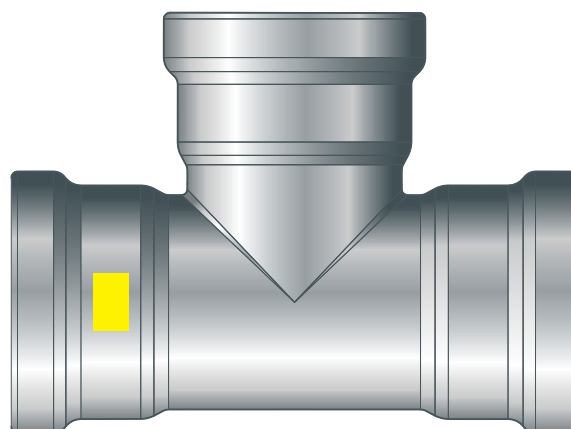
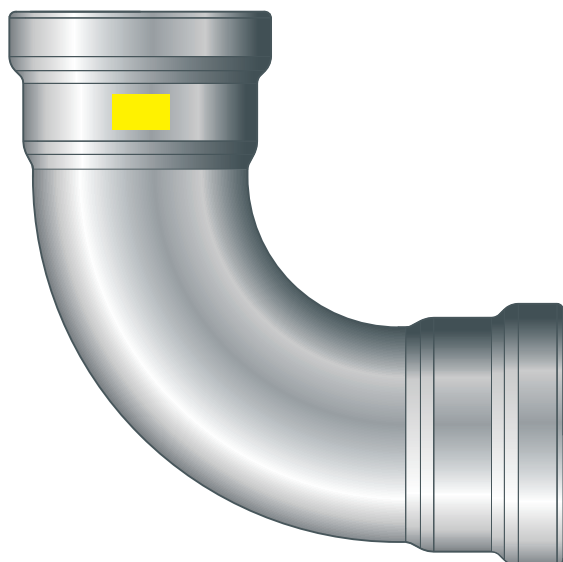
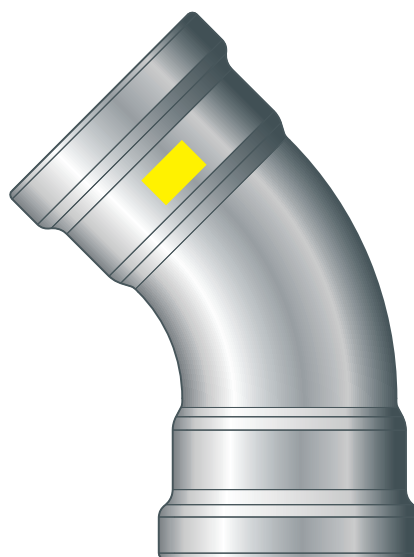
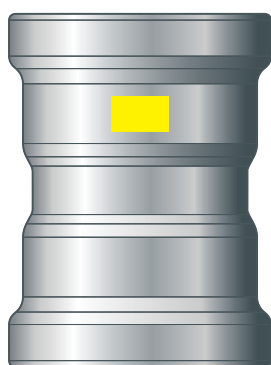


Instructions for Use

Sanpress Inox G XL



Press connector system made of stainless steel with stainless steel pipes

System
Sanpress Inox G XL

Year built (from)
05/2006

viega

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1 About these instructions for use

Trade mark rights exist for this document; for further information, go to viega.com/legal.

1.1 Target groups

The information in this instruction manual is directed at the following groups of people:

- Contract installers
- Professional companies specialising in the construction, maintenance and alteration of a natural or liquid gas system

Liquid gas systems may only be constructed, maintained or altered by companies that have the necessary qualification and experience.

Individuals without the abovementioned training or qualification are not permitted to mount, install and, if required, maintain this product. This restriction does not extend to possible operating instructions.

The installation of Viega products must take place in accordance with the general rules of engineering and the Viega instructions for use.

1.2 Labelling of notes

Warning and advisory texts are set aside from the remainder of the text and are labelled with the relevant pictographs.



DANGER!

This symbol warns of possible life-threatening injury.



WARNING!

This symbol warns of possible serious injury.



CAUTION!

This symbol warns of possible injury.



NOTICE!

This symbol warns of possible damage to property.



This symbol gives additional information and hints.

1.3 About this translated version

This instruction for use contains important information about the choice of product or system, assembly and commissioning as well as intended use and, if required, maintenance measures. The information about the products, their properties and application technology are based on the current standards in Europe (e.g. EN) and/or in Germany (e.g. DIN/DVGW).

Some passages in the text may refer to technical codes in Europe/Germany. These should serve as recommendations in the absence of corresponding national regulations. The relevant national laws, standards, regulations, directives and other technical provisions take priority over the German/European directives specified in this manual: The information herein is not binding for other countries and regions; as said above, they should be understood as a recommendation.

