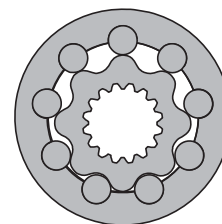
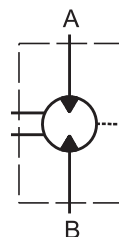


HYDRAULIC MOTORS VMF



APPLICATION

- » Marine equipment
- » Forestry equipment
- » Metal working machines
- » Agricultural machines
- » Road building machines
- » Mining machinery
- » Special vehicles etc.



CONTENTS

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| Permissible shaft loads | 56 |
| Dimensions and mounting | 57 |
| Permissible shaft seal pressure | 57 |
| Order code | 57 |

OPTIONS

- » Model - Disc valve, roll-gerotor
- » Wheel mounting flange
- » Side ports
- » Shaft - thread hole flange
- » SAE and BSPP ports
- » Other special features

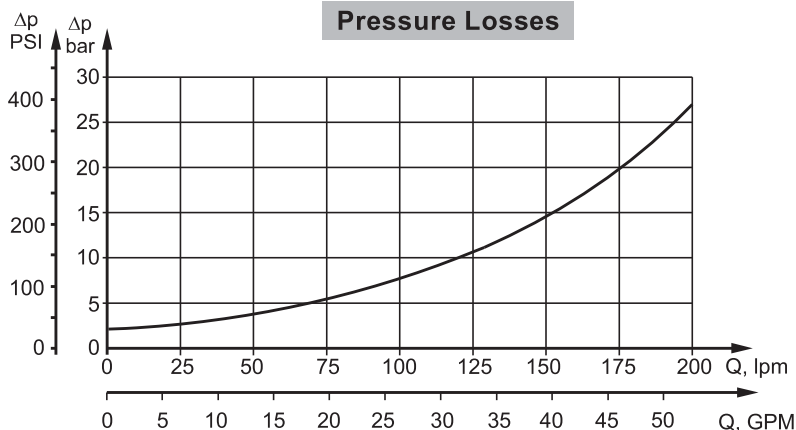
GENERAL

| | |
|---|--|
| Max. Displacement, cm ³ /rev [in ³ /rev] | 801,8 [48.91] |
| Max. Speed, [RPM] | 736 |
| Max. Torque, daNm [lb-in] | cont.: 259 [22920] int.: 340 [30090] |
| Max. Output, kW [HP] | 112 [150] |
| Max. Pressure Drop, bar [PSI] | cont.: 250 [3630] int.: 350 [5080] |
| Max. Oil Flow, lpm [GPM] | 240 [63.4] |
| Min. Speed, [RPM] | 5 |
| Permissible Shaft Loads, daN [lbs] | Pa=1500 [3370] |
| 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] |
|----------------------------|---------------------------------------|--|
| 140 [2030] | 20 [98] | 3 [.793] |
| | 35 [164] | 2 [.528] |
| 210 [3045] | 20 [98] | 6 [1.585] |
| | 35 [164] | 4 [1.057] |

