SCHMIDT-KUPPLUNG GmbH

Schmidt-Kupplung®

Installation and operating manual

Schmidt-Kupplung

Our classics for extreme radial offset: restoring force-free Schmidt couplings enable short-configuration compensation of radial offset, even when variable during operation. The ideal solution for compact installations, when long coupling shafts are not appropriate.

The installation and operating manual (I+O) is an essential part of the Schmidt-Kupplung. It gives information about installation, operation and maintenance.

- Please read it in full and observe the instructions it contains.
- The coupling may only be installed by trained and qualified technical staff.
- Schmidt-Kupplung couplings may only be used in conformity with their technical data.

Safety and warning symbols

- Attention! Danger of injury and damage to the machine.
- Warning on important points.

Please read the operating manual in full and follow its recommendations!
Failure to do so can lead to malfunction, including failure of the coupling, and the consequent damage.

Manufacturer‘s declaration

Pursuant to Machinery Directive 2006/42/EC, the product is a component for integration into a machine or plant. Commissioning is not permitted until the machine or plant into which the product is to be integrated is itself conforming with EC Directives.

Safety instructions

The installation and operating manual (I+O) is an essential part of the Schmidt-Kupplung. Please keep the I+O in the vicinity of the coupling itself for easy access at all times.
It gives information about installation, operation and maintenance.
Please read it in full and observe the instructions it contains.
Schmidt-Kupplung couplings may only be used in conformity with their technical data.

Danger! Rotating drive parts are hazardous.

The user must implement protective measures pursuant to applicable safety regulations in their current editions. The user is responsible for implementing such measures and for using the drive components exclusively as specified and within their specified technical limits.

Tampering and modifications are expressly prohibited.

The coupling may only be installed by trained and qualified technical staff.

Read the installation and operating manual carefully before installing and commissioning the unit.

The safety warnings make no claim to completeness.

Content

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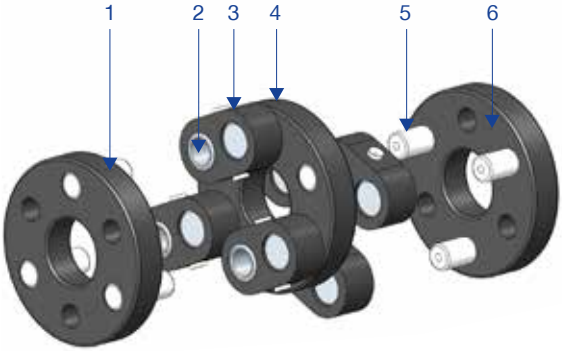
Installing the Schmidt-Kupplung



Parts list

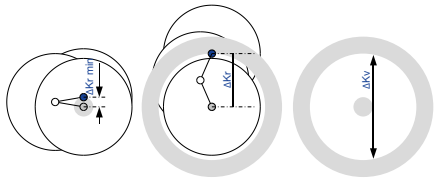
1 Input shaft hub
2 Needle bearing
3 Coupling link (regreasable via cup head lubricating nipple)
4 Center disk
5 Coupling bolts
6 Output shaft hub

Function

The Schmidt coupling consists of three coupling disks with running bolts, between which are two surfaces with parallel - generally mounted in anti-friction bearings - coupling links. The torque is transmitted by the coupling links as thrust and traction forces. Rotary and swivel movements are transmitted without angular displacement or backlash.

The minimum offset ΔK_r min can be seen in the Table 1 and must be observed in practice, since assembly and operation in the radial offset = 0 setting is not permitted.

Radial offset



Minimal required offset | Maximum radial offset | Maximum linear range

Consignment

Schmidt couplings are supplied ready for operation and pre-lubricated. At high ambient temperatures, high shaft speeds and in very dirty conditions we recommend lubricating with Klüber Starubags Type NBU 12-300 KP grease. The coupling links are generally fitted with cup head lubrication fittings.

However, unclean operating conditions can compromise the lubrication. Make sure to keep dirt, alkalis, fibres and so on away from the coupling.

Observe the indicated lubrication intervals.

The Schmidt coupling is very robust, however it should be protected against external stresses and delivered to the assembly location in its original packaging after acceptance controls. Special packaging, e.g. for marine transport or or long-term corrosion protection, is available on request.

Attention! Danger - moving parts. Be aware of the risk of unintentionally disassembling the unit by changing the installation length (do not pull the assembly apart, parts of the coupling may fall out).

Tampering and modifications are expressly prohibited. SCHMIDT-KUPPLUNG GmbH is not liable for any consequent damage.

