

Combination pumps

Type BKP

LP: 250 bar / 4,0 to 61,1 cm³/rev
HP: 500, 700 or 1000 bar
0,24 to 8,14 cm³/rev

Features

- Compact design
- Self-priming and venting (gear pump and BRK)
- Various combinations
- Combination with MRK Multi-outlet radial piston pump as MKP on request

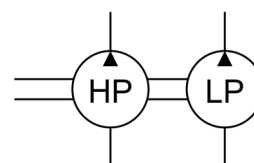


Design

- Combination pump consists of an external gear pump and a BRK (501, 502, 701, 702, 11 oder 12) pump from Bieri
- Each pump provided with a suction and pressure connection
- BRK pump is coupled through an intermediate flange and coupling onto the gear pump (primary pump)
- Completely assembled
- Special combination with 2-fold gear pump available on request

Applications

- For two different hydraulics circuits with different pressures and displacements
- Presses
- Lifting and advancing systems



Technical Data

Hydraulic fluid	Mineral oil according to DIN 51524 (other fluids on request)		
Fluid temperature range	-20 up to 80 °C		
Ambient temperature range	-30 up to 50 °C		
Viscosity range	12 to 220 mm ² /s		
Max. operating pressure	500, 700 or 1000 bar		
Suction pressure	-0,2 bar up to 0,5 bar relative		
Filtration (recommendation)	According to NAS 1638 class 6 resp. ISO/DIN 4406 17/15/12		
Weight	see product information		
Radial force / Axial force onto driving shaft	Not allowed		
Installation position	Any		
Max. speed	2000 rpm		
Direction of rotation	Clockwise		
Suction height	Max. 500 mm		
Material	Gear pump:	Housing:	aluminium
		Gear:	steel
		Shaft:	steel
	Radial piston pump:	see data sheet BRK pumps	

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HP: 500, 700 or 1000 bar

0,24 to 8,14 cm³/rev

Ordering code

Example	BKP	501	-	0,24	-	500	-	4,0	-	250	-	V	-	C		00
Combination pump																
Size (BRK pump)	501															
	502															
	701															
	702															
	11															
	12															
Displacement of the BRK pump [cm³/rev]	see product inform.															
Max. operating pressure of the BRK pump [bar]	see product information															
Displacement of the gear pump [cm³/rev]	see product information															
Max. operating pressure of the gear pump [bar]	see product information															
Seal material	V [FPM] other seal materials on request															

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

Calculation of torque on BKP

$$M_{\text{Total}} = M_{\text{BRK}} + M_{\text{ZP}}$$

$M_{\text{BRK}} = \frac{p_{\text{BRK}} \cdot V_{\text{BRK}} \cdot k}{62,8 \cdot \eta_{\text{BRK}}}$	$M_{\text{ZP}} = \frac{p_{\text{ZP}} \cdot V_{\text{ZP}}}{62,8 \cdot \eta_{\text{ZP}}}$
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- M Torque [Nm]
- P Driving power [kW]
- n Speed [rpm]
- V_{g} Displacement [cm³/rev]
- p Operating pressure [bar]
- η_{BRK} Efficiency BRK approx. 0,8
- η_{ZP} Efficiency ZP approx. 0,7
- k Degree of uniformity
(see product info)

Calculation of performance

$P_{\text{BRK}} = \frac{p_{\text{BRK}} \cdot V_{\text{BRK}} \cdot n \cdot k}{600 \cdot 10^3 \cdot \eta_{\text{BRK}}}$	$P_{\text{ZP}} = \frac{p_{\text{ZP}} \cdot V_{\text{ZP}} \cdot n}{600 \cdot 10^3 \cdot \eta_{\text{ZP}}}$
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Type BKP

