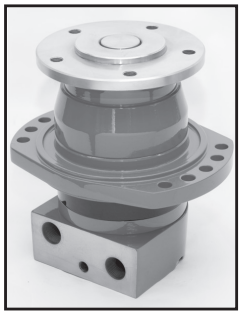
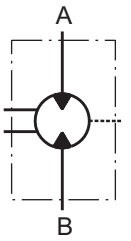
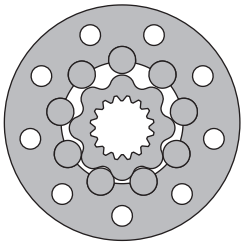
HYDRAULIC MOTORS TMF



APPLICATION

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





CONTENTS

Specification data 35
Function diagrams ..... 36÷39
Dimensions and mounting TMF..... 40
Dimensions and mounting TMFA 41
Permissible shaft loads 42
Order code 42

OPTIONS

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

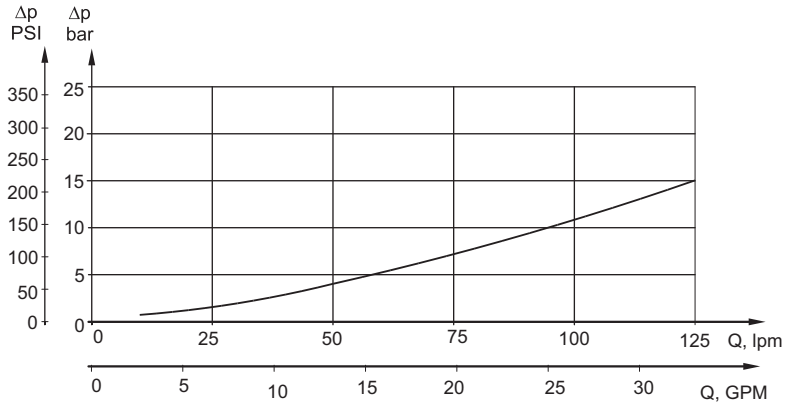
GENERAL

Max. Displacement, cm^3/rev [in^3/rev]	724 [44.2]
Max. Speed, [RPM]	750
Max. Torque, daNm [lb-in]	cont.: 175 [15490] int.: 217 [19206]
Max. Output, kW [HP]	70 [94]
Max. Pressure Drop, bar [PSI]	cont.: 250 [3600] int.: 350 [5080]
Max. Oil Flow, lpm [GPM]	150 [39.6]
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, ^{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]
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

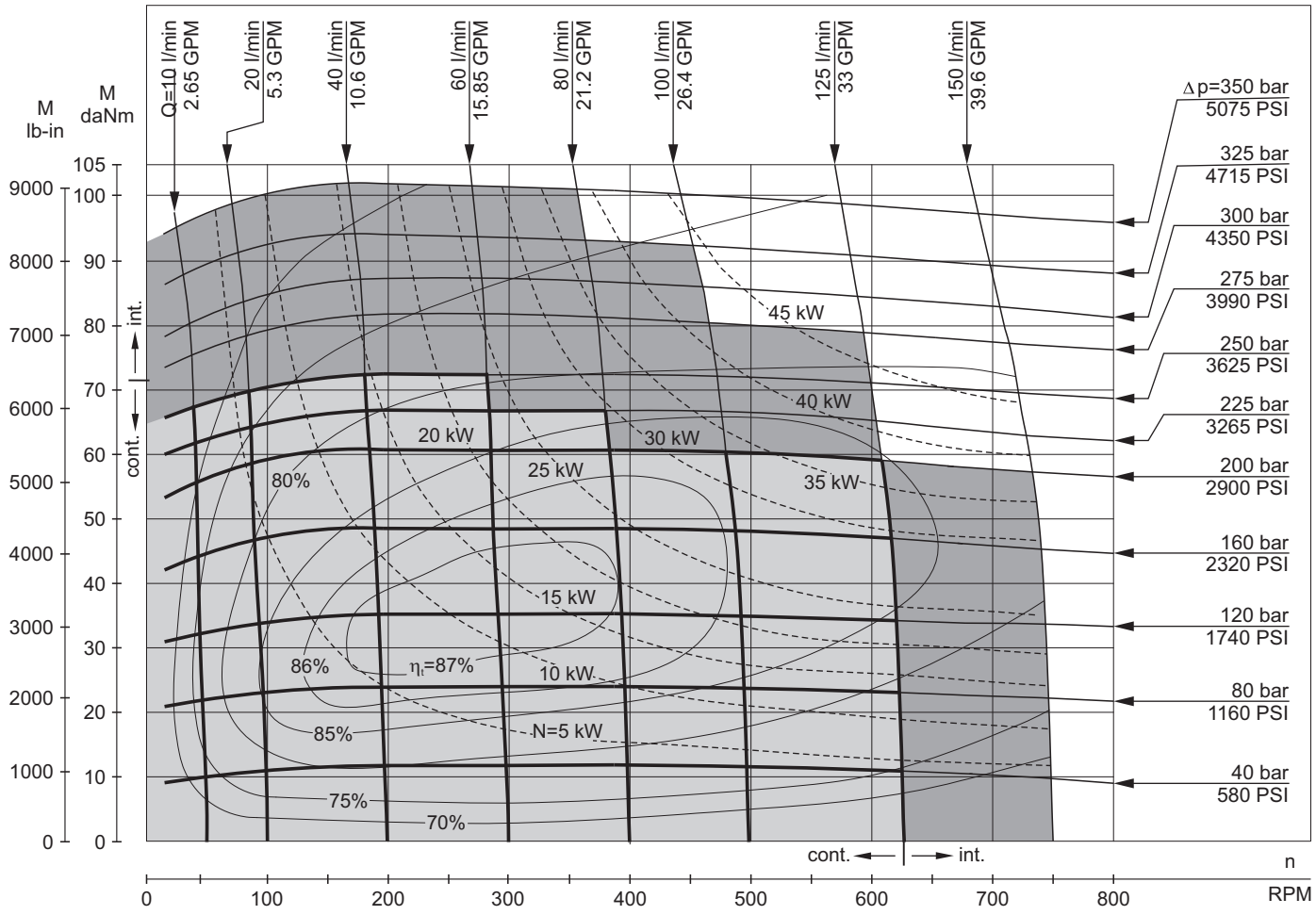
Type		TMF 200	TMF 250	TMF 315	TMF 400	TMF 470	TMF 500	TMF 630	TMF 725
Displacement, cm^3/rev [in^3/rev]		201,4 [12.29]	251,8 [15.36]	326,3 [19.9]	410,9 [25.06]	475 [28.97]	523,6 [31.95]	631,2 [38.52]	724 [44.2]
Max. Speed, [RPM]	Cont.	625	500	380	305	260	240	190	170
	Int.*	750	600	460	365	315	285	230	210
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]	217 [19206]	217 [19206]	217 [19206]	192 [17000]
	Peak**	115 [10180]	144 [12745]	186 [16460]	235 [20800]	240 [21240]	240 [21240]	250 [22127]	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]	320 [4640]	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 w/o 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.

