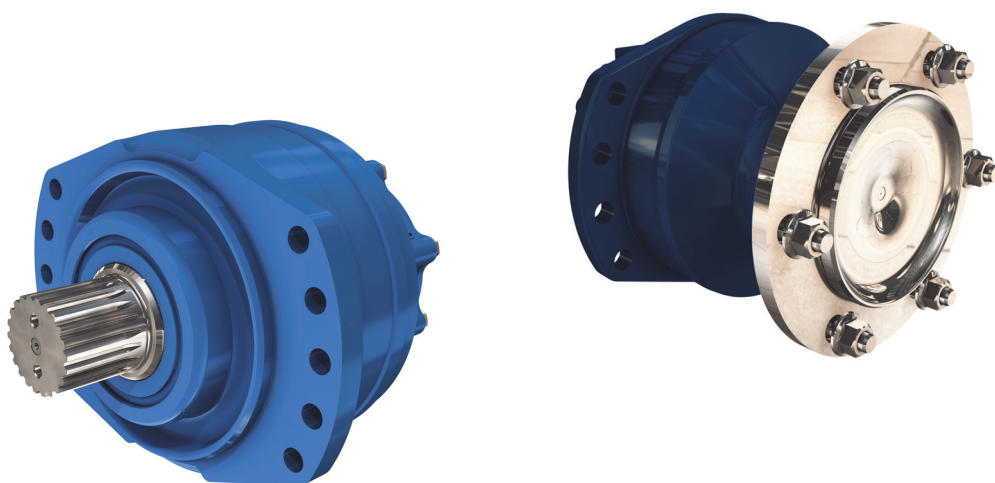


MS02-MSE02

HYDRAULIC MOTORS



T E C H N I C A L C A T A L O G



INTRODUCTION

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

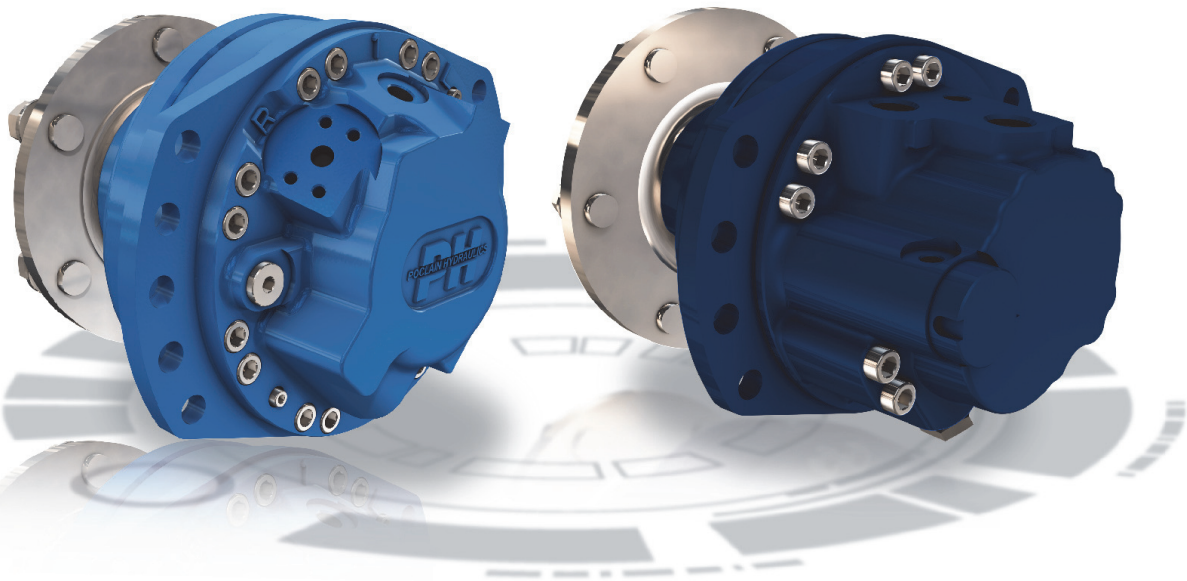
MS Classic range can be characterized by:

- **Compacity**
- **Optimized cost**
- **Power density**

The MS HighFlow™ 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.

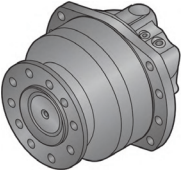
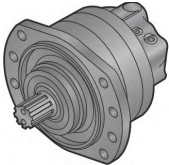
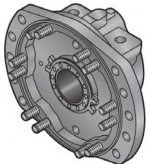
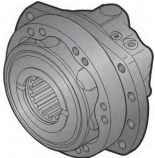
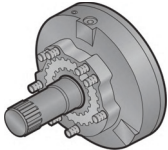
MS HighFlow™ motor range is different by:

- **New closed cover**
- **Integrated exchange valve**
- **New ports geometry**
- **New valving**



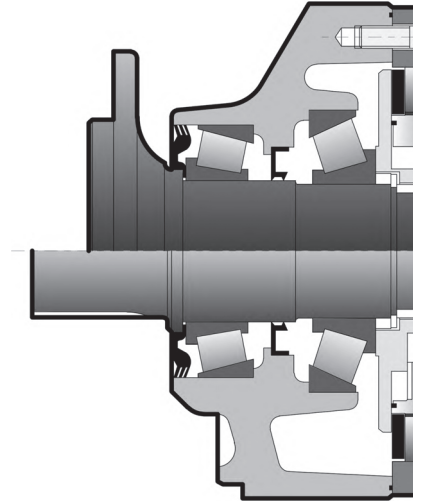


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CHARAC



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

Motor inertia

MS02-MSE02 HighFlow™

Max.power

	MS02	MSE02
1C motor	18 kW	22 kW
2C motor, 1 st displacement	18 kW	22 kW
2C motor, 2 nd displacement	12 kW	16,5 kW

			Motor HighFlow™ 1C	Motor HighFlow™ 2C			
			Max. speed*	Max. speed*			
Cams with equal lobes	MS02						
		cm³/tr [cu.in/rev.]	cm³/tr [cu.in/rev.]	tr/min[RPM]	tr/min[RPM]		
		8	172 [10,5]	86 [5,2]	700	850	900
		0	213 [13,0]	107 [6,5]	570	700	720
	MSE02	1	235 [14,3]	118 [7,2]	520	630	650
		2	255 [15,6]	128 [7,8]	480	590	610
		0	332 [20,2]	166 [10,1]	370	440	470
		1	364 [22,2]	182 [11,1]	340	400	420
2	398 [24,3]	199 [12,1]	310	370	390		

① First displacement

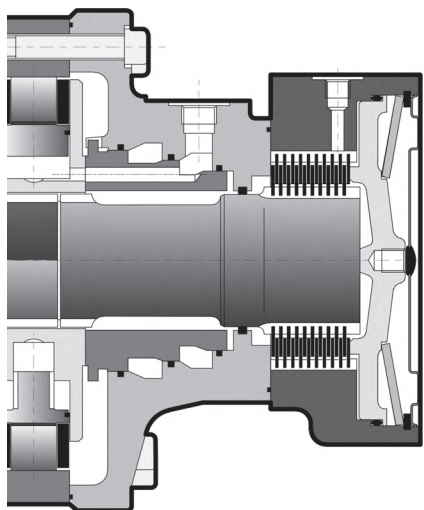
② Second displacement

* Based on nominal no-load Δp of 20 bar.

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



TERISTICS



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

= 0.01 kg.m²

MS02-MSE02 Classic

Max.power

	MS02	MSE02
1C motor	18 kW	22 kW
2C motor preferred	12 kW	16,5 kW
2C motor non-preferred	9 kW	11 kW

				Classic motor 1C	Classic motor 2C		
				Max. speed	Max. speed		
				1	1	2	
				tr/min[RPM]	tr/min[RPM]		
Cams with equal lobes	MS02						
		cm³/tr [cu.in/rev.]	cm³/tr [cu.in/rev.]				
		8	172 [10,5]	86 [5,2]	590	580	590
		0	213 [13,0]	107 [6,5]	470	470	475
	MSE02	1	235 [14,3]	118 [7,2]	430	430	430
		2	255 [15,6]	128 [7,8]	395	395	395
		0	332 [20,2]	166 [10,1]	265	265	340
		1	364 [22,2]	182 [11,1]	245	245	310
	2	398 [24,3]	199 [12,1]	225	225	285	

