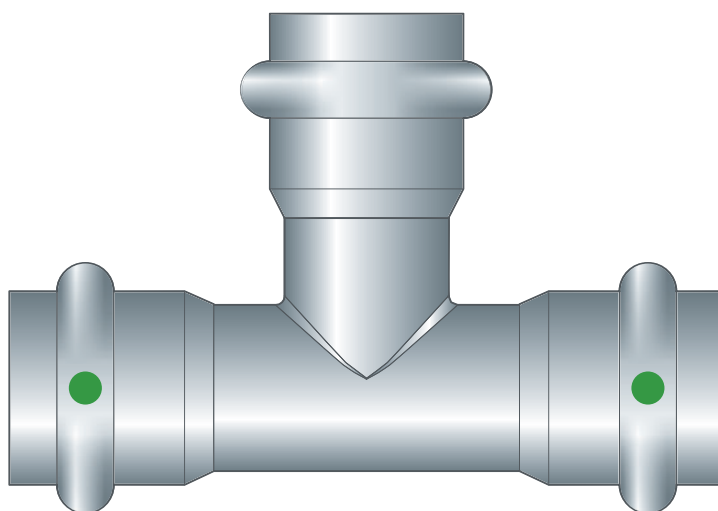
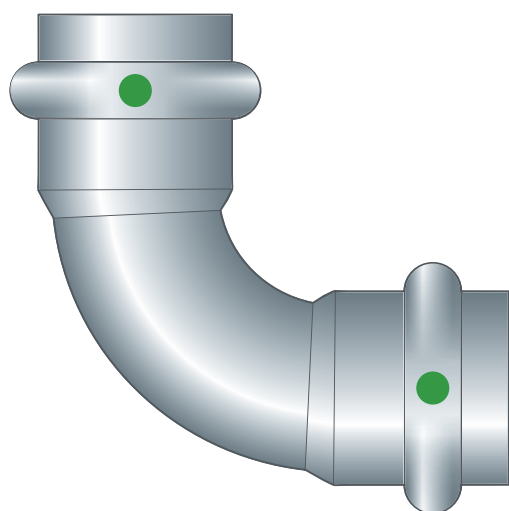
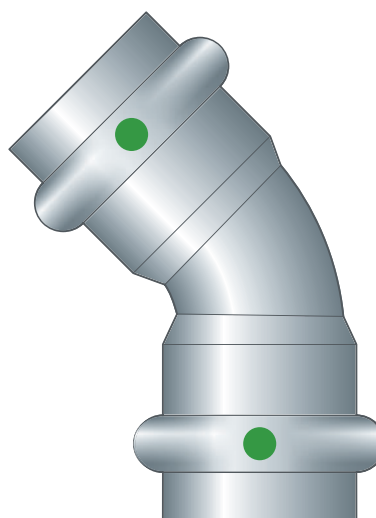
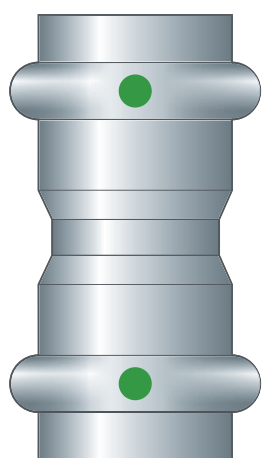


# Instructions for Use

## Sanpress Inox



Press connector system made of stainless steel with stainless steel pipes

**System**  
Sanpress Inox

**Year built (from)**  
10/2002

**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 heating and sanitary professionals 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. National regulations can be found on the relevant web site of your country at [viega.com.au/standards](http://viega.com.au/standards)

#### Regulations from section: Intended use

Scope / Notice	Regulations applicable in Germany
Creating potable water installations	DIN 1988-200
Creating potable water installations	EN 806-2
Regulation on material selection	DIN EN 12502-1
Regulation on material selection	Metall-Bewertungsgrundlage (UBA)

#### Regulations from section: Application areas

Scope / Notice	Regulations applicable in Germany
Planning, setup, operation and maintenance of 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	DIN 1988-200
Suitability for potable water	EN 806-2
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 application 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
Creating potable water installations	DIN 1988-200
Creating potable water installations	DIN EN 806-2
Regulation on material selection	DIN EN 12502-1

**Regulations from section: Storage**

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

**Regulations from section: Mounting the forcing plug**

Scope / Notice	Regulations applicable in Germany
Regulations for leakage and load tests	DIN EN 806-4
Leakage test for water installations	ZVSHK-Merkblatt: "Dichtheitsprüfungen von Trinkwasserinstallationen mit Druckluft, Inertgas oder Wasser"

**Regulations from section: Establishing a flange connection**

Scope / Notice	Regulations applicable in Germany
Qualification of personnel for the assembly of flange connections	VDI-Richtlinie 2290
Determination of tightening torques	DIN EN 1591-1

**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



The press connector system is suitable for the construction of drinking water installations in accordance with applicable guidelines, taking into account the selection of materials in accordance with applicable guidelines and in accordance with the assessment basis for metallic materials in contact with drinking water of the Federal Environment Agency (UBA), see ↗ *'Regulations from section: Intended use'* on page 6. For use in other areas of application and in case of doubt over the correct material selection, contact Viega.



The expression "SC-Contur" appearing in the instructions for use means "Smart Connect Feature".

### 2.2.1 Areas of application

Use is possible in the following areas among others:

- Potable water installations
- Industrial and heating systems
- Sprinkler systems
  - Wet sprinkler systems (with EPDM sealing element)
  - Wet / dry sprinkler systems (with FKM sealing element)
  - Dry sprinkler systems (with FKM sealing element)
- Fire extinguishing systems, see ↗ *'Regulations from section: Application areas'* on page 6
  - Wet
  - Wet / dry
  - Dry
- Solar installations with flat collectors
- Solar installations with vacuum collectors (only with FKM sealing element or press connector, at least one meter away from the vacuum collector)
- Compressed air systems
- District heat supply systems in secondary circuits
- Low-pressure steam systems (only with FKM sealing element)
- Cooling water pipelines (closed circuit)
- Painting systems (only with labs-free components)

#### Potable water installation

For planning, execution, operation and maintenance of potable water installations, observe the applicable regulations, see ↗ *'Regulations from section: Application areas'* 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 ↗ 'Regulations from section: Application areas' on page 6.

