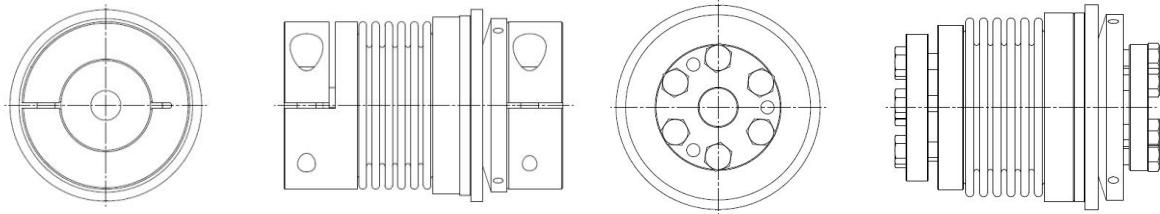




Safety Coupling for Direct Drive

Series KBK-BKK / KBK-BKI / KBK-BKA / KBK-BIK / KBK-BII / KBK-BIA / KBK-BAK /
KBK-BAI / KBK-BAA / KBK-BHH / KBK-BKPK / KBK-BKPI / KBK-BKPA




RoHS

General Information

The installation and operation instructions are an essential factor of the KBK 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

 <p>ATTENTION!</p>	<ul style="list-style-type: none">- 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.
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Manufacturer's Declaration

In accordance with directive 2006/42/EG annex IIB, shaft couplings are no machines as per the machinery directive, 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/B

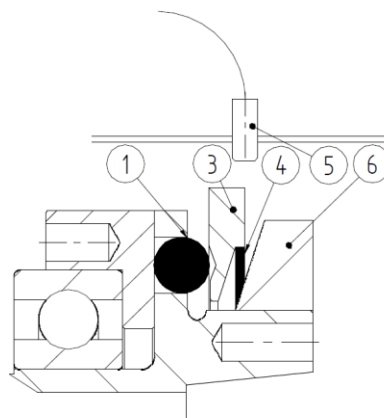
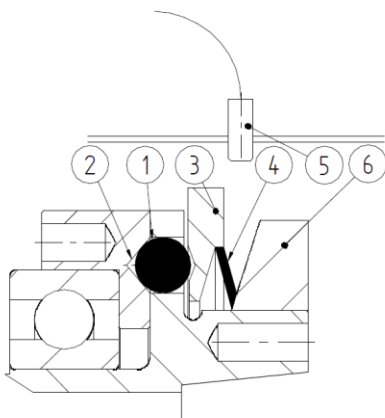


Function

- 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 disc 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 disc springs (4). This way 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 disc 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

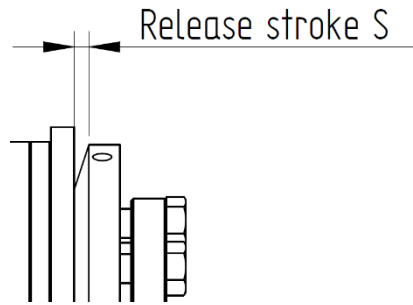


1. ball latch
2. tapered countersinking
3. shifting ring
4. disc spring
5. proximity switch
6. adjusting nut





Release stroke S



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

Types of connections

Synchronised 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 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.

Shaft- /Hub- Connections

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

Assembly - Preparation

Avoid any use of force. The shafts and bores of the hubs to be connected must be free from dirt and burrs. Check the connection dimensions of the shaft (as well as the dimensions of the keyway) and the tolerances. KBK safety couplings have an H7 fitting. This fitting tolerance and the oiling of the tapered shaft facilitate the assembly and re-assembly. The recommended fitting tolerance is 0,02 mm – 0,05 mm.



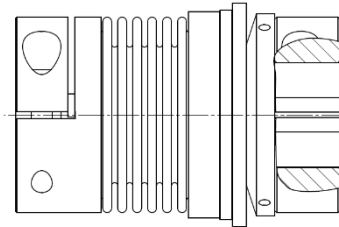
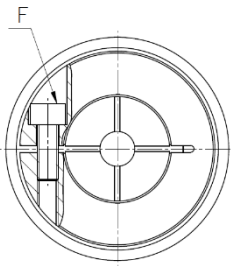
Attention!

