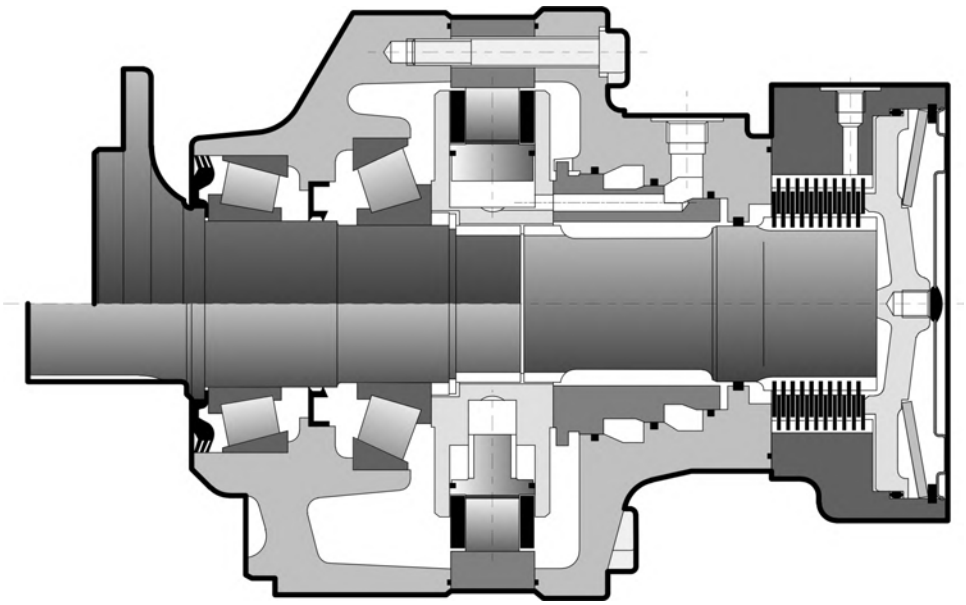
MS11 - MSE11

HYDRAULIC MOTORS

TECHNICAL CATALOG

POCLAIN Hydraulics

CHARACTERISTICS



Motor inertia **0.05 kg.m²**

	C	❶ cm³/tr *[cu.in/rev.]*	❷ cm³/tr *[cu.in/rev.]*	Theoretical torque ❶ at 100 bar Nm	*at 1000 PSI [lb.ft]*	Max.power ❶ kW *[HP]*	❷ preferred kW *[HP]*	❷ non-preferred kW *[HP]*	Max. speed ❶ tr/min*[RPM]*	❷ tr/min*[RPM]*	Max. pressure bar *[PSI]*
Cams with equal lobes MS11	7	730 *[44,5]*	365 *[22,3]*	1 161	*[590]*	50 *[67]*	33 *[44]*	25 *[34]*	200		450 *[6 527]*
	8	837 *[51,0]*	419 *[25,5]*	1 331	*[677]*				195		
	9	943 *[57,5]*	472 *[28,8]*	1 499	*[762]*				190		
	0	1 048 *[63,9]*	524 *[32,0]*	1 666	*[847]*				185		
	1	1 147 *[70,0]*	574 *[35,0]*	1 824	*[927]*				180		
	2	1 259 *[76,8]*	630 *[38,4]*	2 002	*[1 018]*				170	175	
Cams with equal lobes MSE11	9	1 263 *[77,0]*	632 *[38,5]*	2 008	*[1 021]*	50 *[67]*	33 *[44]*	25 *[34]*	170	190	400 *[5 802]*
	0	1 404 *[85,6]*	702 *[42,8]*	2 232	*[1 135]*				155	185	
	1	1 536 *[93,7]*	768 *[46,8]*	2 442	*[1 242]*				140	180	
	2	1 687 *[102,9*	844 *[51,4]*	2 682	*[1 364]*				130	165	
Cams with unequal lobes MS11	A	1 048 *[63,9]*	629 *[38,4]* / 419 *[25,6]*	1 666	*[847]*	50 *[67]*	33 *[44]*	25 *[34]*			450 *[6 527]*
Cams with unequal lobes MSE11	A	1 404 *[85,6]*	843 *[51,4]* / 561 *[34,2]*	2 232	*[1 135]*	50 *[67]*	33 *[44]*	25 *[34]*	120		400 *[5 802]*

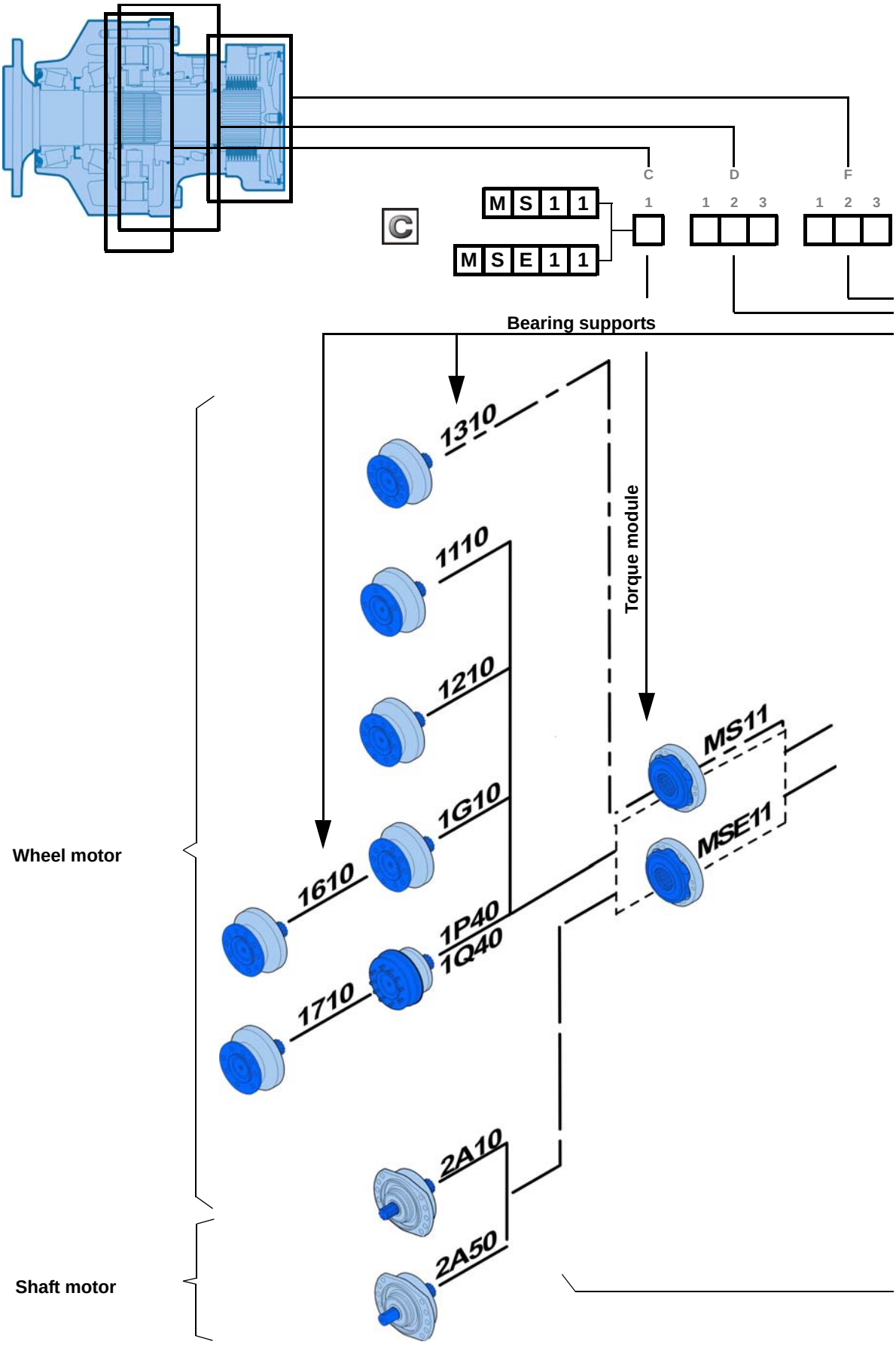
❶ **First displacement**

❷ **Second displacement**

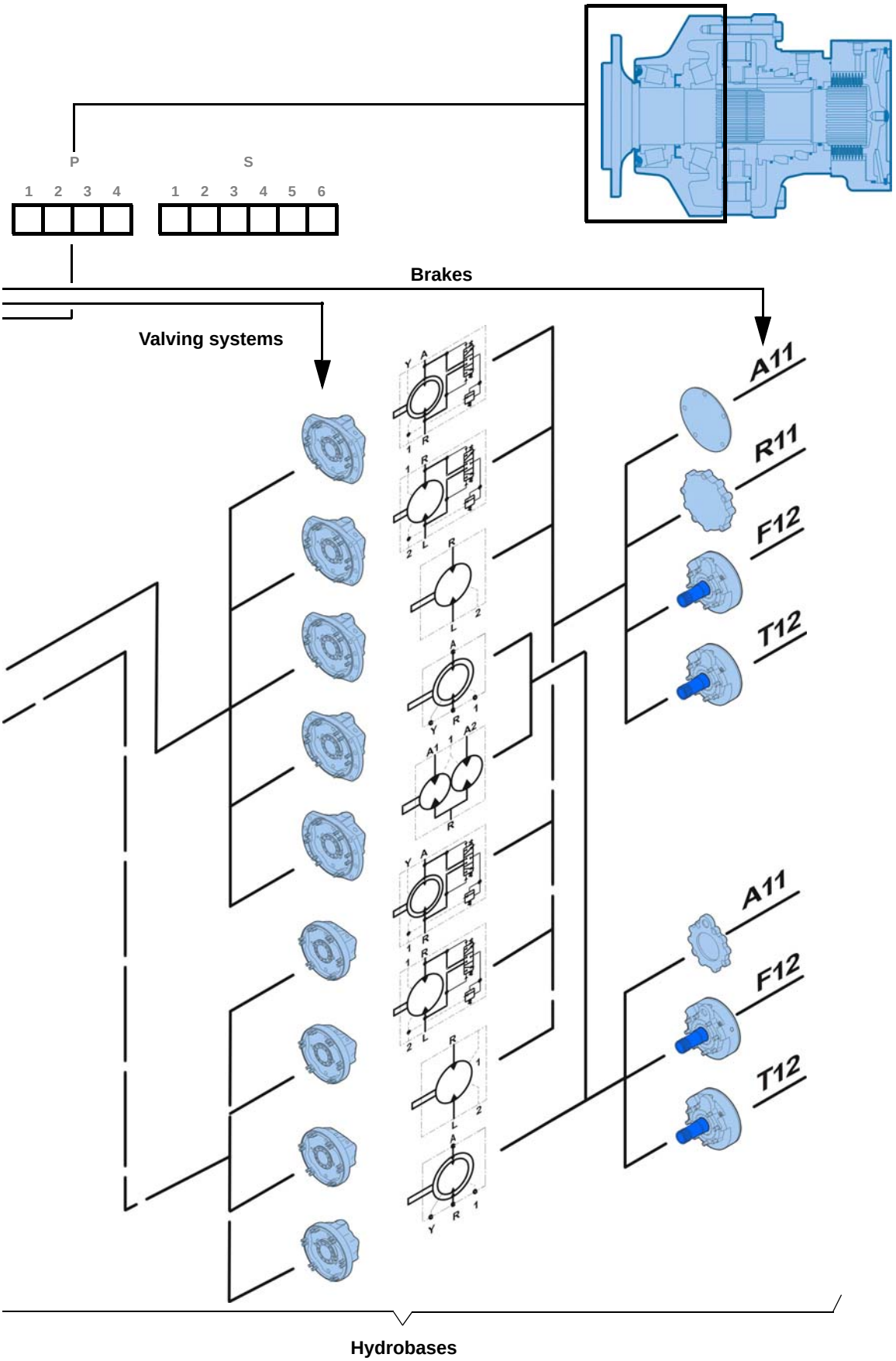
* See option ''M'' for higher speed.

