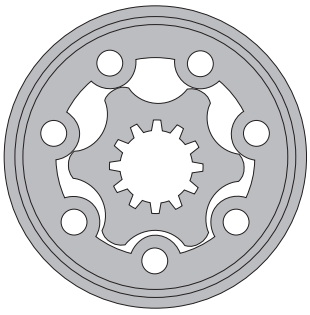
HYDRAULIC MOTORS MLHP

APPLICATION

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



CONTENTS

OPTIONS

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

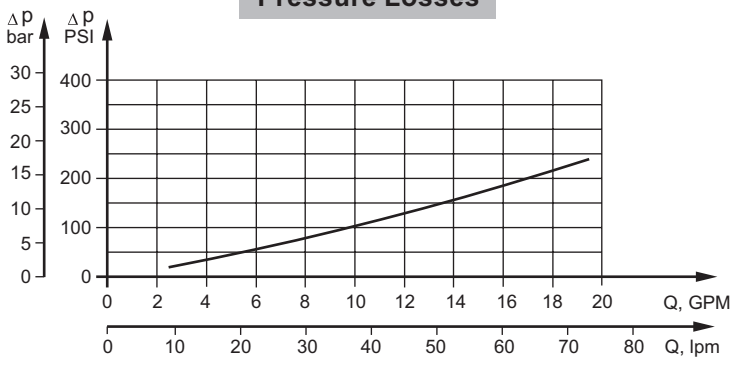
GENERAL

Displacement, in^3/rev [cm^3/rev.]	1.52÷38.5 [25÷623,6]
Max. Speed, [RPM]	1600÷97
Max. Torque, in-lb [daNm]	290÷4415 [3,3÷50]
Max. Output, HP [kW]	4.4÷14.1 [3,3÷10,5]
Max. Pressure Drop, PSI [bar]	2030÷800 [140÷55]
Max. Oil Flow, GPM [lpm]	10.5÷16 [40÷60,6]
Min. Speed, [RPM]	10
Pressure fluid	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range, ^oF [^oC]	-22÷194 [-30÷90]
Optimal Viscosity range, SUS [mm^2/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

Type		MLHP 25	MLHP 32	MLHP 40	MLHP 50	MLHP... 50...B...	MLHP 80	MLHP... 80...B...
Displacement, in.³/rev. [cm.³/rev.]		1.52 [25]	1.95 [32]	2.44 [40]	3.02 [49,5]	3.02 [49,5]	4.83 [79,2]	4.83 [79,2]
Max. Speed,	Cont.	1600	1560	1515	1225	1225	765	765
[RPM]	Int.*	1815	1720	1760	1530	1530	956	956
Max. Torque	Cont.	290 [3,3]	380 [4,3]	550 [6,2]	835 [9,43]	835 [9,43]	1340 [15,15]	1340 [15,15]
in-lb [daNm]	Int.*	415 [4,7]	540 [6,1]	730 [8,2]	1050 [11,9]	1050 [11,9]	1725 [19,5]	1725 [19,5]
	Peak**	595 [6,7]	760 [8,6]	950 [10,7]	1285 [14,3]	1285 [14,3]	1985 [22,4]	1985 [22,4]
Max. Output	Cont.	6.0 [4,5]	7.8 [5,8]	11.5 [8,5]	13.5 [10,1]	13.5 [10,1]	13.7 [10,2]	13.7 [10,2]
HP [kW]	Int.*	8.2 [6,1]	10.5 [7,8]	15.5 [11,6]	16.1 [12,2]	16.1 [12,2]	16.8 [12,5]	16.8 [12,5]
Max. Pressure Drop	Cont.	1450 [100]	1450 [100]	1750 [120]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
PSI [bar]	Int.*	2030 [140]	2030 [140]	2250 [155]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Oil Flow	Cont.	10.5 [40]	13.2 [50]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]
GPM [lpm]	Int.*	12 [45,4]	14.5 [55]	18.5 [70]	20 [75,8]	20 [75,8]	20 [75,8]	20 [75,8]
Max. Inlet Pressure	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
PSI [bar]	Int.*	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]
Max. Return Pres-	Cont. 0-100 RPM	2200 [150]	2200 [150]	2200 [150]	2200 [150]	1450[100]	2200 [150]	1450[100]
sure without Drain	Cont. 100-300 RPM	1900 [75]	1900 [75]	1100 [75]	1100 [75]	435 [30]	1100 [75]	435 [30]
Line or Max. Pres-	Cont. 300-600 RPM	725 [50]	725 [50]	725 [50]	725 [50]	217 [15]	725 [50]	217 [15]
sure in Drain Line,	Cont. >600 RPM	300 [20]	300 [20]	300 [20]	300 [20]	-	300 [20]	-
PSI [bar]	Int.* 0-max. RPM	2200 [150]	2200 [150]	2200 [150]	2200 [150]	1450[100]	2200 [150]	1450[100]
Max. Return Pres-	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
sure with Drain Line	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
PSI [bar]	Peak**	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]	145 [10]	145 [10]	145 [10]	145 [10]
Min. Starting Torque	At max.press. drop Cont.	265 [3,0]	355 [4,0]	480 [5,4]	690 [7,8]	690 [7,8]	1170 [13,2]	1170 [13,2]
in-lb [daNm]	At max.press. drop Int.*	370 [4,2]	500 [5,6]	600 [6,8]	885 [10]	885 [10]	1490 [16,8]	1490 [16,8]
Min. Speed*, [RPM]**		20	15	10	10	10	10	10
Weight, lb [kg]	MLHP(F)(N)	12.3 [5,6]	12.4 [5,6]	12.6 [5,7]	12.8 [5,8]	13[5,9]	13.2 [5,9]	13.2[6]
For rear ports	MLHPW(N)				12.1 [5,5]		12.4 [5,6]	
+.992 [0,450]	MLHPQ(M)(N)				11.5 [5,2]		11.7 [5,3]	

* 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, consult factory or your regional manager.

1. Intermittent speed and intermittent pressure drop 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 [13 mm²/s] at 122ºF [50ºC].
5. Recommended maximum system operating temperature is 180ºF [82ºC].
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)

Type		MLHP 100	MLHP... 100...B...	MLHP 125	MLHP... 125...B...	MLHP 160	MLHP... 160...B...	MLHP 200	MLHP... 200...B...
Displacement, in.³/rev. [cm.³/rev.]		6.04 [99]	6.04 [99]	7.55 [123,8]	7.55 [123,8]	9.66 [158,4]	9.66 [158,4]	12.1 [198]	12.1 [198]
Max. Speed	Cont.	612	612	489	489	382	382	306	306
[RPM]	Int.*	765	765	611	611	479	479	383	383
Max. Torque	Cont.	1710 [19,3]	1710 [19,3]	2100 [23,7]	2100 [23,7]	2770 [31,3]	2770 [31,3]	3240 [36,6]	3240 [36,6]
in-lb [daNm]	Int.*	2100 [23,7]	2100 [23,7]	2640 [29,8]	2640 [29,8]	3345 [37,8]	3345 [37,8]	4035 [45,6]	4035 [45,6]
	Peak**	2435 [27,5]	2435 [27,5]	3235 [36,5]	3235 [36,5]	3880 [43,8]	3875 [43,8]	4870 [55]	4870 [55]
Max. Output	Cont.	14.1 [10,5]	14.1 [10,5]	13.7 [10,2]	13.7 [10,2]	13.5 [10,1]	13.5 [10,1]	13.5 [10]	13.5 [10]
HP [kW]	Int.*	17.1 [12,8]	17.1 [12,8]	16.1 [12]	16.1 [12]	16.2 [12,1]	16.2 [12,1]	16.1 [12]	16.1 [12]
Max. Pressure Drop	Cont.	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
PSI [bar]	Int.*	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Oil Flow	Cont.	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]
GPM [lpm]	Int.*	20 [75,8]	20 [75,8]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]	20 [75,7]
Max. Inlet Pressure	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
PSI [bar]	Int.*	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]
Max. Return Pressure	Cont. 0-100 RPM	2200 [150]	1450[100]	2200 [150]	1450[100]	2200 [150]	1450[100]	2200 [150]	1450[100]
without Drain Line or	Cont. 100-300 RPM	1100 [75]	435 [30]	1100 [75]	435 [30]	1100 [75]	435 [30]	1100 [75]	435 [30]
Max. Pressure	Cont. 300-600 RPM	725 [50]	217 [15]	725 [50]	217 [15]	725 [50]	217 [15]	725 [50]	217 [15]
in Drain Line,	Cont. >600 RPM	300 [20]	-	300 [20]	-	300 [20]	-	300 [20]	-
PSI [bar]	Int.* 0-max. RPM	2200 [150]	1450[100]	2200 [150]	1450[100]	2200 [150]	1450[100]	2200 [150]	1450[100]
Max. Return Pressure	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
with Drain Line	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
PSI [bar]	Peak**	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]	131 [9]	131 [9]	116 [8]	116 [8]	100 [7]	100 [7]
Min. Starting Torque	At max.press.drop Cont.	1470 [16,6]	1470 [16,6]	1830 [20,7]	1830 [20,7]	2500 [28,2]	2500 [28,2]	2950 [33,5]	2950 [33,5]
in-lb [daNm]	At max. press. drop Int.*	1860 [21]	1860 [21]	2360 [26,6]	2360 [26,6]	3140 [35,5]	3140 [35,5]	3770 [42,6]	3770 [42,6]
Min. Speed***, [RPM]		10	10	10	10	10	10	10	10
Weight, lb [kg]	MLHP(F)(N)	13.5 [6,1]	13.7[6,2]	13,7 [6,2]	13.9[6,3]	14.1 [6,4]	14.3[6,5]	14.6 [6,6]	14.8[6,7]
For rear ports	MLHPW(N)	12.8 [5,8]		13 [5,9]		13.5 [6,1]		13.9 [6,3]	
+.992 [0,450]	MLHPQ(M)(N)	12.1 [5,5]		12.3 [5,6]		12.8 [5,8]		13.2 [6]	

* 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, consult factory or your regional manager.

