

# Smartloop coupling

## Instructions for Use



**Model**  
2276.8

**Year built:**  
from 07/2008

en\_INT

**viega**



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# 1 About these instructions for use

Trade mark rights exist for this document, further information can be found at [www.viega.com/legal-notices](http://www.viega.com/legal-notices).

## 1.1 Target groups

The information in this manual is directed at heating and sanitary professionals and trained personnel.

It is not permitted for individuals without the abovementioned training or qualification to mount, install and, if required, service this product. This restriction does not extend to possible operating instructions.

The installation of Viega products must take place in accordance with the general rules of engineering and the Viega instructions for use.

## 1.2 Labelling of notes

Warning and advisory texts are set aside from the remainder of the text and are labelled with the relevant pictographs.

|                                                                                     |                                                                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
|  | <b>DANGER!</b><br>This symbol warns against possible life-threatening injury. |
|  | <b>WARNING!</b><br>This symbol warns against possible serious injury.         |
|  | <b>CAUTION!</b><br>This symbol warns against possible injury.                 |
|  | <b>NOTICE!</b><br>This symbol warns against possible damage to property.      |
|  | <i>Notes give you additional helpful tips.</i>                                |

## 1.3 About this translated version

This instruction for use contains important information about the choice of product or system, assembly and commissioning as well as intended use and, if required, maintenance measures. The information about the products, their properties and application technology are based on the current standards in Europe (e. g. EN) and/or in Germany (e. g. DIN/DVGW).

Some passages in the text may refer to technical codes in Europe/Germany. These should serve as recommendations in the absence of corresponding national regulations. The pertinent national laws, standards, regulations and guidelines, as well as other technical guidelines, have priority over German/European guidelines in this manual: The information is not binding for other countries and territories and should, as mentioned, be considered as support.

## 2 Product information

### 2.1 Intended use



*The use of the system for areas of use and media other than those described must be approved by the Viega Service Center.*

#### 2.1.1 Areas of use

The Smartloop Inliner technology is employed as an internal circulation pipe in drinking water installations. The system is particularly suitable for hot water riser pipes from d 28 and above.

The general rules of engineering must be observed for planning, execution, operation and maintenance drinking water installations.

E. g. the following regulations apply:

- DIN EN 806 Part 1–5 and DIN EN 1717
- Supplementary national regulations amongst others DIN 1988, VDI/DVGW 6023 and Drinking Water Ordinance (DWO)
- DVGW Worksheet W 553

We recommend using the planning software Viega Viptool when dimensioning a drinking water installation with Smartloop Inliner technology.

The flush valve must either be connected to a higher-level control, such as building control system (= BCS) which centrally monitors the fault and alarm message outputs and evaluates the signals, or a once-per-week visual inspection of the alarms indicated at the control must be ensured.

#### 2.1.2 Media

The system is suitable for the following media:

- Drinking water
  - without restrictions in acc. with DWO
  - max. chloride concentration 250 mg / l (in acc. with DWO)

### 2.2 Product description

In acc. with DWO and DIN 50930-6, Smartloop Inliner technology is suitable for use with all types of drinking water. The plastic components conform with the KTW recommendation and the requirements of DVGW Worksheet W 270.

## 2.2.1 Overview

The Smartloop system consists of the following components:

- Smartloop connection set (model 2276.1)
- Smartloop pipe (model 2007.3)
- Smartloop tension coupling (model 2276.9)
- Smartloop repair coupling (model 2276.8)

