

Micro-Axial piston pumps

Type AKP20

up to 300 bar

0,012 cm³/rev

Features

- High volumetric efficiency
- Low noise level
- Wide speed range
- Continuous self lubrication and cooling through the suction flow
- Usable also in adverse ambient conditions
- Can be operated at high temperatures



Applications

- Oil and gas: directional drilling systems
- Hydraulic systems with small Volume flow rates

Design

- Design with 3 pistons
- Valve controlled on pressure and suction side (not usable as motor)
- Swash shaft with amply dimensioned rolling bearings
- Rotating wobble plate
- Submerged pump, suction side open to tank, no shaft seal
- Small mounting dimensions
- Interface for the direct fitting of the WITTENSTEIN motor type MRSR019A-060H-5C...



Technical data

Hydraulic fluid	mineral oil according to DIN 51524 (other fluids on request)	
Fluid temperature range	-20 to 175 °C	
Ambient temperature range	-30 to 175 °C	
Viscosity range	3 to 220 mm ² /s	
Filtration (recommendation)	according to NAS 1638, class 6 resp. ISO/DIN 4406 17/15/12	
Max. operating pressure	300 bar	
Displacement volume	0,012 cm ³ /rev	
Operation pressure at suction port	open to tank, no shaft seal, up to 2000 bar ambient pressure	
Suction strainer	120 µm	
Axial force onto driving shaft	not allowed	
Radial force onto driving shaft	not allowed	
Rotation speed range	100 to 5000 min ⁻¹	
Direction of rotation	any	
Weight	see overview "Product informations"	
Materials	housing:	corrosion resistant steel
	pump head:	high-strength steel

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Type code

Example

AKP	20	- 0,012 -	300 -	V	- A		04
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MICRO-Axial piston pumps

Size 20

Displacement volume [cm³/rev] 0,012

Max. operating pressure [bar] 300

Seal material V FKM
other seal materials on request

Design
00 ... 99
For internal purposes

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For internal purposes

Design revision
For internal purposes

Product informations

Size	Displacement volume [cm ³ /U]	Max. operating pressure [bar]	Number of pumping elements	Weight [kg]	Max. torque [Nm]	Max. power [kW]	Part No.
20	0,012	300	3	0,12	0,06	0,042	on request

Calculation of driving motor power

$$P = \frac{p \cdot V_g \cdot n \cdot k}{\eta_t \cdot 600 \cdot 10^3}$$

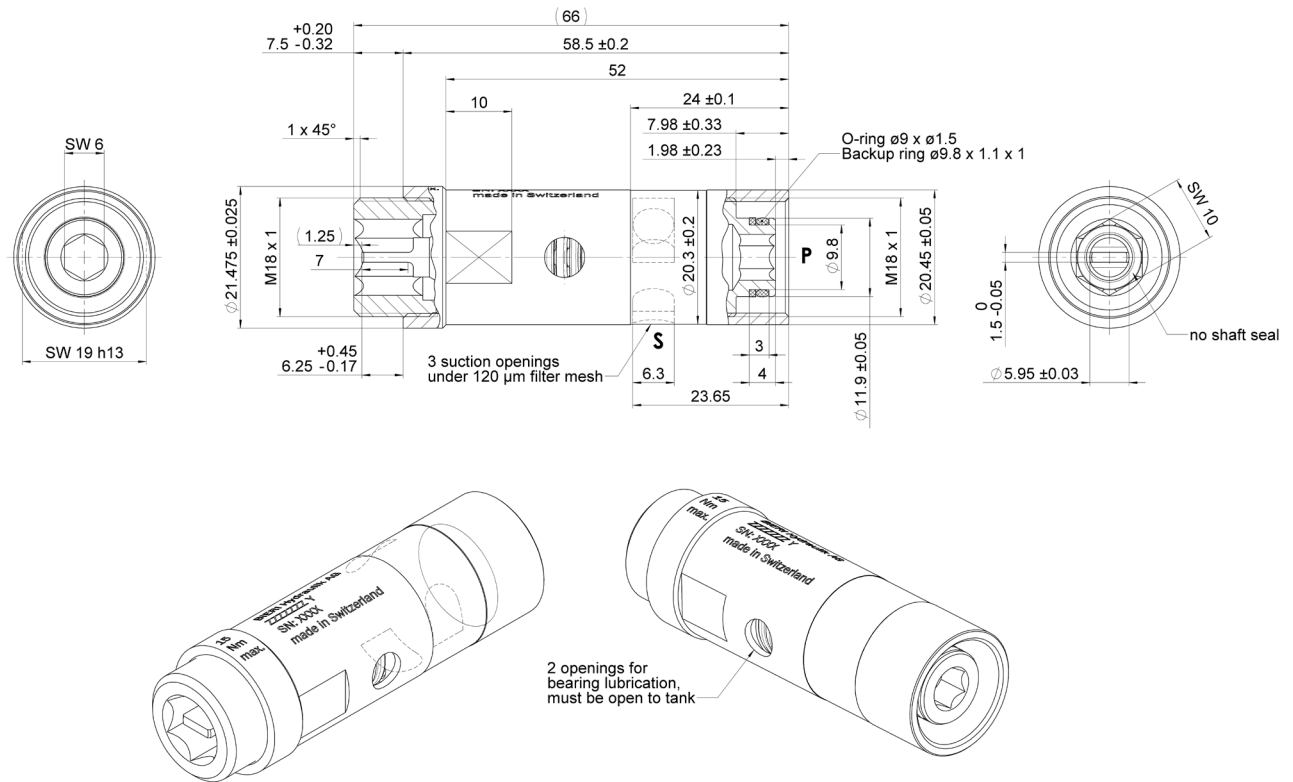
P = driving power [kW]
 p = operating pressure [bar]
 V_g = displacement volume [cm³/rev]
 n = speed [rpm]
 η_t = overall efficiency approx. 0,75
 k = pulsation factor
 - with 3 pistons: k approx. 1,05

