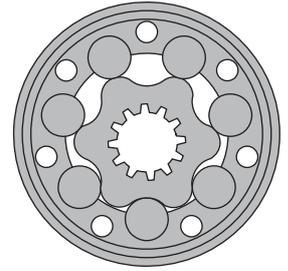


HYDRAULIC MOTORS MR



APPLICATION

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



CONTENTS

| | |
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| Specification data | 29+30 |
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| Dimensions and mounting | 40+41 |
| Shaft extensions | 28 |
| Permissible shaft loads | 29 |
| Permissible shaft Seal Pressure ... | 30 |
| Order code | 42 |

OPTIONS

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

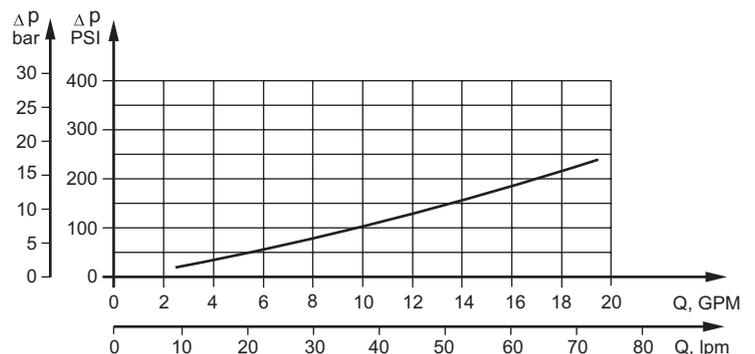
GENERAL

| | |
|---|---|
| Max. Displacement, cm ³ /rev [in ³ /rev] | 397 [24.4] |
| Max. Speed, [RPM] | 970 |
| Max. Torque, daNm [lb-in] | cont.: 61 [5400] int.: 69 [6100] |
| Max. Output, kW [HP] | 15 [20.1] |
| Max. Pressure Drop, bar [PSI] | cont.: 175 [2540] int.: 200 [2900] |
| Max. Oil Flow, lpm [GPM] | 75 [20] |
| Min. Speed, [RPM] | 10 |
| 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 micron) |

Oil flow in drain line

| Pressure drop bar [PSI] | Viscosity mm ² /s [SUS] | Oil flow in drain line lpm [GPM] |
|----------------------------|---------------------------------------|--|
| 140 [2030] | 20 [98] | 2,5 [.660] |
| | 35 [164] | 1,8 [.476] |
| 210 [3045] | 20 [98] | 3,5 [.925] |
| | 35 [164] | 2,8 [.740] |

Pressure Losses



SPECIFICATION DATA

Specification Data for MR... motors with **C, CO, SH, K** and **SA** shafts.
(ø28,56 sealing diameter)

| Type | | MR 50 | MR 80 | MR 100 | MR 125 | MR 160 | MR 200 | MR 250 | MR 315 | MR 400 |
|---|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Displacement, cm ³ /rev [in ³ /rev] | | 51,5 | 80,3 | 99,8 | 125,7 | 159,6 | 199,8 | 250,1 | 315,7 | 397 |
| | | [3.14] | [4.90] | [6.09] | [7.67] | [9.74] | [12.19] | [15.26] | [19.26] | [24.4] |
| Max. Speed, [RPM] | Cont. | 775 | 750 | 600 | 475 | 375 | 300 | 240 | 190 | 150 |
| | Int.* | 970 | 940 | 750 | 600 | 470 | 375 | 300 | 240 | 190 |
| Max. Torque daNm [in-lb] | Cont. | 10 [900] | 20 [1770] | 24 [2125] | 30 [2655] | 39 [3450] | 38,5[3410] | 39 [3450] | 36 [3185] | 38 [3360] |
| | Int.* | 13 [1150] | 22 [1947] | 28 [2480] | 34 [3010] | 43 [3805] | 46 [4070] | 47 [4160] | 47 [4160] | 47 [4160] |
| | Peak** | 17 [1505] | 27 [2390] | 32 [2832] | 37 [3275] | 46 [4070] | 56 [4960] | 60 [5310] | 61 [5400] | 61 [5400] |
| Max. Output kW [HP] | Cont. | 7 [9.5] | 12,5 [17] | 13 [17.4] | 12,5[16.8] | 11,5[15.4] | 9 [12] | 8 [10.7] | 5 [6.7] | 4,8 [6.4] |
| | Int.* | 8,5 [11.9] | 15 [20.1] | 15 [20.1] | 14,5[19.5] | 14 [18.8] | 12 [16.1] | 9,5 [12.7] | 8 [10.7] | 6,8 [9.1] |
| Max. Pressure Drop bar [PSI] | Cont. | 140[2030] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 140[2030] | 110[1600] | 85 [1230] | 65 [940] |
| | Int.* | 175[2540] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 175[2540] | 140[2030] | 115[1670] | 90 [1300] |
| | Peak** | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 200[2900] | 150[2175] | 115[1670] |
| Max. Oil Flow lpm [GPM] | Cont. | 40 [10.5] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] |
| | Int.* | 50 [13.2] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] |
| Max. Inlet Pressure bar [PSI] | Cont. | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] |
| | Int.* | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] |
| | Peak** | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] |
| Max. Return Pres- sure with Drain Line bar [PSI] | Cont. | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] |
| | Int.* | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] |
| | Peak** | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] |
| Max. Starting Pressure with Unloaded Shaft, bar [PSI] | | 10 [145] | 10 [145] | 10 [145] | 9 [130] | 7 [102] | 5 [73] | 4 [58] | 3 [44] | 3 [44] |
| Min. Starting Torque daNm [in-lb] | At max.press. drop Cont. | 8 [710] | 15 [1330] | 20 [1770] | 25 [2215] | 32 [2832] | 33 [2920] | 31 [2740] | 31,5[2875] | 31,5[2875] |
| | At max.press. drop Int.* | 10 [85] | 17 [1505] | 23 [2035] | 28 [2480] | 37 [3275] | 40 [3540] | 48 [4250] | 58 [5220] | 50 [4425] |
| | | | | | | | | | | |
| Min. Speed***, [RPM] | | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Weight, kg [lb] | MR(F) | 6,8 [15] | 6,9 [15.2] | 7,2 [15.9] | 7,3 [16.1] | 7,5 [15.2] | 8 [17.6] | 8,4 [18.5] | 9,1 [20] | 9,8 [21.6] |
| For rear ports: +0,650 [1.433] | MRQ(N) | 6,2 [13.7] | 6,3 [13.9] | 6,6 [14.6] | 6,8 [15] | 7,6 [15.4] | 7,2 [14.7] | 7,8 [17.2] | 8,6 [19] | 9,3 [20.5] |

* 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 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 13 mm²/s [70 SUS] at 50°C [122°F].
- Recommended maximum system operating temperature is 82°C [180°F].
- 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 MR... motors with CB, KB, OB and HB shafts.
(ø35 sealing diameter)

| Type | | MR 50 | MR 80 | MR 100 | MR 125 | MR 160 | MR 200 | MR 250 | MR 315 | MR 400 |
|---|-----------------------------|------------|-----------|------------|------------|------------|------------|------------|------------|------------|
| Displacement, cm³/rev [in ³ /rev] | | 51,5 | 80,3 | 99,8 | 125,7 | 159,6 | 199,8 | 250,1 | 315,7 | 397 |
| | | [3.14] | [4.90] | [6.09] | [7.67] | [9.74] | [12.19] | [15.26] | [19.26] | [24.4] |
| Max. Speed, [RPM] | Cont. | 775 | 750 | 600 | 475 | 375 | 300 | 240 | 190 | 150 |
| | Int.* | 970 | 940 | 750 | 600 | 470 | 375 | 300 | 240 | 190 |
| Max. Torque daNm [in-lb] | Cont. | 10 [900] | 20 [1770] | 24 [2125] | 30 [2655] | 39 [3450] | 45 [4000] | 54 [4780] | 55 [4870] | 61 [5400] |
| | Int.* | 13 [1150] | 22 [1947] | 28 [2480] | 34 [3010] | 43 [3805] | 50 [4425] | 61 [5400] | 69 [6110] | 69 [6110] |
| | Peak** | 17 [1505] | 27 [2390] | 32 [2832] | 37 [3275] | 46 [4070] | 56 [4960] | 71 [6280] | 84 [7435] | 87 [7700] |
| Max. Output kW [HP] | Cont. | 7 [9.5] | 12,5 [17] | 13 [17.4] | 12,5[16.8] | 11,5[15.4] | 11 [14.8] | 10 [13.4] | 9 [12] | 7,8 [10.5] |
| | Int.* | 8,5 [11.9] | 15 [20.1] | 15 [20.1] | 14,5[19.5] | 14 [18.8] | 13 [17.4] | 12 [16.1] | 10 [13.4] | 10,6[14.2] |
| Max. Pressure Drop bar [PSI] | Cont. | 140[2030] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 135[1960] | 110[1600] |
| | Int.* | 175[2540] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 175[2540] | 140[2030] |
| | Peak** | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 210[3045] | 175[2540] |
| Max. Oil Flow lpm [GPM] | Cont. | 40 [10.5] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] | 60 [15.8] |
| | Int.* | 50 [13.2] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] |
| Max. Inlet Pressure bar [PSI] | Cont. | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] |
| | Int.* | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] |
| | Peak** | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] |
| Max. Return Pres- sure with Drain Line bar [PSI] | Cont. | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] | 175[2540] |
| | Int.* | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] | 200[2900] |
| | Peak** | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] | 225[3260] |
| Max. Starting Pressure with Unloaded Shaft, bar [PSI] | | 10 [145] | 10 [145] | 10 [145] | 9 [130] | 7 [102] | 5 [73] | 4 [58] | 3 [44] | 3 [44] |
| Min. Starting Torque daNm [in-lb] | At max.press. | | | | | | | | | |
| | drop Cont. | 8 [710] | 15 [1330] | 20 [1770] | 25 [2215] | 32 [2832] | 41 [3630] | 50 [4425] | 50 [4425] | 50 [4425] |
| | At max.press. drop Int.* | 10 [885] | 17 [1505] | 23 [2035] | 28 [2480] | 37 [3275] | 46 [4070] | 55 [4870] | 66 [5840] | 61 [5400] |
| Min. Speed***, [RPM] | | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Weight, kg [lb] | | | | | | | | | | |
| For rear ports: +0,650 [1.433] | | 6,9 [15,2] | 7 [15,4] | 7,3 [16.1] | 7,4 [16.3] | 7,6 [15.4] | 8,1 [18.9] | 8,5 [18.7] | 9,2 [20.3] | 9,9 [21.8] |

