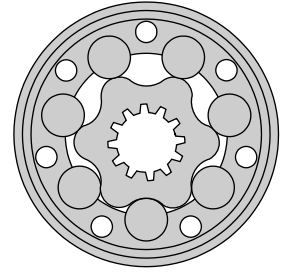


HYDRAULIC MOTORS MLHR



APPLICATION

- » Conveyors
- » Feeding mechanism of robots and manipulators
- » Metal working machines
- » Textile machines
- » Machines for agriculture
- » Food industries
- » Grass cutting machinery etc.



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OPTIONS

- » Model- Spool valve, roll-gerotor
- » Flange mount
- » Motor with needle bearing
- » Side and rear ports
- » Shafts- straight, splined and tapered
- » SAE, Metric and BSPP ports
- » Speed sensing
- » Other special features

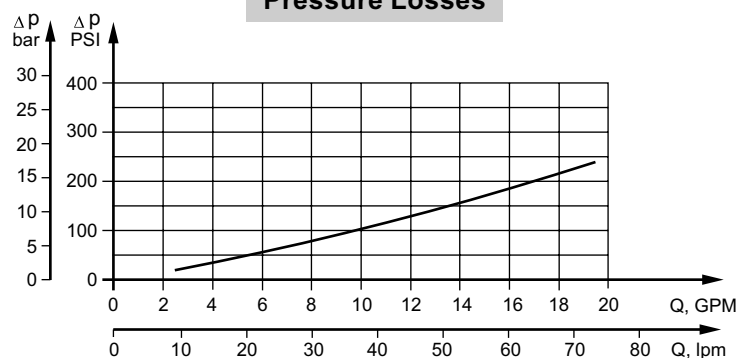
GENERAL

Displacement,	in ³ /rev [cm ³ /rev.]	3.14÷24.4 [51,5÷397]
Max. Speed,	[RPM]	150÷775
Max. Torque,	in-lb [daNm]	900÷5400 [10,1÷61]
Max. Output,	HP [kW]	6.4÷17.4 [5÷13]
Max. Pressure Drop,	PSI [bar]	1020÷2540 [70÷175]
Max. Oil Flow,	GPM [lpm]	10÷16 [37,8÷60,6]
Min. Speed,	[RPM]	10
Pressure fluid		Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range,	°F [°C]	-22÷194 [-30÷90]
Optimal Viscosity range, SUS [mm²/s]		98÷347 [20÷75]
Filtration		ISO code 20/16 (Min. recommended fluid filtration of 25 micron)

Oil flow in drain line

Pressure drop PSI [bar]	Viscosity SUS [mm ² /s]	Oil flow in drain line GPM [lpm]
1450 [100]	98 [20]	.660 [2,5]
	164 [35]	.476 [1,8]
2030 [140]	98 [20]	.925 [3,5]
	164 [35]	.740 [2,8]

Pressure Losses





SPECIFICATION DATA

Specification Data for MLHR... motors with **C, D, G, H, M, S** and **T** shafts.
(1.124 [28,56] sealing diameter)

Type		MLHR 50	MLHR 80	MLHR 100	MLHR 125	MLHR 160	MLHR 200	MLHR 250	MLHR 315	MLHR 400
Displacement, in. ³ /rev. [cm. ³ /rev.]		3.14	4.90	6.09	7.67	9.74	12.19	15.26	19.26	24.4
		[51,5]	[80,3]	[99,8]	[125,7]	[159,6]	[199,8]	[250,1]	[315,7]	[397]
Max. Speed, [RPM]	Cont.	734	750	607	482	379	303	240	190	152
	Int.*	1029	940	758	602	474	379	303	240	191
Max. Torque in-lb [daNm]	Cont.	900 [10,1]	1725 [19,5]	2125 [24]	2655 [30]	3450 [39]	3410 [38,5]	3450 [39]	3450 [39]	3360 [38]
	Int.*	1150 [13]	1947 [22]	2480 [28]	3010 [34]	3805 [43]	4070 [46]	5150 [58]	5045 [57]	5310 [60]
	Peak**	1505 [17]	2390 [27]	2832 [32]	3275 [37]	4070 [46]	4960 [56]	6280 [71]	7400 [83]	7700 [87]
Max. Output HP [kW]	Cont.	9.5 [7]	17 [12,5]	17.4 [13]	16.8 [12,5]	15.4 [11,5]	12 [9]	8.7 [6,5]	8 [6]	6.4 [4,8]
	Int.*	11.9 [8,5]	20.1 [15]	20.1 [15]	19.5 [14,5]	18.8 [14]	15.4 [11,5]	14.1 [10,5]	12.9 [9,6]	11.8 [8,8]
Max. Pressure Drop PSI [bar]	Cont.	2030 [140]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2030 [140]	1600 [110]	1300 [90]	1020 [70]
	Int.*	2540 [175]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2540 [175]	2540 [175]	2030 [140]	1670 [115]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3045 [210]	2540 [175]
Max. Oil Flow GPM [lpm]	Cont.	10 [37,8]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60]	16 [60]	16 [60,6]
	Int.*	14 [53]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]
Max. Inlet Pressure PSI [bar]	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Return Pres- sure with Drain Line PSI [bar]	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Starting Pressure with Unloaded Shaft, PSI [bar]		145 [10]	145 [10]	145 [10]	130 [9]	102 [7]	73 [5]	58 [4]	44 [3]	44 [3]
Min. Starting Torque in-lb [daNm]	At max.press. drop Cont.	710 [8]	1330 [15]	1770 [20]	2215 [25]	2832 [32]	2920 [33]	2740 [31]	2920 [33]	2650 [30]
	At max.press. drop Int.*	85 [10]	1505 [17]	2035 [23]	2480 [28]	3275 [37]	3540 [40]	4250 [48]	5220 [58]	4425 [50]
Min. Speed***, [RPM]		10	10	10	10	10	10	10	10	10
Weight, lb [kg]	MLHR(F)(N)	15 [6,8]	15,2 [6,9]	15.9 [7,2]	16.1 [7,3]	15.2 [7,5]	17.6 [8]	18.5 [8,4]	20 [9,1]	21.6 [9,8]
For rear ports +1.433 [0,650]	MLHRQ(M)(N)	13.7 [6,2]	13.9 [6,3]	14.6 [6,6]	15 [6,8]	15.4 [7,6]	14.7 [7,2]	17.2 [7,8]	19 [8,6]	20.5 [9,3]