- ① First displacement
② Second displacement

Modularity

Model code

Wheel motors

Shaft motors

Hydrobases

Valving systems

Brake

Installation

Options



MODUL

Torque Module

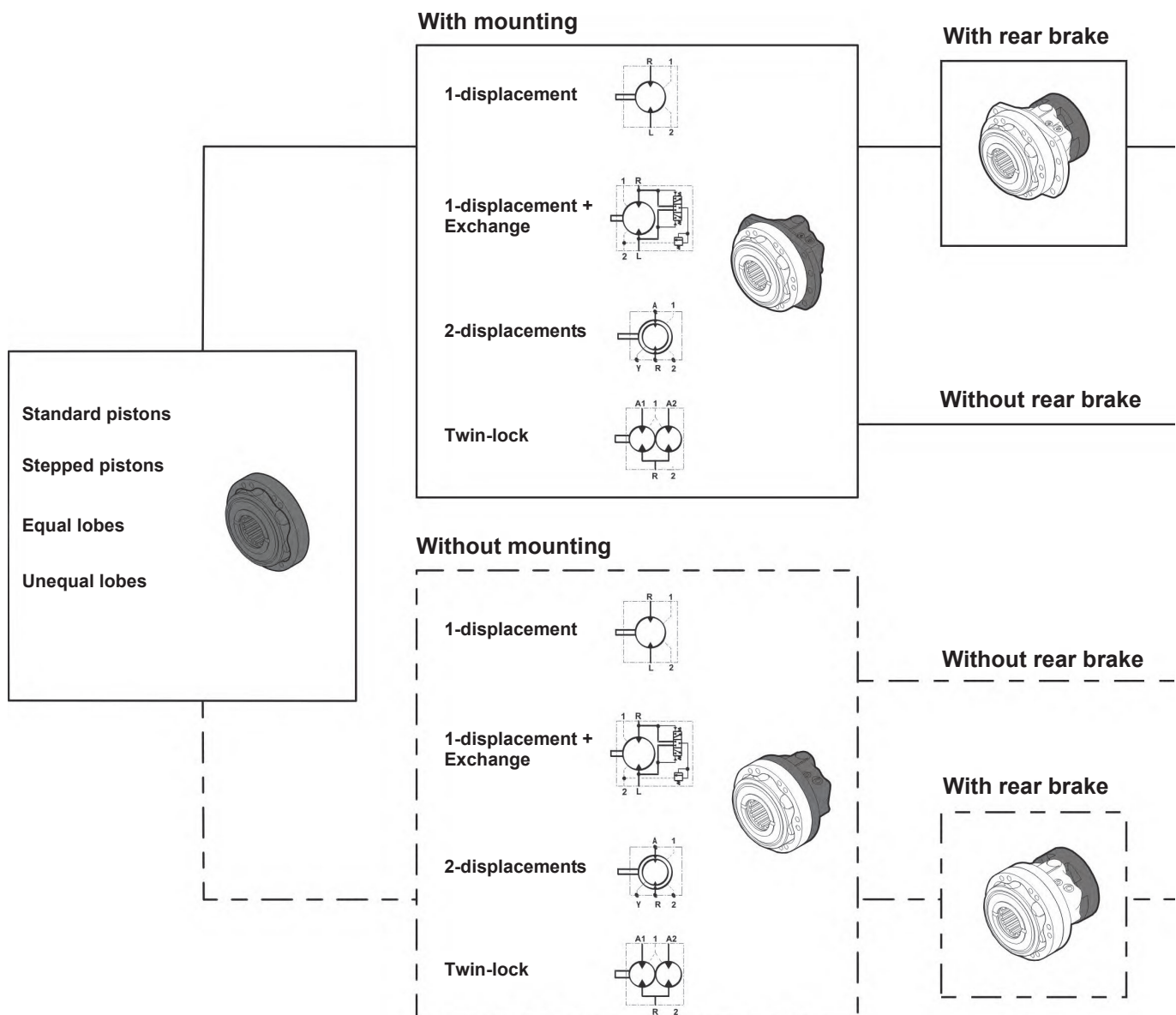
+

Valving System

+

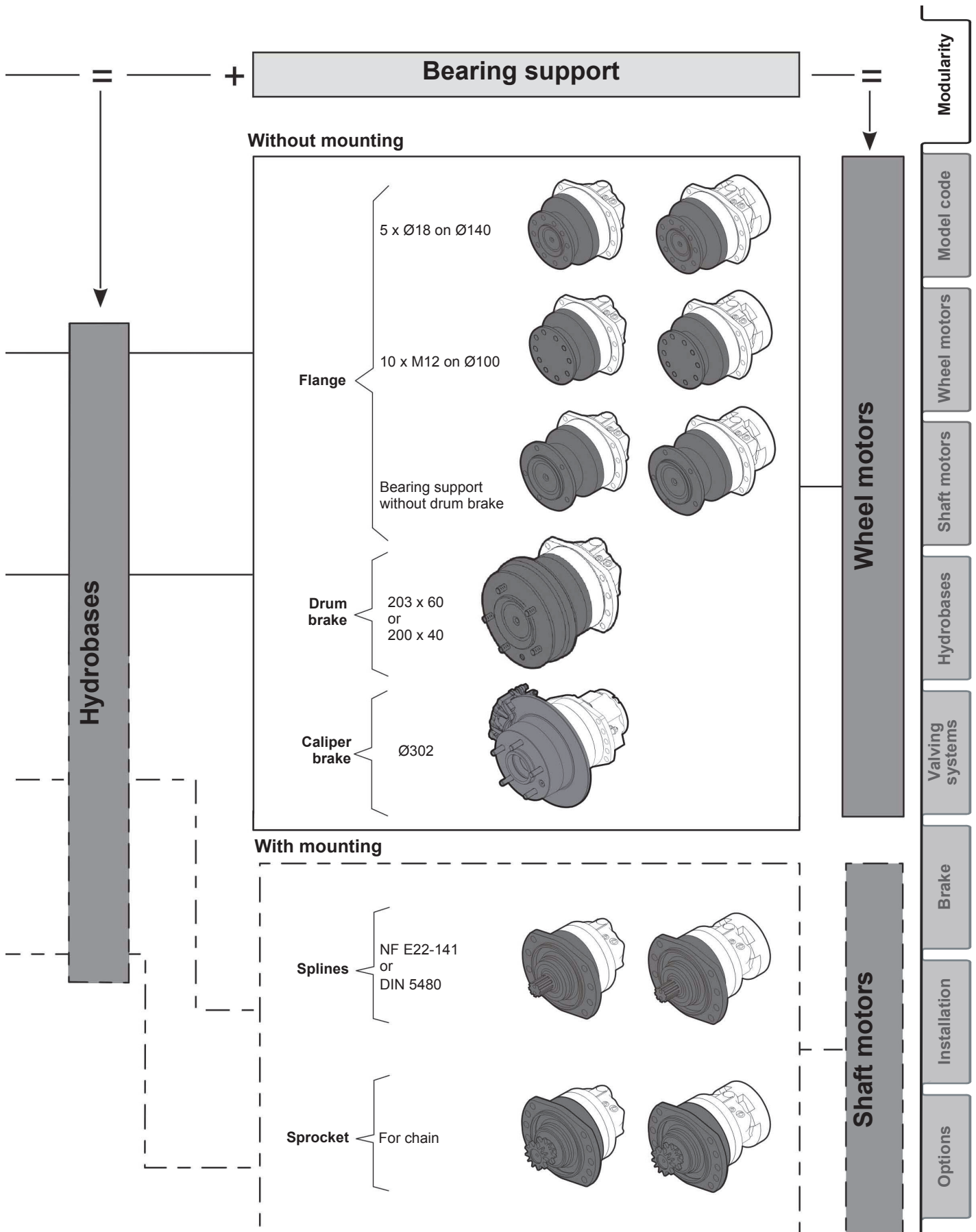
Brake

—



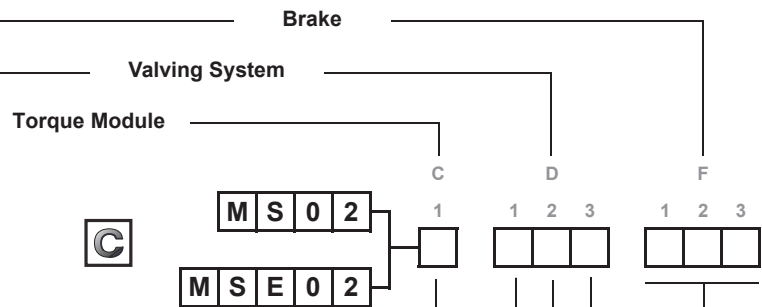
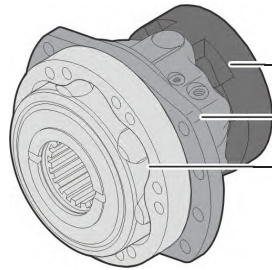


ARITY





MODEL

**C1****Cam ring type**

		1 displacement	2 displacements	
		cm ³ /tr [cu.in/rev.]		
Cams with equal lobes	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
	MSE02	332 [20.2]	166 [10.1]	0
Cams with unequal lobes	MS02	364 [22.2]	182 [11.1]	1
		398 [24.3]	199 [12.1]	2
		213 [13.0]	86 [5.2]	A
		128 [7.8]	86 [5.2]	N
	MSE02	192 [11.7]	107 [6.5]	A
	332 [20.2]	133 [8.1]		
		199 [12.1]		

D3**Connection type**

	HighFlow™ motor	⬇	HighFlow™ 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

F123**Rear brake**

Parking brake	Clipped environmental cover	F	0	3
	Screwed environmental cover	T	0	3
Without brake (reinforced plate)		R	0	2

D1**Valving type**

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

D2**Valving cover**

Classic motor	Without mounting	1	4	D
	Lug fixing	2	6	E
HighFlow™ motor	Without mounting	B	L	-
	Lug fixing	C	N	-

1 Displacement
2 Displacement
Exchange
Twin-Lock™



CODE

Bearing support

Modularity

Model code

Wheel motors

Shaft motors

Hydrobases

Valving systems

Brake

Installation

Options

P

1	2	3	4	1	2	3	4	5	6
				Y					

P1

Front unit

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

P2

Bearing support

Without shaft	0
5 x Ø18 on Ø140	1
10 x M12 on Ø100	2
5 x Ø18 on Ø130	7
Support without drum brake	G
Drum brake (200 x 40)	Mineral DOT 3&4 H
Drum brake (203 x 60)	Mineral DOT 3&4 K
Caliper brake (Ø302)	V
For male shaft bearing support	A

P3

Shaft type

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

S2-6

Options

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

S1

Standard

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

P4

Drum brake

A	Without cable	5 studs	200 x 40
B	M8 Right-hand cable outlet	M16 x 1.5 on dia. 160	
C	Left-hand cable outlet		
7	Without cable	5 studs	203 x 60
8	M8 Right-hand cable outlet	M14 x 1.5 on dia. 140. Rim centering: dia. 92.7	
9	Left-hand cable outlet		
H	Hook Right-hand cable outlet		
J	Left-hand cable outlet		
4	Without cable		
5	M8 Right-hand cable outlet	5 studs	
6	Left-hand cable outlet	M14 x 1.5 on dia. 130	
E	Hook Right-hand cable outlet		
F	Left-hand cable outlet		
Q	Without cable		
R	M8 Right-hand cable outlet	5 studs	
S	Left-hand cable outlet	M14 x 1.5 on dia. 140	
T	Hook Right-hand cable outlet		
U	Left-hand cable outlet		



Methodology :

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



Safety comment.

This document also includes essential operating instructions for the product and general information. These are indicated in the following way:



Essential instructions.



General information .



Information on the model number.



Weight of component without oil.



Volume of oil.



Units.



Tightening torque.



Screws.



Information intended for Poclain-Hydraulics personnel.

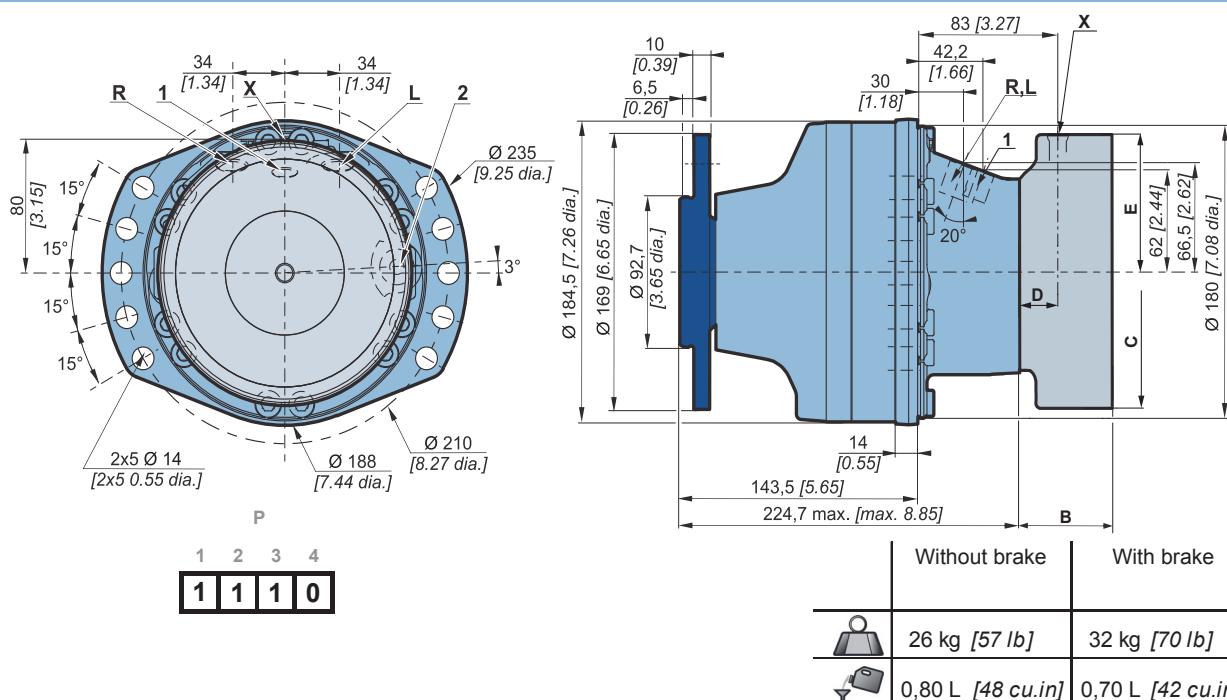
The views in this document are created using metric standards.
The dimensional data is given in mm and in inches (inches are given in brackets in *italic*)



