

Combination pumps

Type SKPI

LP: 100 bar/4.5 to 14 cm³/rev

HP: 700 bar/0.47 to 2.71 cm³/rev

Features

- Compact design
- Self-venting
- Self-priming
- Various combinations possible
- For test benches and pulsing load, use BRK combination pumps

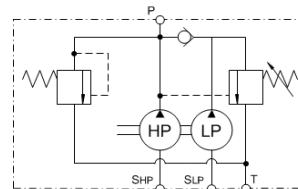


Applications

- For applications that require high flow rates in the low pressure (LP) range and low flow rates in the high pressure (HP) range
- Presses
- Power units for industrial applications such as punching machines and rescue devices

Design

- With integrated low-pressure unloading valve + integrated fail safe valve (can be used to restrict the system pressure)
- With hollow shaft for direct installation of motor without bell housing and coupling



Technical Data

Hydraulic fluid	mineral oil according to DIN 51524 (other fluids on request)	
Fluid temperature range	-20 to 80 °C	
Ambient temperature range	-30 to 50 °C	
Viscosity range	12 to 220 mm ² /s	
Max. operating pressure HP	700 bar	
Max. operating pressure LP	100 bar, preset by producer	
Operating pressure suction side	-0.2 bar to 0.5 bar gauge pressure	
Filtration (recommendation)	according to NAS 1638 class 6 resp. ISO/DIN 4406 17/15/12	
Installation position	in tank (vertical shaft)	
Axial and radial force onto driving shaft	can't be taken up	
Max. rotation speed	2000 rpm	
Direction of rotation	clockwise	
Suction height	max. 400 mm	
Weight	see overview "Product information"	
Materials	excentric shaft and valve block:	steel
	pump housing and gear pump:	cast aluminium

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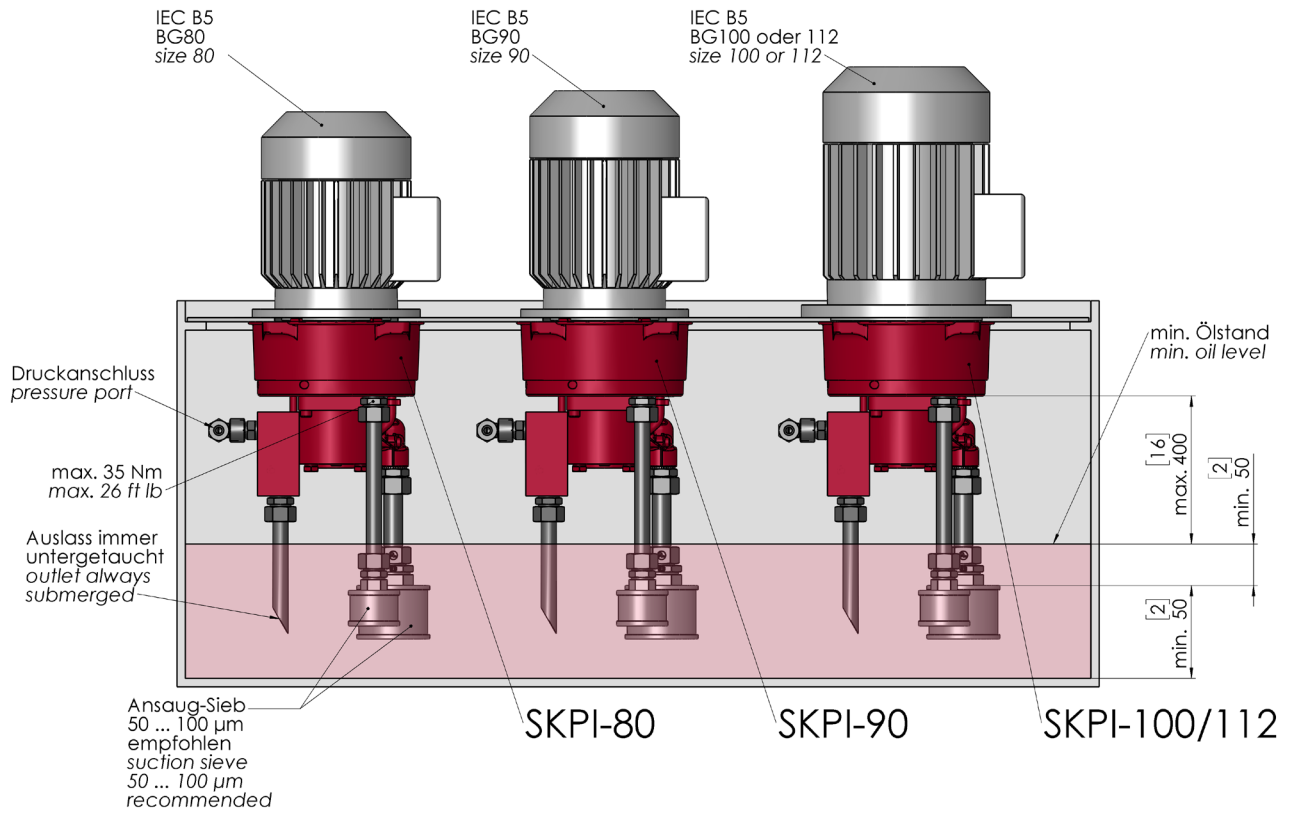
Type code

