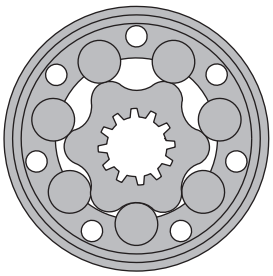
HYDRAULIC MOTORS MH



APPLICATION

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



CONTENTS

Specification data 94
Function diagrams ..... 95÷97
Permissible shaft loads 97
Dimensions and mounting 98
Permissible shaft seal pressure 99
Tacho connection 99
Shaft extensions 100
Order code 100

OPTIONS

» Model - Spool valve, roll-gerotor
» Flange mount
» Shafts - straight, splined and tapered
» Metric and BSPP ports
» Other special features

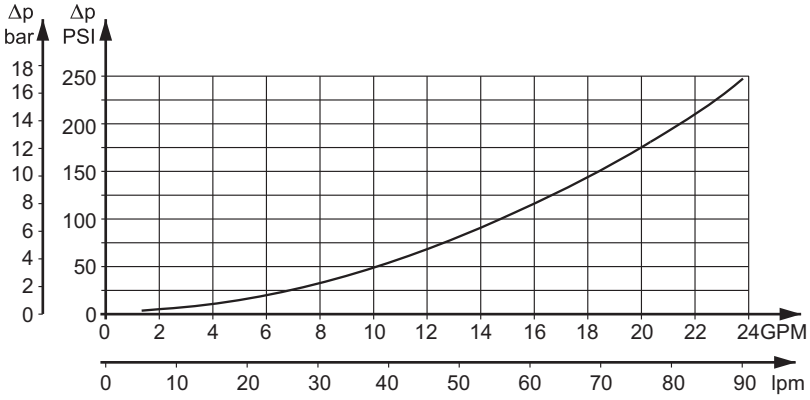
GENERAL

Max. Displacement, cm^3/rev [in^3/rev]	502,4 [30.7]
Max. Speed, [RPM]	445
Max. Torque, daNm [lb-in]	cont.: 84 [7434] int.: 104 [9204]
Max. Output, kW [HP]	18,5 [24.8]
Max. Pressure Drop, bar [PSI]	cont.: 175 [2540] int.: 200 [2900]
Max. Oil Flow, lpm [GPM]	90 [23.78]
Min. Speed, [RPM]	5
Pressure fluid	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range, ^{o}C [^{o}F]	-40÷140 [-40÷284]
Optimal Viscosity range, mm^2/s [SUS]	20÷75 [98÷347]
Filtration	ISO code: 18/16/13 According to ISO 4406-1999

