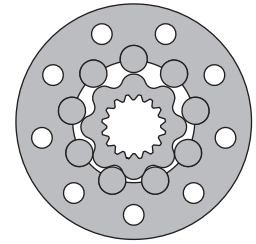
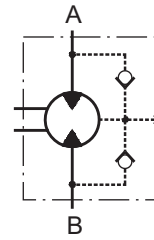
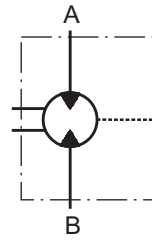


# HYDRAULIC MOTORS MTM



## APPLICATION

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



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## 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

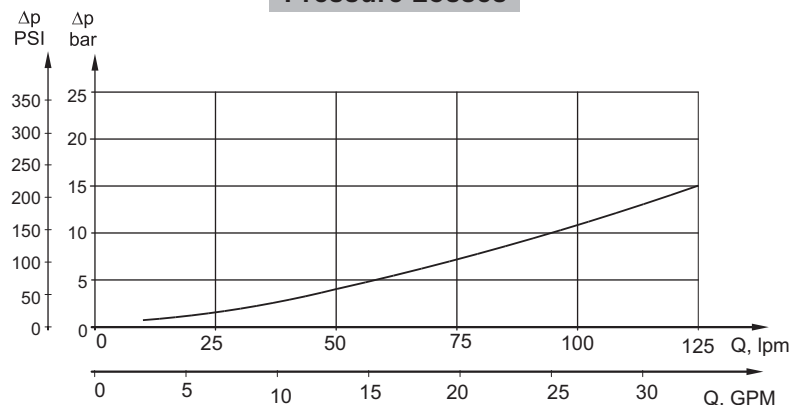
## GENERAL

<b>Max. Displacement,</b> cm <sup>3</sup> /rev [in <sup>3</sup> /rev]	724,3 [44.2]
<b>Max. Speed,</b> [RPM]	750
<b>Max. Torque,</b> daNm [lb-in]	cont.: 183 [16200] int.: 229 [20270]
<b>Max. Output,</b> kW [HP]	70 [94]
<b>Max. Pressure Drop,</b> bar [PSI]	cont.: 250 [3600] int.: 350 [5080]
<b>Max. Oil Flow,</b> lpm [GPM]	150 [40]
<b>Min. Speed,</b> [RPM]	5
<b>Permissible Shaft Loads</b> daN [lbs]	P <sub>a</sub> =1000 [2250]
<b>Pressure fluid</b>	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
<b>Temperature range,</b> °C [°F]	-40÷140 [-40÷284]
<b>Optimal Viscosity range,</b> mm <sup>2</sup> /s [SUS]	20÷75 [98÷347]
<b>Filtration</b>	ISO code 20/16 (Min. recommended fluid filtration of 25 microns)

### Oil flow in drain line

Pressure drop bar [PSI]	Viscosity mm <sup>2</sup> /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
<b>Displacement, cm<sup>3</sup>/rev [in<sup>3</sup>/rev]</b>		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]
<b>Max. Speed, [RPM]</b>	Cont.	625	500	380	305	260	240	190	170
	Int.*	750	600	460	365	315	285	230	215
<b>Max. Torque daNm [lb-in]</b>	Cont.	72[6375]	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]
<b>Max. Output kW [HP]</b>	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]
<b>Max. Pressure Drop bar [PSI]</b>	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]
<b>Max. Oil Flow lpm [GPM]</b>	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]
<b>Max. Inlet Pressure bar [PSI]</b>	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]
<b>Max. Return Pressure without Drain Line or Max. Pressure in Drain Line, bar [PSI]</b>	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]
<b>Max. Return Pressure with Drain Line bar [PSI]</b>	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]
<b>Max. Starting Pressure with Unloaded Shaft, bar [PSI]</b>		6 [90]	6 [90]	6 [90]	6 [90]	6 [90]	6 [90]	6 [90]	6 [90]
<b>Min. Starting Torque daNm [lb-in]</b>		60[5310]	75[6640]	97[8585]	122[10800]	142[12570]	143[12655]	145[12830]	148[13100]
<b>Min. Speed***, [RPM]</b>		5	5	5	5	5	5	5	5
<b>Weight, kg [lb]</b>	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.

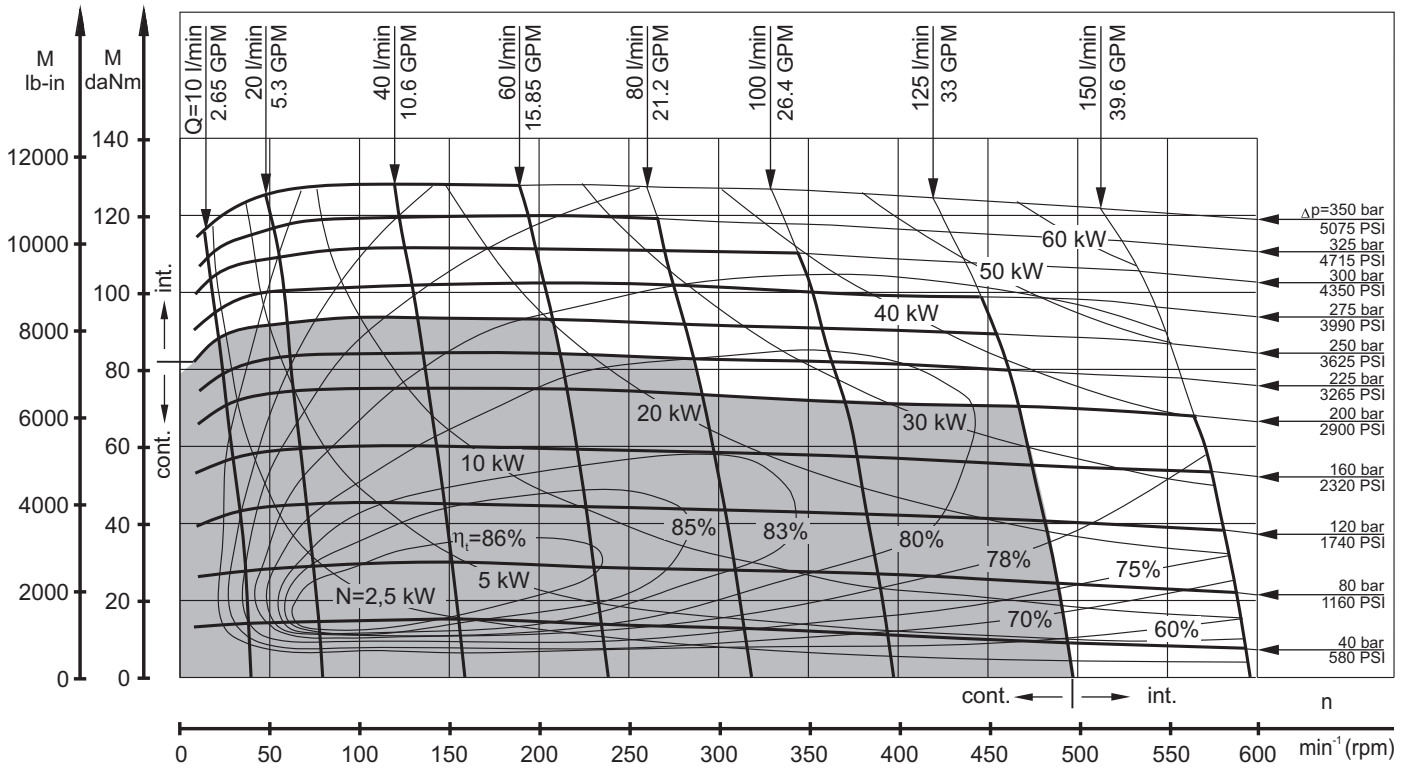
\*\* Peak load: the permissible values may occur for max. 1% of every minute.

