

P-MS25

Hydraulic Motors



www.yeoshehydraulic.com

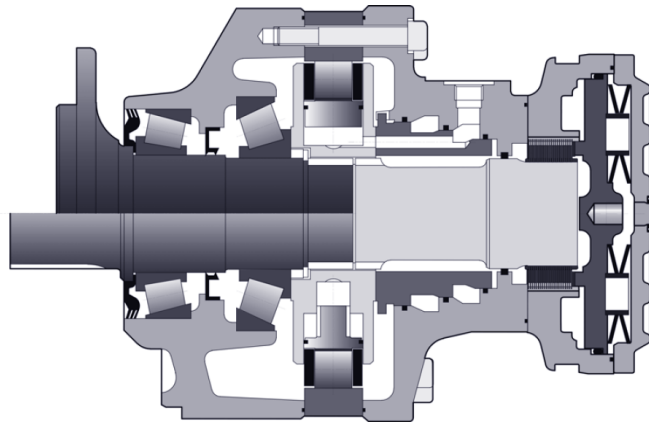
Efficient Performance
Innovative Technology
Reliable Quality and
Service

YEOSHE HYDRAULICS CO.,LTD.



• P-MS25 Max. pressure

Cams with equal lobes	450 bar [6,527 PSI]
Cams with unequal lobes	450 bar [6,527 PSI]



C		Cams with equal lobes				Cams with unequal lobes		
		8	0	1	2	A		
1	cm ³ /tr [cu.in/rev.]	2,004 [122.2]	2,498 [152.4]	2,752 [167.8]	3,006 [183.3]	2,505 [152.8]		
	2	1,002 [61.1]	1,249 [76.2]	1,376 [83.9]	1,503 [91.7]	1,503 [91.7]	1,002 [61.1]	
Theoretical torque	1	at 100 bar Nm	3,186	3,972	4,376	4,780	3,983	
	2	at 1000 PSI [lb.ft]	[1,620]	[2,020]	[2,225]	[2,431]	[2,025]	
Max. power	1	kW [HP]	90 [121]				90 [121]	
	2	preferred kW [HP]	60 [80]				60 [80]	
	2	non-preferred kW [HP]	45 [60]				45 [60]	
Max. speed	1	tr/min [RPM]	145	137	125	115	115	
	2	tr/min [RPM]	145	137	135	130	130	