Oil flow in drain line

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

Pressure Losses



SPECIFICATION DATA

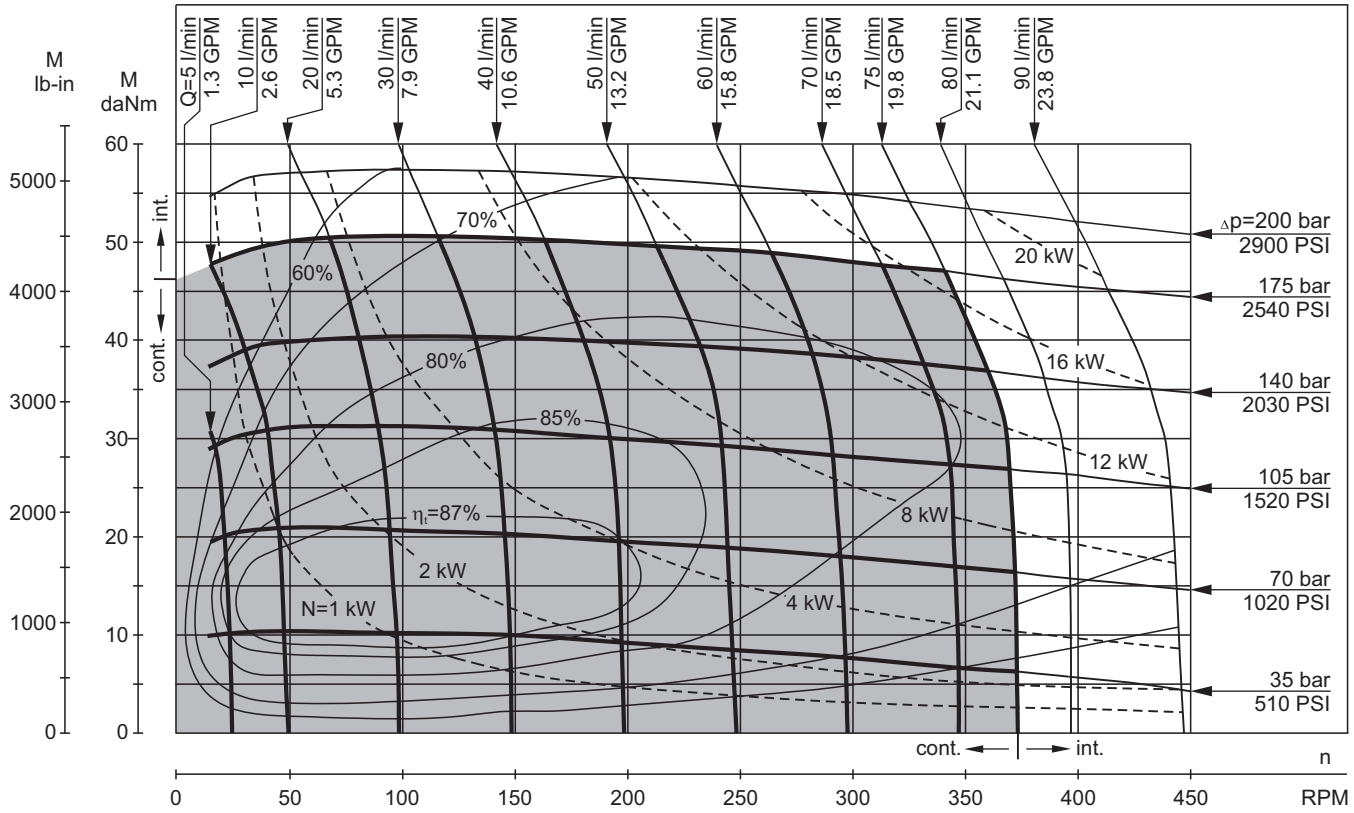
Type		MH 200	MH 250	MH 315	MH 400	MH 500
Displacement, cm³/rev [in³/rev]		201,3 [12.3]	252 [15.4]	314,9 [19.2]	396,8 [24.2]	502,4 [30.7]
Max. Speed,	Cont.	370	295	235	185	150
[RPM]	Int.*	445	350	285	225	180
Max. Torque	Cont.	51 [4510]	61 [5398]	74 [6548]	84 [7434]	82 [7257]
daNm [lb-in]	Int.*	58 [5130]	70 [6195]	82 [7257]	98 [8673]	104 [9204]
	Peak**	64 [5064]	79 [6992]	98 [8673]	109 [9647]	117 [10350]
Max. Output	Cont.	16 [21]	16 [21]	14 [18.7]	12,5 [16.7]	11 [14.7]
kW [HP]	Int.*	18,5 [24.8]	18,5 [24.8]	15,5 [20.7]	15 [20.1]	14 [18.7]
Max. Pressure	Cont.	175 [2540]	175 [2540]	175 [2540]	155 [2240]	125 [1810]
Drop	Int.*	200 [2900]	200 [2900]	200 [2900]	190 [2750]	160 [2320]
bar [PSI]	Peak**	225 [3260]	225 [3260]	225 [3260]	210 [3045]	180 [2610]
Max. Oil Flow	Cont.	75 [19.81]	75 [19.81]	75 [19.81]	75 [19.81]	75 [19.81]
lpm [GPM]	Int.*	90 [23.78]	90 [23.78]	90 [23.78]	90 [23.78]	90 [23.78]
Max. Inlet Pressure	Cont.	200 [2900]	200 [2900]	200 [2900]	200 [2900]	200 [2900]
bar [PSI]	Int.*	225 [3260]	225 [3260]	225 [3260]	225 [3260]	225 [3260]
	Peak**	250 [3626]	250 [3626]	250 [3626]	250 [3626]	250 [3626]
Max. Starting Pressure with Unloaded Shaft, bar [PSI]		5 [72]	5 [72]	5 [72]	5 [72]	5 [72]
Min. Starting Torque,	At max.press.dropCont	39 [3450]	52 [4600]	66 [5840]	72 [6370]	72 [6370]
daNm [lb-in]	At max.press.drop Int.*	45 [3980]	59 [5221]	73 [6460]	88 [7788]	88 [7788]
Min. Speed*, [RPM]**		10	10	8	5	5
Weight, kg [lb]		10,5 [23.2]	11 [24.3]	11,5 [25.4]	12,3 [27.1]	13 [28.7]

* 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.

