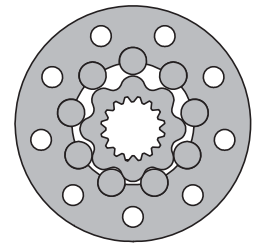
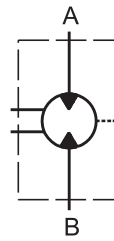


HYDRAULIC MOTORS TMF



APPLICATION

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



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| Dimensions and mounting TMF..... | 40 |
| Dimensions and mounting TMFA | 41 |
| Permissible shaft loads | 42 |
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OPTIONS

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

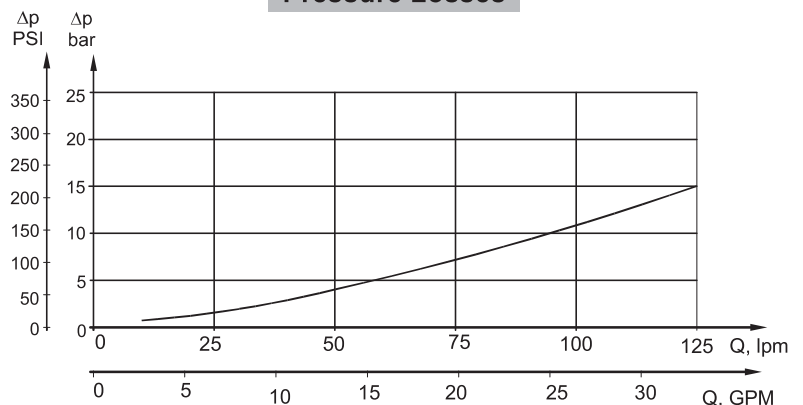
GENERAL

| | |
|---|---|
| Max. Displacement, cm ³ /rev [in ³ /rev] | 724,3 [44.2] |
| Max. Speed, [RPM] | 750 |
| Max. Torque, daNm [lb-in] | cont.: 175 [15490] int.: 215 [16030] |
| Max. Output, kW [HP] | 70 [94] |
| Max. Pressure Drop, bar [PSI] | cont.: 250 [3600] int.: 350 [5080] |
| Max. Oil Flow, lpm [GPM] | 150 [40] |
| Min. Speed, [RPM] | 5 |
| Permissible Shaft Loads daN [lbs] | P _a =1000 [2250] |
| 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] |
|----------------------------|---------------------------------------|--|
| 200 [2900] | 20 [98] | 2,5 [.660] |
| | 35 [164] | 1,5 [.400] |
| 275 [3990] | 20 [98] | 4 [1.057] |
| | 35 [164] | 2,5 [.660] |

Pressure Losses



SPECIFICATION DATA

| Type | TMF 200 | TMF 250 | TMF 315 | TMF 400 | TMF 470 | TMF 500 | TMF 630 | TMF 725 | |
|--|-------------------|------------------|-----------------|------------------|----------------|------------------|------------------|---------------|------------|
| Displacement, cm³/rev [in³/rev] | 201,4 [12.29] | 251,8 [15.36] | 326,3 [19.9] | 410,9 [25.06] | 475 [28.97] | 523,6 [31.95] | 631,2 [38.52] | 724 [44.2] | |
| Max. Speed, [RPM] | Cont. | 625 | 500 | 380 | 305 | 260 | 240 | 185 | |
| | Int.* | 750 | 600 | 460 | 365 | 315 | 285 | 225 | |
| Max. Torque daNm [lb-in] | Cont. | 74 [6550] | 90[7965] | 116[10265] | 147[13010] | 171[15135] | 172[15225] | 175[15490] | 160[14160] |
| | Int.* | 102 [9030] | 128[11330] | 163[14425] | 206[18232] | 215[16030] | 215[19030] | 215[19030] | 192[17000] |
| | Peak** | 115[10180] | 144[12745] | 186[16460] | 235[20800] | 240[21240] | 240[21240] | 250[21225] | 240[21240] |
| Max. Output kW [HP] | Cont. | 41 [55] | 41 [55] | 41 [55] | 41 [55] | 41 [55] | 37,5 [50] | 28 [37,5] | 26 [35] |
| | Int.* | 65 [87] | 70 [94] | 70 [94] | 70 [94] | 55 [74] | 51 [68] | 42 [56] | 40 [54] |
| Max. Pressure Drop bar [PSI] | Cont. | 250[3600] | 250[3600] | 250[3600] | 250[3600] | 250[3600] | 230[3340] | 185[2680] | 160[2320] |
| | Int.* | 350[5080] | 350[5080] | 350[5080] | 350[5080] | 350[5080] | 280[4060] | 225[3260] | 210[3045] |
| | Peak** | 400[5800] | 400[5800] | 400[5800] | 400[5800] | 400[5800] | 320[4640] | 270[3915] | 260[3770] |
| Max. Oil Flow lpm [GPM] | Cont. | 125[33] | 125[33] | 125[33] | 125[33] | 125[33] | 125[33] | 125[33] | 125[33] |
| | Int.* | 150[40] | 150[40] | 150[40] | 150[40] | 150[40] | 150[40] | 150[40] | 150[40] |
| Max. Inlet Pressure bar [PSI] | Cont. | 270[3920] | 270[3920] | 270[3920] | 270[3920] | 270[3920] | 270[3920] | 270[3920] | 270[3920] |
| | Int.* | 370[5370] | 370[5370] | 370[5370] | 370[5370] | 370[5370] | 370[5370] | 370[5370] | 370[5370] |
| | Peak** | 420[6100] | 420[6100] | 420[6100] | 420[6100] | 420[6100] | 420[6100] | 420[6100] | 420[6100] |
| Max. Return Pressure without Drain Line or Max. Pressure in Drain Line, bar [PSI] | Cont. 0-100 RPM | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] |
| | Cont. 100-300 RPM | 40 [580] | 40 [580] | 40 [580] | 40 [580] | 40 [580] | 40 [580] | 40 [580] | 40 [580] |
| | Cont. >300 RPM | 20 [290] | 20 [290] | 20 [290] | 20 [290] | 20 [290] | - | - | - |
| | Int.* 0-max. RPM | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] | 75 [1100] |
| Max. Return Pressure with Drain Line bar [PSI] | Cont. | 140[2000] | 140[2000] | 140[2000] | 140[2000] | 140[2000] | 140[2000] | 140[2000] | 140[2000] |
| | Int.* | 175[2500] | 175[2500] | 175[2500] | 175[2500] | 175[2500] | 175[2500] | 175[2500] | 175[2500] |
| | Peak** | 210[3000] | 210[3000] | 210[3000] | 210[3000] | 210[3000] | 210[3000] | 210[3000] | 210[3000] |
| Max. Starting Pressure with Unloaded Shaft, bar [PSI] | 6 [90] | 6 [90] | 6 [90] | 6 [90] | 6 [90] | 6 [90] | 6 [90] | 6 [90] | |
| Min. Starting Torque daNm [lb-in] | 60[5310] | 75[6640] | 97[8585] | 122[10800] | 142[12570] | 143[12655] | 145[12830] | 148[13100] | |
| Min. Speed***, [RPM] | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| Weight, kg [lb] | 26,9[59.3] | 27,3[60.2] | 28,1[62] | 29 [64] | 29,7[65.5] | 30,2[66.6] | 29,7[65.5] | 31[68.4] | |

