YOUR PARTNER IN SENSOR TECHNOLOGY

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TAPPING SLEEVE

TAPPING SLEEVE and DRILLING under PRESSURE

Operating instructions

IHR PARTNER IN DER SENSOR TECHNOLOGIE

E+E ELEKTRONIK Ges.m.b.H.

BA_Anbohren_d // V1.0 // Technical data subject to change // xxxxxx

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1. General

The operating manual forms part of the package and serves to ensure proper handling and optimal functioning of the device.
For this reason, the operating manual must be read before commissioning the equipment.
Furthermore, this manual must be provided to all personnel involved in transport, installation, operation, maintenance and repair.

These operating instructions must not be used for the purposes of competition without the written consent of E+E Elektronik®and must not be forwarded to third parties.
Copies may be made for internal purposes.
All information, technical data and diagrams included in these instructions are based on the information available at the time of writing.

1.1. Explanation of symbols

This symbol indicates safety information.
It is essential that all safety information is followed. Failure to follow the provided information can lead to personal injuries or damage to property. E+E Elektronik® assumes no liability if this happens.

This symbol indicates an instruction.
These instructions should be observed to achieve optimum functioning of the device.

1.2. Safety instructions

1.2.1. Intended use

The tapping sleeve is provided exclusively for mounting on compressed air pipes.

The constructive design of the tapping sleeve enables operation in pressurised systems:
DN50 to DN200 tapping sleeve up to 16bar (PN16)

DN250 and DN300 tapping sleeve up to 10bar (PN10)

Installation, maintenance and commissioning may only be carried out by trained specialist personnel. This specialist personnel must be authorised by the plant operator to carry out the mentioned activities.
Specialist personnel must have read and understood this operating manual and must follow the instructions contained within.

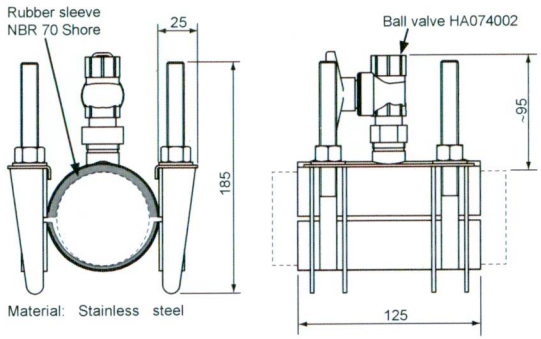
A use other than that described represents a security risk to persons or the entire measuring equipment and is therefore not permitted.
The manufacturer is not liable for damages caused by inappropriate or not intended use or installation.

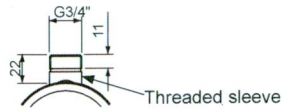
To prevent equipment damage or health hazards, the measuring equipment may not be manipulated with tools in any other way other than described in these operating instructions.
Excessive and improper mechanical stress must be avoided at all costs.

Disclaimer
The manufacturer or his vicarious agent is only liable in case of intended or gross negligence. The scope of liability is limited to the corresponding value of the contract issued to the manufacturer.
The manufacturer assumes no liability for damages incurred due to non-observance of the safety instructions and failure to comply with the operating instructions or the operating conditions. Consequential damages are excluded from the liability.

2. Tapping sleeve

2.1. Dimensions





HA074xxx
Tapping sleeve (Ball valve not included)

Pipe	Clamping area [mm]	Max. operating pressure
DN50 (2")	47 - 67	16bar (PN16)
DN65 (2 1/2")	73 - 93	16bar (PN16)
DN80 (3")	86 - 106	16bar (PN16)
DN100 (4")	107 - 127	16bar (PN16)
DN125 (5")	128 - 148	16bar (PN16)
DN150 (6")	149 - 171	16bar (PN16)
DN200 (8")	216 - 236	16bar (PN16)
DN250 (10")	260 - 280	10bar (PN10)
DN300 (12")	315 - 335	10bar (PN10)

