

Data sheet

Gear pumps
R46/112 to R46/230



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An example configuration is shown on the title page. The delivered product may be different than the one shown.

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1 Description

1.1 Design

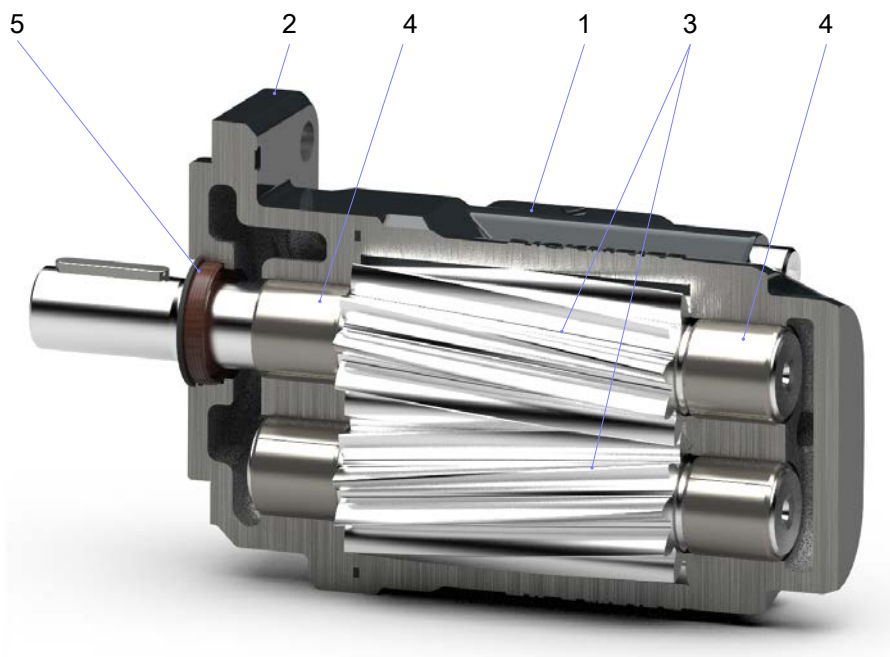


Fig. 1: Gear pump - standard design

1 Gear casing	2 Driving cover
3 Hardened gear shafts	4 Multicomponent friction bearing
5 Radial shaft seal	

1.2 Product description

RICKMEIER gear pumps in the R6 series are characterised by a simple and robust structure. Optimised flow channels ensure good priming characteristics and quiet running. Together with a special design of the toothing and the gear casing, an extremely low noise level is ensured during operation. In particular when pumping foamed oil, a special casing finish ensures additional noise reduction.

The casings of the standard version are made of grey cast iron, the gear parts of hardened steel. Generously dimensioned, lead-free multicomponent friction bearings have a long service life and very good dry-running properties.

The shaft seal is designed as standard with a friction-optimised radial shaft seal. In addition, numerous sealing variants are possible.

2 Direction of rotation and delivery

2.1 Determining the direction of rotation

Unless otherwise stated, the gear pump direction of rotation is "clockwise" when looking at the face of the driving gear shaft (see the following figure).

