

Installation Manual

Viega ProPress® Systems



viega

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1 About This Document

1.1 Disclaimer



This document is subject to updates. For the most current Viega technical literature, please visit www.viega.us.



According to NSF and EPA Title 40 Ch1.D.141: Use of this material may not be appropriate in all water chemistries. Copper [tube, pipe, or fitting] may require corrosion control to limit the leaching of copper into drinking water under certain water chemistries. Refer to Section I-1.1 of NSF/ANSI/CAN 61 for the water quality considerations to be used before installing this product.



Viega products are designed to be installed by licensed and trained plumbing and mechanical professionals who are familiar with Viega products and their installation. **Installation by non-professionals may void Viega LLC's warranty.**

1.2 Symbols Used

The following symbols may be used within this document:



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.



Notes give additional helpful tips.

2 Product Information

2.1 ProPress Systems

Viega ProPress systems are state-of-the-art press fitting systems that provide economical and reliable installations for the commercial, industrial, and residential markets.

Viega ProPress are copper and Zero Lead bronze fittings and valves in copper tube size (CTS) ranging from ½ inch to 4 inches. The fittings require no soldering or brazing and are installed with electro-hydraulic press tools (battery-powered or corded press tools).

The fittings feature a green dot representing Smart Connect® technology with an EPDM sealing element suitable for many applications. Viega's unique Smart Connect technology helps installers ensure that they have pressed all connections.

2.2 Safety

Please read and understand the instructions before beginning installation to eliminate safety concerns and reduce risks associated with use and handling of Viega products.

2.2.1 Drinking Water Installation

Standard engineering practices must be observed for planning, installation, operation, and maintenance of drinking water installations.

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

2.3 Approved Applications

Viega systems are designed for a wide range of applications across plumbing, heating, cooling, and various industrial uses. For detailed guidance on approved applications and compatible working fluids, please consult the [Viega Commonly Approved Applications Chart](#). If specific project requirements involve unique working fluids or conditions, or your intended application is not explicitly listed, you may submit an [Application Evaluation Form](#). This process allows our experts to review your specific needs and determine the suitability and compatibility of Viega products, ensuring optimal performance and system integrity for your project while maintaining proper warranty coverage.

2.3.1 Commercial and Residential

ProPress systems are approved for numerous applications in commercial and residential markets including potable water. Zero Lead identifies Viega products meeting the lead free requirements of NSF/ANSI/CAN 61 through testing under NSF/ANSI/CAN 372 (0.25% or less maximum weighted average lead content).

2.3.2 Industrial and Plant Operations

ProPress systems are also suitable for use in industrial and plant processes. Primary areas of application include:

- Utility systems
- Process piping
- Cooling water
- Potable water

2.3.3 Technical Assistance

Consult Viega's Customer Success Division for information on applications not listed or applications outside listed temperature and pressure ranges.

- Viega Technical Support: techsupport@viega.us
- Engineering Services: For more information on radiant system design and plumbing design services, contact engineering@viega.us.

2.4 Product Description

2.4.1 Overview

ProPress systems consists of copper and Zero Lead bronze press fittings for copper tubes and the corresponding press tools.

2.4.2 Listings and Certifications

The fittings have the following listings and certifications:

- ABS: American Bureau of Shipping Type Approval
- ASME B16.51: Copper and Copper Alloy Press-Connect Pressure Fittings
- BV: Bureau Veritas Type Approval
- Canadian Registration Number (CRN): 0A14541.5 A/B/C
- CSA Low Lead Content
- DNV GL: Det Norske Veritas Germanischer Lloyd Type Approval
- IAPMO/ANSI/CAN Z1117: Press and Nail Connections
- ICC-ES LC1002: Copper and Copper Alloy Press-Connect Pressure Fittings
- LR: Lloyd's Register Type Approval
- NKK: Nippon Kaija Kyokai Type Approval
- NSF/ANSI 61: Drinking Water System Components – Health Effects
- NSF/ANSI 372: Drinking Water System Components – Lead Content

2.4.3 Codes and Standards



It is the responsibility of the installer or any other parties to adhere to all applicable local rules and regulations governing the nature of the installation.

ProPress fittings comply with the following codes and standards:

- ASME B31: Code for Pressure Piping
- ASME B31.1: Power Piping
- ASME B31.3: Process Piping
- ASME B31.9: Building Service Piping
- ASTM 1029: Standard Practice for Press-Connect Joints with Seamless Copper and Copper Alloy Tube and Press Fittings
- ASTM B75: Standard Specification for Seamless Copper Tube
- ASTM B88: Standard Specification for Seamless Copper Water Tube
- ASTM F3226: Standard Specification for Metallic Press-Connect Fittings
- IAPMO California Plumbing Code (CPC)
- IAPMO National Standard Plumbing Code (NSPC)
- IAPMO Uniform Mechanical Code (UMC)
- IAPMO Uniform Plumbing Code (UPC)
- ICC International Mechanical Code (IMC)
- ICC International Plumbing Code (IPC)
- ICC International Residential Code (IRC)
- National Building Code of Canada (NBCC)
- National Plumbing Code of Canada (NPCC)

2.4.4 Copper Tubing



Copper tubing must be free of surface imperfections, including metal stamped print lines, before a ProPress fitting is installed.

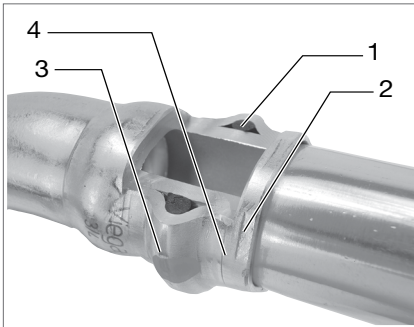
Viega ProPress may only be pressed onto copper tube in accordance with ASTM B88 or B75. When pressing onto B88 copper tube, types K, L, and M may be used. Tempers O60 and O50, known as “soft copper”, are limited to nominal sizes ½" to 1 ¼". Temper H58, known as hard copper, may be used with nominal sizes ½" to 4". When pressing onto B75 copper tube, the tube dimensions must be in accordance with Viega specifications. Only tempers H58, O60, and O50 may be used with ProPress.



When pressing onto B75 copper tube, additional considerations apply. See [Viega ProPress Copper Tube Compatibility Tech Data](#).

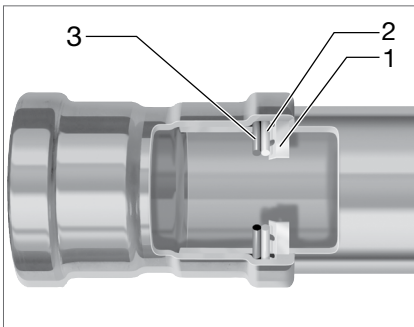
2.4.5 Press Fittings

2.4.5.1 Viega ProPress ½" to 2" Fittings



- 1 Each fitting contains an application-specific sealing element. ProPress comes from the factory with an EPDM sealing element. This may be replaced with an FKM or HNBR sealing element depending on the application.
- 2 Viega's distinctive hexagonal pressing pattern bonds the fitting and tube and provides the mechanical strength for the connection.
- 3 Color coded dots indicate the presence of Viega's unique Smart Connect technology, which helps installers ensure that they have pressed all connections.
- 4 Cylindrical guides ensure the proper insertion of the tube and protect the sealing element.

2.4.5.2 Viega ProPress 2½" to 4" Fittings



- 1 The 420 stainless steel grip ring's teeth bite into the tube and lock the fitting securely in place.
- 2 A polybutylene terephthalate (PBT) separator ring protects the sealing element from damage by creating a positive physical separation during installation and later during pressing.
- 3 The EPDM sealing element ensures water-tight or air-tight connections.

ProPress 2½" to 4" fittings are designed to be pressed with ProPress XL-C press rings and a V2 actuator to produce a non-detachable, secure connection.

