

HYDRAULIC MOTORS MLHM

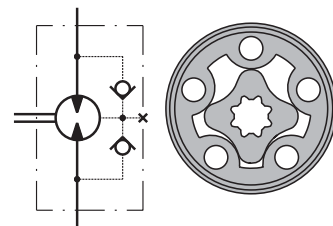


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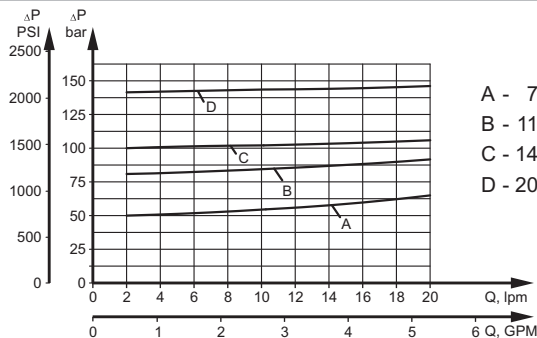
APPLICATION

- » Conveyors
- » Textile machines
- » Mining machinery
- » Machine tools
- » Ventilators
- » Construction plant equipment and access platforms etc.



Pressure Settings at Flow

Q= .53 GPM [2 lpm], 150 SUS [32 mm²/s], 122°F [50°C]

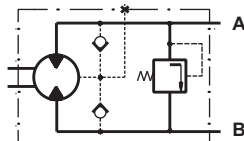


OPTIONS

- » Model - Spool valve, gerotor
- » With or without flange
- » Side and rear ports
- » Series with pressure valve(s)
- » Shafts - straight and splined
- » Metric and BSPP ports
- » Speed sensing;
- » Other special features

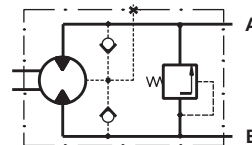
MLHMP Series with Integrated Internal Crossover Relief Valve

A → B, Δp=1450 or 725 PSI [100 or 50 bar]

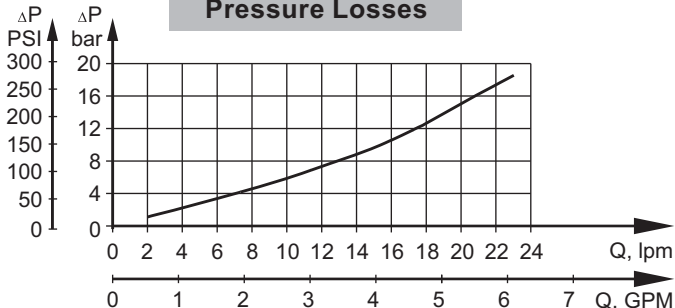


MLHMP Series with Integrated Internal Crossover Relief Valve

B → A, Δp=1450 or 725 PSI [100 or 50 bar]

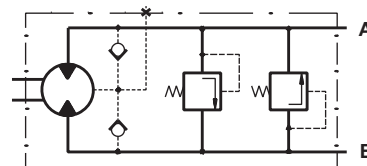


Pressure Losses



MLHMD Series with Integrated Internal Crossover Relief Valves

A ↔ B, Δp=100 or 50 bar [1450 or 725 PSI]



GENERAL

Max. Displacement,	in ³ /rev [cm ³ /rev]	3.05 [50]	
Max. Speed,	[RPM]	2440	
Max. Torque,	lb-in [daNm]	cont.: 398 [4,5]	int.: 513 [5,8]
Max. Output,	HP [kW]	4,3 [3,2]	
Max. Pressure Drop,	PSI [bar]	cont.: 1500 [105]	int.: 2030 [140]
Max. Oil Flow,	GPM [lpm]	6.6 [25]	
Min. Speed,	[RPM]	20	
Pressure fluid		Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)	
Temperature range,	°F [°C]	-40÷284 [-40÷140]	
Optimal Viscosity range, SUS [mm ² /s]		98÷347 [20÷75]	
Filtration		ISO code 20/16 (Min. recommended fluid filtration of 25 microns)	

SPECIFICATION DATA

Type		MLHM 8	MLHM 12.5	MLHM 20	MLHM 32	MLHM 40	MLHM 50
Displacement, in³/rev. [cm³/rev.]		.5 [8,2]	.79 [12,9]	1.22 [20]	1.93 [31,8]	2.44 [40]	3.05 [50]
Max. Speed, [RPM]	Cont.	1950	1550	1000	630	500	400
	Int.*	2440	1940	1250	790	625	500
Max. Torque lb-in [daNm]	Cont.	106 [1,2]	150 [1,7]	230 [2,6]	375 [4,2]	375 [4,2]	398 [4,5]
	Int.*	133 [1,5]	205 [2,3]	311 [3,5]	506 [5,7]	506 [5,7]	513 [5,8]
	Peak**	187 [2,1]	293 [3,3]	453 [5,1]	568 [6,4]	584 [6,6]	708 [8]
Max. Output HP [kW]	Cont.	2.4 [1,8]	3.3 [2,4]	3.3 [2,4]	3.3 [2,4]	2.5 [1,8]	2.48 [1,7]
	Int.*	3.6 [2,6]	4.3 [3,2]	4.3 [3,2]	4.3 [3,2]	4 [3,0]	2.8 [2,1]
Max. Pressure Drop PSI [bar]	Cont.	1500 [105]	1500 [105]	1500 [105]	1500 [105]	1200 [82,5]	1015 [70]
	Int.*	2030 [140]	2030 [140]	2030 [140]	2030 [140]	1600 [110]	1300 [90]
	Peak**	2900 [200]	2900 [200]	2900 [200]	2900 [200]	2000 [140]	1815 [125]
Max. Oil Flow GPM [lpm]	Cont.	4.2 [16]	5.5 [20]	5.5 [20]	5.5 [20]	5.5 [20]	5.5 [20]
	Int.*	5.5 [20]	6.6 [25]	6.6 [25]	6.6 [25]	6.6 [25]	6.6 [25]
Max. Inlet Pressure PSI [bar]	Cont.	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
	Int.*	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]
Max. Return Pressure without Drain Line or Max. Pressure in Drain Line, PSI [bar]	Cont. 0-100 RPM	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
	Cont. 100-400 RPM	1500 [105]	1500 [105]	1500 [105]	1500 [105]	1500 [105]	1500 [105]
	Cont. 400-800 RPM	725 [50]	725 [50]	725 [50]	725 [50]	725 [50]	725 [50]
	Cont. >800 RPM	290 [20]	290 [20]	290 [20]	-	-	-
Max. Return Pressure with Drain Line PSI [bar]	Int.* 0-max. RPM	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
	Cont.	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]	2030 [140]
	Int.*	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]	2540 [175]
Min. Starting Torque lb-in [daNm]	At max. press. drop Cont.	65 [0,7]	105 [1,2]	190 [2,1]	300 [3,4]	295 [3,3]	330 [3,7]
	At max. press. drop Int.*	90 [1,0]	150 [1,7]	260 [2,9]	425 [4,8]	400 [4,6]	425 [4,8]
Min. Speed***, [RPM]		50	40	30	30	25	20
Weight, lb [kg] For "F" flange: + .441 [0,200]	MLHM(M) rear ports	4.2 [1,9]	4.41 [2]	4.63 [2,1]	4.85 [2,2]	5.07 [2,3]	5.51 [2,5]
	MLHM(M)	4.41 [2,0]	4.63 [2,1]	4.85 [2,2]	5.07 [2,3]	5.29 [2,4]	5.73 [2,6]
	MLHM(M)...P	4.85 [2,2]	5.07 [2,3]	5.29 [2,4]	5.51 [2,5]	5.73 [2,6]	6.17 [2,8]
	MLHM(M)...D	5.73 [2,6]	5.95 [2,7]	6.17 [2,8]	6.39 [2,9]	6.61 [3,0]	7.05 [3,2]

