MS08 - MSE08

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**

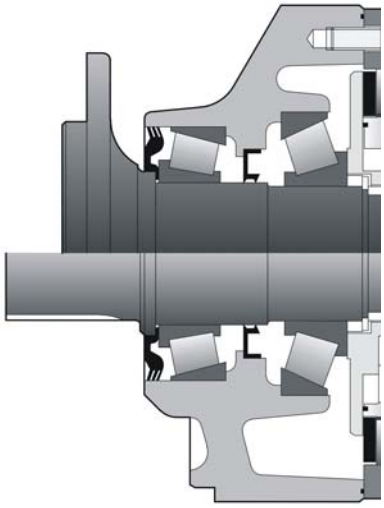
The MS HighFlow™ motor range has all the qualities that have made the MS Classic range such a success: they are modular and robust, offering performance advantages (speed and power) at the same time.

MS HighFlow™ motor range is different by:

- **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

MS08-MSE08 HighFlow™

Max.power

1C motor	**41 kW**
2C motor, 1st displacement	**41 kW**
2C motor, 2nd displacement	**27 kW**

		C	❶ cm³/tr *[cu.in/rev.]*	❷ cm³/tr *[cu.in/rev.]*	Motor HighFlow™ 1C Max. speed * ❶ tr/min*[RPM]*	Motor HighFlow™ 2C Max. speed * ❶ tr/min*[RPM]*	❷ tr/min*[RPM]*
Cams with equal lobes	MS08	6	467 *[28,5]*	234 *[14,3]*	450	420	450
		8	627 *[38,2]*	314 *[19,2]*	340	330	350
		9	702 *[42,8]*	351 *[21,4]*	310	310	330
		0	780 *[47,6]*	390 *[23,8]*	280	260	280
		1	857 *[52,3]*	429 *[26,2]*	250	235	260
		2	934 *[57,0]*	467 *[28,5]*	230	220	240
	MSE08	0	1 043 *[63,6]*	522 *[31,8]*	210	190	220
		1	1 146 *[69,9]*	573 *[34,9]*	185	175	200
		2	1 248 *[76,1]*	624 *[38,1]*	170	160	180
Cams with unequal lobes	MS08	Q	624 *[38,1]*	390 *[23,8]* / 233 *[14,2]*	294	328	320
		D	700 *[42,7]*	467 *[28,5]* / 233 *[14,2]*	236	276	259
		A	780 *[47,6]*	467 *[28,5]* / 314 *[19,2]*	235	271	259
	MSE08	Q	834 *[50,9]*	522 *[31,8]* / 312 *[19,0]*	217	243	235
		D	936 *[57,1]*	624 *[38,1]* / 312 *[19,0]*	171	205	186
		A	1 043 *[63,6]*	624 *[38,1]* / 419 *[25,6]*	170	200	186

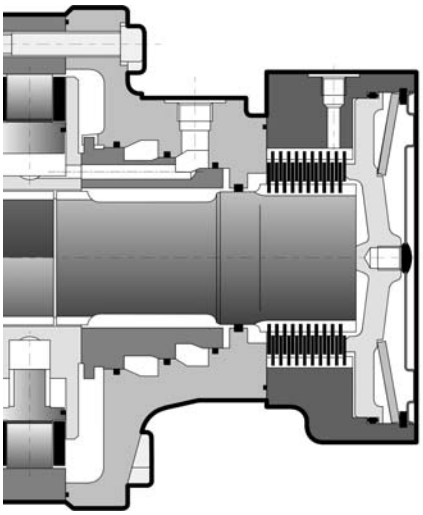
* Based on nominal no-load Δp of 20 bar *[290 PSI]*.

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

❶ **First displacement**

❷ **Second displacement**

TERISTICS



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

= 0.05 kg.m²

MS08-MSE08 Classic

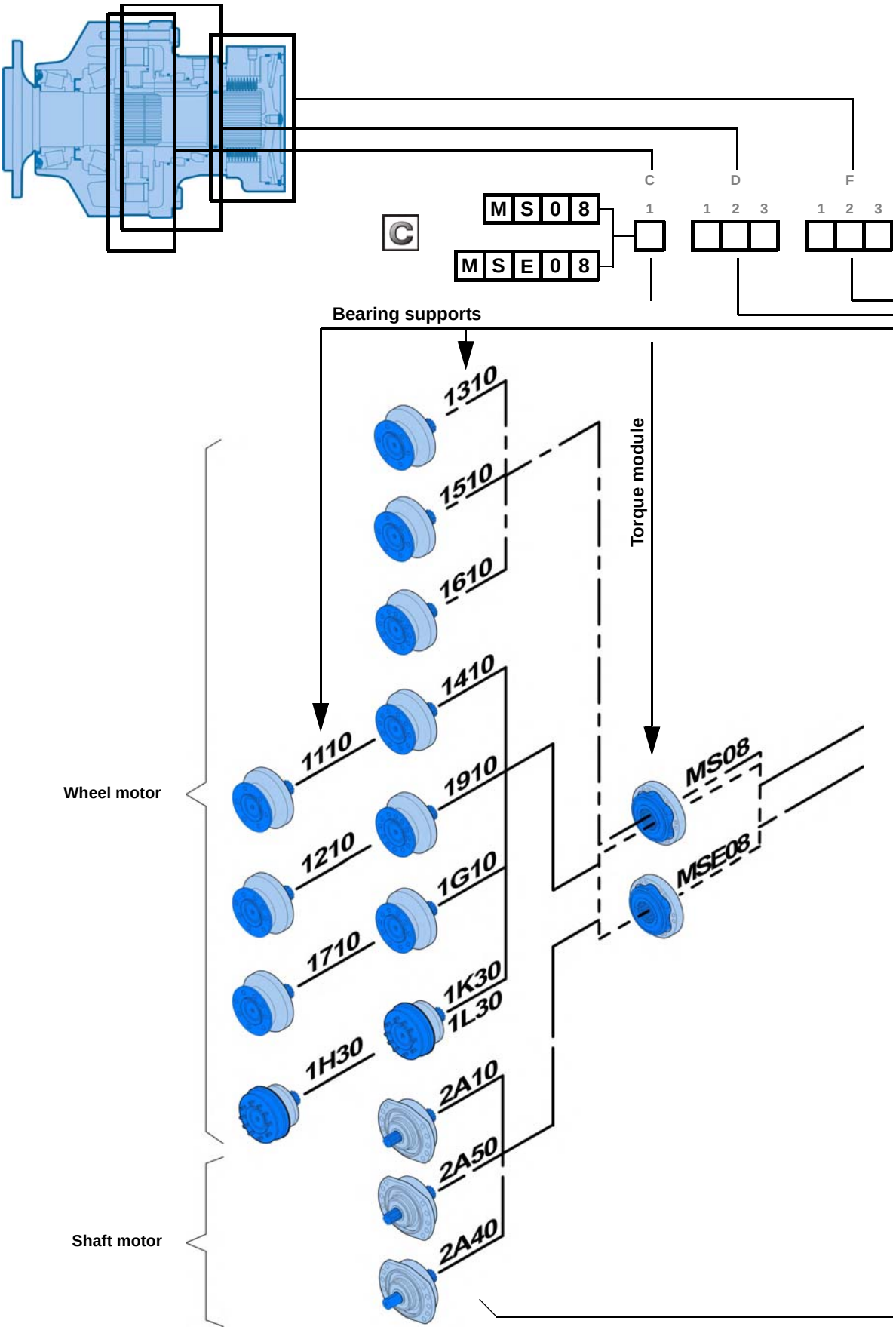
Max.power	**1C motor**	**41 kW**
	2C motor preferred	**27 kW**
	2C motor non-preferred	**21 kW**

		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	MS08	6	467 *[28,5]*	234 *[14,3]*	255	235	250
		8	627 *[38,2]*	314 *[19,2]*	200	172	185
		9	702 *[42,8]*	351 *[21,4]*	180	155	165
		0	780 *[47,6]*	390 *[23,8]*	160	130	150
		1	857 *[52,3]*	429 *[26,2]*	145	120	125
		2	934 *[57,0]*	467 *[28,5]*	135	110	115
	MSE08	0	1 043 *[63,6]*	522 *[31,8]*	125	100	110
		1	1 146 *[69,9]*	573 *[34,9]*	110	90	95
		2	1 248 *[76,1]*	624 *[38,1]*	100	80	85
Cams with unequal lobes	MS08	Q	624 *[38,1]*	390 *[23,8]* / 233 *[14,2]*		140	250
		D	700 *[42,7]*	467 *[28,5]* / 233 *[14,2]*		110	115
		A	780 *[47,6]*	467 *[28,5]* / 314 *[19,2]*		110	110
	MSE08	Q	834 *[50,9]*	522 *[31,8]* / 312 *[19,0]*		105	110
		D	936 *[57,1]*	624 *[38,1]* / 312 *[19,0]*		80	85
		A	1 043 *[63,6]*	624 *[38,1]* / 419 *[25,6]*		80	85

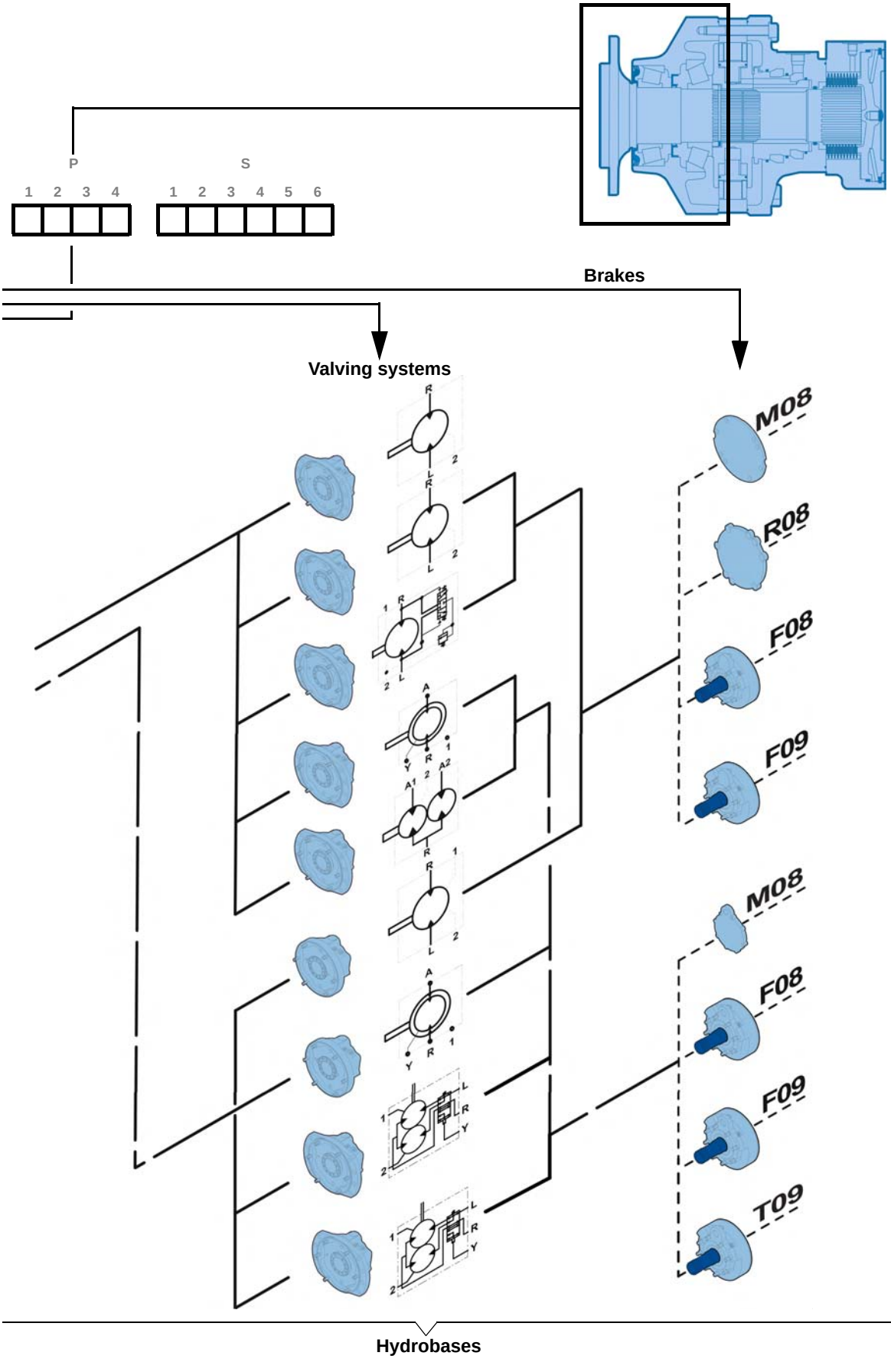
❶ **First displacement**

❷ **Second displacement**

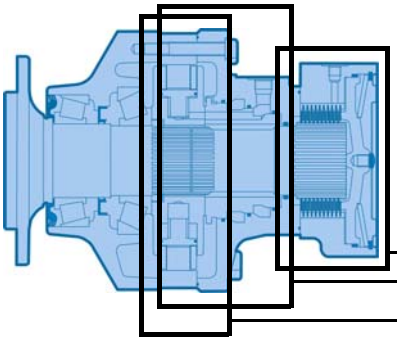
MODUL


C
D
F
M S 0 8
M S E 0 8
1
1 2 3
1 2 3
Bearing supports
Torque module
1310
1510
1610
1410
1110
1910
1210
1G10
1710
1K30
1L30
1H30
2A10
2A50
2A40
MS08
MSE08
Wheel motor
Shaft motor

