### Fixed Displaced Axial Piston Motors

**POCLAIN HYDRAULICS**

<table>
<thead>
<tr>
<th>Displacement</th>
<th>cm³/rev [in³/rev.]</th>
<th>M0</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. speed</td>
<td>rpm</td>
<td>3 600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. speed</td>
<td>rpm</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated pressure</td>
<td>bar [PSI]</td>
<td>210 [3045]</td>
<td>250 [3625]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. charge pressure</td>
<td>bar [PSI]</td>
<td>5-6 [72-87]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case pressure continuous</td>
<td>bar [PSI]</td>
<td>1.5 [21.76]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case pressure max. (cold start)</td>
<td>bar [PSI]</td>
<td>2.5 [36.26]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting flange and shaft</td>
<td></td>
<td>SAE-A &amp; SAE-B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight kg [lb]</td>
<td></td>
<td>3.5 [7.72]</td>
<td>8 [17.64]</td>
<td>12 [26.46]</td>
<td>15 [33.07]</td>
</tr>
<tr>
<td>Rotation</td>
<td></td>
<td>Clockwise or Counterclockwise</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CONTENT

<table>
<thead>
<tr>
<th>MOTOR M0</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Code</td>
<td>5</td>
</tr>
<tr>
<td>Characteristics</td>
<td>6</td>
</tr>
<tr>
<td>Options</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MOTOR M1</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Code</td>
<td>11</td>
</tr>
<tr>
<td>Characteristics</td>
<td>12</td>
</tr>
<tr>
<td>Options</td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MOTOR M2</th>
<th>23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Code</td>
<td>23</td>
</tr>
<tr>
<td>Characteristics</td>
<td>24</td>
</tr>
<tr>
<td>Options</td>
<td>29</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>MOTOR M3</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Code</td>
<td>35</td>
</tr>
<tr>
<td>Characteristics</td>
<td>36</td>
</tr>
<tr>
<td>Options</td>
<td>40</td>
</tr>
</tbody>
</table>

### OPERATING PARAMETERS

46
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 M0

MODEL CODE

Displacement cm³/rev [in³/rev]
- 7.07 [0.43] 07
- 9.07 [0.55] 09
- 11.82 [0.72] 11
- 13.07 [0.80] 13
- 13.69 [0.84] 14
- 16.78 [1.02] 17
- 17.84 [1.09] 18

Connections
- Side 02
- Rear 04

Options
- Without options 00
- Roller bearings CR
- Customized identification plate DP
- Fluorinated elastomer seals EV
- UNF Thread ports FU
- Finishing coat PA

In case of request for a combination of several options, please contact your Poclain Hydraulics application engineer for further information.
# CHARACTERISTICS

## Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement cm³/rev</td>
<td>From 7.07 [0.43] to 17.84 [1.09]</td>
</tr>
<tr>
<td>Max. speed rpm</td>
<td>3,600</td>
</tr>
<tr>
<td>Min. speed rpm</td>
<td>500</td>
</tr>
<tr>
<td>Rated pressure bar [PSI]</td>
<td>210 [3046]</td>
</tr>
<tr>
<td>Max. pressure bar [PSI]</td>
<td>300 [4351]</td>
</tr>
<tr>
<td>Min. charge pressure bar [PSI]</td>
<td>5-6 [72-87]</td>
</tr>
<tr>
<td>Mounting flange and shaft</td>
<td>Key shaft or splined shaft</td>
</tr>
<tr>
<td>Weight kg [lb]</td>
<td>3.5 [7.72]</td>
</tr>
<tr>
<td>Rotation</td>
<td>Clockwise (B to A) or Counterclockwise (A to B)</td>
</tr>
</tbody>
</table>

## Motor Performance

Power of the motor given at rated pressure and max. speed

<table>
<thead>
<tr>
<th>Displacement cm³/rev [in³/rev]</th>
<th>Power kW [hp]</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.07 [0.43]</td>
<td>8.9 [11.94]</td>
</tr>
<tr>
<td>9.07 [0.55]</td>
<td>11.4 [15.29]</td>
</tr>
<tr>
<td>11.82 [0.72]</td>
<td>14.9 [19.98]</td>
</tr>
<tr>
<td>13.07 [0.80]</td>
<td>16.5 [22.13]</td>
</tr>
<tr>
<td>13.69 [0.84]</td>
<td>17.2 [23.07]</td>
</tr>
<tr>
<td>17.84 [1.09]</td>
<td>22.5 [30.17]</td>
</tr>
</tbody>
</table>