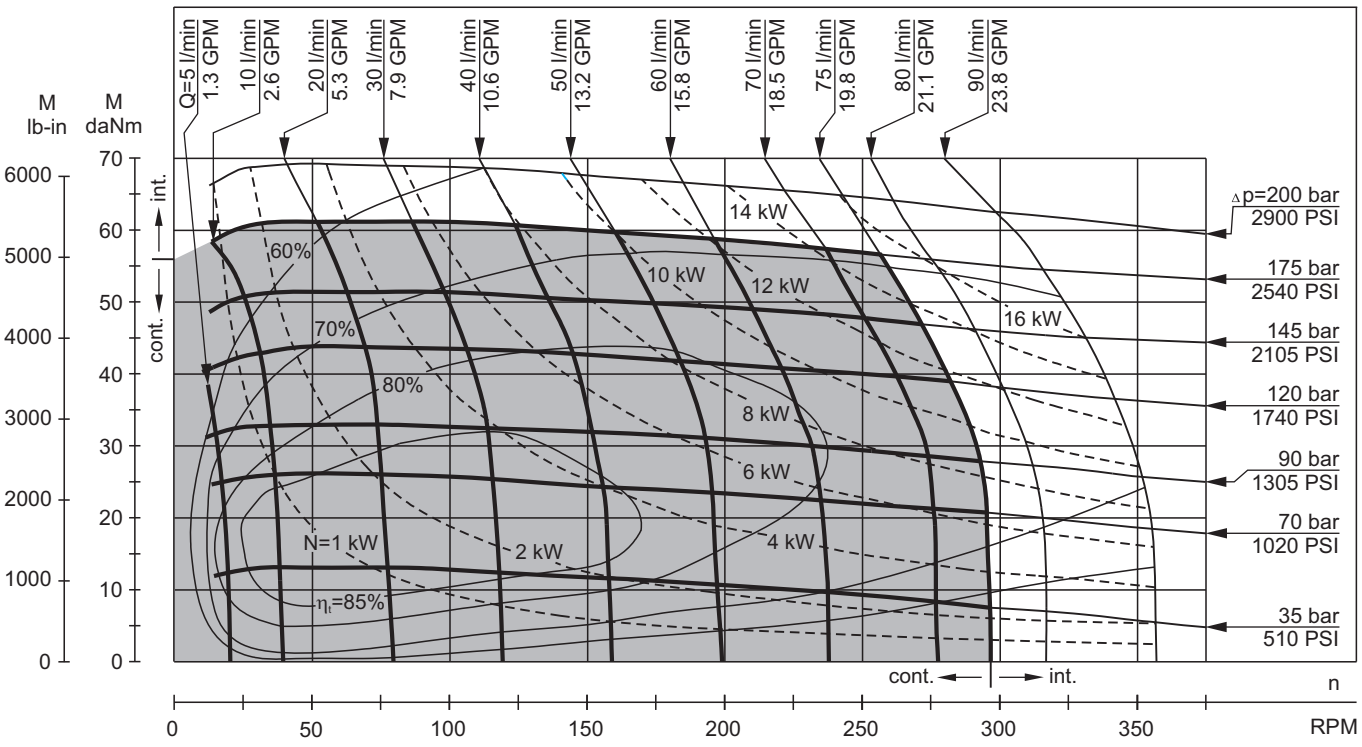
1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4). If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

