MS05 - MSE05

HYDRAULIC MOTORS

TECHNICAL CATALOG

POCLAIN Hydraulics

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 characterize by:

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

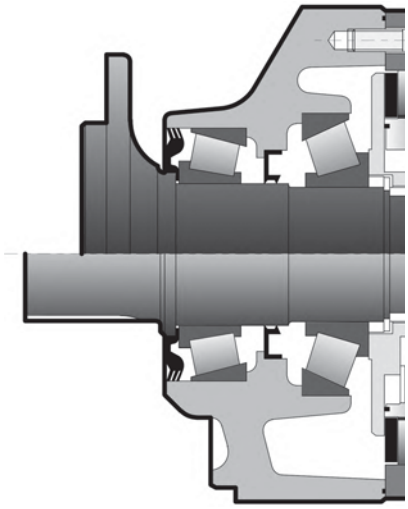
The MS HighFlow™ motor range has all the qualities that have made the MS Classic range such a success: they are modular and robust, offering performance advantages (speed and power) at the same time.

MS HighFlow™ motor range is different by:

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

CONTENT

CHARAC



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

Motor inertia

Noise emissions

MS05-MSE05 HighFlow™

***Max.power**	**1C motor**	**50 kW**
	2C motor, 1st displacement	**50 kW**
	2C motor, 2nd displacement	**30 kW**

				Motor HighFlow™ 1C	Motor HighFlow™ 2C	
				Max. speed*	Max. speed*	
	C	❶ cm³/tr *[cu.in/rev.]*	❷ cm³/tr *[cu.in/rev.]*	❶ tr/min*[RPM]*	❶ tr/min*[RPM]*	❷ tr/min*[RPM]*
Cams with equal lobes MS05	6	260 *[15,9]*	130 *[7,9]*	700	630	630
	8	376 *[22,9]*	188 *[11,5]*	520	455	520
	0	468 *[28,5]*	234 *[14,3]*	420	370	430
	1	515 *[31,4]*	258 *[15,7]*	370	330	400
	2	560 *[34,2]*	280 *[17,1]*	340	300	350
Cams with equal lobes MSE05	8	503 *[30,7]*	252 *[15,4]*	380	330	370
	0	625 *[38,1]*	313 *[19,1]*	300	270	300
	1	688 *[42,0]*	344 *[21,0]*	270	240	270
	2	750 *[45,7]*	375 *[22,9]*	250	220	240

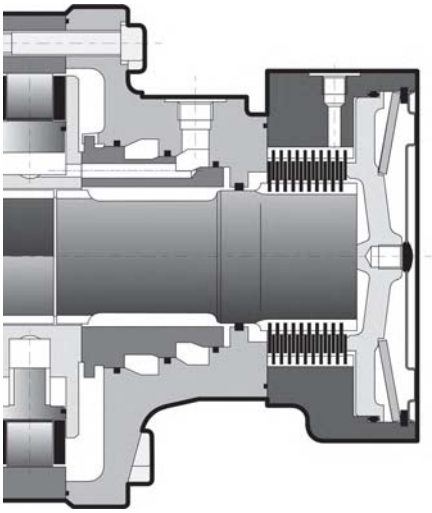
❶ **First displacement**

❷ **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]*

= 0.03 kg.m²

= 60 dBA

MS05-MSE05 Classic

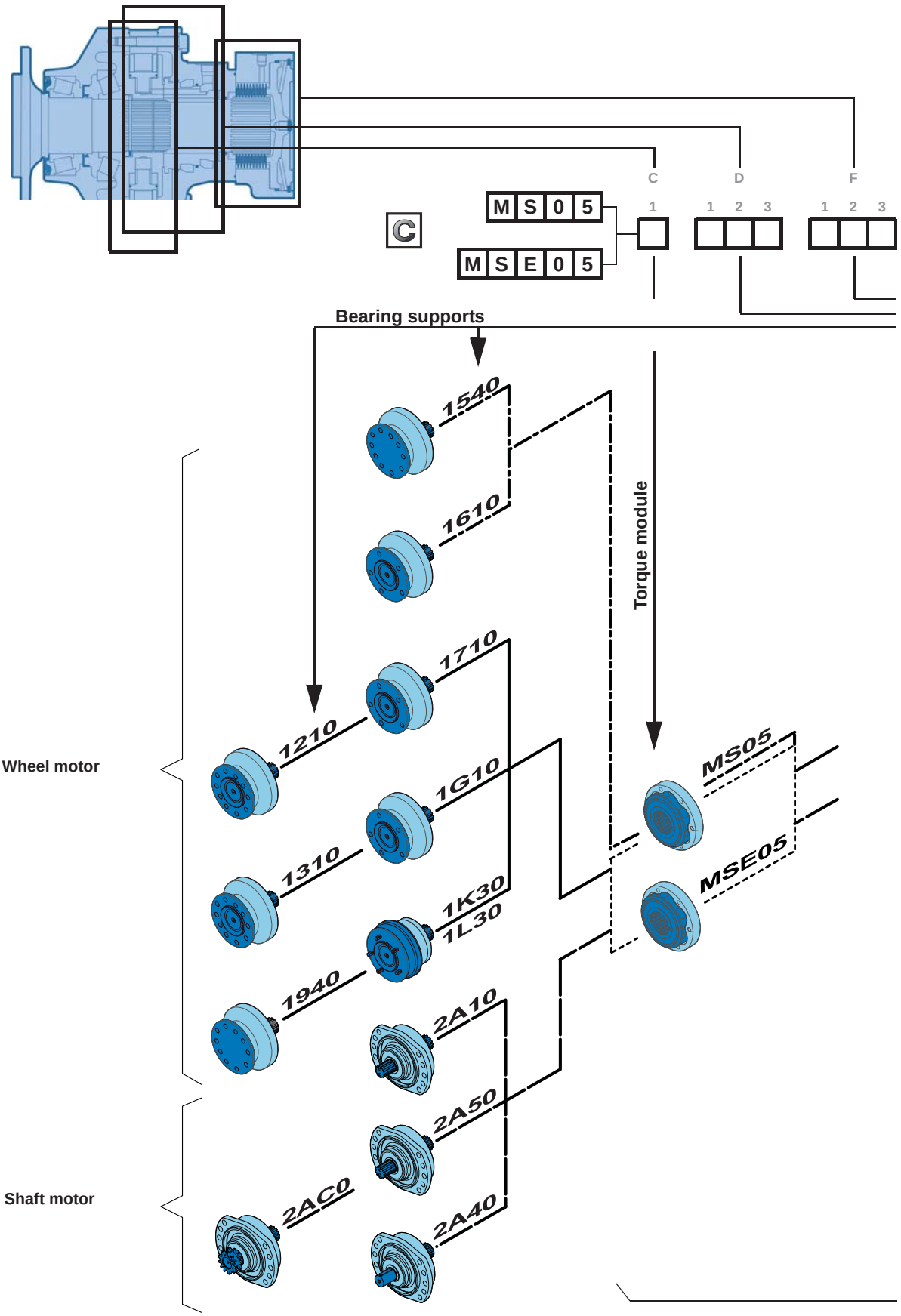
Max.power	1C motor	29 kW
	2C motor preferred	19 kW
	2C motor non-preferred	15 kW

	C	❶ cm³/tr *[cu.in/rev.]*	❷ cm³/tr *[cu.in/rev.]*	Classic motor 1C Max. speed ❶ tr/min*[RPM]*	Classic motor 2C Max. speed ❶ tr/min*[RPM]*	Classic motor 2C Max. speed ❷ tr/min*[RPM]*
Cams with equal lobes MS05	6	260 *[15,9]*	130 *[7,9]*	300	350	360
	8	376 *[22,9]*	188 *[11,5]*	250	310	320
	0	468 *[28,5]*	234 *[14,3]*	210	260	275
	1	515 *[31,4]*	258 *[15,7]*	200	240	250
	2	560 *[34,2]*	280 *[17,1]*	180	220	230
Cams with equal lobes MSE05	8	503 *[30,7]*	252 *[15,4]*	230	250	300
	0	625 *[38,1]*	313 *[19,1]*	190	220	250
	1	688 *[42,0]*	344 *[21,0]*	170	180	210
	2	750 *[45,7]*	375 *[22,9]*	155	160	190

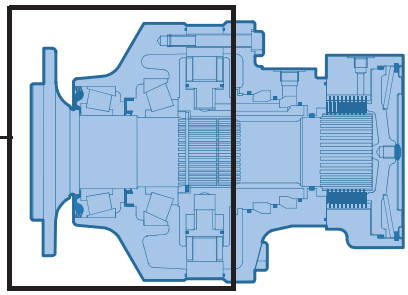
❶ First displacement

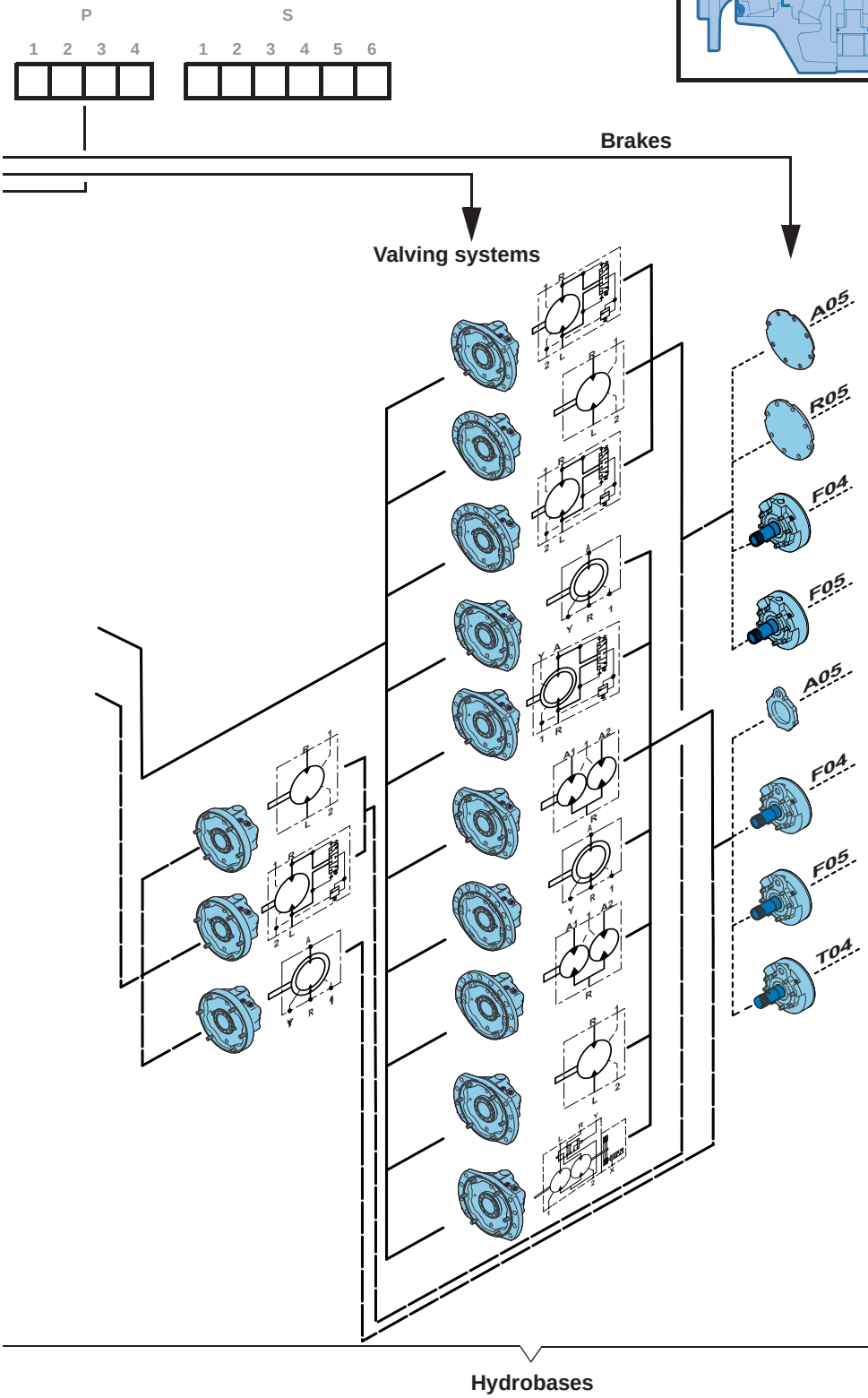
❷ Second displacement

MODUL

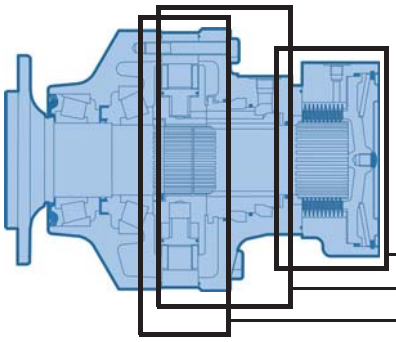

C
M S 0 5
M S E 0 5
C
D
F
1
1 2 3
1 2 3
Bearing supports
Torque module
1540
1610
1710
1210
1G10
1310
1K30
1L30
1940
2A10
2A50
2AC0
2A40
MS05
MSE05
Wheel motor
Shaft motor