2 Product information

2.1 Standards and regulations

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

Regulations from section: Application areas

Scope / Notice	Regulations applicable in Germany
Planning, execution, modification and operation of gas installations	DVGW-TRGI 2018
Planning, execution, modification and operation of liquid gas installations	DVFG-TRF 2021

Regulations from section: Media

Scope / Notice	Regulations applicable in Germany
Suitability for gases Liquid gas in the gaseous state	DVGW-Arbeitsblatt G 260

Regulations from section: Pipes

Scope / Notice	Regulations applicable in Germany
Stainless steel pipes with material number 1.4401	DIN EN 10088
Stainless steel pipes with material number 1.4401	DVGW-Arbeitsblatt GW 541
Rules of the fixing technology for gas installations	DVGW-TRGI 2018, Point 5.3.7
Rules of the fixing technology for gas installations	DVFG-TRF 2021, Point 7.3.6

Regulations from section: Corrosion

Scope / Notice	Regulations applicable in Germany
(Subsequent) corrosion protection for underground installation	DIN 30672
Corrosion protection for external pipes	DVGW-TRGI 2018, Point 5.2.7.1
Corrosion protection for internal pipelines	DVGW-TRGI 2018, Point 5.2.7.2
Corrosion protection measures for external pipelines	DVFG-TRF 2021, Point 7.2.7.1
Corrosion protection for internal pipelines	DVFG-TRF 2021, Point 7.2.7.2
Overground pipelines in recesses in the bare floor or levelling layer	DVGW-TRGI 2018, Point 5.3.7.8.4

Regulations from section: Storage

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

Regulations from section: Notes on mounting

Scope / Notice	Regulations applicable in Germany
The general rules of mounting for gas installations	DVGW-TRGI 2018, Point 5.3.7

Regulations from section: Establishing a flange connection

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

Regulations from section: Leakage test

Scope / Notice	Regulations applicable in Germany
Leakage test for gas installations	DVGW-TRGI 2018, Point 5.6
Testing and initial commissioning of a liquid gas system	DVFG-TRF 2021, Point 8

Regulations from section: Maintenance

Scope / Notice	Regulations applicable in Germany
Ensuring and maintaining a safe operating condition of gas installations	DVGW-TRGI 2018, Appendix 5c

2.2 Intended use



Agree the use of the system for areas of application and media other than those described with Viega.

2.2.1 Areas of application

Use is possible in the following areas among others:

- Gas installations, see ↗ *'Regulations from section: Application areas' on page 5*
- Liquid gas installations, also see ↗ *'Regulations from section: Application areas' on page 5.*
- Compressed air systems

Gas installation

For planning, execution, modification and operation of gas installations, observe the applicable regulations, see ↗ *'Regulations from section: Application areas' on page 5.*

Use is possible in the gas installations described below:

- Gas installations
 - Low pressure range ≤ 100 hPa (100 mbar)
 - Medium pressure range from 100 hPa (100 mbar) up to 0.1 MPa (1 bar)
 - Industrial, commercial and technical processing systems with the corresponding directives and technical regulations up to 0.5 MPa (5 bar)
- Liquid gas installations
 - with liquid gas tank in medium pressure range downstream of the pressure regulating valve, 1st level on the liquid gas tank > 100 hPa (100 mbar) up to a permitted operating pressure of 0.5 MPa (5 bar)
 - with liquid gas tank in the low pressure range ≤ 100 hPa (100 mbar) behind the pressure regulating valve, 2nd level
 - with liquid gas pressurised container (liquid gas bottles) < 16 kg behind the small bottle pressure regulating valve
 - with liquid gas tank (liquid gas bottle) ≥ 16 kg behind the large bottle pressure regulating device

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.*

- Gases
- Liquid gases, only in the gaseous state for domestic and commercial applications
- Compressed air

2.3 Product description

2.3.1 Overview

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

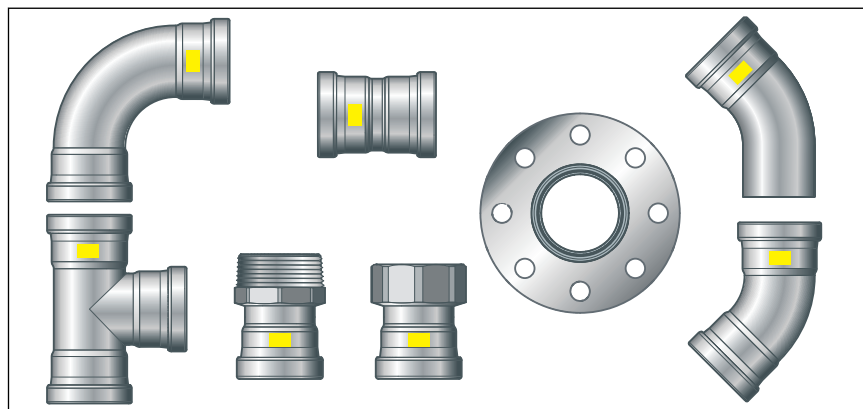


Fig. 1: Sanpress Inox G XL press connectors

The system components are available in the following dimensions:
d 64.0 / 76.1 / 88.9 / 108.0.