2.4.5.3 EPDM Sealing Element

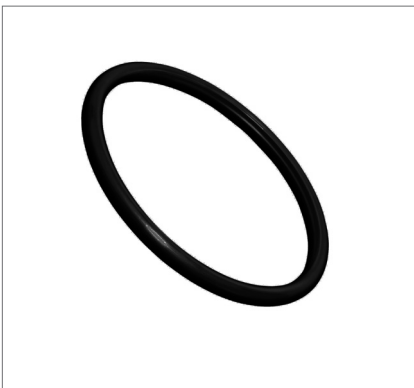


Viega ProPress fittings are manufactured with a high-quality, shiny black ethylene propylene diene monomer (EPDM) sealing element installed at the factory. EPDM is a synthetically manufactured and peroxidically cured all-purpose elastomer. Sealing elements are inserted into the fitting using an H1 food grade lubricant that is registered with NSF and the USDA and is approved for use under FDA 21 CFR.

The EPDM sealing element possesses excellent resistance to aging, ozone, sunlight, weathering, environmental influences, and most alkaline solutions and chemicals used in a broad range of applications.

The operating temperature of the EPDM sealing element is 0° to 250°F (-18° to 120°C).

2.4.5.4 FKM Sealing Element



ProPress fittings may be changed from the factory-installed EPDM sealing element to an dull black fluoroelastomer (FKM) sealing element. See [Changing Sealing Elements Product Instructions](#). FKM is well known for its excellent resistance to petroleum products and solvents as well as exceptional high-temperature performance, which make it ideal for seals and gaskets in solar, district heating, low-pressure steam, and compressed air systems. It possesses excellent resistance to aging, ozone, UV, weathering, and environmental influences as well as soils and petroleum-based additives.

The operating temperature of the FKM sealing element is 14° to 284°F (-10° to 140°C), with temperature spikes up to 356°F.

2.4.5.5 HNBR Sealing Element



ProPress press fittings may also be changed from the factory-installed EPDM sealing element to a yellow hydrogenated nitrile butadiene rubber (HNBR) sealing element. See [Changing Sealing Elements Product Instructions](#). The HNBR sealing element is used mainly for inert gas, liquid fuel, and lubricant oil. It is commonly used in fuel oil heating systems.

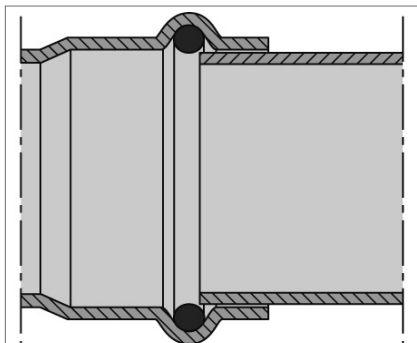
HNBR is widely known for its physical strength and the retention of its properties after long-term exposure to heat, oil, and chemicals.

The unique properties of the HNBR sealing element have resulted in its wide adoption in automotive, industrial, and assorted performance-demanding applications (e.g., engine seals, grommets, and gaskets; fuel system seals and hoses; transmission system bonded piston seals; chevron seals; oil field packers; and rotary shaft seals.)

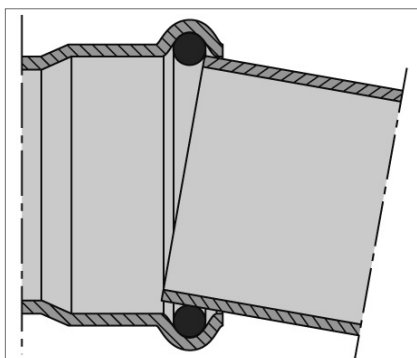
The HNBR sealing element is not suitable for food contact applications and cannot be installed in drinking water applications.

The operating temperature of the HNBR sealing element is -40° to 180°F (-40°C to 82°C).

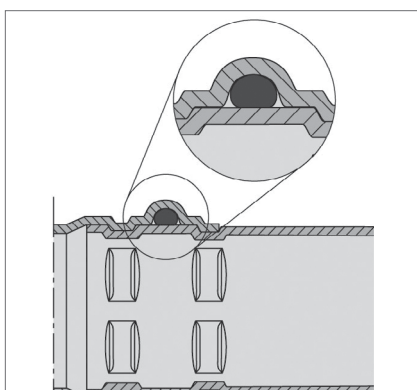
2.4.5.6 Cylindrical Guides



All Viega fittings are designed with cylindrical guides to keep the tube straight and protect the sealing element during assembly.

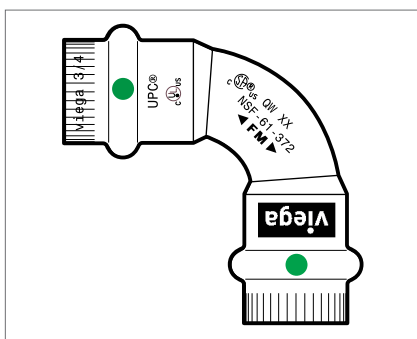


Without cylindrical guides on fittings, installers may make an unsecured connection or damage the sealing element.



Fittings are radially pressed around the sealing element in a single step.

2.4.5.7 Fitting Markings



Each ProPress fitting is marked with the following:

- Green dot – EPDM sealing element and Smart Connect technology
- Size of fitting
- Manufacturer name
- Manufacturer batch code
- CSA®
- NSF®-61-372
- UPC®

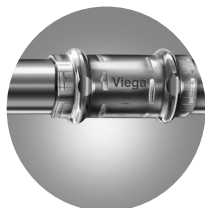
2.4.5.8 Viega Smart Connect Technology



1 Identify an unpressed connection during pressure testing when water or air flows past the sealing element.



2 Upon identification, use the press tool to press the fitting, making a secure leak-proof connection.



3 Viega ProPress connections are fast, flameless, and reliable.

Viega Smart Connect technology provides the installer quick and easy identification of an unpressed fitting during a leak test. When the fitting is pressed, a secure, non-detachable, mechanical connection is created. Smart Connect technology provides the installer with an easy way to see connections that have not been pressed before putting the system into operation.



Testing for leaks using Viega Smart Connect is not a replacement for testing requirements of local codes and standards. If testing with compressed air, it is necessary to use an approved leak-detect solution.

2.5 General Installation Requirements

The following general industry requirements must be considered when installing Viega ProPress fitting systems.

2.5.1 Required Tools

The following tools are required for making a press connection:

- Pipe cutter or a fine-toothed hacksaw
- Deburring tool
- Marker for marking insertion depth on tube
- Press machine with constant pressing force
- Press jaw or press ring with corresponding actuator suitable for the tube diameter and with the proper profile



Improper tool/material damage

Use only press jaws and rings that are designed for use with ProPress fittings.

2.5.2 Expansion

Thermal expansion in installed systems generates stress on tubing and appliance connectors. Compensation must be allowed for expansion and contraction that may occur within the tubing. Expansion joints or mechanical expansion compensators may be used to alleviate these stresses. ProPress systems do not require any additional protection as compared to a soldered system.

The following methods are effective:

- Fixed and sliding hangers
- Expansion equalization joints (expansion bends)
- Expansion compensators

2.5.3 Electrical Bonding

When properly installed, ProPress fittings comply with Section 1211.15 Electrical Bonding and Grounding of the Uniform Plumbing Code and Section 310 of the International Fuel Gas Code.

The mechanical press provides continuous metal-to-metal contact between fitting and tube. The press ensures the electrical continuity of the bonding through this contact.



A qualified electrician is responsible for ensuring electrical bonding is tested and secured.



DANGER! **Electric shock**

An electric shock can cause burns, serious injury, or death.

- Because all metallic tubing can conduct electricity, unintentional contact with a live wire can cause the entire system and components connected to it to become energized. Metal piping is not meant to conduct electricity.
- A properly bonded system creates a safe path for electricity to travel so that the system can't be energized.
- An unbonded or improperly bonded system can be a shock hazard.
- Always ensure that bonding is in accordance with local codes.