ARITY


P
S
1 2 3 4
1 2 3 4 5 6
Brakes
Valving systems
M08
R08
F08
F09
M08
F08
F09
T09
Hydrobases

MODEL



	C	D	F
	1	1 2 3	1 2 3
MS08			
MSE08			

C1

Came type

		1 displacement cm³/tr [cu.in/rev.]	2 displacements cm³/tr [cu.in/rev.]	
Cams with equal lobes	MS08	467 [28.5]	234 [14.3]	6
		627 [38.2]	314 [19.2]	8
		702 [42.8]	351 [21.4]	9
		780 [47.6]	390 [23.8]	0
		857 [52.3]	429 [26.2]	1
		934 [57.0]	467 [28.5]	2
	MSE08	1 043 [63.6]	522 [31.8]	0
		1 146 [69.9]	573 [34.9]	1
		1 248 [76.1]	624 [38.1]	2
Cams with unequal lobes	MS08	624 [38.1]	390 [23.8] / 233 [14.2]	Q
		700 [42.7]	467 [28.5] / 233 [14.2]	D
		780 [47.6]	467 [28.5] / 314 [19.2]	A
	MSE08	834 [50.9]	522 [31.8] / 312 [19.0]	Q
		936 [57.1]	624 [38.1] / 312 [19.0]	D
		1 043 [63.6]	624 [38.1] / 419 [25.6]	A

D2

Valving cover

		1 Displacement	2 Displacement	Exchange	Twin-Lock™
Classic motor	Without mounting	1	4	D	
	Lug fixing	2	5	E	
HighFlow™ motor	Without mounting	B	L	-	
	Lug fixing	C	N	-	

D3

Connection type

ISO 6162 Flanges **ISO 9974-1** connections	DN13	1
ISO 6162 Flanges **ISO 1179-1** connections	DN13	2
ISO 1179-1 connections	G3/4	3
ISO 9974-1 connections	M22 x 1.5	4
ISO 9974-1 connections	M27 x 2	5
ISO 6149-1 connections	M22 x 1.5	8
ISO 11 926-1 connections	1" 1/16 - 12 UNF	A

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

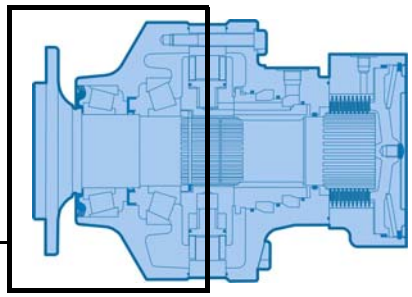
F1-F3

Rear brake

One-piece valving cover single displacement			M 0 8
Without brake (reinforced plate)			R 0 8
Brake*	Parking brake	Clipped environmental cover	F 0 8
			F 0 9
		Screwed enviromental cover	T 0 9

* Classic motor can be codified with F08/F09/T09 brakes. HighFlow™ motor can only be codified with T09 brake.

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
6 x Ø20 on Ø205		1
8 x Ø22 on Ø203.2		2
6 x Ø20 on Ø205		3
10 x Ø18 on Ø225		4
6 x Ø18 on Ø152.4		5
12 x M12 on Ø205		6
8 x Ø22 on Ø275		7
12 x Ø14 on Ø165		9
Support without drum brake		G
Drum brake (270 x 60)	Mineral	K
	DOT	L
Drum brake (315 x 80)	Mineral	P
	DOT	Q
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 E22-141 splines	1
Cylindrical with key	4
DIN 5480 splines	5

P4

Drum brake		
Without cable	4	
Right-hand cable outlet	5	(270 x 60)
Left-hand cable outlet	6	
Without cable	Q	
Right-hand cable outlet	R	(315 x 80)
Left-hand cable outlet	S	

S1-S6

Options	
Without option	0
Fluorinated elastomer seals compatible with C and D fluids	1
T4 speed sensor (without rotation direction)	2
Brake environmental cover without plug	3
Drainage (additional drain in the cover)	5
Industrial bearing support	6
Diamond™	7
Predisposition for speed sensor	8
Hollow shaft	A
Drain on the bearing support	B
Abrasive environment (mechanical seal)	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

Methodology :

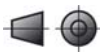
This document is intended for manufacturers of machines that incorporate Poclain Hydraulics products. It describes the technical characteristics of Poclain Hydraulics products and specifies installation conditions that will ensure optimum operation.
This document includes important comments concerning 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.**

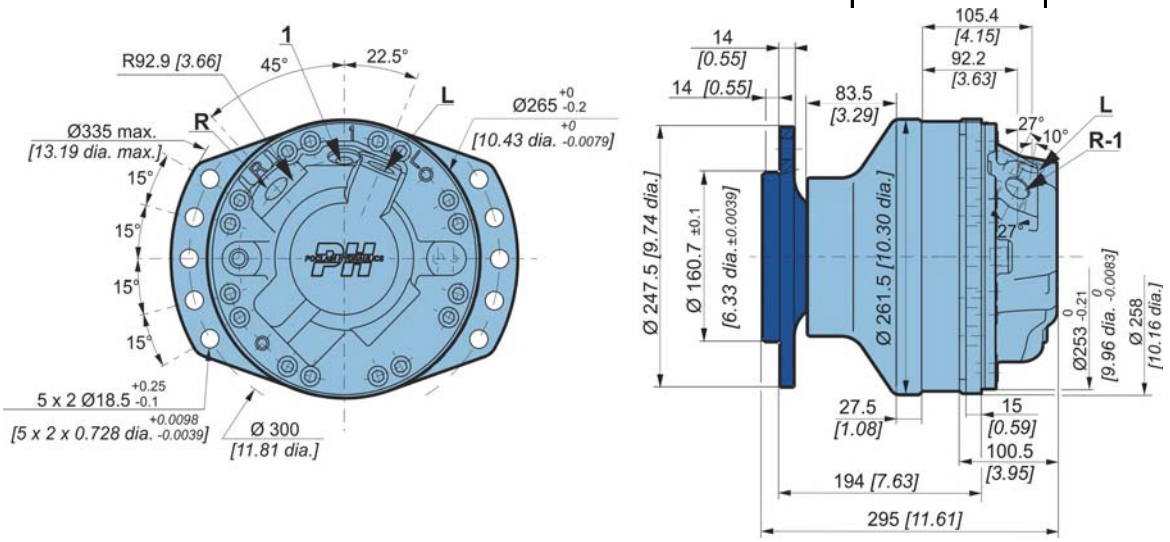
The views in this document are created using metric standards.
The dimensional data is given in mm and in inches (inches are given in brackets in italic)



WHEEL MOTOR CLASSIC

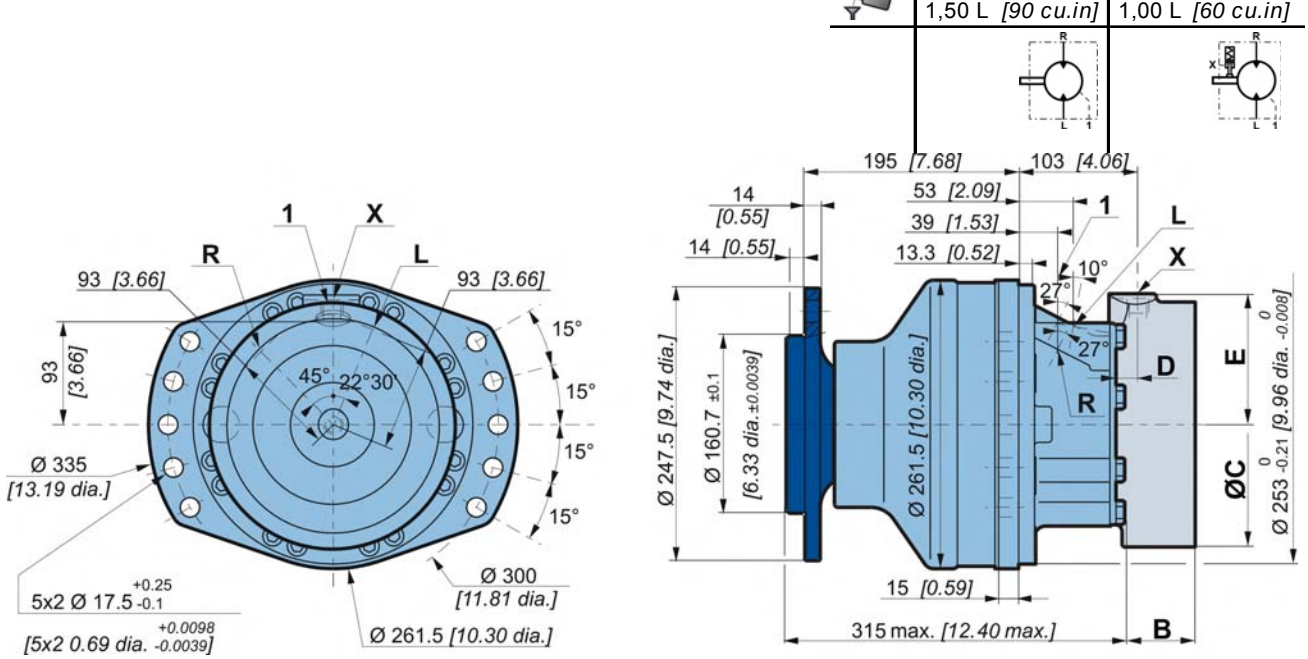
Dimensions for Classic (1110) 1-displacement motor

	60 kg *[132 lb]*	79 kg *[174 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*



Dimensions for Classic (1110) 1-displacement motor

	60 kg *[132 lb]*	79 kg *[174 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*



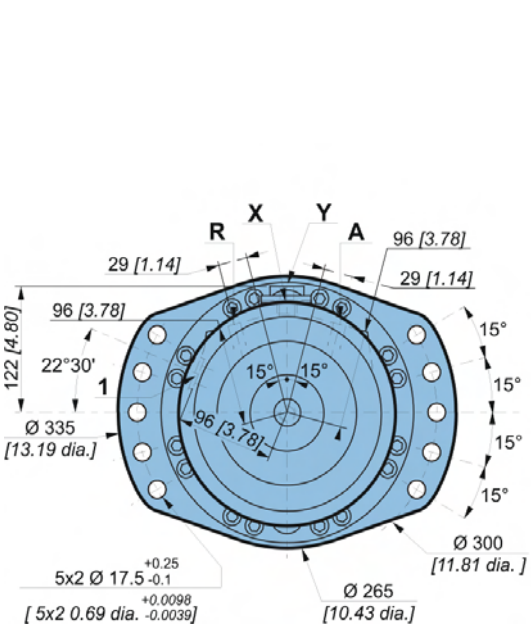
C	T09	F08	F09
B	87,10 *[3,43]*	78,3 *[3,08]*	71,3 *[2,81]*
C	Ø255 *[10,02 dia.]*	Ø222 *[8,74 dia.]*	Ø222 *[8,74 dia.]*
D	19,0 *[0,75]*	26,0 *[1,02]*	21,0 *[0,83]*
E	115,0 *[4,53]*	115,5 *[4,55]*	115,3 *[4,54]*

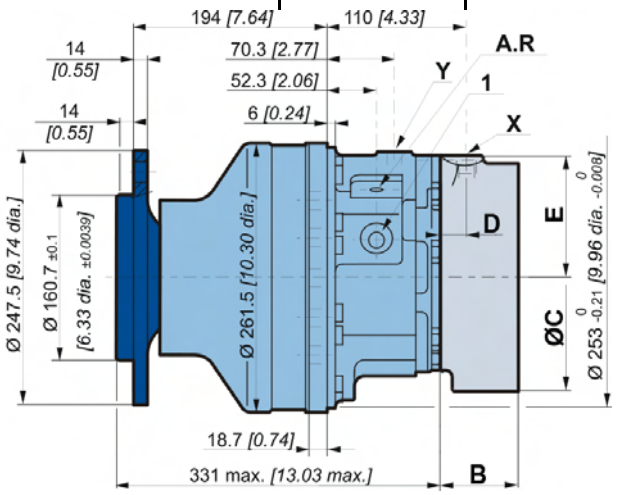
Also see “Brake” section (thumbnail opposite).

