



P-MS02.MSE02

Hydraulic Motors



www.yeoshehydraulic.com

Efficient Performance
Innovative Technology
Reliable Quality and Service

YEOSHE HYDRAULICS CO.,LTD.

Introduction

M

1

P-MS02.MSE02 series



- **P-MS02.MSE02 Classic**

MS working pressure	450 bar [6 526 PSI]
MSE working pressure	400 bar [5 801 PSI]

- **P-MS02.MSE02 High Flow**

MS working pressure	450 bar [6 526 PSI]
MSE working pressure	400 bar [5 801 PSI]

Features

Given their optimized and modular design capable of delivering high performance, motors from the MS range have established themselves as a benchmark on the hydraulic motor market.

MS range can be characterized by :

1. **Compacity**
2. **Optimized cost**
3. **Power density**

The MS High Flow motor range has all the qualities that have made the MS Classic range such a success : they are modular and robust, offering performance advantages (speed and power) at the same time.

MS High Flow motor range is different by :

1. **New closed cover**
2. **Integrated exchange valve**
3. **New ports geometry**
4. **New valving**



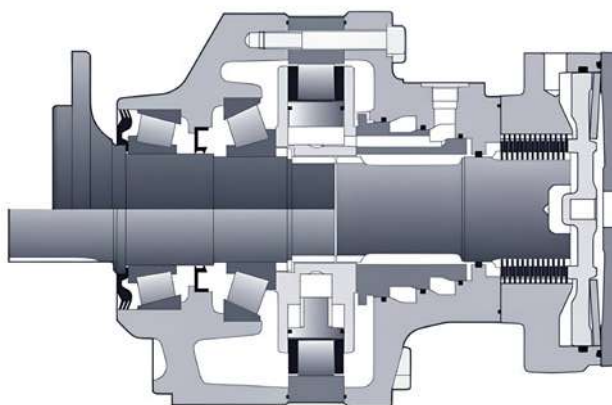


characteristics

M

2

P-MS02.MSE02 series



High Flow

Max.power

	1C motor	2C motor, 1 st displacement	2C motor, 2 nd displacement
P-MS02	18 kW	18 kW	12 kW
P-MSE02	22 kW	22 kW	16.5 kW

C		Cams with equal lobes						
		P-MS02				P-MSE02		
		8	0	1	2	0	1	2
1	cm ³ /tr [cu.in/rev.]	172 [10.5]	213 [13.0]	235 [14.3]	255 [15.6]	332 [20.2]	364 [22.2]	398 [24.3]
	cm ³ /tr [cu.in/rev.]	86 [5.2]	107 [6.5]	118 [7.2]	128 [7.8]	166 [10.1]	182 [11.1]	199 [12.1]
Motor High Flow 1C Max. speed*	1 tr/min [RPM]	700	570	520	480	370	340	310
	2 tr/min [RPM]	850	700	630	590	440	400	370
Motor HighFlow 2C Max. speed*	1 tr/min [RPM]	900	720	650	610	470	420	390
	2 tr/min [RPM]							

1 First displacement

2 Second displacement

Motor inertia = 0.01 kg.m²* Based on nominal no-load Δp of 20 bar [290 PSI].

Max. power obtained at max speed, with Peek bushings.

Classic

Max.power

	1C motor	2C motor preferred	2C motor non-preferred
P-MS02	18 kW	12 kW	9 kW
P-MSE02	22 kW	16.5 kW	11 kW

C		Cams with equal lobes						
		P-MS02				P-MSE02		
		8	0	1	2	0	1	2
1	cm ³ /tr [cu.in/rev.]	172 [10.5]	213 [13.0]	235 [14.3]	255 [15.6]	332 [20.2]	364 [22.2]	398 [24.3]
	cm ³ /tr [cu.in/rev.]	86 [5.2]	107 [6.5]	118 [7.2]	128 [7.8]	166 [10.1]	182 [11.1]	199 [12.1]
Classic motor 1C Max. speed	1 tr/min [RPM]	590	470	430	395	265	245	225
	2 tr/min [RPM]	580	470	430	395	265	245	225
Classic motor 2C Max. speed	1 tr/min [RPM]	590	475	430	395	340	310	285
	2 tr/min [RPM]							

1 First displacement

2 Second displacement

Motor inertia = 0.01 kg.m²

Modularity

M

3

P-MS02.MSE02 series

Torque Module

+

Valving System

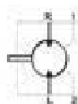
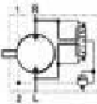
+

Brake

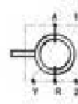
Standard pistons
Stepped pistons
Equal lobes
Unequal lobes

**With mounting**

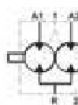
1-displacement

1-displacement +
Exchange

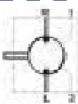
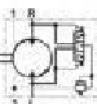
2-displacements



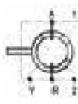
Twin-lock

**With rear brake****Without rear brake****Without mounting**

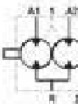
1-displacement

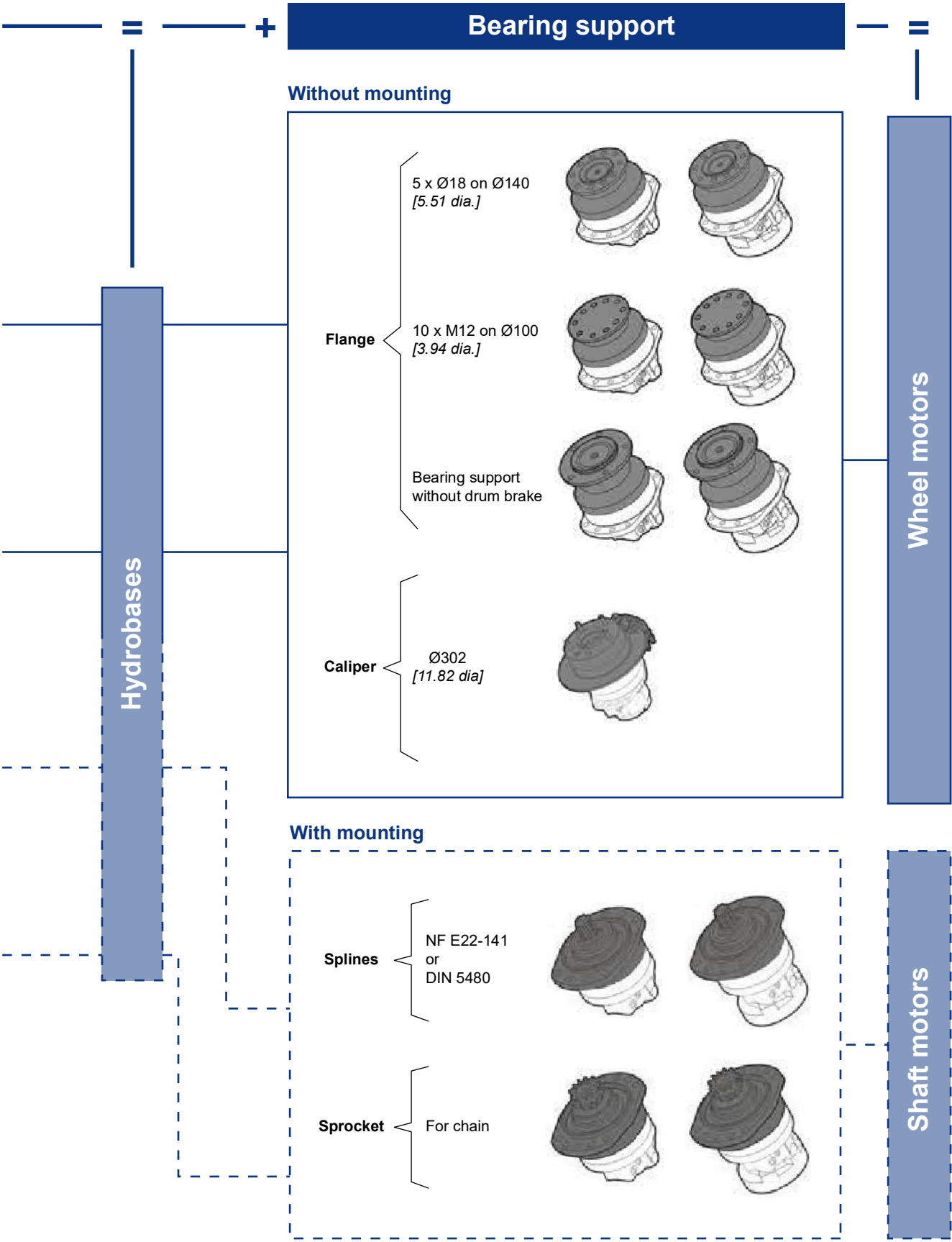
1-displacement +
Exchange

2-displacements



Twin-lock

**Without rear brake****With rear brake**

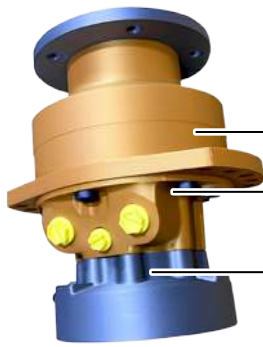


Modelcode

M

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P-MS02.MSE02 series



Torque Module

Valving System

Brake

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

Cam ring type

		1 displacement		2 displacements	
		cm³/tr		[cu.in/rev.]	
C1	Cams with equal lobes	P-MS02	172 [10.5]	86 [5.2]	8
			213 [13.0]	107 [6.5]	0
			235 [14.3]	118 [7.2]	1
			255 [15.6]	128 [7.8]	2
		P-MSE02	332 [20.2]	166 [10.1]	0
			364 [22.2]	182 [11.1]	1
	398 [24.3]		199 [12.1]	2	
	Cams with unequal lobes	P-MS02	213 [13.0]	86 [5.2]	A
				128 [7.8]	
			192 [11.7]	86 [5.2]	N
107 [6.5]					
P-MSE02		332 [20.2]	133 [8.1]	A	
			199 [12.1]		

Connection type

D3	Classic and High Flow motor			Only for High Flow motor		
	GAZ (BSPP) ISO 1179-1	G1/2	3	G3/4	G	
	Metric ISO 9974-1	M22 x 1.5	4	M27 x 2	M	
	UNF (SAE) ISO 11926-1	7/8-14 UNF	A	1 1/16-12 UNF	U	

Rear brake

F1	Combined brake	Screwed environmental cover	C03
F2	Parking brake		T03
F3	Without brake (reinforced plate)		R02

