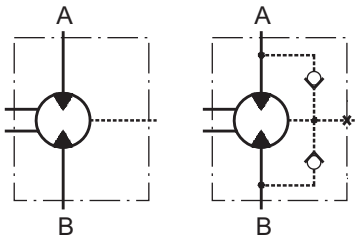
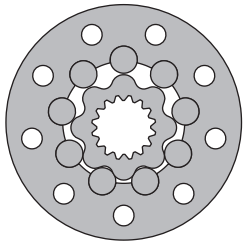
HYDRAULIC MOTORS MTM



APPLICATION

» Skid Steer Loaders
» Metal working machines
» Trenchers
» Augers
» Agriculture machines
» Road building machines
» Special vehicles
» Mine machines
» Woodworking and sawmill machinery
» Conveyors etc.





CONTENTS

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Shaft extensions 29
Permissible shaft loads 29
Dimensions and mounting MTMV 30
Dimensions and mounting MTM6V 31
Internal spline data 33
Order code 33

OPTIONS

» Model- Disc valve, roll-gerotor
» Flange with wheel mount
» Short motor
» Side ports
» Shafts- straight, splined and tapered
» BSPP ports;
» Other special features.

EXCELLENCE

» High torque and pressure drop
» High inlet pressure
» High starting torque
» Improved efficiency at high pressure drop
» Smooth operation at low speed

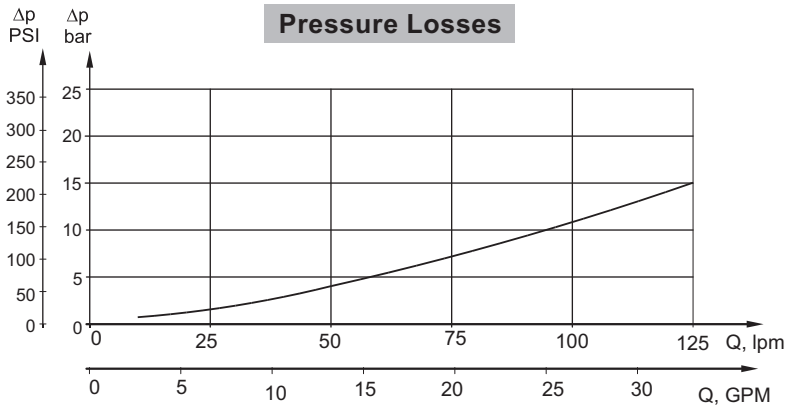
GENERAL

Max. Displacement,	cm^3/rev [in^3/rev]	724 [44.2]
Max. Speed,	[RPM]	750
Max. Torque,	daNm [lb-in]	cont.: 183 [16200] int.: 229 [20270]
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
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]
140 [2030]	20 [98]	2,5 [.660]
	35 [164]	1,5 [.396]
210 [3045]	20 [98]	5 [1.321]
	35 [164]	3 [.793]

Pressure Losses



SPECIFICATION DATA

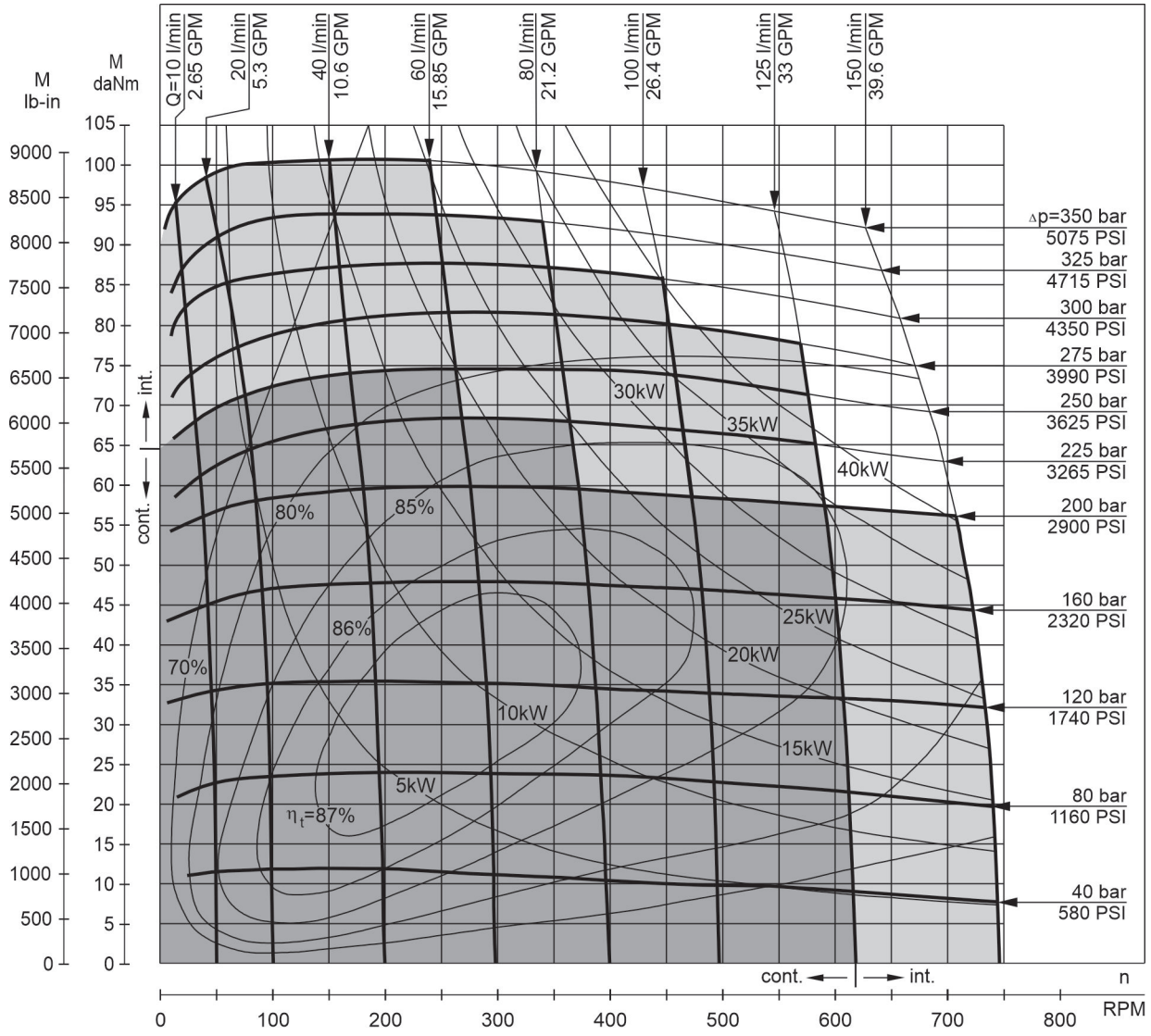
Type		MTM 200	MTM 250	MTM 315	MTM 400	MTM 470	MTM 500	MTM 630	MTM 725
Displacement, cm^3/rev [in^3/rev]		201,4 [12.29]	251,8 [15.36]	326,3 [19.9]	410,9 [25.06]	475 [28.97]	523,6 [31.95]	631,2 [38.52]	724 [44.2]
Max. Speed, [RPM]	Cont.	625	500	380	305	260	240	190	170
	Int.*	750	600	460	365	315	285	230	215
Max. Torque, daNm [lb-in]	Cont.	74 [6550]	90 [7965]	116 [10265]	147 [13010]	171 [15135]	172 [15225]	183 [16200]	160 [14160]
	Int.*	102 [9030]	128 [11330]	163 [14425]	206 [18232]	215 [16030]	215 [16030]	229 [20270]	192 [17000]
	Peak**	115 [10180]	144 [12745]	186 [16460]	235 [20800]	240 [21240]	240 [21240]	274 [24250]	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.*	70 [94]	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]	200 [2900]	160 [2320]
	Int.*	350 [5080]	350 [5080]	350 [5080]	350 [5080]	315 [4570]	280 [4060]	250 [3625]	210 [3045]
	Peak**	400 [5800]	400 [5800]	400 [5800]	400 [5800]	350 [5080]	320 [4640]	300 [4350]	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. 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]	MTM	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]
	MTMW	27,4 [60.4]	27,8 [61.3]	28,6 [63.1]	29,5 [65.1]	30,2 [66.6]	30,7 [67.7]	30,2 [66.6]	31,5 [69.5]
	MTMV	15,7 [34.6]	16,1 [35.5]	16,9 [37.3]	17,8 [39.3]	18,5 [40.8]	19 [41.9]	18,5 [40.8]	19,8 [43.7]

* 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.

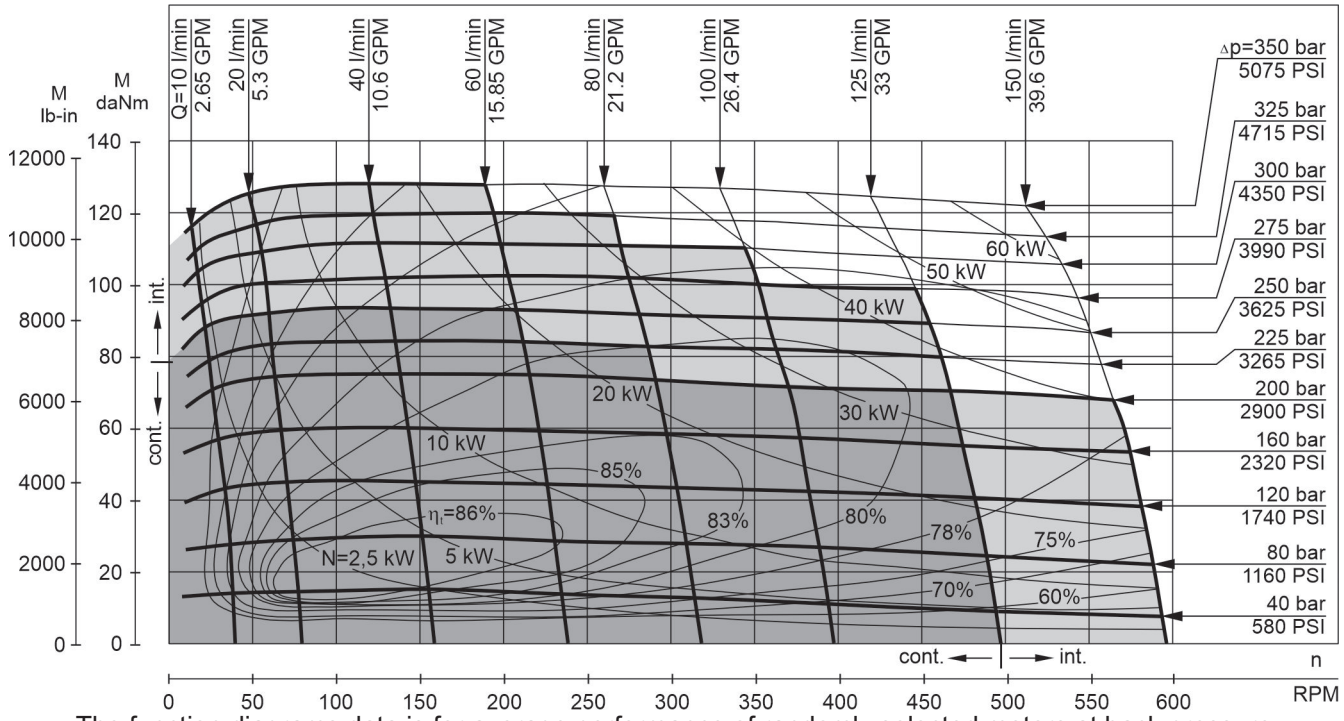
1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil HLP(DIN51524) or HM (ISO 6743/4). If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