FUNCTION DIAGRAMS

MH 200



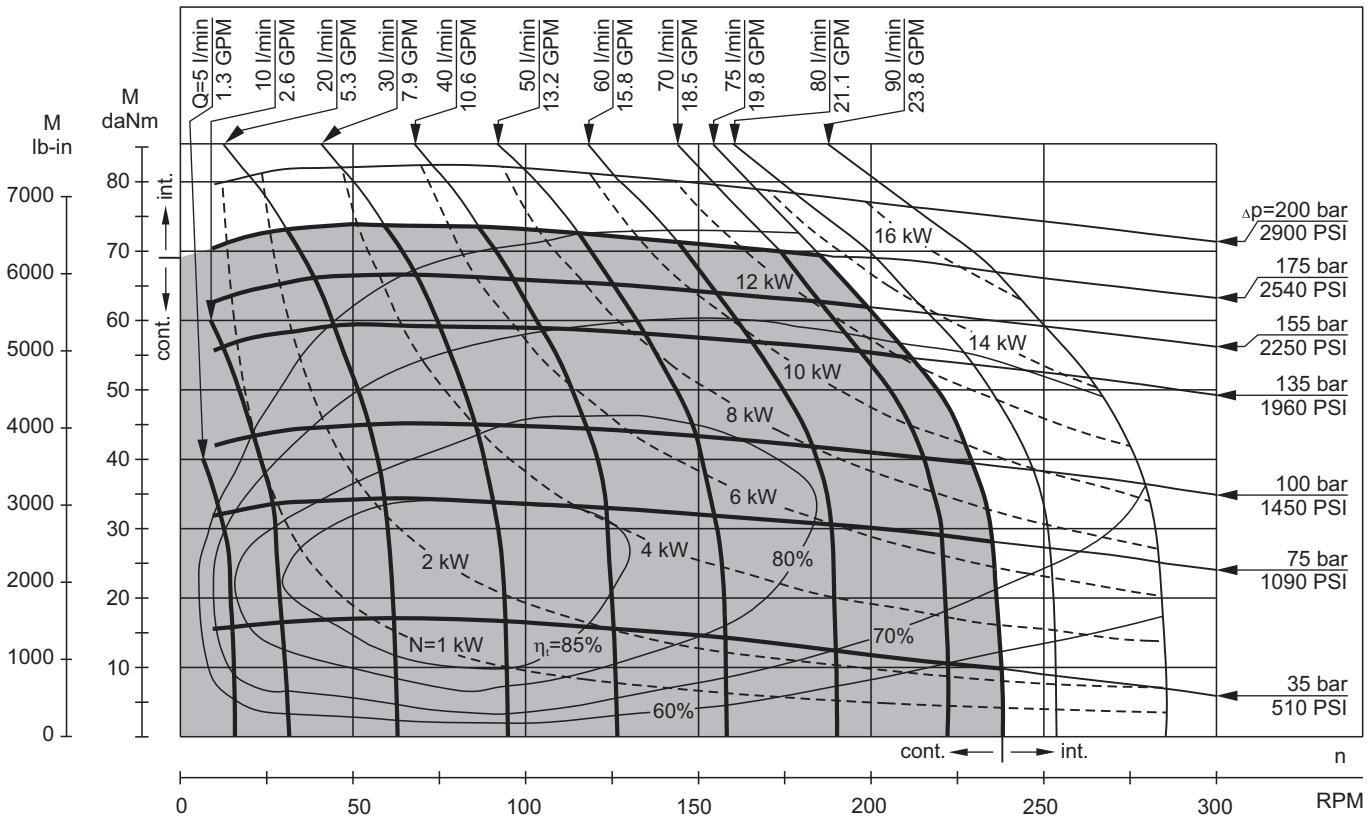
MH 250



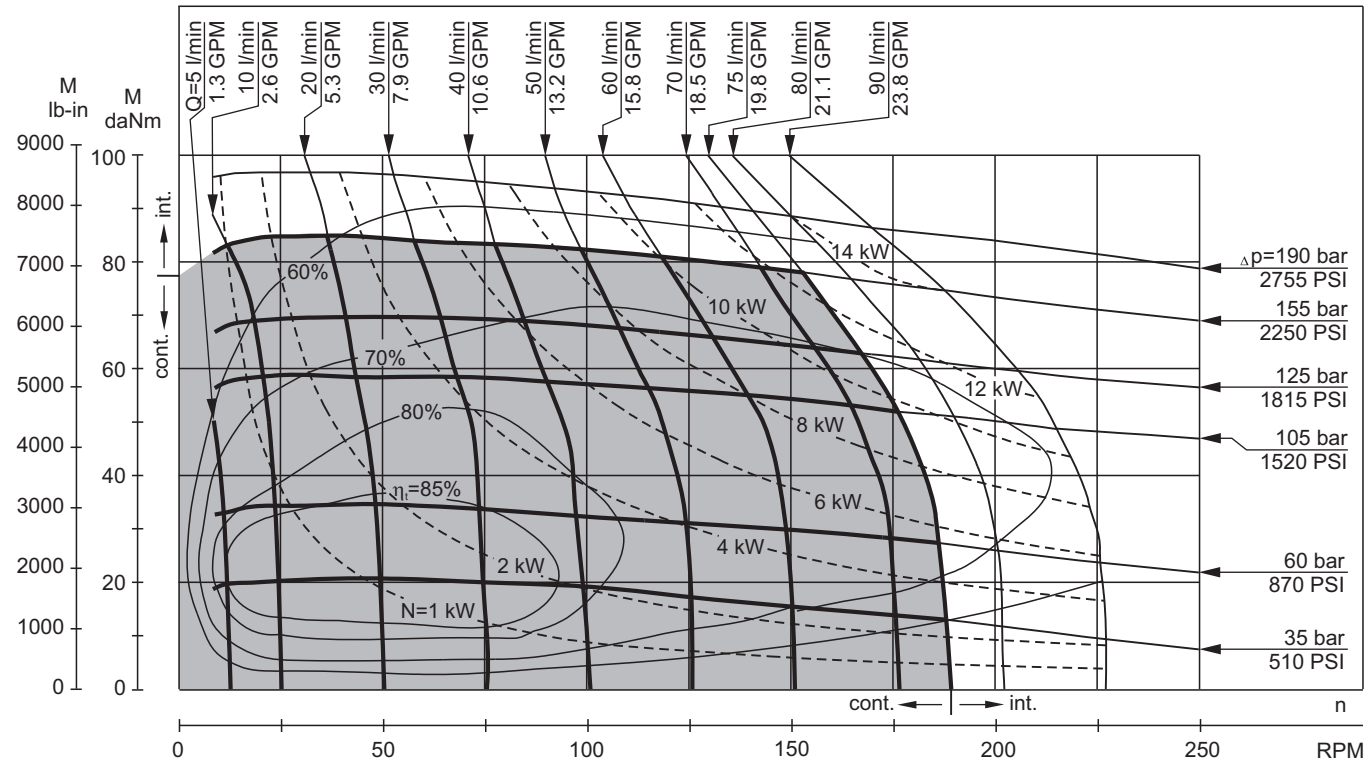
The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5 PSI÷145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