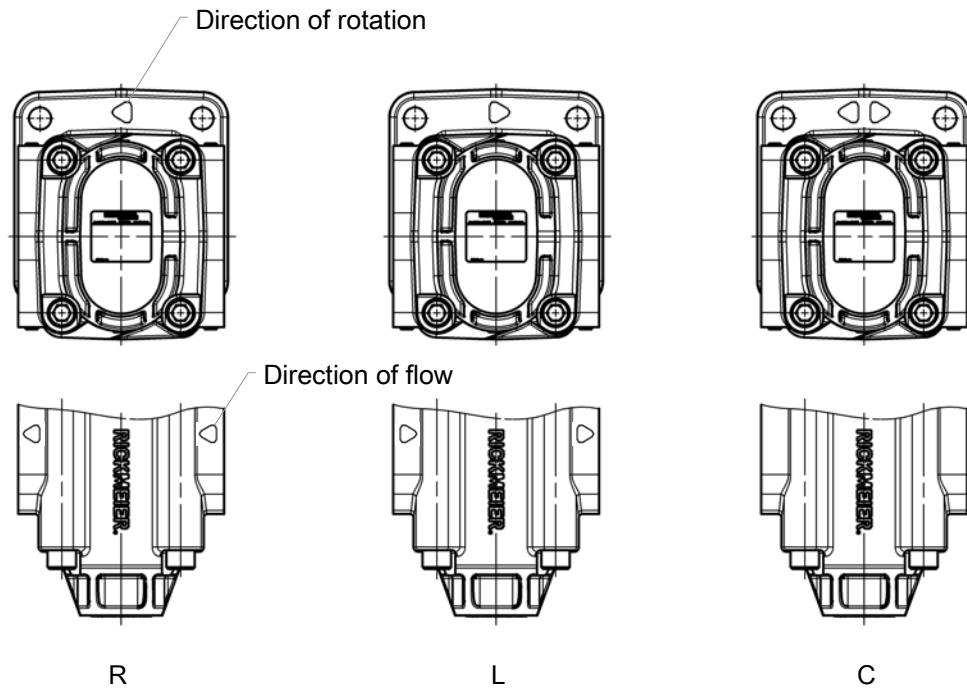


Fig. 2: Direction of rotation and delivery

(Direction of rotation R: clockwise; direction of rotation L: anti-clockwise; direction of rotation C: clockwise and anti-clockwise)



Note

When the optional C version is equipped, the gear pumps can be operated in both clockwise and anti-clockwise rotation (with changing direction of delivery). This version is only possible in the case of gear pumps without a pressure relief valve.

3 Standard design and variants

The variable modular system of RICKMEIER gear pumps in the R6 series makes it possible to implement a wide variety of material, casing, sealing and functional variants.




For pumping special media, the gear pumps can also be equipped with other sealing materials (e.g. NBR, HNBR, PTFE, EPDM etc.). Just contact us.



3.1 Materials

	Standard
Casing	EN-GJL-250 (GG-25)
Gear wheel shafts	Case-hardened steel (16MnCrS5)
Radial shaft seals	FKM
Mechanical seals	Hard carbon/SiC
O-rings	FKM
Friction bearing	Lead-free composite bearing
Corrosion protection	2-component paint, RAL 7021

Tab. 1: Materials

3.2 Shaft seal

W	Single radial shaft seal	
WD	Single radial shaft seal for inlet pressure >0.5 bar to max. 5 bar (depending on the speed)	
2WT	Double radial shaft seal sealing to the pump and externally <i>For media separation</i>	
2WS	Double radial shaft seal sealing to the pump <i>For special flow media, with liquid reservoir (optionally with container)</i>	
2WV	Double radial shaft sealing to the liquid reservoir <i>For vacuum applications, with liquid reservoir (optionally with container)</i>	Similar to illustration "2WS"

GLRD	Mechanical seal	
VLW	Attachment bearing with single radial shaft seal	
VL	Attachment bearing without seal	Similar to illustration "VLW"
MK	Magnetic coupling	Without illustration
OD	Without seal	Without illustration

Tab. 2: Shaft seal design variants

4 Designation and configuration

4.1 Type key

The designation of the RICKMEIER gear pumps in the R6 series is made according to the following key:

Order example							
R46/	160	FL	-	Z	-	W	- SAE2.1/2 - R - ...
1.	2.	3.		4.		5.	6. 7. 8.

Type key		
1.	Series R6	
2.	Vg/revolution in cm ³	
3.	Design	FL Flange
4.	Shaft end	Z Cylindrical
		K Cone 1:10
		M Tappet
		V Gearing DIN 5480
5.	Shaft seal	W Single radial shaft seal
		WD Single radial shaft seal for inlet pressure >0.5 bar
		2WT Double radial shaft seal sealing to the pump and externally
		2WS Double radial shaft seal sealing to the pump
		2WV Double radial shaft sealing to the liquid reservoir
		GLRD Mechanical seal
		VL Attachment bearing without seal
		VLW Attachment bearing with single radial shaft seal
		MK Magnetic coupling
		OD Without seal
6.	Connection size	SAExx Suction line and pressure side the same
		SAExx/SAExx Suction/pressure side different
7.	Direction of rotation	R Clockwise
		L Anti-clockwise
		C Clockwise and anti-clockwise
8.	Special design	"empty" Standard or predefined optional design
		SO Special design

5 Technical data

The technical data in this catalogue are intended for general information. During installation, operation and maintenance, the operating instructions and the information specified on the products must be observed.

5.1 Operational limits

The maximum permissible operating conditions for gear pumps in the standard version are described in the following. Contact RICKMEIER whenever it is necessary to exceed these specifications. In such cases, please contact our [Sales](#) department.

As a prerequisite for a long service life and maximum operational safety, the flow medium must retain its lubricity and, if possible, be clean and non-corrosive, but in any case must always be free of hard admixtures.