## Dimensions

![Diagram of M0 Fixed displaced axial piston motor](image)

### Rotation

- **Clockwise (CW):** B to A
- **Counter clockwise (CCW):** A to B
Mounting flanges and shaft

| M0 | 1 | 2 | 3 | 4 |

C1 Key shaft
Max. torque: 65 Nm [575 in.lbf]

S1 Splined shaft
Max. torque: 80 Nm [708 in.lbf]

Splined Info
- Standard: ANSI B92.1a-1996
- Pitch: 16/32" D.P.
- Number of teeth: 9
- Pressure angle: 30°
- Tolerance class: 5
Connections

02 Side connection

04 Rear connection
OPTIONS

Roller Bearing

It is an optional high capacity bearing.

Depending on the characteristics of shaft load, the duty cycle of the application and the expected life time of your application, Roller bearing might be needed.

Consult your Poclain Hydraulics Application Engineer.

Customized identification plate

It is possible to provide our products with dedicated plate (your part number engraved on the plate) when requested.

Fluorinated elastomer seals

Standard NBR sealing are designed to resist temperatures up to 90°C [194°F] and HV type oils.

If your application is outside these limits, fluorinated elastomer seals might be recommended.

Consult your Poclain Hydraulics Application Engineer.

UNF Thread ports

The power supply ports A, B and drain port T are also available with UNF threads.

<table>
<thead>
<tr>
<th>Port</th>
<th>Function</th>
<th>ISO 11926-1 (option FU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A; B</td>
<td>Power supply</td>
<td>3/4-16 UNF- SAE</td>
</tr>
<tr>
<td>T</td>
<td>Drain</td>
<td>9/16-18 UNF- SAE</td>
</tr>
</tbody>
</table>
The motors can be delivered with finishing coat when requested. Standard paint is RAL 9005 (black color).

Consult your Poclain Hydraulics application engineer for other colors of topcoat.
MOTOR M1

MODEL CODE

1

Displacement cm³/rev [in³/rev]
9.08 [0.55]
10.11 [0.62]
12.19 [0.74]
15.35 [0.94]
17.80 [1.09]
19.05 [1.16]
20.31 [1.24]

2

Shaft
Key shaft (D=19 mm [0.75 inch]) C2
Splined shaft (Z=11; 16/32 D.P.) S2
Splined shaft (Z=13; 16/32 D.P.) S3

3

Connections
Side 02
Twin port 03
Rear 04
Side and rear 05

4

Options
Without options 00
Roller bearings CR
Customized identification plate DP
Fluorinated elastomer seals EV
Flange port FS
UNF Thread ports FU
Relief valve on “A” MA
Relief valve on “B” MB
Relief valve on “A+B” MM
Finishing coat PA
Anticavitation valve on “A” RA
Anticavitation valve on “B” RB
Anticavitation valve on “A+B” RR
Rear drain port RD
Flushing valve VS

5

High pressure relief valve setting
Max. system pressure (bar [PSI])
150 [2175] 15
200 [2900] 20
250 [3625] 25
300 [4351] 30

* Motors with option MA, MB, MM.

In case of request for a combination of several options, please contact your Poclain Hydraulics application engineer for further information.
CHARACTERISTICS

Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>cm³/rev [in³/rev.]</th>
<th>From 9.08 [0.55] to 20.31 [1.24]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. speed</td>
<td>rpm</td>
<td>3 600</td>
</tr>
<tr>
<td>Min. speed</td>
<td>rpm</td>
<td>500</td>
</tr>
<tr>
<td>Rated pressure</td>
<td>bar [PSI]</td>
<td>210 [3046]</td>
</tr>
<tr>
<td>Max. pressure</td>
<td>bar [PSI]</td>
<td>320 [4641]</td>
</tr>
<tr>
<td>Min. charge pressure</td>
<td>bar [PSI]</td>
<td>5-6 [72-87]</td>
</tr>
<tr>
<td>Mounting flange and shaft</td>
<td>SAE: A</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg [lb]</td>
<td>8 [17.64]</td>
</tr>
<tr>
<td>Rotation</td>
<td></td>
<td>Clockwise (B to A) or Counterclockwise (A to B)</td>
</tr>
</tbody>
</table>

