

Zero-Point Clamping System EH 1990

https://www.halder.com/eng_de/Products/Workholding-Systems/Zero-Point-Clamping-Systems

Coupling elements for clamping and at the same time centering jigs and fixtures, developed as a quick-change system for shortening set-up times.

The Zero-Point Clamping System is designed in two parts, as a Connecting Element on the Machine Table or Base Plate and a Connecting Ring on the opposite side (machining side).

In addition to the maximum of flexibility provided by Halder Zero-Point Clamping Systems the way the system is designed (with the peg of the base element mounted pointing upwards and the connecting ring integrated on the jig) this technology ensures outstanding production reliability, very high accuracy and, in particular, the avoidance of dirt on the reference point.

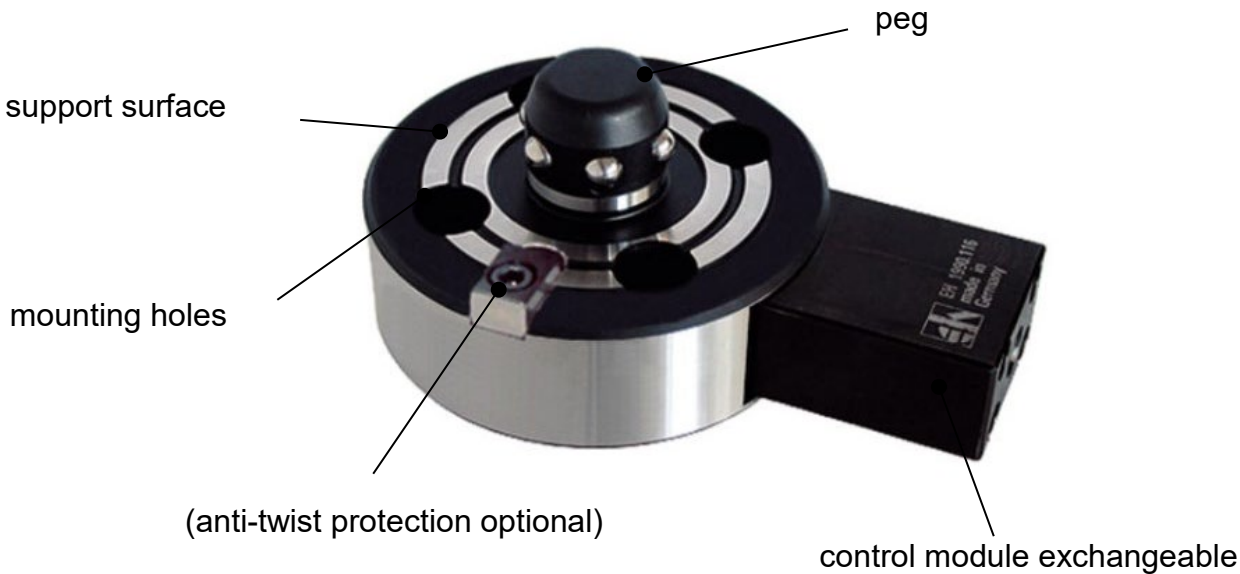
Connecting Element modular, hydraulically operated