MTM 200

FUNCTION DIAGRAMS



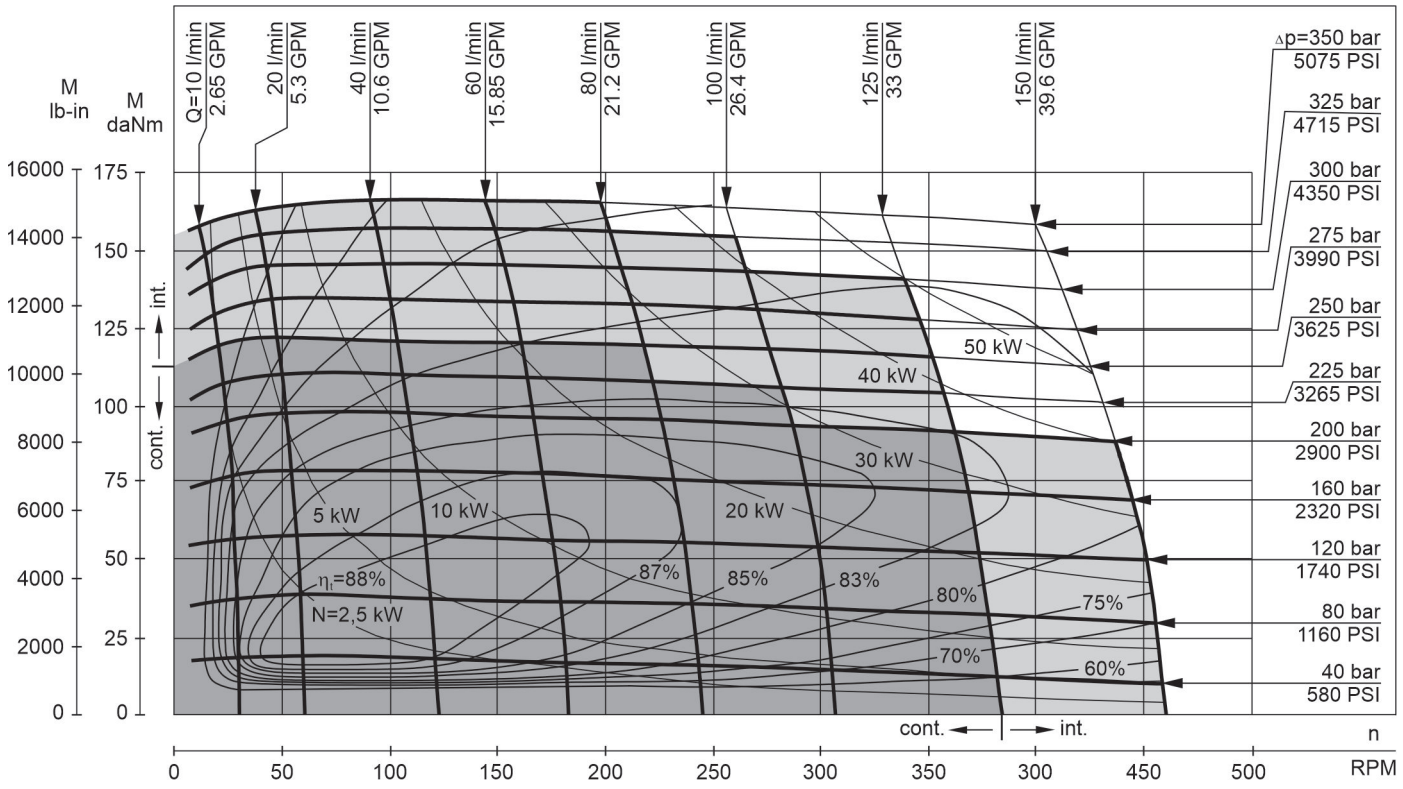
MTM 250



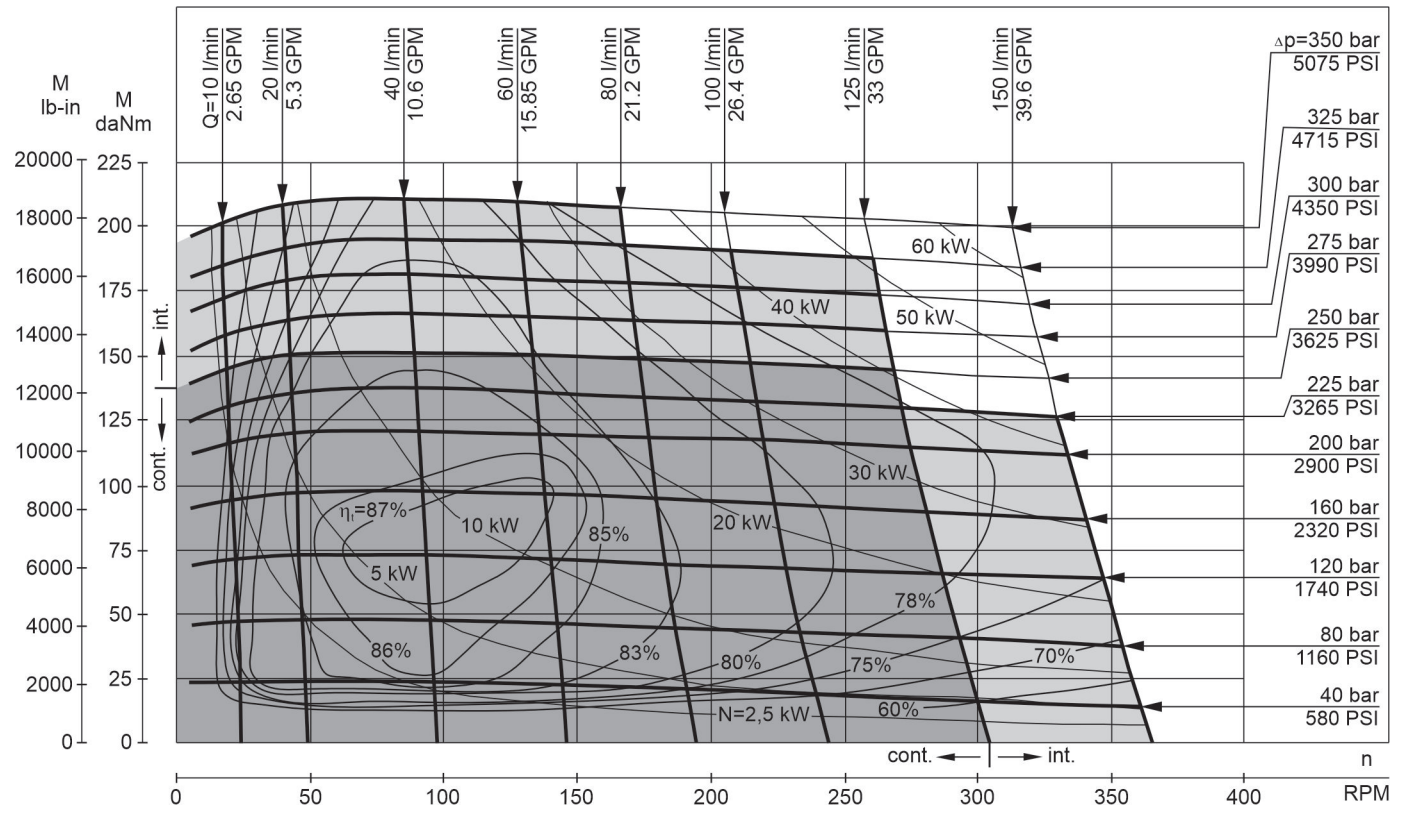
The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5 PSI÷145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

