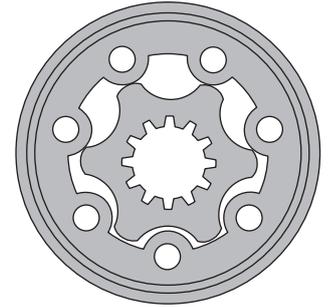


HYDRAULIC MOTORS MLHP



APPLICATION

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



CONTENTS

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OPTIONS

- » Model - Spool valve, gerotor
- » Flange and wheel mount
- » Motor with needle bearing
- » Side and rear ports
- » Shafts - straight, splined and tapered
- » Shaft seal for high and low pressure
- » SAE, Metric and BSPP ports
- » Speed sensing
- » Other special features

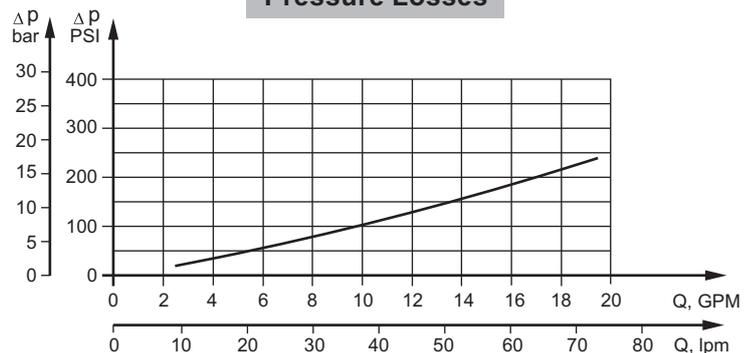
GENERAL

Max. Displacement, in ³ /rev [cm ³ /rev]	38.05 [623,6]
Max. Speed, [RPM]	1815
Max. Torque, lb-in [daNm]	cont.:4415 [50] int.: 5565 [64]
Max. Output, HP [kW]	17.1 [12,8]
Max. Pressure Drop, PSI [bar]	cont.:2030 [140] int.:2540 [175]
Max. Oil Flow, GPM [lpm]	19.8 [75]
Min. Speed, [RPM]	10
Pressure fluid	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range, °F [°C]	-40÷284 [-40÷140]
Optimal Viscosity range, SUS [mm²/s]	98÷347 [20÷75]
Filtration	ISO code 20/16 (Min. recommended fluid filtration of 25 microns)

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

Type		MLHP 25	MLHP 32	MLHP 40	MLHP 50	MLHP 80	MLHP 100	MLHP 125
Displacement, in³/rev [cm³/rev]		1.73 [28,4]	2.1 [34,5]	2.47 [40,5]	3.02 [49,5]	4.83 [79,2]	6.04 [99]	7.55 [123,8]
Max. Speed, [RPM]	Cont.	1408	1450	1480	1210	755	605	486
	Int.*	1584	1594	1555	1515	945	755	605
Max. Torque Ib-in [daNm]	Cont.	290 [3,3]	380 [4,3]	550 [6,2]	835 [9,4]	1340 [15,1]	1710 [19,3]	2100 [23,7]
	Int.*	415 [4,7]	540 [6,1]	730 [8,2]	1050 [11,9]	1725 [19,5]	2100 [23,7]	2640 [29,8]
	Peak**	595 [6,7]	760 [8,6]	950 [10,7]	1285 [14,3]	1985 [22,4]	2435 [27,5]	3235 [36,5]
Max. Output HP [kW]	Cont.	6.0 [4,5]	7.8 [5,8]	11.5 [8,4]	13.5 [10,1]	13.7 [10,2]	14.1 [10,5]	13.7 [10,2]
	Int.*	8.2 [6,1]	10.5 [7,8]	15.5 [11,6]	16.1 [12,2]	16.8 [12,5]	17.1 [12,8]	16.1 [12]
Max. Pressure Drop PSI [bar]	Cont.	1450 [100]	1450 [100]	1750 [120]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
	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 GPM [lpm]	Cont.	10.5 [40]	13.2 [50]	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]
	Int.*	11.9 [45]	14.5 [55]	18.5 [70]	19.8 [75]	19.8 [75]	19.8 [75]	19.8 [75]
Max. Inlet Pressure PSI [bar]	Cont.	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]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Return Pressure with Drain Line PSI [bar]	Cont.	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]
	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]	131 [9]
Min. Starting Torque Ib-in [daNm]	At max.press. drop Cont.	265 [3,0]	355 [4,0]	480 [5,4]	690 [7,8]	1170 [13,2]	1470 [16,6]	1830 [20,7]
	At max.press. drop Int.*	370 [4,2]	500 [5,6]	600 [6,8]	885 [10]	1490 [16,8]	1860 [21]	2360 [26,6]
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]	13.2 [5,9]	13.5 [6,1]	13,7 [6,2]
	For rear ports MLHPW(N)	11.7 [5,3]	11.7 [5,3]	11.9 [5,4]	12.1 [5,5]	12.4 [5,6]	12.8 [5,8]	13 [5,9]
	+ .992 [0,450] MLHPQ(M)(N)	11.1 [5,0]	11.1 [5,0]	11.2 [5,1]	11.5 [5,2]	11.7 [5,3]	12.1 [5,5]	12.3 [5,6]

* 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 lower than given, consult factory or your regional manager.

- Intermittent speed and intermittent pressure drop 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 [13 mm²/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.

SPECIFICATION DATA (continued)

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

Type		MLHP 160	MLHP 200	MLHP 250	MLHP 315	MLHP 400	MLHP 500	MLHP 630
Displacement, in³/rev [cm³/rev]		9.66 [158,4]	12.1 [198]	15.1 [247,5]	19.3 [316,8]	24.16 [396]	30.2 [495]	38.05 [623,6]
Max. Speed, [RPM]	Cont.	378	303	242	190	150	120	95
	Int.*	472	378	303	236	189	150	120
Max. Torque lb-in [daNm]	Cont.	2770 [31,3]	3240 [36,6]	3360 [38]	3360 [38]	3190 [36]	3452 [39]	3895 [44]
	Int.*	3345 [37,8]	4035 [45,6]	5160 [58,3]	4960 [56]	5240 [59]	5045 [57]	5665 [64]
	Peak**	3880 [43,8]	4870 [55]	6060 [68,5]	7505 [85]	7560 [85,4]	6903 [78]	7257 [82]
Max. Output HP [kW]	Cont.	13.5 [10,1]	13.5 [10]	10 [7,5]	7.9 [5,8]	6.2 [4,6]	4.7 [3,5]	4.4 [3,3]
	Int.*	16.2 [12,1]	16.1 [12]	16.1 [12]	12.1 [9]	10.5 [7,8]	9,7 [7,2]	7.5 [5,6]
Max. Pressure Drop PSI [bar]	Cont.	2030 [140]	2030 [140]	1600 [110]	1300 [90]	1015 [70]	870 [60]	800 [55]
	Int.*	2540 [175]	2540 [175]	2540 [175]	2030 [140]	1665 [115]	1305 [90]	1160 [80]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	2610 [180]	1885 [130]	1740 [110]
Max. Oil Flow GPM [lpm]	Cont.	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]
	Int.*	19.8 [75]	19.8 [75]	19.8 [75]	19.8 [75]	19.8 [75]	19.8 [75]	19.8 [75]
Max. Inlet Pressure PSI [bar]	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2030 [140]	2030 [140]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2540 [175]	2540 [175]
	Peak**	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]	2030 [140]	2030 [140]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2540 [175]	2540 [175]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3262 [225]	3260 [225]	3260 [225]
Max. Starting Pressure with Unloaded Shaft, PSI [bar]		116 [8]	100 [7]	87 [6]	73 [5]	73 [5]	73 [5]	73 [5]
Min. Starting Torque lb-in [daNm]	At max.press. drop Cont.	2500 [28,2]	2950 [33,5]	2970 [33,6]	3045 [34,4]	3050 [34,5]	3180 [36]	3670 [41,5]
	At max.press. drop Int.*	3140 [35,5]	3770 [42,6]	4795 [54,2]	5480 [61,9]	5390 [60,8]	4780 [54]	5480 [62]
Min. Speed***, [RPM]		10	10	10	10	10	10	10
Weight, lb [kg] For rear ports +.992 [0,450]	MLHP(F)(N)	14.1 [6,4]	14.6 [6,6]	15 [6,8]	15.6 [7,1]	16.8 [7,6]	20 [8,9]	21.4 [9,5]
	MLHPW(N)	13.5 [6,1]	13.9 [6,3]	14.3 [6,5]	15 [6,8]	15.9 [7,2]	19.0 [8,6]	20.3 [9,2]
	MLHPQ(M)(N)	12.8 [5,8]	13.2 [6]	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 lower than given, consult factory or your regional manager.

- Intermittent speed and intermittent pressure drop 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 [13 mm²/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.

SPECIFICATION DATA (continued)

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

Type		MLHP 80	MLHP 100	MLHP 125	MLHP 160	MLHP 200
Displacement, in³/rev [cm³/rev]		4.83 [79,2]	6.04 [99]	7.55 [123,8]	9.66 [158,4]	12.1 [198]
Max. Speed, [RPM]	Cont.	755	605	486	378	303
	Int.*	945	755	605	472	378
Max. Torque lb-in [daNm]	Cont.	1340 [15,15]	1710 [19,3]	2100 [23,7]	2770 [31,3]	3240 [36,6]
	Int.*	1725 [19,5]	2100 [23,7]	2640 [29,8]	3345 [37,8]	4035 [45,6]
	Peak**	1985 [22,4]	2435 [27,5]	3235 [36,5]	3875 [43,8]	4870 [55]
Max. Output HP [kW]	Cont.	13.7 [10,2]	14.1 [10,5]	13.7 [10,2]	13.5 [10,1]	13.5 [10]
	Int.*	16.8 [12,5]	17.1 [12,8]	16.1 [12]	16.2 [12,1]	16.1 [12]
Max. Pressure Drop PSI [bar]	Cont.	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
	Int.*	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Oil Flow GPM [lpm]	Cont.	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]
	Int.*	19.8 [75]	19.8 [75]	19.8 [75]	19.8 [75]	19.8 [75]
Max. Inlet Pressure PSI [bar]	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Return Pressure with Drain Line PSI [bar]	Cont.	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2900 [200]
	Peak**	3260 [225]	3260 [225]	3260 [225]	3260 [225]	3260 [225]
Max. Starting Pressure with Unloaded Shaft, PSI [bar]		145 [10]	145 [10]	131 [9]	116 [8]	100 [7]
Min. Starting Torque lb-in [daNm]	At max.press. drop Cont.	1170 [13,2]	1470 [16,6]	1830 [20,7]	2500 [28,2]	2950 [33,5]
	At max.press. drop Int.*	1490 [16,8]	1860 [21]	2360 [26,6]	3140 [35,5]	3770 [42,6]
Min. Speed***, [RPM]		10	10	10	10	10
Weight, lb [kg]	MLHP(F)	13.2 [6]	13.7 [6,2]	13.9 [6,3]	14.3 [6,5]	14.8 [6,7]
For rear ports: +.992 [0,450]						

* 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 lower than given, 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 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 MLHP... motors with **B, K, R** and **L** shafts.
(1.378 [35] sealing diameter)

Type		MLHP 250	MLHP 315	MLHP 400	MLHP 500	MLHP 630
Displacement, in³/rev [cm³/rev]		15.1 [247,5]	19.3 [316,8]	24.16 [396]	30.2 [495]	38.05 [623,6]
Max. Speed, [RPM]	Cont.	242	190	150	120	95
	Int.*	303	236	189	150	120
Max. Torque lb-in [daNm]	Cont.	4160 [47]	4360 [48]	4415 [50]	3452 [39]	3895 [44]
	Int.*	5160 [58,3]	4960 [56]	5240 [59]	5045 [57]	5665 [64]
	Peak**	6060 [68,5]	7505 [85]	7560 [85,4]	6903 [78]	7257 [82]
Max. Output HP [kW]	Cont.	12.1 [9]	10.2 [7,6]	8.3 [6,2]	4.7 [3,5]	4.4 [3,3]
	Int.*	16.1 [12]	12.1 [9]	10.5 [7,8]	9,7 [7,2]	7.5 [5,6]
Max. Pressure Drop PSI [bar]	Cont.	3030 [140]	1740 [120]	1400 [95]	870 [60]	800 [55]
	Int.*	2540 [175]	2030 [140]	1670 [115]	1305 [90]	1160 [80]
	Peak**	3260 [225]	3260 [225]	2610 [180]	1885 [130]	1740 [110]
Max. Oil Flow GPM [lpm]	Cont.	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]	15.9 [60]
	Int.*	19.8 [75]	19.8 [75]	19.8 [75]	19.8 [75]	19.8 [75]
Max. Inlet Pressure PSI [bar]	Cont.	2540 [175]	2540 [175]	2540 [175]	2030 [140]	2030 [140]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2540 [175]	2540 [175]
	Peak**	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]	2030 [140]	2030 [140]
	Int.*	2900 [200]	2900 [200]	2900 [200]	2540 [175]	2540 [175]
	Peak**	3260 [225]	3260 [225]	3262 [225]	3260 [225]	3260 [225]
Max. Starting Pressure with Unloaded Shaft, PSI [bar]		87 [6]	73 [5]	73 [5]	73 [5]	73 [5]
Min. Starting Torque lb-in [daNm]	At max.press. drop Cont.	3790 [42,8]	4050 [45,8]	4140 [46,8]	3180 [36]	3670 [41,5]
	At max.press. drop Int.*	4795 [54,2]	5480 [61,9]	5390 [60,8]	4780 [54]	5480 [62]
Min. Speed***, [RPM]		10	10	10	10	10
Weight, lb [kg]		15.2 [6,9]	15.9 [7,2]	17 [7,7]	19.9 [9,0]	21.2 [9,6]
For rear ports: +.992 [0,450]						