EH 1990.101

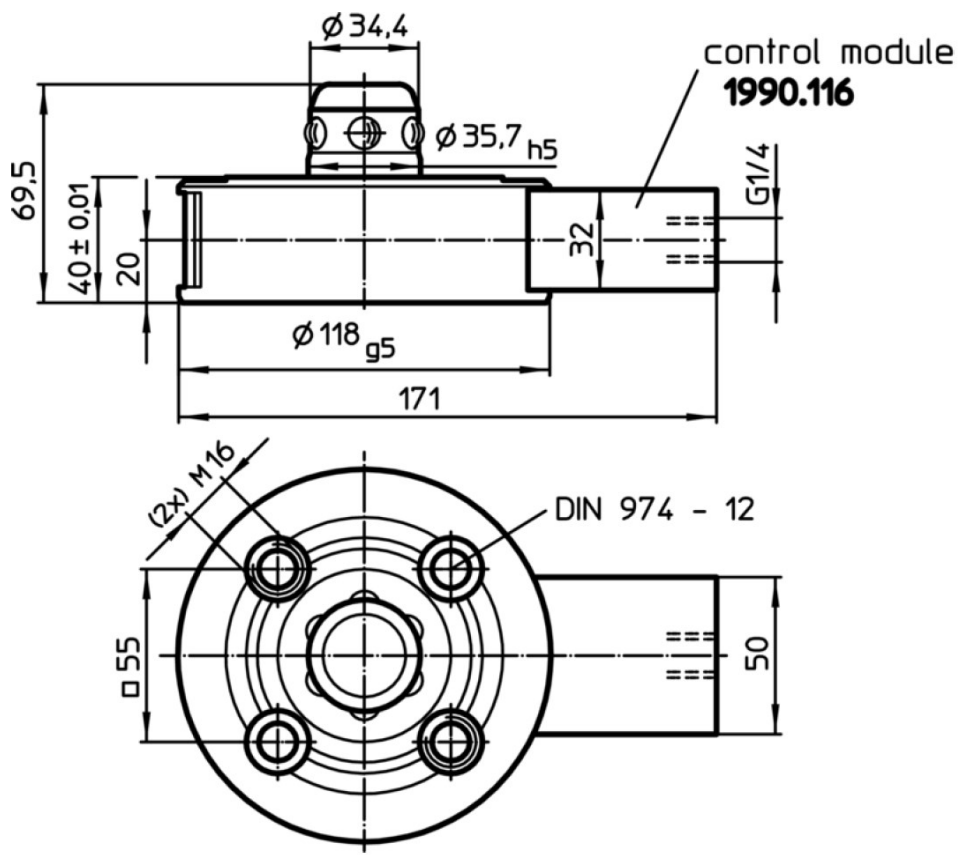
The hydraulically operated modular Connecting Element is permanently tensioned and centered over spring force. The loosening of the Connecting Element happens through the hydraulic control module. For this purpose, the control module requires a hydraulic pressure of 80 – 120 bar, which is fed via the connecting thread G1/4. The holding force of the Connecting Element is 10.000 Newton. The Connecting Elements can be integrated in base plates, Clamping Angles, Clamping Cubes and so on.

If only one element is used, an anti-twist protection is necessary, otherwise the Connecting Ring could twist around the peg of the Connecting Element in use. Separate Connecting Elements and Connecting Rings with anti-twist protection are available for this case.

The Connecting Element will be mounted with 4 pieces M12 cylinder head screws after ISO 4762. For disassembly, two of the four mounting holes contain a pull-off thread in size M16.



Dimensions Connecting Element:



Connecting Rings

EH 1990.105 / .106 / .107

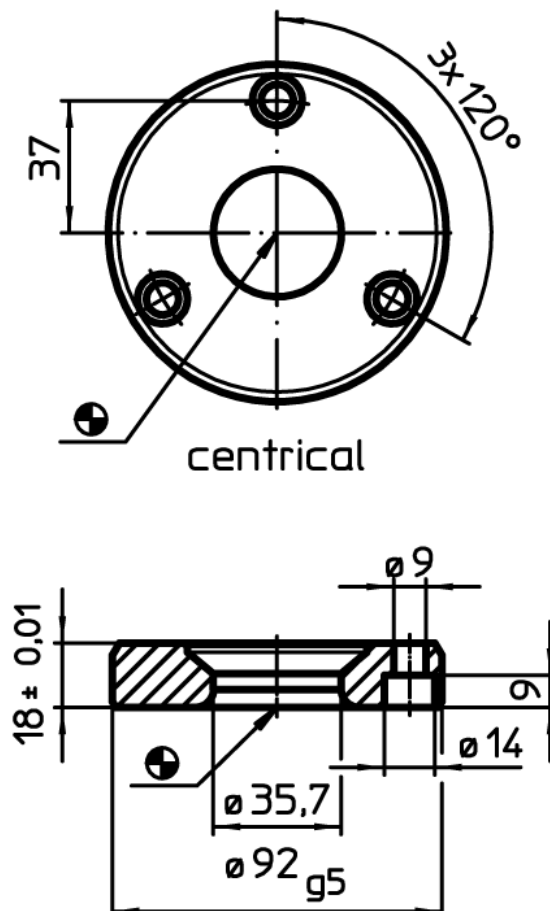
The Connecting Rings are compatible for all Halder Connecting Elements.

