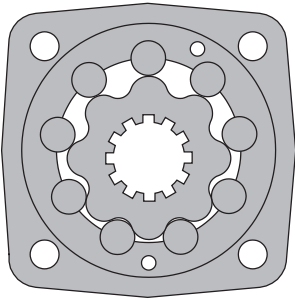


# HYDRAULIC MOTORS EPMT



## APPLICATION

- » Conveyors;
- » Metal working machines;
- » Machines for agriculture;
- » Road building machines;
- » Mining machinery;
- » Food industries;
- » Special vehicles;
- » Plastic and rubber machinery etc.



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## OPTIONS

- » Model- Disc valve, geroler;
- » Flange with wheel mount;
- » Short motor;
- » Tacho connection;
- » Side and rear ports
- » Shafts- straight, splined and tapered;
- » Metric and BSPP ports;
- » Other special features.

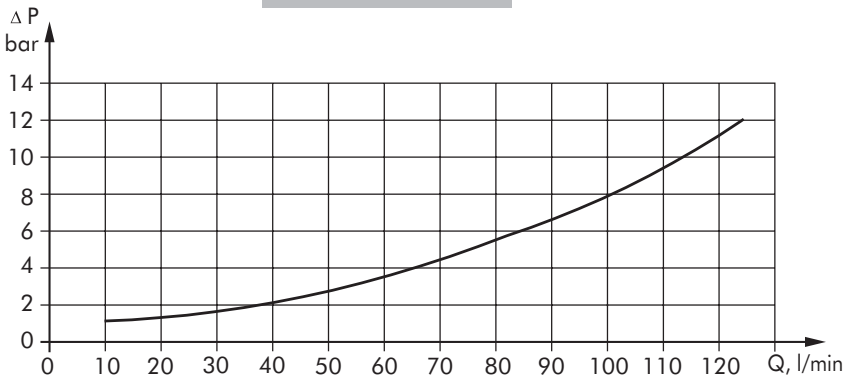
## GENERAL

|                                               |                         |                                                                 |
|-----------------------------------------------|-------------------------|-----------------------------------------------------------------|
| Displacement,                                 | [cm <sup>3</sup> /rev.] | 161,1 ÷ 725                                                     |
| Max. Speed,                                   | [RPM]                   | 625 ÷ 175                                                       |
| Max. Torque,                                  | [daNm]                  | 47 ÷ 125                                                        |
| Max. Output,                                  | [kW]                    | 20,2 ÷ 33,5                                                     |
| Max. Pressure Drop,                           | [bar]                   | 200 ÷ 115                                                       |
| Max. Oil Flow,                                | [l/min]                 | 100 ÷ 125                                                       |
| Min. Speed,                                   | [RPM]                   | 10 ÷ 5                                                          |
| Permissible Shaft Loads,                      | [daN]                   | P <sub>rad</sub> = 1700; P <sub>a</sub> = 1000                  |
| 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) |

### Oil flow in drain line

| Pressure drop (bar) | Viscosity (mm <sup>2</sup> /s) | Oil flow in drain line (l/min) |
|---------------------|--------------------------------|--------------------------------|
| 140                 | 20                             | 1,5                            |
|                     | 35                             | 1                              |
| 210                 | 20                             | 3                              |
|                     | 35                             | 2                              |

### Pressure Losses



## SPECIFICATION DATA

| Type                                                                                    |                           | EPMT<br>160 | EPMT<br>200 | EPMT<br>250 | EPMT<br>315 | EPMT<br>400 | EPMT<br>500 | EPMT<br>630 | EPMT<br>725 |
|-----------------------------------------------------------------------------------------|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Displacement [cm <sup>3</sup> /rev.]                                                    |                           | 161,1       | 201,4       | 251,8       | 326,3       | 410,9       | 523,6       | 612,3       | 725         |
| Max. Speed,<br>[RPM]                                                                    | cont.                     | 625         | 625         | 500         | 380         | 305         | 240         | 206         | 172         |
|                                                                                         | Int.*                     | 780         | 750         | 600         | 460         | 365         | 285         | 247         | 205         |
| Max. Torque<br>[daNm]                                                                   | cont.                     | 47          | 59          | 73          | 95          | 108         | 122         | 123         | 125         |
|                                                                                         | Int.*                     | 56          | 71          | 88          | 114         | 126         | 137         | 138         | 140         |
|                                                                                         | peak**                    | 66          | 82          | 102         | 133         | 144         | 160         | 161         | 165         |
| Max. Output<br>[kW]                                                                     | cont.                     | 26,5        | 33,5        | 33,5        | 33,5        | 30          | 26,5        | 24,3        | 20,2        |
|                                                                                         | int.*                     | 32          | 40          | 40          | 40          | 35          | 30          | 27,5        | 26,8        |
| Max. Pressure Drop<br>[bar]                                                             | cont.                     | 200         | 200         | 200         | 200         | 180         | 160         | 140         | 115         |
|                                                                                         | Int.*                     | 240         | 240         | 240         | 240         | 210         | 180         | 160         | 130         |
|                                                                                         | peak**                    | 280         | 280         | 280         | 280         | 240         | 210         | 190         | 160         |
| Max. Oil Flow<br>[l/min]                                                                | cont.                     | 100         | 125         | 125         | 125         | 125         | 125         | 125         | 125         |
|                                                                                         | Int.*                     | 125         | 150         | 150         | 150         | 150         | 150         | 151,4       | 151,4       |
| Max. Inlet Pressure<br>[bar]                                                            | cont.                     | 210         | 210         | 210         | 210         | 210         | 210         | 210         | 210         |
|                                                                                         | Int.*                     | 250         | 250         | 250         | 250         | 250         | 250         | 250         | 250         |
|                                                                                         | peak**                    | 300         | 300         | 300         | 300         | 300         | 300         | 300         | 300         |
| Max. Return Pressure<br>without Drain Line or<br>Max. Pressure<br>in Drain Line , [bar] | cont. 0-100 RPM           | 75          | 75          | 75          | 75          | 75          | 75          | 75          | 75          |
|                                                                                         | cont. 100-300 RPM         | 40          | 40          | 40          | 40          | 40          | 40          | 40          | 40          |
|                                                                                         | cont. >300 RPM            | 20          | 20          | 20          | 20          | 20          | -           | -           | -           |
|                                                                                         | Int.* 0-max. RPM          | 75          | 75          | 75          | 75          | 75          | 75          | 75          | 75          |
| Max. Return Pressure<br>with Drain Line<br>[bar]                                        | cont.                     | 140         | 140         | 140         | 140         | 140         | 140         | 140         | 140         |
|                                                                                         | Int.*                     | 175         | 175         | 175         | 175         | 175         | 175         | 175         | 175         |
|                                                                                         | peak**                    | 210         | 210         | 210         | 210         | 210         | 210         | 210         | 210         |
| Max. Starting Pressure with Unloaded Shaft, [bar]                                       |                           | 10          | 10          | 10          | 10          | 10          | 10          | 10          | 10          |
| Min. Starting Torque<br>[daNm]                                                          | at max. press. drop cont. | 34          | 43          | 53          | 74          | 84          | 95          | 95          | 95          |
|                                                                                         | at max. press. drop Int.* | 41          | 52          | 63          | 89          | 97          | 106         | 108         | 110         |
| Min. Speed***, [RPM]                                                                    |                           | 10          | 9           | 8           | 7           | 6           | 5           | 5           | 5           |
| Weight, [kg]                                                                            | EPMT                      | 20          | 20,5        | 21          | 22          | 23          | 24          | 25          | 26          |
|                                                                                         | EPMTW                     | 22          | 22,5        | 23          | 24          | 25          | 26          | 27          | 28          |
|                                                                                         | EPMTS                     | 15          | 15,5        | 16          | 17          | 18          | 19          | 20          | 21          |
|                                                                                         | EPMTV                     | 11          | 11,5        | 12          | 13          | 14          | 15          | 16          | 17          |

