About us

Many years of experience
For 50 years, we have been advising machine manufacturers as partners for compact coupling systems. Our experience in power transmission has given us extensive know-how in many industries, as we know and understand the most varied applications, and this allows us to optimally support you. Our products are always a safe choice. No matter if it is a standard product, a coupling tailored to a specific industry, or a coupling solution designed for a specific application.

Products with high technical functionality
Our product range includes torsionally stiff couplings which stand out due to their compactness and high functionality. Their unique technical features offer technical users a variety of practice-oriented advantages. Renowned OEMs from all areas of machinery manufacturing are among our partners.

50 years of experience
Trust and partnership
Precision couplings
Understanding applications, solving problems
Ongoing development

Industry-specific versions
Being familiar with the applications of a variety of industries, we can design tailored coupling versions. No matter if in the food, vacuum, packaging or printing industry, or in sensor or medical technology - we feel at home anywhere.

Your drive optimisation
Close cooperation with our customers in the design and implementation of a project results in coupling solutions precisely tailored to application-specific requirements. Comprehensive counselling, FEM analyses, prototype definition and production of Rapid Prototyping Models, as well as confirmation of the calculated design data on modern test benches - all this ensures the optimisation of your drive train.

Continuous development work
Your wishes are our motivation - With us, new impulses from the market stream into the ongoing further development of our products.

Individual counselling
Closeness to customers
Tailored coupling systems
Industry know-how
Drive optimisation
Introduction Loewe GK

The axially-stiff coupling
Axially fixed
Anodised clamp hubs
Use of high-performance plain bearings

The coupling with high axial stiffness
The Loewe GK is an axially stiff coupling for transmitting torques while absorbing axial push and pull loads without changing its length. Thus, it is also able to perform guiding tasks in axial directions. By combining kinematic properties, it also enables high radial and angular displacements. The Loewe GK is also perfect as a linear coupling for the precise transmission of pure linear lifting forces.
**Technique**

**High power density**
Loewe GK uses self-lubricating heavy-duty slide bearings with highest pressure and wear resistance, thus ensuring optimised mechanical properties of the coupling.
When in conjunction with coupling pins optimally tailored in tolerance and material as counter elements, coupling backlash as well as friction and wear rates are minimised. In addition, slide bearings have very high thermal resistance. Thus, the Loewe GK coupling operates at constant temperature of -20° to +150°.

**Axially fixed**
In addition to torque transmission, the coupling performs guiding tasks in axial directions and can, for example, simultaneously act as a fixed bearing.

**High stiffness**
The interaction of hubs and inner rings made of high-strength aluminium with coupling pins made of case-hardened and heat treatable steel ensures high torsional and axial stiffness for the Loewe GK.

**Compact design**
Pins can perform a combined, linear and swivelling movement in slide bearings. A high, combined radial and angular displacement is performed accordingly without deformation in very short installation length.

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<table>
<thead>
<tr>
<th>High axial- and torsional stiffness</th>
<th>Compact design</th>
<th>High angular displacement</th>
<th>High radial displacement</th>
</tr>
</thead>
</table>

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www.schmidt-kupplung.com
Material

Inner ring: high-strength aluminium F 53 AlZnMgCu 1.5

Pins: steel

Plain bearings: high-performance plain bearings
- wear resistant
- self-lubricating
- high thermal resistance up to +250°C
- high resistance to pressure
- high chemical resistance

Clamp hubs: high-strength aluminium F 30 AlMgSi1
Surface: anodised

Product line-up

Torque
The coupling line for applications where couplings must transmit torque on the one hand, while additionally being able to be loaded by axial push and pull forces, or even perform guiding tasks in axial directions, on the other. Couplings provide radial and angular displacement capacity up to 2.5 mm and 3 degrees respectively. The couplings are provided with aluminium clamp hubs and are available for 6 to 50 mm shaft diameters. The Torque line is available for nominal torques up to 220 Nm.