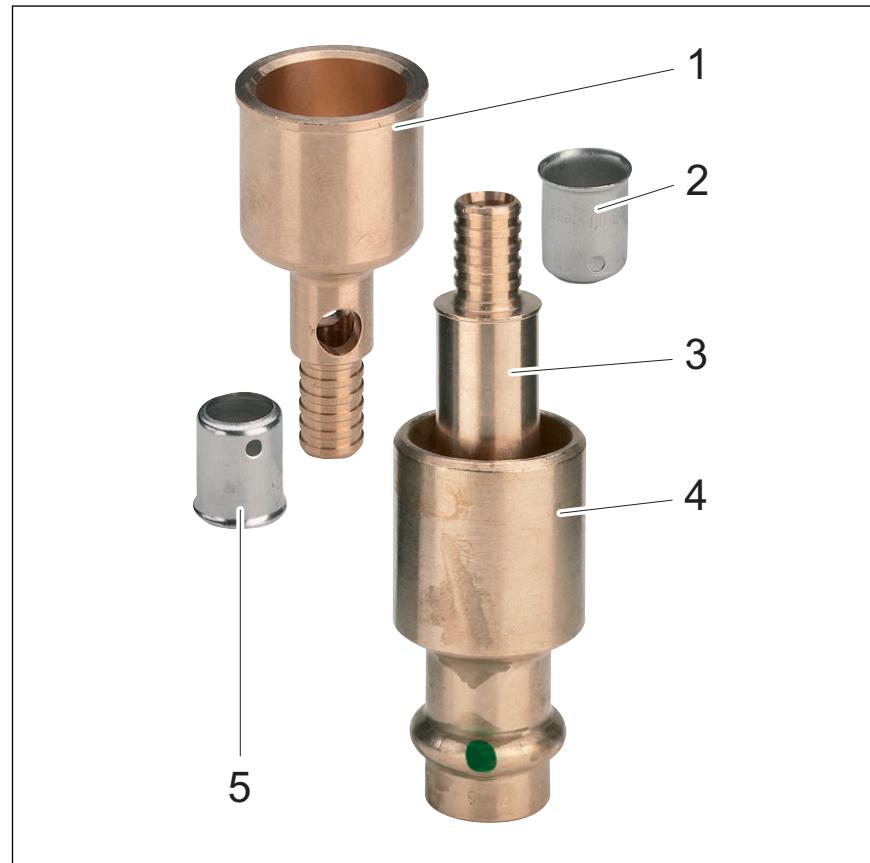
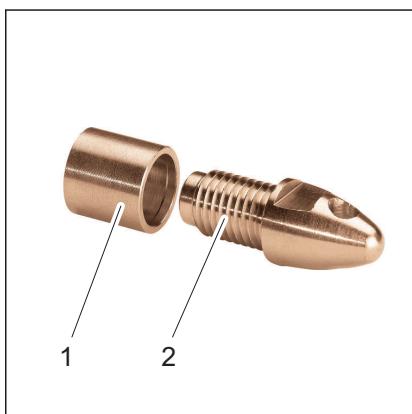


Fig. 1: Connection set, model 2276.1

- 1 - End closing piece
- 2 - Press sleeve
- 3 - Adapter
- 4 - Connecting piece
- 5 - Press sleeve

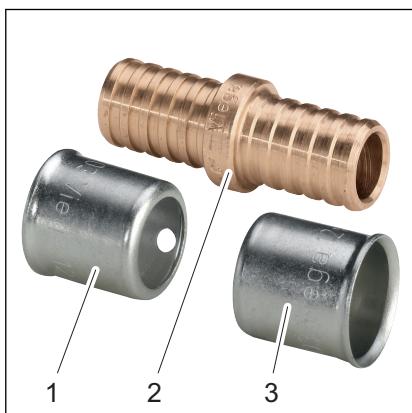


Fig. 2: Pipe, model 2007.3



1 - Support sleeve  
2 - Tension head

Fig. 3: Tension coupling, model 2276.9



1 - Press sleeve  
2 - Repair nipple  
3 - Press sleeve

Fig. 4: Repair coupling, model 2276.8

The system components are available in the following dimensions:

- End closing piece/connecting piece d = 28, 35, 28 / 35
- Smartloop pipe d = 12

## Operating mode

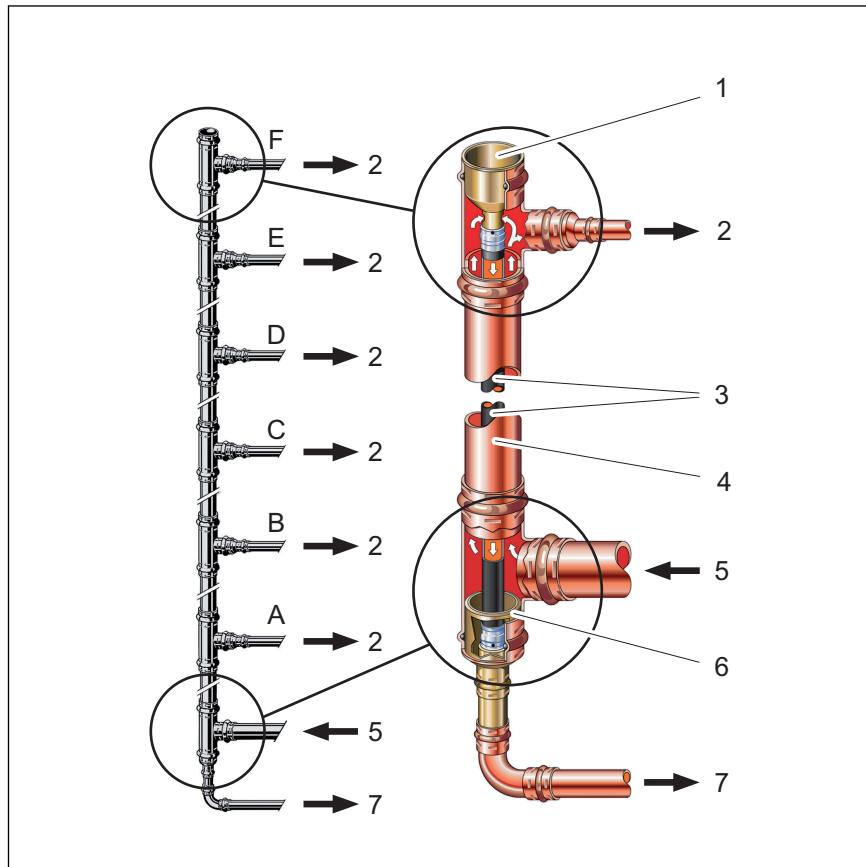


Fig. 5: Functional principle Smartloop Inliner technology

- 1 - End closing piece
- 2 - Floor connection pipeline hot water
- 3 - Internally positioned circulation pipe
- 4 - Hot water riser pipe
- 5 - Hot water supply pipe
- 6 - Connecting piece
- 7 - Circulation collector line
- A-F - Ground to 5th floor

