



BM1 series motor is a small volume, spool valve gerolor gearset, economical type motor.

CHARACTERISTIC FEATURES

- Compact design of spool and gear set, which provide small volume, high power and low weight.
- Credible design of our shaft seal, which can bear high pressure and be used in parallel or in series.
- Direction of shaft rotation and speed can be controlled easily and smoothly.
- Best combination of efficiency and economy in medium load applications.

Main Specification

Displacement (cc)		50	63	80	100	125	160	200	250	315	400
cu.in/rev		3.0	3.8	4.8	6.1	7.6	9.7	12.2	15.2	19.2	24.4
Flow (GPM)	Cont.	15	15	15	15	15	15	15	15	15	15
	Int.	20	20	20	20	20	20	20	20	20	20
Speed (RPM)	Cont.	1100	820	750	550	450	360	280	220	189	140
	Int.	1350	980	900	673	560	430	350	270	236	180
Pressure (PSI)	Cont.	2030	2030	2030	2030	2030	2030	2030	1595	1305	1015
	Int.	2537	2537	2537	2537	2537	2537	2537	2030	2030	1522
	Peak	3262	3262	3262	3262	3262	3262	3262	2610	2320	2030
Torque (in-lbs)	Cont.	734	919	1140	1423	1812	2166	2519	3182	3589	3845
	Int.	955	1193	1503	1874	2343	3014	3448	4022	4464	4694
	Peak	1014	1374	1630	1990	2681	3441	3967	4113	4885	4922

- Notes**
1. Continuous data: The Max. Value of operating motor continuously.
 2. Intermittent Data: The Max. Value of operating motor is 10 % per minute.
 3. A simultaneous max. RPM and max. pressure is not recommended.
 4. The Conversion Factors are on page 4.
 5. Optimum operating situation should be at the 1/3~2/3 of the continuous operation.

BM1-50 50cc

		ΔP (PSI)							
		435	870	1015	1160	1450	1595	1810	2390
Flow (GPM)	2	159 142	318 139	371 136	442 132	530 130	636 120	698 115	902 85
	4	168 293	327 288	380 286	424 279	539 278	645 267	734 258	928 232
	6	150 441	327 437	371 433	442 426	548 422	636 414	707 400	946 377
	8	133 589	318 583	371 575	442 571	557 565	619 560	716 551	955 521
	10	133 735	309 730	371 725	442 716	557 707	601 699	707 692	937 660
	12	124 886	301 876	354 871	424 864	548 857	619 848	707 838	946 805
	13	115 955	309 945	354 940	424 935	557 927	610 920	698 910	-

Torque 698 in-lbs
Speed 910 rpm

BM1-63 63cc

		ΔP (PSI)							
		435	870	1015	1160	1450	1595	1810	2390
Flow (GPM)	2	194 118	407 117	477 116	548 114	672 112	804 110	866 107	1114 68
	4	194 235	407 233	477 231	530 229	672 226	804 224	919 221	1167 187
	6	177 352	407 351	477 349	557 346	690 342	796 338	884 334	1185 299
	8	177 469	398 467	469 466	557 464	698 461	778 459	902 455	1193 413
	10	168 587	389 584	469 583	557 581	698 576	743 574	884 571	1176 523
	12	159 712	371 709	442 707	530 705	690 701	778 699	884 695	1185 639
	13	141 769	389 766	442 764	530 762	698 758	725 756	857 752	-

BM1-80 80cc

		ΔP (PSI)							
		435	870	1015	1160	1450	1595	1810	2390
Flow (GPM)	2	248 92	530 88	619 87	707 84	884 79	972 76	1132 71	1485 47
	4	248 186	539 183	619 180	707 176	884 171	1008 168	1132 161	1503 141
	6	239 279	530 276	619 273	707 270	884 266	990 261	1140 253	1503 233
	8	230 373	530 369	610 366	698 363	884 357	972 353	1132 348	1503 326
	10	221 467	513 461	592 459	681 454	884 449	972 444	1114 438	1503 416
	12	203 559	469 555	575 551	681 546	840 541	955 535	1096 529	1485 508
	14	177 653	486 644	575 642	663 639	840 635	928 628	1087 620	1485 593
	16	168 748	469 739	548 734	663 729	840 724	955 719	1078 714	1485 681
	20	141 833	415 828	530 823	619 818	796 816	919 812	1070 802	-