Example	SKPI	-	90	-	0,68	-	700	-	5,18	-	100	-	VB	-	V	-			00
Combination pumps																			
For motor sizes IEC	80 90 100 112																		
Displacement volume HP [cm³/rev]	0.47 0.68 0.85 1.21 1.53 1.88 2.16 2.71																		
Max. operating pressure HP [bar]	see overview „product information“																		
Displacement volume LP + HP [cm³/rev]	4.5 + HP 6.3 + HP 8.2 + HP 14 + HP																		
Max. unloading pressure LP [bar]	see overview „product information“																		
Valve block	VB (with valve block)																		
Seal material	V FKM other seal materials on request																		
	Design 00 ... 99 for internal purposes																		
	Index Please leave blank for internal purposes																		
	Design revision Please leave blank for internal purposes																		

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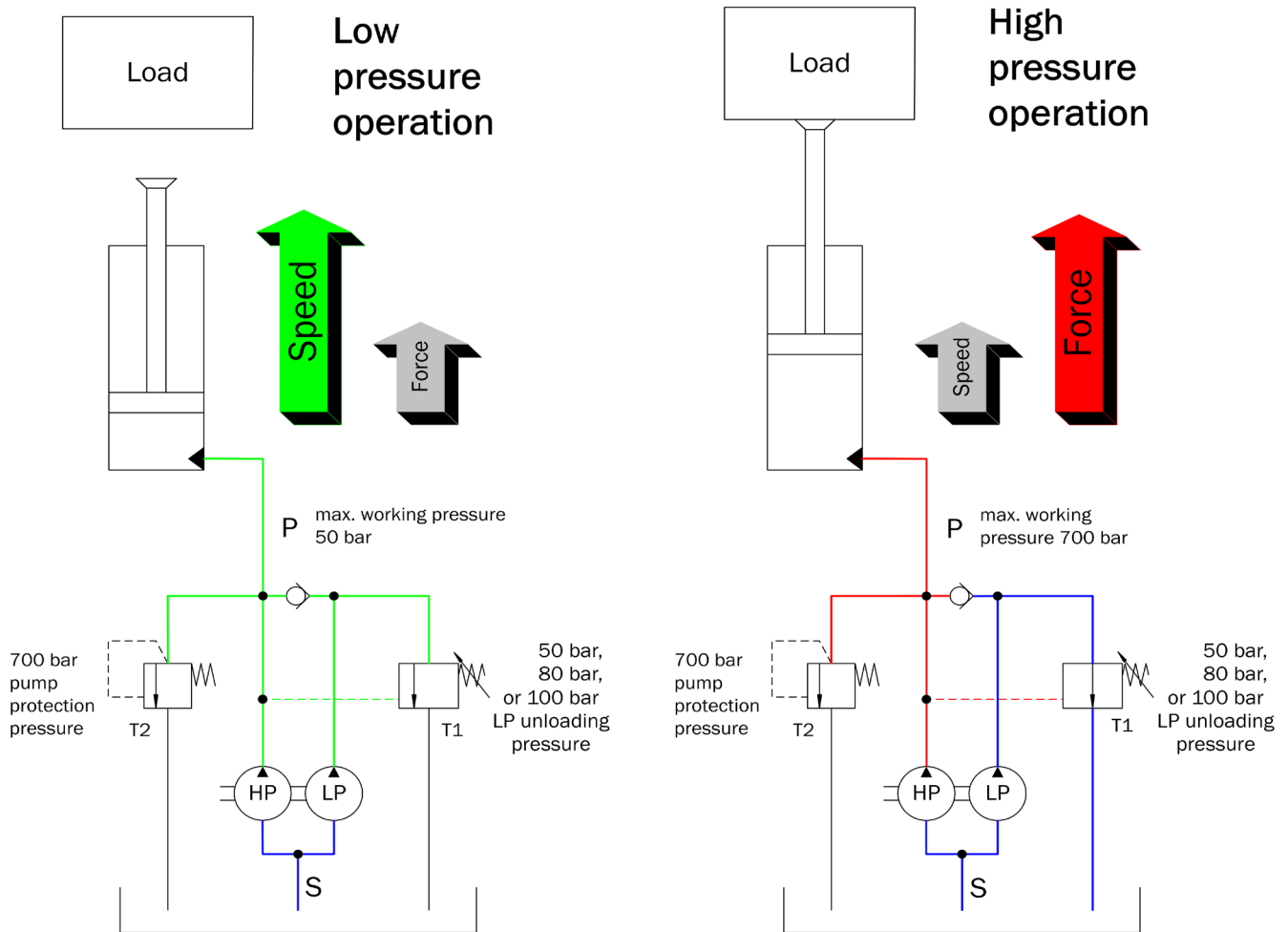
Mounting