- 1 First displacement
- 2 Second displacement

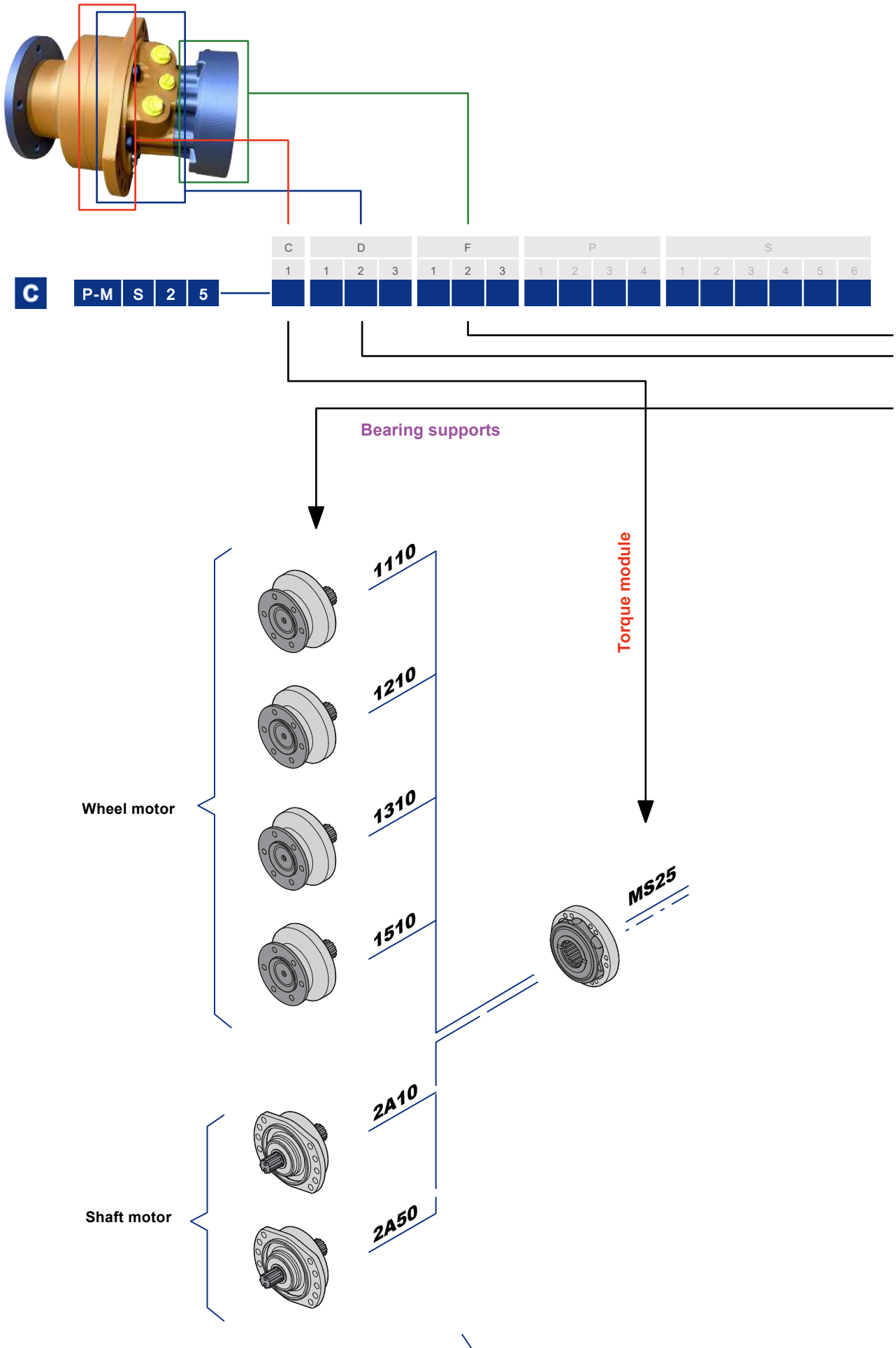
Motor inertia = 0.4 kg.m²

Modularity

M

2

P-MS25 series



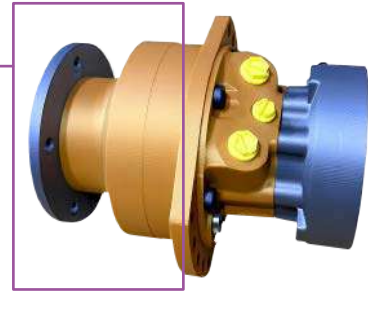
Modularity



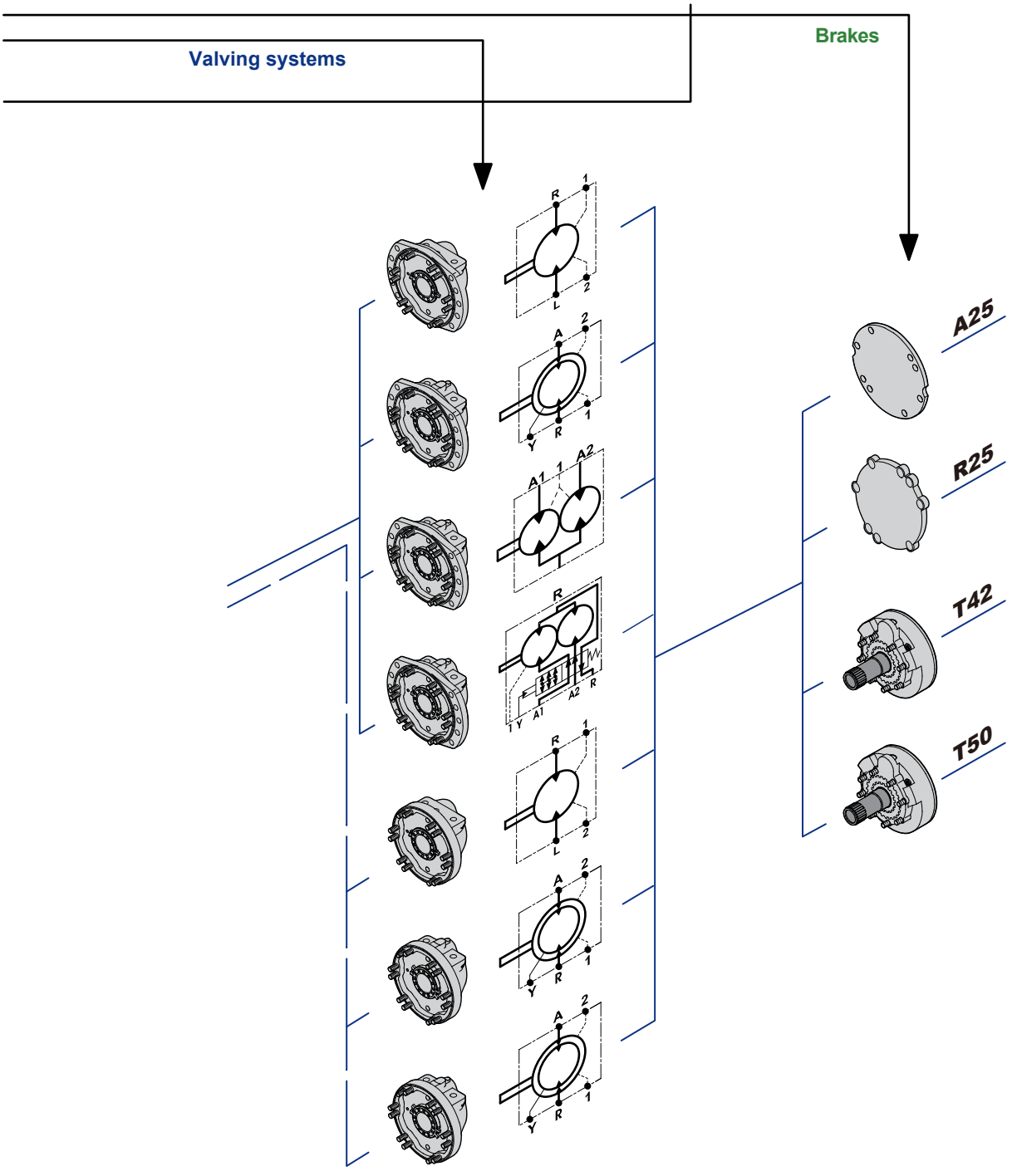
M

3

P-MS25 series



C	D				F			P				S					
	1	1	2	3	1	2	3	1	2	3	4	1	2	3	4	5	6
C	P-M	S	2	5													



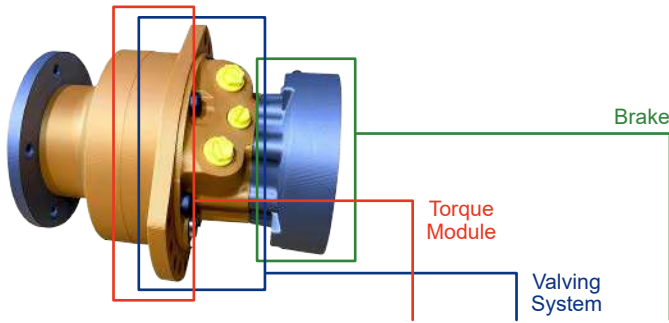
Hydrobases

Modelcode

M

4

P-MS25 series



C	D			F			P				S					
1	1	2	3	1	2	3	1	2	3	4	1	2	3	4	5	6
C	P	M	S	2	5					0						

Came type

C1	cm ³ /tr [cu.in/rev.]		
	①	②	
Cams with equal lobes	2,004 [122.2]	1,002 [61.1]	8
	2,498 [152.4]	1,249 [76.2]	0
	2,752 [167.8]	1,376 [83.9]	1
	3,006 [183.3]	1,503 [91.7]	2
Cams with unequal lobes	2,505 [152.8]	1,503 [91.7]	A
		1,002 [61.1]	

- ① First displacement
- ② Dual displacement

Valving cover

D2		1	1	-	-
	Without mounting	1	1	-	-
	Lug fixing	2	2	E	V
		1-displacement	2-displacement	Twin-Lock	Twin-Lock or 2-displacement

Connection type

D3		0	1
	No transmission cover	0	
	ISO 6162 SAE flanges		1
	ISO 9974-1 metric connections		1

Valving type

D1	1-displacement valving		1
		Ratio	2
Symmetrical	Ratio < 2		B
	Ratio > 2		C
	Ratio 2		D
2-displacement & Twin-Lock valving (Clockwise)	Ratio < 2		E
	Ratio > 2		F
2-displacement & Twin-Lock valving (Counterclockwise)	Ratio 2		G
	Ratio < 2		H
	Ratio > 2		J

Rear brake

F1	Without brake	Simple plate	A25
		Reinforced plate	R25
F3	Brakes	Screwed environmental cover	T42
			T50

Methodology

M

6

P-MS25 series

This document is intended for manufacturers of machines that incorporate Hydraulics products. It describes the technical characteristics of products and specifies installation conditions that will ensure optimum operation. This document includes important comments concerning safety. They are indicated in the following way :

Important notes and warnings are indicated



Safety comment.

This document also includes essential operating instructions for the product and general information.

Expressed as follows



Essential instructions.



General information.



Information on the model number.



Weight of component without oil.



Volume of oil.



Units.



Tightening torque.



Screws.