1. Intermittent speed and intermittent pressure drop 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 [13 mm²/s] at 122ºF [50ºC].
5. Recommended maximum system operating temperature is 180ºF [82ºC].
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)

Type		MLHP 250	MLHP... 250...B...	MLHP 315	MLHP... 315...B...	MLHP 400	MLHP... 400..B...	MLHP 500	MLHP 630
Displacement, in.³/rev. [cm.³/rev.]		15.1 [247,5]	15.1 [247,5]	19.3 [316,8]	19.3 [316,8]	24.16 [396]	24.16 [396]	30.2 [495]	38.5 [623,6]
Max. Speed,	Cont.	245	245	191	191	153	153	122	97
[RPM]	Int.*	306	306	239	239	191	191	153	121
Max. Torque	Cont.	3360 [38]	4160 [47]	3360 [38]	4360 [48]	3190 [36]	4415 [50]	3452 [39]	3895 [44]
in-lb [daNm]	Int.*	5160 [58,3]	5160 [58,3]	4960 [56]	4960 [56]	5240 [59]	5240 [59]	5045 [57]	5665 [64]
	Peak**	6060 [68,5]	6060 [68,5]	7505 [85]	7505 [85]	7560 [85,4]	7560 [85,4]	6903 [78]	7257 [82]
Max. Output	Cont.	10 [7,5]	12.1 [9]	7.9 [5,8]	10.2 [7,6]	6.2 [4,6]	8.3 [6,2]	4.7 [3,5]	4.4 [3,3]
HP [kW]	Int.*	16.1 [12]	16.1 [12]	12.1 [9]	12.1 [9]	10.5 [7,8]	10.5 [7,8]	9,7 [7,2]	7.5 [5,6]
Max. Pressure	Cont.	1600 [110]	3030 [140]	1300 [90]	1740 [120]	1015 [70]	1400 [95]	870 [60]	800 [55]
Drop	Int.*	2540 [175]	2540 [175]	2030 [140]	2030 [140]	1665 [115]	1670 [115]	1305 [90]	1160 [80]
PSI [bar]	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	2610 [180]	2610 [180]	1885 [130]	1740 [110]
Max. Oil Flow	Cont.	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]	16 [60,6]
GPM [lpm]	Int.*	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 Pres-	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2030 [140]	2030 [140]
sure	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2540 [175]	2540 [175]
PSI [bar]	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max.Return Pres-	Cont. 0-100 RPM	2200 [150]	1450[100]	2200 [150]	1450[100]	2200 [150]	1450[100]	2200 [150]	2200 [150]
sure without	Cont. 100-300 RPM	1100 [75]	435 [30]	1100 [75]	435 [30]	1100 [75]	435 [30]	1100 [75]	-
Drain Line or Max	Cont. 300-600 RPM	-	-	-	-	-	-	-	-
Pressure in Drain	Cont. >600 RPM	-	-	-	-	-	-	-	-
Line, PSI [bar]	Int.* 0-max. RPM	2200 [150]	1450[100]	2200 [150]	1450[100]	2200 [150]	1450[100]	2200 [150]	2200 [150]
Max.Return Pres-	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2030 [140]	2030 [140]
sure with Drain	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2540 [175]	2540 [175]
Line, PSI [bar]	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3262 [225]	3262 [225]	3260 [225]	3260 [225]
Max. Starting Pressure with Unloaded Shaft, PSI [bar]		87 [6]	87 [6]	73 [5]	73 [5]	73 [5]	73 [5]	73 [5]	73 [5]
Min. Starting Tor-	At max.press.dropCont	2970 [33,6]	3790 [42,8]	3045 [34,4]	4050 [45,8]	3050 [34,5]	4140 [46,8]	3180 [36]	3670 [41,5]
que, in-lb [daNm]	At max.press.drop Int.*	4795 [54,2]	4795 [54,2]	5480 [61,9]	5480 [61,9]	5390 [60,8]	5390 [60,8]	4780 [54]	5480 [62]
Min. Speed*, [RPM]**		10	10	10	10	10	10	10	10
Weight, lb [kg]	MLHP(F)(N)	15 [6,8]	15.2[6,9]	15.6 [7,1]	15.9[7,2]	16.8 [7,6]	17[7,7]	20 [8,9]	21.4 [9,5]
For rear ports	MLHPW(N)	14.3 [6,5]		15 [6,8]		15.9 [7,2]			
+ .992 [0,450]	MLHPQ(M)(N)	13.7 [6,2]		14.3 [6,5]		15 [6,8]		18.3 [8,3]	19.8 [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, consult factory or your regional manager.

1. Intermittent speed and intermittent pressure drop 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 [13 mm²/s] at 122ºF [50ºC].
5. Recommended maximum system operating temperature is 180ºF [82ºC].
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 for MLHP...LSV and HP...LSV

Low Speed Valve (LSV) **"LSV"** Series hydraulic motors have been designed to operate with normal pressure drop and to ensure smooth run at low speed (up to 200 RPM), as the best security for operation is guaranteed at frequency of rotation 20 ÷ 50 RPM . They have an increased starting pressure drop and are not recommended for using at pressure less than 580 PSI [40 bar].

Look at specification data for hydraulic motors standard version. The modification concerns only the following parameters : maximum speed , maximum output, maximum Oil flow and maximum starting pressure.

Type		MLHP 25	MLHP 32	MLHP 40	MLHP 50	MLHP 80	MLHP 100	MLHP 125	MLHP 160	MLHP 200	MLHP 250	MLHP 315	MLHP 400	MLHP 500	MLHP 630
Max. Speed,	Cont.	200	200	200	200	200	200	200	200	200	200	190	150	80	64
[RPM]	Int.*	250	250	250	250	250	250	250	250	250	250	236	190	101	80
Max. Output	Cont.	.94 [0,7]	1.21 [0,9]	1.6 [1,2]	2.7 [2,0]	4 [3,0]	5.1[3,8]	6.6 [4,9]	8.2 [6,1]	9.4 [7]	7 [5,2]	5.6 [4,2]	4.6 [3,4]	3.9 [2,9]	3.5 [2,6]
HP [kW]	Int.*	1.6 [1,2]	2 [1,5]	2.7 [2,0]	4.3 [3,2]	6.7 [5,0]	8 [6,0]	9.7 [7,2]	12.7[9,5]	13.1 [9,8]	12.1 [9,1]	9.7 [7,2]	8 [6,0]	6.7 [5,0]	5.6 [4,2]
Max. Oil Flow	Cont.	2.4 [9]	2.9 [11]	2.9 [11]	3.9 [15]	5.8 [22]	6.3 [24]	7.9 [30]	9 [34]	10.5 [40]	10.5 [40]	10.5 [40]	10.5 [40]	10.5 [40]	10.5 [40]
GPM [lpm]	Int.*	3.6 [13,5]	4.4 [16,5]	3.7 [14]	5.3 [20]	7.7 [29]	8.7 [33]	10 [38]	12.1 [46]	13 [50]	13 [50]	13 [50]	13 [50]	13 [50]	13 [50]
Max. Starting Pressure with Unloaded Shaft, PSI [bar]		360 [25]	360 [25]	360 [25]	290 [20]	290 [20]	290 [20]	290 [20]	217 [15]	217 [15]	217 [15]	175 [12]	175 [12]	145 [10]	145 [10]

SPECIFICATION DATA for MLHP...LL and HP...LL

Low Leakage (LL) **"LL"** Series hydraulic motors have been designed to operate at the whole standard range of working conditions (pressure drop and frequency of rotation) , but with considerable decreased volumetric losses in the drainage ports. Their main purpose is to operate as series-connected motors in hydraulic systems.

For this version is permissible decreasing of the maximal torque with up to 5% (at middle speed) and up to 10% (at high speed) in comparison to the standard versions of motors.

Look at specification data for hydraulic motors series MLHP standard version. The modification concerns only the parameters: maximum torque, maximum output, maximum pressure drop, minimum starting torque.

Type		MLHP 25	MLHP 32	MLHP 40	MLHP 50	MLHP 80	MLHP 100	MLHP 125	MLHP 160	MLHP 200	MLHP 250	MLHP 315	MLHP 400	MLHP 500	MLHP 630
Max. Torque	Cont.	275 [3,1]	365 [4,1]	515 [5,8]	800 [9]	1275 [14,4]	1630 [18,4]	1990 [22,5]	2640 [29,8]	2640 [34,8]	3950 [44,6]	4090 [46,2]	4205 [47,5]	3365 [38]	3790 [42,8]
in-lb [daNm]	Int.*	380 [4,3]	515 [5,8]	690 [7,8]	1000 [11,3]	1640 [18,5]	1990 [22,5]	2505 [28,3]	3190 [36,0]	3190 [43,3]	4905 [55,4]	4710 [53,2]	4960 [56,0]	4870 [55]	5490 [62]
Max. Output	Cont.	5.8 [4,3]	7.1 [5,6]	11 [8,2]	13.4 [10]	13.5 [10,1]	13.9 [10,4]	13.3 [9,9]	13.4 [10,0]	13.3 [9,9]	12.6 [9,4]	10 [7,5]	8.2 [6,1]	4.6 [3,4]	4.3 [3,2]
HP [kW]	Int.*	8 [6]	10.3 [7,7]	15.4 [11,5]	16.1 [12]	16.5 [12,3]	16.9 [12,6]	15.8 [11,8]	16.1 [12,0]	15.8 [11,8]	15.8 [11,8]	11.9 [8,9]	10.3 [7,7]	9.5 [7,1]	7.4 [5,5]
Max. Pressure Drop	Cont.	1450 [100]	1450 [100]	1740 [120]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	1740 [120]	1380 [95]	870 [60]	800 [55]
PSI [bar]	Int.*	2030 [140]	2030 [140]	2250 [155]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2030 [140]	1670 [115]	1305 [90]	1160 [80]
Min. Starting Torque	Cont.	400 [4,5]	505 [5,7]	600 [6,8]	655 [7,4]	1105 [12,5]	1400 [15,8]	1735 [19,6]	2375 [26,8]	2815 [31,8]	3605 [40,7]	3850 [43,5]	3940 [44,5]	4070 [46]	4425 [50]
in-lb [daNm]	Int.*	530 [6]	620 [7]	710 [8]	840 [9,5]	1415 [16,0]	1770 [20,0]	2230 [25,2]	2985 [33,7]	3585 [40,5]	4560 [51,5]	5205 [58,8]	5115 [57,8]	4605 [52]	5310 [60]

SPECIFICATION DATA for MLHP...FR and HP...FR

Free Running version "FR" these are the hydraulic motors with reduced mechanical losses , for which at disengaged condition / unconnected with driving mechanism / the rotation of the shaft could be realized by means of small torque. This advantage is especially usefull at operating with high frequencies of rotation /over than 300 RPM/ and low pressure drop , which is inbred for types with displacements of up to 12.19 in^3 [200 cm^3]. It is normal for these for the different condition of operation to have high torque , as well as high volume losses : the values of the volumetric efficiency are lower (up to 5 % for middle and up to 10 % for high values of the pressure drop) , than these of the normal versions. That's why the recommended operating for "FR" version is for applications with pressure drop up to 1450 PSI [100 bar].

