**MHP MOTORS**

The new MHP 20 and MHP 27 hydraulic motors represent the keystone of the High Performance system proposed by Poclain Hydraulics.

Thanks to their innovative design, the MHP20 and MHP27 motors will offer superior performances (Higher speed and power, working pressure of 500 bar) compared to conventional cam-lobe motors. These characteristics make these components suitable for any applications requiring highly performing hydraulic drives, such as agricultural machines, drilling rigs or industrial.

But besides their performance, the MHP 20 and MHP 27 motors will also allow improvement of the global efficiency of the transmission resulting in lower fuel consumption for the machine, while ensuring higher robustness and reliability, which are required for the most demanding applications.

<table>
<thead>
<tr>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>From 1 430 cc to 3 500 cc</td>
</tr>
</tbody>
</table>

*High Performance*
### MHP20 CHARACTERISTICS

<table>
<thead>
<tr>
<th>Max. Pressure</th>
<th>777</th>
<th>888</th>
<th>999</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C Distribution</td>
<td>123</td>
<td>123</td>
<td>123</td>
</tr>
<tr>
<td>Displacement</td>
<td>cm³/rev</td>
<td>1416</td>
<td>1630</td>
</tr>
<tr>
<td>Max. Speed</td>
<td>rpm</td>
<td>505</td>
<td>420</td>
</tr>
<tr>
<td>Max. Power(1)</td>
<td>kW [HP]</td>
<td>200</td>
<td>185</td>
</tr>
<tr>
<td>2C Distribution</td>
<td>123</td>
<td>123</td>
<td>123</td>
</tr>
<tr>
<td>Displacement</td>
<td>cm³/rev</td>
<td>1416</td>
<td>1630</td>
</tr>
<tr>
<td>Max. Speed</td>
<td>rpm</td>
<td>420</td>
<td>350</td>
</tr>
<tr>
<td>Max. Power(1)</td>
<td>kW [HP]</td>
<td>190</td>
<td>180</td>
</tr>
<tr>
<td>3C Distribution (8/5/3)</td>
<td>123</td>
<td>123</td>
<td>123</td>
</tr>
<tr>
<td>Displacement</td>
<td>cm³/rev</td>
<td>1416</td>
<td>1630</td>
</tr>
<tr>
<td>Max. Speed</td>
<td>rpm</td>
<td>380</td>
<td>320</td>
</tr>
<tr>
<td>Max. Power(1)</td>
<td>kW [HP]</td>
<td>175</td>
<td>165</td>
</tr>
<tr>
<td>3C Distribution (8/5/2)</td>
<td>123</td>
<td>123</td>
<td>123</td>
</tr>
<tr>
<td>Displacement</td>
<td>cm³/rev</td>
<td>1416</td>
<td>1630</td>
</tr>
<tr>
<td>Max. Speed</td>
<td>rpm</td>
<td>380</td>
<td>320</td>
</tr>
<tr>
<td>Max. Power(1)</td>
<td>kW [HP]</td>
<td>175</td>
<td>165</td>
</tr>
</tbody>
</table>

**First displacement**

**Second displacement**

**Third displacement**

(1) Max. power obtained at maximum speed.
## High performance motor MHP20/MHP27

<table>
<thead>
<tr>
<th>Max. Pressure bar [PSI]</th>
<th>7 7 7</th>
<th>8 8 8</th>
<th>9 9 9</th>
<th>0 0 0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1C Distribution</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max. Speed</strong> rpm</td>
<td>340</td>
<td>310</td>
<td>280</td>
<td>245</td>
</tr>
<tr>
<td><strong>2C Distribution</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max. Speed</strong> rpm</td>
<td>290</td>
<td>345</td>
<td>265</td>
<td>235</td>
</tr>
<tr>
<td><strong>3C Distribution (8/5/3)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max. Speed</strong> rpm</td>
<td>260</td>
<td>300</td>
<td>240</td>
<td>215</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max. Pressure bar [PSI]</th>
<th>1 1 1</th>
<th>2 2 2</th>
<th>3 3 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1C Distribution</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max. Speed</strong> rpm</td>
<td>230</td>
<td>210</td>
<td>190</td>
</tr>
<tr>
<td><strong>Max. Power(1) kW [HP]</strong></td>
<td>200 [268]</td>
<td>190 [255]</td>
<td>180 [241]</td>
</tr>
<tr>
<td><strong>2C Distribution</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max. Speed</strong> rpm</td>
<td>195</td>
<td>235</td>
<td>180</td>
</tr>
<tr>
<td><strong>Max. Power(1) kW [HP]</strong></td>
<td>190 [255]</td>
<td>165 [221]</td>
<td>180 [241]</td>
</tr>
<tr>
<td><strong>3C Distribution (8/5/3)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max. Speed</strong> rpm</td>
<td>180</td>
<td>205</td>
<td>165</td>
</tr>
<tr>
<td><strong>Max. Power(1) kW [HP]</strong></td>
<td>175 [235]</td>
<td>175 [228]</td>
<td>170 [228]</td>
</tr>
</tbody>
</table>

