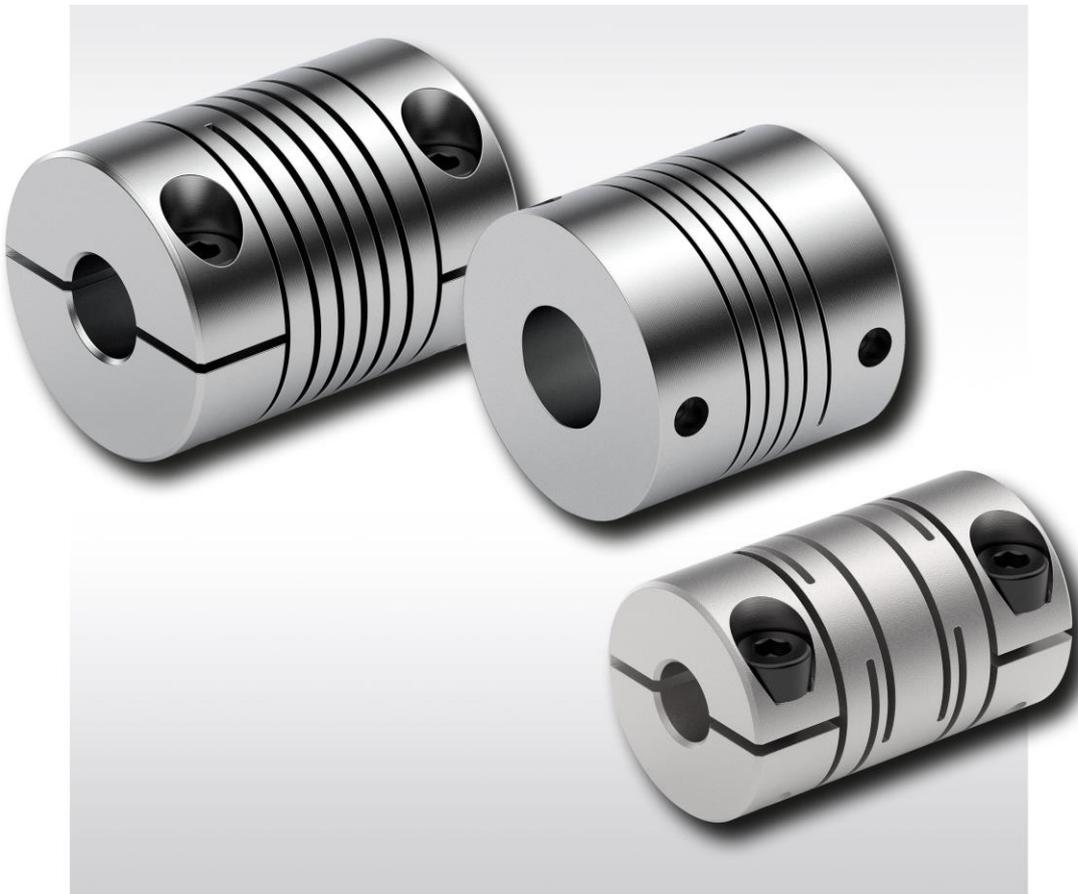


Installation and operating instructions for beam couplings RBC ... EWS/EWC/DWC/FKC

E 06.709en



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Important

Before installation and commissioning of the product takes place, these installation and operating instructions must be read carefully. Notes of caution and hazard warnings are to be paid particular attention to.

These installation and operating instructions apply on condition that the product meets the selection criteria for its proper use. The selection and dimensioning of the product are not the subject of these installation and operating instructions.

If these installation and operating instructions are not observed or are interpreted wrongly, this shall invalidate any product liability and warranty of RINGSPANN GmbH; the same also applies in the case that our product is taken apart or changed.

These installation and operating instructions are to be kept in a safe place and must, in the event of onward delivery of our product – be it individually or as part of a machine – be passed on along with the product so that the user has access to them.