Additional advantages of "FR" version are prolonging of the life of the hydraulic motors at high frequencies of rotation, as well as the possibility to use them in systems with big variation of the loading.

This version is available for all of the motors ,series MLHP and MLHR with displacements of up to 200 cc.

Look at specification data for hydraulic motors series MLHP standard version. Only the parameter Starting Pressure is modified.

Type	MLHP 25	MLHP 32	MLHP 40	MLHP 50	MLHP 80	MLHP 100	MLHP 125	MLHP 160	MLHP 200
Max. Starting Pressure with Unloaded Shaft, PSI [bar]	116 [8]	116 [8]	116 [8]	116 [8]	116 [8]	116 [8]	109 [7,5]	94 [6,5]	80 [5,5]

Performance Data — MLHP 25

Flow [GPM]	Pressure (Δ PSI) 450	900	1160	Max. Cont. 1450	1740	Max. Int. 2030
1	98 / **121**	181 / **78**	227 / **46**	- / **-**	- / **-**	- / **-**
2	103 / **272**	191 / **226**	237 / **193**	296 / **144**	350 / **81**	398 / **20**
3	102 / **424**	191 / **376**	237 / **343**	298 / **293**	357 / **224**	411 / **154**
5	99 / **717**	188 / **665**	236 / **630**	297 / **580**	360 / **518**	419 / **451**
7	94 / **1008**	182 / **955**	231 / **921**	293 / **869**	357 / **806**	420 / **736**
9	87 / **1311**	174 / **1253**	225 / **1214**	287 / **1161**	351 / **1102**	415 / **1033**
Max. Cont. 11	76 / **1546**	166 / **1488**	218 / **1450**	282 / **1400**	345 / **1335**	410 / **1270**
Max. Int. 12	70 / **1764**	157 / **1703**	211 / **1664**	275 / **1615**	339 / **1555**	403 / **1490**

Torque [in-lb] 411
Speed [RPM] 154

1.52 in^3./rev. [25 cm^3./rev.]

Performance Data — MLHP 32

Flow [GPM]	Pressure (Δ PSI) 450	900	1160	Max. Cont. 1450	1740	Max. Int. 2030
1	118 / **90**	229 / **52**	291 / **25**	- / **-**	- / **-**	- / **-**
2	118 / **210**	232 / **171**	298 / **141**	373 / **100**	445 / **51**	- / **-**
3	118 / **331**	233 / **291**	302 / **260**	377 / **219**	454 / **166**	520 / **113**
5	113 / **564**	229 / **527**	302 / **491**	379 / **448**	460 / **390**	531 / **315**
7	107 / **798**	224 / **759**	296 / **726**	376 / **683**	457 / **631**	535 / **558**
9	98 / **1036**	216 / **992**	289 / **958**	371 / **916**	452 / **865**	532 / **800**
11	90 / **1268**	207 / **1222**	280 / **1191**	362 / **1149**	445 / **1097**	526 / **1035**
Max. Cont. 13	81 / **1510**	198 / **1460**	271 / **1424**	353 / **1380**	438 / **1321**	518 / **1261**
Max. Int. 14.5	74 / **1693**	190 / **1641**	261 / **1607**	344 / **1560**	432 / **1504**	510 / **1437**

Torque [in-lb] 520
Speed [RPM] 113

1.95 in^3./rev. [32 cm^3./rev.]

The Performance data was collected at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm^2/s] at 122^{0}F [50° C].

Performance Data — MLHP 40

Flow [GPM]	Pressure (Δ PSI) 450	900	1160	1450	1740 (Max. Cont.)	2030	2250 (Max. Int.)
1	134 / **87**	278 / **74**	364 / **61**	443 / **47**	533 / **28**	617 / **8**	- / **-**
2	138 / **180**	289 / **165**	376 / **152**	459 / **137**	552 / **116**	643 / **92**	710 / **74**
4	135 / **367**	283 / **353**	375 / **340**	460 / **327**	559 / **308**	657 / **285**	724 / **258**
6	129 / **557**	274 / **544**	370 / **533**	457 / **519**	558 / **501**	656 / **478**	724 / **451**
8	121 / **748**	263 / **735**	362 / **722**	450 / **711**	552 / **696**	650 / **674**	719 / **657**
10	109 / **941**	249 / **929**	352 / **918**	441 / **906**	543 / **889**	640 / **872**	708 / **858**
12	97 / **1128**	236 / **1114**	340 / **1100**	428 / **1088**	532 / **1073**	629 / **1056**	697 / **1044**
14 (Max. Cont.)	84 / **1313**	220 / **1300**	328 / **1287**	416 / **1274**	519 / **1260**	617 / **1243**	685 / **1231**
16	68 / **1500**	203 / **1485**	316 / **1472**	402 / **1460**	505 / **1444**	604 / **1427**	673 / **1414**
18.5 (Max. Int.)	47 / **1739**	179 / **1722**	297 / **1703**	381 / **1689**	485 / **1671**	586 / **1653**	655 / **1642**

Torque [in-lb] 724
Speed [RPM] 258

2.44 in^3./rev. [40 cm^3./rev.]

Performance Data — MLHP 50

Flow [GPM]	Pressure (Δ PSI) 450	900	1150	1450	1740	1810	2030 (Max. Cont.)	2320	2540 (Max. Int.)
1	168 / **71**	345 / **63**	459 / **45**	571 / **19**	- / -	- / -	- / -	- / -	- / -
2	176 / **150**	357 / **133**	482 / **113**	591 / **86**	727 / **70**	760 / **51**	816 / **30**	- / -	- / -
4	165 / **304**	355 / **290**	477 / **274**	604 / **255**	730 / **232**	771 / **213**	853 / **182**	971 / **137**	1054 / **97**
6	158 / **454**	346 / **443**	474 / **432**	600 / **413**	729 / **390**	776 / **378**	854 / **368**	988 / **325**	1080 / **298**
8	145 / **613**	339 / **602**	462 / **587**	594 / **566**	725 / **543**	772 / **532**	848 / **518**	986 / **486**	1078 / **459**
10	128 / **767**	329 / **757**	450 / **743**	584 / **724**	712 / **696**	760 / **687**	840 / **670**	972 / **639**	1067 / **617**
12	115 / **922**	312 / **912**	437 / **902**	567 / **886**	701 / **862**	748 / **851**	828 / **836**	959 / **804**	1054 / **781**
14	98 / **1078**	290 / **1069**	420 / **1058**	552 / **1040**	682 / **1018**	726 / **1004**	810 / **990**	943 / **958**	1028 / **937**
16 (Max. Cont.)	79 / **1232**	272 / **1217**	400 / **1206**	543 / **1193**	660 / **1173**	708 / **1167**	793 / **1155**	918 / **1131**	1001 / **1110**
18	57 / **1389**	244 / **1368**	374 / **1355**	504 / **1342**	635 / **1325**	685 / **1314**	771 / **1304**	896 / **1270**	975 / **1240**
20 (Max. Int.)	34 / **1540**	215 / **1521**	347 / **1510**	476 / **1492**	603 / **1483**	648 / **1474**	740 / **1466**	867 / **1428**	941 / **1402**

Torque [in-lb] 1054
Speed [RPM] 97

3.02 in^3./rev. [49,5 cm^3./rev.]

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^{0}F [50° C].

Performance Data — MLHP 80

Flow [GPM]	Pressure (Δ PSI) 450	900	1150	1450	1740	1810	Max. Cont. 2030	2320	Max. Int. 2540
1	296 / **43**	578 / **34**	716 / **25**	900 / **17**	- / -	- / -	- / -	- / -	- / -
2	299 / **90**	565 / **80**	749 / **67**	937 / **51**	1115 / **30**	1161 / **18**	- / -	- / -	- / -
4	300 / **185**	590 / **178**	760 / **168**	976 / **150**	1146 / **133**	1202 / **121**	1331 / **111**	1492 / **75**	- / -
6	286 / **282**	578 / **275**	749 / **265**	972 / **255**	1137 / **237**	1196 / **229**	1334 / **218**	1529 / **183**	1673 / **158**
8	268 / **379**	566 / **379**	733 / **362**	954 / **351**	1123 / **333**	1180 / **326**	1318 / **315**	1520 / **280**	1668 / **257**
10	247 / **473**	548 / **468**	717 / **460**	930 / **447**	1112 / **430**	1165 / **425**	1298 / **410**	1505 / **378**	1659 / **354**
12	207 / **568**	528 / **561**	696 / **552**	909 / **543**	1087 / **526**	1142 / **521**	1275 / **504**	1482 / **477**	1640 / **453**
14	204 / **664**	501 / **658**	671 / **650**	864 / **638**	1061 / **623**	1120 / **618**	1255 / **604**	1453 / **577**	1618 / **555**
Max. Cont. 16	168 / **759**	481 / **752**	642 / **746**	852 / **736**	1038 / **721**	1094 / **716**	1230 / **703**	1430 / **676**	1590 / **652**
18	140 / **855**	446 / **848**	605 / **839**	823 / **832**	1006 / **818**	1063 / **813**	1198 / **799**	1401 / **777**	1560 / **753**
Max. Int. 20	103 / **946**	392 / **940**	566 / **933**	782 / **923**	982 / **910**	1036 / **907**	1165 / **894**	1363 / **866**	1526 / **848**

Torque [in-lb] 1673
Speed [RPM] 158

4.83 in^3./rev. [79,2 cm^3./rev.]

Performance Data — MLHP 100

Flow [GPM]	Pressure (Δ PSI) 450	900	1150	1450	1740	Max. Cont. 1810	Max. Cont. 2030	2320	Max. Int. 2540
1	357 / **34**	693 / **26**	926 / **18**	1138 / **11**	- / -	- / -	- / -	- / -	- / -
2	365 / **75**	707 / **69**	940 / **62**	1171 / **52**	1395 / **38**	1470 / **32**	1614 / **21**	- / -	- / -
4	357 / **152**	708 / **148**	950 / **144**	1174 / **135**	1415 / **121**	1490 / **114**	1651 / **101**	1883 / **70**	2038 / **33**
6	335 / **230**	691 / **227**	930 / **221**	1165 / **212**	1412 / **201**	1492 / **195**	1660 / **185**	1901 / **161**	2069 / **138**
8	305 / **307**	674 / **303**	915 / **299**	1150 / **291**	1390 / **284**	1470 / **280**	1634 / **269**	1881 / **247**	2054 / **220**
10	281 / **393**	652 / **391**	890 / **387**	1116 / **380**	1366 / **372**	1450 / **368**	1612 / **358**	1846 / **338**	2033 / **316**
12	265 / **462**	619 / **460**	866 / **457**	1094 / **452**	1352 / **442**	1432 / **436**	1586 / **426**	1821 / **406**	2012 / **385**
14	232 / **540**	586 / **539**	829 / **535**	1061 / **530**	1318 / **521**	1388 / **517**	1558 / **508**	1793 / **487**	1981 / **465**
Max. Cont. 16	205 / **615**	552 / **614**	814 / **612**	1034 / **607**	1277 / **590**	1350 / **594**	1525 / **585**	1761 / **567**	1956 / **547**
18	155 / **695**	508 / **692**	756 / **688**	990 / **684**	1238 / **677**	1322 / **675**	1481 / **665**	1724 / **648**	1907 / **627**
Max. Int. 20	106 / **770**	458 / **767**	705 / **765**	935 / **761**	1194 / **757**	1273 / **752**	1459 / **744**	1676 / **727**	1867 / **705**

Torque [in-lb] 2038
Speed [RPM] 33

6.04 in^3./rev. [99,0 cm^3./rev.]