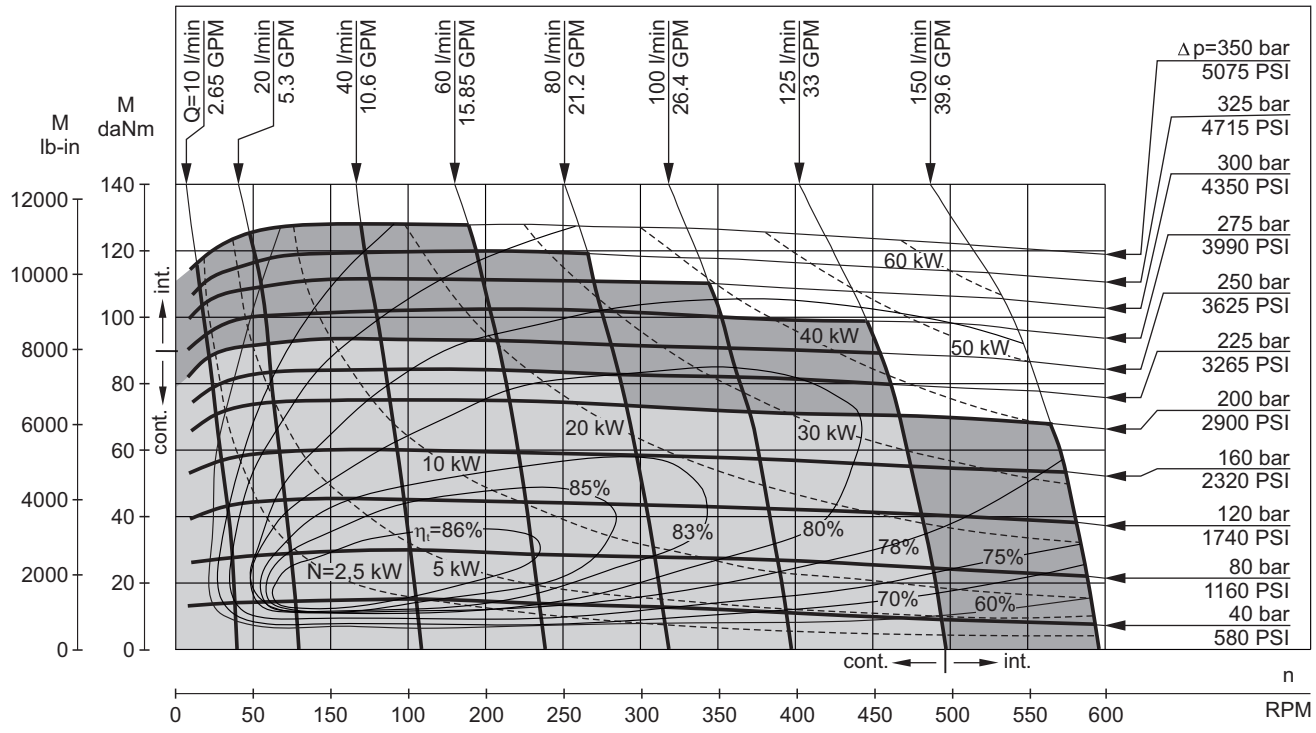
1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4). If using synthetic fluids consult the factory for alternative seal materials.
4. Recommended minimum oil viscosity 13 mm^2/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

