

# MOTOARE CU ROȚI DINȚATE UNIDIRECȚIONALE HM2

## UNIDIRECTIONAL GEAR MOTORS HM2

### Descriere și utilizare

Motoarele unidirecționale cu roți dințate au volum geometric constant și sunt utilizate în acționări hidraulice, la mașini agricole, echipamente pentru tractoare, utilaje de ridicat și transport, utilaje terasiere grele, mașini unelte, s.a.

Motoarele unidirecționale cu roți dințate au ieșirea conectată direct la tanc; presiunea maximă la ieșire = 2 bar.

### Description and use

The unidirectional gear motors with constant displacement, are used in the hydro drive installation, for agricultural equipment, heavy duty mobiles, equipment for transport and earth moving, machines-tools, others.

The unidirectional gear motors have the outlet connected directly on the tank; maximal outlet pressure = 2 bar.



### Codificare – Codification

| HM 2 | Vg<br>cm <sup>3</sup> /rot<br>ccm/rev | Ax antrenare<br>Driving shaft                               | Flanșa prindere<br>Fastening flange        | Flanșa aspirație<br>Inlet port   | Flanșa refulare<br>Outlet port   | Sens<br>Rotation                     |
|------|---------------------------------------|---|--|----------------------------------|----------------------------------|--------------------------------------|
| 6.3  | 1                                     | Conic 1:5 BOSCH<br><i>Conical 1:5 BOSCH</i>                 | 1 PLESSEY (4xØ9)                           | 3 Variante<br>4 PLESSEY          | 3 Variante<br>4 PLESSEY          | A (stânga)<br><i>(Anticlockwise)</i> |
| 8.2  | C                                     | Conic 1:5 (majorat)<br><i>Conical 1:5 (increased)</i>       | 2 DIN (4 xØ9)                              | 8 PLESSEY                        | 8 PLESSEY                        | C (dreapta)<br><i>(Clockwise)</i>    |
| 11.3 | D                                     | Conic 1:5 BOSCH<br><i>Conical 1:5 BOSCH</i>                 | 3 PLESSEY (4xØ9)                           | D PLESSEY<br>E Variants          | D PLESSEY<br>E Variants          |                                      |
| 14   | 2                                     | Conic 1:8 (micsorat)<br><i>Conical 1:8 (diminished)</i>     | 4 GERMAN 2xØ11                             | M Variante SAE<br>V SAE Variants | M Variante SAE<br>V SAE Variants |                                      |
| 16   | 4e                                    | Conic 1:8 PLESSEY<br><i>Conical 1:8 PLESSEY</i>             | 4e GERMAN 2xØ11<br>cu inel O - with O-ring | W Variante DIN<br>2 DIN Variants | W Variante DIN<br>2 DIN Variants |                                      |
| 19   | 3                                     | Conic 1:8 PLESSEY<br><i>Conical 1:8 PLESSEY</i>             | 5 GERMAN 2xØ11                             | A Variante DIN<br>A DIN Variants | A Variante DIN<br>A DIN Variants |                                      |
| 22.5 | 5e                                    | Canelat- <i>involute spline</i><br>B 17x14 DIN 5482         | 5e GERMAN 2xØ11<br>cu inel O - with O-ring | B Variante<br>1 filetate         | B Variante<br>1 filetate         |                                      |
| 25   | A                                     | Canelat- <i>involute spline</i><br>SAE 9T 16/32 Dp          | 6 GERMAN 2xØ11                             | 9 BSPP                           | 9 BSPP                           |                                      |
| 27.9 | L                                     | Canelat- <i>involute spline</i><br>SAE 9T 16/32 Dp          | 6e GERMAN 2xØ11<br>cu inel O - with O-ring | F Threaded<br>Variants           | F Threaded<br>Variants           |                                      |
|      | E                                     | Cilindric Ø15.875<br><i>Cylindrical Ø15.875</i>             | 7 Ovale SAE "A"<br><i>Oval SAE "A"</i>     | G BSPP                           | G BSPP                           |                                      |
|      | T                                     | Cilindric scurt Ø15.875<br><i>Cylindrical short Ø15.875</i> | 8 GERMAN 2xØ11                             | H Variante<br>7 filetate         | H Variante<br>7 filetate         |                                      |
|      | 0                                     | Cilindric Ø17.45<br><i>Cylindrical Ø17.45</i>               | 8e GERMAN 2xØ11<br>cu inel O - with O-ring | J ISO (metric)                   | J ISO (metric)                   |                                      |
|      |                                       |   | 9 GERMAN 4xØ11                             | K Threaded<br>Variants           | K Threaded<br>Variants           |                                      |
|      |                                       |   | Am PLESSEY (4xØ7)                          | P ISO (metric)                   | P ISO (metric)                   |                                      |
|      |                                       |   | An PLESSEY (4xØ9)                          | Q Threaded<br>Variants           | Q Threaded<br>Variants           |                                      |
|      |                                       |   |  | R ISO (metric)                   | R ISO (metric)                   |                                      |
|      |                                       |   |  | S Variante<br>6 filetate SAE     | S Variante<br>6 filetate SAE     |                                      |
|      |                                       |   |  | U Threaded<br>Variants SAE       | U Threaded<br>Variants SAE       |                                      |
|      |                                       |   |  | Y                                | Y                                |                                      |
|      |                                       |   |  | 0 Obturată<br><i>Closed</i>      | 0 Obturată<br><i>Closed</i>      |                                      |