## 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:

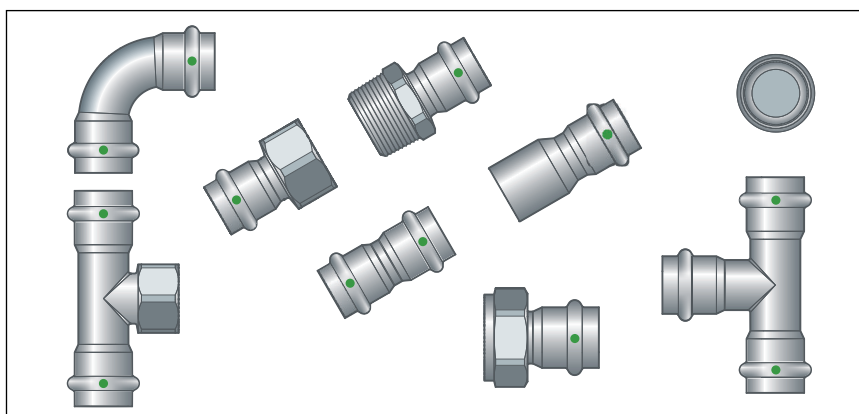
For the applicable directives, see ↗ 'Regulations from section: Media' on page 7.

- Potable water
  - 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 used
  - EPDM at oil concentration < 25 mg/m<sup>3</sup>
  -
- 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 Inox press connectors**

The system components are available in the following dimensions:  
d 15 / 18 / 22 / 28 / 35 / 42 / 54.

## 2.3.2 Pipes

The following pipes are available from the system described:

<b>Type of pipe</b>	<b>Stainless steel pipe 1.4401</b>
d	15 / 18 / 22 / 28 / 35 / 42 / 54
Areas of application	Potable water and gas installations <sup>1) 2)</sup>
Material No.	1.4401 (X5CrNiMo 17-12-2), with 2.3 % molybdenum for increased durability
PRE value	24.1
Protective cap	Yellow

<sup>1)</sup> Gas installations only in connection with Sanpress Inox G and Profipress G (only up to d 28) press connectors

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

### Pipe key data for stainless steel pipe (1.4401)

d x s <sub>min</sub> [mm]	Volume per metre of pipe [l/m]	Pipe weight [kg/m]
15 x 1.0	0.13	0.35
18 x 1.0	0.20	0.43
22 x 1.2	0.30	0.65
28 x 1.2	0.51	0.84
35 x 1.5	0.80	1.26
42 x 1.5	1.19	1.52
54 x 1.5	2.04	1.97

## 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 distances:

### Distance between the pipe clamps

d [mm]	Fixing distance between the pipe clamps [m]
15.0	1.25
18.0	1.50
22.0	2.00
28.0	2.25
35.0	2.75
42.0	3.00
54.0	3.50

These distances are manufacturer's specifications. Observe the national regulations for the relevant applications.

## Length expansion

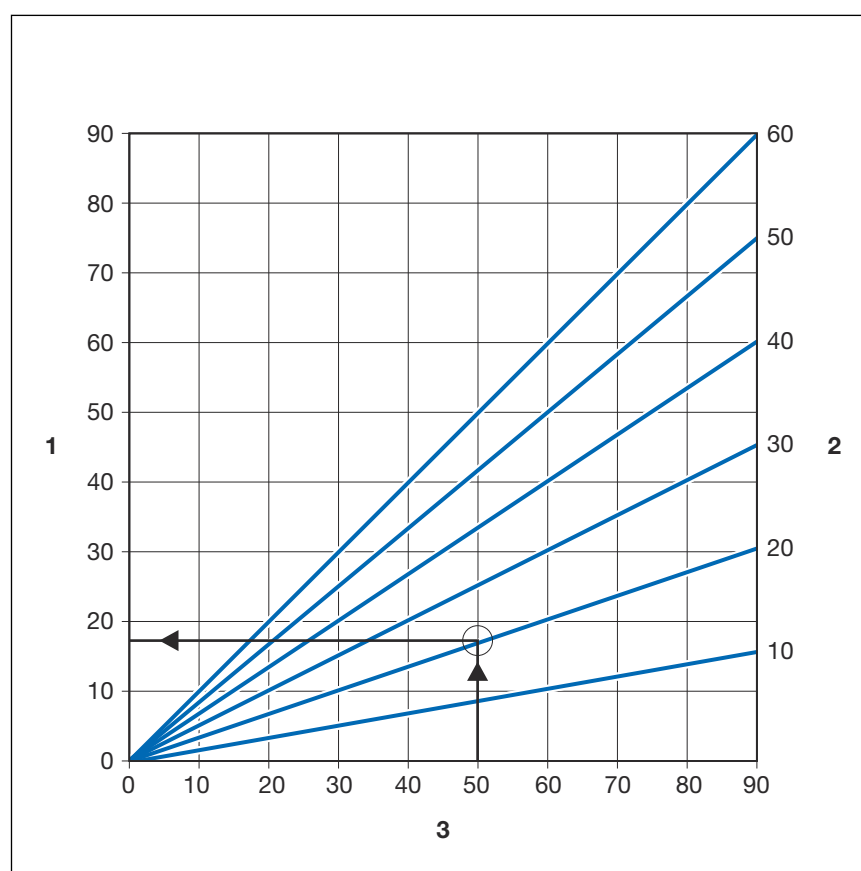
Pipelines expand with heat. Heat expansion is dependent on the material. Changes in length lead to tension within the installation. These tensions must be compensated for with suitable measures.