2.3.2 Pipes

Only 1.4401 Sanpress stainless steel pipes or stainless steel pipes according to the valid regulations with the material number 1.4401 may be used, see ↗ *'Regulations from section: Pipes'* on page 5.

The following pipe is available from the system described:

Type of pipe	Stainless steel pipe 1.4401
d	64.0 / 76.1 / 88.9 / 108.0
Areas of application	Potable water and gas installations ¹⁾
Material No.	1.4401 (X5CrNiMo 17-12-2), with 2.3 % molybdenum for increased durability
PRE value	24.1
Pipe marking	—
Protective cap	Yellow

¹⁾ Gas installation only in connection with Sanpress Inox G XL- press connectors

Pipe key data Sanpress XL pipe (1.4401 and 1.4521)

d x s [mm]	Volume per metre of pipe [l/m]	Pipe weight [kg/m]
64.0 x 2.0	2.83	3.04
76.1 x 2.0	4.08	3.70
88.9 x 2.0	5.66	4.34
108.0 x 2.0	8.49	5.30



NOTICE!

Do not use adhesive tape to pack the pipes. Remove adhesive residues from the pipe without leaving any residue.

Laying and fixing pipes

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

Observe the general rules of fixing technology:

- For gas installations, see ↗ *'Regulations from section: Pipes' on page 5.*
- Only fix on components with sufficient stability.
- Gas supply lines must not be secured to other pipelines nor should they be used as support for other pipelines.
- The system can be secured using commercially available plastic dowels together with non-flammable pipe clamps (e. g. metallic pipe clamps).

For gas supply lines, the following fixing intervals must be observed for pipelines laid horizontally:

Interval between the pipe clamps

d [mm]	Fixing distance between the pipe clamps [m]
64.0	4.00
76.1	4.25
88.9	4.75
108.0	5.00

2.3.3 Press connectors

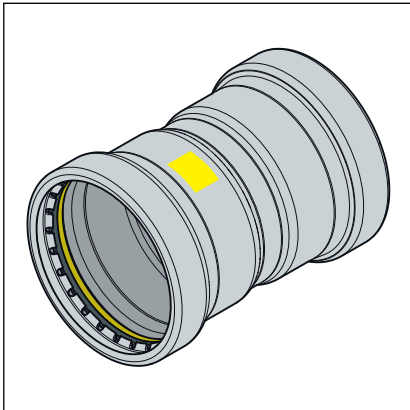


Fig. 2: Press connectors

On Sanpress Inox G 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.

SC-Contur

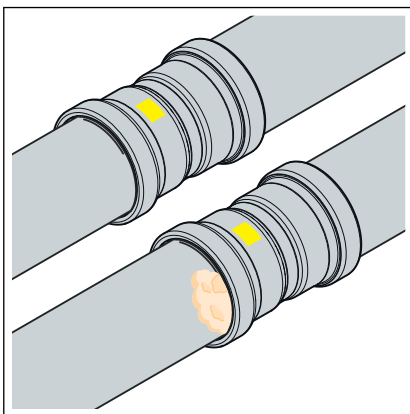


Fig. 3: SC-Contur

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

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

- with dry leakage test in the pressure range from 22 hPa–0.3 MPa (22 mbar–3.0 bar)

2.3.4 Sealing elements

Use	Gas installation	Liquid gas installation	Heating oil and diesel pipelines
Operating temperature	-20 °C up to 70 °C	-20 °C up to 70 °C	≤ 40 °C
Operating pressure	≤ 0.5 MPa (5 bar) (MOP 5)	≤ 0.5 MPa (5 bar) (MOP 5)	≤ 0.5 MPa (5 bar)
	≤ 0.5 MPa (5 bar) (HTR / GT5) ¹⁾	≤ 0.5 MPa (5 bar) (HTR / GT5) ¹⁾	

¹⁾ Operating pressure at HTR requirement max. 0.5 MPa (5 bar) (GT5)