LP: 250 bar / 4,0 to 61,1 cm³/rev
HP: 500, 700 or 1000 bar
0,24 to 8,14 cm³/rev

Product information combination gear pump Type 2SP with: BRK501, 701 or 11

Technical data gear pump Type 2SP

Type	Displacement [cm³/rev]	Dim. A [mm]	Dim. B [mm]	Dim. C [mm]	Dim. K [mm]	Dim. L [mm]	Dim. H [mm]	Dim. M [mm]	Operating pressure max. [bar]	Weight ca. [kg]
A6	6,0	54,3	213,8	27,0	G 1/2"	61,0	G 1/2"	61,0	250	3,9
A8	8,5	58,5	218,0	29,1	G 1/2"	61,0	G 1/2"	61,0	250	4,1
A11	11,0	62,6	222,1	31,2	G 1/2"	61,0	G 3/4"	65,0	250	4,4
A14	14,0	67,6	227,1	33,7	G 1/2"	61,0	G 3/4"	65,0	250	4,5
A16	16,5	71,8	231,3	35,8	G 1/2"	61,0	G 3/4"	65,0	230	4,6
A19	19,5	76,8	236,3	38,3	G 1/2"	61,0	G 3/4"	65,0	210	4,8
A26	26,0	87,6	247,1	43,7	G 1/2"	61,0	G 3/4"	65,0	170	5,1

Note All combinations are possible. However, the working conditions in regard to pressures and displacements for both pumps have to be determined carefully so that the **max. permissible torque of 98 Nm** on the driving shaft is not exceeded. Observe direction of rotation!

Technical data BRK501

Size	Displacement [cm³/rev]	Operating pressure max. [bar]	k	Weight ca. [kg]
501	0,24	500	1.05	3,9
501	0,34	500	1.05	3,9
501	0,47	500	1.05	3,9
501	0,60	500	1.05	3,9
501	0,68	500	1.05	3,9
501	0,76	500	1.05	3,9
501	0,94	500	1.05	3,9
501	1,13	500	1.02	4,4
501	1,21	500	1.05	3,9
501	1,31	500	1.05	3,9
501	1,53	500	1.05	3,9
501	1,88	500	1.05	3,9
501	2,01	500	1.02	4,4
501	2,54	500	1.02	4,4
501	2,71	500	1.05	3,9
501	3,14	500	1.02	5,4
501	3,56	500	1.01	5,7
501	4,52	400	1.02	5,4

Technical data BRK701

Size	Displacement [cm³/rev]	Operating pressure max. [bar]	k	Weight ca. [kg]
701	0,24	700	1.05	6,1
701	0,34	700	1.05	6,1
701	0,47	700	1.05	6,2
701	0,60	700	1.05	6,1
701	0,68	700	1.05	6,2
701	0,76	700	1.05	6,1
701	0,79	700	1.02	6,6
701	0,94	700	1.05	6,1
701	1,03	700	1.05	6,2
701	1,13	700	1.02	6,6
701	1,21	700	1.05	6,2
701	1,31	700	1.05	7,2
701	1,36	700	1.05	6,1
701	1,53	700	1.05	7,2
701	1,66	700	1.05	6,4
701	1,88	700	1.05	6,4
701	2,01	700	1.02	6,9
701	2,54	700	1.02	6,9
701	2,71	700	1.05	6,5
701	2,81	700	1.01	7,2
701	3,14	700	1.02	6,9
701	3,56	650	1.01	7,2
701	4,40	500	1.01	7,2
701	4,52	500	1.02	6,9

