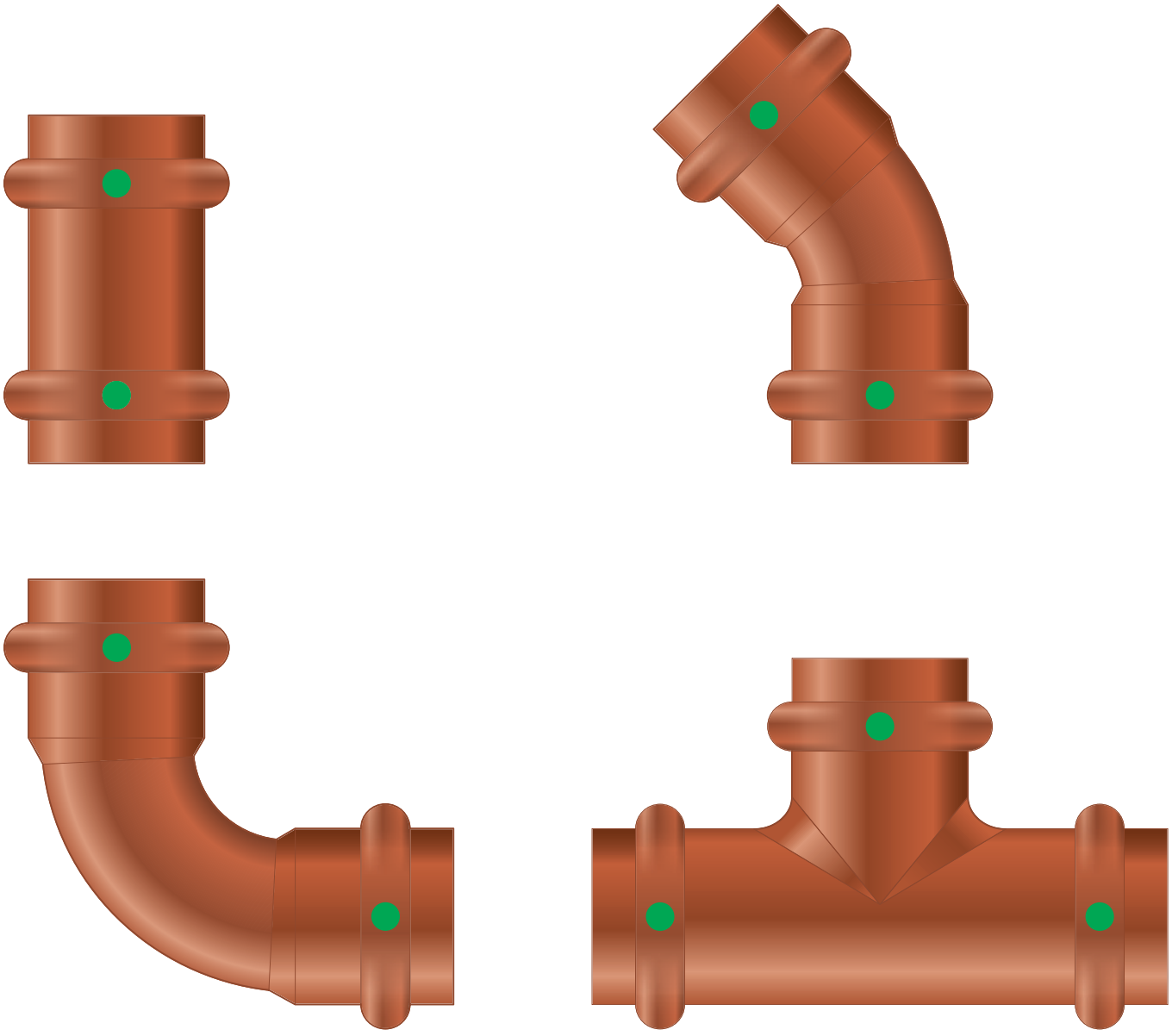
AU

Instructions for Use

Propress



Press connector system made of copper for copper pipes

System
Propress

Table of contents

1 About these instructions for use

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*

Regulations from section: Application areas

Scope / Notice	Regulations applicable in Germany
Use of copper pipes in sprinkler extinguisher systems	DIN EN 1057
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	Trinkwasserverordnung (TrinkwV)
Suitability for heating water for pump hot water heating systems	VDI-Richtlinie 2035, Sheet 1 and Sheet 2