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

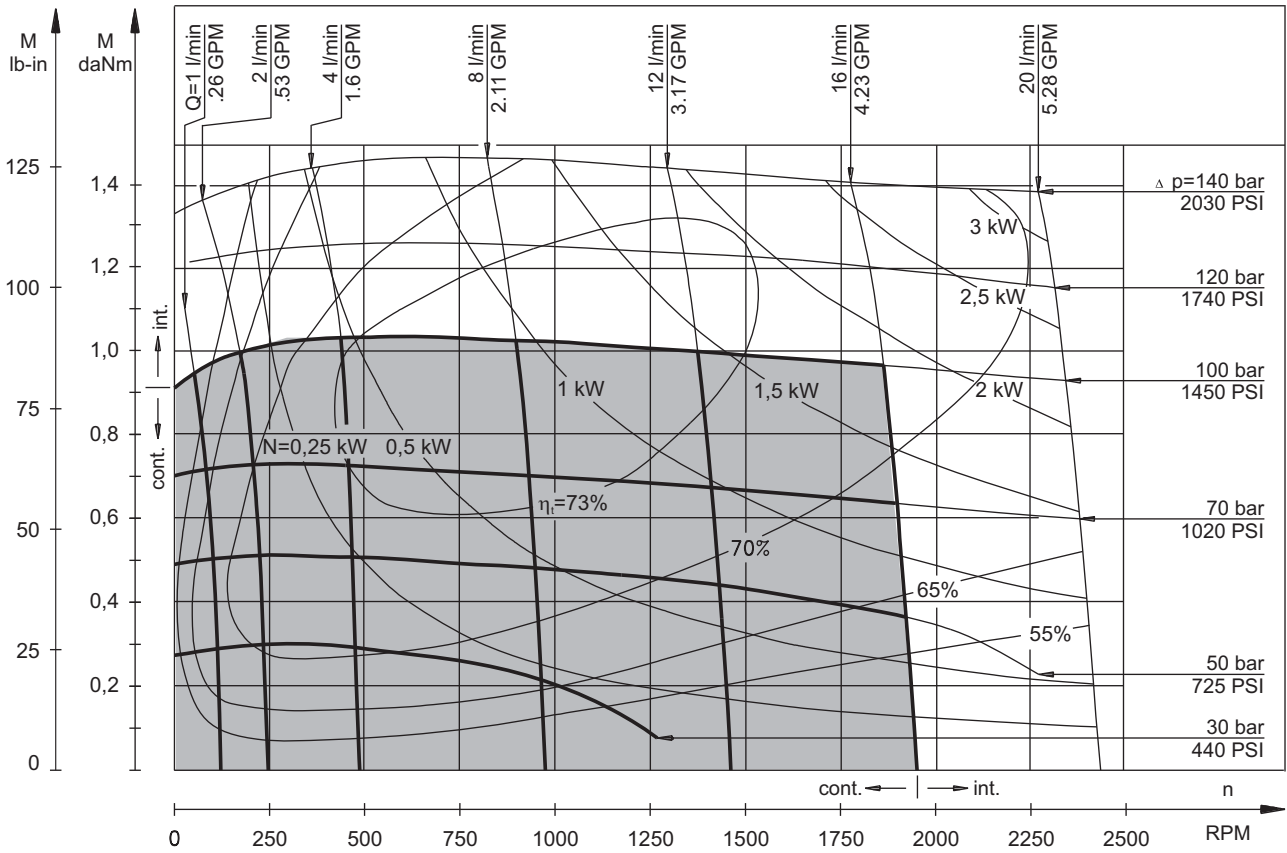
** Peak load: the permissible values may occur for max. 1% of every minute.