Pressure Losses



SPECIFICATION DATA

| Type | VMF 315 | VMF 400 | VMF 500 | VMF 630 | VMF 800 | |
|--|---------------|--------------|--------------|---------------|---------------|-------------|
| Displacement, cm³/rev [in³/rev] | 314,5 [19.18] | 400,9 [24.5] | 499,6 [30.5] | 629,1 [38.38] | 801,8 [48.91] | |
| Max. Speed, [RPM] | cont. | 636 | 500 | 400 | 315 | 250 |
| | Int.* | 736 | 600 | 480 | 380 | 300 |
| Max. Torque daNm [lb-in] | cont. | 115 [10180] | 144 [12745] | 180 [15930] | 227 [20090] | 259 [22920] |
| | Int.* | 160 [14160] | 200 [17700] | 260 [23010] | 310 [27440] | 340 [30090] |
| | peak** | 180 [15930] | 230 [20355] | 286 [25315] | 360 [31860] | 402 [35580] |
| Max. Output kW [HP] | cont. | 67 [90] | 67 [90] | 67 [90] | 67 [90] | 67 [90] |
| | int.* | 112 [150] | 112 [150] | 112 [150] | 112 [150] | 112 [150] |
| Max. Pressure Drop bar [PSI] | cont. | 250 [3630] | 250 [3630] | 250 [3630] | 250 [3630] | 225 [3263] |
| | Int.* | 350 [5080] | 350 [5080] | 350 [5080] | 350 [5080] | 300 [4350] |
| | peak** | 400 [5800] | 400 [5800] | 400 [5800] | 400 [5800] | 350 [5080] |
| Max. Oil Flow lpm [GPM] | cont. | 200 [52.8] | 200 [52.8] | 200 [52.8] | 200 [52.8] | 200 [52.8] |
| | Int.* | 240 [63.4] | 240 [63.4] | 240 [63.4] | 240 [63.4] | 240 [63.4] |
| Max. Inlet Pressure bar [PSI] | cont. | 270 [3915] | 270 [3915] | 270 [3915] | 270 [3915] | 270 [3915] |
| | Int.* | 370 [5365] | 370 [5365] | 370 [5365] | 370 [5365] | 370 [5365] |
| | peak** | 420 [6090] | 420 [6090] | 420 [6090] | 420 [6090] | 420 [6090] |
| Max. Return Pressure with Drain Line bar [PSI] | cont. | 140 [2030] | 140 [2030] | 140 [2030] | 140 [2030] | 140 [2030] |
| | Int.* | 175 [2540] | 175 [2540] | 175 [2540] | 175 [2540] | 175 [2540] |
| | peak** | 210 [3045] | 210 [3045] | 210 [3045] | 210 [3045] | 210 [3045] |
| Max. Starting Pressure with Unloaded Shaft, bar [PSI] | 5 [70] | 5 [70] | 5 [70] | 5 [70] | 5 [70] | |
| Min. Starting Torque daNm [lb-in] | 92 [8140] | 115 [10180] | 144 [12745] | 180 [15930] | 205 [18145] | |
| Min. Speed***, [RPM] | 10 | 6 | 8 | 6 | 5 | |
| Weight, kg [lb] | 46 [101.4] | 47,2 [104,1] | 48,5 [106.9] | 50 [110.2] | 51,5 [113.5] | |

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

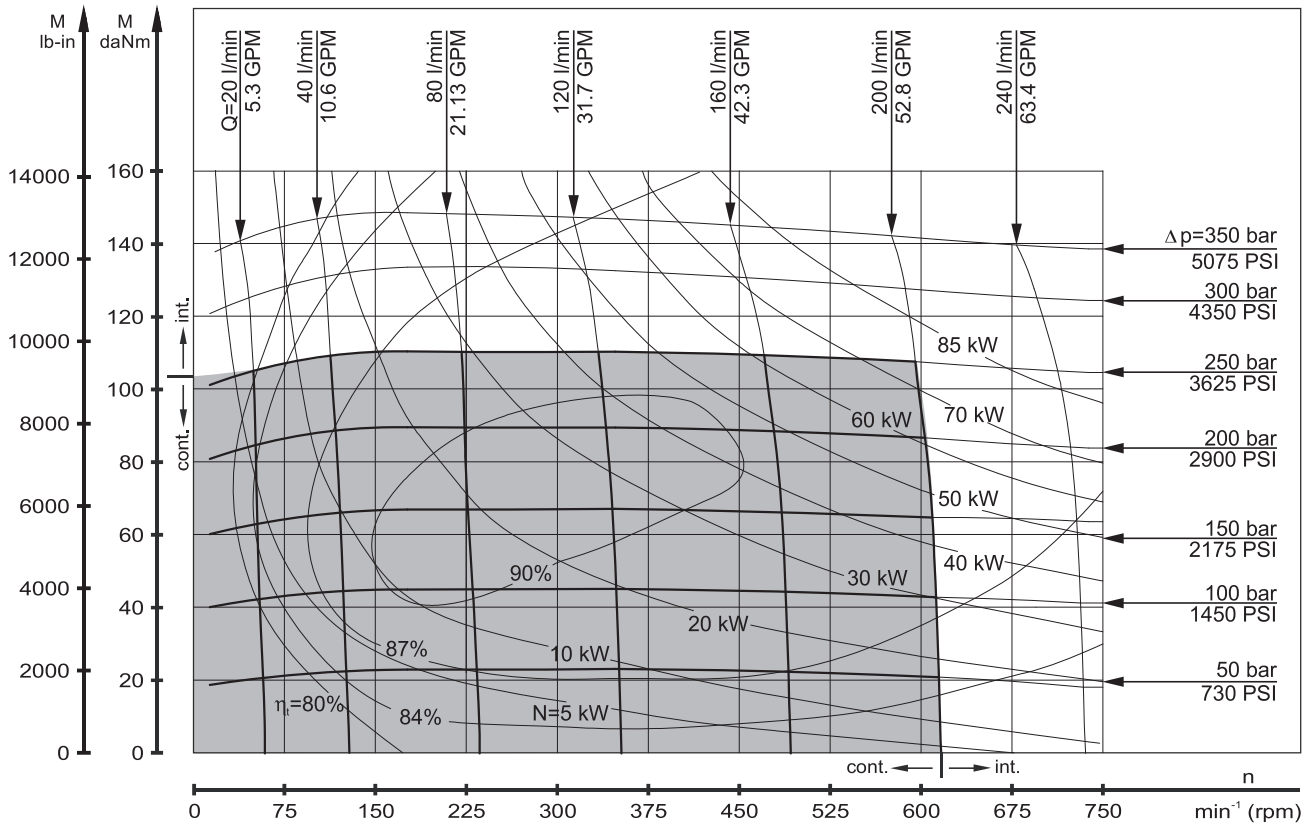
** Peak load: the permissible values may occur for max. 1% of every minute.