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 1.4401	0.0165	16.5
Stainless steel 1.4521	0.0104	10.4



**Fig. 2: Length expansion of Sanpress pipes**

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

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

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

### 2.3.3 Press connectors

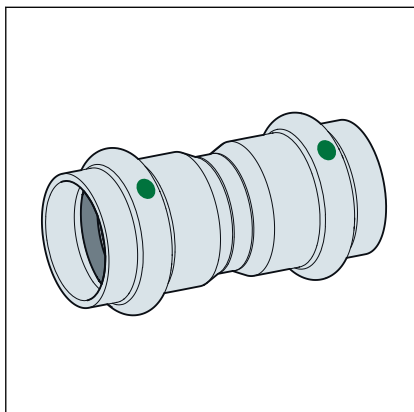


Fig. 3: Press connectors

The press connectors have a circumferential bead in which the sealing element lies. The press connector is deformed upstream and downstream of the bead and permanently connected to the pipe during pressing. The sealing element is not deformed during pressing.

#### Smart Connect Feature (SC-Contur)

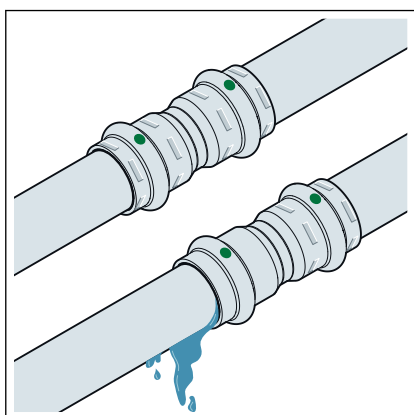


Fig. 4: SC-Contur

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 during a leakage test.

Viega guarantees that accidentally unpressed connections become visible during a leakage test:

- with the wet leakage test in the pressure range from 0.1–0.65 MPa (100–650 kPa, 1–6.5 bar)
- with dry leakage test in the pressure range from 22 hPa–0.3 MPa (2.2–300 kPa, 22 mbar–3 bar)

#### Smart Connect Feature (SC-Contur)

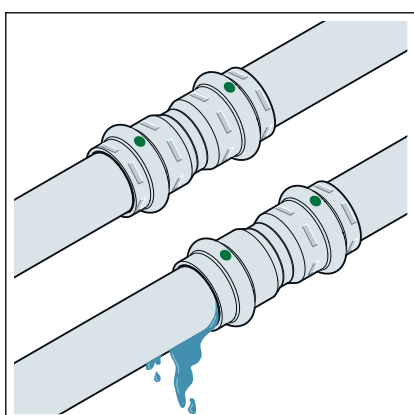


Fig. 5: Smart Connect Feature (SC-Contur)

Viega press connectors are equipped with the Smart Connect Feature (SC-Contur). The Smart Connect Feature (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 guarantees that accidentally unpressed connections become visible during a leakage test:

- in the case of the wet leakage test, in the pressure range from 0.1–0.65 MPa (100–650 kPa, 1–6.5 bar)
- in the case of the dry leakage test, in the pressure range from 22 hPa–0.3 MPa (2.2–300 kPa, 22 mbar–3 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.

#### Area of use of the EPDM sealing element

Area of application	Potable water	Heating	Solar installations	Compressed air	Technical gases
Area of application	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	1)	60 °C	—
Operating pressure [P <sub>max.</sub> ]	1.6 MPa (1600 kPa, 16 bar)	1.6 MPa (1600 kPa, 16 bar)	0.6 MPa (600 kPa, 6 bar)	1.6 MPa (1600 kPa, 16 bar)	—
Comments	—	pursuant to the applicable regulations <sup>2)</sup> T <sub>max.</sub> : 105 °C 95 °C with radiator connection	for flat collectors	dry, oil content < 25 mg / m <sup>3</sup>	1)

1) Consultation with Viega required.

2) see ↗ 'Regulations from section: Sealing elements' on page 7

#### Area of use of the FKM sealing element

Area of application	District heat supply	Solar installations	Compressed air
Use	District heating supply systems in secondary circuits	Solar circuit	all pipeline sections
Operating temperature [T <sub>max.</sub> ]	140 °C	1)	60 °C

1) Consultation with Viega required.

Area of application	District heat supply	Solar installations	Compressed air
Operating pressure [ $P_{\max}$ ]	1.6 MPa (1600 kPa, 16 bar)	0.6 MPa (600 kPa, 6 bar)	1.6 MPa (1600 kPa, 16 bar)
Comments	— To ensure that the system is installed according to the utility company's specifications, consult with the utility company before installation.	—	dry, oil content $\geq 25 \text{ mg / m}^3$

<sup>1)</sup> Consultation with Viega required.

## 2.3.5 Markings on components

### Pipe marking

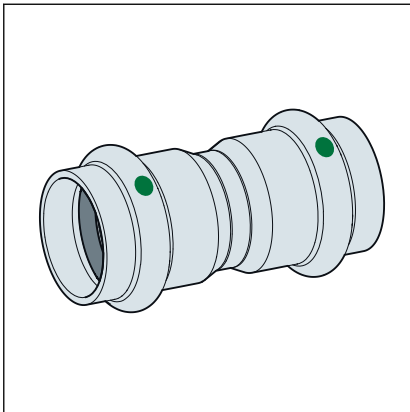
The pipe markings contain important information regarding the material configuration and manufacture of the pipes. Their meaning is as follows:

- Manufacturer
- System name
- Pipe material
- Certification
- Dimension
- Supplier's mark
- Date of manufacture
- Batch number
- CE marking
- DOP and DOP number
- Manufacturing standard

### Markings on press connectors

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





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

### 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 Viega for questions on this subject.

## 2.4 Information for use

### 2.4.1 Corrosion

Protect the press connector system 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 press connector system is suitable for creating potable water installations in accordance with applicable directives, taking into consideration the material selection in accordance with applicable directives, see ↪ *'Regulations from section: Corrosion' on page 7*. For use in other areas of application and in case of doubt over the correct material selection, contact the Viega Service Center.

