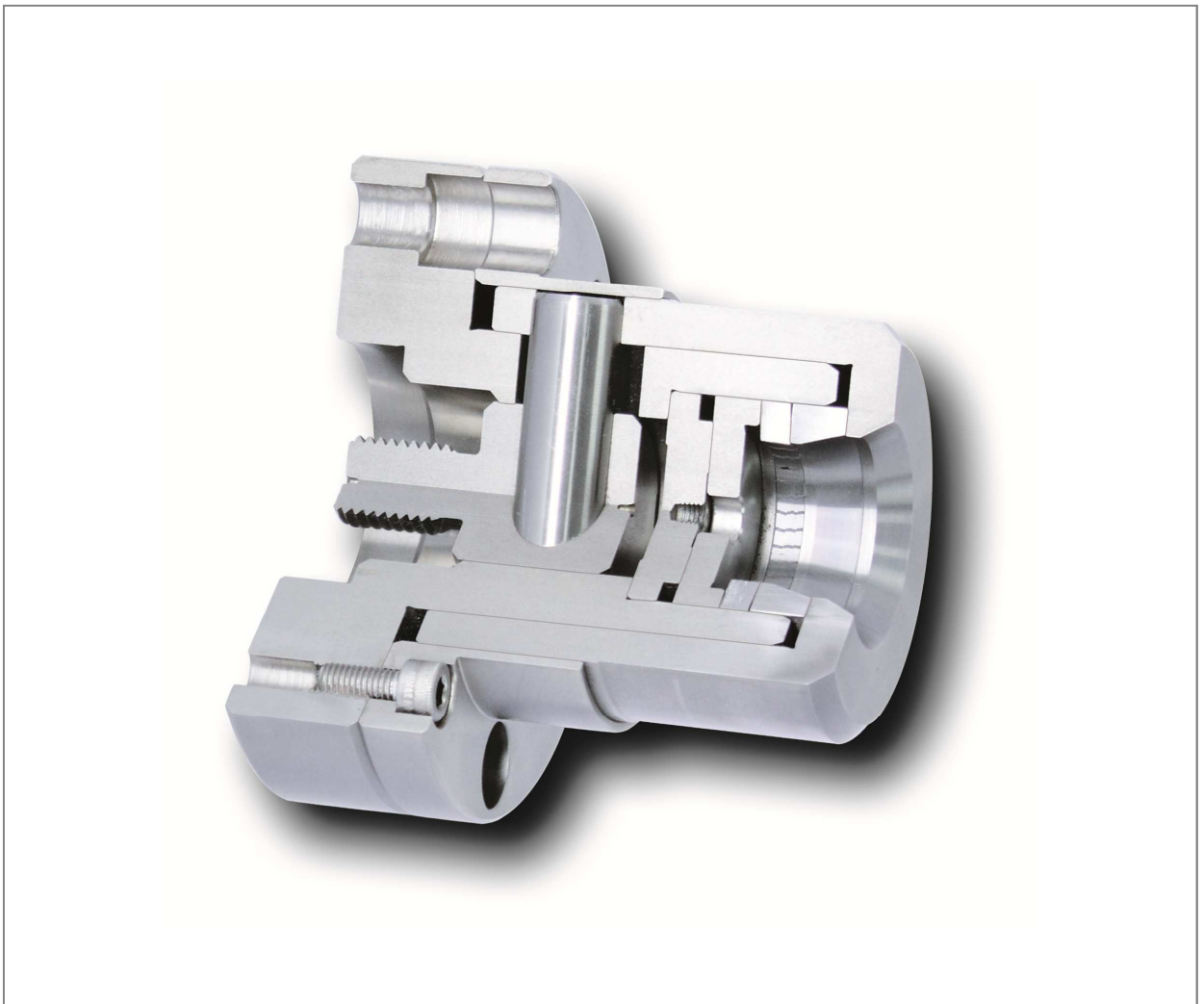


**Installation and Operating Instructions for
Bonded Disc Pack Flange Chuck LAFF**

E 01.804e



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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

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



Caution!

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



Warning!

The cap bush prevents from loosening the cross bolt. Do not let the fixture rotate without cap bush!

There is a danger for life or physical condition.