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

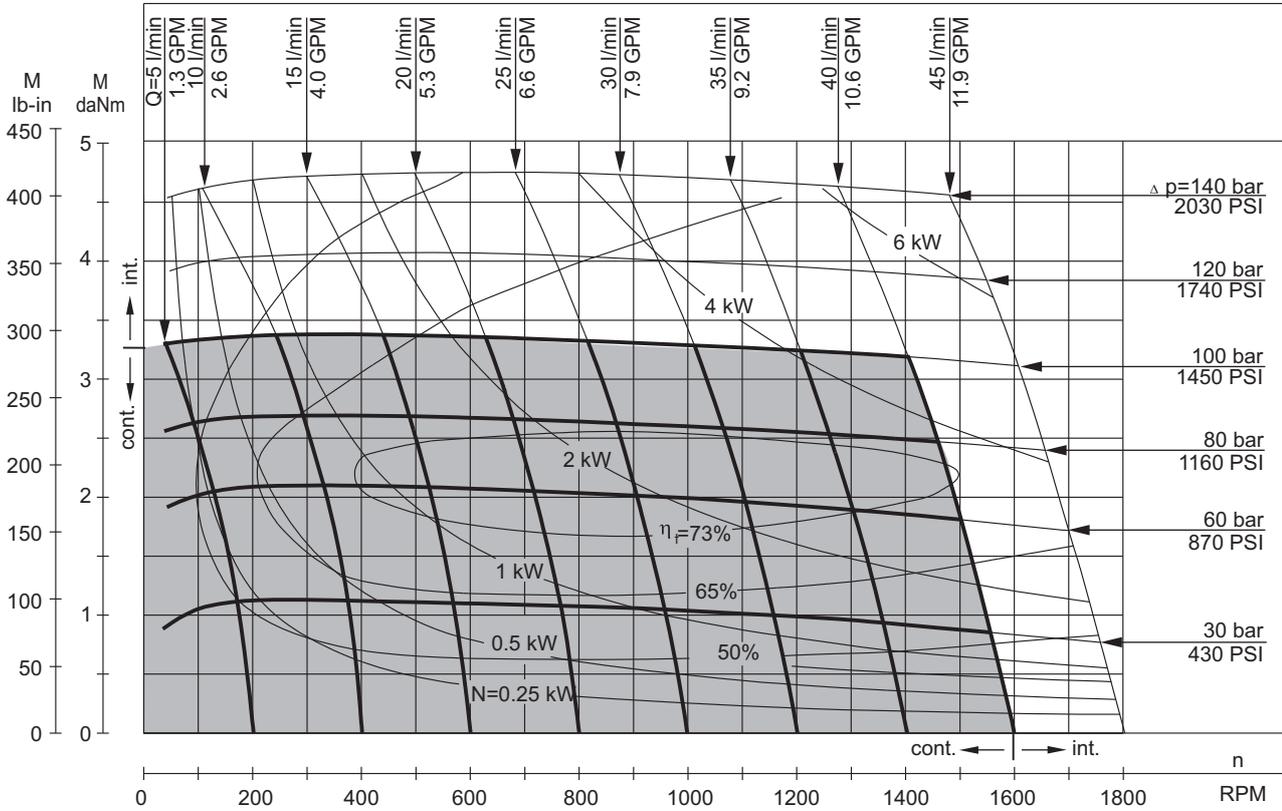
** Peak load: the permissible values may occur for max. 1% of every minute.

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

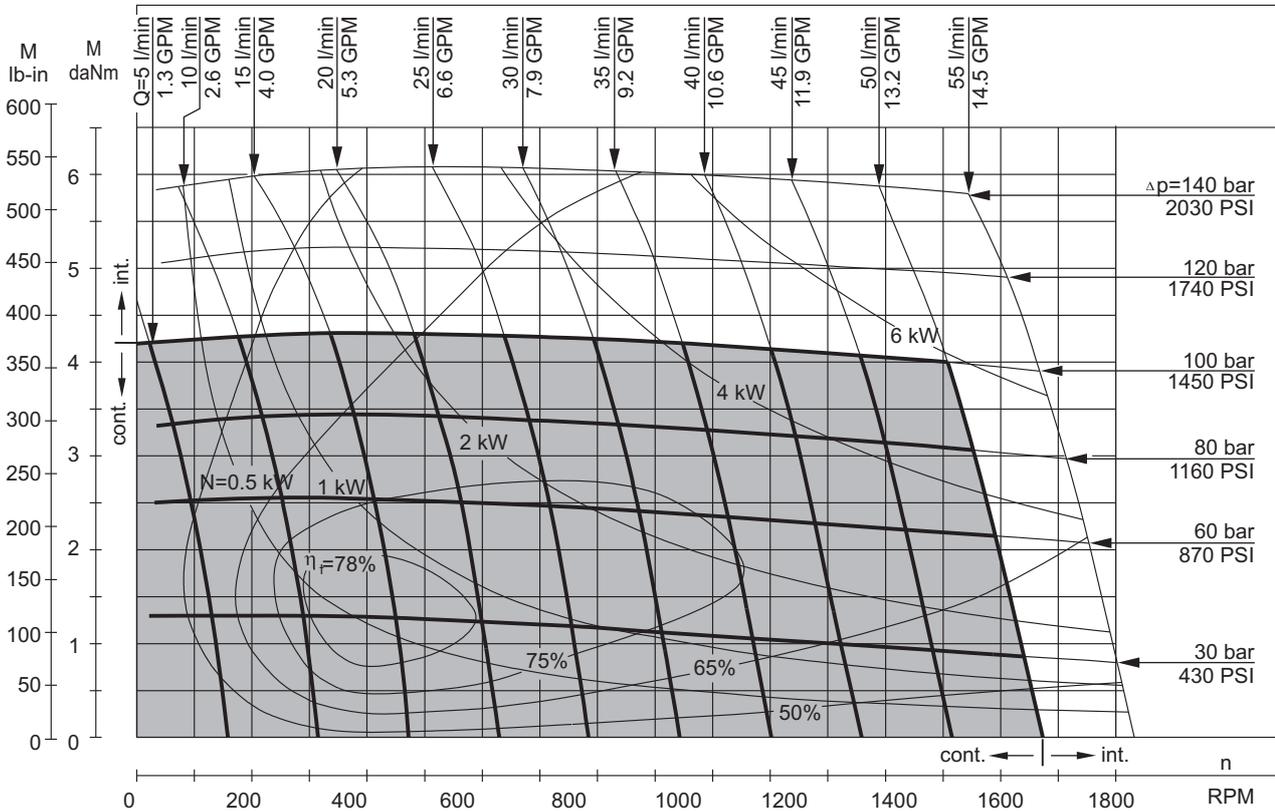
- Intermittent speed and intermittent pressure drop must not occur simultaneously.
- Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
- Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4).
If using synthetic fluids consult the factory for alternative seal materials.
- Recommended minimum oil viscosity 70 SUS [13 mm²/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.