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

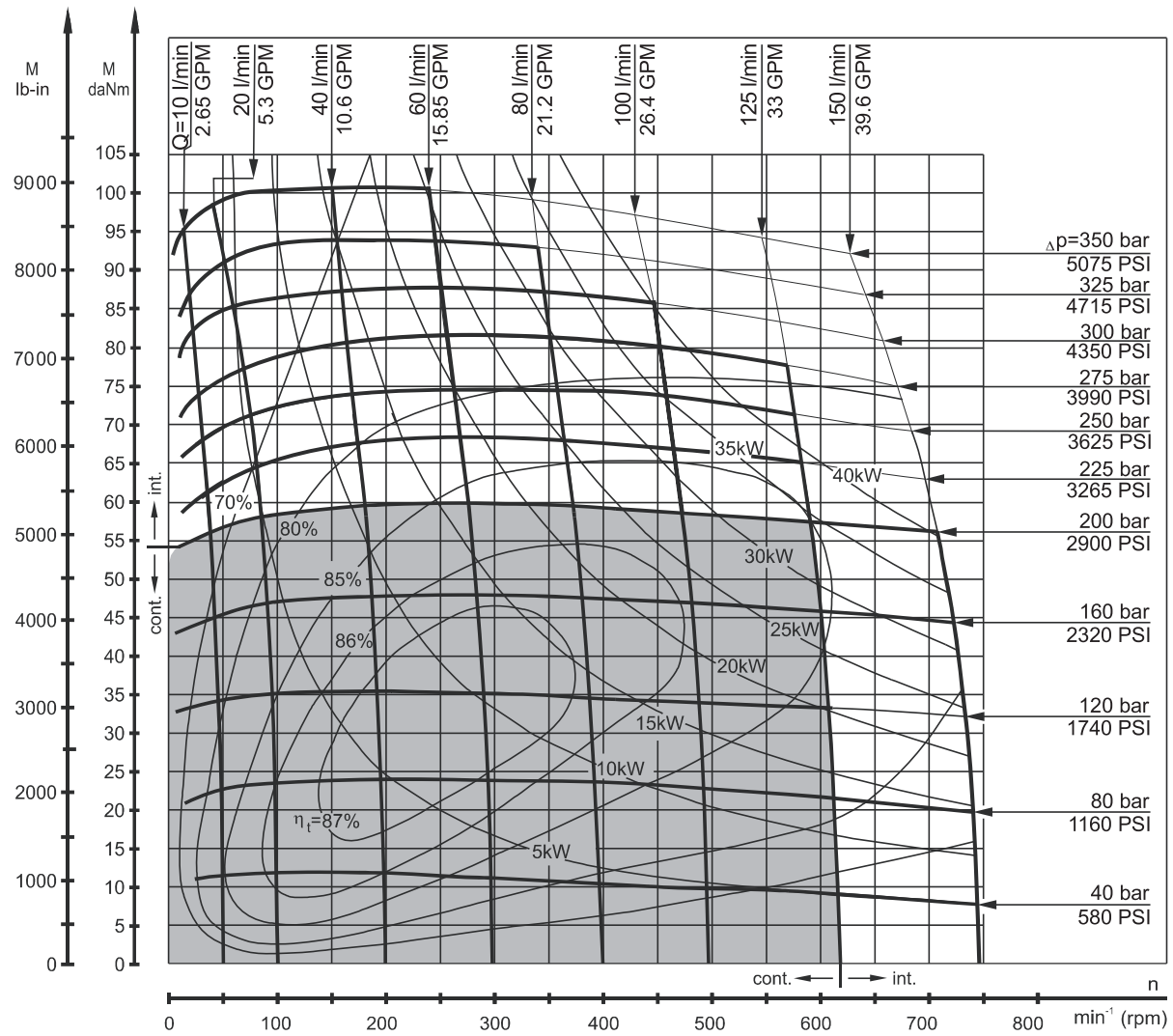
** Peak load: the permissible values may occur for max. 1% of every minute.

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

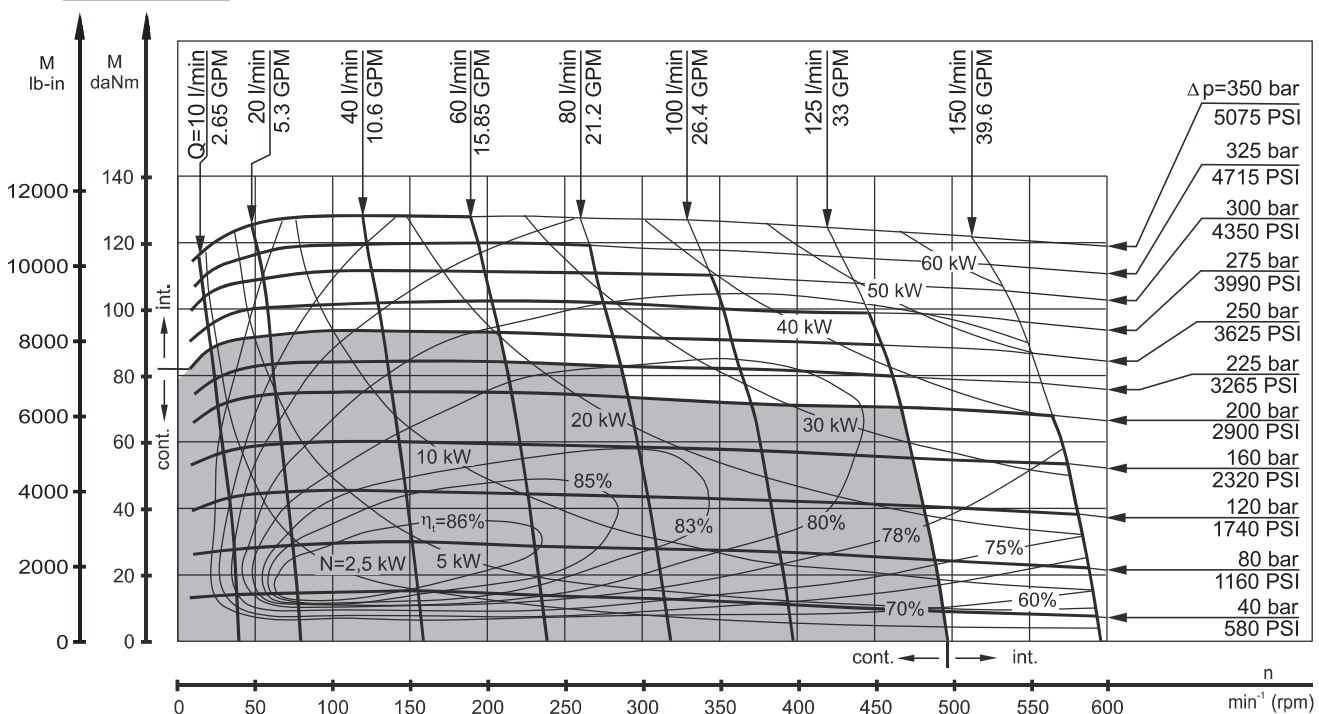
1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil, HLP(DIN51524) or HM(ISO6743/4). If using synthetic fluids consult the factory for alternative seal materials.
4. Recommended minimum oil viscosity 70 SUS [13 cm²/s] 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

