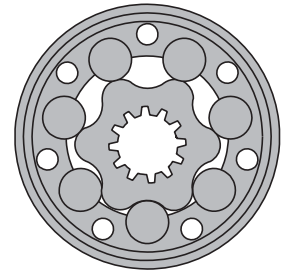


HYDRAULIC MOTORS MH



APPLICATION

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



CONTENTS

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| Dimensions and mounting | 98 |
| Permissible shaft seal pressure..... | 99 |
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| Shaft extensions | 100 |
| Order code | 101 |

OPTIONS

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

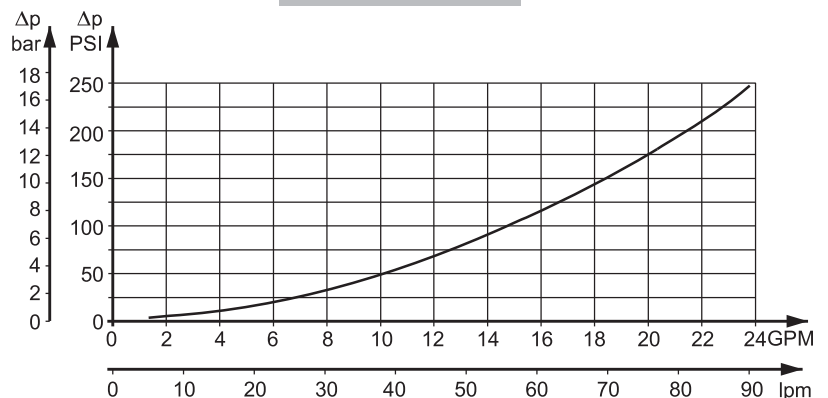
GENERAL

| | |
|---|--|
| 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, °C [°F] | -40÷140 [-40÷284] |
| Optimal Viscosity range, mm ² /s [SUS] | 20÷75 [98÷347] |
| Filtration | ISO code 20/16 (Min. recommended fluid filtration of 25 microns) |

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, [RPM] | Cont. | 370 | 295 | 235 | 185 | 150 |
| | Int.* | 445 | 350 | 285 | 225 | 180 |
| Max. Torque daNm [lb-in] | Cont. | 51 [4510] | 61 [5398] | 74 [6548] | 84 [7434] | 82 [7257] |
| | Int.* | 58 [5130] | 70 [6195] | 82 [7257] | 98 [8673] | 104 [9204] |
| | Peak** | 64 [5064] | 79 [6992] | 98 [8673] | 109 [9647] | 117 [10350] |
| Max. Output kW [HP] | Cont. | 16 [21] | 16 [21] | 14 [18.7] | 12,5 [16.7] | 11 [14.7] |
| | Int.* | 18,5 [24.8] | 18,5 [24.8] | 15,5 [20.7] | 15 [20.1] | 14 [18.7] |
| Max. Pressure Drop bar [PSI] | Cont. | 175 [2540] | 175 [2540] | 175 [2540] | 155 [2240] | 125 [1810] |
| | Int.* | 200 [2900] | 200 [2900] | 200 [2900] | 190 [2750] | 160 [2320] |
| | Peak** | 225 [3260] | 225 [3260] | 225 [3260] | 210 [3045] | 180 [2610] |
| Max. Oil Flow lpm [GPM] | Cont. | 75 [19.81] | 75 [19.81] | 75 [19.81] | 75 [19.81] | 75 [19.81] |
| | Int.* | 90 [23.78] | 90 [23.78] | 90 [23.78] | 90 [23.78] | 90 [23.78] |
| Max. Inlet Pressure bar [PSI] | Cont. | 200 [2900] | 200 [2900] | 200 [2900] | 200 [2900] | 200 [2900] |
| | 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, daNm [lb-in] | At max.press.dropCont | 39 [3450] | 52 [4600] | 66 [5840] | 72 [6370] | 72 [6370] |
| | 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.

