

**Sanpress XL**

## **Instructions for Use**



**Year built:**  
from 03/1998  
**en\_INT**

**viega**



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# 1 About these instructions for use

Trade mark rights exist for this document; for further information, go to [viega.com/legal](http://viega.com/legal).

## 1.1 Target groups

The information in this manual is directed at qualified heating and plumbing engineers and trained personnel.

Individuals without the abovementioned training or qualification are not permitted to mount, install and, if required, maintain 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.



### **DANGER!**

This symbol warns of possible life-threatening injury.



### **WARNING!**

This symbol warns of possible serious injury.



### **CAUTION!**

This symbol warns of possible injury.



### **NOTICE!**

This symbol warns of possible damage to property.



*This symbol gives additional information and hints.*

### **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 relevant national laws, standards, regulations, directives and other technical provisions take priority over the German/European directives specified in this manual: The information herein is not binding for other countries and regions; as said above, they should be understood as a recommendation.

## 2 Product information

### 2.1 Standards and regulations

The following standards and regulations apply to Germany / Europe and are provided as a support feature.

#### Regulations from section: Fields of application

Scope / Notice	Regulations applicable in Germany
Application in fire extinguishing systems	DIN 14462
Planning, execution, operation and maintenance of potable water installations	DIN EN 1717
Planning, execution, operation and maintenance of potable water installations	DIN 1988
Planning, execution, operation and maintenance of potable water installations	VDI/DVGW 6023
Planning, execution, operation and maintenance of potable water installations	Trinkwasserverordnung (TrinkwV)

#### Regulations from section: Media

Scope / Notice	Regulations applicable in Germany
Suitability for potable water	Trinkwasserverordnung (TrinkwV)
Suitability for heating water for pump hot water heating systems	VDI-Richtlinie 2035, Sheet 1 and Sheet 2

#### Regulations from section: Sealing elements

Scope / Notice	Regulations applicable in Germany
Area of use of the EPDM sealing element ■ Heating	DIN EN 12828

## Regulations from section: Corrosion

Scope / Notice	Regulations applicable in Germany
Regulations for external corrosion protection	DIN EN 806-2
Regulations for external corrosion protection	DIN 1988-200

## Regulations from section: Storage

Scope / Notice	Regulations applicable in Germany
Requirements for material storage	DIN EN 806-4, Chapter 4.2

## Regulations from section: Leakage test

Scope / Notice	Regulations applicable in Germany
Test on a system that is finished but not yet covered	DIN EN 806-4
Leakage test for water installations	ZVSHK-Merkblatt: "Dichtheitsprüfungen von Trinkwasserinstallationen mit Druckluft, Inertgas oder Wasser"

## Regulations from section: Maintenance

Scope / Notice	Regulations applicable in Germany
Operation and maintenance of potable water installations	DIN EN 806-5

## 2.2 Intended use



*Coordinate the use of the system for areas of use and media other than those described with the Viega Service Center.*

### 2.2.1 Areas of use

Use is possible in the following areas among others:

- Potable water installations
- Industrial and heating systems
- Fire extinguishing systems, see ☞ „Regulations from section: Fields of application“ on page 6
  - wet
  - wet / dry
  - dry
- Solar installations with flat collectors
- Solar installations with vacuum collectors (only with FKM sealing element)
- Compressed air systems
- District heat supply systems (only with FKM sealing element)
- Low-pressure steam systems (only with FKM sealing element)
- Cooling water pipelines (closed circuit)
- Painting systems (only for labs-free components)

## Potable water installation

For planning, execution, operation and maintenance of potable water installations, observe the applicable regulations, see ☞ „Regulations from section: Fields of application“ on page 6.

## Maintenance

Inform your customer or the operator of the potable water installation that the system has to be maintained on a regular basis, see ☞ Chapter 3.5 „Maintenance“ on page 26.

## Sealing element

Only EPDM sealing elements are approved in potable water installations. Do not use any other sealing elements.

## 2.2.2 Media

The system is suitable for the following media, amongst others:

For the applicable directives, see ☞ „Regulations from section: Media“ on page 6.

