

# MS11 - MSE11

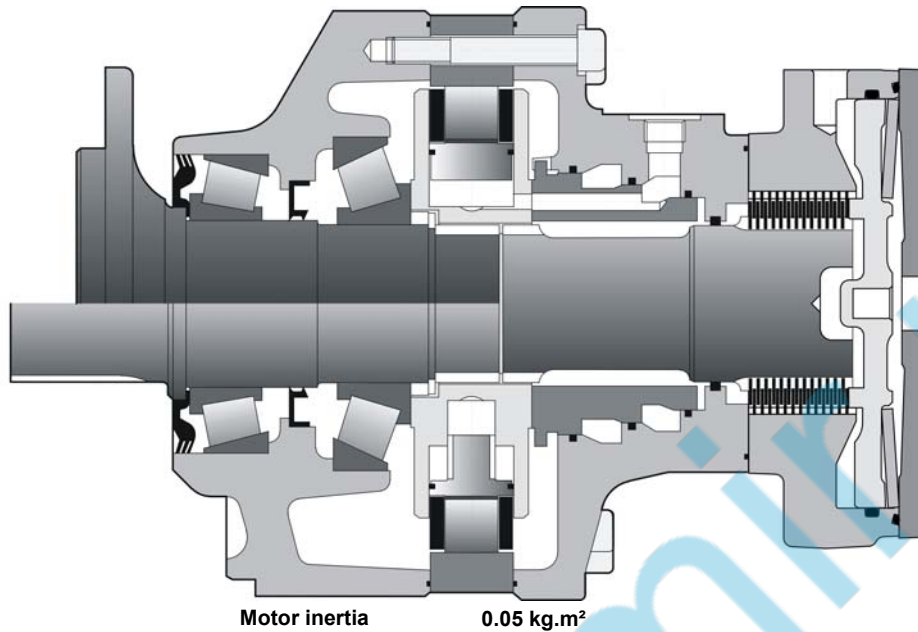
## HYDRAULIC MOTORS



T E C H N I C A L   C A T A L O G



# CHARACTERISTICS



| C                       |       | 1                   |                     | 2                        |               | Theoretical torque<br>1 |                        | Max. power<br>2 |                      | Max. speed<br>1 2        |              | Max. pressure |
|-------------------------|-------|---------------------|---------------------|--------------------------|---------------|-------------------------|------------------------|-----------------|----------------------|--------------------------|--------------|---------------|
|                         |       |                     |                     |                          |               |                         |                        |                 |                      |                          |              |               |
|                         |       | cm³/tr [cu.in/rev.] | cm³/tr [cu.in/rev.] |                          |               | at 100 bar<br>Nm        | at 1000 PSI<br>[lb.ft] | 1               | 2                    | 1                        | 2            | bar [PSI]     |
|                         |       |                     |                     |                          |               |                         |                        | kW [HP]         | preferred<br>kW [HP] | non-preferred<br>kW [HP] | tr/min [RPM] |               |
| Cams with equal lobes   | MS11  | 7                   | 730 [44.5]          | 365 [22.3]               | 1,161 [590]   | 50 [67]                 | 33 [44]                | 25 [34]         |                      |                          | 200          | 450 [6,527]   |
|                         |       | 8                   | 837 [51.0]          | 419 [25.5]               | 1,331 [677]   |                         |                        |                 |                      |                          | 195          |               |
|                         |       | 9                   | 943 [57.5]          | 472 [28.8]               | 1,499 [762]   |                         |                        |                 |                      |                          | 190          |               |
|                         |       | 0                   | 1,048 [63.9]        | 524 [32.0]               | 1,666 [847]   |                         |                        |                 |                      |                          | 185          |               |
|                         |       | 1                   | 1,147 [70.0]        | 574 [35.0]               | 1,824 [927]   |                         |                        |                 |                      |                          | 180          |               |
|                         |       | 2                   | 1,259 [76.8]        | 630 [38.4]               | 2,002 [1,018] |                         |                        |                 |                      |                          | 170   175    |               |
| Cams with unequal lobes | MSE11 | 9                   | 1,263 [77.0]        | 632 [38.5]               | 2,008 [1,021] | 50 [67]                 | 33 [44]                | 25 [34]         |                      |                          | 170   190    | 400 [5,802]   |
|                         |       | 0                   | 1,404 [85.6]        | 702 [42.8]               | 2,232 [1,135] |                         |                        |                 |                      |                          | 155   185    |               |
|                         |       | 1                   | 1,536 [93.7]        | 768 [46.8]               | 2,442 [1,242] |                         |                        |                 |                      |                          | 140   180    |               |
|                         |       | 2                   | 1,687 [102.9]       | 844 [51.4]               | 2,682 [1,364] |                         |                        |                 |                      |                          | 130   165    |               |
|                         |       | A                   | 1,048 [63.9]        | 629 [38.4]<br>419 [25.6] | 1,666 [847]   |                         |                        |                 |                      |                          |              |               |
| Cams with unequal lobes | MS11  | A                   | 1,048 [63.9]        | 629 [38.4]<br>419 [25.6] | 1,666 [847]   | 50 [67]                 | 33 [44]                | 25 [34]         |                      |                          |              | 450 [6,527]   |
|                         |       | A                   | 1,404 [85.6]        | 843 [51.4]<br>561 [34.2] | 2,232 [1,135] |                         |                        |                 |                      |                          | 120          |               |

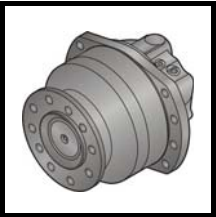
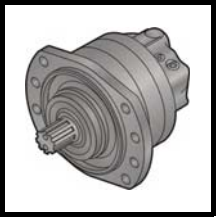
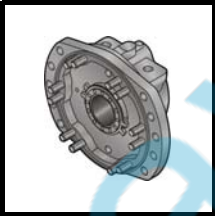
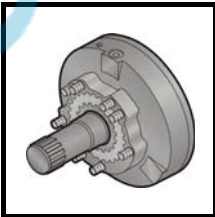
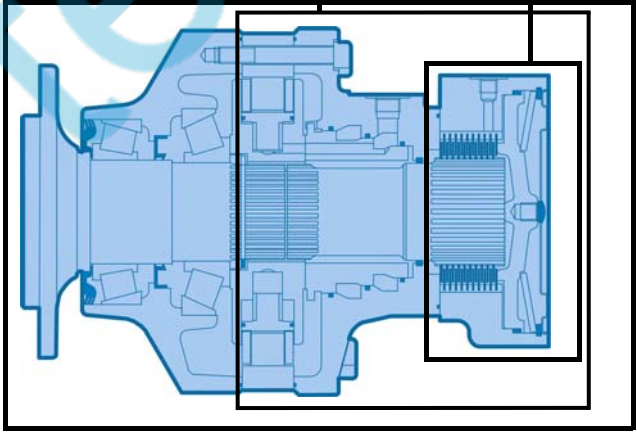
① First displacement

② Second displacement

\* See option "M" for higher speed.