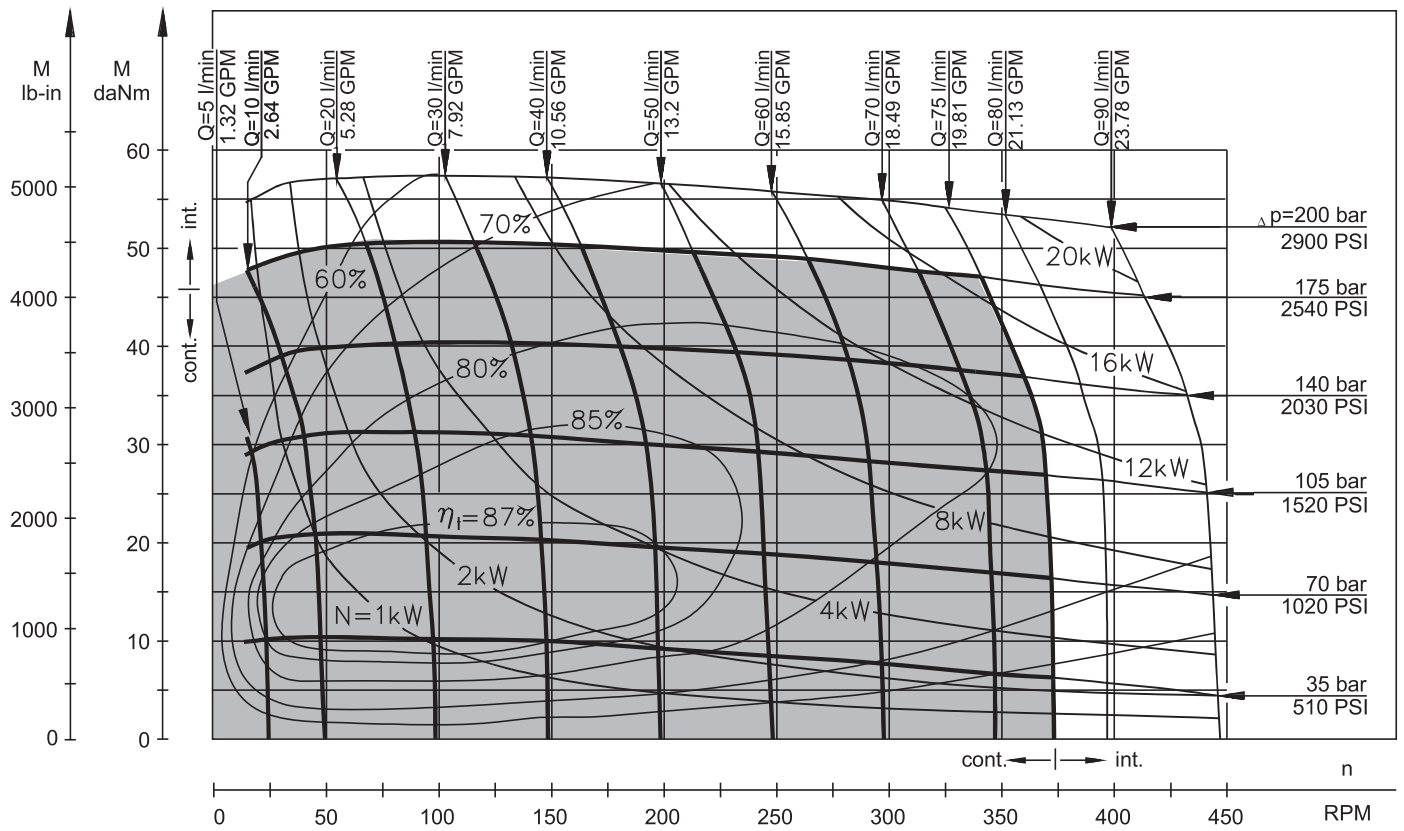
** Peak load: the permissible values may occur for max. 1% of every minute.

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

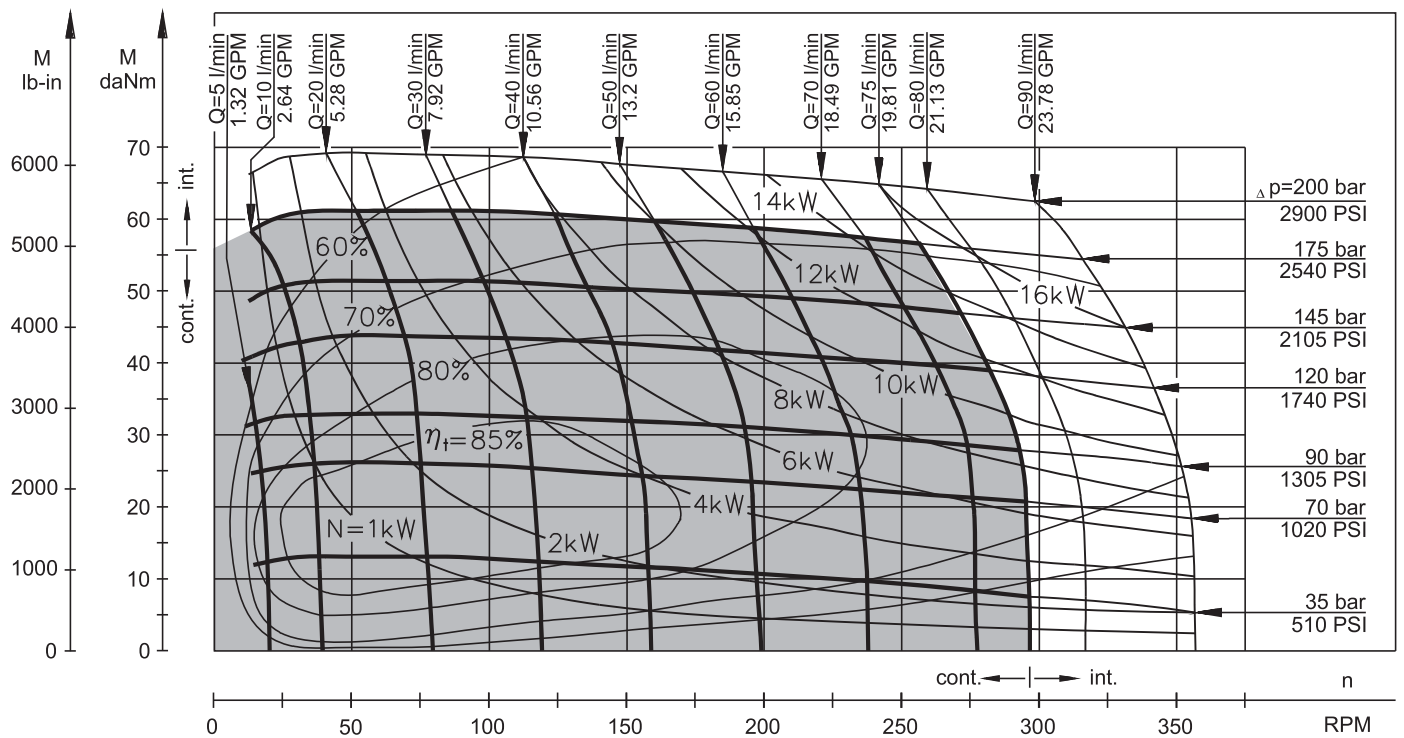
1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4).
If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