FUNCTION DIAGRAMS

MLHP 25



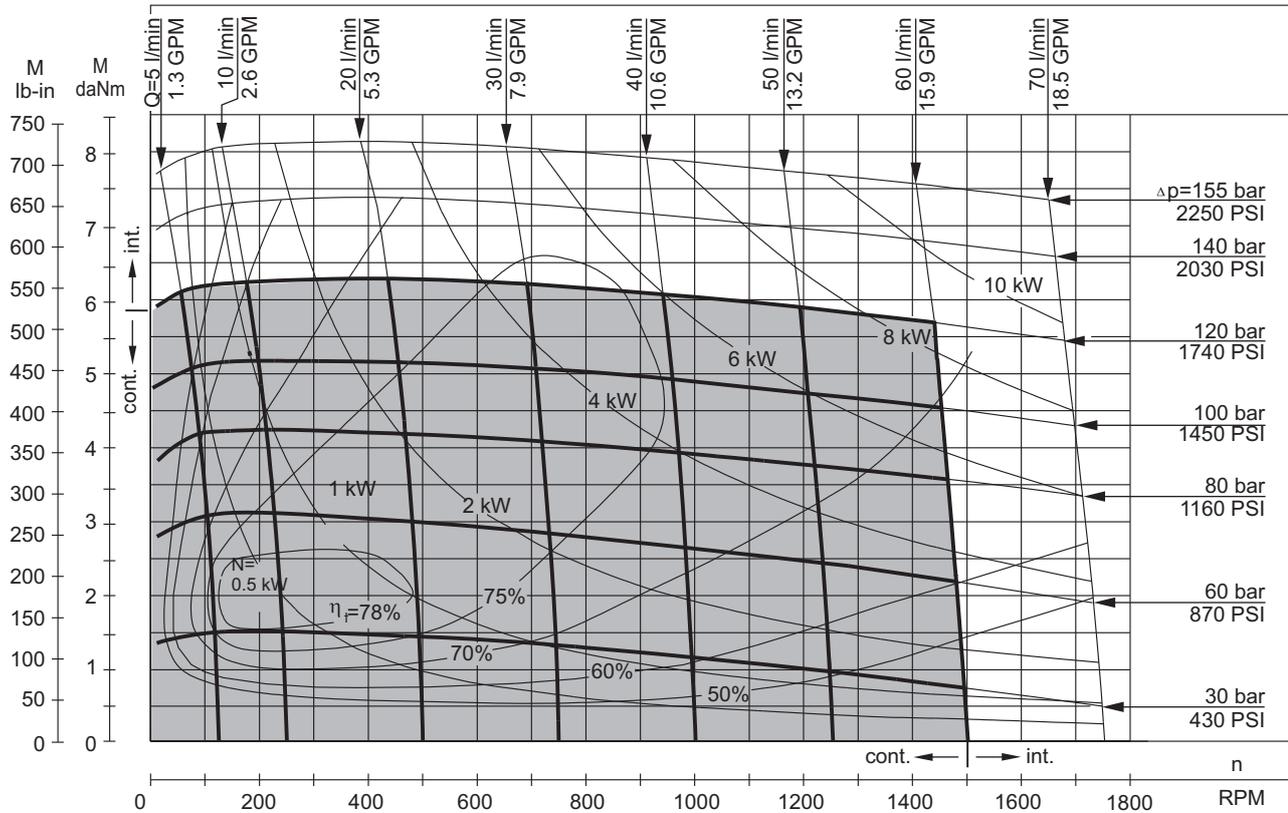
MLHP 32



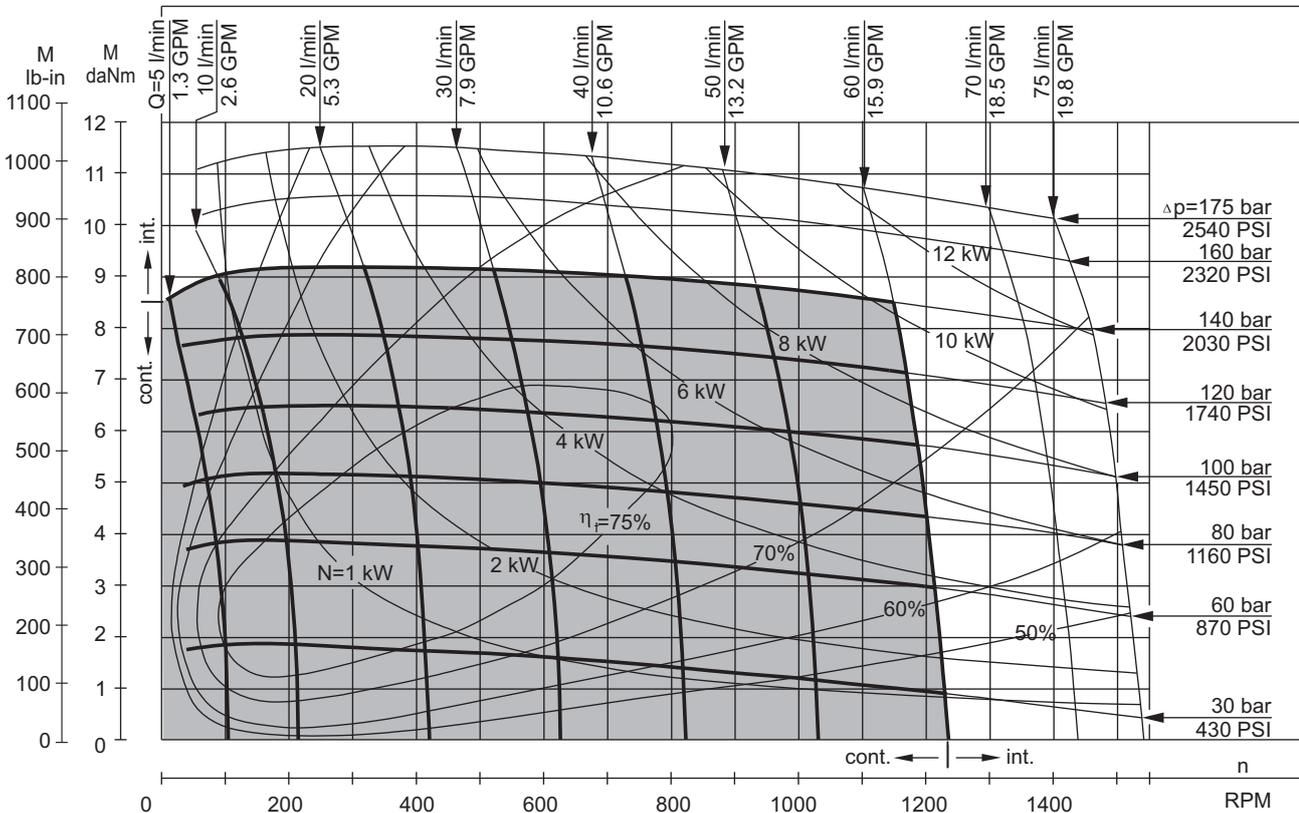
The function diagrams data is for average performance of randomly selected motors at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50°C].

FUNCTION DIAGRAMS

MLHP 40



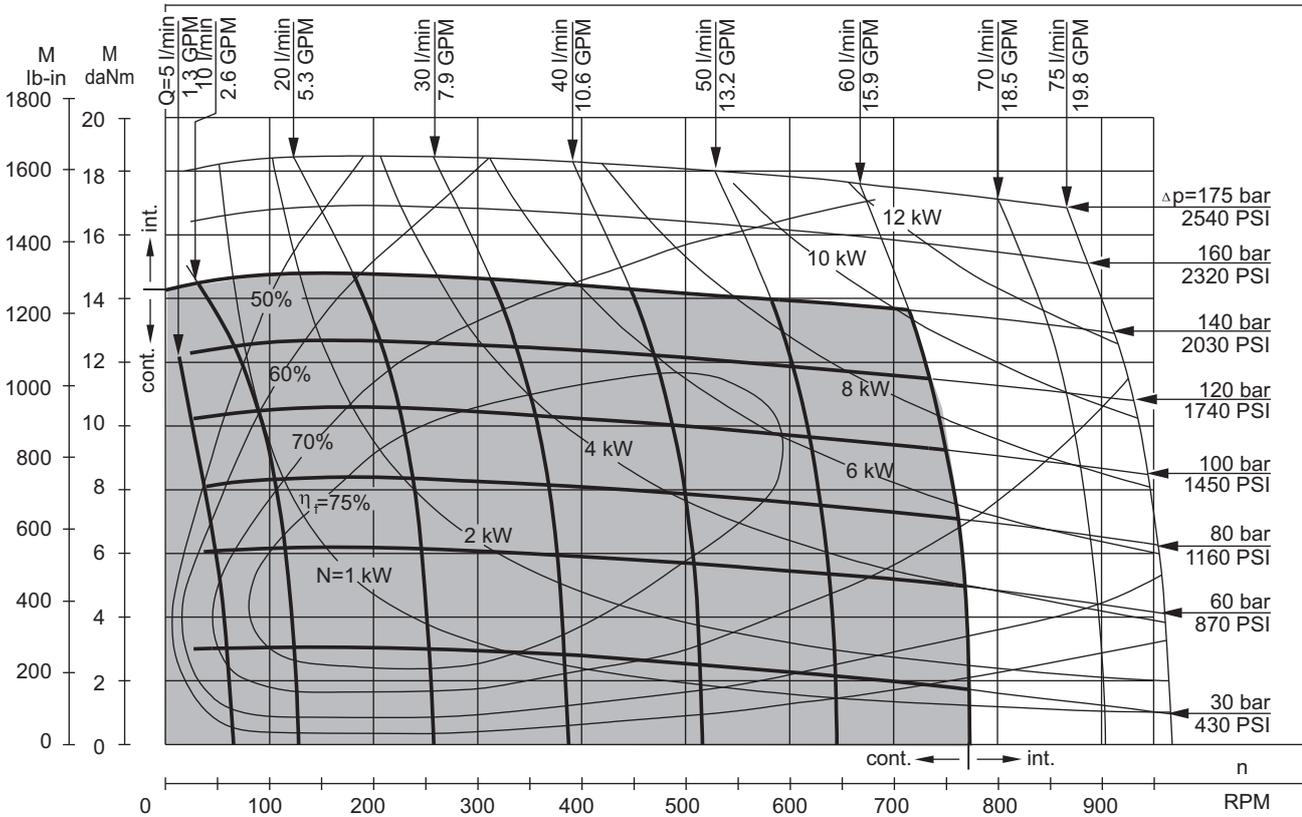
MLHP 50



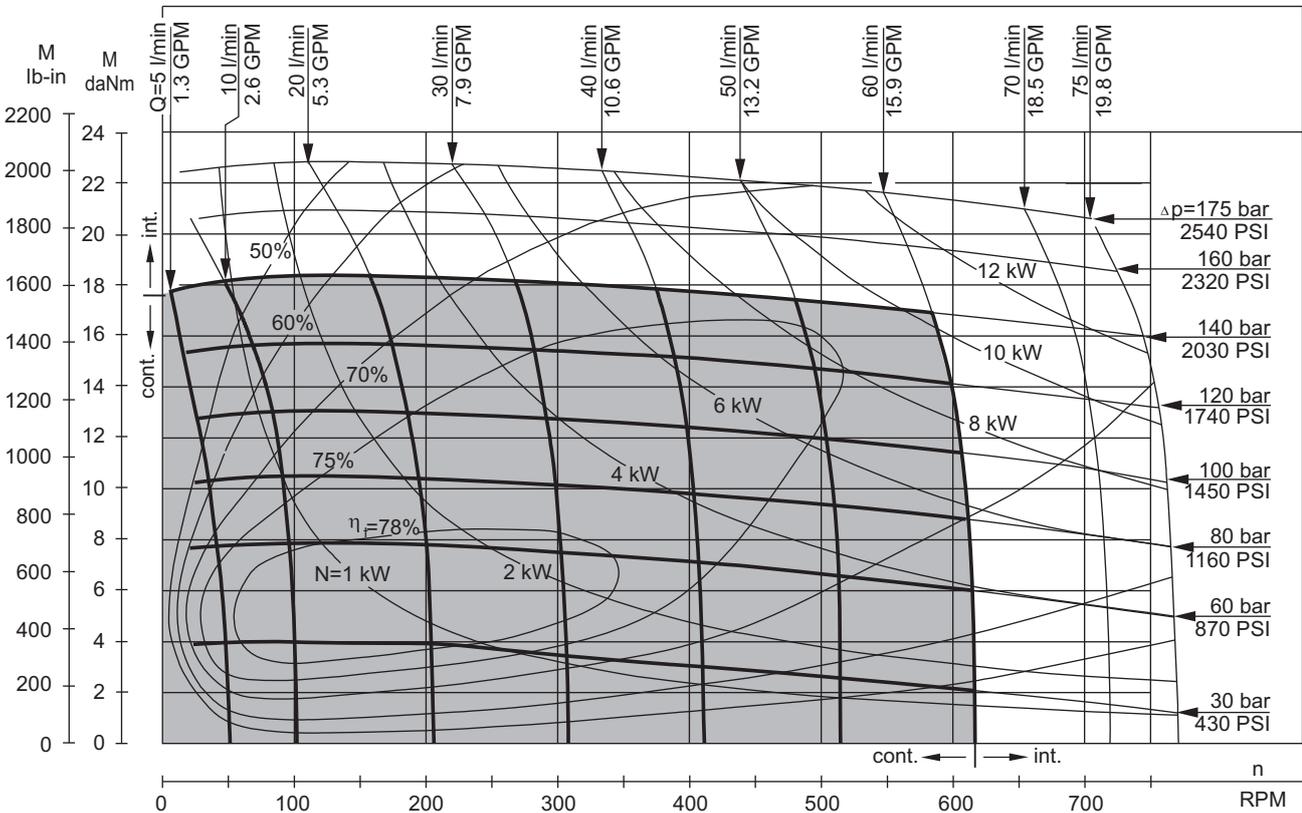
The function diagrams data is for average performance of randomly selected motors at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50°C].

