

**Installation and operating instructions for  
elastic jaw coupling REK ... DQO**

**E 06.703e**



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<b>RINGSPANN</b>	<b>Installation and operating instructions for elastic jaw coupling REK...DQO</b>	<b>E 06.703e</b>			
Issue: 17.12.2019	Version: 02	Signed.: SCHW	Checked: EISF	Number of pages: 22	Page: 2

## 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.

### **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 information

### 1.1. Function

The main task of the elastic jaw 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 and reduce the intensity of vibrations and shocks.

### 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 unintended 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.

### 1.3. Other applicable provisions, standards etc.

The couplings are designed on the basis of DIN 740, part 2 (see RINGSPANN catalogue "shaft coupling"). If the operating conditions (e.g. output, speed) should change, the original design of the coupling must be reviewed along with the load-bearing capacity of the shafts and the used shaft-hub-connections.

The locking screws are in compliance with DIN EN ISO 4029.

### 1.4. Classification in accordance with EC Machinery Directive 2006/42/EC

Type REK ... DQO couplings 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
- Abbreviated designation

Elastomer elements:

- RINGSPANN logo
- Size designation

## 2.2. Dimensions

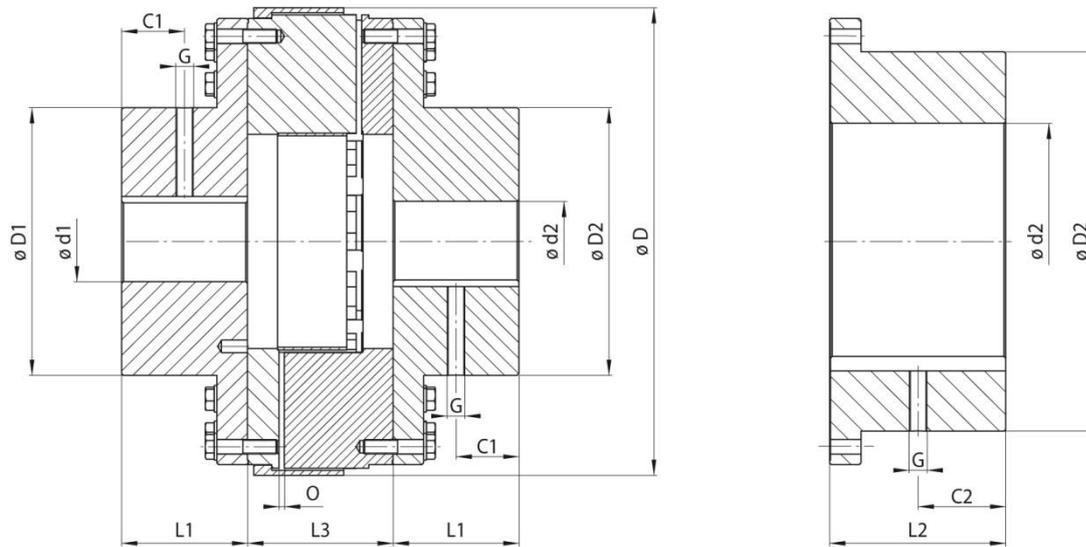


Figure 2.1: Drawing REK...DQO

Size	ØD mm	L3 mm	O mm	Type 0		Type 1	
				ØD1 mm	L1 mm	ØD2 mm	L2 mm
0075	266	100	3	131	68	170	85
0090	292	110	3	138	76	180	95
0100	317	117	3	162	84	210	105
0125	349	126	3	195	95	248	120
0140	400	134	3	220	100	294	130
0160	412	133	6	230	110	305	140
0180	461	142	6	275	130	360	170
0190	524	162	6	300	140	425	195
0215	600	196	6	345	155	470	210
0260	667	216	6	420	190	545	240