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

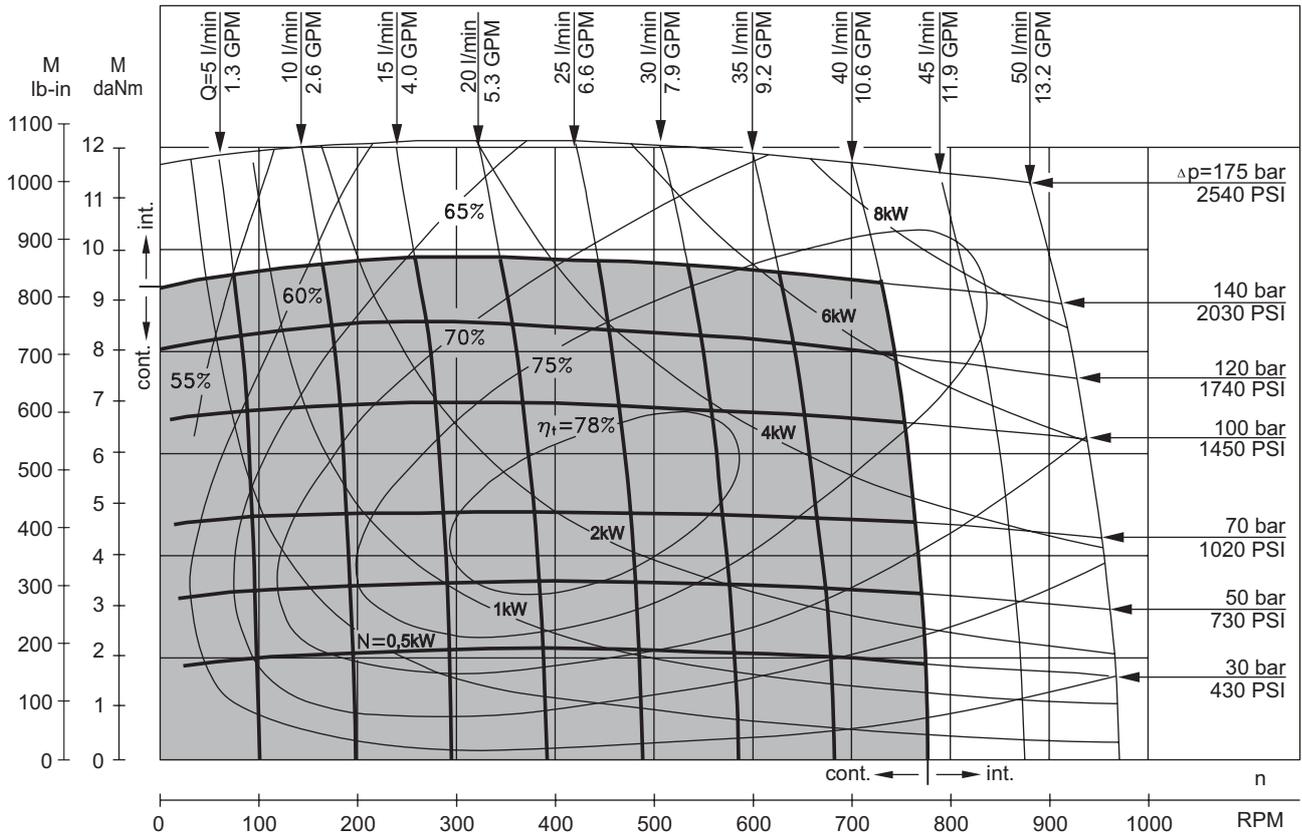
** Peak load: the permissible values may occur for max. 1% of every minute.

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

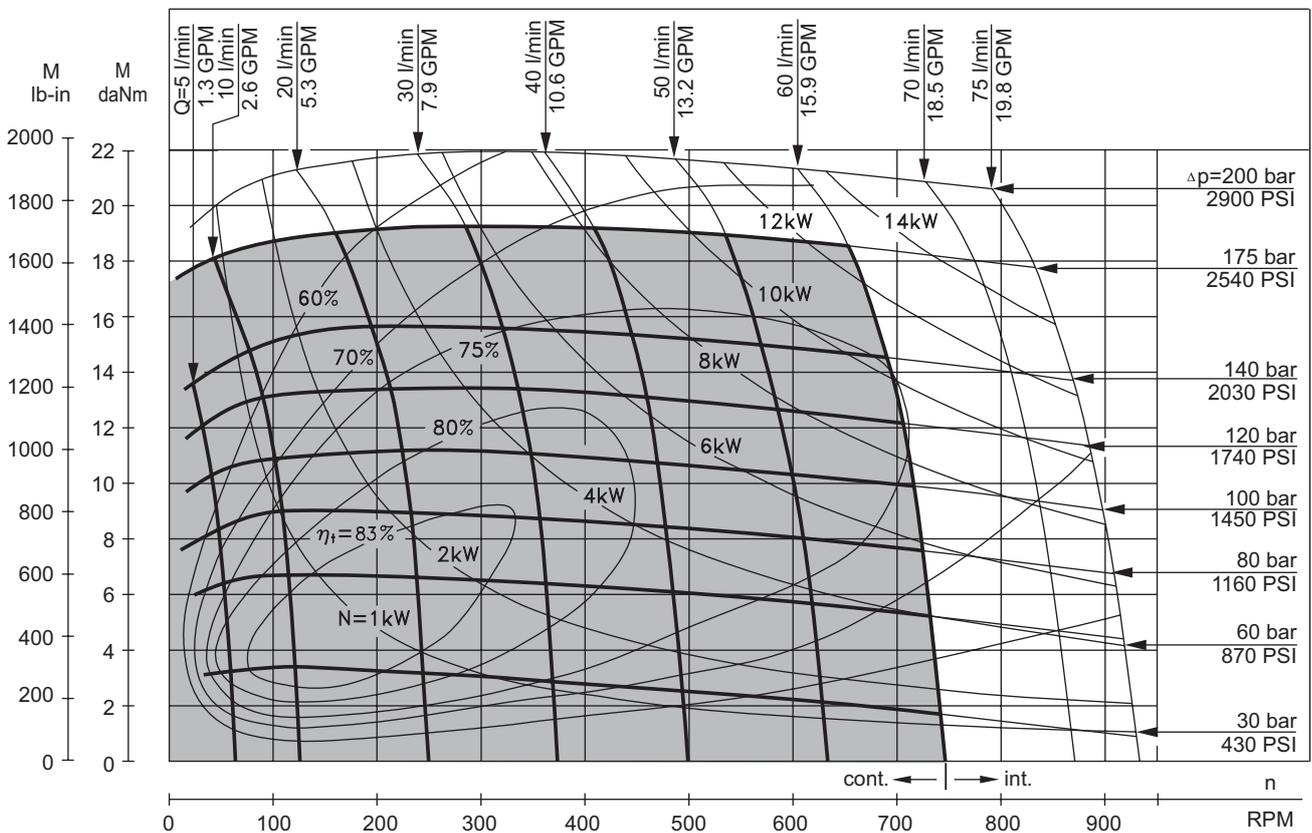
- Intermittent speed and intermittent pressure must not occur simultaneously.
- Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
- Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4).
If using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

