Product Information
Changeover from RKP to RKP-II
Sizes 19, 32 and 45 cm³/rev

Advantages and characteristics of the new radial piston pump RKP-II compared to the previous RKP design

The newly developed 2nd generation radial piston pump RKP-II will replace the previous RKP design.

Advantages of the RKP-II

- Reduced noise emission*
- Reduced pressure pulsation*
- For RKP-II with electro-hydraulic control: extended permitted viscosity range for the hydraulic fluid*
- No need for reducing piece while connecting the suction pipe
- For RKP-II with H1, H2, J1, J2, R1, R2, S2 and S3-type compensator: No need for adapter fitting while connecting the control hose
- Extended flexibility when choosing add-on pumps

This information sheet lists the characteristics of the RKP-II which differ from the previous RKP design, with a particular focus on the **sizes 19, 32 and 45 cm³/rev**. A separate information sheet is available for the sizes 63, 80 and 100 cm³/rev as well as for 140 cm³/rev.

*) not applicable to size 19 cm³/rev

RKP-RKP-II 19,32,45 Product Information en.2007.02
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Contents

Page
1 Operation 2
2 Suction, Pressure and Leakage Fluid Ports 3
3 Control and Tank Port of H1, H2, J1, J2, R1, R2, S2 and S3-Type Compensators 7
4 Mounting additional pump stages 7
5 Order Information 8

1 Operation

This section describes the operational characteristics of the RKP-II with 32 and 45 cm³/rev as compared to the RKP. The operational characteristics of size 19 cm³/rev remain unchanged.

1.1 Noise Emission

The acoustic power has been reduced by 50 to 60 %, depending on the duty point. With this improvement, RKP-II contributes to machine builders efforts to fulfill the EG standards with regards to noise (2003/10/EG). The noise pressure levels of the different sizes are shown in Figure 1.

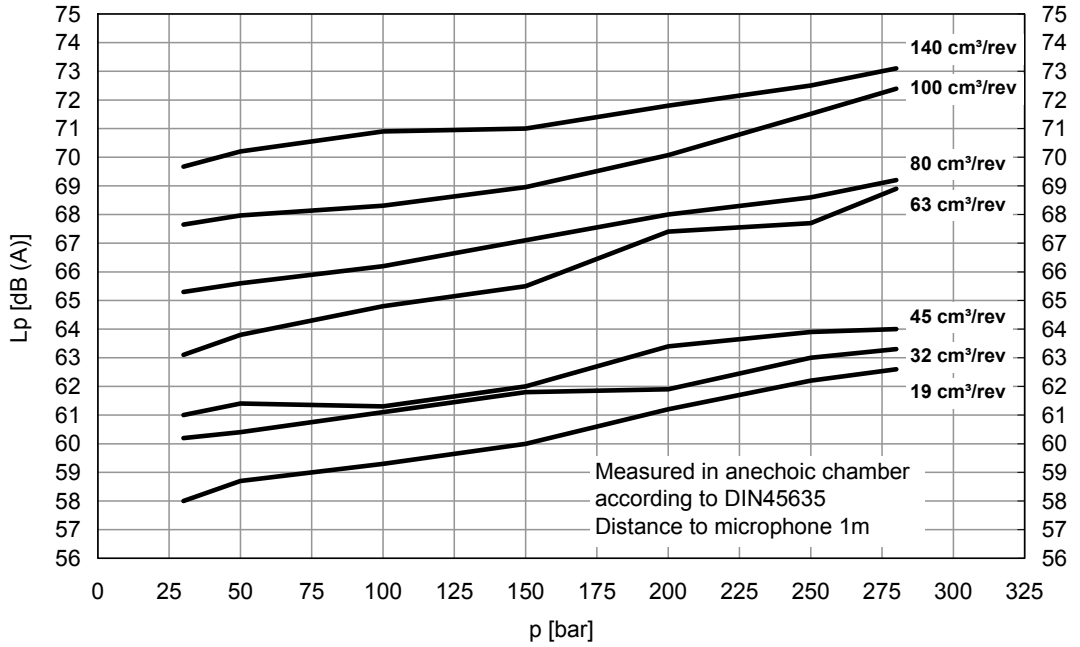


Figure 1: Noise pressure levels of the RKP-II with load sensing compensator J1 at n = 1500 min^{-1} and Q = Q_{max}

1.2 Pressure Pulsation

For the sizes 32 and 45 cm³/rev, pressure pulsation on the pressure side has been reduced by between 25 to 35 %, depending on the duty point.