MTM 315



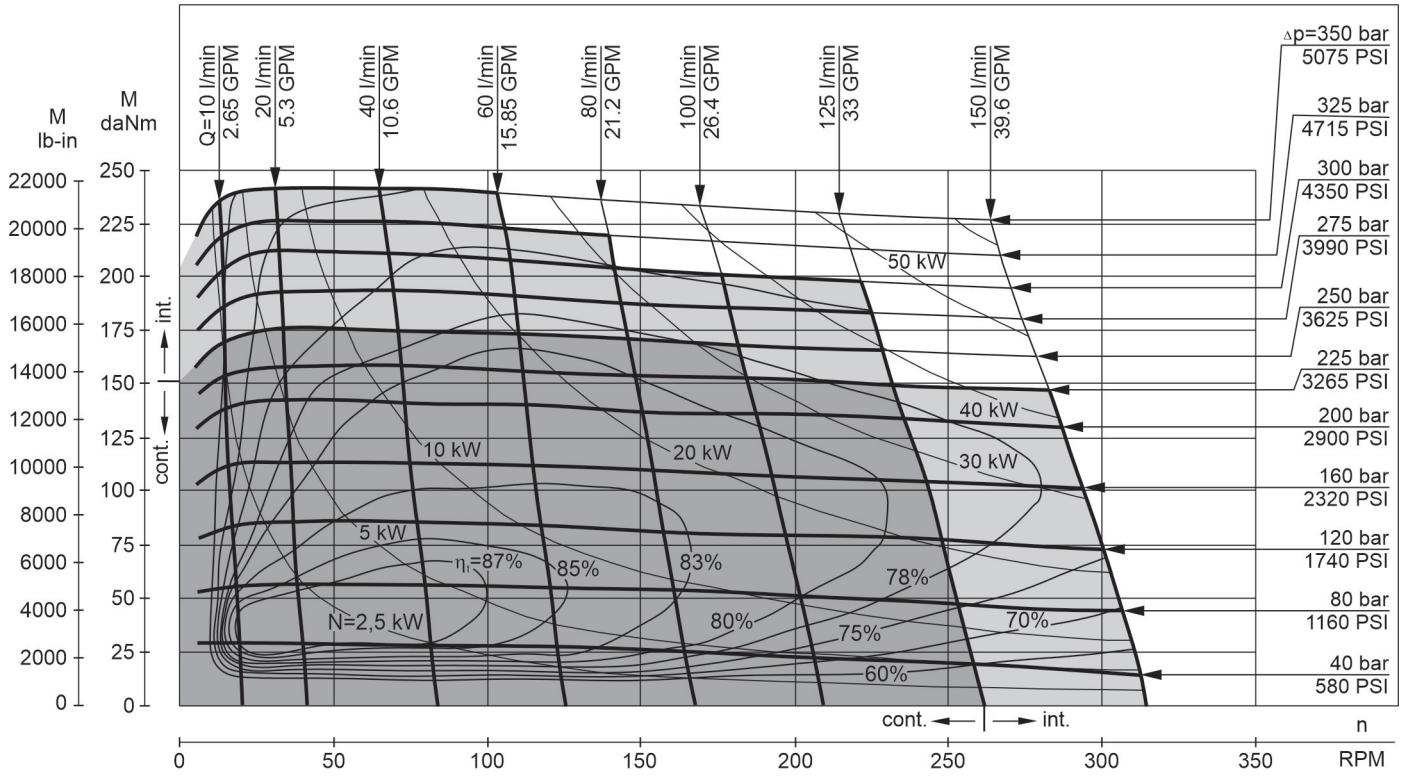
MTM 400



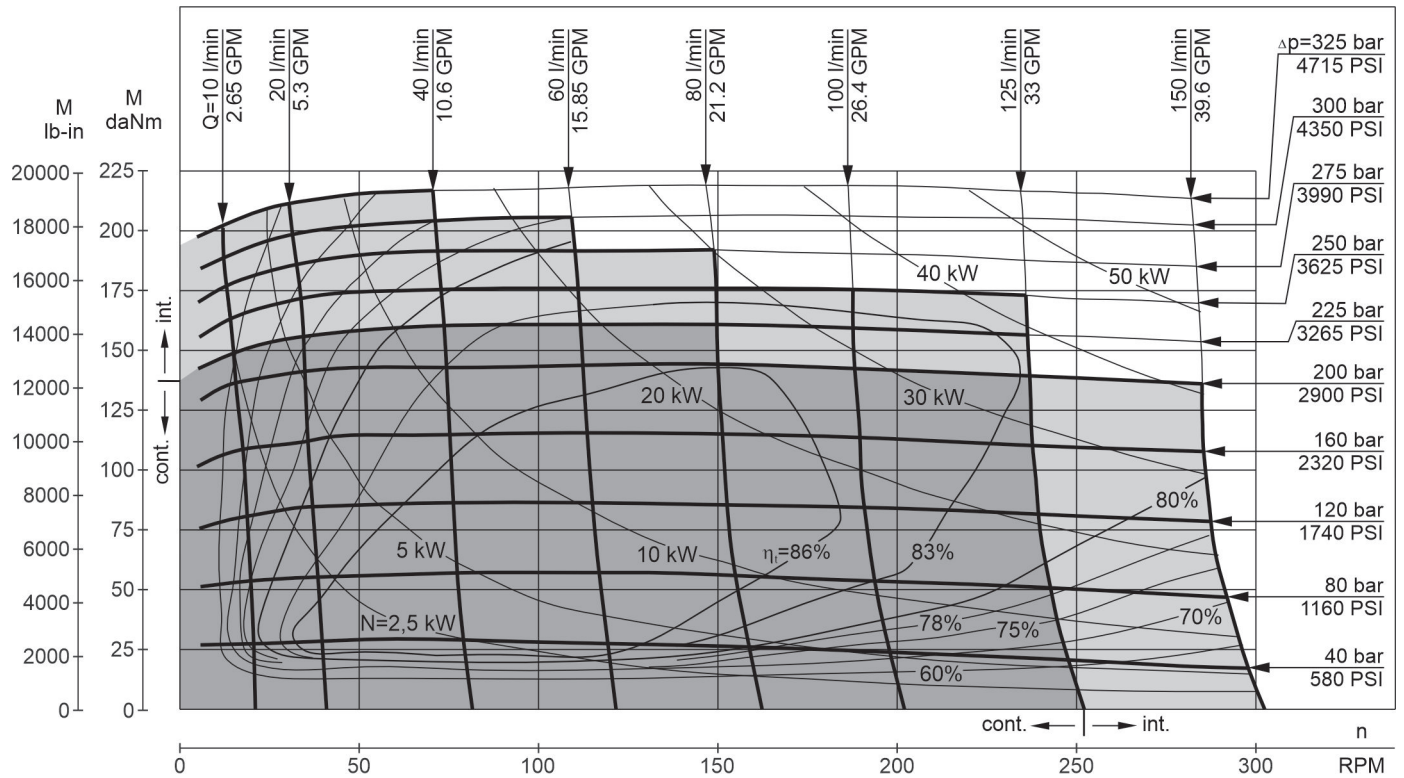
The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5 PSI÷145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

MTM 470



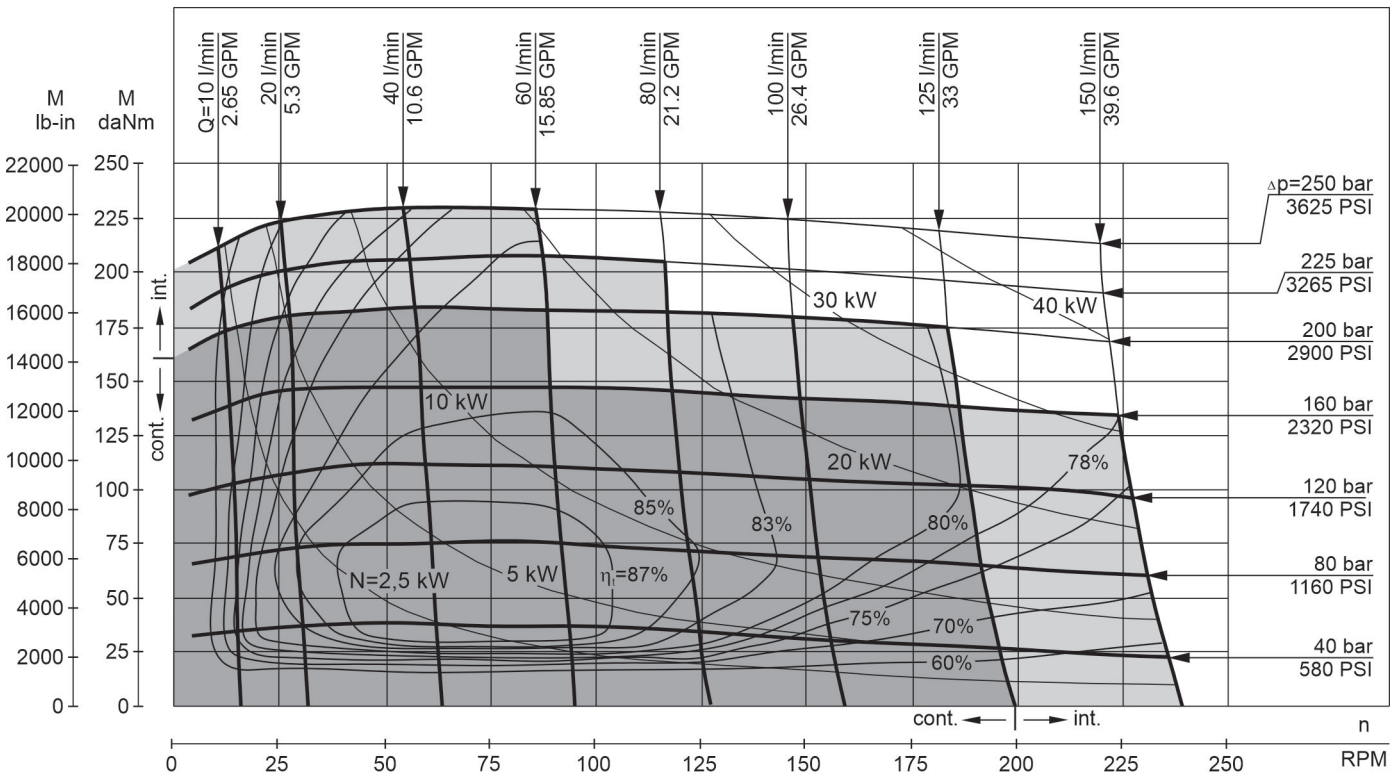
MTM 500



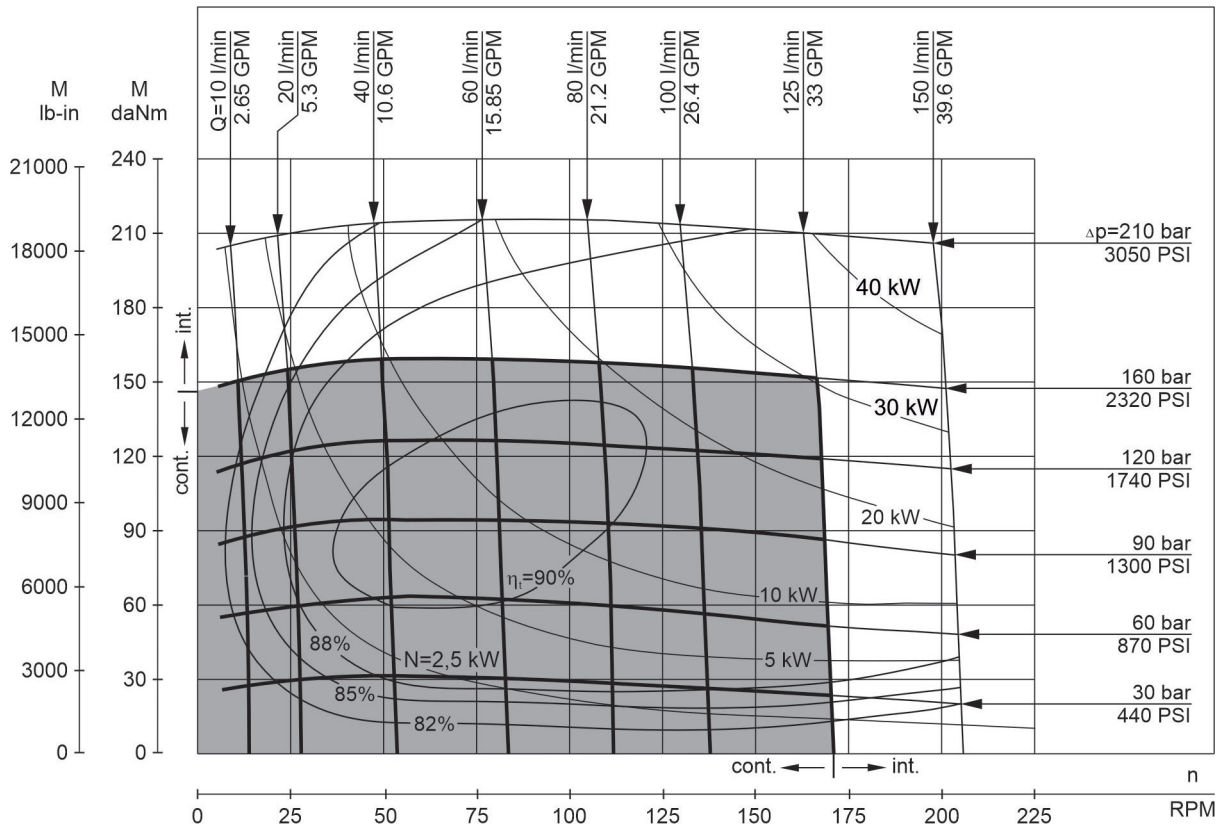
The function diagrams data is for average performance of randomly selected motors at back pressure 5÷10 bar [72.5 PSI÷145 PSI] and oil with viscosity of 32 mm²/s [150 SUS] at 50°C [122°F].