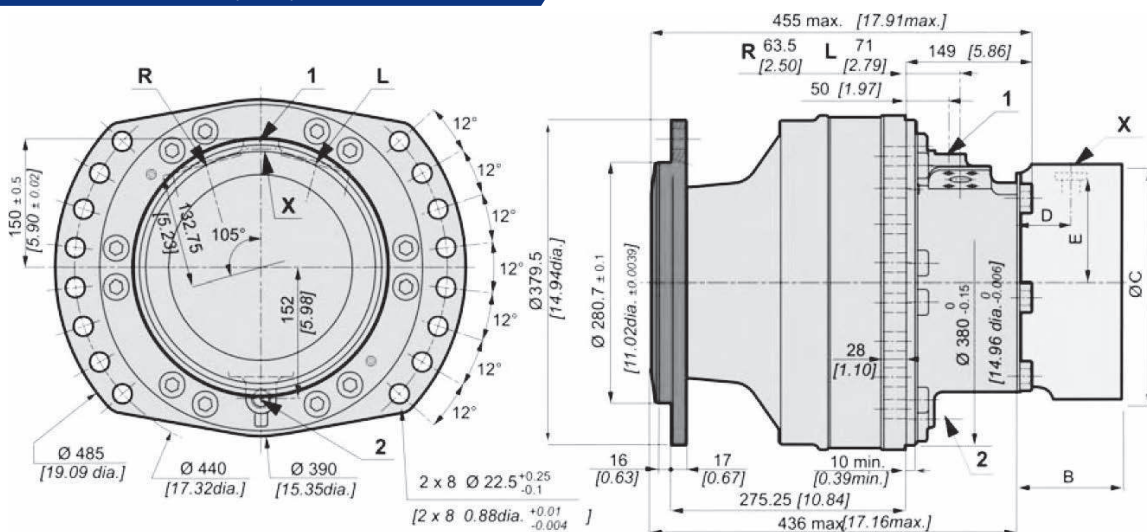


Information intended for personnel.

The views in this document are created using metric standards. The dimensional data is given in mm and in inches (inches are given in brackets in italics).



Dimensions for standard (1110) 1-displacement motor

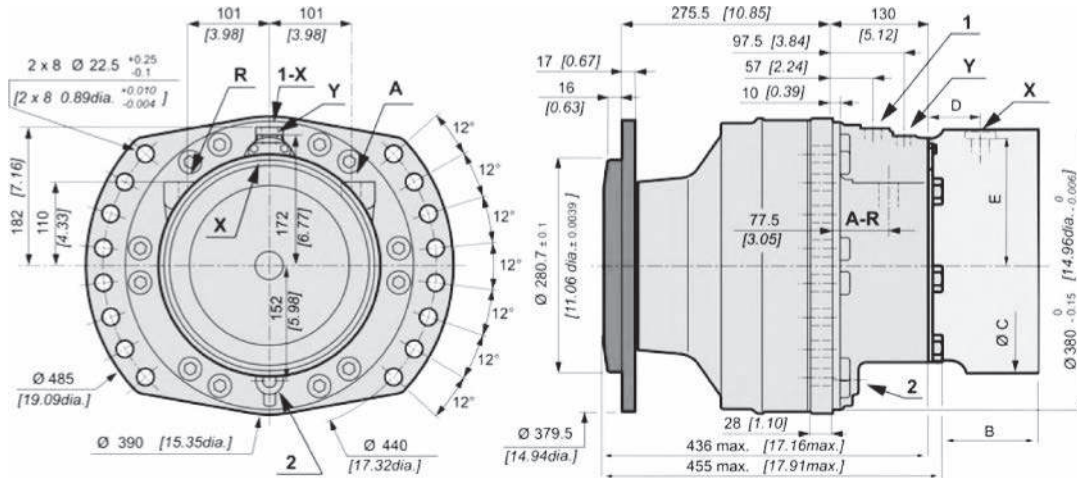


	210 kg [462 lb]	270 kg [594 lb]
	5 L [300 cu.in]	4 L [240 cu.in]



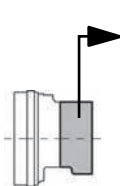
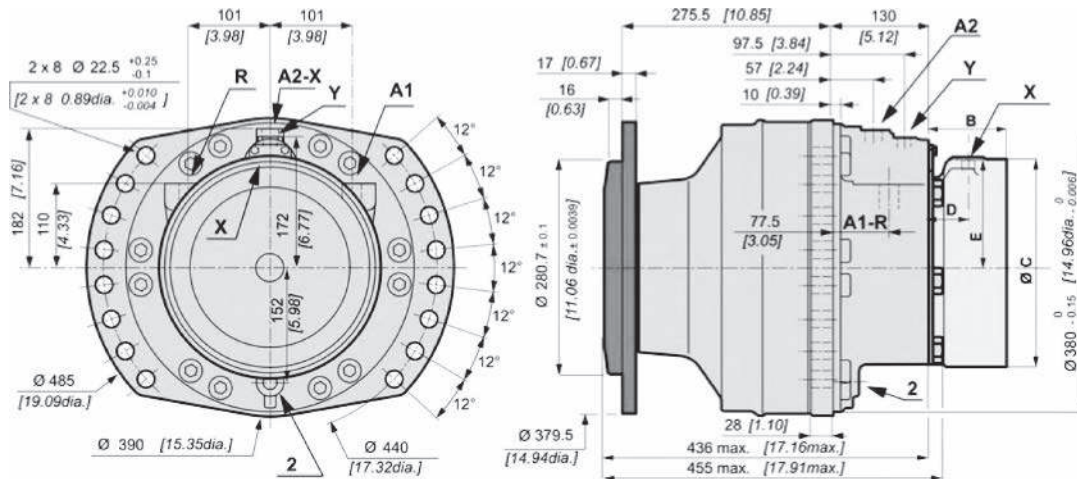
Wheel Motor

Dimensions for standard (1110) 2-displacement motor



210 kg [462 lb]	270 kg [594 lb]
5 L [300 cu.in]	4 L [240 cu.in]

Dimensions for standard (1210) Twin-Lock



C	T 4 2	T 5 0
B	148 [5.83]	157.5 [6.20]
C	Ø375 [14.76 dia.]	Ø375 [14.76 dia.]
D	63.5 [2.50]	63.5 [2.50]
E	183.5 [7.22]	183.5 [7.22]

210 kg [462 lb]	270 kg [594 lb]
5 L [300 cu.in]	4 L [240 cu.in]

i Also see 'Valving systems and hydrobases' section (thumbnail opposite).

i Also see "Brake" section (thumbnail opposite).