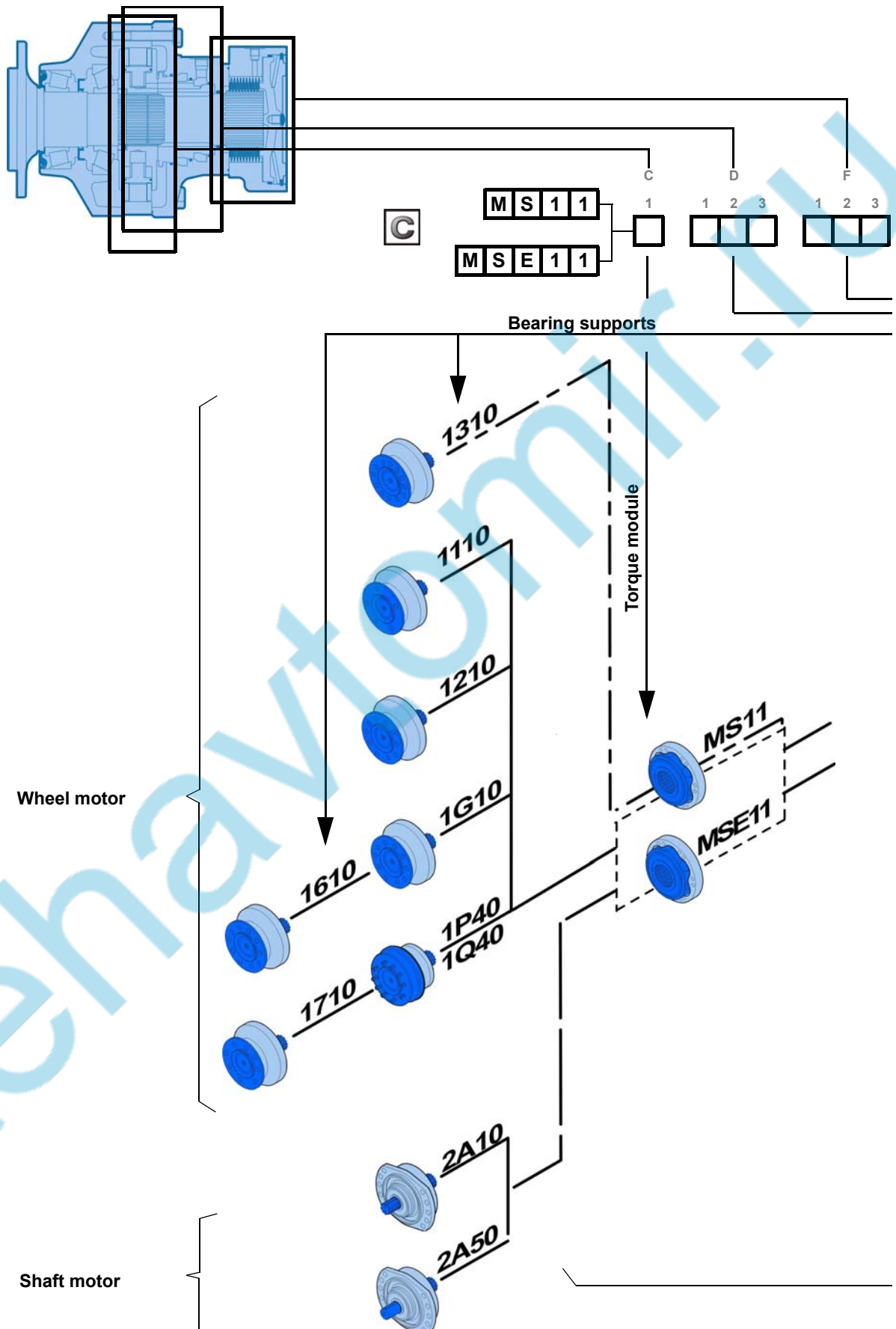


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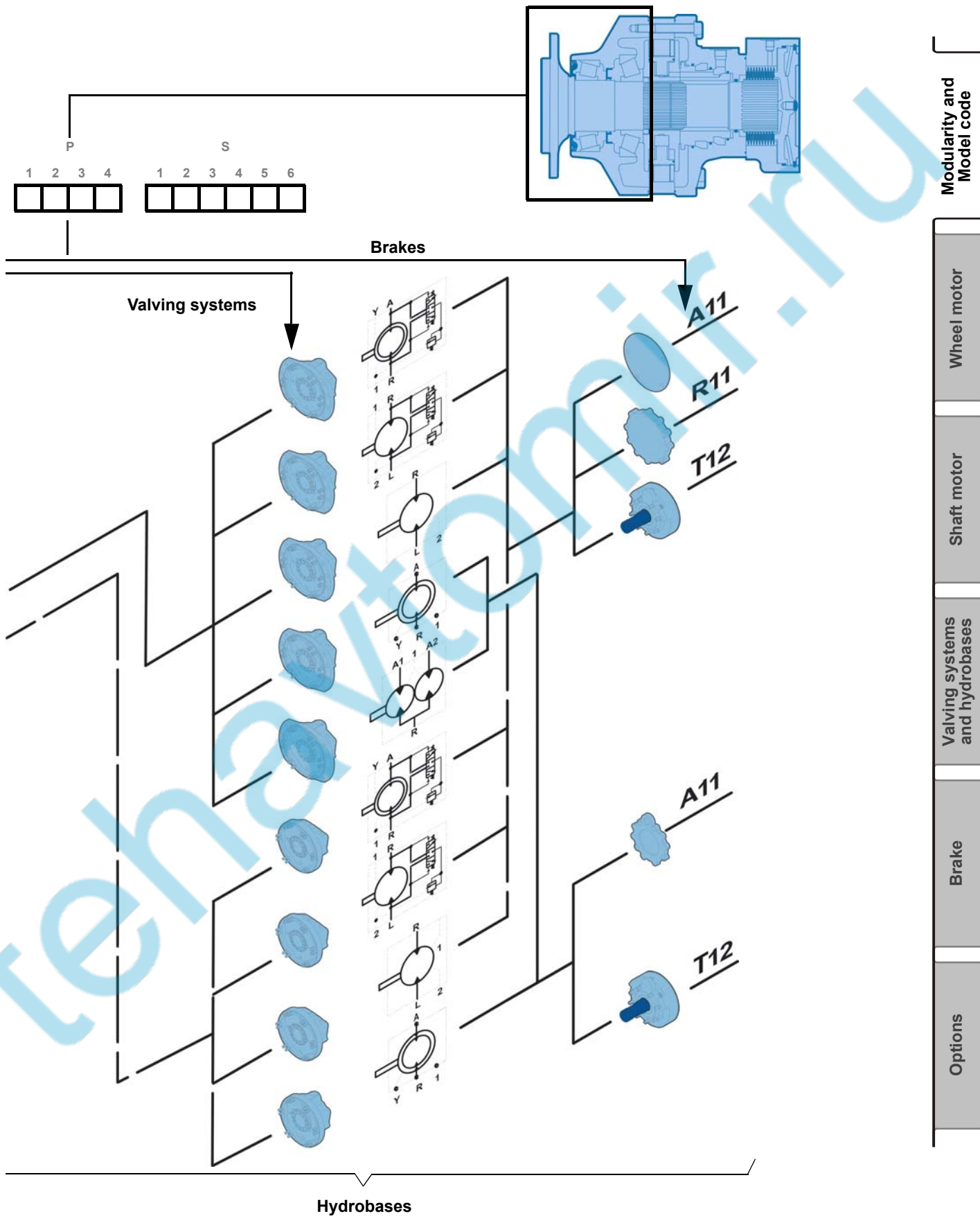


# MODUL



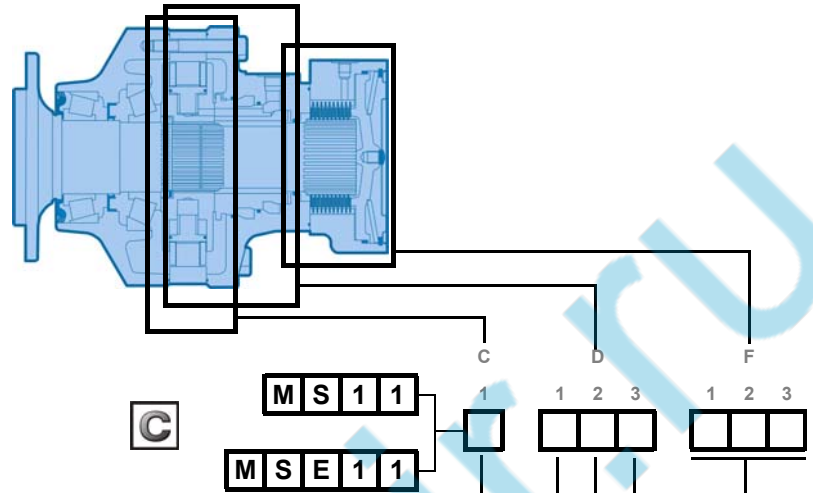


# ARITY





## MODEL



|                         |       | 1                   |               | 2                   |        |
|-------------------------|-------|---------------------|---------------|---------------------|--------|
|                         |       | cm³/tr [cu.in/rev.] |               | cm³/tr [cu.in/rev.] |        |
| Cams with equal lobes   | MS11  | 7                   | 730 [44.5]    | 365                 | [22.3] |
|                         |       | 8                   | 837 [51.0]    | 419                 | [25.5] |
|                         |       | 9                   | 943 [57.5]    | 472                 | [28.8] |
|                         |       | 0                   | 1,048 [63.9]  | 524                 | [32.0] |
|                         |       | 1                   | 1,147 [70.0]  | 574                 | [35.0] |
|                         |       | 2                   | 1,259 [76.8]  | 630                 | [38.4] |
| Cams with unequal lobes | MSE11 | 9                   | 1,263 [77.0]  | 632                 | [38.5] |
|                         |       | 0                   | 1,404 [85.6]  | 702                 | [42.8] |
|                         |       | 1                   | 1,536 [93.7]  | 768                 | [46.8] |
|                         |       | 2                   | 1,687 [102.9] | 844                 | [51.4] |

|                         |       |   |              |            |            |
|-------------------------|-------|---|--------------|------------|------------|
| Cams with equal lobes   | MS11  | A | 1,048 [63.9] | 629 [38.4] | 419 [25.6] |
|                         |       |   |              |            |            |
| Cams with unequal lobes | MSE11 | A | 1,404 [85.6] | 843 [51.4] | 561 [34.2] |
|                         |       |   |              |            |            |

- 1 First displacement  
2 Second displacement

|                                                        |                                       |
|--------------------------------------------------------|---------------------------------------|
| 1-displacement valving                                 | 1                                     |
| 2-displacement & Twin-Lock™ valving (Clockwise)        | D Ratio 2<br>E Ratio <2<br>F Ratio >2 |
| 2-displacement & Twin-Lock™ valving (Counterclockwise) | G Ratio 2<br>H Ratio <2<br>J Ratio >2 |

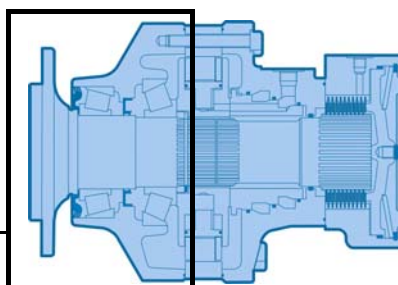
|                  |                |                |                     |
|------------------|----------------|----------------|---------------------|
| Without mounting | 1              | 4              | D                   |
| With mounting    | 2              | 5              | E                   |
|                  | 1 Displacement | 2 Displacement | Exchange Twin-Lock™ |

|                         |   |                     |   |   |
|-------------------------|---|---------------------|---|---|
| No transmission cover   |   |                     |   | 0 |
| ISO 6162 flanges        | 1 | DN 19               |   | 1 |
| ISO 9974-1 connections  | 2 | DN 13               |   |   |
| ISO 6162 flanges        | 1 | DN 19               |   | 2 |
| ISO 1179-1 connections  | 2 | DN 13               |   |   |
| ISO 1179-1 connections  |   | G3/4                |   | 3 |
| ISO 9974-1 connections  |   | M27 x 2             |   | 4 |
| ISO 6162 flanges        | 1 | DN 13               |   | 7 |
| ISO 11926-1 connections | 2 | DN 19               |   |   |
| ISO 11926-1 connections |   | 1" 1/16-12 UNF      | A |   |
|                         | 1 | First displacement  |   |   |
|                         | 2 | Second displacement |   |   |

|               |                             |       |
|---------------|-----------------------------|-------|
| Without brake | Simple plate                | A 1 1 |
|               | Reinforced plate            | R 1 1 |
| Brake         | Screwed environmental cover | T 1 2 |



# CODE



Modularity and  
Model code

Wheel motor

Shaft motor

Valving systems  
and hydrobases

Brake

Options



- 0 Without bearing support
- 1 Without mounting
- 2 Lug mounting

- Without shaft 0
- 5 x Ø24 on Ø225 1
- 10 x Ø22 on Ø225 2
- 8 x Ø22 on Ø275 7
- 12 x Ø20 on Ø205 3
- 10 x Ø22 on Ø225 6
- 10 x Ø24 on Ø225 G
- Drum brake Mineral P
- (315 x 80) DOT 3&4 Q
- For male shaft bearing support A

- Without studs 1
- With studs + nuts 2
- With studs 3
- M threaded holes 4

## Male shafts

- NF E22-141 splines 1
- DIN 5480 splines 5

| Connection              |   |
|-------------------------|---|
| Without cable           | 1 |
| Right-hand cable outlet | 2 |
| Left-hand cable outlet  | 3 |
| Without cable           | Q |
| Right-hand cable outlet | R |
| Left-hand cable outlet  | S |

For drum brake  
(315 x 80)

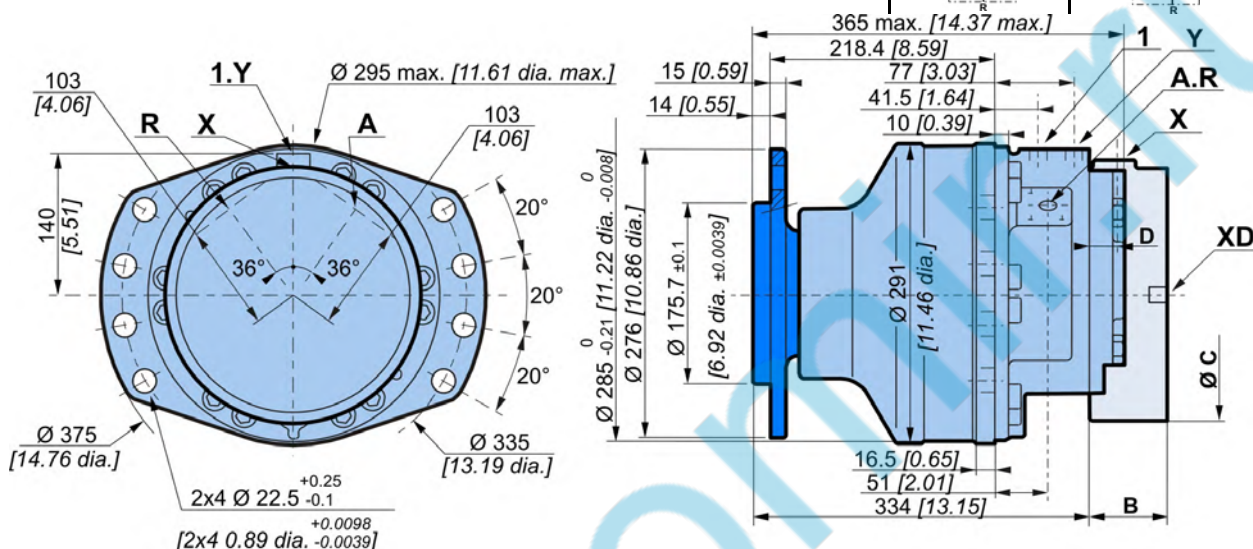
|                                                 |   |
|-------------------------------------------------|---|
| Without Options or Adaptations                  | 0 |
| Fluorinated elastomer seals                     | 1 |
| T4 speed sensor (without rotation direction)    | 2 |
| Brake environmental cover without plug          | 3 |
| Drainage                                        | 5 |
| Industrial bearing support                      | 6 |
| Diamond™                                        | 7 |
| Predisposition for speed sensor                 | 8 |
| Double-centering valving cover                  | 9 |
| Hollow shaft                                    | A |
| Drain on the bearing support                    | B |
| Abrasive environment                            | C |
| Special paint or without paint                  | D |
| Reinforced sealing                              | E |
| Special wheel rim mounting                      | G |
| High performance                                | H |
| Surface heat treatment of the shaft             | J |
| High speed                                      | M |
| TD speed sensor (two phase shifted frequencies) | Q |
| TR speed sensor (digital rotation direction)    | S |
| Soft Shift™                                     | T |