Linear
The couplings for applications where couplings must transmit pure linear push and pull forces. This force transmission can be found for example in actuators, cylinders and worm gear screw jacks. For connection to the linearly moving shafts and piston rods, the portfolio includes various mounting options. The couplings in this line are equipped as standard with internal screw thread on both sides. They can also be supplied with clamping hubs, threaded pins or in a combination of the mentioned hub shapes. The Linear line is available for axial loads up to 13.000 N.
Loewe GK

Torque

![Diagram of torque specifications]

Specifications

<table>
<thead>
<tr>
<th>Size</th>
<th>D mm</th>
<th>R mm</th>
<th>L mm</th>
<th>L1 mm</th>
<th>m kg</th>
<th>M</th>
<th>M_a Nm</th>
<th>T_kin Nm</th>
<th>T_kmax Nm</th>
<th>C_T Nm/°</th>
<th>Misalignment</th>
<th>n_max 1/min</th>
<th>P_RIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>GK 27</td>
<td>27</td>
<td>33</td>
<td>36</td>
<td>10,5</td>
<td>0,05</td>
<td>M4</td>
<td>3</td>
<td>4</td>
<td>9</td>
<td>13,5</td>
<td>3</td>
<td>4.000</td>
<td>1</td>
</tr>
<tr>
<td>GK 35</td>
<td>35</td>
<td>41</td>
<td>37</td>
<td>12</td>
<td>0,09</td>
<td>M5</td>
<td>5,7</td>
<td>7</td>
<td>15</td>
<td>27,5</td>
<td>3</td>
<td>3.500</td>
<td>2</td>
</tr>
<tr>
<td>GK 56</td>
<td>56</td>
<td>61</td>
<td>53</td>
<td>15</td>
<td>0,3</td>
<td>M6</td>
<td>8</td>
<td>33</td>
<td>95</td>
<td>355</td>
<td>3</td>
<td>2.500</td>
<td>8</td>
</tr>
<tr>
<td>GK 75</td>
<td>74,5</td>
<td>84</td>
<td>83</td>
<td>25</td>
<td>0,8</td>
<td>M8</td>
<td>24</td>
<td>90</td>
<td>240</td>
<td>880</td>
<td>3</td>
<td>2.500</td>
<td>16</td>
</tr>
<tr>
<td>GK 100</td>
<td>100</td>
<td>109</td>
<td>97</td>
<td>27,5</td>
<td>1,8</td>
<td>M12</td>
<td>80</td>
<td>220</td>
<td>550</td>
<td>1.475</td>
<td>3</td>
<td>1.500</td>
<td>32</td>
</tr>
</tbody>
</table>

M = Size of screw, M_a = Tightening torque, T_kin = Nominal torque, C_T = Torsional stiffness, m = Masse, P_RIN = Nominal friction, R = measured at max. radial misalignment, Mass of coupling size measured at max. bore diameter.

Bore diameters

<table>
<thead>
<tr>
<th>Size</th>
<th>d mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
</tr>
<tr>
<td>GK 27</td>
<td>■</td>
</tr>
<tr>
<td>GK 35</td>
<td>■</td>
</tr>
<tr>
<td>GK 56</td>
<td>■</td>
</tr>
<tr>
<td>GK 75</td>
<td>■</td>
</tr>
<tr>
<td>GK 100</td>
<td>■</td>
</tr>
</tbody>
</table>

Combinations of different bore diameters are possible. Additionally bore diameters with keyway according to DIN 6885/1 starting from bore diameter 8 mm are available on request. Smaller bore diameters as shown in the table are available on special request as well.

Ordering example:

**GK 27 Ø6 Ø8**
Loewe GK Torque size 27, bore 6 mm, 8 mm
Loewe GK

Linear

Specifications

<table>
<thead>
<tr>
<th>Size</th>
<th>D mm</th>
<th>R mm</th>
<th>L mm</th>
<th>L₁ mm</th>
<th>m kg</th>
<th>Fₓ₀ N</th>
<th>Cₓ N/mm</th>
<th>Misalignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>GK L 27</td>
<td>27</td>
<td>33</td>
<td>36</td>
<td>10,5</td>
<td>0,05</td>
<td>800</td>
<td>16.000</td>
<td>3  1</td>
</tr>
<tr>
<td>GK L 35</td>
<td>35</td>
<td>41</td>
<td>37</td>
<td>12</td>
<td>0,09</td>
<td>1.000</td>
<td>11.500</td>
<td>3  1,5</td>
</tr>
<tr>
<td>GK L 56</td>
<td>56</td>
<td>61</td>
<td>53</td>
<td>15</td>
<td>0,3</td>
<td>4.000</td>
<td>32.000</td>
<td>3  2</td>
</tr>
<tr>
<td>GK L 75</td>
<td>74,5</td>
<td>84</td>
<td>83</td>
<td>25</td>
<td>0,8</td>
<td>7.500</td>
<td>43.900</td>
<td>3  2</td>
</tr>
<tr>
<td>GK L 100</td>
<td>100</td>
<td>109</td>
<td>97</td>
<td>27,5</td>
<td>1,8</td>
<td>13.000</td>
<td>61.500</td>
<td>3  2,5</td>
</tr>
</tbody>
</table>

