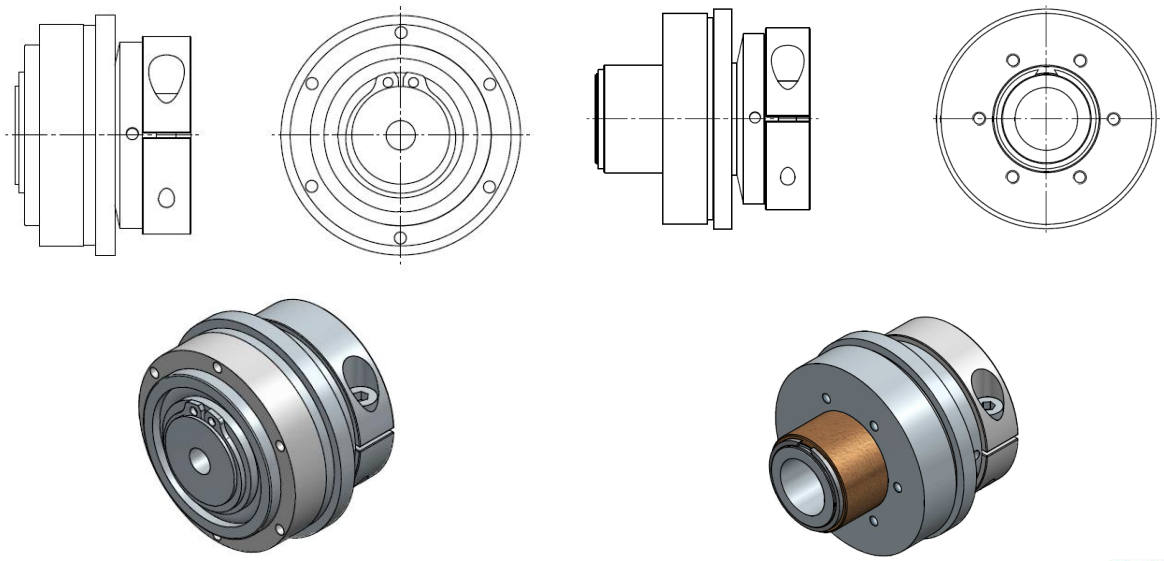
Safety Coupling for Direct Drive
Series KBK/L - KBK/LL - KBK/C



RoHS

General Information

The installation and operation instructions are an essential factor of the KGK safety coupling. It indicates tips for proper assembly, operation and maintenance. Please read these instructions carefully and follow the directions. Non-observance may result in failure of the KBK safety coupling.

Safety Instructions

 **Attention!**	- Installation may be performed by trained and specialized staff only. - Rotating couplings are hazard areas. The user/operator has to ensure appropriate protective measures. Do not reach into the operation area of the coupling if it is still in operation. Secure the machine against unintentional power-up during assembly work.

Manufacturer´s Declaration

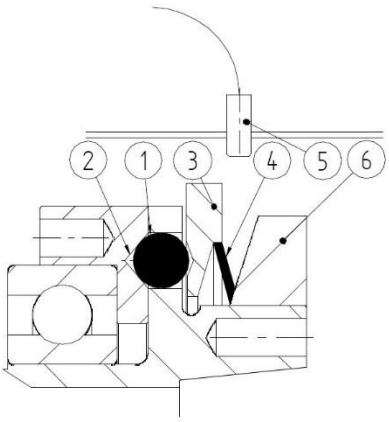
In accordance with directive 2006/42/EG annex IIB, shaft couplings are no machines as per the machinery directive (MR), but components for installation in machines. Operation is not permitted, unless the directives according to the machinery directives are complied with upon integration in the final product.

Safety Coupling: KBK/L - KBK/C

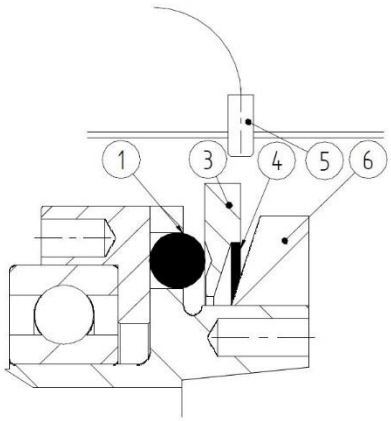
Function

- The transmission of the torque is effected backlash-free by hardened balls (1), located in tapered countersinkings (2).
- The balls (1) are pressed into the countersinkings by the disk spring (4) and through the shifting ring.
- The disengagement torque can be adjusted infinitely by use of the adjusting nut (6) according to the overload range stated in the catalogue.
- In case of an overload the balls are moved out of the conical bores and the shifting ring (3) is pushed back by the disk springs (4). The driving and driven side are separated torque-free. The residual torque is < 2-5% of the overload torque.
- The axial movement of the shifting ring (3) can either activate a mechanical limit switch or a proximity switch, (5) to switch off the drive.
- During the disengagement, the spring force is reduced to a very low value. The residual force of the disk spring (4) is sufficient to re-engage the coupling.
  This can only be done at low rotation after eliminating the fault.
- The response time is 2-5 ms.

