

**Installation and Operating Instructions for
Tru-Line Flange-Couplings RFK**

E 06.692e



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Important

Please read these instructions carefully before installing and operating the product. Your particular attention is drawn to the notes on safety.

These installation and operating instructions are valid on condition that the product meets the selection criteria for its proper use. Selection and design of the product is not the subject of these installation and operating instructions.

Disregarding or misinterpreting these installation and operating instructions invalidates any product liability or warranty by RINGSPANN; the same applies if the product is taken apart or changed.

These installation and operating instructions should be kept in a safe place and should accompany the product if it is passed on to others – either on its own or as part of a machine – to make it accessible to the user.

Safety Notice

- Installation and operation of this product should only be carried out by skilled personnel.
- Repairs may only be carried out by the manufacturer or accredited RINGSPANN agents.
- If a malfunction is indicated, the product or the machine into which it is installed, should be stopped immediately and either RINGSPANN or an accredited RINGSPANN agent should be informed.
- Switch off the power supply before commencing work on electrical components.
- Rotating machine elements must be protected by the purchaser to prevent accidental contact.
- Supplies abroad are subject to the safety laws prevailing in those countries.

This is a translation of the German original version!

In case of inconsistencies between the German and English version of this installation and operating instruction, the German version shall prevail.

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1. Design and function

The flange coupling RFK is a shaft-shaft connection.

The flange coupling RFK consists of two flange hubs. Both flange hubs are each clamped onto the respective shaft using a cone clamping element. The torque is transmitted between the shaft and the flange hub using a friction connection. The torque transmission is carried out between the two flange hubs using a screw connection.

By tightening the cylinder screws with a defined torque, the slotted clamping rings are pulled over the taper of the centre ring. The self-locking clamping rings wedge themselves between the centre ring and the flange hub. An increase in the contact pressure arises at the ends of the centre ring against the theoretical average contact pressure. This prevents damaging torsion slippage or a rupture under rotation bending to prevent the formation of damaging fretting corrosion at the clamped contact surfaces.

Important!

While one of the shafts is rigid, the shaft lying opposite must be in motion and permit a compensatory movement. This reduces constraining forces and ensures that the service life of components (e.g. bearings) is not unnecessarily reduced.

2. Parts list

Item	Designation
1	Flange hub centred outside
2	Long clamping ring (with push off threading)
3	Short clamping ring
4	Centre ring
5	Cylinder screw DIN EN ISO 4762-12.9
6	Nut DIN EN ISO 4032-10
7	Spring ring DIN 127, as an option
8	Hexagon screw DIN EN ISO 4014-10.9
9	Flange hub centred inside

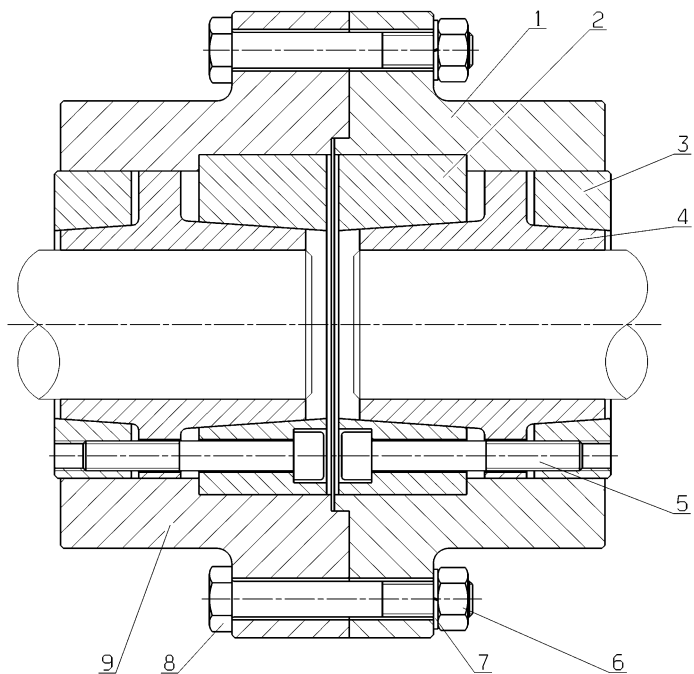


Figure 1

3. Condition as delivered

The clamping elements, consisting of the clamping rings (2 and 3) and the centre ring (4), are enclosed in the delivery and the cylinder screws (5) are turned in secured against loss. The hexagon screws (8) with nuts (6) and optional spring discs (7) are – if they have been additionally ordered from RINGSPANN – enclosed loose. All construction components of the clamping element are oiled. The connection flanges (1 and 9) themselves are protected with corrosion protection wax.

The type designation, construction size and RINGSPANN article no. are denoted on a label on the packaging.

Please note: As of 01/2007, the centre ring (4) is no longer designed continuously slotted!

