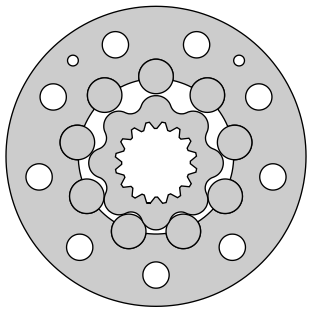
HYDRAULIC MOTORS MTM

APPLICATION

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



CONTENTS

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

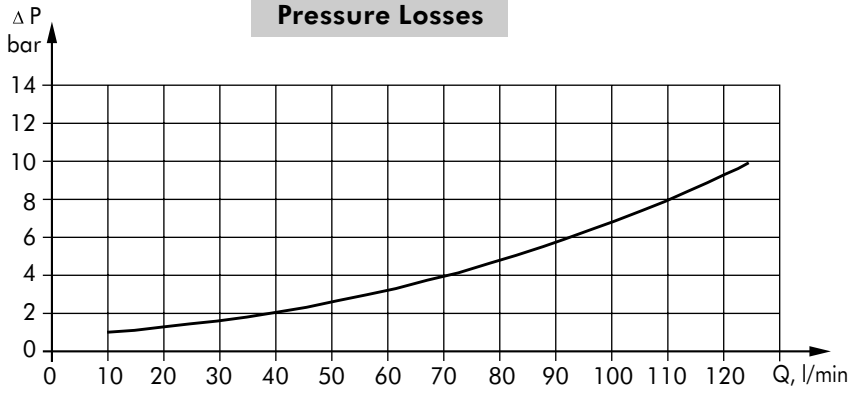
GENERAL

Displacement, [cm^3/rev.]	201,4÷724,3
Max. Speed, [RPM]	625÷170
Max. Torque, [daNm]	72÷175
Max. Output, [kW]	28÷41
Max. Pressure Drop, [bar]	250÷160
Max. Oil Flow, [l/min]	125
Min. Speed, [RPM]	5
Permissible Shaft Loads, [daN]	P_a=1000
Pressure fluid	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range, [°C]	-30÷90
Optimal Viscosity range, [mm^2/s]	20÷75
Filtration	ISO code 20/16 (Min. recommended fluid filtration of 25 micron)

Oil flow in drain line

Pressure drop (bar)	Viscosity (mm^2/s)	Oil flow in drain line (l/min)
140	20	2,5
	35	1,5
210	20	5
	35	3

Pressure Losses



SPECIFICATION DATA

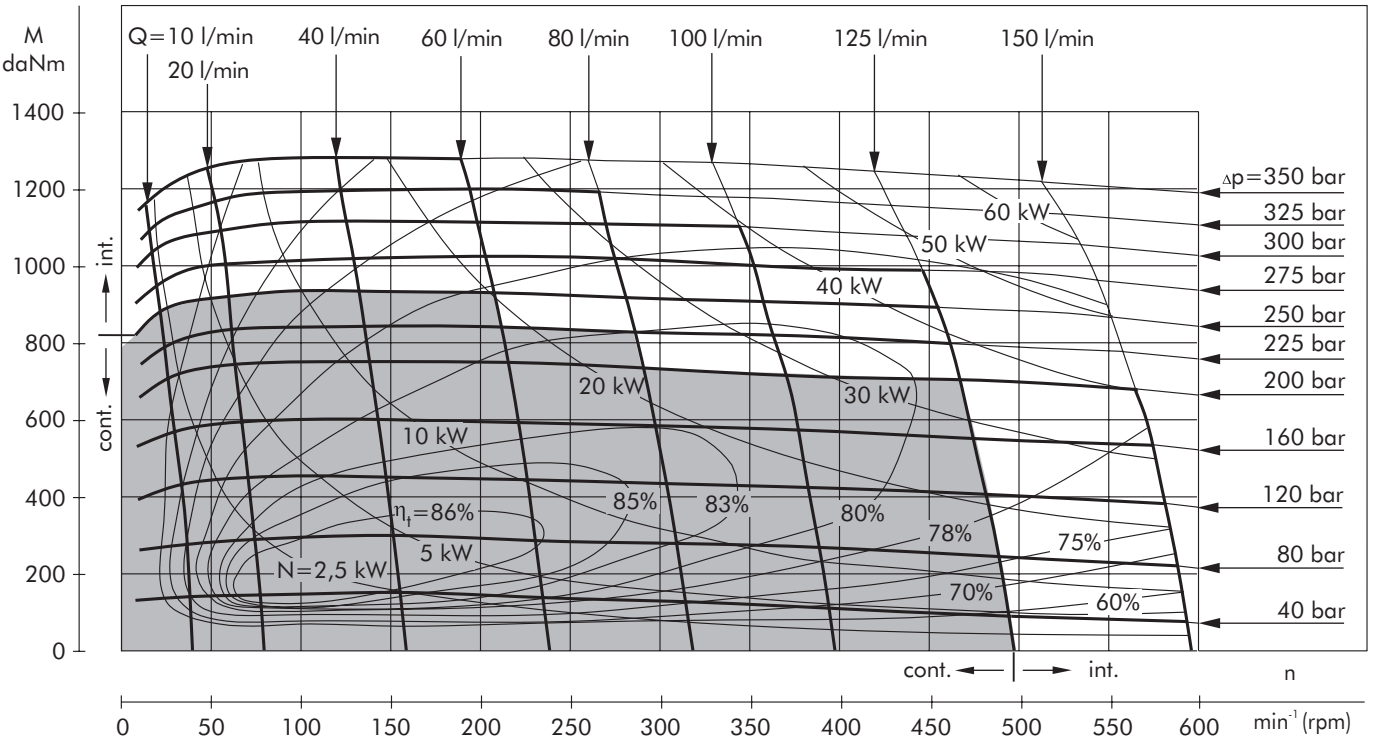
Type		MTM 200	MTM 250	MTM 315	MTM 400	MTM 470	MTM 500	MTM 630	MTM 725
Displacement [cm^3/rev.]		201,4	251,8	326,3	410,9	475	523,6	631,2	724
Max. Speed,	cont.	625	500	380	305	260	240	185	170
[RPM]	Int.*	750	600	460	365	315	285	225	215
Max. Torque	cont.	72	90	116	147	171	172	175	160
[daNm]	Int.*	102	128	163	206	215	215	215	192
	peak**	115	144	186	235	240	240	250	240
Max. Output	cont.	41	41	41	41	41	37,5	28	26
[kW]	int.*	65	70	70	75	55	51	42	40
Max. Pressure Drop	cont.	250	250	250	250	250	230	185	160
[bar]	Int.*	350	350	350	350	315	280	225	210
	peak**	400	400	400	400	350	320	270	260
Max. Oil Flow	cont.	125	125	125	125	125	125	125	125
[l/min]	Int.*	150	150	150	150	150	150	150	150
Max. Inlet Pressure	cont.	270	270	270	270	270	270	270	270
[bar]	Int.*	370	370	370	370	370	370	370	370
	peak**	420	420	420	420	420	420	420	420
Max. Return Pressure	cont. 0-100 RPM	75	75	75	75	75	75	75	75
without Drain Line or	cont. 100-300 RPM	40	40	40	40	40	40	40	40
Max. Pressure	cont. >300 RPM	20	20	20	20	20	-	-	-
in Drain Line , [bar]	Int.* 0-max. RPM	75	75	75	75	75	75	75	75
Max. Return Pressure	cont.	270	270	270	270	270	270	270	270
with Drain Line	Int.*	370	370	370	370	370	370	370	370
[bar]	Peak**	420	420	420	420	420	420	420	420
Max. Starting Pressure with Unloaded Shaft, [bar]		6	6	6	6	6	6	6	6
Min. Starting Torque [daNm]		60	75	97	122	142	143	145	148
Min. Speed***, [RPM]		5	5	5	5	5	5	5	5
Weight, [kg]	MTM	26,9	27,3	28,1	29	29,7	30,2	29,7	31
	MTMW	27,4	27,8	28,6	29,5	30,2	30,7	30,2	31,5
	MTMV	15,7	16,1	16,9	17,8	18,5	19	18,5	19,8

* 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 of 5 RPM lower than given, consult factory or your regional manager.