Temperature range

The couplings are designed for an operating temperature of -20°C to +110°C. Please discuss other temperature ranges with the manufacturer.

Permitted shaft displacement

Schmidt-Kupplung are able to compensate even variable radial displacements with a short length installation which is free of restoring forces.

Radial offset

Schmidt couplings always require a minimal offset.

The minimum offset ΔK_r min can be seen in the Table 1 (for a given size) and must be observed in practice, since assembly and operation in the radial offset = 0 setting is not permitted. Do not exceed the maximum permitted radial offset ΔK_r or maximum adjustment ΔK_v (Table 1).

Axial displacement

Do not install the unit to less than the specified assembly dimension L (Table 2). The value ΔK_a is permitted as a margin for factors such as thermal expansion.

We recommend operating the unit close to the nominal length.

The couplings are not fixed axially. This can be exploited in case of axial assembly.

Angular displacement

The angular displacement also affects the coupling‘s service life. The angular displacement must be kept within the indicated range.

Do not exploit both the angular displacement and length deviation to their maximum extent at the same time.

Table 1: Permitted shaft displacement

Type	ΔK_v mm	$\Delta K_{r\,min}$ mm	ΔK_r mm	ΔK_a mm	ΔK_w °
SK 4.2.6/3	45	6	23	1	0,8
SK 4.2.8/5	45	6	23	1	0,5
SK 4.5.6/3	95	13	50	1	0,5
SK 4.5.8/5	95	13	50	1	0,5
SK 7.3.7/3	64	9	34	1	0,8
SK 7.3.9/3	126	17	66	1	0,8
SK 7.7.9/3	64	9	34	1	0,8
SK 7.7.12/4	126	17	66	1	0,5
SK 10.5.12/3	100	14	53	1	0,5
SK 10.5.12/4	100	14	53	1	0,5
SK 10.9.12/3	162	22	85	1	0,5
SK 10.9.14/4	162	22	85	1	0,5
SK 13.6.14/3	122	17	64	1	0,5
SK 13.6.16/4	122	17	64	1	0,5
SK 13.9.14/3	162	22	85	1	0,5
SK 13.9.16/4	162	22	85	1	0,5
SK 16.7.16/3	129	18	68	1	0,5
SK 16.7.18/4	129	18	68	1	0,5
SK 16.10.16/3	180	25	95	1	0,5
SK 16.10.18/4	180	25	95	1	0,5
SK 20.9.20/3	162	22	85	2	0,3
SK 20.15.20/3	219	30	115	2	0,3
SK 20.9.25/4	162	22	85	2	0,3
SK 20.15.25/4	270	37	142	2	0,3

Installation

See measurement list or an assembly drawing. Observe installation dimensions, especially the permissible min/max. Do not exceed the radial offset specifications (Table 1). The coupling is generally installed as a complete unit.

The elements are assembled without force and with consideration paid to the gaskets and air escaping to the desired construction length. All coupling links for a level must be installed in parallel.

Adjust length in accordance to the list or drawing (the smallest size is often available upon delivery).

Changes in length, e.g. due to the effect of heat on long shafts, must be considered in terms of direction and magnitude.

The coupling should be shielded against direct exposure to heat, dust, sand, solvents, etc. with a metal cover, for example.

Attention! The coupling can be pulled apart unintentionally during disassembly. Exercise caution during transportation, installation and assembly. Please do not pull apart, as parts of the coupling could fall off.

Table 2: Assembly dimensions L

Type	L mm
SK 4.2.6/3	44
SK 4.2.8/5	44
SK 4.5.6/3	44
SK 4.5.8/5	44
SK 7.3.7/3	74
SK 7.3.9/3	74
SK 7.7.9/3	74
SK 7.7.12/4	74
SK 10.5.12/3	101
SK 10.5.12/4	101
SK 10.9.12/3	101
SK 10.9.14/4	101
SK 13.6.14/3	134
SK 13.6.16/4	134
SK 13.9.14/3	134
SK 13.9.16/4	134
SK 16.7.16/3	155
SK 16.7.18/4	155
SK 16.10.16/3	155
SK 16.10.18/4	155
SK 20.9.20/3	196
SK 20.15.20/3	196
SK 20.9.25/4	196
SK 20.15.25/4	196

Screw the coupling with the mounting flanges fixed to the hubs manufactured by the client or other components. Tighten flange fastening screws with a torque wrench to the torque specified by the client.

Ensure that flange fastening screws do not extend into the functional area of the coupling.