TMF 200



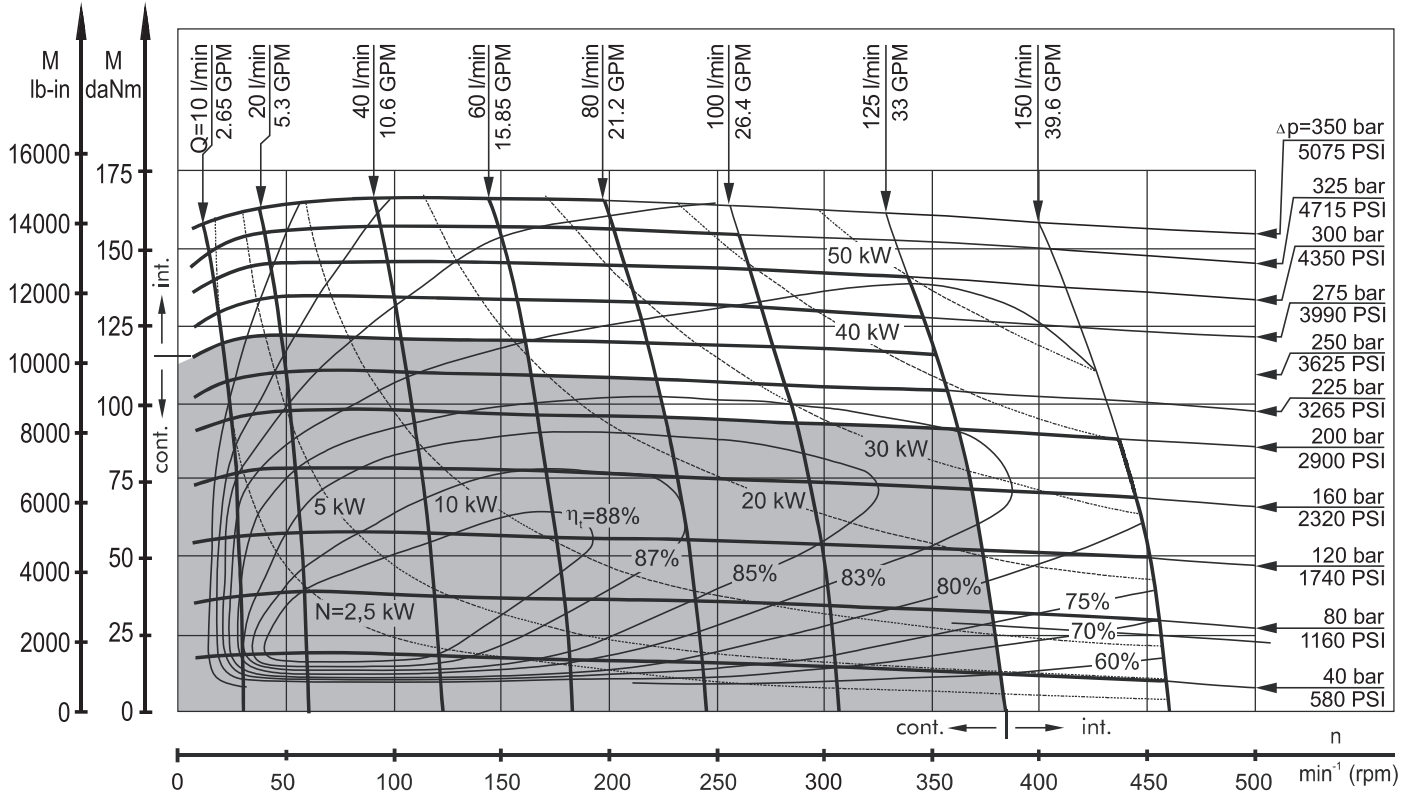
TMF 250



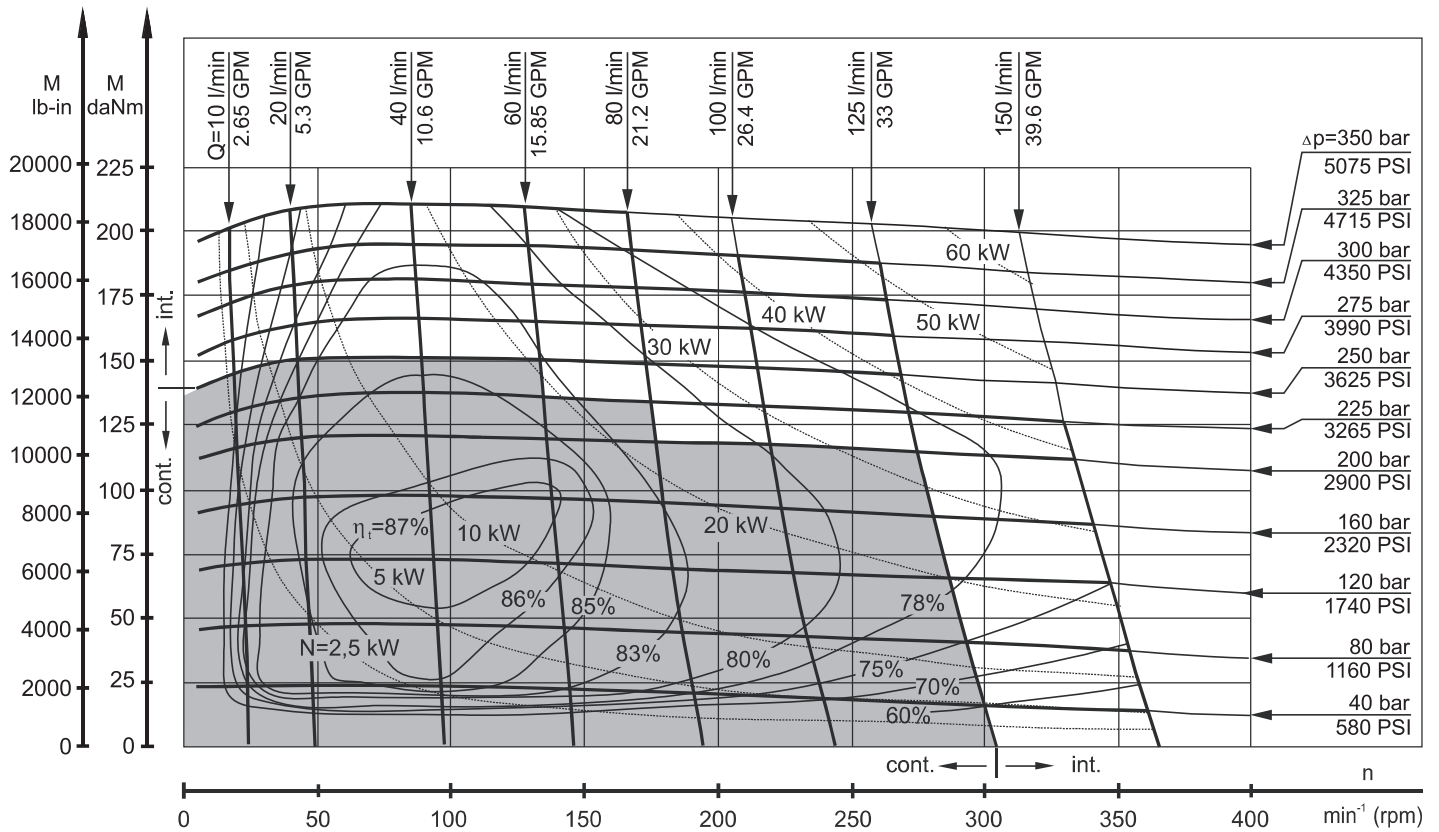
The function diagrams data was collected at back pressure 5÷10 bar (72.5 PSI÷145 PSI) and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

