

# 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.

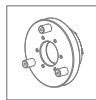
The installation and operating manual (I+O) is an essential part of the Schmidt-Kupplung. It gives information about installation, operation and maintenance.

 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.

### Hub versions of Schmidt-Kupplung



#### Hub version 3

Locking-assembly

Page 6-7



#### Hub version 5

Flange-mounting

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#### Hub version 6

Standard hub

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### 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.

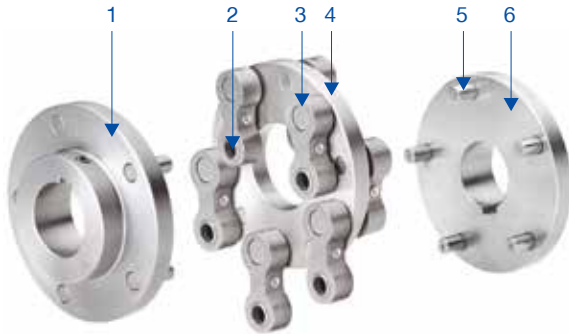
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### Please read the operating manual in full and follow its recommendations!

Failure to do so can lead to malfunction, including failure of the coupling, and the consequent damage.

## Installing the Schmidt-Kupplung



### Parts list

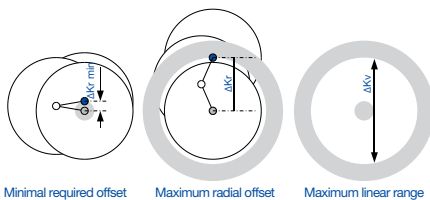
- 1 Input shaft hub
- 2 Needle bearing
- 3 Coupling link (regreasable via cup head lubricating nipple)
- 4 Center disk
- 5 Coupling bolts
- 6 Output shaft hub

### Function

The Schmidt coupling consists of three clutch disks with running bolts, between which are two levels with parallel-generally mounted in needle bearings-coupling links. The torque is transmitted by the coupling links as thrust and traction forces. Rotary and swivel motion are transmitted with very low backlash and constant angular velocity.

The minimum offset  $\Delta K_r$  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



### 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 Staburags Type NBU 12-300 KP grease (page 10). The coupling elements are generally fitted with funnel 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  $-20^{\circ}\text{C}$  to  $+110^{\circ}\text{C}$ . Please discuss other temperature ranges with the manufacturer.

### Maximum bores

Schmidt couplings are supplied ready for installation with the specified bore diameter.



Attention! Do not exceed the maximum permitted bore diameter of Schmidt-Kupplung (Table 1). Doing so can destroy the unit. Projected parts in case of catastrophic failure can cause serious injury.



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.

### 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  $\Delta K_r$  min can be seen in the Table 1 (for a given size) and must be obser-

ved in practice, since assembly and operation in the radial offset = 0 setting is not permitted. Do not exceed the maximum permitted radial offset  $\Delta K_r$  or maximum adjustment  $\Delta K_v$  (Table 1).

### Axial displacement

Do not install the unit to less than the specified assembly dimension L (Table 3). The value  $\Delta K_a$  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	$\Delta K_v$ mm	$\Delta K_{r\min}$ mm	$\Delta K_r$ mm	$\Delta K_a$ + mm	$\Delta K_w$ °
S 35	45	6	23	1	0,8
S 40	95	13	50	1	0,8
S 45	45	6	23	1	0,8
P 45	45	6	23	1	0,5
P 60	45	6	23	1	0,5
V 65	151	21	79	1	0,5
P 110	95	13	50	1	0,5
P 115	45	6	23	1	0,5
S 115	64	9	34	1	0,8
S 150	126	17	66	1	0,8
S 155	64	9	34	1	0,8
P 200	64	9	34	1	0,5
S 210	126	17	66	1	0,8
S 215	64	9	34	1	0,8
V 210	216	30	114	1	0,5
P 250	64	9	34	1	0,5
P 280	126	17	66	1	0,5
P 285	64	9	34	1	0,5
V 290	360	50	190	1	0,5
P 350	126	17	66	1	0,5
P 355	64	9	34	1	0,5
S 285	100	14	53	1	0,5
S 360	162	22	85	1	0,5
S 365	100	14	53	1	0,5
S 440	162	22	85	1	0,5
S 445	100	14	53	1	0,5
V 440	216	30	114	1	0,5
P 480	100	14	53	1	0,5
P 590	162	22	85	1	0,5
P 595	100	14	53	1	0,5
V 680	396	55	209	1	0,3
P 700	162	22	85	1	0,5
P 705	100	14	53	1	0,5
V 700	216	30	114	1	0,5
S 630	162	22	85	1	0,5
S 635	122	17	64	1	0,5