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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

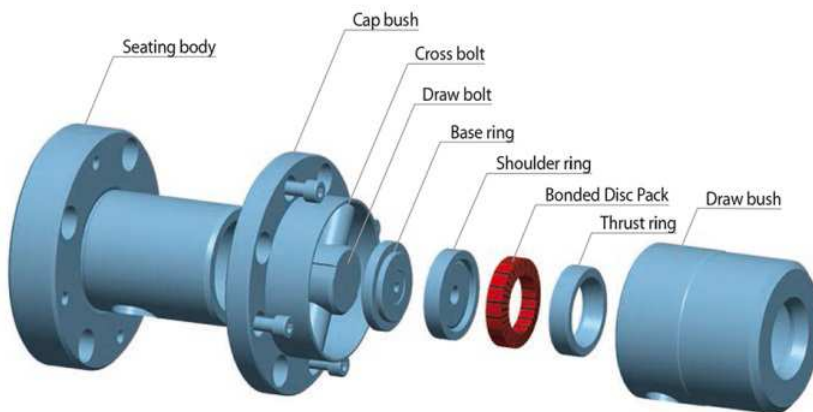


Note:

You will find the current versions of RINGSPANN data sheets and RINGSPANN catalogues at www.ringspann.com

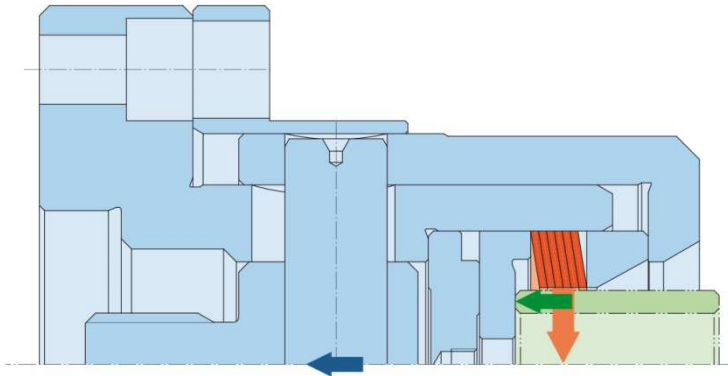
2. Design And Function

2.1 Design



The Bonded Disc Pack Flange Chuck consists of a seating body, a cap bush, draw and cross bolts, base and shoulder rings, a bonded disc pack, a thrust ring and a draw bush. The Bonded Disc Pack Flange Chuck is attached to the machine with the seating body. The clamping fixture is actuated via the draw bolt which is connected to the machine power actuating unit. Depending on the required transmitted torque, bonded disc packs of different widths may be installed. The required installation situations for the base and shoulder rings are shown in chapter 8.2 - Exchanging The Clamping Element / Cleaning of The Fixture

2.2 Clamping Principle



Key:

← Axial actuating force
 ↓ Radial clamping force
 ← Axial pull-back force

The bonded disc pack sits pre-loaded in the seating diameter of the seating body. To actuate clamping the bonded disc pack is raised to an upright position by axial actuating force. The component is centred, pressed flush against the shoulder ring and aligned. The tipping movement of the bonded disc pack converts the axial actuating force into a radial clamping force that is up to 10 times higher.

3. Intended Use

The Bonded Disc Pack Flange Chuck is designed for the mechanical processing or inspection of workpieces. Clamping takes place on a pre-processed cylindrical diameter which is machined together with a location face in the same set-up.

4. Improper Use / Warnings



Warning!

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



Warning!

The cap bush prevents from losing the cross bolt. Do not let the fixture rotate without cap bush!

There is a danger for life or physical condition.

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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

5. Technical Prerequisites For Safe Operation



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

Caution!

Clamping on a diameter with a cylindricity outside an IT7 tolerance is not permissible.



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

Caution!

Clamping may only take place on a diameter with an actual dimension that is within the maximum permissible diameter change ΔD ".

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



Caution!

When using a pneumatic or hydraulic power clamping unit, it must be ensured that, during workpiece processing, there is always the necessary actuating pressure for the processing forces/processing moments.



Caution!

During clamping / declamping it must be ensured by practical technical methods that peak forces do not exceed the maximum actuating force.

The maximum actuating force depends on the size of the fixture. You will see the maximum actuating force in the currently valid datasheet which can be found under

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6. Condition As Delivered

The Bonded Disc Pack Flange Chuck is delivered fully assembled and in accordance with the ordered size, the specified clamping diameter at the workpiece and the chosen bonded disc pack width. The clamping diameter of the disc pack used is produced with the tolerance E7.

If an "Assembly Group For Hand Clamping" or further items are ordered, they will be delivered as separate order items.

A backstop ring and its fastening screws as well as an adapter for the power clamping device are usually provided by the customer.