2.5.4 Exposure to Freezing Temperatures

Viega ProPress systems with EPDM sealing elements can be installed in ambient temperatures as low as 0°F. Tubing exposed to freezing temperatures must be protected per acceptable engineering practices and codes and as required by local code.

2.5.5 Underground Installations

Viega ProPress fitting systems with copper tubing are approved for underground installations. However, installations must meet all state and local codes, including those for underground. Proper authorization from the authority having jurisdiction must be obtained prior to installation.

2.5.6 Concealed Spaces

The Viega ProPress fitting system is approved for use in concealed spaces. Specific performance tests were conducted to evaluate the fittings for use in concealed spaces. Concealed tubing and fittings must be protected from puncture threats.

2.5.7 Corrosion Protection

Viega ProPress fittings exposed to corrosive action, such as soil conditions or moisture, must be protected in an approved manner in accordance with NFPA 54 Section 404.8, NACE Standard RP0169-2002 Section 5, 2009 UPC Chapter 6 Section 609.3.1, 2009 UMC Chapter 13 Section 1312.1.3, or satisfying local code requirements. In addition, systems should be properly sized to minimize the risk of erosion corrosion resulting from excessive velocities.

2.5.7.1 Mixed Installations



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

- In water installations, mixed metal systems can have a detrimental effect on each other and cause corrosion.
- Copper tubing should not be installed directly upstream from galvanized steel pipe.
- Dielectric unions should be used when connecting copper to steel or galvanized steel pipe.
- Care should be taken to select hangers of suitable material that are galvanically compatible with the tubing.

Aboveground copper tubing and fittings do not normally require external corrosion protection, with the following exceptions:

- Contact with aggressive building materials such as nitrite or materials containing ammonium.
- In aggressive environments.

Please contact the Viega Technical Services Department for questions on this subject.

2.5.8 Pressure Surges



- ProPress fittings should be isolated or separated by sufficient distance from pumps, fast-acting valves, and other sources of pressure transients.
- The maximum operating pressure in a ProPress system is 300 psi, which applies to general operation as well as pressure transients.
- Good engineering practices should be followed to design the system in a way that minimizes sharp pressure surges.

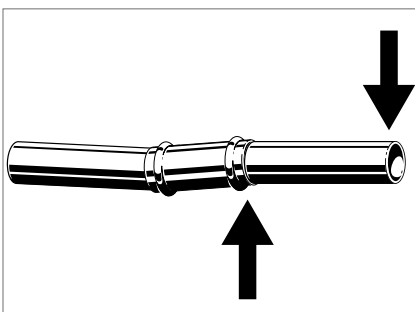
- Pressure surges or transients from fast-acting valves, pump surges, and other sources that result in water hammer may cause damage to many system components, including press fittings.
- When fast-acting valves and/or pumps are incorporated into a system, the designer and installer should isolate press fittings from sharp pressure surges.

2.5.9 Rotating a Pressed Fitting

Once a ProPress fitting has been pressed, it can be rotated (not by hand), but once rotated more than five degrees, the fitting should be repressed to restore resistance to rotational movement.

If the fitting is re-pressed, care should be taken to align the flat sides on the jaw with those on the fitting.

2.5.10 Deflection



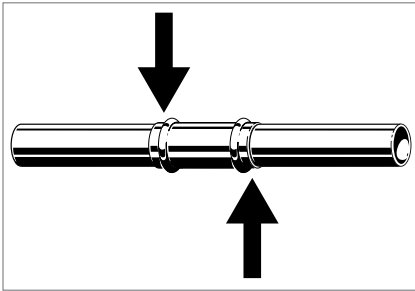
The pressing process can cause deflection (angular misalignment). When pressing Viega ProPress fittings in a system, the deformation of the fitting is constant. This allows for a consistent leak-free joint every time and is a result of the pressing technique.

Deflection occurs in the same way for every fitting. The fitting being pressed will move in the direction of the jaw or ring opening.

- Since the fitting will deflect toward the opening of the jaw or ring, the tube end will deflect in the opposite direction.
- By counteracting the fitting movement, the installer can minimize the deflection of the fitting and ultimately the tube.
- When using strut and clamps, deflection is minimized and nearly eliminated, depending on clamp spacing.

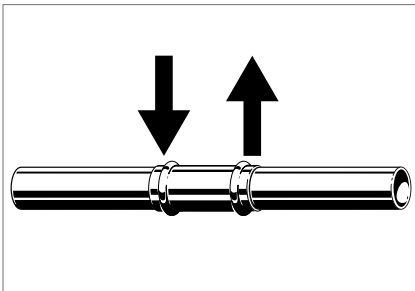
2.5.10.1 Controlling Deflection

Deflection while pressing can be minimized by utilizing the following installation practices.



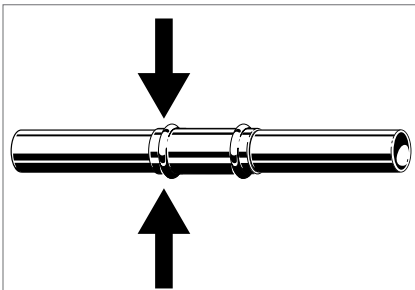
Alternate Press Directions

- Press one end of fitting.
- Make second press on other end of fitting from the opposite side, site conditions permitting.



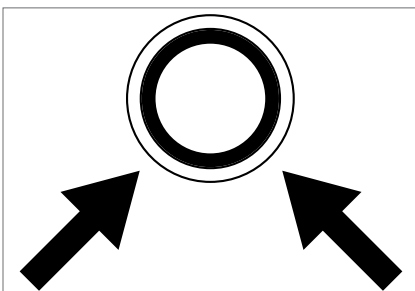
Push-Pull Method

- Rings = Push on press tool.
- Jaws = Pull on press tool.
- The press tool can be feathered using the trigger as needed to apply pulling or pushing force to control deflection.



Re-Press

- Press the fitting once on each side. (That is, re-press the fitting a second time on the opposite side.). Pressing the same connection from the opposite side will usually straighten misalignment between the tube and fitting.



- When pressing overhead piping, it may be inconvenient to alternate sides for each press.
- The natural weight of the piping plus pressing on opposite sides at a 45 degree angle should adequately eliminate deflection.
- This technique can also be used for any horizontal piping and also when working above the piping.



- As long as the tube is properly prepped and marked and the fitting is installed according to Viega's ProPress Product Instructions, if there is any deflection present after the installation of the fitting, the connection is still acceptable and meets Viega's manufacturing specifications for proper installation and warranty.
- Deflection of a press connection has no effect on the integrity of the system, and it can be pressure tested in accordance with the ProPress Product Instructions.

3 Handling Instructions

All Viega ProPress components and associated tubing must be free from dirt, debris, or other items that may interfere with the sealing element and the press connection. Viega ProPress sealing elements, separator rings, and grip rings must be visually inspected prior to installation to ensure the seal is intact and properly located within the fitting.

3.1 Transport

When transporting fittings:

- Do not pull or drag the fittings or system components along other surfaces.
- Secure fittings, tubing, and system components during transportation to keep them from shifting.
- Do not damage the protective cap on components or tube ends.
- Do not remove protective caps until immediately before installing.

3.2 Storage

When storing materials:

- Store fittings, tubing, and system components in a clean and dry place.
- Do not store components directly on the floor.
- Provide at least three points of support for the storage of tubing.
- Where possible, store different sizes separately.
- Store small sizes on top of larger sizes if separate storage is not possible.
- Store fittings, tubing, and system components of different materials separately to prevent contact corrosion.