Dimensions are related to the standard version with inner threads on both sides. On request the Loewe GK Linear is available with inner and outer threads, with outer threads on both sides or with clamp hubs as well. Please ask our application engineers.

Fₓ₀ = Maximum axial loads, Cₓ = Axial stiffness, R = Measured at max. radial misalignment

Thread diameters

<table>
<thead>
<tr>
<th>Size</th>
<th>ØG</th>
<th>M6</th>
<th>M8</th>
<th>M10</th>
<th>M12</th>
<th>M16</th>
<th>M20</th>
<th>M24</th>
<th>M30</th>
<th>M36</th>
<th>M42</th>
<th>M48</th>
</tr>
</thead>
<tbody>
<tr>
<td>GK L 27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>GK L 35</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>GK L 56</td>
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<tr>
<td>GK L 75</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GK L 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Combinations of different thread diameters are possible. Smaller thread diameters as shown in the table are available on special request.

Ordering example:

GK L 35 M8 M10
Loewe GK Linear size 35, inner threads M8 and M10
Selection sequence

Torque

1. Friction power
If speed, torque and offset occur together, a friction power specifically related to couplings must not be exceeded:

\[
P_{RA} = \frac{T_A (Nm) \times R_A (mm) \times n_A (min^{-1})}{D (mm) \times 60}
\]

\(P_{RA}\) = Friction power, \(T_A\) = Torque of the application, \(R_A\) = Offset, \(n_A\) = Speed, \(D\) = Coupling diameter

\(P_{RA} < P_{RN}\)

The calculated friction power of the application \(P_{RA}\) must be smaller than \(P_{RN}\) the rated friction power in the table. Individual catalogue data should not be exceeded.

The permanent service temperature of the catalogue types “Linear” and “Torque” is 150 °C. Plastic slide bearings can be loaded up to 250 °C and temporarily even up to 300 °C. When surface temperatures are critical for your application, please contact our application consultants. If necessary, we can also have couplings certified according to ATEX.

2. Service life
Torque and Linear variants are equipped with highly pressure and wear resistant universal bearings. Furthermore, stiffness and temperature resistance are very high in this type of bearing. Plastic bearings are self-lubricating and reach their highest operating performance without any external additives.

Plastic slide bearings are subject to a very complex wear behaviour. Wear is influenced by environmental factors such as temperature and surrounding abrasive or corrosive media. The following calculation method can only supply guide values for wear. We recommend performing tests under real conditions or contacting our application consultants.

\[
x = \frac{n_A (min^{-1}) \times Lh_A \times R_A (mm)}{8500}
\]

\(x = \frac{x \times T_A (Nm)}{T_{KN} \times 85}\)

Bush bearing wear should not exceed 0.5. Exception: GK 27 max. 0.3.

\[D_K = \arctan \left( \frac{4 \times V_B}{\phi D} \right)\]

\(Lh_A\) Application lifetime, \(X\) bushing path, \(V_B\) bushing wear, \(D_K\) rotational backlash ["] at the end of run time

Linear
In typical Linear applications, the coupling is applied with static or dynamic axial forces. The design is performed according to:

\[F_{KA} > F_A \times S\]

\(F_{KA}\) = max. axial load of the coupling in N, \(F_A\) = Feeding force application in N, \(S\) = Impact factor

Impact factor \(S\)

<table>
<thead>
<tr>
<th>Load uniform</th>
<th>light impacts</th>
<th>medium impacts</th>
<th>strong impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor S</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
</tr>
</tbody>
</table>
Installation

General
Loewe GK are delivered ready-to-mount with the desired bore diameters. During installation, please observe the permissible displacement values. Due to design-related reasons, the Loewe GK performs no axial displacement.

