Hydrostatic Pump Repair

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

Powering Business Worldwide

Spool Valve Motors

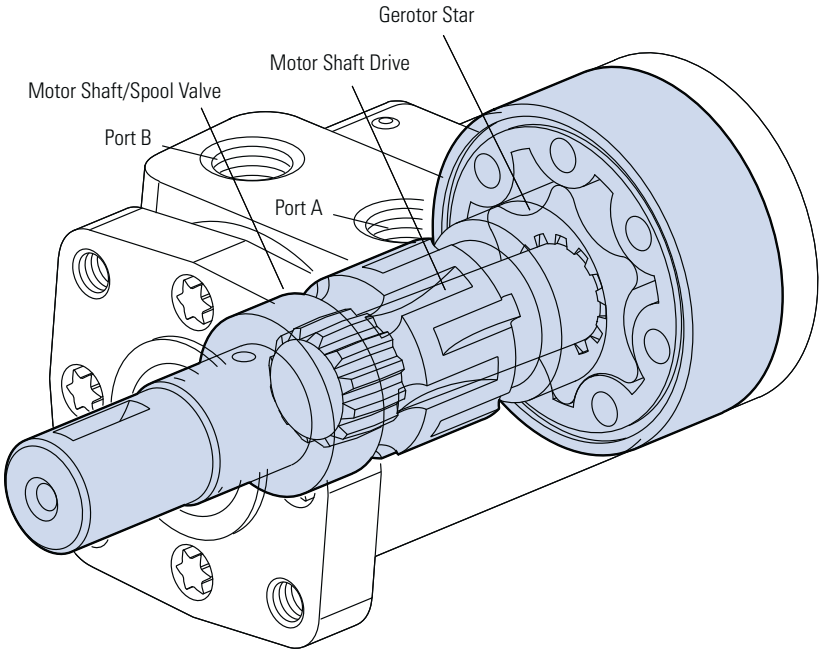
Highlights

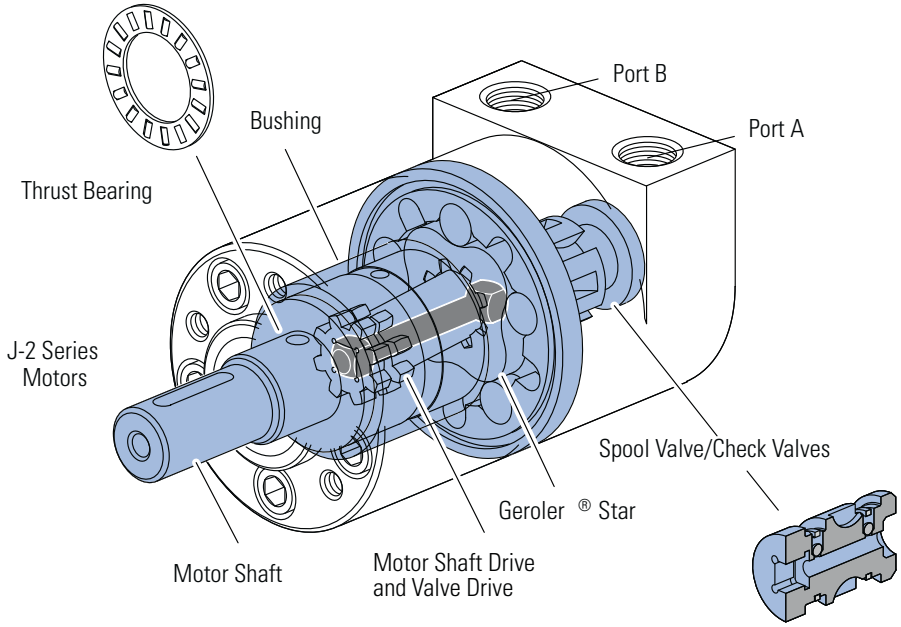
Product Description

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

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

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





Features, Benefits, and Applications

Features

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

Benefits

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

Applications

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

Design Features

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

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

MOTOR QUICK-GUIDE (BASED ON MAXIMUM CONTINUOUS RATINGS)

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

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

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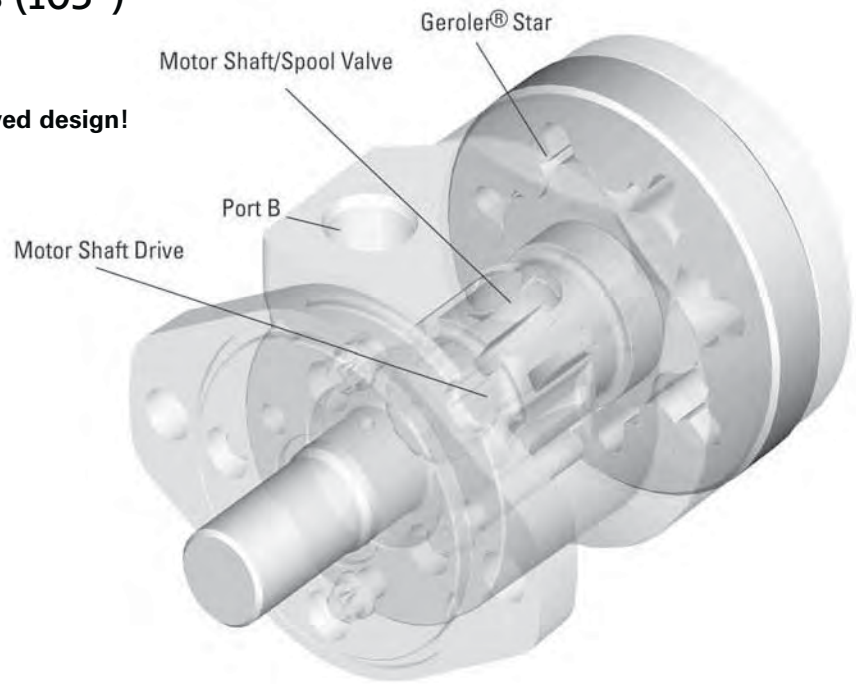
S Series (103-)

Highlights

New, improved design!



Description

The new improved Char-Lynn S Series motors with optimized Geroler geometry offers enhanced performance with reduced drive-running angle while retaining the overall package size of the original S series. Design improvements include upgraded steel end cap, O-Ring section seals, and optimized Geroler set. The Geroler set has precision-machined rollers in the outer ring which provide support with rolling contact between the star and ring. This improves mechanical efficiency, especially at start-up and at low speed conditions. Improvements incorporated into the latest S Series motor provide reliable leak-free performance and smooth operation at start-up conditions.

Specifications

Geroler Element	10 Displacements
Flow l/min [GPM]	55 [15] Continuous***
	75 [20] Intermittent**
Speed	Up to 963 RPM
Pressure bar [PSI]	135 [2000] Cont.***
	170 [2500] Inter.**
Torque Nm [lb-in]	528 [4672] Cont.***
	587 [5190] Inter.**

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

Features:

- Constant clearance Geroler, design
- Three moving components (gerotor, drive, shaft)
- Optimized drive running angle
- Three-zone pressure design (inlet, return and case)
- Variety of displacements, shafts and mounts
- Special options to meet customer needs!