Wheel Motor

M

8

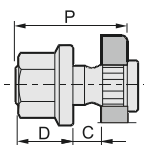
P-MS25 series

Support types

	C	D			F			P				S					
	1	1	2	3	1	2	3	1	2	3	4	1	2	3	4	5	6
P-M	S	2	5														

C	A mm [in]	B mm [in]	C mm [in]	D mm [in]	E mm [in]	N mm [in]	Wheel rim mountings	L mm [in]													
<table border="1"> <tr><td colspan="4">P</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>1</td><td>1</td><td>1</td><td>0</td></tr> </table>	P				1	2	3	4	1	1	1	0	Ø 280.7 [11.05 dia.]	Ø 335 [13.19 dia.]	Ø 379 [14.92 dia.]	275.5 [10.85]	Ø 390 [15.35 dia.]	Ø 24 [0.94 dia.]	10 x M22x1.5	17 [0.67]	
P																					
1	2	3	4																		
1	1	1	0																		
<table border="1"> <tr><td colspan="4">P</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>1</td><td>2</td><td>1</td><td>0</td></tr> </table>	P				1	2	3	4	1	2	1	0	Ø 370 [14.57 dia.]	Ø 425 [16.73 dia.]	Ø 472 [18.58 dia.]	333.45 [13.13]	Ø 390 [15.35 dia.]	Ø 26 [1.02 dia.]	12 x M24x2	24 [0.94]	
P																					
1	2	3	4																		
1	2	1	0																		
<table border="1"> <tr><td colspan="4">P</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>1</td><td>3</td><td>1</td><td>0</td></tr> </table>	P				1	2	3	4	1	3	1	0	Ø 280.7 [11.05 dia.]	Ø 335 [13.19 dia.]	Ø 385 [15.16 dia.]	236.5 [9.31]	Ø 390 [15.35 dia.]	Ø 24 [0.94 dia.]	10 x M22x1.5	17 [0.67]	
P																					
1	2	3	4																		
1	3	1	0																		
<table border="1"> <tr><td colspan="4">P</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>1</td><td>5</td><td>1</td><td>0</td></tr> </table>	P				1	2	3	4	1	5	1	0	Ø 220.7 [8.69 dia.]	Ø 275 [10.83 dia.]	Ø 314 [12.36 dia.]	241.5 [9.51]	Ø 390 [15.35 dia.]	8 x Ø 22 [8 x 0.87 dia.] 4 x Ø 22 [4 x 0.87 dia.]	-	17 [0.67]	
P																					
1	2	3	4																		
1	5	1	0																		

Studs



		P mm [in]	C min. mm [in]	C max. mm [in]	D mm [in]	Class
Various studs	M22 x 1.5	80 [3.15]	5 [0.20]	36 [1.42]	26 [1.02]	12.9
	M24 x 2	95 [3.74]		38 [1.50]	30 [1.18]	
Screws	M20	-	-	-	-	12.9



See generic installation motors N°B59689D.



Wheel Motor

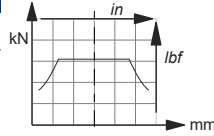
Load curves

Permissible radial loads

Test conditions :

Static : 0 tr/min [0 RPM] 0 bar [0 PSI]

Dynamic : 0 tr/min [0 RPM], code 0 displacement, without axial load at max. torque



Service life of bearings

Test conditions :

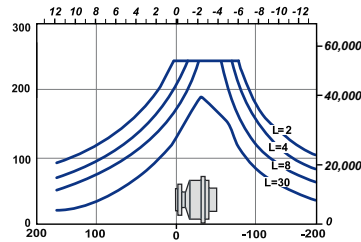
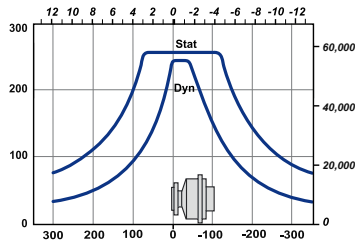
L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.

M

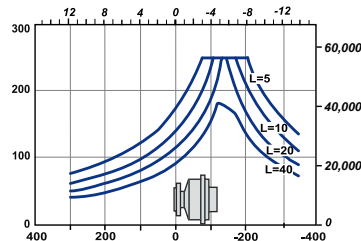
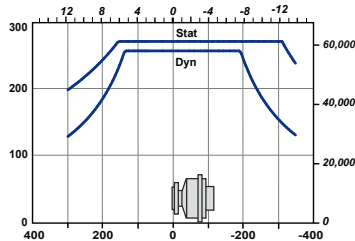
9

P-MS25 series

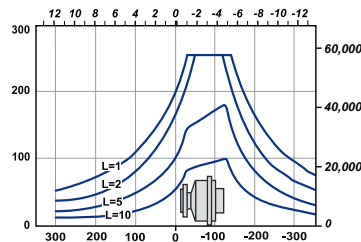
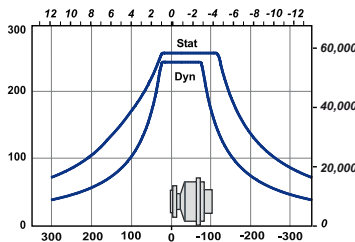
P			
1	2	3	4
1	1	1	0



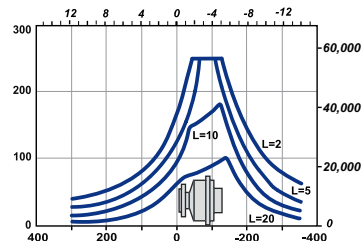
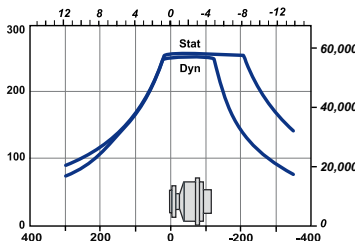
P			
1	2	3	4
1	2	1	0



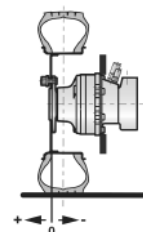
P			
1	2	3	4
1	3	1	0



P			
1	2	3	4
1	5	1	0



The service life of the components is influenced by the pressure. You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications. For an accurate calculation, consult YEOSHE.