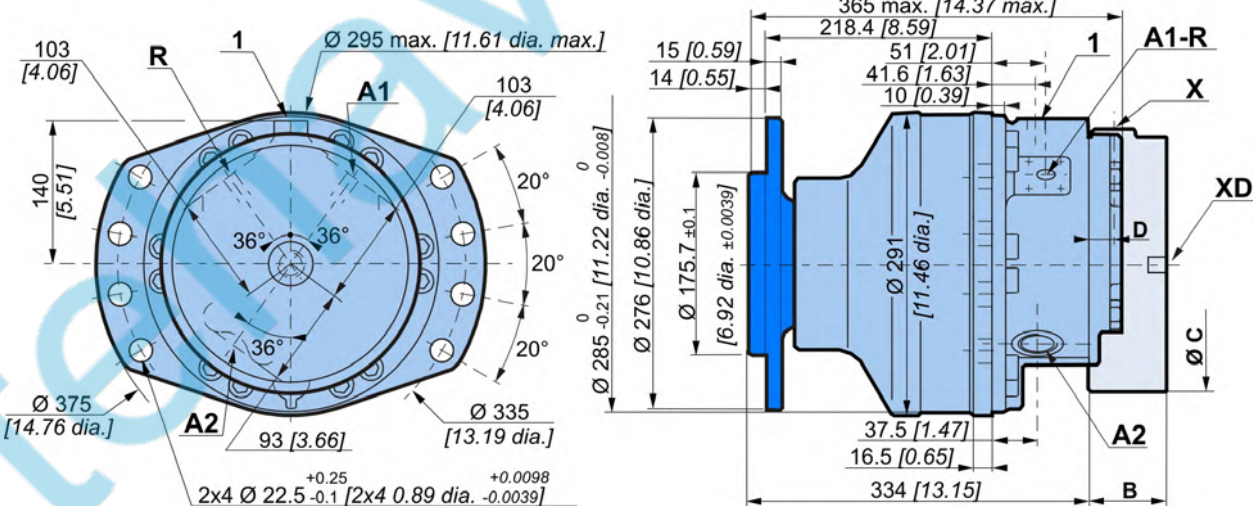


# WHEEL MOTOR

## Dimensions for standard (1110) 2-displacement motor



## Dimensions for standard (1110) Twin-Lock™



T12

|   |                             |
|---|-----------------------------|
| B | 92.5 [3.64]                 |
| C | $\varnothing 273.6$ [10.77] |
| D | 25.0 [0.96]                 |



Also see 'Valving systems and hydrobases' section (thumbnail opposite).

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

Brake

Options



## Support types

|         | C                      |                        |                       |                 | C                       | D                   |                     |              | F | P |   |   |   | S |   |   |   |   |   |   |   |
|---------|------------------------|------------------------|-----------------------|-----------------|-------------------------|---------------------|---------------------|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
|         | 1 1 1 1                |                        |                       |                 | 1                       | 1                   | 2                   | 3            | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 5 | 6 |
|         | M S E 1 1              |                        |                       |                 |                         |                     |                     |              |   |   |   |   |   |   |   |   |   |   |   |   |   |
|         | A                      | B                      | C                     | D               | E                       | N                   | Wheel rim mountings | L            |   |   |   |   |   |   |   |   |   |   |   |   |   |
| mm [in] | mm [in]                | mm [in]                | mm [in]               | mm [in]         | mm [in]                 | mm [in]             |                     | mm [in]      |   |   |   |   |   |   |   |   |   |   |   |   |   |
|         | Ø 175.7<br>[6.92 dia.] | Ø 225<br>[8.86 dia.]   | Ø 276<br>[10.87 dia.] | 218.6<br>[8.61] | Ø 291<br>[11.46 dia.]   | Ø 24<br>[0.94 dia.] | 5 x<br>M22x1.5      | 14<br>[0.55] |   |   |   |   |   |   |   |   |   |   |   |   |   |
|         | Ø 175.7<br>[6.92 dia.] | Ø 225<br>[8.86 dia.]   | Ø 276<br>[10.87 dia.] | 218.6<br>[8.61] | Ø 291<br>[11.46 dia.]   | Ø 22<br>[0.87 dia.] | 10 x<br>M20x1.5     | 14<br>[0.55] |   |   |   |   |   |   |   |   |   |   |   |   |   |
|         | Ø 160.7<br>[6.33 dia.] | Ø 205.0<br>[8.07 dia.] | Ø 250<br>[9.84 dia.]  | 174.4<br>[6.87] | Ø 289.5<br>[11.40 dia.] | Ø 20<br>[0.79 dia.] | 12 x<br>M18x1.5     | 15<br>[0.59] |   |   |   |   |   |   |   |   |   |   |   |   |   |
|         | Ø 175.7<br>[6.92 dia.] | Ø 225<br>[8.86 dia.]   | Ø 276<br>[10.87 dia.] | 219.6<br>[8.65] | Ø 291<br>[11.46 dia.]   | Ø 22<br>[0.87 dia.] | 10 x<br>M20x1.5     | 21<br>[0.83] |   |   |   |   |   |   |   |   |   |   |   |   |   |
|         | Ø 220.7<br>[8.69 dia.] | Ø 275<br>[10.83 dia.]  | Ø 314<br>[12.36 dia.] | 218.6<br>[8.61] | Ø 291<br>[11.46 dia.]   | Ø 22<br>[0.87 dia.] | 8 x<br>M20x1.5      | 14<br>[0.55] |   |   |   |   |   |   |   |   |   |   |   |   |   |



The supports in gray must not be assembled with an MSE hydrobase.

## Studs

|               |  | P         | C min.   | C max.    | D         |                                                                                       | Class |
|---------------|-------------------------------------------------------------------------------------|-----------|----------|-----------|-----------|---------------------------------------------------------------------------------------|-------|
|               |                                                                                     | mm [in]   | mm [in]  | mm [in]   | mm [in]   |                                                                                       |       |
| Various studs | M18 x 1.5                                                                           | 55 [2,17] | 5 [0,20] | 17 [0,67] | 23 [0,91] |  | 12,9  |
|               | M20 x 1.5                                                                           | 60 [2,36] |          | 14 [0,55] | 25 [0,98] |                                                                                       |       |
|               | M22 x 1.5                                                                           | 65 [2,56] |          | 24 [0,94] | 26 [1,02] |                                                                                       |       |
| Screws        | M12                                                                                 |           |          |           |           |                                                                                       |       |



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



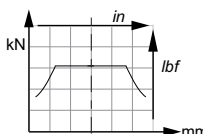
## Load curves

### Permissible radial loads

Test conditions :

**Static** : 0 tr/min [0 RPM] 0 bar [0 PSI]

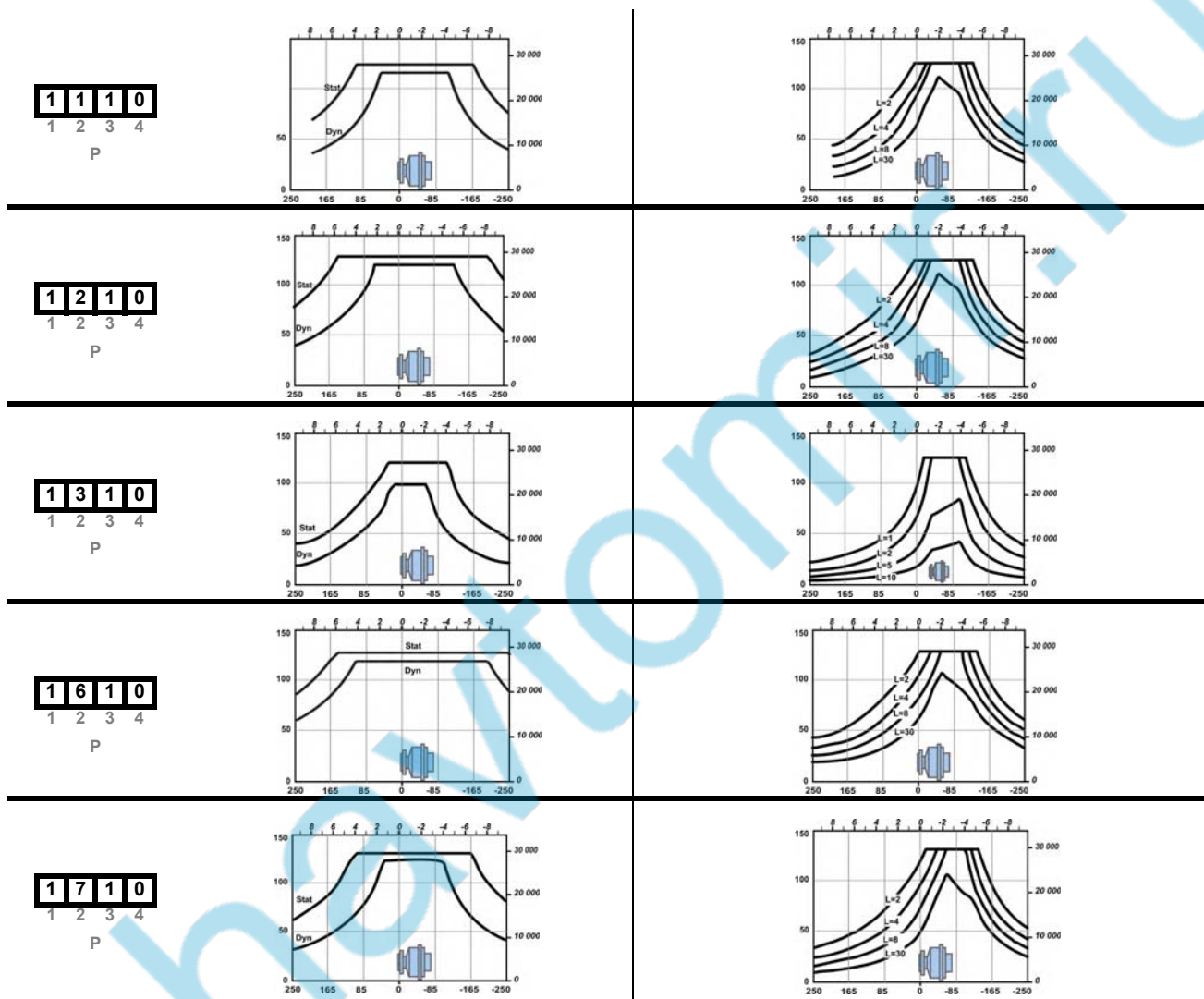
**Dynamic** : 0 tr/min [0 RPM], code 0 displacement, without axial load at max. torque



### 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.



Modularity and  
Model code

Wheel motor

Shaft motor

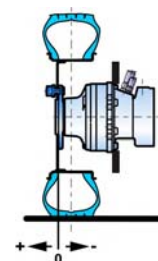
Valving systems  
and hydrobases

Brake

Options

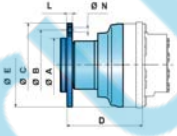
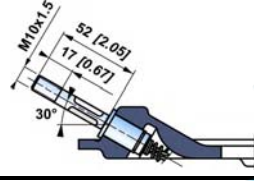
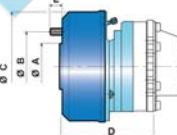


The service life of the components is influenced by the pressure. You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications. For an accurate calculation, consult your Poclain Hydraulics application engineer.