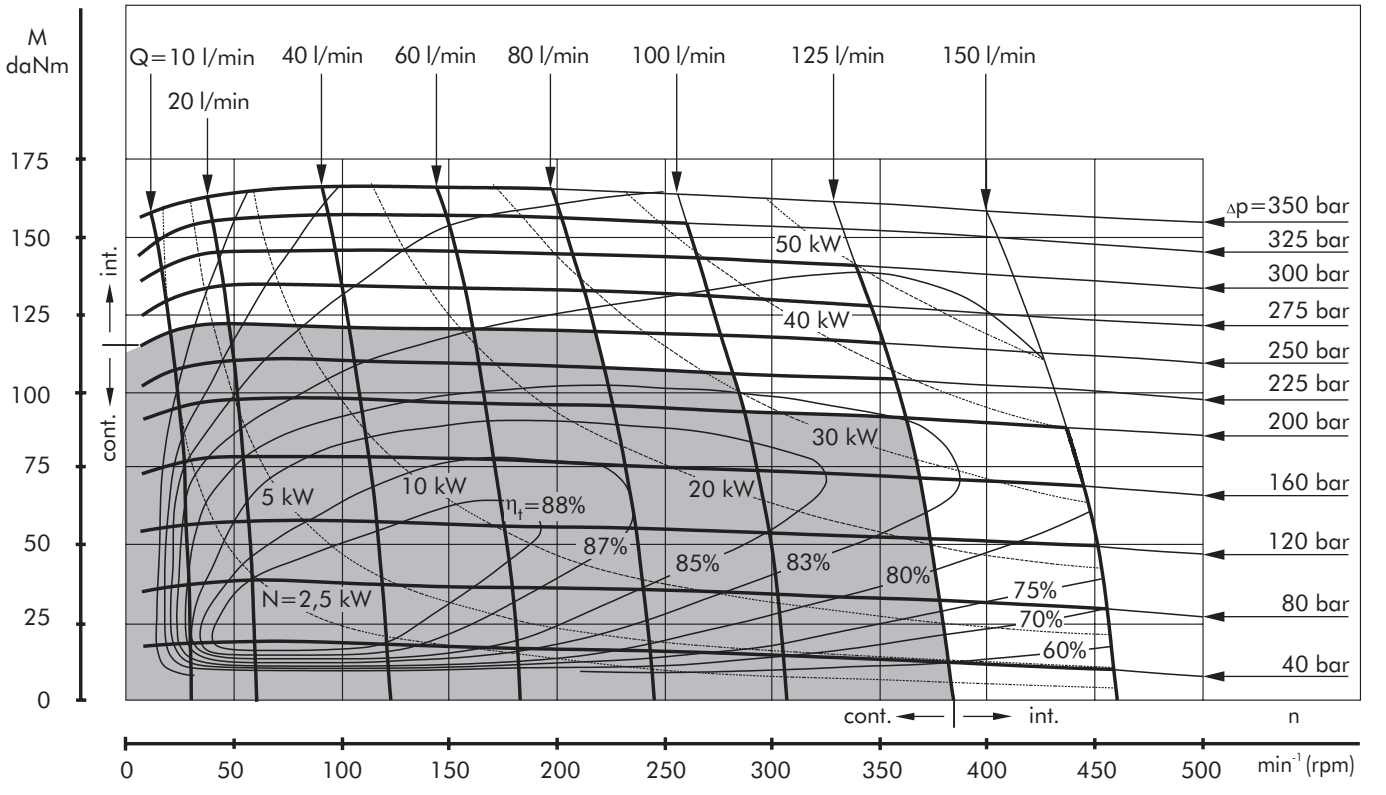
1) Intermittent speed and intermittent pressure must not occur simultaneously.
2) Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3) Recommend using a premium quality, anti-wear type mineral based hydraulic oil, HLP(DIN51524) or HM(ISO6743/4). If using synthetic fluids consult the factory for alternative seal materials.
4) Recommended minimum oil viscosity 13 mm^2/s at 50°C.
5) Recommended maximum system operating temperature is 82°C.
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