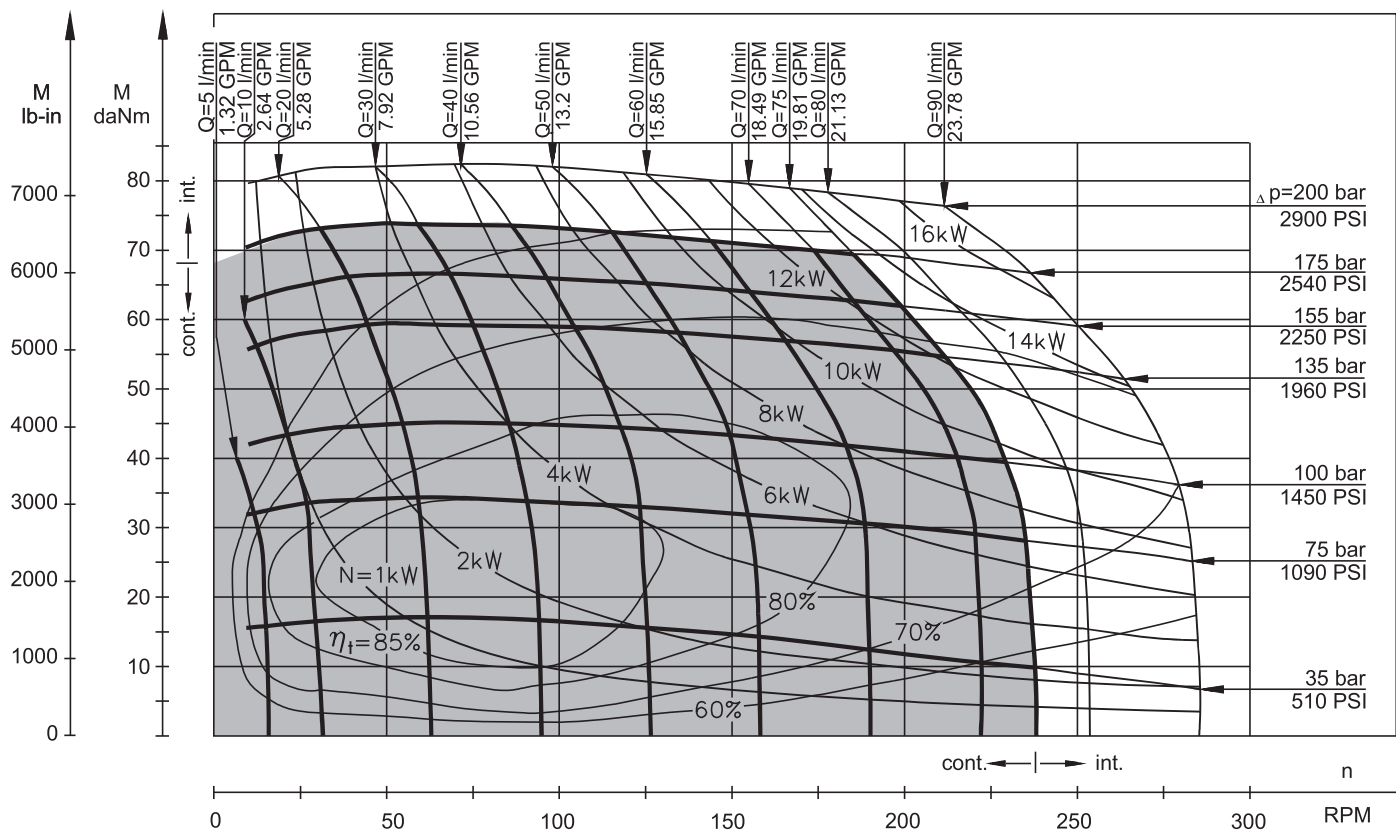
MH 250



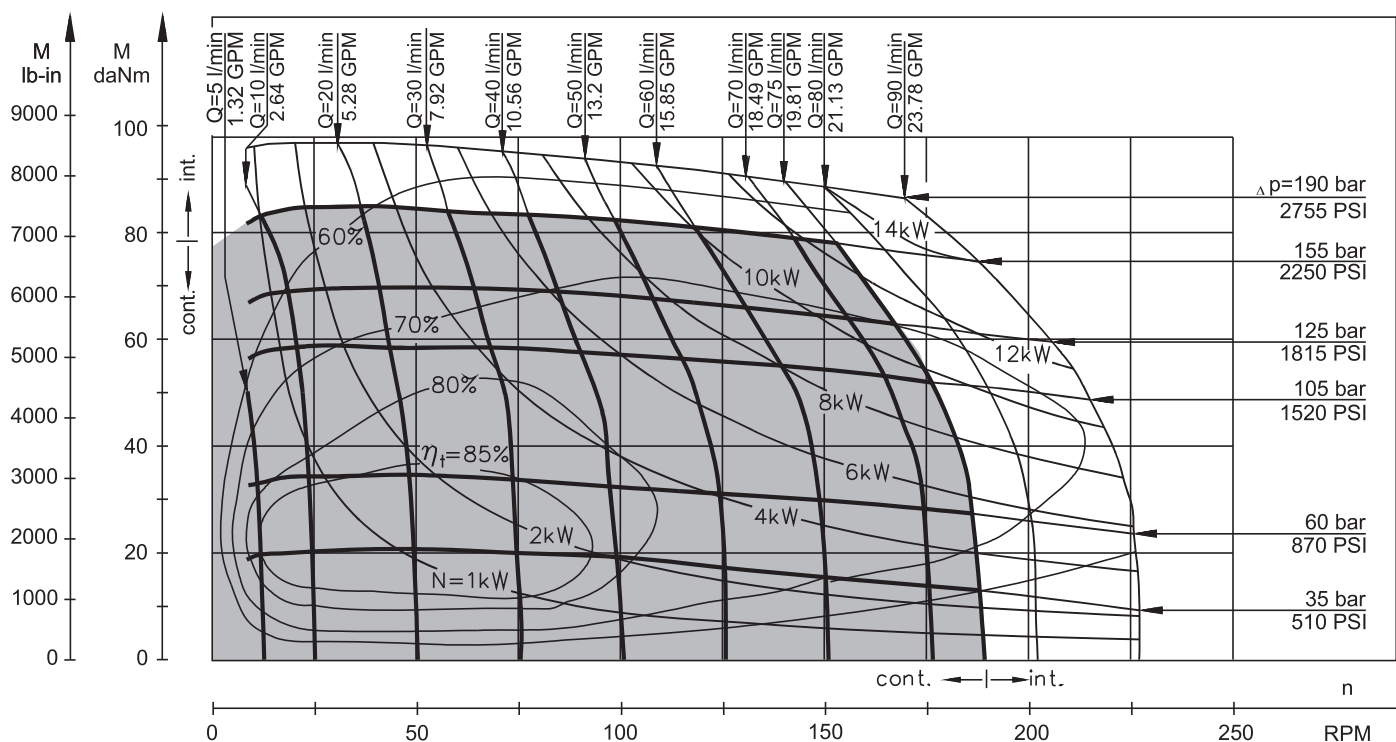
The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5÷145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

