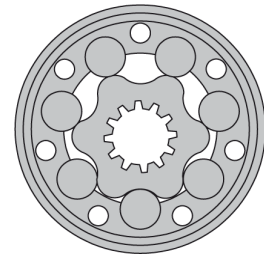


# HYDRAULIC MOTORS OR



## OIL FLOW IN DRAIN LINE

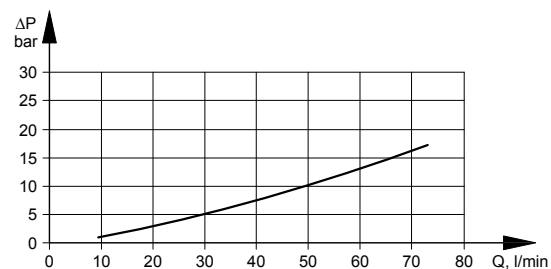
| Pressure drop (bar) | Viscosity (mm <sup>2</sup> /s) | Oil flow in drain line (l/min) |
|---------------------|--------------------------------|--------------------------------|
| 100                 | 20                             | 2,5                            |
|                     | 35                             | 1,8                            |
| 140                 | 20                             | 3,5                            |
|                     | 35                             | 2,8                            |



## GENERAL

|                                               |                                                                 |
|-----------------------------------------------|-----------------------------------------------------------------|
| Displacement, (cm <sup>3</sup> /rev)          | 51,5 ÷ 397                                                      |
| Max. Speed, (RPM)                             | 775 ÷ 150                                                       |
| Max. Torque, (daNm)                           | 10,1 ÷ 61                                                       |
| Max. Output, (kW)                             | 5 ÷ 13                                                          |
| Max. Pressure Drop, (bar)                     | 175 ÷ 70                                                        |
| Max. Oil Flow, (l/min)                        | 40 ÷ 60                                                         |
| Min. speed, (RPM)                             | 10                                                              |
| Pressure fluid                                | Mineral based - HLP (DIN 51524) or HM (ISO 6743/4)              |
| Temperature range, (°C)                       | - 30 ÷ 90                                                       |
| Optimal Viscosity range, (mm <sup>2</sup> /s) | 20 ÷ 75                                                         |
| Filtration                                    | ISO code 20/16 (Min. recommended fluid filtration of 25 micron) |

## PRESSURE LOSSES



## SPECIFICATION DATA

| Type                                                                      |                          | OR 50   | ORW 50 OR 50...B | OR 80 | ORW 80 OR 80...B | OR 100 | ORW 100 OR 100...B | OR 125 | ORW 125 OR 125...B | OR 160 |
|---------------------------------------------------------------------------|--------------------------|---------|------------------|-------|------------------|--------|--------------------|--------|--------------------|--------|
| Displacement [cm <sup>3</sup> /u]                                         |                          | 51,5    | 51,5             | 80,3  | 80,3             | 99,8   | 99,8               | 125,7  | 125,7              | 159,6  |
| Max. Speed, [RPM]                                                         | cont.                    | 775     | 775              | 750   | 750              | 600    | 600                | 475    | 475                | 375    |
|                                                                           | int.                     | 970     | 970              | 940   | 940              | 750    | 750                | 600    | 600                | 470    |
| Max. Torque [daNm]                                                        | cont.                    | 10,1    | 10,1             | 19,5  | 19,5             | 24     | 24                 | 30     | 30                 | 39     |
|                                                                           | int.                     | 13      | 13               | 22    | 22               | 28     | 28                 | 34     | 34                 | 43     |
|                                                                           | peak                     | 17      | 17               | 27    | 27               | 32     | 32                 | 37     | 37                 | 46     |
| Max. Output [kW]                                                          | cont.                    | 7       | 7                | 12,5  | 12,5             | 13     | 13                 | 12,5   | 12,5               | 11,5   |
|                                                                           | int.                     | 8,5     | 8,5              | 15    | 15               | 15     | 15                 | 14,5   | 14,5               | 14     |
| Max. Pressure Drop [bar]                                                  | cont.                    | 140     | 140              | 175   | 175              | 175    | 175                | 175    | 175                | 175    |
|                                                                           | int.                     | 175     | 175              | 200   | 200              | 200    | 200                | 200    | 200                | 200    |
|                                                                           | peak                     | 225     | 225              | 225   | 225              | 225    | 225                | 225    | 225                | 225    |
| Max. Oil Flow [l/min]                                                     | cont.                    | 40      | 40               | 60    | 60               | 60     | 60                 | 60     | 60                 | 60     |
|                                                                           | int.                     | 50      | 50               | 75    | 75               | 75     | 75                 | 75     | 75                 | 75     |
| Max. Inlet Pressure, [bar]                                                | cont.                    | 175     | 175              | 175   | 175              | 175    | 175                | 175    | 175                | 175    |
|                                                                           | int.                     | 200     | 200              | 200   | 200              | 200    | 200                | 200    | 200                | 200    |
|                                                                           | peak                     | 225     | 225              | 225   | 225              | 225    | 225                | 225    | 225                | 225    |
| Max. Return Pressure w/o Drain Line or Max. Pressure in Drain Line, [bar] | cont.                    | 0-100   | RPM              | 150   | 100              | 150    | 100                | 150    | 100                | 150    |
|                                                                           | cont.                    | 100-300 | RPM              | 75    | 30               | 75     | 30                 | 75     | 30                 | 75     |
|                                                                           | cont.                    | 300-600 | RPM              | 50    | 15               | 50     | 15                 | 50     | 15                 | 50     |
|                                                                           | cont.                    | >600    | RPM              | 20    | -                | 20     | -                  | 20     | -                  | 20     |
|                                                                           | int.                     | 0-max.  | RPM              | 150   | 100              | 150    | 100                | 150    | 100                | 150    |
| Max. Return Pressure with Drain Line [bar]                                | cont.                    |         |                  | 175   | 175              | 175    | 175                | 175    | 175                | 175    |
|                                                                           | int.                     |         |                  | 200   | 200              | 200    | 200                | 200    | 200                | 200    |
|                                                                           | peak                     |         |                  | 225   | 225              | 225    | 225                | 225    | 225                | 225    |
| Max. Starting Pressure with Unloaded Shift, [bar]                         |                          | 10      | 10               | 10    | 10               | 10     | 10                 | 9      | 9                  | 7      |
| Min. Starting Torque [daNm]                                               | at max press. drop cont. | 8       | 8                | 15    | 15               | 20     | 20                 | 25     | 25                 | 32     |
|                                                                           | at max press. drop int.  | 10      | 10               | 17    | 17               | 23     | 23                 | 28     | 28                 | 37     |
| Min. Speed, [RPM]                                                         |                          | 10      | 10               | 10    | 10               | 10     | 10                 | 10     | 10                 | 10     |
| Weight avg, [kg]                                                          | OR(F)                    | 6,8     | 6,9              | 6,9   | 7,0              | 7,2    | 7,3                | 7,3    | 7,4                | 7,5    |
|                                                                           | ORW                      | -       | 10,4             | -     | 10,5             | -      | 10,6               | -      | 10,8               | -      |
|                                                                           | ORQ                      | 6,2     |                  | 6,3   |                  | 6,6    |                    | 6,8    |                    | 7,6    |

Intermittent operation: the permissible values may occur for max. 10% of every minute.  
Peak load: the permissible values may occur for max. 1% of every minute.