4 Installation Instructions

4.1 Check System Components

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

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

4.1.1 Changing the Sealing Element



Damage to the sealing element

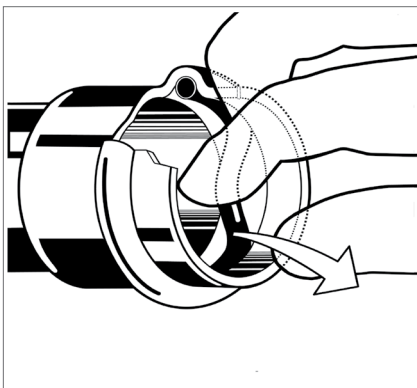
If damage to the sealing element, separator ring, or grip ring is discovered, contact a Viega District Manager for assistance.

If the sealing element in the fitting is obviously damaged, it should be exchanged for a Viega replacement sealing element.



For applications requiring different sealing elements, remove the factory installed sealing element and replace it with the applicable sealing element. See [Changing Sealing Elements Product Instructions](#).

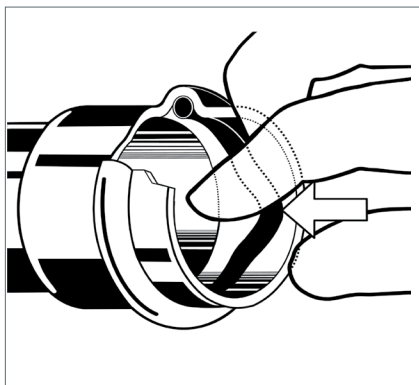
4.1.1.1 Changing Sealing Element – ½" to 2" Fittings



- Remove the sealing element from the bead using a blunt object such as a finger or an o-ring pick.

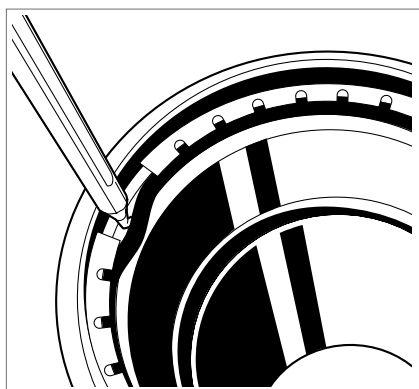


Do not use metallic pointed or sharp objects during removal because they could damage the sealing element and/or bead.

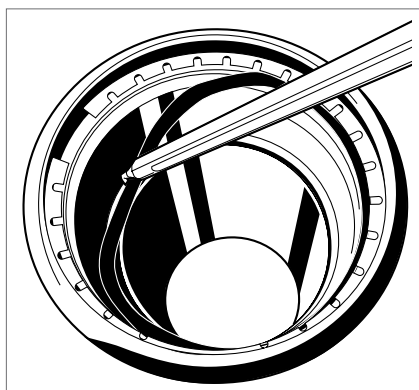


- Insert new, undamaged sealing element into the bead.
- Check to make sure that the whole sealing element is in the bead.

4.1.1.2 Changing Sealing Element – 2½" to 4" Fittings



- Insert o-ring pick between sealing element and separator ring.



- Use o-ring pick to push the sealing element into the fitting below the grip ring.



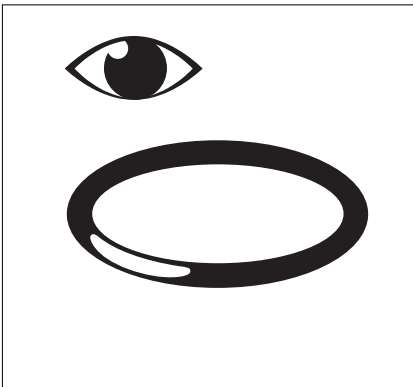
- Carefully reach past the grip ring. Pinch the sealing element and remove it from the fitting.

**WARNING!**

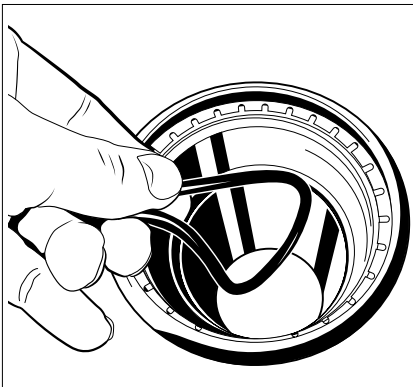
Grip ring is extremely sharp. Use gloves or extreme caution when reaching into fitting.

**CAUTION!**

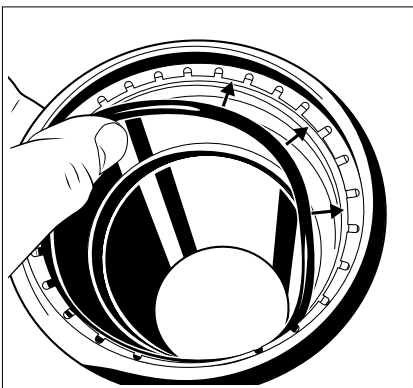
If reusing the sealing element, ensure it does not make contact with the grip ring, as this can cause damage.



- Visually inspect replacement sealing element to ensure:
 - There are no defects, scratches, or burrs.
 - Sealing element is free of debris.
 - Sealing element is coated with lubricant.



- Pinch the sealing element and place it fully inside the fitting, below the separator and grip rings.



- Carefully pull the sealing element up into the channel below the separator ring. Ensure proper, concentric seating of grip ring, separator ring, and sealing element before installation.

4.2 Installing and Mounting the Tube

Observe the general rules of hanging and mounting:

- Fixed tubing should not be used as support for other tubing and components.
- Do not use pipe hooks.
- Observe distance between fittings and mounting points.
- Observe the expansion direction – plan fixed and sliding mounts.

4.2.1 Pipe Hangers and Supports

Tubing supports perform two functions:

- To provide support for the tubing.
- To guide the tube during thermal expansion and contraction.



Fittings must not be used as support

- System malfunction may result from additional stress and strain put on the fitting.
- At no point in the system should a fitting be the sole means of support. For example, when installing a tee, both the branch and the trunk must be properly supported.

Industry standard practices and guidelines must be followed for tube layout and support. Viega press connections require no special consideration for support.

Hangers and supports must conform to the local code requirements. In the absence of local code requirements, hangers and supports should conform to ANSI/MSS SP 58 Pipe Hangers and Supports – Materials, Design, Manufacture, Selection, Application and Installation.

4.3 Space Requirements and Intervals



Not enough space

Malfunctions may arise from improper technique.

- Adhere to minimum space requirements.
- Make sure that the space required for pressing tools is available if fittings will be pressed immediately upstream or downstream from wall or ceiling penetrations.
- Take the minimum required distances into consideration during the planning phase of the project whenever possible.

4.3.1 Transition Fittings

4.3.1.1 Threaded Connections

The Viega ProPress systems can be joined with off-the-shelf threaded fittings made of non-ferrous metals. In this case:

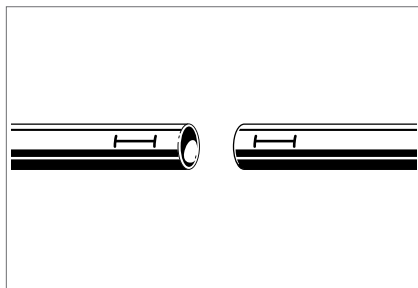
- The threaded connection is made first.
- The press connection is made second.

This process avoids unnecessary torsion on the press fitting.

4.3.1.2 Flange Connections

When using Viega flanges, bolt the flange end in place prior to pressing the fitting to the tube.

4.3.2 No-Stop Couplings



No-stop couplings and extended no-stop couplings are often used to conduct repairs. Without a stop, these couplings can slide completely onto a tube and allow a connection to be made in tighter spaces. Unlike fittings with an integrated stop that have a minimum insertion depth, no-stop couplings have minimum and maximum allowable insertion depths. Both the minimum and the maximum insertion depths must be marked, with a line connecting the two marks.