1.3 Viscosity Range of the Hydraulic Fluid

For RKP-II with electro-hydraulic control, the maximum permitted viscosity range of the hydraulic fluid has been extended. The same viscosity range now applies to all types of compensators. For the exact values, please refer to the RKP-II catalogue.

2 Suction, Pressure and Leakage Fluid Ports

Suction, pressure and leakage fluid ports of size 19 cm³/rev remain unchanged.

2.1 Position of the Ports

The position of the fluid ports on sizes 32 and 45 cm³/rev has changed by up to 6 mm when compared to the RKP. The drawings shown in Figures 2 to 4 set out the new dimensions when compared to those on the previous RKP. Dimensions which have not changed have been omitted from this representation.

2.2 Size of the Suction Port

For the sizes 32 and 45 cm³/rev, the suction port was enlarged to SAE $1^1/_2$“. This enables the connection of a $1^1/_2$“ suction pipe without the requirement for a reducing piece as needed previously. The sizes of the pressure port and the leakage ports remain unchanged.

Table 1 displays the available port options. Data which has changed with respect to the previous RKP is shown in italics. To refer to these options in the type designation code, the new letters K and T are used. For comparison, the port options of the previous design RKP are listed in Table 2.

	Medium pressure series 280 bar			**High press. series 350 bar**	
Size **Port option**	19 cm³/rev S	32 cm³/rev ***K***	45 cm³/rev ***K***	19 cm³/rev H	32 cm³/rev ***T***
Pressure port	SAE $^3/_4$“ 3000 psi	SAE 1“ 3000 psi		SAE $^3/_4$“ 6000 psi	SAE 1“ 6000 psi
Suction port	SAE $^3/_4$“ 3000 psi	***SAE $1^1/_2$" 3000 psi***		SAE $^3/_4$“ 6000 psi	***SAE $1^1/_2$" 3000 psi***

Table 1: Port options of the RKP-II, sizes 19, 32 and 45 cm³/rev

	Medium pressure series 280 bar			**High press. series 350 bar**	
Size **Port option**	19 cm³/rev S	32 cm³/rev S	45 cm³/rev S	19 cm³/rev H	32 cm³/rev H
Pressure port	SAE $^3/_4$“ 3000 psi	SAE 1“ 3000 psi		SAE $^3/_4$“ 6000 psi	SAE 1“ 6000 psi
Suction port	SAE $^3/_4$“ 3000 psi	SAE 1“ 3000 psi		SAE $^3/_4$“ 6000 psi	SAE 1“ 6000 psi

Table 2: Port options of the previous design RKP

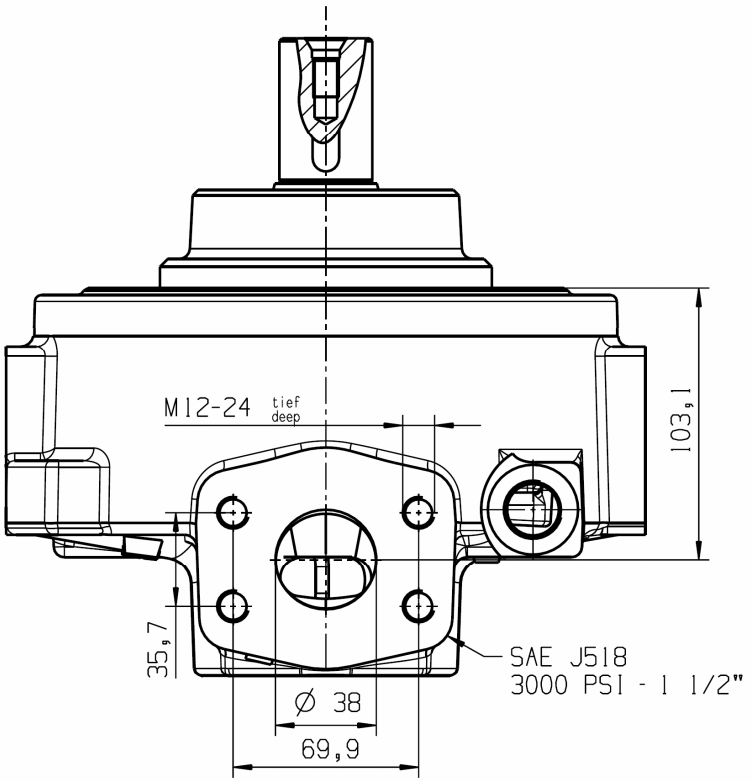
2.3 Connection of an Existing Suction Pipe to an RKP-II