FUNCTION DIAGRAMS

MTM 630

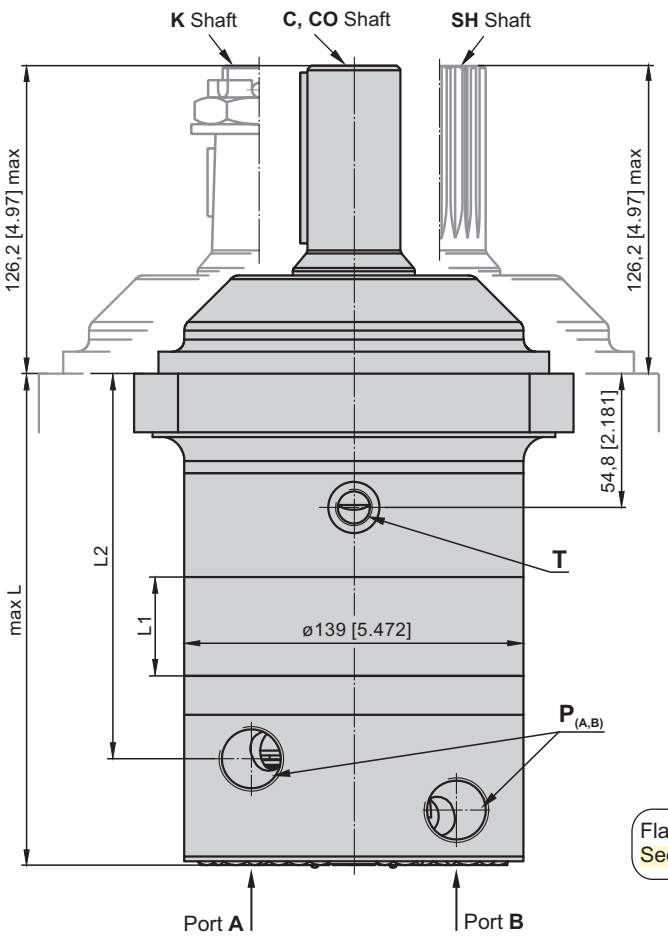


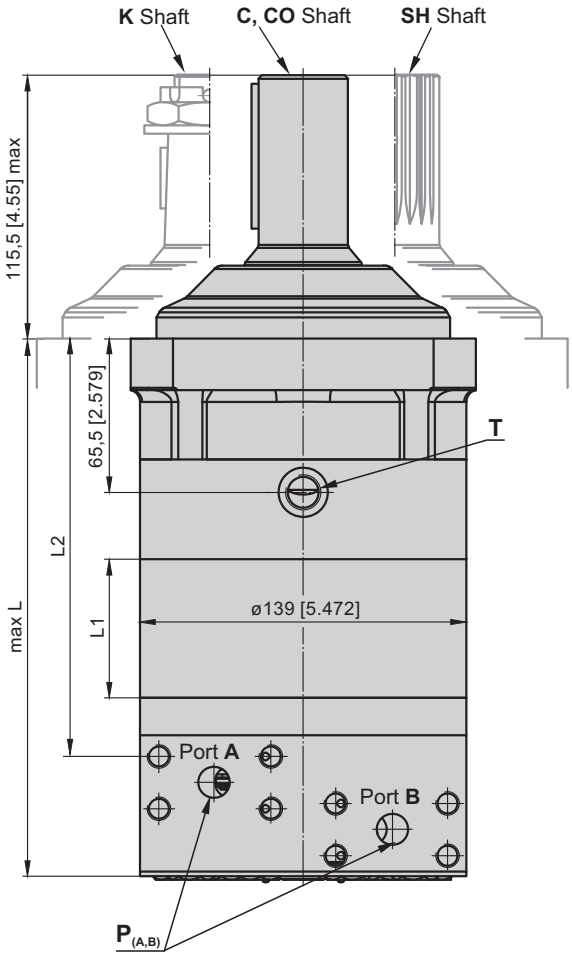
MTM 725



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].

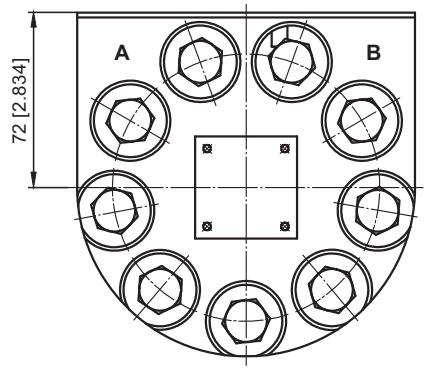
DIMENSIONS and MOUNTING DATA for MTM and MTMC - versions ..., 4, 5





Flange Dim. See Page 27

Shaft Dim. See Page 29



Warning: Drain line should always be used (if no check valves)!

mm [in]

	Versions		
	-	4	5
$P_{(A,B)}$	2xG3/4 17 mm [.67] depth	2x1 1/16-12UN O-ring 17 mm [.67] depth	2x3/4"SAE PSI3000 with 8xM10 threads 10 mm [.39] depth
T	G1/4 12 mm [.47] depth	9/16-18UN 13 mm [.51] depth	G1/4 12 mm [.47] depth

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

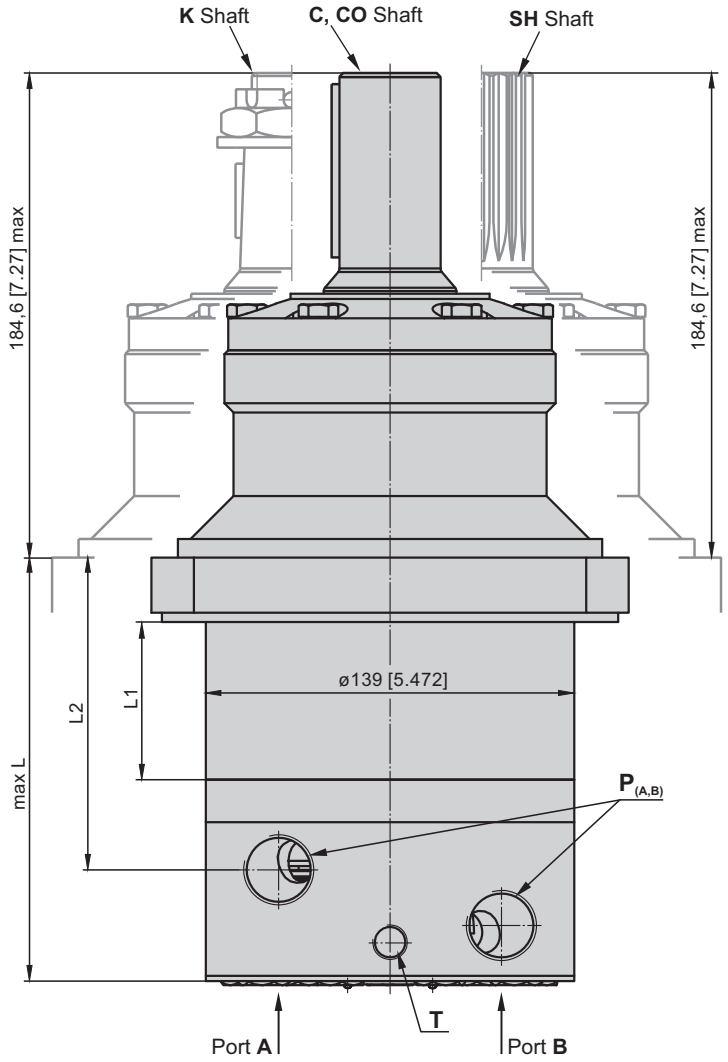
Reverse Rotation
Viewed from Shaft End
Port **A** Pressurized - **CCW**
Port **B** Pressurized - **CW**

Type	L, mm [in]	L_2, mm [in]	Type	L, mm [in]	L_2, mm [in]	Type	L, mm [in]	L_2, mm [in]	Type	L, mm [in]	L_3, mm [in]	L_1, mm [in]
MTM200 ...,4	188 [7.40]	142,3 [5.60]	MTMC200 ...,4	198 [7.79]	153 [6.02]	MTM200 5	188 [7.40]	133,5 [5.26]	MTMC200 5	198 [7.79]	144 [5.67]	25 [.98]
MTM250 ...,4	194 [7.64]	148,6 [5.85]	MTMC250 ...,4	204,5 [8.05]	159,3 [6.27]	MTM250 5	194 [7.64]	139,5 [5.49]	MTMC250 5	204,3 [8.04]	150,3 [5.92]	31,3 [1.23]
MTM315 ...,4	203 [7.99]	157,8 [6.21]	MTMC315 ...,4	213,5 [8.40]	168,5 [6.63]	MTM315 5	203 [7.99]	149,0 [5.87]	MTMC315 5	213,5 [8.41]	159,5 [6.28]	40,5 [1.59]
MTM400 ...,4	214 [8.43]	168,3 [6.63]	MTMC400 ...,4	224 [8.82]	179 [7.04]	MTM400 5	214 [8.43]	159,5 [6.28]	MTMC400 5	224 [8.82]	170 [6.69]	51 [2.01]
MTM470 ...,4	222 [8.74]	176,3 [6.94]	MTMC470 ...,4	232 [9.13]	187 [7.36]	MTM470 5	222 [8.74]	167,5 [6.59]	MTMC470 5	232 [9.13]	178 [7.01]	59 [2.32]
MTM500 ...,4	228 [8.98]	182,3 [7.18]	MTMC500 ...,4	238 [9.37]	193 [7.60]	MTM500 5	228 [8.98]	173,5 [6.83]	MTMC500 5	238 [9.37]	184 [7.24]	65 [2.56]
MTM630 ...,4	224 [8.82]	178,3 [7.02]	MTMC630 ...,4	234 [9.21]	189 [7.44]	MTM630 5	224 [8.82]	169,5 [6.67]	MTMC630 5	234 [9.21]	180 [7.09]	61 [2.40]
MTM725 ...,4	233 [9.17]	187,3 [7.37]	MTMC725 ...,4	243 [9.56]	198 [7.79]	MTM725 5	233 [9.17]	178,5 [7.03]	MTMC725 5	243 [9.57]	189 [7.44]	70 [2.76]

DIMENSIONS and MOUNTING DATA for MTMW - versions ... and 4

Flange Dim. See Page 27

Shaft Dim. See Page 29



Warning: Drain line should always be used (if no check valves)!