TMF 315



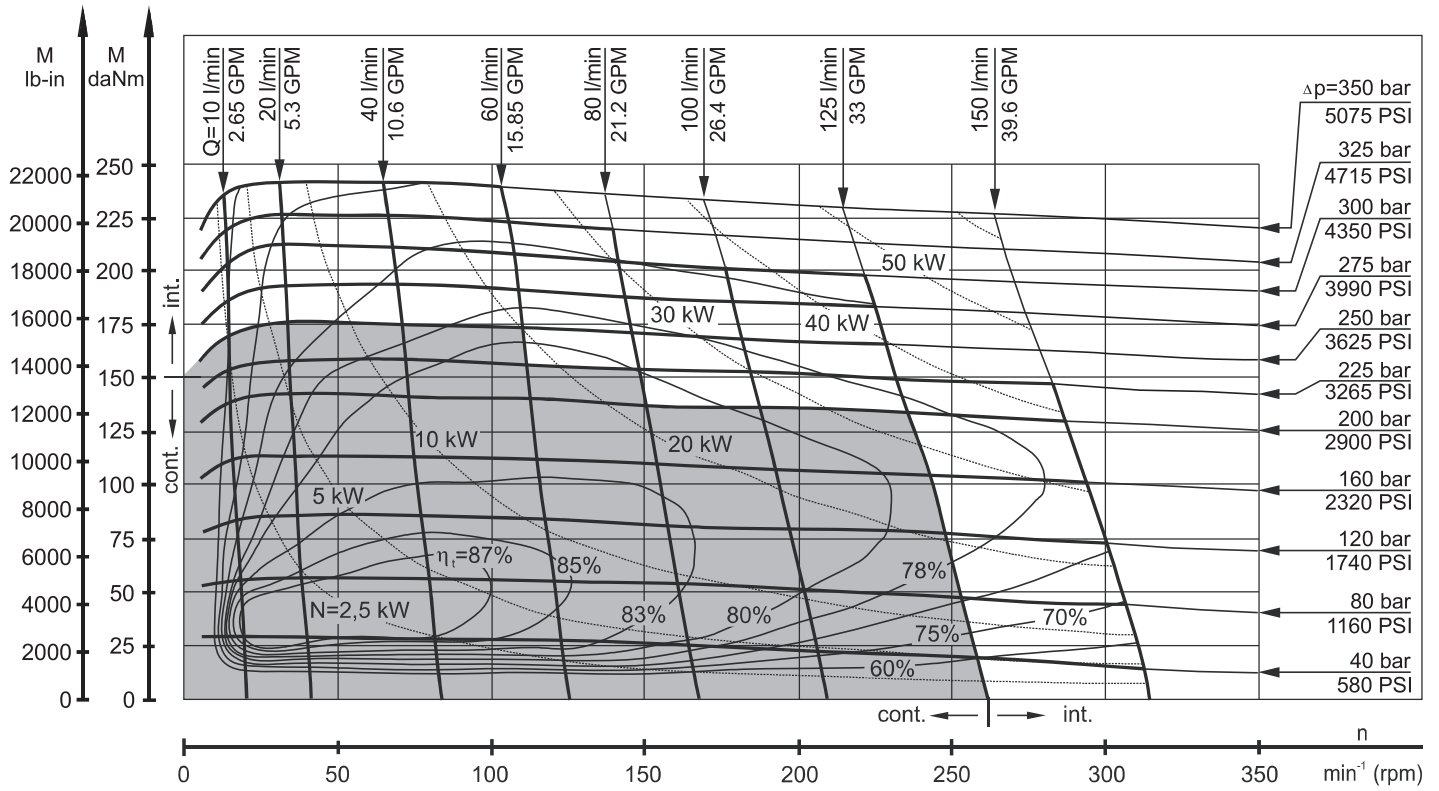
TMF 400



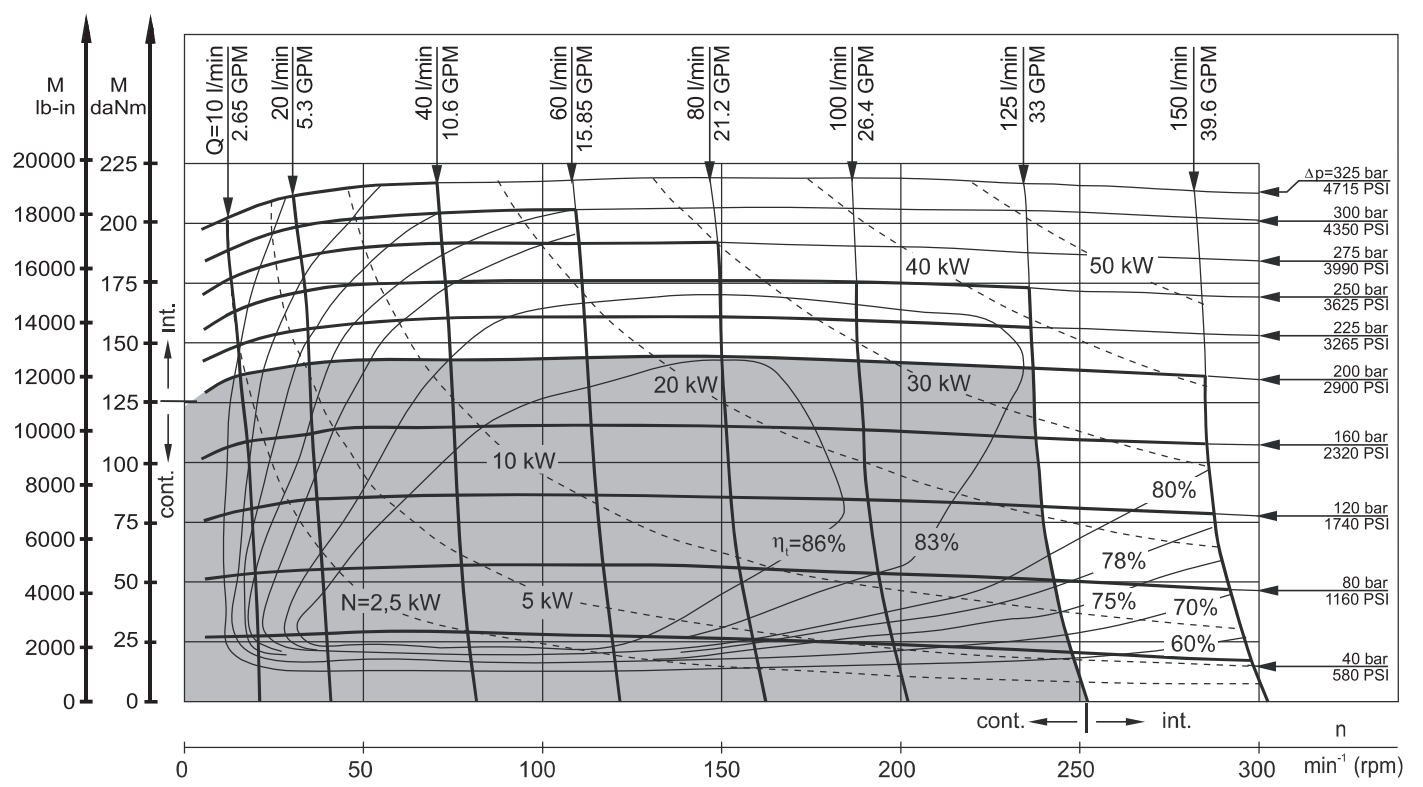
The function diagrams data was collected at back pressure 5÷10 bar (72.5 PSI÷145 PSI) and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

