

**Installation and operation instructions
for RIMOSTAT® friction torque limiters
RS, RSK + RSC series, size 125...250**

E 04.627e



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RINGSPANN	Installation and operation instructions for RIMOSTAT friction torque limiters RS, RSK and RSC series, size 125 ... 250			E 04.627e	
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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 guarantee 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. General notes

1.1 General safety instructions

Read these installation/operating instructions carefully before putting the friction torque limiter into operation. Consider these instructions as well as the drawings in the individual paragraphs.

All work with and on the friction torque limiter is to be carried out taking into account that **“safety is top priority”**.

Switch the drive unit off before carrying out work on the friction torque limiter.

Rotating parts (e.g. V-belt pulley) must be secured by the operator against unintentional touching

1.2 Special safety instructions



Life-threatening danger!

When assembling, operating and maintaining the brake it is to be ensured that the entire drive train is secured against being switched on unintentionally. Moving parts can cause severe injury. Rotating parts (e.g. V-belt pulley) must be secured against by the operator unintentional touching.

2. Design and function / parts list

2.1 Function

RINGSPANN friction torque limiters are safety couplings and are deployed wherever machines and drive units need to be protected against overloading.

In the event of an overload, i.e. when the load torque exceeds the set limit torque, the built-in component, for example a V-belt pulley, slips, the limit torque however continues to be transferred. A relative movement results between the built-in component part and the hub.

If the load torque falls below the set limit torque, the built-in component and the hub once again rotate at the same speed.

The limit torque is determined by the number of the compression springs in operation, see the chapter on start-up.

2.2 Identification

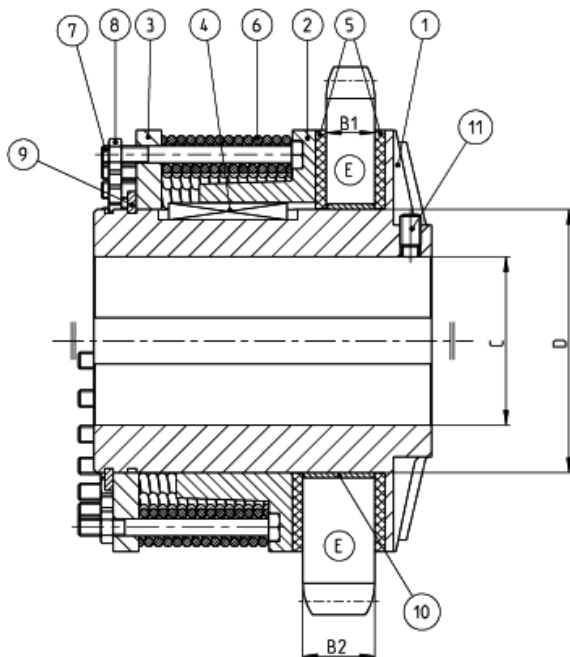
These operating instructions apply for:

- the execution RIMOSTAT friction torque limiter RS, RSK and RSC series, size 125...250 according to the catalogue
- the execution with and without the built-in component (e.g. V-belt pulley, chain wheel, drive plate etc.)

As well as these instructions, please also consider the catalogue data for the friction torque limiter at www.ringspann.de and the drawings in the individual sections.

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2.3 Drawing and parts list



Part	Designation
E	Built-in component
1	Hub
2	Pressure ring
3	Spring carrier
4	Parallel key
5	Friction lining
6	Compression spring
7	Hexagon screw
8	Slot- / hexagon nut
9	Circlip
10	Slide bush
11	Set screw (clamping screw)

Size RS, RSK, RSC	Number of springs	D mm	C mm	B ₁ mm	B ₂ mm	Spanner for part 8
125	30	125	80	15.3	23	Tool adaptor* 2741-011601-000000 / SW 10
160	30	160	100	15.3	28	Tool adaptor* 2741-015602-000000 / SW 13
200	30	200	125	23	34	Socket wrench for hexagon nut M 8
250	30	250	160	28	41	Socket wrench for hexagon nut M 10

* to be purchased from RINGSPANN

3. Intended use

The friction torque limiter has been designed for use as an overload protection device. Use for any other purpose will be deemed improper.

4. Impermissible use

It not permissible to operate the friction torque limiter as a clutch coupling. Unauthorised constructional changes to the friction torque limiter are also not allowed.

5. Condition as delivered

The friction torque limiter is delivered pre-assembled or with the built-in component both with and without torque adjustment.

The friction torque limiters are delivered pre-drilled or fully drilled in accordance with the order.

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6. Handling and storage

The technical data of the friction torque limiter such as max. / min. torque and weight are shown on the catalogue pages for the friction torque limiter. The current data can be found on the RINGSPANN website www.ringspann.de. The friction torque limiter is delivered in preserved condition and can be stored for 12 months in an enclosed and dry place.

The friction torque limiter may under no circumstances be treated with preservative oil for storage. Any preservatives will make the friction linings unusable, which will mean that a safe and precise torque adjustment cannot be guaranteed.

It is to be made sure that no condensation develops. Damp storage rooms are not suitable. Prior to installation it must be ensured that the friction torque limiter does not exhibit any damages.