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

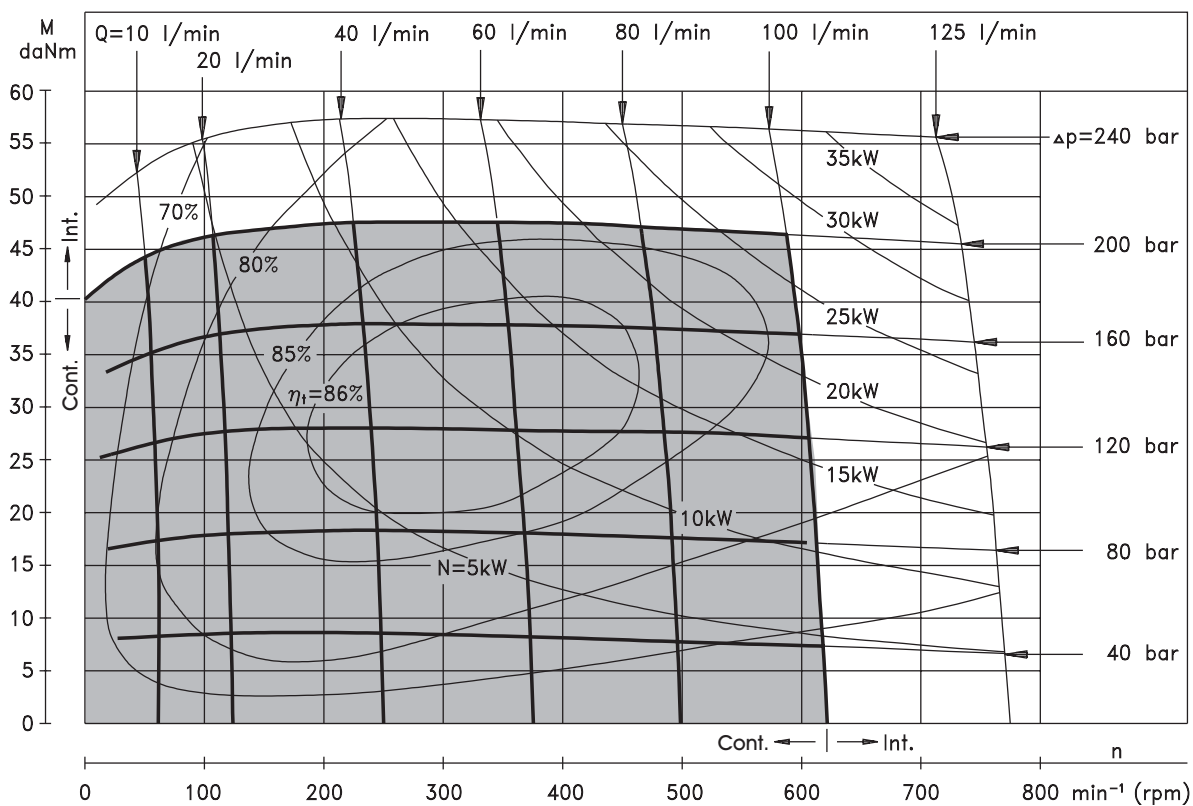
\*\* Peak load: the permissible values may occur for max. 1% of every minute.

\*\*\* For speeds of 5 RPM lower than given, consult factory or your regional manager.

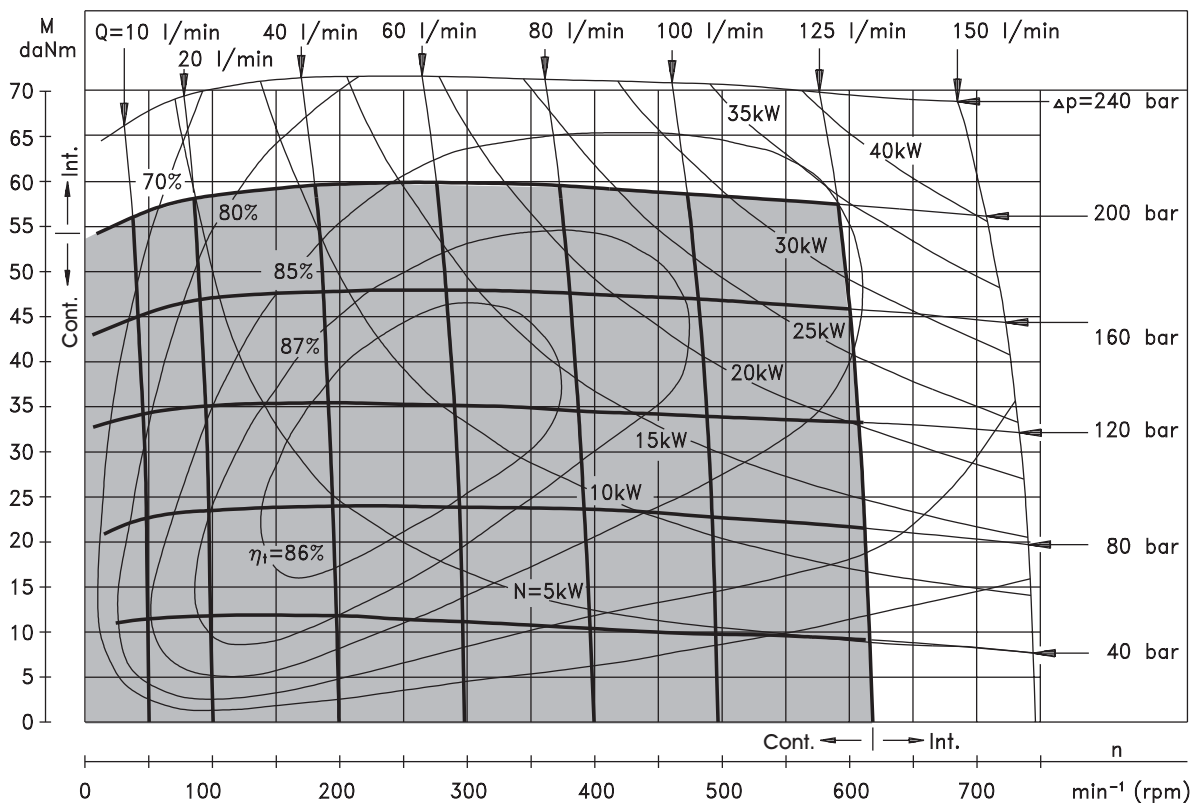
- 1) Intermittent speed and intermittent pressure must not occur simultaneously.
- 2) Recommended filtration is per ISO cleanliness code 20/16. A nominal filtration of 25 micron or better.
- 3) Recommend using a premium quality, anti-wear type mineral based hydraulic oil, HLP(DIN51524) or HM(ISO6743/4).  
If using synthetic fluids consult the factory for alternative seal materials.
- 4) Recommended minimum oil viscosity 13 mm<sup>2</sup>/s at 50°C.
- 5) Recommended maximum system operating temperature is 82°C.
- 6) To assure optimum motor life fill with fluid prior to loading and run at moderate load and speed for 10-15 minutes.