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

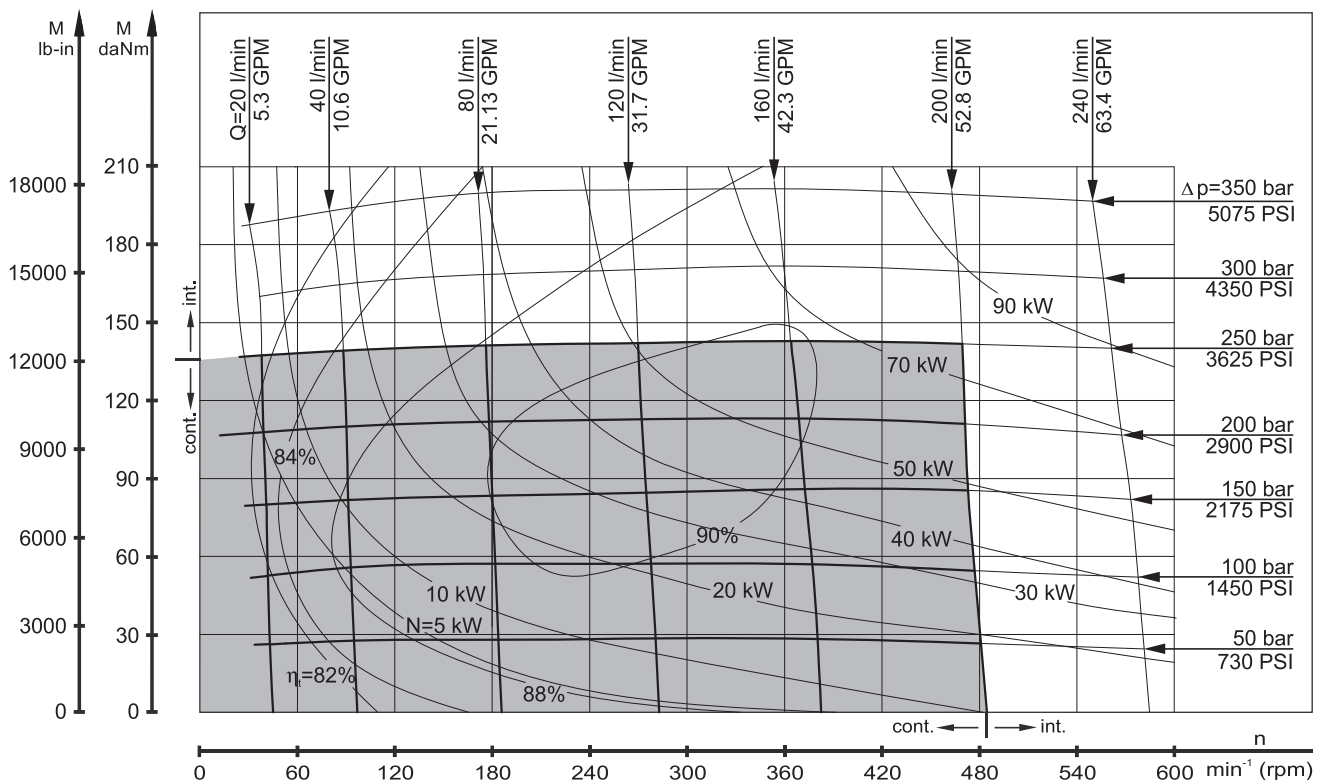
1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4).
If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