Installation
The shaft ends and hub bores to be connected must be clean, dry and burr-free. Check shaft connection dimensions (also feather key dimensions) and tolerances. For installation, the Loewe GK is fully pushed onto the motor stub shaft. Bores are supplied in fit F9. When properly positioned, the fastening screw of this hub is to be tightened to the full driving torque (values can be found in the relevant tables). Fit the second stub shaft into the second hub and, when properly positioned, tighten also this clamp screw or set screws to the full driving torque. The Linear series with threaded bores is installed using hook spanners. The coupling must not be loaded with the driving torque.

Loewe GK coupling solutions

In addition to standard products, SCHMIDT-KUPPLUNG manufactures industry-specific versions and application-specific coupling solutions of the Loewe GK line. These are, for example:

Special application requirements
Materials and used slide bearings can be customised according to customer needs. Versions for increased chemical resistance as well as food contact with FDA-compliant bearings, suitable for wet areas, or ATEX certified ones with conductive slide bearings, are available.

Very short in length for flange-mounting
Space-saving version of the Loewe GK for flange-mounting to integrate into smallest envelopes.

Special sizes
Coupling sizes for increased torque requirements or axial loads. Likewise, dimensions as inner diameters or structural lengths can be adapted to customer needs.

Special hubs
Versions with pins for vertical applications, such as for integration into the hollow shafts of lifting devices in rotary and linear lifting drives.
Applications

We speak your language

Every industry has its own peculiarities. Understanding this is a key task for the successful implementation of industry-specific applications. For 50 years, the release of countless applications in various industries has given us the experience and know-how to implement, jointly with our customers, the most suitable and efficient coupling solution for each application. No matter whether you deal with assembly or exposure systems for PCB production, medical technology or process engineering, forming or machine tools: We speak your language!
The optimal solution for every application

Printed circuit boards
Technology and quality requirements in the manufacture of printed circuit boards are constantly increasing. Thus, demands grow in terms of registration accuracy when loading and exposing associated with a higher level of productivity. Loewe GK is used in combined pivoting/lifting units for pick and place loading processes as well as in the z-axes of PCB exposure systems.

Process engineering
For the precise ejection of liquids and gases, they are generally used in process and apparatus engineering in the form of valves. Actuating drives or feed drives with combined thrust units generate the axial force required for adjusting valve flaps. Thanks to its high axial stiffness, the Loewe GK coupling is used to precisely transfer generated push and thrust forces. Tensions throughout the drive train, which would prevent fine lifting movements from being transferred, are compensated by the coupling system via high angular and radial displacement capacity.

Machine tools
Especially for the manufacture of mass-produced parts, multi-spindle automatic lathes play a significant role due to their high productivity and remarkably good profitability. In material feeding the Loewe GK coupling displays all its strengths. Due to high axial stiffness, this coupling made of steel ensures precise bar feeding and also offers great compensation of the occurring combined radial and angular displacement without deformation in short installation length. The machine feed cables are located in an application-oriented internal space of the Loewe GK.

Medical technology
In process plants of the medical technology field, an ATEX-certified version of the Loewe GK is used. It is perfect for use in explosive gaseous atmosphere. Entirely made of stainless steel and equipped with conductive slide bushings, it compensates occurring radial displacements, thus minimising tensions in the system and increasing the lifetime of high-precision process equipment.

Versions in stainless steel are also used in the food industry, for pharmaceutical applications and in chemical apparatus engineering. Also here, due to high demands on corrosion resistance, bolts are entirely made of stainless steel, and coupling parts, such as hubs and inner rings, in V4A stainless steel. In addition, for applications in the food industry, FDA-compliant, polymer slide bearings are used, in accordance with the food sector high standards.

Valve flaps adjustments
Piston pump
Roller feeds
Process plants
Bending machines and much more
Product Overview

Catalogue Spinplus
Catalogue Controlflex
Catalogue Semiflex
Catalogue Schmidt-Kupplung
Catalogue Servoflex
Catalogue Loewe GK
Catalogue Omniflex
Overview Industries

Contact
SCHMIDT-KUPPLUNG GmbH
Wilhelm-Mast-Straße 15
38304 Wolfenbüttel
Tel.: 05331 9552 500
Fax: 05331 9552 552
eMail: info@schmidt-kupplung.com
Web: www.schmidt-kupplung.com

10/2015