Instructions for Use Propress XL



Press connector system made of copper for copper pipes

System Propress XL



AU

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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*.

### 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 Ger- many
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 Ger- many
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 Ger- many
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 Ger- many
Area of application of the EPDM sealing element	DIN EN 12828
Heating	

#### **Regulations from section: Corrosion**

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

#### **Regulations from section: Leakage test**

Scope / Notice	Regulations applicable in Ger- many
Leakage test for water installa- tions	ZVSHK-Merkblatt: "Dichtheitsprüfungen von Trink- wasserinstallationen mit Druckluft, Inertgas oder Wasser"

#### **Regulations from section: Maintenance**

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



### 2.2 Intended use



#### 2.2.1 Areas of application

Use is possible in the following areas among others:

- Potable water installations
- Industrial and heating systems
- Grey water, wastewater and drainage systems
- Fire extinguishing systems, see <a> 'Regulations from section: Application areas' on page 5</a>
  - Wet
- Solar installations with flat collectors
- Solar installations with vacuum collectors (at least two 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 § <i>'Regulations from section: Application areas' on page 5</i> .
Maintenance	
	Inform your customer or the operator of the potable water installation that the system has to be maintained on a regular basis, see  ' <i>Regulations from section: Application areas' on page 5</i> .
Sealing element	
	Only FDDM appling elements are entroved in petable water installe

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  $\Leftrightarrow$  'Regulations from section: Media' on page 5.

- Potable water relating to the pipe material, except the components (press connectors, fittings, devices, etc.):
- 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 %

### 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 XL product selection

The system components are available in the following dimensions: DN  $65\,/\,80\,/\,100.$ 

#### 2.3.2 Pipes

Only copper pipes that comply with the pertinent regulations may be used, see '*Regulations from section: Pipes' on page 5*:

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
63.5 x 1.63	2.850	2.823	65
76.2 x 2.03	4.087	4.339	80
101.6 x 2.03	7.472	5.677	100

#### Copper pipes type B

d x s [mm]	Volume per metre of pipe [l/m]	Pipe weight [kg/m]	DN
63.5 x 1.22	2.928	2.134	65
76.2 x 1.63	4.179	3.414	80
101.6 x 1.63	7.595	4.577	100

#### 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<sup>1)</sup>

DN	Fixing distance between the pipe clamps [m]
65	4.00
80	4.25
100	5.00

<sup>1)</sup> These distances are manufacturer's specifications. For the applicable directives, see  $\Leftrightarrow$  'Regulations from section: Pipes' on page 5.

#### 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





- 1 Length expansion <sup>→</sup>ΔI [mm]
- 2 Pipe length  $\rightarrow$  I<sub>0</sub> [m]
- 3 Temperature difference →Δθ [K]

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



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

#### 2.3.3 Press connectors

The press connectors in the Propress XL system are made of copper.



On Propress XL press connectors, there is a cutting ring, a separator ring and a sealing element in the bead of the press connector. The cutting ring cuts into the pipe during pressing and ensures a force-fit connection.

During installation, and later during the pressing, the separator ring protects the sealing element from damage from the cutting ring.

Fig. 3: Press connectors

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



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

#### 2.3.4 Sealing elements

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)

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 applica- tion	Potable water	Heating	Solar installa- tions	Compressed air	Technical gases
Area of applica- tion	all pipeline sec- tions	Pump hot water heating system	Solar circuit	all pipeline sec- tions	all pipeline sec- tions
Operating tem- perature [T <sub>max.</sub> ]	110 °C	110 °C	1)	60 °C	—
Operating pres- sure [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	see notes ♦ Chapter 2.2.2 'Media' on page 8	pursuant to the applicable regu- lations <sup>1)</sup> T <sub>max</sub> : 105 °C 95 °C with radi- ator connection	for flat collec- tors or for vacuum tube collectors with press con- nectors at least two metres away from the collector	dry, oil content < 25 mg / m <sup>3</sup>	2)

 $^{1)}$  see  $~~~ \ensuremath{\textcircled{\sc blue}}$  'Regulations from section: Sealing elements' on page 6

<sup>2)</sup> Consultation with Viega required.

#### 2.3.5 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 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.



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.

#### 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 Space requirements and intervals

**Pressing between pipelines** 



DN	65	80	100
a [mm]	110	110	135
b [mm]	185	185	215



#### Pressing between pipe and wall



DN	65	80	100
a [mm]	110	120	135
b [mm]	185	200	215
c [mm]	130	140	155

#### **Distance to walls**



DN	65–100
Minimum interval a <sub>min</sub> [mm]	20

#### Distance between the press fittings



Minimum distance a [mm]

#### 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.



pressing, the connection may leak.		
DN	65–100	

15

#### 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 of 32 kN



Fig. 5: Press rings and hinged adapter jaw

# 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 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  $\Leftrightarrow$  Chapter 3.3.4 'Required tools' on page 17.

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

Avoid grooves on the pipe surface.



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

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).

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 clamping, 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.

### 3.4.3 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
- Sealing element, separator ring and cutting ring are undamaged.
- The complete sealing element, separator ring and cutting ring are in the bead.



Measure the insertion depth in the press connector.

DN	Insertion depth [mm]
65	43
80	50
100	60

Mark the insertion depth on the pipe.





 $\bigcirc$ 

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

Place the press ring onto the press connector. The press ring must completely cover the outside ring of the press connector.



Open the hinged adapter jaw.



- Position the hinged adapter jaw into the seat of the press ring.
- Carry out the pressing process.
- Open the hinged adapter jaw and remove the press ring.







- Remove the checking strip.
  - $\hdots$  The connection is marked as having been pressed.

#### 3.4.4 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  $\Leftrightarrow$  'Regulations from section: Leakage test' on page 6.

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 6.* 

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 6.

### 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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