Benefits:

- High efficiency
- Smooth low speed operation!
- Extended motor life
- Design flexibility
- Ability to optimize designs for your application needs
- Extended leak-free performance

Applications:

- Agricultural augers, harvesters, seeders
- Car wash brushes
- Food processing
- Railroad maintenance equipment
- Machine tools
- Conveyors
- Industrial sweepers and floor polishers
- Saw mill works
- Turf equipment
- Concrete and asphalt equipment
- Skid steer attachments
- Many more


Conveyor

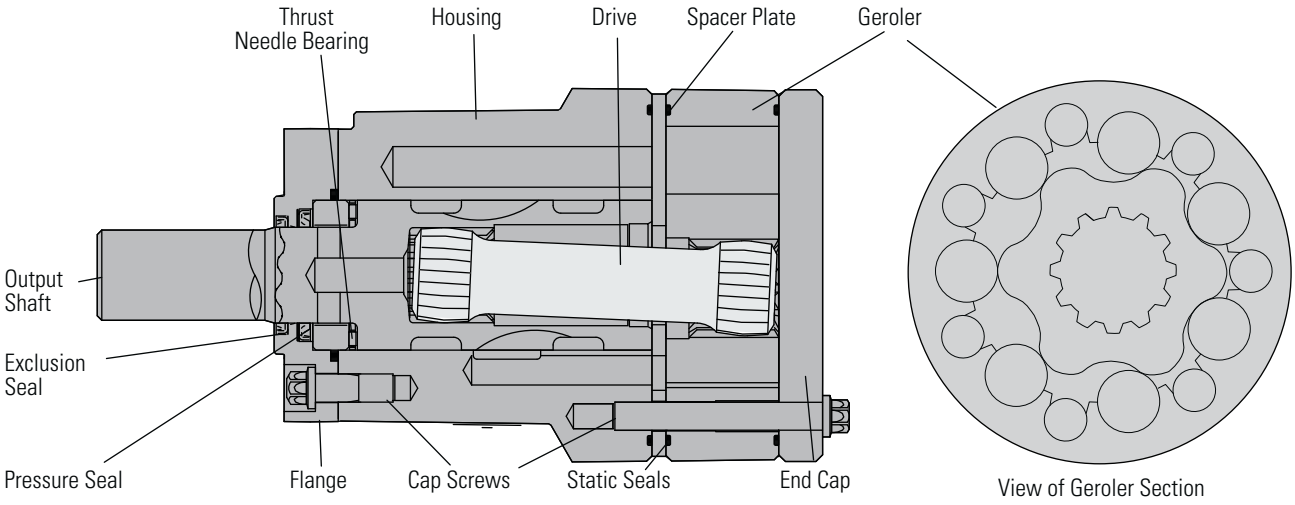

Casting


Amusement ride


Combine

S Series (103-)

Specifications



SPECIFICATION DATA — S MOTORS

Displ. cm^3/r [in^3/r]		59 [3.6]	75 [4.6]	97 [5.7]	120 [7.3]	144 [8.8]	166 [10.1]	187 [11.4]	225 [13.7]	298 [18.2]	372 [22.7]
Max. Speed (RPM)	@ Continuous Flow	963	792	607	472	394	343	304	253	190	153
Flow LPM [GPM]	Continuous	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]	57 [15]
	Intermittent	68 [18]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]	76 [20]
Torque Nm [lb-in]	Continuous	115 [1021]	150 [1325]	183 [1623]	237 [2010]	265 [2347]	301 [2662]	333 [2950]	372 [3290]	491 [4345]	528 [4672]
	Intermittent	144 [1271]	186 [1649]	225 [1992]	292 [2582]	324 [2870]	360 [3191]	399 [3533]	434 [3843]	505 [4467]	587 [5200]
Min. Starting Torque Nm[lb-in]	@ Cont. Pressure	90 [800]	113 [1000]	148 [1310]	184 [1630]	212 [2050]	232 [2330]	263 [2670]	302 [2990]	338 [3270]	369 [3270]
	@ Int. Pressure	116 [1030]	146 [1290]	190 [1680]	236 [2090]	271 [2400]	289 [2560]	329 [2910]	374 [3310]	417 [3690]	438 [3880]
Pressure Δ Bar [Δ PSI]	Continuous	138 [2000]	138 [2000]	138 [2000]	138 [2000]	131 [1900]	131 [1900]	128 [1850]	117 [1700]	103 [1500]	90 [1300]
	Intermittent	172 [2500]	172 [2500]	172 [2500]	172 [2500]	162 [2350]	159 [2300]	155 [2250]	141 [2050]	124 [1800]	103 [1500]

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:

172 Bar [2500 PSI] without regard to Δ Bar [Δ PSI] and/or back pressure ratings or combination thereof.

6B Splined or Tapered shafts are recommended whenever operating above 282 NM [2500 lb-in] of torque, especially for those applications subject to frequent reversals.

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

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, level 20/18/13

S Series (103-)

Performance Data

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 light shaded area.

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

Continuous

Intermittent

S Motor 59 cm³/r [3.6 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1600] **110**	[1800] **124**	[2000] **138**	[2500] **172**
[2]	86	190	292	390	484	578	662	729	764	803	
	10	*22*	*33*	*44*	*55*	*65*	*75*	*82*	*86*	*91*	
7,6	**126**	**121**	**115**	**107**	**97**	**85**	**75**	**63**	**45**	**24**	
[4]	79	185	289	395	498	600	702	804	903	998	1156
	9	*21*	*33*	*45*	*56*	*68*	*79*	*91*	*102*	*113*	*131*
15,1	**256**	**250**	**243**	**235**	**224**	**212**	**199**	**183**	**166**	**147**	**89**
[6]	71	177	280	387	495	602	704	808	909	1011	1257
	8	*20*	*32*	*44*	*56*	*68*	*80*	*91*	*103*	*114*	*142*
22,7	**383**	**377**	**369**	**360**	**349**	**336**	**320**	**302**	**284**	**266**	**207**
[8]	62	166	274	379	488	594	699	806	907	1007	1264
	7	*19*	*31*	*43*	*55*	*67*	*79*	*91*	*102*	*114*	*143*
30,3	**514**	**508**	**500**	**490**	**477**	**464**	**448**	**430**	**409**	**390**	**333**
[10]	52	155	264	369	475	583	686	793	897	1000	1257
	6	*17*	*30*	*42*	*54*	*66*	*78*	*90*	*101*	*113*	*142*
37,9	**642**	**635**	**628**	**617**	**605**	**591**	**575**	**557**	**538**	**517**	**461**
[12]	38	141	248	354	462	568	674	777	884	987	1244
	4	*16*	*28*	*40*	*52*	*64*	*76*	*88*	*100*	*111*	*141*
45,4	**772**	**764**	**757**	**747**	**736**	**722**	**706**	**687**	**670**	**648**	**592**
[14]	21	125	231	337	445	551	658	763	868	972	1233
	2	*14*	*26*	*38*	*50*	*62*	*74*	*86*	*98*	*110*	*139*
53,0	**900**	**893**	**885**	**876**	**866**	**852**	**836**	**819**	**798**	**778**	**721**
[15]	8	116	223	328	434	543	648	756	862	965	1225
	1	*13*	*25*	*37*	*49*	*61*	*73*	*85*	*97*	*109*	*138*
56,8	**482**	**958**	**949**	**940**	**929**	**915**	**900**	**882**	**863**	**842**	**784**
[18]		86	191	296	403	511	617	726	831	935	1195
		10	*22*	*33*	*46*	*58*	*70*	*82*	*94*	*106*	*135*
68,1		**1151**	**1139**	**1128**	**1117**	**1105**	**1090**	**1074**	**1054**	**1033**	**977**