## SPECIFICATION DATA

| Type                                                                               |        |         |            | ORW 160<br>OR 160...B | OR<br>200 | ORW 200<br>OR 200...B | OR<br>250 | ORW 250<br>OR 250...B | OR<br>315 | ORW 315<br>OR 315...B | OR<br>400 | ORW 400<br>OR 400...B |
|------------------------------------------------------------------------------------|--------|---------|------------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|
| Displacement [cm³/u]                                                               |        |         |            | 159,6                 | 199,8     | 199,8                 | 250,1     | 250,1                 | 315,7     | 315,7                 | 397       | 397                   |
| Max. Speed,<br>[RPM]                                                               | cont.  |         |            | 375                   | 300       | 300                   | 240       | 240                   | 190       | 190                   | 150       | 150                   |
|                                                                                    | int.   |         |            | 470                   | 375       | 375                   | 300       | 300                   | 240       | 240                   | 190       | 190                   |
| Max. Torque<br>[daNm]                                                              | cont.  |         |            | 39                    | 38,5      | 45                    | 39        | 54                    | 39        | 55                    | 38        | 61                    |
|                                                                                    | int.   |         |            | 43                    | 46        | 50                    | 58        | 61                    | 57        | 63                    | 60        | 69                    |
|                                                                                    | peak   |         |            | 46                    | 56        | 56                    | 71        | 71                    | 83        | 83                    | 87        | 87                    |
| Max. Output<br>[kW]                                                                | cont.  |         |            | 11,5                  | 9         | 11                    | 6,5       | 10                    | 6         | 9                     | 4,8       | 7,8                   |
|                                                                                    | int.   |         |            | 14                    | 11,5      | 13                    | 10,5      | 12                    | 9,6       | 11                    | 8,8       | 10,6                  |
| Max. Pressure Drop<br>[bar]                                                        | cont.  |         |            | 175                   | 140       | 175                   | 110       | 175                   | 90        | 135                   | 70        | 115                   |
|                                                                                    | int.   |         |            | 200                   | 175       | 200                   | 175       | 200                   | 140       | 160                   | 115       | 140                   |
|                                                                                    | peak   |         |            | 225                   | 225       | 225                   | 225       | 225                   | 210       | 210                   | 175       | 175                   |
| Max. Oil Flow<br>[l/min]                                                           | cont.  |         |            | 60                    | 60        | 60                    | 60        | 60                    | 60        | 60                    | 60        | 60                    |
|                                                                                    | int.   |         |            | 75                    | 75        | 75                    | 75        | 75                    | 75        | 75                    | 75        | 75                    |
| Max. Inlet Pressure,<br>[bar]                                                      | cont.  |         |            | 175                   | 175       | 175                   | 175       | 175                   | 175       | 175                   | 175       | 175                   |
|                                                                                    | int.   |         |            | 200                   | 200       | 200                   | 200       | 200                   | 200       | 200                   | 200       | 200                   |
|                                                                                    | peak   |         |            | 225                   | 225       | 225                   | 225       | 225                   | 225       | 225                   | 225       | 225                   |
| Max. Return Pressure<br>w/o Drain Line or<br>Max. Pressure in<br>Drain Line, [bar] | cont.  | 0-100   | RPM        | 100                   | 150       | 100                   | 150       | 100                   | 150       | 100                   | 150       | 100                   |
|                                                                                    | cont.  | 100-300 | RPM        | 30                    | 75        | 30                    | 75        | 30                    | 75        | 30                    | 75        | 30                    |
|                                                                                    | cont.  | 300-600 | RPM        | 15                    | 50        | 15                    | -         | -                     | -         | -                     | -         | -                     |
|                                                                                    | cont.  | >600    | RPM        | -                     | -         | -                     | -         |                       |           |                       |           |                       |
|                                                                                    | int.   | 0-max.  | RPM        | 100                   | 150       | 100                   | 150       | 100                   | 150       | 100                   | 150       | 100                   |
| Max. Return Pressure<br>with Drain Line<br>[bar]                                   | cont.  |         |            | 175                   | 175       | 175                   | 175       | 175                   | 175       | 175                   | 175       | 175                   |
|                                                                                    | int.   |         |            | 200                   | 200       | 200                   | 200       | 200                   | 200       | 200                   | 200       | 200                   |
|                                                                                    | peak   |         |            | 225                   | 225       | 225                   | 225       | 225                   | 225       | 225                   | 225       | 225                   |
| Max. Starting Pressure with Unloaded Shift, [bar]                                  |        |         |            | 7                     | 5         | 5                     | 4         | 4                     | 3         | 3                     | 3         | 3                     |
| Min. Starting Torque<br>[daNm]                                                     | at max | press.  | drop cont. | 32                    | 33        | 41                    | 31        | 50                    | 33        | 50                    | 30        | 49                    |
|                                                                                    | at max | press.  | drop int.  | 37                    | 40        | 46                    | 48        | 55                    | 58        | 66                    | 50        | 61                    |
| Min. Speed, [RPM]                                                                  |        |         |            | 10                    | 10        | 10                    | 10        | 10                    | 10        | 10                    | 10        | 10                    |
| Weight avg, [kg]                                                                   | OR(F)  |         |            | 7,6                   | 8         | 8,1                   | 8,4       | 8,5                   | 9,1       | 9,2                   | 9,8       | 9,9                   |
|                                                                                    | ORW    |         |            | 11,1                  | -         | 11,6                  | -         | 12,1                  | -         | 12,6                  | -         | 13,3                  |
|                                                                                    | ORQ    |         |            |                       | 7,2       |                       | 7,8       |                       | 8,6       |                       | 9,3       |                       |

Intermittent operation: the permissible values may occur for max. 10% of every minute.

Peak load: the permissible values may occur for max. 1% of every minute.

## SPECIFICATION DATA for OR...LSV

**Low Speed Valve (LSV)** "LSV" Series hydraulic motors have been designed to operate with normal pressure drop and to ensure smooth run at low speed (up to 200 RPM), as the best security for operation is guaranteed at frequency of rotation  $20 \pm 50$  RPM. They have an increased starting pressure drop and are not recommended for using at pressure less than 40 bar.

Look at specification data for hydraulic motors standard version. The modification concerns only the following parameters: maximum speed, maximum output, maximum Oil flow and maximum starting pressure.

| Type                                                     |       | OR 50 | OR 80 | OR 100 | OR 125 | OR 160 | OR 200 | OR 250 | OR 315 | OR 400 |
|----------------------------------------------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| <b>Max. Speed, [RPM]</b>                                 | cont. | 200   | 200   | 200    | 200    | 200    | 200    | 160    | 126    | 100    |
|                                                          | int.  | 250   | 250   | 250    | 250    | 250    | 250    | 200    | 158    | 126    |
| <b>Max. Output [kW]</b>                                  | cont. | 2     | 4,0   | 5,0    | 6,2    | 7,0    | 6,8    | 6,2    | 5,8    | 5,2    |
|                                                          | int.  | 3     | 5,7   | 7,3    | 8,5    | 8,8    | 8,3    | 7,8    | 7,6    | 6,8    |
| <b>Max. Oil Flow [l/min]</b>                             | cont. | 13    | 23    | 26     | 33     | 40     | 40     | 40     | 40     | 40     |
|                                                          | int.  | 16    | 31    | 34     | 45     | 50     | 50     | 50     | 50     | 50     |
| <b>Max. Starting Pressure with Unloaded Shift, [bar]</b> |       | 20    | 20    | 20     | 20     | 15     | 15     | 15     | 12     | 12     |

## SPECIFICATION DATA for OR...LL

**Low Leakage (LL)** "LL" Series hydraulic motors have been designed to operate at the whole standard range of working conditions (pressure drop and frequency of rotation), but with considerable decreased volumetric losses in the drainage ports. Their main purpose is to operate as series-connected motors in hydraulic systems. For this version is permissible decreasing of the maximal torque with up to 5% (at middle speed) and up to 10% (at high speed) in comparison to the standard versions of motors.