7. Technical prerequisite for reliable operation

Fastening the product to stable and low-vibration machine parts will ensure quiet operation, as well as an optimum service life.

In the event of slipping, the energy is consumed via friction, which in turn thermally loads the friction torque limiter. The friction torque limiter must be protected against thermal overloading by switching off the facility in a timely manner. The customer is responsible for ensuring the necessary monitoring for this. The sensors and the speed monitor required for this task can optionally be supplied.

8. Installing the friction torque limiter

8.1 General instructions regarding assembly and installation

Before installing the friction torque limiter, the built-in component must be cleaned with alcohol – e.g. spirit (ethanol) or isopropyl alcohol – or with water-based tenside solutions (soapy water or the like).

If cleaning the built-in component with a diluent, acetone or brake cleaning agent, it must be ensured that these agents, as well as any residues from these agents, do not come into direct contact with the friction linings.



Important!

Residues from oil and anti-rust agents considerably reduce the coefficient of friction and thus also the slipping and holding torque!



Important!

Risk of damage: The friction torque limiter may not be fitted with hammer blows!

8.2 Assembly of the complete friction torque limiter

The complete friction torque limiter is pushed up onto the shaft. Then the friction torque limiter is to be secured axially with an end piece, which is held in place by a screw / screws, or optionally with a threaded pin (11), which tightens radially.

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8.3 Requirements of the built-in component

Before assembly, check whether the built-in component is even in the area of the friction linings and the overall axial run-out for drilling is within the tolerance of 0.1 mm. The surface quality in this area should be $\leq Rz12$.

The connection dimensions of the friction torque limiter and the built-in component must be checked for dimensional accuracy. For this, the connection dimensions must be checked in accordance with the catalogue data sheet or the installation drawing.

8.4 Assembly of the built-in component

Firstly, it must be examined whether all compression springs (6) are flushly tightened! If supplied in another manner, all compression springs (6) must be tightened flush with the help of the hexagon nuts (8). Afterwards, the nuts must be turned back again by one revolution.

- Place the hub (1) vertically onto the firm and stable surface
- Remove the circlip (9) and remove the spring carrier assembly group (3) from the hub (1)
- Remove the pressure ring (2), parallel key (4) and friction linings (5) from the hub (1)
- Prepare the built-in component with the plain bearing bush (E) in accordance with the general instructions in Chapter 8.1. The plain bearing bush must be suitable for a pure dry operation. The clearance fit may under no circumstances come into contact with the grease/oil. For the requirements of the bore hole of the built-in component and the assembly instructions, please refer to the specifications of the plain bearing bushes manufacturer. RINGSPANN recommends pressing the plain bearing bush supplied by RINGSPANN into the installation component using the fitting mandrel and guide bush.

D_1 = Inner diameter of the plain bearing bush
 D_2 = Outer diameter of the plain bearing bush
 B_1 = Bearing width

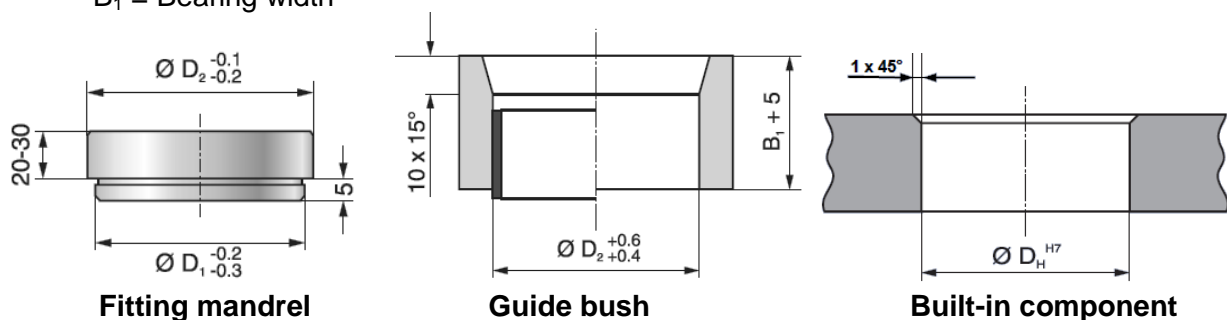


Figure 8.1 Installing the plain bearing bush



Important!

Check whether the connected part on the hub can be freely rotated.

- Insert the friction lining (5), the built-in component with the mounted plain bearing bush (E) and then the second friction lining (5) onto the hub.
- Insert the parallel key (4) and slide the pressure ring (2) on

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- Slide the assembly group spring carrier (3) with flushly tightened pre-loaded compression springs (6) onto the hub (1). It should hereby be ensured that all screw heads of the screws (7) are sunken into the pressure ring (2) groove (rotation lock).
- mount the circlip (9). By turning the nuts (8) in an anti-clockwise direction, the compression springs (6) are put into operation. The nuts must hereby be turned against the groove at the screw end and tightened by hand. This prevents the nuts from wandering. It is essential that this is observed to eliminate the possibility of unintentionally deactivating the springs.