MH 315



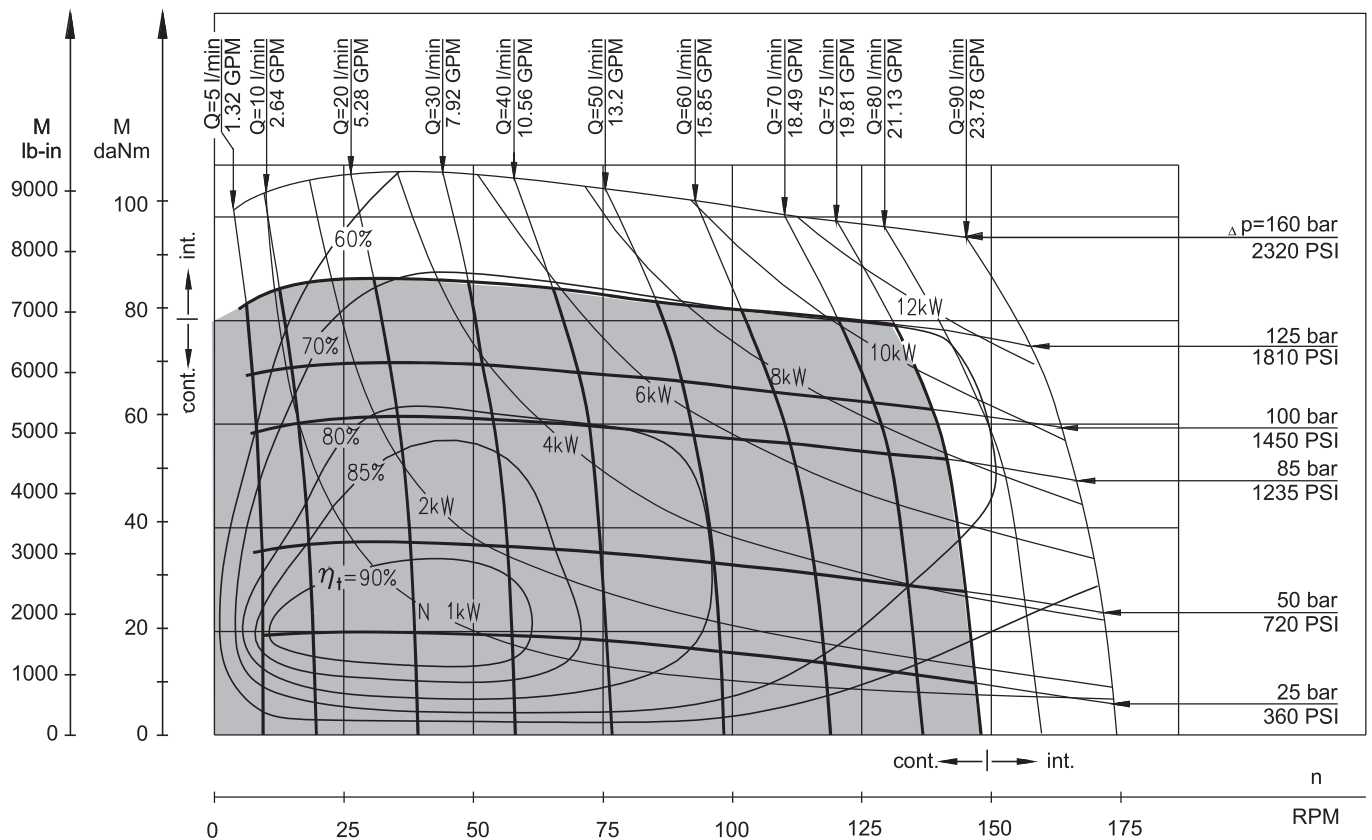
MH 400



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

PERMISSIBLE SHAFT LOADS FOR MH MOTORS

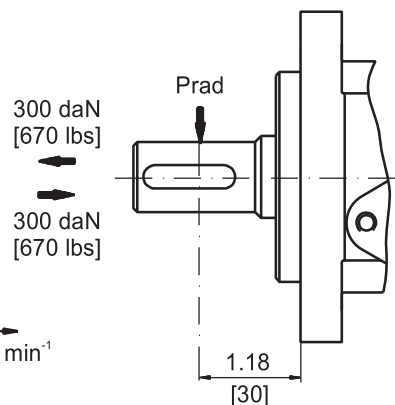
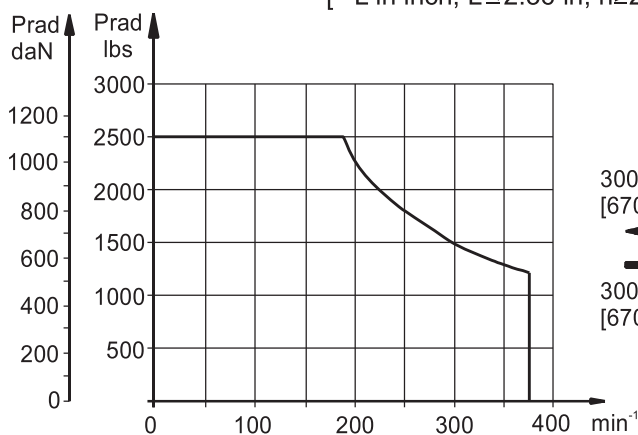
The permissible radial shaft load P_{rad} depends on the speed (RPM) and distance (L) from the point of load to the mounting flange.

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

[*L in mm; L ≤ 60 mm; n ≥ 200 RPM]