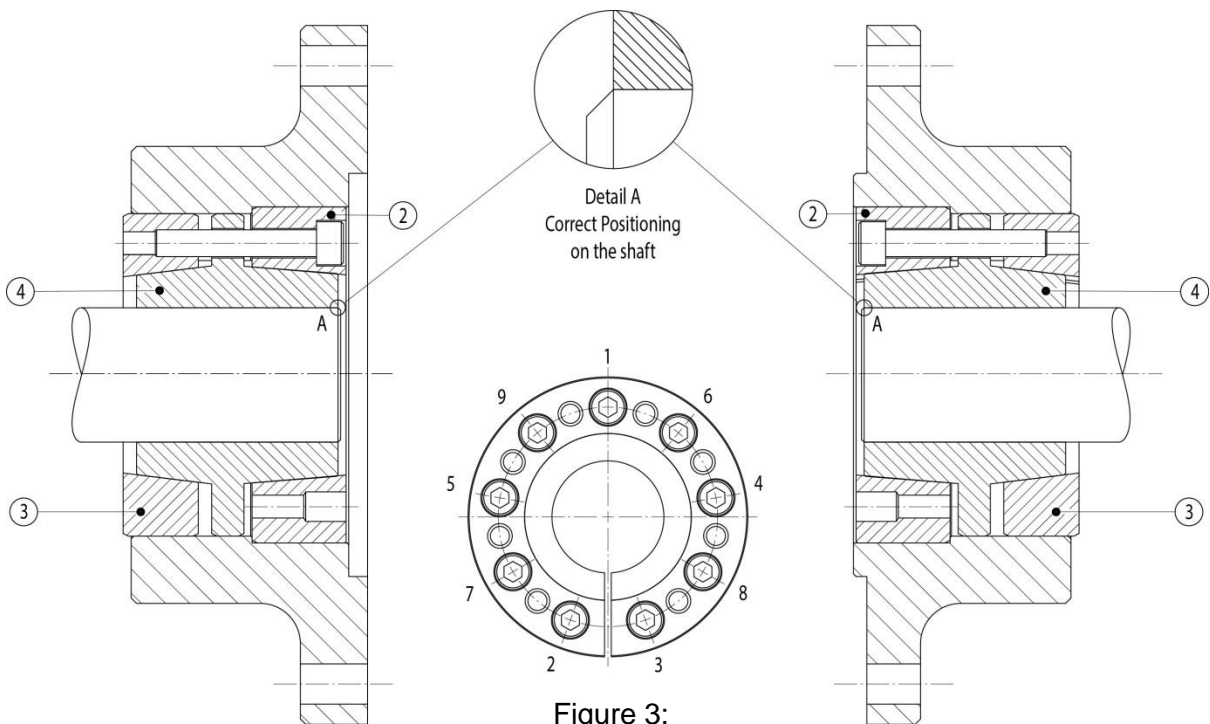


Figure 2:
Coupling half
centred inside

Figure 3:
Clamping element

Figure 4:
Coupling half
centred outside

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4. Installing the flange hubs onto the shafts

The preparation on the flange coupling for installation is very important and can save lots of time for the later installation!

1. The bore hole and mating flange surface of the flange hubs must be freed of corrosion protection wax and contamination.
2. The contact surfaces of the clamping element and the shaft must be cleaned and lightly oiled. An oiled cloth can be used here for example. We propose using machine or hydraulic oil.

Important! Do not use lubricant with molybdenum disulphide (MoS₂)!

3. Check that the clamping element is correctly mounted and the slots of the clamping rings and the centre ring lie on top of one another.

The next step merely serves to align the flange to the shaft before tightening the clamping screws. Please do NOT use a torque key.

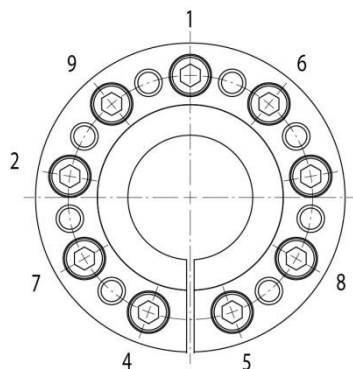


Figure 5

4. In the first step, loosen all cylinder screws (5) to enable the easy shifting of the clamping rings. Remove 2 or 3 cylinder screws and screw them into the thread of the centre ring (4). This prevents the centre ring and short clamping ring from jamming while inserting the clamping element into the flange.
5. Slide the complete coupling half with the slots in the clamping element facing vertically downwards onto the shaft until the axial position as displayed in Detail C in Figure 3 is achieved. Install the cylinder screws again into the designated thread in the short clamping ring.
6. Use a (manual) Allen key in the order as displayed in Figure 5. Tighten the cylinder screws (5) in small steps until uniform tension is established.

7. Check the alignment of the flange. This can be carried out via a run-out inspection with a dial gauge or the distance from the long to the short clamping ring, measured with a depth gauge through the push off threading. A run out of 0.02 mm for every 100-mm flange diameter should hereby be achieved.
8. Using the torque key set to 50 Nm, tighten the cylinder screws (5) in accordance with Figure 2 until the torque is applied to all screws. To ensure that all screws are tightened with the same torque, we recommend checking it in clockwise direction.
9. Check the alignment of the flange as described in 7. This step must be carried out every time after you switch to the next higher torque.
10. Continue tightening the cylinder screws (5) in steps of 50 Nm. Continue hereby as described in steps 8 and 9.
11. As soon as the maximum screw torque has been applied, carry out a final inspection of the alignment of the flange. The flange coupling is now ready for use.