FUNCTION DIAGRAMS

MR 50



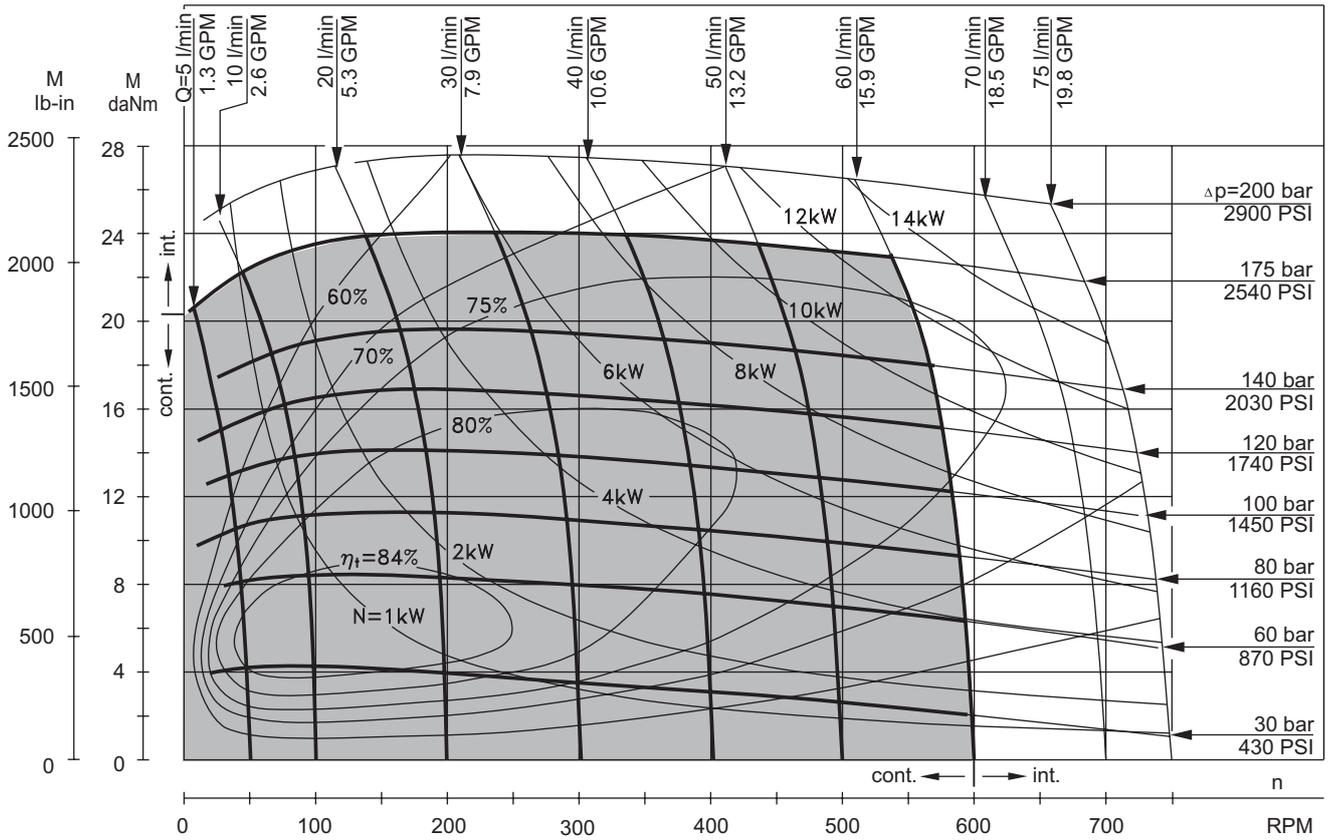
MR 80



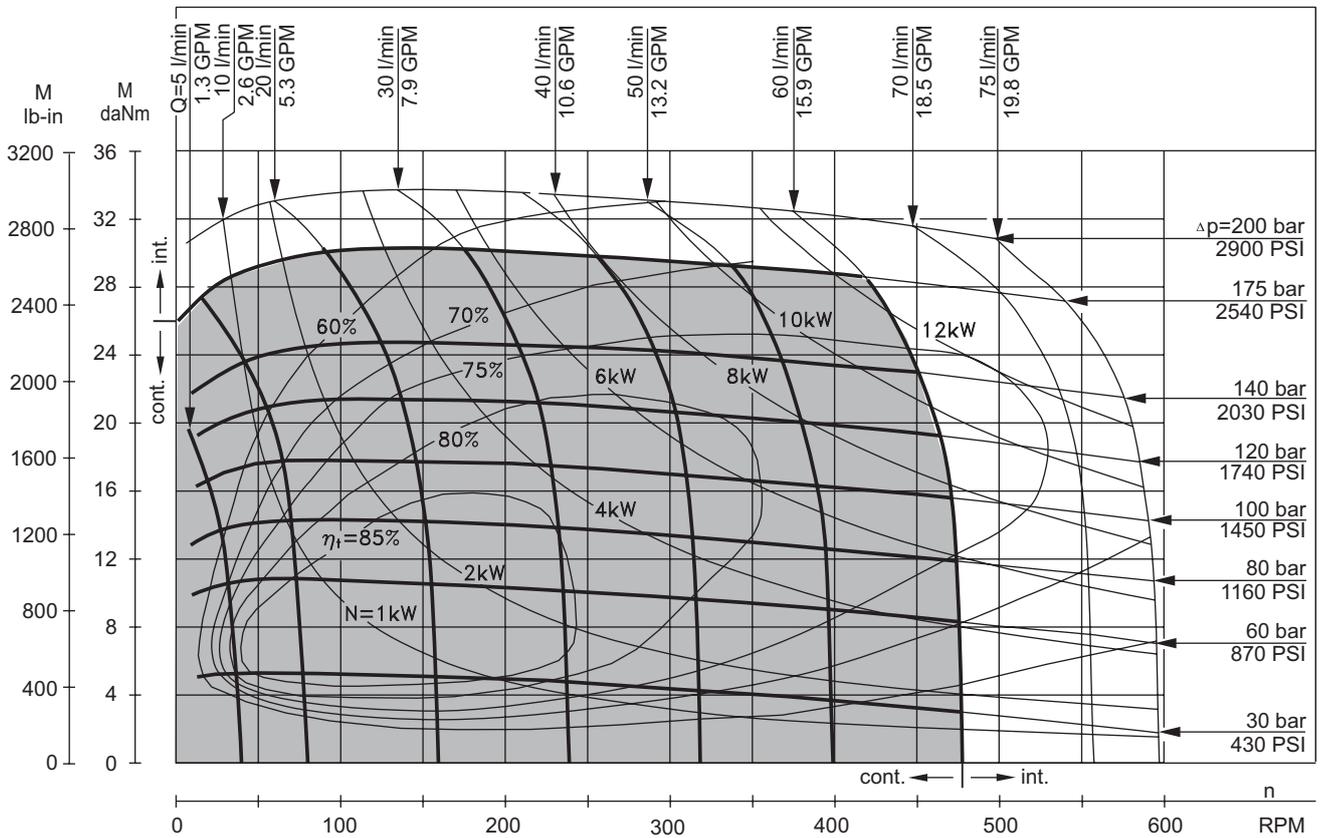
The function diagrams data is for average performance of randomly selected motors at back pressure 5 ± 10 bar [72.5 \pm 145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

MR 100



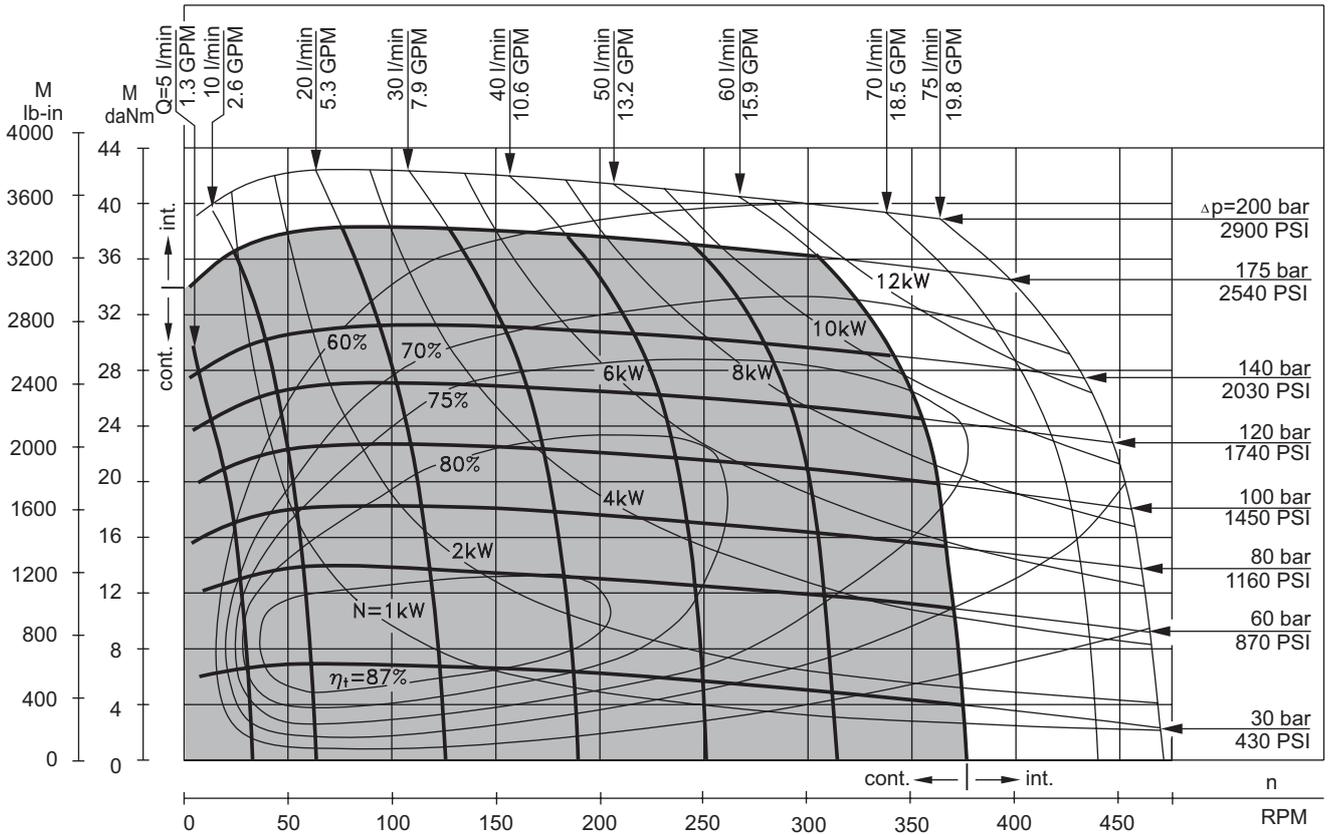
MR 125



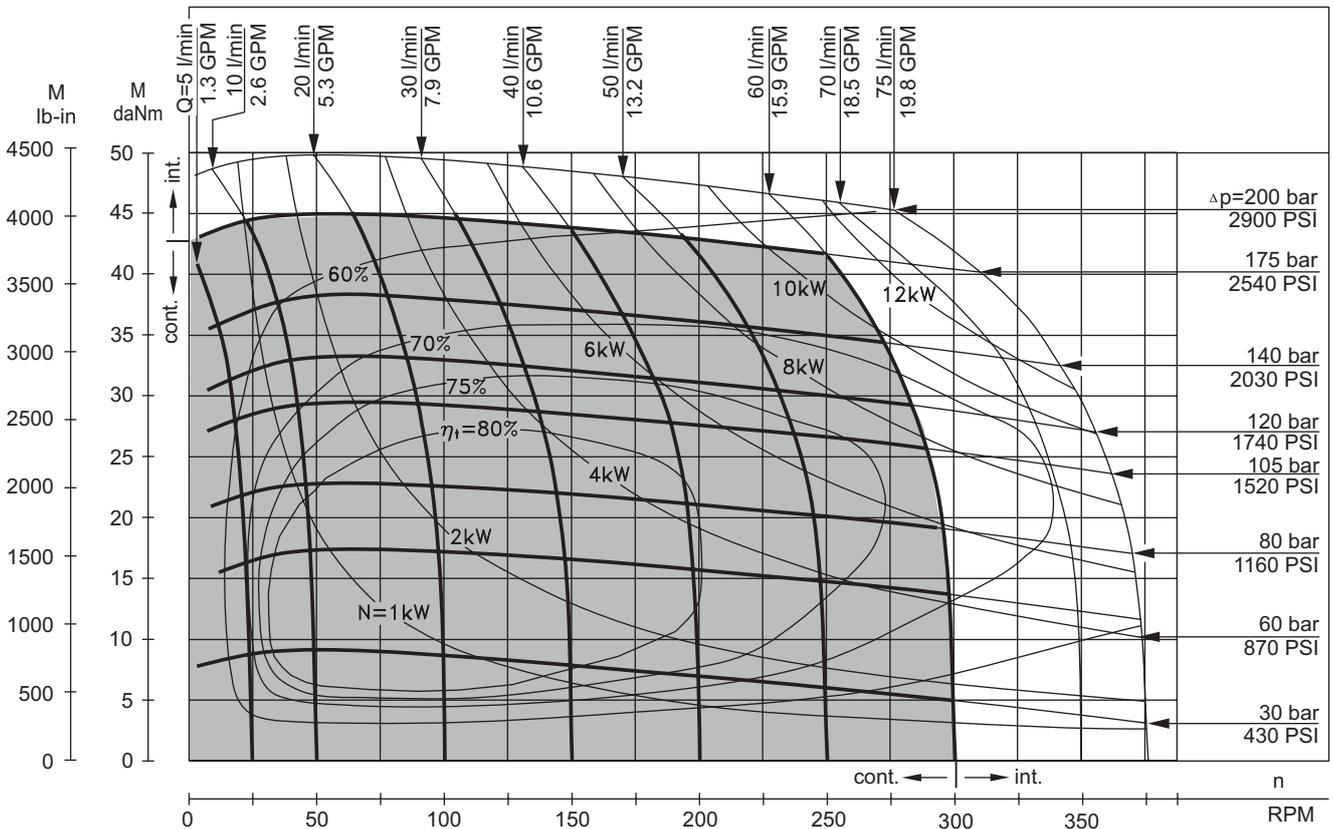
The function diagrams data is for average performance of randomly selected motors at back pressure 5 ± 10 bar [72.5 \pm 145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