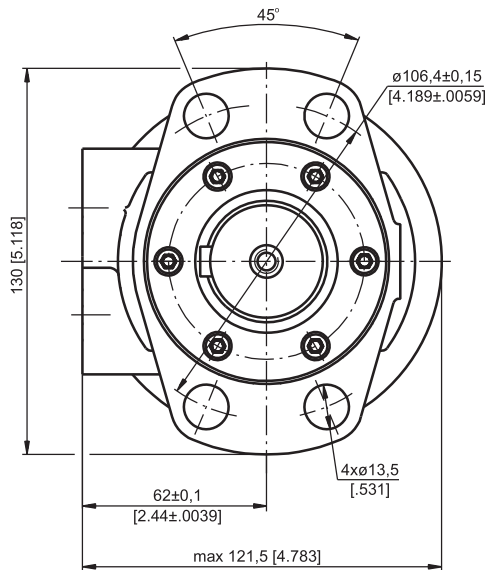
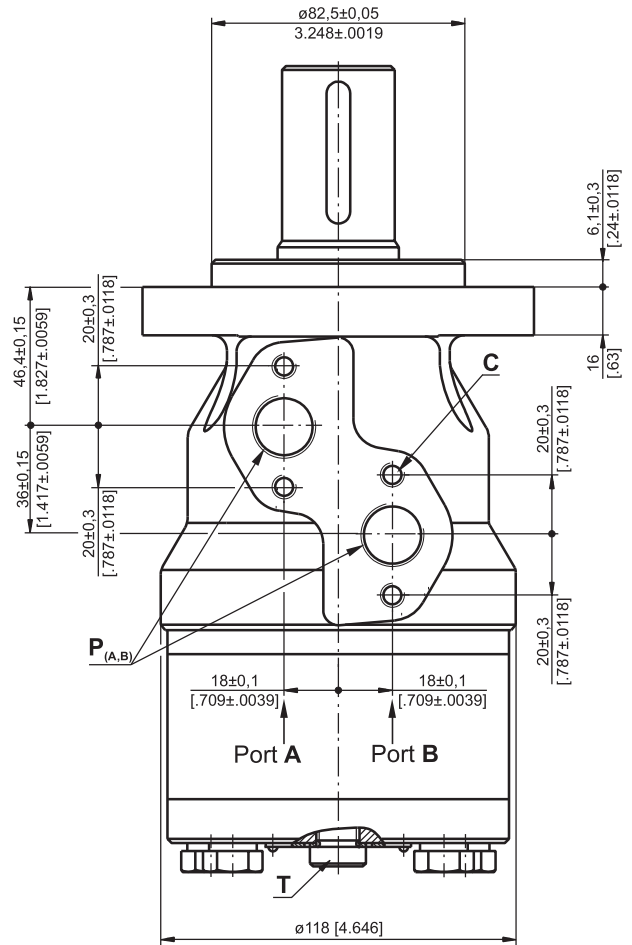
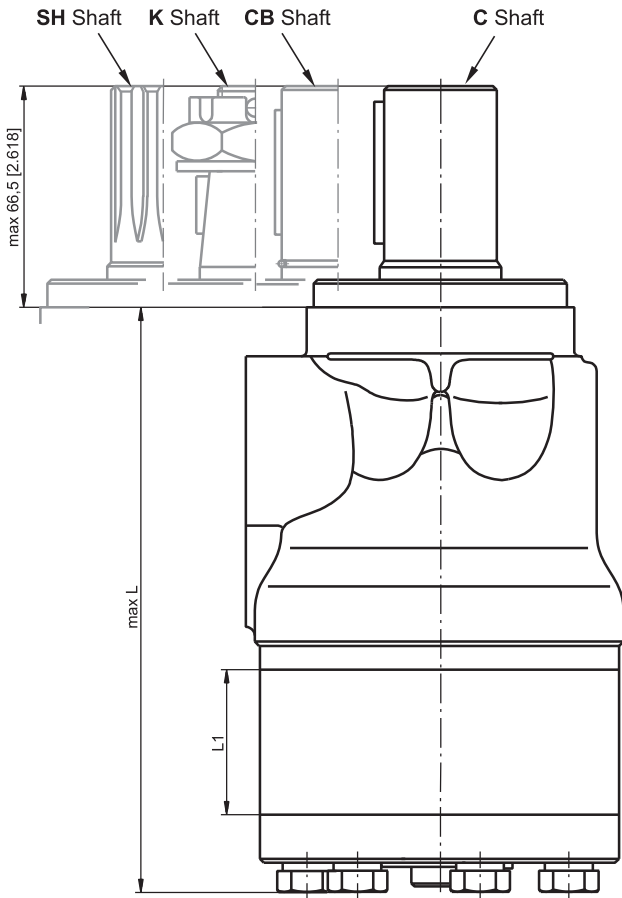
$$\text{Radial Shaft Load } P_{rad} = \frac{1100}{\text{RPM}} \times \frac{2215}{4.075+L}, \text{ lbs}^{**}$$

[**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

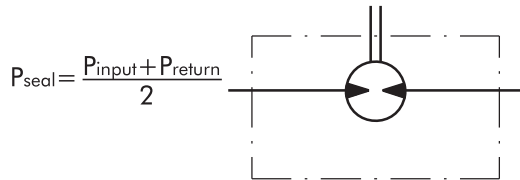
Viewed from Shaft End
 Port A Pressurized - **CCW**
 Port B Pressurized - **CW**



MAX. PERMISSIBLE SHAFT SEAL PRESSURE FOR MH MOTORS

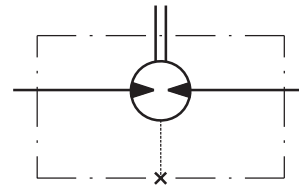
MH...U1 motors with high pressure seal and without drain connection:

