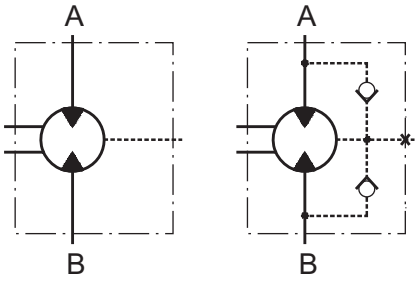
HYDRAULIC MOTORS MTK

APPLICATION

- Conveyors
- Metal working machines
- Machines for agriculture
- Road building machines
- Mining machinery
- Food industries
- Special vehicles
- Plastic and rubber machinery etc.



CONTENTS

OPTIONS

- Model- Disc valve, roll-gerotor
- Flange mount with wheel mount
- Side and rear ports
- Shafts- straight, splined and tapered
- Metric, SAE and BSPP ports
- Other special features

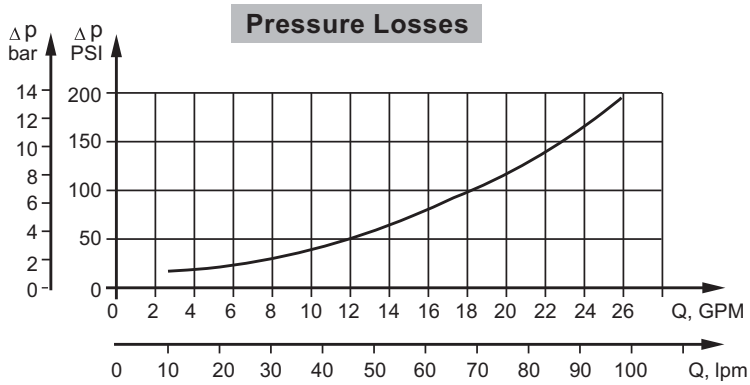
GENERAL

Displacement, cm^3/rev [in^3/rev]	157,9÷502,4 [9.63÷30.7]
Max. Speed, RPM	159÷505
Max. Torque, daNm [lb-in]	57÷109 [5045÷9650]
Max. Output, kW [HP]	22 [30]
Max. Pressure Drop, bar [PSI]	160÷250 [2320÷3626]
Max. Oil Flow, lpm [GPM]	80 [21]
Min. Speed, RPM	5÷10
Permissible Shaft Loads, daN [lb]	Pa=1000 [2250]
Pressure fluid	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range, ^{o}C [^{o}F]	-30÷90 [-22÷194]
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]
100 [1450]	20 [98]	2,5 [.660]
	35 [164]	1,8 [.476]
140 [2030]	20 [98]	3,5 [.925]
	35 [164]	2,8 [.740]

Pressure Losses



M+S HYDRAULIC

SPECIFICATION DATA

Type		MTK 160	MTK 200	MTK 250	MTK 315	MTK 400	MTK 470	MTK 500
Displacement, cm^3/rev [in^3/rev]		157,9 [9.63]	201,3 [12.28]	252,2 [15.38]	314,9 [19.2]	396,8 [24.2]	470,5 [28.7]	502,4 [30.65]
Max. Speed, [RPM]	Cont.	505	400	320	255	200	170	159
	Int.*	630	500	400	315	250	210	199
Max. Torque, daNm [lb-in]	Cont.	57 [5045]	72 [6373]	91 [8055]	105 [9293]	107 [9470]	102 [9028]	109 [9648]
	Int.*	72,5 [6420]	92 [8143]	107 [9470]	131 [11595]	140 [12390]	133 [11772]	136 [12037]
Max. Output, kW [HP]	Cont.	22 [29.5]	22 [29.5]	21 [28.2]	20 [26.8]	17,5 [23.5]	14 [18.8]	14 [18.8]
	Int.*	27 [36.2]	27 [36.2]	25 [33.5]	23,5 [31.5]	22 [29.5]	17.5 [23.5]	17 [22.8]
Max. Pressure Drop, bar [PSI]	Cont.	250 [3626]	250 [3626]	250 [3626]	250 [3626]	200 [2900]	160 [2320]	160 [2320]
	Int.*	325 [4714]	325 [4714]	300 [4350]	300 [4350]	250 [3626]	200 [2900]	200 [2900]
Max. Inlet Pressure, bar [PSI]	Cont.	250 [3626]						
	Int.*	350 [5077]						
Max. Oil Flow, lpm [GPM]	Cont.	80 [21.1]						
	Int.*	100 [26.4]						
Max. Starting Pressure with Unloaded Shaft, bar [PSI]		8 [116]	8 [116]	7 [102]	7 [102]	7 [102]	7 [102]	7 [102]
Min. Starting Torque, daNm [lb-in]	at max. pressure drop cont.	43 [3806]	54 [4780]	68 [6020]	79 [6992]	80 [7080]	83 [7346]	84 [7435]
	at max. pressure drop int.*	54.5 [4824]	69 [6107]	80 [7080]	98,5 [8720]	105 [9294]	105 [9294]	105 [9294]
Min. Speed**, RPM**		10						
Max. Return Pressure without Drain Line, bar [PSI]		see diagram						
Max. Return Pressure with Drain Line, bar [PSI]	Cont.	140 [2030]						
	Int.*	175 [2540]						
	Peak*	210 [3046]						

* 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.

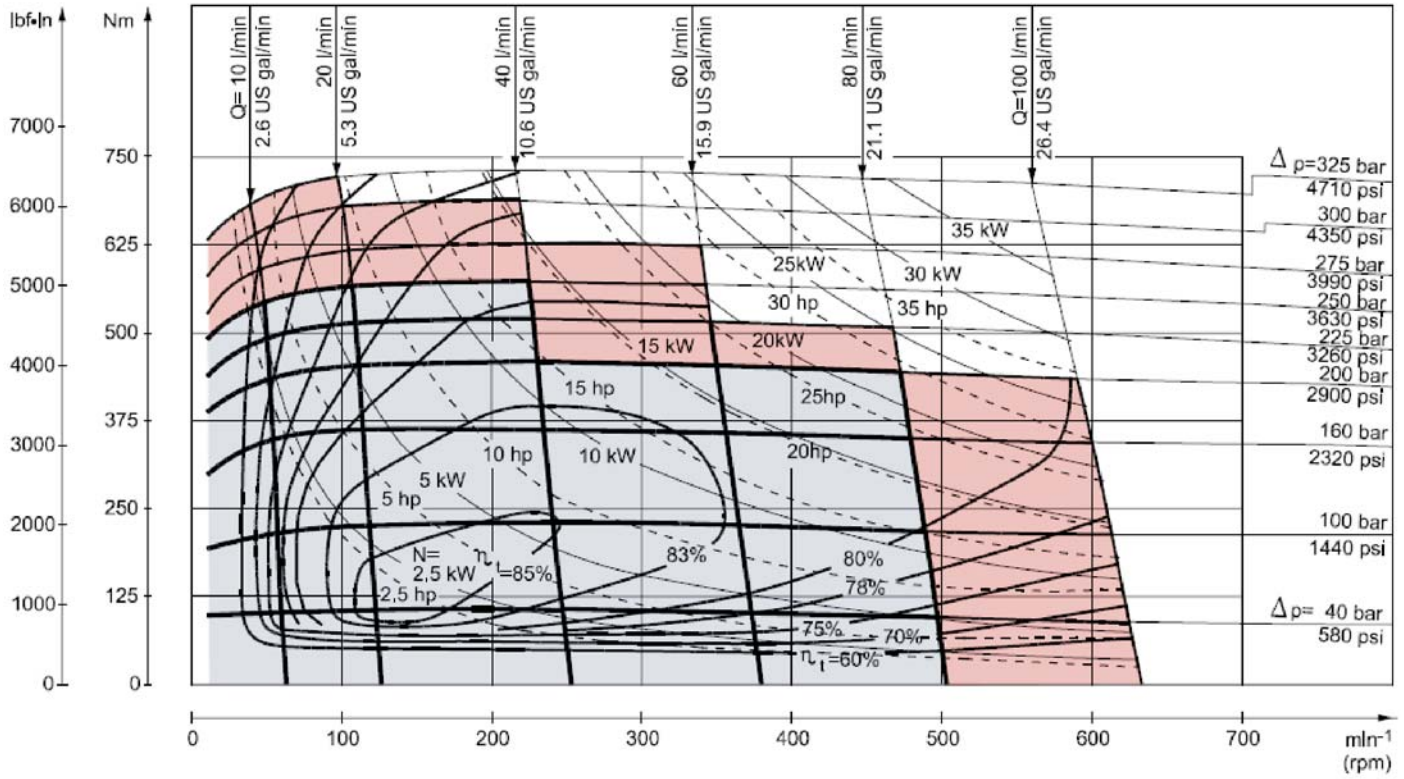
*** For speeds of 5 RPM lower than given, consult factory or your regional manager.