VMF 315



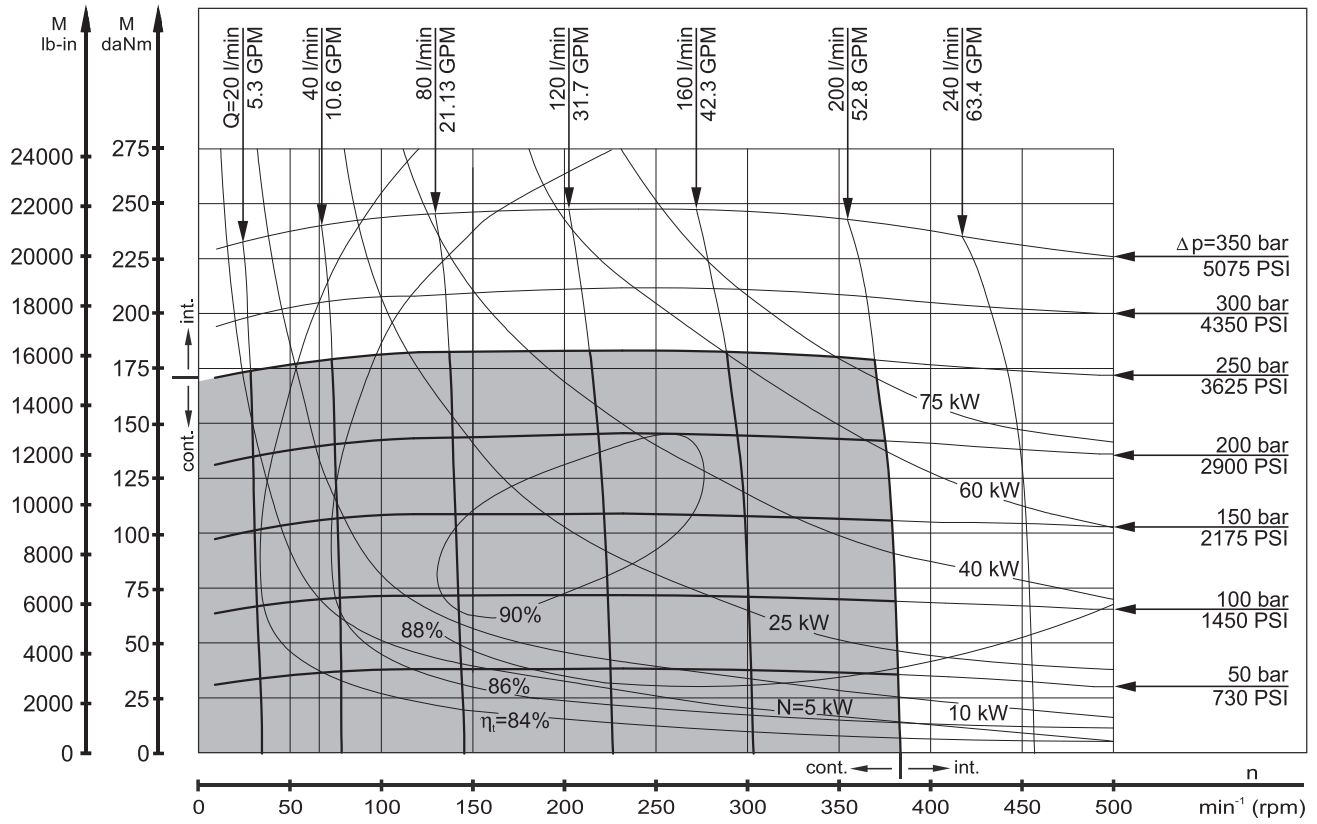
VMF 400



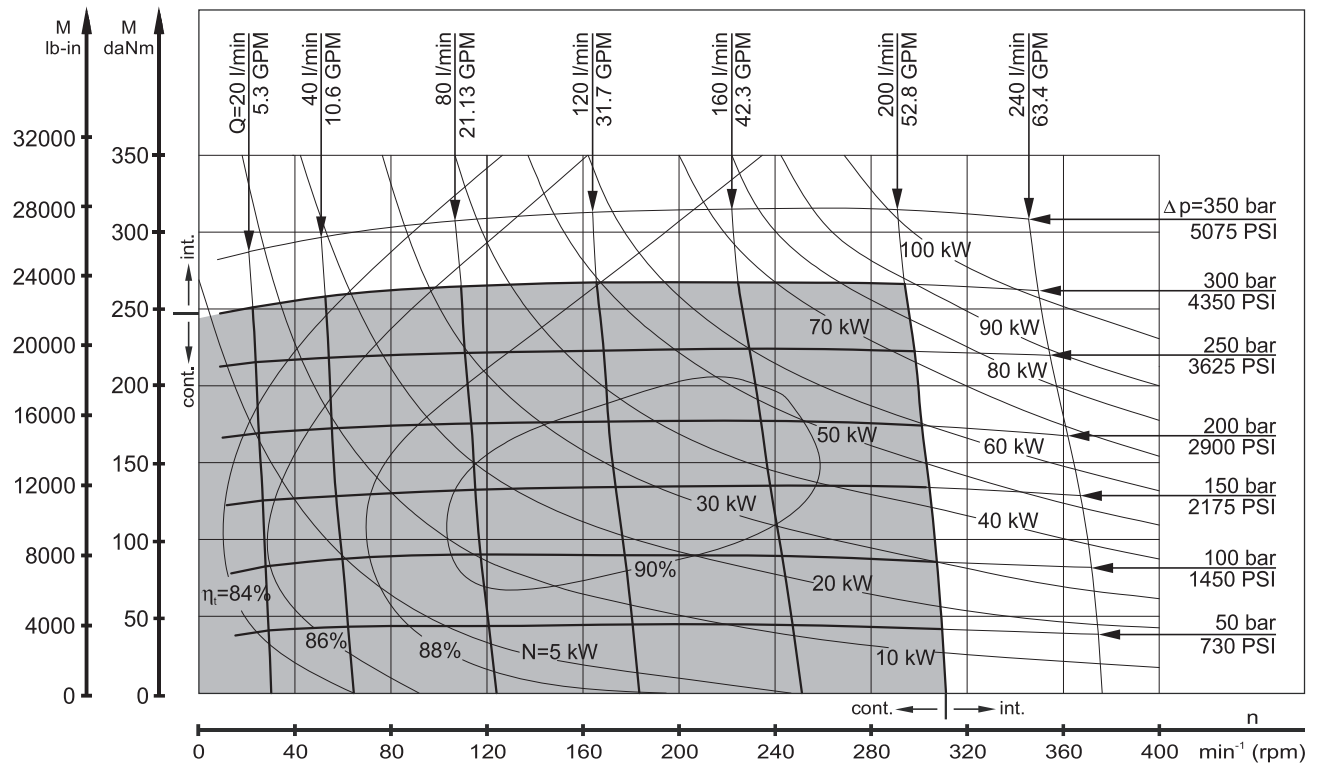
The function diagrams data was collected at back pressure 5÷10 bar (72.5PSI÷145PSI) and oil with viscosity of 32 mm²/s [150SUS] at 50° C [122°F].