TMF 200



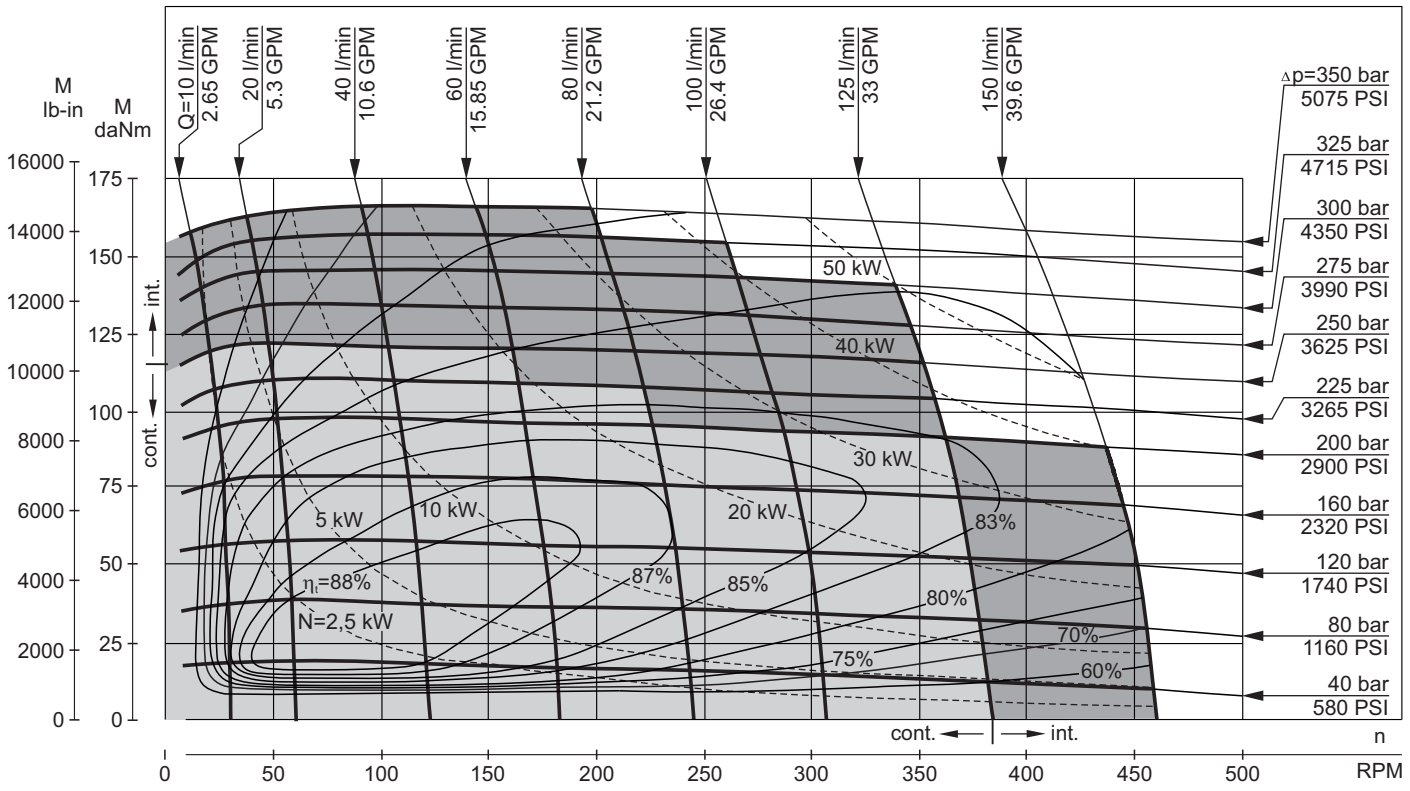
TMF 250



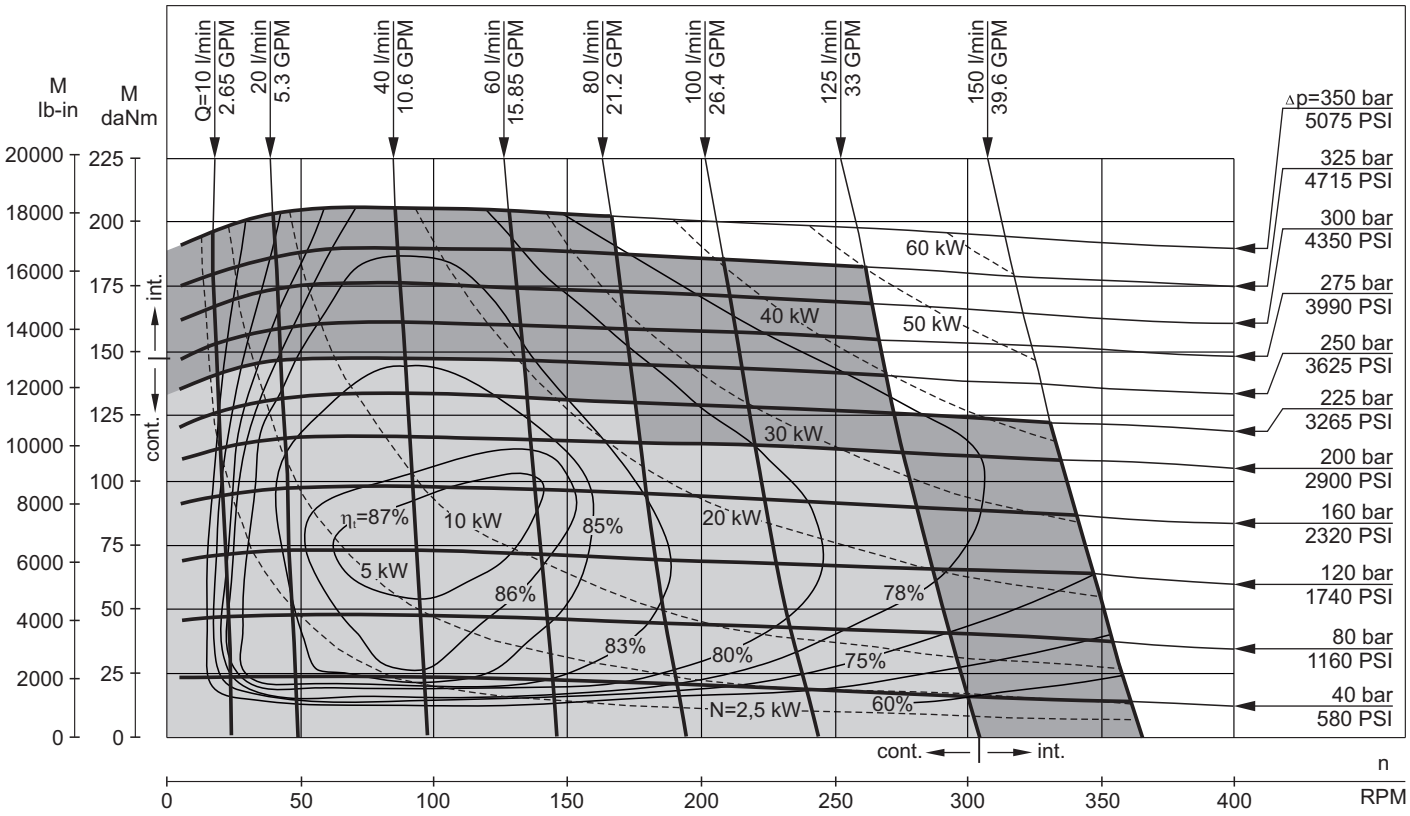
The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5 PSI÷145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