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**

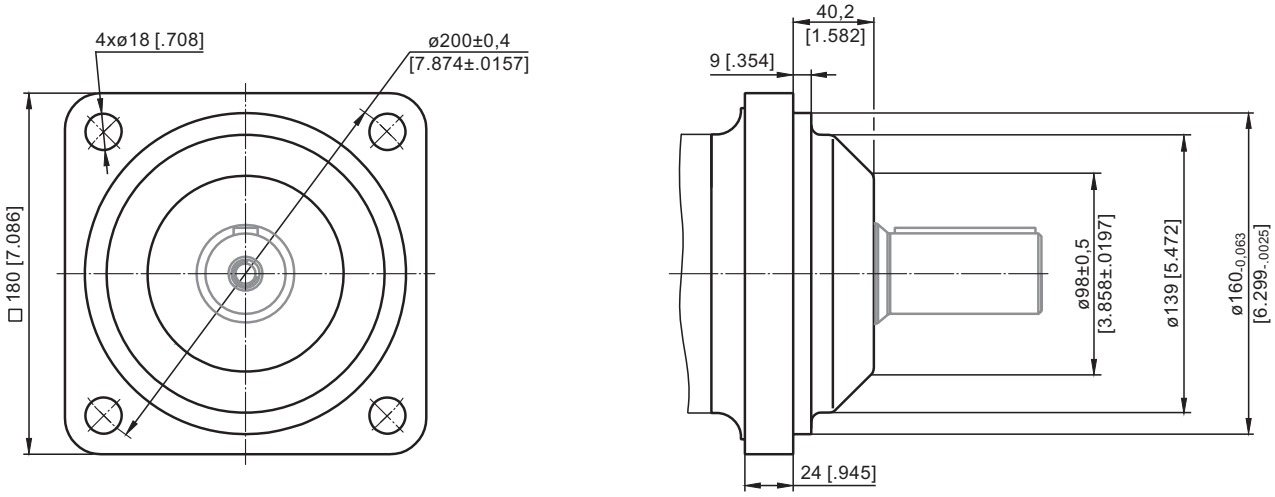
	Versions	
	-	4
$P_{(A,B)}$	2xG3/4 17 mm [.67] depth	2x1 1/16-12UN O-ring 17 mm [.67] depth
T	G1/4 12 mm [.47] depth	9/16-18UN 13 mm [.51] depth

Type	L, mm [in]	L_2, mm [in]	L_1, mm [in]
MTMW 200 ...,4	129 [5.08]	83,8 [3.30]	25 [.98]
MTMW 250 ...,4	135 [5.32]	90,1 [3.55]	31,3 [1.23]
MTMW 315 ...,4	144 [5.67]	99,3 [3.91]	40,5 [1.59]
MTMW 400 ...,4	155 [6.10]	109,8 [4.32]	51 [2.01]
MTMW 470 ...,4	163 [6.42]	117,8 [4.64]	59 [2.32]
MTMW 500 ...,4	169 [6.65]	123,8 [4.87]	65 [2.56]
MTMW 630 ...,4	165 [6.50]	119,8 [4.72]	61 [2.40]
MTMW 725 ...,4	174 [6.85]	128,8 [5.07]	70 [2.76]

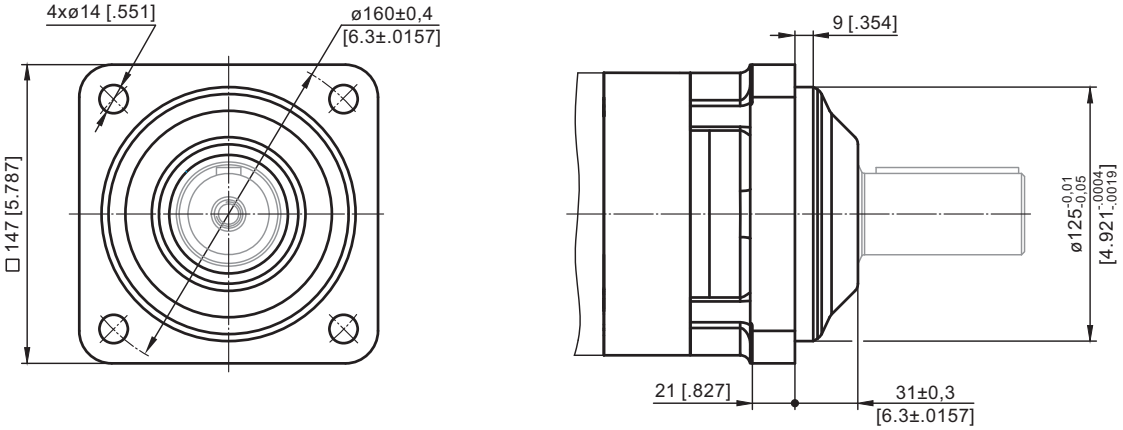
mm [in]

MOUNTING

4-Bolt flange
spigot diameter ø160 mm [6.3 in] - BC ø200 mm [7.874 in]

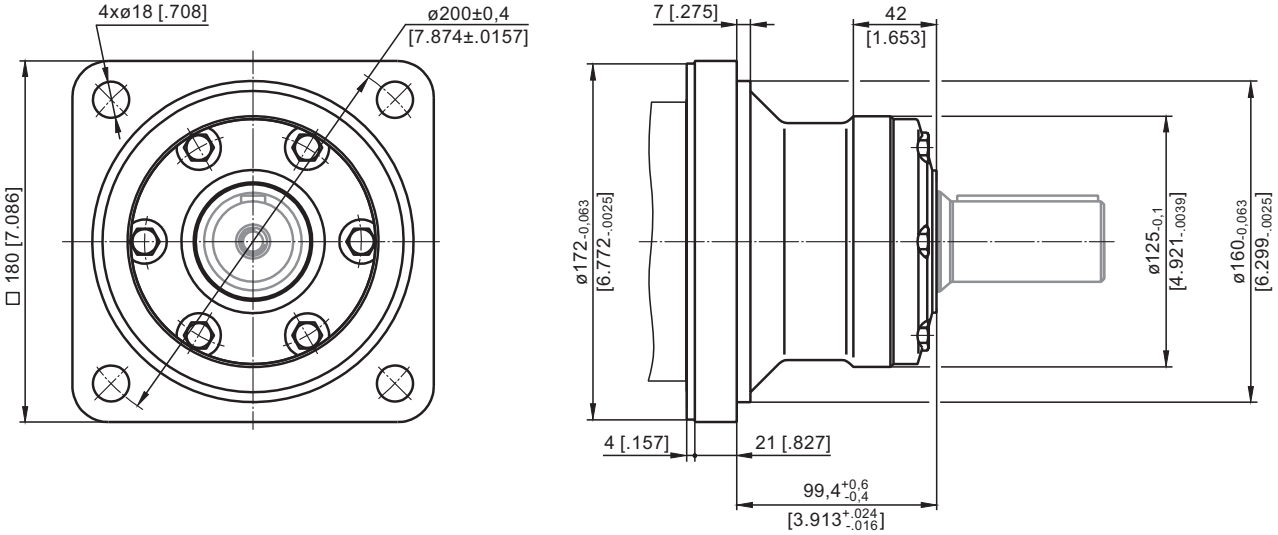


C 4-Bolt flange
spigot diameter ø125 mm [4.921 in] - BC ø160 mm [6.3 in]



mm [in]

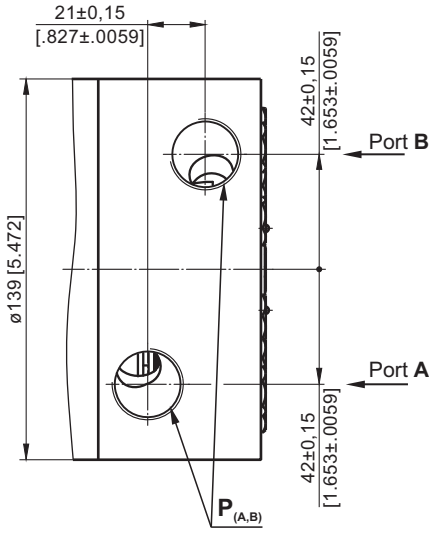
W 4-Bolt flange, Wheel Motor
spigot diameter ø160 mm [6.3 in] - BC ø200 mm [7.874 in]



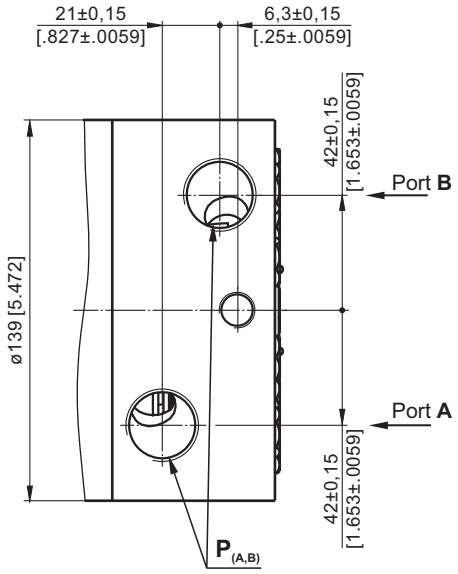
PORTS

Versions [-] [4]

For **MTM** and **MTMC**

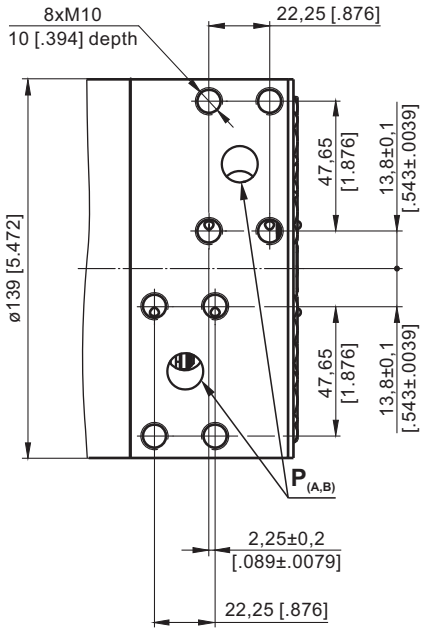


For **MTMW**



Version [5]