MH 315



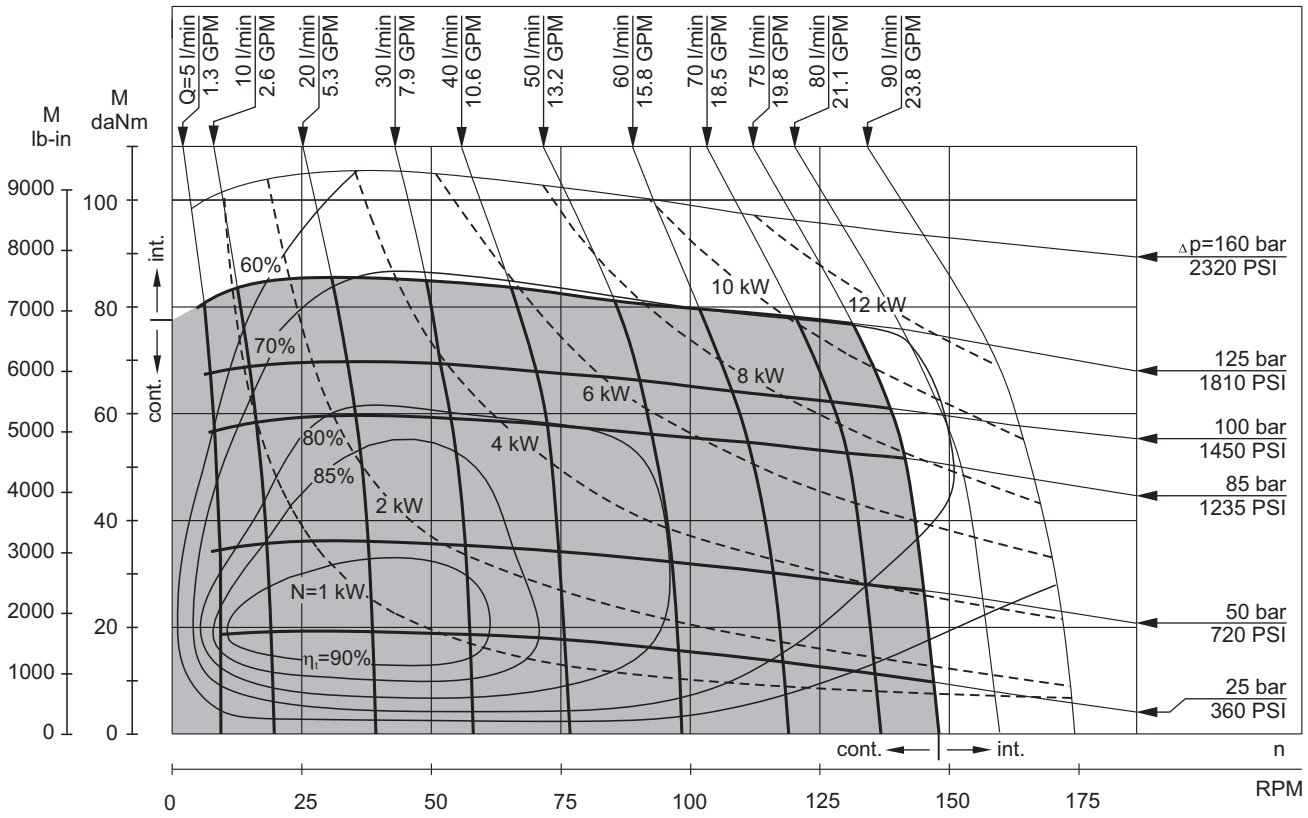
MH 400



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

FUNCTION DIAGRAMS

MH 500



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

PERMISSIBLE SHAFT LOADS for MH MOTORS

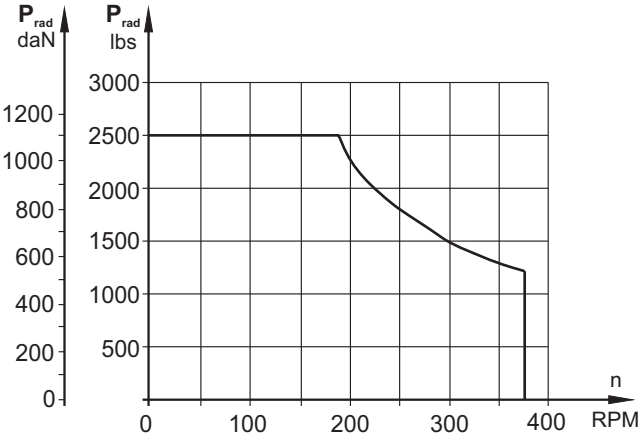
The permissible radial shaft load P_{rad} depends on the speed (RPM) and distance (L) from the point of load to the mounting flange.

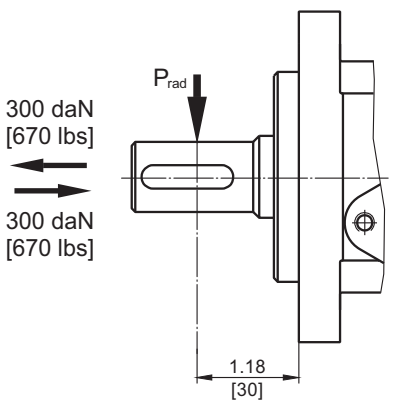
$$\text{Radial Shaft Load } P_{rad} = \frac{1100}{n} \times \frac{25000}{103{,}5+L}, \text{ daN*}$$

[*L in mm; L≤60 mm; n≥200 RPM]

$$\text{Radial Shaft Load } P_{rad} = \frac{1100}{RPM} \times \frac{2215}{4.075+L}, \text{ lbs**}$$