Valving type

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

Valving cover

D2	Classic motor	Without mounting	1	4	D
		Lug fixing	2	5	E
	High Flow motor	Without mounting	B	L	-
		Lug fixing	C	N	-

1 Displacement
2 Displacement
Exchange
Twin-Lock

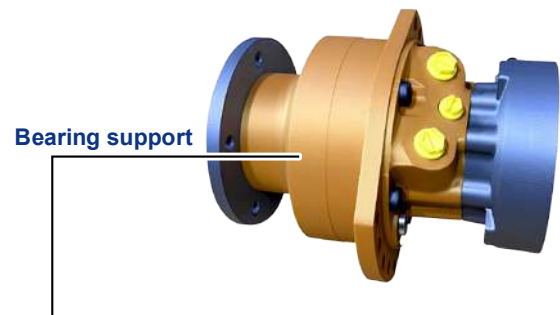


Modelcode

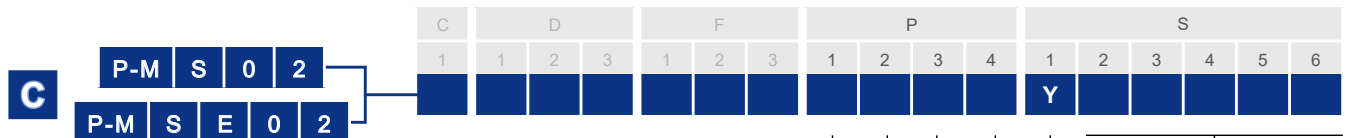
M

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P-MS02.MSE02 series



Bearing support



Front unit

P1	Without bearing support	0
	Without mounting	1
	Lug mounting	2
	Shaft side mounting	3

Bearing support

P2	Without shaft	0
	5 x Ø18 on Ø140	1
	10 x M12 on Ø100	2
	10 x M12 on Ø100	C
	5 x Ø18 on Ø130	7
	Support without drum brake	G
	Caliper brake (Ø302)	V
	For male shaft bearing support	A

Shaft type

P3	Flange	
	Without studs	1
	With studs + nuts	2
	With studs	3
	Threaded holes	4
	Male shafts (if P2 = A)	
	NF E22-141 splines	1
	DIN 5480 splines	5
	Dual sprocket for chain	C

Standard

S1	Additional drain on valving systems (Steel plug)	Y
	Reinforced sealing	

Options

S2 S6	Fluorinated elastomer seals	1
	T4 speed sensor (without rotation direction)	2
	Industrial bearing support	6
	Diamond	7
	Predisposition for speed sensor	8
	Chassis mounting on cam ring side	9
	Hollow shaft	A
	Drain on the bearing support	B
	Duo cone seal	C
	Special paint or no paint	D
	Special wheel rim mounting	G
	High efficiency	H
	Surface heat treatment of the shaft	J
	High speed or reduced charge pressure	M
	Customized identification plate	P
	TD speed sensor (two phase shifted frequencies)	Q
	TR speed sensor (digital rotation direction)	S

Bearing support variation

P4	Without bearing support variation	0
	Full duo cone seal	1

Methodology

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 contains important safety information and installation instructions, which must be read carefully before beginning any installation.

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.

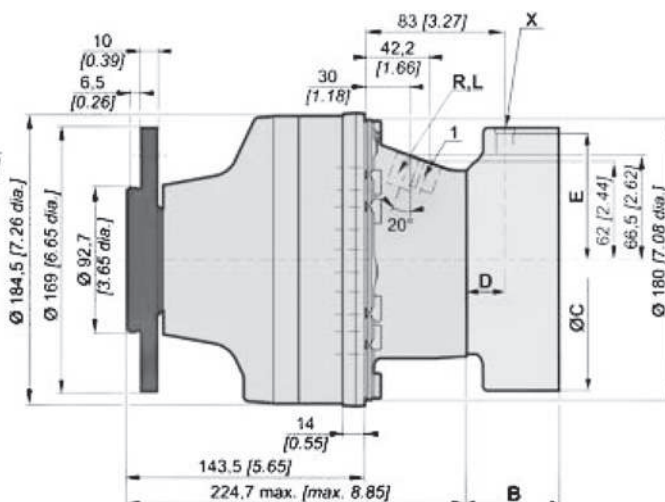
The views in this document are created using metric standards.
The dimensional data is given in mm and in inches (inches are given in brackets in italics).



M

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P-MS02.MSE02 series



P			
1	2	3	4
1	1	1	0

	Without brake	With brake
	26 kg [57 lb]	32 kg [70 lb]
	0.80 L [48 cu.in]	0.70 L [42 cu.in]

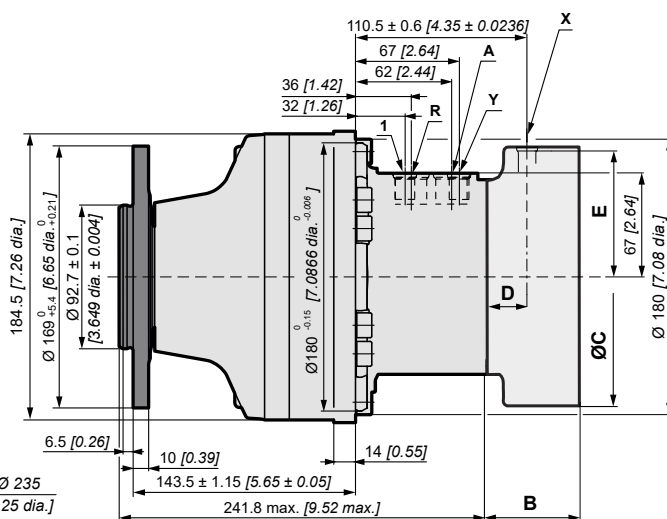
Technical drawing of a mechanical part, likely a flange or end plate, showing a cross-section and a top view. The drawing includes dimensions in millimeters and inches, and labels for various features.

Dimensions (mm and inches):

- Top horizontal dimensions: 36 [1.42], 40 [1.57], 35 [1.38], 34.5 [1.36]
- Vertical dimensions: 184.5 [7.26 dia.], 169.0 [6.65 dia.], 165.0 [6.50 dia.]
- Internal diameters: $\varnothing 210$ [8.27 dia.], $\varnothing 188$ [7.44 dia.], $\varnothing 235$ [9.25 dia.]
- External diameters: $2 \times 5 \varnothing 14$ [0.55 dia.]
- Angles: 15° , $27^\circ 30'$

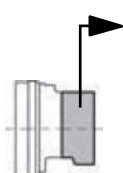
Labels and Features:

- Y, R, X, A, 1:** Labels for specific features or points on the top view.
- 2:** Label for a feature on the cross-section.
- 6:** Label for a feature on the cross-section.



P			
1	2	3	4
1	1	1	0

	Without brake	With brake
	28 kg [62 lb]	34 kg [75 lb]
	1.00 L [60 cu.in.]	1.00 L [60 cu.in.]



C	T 0 3	C 0 3
B	62.5 [2.46]	76.5 [3.01]
C	Ø178 [7.01 dia.]	Ø176 [6.93 dia.]
D	25.5 [1.00]	28.0 [1.10]
E	80.0 [3.15]	78.0 [3.07]



Also see “Brake” section
(thumbnail opposite).

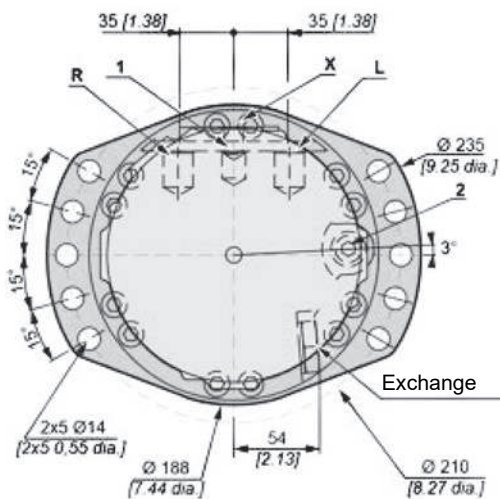
9

P-MS02.MSE02 series

[illegible]

Technical drawing of a mechanical part, likely a pump housing, showing dimensions in millimeters and inches. The drawing includes a side view and a cross-sectional view. Key dimensions include: overall length 184.5 [7.26 dia.], overall diameter 169.0 [6.65 dia.], and various internal features like A1, R, A2, X, D, and E. The drawing is labeled 'Fig. 1' and 'Fig. 2'.

Dimensions for motor with exchange

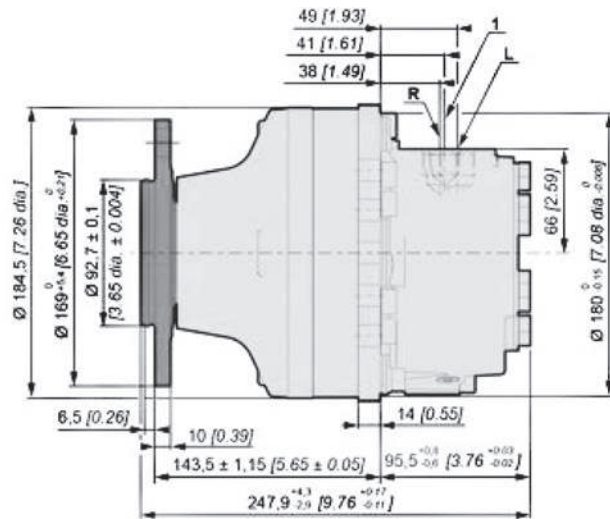
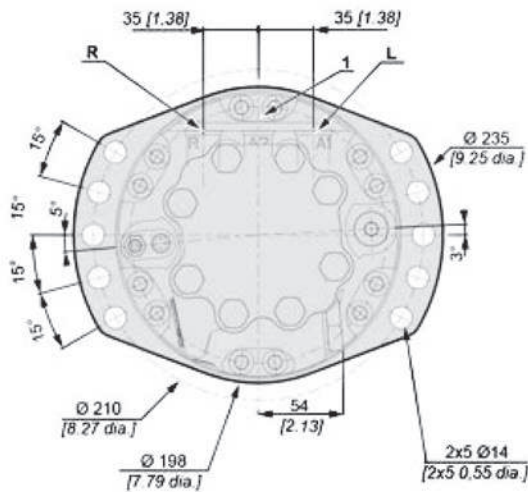