BM1-100 100cc

		ΔP (PSI)							
		435	870	1015	1160	1450	1595	1810	2390
Flow (GPM)	2	309 74	654 71	778 69	884 66	1114 61	1238 64	1414 53	1856 33
	4	309 151	654 146	751 145	884 142	1114 138	1238 134	1414 130	1874 111
	6	301 224	654 221	778 219	884 216	1105 215	1282 208	1423 202	1874 182
	8	292 298	628 297	751 296	840 293	1087 291	1220 286	1397 282	1874 261
	10	256 375	619 373	716 372	840 370	1061 364	1193 362	1370 357	1874 335
	12	265 449	583 447	707 446	822 443	1061 439	1176 436	1370 430	1839 409
	14	221 528	583 525	698 522	822 520	1043 514	1185 509	1344 504	1830 483
	16	194 605	575 600	663 594	822 592	1025 589	1167 582	1344 578	1830 553
	20	177 680	513 672	663 669	778 666	999 661	1140 659	1326 654	-

CONT. INT.



BM1-125 125cc

		ΔP (PSI)							
		435	870	1015	1160	1450	1595	1810	2390
2	Flow (GPM)	389	831	990	1132	1397	1591	1768	2325
		57	56	55	53	50	47	43	24
4	Flow (GPM)	389	840	981	1123	1414	1574	1812	2343
		119	117	116	115	111	109	106	86
6	Flow (GPM)	389	840	981	1123	1414	1574	1812	2343
		181	178	177	174	170	165	161	146
8	Flow (GPM)	354	813	955	1105	1379	1574	1750	2343
		238	237	235	232	227	222	220	208
10	Flow (GPM)	354	813	955	1105	1379	1574	1750	2343
		244	295	295	294	290	287	283	267
12	Flow (GPM)	327	751	902	1061	1344	1529	1715	2343
		358	355	354	352	348	344	342	325
14	Flow (GPM)	327	751	902	1061	1344	1529	1715	2343
		419	415	413	411	408	407	403	387
16	Flow (GPM)	283	734	866	1034	1308	1459	1688	2290
		480	474	472	469	465	463	458	440
20	Flow (GPM)	221	663	840	972	1255	1414	1635	-
		600	593	590	587	582	575	570	-

Torque 1635 in-lbs
Speed 570 rpm

BM1-160 160cc

		ΔP (PSI)							
		435	870	1015	1160	1450	1595	2030	2390
2	Flow (GPM)	495	1061	1264	1414	1768	1998	2166	2953
		44	44	43	42	40	38	36	23
4	Flow (GPM)	495	1061	1193	1414	1786	1998	2166	3014
		94	94	93	91	89	87	84	76
6	Flow (GPM)	495	1061	1193	1414	1786	1998	2166	3014
		136	134	133	132	131	129	129	118
8	Flow (GPM)	477	1043	1238	1414	1768	1989	2139	3006
		187	186	185	183	180	178	177	165
10	Flow (GPM)	477	1043	1238	1414	1768	1989	2139	3006
		231	230	229	228	225	224	222	212
12	Flow (GPM)	460	990	1193	1379	1750	1945	2104	2961
		280	278	277	276	273	271	267	258
14	Flow (GPM)	460	990	1193	1379	1750	1945	2104	2961
		326	325	323	321	318	316	314	305
16	Flow (GPM)	389	937	1149	1326	1697	1892	2033	2908
		371	369	368	367	365	363	360	350
20	Flow (GPM)	283	840	1061	1255	1618	1812	1954	-
		466	462	461	460	457	455	452	-

BM1-200 200cc

		ΔP (PSI)						
		435	870	1015	1160	1450	1595	2175
2	Flow (GPM)	663	1370	1574	1803	2254	2502	3403
		36	35	34	33	31	27	11
4	Flow (GPM)	636	1344	1591	1821	2290	2343	3448
		75	73	72	71	69	67	58
6	Flow (GPM)	628	1335	1574	1812	2254	2519	3448
		112	111	110	108	107	103	92
8	Flow (GPM)	619	1317	1547	1768	2245	2519	3430
		149	148	147	146	143	139	127
10	Flow (GPM)	601	1291	1520	1768	2210	2475	3386
		187	186	185	182	178	176	167
12	Flow (GPM)	557	1255	1503	1724	2192	2458	3377
		222	221	220	218	215	213	202
14	Flow (GPM)	513	1220	1467	1724	2139	2413	3342
		260	258	256	255	252	250	238
16	Flow (GPM)	495	1193	1459	1680	2122	2387	3315
		298	297	296	295	292	289	279
20	Flow (GPM)	371	1078	1326	1574	1998	-	-
		373	368	367	365	362	-	-