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

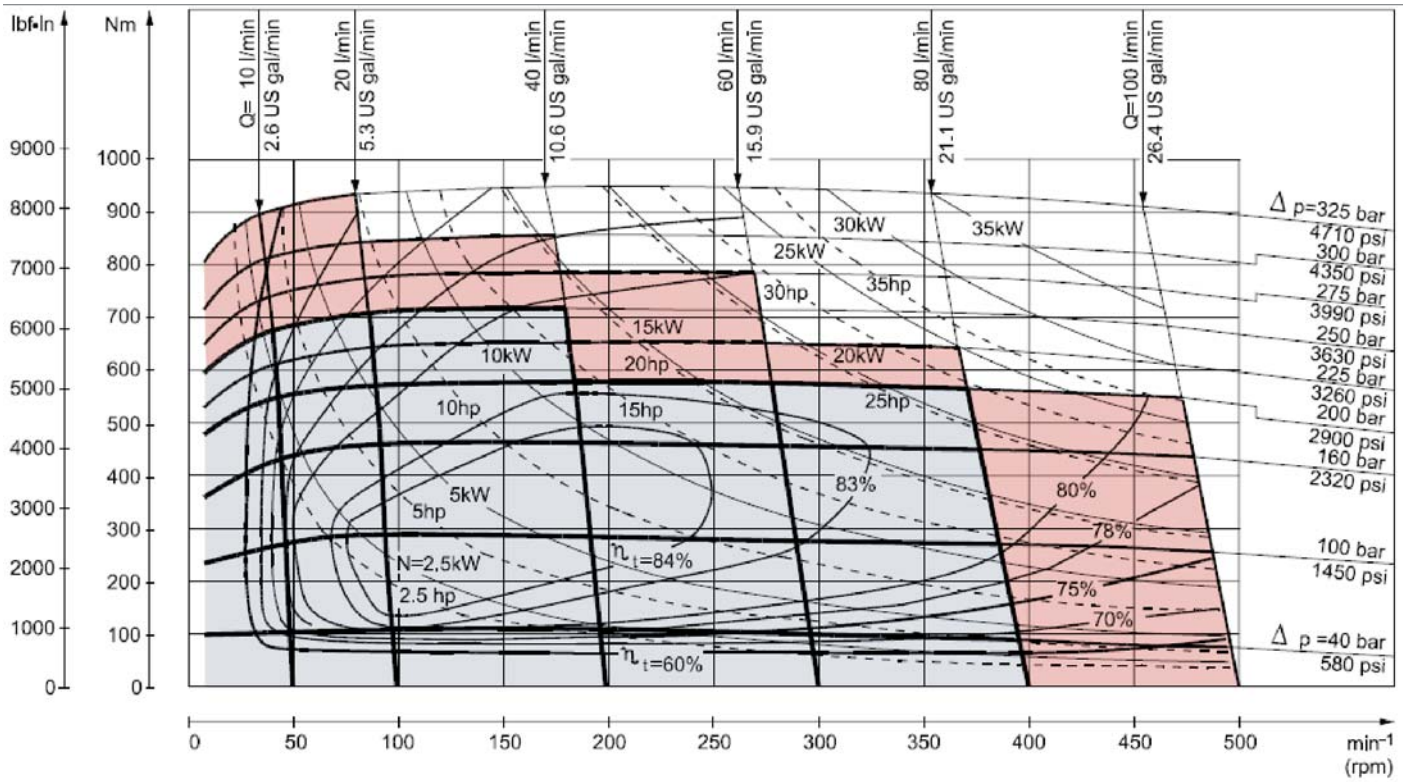
1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil, HLP(DIN51524) or HM(ISO6743/4). If using synthetic fluids consult the factory for alternative seal materials.
4. Recommended minimum oil viscosity 70 SUS [13 cmi/s] at 122°F [50°C].
5. Recommended maximum system operating temperature is 180°F [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