* Intermittent operation: the permissible values may occur for max. 10% of every minute.

** Peak load: the permissible values may occur for max. 1% of every minute.

*** For speeds of 10 RPM or lower than given, consult factory or your regional manager.

1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4).
If using synthetic fluids consult the factory for alternative seal materials.
4. Recommended minimum oil viscosity 70 SUS[13mm²/s] at 122°F [50°C].
5. Recommended maximum system operating temperature is 180°F [82°C].
6. To assure optimum motor life fill with fluid prior to loading and run at moderate load and speed for 10-15 minutes.

SPECIFICATION DATA (continued)

Specification Data for MLHR... motors with **B, K, R** and **L** shafts.
(1.378 [35] sealing diameter)

Type		MLHR 50	MLHR 80	MLHR 100	MLHR 125	MLHR 160	MLHR 200	MLHR 250	MLHR 315	MLHR 400
Displacement, in. ³ /rev. [cm. ³ /rev.]		3.14	4.90	6.09	7.67	9.74	12.19	15.26	19.26	24.4
		[51,5]	[80,3]	[99,8]	[125,7]	[159,6]	[199,8]	[250,1]	[315,7]	[397]
Max. Speed, [RPM]	Cont.	734	750	607	482	379	303	240	190	152
	Int.*	1029	940	758	602	474	379	303	242	191
Max. Torque in-lb [daNm]	Cont.	900 [10,1]	1725 [19,5]	2125 [24]	2655 [30]	3450 [39]	4000 [45]	4780 [54]	4870 [55]	5400 [61]
	Int.*	1150 [13]	1947 [22]	2480 [28]	3010 [34]	3805 [43]	4425 [50]	5400 [61]	5580 [63]	6100 [69]
	Peak**	1505 [17]	2390 [27]	2832 [32]	3275 [37]	4070 [46]	4960 [56]	6280 [71]	7350 [83]	7700 [87]
Max. Output HP [kW]	Cont.	9.5 [7]	17 [12,5]	17.4 [13]	16.8 [12,5]	15.4 [11,5]	14.8 [11]	13.4 [10]	12 [9]	10.5 [7,8]
	Int.*	11.9 [8,5]	20.1 [15]	20.1 [15]	19.5 [14,5]	18.8 [14]	17.4 [13]	16.1 [12]	14.8 [11]	14.2 [10,6]
Max. Pressure Drop PSI [bar]	Cont.	2030 [140]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	1960 [135]	1670 [115]
	Int.*	2540 [175]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2320 [160]	2030 [140]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3045 [210]	2540 [175]
Max. Oil Flow GPM [lpm]	Cont.	10 [37,8]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60]	16 [60,6]	16 [60,6]
	Int.*	14 [53]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]
Max. Inlet Pressure PSI [bar]	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Return Pres- sure with Drain Line PSI [bar]	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Starting Pressure with Unloaded Shaft, PSI [bar]		145 [10]	145 [10]	145 [10]	130 [9]	102 [7]	73 [5]	58 [4]	44 [3]	44 [3]
Min. Starting Torque in-lb [daNm]	At max.press.									
	drop Cont.	710 [8]	1330 [15]	1770 [20]	2215 [25]	2832 [32]	3630 [41]	4000 [45]	4000 [45]	4340 [49]
	At max.press. drop Int.*	885 [10]	1505 [17]	2035 [23]	2480 [28]	3275 [37]	4070 [46]	4870 [55]	5840 [66]	5400 [61]
Min. Speed***, [RPM]		10	10	10	10	10	10	10	10	10
Weight, lb [kg] For rear ports +1.433 [0,650]		15,2 [6,9]	15,4 [7]	16.1 [7,3]	16.3 [7,4]	15.4 [7,6]	18.9 [8,1]	18.7 [8,5]	20.3 [9,2]	21.8 [9,9]

* Intermittent operation: the permissible values may occur for max. 10% of every minute.