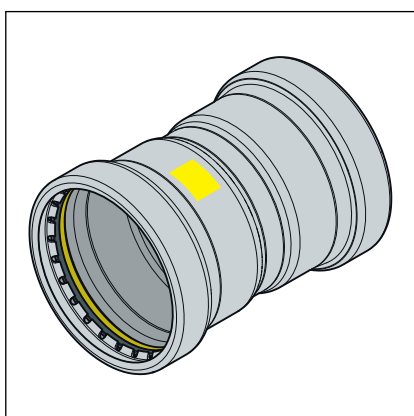
2.3.5 Markings on components

Pipe marking

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

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

Markings on press connectors



The press connectors are marked as follows:

- yellow rectangle for gas
- Gas for gas supply lines
- MOP5 for maximum operating pressure 0.5 MPa (5 bar)
- GT5 for maximum operating pressure with HTR requirement 0.5 MPa (5 bar)
- DVGW
- SVGW

2.4 Information for use

2.4.1 Corrosion

Depending on the area of use, corrosion protection measures may have to be taken into account. One differentiates between external pipelines (underground and overground external pipelines), as well as internal pipelines.

Information about the area of use, also see ↗ *Chapter 2.2.1 'Areas of application' on page 7.*

The pertinent guidelines must be observed for corrosion protection, see ↗ *'Regulations from section: Corrosion' on page 6.*

Overground pipes and fittings in rooms do not normally require external corrosion protection.

There are exceptions in the following cases:

- There is external contact with materials containing chloride.
- Stainless steel pipes must not come into contact with building materials or mortar containing chloride.
- in aggressive surroundings
- In recesses within bare floors or in the compensating layer, they must be treated in the same way as buried external pipelines, 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.

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.
- Only use stainless steel cleaning agent to clean surfaces.
- Store pipes of different materials separately to prevent contact corrosion.
- Store the seals in such a way that they cannot be damaged by external forces.

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.



NOTICE!

Active and possibly passive protection measures are required to protect a gas installation from tampering by unauthorised persons, see ↗ *'Regulations from section: Notes on mounting'* on page 6.

Active protective measures (e. g. gas flow monitor) must always be taken.

Passive protective measures (e.g. gas safety plugs and caps) must be selected and employed depending on the installation.

The general rules of mounting for gas supply lines

The following conditions amongst others are valid when laying gas supply lines:

- Lay gas supply lines with clearance from the installation body, concealed without hollow spaces, or in ventilated ducts or shafts.
- Do not install gas supply lines with operating pressures > 100 hPa (100 mbar) concealed in the wall.
- Arrange gas supply lines in such a way that condense water or water dripping from other pipes and components does not affect them.
- Do not lay gas supply lines in screed.
- Shut-off systems and detachable connections must be easily accessible.

Requirements on concealed installations:

- Lay stress-free.
- Apply corrosion protection.
- Do not use any detachable connections (screw fittings).



Continuous, connection-free gas supply lines may be laid in hollow spaces (pre-wall constructions) to be connected to a gas device or a gas socket.

Ventilation is not required.

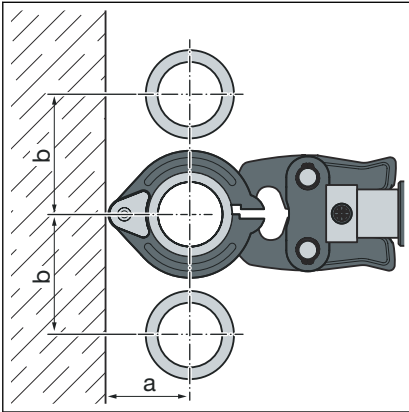


NOTICE!

Protect the cutting ring from the weather in vertical outdoor installations.

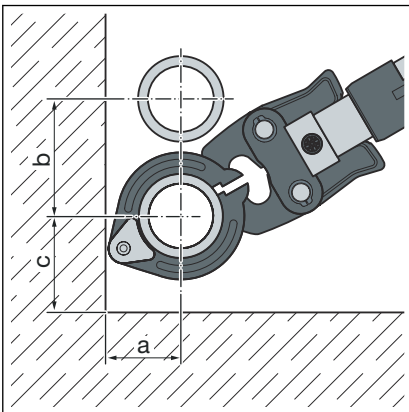
3.3.2 Space requirements and intervals

Pressing between pipelines



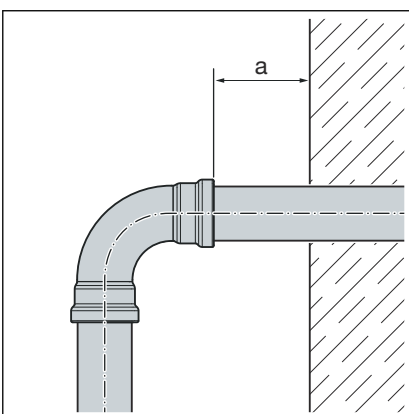
d	64.0	76.1	88.9	108.0
a [mm]	110	110	120	135
b [mm]	185	185	200	215