S Motor 75 cm³/r [4.6 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1600] **110**	[1800] **124**	[2000] **138**	[2500] **172**
[2]	91	218	343	467	590	708	815	900	981	1086	
	10	*25*	*39*	*53*	*67*	*80*	*92*	*102*	*111*	*123*	
7,6	**93**	**89**	**81**	**75**	**66**	**59**	**43**	**21**	**23**	**16**	
[4]	87	217	352	484	616	748	874	1001	1123	1236	1472
	10	*25*	*40*	*55*	*70*	*85*	*99*	*113*	*127*	*140*	*166*
15,1	**193**	**188**	**181**	**173**	**163**	**150**	**139**	**125**	**107**	**89**	**37**
[6]	82	219	355	492	627	763	898	1027	1155	1284	1590
	9	*25*	*40*	*56*	*71*	*86*	*101*	*116*	*131*	*145*	*180*
22,7	**292**	**286**	**277**	**269**	**258**	**244**	**228**	**214**	**202**	**186**	**140**
[8]	69	202	341	481	619	761	896	1032	1165	1296	1618
	8	*23*	*38*	*54*	*70*	*86*	*101*	*117*	*132*	*146*	*183*
30,3	**390**	**384**	**375**	**364**	**355**	**342**	**326**	**309**	**295**	**276**	**230**
[10]	56	193	330	471	610	751	887	1025	1162	1297	1628
	6	*22*	*37*	*53*	*69*	*85*	*100*	*116*	*131*	*147*	*184*
37,9	**489**	**484**	**476**	**467**	**457**	**444**	**431**	**416**	**399**	**381**	**336**
[12]	39	175	315	453	595	736	873	1011	1148	1284	1617
	4	*20*	*36*	*51*	*67*	*83*	*99*	*114*	*130*	*145*	*183*
45,4	**587**	**582**	**573**	**564**	**552**	**540**	**526**	**510**	**494**	**476**	**427**
[14]	12	153	290	431	571	716	856	993	1129	1265	1605
	1	*17*	*33*	*49*	*65*	*81*	*97*	*112*	*128*	*143*	*181*
53,0	**343**	**680**	**673**	**665**	**654**	**641**	**628**	**613**	**594**	**578**	**533**
[15]	9	143	281	424	567	708	846	985	1121	1259	1599
	1	*16*	*32*	*48*	*64*	*80*	*96*	*111*	*127*	*142*	*181*
56,8	**491**	**729**	**723**	**714**	**704**	**690**	**675**	**661**	**644**	**628**	**580**
[20]		82	220	362	505	645	784	922	1061	1200	1545
		9	*25*	*41*	*57*	*73*	*89*	*104*	*120*	*136*	*175*
75,7		**970**	**963**	**957**	**948**	**935**	**921**	**906**	**888**	**871**	**825**

[143] Torque [lb-in]
16 } Nm
729 } Speed RPM

S Series (103-)

Performance Data

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 light shaded area.

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

Continuous

Intermittent

S Motor 93 cm³/r [5.7 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1600] **110**	[1800] **124**	[2000] **138**	[2500] **172**
[2]	146	308	466	620	771	913	1031	1086	1176	1281	
	16	*35*	*53*	*70*	*87*	*103*	*116*	*123*	*133*	*145*	
7,6	**76**	**72**	**64**	**55**	**48**	**34**	**22**	**7**	**4**	**1**	
[4]	136	301	466	633	797	959	1116	1275	1430	1570	1798
	15	*34*	*53*	*72*	*90*	*108*	*126*	*144*	*162*	*177*	*203*
15,1	**158**	**153**	**146**	**138**	**126**	**115**	**103**	**90**	**77**	**59**	**17**
[6]	113	278	446	616	786	952	1116	1280	1444	1603	1971
	13	*31*	*50*	*70*	*89*	*108*	*126*	*145*	*163*	*181*	*223*
22,7	**238**	**232**	**225**	**215**	**206**	**191**	**175**	**161**	**145**	**129**	**87**
[8]	98	262	431	604	777	947	1112	1279	1446	1610	2006
	11	*30*	*49*	*68*	*88*	*107*	*126*	*144*	*163*	*182*	*227*
30,3	**319**	**313**	**306**	**296**	**284**	**270**	**255**	**240**	**224**	**208**	**165**
[10]	81	246	415	590	763	935	1100	1271	1439	1604	2012
	9	*28*	*47*	*67*	*86*	*106*	*124*	*144*	*163*	*181*	*227*
37,9	**400**	**394**	**388**	**378**	**366**	**353**	**340**	**324**	**306**	**288**	**244**
[12]	65	232	401	574	746	916	1081	1255	1425	1591	2001
	7	*26*	*45*	*65*	*84*	*103*	*122*	*142*	*161*	*180*	*226*
45,4	**481**	**476**	**469**	**460**	**448**	**435**	**423**	**408**	**394**	**374**	**326**
[14]	42	207	376	552	721	893	1064	1235	1405	1570	1983
	5	*23*	*43*	*62*	*81*	*101*	*120*	*140*	*159*	*177*	*224*
53,0	**561**	**557**	**549**	**541**	**531**	**519**	**504**	**489**	**470**	**455**	**412**
[15]	31	196	364	538	708	881	1052	1223	1391	1560	1974
	4	*22*	*41*	*61*	*80*	*100*	*119*	*138*	*157*	*176*	*223*
56,8	**602**	**597**	**591**	**582**	**571**	**559**	**546**	**530**	**514**	**498**	**453**
[20]		119	290	461	633	807	976	1145	1315	1485	1904
		13	*33*	*52*	*72*	*91*	*110*	*129*	*149*	*168*	*215*
75,7		**799**	**792**	**785**	**775**	**762**	**748**	**734**	**717**	**702**	**660**

