



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**



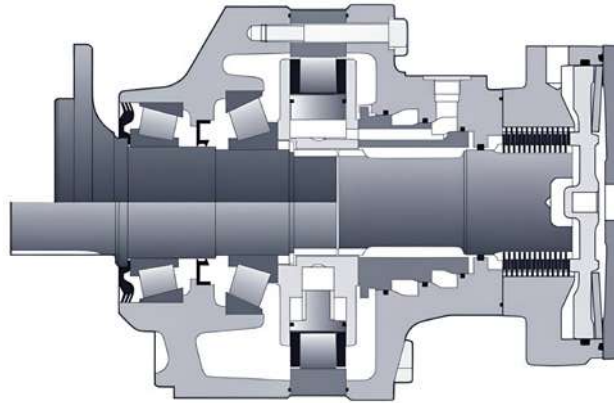


characteristics

M

2

P-MS02.MSE02 series



High Flow

Max.power

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

C		Cams with equal lobes						
		MS02				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
	2	tr/min [RPM]	900	720	650	610	470	420
Motor HighFlow 2C Max. speed*	1	tr/min [RPM]	850	700	630	590	440	400
	2	tr/min [RPM]	900	720	650	610	470	420

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
MS02	18 kW	12 kW	9 kW
MSE02	22 kW	16.5 kW	11 kW

C		Cams with equal lobes						
		MS02				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
	2	tr/min [RPM]	590	475	430	395	340	310
Classic motor 2C Max. speed	1	tr/min [RPM]	580	470	430	395	265	245
	2	tr/min [RPM]	590	475	430	395	340	310

1 First displacement

2 Second displacement

Motor inertia = 0.01 kg.m²

Modularity

M

3

P-MS02.MSE02 series

Torque Module

+

Valving System

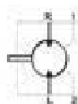
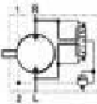
+

Brake

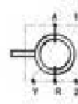
Standard pistons
Stepped pistons
Equal lobes
Unequal lobes

**With mounting**

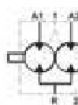
1-displacement

1-displacement +
Exchange

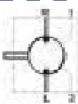
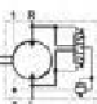
2-displacements



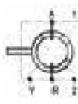
Twin-lock

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

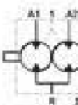
1-displacement

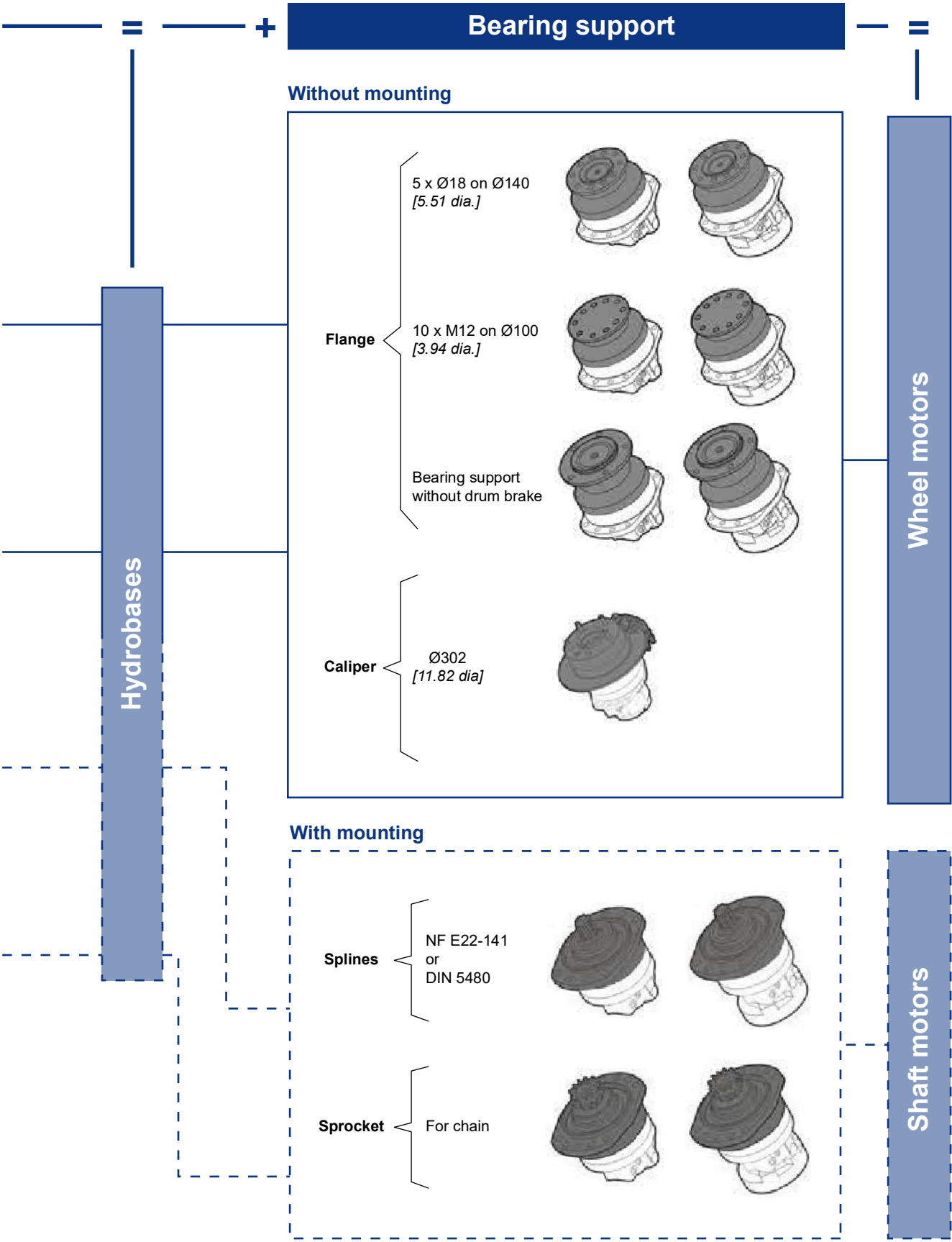
1-displacement +
Exchange

2-displacements



Twin-lock

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

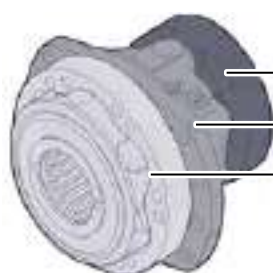


Modelcode

M

5

P-MS02.MSE02 series



Valving System

Torque Module

Brake

C	D				F			P				S					
	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																	

Cam ring type

C1			1 displacement cm ³ /tr [cu.in/rev.]		
			172 [10.5]	86 [5.2]	
Cams with equal lobes	MS02	213 [13.0]	107 [6.5]	0	
		235 [14.3]	118 [7.2]	1	
		255 [15.6]	128 [7.8]	2	
		332 [20.2]	166 [10.1]	0	
	MSE02	364 [22.2]	182 [11.1]	1	
		398 [24.3]	199 [12.1]	2	
Cams with unequal lobes	MS02	213 [13.0]	86 [5.2]		A
			128 [7.8]		
		192 [11.7]	86 [5.2]		N
			107 [6.5]		
	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		C03
F2	Parking brake	Screwed environmental cover	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



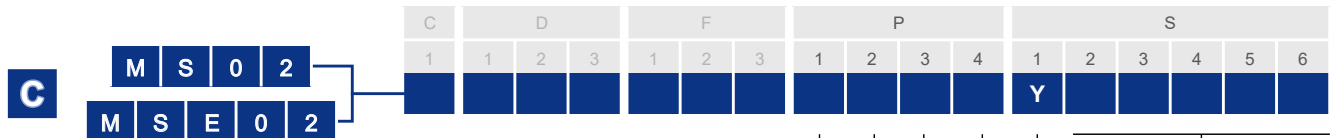
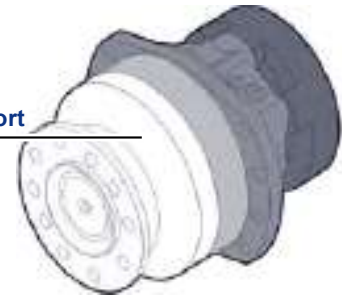
Modelcode

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.