5. Installing the flange hubs

1. Make the centring and front surfaces of the flange (1 and 9) free of oil and grease.
2. Align the shafts radially and parallel to one another as precisely as possible and line up the bore holes in the flange hubs (1 and 9).
3. Insert the hexagon screws (8) of strength class 10.9 from one side (either left or right) through the bore holes into the flange hubs.
4. Put on the spring discs (7) and nuts (6) and tighten diagonally by hand.
Note: The installation of the screw connection is also permissible without spring discs.
5. Diagonally tighten nuts with the tightening torque (M_a), ensure hereby that the centring mechanisms easily glide into one another. When the flange surfaces touch, tighten the nuts (6) with the torque (M_a) in accordance with the table (torque in accordance with VDI 2230 for strength class 10.9 and a coefficient of friction in the thread of $\mu_G = 0.12$).

Important!

The torque (M_a) may not be exceeded!

Size	Thread	Torque (M_a) [Nm]
RFK 50	M12	123
RFK 70	M14	195
RFK 90	M16	300
RFK 115 + 140	M24	1020
RFK 170 – 350	M30	2030

6. Disassembling the flange hubs from the shafts

Please follow the disassembly instructions step by step! Any attempt to do it in a different manner can cause serious damage both to the flange coupling and the shaft!

1. Remove all cylinder screws (5) and screw as many into the push off threading of the centre ring (4) as described in Figure 6.

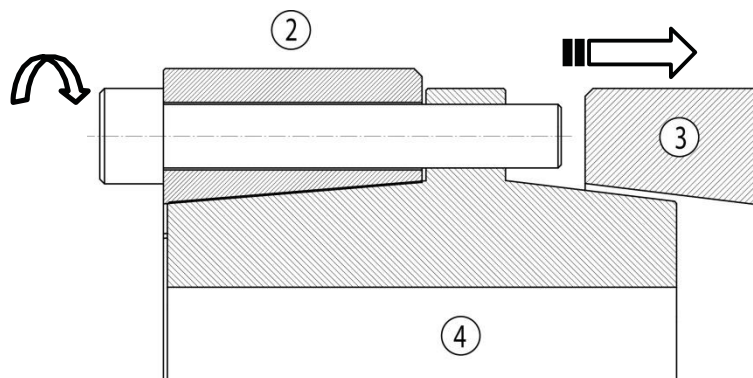


Figure 6

2. Start tightening the screws at the slot of the clamping element. Proceed in clockwise direction until the short clamping ring (3) is pushed off.
3. As soon as the short clamping ring (3) is loose, screw as many screws into the push off threading of the long clamping ring (2) as displayed in Figure 7.

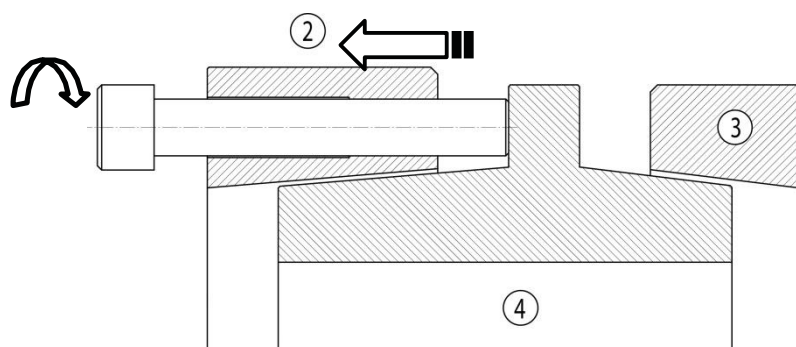


Figure 7

4. Once again, tighten the screws in clockwise direction beginning at the slot until the long clamping ring is pushed off and the entire flange coupling is loose.

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5. The flange coupling can now be taken from the shaft.

7. Maintenance

The flange coupling is maintenance free. We recommend checking the flange coupling RFK for tight fit and all screw connections for the torque during the usual maintenance intervals of the machine or facility.

8. Supplement for operation in areas with potentially explosive atmosphere

- Tru-Line flange couplings are a construction of elements that have no potential ignition source and are therefore not subject to the ATEX manufacturer directive 2014/34/EU.
- If the Tru-Line couplings are used as intended (see assembly and operating instructions), the specified torque is transmitted safely. The user can therefore use the couplings in Zone 2 or Zone 22.
- For use in zone 1 or 21, foreseeable changes in the operating conditions, such as torque fluctuations or shock loads as well as errors in the manufacture of the shaft journals need to be considered by the machine designer and must be evaluated. **This task is the responsibility of the machine builder/ user.**
- RINGSPANN assures you that there are no foreseeable manufacturing faults in the coupling assembly which endanger the safe transmission of the torque as specified in the assembly and operating instructions.