TMF 315



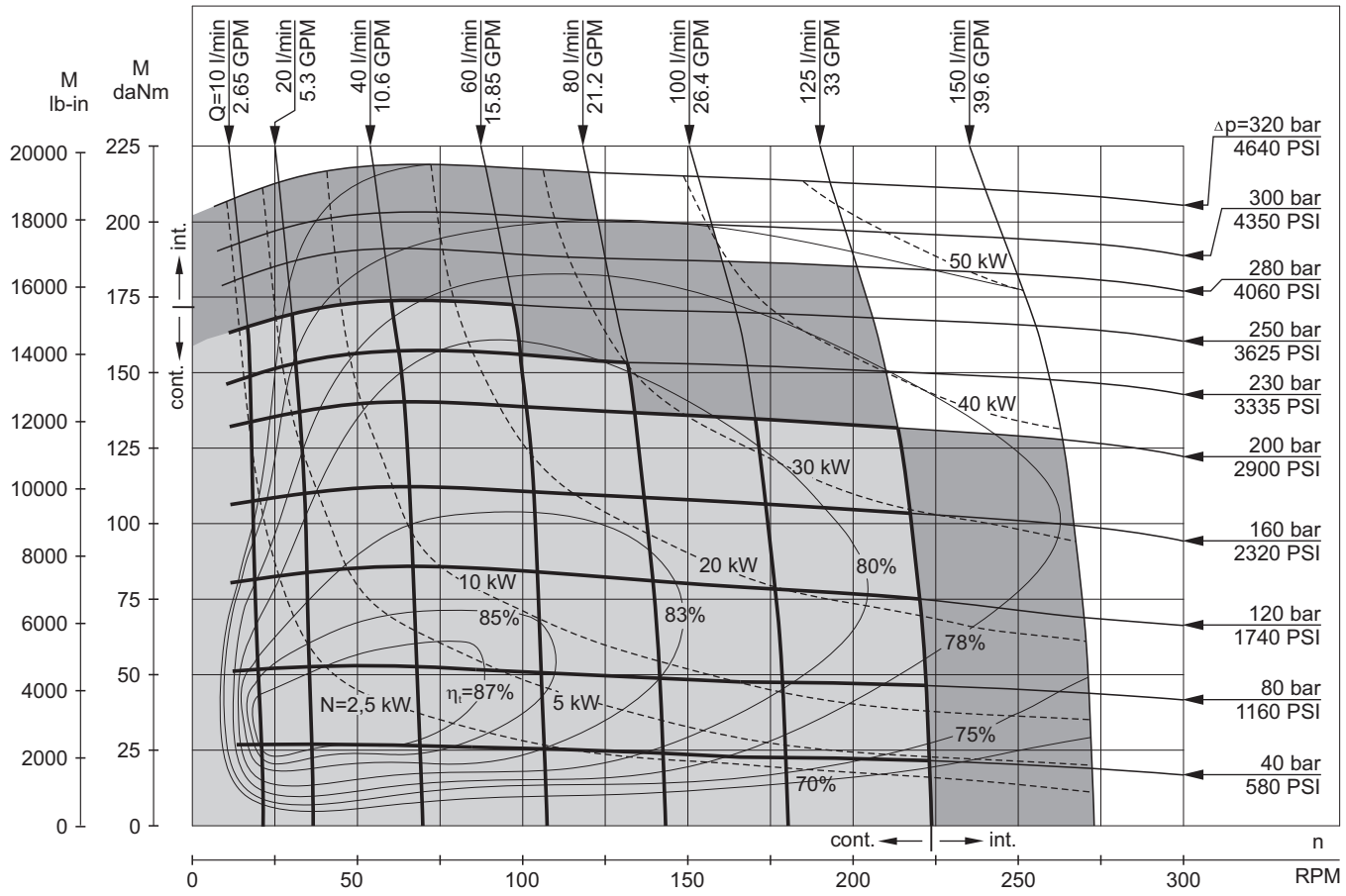
TMF 400



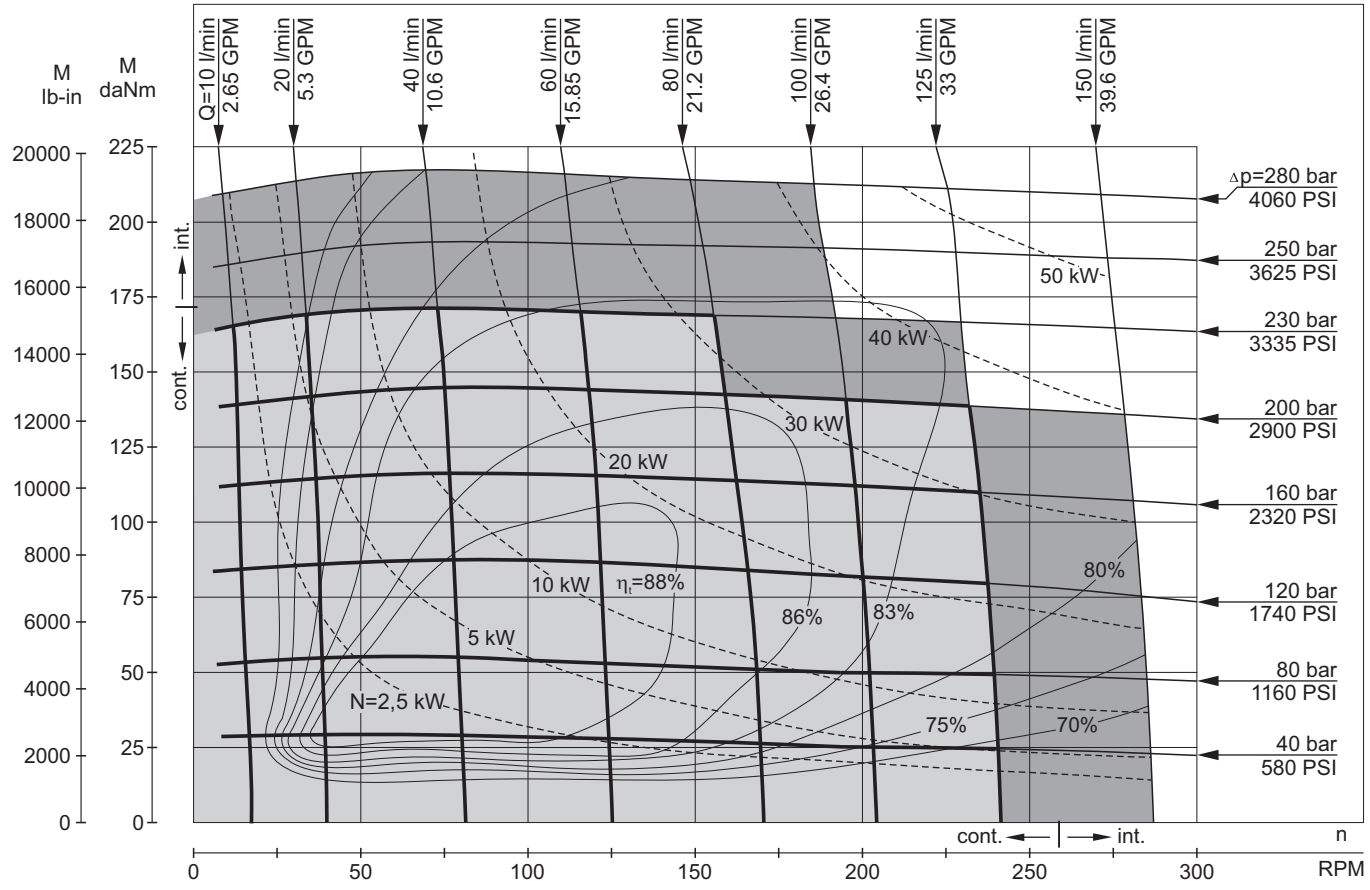
The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5 PSI÷145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