- Potable water:
  - Without limitations
  - max. chloride concentration 250 mg/l
- Heating water for pump hot water heating systems
- Compressed air in compliance with the specification of the sealing elements being used
  - EPDM at oil concentration  $< 25 \text{ mg/m}^3$
  - FKM at oil concentration  $\geq 25 \text{ mg/m}^3$
- Anti-freeze, cooling brines up to a concentration of 50 %
- Steam in low-pressure steam systems (only with FKM sealing element)



## 2.3 Product description

### 2.3.1 Overview

The piping system consists of press connectors in connection with stainless steel pipes and the corresponding press tools.



Fig. 1: Sanpress XL press connectors

The system components are available in the following dimensions:  
d 76.1 / 88.9 / 108.0.

### 2.3.2 Pipes

The following pipes are available from the system described:

Type of pipe	Stainless steel pipe 1.4401	Stainless steel pipe 1.4521	Stainless steel pipe 1.4520
d	76.1 / 88.9 / 108.0		
Areas of use	Potable water and gas installations <sup>1) 2)</sup>	Potable water installations <sup>2)</sup>	Industrial and heating installations <sup>2)</sup>
Material No.	1.4401 (X5CrNiMo 17-12-2), with 2.3 % molybdenum for increased durability	1.4521 (X2CrMoTi 18-2)	1.4520 (X2CrTi17)
PRE value	24.1	24.1	16–18

<sup>1)</sup> Gas installation only in connection with Sanpress Inox G XL- press connectors

<sup>2)</sup> For more detailed information, see Areas of use for metal installation systems.

Type of pipe	Stainless steel pipe 1.4401	Stainless steel pipe 1.4521	Stainless steel pipe 1.4520
Pipe marking	—	green line	black line
Protective cap	yellow	Green	Black

<sup>1)</sup> Gas installation only in connection with Sanpress Inox G XL- press connectors

<sup>2)</sup> For more detailed information, see Areas of use for metal installation systems.

#### Pipe key data Sanpress XL pipe (1.4401 and 1.4521)

d x s [mm]	Volume per metre of pipe [l/m]	Pipe weight [kg/m]
76.1 x 2.0	4.08	3.70
88.9 x 2.0	5.66	4.34
108.0 x 2.0	8.49	5.30

#### Pipe key data for Inox industrial pipe (1.4520)

d x s [mm]	Volume per metre of pipe [l/m]	Pipe weight [kg/m]
76.1 x 1.5	4.20	2.80
88.9 x 1.5	5.80	3.28
108.0 x 1.5	8.66	4.00

### Laying and fixing pipes

Only pipe clamps with chloride-free sound insulating inlays should be used to secure the pipes.

Observe the general rules of fixing technology:

- Do not use fixed pipelines as a support for other pipelines and components.
- Do not use pipe hooks.
- Observe distance to press connectors.
- Observe the expansion direction: Plan fixed and gliding points.

Make sure to affix the pipelines in such a way as to de-couple them from the installation body, so that they cannot transfer any structure-borne sound, resulting from thermal expansion or possible pressure surges, onto the installation body or other components.

Observe the following fixing intervals:

### Interval between the pipe clamps

d [mm]	Fixing interval between the pipe clamps [m]
76.1	4.25
88.9	4.75
108.0	5.00

### Length expansion

Pipelines expand with heat. Heat expansion is dependent on the material. Changes in length lead to tension within the installation. These tensions must be equalised with suitable measures.