If an existing RKP has to be replaced by an RKP-II, the above mentioned differences have to be taken into consideration (exception: sizes 19 and 140 cm³/rev). Specifically:

The pressure pipe and the leakage pipes are mostly built as hoses and therefore allow for a certain displacement of the ports. In each particular case, it has to be confirmed that sufficient space is available.

The suction port is often connected to a solid pipe that has to match in position and size a hole in the tank cover. In this case, a suitable adapter can be used to compensate for the different flange sizes and the offset. The suction pipe must then be shortened by the thickness of the adapter. Information on such adapters are available upon request from Moog.

RKP-II
Suction Side



RKP
Suction Side

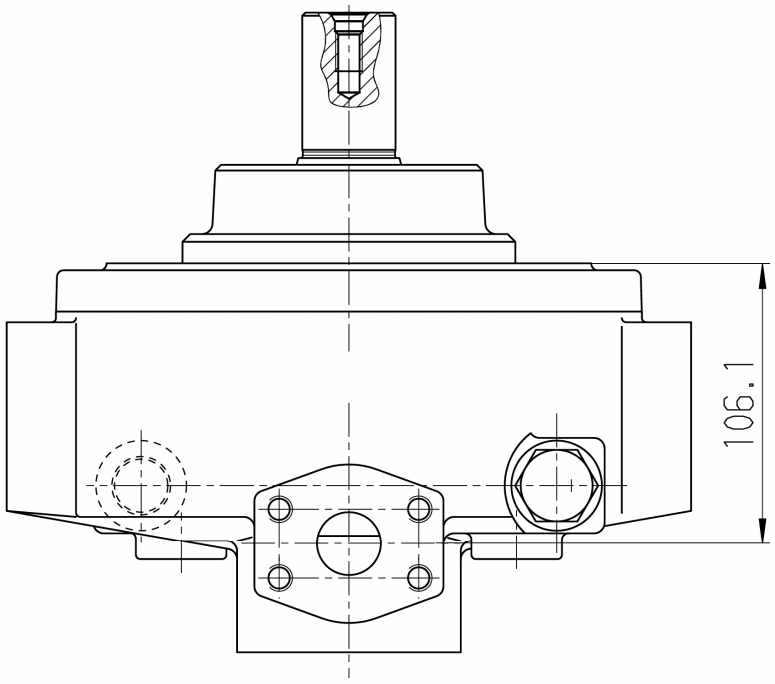
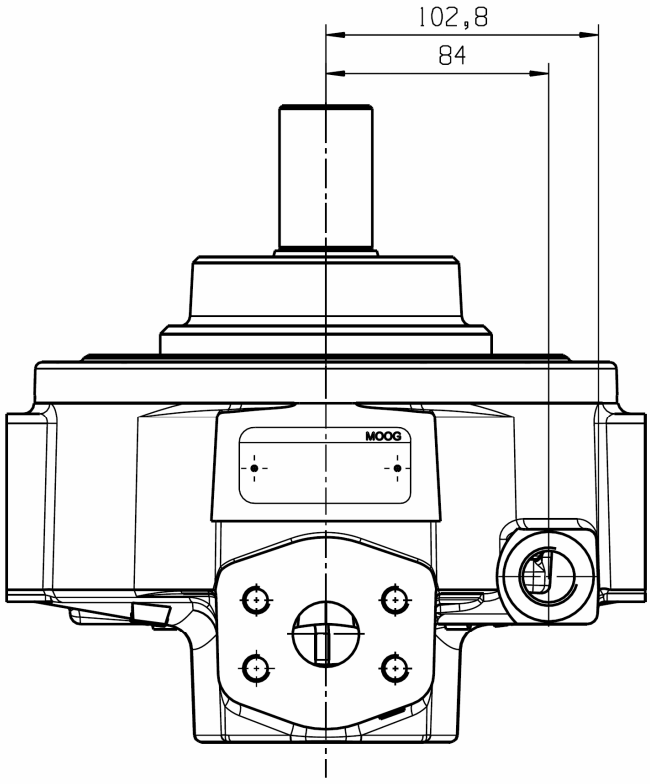