## Support types (continued)

|                                                                                                                                     |                        |                      |                       | C                | D                                                                                 |                     |                        | F             |                                                                                     |   | P |   |   |   | S |   |   |   |   |   |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------|-----------------------|------------------|-----------------------------------------------------------------------------------|---------------------|------------------------|---------------|-------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|
|                                                                                                                                     |                        |                      |                       | 1                | 1                                                                                 | 2                   | 3                      | 1             | 2                                                                                   | 3 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 5 | 6 |
| M S 1 1                                                                                                                             |                        |                      |                       | 1                |                                                                                   |                     |                        |               |                                                                                     |   |   |   |   |   |   |   |   |   |   |   |
| M S E 1 1                                                                                                                           |                        |                      |                       |                  |                                                                                   |                     |                        |               |                                                                                     |   |   |   |   |   |   |   |   |   |   |   |
| C                                                                                                                                   | A<br>m m [in]          | B<br>m m [in]        | C<br>m m [in]         | D<br>m m [in]    | E<br>m m [in]                                                                     | N<br>m m [in]       | Wheel rim<br>mountings | L<br>m m [in] |                                                                                     |   |   |   |   |   |   |   |   |   |   |   |
| 1 G 1 0<br>1 2 3 4<br>P                                                                                                             | Ø 175.7<br>[6.92 dia.] | Ø 225<br>[8.86 dia.] | Ø 270<br>[10.63 dia.] | 284.6<br>[11.20] | Ø 291<br>[11.46 dia.]                                                             | Ø 24<br>[0.94 dia.] | 10 x<br>M22x1.5        | 16<br>[0.63]  |  |   |   |   |   |   |   |   |   |   |   |   |
| 1 Q 4 0<br>1 P 4 0<br>1 2 3 4<br>P                                                                                                  | Ø 175.7<br>[6.92 dia.] | Ø 225<br>[8.86 dia.] | Ø 354<br>[13.94 dia.] | 294.6<br>[11.60] |  |                     | 10 x<br>M22x1.5        | 39<br>[1.54]  |  |   |   |   |   |   |   |   |   |   |   |   |
|  Also see "Brake" section<br>(thumbnail opposite). |                        |                      |                       |                  |                                                                                   |                     |                        |               |                                                                                     |   |   |   |   |   |   |   |   |   |   |   |
| 1 P 3 0<br>1 Q 3 0<br>1 2 3 4<br>P                                                                                                  | Ø 175.7<br>[6.92 dia.] | Ø 225<br>[8.86 dia.] | Ø 354<br>[13.94 dia.] | 294.6<br>[11.60] |                                                                                   |                     | 10 x<br>M22x10         | 39<br>[1.54]  |                                                                                     |   |   |   |   |   |   |   |   |   |   |   |
|  Also see "Brake" section<br>(thumbnail opposite). |                        |                      |                       |                  |                                                                                   |                     |                        |               |                                                                                     |   |   |   |   |   |   |   |   |   |   |   |



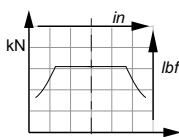
## Load curves (continued)

### Permissible radial loads

Test conditions :

**Static** : 0 tr/min [0 RPM] 0 bar [0 PSI]

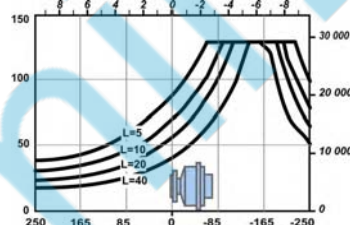
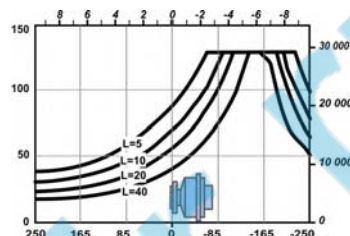
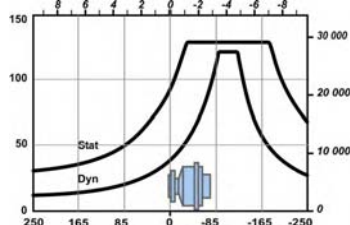
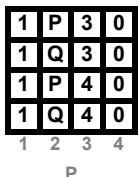
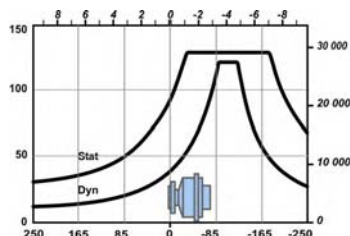
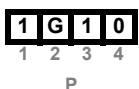
**Dynamic** : 0 tr/min [0 RPM], code 0 displacement, without axial load at max. torque



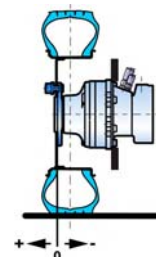
### Service life of bearings

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.



Modularity and  
Model code

Wheel motor

Shaft motor

Valving systems  
and hydrobases

Brake

Options

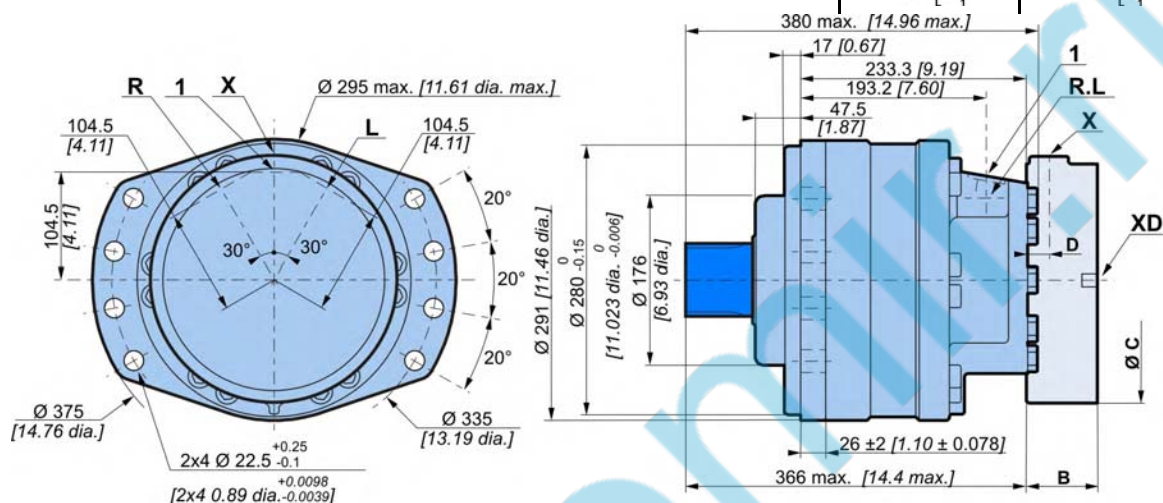


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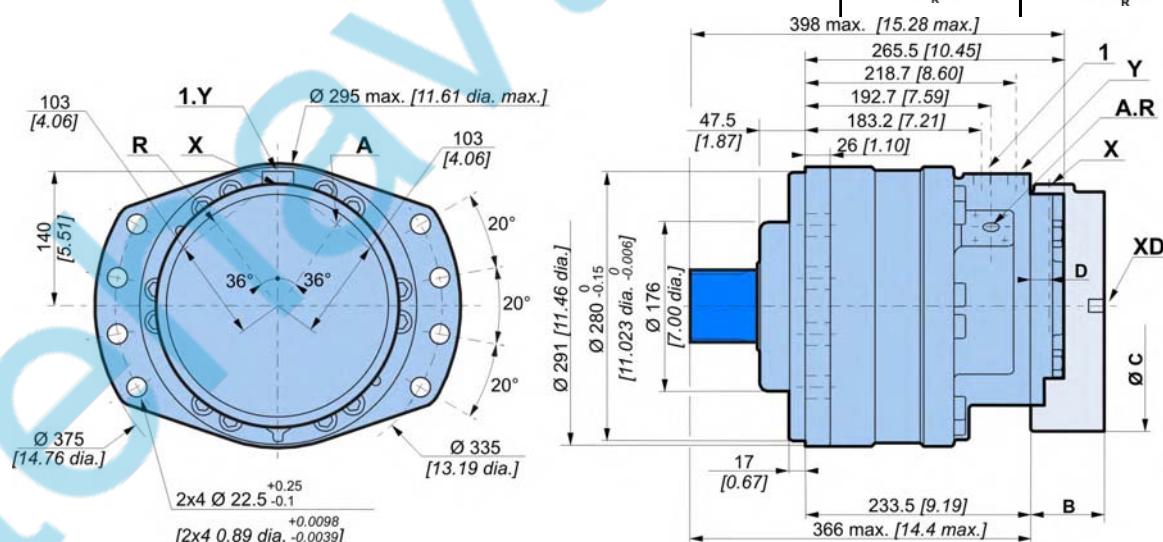


# SHAFT MOTOR

## Dimensions for standard (2A50) 1-displacement motor



## Dimensions for standard (2A50) 2-displacement motor



| C | T12                         |
|---|-----------------------------|
| B | 92.5 [3.64]                 |
| C | $\varnothing 273.6$ [10.77] |
| D | 25.0 [0.96]                 |



Also see 'Valving systems and hydrobases' section (thumbnail opposite).

Modularity and Model code

Wheel motor

Shaft motor

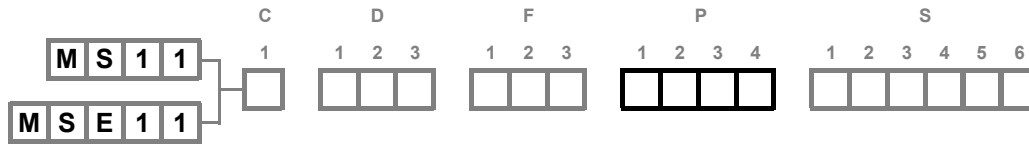
Valving systems and hydrobases

Brake

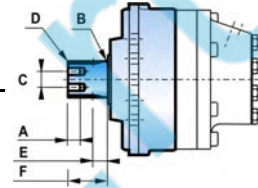
Options



## Support types

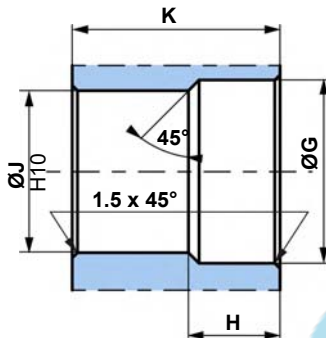


| C                         |          | A        |          | B         |  | C         |  | D |  | E |  | F |  |
|---------------------------|----------|----------|----------|-----------|--|-----------|--|---|--|---|--|---|--|
| <b>DIN 5480 splines</b>   |          |          |          |           |  |           |  |   |  |   |  |   |  |
| <b>2</b>                  | <b>A</b> | <b>5</b> | <b>0</b> | Nominal Ø |  | 80 [3.15] |  |   |  |   |  |   |  |
| 1                         | 2        | 3        | 4        | Module    |  | 3         |  |   |  |   |  |   |  |
| Z                         |          |          |          |           |  | 25        |  |   |  |   |  |   |  |
| <b>NF E22-141 splines</b> |          |          |          |           |  |           |  |   |  |   |  |   |  |
| <b>2</b>                  | <b>A</b> | <b>1</b> | <b>0</b> | Nominal Ø |  | 75 [2.95] |  |   |  |   |  |   |  |
| 1                         | 2        | 3        | 4        | Module    |  | 2.5       |  |   |  |   |  |   |  |
| Z                         |          |          |          |           |  | 28        |  |   |  |   |  |   |  |



Also see 'Valving systems and hydrobases' section (thumbnail opposite).

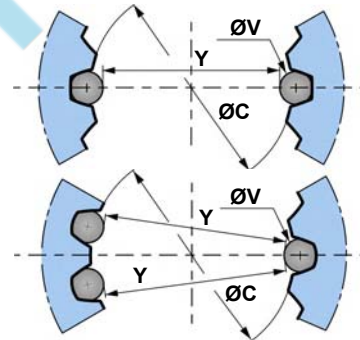
## Splined coupling



N : Nominal Ø.  
Mo : Module.  
Z : Number of teeth.

**Standard DIN 5480**  
Pressure angle 30°.  
Centering on flanks.  
Slide fit (7H quality).

**Standard NF E22-141**  
Pressure angle 20°.  
Centering on flanks.  
Slide fit (7H quality).



| <div>C</div>                                                                                                                                  | Ø G            | H            | Ø J          | K            | N            | Mo  | Z  | Offset           | Ø C (H10)    | Ø V            | Y                | Tolerance<br>µm [µin]     |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------|--------------|--------------|--------------|-----|----|------------------|--------------|----------------|------------------|---------------------------|
| <div><div><div>2</div><div>A</div><div>1</div><div>0</div></div><div><div>1</div><div>2</div><div>3</div><div>4</div></div><div>P</div></div> | 76<br>[2.99]   | 25<br>[0.98] | 70<br>[2.76] | 69<br>[2.72] | 75<br>[2.95] | 2.5 | 28 | 2<br>[0.08]      | 70<br>[2.76] | 5<br>[0.20]    | 65.169<br>[2.57] | + 103 / 0<br>[+4.055 / 0] |
| <div><div><div>2</div><div>A</div><div>5</div><div>0</div></div><div><div>1</div><div>2</div><div>3</div><div>4</div></div><div>P</div></div> | 81.5<br>[3.21] | 25<br>[0.98] | 74<br>[2.91] | 79<br>[3.11] | 80<br>[3.15] | 3   | 25 | 0.85<br>[0.0335] | 74<br>[2.91] | 5.25<br>[0.21] | 68.957<br>[2.71] | + 71 / 0<br>[+2.795 / 0]  |

General tolerances : ± 0.25 [±0.0098].

Material: Ex: 42CrMo4.