C	T 0 3	C 0 3
B	62.5 [2.46]	76.5 [3.01]
C	Ø178 [7.01 dia.]	Ø176 [6.93 dia.]
D	25.5 [1.00]	28.0 [1.10]
E	80.0 [3.15]	78.0 [3.07]

P -9

Wheel Motor Highflow

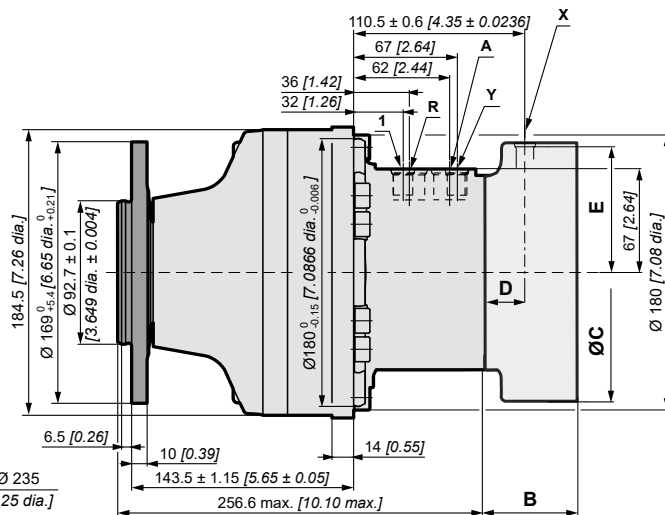
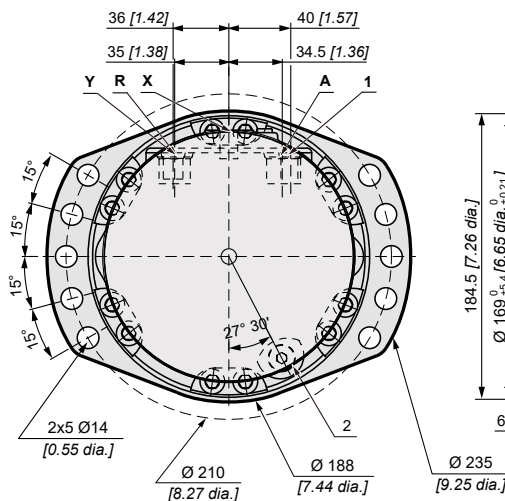
Dimensions for High Flow (1110) 1-displacement motor



P			
1	2	3	4
1	1	1	0

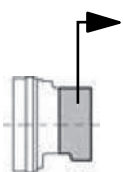
	Without brake	With brake
 KG	26 kg [57 lb]	32 kg [70 lb]
 L	0.80 L [48 cu.in]	0.70 L [42 cu.in]

Dimensions for High Flow (1110) 2-displacements motor



P			
1	2	3	4
1	1	1	0

	Without brake	With brake
 KG	28 kg [62 lb]	34 kg [75 lb]
 L	1.00 L [60 cu.in]	1.00 L [60 cu.in]



C	T 0 3	C 0 3
B	62.5 [2.46]	76.5 [3.01]
C	Ø178 [7.01 dia.]	Ø176 [6.93 dia.]
D	25.5 [1.00]	28.0 [1.10]
E	80.0 [3.15]	78.0 [3.07]



Also see "Brake" section
(thumbnail opposite).

Wheel Motor

M

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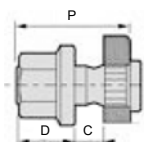
P-MS02.MSE02 series

Support types

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

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]	
P 1 2 3 4 1 1 1 0	Ø 92.7 [3.65 dia.]	Ø 140 [5.51 dia.]	Ø 169 [6.65 dia.]	143.4 [5.65]	Ø 184.5 [7.26 dia.]	Ø 18 [0.71 dia.]	5 x M14x1.5	10 [0.39]	
P 1 2 3 4 1 7 1 0	Ø 77.6 [3.06 dia.]	Ø 130 [5.12 dia.]	Ø 169 [6.65 dia.]	140.6 [5.54]	Ø 184.5 [7.26 dia.]	Ø 18 [0.71 dia.]	5 x M14x1.5	10 [0.39]	
P 1 2 3 4 1 2 4 0	-	Ø 100 [3.94 dia.]	Ø 120 [4.72 dia.]	142.9 [5.63]	Ø 184.5 [7.26 dia.]	10 x M12x1.75	-	11.25 [0.44]	
P 1 2 3 4 1 G 1 0	Ø 92.7 [3.65 dia.]	Ø 140 [5.51 dia.]	Ø 168 [6.61 dia.]	185.5 [7.30]	Ø 184.5 [7.26 dia.]	Ø 18 [0.71 dia.]	5 x M14x1.5	12 [0.47]	
P 1 2 3 4 1 V 3	Ø 90.0 [3.54 dia.]	Ø 140 [5.51 dia.]	Ø 302 [11.89 dia.]	201.0 [7.91]	-	-	5 x M14x1.5	34 [1.34]	
i Also see "Brake" section (thumbnail opposite).									
P 1 2 3 4 1 4 C 1	Ø 75.8 [2.98 dia.]	Ø 100 [3.94 dia.]	Ø 120 [4.72 dia.]	151.3 [5.96]	Ø 184.5 [7.26 dia.]	10 x M12x1.75	-	18.5 [0.73]	

Studs



		P mm [in]	C min. mm [in]	C max. mm [in]	D mm [in]	Class
Standard studs	M14x1.5	45 [1.77]	5 [0.20]	18 [0.71]	16.5 [0.65]	12.9



See option G for non standard studs.



See generic installation motors N°B59689D.

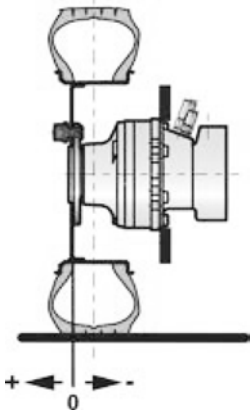
Wheel Motor



Radial load and service life of bearings curves



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.



M

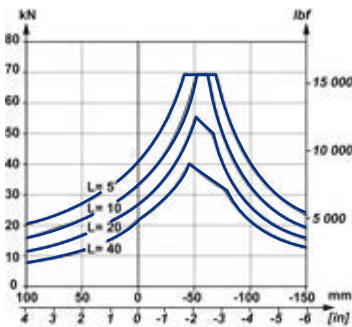
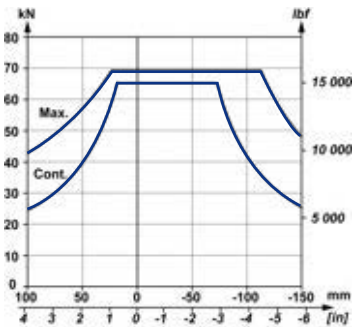
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P-MS02.MSE02 series

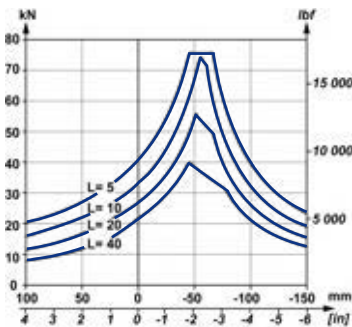
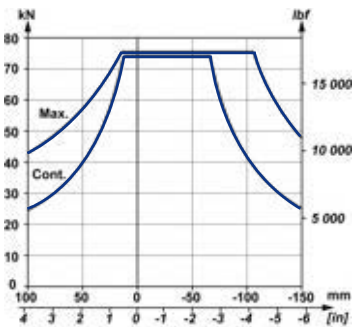
Permissible radial loads	Service life of bearings
Max. permissible loads : 0 tr/min [0 PSI] ; 0 bar [0 RPM].	L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid.
Continuous permissible loads : > 0 tr/min [> 0 RPM] ; 275 bar [3 988 PSI].	

Test conditions : code 0 displacement, without axial load, shaft treated (option J), class 10.9 and 12.9 chassis mountings class 12.9 wheel rim mountings.

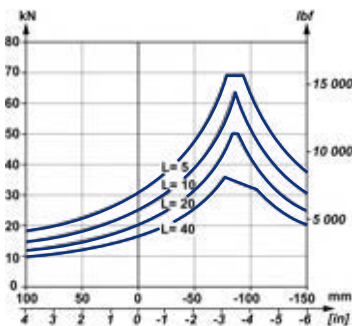
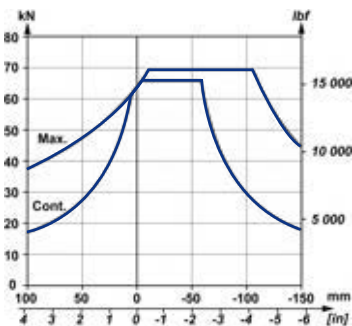
P			
1	2	3	4
1	1	1	0
1	7	1	0