MR 160



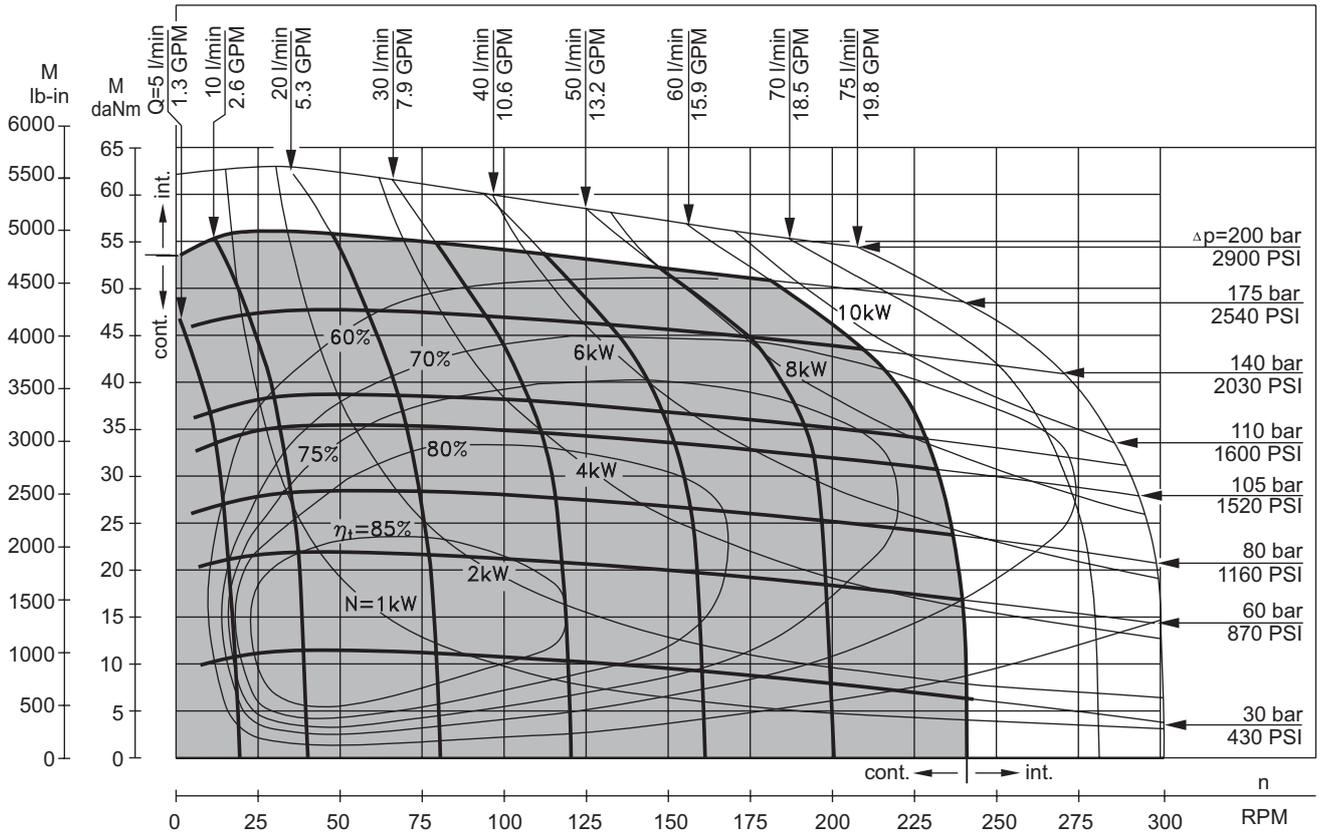
MR 200



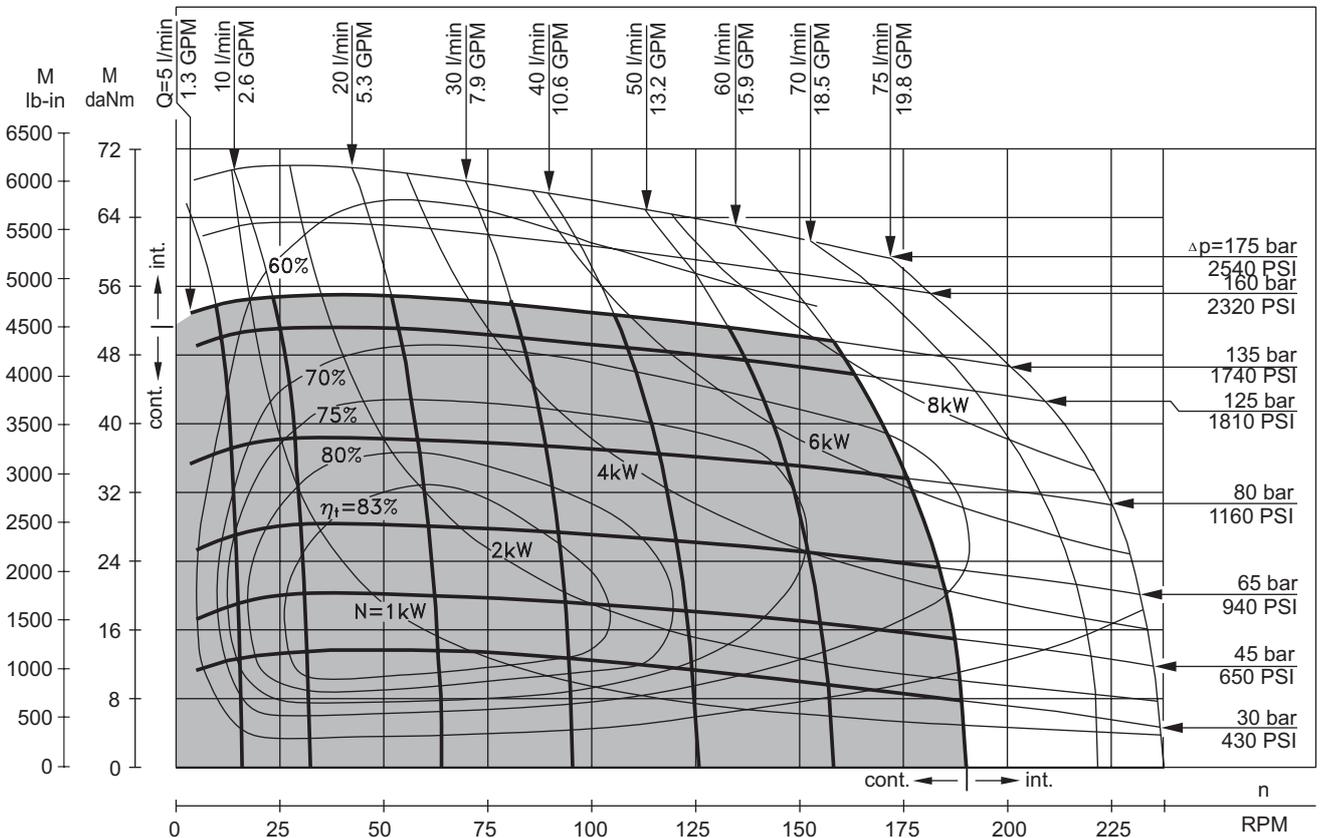
The function diagrams data is for average performance of randomly selected motors at back pressure 5±10 bar [72.5±145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