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 MLHP 125

Flow [GPM]	Pressure (Δ PSI) 450	900	1150	1450	1740	1810	Max. Cont. 2030	2320	Max. Int. 2540
1	488	922	1223	-	-	-	-	-	-
	28	**21**	**14**	-	-	-	-	-	-
2	479	924	1246	1545	1837	1920	2102	-	-
	59	**55**	**51**	**41**	**28**	**23**	**12**	-	-
4	474	923	1253	1554	1857	1965	2155	2432	2617
	120	**115**	**111**	**102**	**89**	**83**	**68**	**44**	**24**
6	450	905	1224	1534	1843	1941	2136	2456	2655
	180	**177**	**172**	**166**	**156**	**152**	**144**	**125**	**110**
8	417	881	1203	1498	1815	1905	2117	2420	2632
	240	**237**	**233**	**226**	**217**	**213**	**203**	**187**	**176**
10	393	851	1176	1462	1786	1875	2084	2377	2590
	300	**297**	**294**	**289**	**278**	**275**	**265**	**247**	**236**
12	351	816	1131	1429	1739	1825	2045	2341	2560
	361	**358**	**354**	**348**	**339**	**336**	**327**	**310**	**295**
14	308	780	1099	1383	1685	1786	1995	2292	2526
	424	**420**	**417**	**411**	**401**	**398**	**390**	**375**	**359**
Max. Cont. 16	259	732	1045	1340	1637	1727	1945	2242	2471
	483	**479**	**475**	**470**	**463**	**460**	**450**	**435**	**421**
18	205	672	997	1291	1578	1675	1888	2188	2407
	543	**540**	**536**	**531**	**522**	**518**	**512**	**496**	**484**
Max. Int. 20	149	616	932	1214	1504	1616	1822	2125	2331
	602	**599**	**596**	**589**	**585**	**581**	**573**	**557**	**534**

Torque [in-lb] 2617
Speed [RPM] 24

47.55 in^3./rev. [123,8 cm^3./rev.]

Performance Data MLHP 160

Flow [GPM]	Pressure (Δ PSI) 450	900	1150	1450	1740	1810	Max. Cont. 2030	2320	Max. Int. 2540
1	554	1100	1471	1853	-	-	-	-	-
	24	**20**	**16**	**13**	-	-	-	-	-
2	563	1102	1500	1885	2252	2358	2590	-	-
	48	**46**	**44**	**39**	**28**	**23**	**13**	-	-
4	552	1111	1511	1882	2270	2361	2627	3026	3275
	95	**92**	**90**	**86**	**79**	**76**	**67**	**48**	**27**
6	523	1082	1477	1860	2234	2329	2616	3015	3295
	145	**142**	**139**	**135**	**130**	**127**	**121**	**103**	**90**
8	496	1054	1450	1824	2200	2306	2572	2968	3251
	191	**189**	**188**	**185**	**180**	**177**	**171**	**157**	**143**
10	454	1017	1404	1771	2151	2270	2532	2917	3215
	238	**237**	**236**	**233**	**230**	**228**	**223**	**206**	**192**
12	416	952	1355	1725	2114	2207	2483	2878	3172
	288	**287**	**286**	**285**	**280**	**278**	**271**	**257**	**244**
14	363	914	1290	1660	2053	2147	2434	2812	3124
	337	**336**	**335**	**333**	**329**	**327**	**321**	**307**	**295**
Max. Cont. 16	296	850	1235	1810	2000	2092	2361	2747	3052
	385	**384**	**383**	**382**	**378**	**375**	**370**	**358**	**348**
18	236	781	1162	1535	1925	2034	2296	2670	2980
	433	**432**	**431**	**430**	**426**	**425**	**420**	**406**	**396**
Max. Int. 20	167	712	1108	1461	1842	1948	2210	2592	2896
	481	**480**	**479**	**478**	**475**	**473**	**468**	**457**	**446**

Torque [lb-in] 3275
Speed [RPM] 27

9.66 in^3./rev. [158,4 cm^3./rev.]

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^{0}F [50° C].

Performance Data MLHP 200

Flow [GPM]	Pressure (Δ PSI) 450	900	1150	1450	1740	1820	2030	2200	2320	Max. Cont. 2540	Max. Int. 2900
1	577 **20**	1195 **18**	1585 **16**	1980 **13**	- -	- -	- -	- -	- -	- -	- -
2	572 **38**	1195 **37**	1581 **36**	2011 **32**	2397 **28**	2527 **26**	2795 **21**	3030 **16**	3155 **13**	- -	- -
4	557 **77**	1200 **76**	1592 **75**	2017 **73**	2410 **67**	2537 **65**	2823 **61**	3060 **54**	3213 **48**	3496 **37**	3936 **13**
6	535 **115**	1166 **114**	1559 **112**	1997 **110**	2405 **108**	2512 **106**	2807 **102**	3050 **96**	3205 **91**	3504 **81**	3945 **56**
8	524 **153**	1127 **151**	1528 **150**	1951 **149**	2373 **146**	2470 **144**	2775 **140**	3010 **134**	3170 **130**	3472 **120**	3900 **94**
10	478 **192**	1087 **191**	1481 **190**	1911 **188**	2330 **185**	2393 **183**	2715 **180**	2940 **174**	3122 **170**	3424 **159**	3855 **132**
12	430 **230**	1039 **229**	1433 **228**	1864 **226**	2265 **224**	2350 **222**	2668 **218**	2890 **272**	3066 **208**	3370 **197**	3800 **167**
14	372 **271**	981 **269**	1373 **268**	1796 **267**	2210 **264**	2294 **262**	2608 **259**	2830 **253**	2996 **249**	3305 **237**	3710 **205**
Max. Cont. 16	310 **303**	916 **301**	1326 **300**	1744 **299**	2150 **297**	2240 **295**	2548 **291**	2760 **286**	2940 **283**	3245 **272**	3650 **237**
18	235 **342**	842 **341**	1266 **340**	1660 **339**	2070 **337**	2170 **335**	2475 **333**	2682 **328**	2855 **325**	3146 **317**	3540 **279**
Max. Int. 20	160 **382**	766 **381**	1175 **380**	1585 **379**	1977 **376**	2090 **375**	2377 **372**	2576 **368**	2768 **365**	3050 **356**	3423 **316**

Torque [lb-in] 3936
Speed [RPM] 13

12.1 in^3./rev. [198,0 cm^3./rev.]

Perfomance Data MLHP 250

Flow [GPM]	Pressure (Δ PSI) 450	900	1200	1450	1810	Max. Cont. 2030	2300	Max. Int. 2540
1	908 **14**	1780 **12**	2520 **10**	- -	- -	- -	- -	- -
2	935 **28**	1800 **26**	2540 **22**	2960 **19**	3680 **10**	- -	- -	- -
4	910 **59**	1795 **57**	2545 **53**	2970 **50**	3715 **38**	4075 **29**	4680 **10**	- -
6	841 **96**	1745 **93**	2490 **85**	2940 **85**	3685 **76**	4110 **70**	4730 **56**	5205 **43**
8	797 **122**	1695 **120**	2440 **117**	2900 **112**	3615 **104**	4060 **97**	4685 **85**	5140 **75**
10	715 **153**	1650 **151**	2375 **148**	2830 **143**	3545 **135**	3960 **128**	4580 **117**	5060 **106**
12	660 **184**	1570 **182**	2310 **179**	2732 **175**	3450 **167**	3890 **160**	4485 **150**	4960 **140**
14	605 **215**	1480 **213**	2227 **209**	2670 **207**	3355 **199**	3771 **192**	4370 **182**	4825 **173**
16	560 **245**	1402 **244**	2117 **241**	2556 **237**	3260 **230**	3685 **223**	4260 **213**	4700 **204**
Max. Cont. 18	412 **275**	1290 **274**	2025 **272**	2465 **268**	3155 **260**	3585 **252**	4150 **243**	4590 **233**
Max. Int. 20	302 **307**	1160 **306**	1870 **304**	2335 **300**	3050 **292**	3465 **285**	4013 **275**	4425 **266**

Torque [in-lb] 5205
Speed [RPM] 43

15.1 in^3./rev. [247,5 cm^3./rev.]

The Performance data was collected at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm^2/s] at 122^{0}F [50° C].

Performance Data MLHP 315

Flow [GPM]	Pressure (Δ PSI) 450	700	1000	1230	1450	Max. Cont. 1740	Max. Int. 2030
1	1140 **12**	1850 **10**	- -	- -	- -	- -	- -
2	1122 **24**	1875 **22**	2555 **20**	3105 **16**	3600 **11**	- -	- -
4	1075 **48**	1800 **46**	2515 **44**	3095 **40**	3595 **35**	4285 **28**	4960 **20**
6	1015 **71**	1750 **70**	2462 **68**	3035 **64**	3540 **59**	4220 **52**	4942 **44**
8	940 **96**	1686 **95**	2400 **93**	2970 **89**	3462 **85**	4150 **77**	4882 **69**
10	878 **121**	1612 **120**	2310 **118**	2885 **114**	3390 **111**	4075 **103**	4782 **95**
12	782 **146**	1522 **145**	2210 **143**	2800 **140**	3285 **137**	3955 **129**	4655 **121**
14	686 **170**	1410 **169**	2110 **167**	2696 **165**	3170 **162**	3835 **155**	4550 **147**
16	560 **195**	1302 **194**	2015 **192**	2535 **190**	3050 **187**	3700 **181**	4420 **174**
Max. Cont. 18	448 **220**	1155 **219**	1865 **217**	2418 **216**	2865 **213**	3560 **207**	4240 **200**
Max. Int. 20	330 **244**	980 **243**	1720 **242**	2270 **240**	2722 **238**	3415 **233**	4090 **226**

Torque [in-lb] 4960
Speed [RPM] 20

19.3 in^3./rev. [316,8 cm^3./rev.]