P			
1	2	3	4
1	2	4	0

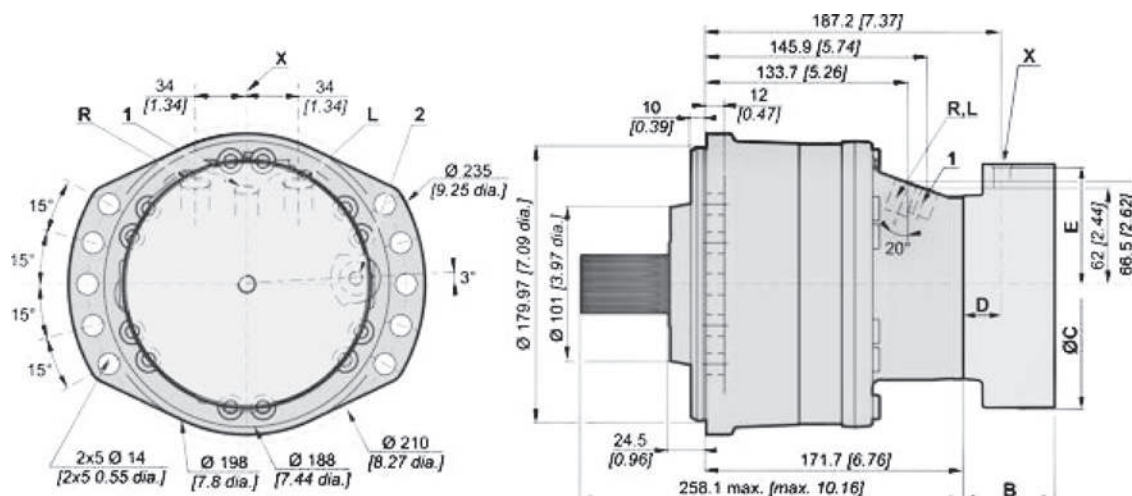


P			
1	2	3	4
1	G	1	0



Shaft Motor Classic

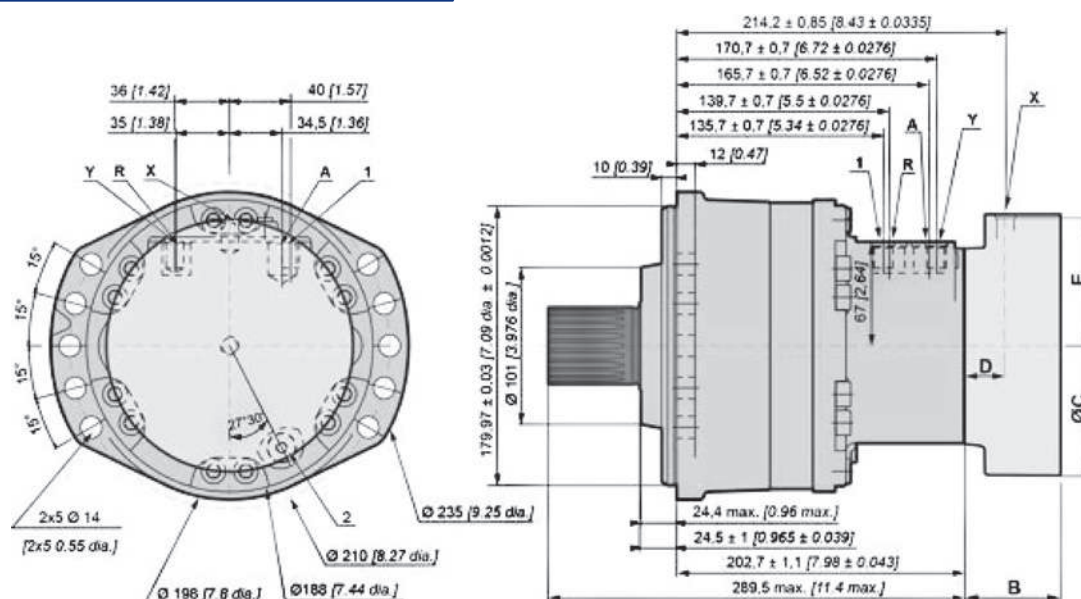
Dimensions for Classic 1-displacement motor



P			
1	2	3	4
2	A	5	0

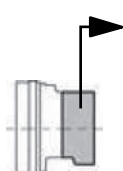
	Without brake	With brake
KG	26 kg [57 lb]	32 kg [70 lb]
	0.80 L [48 cu.in]	0.70 L [42 cu.in]

Dimensions for Classic 2-displacements motor



P			
1	2	3	4
2	A	5	0

	Without brake	With brake
KG	30 kg [66 lb]	36 kg [79 lb]
	1.00 L [60 cu.in]	1.00 L [60 cu.in]



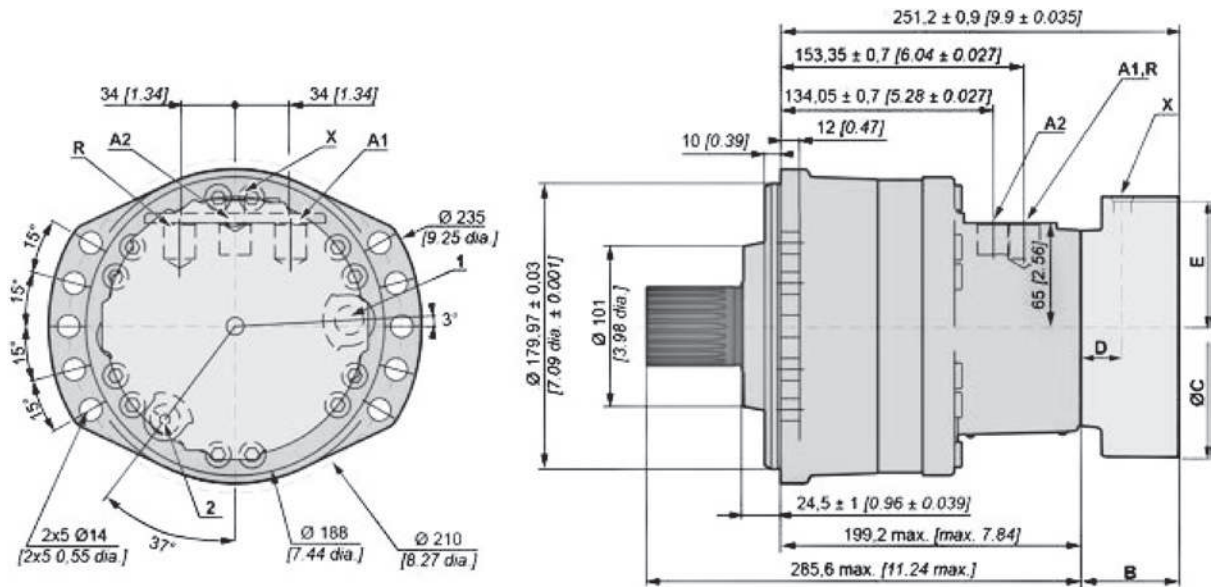
C	T 0 3	C 0 3
B	62.5 [2.46]	76.5 [3.01]
C	Ø178 [7.01 dia.]	Ø176 [6.93 dia.]
D	25.5 [1.00]	28.0 [1.10]
E	80.0 [3.15]	78.0 [3.07]

Also see "Brake" section (thumbnail opposite).



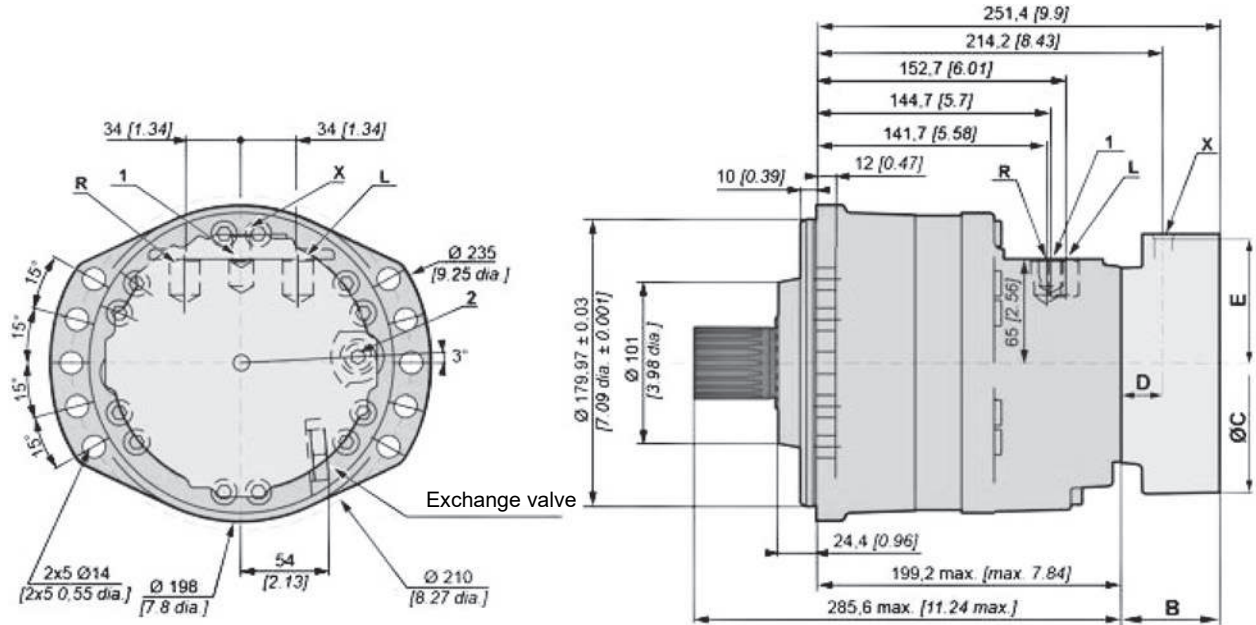
Shaft Motor Classic

Dimensions for Classic Twin-Lock motor



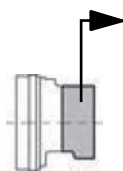
P			
1	2	3	4
2	A	5	0

Dimensions for Classic motor with exchange



P			
1	2	3	4
2	A	5	0

	Without brake	With brake
	30 kg [66 lb]	36 kg [79 lb]
	1.05 L [63 cu.in]	1.05 L [63 cu.in]



	C	T 0 3	C 0 3
B	62.5 [2.46]	76.5 [3.01]	
C	Ø178 [7.01 dia.]	Ø176 [6.93 dia.]	
D	25.5 [1.00]	28.0 [1.10]	
E	80.0 [3.15]	78.0 [3.07]	



Also see "Brake" section (thumbnail opposite).