Can be bolted to and integrated on jigs and fixtures or directly on the workpiece.

The Connecting Rings are split into the following designs for positioning and simultaneous clamping of jigs and fixtures:

1. „Central“ Connecting Ring for aligning and clamping at the zero-point. (a protection against twisting is optional possible)
2. „Sword-shaped“ Connecting Ring for two-point placement for alignment in one axial direction.
3. „Floating“ Connecting Ring without centering function.

Dimensions Connecting Rings:



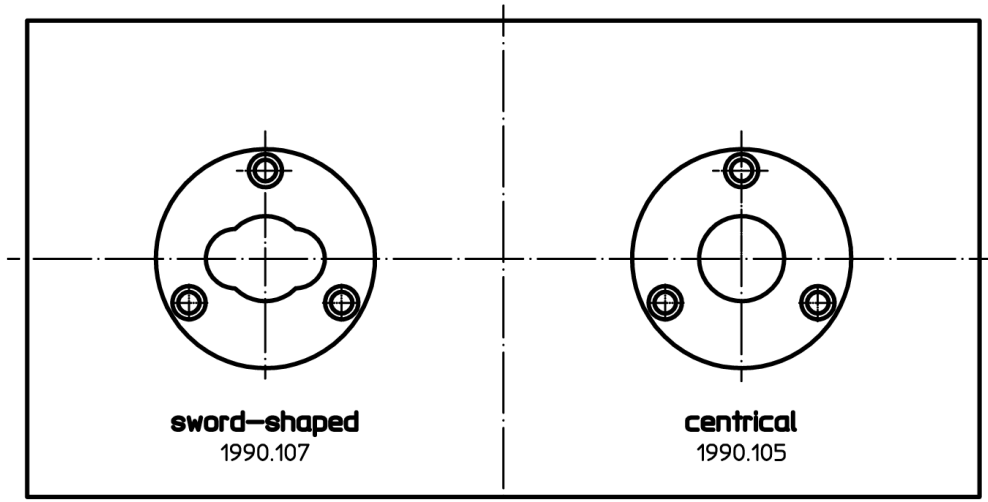
Adjustment Connecting Rings:

The Connecting Rings must, regardless of your number, be located as shown in the following sketches.