ARITY




P
S
1 2 3 4
1 2 3 4 5 6
Brakes
Valving systems
A05
R05
F04
F05
A05
F04
F05
T04
Hydrobases

MODEL



	C	D		F	
	1	1	2	3	1 2 3
MS05	C				
MSE05					

C1

Cam ring type

Cams with equal lobes

	1 displacement	2 displacements	
	cm^3/tr *[cu.in/rev.]*		
MS05	260 *[15.9]*	130 *[7.9]*	6
	376 *[22.9]*	188 *[11.5]*	8
	468 *[28.6]*	234 *[14.3]*	0
	515 *[31.4]*	258 *[15.7]*	1
	560 *[34.2]*	280 *[17.1]*	2
MSE05	503 *[30.7]*	251 *[15.3]*	8
	625 *[38.1]*	313 *[19.1]*	0
	688 *[42.0]*	344 *[21.0]*	1
	750 *[45.7]*	375 *[22.9]*	2

D2

Valving cover

1 Displacement
2 Displacement

Exchange
Twin-Lock™

		1	4	-
Classic motor	Without mounting	2	-	E
	Lug fixing	8	9	G
	Horseshoe fixing	B	L	-
High Flow™ motor	Without mounting	C	N	-
	Lug fixing			

D1

Valving type

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

D3

Connection type

ISO 11926-1 connection	A
ISO 1179-1 connection	3
ISO 9974-1 connection	4
ISO 6149-1 connection	8

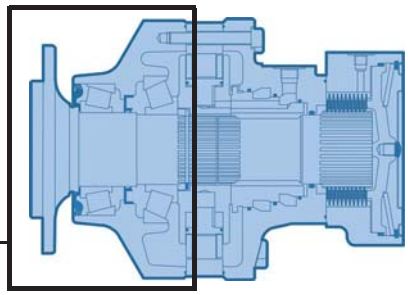
F1-F3

Rear brake

Without brake (simple plate)				A 0 5
Without brake (closed cover)*				M 0 5
Brake	Bearing mounting or valving cover mounting	Parking brake	Clipped environmental cover	F 0 4
				F 0 5
			Screwed enviromental cover**	T 0 4
Without brake (reinforced plate)				R 0 5

* Mandatory for High Flow™ valving withouth brake
**Only with HighFlow™ valving

CODE



P S

1 2 3 4 | 1 2 3 4 5 6

P1

Front unit	
0	Without bearing support
1	Without mounting
2	Lug mounting

P2

Bearing support	
Without shaft	0
10 x Ø18 on Ø140	2
5+3 x Ø18 on Ø140	3
10 x M12 onØ100	5
5 x Ø18 on Ø140	6
6 x Ø20 on Ø205	7
10 x M12 on Ø100	9
Support without drum brake	F
	G
Drum brake (250 x 60)	K
	L
For male shaft bearing support	A

P3

Shaft type	
Without studs	1
With studs + nuts	2
With studs	3
M threaded holes	4

Male shafts

NF E 22141 splines	1
Cylindrical with key	4
DIN 5480 splines	5
Dual sprocket for chain	C

P4

Drum brake (250 x 60)		
Without cable	7	10 x M14 on Ø140
Right-hand cable outlet	8	
Left-hand cable outlet	9	
Without cable	A	6 x M18 on Ø205
Right-hand cable outlet	B	
Left-hand cable outlet	C	

Options	
Without Options or Adaptations	0
Fluorinated elastomer seals	1
T4 speed sensor (without rotation direction)	2
Brake environmental cover without plug	3
Drainage	5
Industrial bearing support	6
Diamond™	7
Predisposition for speed sensor	8
Hollow shaft	A
Drain on the bearing support	B
Abrasive environment	C
Special paint or no paint	D
Reinforced sealing	E
Special wheel rim mounting	G
High efficiency	H
Surface heat treatment of the shaft	J
High speed	M
TD speed sensor (two phase shifted frequencies)	Q
TR speed sensor (digital rotation direction)	S
Soft Shift™	T

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.

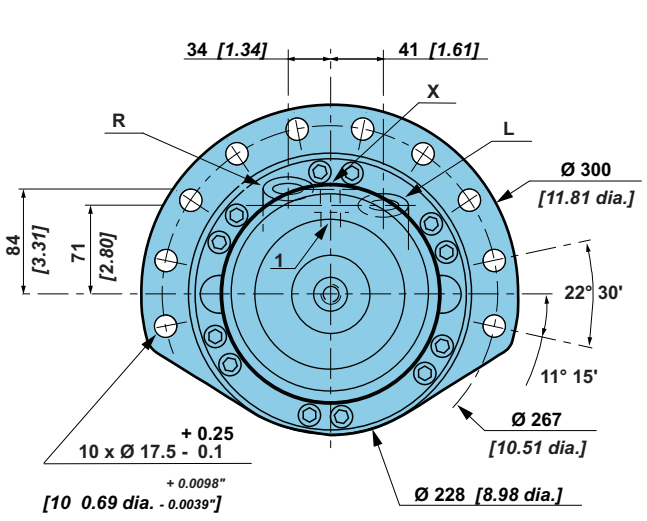
This document also includes essential operating instructions for the product and general information. These are indicated in the following way:

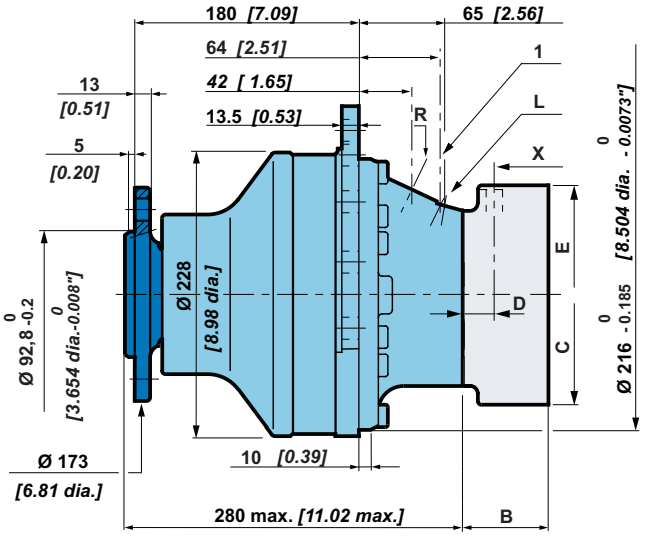
	Essential instructions.
	General information .
	Information on the model number.Information on the model code.
	Weight of component without oil.
	Volume of oil.
	Units.
	Tightening torque.
	Screws.
	Information intended for Poclain-Hydraulics personnel.

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

Dimensions for Classic (1210) 1-displacement motor

	40 kg *[88 lb]*	50 kg *[110 lb]*
	1,00 L *[60 cu.in]*	1,00 L *[60 cu.in]*

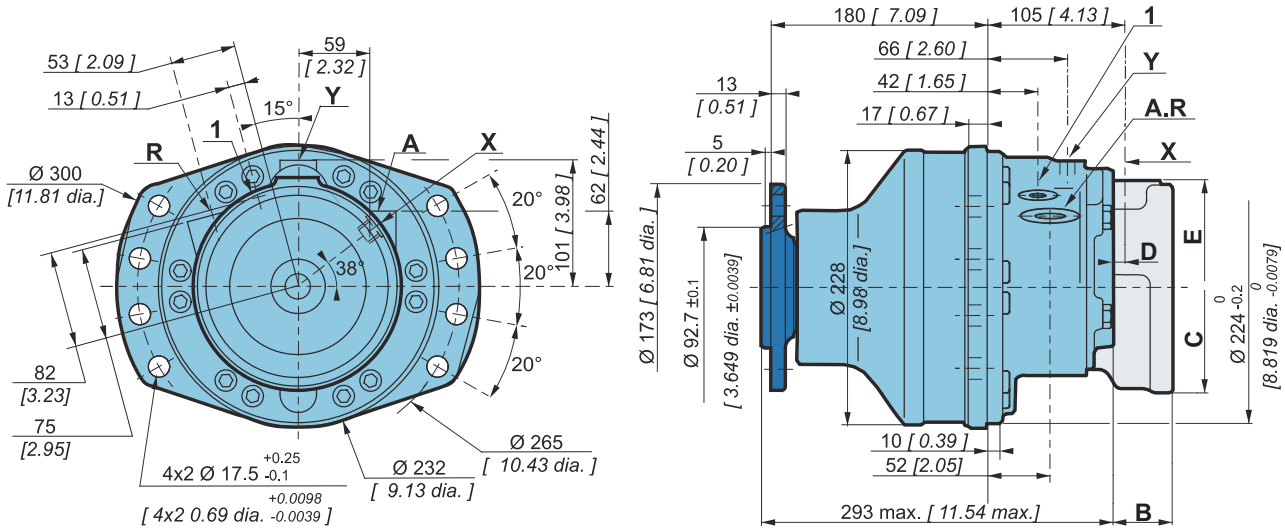




WHEEL MOTOR CLASSIC

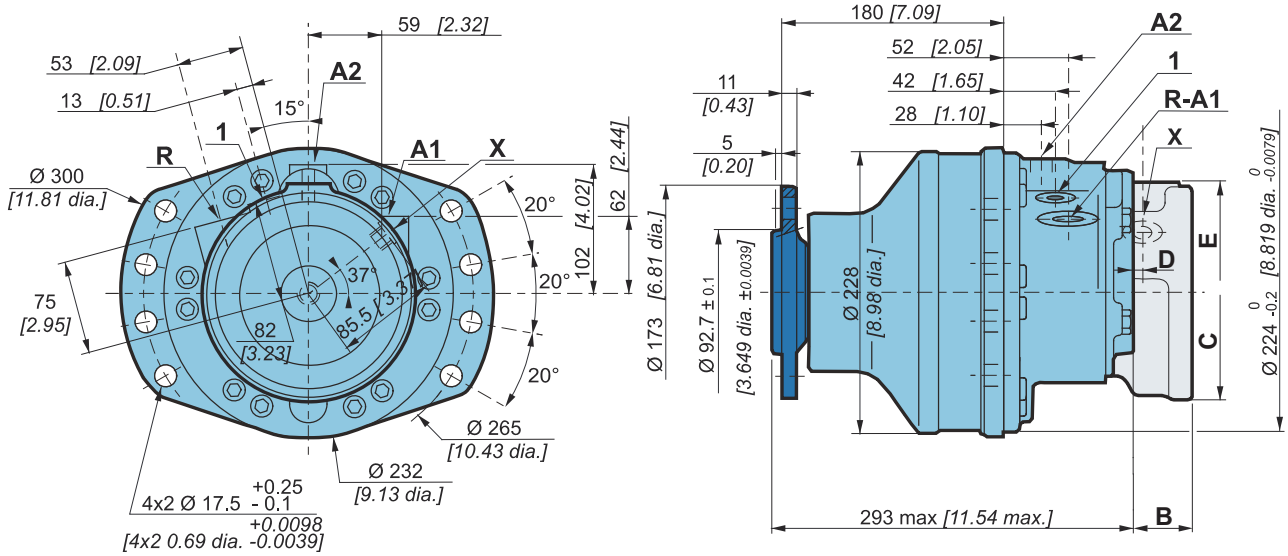
Dimensions for Classic (1210) 2-displacement motor

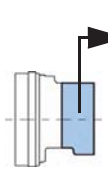
	41 kg *[90 lb]*	52 kg *[114 lb]*
	0,50 L *[30 cu.in]*	0,50 L *[30 cu.in]*



Dimensions for Classic (1210) Twin-Lock™

	41 kg *[90 lb]*	52 kg *[114 lb]*
	0,50 L *[30 cu.in]*	0,50 L *[30 cu.in]*





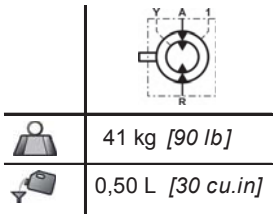
	F04	F05
B	69,1 *[2,72]*	64,0 *[2,52]*
C	Ø216 *[8,50 dia.]*	Ø218 *[8,56 dia.]*
D	23,0 *[0,91]*	23,0 *[0,91]*
E	85,5 *[3,37]*	85,5 *[3,37]*

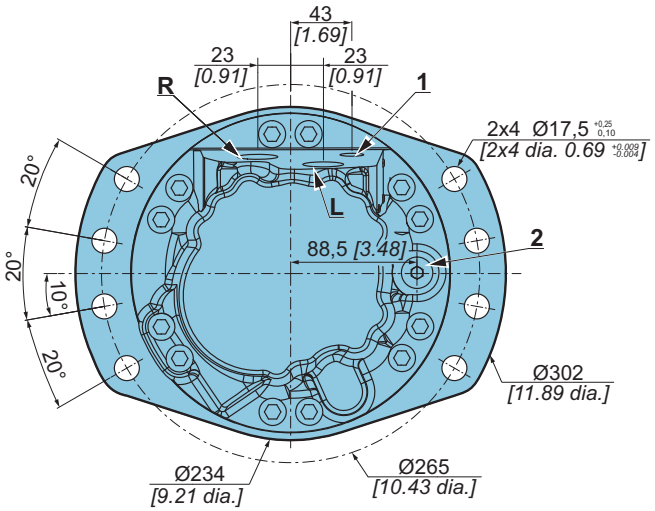
Also see “Brake” section (thumbnail opposite).