BM1-250 250cc

		ΔP (PSI)						
		435	870	1015	1160	1450	1595	2030
2	Flow (GPM)	831	1724	1989	2290	2882	3156	-
		28	27	26	26	24	23	-
4	Flow (GPM)	796	1706	1989	2298	2882	3182	4022
		61	60	59	58	56	53	48
6	Flow (GPM)	787	1688	1989	2281	2829	3138	4022
		89	89	87	86	84	83	74
8	Flow (GPM)	743	1662	1945	2210	2829	3129	3996
		119	118	118	117	115	113	104
10	Flow (GPM)	725	1627	1927	2228	2793	3094	3960
		146	145	143	142	137	135	130
12	Flow (GPM)	698	1582	1901	2175	2740	3050	3907
		181	180	179	178	176	174	165
14	Flow (GPM)	654	1538	1856	2148	2705	2988	3872
		211	208	207	206	203	202	195
16	Flow (GPM)	619	1512	1821	2113	2652	2970	3819
		238	237	237	236	232	230	224
20	Flow (GPM)	486	1370	1680	1954	2475	2758	-
		300	298	298	297	295	294	-

CONT. INT.

All the datas were tested at 50°C with anti-wear hydraulic oil.
Actual data may vary slightly from different unit in production.

BM1-315

315cc

		ΔP (PSI)					
		435	870	1015	1160	1450	1810
Flow (GPM)	2	1017 24	2157 23	2493 21	2758 16	3430 12	-
	4	1025 46	2148 46	2511 45	2864 43	3589 40	4447 20
	6	1008 70	2139 70	2493 69	2873 65	3580 64	4464 50
	8	964 94	2104 94	2440 93	2829 91	3536 89	4420 77
	10	928 118	2051 117	2413 116	2776 114	3518 111	4402 101
	12	884 141	1989 141	2369 139	2740 137	3448 136	4332 126
	14	813 165	1927 164	2316 163	2705 162	3395 159	4296 148
	16	787 190	1901 189	2281 188	2652 186	3342 182	4226 172
	20	610 238	1724 237	2086 235	2458 234	3138 230	-

BM1-400

400cc

		ΔP (PSI)					
		435	870	1015	1160	1230	1810
Flow (GPM)	2	1299 18	2696 17	3138 16	-	-	-
	4	1299 38	2723 37	3174 35	3589 33	3845 32	4694 26
	6	1273 56	2696 56	3165 53	3607 51	3845 49	4508 42
	8	1211 74	2652 74	3112 73	3536 71	3828 69	4668 64
	10	1193 92	2599 92	3050 91	3492 89	3757 88	4641 79
	12	1149 111	2528 111	2997 109	3448 107	3713 106	4553 101
	14	1034 131	2458 131	2917 129	3377 127	3624 126	4447 120
	16	990 149	2422 149	2882 148	3342 147	3554 146	4420 139
	20	778 187	2175 187	2634 186	3094 184	3324 182	-

Quick reference for BM1

Shaft 1" straight C/W Woodruff Key

FLANGE	PORT SIZE	VOLUMETRIC DISPLACEMENT						PART NUMBER			
		CM ³ /REV.	50	80	100	125	160	200	250	315	400
		PO ³ /REV.	3.05	4.9	6.1	7.6	9.7	12.2	15.2	19.2	24.4
2 BOLT FLANGE	7/8-14 O-Ring		313-0400	-0402	-0403	-0409	-0404	-0405	-0406	-0408	-0407
	1/2 NPT		313-0390	-0392	-0393	-0399	-0394	-0395	-0396	-0398	-0397
4 BOLT FLANGE	7/8-14 O-Ring		313-0500	-0502	-0503	-0509	-0504	-0505	-0506	-0508	-0507
	1/2 NPT		313-0420	-0422	-0423	-0429	-0424	-0425	-0426	-0428	-0427
4 BOLT FLANGE C/W SIDE LOAD BEARING	7/8-14 O-Ring		317-0500	-0502	-0503	-0509	-0504	-0505	-0506	-0508	-0507
	-		-	-	-	-	-	-	-	-	-