"0" dacă aspirația și refularea nu sunt pe corpul pompei  
"0" if inlet or outlet ports are not on the body of the pump.

### Exemplu - Example

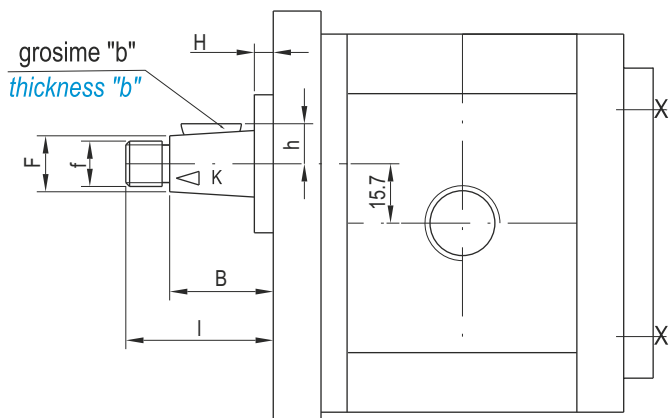
|      |    |   |   |   |   |   |
|------|----|---|---|---|---|---|
| HM 2 | 16 | 1 | 2 | 2 | 2 | C |
|------|----|---|---|---|---|---|

# MOTOARE CU ROȚI DINȚATE UNIDIRECȚIONALE HM2

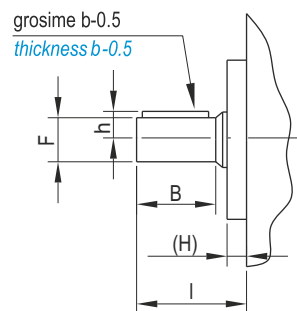
## UNIDIRECTIONAL GEAR MOTORS HM2

### Axe antrenare - *Driving shafts*

Axe conice - Variantele 1;2;3;C;D  
*Conical shafts - Variants 1;2;3;C;D*



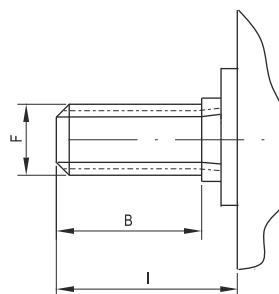
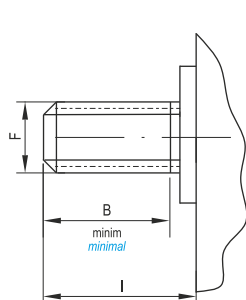
Axe cilindrice - Variantele O;E;T  
*Cylindrical shafts - Variants O;E;T*



