## The Feed Pump Type SKK

### The variants of the feed pump SKK

**Type SKK**
- rotation-independent
- safe to run dry (no metal contact)
- sturdy construction with one-sided bearing
- power transmission gears in the oil bath
- additional bearing in the cover for higher pressures
- several sealing types
- easy assembly
- several types of pipe connections

**Type SKKM**
- casing with cover heating
- entirely closed heater jacket
- any heating with water, steam or oil is possible
- heating circuit-pressure max. 6 - 8 bar
- heating temperature up to 200 °C (standard), higher temperatures on request

**Type SKKE**
- electrical cover heating
- heatable by 2 heating cartridges
- temperature controlled
- adjustable up to 200 °C (standard), higher temperatures on request

### Range of pumping liquids (extr.)

**Biotechnology**
- Cell suspensions, enzymes, nutrient solutions

**Chemistry**
- Adhesives, artificial resin solutions, colours, dispersed synthetic resin, gelatine, lacquers, underseal, washing powder slurries

**Beverage industry**
- Advocaat, beer mash, fruit concentrates, malt extract, syrup, yeast

**Milk products**
- Butter, cheese curd, cream, margarine, mayonnaise, concentrates of milk, skimmed milk and whey, pudding, processed cheese, yoghurt

**Food**
- Apple purée, aspic, baby food, blood, cake mixtures, egg products, animal and vegetable fat, honey, jam, mustard, salads, sauces, sausage meat, soups, tomato ketchup

**Petrochemistry**
- Additives, bio diesel, bitumen with fillers, diesel oil, glyzerine, lubricants, mineral and synthetic oils, pitch, pure bitumen

**Pharmaceutics / cosmetics**
- Cremes, foam bath, make-up, lotions, plant extracts, ointments, shampoo, toothpaste

**Sugar / Sweets**
- Chocolate, chocolate fillings, cocoa butter, cocoa mass, fondant, jam, liquid sugar, liquorize, mass for sweets, molasses, starch solution, toffee

### Reference technical data

**Feeding capacity** 60 - 1.700 cm³ / turn

**Tolerated overpressure** depending on the application up to max. 20 bar

**Viscosity range** depending on the application up to 100.000 mm²/s
Main characteristics

The series of the types SKK offers a wide range of different variations and constructions for the transport of nearly all pumpable media.

The pump consists of the gear component with synchronous drive of the two rotary pistons and the part of the pump containing the casing with suction and pressure joint and the two rotary pistons.

The sturdy bearing is located in the gear component, protected against the pumping liquid by different seals. On the other hand, special seals prevent any leaking of the transmission lubricant out of the gear component.

Since the pistons and the walls in the pump rooms must not touch each other in a rotary piston pump, a slight slipping cannot be avoided. However, it only shows when products of low viscosity (e.g. water) are pumped against pressure. In this case the lower speed range cannot be used.

Products having a viscosity of more that approx. 300 mm²/s (cSt) hardly show any slipping. The volumetric efficiency for these products is nearly 100%.

The suction capacity of the SKK pump very much depends on the viscosity and the speed. The suction capacity of the filled pump works against a water column of at least 8 m, a vacuum of approx. 100 mbar respectively.

It is easy to clean and to maintain. All parts of the pump have easy access for inspection and cleaning once the nuts have been unscrewed and the cover has been taken off. The pipe connections do not have to be removed.

If products are pumped that do not stick or become hardened, it is sufficient to rinse the rotary piston pump well with water or any suitable solvent. Thus the pumps cleans itself.

If the pump is used in the food industry, in the pharmaceutical and the cosmetics’ industries, the rotary piston pump SKK has a special construction so that it can be dismounted quickly. Thus all parts coming into contact with the product (casing, pump, etc.), as well as the sealing parts can be easily reached for cleaning. There are no dead corners, uncontrollable pits etc. The pump can also be sterilized by blowing steam through it.

Use in the ATEX range

We deliver rotary piston pumps according to EC Guideline 94/9/EC.