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

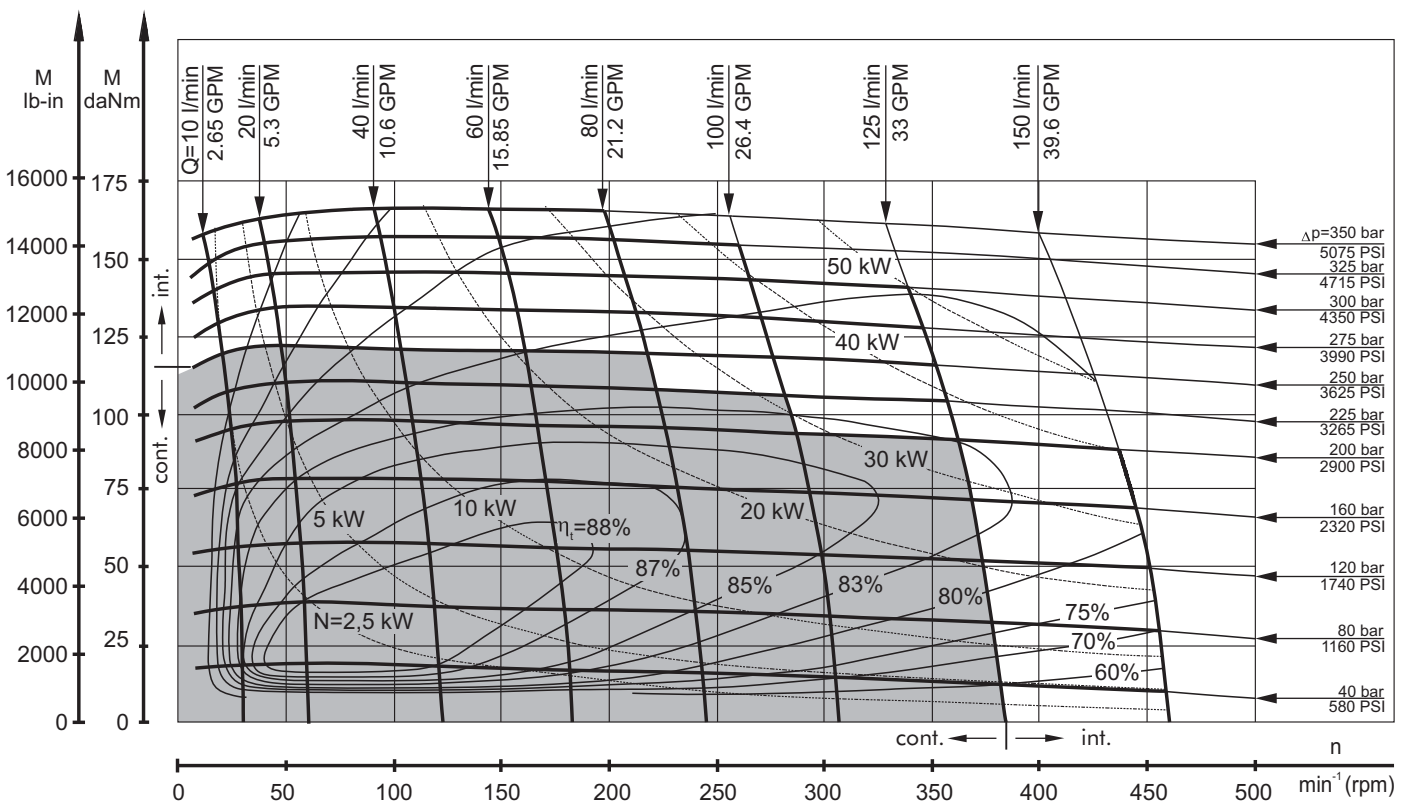
- Intermittent speed and intermittent pressure must not occur simultaneously.
- Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
- Recommend using a premium quality, anti-wear type mineral based hydraulic oil, HLP(DIN51524) or HM(ISO6743/4). If using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