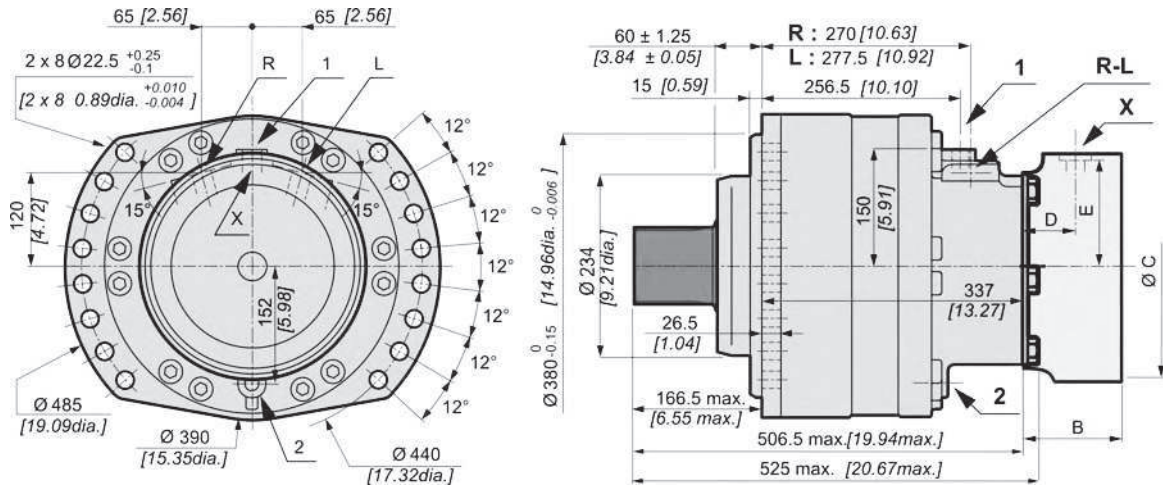
Shaft Motor

M

10

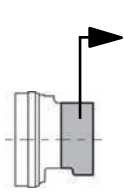
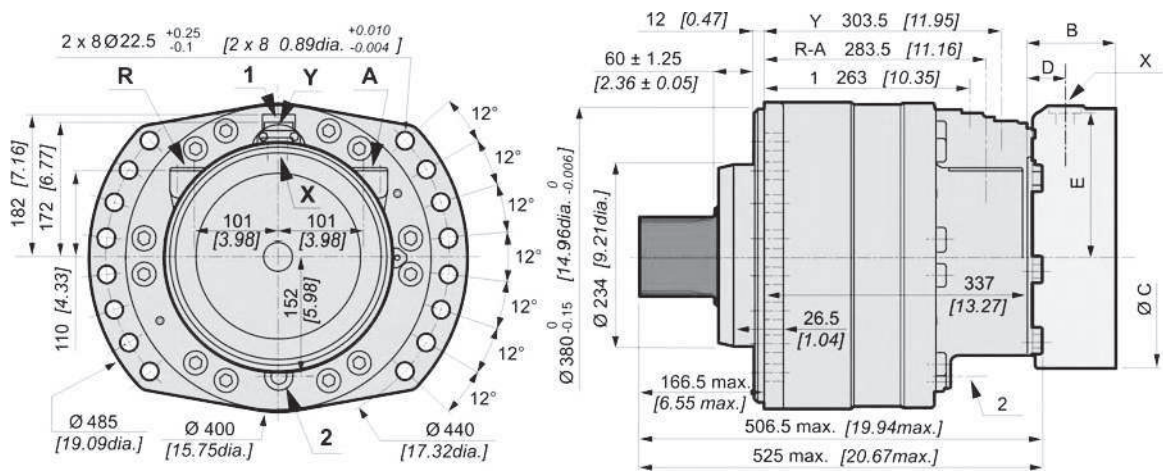
P-MS25 series

Dimensions for standard (2A50) 1-displacement motor



195 kg [429 lb]	255 kg [561 lb]
5 L [300 cu.in.]	4 L [240 cu.in.]

Dimensions for standard (2A50) 2-displacement motor



C	T 4 2	T 5 0
B	148 [5.83]	157.5 [6.20]
C	Ø375 [14.76 dia.]	Ø375 [14.76 dia.]
D	63.5 [2.50]	63.5 [2.50]
E	183.5 [7.22]	183.5 [7.22]

195 kg [429 lb]	255 kg [561 lb]
5 L [300 cu.in.]	4 L [240 cu.in.]

Also see 'Valving systems and hydrobases' section (thumbnail opposite).

Also see "Brake" section (thumbnail opposite).



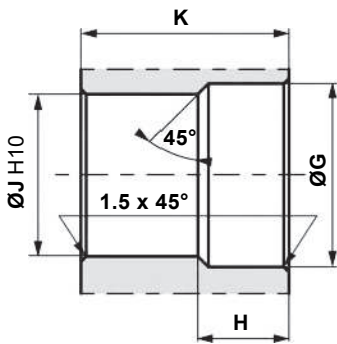
Support types

P-M		S	2	5	C	D			F			P				S					
1	2	3	4	1	1	2	3	1	2	3	1	2	3	4	1	2	3	4	5	6	

C					A	B	C	D	E	F														
					mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]														
<table border="1"> <tr><td colspan="4">P</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>2</td><td>A</td><td>5</td><td>0</td></tr> </table>					P				1	2	3	4	2	A	5	0	DIN 5480 splines Nominal Ø 100 [3.94] Module 3 Z 32		23 [0.91]	R 4 [R 0.16]	35 [1.38]	2 x M14	25 [0.98]	105 [4.13]
P																								
1	2	3	4																					
2	A	5	0																					
<table border="1"> <tr><td colspan="4">P</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>2</td><td>A</td><td>1</td><td>0</td></tr> </table>					P				1	2	3	4	2	A	1	0	NF E22-141 splines Nominal Ø 100 [3.94] Module 2.5 Z 38		23 [0.91]	R 4 [R 0.16]	35 [1.38]	2 x M14	26.5 [1.04]	105 [4.13]
P																								
1	2	3	4																					
2	A	1	0																					

i Also see 'Valving systems and hydrobases' section (thumbnail opposite).

Splined coupling



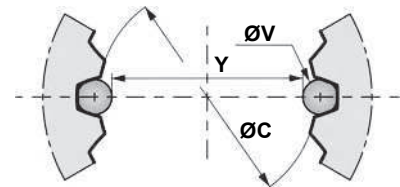
Standard NF E22-141

Pressure angle 20°.
Centering on flanks.
Slide fit (7H quality).

Standard DIN 5480

Pressure angle 30°.
Centering on flanks.
Slide fit (7H quality).

N : Nominal Ø.
Mo : Module.
Z : Number of teeth.



C					Ø G	H	Ø J	K	N	Mo	Z	Offset	Ø C (H10)	Ø V	Y	Tolerance µm [µin]												
<table border="1"> <tr><td colspan="4">P</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>2</td><td>A</td><td>1</td><td>0</td></tr> </table>					P				1	2	3	4	2	A	1	0	101 [3.98]	28 [1.10]	95 [3.74]	104 [4.09]	100 [3.94]	2.5	38	2 [0.08]	95 [3.74]	5 [0.20]	90.125 [3.55]	+ 104 / 0 [+4.0945 / 0]
P																												
1	2	3	4																									
2	A	1	0																									
<table border="1"> <tr><td colspan="4">P</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>2</td><td>A</td><td>5</td><td>0</td></tr> </table>					P				1	2	3	4	2	A	5	0	101.5 [4.00]	28 [1.10]	94 [3.70]	104 [4.09]	100 [3.94]	3	32	-0.35 [0.0138]	94 [3.70]	5.25 [0.21]	89.066 [3.51]	+ 73 / 0 [+2.874 / 0]
P																												
1	2	3	4																									
2	A	5	0																									

General tolerances : ± 0.25 [±0.0098].

Material : Ex : 42CrMo4.

Hardening treatment to obtain R = 800 to 900 N/mm² [R = 116 030 to 130 533 PSI].

Shaft Motor

M

12

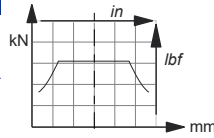
P-MS25 series

Load curves

Permissible radial loads

Max. permissible loads :
0 tr/min [0 RPM] 0 bar [0 PSI]

Continuous permissible loads :
> 0 tr/min [> 0 RPM] ; 275 bar [3,988 PSI].

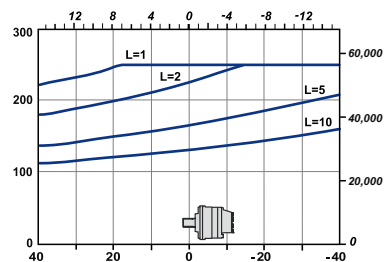
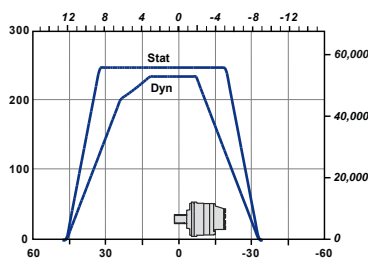


Service life of bearings

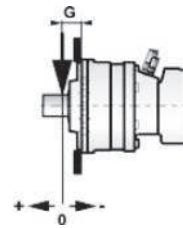
Test conditions :

L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.

