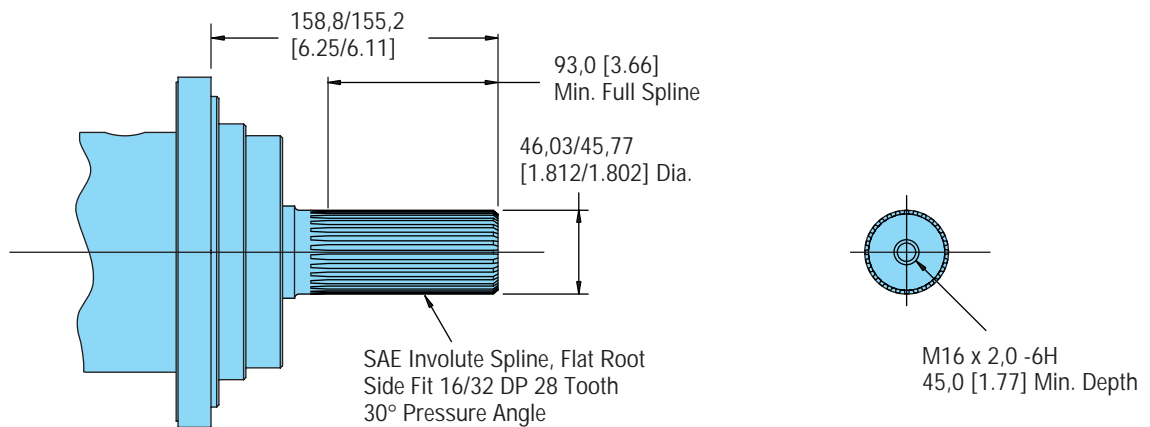
Dimension — Shafts VIS 40 Series

Oversize Flange 224,0 [8.82] B.C.

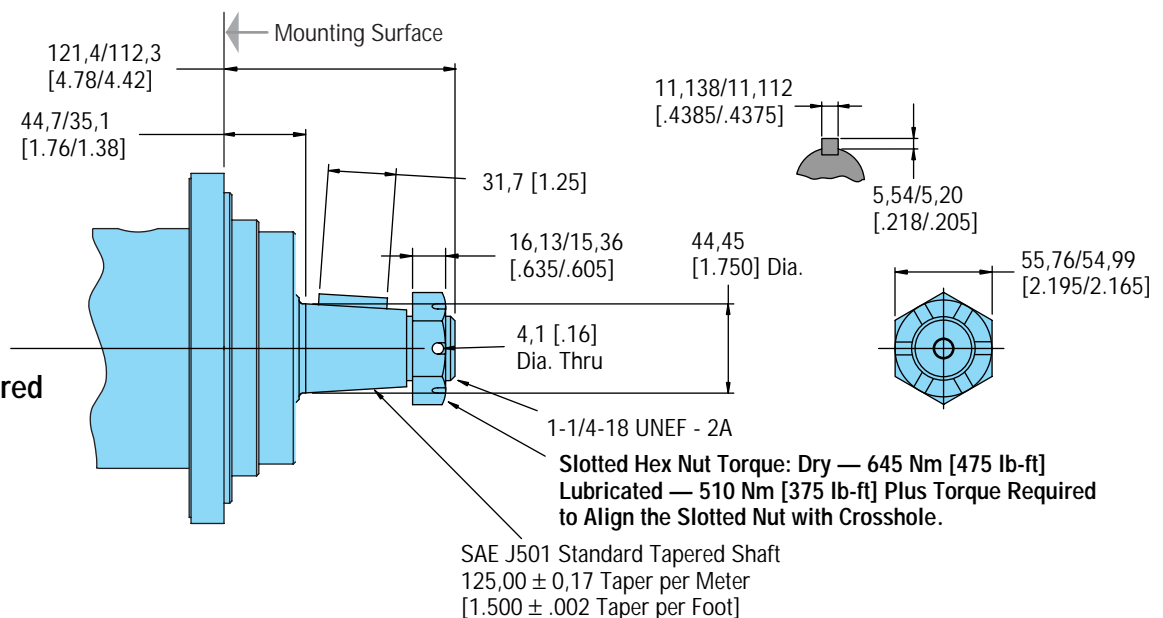
40 mm Straight



46 mm
28 Tooth Splined



1-3/4 Inch Tapered



Shaft Side Load Capacity

VIS 40 Series

Oversize Flange

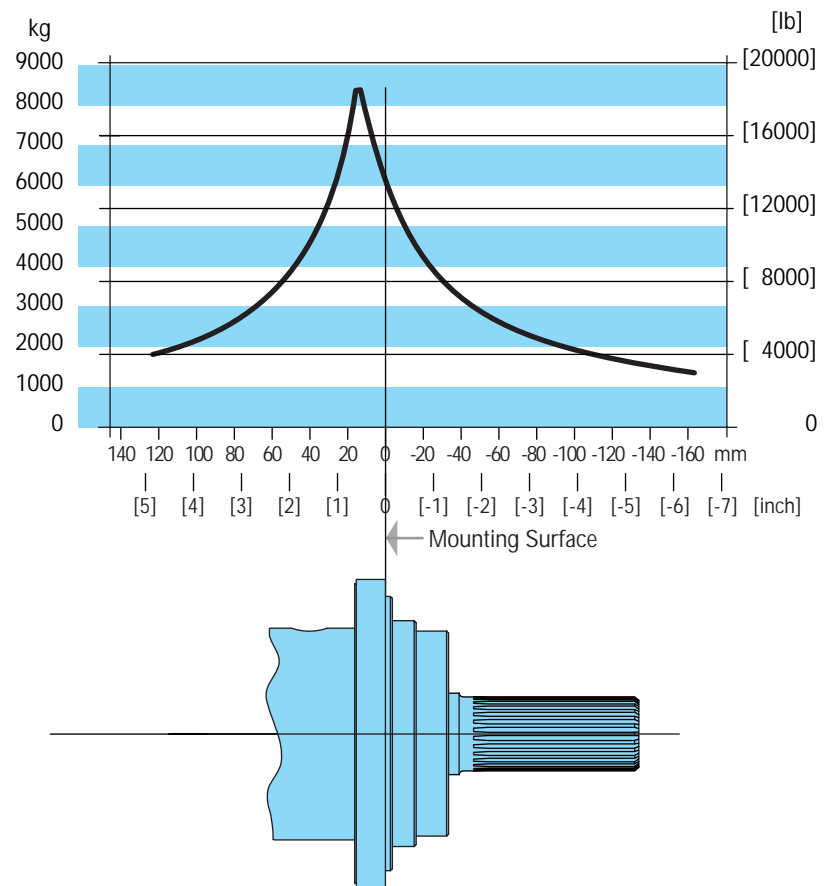
224,0 [8.82] B.C.

These curves indicate the radial load capacity on the motor shaft(s) at various locations.

The curve is based on B 10 bearing life (2000 hours or 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	.81
300	.72
400	.66
500	.62
600	.58
700	.56
800	.54

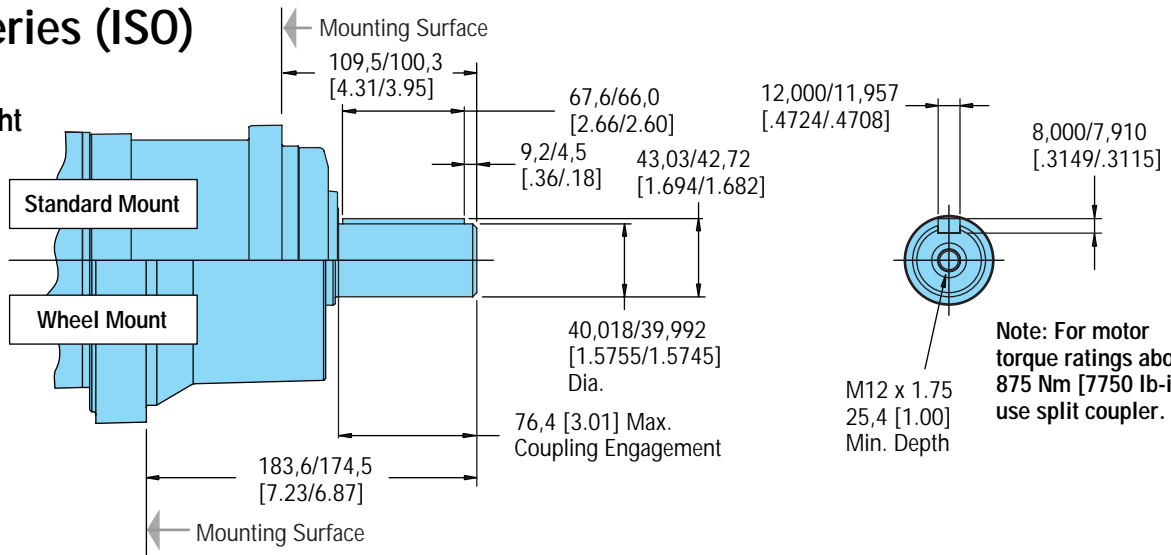
For 3,000,000 shaft revolutions or 500 hours — Increase these shaft loads 52%.



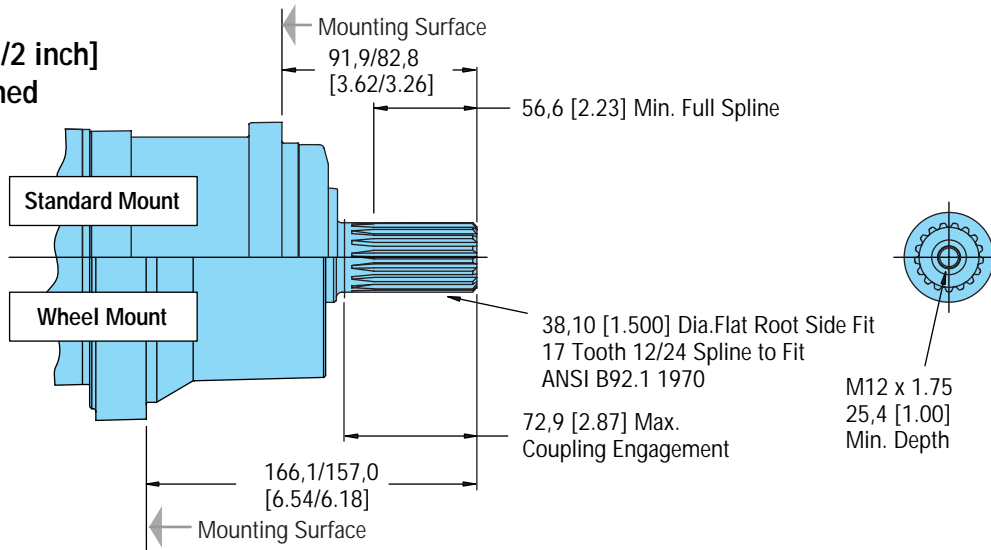
Dimensions — Shafts

VIS 40 Series (ISO)