MTK 160



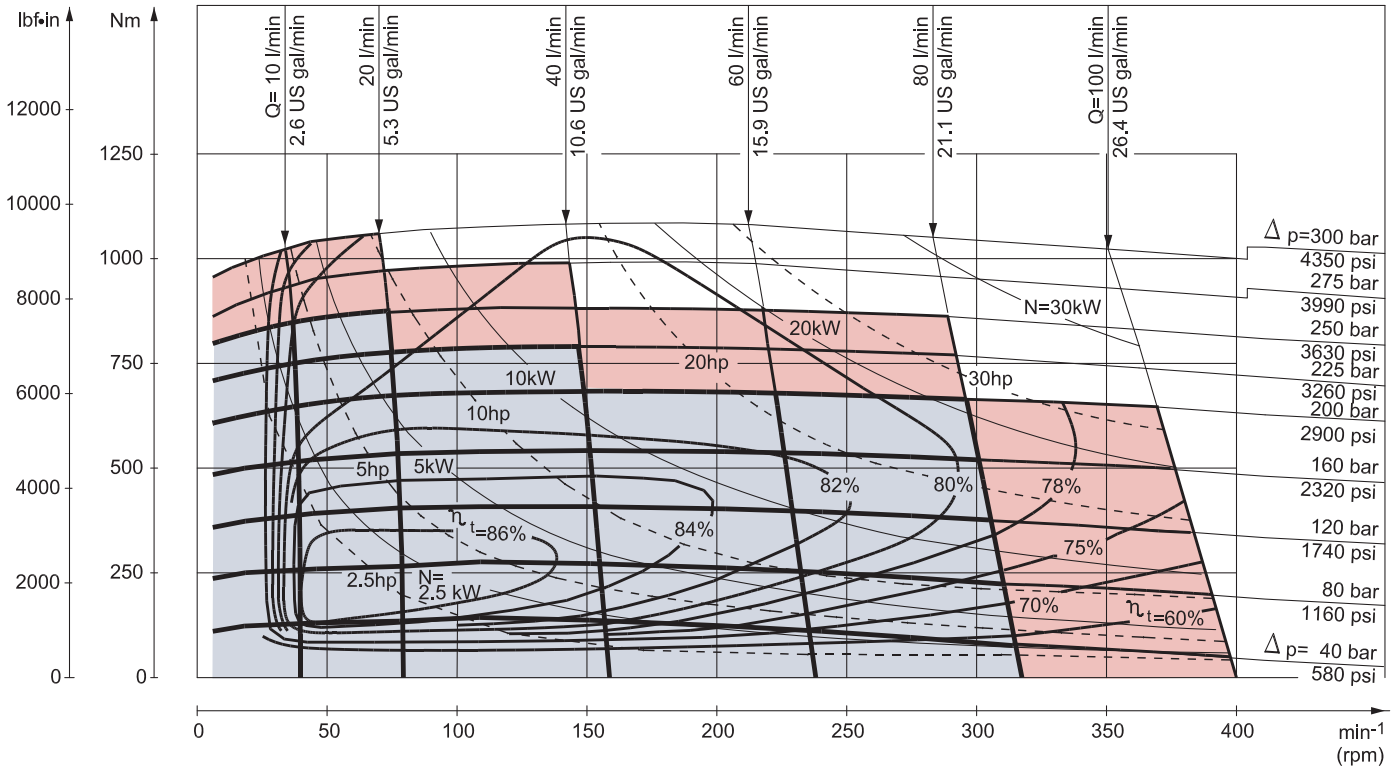
MTK 200



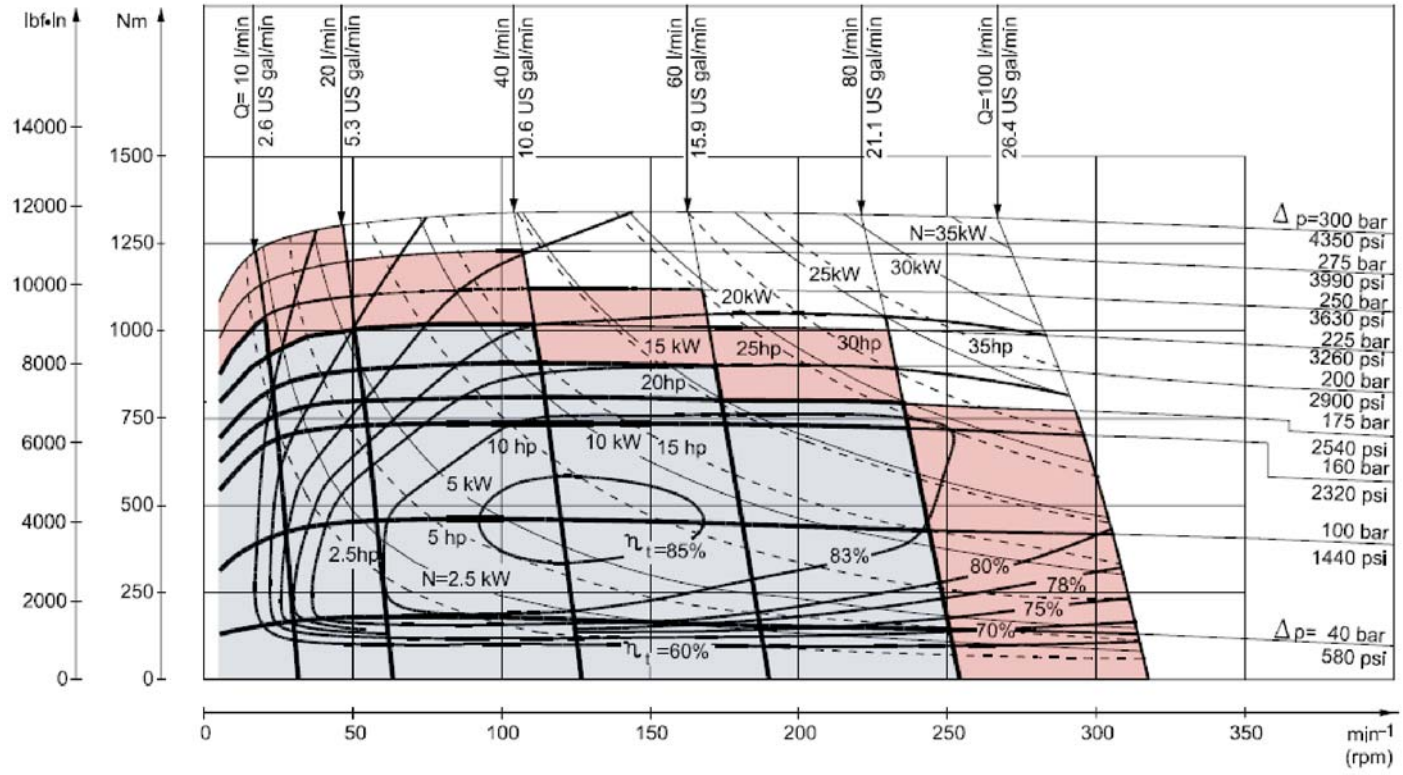
The function diagrams data was collected at back pressure 5÷10 bar (72.5PSI÷145PSI) and oil with viscosity of 32 mm²/s [150SUS] at 50° C [122°F].