**MTM 250**



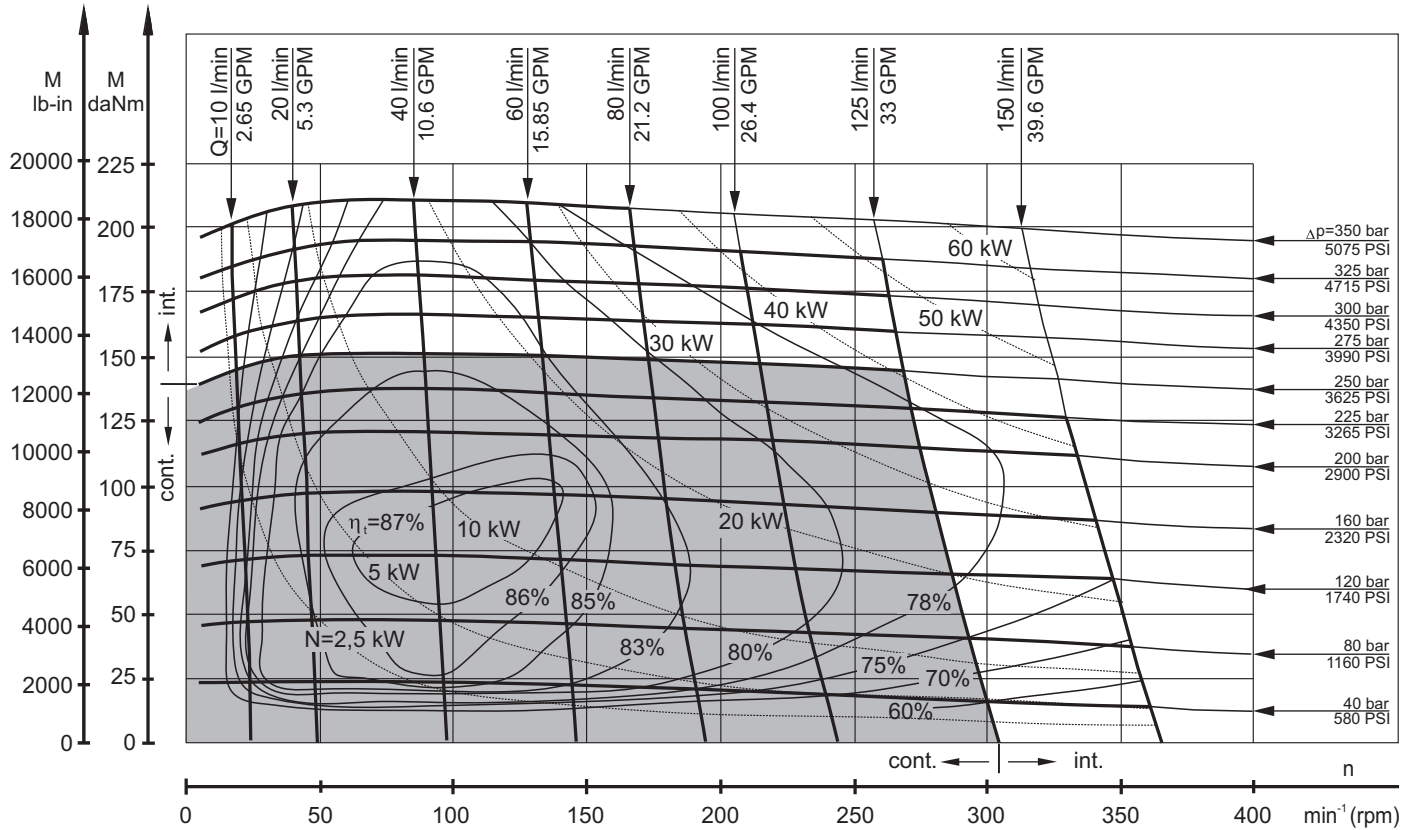
**MTM 315**



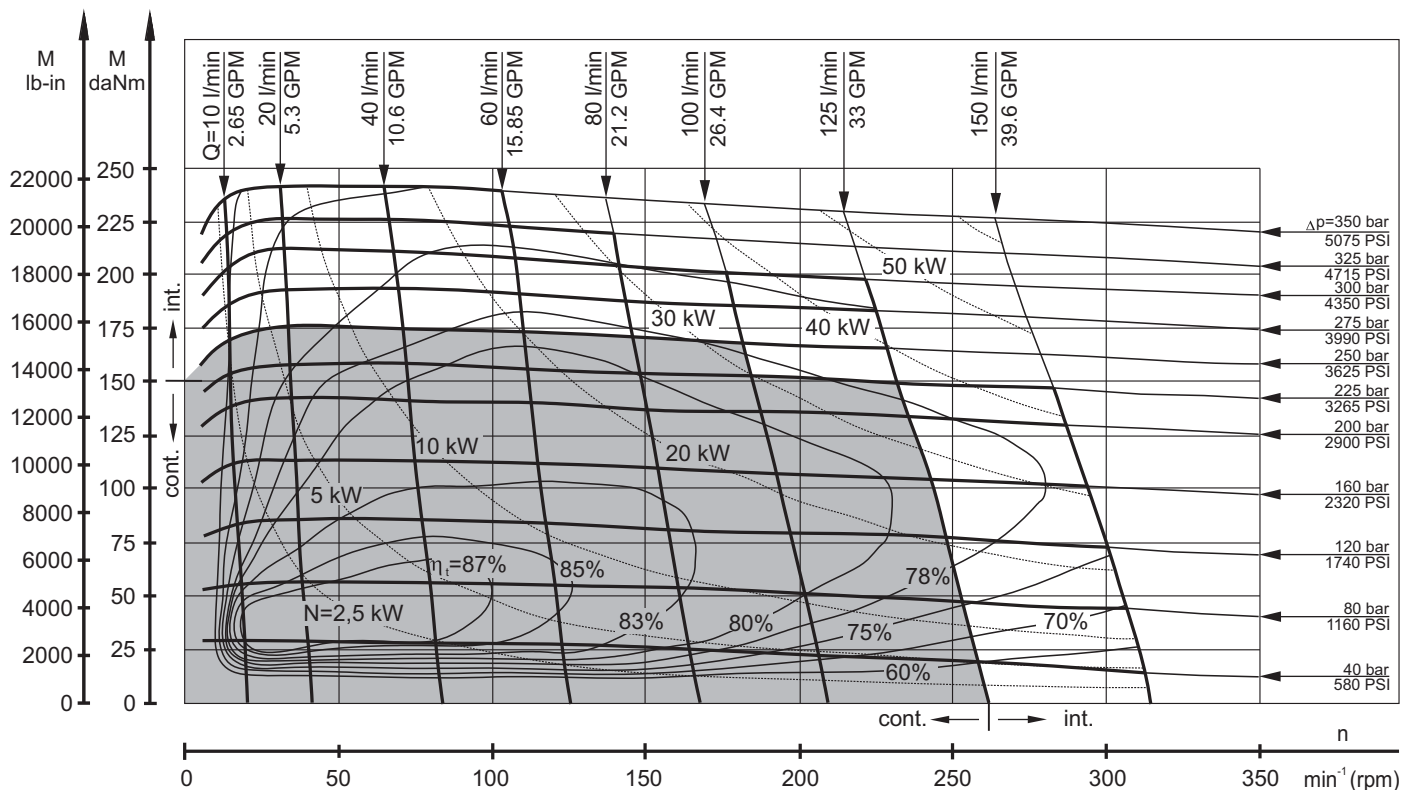
The function diagrams data was collected at back pressure 5÷10 bar (72.5PSI÷145PSI) and oil with viscosity of 32 mm<sup>2</sup>/s [150SUS] at 50° C [122°F].