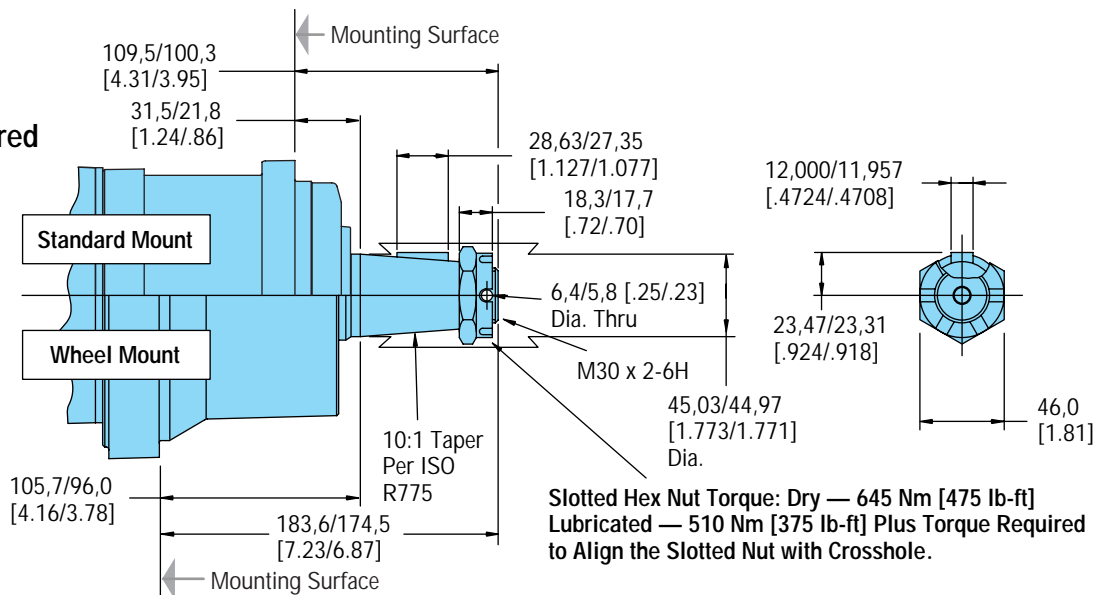
40 mm Straight



38,1 mm [1-1/2 inch] 17 Tooth Splined



45 mm Tapered



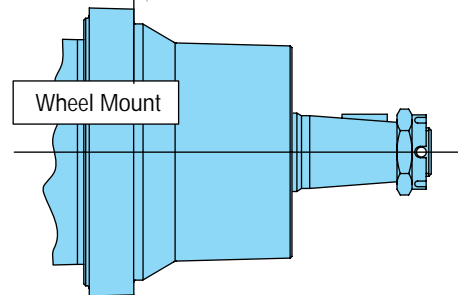
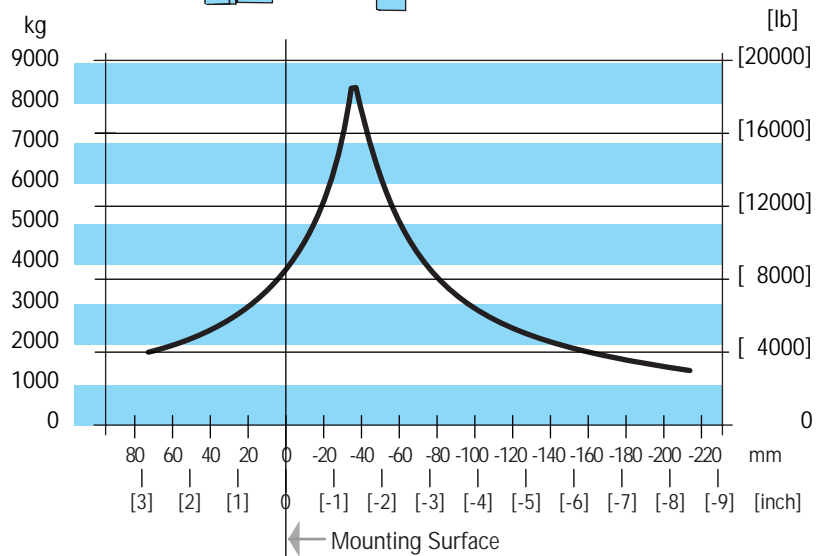
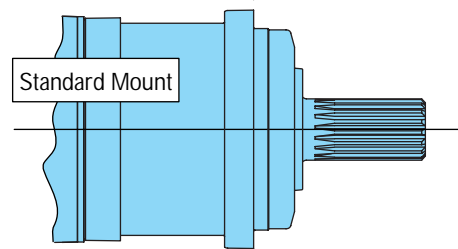
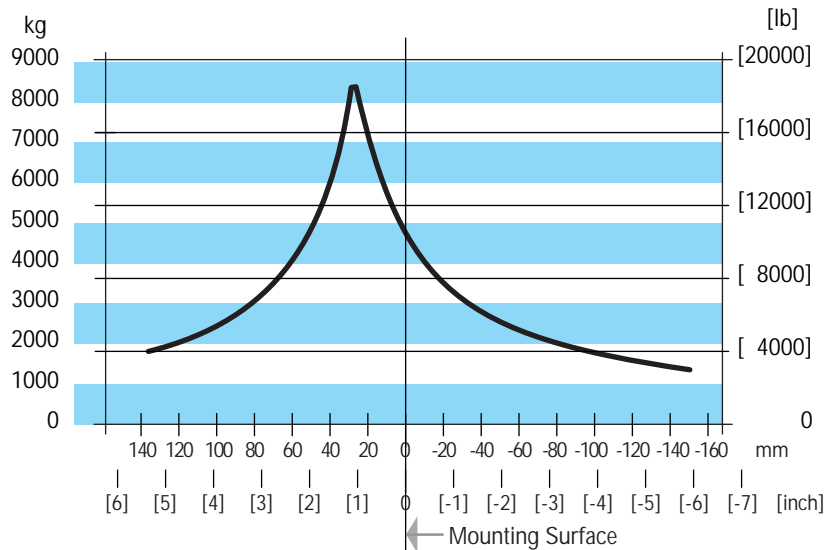
Shaft Side Load Capacity VIS 40 Series (ISO)

These curves indicate the radial load capacity on the motor shaft(s) at various locations.

The curve is based on B 10 bearing life (2000 hours or 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	.81
300	.72
400	.66
500	.62
600	.58
700	.56
800	.54

For 3,000,000 shaft revolutions or 500 hours — Increase these shaft loads 52%.



Model Code

VIS 40 Series

The following 16-digit coding system has been developed to identify all of the configuration options for the VIS 40 motor. Use this model code to specify a motor with the desired features. All 16-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.

Model Code — VIS 40 Motors

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	D	L												0	0

Positions 1, 2, 3 Product Series

ADL VIS 40 Motor

Positions 4, 5 Displacement cm³/r [in³/r]

- 31 505 [30.7]
- 35 570 [34.9]
- 38 630 [38.5]
- 42 685 [41.7]
- 48 785 [48.0]
- 57 940 [57.4]

Position 6 Mounting Type

- A 4 Bolt Bearingless 127,00 [5.000] Pilot Dia. with 12,19 [480] Pilot Length and 14,35 [.565] Dia. Holes on 161,92 [6.375] Dia. Bolt Circle
- B 4 Bolt Wheel Mount 160 [6.3] Pilot Dia. with 5,8 [.23] Pilot Length and 18,00 [.709] Dia. Holes on 200,00 [7.874] Dia. Bolt Circle (ISO Compatible)
- S 4 Bolt Oversize Flange 185,4 [7.30] Rear Pilot Dia., 169,90 [6.689], 139,93 [5.509], 127,0 [5.00] Dia. (Front Pilots) and 18,01 [.709] Dia. Holes on 224,00 [8.819] Dia. Bolt Circle
- F 4 Bolt Standard Mount (SAE CC) 127,00 [5.000] Pilot Dia. with 12,2 [.48] Pilot Length and 14,32 [.564] Dia. Holes on 161,92 [6.375] Dia. Bolt Circle
- G 4 Bolt Wheel Mount 139,7 [5.50] Pilot Dia. with 7,9 [.31] Pilot Length and 14,32 [.564] Dia. Holes on 184,15 [7.250] Dia. Bolt Circle (SAE Compatible)
- H 4 Bolt Standard Mount 125,0 [4.92] Pilot Dia. with 8,9 [.35] Pilot Length and 14,00 [.551] Dia. Holes on 160,00 [6.299] Dia. Bolt Circle (ISO Compatible)

Positions 7, 8 Output Shaft

- 00 None (Bearingless)
- 01 45 mm Dia. 10:1 Tapered Shaft Per ISO R775 with M30 x 2-6H Threaded Shaft End, 12W x 8H x 28L [.472W x .313H x 1.102L] Key
- 02 1-3/4 inch Dia. .125:1 Tapered Shaft Per SAE J501 with 1-1/4-18 UNEF-2A Threaded Shaft End, 11,11 [.4375] Square x 31,8 [1.25] Straight Key
- 04 46 mm Dia. Flat Root Side Fit, 28 Tooth, 16/32 DP 30 Degree Involute Spline, 93,0 [3.66] Minimum Full Spline with M16 x 2,0 -6H Thread in End
- 07 40 mm Dia. Straight Shaft with M12 x 1,75-6H Thread in End, 12W x 8H x 63L [.472W x .313H x 2.480L] Key (SAE Compatible)

- 08 1-1/2 inch Dia. Flat Root Side Fit, 17 Tooth, 12/24 DP30 Degree Involute Spline, 39,1 [1.54] Minimum Full Spline with 3/8-16 UNC-2B Thread in End (SAE Compatible)
- 09 38,1 mm Dia. Flat Root Side Fit, 17 Tooth, 12/24 DP 30 Degree Involute Spline, 56,6 [2.23] Minimum Full Spline with M12 x 1,75 -6H Thread in End (ISO Compatible)
- 10 40 mm Dia. Straight Shaft with M12 x 1,75-6H Thread in End, 12W x 8H x 67L [.472W x .313H x 2.630L] Key (ISO Compatible)

Position 9 Ports

- A 1-1/16-12 UN-2B Size 12 O-ring Port, Accepts Fittings for SAE J1926
- B G3/4 (BSP) Straight Thread Port

Position 10 Case Flow Options

- A Shuttle Valve with 9/16-18 UNF-2B, Size 6 O-ring Port Case Drain, Accepts Fittings for SAE J1926
- B Shuttle Valve with G1/4 (BSP) Straight Thread Port Case Drain

Position 11 Back-Pressure Relief

- 0 None (for Open Loop Only)*
- 1 Set at 4,5 bar [65 PSI] (for Manual Pumps)
- 2 Set at 15,2 bar [220 PSI] (for Servo Pumps)

Positions 12, 13 Special Features

- 00 None

Position 14 Paint/ Special Packaging

- 0 No Paint, Individual Box
- A Painted Low Gloss Black, Individual Box
- B No Paint, Bulk Box Option
- C Painted Low Gloss Black, Bulk Box Option