FUNCTION DIAGRAMS

VMF 500



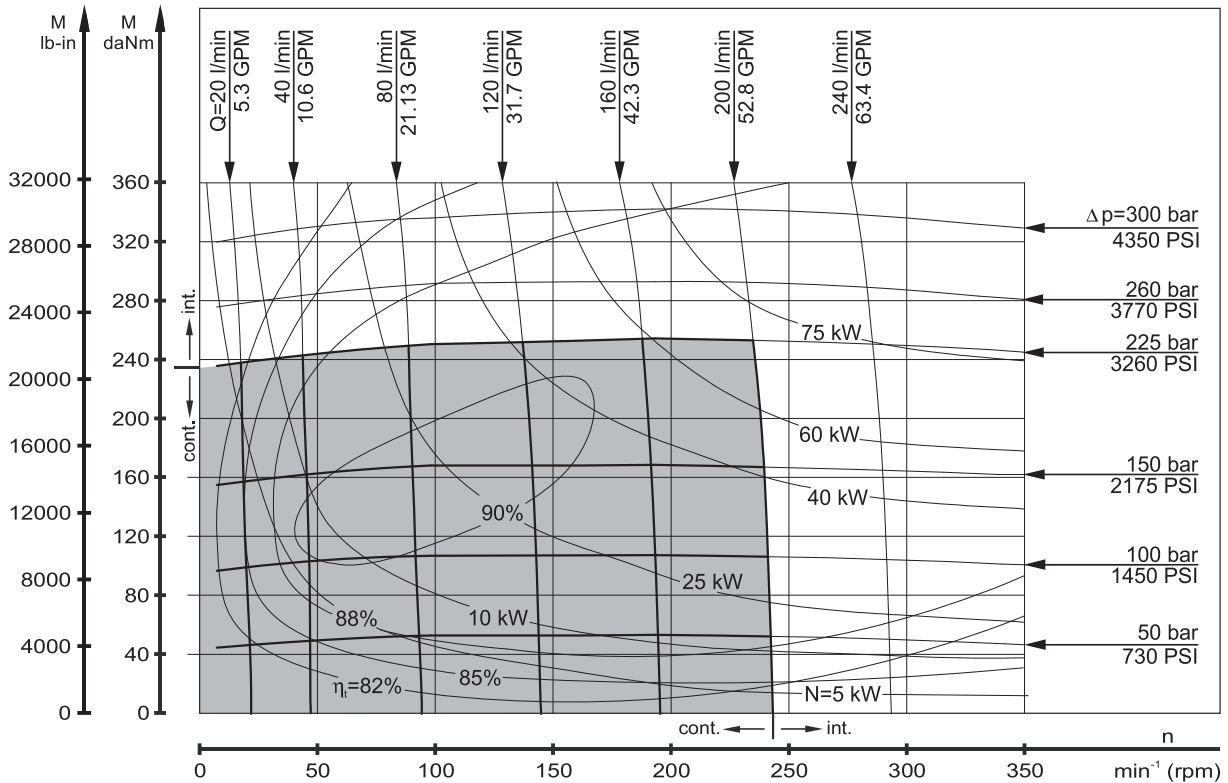
VMF 630



The function diagrams data was collected at back pressure 5÷10 bar (72.5PSI÷145PSI) and oil with viscosity of 32 mm²/s [150SUS] at 50° C [122°F].

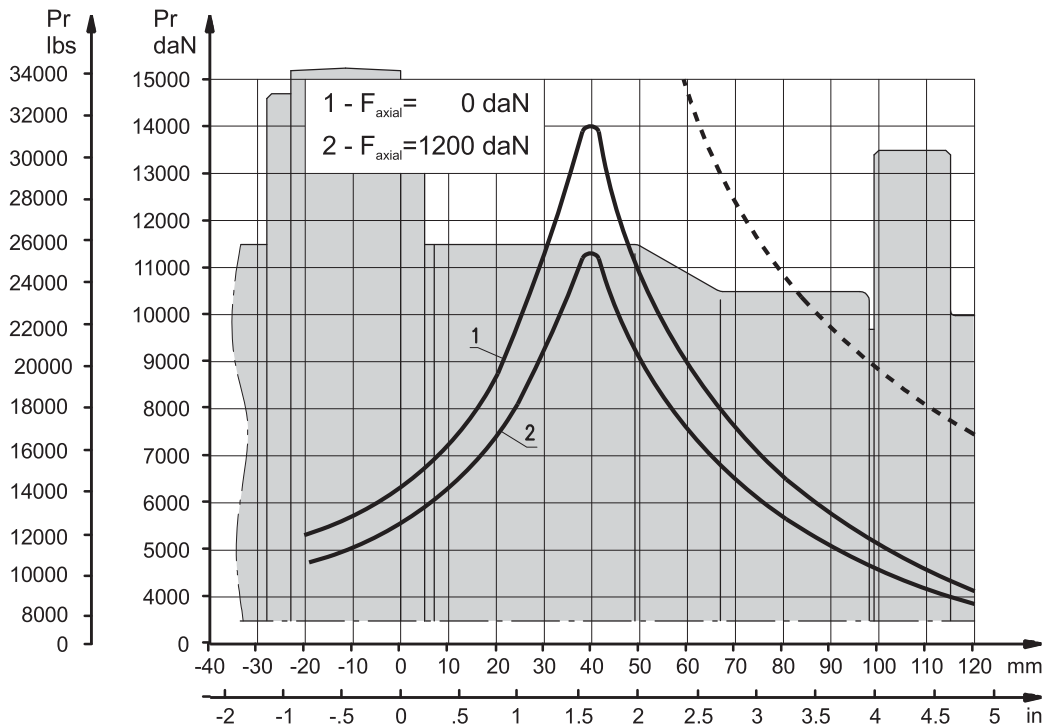
FUNCTION DIAGRAMS

VMF 800



The function diagrams data was collected at back pressure 5÷10 bar (72.5PSI÷145PSI) and oil with viscosity of 32 mm²/s [150SUS] at 50° C [122°F].