For **MTM** and **MTMC**

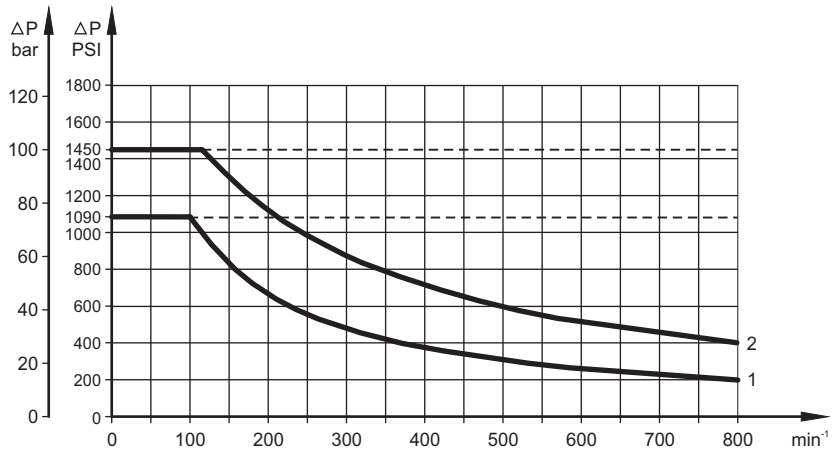


	Versions		
	-	[4]	[5]
$P_{(A,B)}$	2xG3/4 17 mm [.67] depth	2x1 1/16-12UN O-ring 17 mm [.67] depth	2x3/4"SAE PSI3000 with 8xM10 threads 10 mm [.39] depth
T	G1/4 12 mm [.47] depth	9/16-18UN 13 mm [.51] depth	G1/4 12 mm [.47] depth

mm [in]

MAX. PERMISSIBLE SHAFT SEAL PRESSURE

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



1: Drawing for Standard Shaft Seal

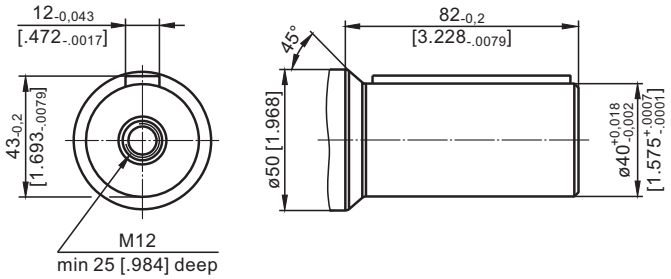
2: Drawing for High Pressure Seal ("**U**" Seal)

——— - continuous operations

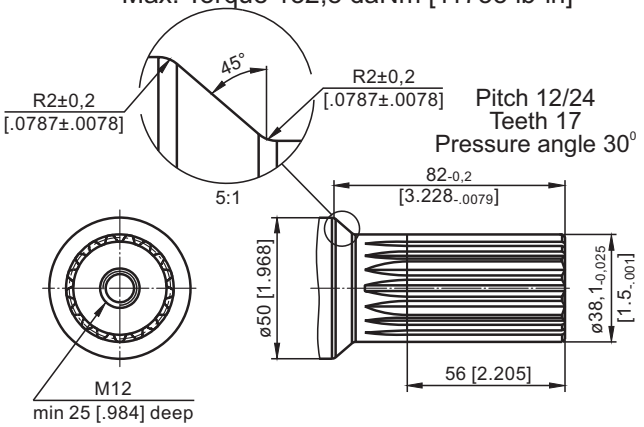
- - - - - - intermittent operations

SHAFT EXTENSIONS

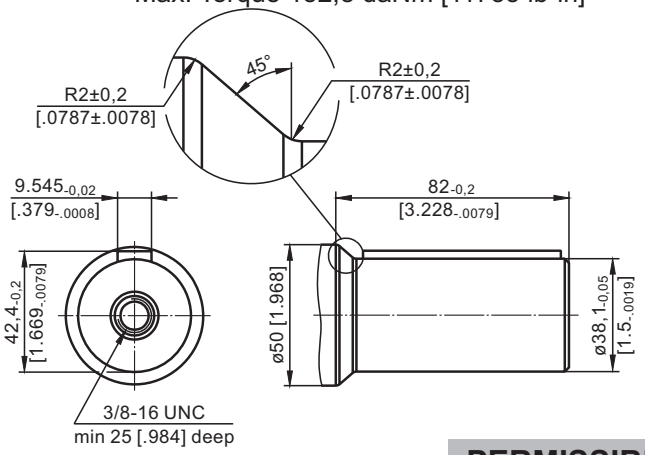
C - ø40 straight, Parallel key A12x8x70 DIN 6885
Max. Torque 132,8 daNm [11755 lb-in]



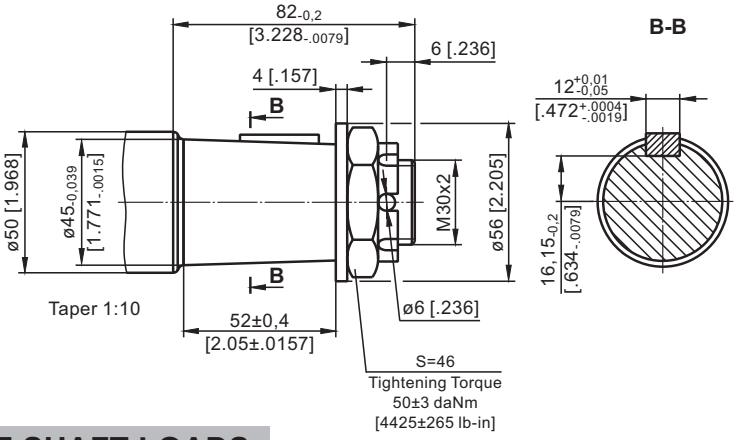
SH - ø1½" splined 17T, DP 12/24 ANSI B92.1-1976
Max. Torque 132,8 daNm [11755 lb-in]



CO - ø1½" straight, Parallel key ⅜"x⅜"x 2¼" BS46
Max. Torque 132,8 daNm [11755 lb-in]

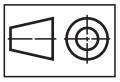


K - tapered 1:10, Parallel key B12x8x28 DIN 6885
Max. Torque 210,7 daNm [18650 lb-in]



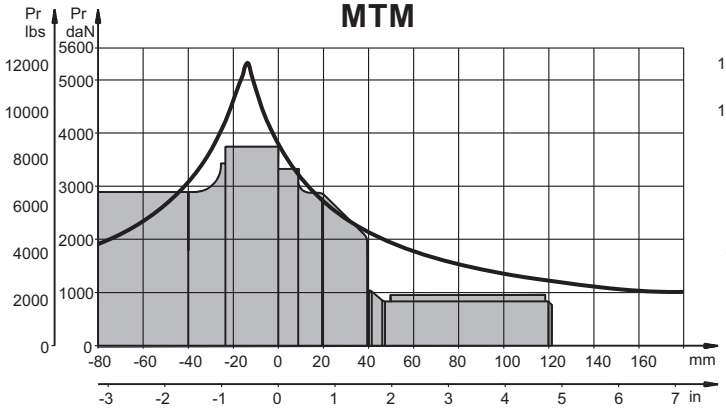
PERMISSIBLE SHAFT LOADS

The curves apply to a B10 bearing life (ISO281) of 2000 hours at 200 RPM.

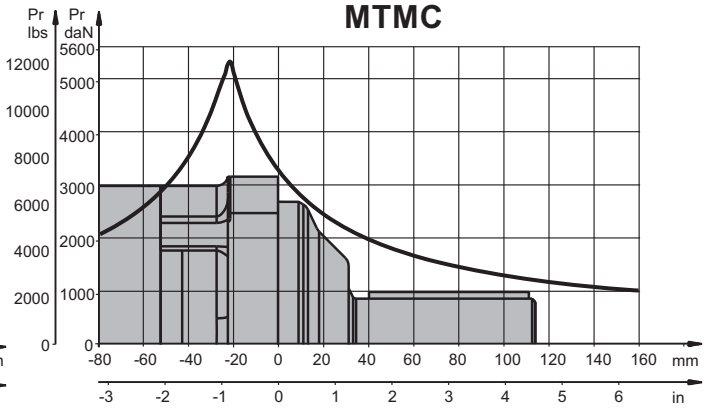


mm [in]