Calculation of driving motor torque

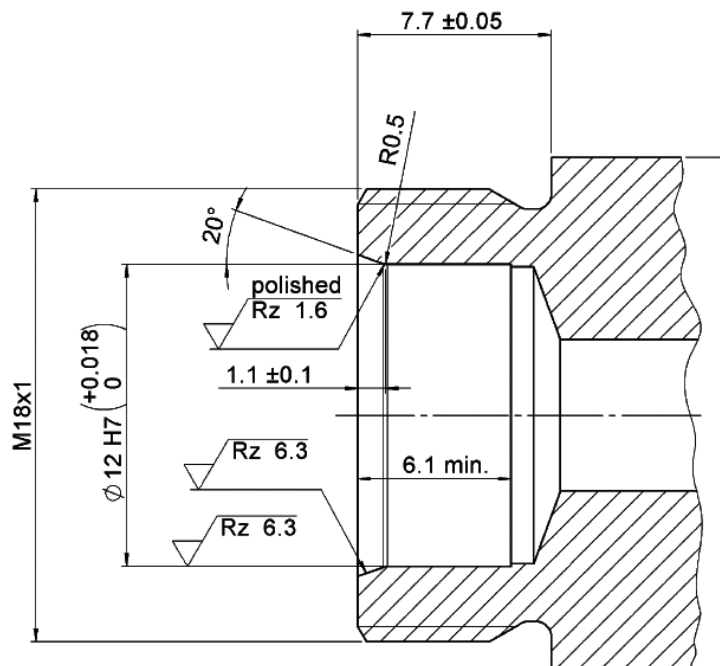
$$M = \frac{p \cdot V_g}{62,8 \cdot \eta}$$