**FUNCTION DIAGRAMS**

**MTM 400**



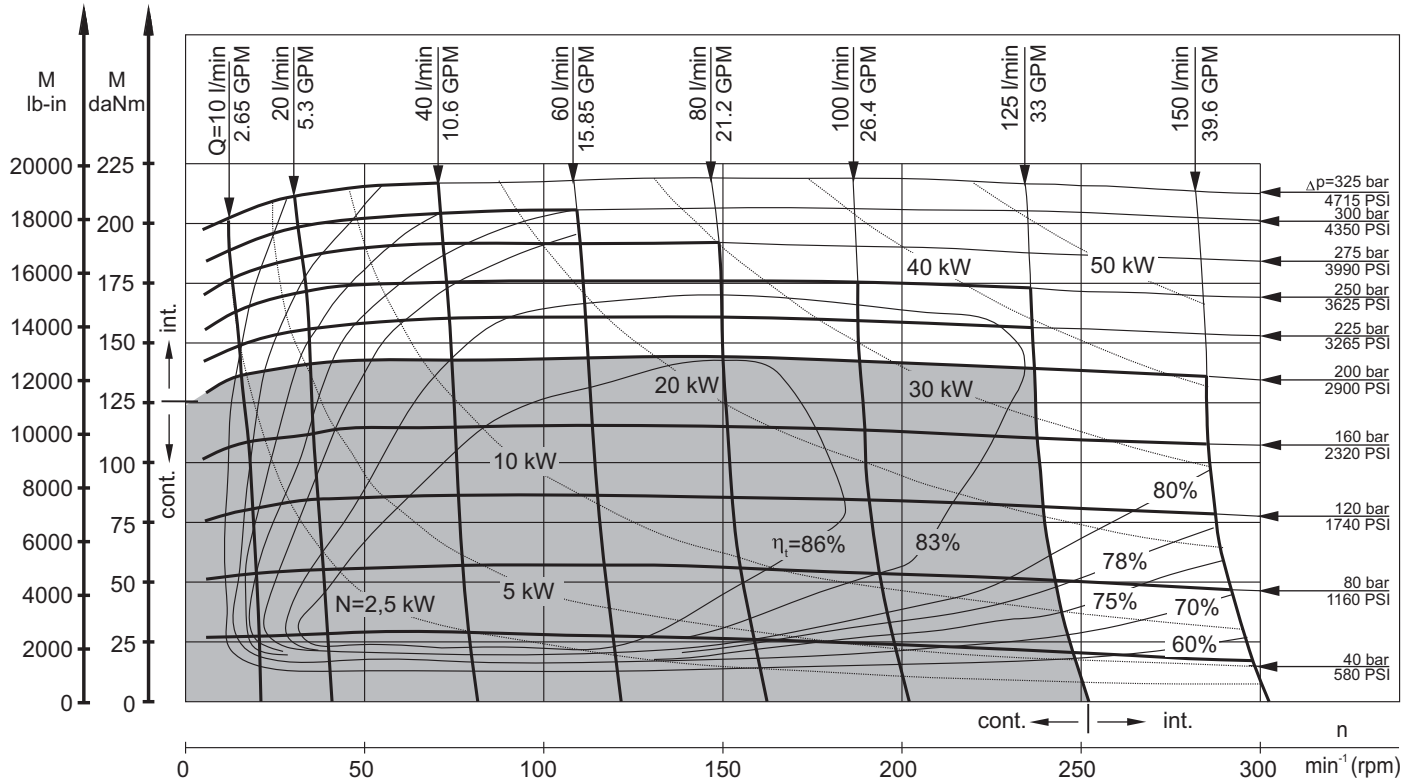
**MTM 470**



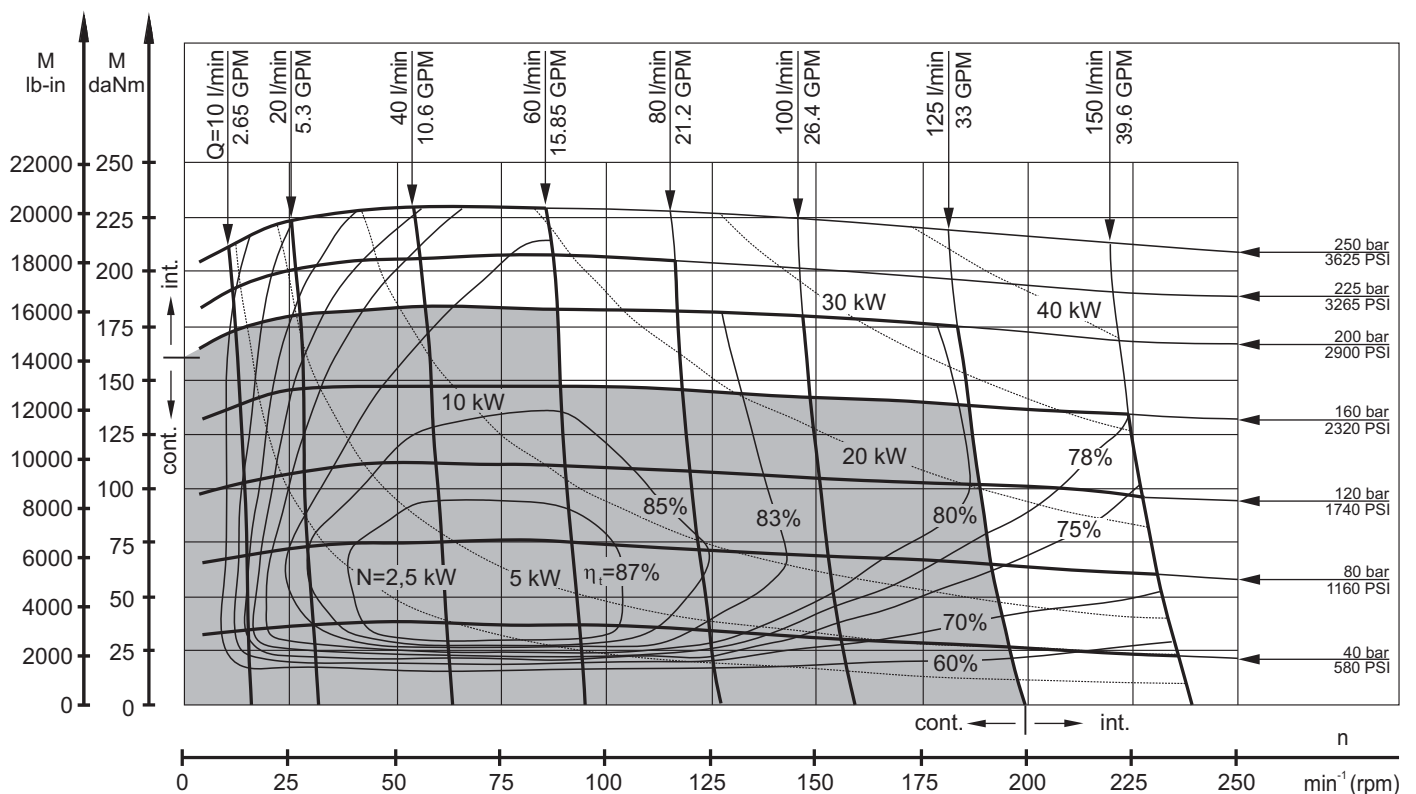
The function diagrams data was collected at back pressure 5÷10 bar (72.5PSI÷145PSI) and oil with viscosity of 32 mm<sup>2</sup>/s [150SUS] at 50° C [122°F].

**FUNCTION DIAGRAMS**

**MTM 500**



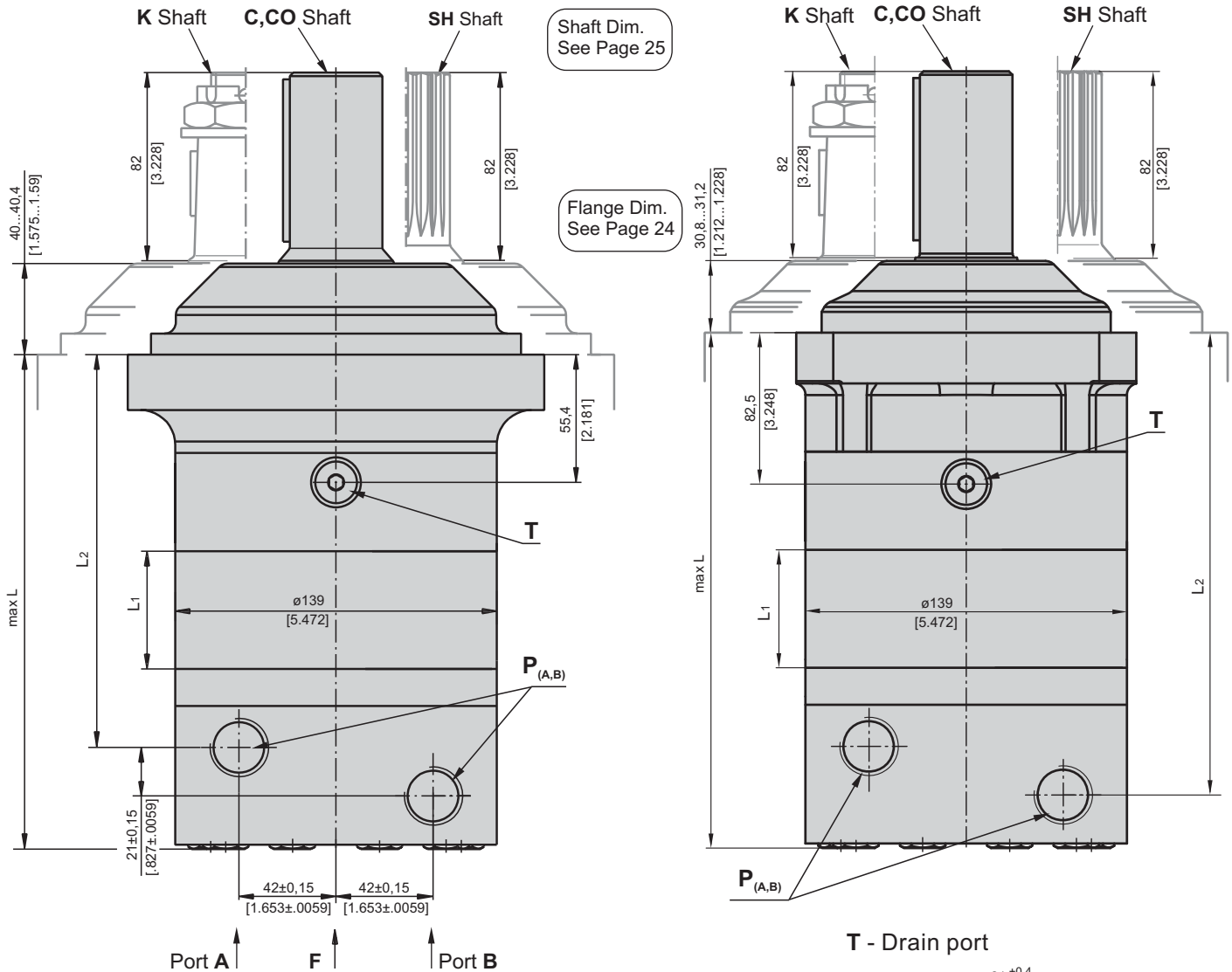
**MTM 630**



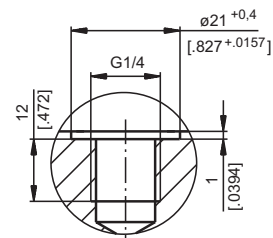
The function diagrams data was collected at back pressure 5÷10 bar (72.5PSI÷145PSI) and oil with viscosity of 32 mm<sup>2</sup>/s [150SUS] at 50° C [122°F].