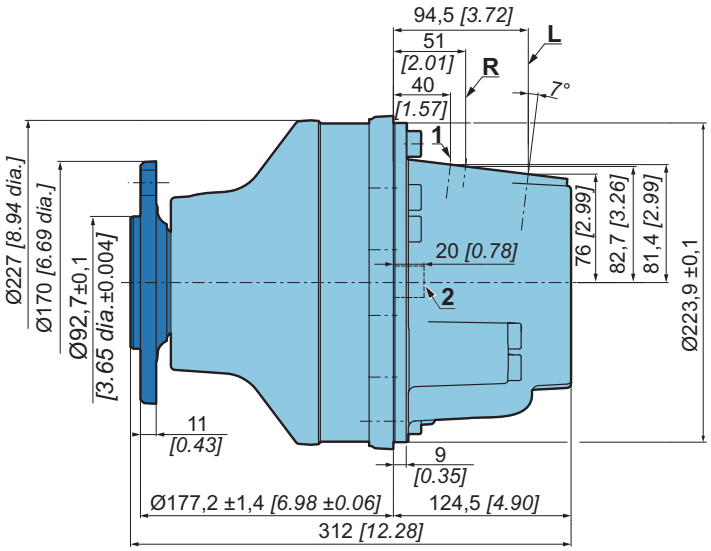
Also see 'Valving systems and hydrobases' section (thumbnail opposite).

WHEEL MOTOR HIGH FLOW™

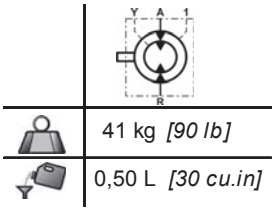
Dimensions for HighFlow™ (1210) 1-displacement motor

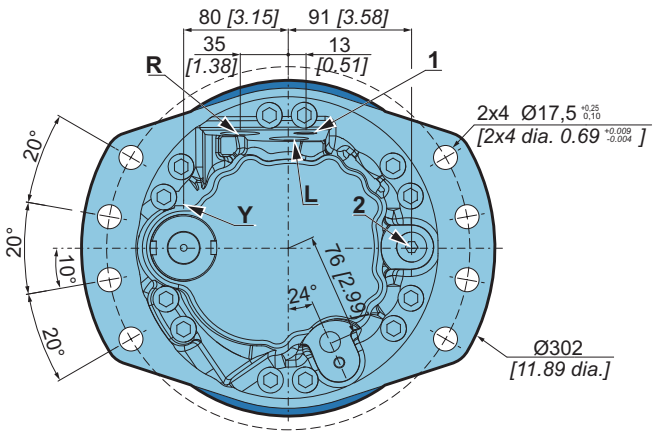


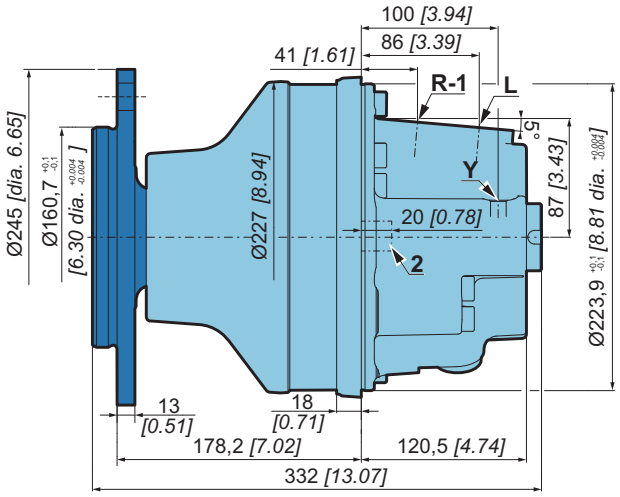




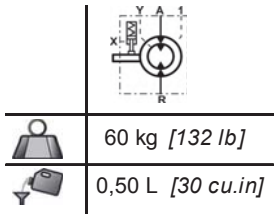
Dimensions for HighFlow™ (1710) 2-displacement motor



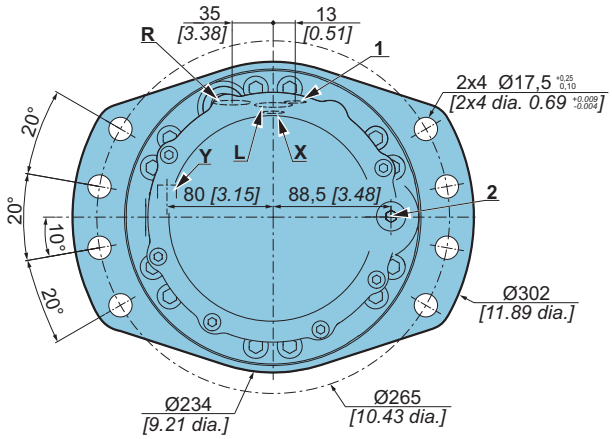


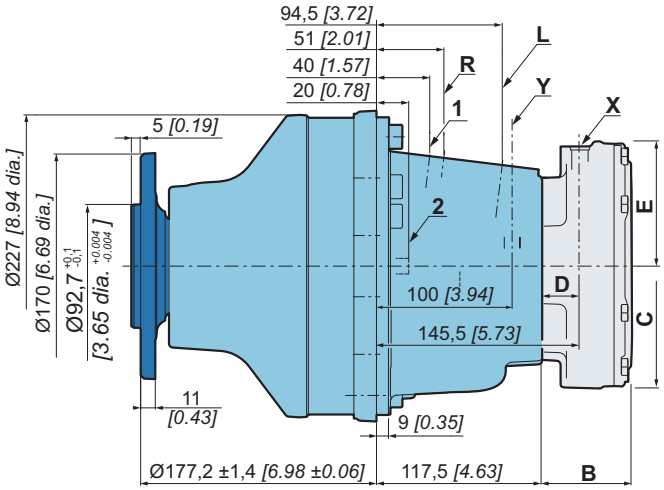


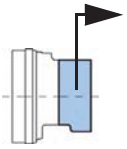
Dimensions for HighFlow™ (1210) 2-displacement motor



	60 kg *[132 lb]*
	0,50 L *[30 cu.in]*







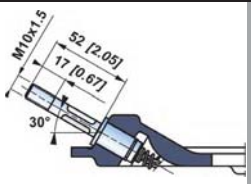
T04	
B	68,5 *[2,70]*
C	Ø200 *[7,87 dia.]*
D	28,0 *[1,10]*
E	87,5 *[3,44]*

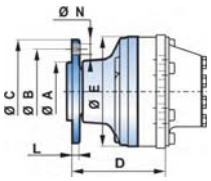
Also see “Brake” section
(thumbnail opposite).

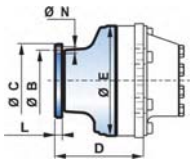
Bearing support for Classic and HighFlow™ motor

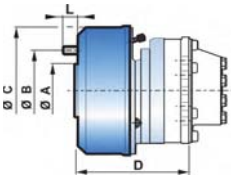
C D F P S

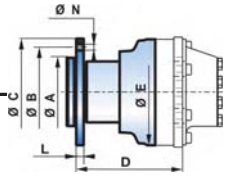
MS05 / MSE05 — 1 | 1 2 3 | 1 2 3 | 1 2 3 4 | 1 2 3 4 5 6

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]*
1210 (1 2 3 4 P)	Ø 92,7 *[3,65 dia.]*	Ø 140 *[5,51 dia.]*	Ø 170 *[6,69 dia.]*	178,6 *[7,03]*	Ø 228 *[8,98 dia.]*	Ø 18 *[0,71 dia.]*	10 x M14x1.5	11 *[0,43]*
1710 (1 2 3 4 P)	Ø 160,7 *[6,33 dia.]*	Ø 205 *[8,07 dia.]*	Ø 245 *[9,65 dia.]*	178,5 *[7,03]*	Ø 228 *[8,98 dia.]*	Ø 20 *[0,79 dia.]*	6 x M18x1.5	14 *[0,55]*
1310 (1 2 3 4 P)	Ø 95,7 *[3,77 dia.]*	Ø 140 *[5,51 dia.]*	Ø 180 *[7,09 dia.]*	145,4 *[5,72]*	Ø 228 *[8,98 dia.]*	Ø 18 *[0,71 dia.]*	5 x M14x1.5	10,5 *[0,41]*
1610 (1 2 3 4 P)	Ø 92,7 *[3,65 dia.]*	Ø 140 *[5,51 dia.]*	Ø 180 *[7,09 dia.]*	145,4 *[5,72]*	Ø 228 *[8,98 dia.]*	Ø 18 *[0,71 dia.]*	5 x M14x1.5	10,5 *[0,41]*
1540 (1 2 3 4 P)	-	Ø 100 *[3,94 dia.]*	Ø 120 h7 *[4,72 dia.]*	145,4 *[5,72]*	Ø 228 *[8,98 dia.]*	10 x M12x1.75	-	11,3 *[0,44]*
1940 (1 2 3 4 P)	-	Ø 100 *[3,94 dia.]*	Ø 120 h7 *[4,72 dia.]*	178,7 *[7,04]*	Ø 228 *[8,98 dia.]*	10 x M12x1.75	-	11,25 *[0,44]*
1K30 / 1L30 (1 2 3 4 P)	Ø 92,7 *[3,65 dia.]*	Ø 140 *[5,51 dia.]*	Ø 276 *[10,87 dia.]*	209 *[8,23]*			10 x M14x1.5	30 *[1,18]*
	Ø 160,7 *[6,33 dia.]*	Ø 205 *[8,07 dia.]*	Ø 276 *[10,87 dia.]*	209 *[8,23]*			6 x M18x1.5	35 *[1,38]*
1G10 (1 2 3 4 F)	Ø 92,7 *[3,65 dia.]*	Ø 140 *[5,51 dia.]*	Ø 170 *[6,69 dia.]*	201,2 *[7,92]*	Ø 228 *[8,98 dia.]*	Ø 18 *[0,71 dia.]*	10 x M14x1.5	-
1F10 (1 2 3 4 F)	Ø 160,7 *[6,33 dia.]*	Ø 205 *[8,07 dia.]*	Ø 245 *[9,65 dia.]*	201,2 *[7,92]*	Ø 228 *[8,98 dia.]*	Ø 20 *[0,79 dia.]*	6 x M18x1.5	-









Also see "Brake" section (thumbnail opposite).

The supports in gray must not be assembled with an MSE hydrobase.

For stronger bearings, consult with your Poclain Hydraulics application engineer.