The circulation of hot water in the section is achieved as follows: Water is directed back into the hot water heating system and replaced by hot water via the opening in the end closing piece (1) of the last T-piece (2). This ensures that sufficient hot water is available at perfectly hygienic temperatures at every floor connection line.

The temperature in the riser pipe area does not continually drop in the direction of flow with Smartloop Inliner circulation. The lowest temperature in the riser pipe is therefore at the end closing piece, in the area of the diversion in the internal circulation. With large-scale systems with several lines, this leads to an increase in the temperature in the circulation collector pipe. As a result, the temperature of the return flow water is higher than with conventional circulation systems, which, in turn, has advantages in terms of energy.

## 2.2.2 Press connection with SC-Contur



Fig. 6: Press connection using a press connector as an example

The press connection has a circumferential bead in which the sealing element lies. The connector is deformed in front of and behind the bead and permanently connected to the pipe during pressing. The sealing element is not deformed during pressing.

### SC-Contur

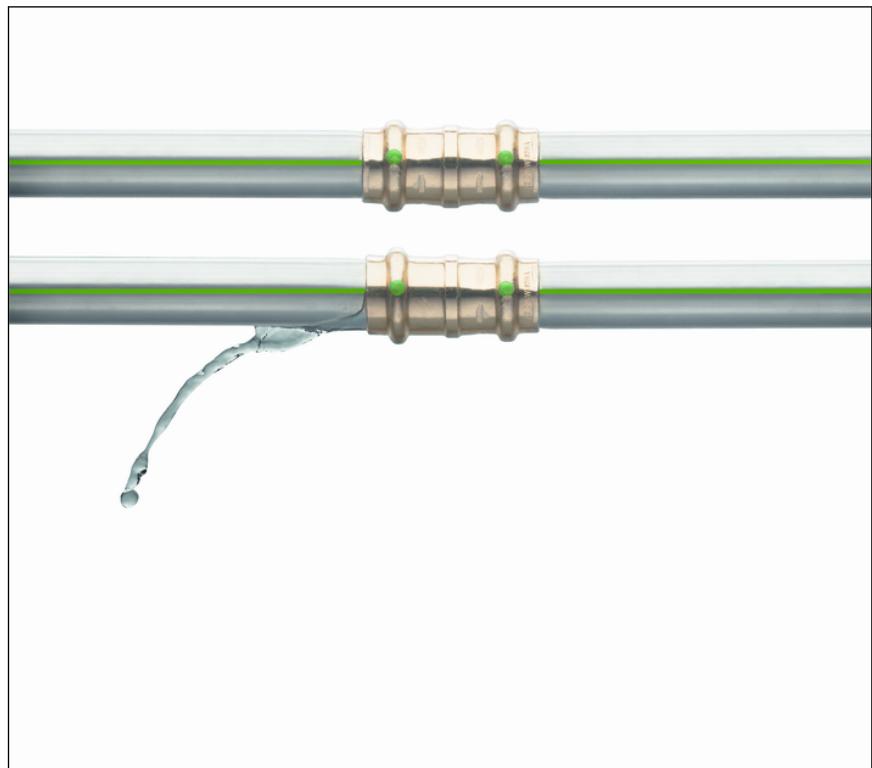


Fig. 7: SC-Contur

Viega press connections are equipped with the SC-Contur. The SC-Contur is a safety technology that is certified by the DVGW and ensures that the connection is guaranteed to be leaky in an unpressed state. In this way, unpressed connections are noticed immediately during a leakage test.

Viega guarantees that unpressed connections are visible during a leakage test:

- with the wet leakage test in the pressure range from 0.1–0.65 MPa (1.0–6.5 bar)
- with dry leakage test in the pressure range from 22 hPa–0.3 MPa (22 mbar–3.0 bar)

## 2.2.3 Sealing elements

### Area of use of the EPDM sealing element



#### NOTICE!

Only EPDM sealing elements are approved in drinking water installations. The use of other sealing elements is not permitted.

