



# MG MOTORS



## MG02-MGE02. STEERABLE WHEEL MOTORS.

### 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.**

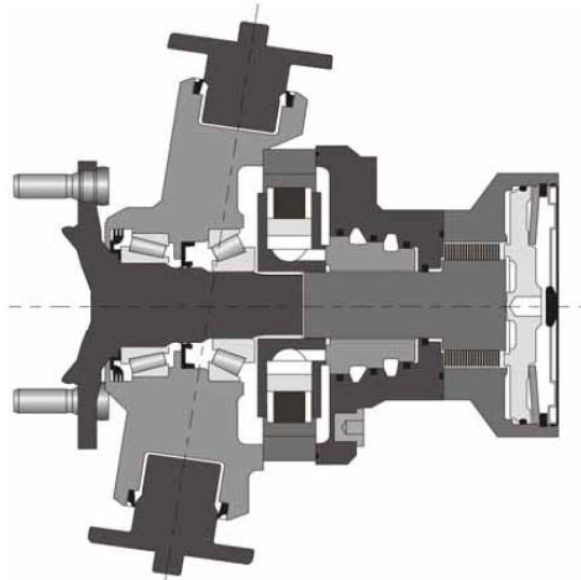


**Information intended for Poclain-Hydraulics personnel.**

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)





Motor inertia = 0.01 kg.m<sup>2</sup>  
Noise emissions = 60 dBA

	C	Displacement		Theoretical torque		Max. power			Max. speed			Max. pressure bar [PSI]
		①	②	①		①	② preferred	② non-preferred	M	①	②	
		cm <sup>3</sup> /tr [cu.in./rev.]	cm <sup>3</sup> /tr [cu.in./rev.]	at 100 bar Nm	at 1000 PSI [lb.ft.]	kW [HP]	kW [HP]	kW [HP]	tr/min [RPM]	tr/min [RPM]	tr/min [RPM]	
Cams with equal lobes MG02	8	172 [10,5]	86 [5,2]	273	[139]	18 [24]	12 [16]	9 [12]	390*	409*	510*	450 [6 527]
	0	213 [13,0]	107 [6,5]	339	[172]				310*	330*	410	
	1	235 [14,3]	118 [7,2]	374	[190]				285*	299*	372*	
	2	255 [15,6]	128 [7,8]	405	[206]				260*	276*	343*	
MG02	0	332 [20,2]	166 [10,1]	528	[268]	22 [30]	16,5 [22]	11 [15]	200	250	275	400 [5 802]
	1	364 [22,2]	182 [11,1]	579	[294]				182	228	250	
	2	398 [24,3]	199 [12,1]	633	[322]				165	208	230	
Cams with unequal lobes MG02	A	213 [13,0]	86 [5,2]	339	[172]	18 [24]	12 [16]	9 [12]	260*	276*	343*	450 [6 527]
			128 [7,8]							276*	330*	
	N	192 [11,7]	85 [5,2]	305	[155]				310*	330*	410*	
			107 [6,5]							330*		
MG02	A	332 [20,2]	133 [8,1]	528	[268]	22 [30]	16,5 [22]	11 [15]	165	208	230	400 [5 802]
			199 [12,1]							208		

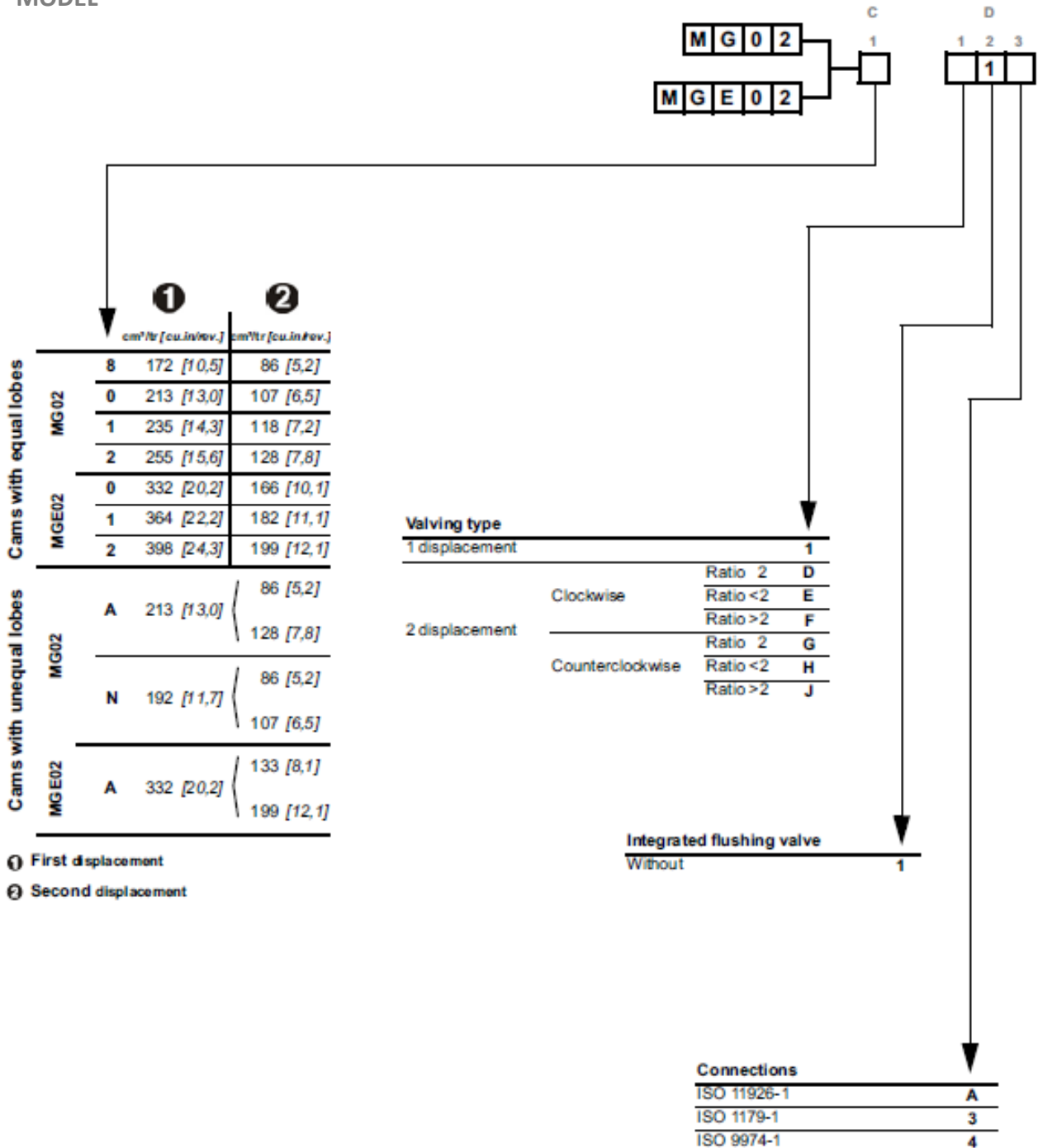
\* See option "M" for higher speed.