P			
1	2	3	4
2	A	5	0
2	A	1	0



The service life of the components is influenced by the pressure. You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications. For an accurate calculation, consult YEOSHE.

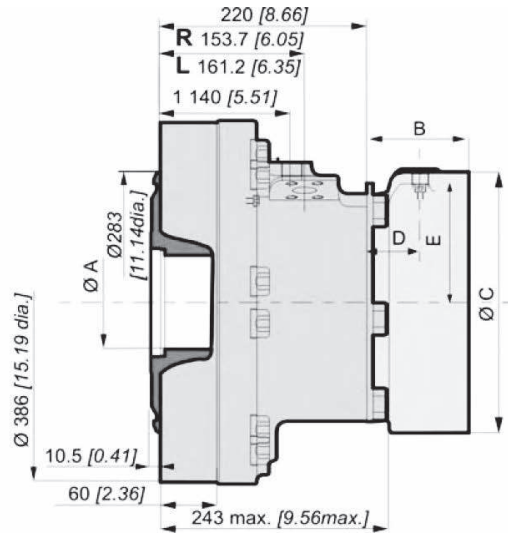
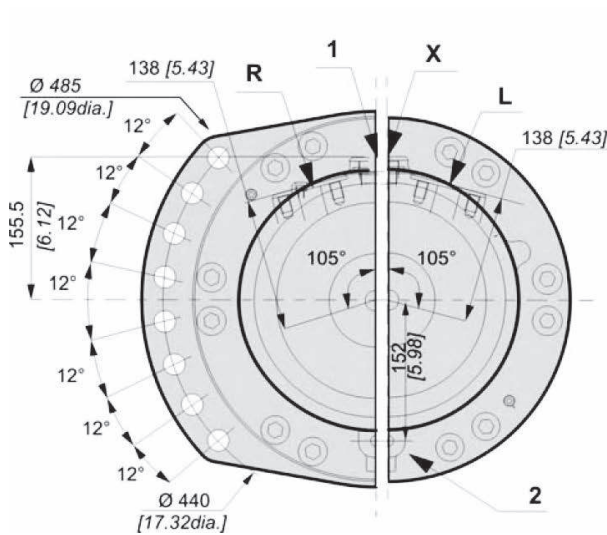


C				G
				mm [in]
2	A	1	0	115.75 [4.56]
2	A	5	0	125 [4.92]



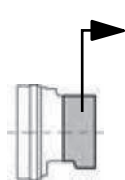
P-M					S			2			5			C			D			F			P				S					
1	1	2	3	1	2	3	1	2	3	4	1	2	3	4	5	6																

Dimensions for 1-displacement valving



D			D		
1	2	3	1	2	3
1	2		1	1	

13.8 kg [30 lb]	19.9 kg [44 lb]
0.35 L [21 cu.in.]	0.45 L [27 cu.in.]



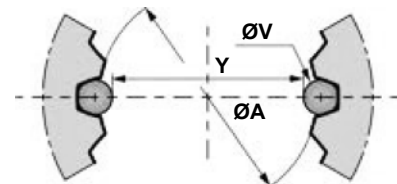
C	T 4 2	T 5 0
B	148.0 [5.83]	157.5 [6.20]
C	Ø375 [14.76 dia.]	Ø375 [14.76 dia.]
D	63.5 [2.50]	63.5 [2.50]
E	183.5 [7.22]	183.5 [7.22]

i Also see "Brake" section. (thumbnail opposite)

Cylinder block splines

(as per standard NF E22-141)

ØA	Module	Z	Dimension on 2 pins	
			Y	ØV
100 [3.937]	2.5	38	90.169 [3.550]	5 [0.197]



You are advised to have the installation validated by YEOSHE application engineer before using the hydraulic unit in an application.

We must provide you with a detailed plan of the interface for any hydraulic unit use, consult YEOSHE .



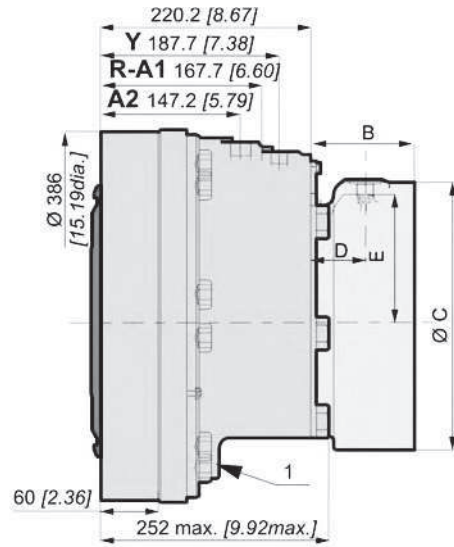
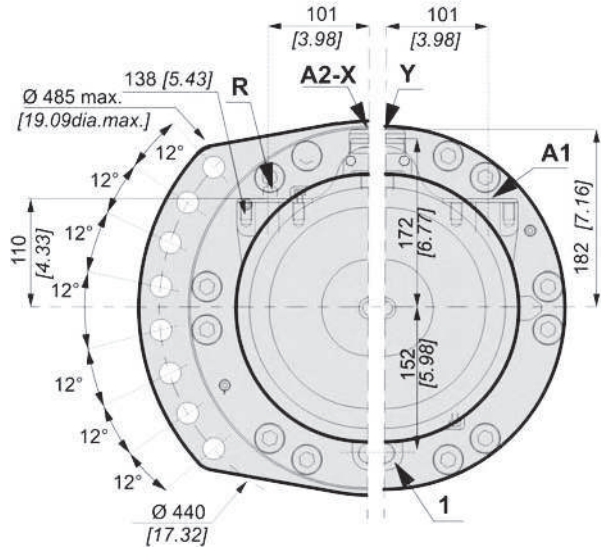
Valving Systems and Hydrobases

Dimensions for Twin-Lock

M

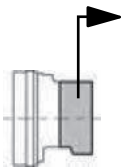
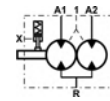
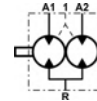
15

P-MS25 series



D			D		
1	2	3	1	2	3
	2		1		

13.8 kg [30 lb]	19.9 kg [44 lb]
0.35 L [21 cu.in.]	0.45 L [27 cu.in.]