The following are effective:

- Fixed and gliding points
- Expansion equalisation joints (expansion bends)
- Compensators

### Heat expansion co-efficients of various pipe materials

Material	Heat expansion co-efficient $\alpha$ [mm/mK]	Example: Length expansion with pipe lengths $L = 20$ m and $\Delta T = 50$ K [mm]
Stainless steel	0.0165	16.5

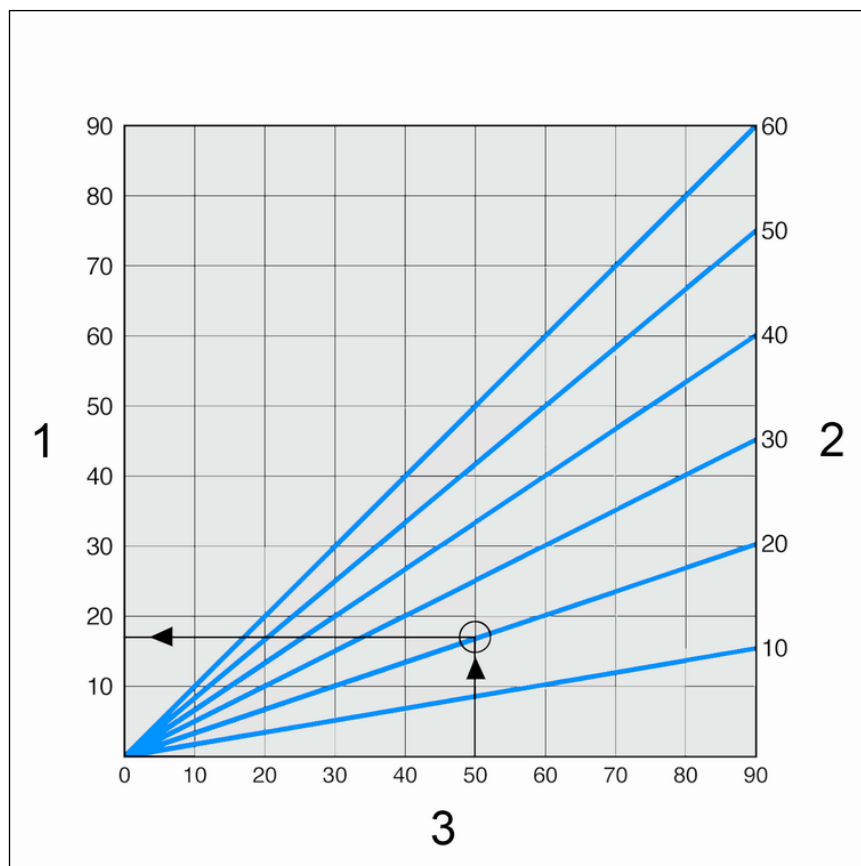


Fig. 2: Length expansion of Sanpress pipes

- 1 - Length expansion  $\Delta l$  [mm]
- 2 - Pipe length  $l_0$  [m]
- 3 - Temperature difference  $\Delta\theta$  [K]

The length expansion  $\Delta l$  can be taken from the diagram or can be calculated using the following formula:

$$\Delta l = \alpha \text{ [mm/mK]} \times L \text{ [m]} \times \Delta\theta \text{ [K]}$$

### 2.3.3 Press connectors

Press connectors are available in a number of shapes. An overview of the press connectors suitable for the system can be found in the catalogue.



Fig. 3: Press connectors

A sealing element and a cutting ring are found in two separate beads in the Sanpress XL press connectors. The cutting ring cuts into the pipe during pressing and ensures a force-fit connection.