## FUNCTION DIAGRAMS

### EPMT 160



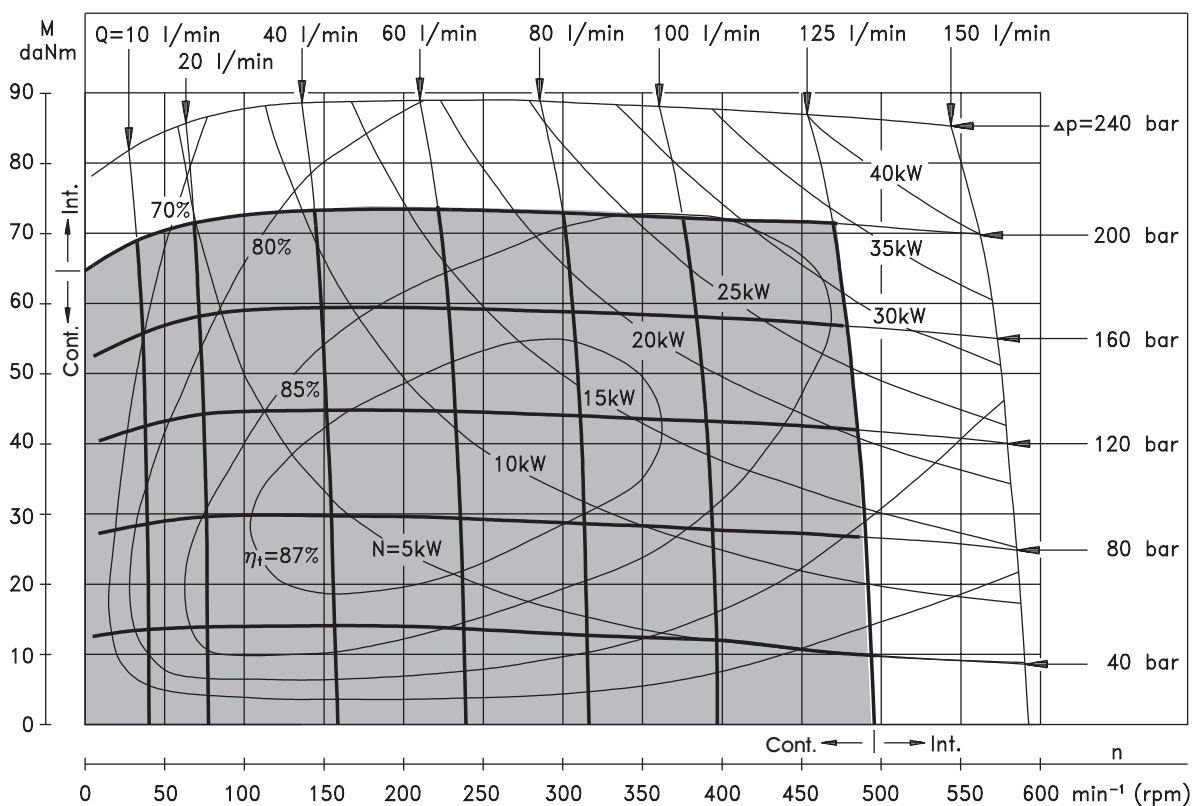
### EPMT 200



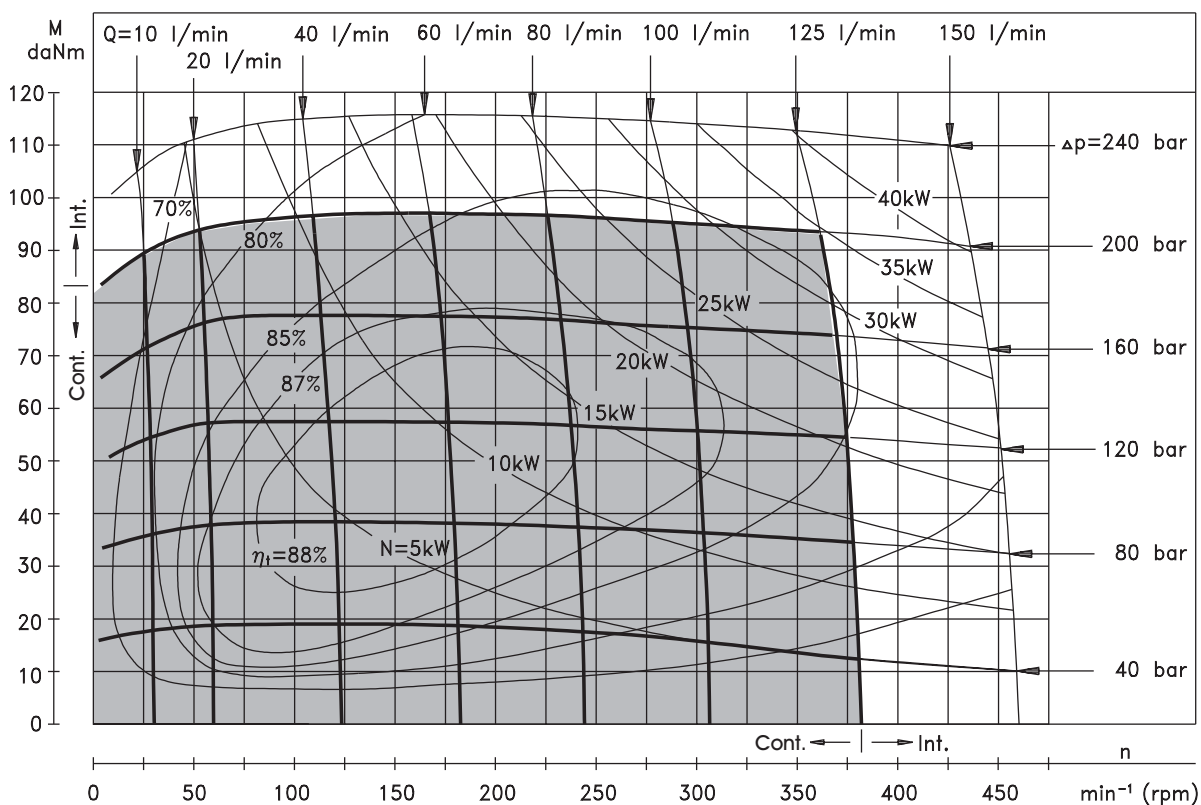
The function diagrams data was collected at back pressure  $5 \div 10$  bar and oil with viscosity of  $32 \text{ mm}^2/\text{s}$  at  $50^\circ \text{C}$ .

