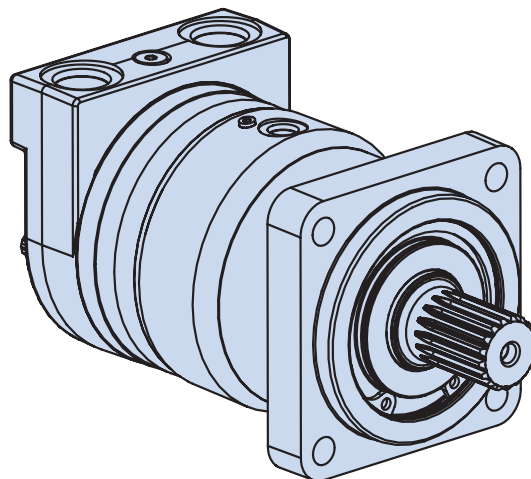


VIS 40 Series

Highlights



Description

The VIS 40 Series is the newest addition to the VIS product line. The VIS 40 is very close in size to the VIS 30, but with increased drive train strength, it has even greater torque capability. Maximum continuous output torque capability is rated to 2531 Nm [22,400 lb-in] with a displacement range from 505cc to 940cc per revolution. VIS 40 motors can be run up to 151 LPM [40 GPM] with pressure capability up to 310 bar (4500 PSI). The motor utilizes patented VIS technology with improved high-strength Geroler, optimized drive geometry, and two-piece pre-loaded balance plate for increased starting efficiency, reduced leakage and higher back pressure capacity. A wide variety of options are available including two-speed option, brake options and case flow options for both closed-loop and open loop applications.

Specifications

Geroler Element	8 Displacements
Flow l/min [GPM]	151 [40] Continuous 170 [45] Intermittent
Speed	Up to 454 RPM
Pressure bar [PSI]	310 [4500] Cont. 345 [5000] Inter. 380 [5500] Peak.
Torque Nm [lb - in]	2531 [22400] Cont. 3165 [28000] Inter.

Features

- Patented VIS Geroler technology
- Three moving components: (Geroler, star, drive, and output shaft)
- Maximized drive strength in compact package size
- Compact package size similar to VIS 30 Series.
- Two-piece pre-loaded pressure balance plate
- Variety of optional features including two-speed option, brake packages, and case flow solutions for both closed-loop and open-loop applications.

Benefits

- Extremely compact powerful package
- Increased torque capability
- Greatest horsepower density in the VIS motor line
- High efficiency
- Quiet, smooth operation
- Reliable, trouble-free performance
- Design Flexibility

Applications

- Skid Steer Loaders and Attachments
- Snow Removal Equipment
- Trenchers
- Grapples
- Rough Terrain Forklifts
- Wood Processing – Saw Mills & Chippers
- Metal Forming
- Entertainment / Amusement Rides
- Industrial Processing
- Harvesters



Skid Steer



Trencher



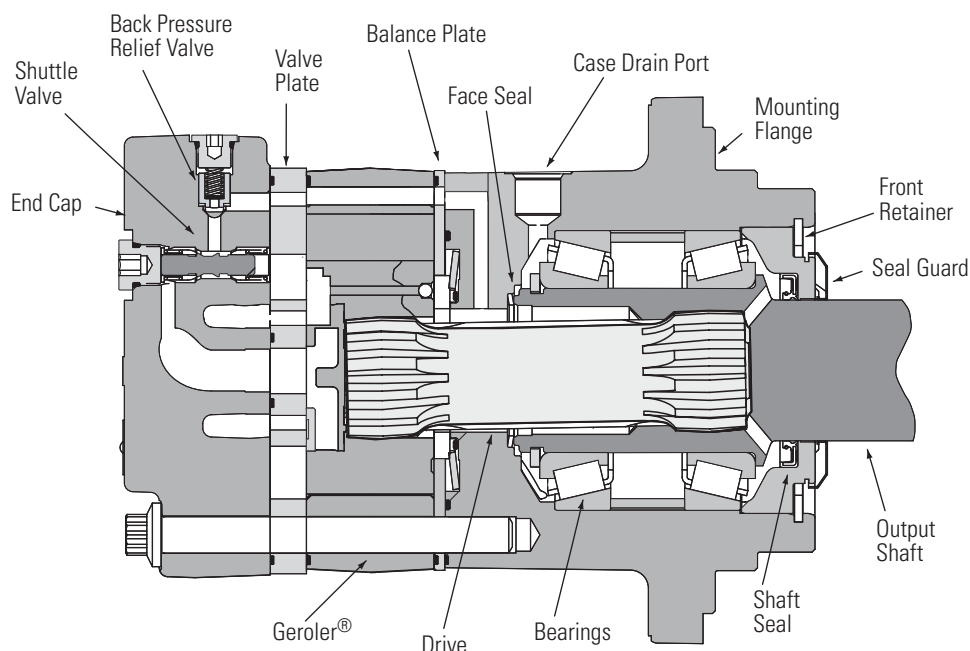
Digger



Port Equipment

VIS 40 Series

Specifications



SPECIFICATION DATA – VIS 40 MOTORS

Displ. cm ³ /r [in ³ /r]		325 [19.8]	400 [24.4]	505 [30.7]	570 [34.9]	630 [38.5]	685 [41.7]	785 [48.0]	940 [57.4]
Max. Speed (RPM) @ Flow	Continuous	440	357	279	244	221	204	177	148
	Intermittent	454	368	293	257	233	215	187	148
Flow l/min [GPM]	Continuous	151 [40]	151 [40]	151 [40]	151 [40]	151 [40]	151 [40]	151 [40]	151 [40]
	Intermittent	170 [45]	170 [45]	170 [45]	170 [45]	170 [45]	170 [45]	170 [45]	170 [45]
Torque Nm [lb - in]	Continuous	1445 [12789]	1781 [15760]	2240 [19829]	2531 [22400]	2531 [22400]	2531 [22400]	2531 [22400]	2531 [22400]
	Intermittent	1986 [17421]	1597 [14137]	2746 [21919]	2815 [24918]	3165 [28000]	3165 [28000]	3165 [28000]	3165 [28000]
Pressure Δ bar [Δ PSI]	Continuous	310 [4500]	310 [4500]	310 [4500]	279 [4040]	254 [3686]	235 [3389]	208 [3012]	171 [2489]
	Intermittent	345 [5000]	345 [5000]	345 [5000]	309 [4486]	315 [4574]	290 [4212]	254 [3682]	214 [3100]
	Peak	380 [5500]	380 [5500]	380 [5500]	380 [5500]	380 [5500]	380 [5500]	300 [4355]	250 [3621]
Weight kg [lb]	Standard or Wheel Mount	28,5 [62.9]	29,1 [64.2]	29,9 [66.0]	30,5 [67.2]	31,4 [68.2]	31,4 [69.2]	32,2 [71.0]	33,4 [73.6]
	Bearingless	16,3 [36.0]	16,9 [37.3]	17,7 [39.1]	18,3 [40.3]	18,7 [41.3]	19,2 [42.3]	20,0 [44.1]	21,2 [46.7]
Weight kg [lb]	Two-speed Standard or Wheel Mount	32,1 [70.8]	32,7 [72.1]	33,5 [73.9]	34,1 [75.1]	34,5 [76.1]	35,0 [77.1]	35,8 [78.9]	37,0 [81.5]
	Two-speed Bearingless	19,9 [43.9]	20,5 [45.2]	21,3 [47.0]	21,9 [48.2]	22,3 [49.2]	22,8 [50.2]	23,6 [52]	24,8 [54.6]

A simultaneous maximum torque and maximum speed NOT recommended.

Note:

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

Maximum Inlet Pressure:

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, except with open loop circuit.

Δ Pressure:

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

Case Pressure:

Minimum – No Pressure
Maximum – 3,5 bar [50 PSI]

Note:

The case must be full when the motor is operating. A case drain is recommended.

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 System Operating Temp.:

-34°C to 82°C [-30°F to 180°F]

Recommended Filtration:

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

Shuttle:

Standard

Back-Pressure Relief Valve:

Required for closed loop circuit.

VIS 40 Series

Performance Data

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

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

	Continuous
	Intermittent
	Will Operate at Reduced Life

325 cm³/r [19.8 in³/r]

Δ Pressure Bar [PSI]

	250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500
	15	35	70	105	140	170	205	240	275	310	345	380
4	668	1399	2834	4251	5583	6924	8258	9528	10387	11637	12659	
	75	158	320	480	631	782	933	1076	1174	1315	1430	
	15	46	46	44	43	43	42	42	39	37	36	
8	680	1419	2867	4303	5711	7126	8530	9876	11269	12460	13782	14840
	77	160	324	486	645	805	964	1116	1273	1408	1557	1677
	30	93	91	90	87	85	84	83	81	78	74	66
12	647	1412	2879	4340	5768	7195	8619	10010	11360	12672	14029	15246
	73	160	325	490	652	813	974	1131	1284	1432	1585	1723
	45	139	137	133	132	129	129	127	126	124	113	109
16	690	1420	2852	4316	5741	7191	8621	10014	11412	12736	14081	15435
	78	160	322	488	649	812	974	1131	1289	1439	1591	1744
	61	186	184	181	179	174	170	168	166	161	154	151
20	657	1250	2774	4407	5695	7170	8741	9952	11392	12789	14137	15339
	74	141	313	498	643	810	988	1124	1287	1445	1597	1733
	76	233	229	226	223	217	214	211	209	208	200	197
25	544	1266	2814	4154	5858	7220	8518	9936	11269	12654	14037	15334
	61	143	318	469	662	816	962	1123	1273	1430	1586	1732
	95	291	287	283	280	277	269	266	264	260	254	248
30	146	1177	2605	3968	5401	6882	8315	9678	11092	12536	13960	15321
	16	133	294	448	610	778	939	1094	1253	1416	1577	1731
	114	341	345	340	336	333	325	323	320	316	312	303
35	114	1144	2532	3960	5322	6768	8232	9589	11019	12228	13298	15023
	13	129	286	447	601	765	930	1083	1245	1382	1503	1697
	132	396	402	396	392	387	378	377	372	369	363	354
40	92	557	2047	3574	5032	6507	7944	9282	10687	12112	13439	14938
	10	63	231	404	569	735	898	1049	1207	1368	1518	1688
	151	454	452	440	433	430	429	430	428	425	420	408

