

MK35

COMPACT MOTORS

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

POCLAIN HYDRAULICS

Poclain Driving Values for the Future

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) 

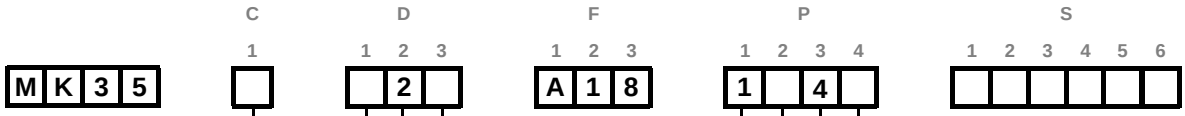
CONTENT

MODEL CODE **5**

CHARACTERISTICS **7**
Dimensions for standard 1-displacement motor 7
Dimensions for standard 2-displacement motor 7
Dimensions of symmetrical 2-displacement valving cover standard motor 8
Rotating retaining screws 8
Magnetic incremental hollow shaft encoder 9
Dimensions for motor equipped with encoder 9
Load curves 10
Efficiency 10
Chassis mounting 11
Hydraulic connections 12
Brakes 13

OPTIONS **14**

MODEL CODE



		❶ cm³/tr *[cu.in/rev.]*	❷ cm³/tr *[cu.in/rev.]*
Cams with Equal Lobes	**9**	3 143 *[191.7]*	1572 *[95.8]*
	0	3 494 *[213.1]*	1747 *[106.5]*
	1	3 822 *[233.1]*	1911 *[116.6]*
	2	4 198 *[256.0]*	2099 *[128.0]*
Cams with Unequal Lobes	**A**	3 494 *[213.1]*	2 099 *[128.0]* / 1 395 *[85.1]*

❶ **First displacement**

❷ **Second displacement**

1-displacement valving	**1**	
2-displacement symmetrical valving (No special direction)	**A**	Ratio 2
	B	Ratio <2
	C	Ratio >2
2-displacement dissymmetrical or Twin-Lock™ valving (Clockwise)	**D**	Ratio 2
	E	Ratio <2
	F	Ratio >2
2-displacement dissymetrical or Twin-Lock™ valving (Counterclockwise)	**G**	Ratio 2
	H	Ratio <2
	J	Ratio >2

Lug fixing without bearing	**2**

Simple plate	**A 1 8**
Reinforced plate	**R 1 8**
Encoder	**S 1 8**

ISO 6162 Flanges ISO 9974-1 Connections	**1**
ISO 6162 Flanges ISO 11926-1 Connections	**7**

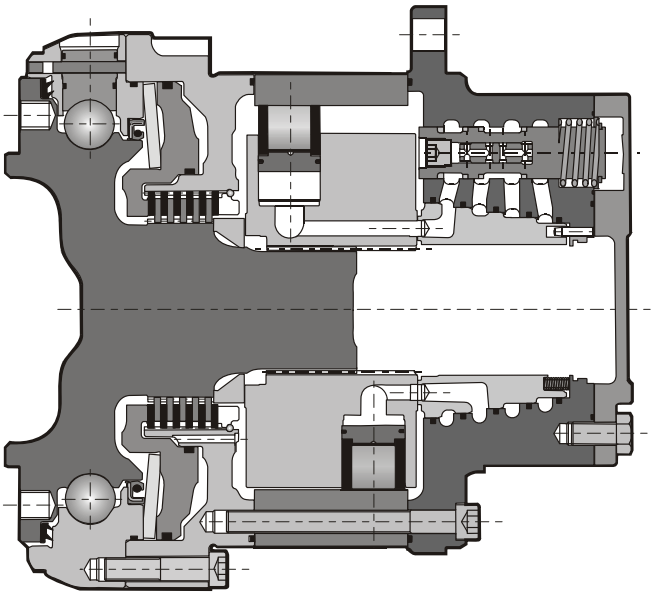
Without Fixation	**1**

Without brake	**0**
With brake	**1**

Threaded holes M	**4**

Radial brake port	**0**
Axial brake port	**1**

Without Options or Adaptations	**0**
T4 speed sensor (without rotation direction)	**2**
Drainage	**5**
Diamond™	**7**
Predisposition for speed sensor	**8**
TD speed sensor (two phase shifted frequencies)	**Q**
TR speed sensor (digital rotation direction)	**S**