Table 2.1: Dimensions REK...DQO

### 2.3. Parts list

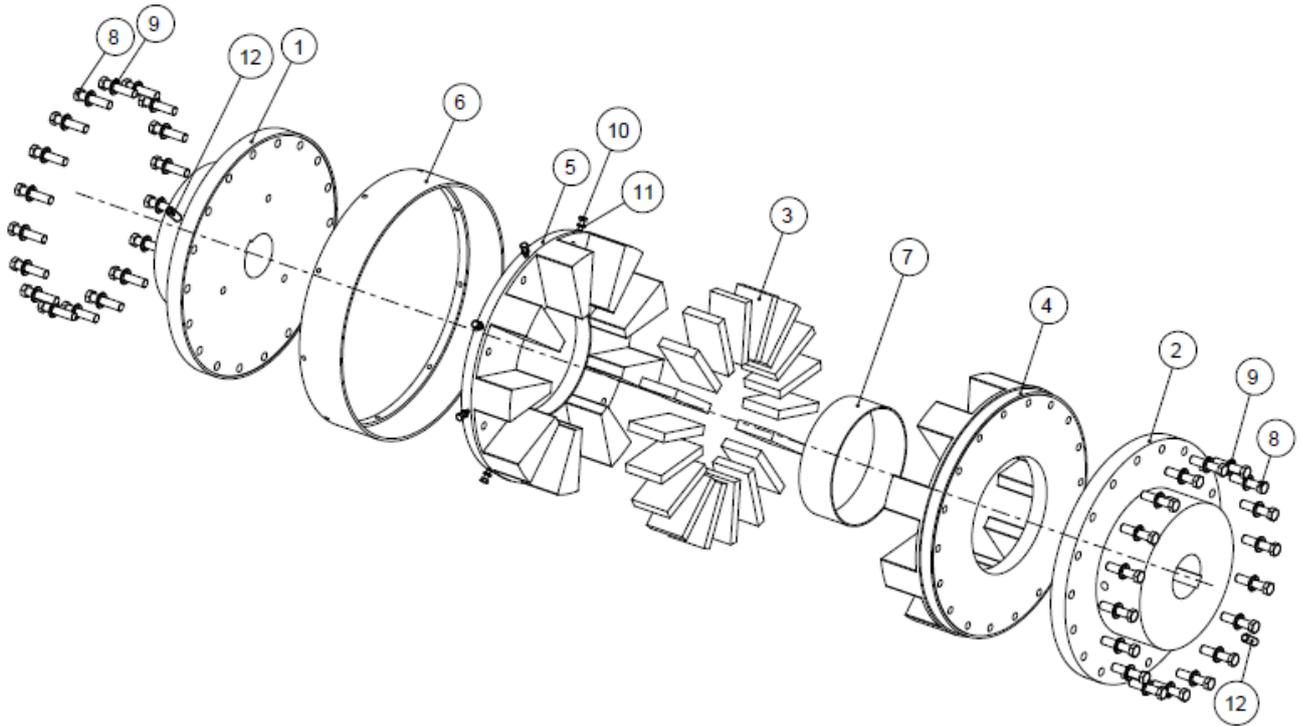


Figure 2.2: REK...DQO

Pos.	Quantity	Description
1	1	Hub A type 0 / I
2	1	Hub B type 0 / I
3	Size dependent	Elastomer cushion
4	1	Drive plate, A
5	1	Drive plate, B
6	1	Outer ring
7	1	Inner ring
8	Size dependent	Screws, drive plates
9	Size dependent	Spring rings
10	Size dependent	Screws, outer rings
11	Size dependent	Spring rings
12	2	Locking screws DIN 4029

Table 2.2: Parts list REK...DQO

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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 coupling type REK ... DQO 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 coupling hubs have been thermally overloaded during assembly
- 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
- parts from other manufacturers are used
- damaged coupling parts are used

The further operation of coupling type REK ... DQO 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
- if the wear limit of the parts is reached
- 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><b>Attention !</b> 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 in individual parts. Upon customer request, pre-bored hubs are also available. If the hub bores are manufactured by the customer, the information in chapter 7.3 must be observed:

### 6. Storage

The coupling hubs can be stored for 6 - 9 months in a roofed, dry room.

Under the same storage conditions, the properties of the elastomer elements remain unchanged for up to 5 years.

- Storage rooms must:
- have a roof and be dry,
  - be free of ozone-producing equipment,
  - have a relative humidity of less than 65%,
  - be free of condensation.

## 7. Technical prerequisite for reliable operation

### 7.1. Technical specifications

Size	Max. speed [min <sup>-1</sup> ]		Permissible misalignments			
	Cast iron	Nodular cast iron	Axial	Radial	Angular	
			[mm]	[mm]	[°]	Indicator value [mm]
0075	2257	3385	±1.5	0.4	1	4.4
0090	2047	3071				4.9
0100	1880	2819				5.3
0125	-	2544				5.9
0140	-	2205				6.8
0160	-	2150	±3			7.0
0180	-	1932				7.7
0190	-	1693				8.8
0215	-	1495				10.0
0260	-	1354				11.0

Table 7.1: Technical specifications REK...DQO

### 7.2. Permissible misalignments

The maximum permissible misalignment values (table 7.1) must be adhered to and may not occur at the same time. If radial and angular offset occur, the permissible values are reduced by a percentage. (see figure 7.1). If not observed, damage to the coupling may result.

