

Product Tech News

Hydraulic motors type TMYF...HD

INTRODUCTION

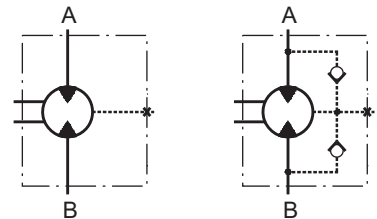
The hydraulic motors represent a new improved version of MTM family. They are intended to drive heavy transport machines with augmented requirements for high torque and reduced overall dimensions.

Characteristic features:

- Smooth running over the entire speed range
- Constant operating torque over a wide speed range
- High starting torque
- High efficiency
- Long life under extreme operating conditions
- Robust and compact design
- High radial and axial bearing capacity
- For applications in both open and closed loop hydraulic systems
- Suitable for a wide variety of hydraulics fluids

Motors are used in the following application areas:

- Construction equipment
- Agricultural equipment
- Material handling & Lifting equipment
- Forestry equipment
- Lawn and turf equipment
- Special purpose
- Machine tools and stationary equipment
- Marine equipment



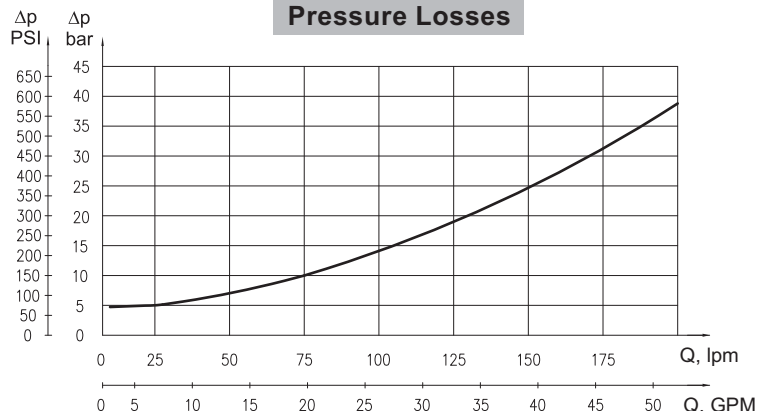
GENERAL

Max. Displacement, cm ³ /rev [in ³ /rev]	801,8 [48.91]
Max. Speed, [RPM]	590
Max. Torque, daNm [lb-in]	cont.: 259 [22920] int.: 340 [30090]
Max. Output, kW [HP]	65 [87]
Max. Pressure Drop, bar [PSI]	cont.: 250 [3600] int.: 350 [5080]
Max. Oil Flow, lpm [GPM]	240 [63.4]
Min. Speed, [RPM]	240
Permissible Shaft Loads daN [lbs]	P _a =1500 [3300]
Pressure fluid	Mineral based- HLP(DIN 51524) or HM(ISO 6743/4)
Temperature range, °C [°F]	-40÷140 [-40÷284]
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]
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		TMYF 315	TMYF 400	TMYF 500	TMYF 630	TMYF 800
Displacement, cm ³ /rev [in ³ /rev]		314,5 [19.19]	400,9 [24.5]	499,6 [30.5]	629,1 [38.38]	801,8 [48.91]
Max. Speed, [RPM]	cont.	480	450	400	315	240
	int.*	570	590	480	370	290
Max. Torque, daNm [lb-in]	cont.	135 [11950]	172 [15220]	224 [19820]	259 [22920]	270 [23900]
	int.*	160 [14160]	200 [17700]	260 [23010]	320 [28320]	340 [30090]
	peak**	180 [15930]	230 [20355]	286 [25315]	360 [31860]	402 [35580]
Starting Torque, daNm [lb-in]		92 [8140]	115 [10180]	144 [12745]	180 [15930]	205 [18140]
Max. Output, kW [HP]	cont.	50 [67]	55 [74]	55 [74]	50 [67]	50 [67]
	int.*	55 [74]	60 [80]	65 [87]	60 [80]	60 [80]
Max. Pressure Drop, bar [PSI]	cont.	300 [4350]	300 [4350]	300 [4350]	275 [3990]	225 [3263]
	int.*	350 [5080]	350 [5080]	350 [5080]	350 [5080]	300 [4350]
	peak**	400 [5800]	400 [5800]	400 [5800]	400 [5800]	350 [5080]
Max. Oil Flow lpm [GPM]	cont.	150 [39.6]	180 [47.6]	200 [52.8]	200 [52.8]	200 [52.8]
	int.*	180 [47.6]	240 [63.4]	240 [63.4]	240 [63.4]	240 [63.4]
Max. Inlet Pressure bar [PSI]	cont.	300 [4350]	300 [4350]	300 [4350]	300 [4350]	300 [4350]
	int.*	380 [5510]	380 [5510]	380 [5510]	380 [5510]	380 [5510]
	peak**	420 [6090]	420 [6090]	420 [6090]	420 [6090]	420 [6090]
Max. Starting Pressure with Unloaded Shaft, bar [PSI]		5 [70]	5 [70]	5 [70]	5 [70]	5 [70]
Max. Return Pressure with Drain Line, bar [PSI]	cont.	140 [2030]				
	int.*	175 [2540]				
	peak**	210 [3046]				
Drain line:		Should always be used!				
Weight, kg [lb]	TMYFT	31,2 [68.8]	31,8 [70.1]	32,4 [71.4]	34 [74.9]	34,5 [76.1]
	TMYFV	38,2 [84.4]	38,8 [85.5]	39,4 [86.9]	41 [90.4]	41,5 [91.5]