S 760	162	22	85	1	0,5
S 765	122	17	64	1	0,5
V 760	216	30	114	1	0,5
S 950	162	22	85	1	0,5
S 955	122	17	64	1	0,5
V 950	270	37	142	1	0,5
V 955	216	30	114	1	0,5
P 1010	162	22	85	1	0,5
P 1015	122	17	64	1	0,5
V 1200	432	60	228	1	0,3
P 1580	162	22	85	1	0,5
P 1585	122	17	64	1	0,5

S 1130	180	25	95	1	0,5
S 1135	129	18	68	1	0,5
S 1320	180	25	95	1	0,5
S 1325	129	18	68	1	0,5
V 1320	234	32	123	1	0,5
S 1520	180	25	95	1	0,5
S 1525	129	18	68	1	0,5
V 1520	320	44	169	1	0,5
V 1525	234	32	123	1	0,5
V 2100	504	70	266	1	0,3
S 2160	219	30	115	2	0,3
S 2165	162	22	85	2	0,3
V 2160	270	37	142	2	0,3
S 2870	219	30	115	2	0,3
S 2875	162	22	85	2	0,3
V 2875	270	37	142	2	0,3
P 2880	162	22	85	2	0,3
V 3300	522	72	275	2	0,2
P 3830	219	30	115	2	0,3
P 3835	162	22	85	2	0,3
V 3840	270	37	142	2	0,3
P 4800	219	30	115	2	0,3
P 4805	162	22	85	2	0,3
P 6610	219	30	115	2	0,2
P 6615	162	22	85	2	0,2

## 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.

For example, if the coupling in a version with two hubs (hub form 6) is initially disconnected and connected to the shafts in parts, then care must be taken to ensure that the bearings and the running bolts are not dirty or damaged. The elements are assembled without force and with consideration paid to the gaskets and air escaping to the desired construction length. All coupling elements for a level must be installed in parallel. The shaft ends and hub bores to be connected must be clean, dry and burr-free.



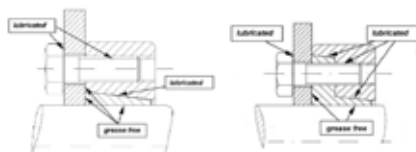
Check shaft connection dimensions (also feather key dimensions) and tolerances.

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.



### Hub version 3

#### Versions with locking-assembly

Bores are supplied in fit F7.

In the locking-assembly version, the torque is transmitted frictionally from the coupling via the outer ring and the inner ring onto the shaft. The clamping screws enable the required pressure. In its untensioned state, a defined gap is present between the outer ring and the coupling. The gap width and number of screws are coordinated so that a tension reserve remains after closing the gap, which is used to firmly tighten the outer ring against the coupling.

To assemble, please lubricate the shaft and the plane surface at the coupling. Screw the coupling and adapter set together again loosely, slide them onto the shaft and adjust the length. Tighten the clamping screws in sequence and in several stages until the full torque has been achieved in all tensioning screws (Table 2). For disassembly, please loosen the screws in sequence and with several turns.

**Table 2: Tightening torque on next page.**

## Hub version 3

### Versions with locking-assembly

**Table 2: Tightening torque**

Type	Screw size	Tightening torque (Nm)
Standard		
S 35, S 40, S 45	M6	12
S 115, S 150, S 155	M8	29
S 210, S 285, S 360, S 365, S 440, S 445, S 760, S 765, S 1130, S 1135	M10	58
S 630, S 635, S 950, S 955, S 1320, S 1325, S 2160, S 2165	M12	100
S 1520, S 1525, S 2870, S 2875	M16	240

Power Plus		
P 45, P 60, P 110, P 115	M6	12
P 200, P 250	M8	29
P 280, P 285, P 350, P 355, P 590, P 595	M10	58
P 700, P 705, P 1010, P 1015, P 1580, P 1585	M12	100

P 2880, P 3340, P 3345, P 3830, P 3835, P 4800, P 4805, P 6610, P 6615	M16	240
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Offset Plus		
V 65	M6	12
V 210	M8	29
V 290, V 440, V 680, V 700	M10	58
V 760, V 950, V 955, V 1200, V 1320, V 1520, V 1525	M12	100
V 2100, V 2160, V 2875, V 3300, V 3840	M16	240

**Table 3: Installation dimensions**

Type	Hub version 3	Hub version 5	Hub version 6
S 35	74	44	60
S 40	74	44	60
S 45	74	44	60
P 45	74	44	60
P 60	74	44	60
V 65	82	48	72
P 110	82	44	78
P 115	82	44	78
S 115	108	74	94
S 150	116	74	104
S 155	116	74	104
P 200	116	74	104
S 210	124	74	104
S 215	124	74	104
V 210	116	74	104
P 250	112	74	104
P 280	124	74	104
P 285	124	74	104
V 290	124	74	124
P 350	124	74	104
P 355	124	74	104
S 285	151	101	143
S 360	151	101	143
S 365	151	101	143
S 440	151	101	143
S 445	151	101	143
V 440	151	101	143
P 480	-	101	143
P 590	151	101	143
P 595	151	101	143
V 680	151	101	151
P 700	161	101	151
P 705	161	101	151
V 700	151	101	151
S 630	194	134	162
S 635	194	134	162