Hardening treatment to obtain R = 800 to 900 N/mm² [R = 116 030 to 130 533 PSI].



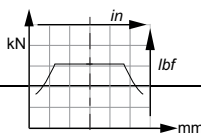
## Load curves

### 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].

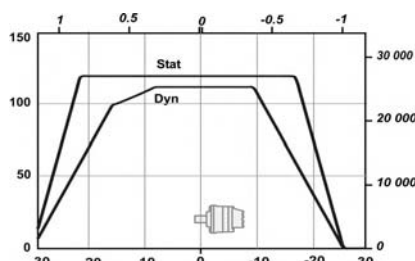


### Service life of bearings

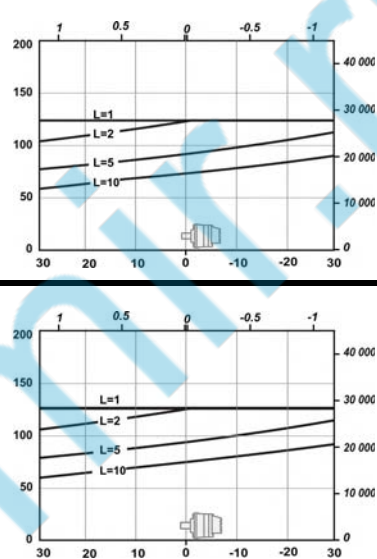
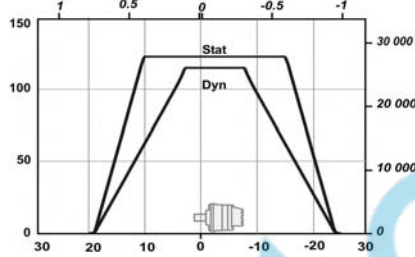
**Test conditions :**

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

**2 A 5 0**  
1 2 3 4  
P



**2 A 1 0**  
1 2 3 4  
P



Modularity and  
Model code

Wheel motor

Shaft motor

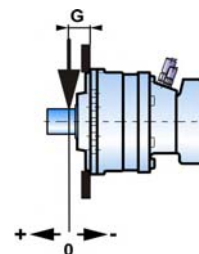
Valving systems  
and hydrobases

Brake

Options



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.



**C**

**G**

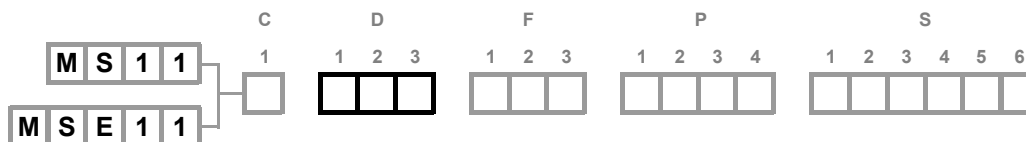
|                |               |
|----------------|---------------|
| <b>2 A 1 0</b> | 96.75 [3.81]  |
| <b>2 A 5 0</b> | 101.25 [3.99] |



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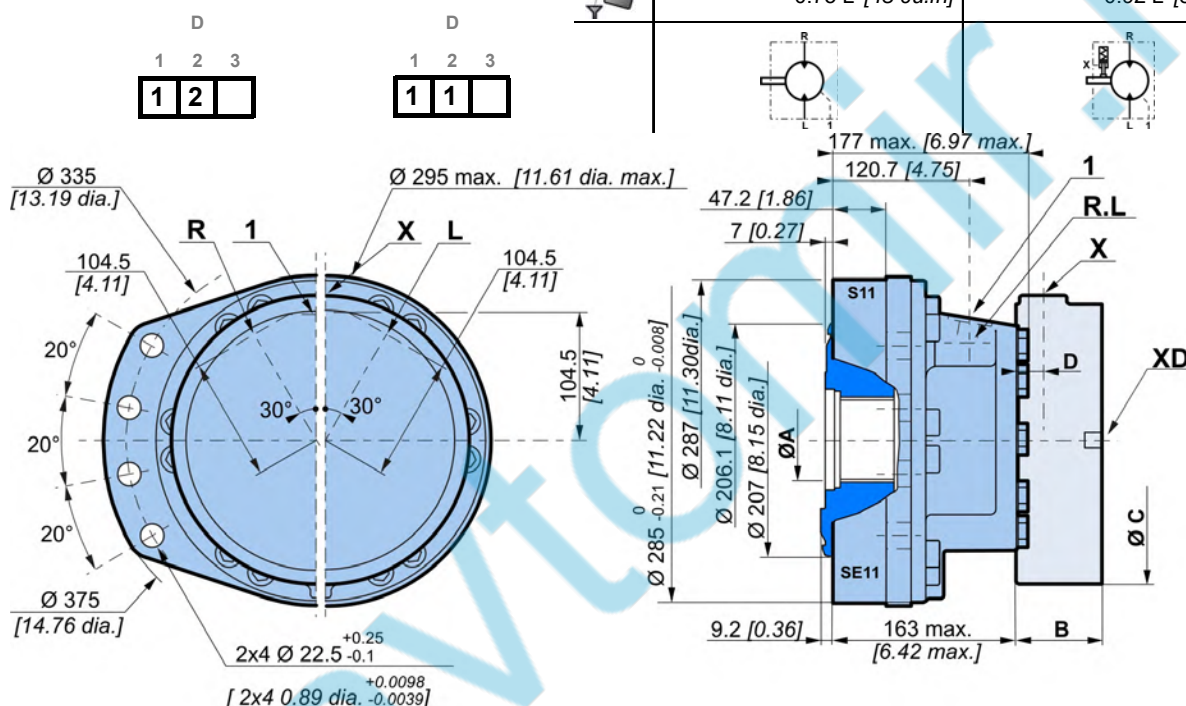


# VALVING SYSTEMS AND HYDROBASES



## Dimensions for 1-displacement valving

|     |                    |                    |
|-----|--------------------|--------------------|
| 1 1 | 44 kg [97 lb]      | 76.0 kg [167.2 lb] |
| 1 2 | 48.9 kg [107.6 lb] | 80.9 kg [178.0 lb] |
|     | 0.75 L [45 cu.in]  | 0.92 L [55 cu.in]  |

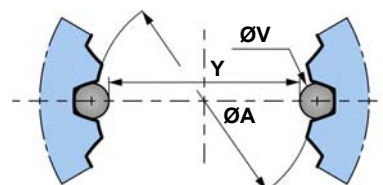


|   | T12            |
|---|----------------|
| B | 92.5 [3.64]    |
| C | Ø273.6 [10.77] |
| D | 25.0 [0.96]    |

## Cylinder block splines

(as per standard NF E22-141)

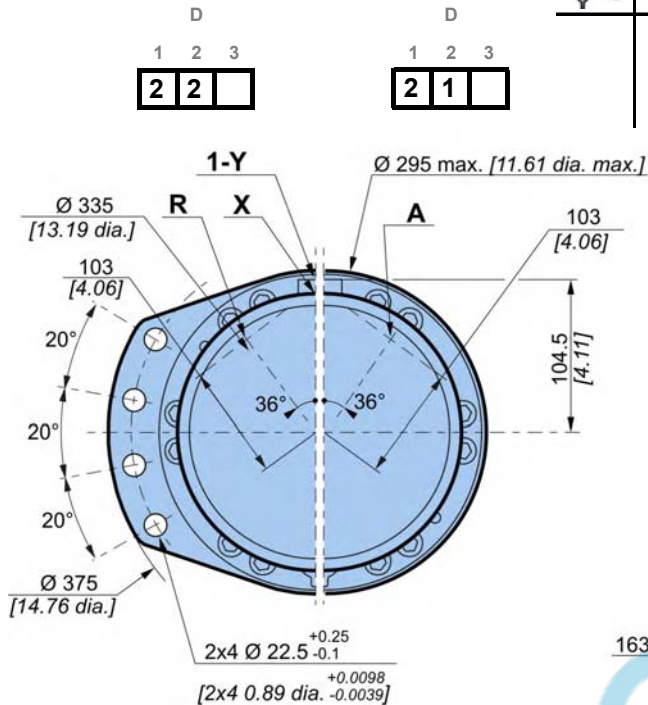
| ØA         | Module | Z  | Dimension on 2 pins |           |
|------------|--------|----|---------------------|-----------|
|            |        |    | Y                   | ØV        |
| 75 [2.953] | 2.5    | 28 | 65.169 [2.739]      | 5 [0.197] |



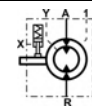
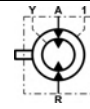
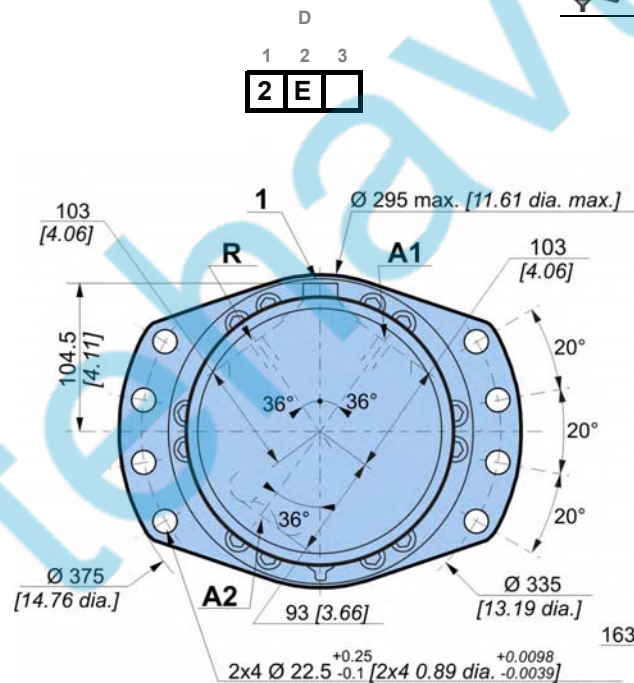
You are advised to have the installation validated by your Poclain Hydraulics application engineer before using the hydraulic unit in an application.



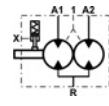
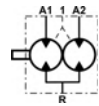
We must provide you with a detailed plan of the interface for any hydraulic unit use, consult your Poclain Hydraulics sales engineer.

**Dimensions for 2-displacement valving**

|  |                   |                    |                   |                    |
|--|-------------------|--------------------|-------------------|--------------------|
|  | <b>2 1</b>        | 44 kg [97 lb]      | <b>T 1 2</b>      | 76.0 kg [167.2 lb] |
|  | <b>2 2</b>        | 48.9 kg [107.6 lb] |                   | 80.9 kg [178.0 lb] |
|  | 0.75 L [45 cu.in] |                    | 0.92 L [55 cu.in] |                    |

**Dimensions for Twin-Lock™ valving**

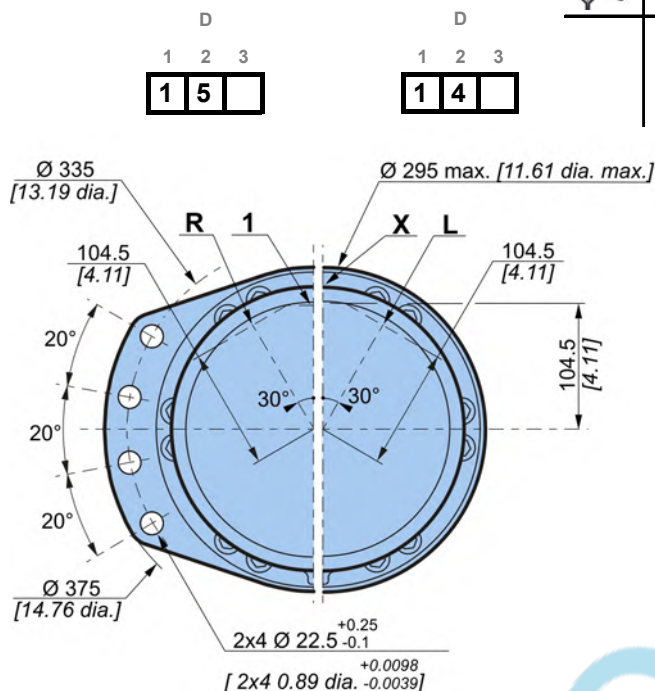
|  |                   |                    |                   |                    |
|--|-------------------|--------------------|-------------------|--------------------|
|  | <b>2 E</b>        | 48.9 kg [107.6 lb] | <b>T 1 2</b>      | 80.9 kg [178.0 lb] |
|  |                   |                    |                   |                    |
|  | 0.75 L [45 cu.in] |                    | 0.92 L [55 cu.in] |                    |