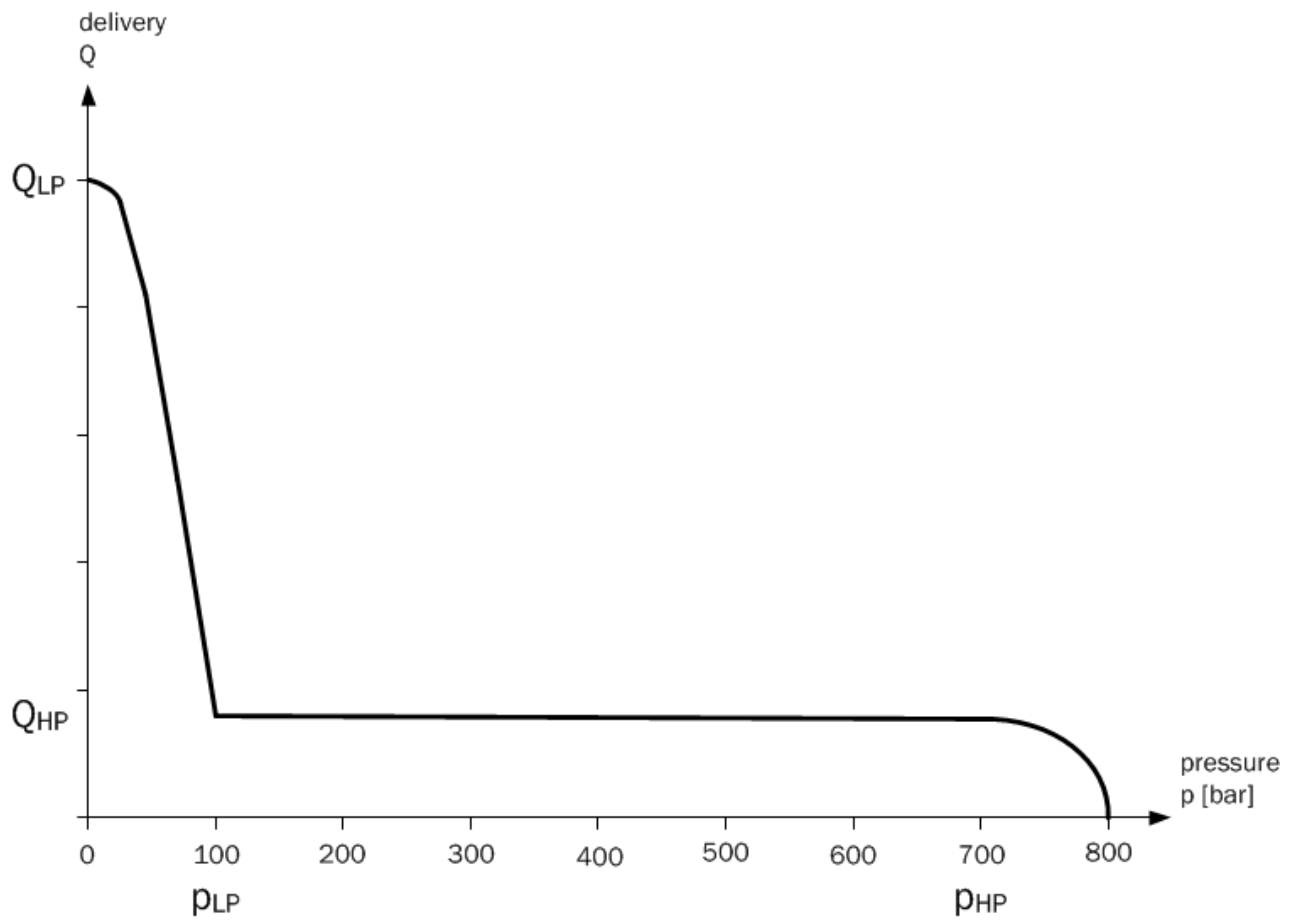
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Functional schematic



Functional diagram



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Product information

Type code	for motor size IEC	HP mode		LP mode		weight [kg]	part no.
		displacement volume HP [cm ³ /rev]	max. operating pressure [bar]**	displacement volume LP + HP [cm ³ /rev]	max. unloading pressure [bar]***		
SKPI-80-0,47-700-4,97-50-VB-V-A*00	80	0.47	500	4.97	50	10.82	4142521
SKPI-90-0,47-700-6,77-75-VB-V-A*00	90	0.47	700	6.77	75	10.83	on request
SKPI-90-0,68-700-5,18-100-VB-V-A*00	90	0.68	700	5.18	100	10.82	4132159
SKPI-90-0,85-700-7,15-75-VB-V-A*00	90	0.85	700	7.15	75	10.83	4315660
SKPI-90-0,85-700-9,05-65-VB-V-A*00	90	0.85	700	9.05	65	10.83	on request
SKPI-100-0,85-700-9,05-75-VB-V-A*00	100	0.85	700	9.05	75	10.83	on request
SKPI-100-1,21-700-7,51-100-VB-V-A*00	100	1.21	700	7.51	100	10.83	4132161
SKPI-100-1,53-700-7,83-100-VB-V-A*00	100	1.53	700	7.83	100	10.83	4132164
SKPI-112-1,53-700-15,53-100-VB-V-A*00	112	1.53	700	15.53	100	11.69	4132167
SKPI-112-1,88-700-15,88-100-VB-V-A*00	112	1.88	700	15.88	100	11.69	on request
SKPI-112-2,16-700-8,46-100-VB-V-A*00	112	2.16	700	8.46	100	10.85	4317568
SKPI-112-2,16-700-10,36-100-VB-V-A*00	112	2.16	700	10.36	100	10.85	4312998
SKPI-112-2,16-700-16,16-100-VB-V-A*00	112	2.16	700	16.16	100	10.85	4317570
SKPI-112-2,71-700-16,71-100-VB-V-A*00	112	2.71	700	16.71	100	11.69	4317571

** Maximum pressure, that can be achieved with the designated motor. The piston pump is however designed for max. 700 bar.