### Axe canelate - *Grooved shafts*

Varianta A; 5  
*Variant A; 5*

Varianta L  
*Variant L*



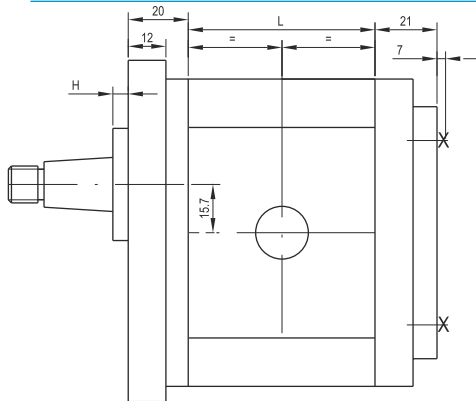
### Axe antrenare - *Driving shafts*

| Varianta<br><i>Variant</i> | Tip ax<br><i>Shaft type</i>                           | l<br>[mm] | B<br>[mm] | F<br>[mm]                           | f<br>[mm] | k   | h<br>[mm] | b<br>[mm] | Mmax<br>[Nm] |
|----------------------------|---|-----------|-----------|-------------------------------------|-----------|-----|-----------|-----------|--------------|
| 1                          | Conic 1:5 BOSCH<br><i>Conical 1:5 BOSCH</i>           | 38        | 24.8      | 13.6                                | M12x1.25  | 1:5 | 9.2       | 3         | 150          |
| C                          | Conic 1:5 (majorat)<br><i>Conical 1:5 (increased)</i> | 40        | 26.6      | 14                                  | M12x1.25  | 1:5 | 9.6       | 3         | 160          |
| D                          | Conic 1:5 BOSCH<br><i>Conical 1:5 BOSCH</i>           | 40.5      | 27.3      | 13.6                                | M12x1.25  | 1:5 | 9.5       | 3         | 150          |
| 2                          | Conic 1:8 (reduș)<br><i>Conical 1:8 (diminished)</i>  | 39        | 30        | 14                                  | M12x1.25  | 1:8 | 9.4       | 3.2       | 170          |
| 3                          | Conic 1:8 PLESSEY<br><i>Conical 1:8 PLESSEY</i>       | 39        | 27.4      | 14.8                                | M12x1.25  | 1:8 | 9.4       | 3.2       | 180          |
| 5                          | Canelat B17x14 DIN 5482<br><i>Grooved</i>             | 26        | 14        | 16.5                                | -         | -   | -         | -         | 75           |
| A                          | Canelat SAE 9T 16/32 Dp<br><i>Grooved</i>             | 31.5      | 19        | 15.5                                | -         | -   | -         | -         | 70           |
| L                          | Canelat SAE 9T 16/32 Dp<br><i>Grooved</i>             | 32        | 24        | 15.5                                | -         | -   | -         | -         | 70           |
| O                          | Cilindric Ø17.45<br><i>Cylindrical Ø17.45</i>         | 43        | 37        | 17.45 <sup>0</sup> <sub>-0.02</sub> | -         | -   | 11.1      | 4.76      | 70           |
| E                          | Cilindric Ø15.875<br><i>Cylindrical Ø15.875</i>       | 44.5      | 36.5      | 15.87 <sup>0</sup> <sub>-0.02</sub> | -         | -   | 9.7       | 3.96      | 65           |
| T                          | Cilindric Ø15.875<br><i>Cylindrical Ø15.875</i>       | 32        | 25.4      | 15.87 <sup>0</sup> <sub>-0.02</sub> | -         | -   | 9.7       | 3.96      | 50           |

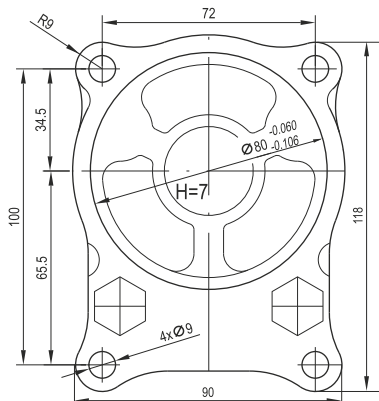
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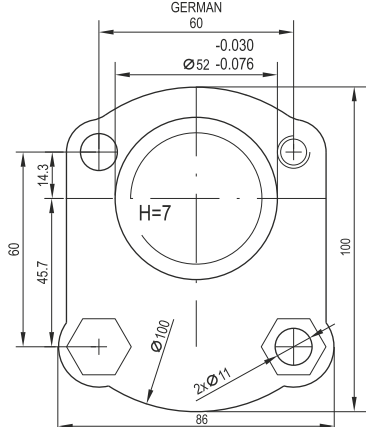
### Flanșe de prindere - *Fastening Flanges*