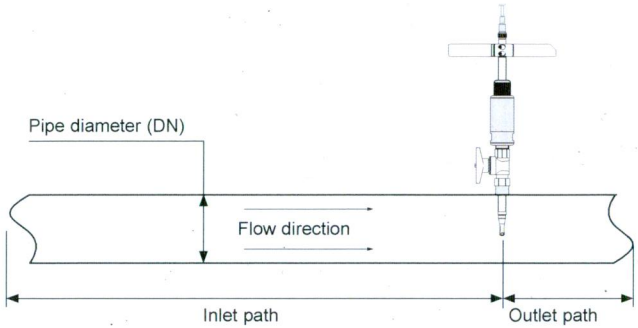
2.2. Determining the installation site

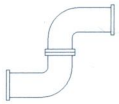
- The installation site should be easily accessible and free of vibration.
- Note that it is necessary to have a minimum installation clearance above the mounting location for the installation/removal of the sensor:
  450 mm for a probe length of 285mm (DN 50 to DN100)
  600 mm for a probe length of 435mm (DN 125 to DN300)
- The ambient temperature must not exceed the values given in the flow meter specifications (note: possible heat radiation).
- Only non-condensing medium may be used at the installation site. The formation of condensate on the sensor head must be avoided.
- In compressed air networks, the equipment should be installed after the compressed air dryer.
- Note the flow direction during the installation process.
- Note the recommended inlet and outlet paths to ensure the specified measurement accuracy.
- The flowmeter should be fitted as far away from flow interruptions as possible. Valves or shut-off fittings should be installed after the flowmeter at an appropriate distance.

2.3. Measurement path required

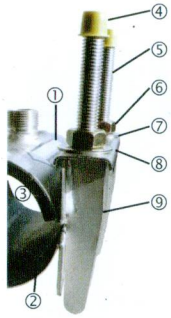
The flowmeter should be fitted as far away from flow interruptions as possible. Flow interruptions include reductions, expansions, bends, T-pieces, valves, sliders, etc. The specified measurement accuracy can only be achieved when the following inlet and outlet paths are taken into account.

- The specified values are minimum values. Greater distances should be used if possible.
- Valves or sliders should be installed on the outlet side (after the flowmeter).
- With light gases, the inlet paths need to be extended.



	Type	(DN = pipe diameter)	
		Inlet path	Outlet path
	Extension	15 x DN	5 x DN
	Reduction	15 x DN	5 x DN
	90° elbows	20 x DN	5 x DN
	Two 90° elbows, on one level	25 x DN	5 x DN
	Two 90° elbows, on two levels	30 x DN	5 x DN
	Valve, slider	50 x DN	5 x DN

2.4. Construction of the sleeve



1. Sleeve - upper part
2. Sleeve - lower part
3. Seal
4. Cap
5. Threaded bolts (welded to the bottom part)
6. Nut
7. Flat washer
8. Retainer
9. Retainer (welded to the upper part)

2.5. Site preparation work

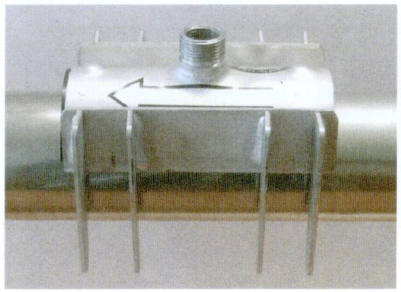
The mounting area must be freely accessible, and there must be sufficient working space available in the area around the pipe.
A stable ladder is required for mounting work at a height of max. 3.5 m above the floor (height of pipe). At greater heights, a working platform must be provided. If the measuring point area is not accessible using a platform, a stable working platform using scaffolding or similar must be provided.
Any cladding or insulation covering the pipe must be removed in the measuring point area to a minimum length of 0.6 m. Any grinding work required in the event of corroded pipes must be carefully carried out, ensuring that the roundness of the surface is maintained.

2.6. Recommendation for mounting work

- Compare pipe diameters and check the correct sleeve size.
- Completely clear all dirt, rust or grease from the sleeve area to ensure that the surface is smooth and clean. Seals and a sliding plate should be moistened for improved adhesion. Seal material, pins and nuts must not be lubricated under any circumstances!
- Before mounting, mark the sleeve position to make it easier to check that the sleeve is positioned correctly.
- During the mounting operation, ensure that seals and retainer edges are free of dirt and that there is no foreign matter between the seal and pipe.
- Using the correct tools (long spanners and/or torque wrench) improves and simplifies the mounting process
- It is essential that the pin thread is free of all dirt.
- Always perform a pressure test after mounting the sleeve. If not completely tight, adjust the torque and check again after 20 minutes.