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 drag pipes, especially over supports or sills. 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 must 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, have 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

#### Under German regulations



#### **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 live power 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.

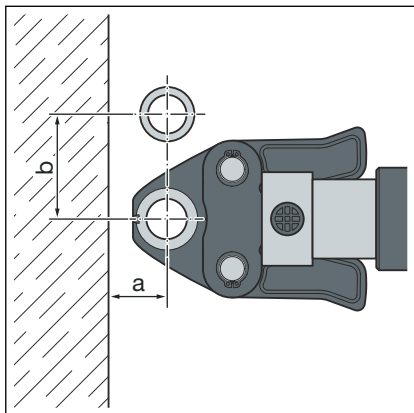
The exchange of a sealing element is generally permitted. The sealing element must be exchanged for a designated spare part for the intended application ↪ *Chapter 2.3.4 'Sealing elements' on page 15*. The use of other sealing elements is not permitted.

Exchanging a sealing element is permitted in the following situations:

- if the sealing element in the press connector is obviously damaged and should be exchanged for a Viega spare sealing element made of the same material
- if an EPDM sealing element should 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

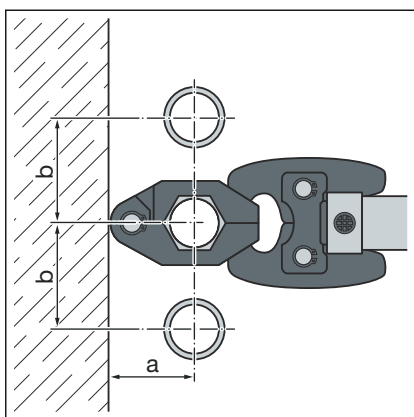


Space required PT1, Type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6 Plus

d	15	18	22	28	35	42	54
a [mm]	20	20	25	25	30	45	50
b [mm]	50	55	60	70	85	100	115

Space requirement Picco, Pressgun Picco, Pressgun Picco 6, Pressgun Picco 6 Plus

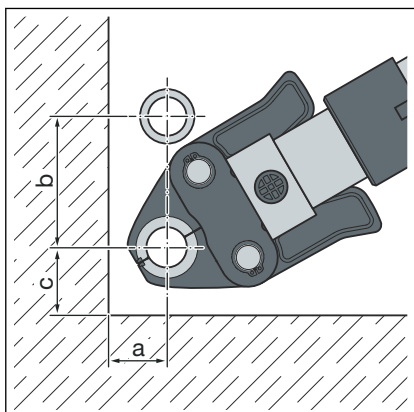
d	15	18	22	28	35
a [mm]	25	25	25	25	25
b [mm]	60	60	65	65	65



Space requirement press ring

d	15	18	22	28	35	42	54
a [mm]	40	45	45	50	55	60	65
b [mm]	50	55	60	70	75	85	90

#### Pressing between pipe and wall

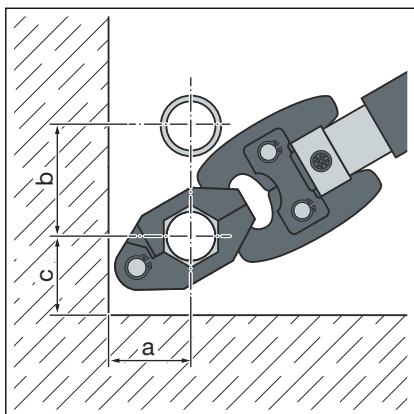


Space required PT1, Type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6 Plus

d	15	18	22	28	35	42	54
a [mm]	25	25	30	30	50	50	55
b [mm]	65	75	80	85	95	115	140
c [mm]	40	40	40	50	50	70	80

Space requirement Picco, Pressgun Picco, Pressgun Picco 6, Pressgun Picco 6 Plus

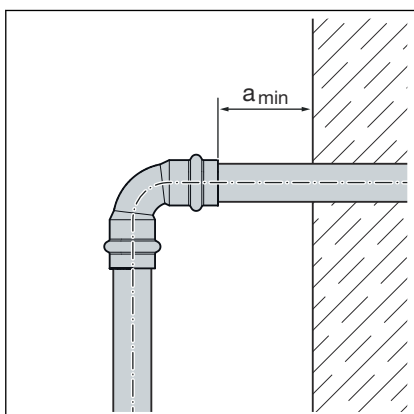
d	15	18	22	28	35
a [mm]	30	30	30	30	30
b [mm]	70	70	75	80	80
c [mm]	40	40	40	40	40



**Space requirement press ring**

d	15	18	22	28	35	42	54
a [mm]	40	45	45	50	55	60	65
b [mm]	50	55	60	70	75	85	90
c [mm]	35	40	40	45	50	55	65

**Wall distance**



**Minimum distance with d 15–54**

Press machine	a <sub>min</sub> [mm]
PT1	45
Type 2 (PT2)	50
Type PT3-EH	
Type PT3-AH	
Pressgun 4E / 4B	
Pressgun 5	
Pressgun 6 / 6 Plus	35
Picco / Pressgun Picco	
Pressgun Picco 6 / Pressgun Picco 6 Plus	

**Interval between the pressings**

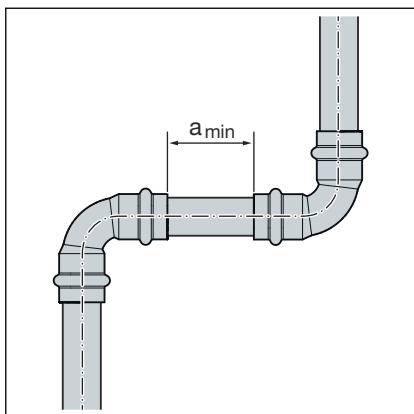


**NOTICE!**

**Leaking 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.

With pipes with a diameter of d 15–28, the length of the pipe must be at least as long as the total insertion depth of both press connectors.