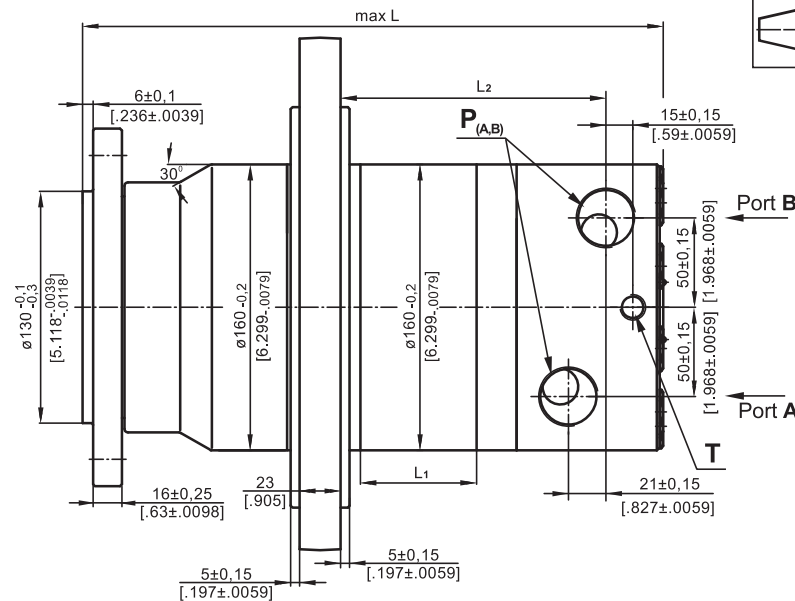
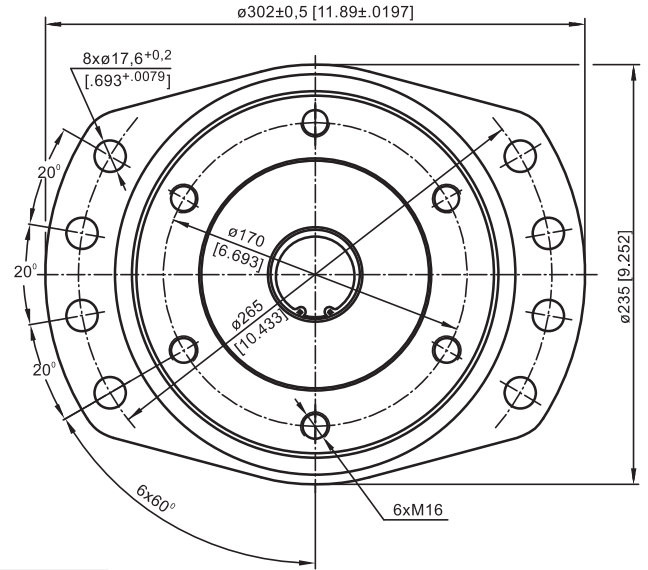
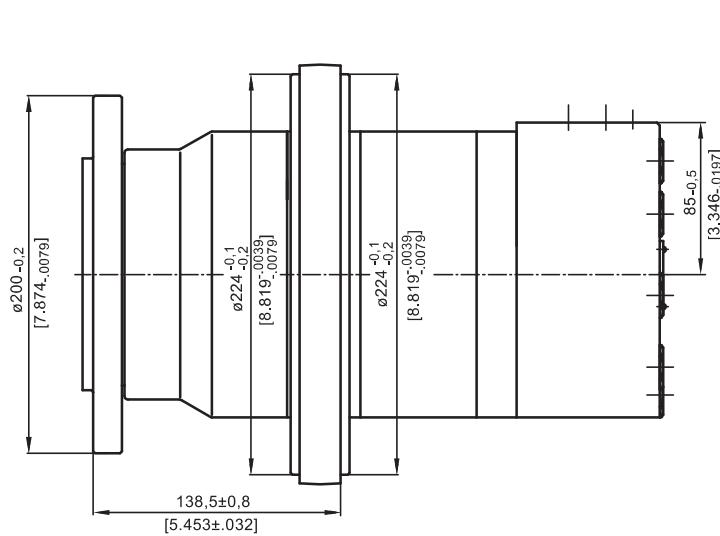
PERMISSIBLE SHAFT LOADS



1 - Bearing curve: The curve applies to a B10 bearing life of 2000 hours at 100 RPM.