Studs

		P mm *[in]*	C min. mm *[in]*	C max. mm *[in]*	D mm *[in]*	Class	(1) N.m	(1) *[lb.ft]*	(2) N.m	(2) *[lb.ft]*
Various studs	M14x1.5	45 *[1.77]*	5 *[0.20]*	18 *[0.71]*	16.5 *[0.65]*	12.9	200	*[147.5]*	250	*[184.4]*
	M14x1.5	50 *[1.97]*		23 *[0.91]*						
	M14x1.5	62 *[2.44]*		33 *[1.30]*						
	M18x1.5	65 *[2.56]*		28 *[1.10]*	23.0 *[0.91]*		420	*[309.8]*	550	*[405.7]*
Screws	M12x1.75	-	-			10.9	120	*[88.5]*	120	*[88.5]*
	1/2"-20 UNF	-	-			8.8				

(*) The tightening torques are given for the indicated loads.
(1) Wheel rim : Suggested tightening torque for wheel rim mountings (Re steel disc > 240 N/mm² *[>34 800 PSI]*).
(2) Standard : Suggested tightening torque in other cases (Re steel flange > 360 N/mm² *[>52 215 PSI]*).

See generic installation motors N°801478197L.

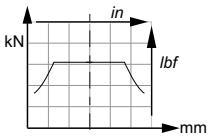
Load curves for Classic and HighFlow™ motor

Permissible radial loads

Test conditions :

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

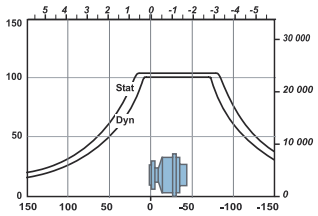
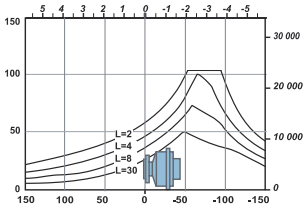
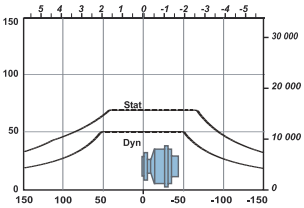
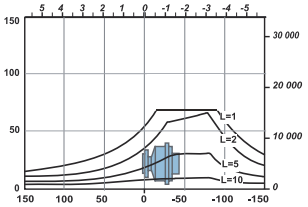
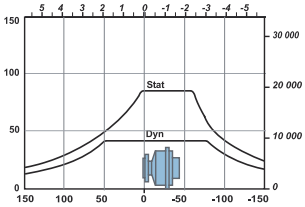
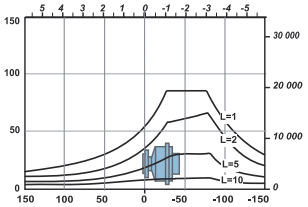
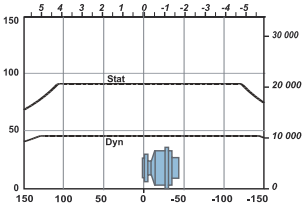
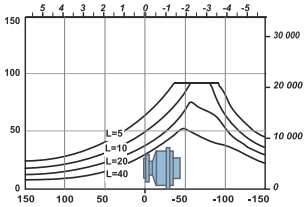
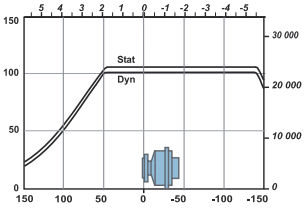
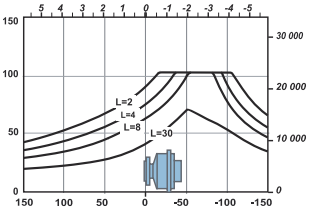
Dynamic : 0 tr/min *[0 RPM]*, code 0 displacement, without axial load at max. torque



Service life of bearings

Test conditions :

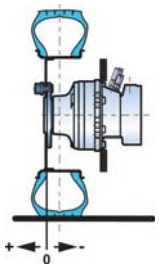
L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.

1 2 1 0		
1 3 1 0 1 6 1 0		
1 5 4 0		
1 9 4 0		
1 7 1 0 1 F 1 0 1 G 1 0 1 K 2 0 1 L 2 0		

1 2 3 4

P

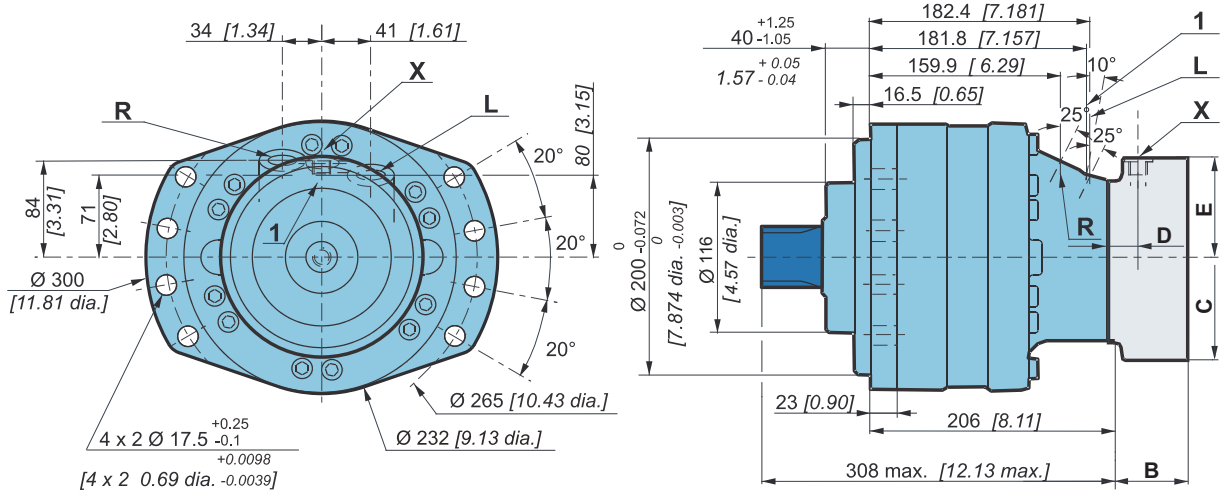
The service life of the components is influenced by the pressure.You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications.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



SHAFT MOTOR CLASSIC

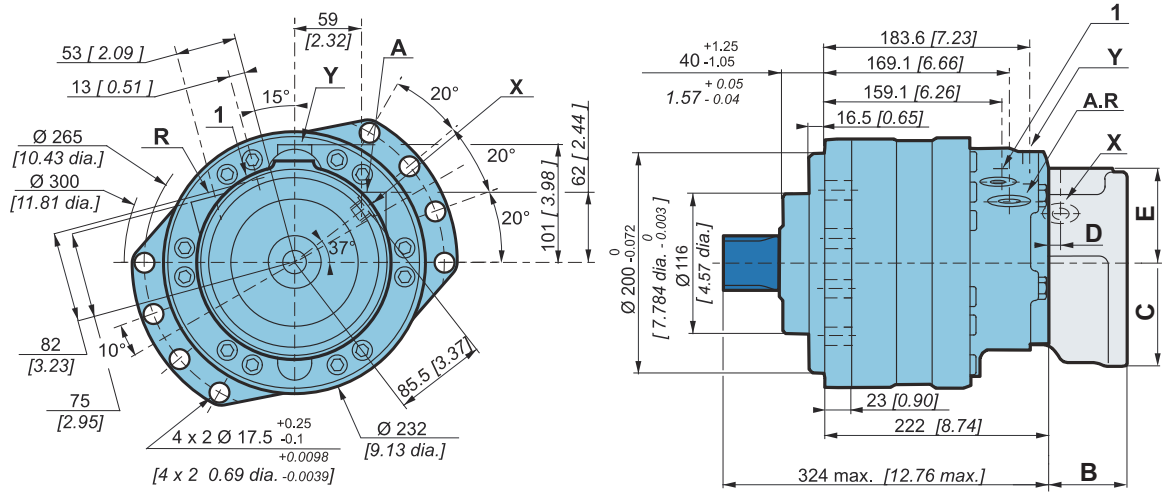
Dimensions for Classic (2A50) 1-displacement motor

	41 kg *[90 lb]*	47 kg *[103 lb]*
	1,00 L *[60 cu.in]*	1,00 L *[60 cu.in]*



Dimensions for Classic (2A50) 2-displacement motor

	45 kg *[99 lb]*	55 kg *[121 lb]*
	1,00 L *[60 cu.in]*	1,00 L *[60 cu.in]*



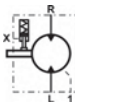
C	F 0 4	F 0 5
B	69,1 *[2,72]*	64,0 *[2,52]*
C	Ø216 *[8,50 dia.]*	Ø218 *[8,56 dia.]*
D	23,0 *[0,91]*	23,0 *[0,91]*
E	85,5 *[3,37]*	85,5 *[3,37]*

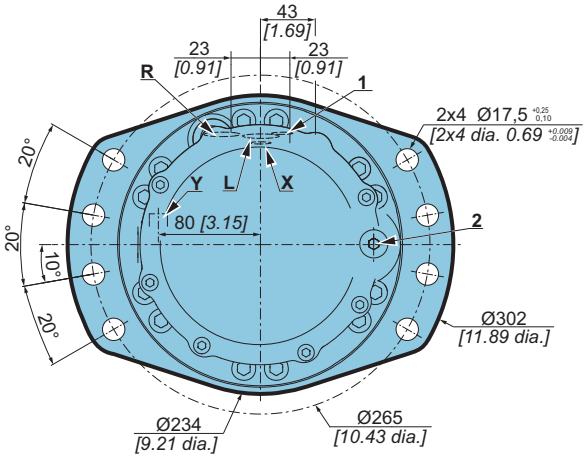
Also see “Brake” section (thumbnail opposite).

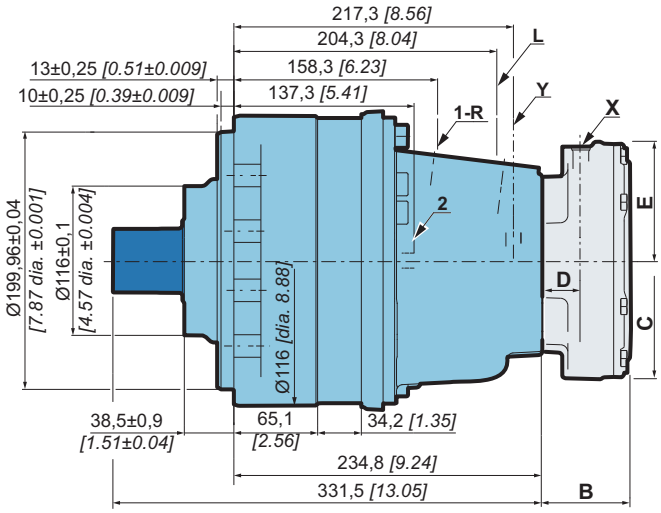
Also see 'Valving systems and hydrobases' section (thumbnail opposite).

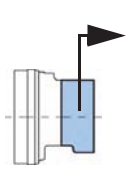
SHAFT MOTOR - HIGHFLOW™ MOTOR

Dimensions for HighFlow™ (2A50) 1-displacement motor

		
	55 kg *[121 lb]*	64 kg *[141 lb]*
	1,00 L *[60 cu.in]*	1,00 L *[60 cu.in]*



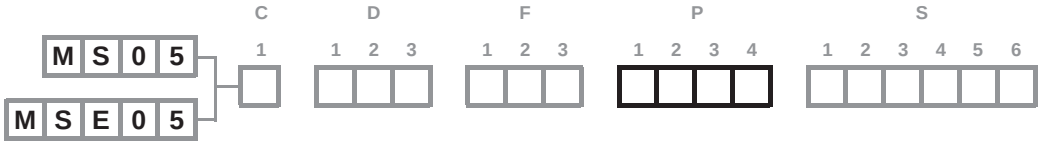


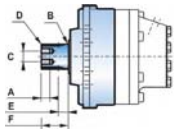
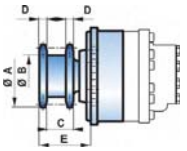


	T04
B	68,5 *[2,70]*
C	Ø200 *[7,87 dia.]*
D	28,0 *[1,10]*
E	87,5 *[3,44]*

Also see “Brake” section (thumbnail opposite).