Type BKP

LP: 250 bar / 4,0 to 61,1 cm³/rev

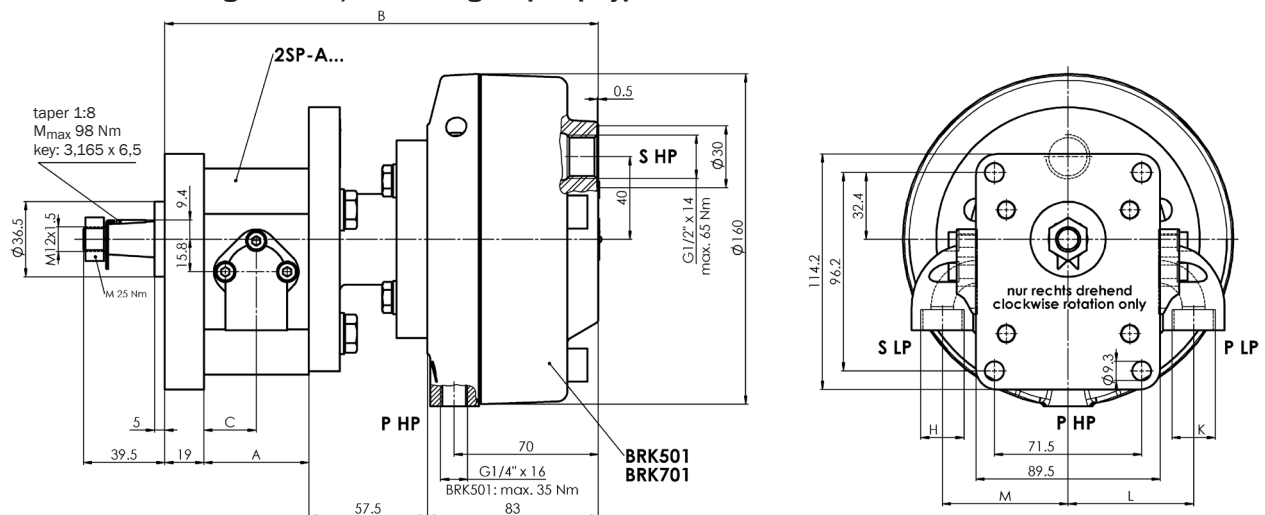
HP: 500, 700 or 1000 bar

0,24 to 8,14 cm³/rev

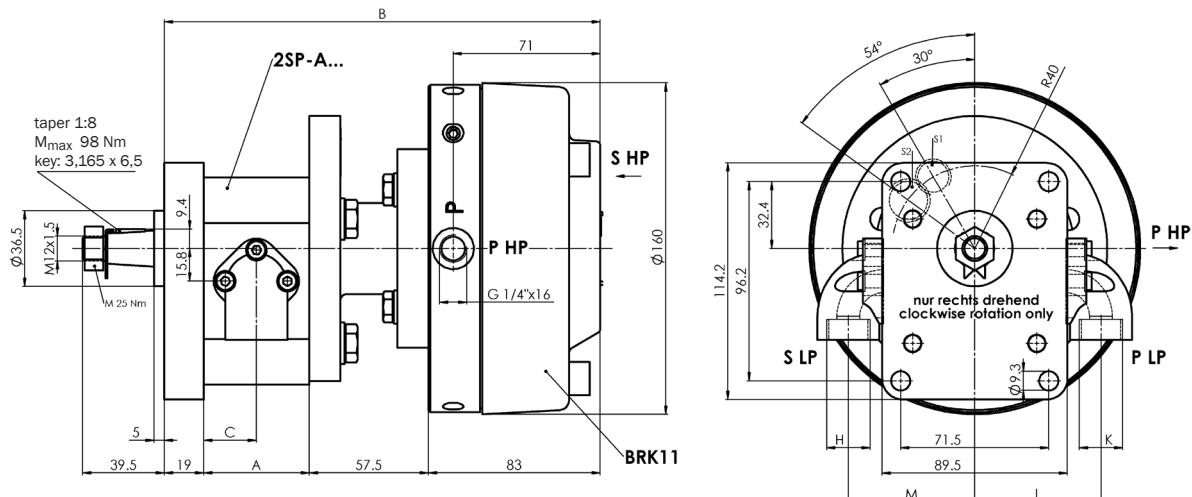
Technical data BRK11

Size	Displacement [cm ³ /rev]	Operating pressure max. [bar]	k	Weight ca. [kg]
11	0,47	1000	1.05	7,0
11	0,68	1000	1.05	7,0
11	0,79	1000	1.02	7,5
11	1,13	1000	1.02	7,5
11	1,21	1000	1.05	7,0
11	1,53	1000	1.05	7,0
11	1,88	900	1.05	7,0
11	2,01	1000	1.02	7,5
11	2,54	900	1.02	7,5
11	2,71	850	1.05	7,5