** Peak load: the permissible values may occur for max. 1% of every minute.

*** For speeds of 10 RPM or lower than given, consult factory or your regional manager.

- Intermittent speed and intermittent pressure must not occur simultaneously.
- Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
- Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4).
If using synthetic fluids consult the factory for alternative seal materials.
- Recommended minimum oil viscosity 70 SUS[13mm²/s] at 122°F [50°C].
- Recommended maximum system operating temperature is 180°F [82°C].
- To assure optimum motor life fill with fluid prior to loading and run at moderate load and speed for 10-15 minutes.



Performance Data MLHR 50

	Pressure (Δ PSI)								Max. Cont.		Speed (theor.)	
	500	700	900	1100	1300	1500	1700	2030	2300	2540		
Flow [GPM]	1	215 73	300 72	374 69	458 65	538 61	613 55	675 46	775 21	-	-	74
	2	215 146	305 144	385 142	482 140	560 138	680 136	780 132	856 127	930 114	1076 106	147
	4	220 292	308 290	396 288	492 283	580 278	690 271	785 262	878 250	996 240	1088 230	293
	6	218 438	305 436	395 432	490 425	580 418	690 411	780 403	876 395	998 385	1092 370	441
	8	215 583	302 518	392 578	480 573	575 567	676 558	770 548	870 538	996 527	1092 514	588
Max. Cont.	10	198 730	294 726	380 722	468 714	558 706	652 698	745 690	855 680	982 668	1080 650	736
Max. Int.	12	180 878	282 874	368 867	456 859	540 850	624 840	712 830	832 820	960 805	1060 785	881
	14	150 1025	250 1020	340 1014	425 1008	515 1002	588 995	672 985	805 970	928 950	1030 930	1030
Torque (theor.) in-lb. [daNm]		254 [2,87]	363 [4,1]	450 [5,08]	544 [6,15]	653 [7,38]	752 [8,5]	850 [9,6]	1018 [11,5]	1150 [13]	1275 [14,4]	

3.14 in³./rev. [51.5 cm³./rev.]

Torque [in-lb] 1030
Speed [RPM] 930

Performance Data MLHR 80

	Pressure (Δ PSI)							Max. Cont.		Speed (theor.)
	450	900	1150	1400	1700	2030	2540	2900		
Flow [GPM]	1	-	-	-	-	-	-	-	-	-
	2	300 92	590 87	790 82	950 72	1125 59	1250 39	-	-	94
	4	295 188	600 182	800 178	985 170	1180 156	1370 137	1650 104	1830 75	189
	6	270 282	590 278	790 270	1000 265	1190 251	1390 234	1695 198	1895 152	283
	8	255 376	570 371	775 364	990 357	1185 344	1365 329	1705 294	1930 247	377
	10	240 467	555 458	755 450	965 443	1170 432	1345 418	1700 382	1940 332	472
	12	215 561	525 553	740 542	940 532	1150 519	1330 501	1690 467	1930 425	566
	14	185 660	500 650	715 640	905 628	1125 614	1320 601	1685 566	1910 525	661
Max. Cont.	16	150 752	470 742	675 735	880 727	1080 718	1290 700	1640 667	1880 614	755
Max. Int.	18	110 846	435 835	640 827	840 816	1040 806	1255 790	1600 751	1845 708	847
	20	90 919	405 903	610 897	815 887	1015 876	1220 860	1575 827	1815 784	943
Torque (theor.) in-lb. [daNm]		351 [3,97]	702 [7,94]	906 [10,24]	1098 [12,42]	1325 [14,98]	1586 [17,92]	1982 [22,4]	2265 [25,6]	

4.9 in³./rev. [80,3 cm³./rev.]

Torque [in-lb] 1815
Speed [RPM] 784

The Performance data was collected at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50° C].



Performance Data MLHR 100

		Pressure (Δ PSI)						Max. Cont.	Max. Int.	Speed (theor.)	
		450	900	1150	1400	1700	2030	2540	2900		
Flow [GPM]	1	-	-	-	-	-	-	-	-	-	
	2	385	750	980	1195	1405	1565	-	-	75	
	4	365	758	1007	1265	1485	1720	2080	2335	152	
	6	345	735	995	1255	1500	1740	2140	2435	228	
	8	320	705	972	1236	1495	1730	2145	2460	304	
	10	290	675	950	1210	1460	1705	2135	2445	380	
	12	265	645	918	1172	1430	1680	2111	2416	455	
	14	228	610	870	1130	1390	1645	2075	2395	531	
	Max. Cont.	16	186	570	825	1085	1350	1600	2035	2340	608
	Max. Int.	18	146	530	780	1050	1280	1550	1995	2300	682
20		103	480	740	1000	1250	1500	1935	2250	758	
Torque (theor.) in-lb. [daNm]		436 [4,93]	872 [9,86]	1125 [12,72]	1365 [15,42]	1646 [18,6]	1970 [22,26]	2462 [27,83]	2815 [31,8]		

6.09 in³./rev. [99,8 cm³./rev.]