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

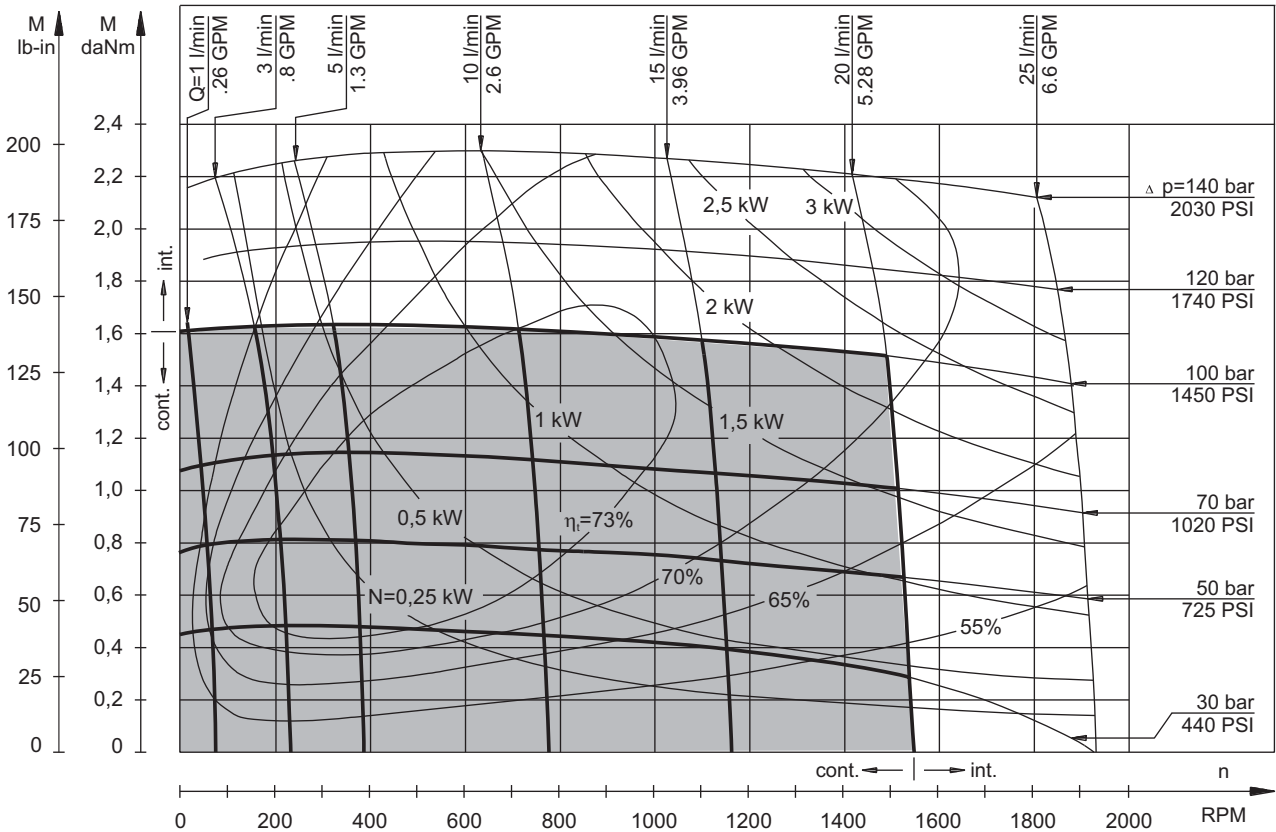
- Intermittent speed and intermittent pressure drop must not occur simultaneously.
- Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
- Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4). 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 15-30 minutes.