CONTENT

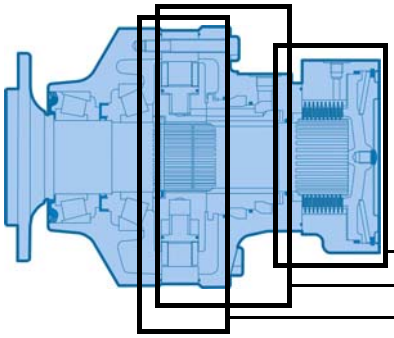
MODUL


C
D
F
M S 1 1
M S E 1 1
1
1 2 3
1 2 3
Bearing supports
Torque module
1310
1110
1210
1G10
1610
1710
1P40
1Q40
MS11
MSE11
2A10
2A50
Wheel motor
Shaft motor

ARITY


P
S
1 2 3 4
1 2 3 4 5 6
Brakes
Valving systems
A11
R11
F12
T12
A11
F12
T12
Hydrobases

MODEL



C D F

M	S	1	1	1	1	2	3
M	S	E	1	1			

C

		❶ cm³/tr [cu.in/rev.]	❷ cm³/tr [cu.in/rev.]
Cams with equal lobes	MS11 7	730 [44,5]	365 [22,3]
	MS11 8	837 [51,0]	419 [25,5]
	MS11 9	943 [57,5]	472 [28,8]
	MS11 0	1 048 [63,9]	524 [32,0]
	MS11 1	1 147 [70,0]	574 [35,0]
	MS11 2	1 259 [76,8]	630 [38,4]
	MSE11 9	1 263 [77,0]	632 [38,5]
	MSE11 0	1 404 [85,6]	702 [42,8]
	MSE11 1	1 536 [93,7]	768 [46,8]
	MSE11 2	1 687 [102,9	844 [51,4]
Cams with unequal lobes	MS11 A	1 048 [63,9]	629 [38,4] / 419 [25,6]
	MSE11 A	1 404 [85,6]	843 [51,4] / 561 [34,2]

❶ **First displacement**

❷ **Second displacement**

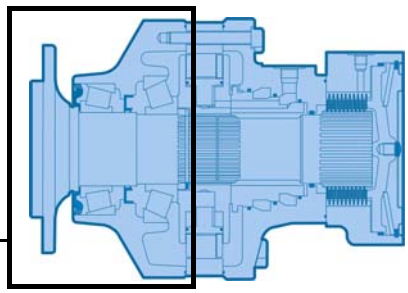
1-displacement valving	**1**	
2-displacement & Twin-Lock™ valving (Clockwise)	**D**	Ratio 2
	E	Ratio <2
	F	Ratio >2
2-displacement & Twin-Lock™ valving (Counterclockwise)	**G**	Ratio 2
	H	Ratio <2
	J	Ratio >2

	1	**4**	**D**
Without mounting			
With mounting	**2**	**5**	**E**
	1 Displacement	Exchange	Twin-Lock™
	2 Displacement		

No transmission cover			**0**
ISO 6162 flanges	❶	**DN 19** / **DN 13**	**1**
ISO 9974-1 connections	❷		
ISO 6162 flanges	❶	**DN 19** / **DN 13**	**2**
ISO 1179-1 connections	❷		
ISO 1179-1 connections			**3**
ISO 9974-1 connections			**4**
ISO 6162 flanges	❶	**DN 19**	**7**
ISO 11926-1 connections			
ISO 11926-1 connections			**A**

Without brake	Simple plate	**A**	**1**	**1**
	Reinforced plate	**R**	**1**	**1**
Brake	Screwed environmental cover	**T**	**1**	**2**
	Clipped environmental cover	**F**	**1**	**2**

CODE



P S

1 2 3 4 | 1 2 3 4 5 6

0	Without bearing support
1	Without mounting
2	Lug mounting

Without shaft		**0**
5 x Ø24 on Ø225		**1**
10 x Ø22 on Ø225		**2**
8 x Ø22 on Ø275		**7**
12 x Ø20 on Ø205		**3**
10 x Ø22 on Ø225		**6**
10 x Ø24 on Ø225		**G**
Drum brake (315 x 80)	Mineral	**P**
	DOT 3&4	**Q**
For male shaft bearing support		**A**

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

Male shafts

NF E 22141 splines	**1**
DIN 5480 splines	**5**

		Connection	
Without cable	**1**	M14 x 1.5	For drum brake (315 x 80)
Right-hand cable outlet	**2**		
Left-hand cable outlet	**3**		
Without cable	**Q**	M10 x 1	
Right-hand cable outlet	**R**		
Left-hand cable outlet	**S**		

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**
Double-centering valving cover	**9**
Hollow shaft	**A**
Drain on the bearing support	**B**
Abrasive environment	**C**
Special paint or without paint	**D**
Reinforced sealing	**E**
Special wheel rim mounting	**G**
High performance	**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.

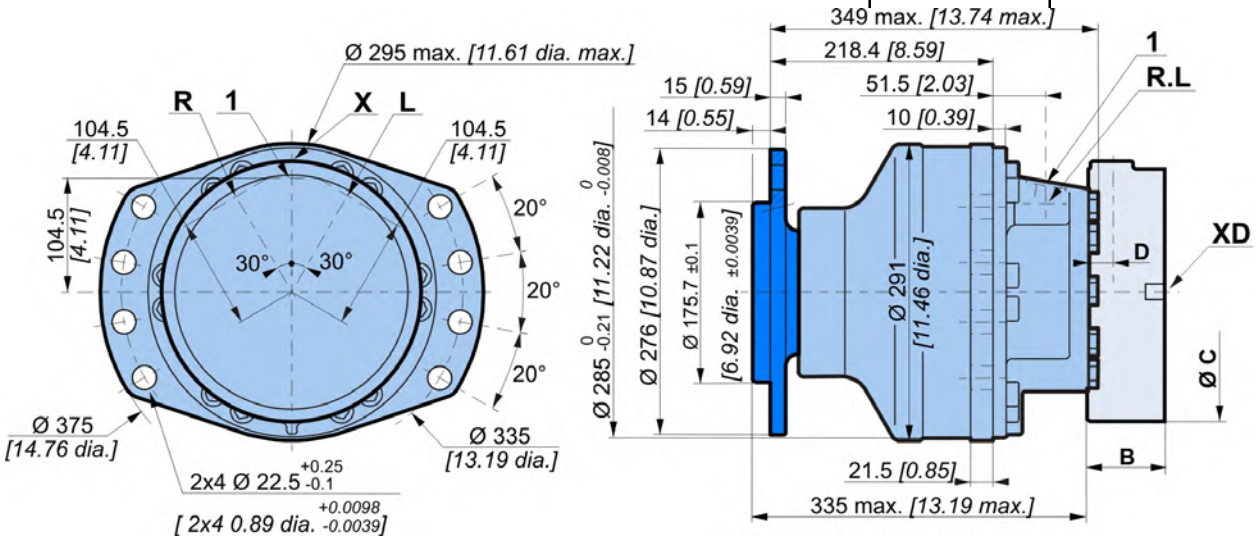
This document also includes essential operating instructions for the product and general information. These are indicated in the following way:

	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 standard (1110) 1-displacement motor

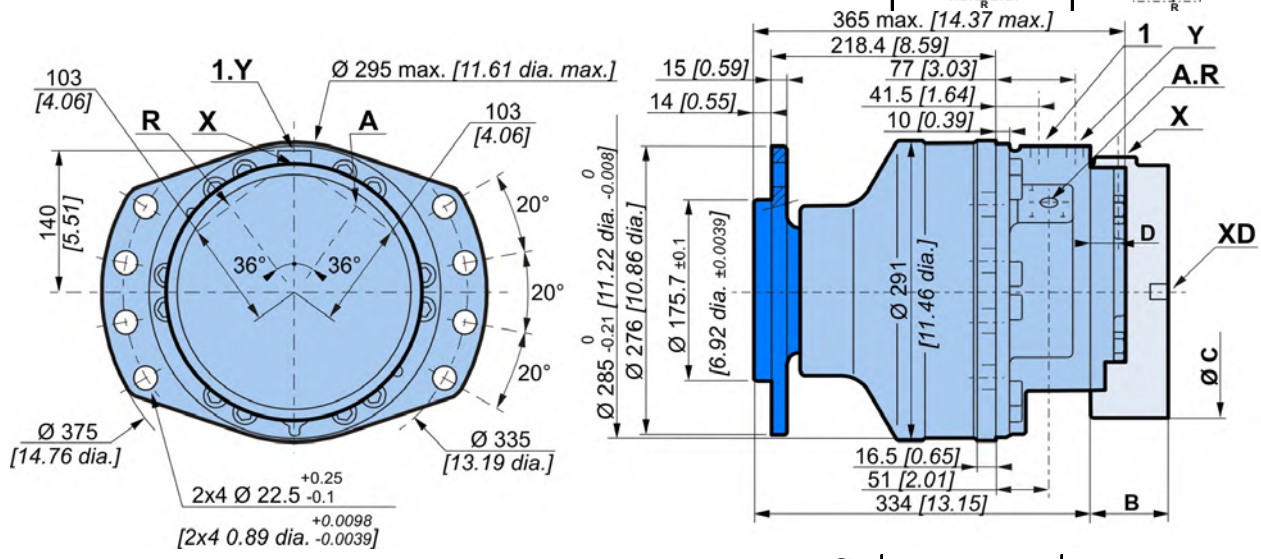
	86 kg *[189 lb]*	112 kg *[246 lb]*
	2 L *[120 cu.in]*	1,5 L *[90 cu.in]*