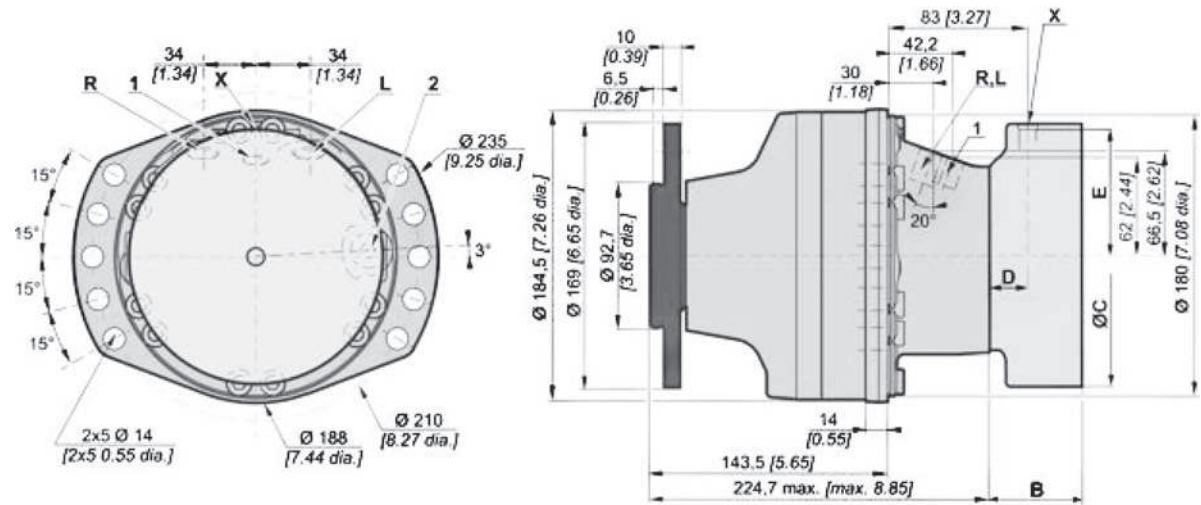
The views in this document are created using metric standards.
The dimensional data is given in mm and in inches (inches are given in brackets in italics).





Wheel Motor

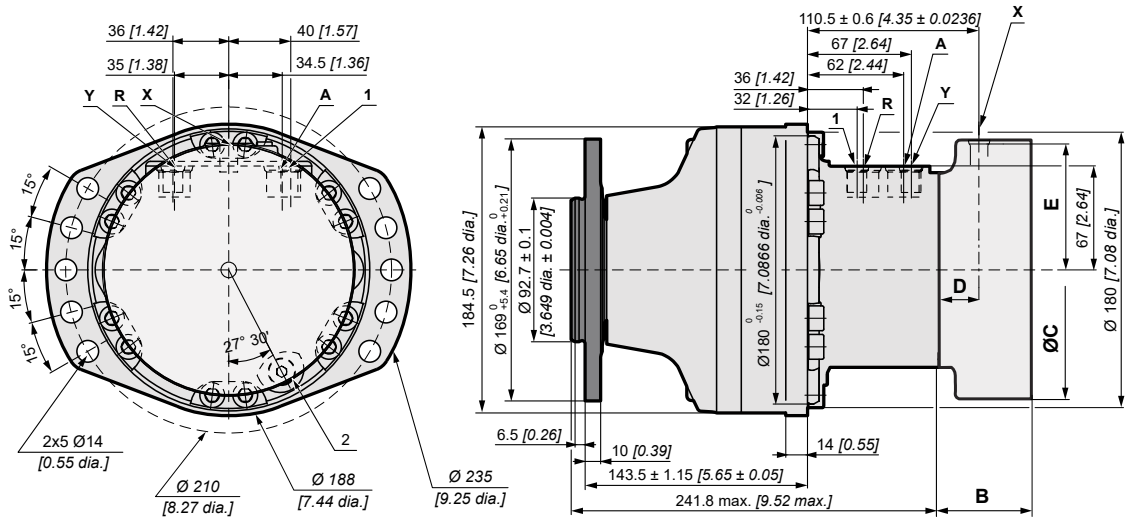
Dimensions for Classic (1110) 1-displacement motor



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 Classic (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).

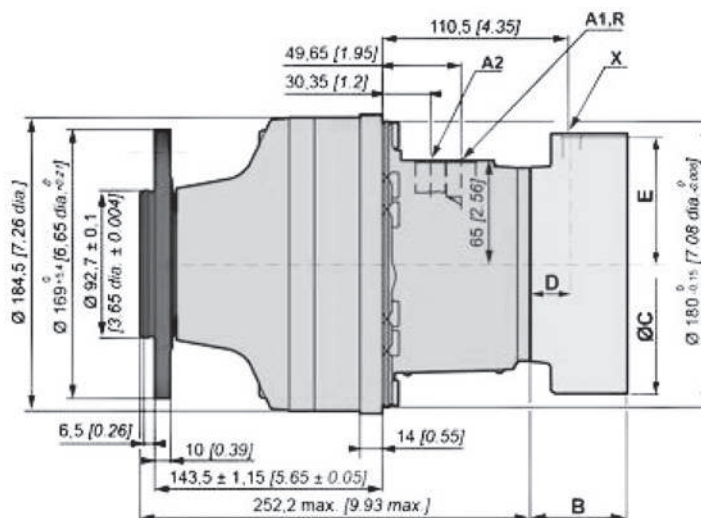
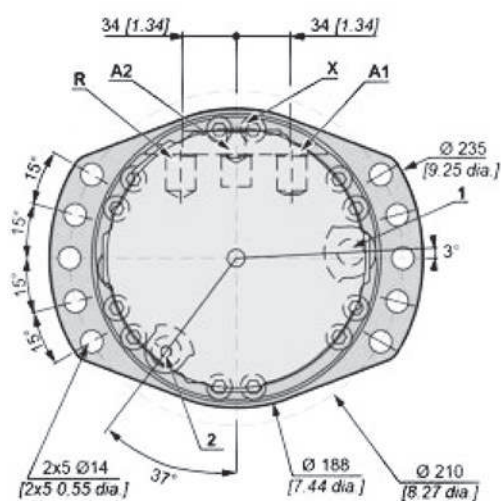
Wheel Motor

M

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P-MS02.MSE02 series

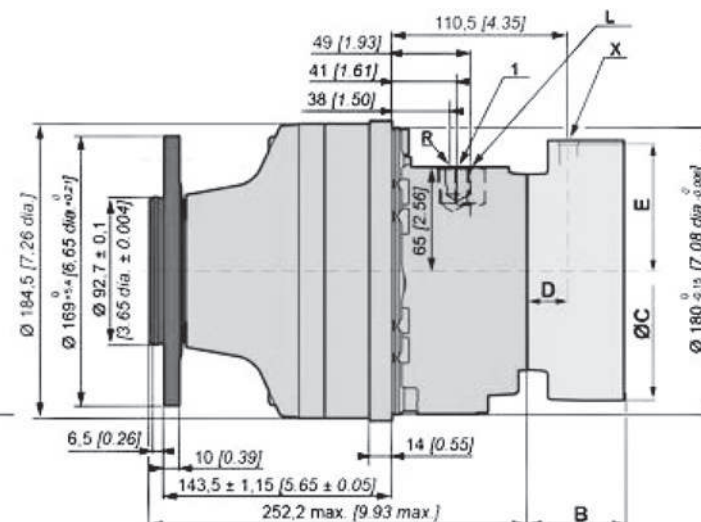
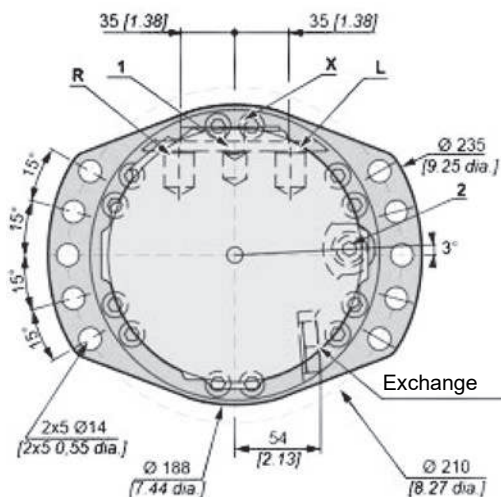
Dimensions for motor



P			
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1	1	1	0

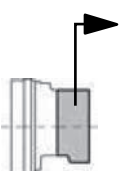
	Without brake	With brake
KG	28 kg [62 lb]	34 kg [75 lb]
L	1.00 L [60 cu.in]	1.00 L [60 cu.in]

Dimensions for motor with exchange



P			
1	2	3	4
1	1	1	0

	Without brake	With brake
KG	28 kg [62 lb]	34 kg [75 lb]
L	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]

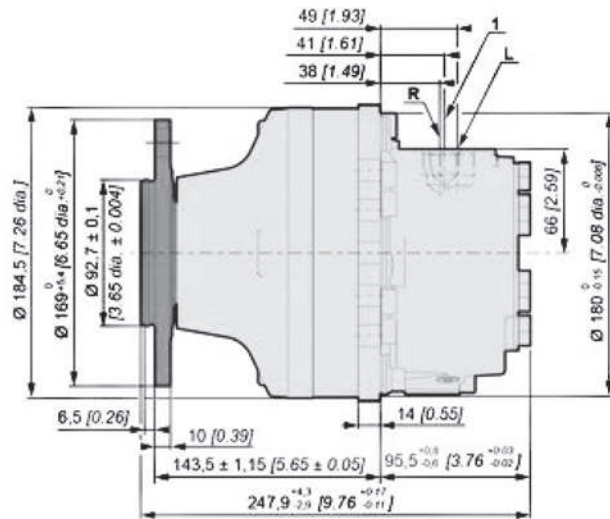
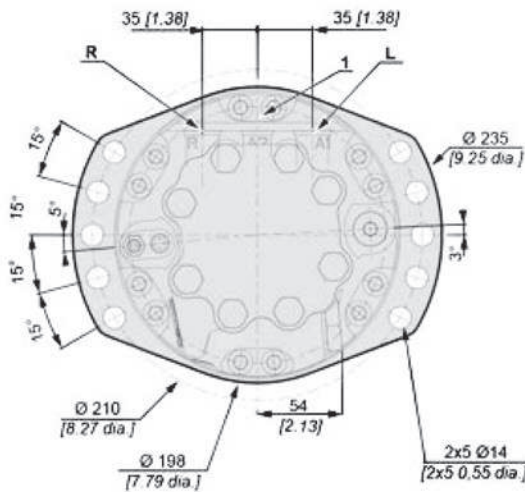


Also see "Brake" section
(thumbnail opposite).