engaged position

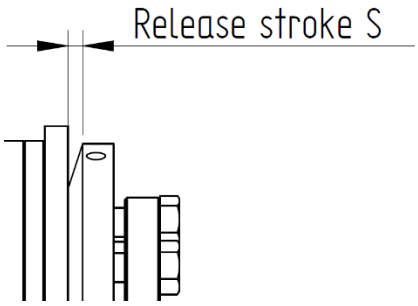


disengaged position



1. ball latch
2. tapered countersinkings
3. shifting ring
4. disk spring
5. proximity switch
6. adjusting nut

Release Stroke S



KBK/ Size	2	4,5	7	10	30	60	80	150	200	300	500	800	1400
Release stroke S in mm	0,7	0,7	0,7	0,7	1,2	1,2	2	2	2	2	2	2	2

Types of connections

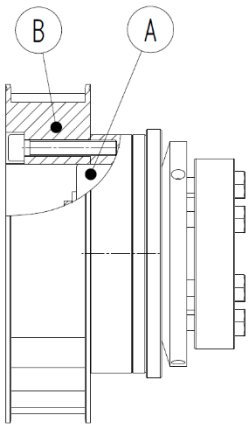
Synchronized connection

If the set torque is exceeded, the coupling will disengage. After eliminating the fault, the coupling will re-engage. This can only be done at one position within 360°. This position can be recognized both by means of the markings on the shifting ring and the flange.
Important Note: Engagement can only happen at low rotation.

Multi-step connection

When the set torque is reached, the coupling will disengage. After eliminating the fault, the coupling will re-engage itself at the following ball seat. This allows the safety coupling to be operational again.
Important Note: Engagement can only happen at low rotation
Up to size 30, the angle of engagement is 45°.
From size 60, the angle of engagement is 60°.
Other angles of engagement are possible upon request.

Bearing



The integrated bearing (roller bearing or slide bearing A) serves as a centering device for the mounting part (B).

Shaft-/Hub-Connections

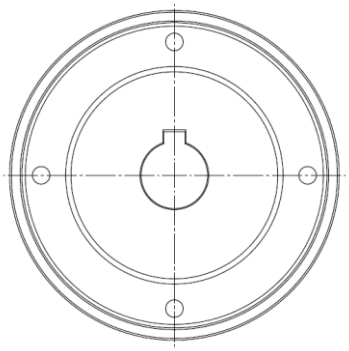
KBK safety couplings may only be used according to the technical data stated in the catalogue.

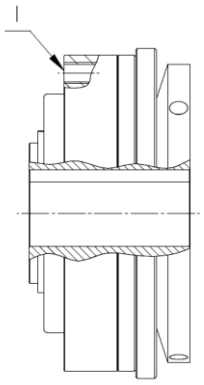
Preparation for assembly

Avoid using any force. The shafts and bores of the hubs to be connected must be free from dirt and burrs. Please check the connection dimensions of the shafts (as well as the dimensions regarding the key) and check the tolerances. KBK safety couplings have an H7 fit. This fitting tolerance and the shaft extension facilitate both assembly and disassembly. The recommended fitting tolerance is 0,02mm-0,05mm.

⚠ **Attention!**	Any oils and fats including molybdenum disulfide or any other high-pressure additives as well as lubricating pastes must not be used.

Assembly KBK/L(LL)P - KBK/CP (with keyway)



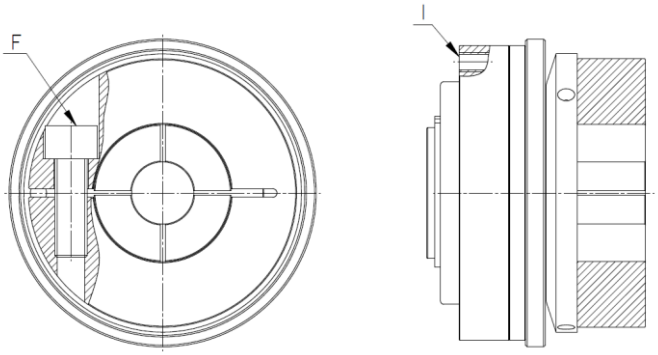


Push the complete coupling onto the stub shaft. In the correct axial position, it has to be secured against axial movement by using a washer. Push the drive element (e.g. toothed belt pulley, sprocket wheel) onto the centering and tighten the bolts on the flange crosswise by using the threads (I) according to the torque stated in table 2.