The misalignment as a percentage is calculated as follows:

$$\Delta K [\%] = \frac{\Delta K}{\text{max. permissible misalignment}}$$

Figure 7.1 shows the relationship for radial ( $K_r$ ) and angular misalignments ( $K_w$ ) occurring at the same time:

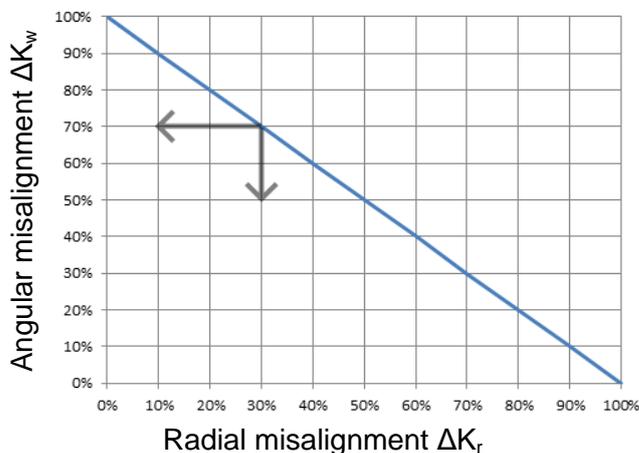


Figure 7.1: Misalignment combination

Size	Max. initial misalignments			
	Axial [mm]	Radial [mm]	Angular	
			[ ° ]	Indicator value [mm]
0075	±0.375	0.1	0.25	1.108
0090				1.221
0100				1.330
0125				1.475
0140				1.702
0160	±0.75			1.745
0180				1.942
0190				2.216
0215				2.508
0260				2.770

Table 7.2: Maximal initial misalignments

7.2.1 1 Inspection of the radial misalignment

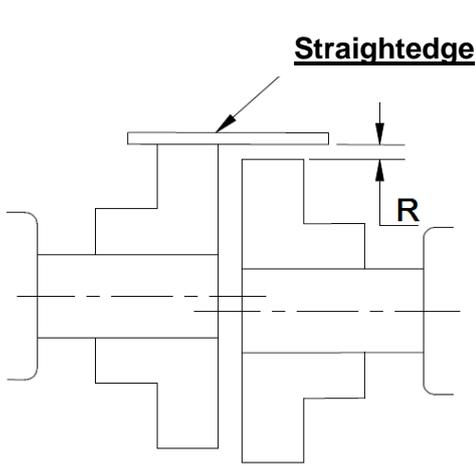


Figure 7.2: Measurement with a feeler gauge

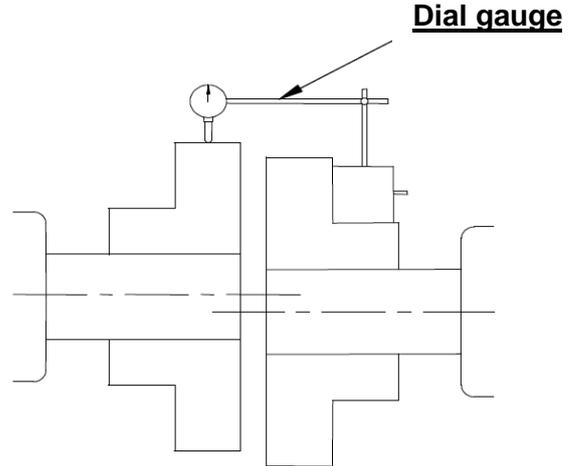


Figure 7.3: Measurement with a dial gauge

The following measurement methods can be used to check radial/parallel misalignment.

Take a straightedge and place it onto the hub (item 1) as displayed in figure 7.2. With couplings REK...DQO, turn the other hub (item 2) until distance  $R = 0$  is achieved. Taking this point as a basis, measure at an approx.  $90^\circ$  offset with a feeler gauge distance "R". To be sure, distance R can be measured again at another approx.  $180^\circ$ . It can also be carried out in a similar manner with a depth gauge. The largest measured distance indicates the given radial misalignment.

Alternatively, the radial misalignment can be measured with the help of a dial gauge. The dial gauge holder is mounted on a hub (item 1). Afterwards, place the volumetric flask on the processed outer diameter of the second hub (item 2) (see figure 7.3). With couplings REK...DQO, turn the second hub (item 2) one revolution and read off the full deflection of the dial gauge. The radial misalignment amounts to half the full deflection.

If the rotation of the second hub (item 2) is not possible, the dial gauge must be placed multiple times at the perimeter. Note the highest and lowest value. The difference between the values divided by 2 gives you the radial misalignment of the coupling. Compare the maximum measured value with the permissible value of the initial misalignment in table 7.2. If the permissible value is exceeded, better alignment needs to be carried out.