## FUNCTION DIAGRAMS

### EPMT 250

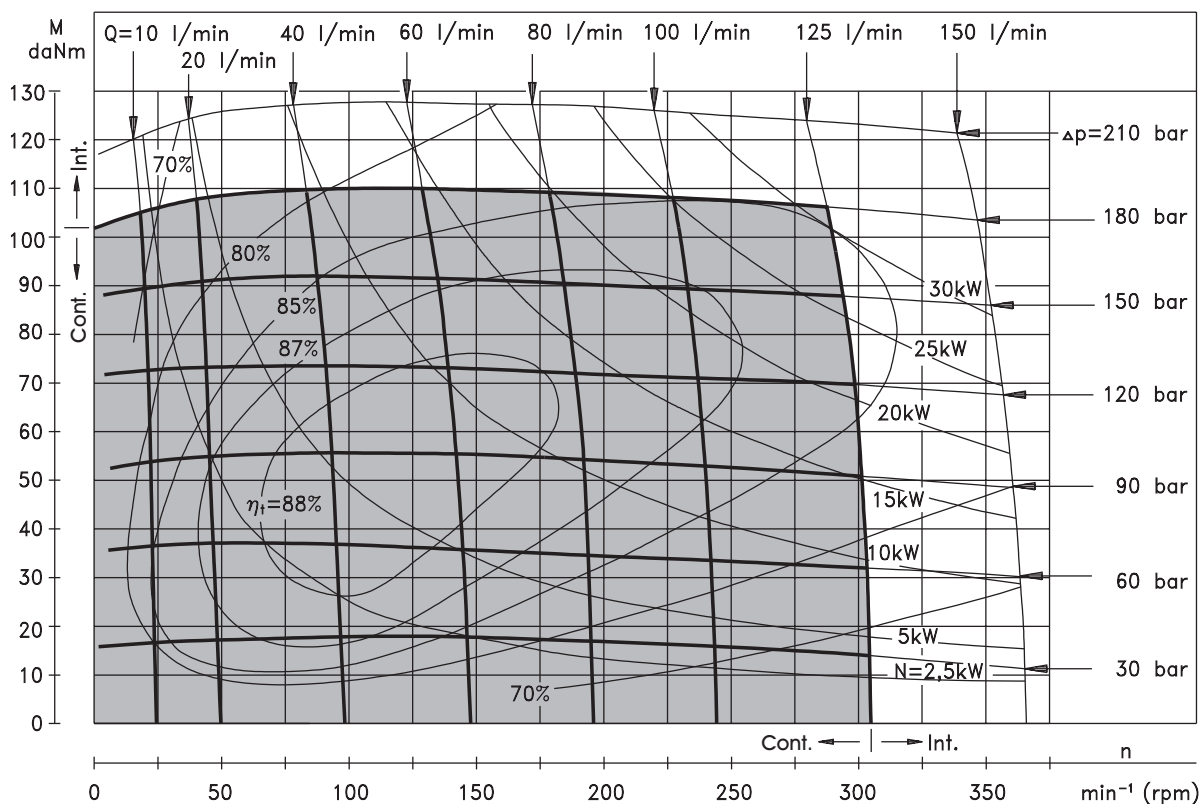


### EPMT 315

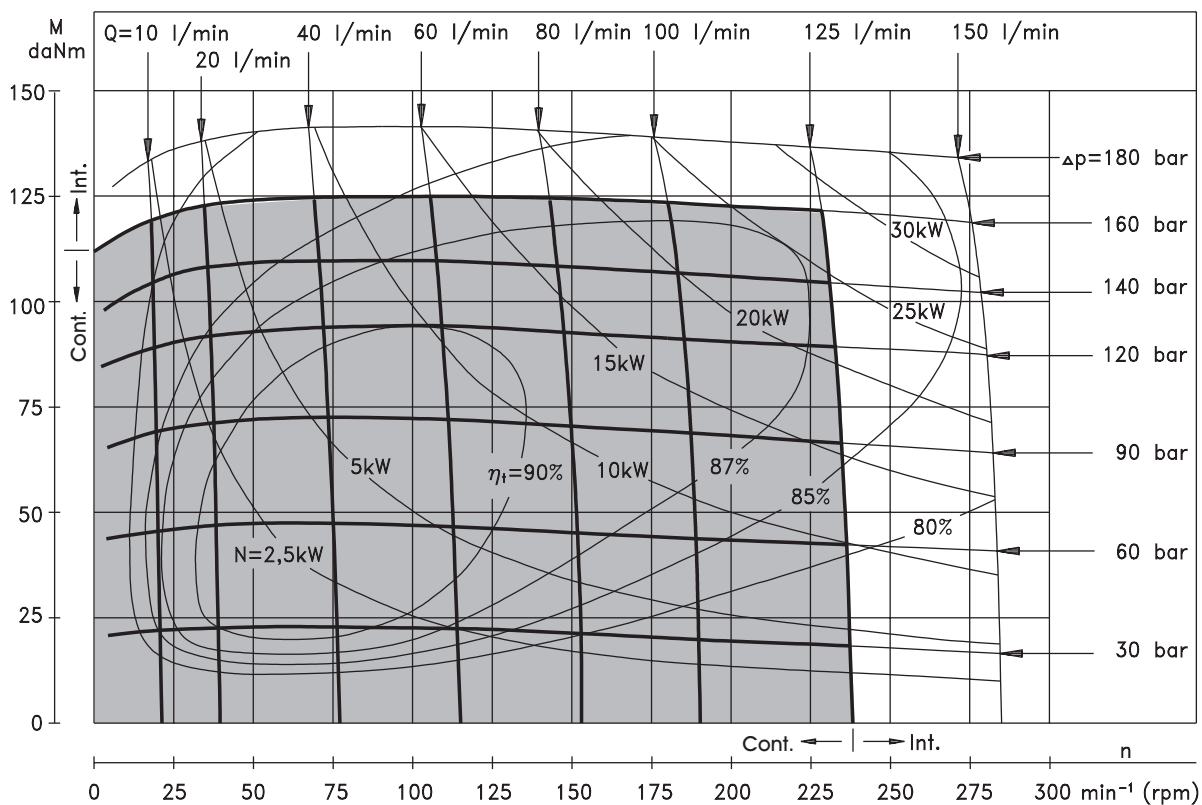


## FUNCTION DIAGRAMS

### EPMT 400

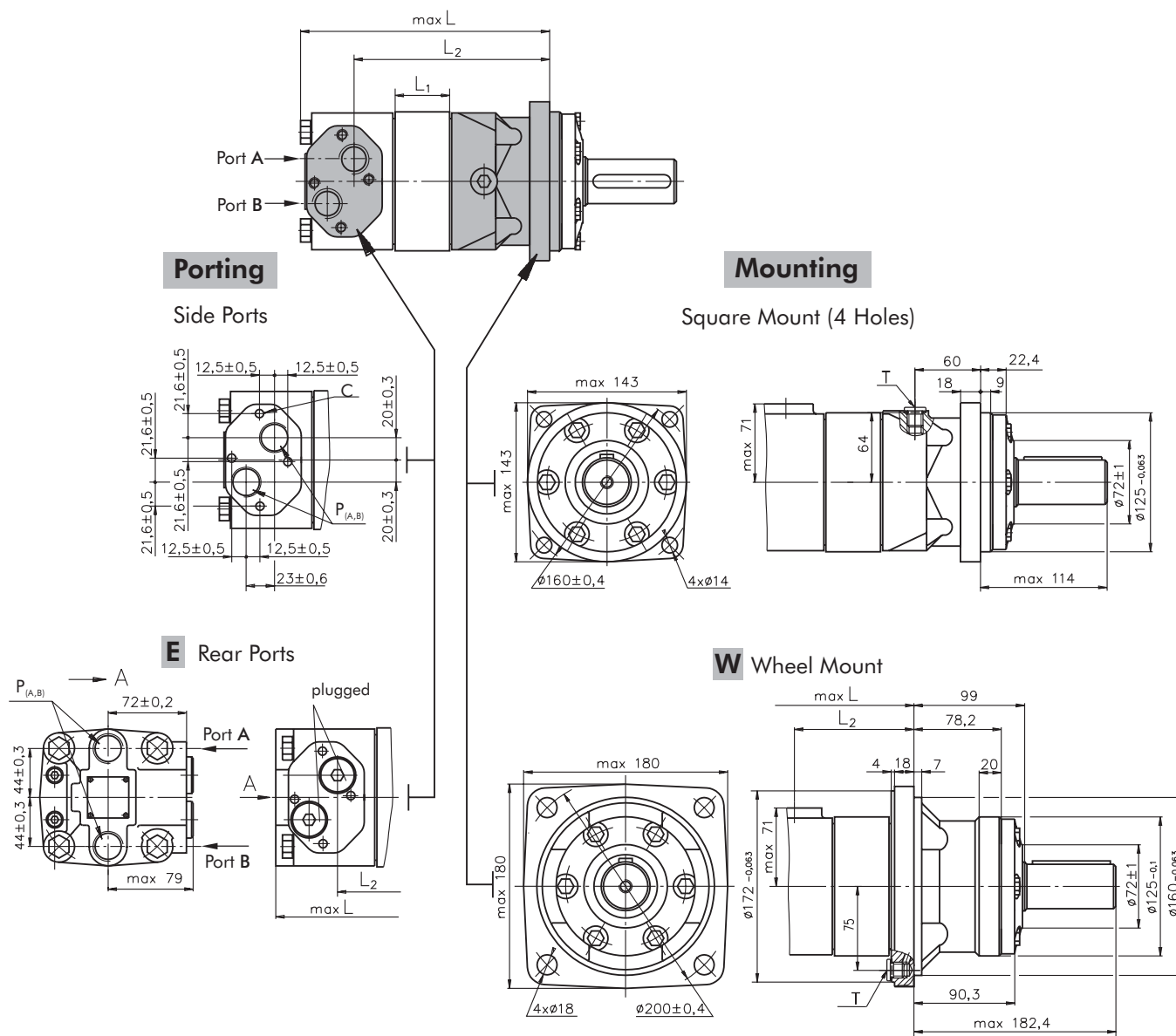


### EPMT 500



The function diagrams data was collected at back pressure  $5 \div 10$  bar and oil with viscosity of  $32 \text{ mm}^2/\text{s}$  at  $50^\circ \text{C}$ .

## DIMENSIONS AND MOUNTING DATA



**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

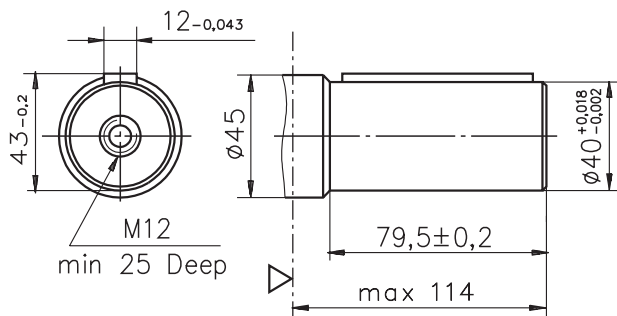
**C:** 4xM10-10 mm depth  
**P<sub>(A,B)</sub>:** 2xG3/4 or 2xM27x2-17 mm depth  
**T:** G 1/4 or M14x1,5 - 12 mm depth (plugged)

| Type     | L, mm | Type       | L, mm | L <sub>2</sub> , mm | Type      | L, mm | Type       | L, mm | L <sub>2</sub> , mm | *L <sub>1</sub> , mm |
|----------|-------|------------|-------|---------------------|-----------|-------|------------|-------|---------------------|----------------------|
| EPMT 160 | 190   | EPMT E 160 | 200   | 140                 | EPMTW 160 | 123   | EPMTWE 160 | 133   | 73                  | 16,5                 |