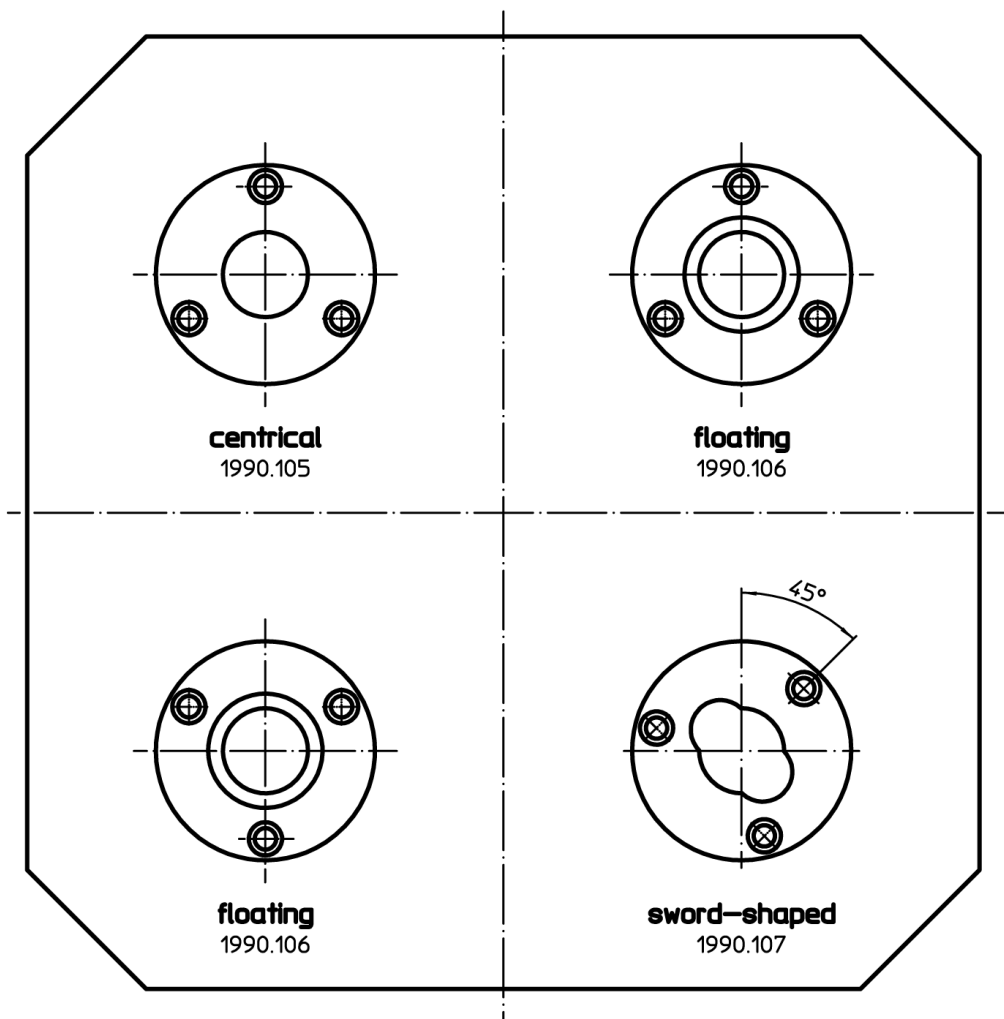
The “Central” Connecting Ring defines the zero-point of the carrier plate / fixture.

The “Sword-shaped” Connecting Ring defines the carrier plate / fixture in the axis direction, the slot must be aligned to the “Central” Connecting Ring.

The “Floating” Connecting Ring is used when more than 2 Connecting Elements are installed. Due to its construction, the floating Ring has no centering, whereby an over-determining of the fixture will be avoided.