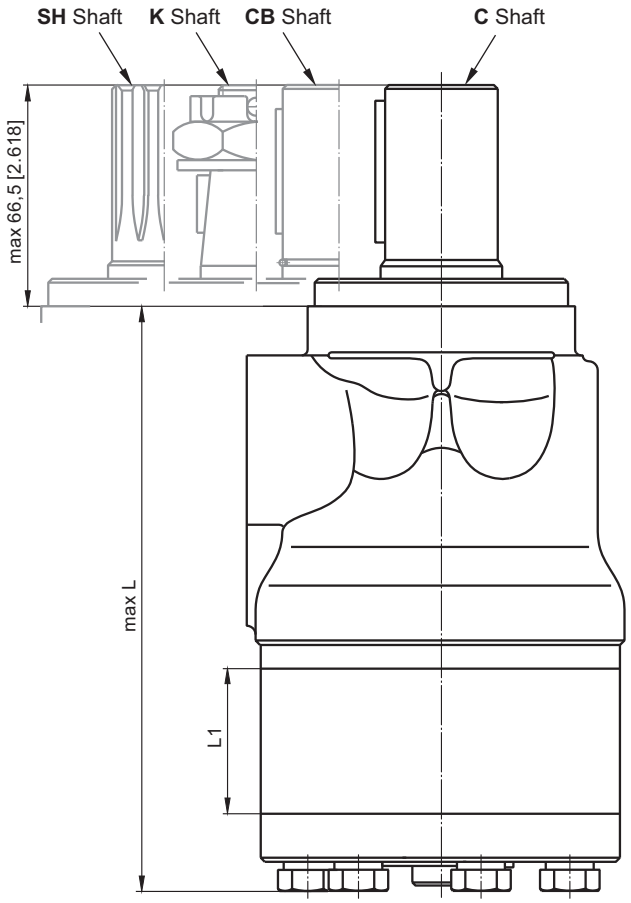
[**L in inch; L≤2.36 in; n≥200 RPM]

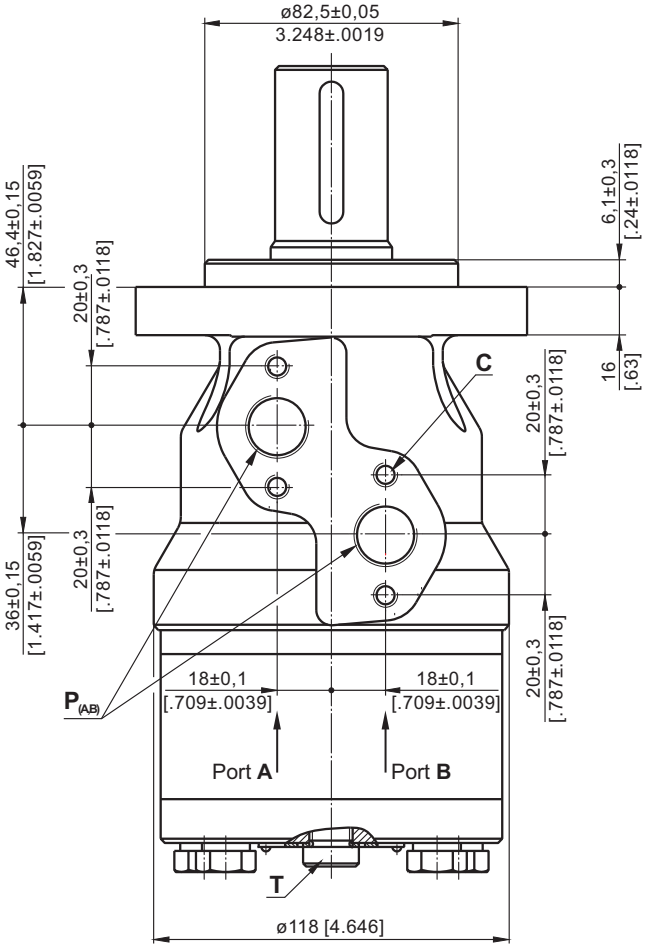


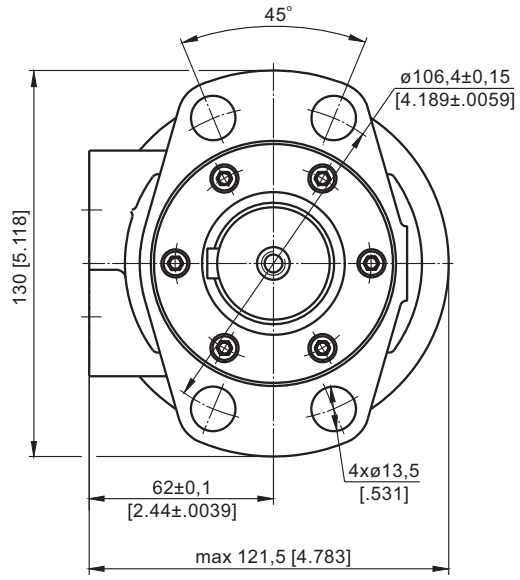


DIMENSIONS and MOUNTING DATA

Magneto mount (4 holes)







Type	L, mm [in]	L_1, mm [in]
MH 200	169 [6.65]	27,8 [1.09]
MH 250	176 [6.93]	34,8 [1.37]
MH 315	184 [7.24]	43,5 [1.71]
MH 400	196 [7.72]	54,8 [2.16]
MH 500	211 [8.31]	69,4 [2.73]