C	T 4 2	T 5 0
B	148.0 [5.83]	157.5 [6.20]
C	Ø375 [14.76 dia.]	Ø375 [14.76 dia.]
D	63.5 [2.50]	63.5 [2.50]
E	183.5 [7.22]	183.5 [7.22]



Also see "Brake" section.
(thumbnail opposite)

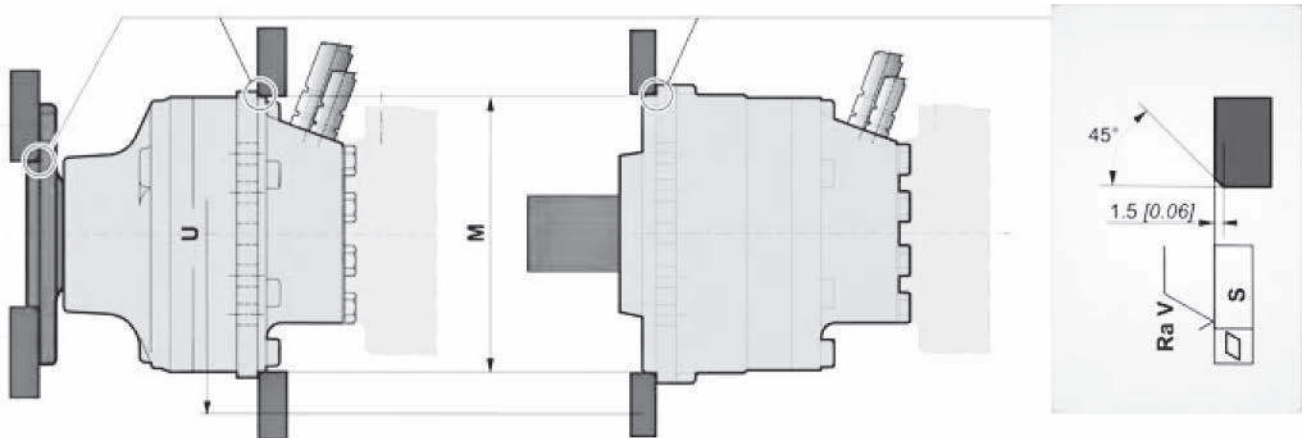
Valving Systems and Hydrobases

M


16

P-MS25 series

Chassis mountings



Take care over the immediate environment of the connections.

	ØM ⁽¹⁾	ØU	S	Ra V		Class
Wheel motor						
Shaft motor ⁽¹⁾ +0.3 [+0.012] +0.2 [+0.008]	380 [14.96]	440 [17.32]	0.2 [0.008]	12.5µm [0.49µin]	2 x 8 Ø22.5 M20 x 2	8.8



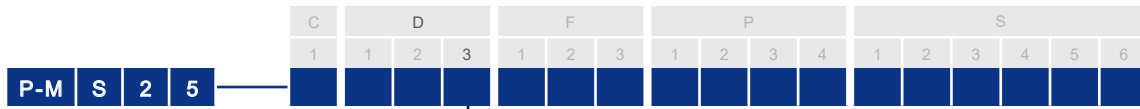
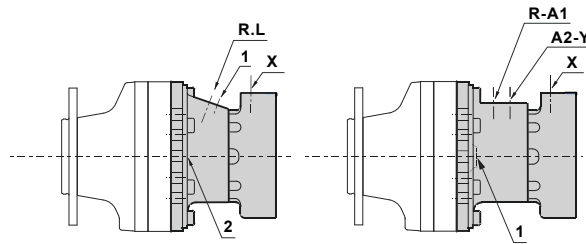
Valving Systems and Hydrobases

Hydraulic connections

M

17

P-MS25 series



	Old standards	Standards	Power supply		Case drain	2 nd displacement control	Control of parking brake	
			R - L		1、2		X	
	1	ISO 6 162 DIN 3 852	ISO 6 162 ISO 9 974-1	DN25 PN400	M22 x 1.5		M18 x 1.5	
	1	ISO 6 162 DIN 3 852	ISO 6 162 ISO 9 974-1	DN25 PN400	M22 x 1.5	M18 x 1.5	M18 x 1.5	
	1+	ISO 6 162 DIN 3 852	ISO 6 162 ISO 9 974-1	DN25 PN400	M27 x 2	M20 x 1.5	M18 x 1.5	
	1	ISO 6 162 DIN 3 852	ISO 6 162 ISO 9 974-1	R - A1	A2	1、2	Y	X
				DN25 PN400	M27x2	M22 x 1.5	M18 x 1.5	M18 x 1.5
			ISO 9 974-1					
Max. pressures		P-MS bar [PSI]	450 [6,527]	1 [15]	30 [435]	30 [435]		

+ Only symmetrical valving

i You are strongly advised to use the fluids specified in brochure "Installation guide" N°B59689D.

i To find the connections' tightening torques, see the brochure "Installation guide" N° B59689D.

✓ Do not put either a check valve or a poppet valve on the pilot lines (parking brake and displacement change) between the charge pump and the pilot valve. Do not use a piloting valve with integrated check valve.

Valving Systems and Hydrobases

M

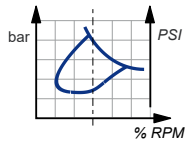
18

P-MS25 series

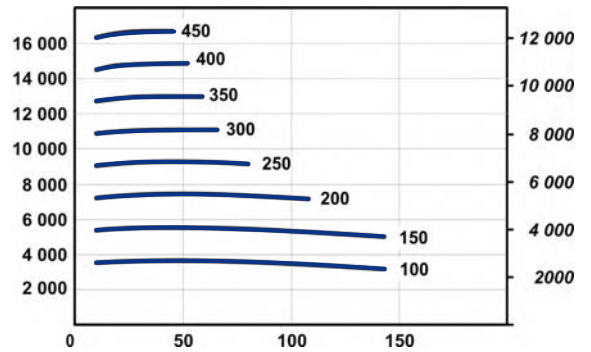
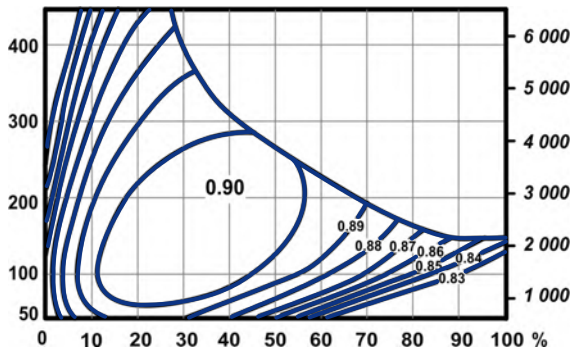
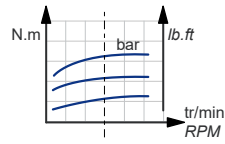
Efficiency

Overall efficiency

Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C [122°F].



Actual output torque



The starting torque is taken to be approximately 85% of the first value for available pressure. For a precise calculation, consult YEOSHE.

Options

M

20

P-MS25 series

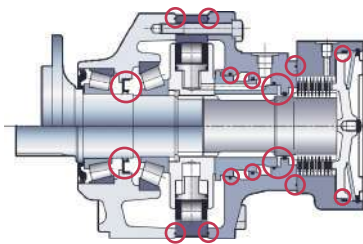
	C	D			F			P				S					
	1	1	2	3	1	2	3	1	2	3	4	1	2	3	4	5	6
P-M	S	2	5														



You can accumulate more than one optional part. Consult YEOSHE .