Dimensional drawing BRK501/701 with gear pump Type 2SP



Dimensional drawing BRK11 with gear pump Type 2SP



Type BKP

LP: 250 bar / 4,0 to 61,1 cm³/rev
HP: 500, 700 or 1000 bar
0,24 to 8,14 cm³/rev

Product information combination gear pump Type 3SP with: BRK501, BRK701 or BRK11

Technical data gear pump Type 3SP

Type	Displacement [cm³/rev]	Dim. A [mm]	Dim. B [mm]	Dim. C [mm]	Dim. K [mm]	Dim. L [mm]	Dim. H [mm]	Dim. M [mm]	Operating pressure max. [bar]	Weight ca. [kg]
A22	22,3	82,9	268,8	41,5	G 3/4"	75,0	G 1"	80,0	240	8,1
A29	29,3	88,9	274,8	44,5	G 3/4"	75,0	G 1"	80,0	220	8,4
A33	32,9	91,9	277,8	46,0	G 3/4"	75,0	G 1"	80,0	220	8,5
A36	36,4	94,9	280,8	47,5	G 3/4"	75,0	G 1"	80,0	210	8,6
A44	43,5	100,9	286,8	50,5	G 3/4"	75,0	G 1"	80,0	200	8,9
A52	51,7	107,9	293,8	54,0	G 3/4"	75,0	G 1"	80,0	200	9,2
A62	61,1	115,9	301,8	58,0	G 3/4"	75,0	G 1"	80,0	180	9,6

Note All combinations are possible. However, the working conditions in regard to pressures and displacements for both pumps have to be determined carefully so that the **max. permissible torque of 240 Nm** on the driving shaft is not exceeded. Observe direction of rotation!

Technical data BRK501

Size	Displacement [cm³/rev]	Operating pressure max. [bar]	k	Weight ca. [kg]
501	0,24	500	1.05	3,9
501	0,34	500	1.05	3,9
501	0,47	500	1.05	3,9
501	0,60	500	1.05	3,9
501	0,68	500	1.05	3,9
501	0,76	500	1.05	3,9
501	0,94	500	1.05	3,9
501	1,13	500	1.02	4,4
501	1,21	500	1.05	3,9
501	1,31	500	1.05	3,9
501	1,53	500	1.05	3,9
501	1,88	500	1.05	3,9
501	2,01	500	1.02	4,4
501	2,54	500	1.02	4,4
501	2,71	500	1.05	3,9
501	3,14	500	1.02	5,4
501	3,56	500	1.01	5,7
501	4,52	400	1.02	5,4

Technical data BRK701

Size	Displacement [cm³/rev]	Operating pressure max. [bar]	k	Weight ca. [kg]
701	0,24	700	1.05	6,1
701	0,34	700	1.05	6,1
701	0,47	700	1.05	6,2
701	0,60	700	1.05	6,1
701	0,68	700	1.05	6,2
701	0,76	700	1.05	6,1
701	0,79	700	1.02	6,6
701	0,94	700	1.05	6,1
701	1,03	700	1.05	6,2
701	1,13	700	1.02	6,6
701	1,21	700	1.05	6,2
701	1,31	700	1.05	7,2
701	1,36	700	1.05	6,1
701	1,53	700	1.05	7,2
701	1,66	700	1.05	6,4
701	1,88	700	1.05	6,4
701	2,01	700	1.02	6,9
701	2,54	700	1.02	6,9
701	2,71	700	1.05	6,5
701	2,81	700	1.01	7,2
701	3,14	700	1.02	6,9
701	3,56	650	1.01	7,2
701	4,40	500	1.01	7,2
701	4,52	500	1.02	6,9
701	6,33	350	1.01	7,2