FUNCTION DIAGRAMS

MLHP 80



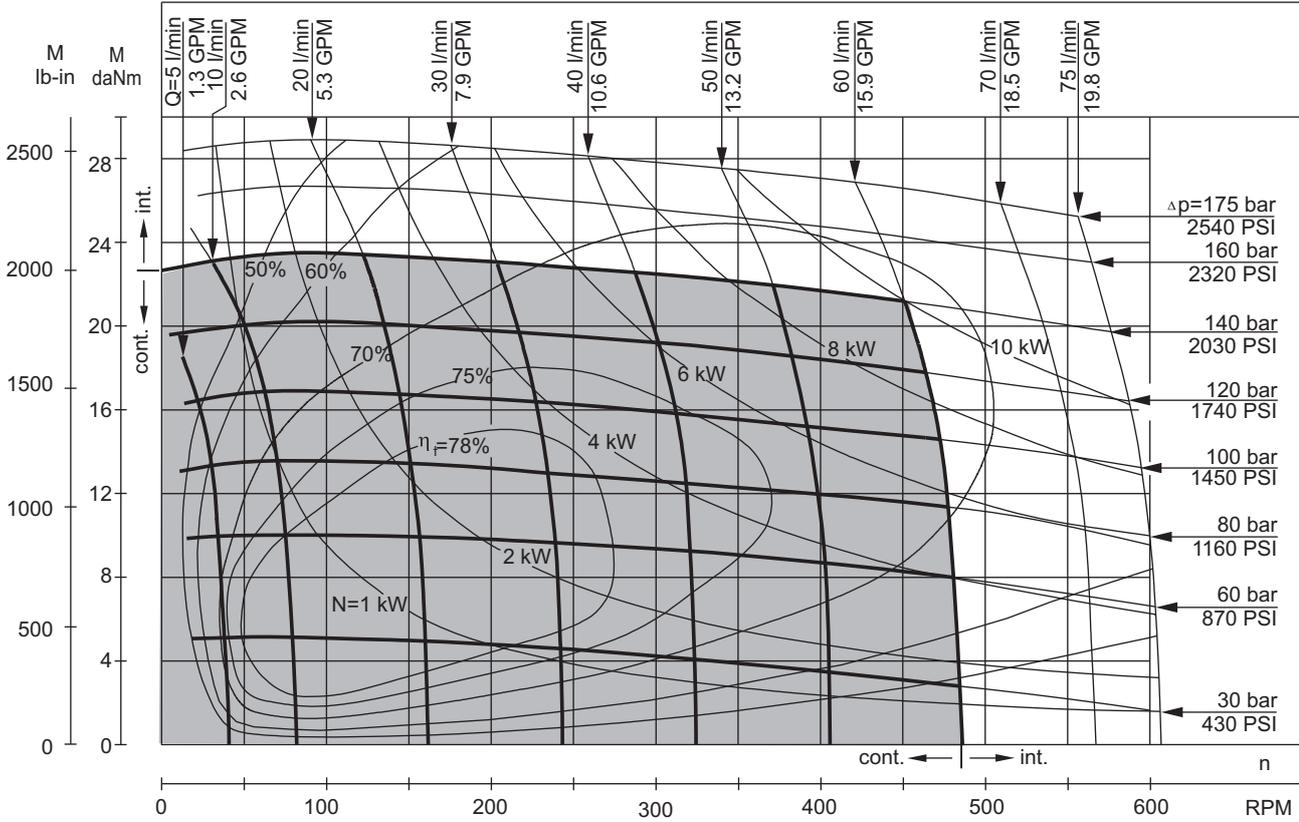
MLHP 100



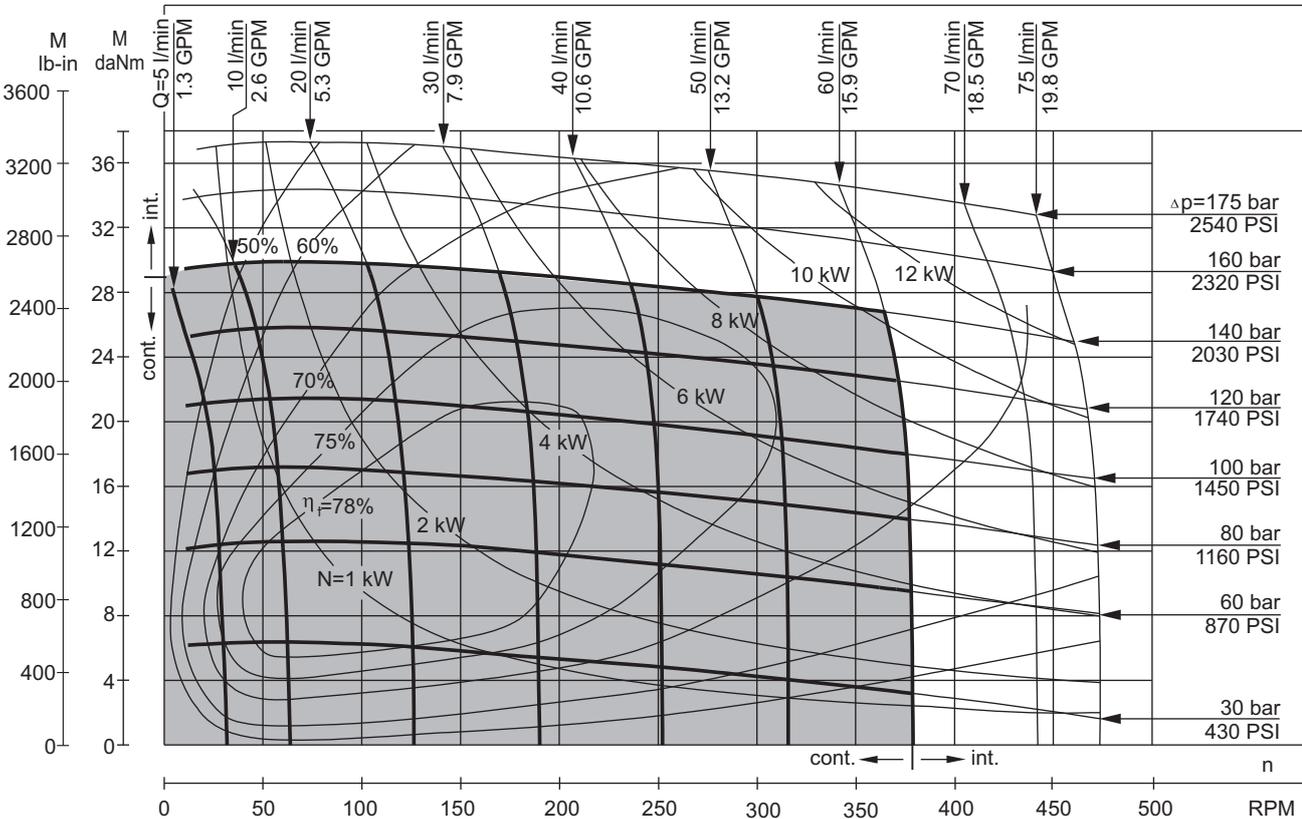
The function diagrams data is for average performance of randomly selected motors at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50°C].

FUNCTION DIAGRAMS

MLHP 125



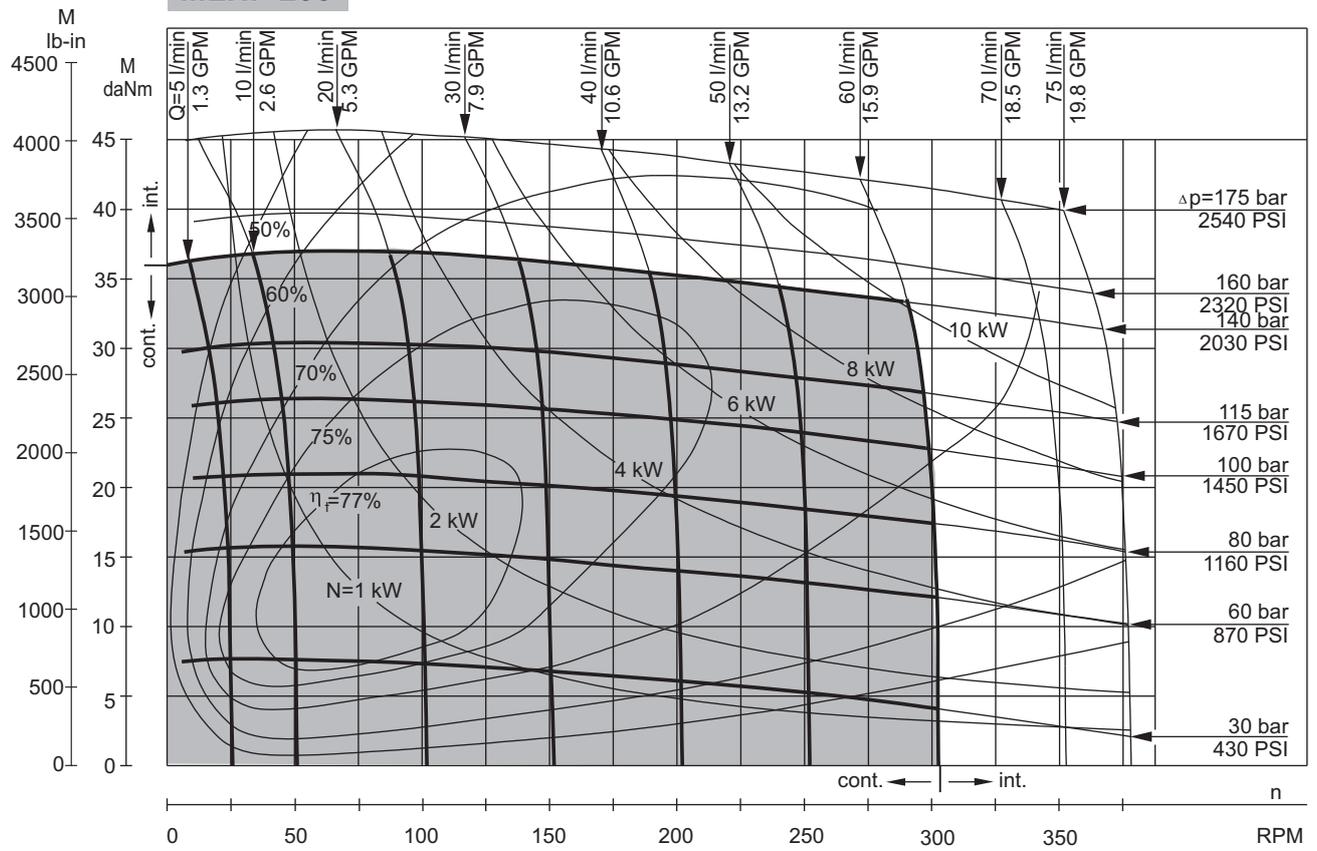
MLHP 160



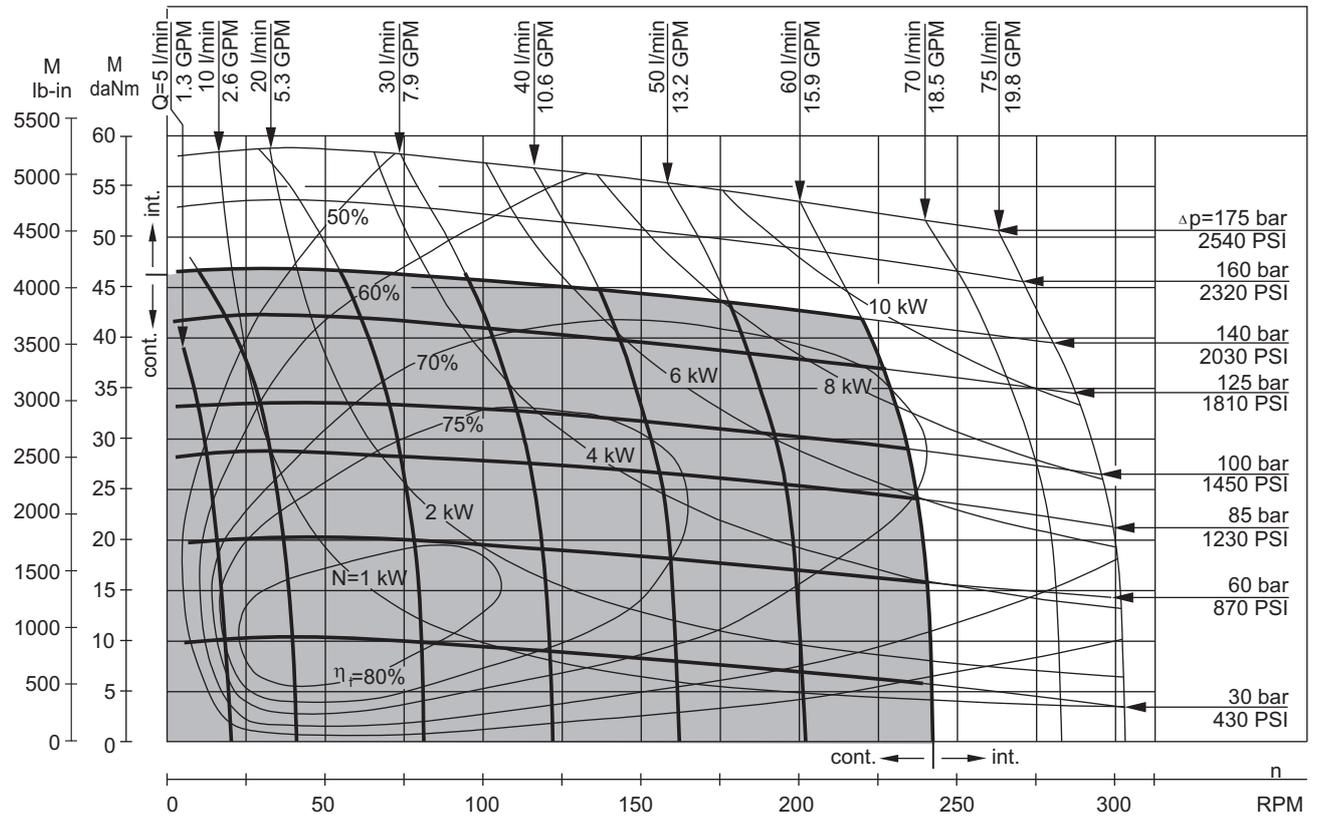
The function diagrams data is for average performance of randomly selected motors at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50°C].