Regulations from section: Pipes

Scope / Notice	Regulations applicable in Germany
Permitted copper pipes	DIN EN 1057
Approval of press connectors for use with copper pipes	DVGW-Arbeitsblatt GW 392

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
Regulations for external corrosion protection	DKI-Informationsdruck i. 160

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: 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

Agree the use of the system for areas of application and media other than those described with 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
- Wet sprinkler systems with dimensions DN25–50 with hard-drawn copper pipe, see *'Regulations from section: Application areas' on page 5*
- Fire extinguishing systems, see *'Regulations from section: Application areas' on page 5*
  - Wet
- Solar installations with flat collectors
- Solar installations with vacuum collectors (at least 2 metres away from the vacuum collector)
- Compressed air systems
- Cooling water pipelines (closed circuit)

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 5*.

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 5*.

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 5*.

- Potable water relating to the pipe material, except the components (press connectors, fittings, devices, etc.):
  - At pH-values ≥ 7.4
  - At pH values between 7.0 and 7.4 and a TOC value ≤ 1.5 mg/l
- Heating water for pump hot water heating systems
- Recycled water
- Compressed air in compliance with the specification of the sealing elements used
  - EPDM at oil concentration < 25 mg/m^3
- Anti-freeze, cooling brines up to a concentration of 50 %

2.3 Product description

2.3.1 Overview

The piping system consists of press connectors for copper pipes and the corresponding press tools.

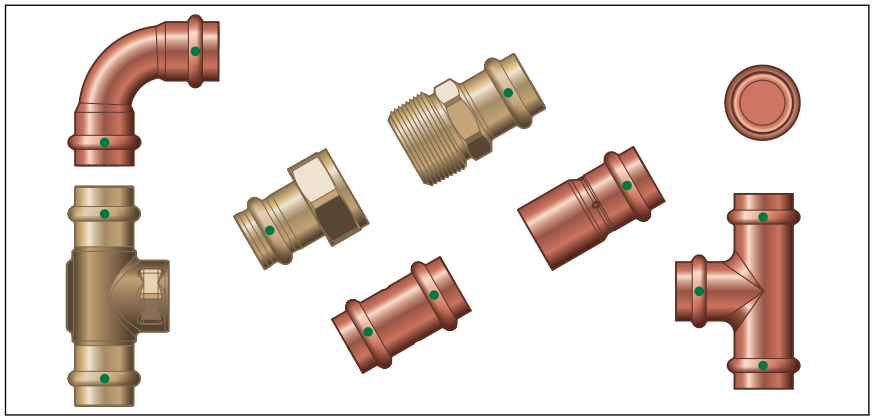


Fig. 1: Propress product selection

The system components are available in the following dimensions: DN 15 / 18 / 20 / 25 / 32 / 40 / 50.

2.3.2 Pipes

Only copper pipes that comply with the pertinent regulations may be used, see *'Regulations from section: Pipes' on page 6*:

Various wall thicknesses are permitted depending on the area of use (potable water or heating installation).

Copper pipes type A

d x s [mm]	Volume per metre of pipe [l/m]	Pipe weight [kg/m]	DN
12.7 x 1.02	0.089	0.335	15
15.8 x 1.22	0.142	0.502	18
19.1 x 1.42	0.206	0.703	20
25.4 x 1.63	0.385	1.088	25
31.8 x 1.63	0.637	1.379	32
38.1 x 1.63	0.953	1.670	40
50.8 x 1.63	1.775	2.251	50

Copper pipes type B

d x s [mm]	Volume per metre of pipe [l/m]	Pipe weight [kg/m]	DN
12.7 x 0.91	0.093	0.301	15
15.8 x 1.02	0.150	0.426	18

d x s [mm]	Volume per metre of pipe [l/m]	Pipe weight [kg/m]	DN
19.1 x 1.02	0.227	0.517	20
25.4 x 1.22	0.414	0.829	25
31.8 x 1.22	0.675	1.046	32
38.1 x 1.22	0.999	1.264	40
50.8 x 1.22	1.837	1.699	50

Copper pipes type C

d x s [mm]	Volume per metre of pipe [l/m]	Pipe weight [kg/m]
15 x 0.71	0.100	0.239
18 x 0.91	0.155	0.383
20 x 0.91	0.233	0.464
25 x 0.91	0.437	0.626

Laying and fixing pipes

Only pipe clamps with noise insulation inlays should be used.