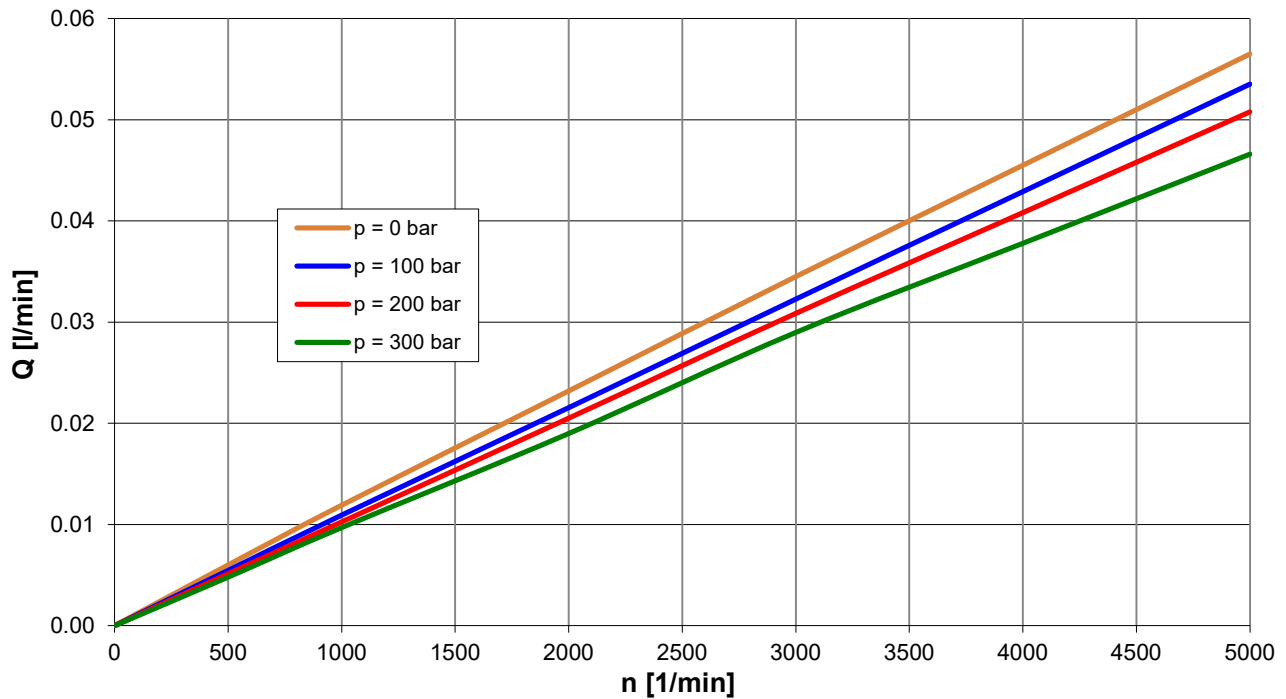
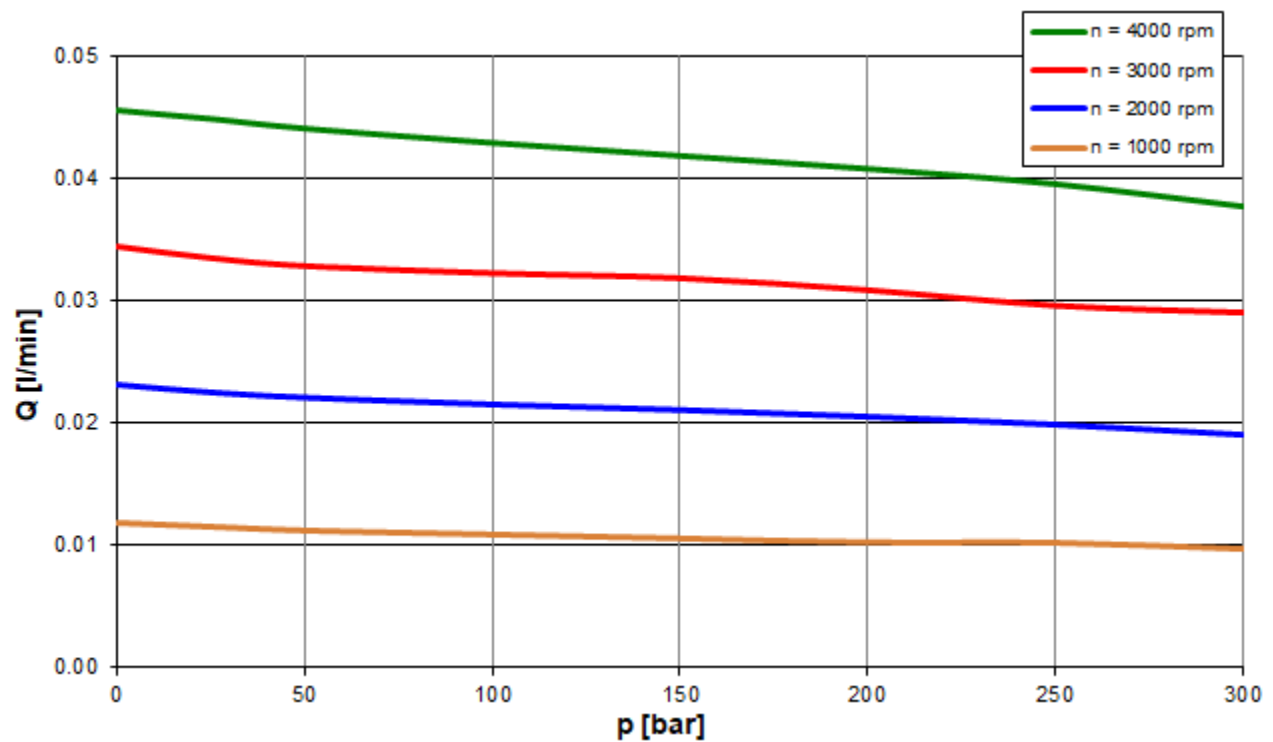
M = torque [Nm]
 V_g = displacement volume [cm³/rev]
 η = overall efficiency approx. 0,75

