MD11
HYDRAULIC MOTORS
CHARACTERISTICS

Motor inertia = 0.15 kg.m²
Noise emissions = 60 dBA

<table>
<thead>
<tr>
<th>First displacement</th>
<th>Second displacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm³/tr [cu.in/rev.]</td>
<td>cm³/tr [cu.in/rev.]</td>
</tr>
<tr>
<td>8 837 [51.0]</td>
<td>419 [25.5]</td>
</tr>
<tr>
<td>9 943 [57.5]</td>
<td>472 [28.8]</td>
</tr>
<tr>
<td>0 1 048 [63.9]</td>
<td>524 [32.0]</td>
</tr>
<tr>
<td>1 1 147 [70.0]</td>
<td>574 [35.0]</td>
</tr>
<tr>
<td>2 1 259 [76.8]</td>
<td>630 [38.4]</td>
</tr>
</tbody>
</table>

Theoretical torque

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>50 [67]</td>
<td>33 [44]</td>
<td>25 [34]</td>
<td></td>
<td>195</td>
<td>190</td>
</tr>
<tr>
<td>195</td>
<td>185</td>
<td>180</td>
<td></td>
<td>450 [6 527]</td>
<td>170 175</td>
</tr>
</tbody>
</table>

* See option "M" for higher speed or lower charge pressure.

1 First displacement
2 Second displacement
POCLAIN HYDRAULICS

Hydraulic motors MD11

CODE

Bearing support

P

S

1 2 3 4 1 2 3 4 5 6

P1

Bearing support unit

0

Without chassis fixation

2

Chassis fixation on both bearing supports 12 x M12 on ø 276 [dia. 10.87]

P3

Flanges

0

With male shaft

1

Without studs

2

With studs and nuts

3

With studs

P4

Shaft output

0

With flange

1

Double splined male shaft

NF E22141; 24 teeth; module 2.5

S5-6

Options

2 T4 speed sensor (without rotation direction)

5 Additional drain on valving systems (Steel plug)

7 Diamond™

8 Predisposition for speed sensor

D Special paint or no paint

H High efficiency

K Heat treatment on external splines zone

P Customized identification plate

Q TD speed sensor (two phase shifted frequencies)

S TR speed sensor (digital rotation direction)

M High speed

Valving systems

Bearing support unit

Installation

Brake

Options
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).
## Wheel motor

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>1 - displacement motor</th>
<th>2 - displacement motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Options

- **Brake bleed screw M6**

### Characteristics

#### Brake bleed screw M6

- **Capacity**
  - 129 [284.4] kg [lb]
  - 133 [293.2] l [cu.in]
  - 2.00 [122]
Shaft motor

<table>
<thead>
<tr>
<th>C</th>
<th>D</th>
<th>F</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Brake bleed screw M6

View “Z”

View “Y”

* Port 2 - option 5

81 [178.6] kg
2.00 [122] l
Radial load curves

Permissible radial loads

Test conditions:

Static: 0 rev/min [0 RPM] 0 bar [0 PSI]

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

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 SYSTEM

## Hydraulic connections

<table>
<thead>
<tr>
<th>Old standards</th>
<th>Standards</th>
<th>Power supply</th>
<th>Case drain</th>
<th>2nd displacement control</th>
<th>Control of parking brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 6 '82</td>
<td>ISO 9 974-1</td>
<td>PN400 DN13-NF</td>
<td>M16x15</td>
<td>M16x15</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 6 '82</td>
<td>ISO 6 '82</td>
<td>ISO 9 974-1</td>
<td></td>
</tr>
<tr>
<td>DIN 3 852</td>
<td>DIN 3 852</td>
<td>ISO 9 974-1</td>
<td></td>
</tr>
</tbody>
</table>

### Standards
- ISO 11 926-1
- DIN 3 852
- SAE J514
- ISO 9 974-1
- ISO 6 '82
- BSPP
- NF E48 050
- ISO 9 974-1
- ISO 6 '82
- DIN 3 852
- ISO 9 974-1

### Valving systems

Max. pressures

<table>
<thead>
<tr>
<th>bar [PSI]</th>
<th>15 [218]</th>
</tr>
</thead>
</table>

Instantaneous pressure peaks resistance


### Old standards

### Standards

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

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

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

Parking brake torque at 0 bars on housing (new brake)  8 000 Nm [5 900 lb.ft]
Dynamic emergency braking torque at 0 bars on housing (max. 10 uses of emergency brakes)  5 200 Nm [3 840 lb.ft]
Residual parking braking at 0 bars on housing *  6 000 Nm [4 430 lb.ft]
Min. brake release pressure  10 bar [145 PSI]
Max. brake release pressure  30 bar [435 PSI]
Max. energy dissipation  90 500 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.
**INSTALLATION**

Customer’s chassis and wheel rim mountings

<table>
<thead>
<tr>
<th>C</th>
<th>D</th>
<th>F</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>D</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

![Diagram of hydraulic motor MD11 installation](image)

<table>
<thead>
<tr>
<th>ØU [mm]</th>
<th>ØM [mm]</th>
<th>S [μm]</th>
<th>V [μm]</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) 203,20 [8,00]</td>
<td>151,00 [5,94]</td>
<td>0,2 [0,008]</td>
<td>12,5 [0,492]</td>
<td><strong>8.8</strong></td>
</tr>
<tr>
<td>(2) 335,00 [13,19]</td>
<td>205,00 [8,00]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**: Min. values for torque and load to be transmitted
Customer's chassis mountings

Take care over the immediate environment of the connections.

For more information see technical catalogue “Installation guide” N° 801478197L.

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.

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

**OPTIONS**

<table>
<thead>
<tr>
<th>C</th>
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<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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

### Drain on the valving system

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

**Designation**
- T4 speed sensor (without rotation direction) 2
- T5 speed sensor (digital rotation direction) S
- TD speed sensor (two phase shifted frequencies) Q
- Predisposition for speed sensor 8

### Installed speed sensor or predisposition

**Max. length Y= 18.65 \(0.73\)**

**Standard number of pulses per revolution= 60**

28/06/2013
K  Treated external splines zone

Heat treatment on the external splines zones.

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.

D  Special paint or no paint

The motors are delivered with Poclain Hydraulics yellow ochre primer as standard.

Consult your Poclain Hydraulics application engineer for other colors of primer or topcoat.

H  High efficiency

Reinforced piston sealing to improve volumetric efficiency.

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

P  Customized identification plate

Your part number can be engraved on the plate.

Consult your Poclain Hydraulics application engineer for other possibilities.

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.
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