Pressing between pipe and wall



d	64.0	76.1	88.9	108.0
a [mm]	110	110	120	135
b [mm]	185	185	200	215
c [mm]	130	130	140	155

Wall distance



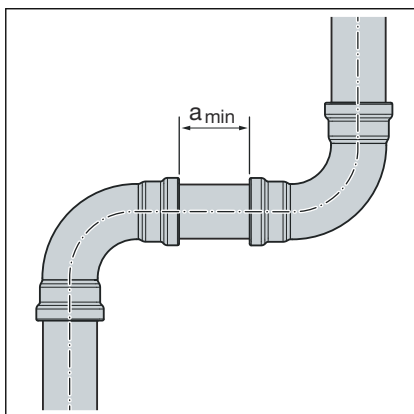
d	64.0-108.0
Minimum interval a_{min} [mm]	20

Interval between the pressings



NOTICE! Leaking press connections due to pipes being too short!

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



Minimum distance with press rings d64.0 to 108.0

d	a _{min} [mm]
64.0	15
76.1	
88.9	
108.0	

Z dimensions

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

3.3.3 Required tools

The following tools are required for production of a press connection:

- pipe cutter or a fine-toothed hacksaw
- deburrer and coloured pen for marking
- press machine with constant pressing force of 32 kN
- Press ring with corresponding hinged adapter jaw, suitable for the pipe diameter and with suitable profile

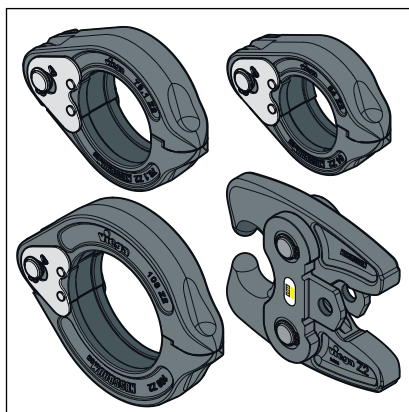


Fig. 4: Press rings and hinged adapter jaw



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



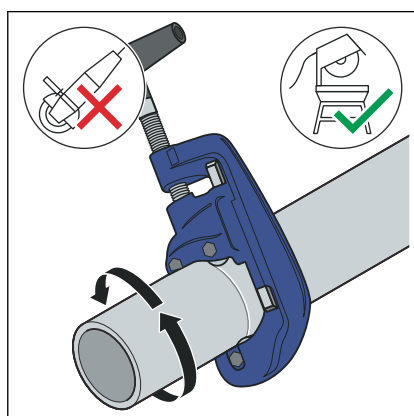
NOTICE! Leaking press connections due to damaged material!

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 [Chapter 3.3.3 'Required tools'](#) on page 16.



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

Avoid grooves on the pipe surface.

3.4.2 Deburring the pipes

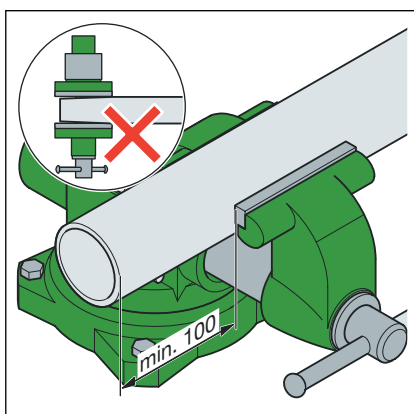
The pipe ends must be thoroughly deburred internally and externally after shortening.

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



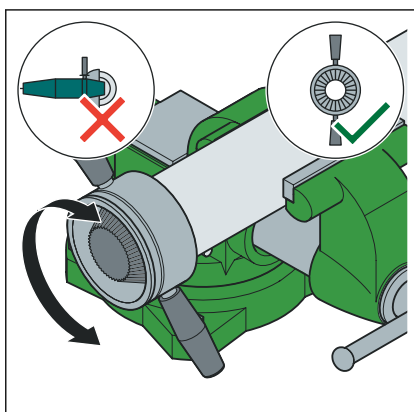
NOTICE!
Damage due to the wrong tool!