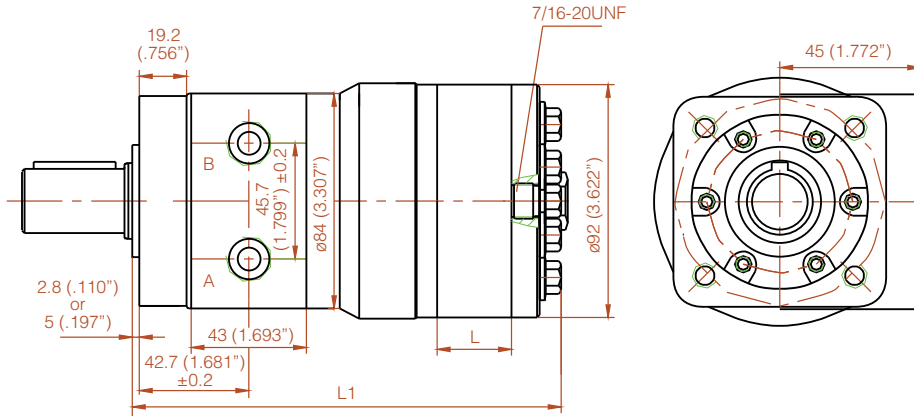
Other shafts & mountings available upon request

Quick interchange for BM1

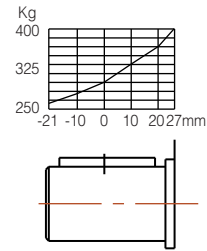
Shaft 1" straight - 1/2 NPT Port Size

		VOLUMETRIC DISPLACEMENT						PART NUMBER			
		CM ³ /REV.	50	80	100	125	160	200	250	315	400
		PO ³ /REV.	3.05	4.9	6.1	7.6	9.7	12.2	15.2	19.2	24.4
CUSTOM PART NO	2 BOLT		313-0390	313-0392	313-0393	313-0399	313-0394	313-0395	313-0396	313-0398	313-0397
	4 BOLT		313-0420	313-0422	313-0423	313-0429	313-0424	313-0425	313-0426	313-0428	313-0427
CHAR-LYNN H/101 SERIE	2 BOLT		101-1025	101-1026	101-1027	101-1706	101-1028	101-1029	101-1030	101-1031	101-1032
	4 BOLT		101-1001	101-1002	101-1003	-	101-1004	101-1005	101-1006	101-1007	101-1008
DANFOSS DH SERIE	2 BOLT		151-2081	151-2082	151-2083	151-2084	151-2085	151-2086	151-2087	151-2088	151-2089
	4 BOLT		151-2121	151-2122	151-2123	151-2124	151-2125	151-2126	151-2127	151-2128	151-2129

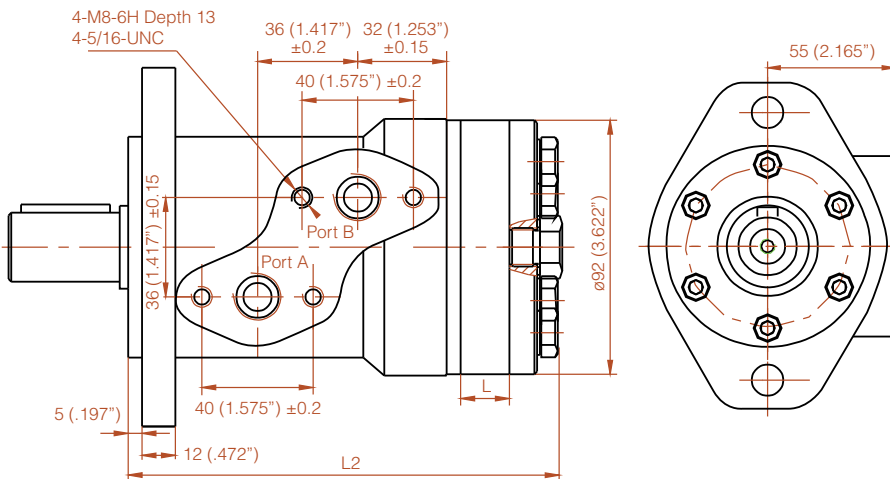
H Type



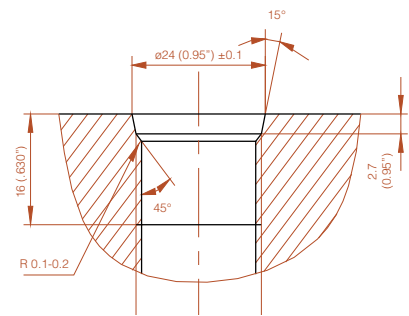
Shaft Load Capacity
 Radial Load: 400Kg Max.
 Axis Load: 200Kg Max.