MR 250



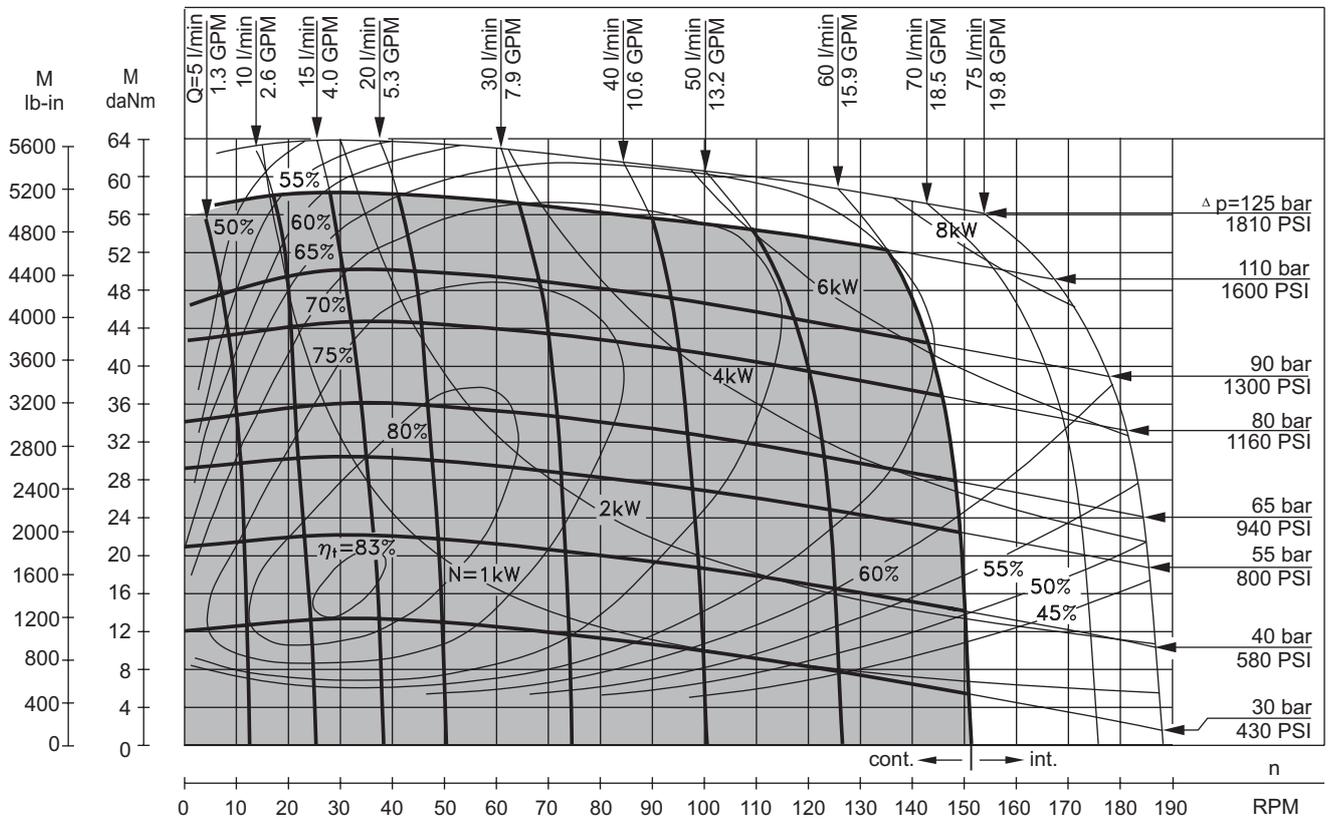
MR 315



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].

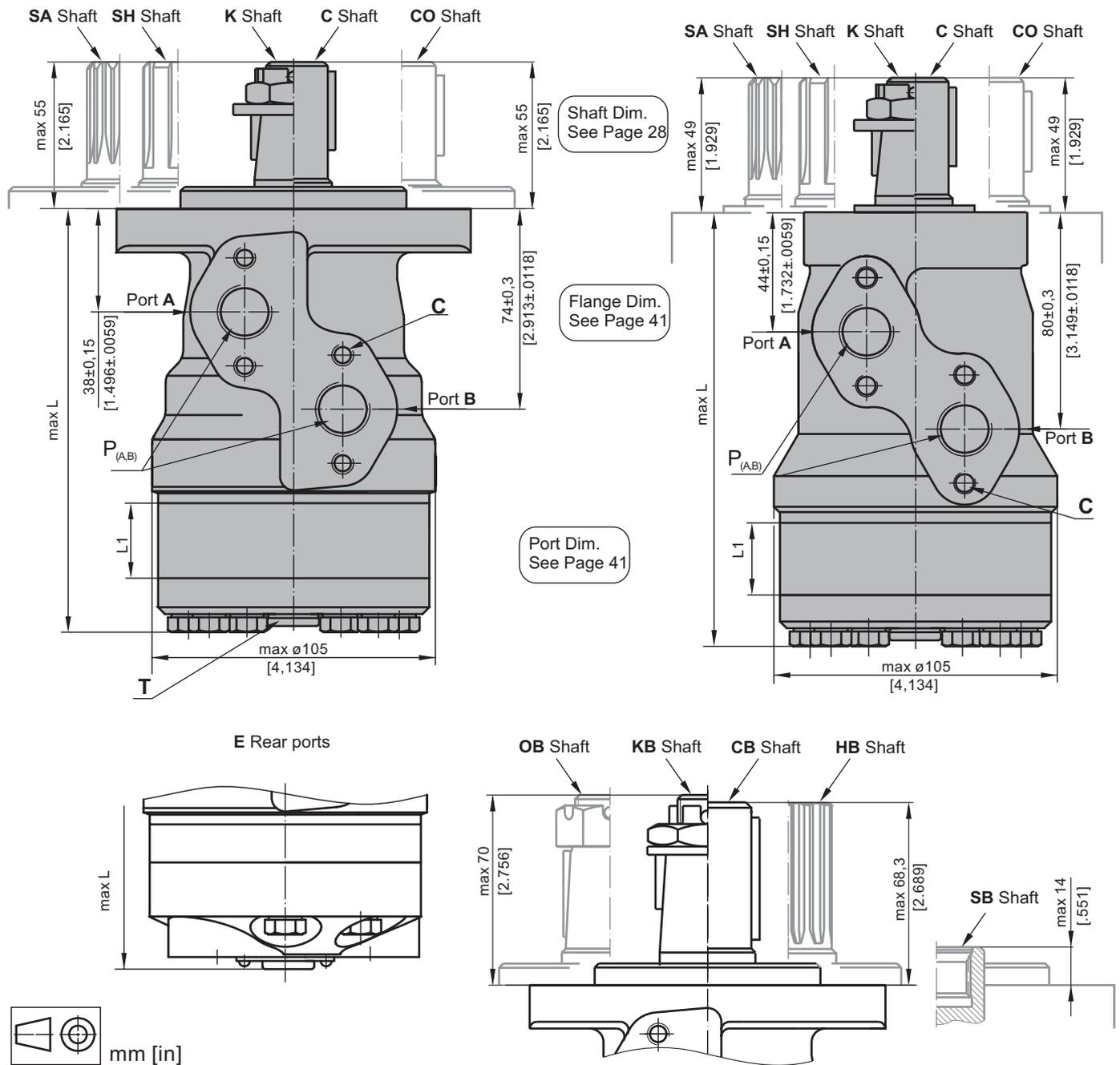
FUNCTION DIAGRAMS

MR 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].

DIMENSIONS AND MOUNTING DATA



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)

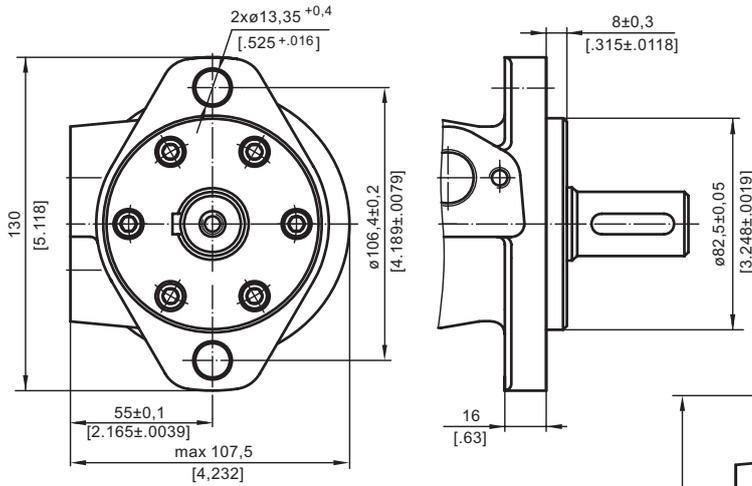
Standard Rotation
 Viewed from Shaft End
 Port A Pressurized - **CW**
 Port B Pressurized - **CW**

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

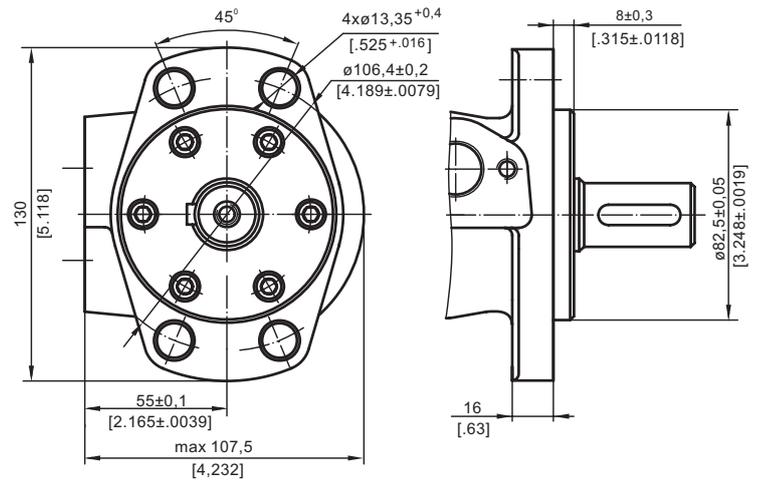
| Type | L, mm [in] | Type | L, mm [in] | Type | L, mm [in] | Type | L, mm [in] | L ₁ , mm [in] |
|-----------|--------------|---------|--------------|------------|--------------|----------|--------------|--------------------------|
| MR(F) 50 | 138,0 [5.43] | MRQ 50 | 143,5 [5.65] | MR(F)E 50 | 157,5 [6.20] | MRQE 50 | 163,5 [6.44] | 9,0 [.35] |
| MR(F) 80 | 143,0 [5.63] | MRQ 80 | 148,5 [5.85] | MR(F)E 80 | 162,5 [6.40] | MRQE 80 | 168,5 [6.63] | 14,0 [.55] |
| MR(F) 100 | 146,0 [5.75] | MRQ 100 | 152,0 [5.98] | MR(F)E 100 | 165,5 [6.52] | MRQE 100 | 171,5 [6.75] | 17,4 [.69] |
| MR(F) 125 | 150,5 [5.93] | MRQ 125 | 156,5 [6.16] | MR(F)E 125 | 170,0 [6.69] | MRQE 125 | 176,0 [6.93] | 21,8 [.86] |
| MR(F) 160 | 156,5 [6.16] | MRQ 160 | 162,5 [6.40] | MR(F)E 160 | 176,0 [6.93] | MRQE 160 | 182,0 [7.17] | 27,8 [1.09] |
| MR(F) 200 | 163,5 [6.44] | MRQ 200 | 169,5 [6.67] | MR(F)E 200 | 183,0 [7.20] | MRQE 200 | 189,0 [7.44] | 34,8 [1.37] |
| MR(F) 250 | 172,0 [6.77] | MRQ 250 | 179,0 [7.05] | MR(F)E 250 | 192,0 [7.56] | MRQE 250 | 198,0 [7.80] | 43,5 [1.71] |
| MR(F) 315 | 183,0 [7.20] | MRQ 315 | 189,0 [7.44] | MR(F)E 315 | 204,0 [8.03] | MRQE 315 | 210,0 [8.27] | 54,8 [2.16] |
| MR(F) 400 | 198,0 [7.80] | MRQ 400 | 204,0 [8.03] | MR(F)E 400 | 218,0 [8.58] | MRQE 400 | 224,0 [8.82] | 69,4 [2.73] |