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



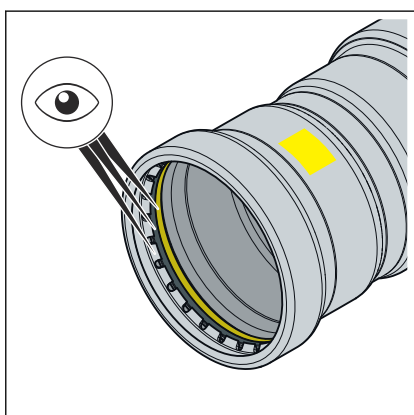
- Secure the pipe in the vice.
- When clamping, leave an interval of at least 100 mm (a) to the pipe end.

The pipe ends must not be bent or damaged.



- Deburr the inside and outside of the pipe.

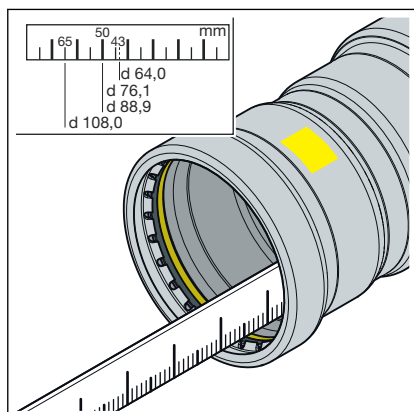
3.4.3 Pressing the connection



Requirements:

- The pipe end is not bent or damaged.
- The pipe is deburred.
- The correct sealing element is in the press connector.
 HNBR = yellow

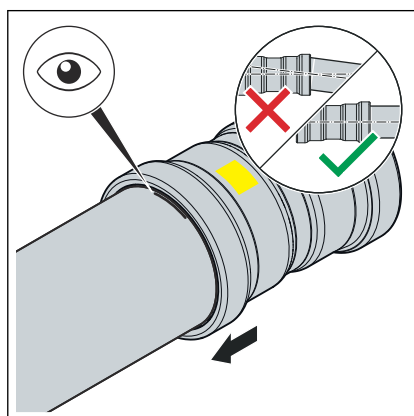
- Sealing element, separator ring and cutting ring are undamaged.
- The complete sealing element, separator ring and cutting ring are in the bead.



- Measure insertion depth in the connector.

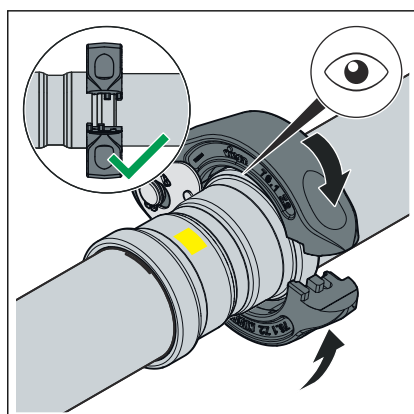
d [mm]	Insertion depth [mm]
64.0	43
76.1	50
88.9	50
108.0	65

- Mark the insertion depth on the pipe



- Push the press connector up to the marked insertion depth on the pipe. Do not twist the press connector.
- Place the hinged adapter jaw onto the press machine and push the retaining bolt in until it clicks into place.

INFO! Observe the press tool instruction manual.



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

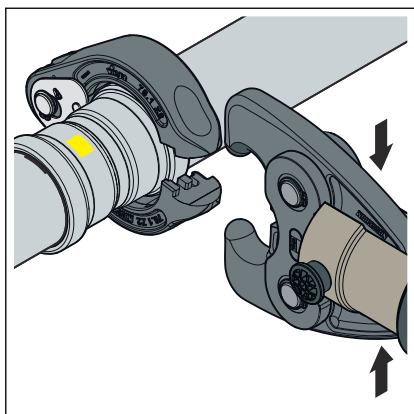
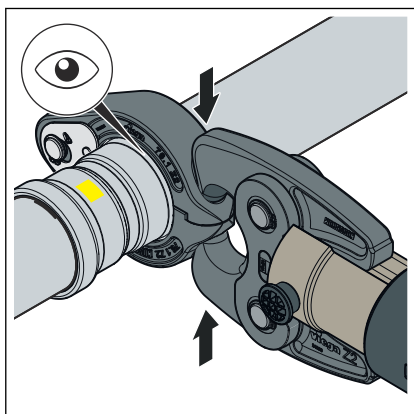
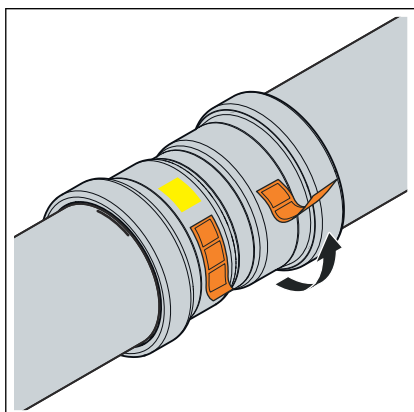


Fig. 5: Open Sanpress Inox G XL hinged adapter jaw

- 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.
 - ◻ The connection is marked as having been pressed.