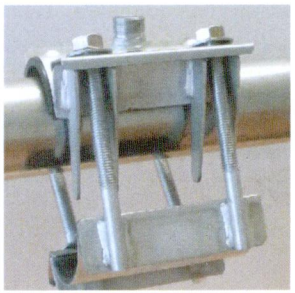
2.7. Mounting the sleeve

The area between the pipe and the sleeve must be completely free of dirt, rust and grease. Cleaning is ideally carried out using a soap solution - this also improves the functioning of the sleeve.
Seal material, pins and nuts must not be lubricated under any circumstances!

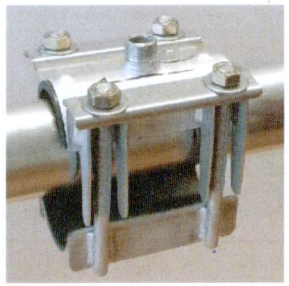


Remove the cap from the threaded pin and turn the nuts until they reach the end of the threaded pin - do not remove them!

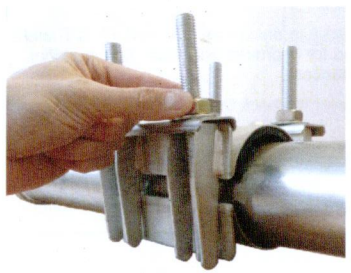
Open out the pipe sleeve and place the top part on the sleeve around the pipe.



Position the retainer correctly over the bolt yoke on one side.



Lift and insert the loosely positioned lower part of the sleeve underneath the pipe and place loosely onto the other bolt yoke with the free retainer.



Tighten the nuts on the retainer loosely positioned on the bolt yoke hand-tight, until the retainer is under tension.
Turn further using a spanner until the retainer slides over the bolt yoke and engages into position.

Tighten the nuts evenly using a spanner (min. 300mm in length).
The following torques are set when using a torque wrench:

M14 : 85 Nm
M16 : 110 Nm

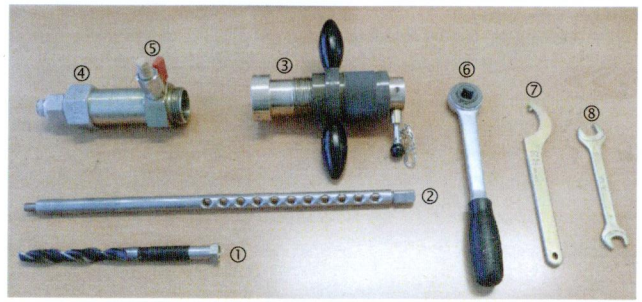
- Check the torque after 20 minutes and adjust if necessary.

⚠

- Before the sleeve is put under pressure, the fitted sleeve should be checked to ensure that it is securely sealed!
- To achieve this, exert a test pressure from outside via the ball valve/mounting valve and check for correct sealing using leak spray.

3. Drilling under pressure

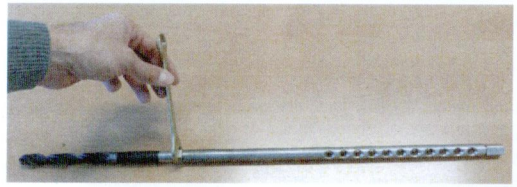
3.1. The drilling tool



1. Drill Ø15mm
2. Spindle
3. Feed unit
4. Lower part
5. Silencer
6. Ratchet
7. Hook spanner
8. Open-end spanner

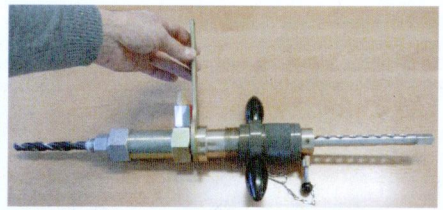
3.2. Assembly of the drilling tool

Screw on the drill to the spindle and tighten with an open-end spanner.

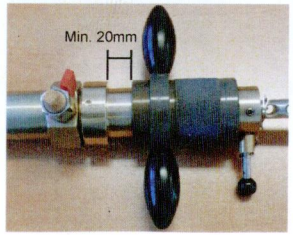


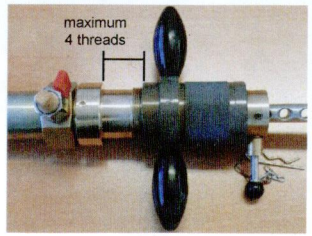
Place the feed unit on the spindle and screw on to the lower part. Do this with the hook spanner.