Wheel Motor Highflow

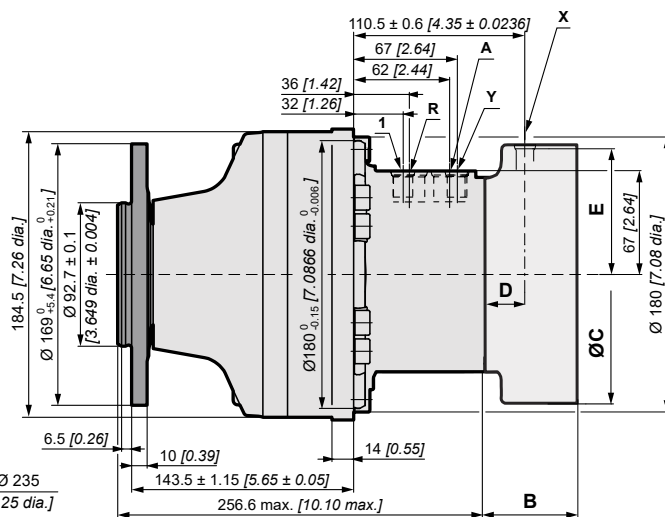
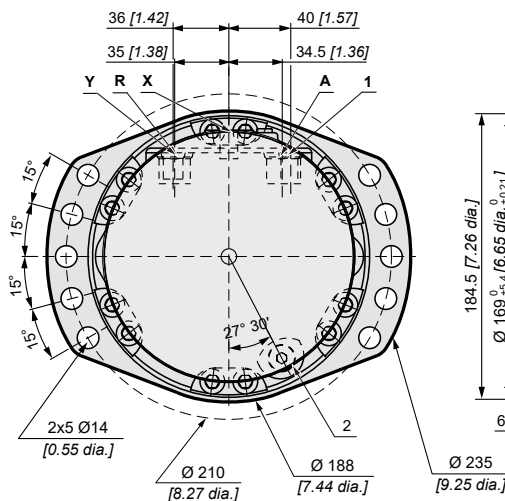
Dimensions for High Flow (1110) 1-displacement motor



P			
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1	1	1	0

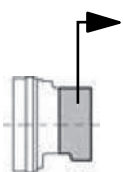
	Without brake	With brake
KG	26 kg [57 lb]	32 kg [70 lb]
L	0.80 L [48 cu.in]	0.70 L [42 cu.in]

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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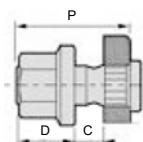
P-MS02.MSE02 series

Support types

				C	D			F			P				S					
				1	1	2	3	1	2	3	1	2	3	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.

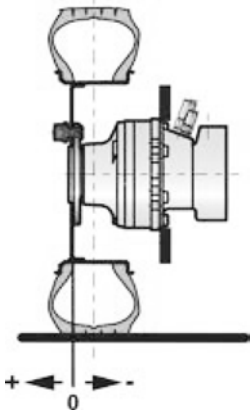
Wheel Motor



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

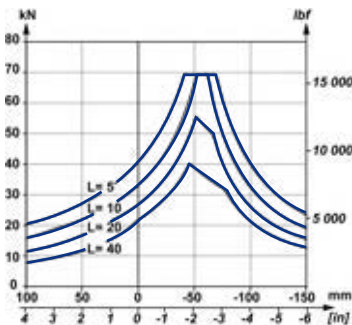
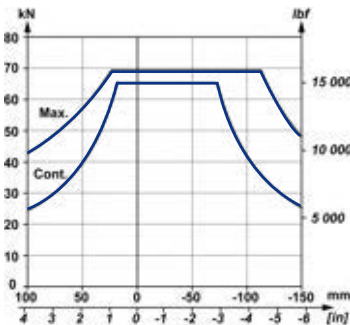
12

P-MS02.MSE02 series

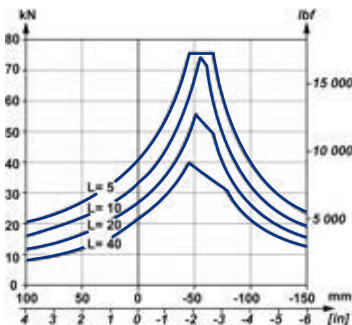
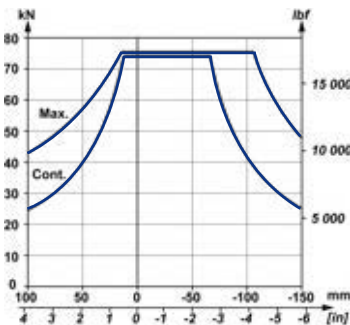
Permissible radial loads	Service life of bearings
Max. permissible loads : 0 tr/min [0 PSI] ; 0 bar [0 RPM].	L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid.
Continuous permissible loads : > 0 tr/min [> 0 RPM] ; 275 bar [3 988 PSI].	

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.

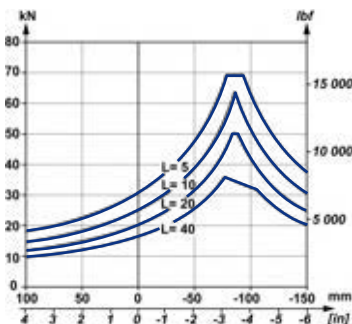
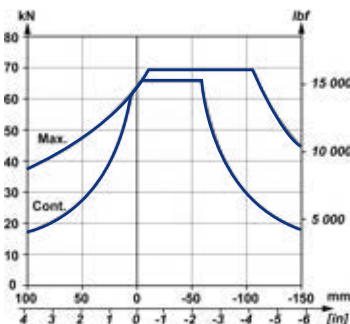
P			
1	2	3	4
1	1	1	0
1	7	1	0