S Motor 120 cm³/r [7.3 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1600] **110**	[1800] **124**	[2000] **138**	[2500] **172**
[2]	191	403	605	801	978	1146	1288	1440	1552	1679	
	22	*46*	*68*	*91*	*110*	*129*	*146*	*163*	*175*	*190*	
7,6	**60**	**56**	**50**	**43**	**36**	**29**	**19**	**15**	**8**	**6**	
[4]	188	403	617	829	1031	1236	1438	1632	1816	1990	1914
	21	*46*	*70*	*94*	*117*	*140*	*162*	*184*	*205*	*225*	*216*
15,1	**122**	**118**	**112**	**106**	**98**	**87**	**78**	**67**	**56**	**49**	**16**
[6]	172	391	607	821	1030	1241	1449	1654	1858	2056	2522
	19	*44*	*69*	*93*	*116*	*140*	*164*	*187*	*210*	*232*	*285*
22,7	**186**	**180**	**175**	**167**	**159**	**149**	**137**	**126**	**114**	**103**	**73**
[8]	156	375	593	807	1015	1229	1439	1648	1855	2059	2557
	18	*42*	*67*	*91*	*115*	*139*	*163*	*186*	*210*	*233*	*289*
30,3	**249**	**244**	**237**	**229**	**220**	**210**	**199**	**185**	**174**	**162**	**128**
[10]	130	349	567	785	995	1210	1420	1630	1838	2045	2559
	15	*39*	*64*	*89*	*112*	*137*	*160*	*184*	*208*	*231*	*289*
37,9	**311**	**307**	**301**	**293**	**286**	**275**	**264**	**252**	**239**	**227**	**193**
[12]	103	320	539	756	965	1175	1383	1593	1799	2003	2500
	12	*36*	*61*	*85*	*109*	*133*	*156*	*180*	*203*	*226*	*282*
45,4	**374**	**369**	**363**	**355**	**346**	**336**	**327**	**314**	**303**	**288**	**253**
[14]	70	285	502	715	923	1131	1335	1540	1745	1948	2452
	8	*32*	*57*	*81*	*104*	*128*	*151*	*174*	*197*	*220*	*277*
53,0	**437**	**433**	**427**	**419**	**411**	**402**	**391**	**379**	**369**	**355**	**322**
[15]	54	267	485	705	913	1122	1329	1540	1746	1947	2441
	6	*30*	*55*	*80*	*103*	*127*	*150*	*174*	*197*	*220*	*276*
56,8	**469**	**465**	**459**	**452**	**444**	**433**	**423**	**411**	**400**	**386**	**349**
[20]		159	377	600	815	1026	1232	1444	1651	1859	2383
		18	*43*	*68*	*92*	*116*	*139*	*163*	*186*	*210*	*269*
75,7		**621**	**618**	**612**	**603**	**594**	**583**	**571**	**560**	**549**	**515**

[267] Torque [lb-in]
30 Nm
465 Speed RPM

S Series (103-)

Performance Data

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 light shaded area.

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

Continuous

Intermittent

S Motor 144 cm³/r [8.8 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1600] **110**	[1800] **124**	[1900] **138**	[2350] **172**
[2]	222	480	729	967	1190	1402	1591	1786	2031	2107	
	25	*54*	*82*	*109*	*134*	*158*	*180*	*202*	*229*	*238*	
7,6	**49**	**45**	**40**	**34**	**29**	**21**	**17**	**13**	**14**	**14**	
[4]	217	475	728	987	1237	1488	1727	1957	2181	2292	2310
	24	*54*	*82*	*112*	*140*	*168*	*195*	*221*	*246*	*259*	*261*
15,1	**101**	**97**	**91**	**84**	**77**	**69**	**61**	**52**	**45**	**42**	**22**
[6]	193	453	715	976	1234	1494	1746	1995	2239	2358	2867
	22	*51*	*81*	*110*	*139*	*169*	*197*	*225*	*253*	*266*	*324*
22,7	**153**	**149**	**143**	**136**	**128**	**119**	**110**	**101**	**91**	**86**	**66**
[8]	173	434	699	961	1218	1479	1735	1984	2235	2358	2894
	20	*49*	*79*	*109*	*138*	*167*	*196*	*224*	*252*	*266*	*327*
30,3	**205**	**202**	**195**	**187**	**179**	**170**	**160**	**150**	**139**	**134**	**109**
[10]	144	407	673	940	1197	1459	1715	1967	2218	2344	2890
	16	*46*	*76*	*106*	*135*	*165*	*194*	*222*	*251*	*265*	*327*
37,9	**259**	**254**	**247**	**240**	**231**	**221**	**211**	**202**	**191**	**185**	**158**
[12]	118	380	644	907	1167	1429	1685	1941	2194	2319	2878
	13	*43*	*73*	*102*	*132*	*161*	*190*	*219*	*248*	*262*	*325*
45,4	**312**	**307**	**301**	**294**	**286**	**277**	**267**	**257**	**246**	**241**	**217**
[14]	87	346	610	871	1131	1395	1651	1907	2163	2289	2851
	10	*39*	*69*	*98*	*128*	*158*	*187*	*215*	*244*	*259*	*322*
53,0	**363**	**359**	**354**	**346**	**339**	**330**	**319**	**309**	**299**	**293**	**266**
[15]	69	327	592	853	1113	1376	1633	1890	2146	2271	2835
	8	*37*	*67*	*96*	*126*	*156*	*185*	*214*	*242*	*257*	*320*
56,8	**389**	**386**	**380**	**372**	**364**	**355**	**344**	**336**	**323**	**317**	**289**
[20]		200	460	726	987	1251	1512	1770	2025	2153	2724
		23	*52*	*82*	*112*	*141*	*171*	*200*	*229*	*243*	*308*
75,7		**516**	**513**	**507**	**499**	**491**	**480**	**470**	**459**	**454**	**427**

S Motor 166 cm³/r [10.1 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1600] **110**	[1800] **124**	[1900] **138**	[2300] **172**
[2]	267	563	841	1105	1364	1622	1852	2081	2288		
	30	*64*	*95*	*125*	*154*	*183*	*209*	*235*	*259*		
7,6	**43**	**39**	**35**	**30**	**27**	**21**	**16**	**13**	**13**		
[4]	247	544	838	1129	1418	1707	1988	2255	2514	2641	3116
	28	*61*	*95*	*128*	*160*	*193*	*225*	*255*	*284*	*298*	*352*
15,1	**89**	**85**	**80**	**74**	**68**	**60**	**53**	**47**	**41**	**38**	**28**
[6]	217	517	813	1108	1401	1700	1994	2281	2559	2692	3214
	25	*58*	*92*	*125*	*158*	*192*	*225*	*258*	*289*	*304*	*363*
22,7	**134**	**131**	**125**	**120**	**113**	**105**	**96**	**88**	**79**	**75**	**58**
[8]	195	494	794	1089	1387	1687	1983	2269	2552	2691	3239
	22	*56*	*90*	*123*	*157*	*191*	*224*	*256*	*288*	*304*	*366*
30,3	**180**	**176**	**171**	**164**	**156**	**147**	**138**	**128**	**118**	**114**	**96**
[10]	176	477	776	1072	1371	1668	1960	2249	2537	2676	3228
	20	*54*	*88*	*121*	*155*	*188*	*221*	*254*	*287*	*302*	*365*
37,9	**227**	**222**	**217**	**210**	**203**	**194**	**185**	**175**	**165**	**160**	**136**
[12]	136	436	737	1037	1335	1636	1928	2217	2509	2651	3210
	15	*49*	*83*	*117*	*151*	*185*	*218*	*251*	*284*	*300*	*363*
45,4	**272**	**269**	**264**	**258**	**249**	**241**	**233**	**223**	**214**	**208**	**186**
[14]	93	394	696	995	1296	1599	1890	2185	2475	2617	3178
	11	*44*	*79*	*112*	*146*	*181*	*214*	*247*	*280*	*296*	*359*
53,0	**318**	**315**	**310**	**303**	**296**	**287**	**279**	**269**	**259**	**254**	**230**
[15]	73	371	672	973	1272	1575	1867	2159	2453	2596	3158
	8	*42*	*76*	*110*	*144*	*178*	*211*	*244*	*277*	*293*	*357*
56,8	**341**	**338**	**333**	**326**	**319**	**309**	**300**	**290**	**280**	**274**	**253**
[20]		227	527	829	1128	1430	1724	2020	2313	2457	3030
		26	*60*	*94*	*127*	*162*	*195*	*228*	*261*	*278*	*342*
75,7		**452**	**449**	**443**	**435**	**426**	**417**	**407**	**396**	**390**	**366**

[371] Torque [lb-in]
42 } Nm
338 } Speed RPM

S Series (103-)

Performance Data

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 light shaded area.