## SC-Contur

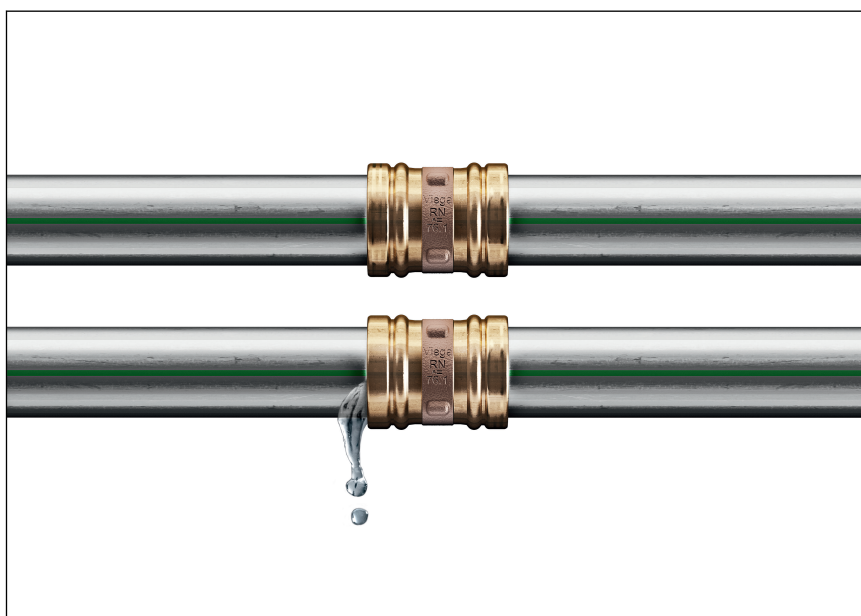


Fig. 4: SC-Contur

Viega press connectors are equipped with the SC-Contur. The SC-Contur is a safety technology that is certified by the DVGW and ensures that the press connector is guaranteed to be leaky in an unpressed state. In this way, inadvertently unpressed connections are noticed immediately when filling the system.

Viega ensures that connections inadvertently unpressed during installation become visible when the system is filled:

- 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)

## 2.3.4 Sealing elements

The press connectors are factory-fitted with EPDM sealing elements. For areas of use with higher thermal resistance, such as e.g. in the case of district heat supply or low-pressure steam systems, the press connectors must be equipped with FKM sealing elements.

The sealing elements can be distinguished as follows:

- EPDM sealing elements are polished black.
- FKM sealing elements are matt black.



### NOTICE!

Only the sealing elements model 2286XL or 2289XL may be used.

### Area of use of the EPDM sealing element

Area of use	Potable water	Heating	Solar installations	Compressed air	Technical gases
Area of use	all pipeline sections	Pump hot water heating system	Solar circuit	all pipeline sections	all pipeline sections
Operating temperature [T <sub>max</sub> ]	110 °C	110 °C	<sup>1)</sup>	60 °C	—
Operating pressure [P <sub>max</sub> ]	1.6 MPa (16 bar)	1.6 MPa (16 bar)	0.6 MPa (6 bar)	1.6 MPa (16 bar)	—
Comments	—	T <sub>max</sub> 105 °C <sup>2)</sup> 95 °C with radiator connection	for flat collectors	dry, oil content < 25 mg / m <sup>3</sup>	<sup>1)</sup>

<sup>1)</sup> Consultation with the Viega Service Center required.

<sup>2)</sup> see ↗ „Regulations from section: Sealing elements“ on page 6

### Area of use of the FKM sealing element

Area of use	District heat supply	Solar installations	Compressed air
Use	District heat supply systems behind the external wall lead-in	Solar circuit	all pipeline sections
Operating temperature [T <sub>max</sub> ]	140 °C	<sup>1)</sup>	60 °C
Operating pressure [P <sub>max</sub> ]	1.6 MPa (16 bar)	0.6 MPa (6 bar)	1.6 MPa (16 bar)
Comments	—	—	dry, oil content ≥ 25 mg / m <sup>3</sup>

<sup>1)</sup> Consultation with the Viega Service Center required.

## 2.3.5 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
- supplier's mark
- date of manufacture
- batch number
- CE mark
- DOP and DOP number
- manufacturing standard

## 2.3.6 Mixed installations

In potable water installations, piping components from different metals can have a detrimental effect on each other and cause corrosion, for example. Adapters made of stainless steel, for instance, must not be connected directly to pipes or threaded connectors made of galvanised steel.



*Components made of stainless steel and galvanised steel may not be directly connected, thread/adaptor press connectors made of gunmetal/silicon bronze are recommended here.*

Please contact the Viega Service Center if you have any questions on this subject.

## 2.4 Information for use

### 2.4.1 Corrosion

The Sanpress XL system should be protected against excessively high concentrations of chloride generated by both the medium and by external factors.

An excessive chloride concentration can lead to corrosion in stainless steel systems.

Avoid external contact with materials containing chloride

- Insulating materials must not have a water-soluble chloride ion content that exceeds 0.05 %.
- Sound insulating inlays on the pipe clamps must not contain leachable chloride.
- Stainless steel pipes must not come into contact with building materials or mortar containing chloride.