Figure 2: Comparison of the suction sides of RKP-II and the previous design RKP, sizes 32 and 45 cm³/rev

RKP-II
Pressure Side



RKP
Pressure Side

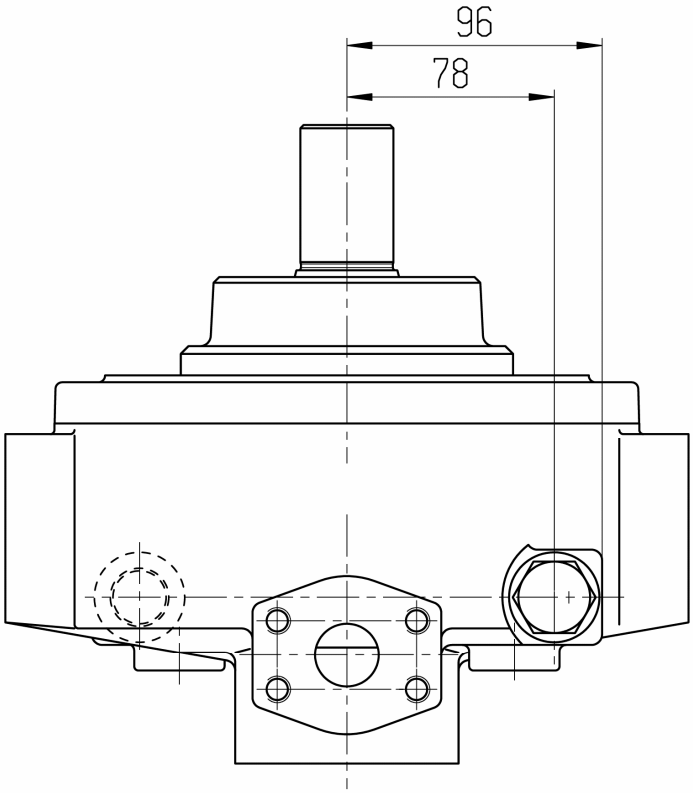
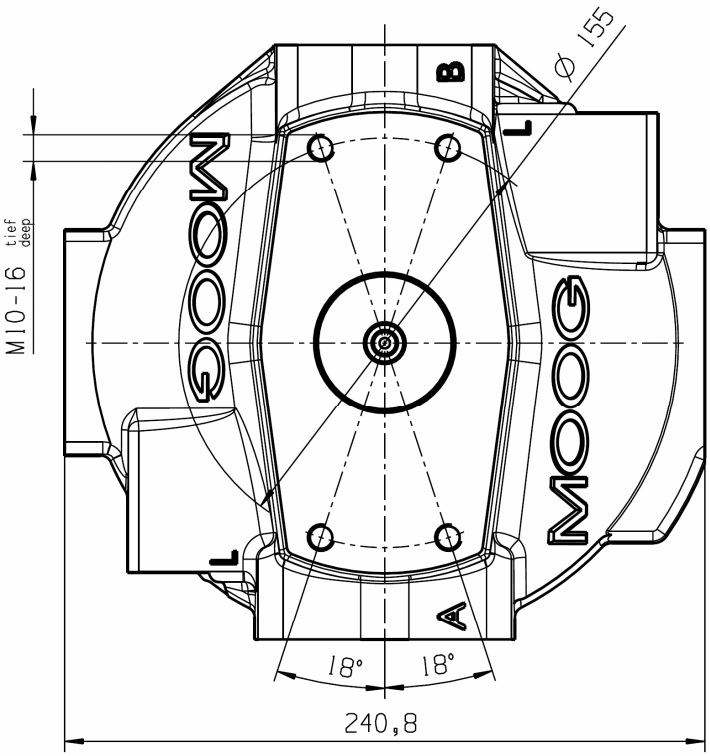