FUNCTION DIAGRAMS

MLHP 200



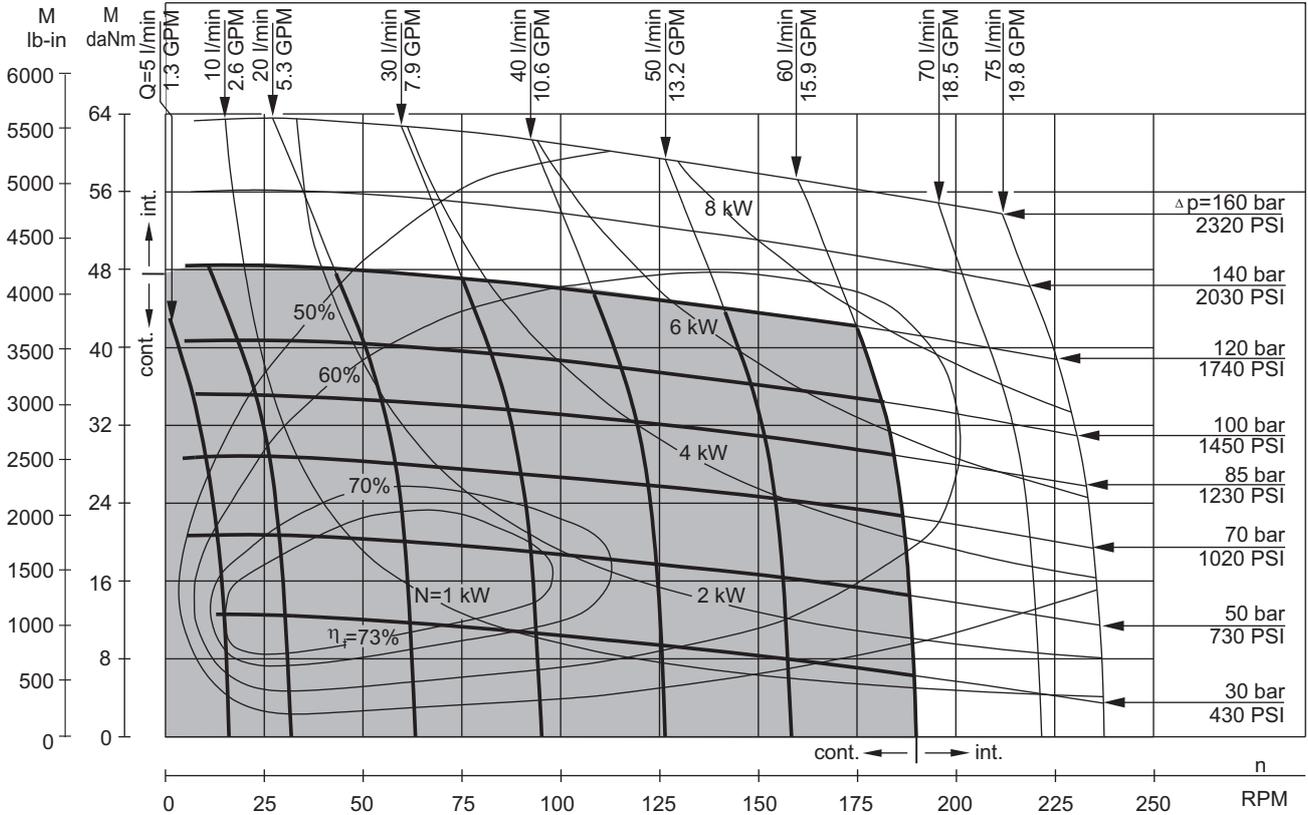
MLHP 250



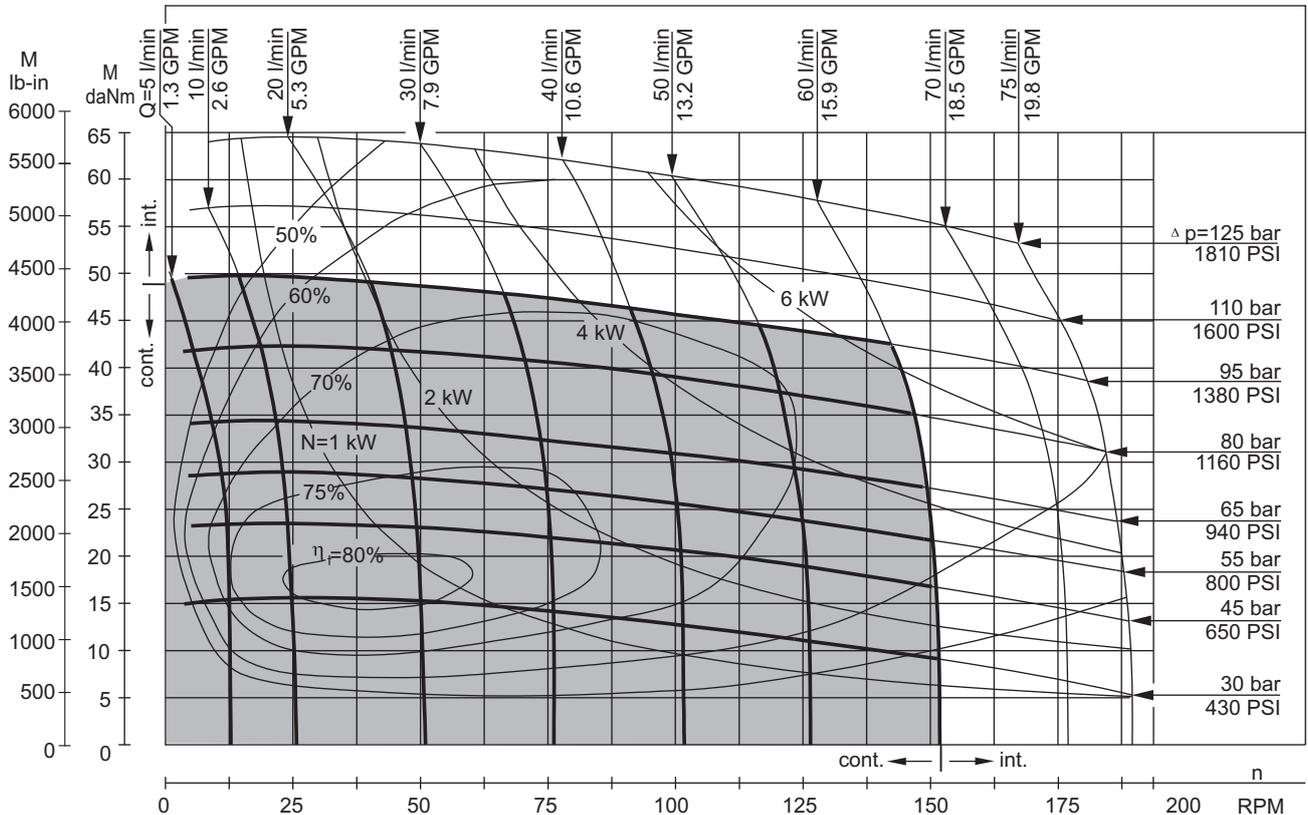
The function diagrams data is for average performance of randomly selected motors at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50°C].

FUNCTION DIAGRAMS

MLHP 315



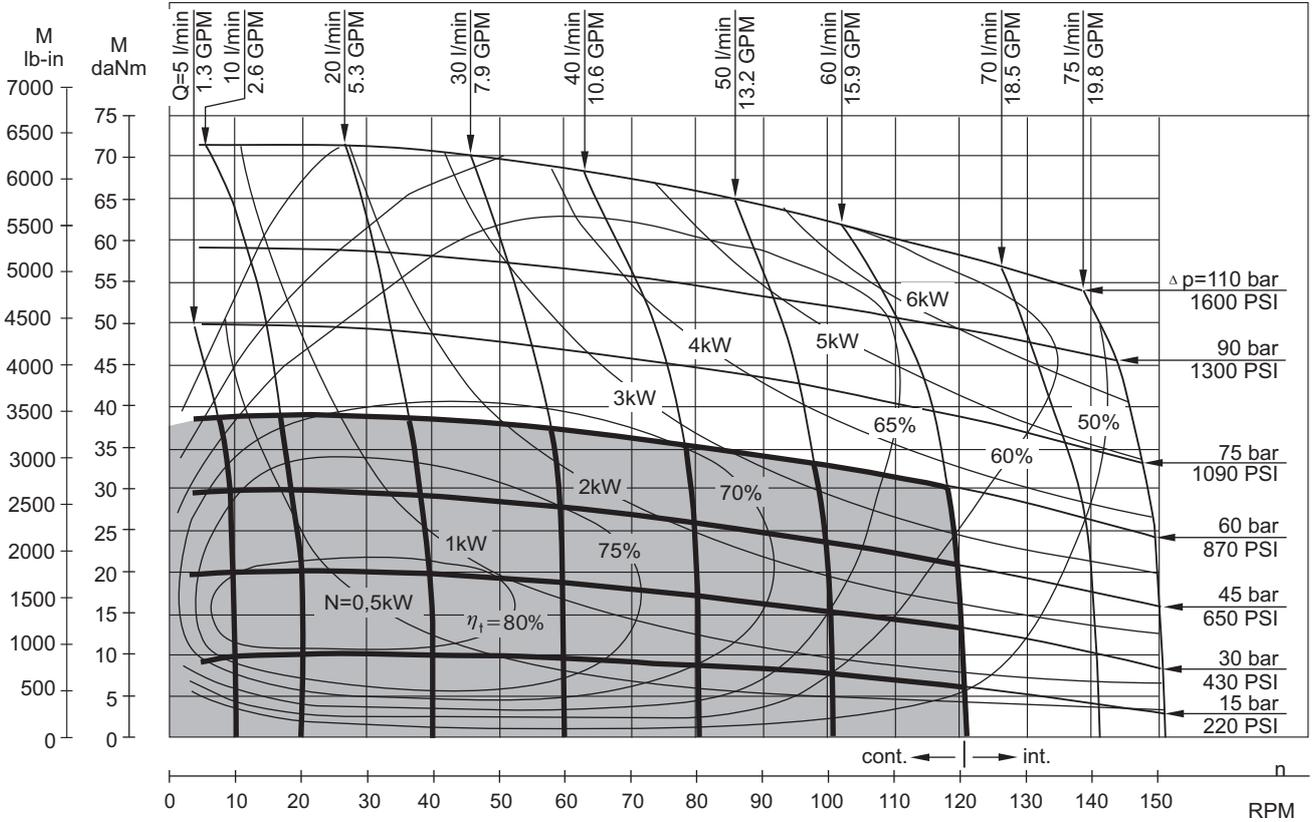
MLHP 400



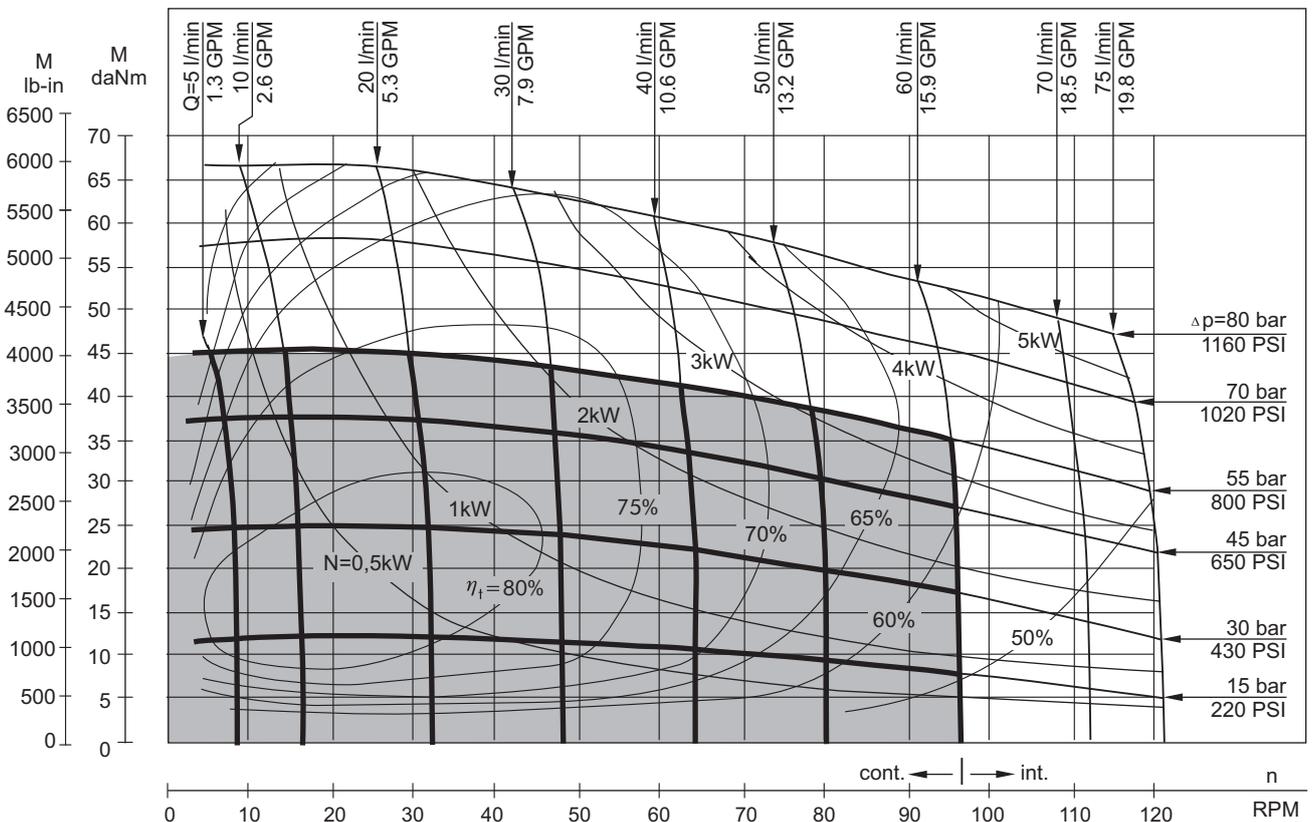
The function diagrams data is for average performance of randomly selected motors at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50°C].