Motor Inertia **0.6 kg.m²**

		❶	❷	Theoretical torque ❶ at 100 bar	Theoretical torque ❶ at 1000 PSI	Max.power ❶	Max.power ❷ preferred	Max.power ❷ non-preferred	Max. speed ❶	Max. speed ❷	Max. pressure
		cm³/tr *[cu.in/rev.]*	cm³/tr *[cu.in/rev.]*	Nm	*[lb.ft]*	kW *[HP]*	kW *[HP]*	kW *[HP]*	tr/min *[RPM]*		bar *[PSI]*
Cams with Equal Lobes	**9**	3 143 *[191.7]*	1572 *[95.8]*	4 997	*[2 541]*	110 *[148]*	73 *[98]*	55 *[74]*	50	50	450 *[6 530]*
	0	3 494 *[213.1]*	1747 *[106.5]*	5 555	*[2 825]*						
	1	3 822 *[233.1]*	1911 *[116.6]*	6 077	*[3 090]*						
	2	4 198 *[256.0]*	2099 *[128.0]*	6 675	*[3 394]*						
Cams with Unequal Lobes	**A**	3 494 *[213.1]*	2 099 *[128.0]* ⟨ 1 395 *[85.1]*	5 555	*[2 825]*	110 *[148]*	73 *[98]*	55 *[74]*	50	50	450 *[6 530]*

❶ **First displacement**

❷ **Second displacement**

CHARACTERISTICS

	C	D	F	P	S
	1	1 2 3	1 2 3	1 2 3 4	1 2 3 4 5 6
MK35					

Dimensions for standard 1-displacement motor

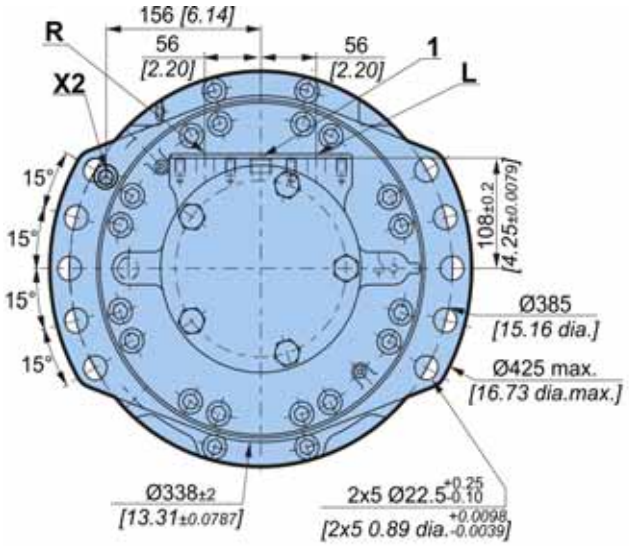
	171 kg *[376 lb]*	175 kg *[385 lb]*
	2.20 L *[132 cu.in]*	2.20 L *[132 cu.in]*