Figure 3: Comparison of the pressure sides of RKP-II and the previous design RKP, sizes 32 and 45 cm³/rev

RKP-II
Rear Side



RKP
Rear Side

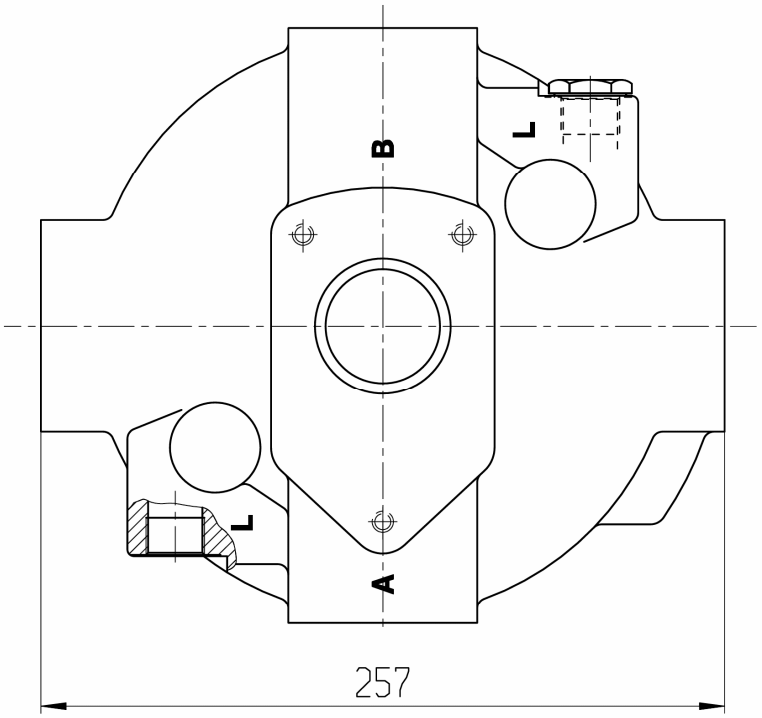


Figure 4: Comparison of the rear sides of RKP-II and the previous design RKP, sizes 32 and 45 cm³/rev (A = suction port, B = pressure port)

3 Control and Tank Port of H1, H2, J1, J2, R1, R2, S2 and S3-Type Compensators

The control port connection has been changed from M 12x1,5 to G $^1/_4$. The tank port connection (only existent in R1 and R2-type compensator) has been changed from M 14x1,5 to G $^1/_4$, too. The position of the ports in the compensator housing remain unchanged. As an example, Figure 5 shows the R1-type compensator with the new port connections.

Fittings with G threads are available for all recommended control hose sizes. An additional adapter fitting is no longer required.