TMF 470



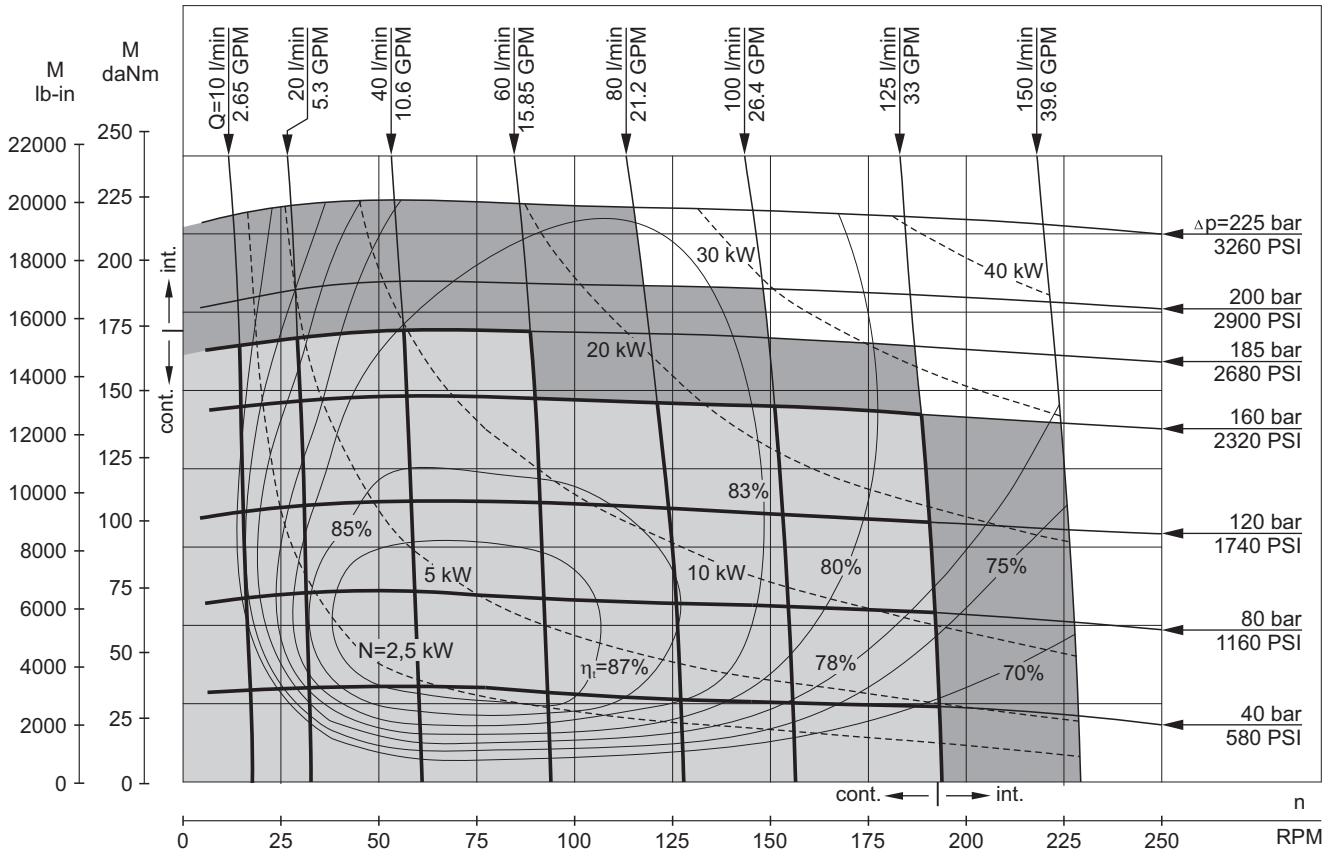
TMF 500



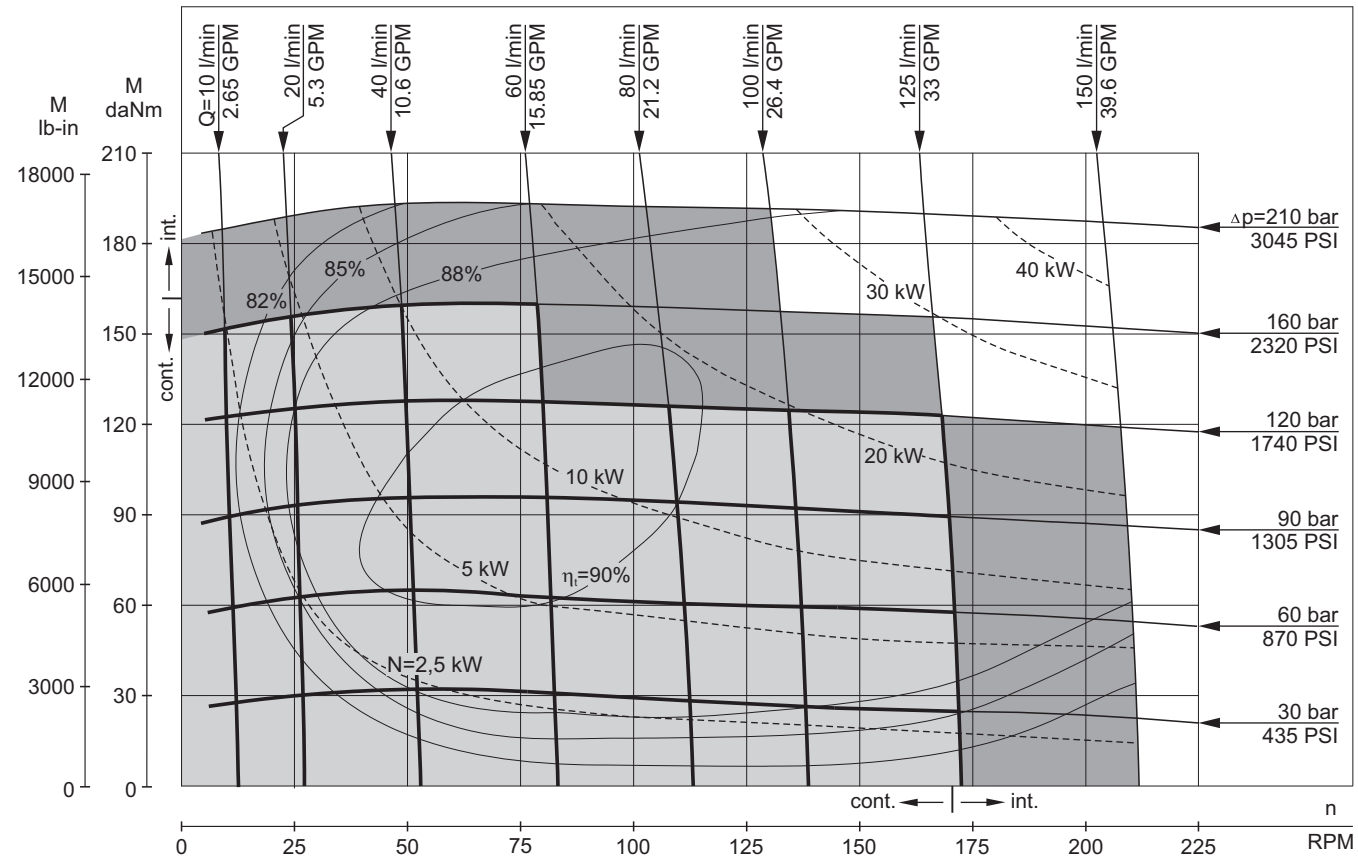
The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5 PSI÷145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