C : 4xM8-13 mm [.51 in] depth
$P_{(A, B)}$: 2xG1/2 or 2xM22x1,5-15 mm [.59 in] depth
T : G1/4 or M14x1,5-12 mm [.47 in] depth (plugged)

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**

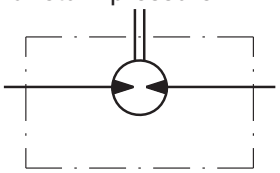
mm [in]

MAX. PERMISSIBLE SHAFT SEAL PRESSURE for MH MOTORS

MH...U1 motors with high pressure seal and without drain connection:

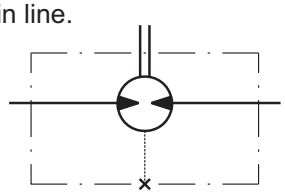
The shaft seal pressure equals the average of input pressure and return pressure.

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



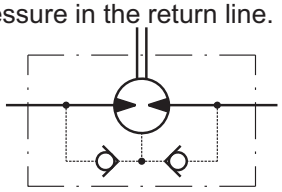
MH...U motors with high pressure seal and drain connection:

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



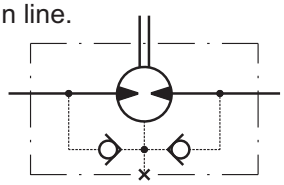
MH...1 motors with standard shaft seal and without drain connection:

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

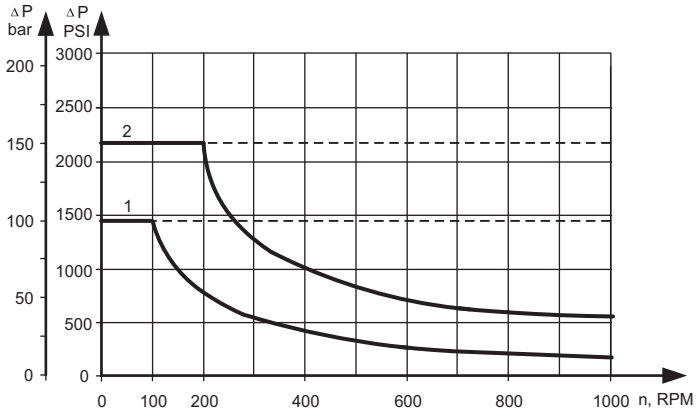


MH... motors with standard shaft seal and with drain connection:

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



Max. return pressure without drain line or max. pressure in the drain line



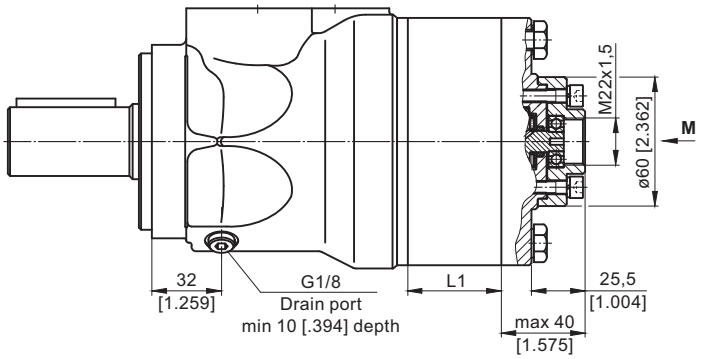
1: Drawing for Standard Shaft Seal

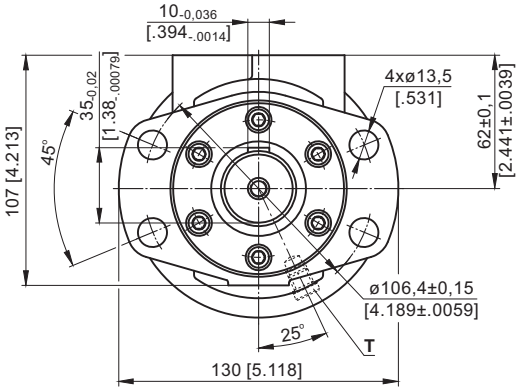
2: Drawing for High Pressure Seal ("**U**" Seal)

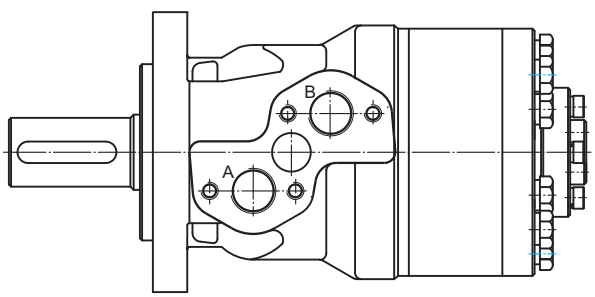
——— - continuous operations

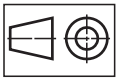
- - - - - - intermittent operations

MOTORS with TACHO CONNECTION



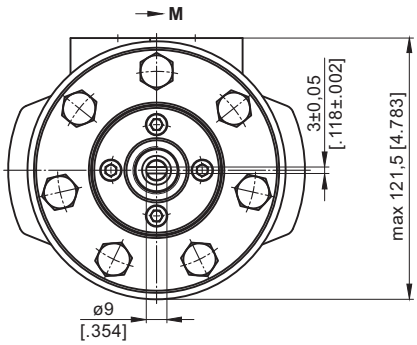






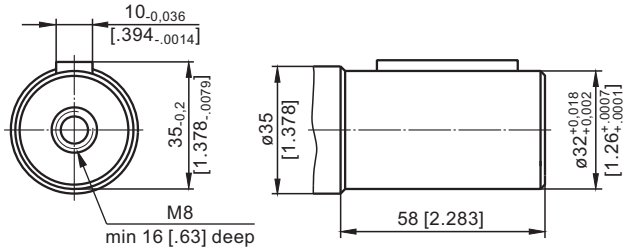
mm [in]