Torque (in-lb) 2250
Speed (RPM) 664

Performance Data MLHR 125

		Pressure (Δ PSI)						Max. Cont.	Max. Int.		
		450	900	1150	1400	1700	2030	2540	2900		
Flow [GPM]	1	-	-	-	-	-	-	-	-	-	
	2	482	965	1255	1535	1756	1905	-	-	60	
	4	470	951	1275	1580	1895	2155	2560	2740	120	
	6	445	935	1260	1560	1886	2190	2670	2950	180	
	8	430	905	1230	1540	1840	2170	2665	2980	242	
	10	395	880	1195	1510	1805	2140	2640	2965	302	
	12	360	840	1155	1470	1775	2110	2615	2950	362	
	14	325	815	1110	1435	1755	2070	2600	2925	422	
	Max. Cont.	16	278	750	1060	1390	1710	2010	2550	2885	483
	Max. Int.	18	220	695	1010	1320	1640	1955	2460	2805	541
20		165	640	955	1270	1560	1900	2395	2710	603	
Torque (theor.) in-lb. [daNm]		549 [6,2]	1098 [12,4]	1416 [16]	1717 [19,4]	2071 [23,4]	2478 [28]	3097 [35]	3540 [40]		

7.67 in³./rev. [125,7 cm³./rev.]

Torque (in-lb) 2710
Speed (RPM) 500

The Performance data was collected at back pressure 72.5±145 PSI [5±10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50° C].



Performance Data MLHR 160

		Pressure (Δ PSI)						Max. Cont.	Max. Int.	Speed (theor.)	
		450	900	1150	1400	1700	2030	2540	2900		
Flow [GPM]	1	-	-	-	-	-	-	-	-	-	
	2	610 43	1210 40	1590 35	1935 30	2270 24	2505 13	-	-	47	
	4	595 91	1220 87	1625 83	2030 80	2415 76	2780 69	3390 52	3740 37	95	
	6	577 141	1215 136	1620 131	2015 126	2405 120	2780 113	3420 94	3810 81	143	
	8	550 187	1185 182	1585 178	1980 173	2390 166	2760 155	3400 127	3795 108	190	
	10	510 232	1135 229	1530 225	1950 220	2345 212	2730 199	3390 165	3765 138	238	
	12	460 282	1085 278	1480 275	1900 272	2300 263	2690 250	3340 212	3725 185	285	
	14	410 327	1025 323	1430 321	1845 317	2235 309	2625 297	3290 262	3660 238	333	
	Max. Cont.	16	346 377	955 373	1355 369	1765 365	2180 359	2585 345	3220 310	3610 270	380
	Max. Int.	18	280 425	885 420	1300 416	1690 412	2110 402	2520 386	3145 350	3540 319	427
20		200 472	805 469	1210 465	1605 460	2015 451	2425 438	3085 401	3460 366	475	
Torque (theor.) in-lb. [daNm]		696 [7,87]	1394 [15,75]	1800 [20,32]	2180 [24,64]	2630 [29,72]	3147 [35,56]	3934 [44,45]	4496 [50,8]		

9.73 in³./rev. [159,6 cm³./rev.]

Torque [in-lb] 3460
 Speed [RPM] 366

Performance Data MLHR 200

		Pressure (Δ PSI)							Max. Cont.	Max. Int.	Speed (theor.)		
		450	900	1150	1500	1700	1810	1950	2250	2500	2900		
Flow [GPM]	1	-	-	-	-	-	-	-	-	-	-	-	
	2	812 36	1500 34	2000 32	2550 29	2855 26	3040 24	3280 22	3565 19	3850 14	-	38	
	4	805 74	1522 73	2006 71	2590 68	2932 65	3120 62	3394 59	3685 54	3975 48	4385 29	76	
	6	796 113	1496 111	1972 108	2570 104	2905 100	3100 96	3366 92	3660 86	3952 78	4385 63	114	
	8	694 150	1448 149	1946 146	2515 139	2872 132	3050 127	3328 123	3615 116	3905 108	4355 92	152	
	10	650 189	1392 188	1880 186	2460 178	2798 171	2980 165	3255 158	3560 148	3855 137	4320 119	190	
	12	575 227	1322 226	1805 224	2390 215	2748 207	2925 202	3198 196	3515 183	3825 169	4290 142	228	
	14	504 264	1246 263	1735 261	2330 252	2662 245	2840 238	3122 230	3450 217	3772 202	4235 172	265	
	Max. Cont.	16	434 302	1176 301	1670 300	2260 292	2565 285	2730 278	3035 270	3360 258	3685 242	4130 215	303
	Max. Int.	18	358 340	1100 339	1610 337	2168 330	2494 322	2655 315	2955 309	3300 291	3625 270	4065 242	340
20		274 378	1008 377	1496 374	2065 367	2375 360	2530 355	2862 347	3200 331	3525 314	3955 280	379	
Torque (theor.) in-lb. [daNm]		872 [9,86]	1745 [19,72]	2251 [25,44]	2900 [32,75]	3293 [37,2]	3518 [39,75]	3800 [42,93]	4362 [49,29]	4841 [54,7]	5629 [63,6]		

12.19 in³./rev. [199,8 cm³./rev.]