**Minimum distance with press jaws d 15–54**

d	a <sub>min</sub> [mm]
15	0
18	0
22	0
28	0
35	10
42	15
54	25

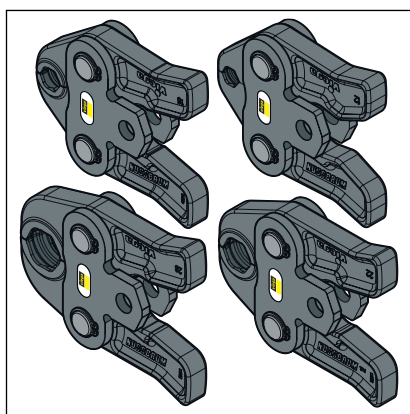
**Z dimensions**

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
- Press jaw or press ring with corresponding hinged adapter jaw, suitable for the pipe diameter and with suitable profile



**Fig. 6: Press jaws**



**Viega recommends the use of Viega system tools when installing the press fittings.**

The Viega system press tools have been developed and tailored specifically for the installation of Viega press connector systems.

## 3.4 Assembly

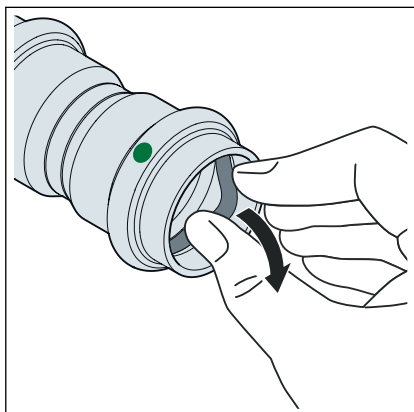
### 3.4.1 Replacing the sealing element

#### Removing the sealing element



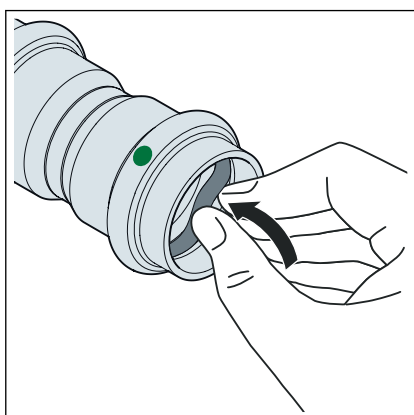
Do not use pointed or sharp-edged objects to remove the sealing element. They may damage the sealing element or the bead.

- Remove the sealing element from the bead.

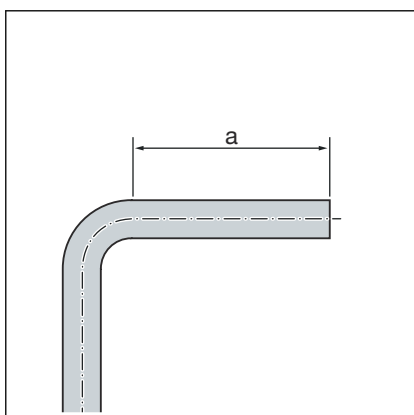


#### Inserting the sealing element

- Insert a new, undamaged sealing element into the bead.
- Ensure that the complete sealing element is in the bead.



### 3.4.2 Bending pipes



Pipes in the sizes d 15, 18, 22 and 28 can be bent cold with commercially available bending equipment (radius at least  $3.5 \times d$ ).

The pipe ends (a) must be at least 50 mm long so that the press connectors can be mounted properly.



### 3.4.3 Shortening the pipes



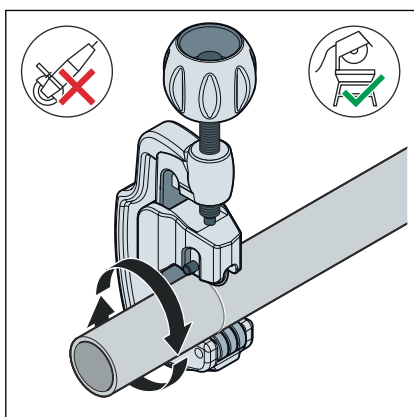
#### **NOTICE!** **Leaking press connections due to damaged material!**

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 23.



- Cut the pipe at a right angle using a pipe cutter or fine-toothed hacksaw.

Avoid grooves on the pipe surface.

### 3.4.4 Deburring the pipes

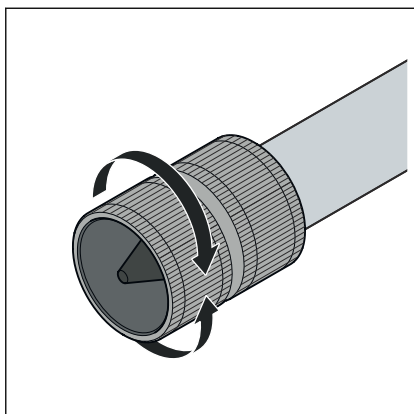
The pipe ends must be thoroughly deburred internally and externally after cutting.

Deburring prevents the sealing element becoming damaged and ensures the press connector can be mounted. Viega recommends using a deburrer (model 2292.2).