Motor Performance

Power of the motor given at rated pressure and max. speed

<table>
<thead>
<tr>
<th>Displacement cm³/rev [in³/rev]</th>
<th>Power kW [hp]</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.08 [0.55]</td>
<td>11.4 [15.29]</td>
</tr>
<tr>
<td>12.19 [0.74]</td>
<td>15.4 [20.65]</td>
</tr>
<tr>
<td>15.35 [0.94]</td>
<td>19.3 [25.88]</td>
</tr>
<tr>
<td>17.80 [1.09]</td>
<td>22.4 [30.04]</td>
</tr>
<tr>
<td>19.05 [1.16]</td>
<td>24.0 [32.18]</td>
</tr>
<tr>
<td>20.31 [1.24]</td>
<td>25.6 [34.33]</td>
</tr>
</tbody>
</table>

Dimensions

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Flow direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clockwise</td>
<td>B to A</td>
</tr>
<tr>
<td>Counter clockwise (CCW)</td>
<td>A to B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>106.4 [4.19]</td>
</tr>
<tr>
<td>130 [5.12]</td>
</tr>
<tr>
<td>116 [4.57]</td>
</tr>
<tr>
<td>142 [5.59]</td>
</tr>
<tr>
<td>13 [0.51]</td>
</tr>
<tr>
<td>6.4 [0.25]</td>
</tr>
<tr>
<td>54.5 [2.15]</td>
</tr>
<tr>
<td>73.4 [2.89]</td>
</tr>
<tr>
<td>3/8&quot; GAS</td>
</tr>
<tr>
<td>66 [2.60]</td>
</tr>
<tr>
<td>67.5 [2.66]</td>
</tr>
<tr>
<td>4.82 [0.19]</td>
</tr>
</tbody>
</table>

Rotation and flow direction:
- Clockwise (CW): B to A
- Counter clockwise (CCW): A to B
POCLAIN HYDRAULICS

M1 Fixed displaced axial piston motor

Mounting flanges and shaft

<table>
<thead>
<tr>
<th>Motor</th>
<th>C2 Key shaft</th>
<th>S2 Splined shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>Max. torque: 140 Nm [1239 in.lbf]</td>
<td>Max. torque: 140 Nm [1239 in.lbf]</td>
</tr>
</tbody>
</table>

**Splined info**
- Standard: ANSI B92.1a-1996
- Pitch: 15/32 D.P.
- Number of teeth: 11
- Pressure angle: 30°
- Tolerance class: 5
Mounting flanges and shaft

M1 Fixed displaced axial piston motor

POCLAIN HYDRAULICS

Mounting flanges and shaft

S3 Splined shaft

Max. torque: 220 Nm [1947 in.lbf]

Splined info
Standard: ANSI B92.1a-1996
Pitch: 16/32" D.P.
Number of teeth: 13
Pressure angle: 30°
Tolerance class: 5

POCLAIN HYDRAULICS
Connections

02 Side connection

03 Twin port

04 Rear connection

Motor M0

Motor M1

Motor M2

Motor M3

Operating parameters

24/03/2017
Connections

05 Side and rear connection

M 1

1 2 3 4

[Dimensions and labels as shown in the diagram]
OPTIONS

Roller Bearing

It is an optional high capacity bearing.
Depending on the characteristics of shaft load, the duty cycle of the application and the expected life time of your application, Roller bearing might be needed.
Consult your Poclain Hydraulics Application Engineer.

Customized identification plate

It is possible to provide our products with dedicated plate (your part number engraved on the plate) when requested.

This option is available only for minimum volume of 50 pieces.
Consult your Poclain Hydraulics application engineer for other possibilities.