Consideration must be given also to the following:

Properties		Min.	Max.
Flow medium	Kinematic viscosity	5 mm ² /s ¹⁾	20000 mm ² /s ¹⁾
	Degree of contamination (according to ISO 4406:1999, max.)		21/19/17
	Gas content (undissolved, max.)		10 vol. % ²⁾
	Temperature (FKM seals)	-25 °C	150°C ³⁾
Inlet pressure (constant pressure in accordance with DIN 24312) ⁴⁾	Radial shaft seal, standstill	-0.5 bar	5 bar
	Radial shaft seal during operation	-0.4 bar ⁵⁾	0.5 bar ⁶⁾
	Mechanical seal	-0.4 bar ⁵⁾	10 bar ⁷⁾
	Magnetic coupling	-0.4 bar ⁵⁾	16 bar ⁷⁾

Tab. 3: Operational limits of the standard design

¹⁾ Depending on the application and operating conditions, lower and/or higher viscosities are possible, please contact us.

²⁾ Undissolved gas in the flow medium leads to increased noise emissions.

³⁾ If used above 120 °C, special measures may be required under certain circumstances (e.g., heat-resistant clutch); with optionally available sealing materials, different temperature ranges can be implemented.

⁴⁾ Manometric

⁵⁾ For speeds up to 1500 rpm, up to -0.5 bar permissible; in the short term: -0.6 bar (e.g., during start-up)

⁶⁾ With RWDR variant WD up to 5 bar (depending on the speed)

⁷⁾ Versions for higher pressures available on request

5.2 Operating data

Size	Delivery volume	Max. approved operating data		Flow medium
		Operating pressure	Speed	Kin. viscosity 33 mm ² /s Outlet pressure p ₂ = 5 bar Speed 1450 rpm
	V _g [cm ³]	p [bar]	n [1/min]	Q [l/min]
R46	112	25	3000	156
	125			175
	160			228
	180			251
	200			280
	230			323

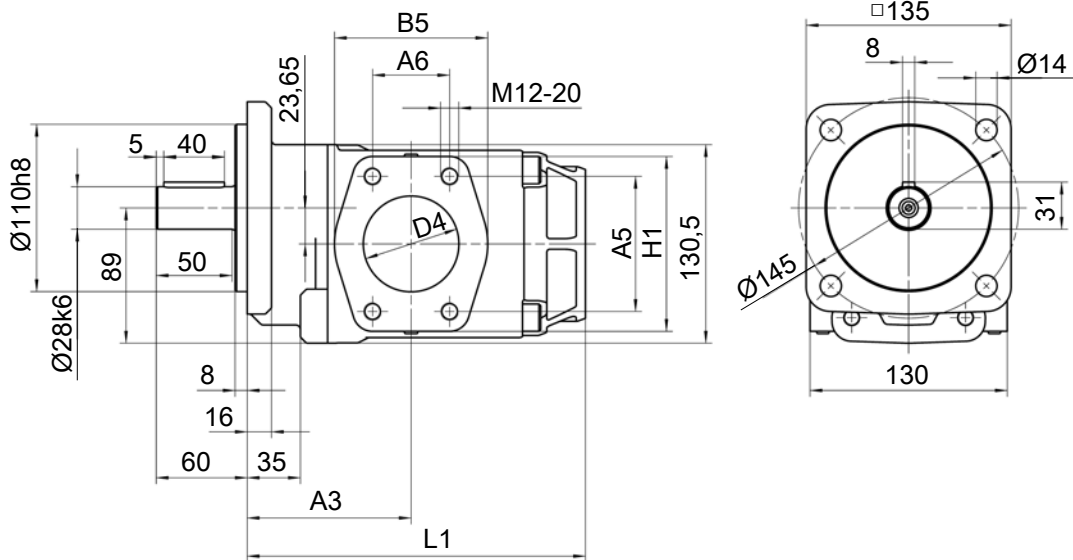
Tab. 4: Maximum approved operating data

For certain operating conditions, the maximum approved operating data given in the table must not be used simultaneously. For example, avoid high operating pressures at low speed. High operating pressures in conjunction with high speed and high viscosity are also not permissible in certain combinations. Please contact us if operation of the gear pump in these limit ranges is expected.

6 Dimensional sheets of gear pumps

The following pages contain dimensions of the gear pumps in the basic version. If you have questions about the design or special designs, please contact us.

6.1 Size R46



V_g [cm ³]	Suction connection						Pressure connection					Additional dimensions		Weig [kg]	
	Flange size	A5	A6	B5	D4	H1	Flange size	A5	A6	B5	D4	H1	A3		L1
							[*]	[*]	[*]		[*]				
112															
125	SAE2.1/2	88.9	50.8	101	63	115	SAE2.1/2	88.9	50.8	101	63	115	108	222.9	15
160							SAE2	77.8	42.9		50				
160															
180							SAE3	106.4	61.9		76				
200	SAE3	106.4	61.9	124	76	135	SAE2.1/2	88.9	50.8	124	63	135	119.5	255.6	17.3
230															

Tab. 5: Dimensional sheet of size R46

[*] = optional