400 cm³/r [24.4 in³/r]

Δ Pressure Bar [PSI]

	250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500
	15	35	70	105	140	170	205	240	275	310	345	380
4	823	1724	3493	5239	6880	8532	10177	11741	12800	14340	15600	
	93	195	395	592	777	964	1150	1327	1446	1620	1763	
	15	37	37	36	35	35	34	34	32	30	29	
8	838	1749	3533	5302	7038	8781	10511	12171	13887	15354	16983	18288
	95	198	399	599	795	992	1188	1375	1569	1735	1919	2066
	30	75	74	73	71	69	68	67	66	63	60	53
12	797	1740	3548	5349	7108	8866	10622	12335	13999	15616	17289	18788
	90	197	401	604	803	1002	1200	1394	1582	1764	1953	2123
	45	113	111	108	107	105	105	103	102	101	92	88
16	850	1750	3515	5319	7074	8862	10624	12341	14063	15695	17353	19021
	96	198	397	601	799	1001	1200	1394	1589	1773	1961	2149
	61	151	149	147	145	141	138	136	135	131	125	123
20	810	1540	3419	5431	7018	8836	10771	12264	14039	15760	17421	18902
	92	174	386	614	793	998	1217	1386	1586	1781	1968	2136
	76	189	186	183	181	176	174	171	170	169	165	160
25	670	1560	3467	5118	7219	8897	10497	12244	13887	15594	17299	18896
	76	176	392	578	816	1005	1186	1383	1569	1762	1954	2135
	95	236	233	230	227	225	218	216	215	211	208	202
30	180	1450	3210	4890	6656	8480	10246	11927	13669	15448	17203	18881
	20	164	363	552	752	958	1158	1348	1544	1745	1944	2133
	114	277	280	276	273	270	264	262	259	256	253	246
35	140	1410	3120	4880	6559	8341	10144	11817	13579	15068	16388	18514
	16	159	353	551	741	942	1146	1335	1534	1702	1852	2092
	132	321	326	321	318	314	307	306	302	299	295	287
40	113	687	2522	4405	6201	8019	9789	11438	13170	14926	16561	18409
	13	78	285	498	701	906	1106	1292	1488	1686	1871	2080
	151	368	367	357	352	349	348	349	347	345	341	331

6201 } Torque [lb-in]
701 } Nm
349 } Speed RPM

VIS 40 Series

Performance Data

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

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

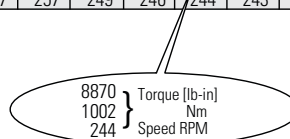
	Continuous
	Intermittent
	Will Operate at Reduced Life

505 cm³/r [30.7 in³/r]
Δ Pressure Bar [PSI]

	250 15	500 35	1000 70	1500 105	2000 140	2500 170	3000 205	3500 240	4000 275	4500 310	5000 345	5500 380
4	1035	2169	4395	6592	8656	10735	12804	14773	16105	18043	19628	
15	117	245	497	745	978	1213	1447	1669	1820	2039	2218	
8	1055	2200	4445	6671	8855	11049	13225	15313	17473	19319	21368	23010
30	119	249	502	754	1000	1248	1494	1730	1974	2183	2414	2600
12	1003	2190	4464	6730	8944	11155	13364	15520	17614	19648	21753	23640
45	113	247	504	760	1011	1260	1510	1754	1990	2220	2458	2671
16	1069	2202	4422	6692	8901	11150	13367	15527	17694	19747	21833	23932
61	121	249	500	756	1006	1260	1510	1754	1999	2231	2467	2704
20	1019	1938	4301	6833	8830	11117	13552	15431	17663	19829	21919	23783
76	115	219	486	772	998	1256	1531	1743	1996	2240	2476	2687
25	843	1963	4363	6440	9083	11194	13207	15406	17473	19620	21765	23775
95	95	222	493	728	1026	1265	1492	1741	1974	2217	2459	2686
30	226	1824	4039	6153	8375	10670	12892	15006	17199	19437	21645	23756
114	26	206	456	695	946	1206	1457	1695	1943	2196	2446	2684
35	176	1774	3926	6140	8252	10494	12763	14868	17086	18959	20619	23294
132	20	200	444	694	932	1186	1442	1680	1930	2142	2330	2632
40	142	864	3174	5542	7803	10089	12317	14391	16570	18779	20837	23162
151	16	98	359	626	882	1140	1392	1626	1872	2122	2354	2617
	293	292	284	279	277	277	277	276	274	271	267	263

570 cm³/r [34.9 in³/r]
Δ Pressure Bar [PSI]

	250 15	500 35	1000 70	1500 105	2000 140	2500 170	3000 205	3500 240	4000 275	4500 310	5000 345	5500 380
4	1177	2466	4996	7494	9841	12204	14556	16794	18308	20511	22313	
15	133	279	564	847	1112	1379	1645	1897	2069	2317	2521	
8	1199	2501	5053	7584	10067	12560	15034	17408	19864	21962	24292	26158
30	135	283	571	857	1137	1419	1699	1967	2244	2481	2745	2955
12	1140	2489	5074	7650	10167	12681	15193	17644	20024	22336	24729	26874
45	129	281	573	864	1149	1433	1717	1993	2262	2524	2794	3036
16	1216	2503	5027	7608	10119	12675	15195	17652	20115	22449	24820	27206
61	137	283	568	860	1143	1432	1717	1994	2273	2536	2804	3074
20	1159	2203	4890	7768	10038	12638	15407	17542	20080	22542	24918	27037
76	131	249	552	878	1134	1428	1741	1982	2269	2547	2815	3055
25	958	2231	4960	7321	10325	12725	15014	17513	19863	22305	24743	27027
95	108	252	560	827	1167	1438	1696	1979	2244	2520	2796	3054
30	257	2074	4591	6994	9520	12130	14656	17059	19552	22096	24606	27006
114	29	234	519	790	1076	1370	1656	1927	2209	2496	2780	3051
35	200	2017	4463	6980	9381	11930	14509	16902	19423	21553	23440	26481
132	23	228	504	789	1060	1348	1639	1910	2195	2435	2648	2992
40	162	983	3608	6300	8870	11469	14002	16360	18837	21348	23688	2633
151	18	111	408	712	1002	1296	1582	1848	2128	2412	2676	2975
	257	257	249	246	244	243	244	243	241	238	234	232



VIS 40 Series

Performance Data

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

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

	Continuous
	Intermittent
	Will Operate at Reduced Life

630 cm³/r [38.5 in³/r]

Δ Pressure Bar [PSI]

	250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500
	15	35	70	105	140	170	205	240	275	310	345	380
4	1298	2720	5511	8267	10856	13463	16058	18526	20197	22627	24615	
	147	307	623	934	1227	1521	1814	2093	2282	2556	2781	
	15	23	23	23	22	22	22	22	20	19	18	
8	1323	2759	5575	8366	11105	13856	16585	19204	21913	24227	26797	28856
	149	312	630	945	1255	1565	1874	2170	2476	2737	3028	3260
	30	48	47	46	45	44	43	42	40	38	36	34
12	1257	2746	5598	8439	11216	13990	16760	19464	22089	24640	27279	29646
	142	310	632	954	1267	1581	1894	2199	2496	2784	3082	3350
	45	72	70	68	67	67	67	65	65	64	58	56
16	1341	2761	5546	8393	11163	13982	16763	19472	22190	24765	27381	30012
	152	312	627	948	1261	1580	1894	2200	2507	2798	3094	3391
	61	96	94	93	92	89	87	86	86	83	79	78
20	1278	2430	5394	8569	11073	13942	16996	19352	22151	24867	27488	29825
	144	275	609	968	1251	1575	1920	2186	2503	2810	3106	3370
	76	120	118	116	115	112	110	108	107	104	103	102
25	1057	2461	5471	8076	11390	14038	16563	19320	21912	24605	27295	29815
	119	278	618	912	1287	1586	1871	2183	2476	2780	3084	3369
	95	150	148	146	144	143	138	137	136	134	132	130
30	283	2288	5065	7716	10502	13381	16167	18819	21569	24375	27145	29792
	32	258	572	872	1187	1512	1827	2126	2437	2754	3067	3366
	114	175	177	175	173	171	167	166	164	163	160	158
35	221	2225	4923	7700	10349	13160	16006	18646	21427	23776	25858	29212
	25	251	556	870	1169	1487	1808	2107	2421	2686	2922	3301
	132	204	207	203	202	199	194	191	190	187	182	182
40	178	1084	3980	6950	9785	12652	15446	18048	20780	23551	26132	29047
	20	122	450	785	1106	1430	1745	2039	2348	2661	2952	3282
	151	233	233	226	223	221	221	220	219	216	213	210

685 cm³/r [41.7 in³/r]

Δ Pressure Bar [PSI]