The model is factory-fitted with EPDM sealing elements.

|                       |                                                     |
|-----------------------|-----------------------------------------------------|
| Operating temperature | 70 °C ( $T_{max} = 95$ °C)                          |
| Operating pressure    | 1.0 MPa (10 bar)<br>( $P_{max} = 1.6$ MPa (16 bar)) |
| Comments              | see note ↗ <i>Chapter 2.1.2 „Media“ on page 6</i>   |

## 2.2.4 Markings on components

### Pipe marking

The pipe markings contain important information regarding the material configuration and manufacture of the pipes. Their meaning is as follows:

- Manufacturer
- System name
- Pipe material
- Certification
- Dimension
- Length specification
- Date of manufacture
- Batch number
- Manufacturing standard

## Markings on press connectors

The press connections are marked with a coloured dot. This identifies the SC-Contur, where the test medium would escape in the case of an inadvertently unpressed connection.



Fig. 8: Marking on the press connector

The green dot indicates that the system is suitable for drinking water and is equipped with the SC-Contur.

## 2.2.5 Compatible components

The model is equipped with press connections and is compatible with the Profipress, Sanpress and Sanpress Inox systems.

### Pipes

The press connections are tested and certified with the following types of pipe in acc. with DVGW Worksheet G 534:

- Copper pipes
  - in acc. with DVGW Worksheet GW 392
  - in acc. with DIN EN 1057
- Stainless steel pipes (material 1.4401 / 1.4521)
  - in acc. with DVGW Worksheet GW 541
  - in acc. with DIN EN 10312
  - in acc. with DIN EN 10088

## 2.2.6 Technical data

Observe the following operating conditions for the installation of the system:

|                       |                                                                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Operating temperature | 70 °C<br>T <sub>max</sub> 95 °C                                                                                                     |
| Operating pressure    | 1.0 MPa (10 bar)<br>P <sub>max</sub> 1.6 MPa (16 bar)                                                                               |
| Comments:             | see note  <i>Chapter 2.1.2 „Media“ on page 6</i> |

## 2.3 Information for use

### 2.3.1 Permitted mixed installations

Generally, components from different piping systems should not be used in the same installation. The different materials may have a detrimental effect on each other e. g. cause corrosion.

Generally, components from the Viega systems Profipress, Sanpress and Sanpress Inox can be used in the Smartloop system.



*The flow rules must be observed in all mixed installations with different metals.*

Should you have any questions on this subject, please contact the Viega Service Center.

### 2.3.2 Corrosion

Overground pipelines and fittings in rooms do not normally require external corrosion protection.

There are exceptions in the following cases:

- Contact with aggressive building materials such as nitrite or materials containing ammonium
- in aggressive surroundings

If external corrosion protection is required, the following regulations must be followed:

- DIN EN 806-2
- DIN 1988-200
- DKI information publication i. 160



*The chloride concentration in the medium must not exceed a maximum of 250 mg/l.*

*This chloride is not a disinfectant, but in fact pertains to the content in sea and table salt (sodium chloride).*

# 3 Handling

## 3.1 Assembly information

### 3.1.1 Permitted exchange of sealing elements



#### *Important instruction*

*With their material-specific qualities, sealing elements in press connectors are adapted for use with the corresponding media and/or the areas of use of the piping systems and are generally only certified for them.*

*The exchange of a sealing element is generally permitted. The sealing element must be exchanged for a designated spare part for the intended application ↗ Chapter 2.2.3 „Sealing elements“ on page 11. The use of other sealing elements is not permitted.*

### 3.1.2 Mounting instructions

#### Checking system components



*Do not remove the parts from the packaging until immediately before use.*

System components may, in some cases, become damaged through transportation and storage.

- Check all parts.
- Replace damaged components.
- Do not repair damaged components.
- Contaminated components may not be installed.

#### Laying and fixing pipes

Information can be found in the Profipress, Sanpress and Sanpress Inox system instructions for use.

#### Length expansion

Information can be found in the Profipress, Sanpress and Sanpress Inox system instructions for use.

### 3.1.3 Required tools

#### Press connection

The following tools are required for production of a press connection:

- pipe cutter or a fine-toothed hacksaw
- deburrer and coloured pen for marking
- press machine with constant pressing force
- press jaw or press ring with corresponding adapter jaw, suitable for the pipe diameter and suitable profile



Fig. 9: Press jaws

Recommended Viega press machines:

- Pressgun 5
- Pressgun Picco
- Pressgun 4E / 4B
- Picco
- Type PT3-AH
- Type PT3-H / EH
- Type 2 (PT2)

#### Smartloop pipe

The following tools are required for mounting the Smartloop pipe:

- pipe shear, e. g. model 2040
- mounting pliers, e. g. model 1077.2
- hand press tool, e. g. model 2782
- or press jaw, model 2799.7

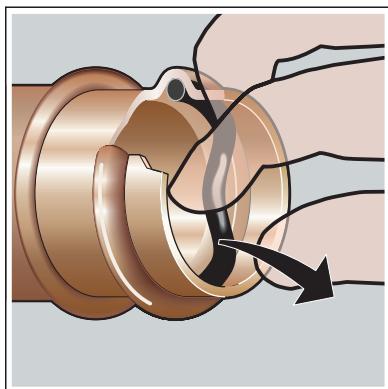
## 3.2 Assembly

### 3.2.1 Replacing the sealing element

#### Removing the sealing element

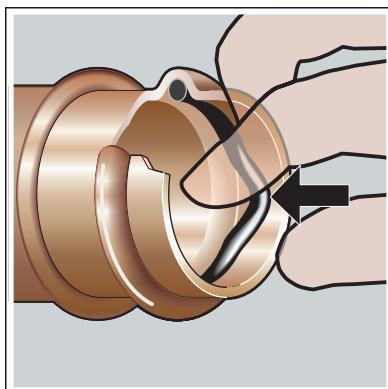


*Do not use pointed or sharp-edged objects to remove the sealing element. These could damage the sealing element or bead.*



- Remove the sealing element from the bead.