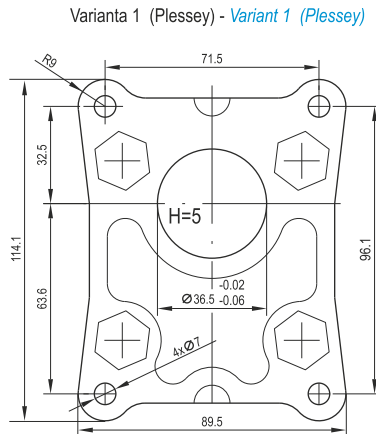
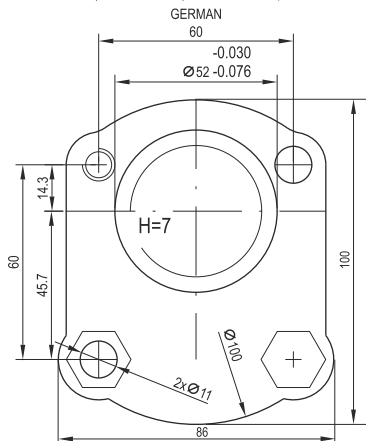
Varianta 2 (DIN) - *Variant 2 (DIN)*



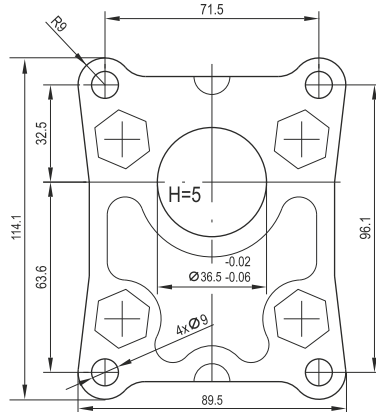
Varianta 5 ; (5e cu inel O) - *Variant 5 ; (5e with O-ring)*



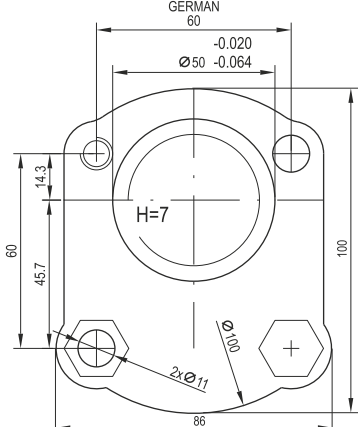
Varianta 8 ; (8e cu inel O) - *Variant 8 ; (8e with O-ring)*



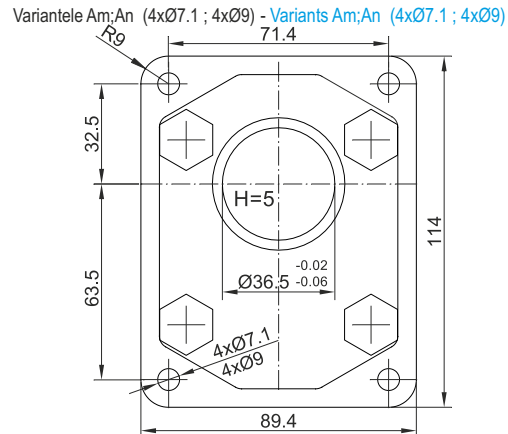
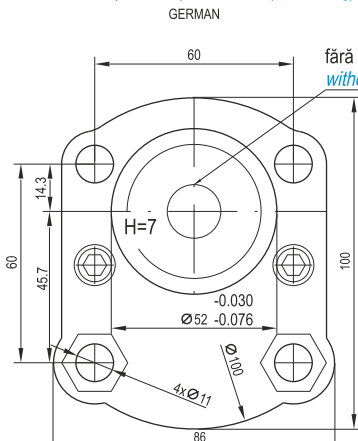
Varianta 3 (Plessey) - *Variant 3 (Plessey)*



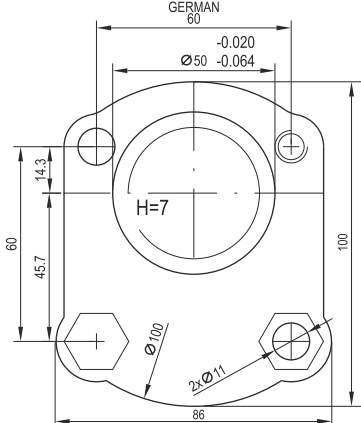
Varianta 6 ; (6e cu inel O) - *Variant 6 ; (6e with O-ring)*