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

Continuous

Intermittent

S Motor 187 cm³/r [11.4 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1600] **110**	[1800] **124**	[1850] **138**	[2250] **172**
[2]	298	627	944	1244	1532	1805	2030	2250	2478		
	34	*71*	*107*	*141*	*173*	*204*	*229*	*254*	*280*		
7,6	**37**	**34**	**31**	**25**	**22**	**18**	**10**	**9**	**7**		
[4]	298	640	969	1291	1607	1919	2219	2511	2799	2869	3411
	34	*72*	*109*	*146*	*182*	*217*	*251*	*284*	*316*	*324*	*385*
15,1	**78**	**75**	**70**	**65**	**60**	**53**	**47**	**41**	**35**	**33**	**19**
[6]	279	621	953	1283	1608	1930	2243	2551	2850	2922	3502
	32	*70*	*108*	*145*	*182*	*218*	*253*	*288*	*322*	*330*	*396*
22,7	**119**	**115**	**110**	**104**	**97**	**89**	**82**	**74**	**66**	**64**	**50**
[8]	252	593	928	1257	1579	1905	2224	2542	2855	2932	3539
	28	*67*	*105*	*142*	*178*	*215*	*251*	*287*	*323*	*331*	*400*
30,3	**160**	**156**	**151**	**144**	**137**	**129**	**120**	**110**	**101**	**99**	**78**
[10]	211	555	888	1217	1546	1872	2193	2516	2831	2909	3518
	24	*63*	*100*	*138*	*175*	*211*	*248*	*284*	*320*	*329*	*397*
37,9	**201**	**198**	**193**	**187**	**180**	**173**	**164**	**154**	**143**	**141**	**114**
[12]	162	502	835	1164	1490	1818	2139	2463	2780	2857	3476
	18	*57*	*94*	*131*	*168*	*205*	*242*	*278*	*314*	*323*	*393*
45,4	**243**	**240**	**235**	**229**	**222**	**214**	**206**	**196**	**184**	**181**	**154**
[14]	118	452	786	1117	1443	1772	2095	2417	2736	2814	3438
	13	*51*	*89*	*126*	*163*	*200*	*237*	*273*	*309*	*318*	*388*
53,0	**283**	**280**	**276**	**270**	**262**	**254**	**245**	**235**	**224**	**221**	**194**
[15]	91	425	759	1089	1418	1747	2068	2389	2708	2786	3410
	10	*48*	*86*	*123*	*160*	*197*	*234*	*270*	*306*	*315*	*385*
56,8	**304**	**301**	**296**	**290**	**283**	**274**	**265**	**256**	**243**	**240**	**214**
[20]		259	590	925	1255	1585	1907	2229	2552	2633	3265
		29	*67*	*105*	*142*	*179*	*216*	*252*	*288*	*297*	*369*
75,7		**403**	**400**	**394**	**387**	**379**	**370**	**359**	**347**	**344**	**319**

S Motor 225 cm³/r [13.7 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1600] **110**	[1700] **124**	[2050] **138**
[2]	358	765	1139	1498	1842	2163	2474	2738	2894	
	40	*86*	*129*	*169*	*208*	*244*	*280*	*309*	*327*	
7,6	**32**	**29**	**27**	**23**	**20**	**16**	**12**	**10**	**8**	
[4]	367	774	1177	1577	1956	2325	2680	3022	3191	3753
	41	*87*	*133*	*178*	*221*	*263*	*303*	*341*	*361*	*424*
15,1	**66**	**63**	**60**	**55**	**50**	**46**	**40**	**34**	**31**	**23**
[6]	348	758	1161	1567	1960	2344	2716	3083	3264	3863
	39	*86*	*131*	*177*	*221*	*265*	*307*	*348*	*369*	*437*
22,7	**99**	**96**	**92**	**88**	**82**	**76**	**70**	**63**	**59**	**45**
[8]	313	721	1124	1529	1921	2312	2696	3073	3265	3894
	35	*81*	*127*	*173*	*217*	*261*	*305*	*347*	*369*	*440*
30,3	**133**	**132**	**127**	**123**	**117**	**111**	**104**	**96**	**92**	**76**
[10]	262	669	1069	1473	1859	2247	2627	2997	3184	3810
	30	*76*	*121*	*166*	*210*	*254*	*297*	*339*	*360*	*430*
37,9	**167**	**165**	**161**	**157**	**152**	**146**	**139**	**130**	**126**	**107**
[12]	203	609	1006	1400	1782	2160	2531	2912	3098	3721
	23	*69*	*114*	*158*	*201*	*244*	*286*	*329*	*350*	*420*
45,4	**202**	**199**	**196**	**191**	**186**	**180**	**173**	**165**	**160**	**141**
[14]	143	544	938	1324	1700	2079	2452	2824	3008	3639
	16	*62*	*106*	*150*	*192*	*235*	*277*	*319*	*340*	*411*
53,0	**236**	**233**	**230**	**225**	**219**	**214**	**207**	**199**	**194**	**177**
[15]	106	504	897	1281	1653	2027	2393	2761	2944	3576
	12	*57*	*101*	*145*	*187*	*229*	*270*	*312*	*333*	*404*
56,8	**253**	**251**	**248**	**243**	**237**	**231**	**224**	**215**	**211**	**192**
[20]		303	697	1091	1477	1854	2214	2581	2765	3399
		34	*79*	*123*	*167*	*210*	*250*	*292*	*312*	*384*
75,7		**336**	**334**	**330**	**325**	**318**	**312**	**304**	**298**	**282**

[504] Torque [lb-in]
57 Nm
251 Speed RPM

S Series (103-)

Performance Data

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 light shaded area.

