

**Installation and Operating Instructions for  
Taper Collet Centre Mandrel BKDI**

**E 01.843e**



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<b>RINGSPANN®</b> Clamping Fixtures	<b>Installation and Operating Instructions for Taper Collet Centre Mandrel BKDI</b>			<b>E 01.843e</b>	
Issue: Date: 30.05.2017	Version : 02	Drawn: SCHC	Checked: SCHV	Pages: 9	Page: 2

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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.

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## 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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Issue: Date: 30.05.2017	Version : 02	Drawn: SCHC	Checked: SCHV	Pages: 9	Page: 3

## Contents

- 1. General**
  - 1.1 General Safety Notices
  - 1.2 Product-related Safety Notices
  - 1.3 Further Applicable Documents
- 2. Design And Function**
  - 2.1 Design
  - 2.2 Clamping Principle
- 3. Intended Use**
- 4. Improper Use / Warnings**
- 5. Technical Prerequisites For Safe Operation**
- 6. Condition As Delivered**
- 7. Installation And Commissioning**
  - 7.1 Assembly of a Backstop Ring
  - 7.2 Installation In The Machine
  - 7.3 Commissioning
  - 7.4 Clamping / Unclamping of the Component
- 8 Maintenance And Repair**
  - 8.1 General Notices
  - 8.2 Exchanging of The Clamping Element
  - 8.3 List of Wearing Parts And Spare Parts
- 9. Storage**
- 10. Technical Data**

<b>RINGSPANN®</b> Clamping Fixtures	<b>Installation and Operating Instructions for Taper Collet Centre Mandrel BKDI</b>			<b>E 01.843e</b>	
Issue: Date: 30.05.2017	Version : 02	Drawn: SCHC	Checked: SCHV	Pages: 9	Page: 4

## 1. General

### 1.1 General Safety Notices

The following hazard notices and warnings are used in these installation and operating instructions:



**Warning!**

This symbol indicates a situation where there is a risk of injury or danger for life or physical condition.



**Caution!**

This symbol indicates risks for the RINGSPANN product described and thus for equipment and machinery.



**Note:**

This symbol indicates notices, user tips and useful information.

- Only use RINGSPANN products in a technically impeccable condition.
- Consider all notices written on the product.
- Comply with the intended use.
- Before commissioning, ascertain and document that the machine the RINGSPANN product is to be built into is compliant with the country-specific regulations, rules of safety and standards.
- Perform a risk analysis for all parts and equipment of the machine with which safe operation of the RINGSPANN products is associated.

### 1.2 Product-related Safety Notices



**Warning!**

In the case of design modifications to the workpiece in the area of the clamping point, the clamping fixture must be checked to ensure it is suitable.

Such changes include:

- Changes to the workpiece diameter at the clamping point
- Changes to the workpiece tolerances at the clamping diameter
- Changes to the clamping length at the workpiece

<b>RINGSPANN®</b> Clamping Fixtures	<b>Installation and Operating Instructions for Taper Collet Centre Mandrel BKDI</b>			<b>E 01.843e</b>	
Issue: Date: 30.05.2017	Version : 02	Drawn: SCHC	Checked: SCHV	Pages: 9	Page: 5

## 1.3 Further Applicable Documents

Catalogue 10 with further technical notices in the appendix

VDI 2230      Systematic calculation of highly stressed screw connections  
 Cylindrical screw connections  
 You can also find an excerpt of VDI 2230 in the appendix of catalogue 10

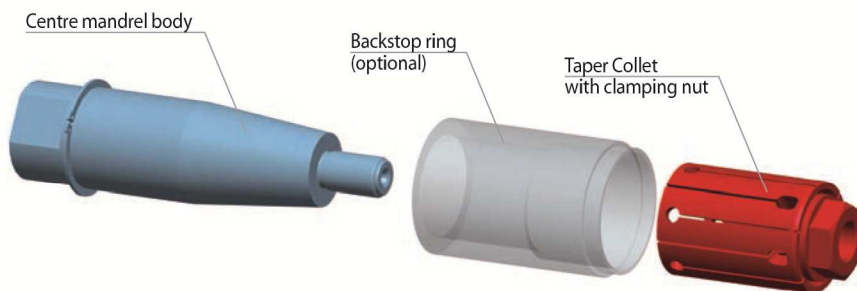


**Note:**

You will find the current versions of RINGSPANN data sheets and RINGSPANN catalogues at [www.ringspann.com](http://www.ringspann.com)

## 2. Design And Function

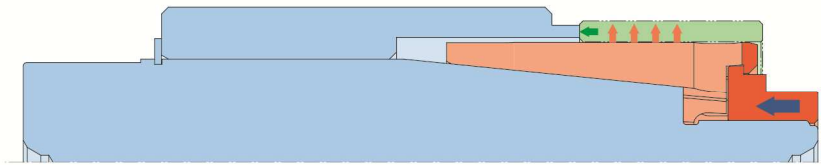
### 2.1 Design






The Taper Collet Centre Mandrel BKDI consists of a centre mandrel body and a taper collet with a clamping nut. A plain ground backstop ring is also available as an option. The Taper Collet Centre Mandrel is mounted between the centring tips. The taper collet is activated by turning the clamping nut.

<b>RINGSPANN®</b> Clamping Fixtures	<b>Installation and Operating Instructions for Taper Collet Centre Mandrel BKDI</b>			<b>E 01.843e</b>	
Issue: Date: 30.05.2017	Version : 02	Drawn: SCHC	Checked: SCHV	Pages: 9	Page: 6

## 2.2 Clamping Principle



Key:

 Axial activating force     
 Radial clamping force     
 Axial pull-back force

For clamping the taper collet is pushed against the centre mandrel body. The component is centred, pressed against the optional backstop ring and aligned flush.