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



Assembly with collet clamp:

Series KBK/BKK - KBK/BKI - KBK/BKA - KBK/BIK - KBK/BAK



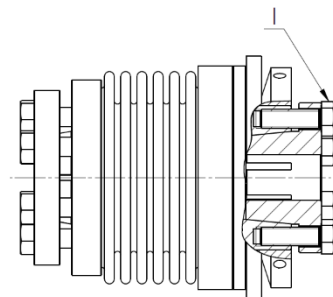
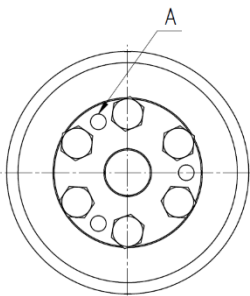
Push the hub onto the stub shaft. In the correct axial position, tighten the clamping screw (F) to the tightening torque stated in the table, by using a torque wrench.

Disassembly

For the disassembly of the KBK safety coupling, loosen the clamping screws (F). Then the hub can be pushed off the stub shaft.

Assembly with inner cone:

Series KBK/BKI - KBK/BIK - KBK/BII - KBK/BIA - KBK/BAI



Push the hub onto the stub shaft. In the correct axial position, tighten the clamping screws (I) crosswise and evenly to the tightening torque stated in the table, by using a torque wrench.

Please note: During the assembly, an axial displacement of the coupling might occur.

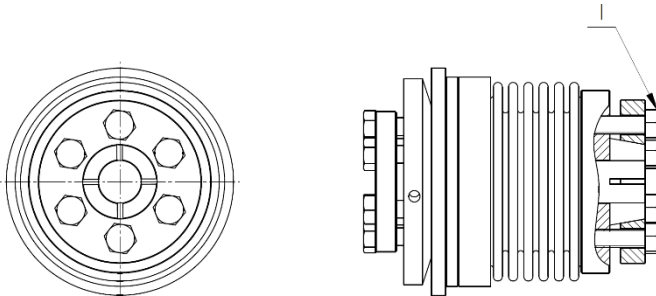
Disassembly

For the disassembly of the KBK safety coupling, loosen the clamping screws (I). By using jacking screws, the cone bushings can be pressed off.

Important: Return the jacking screws in the original position before re-assembly.

Assembly with outer cone:

Series KBK/BKA - KBK/BIA - KBK/BAK - KBK/BAA



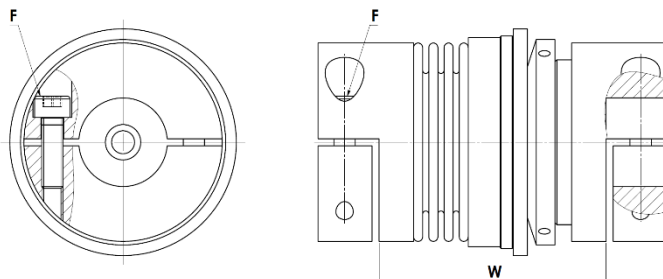
Push the coupling hub onto the stub shaft. In the correct axial position, tighten the clamping screws (F) evenly and crosswise to the torque stated in the table, by using a torque wrench.

Disassembly

For disassembly of the KBK safety coupling, loosen the clamping screws (F). The cone is self-releasing.

Assembly with split hubs:

Series KBK/BHH



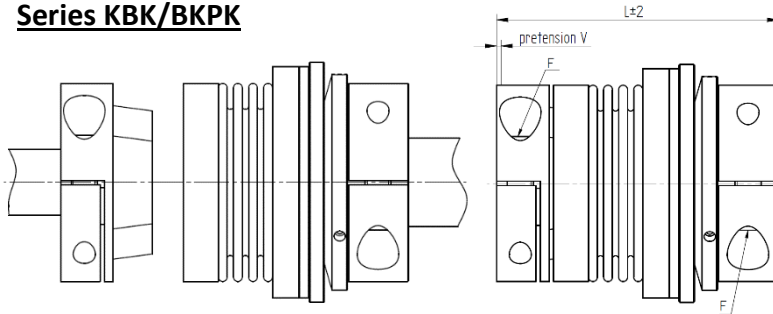
Align the shafts with each other, paying attention to the shaft distance (W). Loosen the split hubs from the coupling and place the coupling on the shafts. Then tighten the split hubs again and tighten the screws (F) to the torque stated in the table by using a torque wrench.

Disassembly

For disassembly of the KBK coupling loosen the clamping screws (F). Then the split hubs and the coupling can be removed from the stub shaft.