Type BKP

LP: 250 bar / 4,0 to 61,1 cm³/rev

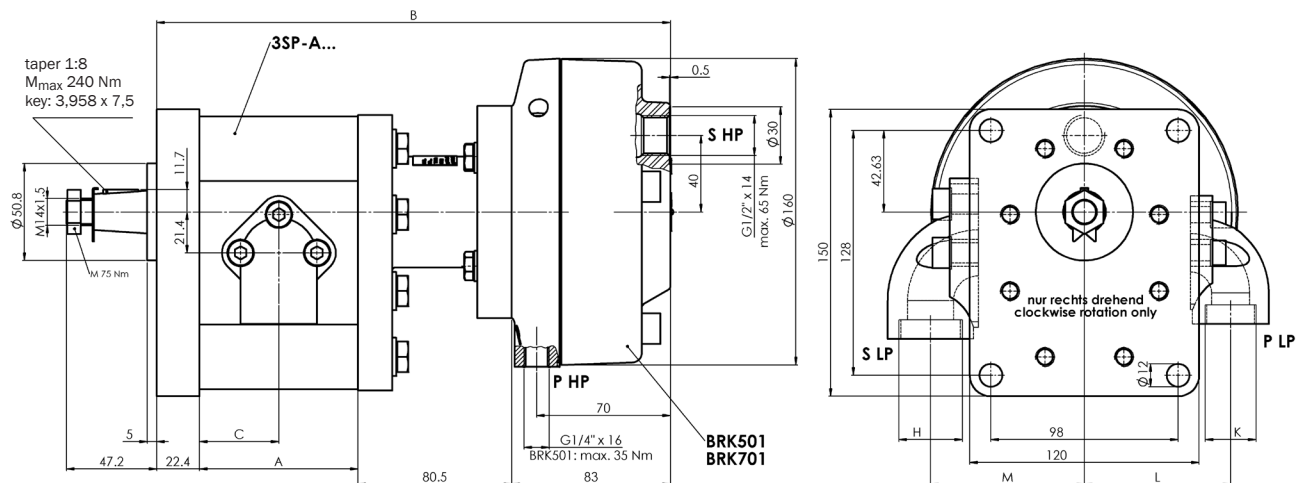
HP: 500, 700 or 1000 bar

0,24 to 8,14 cm³/rev

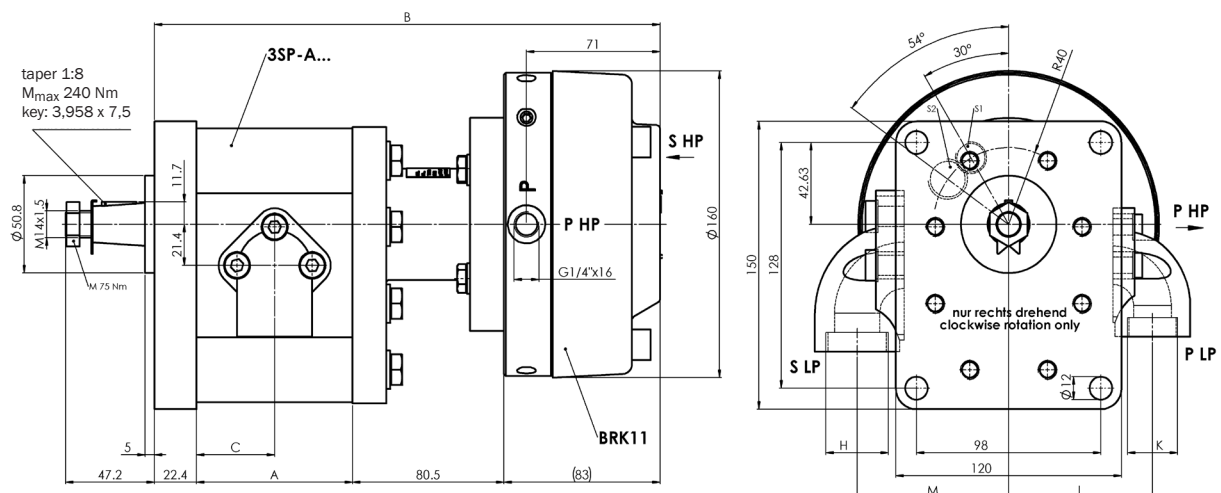
Technical data BRK11

Size	Displacement [cm ³ /rev]	Operating pressure max. [bar]	k	Weight ca. [kg]
11	0,47	1000	1.05	7,0
11	0,68	1000	1.05	7,0
11	0,79	1000	1.02	7,5
11	1,13	1000	1.02	7,5
11	1,21	1000	1.05	7,0
11	1,53	1000	1.05	7,0
11	1,88	900	1.05	7,0
11	2,01	1000	1.02	7,5
11	2,54	900	1.02	7,5
11	2,71	850	1.03	7,5

Dimensional drawing BRK501/701 with gear pump Type 3SP



Dimensional drawing BRK11 with gear pump Type 3SP



Type BKP

LP: 250 bar / 4,0 to 61,1 cm³/rev
 HP: 500, 700 or 1000 bar
 0,24 to 8,14 cm³/rev

Product information

combination gear pump Type 3SP with: BRK502, BRK702, BRK12

Technical data gear pump Type 3SP

Type	Displacement [cm ³ /rev]	Dim. A [mm]	Dim. B [mm]	Dim. C [mm]	Dim. K [mm]	Dim. L [mm]	Dim. H [mm]	Dim. M [mm]	Operating pressure max. [bar]	Weight ca. [kg]
A22	22,3	82,9	268,8	41,5	G 3/4"	75,0	G 1"	80,0	240	8,3
A29	29,3	88,9	288,8	44,5	G 3/4"	75,0	G 1"	80,0	220	8,5
A33	32,9	91,9	291,8	46,0	G 3/4"	75,0	G 1"	80,0	220	8,7