| **3C Distribution (8/5/2)** |     |     |     |
| **Max. Speed** rpm       | 175   | 200   | 160   |
| **Max. Power(1) kW [HP]** | 175 [235] | 170 [228] | 150 [201] |

---

(1) Max. power obtained at maximum speed.

---

First displacement
Second displacement
Third displacement

POCLAIN HYDRAULICS

18/02/2016
MODUL

Torque module + Valving system

Two hydrotorque:
MHP20
MHP27

1C

2C

2C boosted brake

2C Twin Lock

3C
POCLAIN HYDRAULICS

ARITY

Bearing Support + Brake

Wheel flange
- 8 x Ø22 on Ø275
- 8 + 4 x Ø22 on Ø275
- 10 x Ø24 on Ø225
- 10 x Ø24 on Ø335

C27™ combined brake
- 10 x Ø24 on Ø335

Splines
- NF E 22141
- DIN 5480

Shrink disc

Hydrobases

Modularity and Model code

Wheel motor

Shaft motor

Installation

Brake

Options
High performance motor MHP20/MHP27

POCLAIN HYDRAULICS

Valving System

Torque Module

MODEL

Valving type

1-displacement valving
2-displacement valving
2-displacement valving with boosted brake
2-displacement & Twin-Lock™ valving
3-displacement valving (8/5/3) (displacement ratio = 2.7)
3-displacement valving (8/5/2) (displacement ratio = 4.0)

Valving cover

Twin-Lock™

Displacement

cm³/tr [cu.in/rev.]

MHP20

7 7 1416 [86.4]
8 8 1630 [99.5]
9 9 1821 [111.1]
0 0 2029 [123.8]
1 1 2228 [135.9]
2 2 2427 [148.1]

MHP27

7 7 1893 [115.5]
8 8 2179 [132.9]
9 9 2434 [148.5]
0 0 2712 [165.5]
1 1 2987 [182.3]
2 2 3245 [198]
3 3 3526 [215.2]

Connection type

1 HP: ISO 6162 (brides SAE flanges) DN 25
BP: ISO 9974-1 (metric + spot face ports)

2* HP: ISO 6162 (brides SAE flanges) DN 32
BP: ISO9974-1 (metric + spot face ports)

3 HP: ISO 6162 (brides SAE flanges) DN 25
BP: ISO 1179-1 (BSPP + spot face ports)

7 HP: ISO 6162 (brides SAE flanges) DN 25
BP: ISO 11926-1 (SAE J514 with O-ring seal)

* DN32 ports only available with 1C cover (D1=1)

V1

Flanged valve

Standard 0
Advanced (with flanged block)* A
* see page 17

Without chasis fixation Fixation by two ears

Standard 1
Twin-Lock™ 7 W
POCLAIN HYDRAULICS
High performance motor MHP20/MHP27

CODE

Bearing support

Options Brake Shaft motor Wheel motor Installation Modularity and Model code

Model code

CODE

Y 12 P 34 12 S 3456

Shaft type

Without shaft 0

Flange

Without studs 1
With studs + lug nuts 2
With studs 3
Threaded holes metric 4

Male shaft

NF E 22 141 Splines 1
DIN 5480 splines 5

Female shaft

For shrinc disc L

Options

1 Fluorinated elastomer seals compatible
2 T4 speed sensor (without rotation direction)
6 Industrial bearing support
9 Chassis mounting on cam ring side
B Drain on the bearing support
C Mechanical seal
D Special paint or no paint
E Reinforced sealing
F Special mountings
G Special wheel rim mounting
J Surface heat treatment of the shaft
K Surface heat treatment on external splines
N Bleed screw on the bearing support
P Customized identification plate
U Boosted braking