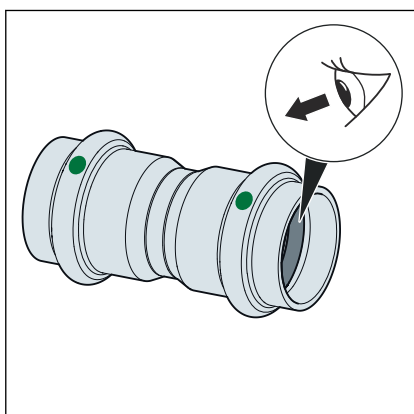
#### **NOTICE!** **Damage due to the wrong tool!**

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



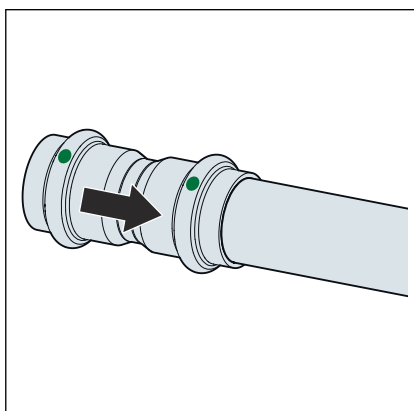
- Deburr the inside and outside of the pipe.

### 3.4.5 Pressing the connection

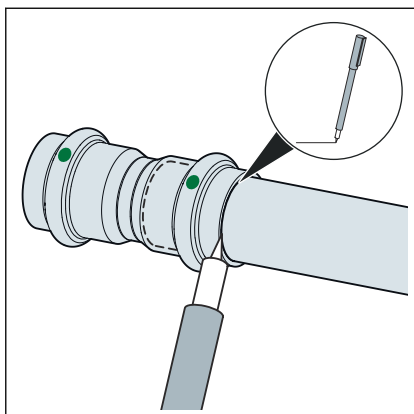


Requirements:

- 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
- The sealing element is undamaged.
- The complete sealing element is in the bead.

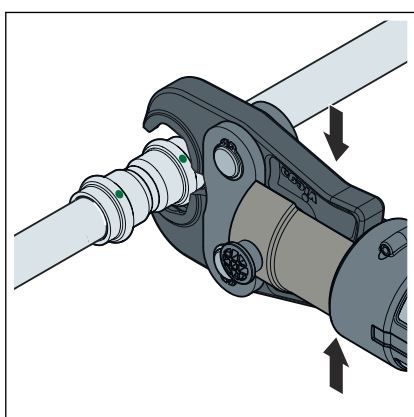


- Push the press connector onto the pipe as far as it will go.

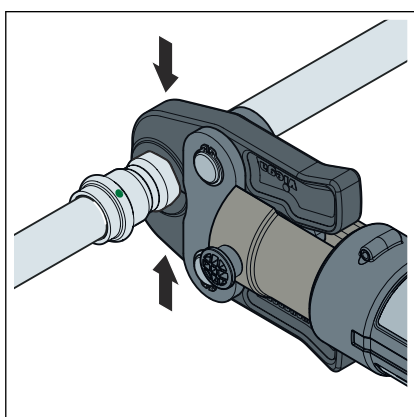


- Mark the insertion depth.
- Place the press jaw onto the press machine and push the retaining bolt in until it clicks into place.

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



- Open the press jaw and place it at a right-angle onto the press connector.
- Check the insertion depth using the marking.
- Ensure that the press jaw is placed centrally on the bead of the press connector.



- Carry out the pressing process.
- Open and remove the press jaw.
- ◻ Connection is pressed.

### 3.4.6 Mounting the pressure test plug

#### Intended use

Viega pressure test plugs for leakage tests and temporary plugging of pipeline sections must only be used for:

- 
- Supervised leakage test and load tests of pipelines with water up to max. 1.6 MPa (16 bar, 1600 kPa).
- 
- Supervised leakage test of pipelines with oil-free compressed air or inert gases (nitrogen) up to max. 150 hPa (150 mbar, 15 kPa), and load tests up to max. 0.3 MPa (3 bar, 300 kPa).

The pressure test plug (model 2269) must not be used in gas installations. Any use beyond the specified application is considered non-intended use. Viega assumes no liability for damage caused by non-intended use.



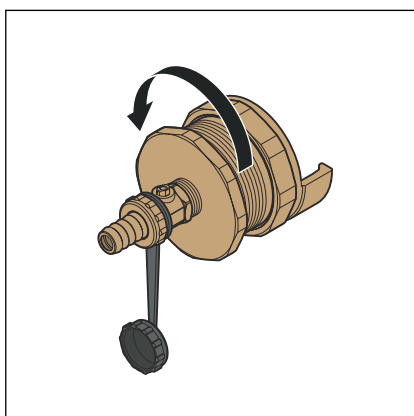
**DANGER!**  
**Risk of injury due to parts which come loose**

During the leakage and load test, parts of the pipeline installation may come loose.

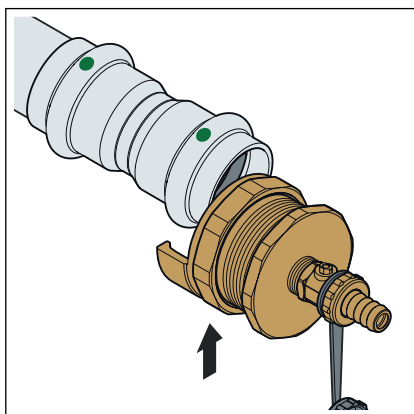
- Observe the specified maximum test pressures.

Observe the applicable national regulations for leakage and load tests, see ↗ *'Regulations from section: Mounting the forcing plug' on page 8.*

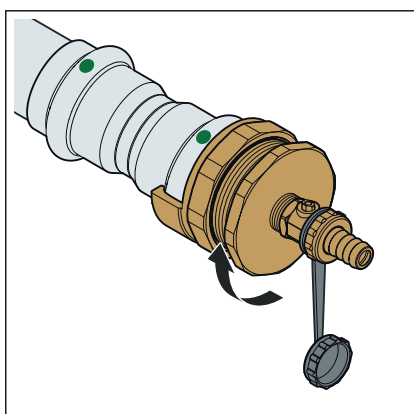
- Open the pressure test plug.