Observe the general rules of fixing technology:

- Fixed pipelines should not be used as 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.

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[1)]

DN	Fixing distance between the pipe clamps [m]
15	1.25
18	1.50
20	2.00
25	2.25
32	2.75
40	3.00
50	3.50

[1)] These distances are manufacturer's specifications. For the applicable directives, see *'Regulations from section: Pipes' on page 6*.

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-efficient

Material	Heat expansion co-efficient α [mm/mK]	Example: Length expansion with pipe lengths = 20 m and ΔT = 50 K [mm]
Copper	0.0166	16.6

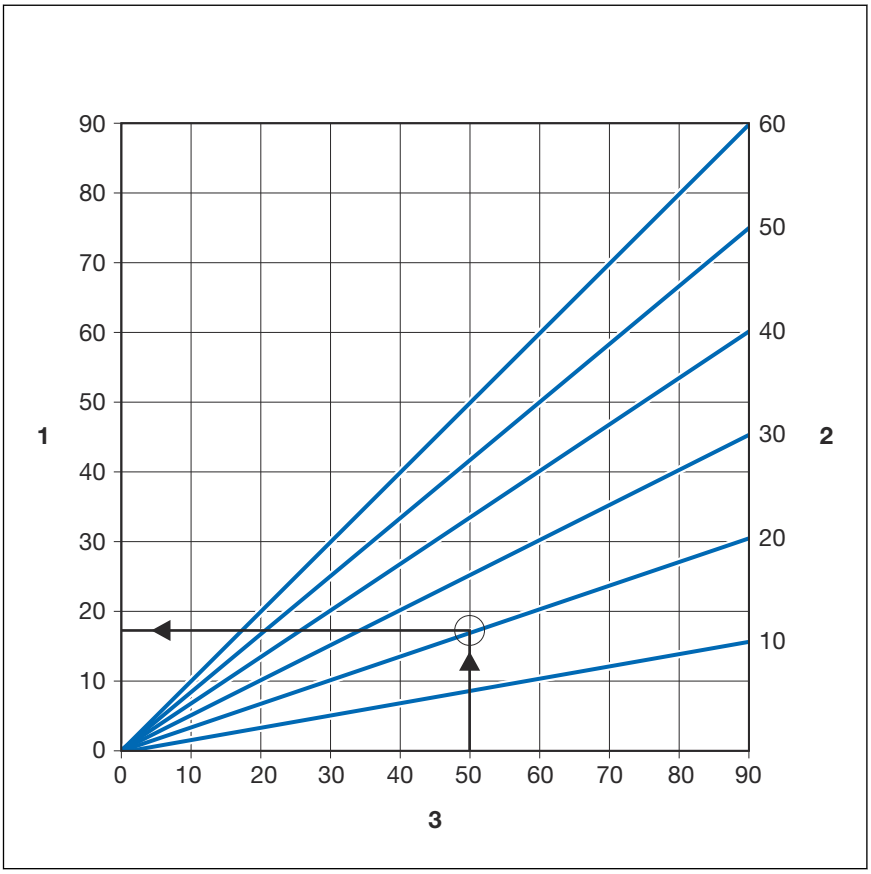


Fig. 2: Length expansion of copper pipes

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

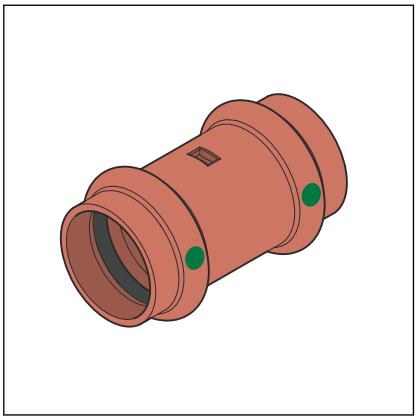
The length expansion Δl can be taken from the diagram or can be calculated using the following formula:

$\Delta l = \alpha$ [mm/mK] × L [m] x $\Delta\vartheta$ [K]

2.3.3 Press connectors

The press connectors in the Propress system consist of the following materials:

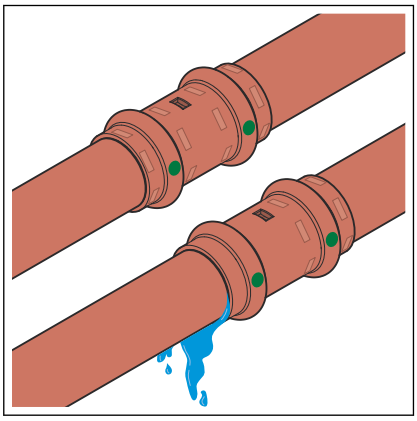
- Copper
- Silicon bronze



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.