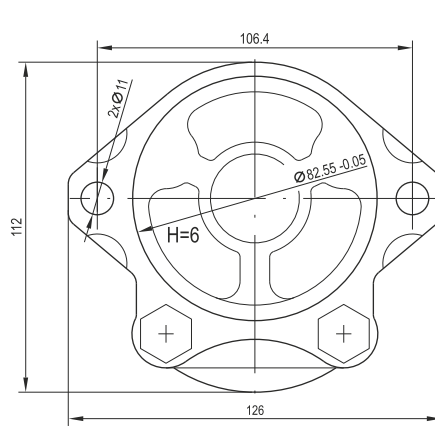
Varianta 9 (cu inel O) - *Variant 9 (with O-ring)*



Varianta 4 ; (4e cu inel O) - *Variant 4 ; (4e with O-ring)*



Varianta 7 (SAE "A") - *Variant 7 (SAE "A")*

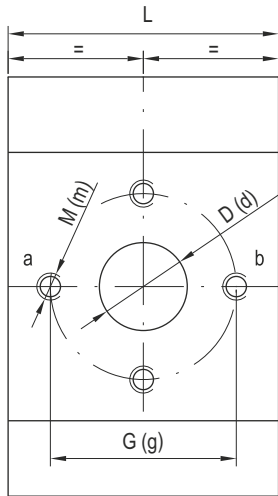


# MOTOARE CU ROȚI DINȚATE UNIDIRECȚIONALE HM2

## UNIDIRECTIONAL GEAR MOTORS HM2

### Flanșe aspirație-refulare - Inlet-outlet ports

#### Variante PLESSEY – PLESSEY variants



| Vg<br>cm <sup>3</sup> /rot<br>ccm/rev | L<br>mm |
|---------------------------------------|---------|
| 6.3                                   | 48.6    |
| 8.2                                   | 51.7    |
| 11.3                                  | 56.8    |
| 14                                    | 61.3    |
| 16                                    | 64.7    |
| 19                                    | 69.7    |
| 22.5                                  | 75.1    |
| 25                                    | 79.2    |
| 27.9                                  | 84      |

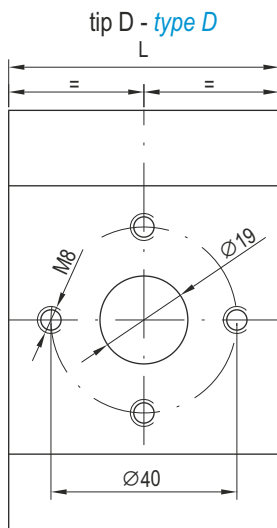
| tip 3 - type 3  |      |    |                 |      |    |
|-----------------|------|----|-----------------|------|----|
| intrare - inlet |      |    | ieșire - outlet |      |    |
| d               | g    | m  | D               | G    | M  |
| 13.1            | 30.2 | M6 | 13.1            | 30.2 | M6 |
| 14.2            | 30.2 | M6 | 19              | 39.7 | M8 |
| 16              | 39.7 | M8 | 22              | 39.7 | M8 |

| tip 8 - type 8  |      |    |                 |      |    |
|-----------------|------|----|-----------------|------|----|
| intrare - inlet |      |    | ieșire - outlet |      |    |
| d               | g    | m  | D               | G    | M  |
| 13              | 30.2 | M6 | 13              | 30.2 | M6 |
| 19              | 39.7 | M8 | 22              | 39.7 | M8 |

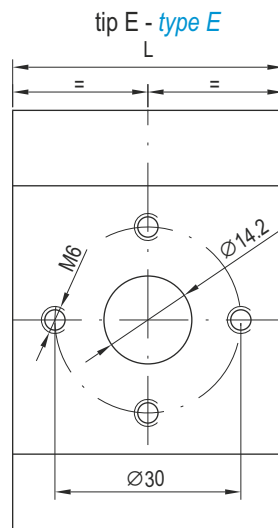
| tip M - type M  |    |    |                 |    |   |
|-----------------|----|----|-----------------|----|---|
| intrare - inlet |    |    | ieșire - outlet |    |   |
| d               | g  | m  | D               | G  | M |
| 30              | M6 | 13 | 30              | M6 |   |
| 40              | M8 | 19 | 40              | M8 |   |
| 19              |    |    |                 |    |   |

| tip 4 - type 4  |      |    |                 |      |    |
|-----------------|------|----|-----------------|------|----|
| intrare - inlet |      |    | ieșire - outlet |      |    |
| d               | g    | m  | D               | G    | M  |
| 15              | 30.2 | M6 | 15              | 30.2 | M6 |
| 20              | 39.7 | M8 |                 |      |    |