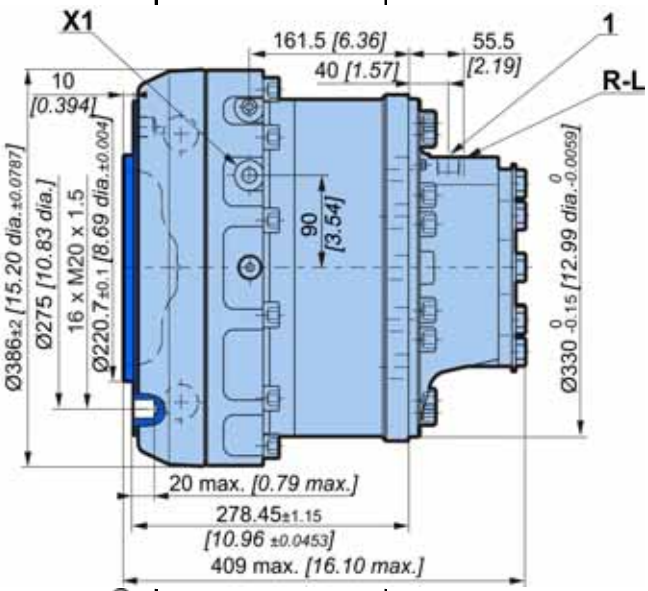
D: 1 2 3 = 1 2 ·

P: 1 2 3 4

X1 = 1 · 4 0

X2 = 1 · 4 1





Dimensions for standard 2-displacement motor

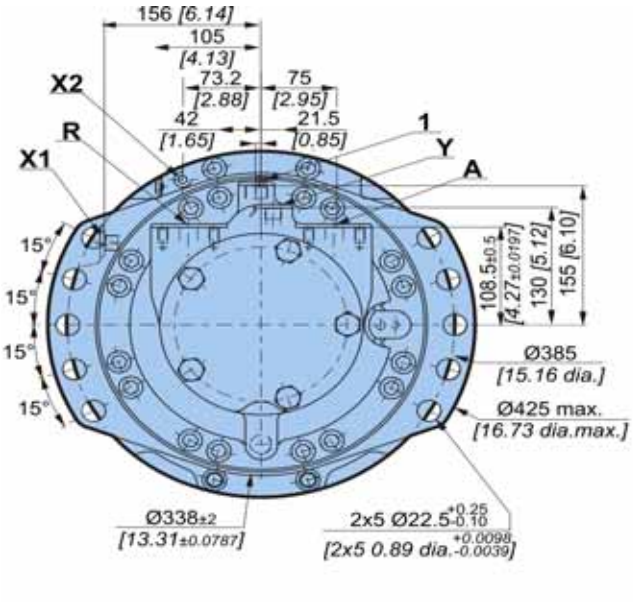
	179 kg *[394 lb]*	183 kg *[403 lb]*
	2.20 L *[132 cu.in]*	2.20 L *[132 cu.in]*

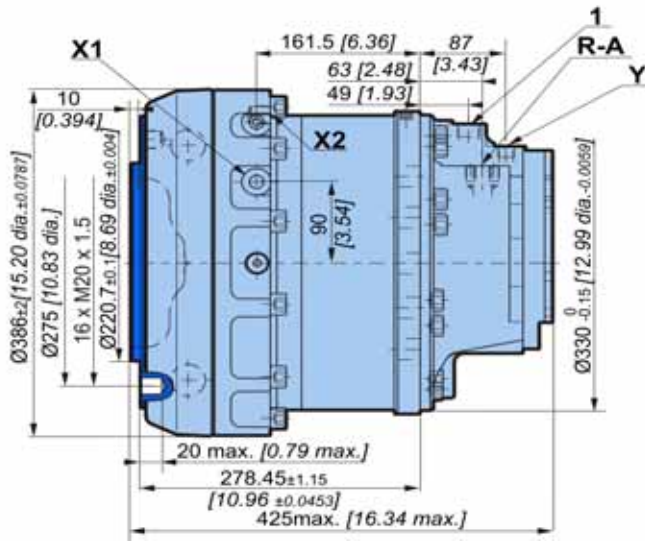
D: 1 2 3 = · 2 ·

P: 1 2 3 4

X1 = 1 · 4 0

X2 = 1 · 4 1





Dimensions of symmetrical 2-displacement valving cover standard motor

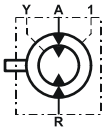
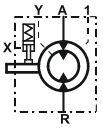
For a small displacement, there is no preferred orientation for this motor.