Disassembly

Remove the axial fixing . Then the KBK safety coupling can be pushed off the shaft.

Assembly KBK/L(LL)K - KBK/CK (with clamping hub)

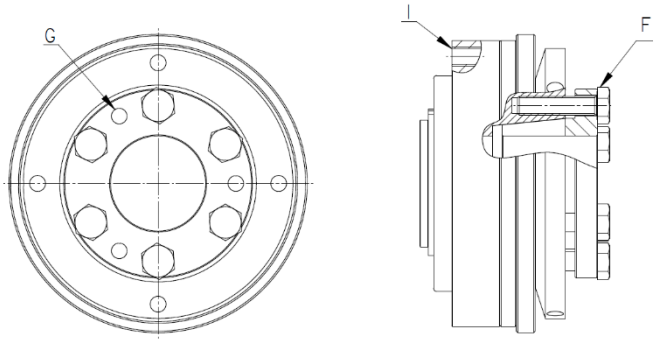


Push the complete coupling onto the shaft. In the correct axial position, tighten clamping screw (F) to the torque stated in table 1 by using a torque wrench. Then push the drive element (e.g. toothed belt pulley, sprocket wheel) onto the centering and tighten the bolts on the flange crosswise by using the threads (I) according to the torque stated in table 2.

Disassembly

Remove the axial fixing. Then the KBK safety coupling can be pushed off the shaft.

Assembly KBK/L(LL)I - KBK/CI (with inner cone)



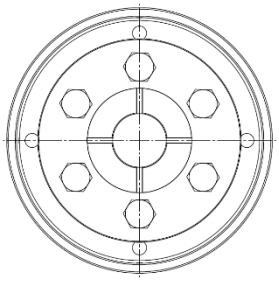
Push the complete coupling onto the shaft. In the correct axial position, tighten clamping screw (F) to the torque stated in table 1 by using a torque wrench. Then push the drive element (e.g. toothed belt pulley, sprocket wheel) onto the centering and tighten the bolts on the flange crosswise by using the threads (I) according to the torque stated in table 2.
Information: During assembly an axial displacement of the coupling might occur.

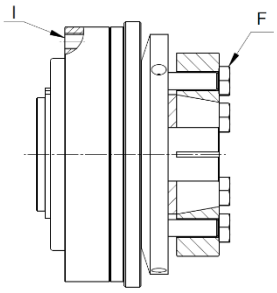
Disassembly

For disassembly of the KBK safety coupling, loosen the clamping screw (F). By means of the jacking bolts (G) the cone bushing can be dismounted. Then the KBK safety coupling can be pushed off the shaft.

Important: Return the jacking bolts (G) into their original position prior to reassembly.

Assembly KBK/L(LL)A - KBK/CA (with outer cone)





Push the complete coupling onto the shaft. In the correct axial position, tighten clamping screw (F) to the torque stated in table 1 by using a torque wrench. Then push the drive element (e.g. toothed belt pulley, sprocket wheel) onto the centering and tighten the bolts on the flange crosswise by using the threads (I) according to the torque stated in table 2.

Disassembly

For disassembly of the KBK safety coupling, loosen the clamping screw (F). By means of the jacking bolts (G) the cone bushing can be dismounted. Then the KBK safety coupling can be pushed off the shaft.

Torque of the screws in Nm (F – coupling hub)

Tabelle1

KBK/	2	4,5	7	10	30	60	80	150	200	300	500	800	1400
L-K	2	3,5	4,5	5,1	15	36	72	84	125	145	145	-	-
LL-K	2	3,5	4,5	5,1	15	36	72	84	125	145	145	-	-
L-I	-	-	-	4	6	8,5	14	14	14	20	26	45	80
LL-I	-	-	-	4	6	8,5	14	14	14	20	26	45	80
L-A	-	-	-	2,1	5,9	8,7	15	15	15	25	36	85	115
LL-A	-	-	-	2,1	5,9	8,7	15	15	15	25	36	85	115
CK	2	3,5	5,1	5,1	15	36	72	72	125	145	145	-	-
CI	-	-	-	4	6	8,5	14	14	14	20	26	-	-
CA	-	-	-	2,1	5,9	8,7	15	15	15	25	36	-	-