- ① First displacement  
② Second displacement

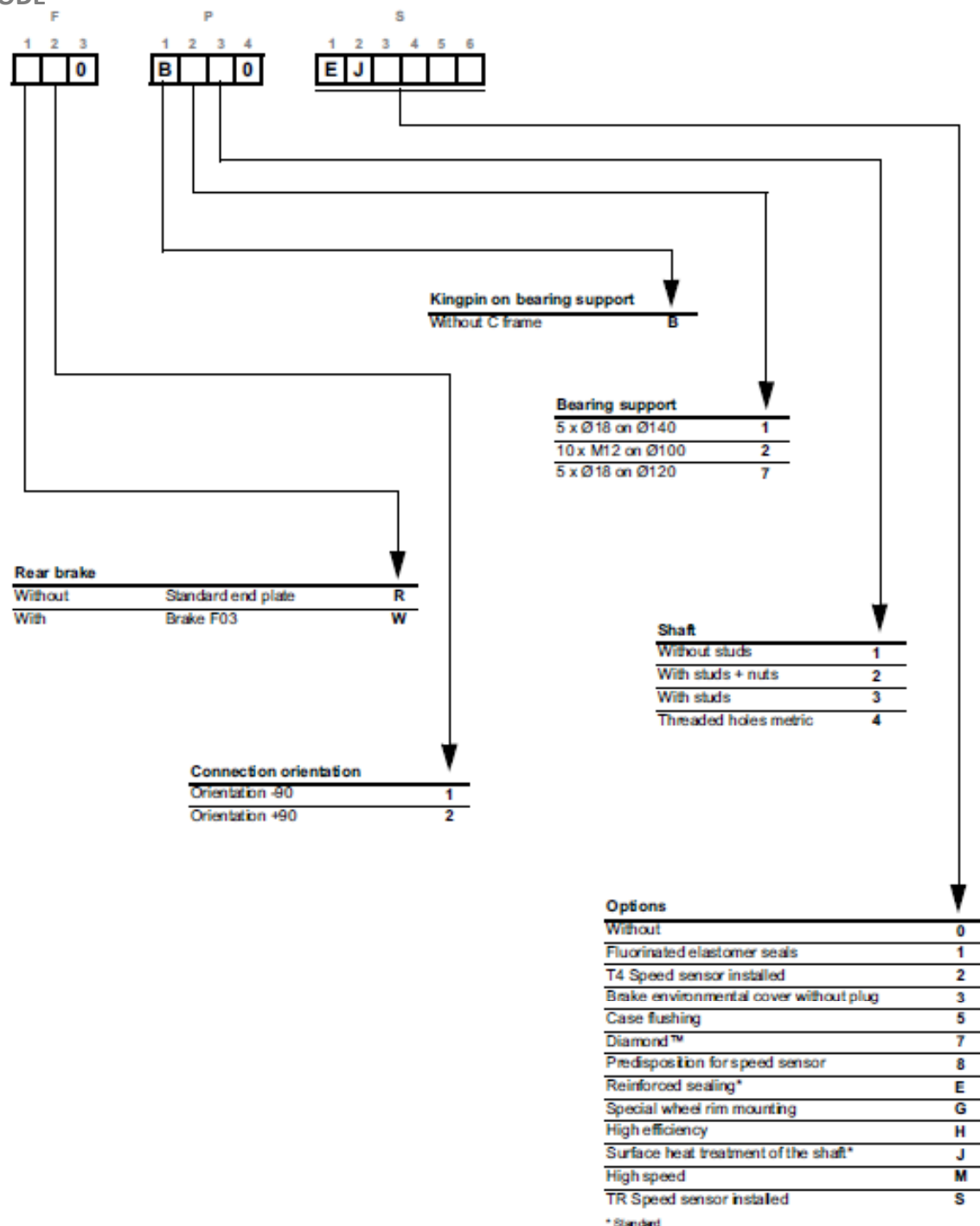
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MODEL