MTM 250



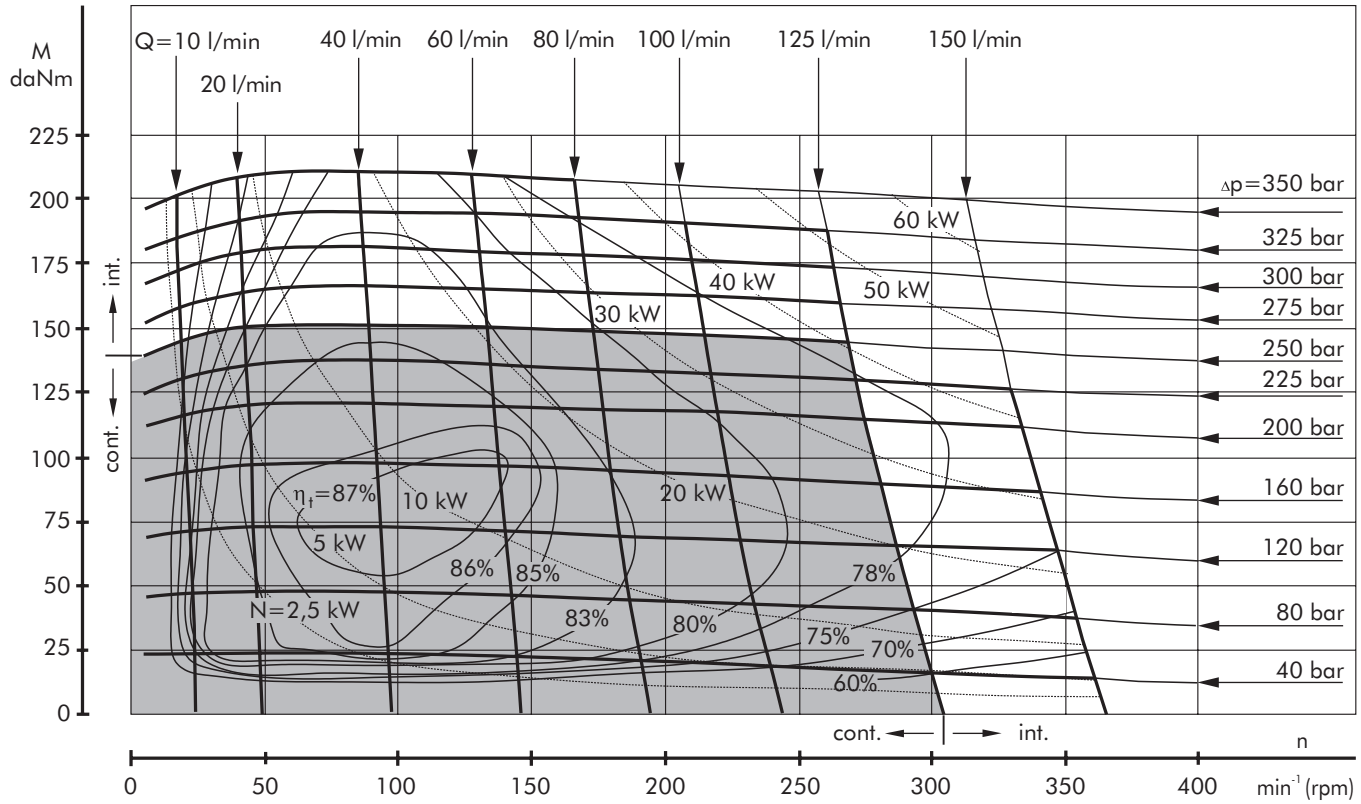
MTM 315



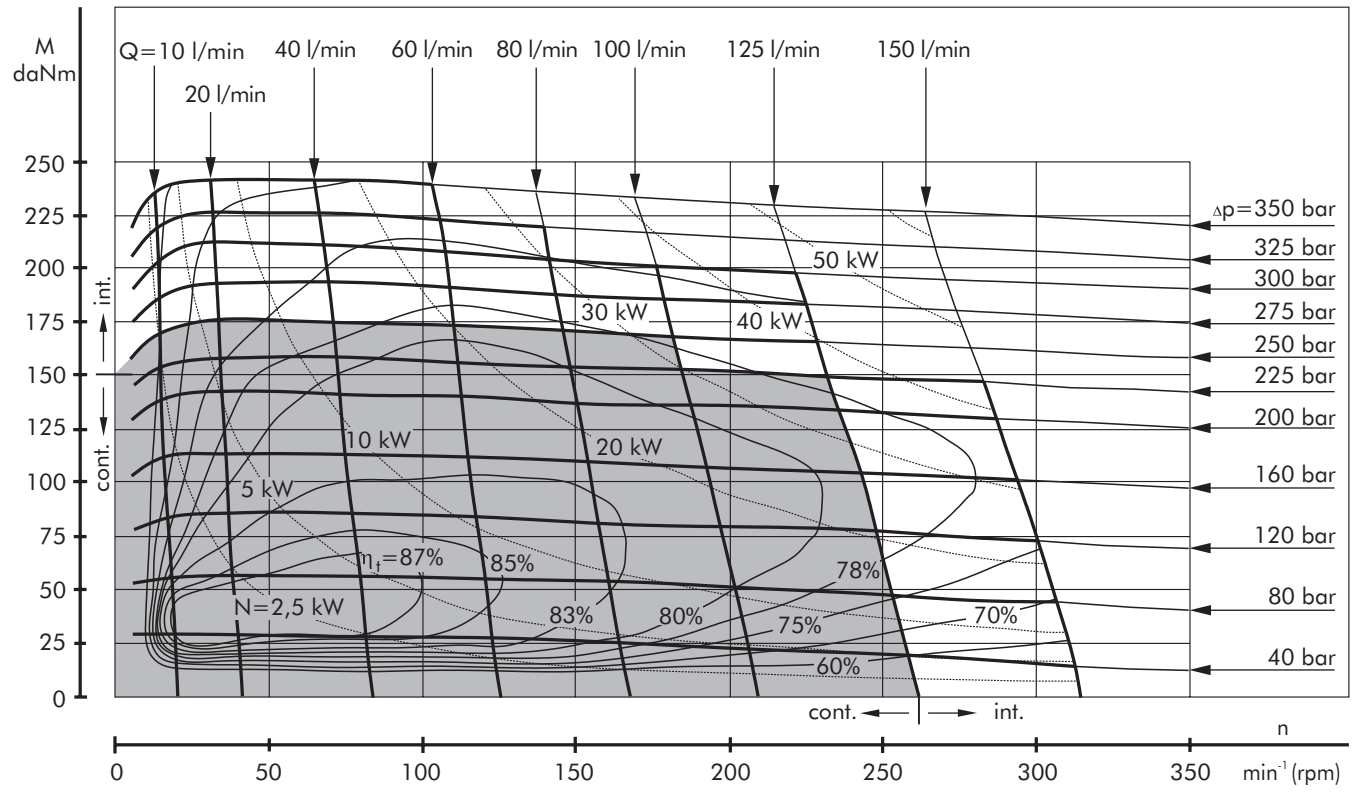
The function diagrams data was collected at back pressure 5÷10 bar and oil with viscosity of 32 mm²/s at 50° C.