Torque [in-lb] 3955
 Speed [RPM] 280

The Performance data was collected at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50° C].



Performance Data MLHR 250

		Pressure (Δ PSI)						Max. Cont.	Max. Int.	Speed (theor.)
		450	900	1200	1400	1600	2030	2540	2900	
Flow [GPM]	1	-	-	-	-	-	-	-	-	-
	2	1005 28	1918 26	2598 23	5880 20	3325 17	4095 10	-	-	31
	4	1000 59	1940 57	2646 54	3118 51	3400 49	4195 41	4950 32	5540 22	61
	6	952 89	1882 87	2622 84	3118 81	3388 78	4175 68	4890 58	5520 48	91
	8	882 120	1824 119	2585 116	3052 112	3335 109	4145 96	4820 81	5410 67	122
	10	810 151	1740 150	2505 147	2988 142	3265 139	4095 122	4740 102	5350 85	152
	12	735 180	1665 179	2410 177	2882 174	3175 170	4030 152	4665 125	5260 100	182
	14	624 211	1570 210	2330 206	2795 201	3060 197	3930 174	4580 150	5175 120	212
Max. Cont.	16	546 241	1470 240	2275 237	2680 233	2965 230	3800 212	4470 181	5000 156	243
Max. Int.	18	458 272	1364 271	2135 268	2565 263	2875 259	3705 240	4375 205	4920 175	272
	20	318 302	1235 301	1988 298	2435 295	2715 292	5590 274	4280 242	4765 213	303
Torque (theor.) in-lb. [daNm]		1092 [12,34]	2184 [24,68]	2924 [33,03]	3417 [38,61]	3875 [43,78]	4932 [55,72]	6165 [69,65]	7045 [79,6]	
15.26 in ³ ./rev. [250,1 cm ³ ./rev.]										

Torque [in-lb] 4765
Speed [RPM] 213

Performance Data MLHR 315

		Pressure (Δ PSI)							Max. Cont.	Max. Int.	Speed (theor.)
		450	650	950	1150	1300	1500	1800	1950	2540	
Flow [GPM]	1	-	-	-	-	-	-	-	-	-	
	2	1162 23	1750 22	2445 21	3040 20	3340 19	3860 19	4478 18	4800 16	6065 8	24
	4	1210 47	1780 46	2495 45	3075 44	3365 43	3890 42	4490 40	4830 38	6175 28	48
	6	1176 71	1760 70	2470 68	3035 67	3335 66	3850 65	4485 62	4810 61	6110 51	72
	8	1105 95	1716 94	2438 92	2990 90	3300 89	3810 87	4395 84	4745 81	6010 70	96
	10	1034 118	1625 116	2365 113	2938 110	3250 108	3750 105	4330 101	4660 98	5940 82	120
	12	904 142	1520 140	2275 137	2860 134	3170 131	3660 129	4225 122	4560 117	5850 107	144
	14	780 166	1405 164	2170 160	2760 155	3080 152	3550 146	4150 138	4485 133	5765 107	168
Max. Cont.	16	656 191	1280 189	2035 185	2625 180	2950 177	3400 175	4010 164	4355 159	5535 137	192
Max. Int.	18	565 215	1158 213	1930 210	2482 205	2850 201	3290 192	3900 184	4250 177	5395 154	216
	20	410 239	1000 237	1755 234	2342 230	2705 227	3120 218	3770 211	4095 203	5135 175	240
Torque (theor.) in-lb. [daNm]		1377 [15,56]	2000 [22,59]	2888 [32,63]	3554 [40,16]	4000 [45,18]	4576 [51,71]	5554 [62,75]	6000 [67,77]	7775 [87,85]	
19.26 in ³ ./rev. [315,7 cm ³ ./rev.]											

Torque [in-lb] 5135
Speed [RPM] 175

The Performance data was collected at back pressure 72.5±145 PSI [5±10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50° C].