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

Dimensions for Classic (1110) 2-displacement motor

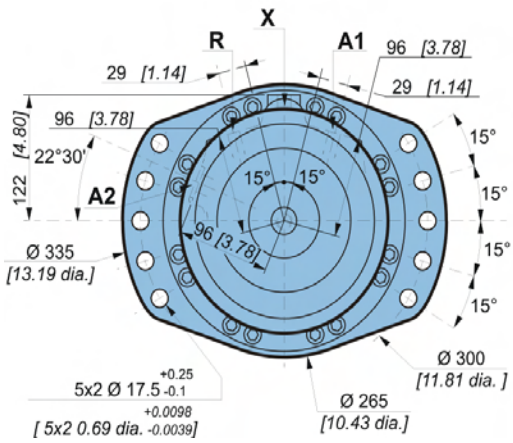
	65 kg *[143 lb]*	84 kg *[185 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*

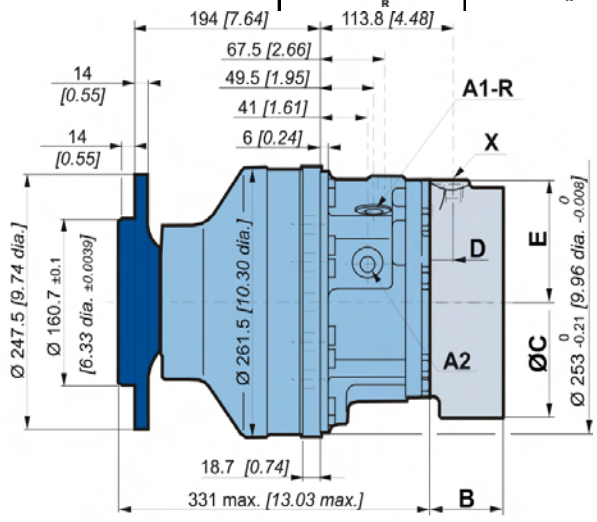


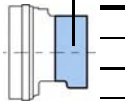


Dimensions for Classic (1110) Twin-Lock™

	65 kg *[143 lb]*	84 kg *[185 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*







	T09	F08	F09
B	87,10 *[3,43]*	78,3 *[3,08]*	71,3 *[2,81]*
C	Ø255 *[10,02 dia.]*	Ø222 *[8,74 dia.]*	Ø222 *[8,74 dia.]*
D	19,0 *[0,75]*	26,0 *[1,02]*	21,0 *[0,83]*
E	115,0 *[4,53]*	115,5 *[4,55]*	115,3 *[4,54]*

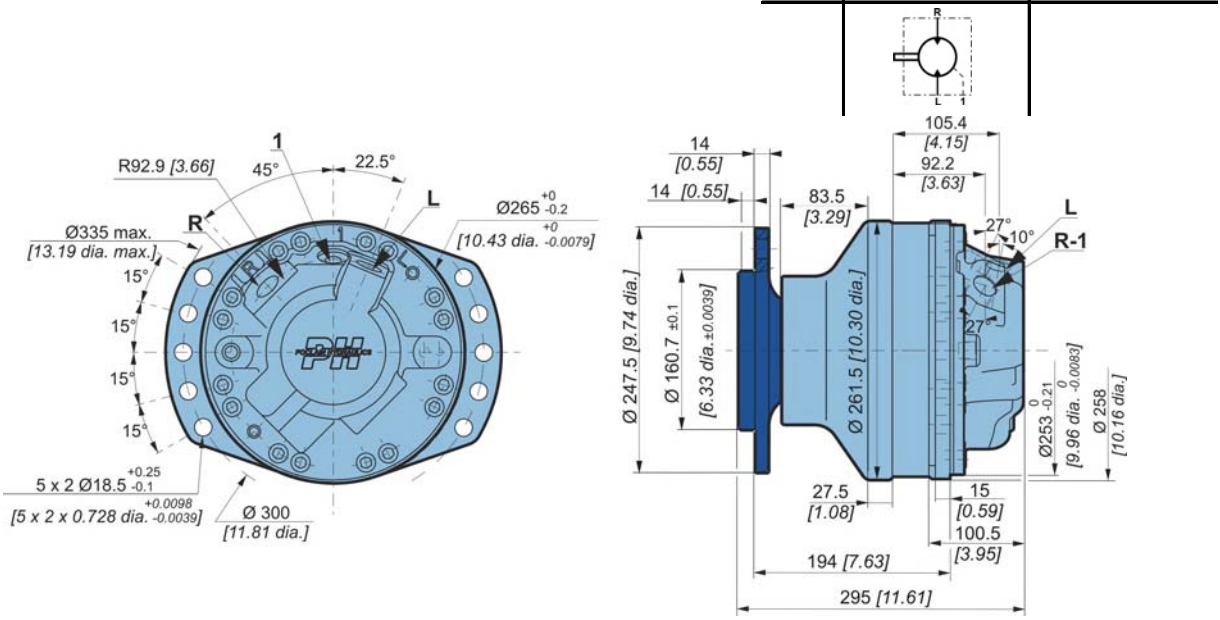
Also see “Brake” section (thumbnail opposite).

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

WHEEL MOTOR HIGHFLOW™

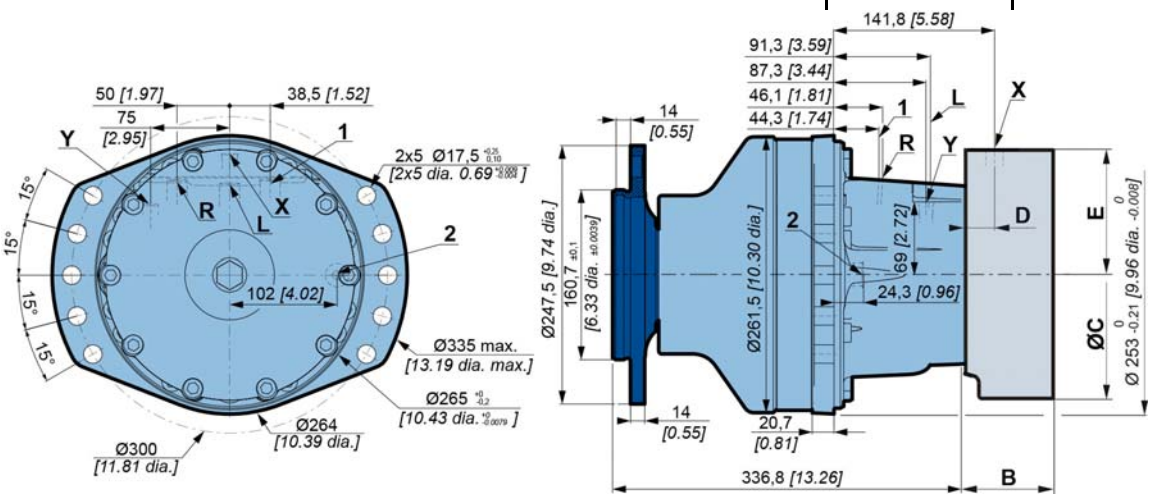
Dimensions for HighFlow™ (1110) 1-displacement motor

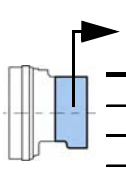
	60 kg *[132 lb]*	79 kg *[174 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*



Dimensions for HighFlow™ (1110) 2-displacement motor

	60 kg *[132 lb]*	79 kg *[174 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*



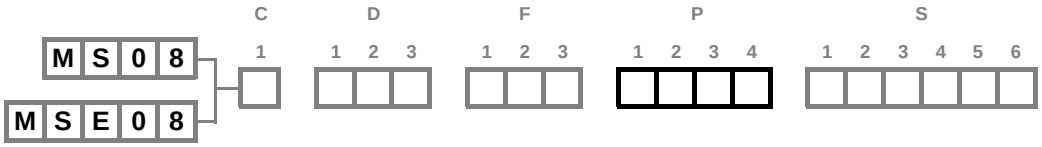


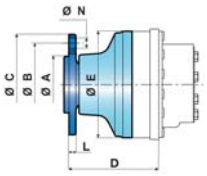
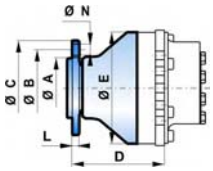
	T 0 9
B	88,2 *[3,47]*
C	Ø238 *[9,37 dia.]*
D	21,0 *[0,83]*
E	114,0 *[4,49]*

Also see “Brake” section (thumbnail opposite).

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

Bearing support for Classic and HighFlow™ motor



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]*	
1 1 1 0	Ø 160,7 *[6,33 dia.]*	Ø 205 *[8,07 dia.]*	Ø 245 *[9,65 dia.]*	195 *[7,68]*	Ø 261,5 *[10,30 dia.]*	6 x Ø 20 *[6 x 0,79 dia.]*	M18x1.5	13,5 *[0,53]*	
1 2 1 0	Ø 150,9 *[5,94 dia.]*	Ø 203,2 *[8,00 dia.]*	Ø 238 *[9,37 dia.]*	194,1 *[7,64]*	Ø 261,5 *[10,30 dia.]*	8 x Ø 22 *[8 x 0,87 dia.]*	M20x1.5	13,5 *[0,53]*	
1 4 1 0	Ø 175,7 *[6,92 dia.]*	Ø 225 *[8,86 dia.]*	Ø 270 *[10,63 dia.]*	188,8 *[7,43]*	Ø 261,5 *[10,30 dia.]*	10 x Ø 18 *[10 x 0,71 dia.]*	M16x1.5	15 *[0,59]*	
1 3 1 0 ⊖	Ø 160,7 *[6,33 dia.]*	Ø 205 *[8,07 dia.]*	Ø 245 *[9,65 dia.]*	163 *[6,42]*	Ø 261,5 *[10,30 dia.]*	6 x Ø 20 *[6 x 0,79 dia.]*	M18x1.5	14 *[0,55]*	
1 5 1 0 ⊖	Ø 117,5 *[4,63 dia.]*	Ø 152,4 *[6,00 dia.]*	Ø 181 *[7,13 dia.]*	163 *[6,42]*	Ø 261,5 *[10,30 dia.]*	6 x Ø 18 *[6 x 0,71 dia.]*	M14x1.5	11 *[0,43]*	
1 6 1 0 ⊖	Ø 160,7 *[6,33 dia.]*	Ø 205 *[8,07 dia.]*	Ø 245 *[9,65 dia.]*	163 *[6,42]*	Ø 261,5 *[10,30 dia.]*	12 x M12	-	14,8 *[0,58]*	

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

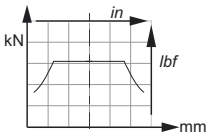
Load curves for Classic and HighFlow™ motor

Permissible radial loads

Test conditions :

