Part number:

HYDROMA HYDRAULICKÉ SYSTÉMY

HIDROMA SISTEMS UKŁADY HYDRAULICZNE

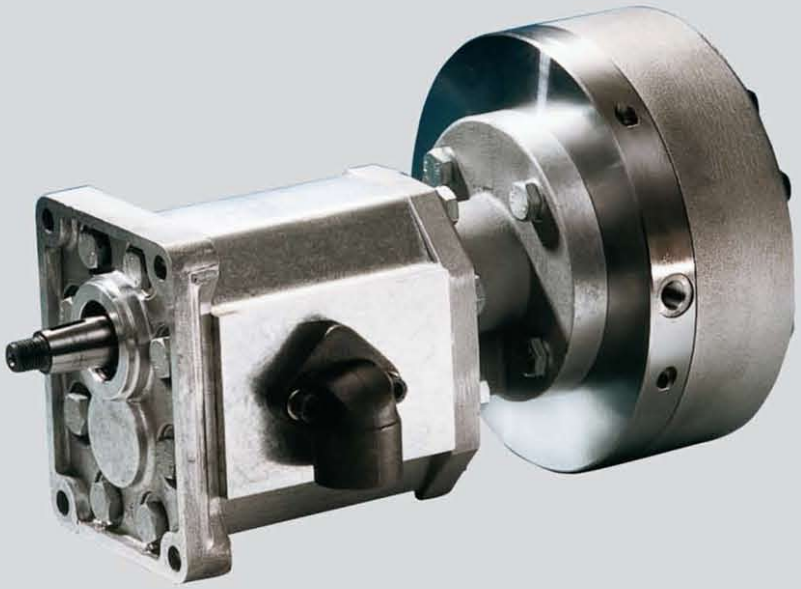
HYDROMA ГИДРАВЛИЧЕСКИЕ СИСТЕМЫ

# Combination pumps Type BKP

**LP up to 250 bar / 63,1 cm³/rev HP up to 1000 bar / 6,3 cm³/rev**

**Features**

Compact design.
Self priming.
Many combination possibilities.
Any installation position possible.
Completely assembled.



**Applications**

For all applications with different oil or hydraulic circuits which require differing displacement or pressure.

**Technical data**

| | |
|---|---|
| Hydraulic fluid | mineral oil according to DIN 51524 (other fluids on request) |
| Fluid temperature range | NBR: -30 to 80 °C |
| | FPM: -20 to 80 °C |
| Ambient temperature range | -30 to 50 °C |
| Viscosity range | 12 to 220 mm²/s (optimal: 15 - 35) |
| Suction pressure | - 0,2 to 1 bar absolute |
| Filtration | according to NAS 1638, class 8 or ISO 4406 16/14 |
| Material | driving shaft: steel |
| | pump housing: cast aluminium |
| Weight | see type list |
| Installation position | any |
| Radial force / Axial force onto driving shaft | not allowed |
| Speed max. | 2000 rpm |

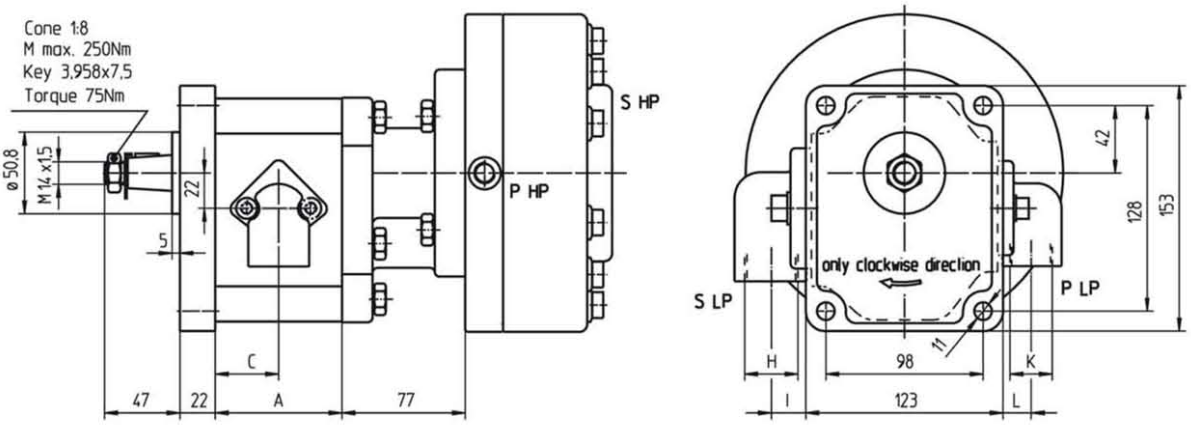
Technical data of BRK Radial piston pump, refer to data sheet of BRK