## CODE

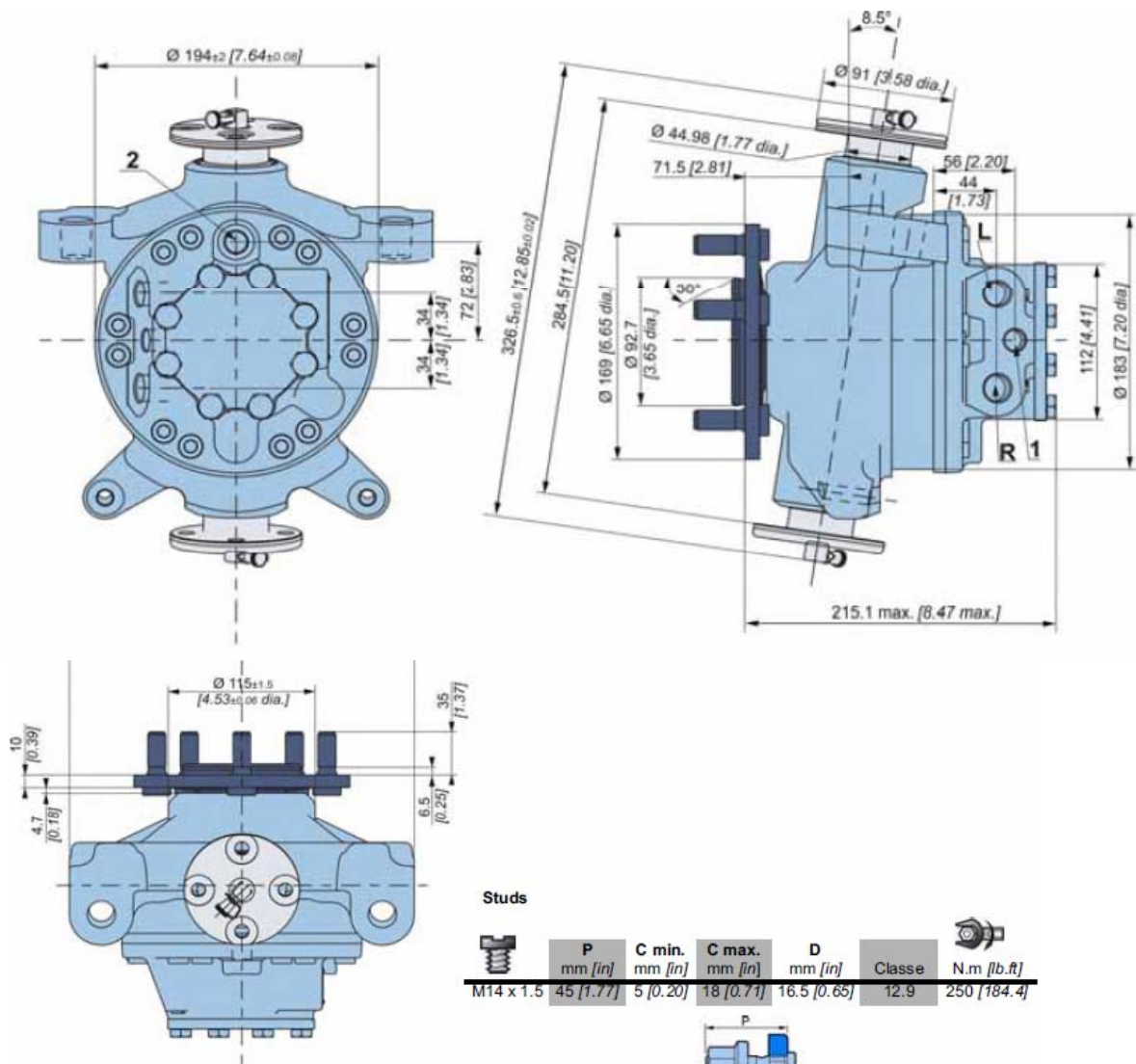


CHARACTERISTICS

Dimensions for 1-displacement motor without brake

F  
1 2 3  
**R 0**

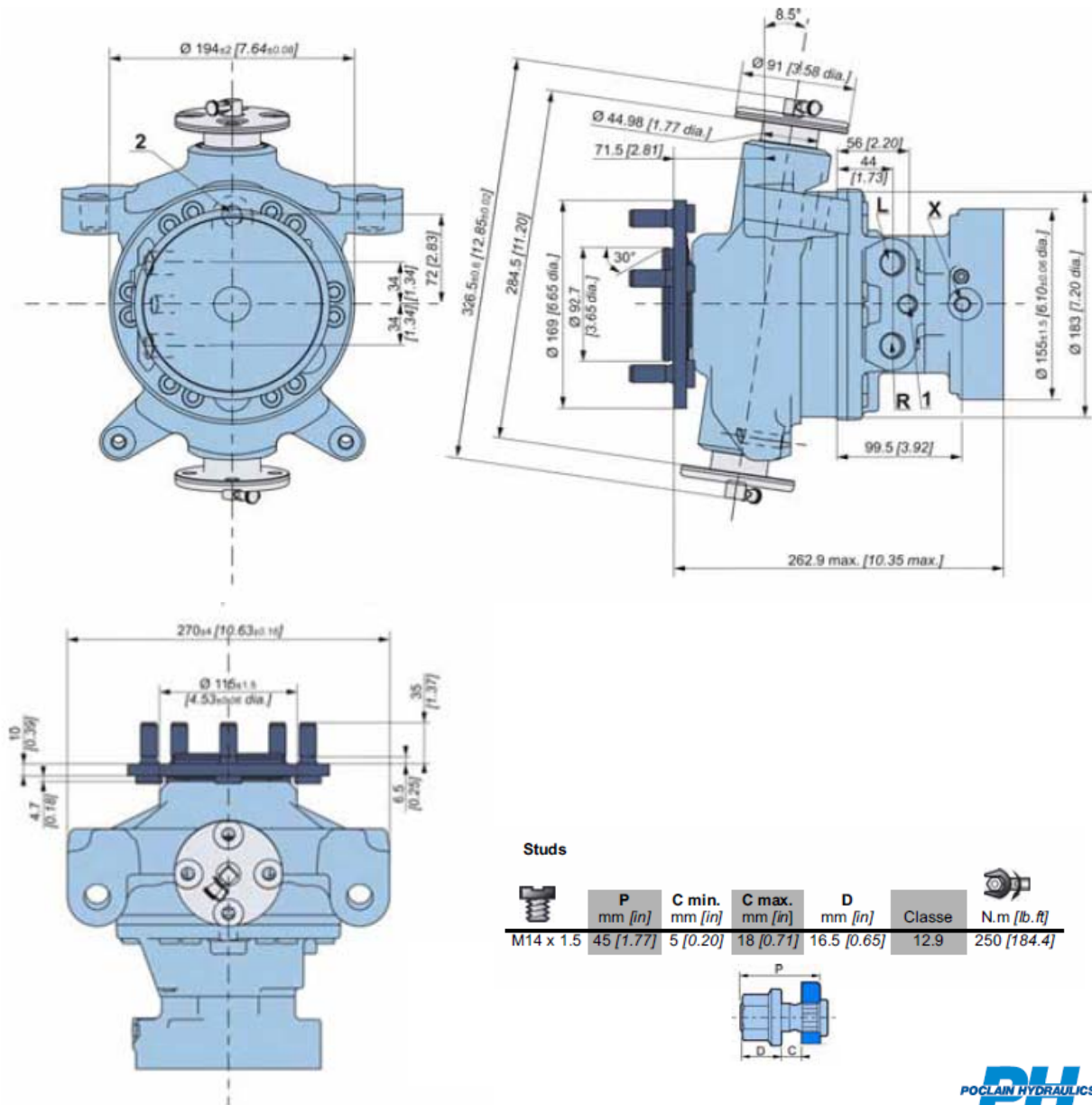
	33,0 kg [72,6 lb]
	1,00 L [60 cu.in]