### 7.2.2 Inspection of the angular misalignment

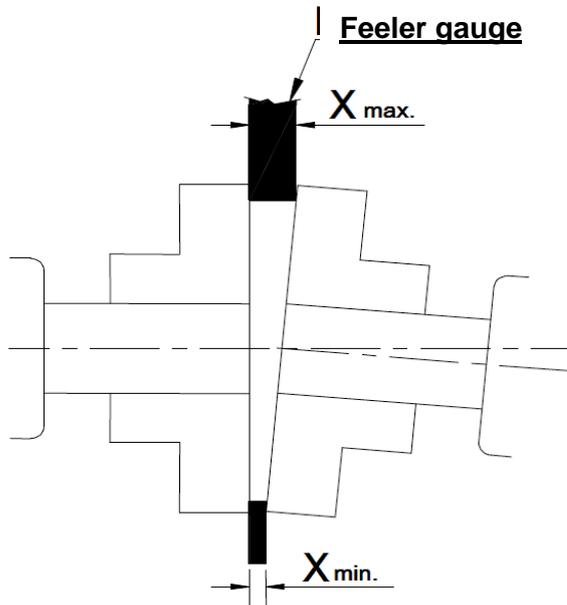


Figure 7.4: Measurement with a feeler gauge

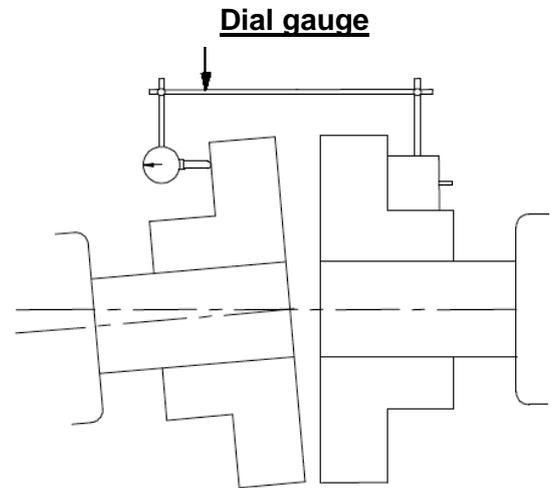


Figure 7.5: Measurement with a dial gauge

Calculate the maximum ( $X_{max.}$ ) and minimum ( $X_{min.}$ ) distance between the hubs (see figure 7.4) using a feeler gauge. The difference between both values specifies the indicator value for the angular misalignment in mm. The respective indicator value for the respective angular misalignment can be found in table 7.2.

Alternatively, a measurement can be carried out with the dial gauge. To do so, place the dial gauge holder on a hub (item 1) and the volumetric flask onto the processed plane surface of the other hub (item 2) as displayed in figure 7.5. It should hereby be placed as closely to the outer diameter as possible. With coupling REK...DQO, turn the hub one full revolution and record the full deflection. The deflection provides the indicator value for the angular misalignment in mm.

### 7.3. Manufacturing the hub bore



#### **Life-threatening danger!**

The max. permissible bore diameters specified in table 7.3 may not be exceeded. If the permissible values are exceeded, the hub could tear during operation. Here, there is life-threatening danger due to flying parts.

Size	Rough bore		Min. bore		Max. bore	
	Hub type 0	Hub type 1	Hub type 0	Hub type 1	Hub type 0	Hub type 1
0075	28	58	30	60	80	105
0090	33	58	35	60	85	115
0100	38	68	40	70	100	130
0125	48	83	50	85	120	155
0140	58	83	60	85	140	185
0160	68	88	70	90	145	190
0180	83	98	85	100	170	225
0190	88	98	90	100	190	265
0215	96	118	100	120	215	295
0260	108	168	110	170	265	340

Table 7.3: Permissible bore diameter

All individual parts are supplied balanced in accordance with DIN ISO 1940 in balance quality G 6.3.

When manufacturing the hub bore, it must be ensured that:

- the hub is precisely aligned,
- the form and positional tolerances in accordance with DIN ISO 286 are adhered to (see figure 7.6).

If the hub is to be designed with a keyway nut, it is preferably to be inserted between the threaded bores like in figure 7.6.

The design and inspection of the keyway connection falls to the operator and is his responsibility.

The decision on the necessity of retroactive balancing lies with the operator.