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

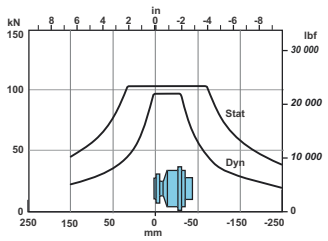
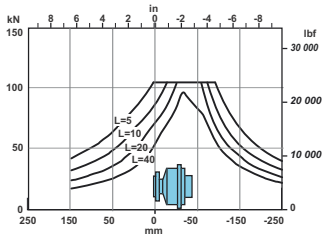
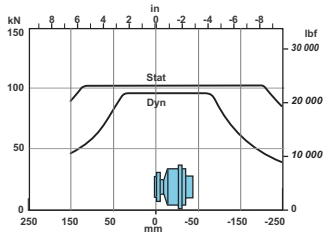
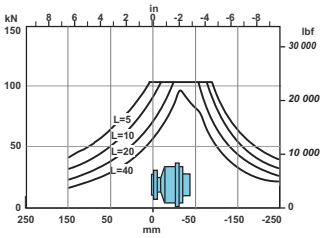
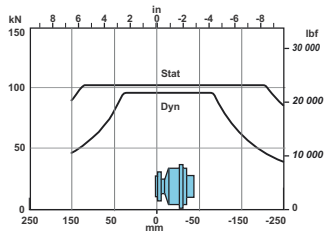
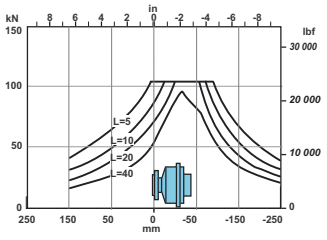
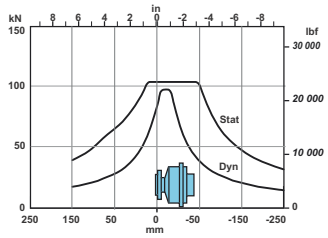
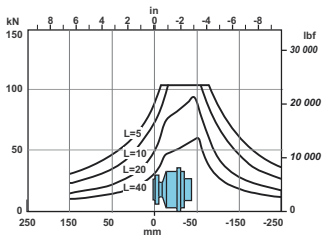
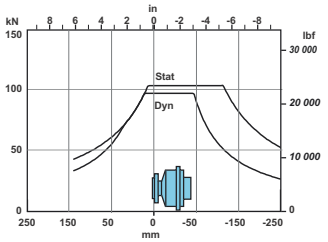
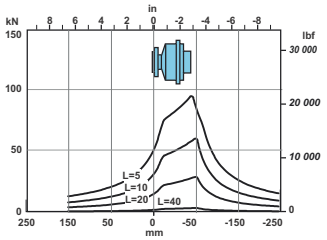
Dynamic : 0 tr/min *[0 RPM]*, code 0 displacement, without axial load at max. torque



Service life of bearings

Test conditions :

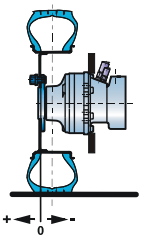
L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.

1 1 1 0		
1 2 1 0		
1 4 1 0		
1 3 1 0 1 6 1 0		
1 5 1 0		

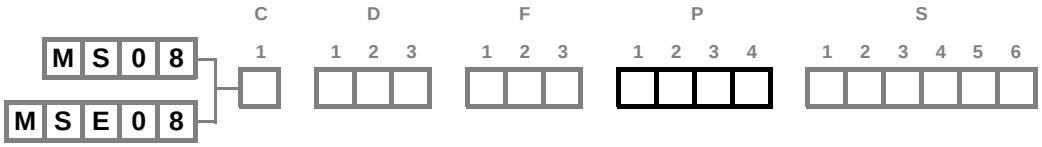
1 2 3 4

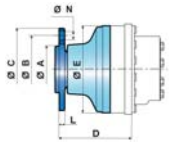
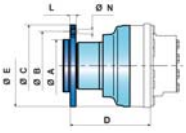
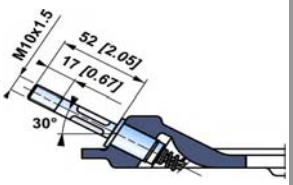
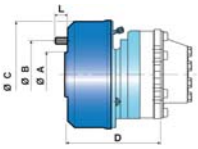
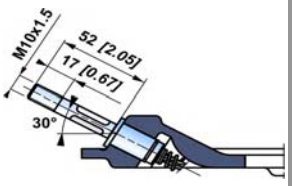
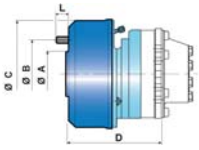
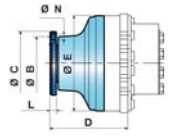
P

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.



Bearing support for Classic and HighFlow™ motor (continued)

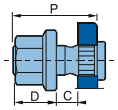


C	A mm *[in]*	B mm *[in]*	C mm *[in]*	D mm *[in]*	E mm *[in]*	N mm *[in]*	Wheel rim mountings	L mm *[in]*	
1 9 1 0	Ø 117,5 *[4,63 dia.]*	Ø 165 *[6,50 dia.]*	Ø 186 *[7,32 dia.]*	163,2 *[6,43]*	Ø 261,5 *[10,30 dia.]*	12 x Ø 14 *[12 x 0,55 dia.]*	-	12 *[0,47]*	
1 G 1 0	Ø 175,7 *[6,92 dia.]*	Ø 225 *[8,86 dia.]*	Ø 265 *[10,43 dia.]*	228,6 *[9,00]*	Ø 261,5 *[10,30 dia.]*	10 x Ø 24 *[10 x 0,94 dia.]*	M22x1.5	15 *[0,59]*	
1 K 3 0 1 L 3 0	Ø 160,7 *[6,33 dia.]*	Ø 205 *[8,07 dia.]*	Ø 286 *[11,26 dia.]*	255,8 *[10,07]*			6 x M18x1.5	30 *[1,18]*	 Friction surface 270 x 60
1 P 3 0 1 Q 3 0	Ø 175,7 *[6,92 dia.]*	Ø 225 *[8,86 dia.]*	Ø 344 *[13,54 dia.]*	238,3 *[9,38]*			10 x M22x1.5	39 *[1,54]*	 Friction surface 315 x 80
1 7 1 0	Ø 220,7 *[8,69 dia.]*	Ø 275 *[10,83 dia.]*	Ø 314 *[12,36 dia.]*	194 *[7,64]*	Ø 261,5 *[10,30 dia.]*	8 x Ø 22 *[8 x 0,87 dia.]*	M20x1.5	14 *[0,55]*	

Also see "Brake" section (thumbnail opposite).

Also see "Brake" section (thumbnail opposite).

Studs

		P mm *[in]*	C min. mm *[in]*	C max. mm *[in]*	D mm *[in]*		Class
Various studs	M14x1.5	45 *[1,77]*	5 *[0,20]*	15 *[0,57]*	16,5 *[0,65]*		12,9
	M18x1.5	55 *[2,17]*		18 *[0,71]*	23 *[0,91]*		
	M18x1.5	65 *[2,56]*		23 *[0,91]*	25 *[0,98]*		
	M20x1.5	60 *[2,36]*		21 *[0,83]*	26 *[1,02]*		
	M22x1.5	55 *[2,17]*		15 *[0,59]*			
	M22x1.5	80 *[3,15]*		40 *[1,57]*			
Screws	M12x1.75	-	-				10.9
	1/2"-20 UNF	-	-				10.9

See generic installation motors N°B51352L.

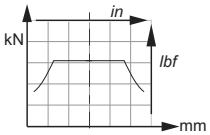
Load curves for Classic and HighFlow™ motor (continued)

Permissible radial loads

Test conditions :

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

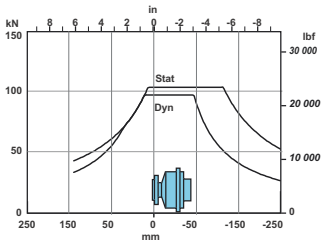
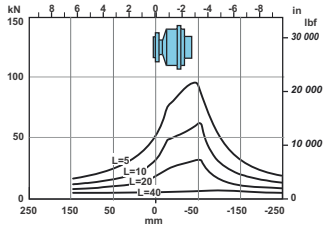
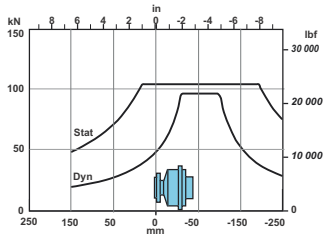
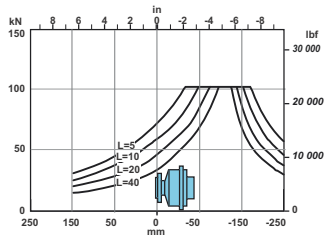
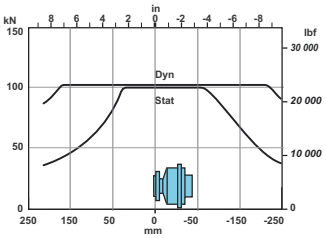
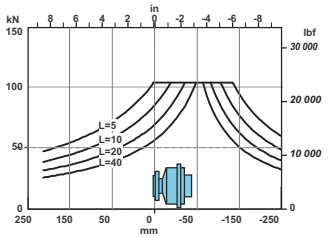
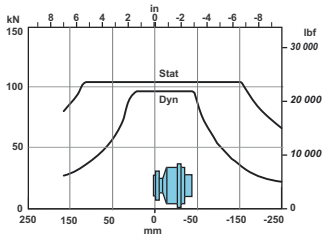
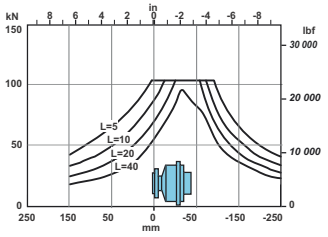
Dynamic : 0 tr/min *[0 RPM]*, code 0 displacement, without axial load at max. torque



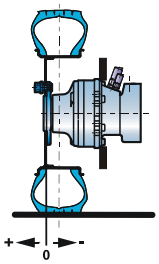
Service life of bearings

Test conditions :

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

1 9 1 0 1 2 3 4 P		
1 G 1 0 1 K 3 0 1 L 3 0 1 2 3 4 P Friction surface 270 x 60		
1 G 1 0 1 P 3 0 1 Q 3 0 1 2 3 4 P Friction surface 315 x 80		
1 7 1 0 1 2 3 4 P		

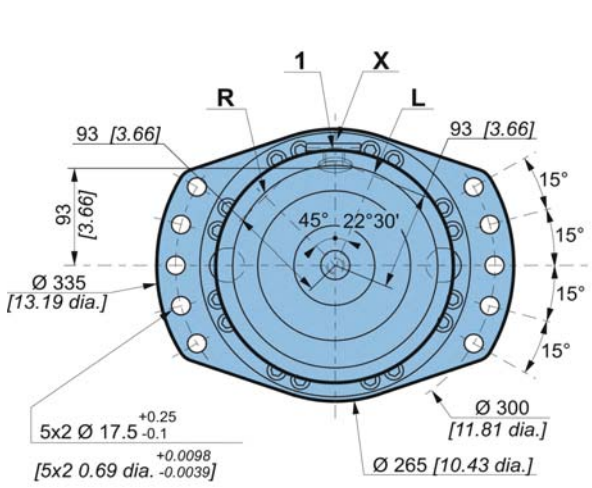
The service life of the components is influenced by the pressure.You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications.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

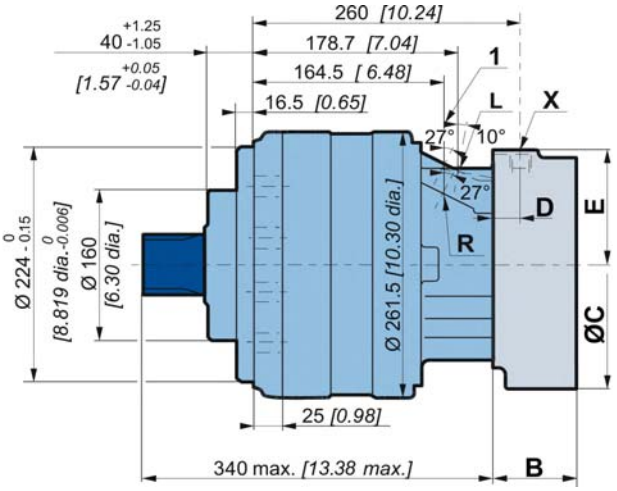


SHAFT MOTOR CLASSIC

Dimensions for Classic (2A50) 1-displacement motor

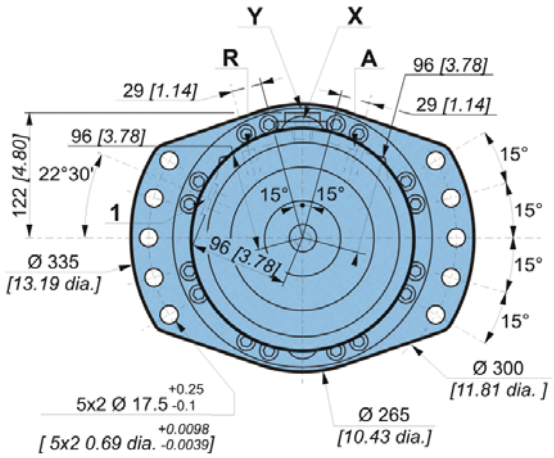
	62 kg *[136 lb]*	80 kg *[176 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*