| EPMT 200 | 195   | EPMT E 200 | 205   | 145                 | EPMTW 200 | 128   | EPMTWE 200 | 138   | 78                  | 21,5                 |
| EPMT 250 | 201   | EPMT E 250 | 211   | 151                 | EPMTW 250 | 134   | EPMTWE 250 | 144   | 84                  | 27,8                 |
| EPMT 315 | 211   | EPMT E 315 | 221   | 161                 | EPMTW 315 | 144   | EPMTWE 315 | 154   | 94                  | 37,0                 |
| EPMT 400 | 221   | EPMT E 400 | 231   | 171                 | EPMTW 400 | 154   | EPMTWE 400 | 164   | 104                 | 47,5                 |
| EPMT 500 | 235   | EPMT E 500 | 245   | 185                 | EPMTW 500 | 168   | EPMTWE 500 | 178   | 118                 | 61,5                 |
| EPMT 630 | 242,5 | EPMT E 630 | 252,5 | 192,5               | EPMTW 630 | 175,5 | EPMTWE 630 | 185,5 | 125,5               | 72,5                 |
| EPMT 725 | 260   | EPMT E 725 | 270   | 210                 | EPMTW 725 | 193   | EPMTWE 725 | 193   | 143                 | 86,5                 |

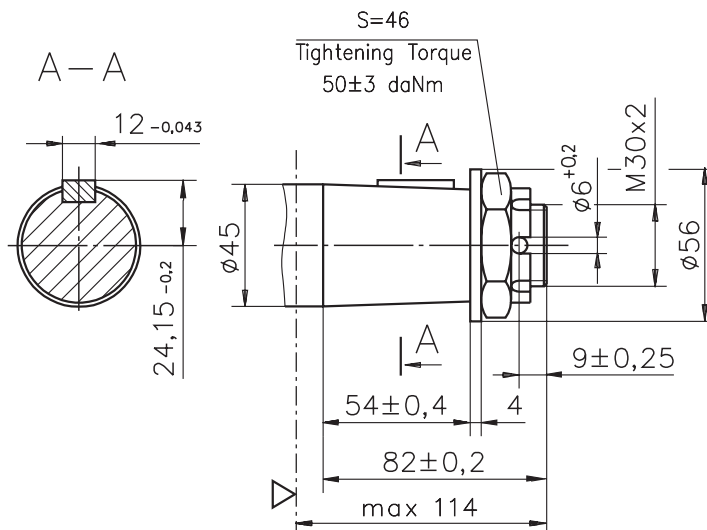
\* The width of the gerolor is 3,5 mm greater than  $L_1$ .