* Intermittent operation: the permissible values may occur for max. 10% of every minute.

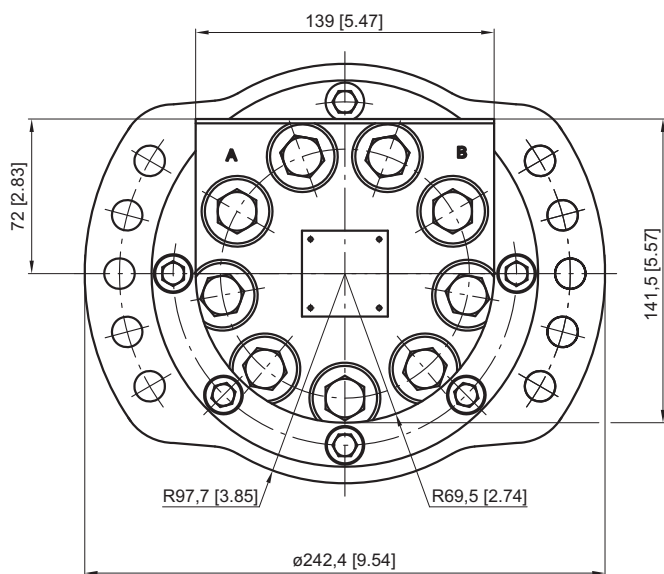
** Peak load: the permissible values may occur for max. 1% of every minute.

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

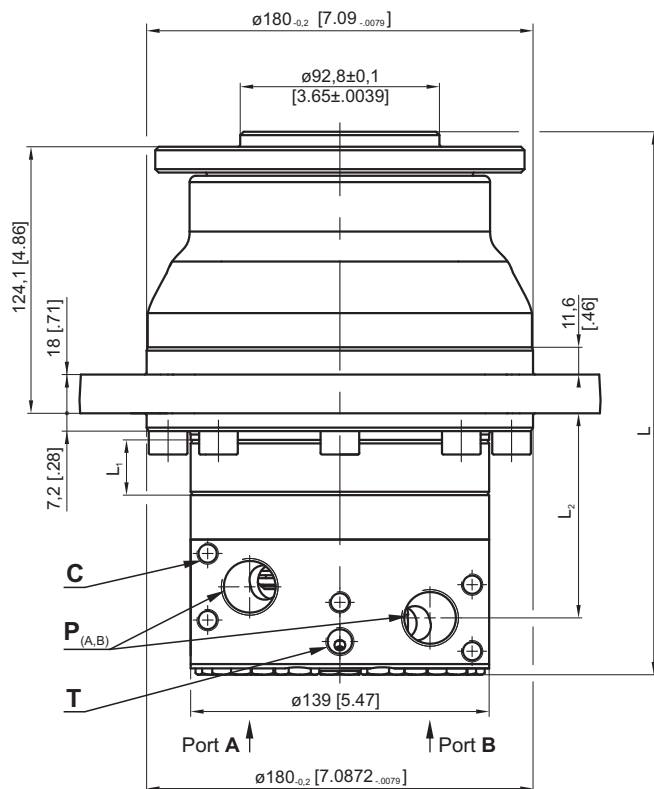
1. Intermittent speed and intermittent pressure must not occur simultaneously.
2. Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
3. Recommend using a premium quality, anti-wear type mineral based hydraulic oil, HLP(DIN51524) or HM(ISO6743/4).
If using synthetic fluids consult the factory for alternative seal materials.
4. Recommended minimum oil viscosity 70 SUS [13 cmi/s] at 122°F [50°C].
5. Recommended maximum system operating temperature is 180°F [82°C].