Fig. 3: Press connectors

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 100–650 kPa (1.0–6.5 bar)
- in the case of the dry leakage test, in the pressure range from 2.2–300 kPa (22 mbar–3.0 bar)

Fig. 4: Smart Connect Feature (SC-Contur)

2.3.4 Sealing elements

The sealing element is pre-lubricated and must not be removed from the press connector. In the event that lubrication is required, use only clean water.

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 [$T_{max.}$]	110 °C	110 °C	[1]	60 °C	—
Operating pressure [P_{max}]	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	see notes ↳ *Chapter 2.2.2 'Media' on page 8*	pursuant to the applicable regulations[1] T_{max}: 105 °C 95 °C with radiator connection	for flat collectors or vacuum collectors with fittings at least two metres away from the collector	dry, oil content < 25 mg / m^3	[2]

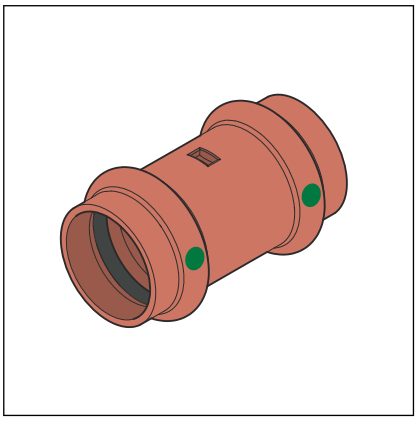
[1] see ↳ *'Regulations from section: Sealing elements' on page 6*

[2] Consultation with Viega required.

2.3.5 Markings on components

Markings on press connectors

The press connectors are marked with a coloured dot. The dot identifies the Smart Connect Feature (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 Smart Connect Feature (SC-Contur).

Fig. 5: Marking on the press connector

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. For instance, a copper pipe must not be installed directly upstream of a galvanised steel pipe.

The flow rule must be observed in all mixed installations with pipes made of copper and galvanised steel.

Please contact Viega for questions on this subject.

2.4 Information for use

2.4.1 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, observe the pertinent guidelines, see *'Regulations from section: Corrosion' on page 6*.

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 must not be pressed.

In addition, observe the instructions provided by the pipe manufacturer.

3.2 Storage

For storage, comply with the requirements specified in the applicable regulations, see *'Regulations from section: Storage' on page 6*:

- 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.

In addition, observe the instructions provided by the pipe manufacturer.

3.3 Assembly information

3.3.1 Mounting instructions

Checking system components

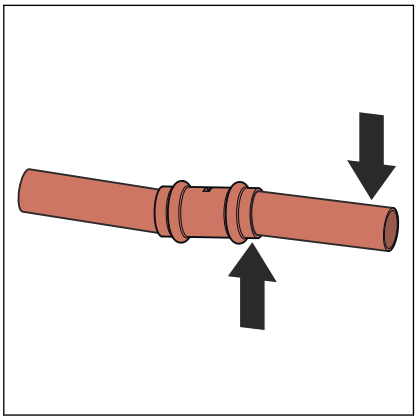
System components may, in some cases, have become damaged through transportation and storage.

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

Deflection

The pressing of a fitting can cause a deflection. When pressing Viega Propress press connectors, the press connector is permanently deformed. This enables a consistently tight connection.

The deflection occurs in the same way with every press connector. During pressing, the press connector moves in the direction of the press jaw or ring opening.



- As the press connector bends in the direction of the press jaw or ring opening, the pipe end bends in the opposite direction.
- The bending of the press connector and pipe can be reduced by preventing the movement of the press connector.
- The use of struts and clamps reduces the deflection and the deflection is virtually eliminated by evenly spacing out the clamps.

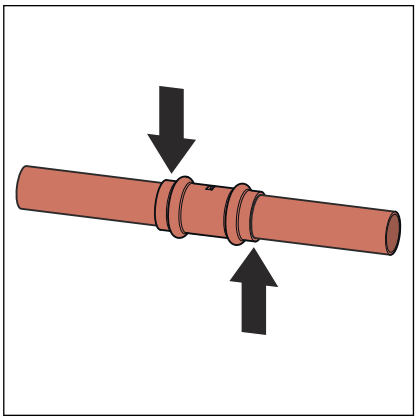
Fig. 6: Deflection

Regulating the deflection

The following steps can reduce the deflection during pressing.