## 3. Intended Use

The Taper Collet Centre Mandrel BKDI is designed for the mechanical processing or inspection of workpieces. Clamping takes place on a pre-processed diameter which is machined in the same set-up with the backstop face.

The cylindrical form of the component bore in the clamping area has to be smaller than the tolerance class IT7, independent of the component bore tolerance.

## 4. Improper Use / Warnings



### Warning!

Applications that deviate from those given in Chapter 3. **Intended use**, are not permissible.



### Warning!

In the case of design modifications to the workpiece in the area of the clamping point, the clamping fixture must be checked it ensure it is suitable.

Such changes include:

- Changes to the workpiece diameter at the clamping point
- Changes to the workpiece tolerances at the clamping diameter
- Changes to the clamping length at the workpiece

<b>RINGSPANN®</b> Clamping Fixtures	<b>Installation and Operating Instructions for Taper Collet Centre Mandrel BKDI</b>			<b>E 01.843e</b>	
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## 5. Technical Prerequisites For Safe Operation



Clamping takes place in a pre-processed cylindrical bore hole. The bore diameter must be within an IT7 tolerance over its entire length.

### Caution!

Clamping in bore holes with a cylindricity outside an IT7 tolerance is not permissible.



Clamping takes place in a pre-processed cylindrical bore hole. The face of the workpiece is ideally processed with the same clamping as the bore diameter.

### Caution!

Clamping may only take place in bore holes with an actual dimension that is within the maximum permissible diameter change  $\Delta D$ ".

If the diameter change is greater than  $\Delta D$ , it may be that the workpiece is not clamped and/or the necessary transmissible torque is not reached.

## 6. Condition As Delivered

The Taper Collet Centre Mandrel BKDI is delivered fully assembled and in accordance with the ordered size and the specified bore diameter at the workpiece. The clamping diameter of the taper collet is produced with the tolerance e6.

If a backstop ring is ordered, he will be delivered as a separate item.

## 7. Installation And Commissioning

### 7.1 Assembly of a Backstop Ring

- Unwind the clamping nut. The taper collet will be pulled off the taper mandrel body.
- Push the backstop ring over the taper mandrel body against the circlip.
- Put the taper collet back on the centre mandrel body and screw the clamping nut on.

### 7.2 Installation In The Machine

Clean interfaces at centring points and the counter sinks in the centre mandrel body thoroughly. All all surfaces that are in contact with one another must be free of adhesions and be even.

Assemble the driving dog.

### 7.3 Commissioning

Maximum true running accuracy is reached by clamping the clamping fixture after assembly once without a workpiece and then three times with a workpiece before being relaxed again. Processing of the workpieces and/or checking can then be commenced.

<b>RINGSPANN®</b> Clamping Fixtures	<b>Installation and Operating Instructions for Taper Collet Centre Mandrel BKDI</b>			<b>E 01.843e</b>	
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## 7.4 Clamping / Unclamping of the Component

Insert the component on the Taper Collet Centre Mandrel BKDI and push it against the backstop ring. Actuate the clamping nut with a presetted torque wrench.

For taking off the component loosen the clamping nut and unwind them until the component is released.

For clamping / unclamping of the component hold the centre mandrel body with a spanner. Two flats are foreseen.

## 8 Maintenance And Repair

### 8.1 General Notices

The operating and ambient conditions for RINGSPANN clamping fixtures and clamping elements are different for each application. With its geometry, hardness, surface quality and kind of feed, the workpiece itself exerts influences on the clamping fixture. RINGSPANN can therefore not make any indications as to the wear properties of the clamping fixture and can only give general notices on maintenance.

The maintenance and cleaning of the clamping fixture should be carried out when the machine is maintained at the latest. More frequent maintenance intervals may be necessary depending on what is observed during operation and upon regular visual inspection (at the start of a shift for example).

When the clamping element is rubberized:

The rubber is elastic but takes the new shape with the duration of the deflection (stressrelaxation). This might lead into a non full movement back to the original shape. The guide in clearance will be reduced and the removal or the load in of the component might be hindered.

### 8.2 Exchanging of The Clamping Element

- Unwind the clamping nut. The taper collet will be pulled off the taper mandrel body.

Check all components for damage and wear. Exchange defective components. Assembly is carried out in reverse order.



Thoroughly clean and lightly oil all components before assembly.

**Caution!**

No lubricants with friction-reducing additives may be used on the clamping elements and the components in contact with these.



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Issue: Date: 30.05.2017	Version : 02	Drawn: SCHC	Checked: SCHV	Pages: 9	Page: 9

### 8.3 List of Wearing Parts And Spare Parts

The taper collet with the clamping nut is a wearing part.

The operating and ambient conditions for RINGSPANN clamping fixtures and clamping elements are different for each application. With its geometry, hardness, surface quality and kind of feed, the work-piece itself exerts influences on the clamping fixture or clamping element. RINGSPANN can therefore not make any indications as to the wear properties of the clamping fixture or clamping element and can only give general notices on maintenance. This means that no recommendation can be made as to the number of clamping cycles after which the taper collet with clamping nut needs exchanging.

All spare parts (components) are specified in the catalogue 10. They are available individually or as part of a building group.

## 9. Storage

If the clamping fixture is to remain on the machine tool, it is to be put into relaxed position.

If put into storage, the clamping fixture is to be lightly oiled with an anti-corrosive oil (not wax) wrapped in anti-corrosive paper and kept in a sturdy box.

The corrosion protection is to be renewed every 6 months.

## 10. Technical Data

The technical data are dependent on the size. See the data sheet in catalogue 10



**Note:**

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