FUNCTION DIAGRAMS

MTM 400



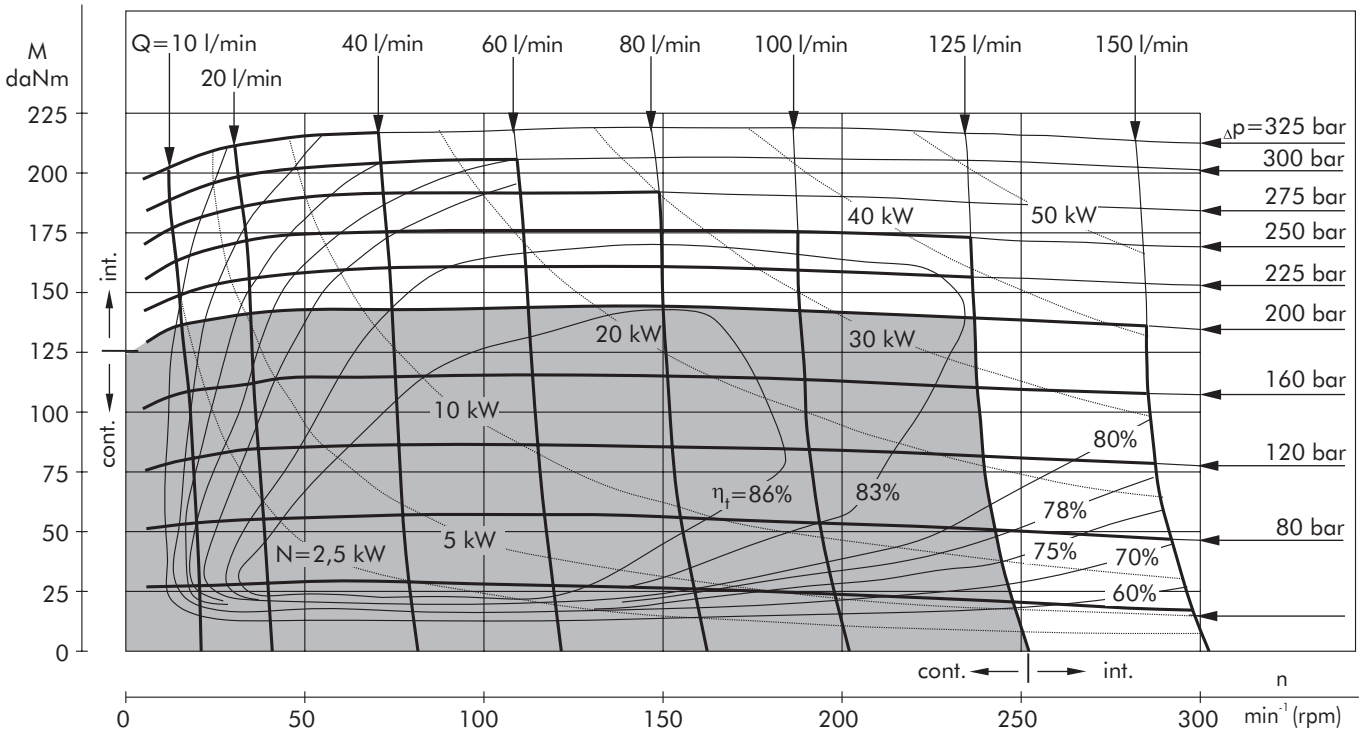
MTM 470



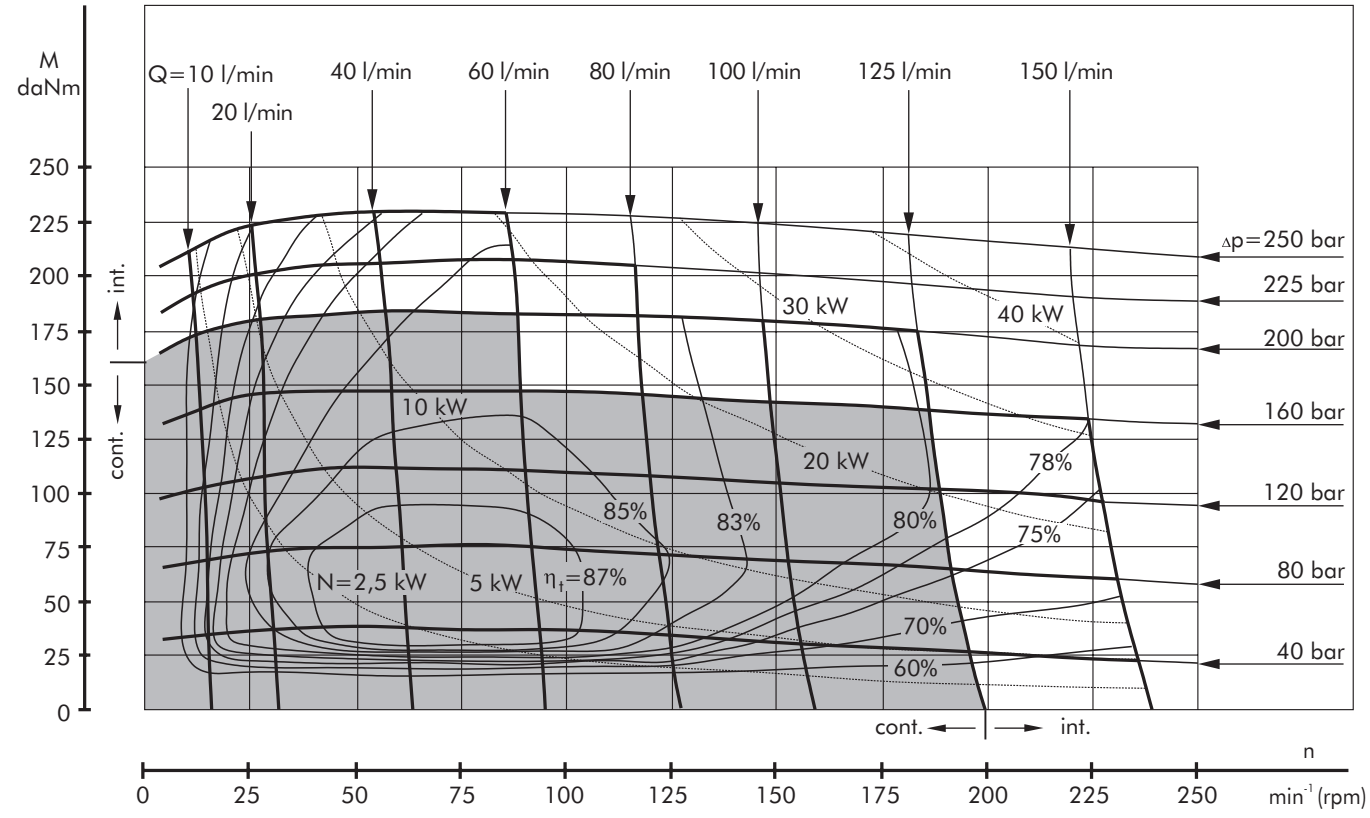
The function diagrams data was collected at back pressure 5÷10 bar and oil with viscosity of 32 mm²/s at 50° C.

FUNCTION DIAGRAMS

MTM 500

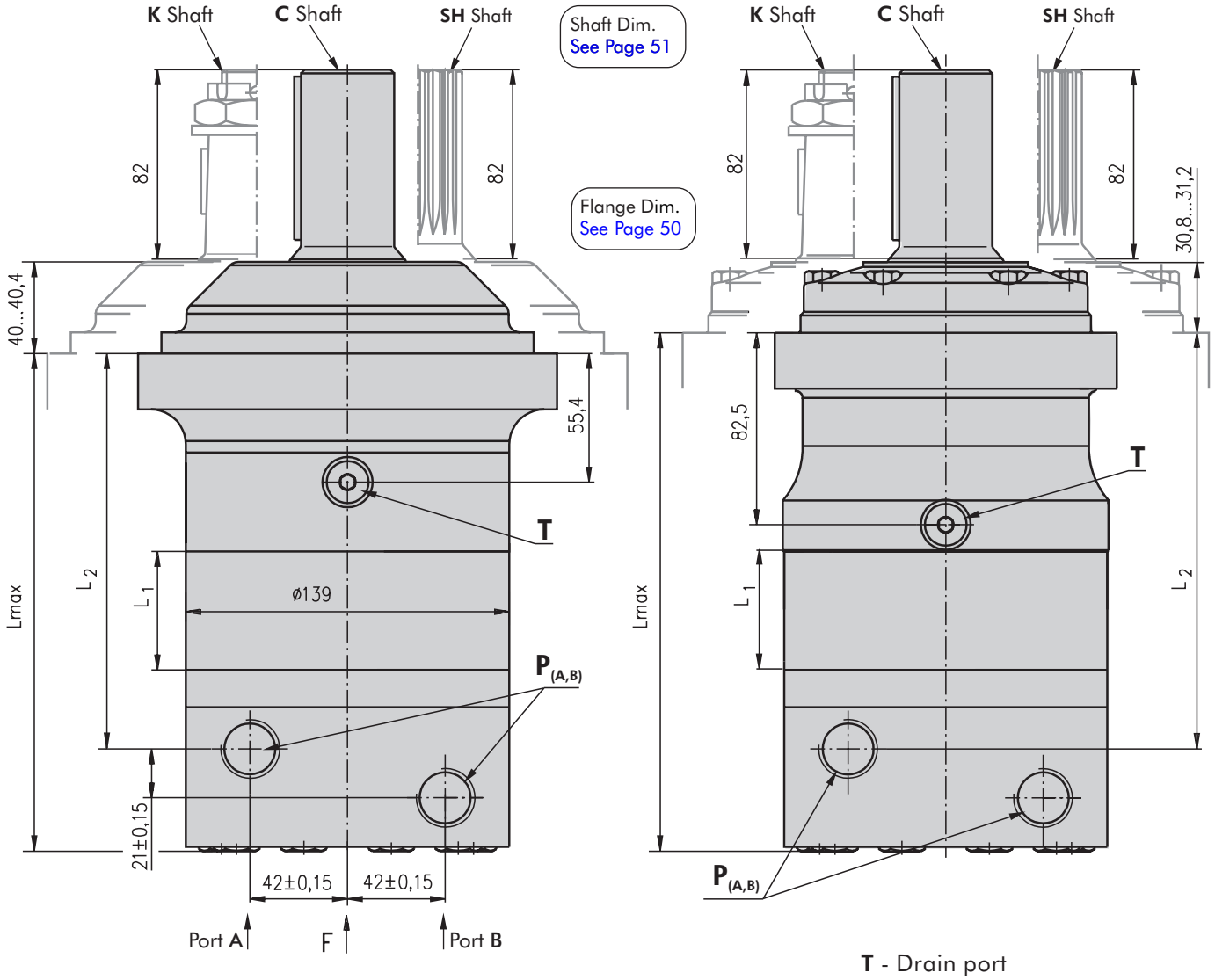


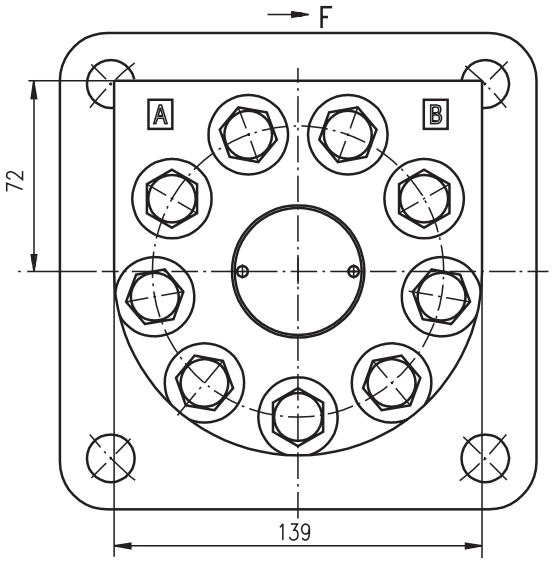
MTM 630



The function diagrams data was collected at back pressure 5÷10 bar and oil with viscosity of 32 mm²/s at 50° C.

