

Translation of the original assembly instructions

EN

Hot tapping

| HOT TAPPING SADDLE AND HOT TAPPING DEVICE |



The completeness and accuracy of this documentation have been carefully checked. We reserve the right to make technical changes at any time. These changes may result in deviations from the information provided in this documentation.

The original document was published in the manufacturer's national language (German). All translations are copies of the original document and are only valid in conjunction with the original.

All rights reserved.

© 2026 CS INSTRUMENTS GmbH & Co. KG

Edition and revision status: 01/2026 | V3.00 | 020006268



Table of contents

1	General information	4
1.1	Documentation	4
1.2	Symbols and labels used	4
1.3	Safety instructions and notes	4
2	Security	5
2.1	Intended use	5
2.2	Organizational measures of the operator.....	5
2.3	Residual risks	6
3	Hot tapping	7
3.1	Product overview.....	7
3.2	Product description	7
3.3	Scope of delivery.....	7
3.4	Applicable documents	7
4	Transportation and storage	8
4.1	Delivery	8
4.2	Storage.....	8
5	Installation and commissioning	9
5.1	Assemble product	9
5.2	Carry out a pressure test.....	11
5.3	Set up measuring point	11
6	Maintenance and servicing	13
6.1	Clean product.....	13
6.2	Customer service	13
7	Decommissioning and disposal	14
8	Appendix	15
8.1	Technical data.....	15
8.2	Dimensions.....	15

1 General information

For the sake of simplicity, this documentation refers to the product "Hot tapping" simply as the **product**.

1.1 Documentation

This documentation provides important warnings, safety precautions, and instructions for the safe and proper operation of the product.

- ▷ Before operating the product, read this documentation carefully and ensure that you fully understand its contents.
- ▷ Always keep this documentation readily available for reference purposes.

1.2 Symbols and labels used

The following markings and symbols are used in this documentation:

Labeling/symbol	Usage
Text	Important text passages are highlighted
 2 Security	Cross-reference to text passage, figure or chapter
•	Enumeration, list element
▷	Call to action as part of an instruction. Can also be numbered.
✓	Final or intermediate result of an instruction
✗	Final or intermediate result of an instruction that has not been achieved
! (in circle)	Note on an intermediate result

Table 1: Symbols and labels used

1.3 Safety instructions and notes

	DANGER Indicates an imminent danger. Death or very serious injuries may result.
	WARNING Indicates a potentially dangerous situation. Death or serious injury may result.
	CAUTION Indicates a potentially dangerous situation. Slight or minor injuries may result.
	NOTICE Indicates a potentially dangerous situation. Material or environmental damage may result.
	NOTE Indicates important information, application tips, and useful information for proper working.



2 Security

The product has been designed, manufactured, and functionally tested in accordance with applicable safety regulations.

To ensure operational safety, please observe the following:

- Chapter "Intended use"
- Chapter "Organizational measures to be taken by the operator"
- Chapter "Residual hazards"

Regardless of the instructions provided in this manual, all applicable country-specific occupational health and safety regulations must be observed.

2.1 Intended use

The operational safety of the product supplied is only guaranteed if it is used as intended.

The product is used to drill into pressurized compressed air lines made of steel and stainless steel in a controlled manner and to provide a permanent measuring point. It is used exclusively for the professional installation of measuring devices on existing compressed air systems without having to depressurize the line.

It is considered to be used as intended in particular if

- the design is selected to match the pipe size,
- the product is operated within the specified pressure range and
- the permissible operating temperature is observed.

Any use outside these framework conditions, in particular if the pressure or temperature is exceeded or if liquids or hazardous substances are introduced, is considered improper use and can lead to malfunctions or irreversible damage.

Any use beyond or deviating from this is considered improper use. The manufacturer accepts no liability for any resulting damage.