Safety information

- The installation and commissioning of our product may only be carried out by trained personnel.
- Repair work may only be performed by the manufacturer or by authorised RINGSPANN agencies.
- If there is suspected malfunctioning, the product, or the machine into which it is built, must be taken out of operation immediately and RINGSPANN GmbH or an authorised RINGSPANN agency is to be informed.
- The power supply is to be switched off during work on electrical components.
- Rotating parts must be secured by the buyer against unintentional touching.
- In the case of supplies made to a foreign country, the safety regulations applicable in that country are to be taken into consideration.

German original version!

If there should be any discrepancies between the German original and versions of these installation and operating instructions in other languages, the German version shall take precedence.

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1. General information

1.1. Function

The main task of a beam coupling consists in transferring the torque of one shaft end onto another element. Additionally, the coupling is designed to compensate angular, radial and axial misalignments.

1.2. General safety instructions

Safety takes the highest priority for all works with and on the coupling.

To ensure this, the following safety instructions must be observed:

- During installation and maintenance work, the drive motor must be secured against un-intended start-up and the load side against turning back.
- Accidental touching of the coupling during operation must be prevented with a suitable cover or protective device.
- Do not reach into the working area of the coupling during operation.
- If the operating conditions change (e.g. power, speed), the original design of the coupling must be checked, as well as the load capacity of the shafts and the shaft-hub connections used.

1.3. Classification in accordance with EC Machinery Directive 2006/42/EC

The couplings type EWS/EWC/FKC are a machine element. Since machine elements do not fall under EC Machinery Directive 2006/42/EC, RINGSPANN does not draw up a declaration of incorporation. All important information with regards to the installation, commissioning and operation is explained in the following.

2. Design and function / parts list

2.1. Labelling

Depending on the coupling size, the parts are labelled as follows:

Hubs:

- RINGSPANN logo

2.2. Dimensions

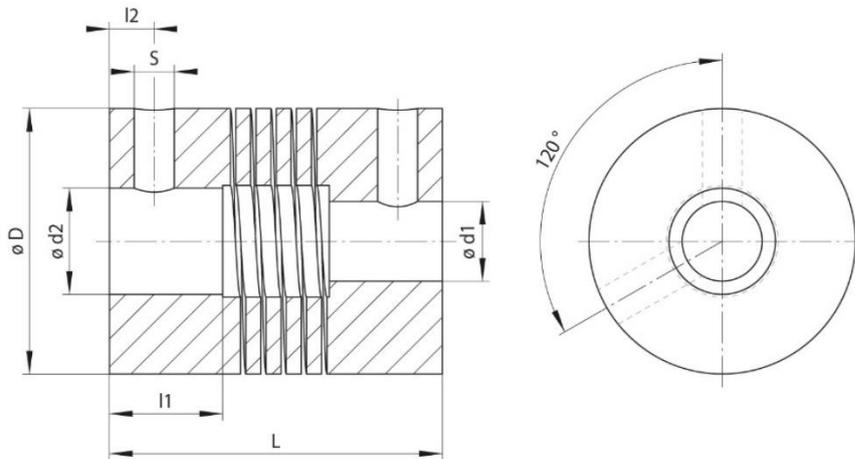


Figure 2.1: Dimensions RBC ... EWS

Size	D mm	L mm	l1 mm	l2 mm	S mm	Weight g
0015	15	20	4.8	2.5	M3	8
0020	20	20	4.8	2.5	M3	15
0025	25	24	5.9	3.0	M4	28
0030	30	30	6.8	3.5	M5	47

Table 2.1: Dimensions and weights RBC ... EWS-ALU

Size	D mm	L mm	l1 mm	l2 mm	S mm	Weight g
0015	15	20	4.8	2.5	M3	23
0020	20	20	4.8	2.5	M3	41
0025	25	24	5.9	3.0	M4	78
0030	30	30	6.8	3.5	M5	132