Fluorinated elastomer seals

Standard NBR sealing are designed to resist temperatures up to 90°C [194° F] and HV type oils.
If your application is outside these limits, fluorinated elastomer seals might be recommended.
Consult your Poclain Hydraulics Application Engineer.
Flange port

The A and B ports are SAE flange 6000.

03 Flange ports for Twin port connection

04 Flange ports for rear connection

UNF Thread ports

The power supply ports A, B and drain port T are also available with UNF threads.
### Relief valve on “A”

A relief valve is available for A side.

### Relief valve on “B”

A relief valve is available for B side.

### Relief valve on “A+B”

A relief valve is available for A and B side.

### High pressure relief valve setting

<table>
<thead>
<tr>
<th>Max. system pressure (bar [PSI])</th>
<th>150 [2175]</th>
<th>200 [2900]</th>
<th>250 [3625]</th>
<th>300 [4351]</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>
Finishing coat

The motors can be delivered with finishing coat when requested. Standard paint is RAL 9005 (black color).

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

Anticavitation valve on “A”

A check valve with anticavitation function is available for A side.

Anticavitation valve on “B”

A check valve with anticavitation function is available for B side.
Anticavitation valve on “A+B”

A check valve with anticavitation function is available for A and B side.

Rear drain port

The drain connection is available in the rear side of the motor.

Flushing valve

An exchange valve is available for M1 motor. The valve is integrated in the motor cover and permits to control the temperature in the circuit by a flow that is directed from the low pressure side to the motor housing.
**MOTOR M2**

**MODEL CODE**

<table>
<thead>
<tr>
<th>1</th>
<th>Displacement cm³/rev [in³/rev]</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.05 [1.28]</td>
<td>21</td>
</tr>
<tr>
<td>24.41 [1.49]</td>
<td>24</td>
</tr>
<tr>
<td>28.34 [1.73]</td>
<td>28</td>
</tr>
<tr>
<td>34.36 [2.10]</td>
<td>34</td>
</tr>
<tr>
<td>41.11 [2.51]</td>
<td>40</td>
</tr>
<tr>
<td>45.34 [2.77]</td>
<td>45</td>
</tr>
<tr>
<td>49.06 [2.99]</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key shaft (D=22.2 mm [0.87 inch])</td>
<td>C3</td>
</tr>
<tr>
<td>Key shaft (D=25 mm [0.98 inch])</td>
<td>D6</td>
</tr>
<tr>
<td>Splined shaft (Z=13; 16/32 D.P.)</td>
<td>S3</td>
</tr>
<tr>
<td>Splined shaft (Z=15; 16/32 D.P.)</td>
<td>S4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side</td>
<td>02</td>
</tr>
<tr>
<td>Twin port</td>
<td>03</td>
</tr>
<tr>
<td>Rear</td>
<td>04</td>
</tr>
<tr>
<td>Side and rear</td>
<td>05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without options</td>
<td>00</td>
</tr>
<tr>
<td>Roller bearings</td>
<td>CR</td>
</tr>
<tr>
<td>Customized identification plate</td>
<td>DP</td>
</tr>
<tr>
<td>Fluorinated elastomer seals</td>
<td>EV</td>
</tr>
<tr>
<td>Flange port</td>
<td>FS</td>
</tr>
<tr>
<td>UNF Thread ports</td>
<td>FU</td>
</tr>
<tr>
<td>Relief valve on “A”</td>
<td>MA</td>
</tr>
<tr>
<td>Relief valve on “B”</td>
<td>MB</td>
</tr>
<tr>
<td>Relief valve on “A+B”</td>
<td>MM</td>
</tr>
<tr>
<td>Finishing coat</td>
<td>PA</td>
</tr>
<tr>
<td>Anticavitation valve on “A”</td>
<td>RA</td>
</tr>
<tr>
<td>Anticavitation valve on “B”</td>
<td>RB</td>
</tr>
<tr>
<td>Rear drain port</td>
<td>RD</td>
</tr>
<tr>
<td>T4 speed sensor (without rotation direction)</td>
<td>SS</td>
</tr>
<tr>
<td>Flushing valve</td>
<td>VS</td>
</tr>
</tbody>
</table>

In case of request for a combination of several options, please contact your Poclain Hydraulics application engineer for further information.