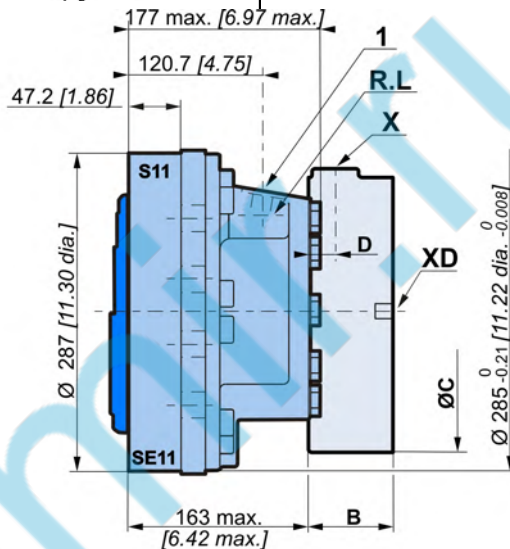
|          |                |
|----------|----------------|
| <b>C</b> | <b>T12</b>     |
| <b>B</b> | 92.5 [3.64]    |
| <b>C</b> | Ø273.6 [10.77] |
| <b>D</b> | 25.0 [0.96]    |



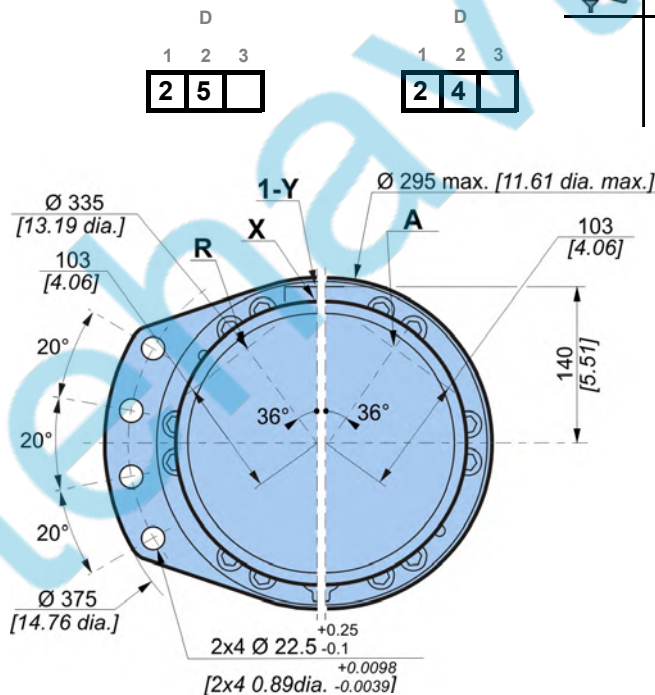
### Dimensions for 1-displacement valving with built-in exchange



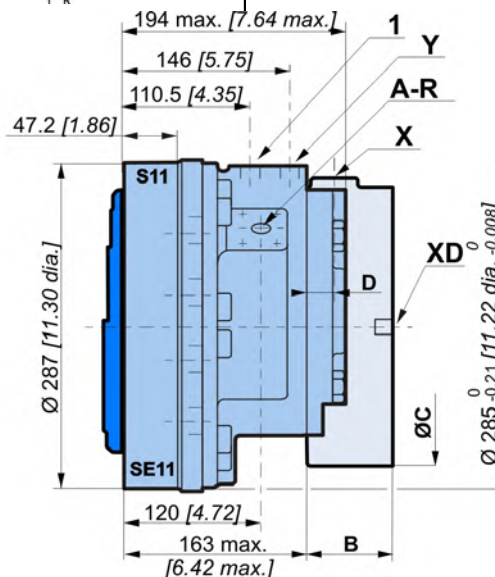
|  |                   |                    |                   |                    |
|--|-------------------|--------------------|-------------------|--------------------|
|  | <b>1 5</b>        | 44 kg [97 lb]      | <b>T 1 2</b>      | 76.0 kg [167.2 lb] |
|  | <b>1 4</b>        | 48.9 kg [107.6 lb] |                   | 80.9 kg [178.0 lb] |
|  | 0.75 L [45 cu.in] |                    | 0.92 L [55 cu.in] |                    |



### Dimensions for 2-displacement valving with built-in exchange



|  |                   |                    |                   |                    |
|--|-------------------|--------------------|-------------------|--------------------|
|  | <b>1 5</b>        | 44 kg [97 lb]      | <b>T 1 2</b>      | 76.0 kg [167.2 lb] |
|  | <b>1 4</b>        | 48.9 kg [107.6 lb] |                   | 80.9 kg [178.0 lb] |
|  | 0.75 L [45 cu.in] |                    | 0.92 L [55 cu.in] |                    |



|          |                 |
|----------|-----------------|
| <b>C</b> | <b>T12</b>      |
| <b>B</b> | 92.5 [3.64]     |
| <b>C</b> | Ø 273.6 [10.77] |
| <b>D</b> | 25.0 [0.96]     |

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

Brake

Options

### Dimensions for 2-displacement valving or Twin-Lock™ valving



48.9 kg [107.6 lb]

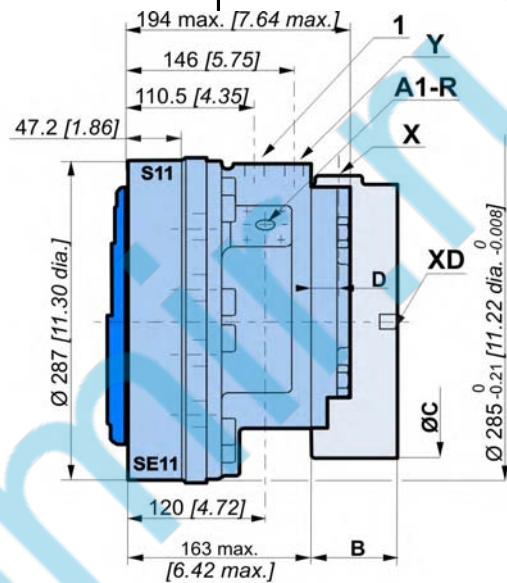
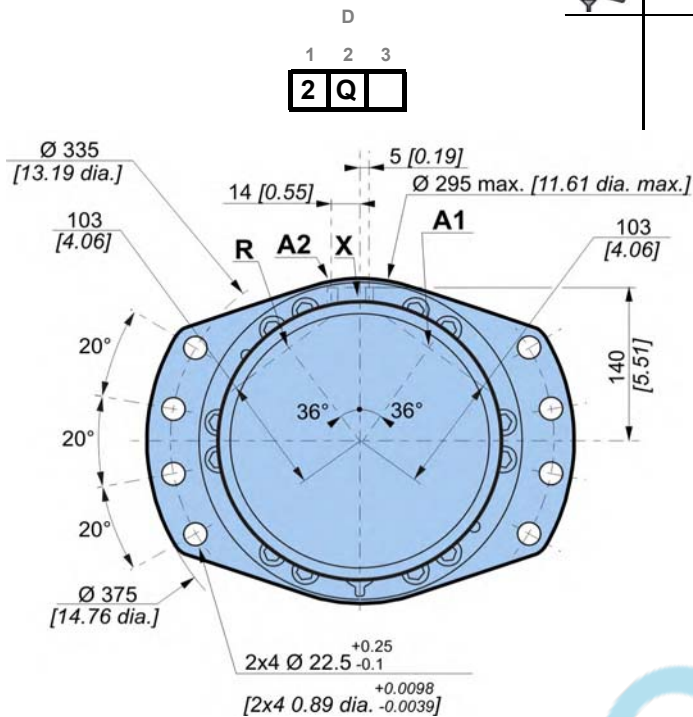
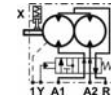
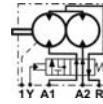
|   |   |   |
|---|---|---|
| T | 1 | 2 |
|---|---|---|

80.9 kg [178.0 lb]



0.75 L [45 cu.in]

0.92 L [55 cu.in]



## Exchange

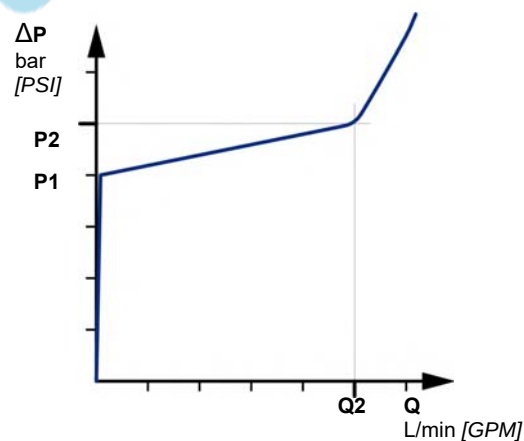
When a coding request is made, you must specify information on the threshold of the selector and the valve.

## Selector spool

| Selector threshold<br>bar [PSI] | Opening pressure of selector<br>bar [PSI] |
|---------------------------------|-------------------------------------------|
| 8 [116]                         | 9.9 ± 1.2 [144 ± 17]                      |

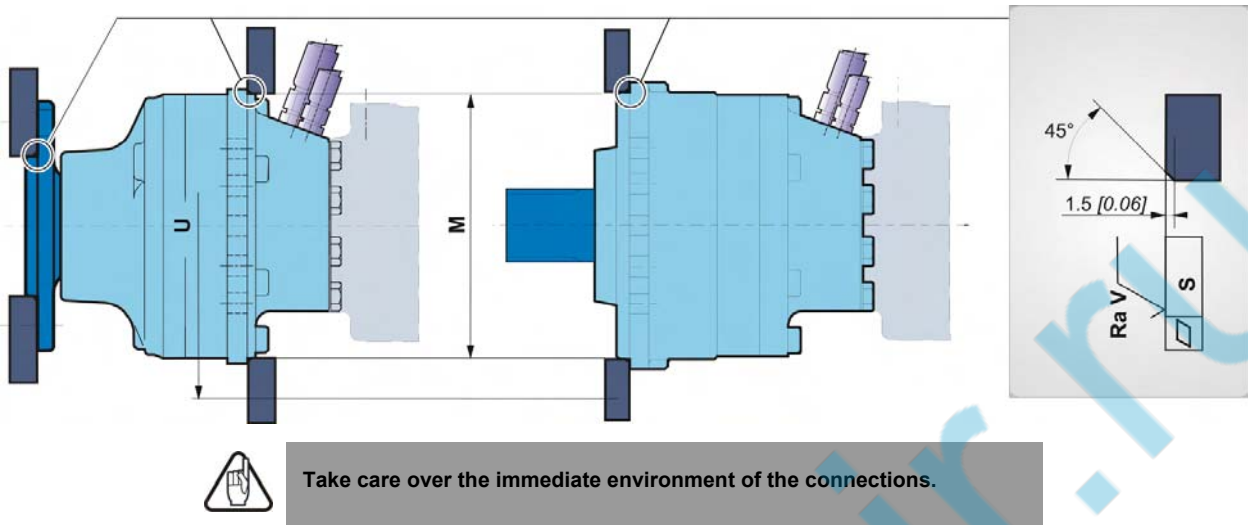
**Fitted valve**

| P1         | Q2          | P2        |
|------------|-------------|-----------|
| bar [PSI]  | L/min [GPM] | bar [PSI] |
| 13.5 [195] | 14 [3.7]    | 16 [232]  |
| 18 [261]   | 15 [3.9]    | 21 [305]  |
| 22 [319]   | 16 [4.2]    | 25 [363]  |





Chassis mountings



|             | ØM <sup>(1)</sup> | ØU             | S              | Ra V                |  | Class |
|-------------|-------------------|----------------|----------------|---------------------|-------------------------------------------------------------------------------------|-------|
| Wheel motor | 285<br>[11,22]    | 335<br>[13,19] | 0,2<br>[0,008] | 12,5µm<br>[0,49µin] | 2 x 4<br>4 x M20                                                                    | 8,8   |
| Shaft motor | 280<br>[11,02]    | 335<br>[13,19] |                |                     |                                                                                     |       |