	250	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500
	15	35	70	105	140	170	205	240	275	310	345	380
4	1406	2947	5969	8954	11758	14582	17392	20066	21875	24507	26661	
	159	333	674	1012	1328	1647	1965	2267	2472	2769	3012	
	15	22	22	21	20	20	20	20	19	18	17	
8	1433	2989	6038	9062	12028	15007	17964	20800	23734	26241	29025	31254
	162	338	682	1024	1359	1696	2030	2350	2682	2965	3279	3531
	30	44	43	42	40	40	39	39	37	35	33	31
12	1362	2974	6063	9141	12148	15152	18153	21082	23925	26688	29547	32110
	154	336	685	1033	1373	1712	2051	2382	2703	3015	3338	3628
	45	66	65	63	61	61	61	60	60	59	54	52
16	1453	2991	6007	9090	12090	15145	18156	21091	24034	26823	29656	32506
	164	338	679	1027	1366	1711	2051	2383	2715	3031	3351	3673
	61	88	87	86	85	83	81	80	79	77	73	72
20	1384	2632	5842	9281	11994	15100	18408	20960	23992	26934	29773	32304
	156	297	660	1049	1355	1706	2080	2368	2711	3043	3364	3650
	76	111	109	107	106	103	102	100	99	96	95	94
25	1145	2666	5926	8748	12337	15205	17939	20926	23733	26650	29563	32293
	129	301	670	988	1394	1718	2027	2364	2681	3011	3340	3649
	95	138	136	135	133	132	128	126	124	122	120	118
30	307	2478	5486	8357	11375	14493	17511	20383	23361	26401	29401	32268
	35	280	620	944	1285	1637	1978	2303	2639	2983	3322	3646
	114	162	164	161	160	158	154	153	152	150	148	144
35	239	2410	5332	8340	11209	14254	17337	20196	23207	25752	28007	31640
	27	272	602	942	1266	1610	1959	2282	2622	2910	3164	3575
	132	188	191	188	186	184	179	177	175	172	168	168
40	193	1174	4311	7527	10598	13704	16730	19548	22507	25508	28304	31461
	22	133	487	850	1197	1548	1890	2209	2543	2882	3198	3555
	151	215	215	209	206	204	204	204	203	202	199	194

10598
1197
204

Torque [lb-in]
Nm
Speed RPM

VIS 40 Series

Performance Data

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

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

	Continuous
	Intermittent
	Will Operate at Reduced Life

785 cm³/r [48.0 in³/r]
Δ Pressure Bar [PSI]

Flow LPM [GPM]		250 15	500 35	1000 70	1500 105	2000 140	2500 170	3000 205	3500 240	4000 275	4500 310	5000 345
	4	1618 183 15	3392 383 19	6871 776 19	10306 1164 18	13535 1529 18	16784 1896 18	20020 2262 17	23097 2610 17	25180 2845 16	28210 3187 15	30689 3467 15
	8	1649 186 30	3440 389 38	6950 785 37	10431 1178 36	13845 1564 35	17275 1952 35	20678 2336 34	23942 2705 34	27320 3087 32	30205 3413 31	33410 3775 29
	12	1568 177 45	3423 387 56	6979 789 55	10522 1189 54	13984 1580 53	17441 1971 53	20895 2361 53	24267 2742 52	27540 3112 52	30720 3471 51	34011 3843 47
	16	1672 189 61	3443 389 76	6914 781 75	10464 1182 74	13917 1572 72	17433 1970 70	20899 2361 69	24277 2743 69	27665 3126 69	30876 3488 67	34137 3857 64
	20	1593 180 76	3030 342 96	6725 760 93	10683 1207 92	13805 1560 89	17382 1964 88	21190 2394 87	24127 2726 86	27617 3120 86	31003 3503 84	34271 3872 83
	25	1318 149 95	3069 347 120	6821 771 117	10069 1138 115	14201 1604 114	17502 1977 111	20649 2333 110	24087 2721 109	27319 3087 107	30677 3466 106	34030 3845 105
	30	353 40 114	2852 322 141	6315 713 140	9620 1087 139	13094 1479 137	16683 1885 134	20157 2277 133	23463 2651 132	26891 3038 130	30390 3434 129	33843 3824 127
	35	275 31 132	2774 313 163	6138 693 163	9600 1085 162	12903 1458 160	16408 1854 156	19956 2255 155	23247 2627 154	26714 3018 152	29643 3349 150	32238 3642 146
	40	222 25 151	1351 153 187	4962 561 181	8665 979 179	12200 1378 177	15774 1782 177	19257 2176 177	22501 2542 177	25908 2927 175	29362 3317 173	32580 3681 170

940 cm³/r [57.4 in³/r]
Δ Pressure Bar [PSI]

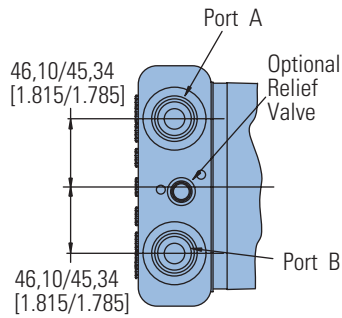
Flow LPM [GPM]		250 15	500 35	1000 70	1500 105	2000 140	2500 170	3000 205	3500 240	4000 275
	4	1935 219 15	4056 458 16	8216 928 16	12325 1393 15	16185 1829 15	20071 2268 15	23940 2705 14	27620 3121 14	30111 3402 14
	8	1972 223 30	4114 465 31	8311 939 31	12473 1409 30	16557 1871 29	20658 2334 29	24727 2794 28	28631 3235 28	32670 3691 27
	12	1875 212 45	4094 463 47	8346 943 46	12582 1422 45	16722 1889 45	20857 2357 45	24987 2823 45	29019 3279 44	32933 3721 43
	16	2000 226 61	4117 465 63	8268 934 62	12513 1414 62	16642 1880 60	20846 2355 59	24992 2824 58	29032 3280 58	33083 3738 57
	20	1905 215 76	3623 409 79	8042 909 78	12776 1443 77	16509 1865 75	20786 2348 74	25339 2863 73	28851 3260 72	33025 3731 72
	25	1576 178 95	3670 415 99	8157 922 98	12041 1360 96	16982 1919 96	20929 2365 93	24693 2790 92	28804 3254 91	32669 3691 90
	30	423 48 114	3411 385 119	7551 853 117	11504 1300 116	15658 1769 115	19950 2254 112	24104 2723 111	28057 3170 110	32157 3633 109
	35	329 37 132	3317 375 139	7340 829 136	11480 1297 135	15429 1743 133	19621 2217 130	23864 2696 130	27799 3141 128	31945 3609 127
	40	266 30 151	1616 183 156	5934 670 152	10361 1171 149	14589 1648 148	18863 2131 148	23029 2602 148	26907 3040 148	30982 3500 147

5934 } Torque [lb-in]
670 } Nm
152 } Speed RPM

VIS 40 Series

Dimensions

Standard and Wheel Mount
– SAE



Ports

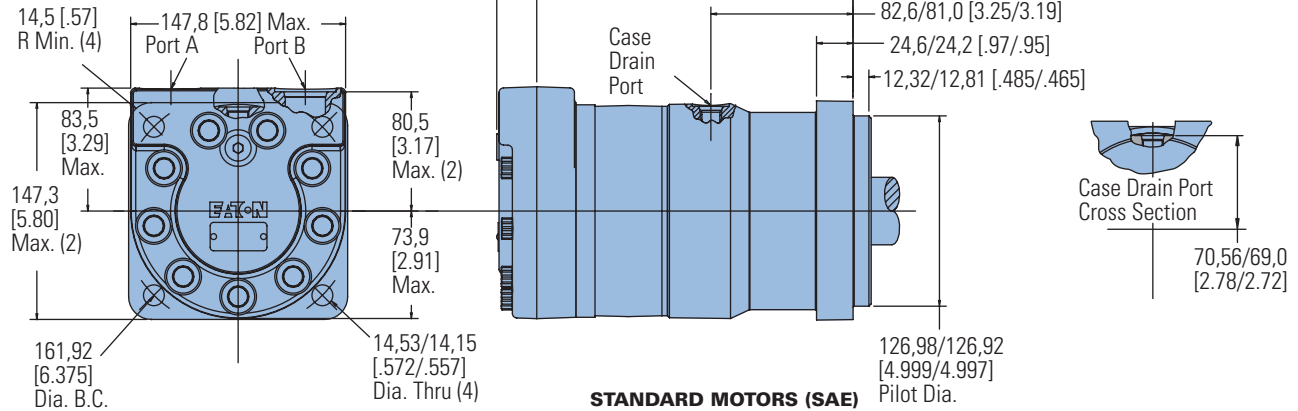
1–1/16-12 UN-2B SAE O-ring Ports (2)
9/16-18 UNF-2B SAE O-ring Case Drain Port (1)