FUNCTION DIAGRAMS

MTK 250



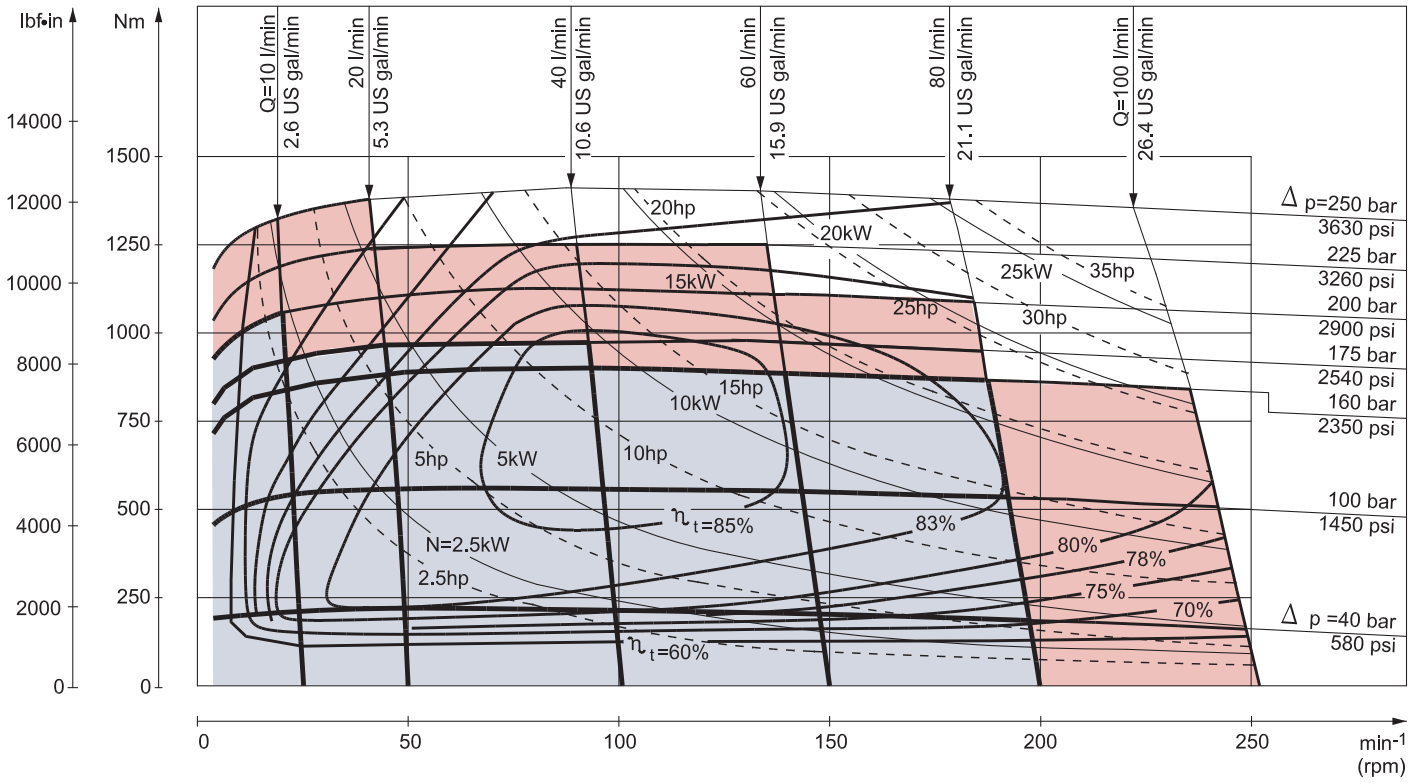
MTK 315



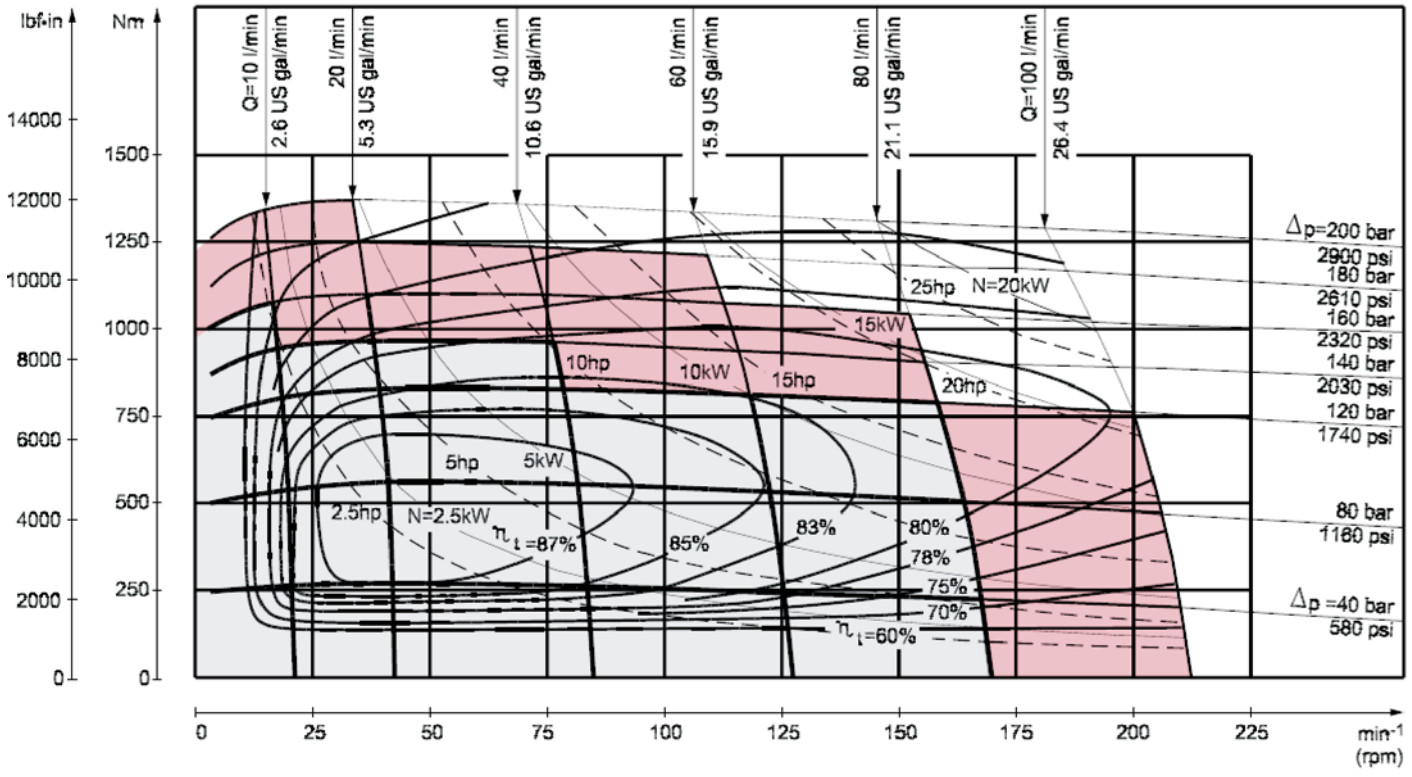
The function diagrams data was collected at back pressure 5÷10 bar (72.5PSI÷145PSI) and oil with viscosity of 32 mm²/s [150SUS] at 50° C [122°F].