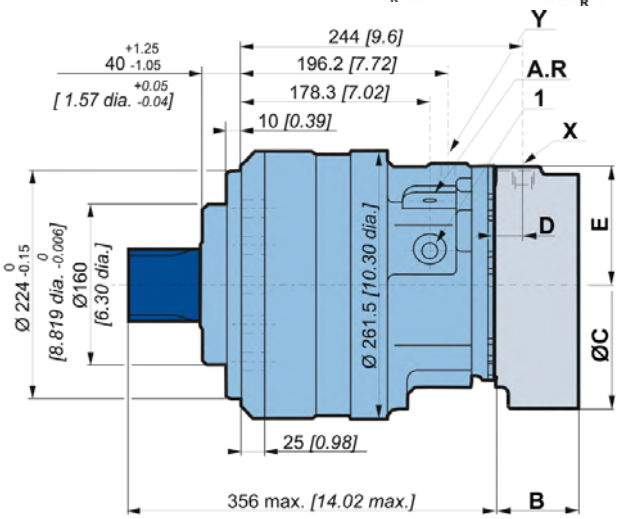




Dimensions for Classic (2A50) 2-displacement motor

	67 kg *[147 lb]*	85 kg *[187 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*





	C	T09	F08	F09
B		87,10 *[3,43]*	78,3 *[3,08]*	71,3 *[2,81]*
C		Ø255 *[10,02 dia.]*	Ø222 *[8,74 dia.]*	Ø222 *[8,74 dia.]*
D		19,0 *[0,75]*	26,0 *[1,02]*	21,0 *[0,83]*
E		115,0 *[4,53]*	115,5 *[4,55]*	115,3 *[4,54]*

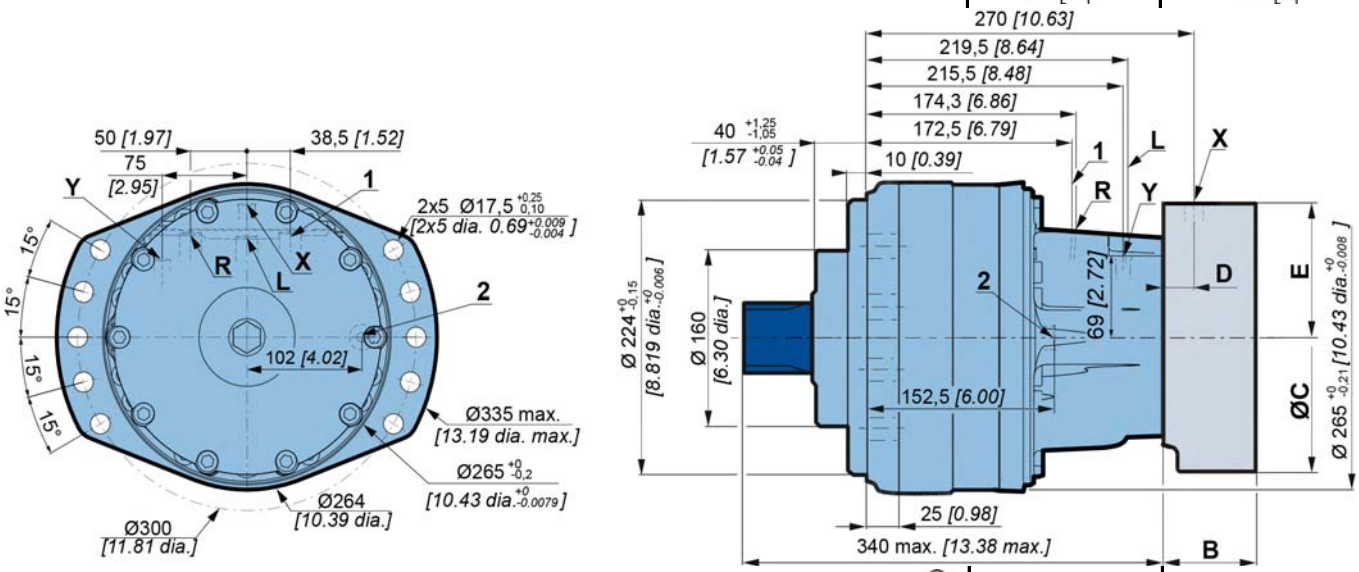
Also see “Brake” section (thumbnail opposite).

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

SHAFT MOTOR HIGHFLOW™

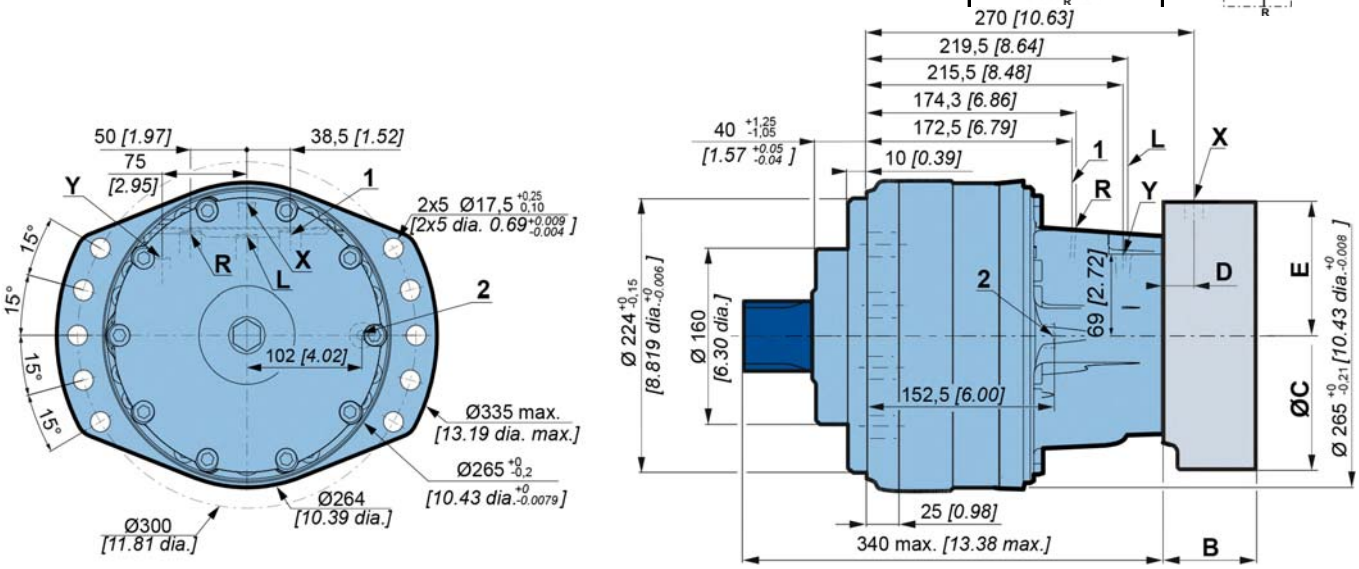
Dimensions for HighFlow™ (2A50) 1-displacement motor

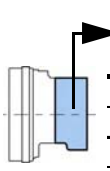
	62 kg *[136 lb]*	80 kg *[176 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*



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

	67 kg *[147 lb]*	85 kg *[187 lb]*
	1,50 L *[90 cu.in]*	1,00 L *[60 cu.in]*



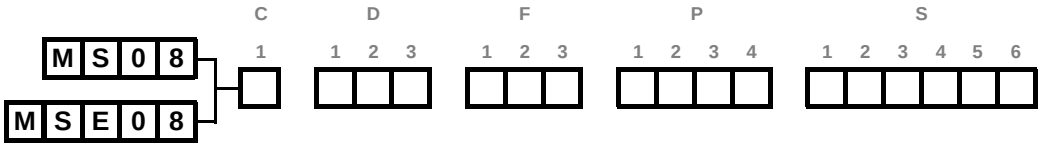


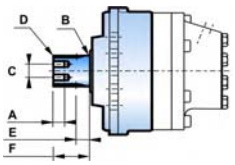
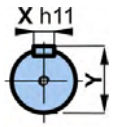
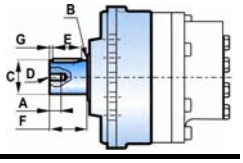
T 0 9	
B	88,2 *[3,47]*
C	Ø238 *[9,37 dia.]*
D	21,0 *[0,83]*
E	114,0 *[4,49]*

Also see “Brake” section (thumbnail opposite).

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

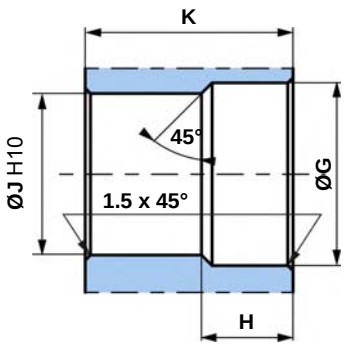
Bearing support for Classic and HighFlow™ motor



C			A	B	C	D	E	F	
2 A 5 0 (1 2 3 4 P)	**DIN 5480** splines Nominal Ø 70 *[2,76]* Module 3 Z 22		15 *[0,59]*	R 2,5 *[R 0,10]*	35 *[1,38]*	2 x M10	23 *[0,91]*	70 *[2,76]*	
2 A 1 0 (1 2 3 4 P)	**NF E22-141** splines Nominal Ø 65 *[2,56]* Module 2.5 Z 24		15 *[0,59]*	R 2,5 *[R 0,10]*	35 *[1,38]*	2 x M10	24 *[0,94]*	70 *[2,76]*	
2 A 4 0 (1 2 3 4 P)	**DIN 6885** Key X 20 *[0,79]* Y 74 max. *[2,91] max.*		30 *[1,18]*	R 2,5 *[0,10 R.]*	Ø 69,99 *[2,76 dia.]*	M16	90 *[3,54]*	106 *[4,17]*	

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

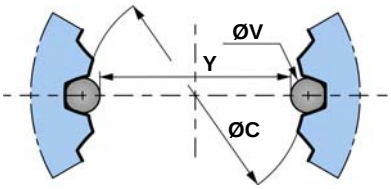
Splined coupling



Standard NF E22-141
Pressure angle 20°.
Centering on flanks.
Slide fit (7H quality).

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

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



C	Ø G	H	Ø J	K	N	Mo	Z	Offset	Ø C (H10)	Ø V	Y	Tolerance µm *[µin]*
2 A 1 0 (1 2 3 4 P)	66 *[2,60]*	25 *[0,98]*	60 *[2,36]*	69 *[2,72]*	65 *[2,56]*	2,5	24	2 *[0,08]*	60 *[2,36]*	5 *[0,20]*	55,169 *[2,17]*	+ 86 / 0 *[+3.386 / 0]*
2 A 5 0 (1 2 3 4 P)	71,5 *[2,81]*	25 *[0,98]*	64 *[2,52]*	69 *[2,72]*	70,0 *[2,76]*	3	22	+0,35 *[+0,0138]*	64,0 *[2,52]*	5,25 *[0,21]*	59,042 *[2,32]*	+ 76 / +28 *[+2.992 / +1.1]*

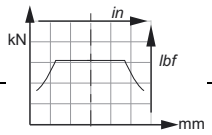
General tolerances : ± 0.25 *[±0.0098]*.
Material: Ex: 42CrMo4.
Hardening treatment to obtain R = 800 to 900 N/mm² *[R = 116 030 to 130 533 PSI]*.