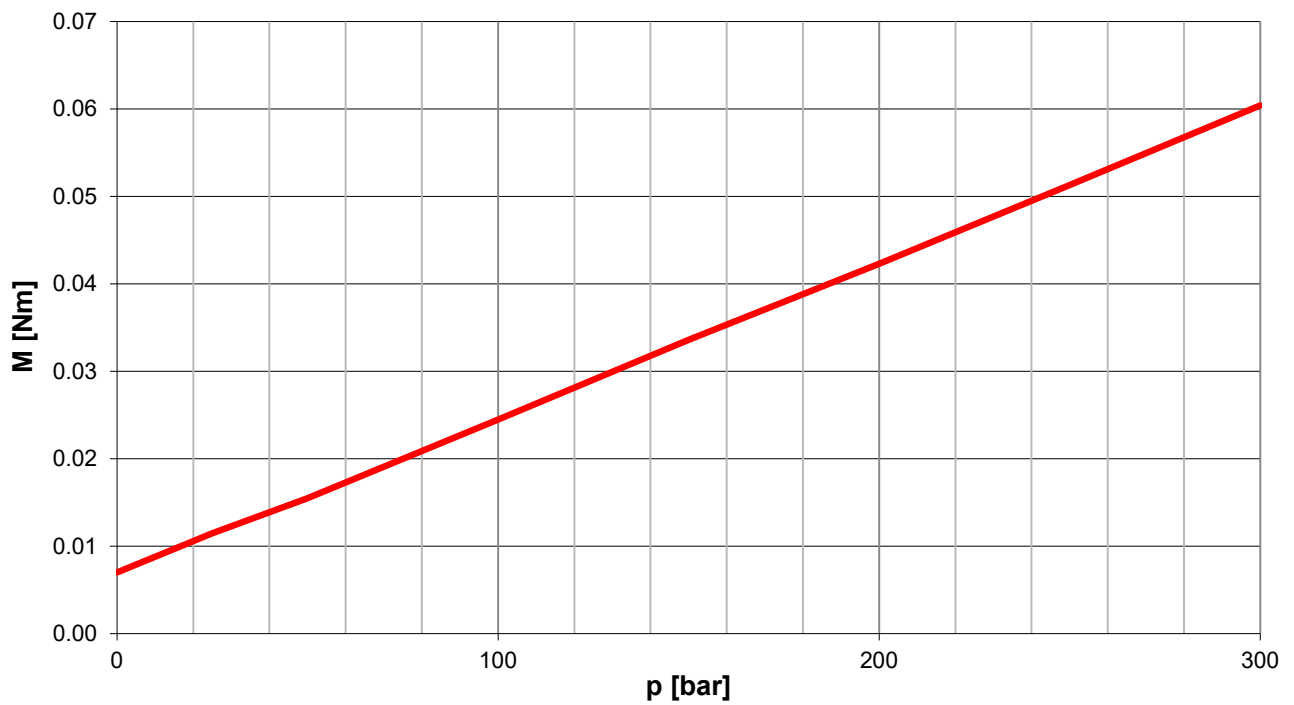
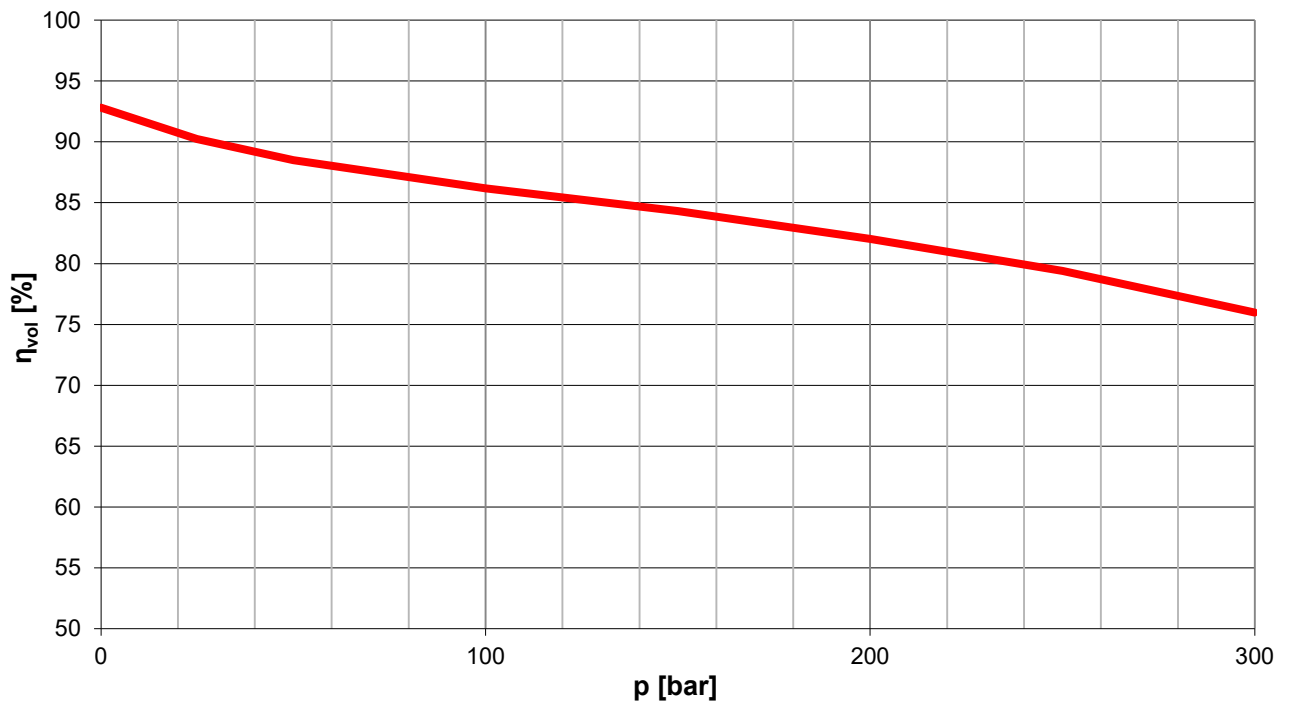
Dimensional drawings