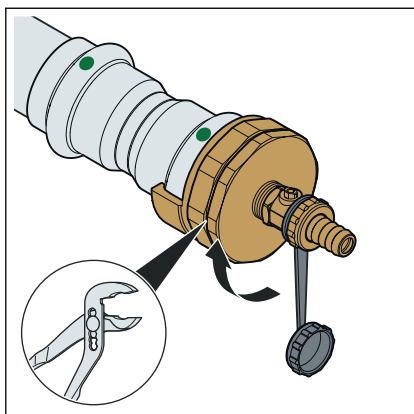


- Insert the pressure test plug into the press connector.



- Screw the pressure test plug in and hand-tighten it.





- If a leak occurs while filling a system, retighten the pressure test plug with a suitable tool.

### 3.4.7 Flange connections

In the press connector system shown, flange connections in sizes 22 to 54 mm are possible.

The assembly of flange connections may only be carried out by qualified personnel. Personnel can be qualified to assemble flange connections on the basis of applicable directives, for example; see [☞ 'Regulations from section: Establishing a flange connection' on page 8.](#)

- A corresponding training section on proper flange connection assembly in vocational training (of staff/specialist personnel) with qualified completion as well as successful regular application are considered as sufficient proof.
- Other employees without the appropriate technical training (e.g. operating personnel) who are to install flange connections must be provided with technical knowledge through training measures (theoretical and practical); this must be documented.

### washers

The advantages of using hardened washers are:

- Defined friction surface during assembly.
- Defined roughness in calculation and thus reduction of the scattering of the tightening torque, whereby a greater screw force can be achieved mathematically.

## Flange types

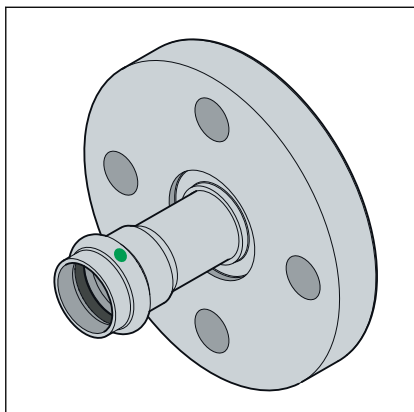


Fig. 7: Fixed flange

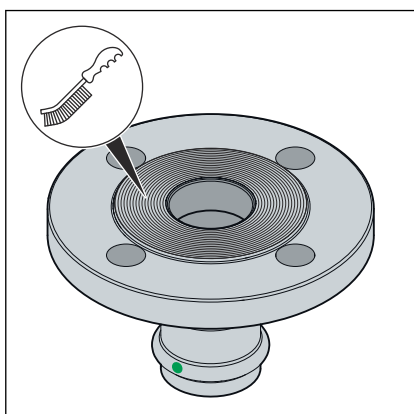
### Fixed flange

- Steel, stainless
- Press connection made of stainless steel
- Model 2359: 22 to 54 mm

## Establishing a flange connection



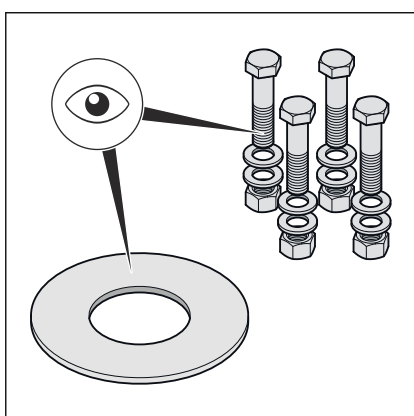
Always make the flange connection first and then the press connection.



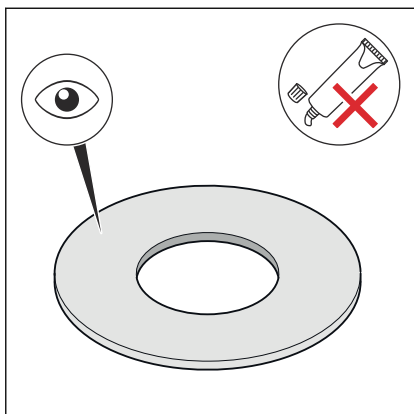
- If necessary, remove any temporary coatings on the flange sealing surfaces without leaving any residue before assembly, using cleaning agents and a suitable wire brush.

**NOTICE!** When replacing seals, make sure to remove the old seal completely from the flange sealing surface without damaging the flange sealing surface.

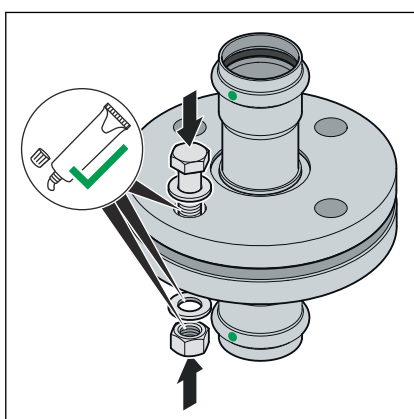
- Ensure that the flange sealing surfaces are clean, undamaged and even. In particular, there must not be any radial surface damage such as grooves or impact marks.



- The screws, nuts and washers must be clean and undamaged and comply with the specifications for minimum bolt length and strength class, see ⚡ **'Required tightening torques' on page 33.**
- During disassembly, replace removed screws, nuts and washers with new ones if damaged.



- The seal must be clean, undamaged and dry. Do not use adhesives and assembly pastes for seals.
- Do not reuse used seals.
- Do not use seals with kinks as they pose a safety risk.
- Ensure that seals are free from faults and defects and that the manufacturer's specifications are complied with.