DIMENSIONS - MTM and MTMC

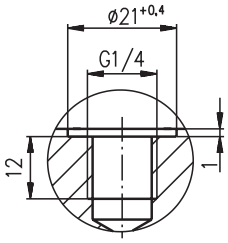




Standard Rotation
Viewed from Shaft End
Port **A** Pressurized - **CW**
Port **B** Pressurized - **CCW**

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

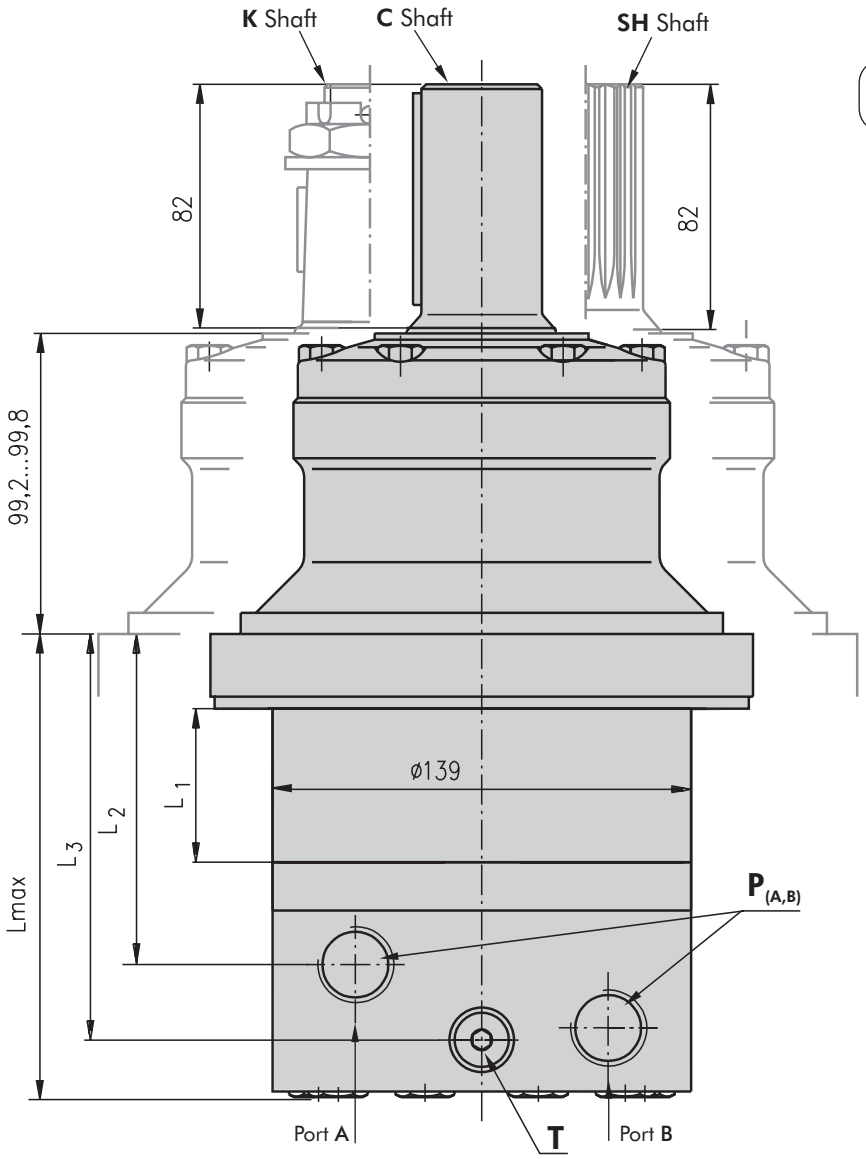
T - Drain port



$P_{(A, B)}$: 2xG3/4 - 17 mm depth
T : G1/4 - 12 mm depth (plugged)

Type	L, mm	L_2, mm	Type	L, mm	L_2, mm	L_1, mm
MTM 200	188	142,3	MTMC 200	198	153	25
MTM 250	194	148,6	MTMC 250	204,5	159,3	31,3
MTM 315	203	157,8	MTMC 315	213,5	168,5	40,5
MTM 400	214	168,3	MTMC 400	224	179	51
MTM 470	222	176,3	MTMC 470	232	187	59
MTM 500	228	182,3	MTMC 500	238	193	65
MTM 630	224	178,3	MTMC 630	234	189	61
MTM 725	233	187,3	MTMC 725	243	198	70

DIMENSIONS - MTMW



Shaft Dim. See Page 51
Flange Dim. See Page 50
Port Dim. See Page 48

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

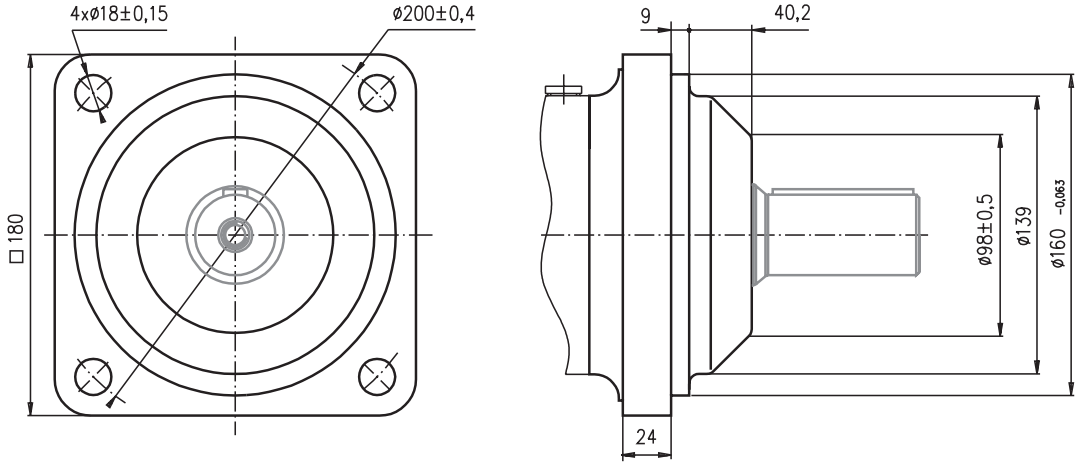
Reverse Rotation
Viewed from Shaft End
Port **A** Pressurized - **CCW**
Port **B** Pressurized - **CW**

$P_{(A, B)}$: 2xG3/4 - 17 mm depth
T : G1/4 - 12 mm depth (plugged)