TMF 470



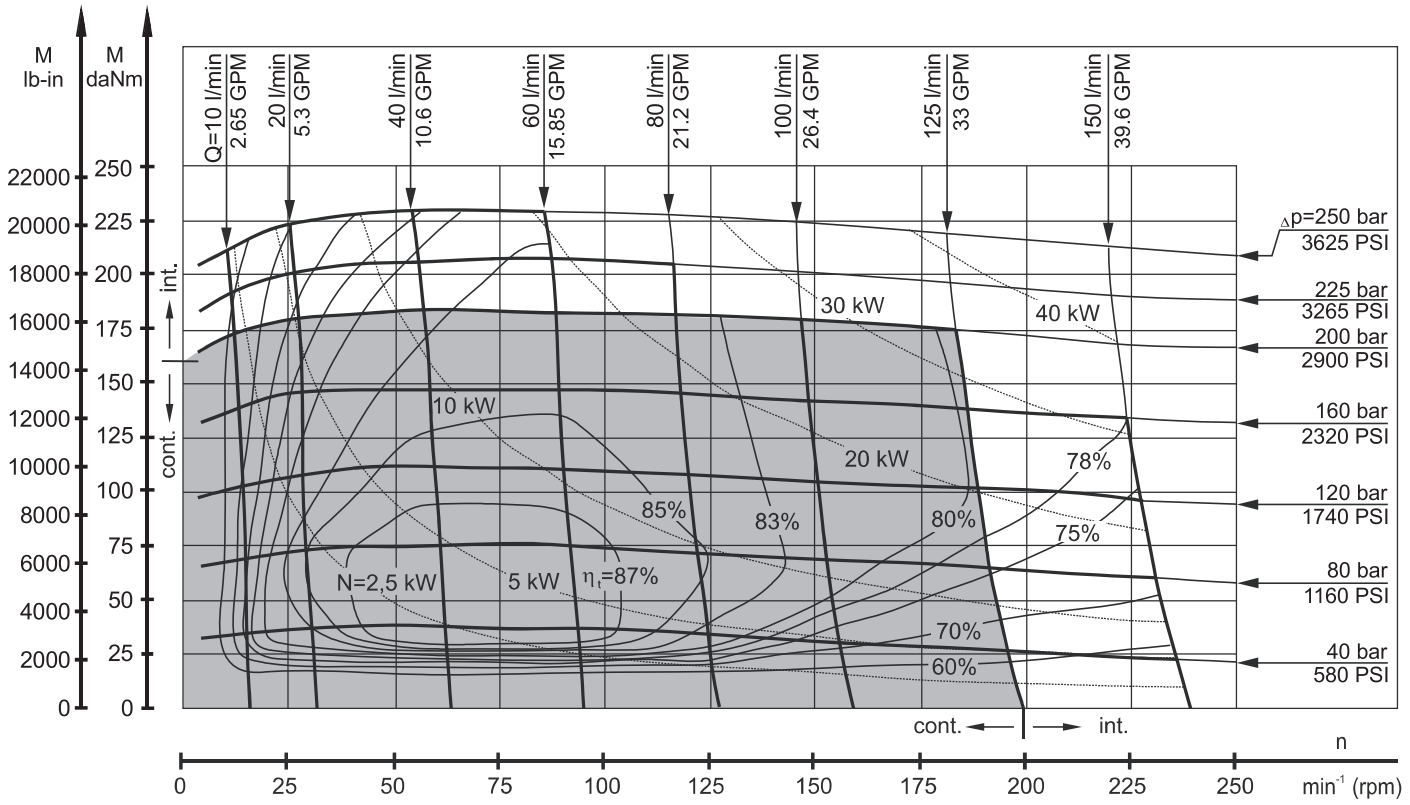
TMF 500



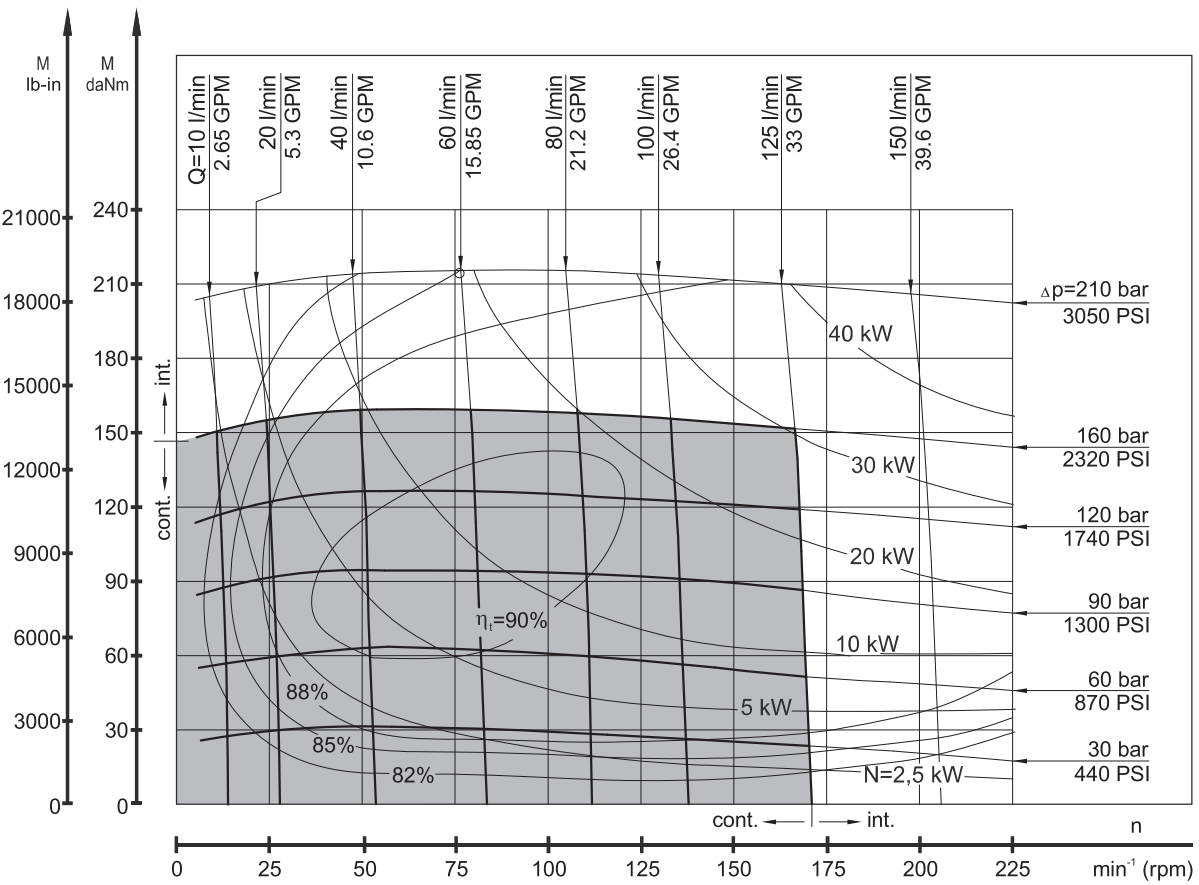
The function diagrams data was collected at back pressure 5÷10 bar (72.5 PSI÷145 PSI) and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

TMF 630