P			
1	2	3	4
1	2	4	0

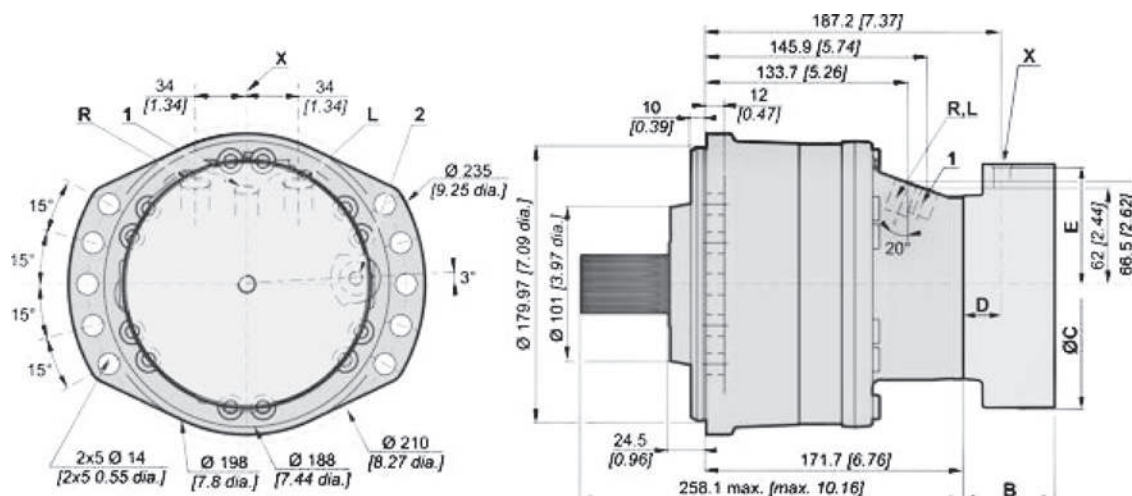


P			
1	2	3	4
1	G	1	0



Shaft Motor Classic

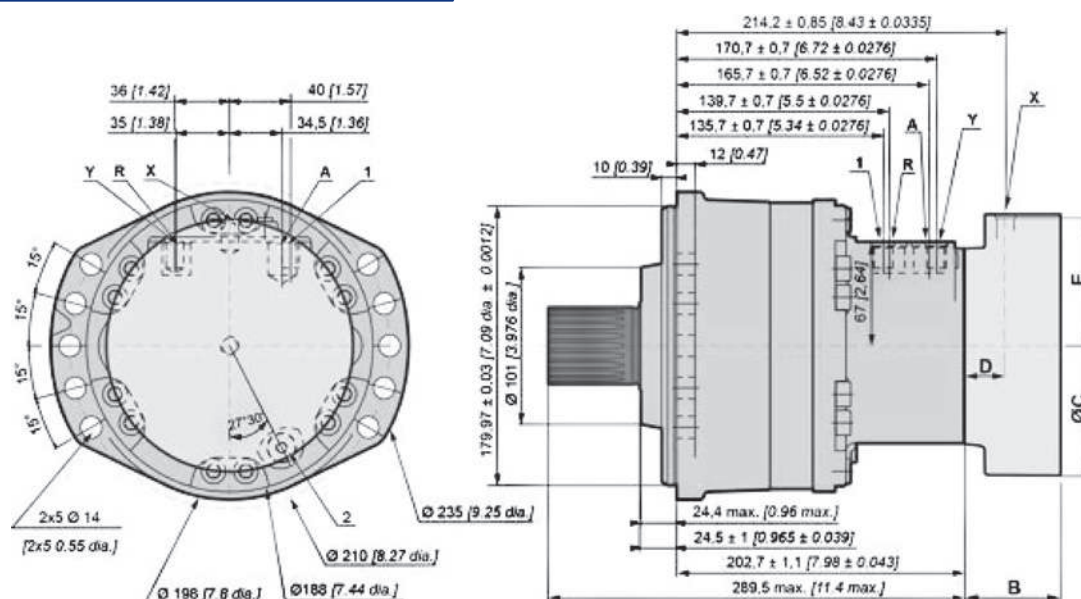
Dimensions for Classic 1-displacement motor



P			
1	2	3	4
2	A	5	0

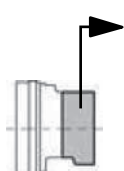
	Without brake	With brake
KG	26 kg [57 lb]	32 kg [70 lb]
	0.80 L [48 cu.in]	0.70 L [42 cu.in]

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]



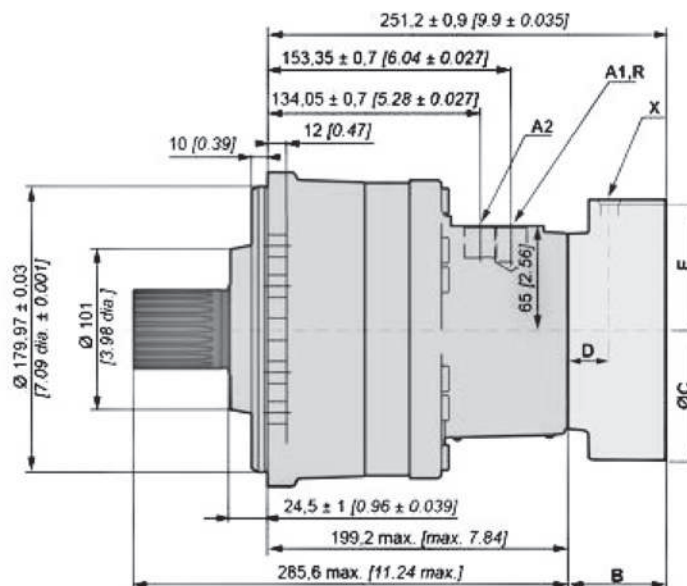
C	T 0 3	C 0 3
B	62.5 [2.46]	76.5 [3.01]
C	Ø178 [7.01 dia.]	Ø176 [6.93 dia.]
D	25.5 [1.00]	28.0 [1.10]
E	80.0 [3.15]	78.0 [3.07]

Also see "Brake" section (thumbnail opposite).

M

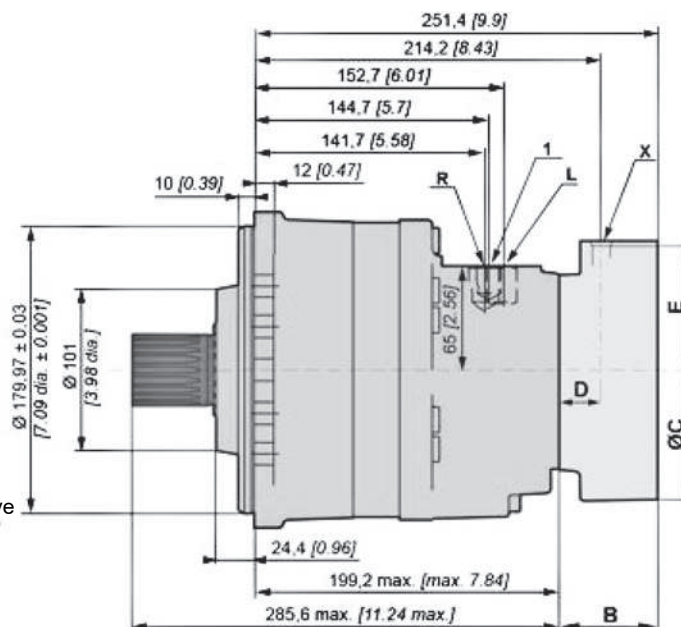
P-MS02.MSE02 series

P			
1	2	3	4
2	A	5	0

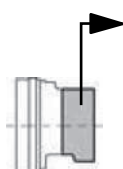


Technical drawing of the front view of a 12-cylinder engine block. The drawing shows a circular arrangement of 12 cylinders with various dimensions and labels. Key dimensions include: cylinder bore diameter of 210 mm (8.27 in), cylinder center-to-center distance of 198 mm (7.8 in), and a distance of 54 mm (2.13 in) from the center to the exchange valve. Other dimensions include: 34 mm (1.34 in) for the distance from the center to the cylinder center, 15° for the angle between cylinder centers, and 3° for the angle of the exchange valve. Labels include 'R', 'L', 'X', '1', '2', and 'Exchange valve'.

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.]

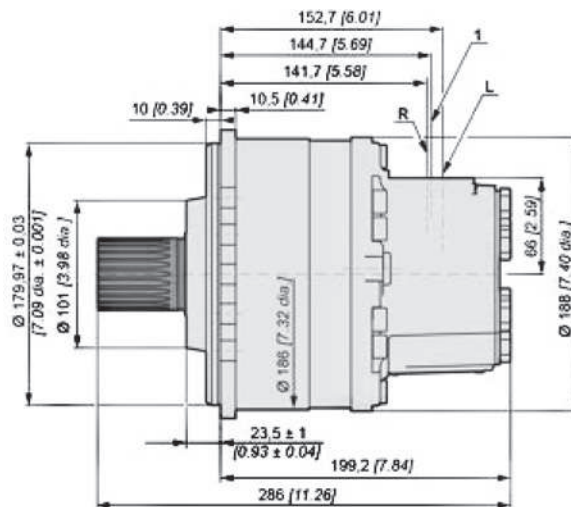
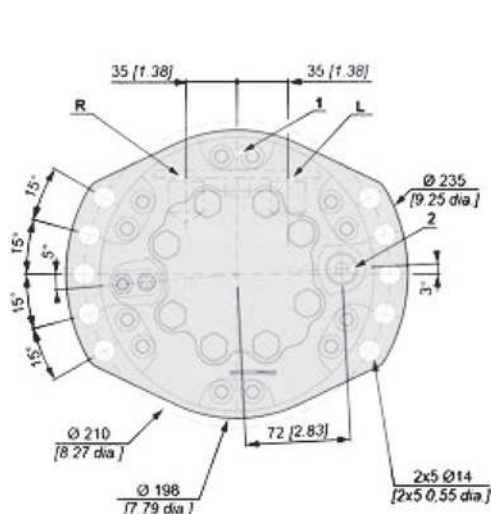


C	T 0 3	C 0 3
B	62.5 [2.46]	76.5 [3.01]
C	Ø178 [7.01 dia.]	Ø176 [6.93 dia.]
D	25.5 [1.00]	28.0 [1.10]
E	80.0 [3.15]	78.0 [3.07]

Also see “Brake” section
(thumbnail opposite).