MOUNTING

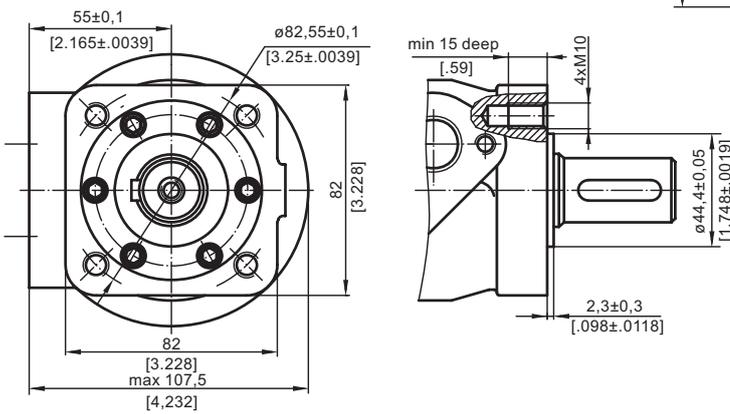
Oval Mount (2 Holes)



F - Oval Mount (4 Holes)

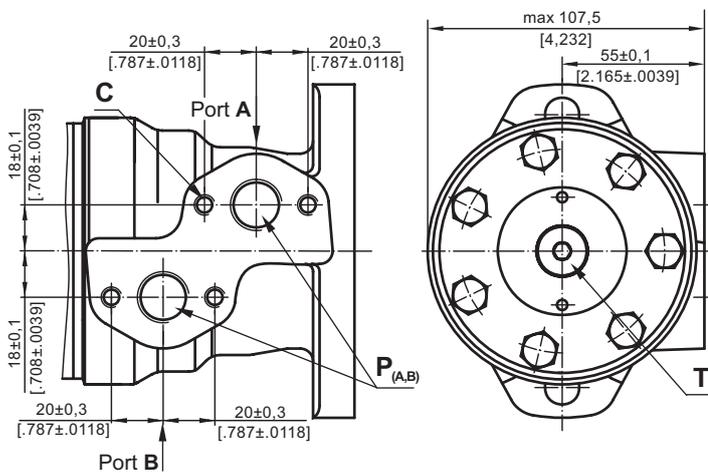


Q - Square Mount (4 Bolts)

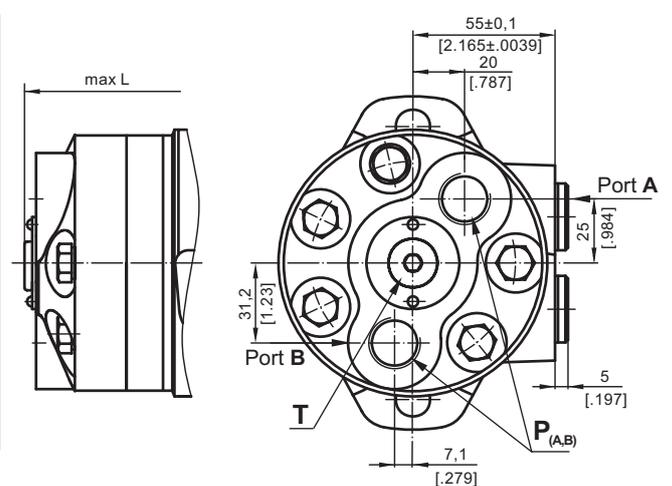


PORTS

Side Ports



E Rear Ports



- 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**

ORDER CODE

| | | | | | | | | | | |
|------------|---|---|---|---|---|---|---|---|---|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| M R | | | | | | | | | | |

Pos.1 - Mounting Flange

omit - Oval mount, two holes

F - Oval mount, four holes

Q - Square mount, four bolts

W - Wheel mount

Pos.2 - Option (needle bearings)

omit - none

N - with needle bearings

Pos.3 - Port type

omit - Side ports

E - Rear ports

Pos.4 - Displacement code

50 - 51,5 cm³/rev [3.14 in³/rev]

80 - 80,3 cm³/rev [4.90 in³/rev]

100 - 99,8 cm³/rev [6.09 in³/rev]

125 - 125,7 cm³/rev [7.67 in³/rev]

160 - 159,6 cm³/rev [9.74 in³/rev]

200 - 199,8 cm³/rev [12.19 in³/rev]

250 - 250,1 cm³/rev [15.26 in³/rev]

315 - 315,7 cm³/rev [19.26 in³/rev]

400 - 397,0 cm³/rev [24.40 in³/rev]

Pos.5 - Shaft Extensions* (see page 28)

C - ø25 straight, Parallel key A8x7x32 DIN6885

VC - ø25 straight, Parallel key A8x7x32 DIN6885
with corrosion resistant bushing

CO - ø1" straight, Parallel key 1/4"x1/4"x1/4" BS46

VCO - ø1" straight, Parallel key 1/4"x1/4"x1/4" BS46
with corrosion resistant bushing

SH - ø25,32 splined BS 2059 (SAE 6B)

VSH - ø25,32 splined BS 2059 (SAE 6B)
with corrosion resistant bushing

K - ø28,56 tapered 1:10, Parallel key B5x5x14 DIN6885

SA - ø24,5 splined B 25x22 DIN 5482

VSA - ø24,5 splined B 25x22 DIN 5482
with corrosion resistant bushing

CB - ø32 straight, Parallel key A10x8x45 DIN6885

KB - ø35 tapered 1:10, Parallel key B6x6x20 DIN6885

SB - splined A 25x22 DIN 5482

OB - ø1 1/4" tapered 1:8, Parallel key 5/16"x5/16"x1 1/4" BS46

HB - ø1 1/4" splined 14T ANSI B92.1 - 1976

Pos.6 - Shaft Seal Version (see page 30)

omit - Low pressure shaft seal or Standard shaft seal for "...B" shaft

D - 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 - Ports

omit - BSPP (ISO 228)

M - Metric (ISO 262)

Pos.9 - Special Features (see page 98)

Pos.10 - Design Series

omit - Factory specified

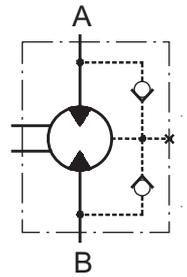
* The permissible output torque for shafts must not be exceeded!

NOTES: The following combinations are not allowed: - **Q** flange with "...B" shafts;
- **N** option with "...B" shafts, Low Pressure Seal or **U** option;
- "...B" shafts with **D** and **U** shaft seals.

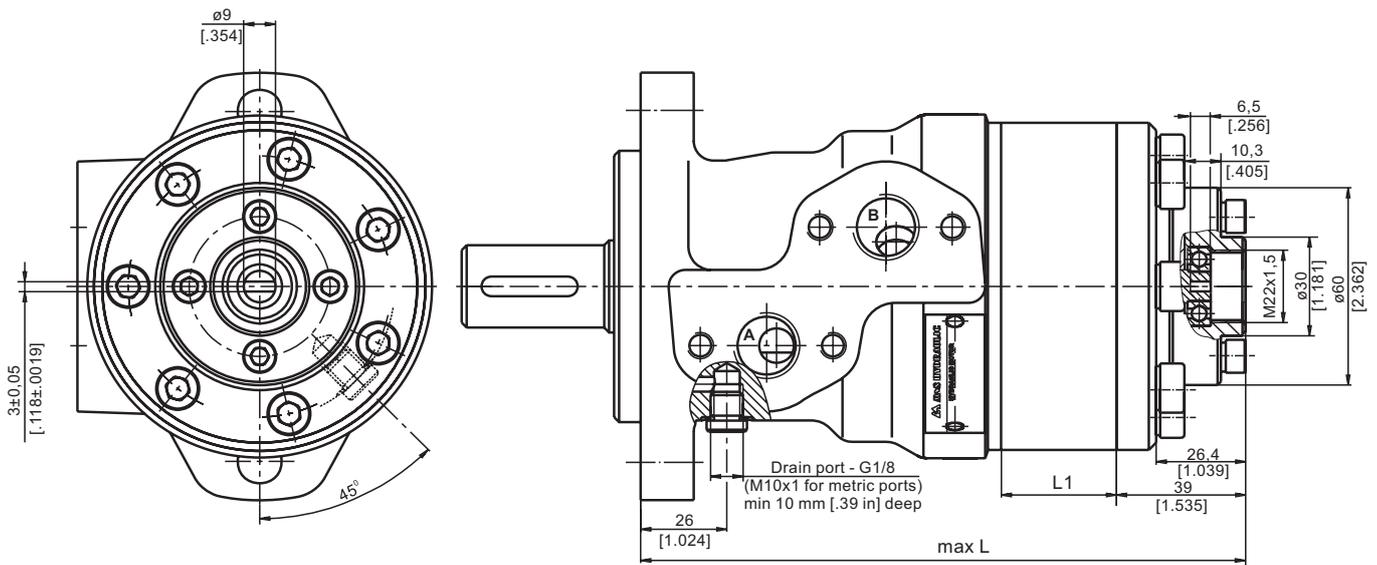
The hydraulic motors are mangano-phosphatized as standard.