1 Fluorinated elastomer seals

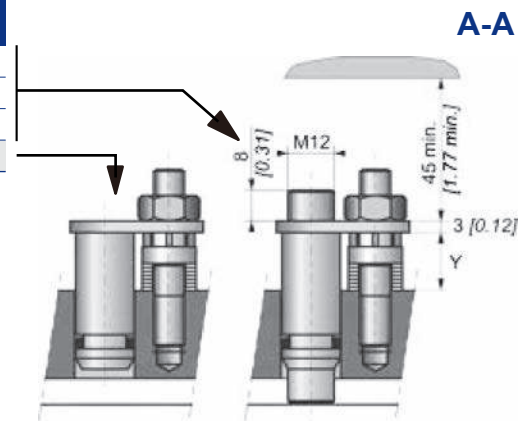
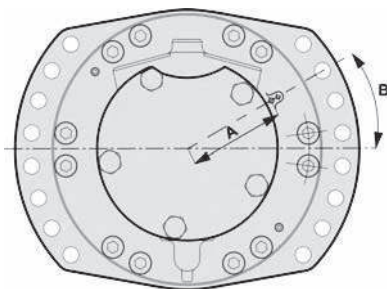
Nitrile seals marked in the figure below replaced by fluorinated elastomer seals.



Consult YEOSHE sales engineer.

2 S Q 8 Installed speed sensor or predisposition

Designation	C
T4 speed sensor (without rotation direction)	2
TR speed sensor (digital rotation direction)	S
TD speed sensor (two phase shifted frequencies)	Q
Predisposition for speed sensor	8



Max. length Y = 15.6
Standard number of pulses per revolution = 56

	mm [in]	mm [in]
A	118.9 [4.68]	118.9 [4.68]
B	0°	20°
	2-displacement	1-displacement



Look at the "Mobile Electronic" N° A01889D technical catalogue for the sensor specifications and its connection.



To install the sensor, see the "Installation guide" brochure No. B61352L.



Options

6 Industrial support

Reduction of around 50% from the rated value in the bearings' preload value.



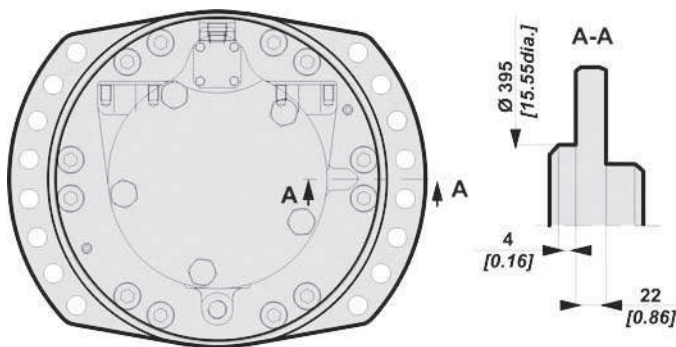
For a precise calculation, consult YEOSHE.

7 Diamond

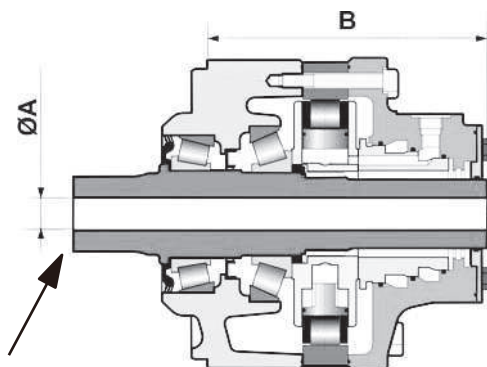
Special treatment of the motor core which considerably increases its strength, making the motor much more tolerant to temporary instances of the operating conditions being exceeded.

9 Double-centering valving cover

This option allows a motor to be installed from the front or the back.



A Hollow shaft



A	B
mm [in]	mm [in]
Ø 60 [2.36 dia.]	352.5 [13.88]

Radial load x 0.75
No torque transmittable to the rear

2 M8 screws :
Ø 80mm [3.14"dia.] diametrically opposite.
Threaded depth 12 mm min [0.47"min.].

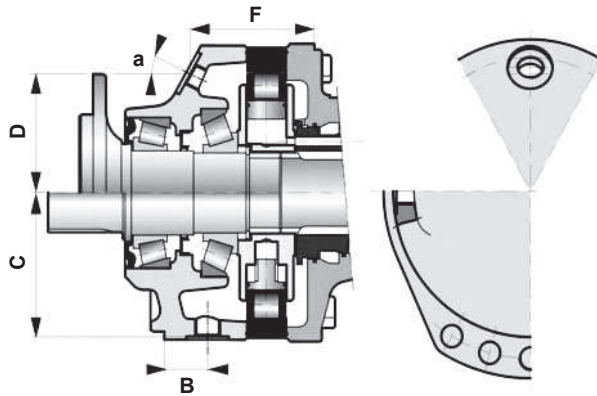
Options

M

22

P-MS25 series

B Drain on the bearing support

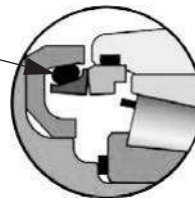


	ISO	B mm [in]	C mm [in]	D mm [in]	F mm [in]	a
Shaft motor	M22 x 1.5	56.0 [2.20]	193 [7.60]			
Wheel motor				112.0 [4.41]	113 [4.43]	30°

C Abrasive environments (mechanical seal)

Some environments can be very harmful. The mirror seal gives reinforced motor sealing.

Mechanical seal

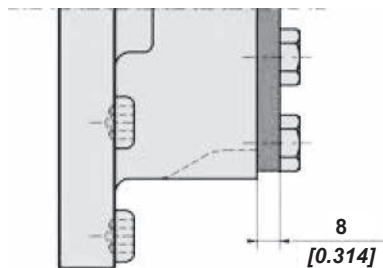


These seals are available for standard wheel motors and short wheel motors.

E Reinforced sealing

Requires reinforced seals and, for an unbraked motor, a rear reinforced plate (**R25** - 15 [0.594] thick, instead of 6 [0.237]).

		C			D			F			P				S					
		1	2	3	1	2	3	1	2	3	1	2	3	4	1	2	3	4	5	6
P-M	S 2 5							R	2	5					E					



G Special wheel rim mounting

Enables certain combinations different from the standard mountings defined on page 10.



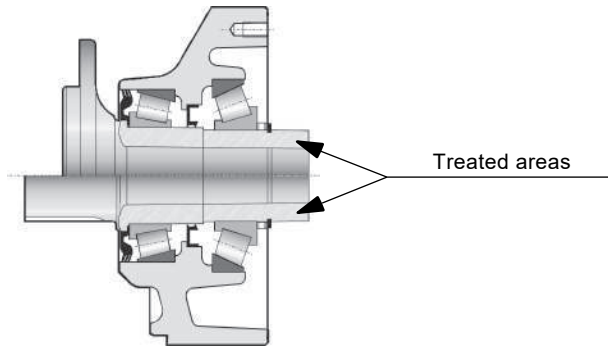
Consult YEOSHE sales engineer.



Options

J Treated shaft

Heat treatment on the indicated bearing radius and splines.



YEOSHE BEST CHOICE
Innovative Technology

Efficient Performance
Reliable Quality and Service



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