WHEEL MOTOR

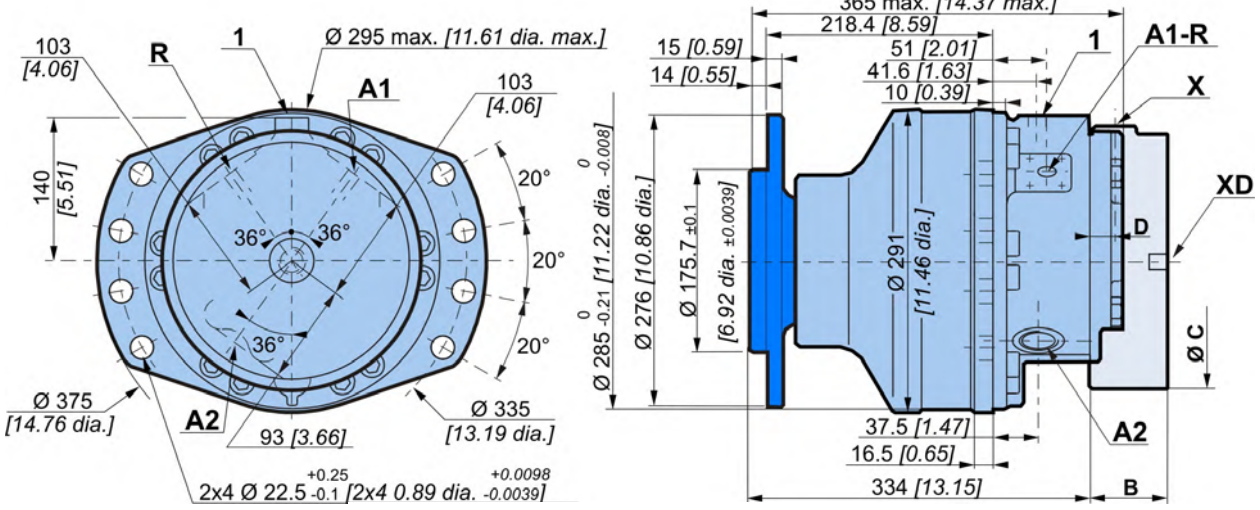
Dimensions for standard (1110) 2-displacement motor

	90 kg *[198 lb]*	116 kg *[255 lb]*
	2 L *[120 cu.in]*	1,5 L *[90 cu.in]*



Dimensions for standard (1110) Twin-Lock™

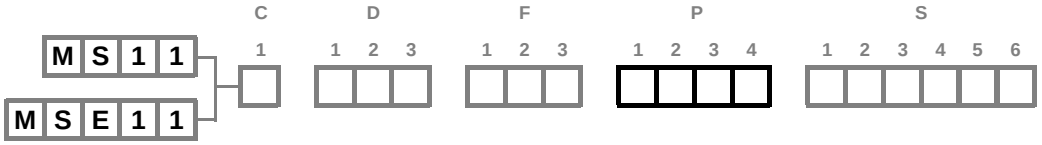
	90 kg *[198 lb]*	116 kg *[255 lb]*
	2 L *[120 cu.in]*	1,5 L *[90 cu.in]*

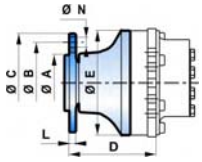
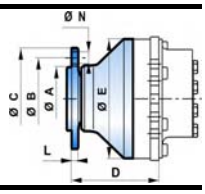
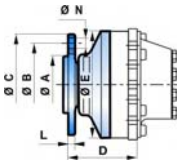
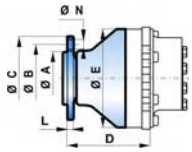


C	F12	T12
B	76,7 *[3,02]*	92,5 *[3,64]*
C	Ø247,0 *[9,72]*	Ø273,6 *[10,77]*
D	26,0 *[1,02]*	25,0 *[0,96]*

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

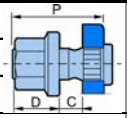
Support types



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 (1 2 3 4 P)	Ø 175.7 *[6.92 dia.]*	Ø 225 *[8.86 dia.]*	Ø 276 *[10.87 dia.]*	218.6 *[8.61]*	Ø 291 *[11.46 dia.]*	Ø 24 *[0.94 dia.]*	5 x M22x1.5	14 *[0.55]*	
1 2 1 0 (1 2 3 4 P)	Ø 175.7 *[6.92 dia.]*	Ø 225 *[8.86 dia.]*	Ø 276 *[10.87 dia.]*	218.6 *[8.61]*	Ø 291 *[11.46 dia.]*	Ø 22 *[0.87 dia.]*	10 x M20x1.5	14 *[0.55]*	
1 3 1 0 (1 2 3 4 P) ⊖	Ø 160.7 *[6.33 dia.]*	Ø 205.0 *[8.07 dia.]*	Ø 250 *[9.84 dia.]*	174.4 *[6.87]*	Ø 289.5 *[11.40 dia.]*	Ø 20 *[0.79 dia.]*	12 x M18x1.5	15 *[0.59]*	
1 6 1 0 (1 2 3 4 P)	Ø 175.7 *[6.92 dia.]*	Ø 225 *[8.86 dia.]*	Ø 276 *[10.87 dia.]*	218.6 *[8.61]*	Ø 291 *[11.46 dia.]*	Ø 22 *[0.87 dia.]*	10 x M20x1.5	21 *[0.83]*	
1 7 1 0 (1 2 3 4 P)	Ø 220.7 *[8.69 dia.]*	Ø 275 *[10.83 dia.]*	Ø 314 *[12.36 dia.]*	218.6 *[8.61]*	Ø 291 *[11.46 dia.]*	Ø 22 *[0.87 dia.]*	8 x M20x1.5	14 *[0.55]*	

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

Studs

		P mm *[in]*	C min. mm *[in]*	C max. mm *[in]*	D mm *[in]*		Class	(1) N.m *[lb.ft]*	(2) N.m *[lb.ft]*
Various studs	M18 x 1.5	55 *[2,17]*	5 *[0,20]*	17 *[0,67]*	23 *[0,91]*		**12,9**	420 *[309,8]*	550 *[405,7]*
	M20 x 1.5	60 *[2,36]*		14 *[0,55]*	25 *[0,98]*			600 *[442,5]*	770 *[567,9]*
	M22 x 1.5	65 *[2,56]*		24 *[0,94]*	26 *[1,02]*			695 *[512,6]*	1 050 *[774,4]*
Screws	M12							120 *[88,5]*	120 *[88,5]*

(*) 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]*)
(3) In case of bearings 8P30 and 8Q30 : Poclain recommends to use the flanged nuts with tightening torque = 900 Nm.


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

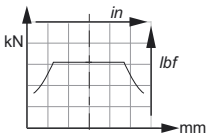
Load curves

Permissible radial loads

Test conditions :

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

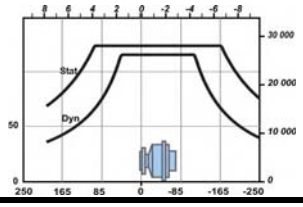
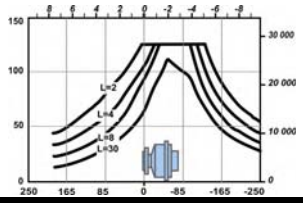
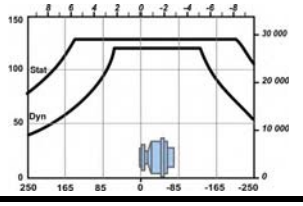
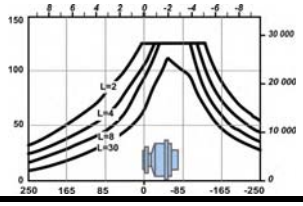
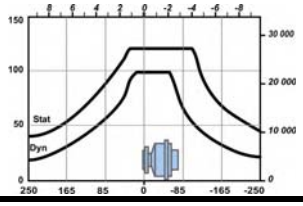
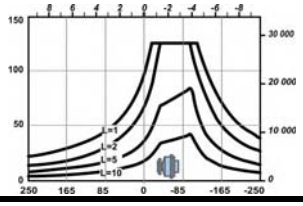
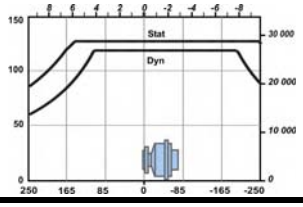
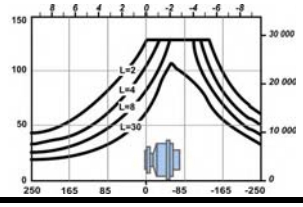
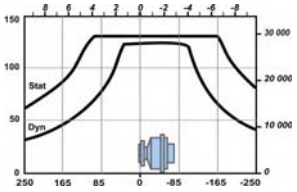
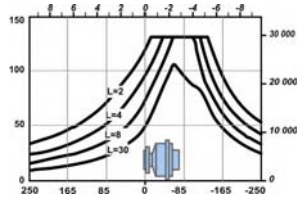
Dynamic : 0 tr/min *[0 RPM]*, code 0 displacement, without axial load at max. torque



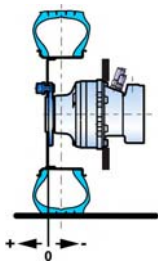
Service life of bearings

Test conditions :

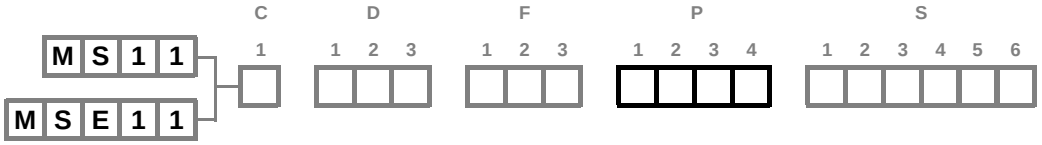
L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.

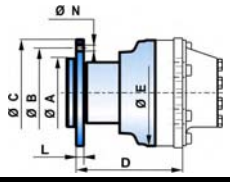
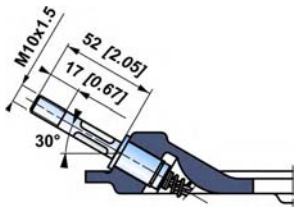
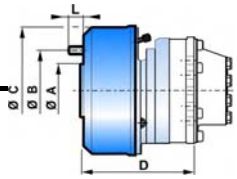
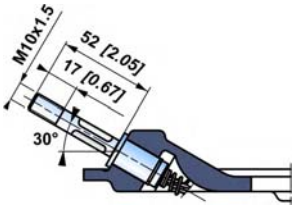
1 1 1 0 (1 2 3 4) P		
1 2 1 0 (1 2 3 4) P		
1 3 1 0 (1 2 3 4) P		
1 6 1 0 (1 2 3 4) P		
1 7 1 0 (1 2 3 4) P		

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.