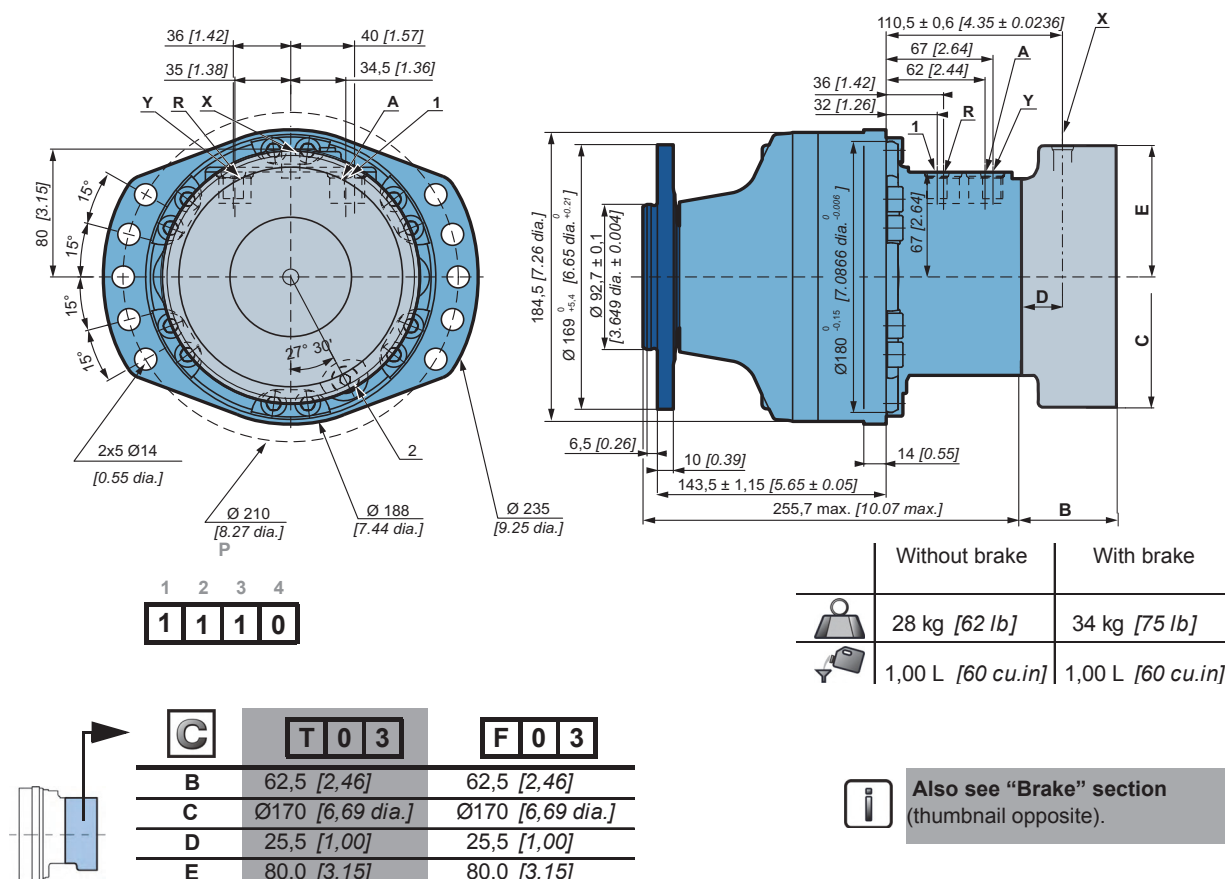


WHEEL MOTOR CLASSIC

Dimensions for Classic (1110) 1-displacement motor



Dimensions for Classic (1110) 2-displacements motor



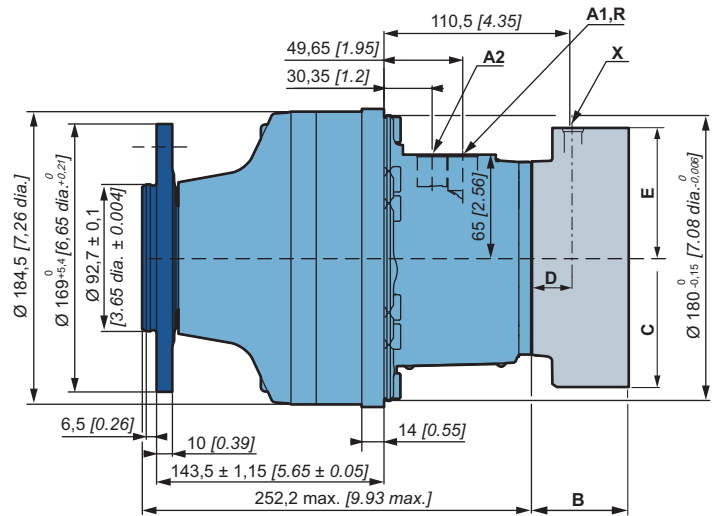
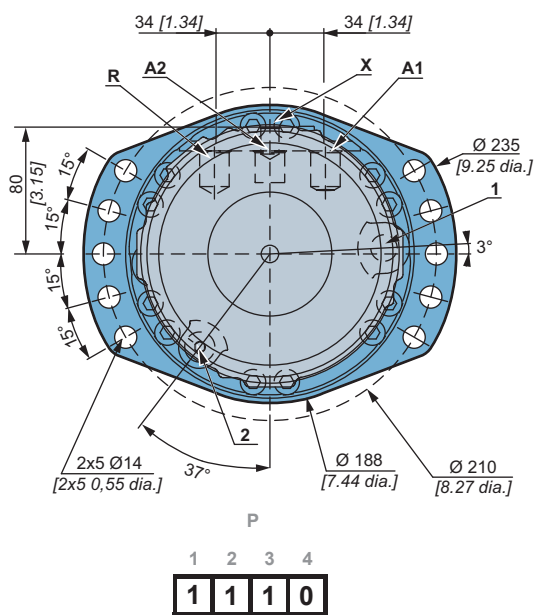
C	T 0 3	F 0 3
B	62,5 [2,46]	62,5 [2,46]
C	Ø170 [6,69 dia.]	Ø170 [6,69 dia.]
D	25,5 [1,00]	25,5 [1,00]
E	80,0 [3,15]	80,0 [3,15]



Also see "Brake" section (thumbnail opposite).

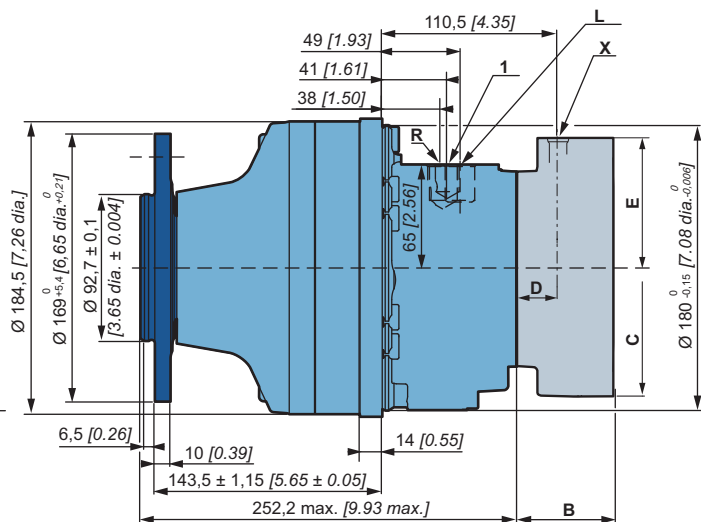
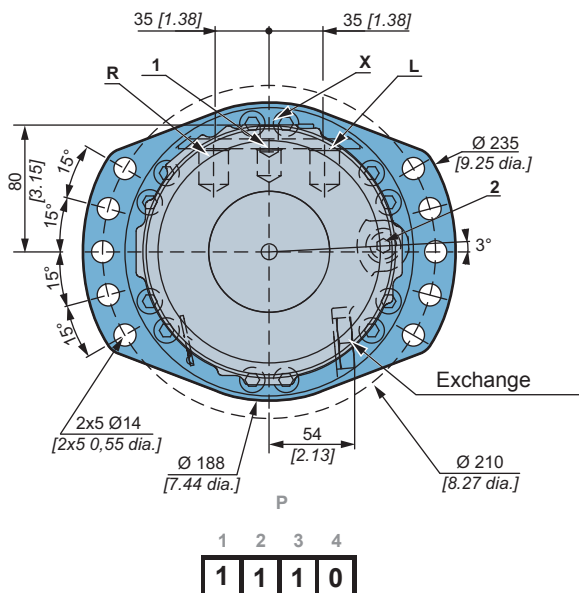


Dimensions for Classic Twin-Lock™ motor



	Without brake	With brake
	28 kg [62 lb]	34 kg [75 lb]
	1,00 L [60 cu.in]	1,00 L [60 cu.in]

Dimensions for Classic motor with exchange



	Without brake	With brake
	28 kg [62 lb]	34 kg [75 lb]
	1,05 L [63 cu.in]	1,05 L [63 cu.in]

	C	T 0 3	F 0 3
B	62,5 [2,46]	62,5 [2,46]	
C	Ø170 [6,69 dia.]	Ø170 [6,69 dia.]	
D	25,5 [1,00]	25,5 [1,00]	
E	80,0 [3,15]	80,0 [3,15]	

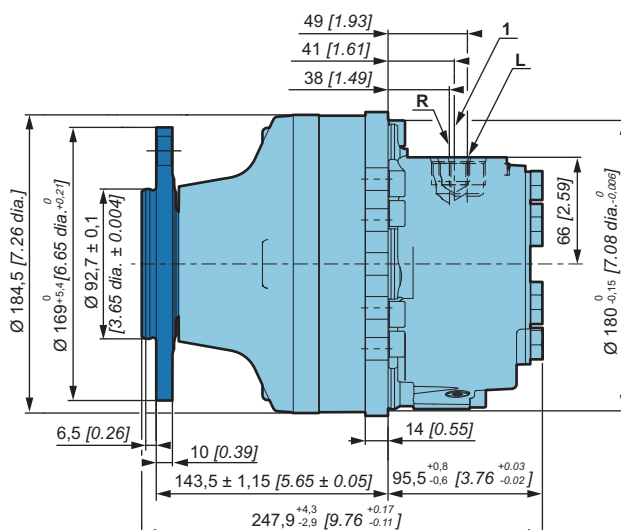
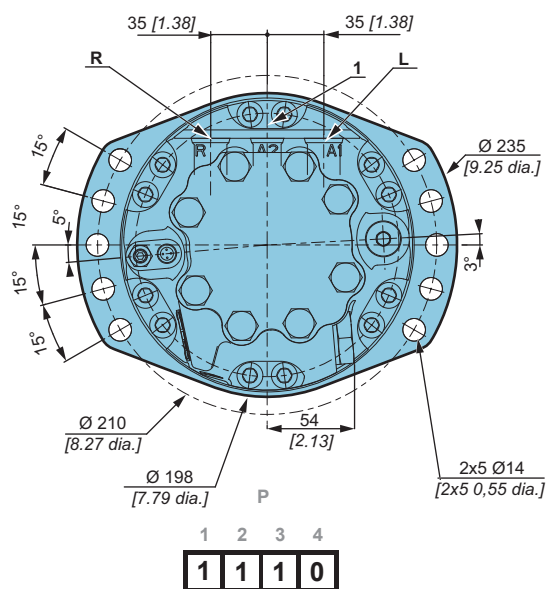


Also see "Brake" section
(thumbnail opposite).



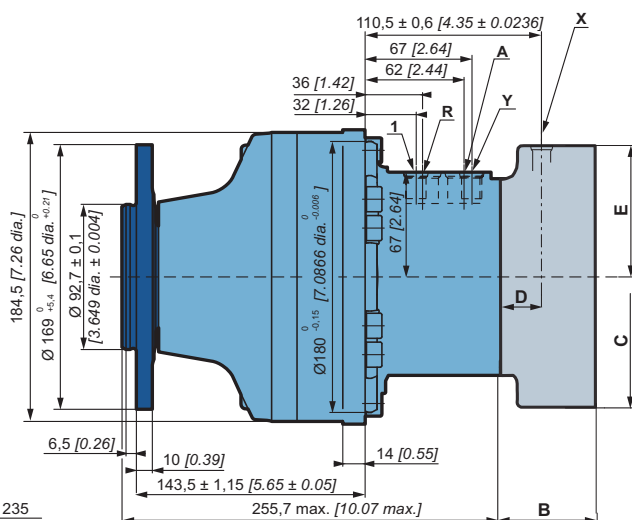
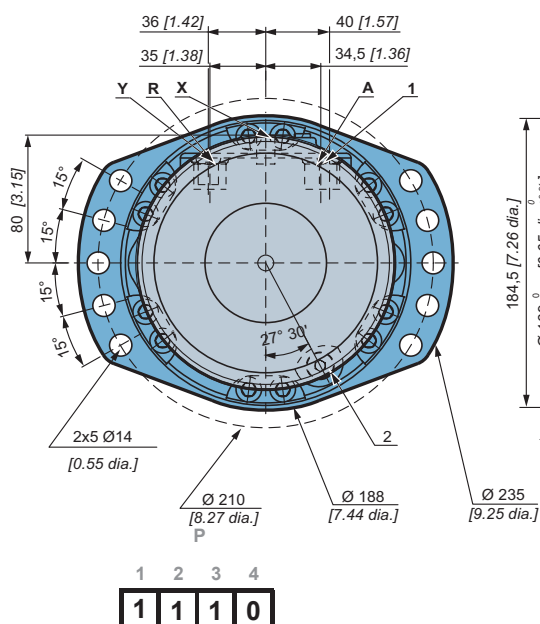
WHEEL MOTOR HIGHFLOW™

Dimensions for HighFlow™ (1110) 1-displacement motor



	Without brake	With brake
	26 kg [57 lb]	32 kg [70 lb]
	0,80 L [48 cu.in]	0,70 L [42 cu.in]

Dimensions for HighFlow™ (1110) 2-displacements motor



	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	F 0 3
B	62,5 [2,46]	62,5 [2,46]	
C	Ø170 [6,69 dia.]	Ø170 [6,69 dia.]	
D	25,5 [1,00]	25,5 [1,00]	
E	80,0 [3,15]	80,0 [3,15]	



Also see "Brake" section (thumbnail opposite).



Support types

	C	D	F	P	S				
MS02	1	1 2 3	1 2 3	1 2 3 4	1 2 3 4 5 6				
MSE02					Y				
	A mm [in]	B mm [in]	C mm [in]	D mm [in]	E mm [in]	N mm [in]	Wheel rim mountings	L mm [in]	
1 1 1 0 1 2 3 4 P	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]	
1 7 1 0 1 2 3 4 P	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]	
1 2 4 0 1 2 3 4 P	- -	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]	
1 G 1 0 1 2 3 4 P	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]	
1 H 3 1 J 3 1 2 3 4 P	- -	Ø 160 [6,30 dia.]	Ø 221 [8,70 dia.]	193 [7,60]			5 x M16x1.5	30,5 [1,20]	
1 K 3 1 L 3 1 2 3 4 P	Ø 92,7 [3,65 dia.]	Ø 140 [5,51 dia.]	Ø 221 [8,70 dia.]	193 [7,60]			5 x M14x1.5	25,5 [1,00]	
	Also see "Brake" section (thumbnail opposite).								
1 V 3 1 2 3 4 P	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]	

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.



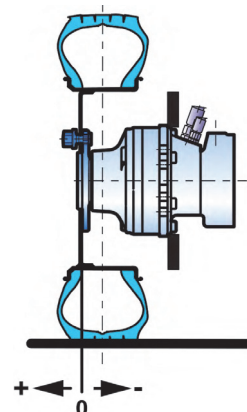
See generic installation motors N°801478197L.



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 your Poclain Hydraulics application engineer.