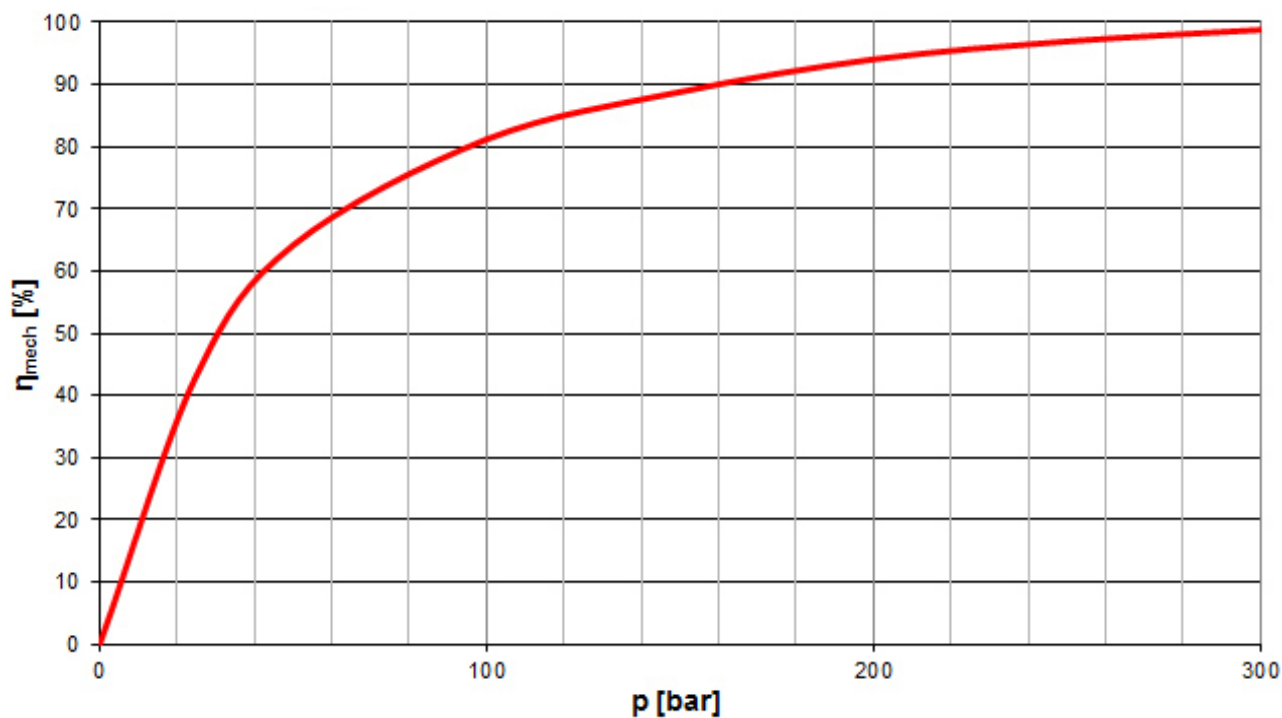
Interface für pressure connection



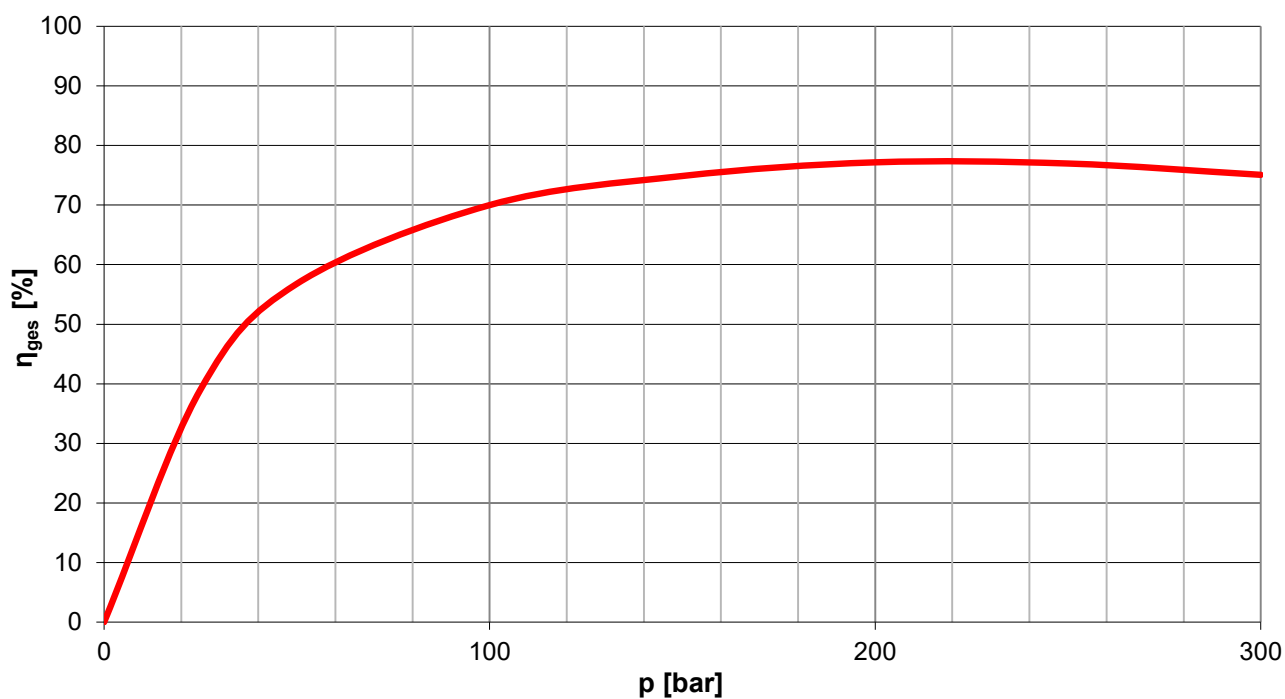
Characteristics(v = 30 mm²/s, T = 40 °C)**Volume flow rate as a function of rotation speed****Volume flow rate as a function of pressure**

Torque in function of pressure**Volumetric efficiency as a function of pressure**

Mechanical efficiency as a function of pressure



Overall efficiency as a function of pressure



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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.