Table 2.2: Dimensions and weights RBC ... EWS-STE

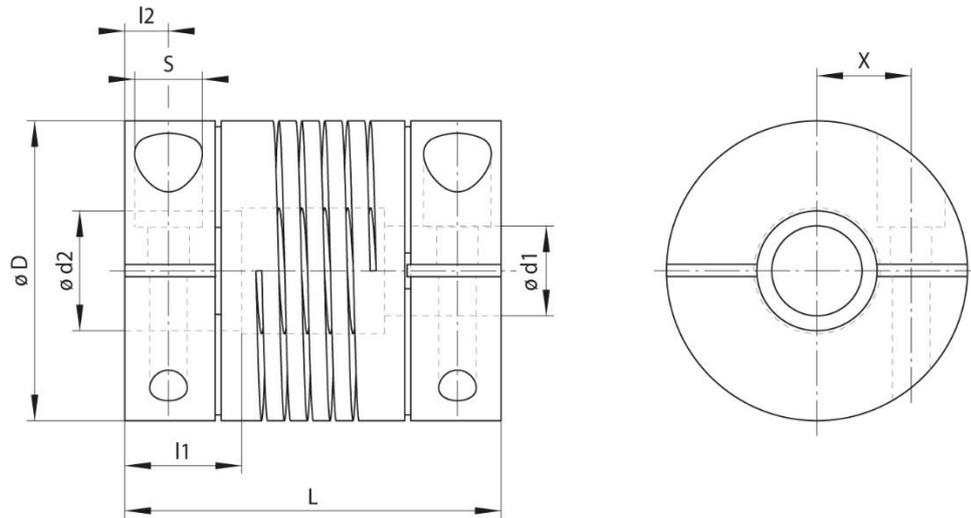


Figure 2.2: Dimensions RBC ... EWC

Size	D mm	L mm	l1 mm	l2 mm	S mm	X mm	Weight g
0015	15	22	6.0	2.5	M2	4.3	9
0020	20	28	8.6	3.7	M3	5.5	21
0025	25	30	8.6	3.7	M3	7.7	35
0030	30	38	11.0	5.0	M4	8.8	60

Table 2.3: Dimensions and weights RBC ... EWC-ALU

Size	D mm	L mm	l1 mm	l2 mm	S mm	X mm	Weight g
0020	20	28	8.6	3.7	M3	5.5	58
0025	25	30	8.6	3.7	M3	7.7	97
0030	30	38	11.0	5.0	M4	8.8	167

