Application technology
Metallic pipe installation systems
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The contents of this handbook is not binding. We reserve the right to make changes which serve the purpose of new inventions and advancements.
Metallic pipe installation systems
Safety and comfort in a system range

1. Drinking water installation
2. Heating technology
3. Gas installation
4. Industrial and commercial uses
5. Tool systems
Instruction of use

The technical information in this handbook describes the fundamental points of the Viega application technology for metallic pipe installation systems. In addition, the information about the products, their properties and the application techniques is based on the current standards in Europe and/or in Germany.

Sections of the text which are marked with an asterisk (*) correspond to the technical regulations in Europe/Germany. These should be understood as recommendations if appropriate national requirements do not exist. The relevant national laws, standards, regulations, norms and other technical regulations have precedence over the German/European guidelines in this handbook: The information given here is not binding for other countries and territories and, as mentioned, should be considered as support.
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1 Drinking water installations

Basic principles

Clean drinking water is a prerequisite for our health. It contains essential minerals and elements and is used for the preparation of food, for cleaning objects and for personal hygiene. The common goal of the planner, tradesperson and supplier is to provide drinking water to every tap in sufficient quantities and of an acceptable quality. Drinking water is a perishable foodstuff. Its constitution changes in the drinking water installation, e.g. through contact with materials, heat or periods of stagnation with the relevant build up of bacteria.

In Germany, the number of people who contract Legionnaire’s disease is around 30,000 every year. With a fatality rate of 10 up to 15% this represents roughly 3,000 deaths per year. The infection rate is much lower in other countries: 34.1 (Spain), 19.2 (Denmark), 17.9 (The Netherlands) and 16.9 (France) per million inhabitants.

To avoid problems, every country has regulations for the safe supply of water. New regulations, which compliment or replace national regulations, are constantly being introduced by the EU. A good example is the technical report “Recommendations for prevention of Legionella growth in installations inside buildings conveying water for human consumption”. And with the EN 806 a great step was done to a common understanding of drinking water installations in Europe. Developments like this makes it necessary to consult the regulations for such technology on a regular basis and to use them in practice at short notice. For example, in Germany the dry leakage test has become standard in large installations such as hospitals or hotels due to reasons of hygiene. Even the flushing of the installation takes place as late as possible.
If one wanted to summarise all the measures for the protection of drinking water then it would be:

»Planning and Installation should lead to small dimensioning of piping.«
»Every part of an installation should be used once a week after first filling or should be avoided.«
»Also Avoid continual temperatures between 25 and 55°C during operation.«

As has already been mentioned, the construction of drinking water installations requires a great deal of technical know-how. EN 806 and EN 1717 are examples of the attempts being made to create European standards for the installation and protection of drinking water. This chapter contains the most important measures for the preservation of drinking water. It allows the reader an overview of the relevant aspects for professional planning construction and operation of drinking water installations. This should be seen as a guideline as current national requirements should be observed. The Viega employees support the trade persons in their daily work.

**Saving Potential**

Clean water is a vital commodity. Not everywhere has a sufficient amount. Therefore it is necessary to see how water conservation measures affect drinking water supplies. Hygienists in buildings for medical purposes demand that the water in the building is changed between two and three times a week.

Alongside water saving there are measures to reduce the amount of energy used. Low temperatures can lead to a risk of legionella, therefore an optimal balance between the protection of health and saving potential has to be found.
Planning

Regulation of water for human consumption

In 1998\(^1\) the European drinking water directive came into effect. This set down minimum standards for water for human use, for drinking, for cooking, for preparing food and for domestic use. The quality level has to be observed at all extraction points at which water is taken for this purpose. It is irrelevant if it is warm or cold water. When planning a drinking water installation the following topics should be discussed with the local water supplier.

Service connection
- Who is responsible for installation?
- Ownership?
- Material? Nominal width?
- House connection – where?

Water meter
- Who is responsible for installation?
- Size of meter?
- Backflow prevention?