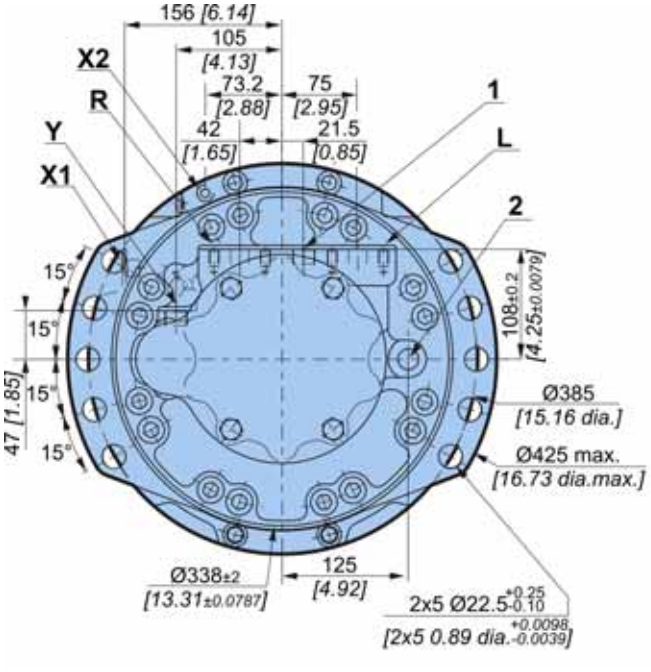
D

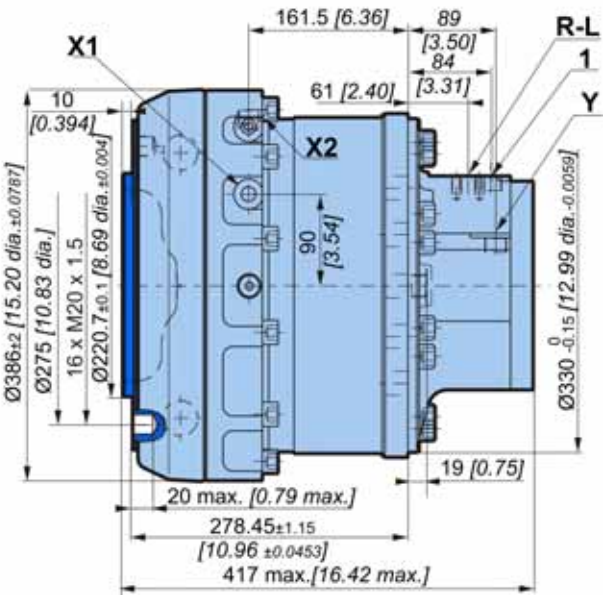
1	2	3
	2	

P

	1	2	3	4
X1	1		4	0
X2	1		4	1

	181 kg *[398 lb]*	185 kg *[407 lb]*
	2.20 L *[132 cu.in]*	2.20 L *[132 cu.in]*
		



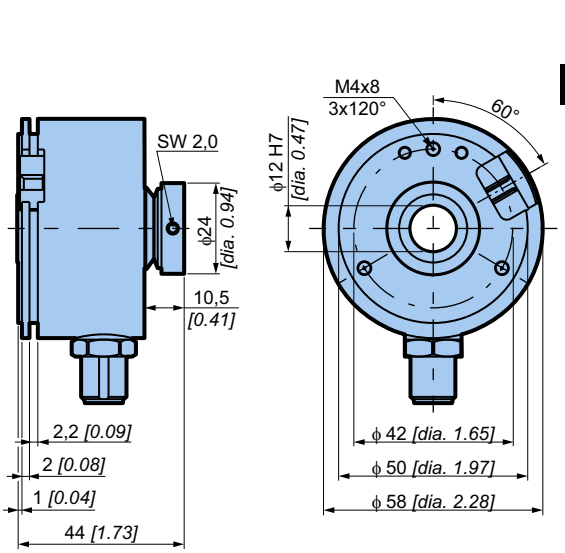


Rotating retaining screws

	Classe	N.m	[lb.ft]
16 x M20 x 1.5	10.9	690	[509]

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

Magnetic incremental hollow shaft encoder



F

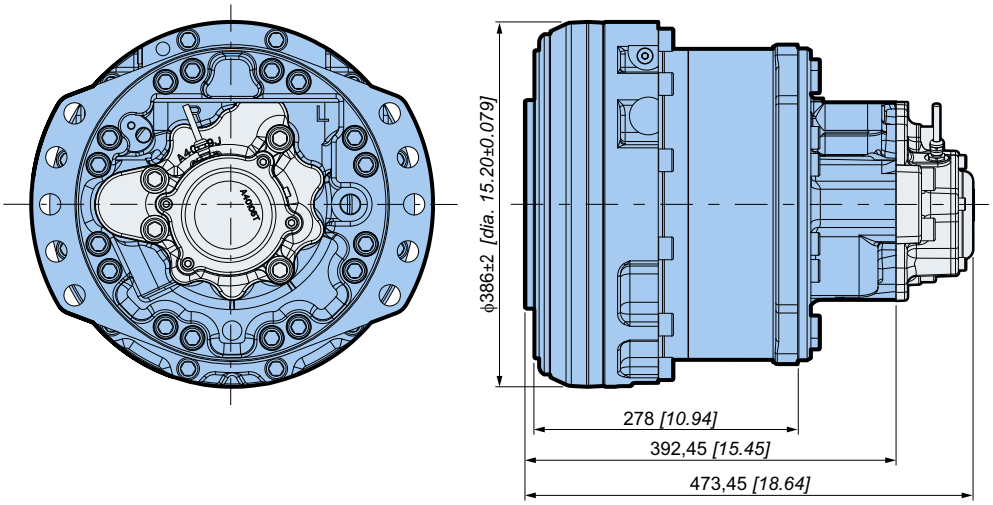
1	2	3
S	1	8

Features	
Power supply voltage (+Vs)	10 to 30 VDC
Number of pulses per revolution	3600
Max revolutions	6000 rpm
Protection	IP65
Operating temperature	-20°C to +85°C *[-4°F to 185°F]*