Shaft Motor High Flow

M

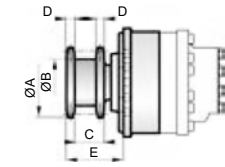
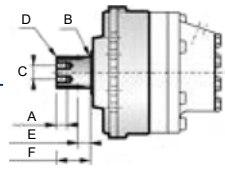
16

P-MS02.MSE02 series

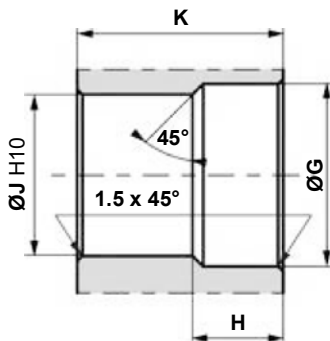
Support types

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

C				A	B	C	D	E	F		
				mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]		
NF E22-141 splines											
P											
1	2	3	4								
2	A	1	0	Nominal Ø	40 [1.57]	15	R 2	23.8	2 x	19	49
				Module	1.667	[0.59]	[R 0.08]	[0.94]	M10	[0.75]	[1.93]
				Number of teeth	22						
DIN 5480 splines											
P											
1	2	3	4								
2	A	5	0	Nominal Ø	50 [1.97]	15	R 2.5	23.8	2 x	22	60
				Module	2	[0.59]	[R 0.10]	[0.94]	M10	[0.87]	[2.36]
				Number of teeth	24						
ANSI B29-1 or ISO 606 pinion											
P											
1	2	3	4								
2	A	C	0	Chain no.	80	Ø126.5	Ø 84	51.6	14.6	99.5	-
				Number of teeth	14	[4.98 dia.]	[3.31 dia.]	[2.03]	[0.57]	[3.92]	-
				Pitch	25.4						
				Pitch Ø	114.2 [4.49]						



Splined coupling



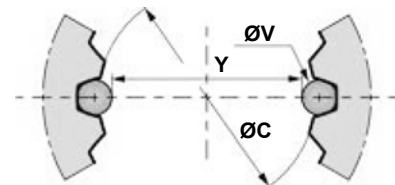
Standard NF E22-141

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	(H10)	Ø V	Y	Tolerance (Y)
				mm [in]	mm [in]	mm [in]	mm [in]	mm [in]				mm [in]	mm [in]	mm [in]	µm [µin]
P															
1	2	3	4												
2	A	1	0	41.3	20	36.7	48.3	40	1.667	22	-	36.7	3.5	33.446	+ 86 / 0
				[1.62]	[0.79]	[1.44]	[1.90]	[1.57]				[1.44]	[0.14]	[1.32]	[+3.385 / 0]
P															
1	2	3	4												
2	A	5	0	51.5	23	46	59	50	2	24	-0.1	46	3.5	42.6	+ 72 / 0
				[2.03]	[0.91]	[1.81]	[2.32]	[1.97]			[-0.0039]	[1.81]	[0.14]	[1.68]	[+2.832 / 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 High Flow

Radial load and service life of bearings curves

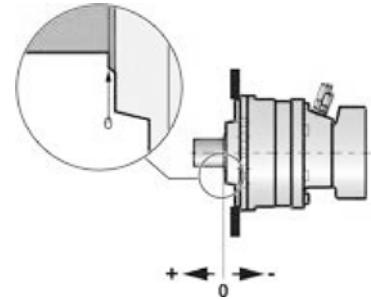
M

17

P-MS02.MSE02 series



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.



Permissible radial loads

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

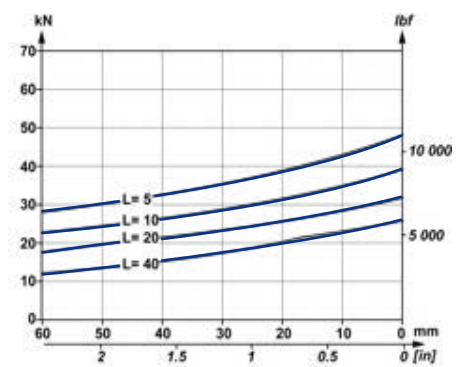
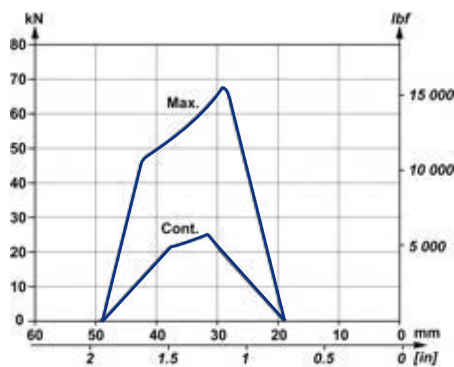
Continuous permissible loads : > 0 tr/min [> 0 RPM] ;
275 bar [3 988 PSI].

Service life of bearings

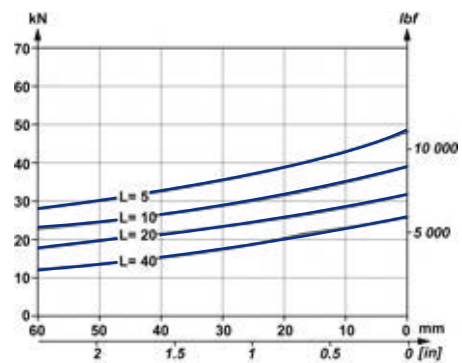
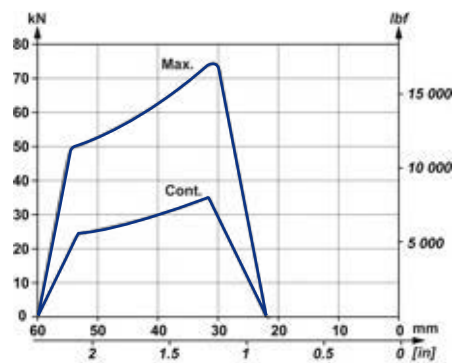
L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid.

Test conditions : code 0 displacement, without axial load, shaft treated (option J), class 10.9 and 12.9 chassis mountings.

P			
1	2	3	4
2	A	1	0



P			
1	2	3	4
2	A	5	0





Shaft Motor High Flow

Radial load and service life of bearings curves

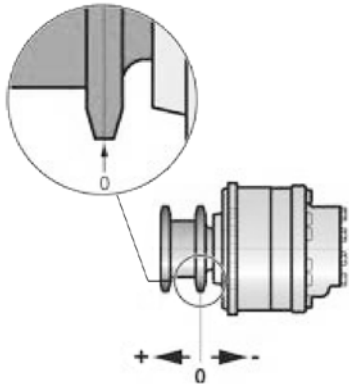
M

18

P-MS02.MSE02 series



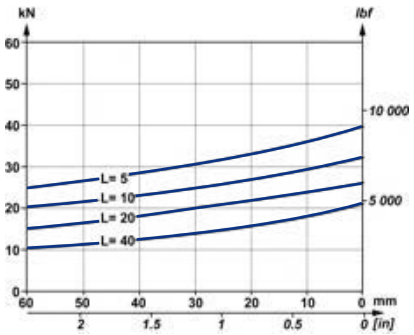
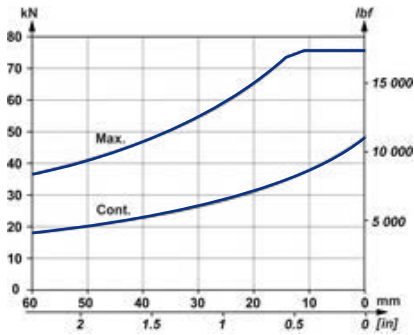
The service life of the components is influenced by the pressure. You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications.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



Permissible radial loads	Service life of bearings
Max. permissible loads : 0 tr/min [0 RPM] ; 0 bar [0 PSI].	L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid.
Continuous permissible loads : > 0 tr/min [> 0 RPM] ; 275 bar [3 988 PSI].	

Test conditions : code 0 displacement, without axial load, shaft treated (option J), class 10.9 and 12.9 chassis mountings.

P			
1	2	3	4
2	A	C	0



Hydrobases

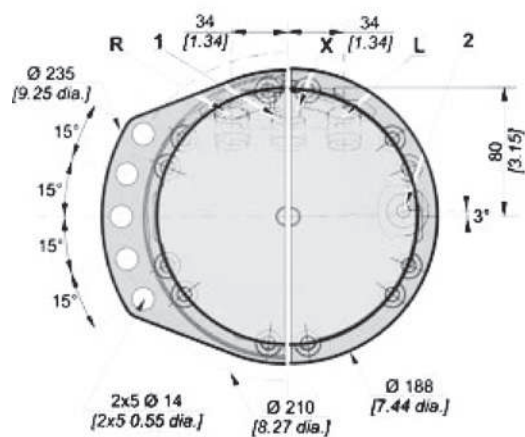
for Classic motor on demand for High Flow motor

M

19

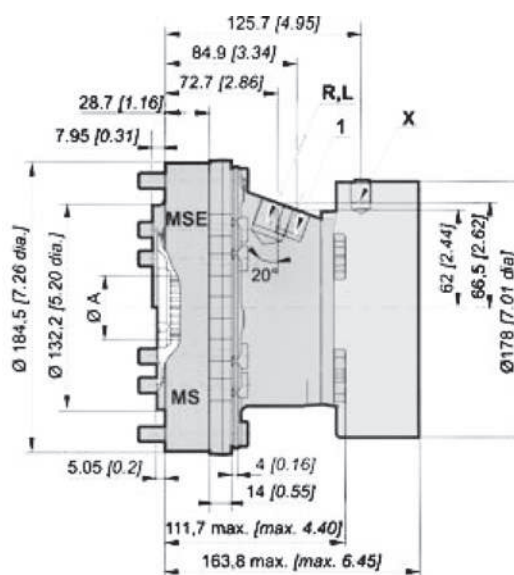
P-MS02.MSE02 series

Dimensions for 1-displacement hydrobase



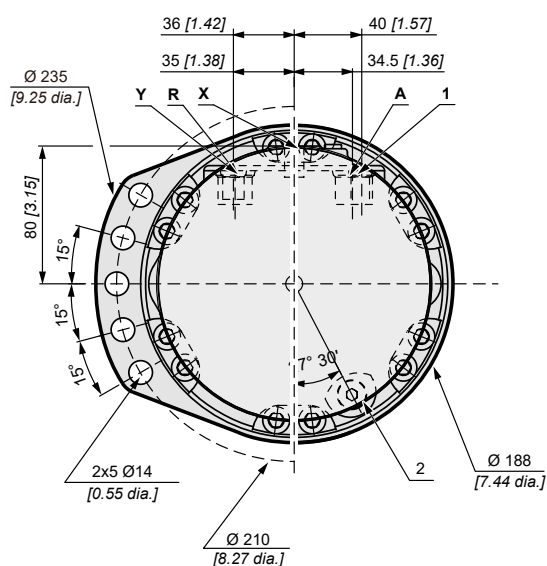
D		
1	2	3
1	2	

D		
1	2	3
1	1	



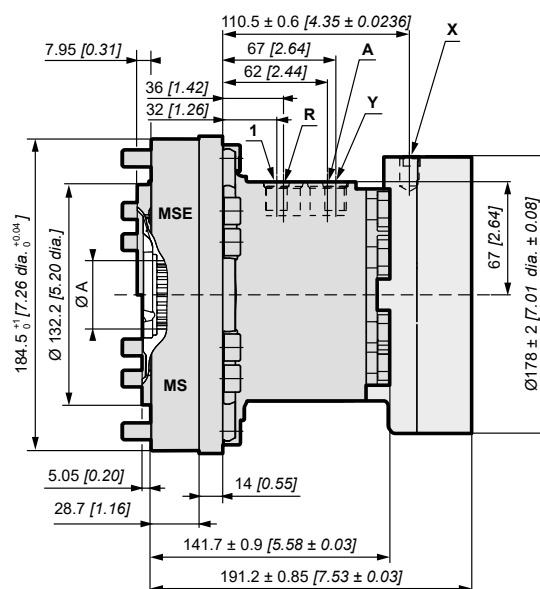
	Without brake	With brake
KG	13.8 kg [30 lb]	19.9 kg [44 lb]
	0.35 L [21 cu.in]	0.45 L [27 cu.in]