S Type



Oil Port

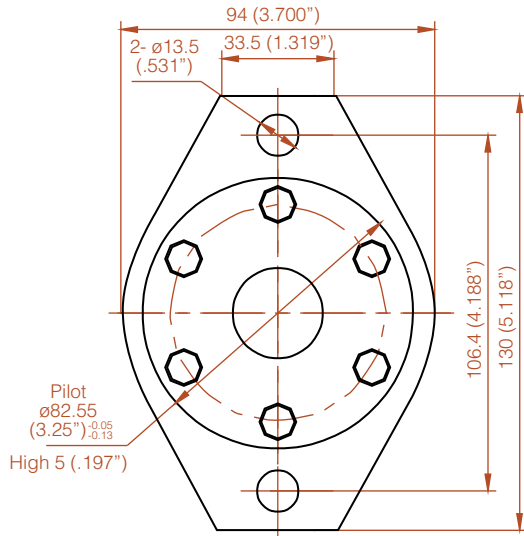


C: 7/8-14UNF-2B

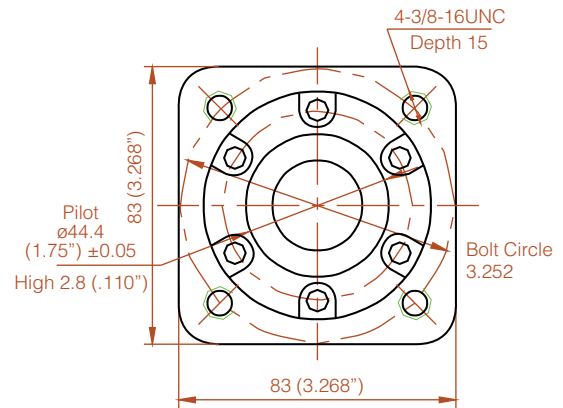
Displacement	50	63	80	100	125	160	200	250	315	400										
L	9	0.354	11.3	0.445	14.5	0.571	17.8	0.701	23	0.906	29	1.142	37	1.457	46	1.811	57	2.244	72	2.835
L1	143	5.630	146	5.748	147.5	5.807	151	5.945	156	6.142	162	6.378	170	6.693	179.5	7.067	190.5	7.500	205	8.071
L2	148	5.827	151	5.945	152.5	6.004	156	6.142	161	6.339	167	6.575	175	6.890	184.5	7.264	195.5	7.697	210	8.268

Other configuration and/or mounting types are available upon request.