Position 15 Eaton Assigned Code when Applicable

- 0 Assigned Code

Position 16 Eaton Assigned Design Code

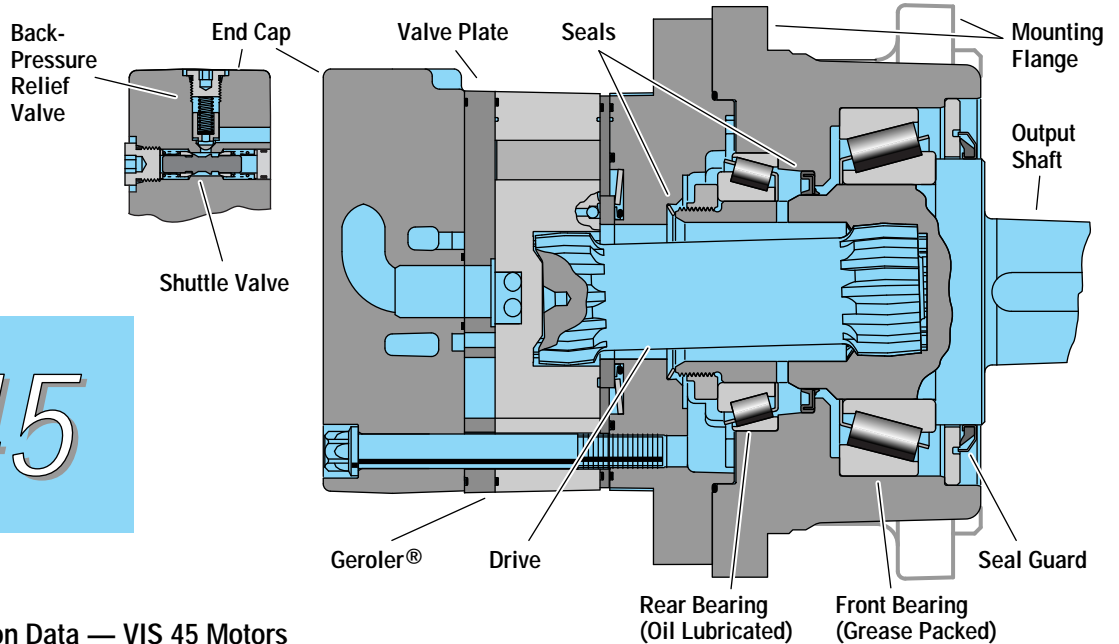
- B Assigned Design Code

*** For Open Loop**

- VIS motors must have a case drain to tank.
- The maximum case pressure for the VIS motor is 3,5 bar [50 PSI].
- VIS motors in an open loop circuit must have 3,5 bar [50 PSI] greater return pressure than the pressure in the case to properly lubricate the internal drive (see page 9).

Specifications

VIS 45 Series



VIS 45

Theoretical Specification Data — VIS 45 Motors (for Efficiency Corrected Data see Performance Charts)

Displ. cm ³ /r [in ³ /r]		630 [38.6]	805 [48,6]	990 [60.5]	1245 [76.0]	1560 [95.0]
Theo. Max. Speed (RPM) @ Flow	Continuous	269	214	172	137	109
	Intermittent	299	237	191	152	121
Flow l/min [GPM]	Continuous	170 [45]	170 [45]	170 [45]	170 [45]	170 [45]
	Intermittent	189 [50]	189 [50]	189 [50]	189 [50]	189 [50]
Theo. Torque Nm [lb-in]	Continuous	3123 [27645]	3932 [34800]	4068 [36010]	4065 [35985]	4065 [35985]
	Intermittent	3470 [30720]	4370 [38675]	5086 [45015]	5084 [45000]	5082 [44980]
Pressure Δ bar [Δ PSI]	Continuous	310 [4500]	210 [4500]	258 [3740]	205 [2975]	164 [2380]
	Intermittent	345 [5000]	345 [5000]	322 [4675]	256 [3720]	205 [2975]
	Peak	379 [5500]	379 [5500]	379 [5500]	308 [4465]	246 [3570]

A simultaneous maximum torque and maximum speed NOT recommended.

Maximum Inlet Pressure — 400 bar [5800 PSI]. **Do Not Exceed A Pressure Rating** (for displacement size see chart above).

Return Pressure (Back-Pressure):

Minimum — 3,5 bar [50 PSI]

Maximum — 21 bar [300 PSI]

Note — Return (back-pressure) must be 3,5 bar [50 PSI] greater than the case pressure.

Case Pressure:

Minimum — No Pressure

Maximum — 3,5 bar [50 PSI]

Note — The case must be full when the motor is operating (case drain out the top). A case drain is required.

Δ Pressure — The true Δ bar [Δ PSI] 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 70 SUS at operating temperature.

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

Recommended Filtration — per ISO Cleanliness Code, level 18/13

Shuttle — Standard

Back-Pressure Relief Valve — Required for closed loop circuit.

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.

Performance Data

VIS 45 Series

Motors run with high efficiency in all areas designated with a number for torque and speed, however for best motor life select a motor to run with a torque and speed range printed in the white background area.



Continuous

Intermittent

VIS 45 - 630 cm³/r [38.6 in³/r]

Δ Pressure
PSI
bar

Flow GPM l/min	Δ Pressure										
	250 15	500 35	1000 70	1500 105	2000 140	2500 170	3000 205	3500 240	4000 275	4500 310	5000 345
4	1270 144	2710 306	5530 625	8250 932	10300 1164	12900 1458	15540 1756	17720 2002	20820 2353	23640 2671	25740 2909
15	23	23	23	22	22	21	20	19	18	17	15
8	1290 146	2720 307	5580 631	8290 937	10490 1185	13110 1481	15760 1781	18070 2042	21000 2373	24100 2723	26070 2946
30	47	45	45	45	44	43	41	38	36	34	34
12	1310 148	2670 302	5440 615	8320 940	10820 1223	13400 1514	16370 1850	18970 2144	21230 2399	24540 2773	26840 3033
45	71	68	68	67	67	66	64	62	61	58	54
16	1320 146	2600 294	5400 610	8250 932	10910 1233	13730 1551	16780 1896	19710 2227	21970 2483	24870 2810	27530 3111
61	95	91	91	89	89	88	85	83	81	77	72
20	1290 146	2500 283	5270 596	8020 906	10690 1208	13400 1514	16730 1890	20020 2262	22320 2522	25420 2872	
76	119	114	114	113	113	111	108	104	103	97	
24	1240 140	2440 276	5200 588	7920 895	10560 1193	13430 1518	16700 1887	19970 2257	22610 2555	25730 2907	
91	143	137	137	135	133	129	125	123	117		
28	2190 247	5050 571	7870 889	10520 1189	13480 1523	16660 1883	19860 2244	22450 2537	26080 2963		
106		160	160	157	157	155	150	146	143	136	
32	2110 238	4870 550	7720 872	10300 1164	13230 1495	16370 1850	19720 2228	22320 2522	25986 2936		
121		182	182	180	180	177	172	166	164	156	
36	2090 236	4550 514	7330 828	10030 1133	12890 1457	15960 1803	19220 2172	22040 2491	25655 2898		
136		205	205	202	202	199	193	187	184	175	
40	4150 469	7120 805	9760 1103	12490 1411	15560 1758	18820 2127	21600 2441	25185 2845			
151		228	224	224	221	214	208	204	194		
45	3970 449	6930 783	9500 1074	12230 1382	15340 1733	18470 2087	21207 2396	24742 2795			
170		256	252	252	249	241	234	229	218		
50	3680 416	6660 753	9270 1048	11920 1347	15150 1712	18300 2068					
189		284	280	280	276	268	259				

18300 Torque (lb-in)
2068 Torque (Nm)
259 Speed (RPM)

VIS 45 - 805 cm³/r [48.6 in³/r]

Δ Pressure
PSI
bar

Flow GPM l/min	Δ Pressure										
	250 15	500 35	1000 70	1500 105	2000 140	2500 170	3000 205	3500 240	4000 275	4500 310	5000 345
4	1600 181	3350 379	7180 811	10670 1206	13480 1523	16640 1880	19680 2224	21740 2457	25860 2922	28500 3221	31720 3584
15	19	18	17	17	17	17	16	15	14	13	12
8	1620 183	3380 382	7240 818	10730 1212	13740 1553	16920 1912	19950 2254	22160 2504	25920 2929	28970 3274	32200 3639
30	38	36	35	34	34	34	34	34	32	31	29
12	1640 185	3310 374	7180 811	10770 1217	14170 1601	17290 1954	20730 2342	23270 2630	26340 2976	29420 3324	32470 3669
45	56	55	52	52	51	51	50	50	49	47	45
16	1660 188	3220 364	7010 792	10680 1207	14290 1615	17710 2001	21240 2400	24170 2731	26830 3032	30340 3428	32940 3722
61	76	74	71	70	69	69	68	68	67	64	60
20	1600 181	3110 351	6840 773	10380 1173	14000 1582	17290 1954	20730 2392	24490 2767	27270 3082	31390 3547	
76	95	92	88	87	86	86	85	85	84	80	
24	1560 176	3030 342	6750 763	10250 1158	13830 1563	17340 1959	21110 2385	24450 2763	27620 3121	31460 3555	
91	114	110	105	104	103	103	102	102	101	96	
28	2190 307	5050 571	7870 889	10520 1189	13480 1523	16660 1883	19860 2244	22450 2537	26080 2963		
106		128	123	121	120	120	119	119	117	111	
32	2620 296	6330 715	10000 1130	13480 1523	17070 1929	20730 2342	24180 2732	27270 3082	31064 3509		
121		147	140	139	137	137	135	135	134	127	
36	2620 296	5910 668	9480 1071	13140 1485	16640 1880	20200 2283	23570 2663	26910 3041	30646 3462		
136		165	158	156	154	154	152	152	150	143	
40	5390 609	9220 1042	12790 1445	16120 1822	19700 2226	23080 2608	26343 2976	30019 3391			
151		175	173	171	171	169	169	169	167	159	
45	5150 582	8970 1014	12450 1407	15780 1783	19420 2194	22650 2559	25848 2920	29462 3328			
170		198	196	193	193	191	191	189	179		
50	4770 539	8610 973	12140 1372	15380 1738	19180 2167	22440 2536					
189		220	217	215	215	212	212				

22440 Torque (lb-in)
2536 Torque (Nm)
212 Speed (RPM)

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

Performance Data

VIS 45 Series

Motors run with high efficiency in all areas designated with a number for torque and speed, however for best motor life select a motor to run with a torque and speed range printed in the white background area.