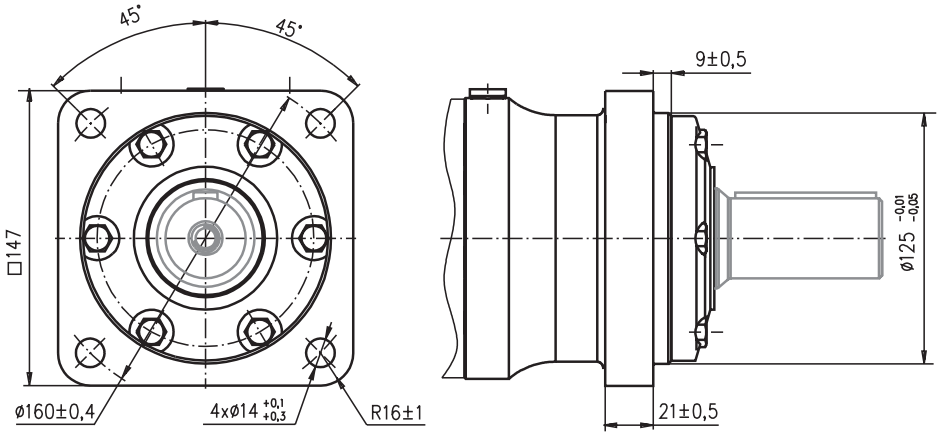
Type	L, mm	L_1, mm	L_2, mm	L_3, mm
MTMW 200	129	25	83,8	111,1
MTMW 250	135	31,3	90,1	117,4
MTMW 315	144	40,5	99,3	126,6
MTMW 400	155	51	109,8	137,1
MTMW 470	163	59	117,8	145,1
MTMW 500	169	65	123,8	151,1
MTMW 630	165	61	119,8	147,1
MTMW 725	174	70	128,8	156,1

DIMENSIONS OF MOUNTING

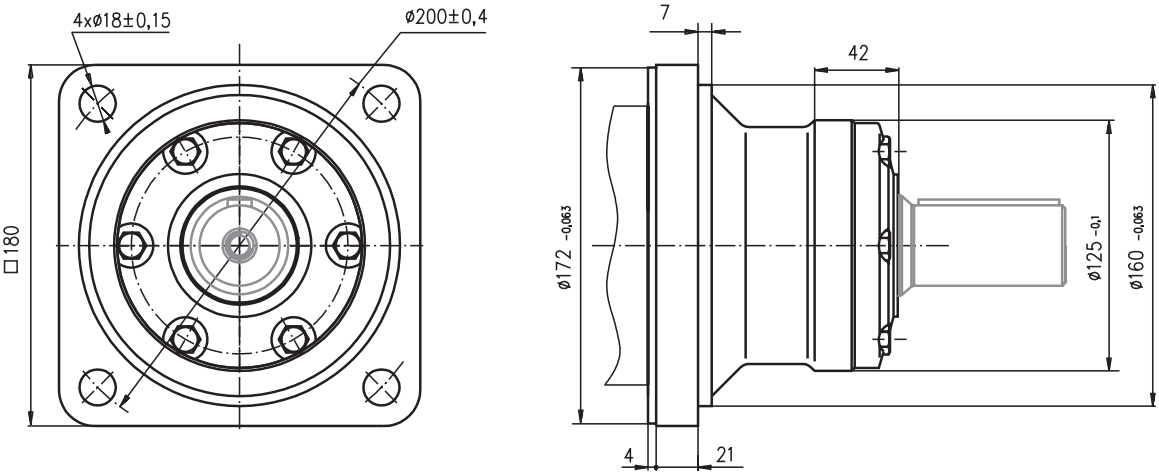
4-Bolt flange
spigot diameter ø160 mm - BC ø200 mm



C 4-Bolt flange
spigot diameter ø125 mm - BC ø160 mm

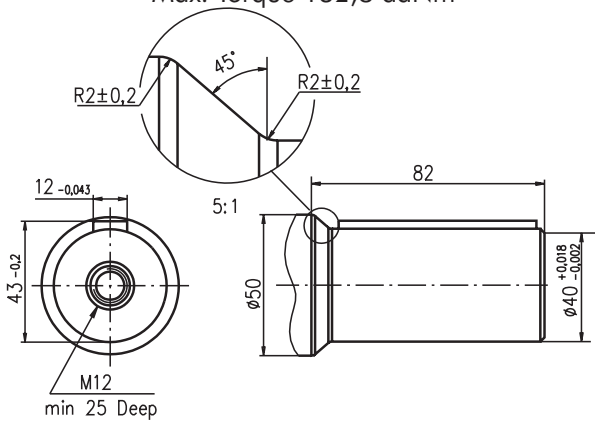


W 4-Bolt flange,Wheel Motor
spigot diameter ø160 mm - BC ø200 mm

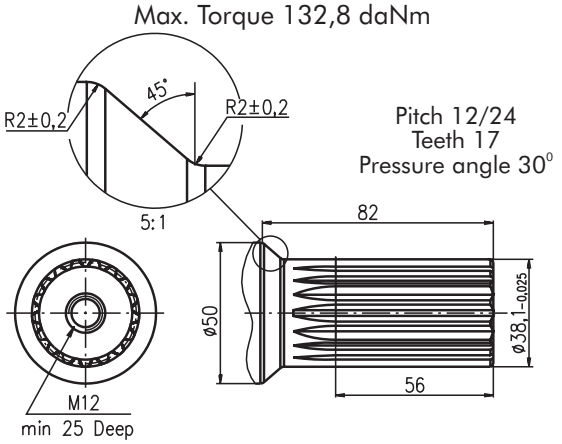


SHAFT EXTENSIONS

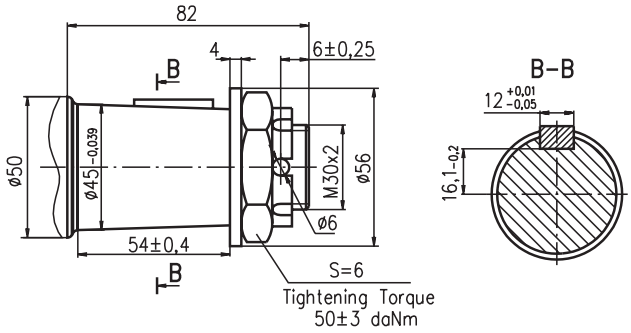
C -ø40 straight, Parallel key A12x8x70 DIN 6885
Max. Torque 132,8 daNm



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



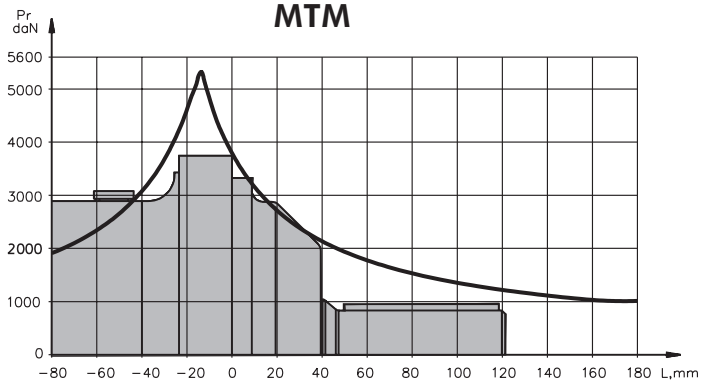
K -tapered 1:10, Parallel key B12x8x28 DIN 6885
Max. Torque 210,7 daNm