OUTLINE DIMENSIONS REFERENCE

TMYFT...5...



	Versions		
	2	4	5
C	-	-	5xM10
P(A,B)	2xG $\frac{3}{4}$	2x1 $\frac{1}{16}$ -12 UN O-ring	2xG $\frac{3}{4}$
T	G $\frac{1}{4}$	$\frac{9}{16}$ -18 UNF	G $\frac{1}{4}$

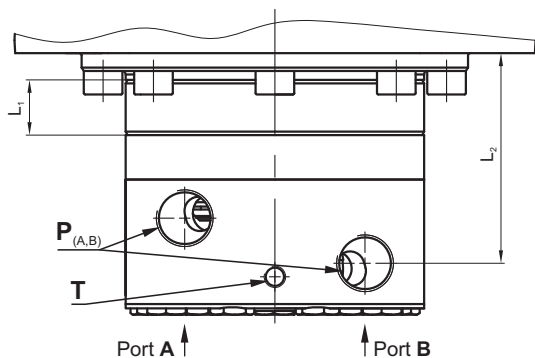


Standard Rotation
Viewed from Shaft End
Port A Pressurized - CW
Port B Pressurized - CCW

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



TMYFT...2(4)...

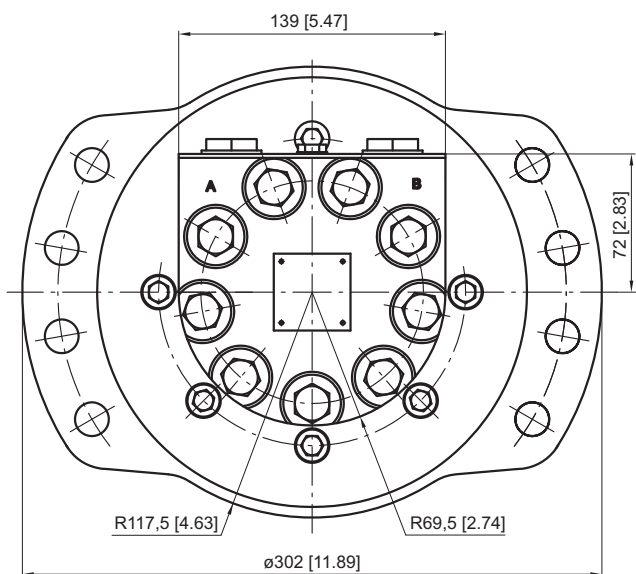


Type	L _{max} , mm [in]	L ₂ , mm [in]	L ₁ , mm [in]
TMYFT 315...5	253,0 [9.96]	95,35 [3.75]	25,5 [1.00]
TMYFT 400...5	260,0 [10.24]	102,7 [4.04]	32,5 [1.28]
TMYFT 500...5	291,0 [11.46]	110,35 [4.34]	40,5 [1.59]
TMYFT 630...5	278,5 [10.96]	120,85 [4.76]	51,0 [2.00]
TMYFT 800...5	292,5 [11.52]	134,85 [5.31]	65,0 [2.56]