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

Dimensions for motor equipped with encoder

C	D			F			P				S					
1	1	2	3	1	2	3	1	2	3	4	1	2	3	4	5	6
M	K	3	5				S	1	8							



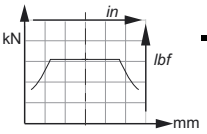
Load curves

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

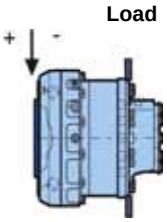


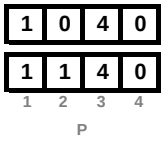
Service life of bearings

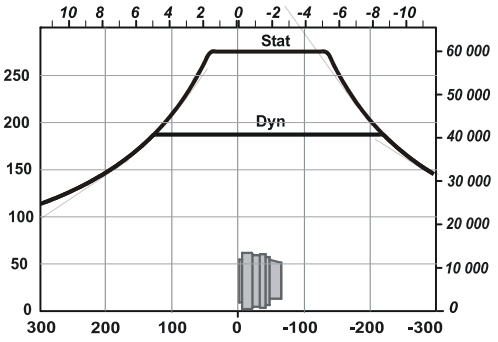
Test conditions :

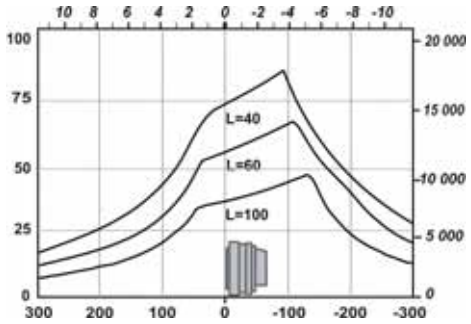
L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.

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.





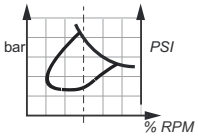


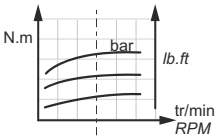


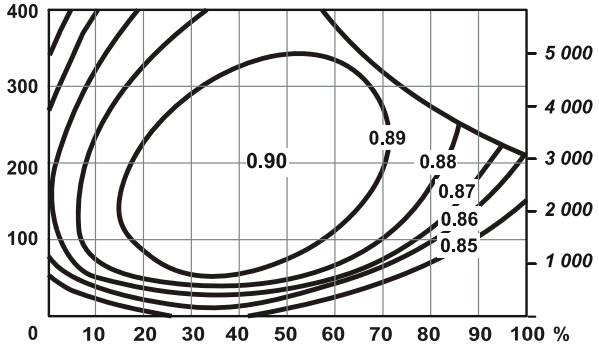
Efficiency

Overall efficiency

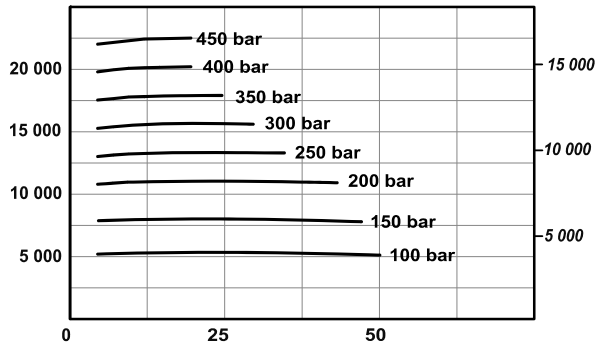
Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C *[122°F]*.