P1

Front unit

Fixation by two ears
On the valving cover 1 E
On the bearing support 2 F 6 -
Torque motor

P2

Bearing support

10 x Ø24 on Ø335 (for studs length of 80 mm) 1
10 x Ø24 on Ø335 (for studs length of 65 mm) T
8 x Ø22 on Ø275 3
8 x Ø22 on Ø275 5
10 x Ø24 on Ø225 6
10 x Ø24 on Ø225 U 6
10 x Ø24 on Ø225 B

Bearing support with flange

Bearing support for shaft

Standard A

P3

Shaft type

Without shaft 0

Flange

Without studs 1
With studs + lug nuts 2
With studs 3
Threaded holes metric 4

Male shaft

NF E 22 141 Splines 1
DIN 5480 splines 5

Female shaft

For shrinc disc L

P4

Orientation*

α = 0°
(standard for non-brake version)
1 α = 45°
2 α = 90°
3 α = 135°
4 α = 180°
5 α = -45°
6 α = -90°
7 α = -135°

*Look at page 28 for more info.
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

Modularity and Model code

Dimensions

170 kg [375 lb]

*Ports for 2C distribution
## Support types

<table>
<thead>
<tr>
<th></th>
<th>A (mm [in])</th>
<th>B (mm [in])</th>
<th>C (mm [in])</th>
<th>D (mm [in])</th>
<th>E (mm [in])</th>
<th>N (mm [in])</th>
<th>Wheel rim mountings</th>
<th>L (mm [in])</th>
</tr>
</thead>
<tbody>
<tr>
<td>1110</td>
<td>280.8 [11.06 dia.]</td>
<td>335 [13.19 dia.]</td>
<td>386 [15.20 dia.]</td>
<td>319 [12.56]</td>
<td>334 [13.15 dia.]</td>
<td>24 [0.94 dia.]</td>
<td>10 x M22x1.5</td>
<td>24 [0.94]</td>
</tr>
<tr>
<td>1310</td>
<td>220.7 [8.69 dia.]</td>
<td>275 [10.83 dia.]</td>
<td>314 [12.36 dia.]</td>
<td>282 [11.10]</td>
<td>334 [13.15 dia.]</td>
<td>22 [0.87 dia.]</td>
<td>8 x M20x1.5</td>
<td>14 [0.55]</td>
</tr>
<tr>
<td>1510</td>
<td>220.7 [8.69 dia.]</td>
<td>275 [10.83 dia.]</td>
<td>314 [12.36 dia.]</td>
<td>282 [11.10]</td>
<td>334 [13.15 dia.]</td>
<td>22 [0.87 dia.]</td>
<td>(8+4) x M20x1.5</td>
<td>14 [0.55]</td>
</tr>
<tr>
<td>1610</td>
<td>175.7 [6.92 dia.]</td>
<td>225 [8.86 dia.]</td>
<td>276 [10.87 dia.]</td>
<td>282 [11.10]</td>
<td>334 [13.15 dia.]</td>
<td>24 [0.94 dia.]</td>
<td>10 x M22x1.5</td>
<td>15 [0.59]</td>
</tr>
</tbody>
</table>

### Studs

<table>
<thead>
<tr>
<th></th>
<th>P (mm [in])</th>
<th>C min. (mm [in])</th>
<th>C max. (mm [in])</th>
<th>D (mm [in])</th>
<th>Class</th>
<th>N.m [lb.ft] 1)</th>
<th>N.m [lb.ft] 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Various studs</td>
<td>M16 x 1.5</td>
<td>50 [1.97]</td>
<td>21.0 [0.83]</td>
<td>12.9</td>
<td>300 [221.3]</td>
<td>380 [280.3]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M20 x 1.5</td>
<td>60 [2.36]</td>
<td>25.0 [0.98]</td>
<td></td>
<td>600 [442.5]</td>
<td>770 [567.9]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M22 x 1.5</td>
<td>70 [2.76]</td>
<td>26.0 [1.02]</td>
<td></td>
<td>695 [512.6]</td>
<td>1 050 [774.4]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M22 x 1.5</td>
<td>80 [3.15]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screws</td>
<td>M16 x 1.5</td>
<td>-</td>
<td>23.0 [0.91]</td>
<td>10.9</td>
<td>250 [184.4]</td>
<td>315 [232.3]</td>
<td></td>
</tr>
</tbody>
</table>

1) The tightening torques are given for the indicated loads.
2) 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).