FUNCTION DIAGRAMS

MTK 400

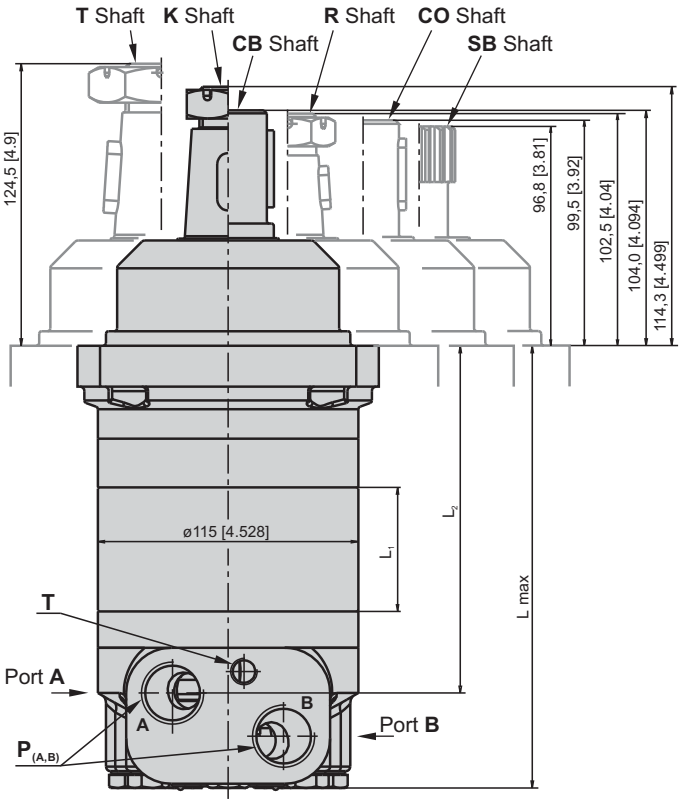


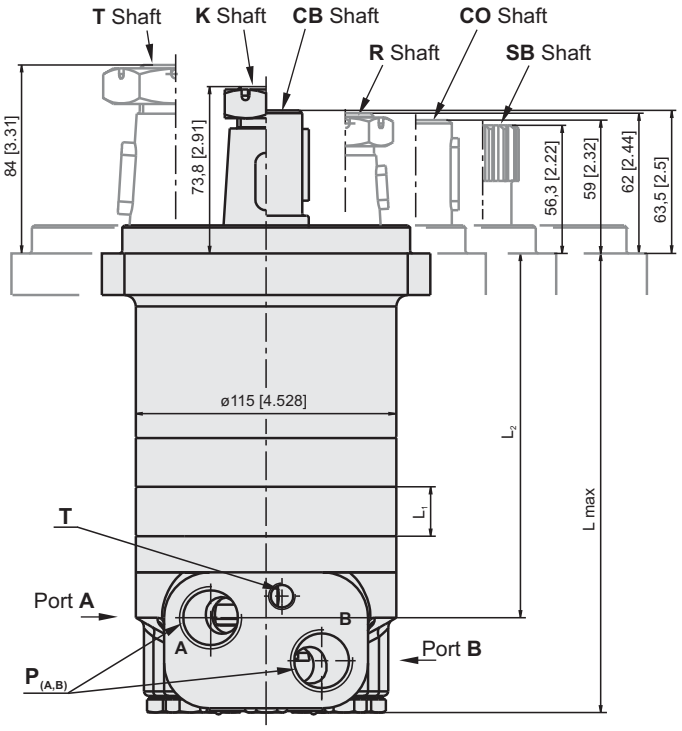
MTK 470



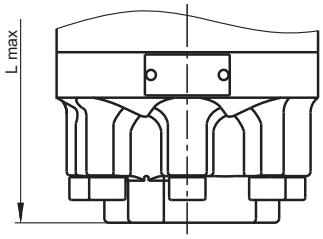
The function diagrams data was collected at back pressure 5÷10 bar (72.5PSI÷145PSI) and oil with viscosity of 32 mm²/s [150SUS] at 50° C [122°F].

DIMENSIONS - MTK W and MTK C





E Rear ports



Flange Dim. See Page 15

Ports Dim. See Page 16

Shaft Dim. See Page 17

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**

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

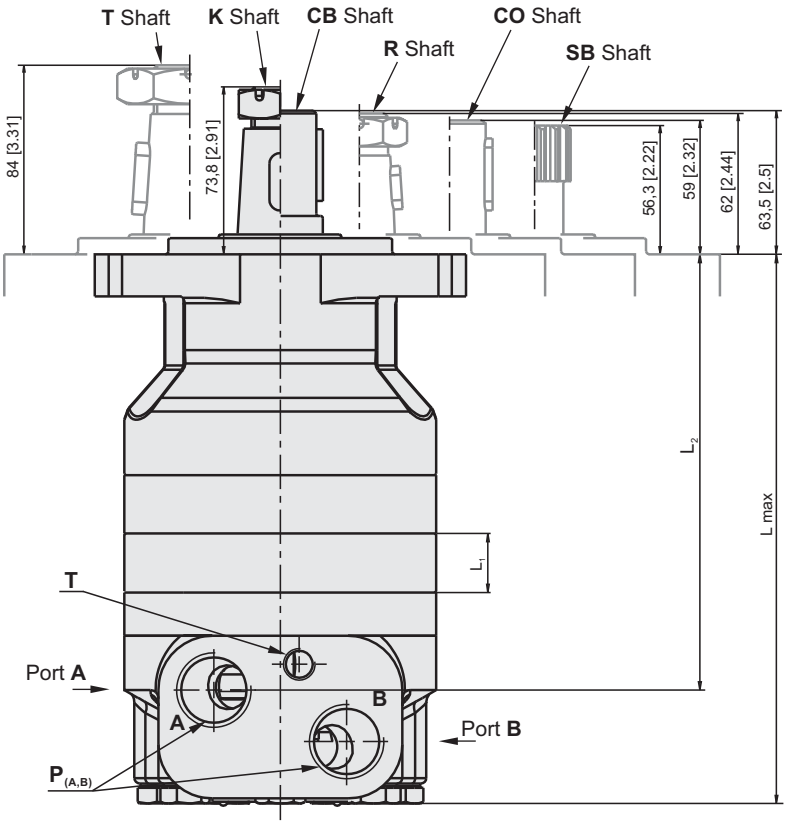
Reverse Rotation
Viewed from Shaft End
Port **A** Pressurized - **CCW**
Port **B** Pressurized - **CW**

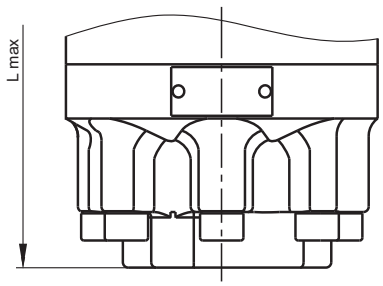
mm [in]

	Versions				
	Side			Rear	
	2	3	4	6	8
P (A,B)	2xG 3/4	2xM27x2	2x1 1/16-12UN	2xG 1/2	2x 7/8-14UNF
T	G 1/4	M14x1,5	7/16-20UNF	G 1/4	7/16-20UNF

Type	Lmax, mm [in]	L_2, mm [in]	*L_E, mm [in]	Type	Lmax, mm [in]	L_2, mm [in]	*L_E, mm [in]	L_1, mm [in]
MTKW160	162,7 [6.41]	120,3 [4.74]	176,3 [6.94]	MTKC160	203,2 [8.00]	160,8 [6.33]	216,8 [8.54]	21,8 [.86]
MTKW200	168,7 [6.64]	126,3 [4.97]	182,3 [7.18]	MTKC200	209,2 [8.24]	166,8 [6.57]	222,8 [8.77]	27,8 [1.09]
MTKW250	175,7 [6.92]	133,3 [5.25]	189,3 [7.45]	MTKC250	216,2 [8.51]	173,8 [6.84]	229,8 [9.05]	34,8 [1.37]
MTKW315	183,4 [7.22]	142,0 [5.59]	198,0 [7.79]	MTKC315	224,9 [8.85]	182,5 [7.19]	238,5 [9.39]	43,5 [1.71]
MTKW400	195,7 [7.70]	153,3 [6.04]	209,3 [8.24]	MTKC400	236,2 [9.29]	193,8 [7.63]	249,8 [9.83]	54,8 [2.16]
MTKW470	205,9 [8.12]	163,5 [6.44]	219,5 [8.64]	MTKC470	246,4 [9.70]	204,0 [8.03]	260,0 [10.24]	65,0 [2.56]
MTKW500	209,3 [8.24]	167,9 [6.61]	223,9 [8.81]	MTKC500	250,8 [9.87]	208,4 [8.20]	264,4 [10.41]	69,4 [2.73]