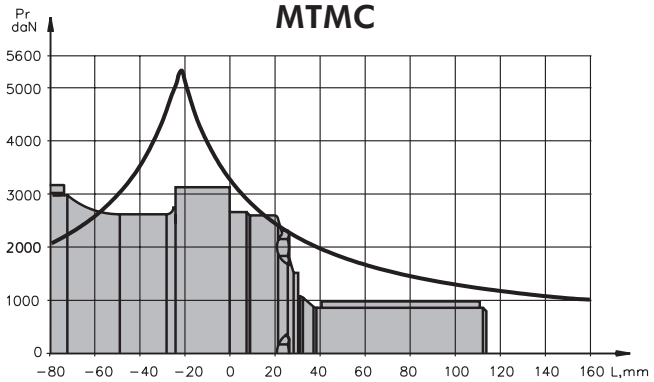
PERMISSIBLE SHAFT LOADS

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

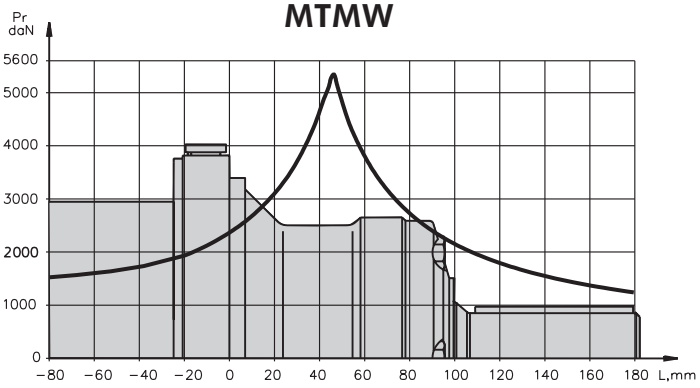
MTM



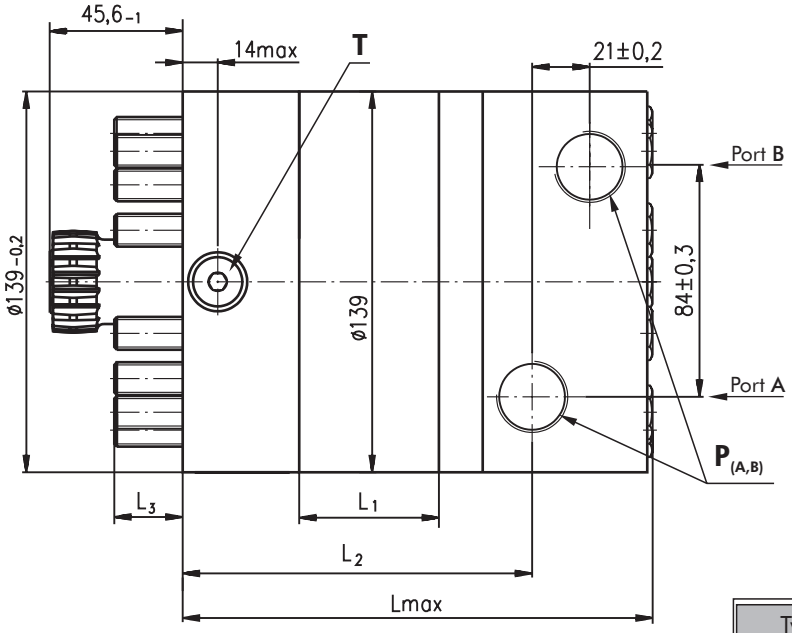
MTMC

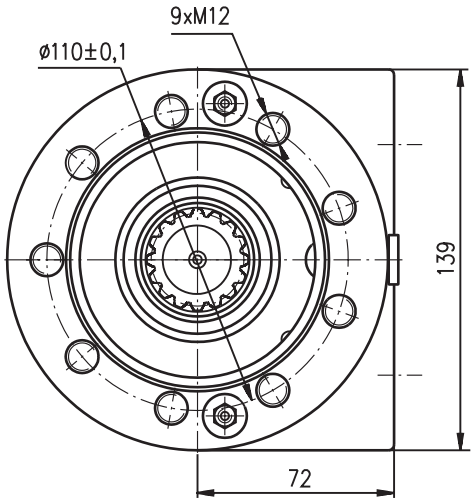


MTMW



OUTLINE DIMENSIONS REFERENCE FOR MTMV





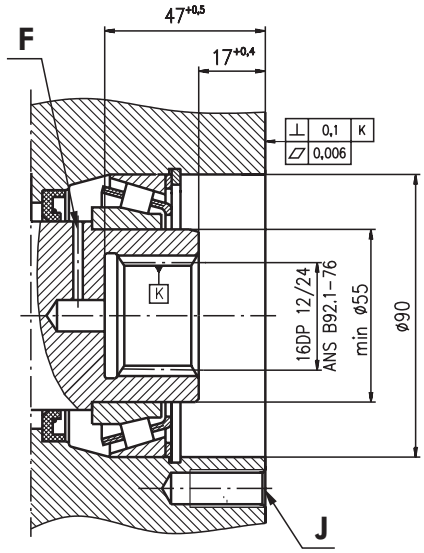
P$_{(A, B)}$**:** 2xG3/4 - 17 mm depth
T **:** G1/4 12 mm depth (plugged)

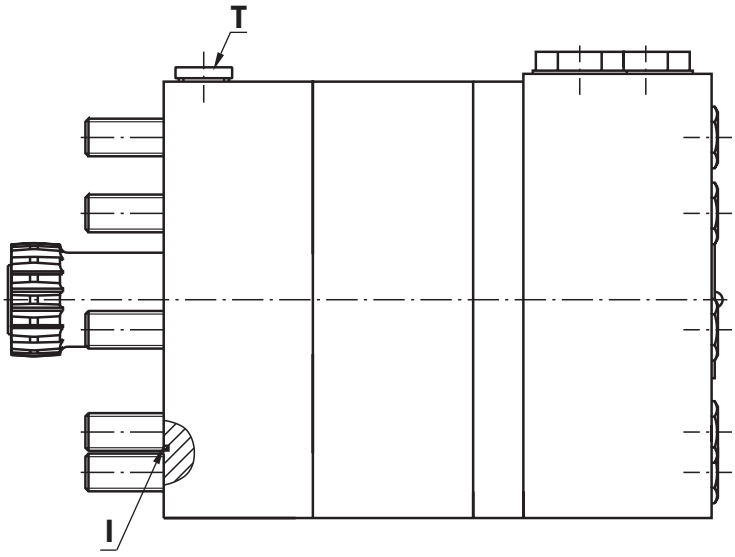
Standard Rotation
Viewed from Shaft End
Port **A** Pressurized - **CW**
Port **B** Pressurized - **CCW**

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

Type	L, mm	L_1, mm	L_2, mm	L_3, mm
MTMV 200	151	25	106,5	27,8
MTMV 250	157	31,3	112,8	26,5
MTMV 315	167	40,5	122	22,3
MTMV 400	177	51	132,5	21,8
MTMV 470	185	59	140,5	23,8
MTMV 500	191	65	146,5	27,8
MTMV 630	187	61	142,5	26,8
MTMV 725	196	70	151,5	27,8