A36	36,4	94,9	294,8	47,5	G 3/4"	75,0	G 1"	80,0	210	8,8
A44	43,5	100,9	300,8	50,5	G 3/4"	75,0	G 1"	80,0	200	9,1
A52	51,7	107,9	307,8	54,0	G 3/4"	75,0	G 1"	80,0	200	9,4
A62	61,1	115,9	315,8	58,0	G 3/4"	75,0	G 1"	80,0	180	9,8

Note: All combinations are possible. However, the working conditions in regard to pressures and displacements for both pumps have to be determined carefully so that the **max. permissible torque of 240 Nm** on the driving shaft is not exceeded. Observe direction of rotation!

Technical data BRK502

Size	Displacement [cm ³ /rev]	Operating pressure max. [bar]	k	Weight ca. [kg]
502	4,52	500	1.02	9,0
502	5,65	500	1.00	9,8
502	7,31	500	1.00	9,8

Technical data BRK702

Size	Displacement [cm ³ /rev]	Operating pressure max. [bar]	k	Weight ca. [kg]
702	4,52	700	1.02	15,1
702	5,65	700	1.00	15,7
702	6,33	650	1.01	15,4
702	7,31	550	1.00	15,7
702	8,14	500	1.00	15,7

Technical data BRK12

Size	Displacement [cm ³ /rev]	Operating pressure max. [bar]	k	Weight ca. [kg]
12	1,10	1000	1.01	12,5
12	1,53	1000	1.01	12,5
12	2,81	1000	1.01	12,5
12	3,56	1000	1.01	12,5
12	4,40	900	1.01	12,5