Look at specification data for hydraulic motors series OR standard version. The modification concerns only the parameters: maximum torque, maximum output, minimum starting torque.

| Type                               |       | OR 50 | OR 80 | OR 100 | OR 125 | OR 160 | OR 200 | OR 250 | OR 315 | OR 400 |
|------------------------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| <b>Max. Torque [daNm]</b>          | cont. | 9,6   | 18,5  | 22,8   | 28,5   | 37,1   | 42,8   | 51,3   | 52,2   | 58,0   |
|                                    | int.  | 12,4  | 20,9  | 26,6   | 32,3   | 40,9   | 47,5   | 58,0   | 60,0   | 65,6   |
| <b>Max. Output [kW]</b>            | cont. | 9,0   | 12,3  | 12,8   | 12,4   | 11,4   | 10,9   | 9,9    | 8,9    | 7,7    |
|                                    | int.  | 11,9  | 14,8  | 14,8   | 14,3   | 13,8   | 12,8   | 11,8   | 10,9   | 10,5   |
| <b>Max. Pressure Drop [bar]</b>    | cont. | 140   | 175   | 175    | 175    | 175    | 175    | 175    | 135    | 115    |
|                                    | int.  | 175   | 200   | 200    | 200    | 200    | 200    | 200    | 160    | 140    |
| <b>Min. Starting Torque [daNm]</b> | cont. | 7,6   | 14,2  | 19,0   | 23,8   | 30,4   | 39,0   | 47,5   | 47,5   | 46,5   |
|                                    | int.  | 9,5   | 16,2  | 21,8   | 26,6   | 35,2   | 43,7   | 52,2   | 62,7   | 58,0   |

## SPECIFICATION DATA for OR...FR

**Free Running** version "FR": These are the hydraulic motors with reduced mechanical losses, for which at disengaged condition / unconnected with driving mechanism / the rotation of the shaft could be realized by means of small torque. This advantage is especially useful at operating with high frequencies of rotation / over 300min / and low pressure drop, which is inbred for types with displacements of up to 200 cm<sup>3</sup>. It is normal for these for the different condition of operation to have high torque, as well as high volume losses: the values of the volumetric efficiency are lower (up to 5 % for middle and up to 10% for high values of the pressure drop), than those of the normal versions. That's why the recommended operating for "FR" version is for applications with pressure drop up to 100 bar.

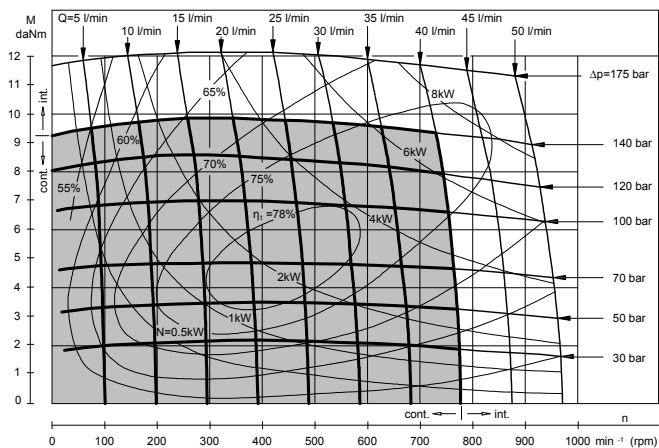
Additional advantages of "FR" version are prolonging of the life of the hydraulic motors at high frequencies of rotation, as well as the possibility to use them in systems with big variation of the loading.

Look at specification data for hydraulic motors series OR standard version. Only the parameter Starting Pressure is modified.

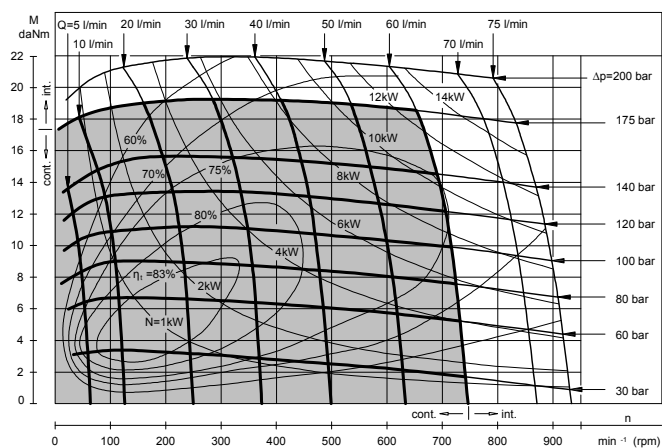
| Type                                                     | OR 50 | OR 80 | OR 100 | OR 125 | OR 160 | OR 200 |
|----------------------------------------------------------|-------|-------|--------|--------|--------|--------|
| <b>Max. Starting Pressure with Unloaded Shaft, [bar]</b> | 8     | 8     | 8      | 7,5    | 5,5    | 4      |