Hydraulic motors type MR...T with tacho connection

MR motors are available in version with tacho drive shaft. With tacho connection the speed of the motor can be registered. Tacho shaft has a 6 times higher revolution speed than output shaft and opposite direction of rotation.



OUTLINE DIMENSIONS REFERENCE



| Type | L, mm [in] | L ₁ , mm [in] |
|--------|------------|--------------------------|
| MR 50 | 157 [6.18] | 9,0 [.35] |
| MR 80 | 162 [6.38] | 14,0 [.55] |
| MR 100 | 165 [6.50] | 17,4 [.69] |
| MR 125 | 170 [6.69] | 21,8 [.86] |
| MR 160 | 176 [6.93] | 27,8 [1.09] |
| MR 200 | 183 [7.20] | 34,8 [1.37] |
| MR 250 | 192 [7.56] | 43,5 [1.71] |
| MR 315 | 204 [8.03] | 54,8 [2.16] |
| MR 400 | 218 [8.58] | 69,4 [2.73] |



Note: Radial or axial load on tacho shaft must be avoided. Max. torque on tacho shaft 0,1 daNm [.885 lb-in]. Max. cont. return pressure without drain line 20 bar [290 PSI].

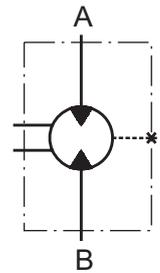
The main technical features correspond to the standard motors series MR. There are no changes in the overall and mounting dimensions. For detail technical and mounting data please refer to MR catalogue.

HYDRAULIC MOTORS MRNA



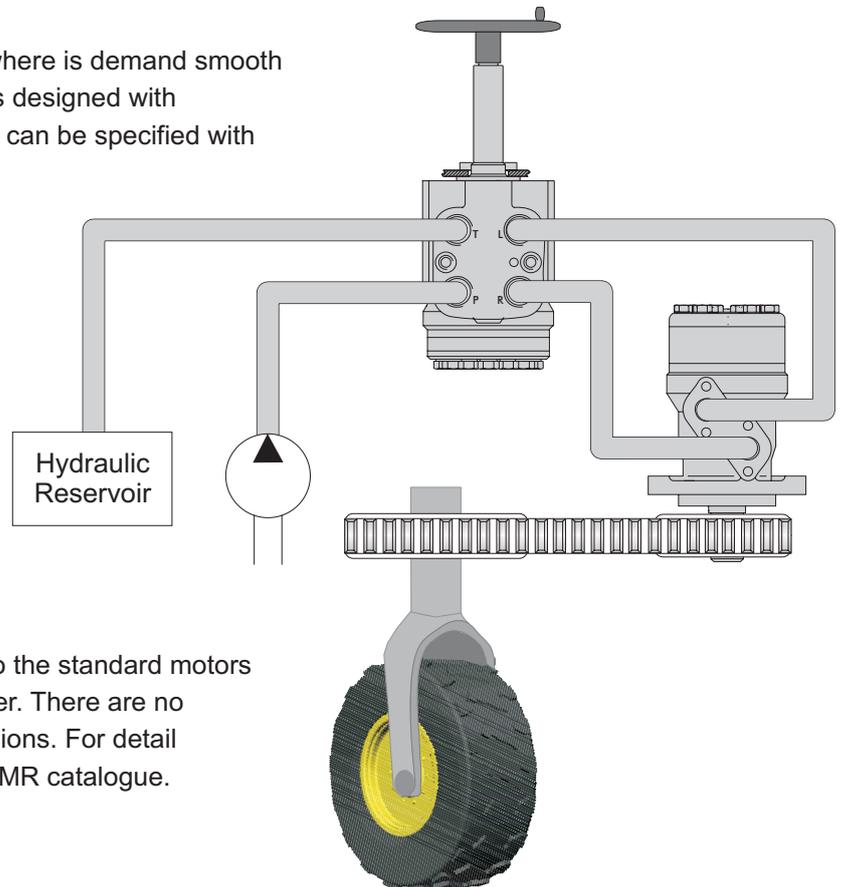
APPLICATION

- » Actuator motor as driving-motor for steering mechanism of the the three-wheel vehicles;
- » For conveyors (series connection);
- » Dosing motor etc.



MRNA is suitable for driven mechanism where is demand smooth operation low speed and high pressure. It is designed with separated output shaft and spool valve and can be specified with low internal leakage.

- » Good start-up characteristics;
- » Precise control of the Torque at low small flow.
- » Smooth operation at high pressure and small oil flow;
- » High volumetric efficiency.



The main technical features correspond to the standard motors series MR $\varnothing 28,56$ [1.124 in.] sealing diameter. There are no changes in the overall and mounting dimensions. For detail technical and mounting data please refer to MR catalogue.

SPECIFICATION DATA

| Code | Displacement cm ³ /rev [in ³ /rev] | Max. Speed [RPM] | Max. Torque daNm [lb-in] | | | | Max. Output kW [HP] | | | | Max. Pressure Drop, bar [PSI] | | | | Max. Oil Flow, lpm [GPM] |
|----------|--|---------------------|-----------------------------|----------------|----------------|--------------|------------------------|----------------|---------------|----------------|----------------------------------|---------------|---------------|---------------|--------------------------------|
| | | | C, CO shafts | | SH, SA shafts | | C, CO shafts | | SH, SA shafts | | C, CO shafts | | SH, SA shafts | | |
| | | | cont. | int* | cont. | int* | cont. | int* | cont. | int* | cont. | int* | cont. | int* | |
| MRNA 50 | 51,5 [3.14] | 200 | 10 [885] | 13 [1150] | 10 [885] | 13 [1150] | 2,0 [2.68] | 2,5 [3.35] | 2,0 [2.68] | 2,5 [3.35] | 140 [2030] | 175 [2540] | 140 [2030] | 175 [2540] | 10,5 [2.8] |
| MRNA 80 | 80,3 [4.9] | 200 | 20 [1770] | 22 [1940] | 20 [1770] | 22 [1940] | 3,0 [4.02] | 3,5 [4.69] | 3,0 [4.02] | 3,5 [4.69] | 175 [2540] | 200 [2900] | 175 [2540] | 200 [2900] | 16 [4.2] |
| MRNA 100 | 99,8 [6.09] | 200 | 24 2120 | 28 [2480] | 24 2120 | 28 [2480] | 4,5 [6.03] | 5,0 [6.71] | 4,5 [6.03] | 5,0 [6.71] | 175 [2540] | 200 [2900] | 175 [2540] | 200 [2900] | 20 [5.3] |
| MRNA 125 | 125,7 [7.67] | 200 | 30 [2650] | 34 [3000] | 30 [2650] | 34 [3000] | 5,5 [7.37] | 6,0 [8.05] | 5,5 [7.37] | 6,0 [8.05] | 175 [2540] | 200 [2900] | 175 [2540] | 200 [2900] | 25 [6.6] |
| MRNA 160 | 159,6 [9.74] | 200 | 29 [2560] | 39 [3450] | 39 [3450] | 43 [3800] | 5,0 [6.71] | 6,5 [8.05] | 6,0 [8.05] | 7,5 [10.05] | 120 [1740] | 175 [2540] | 175 [2540] | 200 [2900] | 32 [8.5] |
| MRNA 200 | 199,8 [12.19] | 200 | 29 [2560] | 38,5 [3400] | 38,5 [3400] | 46 [4070] | 5,0 [6.71] | 7,0 [9.39] | 6,5 [8.72] | 9,0 [12.06] | 105 [1520] | 140 [2030] | 140 [2030] | 175 [2540] | 40 [10.5] |
| MRNA 250 | 250,1 [15.26] | 200 | 30 [2650] | 39 [3450] | 39 [3450] | 47 [4160] | 5,0 [6.71] | 7,0 [9.39] | 6,0 [8.05] | 9,0 [12.06] | 80 [1160] | 110 [1600] | 110 [1600] | 140 [2030] | 50 [13.2] |
| MRNA 315 | 315,7 [19.26] | 190 | 30 [2650] | 42 [3720] | 36 [3450] | 47 [4160] | 5,0 [6.71] | 7,5 [10.05] | 6,0 [8.05] | 8,5 [11.4] | 70 [1020] | 100 [1450] | 85 [1230] | 115 [1670] | 65 [17.2] |
| MRNA 400 | 397,0 [24.4] | 150 | 30 [2650] | 40 [3540] | 38 [3260] | 47 [4160] | 4,0 [5.36] | 6,5 [8.72] | 6,0 [8.05] | 7,0 [9.39] | 55 [800] | 70 [1015] | 65 [940] | 90 [1300] | 60 [15.8] |

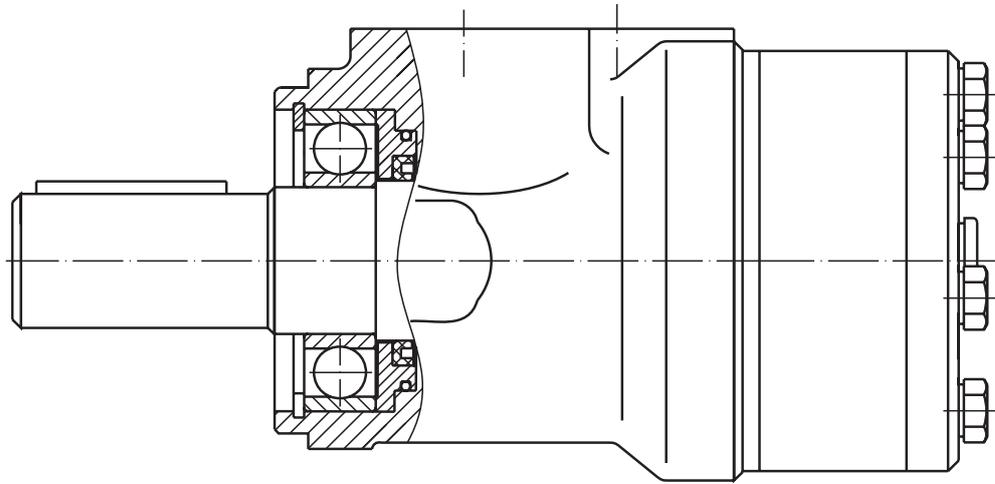
* Intermittent operation: the permissible values may occur for max. 10% of every minute.