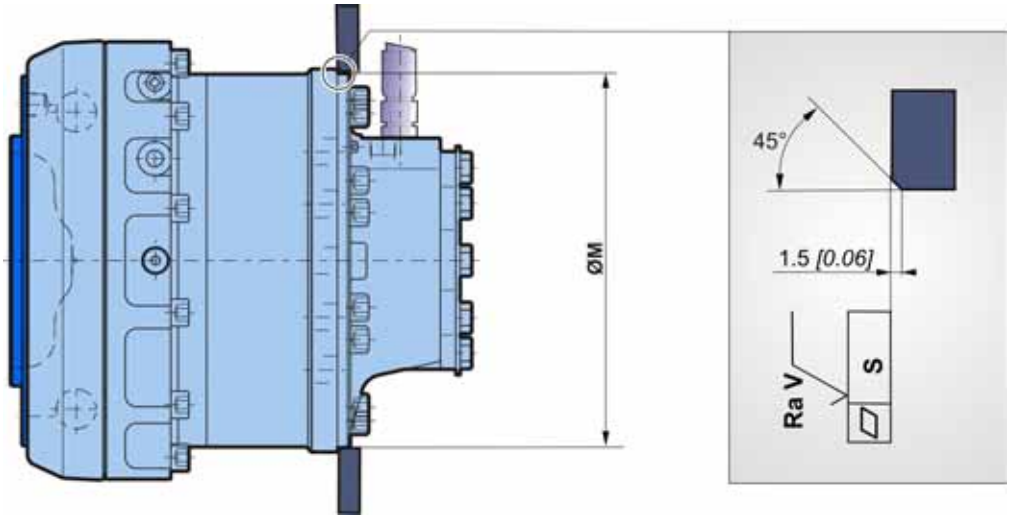


Actual output torque



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



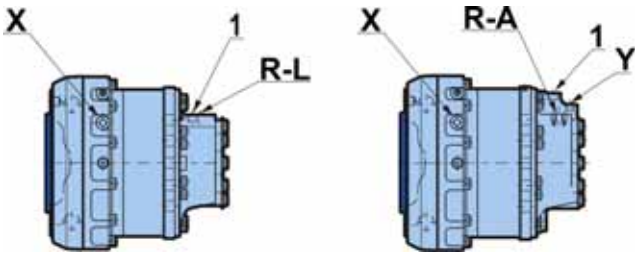
Take care over the immediate environment of the connections.

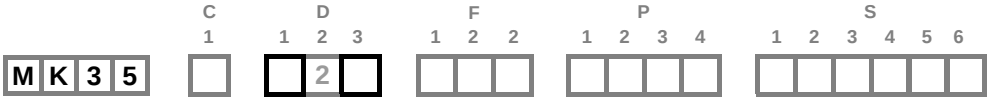
ØM (1) mm *[in]*	**S** mm *[in]*	**Ra V** µm *[µin]*		**Class of screw**	N.m *[lb.ft]*
330 *[12.99]*	0.2 *[0.01]*	12.5 *[0.49]*	2 x 5 x M20 x 2.5	8.8	410 *[302]*

(1) + 0.3 *[+0.012]*
+ 0.2 *[+0.008]*

Hydraulic connections

connections





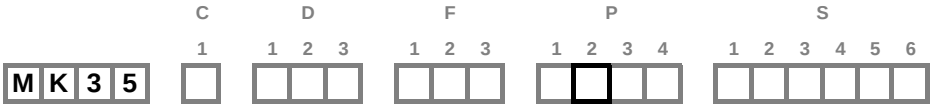
	Old standards	Standards	Power supply	2nd displacement control	Drainage	Control of brake
			R, L, A	Y	1, 2	X
1	ISO 6 162 DIN 3 852	ISO 6162 ISO 9 974-1	DN19 PN400	M22 x 1.5* M18 x 1.5**	M22 x 1.5	M16 x 1.5
7	DIN 6162 SAEJ514	DIM 6162 ISO 11 926-1	DN19 PN400	7/8" 14 UNF* 3/4" 16 UNF**	7/8" 14 UNF	3/4" 16 UNF

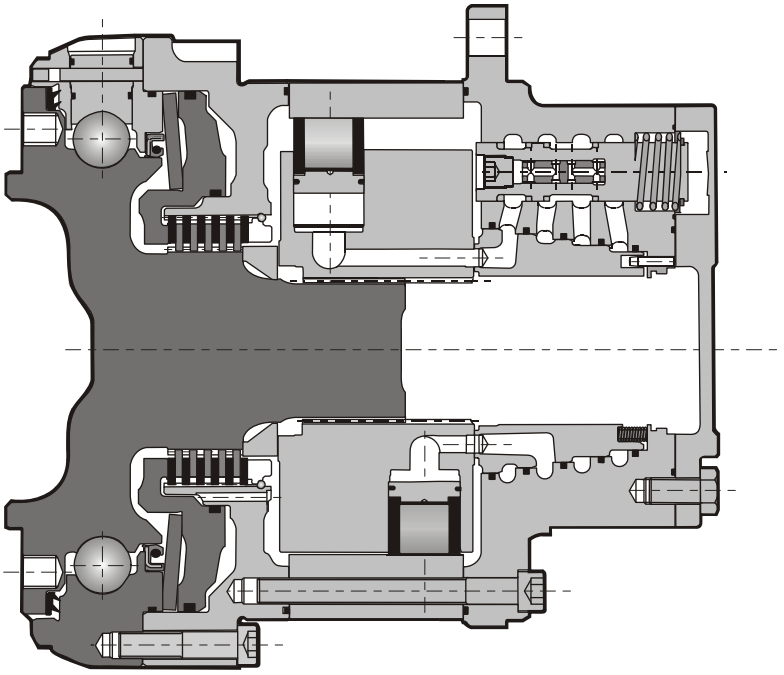
* If D1 = A, B or C (Symmetrical motor)

** If D1 = D, E, F, G, H or J (Disymmetrical motor)

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.