(1) +0,3 [+0,012]  
+0,2 [+0,008]

Modularity and  
Model code

Wheel motor

Shaft motor

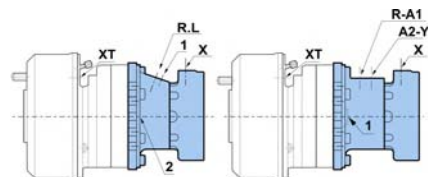
Valving systems  
and hydrobases

Brake

Options



## Hydraulic connections



|                | Old standards | Standards  | Power supply | Case drain         | 2 <sup>nd</sup> displacement control | Control of parking brake | Control of drum brake |
|----------------|---------------|------------|--------------|--------------------|--------------------------------------|--------------------------|-----------------------|
|                |               |            | R-L          | 1, 2               |                                      | X                        | XT                    |
| 1 displacement | A             | SAE J514   | ISO 11926-1  | 1" 16-12 UNF       | 3/4"-16 UNF                          | 9/16"-18 UNF             |                       |
|                | 1             | ISO 6 162  | ISO 6 162    | DN 19 PN400        | M 16x15                              | M 16x15                  |                       |
|                |               | DIN 3 852  | ISO 9 974-1  |                    |                                      |                          |                       |
|                | 2             | ISO 6 162  | ISO 6 162    | DN 19 PN400        | Ø21<br>[1/2" dia.]                   | Ø17<br>[3/8" dia.]       |                       |
|                |               | BSP        | ISO 1 179-1  |                    |                                      |                          |                       |
|                | 3             | BSP        | ISO 1 179-1  | Ø27<br>[3/4" dia.] | Ø21<br>[1/2" dia.]                   | Ø17<br>[3/8" dia.]       |                       |
|                | 4             | NF E48 050 | ISO 9 974-1  | M27x2              | M 16x15                              | M 16x15                  |                       |
| 2 Displacement | 5             | DIN 3 852  | ISO 9 974-1  | M33x2              | M 16x15                              | M 16x15                  |                       |
|                | 7             | ISO 6 162  | ISO 6 162    | DN 19 PN400        | 3/4"-16 UNF                          | 9/16"-18 UNF             |                       |
|                |               | SAE J514   | ISO 11926-1  |                    |                                      |                          |                       |
|                |               |            |              | R-A                | 1, 2                                 | Y                        | X                     |
|                | A             | SAE J514   | ISO 11926-1  | 1" 16-12 UNF       | 3/4"-16 UNF                          | 9/16"-18 UNF             | 9/16"-18 UNF          |
|                | 1             | ISO 6 162  | ISO 6 162    | DN 19 PN400        | M 16x15                              | M 16x15                  | M 16x15               |
|                |               | DIN 3 852  | ISO 9 974-1  |                    |                                      |                          |                       |
| Twin-Lock™     | 2             | ISO 6 162  | ISO 6 162    | DN 19 PN400        | Ø21<br>[1/2" dia.]                   | Ø17<br>[3/8" dia.]       | Ø17<br>[3/8" dia.]    |
|                |               | BSP        | ISO 1 179-1  |                    |                                      |                          |                       |
|                | 3             | BSP        | ISO 1 179-1  | Ø27<br>[3/4" dia.] | Ø21<br>[1/2" dia.]                   | Ø17<br>[3/8" dia.]       | Ø17<br>[3/8" dia.]    |
|                | 4             | NF E48 050 | ISO 9 974-1  | M27x2              | M 16x15                              | M 16x15                  | M 16x15               |
|                |               |            |              |                    |                                      |                          |                       |
|                |               |            |              | R-A1               | A2                                   | 1, 2                     | Y                     |
|                | A             | SAE J514   | ISO 11926-1  | 1" 16-12 UNF       | 9/16"-18 UNF                         | 3/4"-16 UNF              | 9/16"-18 UNF          |
| Twin-Lock™     | 1             | ISO 6 162  | ISO 6 162    | DN 19 PN400        | M27x2                                | M 16x15                  | M 16x15               |
|                |               | DIN 3 852  | ISO 9 974-1  |                    |                                      |                          |                       |
|                | 4             | NF E48 050 | ISO 9 974-1  | M27x2              | M27x2<br>M22x15                      | M 16x15                  | M 16x15               |
|                |               |            |              |                    |                                      |                          |                       |
|                |               |            |              |                    |                                      |                          | M 10x1                |
|                |               |            |              |                    |                                      |                          | M 14x15               |
| Max. pressures | MS            | MSE        | bar [PSI]    | 450 [6,527]        | 450 [6,527]                          | 1 [15]                   | 30 [435]              |
|                |               |            |              | 400 [5,802]        | 400 [5,802]                          |                          | 30 [435]              |
|                |               |            |              |                    |                                      |                          | 120 [1,740]           |



To find the connections' tightening torques, see the brochure "Installation guide" N° B61352L.



You are strongly advised to use the fluids specified in brochure "Installation guide" N° B61352L.



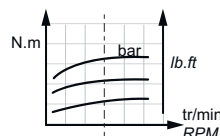
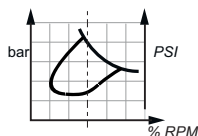
Do not put either a check valve or a poppet valve on the pilot lines (parking brake and displacement change) between the charge pump and the pilot valve. Do not use a piloting valve with integrated check valve.



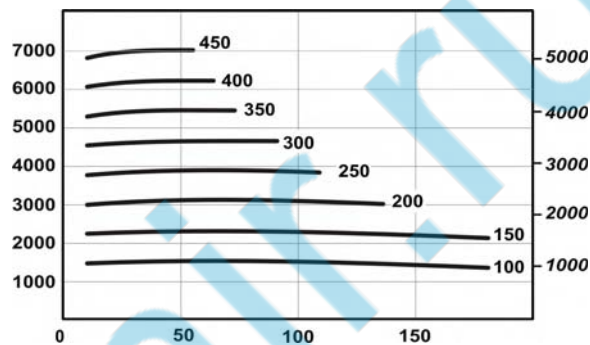
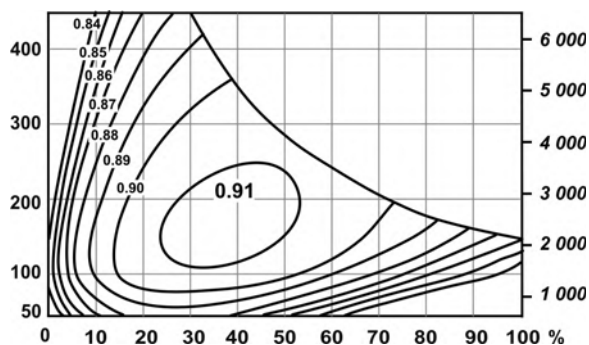
## Efficiency

**Overall efficiency**

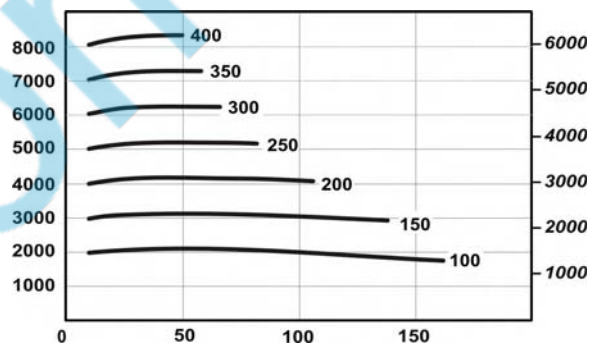
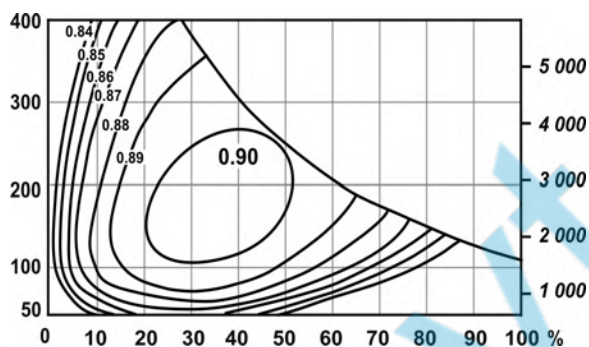
Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C [122°F].

**Actual output torque**

MS11



MSE11



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

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

Brake

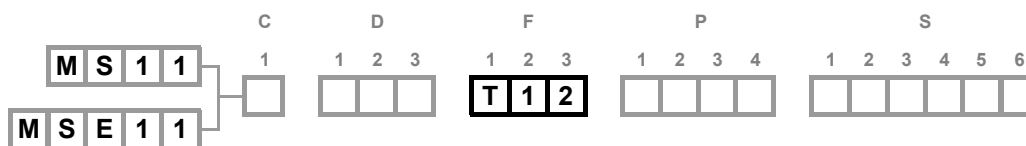
Options



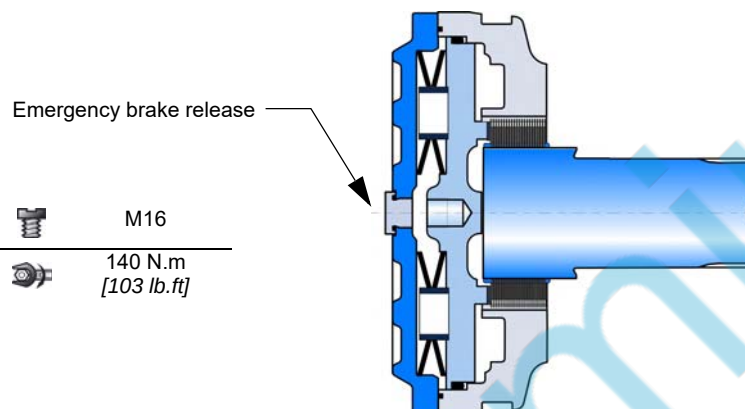
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# BRAKES



## 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.

**C T 1 2**

|                                                                                          |                                  |
|------------------------------------------------------------------------------------------|----------------------------------|
| Parking brake torque at 0 bars on housing (new brake)                                    | 11,840 Nm [8,730 lb.ft]          |
| Dynamic emergency braking torque at 0 bars on housing (max. 10 uses of emergency brakes) | 7,695 Nm [5,680 lb.ft]           |
| Residual parking braking at 0 bars on housing *                                          | 8,880 Nm [6,550 lb.ft]           |
| Min. brake release pressure                                                              | 12 bar [174 PSI]                 |
| Max. brake release pressure                                                              | 30 bar [435 PSI]                 |
| Oil capacity                                                                             | 170 cm <sup>3</sup> [10.4 cu.in] |
| Volume for brake release                                                                 | 40 cm <sup>3</sup> [2.4 cu.in]   |
| Max. energy dissipation                                                                  | 123 699 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/h, please contact your Poclain Hydraulics application engineer.**

Modularity and  
Model code

Wheel motor

Shaft motor

Valving systems  
and hydrobases

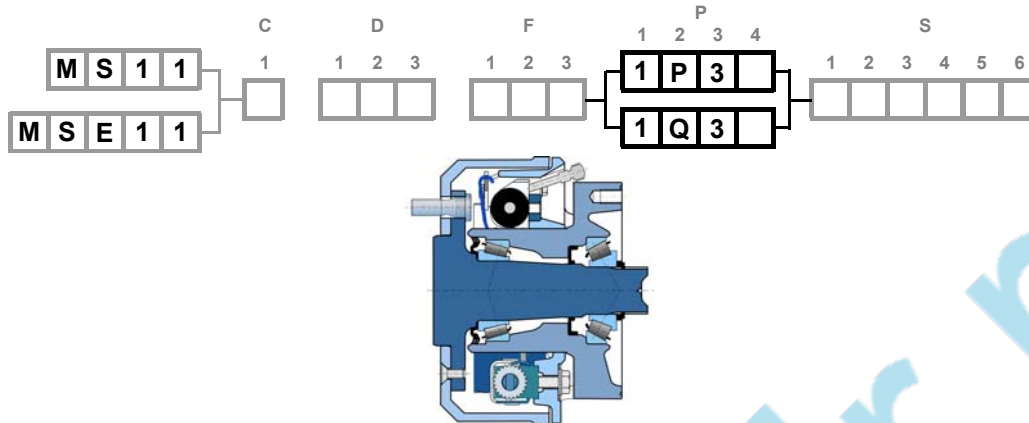
Brake

Options

**Drum brake (315 x 80)**

Diameter of brake pads : Ø 315 [12.4 dia.]