Dimensions for 2-displacements hydrobase



D		
1	2	3
	2	

D		
1	2	3
1		

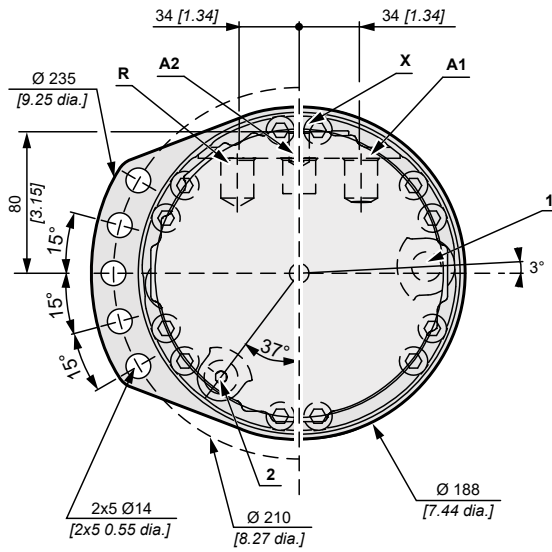


	Without brake	With brake
KG	18.8 kg [41 lb]	24.9 kg [55 lb]
	0.35 L [21 cu.in]	0.45 L [27 cu.in]



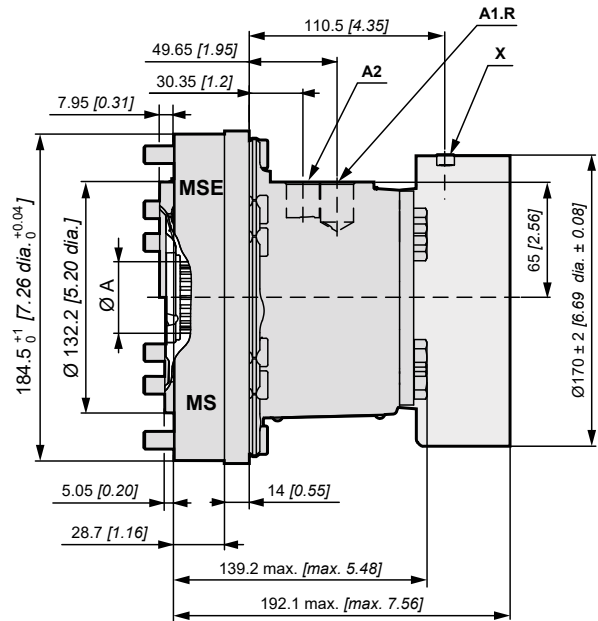
Hydrobases

Dimensions for Twin-Lock hydrobase



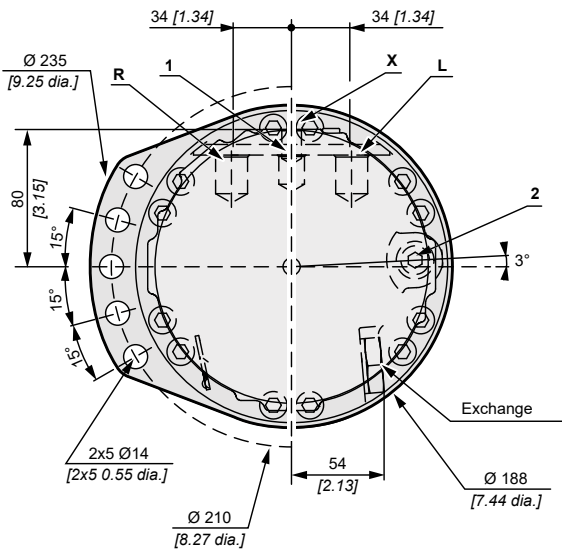
D		
1	2	3
1	2	

D		
1	2	3
1	1	



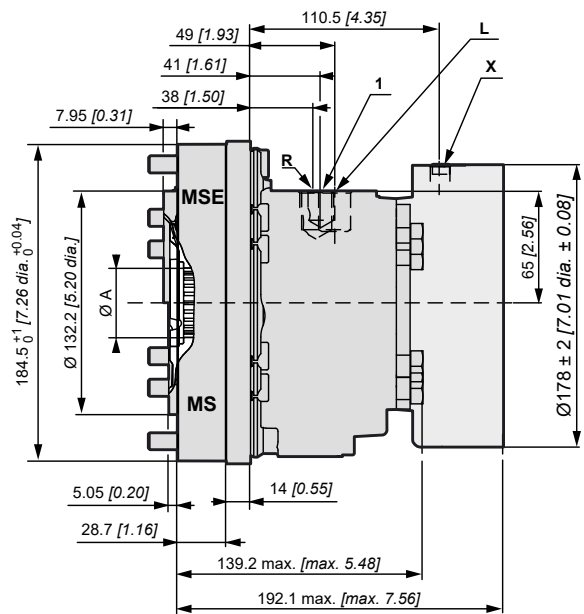
	Without brake	With brake
	18.8 kg [41 lb]	24.9 kg [55 lb]
	0.35 L [21 cu.in]	0.45 L [27 cu.in]

Dimensions for hydrobase with exchange



D		
1	2	3
	5	

D		
1	2	3
	4	



	Without brake	With brake
	19 kg [42 lb]	25.1 kg [55 lb]
	0.40 L [24 cu.in]	0.50 L [30 cu.in]

M

20

P-MS02.MSE02 series

Hydrobases

Cylinder block splines (as per standard NF E22-141)

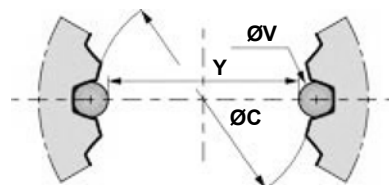
M

21

P-MS02.MSE02 series

Dimension on 2 pins

ØA	Module	Z	Y	ØV
40 [1.575]	1.667	22	33.446 [1.317]	3.33 [0.131]



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 your PoclainHydraulics sales engineer.



Hydrobases

Efficiency and output torque

M

22

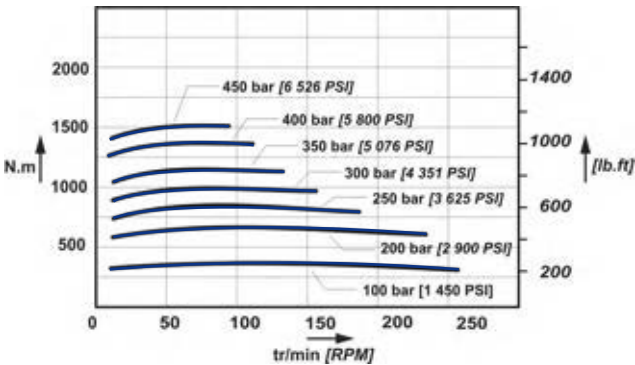
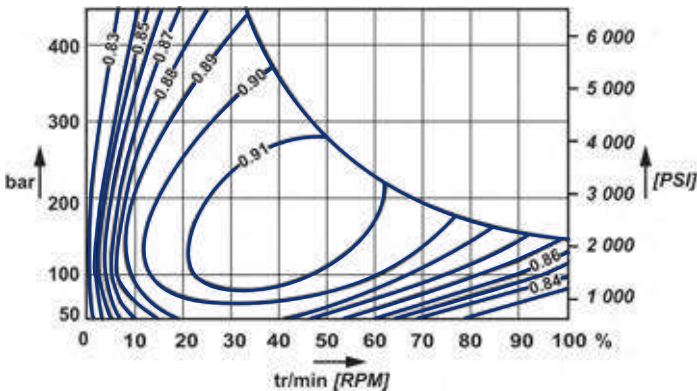
P-MS02.MSE02 series

Overall efficiency

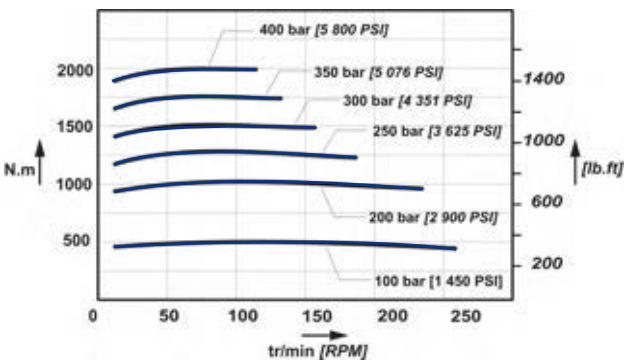
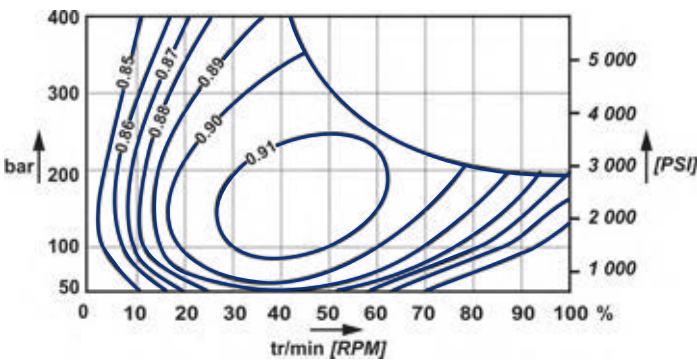
Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C [122°F].

Actual output torque

MS02



MSE02



For a precise calculation, consult YEOSHE.