2 - Shaft curve: The curve represents Max. permissible radial shaft load with safety factor 2:1.

DIMENSIONS AND MOUNTING DATA



| Versions | | |
|---------------|-------------------------------|--|
| | 2 | 4 |
| P(A,B) | 2xG1 | 2x1 ⁵ / ₁₆ -12UN |
| T | G ¹ / ₄ | 9 ¹ / ₁₆ -18UNF |

| Type | L, mm [in] | L1, mm [in] | L2, mm [in] |
|----------------|---------------|-------------|--------------|
| VMF 315 | 286,5 [11.28] | 25,5 [1.00] | 109,5 [4.31] |
| VMF 400 | 293,5 [11.56] | 32,5 [1.28] | 116,5 [4.59] |
| VMF 500 | 301,5 [11.87] | 40,5 [1.59] | 124,5 [4.90] |
| VMF 630 | 312,0 [12.28] | 51,0 [2.01] | 135,0 [5.31] |
| VMF 800 | 326,0 [12.83] | 65,0 [2.56] | 149,0 [5.87] |

ORDER CODE

| | | | | |
|------------|---|---|-----------|---|
| | 1 | 2 | 3 | 4 |
| VMF | | | HD | |

Pos.1 - Displacement code

- 315** - 314,5 cm³/rev [19.18 in³/rev]
- 400** - 400,9 cm³/rev [24.45 in³/rev]
- 500** - 499,6 cm³/rev [30.48 in³/rev]
- 630** - 629,1 cm³/rev [38.38 in³/rev]
- 800** - 801,8 cm³/rev [48.91 in³/rev]

Pos.2 - Ports

- 2** - side ports, 2xG1, G¹/₄, BSP thread, ISO 228
- 4** - side ports, 2x1⁵/₁₆-12 UN, O-ring, 9¹/₁₆-18 UNF

Pos.3 - Special Features

- HD** - Reinforced motor HD*
- For Other **Special Features** [see page 58](#)

Pos.4 - Design Series

- omit - Factory specified

* Drain line should always be used.

Warning: Drain line should always be used.

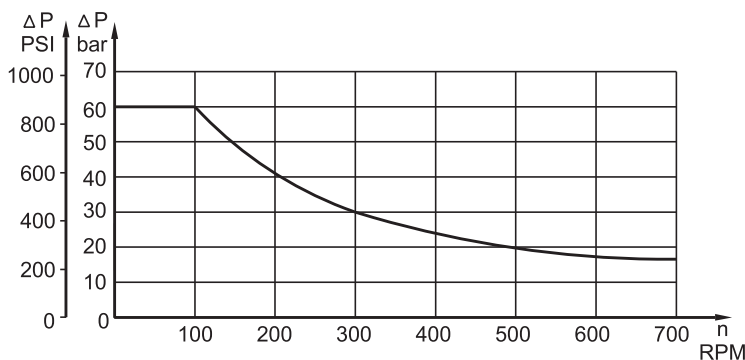
Standard Rotation

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



The hydraulic motors are manganophosphatized as standard.

MOTOR SPECIAL FEATURES

| Special Feature Description | Order Code | Motor type | | | | | | |
|-----------------------------|------------|------------|-----|-----|-----|-----|------|-----|
| | | MSWM | MTK | MTM | TMF | MVM | MVMC | VMF |
| Speed Sensor* | RS | O | O | O | O | O | - | O |
| Reinforced motor | HD | - | S | S | S | S | S | S |
| Low Leakage | LL | O | O | O | O | O | O | O |
| Low Speed Valving | LSV | O | O | O | O | O | O | O |
| Free Running | FR | - | O | - | - | - | O | - |
| Reverse Rotation | R | O | O | O | O | O | O | O |
| Paint** | P | O | O | O | O | O | O | O |
| Corrosion Protected Paint** | PC | O | O | O | O | O | O | O |
| Special Paint*** | PS | O | O | O | O | O | O | O |
| | PCS | O | O | O | O | O | O | O |
| Check Valves | | S | O | O | - | O | O | - |

| | |
|----------|----------------|
| O | Optional |
| - | Not applicable |
| S | Standard |

* For sensor ordering see pages 59÷60.

** Colour at customer's request.

*** Non painted feeding surfaces, colour at customer's request.

 For more information about **HD** option please contact with "M+S Hydraulic".