Performance Data MLHR 400

		Pressure (Δ PSI)									Max. Cont.	Max. Int.	Speed (theor.)
		215	430	645	785	1000	1150	1300	1520	1670	2030		
Flow [GPM]	2	710 18.5	1412 18.5	2145 18	2650 17.5	3375 16.5	3855 15.5	4315 14.5	4790 14	5264 13	6035 12	19	
	4	746 37.5	1420 37	2165 36	2688 35	3418 34	3950 32.5	4455 31	4890 31.5	5300 30	6035 27	38	
	6	710 56	1385 55.5	2160 55	2646 54	3370 52.5	3942 51	4400 49	3970 45	5255 42	6005 34	57	
	8	658 75.5	1314 75	2076 74.5	2540 74	3290 73	3830 72	4265 70	4680 66	5182 62	5990 49	76	
	10	568 95	1186 94.5	1972 94	2410 93.5	3190 92	3712 90.5	4172 88.5	4580 85	5094 82	5850 67	96	
	12	498 114	1065 113.5	1825 113	2290 112	3055 111	3588 109	4062 107	4430 103	4975 100	5740 84	115	
	14	390 133	920 132	1605 131	2130 130	2895 129	3410 128	3890 126	4380 122	4864 118	5626 100	134	
Max. Cont.	16	255 152	754 151	1495 149	1992 148	2770 147	3250 146	3738 145	4215 143	4692 142	5472 125	153	
Max. Int.	18	110 171	568 171	1305 170	1804 169	2565 168	3058 167	3552 166	4040 163	4535 161	5310 144	172	
	20	0 190	355 190	1080 189	1600 188	2400 187	2878 186	3342 185	3870 183	4380 181	5032 168	191	
Torque (theor.) in-lb. [daNm]		839 [9,48]	1678 [18,96]	2989 [28,12]	3020 [34,13]	3915 [44,24]	4475 [50,56]	5034 [56,88]	5874 [66,36]	6432 [72,68]	7831 [88,48]		

Torque [in-lb] 5032
 Speed [RPM] 168

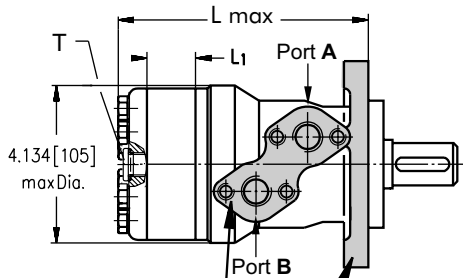
24.2 in³./rev. [397 cm³./rev.]

Metric Conversions

Flow 1 lpm = .2642 GPM
 Pressure 1 bar = 14.51 PSI
 Torque 1 Nm = 8.85 in-lb

The Performance data was collected at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50° C].

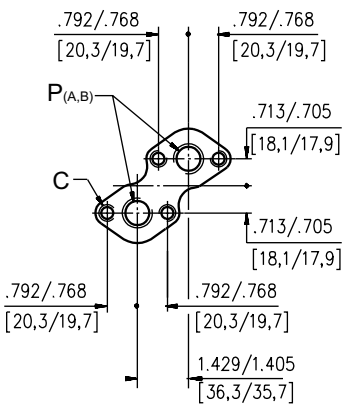
DIMENSIONS AND MOUNTING DATA



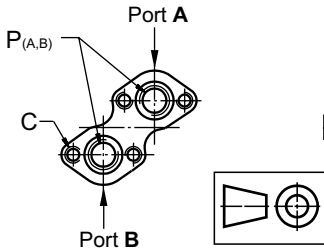
Porting

Side Ports

Version **2** **3** **5**

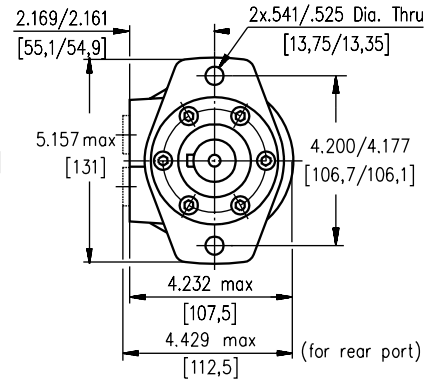


Version **4**

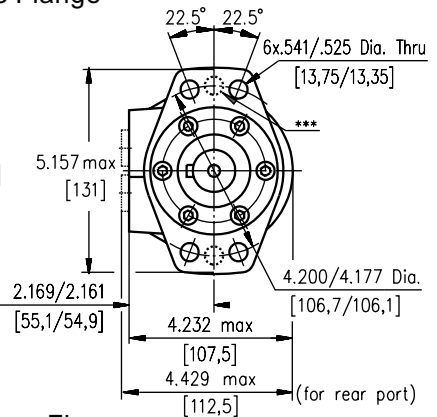


Mounting

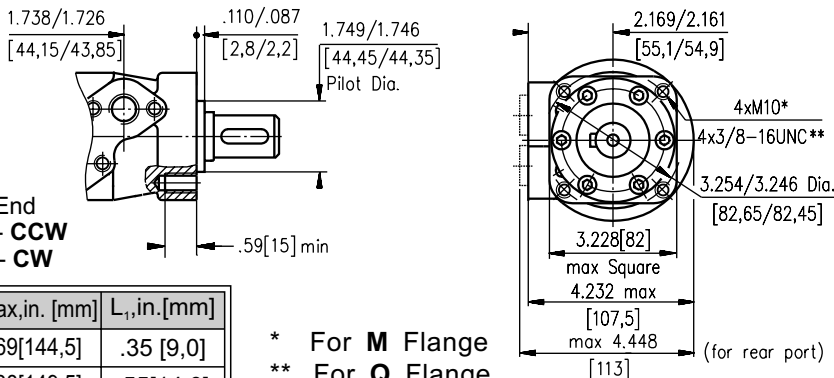
SAE A Flange



F Magneto Flange



M and Q Square Flange



Standard Rotation
Viewed from Shaft End
Port A Pressurized - **CW**
Port B Pressurized - **CCW**