Torque of the screws (I – Flange)

(applicable for screws of strength category 12.9)

Table 2

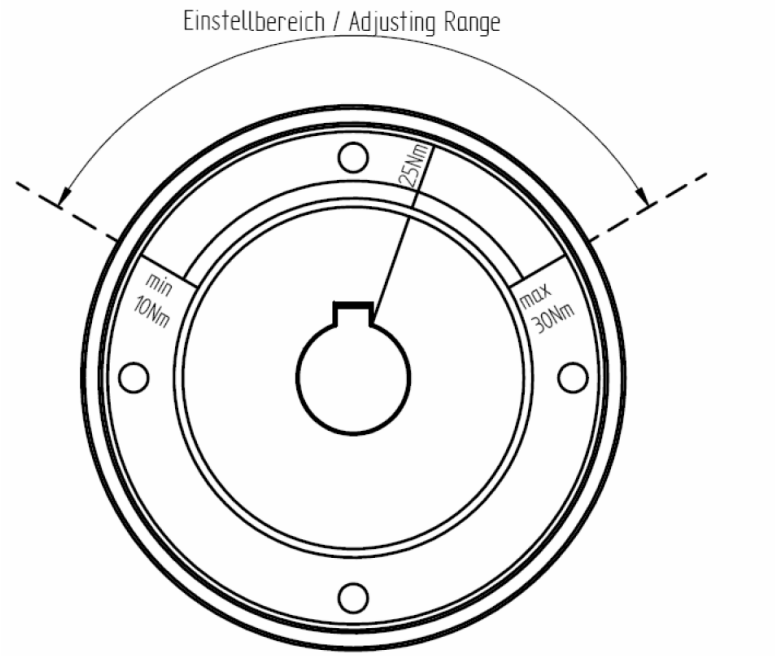
KBK/ Size	2	4,5	7	10	30	60	80	150	200	300	500	800	1400
Thread Size	M2	M2	M3	M3	M4	M5	M6	M6	M6	M8	M8	M12	M12
T_A (Nm)	0,6	0,6	2	2	5	10	17	17	17	42	42	144	144

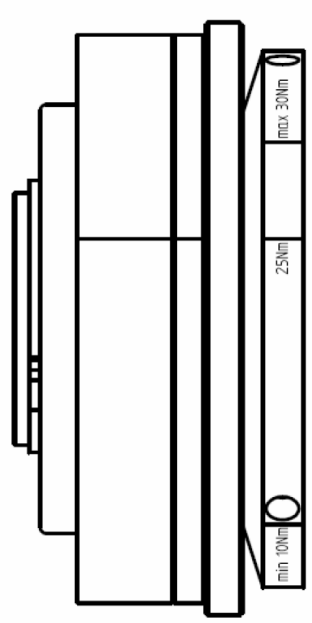
Adjustment of the Release Stroke

KBK safety couplings are adjusted by KBK to the maximum torque, desired by our customers. Depending on the type and size of coupling, the available adjustment range (min/max) is engraved on the shifting ring. Within this adjustment range, the torque can be infinitely adjusted. The adjustment of the maximum torque can be effected by turning the shifting ring. For this purpose, the radial grub screws have to be loosened. It can be turned counter-clockwise by using a hook wrench, whereas the following results can be achieved due to the degressive spring characteristics:

- Turning clockwise: reduction of the release stroke
- Turning counter-clockwise: increase of the release stroke

The adjustment may only be effected in the specified range between „min“ and „max“ position. Outside this range, no guarantee can be provided for the proper function of the coupling.





Information!	• There will be no wear while the coupling is engaged. • To reduce the wear of the safety coupling, the mechanical drive should be stopped immediately upon the release by using a proximity switch. • The durability of the KBK safety coupling depends on the disengagement speed and duration of the engagement. • The required disengagement torque must be higher than the regular driving torque of the machine.

During the regular inspection intervals, a visual check of the KBK safety coupling should be conducted. When operated according to their designated use, KBK safety couplings are maintenance-free and fatigue endurable, as they are no subject to wear while being engaged.

Transportation

KBK safety couplings are delivered ready for installation. Upon incoming goods inspection, the safety couplings should be stored in their original packaging and in this way they should be made available for inspection. Operating and installation instructions should always be made available, where the couplings are used upon assembly.