## SHAFT EXTENSIONS

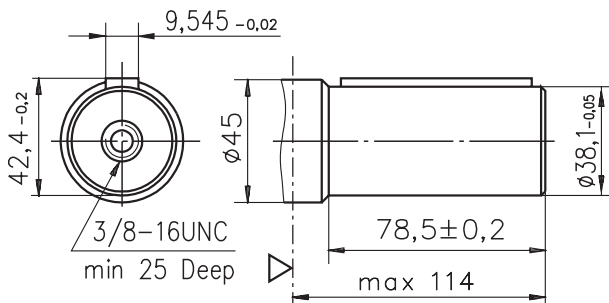
**C** - $\phi 40$  straight, Parallel key A12x8x70 DIN 6885  
Max. Torque 132,8 daNm



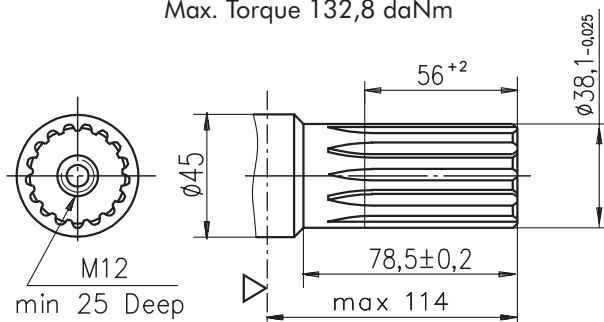
**K** -tapered 1:10, Parallel key B12x8x28 DIN 6885  
Max. Torque 210,7 daNm



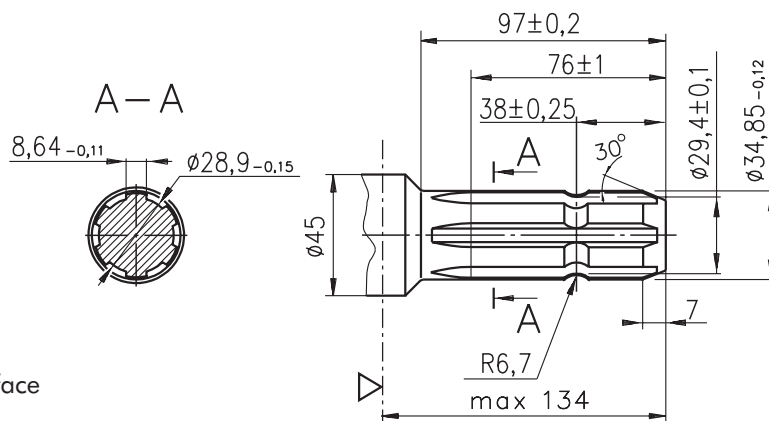
**CO** - $\phi 1\frac{1}{2}$ " straight, Parallel key  $\frac{3}{8}$ "x  $\frac{3}{8}$ "x  $2\frac{1}{4}$ " BS46  
Max. Torque 132,8 daNm



**SH** - $\phi 1\frac{1}{2}$ " splined 17T, DP 12/24 ANSI B92.1-1976  
Max. Torque 132,8 daNm

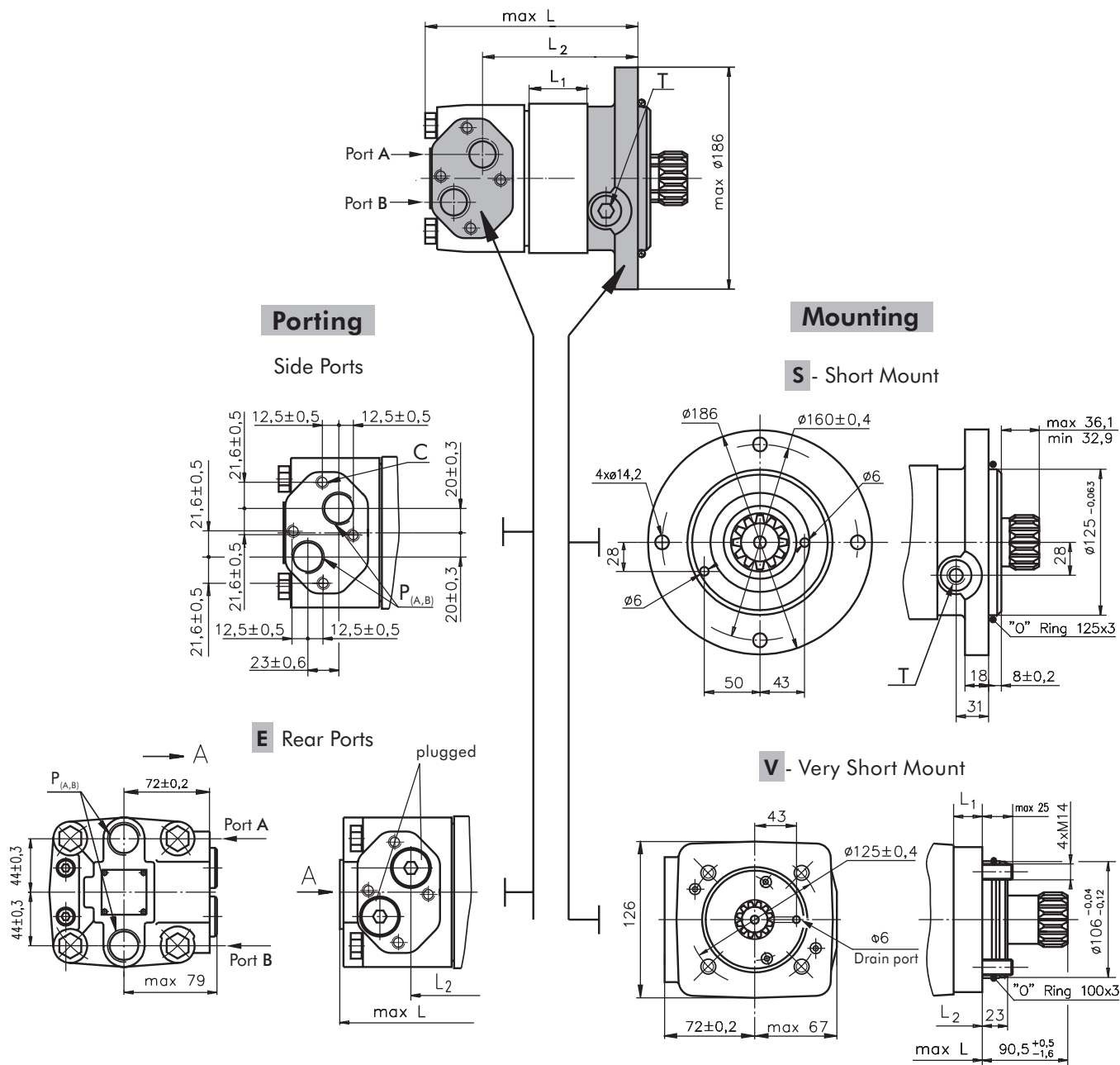


**SL** - $\phi 34,85$  p.t.o. DIN 9611 Form 1  
Max. Torque 77 daNm



▽ - Motor Mounting Surface

**DIMENSIONS AND MOUNTING DATA - EPMTs and EPMTV**



**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

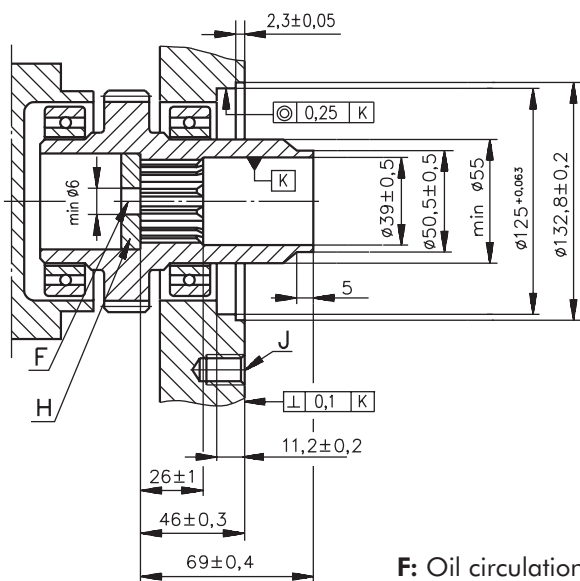
**C:** 4xM10-10 mm depth  
**P<sub>(A,B)</sub>:** 2xG3/4 or 2xM27x2-17 mm depth  
**T:** G 1/4 or M14x1,5 - 12 mm depth (plugged)