Tube diameter (in)	Minimum insertion depth		Maximum insertion depth	
	(in)	(mm)	(in)	(mm)
1/2	3/4	19	7/8	22
3/4	7/8	23	1 1/8	28
1	7/8	23	1 1/8	28
1 1/4	1	26	1 3/16	30
1 1/2	1 7/16	37	1 9/16	40
2	1 9/16	40	1 3/4	44
2 1/2	1 11/16	43	2 5/8	67
3	1 15/16	50	2 15/16	75
4	2 3/8	60	3 7/16	87

Table 1: Insertion depths for ProPress 1/2" to 4" no-stop couplings

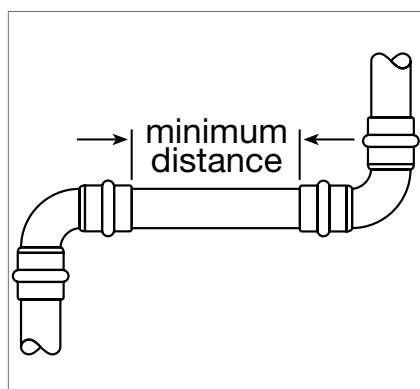
Tube diameter (in)	Minimum insertion depth		Maximum insertion depth	
	(in)	(mm)	(in)	(mm)
1/2	3/4	19	2 1/4	57
3/4	7/8	23	2 5/8	67
1	7/8	23	2 7/8	73
1 1/4	1	26	3 1/8	80
1 1/2	1 7/16	37	3 5/16	84
2	1 9/16	40	3 3/4	95

Table 2: Insertion depths for ProPress 1/2" to 2" extended no-stop couplings

4.3.3 Minimum Distance Between Fittings

To ensure a correct press, a minimum distance between press fittings must be maintained. Failure to provide this distance may result in an improper seal.

For installations where the minimum distance is zero, it is particularly important to ensure the correct insertion depth of the tube into each fitting.



Tube diameter (in)	Minimum distance between press fittings	
	(in)	(mm)
1/2	0	0
3/4	0	0
1	0	0
1 1/4	7/16	10
1 1/2	5/8	15
2	3/4	20
2 1/2	5/8	15
3	5/8	15
4	5/8	15

Table 3: Minimum distance between press fittings

4.3.4 ProPress Jaws Clearance Requirements

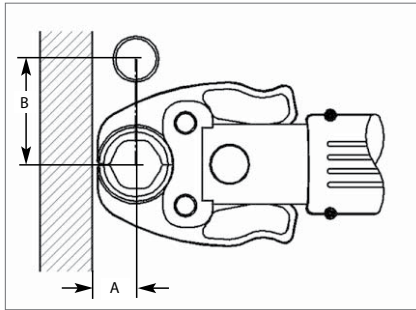
The minimum distance between tubes, or between the tube and the wall/ceiling construction, must be taken into consideration in the planning phase for a problem-free work process. The following illustrates the clearance requirements for jaws and fittings and the procedure for pressing fittings in tight quarters.



Tubes installed too closely together

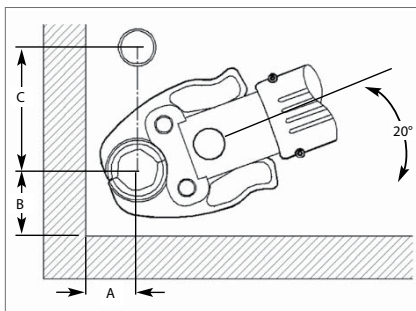
Connection may leak without proper clearance.

- Adhere to minimum intervals between fittings.
- Insert tube to full insertion depth before pressing.



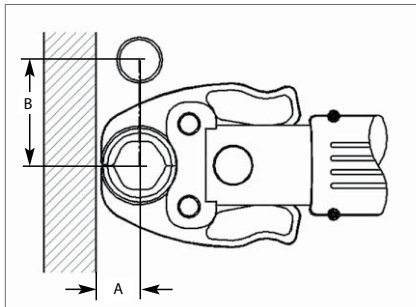
Tube diameter (in)	A minimum		B minimum	
	(in)	(mm)	(in)	(mm)
1/2	3/4	19	1 5/8	41
3/4	7/8	22	2 1/8	54
1	1	26	2 1/2	64
1 1/4	1 1/8	29	2 7/8	73
1 1/2	1 3/4	45	3 1/2	89
2	2	51	4 3/8	111

Table 4: ProPress standard jaws clearance requirements



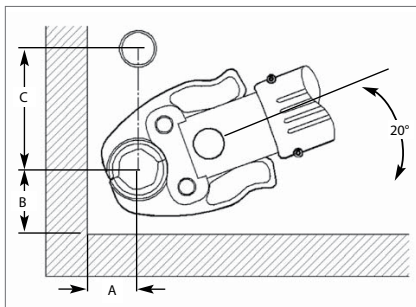
Tube diameter (in)	A minimum		B minimum		C minimum	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
1/2	7/8	23	1 3/8	35	2 1/2	64
3/4	1	26	1 1/2	38	2 1/2	64
1	1 1/8	29	1 3/4	45	3	76
1 1/4	1 1/4	32	2 1/4	57	3 1/8	80
1 1/2	1 7/8	48	2 1/2	64	3 3/4	95
2	2 1/8	54	3 1/8	80	5	127

Table 5: ProPress standard jaws clearance requirements between tube, wall, and floor



Tube diameter (in)	A minimum		B minimum	
	(in)	(mm)	(in)	(mm)
1/2	3/4	19	2	51
3/4	7/8	22	2 3/8	60
1	7/8	26	2 5/8	67
1 1/4	1 1/8	28	3 1/8	85

Table 6: ProPress compact jaws clearance requirements

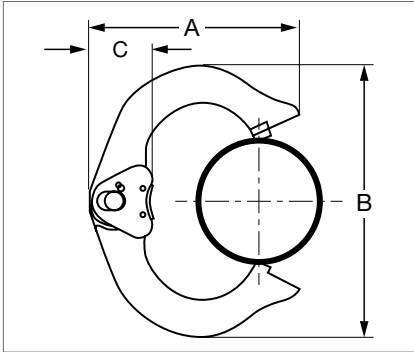


Tube diameter (in)	A minimum		B minimum		C minimum	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
1/2	7/8	23	1 3/8	35	2 1/2	64
3/4	1	26	1 1/2	38	2 3/4	70
1	1 1/8	29	1 5/8	41	3	76
1 1/4	1 5/8	39	2 1/8	53	3 3/8	85

Table 7: ProPress compact jaws clearance requirements between tube, wall, and floor

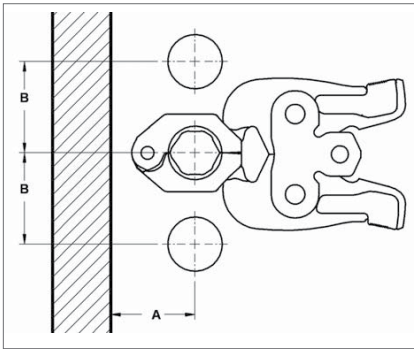
4.3.5 ProPress Rings Clearance Requirements

Ensure that the space required for system pressing tools is available if Viega ProPress fittings will be installed immediately upstream or downstream from ceiling penetrations.