*** factory setting

Calculation of driving motor power

$$P_{RP} = \frac{p_{RP} \cdot V_{gRP} \cdot n \cdot k}{600 \cdot 10^3 \cdot \eta_{tRP}}$$

$$P_{GP} = \frac{p_{GP} \cdot V_{gGP} \cdot n}{600 \cdot 10^3 \cdot \eta_{tGP}}$$

P = driving power [kW]
 p = operating pressure [bar]
 V_g = displacement volume [cm³/rev]
 n = speed [rpm]
 η_{tRP} = overall efficiency radial piston pump approx. 0.8
 η_{tGP} = overall efficiency gear pump approx. 0.7
 k = pulsation factor approx. 1.05

Calculation of driving motor torque

$$M_{RP} = \frac{p_{RP} \cdot V_{gRP}}{62,8 \cdot \eta_{tRP}}$$

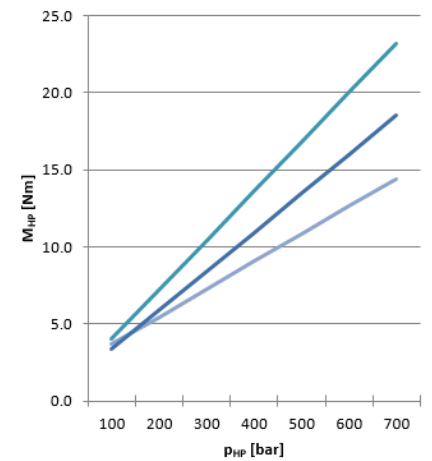
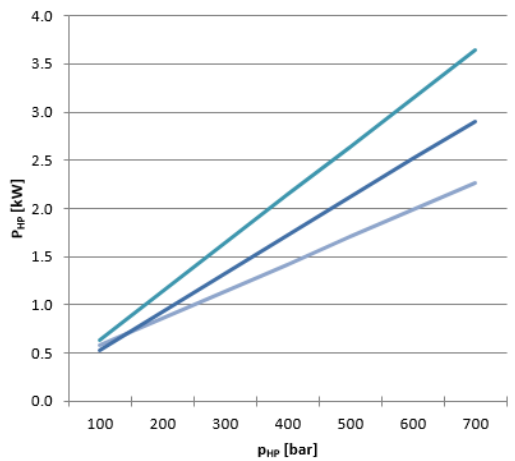
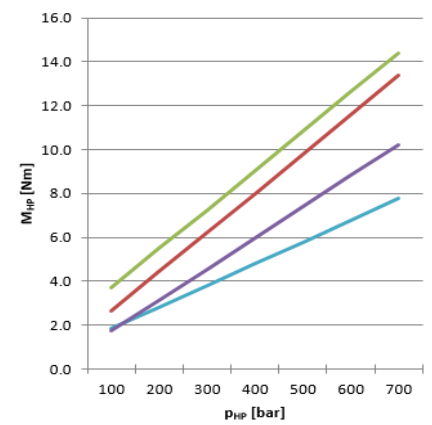
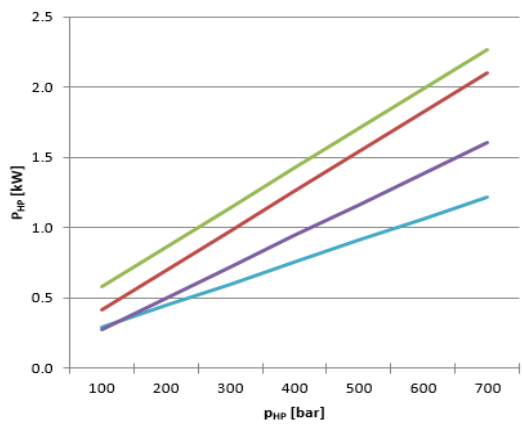
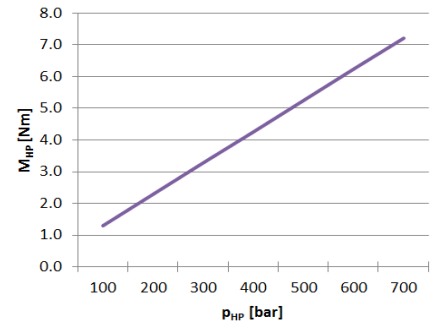
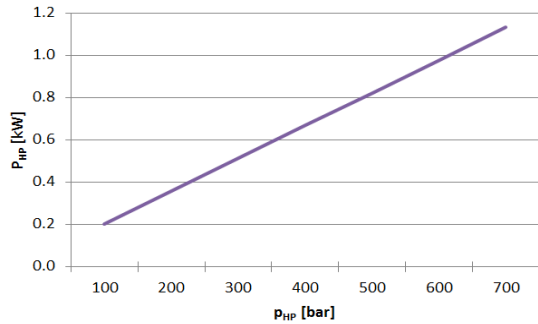
$$M_{GP} = \frac{p_{GP} \cdot V_{gGP}}{62,8 \cdot \eta_{tGP}}$$