If external corrosion protection is required, observe the pertinent guidelines, see ↗ „Regulations from section: Corrosion“ on page 7.



*The Sanpress XL system can be used for all types of potable water.*

*The chloride concentration in the medium must not exceed a maximum value 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 Transport

Observe the following when transporting pipes:

- Do not pull the pipes over the sill. The surface could be damaged.
- Secure pipes during transportation. Pipes may become bent due to shifting.
- Do not damage the protective caps on the pipe ends and do not remove them until immediately before mounting. Damaged pipe ends may not be pressed.

## 3.2 Storage

For storage, comply with the requirements specified in the applicable regulations, see  „Regulations from section: Storage“ on page 7:

- Store components in a clean and dry place.
- Do not store the components directly on the floor.
- Provide at least three points of support for the storage of pipes.
- Where possible, store different sizes separately.  
Store small sizes on top of larger sizes if separate storage is not possible.
- Only use stainless steel cleaning agent to clean surfaces.
- Store pipes of different materials separately to prevent contact corrosion.

## 3.3 Assembly information

### 3.3.1 Mounting instructions

#### Checking system components

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.

### 3.3.2 Potential equalisation



#### **DANGER!** **Danger due to electrical current**

An electric shock can lead to burns and serious injury and even death.

Because all metallic piping systems conduct electricity, unintentional contact with a live part can lead to the whole piping system and components connected to it (e. g. radiators) becoming energised.

- Only allow electrical work to be carried out by qualified electricians.
- Always integrate the metal piping system into the potential equalisation.



*It is the fitter of the electrical system who is responsible for ensuring that the potential equalisation is tested and secured.*

### 3.3.3 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.*

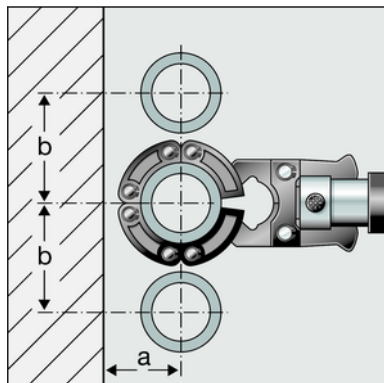
*The exchange of a sealing element is generally permitted. The sealing element must be exchanged for a spare part designed for the intended application ↪ Chapter 2.3.4 „Sealing elements“ on page 14. The use of other sealing elements is not permitted.*

Exchanging a sealing element is permitted in the following situations:

- if the sealing element in the press connector is obviously damaged and is to be exchanged for a Viega spare sealing element for Sanpress XL
- if an EPDM sealing element is to be exchanged for an FKM sealing element (higher thermal resistance, e.g. for industrial use)

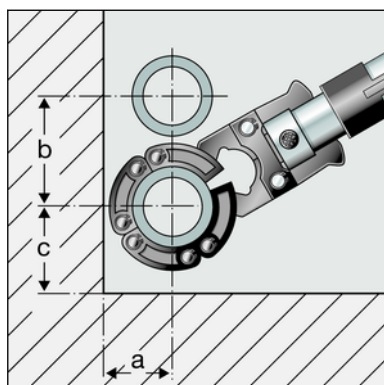
### 3.3.4 Space requirements and intervals

#### Pressing between pipelines



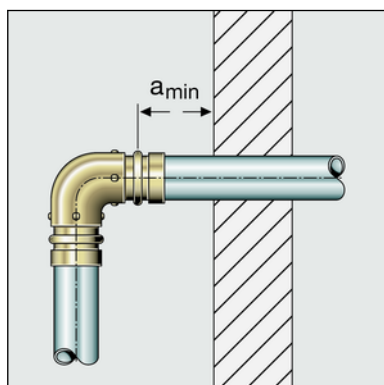
d	76.1	88.9	108.0
a [mm]	90	100	110
b [mm]	185	200	215