Support types (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 G 1 0 1 2 3 4 P	Ø 175.7 *[6.92 dia.]*	Ø 225 *[8.86 dia.]*	Ø 270 *[10.63 dia.]*	284.6 *[11.20]*	Ø 291 *[11.46 dia.]*	Ø 24 *[0.94 dia.]*	10 x M22x1.5	16 *[0.63]*	
1 Q 4 0 1 P 4 0 1 2 3 4 P	Ø 175.7 *[6.92 dia.]*	Ø 225 *[8.86 dia.]*	Ø 354 *[13.94 dia.]*	294.6 *[11.60]*			10 x M22x1.5	39 *[1.54]*	
1 P 3 0 1 Q 3 0 1 2 3 4 P	Ø 175.7 *[6.92 dia.]*	Ø 225 *[8.86 dia.]*	Ø 354 *[13.94 dia.]*	294.6 *[11.60]*			10 x M22x10	39 *[1.54]*	

Also see “Brake” section (thumbnail opposite).

Also see “Brake” section (thumbnail opposite).

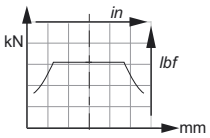
Load curves (continued)

Permissible radial loads

Test conditions :

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

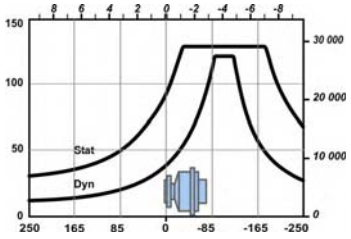
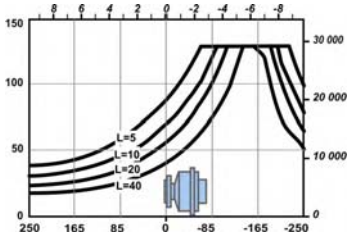
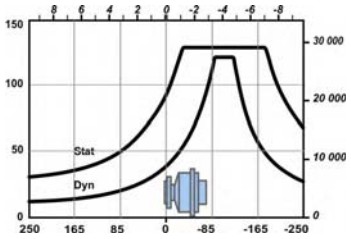
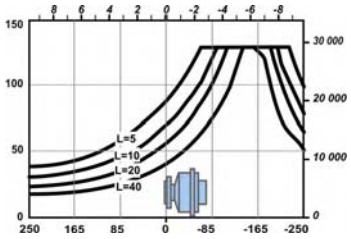
Dynamic : 0 tr/min *[0 RPM]*, code 0 displacement, without axial load at max. torque



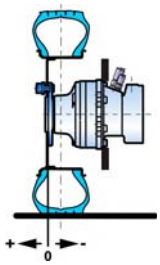
Service life of bearings

Test conditions :

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

1 G 1 0 1 2 3 4 P		
1 P 3 0 1 Q 3 0 1 P 4 0 1 Q 4 0 1 2 3 4 P		

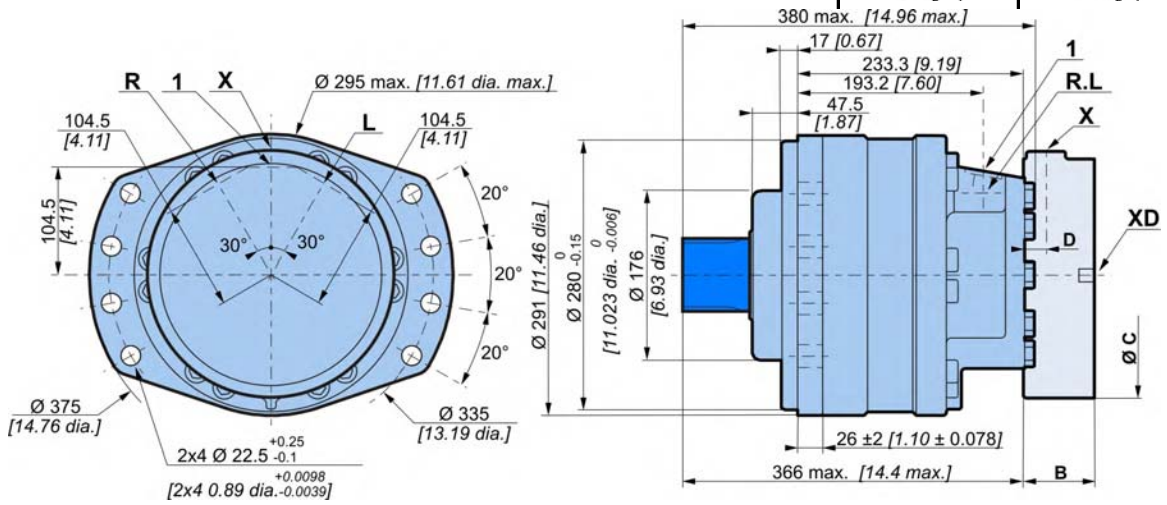
The service life of the components is influenced by the pressure.You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications.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



SHAFT MOTOR

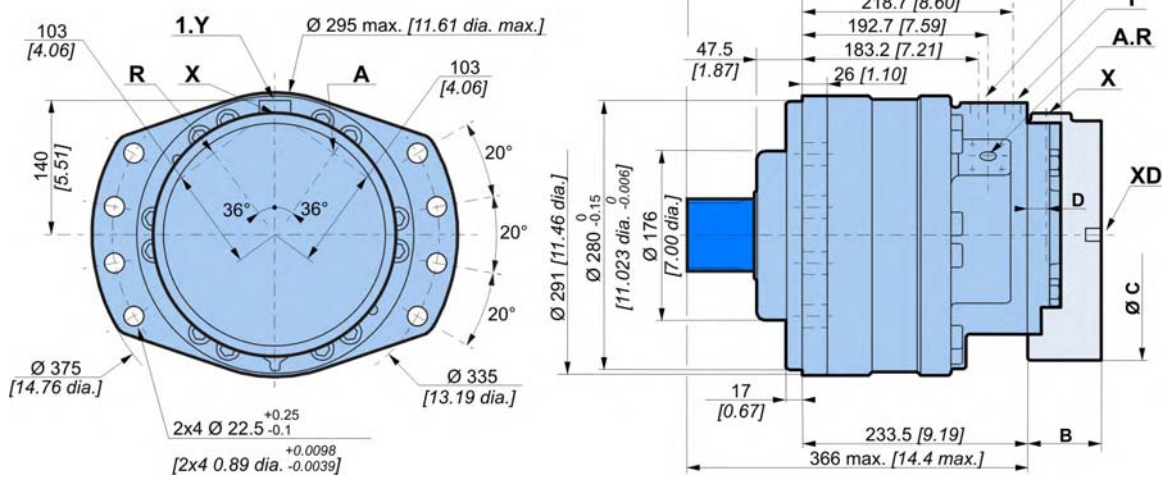
Dimensions for standard (2A50) 1-displacement motor

	88 kg *[194 lb]*	114 kg *[251 lb]*
	2 L *[120 cu.in]*	1,5 L *[90 cu.in]*



Dimensions for standard (2A50) 2-displacement motor

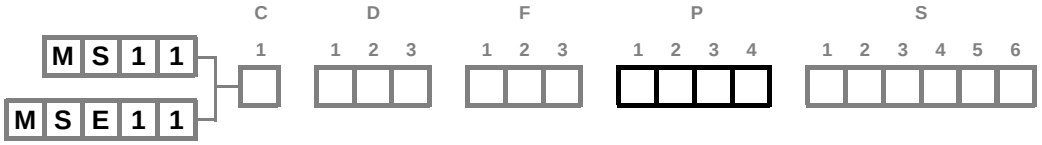
	88 kg *[194 lb]*	114 kg *[251 lb]*
	2 L *[120 cu.in]*	1,5 L *[90 cu.in]*



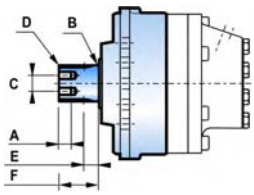
C	F12	T12
B	76,7 *[3,02]*	92,5 *[3,64]*
C	Ø247,0 *[9,72]*	Ø273,6 *[10,77]*
D	26,0 *[1,02]*	25,0 *[0,96]*

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

Support types

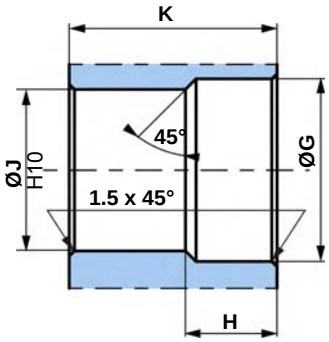


C		A	B	C	D	E	F
2 A 5 0 (1 2 3 4 / P)	**DIN 5480** splines Nominal Ø 80 *[3,15]* Module 3 Z 25	15 *[0,59]*	R 2,75 *[R 0,11]*	35 *[1,38]*	2 x M10	23 *[0,91]*	80 *[3,15]*
2 A 1 0 (1 2 3 4 / P)	**NF E22-141** splines Nominal Ø 75 *[2,95]* Module 2,5 Z 28	15 *[0,59]*	R 2,75 *[R 0,11]*	35 *[1,38]*	2 x M10	24 *[0,94]*	70 *[2,76]*



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

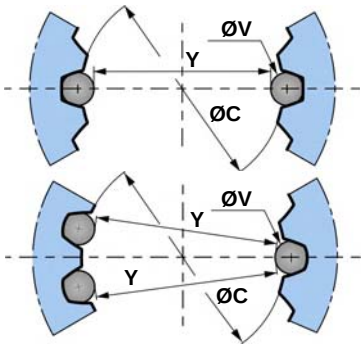
Splined coupling



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

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

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

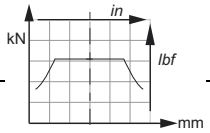


C	Ø G	H	Ø J	K	N	Mo	Z	Offset	Ø C (H10)	Ø V	Y	Tolerance µm *[µin]*
2 A 1 0 (1 2 3 4 / P)	76 *[2,99]*	25 *[0,98]*	70 *[2,76]*	69 *[2,72]*	75 *[2,95]*	2,5	28	2 *[0,08]*	70 *[2,76]*	5 *[0,20]*	65,169 *[2,57]*	+ 103 / 0 *[+4.055 / 0]*
2 A 5 0 (1 2 3 4 / P)	81,5 *[3,21]*	25 *[0,98]*	74 *[2,91]*	79 *[3,11]*	80 *[3,15]*	3	25	0,85 *[0,0335]*	74 *[2,91]*	5,25 *[0,21]*	68,957 *[2,71]*	+ 71 / 0 *[+2.795 / 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]*.