Tube diameter	A minimum		B minimum		C minimum	
(in)	(in)	(mm)	(in)	(mm)	(in)	(mm)
1/2	2 1/4	57	2 1/8	54	1 1/16	27
3/4	2 11/16	68	2 7/8	73	1 1/8	28
1	2 15/16	75	3 5/16	84	1 3/16	30
1 1/4	3 5/16	84	3 7/8	99	1 3/16	30
1 1/2	3 11/16	94	4 5/16	110	1 3/16	30
2"	4 7/16	113	5 7/16	139	1 3/16	30

Table 8: ProPress rings dimensions

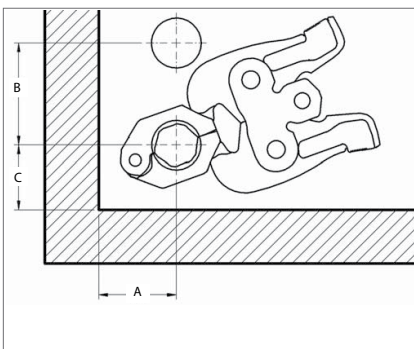


Tube diameter	A minimum		B minimum	
(in)	(in)	(mm)	(in)	(mm)
1/2	1 5/8	41	2 3/16	71
3/4	1 3/4	45	2 3/16	55
1	2	51	1 5/8	42
1 1/4	2 3/16	55	2 15/16	75

Table 9: ProPress rings with V1 actuator clearance requirements

Tube diameter	A minimum		B minimum	
(in)	(in)	(mm)	(in)	(mm)
1 1/2	2 3/8	60	3 5/16	85
2	2 9/16	65	4 1/8	105

Table 10: ProPress rings with V2 actuator clearance requirements



Tube diameter	A minimum		B minimum		C minimum	
(in)	(in)	(mm)	(in)	(mm)	(in)	(mm)
1/2	1 5/8	41	3 9/16	90	2 5/16	59
3/4	1 3/4	45	3 5/8	92	2 1/8	55
1	2	51	3 13/16	97	2 3/16	56
1 1/4	2 3/16	55	3 3/4	92	2 1/8	55

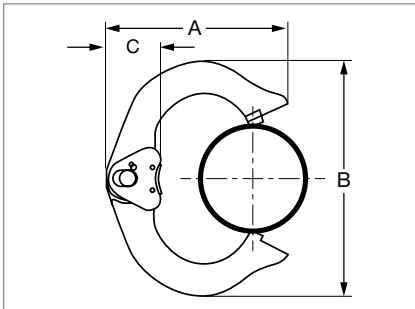
Table 11: ProPress rings with V1 actuator clearance requirements between tube, wall, and floor

Tube diameter	A minimum		B minimum		C minimum	
(in)	(in)	(mm)	(in)	(mm)	(in)	(mm)
1½	2¾	60	5	127	2¾/16	56
2	2¾/16	65	4¾	121	3¾/16	65

Table 12: ProPress rings with V2 actuator clearance requirements between tube, wall, and floor

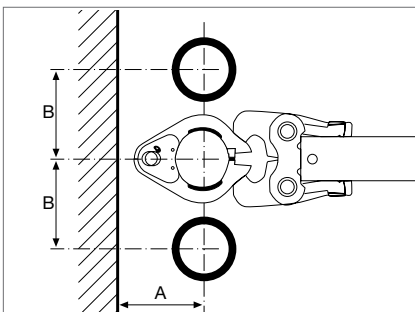
Tube diameter	A minimum		B minimum		C minimum	
(in)	(in)	(mm)	(in)	(mm)	(in)	(mm)
½	1⅝	41	3¼	83	2	51
¾	1¾	45	3¼	83	1⅝	48
1	2	51	3¼	83	1⅝	48
1¼	2¾/16	55	3⅝	86	1⅝	48

Table 13: ProPress rings with C1 actuator clearance requirements between tube, wall, and floor



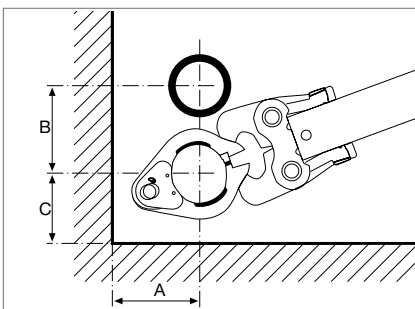
Tube diameter	A minimum		B minimum		C minimum	
(in)	(in)	(mm)	(in)	(mm)	(in)	(mm)
2½	6¾/16	157	6⅝/16	176	2⅞/16	62
3	7⅞/16	189	8⅝/16	224	2⅞/16	62
4	8⅞/16	205	10⅞/16	265	2⅞/16	62

Table 14: ProPress XL-C rings dimensions



Tube diameter	A minimum		B minimum	
(in)	(in)	(mm)	(in)	(mm)
2½	4⅞	105	6	152
3	4⅞	111	7	178
4	5	127	8	203

Table 15: ProPress XL-C rings clearance requirements



Tube diameter	A minimum		B minimum		C minimum	
(in)	(in)	(mm)	(in)	(mm)	(in)	(mm)
2½	4⅞	105	6	152	4½	114
3	4⅞	111	7	178	4⅞	124
4	5	127	8	203	5¾	146

Table 16: ProPress XL-C rings clearance requirements between tube, wall, and floor

4.4 Soldering or Brazing

4.4.1 Using ProPress in Line with Existing Fittings

- The minimum clearance requirement when pressing connections near an existing brazed connection is 2 tube diameters.
- To ensure proper sealing of both the soldered and press connections, maintain a minimum distance when pressing connections near an existing soldered fitting.

Refer to the table below.

Tube diameter (in)	Minimum distance from soldered fitting		Minimum distance from brazed fitting	
	(in)	(mm)	(in)	(mm)
1/2	1/4	7	1	26
3/4	1/4	7	1 1/2	38
1	7/16	11	2	51
1 1/4	7/16	11	2 1/2	64
1 1/2	5/8	16	3	76
2	3/4	19	4	102
2 1/2	1/4	7	5	127
3	1/4	7	6	153
4	1/4	7	8	204

Table 17: Minimum distance between existing soldered or brazed fitting and ProPress fitting



Check the fitting to make sure there is no residual solder or other foreign debris on the tube that will be inserted into the Viega ProPress fitting.

4.4.2 Soldering or Brazing In Line With Existing ProPress Fitting

To prevent damage to the sealing element and ensure proper sealing of the soldered/brazed joint and the press connection, maintain the following soldering/brazing distances from the fitting:

- 3 tube diameters when soldering near a ProPress connection.
- 9 tube diameters when brazing near a ProPress connection.

Refer to the following table.

Tube diameter (in)	Soldering minimum distance		Brazing minimum distance	
	(in)	(mm)	(in)	(mm)
¾	2¼	57	6¾	172
1	3	76	9	229
1¼	3¾	95	11¼	286
1½	4½	114	13½	343
2	6	153	18	457
2½	7½	191	22½	572
3	9	229	27	686
4	12	305	36	915

Table 18: Minimum distance between existing ProPress fitting and soldered or brazed fitting

The installer should take precautions to keep the Viega ProPress connection cool:

- Wrap the connection with a cold, wet rag.
- Protect the connection with a weld blanket.
- Prefabricate solder connections/welded fittings prior to installing the press fitting. (Ensure tube has cooled before installing the fitting.)
- Apply heat sink gel or spray or spot freezing.

4.5 Welding

4.5.1 Welding Adjacent to a Fitting

To prevent damage to the sealing element, maintain proper welding distances from the fitting. If welding adjacent to the connection, weld a minimum of 4 inches away.

Installers should follow the precautions listed above to keep the Viega ProPress connection cool.

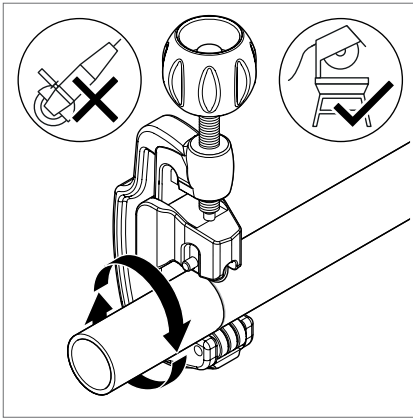
4.6 Cutting the Tube



Damaged tube and/or sealing element

Press fittings can form improper connections as the result of damaged tube and/or sealing elements. When cutting the tube:

- Do not use flame cutters.
- Do not use grease or oils.