FUNCTION DIAGRAMS

MLHM 8



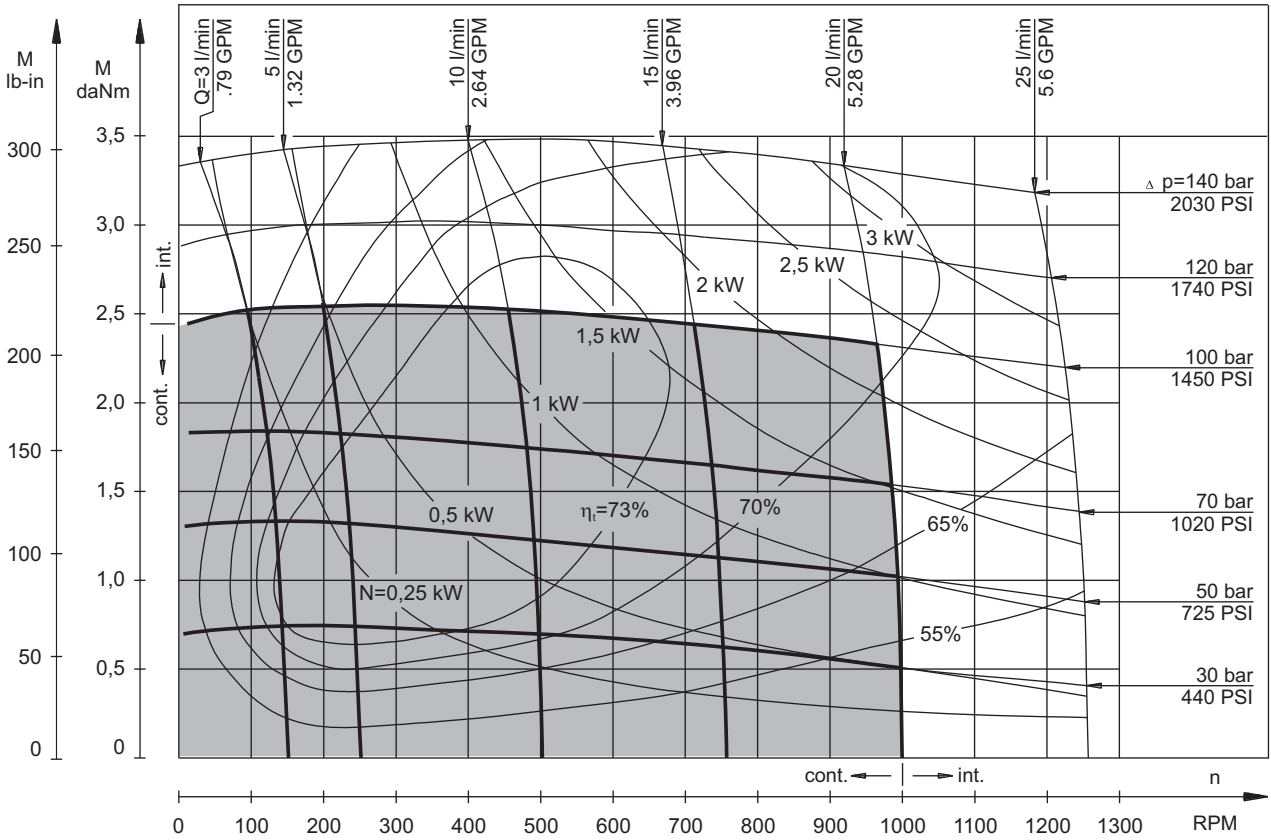
MLHM 12,5



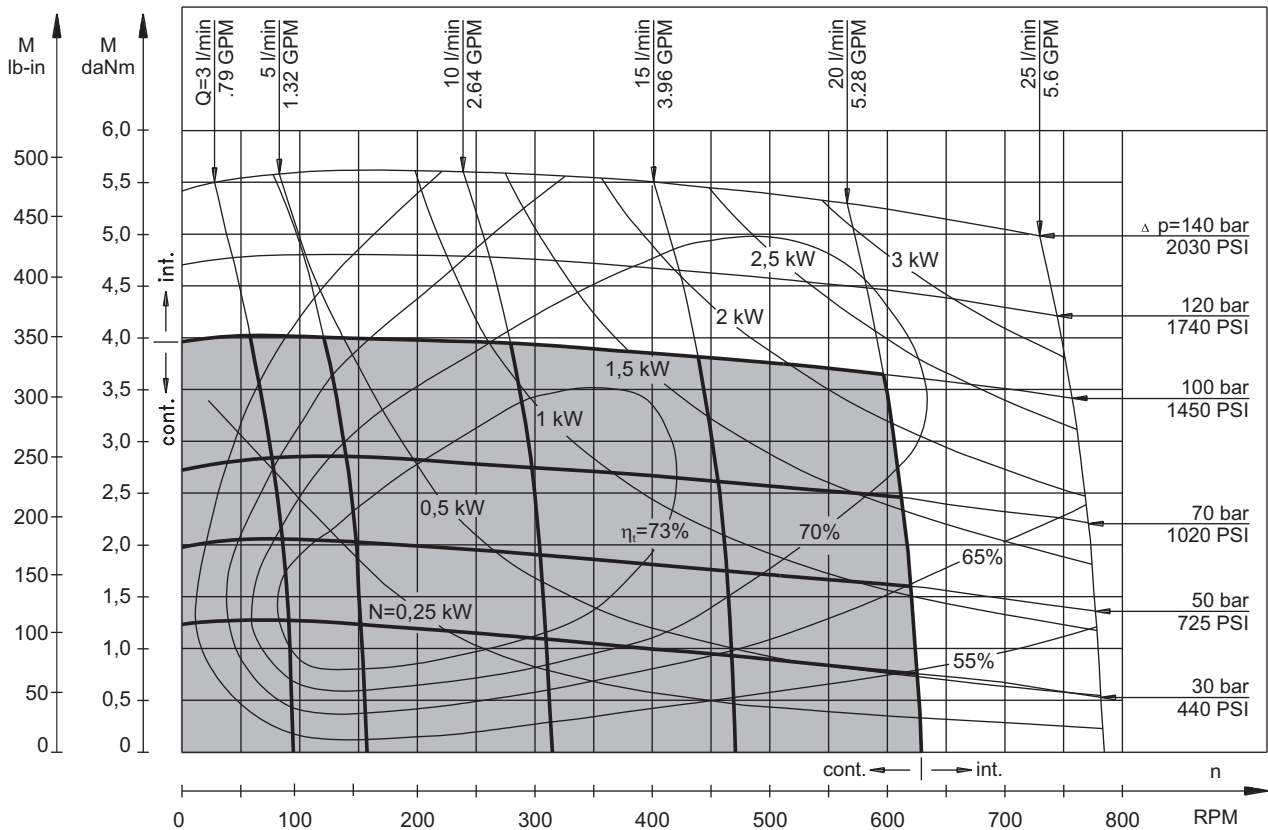
The function diagrams data is for average performance of randomly selected motors at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50°C].