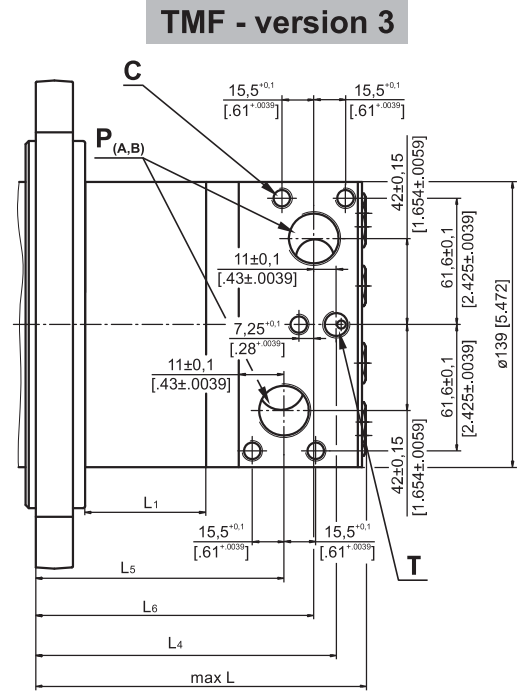
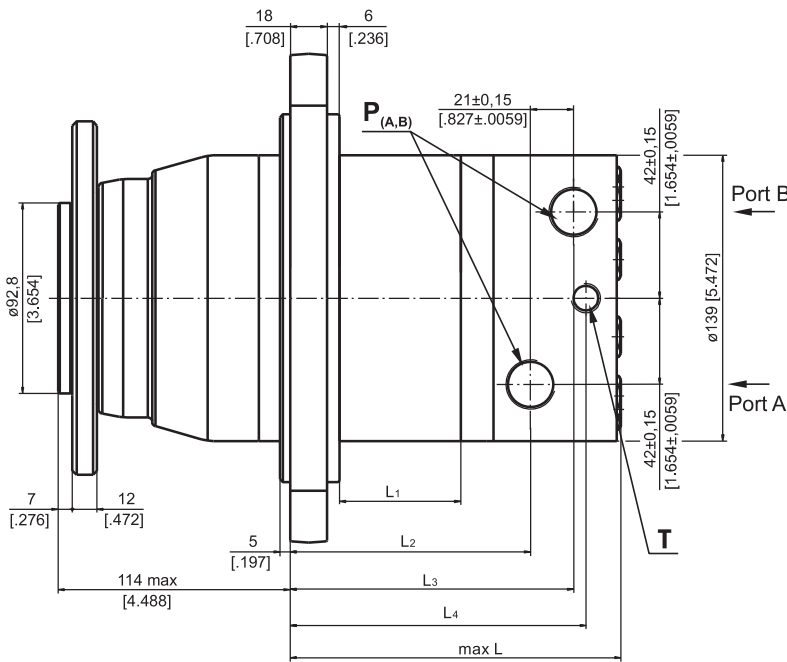
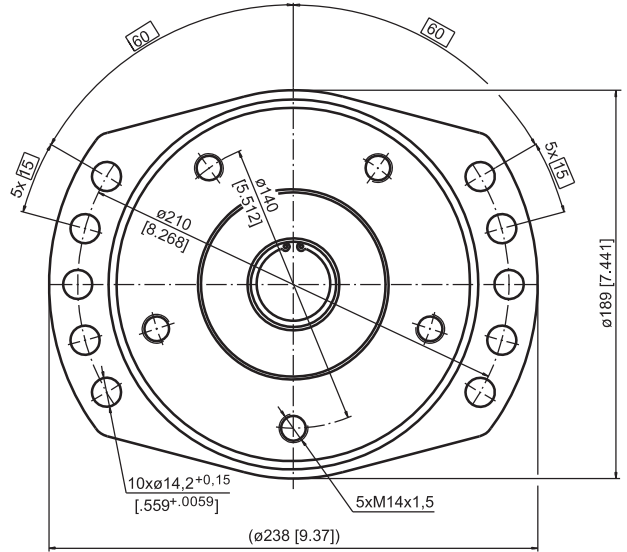
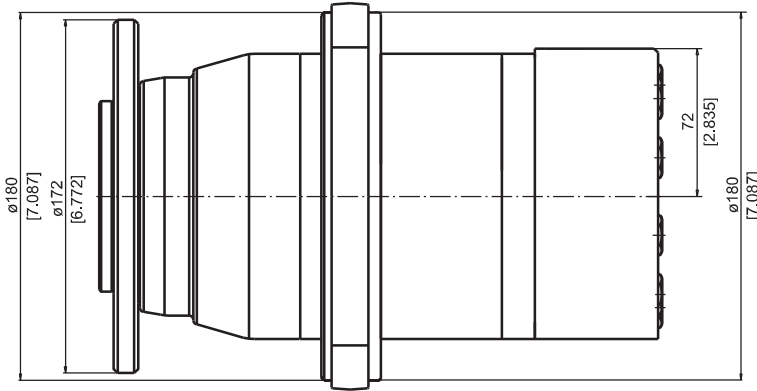


TMF 725



The function diagrams data was collected 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].