Zone 1 + 21 (II 2 G / D T3 and T4) units, which assure a high level of security. Designed for the use in an atmosphere that is potentially explosive. Shaft seal (G + GG) without temperature control.

Zone 2 + 22 (II 3 G / D T3) units, which assure a normal level of security. Designed for use in atmospheres that rather seldom and if so, only shortly might be potentially explosive. Shaft seal (P, G + SS) without temperature control.
The **open piston** type G is used for media of low viscosity in combination with the shaft seals G and GG.

The **closed piston** type P is used for media of higher viscosity in combination with the shaft seals P and SS.

**Recipients**

- **Recipient** (unpressurized) made of natural glass
- **Stainless steel-recipient** to be pressurized, conform to ATEX
- **Stainless steel-recipient** to be pressurized with float switch, conform to ATEX
- **Thermosiphon system** to be pressurized with cooling spiral and back-feed pump, conform to ATEX
Survey of structural components

- Clamp-port
- Flange port
- Milk pipe port
- Thread port
- Customer port

Main structural components of the pump:
- Cover G
- Rotary piston G

Connection variants at the pressure and suction port:
- Cover jacket heated (M)
- Cover electr. heating (E)

Optional structural components:
- Pressure relief valve

Optional, heatable covers:
- Cover P

- Rotary piston P
The parts of the SKK pump shown in the survey of structural components shall illustrate the great amount of variants available for this pump type.

For reasons of clarity we cannot show all optional structural components. We only show the main parts here. Besides these variants, we offer casings, pistons and covers in different materials, offering further possibilities of combination.

Gebr. Steimel is your partner for individual solutions. Please contact us without any obligation, if you need further information concerning the standard components or are interested in a special variant that is not shown here and that is adapted to your needs.

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1. If you do not find your connection here, please contact us!
2. Recipient for quench liquid acc. to ATEX. The thermosiphon system that is also available is not shown here.
3. The heatable covers that are available as an alternative to the standard covers are available as G and P variants.
## Throughputs

<table>
<thead>
<tr>
<th>Size</th>
<th>Power rating</th>
<th>Pressure p (bar) at speed n = 200 1/min</th>
<th>Pressure p (bar) at speed n = 400 1/min</th>
<th>Throughputs cm³/turn</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>SKK 3/060</td>
<td>l/min</td>
<td>11</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Motor¹</td>
<td>kW</td>
<td>0.2</td>
<td>0.24</td>
<td>0.3</td>
</tr>
<tr>
<td>SKK 3/105</td>
<td>l/min</td>
<td>20</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Motor¹</td>
<td>kW</td>
<td>0.25</td>
<td>0.34</td>
<td>0.42</td>
</tr>
<tr>
<td>SKK 3/210</td>
<td>l/min</td>
<td>38</td>
<td>34</td>
<td>29</td>
</tr>
<tr>
<td>Motor¹</td>
<td>kW</td>
<td>0.37</td>
<td>0.55</td>
<td>0.55</td>
</tr>
<tr>
<td>SKK 4/0250</td>
<td>l/min</td>
<td>49</td>
<td>48</td>
<td>47</td>
</tr>
<tr>
<td>Motor¹</td>
<td>kW</td>
<td>1.1</td>
<td>1.1</td>
<td>1.5</td>
</tr>
<tr>
<td>SKK 4/0350</td>
<td>l/min</td>
<td>72</td>
<td>70</td>
<td>68</td>
</tr>
<tr>
<td>Motor¹</td>
<td>kW</td>
<td>1.1</td>
<td>1.1</td>
<td>1.3</td>
</tr>
<tr>
<td>SKK 4/0500</td>
<td>l/min</td>
<td>102</td>
<td>100</td>
<td>98</td>
</tr>
<tr>
<td>Motor¹</td>
<td>kW</td>
<td>1.4</td>
<td>1.7</td>
<td>2.0</td>
</tr>
<tr>
<td>SKK 5/0850</td>
<td>l/min</td>
<td>178</td>
<td>170</td>
<td>165</td>
</tr>
<tr>
<td>Motor¹</td>
<td>kW</td>
<td>2.2</td>
<td>2.2</td>
<td>3.0</td>
</tr>
<tr>
<td>SKK 5/1700</td>
<td>l/min</td>
<td>360</td>
<td>355</td>
<td>350</td>
</tr>
<tr>
<td>Motor¹</td>
<td>kW</td>
<td>5.5</td>
<td>7.5</td>
<td>7.5</td>
</tr>
</tbody>
</table>