Dimensions for 1-displacement motor with brake

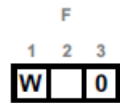
F  
1 2 3  
W 0

	38,3 kg [84,3 lb]
	1,00 L [60 cu.in]

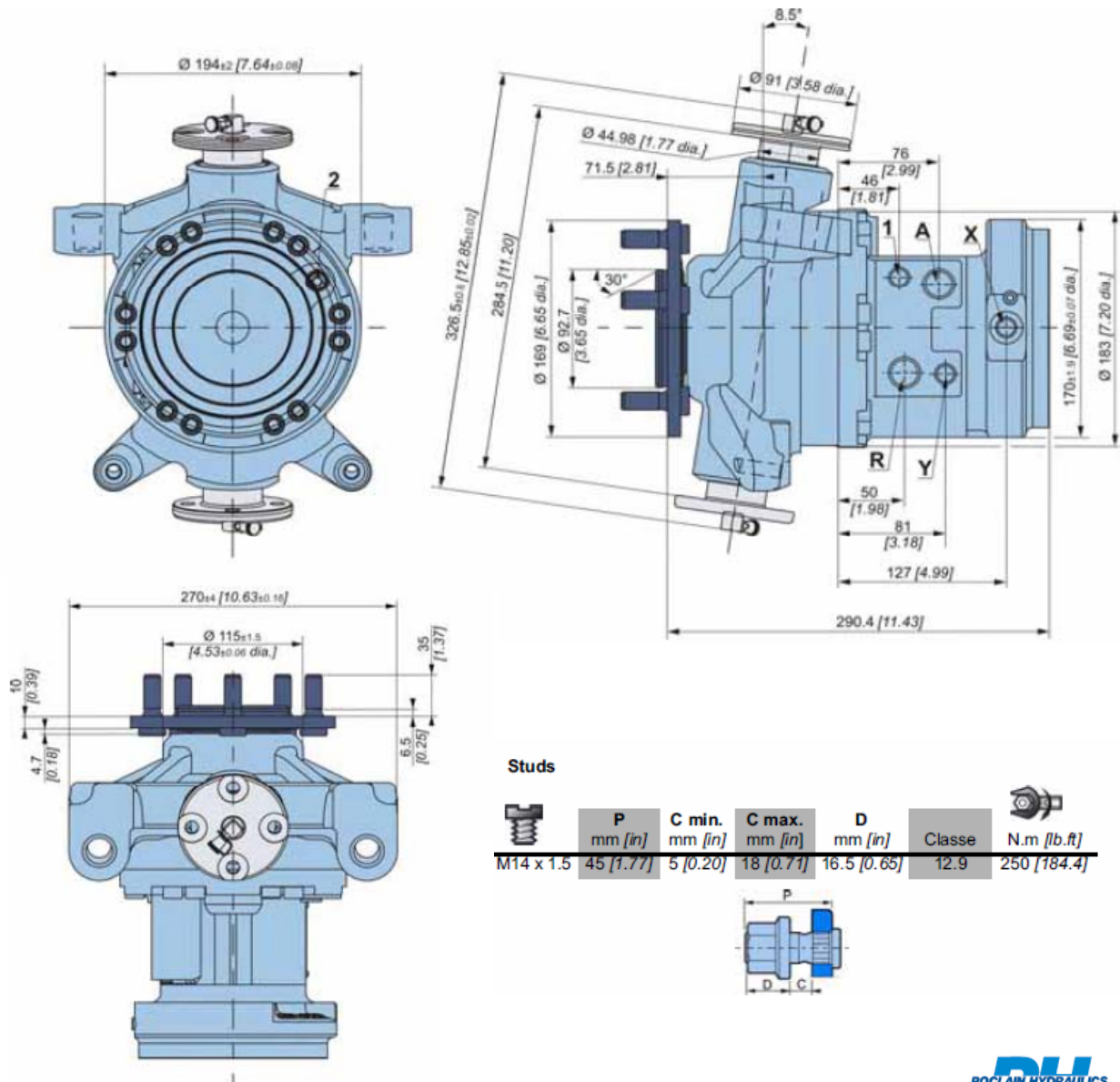




**Dimensions for 2-displacement motor with brake**



	47,8 kg [105,2 lb]
	1,00 L [60 cu.in]



**Load curves**



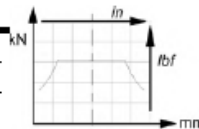
The given load curves correspond to the conditions specified below. For load curves corresponding to your specifications, contact a Poclain Hydraulics engineer.