## FUNCTION DIAGRAMS

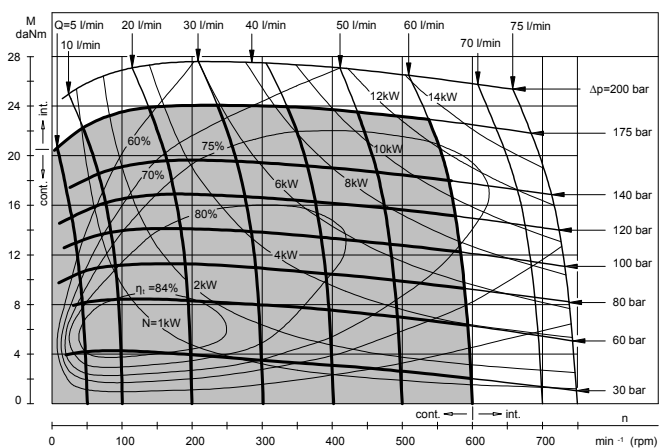
**OR 50**



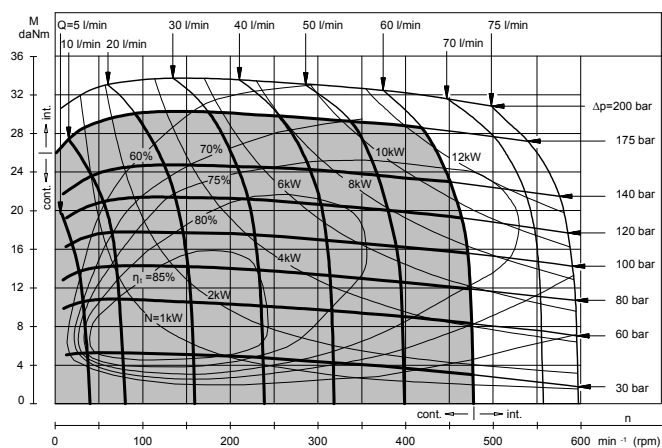
**OR 80**



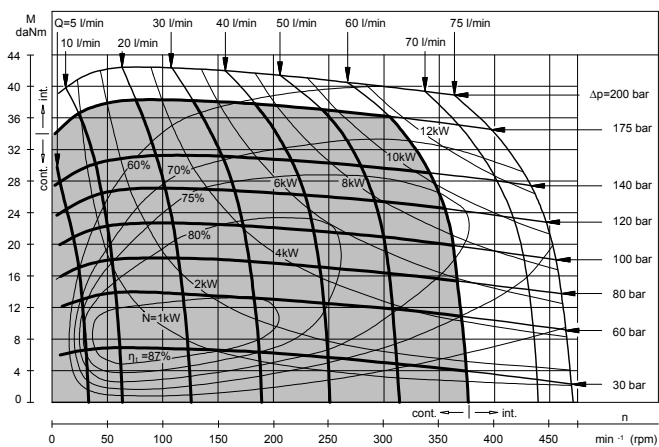
**OR 100**



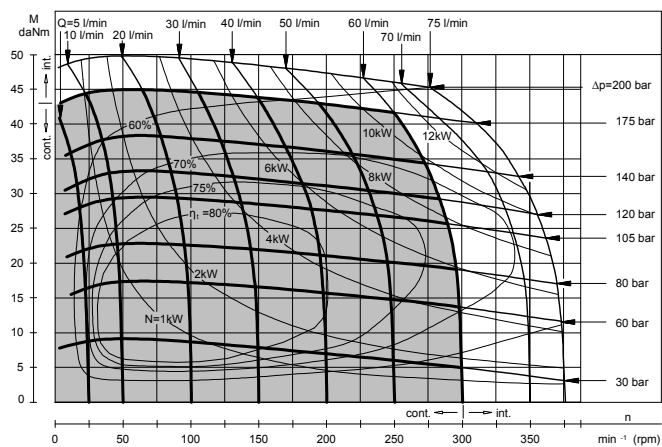
**OR 125**



**OR 160**



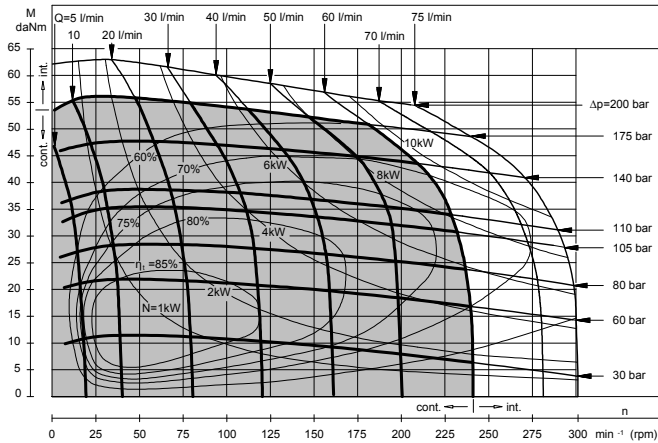
**OR 200**



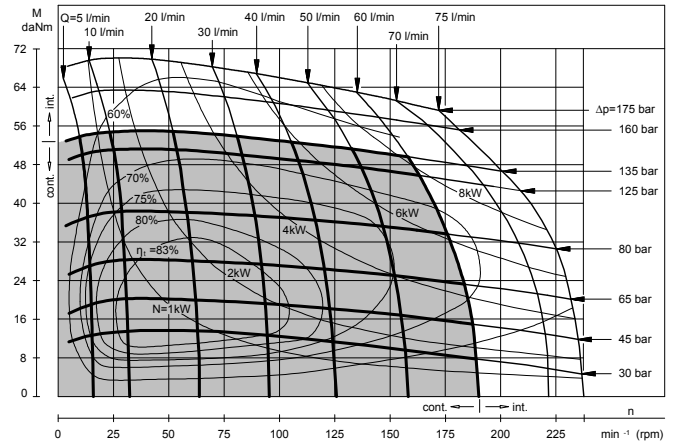
The function diagrams data was collected at back pressure 5+10 bar and oil with viscosity of 32 mm<sup>2</sup>/s at 50° C.

## FUNCTION DIAGRAMS

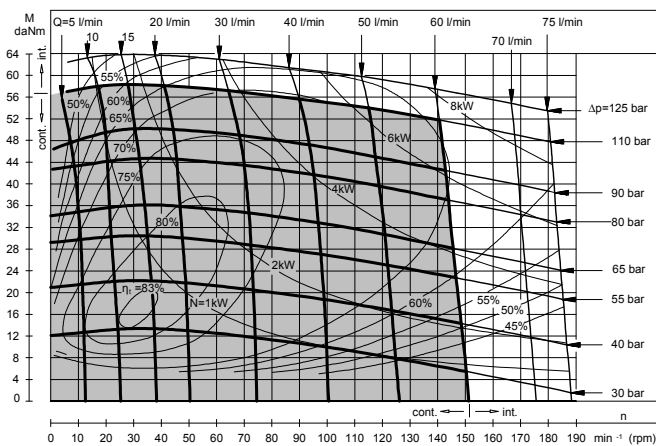
OR 250



OR 315

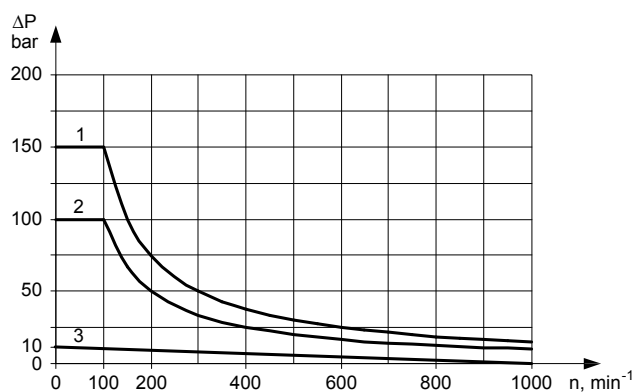


OR 400



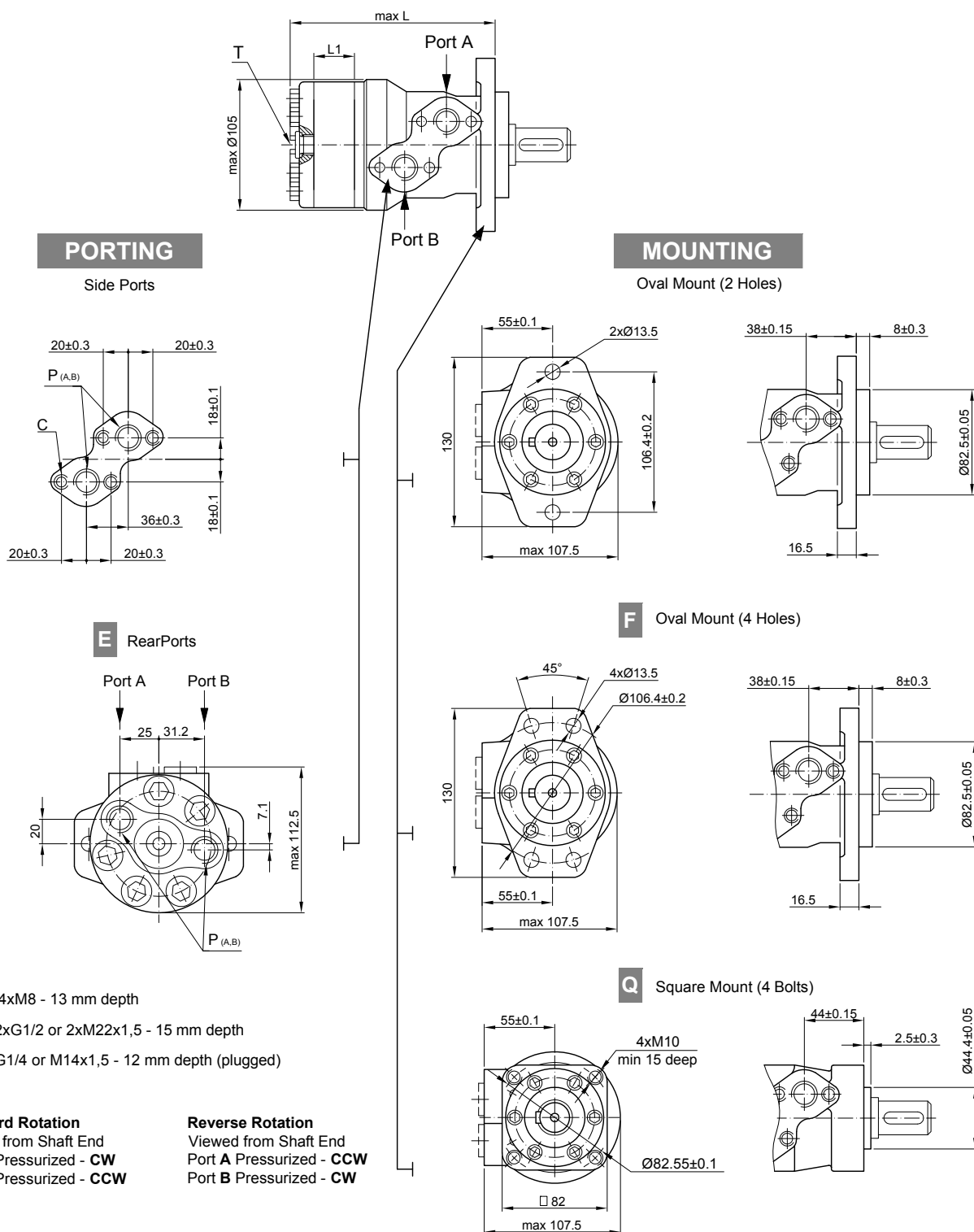
The function diagrams data was collected at back pressure 5÷10 bar and oil with viscosity of 32 mm²/s at 50° C.