3.4.4 Flange connections

In the press connector system shown, flange connections in sizes 64.0 to 108.0 mm are possible.

The assembly of flange connections may only be carried out by qualified personnel. Personnel can be qualified to assemble flange connections on the basis of applicable directives, for example; see *Regulations from section: Establishing a flange connection* on page 6.

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

washers

The advantages of using hardened washers are:

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

Flange types

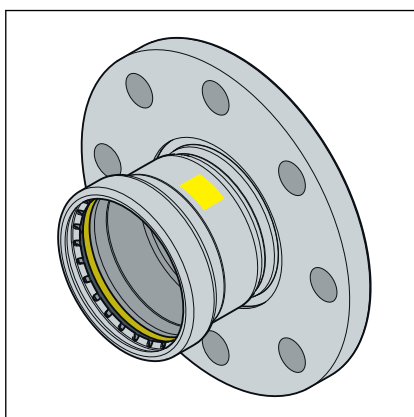


Fig. 6: Fixed flange

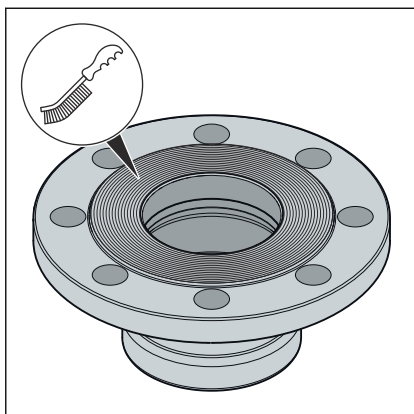
Fixed flange

- Steel, stainless
- Press connection made of stainless steel
- Model 0259XL: 64.0 to 108.0 mm

Establishing a flange connection



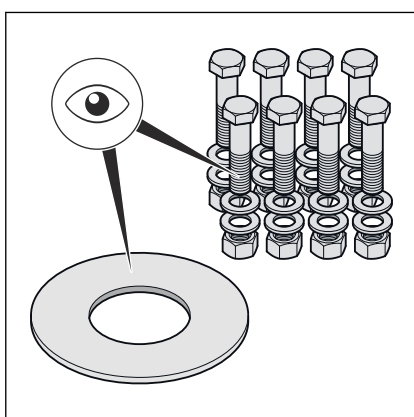
Always make the flange connection first and then the press connection.



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

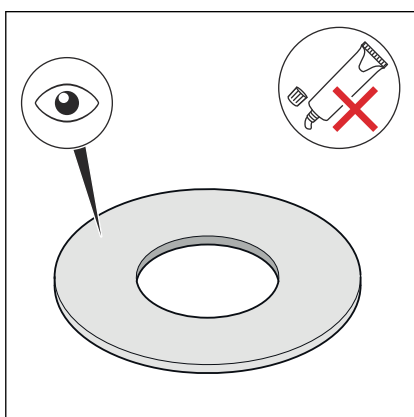
NOTICE! When replacing seals, make sure to remove the old seal completely from the flange sealing surface without damaging the flange sealing surface.

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



- The bolts, nuts and washers must be clean and undamaged and comply with the specifications for minimum bolt length and strength class, see ⚡ **'Required tightening torques' on page 25.**

- During disassembly, replace removed screws, nuts and washers with new ones if damaged.

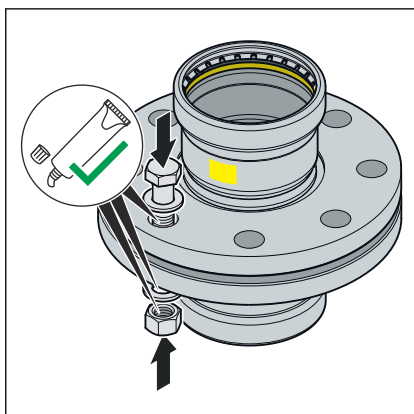


- The seal must be clean, undamaged and dry. Do not use adhesives or assembly pastes for seals.

- Do not reuse used seals.

- Do not use seals with kinks as they pose a safety risk.

- Ensure that seals are free from faults and defects and that the manufacturer's specifications are complied with.