Performance Data MLHP 400

Flow [GPM]	Pressure (Δ PSI) 400	650	800	945	1160	Max. Cont. 1400	Max. Int. 1670
1	1382 **10**	- -	- -	- -	- -	- -	- -
2	1380 **19**	2090 **18**	2570 **17**	3065 **15**	3760 **11**	- -	- -
4	1375 **38**	2065 **37**	2545 **36**	3020 **34**	3780 **31**	4365 **27**	5075 **21**
6	1340 **56**	2030 **55**	2500 **55**	2960 **54**	3725 **51**	4330 **46**	5015 **39**
8	1272 **77**	1965 **76**	2420 **76**	2875 **75**	3620 **72**	4240 **67**	4945 **60**
10	1195 **96**	1885 **95**	2300 **94**	2795 **93**	3540 **90**	4175 **85**	4835 **80**
12	1095 **116**	1765 **115**	2210 **114**	2700 **113**	3430 **110**	4025 **105**	4705 **98**
14	955 **136**	1645 **135**	2090 **134**	2578 **133**	3270 **131**	3895 **126**	4540 **119**
Max. Cont. 16	820 **155**	1495 **154**	1940 **153**	2435 **153**	3100 **151**	3780 **146**	4360 **140**
18	645 **174**	1330 **173**	1790 **172**	2270 **172**	2940 **170**	3610 **164**	4220 **158**
Max. Int. 20	425 **198**	1105 **198**	1600 **196**	2050 **195**	2685 **194**	3345 **190**	3930 **186**

Torque [in-lb] 5735
Speed [RPM] 14

24.16 in^3./rev. [396,0 cm^3./rev.]

The Performance data was collected at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm^2/s] at 122^{0}F [50° C].

Performance Data MLHP 500

Flow [GPM]	Pressure (Δ PSI) 200	400	600	Max. Cont. 870	1000	1200	Max. Int. 1305
1	810 **7**	1625 **6**	2398 **4**	- **-**	- **-**	- **-**	- **-**
2	812 **15**	1698 **15**	2636 **14.5**	3450 **14**	4058 **11.5**	4812 **8**	5210 **7**
4	816 **30**	1607 **30**	2362 **29.5**	3428 **28**	3570 **26**	4804 **23**	5195 **22**
6	784 **46**	1590 **46**	2309 **45**	3380 **43**	3908 **41**	4750 **38**	5150 **36**
8	768 **61**	1554 **61**	2246 **60**	3285 **58**	3818 **56**	4662 **53**	5045 **51**
10	710 **76**	1394 **76**	2132 **75**	3110 **74**	3658 **73**	4484 **70**	4920 **67**
12	670 **91**	1328 **91**	1998 **90**	2975 **89**	3508 **87**	4350 **84**	4785 **81**
14	588 **107**	1198 **107**	1820 **106**	2805 **105**	3330 **103**	4112 **101**	4590 **98**
Max. Cont. 16	490 **122**	1065 **121**	1650 **120**	2612 **119**	3170 **117**	3950 **114**	4440 **111**
18	368 **137**	844 **137**	1537 **137**	2320 **136**	2904 **133**	3755 **129**	4245 **126**
Max. Int. 20	252 **153**	622 **152**	1252 **151**	2045 **150**	2628 **149**	3508 **147**	3995 **144**

Torque [in-lb] 5195
Speed [RPM] 22

30.20 in³./rev. [495,0 cm³./rev.]

Performance Data MLHP 630

Flow [GPM]	Pressure (Δ PSI) 200	400	600	Max. Cont. 800	1000	1160
2	976 **12**	2015 **11.5**	3320 **11**	3995 **9**	5070 **6**	- **-**
4	990 **24**	2025 **24**	3312 **23**	3990 **22**	5115 **20**	5435 **16**
6	976 **36**	1990 **36**	3260 **35**	3915 **34**	5025 **32**	5815 **29**
8	950 **48**	1900 **48**	3152 **47**	3818 **46**	4885 **45**	5648 **42**
10	888 **61**	1812 **61**	2975 **60**	3640 **59**	4662 **58**	5370 **56**
12	835 **72**	1722 **72**	2825 **71**	3508 **70**	4485 **68**	5195 **65**
14	745 **85**	1555 **85**	2585 **84**	3285 **83**	4262 **81**	4920 **79**
Max. Cont. 16	620 **97**	1376 **97**	2380 **96**	3062 **95**	3995 **94**	4645 **91**
18	488 **109**	1172 **109**	2150 **108**	2815 **107**	3730 **106**	4395 **104**
Max. Int. 20	372 **121**	940 **121**	1925 **120**	2530 **119**	3455 **117**	4100 **114**

Torque [in-lb] 5815
Speed [RPM] 29

38.5 in³./rev. [623,6 cm³./rev.]

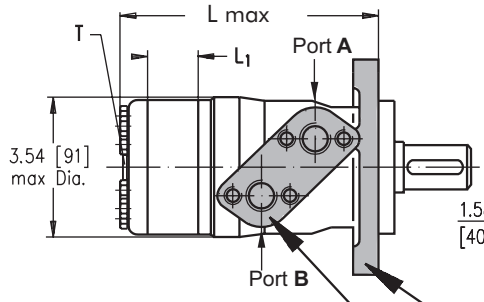
Metric Conversions

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 122ºF [50° C].

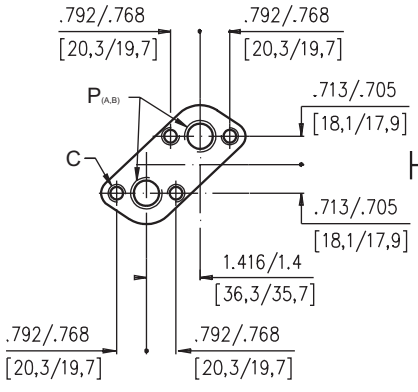
MLHP MOTORS

DIMENSIONS AND MOUNTING DATA

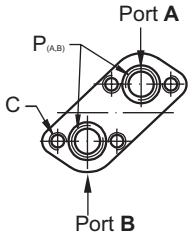


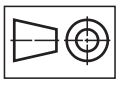
Porting

Side Ports
Version 2 3 5



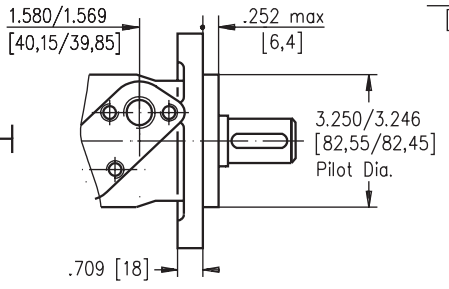
Version 4

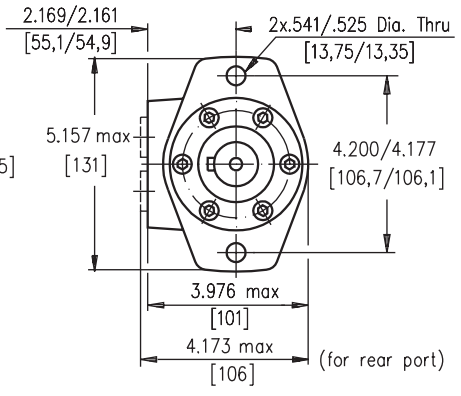




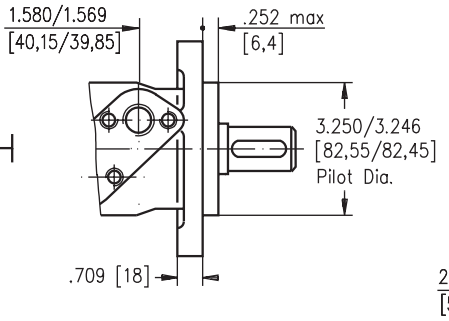
Mounting

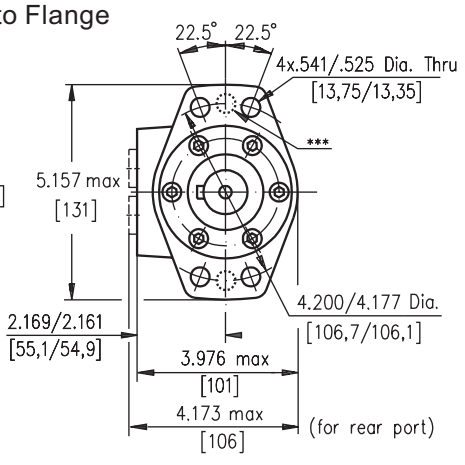
SAE A Flange



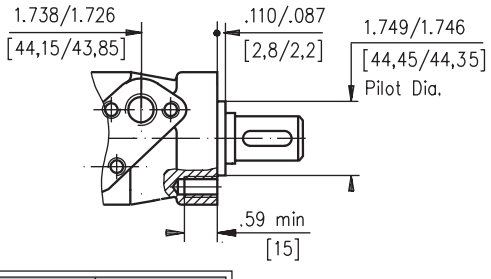


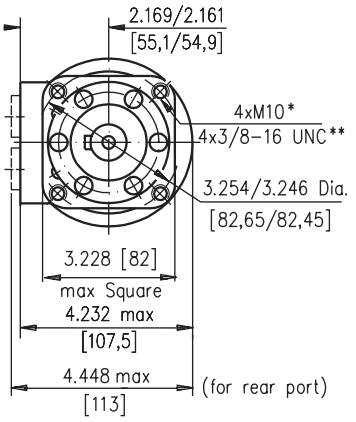
F Magneto Flange





M and **Q** Square Flange





Type	Lmax, in.[mm]	Type	Lmax, in.[mm]	L_1, in.[mm]
MLHP(F) 25	5.32[135,2]	MLHPQ(M) 25	5.49[139,4]	.18[4,60]
MLHP(F) 32	5.37[136,5]	MLHPQ(M) 32	5.34[140,7]	.23[5,90]
MLHP(F) 40	5.40[137,2]	MLHPQ(M) 40	5.57[141,4]	.29[7,40]
MLHP(F) 50	5.42[137,6]	MLHPQ(M) 50	5.58[141,8]	.26[6,67]
MLHP(F) 80	5.58[141,6]	MLHPQ(M) 80	5.74[145,8]	.42[10,67]
MLHP(F) 100	5.68[144,2]	MLHPQ(M) 100	5.84[148,4]	.52[13,33]
MLHP(F) 125	5.81[147,6]	MLHPQ(M) 125	5.98[151,8]	.66[16,67]
MLHP(F) 160	5.99[152,2]	MLHPQ(M) 160	6.16[156,4]	.84[21,33]
MLHP(F) 200	6.21[157,6]	MLHPQ(M) 200	6.37[161,8]	1.05[26,67]
MLHP(F) 250	6.47[164,2]	MLHPQ(M) 250	6.63[168,4]	1.31[33,33]
MLHP(F) 315	6.84[173,6]	MLHPQ(M) 315	7.00[177,8]	1.68[42,67]
MLHP(F) 400	7.25[184,2]	MLHPQ(M) 400	7.42[188,4]	2.10[53,33]
MLHP(F) 500	7.68[195,0]	MLHPQ(M) 500	7.91[201,0]	2.62[66,63]
MLHP(F) 630	8.37[212,5]	MLHPQ(M) 630	8.60[218,5]	3.31[84,00]