FUNCTION DIAGRAMS

MLHP 500

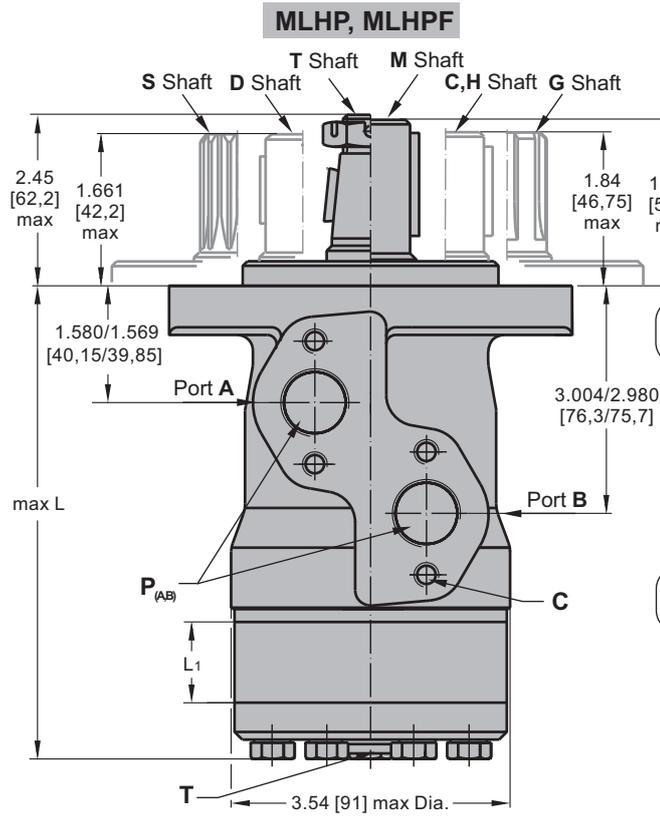


MLHP 630



The function diagrams data is for average performance of randomly selected motors 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].

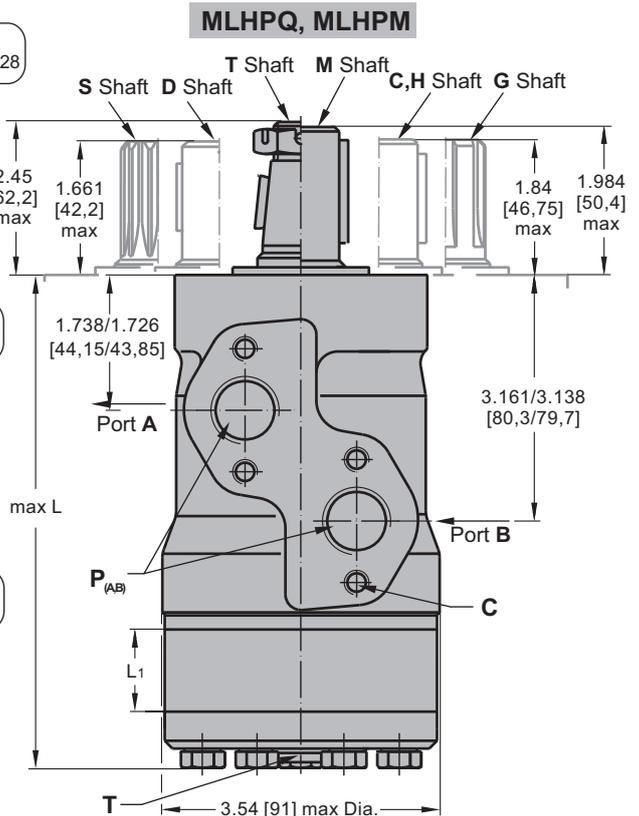
DIMENSIONS AND MOUNTING DATA



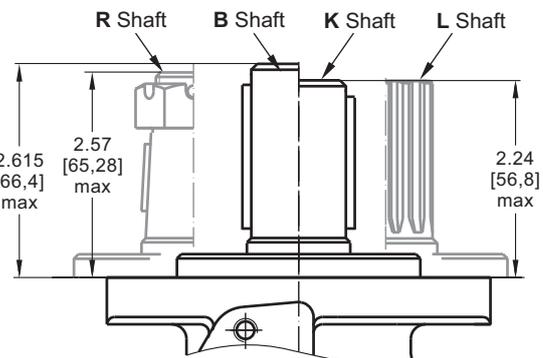
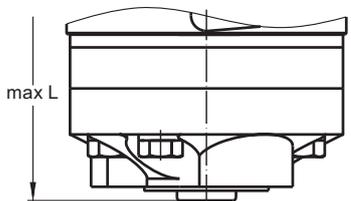
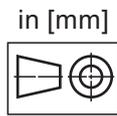
Shaft Dim.
See Page 28

Flange Dim.
See Page 26

Port Dim.
See Page 26



Version **6** **7** **8** **9**
Rear ports



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**

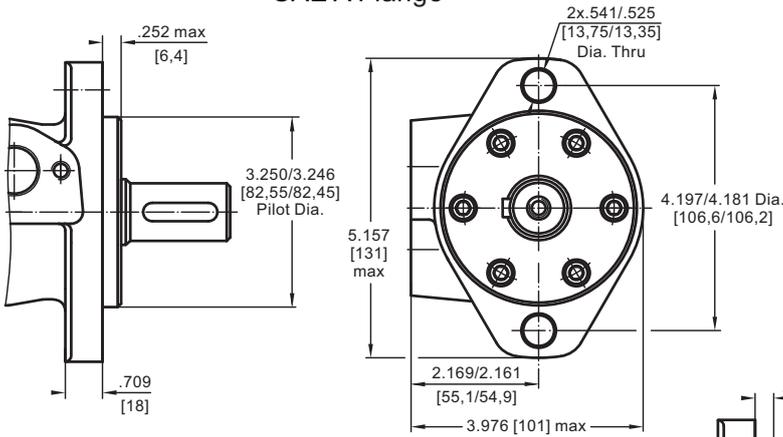
	Versions			
	2, 6	3, 9	4, 7	5, 8
C	4xM8	4xM8	4x $\frac{7}{16}$ -18 UNC	4x $\frac{5}{16}$ -18 UNC
P_(A,B)	2xG $\frac{1}{2}$	2xM22x1,5	2x $\frac{7}{8}$ -14 UNF	2x $\frac{1}{2}$ -14 NPTF
T	G $\frac{1}{4}$	M14x1,5	$\frac{7}{16}$ -20 UNF	$\frac{7}{16}$ -20 UNF

Type	L max, in [mm]		Type	L max, in [mm]		L ₁ , in [mm]
	Versions 2,3,4,5	*Versions 6,7,8,9		Versions 2,3,4,5	*Versions 6,7,8,9	
MLHP(F) 25	5.35 [136,0]	5.91 [150,0]	MLHPQ(M) 25	5.53 [140,5]	6.08 [154,5]	.21 [5,20]
MLHP(F) 32	5.39 [137,0]	5.96 [151,5]	MLHPQ(M) 32	5.57 [141,5]	6.12 [155,5]	.25 [6,30]
MLHP(F) 40	5.45 [138,5]	6.00 [152,5]	MLHPQ(M) 40	5.61 [142,5]	6.16 [156,5]	.29 [7,40]
MLHP(F) 50	5.41 [137,5]	5.96 [151,5]	MLHPQ(M) 50	5.59 [142,0]	6.14 [156,0]	.26 [6,67]
MLHP(F) 80	5.57 [141,5]	6.12 [155,5]	MLHPQ(M) 80	5.75 [146,0]	6.29 [160,0]	.42 [10,67]
MLHP(F) 100	5.67 [144,0]	6.24 [158,5]	MLHPQ(M) 100	5.85 [148,5]	6.39 [162,5]	.52 [13,33]
MLHP(F) 125	5.81 [147,5]	6.36 [161,5]	MLHPQ(M) 125	5.98 [152,0]	6.54 [166,0]	.66 [16,67]
MLHP(F) 160	5.98 [152,0]	6.56 [166,5]	MLHPQ(M) 160	6.16 [156,5]	6.71 [170,5]	.84 [21,33]
MLHP(F) 200	6.20 [157,5]	6.75 [171,5]	MLHPQ(M) 200	6.38 [162,0]	6.93 [176,0]	1.05 [26,67]
MLHP(F) 250	6.46 [164,0]	7.03 [178,5]	MLHPQ(M) 250	6.63 [168,5]	7.19 [182,5]	1.31 [33,33]
MLHP(F) 315	6.83 [173,5]	7.38 [187,5]	MLHPQ(M) 315	7.01 [178,0]	7.56 [192,0]	1.68 [42,67]
MLHP(F) 400	7.24 [184,0]	7.81 [198,5]	MLHPQ(M) 400	7.42 [188,5]	7.97 [202,5]	2.10 [53,33]
MLHP(F) 500	7.78 [197,5]	8.33 [211,5]	MLHPQ(M) 500	7.95 [202,0]	8.50 [216,0]	2.62 [66,63]
MLHP(F) 630	8.47 [215,0]	9.02 [229,0]	MLHPQ(M) 630	8.62 [219,0]	9.17 [233,0]	3.31 [84,00]

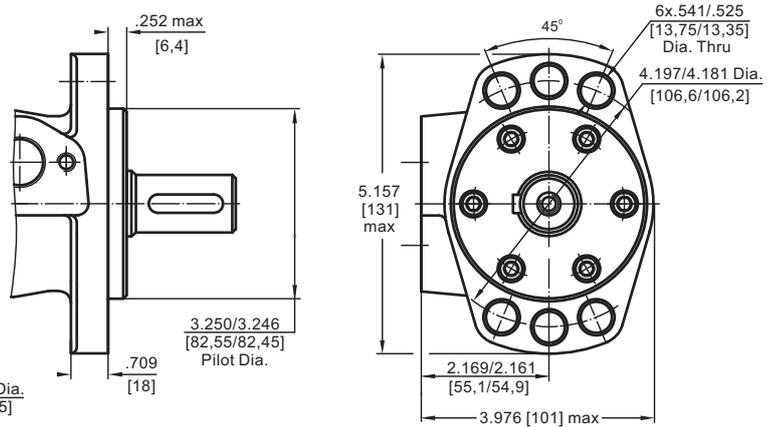
* - For Rear Ported Motors.