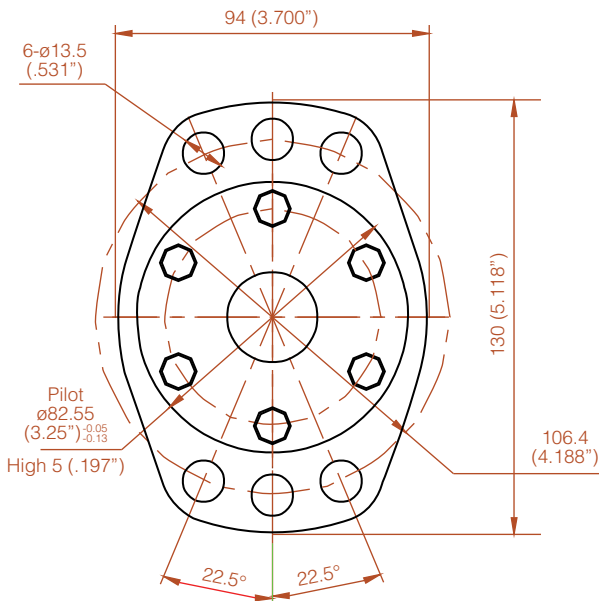
Flange A



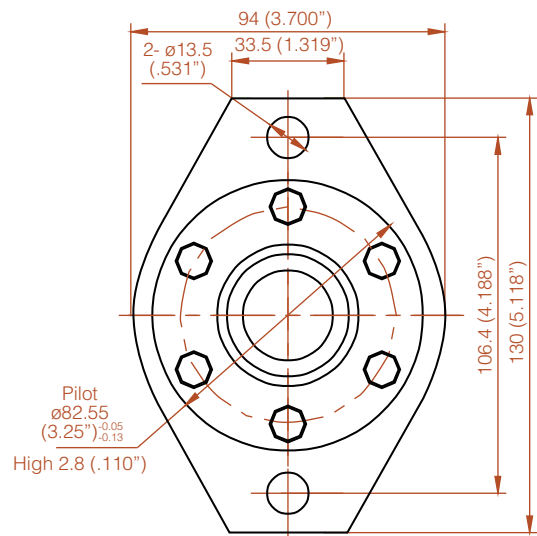
Flange B



Flange C

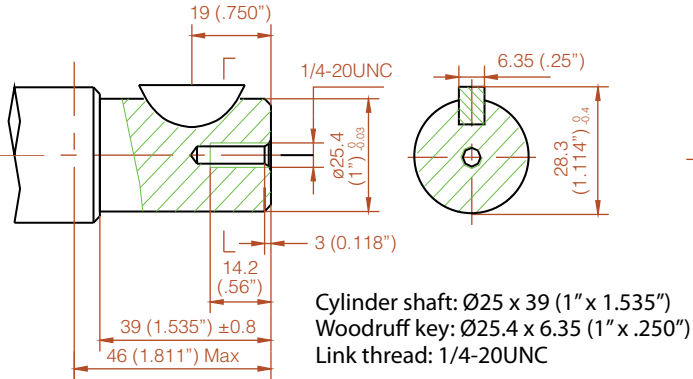


Flange H

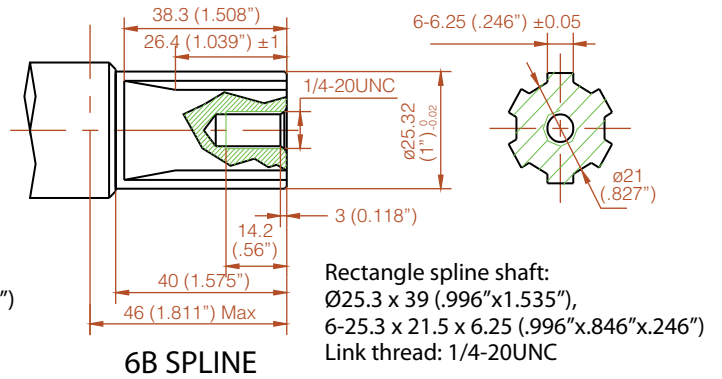


Same as A flange, good for installing with gearbox, pilot is thinner

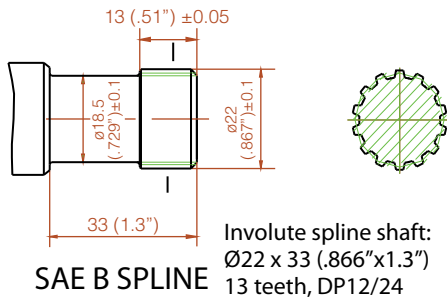
Shaft A



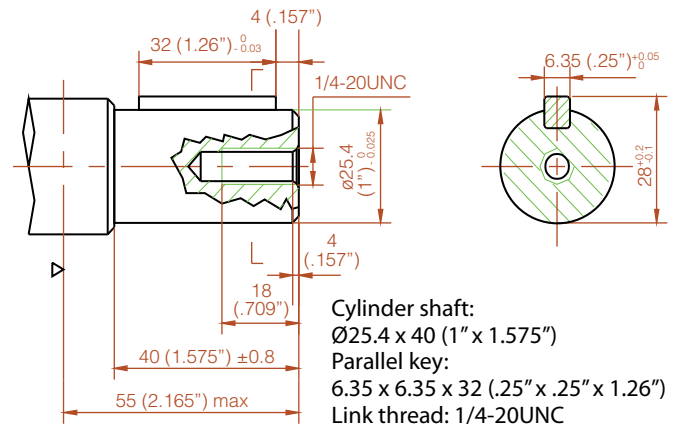
Shaft C



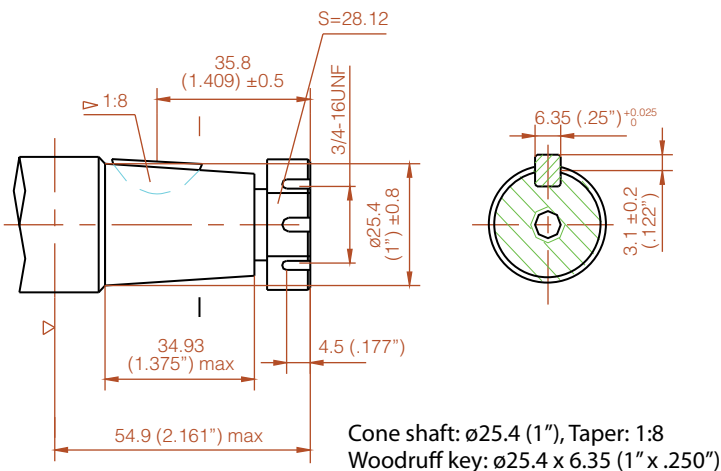
Shaft D



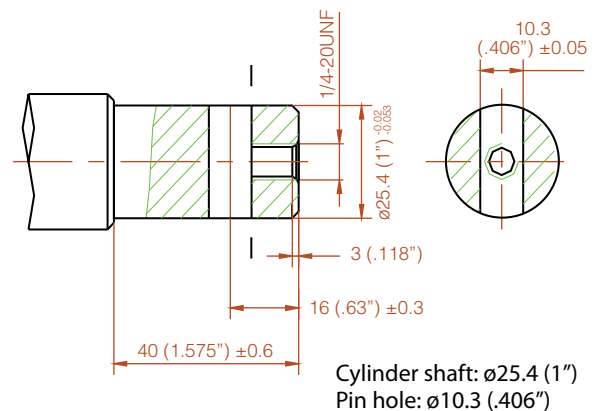
Shaft E



Shaft I



Shaft J



BM1 Code number & Order information

Choose an option for each category

BM1

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Figuration

H - Parallel Port **S** - S-Port

Displacement (cc)

A - 50 **B** - 63 **C** - 80 **D** - 100 **E** - 125
F - 160 **G** - 200 **H** - 250 **I** - 315 **J** - 400

Flange & Pilot (mm)

A - Rhombus flange, 2- ϕ 13.5 (.531") bolt center space 106.4 (4.188"), pilot ϕ 82.5x5 (3.25"x.197")
B - Square flange 83x83 (3.268"x3.268"), 4-3/8-16UNC bolt distributing circle ϕ 82.55 (3.25"), pilot ϕ 44.4x2.8 (1.748"x.110")