Alternate press directions

Site conditions permitting:



- Carry out press.
- Press the other press connector end from the opposite side.

Fig. 7: Alternate the press direction

Apply pulling and pushing force

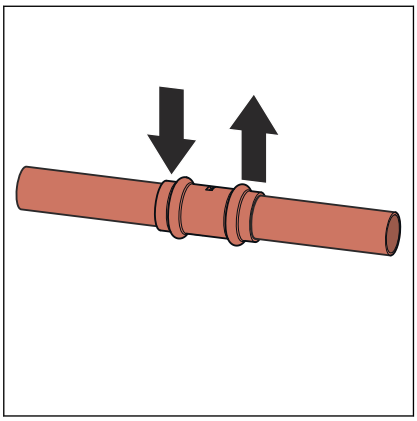


Fig. 8: Pulling and pushing force

- Press rings: Push away from the press tool
- Press jaw: Pull towards the press tool

  The press tool can be feathered using the trigger as needed to apply pulling or pushing force to control deflection.

Pressing overhead piping

Overhead piping can make it difficult to press from opposite sides of the press connector.

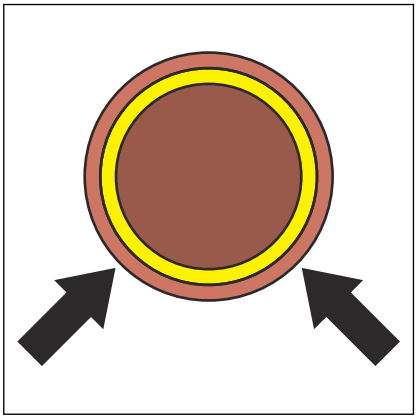


Fig. 9: 45-degree angle

- The weight of the piping plus pressing on opposite sides at a 45 degree angle may adequately eliminate deflection.

  This technique can be used for any horizontal piping and also when working above the piping.

Proper installation and warranty

- If the pipe has been properly prepared and marked and the press connector installed in accordance with the Propress instructions for use, then the connection is acceptable even with a deflection after the press connector has been installed and meets the manufacturer's requirements for proper installation and warranty.
- The deflection on a press connection has no influence on the function of the system. The system can be pressure tested in accordance with the Propress product instructions.

3.3.2 Potential equalisation

DANGER!
Danger due to electrical current

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

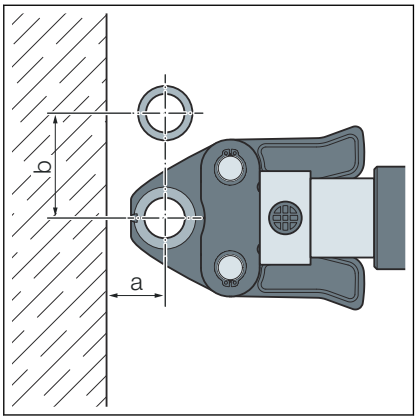
Because all metallic piping systems conduct electricity, unintentional contact with a live part can lead to the whole piping system and components connected to it (e. g. radiators) becoming energised.

- 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 Space requirements and intervals

Pressing between pipelines

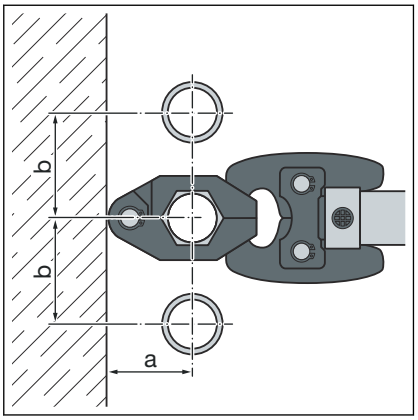


Space required PT1, Type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6 Plus