**DIMENSIONS AND MOUNTING DATA - MTM and MTMC**



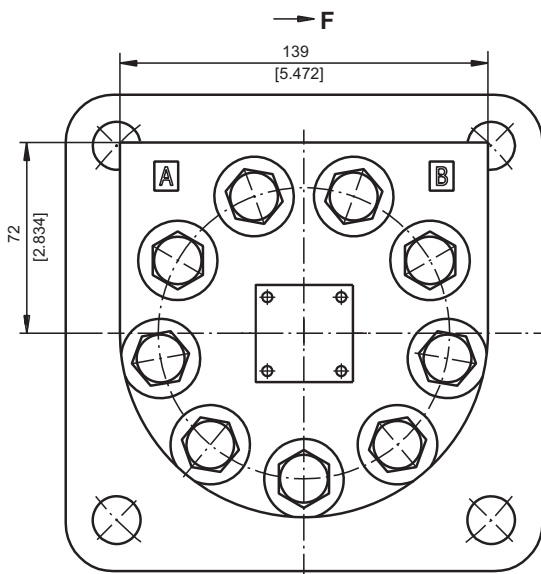
T - Drain port



**Warning:** Drain line should always be used.

**P<sub>(A,B)</sub>**: 2xG3/4 - 17 mm [.669 in] depth

**T** : G1/4 - 12 mm [.472 in] depth (plugged)



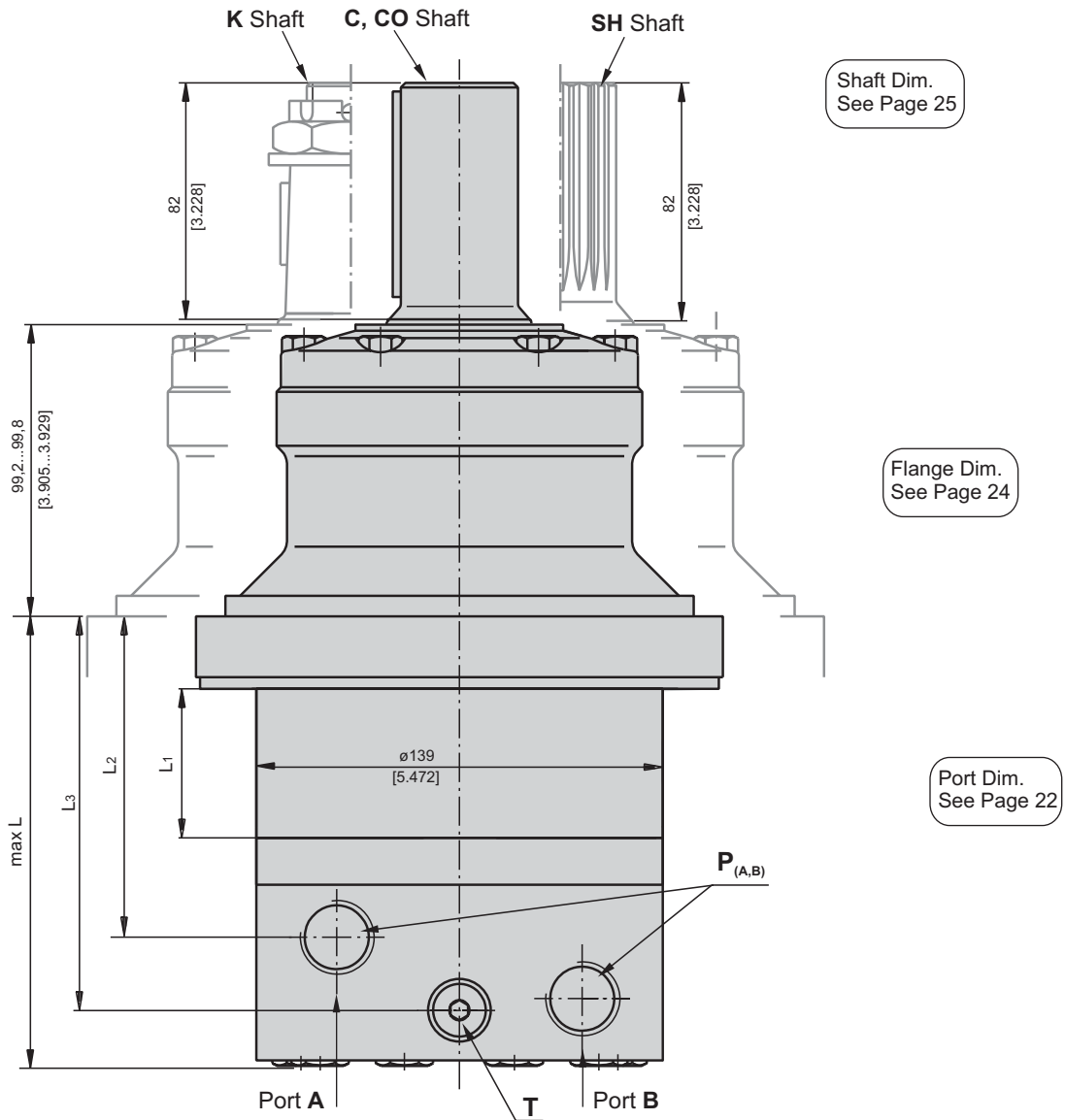
Type	L, mm [in]	L <sub>2</sub> , mm [in]	Type	L, mm [in]	L <sub>2</sub> , mm [in]	L <sub>1</sub> , mm [in]
MTM 200	188 [7.40]	142,3 [5.60]	MTMC 200	198 [7.79]	153 [6.02]	25 [.98]
MTM 250	194 [7.64]	148,6 [5.85]	MTMC 250	204,5 [8.05]	159,3 [6.27]	31,3 [1.23]
MTM 315	203 [7.99]	157,8 [6.21]	MTMC 315	213,5 [8.40]	168,5 [6.63]	40,5 [1.59]
MTM 400	214 [8.43]	168,3 [6.63]	MTMC 400	224 [8.82]	179 [7.04]	51 [2.01]
MTM 470	222 [8.74]	176,3 [6.94]	MTMC 470	232 [9.13]	187 [7.36]	59 [2.32]
MTM 500	228 [8.98]	182,3 [7.18]	MTMC 500	238 [9.37]	193 [7.60]	65 [2.56]
MTM 630	224 [8.82]	178,3 [7.02]	MTMC 630	234 [9.21]	189 [7.44]	61 [2.40]
MTM 725	233 [9.17]	187,3 [7.37]	MTMC 725	243 [9.56]	198 [7.79]	70 [2.76]