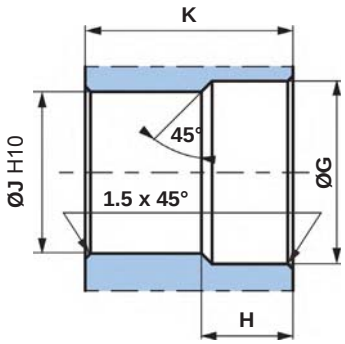
Support type for Classic and HighFlow™ motor



C		A	B	C	D	E	F	G	
2 A 1 0 (P: 1 2 3 4)	**NF E22-141** splines Nominal Ø 50 *[1,97]* Module 1,667 Number of teeth 28	15 *[0,59]*	R 2,3 *[R 0,09]*	23,8 *[0,94]*	2 x M10	20 *[0,79]*	54 *[2,13]*	-	
2 A 5 0 (P: 1 2 3 4)	**DIN 5480** splines Nominal Ø 55 *[2,17]* Module 3 Number of teeth 17	15 *[0,59]*	R 2,3 *[R 0,09]*	23,8 *[0,94]*	2 x M10	23 *[0,91]*	60 *[2,36]*	-	
2 A C 0 (P: 1 2 3 4)	**ANSI B29-1** or **ISO 606** pinion Chain no. 100 Number of teeth 14 Pitch 31,75 Pitch Ø 142,7 *[5,62]*	158,2 *[6,23]*	106 *[1,97]*	49 *[1,91]*	17,6 *[0,69]*	117 *[4,61]*	-	-	

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

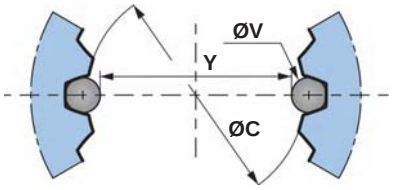
Splined coupling



Standard NF E 22-141
Pressure angle 20°.
Centering on flanks.
Slide fit (7H quality).

Standard DIN 5480
Pressure angle 30°.
Centering on flanks.
Slide fit (7H quality).

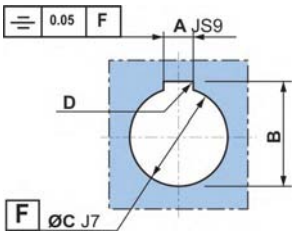
N : Nominal Ø.
Mo : Module.
Z : Number of teeth.



C	Ø G	H	Ø J	K	N	Mo	Z	Offset	Ø C (H10)	Ø V	Y	Tolerance µm *[µin]*
2 A 1 0 (P: 1 2 3 4)	51 *[2,01]*	23 *[0,91]*	46,7 *[1,84]*	53 *[2,09]*	50 *[1,97]*	1,667	28	+1,333 *[+0,052]*	46,7 *[1,84]*	3,333 *[0,1312]*	43,446 *[1,71]*	+ 86 / 0 *[+3.386 / 0]*
2 A 5 0 (P: 1 2 3 4)	56,5 *[2,22]*	24 *[0,94]*	49 *[1,93]*	59 *[2,32]*	55 *[2,17]*	3	17	+0,35 *[+0,0138]*	49 *[1,93]*	5,25 *[0,21]*	43,807 *[1,7247]*	+ 78 / 0 *[+3.071 / 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]*.

Cylindrical keyed coupling



C	A	B	Ø C	D
2 A 4 0 (1 2 3 4 / P)	14 ± 0.021 *[0,55] [± 0.0008]*	53 + 0,2 0 *[2,07] + 0,007 0*	50 *[1,97]*	0,5 *[0,02]*

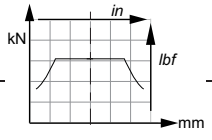
Torque limitation : 800 N.m *[590 lb.ft]*

Load curves for Classic and HighFlow™ motor

Permissible radial loads

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

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

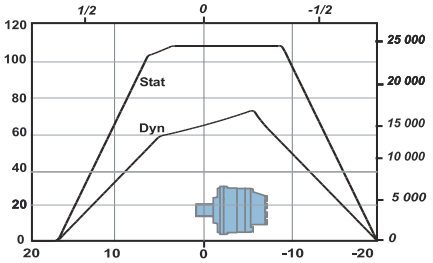


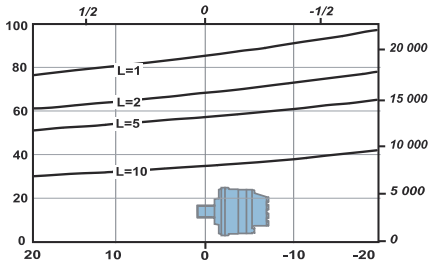
Service life of bearings

Test conditions :

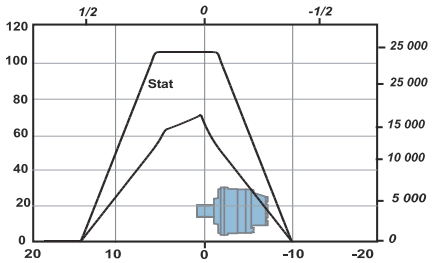
L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.

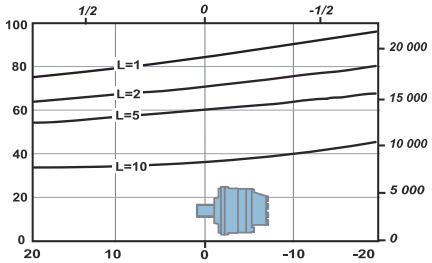
2 A 5 0 (1 2 3 4 / P)



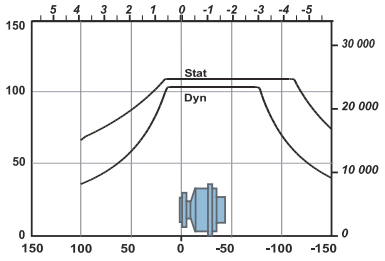


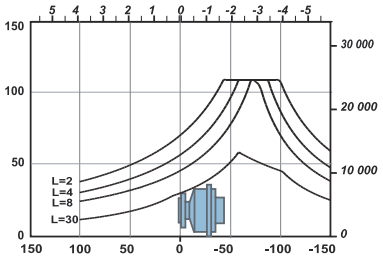
2 A 1 0
2 A 4 0 (1 2 3 4 / P)



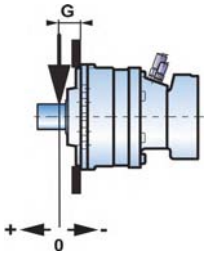


2 A C 0 (1 2 3 4 / P)





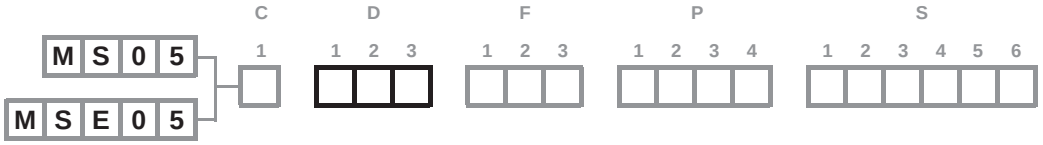
The service life of the components is influenced by the pressure.You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications.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



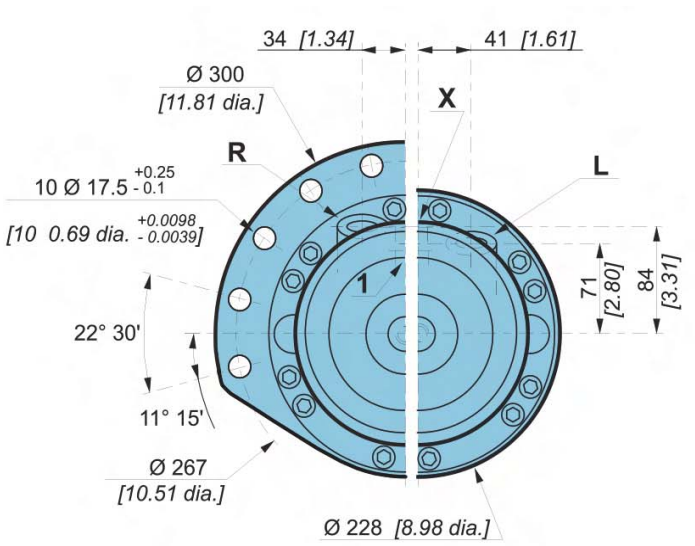
C	G
2 A 1 0	77,25 *[3,04]*
2 A 5 0	81,75 *[3,22]*
2 A C 0	61,45 *[2,42]*

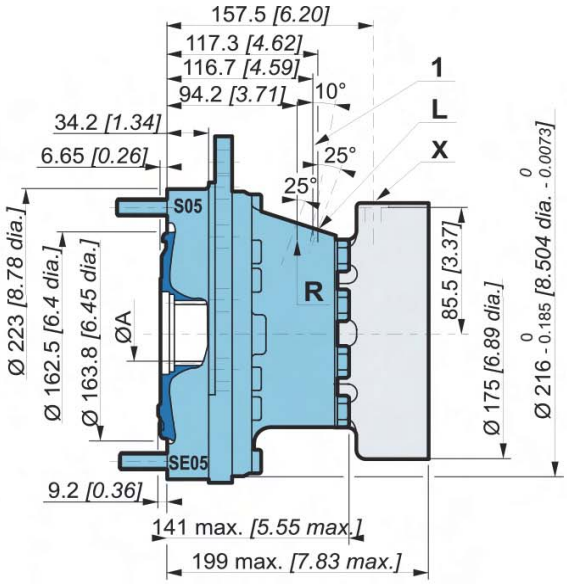
VALVING SYSTEMS AND HYDROBASES

for Classic motor on demand for HighFlow™ motor



Dimensions for 1-displacement valving

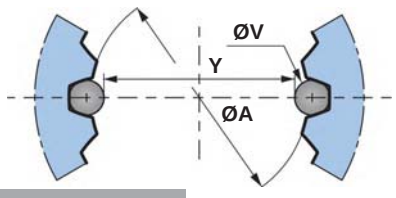




Cylinder block splines

(as per standard NF E22-141)

ØA	Module	Z	Dimension on 2 pins Y	ØV
50 *[1,968]*	1,667	28	43,446 *[1,710]*	3,33 *[0,131]*



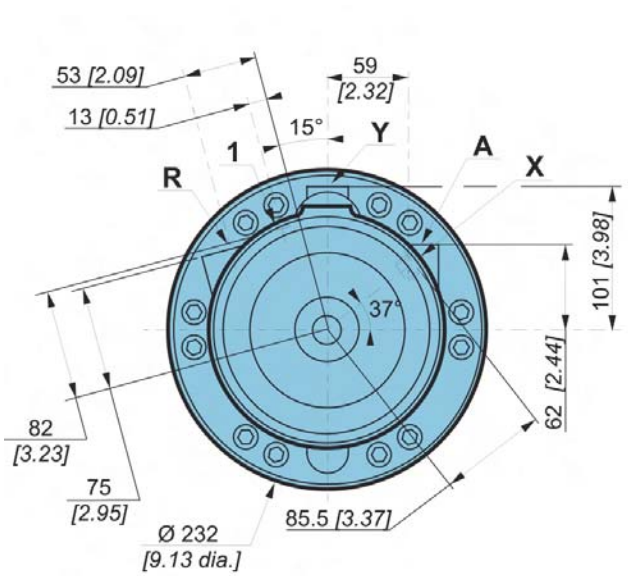
You are advised to have the installation validated by your Poclain Hydraulics application engineer before using the hydraulic unit in an application.

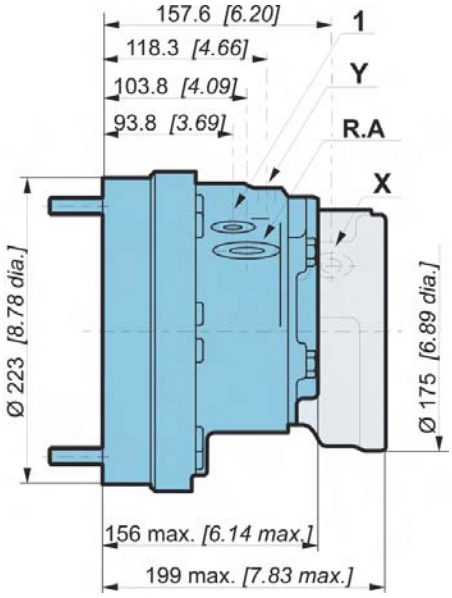
We must provide you with a detailed plan of the interface for any hydraulic unit use, consult your Poclain Hydraulics sales engineer.