<table>
<thead>
<tr>
<th>5*</th>
<th>High pressure relief valve setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 [2175]</td>
<td>15</td>
</tr>
<tr>
<td>200 [2900]</td>
<td>20</td>
</tr>
<tr>
<td>250 [3625]</td>
<td>25</td>
</tr>
<tr>
<td>300 [4351]</td>
<td>30</td>
</tr>
</tbody>
</table>

* Motors with option MA, MB, MM.
# CHARACTERISTICS

## Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement</td>
<td>cm³/rev</td>
<td>From 21.05 [1.28] to 49.06 [2.99]</td>
</tr>
<tr>
<td>Max. speed</td>
<td>rpm</td>
<td>3 600</td>
</tr>
<tr>
<td>Min. speed</td>
<td>rpm</td>
<td>500</td>
</tr>
<tr>
<td>Rated pressure</td>
<td>bar [PSI]</td>
<td>210 [3046]</td>
</tr>
<tr>
<td>Max. pressure</td>
<td>bar [PSI]</td>
<td>315 [4569]</td>
</tr>
<tr>
<td>Min. charge pressure</td>
<td>bar [PSI]</td>
<td>5-6 [72-87]</td>
</tr>
<tr>
<td>Mounting flange and shaft</td>
<td></td>
<td>SAE-B</td>
</tr>
<tr>
<td>Weight</td>
<td>kg [lb]</td>
<td>12 [26.46]</td>
</tr>
<tr>
<td>Rotation</td>
<td></td>
<td>Clockwise (B to A) or Counterclockwise (A to B)</td>
</tr>
</tbody>
</table>

## Motor Performance

Power of the motor given at rated pressure and max. speed

<table>
<thead>
<tr>
<th>Displacement</th>
<th>Power</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm³/rev</td>
<td>cm³/rev</td>
<td>kW [hp]</td>
</tr>
<tr>
<td>21.05 [1.28]</td>
<td>26,5 [35.54]</td>
<td></td>
</tr>
<tr>
<td>24.41 [1.49]</td>
<td>30,8 [41.30]</td>
<td></td>
</tr>
<tr>
<td>28.34 [1.73]</td>
<td>35,7 [47.87]</td>
<td></td>
</tr>
<tr>
<td>34.36 [2.10]</td>
<td>43,3 [58.07]</td>
<td></td>
</tr>
<tr>
<td>41.11 [2.51]</td>
<td>51,8 [69.46]</td>
<td></td>
</tr>
<tr>
<td>45.34 [2.77]</td>
<td>57,1 [76.57]</td>
<td></td>
</tr>
<tr>
<td>49.06 [2.99]</td>
<td>61,8 [82.88]</td>
<td></td>
</tr>
</tbody>
</table>

## Dimensions

VIEW „X”

Rotation Flow direction
Clockwise (CW) B to A
Counter clockwise (CCW) A to B
Mounting flanges and shaft

**C3** Key shaft

Max. torque: 220 Nm [1947 in.lbf]

**D6** Key shaft

Max. torque: 280 Nm [2478 in.lbf]
M2 Fixed displaced axial piston motor

POCLAIN HYDRAULICS

Mounting flanges and shafts

S3 Splined shaft
Max. torque: 220 Nm [1947 in.lbf]

Splined info
Standard ANSI B92.1a-1996
Pitch 16/32” D.P.
Number of teeth 13
Pressure angle 30°
Tolerance class 5

S4 Splined shaft
Max. torque: 360 Nm [3186 in.lbf]

Splined info
Standard ANSI B92.1a-1996
Pitch 16/32” D.P.
Number of teeth 15
Pressure angle 30°
Tolerance class 5
Connections

02 Side connection

03 Twin port - same side

Motor M0

Motor M1

Motor M2

Motor M3

Operating parameters
Connections

04 Rear connection

05 Side and rear connection
OPTIONS

Roller Bearing

It is an optional high capacity bearing.
Depending on the characteristics of shaft load, the duty cycle of the application and the expected life time of your application, Roller bearing might be needed.
Consult your Poclain Hydraulics Application Engineer.