DN	15	18	20	25	32	40	50
a [mm]	23	23	26	29	32	48	54
b [mm]	64	64	64	76	80	95	127

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

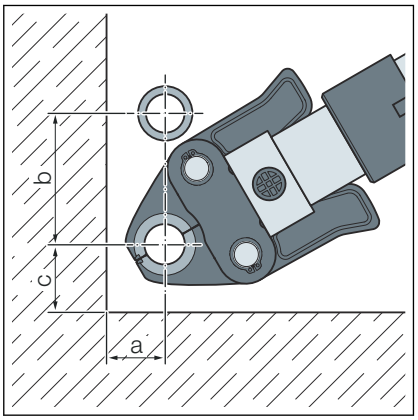
DN	15	18	20	25	32
a [mm]	25	25	25	25	25
b [mm]	60	60	65	65	65



Space requirement press ring

DN	15	18	20	25	32	40	50
a [mm]	40	45	45	50	55	60	65
b [mm]	50	60	55	70	75	85	90

Pressing between pipe and wall

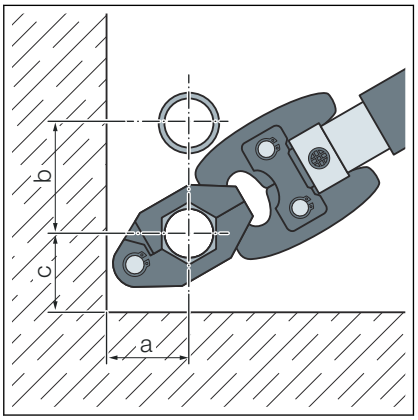


Space requirement PT1, type 2 (PT2), PT3-EH, PT3-AH, Pressgun 4B, 4E, 5, 6, 6 B, 6 Plus

DN	15	18	20	25	32	40	50
a [mm]	23	23	26	29	32	48	54
b [mm]	64	64	64	76	80	95	127
c [mm]	35	35	38	45	57	64	80

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

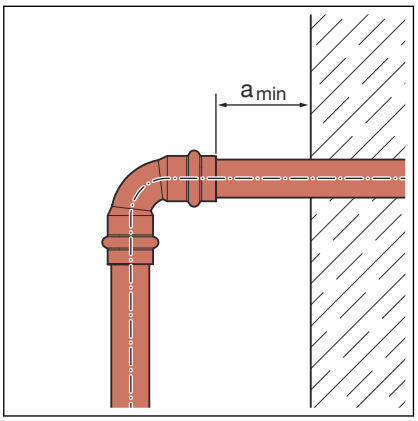
DN	15	18	20	25	32
a [mm]	30	30	30	30	30
b [mm]	70	70	75	80	80
c [mm]	40	40	40	40	40



Space requirement press ring

DN	15	18	20	25	32	40	50
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

Distance to walls



Minimum distance with DN 15-50

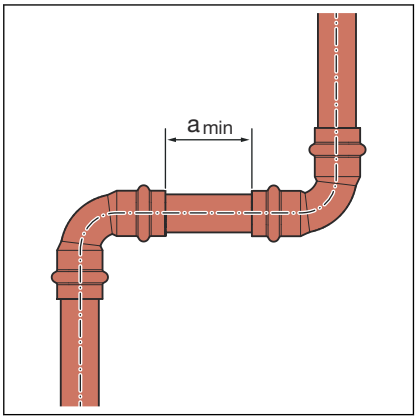
Press machine	a_{min} [mm]
Type PT3-AH Pressgun 4B Pressgun 5 Pressgun 6 / 6 Plus	50
Picco / Pressgun Picco	35
Pressgun Picco 6 / Pressgun Picco 6 Plus	

Distance between the press fittings

NOTICE!
Leaking press connections due to pipes being too short

If two press connectors are to be mounted next to one another 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 leak.

With pipes with a diameter of d 12–28, 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 DN 15–50

DN	a_{min} [mm]
15	0
18	0
20	0
25	0
32	10
40	15
50	25

Z dimensions

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

3.3.4 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

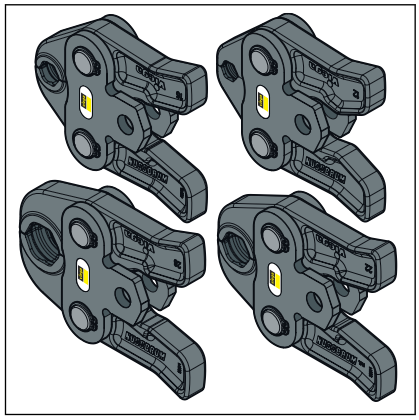


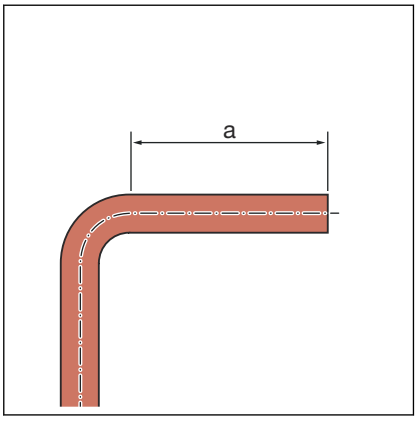
Fig. 10: Press jaws

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 Bending pipes



Copper pipes in the sizes d 15, 18 and 28 can be bent cold with commercially available bending equipment (radius at least 3.5 x d).