Intended use also includes:

- Adherence to the supplied documentation
- Compliance with all inspection and maintenance requirements specified by the manufacturer

Reasonably foreseeable misuse or improper handling are:

- Contact with steam, aggressive gases or hazardous substances (contact with unsuitable media)
- Use as a climbing aid
- Operation outside the technical specifications
- Tampering with the product in any way that does not comply with the intended and described procedures

2.2 Organizational measures of the operator

The product may only be used if it is in perfect technical condition. It may no longer be used if it has been technically modified or damaged.

Instructions

The information on commissioning, operation, and maintenance provided in these instructions must be followed. These instructions should always be kept accessible with the product.

Personnel

People working on the product must read these instructions, particularly the chapter entitled " 2 Security", before starting work. This also applies to people who only work occasionally.

2.3 Residual risks



DANGER

Risk of injury due to insufficiently qualified personnel

Improper handling of the product can lead to serious personal injury and damage to property. All work described in these instructions may only be carried out by qualified specialists.

Qualified personnel are persons with appropriate training and in-depth knowledge of measurement, control, regulation and compressed air technology. They must also be familiar with the applicable national regulations, standards and directives and be able to assess risks independently.



DANGER

Danger from escaping compressed gas

Contact with escaping pressurized gas or unsecured system parts can lead to serious injury or death.

- ▷ Only use pressure-resistant installation material and suitable tools that are in perfect condition.
- ▷ Before pressurizing, check all system parts and tighten all screw connections.
- ▷ Always open valves slowly to avoid pressure surges.
- ▷ Install compressed air lines tightly.
- ▷ Ensure that people and objects cannot come into contact with escaping compressed gas.
- ▷ Carry out a leak test of the system before commissioning.



WARNING

Danger during operation outside the specified limit values

Exceeding or falling below the permissible operating, storage or transportation limits can endanger people and property. There is a risk of malfunctions and operating faults as well as falsified measurement results.

- ▷ Only operate the product within the limit values specified on the rating plate and in the technical data.
- ▷ Observe the permissible storage and transportation conditions.



WARNING

Risk of injury due to unauthorized modifications

Unauthorized device modifications can cause injuries and lead to the loss of the operating permit. Operation is only permitted with original components.

- ▷ Unauthorized modifications are not permitted and lead to the exclusion of any warranty and liability by the manufacturer (CS INSTRUMENTS).



CAUTION

Danger due to product malfunctions

Incorrect installation can lead to malfunctions that impair the function of the product.

- ▷ Observe all applicable national regulations and safety regulations during installation and operation.



CAUTION

Risk of burns due to heated piping

Hot air, gases or gas mixtures can heat up the piping considerably.

- ▷ Only touch pipes when they have cooled down.
- ▷ Wear suitable protective gloves if necessary.

3 Hot tapping

3.1 Product overview

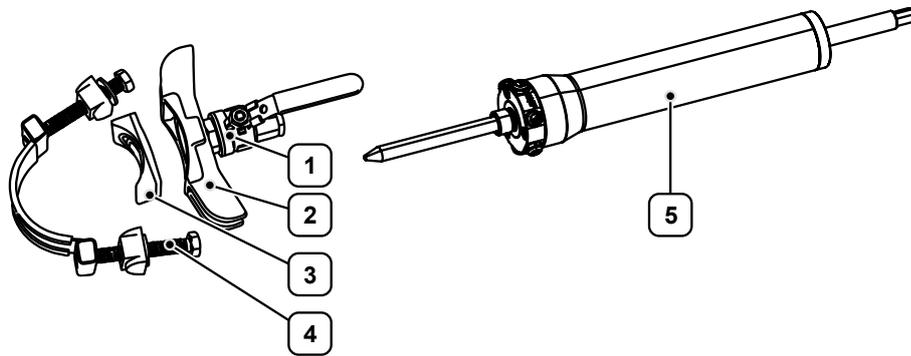


Figure 1: Hot tapping (example)

- | | | | |
|---|--------------|---|--|
| 1 | Ball valve | 4 | Retaining bracket with mounting screws |
| 2 | Saddle piece | 5 | Tapping device |
| 3 | Saddle seal | | |

3.2 Product description

Tapping clamp

The tapping clamp can be used to retrofit a measuring point on an existing pipe.