C - 6 bolt Rhombus flange, 6- ϕ 13.5 (.531") bolt distributing circle ϕ 106.4 (4.188"), pilot ϕ 82.5x5 (3.25"x.197")
H - Rhombus flange, 2- ϕ 13.5 (.531") bolt center space 106.4 (4.188"), pilot ϕ 82.5x2.8 (3.25"x.110")

Shaft & Key (mm)

A - Cylinder shaft; ϕ 25.4x39 (1"x1.535"), Woodruff key: ϕ 25.4x6.35 (1"x.25"), Link thread :1/4-20UNC
C - Rectangle spline shaft: ϕ 25.3x39 (1"x1.535"), 6-25.3x21.5x6.25 (1"x.846"x.246"), Link thread :1/4-20UNC
D - Involute spline shaft: ϕ 22x33 (.875"x1.299"), 13 teeth, DP16/32
E - Cylinder shaft; ϕ 25.4x40 (1"x1.575"), Parallel key: 6.35x6.35x32 (.25"x.25"x1.260"), Link thread :1/4-20UNC
I - Cone shaft: ϕ 25.4 (1"), Taper:1:8, Woodruff key: ϕ 25.4x6.35 (1"x.250")
J - Cylinder shaft; ϕ 25.4 (1"), Pin hole: ϕ 10.3 (.406")

Oil Port

C - 2-7/8-14UNF SAE **D** - 2-1/2-14NPTF

Link Thread on Port Surface

A - None **C** - 4-5/16-UNC

Drain Port

A - None **C** - 7/16-20UNF

Special

A - Standard
B - Add 2 radial bearing

Order example: BM1HACCDCCB

Other configuration and/or mounting types are available upon request.