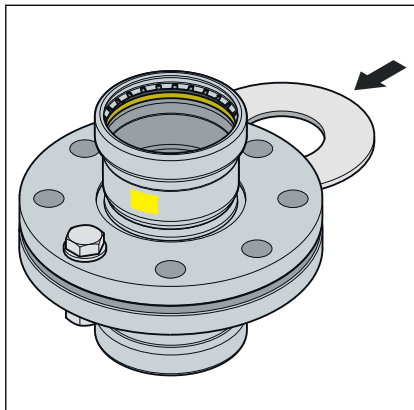


- Lubricate the following flange elements with suitable lubricant:

- Screw thread
- Washer
- Nut support

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

Install and centre the sealing element

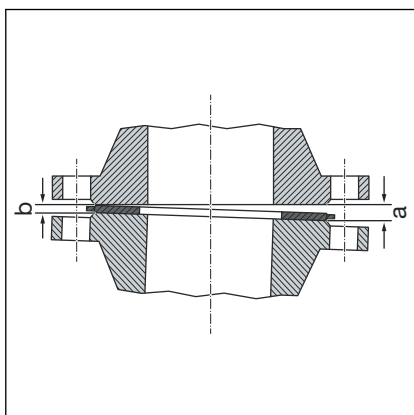


The correct assembly of flange connections requires parallel aligned flange blades without an offset centre that allow the sealing element to be inserted in the correct position without damage.

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

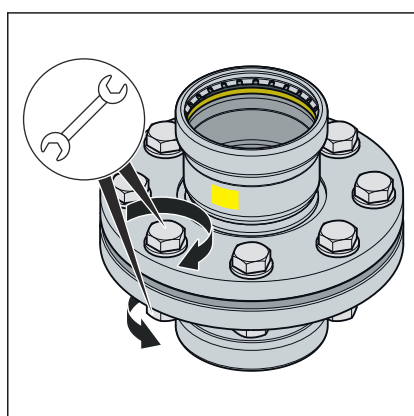
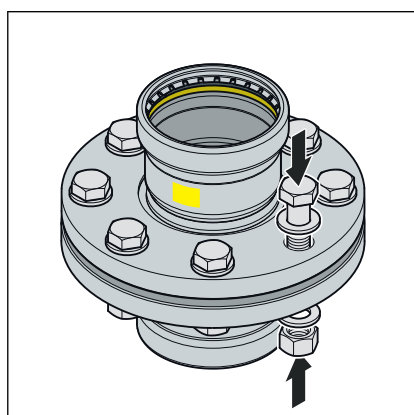
The gap (non-parallelism of the sealing surfaces) before tightening the screws is not critical if the permissible gap is not exceeded.

DN	Permissible gap a-b [mm]
50–100	0.6

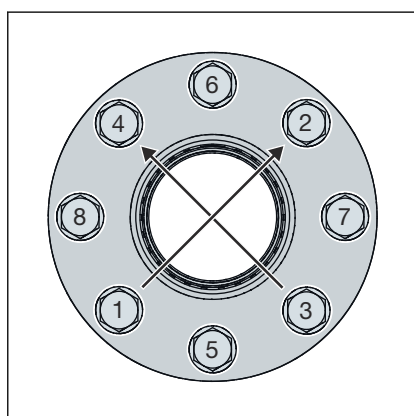


- Remove the gap from the gaping side (a).
- In case of doubt, tighten the flanges without inserting a seal by tightening the screws to achieve parallelism and sealing surface distance of approx. 10% of the nominal torque.
- ⊐ The gap is not permissible if the flange position cannot be reached without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

Systematics for tightening screws



Tightening order



- The order in which the screws and nuts are tightened has a significant influence on the force distribution acting on the seal (surface pressure). Incorrect tightening leads to a high dispersion of the pre-tensioning forces and can result in the required minimum surface pressure not being reached and even in leaks.
- After tightening the nut, at least two but no more than five threads should protrude from the end of the screw.

► Prepare the screws by hand, observing the following:

- Install the screws so that all screw heads are on one flange side.
- For horizontally arranged flanges, insert the screws from above.
- Replace sluggish screws with smooth-running ones.

► The simultaneous use of several tightening tools is possible.

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

Required tightening torques

Tightening torques Sanpress Inox G XL flange transitions

Model	DN	Article number	Thread	Tightening torque [Nm]	Screw length [mm]	Strength class
0259XL	50	641 757	M16	125	70	A2 - 70
	65	578 534				
	80	578 541				
	100	578 510				

Disconnecting the flange adapter

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

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



NOTICE! **Caution when using an angle grinder!**


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

3.4.5 Leakage test

The installer must perform a leakage test before commissioning.

Only carry out this test with suitable, tested and approved equipment.

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

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

Document the result.

**NOTICE!**

Multiple pressing or re-pressing of a leaking press connection is not permitted.

3.5 Maintenance

The gas installation must be given a visual inspection, e. g. by the owner, once a year.

Serviceability and leak tightness must be checked every twelve years by an installation contractor.

To be covered by the warranty and to ensure the safe operation of the gas installations, operate and maintain them as intended, 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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