TMF 630

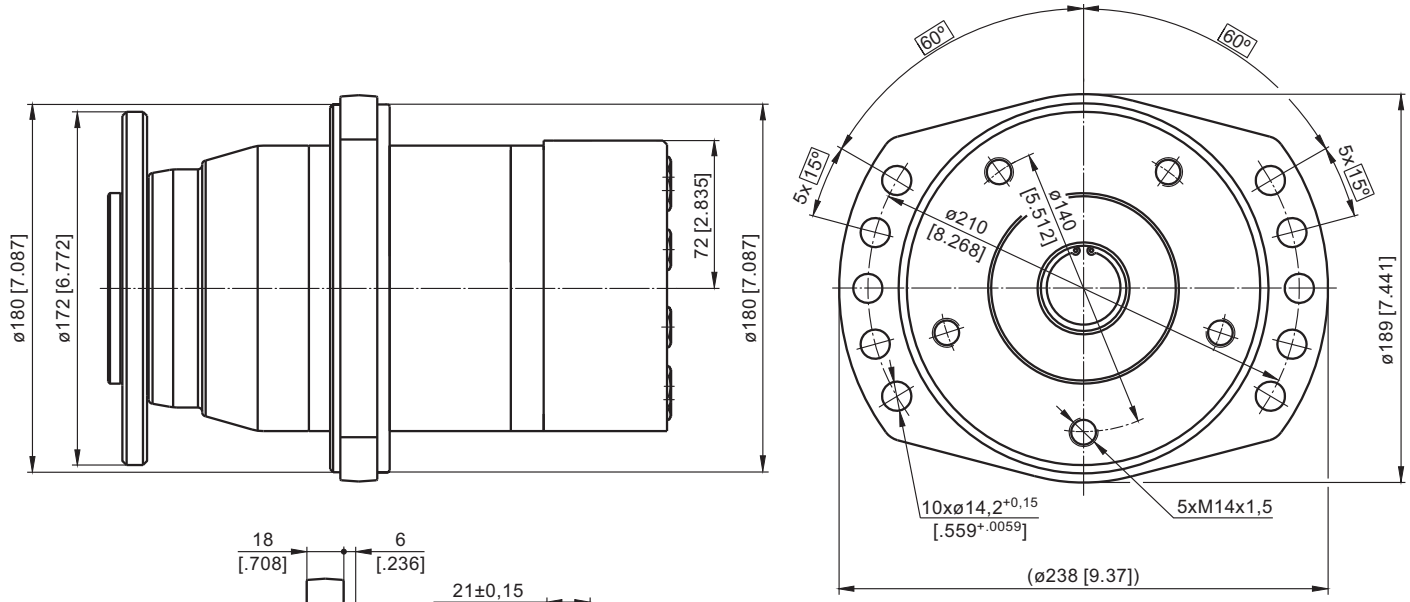


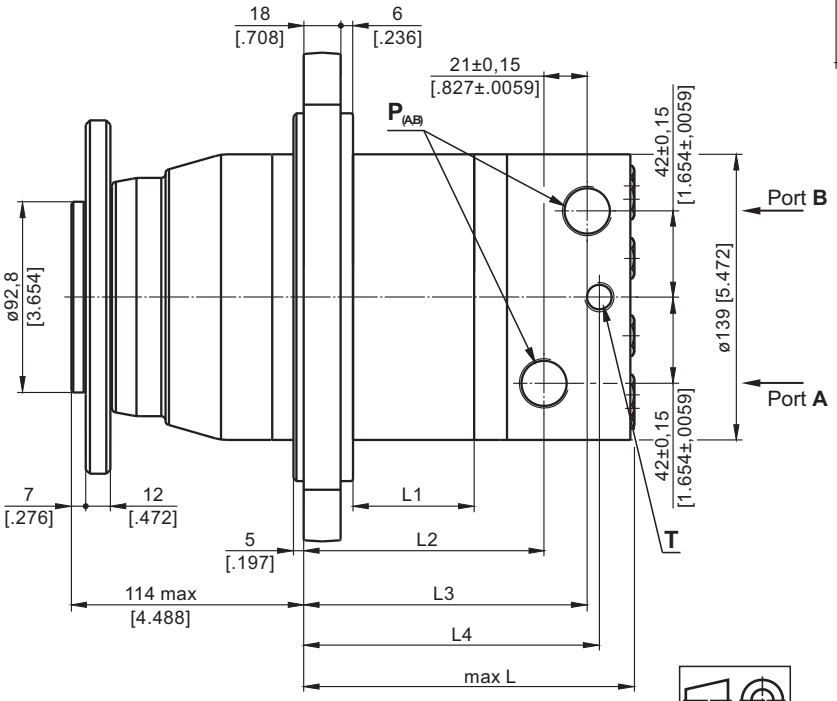
TMF 725

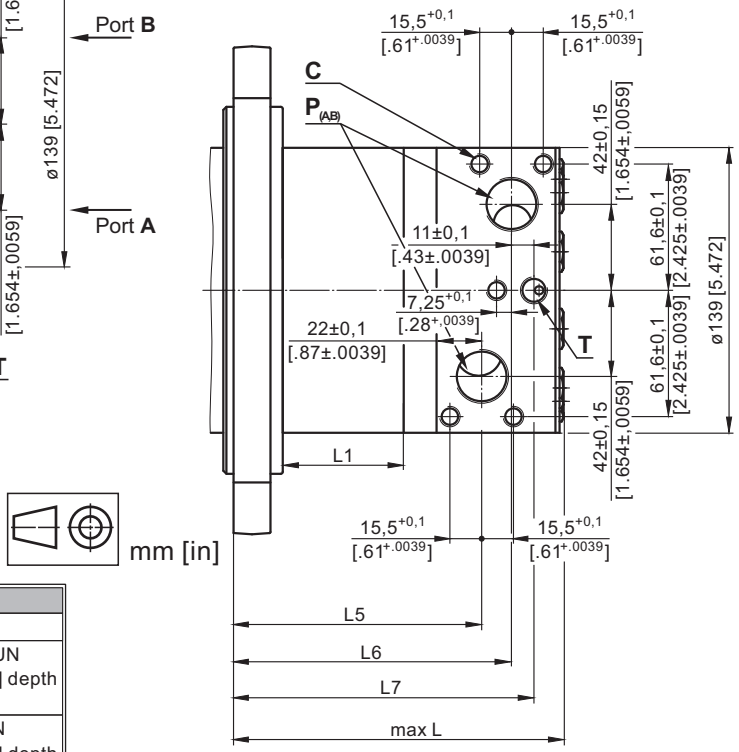


The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5 PSI÷145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

DIMENSIONS and MOUNTING DATA - TMF







mm [in]

Warning: Drain line should always be used.