M = torque [Nm]

$$M_{tot} = M_{RP} + M_{GP}$$

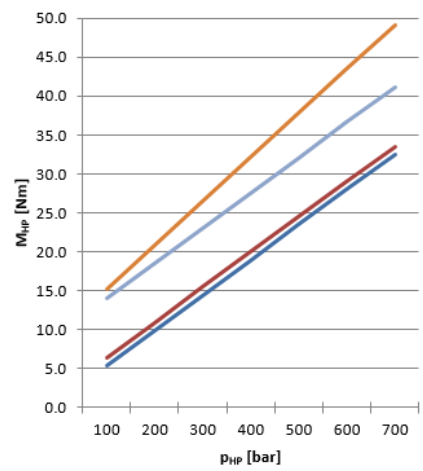
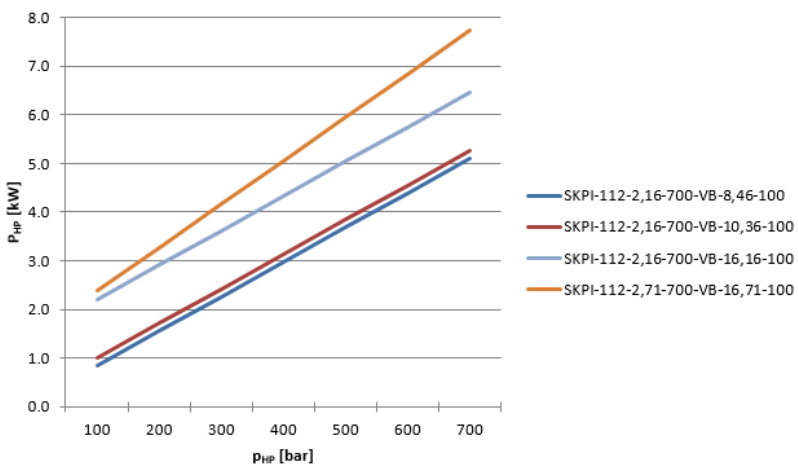
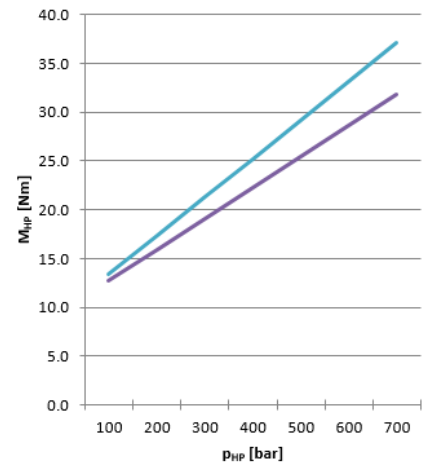
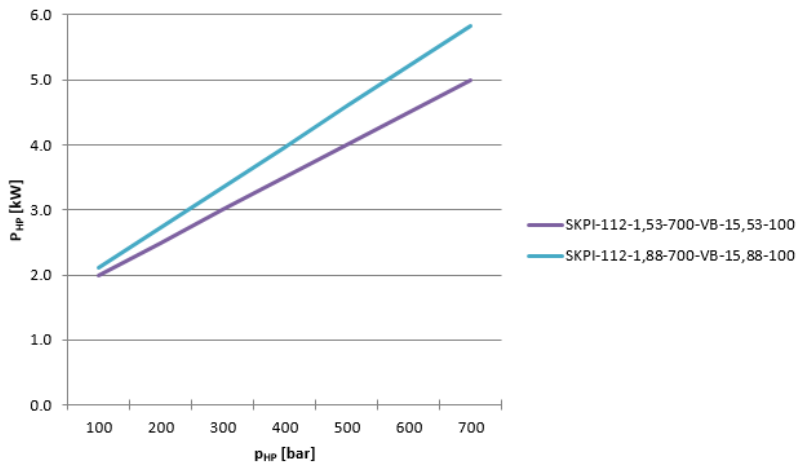
Driving motor power and torque at 1'500 rpm

in high pressure mode, gear pump switched to tank



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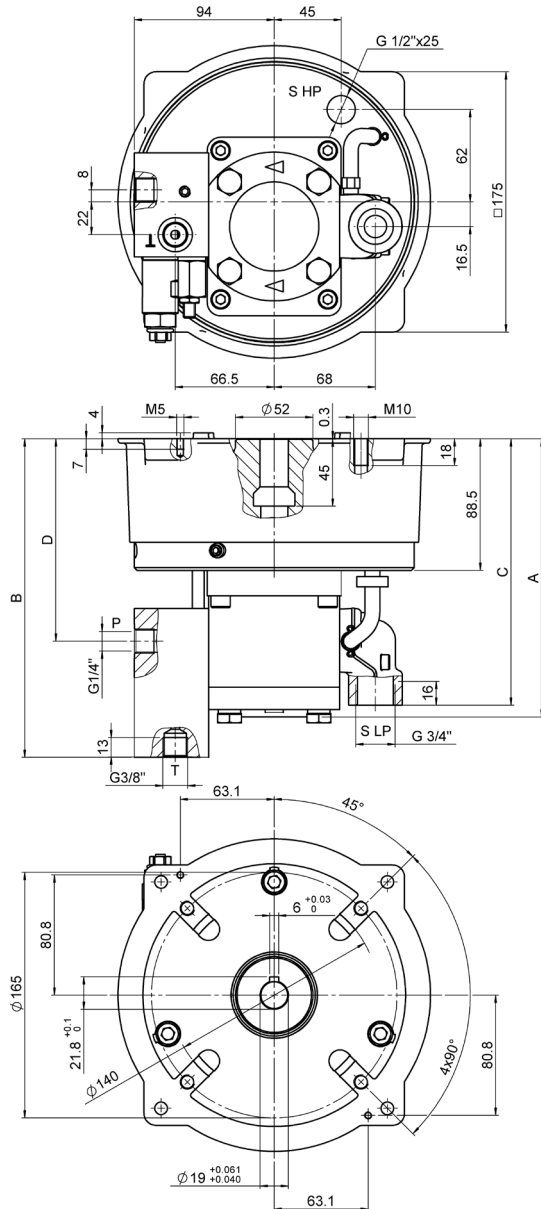