VIS 45 - 990 cm³/r [60.5 in³/r]

Δ Pressure
PSI
bar

Flow GPM l/min	Δ Pressure										
	250 15	500 35	1000 70	1500 105	2000 140	2500 170	3000 205	3500 240	4000 275	4500 310	4750 330
4	2000	4100	8630	12620	16050	20080	24150	28320	32590	35150	37040
15	15	15	15	15	14	14	14	13	12	11	10
8	2020	4130	8700	12740	16350	20420	24480	28400	32850	35670	37250
228	467	983	1440	1848	2307	2766	3209	3712	4031	4209	
30	30	30	29	29	29	28	28	27	25	25	24
12	2050	4050	8630	12780	16870	20860	25440	28550	32920	35860	37630
232	458	975	1444	1906	2357	2875	3226	3720	4052	4252	
45	45	45	44	44	43	43	41	41	41	40	39
16	2070	3940	8420	12680	17010	21380	26070	29660	33020	36620	38439
234	445	951	1433	1922	2416	2946	3352	3731	4138	4342	
61	61	60	58	58	57	55	55	54	53	52	
20	2000	3800	8220	12330	16660	20860	25760	30060	33550	37880	39766
226	429	929	1393	1883	2357	2911	3397	3791	4280	4492	
76	76	75	73	73	72	71	69	69	68	66	64
24	1950	3700	8120	12180	16460	20890	25820	30090	33990	38366	40269
220	418	918	1376	1860	2361	2918	3400	3841	4334	4549	
91	91	90	88	88	86	85	83	83	82	80	78
28		3320	7880	12100	16400	20990	25890	29900	33750	39106	39995
375	890	1367	1853	2372	2926	3379	3814	4280	4518		
106	105	102	102	101	99	97	97	95	92	90	
32		3210	7610	11870	16050	20600	25440	29680	33550	37890	39766
363	860	1341	1814	2328	2875	3354	3791	4280	4492		
121	120	117	117	115	114	110	110	109	106	103	
36		3200	7100	11260	15640	20080	24800	28930	32716	36936	38759
362	802	1272	1767	2269	2802	3269	3696	4173	4379		
136	135	131	131	130	128	124	124	123	119	116	
40		6480	10950	15220	19460	24170	28330	32023	36155	37935	
732	1237	1720	2199	2731	3201	3618	4084	4286			
151	146	146	144	142	138	138	137	133	130		
45		6190	10650	14810	19040	23830	27952	31599	35679	37432	
699	1203	1674	2152	2693	3158	3570	4031	4229			
170	164	164	162	160	155	155	154	149	145		
50		5740	10230	14450	18570	23540					
649	1156	1633	2098	2660							
189		183	183	180	178	173					

23540 Torque (lb-in)
2660 Torque (Nm)
173 Speed (RPM)

VIS 45 - 1245 cm³/r [76.0 in³/r]

Δ Pressure
PSI
bar

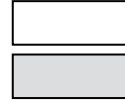
Flow GPM l/min	Δ Pressure										
	250 15	500 35	1000 70	1500 105	2000 140	2500 170	3000 205	3500 240	4000 275	4250 295	
4	2160	4800	9960	15150	20200	26450	30670	39180	42800	43220	
15	12	11	11	11	11	11	10	10	9	9	
8	2250	4830	10370	15760	22010	27180	33330	39840	43660	44400	
254	546	1172	1781	2487	3071	3766	4502	4934	5017		
30	24	23	22	22	21	20	20	19	19	19	
12	2400	5390	10910	17290	22780	28470	34170	40140	44160	47220	
271	609	1233	1954	2574	3217	3861	4536	4990	5336		
45	36	33	33	32	32	32	32	31	31	30	
16	2410	5150	10930	16970	22880	28600	33900	39500	44510	47592	
272	582	1235	1918	2585	3232	3831	4464	5030	5376		
61	48	46	45	44	43	43	43	42	41	40	
20	2350	4890	10650	16470	21960	27450	33130	37710	43890	46933	
266	553	1203	1861	2481	3102	3744	4261	4960	5302		
76	60	59	57	56	56	55	55	54	52		
24	2190	4760	10460	15920	21230	26530	32320	37680	42670	45673	
247	538	1182	1799	2399	2998	3652	4258	4822	5156		
91	72	70	68	67	67	66	66	65	63		
28	1990	4260	10070	15860	21200	26420	32480	37500	42464	45418	
225	481	1138	1792	2396	2985	3670	4238	4797	5131		
106	85	82	80	78	78	77	77	76	74		
32		4100	9770	15410	20770	26300	31920	37240	42167	45103	
463	1104	1741	2347	2972	3607	4208	4764	5095			
121	94	91	90	89	89	88	88	87	84		
36		4090	9060	14650	20060	25670	31110	36295	41087	43955	
462	1024	1655	2267	2901	3515	4100	4642	4966			
136	106	103	101	101	100	99	99	98	95		
40		8300	14150	19570	24900	30320	35373	40034	42836		
938	1599	2211	2814	3426	3996	4523	4839				
151	114	113	112	111	110	110	108	105			
45		8100	13970	19310	24610	29972	34967	39570	42343		
915	1579	2182	2781	3686	3950	4470	4783				
170	129	127	126	125	124	124	122	118			
50		7900	13790	19050	24310						
893	1558	2153	2747								
189		143	141	140	139						

24310 Torque (lb-in)
2747 Torque (Nm)
139 Speed (RPM)

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

Performance Data VIS 45 Series

Motors run with high efficiency in all areas designated with a number for torque and speed, however for best motor life select a motor to run with a torque and speed range printed in the white background area.



Continuous

Intermittent

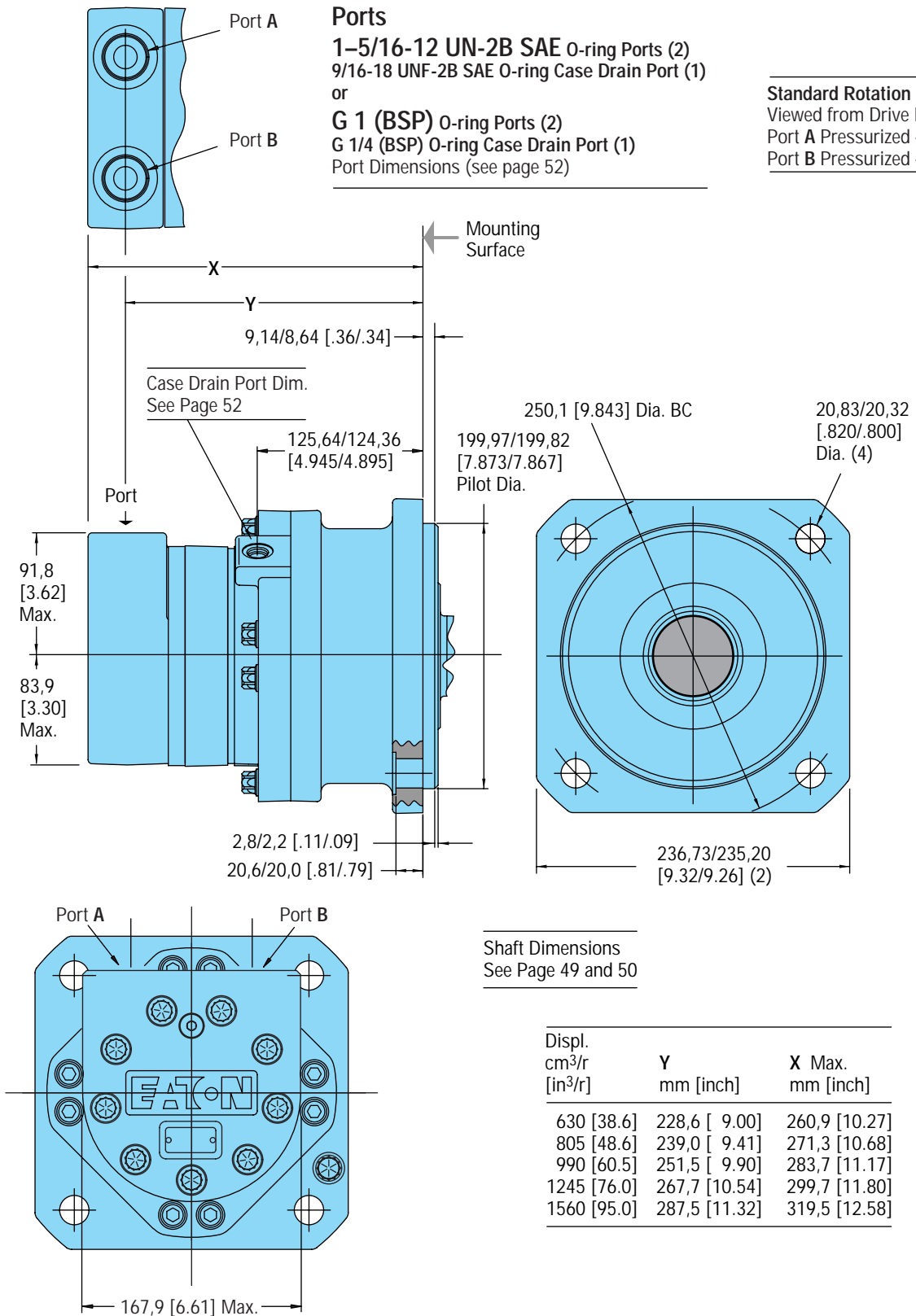
VIS 45 - 1560 cm³/r [95.0 in³/r] Δ Pressure
PSI
bar

	250	500	1000	1500	2000	2500	3000	3500	4000
	15	35	70	105	140	170	205	240	275
4	2700	5670	11910	18520	24910	30860	37610	42320	48366
	305	641	1346	2093	2815	3487	4250	4782	5464
15	9	9	9	9	9	8	8	8	8
8	2810	5910	12400	19260	25590	31740	39310	44150	50457
	318	668	1401	2176	2892	3587	4442	4989	5700
30	19	19	18	18	18	17	16	15	15
12	3010	6300	13040	20490	26600	33070	39880	46670	53337
	340	712	1474	2315	3006	3737	4506	5274	6025
45	29	28	28	27	26	25	23	22	22
16	3020	6300	13360	20740	27270	33950	40450	48630	55577
	341	712	1510	2344	3082	3836	4571	5495	6279
61	38	38	37	36	35	34	31	29	29
20	2930	6150	13200	20490	27110	34830	39820	47662	54470
	331	695	1492	2315	3063	3936	4500	5384	6154
76	48	47	46	45	44	42	39	37	37
24	2780	5910	12880	19750	26930	34390	39310	47300	54057
	314	668	1455	2232	3043	3886	4442	5343	6107
91	58	56	55	54	53	50	47	44	44
28		5310	12500	19630	26600	33950	38740	46635	53297
		600	1413	2218	3006	3836	4378	5268	6021
106		66	64	63	62	59	55	52	52
32		5120	12070	19260	26260	33510	38180	45982	52550
		579	1364	2176	2967	3787	4314	5195	5937
121		75	74	72	70	67	62	58	58
36		5100	11270	18270	25590	33070	37652	45366	
		576	1274	2065	2892	3737	4254	5125	
136		85	83	81	79	76	70	66	
40			10280	17760	24910	32630	37124	44750	
			1162	2007	2815	3687	4194	5055	
151			92	90	88	84	78	73	
45			9820	17280	24240	31793	36119	43577	
			1110	1953	2739	3592	4080	4923	
170			104	101	99	95	87	82	
50			9100	16600	23650				
			1028	1876	2672				
189			115	113	110				