Width of friction surface : 80 [3.15]

**Brake pads****315 x 80**

|                        |            |
|------------------------|------------|
| Asbestos free material | BERAL 1518 |
| Compensation for wear  | Automatic  |

**Hydraulically controlled dynamic braking**

|                                                             |                          |
|-------------------------------------------------------------|--------------------------|
| Max. permissible continuous brake torque                    | 7,200 N.m [5,310 lb.ft]  |
| Pressure to obtain max. permissible continuous brake torque | 71 bar [1,023 PSI]       |
| Max. permissible brake torque                               | 12,000 N.m [8,851 lb.ft] |
| Pressure to obtain max. permissible brake torque            | 120 bar [1,740 PSI]      |

**Brake cylinder filler hole**

|          |           |           |
|----------|-----------|-----------|
| Size     | M14 x 1.5 | M10 x 1   |
| Standard | DIN 74234 | DIN 74234 |

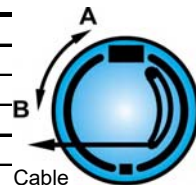
**Fluid**

|                                                 |                       |                       |   |
|-------------------------------------------------|-----------------------|-----------------------|---|
| Mineral                                         | Yes                   | Yes                   | P |
| DOT 3/DOT4/SAE J1703                            | No                    | Yes                   | Q |
| Max. volume required to bring pads into contact | 5.38 cm³ [0.33 cu.in] | 5.38 cm³ [0.33 cu.in] |   |

**Mechanically controlled parking brake**

|                                               |                                          |
|-----------------------------------------------|------------------------------------------|
| Max. braking torque                           | 12,000 N.m [8,851 lb.ft]                 |
| Max permissible force on the cable            | 3,800 N [854 lbf]                        |
| Force required to bring pads into contact     | 63.5 N [14.3 lbf]                        |
| Stroke required to bring pads into contact    | A 10.5 mm [0.41 "]<br>B 12 mm [0.47 "]   |
| Max. stroke before automatic brake adjustment | A 12.5 mm [0.49 "]<br>B 14.5 mm [0.57 "] |

End view of shaft



Cable



To validate the drum brake, it is necessary to carry out sufficient vehicle tests under real operation conditions, especially to confirm the brake response, the noise and thermal behavior of the brakes. The responsibility for the suitability of the brake is assigned to the vehicle manufacturer.



The max. braking torque can only be obtained when the brake has been run in. Consult your Poclain Hydraulics application engineer.

**Control**

The drum brakes can be controlled hydraulically (service brake) and by a cable (mechanical control for parking brake).



Do not use hydraulic and mechanical brake controls simultaneously.



Brake release pressure vented.

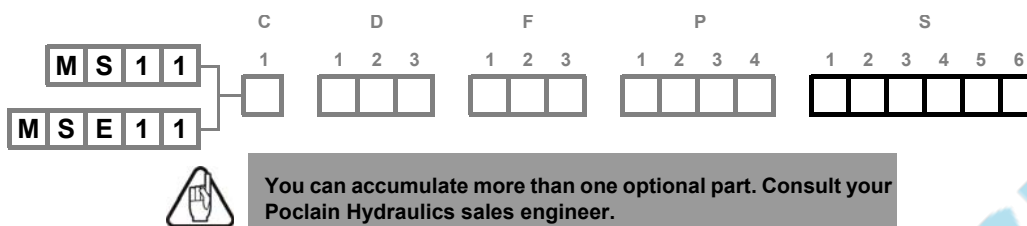


When making an encoding request, you must indicate the following information:

- The material of the brake linings,
- The type of connection at the end of the parking brake control cable,
- Fill out the technical questionnaire for validation of the brake.

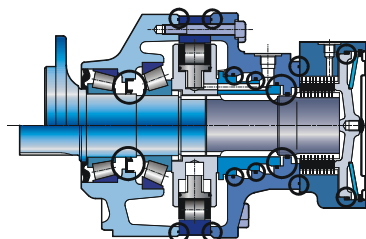


# OPTIONS



## 1 - Fluorinated elastomer seals

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

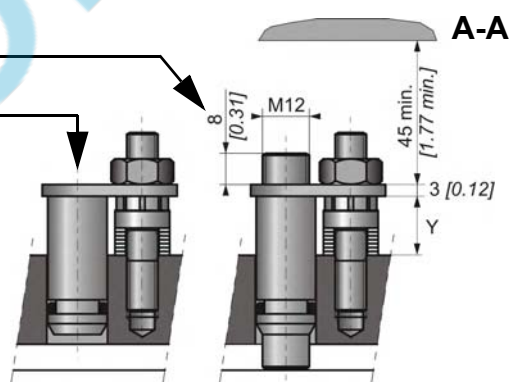
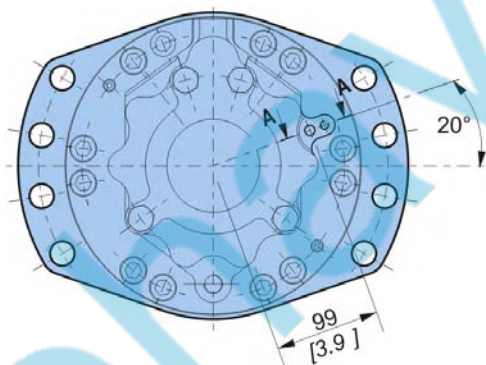


Consult your Poclain Hydraulics sales engineer.

## 2 - S - Q - 8 - Installed speed sensor or predisposition

### Designation

|                                                 |   |
|-------------------------------------------------|---|
| 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= 20.9

Standard number of pulses per revolution= 56



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. B61352L.

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

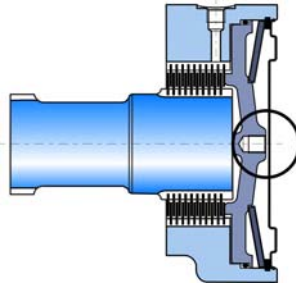
Brake

Options



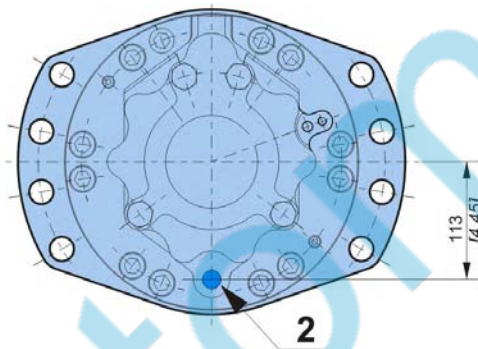
### 3 - Brake environmental cover without plug

No plug or hole in the cover.



### 5 - Drainage

Additional drain in the cover.

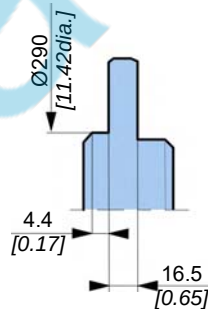


### 7 - Diamond™

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.

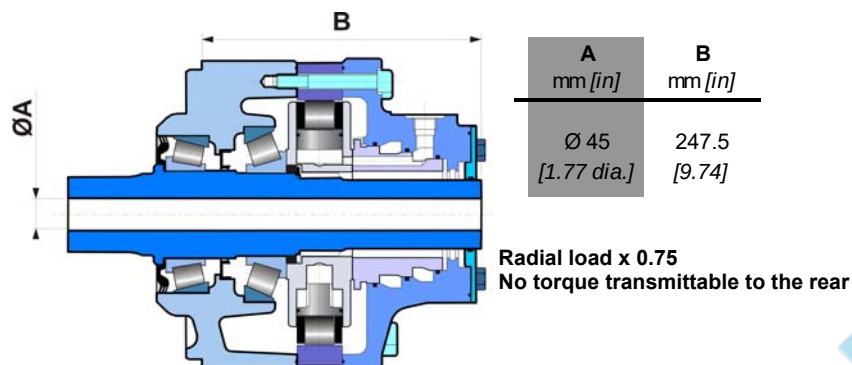
### 9 - Double-centering valving cover

This option allows a motor to be installed from the front or the back.

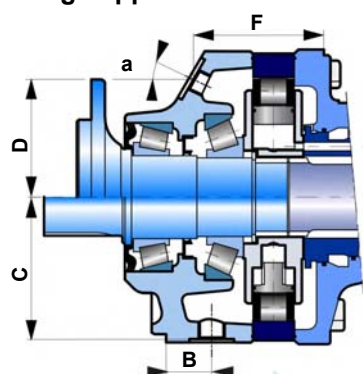




## A - Hollow shaft



## B - Drain on the bearing support



|             | ISO       | B           | C          | D          | F            | a   |
|-------------|-----------|-------------|------------|------------|--------------|-----|
|             |           | mm [in]     | mm [in]    | mm [in]    | mm [in]      |     |
| Shaft motor | M18 x 1.5 | 32.5 [1.28] | 143 [5.63] |            |              |     |
| Wheel motor | M18 x 1.5 |             |            | 112 [4.41] | 112.5 [4.43] | 30° |

## C - Abrasive environments (mechanical seal)

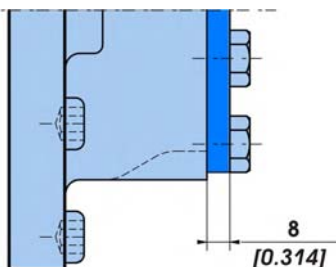
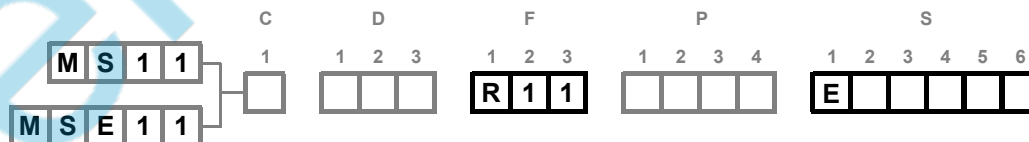
Certain environments can be very harmful. The mirror seal gives reinforced motor sealing.



Consult your Poclain Hydraulics sales engineer.

## E - Reinforced sealing

Requires reinforced seals and, for an unbraked motor, a rear reinforced plate (R08 - 8 [0.314] thick, instead of 4 [0.157]).



Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

Brake

Options



### G - Special wheel rim mounting

Enables certain combinations different from the standard mountings defined on pages 11 and 13.



**Consult your Poclain Hydraulics sales engineer.**

H - High efficiency

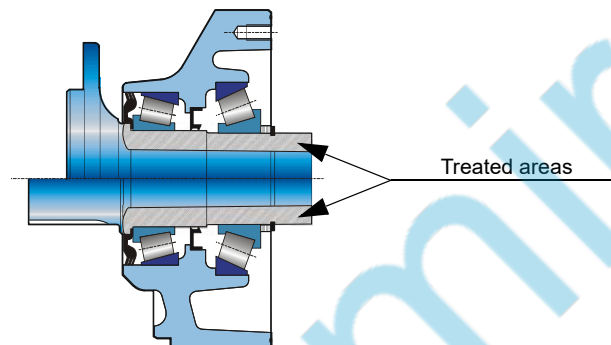
Reinforced piston sealing to improve volumetric efficiency.



**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

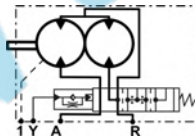
Under certain conditions, an increase in the maximum speed of 30% above the values indicated in the table on page 2 is possible.



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

### T - Soft Shift™

Progressive displacement change (cushioned slide-valve)



**Consult your Poclain Hydraulics sales engineer.**



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|                                |
|--------------------------------|
| Options                        |
| Brake                          |
| Valving systems and hydrobases |
| Shaft motor                    |
| Wheel motor                    |
| Modularity and Model code      |



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|                                |
|--------------------------------|
| Options                        |
| Brake                          |
| Valving systems and hydrobases |
| Shaft motor                    |
| Wheel motor                    |
| Modularity and Model code      |



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07/10/2021



801 478 120C



801 478 190D



801 578 103E



801 578 115S



801 578 127F



A07443Q



Non available



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