Modularity

Model code

Wheel motors

Shaft motors

Hydrobases

Valving systems

Brake

Installation

Options

Permissible radial loads

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

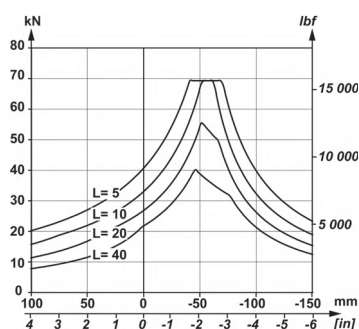
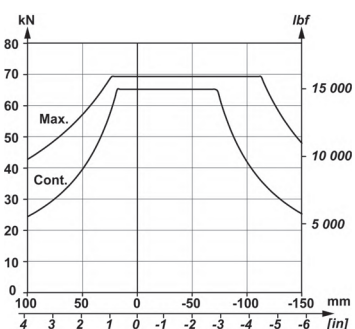
Continuous permissible loads: > 0 tr/min [> 0 RPM]; 275 bar [3 988 PSI].

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.

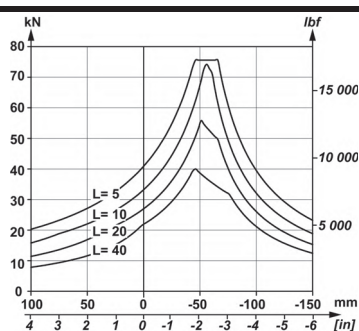
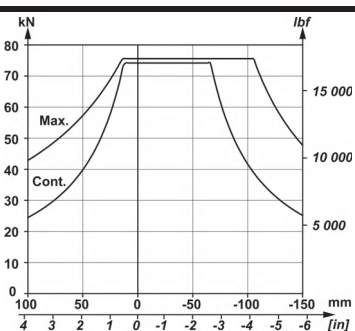
Service life of bearings

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

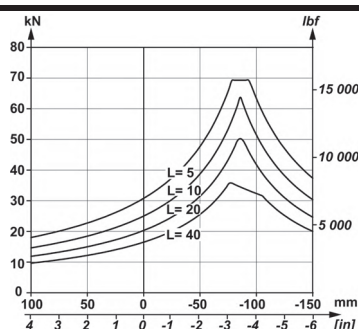
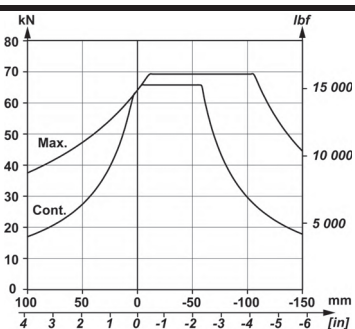
P			
1	2	3	4
1	1	1	0
1	7	1	0