Assembly position of connecting rings independent from distance

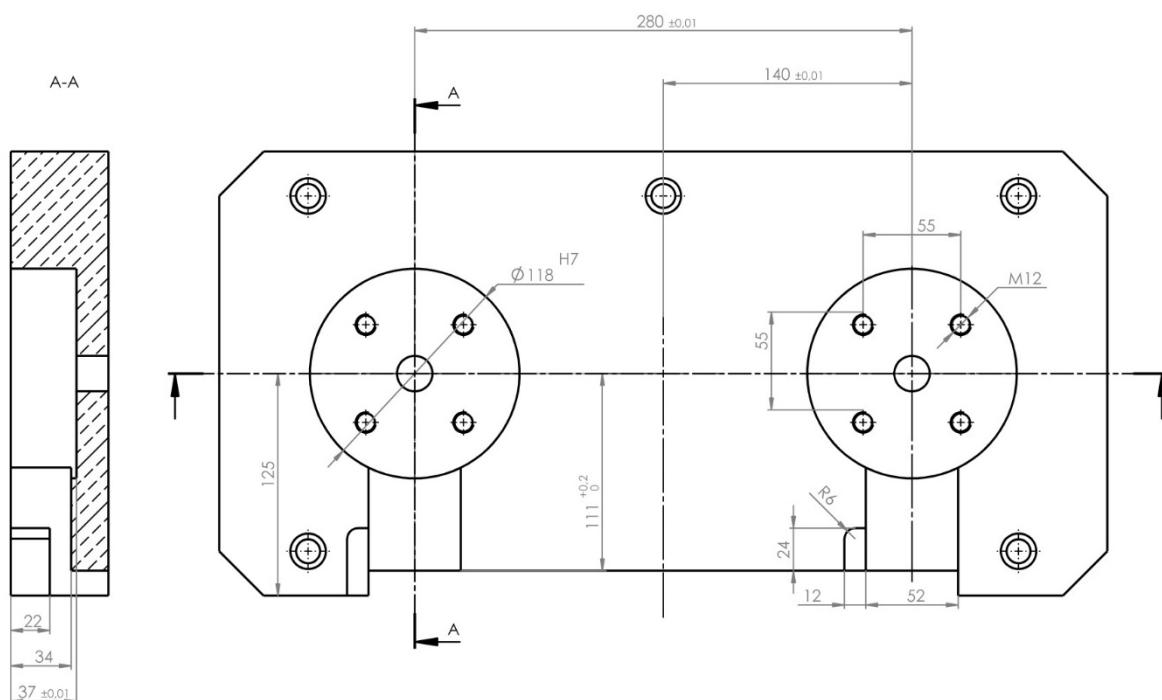


Assembly dimensions:

Connecting Element

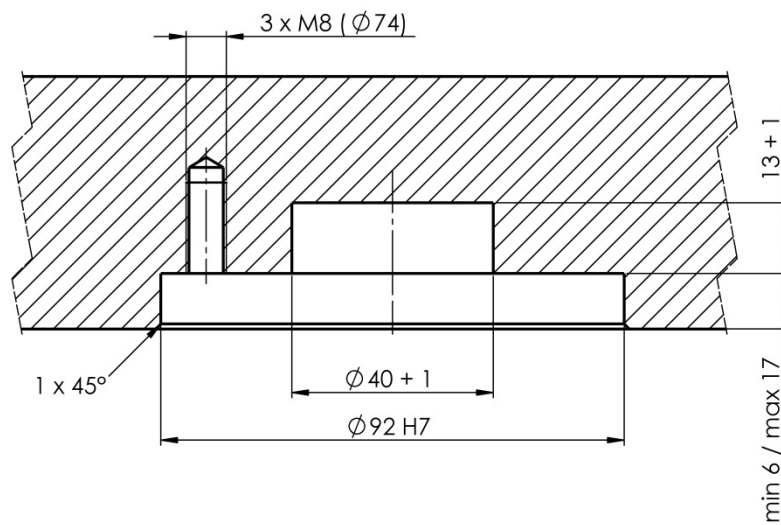
To assemble the Connecting Element a fit $\text{Ø}118\text{H7}$, 4 threads M12 and a cut-out for the control module is required. The mounting depth is indicated in the sketch "Mounting depth Connecting Element and Connecting Ring". The center distance between 2 Connecting Elements is freely selectable and depends on the workpiece and machining. To ensure proper function, the gauge must be tolerated with $+ / -0.01$ mm.

Assembly example with 2 Connecting Elements:

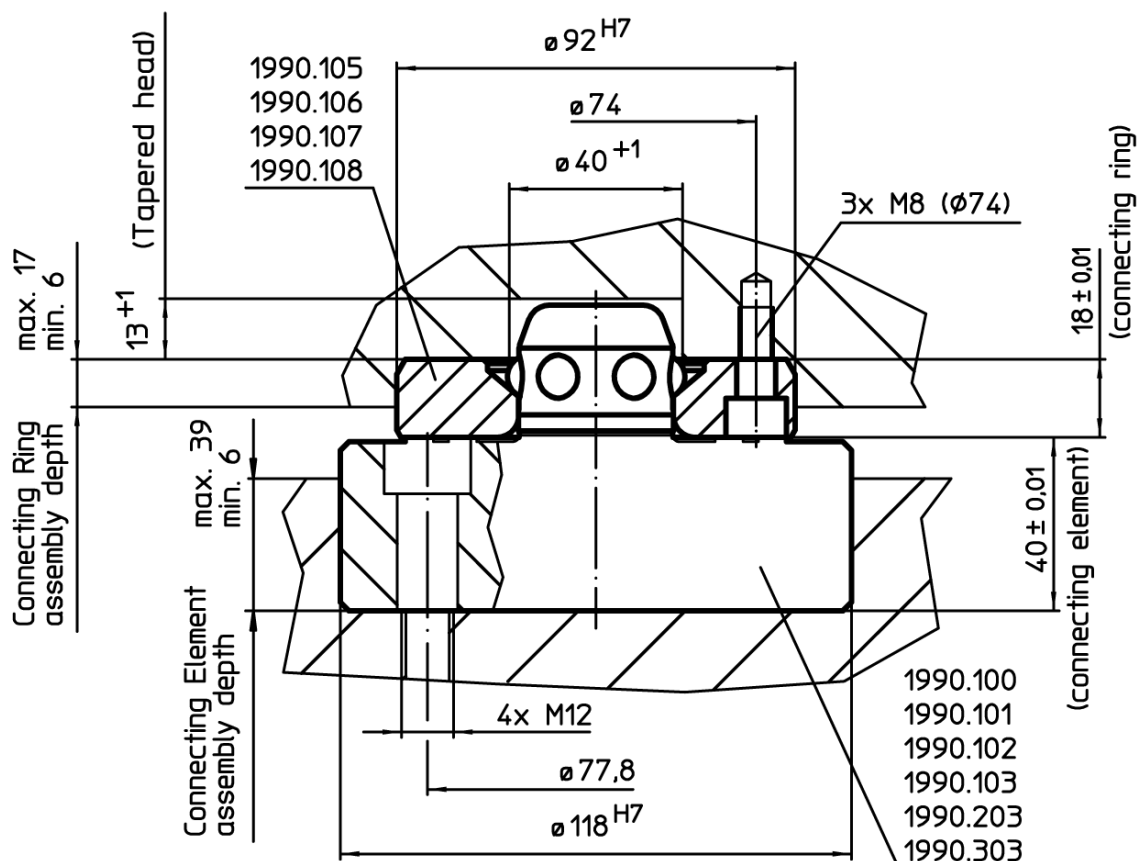


Connecting Ring

To assemble the Connecting Ring a fit $\text{Ø}92\text{H}7$, 3 threads M8 and a central cut-out $\text{Ø}40 +1$ mm with a depth of $13 \text{ mm} +1$ is required. The center distance between two connecting rings must be identical with the corresponding Connecting Elements and also tolerated with $+ / -0.01$. The mounting depth is indicated in the sketch "Mounting depth Connecting Element and Connecting Ring".



Mounting depth Connecting Element and Connecting Ring:



Assembly:

Assembly Connecting Element:

1. Assemble the Connecting Element with 4 M12 x 40mm cylinder head screws after ISO 4762 (DIN 912) in the pre-machined fit ($\text{\O}118\text{H7}$).
2. Connect the control module over the connecting thread G1/4 with the hydraulic pressure supply (80 – 120 bar).

Assembly Connecting Ring:

1. Assemble the Connecting Ring with 3 M8 x 20mm cylinder head screws after ISO 4762 (DIN 912) in the pre-machined fit ($\text{\O}92\text{H7}$).
2. Note the alignment of the Sword-shaped Connecting Ring!

Disassembly:

Disassembly Connecting Element:

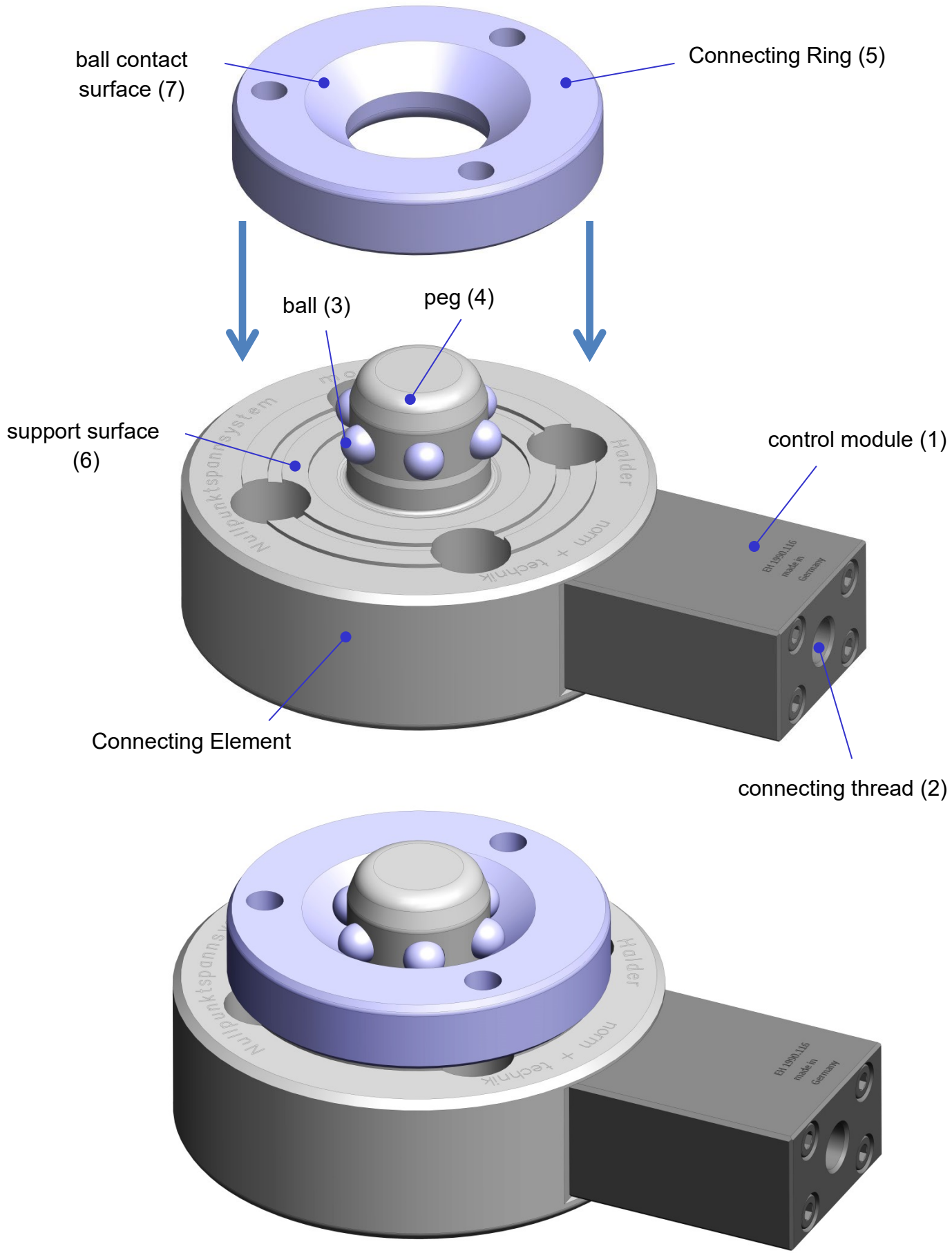
1. Disconnect the hydraulic pressure supply via G1/4 thread. (Switch off)
2. Loosen and remove M12 cylinder head screws evenly.
3. Use the two pull-off threads M16 and suitable M16 screws to push the Connecting Element evenly out of the fit.

Disassembly Connecting Ring:

1. Loosen and remove M8 cylinder head screws evenly.
2. Remove the Connecting Ring evenly and without tilting from the fit.

Clamping cycle:

1. Apply the control module (1) with 80 - 120 bar pressure through the connecting thread (2).
2. Balls (3) in the peg (4) will be released through the control module (1)
→ Connecting Element is released.
3. Lay up the Connecting Ring (5) on the support surface (6) of the Connecting Element, balls (3) move inside without resistance.
4. Stop the pressure supply of the control module (1).
5. Balls (3) in the peg (4) will be pushed to the outside. The balls (3) tighten the Connecting Ring (5) through the ball contact surface (7) onto the support surface (6) → Connecting Element is clamped and the Connecting Ring (5) is automatically centered by the balls (3).



Notes:

- The Support surface of the Connecting Element must be clean and free of chips and other contaminants.
- The Connecting Element has to be sprayed weekly with anti-rust oil.
- The Connecting Element is clamped and centered via spring force.
- A hydraulic pressure of 80 – 120 bar is required for activation of the Connecting Element
- Use caps (EH 1990.114) if the risk of contamination is given. In the tensioned state contamination is not possible because of the design.

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