Standard Rotation Viewed from Shaft End

Port A Pressurized — CW

Port B Pressurized — CCW

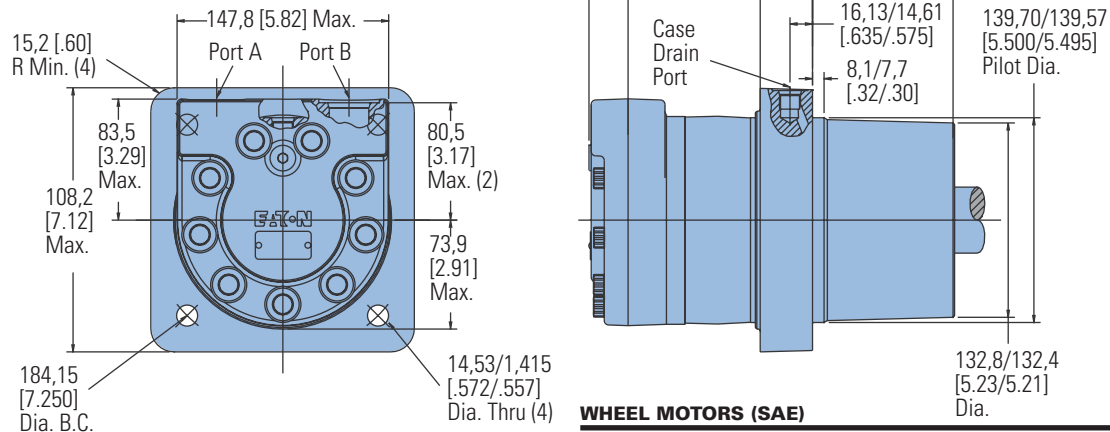
Standard Motors (SAE)



STANDARD MOTORS (SAE)

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]
325 [19.8]	223,5 [8.80]	195,3 [7.69]
400 [24.4]	230,4 [9.07]	201,9 [7.95]
505 [30.7]	239,3 [9.42]	211,1 [8.31]
570 [34.9]	245,4 [9.66]	217,2 [8.55]
630 [38.5]	250,7 [9.87]	222,5 [8.76]
685 [41.7]	255,3 [10.05]	227,1 [8.94]
785 [48.0]	264,7 [10.42]	236,2 [9.30]
940 [57.4]	278,4 [10.96]	249,9 [9.84]

Wheel Motors (SAE)



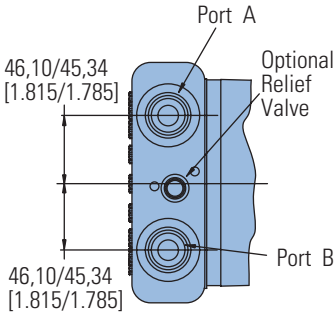
WHEEL MOTORS (SAE)

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]
325 [19.8]	138,7 [5.46]	110,5 [4.35]
400 [24.4]	145,5 [5.73]	117,1 [4.61]
505 [30.7]	154,4 [6.08]	126,2 [4.97]
570 [34.9]	160,5 [6.32]	132,3 [5.21]
630 [38.5]	165,9 [6.53]	137,7 [5.42]
685 [41.7]	170,4 [6.71]	142,2 [5.60]
785 [48.0]	179,8 [7.08]	151,4 [5.96]
940 [57.4]	193,5 [7.62]	165,1 [6.50]

VIS 40 Series

Dimensions

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

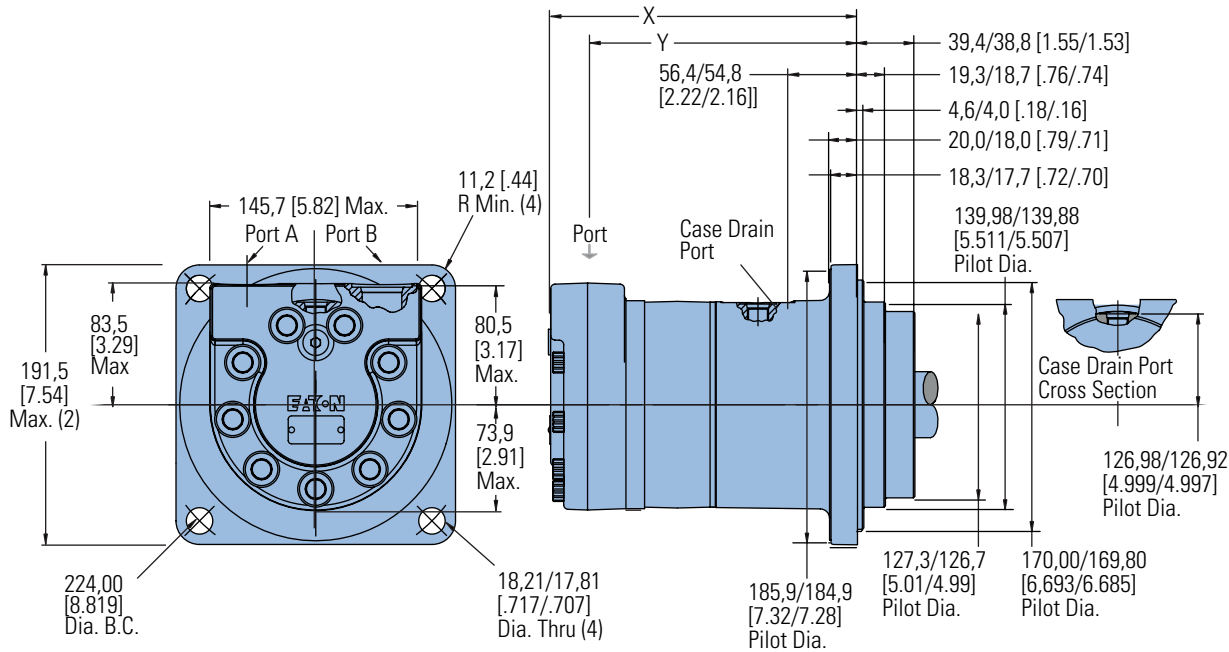


Ports

- 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



STANDARD MOTORS (OVERSIZE)

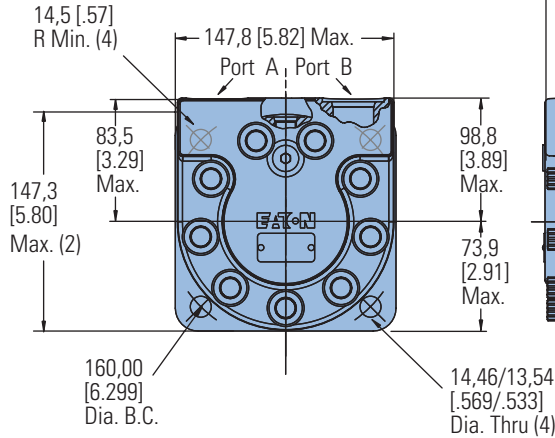
Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]
325 [19.8]	196,6 [7.74]	168,1 [6.62]
400 [24.4]	203,2 [8.00]	175,0 [6.89]
505 [30.7]	181,4 [8.36]	183,9 [7.24]
570 [34.9]	187,4 [8.60]	190,2 [7.49]
630 [38.5]	192,5 [8.81]	195,3 [7.69]
685 [41.7]	197,6 [8.99]	199,9 [7.87]
785 [48.0]	206,8 [9.35]	209,3 [8.24]
940 [57.4]	220,5 [9.89]	223,0 [8.78]

VIS 40 Series

Dimensions

Standard and Wheel Mount
– ISO

Standard Motors (ISO)



Ports

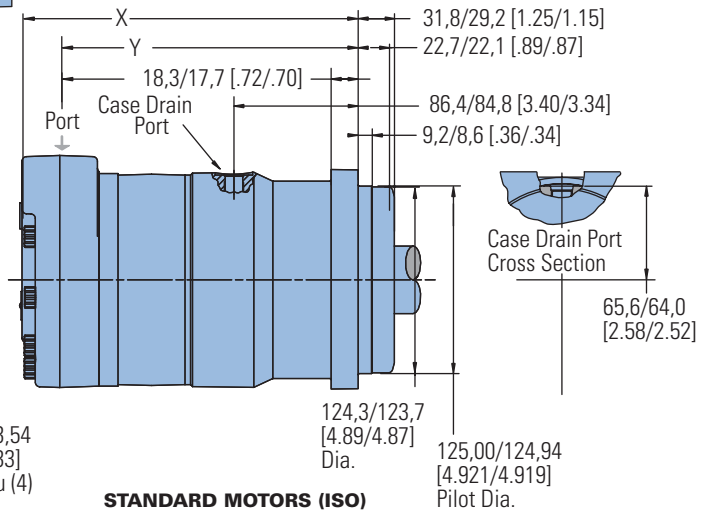
G 3/4 (BSP) O-ring Ports (2)

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

Standard Rotation Viewed from Shaft End

Port A Pressurized — CW

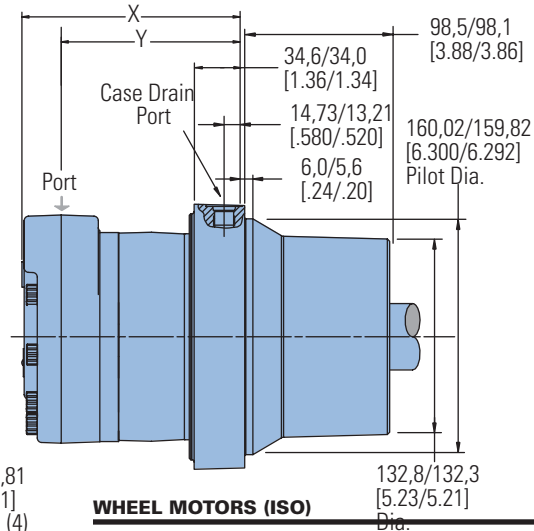
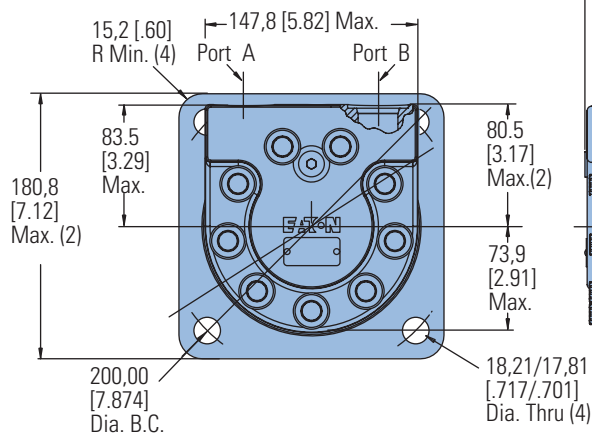
Port B Pressurized — CCW