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

Continuous

Intermittent

S Motor 298 cm³/r [18.2 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1500] **110**	[1800] **124**
[2]	487	1009	1509	1991	2460	2931	3360	3577	4113
	55	*114*	*170*	*225*	*278*	*331*	*380*	*404*	*465*
7,6	**24**	**22**	**20**	**18**	**17**	**14**	**11**	**10**	**8**
[4]	498	1043	1576	2093	2597	3087	3567	3798	4500
	56	*118*	*178*	*236*	*293*	*349*	*403*	*429*	*508*
15,1	**49**	**47**	**45**	**41**	**38**	**34**	**31**	**29**	**25**
[6]	470	1017	1552	2080	2594	3097	3594	3835	4536
	53	*115*	*175*	*235*	*293*	*350*	*406*	*433*	*513*
22,7	**74**	**72**	**69**	**66**	**62**	**57**	**52**	**49**	**42**
[8]	423	967	1502	2031	2549	3062	3563	3807	4526
	48	*109*	*170*	*229*	*288*	*346*	*403*	*430*	*511*
30,3	**100**	**98**	**95**	**92**	**88**	**83**	**77**	**73**	**64**
[10]	357	901	1433	1961	2477	2989	3486	3730	4456
	40	*102*	*162*	*222*	*280*	*338*	*394*	*421*	*504*
37,9	**126**	**124**	**121**	**118**	**113**	**108**	**101**	**97**	**87**
[12]	287	826	1357	1884	2402	2917	3410	3652	4363
	32	*93*	*153*	*213*	*271*	*330*	*385*	*413*	*493*
45,4	**152**	**150**	**147**	**144**	**140**	**134**	**126**	**121**	**109**
[14]	199	733	1261	1786	2303	2818	3316	3561	4276
	22	*83*	*142*	*202*	*260*	*318*	*375*	*402*	*483*
53,0	**177**	**176**	**173**	**170**	**165**	**160**	**152**	**147**	**134**
[15]	154	688	1218	1742	2258	2771	3273	3518	4241
	17	*78*	*138*	*197*	*255*	*313*	*370*	*398*	*479*
56,8	**190**	**189**	**186**	**183**	**178**	**173**	**165**	**160**	**146**
[20]		418	945	1471	1986	2502	3004	3253	3997
		47	*107*	*166*	*224*	*283*	*339*	*368*	*452*
75,7		**253**	**251**	**248**	**244**	**239**	**231**	**226**	**212**

S Motor 372 cm³/r [22.7 in³/r]

Δ Pressure Bar [PSI]

Flow LPM [GPM]

	[200] **14**	[400] **28**	[600] **41**	[800] **55**	[1000] **69**	[1200] **83**	[1400] **97**	[1500] **110**
[2]	629	1287	1905	2501	3066	3624	3886	4370
	71	*145*	*215*	*283*	*346*	*409*	*439*	*494*
7,6	**19**	**18**	**16**	**14**	**13**	**11**	**9**	**7**
[4]	628	1304	1962	2600	3206	3799	4082	4642
	71	*147*	*222*	*294*	*362*	*429*	*461*	*525*
15,1	**40**	**38**	**36**	**34**	**30**	**27**	**25**	**23**
[6]	587	1261	1926	2578	3203	3813	4112	4687
	66	*142*	*218*	*291*	*362*	*431*	*465*	*530*
22,7	**60**	**59**	**56**	**54**	**50**	**45**	**43**	**38**
[8]	529	1201	1867	2518	3148	3769	4072	4657
	60	*136*	*211*	*285*	*356*	*426*	*460*	*526*
30,3	**81**	**79**	**77**	**75**	**71**	**66**	**64**	**58**
[10]	451	1124	1779	2429	3056	3678	3983	4583
	51	*127*	*201*	*274*	*345*	*416*	*450*	*518*
37,9	**102**	**100**	**98**	**96**	**92**	**86**	**84**	**78**
[12]	359	1030	1688	2333	2963	3587	3889	4482
	41	*116*	*191*	*264*	*335*	*405*	*439*	*506*
45,4	**122**	**121**	**119**	**117**	**113**	**107**	**104**	**98**
[14]	256	922	1577	2226	2864	3487	3787	4381
	29	*104*	*178*	*252*	*324*	*394*	*428*	*495*
53,0	**143**	**142**	**140**	**137**	**134**	**128**	**126**	**119**
[15]	199	862	1514	2167	2797	3424	3727	4322
	22	*97*	*171*	*245*	*316*	*387*	*421*	*488*
56,8	**153**	**152**	**150**	**148**	**144**	**138**	**135**	**129**
[20]		634	1187	1832	2470	3093	3402	4004
		60	*134*	*207*	*279*	*349*	*384*	*452*
75,7		**204**	**202**	**200**	**197**	**192**	**189**	**183**

[862] Torque [lb-in]
97 Nm
152 Speed RPM

S Series (103-)