Load curves

Permissible radial loads



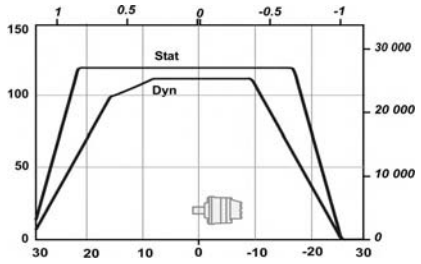
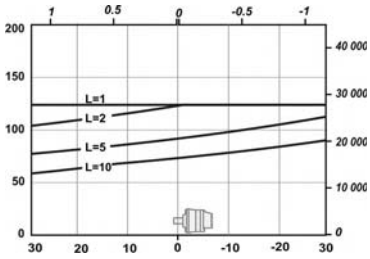
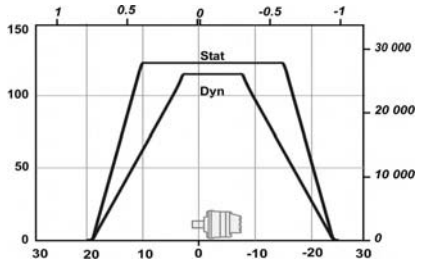
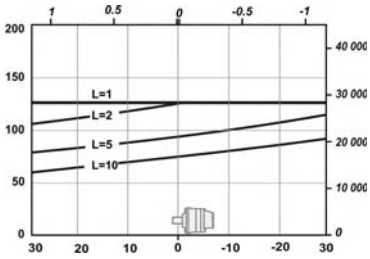
Max. permissible loads: 0 tr/min *[0 RPM]*; 0 bar *[0 PSI]*

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

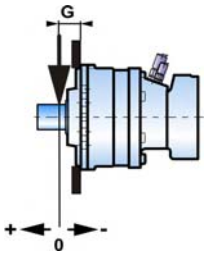
Service life of bearings

Test conditions :

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

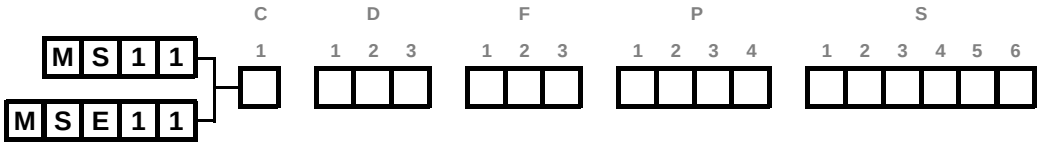
2 A 5 0 1 2 3 4 P		
2 A 1 0 1 2 3 4 P		

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.



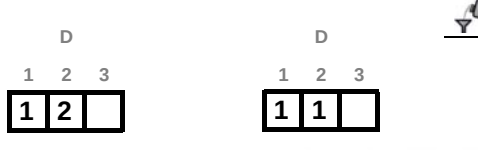
C	G
2 A 1 0	96,75 *[3,81]*
2 A 5 0	101,25 *[3,99]*

VALVING SYSTEMS AND HYDROBASES



Dimensions for 1-displacement valving

	1 1 : 44 kg *[97 lb]*	F 1 2 : 67,5 kg *[148,5 lb]*
	1 2 : 48,9 kg *[107,6 lb]*	F 1 2 : 72,4 kg *[159,3 lb]*
	0,75 L *[45 cu.in]*	0,92 L *[55 cu.in]*

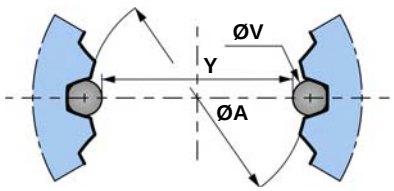


C	F12	T12
B	76,7 *[3,02]*	92,5 *[3,64]*
C	Ø247,0 *[9,72]*	Ø273,6 *[10,77]*
D	26,0 *[1,02]*	25,0 *[0,96]*

Cylinder block splines

(as per standard NF E22-141)

ØA	Module	Z	Dimension on 2 pins Y	ØV
75 *[2,953]*	2,5	28	65,169 *[2,739]*	5 *[0,197]*



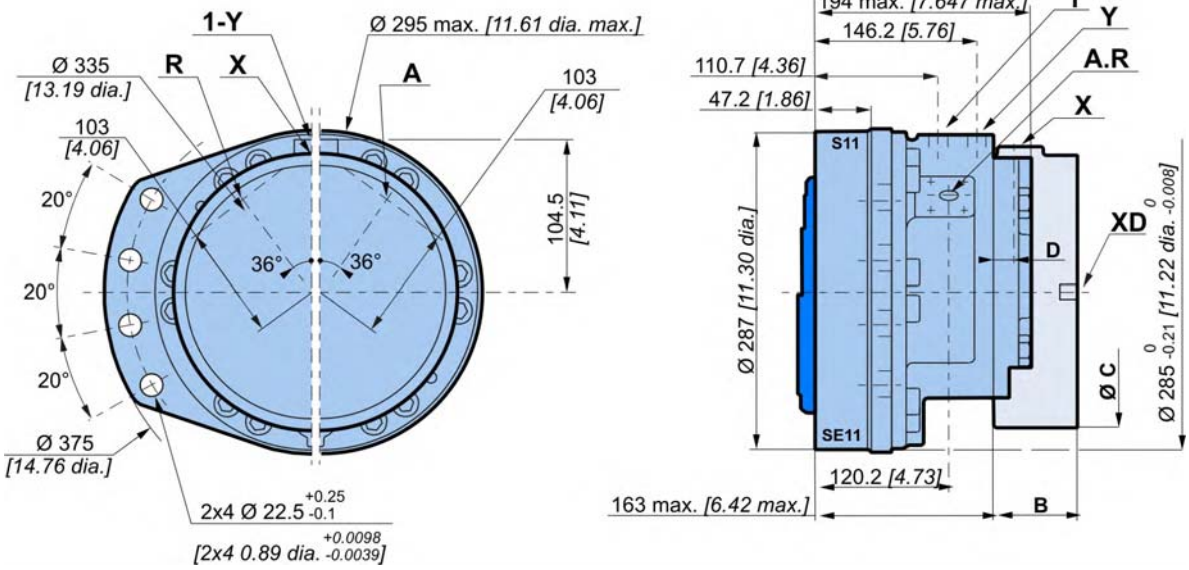
You are advised to have the installation validated by your Poclain Hydraulics application engineer before using the hydraulic unit in an application.

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

	2 1	F 1 2
	44 kg *[97 lb]*	67,5 kg *[148,5 lb]*
	48,9 kg *[107,6 lb]*	72,4 kg *[159,3 lb]*
	0,75 L *[45 cu.in]*	0,92 L *[55 cu.in]*

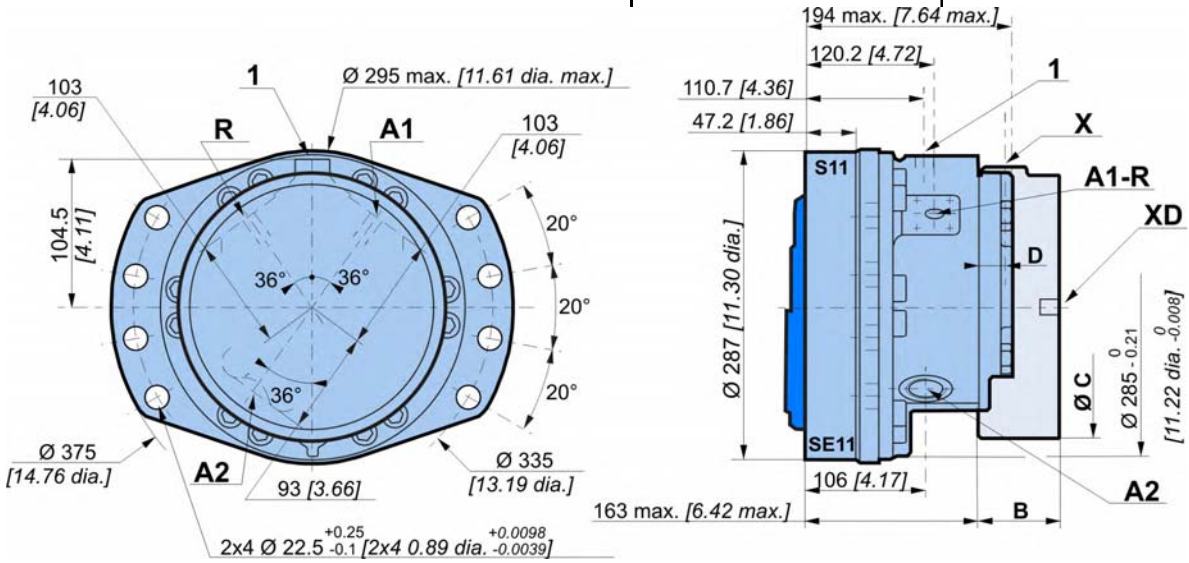
D 1 2 3 — 2 2 □ | D 1 2 3 — 2 1 □



Dimensions for Twin-Lock™ valving

	2 E □	F 1 2
	48,9 kg *[107,6 lb]*	72,4 kg *[159,3 lb]*
	0,75 L *[45 cu.in]*	0,92 L *[55 cu.in]*

D 1 2 3 — 2 E □



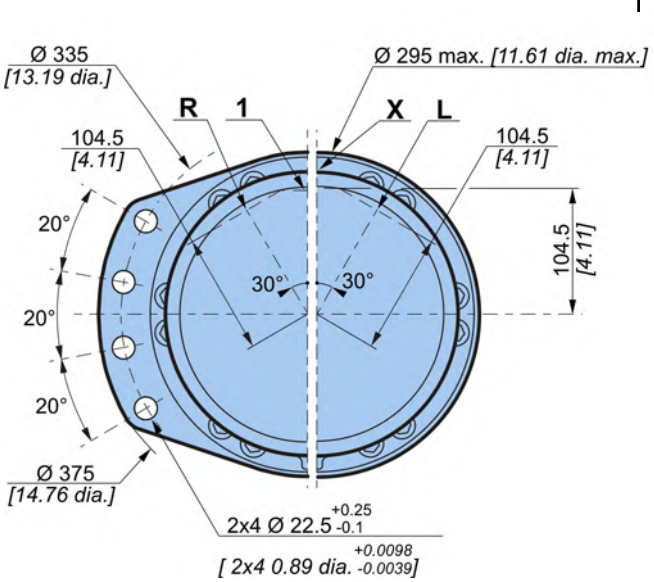
C	F12	T12
B	76,7 *[3,02]*	92,5 *[3,64]*
C	Ø247,0 *[9,72]*	Ø273,6 *[10,77]*
D	26,0 *[1,02]*	25,0 *[0,96]*