MOUNTING

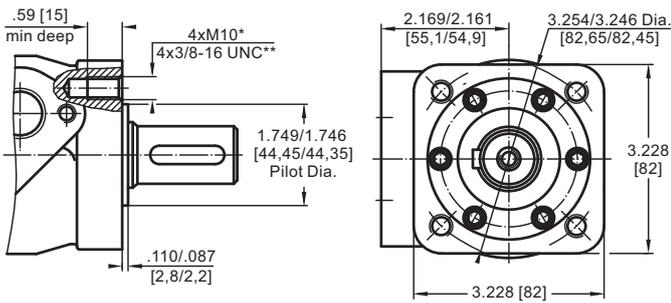
SAE A Flange



F - Magneto Flange



M and Q - Square Flange

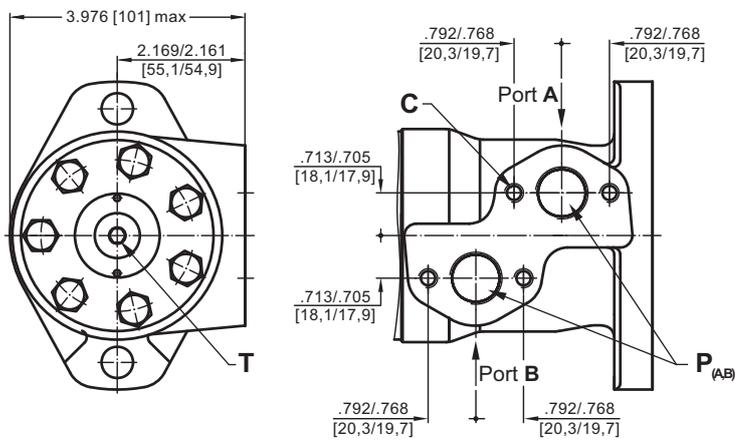


* For M Flange
** For Q Flange

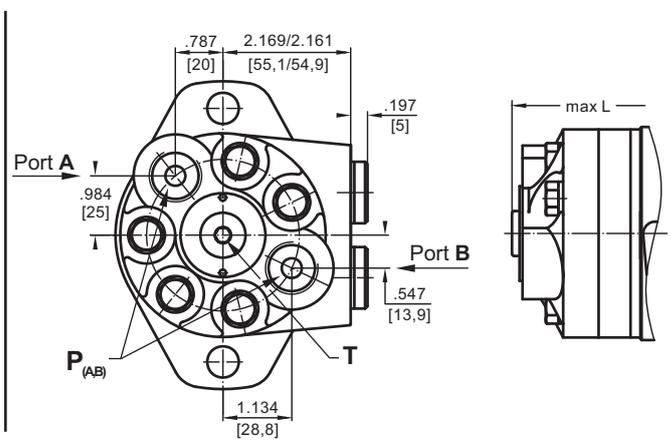


PORTS

Side Ports
Version **2 3 4 5**



Rear Ports
Version **6 7 8 9**

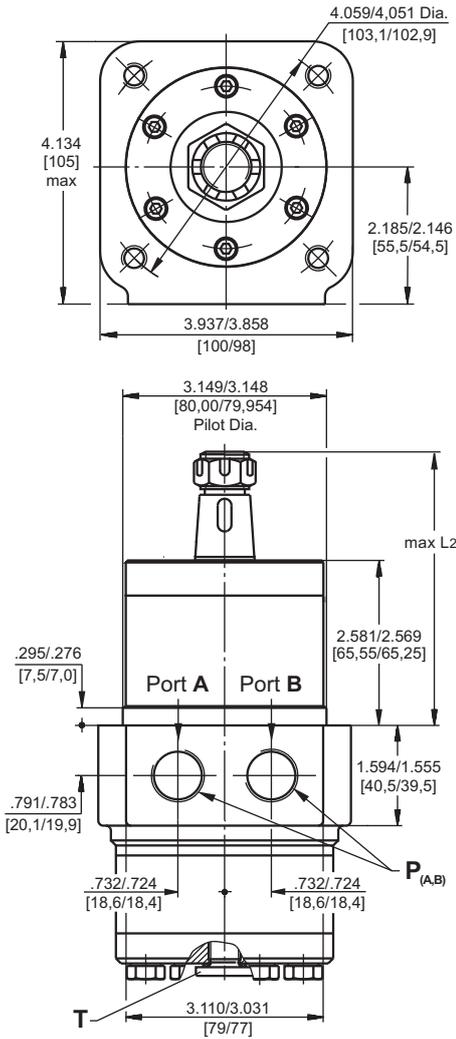


Standard Rotation
Viewed from Shaft End
Port A Pressurized - **CW**
Port B Pressurized - **CCW**

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

	Versions			
	2, 6	3, 9	4, 7	5, 8
C	4xM8	4xM8	4x $\frac{9}{16}$ -18 UNC	4x $\frac{9}{16}$ -18 UNC
P(A,B)	2xG $\frac{1}{2}$	2xM22x1,5	2x $\frac{7}{8}$ -14 UNF	2x $\frac{1}{2}$ -14 NPTF
T	G $\frac{1}{4}$	M14x1,5	$\frac{7}{16}$ -20 UNF	$\frac{7}{16}$ -20 UNF

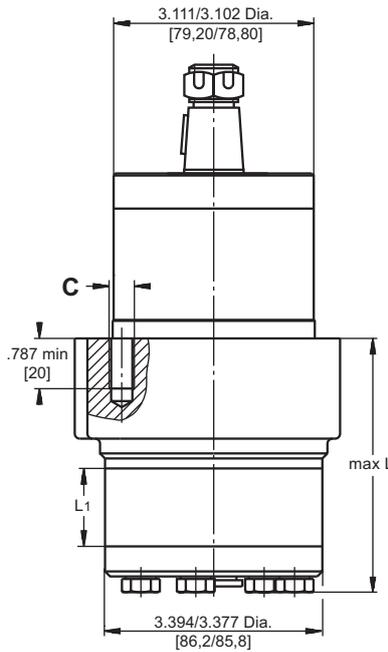
DIMENSIONS AND MOUNTING DATA - MLHPW (WHEEL MOTOR)



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]

	Versions			
	2	3	4	5
C	4xM10	4xM10	3/8-16 UNC	3/8-16 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

Type	L, in [mm]	L ₁ , in [mm]
MLHPW(N) 25	3.01 [76,5]	.21 [5,20]
MLHPW(N) 32	3.07 [78,0]	.25 [6,30]
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	4.51 [114,5]	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



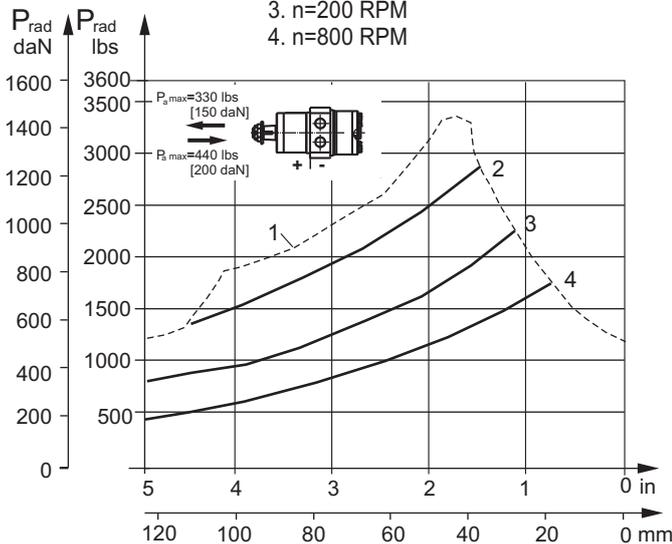
PERMISSIBLE SHAFT LOADS

MLHPWN

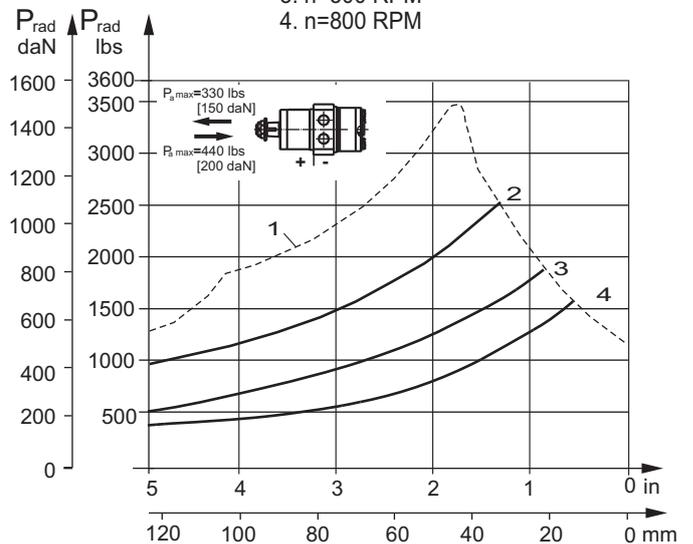
MLHPW

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



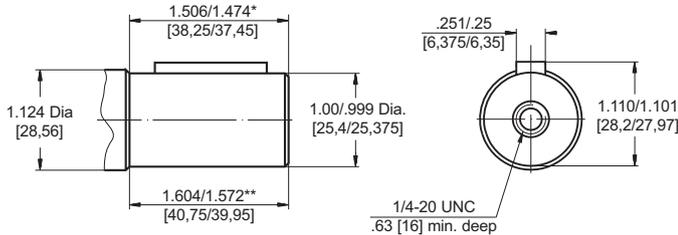
1. Max. radial shaft load
2. n=300 RPM
3. n=500 RPM
4. n=800 RPM



SHAFT EXTENSIONS FOR MLHP AND MLHR MOTORS
1.124 [28,56] sealing diameter

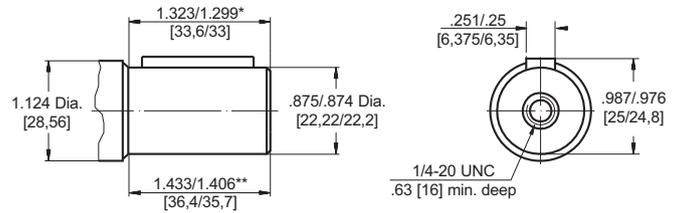
C

1" [25,4] straight, Parallel key 1/4"x1/4"x1 1/4" BS 46
Max. Torque 3009 lb-in [34 daNm]



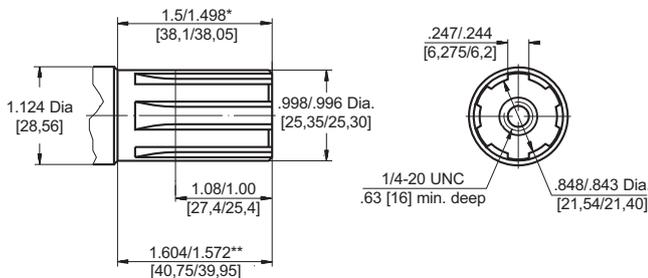
D

7/8" [22,2] straight, Parallel key 1/4"x1/4"x1" BS 46
Max. Torque 3200 lb-in [36 daNm]



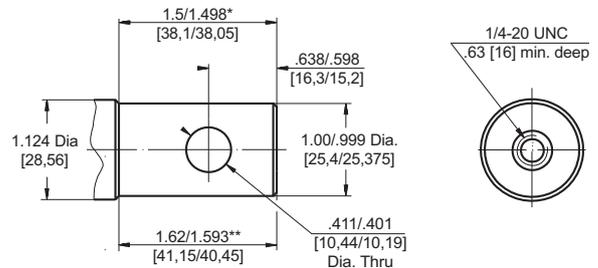
G

1" [25,4], SAE 6B Splined
Max. Torque 3540 lb-in [40 daNm]



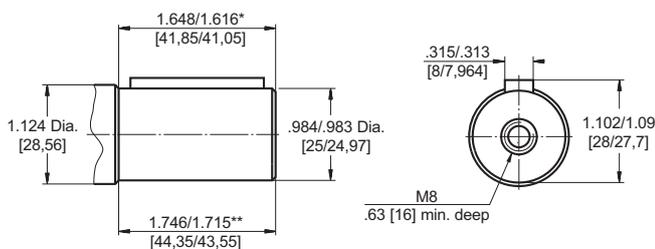
H

1" [25,4] straight, w/ .406 [10,3] Crosshole
Max. Torque 3009 lb-in [34 daNm]



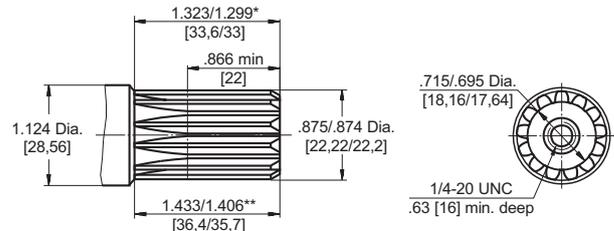
M

ø25 straight, Parallel key A8x7x32 DIN 6885
Max. Torque 3009 lb-in [34 daNm]



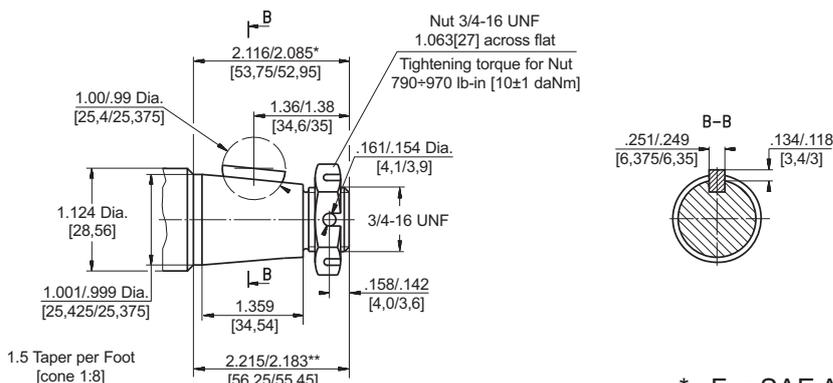
S

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



T

1" [25,4], SAE J501 Tapered
Woodruff key 1/4"x1" SAE J502
Max. Torque 3540 lb-in [40 daNm]



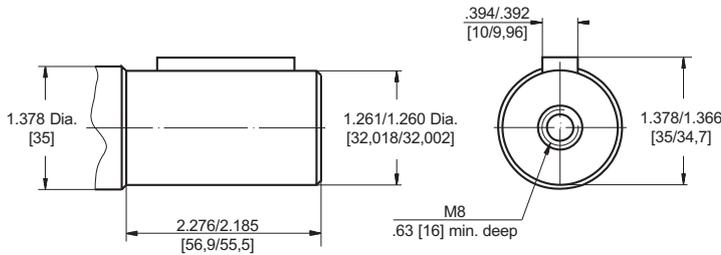
* For SAE A and F Flange
** For M and Q Flange

Requirement max. Torque must not be exceeded.