**Permissible radial loads on bearing support**

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 (400 bar [5 802 PSI])

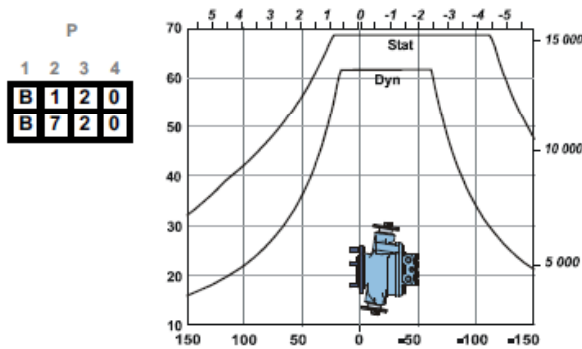


**Service life of bearings**

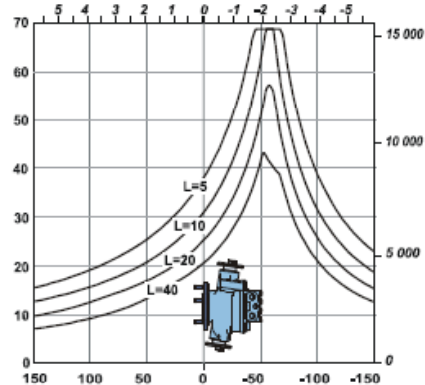
Test conditions :

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

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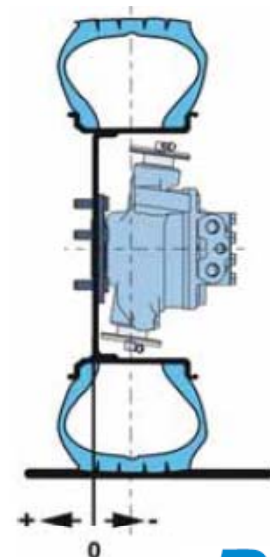
1	2	3	4
B	1	2	0
B	7	2	0



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.



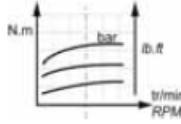
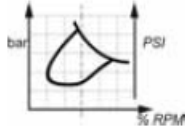
Loads are held by the bearing support and the pivot. It is mandatory to check the compability of your load cases and the max. permissible loads for the bearing support and the pivot. For an accurate calculation, consult your Poclain Hydraulics application engineer.



**Efficiency**

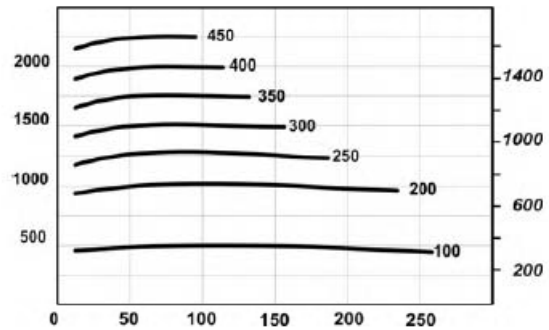
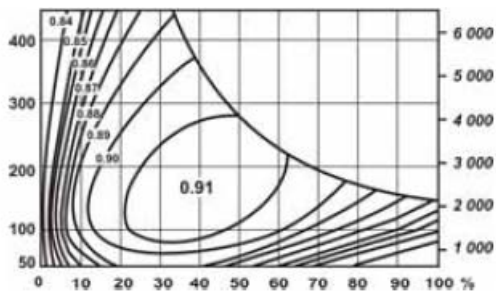
**Overall efficiency**

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

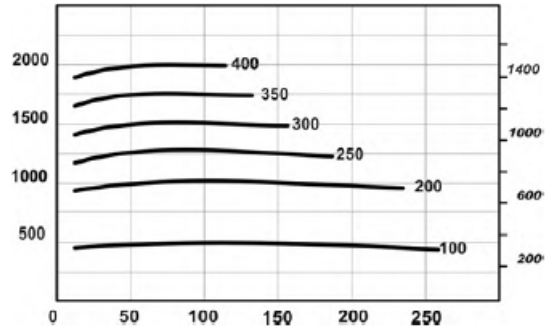
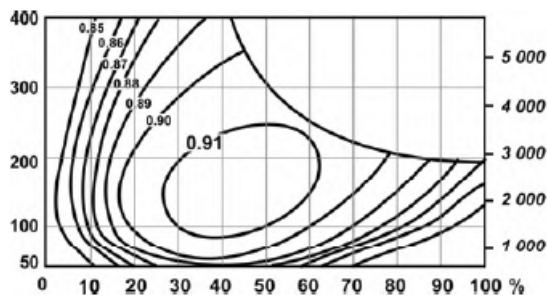