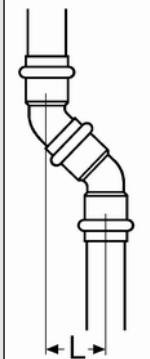
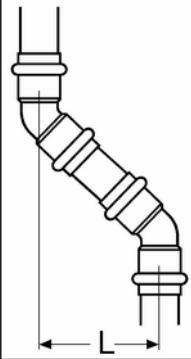
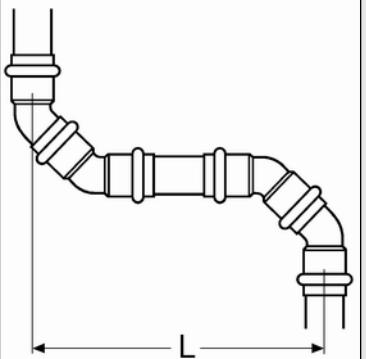
#### Inserting the sealing element



- Insert a new, undamaged sealing element into the bead.
- Check if the whole sealing element is in the bead.

### 3.2.2 Installing Smartloop

#### Maximum offset of the circulation pipe

| Offset              | Slight                                                                            | 45°                                                                               | 90°                                                                                 |
|---------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                     |  |  |  |
| Diversion L [mm]    | $\geq 40-45$                                                                      | $\geq 45-500$                                                                     | $\geq 150-500$                                                                      |
| Components required | 1 elbow 45°<br>1 elbow 45° with insertion ends                                    | 2 elbows 45°                                                                      | 2 elbows 45°<br>2 elbows 45° with plug-in end                                       |

Any installation variations differing from those shown should be agreed with the Viega Service Center.

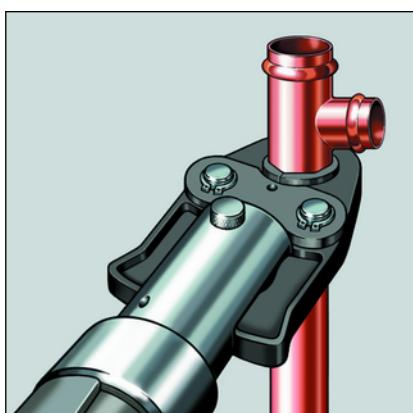
## Procedure

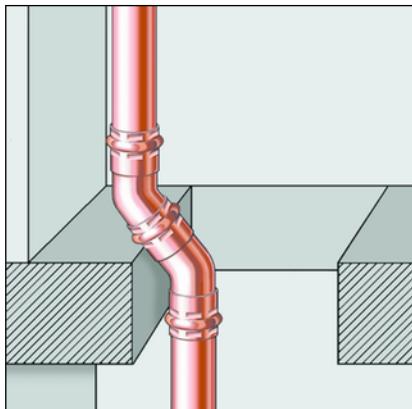


Pressing with a handtool is shown in the following assembly steps. Alternatively, a suitable Viega press machine with the corresponding press jaws can be used ↗ Chapter 3.1.3 „Required tools“ on page 15.

### Requirements:

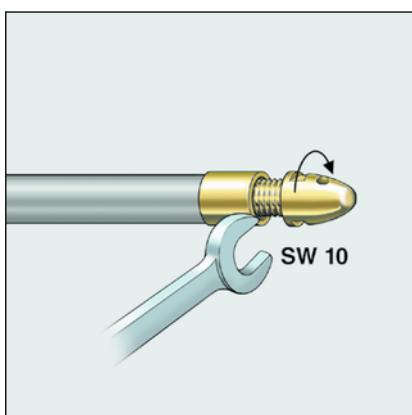
- The riser pipe is completed.
- The riser pipe consists of Profipress, Sanpress or Sanpress Inox components
- The dimension of the riser pipe is at least d 28 and maximum d 108.
- Press a T-piece onto each of the top and lower end of the riser pipe.
- Create floor outlets in d 22, reduce if necessary.





► Only carry out one offset per line ↗ „Maximum offset of the circulation pipe“ on page 16.