Dimensions for 2-displacement valving

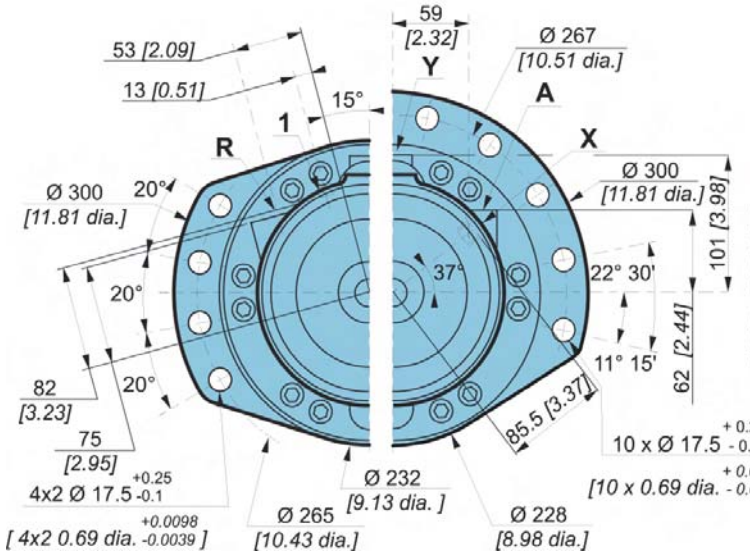
	27,6 kg *[61 lb]*	35,2 kg *[77 lb]*
	0,50 L *[30 cu.in]*	1,00 L *[60 cu.in]*

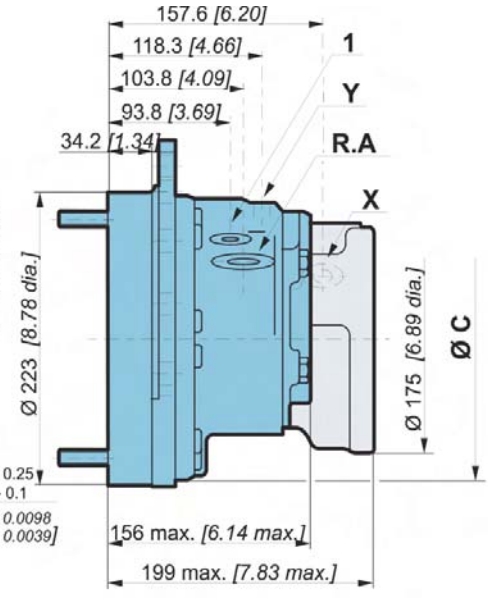
D
1 2 3
1





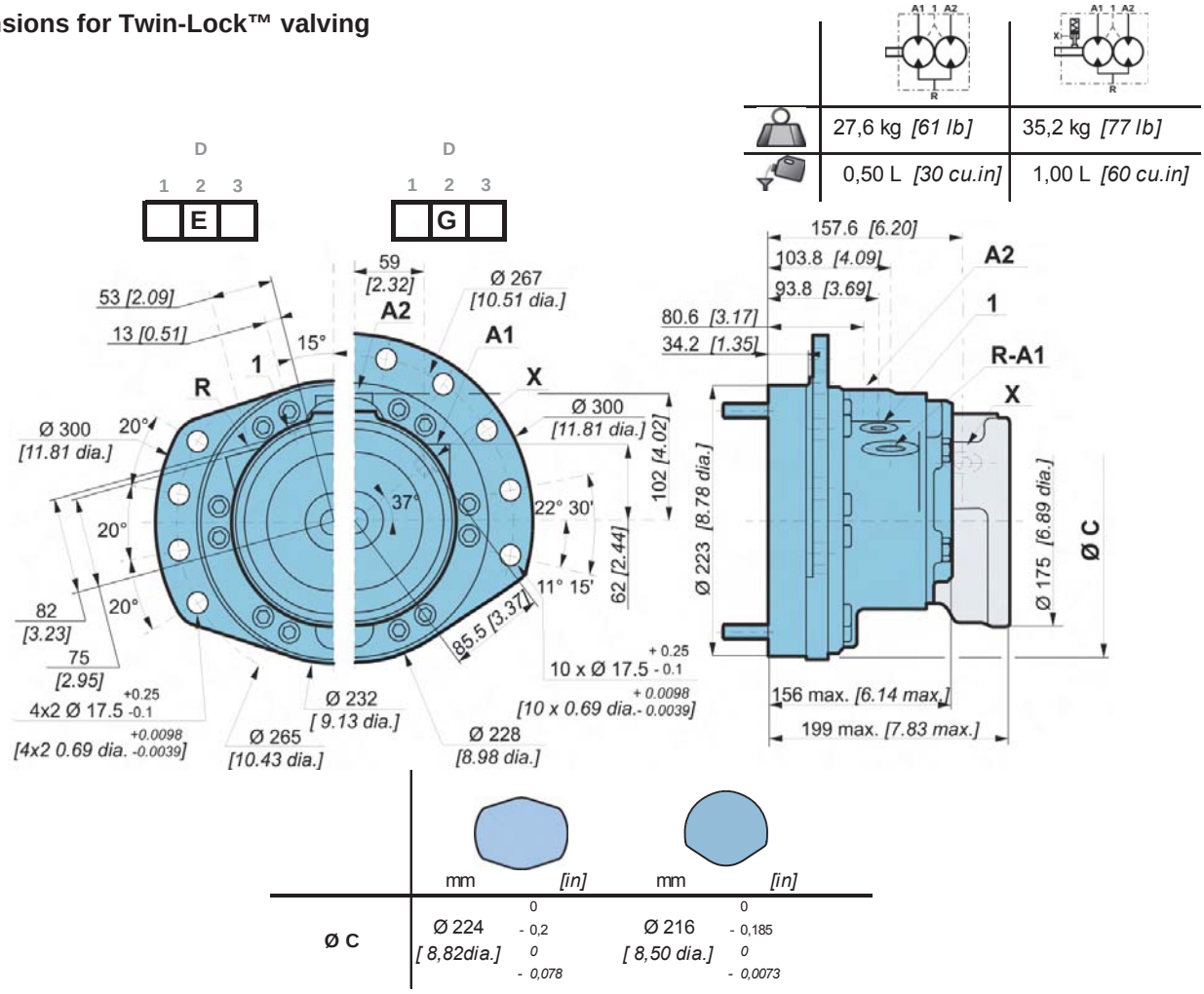
D D
1 2 3 1 2 3
2 8



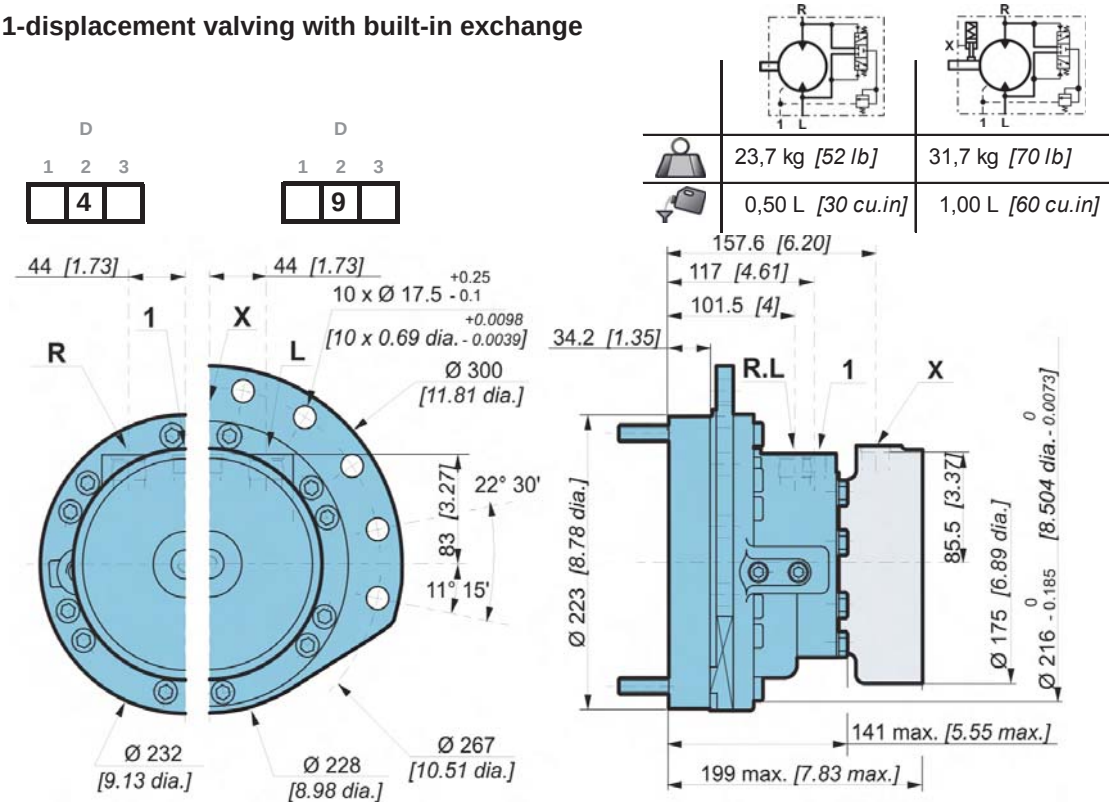


	mm	[in]	mm	[in]
Ø C	Ø 224 [8,82dia.]	0 -0,2 / 0 -0,078	Ø 216 [8,50 dia.]	0 -0,185 / 0 -0,0073

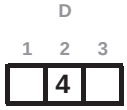
Dimensions for Twin-Lock™ valving

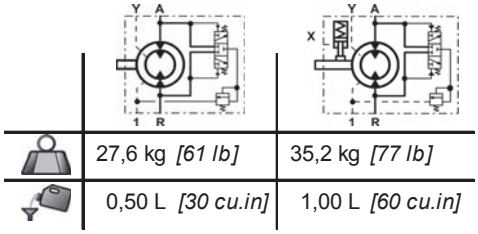


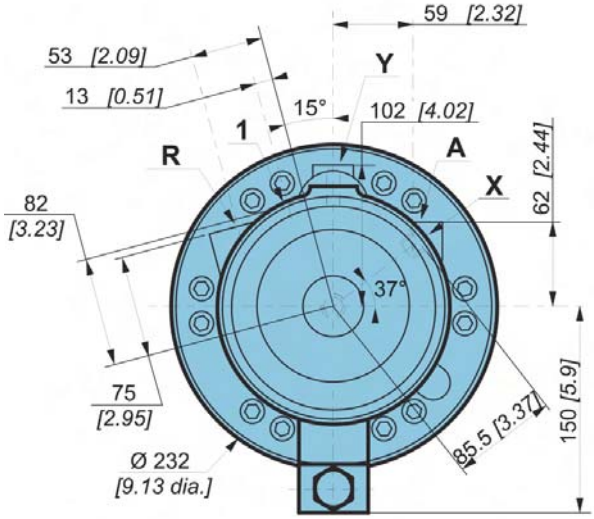
Dimensions for 1-displacement valving with built-in exchange

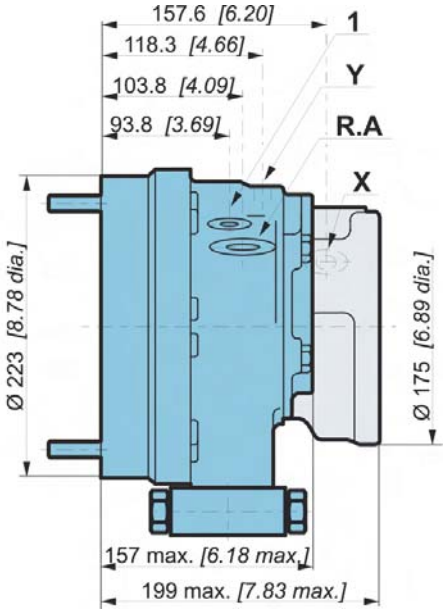


Dimensions for 2-displacement valving with add-on exchange









Exchange

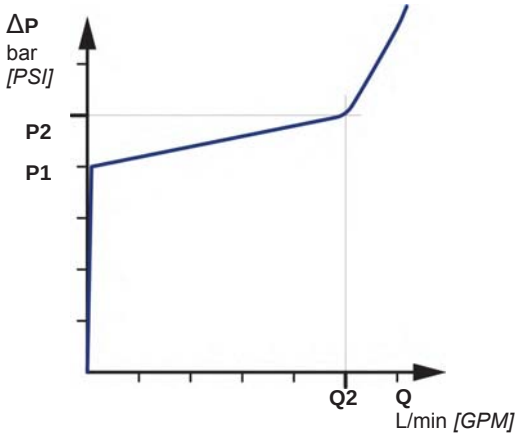
When a coding request is made, you must specify information on the threshold of the selector and the valve.