**Actual output torque**

**MG02**



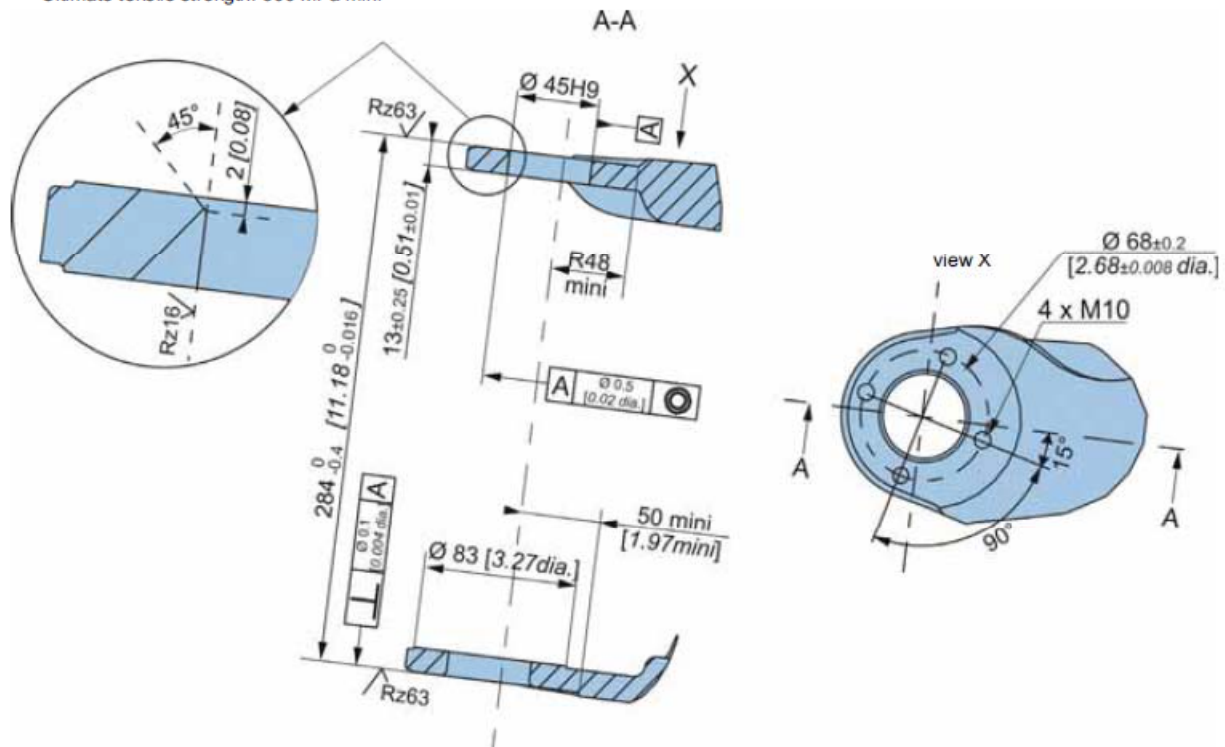
**MGE02**





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.

## Chassis mounting

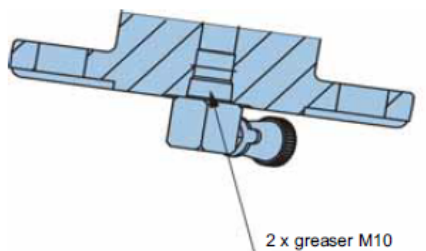
Ultimate tensile strength: 500 MPa mini



	Classe	 N.m [lb.ft.]
4xM10	10.9	69 [51]

(\*) The tightening torques are given for the indicated loads.

## Greaser



### Greaser specification:

Screw the greaser by hand until the lock, then screw it 1/2 or 1 turn more.

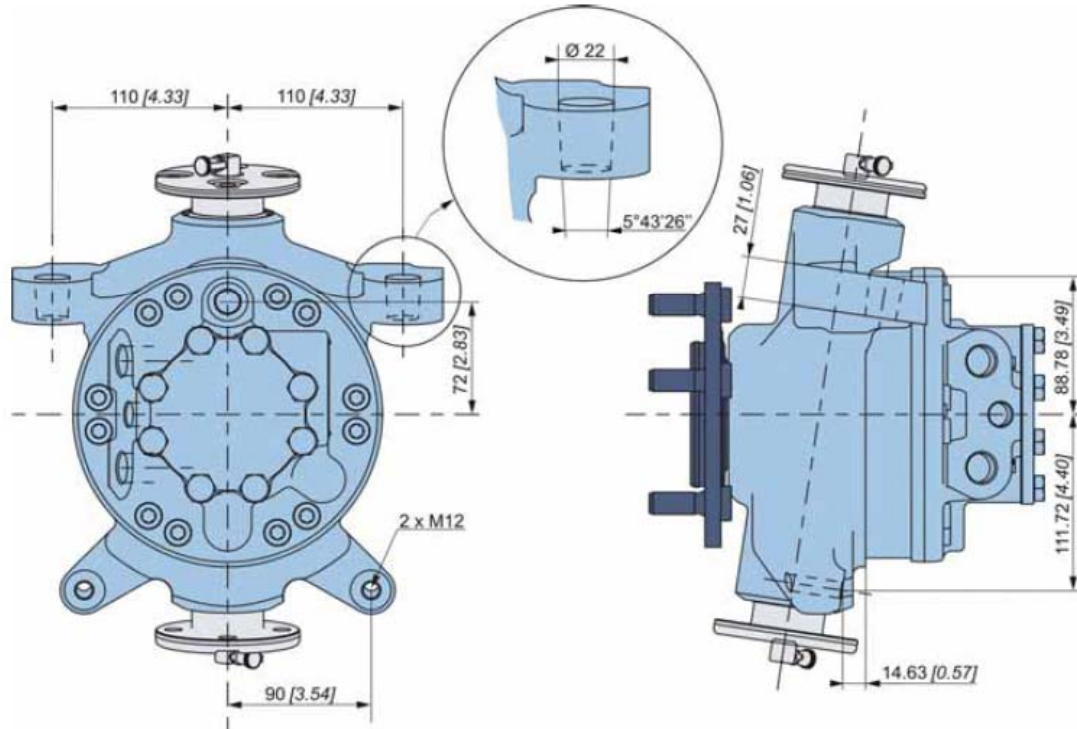
### Greasing recommendations:

- Replace the grease every 50 hours max.
- Be careful that grease do not contain any solid lubricants.
- The grease must not contain more than 5% MoS<sub>2</sub>ZnS
- Oil mineral-based grease lithium soap are recommended.
- Greasing pressure can exceed 150 bar.