**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**



**DIMENSIONS AND MOUNTING DATA - MTMW**



**Warning:** Drain line should always be used.

**P<sub>(A,B)</sub>:** 2xG3/4 - 17 mm [.669 in] depth  
**T** : G1/4 - 12 mm [.472 in] depth (plugged)

Type	L, mm [in]	L <sub>1</sub> , mm [in]	L <sub>2</sub> , mm [in]	L <sub>3</sub> , mm [in]
MTMW 200	129 [5.08]	25 [.98]	83,8 [3.30]	111,1 [3.37]
MTMW 250	135 [5.32]	31,3 [1.23]	90,1 [3.55]	117,4 [4.62]
MTMW 315	144 [5.67]	40,5 [1.59]	99,3 [3.91]	126,6 [4.98]
MTMW 400	155 [6.10]	51 [2.01]	109,8 [4.32]	137,1 [5.40]
MTMW 470	163 [6.42]	59 [2.32]	117,8 [4.64]	145,1 [5.71]
MTMW 500	169 [6.65]	65 [2.56]	123,8 [4.87]	151,1 [5.95]
MTMW 630	165 [6.50]	61 [2.40]	119,8 [4.72]	147,1 [5.79]
MTMW 725	174 [6.85]	70 [2.76]	128,8 [5.07]	156,1 [6.15]

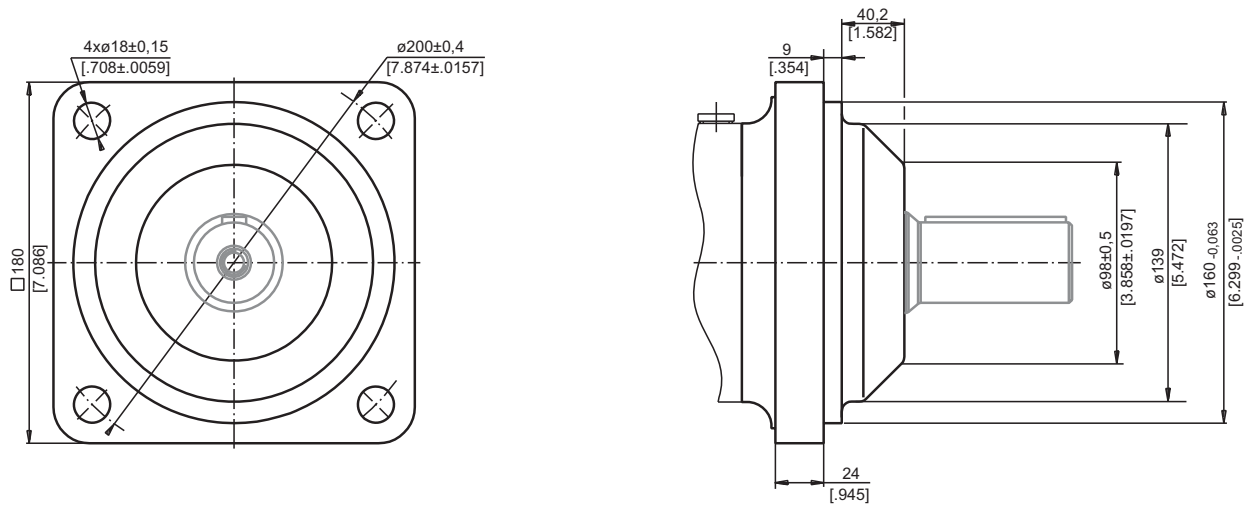
**Standard Rotation**  
 Viewed from Shaft End  
 Port A Pressurized - **CW**  
 Port B Pressurized - **CCW**

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

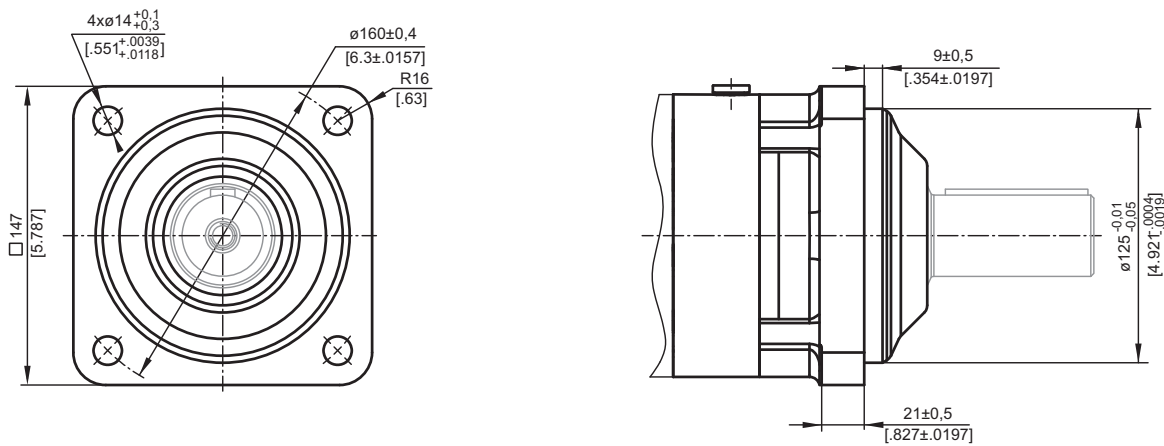


**MOUNTING**

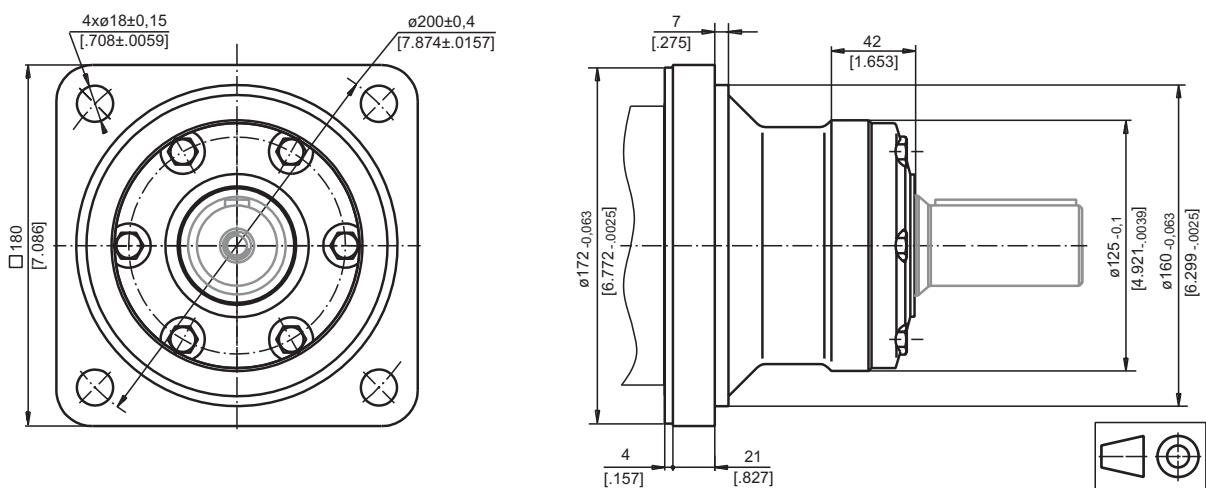
**4-Bolt flange**  
spigot diameter  $\varnothing 160$  mm [6.3 in] - BC  $\varnothing 200$  [7.874 in] mm



**C 4-Bolt flange**  
spigot diameter  $\varnothing 125$  mm [4.921 in] - BC  $\varnothing 160$  mm [6.3 in]



**W 4-Bolt flange, Wheel Motor**  
spigot diameter  $\varnothing 160$  mm [6.3 in] - BC  $\varnothing 200$  mm [7.874 in]