Shaft Motor High Flow

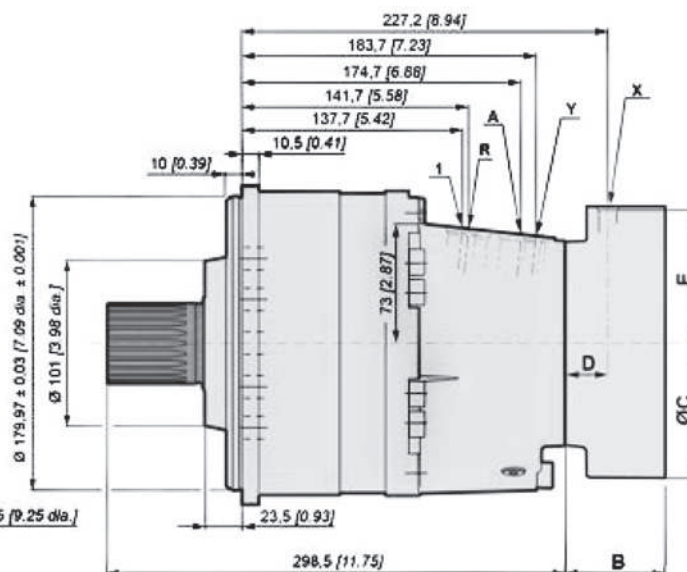
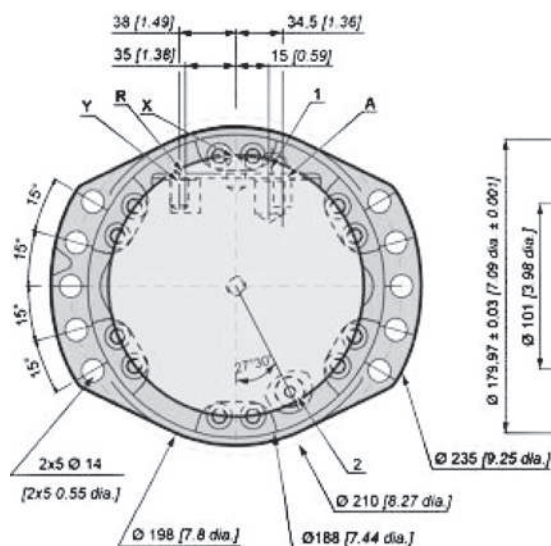
Dimensions for High Flow 1-displacement motor



P			
1	2	3	4
2	A	5	0

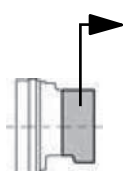
	Without brake	With brake
KG	26 kg [57 lb]	32 kg [70 lb]
	0.80 L [48 cu.in]	0.70 L [42 cu.in]

Dimensions for High Flow 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 High Flow

M

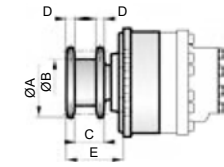
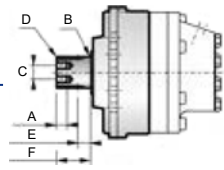
16

P-MS02.MSE02 series

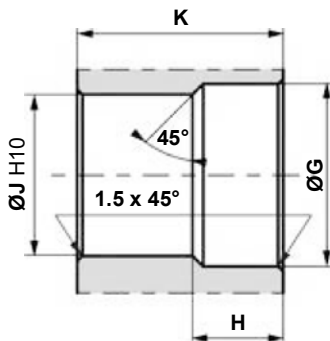
Support types

M	S	0	2	C	1	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											
Nominal Ø				40 [1.57]							
Module				1.667							
Number of teeth				22							
DIN 5480 splines											
Nominal Ø				50 [1.97]							
Module				2							
Number of teeth				24							
ANSI B29-1 or ISO 606 pinion											
Chain no.				80							
Number of teeth				14							
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).

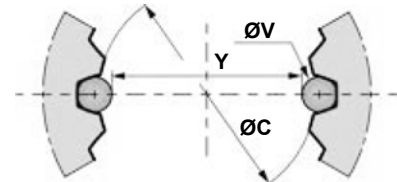
Standard DIN 5480

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]
NF E22-141				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]
DIN 5480				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

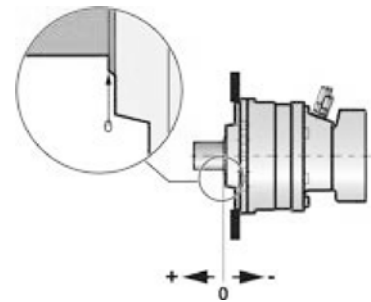
M

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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].

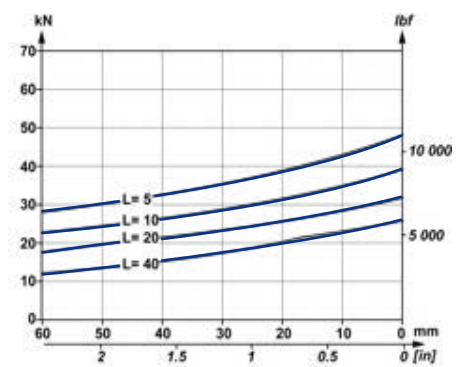
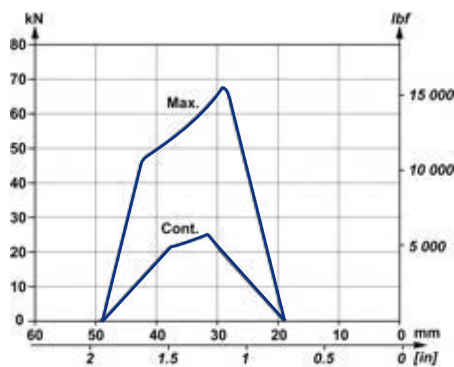
Continuous permissible loads : > 0 tr/min [> 0 RPM] ;
275 bar [3 988 PSI].

Service life of bearings

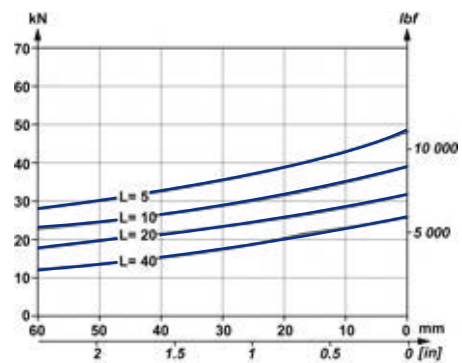
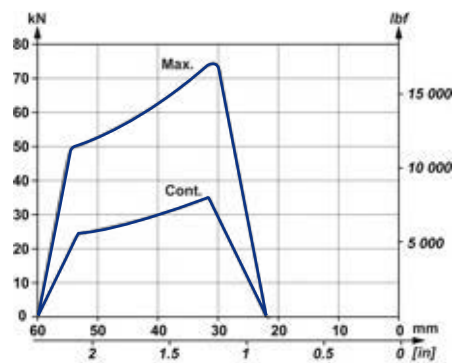
L : Millions B10 revolutions at 150 bars
(average pressure), with 25 cSt fluid.

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

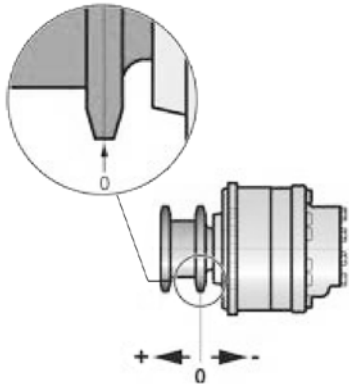
M

18

P-MS02.MSE02 series



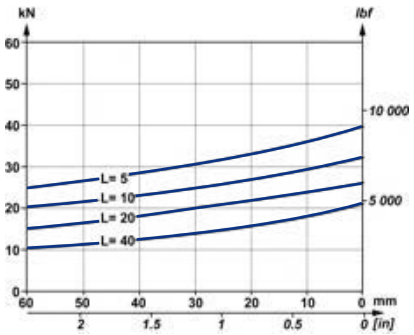
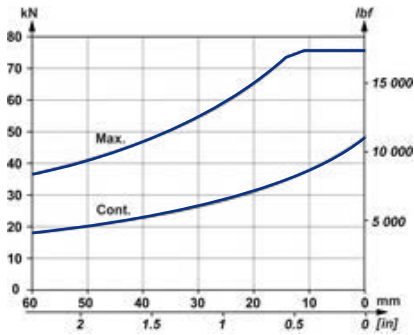
The service life of the components is influenced by the pressure. You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications.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

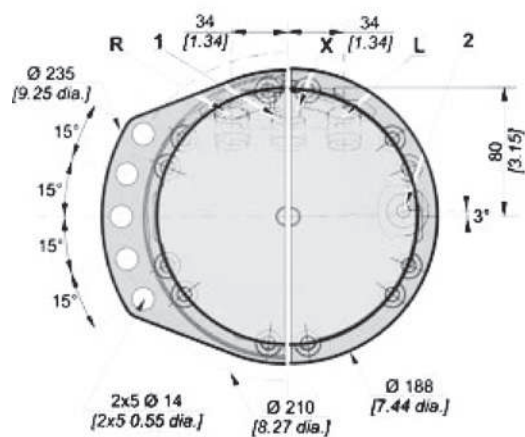
for Classic motor on demand for High Flow motor