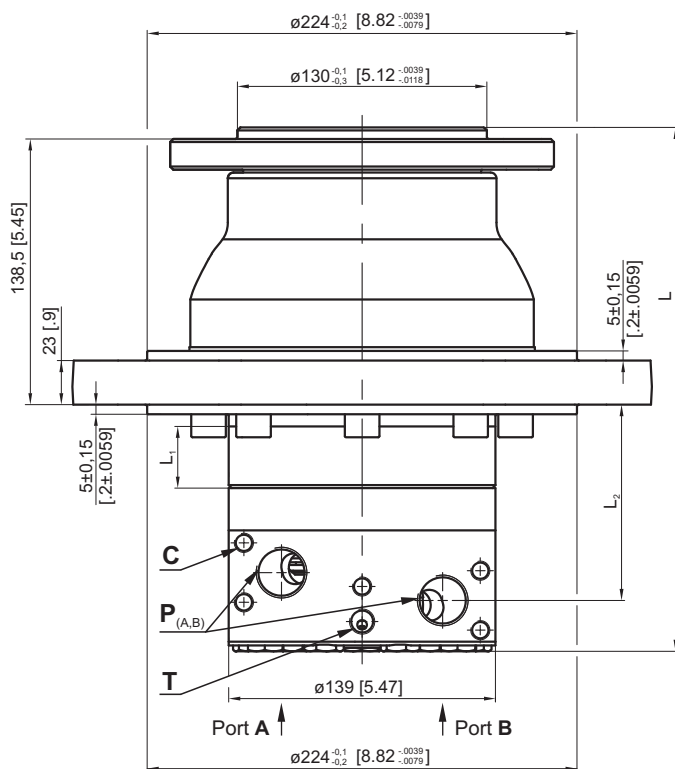
Type	L _{max} , mm [in]	L ₂ , mm [in]	L ₁ , mm [in]
TMYFT 315...2(4)	253,0 [9.96]	97,85 [3.84]	25,5 [1.00]
TMYFT 400...2(4)	260,0 [10.24]	107,7 [4.11]	32,5 [1.28]
TMYFT 500...2(4)	291,0 [11.46]	112,85 [4.43]	40,5 [1.59]
TMYFT 630...2(4)	278,5 [10.96]	123,35 [4.86]	51,0 [2.00]
TMYFT 800...2(4)	292,5 [11.52]	137,35 [5.41]	65,0 [2.56]

OUTLINE DIMENSIONS REFERENCE

TMYFV...5...



	Versions		
	2	4	5
C	-	-	5xM10
P(A,B)	2xG $\frac{3}{4}$	2x1 $\frac{1}{16}$ -12 UN O-ring	2xG $\frac{3}{4}$
T	G $\frac{1}{4}$	$\frac{9}{16}$ -18 UNF	G $\frac{1}{4}$

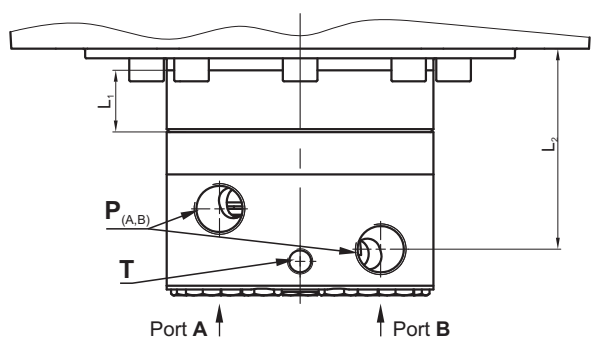


Standard Rotation
Viewed from Shaft End
Port A Pressurized - CW
Port B Pressurized - CCW

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



TMYFV...2(4)...

