

**Installation and Operating Instructions for
RLK 200 Cone-Clamping-Elements**

E 03.600e



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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.

1. General information

1.1 Function:

RLK 200 Cone Clamping Elements are internal clamping connections for backlash free fastening of hubs on shafts. By tightening clamping screws surfaces are pulled together generating radial forces; these forces create a frictional connection between the Cone Clamping Element and the shaft as well as the hub. Torques or axial forces can be transmitted from the shaft via the Cone Clamping Element to the hub.

1.2 General safety instructions:



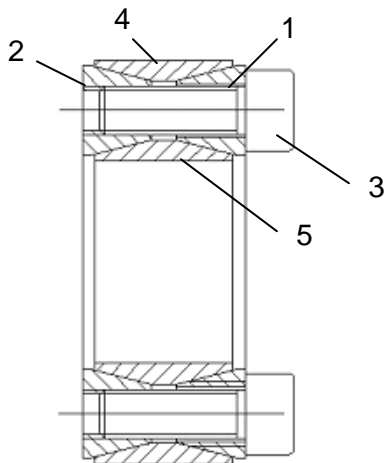
Caution! Danger of injury!

Ensure that limbs, hair, clothing and objects of other kinds are kept well away from the rotating screw heads while the clamp connection is turning.

2. Configuration and function

The RLK 200 Cone Clamping Element consists of two inner rings 1 + 2 with outside cone and two slotted outer rings 4 + 5 with inside cone as well as a number of clamping screws 3. The inner rings are drawn against each other by tightening the clamping screws. Radial clamping forces are generated by the conical surfaces which are dependent on the torques of the clamping screws, the cone angle and the friction coefficients at the screws and conical surface. The radial clamping forces press the outer rings into the hub bore and onto the shaft and create a friction connection at the respective contact surfaces. In this way, torque and/or axial force can be transmitted between the shaft and the hub.

3. Cross-section and parts list



Part	Nomenclature
1	Front inner ring
2	Rear inner ring
3	Clamping screw
4	Hub outer ring
5	Shaft outer ring

4. Proper use

RLK 200 Cone Clamping Elements are designed for installation between a shaft and a hub bore. They are intended solely for the purpose of effecting friction-tight mounting of hubs to shafts in order to transmit torque and/or axial forces. All other uses are improper. RINGSPANN shall not be liable for damage resulting from improper use. The user shall be liable for all risks involved in improper use.

5. Improper use

The RLK 200 Cone Clamping Element is not suitable for:

- mounting hollow shafts directly to solid or hollow shafts or
- use as a torque-limiting safety device.

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6. Condition as delivered

The clamping elements are wrapped in anti-corrosive packing material are ready to install as delivered.

7. Technical requirements for safe operation

In order to achieve full transmission of torque and/or axial forces, **tolerance** on contact-pressure surfaces

- may not exceed tolerance class h9 for shafts
- or tolerance class H9 for hub bores.

In addition, pressure-contact **surfaces** on shafts and hubs must have a mean peak-to-valley height $R_a < 3,2 \mu\text{m}$.

Shaft and hub must be manufactured from **materials** with the following mechanical properties:

- E-module about 170 kN/mm^2

8. Installation

8.1 Clean the contact surfaces between the shaft and the hub thoroughly.

8.2 Apply a light coat of oil to the clamping element.



**Do not use oil containing molybdenum disulfide or high-pressure additives!
Do not use grease!**

8.3 Attach the hub to the shaft and place the clamping element in the component to be clamped.

8.4 Tighten the clamping screws crosswise by hand, aligning the hub at the same time.

8.5 With a torque wrench tighten the clamping screws crosswise with half the tightening torque M_s (see Section 11) again crosswise.

8.6 Retighten the clamping screws several times to the full specified torque.



The tightening process is ended with no screw turns when retightened with a torque of M_s .



Replace missing or damaged clamping screws with screw of quality grade 12.9 only!

9. Removal

9.1 Loosen the clamping screws crosswise, step by step, but do not remove them.

9.2 Strike the heads of the clamping screws lightly with a rubber hammer in axial direction.

9.3 Pull the hub and the clamping element from the shaft.

9.4 Disassemble the clamping element and clean thoroughly.

9.5 Inspect the clamping element for damage.



Reuse only undamaged clamping elements!

9.6 Apply a light coat of oil to all contact surfaces, clamping screw threads and screw head contact points on reusable clamping elements.



**Do not use oil containing molybdenum disulfide or high-pressure additives!
Do not use grease!**

10. Maintenance

The RLK 200 Cone Clamping Elements require no maintenance. However, signs of setting may appear connections during operation. We therefore recommend checking the tightness of clamping screws during each time maintenance is performed on the machine.

11. Tightening torque M_s

Size d x D [mm]	Clamping screws	Tightening torque M_s [Nm]
20 x 47	M 6	17,4
22 x 47	M 6	17,4
24 x 50	M 6	17,4
25 x 50	M 6	17,4
28 x 55	M 6	17,4
30 x 55	M 6	17,4
32 x 60	M 6	17,4
35 x 60	M 6	17,4
38 x 65	M 6	17,4
40 x 65	M 6	17,4
42 x 75	M 8	42,2
45 x 75	M 8	42,2
48 x 80	M 8	42,2
50 x 80	M 8	42,2
55 x 85	M 8	42,2
60 x 90	M 8	42,2
65 x 95	M 8	42,2
70 x 110	M 10	83
75 x 115	M 10	83
80 x 120	M 10	83
85 x 125	M 10	83
90 x 130	M 10	83

Size d x D [mm]	Clamping screws	Tightening torque M_s [Nm]
95 x 135	M 10	83
100 x 145	M 12	144
110 x 155	M 12	144
120 x 165	M 12	144
130 x 180	M 12	144
140 x 190	M 12	144
150 x 200	M 12	144
160 x 210	M 12	144
170 x 225	M 14	229
180 x 235	M 14	229
190 x 250	M 14	229
200 x 260	M 14	229
220 x 285	M 16	354
240 x 305	M 16	354
260 x 325	M 16	354
280 x 355	M 18	492
300 x 375	M 18	492
320 x 405	M 20	692
340 x 425	M 20	692
360 x 455	M 22	945
380 x 475	M 22	945
400 x 495	M 22	945