Pressure
- Level of minimum supply pressure/where is it measured?
- Maximum standing pressure?

Drinking water constitution
- Possible material restrictions

Pipe material

The materials and products must conform to the national requirements. Work on house installations may only be carried out by qualified professionals. According to, for example EN 12502, the quality of the drinking water should be considered in the planning phase. Every pipe material has its limitations, which may not be reached in normal circumstances but may be crossed in other cases. Therefore, when in doubt, it is advisable to consult the component manufacturer.

Lead pipes

The publication of the Drinking Water Directive in 1998 saw the start of a 15 year transition period for replacing old systems made of lead pipes. For no later than 2013, the new European threshold value for lead was announced as 10 µg/l, which cannot be complied with either with calcified lead piping or the dosing of corrosion inhibitors. This generally means that the entire lead pipework network needs replacing.
Materials without restrictions
Without any water-side restrictions, the following piping materials and systems can be used in compliance with national certification marks

- Stainless steel Viega Sanpress / Sanpress Inox
- Internally galvanised copper
- Plastic pipes

Copper pipes and press connectors can generally be used in all types of drinking water. There may be some national regulations to which to adhere.

- If the pH value is ≥ 7.4 or
- If the pH value is between 7.0 and 7.4 and the TOC value does not exceed 1.5 mg/l.

Copper pipes must not be used with a pH value of < 7.0.

Hot-dip galvanised ferrous materials
Should only be used for cold drinking water in accordance with EN 12502, as there is an increased risk of corrosion with temperatures exceeding 35 °C.

In addition, the following restrictions apply for this material:

- If the base capacity is KB 8.2 - 0.5 mol/m³ and, at the same time,
- The acid capacity is KS 4.3 - 1.0 mol/m³.

The increased requirements of galvanisation must be fulfilled.

Combination of different materials*
The use of various materials in drinking water installations complies with the technical regulation. For example, copper pipes, internally tin coated copper pipes, stainless steel and PE-X can be combined.

EN 806-4 and EN 12502 should be observed when combining galvanised ferrous metals with other pipe materials. Larger components and units made of copper, copper alloys, tin plated copper and copper solder should not be placed upstream of such galvanised ferrous materials. Adaptors made of copper alloys, whose length is at least the diameter of the components, should be used as bridging components between stainless steel and galvanised parts. By doing so the contact corrosion – dependent on the water quality – is reduced.
Prevention/reduction of the build up of limescale

Hard to very hard water reduces the lifespan of units and components in drinking water installations. In addition, it raises the energy consumption, because limescale on heating rods can affect heat transfer. In this case, it makes economic and ecological sense to take steps to soften the water. Depending on the process, it can be advisable to raise the pH-value of the water up to 7.7, which simultaneously provides corrosion prevention.

Recommended treatment method for the prevention of the build-up of limescale in regards to the calcium concentration and temperature are given in the German standard DIN 1988-200, tabl. 6:

<table>
<thead>
<tr>
<th>Calcium concentration [mg/l]</th>
<th>Sanctions at t ≤ 60°C</th>
<th>Sanctions at t ≥ 60°C</th>
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<tr>
<td>&lt;80</td>
<td>None</td>
<td>None</td>
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<tr>
<td>Is equivalent to hardness level 1 and 2(^1)</td>
<td>None or stabilisation or softening</td>
<td>Stabilisation or softening recommended</td>
</tr>
<tr>
<td>80 to 120</td>
<td>None or stabilisation or softening</td>
<td>Stabilisation or softening recommended</td>
</tr>
<tr>
<td>Is equivalent to hardness level 3(^1)</td>
<td>Stabilisation or softening recommended</td>
<td>Stabilisation or softening</td>
</tr>
<tr>
<td>120</td>
<td>Stabilisation or softening recommended</td>
<td>Stabilisation or softening</td>
</tr>
<tr>
<td>Is equivalent to hardness level 4(^1)</td>
<td>Stabilisation or softening recommended</td>
<td>Stabilisation or softening</td>
</tr>
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Tab. D – 1