#### Pressing between pipe and wall



d	76.1	88.9	108.0
a [mm]	90	100	110
b [mm]	185	200	215
c [mm]	130	140	155

#### Wall distance



#### Minimum distance with d 76.1–108.0

Press machine	a <sub>min</sub> [mm]
Type 2 (PT2)	45
Type PT3-EH Type PT3-AH	50
Pressgun 4E / 4B Pressgun 5	50

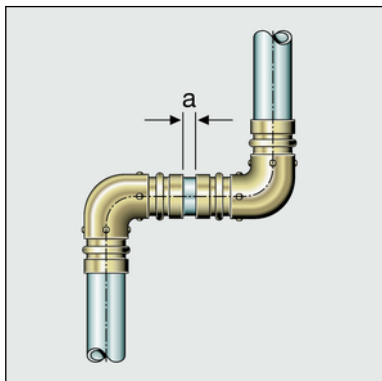
#### Interval between the pressings



#### NOTICE!

#### Leaky press connections due to pipes being too short!

If two press connectors are to be mounted onto a pipe without an interval, the pipe must not be too short. If the pipe is not inserted up to the prescribed insertion depth in the press connector during pressing, the connection may become leaky.



d	76.1–108.0
Minimum interval a [mm]	not required

### Z dimensions

For the Z dimensions, refer to the respective product page in the online catalogue.

### 3.3.5 Required tools

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 of 32 kN
- Press chain with hinged adapter jaw for Sanpress XL (model 2297.3XL)
- With corresponding hinged adapter jaw, suitable for the pipe diameter and suitable profile



Fig. 5: Sanpress XL, press chain

Recommended Viega press machines:

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

## 3.4 Assembly

### 3.4.1 Replacing the sealing element

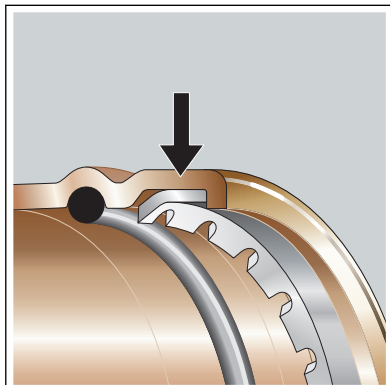


Fig. 6: Cutting ring



#### CAUTION!

##### Risk of injury due to sharp edges

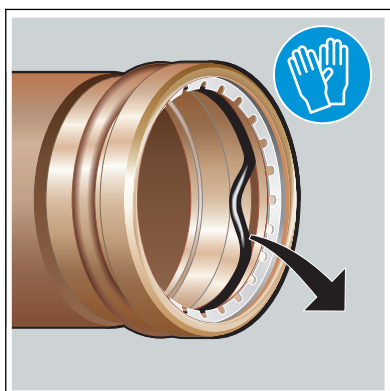
A sharp-edged cutting ring is located above the sealing element (see arrow). There is a risk of injury (cutting) when replacing the sealing element.

- Do not reach into the press connector with your bare hands.

#### Removing the sealing element

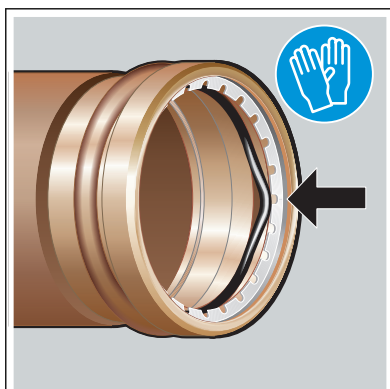


*Do not use pointed or sharp-edged objects to remove the sealing element. They may damage the sealing element or the bead.*



- Remove the sealing element from the bead. Proceed carefully to avoid damaging the sealing element seat.

#### Inserting the sealing element



- Insert a new, undamaged sealing element into the bead.  
Make sure that the sealing element is not damaged by the cutting ring.
- Ensure that the sealing element is completely in the bead.