FUNCTION DIAGRAMS

MLHM 20



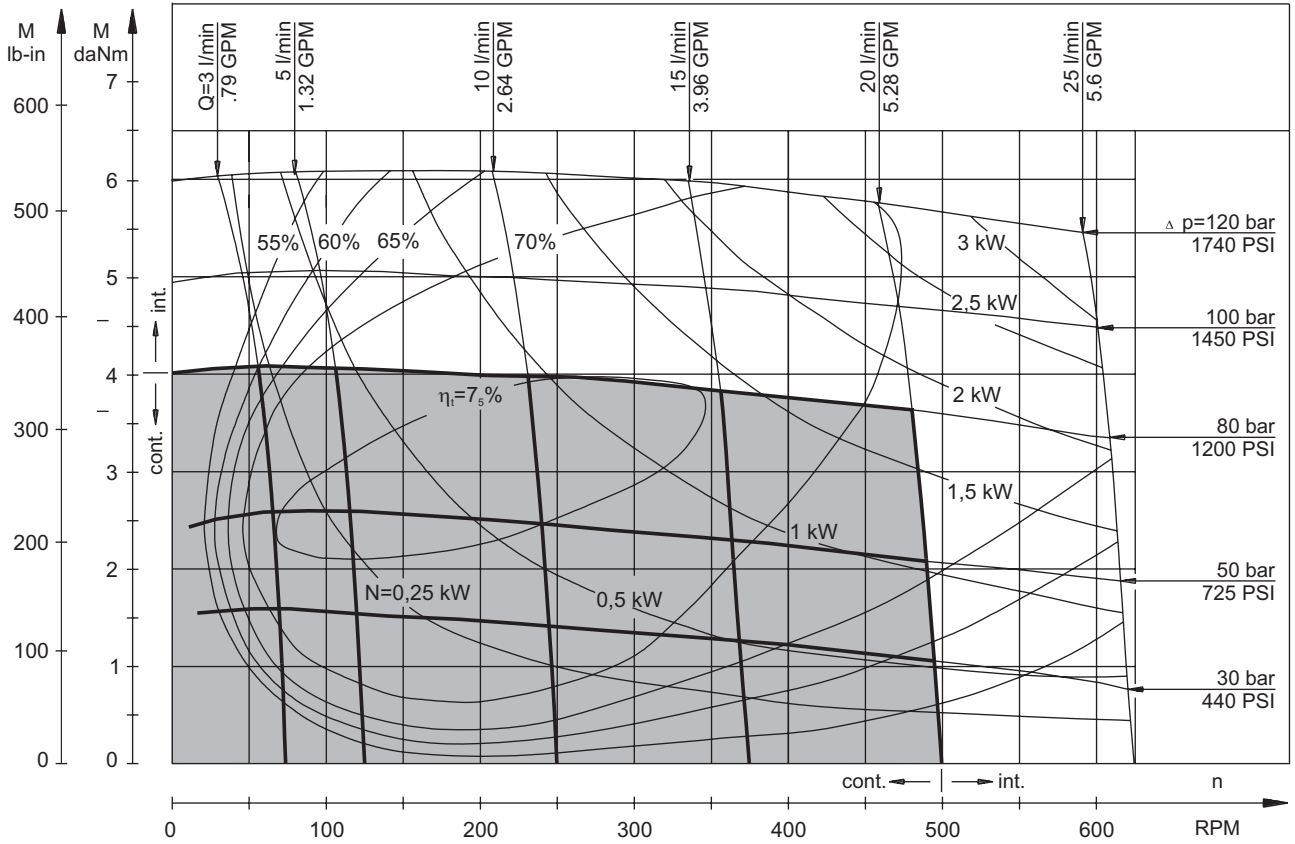
MLHM 32



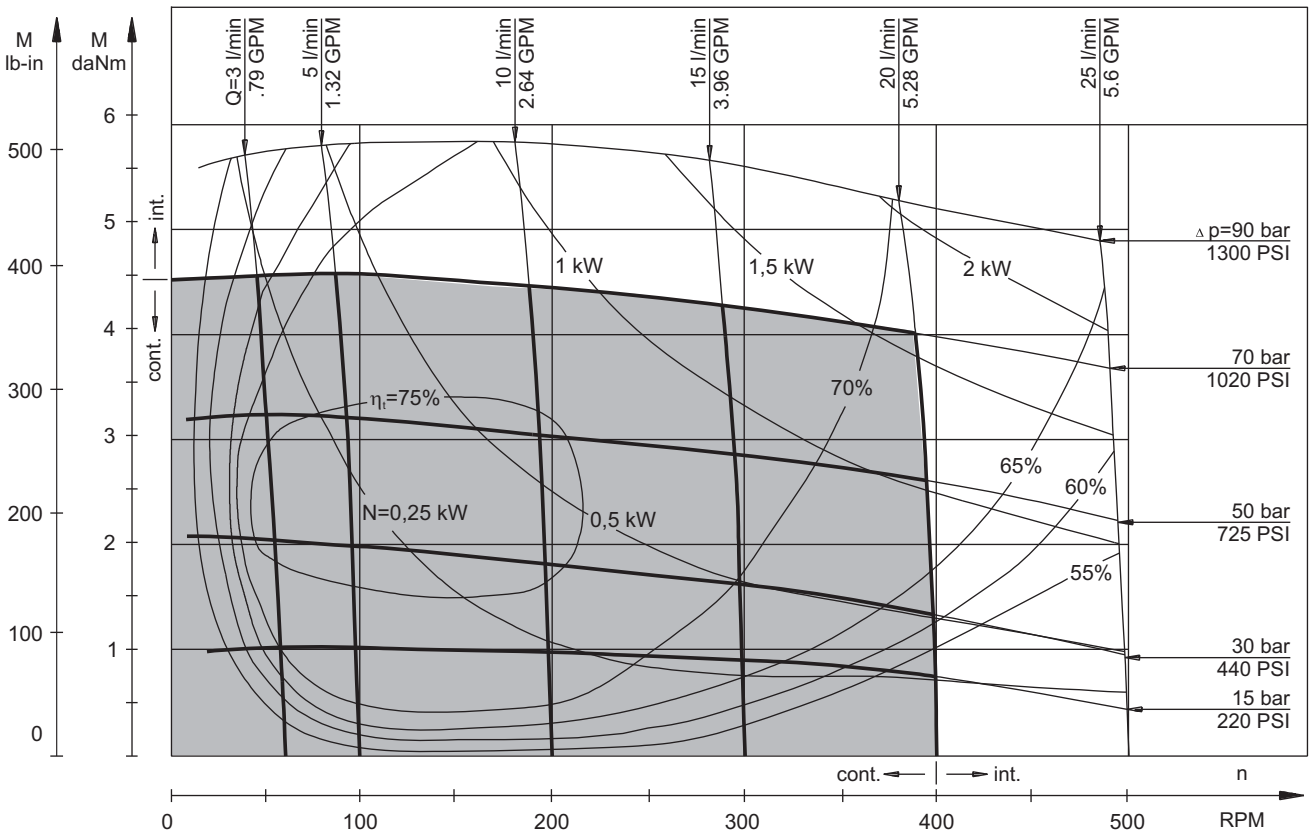
The function diagrams data is for average performance of randomly selected motors at back pressure 72.5÷145 PSI [5÷10 bar] and oil with viscosity of 150 SUS [32 mm²/s] at 122°F [50°C].

FUNCTION DIAGRAMS

MLHM 40

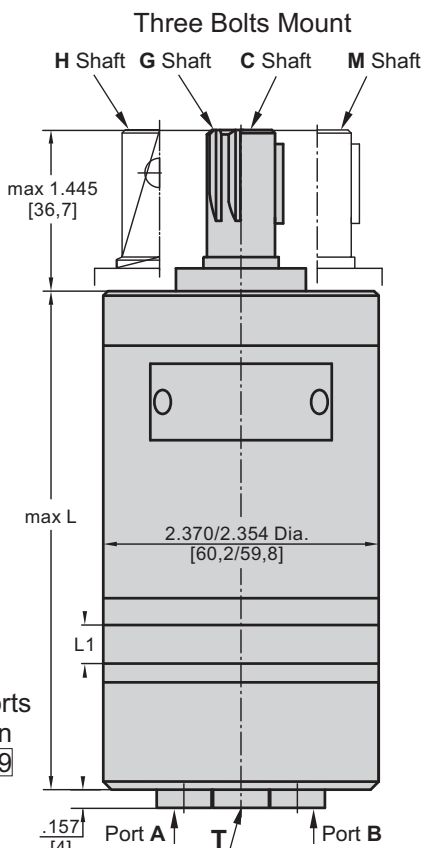


MLHM 50



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].