DIMENSIONS OF THE ATTACHED COMPONENT





F: Oil circulation hole
J: 9xM12-30 mm depth, 40°, ø110±0,1

I: O- Ring 93x1,5mm
T: Drain connection G1/4

OUTLINE DIMENSIONS REFERENCE FOR MTM6V

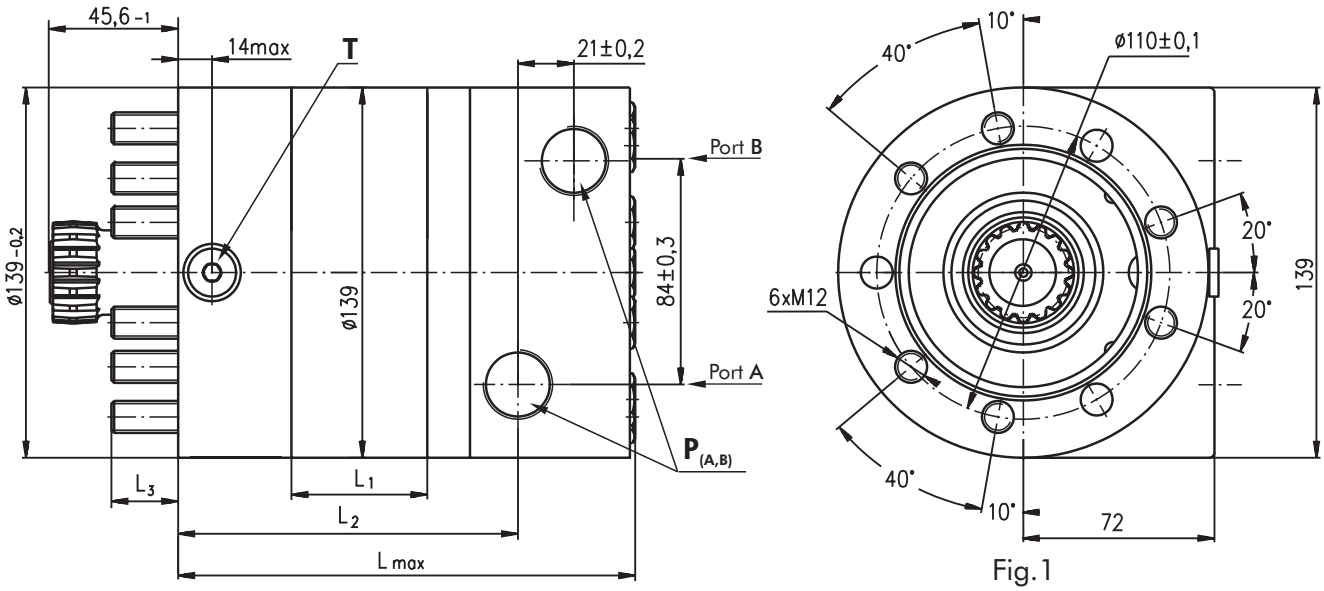


Fig.1

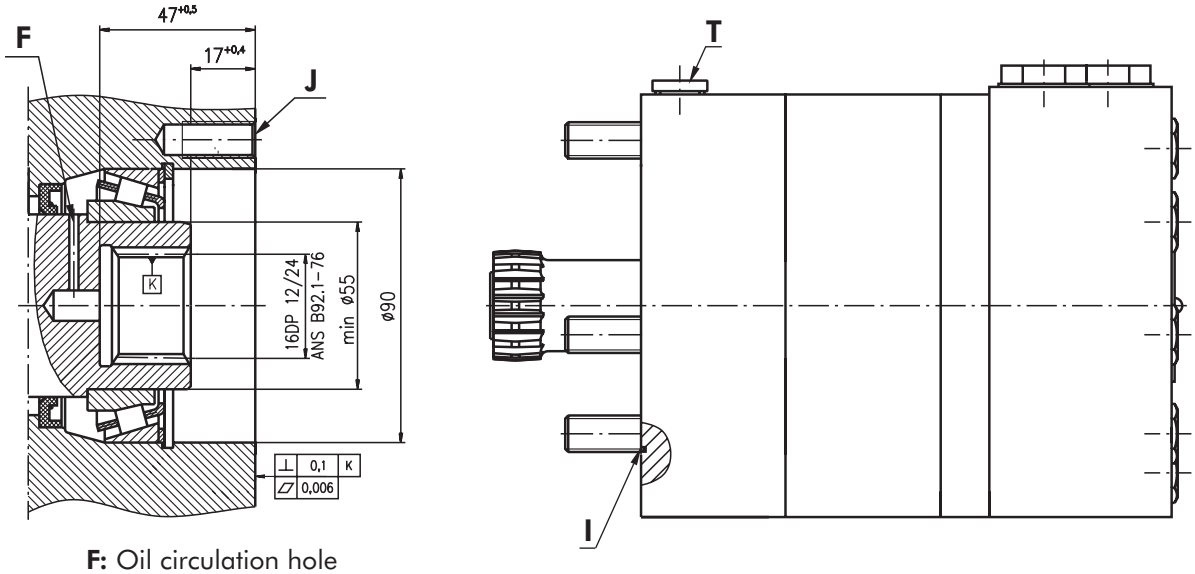
Type	L, mm	L_1, mm	L_2, mm	L_3, mm
MTM6V 200	151	25	106,5	27,8
MTM6V 250	157	31,3	112,8	26,5
MTM6V 315	167	40,5	122	22,3
MTM6V 400	177	51	132,5	21,8
MTM6V 470	185	59	140,5	23,8
MTM6V 500	191	65	146,5	27,8
MTM6V 630	187	61	142,5	26,8
MTM6V 725	196	70	151,5	27,8

$P_{(A, B)}$: 2xG3/4 - 17 mm depth
T : G1/4 12 mm 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**

DIMENSIONS OF THE ATTACHED COMPONENT FOR MTM6V



F: Oil circulation hole
J: 9xM12-30 mm depth, 40°, ø110±0,1
or 6xM12-30 mm depth, situated in accordance with the bolts M12, shown on Fig.1, ø110±0,1

I: O- Ring 93x1,5mm
T: Drain connection G1/4

DRAIN CONNECTION

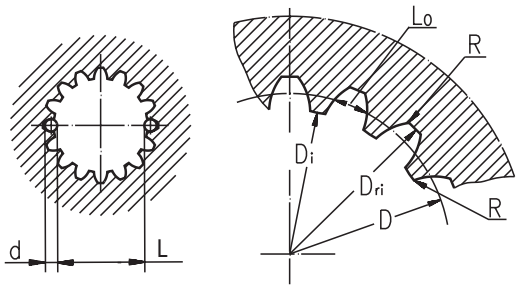
A drain line ought to be used when pressure in the return line can exceed the permissible pressure. It can be connected at the drain connection of the attached component. The maximum pressure in the drain line is limited by the attached component and its shaft seal.

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		mm
Number of Teeth	z	16
Pitch DP		12/24
Pressure Angle		30^0
Pitch Dia.	D	33,8656
Major Dia.	Dri	$38,4^{+0,4}$
Minor Dia.	Di	$32,15^{+0,04}$
Space Width [Circular]	Lo	4,516±0,037
Fillet Radius	R	0,5
Max. Measurement between Pin	L	$26,9^{+0,10}$
Pin Dia.	d	4,835±0,001



Hardening Specification:
on the surface HV=750±50
0,7±0,2 mm under the surface HV=560
Material 20 MoCr4 DIN 17210 or better

ORDER CODE

	1	2	3	4	5	6
M T M						

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]
250 - 251,8 [cm^3/rev]
315 - 326,3 [cm^3/rev]
400 - 410,9 [cm^3/rev]
470 - 475,0 [cm^3/rev]
500 - 523,6 [cm^3/rev]
630 - 631,2 [cm^3/rev]
725 - 724,3 [cm^3/rev]

Pos. 3 - Shaft Extensions*

C - ø40 straight, Parallel key A12x8x70 DIN6885
K - ø45 tapered 1:10, Parallel key B12x8x28 DIN6885
SH - ø1½" splined 17T ANSI B92.1-1976

Pos. 4 - Ports

omit - BSPP (ISO 228)

Pos. 5 - Special Features (see page 65)

Pos. 6 - Design Series

omit - Factory specified

NOTES:
* The permissible output torque for shafts must be not exceeded!
** Color at customer's request.

The hydraulic motors are mangano-phosphatized as standard.