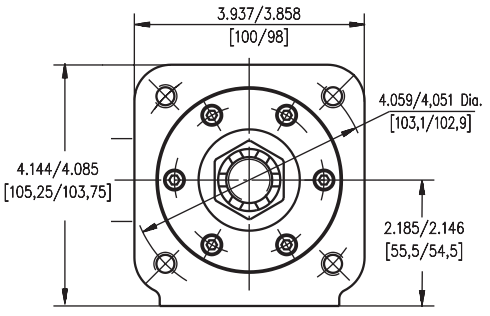
* For **M** Flange
** For **Q** Flange
*** Perform at customer's request

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**

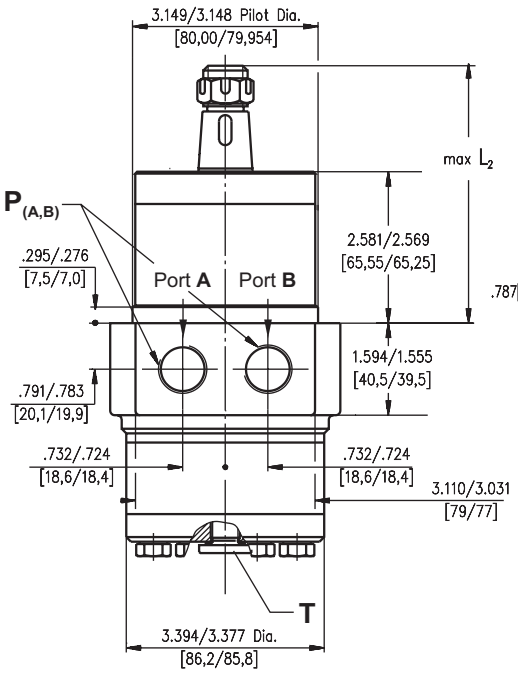
	Versions			
	2	3	4	5
C	4xM8	4xM8	4x5/16-18 UNC	4x5/16-18 UNC
P(A,B)	2xG1/2	2xM22x1,5	2x7/8-14 UNF	2x1/2-14 NPTF
T	G1/4	M14x1,5	7/16-20 UNF	7/16-20 UNF

DIMENSIONS AND MOUNTING DATA - MLHPW (WHEEL MOTOR)



	Versions			
	2	3	4	5
C	4xM10	4xM10	⅜-16 UNC	⅜-16 UNC
$P_{(A,B)}$	2xG½	2xM22x1,5	2x⅞-14 UNF	2x½-14 NPTF
T	G¼	M14x1,5	7/16-20 UNF	7/16-20 UNF

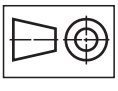
Shaft version	L_2, in.[mm]
C, G, H	4.17[106]
S, D	3.99[101,4]
M	4.32[109,6]
T	4.78[121,5]
R	4.90[124,5]
L, K	4.53[115,1]
B	4.92[124,9]



Type	L, in.[mm]	L_1, in.[mm]
MLHPW(N) 25	3.01 [76,5]	.18 [4,60]
MLHPW(N) 32	3.07 [78,0]	.23 [5,90]
MLHPW(N) 40	3.13 [79,5]	.29 [7,40]
MLHPW(N) 50	3.07 [78,0]	.26 [6,67]
MLHPW(N) 80	3.23 [82,0]	.42 [10,67]
MLHPW(N) 100	3.35 [85,0]	.52 [13,33]
MLHPW(N) 125	3.47 [88,0]	.66 [16,67]
MLHPW(N) 160	3.66 [93,0]	.84 [21,33]
MLHPW(N) 200	3.86 [98,0]	1.05 [26,67]
MLHPW(N) 250	4.13[105,0]	1.31 [33,33]
MLHPW(N) 315	4.49[144,0]	1.68 [42,67]
MLHPW(N) 400	4.92[125,0]	2.10 [53,33]

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

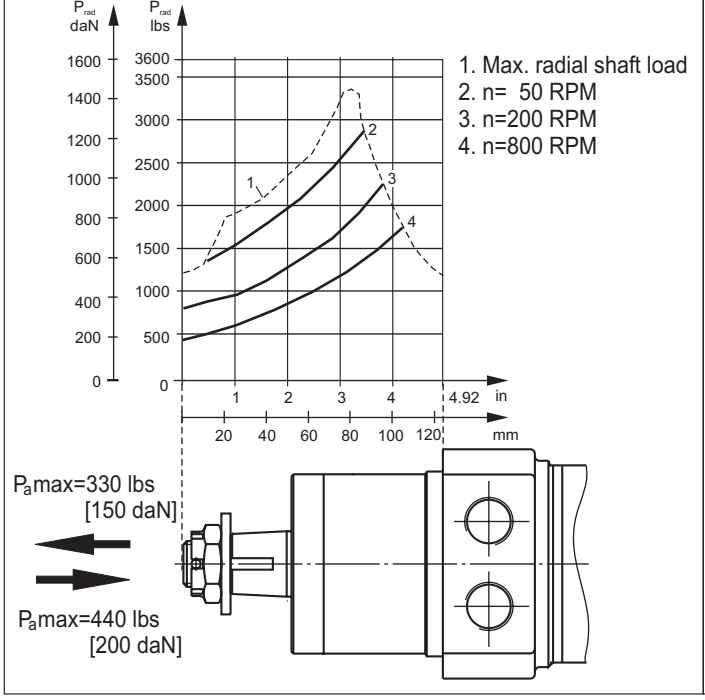
Reverse Rotation
Viewed from Shaft End
Port **A** Pressurized - **CCW**
Port **B** Pressurized - **CW**



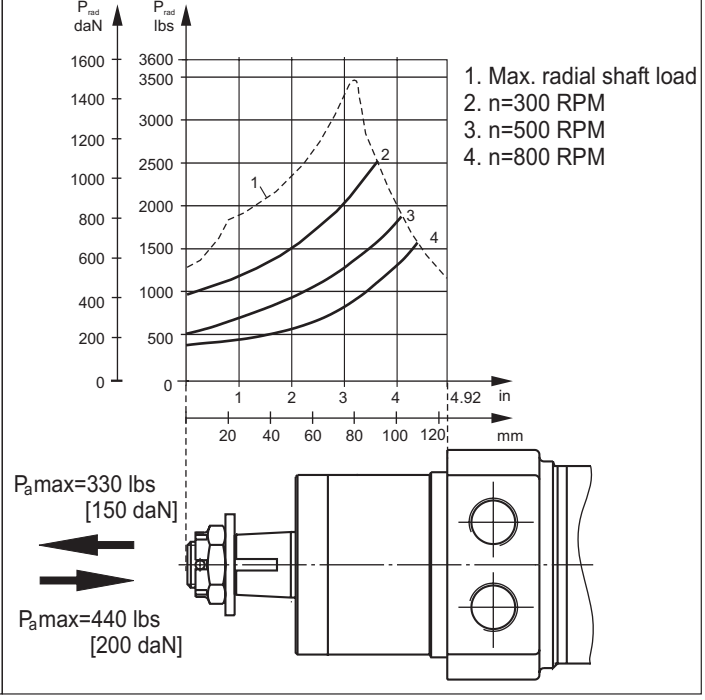
PERMISSIBLE SHAFT LOADS

MLHPWN

The curves apply to a B10 bearing life of 2000 hours.