P			
1	2	3	4
1	2	4	0



P			
1	2	3	4
1	G	1	
1	H	3	
1	J	3	
1	K	3	
1	L	3	
1	V	3	

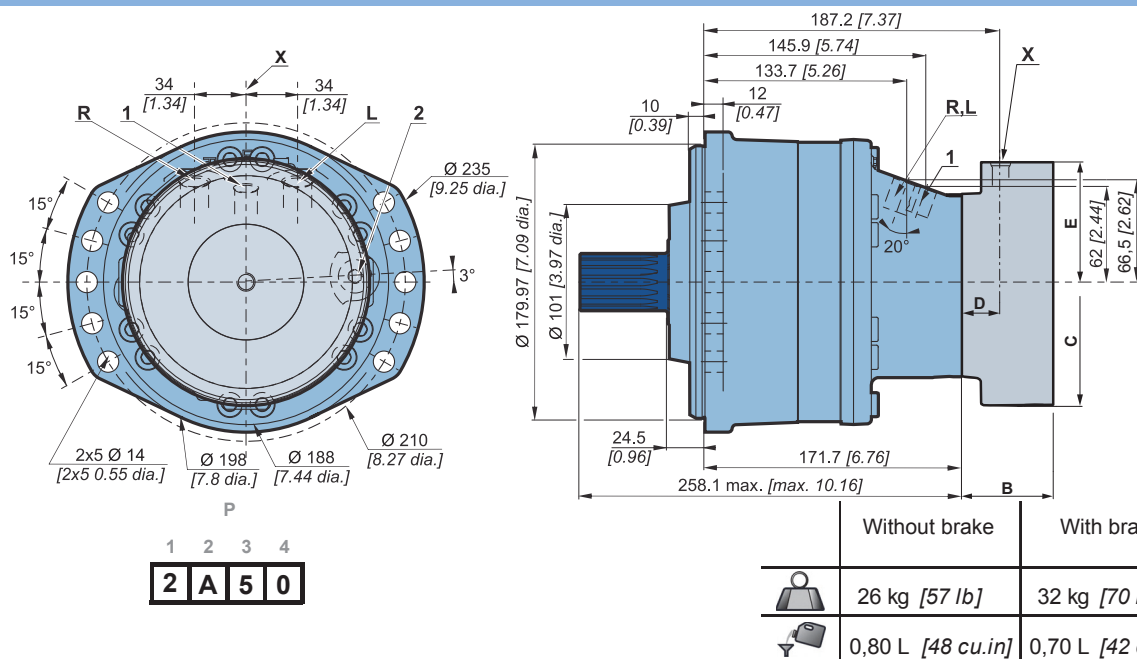




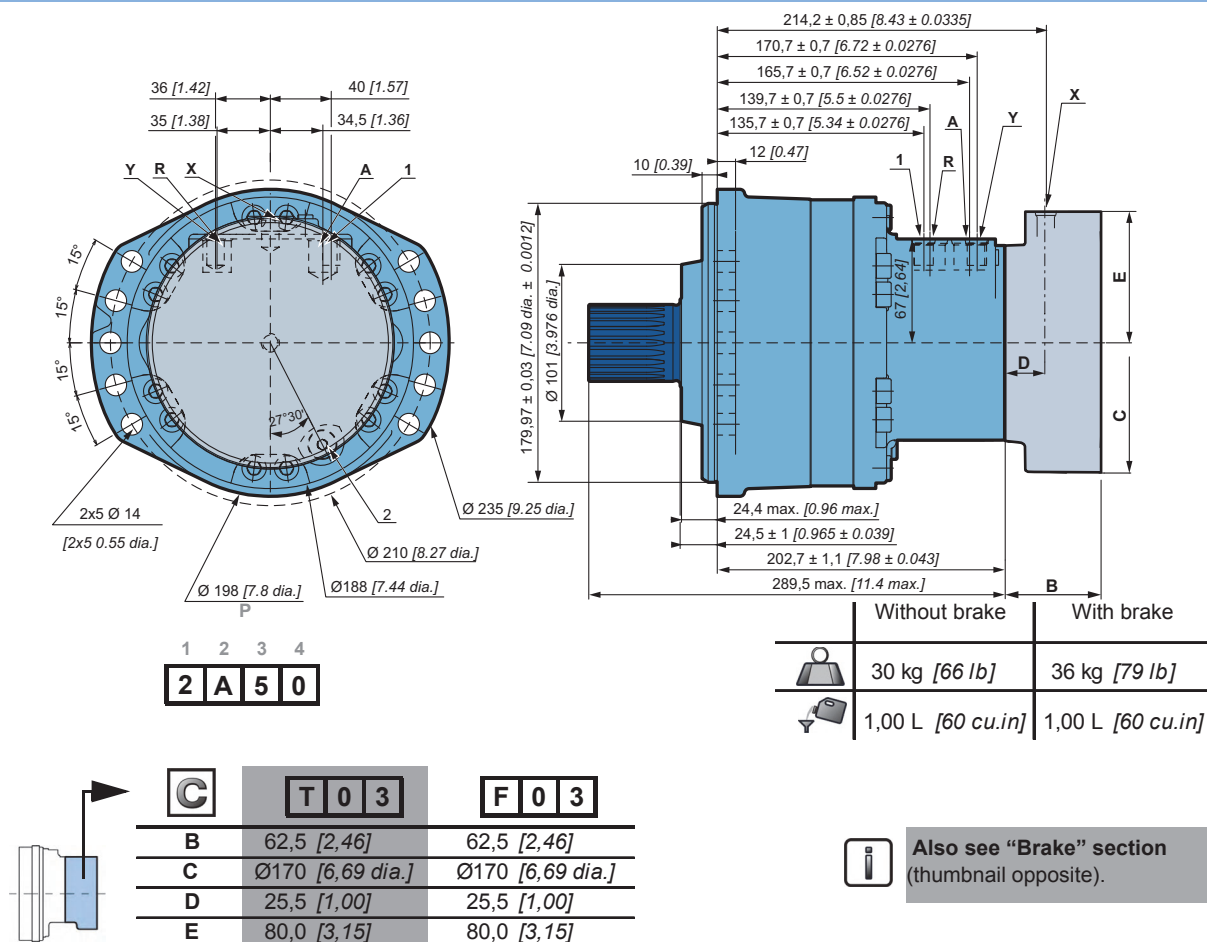


SHAFT MOTOR CLASSIC

Dimensions for Classic 1-displacement motor

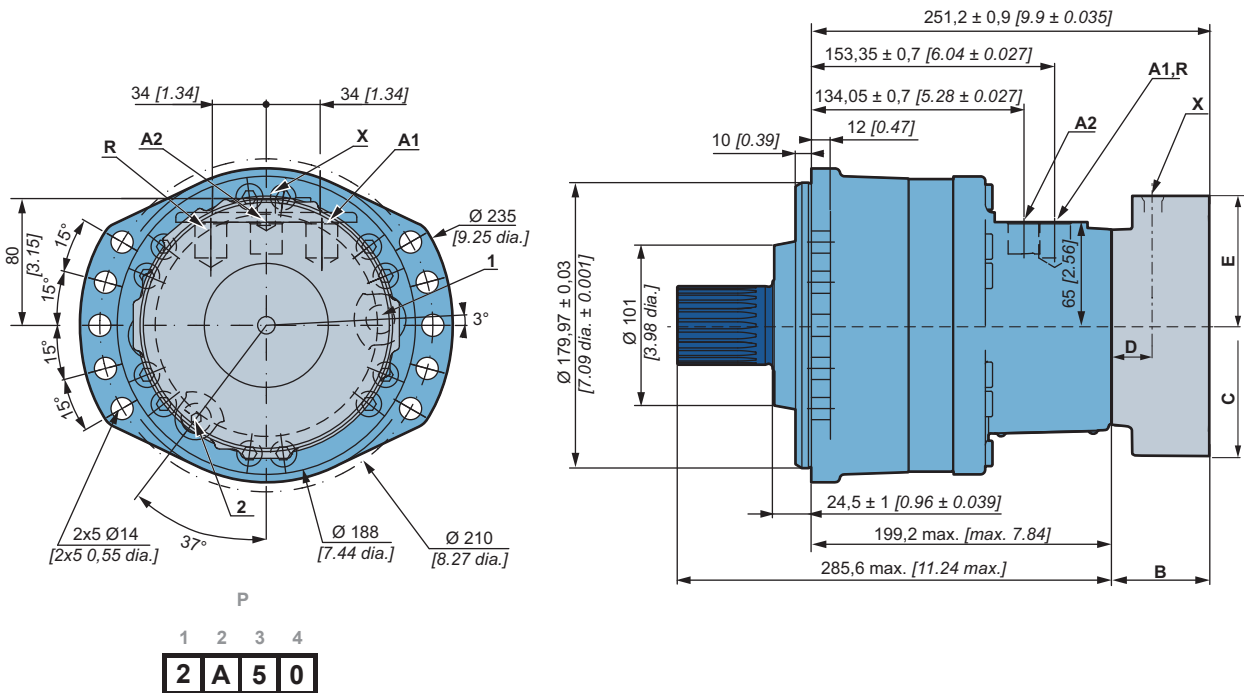


Dimensions for Classic 2-displacements motor

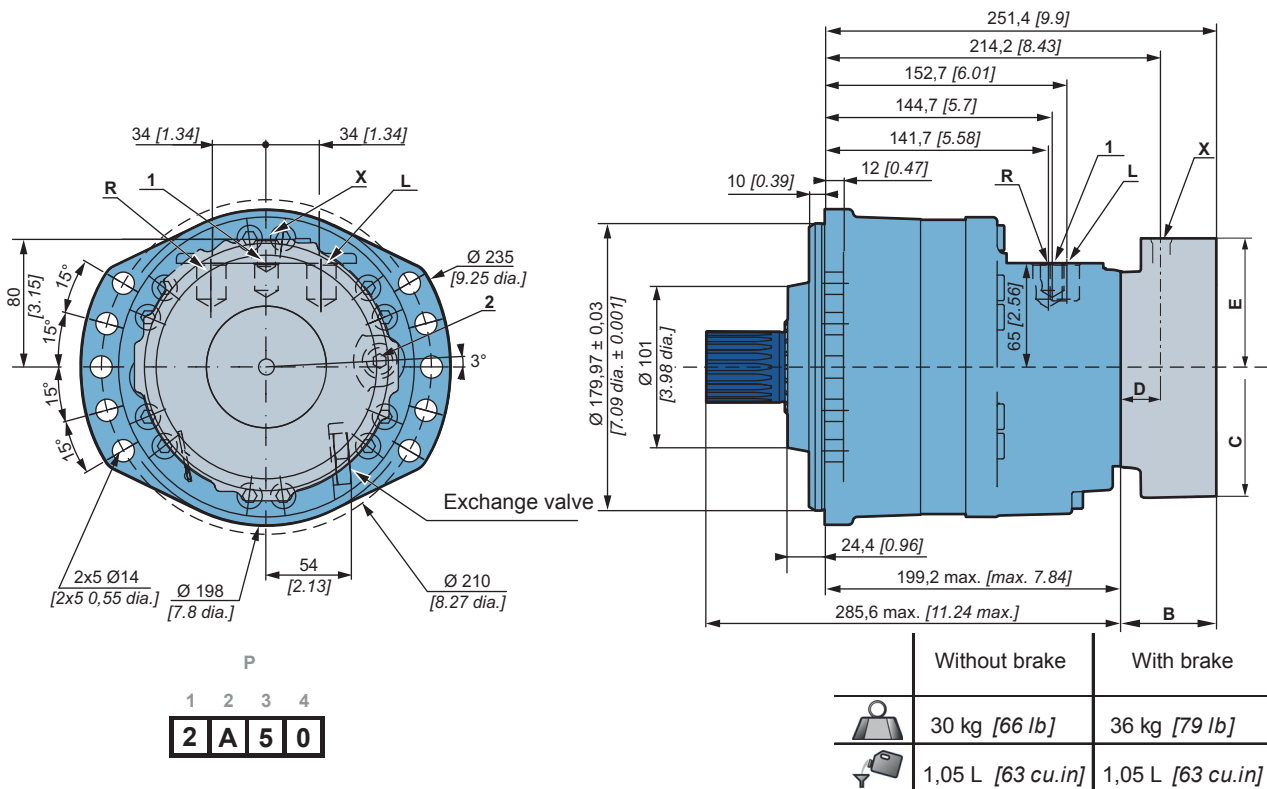




Dimensions for Classic Twin-Lock™ motor



Dimensions for Classic motor with exchange



C	T 0 3	F 0 3
B	62,5 [2,46]	62,5 [2,46]
C	Ø170 [6,69 dia.]	Ø170 [6,69 dia.]
D	25,5 [1,00]	25,5 [1,00]
E	80,0 [3,15]	80,0 [3,15]

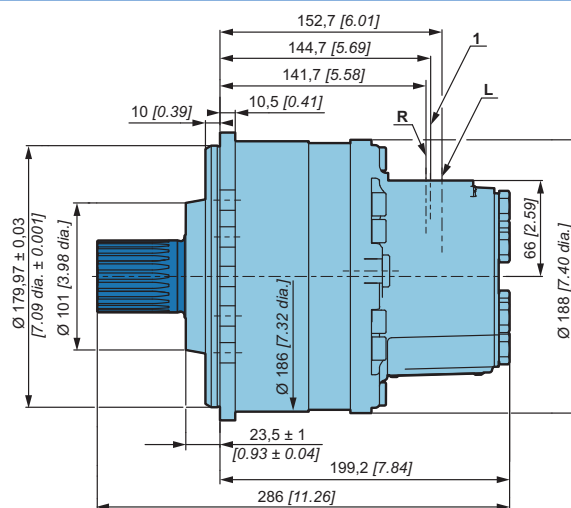
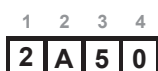
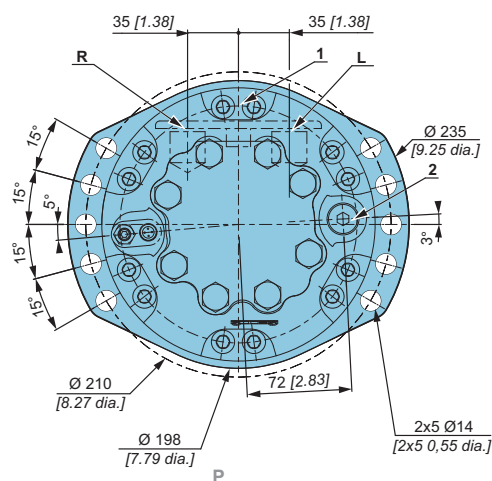


Also see "Brake" section
(thumbnail opposite).



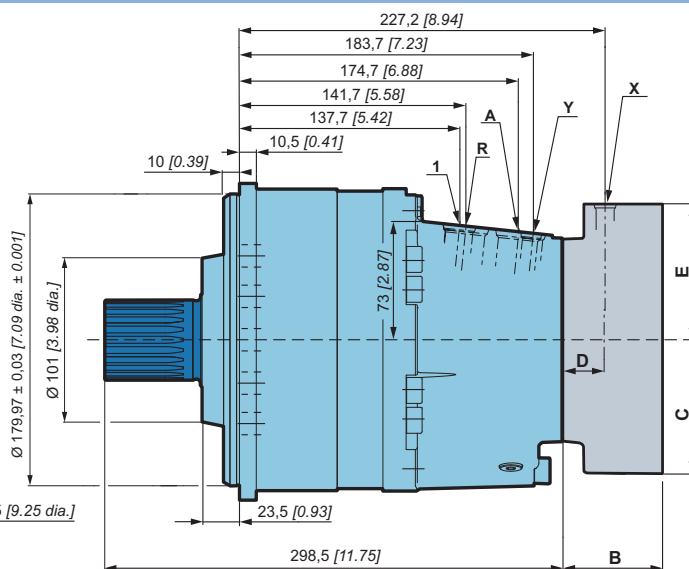
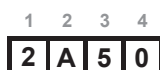
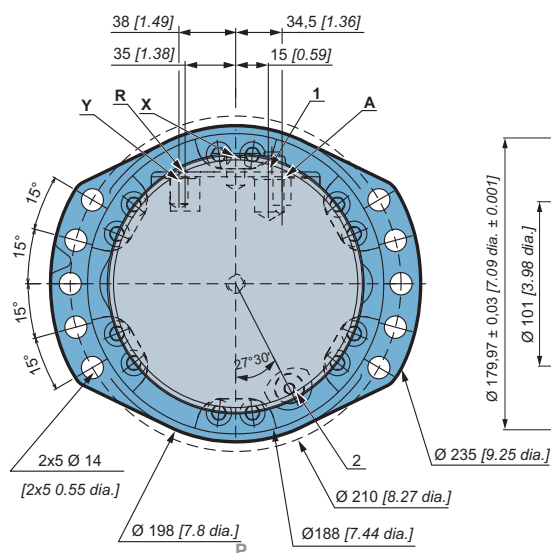
SHAFT MOTOR HIGHFLOW™

Dimensions for HighFlow™ 1-displacement motor

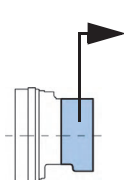


	Without brake	With brake
	26 kg [57 lb]	32 kg [70 lb]
	0,80 L [48 cu.in]	0,70 L [42 cu.in]

Dimensions for HighFlow™ 2-displacements motor



	Without brake	With brake
	30 kg [66 lb]	36 kg [79 lb]
	1,00 L [60 cu.in]	1,00 L [60 cu.in]



C	T 0 3	F 0 3
B	62,5 [2,46]	62,5 [2,46]
C	Ø170 [6,69 dia.]	Ø170 [6,69 dia.]
D	25,5 [1,00]	25,5 [1,00]
E	80,0 [3,15]	80,0 [3,15]

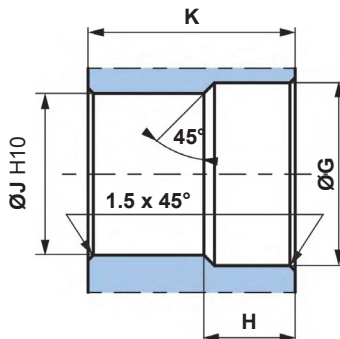
Also see “Brake” section
(thumbnail opposite).



Support types

				C	D	F	P	S		
				1	1 2 3	1 2 3	1 2 3 4	1 2 3 4 5 6		
MS02								Y		
MSE02										
				A	B	mm	mm	mm	mm	
				mm [in]	mm [in]	[in]	[in]	[in]	[in]	
NF E22-141 splines										
2 A 1 0				15	R 2	23,8	2 x	19	49	
				[0,59]	[R 0,08]	[0,94]	M10	[0,75]	[1,93]	
DIN 5480 splines										
2 A 5 0				15	R 2,5	23,8	2 x	22	60	
				[0,59]	[R 0,10]	[0,94]	M10	[0,87]	[2,36]	
ANSI B29-1 or ISO 606 pinion										
2 A C 0				Ø126,5	Ø 84	51,6	14,6	99,5	-	
				[4,98 dia.]	[3,31 dia.]	[2,03]	[0,57]	[3,92]	-	

Splined coupling



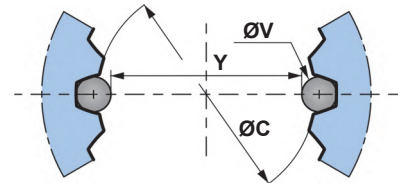
Standard NF E22-141

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.



				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]
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]
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.

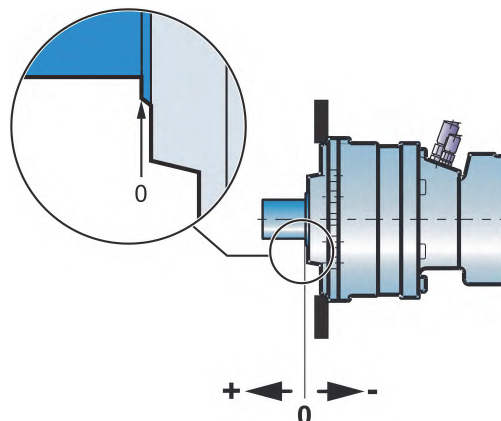
Hardening treatment to obtain $R = 800$ to 900 N/mm² [$R = 116\ 030$ to $130\ 533$ PSI].



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 your Poclain Hydraulics application engineer.



Permissible radial loads

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

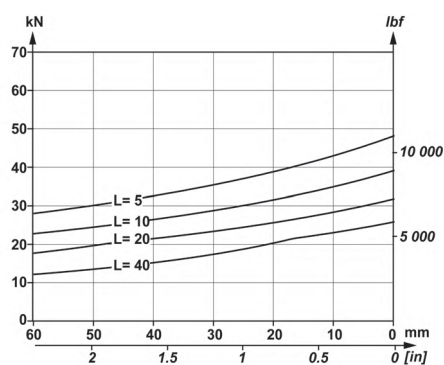
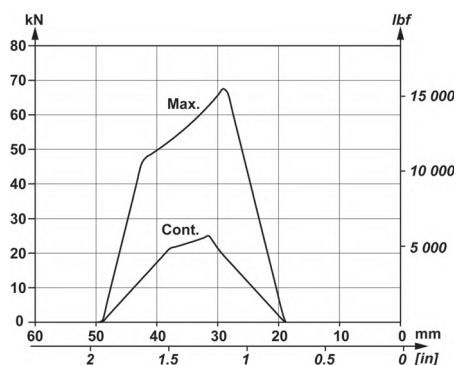
Continuous permissible loads: > 0 tr/min [> 0 RPM]; 275 bar [3 988 PSI].

Service life of bearings

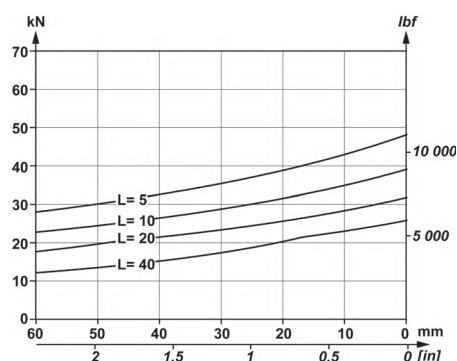
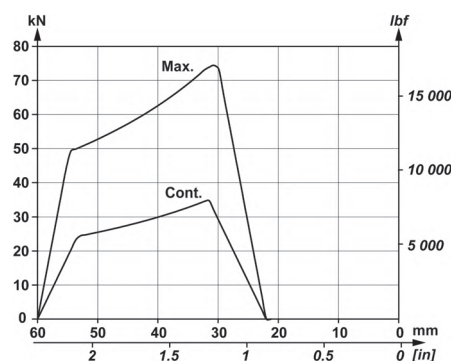
L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid.

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

2 A 1 0
1 2 3 4
P



2 A 5 0
1 2 3 4
P



Modularity

Model code

Wheel motors

Shaft motors

Hydrobases

Valving systems

Brake

Installation

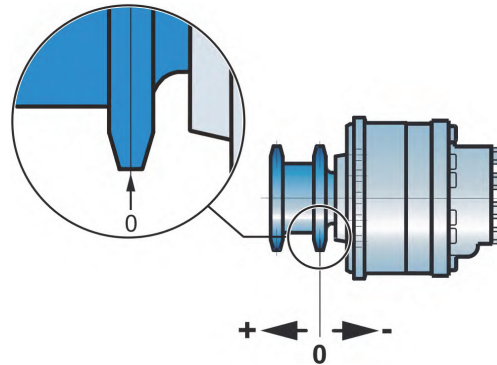
Options



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 your Poclain Hydraulics application engineer.