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



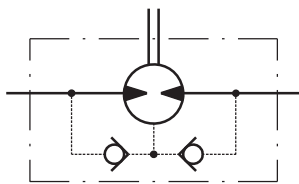
MH...U motors with high pressure seal and drain connection:

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



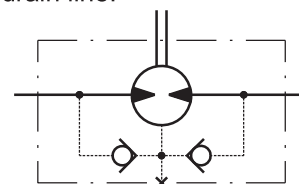
MH...1 motors with standard shaft seal and without drain connection:

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

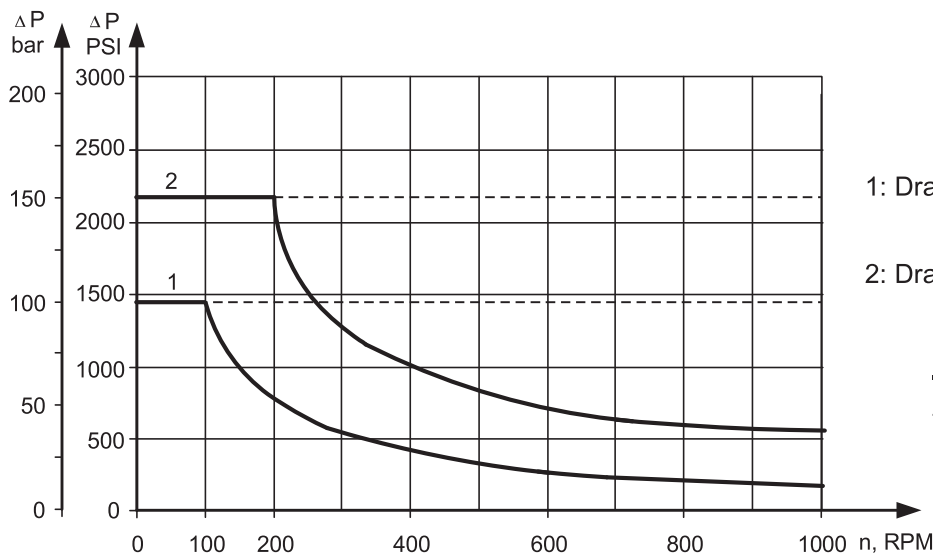


MH... motors with standard shaft seal and with drain connection:

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



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



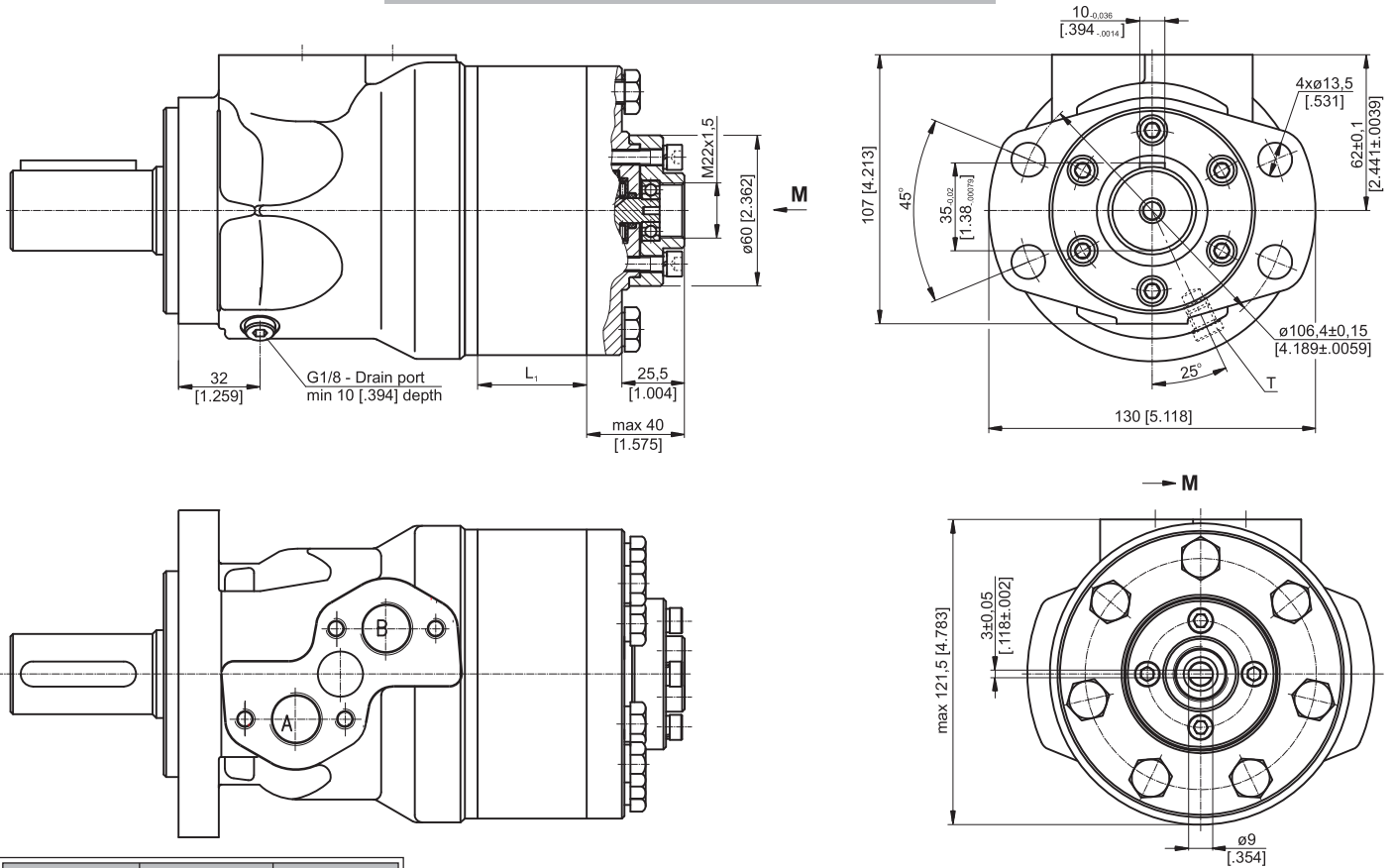
1: Drawing for Standard Shaft Seal

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

— - continuous operations

- - - - intermittent operations

MOTORS WITH TACHO CONNECTION

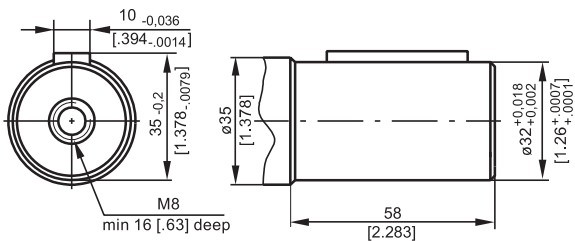


| Type | L, mm [in] | L ₁ , mm [in] |
|--------|------------|--------------------------|
| MH 200 | 191 [7.52] | 27,8 [1.09] |
| MH 250 | 198 [7.79] | 34,8 [1.37] |
| MH 315 | 207 [8.15] | 43,5 [1.71] |
| MH 400 | 218 [8.58] | 54,8 [2.16] |
| MH 500 | 233 [9.17] | 69,4 [2.73] |

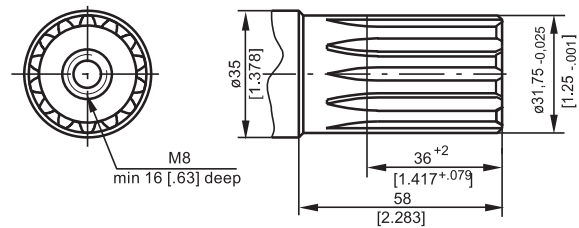


SHAFT EXTENSIONS

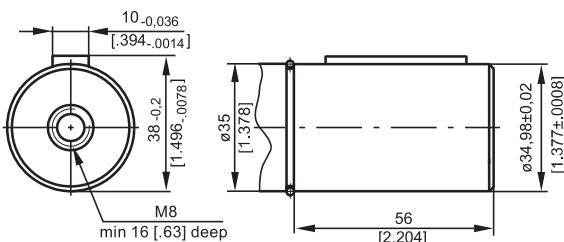
C - ø32 straight, Parallel key A10x8x45 DIN 6885