DIMENSIONS AND MOUNTING DATA
MLHM, MLHMP, MLHMD



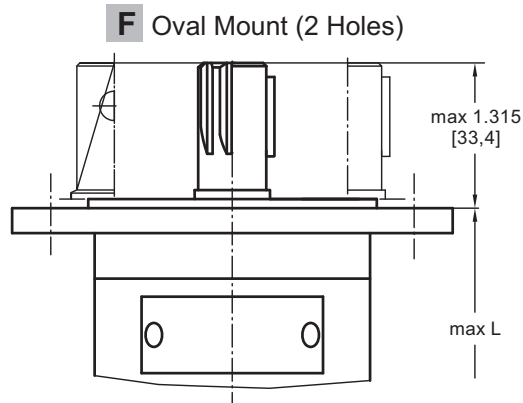
Shaft Dim.
See Page 11

Flange Dim.
See Page 10

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

Port Dim.
See Page 10

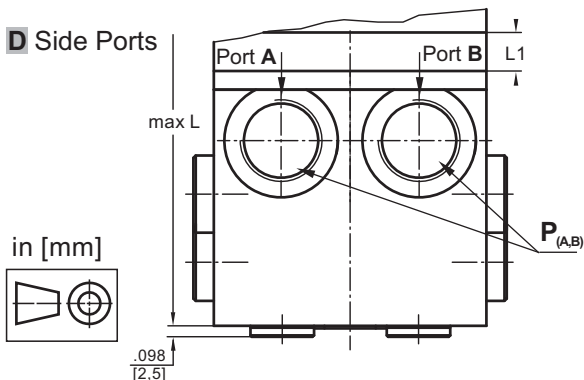
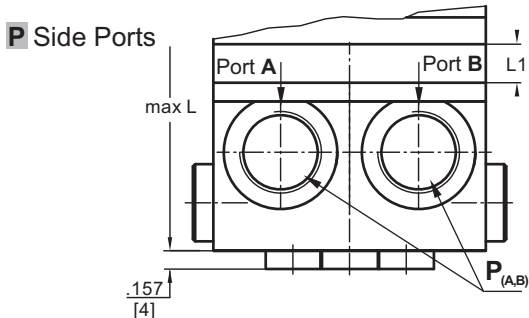
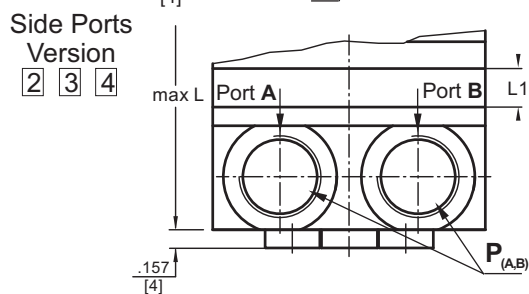


	Versions		
	2, 6	3, 9	4, 7
P _(A,B)	2xG $\frac{3}{8}$	2xM18x1,5	2x $\frac{9}{16}$ -18UNF
T	G $\frac{3}{8}$	M10x1	$\frac{3}{8}$ -24UNF

Type	Side Ports L _{max} , in [mm]	Rear Ports L _{max} , in [mm]	L ₁ in [mm]
MLHM(M) 8	4.134 [105,0]	4.094 [104,0]	.138 [3,5]
MLHM(M)12.5	4.213 [107,0]	4.173 [106,0]	.217 [5,5]
MLHM(M) 20	4.331 [110,0]	4.291 [109,0]	.335 [8,5]
MLHM(M) 32	4.528 [115,0]	4.488 [114,0]	.531 [13,5]
MLHM(M) 40	4.665 [118,5]	4.626 [117,5]	.669 [17,0]
MLHM(M) 50	4.823 [122,5]	4.783 [121,5]	.827 [21,0]

Type	Side Ports L _{max} , in [mm]	Rear Ports L _{max} , in [mm]	L ₁ in [mm]
MLHMF 8	4.272 [108,5]	4.232 [107,5]	.138 [3,5]
MLHMF 12.5	4.350 [110,5]	4.311 [109,5]	.217 [5,5]
MLHMF 20	4.587 [116,5]	4.547 [115,5]	.335 [8,5]
MLHMF 32	4.665 [118,5]	4.626 [117,5]	.531 [13,5]
MLHMF 40	4.803 [122,0]	4.764 [121,0]	.669 [17,0]
MLHMF 50	4.961 [126,0]	4.921 [125,0]	.827 [21,0]

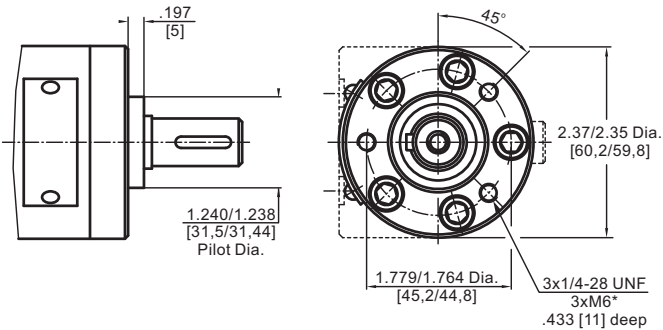
Type	L _{max} , in [mm]	Type	L _{max} , in [mm]
MLHM(M) 8...P	4.528 [115,0]	MLHMF 8...P	4.665 [118,5]
MLHM(M)12,5...P	4.606 [117,0]	MLHMF12,5...P	4.744 [120,5]
MLHM(M) 20...P	4.724 [120,0]	MLHMF 20...P	4.862 [123,5]
MLHM(M) 32...P	4.921 [125,0]	MLHMF 32...P	5.059 [128,5]
MLHM(M) 40...P	5.039 [128,0]	MLHMF 40...P	5.197 [132,0]
MLHM(M) 50...P	5.217 [132,5]	MLHMF 50...P	5.354 [136,0]



Type	L _{max} , in [mm]	Type	L _{max} , in [mm]	L ₁ , in [mm]
MLHM(M) 8...D	5.276 [134,0]	MLHMF 8...D	5.433 [138]	.13 [3,5]
MLHM(M)12,5...D	5.354 [136,0]	MLHMF12,5...D	5.512 [140]	.21 [5,5]
MLHM(M) 20...D	5.472 [139,0]	MLHMF 20...D	5.748 [146]	.335 [8,5]
MLHM(M) 32...D	5.669 [144,0]	MLHMF 32...D	5.827 [148]	.531 [13,5]
MLHM(M) 40...D	5.807 [147,5]	MLHMF 40...D	5.945 [151]	.669 [17,0]
MLHM(M) 50...D	5.965 [151,5]	MLHMF 50...D	6.102 [155]	.828 [21,0]

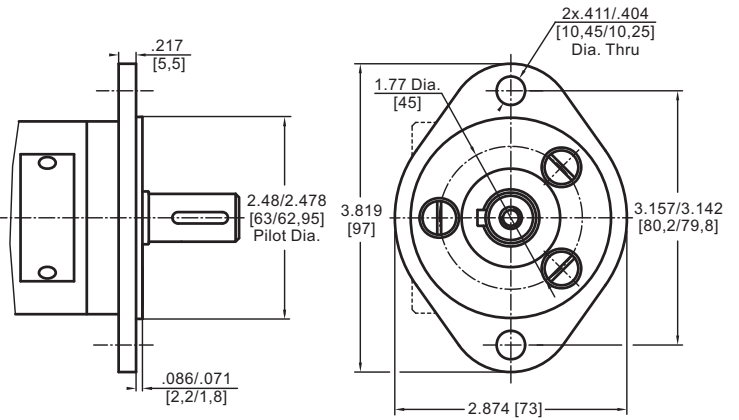
MOUNTING

Three Bolts Mount



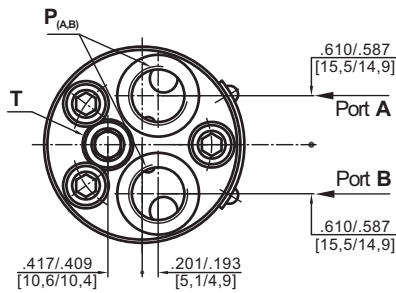
* For M Flange

F Oval Mount (2 Holes)