# Combination pumps Type BKP

**LP up to 250 bar / 63,1 cm³/rev  HP up to 1000 bar / 6,3 cm³/rev**

**Dimension drawing**

**Gear pumps size 3**
**Radial piston pumps BRK sizes 01, 11, 02 and 12**
Design revision A




**Note**

All combinations are possible. However, the working conditions in regard to pressures and displacements for both pumps have to be determinded carefully so that the max. permissible torque of 250 Nm on the driving shaft is not exceeded. Observe direction of rotation!

**Gear pumps size 3**

| **Displacement [cm³/rev]** | **20,6** | **27** | **33,5** | **38,5** | **46,9** | **54,1** | **63,1** |
|---|---|---|---|---|---|---|---|
| Type | 21 | 27 | 33 | 38 | 46 | 55 | 65 |
| Dimension A [mm] | 74 | 79 | 92 | 96 | 114 | 120 | 127 |
| Dimension C [mm] | 37 | 39,5 | 46 | 48 | 51 | 54 | 57,5 |
| Dimension H [inch] | G 1" | G 1" | G 1" | G 1" | G 1" | G 1" | G 1 1/4" |
| Dimension I [mm] | 25 | 25 | 25 | 25 | 25 | 25 | 34 |
| Dimension K [inch] | G 3/4" | G 3/4" | G 3/4" | G 3/4" | G 3/4" | G 3/4" | G 1" |
| Dimension L [mm] | 21 | 21 | 21 | 21 | 21 | 21 | 25 |
| Operating pressure max. [bar] | 250 | 250 | 250 | 250 | 245 | 210 | 200 |
| Weight [kg] | 5,1 | 5,3 | 5,8 | 6 | 7 | 7,3 | 8 |

# Combination pumps Type BKP

**LP up to 250 bar / 63,1 cm³/rev  HP up to 1000 bar / 6,3 cm³/rev**

**Ordering code: Example**

| BKP | 01 | - | 0,47 | - | 1000 | - | 6,5 | - | 250 | - | P | - | | | 00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Combination pump**

**Size**
**Radial piston pump BRK**

**Displacement [cm³/rev]**
**of radial piston pump BRK**

**Operating pressure max. [bar]**
**of radial piston pump BRK**

**Displacement [cm³/rev]**
**of gear pump ZP**

**Operating pressure max. [bar]**
**of gear pump ZP**

**Seals**
P (NBR)
V (FPM)

**Special design**
01 ... 99
(00 for standard)

**Part index**
Please leave it blank
(small letters a-z; different letters do not effect interchangeability)

**Design revision (AS)**
see dimension drawings
(capital letters A-Z; identical letters equal same connecting dimensions)

**Function and design**

The combination pump consists of a external gear pump and a Bieri radial piston pump with constant pumping displacement. The radial piston pump is coupled with a intermediate flange and a coupling onto the gear pump (primary pump). Both pumps are self priming.

It has to be made sure that the max. permissible torque onto the driving shaft of the gear pump is not exceeded. Please refer to the respective tables which indicate permissible design data's of the respective pumps. Other coupling flanges and shaft ends on request.