DIMENSIONS AND MOUNTING DATA - TMF



Warning: Drain line should always be used.

| | Versions | | |
|---------------|---------------------------------|---------------------------------|---|
| | 2 | 3 | 4 |
| P(A,B) | 2xG3/4 17 mm [.669 in] depth | 2xG3/4 17 mm [.669 in] depth | 2x1 1/16-12 UN 17 mm [.669 in] depth O-ring |
| T | G1/4 12 mm [.472 in] depth | G1/4 12 mm [.472 in] depth | 9/16-18 UN 12 mm [.472 in] depth O-ring |
| C | - | 5xM10 17 mm [.669 in] depth | - |

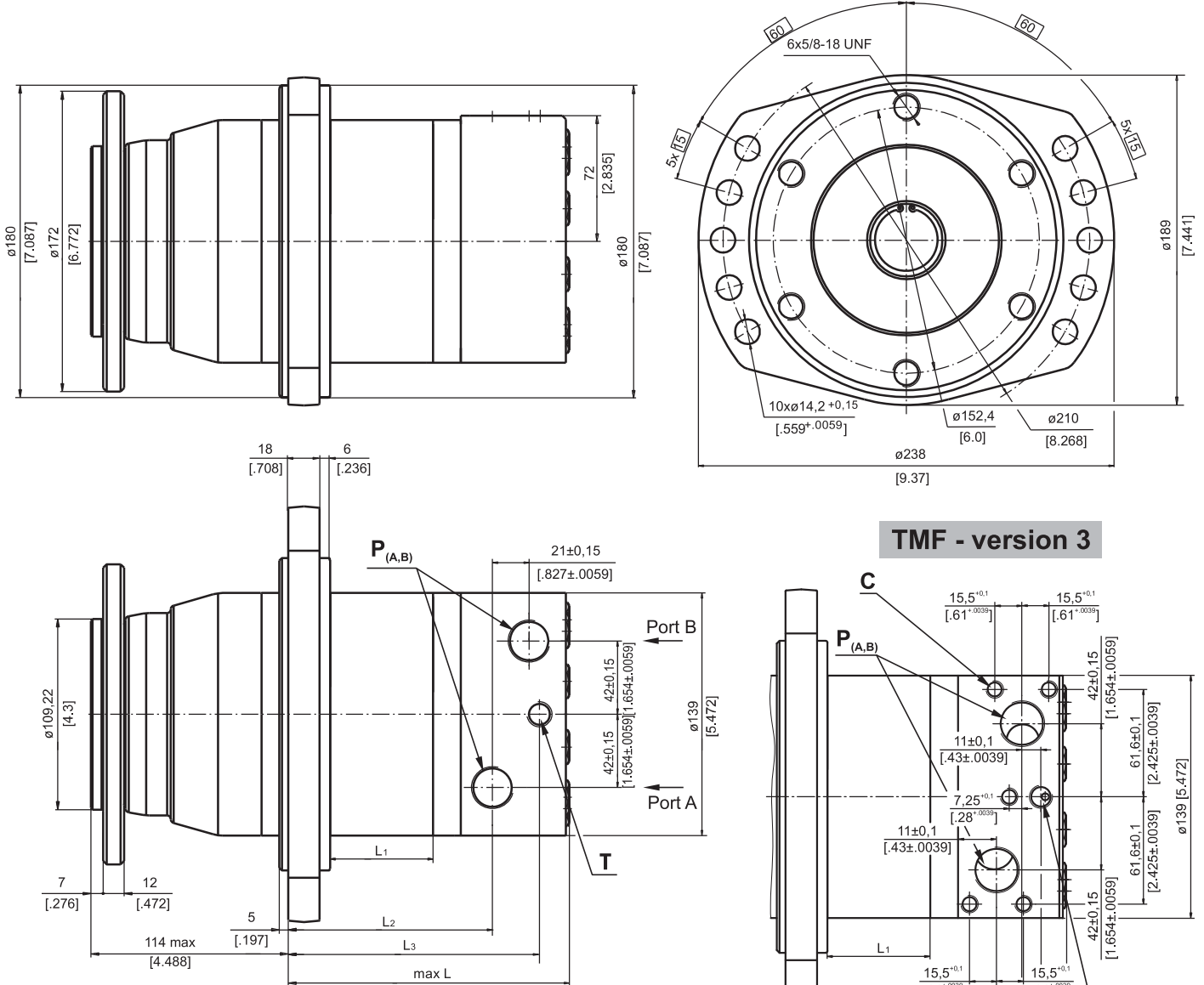


Standard Rotation
Viewed from Shaft End
Port A Pressurized - **CW**
Port B Pressurized - **CCW**

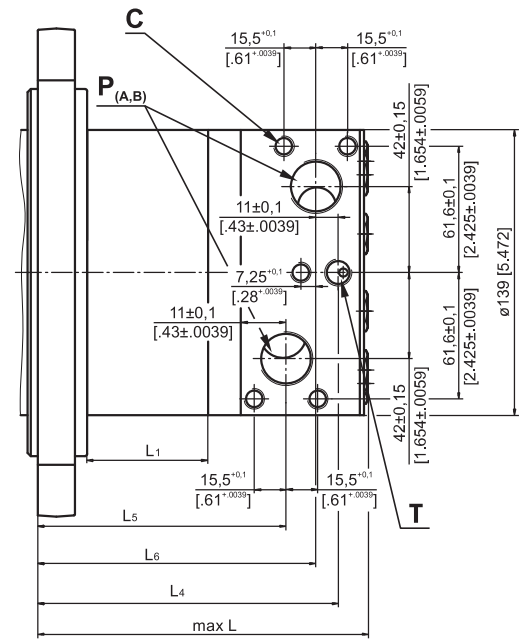
Reverse Rotation
Viewed from Shaft End
Port A Pressurized - **CCW**
Port B Pressurized - **CW**

| Type | L, mm [in] | L1, mm [in] | L2, mm [in] | L3, mm [in] | L4, mm [in] | L5, mm [in] | L6, mm [in] |
|---------|------------|-------------|--------------|--------------|--------------|--------------|--------------|
| TMF 200 | 126 [4.96] | 25,0 [.98] | 83,0 [3.27] | 104,0 [4.09] | 110,3 [4.34] | 87,0 [3.43] | 101,5 [3.99] |
| TMF 250 | 133 [5.24] | 31,3 [1.23] | 89,3 [3.52] | 110,3 [4.34] | 116,6 [4.59] | 93,5 [3.68] | 108,0 [4.25] |
| TMF 315 | 142 [5.59] | 40,5 [1.59] | 98,5 [3.88] | 119,5 [4.70] | 125,8 [4.95] | 102,5 [4.04] | 117,0 [4.61] |
| TMF 400 | 152 [5.98] | 51,0 [2.01] | 109,0 [4.29] | 130,0 [5.12] | 136,3 [5.37] | 113,0 [4.45] | 127,5 [5.02] |
| TMF 470 | 161 [6.34] | 59,0 [2.32] | 117,0 [4.61] | 138,0 [5.43] | 144,3 [5.68] | 121,0 [4.76] | 135,0 [5.33] |
| TMF 500 | 166 [6.54] | 65,0 [2.56] | 123,0 [4.84] | 144,0 [5.67] | 150,3 [5.92] | 127,0 [5.00] | 141,5 [5.57] |
| TMF 630 | 162 [6.38] | 61,0 [2.40] | 119,0 [4.69] | 140,0 [5.51] | 146,3 [5.76] | 123,0 [4.84] | 137,5 [5.41] |
| TMF 725 | 171 [6.73] | 70,0 [2.76] | 128,0 [5.04] | 149,0 [5.87] | 155,3 [6.11] | 132,0 [5.20] | 146,5 [5.77] |