Max. Torque 77 daNm [6815 lb-in]



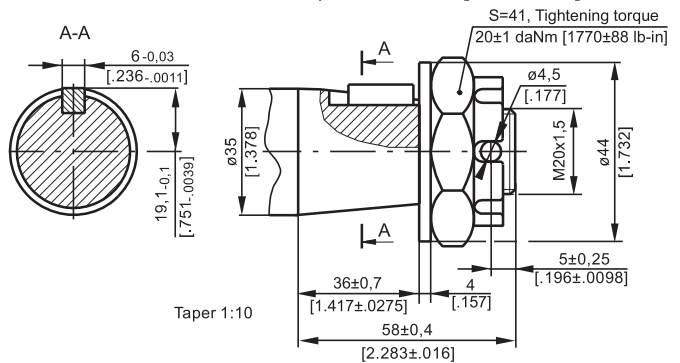
SH - ø1¼" splined 14T, DP 12/24 ANSI B92.1-1976
Max. Torque 95 daNm [8400 lb-in]



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]



ORDER CODE

| | | | | | | | |
|-----|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| M H | | | | | | | |

Pos.1 - Displacement code

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

Pos.2 - Shaft Extensions*

| | |
|-------------|---|
| C | - ø32 straight, Parallel key A10x8x45 DIN 6885 |
| SH | - ø1¼" splined 14T ANSI B92.1-1970 |
| CB** | - ø35 straight, Parallel key A10x8x45 DIN 6885 |
| K | - ø35 tapered 1:10, Parallel key B6x6x20 DIN 6885 |

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 - Special Features (see page 120)

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.