## Max. Permissible Shaft Seal Pressure for OP and OR Motors



- 1: Drawing for "D" Seal
- 2: Drawing for "...B" Shaft Seal
- 3: Drawing for Quadring

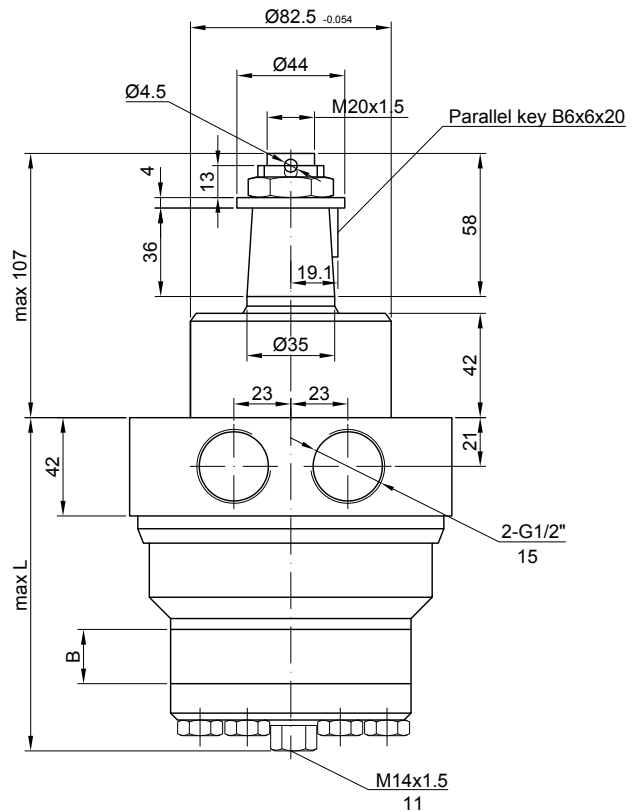
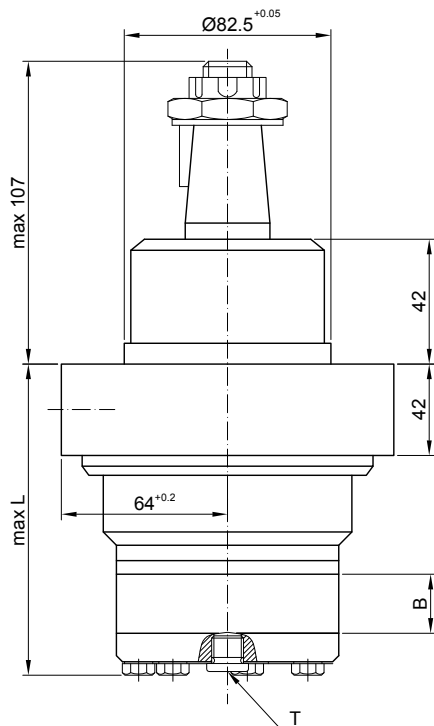
## DIMENSIONS AND MOUNTING DATA



| Type      | L , mm | Type    | L , mm | Type     | L , mm | Type     | L , mm | L1 , mm |
|-----------|--------|---------|--------|----------|--------|----------|--------|---------|
| OR(F) 50  | 140    | ORQ 50  | 145,5  | ORFE 50  | 159,5  | ORQE 50  | 165,5  | 10      |
| OR(F) 80  | 146    | ORQ 80  | 151,5  | ORFE 80  | 165,5  | ORQE 80  | 171,5  | 16      |
| OR(F) 100 | 150    | ORQ 100 | 156    | ORFE 100 | 169,5  | ORQE 100 | 175,5  | 20      |
| OR(F) 125 | 155    | ORQ 125 | 161    | ORFE 125 | 174,5  | ORQE 125 | 180,5  | 25      |
| OR(F) 160 | 161,5  | ORQ 160 | 167,5  | ORFE 160 | 181    | ORQE 160 | 187    | 30,5    |
| OR(F) 200 | 170    | ORQ 200 | 176    | ORFE 200 | 190    | ORQE 200 | 195,5  | 38,1    |
| OR(F) 250 | 180    | ORQ 250 | 186    | ORFE 250 | 200    | ORQE 250 | 206    | 50      |
| OR(F) 315 | 192    | ORQ 315 | 198    | ORFE 315 | 212    | ORQE 315 | 218    | 62      |
| OR(F) 400 | 204    | ORQ 400 | 210    | ORFE 400 | 224    | ORQE 400 | 230    | 74      |

## DIMENSIONS AND MOUNTING DATA - ORW

### W Wheel Mount

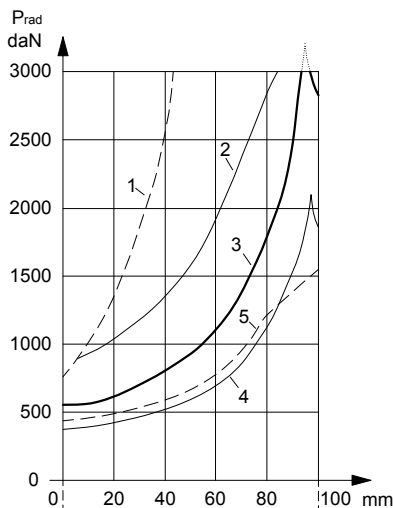


$P_{(A,B)}$  : 2xG1/2 or 2xM22x1,5 - 15 mm depth  
 T : G1/4 or M14x1,5 - 12 mm depth (plugged)