Viega Pipe system philosophy

Material recommendations

Service connection and earth-laid pipes made of PE
- Press connectors made of gunmetal – corrosion-free (Geopress)
- Fast, safe and all weather sealing of the connection
Cellar manifold and riser pipes made of metal
- Good dimensional stability for modest fastening effort
- Saving of insulating material due to smaller external diameter
- Low elongation due to temperature change
- Can be pressed with a press tool up to DN 100
- Space saving

![Cellar manifold and riser pipes made of metal](image)

**Fig. D — 5**

Storey distribution for PE-Xc pipes
- Optional with inlaid, welded aluminium layer
- Also with PE-protective pipe as condensation water protection
- For the endless laying from the roll onto the floor, in stand walls and in technology in front of the wall
- For pre-wall and dry construction technology, pre-assembled, noise de-coupled fitting connections singular, in rows or ring systems

![Storey distribution for PE-Xc pipes](image)

**Fig. D — 6**
Pipe routing and water exchange

Practical experience proves that in individual supply lines (branch lines) at frequently used extraction points in residential homes, no system-endangering microbial contamination is to be expected. In non-residential buildings, this should always be evaluated separately and in the individual case.

In the preceding diagram, a typical drinking water installation of an apartment is shown. Standpipes are provided at extraction points such as the washbasin or shower. In comparison, the bathtub (also installed with a shower) is more seldom used and should, therefore, be connected to the sink using a series pipe. The same would apply for a bidet and washing machine connection. The latter is frequently installed but then later not operated within the apartment.

Distribution of the loss in pressure

Through the exact calculation of the losses in pressure all of the requirements for optimal soundproofing are fulfilled. With low pressure loss shut-off valves e.g. ball valves, it is possible to utilise the extra pressure potential. Further possibilities present themselves through the choice of electronic flow heaters instead of the hydraulic variety; draining valves with low minimum flow pressure etc. Manufacturer’s listed pressure loss values should be taken as a guide instead of the general guidelines from regulations.

In accordance with EN 806-5, a drinking water installation is only considered to be operated properly if there is at least one water exchange in 7 days (≥ 1 x / 7 d). This relates to the complete water exchange in all sections and in the drinking water heater.

It is important that extraction points which are rarely used still benefit from regular water change. They should be situated in the system in such a way that they still receive fresh water regularly, even when they are only used on a seasonal basis. This can be done by integrating the rarely used extraction point in a ring or serial pipe system.
Extraction points which are rarely used include
- Garden/Garage piping system
- Guest-WC
- Kitchen
- Serial washer systems, e.g. in sports centres
- Bidet
- Planned connections for washing machines
- Tap connections for hoses in toilet units
- Sinks
- Heating filling and draining pipes

**Fire extinguishing and fire prevention units**
Fire extinguishing and fire prevention units are important safety installations. If these units were combined with drinking water systems it could lead to problems with hygiene, if the system is not regularly used. This is nearly always the case. Therefore, fire extinguishing and fire prevention units must be separated from drinking water systems in compliance with the regulations.

**Pipe network calculation**
The aim of the pipe network calculation (e.g. acc. to EN 806-3) is an efficient function with economic pipe diameters. Minimum pipe widths and short branch lines lead to shorter standing times for the drinking water in the installation. They allow the necessary water change whilst using the minimum amount of water.

**Water exchange**
Series pipes to extraction points with frequent use can economically ensure the necessary water exchange, even in upstream fittings with a low frequency of use. If a main consumer cannot be fitted to the end of a series pipe, the same safety objective is achieved using a loop pipework system. With this type of installation, a simply flushing by hand or using a flush system is sufficient in the case of interruptions to usage.
Visign for Care – Hygiene flush function
To prevent stagnation and with it microbial contamination, seldom used sections of piping systems must be flushed through regularly. The actuating panel »Visign for Care« is equipped with a hygiene flush function, which registers the interval during which no water has been drawn and actuates a flush in accordance with an individually programmable period of time.