Selector spool

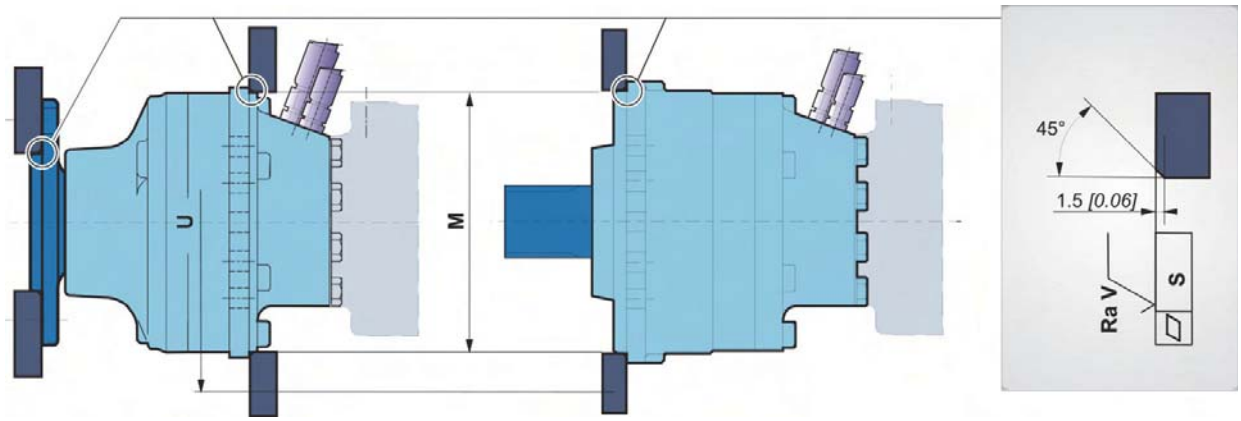
Selector threshold	Opening pressure of selector
bar *[PSI]*	bar *[PSI]*
8 *[116]*	9.9 ±1.2 *[144 ±17]*

Fitted valve

P1	Q2	P2
bar *[PSI]*	L/min *[GPM]*	bar *[PSI]*
13.5 *[195]*	14 *[3.7]*	16 *[232]*
18 *[261]*	15 *[3.9]*	21 *[305]*
22 *[319]*	16 *[4.2]*	25 *[363]*



Chassis mountings



Take care over the immediate environment of the connections.

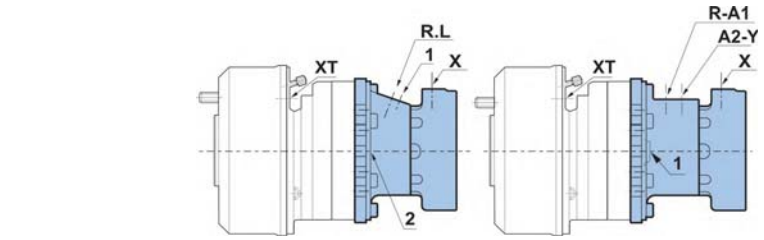
MS05 / MSE05		ØM (1)	ØU	S	Ra V		Class	*
	P	200 *[7,87]*	265 *[10,43]*	0,2 *[0,008]*	12,5µm *[0,49µin]*	2 x 4 M16 x 2	8,8	210 N.m *[155 lb.ft]*
R		216 *[8,50]*	267 *[10,51]*			10 M16 x 2		
R		224 *[8,82]*	265 *[10,43]*			2 x 4 M16 x 2		
	P	200 *[7,87]*	265 *[10,43]*			2 x 4 M16 x 2		
R		216 *[8,50]*	267 *[10,51]*			10 M16 x 2		
R		224 *[8,82]*	265 *[10,43]*			2 x 4 M16 x 2		

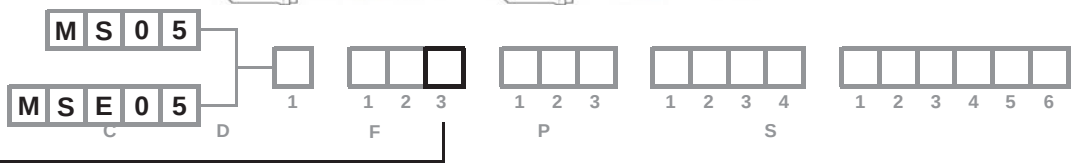
(1) +0,3 *[+0,012]*
+0,2 *[+0,008]*

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

See generic installation motors N°801478197L.

Hydraulic connections





		Standards	Power supply		Standards	Case drain	2nd displacement control	Control of parking break	Control of drum break
			R-L			1, 2		X	XT
	A	ISO 11 926-1	1"1/16-12 UNF		ISO 11926	3/4"-16 UNF		9/16"-18 UNF	M10x1 (ISO 9974-1)
	3	ISO 1179	Ø27		ISO 1179	BSP 3/8		BSP 1/4	
	8	ISO 9974-1	M18x1.5		ISO 9974-1	M16x1,5		M14x1,5	
	1*	ISO 6162	SAE 6000PSI 1/2"		ISO 9974-1	M16x1,5		M14x1,5	
	E*	ISO 6162	SAE 6000PSI 1/2"		ISO 9974-1	M16x1,5		M14x1,5	
			R-A			1, 2	Y	X	XT
	A	ISO 11 926	1"1/16-12 UNF		ISO 11 926	3/4"-16 UNF	3/4"-16 UNF	9/16"-18 UNF	M10x1 (ISO 9974-1)
	3	ISO 1 179	Ø27		ISO 1179	Ø17	BSP 1/4	BSP 1/4	
	4	ISO 9 974-1	M18x1,5		ISO 9974-1	M16x1.5	M14x1,5	M14x1,5	
	1*	ISO 6162	SAE 6000PSI 1/2"		ISO 9974-1	M16x1,5		M14x1,5	
			R-A1	A2		1, 2		X	XT
	A	ISO 11926	1"1/16-12 UNF	3/4"-16 UNF	ISO 11926	3/4"-16 UNF		9/16"-18 UNF	M10x1 (ISO 9974-1)
	3	ISO 1179	BSP 3/4	BSP 1/2	ISO 1179	BSP 3/8		BSP 1/4	
	4	ISO 9974-1	M27x2	M22x1,5	ISO 9974-1	M16x1,5		M14x1,5	
Max. pressure	MS	bar *[PSI]*	450 *[6 527]*	450 *[6 527]*		1 *[15]*	30 *[435]*	30 *[435]*	120 *[1 740]*
	MSE		400 *[5 802]*	400 *[5 802]*					

*only for 1C&2C HighFlow™ valving

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

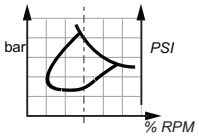
To find the connections’ tightening torques, see the brochure “Installation guide” N° 801478197L.

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.

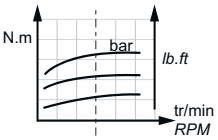
Efficiency for Classic and HighFlow™ motor

Overall efficiency

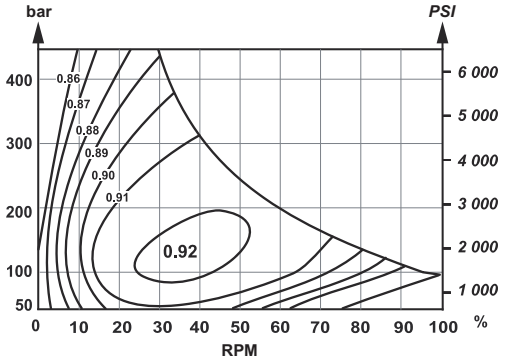
Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C *[122°F]*.

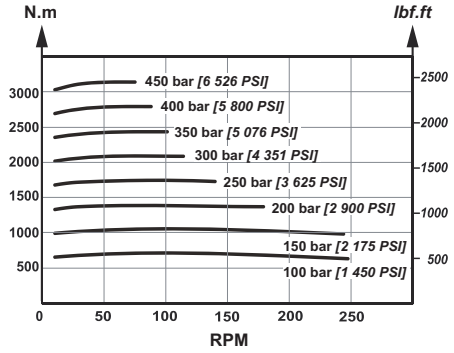


Actual output torque

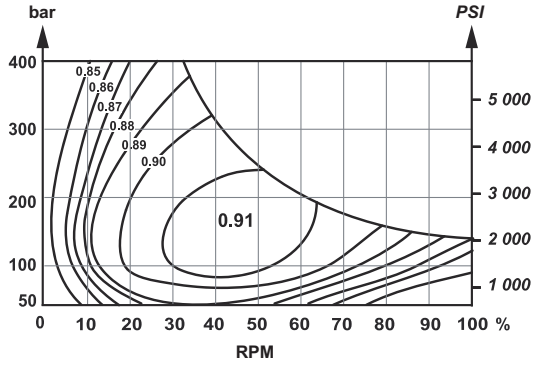


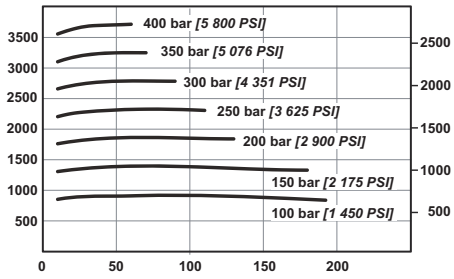
MS05





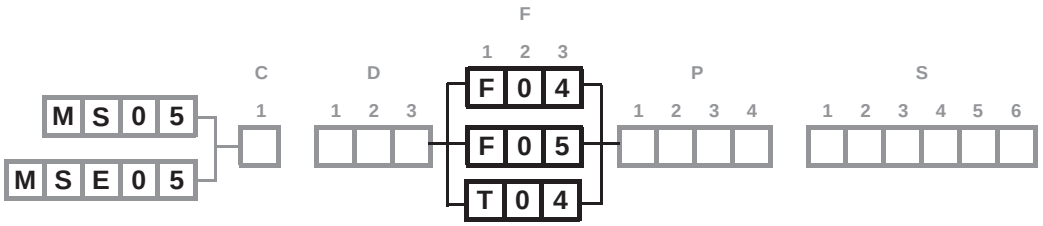
MSE05



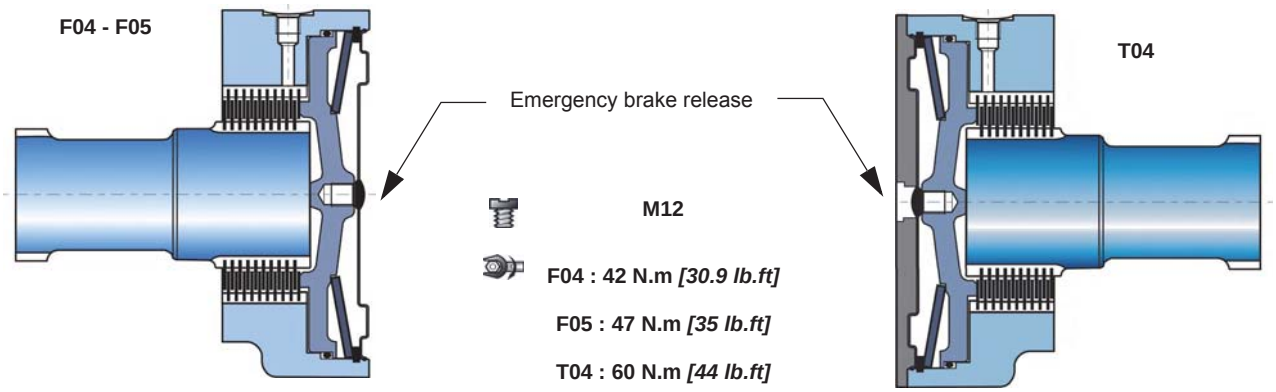


For a precise calculation, consult your Poclain Hydraulics application engineer.

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.