**Standard Rotation**  
 Viewed from Shaft End  
 Port **A** Pressurized - **CW**  
 Port **B** Pressurized - **CCW**

**Reverse Rotation**  
 Viewed from Shaft End  
 Port **A** Pressurized - **CCW**  
 Port **B** Pressurized - **CW**

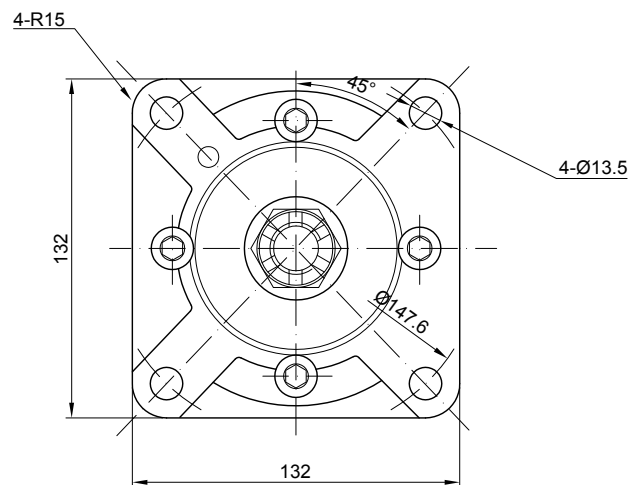
### Permissible Shaft Loads ORW



$L_h = 2500h$

1. Permissible radial shaft load
2. Drawing by  $n = 50 \text{ min}^{-1}$
3. Drawing by  $n = 200 \text{ min}^{-1}$
4. Drawing by  $n = 800 \text{ min}^{-1}$
5. Drawing by  $n = 200 \text{ min}^{-1}$  and  $P_a \text{ max} = 500 \text{ daN}$

$P_{a \text{ max}} = 500 \text{ daN}$

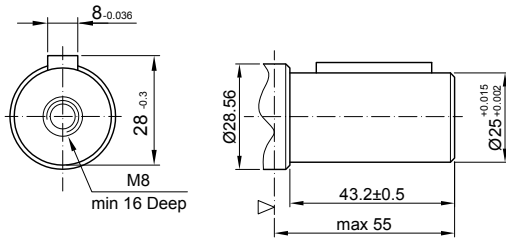


| Type    | B , mm | L , mm |
|---------|--------|--------|
| ORW 050 | 9      | 125    |
| ORW 080 | 14     | 130    |
| ORW 100 | 17,5   | 134    |
| ORW 125 | 22     | 138    |
| ORW 160 | 28     | 144    |
| ORW 200 | 35     | 151    |
| ORW 250 | 44     | 160    |
| ORW 315 | 56     | 172    |
| ORW 400 | 70     | 186    |

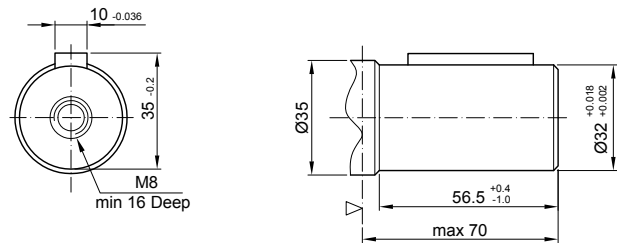


## SHAFT EXTENSIONS FOR OP AND OR MOTORS

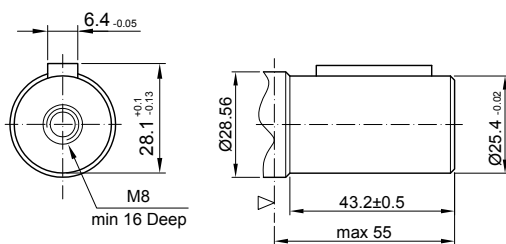
**C** Ø25 straight, Parallel key A8x7x32 DIN 6885  
Max. Torque 44 daNm



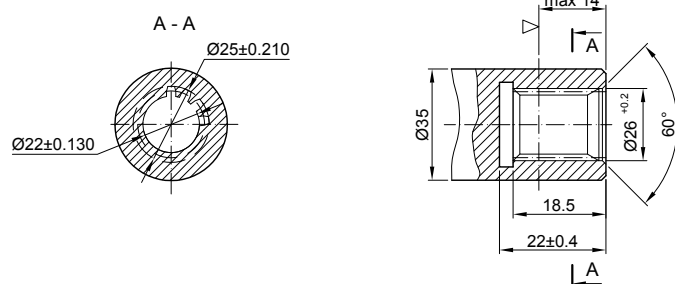
**CB** Ø32 Straight, Parallel key A10x8x45 DIN 6885  
Max. Torque 77 daNm



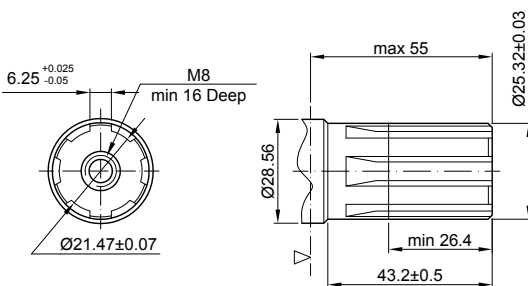
**CO** Ø1" straight, Parallel key 1/4"x1/4"x1 1/4" BS46  
Max. Torque 44 daNm



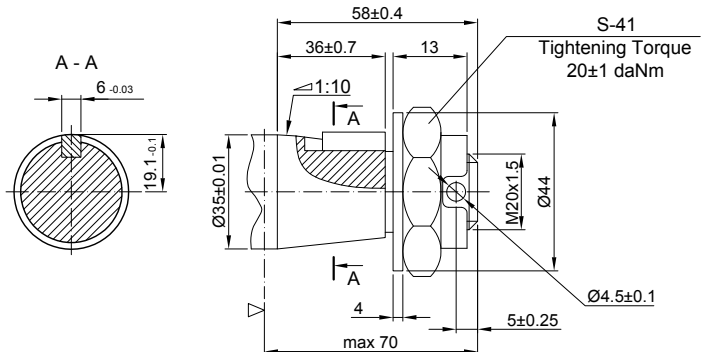
**SB** splined A25x22xH10 DIN 5482  
Max. Torque 44 daNm



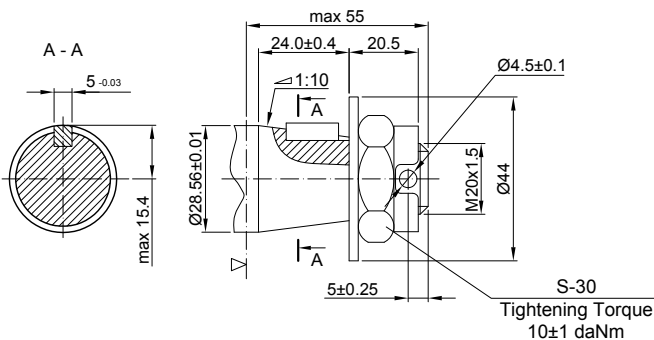
**SH** splined, BS 2059 (SAE 6B)  
Max. Torque 44 daNm



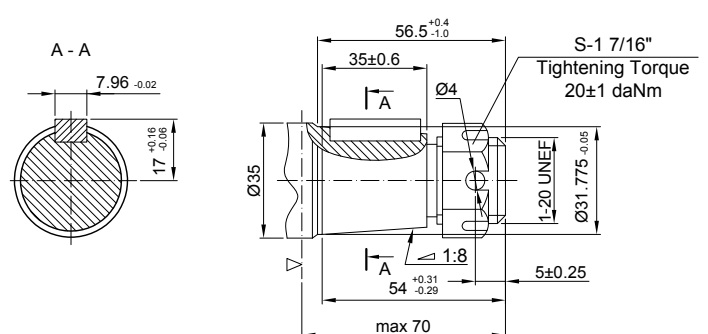
**KB** tapered 1:10, Parallel key B6x6x20 DIN 6885  
Max. Torque 77 daNm