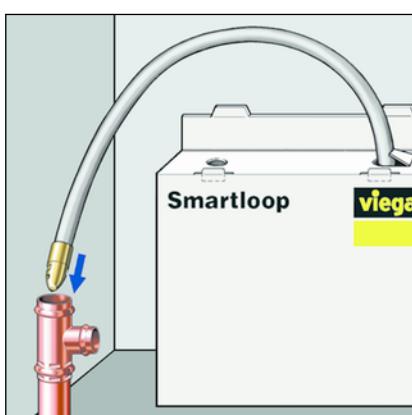
**INFO!** Other diversions only after consultation with the Viega Service Center.



► Install the pipe in the riser pipe.

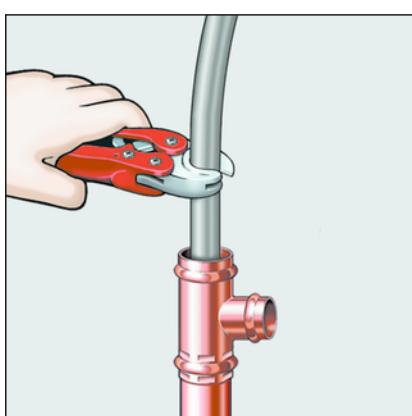
We recommend mounting the tension coupling model 2276.9 onto the end of the pipe.

Alternatives: Chamfer the pipe with a file.

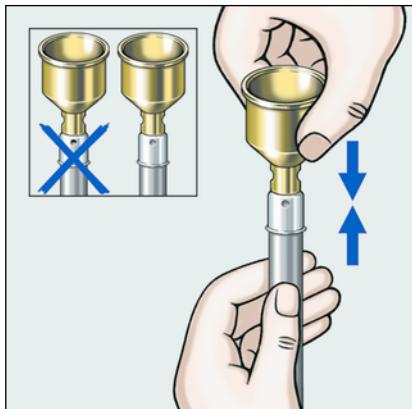


► Push the pipe into the hot water riser pipe from above.

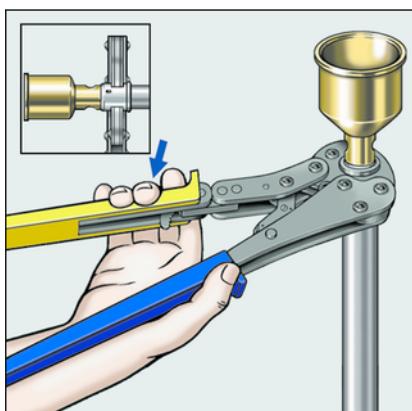
The pipe must protrude from the lower end of the riser pipe by approx. 30 cm.



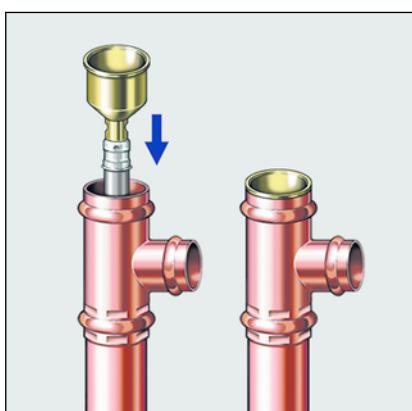
► The pipe should be cut to length properly.



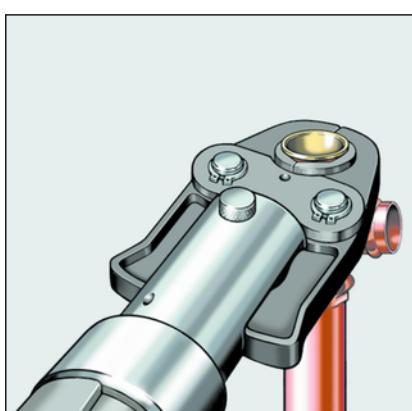
- Push a press sleeve onto the top pipe end.
- Insert the end closing piece into the Smartloop pipe.
- Check the insertion depth in the inspection window.



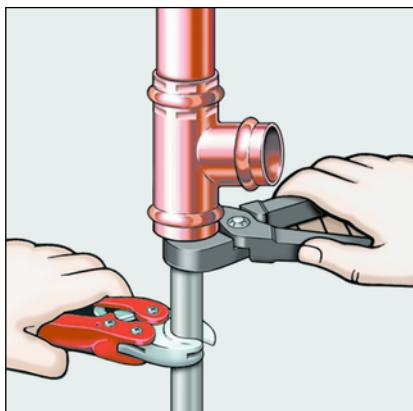
- Apply the press tool at a right-angle.
- When pressing, press the manual pliers in one action until the pliers can be re-opened.



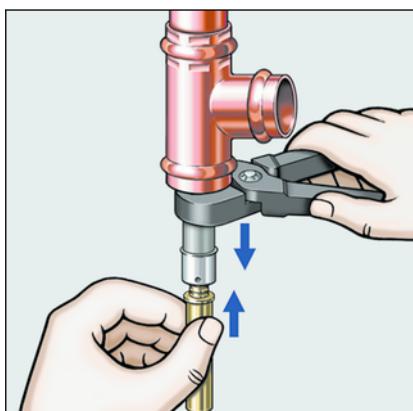
- Position the end closing piece in the upper T-piece of the hot water riser pipe.  
If necessary, use a reducer.