See generic installation motors N°801478197L.
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 comply with the application’s specifications. For an accurate calculation, consult your Poclain Hydraulics application engineer.
High performance motor MHP20/MHP27

POCLAIN HYDRAULICS

Dimensions

240 kg [529 lb]
WHEEL MOTOR WITH COMBINED BRAKE

Dimensions

241 kg [531 lb]

*Ports for 2C distribution
## Support types (continued)

<table>
<thead>
<tr>
<th>C</th>
<th>D</th>
<th>V</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>MHP20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MHP27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table: C, D, V, P, S

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>N</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 280,0</td>
<td>Ø 335</td>
<td>Ø 386</td>
<td>317</td>
<td>Ø 398</td>
<td>Ø 24</td>
<td>10 x M22x1.5</td>
</tr>
<tr>
<td>[11.02 dia.]</td>
<td>[13.19 dia.]</td>
<td>[15.20 dia.]</td>
<td>[12.48]</td>
<td>[15.67 dia.]</td>
<td>[0.94 dia.]</td>
<td></td>
</tr>
<tr>
<td>Ø 280,0</td>
<td>Ø 335</td>
<td>Ø 386</td>
<td>205</td>
<td>Ø 398</td>
<td>Ø 24</td>
<td>10 x M22x1.5</td>
</tr>
<tr>
<td>[11.02 dia.]</td>
<td>[13.19 dia.]</td>
<td>[15.20 dia.]</td>
<td>[8.07]</td>
<td>[15.67 dia.]</td>
<td>[0.94 dia.]</td>
<td></td>
</tr>
</tbody>
</table>

**Also see “Brake” section (thumbnail opposite).**

### Studs

<table>
<thead>
<tr>
<th>Various</th>
<th>P</th>
<th>C min.</th>
<th>C max.</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>studs</td>
<td>mm [in]</td>
<td>mm [in]</td>
<td>mm [in]</td>
<td>mm [in]</td>
</tr>
<tr>
<td>M22 x 1.5</td>
<td>64 [2.52]</td>
<td>5 [0.20]</td>
<td>26.0 [1.02]</td>
<td></td>
</tr>
</tbody>
</table>

(*) 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]).

---

See generic installation motors N°801478197L.
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

<table>
<thead>
<tr>
<th>L</th>
<th>Star</th>
<th>Dyn</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>250</td>
<td>500</td>
</tr>
<tr>
<td>10</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>20</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>40</td>
<td>100</td>
<td>200</td>
</tr>
</tbody>
</table>

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 comply with the application’s specifications. For an accurate calculation, consult your Poclain Hydraulics application engineer.

Brake bearing support orientation

Recommended orientation:
Radial forces to be oriented along the brake bearing support axis.
High performance motor MHP20/MHP27

POCLAIN HYDRAULICS
SHAFT MOTOR

Dimensions

136 kg [299 lb]

*Ports for 2C distribution
High performance motor MHP20/MHP27

Dimensions

157 kg (346 lb)

* Ports for 1C distribution
Support types

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>D</th>
<th>V</th>
<th>P</th>
<th>S</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MHP20</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MHP27</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### DIN 3962 spines

- **Nominal Ø:** 120 [4.72 dia.]
- **Module:** 5
- **Z:** 22

### NF E22-141 spines

- **Nominal Ø:** 120 [4.72 dia.]
- **Module:** 3.75
- **Z:** 30

### Spindles coupling

**Standard NF E 22-141**
- 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.

### Cylindrical bushed coupling

<table>
<thead>
<tr>
<th></th>
<th>A [mm]</th>
<th>B [mm]</th>
<th>C [mm]</th>
<th>D [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6A10</strong></td>
<td>120</td>
<td>95</td>
<td>10</td>
<td>0.5</td>
</tr>
</tbody>
</table>

**R min:** 640 N/mm² [132 800 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.

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 and output torque

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].