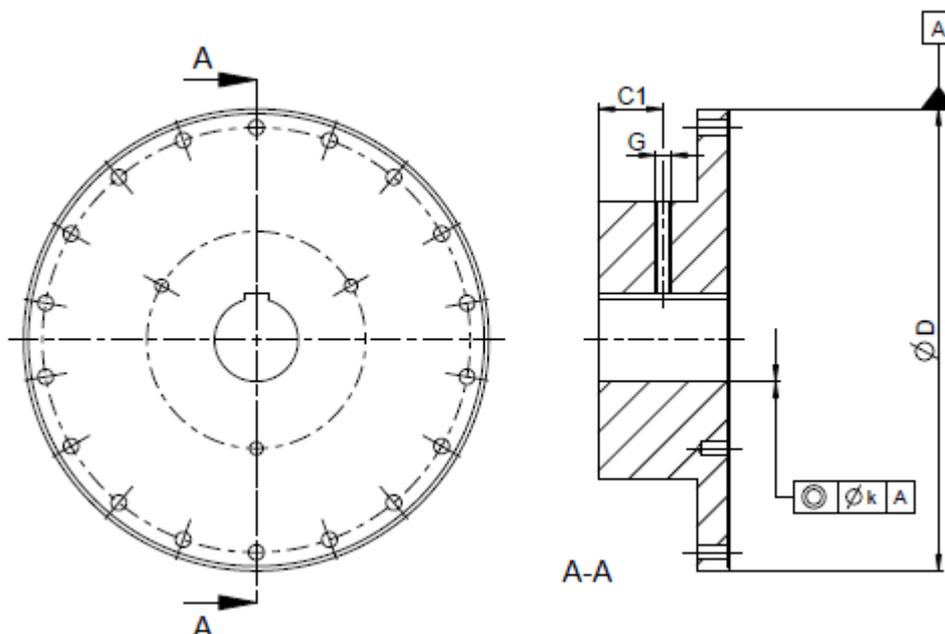


Figure 7.6: Specifications for the form and positional tolerance of the bore and position of the keyway nut

Diameter d1/d2 mm		Max. permissible concentricity mm
from	to	
30	180	0,05
180	340	0,09

Table 7.4: Max. permissible concentricity

The following fit pair in accordance with DIN 748/1 is recommended:

Bore [mm]	Shaft tolerance	Bore tolerance
≤ 50	k6	H7
> 50	m6	

Table 7.5: Fit pairs

	<p><b>Note!</b> The operator bears the sole responsibility for damages that may occur as a result of defective rework on the unbored / pre-bored coupling parts .</p>
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Locking screws in accordance with DIN EN ISO 4029 should be used for axial securing. Here the following applies.

Bore d1/d2 [mm]	from	22	38	58	75	110	260
	to	38	58	75	110	260	500
<b>Size locking screw</b>		M6	M10	M12	M16	M20	M24
<b>Tightening torque [Nm]</b>		4	17	40	80	140	220

Table 7.6: Size and tightening torques of the locking screws

	<p><b>Attention!</b> RINGSPANN shall not assume any liability for any resulting damages that arise from work carried out by the operator.</p>
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#### 7.4. Elastomer elements



Elastomer element: NBR 92 Shore-A  
 Material: Nitrile rubber  
 Hardness: 92±5 Shore-A  
 Temperature range: -40°C to +100°C  
 Colour: black

Figure 7.7: NBR 92 Shore-A

Size	Nominal torque T <sub>kN</sub> Nm	Max. torque T <sub>KMAX</sub> Nm	Alternating torque T <sub>kW</sub> Nm
0075	5300	10600	1060
0090	7100	14200	1420
0100	9900	19800	1980
0125	-	-	-
0140	-	-	-
0160	-	-	-
0180	-	-	-
0190	-	-	-
0215	-	-	-
0260	-	-	-

Table 7.7: Technical specifications NBR 92 Shore-A



Elastomer element: PU 92 Shore-A  
 Material: Polyurethane  
 Hardness: 92±5 Shore-A  
 Temperature range: -30°C to +80°C  
 Colour: orange

Figure 7.8: PU 92 Shore-A

Size	Nominal torque TkN Nm	Max. torque T <sub>KMAX</sub> Nm	Alternating torque TkW Nm
0075	8000	16000	1600
0090	10600	21200	2120
0100	14800	29600	2960
0125	21200	42400	4240
0140	28800	57600	5760
0160	34100	68200	6820
0180	50000	100000	10000
0190	70000	140000	14000
0215	-	-	-
0260	-	-	-

Table 7.8: Technical specifications PU 92 Shore-A



Figure 7.9: HTrans

Elastomer element: HTrans  
Material: Polyurethane  
Hardness: 55±5 Shore-D  
Temperature range: -30°C to +120°C  
Colour: white

Size	Nominal torque TkN Nm	Max. torque T <sub>KMAX</sub> Nm	Alternating torque TkW Nm
0075	13300	26600	2660
0090	17800	35600	3560
0100	24800	49600	4960
0125	35500	71000	7100
0140	47900	95800	9580
0160	57000	114000	11400
0180	83500	167000	16700
0190	117000	234000	23400
0215	146000	292000	29200
0260	169000	338000	33800

Table 7.9: Technical specifications HTrans

## 8. Assembly

### 8.1. General assembly instructions

Before beginning with assembly, check for the completeness of the delivery (see chapter 2.3 Parts list) and the dimensional accuracy of the bores, the shaft, the nut and the keyway (see 7. Technical prerequisite for reliable operation). The parts are to be cleaned of preservative agents.