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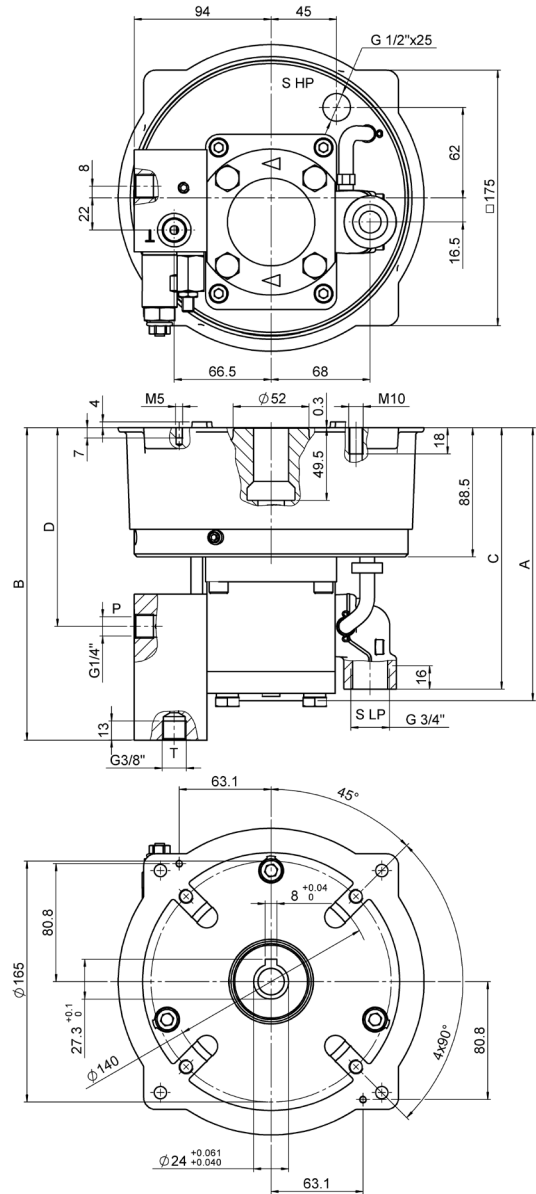
Dimensional drawings

Size SKPI for electric motor IEC-size 80



Displacement volume [cm ³ /rev]	A B C D			
	[mm]			
4.5	171.5	206.3	171.3	128.3
6.3	174.5	207.5	172.5	129.5
8.2	177.4	209.6	174.9	131.6
14	186.9	214	179	136

Size SKPI for electric motor IEC-size 90

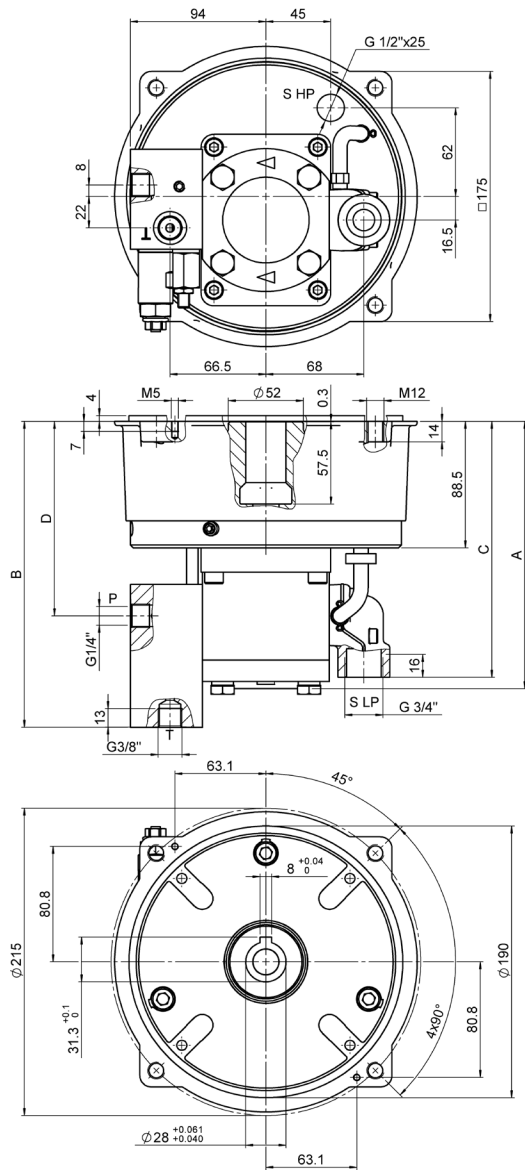


Displacement volume [cm ³ /rev]	A B C D			
	[mm]			
4.5	171.5	206.3	171.3	128.3
6.3	174.5	207.5	172.5	129.5
8.2	177.4	209.6	174.9	131.6
14	186.9	214	179	136