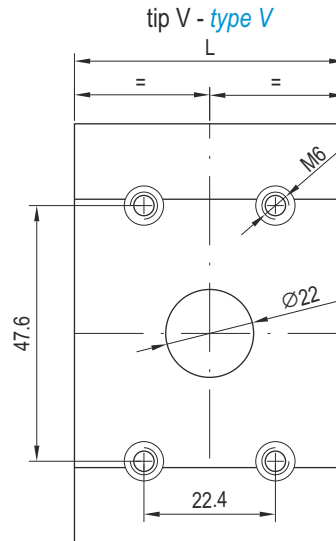
#### Variante SAE – SAE variants



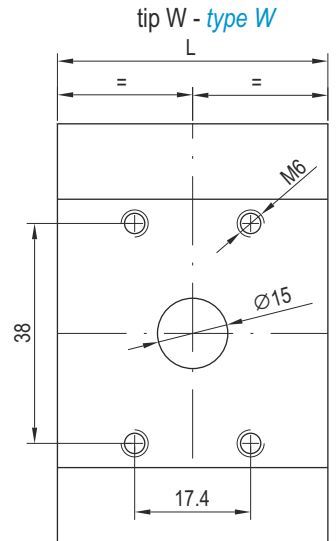
tip D - type D



tip E - type E

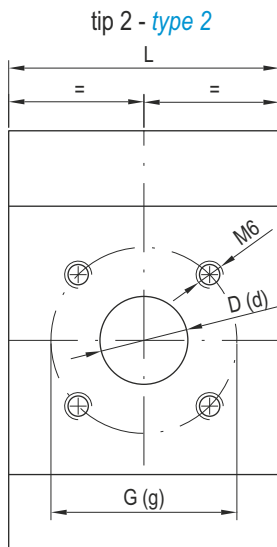


tip V - type V



tip W - type W

- Numai pt Vg = 11.3...27.9 cm<sup>3</sup>/rot  
- Only for Vg = 11.3...27.9 ccm/rev

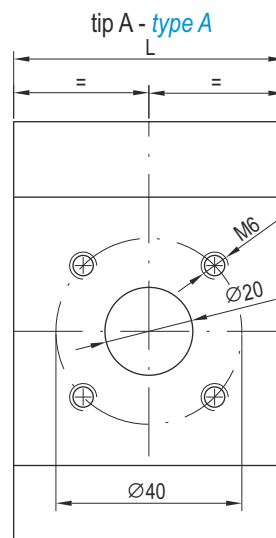


tip 2 - type 2

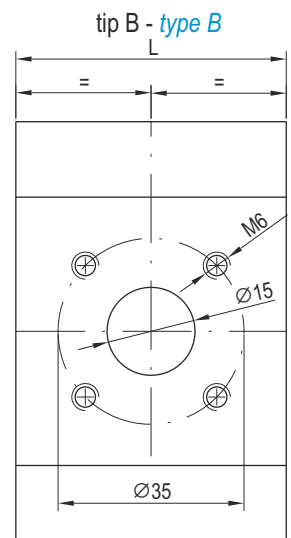
#### Variante DIN – DIN variants

| Vg<br>cm <sup>3</sup> /rot<br>ccm/rev | L<br>mm |
|---------------------------------------|---------|
| 6.3                                   | 48.6    |
| 8.2                                   | 51.7    |
| 11.3                                  | 56.8    |
| 14                                    | 61.3    |
| 16                                    | 64.7    |
| 19                                    | 69.7    |
| 22.5                                  | 75.1    |
| 25                                    | 79.2    |
| 27.9                                  | 84      |

| tip 2 - type 2  |    |                 |    |
|-----------------|----|-----------------|----|
| intrare - inlet |    | ieșire - outlet |    |
| d               | g  | D               | G  |
| 12              |    | 15              |    |
| 15              | 35 | 20              | 40 |



tip A - type A



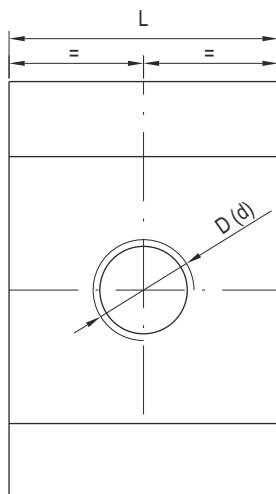
tip B - type B



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### Variante filetate BSPP - BSPP threaded variants