Dimensions

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

Ports

7/8-14 SAE O-Ring

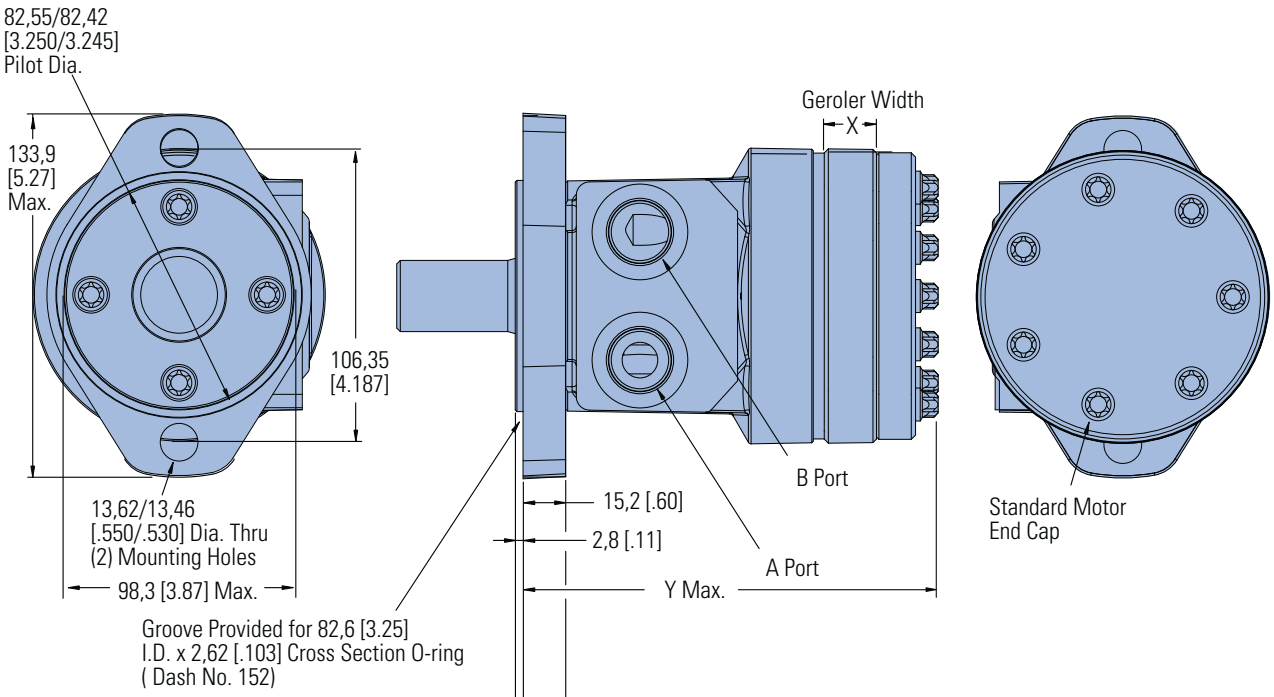
6-1/2 (BSP) Straight thread manifold

Standard Rotation Viewed from Shaft End

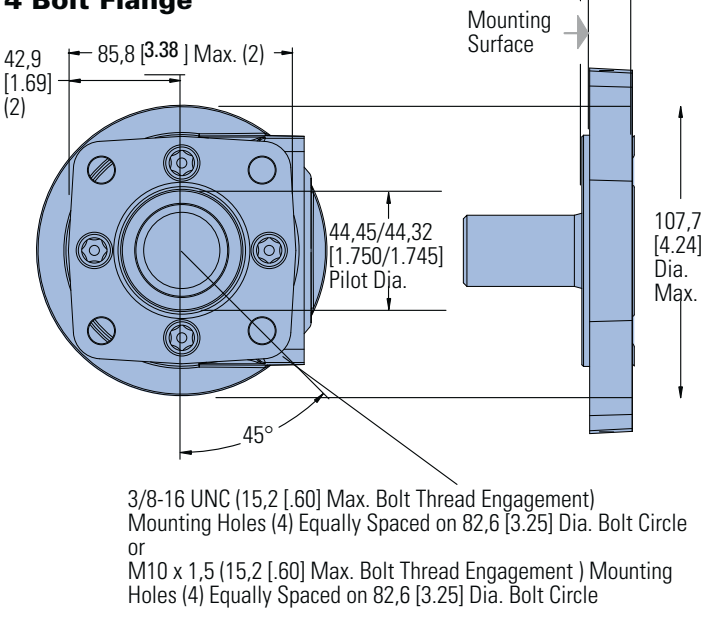
Port A Pressurized — CW

Port B Pressurized — CCW

2 Bolt Flange



4 Bolt Flange



Displacement cm³/r [in³/r]	X mm [inch]	Y mm [inch]
58 [3.6]	7,5 [.30]	138,0 [5.43]
76 [4.6]	9,8 [.39]	140,3 [5.52]
93 [5.7]	12,0 [.47]	142,5 [5.61]
120 [7.3]	15,5 [.61]	146,0 [5.75]
144 [8.8]	18,6 [.73]	149,1 [5.87]
165 [10.1]	21,3 [.84]	151,8 [5.98]
186 [11.4]	24,0 [.94]	154,5 [6.08]
225 [13.7]	28,9 [1.14]	159,4 [6.28]
299 [18.2]	38,5 [1.52]	169,0 [6.66]
371 [22.7]	47,9 [1.88]	178,4 [7.02]

S Series (103-)

Product Numbers

Use three-digit prefix (103-) plus four-digit number from charts for complete product number (ex: 103-1093). Orders will not be accepted without the three-digit prefix.

2 Bolt Flange

SHAFT	PORT SIZE	DISPL. cm^3/r [in^3/r] / PRODUCT NUMBER									
		59 [3.6]	75 [4.6]	93 [5.7]	120 [7.3]	144 [8.8]	166 [10.1]	187 [11.4]	225 [13.7]	298 [18.2]	372 [22.7]
1 in. Straight w/Woodruff Key	7/8-14 O-Ring	103-1537	-1034	-1035	-1538	-1539	-1036	-1037	-1038	-1039	-1040
	1/2 NPTF	103-1540	-1026	-1027	-1541	-1542	-1028	-1029	-1030	-1031	-1032
	Manifold	103-1543	-1042	-1043	-1544	-1545	-1044	-1045	-1046	-1047	-1048
1 in. SAE 6B Splined	7/8-14 O-Ring	103-1552	-1082	-1083	-1553	-1554	-1084	-1085	-1086	-1087	-1088
	1/2 NPTF	103-1555	-1074	-1075	-1556	-1557	-1076	-1077	-1078	-1079	-1080
	Manifold	103-1558	-1090	-1091	-1559	-1560	-1092	-1093	-1094	-1095	-1096

103-1093

4 Bolt Flange

SHAFT	PORT SIZE	DISPL. cm^3/r [in^3/r] / PRODUCT NUMBER									
		59 [3.6]	75 [4.6]	93 [5.7]	120 [7.3]	144 [8.8]	166 [10.1]	187 [11.4]	225 [13.7]	298 [18.2]	372 [22.7]
1 in. Straight w/Woodruff Key	7/8-14 O-Ring	103-1570	-1010	-1011	-1571	-1572	-1012	-1013	-1014	-1015	-1016
	1/2 NPTF	103-1573	-1002	-1003	-1574	-1575	-1004	-1005	-1006	-1007	-1008
	Manifold	103-1576	-1018	-1019	-1577	-1578	-1020	-1021	-1022	-1023	-1024
1 in. SAE 6BSplined	7/8-14 O-Ring	103-1579	-1058	-1059	-1580	-1581	-1060	-1061	-1062	-1063	-1064
	1/2 NPTF	103-1582	-1050	-1051	-1583	-1584	-1052	-1053	-1054	-1055	-1056
	Manifold	103-1585	-1066	-1067	-1586	-1587	-1068	-1069	-1070	-1071	-1072

103-1069

S Series Motors with Corrosion Protection

SHAFT	MOUNTING	PORT SIZE	DISPL. cm^3/r [in^3/r] / PRODUCT NUMBER									
			59 [3.6]	75 [4.6]	93 [5.7]	120 [7.3]	144 [8.8]	166 [10.1]	187 [11.4]	225 [13.7]	298 [18.2]	372 [22.7]
1 in. Straight w/ Woodruff Key	2 Bolt Flange	7/8-14 O-Ring	103-1645	–	–	–	–	–	–	-1649	–	-1650
	4 Bolt Flange	1/2 NPTF	–	–	–	–	–	–	–	-1620	–	-1621

*Manifold product numbers shown are for motors with four 5/16 z-18 port face mounting threads. Manifold, manifold mounting O-Rings and bolts are NOT included.

For S Series Motors with a configuration Not Shown in the charts above: Use the model code number system on page B-3-11 to specify the product in detail.

S Series with Low Speed Valving

Product Number

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

Designed to run continuously at up to 200 RPM at standard rated pressures and reduced flows, this option provides smooth operation at low speeds. Furthermore, they resist slippage and have more momentary load holding ability than the standard H and S Series motors. Motors with this valving are not intended for low pressure applications (A minimum of 300 psi delta must be maintained between A port pressure and case pressure). Shaft side / radial load ratings are not affected by this valving.

Use digit prefix—103- plus four digit number from charts for complete product number—Example: 103-2678.

Orders will not be accepted without the three-digit prefix.