| Type      | L, mm | Type       | L, mm | L <sub>2</sub> , mm | Type      | L, mm | Type       | L, mm | L <sub>2</sub> , mm | *L <sub>1</sub> , mm |
|-----------|-------|------------|-------|---------------------|-----------|-------|------------|-------|---------------------|----------------------|
| EPMTS 160 | 146   | EPMTSE 160 | 156   | 96                  | EPMTV 160 | 101   | EPMTVE 160 | 111   | 51,5                | 16,5                 |
| EPMTS 200 | 151   | EPMTSE 200 | 161   | 101                 | EPMTV 200 | 106   | EPMTVE 200 | 116   | 56,5                | 21,5                 |
| EPMTS 250 | 157   | EPMTSE 250 | 167   | 107                 | EPMTV 250 | 112   | EPMTVE 250 | 122   | 62,8                | 27,8                 |
| EPMTS 315 | 166   | EPMTSE 315 | 176   | 116                 | EPMTV 315 | 121   | EPMTVE 315 | 131   | 72                  | 37,0                 |
| EPMTS 400 | 177   | EPMTSE 400 | 187   | 127                 | EPMTV 400 | 132   | EPMTVE 400 | 142   | 82,5                | 47,5                 |
| EPMTS 500 | 191   | EPMTSE 500 | 201   | 142                 | EPMTV 500 | 146   | EPMTVE 500 | 156   | 96,5                | 61,5                 |
| EPMTS 630 | 198,5 | EPMTSE 630 | 208,5 | 146,5               | EPMTV 630 | 153,5 | EPMTVE 630 | 163,5 | 104                 | 72,5                 |
| EPMTS 725 | 216   | EPMTSE 725 | 226   | 167                 | EPMTV 725 | 171   | EPMTVE 725 | 181   | 121,5               | 86,5                 |

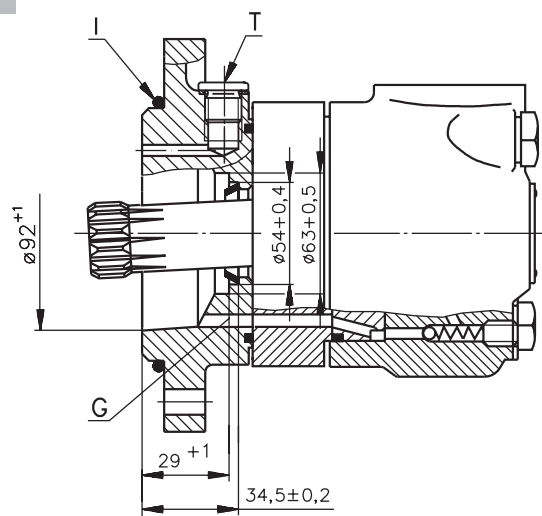
\* The width of the gerolator is 3,5 mm greater than L<sub>1</sub>.

## DIMENSIONS OF THE ATTACHED COMPONENT

### EPMTS

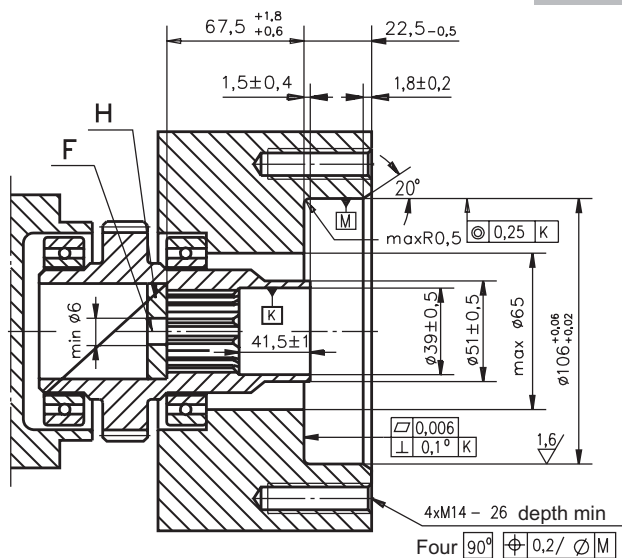


**F:** Oil circulation hole  
**G:** Internal drain channel  
**H:** Hardened stop plate

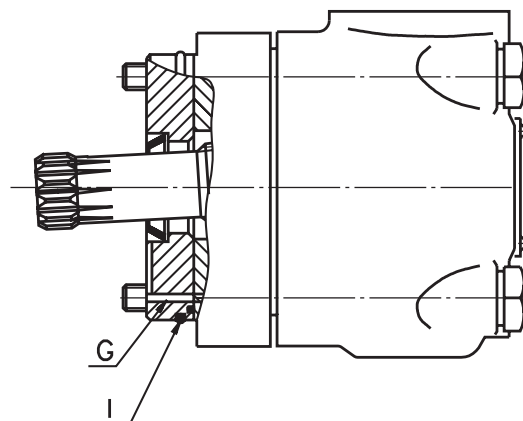


**I:** O- Ring 125x3mm  
**J:** 4xM12-18 mm depth, 90°  
**T:** Drain connection G1/4 or M14x1,5

### EPMTV



**F:** Oil circulation hole  
**G:** Internal drain channel



**H:** Hardened stop plate  
**I:** O- Ring 100x3mm

## DRAIN CONNECTION

A drain line ought to be used when pressure in the return line can exceed the permissible pressure. It can be connected:

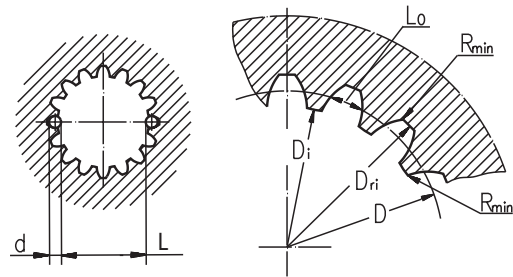
- For EPMTS at the drain port of the motor;
- For EPMTV at the drain connection of the attached component. The maximum pressure in the drain line is limited by the attached component and its shaft seal.

The drain line must be possible for oil to flow freely between motor and attached component and must be led to the tank. The maximum pressure in the drain line is limited by the attached component and its seal.