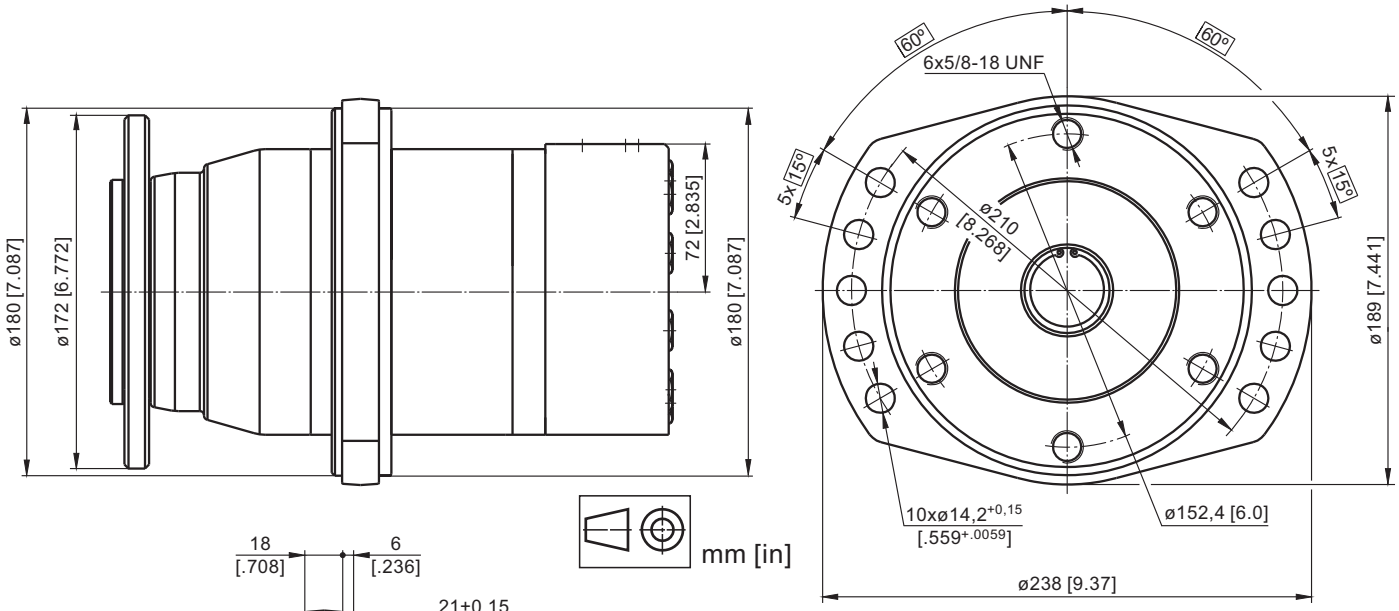
	Versions		
	2	3	4
P(A,B)	2xG3/4 17 mm [.669 in] depth	2xG3/4 17 mm [.669 in] depth	2x1 1/16-12 UN 17 mm [.669 in] depth O-ring
T	G1/4 12 mm [.472 in] depth	G1/4 12 mm [.472 in] depth	9/16-18 UN 12 mm [.472 in] depth O-ring
C	-	5xM10 17 mm [.669 in] depth	-

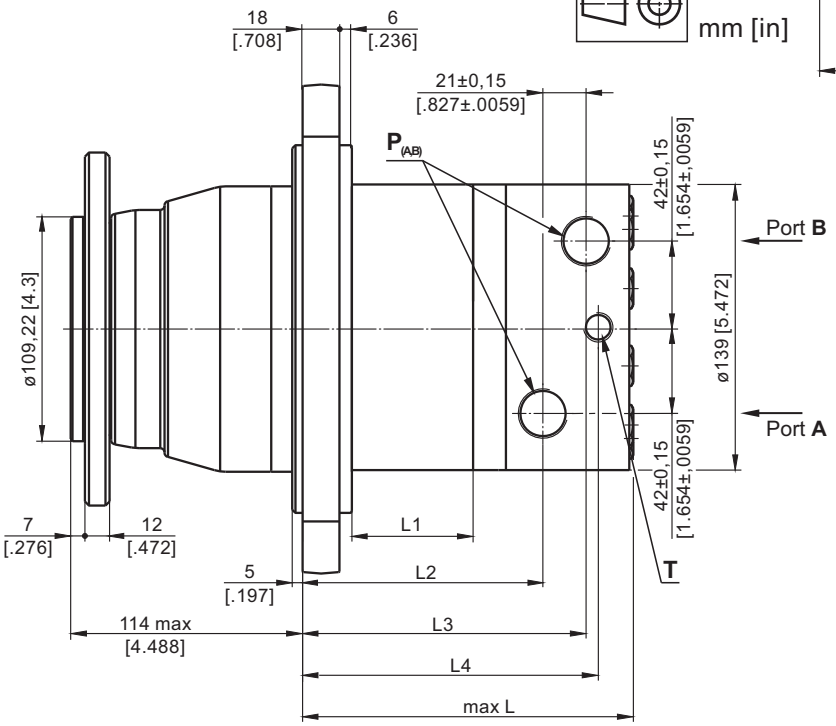
Standard Rotation
Viewed from Shaft End
Port **A** Pressurized - **CW**
Port **B** Pressurized - **CCW**