Reverse Rotation
Viewed from Shaft End
Port A Pressurized - **CCW**
Port B Pressurized - **CW**

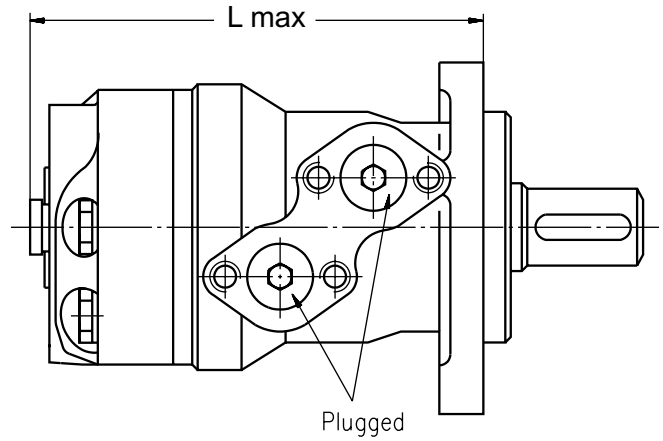
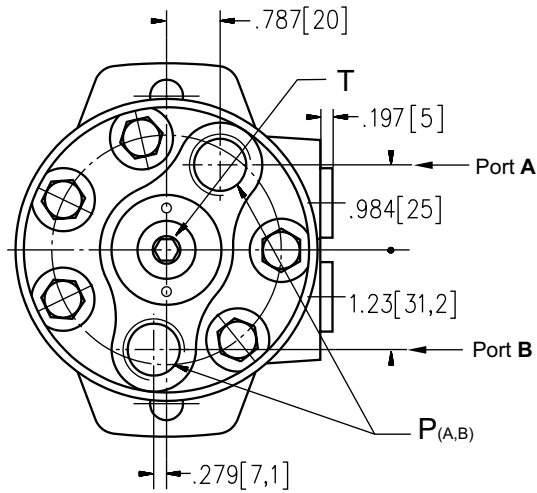
Type	L max,in. [mm]	Type	L max,in. [mm]	L ₁ ,in.[mm]
MLHR(F) 50	5.51[140,0]	MLHRQ(M) 50	5.69[144,5]	.35 [9,0]
MLHR(F) 80	5.71[145,0]	MLHRQ(M) 80	5.88[149,5]	.55[14,0]
MLHR(F) 100	5.85[148,5]	MLHRQ(M) 100	6.02[153,0]	.69[17,4]
MLHR(F) 125	6.02[153,0]	MLHRQ(M) 125	6.18[157,0]	.86[21,8]
MLHR(F) 160	6.26[159,0]	MLHRQ(M) 160	6.42[163,0]	1.09[27,8]
MLHR(F) 200	6.54[166,0]	MLHRQ(M) 200	6.69[170,0]	1.37[34,8]
MLHR(F) 250	6.87[174,5]	MLHRQ(M) 250	7.05[179,0]	1.71[43,5]
MLHR(F) 315	7.32[186,0]	MLHRQ(M) 315	7.48[190,0]	2.16[54,8]
MLHR(F) 400	7.89[200,5]	MLHRQ(M) 400	8.07[205,0]	2.73[69,4]

* For M Flange
** For Q Flange
*** Perform at customer's request

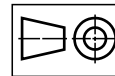
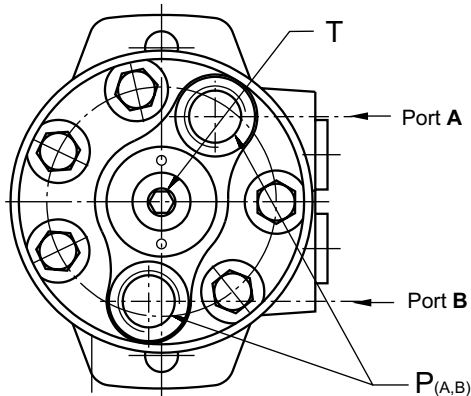
	Versions			
	2	3	4	5
C	4xM8	4xM8	4x ⁵ / ₁₆ -18UNC	4x ⁵ / ₁₆ -18UNC
P_(A,B)	2xG ¹ / ₂	2xM22x1,5	2x ⁷ / ₁₆ -14UNF	2x ¹ / ₂ -14NPTF
T	G ¹ / ₄	M14x1,5	⁷ / ₁₆ -20UNF	⁷ / ₁₆ -20UNF