Load curves for Classic and HighFlow™ motor

Permissible radial loads

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

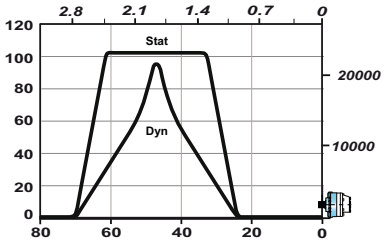
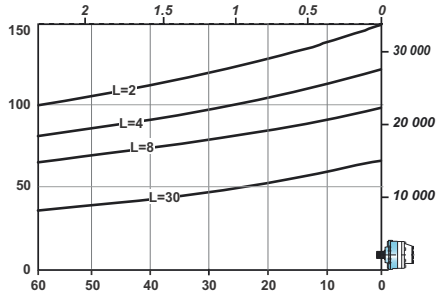
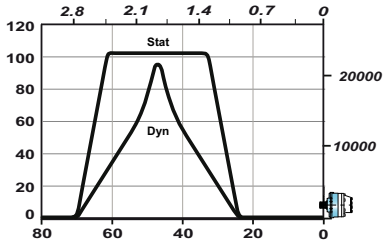
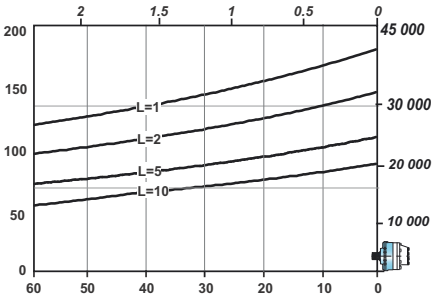
Continuous permissible loads:
> 0 tr/min *[> 0 RPM]*; 275 bar *[3 988 PSI].*



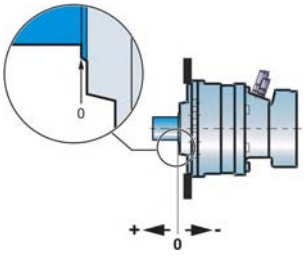
Service life of bearings

Test conditions :

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

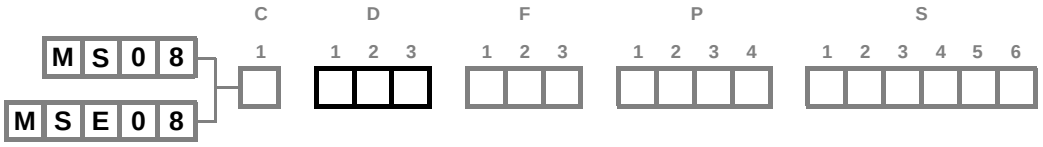
2 A 5 0 1 2 3 4 P		
2 A 1 0 1 2 3 4 P		

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.



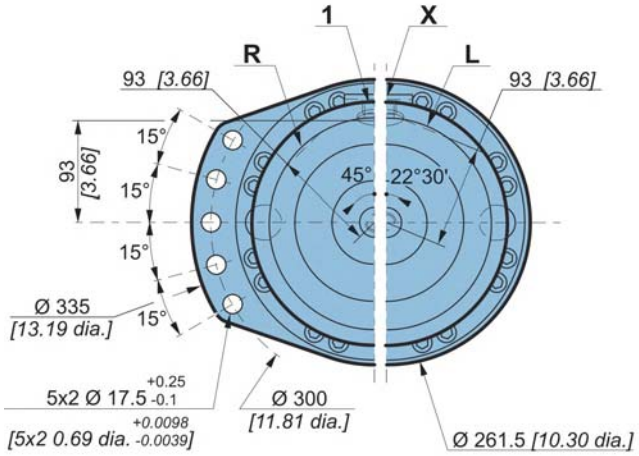
VALVING SYSTEMS AND HYDROBASES

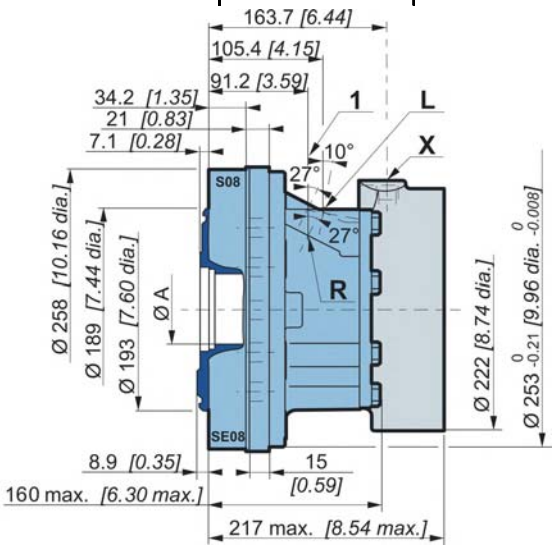
for Classic motor on demand for HighFlow™ motor



Dimensions for 1-displacement valving

	34,4 kg *[76 lb]*	51,8 kg *[114 lb]*
	0,50 L *[30 cu.in]*	1,00 L *[60 cu.in]*

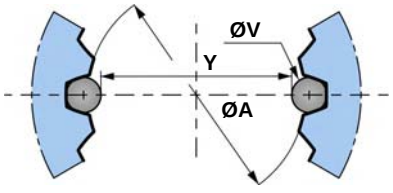




Cylinder block splines

(as per standard NF E22-141)

ØA	Module	Z	Dimension on 2 pins Y	ØV
60 *[2,362]*	2,5	24	69,580 *[2,739]*	4,5 *[0,177]*



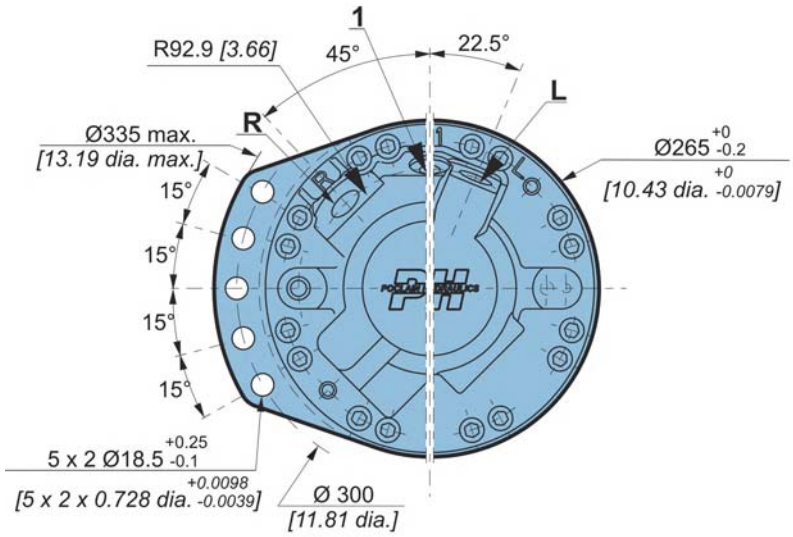
You are advised to have the installation validated by your Poclain Hydraulics application engineer before using the hydraulic unit in an application.

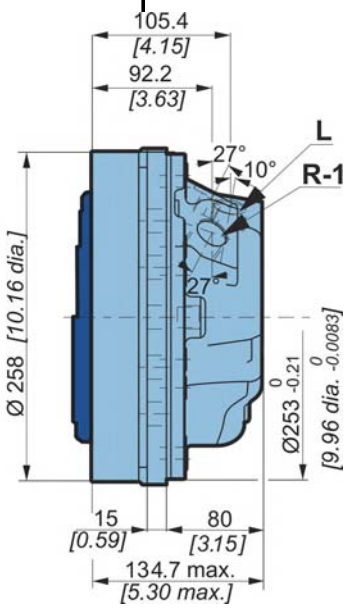
We must provide you with a detailed plan of the interface for any hydraulic unit use, consult your Poclain Hydraulics sales engineer.

Dimensions for one-piece valving single displacement

	35 kg *[77 lb]*
	0,50 L *[30 cu.in]*

D			F			D			F		
1	2	3	1	2	3	1	2	3	1	2	3
1	2		M	0	8	1	1		M	0	8

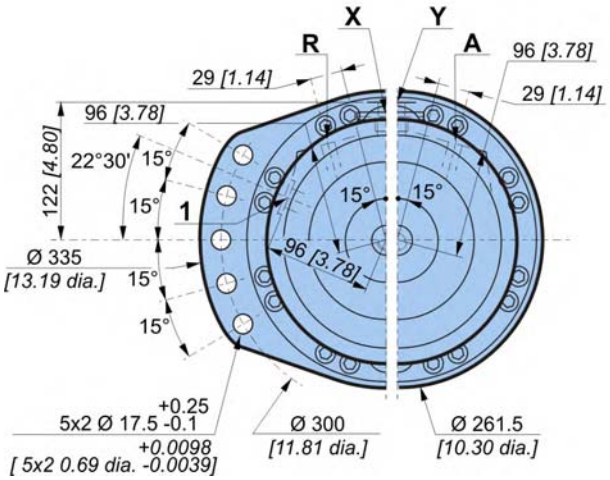


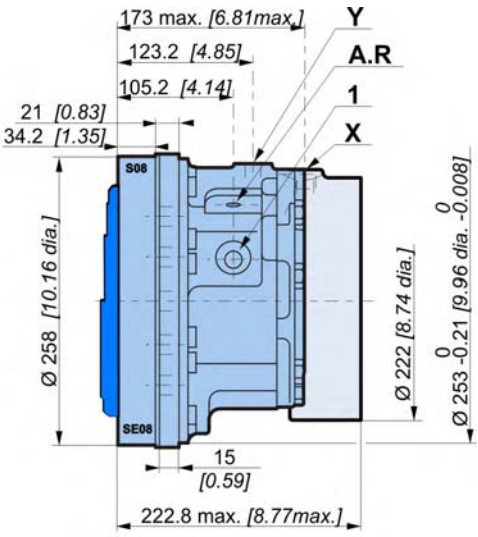


Dimensions for 2-displacement valving

	37,8 kg *[83 lb]*	54,7 kg *[120 lb]*
	0,50 L *[30 cu.in]*	1,00 L *[60 cu.in]*

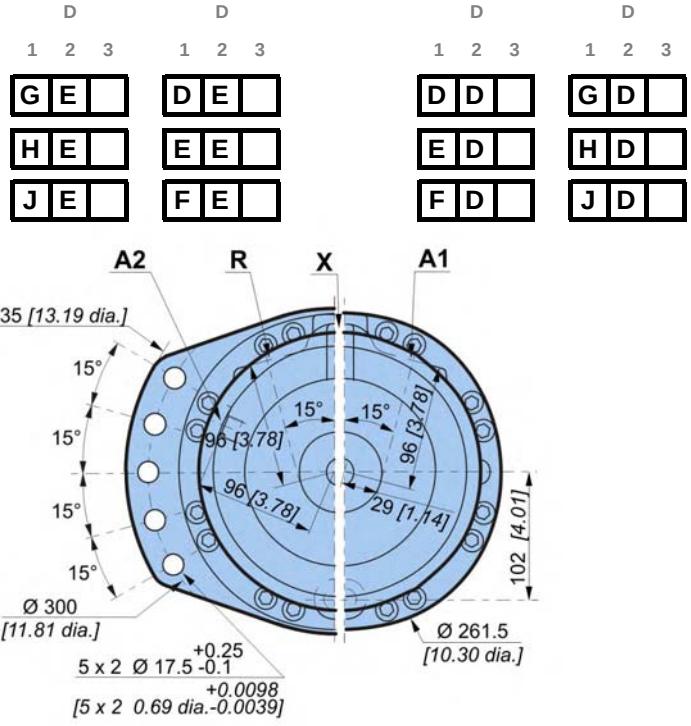
D			D		
1	2	3	1	2	3
A	2		A	1	
B	2		B	1	
C	2		C	1	

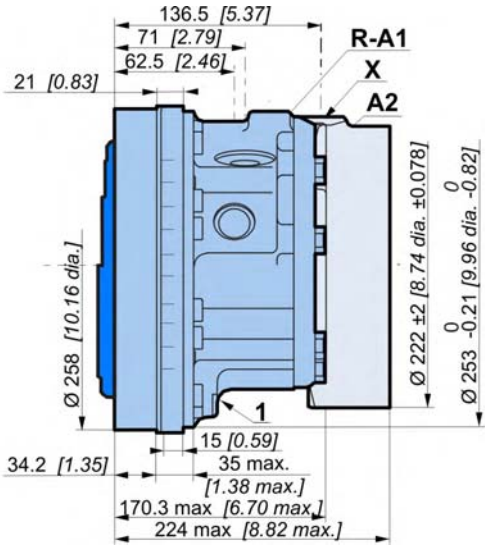




Dimensions for Twin-Lock™ valving

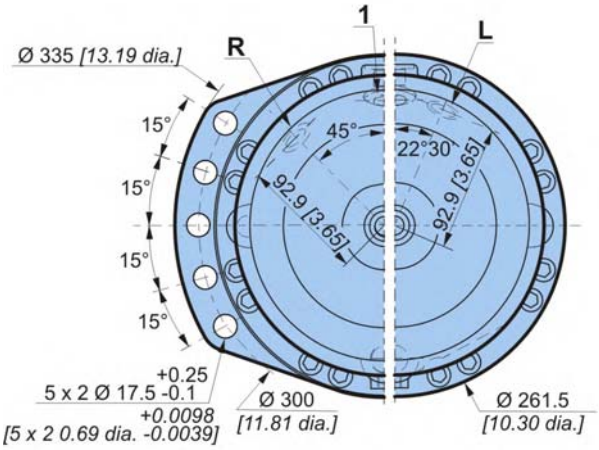
	37,8 kg *[83 lb]*	54,7 kg *[120 lb]*
	0,50 L *[30 cu.in]*	1,00 L *[60 cu.in]*