Assembly Pluggable, with clamping hub:

Series KBK/BKPK



Determine the installation dimension of the coupling prior to the assembly. This is the only way to assure that the pretension V (table 3) on the coupling is reached. For this purpose plug the coupling together, without backlash and without any axial

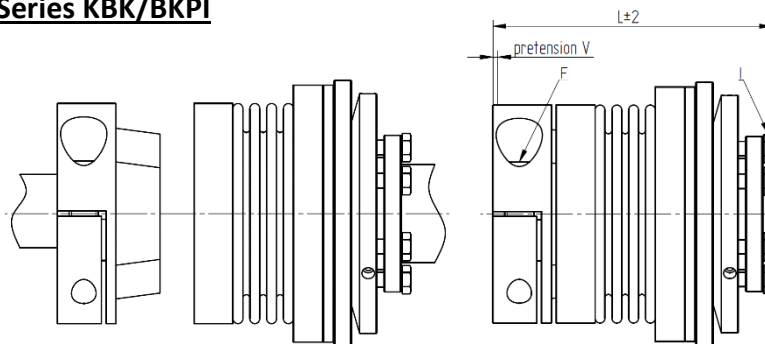
pressure and measure the length L. The installation dimension is calculated from the length L minus the pretension V (installation dimension = $L - V$). Slide both hubs onto the shafts. In the correct axial position, tighten the clamping screws (F) to the torque stated in the table, by using a torque wrench. When pushing the coupling together, the pretension V of the bellows must be clearly noticeable.

Disassembly

For disassembly, pull the KBK metal bellows coupling apart. To remove the pluggable hub, respectively the bellows body from the gear- and the motor-side loosen the clamping screws (F). Prior to re-assembly, please make sure that the hub and taper surface are free from dirt and burrs.

Assembly Pluggable, with inner cone:

Series KBK/BKPI



Determine the installation dimension of the coupling prior to the assembly. This is the only way to assure that the pretension V (table 3) on the coupling is reached. For this purpose plug the coupling together, without

backlash and without any axial pressure and measure the length L. The installation dimension is calculated from the length L minus the pretension V (installation dimension = $L - V$). Slide both hubs onto the shafts. In the correct axial position, tighten the clamping screws (F) and (I) [screw (I) evenly in a crosswise pattern] to the torque stated in the table, by using a torque wrench. When pushing the coupling together, the pretension V of the bellows must be clearly noticeable.

Please note: During assembly an axial displacement of the coupling might occur.

Disassembly

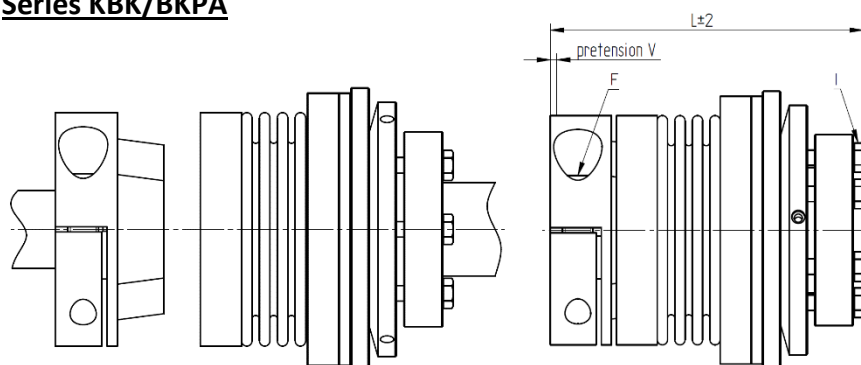
For disassembly of the KBK safety coupling, loosen the clamping screws (F/I). By means of jacking screws the cone bushings can be pressed off.

Important: Before re-assembling, put the jacking screws in their original position.



Assembly Pluggable, with outer cone:

Series KBK/BKPA



Determine the installation dimension of the coupling prior to the assembly. This is the only way to assure that the pretension V (table 3) on the coupling is reached. For this purpose plug the coupling

together, without backlash and without any axial pressure and measure the length L. The installation dimension is calculated from the length L minus the pretension V (installation dimension = L – V). Slide both hubs onto the shafts. In the correct axial position, tighten the clamping screws (F) and (I) [screw (I) evenly in a crosswise pattern] to the torque stated in the table, by using a torque wrench. When pushing the coupling together, the pretension V of the bellows must be clearly noticeable

Disassembly

For disassembly of the KBK safety coupling, loosen the clamping screws (F/I). The cone is self-disengaging.