M

19

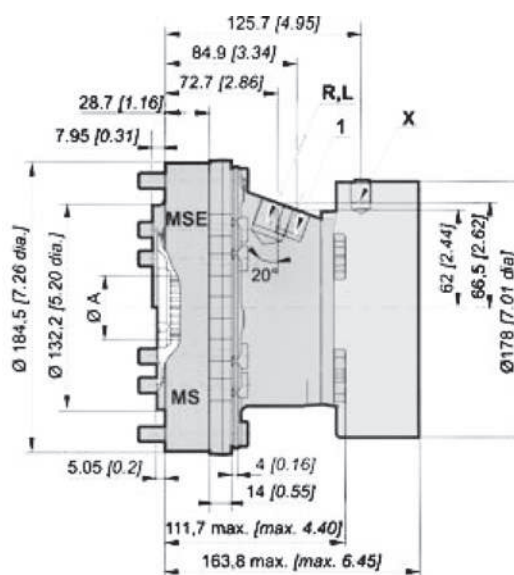
P-MS02.MSE02 series

Dimensions for 1-displacement hydrobase



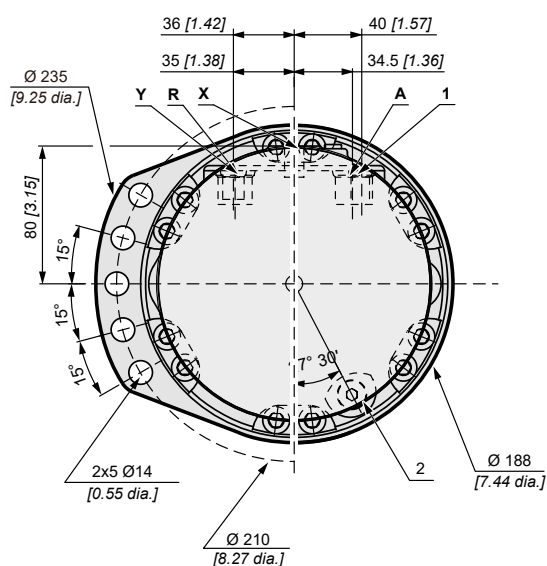
D		
1	2	3
1	2	

D		
1	2	3
1	1	



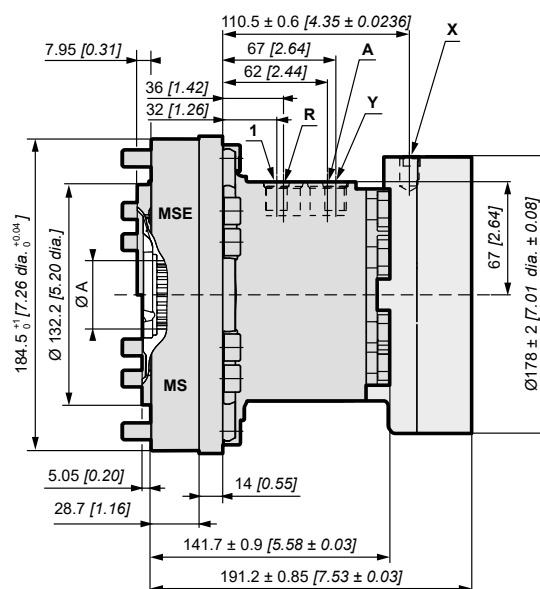
	Without brake	With brake
KG	13.8 kg [30 lb]	19.9 kg [44 lb]
	0.35 L [21 cu.in]	0.45 L [27 cu.in]

Dimensions for 2-displacements hydrobase



D		
1	2	3
	2	

D		
1	2	3
1		

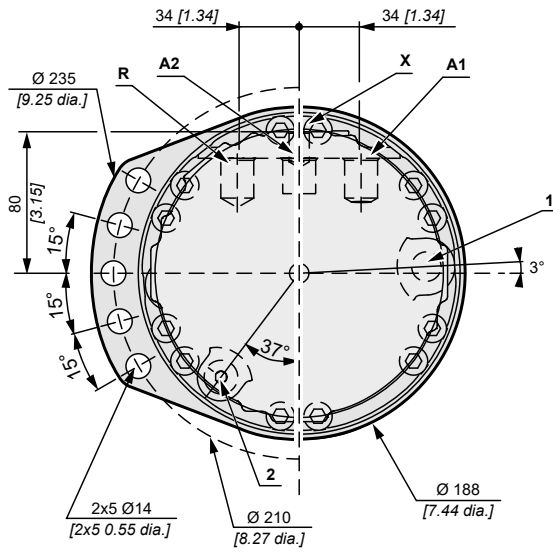


	Without brake	With brake
KG	18.8 kg [41 lb]	24.9 kg [55 lb]
	0.35 L [21 cu.in]	0.45 L [27 cu.in]



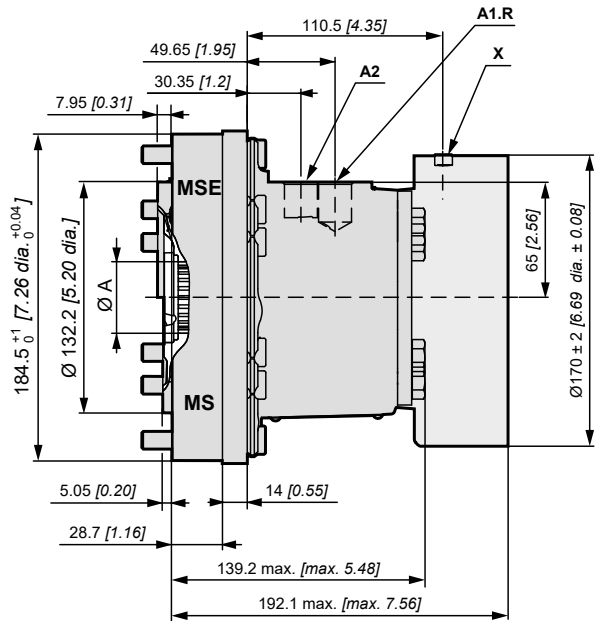
Hydrobases

Dimensions for Twin-Lock hydrobase



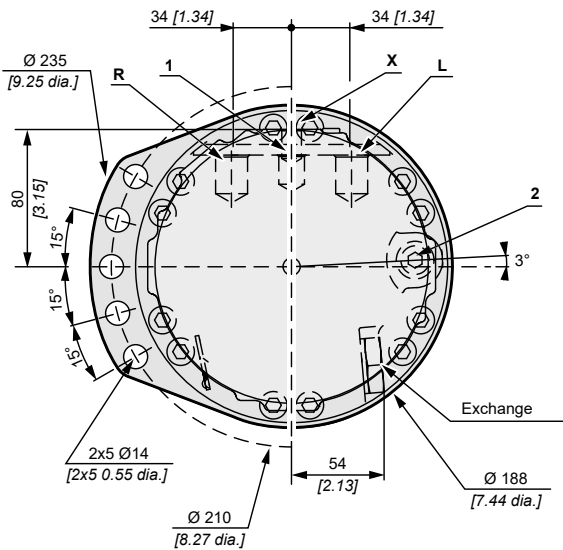
D		
1	2	3
1	2	

D		
1	2	3
1	1	



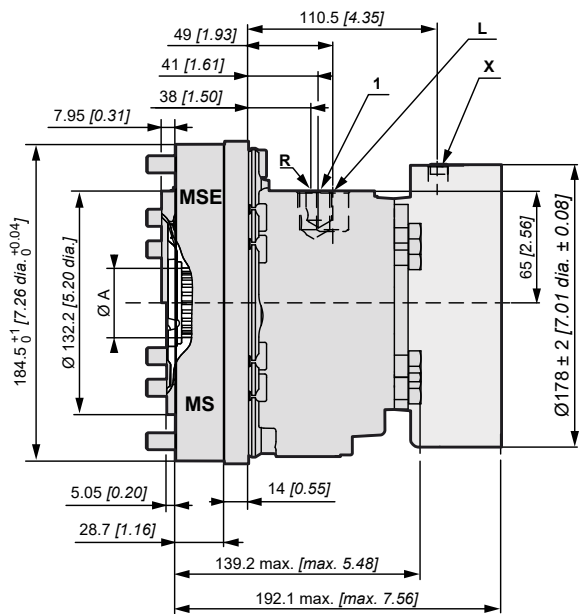
	Without brake	With brake
KG	18.8 kg [41 lb]	24.9 kg [55 lb]
L	0.35 L [21 cu.in]	0.45 L [27 cu.in]

Dimensions for hydrobase with exchange



D		
1	2	3
	5	

D		
1	2	3
	4	



	Without brake	With brake
KG	19 kg [42 lb]	25.1 kg [55 lb]
L	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)