S 760	184	134	170
S 765	184	134	170
V 760	194	134	170
S 950	202	134	192
S 955	202	134	192
V 950	194	134	192
V 955	194	134	192
P 1010	194	134	170
P 1015	194	134	170
V 1200	194	134	202
P 1580	202	134	192
P 1585	202	134	192

S 1130	209	155	185
S 1135	209	155	185
S 1320	223	155	195
S 1325	223	155	195
V 1320	223	155	195
S 1520	235	155	215
S 1525	235	155	215
V 1520	223	155	215
V 1525	223	155	215
V 2100	235	155	215
S 2160	264	196	236
S 2165	264	196	236
V 2160	276	196	236
S 2870	284	196	266
S 2875	284	196	266
V 2875	284	196	266
P 2880	276	196	236
V 3300	284	196	266
P 3830	276	196	266
P 3835	276	196	266
V 3840	276	196	266
P 4800	284	196	276
P 4805	284	196	276
P 6610	296	196	322
P 6615	296	196	322



## Hub version 5

### Versions for flanging

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.

## Hub version 6

### Versions with hub

A fixed shaft seat is desirable to ensure a low backlash shaft connection. The axial compressive forces occurring during assembly must be kept away from the coupling. For this purpose, axial support for the coupling elements is recommended.

Alternatively, the hubs can be separately mounted on the shafts and the coupling can then be fitted together cleanly. Bores are supplied in fit H7.

## Maintenance

We then recommend lubrication with Klüber Staburags grease, type NBU 12-300 KP. The coupling elements are generally fitted with funnel 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 Standard line, 6 coupling elements of the appropriate size are needed. For safety purposes, please list the coupling type with the item number.

The replacement of individual bearings or elements on-site is not permitted.

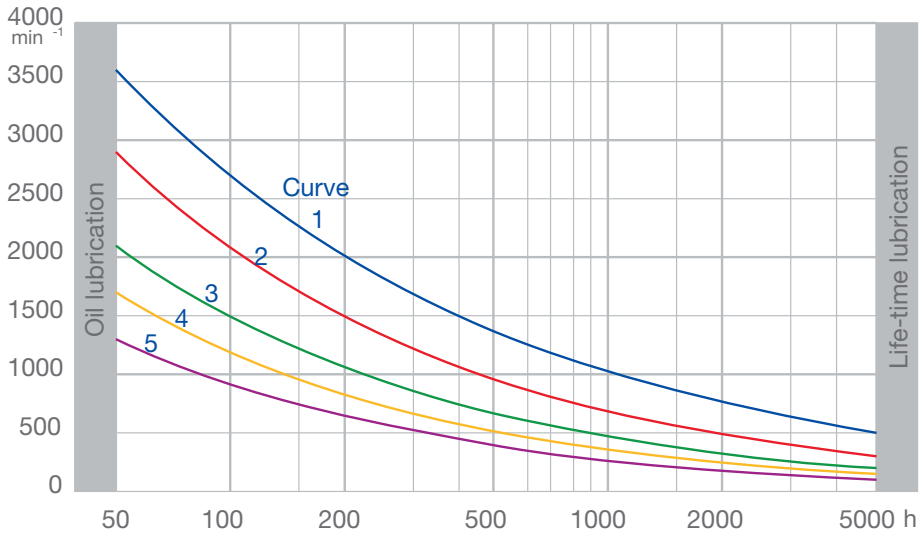
In the event of damages to the bolts, we recommend that repairs be carried out at the factory. Maintenance work on the Schmidt-Kupplung coupling may only be carried out by personnel of SCHMIDT-KUPPLUNG GmbH.

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



Standard				
Curve 1	Curve 2	Curve 3	Curve 4	Curve 5
S 115	S 285	S 630	S 1130	S 2160
S 150	S 360	S 635	S 1135	S 2165
S 155	S 365	S 760	S 1320	S 2870
S 210	S 440	S 765	S 1325	S 2875
S 215	S 445	S 950	S 1520	
		S 955	S 1525	

Offset Plus				
Curve 1	Curve 2	Curve 3	Curve 4	Curve 5
V 210	V 440	V 760	V 1320	V 2160
V 290	V 680	V 950	V 1520	V 2875
	V 700	V 955	V 2100	V 3300
		V 1200		V 3840

Power Plus				
Curve 1	Curve 2	Curve 3	Curve 4	Curve 5
P 200	P 480	P 1010		P 2880
P 250	P 590	P 1015		P 3830
P 280	P 595	P 1580		P 3835
P 285	P 700	P 1585		P 4800
P 350	P 705			P 4805
P 355				P 6610
				P 6615

## 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 2022**

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