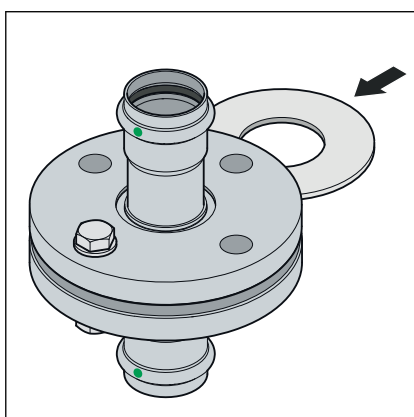


- Lubricate the following flange elements with suitable lubricant:
  - Screw thread
  - Washer
  - Nut support

**NOTICE!** Observe the manufacturer's information on the application and temperature range of the lubricant.

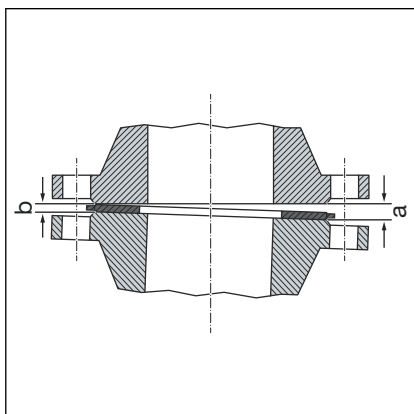
### Install and centre the sealing element

The correct assembly of flange connections requires parallel aligned flange blades without an offset centre that allow the sealing element to be inserted in the correct position without damage.



- Press the sealing surfaces far enough apart so that the seal can be inserted without force and without damage.

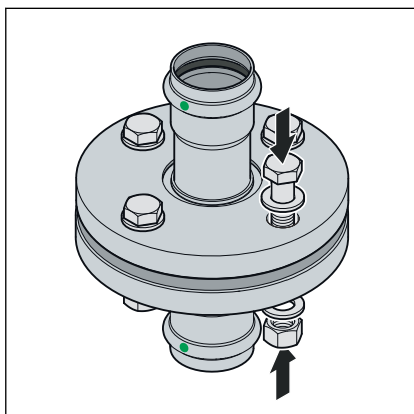
The gap (out-of-parallelism of the sealing surfaces) before tightening the screws is not critical if the permissible gap is not exceeded.



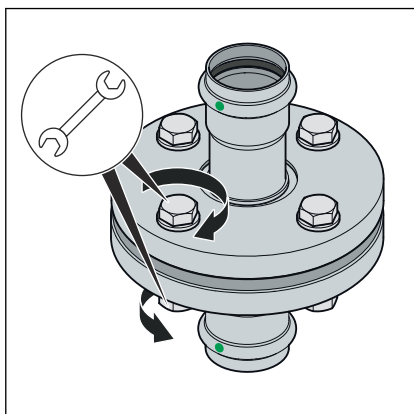
DN	Permissible gap a-b [mm]
20–25	0.4
32–50	0.6

- Remove the gap from the gaping side (a).
- In case of doubt, tighten the flanges without inserting a seal by tightening the screws to achieve parallelism and sealing surface distance of approx. 10% of the nominal torque.
  - The gap is not permissible if the flange position cannot be achieved without great effort.

### Systematics for tightening screws



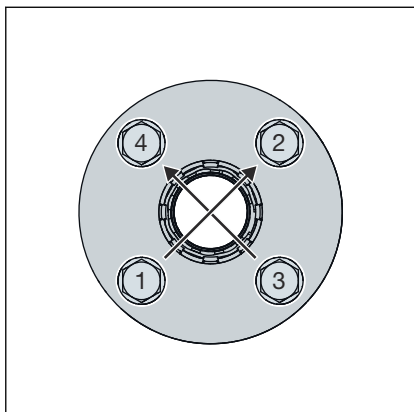
- The order in which the screws and nuts are tightened has a significant influence on the force distribution acting on the seal (surface pressure). Incorrect tightening leads to a high dispersion of the pre-tensioning forces and can result in the required minimum surface pressure not being reached and even in leaks.
- After tightening the nut, at least two but no more than five threads should protrude from the end of the screw.
- Prepare the screws by hand, observing the following:
  - Install the screws so that all screw heads are on one flange side.
  - For horizontally arranged flanges, insert the screws from above.
  - Replace sluggish screws with smooth-running ones.



- The simultaneous use of several tightening tools is possible.



**Suit order**



- Tighten all screws crosswise with 30% of the nominal tightening torque.
- Tighten all screws as in step 1 to 60% of the nominal tightening torque.
- Tighten all screws as in step 1 to 100% of the nominal tightening torque.
- Tighten all screws again with the full nominal tightening torque. Repeat this process until the nuts can no longer be turned when the full tightening torque is applied.

**Required tightening torques**

**Tightening torques Sanpress Inox flange adapters**

Model	DN	Article number	Thread	Tightening torque [Nm]	Screw length [mm]	Strength class
2359		593 315	M12			A2 - 70
		593 322				
		593 339	M16			
		593 346				
		593 353				

## Disconnecting the flange adapter

Before starting to disassemble an existing flange connection, get approval and a work permit from the responsible company, if necessary, observing the following:

- The system section must be depressurised and completely flushed.
- Secure built-in or attached parts that are not held separately before loosening the flange connection. This also applies to fastening systems such as spring hangers and supports.
- Start loosening screws or nuts on the side facing away from the body, loosen the remaining bolts slightly and only disassemble completely when you have ensured that the piping system does not present a risk. If a pipeline is under tension, there is a risk of the pipeline rupturing.
- Loosen the screws or nuts crosswise in at least two passes.
- Close open ends of strands with dummy plugs.
- Transport disassembled pipelines only in closed condition.
- When replacing seals, make sure to remove the old seal completely from the flange sealing surface without damaging the flange sealing surface.



### NOTICE!

#### Caution when using an angle grinder!

When loosening defective screws and nuts with the help of an angle grinder, sparks are produced that can burn into the pipe material and cause corrosion.

### 3.4.8 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 8.

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 8.

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 8.

## 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.



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