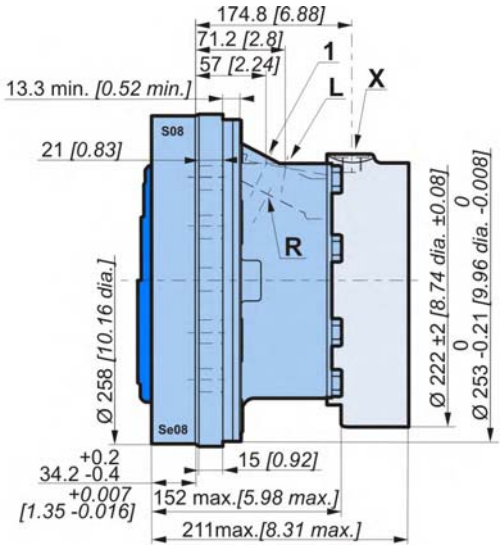




Dimensions for 1-displacement valving with built-in exchange

	34,4 kg *[76 lb]*	51,8 kg *[114 lb]*
	0,50 L *[30 cu.in]*	1,00 L *[60 cu.in]*



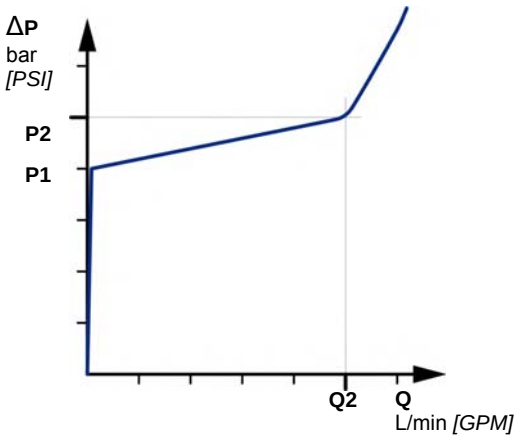


Exchange

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

Selector spool

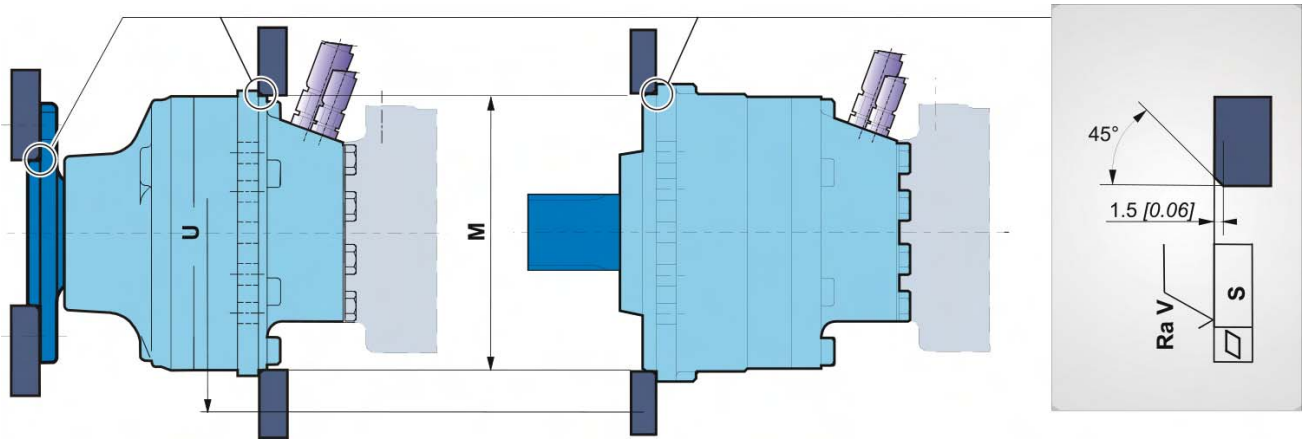
Selector threshold bar *[PSI]*	Opening pressure of selector bar *[PSI]*
8 *[116]*	9.9 ±1.2 *[144 ±17]*



Fitted valve

P1 bar *[PSI]*	Q2 L/min *[GPM]*	P2 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



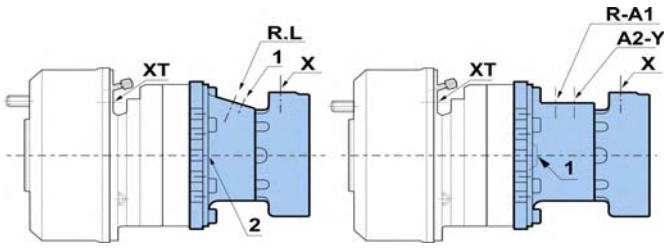
Take care over the immediate environment of the connections.

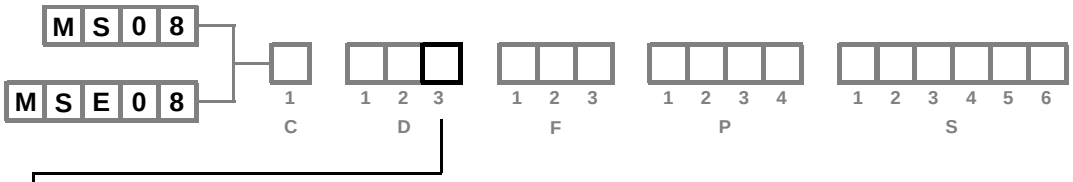
	ØM (1)	ØU	S	Ra V		Class
Wheel motor	253 *[9,96]*	300 *[11,81]*	0,2 *[0,008]*	12,5µm *[0,49µin]*	2 x 5 M16 x 2	8,8
Shaft motor	224 *[8,82]*	300 *[11,81]*				

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

See generic installation motors N°B51352L.

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 11 926-1	3/4"-16 UNF		9/16"-18 UNF	M12 x 1.5 M14 x 1.5 (ISO 9974-1)
	1	ISO 6162	SAE 6000 PSI- 1/2"	ISO 9974-1	M18 x 1.5		M16 x 1.5	
	2	ISO 6162	SAE 6000 PSI- 1/2"	ISO 1179-1	BSP 3/8		BSP 3/8	
	4	ISO 9974-1	M22 x 2	ISO 9974-1	M18 x 1,5		M16 x 1.5	
	5	ISO 9974-1	M27 x 2	ISO 9974-1	M18 x 1.5		M16 x 1.5	
	8	ISO 6149-1	M22 x 2	ISO 6149-1	M18 x 1.5		M16 x 1.5	
					1, 2	Y	X	XT
	A	ISO 11 926-1	1"1/16-12 UNF	ISO 11 926-1	3/4"-16 UNF	9/16"-18 UNF	9/16"-18 UNF	M12 x 1.5
	1	ISO 6 162	SAE 6000 PSI- 1/2"	ISO 9974-1	M18 x 1.5	M14 x 1.5	M16 x 1.5	M14 x 1.5
	5	ISO 9974-1	M27 x 2	ISO 9974-1	M18 x 1.5	M14 x 1.5	M16 x 1.5	(ISO 9974-1)
					1, 2	Y	X	XT
	A	ISO 11 926-1	1"1/16-12 UNF	ISO 11 926-1	3/4"-16 UNF	9/16"-18 UNF	9/16"-18 UNF	M12 x 1.5
	3	ISO 1179-1	BSP 3/4	ISO 1179-1	BSP 3/8	BSP 1/4	BSP 1/4	M14 x 1.5
	5	ISO 9974-1	M27 x 2	ISO 9974-1	M18 x 1.5	M14 x 1.5	M16 x 1.5	(ISO 9974-1)

Max. pressures	**MS** **MSE**	bar *[PSI]*	450 *[6 527]* 400 *[5 802]*		1 *[15]*	30 *[435]*	30 *[435]*	120 *[1 740]*

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

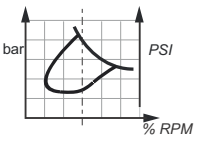
To find the connections' tightening torques, see the brochure "Installation guide" N° B61352L.

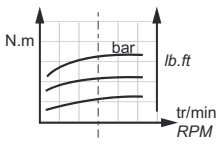
Do not put either a check valve or a poppet valve on the pilot lines (parking brake and displacement change) between the charge pump and the pilot valve. Do not use a piloting valve with integrated check valve.

Efficiency for Classic and HighFlow™ motor

Overall efficiency

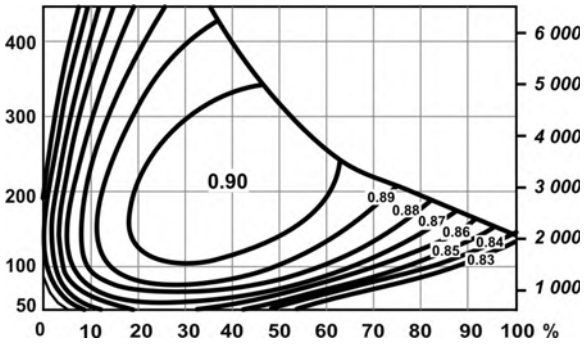
Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C *[122°F]*.

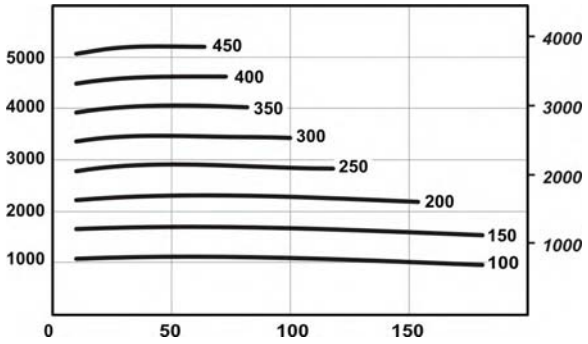




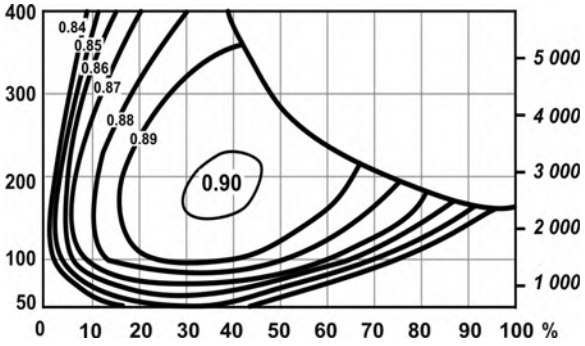
Actual output torque

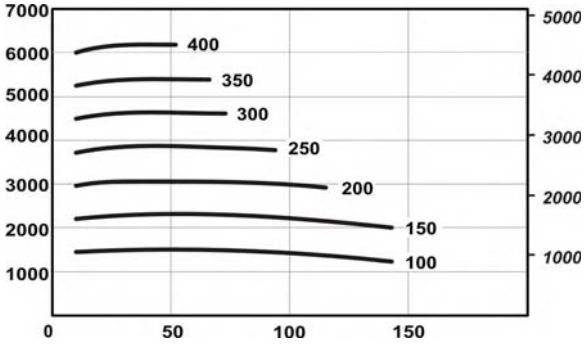
MS08





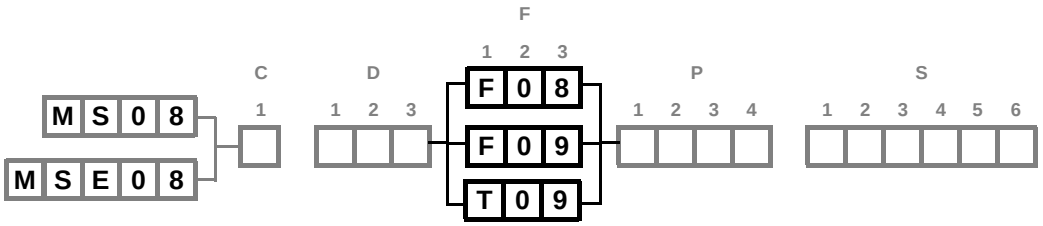
MSE08



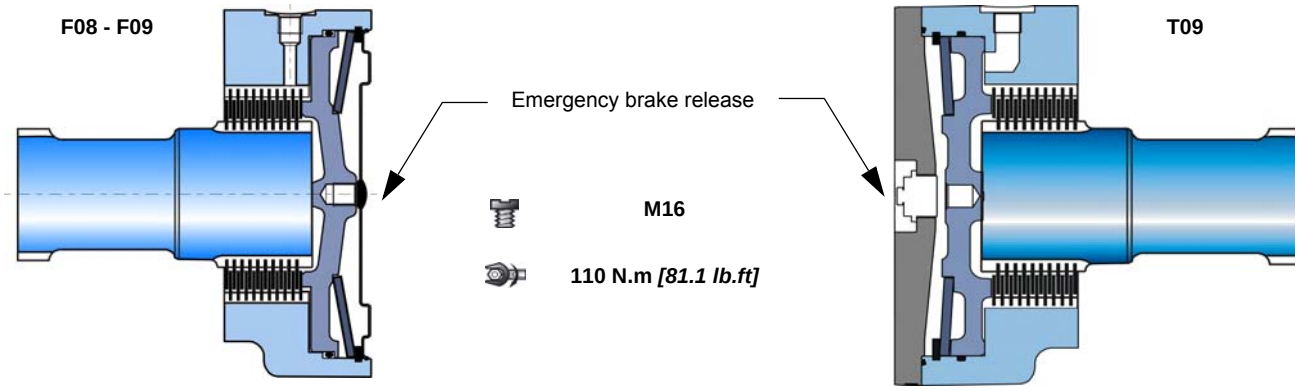


For a precise calculation, consult your Poclain Hydraulics application engineer.