DIMENSIONS - MTK F





Flange Dim. See Page 15
Ports Dim. See Page 16
Shaft Dim. See Page 17

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**

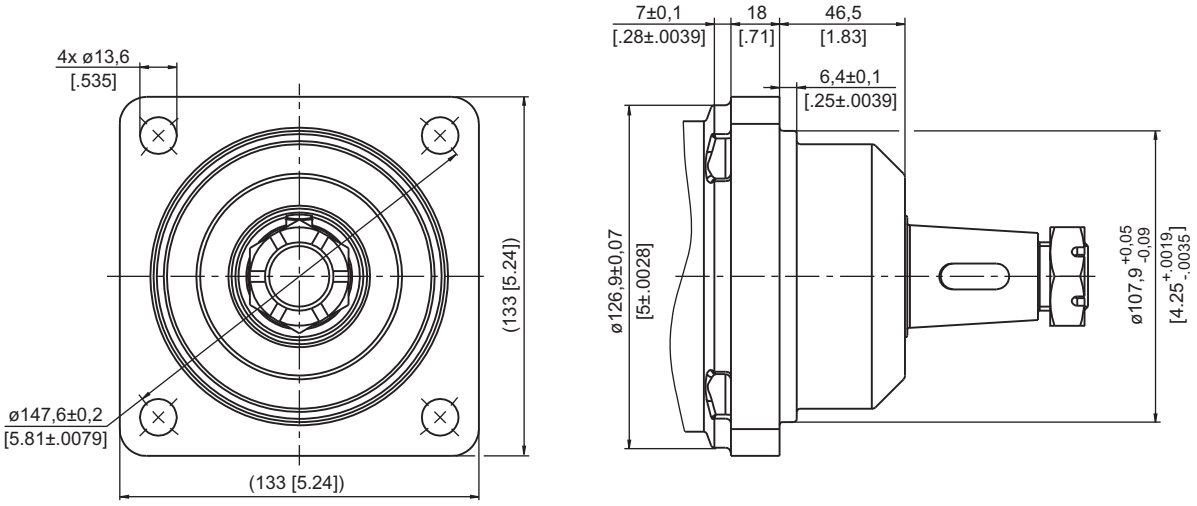
	Versions				
	Side			Rear	
	2	3	4	6	8
P (A,B)	2xG 3/4	2xM27x2	2x1 1/16-12UN	2xG 1/2	2x 7/8-14UNF
T	G 1/4	M14x1,5	7/16-20UNF	G 1/4	7/16-20UNF

Type	Lmax, mm [in]	L_2, mm [in]	*L_E, mm [in]	L_1, mm [in]
MTKF 160	203,2 [8.00]	160,8 [6.33]	216,8 [8.54]	21,8 [.86]
MTKF 200	209,2 [8.24]	166,8 [6.57]	222,8 [8.77]	27,8 [1.09]
MTKF 250	216,2 [8.51]	173,8 [6.84]	229,8 [9.05]	34,8 [1.37]
MTKF 315	224,9 [8.85]	182,5 [7.19]	238,5 [9.39]	43,5 [1.71]
MTKF 400	236,2 [9.29]	193,8 [7.63]	249,8 [9.83]	54,8 [2.16]
MTKF 470	246,4 [9.70]	204,0 [8.03]	260,0 [10.24]	65,0 [2.56]
MTKF 500	250,8 [9.87]	208,4 [8.20]	264,4 [10.41]	69,4 [2.73]

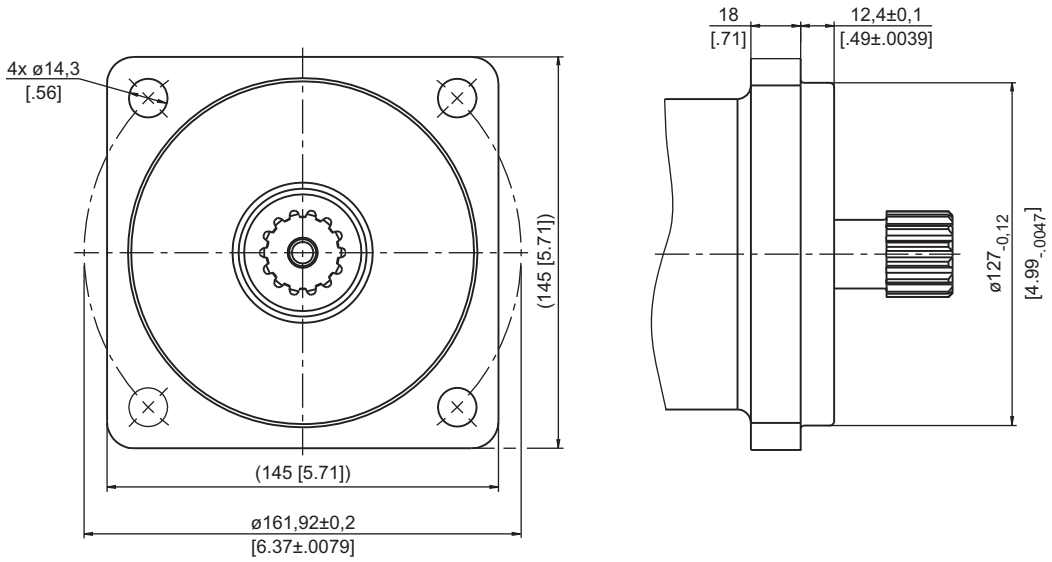
mm [in]

MOUNTING

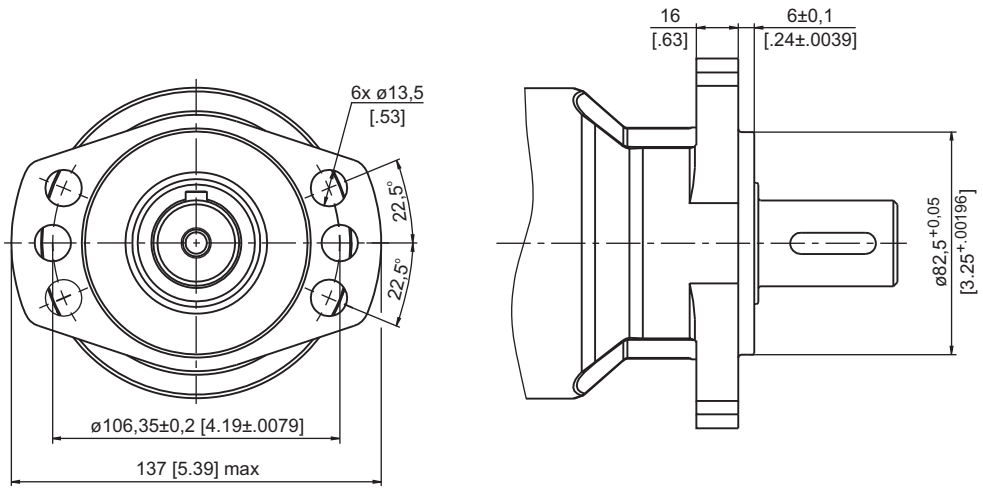
W - Wheel Mount (4 Holes)



C - Square Mount (4 Holes)



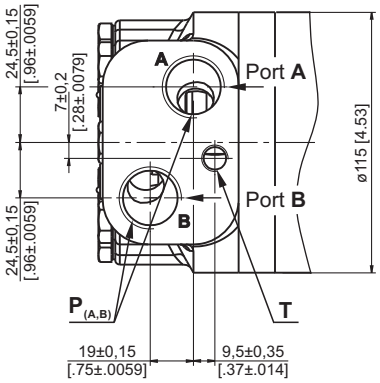
F - Magneto Mount (6 Holes)

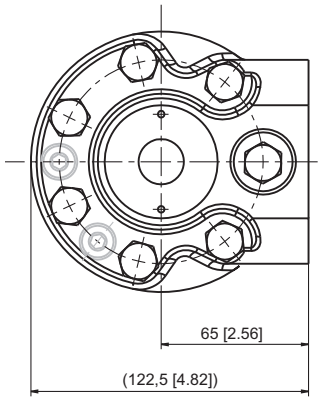


mm [in]