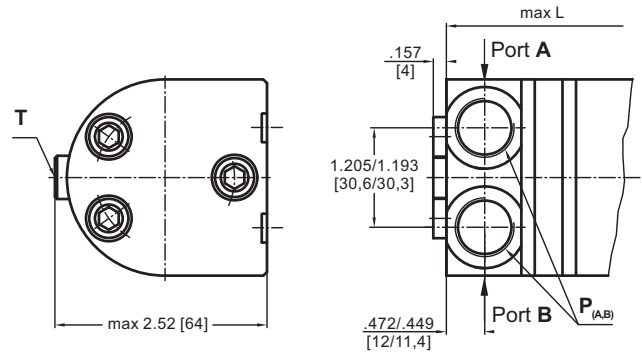


PORTS

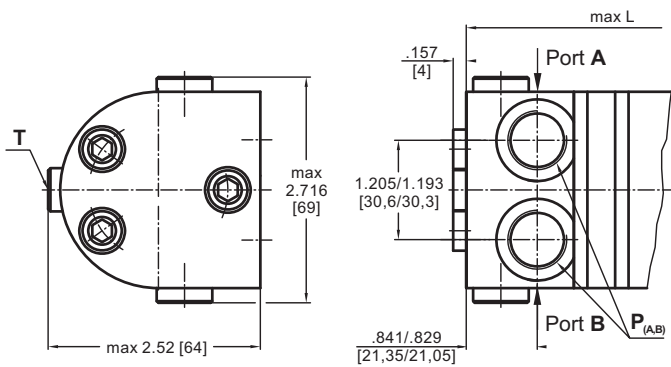
Rear Ports
Version **6** **7** **9**



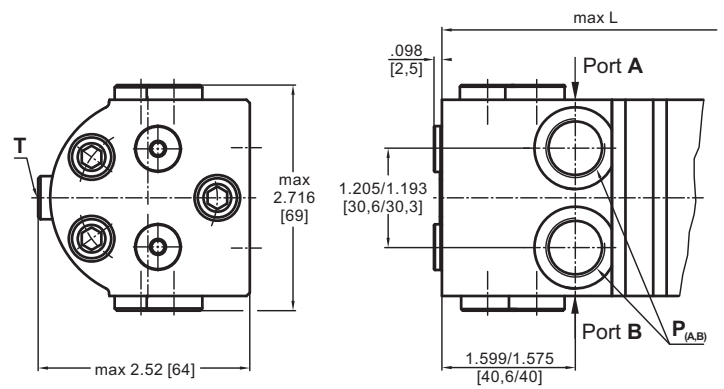
Side Ports, without valves
Version **2** **3** **4**



P Side Ports with Single Crossover Relief Valve



D Side Ports with Dual Crossover Relief Valve



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

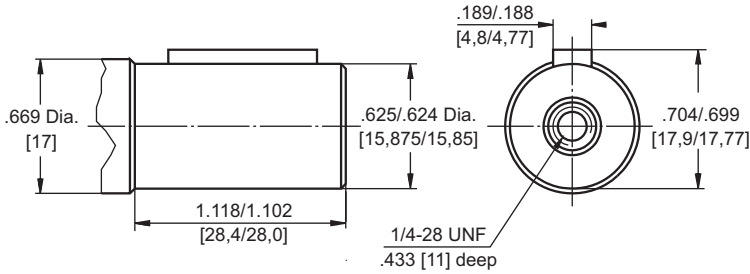


		Versions		
		2, 6	3, 9	4, 7
P _(A,B)		2xG $\frac{3}{8}$	2xM18x1,5	2x $\frac{9}{16}$ -18UNF
T		G $\frac{1}{8}$	M10x1	$\frac{3}{8}$ -24UNF

SHAFT EXTENSIONS

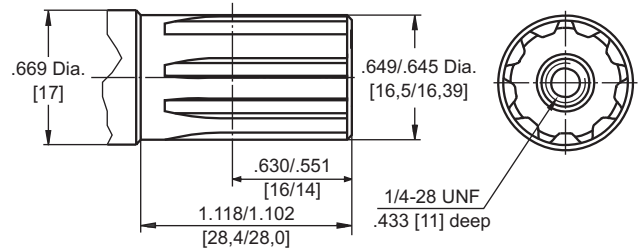
C

5/8" [15,8] straight, Parallel key 3/16"x3/16"x3/4" BS 46
Max. Torque 345 lb-in [3,9 daNm]



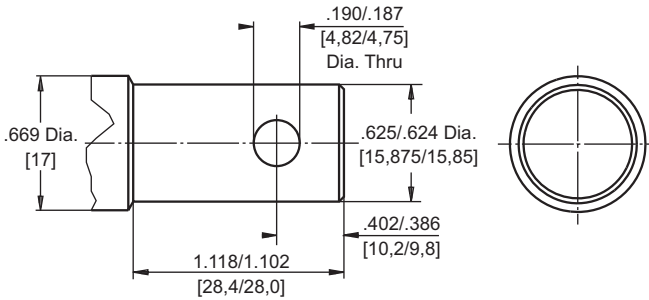
G

Splined - Metric B 17x14 DIN 5482
Max. Torque 390 lb-in [4,4 daNm]



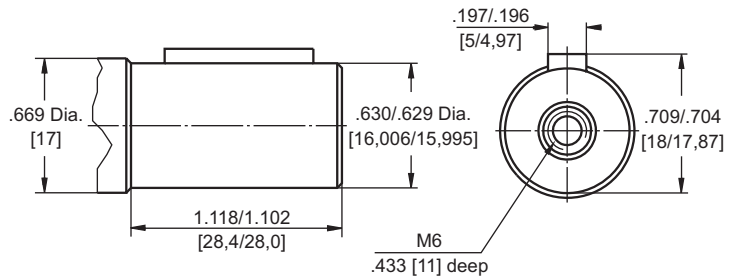
H

5/8" [15,8] straight, w/ .19 [4,82] Crosshole
Max. Torque 345 lb-in [3,9 daNm]



M

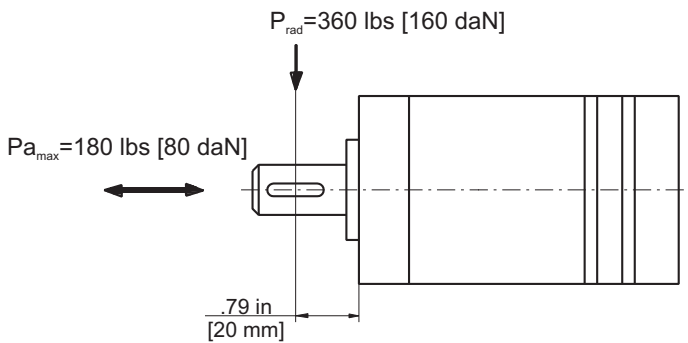
ø16 straight, Parallel key A5x5x16 DIN 6885
Max. Torque 345 lb-in [3,9 daNm]



Requirement max. Torque must be not exceeded.