Brakes





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.

Parking brake torque with 0 bars in the housing (new brake)	33 000 N.m	*[24 340 lb.ft]*
Emergency dynamic braking torque *with 0 bars in the housing* (gives a maximum of 10 emergency braking operations)	21 450 N.m	*[15 820 lb.ft]*
Residual parking torque *at 0 bars in the housing**	24 750 N.m	*[18 250 lb.ft]*
Minimum brake release pressure	16 bar	*[232 PSI]*
Maximum brake release pressure	30 bar	*[435 PSI]*
Capacity	320 cm^3	*[19.5 cu.in]*
Brake release capacity	65 cm^3	*[4.0 cu.in]*

* After being used as emergency brake

The brake is integral to the bearing; refer to the model code (tab opposite).

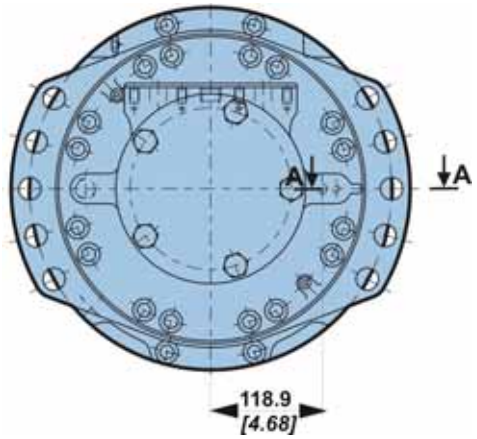
OPTIONS

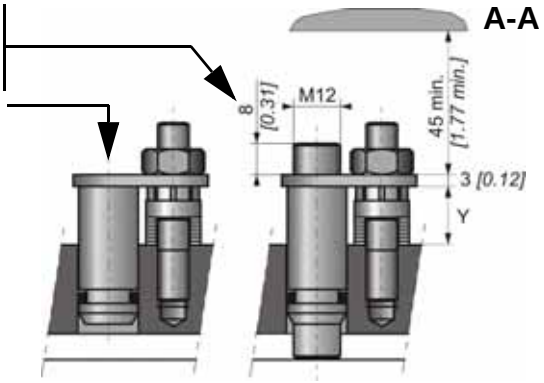
	C	D			F			P				S					
	1	1	2	3	1	2	3	1	2	3	4	1	2	3	4	5	6
MK35																	

You can accumulate more than one optional part. 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= 17.1

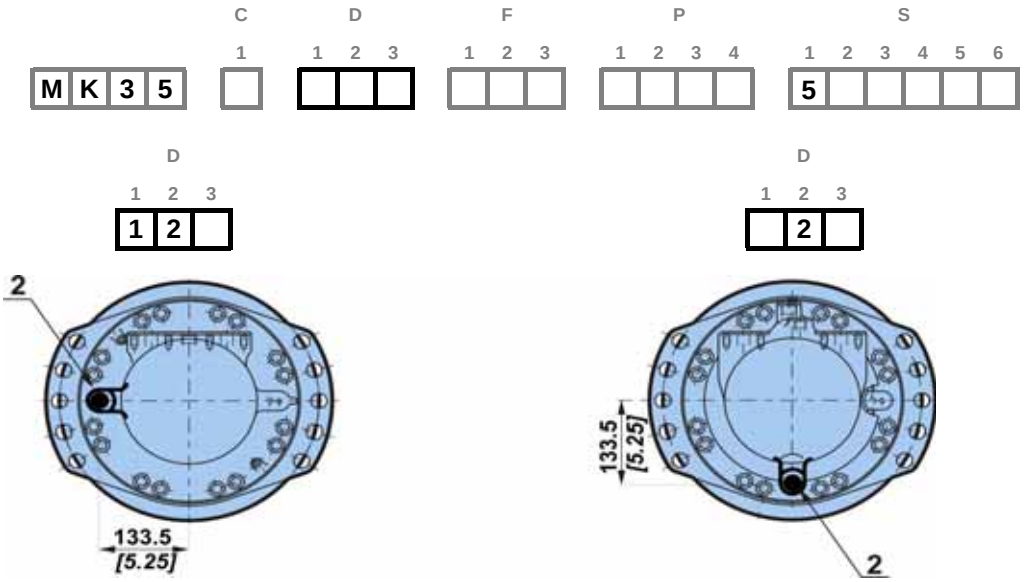
Standard number of pulses per revolution= 60

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. 801478197L.