Permissible radial loads

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

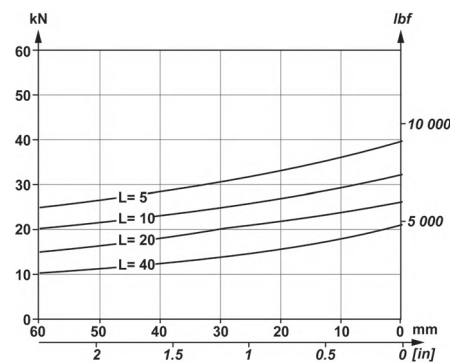
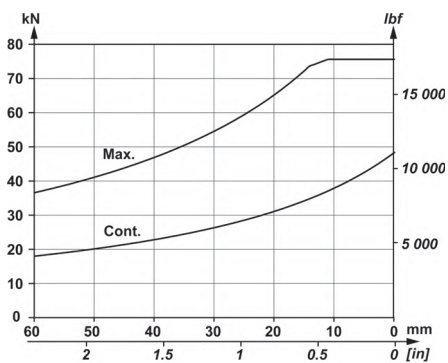
Continuous permissible loads: > 0 tr/min [> 0 RPM]; 275 bar [3 988 PSI].

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.

2 A C 0
1 2 3 4
P

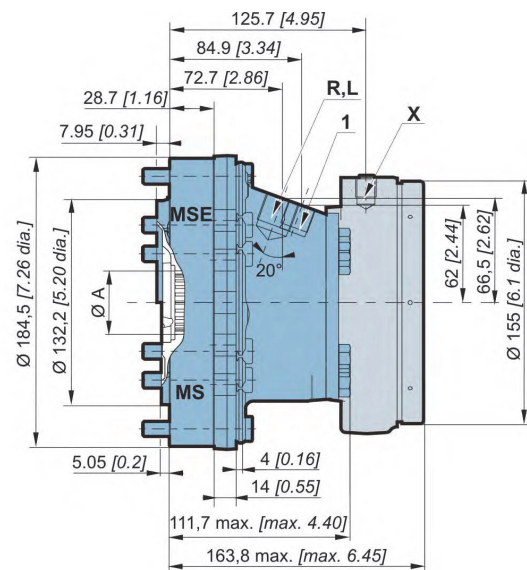
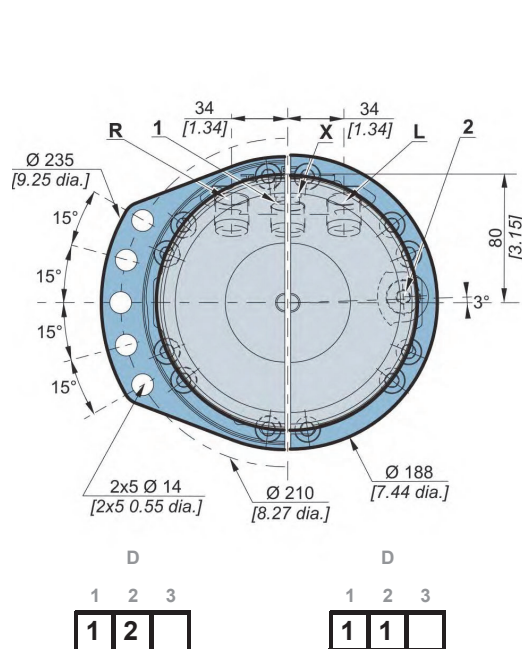




HYDROBASES

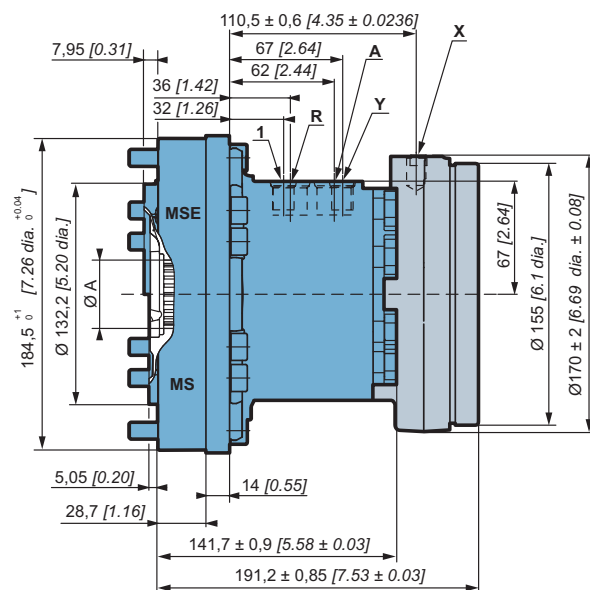
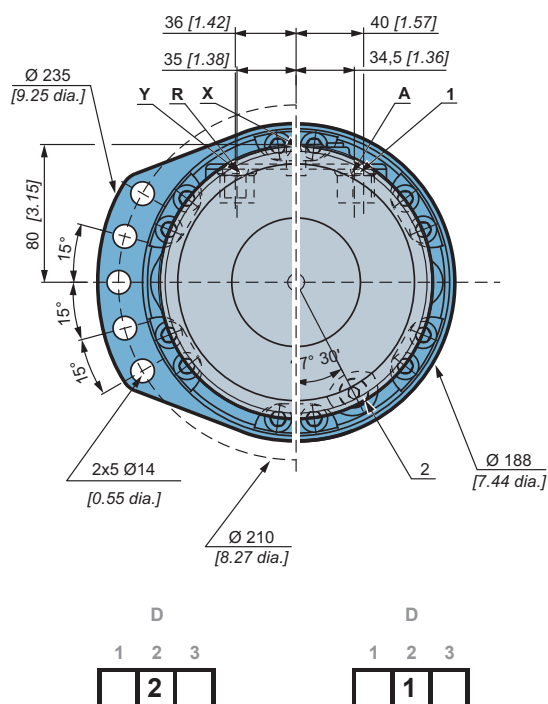
for Classic motor on demand for HighFlow™ motor

Dimensions for 1-displacement hydrobase



	Without brake	With brake
	13,8 kg [30 lb]	19,9 kg [44 lb]
	0,35 L [21 cu.in.]	0,45 L [27 cu.in.]

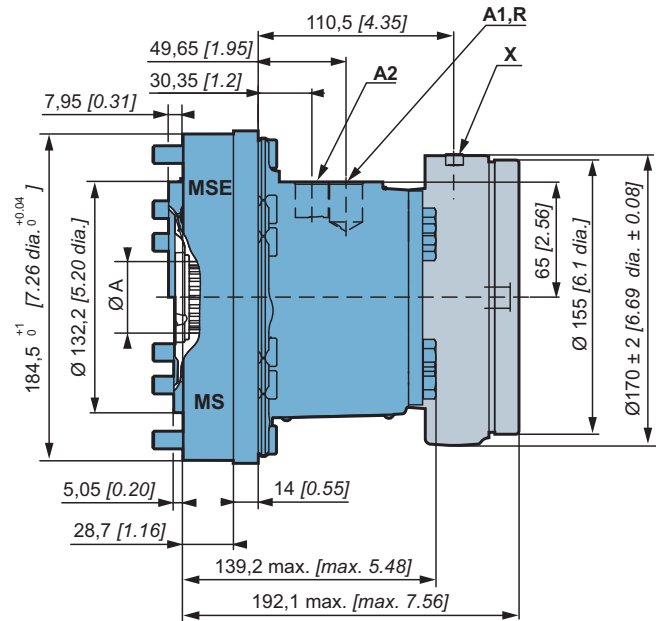
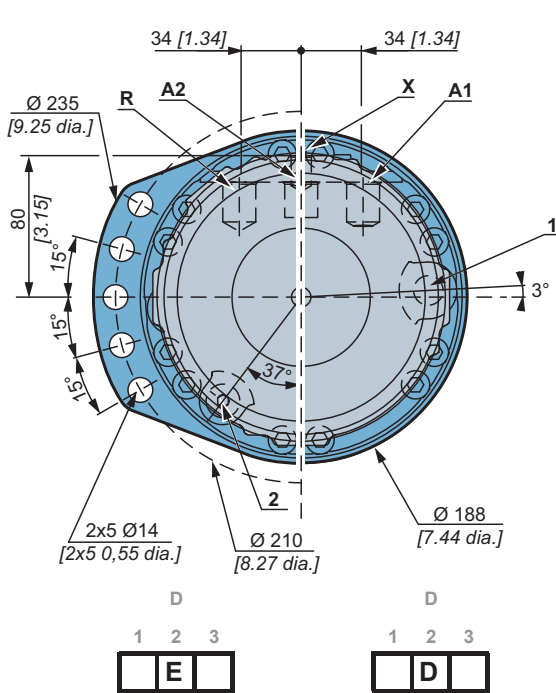
Dimensions for 2-displacements hydrobase



	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]

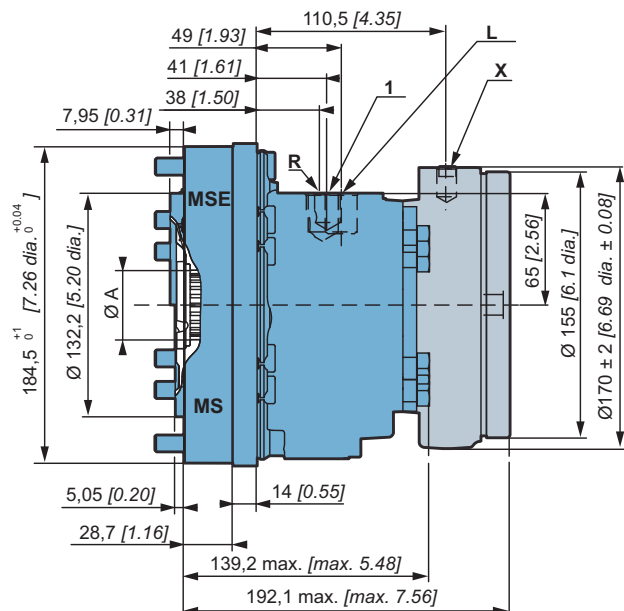
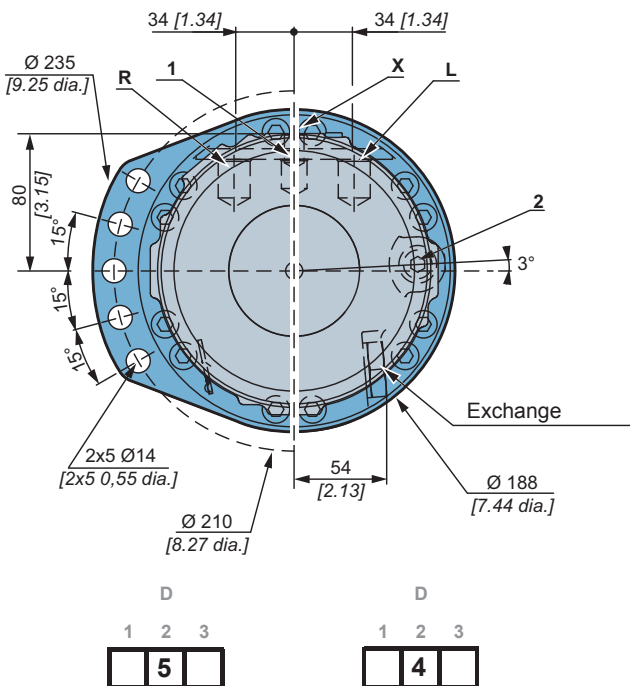


Dimensions for Twin-Lock™ hydrobase



	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



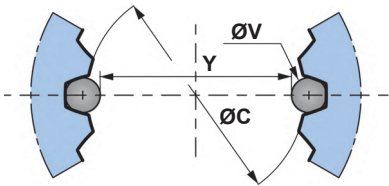
	Without brake	With brake
	19 kg [42 lb]	25,1 kg [55 lb]
	0,40 L [24 cu.in]	0,50 L [30 cu.in]



Cylinder block splines

(as per standard NF E22-141)

ØA	Module	z	Dimension on 2 pins		ØC
			Y	ØV	
40 [1,575]	1,667	22	33,446 [1,317]	3,33 [0,131]	36,72 [1,446]



You are advised to have the installation validated by your Poclain Hydraulics 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 Poclain Hydraulics sales engineer.