The adjustable retaining bracket enables secure and low-stress installation on compressed air lines. By screwing in the mounting screws, the tapping clamp can be flexibly adapted to the outer diameter of the respective pipe. The wide contact surface reduces surface pressure and protects the pipe material. The saddle seal compensates for the specific pipe diameter and ensures reliable sealing of the tapping point.

Tapping device

The tapping device enables the controlled tapping of pressurized compressed air lines. It is used exclusively for the professional installation of measuring devices in existing compressed air systems without having to depressurize the pipe. As an alternative to installing the tapping clamp, a weld-on socket with ball valve can be used to set up the measuring point.

The ball valve is then used to drill into the pressurized pipe.

3.3 Scope of delivery

Depending on the version ordered, the scope of delivery includes the following components:

- Hot tapping
- Translation of the original assembly instructions



NOTE

The products described in this manual (Hot tapping) are supplied separately. The scope of delivery is product-specific and depends on the version ordered.

3.4 Applicable documents

This Translation of the original assembly instructions contains information on the operation of the product "**Hot tapping**". This essentially includes information such as

- Installation and commissioning
- Setting up the measuring point



4 Transportation and storage



NOTE

Improper transportation, storage and commissioning are accident-prone and can cause damage or malfunctions to the delivered product, for which the manufacturer (CS INSTRUMENTS) does not grant any liability or warranty.

4.1 Delivery

Transport damage

- ▷ Check the delivered components for any visible transportation damage.
- ▷ Report any transportation damage to the following parties immediately:
 - the carrier
 - the manufacturer's customer service (CS INSTRUMENTS)
- ▷ Ensure that the product is handled properly during transportation.

Packaging

- ▷ Keep the original packaging for any future transportation or storage.

4.2 Storage

To avoid damage due to environmental influences, the product must be stored properly when not in use.

- ▷ If possible, store the product in its original packaging.
- ▷ Store the product in dry, dust-free rooms.
- ▷ Keep the product away from direct sunlight, heat sources, and corrosive or aggressive chemicals.



5 Installation and commissioning



DANGER

Danger from escaping compressed gas

Contact with escaping pressurized gas or unsecured system parts can lead to serious injury or death.

- ▷ Only use pressure-resistant installation material and suitable tools that are in perfect condition.
- ▷ Before pressurizing, check all system parts and tighten all screw connections.
- ▷ Always open valves slowly to avoid pressure surges.
- ▷ Install compressed air lines tightly.
- ▷ Ensure that people and objects cannot come into contact with escaping compressed gas.
- ▷ Carry out a leak test of the system before commissioning.



CAUTION

Danger from commissioning a damaged product

If a damaged product is installed or put into operation, this can lead to functional failures or mechanical risks.

- ▷ Always check the product for visible damage, loose parts or missing components before commissioning.
- ▷ Take a defective product out of operation immediately.

5.1 Assemble product

Installing the tapping collar



WARNING

Improper use of the product

Improper use of the product can result in damage to the product and potential safety risks.

- ▷ Check whether the product is suitable for the intended application.
- ▷ Ensure that the medium is compatible with all wetted parts.
- ▷ Only use the product on thick-walled steel and stainless steel pipes.
- ▷ Do not use the product on copper, aluminum, plastic or thin-walled stainless steel pipes.

Prerequisite

- Pipe is cleaned and freely accessible.

Materials

- Open-end wrench
- Torque wrench

To create a tight and permanently stable measuring point, the tapping clamp must be correctly mounted on the compressed air pipe.