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 8	F 0 9 T 0 9
Parking brake torque at 0 bars on housing (new brake)	5 620 Nm *[4 150 lb.ft]*	9 000 Nm *[6 640 lb.ft]*
Dynamic emergency braking torque at 0 bars on housing (max. 10 uses of emergency brakes)	3 653 Nm *[2 690 lb.ft]*	5 850 Nm *[4 310 lb.ft]*
Residual parking braking at 0 bars on housing *	4 215 Nm *[3 110 lb.ft]*	6 750 Nm *[4 980 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 cm³ *[6,1 cu.in]*	100 cm³ *[6,1 cu.in]*
Volume for brake release	40 cm³ *[2,4 cu.in]*	40 cm³ *[2,4 cu.in]*
Max. energy dissipation		110 336 J

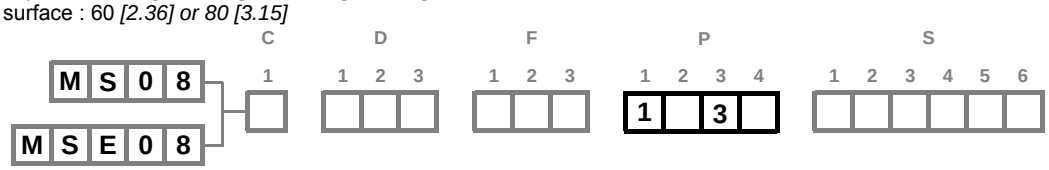
* After emergency brake has been used

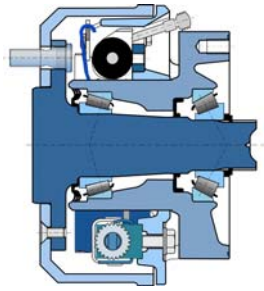
Do not run-in the multidisc brakes.

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 application engineer.

Drum brake (270 x 60 or 315 x 80)

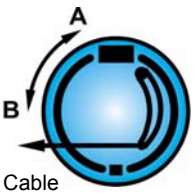
Diameter of brake pads : Ø 270 *[7.99 dia.] or Ø 315 [12.4 dia]*
Width of friction surface : 60 *[2.36] or 80 [3.15]*





Brake pads		270 x 60	315 x 80
Asbestos free material		BERAL 1109	BERAL 1518
Compensation for wear			
Hydraulically controlled dynamic braking		Automatic	Automatic
Max. permissible continuous brake torque		3 600 N.m *[2 655 lb.ft]*	7 200 N.m *[5 310 lb.ft]*
Pressure to obtain max. permissible continuous brake torque		74 bar *[1 073 PSI]*	71 bar *[1 030 PSI]*
Max. permissible brake torque		6 000 N.m *[4 425 lb.ft]*	12 000 N.m *[8 851 lb.ft]*
Pressure to obtain max. permissible brake torque		120 bar *[1 740 PSI]*	120 bar *[1 740 PSI]*
Fluid			
Mineral		C **K** Yes	C **P** Yes
DOT 3/DOT4/SAE J1703		C **L** Yes	C **Q** Yes
Max. volume required to bring pads into contact		8,6 cm³ *[0,52 cu.in]*	5,4 cm³ *[0,33 cu.in]*
Mechanically controlled parking brake			
Max. braking torque		6 000 N.m *[4 425 lb.ft]*	12 000 N.m *[8 851 lb.ft]*
Max permissible force on the cable		2 000 N *[450 lbf]*	3 800 N *[854 lbf]*
Force required to bring pads into contact		35 N *[8 lbf]*	64 N *[14 lbf]*
Stroke required to bring pads into contact	**A**	11,5 mm *[0,45 "]*	10,5 mm *[0,41 "]*
	B	13,0 mm *[0,51 "]*	12,0 mm *[0,47 "]*
Max. stroke before automatic brake adjustment	**A**	10,0 mm *[0,39 "]*	12,5 mm *[0,49 "]*
	B	11,3 mm *[0,44 "]*	14,0 mm *[0,55 "]*

End view of shaft



To validate the drum brake, it is necessary to carry out sufficient vehicle tests under real operation conditions, especially to confirm the brake response, the noise and thermal behavior of the brakes. The responsibility for the suitability of the brake is assigned to the vehicle manufacturer.

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

Control

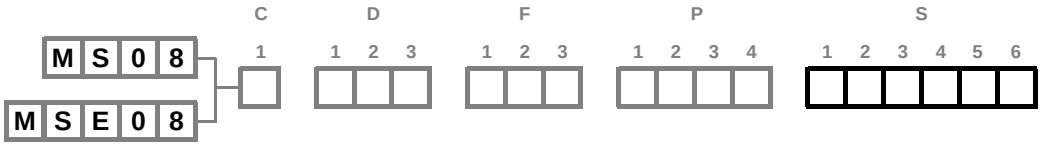
The drum brakes can be controlled hydraulically (service brake) and by a cable (mechanical control for parking brake).

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.

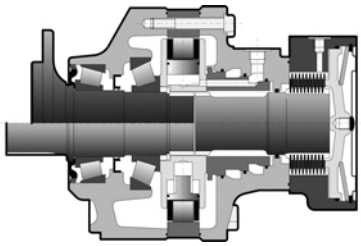
OPTIONS



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

1 - Fluorinated elastomer seals

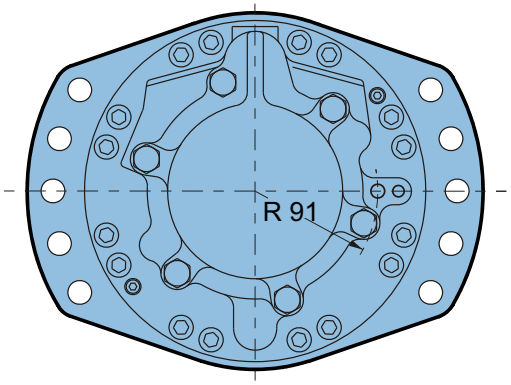
Nitrile seals marked in the figure below replaced by fluorinated elastomer seals.

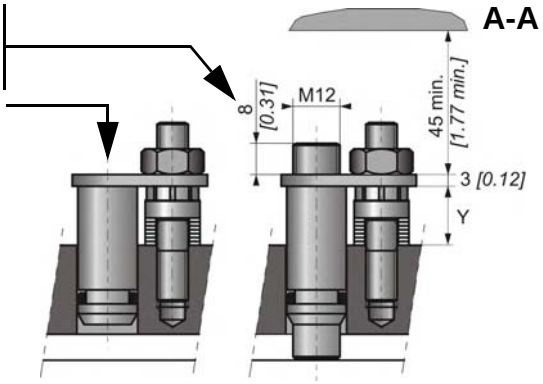


Consult your Poclain Hydraulics sales engineer.

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





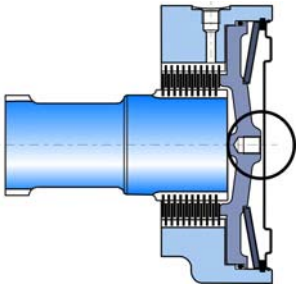
Max. length Y= 21.1
Standard number of pulses per revolution= 60

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.

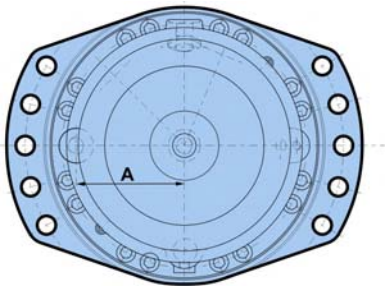
3 - Brake environmental cover without plug

No plug or hole in the cover.



5 - Drainage

Fit an additional drain on the valving cover.



A
102 *[4.02]*

6 - Industrial support

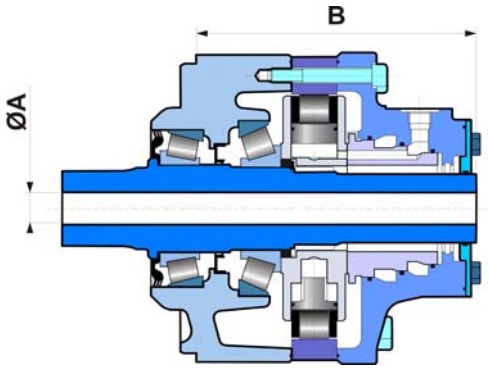
Reduction of around 50% from the rated value in the bearings' preload value.

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.

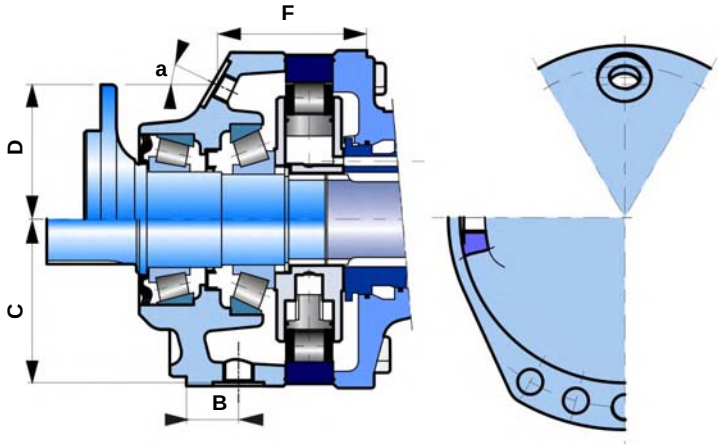
A - Hollow shaft



A mm *[in]*	B mm *[in]*
Ø 35 *[1.38 dia.]*	231.2 *[9.10]*

Radial load x 0.75
No torque allowed towards the rear

B - Drain on the bearing support



	ISO 6419-1	B mm *[in]*	C mm *[in]*	D mm *[in]*	F mm *[in]*	a
Shaft motor	M18 x 1.5	37.5 *[1.5]*	129 *[5.08]*			
Wheel motor	M18 x 1.5			105 *[4.13]*	89.5 *[3.52]*	35°
Short wheel motor	M18 x 1.5			97 *[3.82]*	95 *[3.74]*	30°

C - Abrasive environments (mechanical seal)

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

Consult your Poclain Hydraulics sales engineer.

E - Reinforced sealing

Requires reinforcement of shaft bearings.

G - Special wheel rim mounting

Enables certain combinations different from the standard mountings defined on pages 11 and 13.

Consult your Poclain Hydraulics sales engineer.

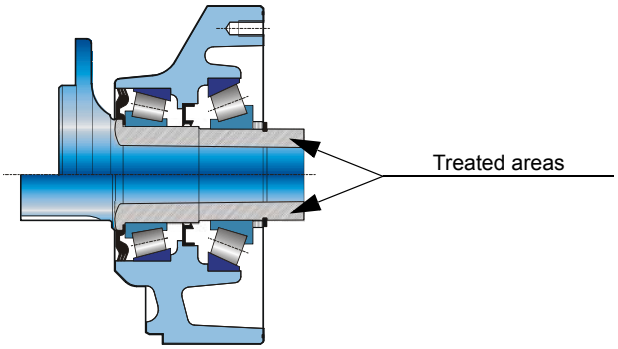
H - High efficiency

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.

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Hydraulics

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