Table 2.4: Dimensions RBC ... EWC-STE

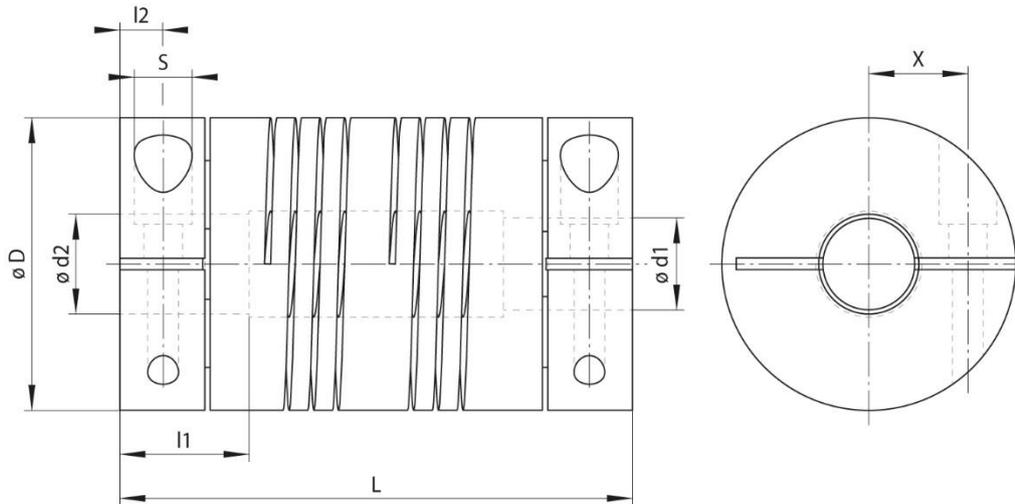


Figure 2.3: Dimensions RBC ... DWC

Size	D mm	L mm	l1 mm	l2 mm	S mm	X mm	Weight g
0100	25.4	44.5	9.4	3.8	M3	7.9	54
0125	31.8	60.2	13.0	5.6	M4	9.7	113
0150	38.1	66.5	16.8	5.6	M4	13.0	180

Table 2.5: Dimensions and weights RBC ... DWC-ALU

Size	D mm	L mm	l1 mm	l2 mm	S mm	X mm	Weight g
0100	25.4	44.5	9.4	3.8	M3	7.9	150
0125	31.8	60.2	13.0	5.6	M4	9.7	315
0150	38.1	66.5	16.8	5.6	M4	13.0	507

Table 2.6: Dimensions and weights RBC ... DWC-STE

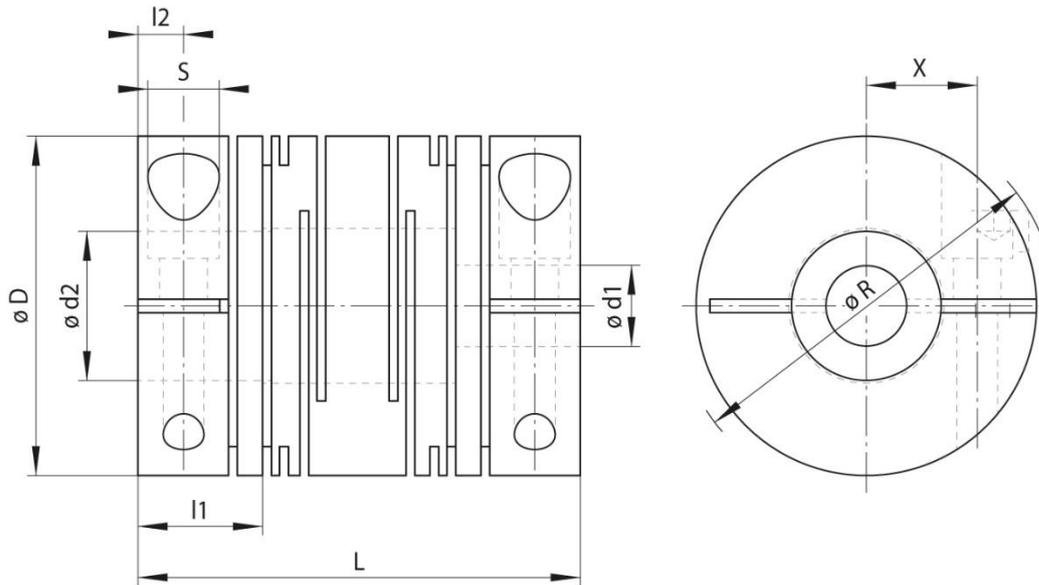


Figure 2.4: Dimensions RBC ... FKC

Size	D mm	L mm	l1 mm	l2 mm	S mm	R mm	X mm	Weight g
0015	15	24	6.3	3.0	M2.5	17.5	5.0	9
0020	20	28	7.9	3.8	M3	-	5.4	20
0025	25	30	8.0	3.8	M3	-	7.7	33
0030	30	38	10.3	5.0	M4	-	9.1	60

Table 2.7: Dimensions and weights RBC ... FKC-ALU

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3. Intended use

The coupling may only be installed, operated and serviced if

- the operating instructions have been read and understood,
- the executing person possesses the necessary qualifications,
- authorisation has been given by the company.