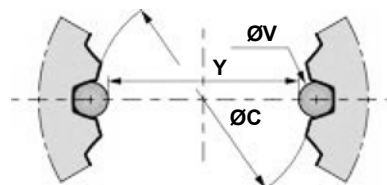
M

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

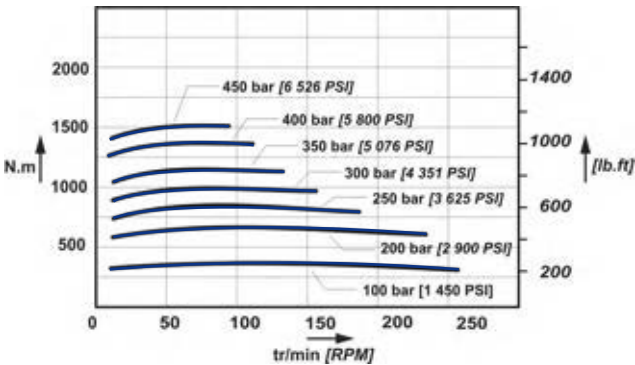
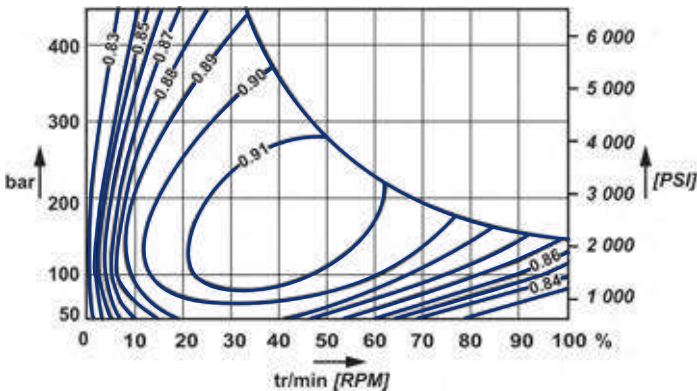
P-MS02.MSE02 series

Overall efficiency

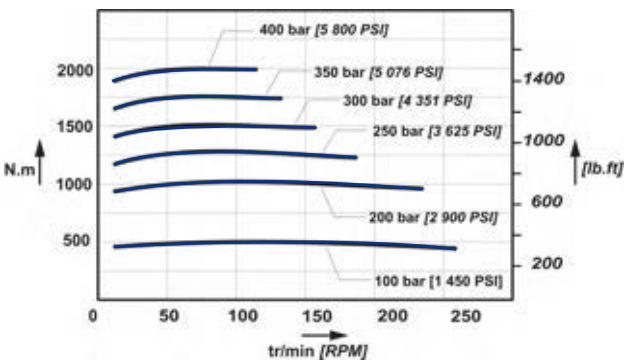
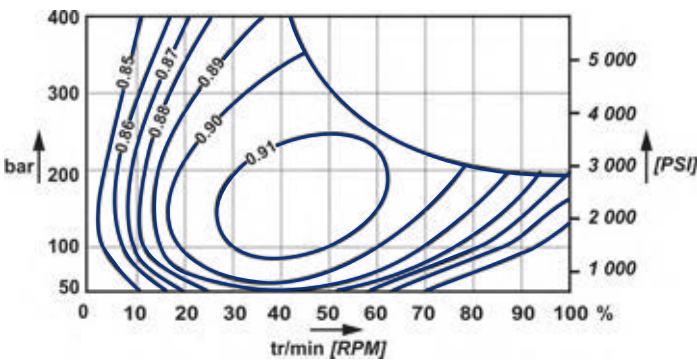
Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C [122°F].

Actual output torque

MS02



MSE02



For a precise calculation, consult YEOSHE.

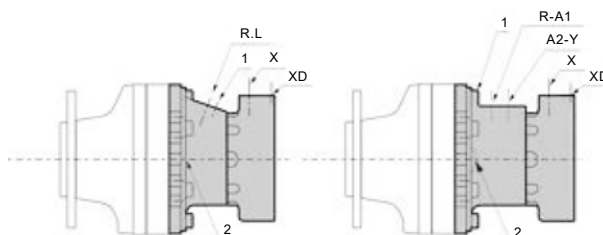
Valving Systems

Hydraulic connections

M

23

P-MS02.MSE02 series



				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					

		Standards	Power supply	Case drain	2 nd displacement control	Control of parking brake	Control of service brake
			R - L	1 - 2		X	XD
	A	UNF (SAE) ISO 11 926-1	7/8-14 UNF	3/4-16 UNF		9/16-18 UNF	3/8-24 UNF
	3	Gaz (BSPP) ISO 1 179-1	G1/2	G3/8		G1/4	G1/8
	4	Metric ISO 9 974-1	M22x1.5	M18x1.5		M14x1.5	M10x1.0
	G	Gaz (BSPP) ISO 1 179-1	BSP 3/4	BSP 3/8		BSP 1/4	
	M	Metric ISO 9 974-1	M27x2	M18x1.5		M14x1.5	
	U	UNF (SAE) ISO 11 926-1	1 1/16-12 UNF	3/4-16 UNF		9/16-18 UNF	
			R-A	1 - 2	Y	X	XD
	A	UNF (SAE) ISO 11 926-1	7/8-14 UNF	9/16-18 UNF	9/16-18 UNF	9/16-18 UNF	3/8-24 UNF
	3	Gaz (BSPP) ISO 1 179-1	G1/2	G1/4	G1/4	G1/4	G1/8
	4	Metric ISO 9 974-1	M22x1.5	M14x1.5	M14x1.5	M14x1.5	M10x1.0
	G	Gaz (BSPP) ISO 1 179-1	BSP 3/4	BSP 3/8 BSP 1/4	BSP 1/4	BSP 1/4	
	M	Metric ISO 9 974-1	M27x2	M18x1.5	M14x1.5	M14x1.5	
	U	UNF (SAE) ISO 11 926-1	1 1/16-12 UNF	3/4-16 UNF	9/16-18 UNF	9/16-18 UNF	
			R-A1-A2	1 2		X	XD
	A	UNF (SAE) ISO 11 926-1	7/8-14 UNF	0.75 F 0.56 F		9/16-18 UNF	3/8-24 UNF
	3	Gaz (BSPP) ISO 1 179-1	G1/2	M18 M14		G1/4	G1/8
	4	Metric ISO 9 974-1	M22x1.5	G3/4 G1/4		M14x1.5	M10x1.0
ISO 9 974-1							
Max. pressures		MS bar [PSI]	450 [6,527]	2.5 [36]	30 [435]	30 [435]	120 [1,740]
Instantaneous pressure peaks resistance		bar [PSI]	400 [5,802]	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



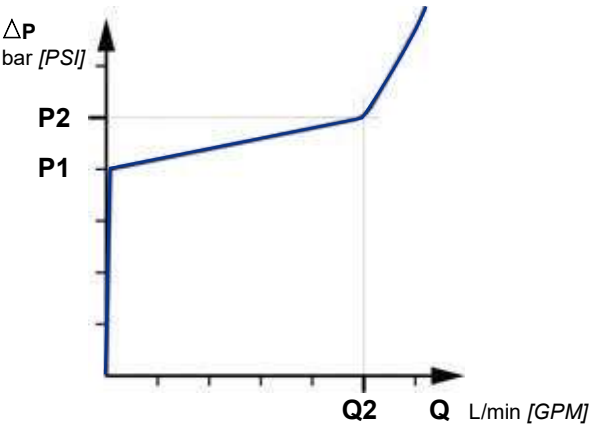
When a codification is requested, you must specify needed characteristics.

M

24

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]



P-MS02.MSE02 series

Brakes

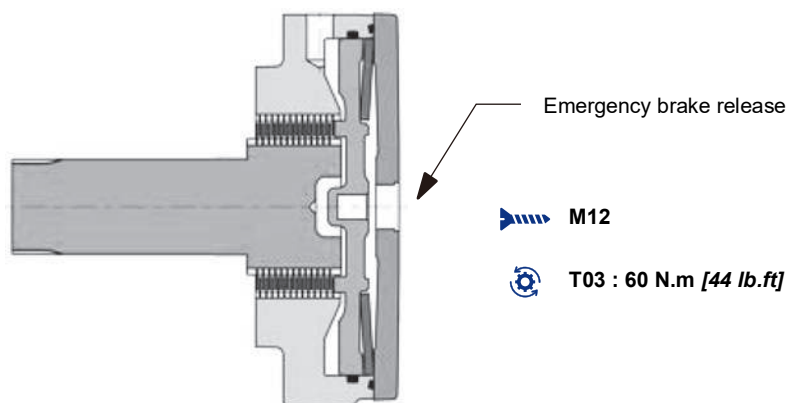
M

25

P-MS02.MSE02 series

				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
								T	0	3				0	Y					
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.



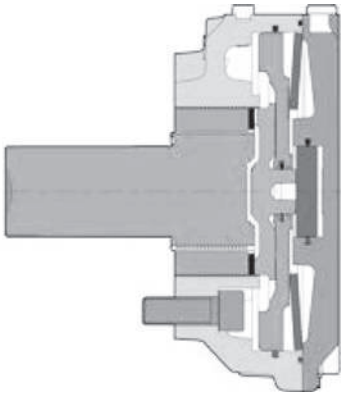
A functional check of the parking brake must be carried out each time it is used as an auxiliary brake (or emergency brake). For all vehicles capable of speeds over 25 km/h, please contact YEOSHE .