## INTERNAL SPLINE DATA FOR THE ATTACHED COMPONENT

Standard ANSI B92.1-1976, class 5  
[ $m=2.1166$ ; corrected  $x.m=+1,0$ ]

| Fillet Root Side Fit         |                  | mm                     |
|------------------------------|------------------|------------------------|
| Number of Teeth              | z                | 16                     |
| Diametral Pitch              | DP               | 12/24                  |
| Pressure Angle               |                  | 30°                    |
| Pitch Dia.                   | D                | 33,8656                |
| Major Dia.                   | D <sub>ri</sub>  | 38,4 <sup>+0,4</sup>   |
| Minor Dia.                   | D <sub>i</sub>   | 32,15 <sup>+0,04</sup> |
| Space Width [Circular]       | L <sub>o</sub>   | 4,516±0,037            |
| Fillet Radius                | R <sub>min</sub> | 0,5                    |
| Max. Measurement between Pin | L                | 26,9 <sup>+0,10</sup>  |
| Pin Dia.                     | d                | 4,835±0,001            |



**Hardening Specification:**

HRC 60±2

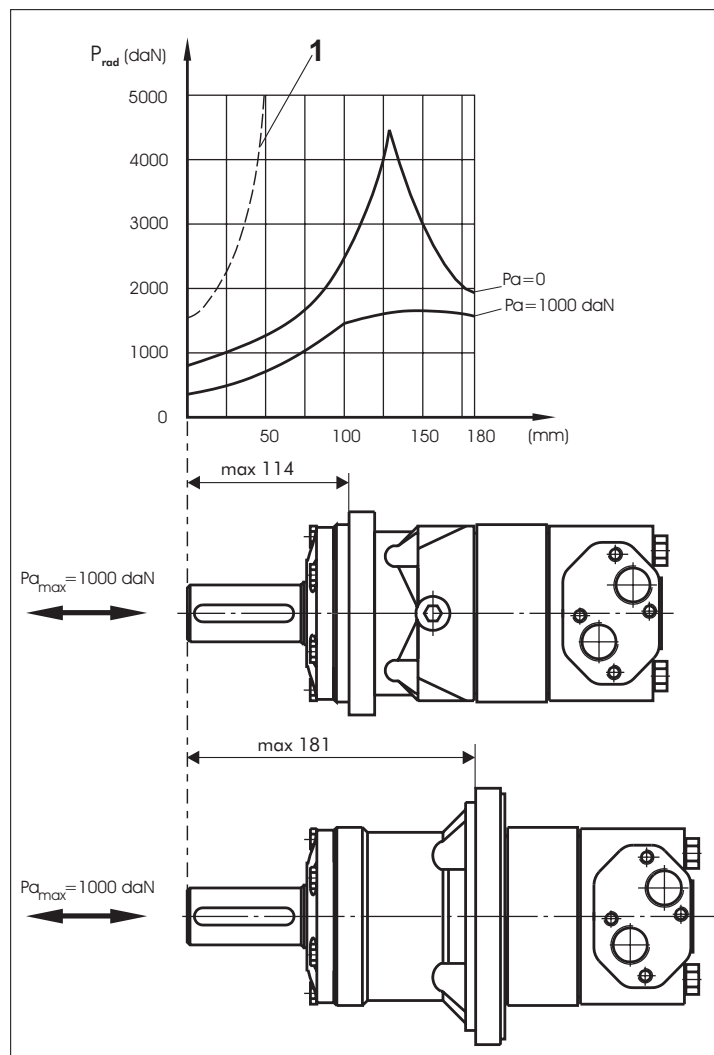
HRC 52

0,7±0,2 mm effective case depth

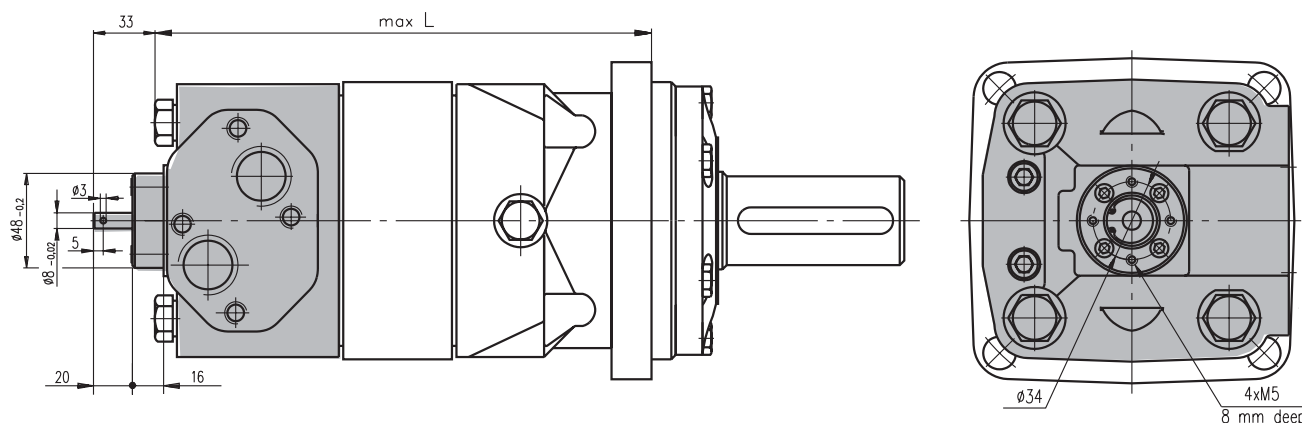
Material 20 MoCr4 DIN 17210 or better

## PERMISSIBLE SHAFT LOADS

The output shaft runs in tapered bearings that permit high axial and radial forces. Curve "1" shows max. radial shaft load. Any shaft load exceeding the values quoted in the curve will seriously reduce motor life. The two other curves apply to a B10 bearing life of 3000 hours at 200 RPM.



## MOTORS WITH TACHO CONNECTION



### ORDER CODE

|             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|---|---|---|---|---|---|---|---|---|----|
| <b>EPMT</b> |   |   |   |   |   |   |   |   |   |    |

#### Pos. 1 - Mounting Flange

omit - Square mount, four holes

**S** - Short mount

**V** - Veryshort mount

**W** - Wheel mount

#### Pos. 2 - Port type

omit - Side ports

**E** - Rear ports

#### Pos. 3 - Displacement code

**160** - 161,1[cm<sup>3</sup>/rev]

**200** - 201,4[cm<sup>3</sup>/rev]

**250** - 251,8[cm<sup>3</sup>/rev]

**315** - 326,3[cm<sup>3</sup>/rev]

**400** - 410,9[cm<sup>3</sup>/rev]

**500** - 523,6[cm<sup>3</sup>/rev]

**630** - 612,3[cm<sup>3</sup>/rev] (without Function diagram)

**725** - 725,0[cm<sup>3</sup>/rev] (without Function diagram)

#### Pos. 4 - Shaft Extensions\*

**C** - ø40 straight, Parallel key A12x8x70 DIN6885

**CO** - ø1½" straight, Parallel key 3/8"x3/8"x2¼" BS46

**K** - ø45 tapered 1:10, Parallel key B12x8x28 DIN6885

**SL** - ø34,85 p.t.o. DIN 9611 Form 1

**SH** - ø1½" splined 17T ANSI B92.1-1976

#### Pos. 5 - Ports

omit - BSPP (ISO 228)

**M** - Metric (ISO 262)

#### Pos. 6 - Speed Monitoring

omit - none

**T** - with tachometer connection (only for side ports)

#### Pos. 7 - Special Features

omit - none

**LL** - Low Leakage

**LSV** - Low Speed Valve

#### Pos. 8 - Rotation

omit - Standard Rotation

**R** - Reverse Rotation

#### Pos. 9 - Option (Paint)\*\*

omit - no Paint

**P** - Painted

**PC** - Corrosion Protected Paint

#### Pos. 10 - Design Series

omit - Factory specified

### NOTES:

\* The permissible output torque for shafts must be not exceeded!

\*\* Color at customer's request.

The hydraulic motors are mangano-phosphatized as standard.