STANDARD MOTORS (ISO)

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]
325 [19.8]	211,6 [8.33]	183,1 [7.21]
400 [24.4]	218,2 [8.59]	190,0 [7.48]
505 [30.7]	227,3 [8.95]	198,9 [7.83]
570 [34.9]	233,4 [9.19]	205,2 [8.08]
630 [38.5]	238,8 [9.40]	210,3 [8.28]
685 [41.7]	243,3 [9.58]	214,9 [8.46]
785 [48.0]	252,5 [9.94]	224,3 [8.83]
940 [57.4]	266,2 [10.48]	238,0 [9.37]

Wheel Motors (ISO)



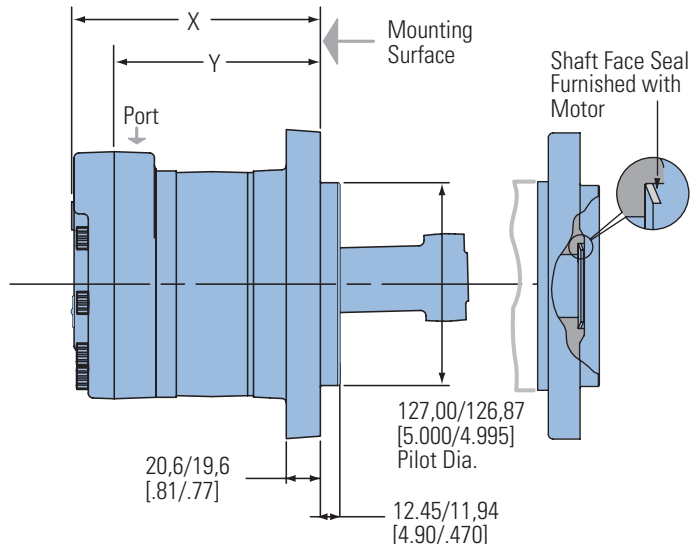
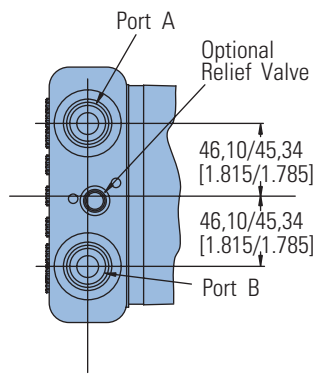
WHEEL MOTORS (ISO)

Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]
325 [19.8]	137,4 [5.41]	109,0 [4.29]
400 [24.4]	144,0 [5.67]	115,8 [4.56]
505 [30.7]	153,2 [6.03]	124,7 [4.91]
570 [34.9]	159,3 [6.27]	131,1 [5.16]
630 [38.5]	164,6 [6.48]	136,1 [5.36]
685 [41.7]	169,2 [6.66]	140,7 [5.54]
785 [48.0]	178,3 [7.02]	150,1 [5.91]
940 [57.4]	192,0 [7.56]	163,8 [6.45]

VIS 40 Series

Dimensions

Bearingless

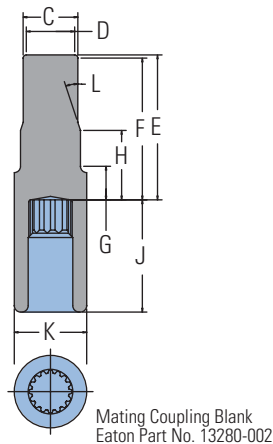


For VIS 40 bearingless motor application information, contact your Eaton representative (mating coupling blanks available from Eaton Hydraulics).

Note:

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

C	59,94	[2.36]	Dia.
D	49,00	[1.93]	Dia.
E	155,86	[6.14]	Max.
F	150,88	[5.94]	Min.
	Full Form Dia.		
G	26,92	[1.06]	
H	33,30	[1.21]	
J	106,43	[4.19]	
	Full Form Dia.		
K	72,64	[2.86]	
L	15		



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

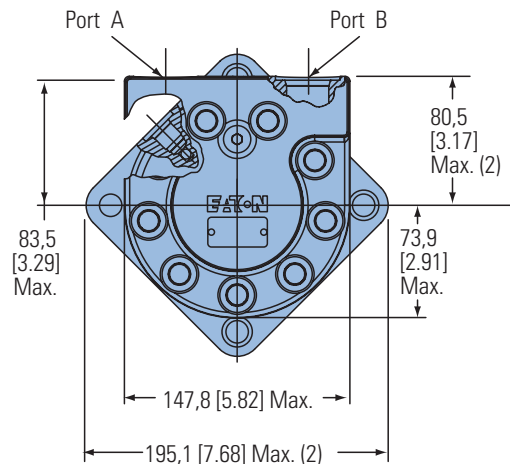
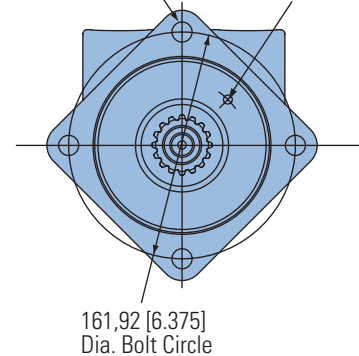
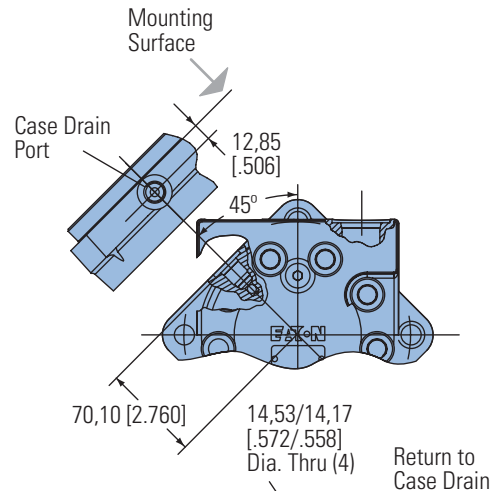
G 3/4 (BSP) O-ring Ports (2)

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

Standard Rotation Viewed from Drive End

Port A Pressurized — CW

Port B Pressurized — CCW



BEARINGLESS MOTORS

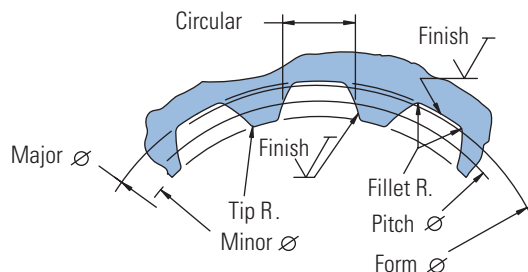
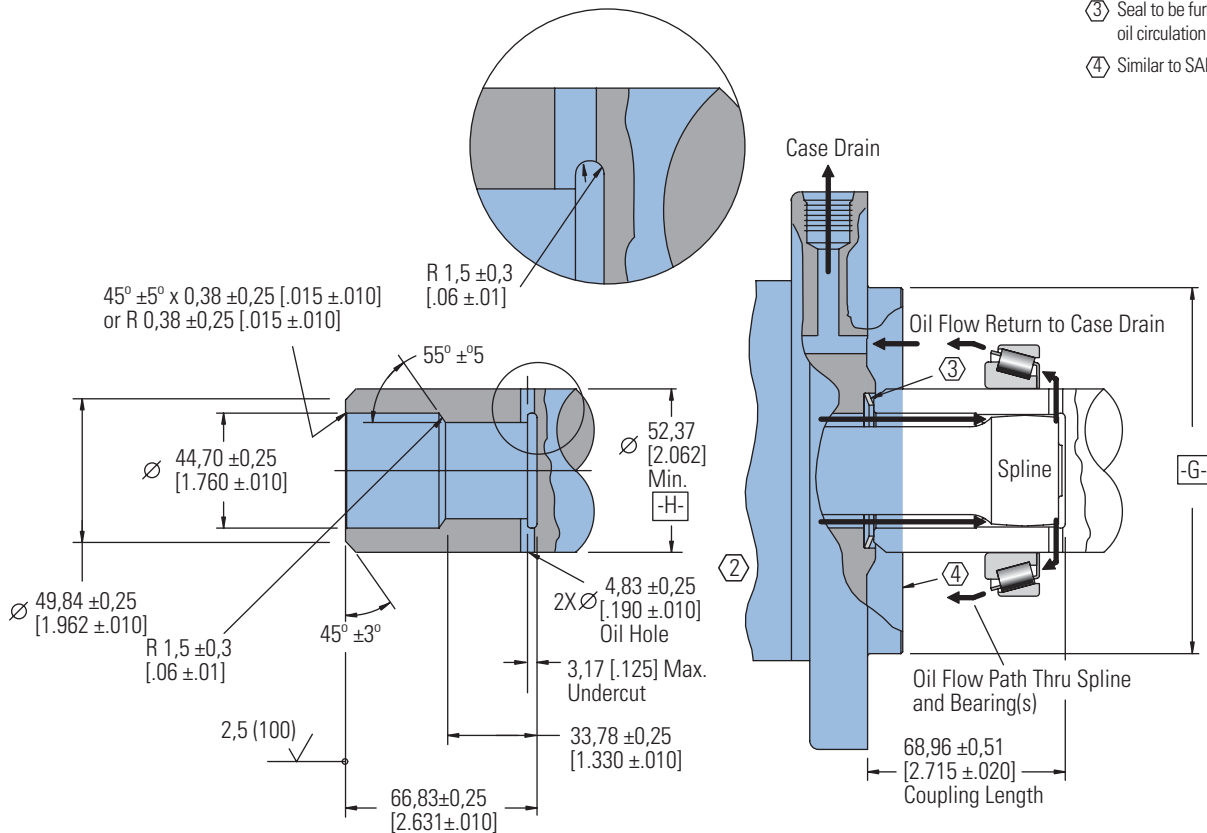
Displacement cm ³ /r [in ³ /r]	X mm [inch]	Y mm [inch]
325 [19.8]	141,2 [5.56]	113,3 [4.46]
400 [24.4]	148,1 [5.83]	120,1 [4.73]
505 [30.7]	157,2 [6.19]	129,0 [5.08]
570 [34.9]	163,3 [6.43]	135,1 [5.32]
630 [38.5]	168,4 [6.63]	140,5 [5.53]
685 [41.7]	173,2 [6.82]	145,3 [5.72]
785 [48.0]	182,2 [7.18]	154,4 [6.08]
940 [57.4]	196,1 [7.72]	168,1 [6.62]