**Calculation of torque on BKP**

$$M_{total} = M_{BRK} + M_{ZP}$$

**Formulas**

$$M_{BRK} = \frac{P_{BRK} \cdot 60}{2\pi \cdot n}$$

$$M_{ZP} = \frac{P_{ZP} \cdot 60}{2\pi \cdot n}$$

$$P_{BRK} = \frac{p_{BRK} \cdot Q_{BRK} \cdot n}{612 \cdot \eta_{BRK}}$$

$$P_{ZP} = \frac{p_{ZP} \cdot Q_{ZP} \cdot n}{612 \cdot \eta_{ZP}}$$

**Units**

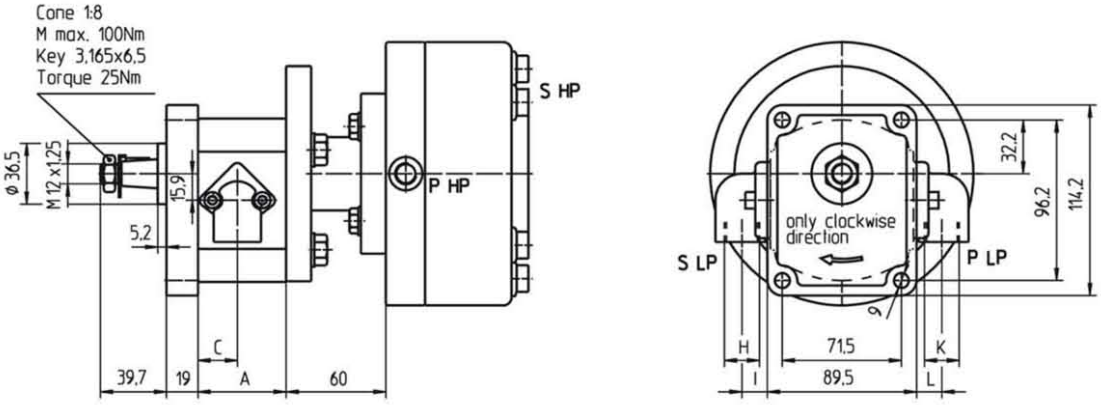
| | | |
|---|---|---|
| M | = | Torque [Nm] |
| P | = | Driving power [W] |
| n | = | Speed [rpm] |
| p | = | Operating pressure [bar] |
| Q | = | Displacement [cm³/rev] |
| $\eta_{BRK}$ | = | Efficiency BRK approx. 0,9 |
| $\eta_{ZP}$ | = | Efficiency ZP approx. 0,7 |

# Combination pumps Type BKP

**LP up to 250 bar / 63,1 cm³/rev  HP up to 1000 bar / 6,3 cm³/rev**

**Dimension drawing**

**Gear pumps size 2**
**Radial piston pumps BRK sizes 01 and 11**
Design revision A




**Note**

All combinations are possible. However, the working conditions in regard to pressures and displacements for both pumps have to be determinded carefully so that the max. permissible torque of 100 Nm on the driving shaft is not exceeded. Observe direction of rotation!

**Gear pumps size 2**

| **Displacement [cm³/rev]** | **4,6** | **6,5** | **8,2** | **11,5** | **13,8** | **16,6** | **19,4** | **22,9** | **25,8** |
|---|---|---|---|---|---|---|---|---|---|
| Type | 4,5 | 6,2 | 8,3 | 11,3 | 13,8 | 16 | 19 | 22,5 | 26 |
| Dimension A [mm] | 47,1 | 47,1 | 52,8 | 63,5 | 63,5 | 74 | 80,4 | 85,8 | 91,6 |
| Dimension C [mm] | 23,55 | 23,55 | 23,55 | 31,75 | 31,75 | 37 | 40,2 | 42,9 | 45,8 |
| Dimension H [inch] | G 1/2" | G 1/2" | G 1/2" | G 3/4" | G 3/4" | G 3/4" | G 3/4" | G 3/4" | G 3/4" |
| Dimension I [mm] | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Dimension K [inch] | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 1/2" |
| Dimension L [mm] | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Operating pressure max. [bar] | 250 | 250 | 250 | 250 | 250 | 250 | 220 | 200 | 180 |
| Weight [kg] | 2,1 | 2,1 | 2,25 | 2,5 | 2,5 | 2,75 | 2,95 | 3,1 | 3,25 |