23650 Torque (lb-in)
2672 Torque (Nm)
110 Speed (RPM)

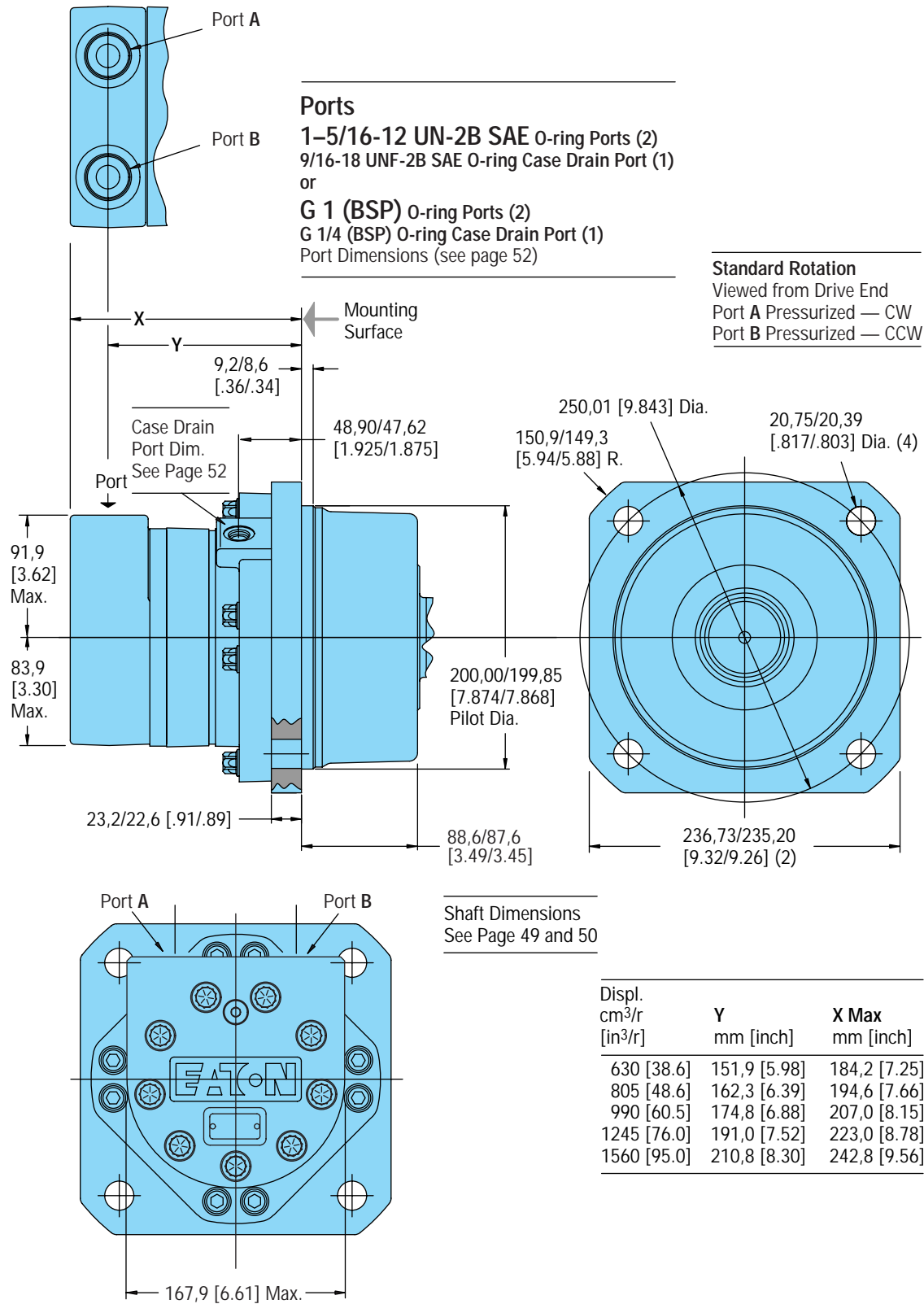
Performance data is typical at 120 SUS. Actual data may vary slightly from unit to unit in production

Dimensions — VIS 45 Series (Standard Mount)

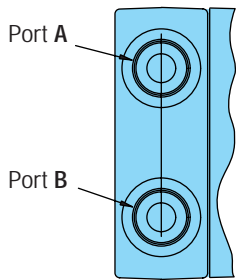


Displ. cm ³ /r [in ³ /r]	Y mm [inch]	X Max. mm [inch]
630 [38.6]	228,6 [9.00]	260,9 [10.27]
805 [48.6]	239,0 [9.41]	271,3 [10.68]
990 [60.5]	251,5 [9.90]	283,7 [11.17]
1245 [76.0]	267,7 [10.54]	299,7 [11.80]
1560 [95.0]	287,5 [11.32]	319,5 [12.58]

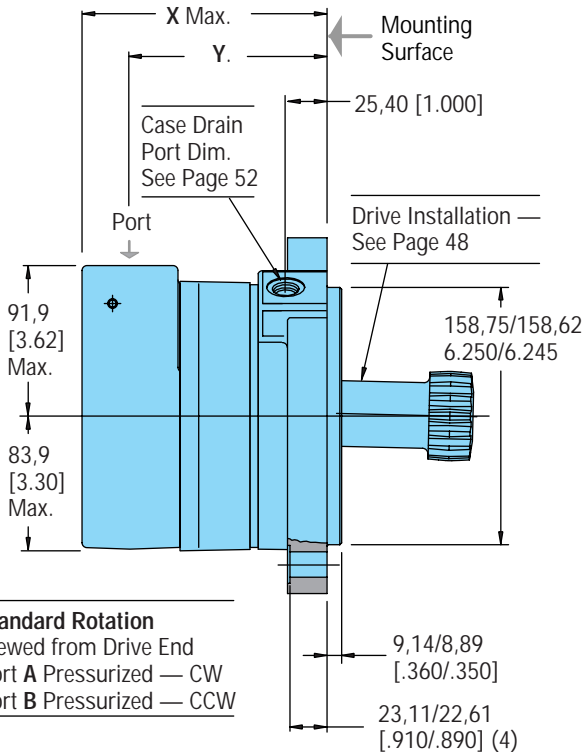
Dimensions — VIS 45 Series (Wheel Mount)



Dimensions — VIS 45 Series (Bearingless)



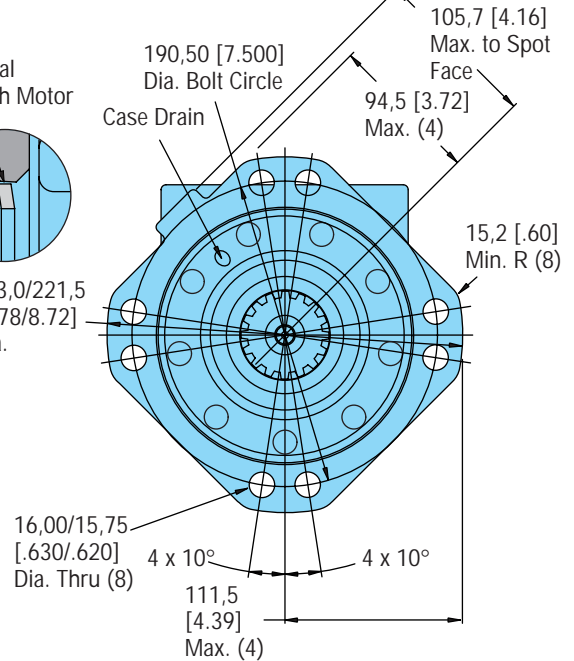
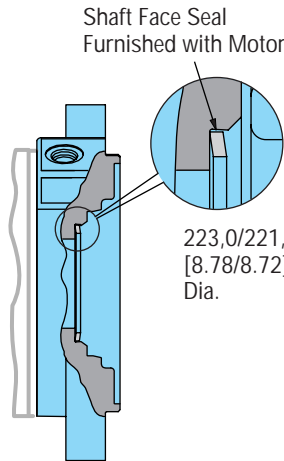
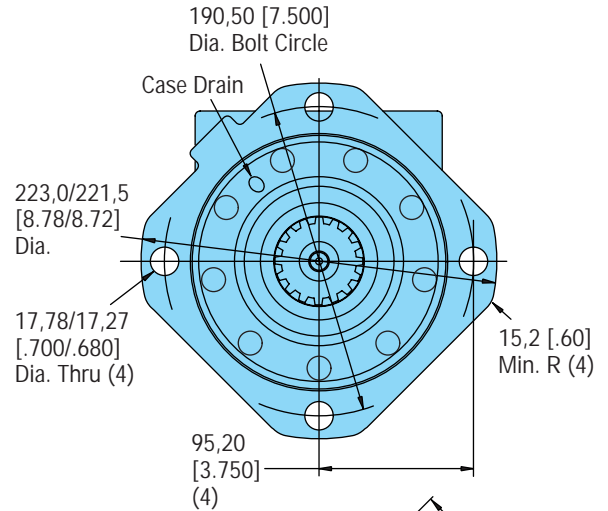
Ports
 1-5/16-12 UN-2B SAE O-ring Ports (2)
 9/16-18 UNF-2B SAE O-ring Case Drain Port (1)
 or
G 1 (BSP) O-ring Ports (2)
G 1/4 (BSP) O-ring Case Drain Port (1)
 Port Dimensions (see page 52)



Standard Rotation
 Viewed from Drive End
 Port A Pressurized — CW
 Port B Pressurized — CCW

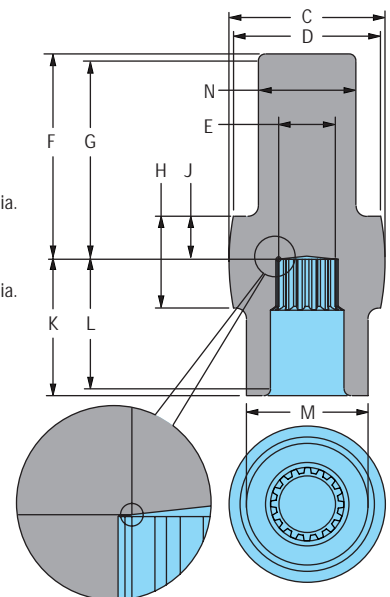
Displ. cm ³ /r [in ³ /r]	Y mm [inch]	X Max. mm [inch]
630 [38.6]	130,3 [5.13]	161,5 [6.36]
805 [48.6]	141,2 [5.56]	172,5 [6.79]
990 [60.5]	153,4 [6.04]	184,4 [7.26]
1245 [76.0]	169,7 [6.68]	200,7 [7.90]
1560 [95.0]	189,5 [7.46]	220,5 [8.68]

For VIS 45 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.