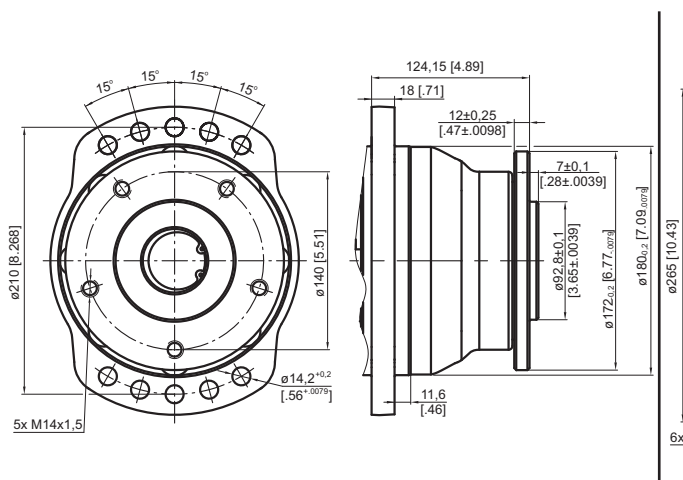


Type	L _{max} ¹ , mm [in]	L ₂ , mm [in]	L ₁ , mm [in]
TMYFV 315...5	266,0 [10.47]	95 [3.74]	25,5 [1.00]
TMYFV 400...5	273,0 [10.75]	102 [4.02]	32,5 [1.28]
TMYFV 500...5	291,0 [11.46]	110 [4.33]	40,5 [1.59]
TMYFV 630...5	291,5 [11.48]	121 [4.76]	51,0 [2.00]
TMYFV 800...5	305,5 [12.03]	135 [5.31]	65,0 [2.56]

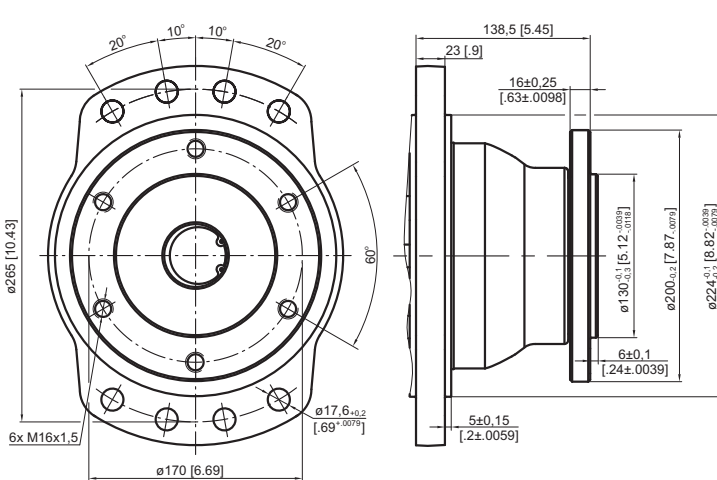
Type	L _{max} ¹ , mm [in]	L ₂ , mm [in]	L ₁ , mm [in]
TMYFV 315...2(4)	266,0 [10.47]	97,5 [3.84]	25,5 [1.00]
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TMYFV 500...2(4)	291,0 [11.46]	112,5 [4.43]	40,5 [1.59]
TMYFV 630...2(4)	291,5 [11.48]	123,5 [4.86]	51,0 [2.00]
TMYFV 800...2(4)	305,5 [12.03]	137,5 [5.41]	65,0 [2.56]

MOUNTING

TMYFT

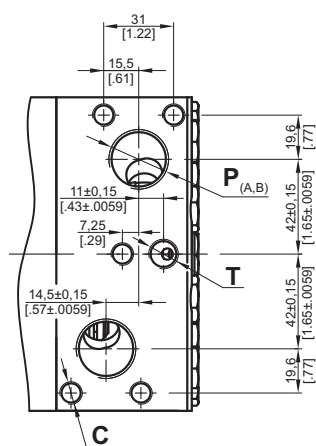


TMYFV

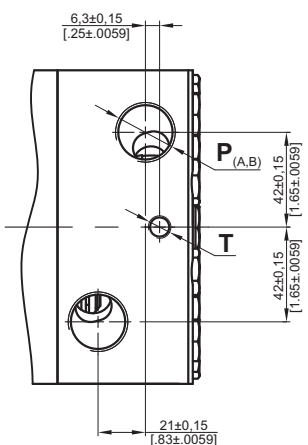


PORTS

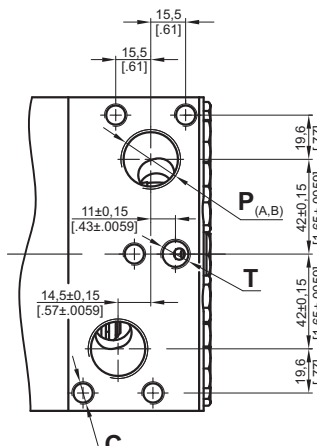
TMYFT...5...



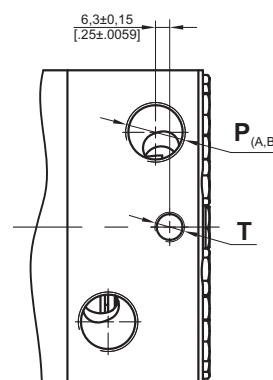
TMYFT...2(4)...