MLHR - REAR PORTS

Version **6** **8** **9**



Version **7**



Standard Rotation

Viewed from Shaft End
Port A Pressurized - **CW**
Port B Pressurized - **CCW**

Reverse Rotation

Viewed from Shaft End
Port A Pressurized - **CCW**
Port B Pressurized - **CW**

	Versions			
	6	7	8	9
P(A,B)	2xG $\frac{1}{2}$	2x $\frac{7}{8}$ -14 UNF	2x $\frac{1}{2}$ -14 NPTF	2xM22x1,5
T	G $\frac{1}{4}$	$\frac{7}{16}$ -20 UNF	$\frac{7}{16}$ -20 UNF	M14x1,5

Type	L max,in. [mm]	Type	L max,in. [mm]
MLHR(F) 50	6.24 [158,5]	MLHRQ(M) 50	6.42 [163,0]
MLHR(F) 80	6.44 [163,5]	MLHRQ(M) 80	6.61 [168,0]
MLHR(F) 100	6.58 [167,0]	MLHRQ(M) 100	6.73 [171,0]
MLHR(F) 125	6.75 [171,5]	MLHRQ(M) 125	6.91 [175,5]
MLHR(F) 160	6.99 [177,5]	MLHRQ(M) 160	7.14 [181,5]
MLHR(F) 200	7.26 [184,5]	MLHRQ(M) 200	7.42 [188,5]
MLHR(F) 250	7.60 [193,0]	MLHRQ(M) 250	7.78 [187,5]
MLHR(F) 315	8.05 [204,5]	MLHRQ(M) 315	8.21 [208,5]
MLHR(F) 400	8.62 [219,0]	MLHRQ(M) 400	8.78 [223,0]

ORDER CODE

	1	2	3	4	5	6	7	8	9
M L H R									

Pos.1 - Mounting Flange

omit - SAE A, two holes

F - Magneto, four holes (six holes at customer's request)

M - Square metric, four bolts M10

Q - Square, four bolts

Pos.2 - Displacement code

50 - 3.14 [51,5] in.³/rev. [cm.³/rev.]

80 - 4.90 [80,3] in.³/rev. [cm.³/rev.]

100 - 6.09 [99,8] in.³/rev. [cm.³/rev.]

125 - 7.67 [125,7] in.³/rev. [cm.³/rev.]

160 - 9.74 [159,6] in.³/rev. [cm.³/rev.]

200 - 12.19 [199,8] in.³/rev. [cm.³/rev.]

250 - 15.26 [250,1] in.³/rev. [cm.³/rev.]

315 - 19.26 [315,7] in.³/rev. [cm.³/rev.]

400 - 24.40 [397,0] in.³/rev. [cm.³/rev.]

Pos.3 - Shaft Extensions* [see pages 28 and 29]

C - 1" [25,4] straight, Parallel key

VC - 1" [25,4] straight, Parallel key w/ corrosion resistant bushing

D - 7/8" [22,2] straight, Parallel key

G - 1" [25,4] SAE 6B Splined

H - 1" [25,4] straight w/ .406 [10,3] Crosshole

M - 25 mm straight, Parallel key

VM - 25 mm straight, Parallel key w/ corrosion resistant bushing

S - 7/8" [22,2] 13T Splined

T - 1" [25,4] SAE J501 Tapered

B - 32 mm straight, Parallel key

K - 1 1/4" [31,75] straight, Parallel key

L - 1 1/4" [31,75] 14T Splined

R - 1 1/4" [31,75] SAE J501 Tapered

Pos. 4 - Option [needle bearings]

omit - none

N - with needle bearings

Pos. 5 - Port Size/Type [standard manifold to each]

2 - side ports, 2xG1/2, G1/4, BSP thread, ISO 228

3 - side ports, 2xM22x1,5, M14x1,5, metric thread, ISO 262

4 - side ports, 2x7/8-14 UNF, O-ring, 7/16-20 UNF

5 - side ports, 2x1/2-14 NPTF, 7/16-20 UNF

6 - rear ports, 2xG1/2, G1/4, BSP thread, ISO 228

7 - rear ports, 2x7/8-14 UNF, O-ring, 7/16-20 UNF

8 - rear ports, 2x1/2-14 NPTF, 7/16-20 UNF

9 - rear ports, 2xM22x1,5, M14x1,5, metric thread, ISO 262

Pos. 6 - Shaft Seal Version [see page 31]

omit - Standard shaft seal

U - High pressure shaft seal (without check valves)

Pos. 7 - Drain Port

omit - with drain port

1 - without drain port

Pos. 8 - Special Features [see page 52]

Pos. 9 - Design Series

omit - Factory specified

Notes : The following combinations are not allowed: - **Q** and **M** flange with **B, K, L, R** shafts;
- **N** option with **B, K, L, R** shafts, **U** option and **RS** option;

* The permissible output torque for shafts must not be exceeded!

The hydraulic motors are mangano-phosphatized as standard.