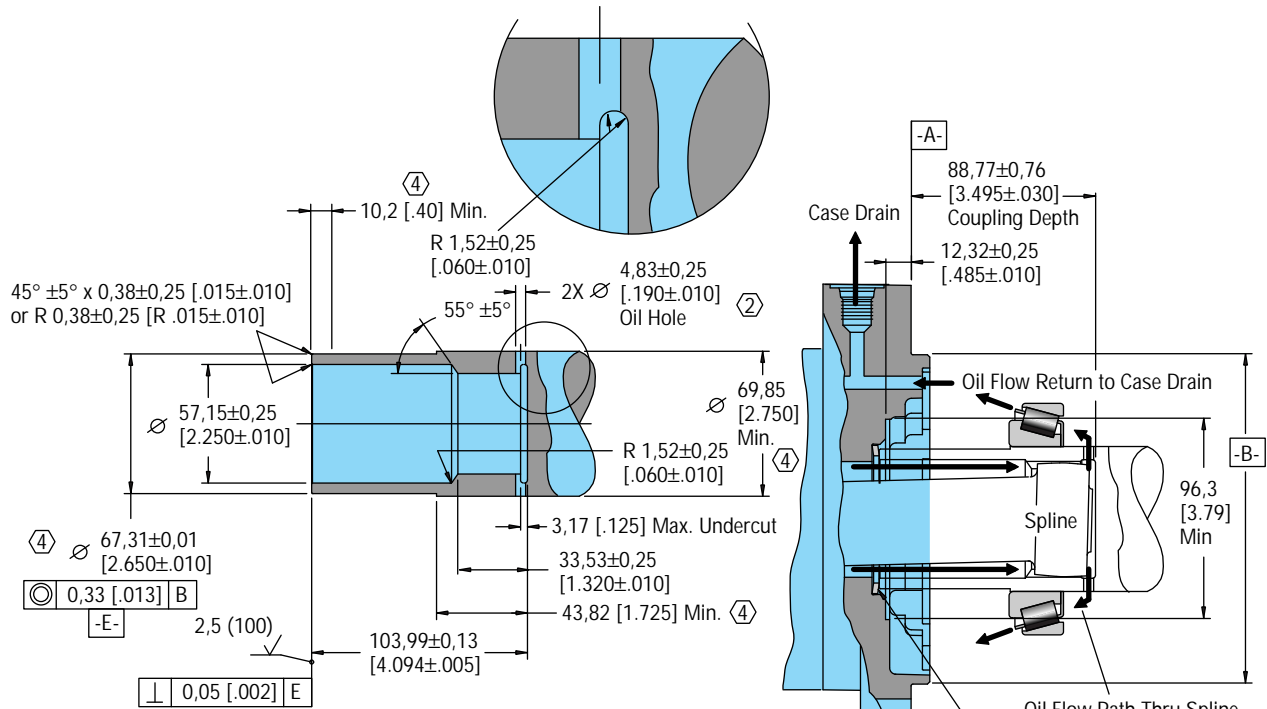


Mating Coupling Blank
 Eaton Part No. 13521-003

C	116,3 [4.58] Dia. Max.
D	111,8 [4.40] Dia. Min.
E	37,64 [1.482] Dia.
F	136,7 [5.38] Max.
G	131,6 [5.18] Min. Full Form Dia.
H	64,8 [2.55]
J	26,4 [1.04]
K	109,7 [4.32] Max.
L	104,6 [4.12] Min. Full Form Dia.
M	92,58 [3.645] Dia.
N	73,28 [2.885] Dia.

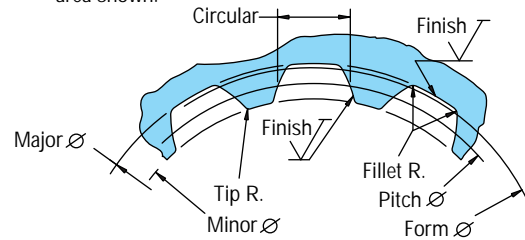


Installation Information for Bearingless Motor — VIS 45 Series



- Spline Pitch — 8/16
- Pressure Angle — 30°
- Number of teeth — 16
- Class of Fit — Ref. 5
- Type of Fit — Side
- Pitch Diameter — Ref. 50,800000 [2.0000000] $\text{Ⓢ} 0,33 [0.13] B$
- Base Diameter — Ref. 43,994090032 [1.7320508]
- Major Diameter — 56,34±0,15 [2.218±.006]
- Minor Diameter — 48,44±0,08 [1.907±.003]
- Form Diameter, Min. — 55,22 [2.174]
- Fillet Radius — 1,02±0,25 [.040±.010]
- Tip Radius — 0,38±0,13 [.015±.005]
- Finish — 1,6 (63)
- Involute Profile Variation — +0,000 -0,025 [+0.0000 -0.0010]
- Total Index Variation — 0,041 [.0016]
- Lead Variation — 0,015 [.0006]
- Circular Space Width:
 - Maximum Actual — 6,180 [.2433]
 - Minimum Effective — 6,048 [.2381]
 - Maximum Effective — Ref. 6,099 [.2401]
 - Minimum Actual — Ref. 6,114 [.2407]
- Dimension Between Two Pins — Ref. 42,659±0,05 [1.6795±.0020]
- Pin Diameter — 6,223 [.2450]

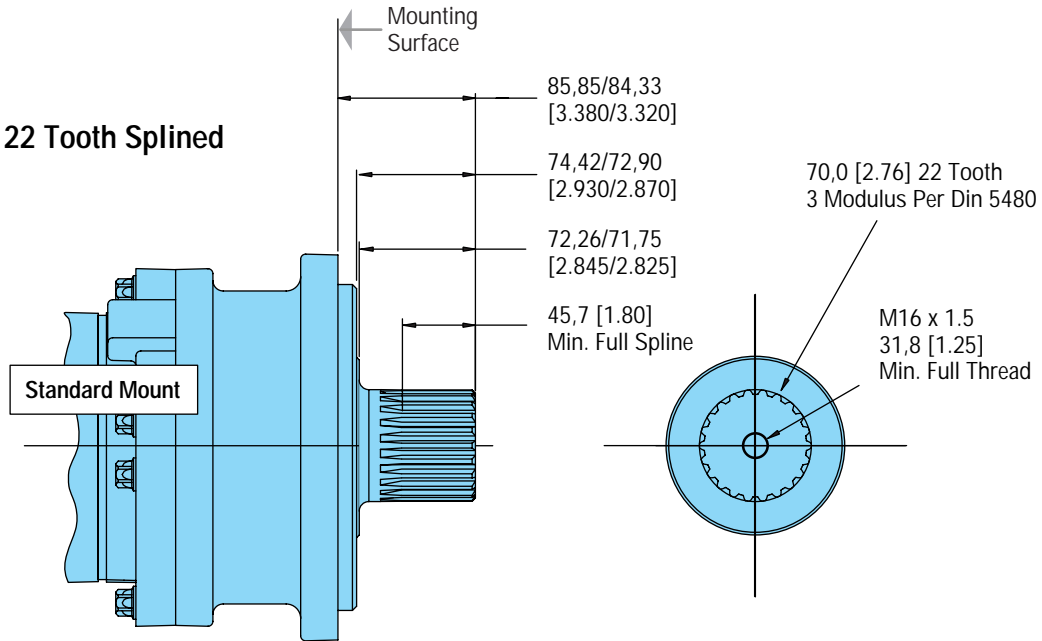
- 1 Internal spline in mating part to be per spline data. Specification material to be ASTM A304, 8620H carburize to a hardness of 59-62 HRc with case depth (to 50HRc) of 0,76 - 1,27 [.030 - .050]. Dimensions apply after heat treat.
- 2 Mating part to have critical dimensions as shown. Oil holes must be provided and open for proper oil circulation.
- 3 Seal to be furnished with motor for proper oil circulation thru splines.
- 4 Dimension indicated applies within area shown.