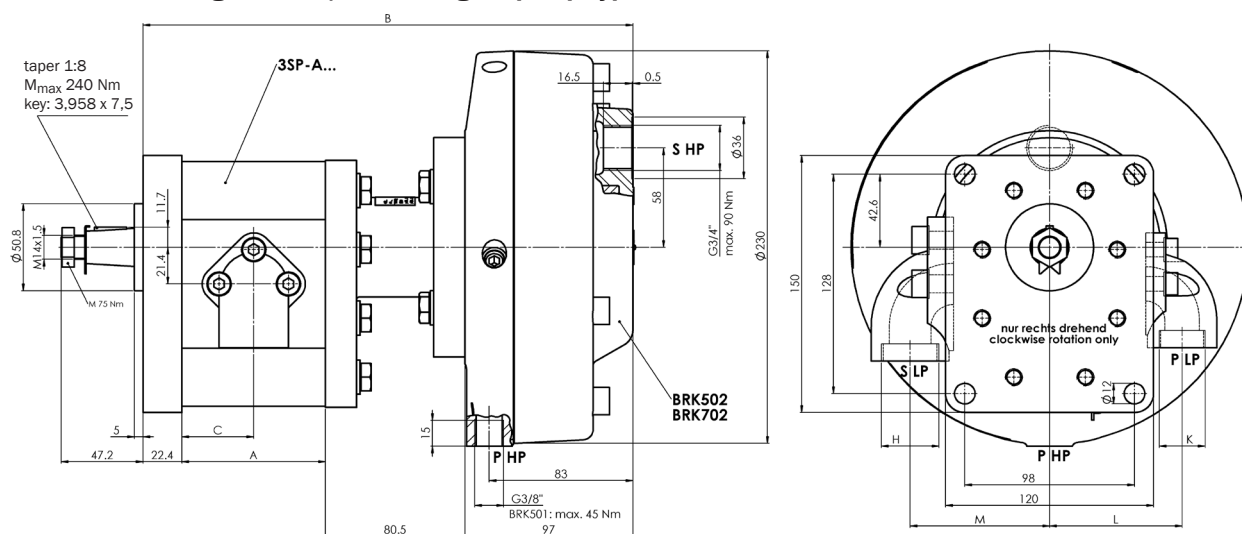
Type BKP

LP: 250 bar / 4,0 to 61,1 cm³/rev

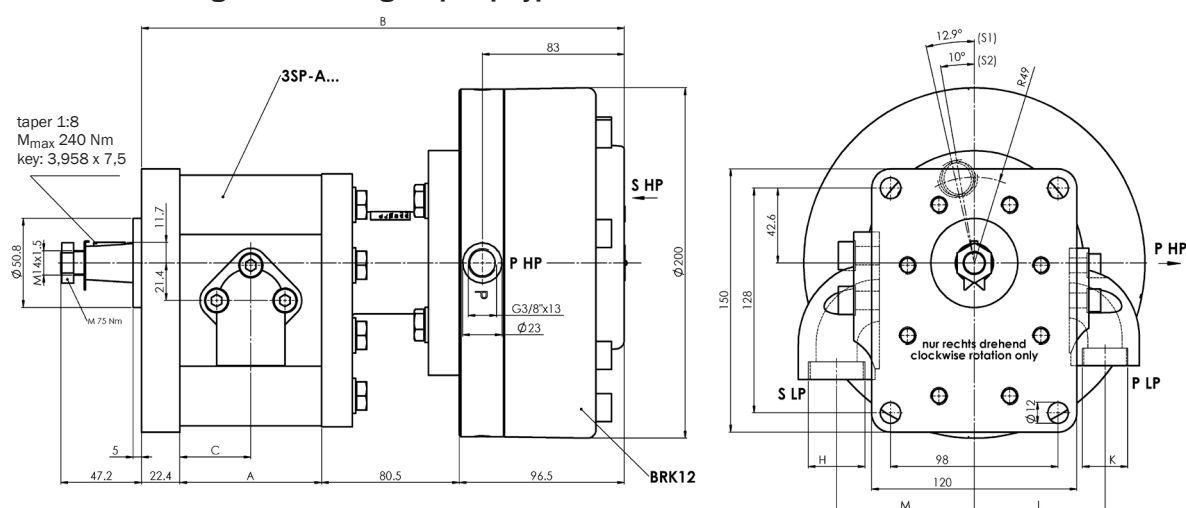
HP: 500, 700 or 1000 bar

0,24 to 8,14 cm³/rev

Dimensional drawing BRK502/702 with gear pump Type 3SP



Dimensional drawing BRK12 with gear pump Type 3SP



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The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.