7. Installation And Commissioning

7.1 Installation In The Machine / Pallet etc.

Clean interfaces at machine spindle or adapter flange and the clamping fixture thoroughly. All centring diameters and all surfaces that are in contact with one another must be free of adhesions and be even.

Set the axial position of the power clamping device in such a way that the disc pack can be relaxed completely. A gap of 0.5mm max. is permissible between the thrust ring and disc pack. An adapter is usually required between the power clamping device and clamping fixture. The adapter and the mushroom bush must be firmly connected with each other on their front side.

7.2 Commissioning

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

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).

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. The stress relaxation is no defect.

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8.2 Wear and Spare Parts

The bonded disc pack is a wear part.

All spare parts are shown in catalogue 10. You can get them as a single piece and or as a assembly group.

8.3 Exchanging The Clamping Element / Cleaning of The Fixture



Caution!

Put the power clamping device in the machine spindle into relaxed position. Ensure that the power clamping fixture cannot be moved during the disassembly/assembly of the clamping fixture.

Switch off machine tool.

- Mark the cap bush and the draw bush for the assembly in the right angular position at a later stage.
- Disassemble the cap bush
- Disassemble the cross bolt
- Remove the draw bush
- Remove the thrust ring
- Remove the disc pack. The bonded disc pack sits pre-loaded on the seating diameter of the seating body. Notice the direction of the shoulder ring for the right positioning at a later stage.
- Remove the shoulder ring and the base ring

Check all components for damage and wear. Exchange defective components. Assembly is carried out in reverse order. Screw tightening torque in accordance with VDI2230.



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.



Caution!

Using a bonded disc pack with a different clamping diameter requires an exchange of the thrust ring.

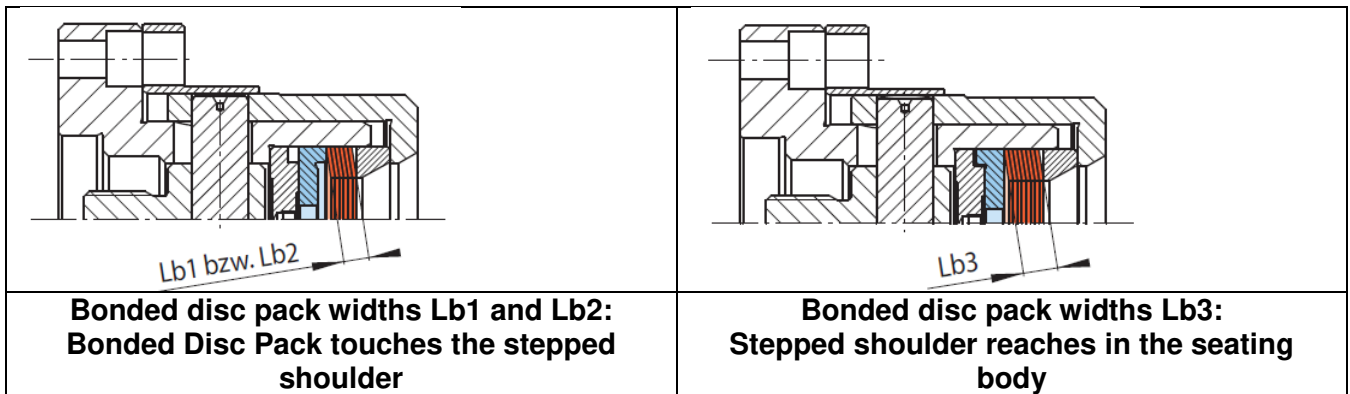
Bonded disc pack and the thrust ring have the same clamping diameter within an E7 Tolerance.



Caution!

When you exchange the bonded disc pack take care to the orientation of the shoulder ring. The orientation is depending on the width L_b of the bonded disc pack.

Width	Disc Pack LAF			Disc Pack LFF	
	Lb1	Lb2	Lb3	Lb1	Lb3
Size	mm	mm	mm	mm	mm
LAFF 22	4	6	8	---	---
LAFF 32	6	9	12	5,4	10,8
LAFF 42	6	9	12	5,4	10,8
LAFF 52	6	9	12	5,4	10,8
LAFF 62	6	9	12	5,4	10,8
LAFF 80	6	10	16	6,9	13,8
LAFF 90	6	10	16	6,9	13,8
LAFF 100	6	10	16	6,9	13,8



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 is dependent on the size. See the data sheet in catalogue 10. Or you will find the up to date version of the data sheet in the download section.



Note:

You will find the current versions of RINGSPANN data sheets and RINGSPANN catalogues at www.ringspann.com