## 8.2. Assembly of the couplings REK...DQO

1. Mount the hubs (item 1 and 2) onto the input and output shafts  
→ facilitated sliding onto the shaft by heating up the hubs (approx. 80°C)

	<p><b>Attention!</b> Use suitable means of protection when working with the heated hubs. Touching the heated hubs without safety gloves causes burns.</p>
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2. Slide the units in axial direction until the L3 measure is achieved (see chapter 2.2 Dimensions)  
→ if the units have already been securely installed, the L3 measure can be adjusted by sliding the hubs onto the shaft. A sufficient supporting length of the keyway nut must be ensured.  
→ measure L3 must be adhered to and may deviate within the permissible axial initial misalignment  
→ if the permissible value is exceeded, the coupling may be damaged.
3. Align the coupling, see chapter 7.2.
4. Tighten the set screws (item 12) with the respective tightening torque (see table 7.6).
5. Position the drive plates (items 4 and 5) together with the inner ring (item 7) and the outer ring (item 6) between the hubs (items 1 and 2).  
→ Tighten the screws (item 8) with the specified tightening torque in table 8.1.  
→ Do not tighten the screws to fasten the outer ring (item 10).
6. Slide the outer ring (item 6) onto one of the hubs (item 1 or 2).
7. Insert the elastomer elements (item 3) between the jaws of the drive plates (items 4 and 5).
8. Slide the outer ring (item 6) over the inserted elastomer elements.  
→ Tighten the screws (item 10)

Size	Thread	Tightening torque Nm
0075	M16x2P	107
0090	M16x2P	107
0100	M16x2P	107
0125	M16x2P	107
0140	M16x2P	107
0160	M16x2P	107
0180	M16x2P	107
0190	M16x2P	107
0215	M20x2,5P	215
0260	M20x2,5P	215

Table 8.1: Tightening torques of the screws

## 9. Start-up

Before start-up, the following parameters need to be checked:

- the tightening torque of all screws,
- the tightness of the set screws,
- the alignment of the coupling,
- the clearance L3.

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	Danger notice for areas with potentially explosive atmosphere
Changes in sounds or vibrations	Alignment error	<ol style="list-style-type: none"> <li>1) Eliminate the cause of the alignment error</li> <li>2) Carry out wear inspection</li> </ol>	Increased temperature on the elastomer surface, ignition risk as a result
	Wear of elastomer elements → transfer torque via metal contact	<ol style="list-style-type: none"> <li>1) Disassemble coupling, remove residues of elastomer elements</li> <li>2) Check coupling parts, replace damaged parts</li> <li>3) Insert elastomer elements, install coupling parts</li> <li>4) Check alignment, correct if necessary</li> </ol>	Ignition risk due to formation of sparks
	Screws for axial hub securing are loose	<ol style="list-style-type: none"> <li>1) Check alignment</li> <li>2) Tighten screws for axial hub securing, secure against repeated loosening</li> <li>3) Carry out wear inspection</li> </ol>	Ignition risk due to hot surfaces and spark formation
Cam break	Wear of elastomer elements → transfer torque via metal contact	<ol style="list-style-type: none"> <li>1) Replace entire coupling</li> <li>2) Check alignment</li> </ol>	Ignition risk due to spark formation
	Overload	<ol style="list-style-type: none"> <li>1) Replace entire coupling</li> <li>2) Check alignment</li> <li>1) Determine reason for overload</li> </ol>	
	Operating parameters do not correspond to the coupling output	<ol style="list-style-type: none"> <li>1) Check operating parameters, select larger coupling if necessary</li> <li>2) Install new coupling</li> <li>3) Check alignment</li> </ol>	