- ▷ Check the surface of the pipe for contamination and clean it if necessary.
- ▷ Select the appropriate product variant based on the measured pipe diameter and ensure that it fits correctly.
- ▷ Preform the retaining bracket so that it corresponds to the pipe diameter and can be positioned on the pipe without tension.
- ▷ Position the saddle seal in the center of the pipe.
 - ⚠ Ensure that the sealing surface is in full contact with the pipe.
 - ⚠ Make sure that no dirt particles get between the saddle seal and the pipe.
- ▷ Position the saddle piece on the saddle seal and align it in the drilling position.
- ▷ Guide the preformed retaining bracket onto the saddle piece from below.
- ▷ Position the bolts in the holes provided.
- ▷ Tighten the bolts alternately and evenly with a tightening torque suitable for the surface.
 - ⚠ Select the torque (60-70 Nm) according to the pipe diameter so that the connection is tight without damaging the pipe material.
 - ⚠ Ensure that the tapping clamp remains correctly aligned during the tightening process.
 - ✓ After tightening, the tapping clamp must fit snugly and without tension against the pipe.
- ▷ Check the final position and the tight fit of the tapping clamp.

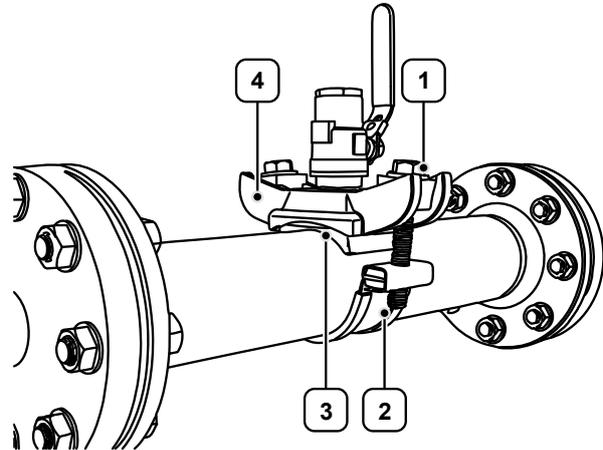


Figure 2: Installing the product (example)

- | | | | |
|---|-------------------|---|--------------|
| 1 | Screw (2x) | 3 | Saddle seal |
| 2 | Retaining bracket | 4 | Saddle piece |



NOTE

As an alternative to the tapping clamp, a weld-on socket with ball valve can be attached to the pipe to set up the measuring point.



5.2 Carry out a pressure test

Carry out pressure test

Prerequisite

- Tapping clamp is correctly installed.

After installing the tapping saddle, a pressure test must be carried out to ensure that the tapping saddle is tight and securely seated.

- ▷ Establish a connection between a compressed air source and the ball valve of the tapping clamp.
- ▷ Slowly open the ball valve and apply line pressure to the tapping sleeve.
- ▷ Visually check the connection between the tapping clamp and the pipe for leaks.
- ▷ Then carry out a leak detection test using suitable test equipment.
 - ✓ Once the leak test has been successfully completed, the measuring point can be set up.

5.3 Set up measuring point



DANGER

Risk of injury due to insufficiently qualified personnel

Improper handling of the product can lead to serious personal injury and damage to property. All work described in these instructions may only be carried out by qualified specialists.

Qualified personnel are persons with appropriate training and in-depth knowledge of measurement, control, regulation and compressed air technology. They must also be familiar with the applicable national regulations, standards and directives and be able to assess risks independently.

Set up measuring point under pressure



DANGER

Incorrect installation

Working on pressurized lines can lead to compressed air leaks, system damage and injuries if the incorrect procedure is followed.

- ▷ Only have installation work carried out by qualified specialist personnel.
- ▷ Observe the applicable safety regulations for work on pressurized lines.
- ▷ Do not exceed the maximum permissible operating pressure.

Materials

- Hand drill

Personal Protective Equipment

- Safety goggles / face protection
- Work gloves
- Hearing protection
- Protective clothing

The tapping device can be used to drill into a pressurized pipe. The resulting drilling chips are collected in an integrated filter.