Customized identification plate

It is possible to provide our products with dedicated plate (your part number engraved on the plate) when requested.

This option is available only for minimum volume of 50 pieces.
Consult your Poclain Hydraulics application engineer for other possibilities.

Fluorinated elastomer seals

Standard NBR sealing are designed to resist temperatures up to 90°C [194°F] and HV type oils.
If your application is outside these limits, fluorinated elastomer seals might be recommended.
Consult your Poclain Hydraulics Application Engineer.
**Flange port**

The A and B ports are SAE flange 6000.

---

**UNF Thread ports**

The power supply ports A, B and drain port T are also available with UNF threads.

<table>
<thead>
<tr>
<th>Port</th>
<th>Function</th>
<th>ISO 11926-1 (option FU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: B</td>
<td>Power supply</td>
<td>1-1/16-12 UNF</td>
</tr>
<tr>
<td>T</td>
<td>Drain</td>
<td>3/4-16 UNF</td>
</tr>
</tbody>
</table>
**Relief valve on “A”**

A relief valve is available for A side.

**Relief valve on “B”**

A relief valve is available for B side.

**Relief valve on “A+B”**

A relief valve is available for A and B side.

---

### High pressure relief valve setting

**Max. system pressure** (bar [PSI])

- 150 [2175] 15
- 200 [2900] 20
- 250 [3625] 25
- 300 [4351] 30
Finishing coat

The motors can be delivered with finishing coat when requested. Standard paint is RAL 9005 (black color).

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

Anticavitation valve on “A”

A check valve with anticavitation function is available for A side.

Anticavitation valve on “B”

A check valve with anticavitation function is available for B side.
Rear drain port

The drain connection is available in the rear side of the motor.

Speed sensor

A speed sensor can be installed on M2 motor.

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

Speed sensor sends a signal of 9 pulses per revolution.
Flushing valve

An exchange valve is available for M2 motor. The valve is integrated in the motor cover and permits to control the temperature in the circuit by a flow that is directed from the low pressure side to the motor housing.
MOTOR M3

MODEL CODE

1 Displacement cm³/rev [in³/rev]
   - 49.57 [3.02] 50
   - 57.01 [3.48] 55
   - 60.79 [3.71] 60
   - 64.60 [3.94] 65

2 Shaft
   - Key shaft (D=25 mm [0.98 inch]) D6
   - Splined shaft (Z=13; 16/32 D.P.) S3
   - Splined shaft (Z=15; 16/32 D.P.) S4

3 Connections
   - Side 02
   - Twin port 03
   - Rear 04
   - Side and rear 05

4 Options
   - Without options 00
   - Customized identification plate DP
   - Fluorinated elastomer seals EV
   - Flange port FS
   - UNF Thread ports FU
   - Relief valve on “A” MA
   - Relief valve on “B” MB
   - Relief valve on “A+B” MM
   - Finishing coat PA
   - Anticavitation valve on “A” RA
   - Anticavitation valve on “B” RB
   - Anticavitation valve on “A+B” RR
   - Rear drain port RD
   - T4 speed sensor (without rotation direction) SS
   - Flushing valve VS

5 High pressure relief valve setting
   - Max. system pressure (bar [PSI])
     - 150 [2175] 15
     - 200 [2900] 20
     - 250 [3625] 25
     - 300 [4351] 30

* Motors with option MA, MB, MM.

In case of request for a combination of several options, please contact your Poclain Hydraulics application engineer for further information.
CHARACTERISTICS

Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement</td>
<td>cm³/rev [in³/rev.]</td>
</tr>
<tr>
<td></td>
<td>From 49.57 [3.02] to 64.60 [3.94]</td>
</tr>
<tr>
<td>Max. speed</td>
<td>rpm</td>
</tr>
<tr>
<td></td>
<td>3 600</td>
</tr>
<tr>
<td>Min. speed</td>
<td>rpm</td>
</tr>
<tr>
<td></td>
<td>500</td>
</tr>
<tr>
<td>Rated pressure</td>
<td>bar [PSI]</td>
</tr>
<tr>
<td></td>
<td>250 [3625]</td>
</tr>
<tr>
<td>Max. pressure</td>
<td>bar [PSI]</td>
</tr>
<tr>
<td></td>
<td>350 [5076]</td>
</tr>
<tr>
<td>Min. charge pressure</td>
<td>bar [PSI]</td>
</tr>
<tr>
<td></td>
<td>5-6 [72-87]</td>
</tr>
<tr>
<td>Mounting flange and shaft</td>
<td>SAE-B</td>
</tr>
<tr>
<td>Weight</td>
<td>kg [lb]</td>
</tr>
<tr>
<td></td>
<td>15 [33.07]</td>
</tr>
<tr>
<td>Rotation</td>
<td>Clockwise (B to A) or Counterclockwise (A to B)</td>
</tr>
</tbody>
</table>

Motor Performance

Power of the motor given at rated pressure and max. speed

<table>
<thead>
<tr>
<th>Displacement</th>
<th>cm³/rev [in³/rev.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>49.57 [3.02]</td>
<td>57.01 [3.48]</td>
</tr>
<tr>
<td>60.79 [3.71]</td>
<td>64.60 [3.94]</td>
</tr>
<tr>
<td>Power</td>
<td>kW [hp]</td>
</tr>
<tr>
<td>74.4 [99.77]</td>
<td>85.5 [114.66]</td>
</tr>
<tr>
<td>91.2 [122.30]</td>
<td>96.9 [129.95]</td>
</tr>
</tbody>
</table>

Dimensions

Rotation Flow direction
Clockwise (CW) B to A
Counter clockwise (CCW) A to B
Mounting flanges and shafts

**D6** Key shaft

Max. torque: 280 Nm [2478 in.lbf]

Max. torque: 220 Nm [1947 in.lbf]

Max. torque: 360 Nm [3186 in.lbf]

**Splined info**

- **Standard**: ANSI B92.1a-1996
- **Pitch**: 16/32” D.P.
- **Number of teeth**: 13
- **Pressure angle**: 30°
- **Tolerance class**: 5
Connections

02 Side connection

03 Twin port - same side

04 Rear connection
POCLAIN HYDRAULICS

M3 Fixed displaced axial piston motor

Connections

05 Side and rear connection

Motor M0
Motor M1
Motor M2
Motor M3

Operating parameters

24/03/2017

G 3/4"
34.5 [1.36]
74 [2.91]

G 3/4"
34.5 [1.36]

G 1/2"
175 [6.89]
204 [8.03]
OPTIONS

Customized identification plate

It is possible to provide our products with dedicated plate (your part number engraved on the plate) when requested.

This option is available only for minimum volume of 50 pieces.

Consult your Poclain Hydraulics application engineer for other possibilities.

Fluorinated elastomer seals

Standard NBR sealing are designed to resist temperatures up to 90°C [194°F] and HV type oils.

If your application is outside these limits, fluorinated elastomer seals might be recommended.

Consult your Poclain Hydraulics Application Engineer.
Flange port

The A and B ports are SAE flange 6000.

03 Flange ports for Twin port connection

04 Flange ports for rear connection

UNF Thread ports

The power supply ports A, B and drain port T are also available with UNF threads.

<table>
<thead>
<tr>
<th>Port</th>
<th>Function</th>
<th>ISO 11925-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A; B</td>
<td>Power supply</td>
<td>1-1/16-12 UNF</td>
</tr>
<tr>
<td>T</td>
<td>Drain</td>
<td>3/4-16 UNF</td>
</tr>
</tbody>
</table>
Relief valve on “A”

A relief valve is available for A side.

Relief valve on “B”

A relief valve is available for B side.
Relief valve on “A+B”

A relief valve is available for A and B side.

Finishing coat

The motors can be delivered with finishing coat when requested. Standard paint is RAL 9005 (black color).

Anticavitation valve on “A”

A check valve with anticavitation function is available for A side.
Anticavitation valve on “B”

A check valve with anticavitation function is available for B side.

Anticavitation valve on “A+B”

A check valve with anticavitation function is available for A and B side.