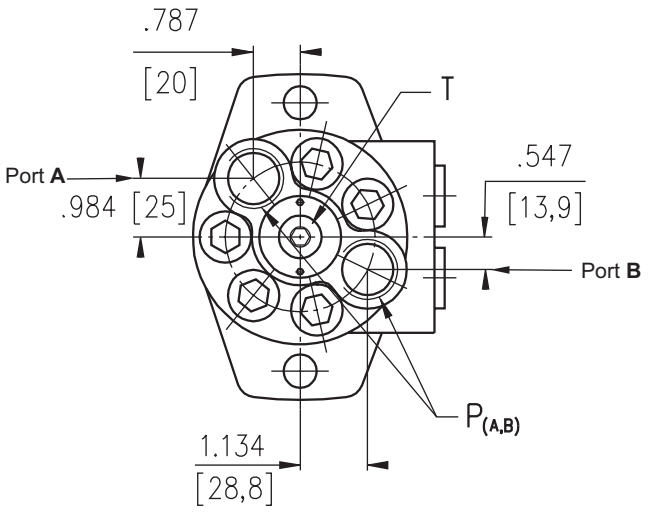


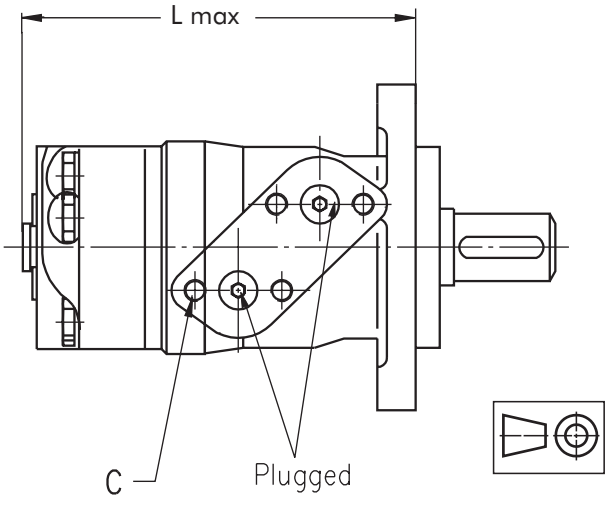
MLHPW



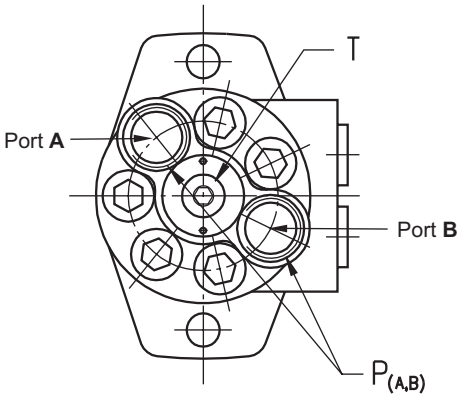
MLHP SERIES MOTOR OPTION - REAR PORTS

Version 6 8 9





Version 7



Type	Lmax, in.[mm]	Type	Lmax, in.[mm]
MLHP(F) 25	6.03[153,2]	MLHPQ(M) 25	6.20[157,4]
MLHP(F) 32	6.08[154,5]	MLHPQ(M) 32	6.25[158,7]
MLHP(F) 40	6.11[155,2]	MLHPQ(M) 40	6.28[159,4]
MLHP(F) 50	6.21[157,8]	MLHPQ(M) 50	6.38[162,0]
MLHP(F) 80	6.37[161,8]	MLHPQ(M) 80	6.54[166,0]
MLHP(F) 100	6.47[164,4]	MLHPQ(M) 100	6.64[168,6]
MLHP(F) 125	6.61[167,8]	MLHPQ(M) 125	6.77[172,0]
MLHP(F) 160	6.79[172,4]	MLHPQ(M) 160	6.95[176,6]
MLHP(F) 200	7.00[177,8]	MLHPQ(M) 200	7.17[182,0]
MLHP(F) 250	7.26[184,4]	MLHPQ(M) 250	7.43[188,6]
MLHP(F) 315	7.63[193,8]	MLHPQ(M) 315	7.79[198,0]
MLHP(F) 400	8.05[204,4]	MLHPQ(M) 400	8.21[208,6]
MLHP(F) 500	8.39[213,0]	MLHPQ(M) 500	8.62[219,0]
MLHP(F) 630	9.08]230,5]	MLHPQ(M) 630	9.31[236,5]

	Versions			
	6	7	8	9
C	4xM8	4x 5/16-18 UNC	4x 5/16-18 UNC	4xM8
P(A,B)	2xG1/2	2x 7/8-14 UNF	2x1/2-14 NPTF	2xM22x1,5
T	G1/4	7/16-20 UNF	7/16-20 UNF	M14x1,5

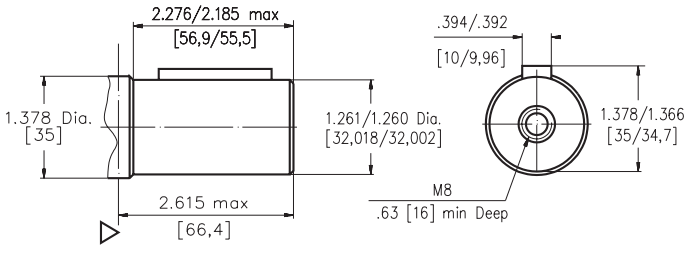
Standard Rotation
Viewed from Shaft End
Port **A** Pressurized - **CW**
Port **B** Pressurized - **CCW**

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

SHAFT EXTENSIONS FOR MLHP AND MLHR MOTORS

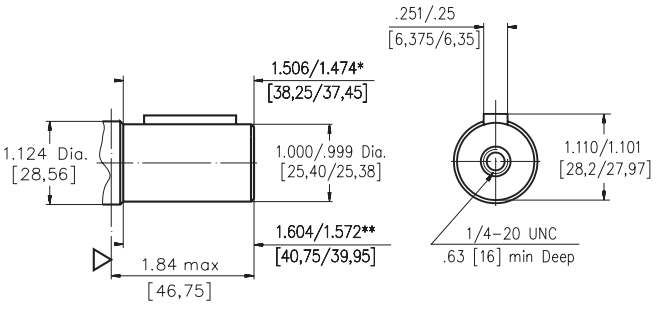
B

ø32 straight, Parallel key A10x8x45 DIN 6885
Max. Torque 6815 in-lb [77 daNm]



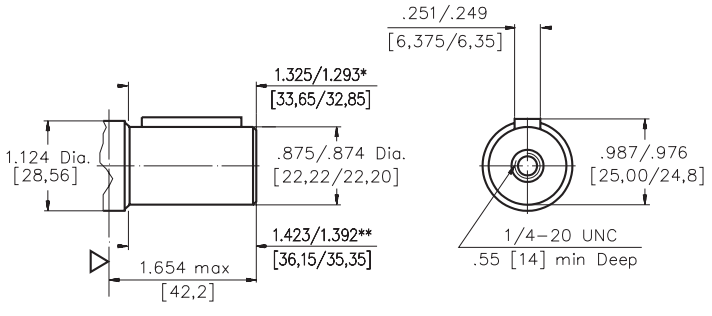
C

1" [25,4] straight, Parallel key ¼"x¼"x1¼" BS 46
Max. Torque 3900 in-lb [44 daNm]



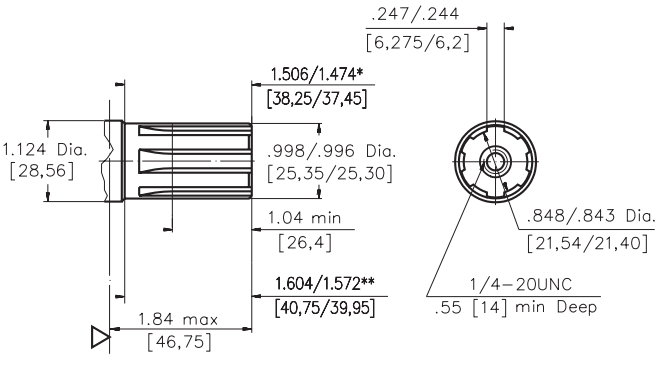
D

$^{7}/_{8}$" [22,2] straight, Parallel key ¼"x¼"x1" BS 46
Max. Torque 3200 in-lb [36 daNm]



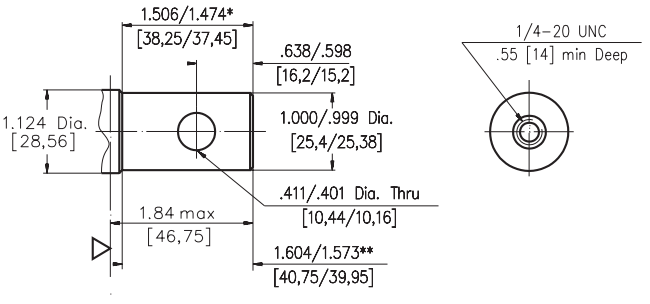
G

1" [25,4], SAE 6B Splined
Max. Torque 3900 in-lb [44 daNm]



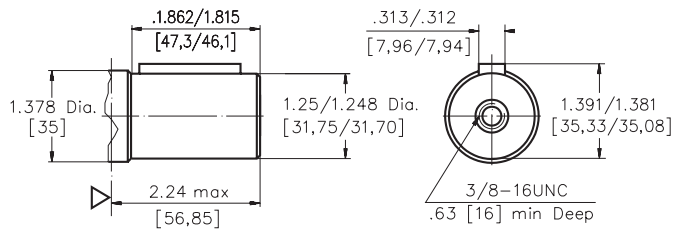
H

1" [25,4] straight, w/ .406 [10,3] Crosshole
Max. Torque 3900 in-lb [44 daNm]



K

1¼" [31,75] straight, Parallel key $^{5}/_{16}$"x$^{5}/_{16}$"x1¼" BS 46
Max. Torque 6815 in-lb [77 daNm]

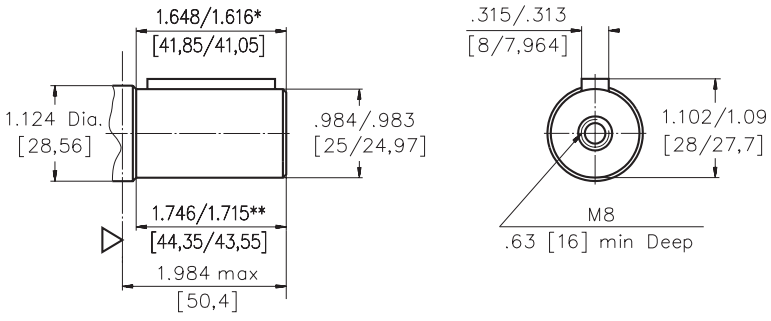


* For SAE A and **F** Flange
** For **M** and **Q** Flange
∇ - Motor Mounting Surface
Requirement max. Torque must be not exceeded.

SHAFT EXTENSIONS FOR MLHP AND MLHR MOTORS (continued)

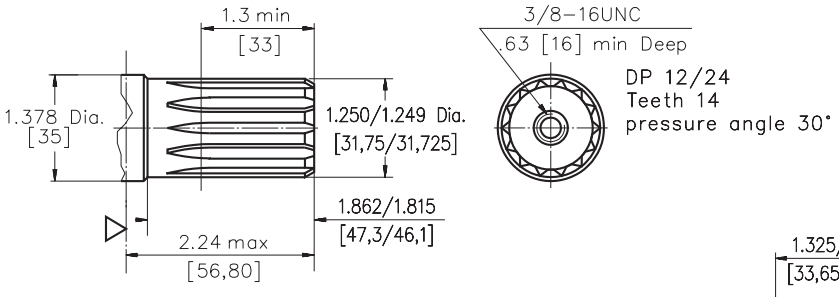
M

ø25 straight, Parallel key A8x7x32 DIN 6885
Max. Torque 3900 in-lb [44 daNm]



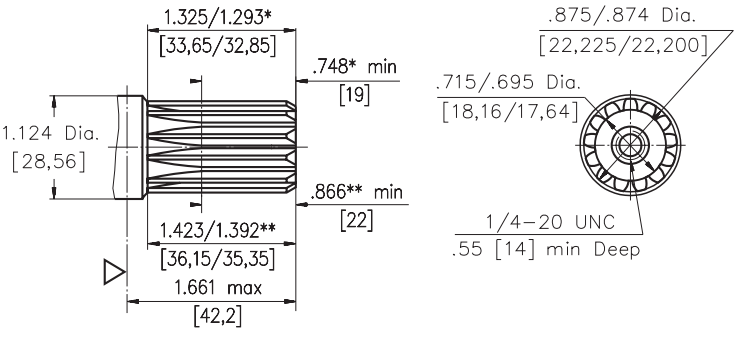
L

14T Splined,1¼" [31,75], ANS B 92.1-1976
Max. Torque 6815 in-lb [77 daNm]