- ▷ Mount the tapping device pressure-tight on the ball valve.
- ▷ Open the ball valve.
- ▷ Mount the hand drill on the drill bit of the tapping device.
 - ⓘ Use a slow-running hand drill with suitable safety devices.
- ▷ Carry out the drilling process at low speed.
 - ⓘ Take care not to overheat the drill bit during the drilling process. Excessive heat build-up can lead to the tool annealing, which significantly impairs the cutting ability and service life.
- ▷ Pull the drill bit back briefly every 10 seconds or so so that the drilling chips are discharged towards the filter.
 - ✓ The hole is completely drilled.
- ▷ Pull the drill bit of the tapping device all the way back to the stop.
- ▷ Close the ball valve.
- ▷ Dismantle the hand drill.
- ▷ Dismantle the tapping device.
- ▷ Attach a firm piece of cloth to the opening of the ball valve as protection against flying chips.
- ▷ Open the ball valve to blow drill chips out of the hole.

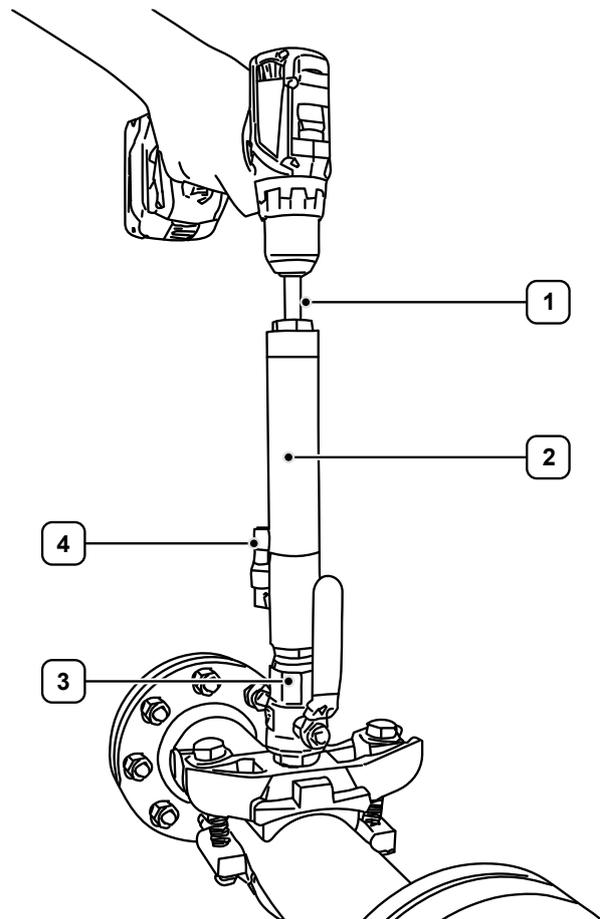


Figure 3: Setting up the measuring point (example)

- | | | | |
|---|--------------|---|------------|
| 1 | Drill bit | 3 | Ball valve |
| 2 | Drilling jig | 4 | Filter |

Mounting the sensor



NOTE

When using a tapping clamp, use a sensor shaft that is **100 mm** longer. Further information on mounting the sensor can be found in the corresponding operating instructions for the sensor used.



6 Maintenance and servicing



CAUTION

Safety instructions

- ▷ The product may only be serviced by a qualified electrician.
- ▷ Work on the electrical equipment of the product may only be carried out by qualified electricians or by instructed persons under the direction and supervision of a qualified electrician in accordance with the electrotechnical regulations.
- ▷ Spare parts must comply with the technical requirements specified by the manufacturer (CS INSTRUMENTS). This is always guaranteed with original spare parts.

6.1 Clean product

Cleaning the housing

If the housing is dirty, clean it with solvent-free cleaning agents.

- ▷ Use a slightly damp, lint-free cloth to clean the housing regularly.
- ▷ Check the product for damage and corrosion.

Cleaning the filter

Remove the drilling chips produced by the drilling process from the integrated filter of the drilling device.

- ▷ Remove the filter from the drilling device.
- ▷ Tap out the swarf.
- ▷ Then refit the filter.