### 3.4.2 Shortening the pipes



#### NOTICE!

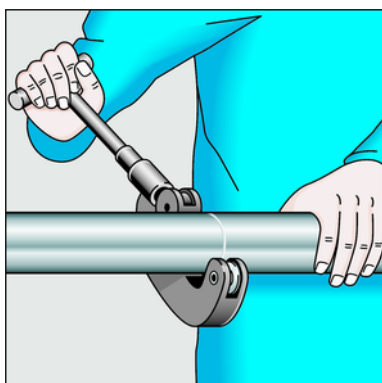
#### Leaky press connections due to damaged material!

Press connections can become leaky due to damaged pipes or sealing elements.

Observe the following instructions to avoid damage to pipes and sealing elements:

- Do not use cutting discs (angle grinders) or flame cutters when cutting to length.
- Do not use grease or oils (e.g. cutting oil).

For information about tools, also see [Chapter 3.3.5 „Required tools“](#) on page 20.



- Cut the pipe properly using a pipe cutter or fine-toothed hacksaw. Avoid grooves on the pipe surface.

### 3.4.3 Deburring the pipes

The pipe ends must be thoroughly deburred internally and externally after shortening.

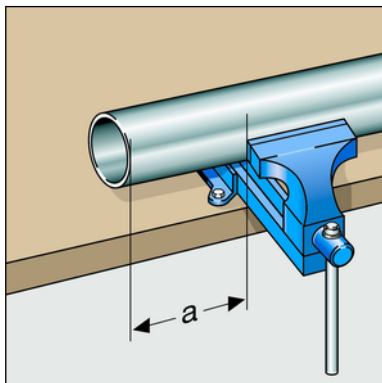
Deburring prevents the sealing element being damaged or the that the press connector cants when mounted. Viega recommends using a deburrer (model 2292.4XL).



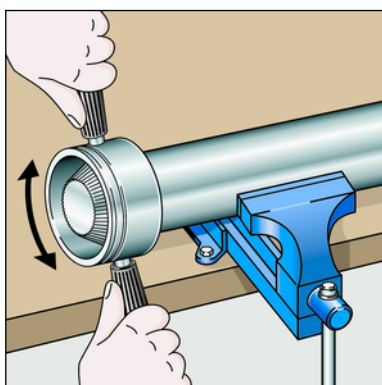
#### NOTICE!

#### Damage due to the wrong tool!

Do not use sanding disks or similar tools when deburring. The pipes could be damaged by these.

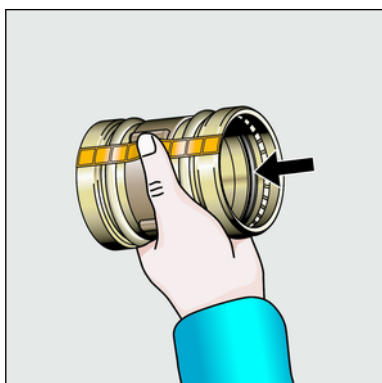


- Secure the pipe in the vice.
- When securing, leave an interval of at least 100 mm (a) to the pipe end.  
The pipe ends must not be bent or damaged.



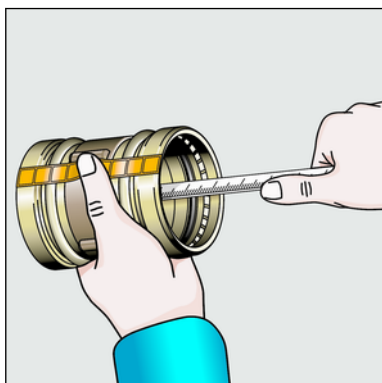
- Deburr the inside and outside of the pipe.

### 3.4.4 Pressing the connection



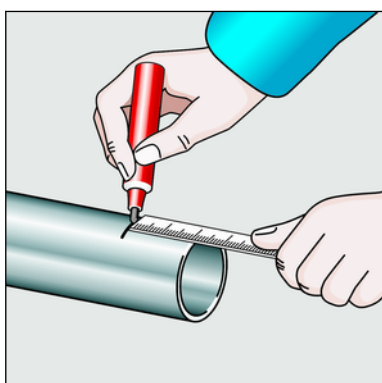
Requirements:

- The pipe end is not bent or damaged.
- The pipe is deburred.
- The correct sealing element is in the press connector.  
EPDM = polished black  
FKM = matt black
- Sealing element and cutting ring are undamaged.
- The sealing element and cutting ring are completely in the bead.