The beam couplings type RBC ... EWS/EWC/DWC/FKC may only be operated within the operating limits specified in section "7. Technical prerequisite for reliable operation".

RINGSPANN shall not assume any liability for damages that result from unauthorised constructional changes or an unintended use.

4. Warning signs / impermissible use

An impermissible use is given if:

- the shaft-hub-connection was not designed correctly
- the fit pair for parts to be joined has not been coordinated correctly
- the parameters necessary for the selection of the coupling were not communicated
- the tightening torques of the screw connection do not correspond with the specifications
- the coupling is wrongly fitted
- the coupling has visible damage
- impermissible modifications have been made to the coupling

The further operation of beam couplings type RBC ... EWS/EWC/DWC/FKC is not permissible under the following conditions:

- if the permissible limits of use (torque, speed, permissible misalignments, ...) are exceeded
- exceeding or falling below the permissible temperature limits
- changed running noises or the occurrence of vibrations

If the unit should be operated despite the aforementioned states, it can result in damages to the coupling and the drivetrain.

	<p>Caution! RINGSPANN shall not assume any liability for any damages that result in the event of any impermissible use .</p>
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5. Condition as delivered

Couplings are generally delivered ready-for-installation.

6. Storage

The coupling hubs can be stored indefinitely in a roofed, dry room.

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7. Technical prerequisite for reliable operation

7.1. Maximum speeds

Material	max. speed [min ⁻¹]			
	RBC ... EWS	RBC ... EWC	RBC ... DWC	RBC ... FKC
- ALU	10,000	10,000	3,600	10.000
- STE	10,000	10,000	3,600	

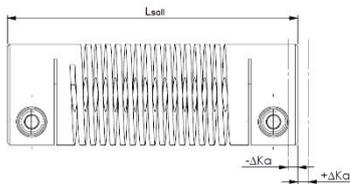
Table 7.1: max. speeds

Permissible misalignments

Type	Max. permissible misalignments		
	Axial ΔK_a [mm]	Radial ΔK_r [mm]	Angular ΔK_w [°]
RBC ... EWS-ALU/-STE	± 0.25	± 0.25	5
RBC ... EWC-ALU/-STE	± 0.25	± 0.25	5
RBC ... DWC-ALU/-STE	± 0.25	± 0.75	5
RBC 0015 FKC-ALU RBC 0020 FKC-ALU	± 0.25	± 0.1	3
RBC 0025 FKC-ALU RBC 0030 FKC-ALU	± 0.25	± 0.15	3

Table 7.2: Maximum permissible misalignments

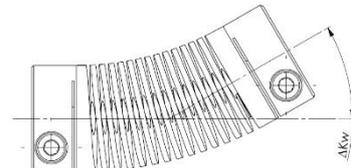
The maximum permissible misalignment values (table 7.2) must be adhered to.



Axial misalignment



Radial misalignment



Angular misalignment

Figure 7.1: Misalignment types

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8. Assembly

8.1. General assembly instructions

The coupling must be mounted tension-free, i.e. without compression, tensile or torsional stress. The compressed or tensioned state can be identified by the uniform spacing of the individual beams (see Figure 8.1). The distances must be uniform over the entire beam.

Torsional stress can be recognised by the angular position of the corresponding end machining. The respective position should be in the same alignment for both ends before and after assembly (see Fig. 8.2). If one side of the coupling is freely movable during assembly (no torque), the correct position is set by itself.