SHAFT EXTENSIONS FOR MLHP AND MLHR MOTORS (continued)
1.378 [35] sealing diameter

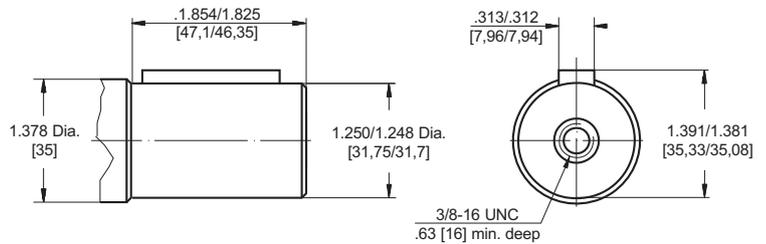
B

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



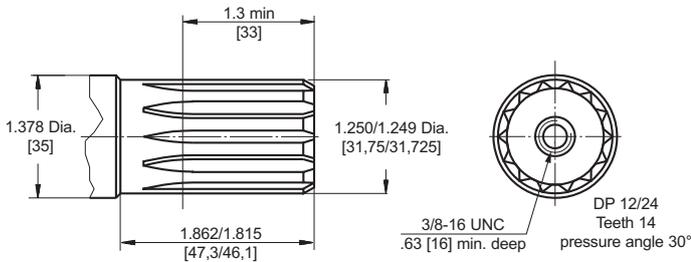
K

1¼" [31,75] straight, Parallel key 5/16"x5/16"x1¼" BS 46
Max. Torque 6815 lb-in [77 daNm]



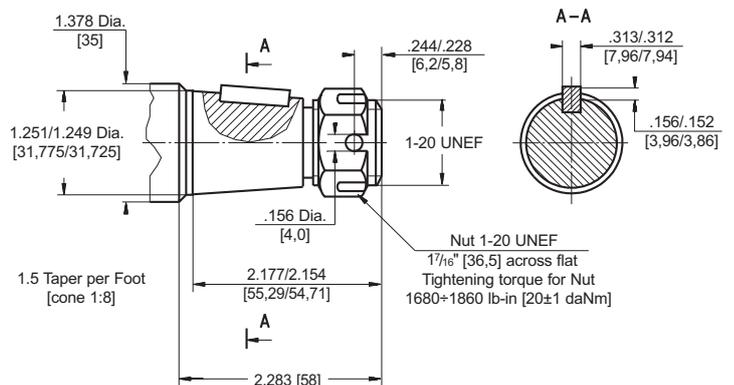
L

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



R

1¼" [31,75], SAE J501 Tapered
Parallel key 5/16"x5/16"x1"
Max. Torque 6815 lb-in [77 daNm]



Requirement max. Torque must not be exceeded.

PERMISSIBLE SHAFT LOADS FOR MLHP AND MLHR MOTORS

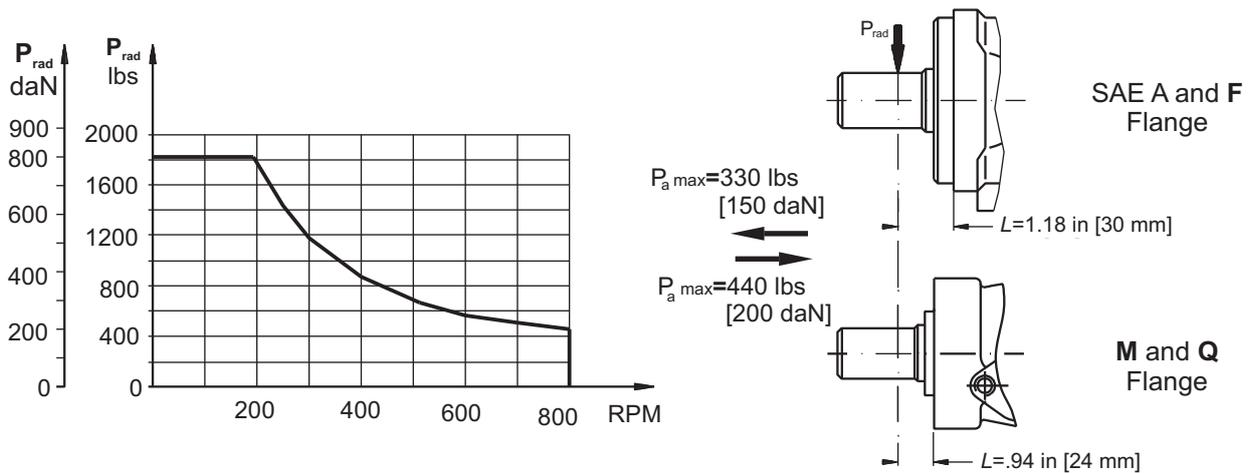
The permissible radial shaft load P_{rad} depends on the speed n , RPM, mounting flange, distance L from the point of load to the mounting flange and shaft version.

Mounting Flange			
Shaft Version	Keyed C Splined G	Keyed B Splined L	Keyed C Splined G
Radial Shaft Load P_{rad} , in mm	$\frac{800}{n} \times \frac{25000}{95+L}$, daN*	$\frac{800}{n} \times \frac{18750}{95+L}$, daN*	$\frac{800}{n} \times \frac{25000}{101+L}$, daN*
Radial Shaft Load P_{rad} , in inch	$\frac{800}{RPM} \times \frac{2215}{3.74+L}$, lbs*	$\frac{800}{RPM} \times \frac{1660}{3.74+L}$, lbs*	$\frac{800}{RPM} \times \frac{2215}{3.98+L}$, lbs*

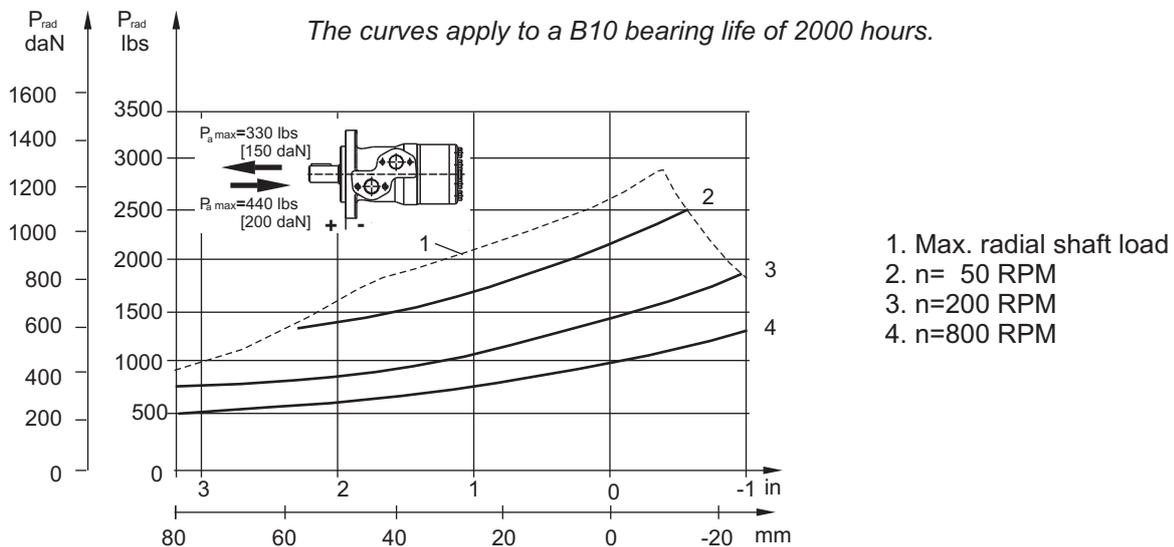
* $n < 200$ RPM; max P_{rad} =1800 lbs [800 daN]
 $n \geq 200$ RPM; $L < 2.2$ in [55 mm]

MLHP AND MLHR

Radial Shaft Load P_{rad} for C, G Shaft Extensions by $L=1.18$ in [30 mm] (.94 in [24 mm])



MLHPN AND MLHRN

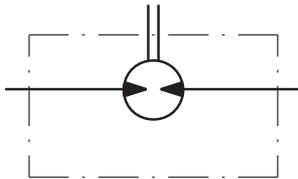


**MAX. PERMISSIBLE SHAFT SEAL PRESSURE
FOR MLHP AND MLHR MOTORS**

**MLHP/MLHR...U1 motors
with high pressure seal
and without drain connection:**

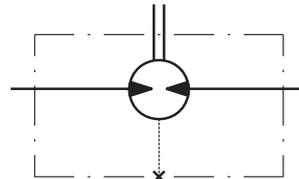
The shaft seal pressure equals the average of input pressure and return pressure.

$$P_{\text{seal}} = \frac{P_{\text{input}} + P_{\text{return}}}{2}$$



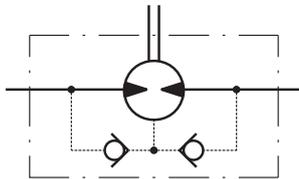
**MLHP/MLHR...U motors
with high pressure seal
and drain connection:**

The shaft seal pressure equals the pressure in the drain line.



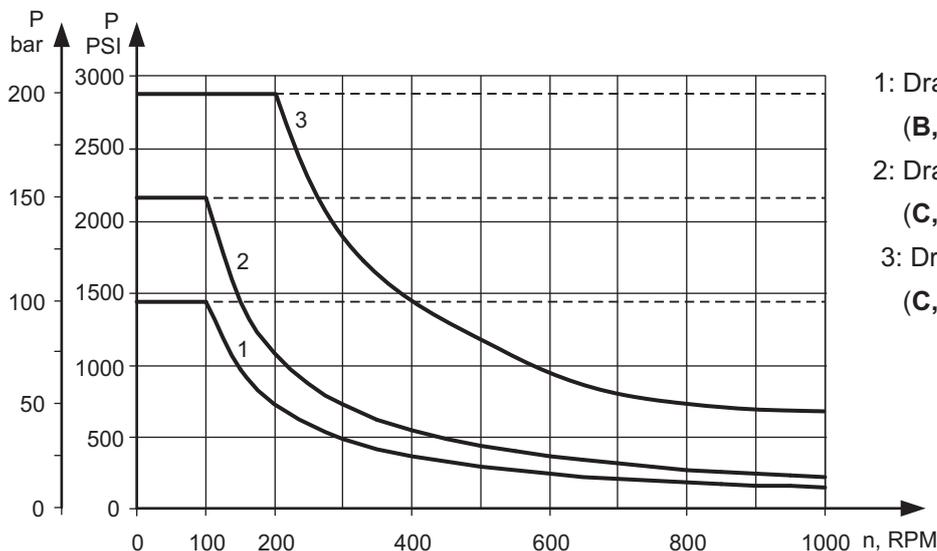
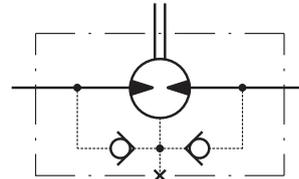
**MLHP/MLHR...1 motors
with standard shaft seal
and without drain connection:**

The shaft seal pressure never exceeds the pressure in the return line.



**MLHP/MLHR... motors
with standard shaft seal
and with drain connection:**

The shaft seal pressure equals the pressure in the drain line.



- 1: Drawing for Standard Shaft Seal (B, K, L, R shafts)
- 2: Drawing for Standard Shaft Seal (C, G, D, H, M, S, T shafts)
- 3: Drawing for High Pressure Seal ("U" Seal) (C, G, D, H, M, S, T shafts)

— - continuous operations
- - - - - intermittent operations

	1	2	3	4	5	6	7	8	9
MLHP									

Pos.1 - Mounting Flange

omit - SAE A, two holes

F - Magneto, six holes

M - Square metric, four bolts M10

Q - Square, four bolts

W - Wheel motor

Pos.2 - Displacement code

25 - 1.73 in³/rev [28,4 cm³/rev]

32 - 2.11 in³/rev [34,5 cm³/rev]

40 - 2.47 in³/rev [40,5 cm³/rev]

50 - 3.02 in³/rev [49,5 cm³/rev]

80 - 4.83 in³/rev [79,2 cm³/rev]

100 - 6.04 in³/rev [99,0 cm³/rev]

125 - 7.55 in³/rev [123,8 cm³/rev]

160 - 9.66 in³/rev [158,4 cm³/rev]

200 - 12.10 in³/rev [198,0 cm³/rev]

250 - 15.10 in³/rev [247,5 cm³/rev]

315 - 19.30 in³/rev [316,8 cm³/rev]

400 - 24.16 in³/rev [396,0 cm³/rev]

500 - 30.20 in³/rev [495,0 cm³/rev]

630 - 38.05 in³/rev [623,6 cm³/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 103]

Pos.9 - Design Series

omit - Factory specified

Notes:

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

The following combinations are not allowed: - **Q, M, W** flange with **B, K, L, R** shafts.

- **N** option with **B, K, L, R** shafts, **U** option or **RS** option.

- **W** flange with rear ports.

- **B, K, L, R** shafts with **U** option.

Displacement codes 25, 32,40 and 50 are not allowed with **B, K, L, R** shafts!

The hydraulic motors are mangano-phosphatized as standard.