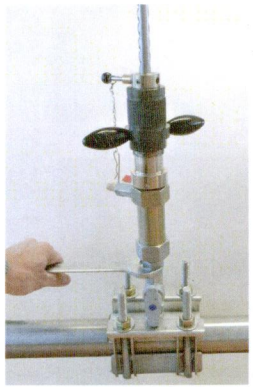
Adjust the feed: minimum 20 mm
maximum until four threads are visible.

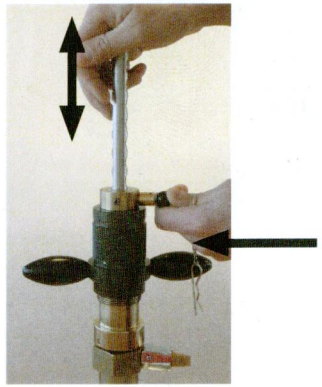




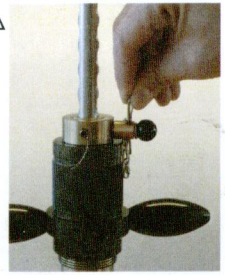
3.3. Drilling the compressed air line

Open the ball valve and screw the tapping device onto the fitting. (Fig. 1)
Insert the spindle or drill so deep until it rests on top of the pipe.
Note: It helps if one turns the drill slowly while doing it!
Now withdraw the drill so far, until the retaining pin can be inserted into the next hole of the spindle.





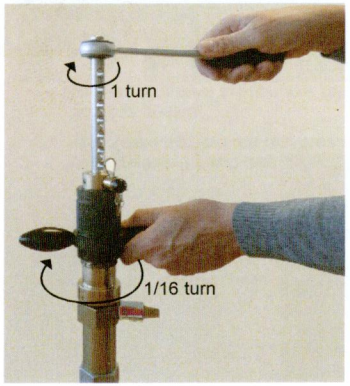
Secure the retaining pin with the splint! Ensure that the silencer is open!



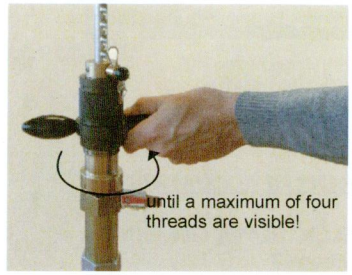
The shut-off to the silencer must be open!



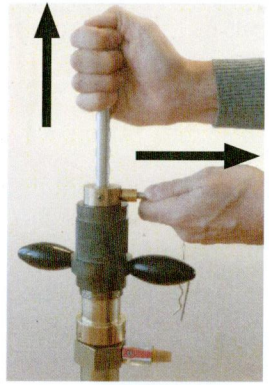
Drill the pipe with the ratchet and feed.
Keep turning the feed unit by a further max. 1/16 rotation with each ratchet rotation!
The tip of the drill must perforate the pipe wall completely. This is ensured if the settings of the feed unit were carried out according to instructions and the feed was screwed down to 0 mm when drilling.

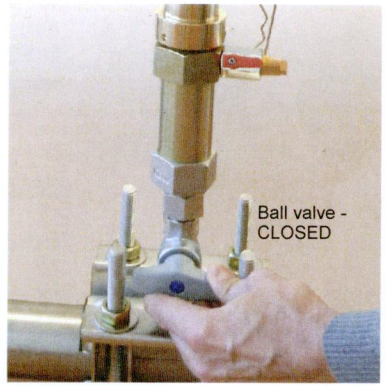


Pull out the drill by means of the feed unit.



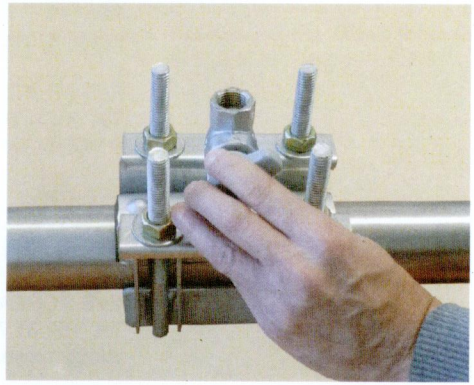
Hold the spindle and remove the splint and retaining pin. Let the spindle to push back in a controlled manner.
When the drill is fully retracted, close the ball valve.





Unscrew the tapping device and remove splinters from the fitting by opening the ball valve briefly
ATTENTION: Warn anyone present and use a rag or something similar as a shield.





Disassemble and clean the tapping device.
NOTE: Unscrew the silencer and remove the splinters by gently tapping on a solid surface.