DIMENSIONS AND MOUNTING DATA - TMFA



TMF - version 3



Warning: Drain line should always be used.

| | Versions | | |
|--------------------------|---------------------------------|---------------------------------|---|
| | 2 | 3 | 4 |
| P_(A,B) | 2xG3/4 17 mm [.669 in] depth | 2xG3/4 17 mm [.669 in] depth | 2x1 1/16-12 UN 17 mm [.669 in] depth O-ring |
| T | G1/4 12 mm [.472 in] depth | G1/4 12 mm [.472 in] depth | 9/16-18 UN 12 mm [.472 in] depth O-ring |
| C | - | 5xM10 17 mm [.669 in] depth | - |



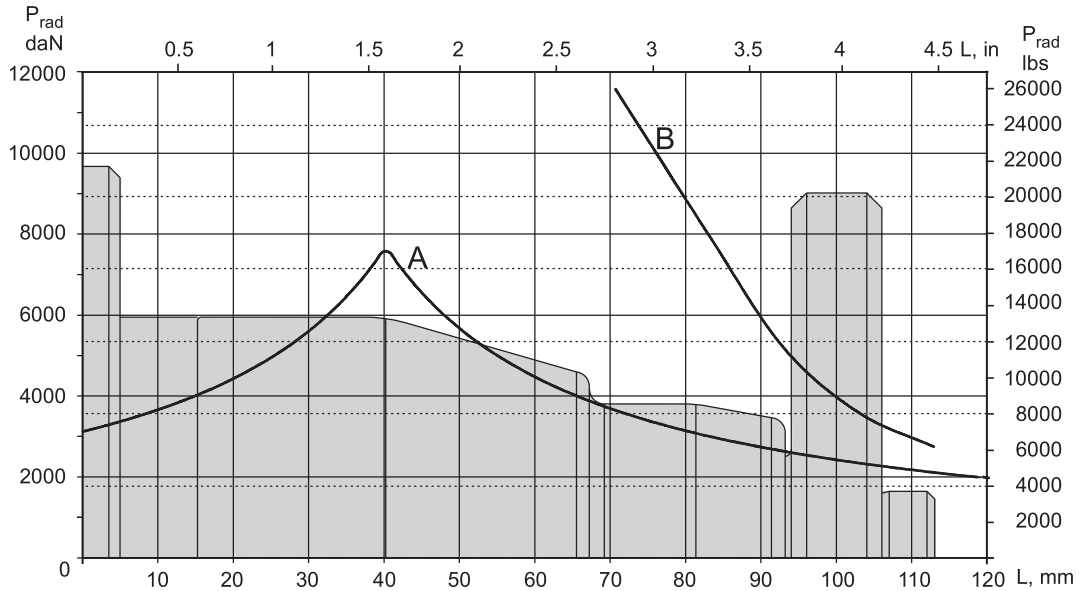
Standard Rotation
Viewed from Shaft End
Port A Pressurized - **CW**
Port B Pressurized - **CCW**

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

| Type | L, mm [in] | L ₁ , mm [in] | L ₂ , mm [in] | L ₃ , mm [in] | L ₄ , mm [in] | L ₅ , mm [in] | L ₆ , mm [in] |
|---------|------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| TMF 200 | 126 [4.96] | 25,0 [.98] | 83,0 [3.27] | 110,3 [4.34] | 112,5 [4.43] | 87,0 [3.43] | 101,5 [3.99] |
| TMF 250 | 133 [5.24] | 31,3 [1.23] | 89,3 [3.52] | 116,6 [4.59] | 118,8 [4.68] | 93,5 [3.68] | 107,8 [4.24] |
| TMF 315 | 142 [5.59] | 40,5 [1.59] | 98,5 [3.88] | 125,8 [4.95] | 128,0 [5.04] | 102,5 [4.04] | 117,0 [4.61] |
| TMF 400 | 152 [5.98] | 51,0 [2.01] | 109,0 [4.29] | 136,3 [5.37] | 138,5 [5.45] | 113,0 [4.45] | 127,5 [5.02] |
| TMF 470 | 161 [6.34] | 59,0 [2.32] | 117,0 [4.61] | 144,3 [5.68] | 146,5 [5.77] | 121,0 [4.76] | 135,0 [5.33] |
| TMF 500 | 166 [6.54] | 65,0 [2.56] | 123,0 [4.84] | 150,3 [5.92] | 152,5 [6.00] | 127,0 [5.00] | 141,5 [5.57] |
| TMF 630 | 162 [6.38] | 61,0 [2.40] | 119,0 [4.69] | 146,3 [5.76] | 148,5 [5.85] | 123,0 [4.84] | 137,5 [5.41] |
| TMF 725 | 171 [6.73] | 70,0 [2.76] | 128,0 [5.04] | 155,3 [6.11] | 157,5 [6.20] | 132,0 [5.20] | 146,5 [5.77] |

PERMISSIBLE SHAFT LOADS

The load diagram is valid for an average bearings life of 2000 hours at 100 RPM



A - Permissible radial shaft load.

B - Max. radial shaft load. Any shaft load exceeding the values shown in the curve will involve a risk of breakage.

ORDER CODE

| | | | | |
|------------|---|---|-----------|---|
| 1 | 2 | 3 | 4 | 5 |
| TMF | | | HD | |

Pos.1 - Mounting Flange

- omit - Thread hole flange, 5xM14x1,5 on \varnothing 140 [5.512]
- A** - Thread hole flange, 6x5/8-18 UNF on \varnothing 152,4 [6.0]

Pos.2 - Displacement code

- 200** - 201,4 cm³/rev [12.29 in³/rev]
- 250** - 251,8 cm³/rev [15.36 in³/rev]
- 315** - 326,3 cm³/rev [19.90 in³/rev]
- 400** - 410,9 cm³/rev [25.06 in³/rev]
- 470** - 475,0 cm³/rev [28.97 in³/rev]
- 500** - 523,6 cm³/rev [31.95 in³/rev]
- 630** - 631,2 cm³/rev [38.52 in³/rev]
- 725** - 724,3 cm³/rev [44.20 in³/rev]

Pos.3 - Ports

- 2** - side ports, 2xG3/4, G1/4, BSP thread, ISO 228
- 3** - side ports, 2xG3/4, G1/4, 5xM10 BSP thread, ISO 228
- 4** - side ports, 2x1 1/16-12 UN, O-ring, 9/16-18 UNF

Pos.4 - Special Features

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

Pos.5 - Design Series

- omit - Factory specified

NOTES: * Drain line should always be used.

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 | | | | | | | |
| 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".