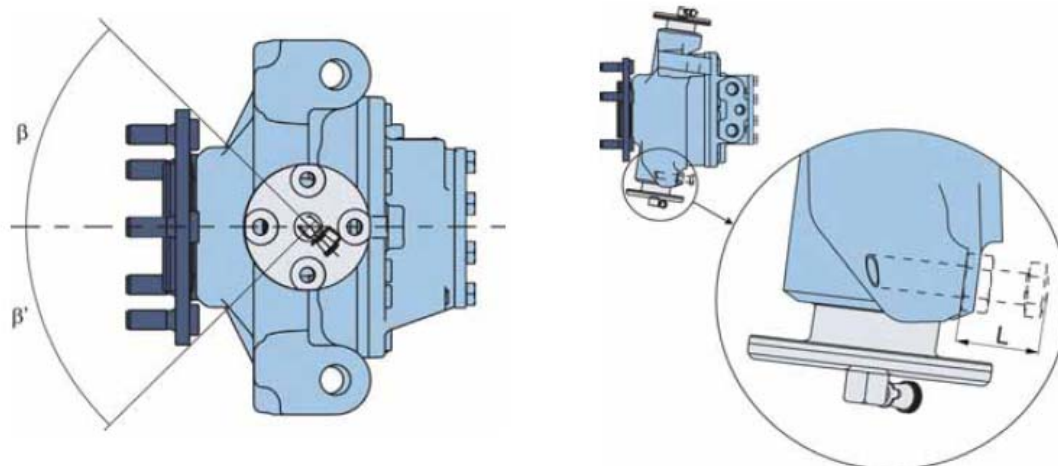


During greasing, in order to respect the environment, we recommend that you recover the excess grease (used grease) from around the kingpin seal.

### Steering attachment



### Steering angle and steering stop

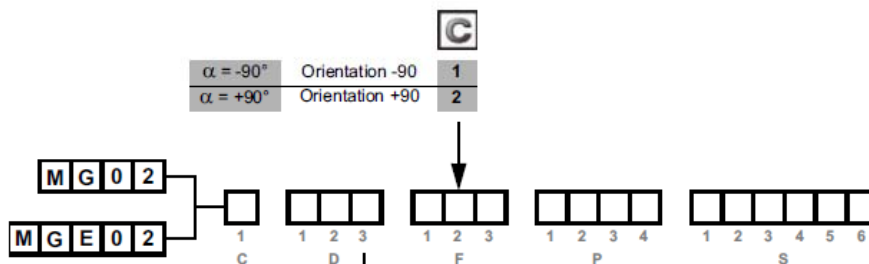
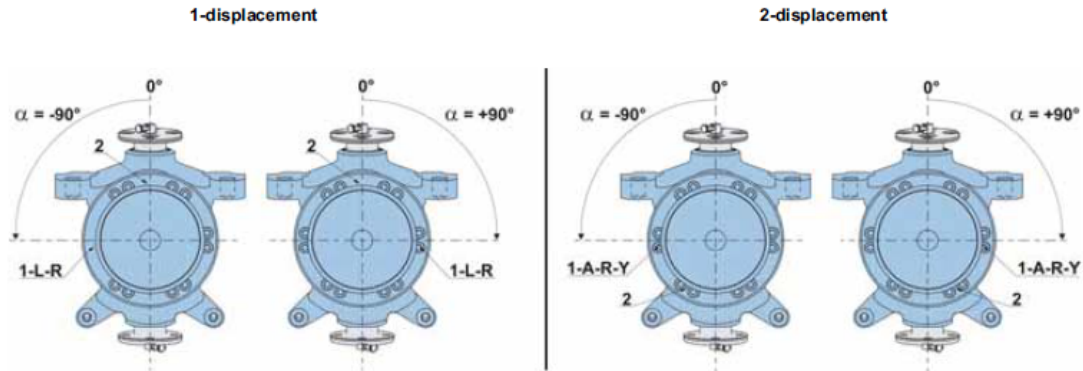


The steering angles ( $\beta$  and  $\beta'$ ) can be different within the limits of the customer's chassis conception and the hydraulics connections.

The customer must adjust the stroke of the steering stop ( $L$ ) according to the chassis conception.

The steering angle is adjusted with the steering stop.

Hydraulic connections



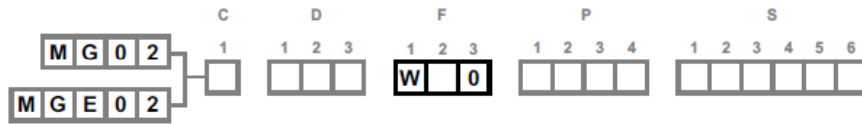
		Old standards	Standards	Power supply	Case drain	2 <sup>nd</sup> displacement control	Control of parking break
				R-L	1, 2		X
1-displacement	A	SAE J514	ISO 11 926-1	7/8"-14 UNF Ø21 [1/2" dia.]	3/4"-16 UNF Ø17 [3/8" dia.]		9/16"-18 UNF Ø13 [1/4" dia.]
	3	BSPP	ISO 1 179-1				
	4	NF E48 050	ISO 9 974-1	M22x1.5	M18x1.5		M18x1.5
				R-A	1, 2	Y	X
2-displacement	A	SAE J514	ISO 11 926-1	7/8"-14 UNF Ø21 [1/2" dia.]	9/16"-18 UNF Ø13 [1/4" dia.]	9/16"-18 UNF Ø13 [1/4" dia.]	9/16"-18 UNF Ø13 [1/4" dia.]
	3	BSPP	ISO 1 179-1				
	4	NF E48 050	ISO 9 974-1	M22x1.5	M14x1.5	M14x1.5	M18x1.5