- Cut the tube square. Do not deform the tube when cutting.

Note: Cut tubing a minimum of 4 inches away from the contact area of the vise to prevent possible damage to the tubing in the press area.



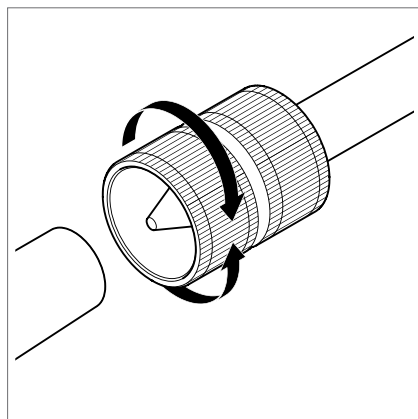
Avoid pressing over grooves, manufacturer's stamps, or engravings on the tube surface.

4.7 Deburring the Tube



Damage resulting from the wrong deburring tool

- Connections may leak if they are damaged by improper deburring.
- Failure to deburr tubing will reduce the service life of the system and can cause premature leaks.



The tube ends must be thoroughly deburred after cutting. Deburring prevents damage to or twisting of the sealing element during installation.

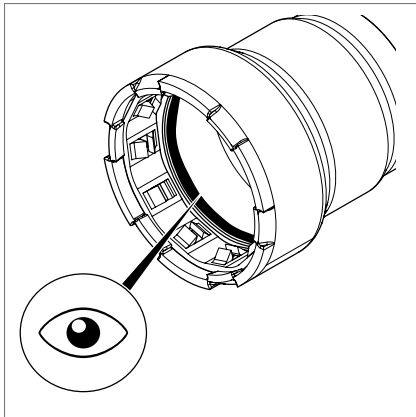
- Deburr inside and outside of the tube to the proper insertion depths.
- Use a wire brush, Scotchbrite pad, sand cloth, or sandpaper to remove loose dirt and rust particles from the pressing area.

4.8 Pressing the Fitting – ProPress ½" to 4"

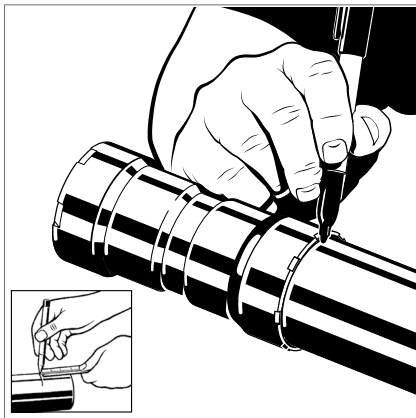


WARNING!

Read and understand all instructions for installing Viega ProPress fittings. Failure to follow all instructions may result in extensive property damage, serious injury, or death.



- Check the sealing element for correct fit:
 - The tube end is not bent or damaged.
 - The tube is deburred.
 - The correct sealing element is in the fitting.
 - The sealing element is undamaged.
 - The complete sealing element is in the bead.



- Measure insertion depth (see ProPress Minimum Insertion Depth table below).
- Mark the proper insertion depth on the outside of the tube. It is recommended that the depth marking be visible on the completed assembly.

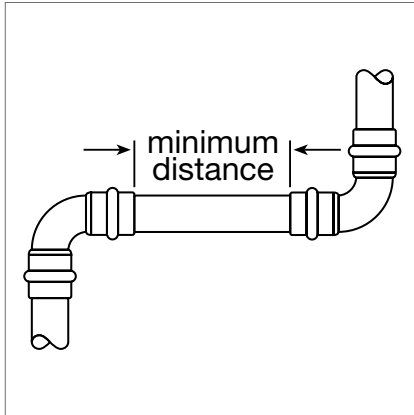


Improper insertion depth

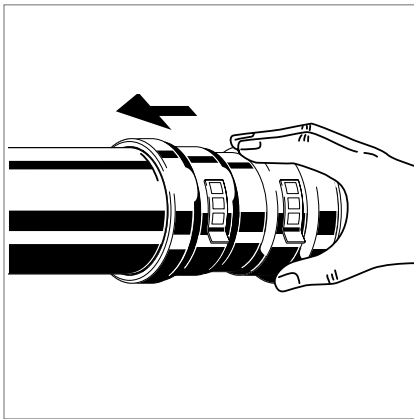
Improper insertion depth may result in an improper seal. Be sure to mark the correct insertion depth on the pipe before pressing the fitting.

Tube diameter (in)	Minimum insertion depth	
	(in)	(mm)
½	¾	19
¾	7/8	23
1	7/8	23
1¼	1	26
1½	1 1/16	37
2	1 9/16	40
2½	1 11/16	43
3	1 15/16	50
4	2 3/8	60

Table 19: Minimum insertion depths for ProPress ½" to 4" fittings



- Refer to [Table 4 for the minimum distance between fittings](#) to ensure a correct press. Failure to provide this distance may result in an improper seal.



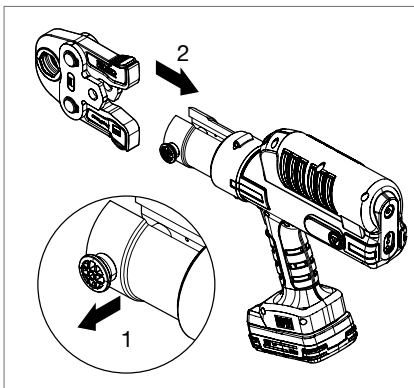
WARNING!

Keep extremities and foreign objects away from press tool during pressing operation to prevent injury or incomplete press.

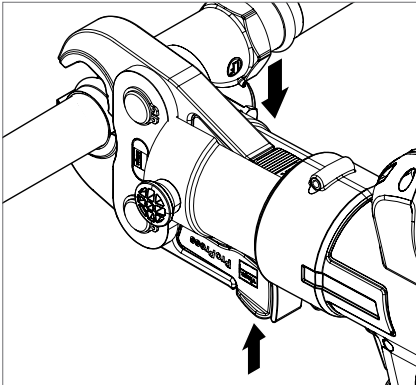
- While turning slightly, slide press fitting onto the tube to the marked insertion depth.
- End of tube must contact stop.
- Once the assembly is completed, it is recommended that the depth marking still be visible.

4.8.1 Pressing ½"-2" Fittings

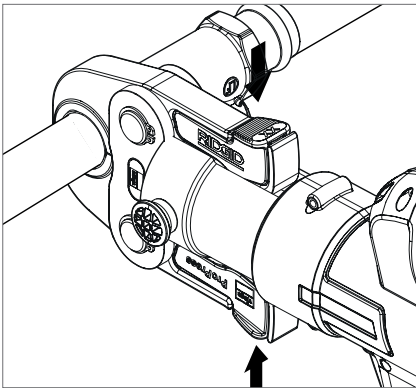
ProPress ½"-2" fittings are for ½"-2" hard copper tubing or ½"-1¼" soft copper tubing.



- Insert appropriate Viega ProPress jaw (2) into the press tool and push in, holding pin (1) until it locks into place.



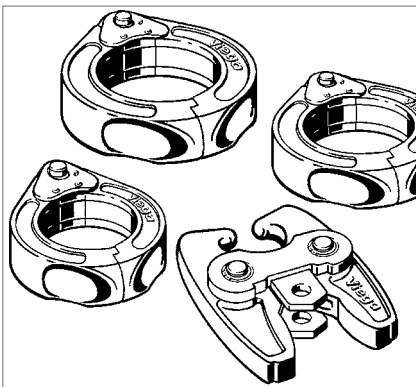
- Open the jaw and place at right angles on the fitting.
- Visually check insertion depth using mark on tubing.