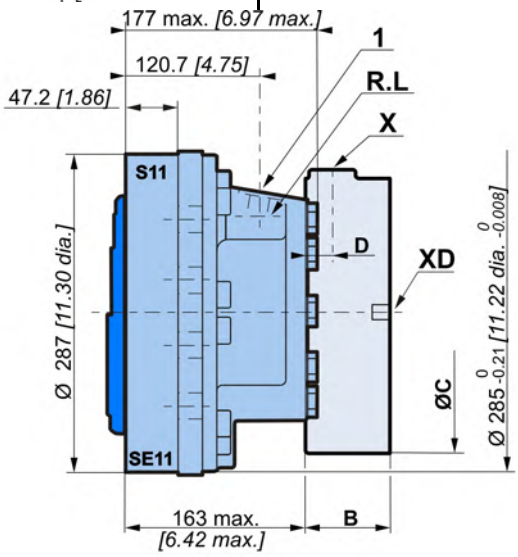
Dimensions for 1-displacement valving with built-in exchange

1 5	44 kg *[97 lb]*	F 1 2 — 67,5 kg *[148,5 lb]*
1 4	48,9 kg *[107,6 lb]*	72,4 kg *[159,3 lb]*
	0,75 L *[45 cu.in]*	0,92 L *[55 cu.in]*

D — 1 2 3 — 1 5 □

D — 1 2 3 — 1 4 □



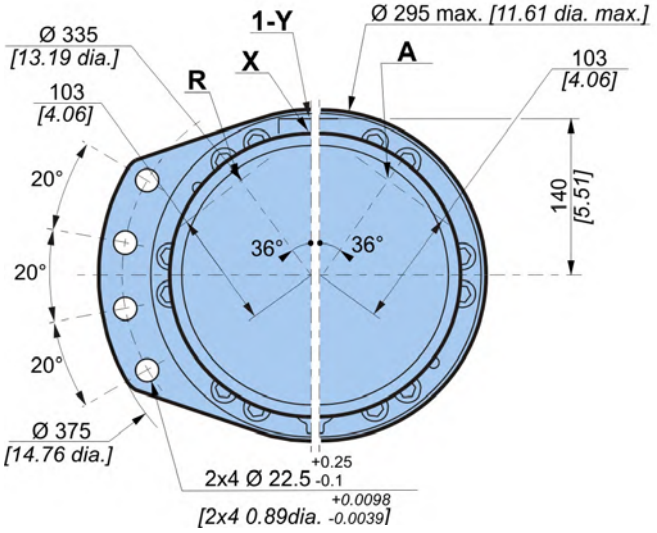


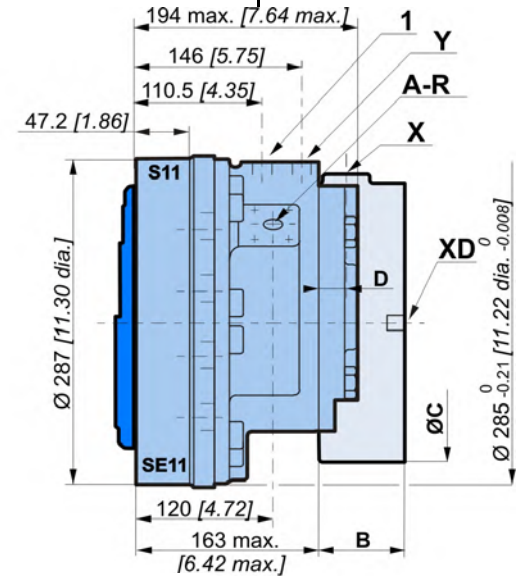
Dimensions for 2-displacement valving with built-in exchange

1 5	44 kg *[97 lb]*	F 1 2 — 67,5 kg *[148,5 lb]*
1 4	48,9 kg *[107,6 lb]*	72,4 kg *[159,3 lb]*
	0,75 L *[45 cu.in]*	0,92 L *[55 cu.in]*

D — 1 2 3 — 2 5 □

D — 1 2 3 — 2 4 □

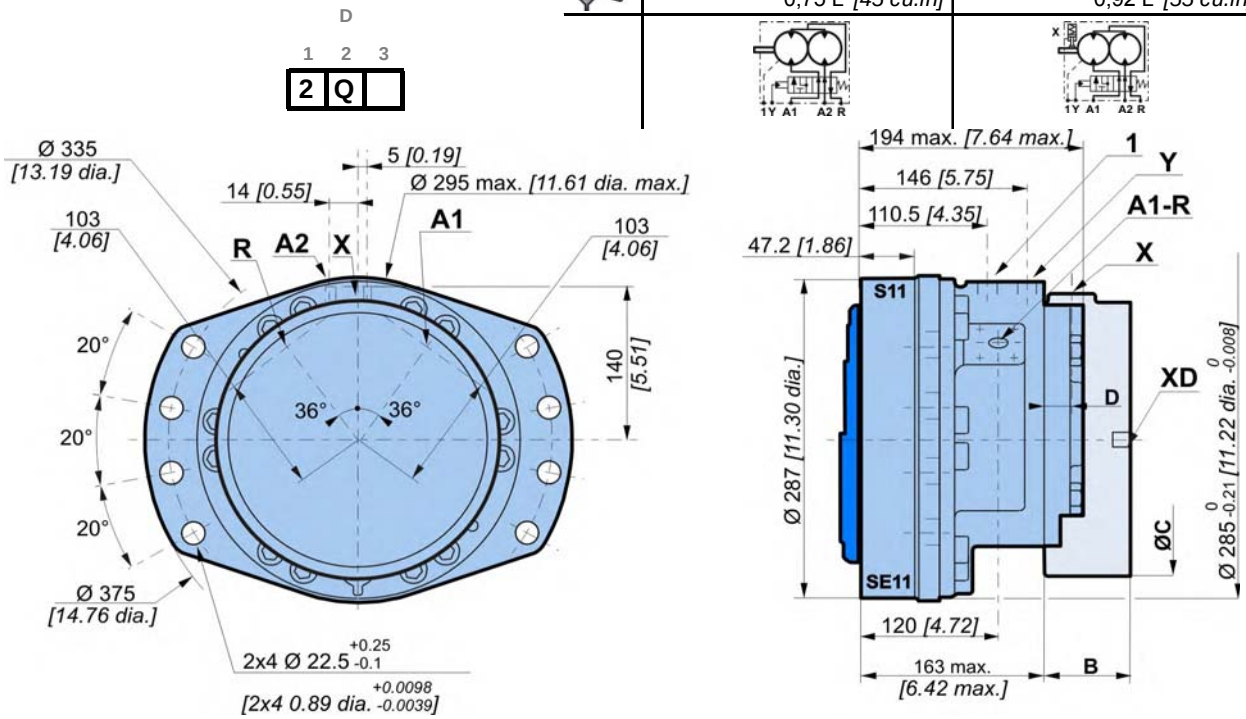




C	F12	T12
B	76,7 *[3,02]*	92,5 *[3,64]*
C	Ø247,0 *[9,72]*	Ø273,6 *[10,77]*
D	26,0 *[1,02]*	25,0 *[0,96]*

Dimensions for 2-displacement valving or Twin-Lock™ valving

	48,9 kg *[107,6 lb]*	**F 1 2** 72,4 kg *[159,3 lb]*
	0,75 L *[45 cu.in]*	0,92 L *[55 cu.in]*



Exchange

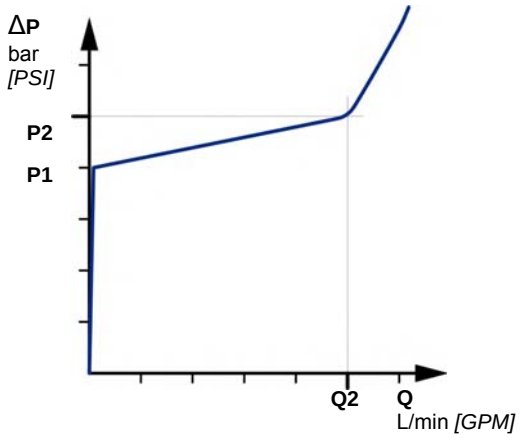
When a coding request is made, you must specify information on the threshold of the selector and the valve.

Selector spool

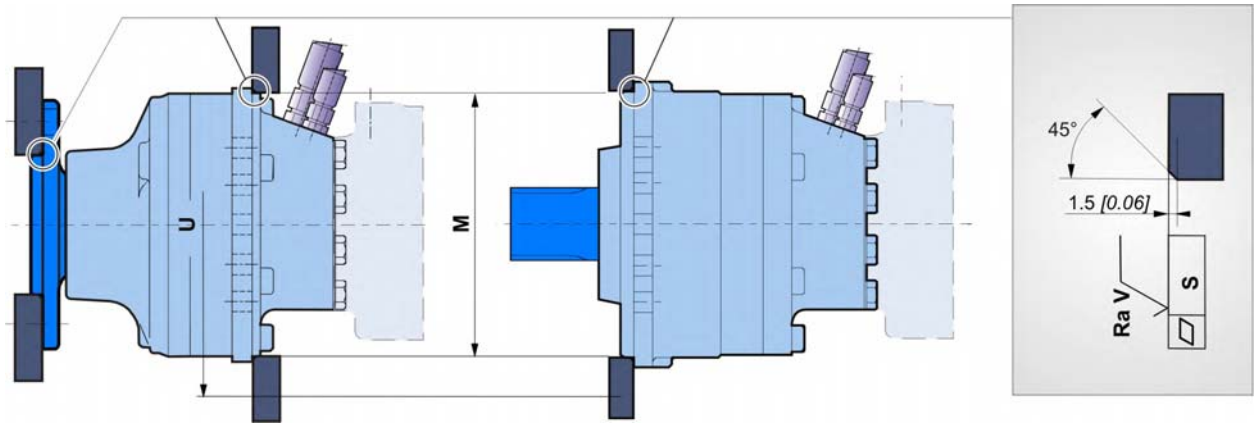
Selector threshold	Opening pressure of selector
bar *[PSI]*	bar *[PSI]*
8 *[116]*	9.9 ±1.2 *[144 ±17]*

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.