Rear drain port

The drain connection is available in the rear side of the motor.
**Installed speed sensor**

A speed sensor can be installed on M3 motor.

![Diagram of speed sensor installation](image)

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

Speed sensor sends a signal of 9 pulses per revolution.

**Flushing valve**

An exchange valve is available for M3 motor. The valve is integrated in the motor cover and permits to control the temperature in the circuit by a flow that is directed from the low pressure side to the motor housing.

![Diagram of flushing valve](image)
**OPERATING PARAMETERS**

**Poclain Hydraulics recommendations for fluid**

Poclain hydraulics recommends the use of hydraulic fluids defined by the ISO 15380 and ISO 6743-4 standards. For temperate climates, the following types are recommended.

- **HM 46** or **HM 68** for fixed installations.
- **HV 46** or **HV 68** for mobile installations.
- **HEES 46** for mobile installations.

These specifications correspond to category 91H of the CETOP standard, parts 1, 2 and 3 of the DIN 51524 standard, and grades VG32, VG 46 and VG68 of the ISO 6743-4 standards.

It is also possible to use ATF, HD, HFB, HFC or HFD type hydraulic fluid upon Poclain Hydraulics specific approval of the components’ operating conditions.

**Standardized designations for the fluids**

- **HM**: Mineral fluids having specific antioxidant, anticorrosion and antiwear properties (HLP equivalent to DIN 51524 parts 1 and 2).
- **HV**: HM mineral fluids providing improved temperature and viscosity properties (DIN 51524 part 3).
- **HEES**: Biodegradable fluids based on organic esters.

**Filtering**

During operation, the temperature of the oil must be between 0°C (32°F) and 80°C (176°F); the minimum and maximum temperatures may be exceeded momentarily by ± 20°C (± 68°F) for a duration of less than 30 minutes. For all applications outside these limits, please consult with your Poclain Hydraulics’ application engineer.

**Fluid and filtration**

The contaminating particles suspended in the hydraulic fluid cause the hydraulic mechanisms moving part wear. On hydraulic pumps, these parts operate with very small dimensional tolerances. In order to reach the part life, it is recommended to use a filter that maintains the hydraulic fluid contamination class at a max. of:

- 9 according to NAS 1638
- 20/18/15 according to ISO 4406:1999

According to the type of application decided for the pump, it is necessary to use filtration elements with a filtration ratio of:

\[ \beta \geq 20 \text{ to } 30 \]

Making sure that this ratio does not worsen together with the increasing of the filter cartridge differential pressure.

If these values cannot be observed, the component life will consequently be reduced and it is recommended to contact the Poclain Hydraulics Customer Service.

**Filters on charge circuit**

Filters on the charge circuit (F0-F2) are designed without by-pass. The max. pressure drop on the filtration part must not exceed 2 bar (29 PSI) (5 bar [43.5 PSI] in case of cold starting) at pump full rating. To monitor the pressure drop, it is recommended to use the clogging indicator on the filtration element (F2 option). Contact your Poclain Hydraulics Application engineer, each time the pump is not charged by its internal charge pump.

Filters on charge circuit are mounted on the pump special support.

**Filters assembling**

The suction filter is mounted on the suction line. Check that the pressure before the charge pump is 0.8 bar abs. [11.6 PSI abs.], measured on the pump suction port (0.5 bar [7.2 PSI] for cold starting).
Viscosity range

For both max. efficiency and life of the unit, the operative viscosity should be chosen within the optimum range of:

\[ \nu_{\text{opt}} = \text{optimum operating viscosity from } 16 \text{ to } 36 \text{ mm}^2/\text{s} \text{ [from 74.1 to 166.8 SUS] referred to the closed loop temperature.} \]

**Working conditions:** the following limits of viscosity apply

\[ \nu_{\text{min}} = 5 \text{ mm}^2/\text{s} \text{ [23 SUS] short-duration at a max. permissible leakage oil temperature of } 90^\circ \text{C} \text{ [194°F]} \]

\[ \nu_{\text{max}} = 1000 \text{ mm}^2/\text{s} \text{ [4634 SUS] short-duration, on cold start.} \]

Ensure fluid temperature and viscosity limits are concurrently satisfied.
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.

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