Type SKPI

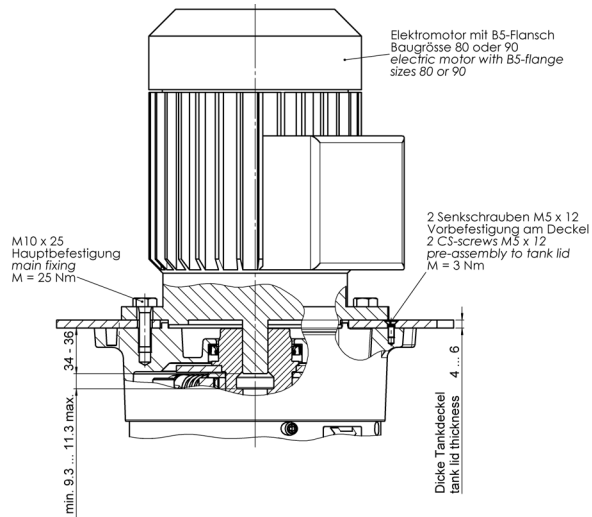
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Size SKPI for electric motor IEC-size 100 and 112

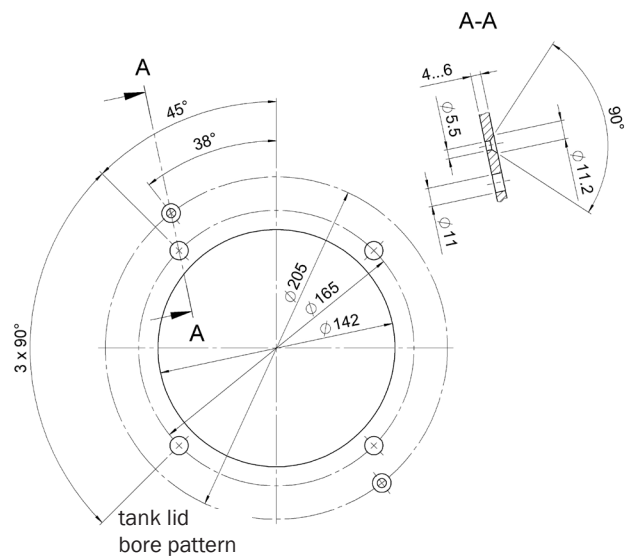
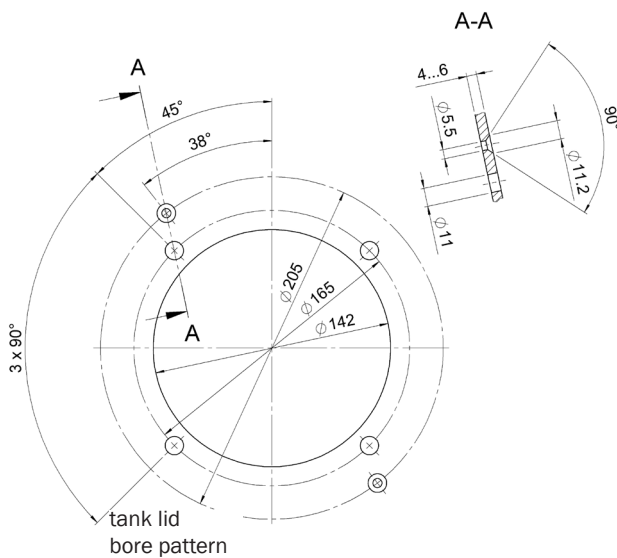
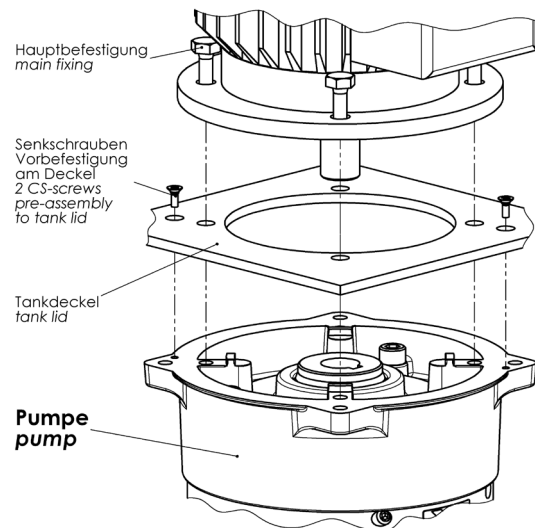
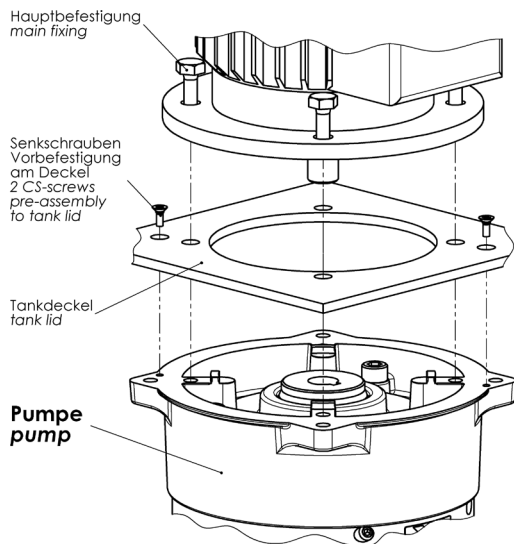
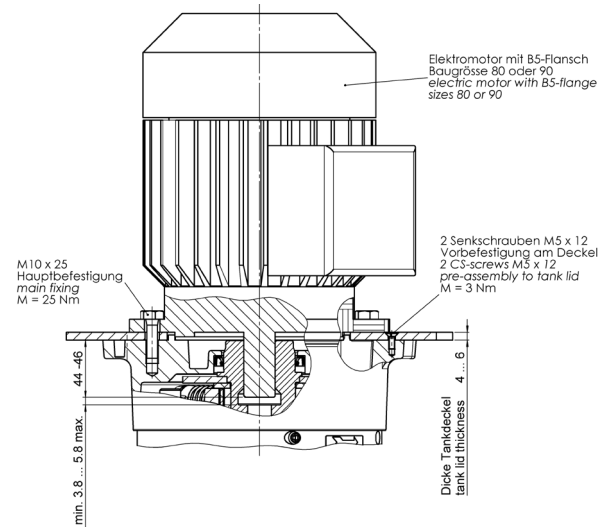