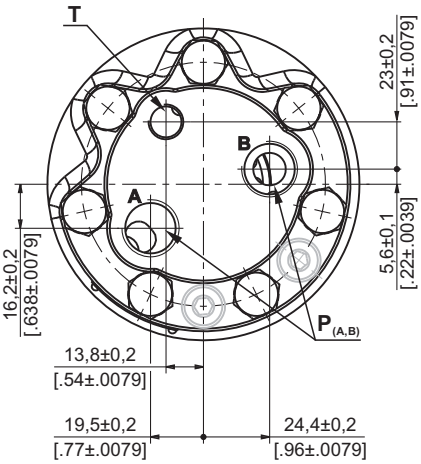
PORTS

Versions 2 3 4





Versions 6 8

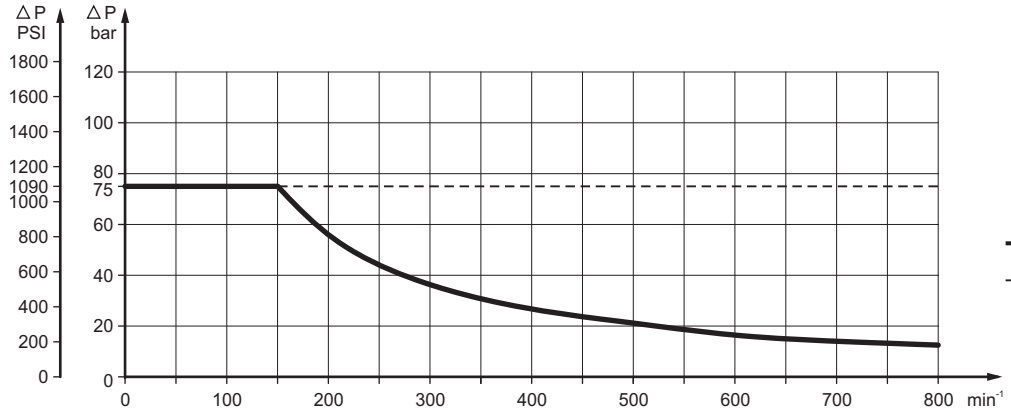


	Versions				
	Side			Rear	
	2	3	4	6	8
P (A,B)	2xG 3/4	2xM27x2	2x1 1/16-12UN	2xG 1/2	2x 7/8-14UNF
T	G 1/4	M14x1,5	7/16-20UNF	G 1/4	7/16-20UNF

mm [in]

MAX. PERMISSIBLE SHAFT SEAL PRESSURE for MTK motors

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

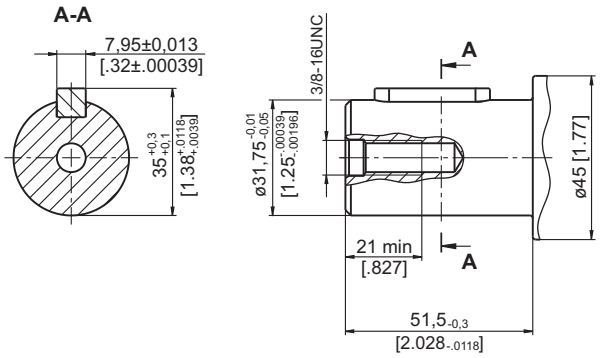


——— - continuous operations
- - - - - - intermittent operations

SHAFT EXTENSIONS

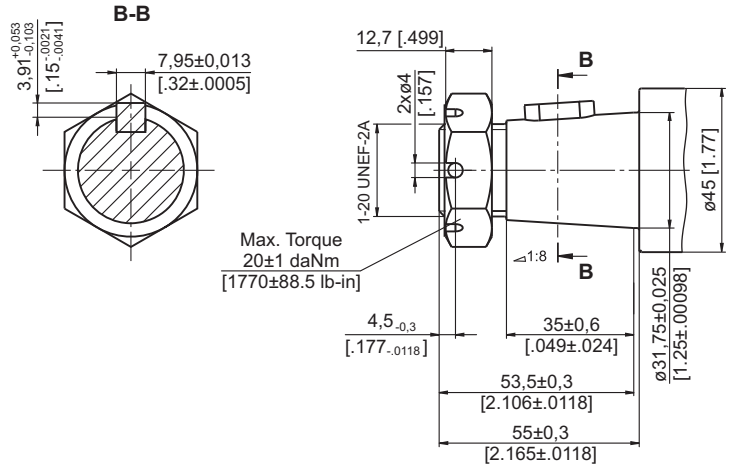
CO

ø1¼" [31,75] srtaight, Parallel key 5/16"x5/16"x1¼"
Max. Torque 77 daNm [6815 lb-in]



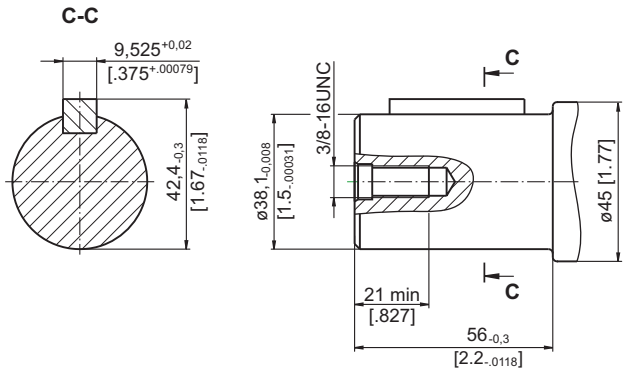
R

ø1¼" [31,75] tapered 1:8, Parallel key 5/16"x5/16"x¾"
Max. Torque 77 daNm [6815 lb-in]



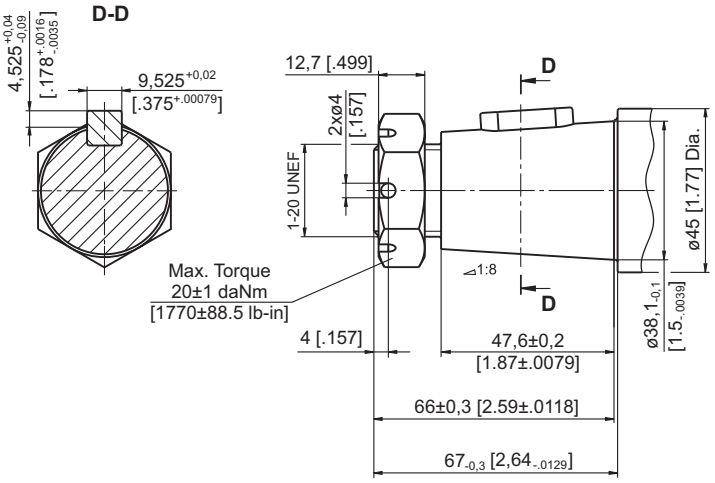
CB

ø1½" [38,1] straight, Parallel key ⅜"x⅜"x1¼" BS46
Max. Torque 132,8 daNm [11755 lb-in]



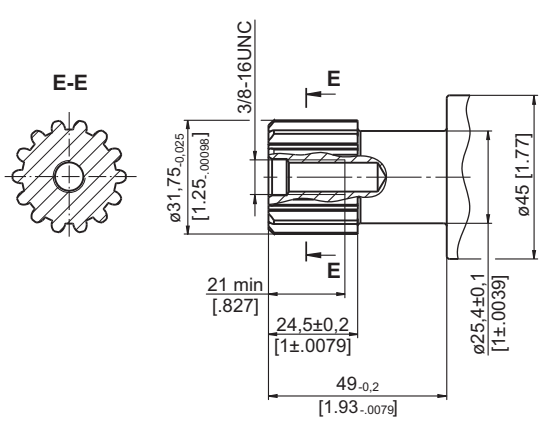
K

ø1½" [38,1] tapered 1:8, Parallel key ⅜"x⅜"x1"
Max. Torque 89 daNm [7878 lb-in]