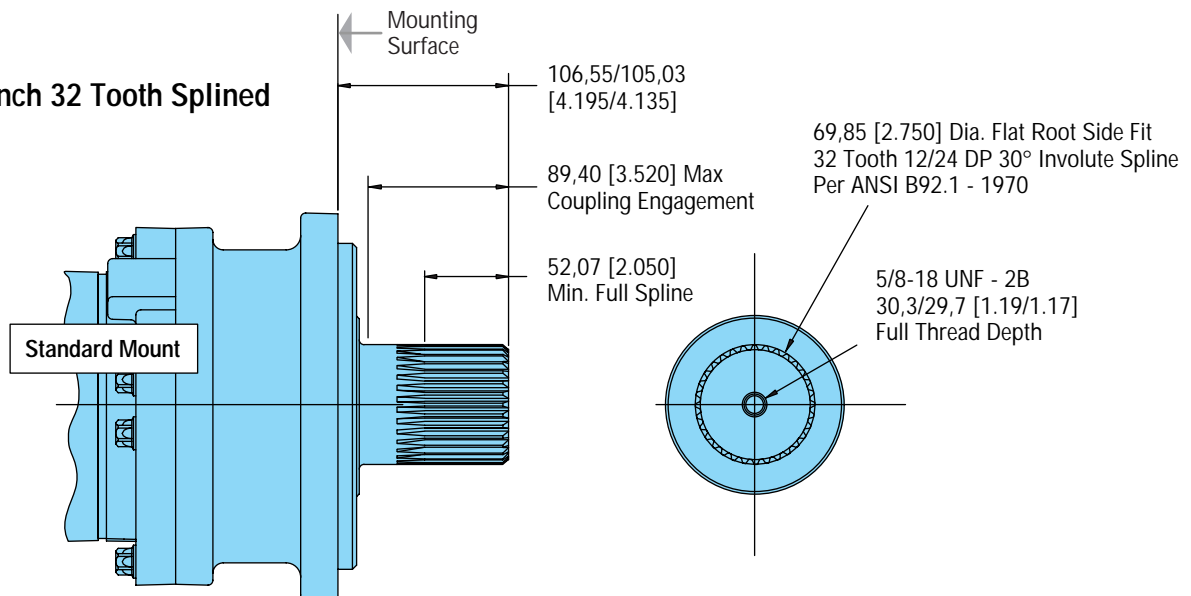
Dimensions — Shafts

VIS 45 Series

70 mm 22 Tooth Splined



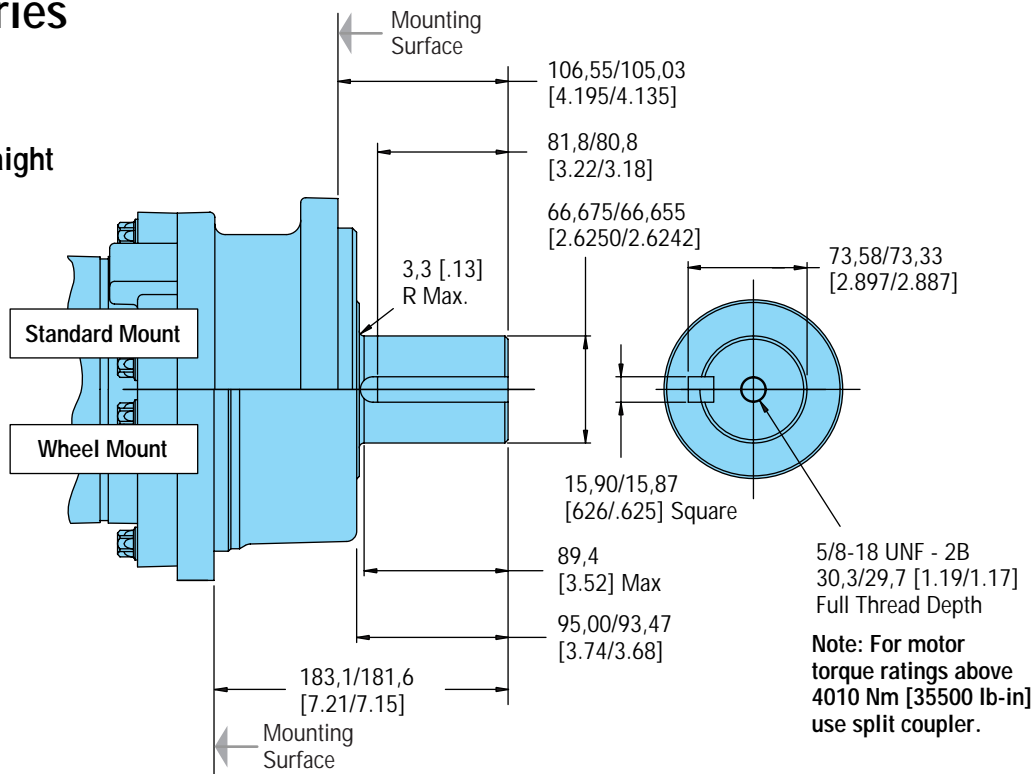
2-3/4 Inch 32 Tooth Splined



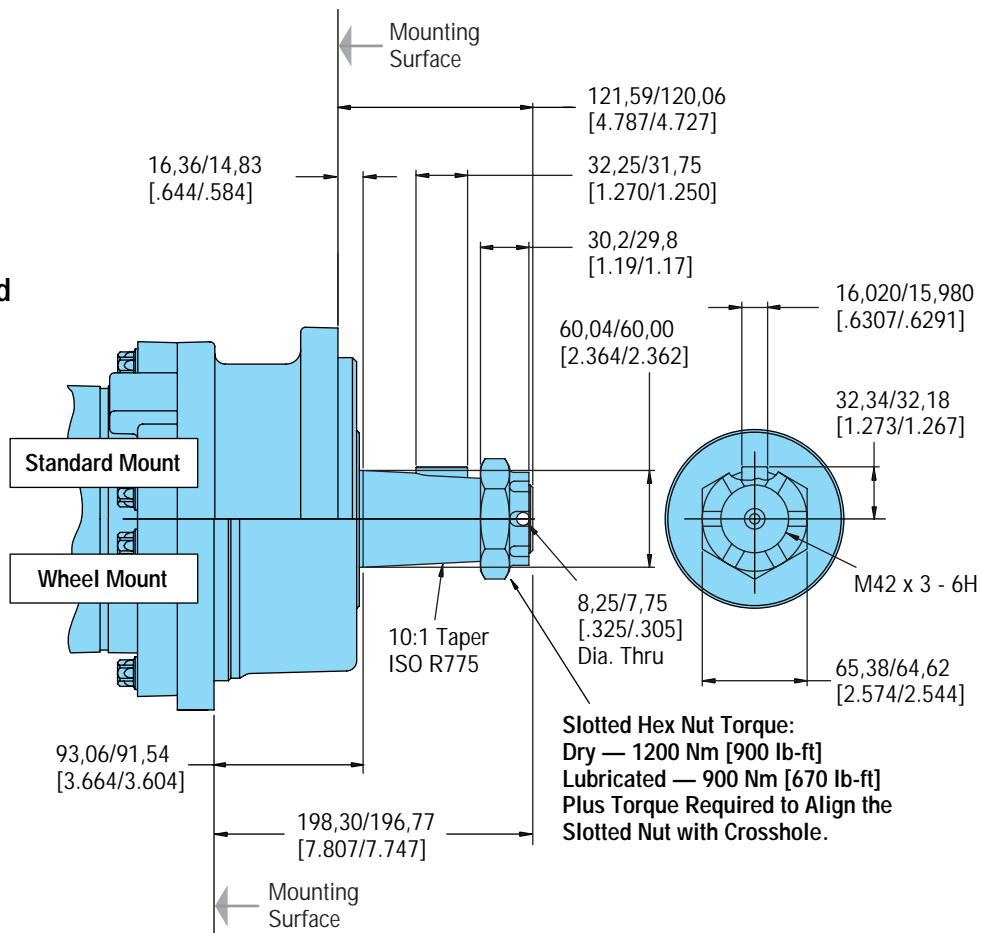
Dimensions — Shafts

VIS 45 Series

2-5/8 Inch Straight



60 mm Tapered



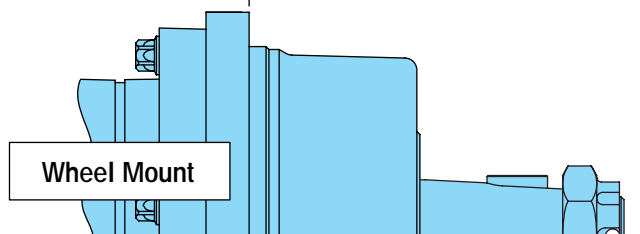
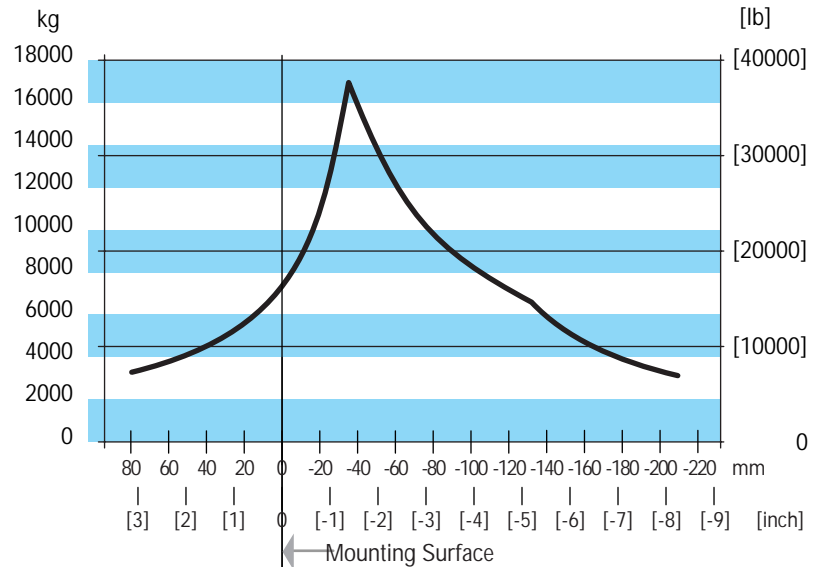
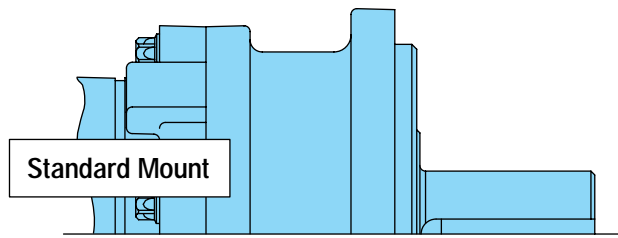
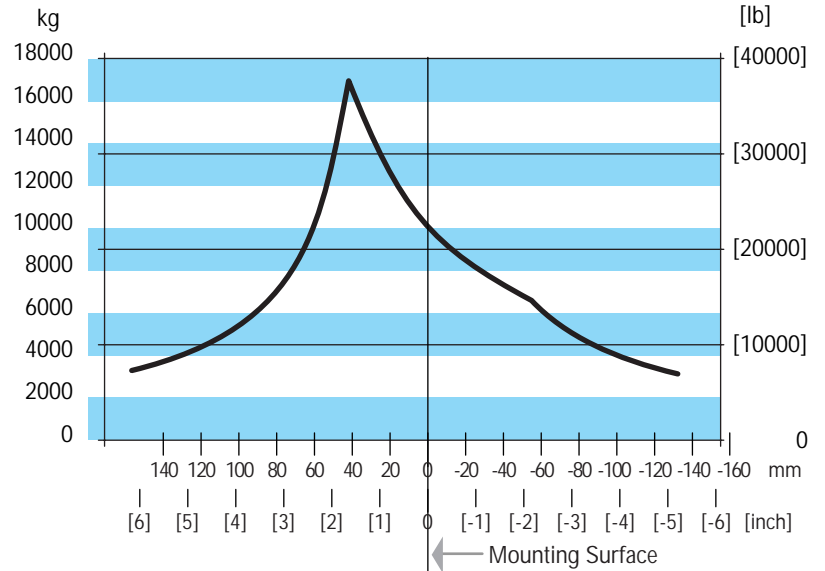
Shaft Side Load Capacity VIS 45 Series

These curves indicate the radial load capacity on the motor shaft(s) at various locations.

The curve is based on B 10 bearing life (2000 hours or 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	.81
300	.72
400	.66
500	.62
600	.58
700	.56
800	.54

For 3,000,000 shaft revolutions or 500 hours — Increase these shaft loads 52%.



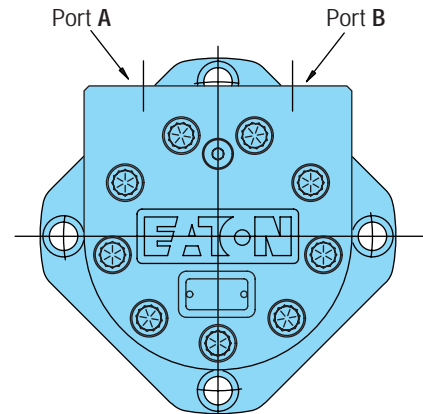
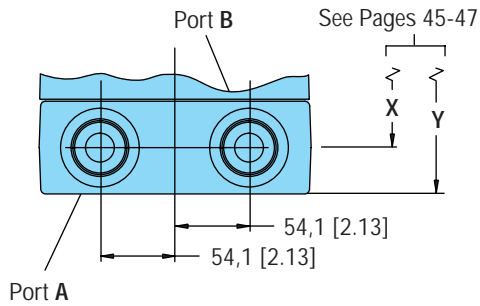
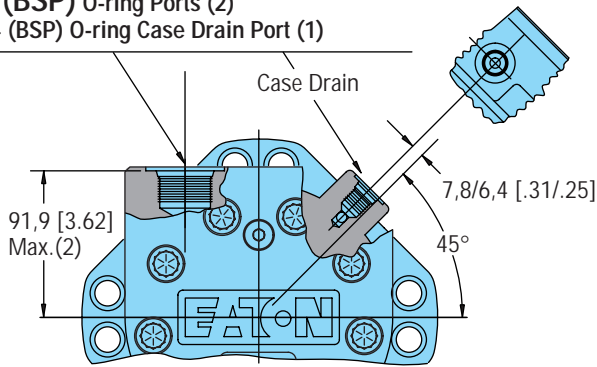
Dimensions — Ports