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

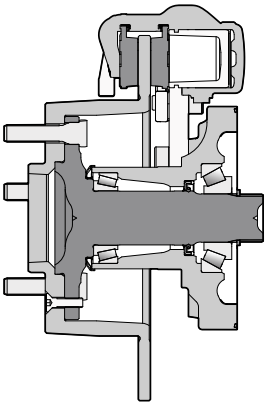
Min. parking brake torque	2,250 Nm [1,660 lb.ft]
Min. dynamic brake torque in case of emergency brake with new brake	1,687 Nm [1,240 lb.ft]
Release brake pressure (min. / max.)	13 [188] / 30 [435]
Piston chamber piloting volume (worn brake)	24 cm³ [1.5 cu.in]
Number of parking brake applications	2,000,000

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	2	3	4	1	2	3	4	1	2	3	4	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.

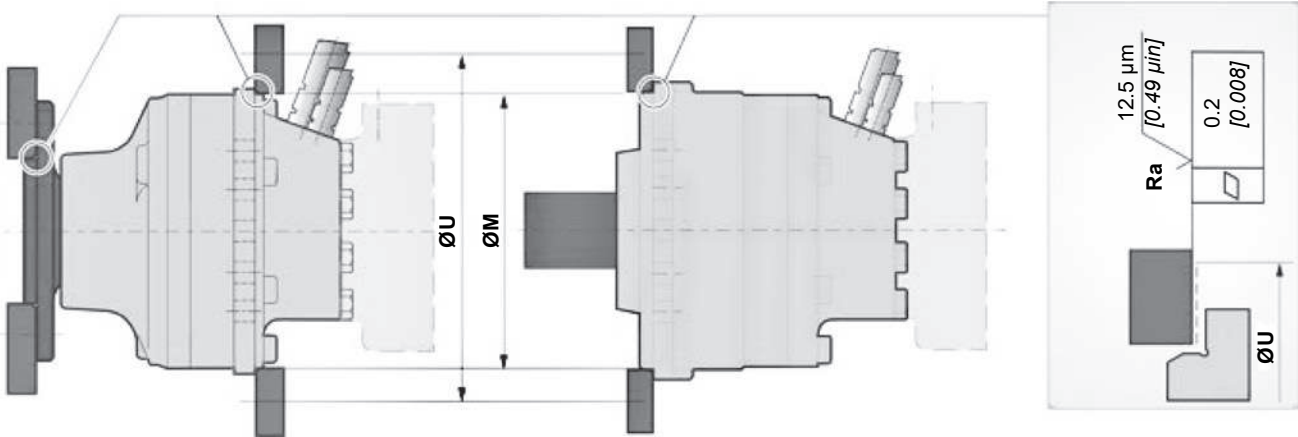


The max. braking torque can be obtained only when the brake has been run in. Consult YEOSHE.



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.

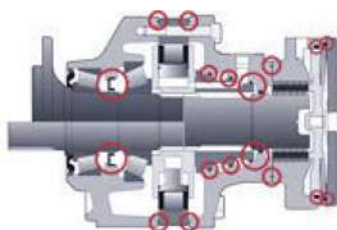
Y

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)

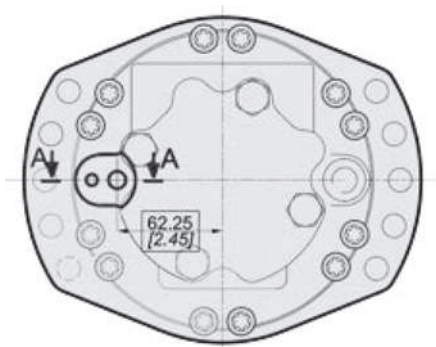
S

TD speed sensor (two phase shifted frequencies)

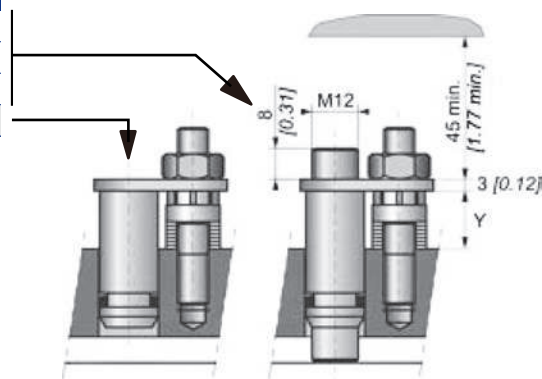
Q

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.



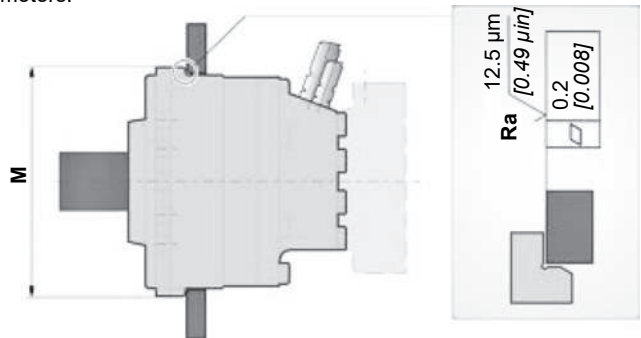
For a precise calculation, consult YEOSHE.

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.

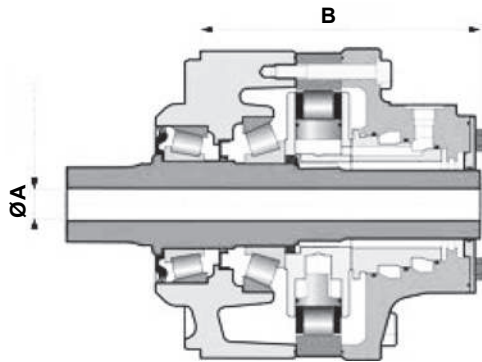
9 Chassis mounting on cam ring side

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]

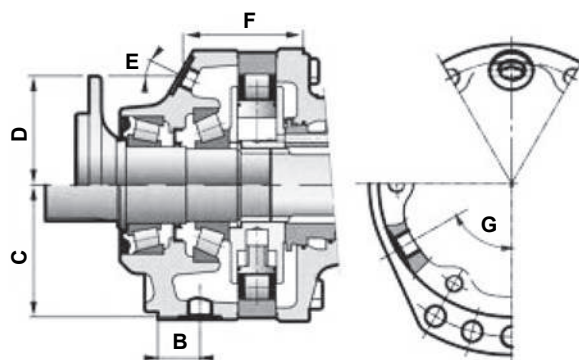
Radial load x 0.75
No torque transmittable to the rear

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

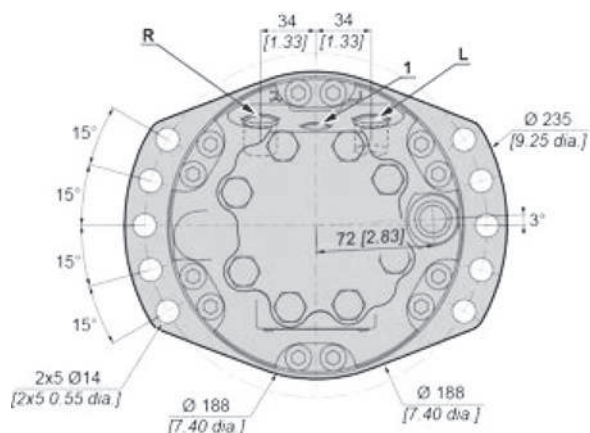
Track drive reinforced sealing motor. This option is compatible only with 1C41 bearing support.

				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

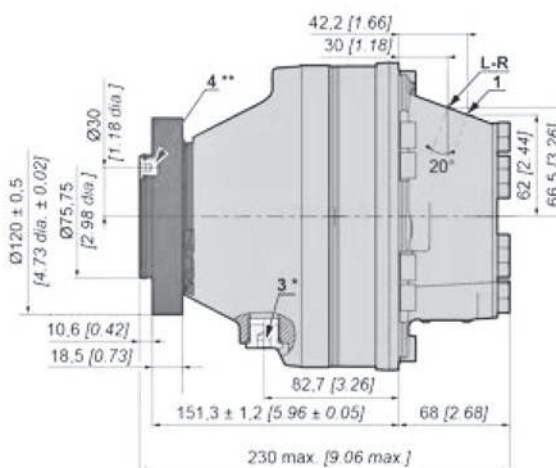
Duo cone seal

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.

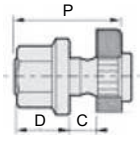


Consult YEOSHE for other colors of primer or topcoat.



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

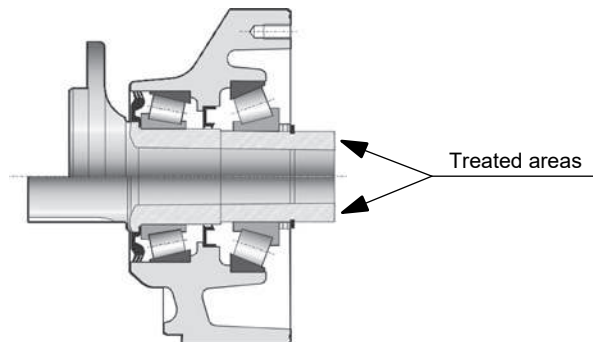
Reinforced piston sealing to improve volumetric efficiency.



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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