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.
Hydraulic connections

<table>
<thead>
<tr>
<th></th>
<th>Standards</th>
<th>Power supply</th>
<th>Case drain</th>
<th>2nd, 3rd displacement control</th>
<th>Control of parking brake</th>
<th>Control of service brake</th>
<th>Flushing</th>
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<tbody>
<tr>
<td>1st Displacement</td>
<td></td>
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<tr>
<td>1</td>
<td>Metric</td>
<td>ISO 6 162 ISO 9 974-1</td>
<td>DN25</td>
<td>M22x1.5</td>
<td>M20x1.5</td>
<td>M14x1.5</td>
<td>M22x1.5</td>
</tr>
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<td>2</td>
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<tr>
<td>3</td>
<td>Gaz</td>
<td>ISO 6 162 ISO 11 926-1</td>
<td>DN25</td>
<td>21G</td>
<td>13G</td>
<td>21G</td>
<td>17G</td>
</tr>
<tr>
<td>7</td>
<td>UNF (SAE)</td>
<td>ISO 11 926-1</td>
<td>DN25</td>
<td>7/8&quot;-14 UNF</td>
<td>9/16&quot;-18 UNF</td>
<td>9/16&quot;-18 UNF</td>
<td>3/4&quot;-16 UNF</td>
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<td></td>
<td></td>
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<td>Metric</td>
<td>ISO 6 162 ISO 1 179-1</td>
<td>DN25</td>
<td>M22x1.5</td>
<td>M16x1.5</td>
<td>M20x1.5</td>
<td>M22x1.5</td>
</tr>
<tr>
<td>3</td>
<td>Gaz</td>
<td>ISO 9 974-1</td>
<td>DN25</td>
<td>21G</td>
<td>17G</td>
<td>13G</td>
<td>21G</td>
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<tr>
<td>7</td>
<td>UNF (SAE)</td>
<td>ISO 6 162 ISO 11 926-1</td>
<td>DN25</td>
<td>7/8&quot;-14 UNF</td>
<td>3/4&quot;-16 UNF</td>
<td>9/16&quot;-18 UNF</td>
<td>3/4&quot;-16 UNF</td>
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<tr>
<td>Twin-Lock™</td>
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<td>Metric</td>
<td>ISO 11 926-1</td>
<td>DN25</td>
<td>M22x1.5</td>
<td>M16x1.5</td>
<td>M20x1.5</td>
<td>M22x1.5</td>
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<tr>
<td>3rd Displacement</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Metric</td>
<td>ISO 6 162 ISO 1 179-1</td>
<td>DN25</td>
<td>M22x1.5</td>
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</tr>
<tr>
<td>3</td>
<td>Gaz</td>
<td>ISO 6 162 ISO 1 179-1</td>
<td>DN25</td>
<td>21G</td>
<td>17G</td>
<td>13G</td>
<td>21G</td>
</tr>
</tbody>
</table>
Customer’s chassis and wheel rim mountings

Take care over the immediate environment of the connections.

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>ØM (mm)</th>
<th>Class</th>
<th>Torsion (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheeled shaft</td>
<td>330,0</td>
<td>12,9</td>
<td>780</td>
</tr>
<tr>
<td>(1110) C27</td>
<td>[12,99]</td>
<td></td>
<td>[585 lb.ft]</td>
</tr>
<tr>
<td>(ET30) C27</td>
<td>380,0</td>
<td>10,9</td>
<td>580</td>
</tr>
<tr>
<td>(FT30) Splined</td>
<td>330,0</td>
<td></td>
<td>580</td>
</tr>
<tr>
<td>shaft</td>
<td>[12,99]</td>
<td></td>
<td>[428 lb.ft]</td>
</tr>
</tbody>
</table>

* Min. values for torque and load to be transmitted

You don’t need to chamfer your chassis and wheel rim.

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.
Flanged valve

Designed with flat ports surface, the MHP20 and MHP27 motors can receive valves blocks, which can be flanged on top of their cover in order to enhance the control (electrical command for shifting) and facilitate the plumbing.

Flanged valve can be proposed on the following versions:

2nd displacement

2nd displacement valving with boosted brake

3rd displacement valving
Brake operation
This multi-disc brake operates in two distinct ways:
Either by an absence of pressure (static braking): The spring applies a force to the static piston that is transmitted to the dynamic piston, which damps the fixed and free discs, preventing the shaft from turning.
Or by braking pressure (dynamic braking): The braking command creates a pressure on the dynamic braking piston, which damps the fixed and free discs, preventing the shaft from turning. Braking torque increases linearly as a function of the piloting pressure.