TMYFV...5...



TMYFV...2(4)...



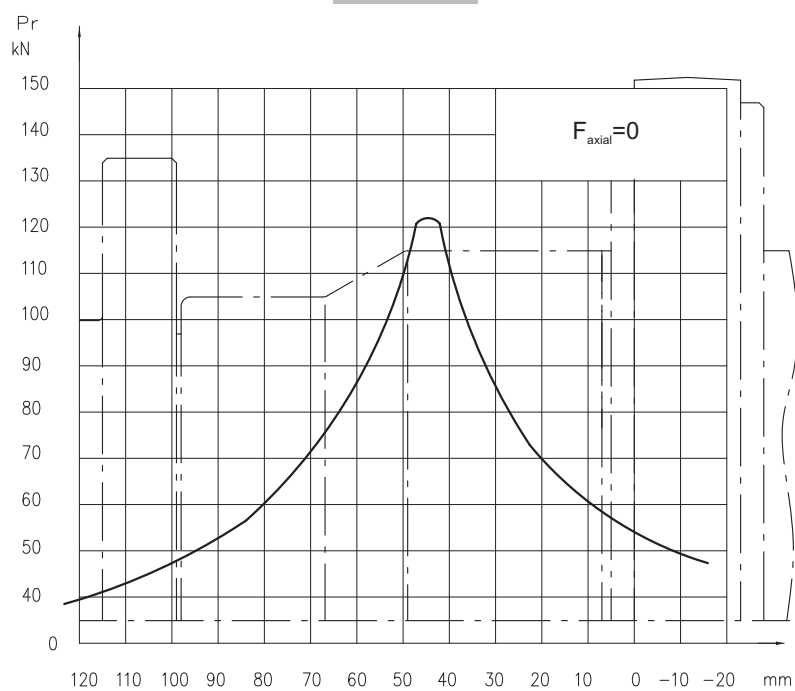
	Versions		
	2	4	5
C	-	-	5xM10
P(A,B)	2xG $\frac{3}{4}$	2x1 $\frac{1}{16}$ -12 UN O-ring	2xG $\frac{3}{4}$
T	G $\frac{1}{4}$	$\frac{9}{16}$ -18 UNF	G $\frac{1}{4}$

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

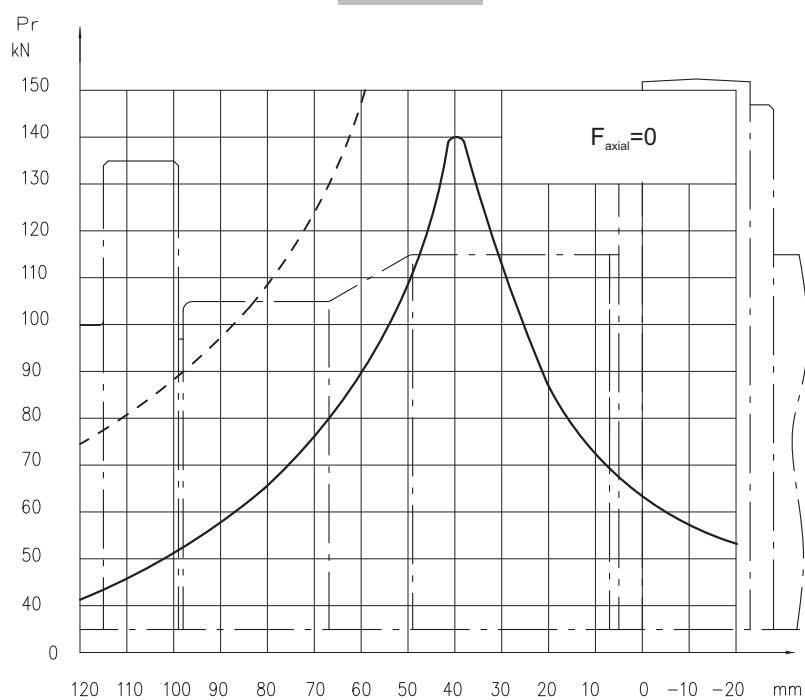
Reverse Rotation
Viewed from Shaft End
Port A Pressurized - CCW
Port B Pressurized - CW