C	F 0 4	F 0 5	T 0 4
Parking brake torque at 0 bars on housing (new brake)	4 220 Nm *[3 110 lb.ft]*	3 060 Nm *[2 260 lb.ft]*	4 220 Nm *[3 110 lb.ft]*
Dynamic emergency braking torque at 0 bars on housing (max. 10 uses of emergency brakes)	2 740 Nm *[2 020 lb.ft]*	1 990 Nm *[1 470 lb.ft]*	2 740 Nm *[2 020 lb.ft]*
Residual parking braking at 0 bars on housing *	3 165 Nm *[2 330 lb.ft]*	2 295 Nm *[1 690 lb.ft]*	3 165 Nm *[2 330 lb.ft]*
Min. brake release pressure	12 bar *[174 PSI]*	12 bar *[174 PSI]*	12 bar *[174 PSI]*
Max. brake release pressure	30 bar *[435 PSI]*	30 bar *[435 PSI]*	30 bar *[435 PSI]*
Oil capacity	70 cm³ *[4,3 cu.in]*	70 cm³ *[4,3 cu.in]*	70 cm³ *[4,3 cu.in]*
Volume for brake release	32 cm³ *[2,0 cu.in]*	32 cm³ *[2,0 cu.in]*	32 cm³ *[2,0 cu.in]*
Max. energy dissipation	85 902 J		85 902 J

* After emergency brake has been used

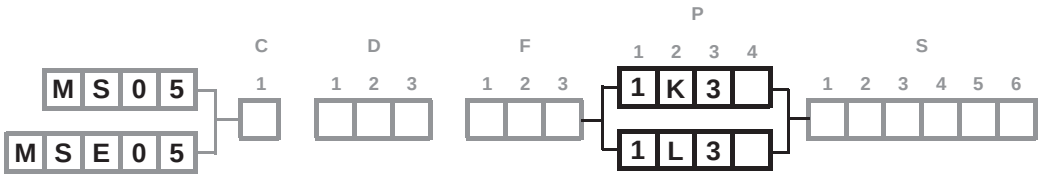
Do not run-in the multidisc brakes.

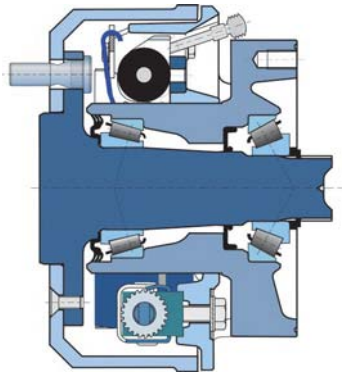
A functional check of the parking brake must be carried out each time it is used as an auxiliary brake (or emergency brake). For all vehicles capable of speeds over 25 km/hour, please contact your Poclain Hydraulics application engineer.

The use of certain oils, may not offer the characteristics stated above. Consult your Poclain Hydraulics sales engineer.

Drum brake (250 x 60)

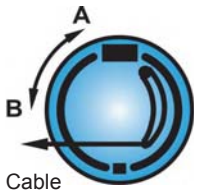
Diameter of brake pads : Ø 250 *[9.84 dia.]*
Width of friction surface : 60 *[2.36]*





Brake pads			
Asbestos free material		BERAL 1117	
Compensation for wear		Automatic	
Hydraulically controlled dynamic braking			
Max. permissible continuous brake torque		3 000 N.m *[2 213 lb.ft]*	
Pressure to obtain max. permissible continuous brake torque		76 bar *[1 102 PSI]*	
Max. permissible brake torque		5 000 N.m *[3 688 lb.ft]*	
Pressure to obtain max. permissible brake torque		120 bar *[1 740 PSI]*	
Fluid			
Mineral		Yes	K
DOT 3/DOT4/SAE J1703		Yes	L
Max. volume required to bring pads into contact		2,8 cm³ *[0,17 cu.in]*	
Mechanically controlled parking brake			
Max. braking torque		5 000 N.m *[3 688 lb.ft]*	
Max permissible force on the cable		1 370 N *[308 lbf]*	
Force required to bring pads into contact		33 N *[7 lbf]*	
Stroke required to bring pads into contact	**A**	10,6 mm *[0,42 "]*	
	B	11,0 mm *[0,43 "]*	
Max. stroke before automatic brake adjustment	**A**	14,0 mm *[0,55 "]*	
	B	14,5 mm *[0,57 "]*	

End view of shaft



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 an encoding request, you must indicate the following information:
- The material of the brake linings,
- The type of connection at the end of the parking brake control cable,
- Fill out the technical questionnaire for validation of the brake.

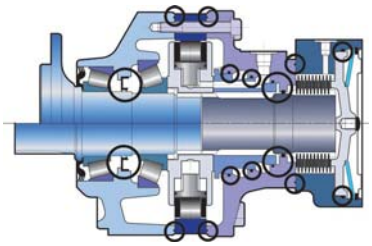
OPTIONS

	C	D	F	P	S
MS05	1	1 2 3	1 2 3	1 2 3 4	1 2 3 4 5 6
MSE05					

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

1 - Fluorinated elastomer seals

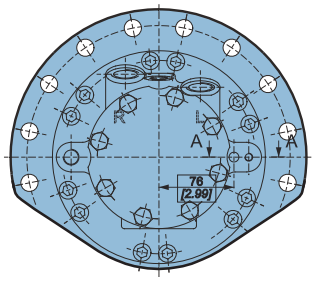
Nitrile seals marked in the figure below replaced by fluorinated elastomer seals.

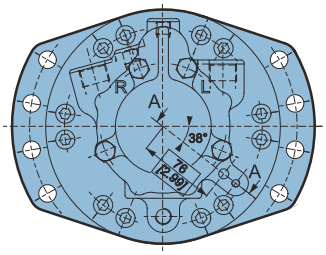


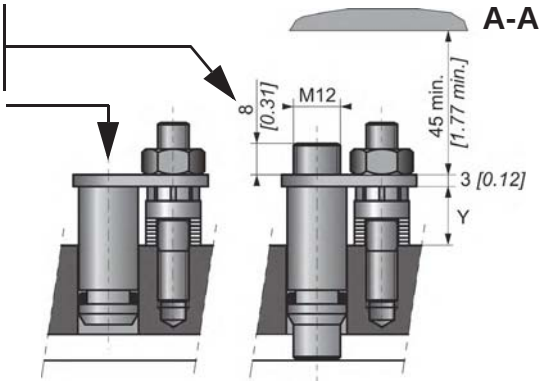
Consult your Poclain Hydraulics sales engineer.

2 - S - Q - 8 - Installed speed sensor or predisposition

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







Max. length Y= 20.7

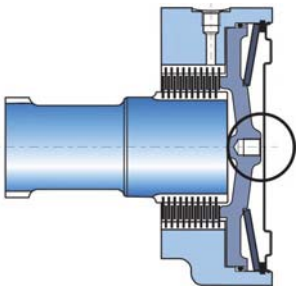
Standard number of pulses per revolution= 56

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.

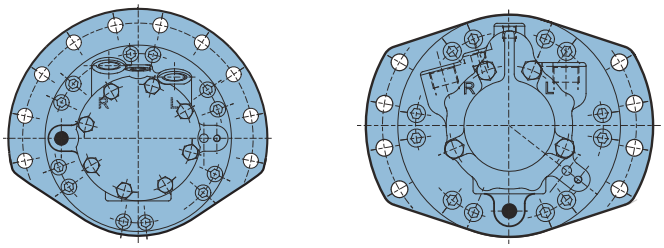
3 - Brake environmental cover without plug

No plug or hole in the cover.
(see figure opposite)



5 - Drainage

Additional drain in the cover.



6 - Industrial support

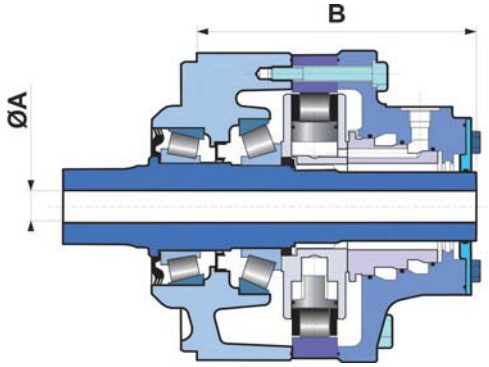
Reduction of around 50% from the rated value in the bearings' preload value.

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.

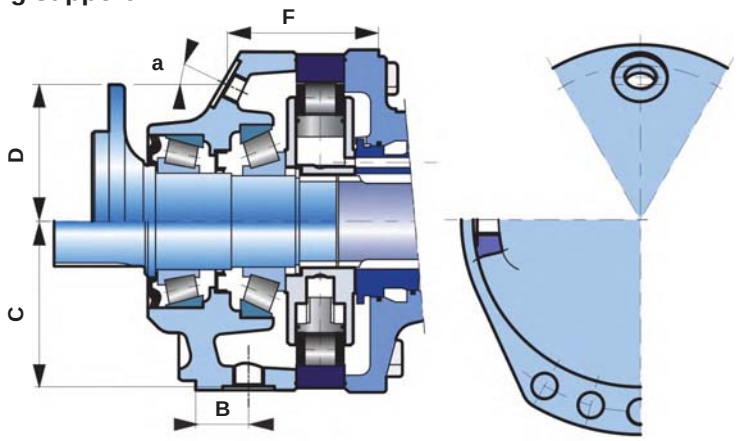
A - Hollow shaft



A mm *[in]*	B mm *[in]*
Ø 25 *[0,98 dia.]*	214,2 *[8,43]*

Radial load x 0.75
No torque allowed towards the rear

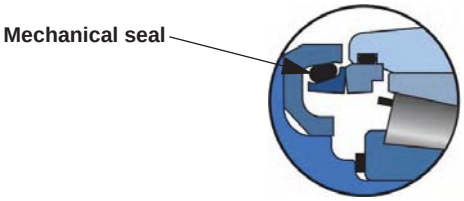
B - Drain on the bearing support



	BSPP	B	C	D	E	F	a
		mm *[in]*	mm *[in]*	mm *[in]*		mm *[in]*	
Shaft motor	Ø17	25 *[1,0]*	111 *[4,37]*		25°		
Wheel motor	Ø17			87,5 *[3,44]*		84,0 *[3,31]*	36°

C - Abrasive environments (mechanical seal)

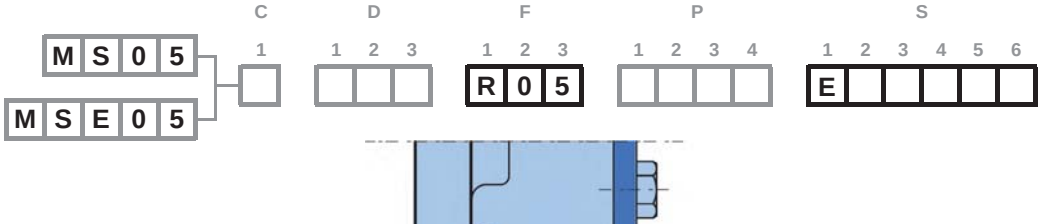
Some environments can be very harmful. The mirror seal gives reinforced motor sealing.

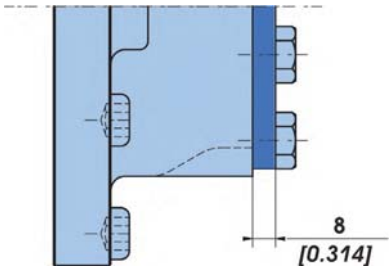


Consult your Poclain Hydraulics sales engineer.

E - Reinforced sealing

Reinforced seals and, for an unbraked motor, a rear reinforced plate (R02 - 8 mm thick, instead of 2 mm).





G - Special wheel rim mounting

Enables certain combinations different from the standard mountings defined on page 11 are possible.

Consult your Poclain Hydraulics sales engineer.

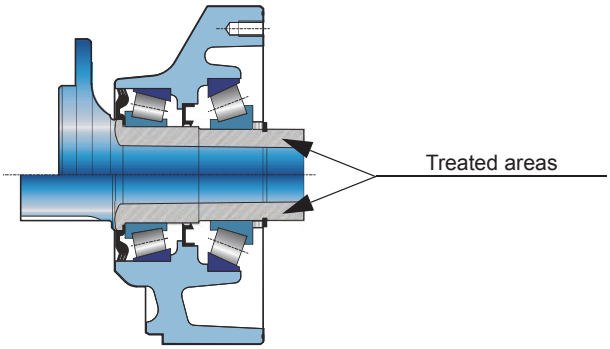
H - High efficiency

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

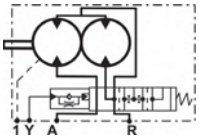
Under certain conditions, an increase in the maximum speed of 30% above the values indicated in the table on page 2 is possible.

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

Option “M” becomes mandatory when selecting the HighFlow™ valving.

T - Soft Shift™

Progressive displacement change (cushioned slide-valve)



Consult your Poclain Hydraulics sales engineer.

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