Displacement volume [cm ³ /rev]	A	B	C	D
	[mm]			
4.5	171.5	206.3	171.3	128.3
6.3	174.5	207.5	172.5	129.5
8.2	177.4	209.6	174.9	131.6
14	186.9	214	179	136

Size SKPI for electric motor IEC-size 80



Size SKPI for electric motor IEC-size 90

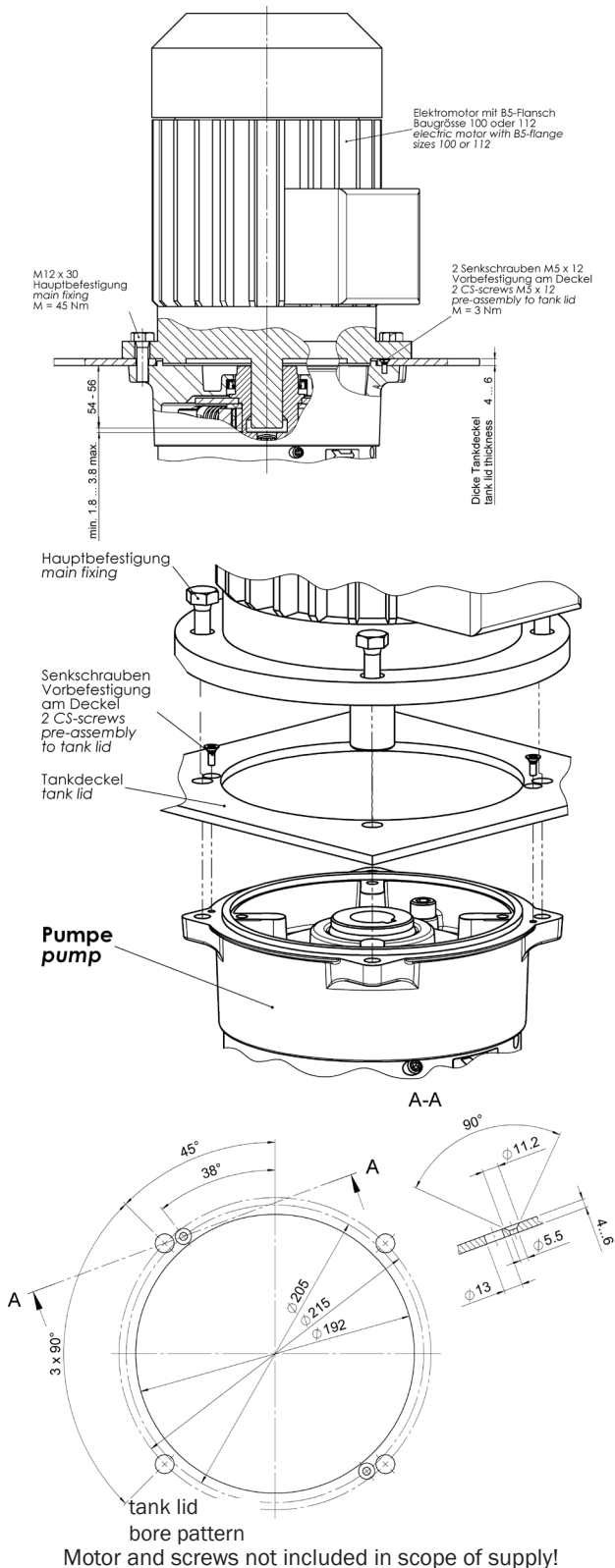


Motor and screws not included in scope of supply!

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 HP: 700 bar/0.47 to 2.71 cm³/rev

Size SKPI for electric motor IEC-size 100 or IEC-size 112



Bieri Hydraulik AG

Könizstrasse 274
 CH-3097 Liebefeld
 Tel. +41 31 970 09 09 | Fax +41 31 970 09 10
 info@bierihydraulics.com | www.bierihydraulics.com

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.