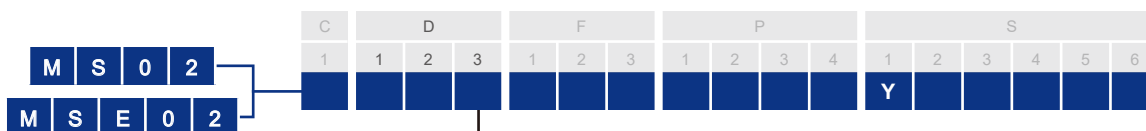
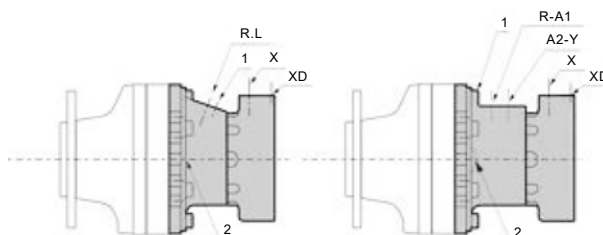
Valving Systems

Hydraulic connections

M

23

P-MS02.MSE02 series



		Standards	Power supply	Case drain	2 nd displacement control	Control of parking brake	Control of service brake
	A	UNF (SAE)	ISO 11 926-1	R - L	1 - 2	X	XD
	3	Gaz (BSPP)	ISO 1 179-1	7/8-14 UNF	3/4-16 UNF	9/16-18 UNF	3/8-24 UNF
	4	Metric	ISO 9 974-1	G1/2	G3/8	G1/4	G1/8
	G	Gaz (BSPP)	ISO 1 179-1	M22x1.5	M18x1.5	M14x1.5	M10x1.0
	M	Metric	ISO 9 974-1	BSP 3/4	BSP 3/8	BSP 1/4	
	U	UNF (SAE)	ISO 11 926-1	M27x2	M18x1.5	M14x1.5	
	A	UNF (SAE)	ISO 11 926-1	R-A	1 - 2	Y	X
	3	Gaz (BSPP)	ISO 1 179-1	7/8-14 UNF	9/16-18 UNF	9/16-18 UNF	3/8-24 UNF
	4	Metric	ISO 9 974-1	G1/2	G1/4	G1/4	G1/8
	G	Gaz (BSPP)	ISO 1 179-1	M22x1.5	M14x1.5	M14x1.5	M10x1.0
	M	Metric	ISO 9 974-1	BSP 3/4	BSP 3/8 BSP 1/4	BSP 1/4	
	U	UNF (SAE)	ISO 11 926-1	M27x2	M18x1.5	M14x1.5	
	A	UNF (SAE)	ISO 11 926-1	R-A1-A2	1	X	XD
	3	Gaz (BSPP)	ISO 1 179-1	7/8-14 UNF	0.75 F	9/16-18 UNF	3/8-24 UNF
	4	Metric	ISO 9 974-1	G1/2	M18	G1/4	G1/8
			ISO 9 974-1	M22x1.5	G3/4	M14x1.5	M10x1.0
Max. pressures		MS	bar [PSI]	450 [6,527]	2.5 [36]	30 [435]	120 [1,740]
		MSE	bar [PSI]	400 [5,802]		30 [435]	
Instantaneous pressure peaks resistance			bar [PSI]		15 [218]		



To find the connections' tightening torques, see the brochure "Installation guide" N° B61352L.



You are strongly advised to use the fluids specified in brochure "Installation guide" N° B61352L.



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

Exchange



When a codification is requested, you must specify needed characteristics.

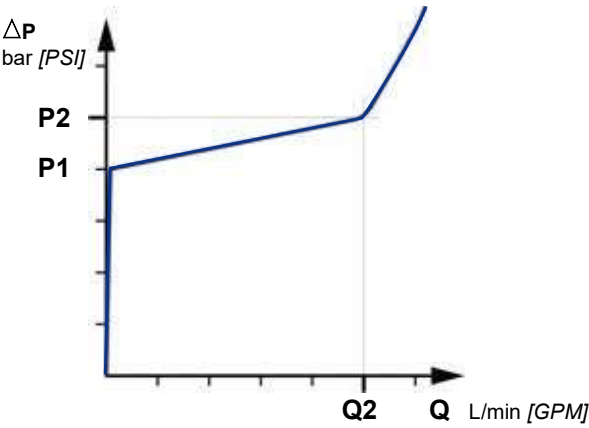
M

24

P-MS02.MSE02 series

Fitted valve

Opening pressure of selector bar [PSI]	P1 bar [PSI]	Q2 L/min [GPM]	P2 bar [PSI]
10.0±1.0 [145±14.5]	15 [218]	9.5±2.5 [2.51±0.66]	25 [363]
8.5±1.5 [123±21.75]	20 [290]	13.0±1.0 [3.43±0.26]	31 [450]
8.5±1.5 [123±21.75]	18 [261]	3.7±0.5 [0.98±0.13]	24 [348]



Brakes

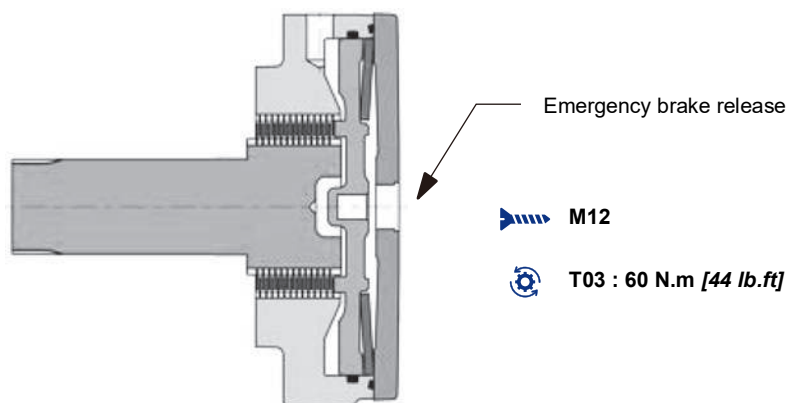
M

25

P-MS02.MSE02 series

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

Parking rear brake



Brake principle

This is a multidisc brake which is activated by a lack of pressure. The spring exerts a force on the piston, which presses on the fixed and mobile discs, and immobilizes the shaft. The braking torque decreases in linear proportion to the brake release pressure.

	C	T	0	3
Parking brake torque at 0 bars on housing (newbrake)	2,500 Nm [1,840 lb.ft]			
Dynamic emergency braking torque at 0 bars on housing (max. 10 uses of emergency brakes)	1,625 Nm [1,200 lb.ft]			
Residual parking braking at 0 bars on housing *	1,875 Nm [1,380 lb.ft]			
Min. brake release pressure	12 bar [174 PSI]			
Max. brake release pressure	30 bar [435 PSI]			
Oil capacity	100 cm ³ [6.1 cu.in]			
Volume for brake release	16 cm ³ [1.0 cu.in]			
Max. energy dissipation	38 179 J			

* After emergency brake has been used



Do not run-in the multidisc brakes.



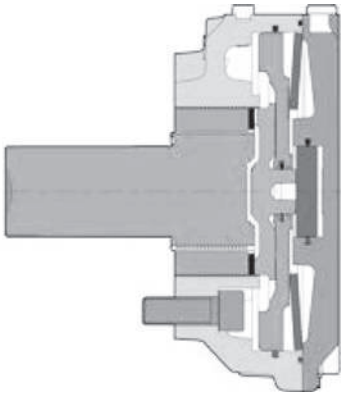
A functional check of the parking brake must be carried out each time it is used as an auxiliary brake (or emergency brake). For all vehicles capable of speeds over 25 km/h, please contact YEOSHE .

Brakes



Combined rear brake

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



Brake principle

This multi-disc brake operates in two distinct ways which cannot be used simultaneously :

Either by an absence of pressure (static braking): The spring applies a force to the static piston that, which damps the fixed and free discs, pre-venting the shaft from turning.

Or by braking pressure (dynamic braking): The braking command creates a pressure on the dynamic braking piston, which damps the fixed and free discs, preventing the shaft from turning. Braking torque increases linearly as a function of the piloting pressure.

C	C	0	3
---	---	---	---

General information

Max. rotation speed	500 rpm
Max. energy dissipation for 1 braking (maintenance needed)	60 kJ

Dynamic brake information

Permissible torque during dynamic braking	1,580 Nm [1,170 lb.ft]
Pressure to obtain max. permissible braking	120 bar [1,740 PSI]
Piston chamber piloting volume, worn brake	2 cm³ [0.1 cu.in]
Service brake max. allowed energy	60 kJ

Parking brake information

Min. parking brake torque	2,250 Nm [1,660 lb.ft]
Min. dynamic brake torque in case of emergency brake with new brake	1,687 Nm [1,240 lb.ft]
Release brake pressure (min. / max.)	13 [188] / 30 [435]
Piston chamber piloting volume (worn brake)	24 cm³ [1.5 cu.in]
Number of parking brake applications	2,000,000

M

26

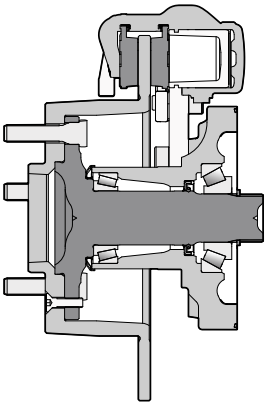
P-MS02.MSE02 series

Brakes

Caliper brake (Ø 302)

Diameter of brake disc : Ø 302 [11.89 dia.]

M				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
M	S	0	2									1	V	3		Y					
M	S	E	0	2																	



C

1

V

3

Disc diameter	302 mm [11.89 in]
Maximum service brake torque ⁽¹⁾	1,930 Nm [1,420 lb.ft]
Pressure to obtain max. service brake torque	120 bar [1,740 PSI]
Max. volume required for braking	< 1 cc
Max. energy dissipation ⁽²⁾	60 000 J
Fluid - DOT	Yes

(1) when braking at 280 rpm
(2) at 590 rpm



Avoid hard or emergency braking during the run in of the brake pads.

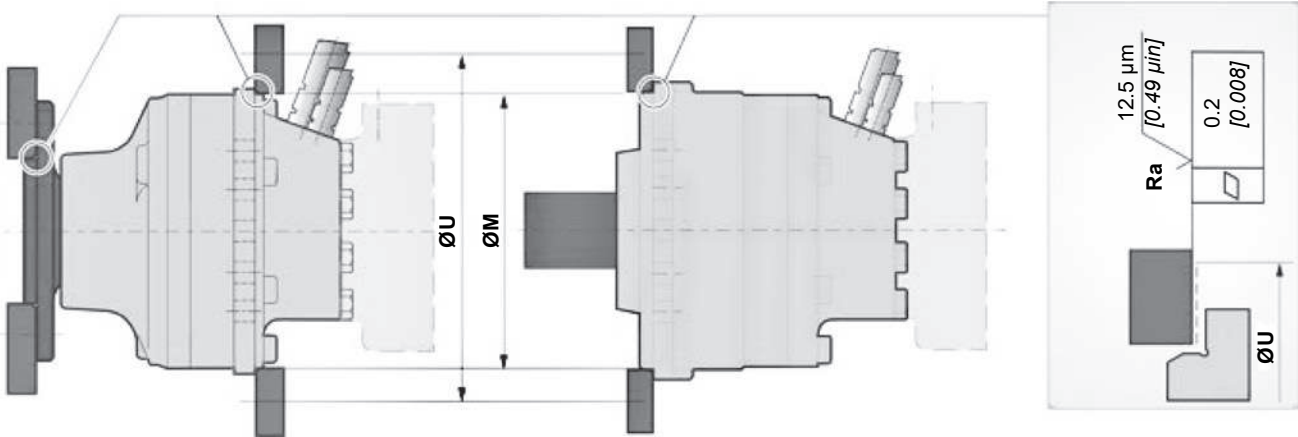


The max. braking torque can be obtained only when the brake has been run in. Consult YEOSHE.