2 Bolt Flange

SHAFT	PORT SIZE	DISPL. cm^3/r [in^3/r] / PRODUCT NUMBER									
		59 [3.6]	75 [4.6]	93 [5.7]	120 [7.3]	144 [8.8]	166 [10.1]	187 [11.4]	225 [13.7]	298 [18.2]	372 [22.7]
1 in. Straight w/Woodruff Key	7/8 -14 O-Ring	103- —	-1427	-1428	—	—	-1429	-1430	-1431	-1432	-1433
	1/2 NPTF	103- —	-1419	-1420	—	—	-1421	-1422	-1423	-1424	-1425
	Manifold*	103- —	—	—	—	—	—	—	—	—	—
1 in. SAE 6B Splined	7/8 -14 O-Ring	103- —	-1525	—	—	-2692	—	—	-1675	—	—
	1/2 NPTF	103- —	—	-1634	—	—	—	—	—	—	—
	Manifold*	103- —	-1522	-2678	—	—	—	—	—	—	-1527

4 Bolt Flange

SHAFT	PORT SIZE	DISPL. cm^3/r [in^3/r] / PRODUCT NUMBER										
		59 [3.6]	75 [4.6]	93 [5.7]	120 [7.3]	144 [8.8]	166 [10.1]	187 [11.4]	225 [13.7]	298 [18.2]	372 [22.7]	
1 in. Straight w/Woodruff Key	7/8 -14 O-Ring		103-1625	-1410	-1411	-1626	-2531	-1412	-1413	-1414	-1415	-1416
	1/2 NPTF	103-1644	-1402	-1403	—	—	-1404	-1405	-1406	-1407	-1408	

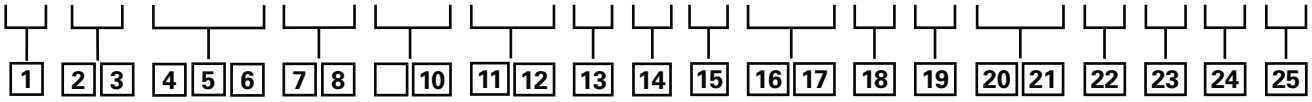
*Manifold product numbers shown are for motors with four 5/16 -18 port face mounting threads. Manifold, manifold mounting O-Rings and bolts are NOT included.

For S Series Motors with Low Speed Valving Not Shown in the chart above: Use the model code number system on page B-3-11 to specify the product in detail.

S Series (103-)

Model Code

The following 25-digit coding system has been developed to identify all of the configuration options for the S motor. Use this model code to specify a motor with the desired features. All 25-digits of the code must be present when ordering. You may want to photocopy the matrix below to ensure that each number is entered in the correct box.



1 Product
M – Motor

2, 3 Series
S0 – S Series Motor

4, 5, 6 Displacement cm³/r [in³/r]

036 – 58 [3.6]
046 – 76 [4.6]
057 – 93 [5.7]
073 – 120 [7.3]
088 – 144 [8.8]
101 – 165 [10.1]
114 – 186 [11.4]
137 – 224 [13.7]
182 – 299 [18.2]
227 – 371 [22.7]

7, 8 Mounting Type

AA – 2 Bolt Std: 82.50 [3.248] Dia. x 3.05 [.120] Pilot, 13.59 [.535] Dia. Mounting Holes on 106.35 [4.187] Dia. B.C.

BA – 4 Bolt Std: 44.40 [1.748] Dia. x 3.05 [.120] Pilot, .375-16 UNC-2B Mounting Holes on 82.55 [3.250] Dia. B.C.

CA – 2 Bolt Std: 82.50 [3.248] Dia. x 6.10 [.240] Pilot, 10.41 [.410] Dia. Mounting Holes on 106.35 [4.187] Dia. B.C. (SAE A)

DD – 2 Bolt Std: 101.60 [4.000] Dia. x 6.10 [.240] Pilot, 14.35 [.565] Dia. Mounting Holes on 146.05 [5.750] Dia. B.C. (SAE B) (Ductile)

EA – 4 Bolt Magneto: 82.50 [3.248] Dia. x 3.05 [.120] Pilot, 13.59 [.535] Dia. Mounting Holes on 106.35 [4.187] Dia. B.C.

FA – 4 Bolt Std: 44.40 [1.748] Dia. x 3.05 [.120] Pilot, M10 x 1.5-6h Mounting Holes on 82.55 [3.250] Dia. B.C.

LA – 2 Bolt Std: 44.45 [1.750] Dia. x 3.05 [.120] Pilot, 13.59 [.535] Dia. Mounting Holes on 106.35 [4.187] Dia. B.C.

MA - 2 Bolt (Standard) 82.50 [3.248] Dia. x 8.13 [.320] Pilot, 13.59 [.535] Dia. Mounting Holes on 106.35 [4.187] Dia. B.C., w/o O-ring Groove

9, 10 Output Shaft

01 – 25.4 [1.00] Dia. Straight, Woodruff Key, .250-20 UNC-2B Hole in Shaft End

02 – 25.4 [1.00] Dia. SAE 6B Spline, .250-20 UNC-2B Hole in Shaft End

07 – 25.4 [1.00] Dia. Straight, 8.03 [.316] Dia. Crosshole 11.2 [.44] From End, 5.6 [.22] Extra Length

08 – 25.4 [1.00] Dia. Straight, 10.31 [.406] Dia. Crosshole 15.7 [.62] From End, .250-20 UNC-2B Hole in Shaft End

16 – 22.22 [.875] Dia. SAE 13 Tooth Spline (SAE B)

17 – 22.22 [.875] Dia. Straight, 6.4 [.25] x 19.0 [.75] Square Key (SAE B)

18 – 25.4 [1.00] Dia. Tapered, Woodruff Key and Nut, 34.92 [1.375] Taper Length

24 – 25.00 [.984] Dia. Straight, 8.00 [.315] Key, M8 x 1.25-6H Hole in Shaft End

39 - 25.00 [.984] Dia. Straight (k6), 8.00 [.315] Key, M8 x 1.25-6H Hole in Shaft End

11, 12 Port Type

AA – .875-14 UNF-2B SAE O-Ring Ports

AB – .500-14 NPTF Dryseal Pipe Thread Ports

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

AD – Manifold Ports (M8 x 1.25-6H Mounting Holes)

AF – G 1/2 BSP Straight Thread Ports

13 Case Flow Options ††

0 – None Specified

1 – 4375-20 UNF-2B SAE O-Ring Port (End Cap)

2 – G 1/4 BSP Straight THD Port (End Cap)

3 – Manifold Case Drain

†† – Internal check valves are standard features.

14 Geroler Options

0 – None Specified

15 Shaft Options

0 – None Specified

N – Electroless Nickel Plated

16, 17 Seal Options

00 – Standard Seals

02 – Seal Guard

03 – Viton Seals

04 – Viton Shaft Seal

05 – Vented Two-Stage Seal

07 – High Pressure Shaft Seal

18 Speed Sensor Options

0 – None

A – Speed Sensor Options 12mm Digital Speed Pickup (15 pulse) without lead wire

B – Magnetic Speed Pickup (60 Pulse by Quadrature), No lead wire with M12 connector (A=Power, B=Common, C=Signal)

19 Manifold Block Options
0 – None

* Contact your Eaton sales representative for available options.

20, 21 Special Features (Hardware)

00 – None Specified

AB – Low Speed Valving

SS – Stainless Steel Flange Bolts

22 Special Assembly Instructions

0 – None

1 – Reverse Rotation

2 – Flange Rotated 90°

3 – Reverse Rotation, Flange Rotated 90°

23 Paint/Packaging Options

0 – No Paint

A – Low Gloss Black Primer

D – Environmental Coated Gloss White

F – Environmental Coated Black

24 Eaton Assigned Code When Applicable

0 – Assigned Code

25 Eaton Assigned Design Code

M – Twelve (12)

Feature in **bold** are preferred and allow for shorter lead time.