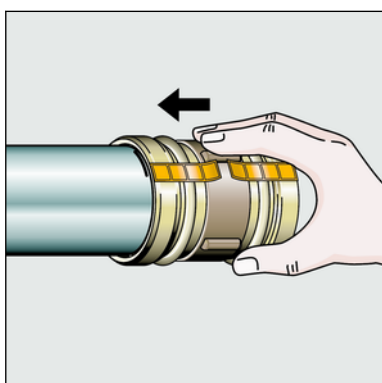


► Measure insertion depth in the connector.

d [mm]	Insertion depth [mm]
76.1	55
88.9	55
108.0	65



► Mark the insertion depth on the pipe.

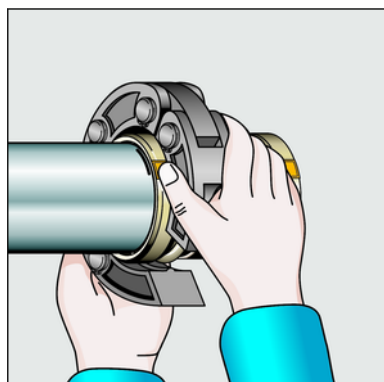


► Push the press connector up to the marked insertion depth on the pipe. Do not twist the press connector.

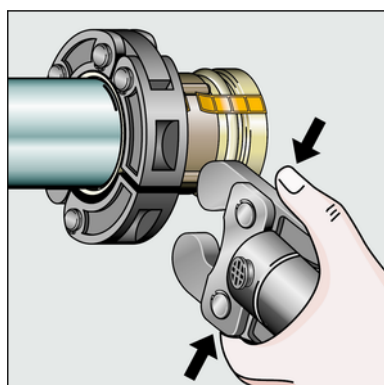
► Place the hinged adapter jaw on the press machine and push the retaining bolt in until it clicks into place.



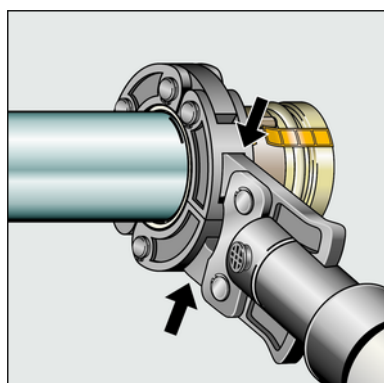
**INFO! Observe the press tool instruction manual.**



- Position the press chain on the press connector. The press chain must be flush with the outside edge of the press connector.

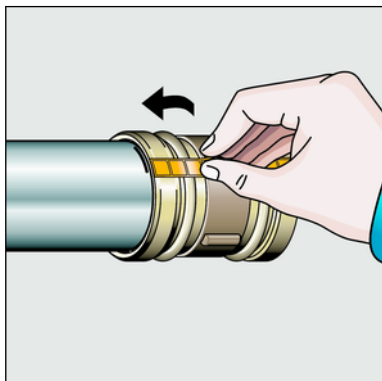


- Open the hinged adapter jaw.



- Push the hinged adapter jaw into the recesses of the press chain.

- Carry out the pressing process.
- Remove the hinged adapter jaw and the press chain.



► Remove the checking strip.

⇒ The connection is marked as having been pressed.

### 3.4.5 Leakage test

The installer must perform a leakage test before commissioning.

Carry out this test on a system that is finished but not covered yet.

Observe the applicable regulations, see ↗ „Regulations from section: Leakage test“ on page 7.

The leakage test pursuant to the applicable regulations must also be carried out for non-potable water installations, see ↗ „Regulations from section: Leakage test“ on page 7.

Document the result.

## 3.5 Maintenance

Observe the applicable regulations for the operation and maintenance of potable water installations, see ↗ „Regulations from section: Maintenance“ on page 7.

## 3.6 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.