Installation

Customer's chassis and wheel rim mountings



Take care over the immediate environment of the connections.

ØU mm [in]	ØM ⁽¹⁾ mm [in]		Class
240.00 [9.45]	180.25 [7.10]	10 M12 x 1.75	10.9
	(1) +0.3 [+0.012] -0.2 [-0.008]		12.9



You don't need to chamfer your chassis and wheel rim.



For more information see technical catalogue "Installation guide" N° B61352L.



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



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

Options

M

29

P-MS02.MSE02 series

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



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

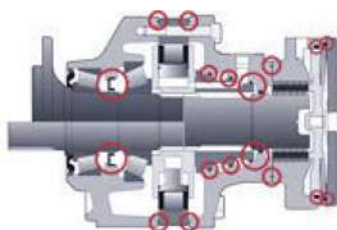
Y

Additional drain on valving systems (Steel plug) and Reinforced sealing

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)

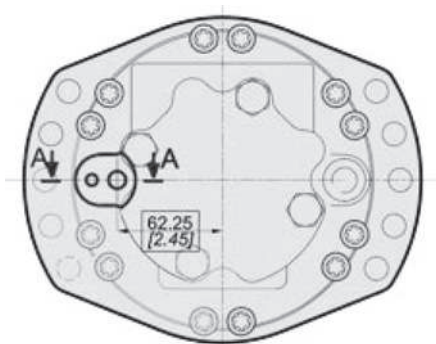
S

TD speed sensor (two phase shifted frequencies)

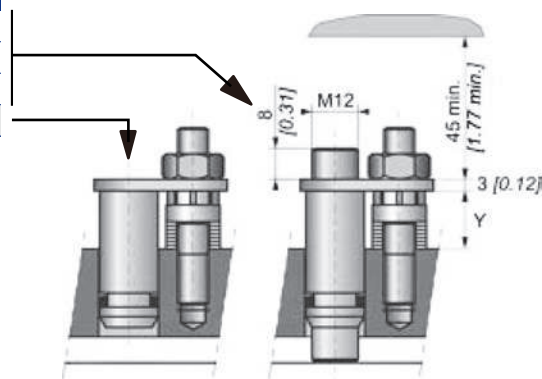
Q

Predisposition for speed sensor

8



A-A



Max. length Y = 21.5 [0.85]

Standard number of pulses per revolution = 40



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 Reduced preload setting of bearing

Reduction of around 50% from the rated value in the bearings' preload value. Without external loads, increases the lifetime of the bearing support.



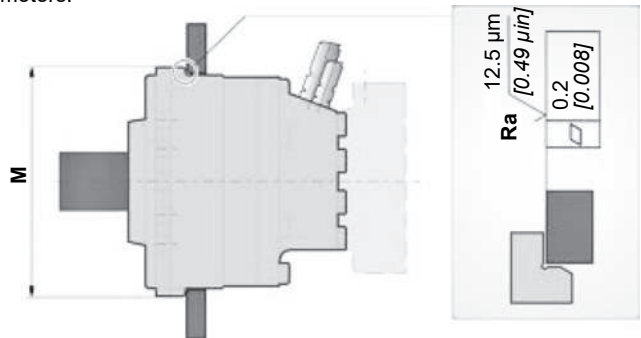
For a precise calculation, consult YEOSHE.

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.

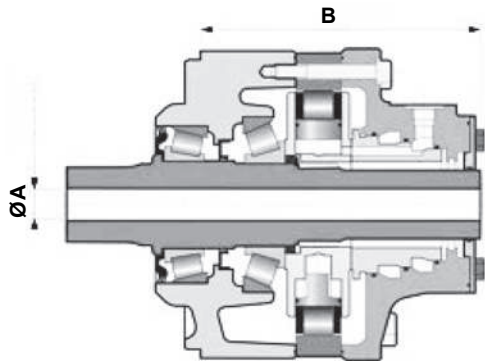
9 Chassis mounting on cam ring side

Only available for shaft motors.



	ØM ⁽¹⁾ mm [in]		Class
	190.30 [7.49]	10 M12 x 1.75	10.9
(1) +0.3 [+0.012] -0.2 [-0.008]			12.9

A Hollow shaft



A mm [in]	B mm [in]
Ø 15 [0.59 dia.]	175.2 ± 1.25 [6.90] ± [0.05]

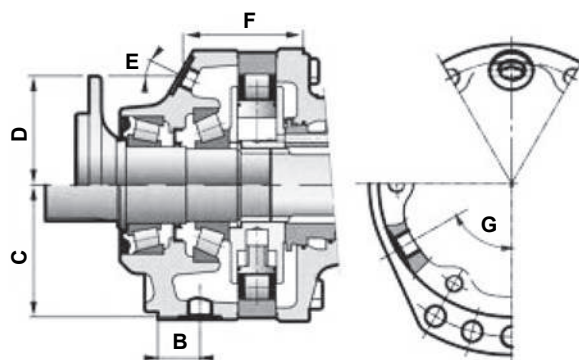
Radial load x 0.75
No torque transmittable to the rear

Options

M

31

P-MS02.MSE02 series

B Drain on the bearing support

Wheel motor	GAZ (BSPP) ISO 1179-1	B mm [in]	C mm [in]	D mm [in]	E	F mm [in]	G
Shaft motor	G1/4	—		73.1±0.5 [2.88±0.019]		25°76.1±0.9 [3.00±0.035]	-

C Duo cone seal

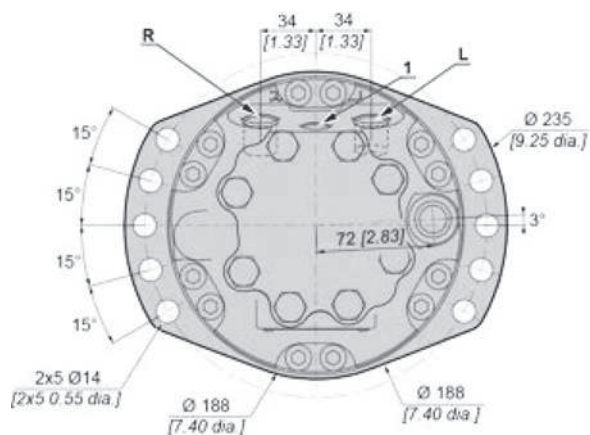
Track drive reinforced sealing motor. This option is compatible only with 1C41 bearing support.

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

Designation

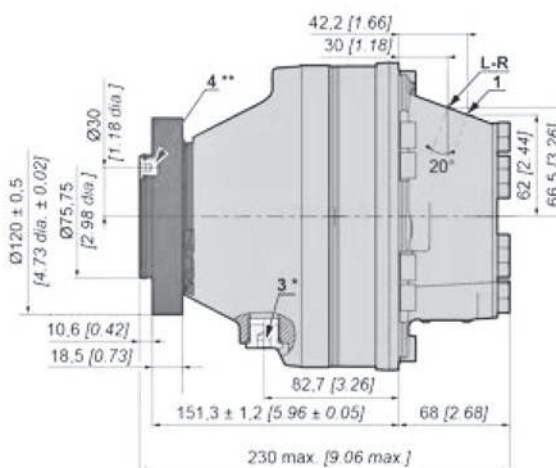
Duo cone seal

C



*Bleed plug

** Fill plug



Port	Function	Size
Port 3	Bleed	3/4-16 UNF-2B
Port 4	Fill	7/16-20 UNF-2B

	22 kg [48 lb]
	0.80 L [48 cu.in]



Consult YEOSHE application engineer for 1C41 bearing support maintenance and oil service.

D Special paint or no paint

The motors are delivered with YEOSHE yellow ochre primer as standard.

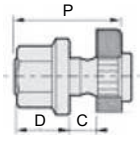


Consult YEOSHE for other colors of primer or topcoat.



Options

G Special wheel rim mounting



		P mm [in]	C min. mm [in]	C max. mm [in]	D mm [in]	Class
Various studs	M14x1.5	50 [1.97]	5 [0.20]	23 [0.91]	16.5 [0.65]	12.9
	M14x1.5	62 [2.44]		33 [1.30]		
	M16x1.5	50 [1.97]		23 [0.91]	21.0 [0.83]	
Screws	M10x1.25					10.9
	M12x1.75					10.9



See generic installation motors N°B59689D.

H High efficiency

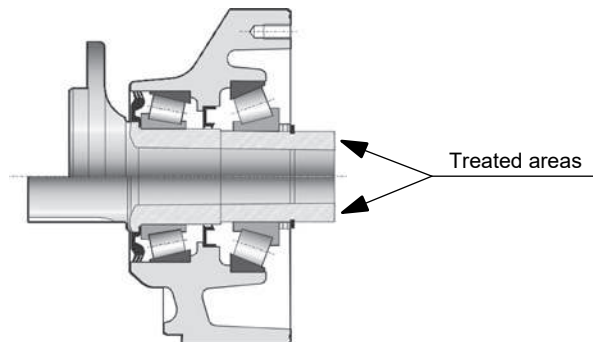
Reinforced piston sealing to improve volumetric efficiency.



For a precise calculation, consult YEOSHE.

J Treated shaft

Heat treatment on the indicated bearing radius and splines.



M High speed or reduced charge pressure

Option M leads to:

- In the case of MS02: Reduction in charge pressure.
- In the case of MSE02: An increase in speed and a reduction in charge pressure.



For a precise calculation, consult YEOSHE.

P Customized identification plate

Your part number can be engraved on the plate.



Consult YEOSHE application engineer for other possibilities.

YEOSHE BEST CHOICE
Innovative Technology

Efficient Performance
Reliable Quality and Service



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