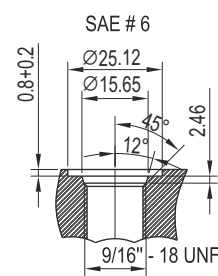
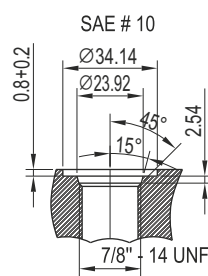
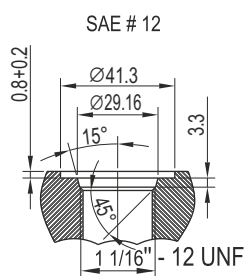
| Vg<br>cm <sup>3</sup> /rev | L<br>mm | tip 1 - type 1   |                  | tip 9 - type 9   |                  | tip H - type H   |                  | tip F - type F                 | tip G - type G                 | tip J - type J                 |
|----------------------------|---------|------------------|------------------|------------------|------------------|------------------|------------------|--------------------------------|--------------------------------|--------------------------------|
|                            |         | intrare<br>inlet | ieșire<br>outlet | intrare<br>inlet | ieșire<br>outlet | intrare<br>inlet | ieșire<br>outlet | intrare-ieșire<br>inlet-outlet | intrare-ieșire<br>inlet-outlet | intrare-ieșire<br>inlet-outlet |
| 6.3                        | 48.6    |                  |                  |                  |                  |                  |                  |                                |                                |                                |
| 8.2                        | 51.7    |                  | G1/2"            | G1/2"            | G3/4"            |                  |                  |                                | G1/2"                          |                                |
| 11.3                       | 56.8    |                  | G1/2"            |                  |                  |                  |                  |                                |                                |                                |
| 14                         | 61.3    |                  |                  | G3/4"            |                  |                  |                  |                                |                                |                                |
| 16                         | 64.7    |                  |                  |                  |                  | G1/2"            | G3/4"            |                                |                                |                                |
| 19                         | 69.7    |                  |                  | G3/4"            | G1"              |                  |                  |                                |                                |                                |
| 22.5                       | 75.1    |                  |                  |                  |                  |                  |                  |                                |                                |                                |
| 25                         | 79.2    |                  | G3/4"            | G1"              |                  |                  |                  |                                |                                |                                |
| 27.9                       | 84      |                  |                  |                  |                  |                  |                  |                                |                                |                                |

### Variante filetate ISO 6149 (metric) - ISO 6149 threaded variants (metrical)

| Vg<br>cm <sup>3</sup> /rev | L<br>mm | tip 7 - type 7   |                  | tip K - type K                 | tip N - type N                 | tip P - type P                 | tip Q - type Q                 | tip R - type R                 |
|----------------------------|---------|------------------|------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
|                            |         | intrare<br>inlet | ieșire<br>outlet | intrare-ieșire<br>inlet-outlet | intrare-ieșire<br>inlet-outlet | intrare-ieșire<br>inlet-outlet | intrare-ieșire<br>inlet-outlet | intrare-ieșire<br>inlet-outlet |
| 6.3                        | 48.6    |                  |                  |                                |                                |                                |                                |                                |
| 8.2                        | 51.7    |                  |                  |                                | M22 x 1.5                      | M20 x 1.5                      | M18 x 1.5                      |                                |
| 11.3                       | 56.8    | M16 x 1.5        | M20 x 1.5        | M27 x 1.5                      |                                |                                |                                |                                |
| 14                         | 61.3    |                  |                  |                                |                                |                                |                                |                                |
| 16                         | 64.7    |                  |                  |                                |                                |                                |                                |                                |
| 19                         | 69.7    |                  |                  |                                |                                |                                |                                |                                |
| 22.5                       | 75.1    | M20 x 1.5        | M22 x 1.5        |                                |                                |                                |                                |                                |
| 25                         | 79.2    |                  |                  |                                |                                |                                |                                |                                |
| 27.9                       | 84      |                  |                  |                                |                                |                                |                                |                                |