Type	L, mm [in]	L_1, mm [in]
MH 200	191 [7.52]	27,8 [1.09]
MH 250	198 [7.79]	34,8 [1.37]
MH 315	207 [8.15]	43,5 [1.71]
MH 400	218 [8.58]	54,8 [2.16]
MH 500	233 [9.17]	69,4 [2.73]

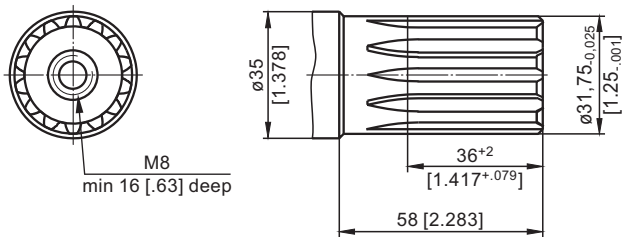


SHAFT EXTENSIONS

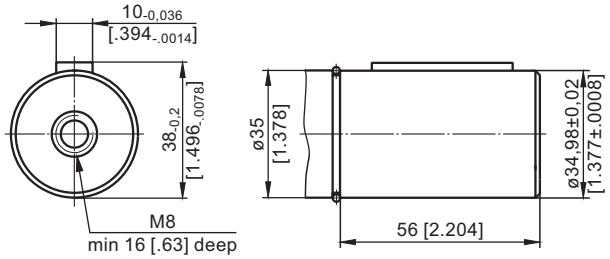
C - ø32 straight, Parallel key A10x8x45 DIN 6885
Max. Torque 77 daNm [6815 lb-in]



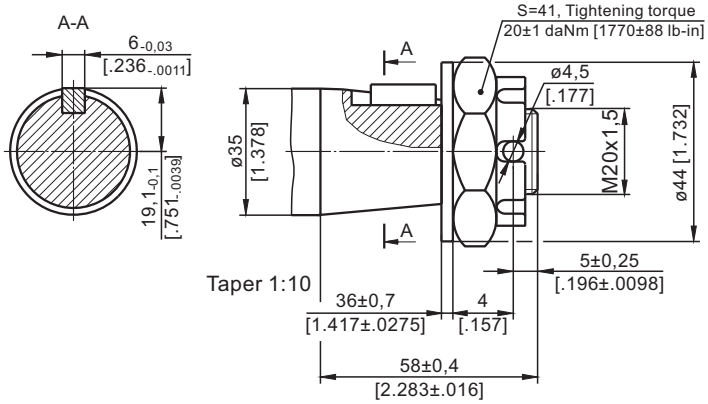
SH - ø1¼" splined 14T, DP 12/24 ANSI B92.1-1976
Max. Torque 95 daNm [8400 lb-in]



CB - ø35 straight, Parallel key A10x8x45 DIN 6885
Max. Torque 95 daNm [8400 lb-in]



K - tapered 1:10, Parallel key B6x6x20 DIN 6885
Max. Torque 95 daNm [8400 lb-in]



mm [in]

ORDER CODE

	1	2	3	4	5	6	7
M H							

Pos.1 - Displacement code

200	- 201,3 cm³/rev [12.3 in³/rev]
250	- 252,0 cm³/rev [15.4 in³/rev]
315	- 314,9 cm³/rev [16.4 in³/rev]
400	- 396,8 cm³/rev [24.2 in³/rev]
500	- 502,4 cm³/rev [30.7 in³/rev]

Pos.2 - Shaft Extensions*

C	- ø32 straight, Parallel key A10x8x45 DIN6885
SH	- ø1¼" splined 14T ANSI B92.1-1970
CB**	- ø35 straight, Parallel key A10x8x45 DIN6885
K	- ø35 tapered 1:10, Parallel key B6x6x20 DIN6885

Pos.3 - Shaft Seal Version

omit	- Standard shaft seal
U	- High pressure shaft seal (without check valves)

Pos.4 - Drain Port

omit	- with drain port
1	- without drain port

Pos.5 - Ports

omit	- BSPP (ISO 228)
M	- Metric (ISO 262)

Pos.6 - Additional Options (see page 125)

Pos.7 - Design Series

omit - Factory specified

NOTES: * The permissible output torque for shafts must not be exceeded!
** The following combination is not allowed: "**CB**" shaft with **U** shaft seal.

The hydraulic motors are mangano-phosphatized as standard.