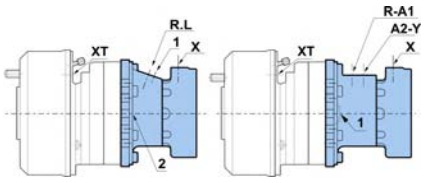
	ØM (1)	ØU	S	Ra V		Class	*
Wheel motor	285 *[11,22]*	335 *[13,19]*	0,2 *[0,008]*	12,5µm *[0,49µin]*	2 x 4 4 x M20	**8,8**	410 N.m *[302 lb.ft]*
Shaft motor	280 *[11,02]*	335 *[13,19]*					

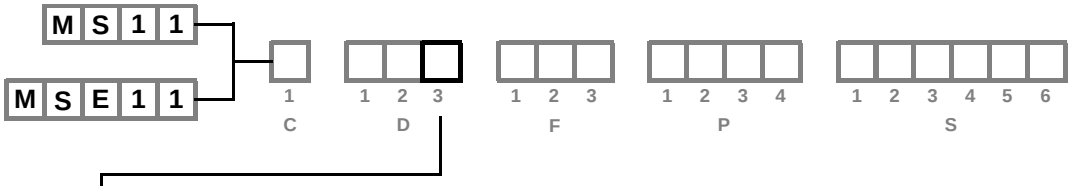
(1) +0,3 *[+0,012]*
+0,2 *[+0,008]*

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

Hydraulic connections

connections





		Old standards	Standards	Power supply		Case drain	2nd displacement control	Control of parking brake	Control of drum brake
				R-L		**1, 2**		**X**	**XT**
1 displacement	**A**	SAE J514	**ISO 11 926-1**	1"1/16-12 UNF		3/4"-16 UNF		9/16"-18 UNF	
	1	ISO 6 162 DIN 3 852	**ISO 6 162** **ISO 9 974-1**	DN19 PN400		M18x1.5		M16x1.5	
	2	ISO 6 162 BSPP	**ISO 6 162** **ISO 1 179-1**	DN19 PN400		Ø21 *[1/2" dia.]*		Ø17 *[3/8" dia.]*	
	3	BSPP	**ISO 1 179-1**	Ø27 *[3/4" dia.]*		Ø21 *[1/2" dia.]*		Ø17 *[3/8" dia.]*	
	4	NF E48 050	**ISO 9 974-1**	M27x2		M18x1.5		M16x1.5	
	5	DIN 3 852	**ISO 9 974-1**	M33x2		M18x1.5		M16x1.5	
	7	ISO 6 162 SAE J514	**ISO 6 162** **ISO 11 926-1**	DN19 PN400		3/4"-16 UNF		9/16"-18 UNF	
				R-A		**1, 2**	**Y**	**X**	
2 Displacement	**A**	SAE J514	**ISO 11 926-1**	1"1/16-12 UNF		3/4"-16 UNF	9/16"-18 UNF	9/16"-18 UNF	
	1	ISO 6 162 DIN 3 852	**ISO 6 162** **ISO 9 974-1**	DN13 PN400		M18x1.5	M16x1.5	M16x1.5	
	2	ISO 6 162 BSPP	**ISO 6 162** **ISO 1 179-1**	DN13 PN400		Ø21 *[1/2" dia.]*	Ø17 *[3/8" dia.]*	Ø17 *[3/8" dia.]*	
	3	BSPP	**ISO 1 179-1**	Ø27 *[3/4" dia.]*		Ø21 *[1/2" dia.]*	Ø17 *[3/8" dia.]*	Ø17 *[3/8" dia.]*	
	4	NF E48 050	**ISO 9 974-1**	M27x2		M18x1.5	M16x1.5	M16x1.5	
				R-A1	**A2**	**1, 2**	**Y**	**X**	
Twin-Lock™	**A**	SAE J514	**ISO 11 926-1**	1"1/16-12 UNF	9/16"-18 UNF	3/4"-16 UNF	9/16"-18 UNF	9/16"-18 UNF	
	1	ISO 6 162 DIN 3 852	**ISO 6 162** **ISO 9 974-1**	DN13 PN400	M27x2	M18x1.5	M16x1.5	M16x1.5	
	4	NF E48 050	**ISO 9 974-1**	M27x2	M27x2 M22x1.5	M18x1.5	M16x1.5	M16x1.5	
			ISO 9 974-1						M10x1 M14x1.5
Max. pressures			**MS** **MSE** bar *[PSI]*	450 *[6 527]* 400 *[5 802]*	450 *[6 527]* 400 *[5 802]*	1 *[15]*	30 *[435]*	30 *[435]*	120 *[1 740]*

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

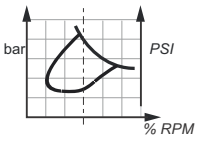
You are strongly advised to use the fluids specified in brochure "Installation guide" N° 801478197L.

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

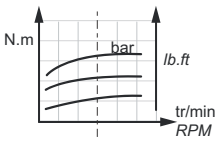
Efficiency

Overall efficiency

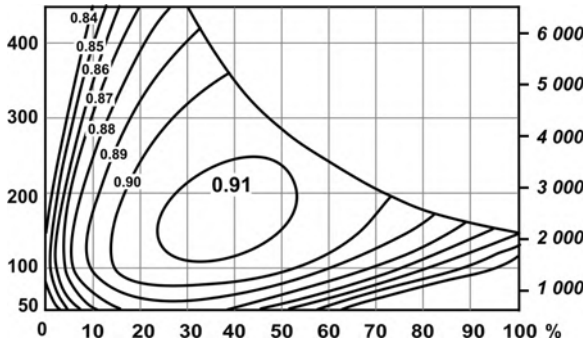
Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C *[122°F]*.

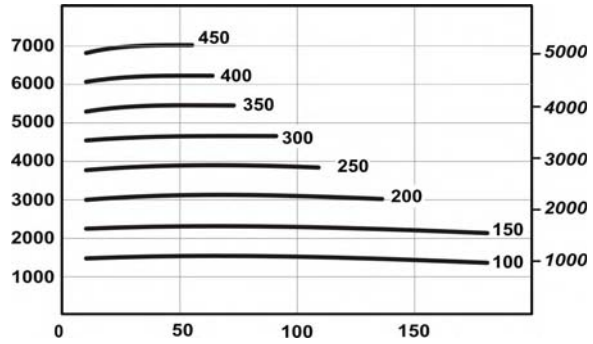


Actual output torque

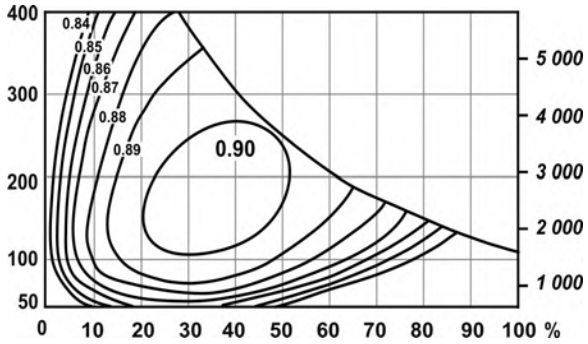


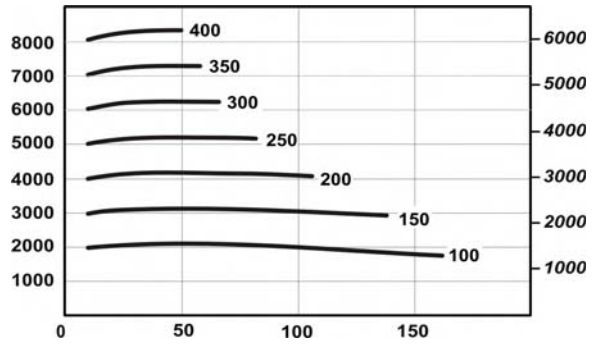
MS11





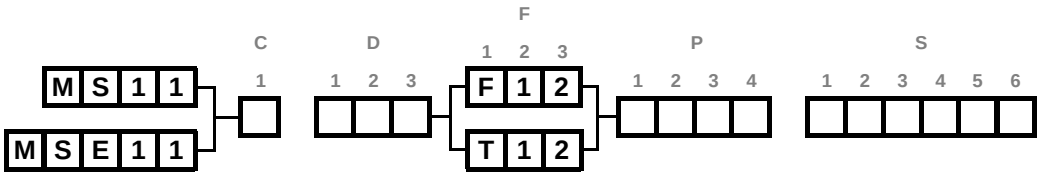
MSE11



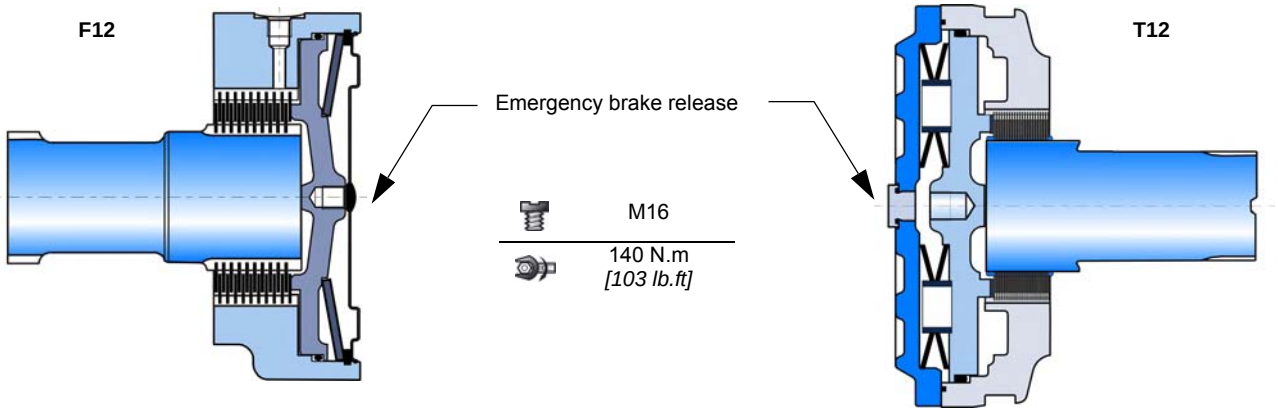


The starting torque is taken to be approximately 85% of the first value for available pressure. For a precise calculation, consult your Poclain Hydraulics application engineer.

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 resses on the fixed and mobile discs, and immobilizes the shaft. The braking torque decreases in linear proportion to the brake release pressure.

C	F 1 2 T 1 2
Parking brake torque at 0 bars on housing (new brake)	11 840 Nm *[8 730 lb.ft]*
Dynamic emergency braking torque at 0 bars on housing (max. 10 uses of emergency brakes)	7 695 Nm *[5 680 lb.ft]*
Residual parking braking at 0 bars on housing *	8 880 Nm *[6 550 lb.ft]*
Min. brake release pressure	12 bar *[174 PSI]*
Max. brake release pressure	30 bar *[435 PSI]*
Oil capacity	170 cm³ *[10,4 cu.in]*
Volume for brake release	40 cm³ *[2,4 cu.in]*
Max. energy dissipation	123 699 J

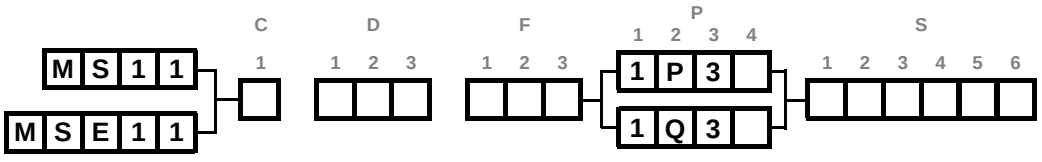
* After emergency brake has been used

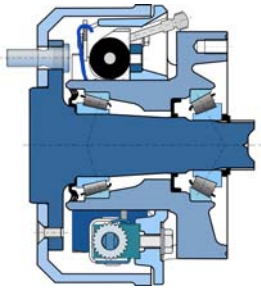
Do not run-in the multidisc brakes.