NkW = nominal power requirement at the pump shaft for a viscosity of 150 mm²/s.
The pump rate (l/min) applies to 200, 400, 600 and 800 1/min. The throughput for other speeds can be calculated accordingly.
Variation of the delivery flow ±5%.

Connections

### Standard connection widths for suction and pressure connections

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>G1/2</td>
<td>G2</td>
<td>G2</td>
<td>G2/2</td>
<td>G2/2</td>
<td>G4</td>
<td>G5</td>
</tr>
</tbody>
</table>

Whitworth-external thread

- **DIN ISO 228-1**

- **DIN ISO 228-1 (for heater jacket)**

- **Tri-Clamp-connection**

- **ISO 2852 / DIN 32 676**

- **Flanged port**

- **DIN 2633 PN 16**

- **DN 25**

- **DN 32**

- **DN 50**

- **DN 65**

- **DN 80**

- **DN 100**

- **DN 125**

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*Modifications reserved.*

*Necessary driving power (20% additional extra has been observed).*
## Versions

<table>
<thead>
<tr>
<th>Cast</th>
<th>casing parts: shafts: pistons: shaft seal:</th>
<th>grey cast iron or nodular iron case hardening steel tempering steel or zinc-free bronze see shaft seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc-free bronze</td>
<td>casing parts: shafts: pistons: shaft seal:</td>
<td>zinc-free bronze stainless steel stainless steel or zinc-free bronze see shaft seals</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>casing parts: shafts: pistons: shaft seal:</td>
<td>stainless steel stainless steel stainless steel or titanium see shaft seals</td>
</tr>
</tbody>
</table>

Other materials, seals and special designs on request.

## Key for variants

### Construction types
- **SKK** standard design
- **E** elektrical cover heating
- **M** heater jacket
- **D** pressure relief valve in the cover
- **GKM** base plate, coupling, motor
- **GKGM** base plate, coupling, gear motor

### Shaft seals
- **P** packing
- **G** mechanical seal (GLRD) with simple effect
- **GG** mechanical seal with double effect and with recipient for quench liquid or thermosiphon system
- **SS** special seal

## Examples for orders

**SKK 5/1700 GGD-GKGM**

<table>
<thead>
<tr>
<th>SKK</th>
<th>pump type</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>size</td>
</tr>
<tr>
<td>1700</td>
<td>volume cm³/turn</td>
</tr>
<tr>
<td>GGD</td>
<td>with mechanical seal with double effect</td>
</tr>
<tr>
<td>GKD</td>
<td>with pressure relief valve in the cover</td>
</tr>
<tr>
<td>GKGM</td>
<td>base plate, coupling, gear motor</td>
</tr>
</tbody>
</table>

## Details in section

Abbreviations see page 7, key for variants.

- **construction D** (pressure relief valve)
- **construction P**
- **construction SS**

Abbreviations see page 7, key for variants.
Examples for types

For the food and chocolate industry

SKK with recipient for quench liquid

SKK unit for the chocolate industry
e.g. chocolate container with SKK rotary piston pumps

Compact pump unit SKK with recipient for quench liquid acc. to ATEX
e.g. rotary piston pumps in printing colour plant

For the colours and lacquers' industry

Compact pump unit SKKE with electrical cover heating
e.g. rotary piston pumps for bitumen conveyor and mixing plants

For bitumen treatment

Compact pump unit SKK with pressure relief valve and recipient for quench liquid
e.g. SKK with thermosiphon system acc. to ATEX in a bio diesel plant

Compact pump unit SKK with thermosiphon system acc. to ATEX in a bio diesel plant
e.g. in acid plant with cooling jacket for media with high temperatures

For the chemical, pharmaceutical industry and petrochemistry

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