9. Start-up

The friction torque limiter needs to run in before torque adjustment. The run-in procedure serves to increase the percentage of contact area and to increase the friction value of the friction linings. A constant slipping torque is ensured when the friction torque limiter runs in with a blocked built-in component in accordance with the values in the following table.



Important!

The running-in process is not necessary if RINGSPANN supplies the friction torque limiter with the built-in component (E) and a finished bore, as well as a set torque.

Size RS, RSK and RSC	Effective number of springs	Run-in speed	Run-in time
125.1 + 160.1	30	60 min ⁻¹	0.5 min
125.2	30	30 min ⁻¹	0.5 min
160.2	30	25 min ⁻¹	0.5 min
200.1	30	25 min ⁻¹	0.8 min
200.2	15	25 min ⁻¹	0.8 min
250.1	20	25 min ⁻¹	1.0 min
250.2	10	25 min ⁻¹	1.0 min

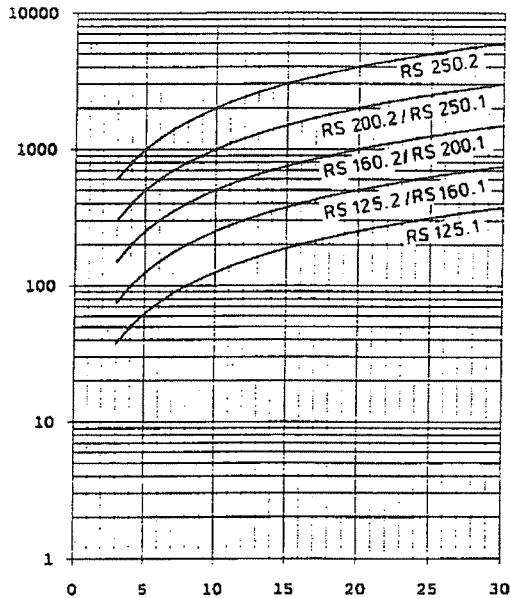
Table 9.1: Run-in parameters

After running in, the friction torque limiter must cool down to ambient temperature.

No parts need to be disassembled for torque adjustment. The torque is determined by the number of the compression springs in operation. If the friction torque limiter was installed with the built-in component without torque adjustment, all compression springs are in operation, i.e. the nuts are turned back against the screw end. Compression springs are taken out of operation by tightening the nut that sits at the end of the screw by turning it to the right, until the compression spring is tightened flush. The head of the hexagon screw may hereby however not slip out of the groove of the pressure ring.

Afterwards, the nut must be turned back again by one revolution.

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Important!

Under all circumstances ensure that a rotationally symmetrical distribution of the compression springs in operation is carried out!

The approximate number of compression springs that must be in operation for a certain torque is to be found in the diagram depicted in figure 9.1. Precise torque adjustment can only be carried out by measuring the torque. The number of springs may vary in practice as a result of friction coefficient changes, material selection, spring force and component tolerances.

Number of active compression springs [pcs]

Figure 9.1: Preliminary design of the slipping torque

10. Disassembling the friction torque limiter



Life-threatening danger!

When assembling, operating and maintaining the brake it is to be ensured that the entire drive train is secured against being switched on unintentionally. Moving parts can cause severe injury. Rotating parts (e.g. V-belt pulley) must be secured against by the operator unintentional touching.

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The friction torque limiter can be removed from the shaft after the axial fastening is removed.

11. Maintenance

11.1 General maintenance

Depending on how much the friction torque limiter is used in operation, maintenance is to be carried out on it at intervals of 4 to 12 weeks.

The following is to be carried out when performing maintenance:

- Check the friction linings for wear. This is carried out by measuring the thickness of the friction lining.
- Check the axial fastening of the friction torque limiter.

11.2 Permissible friction lining wear and exchanging of the friction linings



Important!

Friction linings may only be changed when the system or the working machine is stationary!

The wear limit for the friction linings can be found in table 11.1. Once the minimum friction lining thickness is reached, the friction linings are always to be replaced in pairs, i.e. on both sides.

Size RS, RSK and RSC	Friction lining thickness [mm]	Min. friction lining thickness [mm]
125	3	1.5
160	4	2
200	5	2
250	5	2

Table 11.1: Wear limit

Before replacing the friction linings, ensure that the mass held by the friction torque limiter is secured against moving, since parts of the friction torque limiter need to be loosened for this purpose.



Life-threatening danger!

The compression springs are live! It is essential that you adhere to the following steps when removing the friction torque limiter.

- Check that a slot / hexagon nut is located on all hexagon screws on the screw ends.

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- Put the compression springs out of operation by tightening the nuts clockwise until the compression springs are tightened flush. Afterwards, the nuts should be turned back again by one revolution.
- Remove the clip (9).
- Disassemble assembly group spring carrier (3) from the hub (1).
- Remove the pressure ring (2) and remove the parallel key (4).
- First remove the friction lining and then the built-in component (e.g. V-belt pulley or drive plate) with the sliding bush, and then the second friction lining from the hub.

The assembly is carried out in the reverse order.



Important!

After changing friction linings, a running-in process should be performed in order to reach the maximum slipping torque, see chapter 9.