Cam break	Operating error	<ol style="list-style-type: none"> <li>1) Replace entire coupling</li> <li>2) Check alignment</li> <li>3) Instruct and train operating staff</li> </ol>	Ignition risk due to spark formation
Premature wear of the elastomer elements	Alignment error	<ol style="list-style-type: none"> <li>1) Eliminate the reason for the alignment error</li> <li>2) Carry out wear inspection</li> </ol>	Increased temperature on the elastomer surface, ignition risk as a result
	Physical changes due e.g. to too low/high ambient temperature, contact with aggressive liquids	<ol style="list-style-type: none"> <li>1) Disassemble coupling, remove residues of elastomer elements</li> <li>2) Check coupling parts, replace damaged parts</li> <li>3) Insert elastomer elements, install coupling parts</li> <li>4) Check alignment, correct if necessary</li> <li>5) Ensure that all triggers for the physical changes have been eliminated</li> </ol>	
	Impermissible ambient, contact temperatures	<ol style="list-style-type: none"> <li>1) Disassemble coupling, remove residues of elastomer elements</li> <li>2) Check coupling parts, replace damaged parts</li> <li>3) Insert elastomer elements, install coupling parts</li> <li>4) Check alignment, correct if necessary</li> <li>5) Check and regulate temperature, select elastomer elements from other material if necessary</li> </ol>	
Premature wear of the elastomer elements due to liquefaction on the inside	Drive vibrations	<ol style="list-style-type: none"> <li>1) Disassemble coupling, remove residues of elastomer elements</li> <li>2) Check coupling parts, replace damaged parts</li> <li>3) Insert elastomer elements, install coupling parts</li> <li>4) Check alignment, correct if necessary</li> <li>5) Determine cause of vibrations, select elastomer elements with smaller/higher shore hardness if necessary</li> </ol>	Ignition danger due to spark formation for metallic contact of the cams

Table 10.1: Operational disturbances

To ensure that the coupling can be operated safely, the specified wear values may not be exceeded. To detect the wear of the coupling, loosen the screw connections of the outer ring. Shift the outer ring in axial direction over one of the two hubs. Then measure the thickness of the elastomer cushions. If the thickness is below the specified value (see table 10.2), all elastomer cushions must be replaced.

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Size	0075	0090	0100	0125	0140	0160	0180	0190	0215	0260
Min. permissible thickness of the elastomer cushions [mm]	12	12	12	12	12	12	12	14.25	14.25	13.9

Table 10.2: Wear limits

## 11. Maintenance and repair

Even if REK ... DQO ranks among the more low-maintenance 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,
- check the wear limit of the elastomer elements.

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.



### Attention!

RINGSPANN shall not assume any liability for any occurring damages if spare parts from other manufacturers are used .

## 13. Disposal

At the end of its operating life:

- plastics must be disposed of via a disposal company,
- metals must be cleaned and disposed of properly with other scrap metal.

Please also properly dispose of the packaging.

## 14. Supplement for operation in areas with potentially explosive atmosphere

If the elastic shaft couplings REK ... DQO are operated in or in connection with potentially explosive atmosphere, the following supplemental information must also be observed.

### 14.1 Normal operation

The couplings REK ... DQO are devices in the sense of Directive 2014/34/EU and may only be used in or in connection with explosive atmosphere under observation of the following information.

#### 14.1.1 Explosive atmosphere

Surrounding pressure $p_U$	0.8 to 1.1	bar
Oxygen content $r_{O_2}$	approx. 21	Vol-%

The permissible ambient temperature  $T_a$  depends on the elastomer element material used, see section 14.1.2.

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The use in potentially explosive atmosphere due to explosive dusts or instable substances is excluded.

#### 14.1.2 Instructions for use

Couplings REK ... DQO are designed ignition source-free according to the respective category pursuant to DIN EN ISO 80079-36. The use of couplings REK ... DQO in connection with explosive atmosphere are dependent on the used material and the frame size of the elastomer element. The following approvals apply:

In equipment group I, category M2 or EPL Mb with the label:

CE  I M2 Ex h Mb X to frame size REK 0180 DQO  
T<sub>a</sub> in accordance with the operating instructions

In equipment group II, category 2G and 2D or EPL Gb and Db with the label:

CE  II 2G Ex h IIC TX Gb, to frame size REK 0180 DQO  
CE  II 2D Ex h IIIC TX Db, all frames  
T<sub>a</sub> and TX in accordance with the operating instructions

The permissible ambient temperature T<sub>a</sub> and the temperature class (for gases) / max. surface temperature (for dusts) are as follows according to the colour of the elastomer element:

The minimum ambient temperature amounts to:

Colour Elastomer element material	Ambient- temperature
NBR 92 Shore A, black	-40°C ≤ T <sub>a</sub>
PU 92 Shore A, orange	-30°C ≤ T <sub>a</sub>
HTrans, PU 55 Shore D, white	-30°C ≤ T <sub>a</sub>

The maximum ambient temperature, the temperature class and the maximum surface temperature amount to:

Colour Elastomer element material	Ambient temperature	Temperature class	max. surface temperature
NBR 92 Shore A, black	T <sub>a</sub> ≤ 55°C	T6	T70°C
PU 92 Shore A, orange	T <sub>a</sub> ≤ 55°C	T6	T80°C
HTrans, PU 55 Shore D, white	T <sub>a</sub> ≤ 95°C	T5	T120°C

The design limits in accordance with RINGSPANN catalogue "shaft coupling" must be observed. The permissible misalignment values in accordance with the installation and operating instructions may not be exceeded. The couplings may not be operated in the area of natural oscillations.