PERMISSIBLE SHAFT LOADS

TMYFT



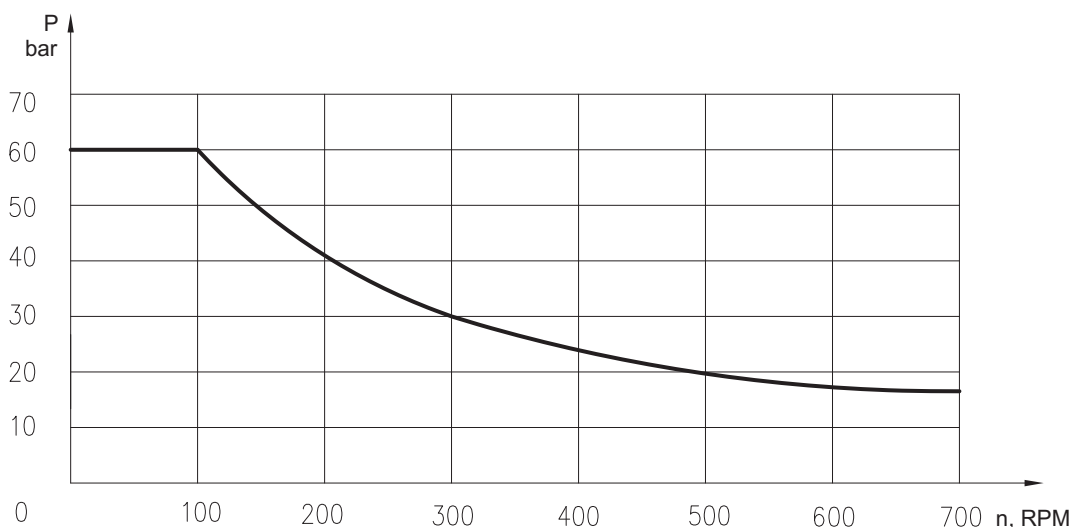
TMYFV



The curve of the radial load is based on the bearing life L10 by ISO 281 (2000 h at 100 min^{-1} or 12 000 000 revolutions). For calculation of the radial load at speed different than 100 min^{-1} must be used the coefficients shown in the table.

n min^{-1}	Correction factor -
50	1,23
100	1,00
200	0,81
300	0,72
400	0,66
500	0,62

MAX. PERMISSIBLE SHAFT SEAL PRESSURE



ORDER CODE

	1	2	3	4	5	6	7	8	9
TMYF			-						

Pos.1 - Mounting Flange

- T** - 10-Bolt flange, spigot dia. \varnothing 180, BC \varnothing 210
V - 8-Bolt flange, spigot dia. \varnothing 200, BC \varnothing 265

Pos.2 - Displacement code

- 315** - 314,5 cm³/rev [19.19 in³/rev]
400 - 400,9 cm³/rev [24.50 in³/rev]
500 - 499,6 cm³/rev [30.50 in³/rev]
630 - 629,1 cm³/rev [38.38 in³/rev]
800 - 801,8 cm³/rev [48.91 in³/rev]

Pos.3 - Port Size/Type [standard manifold to each]

- 2** - side ports, 2xG3/4, G1/4, BSP thread, ISO 228
4 - side ports, 2x1¹/₁₆-12 UN, O-ring, 9/16-18 UNF
5 - side ports, 2xG3/4, G1/4, 5xM10

Pos.4 - Check Valves

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

Pos.5 - Reinforce

- omit - standard
HD - Reinforced motor **HD****

Pos.6 - Special Features

- omit - none
LL - Low Leakage
LSV - Low Speed Valve
FR - Free Running

Pos.7 - Rotation

- omit - Standard Rotation
R - Reverse Rotation

Pos.8 - Option (Paint)***

- omit - no Paint
P - Painted
PC - Corrosion Protected Paint
PS - Special Paint****
PCS - Special Paint****

Pos.9 - Design Series

- omit - Factory specified

Notes:

- * Not for Port Size Version 5!
** Drain line should always be used.
*** Colour at customer's request.
**** Non painted feeding surfaces, colour at customer's request.

The hydraulic motors are manganese-phosphatized as standard.



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