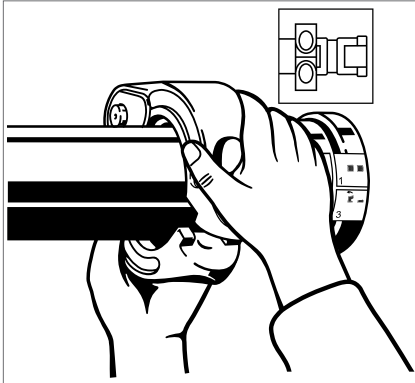
- Hold trigger on press tool until press jaws have fully engaged the fitting.
- Jaws will automatically release after a full press is made.
- After pressing, open the jaw and remove the press tool.

4.8.2 Pressing 2½"-4" Fittings

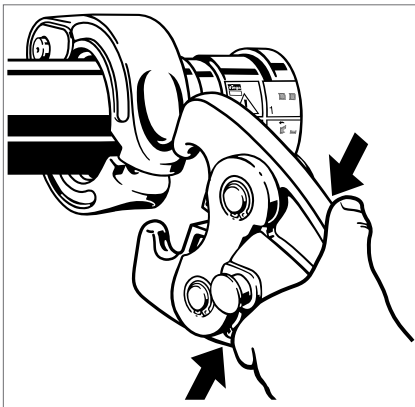
ProPress 2½" to 4" fittings are for hard copper tubing only.



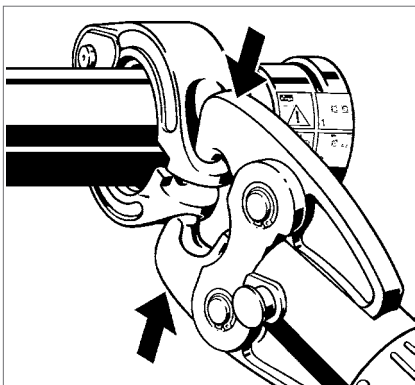
- ProPress 2½" to 4" connections must be performed with compatible rings.
- Do not mix actuators and rings from different manufacturers.
- Do not use rings intended for 2½" to 4" bronze fittings.
- Use of incompatible rings will result in an improper connection.



- Open XL-C ring and place at right angles on the fitting.
- XL-C ring must be engaged on the fitting bead.
- Check insertion depth.



- With V2 actuator inserted into the tool, open the V2 actuator and connect it to the XL-C ring.



- Hold the trigger until the V2 actuator has fully engaged the XL-C ring.
- Keep extremities and foreign objects away from XL-C ring and V2 actuator during pressing operation to prevent injury or incomplete press.
- Upon completion of the press, release the V2 actuator from XL-C ring.
- Remove the XL-C ring from the fitting.

4.9 Pressure Testing

Viega Smart Connect technology provides a quick and easy way for installers to identify connections that need to be pressed. Unpressed connections are located by pressurizing the system with air or water.

Pressure test all installed tube in accordance with local codes.



Smart Connect testing

- Testing for unpressed connections using Smart Connect is not a replacement for pressure testing requirements of local codes and standards.
- If testing with compressed air, use an approved leak-detect solution.

Water testing with Viega Smart Connect:

- Use a range of 15 psi to 85 psi.
- If an unpressed fitting is found, make sure the tube is fully inserted before completing the press.
- If the initial test is successful, the system may be pressure tested as required up to 600 psi.

Testing with air can be dangerous at high pressures. When air testing with Viega Smart Connect:

- Use a range of ½ psi to 45 psi.
- If an unpressed fitting is found, make sure the tube is fully inserted before completing the press.
- If the initial test is successful, system may be pressure tested as required up to 200 psi.

4.10 Disposal

Separate the product and packaging materials (e.g., paper, metal, plastic, non-ferrous metals) and dispose in accordance with all national, state, and regional requirements.

5 Limited Warranty – Viega Metal Systems

Subject to the conditions and limitations in this Limited Warranty (“Warranty”), Viega LLC (“Viega”) warrants to end users, installers, and distributors in the United States and Canada that the following products (“Viega Products”) will be free of failure caused by a manufacturing defect from the date of installation for the time periods specified in the table included in this Warranty.

This Warranty will be valid only in the event the following conditions have been met: The Viega Products have been properly installed (1) under normal conditions of use; (2) under applications approved by Viega; (3) under Viega-specified system operating conditions; (4) using tools compatible with Viega systems; and (5) in alignment with Viega’s listings.

Further, you have a right to a remedy under this Warranty only if the Viega Product failure resulted from a manufacturing defect in the Viega Product and if the failure occurred during the applicable warranty period. You do not have a remedy under this Warranty if the failure was caused by (1) components other than those manufactured and/or sold by Viega; (2) failure to design, install, inspect, test, or maintain the Viega Product in accordance with Viega’s installation and product instructions in effect at the time of installation; (3) use of Viega Products under non-recommended system operating conditions (e.g., water pressures, temperatures, or other external chemical or physical conditions); (4) improper handling or protection of the Viega Product prior to, during, or after installation (e.g., inadequate freeze protection or exposure to environmental conditions not recommended for the application); or (5) acts of nature, including, without limitation, earthquakes, fire, or weather damage.

In the event of a failure of a Viega Product covered by this Warranty, it is the duty and responsibility of the end user to take appropriate measures to mitigate all potential damage, including making timely repairs to the system in which the Viega Product has been installed. The part or parts which you claim failed must be kept and returned to Viega for testing. Viega may be contacted at the phone number or mailing address below. All warranty claims must be made within 30 calendar days after the failure has (or should reasonably have) been discovered. You should be prepared to ship, at your expense, the Viega Product which you claim failed due to a manufacturing defect, with documentation of the installation date and the amount spent on any repair or replacement if performed by you. Within a reasonable time after receiving the Viega Product, Viega will investigate the cause of the failure, which includes the right to inspect the Viega Product at a Viega location and reasonable access to the site of any alleged damage. Viega will notify you in writing of the results of its review.

In the event Viega determines that the failure was the result of a manufacturing defect in the Viega Product covered by this Warranty and all conditions of this Warranty have been met, your **SOLE AND EXCLUSIVE REMEDY** under this Warranty shall be the reimbursement for the reasonable costs of repair or replacement of the Viega Product itself. **VIEGA SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR OTHER SIMILAR DAMAGES (E.G., ECONOMIC LOSS, WATER OR PROPERTY DAMAGE,**

OR MOLD REMEDIATION) UNDER ANY LEGAL THEORY AND WHETHER ASSERTED BY DIRECT ACTION, FOR CONTRIBUTION, INDEMNITY, OR OTHERWISE.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR ANY STATUTE OF LIMITATIONS RELATING TO SUCH WARRANTIES. Viega will be responsible for remedies only if all conditions of this Warranty have been met. Other than this Warranty, Viega does not authorize any person, company, contractor, or distributor to create any additional warranty, obligation, or liability in connection with the Viega Product.

This Warranty gives you specific legal rights, and you also may have other rights which may vary from state to state. This Warranty shall be interpreted and applied under the law of the state in which the product is installed and is intended as a COMMERCIAL WARRANTY.

Warranty Period by Product and Application Type		
Viega Product Line	Residential and Commercial	Industrial ¹ and Marine ²
ProPress® copper fittings	50 years	2 years
ProPress 316 fittings and tubing	10 years	
MegaPress® fittings	15 years	
MegaPress FKM fittings		
MegaPress 304 FKM fittings		
MegaPress 316 fittings		
MegaPress 316 FKM fittings		
MegaPressG ³ fittings		
MegaPress CuNi fittings		
All valves	5 years	
¹Industrial applications are defined as non-residential and non-commercial applications not normally accessible to the general public, including manufacturing, mining, process, or fabrication environments, or applications with components that have been cleaned for oxygen service. ²Marine applications are defined as mobile structures used to navigate water or stationary structures in water. ³MegaPressG products covered by this Warranty must be installed by a licensed contractor in compliance with applicable building, permit, and inspection codes. See product instructions for additional information.		

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