VIS 45 Series

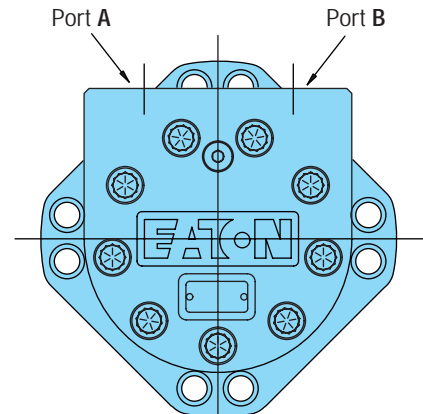
Ports

1-5/16-12 UN-2B SAE O-ring Ports (2)
 9/16-18 UNF-2B SAE O-ring Case Drain Port (1)
 or

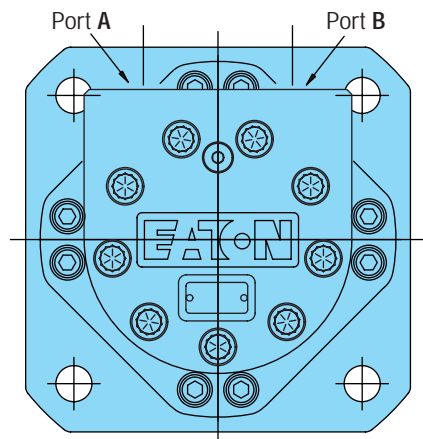
G 1 (BSP) O-ring Ports (2)
 G 1/4 (BSP) O-ring Case Drain Port (1)



Side Ported Bearingless Motor (4 Bolt)



Side Ported Bearingless Motor (8 Bolt)



Side Ported Standard and Wheel Motor

Product Numbers

VIS 45 Series (Closed Loop)

Use digit prefix —155-, 156-, or 157- plus four digit number from charts for complete product number—Example 157-0004.
Orders will not be accepted without three digit prefix.

SAE

Mounting	Shaft	Port Size	Displ. cm ³ /r [in ³ /r] / Product Number				
			630 [38.6]	805 [48.6]	990 [60.5]	1245 [76.0]	1560 [95.0]
Standard	2-5/8 inch Straight	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	155-0107	-0108	-0109	-0110	-0111
	60 mm Tapered	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	155-0114	-0115	-0116	-0117	-0118
	70 mm 22 Tooth Splined	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	155-0121	-0122	-0123	-0124	-0125
	2-3/4 inch 32 Tooth Splined	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	155-0128	-0085	-0129	-0130	-0131
Wheel	2-5/8 inch Straight	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	156-0039	-0040	-0041	-0042	-0043
	60 mm Tapered	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	156-0046	-0047	-0048	-0049	-0050
Bearingless (8 Bolt)		1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	157-0066	-0067	-0068	-0069	-0070
Bearingless (4 Bolt)		1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	157-0004	—	—	—	—

157-0004

ISO

Mounting	Shaft	Port Size	Displ. cm ³ /r [in ³ /r] / Product Number				
			630 [38.6]	805 [48.6]	990 [60.5]	1245 [76.0]	1560 [95.0]
Standard	2-5/8 inch Straight	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	155-0134	-0135	-0136	-0137	-0138
	60 mm Tapered	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	155-0141	-0142	-0143	-0144	-0145
	70 mm 22 Tooth Splined	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	155-0148	-0149	-0150	-0151	-0152
	2-3/4 inch 32 Tooth Splined	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	155-0155	-0156	-0157	-0158	-0159
Wheel	2-5/8 inch Straight	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	156-0053	-0054	-0055	-0056	-0057
	60 mm Tapered	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	156-0060	-0061	-0062	-0063	-0064
Bearingless (8 Bolt)		G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	157-0074	-0075	-0076	-0077	-0078
Bearingless (4 Bolt)		G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	157-0081	—	—	—	—

157-0081

Note: All product numbers in the charts (above) are motors **with** back-pressure relief. These motors with relief valve would be used in Closed loop circuits. The back-pressure relief is set at 15,2 bar [220 PSI].

- VIS motors must have a case drain to tank.
- The maximum case pressure for the VIS motor is 3,5 bar [50 PSI].

Product Numbers

VIS 45 Series (Open Loop)

Use digit prefix —155-, 156-, or 157- plus four digit number from charts for complete product number—Example 157-0038. **Orders will not be accepted without three digit prefix.**

SAE

Mounting	Shaft	Port Size	Displ. cm ³ /r [in ³ /r] / Product Number				
			630 [38.6]	805 [48.6]	990 [60.5]	1245 [76.0]	1560 [95.0]
Standard	2-5/8 inch Straight	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	155-0029	-0030	-0031	-0032	-0033
	60 mm Tapered	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	155-0043	-0044	-0045	-0046	-0047
	70 mm 22 Tooth Splined	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	155-0014	-0057	-0058	-0059	-0060
	2-3/4 inch 32 Tooth Splined	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	155-0070	-0071	-0072	-0073	-0074
Wheel	2-5/8 inch Straight	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	156-0011	-0012	-0013	-0014	-0015
	60 mm Tapered	1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	156-0025	-0026	-0027	-0028	-0029
Bearingless (8 Bolt)		1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	157-0050	-0040	-0042	-0044	-0046
Bearingless (4 Bolt)		1-5/16-12 UNF O-ring (2) 9/16-18 UNC Drain Port (1)	157-0038	—	—	—	—

157-0038

ISO

Mounting	Shaft	Port Size	Displ. cm ³ /r [in ³ /r] / Product Number				
			630 [38.6]	805 [48.6]	990 [60.5]	1245 [76.0]	1560 [95.0]
Standard	2-5/8 inch Straight	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	155-0036	-0037	-0038	-0039	-0040
	60 mm Tapered	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	155-0050	-0051	-0052	-0053	-0054
	70 mm 22 Tooth Splined	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	155-0063	-0064	-0065	-0066	-0067
	2-3/4 inch 32 Tooth Splined	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	155-0077	-0078	-0079	-0080	-0081
Wheel	2-5/8 inch Straight	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	156-0018	-0019	-0020	-0021	-0022
	60 mm Tapered	G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	156-0032	-0033	-0034	-0035	-0036
Bearingless (8 Bolt)		G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	155-0053	-0041	-0043	-0045	-0047
Bearingless (4 Bolt)		G 1 (BSP) (2) G 1/4 (BSP) Drain Port (1)	157-0039	—	—	—	—

157-0039

Note: All product numbers in the charts (above) are motors **without** back-pressure relief. These motors without relief valve would generally be used in open loop circuits.

For closed loop circuit as shown on page 6, a motor with a back-pressure relief valve **is required** (see product no.'s for these motors on page 53).

- VIS motors must have a case drain to tank.
- The maximum case pressure for the VIS motor is 3,5 bar [50 PSI].
- VIS motors in an open loop circuit must have 3,5 bar [50 PSI] greater return pressure than the pressure in the case to properly lubricate the internal drive (see page 9).

Model Code

VIS 45 Series

The following 16-digit coding system has been developed to identify all of the configuration options for the VIS 45 motor. Use this model code to specify a motor with the desired features. All 16-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.

Model Code — VIS 45 Motors

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	C	B												0	0

Positions 1, 2, 3 Product Series

ACB VIS 45 Motor

Positions 4, 5 Displacement cm³/r [in³/r]

31 520 [31.7]*

35 572 [34.9]*

39 630 [38.6]

44 720 [43.9]*

49 805 [48.6]

60 990 [60.5]

76 1245 [76.0]

95 1560 [95.0]

* For performance and dimension data contact your Eaton Hydraulics representative.

Position 6 Mounting Type

A 4 Bolt (Bearingless) 158,70 [6.250] Pilot Dia. with 9,07 [.355] Pilot Length and 17,53 [.690] Dia. Holes on 190,50 [7.500] Dia.B.C. - Max. Torque Allowed 3615 Nm [32000 lb-in](Displ. Code 32, 35, 39 Only)

C 8 Bolt (Bearingless) 158,70 [6.250] Pilot Dia. with 9,07 [.355] Pilot Length and 15,88 [.625] Dia. Holes on 190,50 [7.500] Dia.B.C.

D 4 Bolt (Wheel) 200,0 [7.87] Pilot Dia. with 9,0 [.35] Pilot Length and 20,57 [.810] Dia. Holes on 250,0 [9.84] Dia. B.C.

H 4 Bolt (Standard) 200,0 [7.87] Pilot Dia. with 9,0 [.35] Pilot Length and 20,57 [.810] Dia. Holes on 250,0 [9.84] Dia. B.C.

Position 7, 8 Output Shaft

00 None (Bearingless)

05 2–5/8 inch Dia. Straight Shaft with 5/8-18 UNF-2B Thread in End and 15,88 [.625] Sq. x 81,3 [3.20] Straight Key

06 70 mm Dia. 22 Tooth 3 Modulus Splined Shaft Per DIN 5480 with M16 X 1,5 Thread in End

08 2–3/4 inch Dia. Flat Root Side Fit 32 Tooth 12/24 DP 30 Deg. Involute Spline with 5/8-18 UNF-2B Thread in End

09 60 mm Dia. 10:1 Tapered Shaft Per ISO R775 with M42 x 3-6H Threaded Shaft End, 16W x 10H x 32L [.630W x .394H x 1. 260L]

Position 9 Port Type

A 1–5/16-12 UN-2B O-ring Ports, Accepts Fittings for SAE J1926/1

B G 1 (BSP) Ports, Accepts Fittings with Elastomeric or Deformable Metallic Sealing Member Per DIN 3852

Position 10 Case Flow Options

D Shuttle Valve with Side Facing 9/16-18 UNF -2B O-ring Case Drain Port, Accepts Fittings for SAE J1926/1 Case Drain Required

H Shuttle Valve with Side Facing G 1/4 (BSP) Port Case Drain, Case Drain Required

Position 11 Back-Pressure Relief

0 None (for Open Loop Only)**

1 Set at 15,2 bar [220 PSI] (for Servo Pumps)

3 Set at 4,5 bar [65 PSI] (for Manual Pumps)

Positions 12,13 Special Features

00 None

Position 14 Paint/Special Packaging

0 No Paint, Individual Box

A Painted Low Gloss Black, Individual Box

B No Paint, Bulk Box Option

C Painted Low Gloss Black, Bulk Box Option

Position 15 Eaton Assigned Code when Applicable

0 Assigned Code

Position 16 Eaton Assigned Design Code

D Assigned Design Code

** For Open Loop

- VIS motors must have a case drain to tank.
- The maximum case pressure for the VIS motor is 3,5 bar [50 PSI].
- VIS motors in an open loop circuit must have 3,5 bar [50 PSI] greater return pressure than the pressure in the case to properly lubricate the internal drive (see page 9).



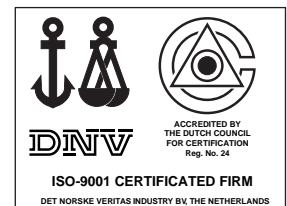
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