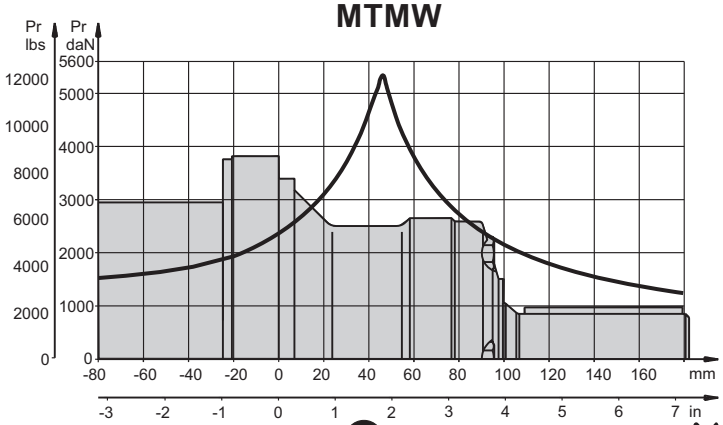
MTM



MTMC

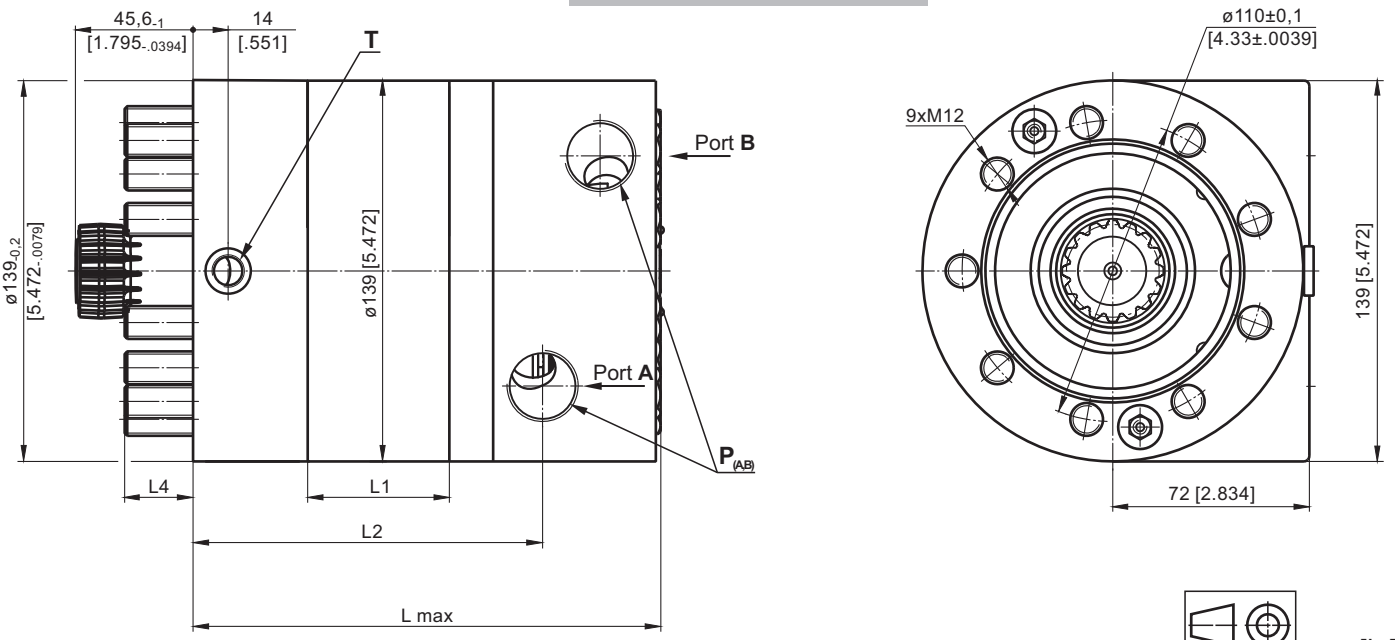


MTMW



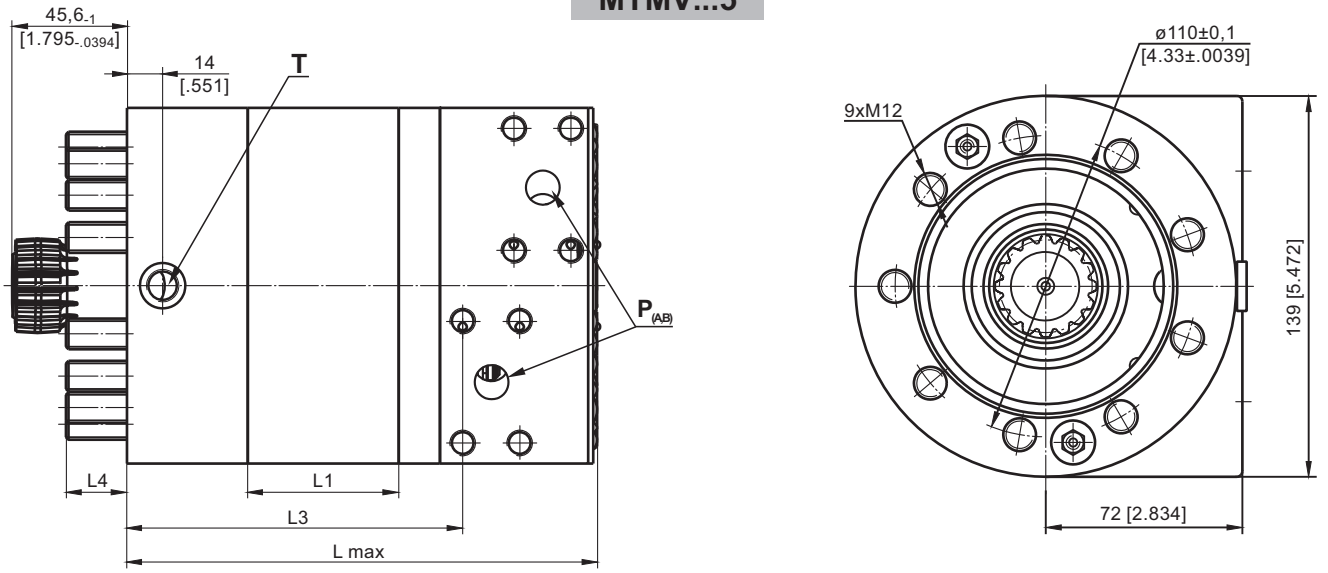
DIMENSIONS and MOUNTING DATA for MTMV

MTMV... and MTMV...4



mm [in]

MTMV...5



Warning: Drain line should always be used (if no check valves)

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

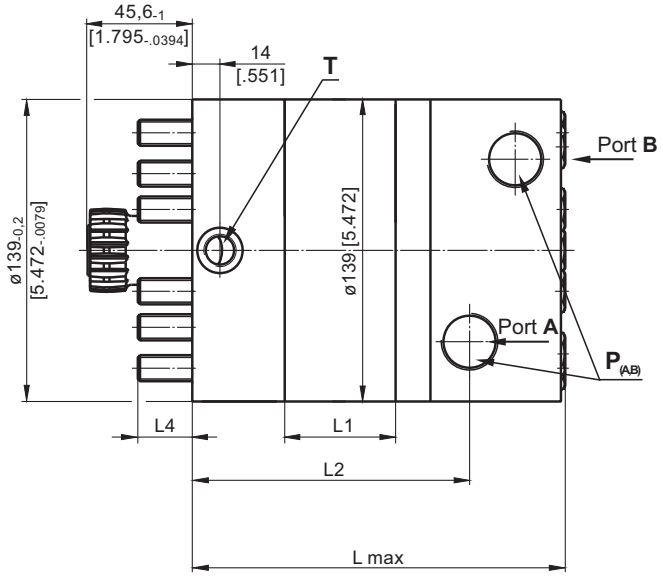
Reverse Rotation
Viewed from Shaft End
Port **A** Pressurized - **CCW**
Port **B** Pressurized - **CW**

	Versions		
	-	4	5
$P_{(A,B)}$	2xG3/4 17 mm [.67] depth	2x1 1/16-12UN O-ring 17 mm [.67] depth	2x3/4"SAE PSI3000 with 8xM10 threads 10 mm [.39] depth
T	G1/4 12 mm [.47] depth	9/16-18UN 13 mm [.51] depth	G1/4 12 mm [.47] depth

Type	L, mm [in]	L_2, mm [in]	L_3, mm [in]	L_4, mm [in]	L_1, mm [in]
MTMV 200	151 [5.945]	106,5 [4.193]	97,2 [3.827]	27,8 [1.094]	25,0 [.98]
MTMV 250	157 [6.181]	112,8 [4.441]	103,5 [4.075]	26,5 [1.043]	31,3 [1.23]
MTMV 315	167 [6.575]	122,0 [4.803]	112,7 [4.437]	22,3 [.878]	40,5 [1.59]
MTMV 400	177 [6.968]	132,5 [5.217]	123,2 [4.850]	21,8 [.858]	51,0 [2.01]
MTMV 470	185 [7.283]	140,5 [5.531]	131,2 [5.165]	23,8 [.937]	59,0 [2.32]
MTMV 500	191 [7.520]	146,5 [5.768]	137,2 [5.402]	27,8 [1.094]	65,0 [2.56]
MTMV 630	187 [7.362]	142,5 [5.610]	133,2 [5.244]	21,8 [.858]	61,0 [2.40]
MTMV 725	196 [7.717]	151,5 [5.965]	142,2 [5.598]	22,8 [.898]	70,0 [2.76]

DIMENSIONS and MOUNTING DATA for MTM6V

MTM6V... and MTM6V...4



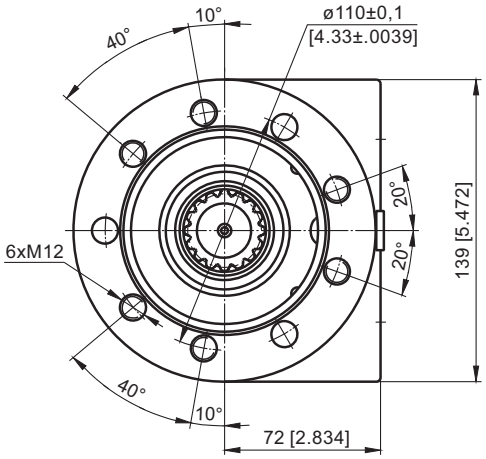
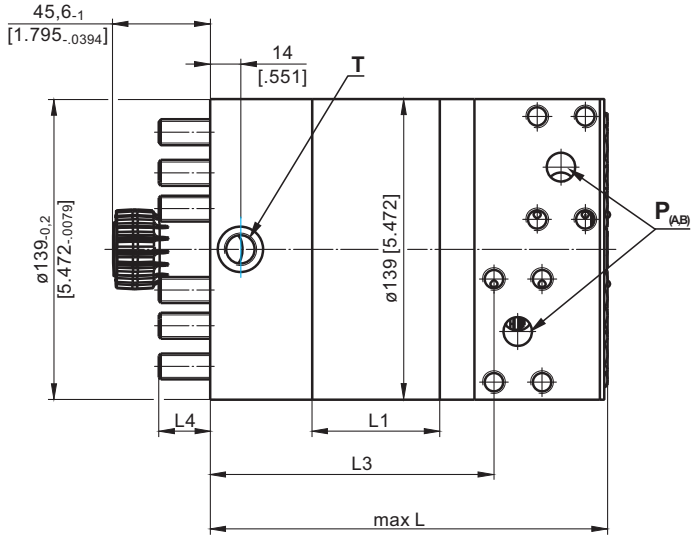


Fig.1

mm [in]

MTM6V...5



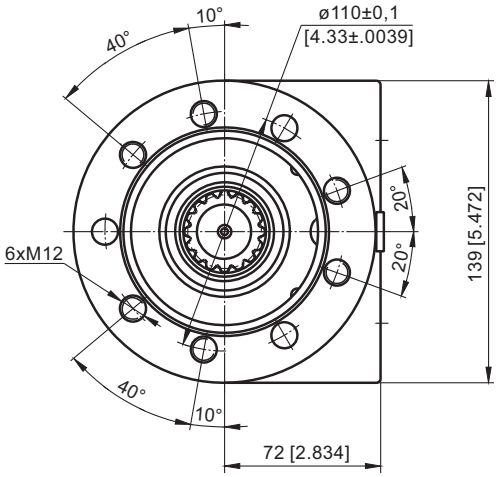


Fig.1

Warning: Drain line should always be used (if no check valves)