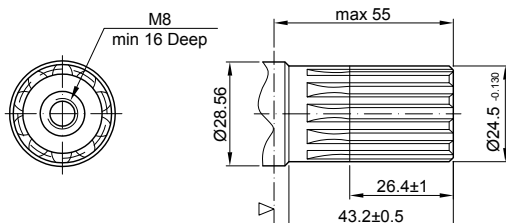
**K** tapered 1:10, Parallel key B5x5x14 DIN 6885  
Max. Torque 40 daNm



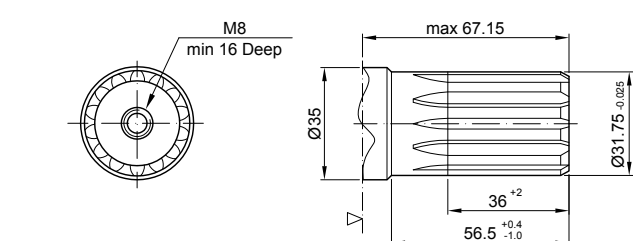
**OB** tapered 1:8 SAEJ 501, Parallel key 5/16"x5/16"x1 1/4" BS46  
Max. Torque 77 daNm



**SA** splined, B25x22h9 DIN 5482  
Max. Torque 40 daNm



**HB** Ø1 1/4" splined 14T, ANSI B92.1-1976 Norm  
Max. Torque 77 daNm

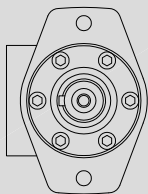
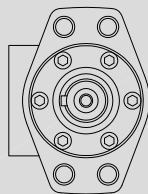
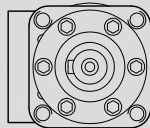


▽ Motor Mounting Surface



## PERMISSIBLE SHAFT LOADS FOR OR MOTORS

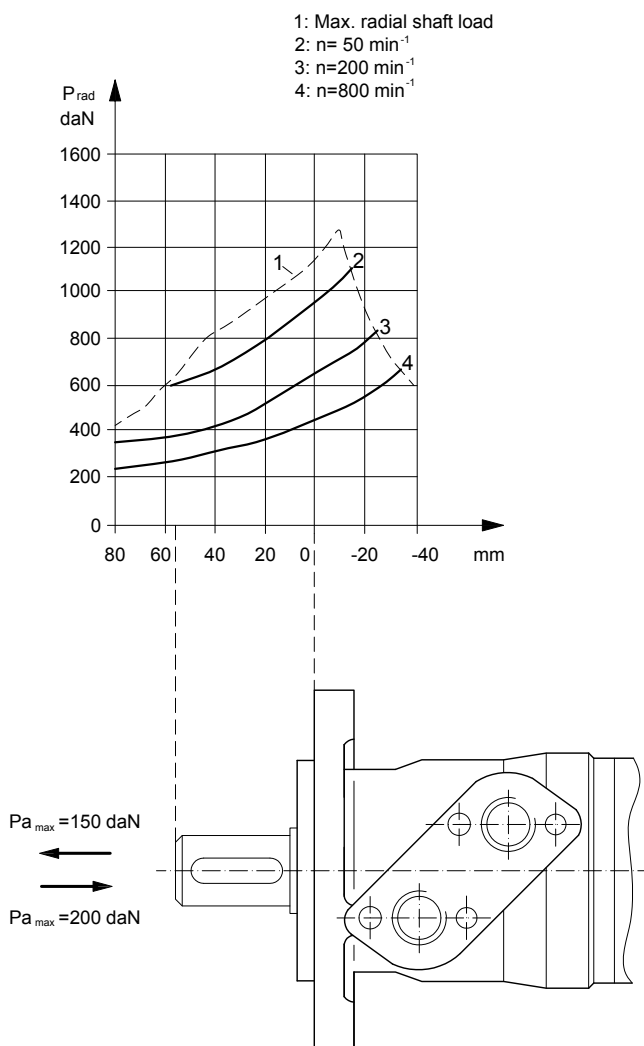
The permissible radial shaft load  $P_{rad}$  depends on the speed (RPM) and distance (L) from the point of load to the mounting flange.

| Mounting Flange             |  |  |  |
|-----------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Shaft Version               | cylindrical - C, CO<br>tapered - K, splined - SH                                  | splined - HB<br>cylindrical - CB                                                   | cylindrical - C, CO                                                                 |
| Radial Shaft Load $P_{rad}$ | $\frac{800}{n} \times \frac{25000}{95+L}$ , daN                                   | $\frac{800}{n} \times \frac{18750}{95+L}$ , daN                                    | $\frac{800}{n} \times \frac{25000}{101+L}$ , daN                                    |

$n < 200 \text{ min}^{-1}$ ; max  $P_{rad} = 800 \text{ daN}$   
 $n > 200 \text{ min}^{-1}$ ;  $L < 55 \text{ mm}$

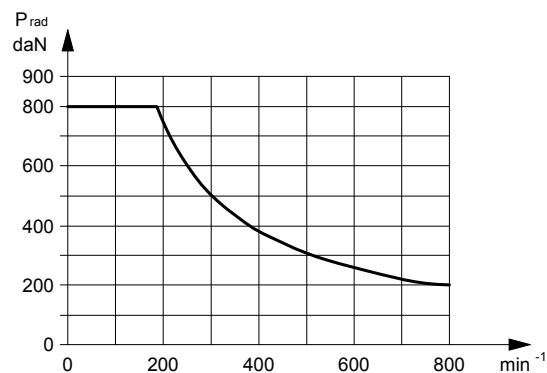
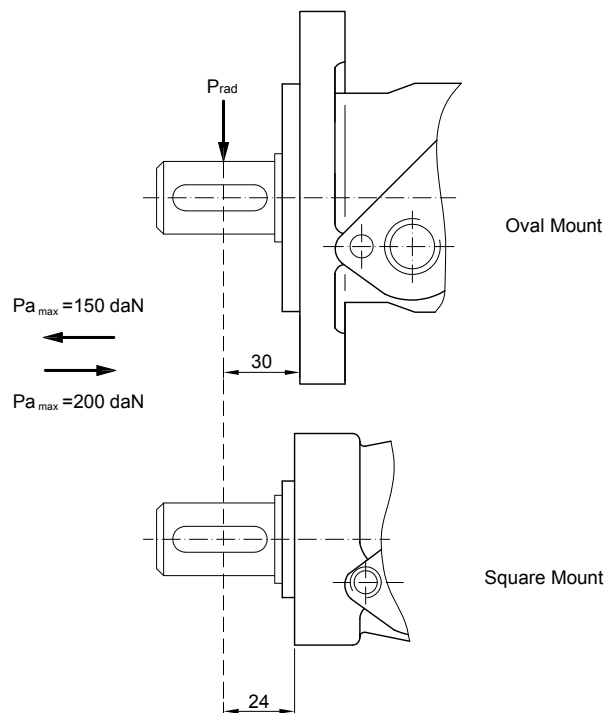
### ORN

The curves apply to a  $B_{10}$  bearing life of 2000 hours.