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.

Drum brake (315 x 80)

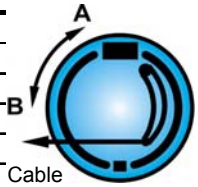
Diameter of brake pads : Ø 315 *[12.4 dia.]*
Width of friction surface : 80 *[3.15]*





Brake pads		**315 x 80**		
Asbestos free material		BERAL 1518		
Compensation for wear		Automatic		
Hydraulically controlled dynamic braking				
Max. permissible continuous brake torque		7 200 N.m *[5 310 lb.ft]*		
Pressure to obtain max. permissible continuous brake torque		71 bar *[1 023 PSI]*		
Max. permissible brake torque		12 000 N.m *[8 851 lb.ft]*		
Pressure to obtain max. permissible brake torque		120 bar *[1 740 PSI]*		
Brake cylinder filler hole				
Size		M14 x 1.5	M10 x 1	
Standard		**DIN 74234**	**DIN 74234**	
Fluid				
Mineral		Yes	Yes	**P**
DOT 3/DOT4/SAE J1703		No	Yes	**Q**
Max. volume required to bring pads into contact		5,38 cm³ *[0,33 cu.in]*	5,38 cm³ *[0,33 cu.in]*	
Mechanically controlled parking brake				
Max. braking torque		12 000 N.m *[8 851 lb.ft]*		
Max permissible force on the cable		3 800 N *[854 lbf]*		
Force required to bring pads into contact		63,5 N *[14,3 lbf]*		
Stroke required to bring pads into contact	**A**	10,5 mm *[0,41 "]*		
	B	12 mm *[0,47 "]*		
Max. stroke before automatic brake adjustment	**A**	12,5 mm *[0,49 "]*		
	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.

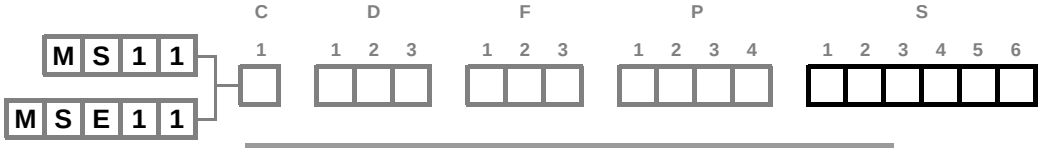
Control
The drum brakes can be controlled hydraulically (service brake) and by a cable (mechanical control for parking brake).

Do not use hydraulic and mechanical brake controls simultaneously.

Brake release pressure vented.

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.

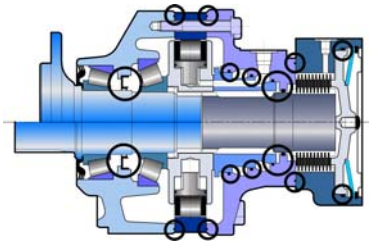
OPTIONS



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

1 - Fluorinated elastomer seals

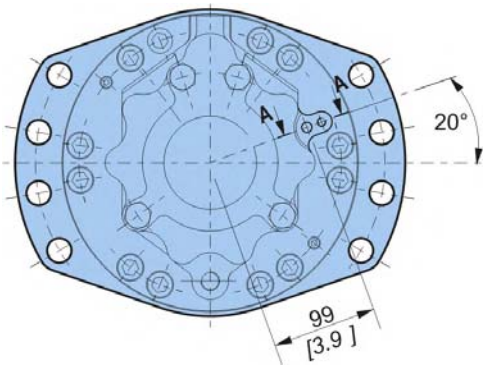
Nitrile seals marked in the figure below replaced by fluorinated elastomer seals.

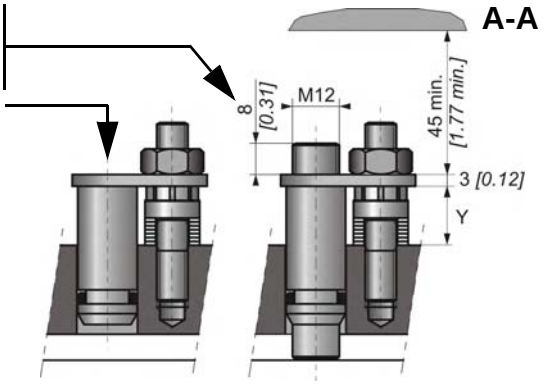


Consult your Poclain Hydraulics sales engineer.

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= 20.9

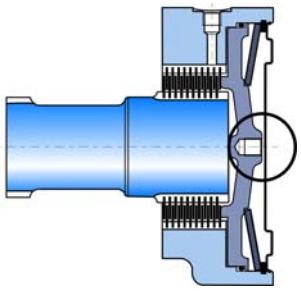
Standard number of pulses per revolution= 56

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.

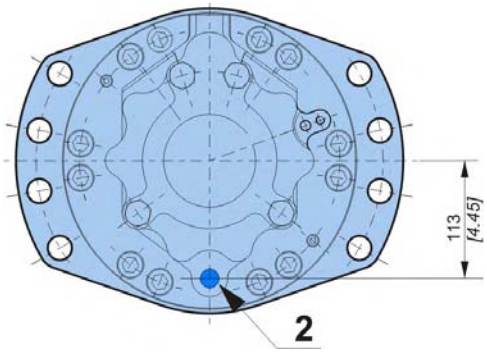
3 - Brake environmental cover without plug

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



5 - Drainage

Additional drain in the cover.

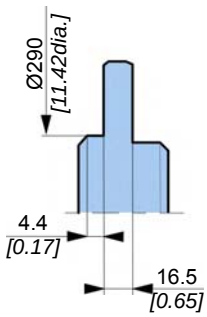


7 - Diamond™

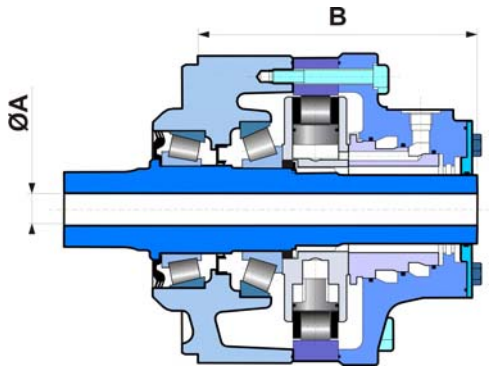
Special treatment of the motor core which considerably increases its strength, making the motor much more tolerant to temporary instances of the operating conditions being exceeded.

9 - Double-centering valving cover

This option allows a motor to be installed from the front or the back.



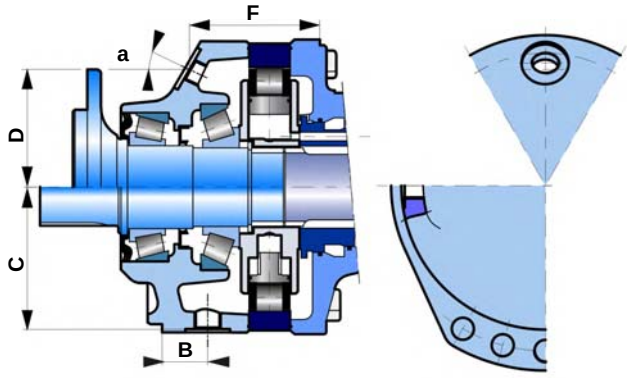
A - Hollow shaft



A mm *[in]*	B mm *[in]*
Ø 45 *[1,77 dia.]*	247,5 *[9,74]*

Radial load x 0.75
No torque transmittable to the rear

B - Drain on the bearing support



	ISO	B mm *[in]*	C mm *[in]*	D mm *[in]*	F mm *[in]*	a
Shaft motor	**M18 x 1.5**	32,5 *[1,28]*	143 *[5,63]*			
Wheel motor	**M18 x 1.5**			112 *[4,41]*	112,5 *[4,43]*	30°

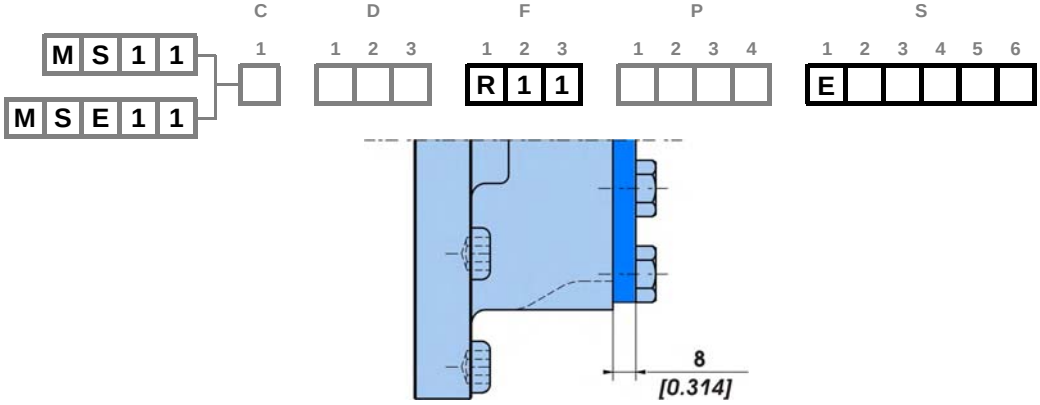
C - Abrasive environments (mechanical seal)

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

Consult your Poclain Hydraulics sales engineer.

E - Reinforced sealing

Requires reinforced seals and, for an unbraked motor, a rear reinforced plate (R08 - 8 [0.314]thick, instead of 4 [0.157]).



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.

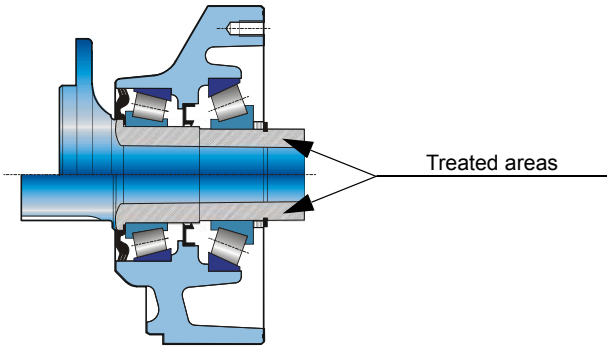
H - High efficiency

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.



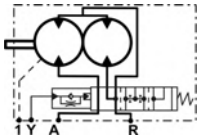
M - High speed

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.

T - Soft Shift™

Progressive displacement change (cushioned slide-valve)



Consult your Poclain Hydraulics sales engineer.

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