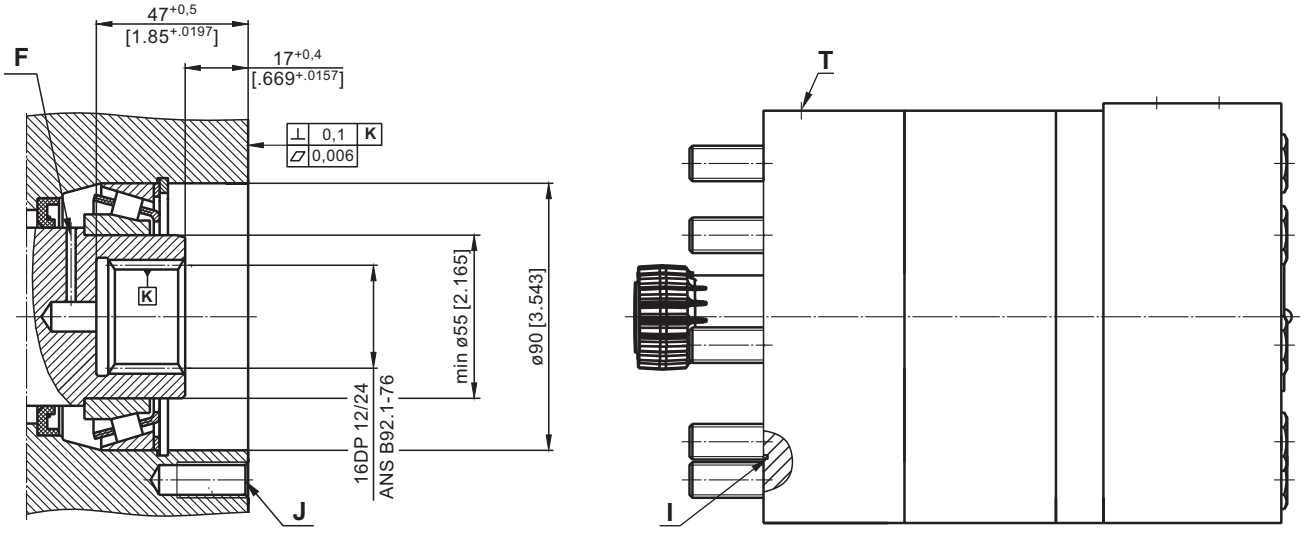
Standard Rotation
Viewed from Shaft End
Port **A** Pressurized - **CW**
Port **B** Pressurized - **CCW**

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

	Versions		
	-	4	5
$P_{(A,B)}$	2xG3/4 17 mm [.67] depth	2x1 1/16-12UN O-ring 17 mm [.67] depth	2x3/4"SAE PSI3000 with 8xM10 threads 10 mm [.39] depth
T	G1/4 12 mm [.47] depth	9/16-18UN 13 mm [.51] depth	G1/4 12 mm [.47] depth

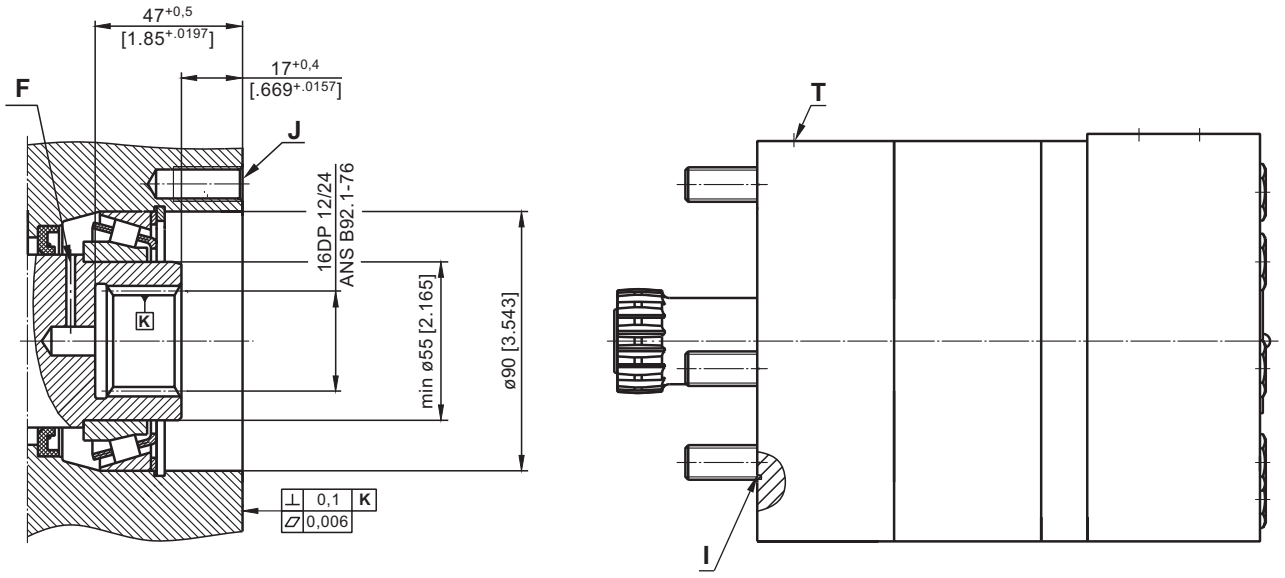
Type	L, mm [in]	L_2, mm [in]	L_3, mm [in]	L_4, mm [in]	L_1, mm [in]
MTM6V 200	151 [5.945]	106,5 [4.193]	97,2 [3.827]	27,8 [1.094]	25,0 [.98]
MTM6V 250	157 [6.181]	112,8 [4.441]	103,5 [4.075]	26,5 [1.043]	31,3 [1.23]
MTM6V 315	167 [6.575]	122,0 [4.803]	112,7 [4.437]	22,3 [.878]	40,5 [1.59]
MTM6V 400	177 [6.968]	132,5 [5.217]	123,2 [4.850]	21,8 [.858]	51,0 [2.01]
MTM6V 470	185 [7.283]	140,5 [5.531]	131,2 [5.165]	23,8 [.937]	59,0 [2.32]
MTM6V 500	191 [7.520]	146,5 [5.768]	137,2 [5.402]	27,8 [1.094]	65,0 [2.56]
MTM6V 630	187 [7.362]	142,5 [5.610]	133,2 [5.244]	21,8 [.858]	61,0 [2.40]
MTM6V 725	196 [7.717]	151,5 [5.965]	142,2 [5.598]	22,8 [.898]	70,0 [2.76]

DIMENSIONS of the ATTACHED COMPONENT



F: Oil circulation hole
J: 9xM12 - 30 mm [1.181 in] depth, 40^0, ø110±0,1 [4.33±.0039]
I : O-Ring 93x1,5 mm [3.661x.059 in]
T: Drain connection G1/4

DIMENSIONS of THE ATTACHED COMPONENT for MTM6V



F: Oil circulation hole
J: 9xM12 - 30 mm [1.181 in] depth, 40^0, ø110±0,1 mm [4.33±.0039 in] or 6xM12 - 30 mm [1.181 in] depth, situated in accordance with the bolts M12, shown on Fig.1, ø110±0,1 mm [4.33±.0039 in]
I : O-Ring 93x1,5 mm [3.661x.059 in]
T: Drain connection G1/4

mm [in]

DRAIN CONNECTION

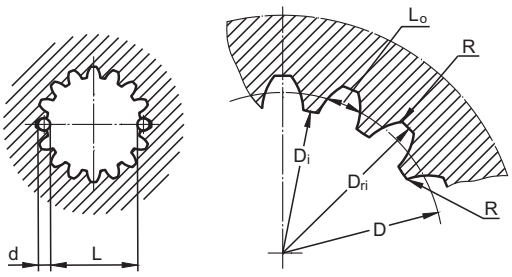
A drain line ought to be used when pressure in the return line can exceed the permissible pressure. It can be connected at the drain connection of the attached component. The maximum pressure in the drain line is limited by the attached component and its shaft seal.

The drain line must be possible for oil to flow freely between motor and attached component and must be led to the tank. The maximum pressure in the drain line is limited by the attached component and its seal.

INTERNAL SPLINE DATA for the ATTACHED COMPONENT

Standard ANS B92.1-1976, class 5
[m=2.1166; corrected x.m=+1,0]

Fillet Root Side Fit		inch	mm
Number of Teeth	z	16	16
Diametral Pitch	DP	12/24	12/24
Pressure Angle		30^0	30^0
Pitch Dia.	D	1.3333	33,8656
Major Dia.	Dri	1.5118÷1.5275	$38,4^{+0,4}$
Minor Dia.	Di	1.2657÷1.2673	$32,15^{+0,04}$
Circular Space Width	Lo	.1763÷.1791	4,516±0,037
Fillet Radius	R	.02	0,5
Dimension Between Two Pins	L	1.063÷1.059	$26,9^{+0,10}$
Pin Dia.	d	.19026÷.19034	4,835±0,001



Hardening Specification:
HV=750±50 on the surface.
HV=560 at 0,7±0,2 [.035÷.019] case depth
Material: 20 MoCr4 EN 10084 or SAE8620.

ORDER CODE

	1	2	3	4	5	6	7	8
M T M							**HD**	

Pos.1 - Mounting Flange

omit - 4-Bolt flange, spigot dia. ø160, BC ø200
C - 4-Bolt flange, spigot dia. ø125, BC ø160
W* - Wheel motor
V - Very short mount, 9xM12 mounting bolts
6V - Very short mount, 6xM12 mounting bolts

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 - Shaft Extensions**

C - ø40 straight, Parallel key A12x8x70 DIN6885
CO - ø1½" straight, Parallel key $^3/_8$"x$^3/_8$"x2¼" BS46
K - ø45 tapered 1:10, Parallel key B12x8x28 DIN6885
SH - ø1½" splined 17T ANSI B92.1-1976

Pos.4 - Shaft Seal Version* (see page 31)**

omit - Low pressure seal
U - High pressure seal

Pos.5 - Ports

omit - 2xG3/4, G1/4, BSPP (ISO 228)
4 - 2x1$^1/_{16}$-12 UN, O-ring, $^9/_{16}$-18 UNF
5 - 2x3/4"SAE PSI3000 with 8xM10 threads, G1/4

Pos.6 - Check Valves

omit - without check valves
1 - with check valves

Pos.7 - Additional Options

HD - Reinforced motor **HD***
For Other **Additional Options** see page 71

Pos.8 - Design Series

omit - Factory specified

NOTES:

* Not applicable for "5" version.
** The permissible output torque for shafts must be not exceeded!
*** Shaft seal is available with the "omit" and "W" mounting flange only!

The hydraulic motors are mangano-phosphatized as standard.