### OR

Radial Shaft Load  $P_{rad}$  for C, CO Shaft Extensions by  $L=30$  (24) mm

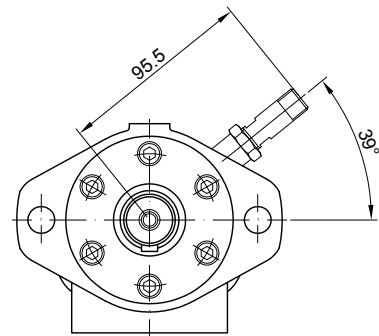
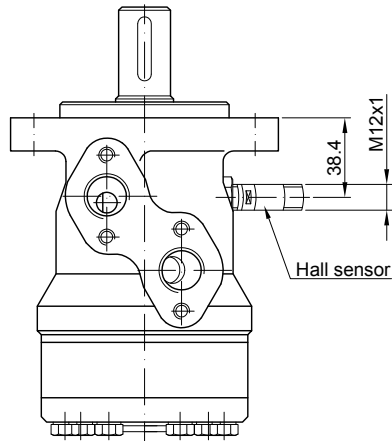


## HYDRAULIC MOTORS WITH SPEED SENSOR TYPE

Meta Hydraulic is introducing hydraulic motor with a new generation of speed sensor. The electric output signal is a standard voltage signal that can be used for regulating the speed of a motor.

The speed is measured by a sensor in accordance with the Hall principle. Signal processing and amplification are performed in the sensor housing. Connection is provided in the housing by a Plug connector M12 Series.

### OR...RS



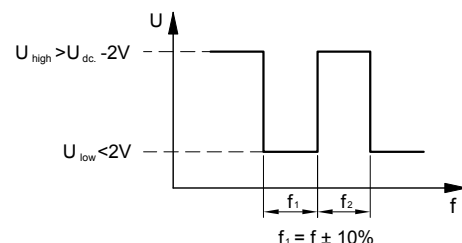
This performance is applicable for all motors of OR series. The main technical features correspond to the standard motors series OR.

## DIFFERENTIAL HALL SENSOR

### TECHNICAL DATA

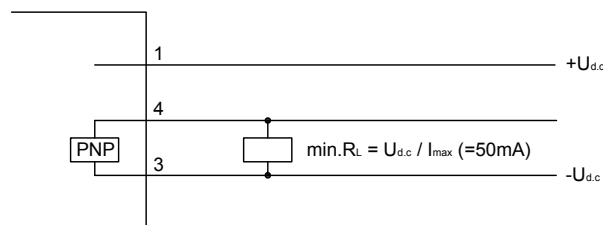
|                       |                        |
|-----------------------|------------------------|
| Frequency range       | 3...20 000 Hz          |
| Output                | PNP                    |
| Power supply          | 10...36 VDC            |
| Current input         | 20 mA (@24 VDC)        |
| Current load          | 500 mA (@24 VDC; 24°C) |
| Ambient Temperature   | minus 40... plus 125°C |
| Protection            | IP 67                  |
| Plug connector        | M12-Series             |
| Mounting principle    | ISO 6149               |
| Pulses per revolution | 36                     |

### OUTPUT SIGNAL

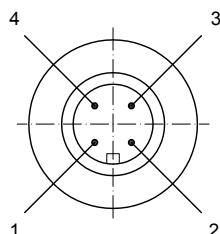


Load max.:  $I_{high} = I_{low} < 50 \text{ mA}$   
No load current, max: 20 mA

### WIRING DIAGRAM



### STICK TYPE



| Terminal No. | Connection      |
|--------------|-----------------|
| 1            | Ud.c. (+supply) |
| 2            | No connection   |
| 3            | Ud.c. (-supply) |
| 4            | Output signal   |

## ORDER CODE

|    |   |   |   |   |   |   |   |   |   |    |    |    |
|----|---|---|---|---|---|---|---|---|---|----|----|----|
|    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| OR |   |   |   |   |   |   |   |   |   |    |    |    |

| 1    | Shaft Seal Version (see page OR-04)        |
|------|--------------------------------------------|
| omit | Low pressure seal or Seal for "...B" shaft |
| D    | High pressure seal not for "...B" shaft    |
| 2    | Case Drain                                 |
| omit | with drain port                            |
| U    | without drain port                         |
| 3    | Mounting Flange                            |
| omit | Oval mount, two holes                      |
| F    | Oval mount, four holes                     |
| Q    | Square mount, four bolts                   |
| W*   | Wheel mount                                |
| 4    | Option (needle bearings)                   |
| omit | none                                       |
| N    | with needle bearings (not valid for ORW)   |
| 5    | Port type                                  |
| omit | Side ports                                 |
| E    | Rear ports                                 |
| 6    | Displacement code                          |
| 50   | 51,5 [cm³/rev]                             |
| 80   | 80,3 [cm³/rev]                             |
| 100  | 99,8 [cm³/rev]                             |
| 125  | 125,7 [cm³/rev]                            |
| 160  | 159,6 [cm³/rev]                            |
| 200  | 199,8 [cm³/rev]                            |
| 250  | 250,1 [cm³/rev]                            |
| 315  | 315,7 [cm³/rev]                            |
| 400  | 397,0 [cm³/rev]                            |

| 7    | Shaft Extensions (see page OR - 08)                                               |
|------|-----------------------------------------------------------------------------------|
| C    | ø25 straight, Parallel key A8x7x32 DIN6885                                        |
| VC   | ø25 straight, Parallel key A8x7x32 DIN6885 with corrosion resistant bushing       |
| CO   | ø1" straight, Parallel key 1/4"x1/4"x1 1/4" BS46                                  |
| VCO  | ø1" straight, Parallel key 1/4"x1/4"x1 1/4" BS46 with corrosion resistant bushing |
| SH   | ø25,32 splined BS 2059 (SAE 6B)                                                   |
| VSH  | ø25,32 splined BS 2059 (SAE 6B) with corrosion resistant bushing                  |
| K    | ø28,56 tapered 1:10, Parallel key B5x5x14 DIN6885                                 |
| SA   | ø24,5 splined B 25x22 DIN 5482                                                    |
| VSA  | ø24,5 splined B 25x22 DIN 5482 with corrosion resistant bushing                   |
| CB   | ø32 straight, Parallel key A10x8x45 DIN6885                                       |
| KB   | ø35 tapered 1:10, Parallel key B6x6x20 DIN6885                                    |
| SB   | splined A 25x22 DIN 5482                                                          |
| OB   | ø1 1/4" tapered 1:8, Parallel key 5/16"x5/16"x1 1/4" BS46                         |
| HB   | ø1 1/4" splined 14T ANSI B92.1 - 1976                                             |
| 8    | Ports                                                                             |
| omit | BSPP (ISO 228)                                                                    |
| M    | Metric (ISO 262)                                                                  |
| 9    | Special Features (see Specification data on page OR - 03)                         |
| omit | none                                                                              |
| LL   | Low Leakage                                                                       |
| LSV  | Low Speed Valve                                                                   |
| FR   | Free Running                                                                      |
| 10   | Rotation                                                                          |
| omit | Standard Rotation                                                                 |
| R    | Reverse Rotation                                                                  |
| 11   | Option (Paint)                                                                    |
| omit | no paint                                                                          |
| P    | Painted                                                                           |
| PC   | Corrosion Protected Paint                                                         |
| 12   | Speed Monitoring                                                                  |
| omit | none                                                                              |
| RS-P | with speed sensor (PNP pull-down resistor)                                        |
| RS-N | with speed sensor (NPN pull-up resistor)                                          |

The permissible output torque for shafts must be not exceeded!  
The following combinations are not allowed - **Q, W, N** options with "...B" shafts.  
\*ORW is available only with CB, KB and OB shafts