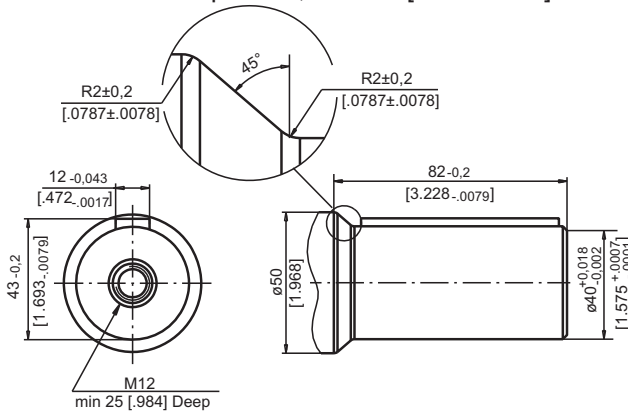




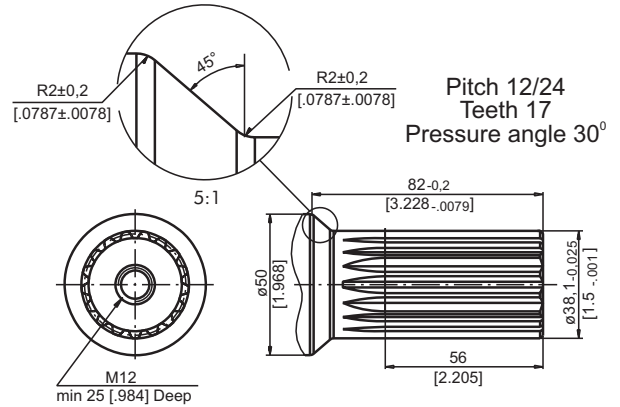


**SHAFT EXTENSIONS**

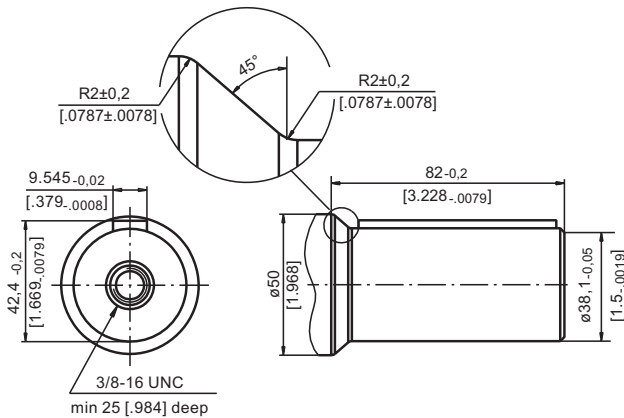
**C** -  $\varnothing 40$  straight, Parallel key A12x8x70 DIN 6885  
Max. Torque 132,8 daNm [11755 lb-in]



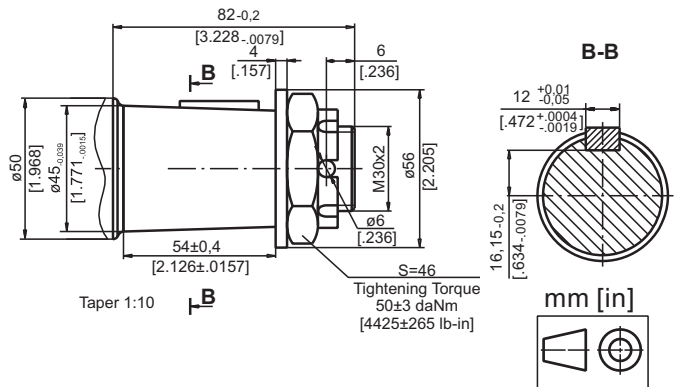
**SH** -  $\varnothing 1\frac{1}{2}$ " splined 17T, DP 12/24 ANSI B92.1-1976  
Max. Torque 132,8 daNm [11755 lb-in]



**CO** -  $\varnothing 1\frac{1}{2}$ " straight, Parallel key  $\frac{3}{8}$ "x  $\frac{3}{8}$ "x  $\frac{1}{4}$ " BS46  
Max. Torque 132,8 daNm [11755 lb-in]

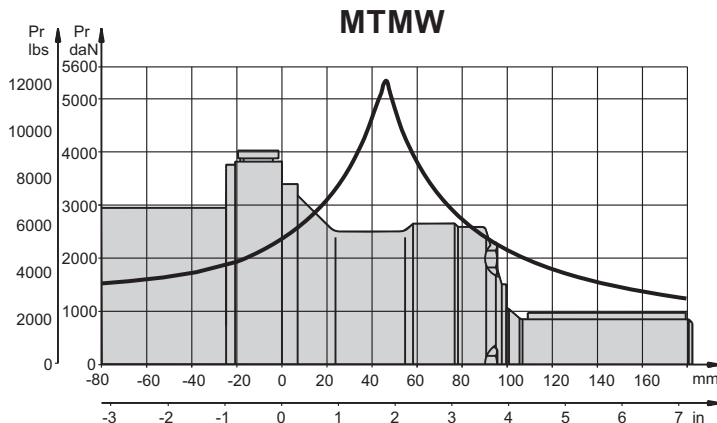
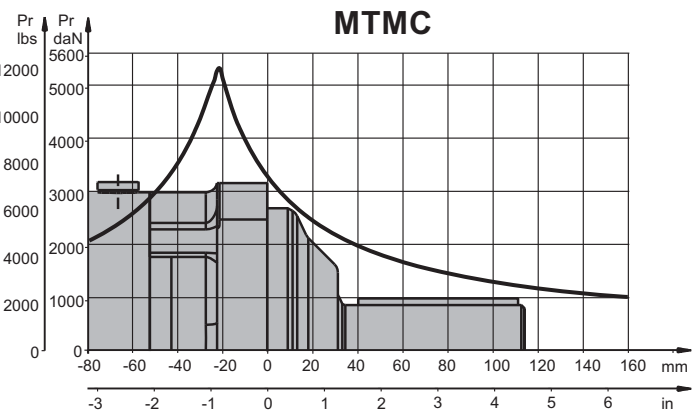
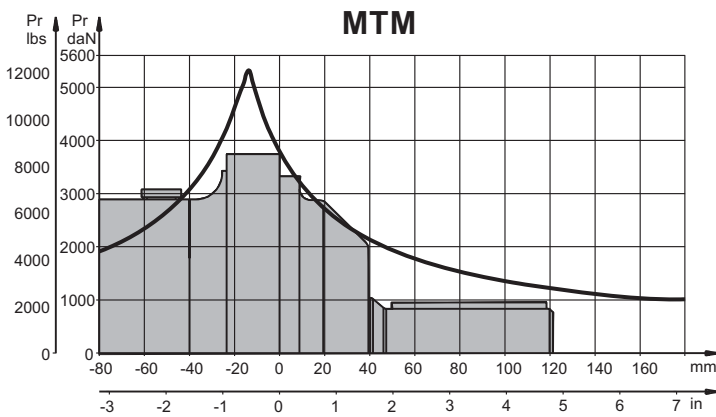