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

3.4.2 Shortening the pipes

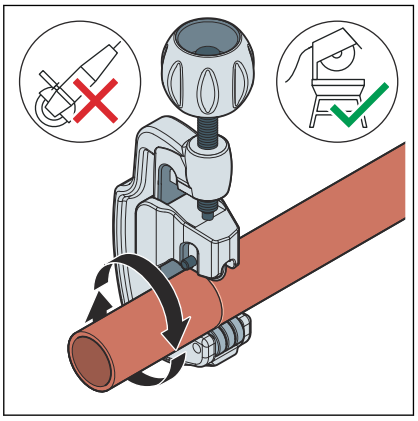
NOTICE!
Leaking press connections due to damaged material!

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 3.3.4 'Required tools' on page 22*.



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

  Avoid grooves on the pipe surface.

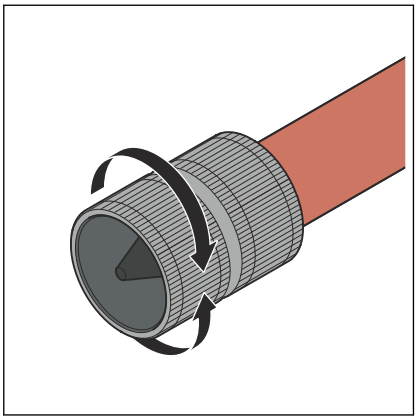
3.4.3 Deburring the pipes

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

The pipe ends must be thoroughly deburred internally and externally after shortening. Deburring prevents the sealing element becoming damaged and ensures the press connector can be mounted. Viega recommends using a deburrer (model 2292.2).

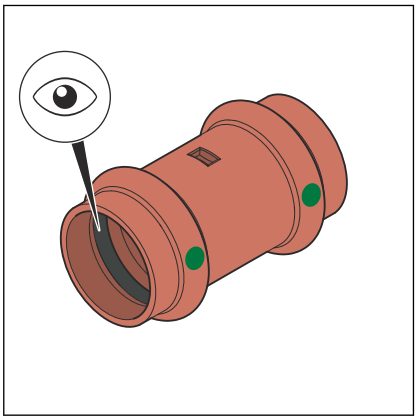
NOTICE!
Damage due to the wrong tool!

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



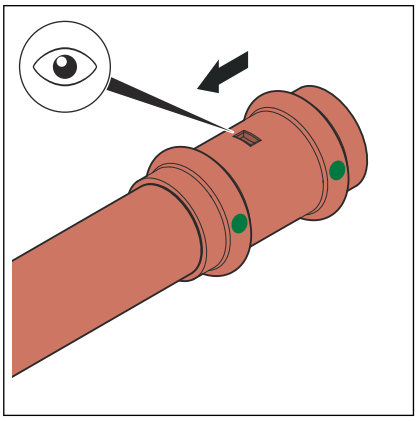
- Deburr the inside and outside of the pipe.

3.4.4 Pressing the connection

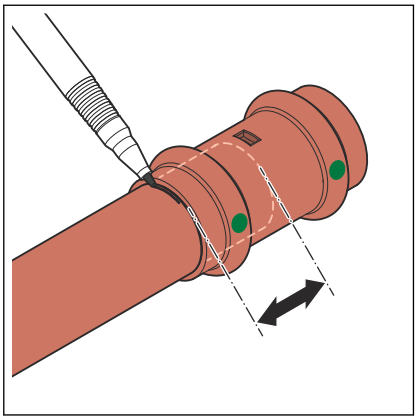


Requirements:

- The pipe end is not bent or damaged.
- The pipe is deburred.
- The correct sealing element is in the press connector.
  EPDM = polished black
- The sealing element is undamaged.
- The complete sealing element is in the bead.