PERMISSIBLE SHAFT LOAD



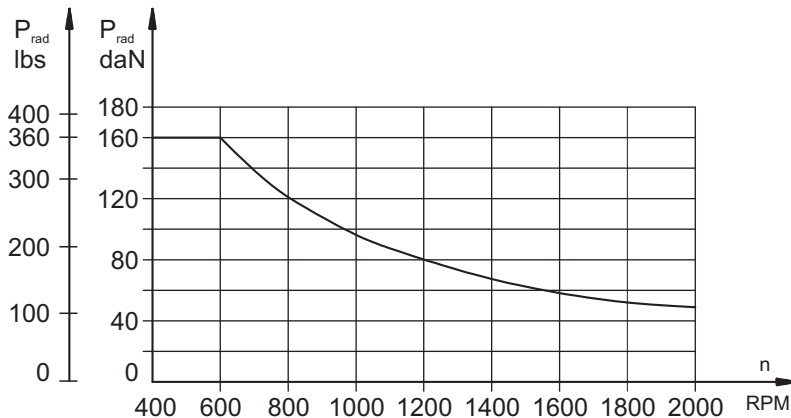
The permissible radial shaft load [P_{rad}] is calculated from the distance [L] between the point of load application and the mounting surface:

$$P_{rad} = \frac{600}{n} \times \frac{13040}{61,5 + L}, \text{ [daN]}$$

[L in mm; L ≤ 80 mm]

$$P_{rad} = \frac{600}{n} \times \frac{1155}{2,42 + L}, \text{ [lbs]}$$

[L in inch; L ≤ 3.15 in]



The drawing shows the permissible radial load when L=.79 in [20 mm].

If the calculated shaft load exceeds the permissible, a flexible coupling must be used.

ORDER CODE

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

Pos.1 - Mounting Flange

- omit - round, three bolts 1/4-28 UNF
- F** - flange, two holes
- M** - round metric, three bolts M6

Pos.2 - Displacement code

- 8** - .5 in³/rev [8,2 cm³/rev]
- 12.5** - .79 in³/rev [12,9 cm³/rev]
- 20** - 1.22 in³/rev [20,0 cm³/rev]
- 32** - 1.93 in³/rev [31,8 cm³/rev]
- 40** - 2.44 in³/rev [40,0 cm³/rev]
- 50** - 3.05 in³/rev [50,0 cm³/rev]

Pos.3 - Shaft Extensions* [for dimensions data see page 11]

- C** - ⁵/₈" [15,8] straight, Parallel key
- VC** - ⁵/₈" [15,8] straight, Parallel key w/ corrosion resistant bushing
- G** - Involute Splined- Metric B17x14 DIN5482
- H** - ⁵/₈" [15,8] straight, Parallel key w/ .19 [4,82] Crosshole
- M** - 16 mm straight, Parallel key
- VM** - 16 mm straight, Parallel key w/ corrosion resistant bushing

Pos.4 - Port Size/Type [standard manifold to each]

- 2** - side ports, 2xG3/8, G1/8, BSP thread, ISO 228
- 3** - side ports, 2xM18x1,5; M10x1; metric, ISO 262
- 4** - side ports, 2x9/16-18 UNF, O-ring, 3/8-24 UNF
- 6** - rear ports, 2xG3/8, G1/8, BSP thread, ISO 228
- 7** - rear ports, 2x9/16-18 UNF, O-ring, 3/8-24 UNF
- 9** - rear ports, 2xM18x1,5; M10x1; metric, ISO 262

Pos.5 - Option**

- omit - without valves
- D** - side ports with dual crossover relief valve
- P** - side ports with single crossover relief valve

Pos.6 - Directions for Control [for "P" option only]

- /L** - B → A (left control)
- /R** - A → B (right control)

Pos.7 - Valve Rated Pressure [for "P" and "D" option only]

- /50** - Δp= 725 PSI [50 bar]
- /80** - Δp=1160 PSI [80 bar]
- /100** - Δp=1450 PSI [100 bar]
- /140** - Δp=2030 PSI [140 bar]

Pos.8 - Special Features [see page 102]

Pos.9 - Design Series

- omit - Factory specified

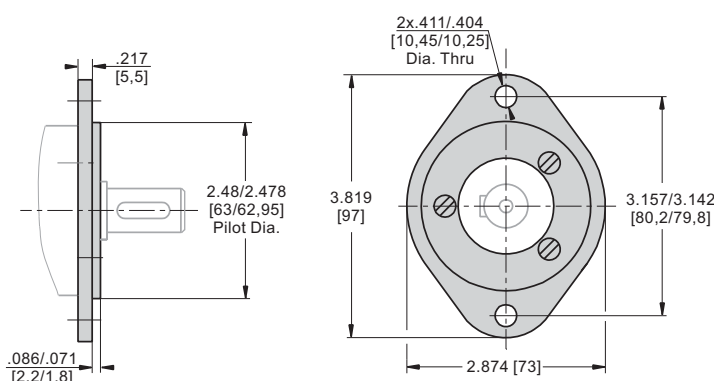
NOTES: * The permissible output torque for shafts must not be exceeded!
 ** Options **P**, **D** - for side ports (2, 3, 4) only.

The hydraulic motors are mangano-phosphatized as standard.

⚠ MLHMP and MLHMD are available with new crossover relief valves with improved characteristics. The new valves allow easier pressure setting in a wider range: from 725 PSI to 2030 PSI [50÷140 bar]. For more information about MLHMP and MLHMD - series 2 please contact with "M+S Hydraulic".

F - Flange (2 Holes)

Order No for Flange:48443 029 00



F Flange is mounted to the motor with 3 screws - 1/4-28 UNF.
 Tightening Torque: 45÷53 lb-in [5÷6 Nm].