VIS 40 Series

Installation Information

Bearingless

- 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 [.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 Similar to SAE "C" Four Bolt Flange.



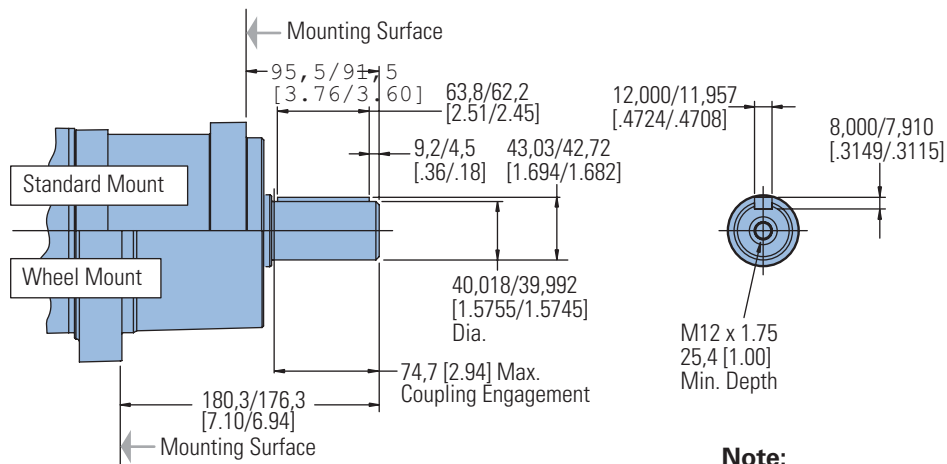
Spline Pitch.....	10/20
Pressure Angle.....	30°
Number of teeth.....	16
Class of Fit.....	Ref. 5
Type of Fit.....	Side
Pitch Diameter.....	Ref. 40,640000 [1.6000000] $\text{Ⓢ} \text{0,20} \text{ [.008] } \text{H}$
Base Diameter.....	Ref. 35,195272 [1.3856406]
Major Diameter.....	43,56 [1.715] Max. 43,18 [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 [.025 -.030]
Tip Radius.....	0,25 -0,51 [.010 -.020]
Finish.....	1,6 (63)
Involute Profile Variation.....	+0,000 -0,025 [+ .0000 -.0010]
Total Index Variation.....	0,040 [.0016]
Lead Variation.....	0,013 [.0005]
Circular Space Width:	
Maximum Actual.....	4,105 [.1616]
Minimum Effective.....	3,995 [.1573]
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]

VIS 40 Series

Dimensions Shafts

SAE

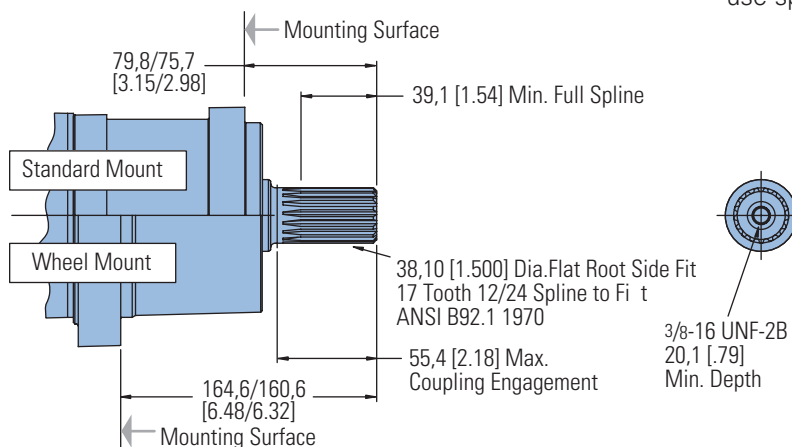
40 mm Straight



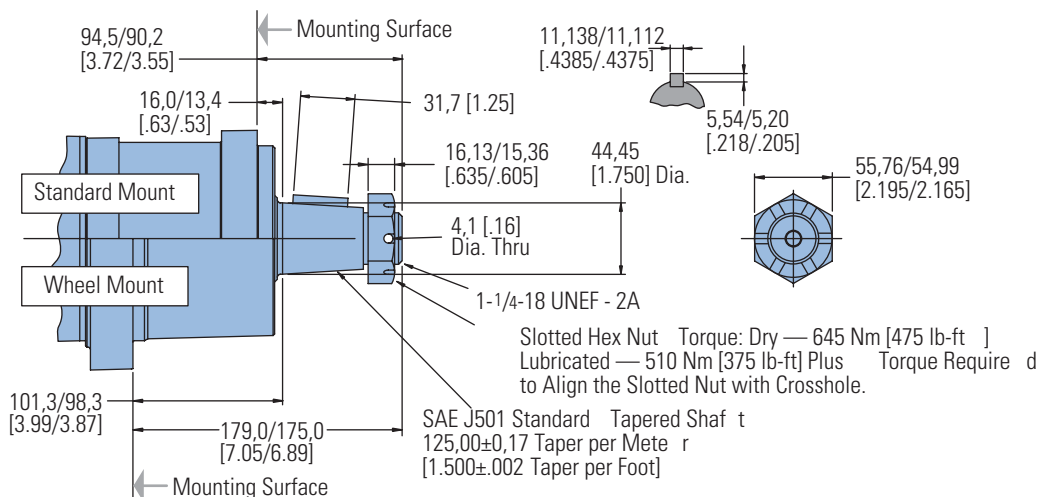
Note:

For motor torque ratings above 875 Nm [7750 lb - in] use split coupler.

1-1/2 Inch 17 Tooth Splined



1-3/4 Inch Tapered



VIS 40 Series

Side Load Capacity

SAE

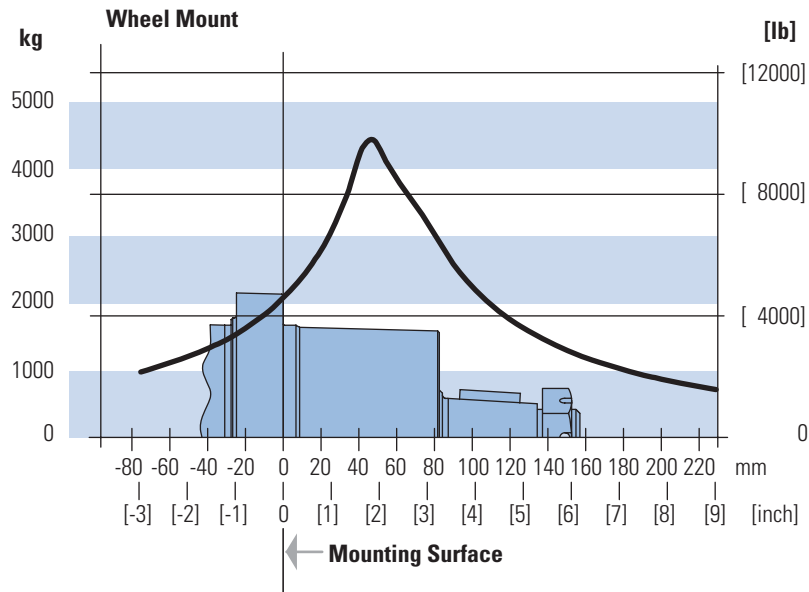
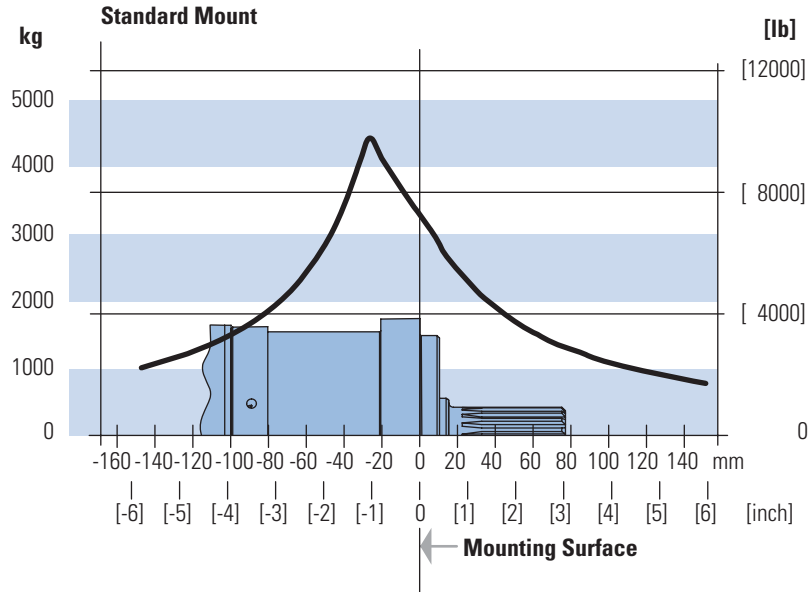
These curves indicate the radial load capacity on the motor shaft(s) at various locations.