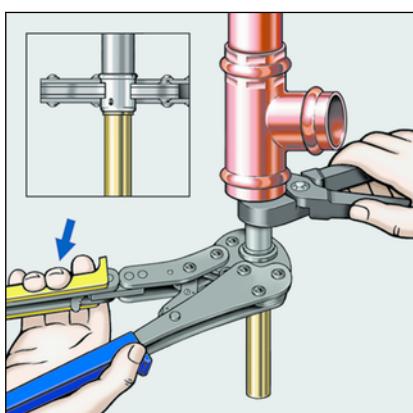
- Press connection.



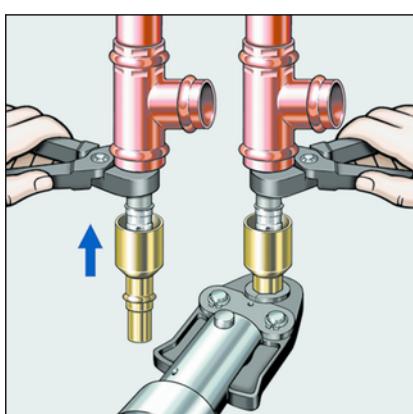
- ▶ Tighten the pipe on the lower end using the mounting pliers.
- ▶ Continue to hold the pipe tightly and shorten properly 40 mm below the T-piece.



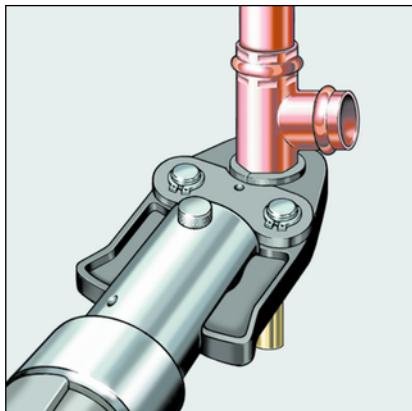
- ▶ Push a press sleeve onto the lower pipe end.
- ▶ Push the adapter into the pipe.
- ▶ Check the insertion depth in the inspection window.



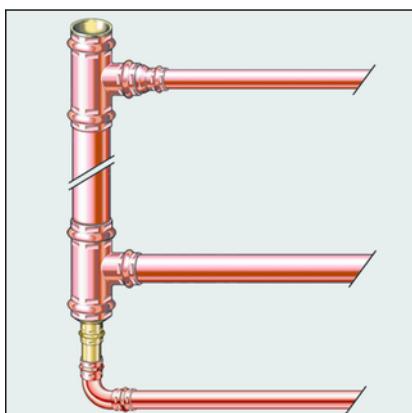
- ▶ Apply the press tool at a right-angle.
- ▶ When pressing, press the manual pliers in one action until the pliers can be re-opened.



- ▶ Mount the connecting piece into the adapter as far as it will go and press.
- ▶ Remove the mounting pliers.



► Push the connecting piece as far as it will go into the lower T-piece of the hot water riser pipe and press.



► Connect the hot water riser pipe and the circulation pipe onto the corresponding cellar supply and collector lines.

► Perform leakage test.

### 3.2.3 Leakage test

The installer must perform a leakage test before commissioning.

This test is carried out on a system that is finished but not yet covered.

Comply with the general rules of engineering, such as:

- DIN EN 806-4
- ZVSHK Data sheet "*Leakage tests of drinking water installations with compressed air, inert gas or water*"
- Standard pressure tests of the operating company (shipyard) in acc. with the responsible classification body or their umbrella association

Document the result.

### 3.3 Maintenance



#### NOTICE!

Inform your customer or the operator of the drinking water installation that the system has to be maintained on a regular basis.

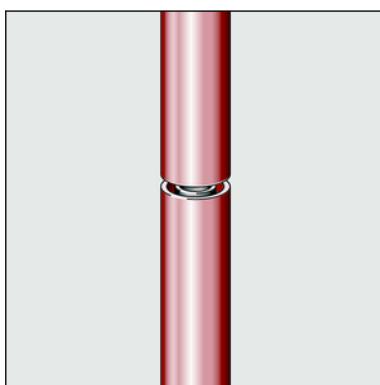
Observe DIN EN 806-5 for the operation and maintenance of drinking water installations.

### 3.4 Repairing the riser pipe

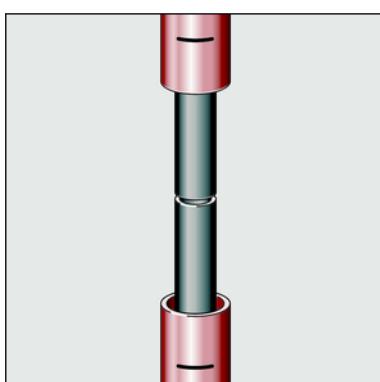
The repair coupling (model 2276.8) can be used in the case of a damaged riser pipe or an extension of the installation.