Modularity

Model code

Wheel motors

Shaft motors

Hydrobases

Valving systems

Brake

Installation

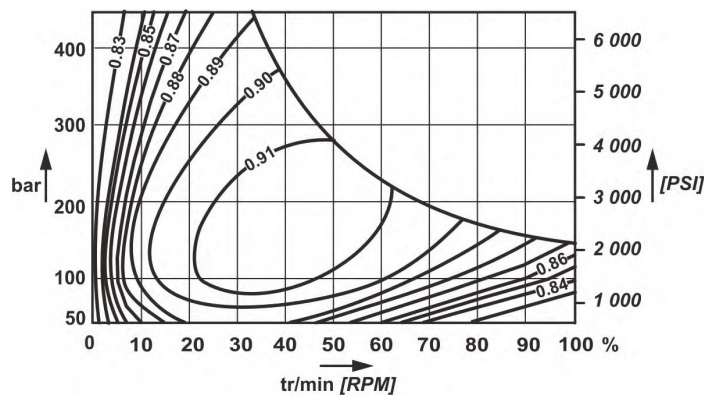
Options



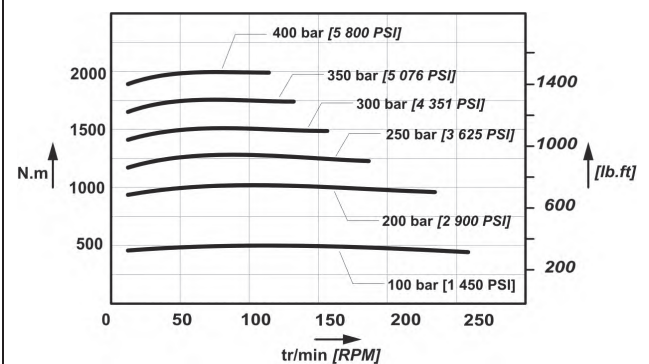
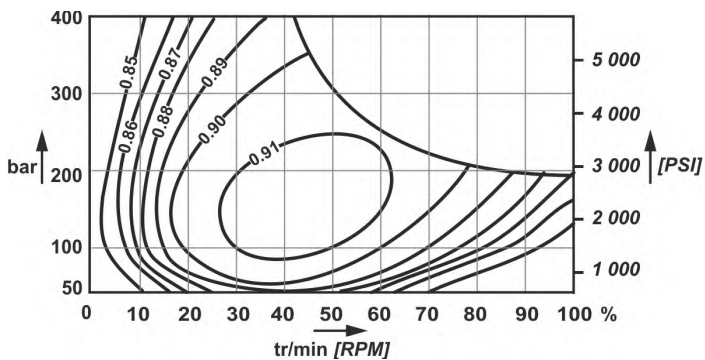
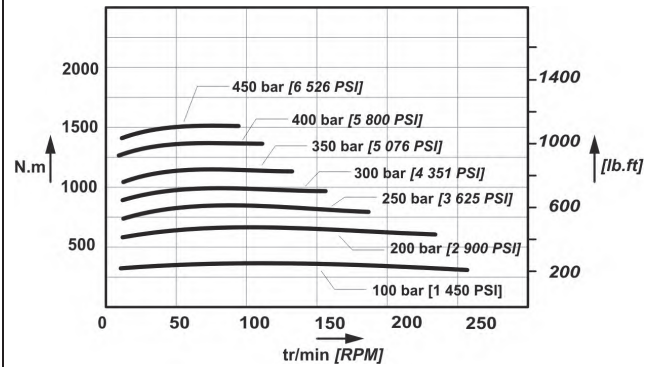
Efficiency and output torque

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

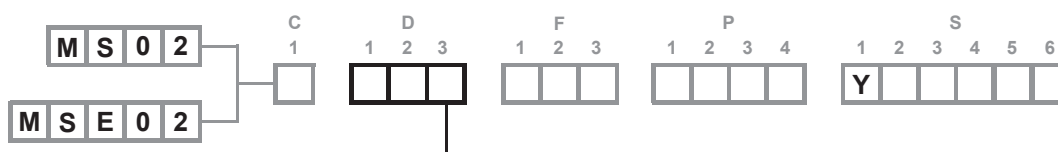
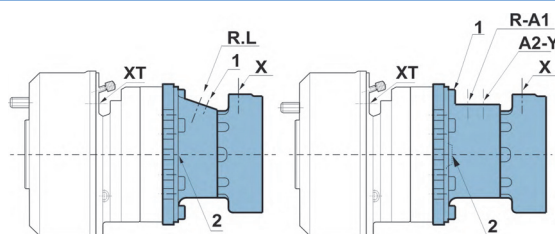


For a precise calculation, consult your Poclain Hydraulics application engineer.



VALVING SYSTEMS

Hydraulic connections



		Standards	Power supply	Case drain	2 nd displacement control	Control of parking brake	Control of drum brake
			R-L	1 - 2		X	XT
	A	UNF (SAE) ISO 11 926-1	7/8-14 UNF	3/4-16 UNF		9/16-18 UNF	
	3	Gaz (BSPP) ISO 1 179-1	G1/2	G3/8		G1/4	
	4	Metric ISO 9 974-1	M22x1.5	M18x1.5		M14x1.5	
	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	
	A	UNF (SAE) ISO 11 926-1	7/8-14 UNF	9/16-18 UNF	9/16-18 UNF	9/16-18 UNF	
	3	Gaz (BSPP) ISO 1 179-1	G1/2	G1/4	G1/4	G1/4	
	4	Metric ISO 9 974-1	M22x1.5	M14x1.5	M14x1.5	M14x1.5	
	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 1/6-12 UNF	3/4-16 UNF	9/16-18 UNF	9/16-18 UNF	
			R-A1-A2	1	2	X	
	A	UNF (SAE) ISO 11 926-1	7/8-14 UNF	0,75 F	0,56 F		9/16-18 UNF
	3	Gaz (BSPP) ISO 1 179-1	G1/2	M18	M14		G1/4
	4	Metric ISO 9 974-1	M22x1.5	G3/4	G1/4		M14x1.5
		ISO 9 974-1					M10x1.0
Max. pressures		MS MSE	bar [PSI]	450 [6 527] 400 [5 802]	2,5 [36]	30 [435]	30 [435]
Instantaneous pressure peaks resistance			bar [PSI]		15 [218]		



To find the connections' tightening torques, see the brochure "Installation guide" N° 801478197L.



You are strongly advised to use the fluids specified in brochure "Installation guide" N° 801478197L.



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.

Modularity

Model code

Wheel motors

Shaft motors

Hydrobases

Valving systems

Brake

Installation

Options



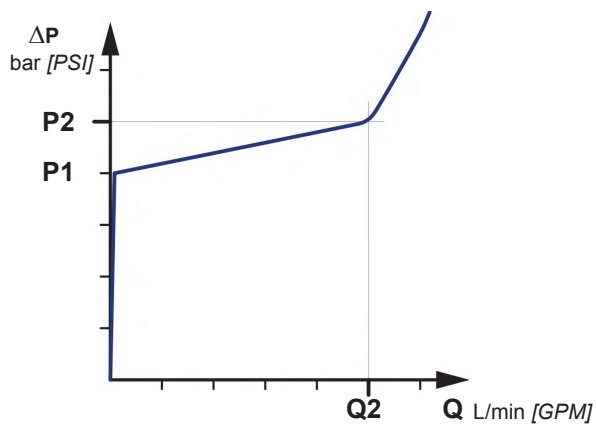
Exchange



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

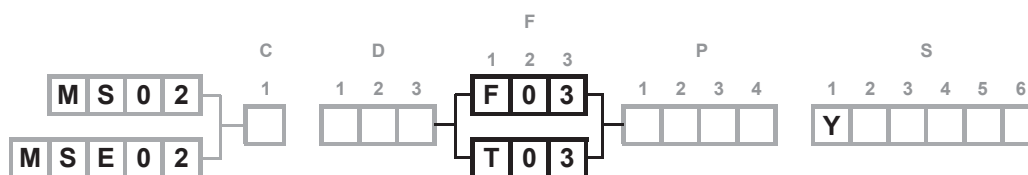
- Fitted valve

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]

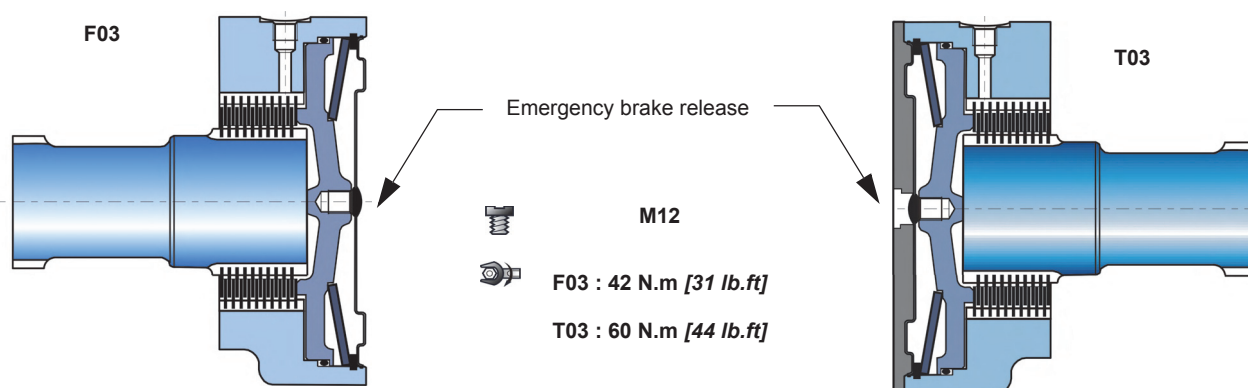




BRAKES



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.

	F 0 3	T 0 3
Parking brake torque at 0 bars on housing (new brake)	2 500 Nm [1 840 lb.ft]	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]	1 625 Nm [1 200 lb.ft]
Residual parking braking at 0 bars on housing *	1 875 Nm [1 380 lb.ft]	1 875 Nm [1 380 lb.ft]
Min. brake release pressure	12 bar [174 PSI]	12 bar [174 PSI]
Max. brake release pressure	30 bar [435 PSI]	30 bar [435 PSI]
Oil capacity	100 cm ³ [6,1 cu.in]	100 cm ³ [6,1 cu.in]
Volume for brake release	16 cm ³ [1,0 cu.in]	16 cm ³ [1,0 cu.in]
Max. energy dissipation	38 179 J	38 179 J

* After emergency brake has been used



Do not run-in the multidisc brakes.

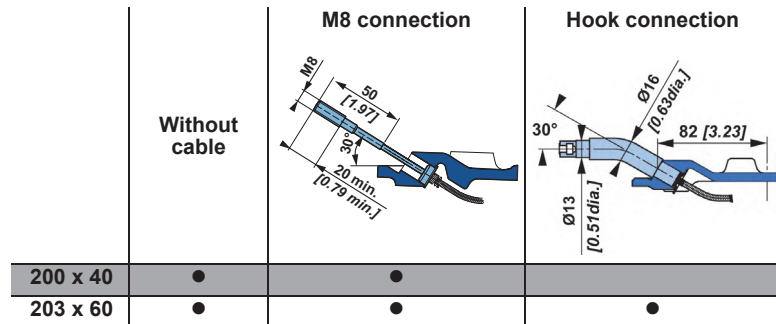
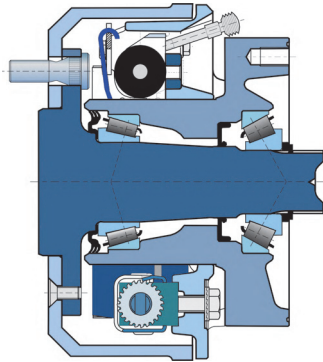
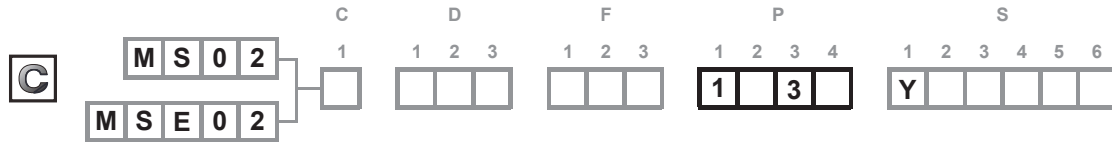


A functional check of the parking brake must be carried out each time it is used as an auxiliary brake (or emergency brake). For all vehicles capable of speeds over 25 km/h, please contact your Poclain Hydraulics

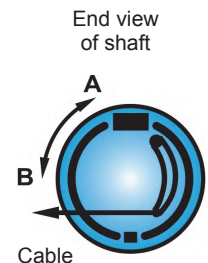
**Drum brake (200 x 40 or 203 x 60)**

Diameter of brake pads : Ø 200 [7.87 dia.] or Ø 203 [7.99 dia.]