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

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

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

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

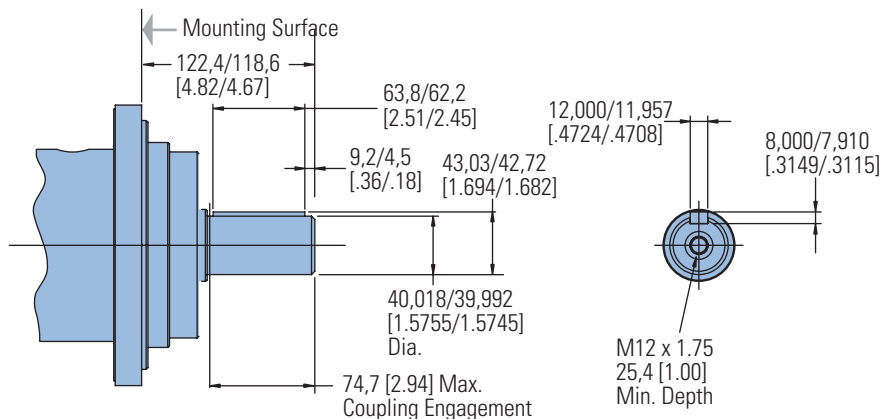


VIS 40 Series

Dimensions Shafts

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

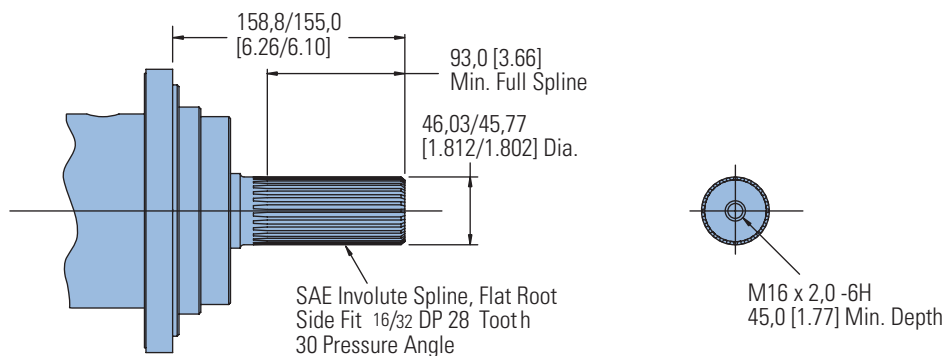
40 mm Straight



Note:

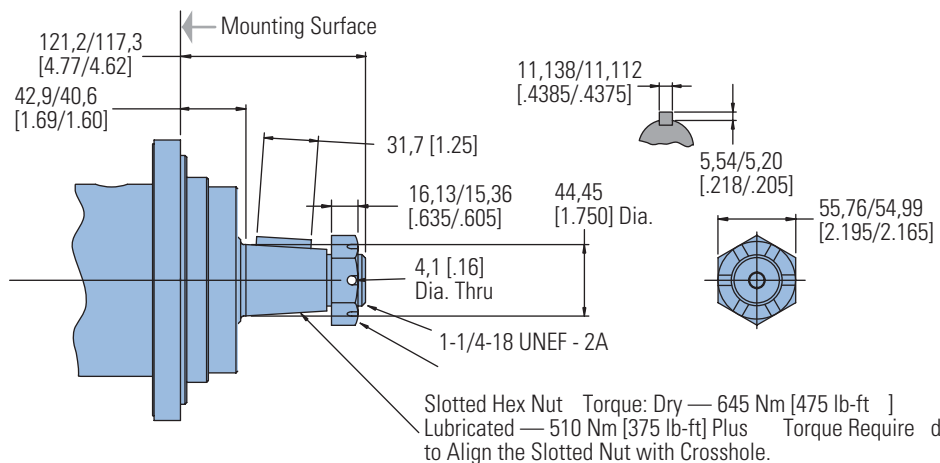
For motor torque ratings above 875 Nm [7750 lb - in] use split coupler.

46 mm 28 Tooth Splined



SAE Involute Spline, Flat Root
Side Fit 16/32 DP 28 Tooth
30 Pressure Angle

1-3/4 Inch Tapered



Slotted Hex Nut Torque: Dry — 645 Nm [475 lb-ft]
Lubricated — 510 Nm [375 lb-ft] Plus Torque Required to Align the Slotted Nut with Crosshole.

SAE J501 Standard Tapered Shaft
125,00±0,17 Taper per Meter
[1.500±.002 Taper per Foot]

VIS 40 Series

Side Load Capacity

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

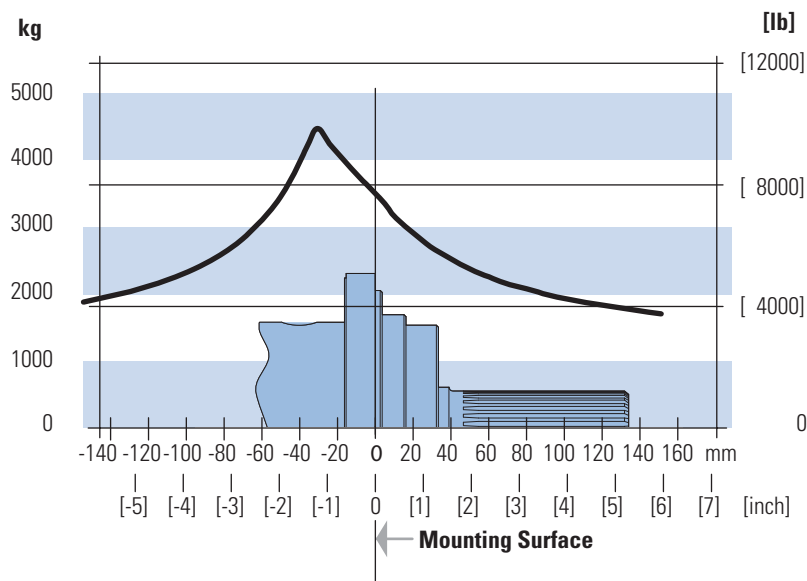
These curves indicate the radial load capacity on the motor shaft(s) at various locations.

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

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

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

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



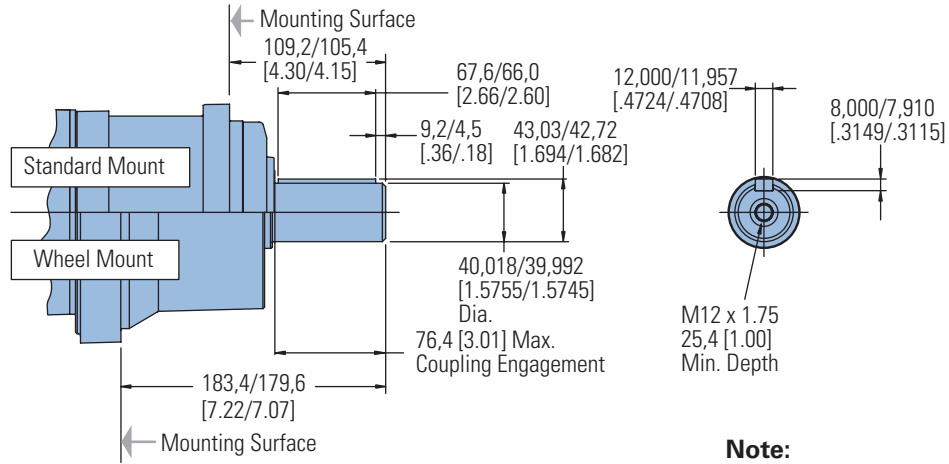
VIS 40 Series

Dimensions

Shafts

ISO

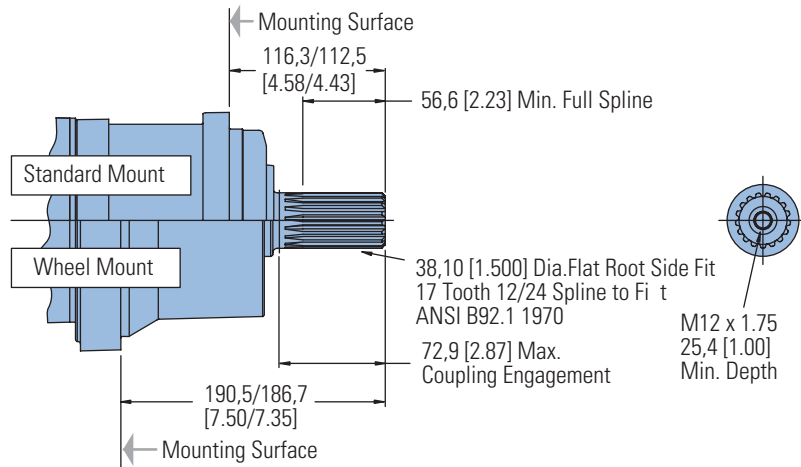
40 mm Straight



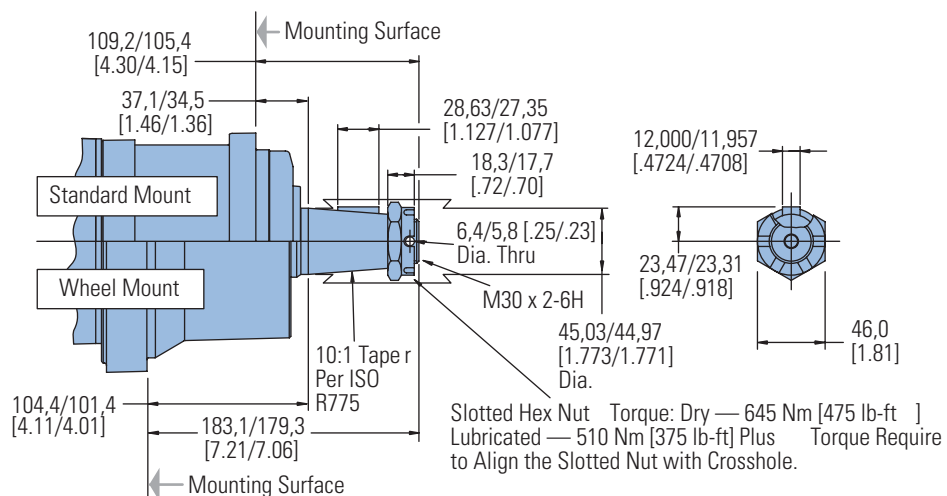
Note:

For motor torque ratings above 875 Nm [7750 lb - in] use split coupler.

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



45 mm Tapered



VIS 40 Series

Side Load Capacity

ISO

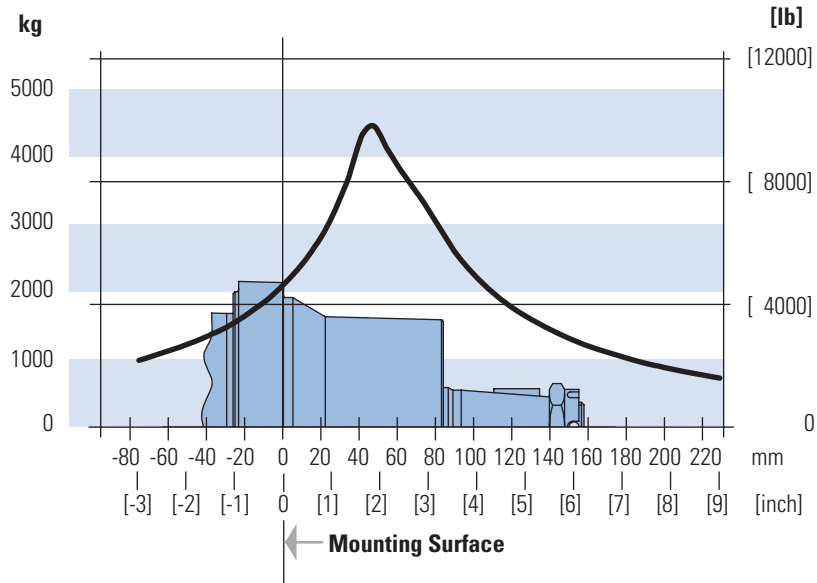
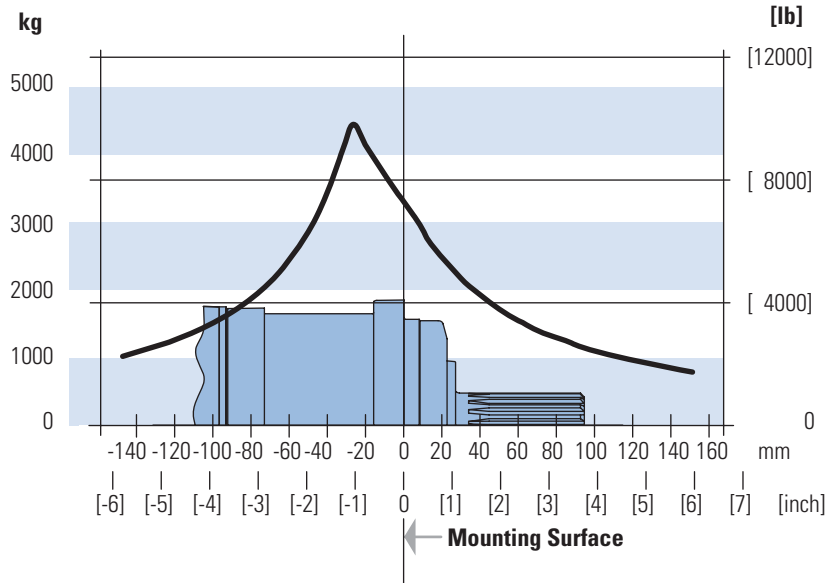
These curves indicate the radial load capacity on the motor shaft(s) at various locations.

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

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

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

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



VIS 40 Series

Product Numbers

Closed Loop

Use digit prefix —
168-, 177-, or 180- plus four
digit number from charts for
complete product number—
Example: 168-0018.

**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]	630 [38.5]	685 [41.7]	785 [48.0]	940 [57.4]
Standard	40 mm Straight	1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	177-0220	-0218	-0032	-0022	-0033	-0034	-0035	-0036
	1 1/2 inch 17 Tooth Splined	1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	177-0221	—	-0024	-0026	-0037	-0038	-0039	-0040
	1 3/4 inch Tapered	1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	—	—	-0041	-0042	-0043	-0044	-0045	-0046
Wheel	40 mm Straight	1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	—	—	-0007	-0008	-0009	-0010	-0011	-0012
	1 1/2 inch 17 Tooth Splined	1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	—	—	-0013	-0014	-0015	-0016	-0017	-0018
	1 3/4 inch Tapered	1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	—	180-0088	-0019	-0020	-0021	-0022	-0023	-0024
Bearingless		1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	—	—	-0015	-0016	-0017	-0018	-0019	-0020

168-0018

Oversize

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]	630 [38.5]	685 [41.7]	785 [48.0]	940 [57.4]
Standard	40 mm Straight	1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	—	—	177-0047	-0048	—	—	—	—
	46 mm 28 Tooth Splined	1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	—	—	177-0053	-0054	—	—	—	—
	1 3/4 inch Tapered	1 1/16 -12 UNF O-ring (2) 9/16 -18 UNC Drain Port (1)	—	—	177-0059	-0060	—	—	—	—

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]	630 [38.5]	685 [41.7]	785 [48.0]	940 [57.4]
Standard	40 mm Straight	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	—	—	-0065	-0066	-0067	-0068	-0069	-0070
	45 mm Tapered	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	177-0223	-0224	-0071	-0072	-0073	-0074	-0075	-0076
	1 1/2 inch 17 Tooth Splined	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	—	—	-0077	-0078	-0079	-0080	-0081	-0082
Wheel	40 mm Straight	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	—	—	-0025	-0026	-0027	-0028	-0029	-0030
	45 mm Tapered	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	—	—	-0031	-0032	-0033	-0034	-0035	-0036
	1 1/2 inch 17 Tooth Splined	G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	—	—	-0037	-0038	-0039	-0040	-0041	-0042
Bearingless		G 3/4 (BSP) (2) G 1/4 (BSP) Drain Port (1)	—	—	-0021	-0022	-0023	-0024	-0025	-0026

168-0024

Note:

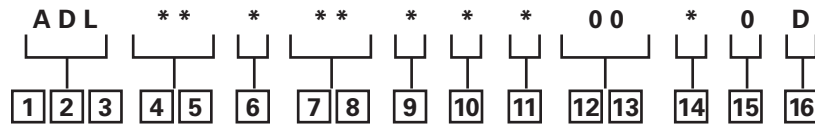
The product numbers on this page are for motors used in closed loop circuits. They include a back-pressure relief valve that is set at 4,5 bar [65 PSI].

- A case drain is required for all closed loop VIS motor applications.
- The maximum case pressure for the VIS motor is 3,5 bar [50 PSI].

VIS 40 Series

Model Code

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.



1, 2, 3 Product Series

ADL – VIS 40 Motor

4, 5 Displacement

cm³/r [in³/r]

- 20** – 325 [19.8]
- 24** – 400 [24.4]
- 31** – 505 [30.7]
- 35** – 570 [34.9]
- 38** – 630 [38.5]
- 42** – 685 [41.7]
- 48** – 785 [48.0]
- 57** – 940 [57.4]

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
160,00 [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)
- 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. 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
125,00 [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)

M – Standard, 4 Bolt: 169,75
[6.683] Pilot Dia. with 4,3
[.17] Pilot Length and M16
X 2 -6H Threaded Holes
on 224,00 [8.819] Dia. Bolt
Circle (To be selected for
Brake Option)

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 J 501
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 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 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)

9 Ports

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

B – G 3/4 (BSP) Straight
Thread Port

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 G 1/4
(BSP) Straight Thread Port
Case Drain

C – Check valve with
leakage orifice, no case
drain (for Open Loop only)

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)

4 – Set at 15,2 bar [300 PSI]
(for high charge Servo
Pumps)

12, 13 Special Features

00 – None

08 – Spring Applied
Hydraulic Release Wet Brake
with Brake Capacity of
20,000 lbf-in Static and 150
lbf/in² release pressure

14 Paint/ Special Packaging

0 – Primer, Individual Box

A – Low Gloss Black Primer,
Individual Box

B – No Paint, Bulk Box
Option

C – Low Gloss Black Primer,
Bulk Box Option

15 Eaton Assigned Code when Applicable

0 – Assigned Code

16 Eaton Assigned Design Code

D – Assigned Design Code