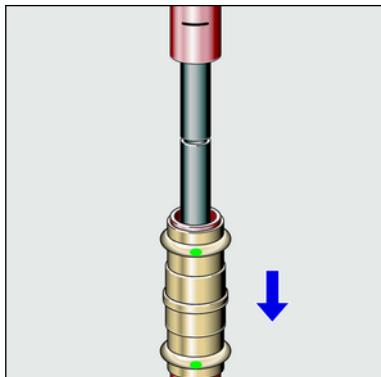
Material required:

- Repair coupling with two press sleeves, model 2276.8
- Sanpress sliding coupling, model 2215.5
- Sanpress repair sliding coupling, model 2215.4
- Cut all the way through the riser pipe and Smartloop pipe.

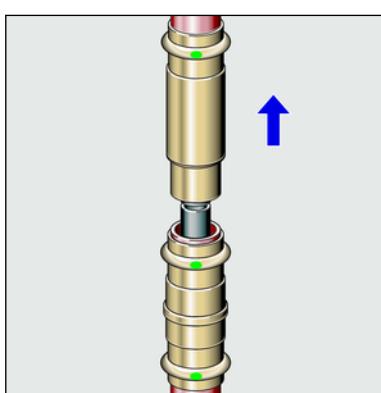


- Measure and mark the length of the repair sliding coupling.
- Remove the section of piping from the riser pipe.
- Mark the minimum insertion depth on the upper and lower pipe.

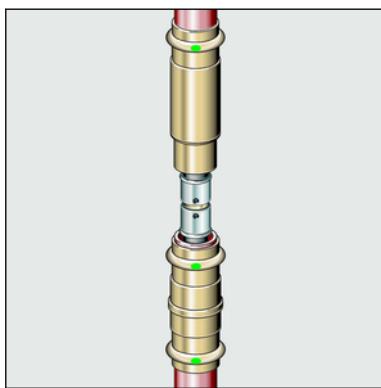




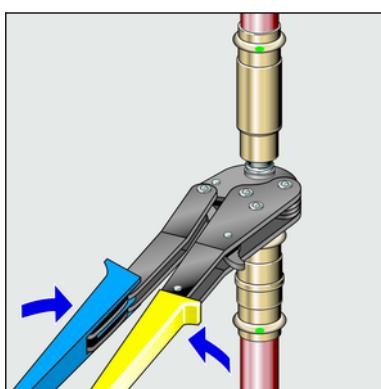
- ▶ Push the sliding coupling (model 2215.5) onto the lower pipeline completely.



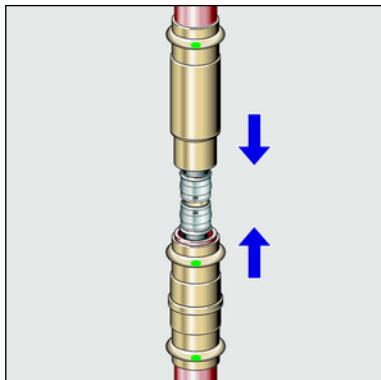
- ▶ Push the sliding coupling (model 2215.4) as far as it will go onto the upper pipeline.



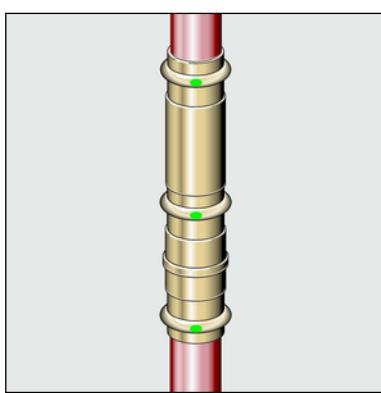
- ▶ Mount the repair coupling onto the Smartloop pipe.
- ▶ Check the insertion depth in the inspection window.



- ▶ Press the press sleeves. When doing so, apply the press tool at a right-angle.
- ▶ When pressing, press the manual pliers in one action until the pliers can be re-opened.

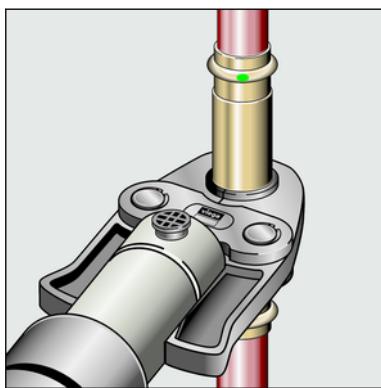


► Push the sliding couplings together.



► Position the sliding couplings in such a way that the minimum insertion depth is achieved:

The markings of the insertion depth are not visible.



► Press the pressing points of both sliding couplings.

### 3.5 Disposal

Separate the product and packaging materials (e. g. paper, metal, plastic or non-ferrous metals) and dispose of in accordance with valid national legal requirements.