5 - Drainage

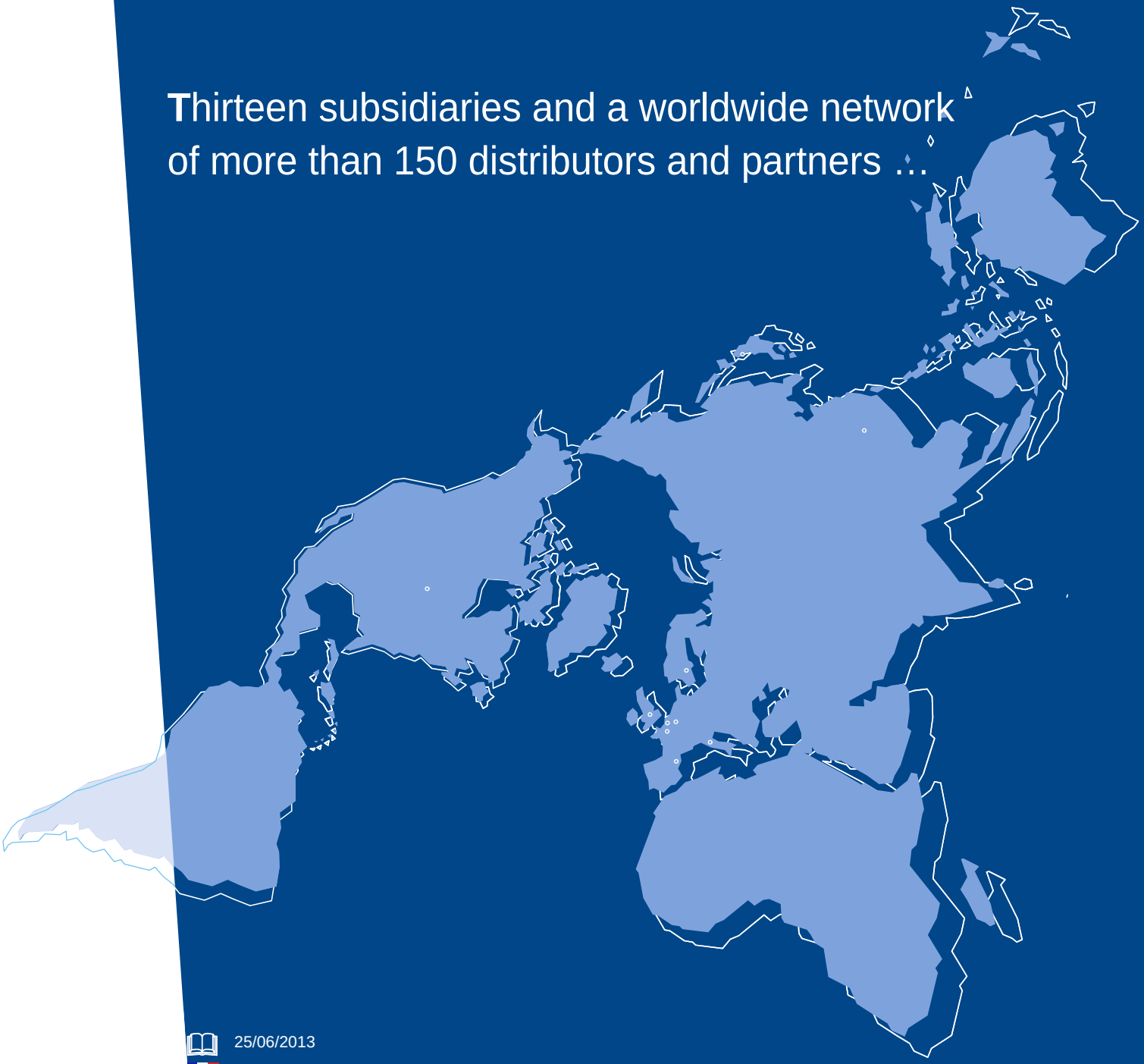
Additional drain in the cover.



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.

Thirteen subsidiaries and a worldwide network of more than 150 distributors and partners ...



25/06/2013

801 578 143X

801 578 154K

801 578 165W

801 578 176J

801 578 187V

Poclain Hydraulics reserves the right to make any modifications it deems necessary to the products described in this document without prior notification.The information contained in this document must be confirmed by Poclain Hydraulics before any order is submitted.
Illustrations are not binding.
The Poclain Hydraulics brand is the property of Poclain Hydraulics S.A.

POCLAIN HYDRAULICS

Poclain Driving Values for the Future

More information on

www.poclain-hydraulics.com