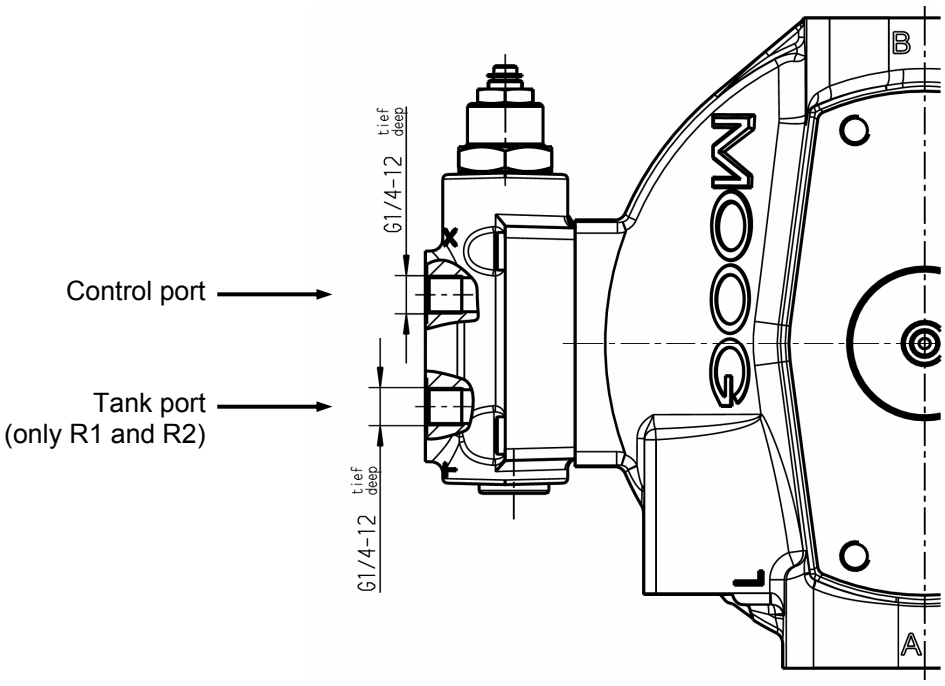


Figure 5: R1-type compensator of the RKP-II, sizes 19, 32 and 45 cm³/rev

4 Mounting additional pump stages

Multiple pump arrangements can be composed from RKP-II of all sizes. In addition, RKP and RKP-II of sizes 19, 63, 80, 100 and 140 cm³/rev can be combined across the product lines.

Furthermore, by means of new flange adapters, any pumps with a drive flange according to SAE-A or SAE-B (for 19 cm³/rev only SAE-A) can be mounted. This represents a significant extension in flexibility.

The flanges of the new Moog gear pumps are also configured to either SAE-A or SAE-B, depending on size. The previously used Bosch gear pumps for RKP (1517 222 xxx) cannot be used in combination with the RKP-II.

Note on nominal pressure and maximum permitted pressure:
The nominal pressure of an RKP-II specifies the pressure resistance of the single pump. The maximum permitted pressure of a pump stage within a multiple pump additionally depends on the flows and the maximum permitted drive-through torques and thus may be lower than the nominal pressure. Please follow the instructions in the RKP-II catalogue.

5 Order Information

5.1 Model Number

The model numbers of the RKP-II follow a new format which is set out in Table 3. The convention for the direction of rotation applies to both the new and existing pumps: Odd consecutive numbers refer to a clockwise rotation, even consecutive numbers to a counter clockwise rotation.

D 95 . - . . . . -10			
Country Code			**Packing Index**
Germany **D**			**-10** Standard packing
Series		**Consecutive Number**	
Radial piston pump **95**		**0001..2000**	Pump stage (first, middle or last stage)
Size		**2001..5000**	Single pump*
19 cm³/rev **1**		**5001..7000**	Double pump*
32 cm³/rev **2**		**7001..8000**	Triple pump*
45 cm³/rev **3**		**8001..9999**	Special version*
63 cm³/rev **4**	**Modification**		
80 cm³/rev **5**	**-**	Standard according to type designation code	
100 cm³/rev **6**	**E**	Customer prototype	
140 cm³/rev **7**	**K**	Ex Version gas and dust	
	Z	Special version	

*) Pumps can contain gear pumps, but those do not count as pump stages.

Table 3: Model numbers of the RKP-II

Examples:	**D955-0009-10**	Pump stage with 80 cm³/rev as part of a multiple pump
	D955-2021-10	Single pump with 80 cm³/rev
	D954-5053-10	Double pump with 63 cm³/rev as first stage
	D956-7015-10	Triple pump with 100 cm³/rev as first stage
	D956Z8017-10	RKP-II special version with 100 cm³/rev

5.2 Nameplate

The layout of the nameplate of the RKP-II can be seen in Figure 6. For systems made up of multiple pump stages, each individual stage will have its own nameplate

Figure 6: Nameplate of the RKP-II