HYDRAULIC MOTORS MRFL

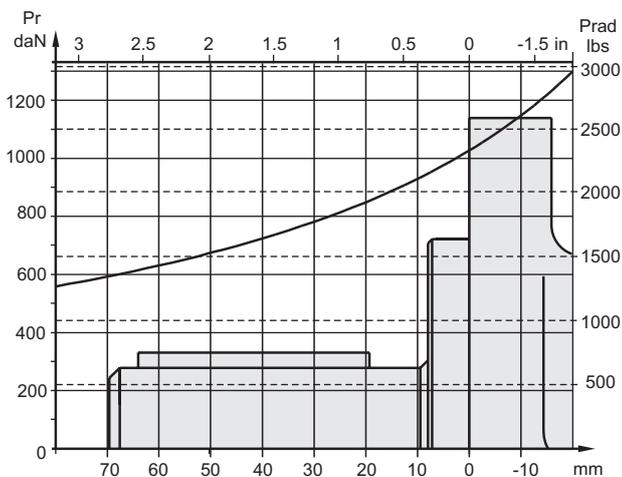
The hydraulic motors type MRFL... and MLHRFL... are designed for use in operating modes with peak radial loads of the output shaft (especially at starting and stopping) at direct drive of wheels or mechanisms (without clutch or gearbox).

The radial loads are borne by a radial ball bearing which is mounted on the shaft of the hydraulic motor.

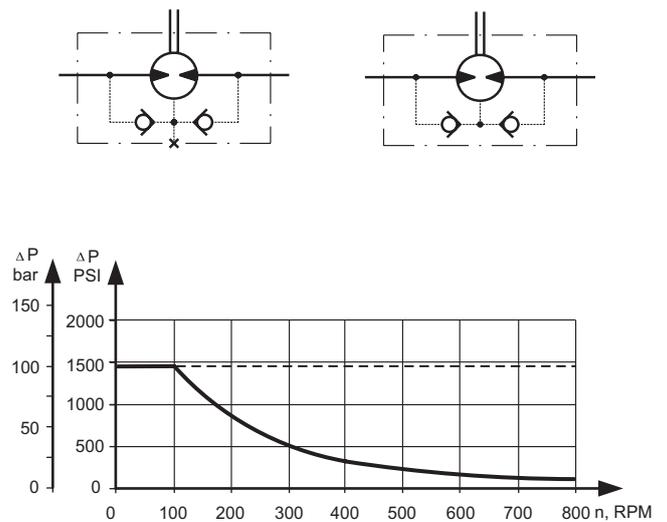
The main technical features correspond to the standard motors series MRF $\varnothing 35$ [1.378 in.] sealing diameter. There are no changes in the overall and mounting dimensions. For detail technical and mounting data please refer to MR catalogue.



PERMISSIBLE SHAFT LOADS



MAX. PERMISSIBLE SHAFT SEAL PRESSURE



- - continuous operations
- - - - - intermittent operations

SPECIFICATION DATA

| Type | MRB 50 C/C | MRB 80 C/C | MRB 100 C/C | MRB 125 C/C | MRB 160 C/C | MRB 200 C/C | MRB 250 C/C | MRB 315 C/C | MRB 400 C/C |
|--|-------------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Displacement, cm³/rev [in³/rev] | 51,5[3.14] | 80,3[4.9] | 99,8[6.09] | 125,7[7.67] | 159,6[9.74] | 199,8[12.19] | 250,1[15.26] | 315,7[19.26] | 397 [24.4] |
| Max. Speed, RPM | 775 | 750 | 600 | 475 | 375 | 300 | 240 | 190 | 150 |
| | int.* | 970 | 940 | 750 | 600 | 470 | 375 | 300 | 240 |
| Max. Torque, daNm [lb-in] | 10 [885] | 19,5 [1725] | 24 [2125] | 30 [2655] | 30 [2655] | 30 [2655] | 30 [2655] | 30 [2655] | 30 [2655] |
| | int.* | 13 [1150] | 22 [1947] | 28 [2480] | 34 [3010] | 39 [3450] | 39 [3450] | 38 [3360] | 42 [3720] |
| Max. Torque "A" Shaft, daNm [lb-in] | 8 [710] | 11,5 [1000] | 12 [1060] | 20 [1770] | 20 [1770] | 20 [1770] | 20 [1770] | 20 [1770] | 20 [1770] |
| | int.* | 9,5 [840] | 13 [1150] | 14 [1240] | 23 [2035] | 23 [2035] | 23 [2035] | 23 [2035] | 23 [2035] |
| Max. Torque "B" Shaft, daNm [lb-in] | 4 [355] | 11,5 [1000] | 12 [1060] | 20 [1770] | 20 [1770] | 20 [1770] | 20 [1770] | 20 [1770] | 20 [1770] |
| | int.* | 5 [440] | 13 [1150] | 14 [1240] | 23 [2035] | 23 [2035] | 23 [2035] | 23 [2035] | 23 [2035] |
| Max. Output, [kW] [HP] | 7 [9.5] | 12,5 [17] | 13 [1150] | 12,5 [17] | 10 [13.4] | 8 [10.7] | 6 [8.0] | 5 [6.7] | 4 [5.4] |
| | int.* | 8,5 [11.9] | 15 [20.1] | 15 [20.1] | 14,5 | 12,5 [17] | 10 [13.4] | 8 [10.7] | 6 [8.0] |
| Max. Pressure Drop, bar [PSI] | 140 [2030] | 175 [2540] | 175 [2540] | 175 [2540] | 130 [1885] | 110 [1600] | 80 [1160] | 70 [1020] | 55 [800] |
| | int.* | 175 [2540] | 200 [2900] | 200 [2900] | 200 [2900] | 175 [2540] | 140 [2030] | 110 [1600] | 100 [1450] |
| Max. Oil Flow, lpm [GPM] | 40 [10.5] | 60 [15.9] | 60 [15.9] | 60 [15.9] | 60 [15.9] | 60 [15.9] | 60 [15.9] | 60 [15.9] | 60 [15.9] |
| | int.* | 50 [13.2] | 75 [18.5] | 75 [18.5] | 75 [18.5] | 75 [18.5] | 75 [18.5] | 75 [18.5] | 75 [18.5] |
| Max. Return Pressure without Drain Line, bar [PSI] | cont. 0 - 100 RPM | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] |
| | cont. 100-200 RPM | 50 [730] | 50 [730] | 50 [730] | 50 [730] | 50 [730] | 50 [730] | 50 [730] | 50 [730] |
| | cont. 200-500 RPM | 20 [290] | 20 [290] | 20 [290] | 20 [290] | 20 [290] | 20 [290] | 20 [290] | 20 [290] |
| | int.* 0 - max RPM | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] | 75 [1090] |

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

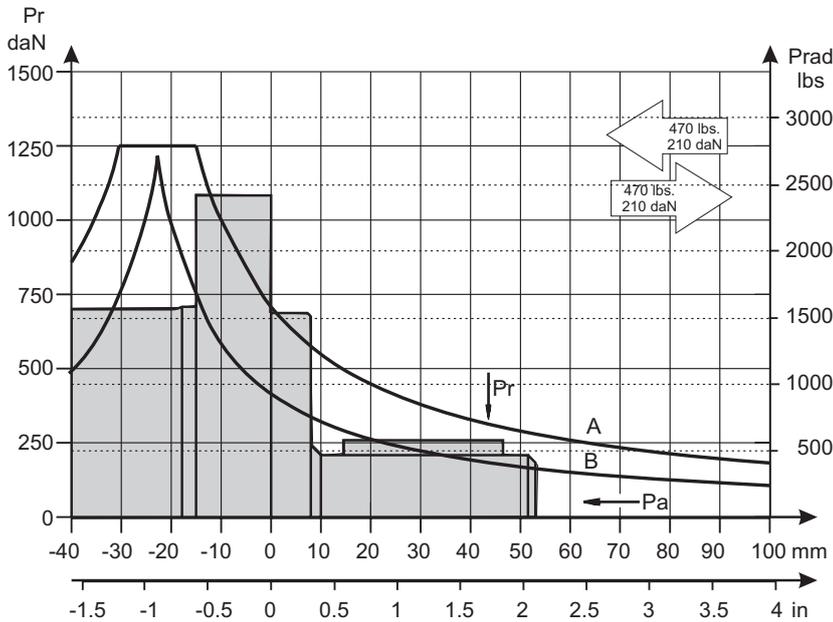
1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4).
If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

PERMISSIBLE SHAFT LOADS

The load diagrams are valid for an average bearings life of 1600 hrs at 200 r.p.m. with mineral base lubricating containing antiwear additives (ref.ISO 281 (3.3)standard).

The "A" curve gives the maximum static load affordable by the bearings.

The "B" curve gives the radial load top limit without axial load of 200 daN.



ORDER CODE

| | | | | | |
|-----|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| MRB | | / | | | |

Pos. 1 - Displacement code

- 50** - 51,5 cm³/rev [3.14 in³/rev]
- 80** - 80,3 cm³/rev [4.90 in³/rev]
- 100** - 99,8 cm³/rev [6.09 in³/rev]
- 125** - 125,7 cm³/rev [7.67 in³/rev]
- 160** - 159,6 cm³/rev [9.74 in³/rev]
- 200** - 199,8 cm³/rev [12.19 in³/rev]
- 250** - 250,1 cm³/rev [15.26 in³/rev]
- 315** - 315,7 cm³/rev [19.26 in³/rev]
- 400** - 397,0 cm³/rev [24.40 in³/rev]

Pos. 2 - "A" Shaft Extensions*

- C** - ø25 straight, Parallel key A8x7x30 DIN6885

Pos. 3 - "B" Shaft Extensions*

- C** - ø25 straight, Parallel key A8x7x30 DIN6885

Pos. 4 - Special Features

- omit - none
- LSV** - Low Speed Valve

Pos. 5 - Option (Paint)**

- omit - no Paint
- P** - Painted
- PC** - Corrosion Protected Paint

Pos. 6 - Design Series

- omit - Factory specified

NOTES:

- * For other shaft extensions please contact with us.
- ** Color at customer's request.

The hydraulic motors are manganophosphatized as standard.