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

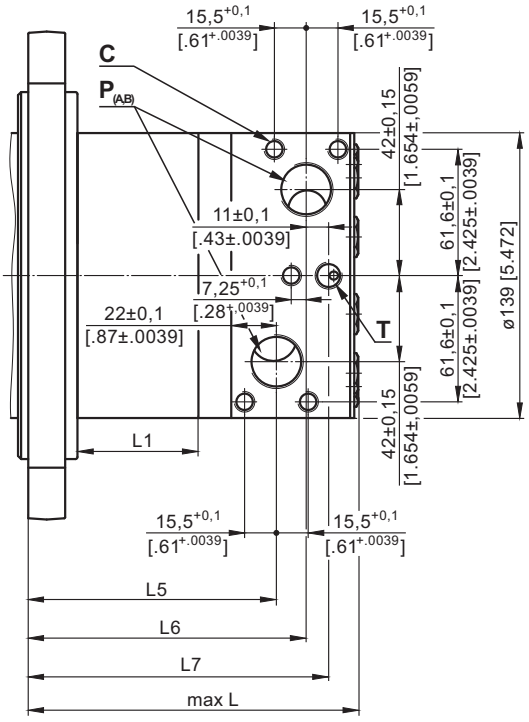
Type	L_{max}, mm [in]	L_1, mm [in]	L_2,mm [in]	L_3, mm [in]	L_4, mm [in]	L_5, mm [in]	L_6, mm [in]	L_7, mm [in]
TMF 200	128,0 [5.04]	25,0 [.98]	83,0 [3.27]	104,0 [4.09]	110,3 [4.34]	87,0 [3.43]	101,5 [3.99]	112,5 [4.43]
TMF 250	134,0 [5.28]	31,3 [1.23]	89,3 [3.52]	110,3 [4.34]	116,6 [4.59]	93,5 [3.68]	108,0 [4.25]	118,8 [4.68]
TMF 315	143,5 [5.65]	40,5 [1.59]	98,5 [3.88]	119,5 [4.70]	125,8 [4.95]	102,5 [4.04]	117,0 [4.61]	128,0 [5.04]
TMF 400	154,0 [6.06]	51,0 [2.01]	109,0 [4.29]	130,0 [5.12]	136,3 [5.37]	113,0 [4.45]	127,5 [5.02]	138,5 [5.45]
TMF 470	162,0 [6.38]	59,0 [2.32]	117,0 [4.61]	138,0 [5.43]	144,3 [5.68]	121,0 [4.76]	135,0 [5.33]	146,5 [5.77]
TMF 500	168,0 [6.61]	65,0 [2.56]	123,0 [4.84]	144,0 [5.67]	150,3 [5.92]	127,0 [5.00]	141,5 [5.57]	152,5 [6.00]
TMF 630	164,0 [6.46]	61,0 [2.40]	119,0 [4.69]	140,0 [5.51]	146,3 [5.76]	123,0 [4.84]	137,5 [5.41]	148,5 [5.85]
TMF 725	173,0 [6.81]	70,0 [2.76]	128,0 [5.04]	149,0 [8.87]	155,3 [6.11]	132,0 [5.20]	146,5 [5.77]	157,5 [6.20]

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	-

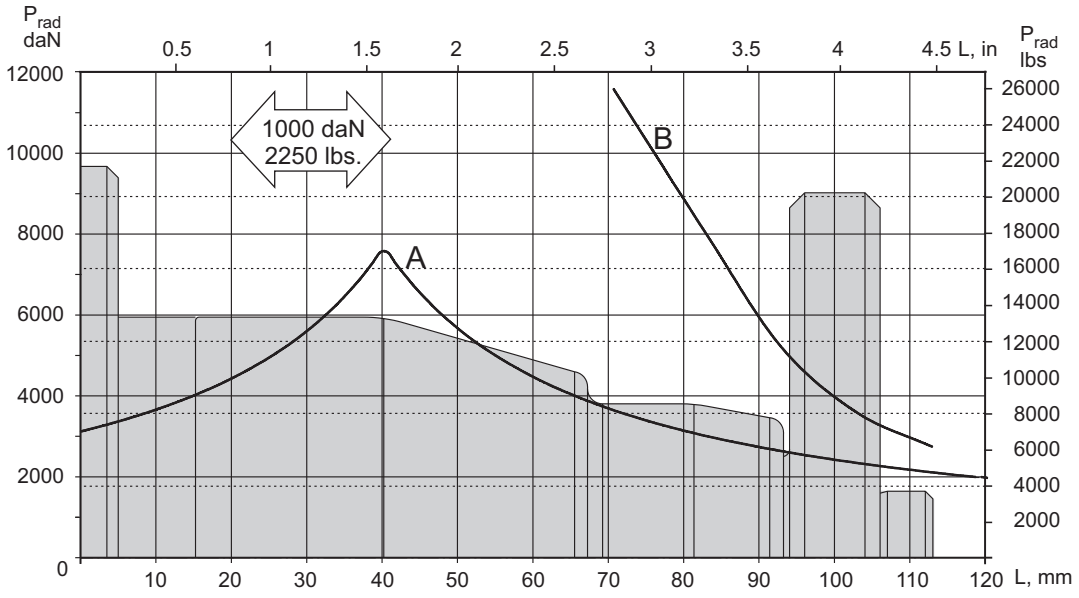
Standard Rotation
Viewed from Shaft End
Port **A** Pressurized - **CW**
Port **B** Pressurized - **CCW**

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

Type	L_{max}, 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]	L_7, mm [in]
TMF 200	128,0 [5.04]	25,0 [.98]	83,0 [3.27]	104,0 [4.09]	110,3 [4.34]	87,0 [3.43]	101,5 [3.99]	112,5 [4.43]
TMF 250	134,0 [5.28]	31,3 [1.23]	89,3 [3.52]	110,3 [4.34]	116,6 [4.59]	93,5 [3.68]	108,0 [4.25]	118,8 [4.68]
TMF 315	143,5 [5.65]	40,5 [1.59]	98,5 [3.88]	119,5 [4.70]	125,8 [4.95]	102,5 [4.04]	117,0 [4.61]	128,0 [5.04]
TMF 400	154,0 [6.06]	51,0 [2.01]	109,0 [4.29]	130,0 [5.12]	136,3 [5.37]	113,0 [4.45]	127,5 [5.02]	138,5 [5.45]
TMF 470	162,0 [6.38]	59,0 [2.32]	117,0 [4.61]	138,0 [5.43]	144,3 [5.68]	121,0 [4.76]	135,0 [5.33]	146,5 [5.77]
TMF 500	168,0 [6.61]	65,0 [2.56]	123,0 [4.84]	144,0 [5.67]	150,3 [5.92]	127,0 [5.00]	141,5 [5.57]	152,5 [6.00]
TMF 630	164,0 [6.46]	61,0 [2.40]	119,0 [4.69]	140,0 [5.51]	146,3 [5.76]	123,0 [4.84]	137,5 [5.41]	148,5 [5.85]
TMF 725	173,0 [6.81]	70,0 [2.76]	128,0 [5.04]	149,0 [8.87]	155,3 [6.11]	132,0 [5.20]	146,5 [5.77]	157,5 [6.20]

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 ø140 [5.512]

A - Thread hole flange, 6x5/8-18 UNF on ø152,4 [6.0]

Pos.2 - **Displacement code**

200 - 201,4 cm^3/rev [12.29 in^3/rev]

250 - 251,8 cm^3/rev [15.36 in^3/rev]

315 - 326,3 cm^3/rev [19.90 in^3/rev]

400 - 410,9 cm^3/rev [25.06 in^3/rev]

470 - 475,0 cm^3/rev [28.97 in^3/rev]

500 - 523,6 cm^3/rev [31.95 in^3/rev]

630 - 631,2 cm^3/rev [38.52 in^3/rev]

725 - 724,3 cm^3/rev [44.20 in^3/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 - **Additional Options**

HD - Reinforced motor **HD***

For Other **Additional Options** see page 71

Pos.5 - **Design Series**

omit - Factory specified

NOTES: * Drain line should always be used.

The hydraulic motors are mangano-phosphatized as standard.