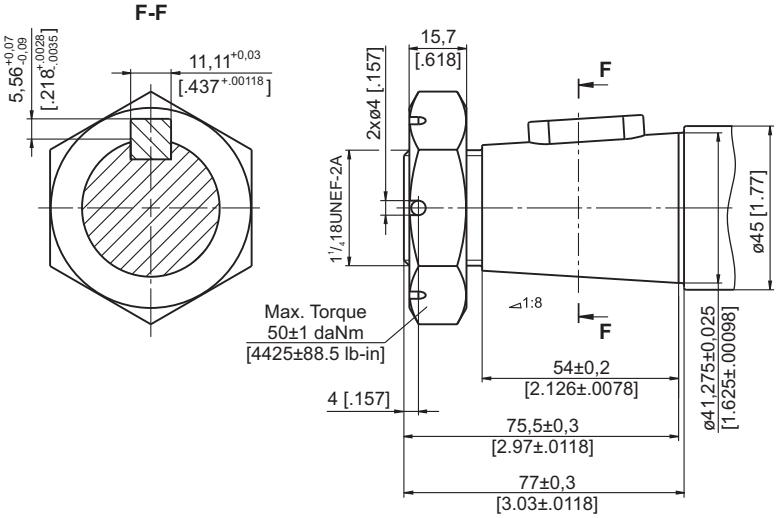
SB

ø1¼" [31,75] 14T Splined ANSI B92.1-1970, 12/24
Max. Torque 77 daNm [6815 lb-in]



T

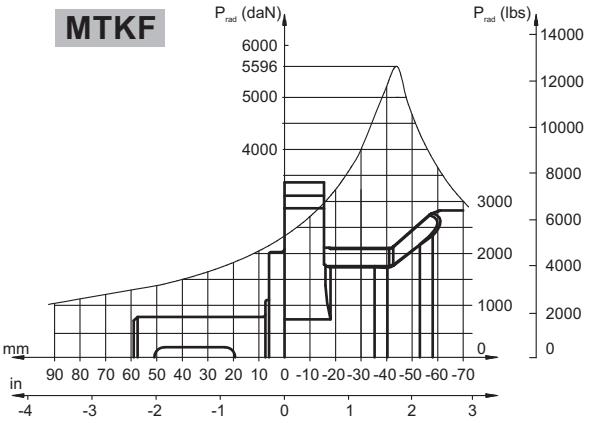
ø1 1/16" [41,275] tapered 1:8, Parallel key 7/16"x7/16"x1¼"
Max. Torque 100 daNm [8850 lb-in]



mm [in]

PERMISSIBLE SHAFT LOADS

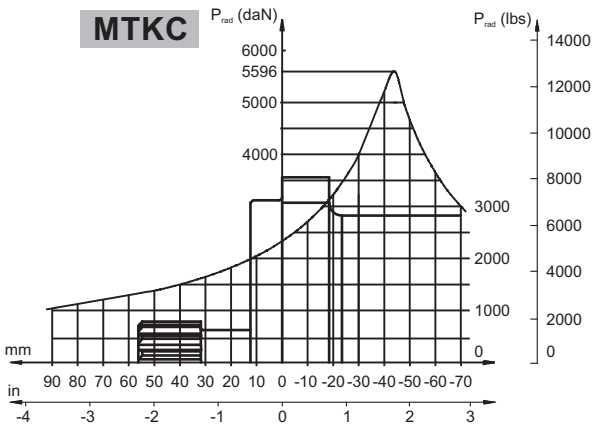
MTKF



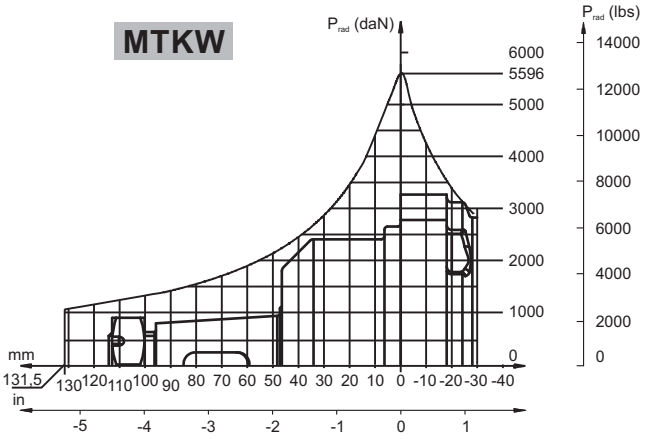
The curves apply to a B10 bearing life (ISO281) of 2000 hours at 100 RPM.

The curves apply to a B10 bearing life (ISO281) of 2000 hours at 100 RPM.

MTKC



MTKW



ORDER CODE

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

Pos.1 - Mounting Flange

- **W** - 4-Bolt flange, Wheel Motor spigot diameter 107,9 mm [2.25 in] - BC 147,6 mm [5.81 in]
- **C** - 4-Bolt flange, spigot diameter 127 mm [4.99 in]- BC 161,92 mm [6.375 in]
- **F** - Bolt flange, spigot diameter 82,5 mm [3.25 in]- BC 106,35 mm [4.19 in]

Pos.2 - Port type

- omit - Side ports
- **E** - Rear ports

Pos.3 - Displacement code

- **160** - 157,9 cm^3/rev [9.63 in^3/rev]
- **200** - 201,3 cm^3/rev [12.28 in^3/rev]
- **250** - 252,2 cm^3/rev [15.38 in^3/rev]
- **315** - 314,9 cm^3/rev [19.20 in^3/rev]
- **400** - 396,8 cm^3/rev [24.20 in^3/rev]
- **470** - 470,5 cm^3/rev [28.70 in^3/rev]
- **500** - 502,4 cm^3/rev [30.65 in^3/rev]

Notes: * The permissible output torque for shafts must be not exceeded!
** Drain line should always be used.

The hydraulic motors are mangano phosphatized as standard.

Pos.4 - Shaft Extensions*

- **CO** - ø1¼" [31,75] straight, Parallel key 5/16"x5/16"x1¼", 3/8-16 UNC
- **CB** - ø1½" [38,1] straight, Parallel key 3/8"x3/8"x1¼" BS46
- **SB** - ø1¼" [31,75] 14T Splined ANSI B92.1-1970, 12/24
- **R** - ø1¼" [31,75] tapered 1:8, Parallel key 5/16"x5/16"x3/4", 1-20 UNEF
- **K** - ø1½" [38,1] tapered 1:8, Parallel key 3/8"x3/8"x1", 1-20 UNEF
- **T** - ø1 1/16" [41,275] tapered 1:8, Parallel key 7/16"x7/16"x1¼"

Pos.5 - Port Size/Type

- **2** - side ports, 2xG 3/4, G1/4 BSP (ISO 228)
- **3** - side ports, 2xM27x2, M14x1,5 - 6H (ISO 262)
- **4** - side ports, 2x1 1/16-12 UN, 7/16-20 UNF
- **6** - rear ports, 2xG 1/2, G1/4 BSP (ISO 228)
- **8** - rear ports, 2x7/8-14 UNF, 7/16-20 UNF

Pos.6 - Check Valves

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

Pos.7 - Special Features

- **HD** - Reinforced motor **HD****

For Other **Special Features** see page 58

Pos.8 - Design Series

- omit - Factory specified