The coupling materials used may not be chemically influenced by the ambient atmosphere.

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To prevent mechanical ignition sources, metallic contact with the turning coupling must be prevented. This can, for example, be ensured using suitable coupling protection (fixed separating protection device). Openings or gaps in/with the separating protective equipment must be designed at least in IP 2X in accordance with IEC 60529. In group I, the coupling protection must be able to withstand the difficult operating conditions.

#### 14.2 Instructions on occupational health and safety



If couplings REK...DQO are used as components of a device or an assembly group in the sense of Directive 2014/34/EU, the device manufacturer must establish and confirm the compliance of this device or assembly group with the specified directive before commissioning.

If couplings REK...DQO are used as a part of a facility, the operator of the facility must adhere to the requirements of Directive 1999/92/EC and if necessary national requirements that go beyond it.

It is the operator's responsibility to review whether couplings REK...DQO are suitable for operation in the actual given explosive atmosphere based on the instructions for use.

Couplings REK...DQO does not exhibit any effective ignition sources in disturbance-free operation. Disturbance-free operation must be ensured by the operator through inspection, maintenance and repair in accordance with the information in the installation and operating instructions.

An improperly functioning coupling must be brought to a standstill by the operator. The coupling may only put back into operation after repair.

No burning, welding or cutting works are required for maintenance and repair.

When working in an explosive atmosphere, the operator must take protective measures in accordance with Directive 1999/92/EC, e.g. in accordance with DIN EN 1127-1 appendix A. Smoking, fire and naked flames must be prohibited.

#### 14.3 Setup and assembly



The coupling halves are to be secured against axial misalignment. If the coupling halves are not threaded up against a shaft shoulder, they must be secured with a locking screw. The locking screw is to be secured with an adhesive, Loctite 243 or equivalent, against becoming loose.

To guarantee preventing metallic contact, the coupling halves must be installed with the specified play "O".

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All screws must be tightened with the specified torque.

The elastomer elements are made of an insulating material and prevents a direct potential equalisation between the coupling halves. The potential equalisation between the coupling halves must be secured by the unit.

#### 14.4 Control, inspection and repair



**To prevent and recognise disturbances, the following instructions must be observed in addition to the inspection instructions in the installation and operating instructions.**

Disturbances must be eliminated immediately under observation of the repair information.

In daily inspections, attention must be paid to changes in running noises or any vibrations that should arise. The elastomer elements may be worn due to friction, meaning that the coupling halves touch and ignitable impact sparks can form. The wear must therefore be regularly examined in accordance with the installation and operating instructions. In the event of impermissible wear, the elastomer elements must be replaced.

To preserve the explosion protection concept, only spare parts specified by the manufacturer may be used.

#### 14.5 Testing



Couplings REK...DQO are to be examined in accordance with Directive 1999/92/EC before commissioning for correct assembly and proper function by a specialist or by RINGSPANN or an authorised RINGSPANN representative. This test must be documented.

Couplings REK...DQO must at the latest every 3 years be checked for proper function by a specialist or by RINGSPANN or an authorised RINGSPANN representative in accordance with Directive 1999/92/EC. This test must be documented.

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## 15. Declaration of Conformity according to Directive 2014/34/EU

### EU Declaration of Conformity

in the sense of the explosion protection directive 2014/34/EU

Hereby declared: RINGSPANN GmbH  
Schaberweg 30-38  
61348 Bad Homburg

that the operating instructions described in the operating instructions are complied with.

Device: Coupling REK...DQO

complies with the essential health and safety requirements of Directive 2014/34/EC, Annex II. The application possibilities result from the marking and the instructions for use in chapter "14. Supplement for operation in areas with potentially explosive atmosphere" of the operating instructions.

The following harmonized standards and/or normative documents have been taken into account, in whole or in part, in the design and manufacture of this equipment:

European standards	National standards / normative documents
DIN EN 1127-1 :2008 DIN EN 15198 :2007 DIN EN ISO 80079-36 :2016 DIN EN ISO 80079-38 :2017 DIN EN ISO 80079-37 :2017	

The special operating instructions in chapter "14. Supplement for operation in areas with potentially explosive atmosphere " of the Operating Instructions must be observed.

The technical documentation in accordance with Annex VIII, No. 3 has been prepared and deposited with the notified body 0044. The deposit number is 35256895.



Martin Schneweis, Product Manager Shaft Couplings  
Bad Homburg, 16.12.2019