**K** - tapered 1:10, Parallel key B12x8x28 DIN 6885  
Max. Torque 210,7 daNm [18650 lb-in]



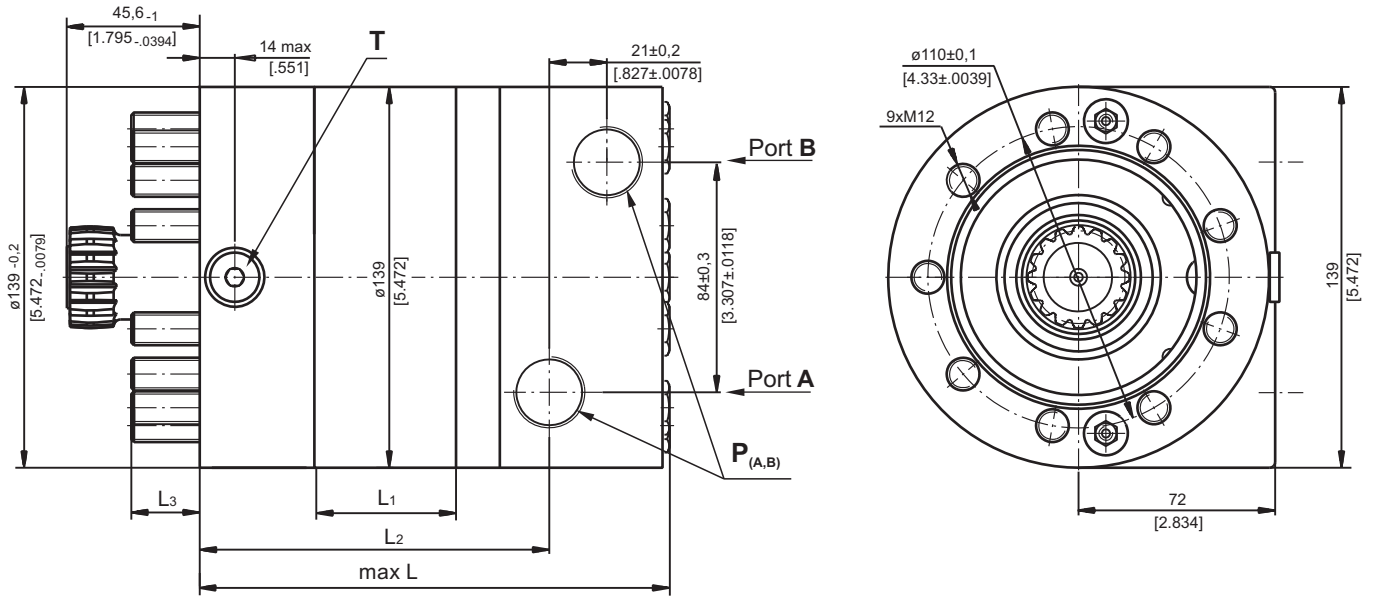
**PERMISSIBLE SHAFT LOADS**

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





**DIMENSIONS AND MOUNTING DATA - MTMV**



**Warning:** Drain line should always be used.

**P<sub>(A,B)</sub>:** 2xG3/4 - 17 mm [0.669 in] depth

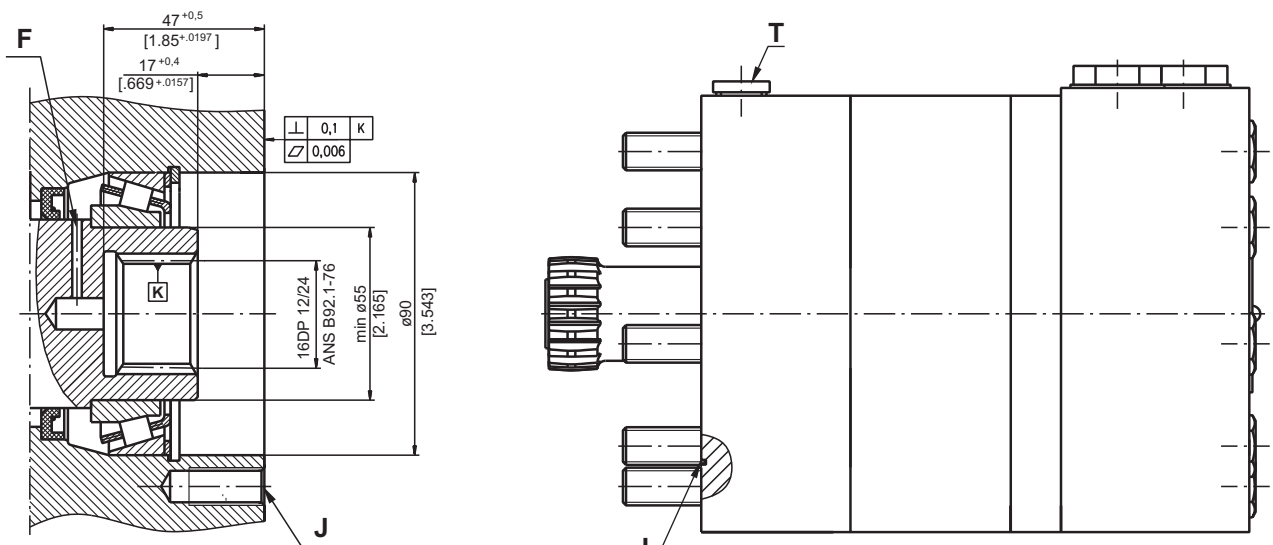
**T :** G1/4 12 mm [0.472 in] depth (plugged)

**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**

Type	L, mm [in]	L <sub>1</sub> , mm [in]	L <sub>2</sub> , mm [in]	L <sub>3</sub> , mm [in]
MTMV 200	151 [5.945]	25 [0.98]	106,5 [4.193]	27,8 [1.094]
MTMV 250	157 [6.181]	31,3 [1.23]	112,8 [4.441]	26,5 [1.043]
MTMV 315	167 [6.575]	40,5 [1.59]	122,0 [4.803]	22,3 [0.878]
MTMV 400	177 [6.968]	51 [2.01]	132,5 [5.217]	21,8 [0.858]
MTMV 470	185 [7.283]	59 [2.32]	140,5 [5.531]	23,8 [0.937]
MTMV 500	191 [7.520]	65 [2.56]	146,5 [5.768]	27,8 [1.094]
MTMV 630	187 [7.362]	61 [2.40]	142,5 [5.610]	21,8 [0.858]
MTMV 725	196 [7.717]	70 [2.76]	151,5 [5.965]	22,8 [0.898]

**DIMENSIONS OF THE ATTACHED COMPONENT**



**F:** Oil circulation hole  
**J:** 9xM12-30 mm [1.181 in] depth, 400, ø110±0,1 [4.33±0.0039]

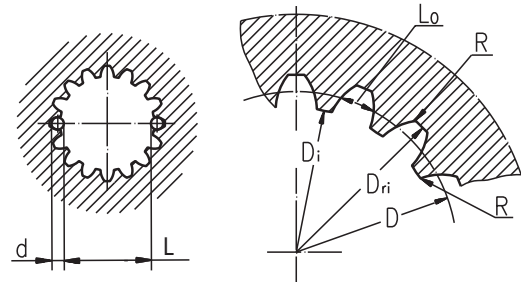
**I:** O- Ring 93x1,5mm [3.661x.059 in]  
**T:** Drain connection G1/4



**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°	30°
Pitch Dia.	D	1.3333	33,8656
Major Dia.	D <sub>ri</sub>	1.5118÷1.5275	38,4 <sup>+0,4</sup>
Minor Dia.	D <sub>i</sub>	1.2657÷1.2673	32,15 <sup>+0,04</sup>
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 <sup>+0,10</sup>
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
<b>MTM</b>							

**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** - Veryshort mount, 9xM12 mounting bolts
- 6V** - Veryshort mount, 6xM12 mounting bolts

**Pos.2 - Displacement code**

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

**Pos.3 - Shaft Extensions\***

- C** - ø40 straight, Parallel key A12x8x70 DIN6885
- CO** - ø1½" straight, Parallel key 3/8"x3/8"x2¼" BS46
- K** - ø45 tapered 1:10, Parallel key B12x8x28 DIN6885
- SH** - ø1½" splined 17T ANSI B92.1-1976

**Pos.4 - Check Valves**

- omit - without check valves
- 1** - with check valves

**Pos.5 - Ports**

- omit - BSPP (ISO 228)

**Pos.6 - Special Features (see page 48)**

**Pos.7 - Design Series**

- omit - Factory specified

**NOTES:**

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

The hydraulic motors are mangano-phosphatized as standard.