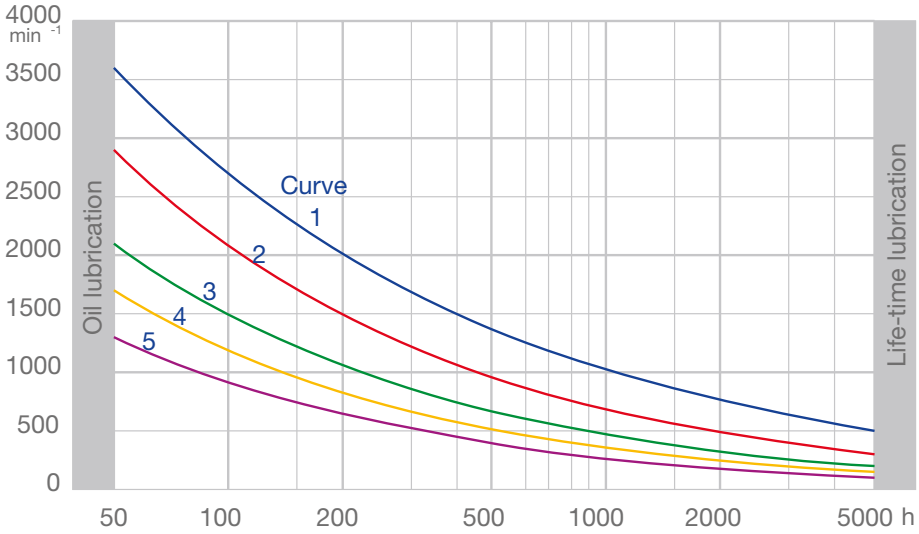
Maintenance

We then recommend lubrication with Klüber Staburags grease, type NBU 12-300 KP. The coupling links are generally fitted with cup lubrication fittings.
Observe the indicated lubrication period (Figure 3). The most important functional parts of the coupling are the bearing points in the coupling elements, i.e. the running bolts in the coupling plates. In order to troubleshoot errors quickly, we recommend stocking installation-ready coupling elements as an installation kit at the plant operator. For example: for 2 levels of the Type SK 7.7.9/3, 6 coupling links of the appropriate size are needed. For safety purposes, please list the coupling type with the item number.

The replacement of individual bearings or links on-site is not permitted.
In the event of damages to the bolts, we recommend that repairs be carried out at the factory. Maintenance work on the Schmidt-Kupplung coupling may only be carried out by personnel of SCHMIDT-KUPPLUNG GmbH.
The original grease is available in 400 gm cartridges under p/n 42186.
We assume no liability or warranty for own maintenance work and/or the equipment of the Schmidt-Kupplung coupling with components not originally supplied by SCHMIDT-KUPPLUNG GmbH.

Figure 3:
Lubrication period for Schmidt couplings, **see next page.**

Lubrication period



Curve 1	Curve 2	Curve 3	Curve 4	Curve 5
SK 7.3.7/3	SK 10.5.12/3	SK 13.6.14/3	SK 16.7.16/3	SK 20.9.20/3
SK 7.3.9/3	SK 10.5.12/4	SK 13.6.16/4	SK 16.10.16/3	SK 20.15.20/3
SK 7.7.9/3	SK 10.9.12/3	SK 13.9.14/3	SK 16.7.18/4	SK 20.9.25/4
SK 7.7.12/4	SK 10.9.14/4	SK 13.9.16/4	SK 16.10.18/4	SK 20.15.25/4

The Schmidt-Kupplung, except for size SK 4.2.6/3, SK 4.2.8/5, SK 4.5.6/3 and SK 4.5.8/5, has a lubrication fitting for regreasing. Adequate lubrication is required for full operating life. The Schmidt-Kupplung, should be regreased exclusively with Klüber Staburags NBU12300KP. Mixing lubrication is not recommended and will reduce coupling operating life.

General information

Failure, improper selection or improper use of the product can result in malfunction or failure of the coupled assemblies. On the other hand, malfunction of the coupled assemblies can cause the product itself to fail.

The information on the website, in the technical brochures and other publications allow the technically qualified user to make the proper choice for further tests. It is important that the application be thoroughly analysed and the above-mentioned product information be reviewed in full.

Due to the vast range of applications for these products and the variety of operating conditions, the user alone is responsible for choosing the correct product in accordance with his plant or machine design and testing, compatible with the operating conditions and safety and protection requirements characteristic of the application.

The product‘s specifications may be changed at any time without notification.

SCHMIDT-KUPPLUNG GmbH

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