### Variante filetate SAE - SAE threaded variants

| Vg<br>cm <sup>3</sup> /rev | L<br>mm | tip 6 - type 6   |                  | tip S - type S                 | tip U - type U                 | tip Y - type Y                 |
|----------------------------|---------|------------------|------------------|--------------------------------|--------------------------------|--------------------------------|
|                            |         | intrare<br>inlet | ieșire<br>outlet | intrare-ieșire<br>inlet-outlet | intrare-ieșire<br>inlet-outlet | intrare-ieșire<br>inlet-outlet |
| 6.3                        | 48.6    |                  |                  |                                |                                |                                |
| 8.2                        | 51.7    |                  |                  |                                |                                |                                |
| 11.3                       | 56.8    | 7/8" - 14 UNF    | 1 1/16" - 12 UNF | SAE # 12<br>1 1/16" - 12 UNF   | SAE # 10<br>7/8" - 14 UNF      | SAE # 6<br>9/16" - 18 UNF      |
| 14                         | 61.3    |                  |                  |                                |                                |                                |
| 16                         | 64.7    |                  |                  |                                |                                |                                |
| 19                         | 69.7    |                  |                  |                                |                                |                                |
| 22.5                       | 75.1    |                  |                  |                                |                                |                                |
| 25                         | 79.2    |                  |                  |                                |                                |                                |
| 27.9                       | 84      |                  |                  |                                |                                |                                |



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## UNIDIRECTIONAL GEAR MOTORS HM2

### CARACTERISTICI TEHNICE – TECHNICAL CHARACTERISTICS

| Vg<br>cm <sup>3</sup> /rot<br>ccm/rev | L<br>mm | h <sub>v</sub><br>% | Presiune - Pressure<br>(bar) |      | Presiune<br>pe retur<br>Outlet<br>pressure<br>(bar) | Turație (rot/min)<br>Speed (rev/min)         |  |      | Temperatura<br>Temperature<br>(°C) | Vâscozitate<br>Viscosity<br>(cSt) | Filtrare<br>Filtration<br>(μm) |
|---------------------------------------|---------|---------------------|------------------------------|------|---|--|--|------|------------------------------------|-----------------------------------|--------------------------------|
|                                       |         |                     | Pn                           | Pmax |   | nominal                                      | min.                                   | max. |                                    |                                   |                                |
| 6,3                                   | 48,6    | 91                  | 250                          | 280  | max. 2  | 1500   | 900                                    | 4000 | -15...+ 80                         | 12...2000                         | max. 25                        |
| 8,2                                   | 51,7    | 92                  |                              |      |   |  | 800                                    | 3500 |                                    |                                   |                                |
| 11,3                                  | 56,8    | 93                  |                              |      |   |  | 600                                    | 3000 |                                    |                                   |                                |
| 14                                    | 61,3    | 94                  |                              |      |   |  | 500                                    | 2500 |                                    |                                   |                                |
| 16                                    | 64,7    | 95                  |                              |      |   |  |  |      |                                    |                                   |                                |
| 19                                    | 69,7    | 95                  |                              |      |   |  |  |      |                                    |                                   |                                |
| 22,5                                  | 75,1    | 96                  | 210                          | 230  | recomandat<br><i>recommended</i><br>0...+ 60        | recomandat<br><i>recommended</i><br>25...200 | recomandat<br><i>recommended</i><br>16 |      |                                    |                                   |                                |
| 25                                    | 79,2    | 97                  | 190                          | 210  |   |  |  |      |                                    |                                   |                                |
| 27,9                                  | 84      | 98                  | 170                          | 185  |   |  |  |      |                                    |                                   |                                |

Notă:

- Returul motoarelor se conectează direct la bazin;
- Motoarele realizează un moment minim de Pn și o turație minimă la un debit determinat;
- Randamentele volumice  $\eta_v$  se garantează în condiții nominale și la o vâscozitate a uleiului de 30...40 mm<sup>2</sup>/s.
- Este interzisă încărcarea axului de antrenare al pompei cu sarcini radiale sau axiale în timpul utilizării.

Note:

- The outlet is connected directly on the tank;
- The motors realize a minimal torque at Pn and a minimal speed for a determined flow;
- Volumetric efficiency  $\eta_v$  is guaranteed in nominal condition and oil viscosity of 30...40mm<sup>2</sup>/s.
- It is forbidden radial or axial loads on the pump shaft during the use.

Producătorul își rezervă dreptul să modifice datele din prezenta documentație, pentru îmbunătățirea produsului.  
The producer reserves its right to make changes in the present documentation, to improve the quality of the product.

Notă: În cazul în care configurația produsului solicitat de dumneavoastră nu se regăsește în catalogul HESPER, vă rugăm să ne contactați la :  
Note : If the configuration of the product demanded by you is not in HESPER catalogue, please contact us at:

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