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

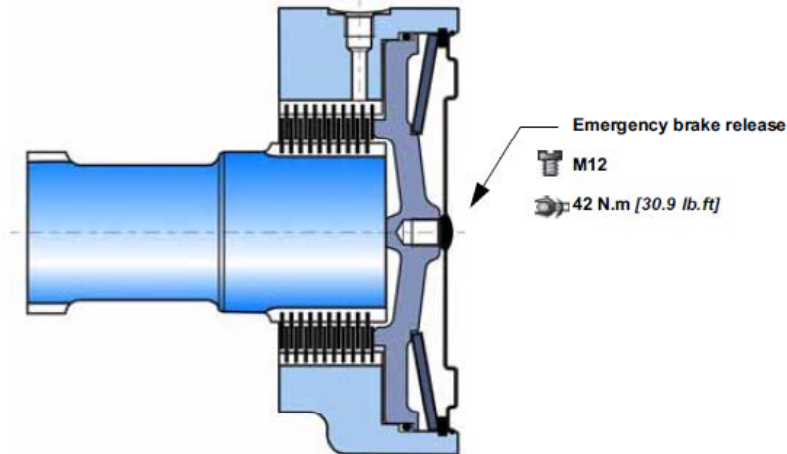
To find the connections' tightening torques, see the brochure "Installation guide" N° 801478197L.



**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.

**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.

<b>C</b>	<b>W 0</b>
Parking brake torque at 0 bars on housing (new brake)	2 500 Nm [1 840 lb.ft]
Dynamic emergency braking torque at 0 bars on housing (max. 10 uses of emergency brakes)	1 625 Nm [1 200 lb.ft]
Residual parking braking at 0 bars on housing *	1 875 Nm [1 380 lb.ft]
Min. brake release pressure	12 bar [174 PSI]
Max. brake release pressure	30 bar [435 PSI]
Oil capacity	100 cm <sup>3</sup> [6,1 cu.in]
Volume for brake release	16 cm <sup>3</sup> [1,0 cu.in]
Max. energy dissipation	38 179 J

\* After emergency brake has been used



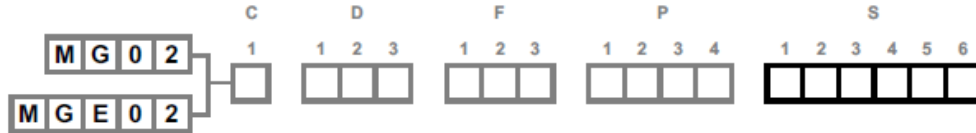
**Do not run in multidisc brakes.**



**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 Poclairn Hydraulics application engineer.**



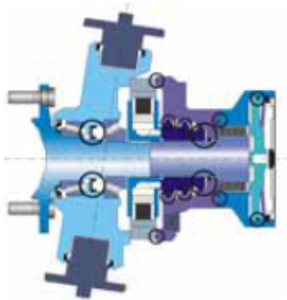
OPTIONS



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

1 - Fluorinated elastomer seals

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

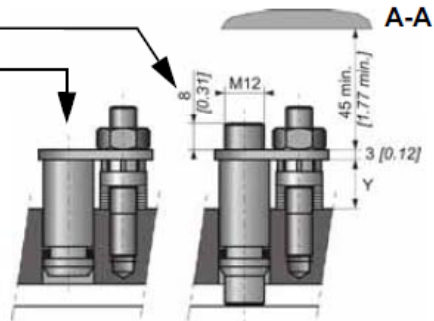
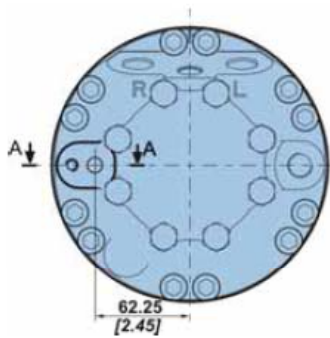


Consult your Poclairn Hydraulics sales engineer.

2 - S - 8 - Installed speed sensor or predisposition

Designation

T4 Speed sensor installed	2
TR Speed sensor installed (direction of rotation)	S
Predisposition for speed sensor	8



Max. length Y= 19  
Standard number of pulses per revolution= 40



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



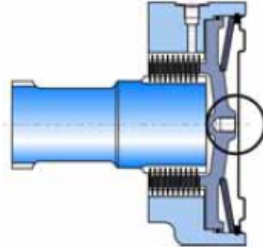
To install the sensor, see the "Installation guide" brochure No. 801478197L.





### 3 - Brake environmental cover without plug

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



### 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.

### E - Reinforced sealing (standard)

Reinforced seals.

### G - Special wheel rim mounting

Enables certain combinations different from the standard mountings defined on page 8 are possible.



Consult your Poclain Hydraulics sales engineer.

### H - High efficiency

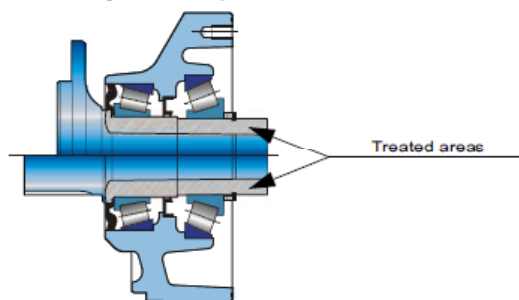
Reinforced piston sealing to improve volumetric efficiency.



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

### J - Treated shaft

Heat treatment on the indicated bearing radius and splines.



### M - High speed

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



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