Torque of the Screws (F) in Nm - [Table 1]

KBK/	2	4,5	7	10	30	60	80	150	200	300	500	800	1400
BKK	2	3,5	5,1	5,1	15	36	72	72	125	125	125	-	-
BKI	-	-	-	5,1	15	36	72	72	125	125	125	-	-
BKA	-	-	-	5,1	15	36	72	72	125	125	125	-	-
BIK	-	-	-	1,5	6	8,5	14	14	14	18	26	-	-
BII	-	-	-	1,5	6	8,5	14	14	14	18	26	45	80
BIA	-	-	-	1,5	6	8,5	14	14	14	18	26	45	80
BAK	-	-	-	2,1	5,9	8,7	15	15	15	25	36	-	-
BAI	-	-	-	2,1	5,9	8,7	15	15	15	25	36	85	115
BAA	-	-	-	2,1	5,9	8,7	15	5	15	25	36	85	115
BHH	-	-	-	5,1	15	36	72	72	125	145	145	-	-
BKPK	2	3,5	5,1	5,1	15	40	72	84	125	145	145	-	-
BKPI	-	-	-	5,1	15	40	72	84	125	145	145	-	-
BKPA	-	-	-	5,1	15	40	72	84	125	145	145	-	-



Torque of the screws (I) in Nm - [Table 2]

KBK/	2	4,5	7	10	30	60	80	150	200	300	500	800	1400
BKK	-	-	-	-	-	-	-	-	-	-	-	-	-
BKI	-	-	-	4	6	8,5	14	14	14	18	26	-	-
BKA	-	-	-	2,1	5,9	8,7	15	15	15	25	36	-	-
BIK	-	-	-	5,1	15	36	72	72	125	125	125	-	-
BII	-	-	-	-	-	-	-	-	-	-	-	-	-
BIA	-	-	-	2,1	5,9	8,7	15	15	15	25	36	85	115
BAK	-	-	-	5,1	15	36	72	72	125	125	125	-	-
BAI	-	-	-	1,5	6	8,5	14	14	14	18	26	45	80
BAA	-	-	-	-	-	-	-	-	-	-	-	-	-
BKPI	-	-	-	2,1	6	8,5	14	14	14	18	26	-	-
BKPA	-	-	-	2,1	5,9	8,7	15	15	15	25	36	-	-

Pretension V - [Table 3]

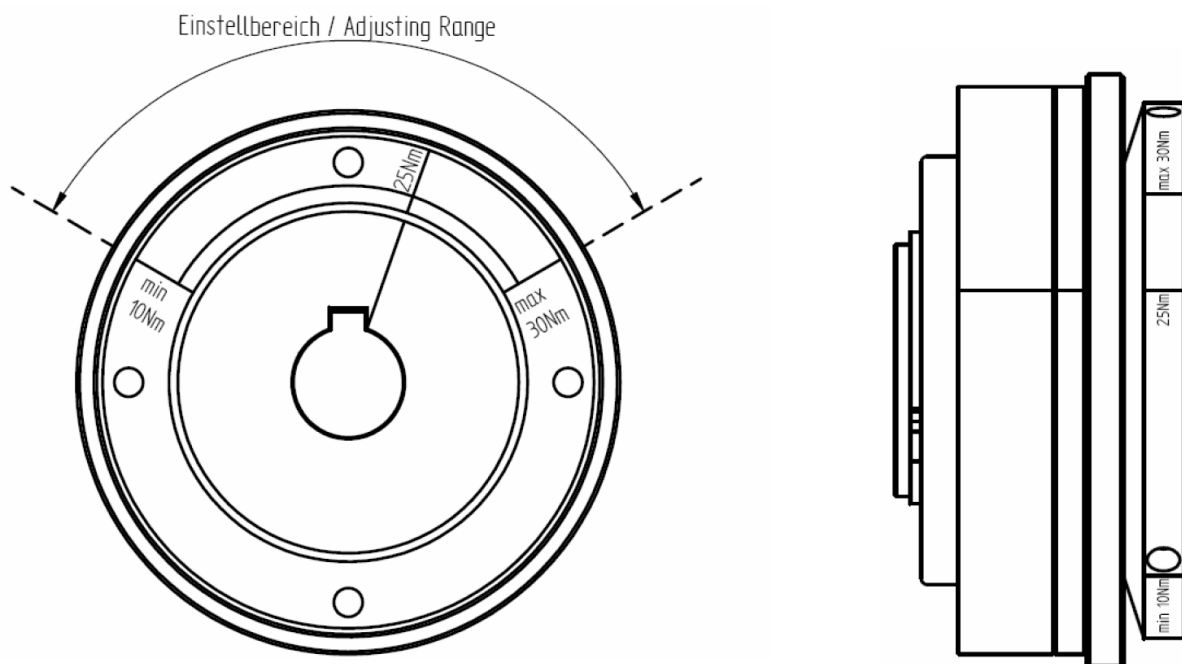
KBK/BKP*	10	30	60	80	150	200	300	500
V (mm)	0,5-1,0	0,5-1,0	0,5-1,5	0,5-1,5	0,5-1,5	0,5-1,5	0,5-1,5	0,5-2,0


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!	<ul style="list-style-type: none">• 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.
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Maintenance

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.