Hydraulically controlled dynamic braking
Max. permissible torque 33 000 Nm [24 340 lb.ft]
Pressure to obtain max. permissible brake torque 75 bar [1 088 PSI]
Volume required for braking 49 cm³ [3.0 cu.in]
Min. irrigation flow rate for dynamic brake 4 l/min
Max. rotation speed 200 rpm

Hydraulically controlled parking brake
Parking brake torque (new brakes)* 19 000 Nm [14 010 lb.ft]
Parking brake torque (used brakes) 13 000 Nm [9 590 lb.ft]
Min. release brake pressure 100 bar [1 450 PSI]
Max. release brake pressure 135 bar [1 958 PSI]
Max. volume of brake release (new brakes) 32 cm³ [2.0 cu.in]
Emergency dynamic braking torque at 0 bar to the case 24 000 Nm [17 700 lb.ft]
Max. energy dissipation 1000 kJ

*Consult your Poclain Hydraulics application engineer.

Indicative values coming from fly-wheel test bench with mineral oil HV 46. Braking performance must be performed on machine by the manufacturer.

Brake release pressure vented.

The use of certain oils, may not offer the characteristics stated above. Consult your Poclain Hydraulics sales engineer.
Orientation

High performance motor MHP20/MHP27

Distribution angular deviation [°]

<table>
<thead>
<tr>
<th>Distribution angular deviation [°]</th>
<th>0°</th>
<th>45°</th>
<th>90°</th>
<th>135°</th>
<th>180°</th>
<th>-45°</th>
<th>-90°</th>
<th>-135°</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

1: reference axis:
supply orifice of braking bearing support

2: axis on cover: supply orifices axis

α: angle between axis on cover compared to the axis of reference of bearing support.

Į: angle between axis on cover compared to the axis of reference of bearing support.

POCLAIN HYDRAULICS
Boosted brake™

Why Boosted Brake™ function?

Boosted Brake™ provides increased hydrostatic braking capabilities. It enables regulation requirements to be met in terms of braking distances, whilst reducing the use of the friction brakes. Boosted Brake™ complements the diesel engine’s retardation capacity. It also avoids engine over-speed when braking. Using the principles of hydrostatic braking through the hydraulic motor’s entire displacement capacity and not just the partial displacement that is active when braking occurs, it converts the machine’s kinetic energy into heat in the oil in the hydrostatic transmission system. This heat is then evacuated in the cooler. Boosted Brake™ is especially interesting for all machines subject to high and/or repeated deceleration, both on the road and in the field. It is recommended for machines with diesel engines with a low retardation capacity.

The Braking is more efficient and engine is preserved: that is an essential point to ensure the lifetime of the machine.
**OPTIONS**

**POCLAIN HYDRAULICS**

High performance motor MHP20/MHP27

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

<table>
<thead>
<tr>
<th>Designation</th>
<th>C</th>
<th>D</th>
<th>V</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHP20</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>MHP27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Standard option**
- Predisposal for speed sensor
- Case flushing (additional drain on the valving cover)
- Peek bushings
- High efficiency

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

Consult your Poclain Hydraulics sales engineer.

**Installed speed sensor**

Designation
14 speed sensor (without rotation direction) installed

Max. length $Y = 21.5 \times 0.85$

Standard number of pulses per revolution $= 120$

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.
6 Industrial support

Reduction of around 50% from the rated value in the bearings’ preload value. Without external loads, increases the lifetime of the bearing support.

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

9 Chassis mounting on cam ring side

Only available for shaft motors.

B Drain on the bearing support

Only available for shaft motors.

<table>
<thead>
<tr>
<th>Shaft motor</th>
<th>B mm [in]</th>
<th>C mm [in]</th>
</tr>
</thead>
<tbody>
<tr>
<td>M22x1,5</td>
<td>193 [7.60]</td>
<td>56 [2.20]</td>
</tr>
</tbody>
</table>

C Abrasive environments

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

G Special wheel rim mounting

Enables certain combinations different from the standard mountings defined on page 12.
**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.

**E** Reinforced sealing

For free-wheeling by pressure.

**G** Special wheel rim mounting

Enables certain combinations different from the standard mountings defined on page 14.

- Consult your Poclain Hydraulics application engineer.

**J** Surface heat treatment of the shaft

Heat treatment on the indicated bearing radius.

**K** Treatment on external splines

Treated areas
N  **Bleed screw on the bearing support**

P  **Customized identification plate**
Your part number can be engraved on the plate.

R  **Brake cooling**

U  **Boosted braking**

Consult your Poclain Hydraulics application engineer for other possibilities.
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