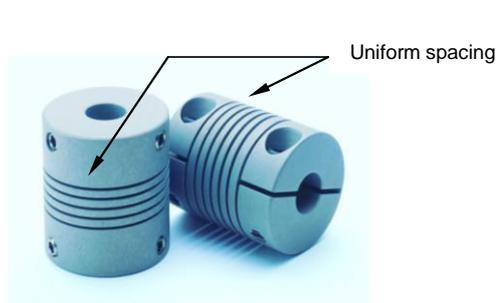


Fig. 8.1: Beam spacing

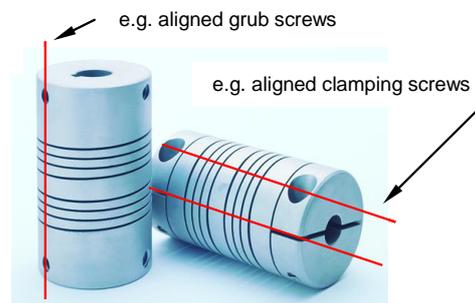


Fig. 8.2: Position of the grub screw /
clamping screws

8.2. Assembly description

1. Remove oil and other contaminants from both ends of the shaft.
2. Push the coupling onto the first shaft and position it there so that the length $L/2$ protrudes beyond the end of the shaft. It must not come into contact with any other components.
3. The coupling is now tightened on the first shaft with the appropriate tool. The tightening torque of the respective screw(s) must be taken into account (see Table 7.5)
4. Now insert the second shaft into the coupling. The shaft should be rotated slightly in the loose state so that the coupling is positioned in the "released" state. The ends of the shaft must not touch each other. A shaft distance of approx. $1/2 d_{\max}$ should be maintained.
5. Now tighten the second side of the coupling on the shaft. Again, the tightening torque of the respective screw(s) must be taken into account.

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6. Check the alignment of the coupling

- The beams must not touch each other (see Fig. 8.1).
- The grub screws/clamping screws should have the same alignment (see Fig. 8.2).
- Check shaft misalignments with suitable measuring equipment. After installation, the shaft displacements should not exceed 25 % of the maximum permissible values (Table 7.2).

If the coupling is not correctly aligned, the assembly process must be repeated.

9. Start-up

Before putting it into operation for the first time, the following parameters need to be checked:

- the tightness of the set screws
- the alignment of the coupling.

The operator has the task of attaching a suitable coupling protection to prevent the unintended touching of the coupling during operation. It may only be removed when the machine is at a standstill.

During commissioning, attention must be paid to vibrations and running noises. If any vibrations or unusual running noises should occur, the drive unit must be immediately switched off.

10. Operational disturbances

The possible operational disturbances are listed in the following table. In order to remedy them, **first bring the unit to a standstill** and then follow the further instructions in the column "Remedy". This table only provides a starting point for the search for the cause. All neighbouring components should also be subjected to an examination.

Disturbances	Causes	Remedy
Changes in sounds or vibrations	Alignment error	1) Check alignment 2) If necessary, realign shafts
	Screws for axial hub securing are loose	1) Check alignment 2) If necessary, realign shafts 3) Tighten screws for hub securing, secure against repeated loosening
Fracture of the beam	Alignment error Imbalance Resonance	1) Check alignment 2) If necessary, realign shafts 3) Check the drivetrain for imbalances or resonances. 4) Check the design if necessary 5) Replace Coupling

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Slipping of the hub	Tolerances between shaft and bore too large	1) Check dimensions 2) Replace coupling if necessary
	Tightening torque of set or clamping screws not correct	Tighten the screws for locking the hub, secure them against repeated loosening
	Oily shafts	1) Clean the shafts and coupling 2) Tighten screws for hub securing, secure against repeated loosening

Table 10.1: Operational disturbances

11. Maintenance and repair

Even if RBC ... EWS/EWC/DWC/FKC ranks among the maintenance-free couplings, it should be subject to a visual inspection at least once a year. This includes:

- examining the coupling alignment,
- examining the coupling for damages,
- examining the screw connections

The tightening torques of the screws must be examined at regular intervals.

12. Spare part stockpiling

In order to keep disturbances in operation to a minimum, it is advisable to keep a stock of spare parts directly at the deployment site in order to be able to guarantee optimal operational capability.

13. Disposal

At the end of its operating life, metals must be cleaned and disposed of properly with other scrap metal. Please also properly dispose of the packaging.