Width of friction surface : 40 [1.57] or 60 [2.36]



Brake pads	200 x 40	203 x 60
Asbestos free material	BERAL 1106	BERAL 1117 or JURID 421
Compensation for wear	Automatic	Automatic
Hydraulically controlled dynamic braking		
Max. permissible continuous brake torque	780 N.m [575 lb.ft]	1 650 N.m [1 217 lb.ft]
Pressure to obtain max. permissible continuous brake torque	73 bar [1 059 PSI]	73 bar [1 059 PSI]
Max. permissible brake torque	1 300 N.m [959 lb.ft]	2 750 N.m [2 028 lb.ft]
Pressure to obtain max. permissible brake torque	120 bar [1 740 PSI]	120 bar [1 740 PSI]
Fluid		
Mineral	☐ H Yes	☐ K Yes
DOT 3/DOT4/SAE J1703	☒ J Yes	☒ L Yes
Max. volume required to bring pads into contact	1.2 cm³ [0.07 cu.in]	2.3 cm³ [0.14 cu.in]
Mechanically controlled parking brake		
Max. braking torque	1 300 N.m [959 lb.ft]	2 750 N.m [2 028 lb.ft]
Max permissible force on the cable	780 N [175 lbf]	1 650 N [371 lbf]
Force required to bring pads into contact	20 N [4 lbf]	37 N [8 lbf]
Stroke required to bring pads into contact	A 7.4 mm [0.29 "]	7.0 mm [0.28 "]
	B 8.5 mm [0.33 "]	8.5 mm [0.33 "]
Max. stroke before automatic brake adjustment	A 11.1 mm [0.44 "]	9.5 mm [0.37 "]
	B 12.8 mm [0.50 "]	10.5 mm [0.41 "]



The max. braking torque can only be obtained when the brake has been run in. Consult your Poclain Hydraulics application engineer.

Control

The drum brakes can be controlled hydraulically (service brake) and by a cable (mechanical control for parking brake).



Do not use hydraulic and mechanical brake controls simultaneously.



See also 'Wheel motor' section (thumbnail opposite).



When making a codification request, you must indicate the following information:

- The material of the brake linings,
- Fill out the technical questionnaire for validation of the brake.



Caliper brake (Ø 302)

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

C

MS02

MSE02

C

D

F

P

S

1

1 2 3

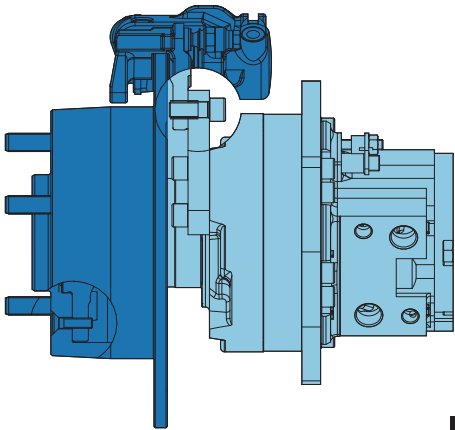
1 2 3

1 2 3 4

1 2 3 4 5 6

1 V 3

Y



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	21 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 your Poclain Hydraulics application engineer.

Modularity

Model code

Wheel motors

Shaft motors

Hydrobases

Valving systems

Brake

Installation

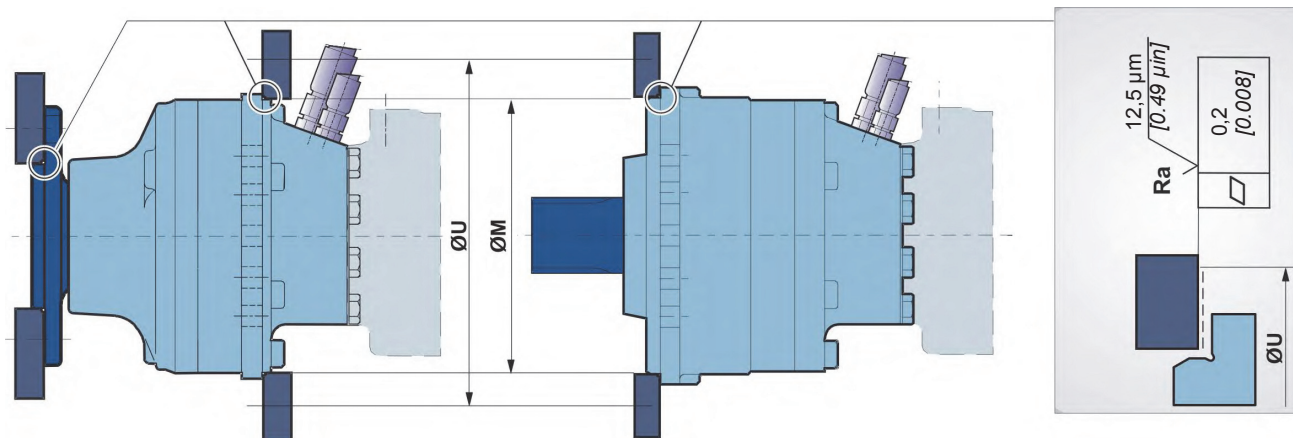
Options





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	10.9	120 N.m [89 lb.ft]
	(1) +0,3 [+0,012] -0,2 [-0,008]	M12 x 1,75	12.9	145 N.m [107 lb.ft]

* : Min. values for torque and load to be transmitted



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



For more information see technical catalogue "Installation guide N° 801478197L.



You are strongly advised to use the fluids specified in brochure "Installation guide" N° 801478197L.



To find the connections' tightening torques, see the brochure "Installation guide" N° 801478197L.

Modularity

Model code

Wheel motors

Shaft motors

Hydrobases

Valving
systems

Brake

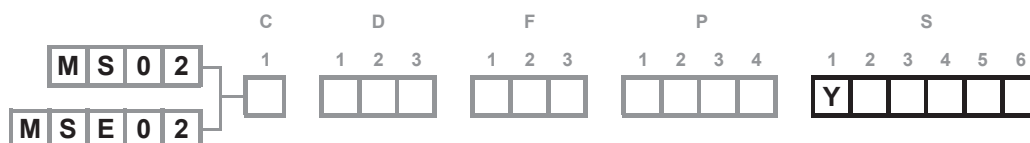
Installation

Options





OPTIONS

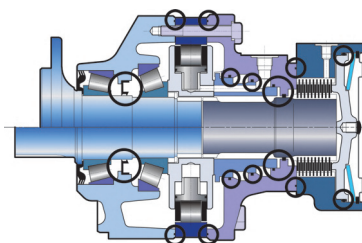


You can accumulate more than one optional part. Consult your Poclain Hydraulics sales engineer.

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.



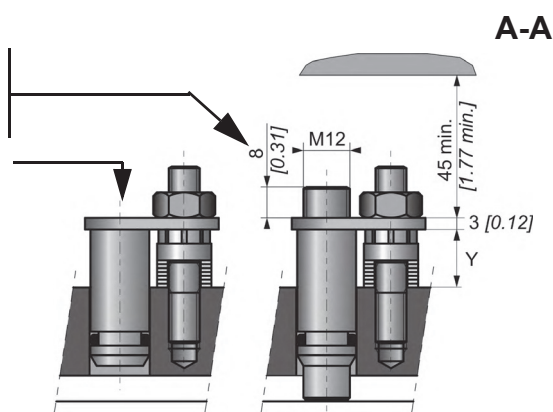
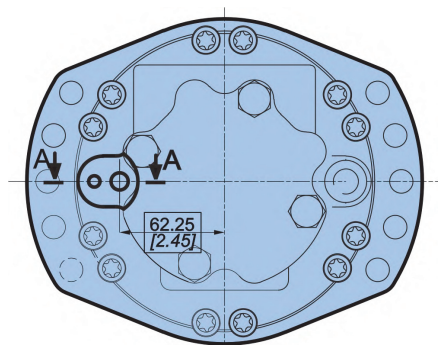
Consult your Poclain Hydraulics sales engineer.

2 S Q 8 Installed speed sensor or predisposition

Designation

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

C



Max. length Y = 21,5 [0.85]

Standard number of pulses per revolution = 40



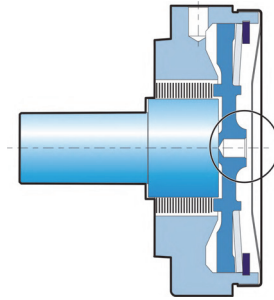
Look at the "Mobile Electronic" N° A01889D technical catalogue for the sensor specifications and its connection.



To install the sensor, see the "Installation guide" brochure No. 801478197L.

**3 Brake environmental cover without plug**

No plug or hole in the cover.

**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.



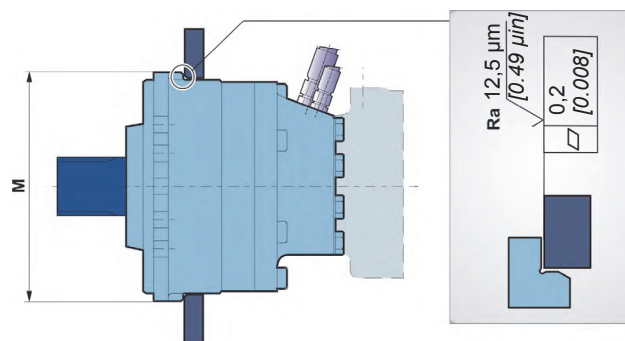
For a precise calculation, consult your Poclain Hydraulics application engineer.

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.

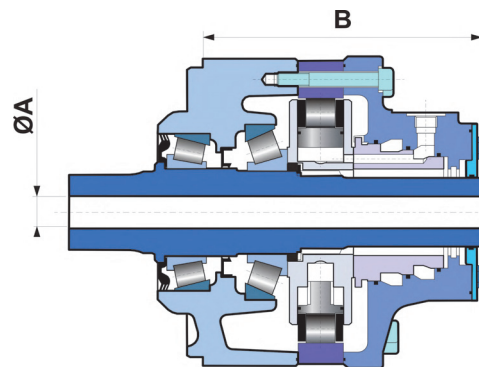


ØM ⁽¹⁾		Class	*
190,30 [7,49]	10 M12 x 1,75	10.9	120 N.m [89 lb.ft]
(1) +0,3 [+0,012] -0,2 [-0,008]		12.9	145 N.m [107 lb.ft]

* : Min. values for torque and load to be transmitted



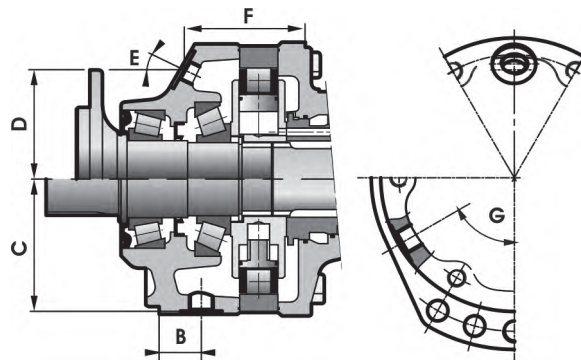
A Hollow shaft



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

B Drain on the bearing support



	GAZ (BSPP)	B mm [in]	C mm [in]	D mm [in]	E	F mm [in]	G
Wheel motor	ISO 1179-1	—	—	73,1±0.5 [2,88±0.019]	25°	76,1±0.9 [3,00±0.035]	-
Shaft motor	G1/4	—	—	—	—	—	—

D Special paint or no paint

The motors are delivered with Poclain Hydraulics yellow ochre primer as standard.



Consult your Poclain Hydraulics application engineer for other colors of primer or topcoat.

Modularity

Model code

Wheel motors

Shaft motors

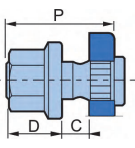
Hydrobases

Valving systems

Brake

Installation

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]		
Screws	M10x1.25					10.9
	M12x1.75					10.9



See generic installation motors N°801478197L.

H High efficiency

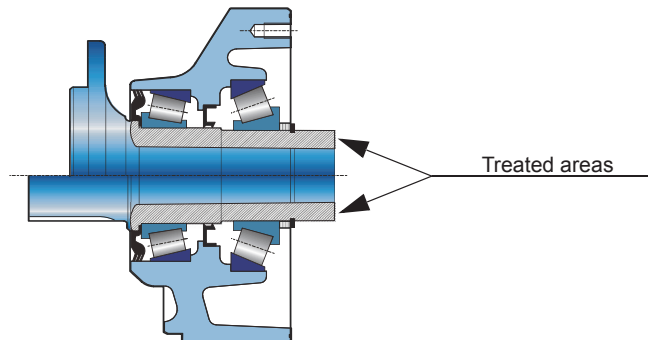
Reinforced piston sealing to improve volumetric efficiency.



For a precise calculation, consult your Poclain Hydraulics application engineer.

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 your Poclain Hydraulics application engineer.

P Customized identification plate

Your part number can be engraved on the plate.



Consult your Poclain Hydraulics application engineer for other possibilities.

Modularity

Model code

Wheel motors

Shaft motors

Hydrobases

Valving
systems

Brake

Installation

Options



Poclain Hydraulics reserves the right to make any modifications it deems necessary to the products described in this document without prior notification. The information contained in this document must be confirmed by Poclain Hydraulics before any order is submitted.

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 07/02/2019

 A36313V

 A36314W

 A36315X

 A36316Z

 A36317A

 A36319C

 Not available

 A36318B