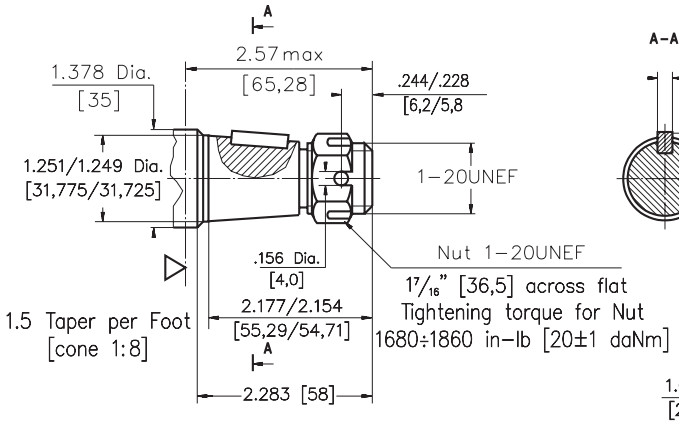
S

13T Splined, 7/8" [22,2], ANS B 92.1-1976
Max. Torque 3200 in-lb [36 daNm]



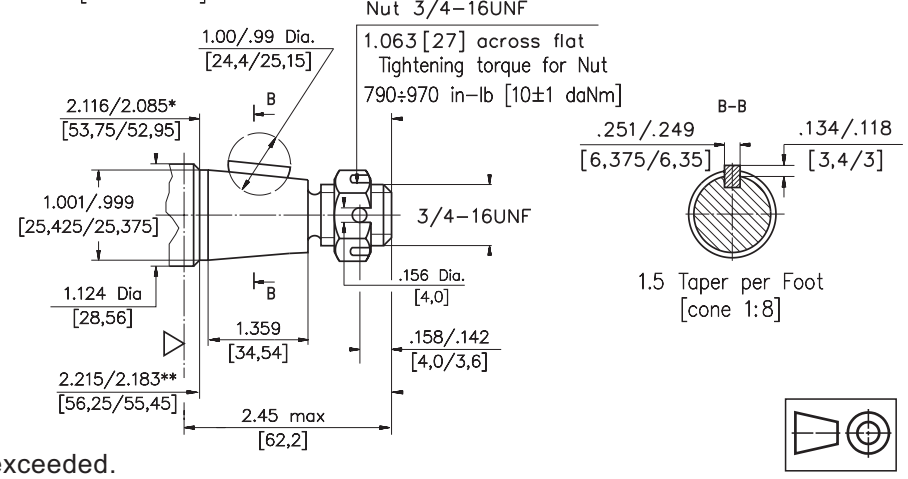
R

1¼" [31,75],SAE J501 Tapered
Parallel key 5/16"x 5/16"x1"
Max. Torque 6815 in-lb [77 daNm]



T

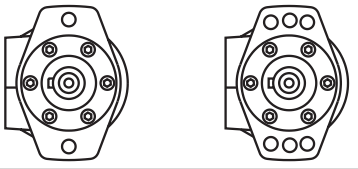
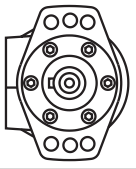
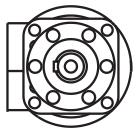
1" [25,4], SAE J501 Tapered
Woodruff key ¼"x1" SAE J502
Max. Torque 3900 in-lb [44 daNm]



* For SAE A and **F** Flange
** For **M** and **Q** Flange
∇ - Motor Mounting Surface
Requirement max. Torque must be not exceeded.

PERMISSIBLE SHAFT LOADS FOR MLHP AND MLHR MOTORS

The permissible radial shaft load P_{rad} depends on the speed RPM and distance *L* from the point of load to the mounting flange.

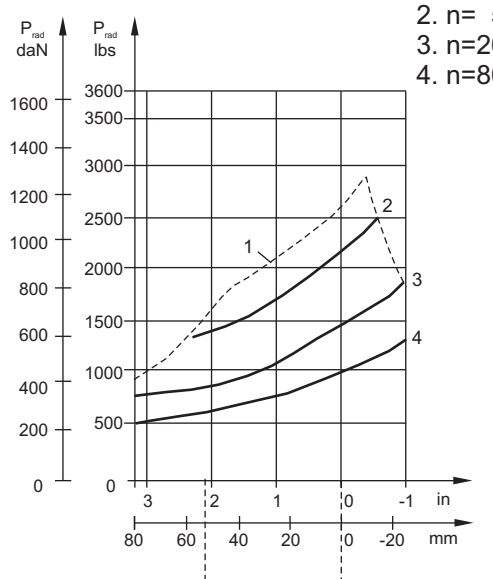
Mounting Flange			
Shaft Version	Keyed **C** Splined **G**	Tapered **T** Keyed **C**	Keyed **C** Splined **G**
Radial Shat Load P^*_{rad}	$\frac{800}{RPM} \times \frac{2215}{3.74+L}$,lbs	$\frac{800}{RPM} \times \frac{2215}{3.74+L}$,lbs	$\frac{800}{RPM} \times \frac{2215}{3.98+L}$,lbs

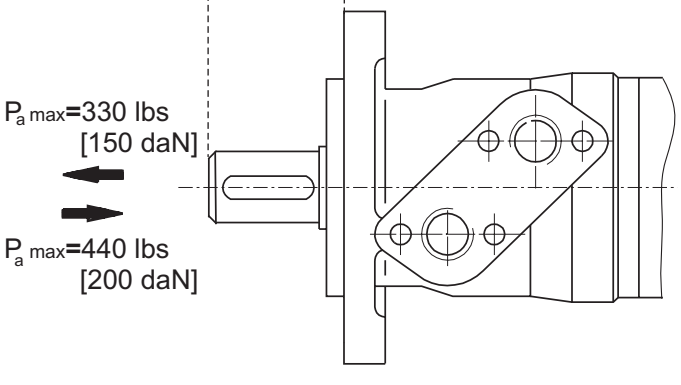
* 1. *L* - in inch
2. RPM < 200; max Prad=1600 lbs [800 daN]
3. RPM ≥ 200; *L* ≤ 2.2

MLHPN AND MLHRN

The curves apply to a B10 bearing life of 2000 hours.

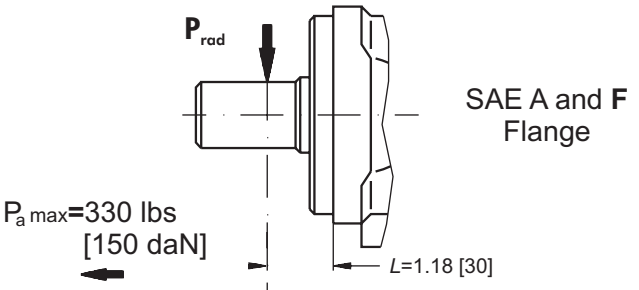
1. Max. radial shaft load
2. n= 50 RPM
3. n=200 RPM
4. n=800 RPM

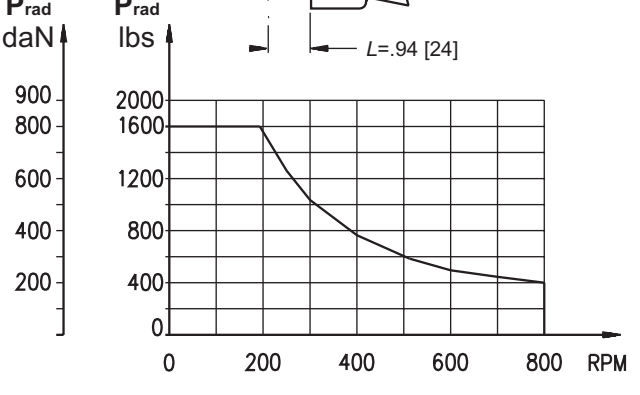




MLHP AND MLHR

Radial Shaft Load Prad for C and G Shafts by L=1.18/.94





ORDER CODE

	1	2	3	4	5	6	7	8	9	10
M L H P										

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
W	- Wheel motor

Pos.2 - Displacement code

25	- 1.52 [25,0] in.^{3}/rev. [cm.^{3}/rev.]
32	- 1.95 [32,0] in.^{3}/rev. [cm.^{3}/rev.]
40	- 2.44 [40,0] in.^{3}/rev. [cm.^{3}/rev.]
50	- 3.02 [49,5] in.^{3}/rev. [cm.^{3}/rev.]
80	- 4.83 [79,2] in.^{3}/rev. [cm.^{3}/rev.]
100	- 6.04 [99,0] in.^{3}/rev. [cm.^{3}/rev.]
125	- 7.55 [123,8] in.^{3}/rev. [cm.^{3}/rev.]
160	- 9.66 [158,4] in.^{3}/rev. [cm.^{3}/rev.]
200	- 12.1 [198,0] in.^{3}/rev. [cm.^{3}/rev.]
250	- 15.1 [247,5] in.^{3}/rev. [cm.^{3}/rev.]
315	- 19.3 [316,8] in.^{3}/rev. [cm.^{3}/rev.]
400	- 24.16 [396,0] in.^{3}/rev. [cm.^{3}/rev.]
500	- 30.2 [495,0] in.^{3}/rev. [cm.^{3}/rev.]
630	- 38.5 [623,6] in.^{3}/rev. [cm.^{3}/rev.]

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

B	- 32 mm straight,Parallel key
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
K	- 1¼" [31,75] straight, Parallel key
L	- 1¼" [31,75] 14T Splined
M	- 25 mm straight, Parallel key
VM	- 25 mm straight, Parallel key w/ corrosion resistant bushing
R	- 1¼" [31,75] SAE J501 Tapered
S	- $^7/_8$" [22,2] 13T Splined
T	- 1" [25,4] 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 - Case Drain

omit - with internal drain

1	- without case drain

Pos. 7 - Special Features *(see Specification data on page 17)*

omit - none

LL	- Low Leakage
LSV	- Low Speed Valve
FR	- Free Running

Pos. 8 - Rotation

omit - Standard Rotation

R	- Reverse Rotation

Pos. 9 - Option [Paint]**

omit - no Paint

P	- Painted
PC	- Corrosion Protected Paint

Pos.10 - Design Series

omit - Factory specified

*Notes : * 1. **V** - shaft protected with a corrosion resistant bushing placed under the high pressure seal.*
2. The permissible output torque for shafts must be not exceeded!
*3. The following combinations are not allowed - **Q, M,W** flange with **B**, **K**, **L**, **R** shafts.*
*- **N** options with **B**, **K**, **L**, **R** shafts.*
*- **W** flange with rear ports.*

*** Color at customer's request.*

The hydraulic motors are mangano phosphatized as standard.