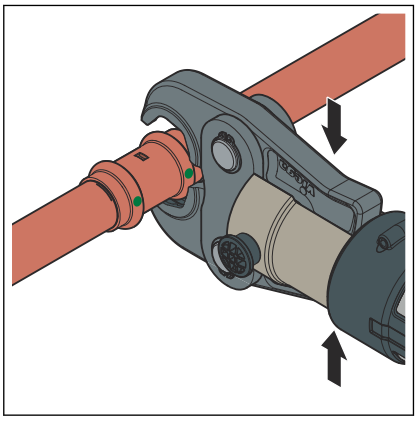


- Push the press connector onto the pipe as far as it will go.

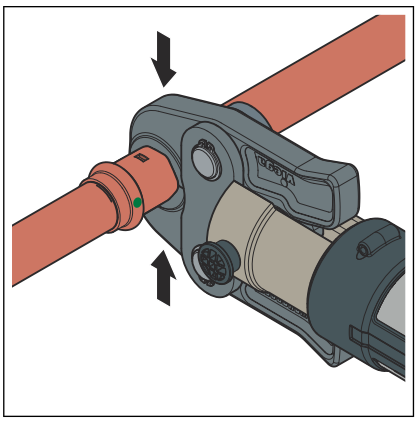


- Mark the insertion depth.
- Place the press jaw onto the press machine and push the retaining bolt in until it clicks into place.

  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.

3.4.5 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:

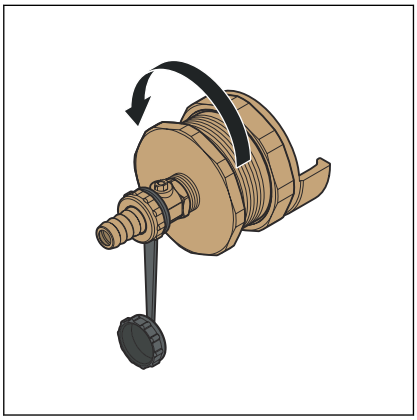
- Supervised leakage test and load tests of pipelines with water up to max. 1.6 MPa (1600 kPa, 16 bar).
- Supervised leakage test of pipelines with oil-free compressed air or inert gases (nitrogen) up to max. 150 hPa (15 kPa, 150 mbar), and load tests up to max. 0.3 MPa (300 kPa, 3 bar).

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.

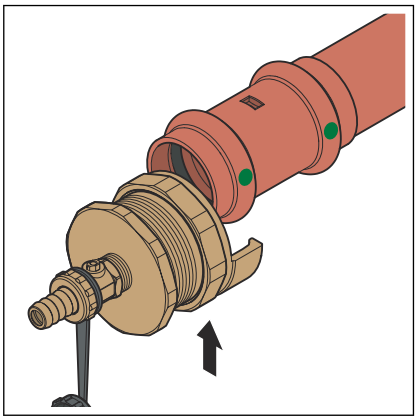
DANGER!
Risk of injury due to parts which come loose
During the leakage and load test, parts of the pipeline installation may come loose.

- Observe the specified maximum test pressures.

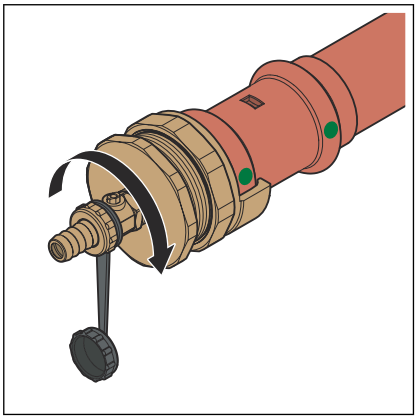
Observe the applicable national regulations for leakage and load tests, see *'Regulations from section: Mounting the forcing plug' on page 6*.



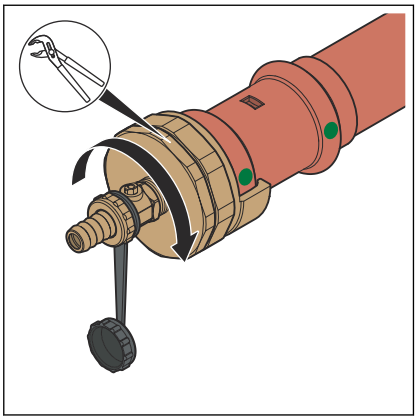
- Open the pressure test plug.



- 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.

3.4.6 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.

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