6.2 Customer service

For rapid processing by customer service

Prerequisite

- Material number (product rating plate)
- Serial number (product rating plate)
- ▷ Describe the problem as precisely as possible.
- ▷ Inform customer service about:
 - When does the problem occur?
 - How often does it occur?
 - What changes were last made to the product, the configuration, or the environment?

7 Decommissioning and disposal

Decommissioning

Decommissioning is defined as an extended period of non-use of the components. The components must then be protected from external influences.

- ▷ If necessary, disconnect the components from the power supply.
- ▷ Properly package the components if they will not be used for an extended period.
- ▷ Store the components in a manner that prevents exposure to significant temperature fluctuations. Resulting condensation can lead to moisture buildup and cause corrosion.

Disposal

Parts and components that have reached the end of their service life, e.g. due to wear, corrosion and mechanical stress, must be properly disposed of after disassembly, in accordance with national regulations.

The product and packaging contain recyclable materials that must not be disposed of with residual waste.

- ▷ Separate the components after recycling.
 - ⓘ Disposal code according to the European Waste Catalog (EWC) 16 02 14, electrical and electronic devices and their components.
- ▷ Dispose of the components in an environmentally responsible manner, in accordance with local regulations or through a certified disposal company.



NOTE

Information on environmentally responsible disposal can be obtained from local authorities, or certified disposal companies.

- ▷ Alternatively, you can return the product to the manufacturer (CS INSTRUMENTS) at the end of its service life.

8 Appendix

8.1 Technical data

Parameters	Specification	Unit
Weight	~ 3.0 - 4.5 (depending on version)	kg
Outer diameter of tube	Depending on version: <ul style="list-style-type: none"> • 75...105 • 90...120 • 110...140 • 135...165 • 165...195 • 195...225 • 220...250 • 250...280 • 275...305 • 305...335 	mm
Operating pressure	max. 11	bar
Mounting thread	Depending on version: <ul style="list-style-type: none"> • G ½" • NPT ½" 	
Saddle piece	Cast iron GJS-400, epoxy coated	
Saddle seal	NBR (nitrile rubber)	
Retaining bracket	Stainless steel, AISI 316, with EPDM tape for pipe support	
Storage temperature	-10...+50	°C
Air humidity	max. 80% relative humidity, non-condensing	

Table 2: Technical data | Tapping clamp

Parameters	Specification	Unit
weight	1,3	kg
Drill diameter	13,0	mm
Length of drill bit	450	mm
Drill bit material	HSS-E	
Operating pressure	≤ 10	bar
Bearing temperature	-10...+50	°C
Air humidity	max. 80% relative humidity, non-condensing	

Table 3: Technical data | Tapping device

8.2 Dimensions

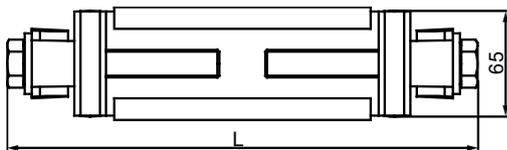


Figure 4: Dimensions | Tapping clamp

Outer diameter tube	L	unit
75...105	266	mm
90...120	296	mm
110...140	346	mm
135...165	416	mm
165...195	496	mm

Outer diameter tube	L	unit
195...225	576	mm
220...250	651	mm
250...280	741	mm
275...305	806	mm
305...335	901	mm

Table 4: Length (L) depending on the outer diameter

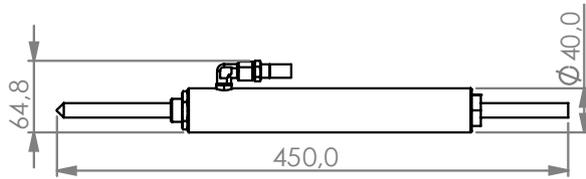


Figure 5: Dimensions | Tapping device



CS INSTRUMENTS GmbH & Co. KG

Zindelsteiner Str. 15 | 78052 VS-Tannheim | GERMANY

Tel. +49 7705 978 99 0 | info@cs-instruments.com

www.cs-instruments.com