Installation and upgrading is possible for Viega concealed cisterns with dual flush technology in serial or ring piping systems, if a 230V connection and an empty pipe for the control cable is available.

Fig. D — 10

Sampling points
Quality control of water in hospitals, hotels etc. makes sampling points meaningful. It is advisable to plan a number of sampling points in complex piping systems e.g. in the cellar manifolds, riser pipes and the floor distribution manifolds. Fig. D-4 gives example of sampling points.

Fig. D — 11

Extraction point
With low dead space

Sample extraction points
Configuration for orientation and wide reaching tests
Collecting and draining pipes should also be tested if present
National regulation e.g. DVGW W 551
see page 59 et sqq.

O = Orientation sampling
W = Continuous sampling
Overview of hygiene conscience planning and completion

When planning a drinking water (PW) installation the following criteria should be observed

- Material selection in compliance with EN 12502
- Use of approved products
- Determination of minimum water volume – use pressure potential
- Plan the maximum distance between drinking water cold (PWC) pipes and sources of heat
- Provide sufficient insulation for the drinking water hot/cold (PWH/PWC) pipes in ducts and lowered ceilings
- Do not install appliances for the secondary treatment of drinking water (PWC) in rooms with a temperature of >25 °C (e.g. boiler rooms)
- Set temperature should be determined in the drinking water heater and manifold
- Ensure hydraulic equalisation in circulation system
- Plan sampling points in public buildings
- Choose singular locking for backflow prevention
- If possible, do not fit a membrane expansion container in PW-systems
- Measures to minimise stagnation – e.g. no Bypass-pipes and drainage pipes, do not factor in reserves.
- Separate unused lengths from existing systems
- Separate fire extinguisher piping systems from drinking water systems
- Dry leakage test recommended (see page 25) in new installations or ensure water exchange every 7th day in period between wet water pressure test and regular operating

Long-term stagnation (> 7 days) in combination with continuous temperatures between 25 and 55 °C must be avoided!

Drinking water systems consist of a number of singular components. Alongside the piping system, the securing of fittings and other components according to EN 1717 is of particular importance.
Installation

Storage and assembly
All components of a drinking water installation must be supplied to the building site in a hygienically flawless state. In the manufacturing processes, dry leakage tests are preferred in order to exclude any microbial risk in the products. With residual water in a fitting after a leakage test with water, it is possible that an increase in micro-organisms is promoted during long storage times in the summer months. For example, the drinking water installation of a clinic has had to be continually disinfected with chemicals since 2006 because the newly installed pressure booster system was supplied and commissioned with a *Pseudomonas aeruginosa* contamination due to a wet leakage test in the factory.

The storage of pipes, moulds and fittings should always be carried out in a way that excludes any penetration of dirt and contaminated water. Due to the fact that building phases often last for long periods of time, the risk is great that a contamination can occur in the components even before the system is commissioned.

Viega pipes are supplied fitted with stoppers so that hygienic transportation can be guaranteed. Protective caps for sealing riser pipes during assembly are required because the risk of penetration with dry cement dust and similar - particularly in shafts - must always be taken into consideration. Although such entries are normally considered to be non-critical in terms of microbiology, the flushing output can still be really large in order to clean such deposits out of complex pipe networks for subsequent operation.

In comparison to this, repair works and system expansions can be far more critical in terms of hygiene. A qualified fitter should know that he must wash his hands thoroughly after working with contamination - e.g. in an existing drainage system - before he continues to work on a drinking water installation. As a result, the risks for drinking water quality and, as such, the safety objective of “health” should be considered more critical during work on old systems or in the case of operational breakdowns than during installation work in a new build.

In this sense, the requirement for locally restricted repairs should be interpreted with regards the disinfection of components which are installed in existing pipes. For this reason, press connections should only be removed from the original packaging directly before use, meaning they require no disinfection.
Wet leakage test

Procedure

- Test pressures
  - Nominal widths ≤ DN 50 $P_{\text{max}} = 0.3\ \text{MPa (3 bar)}$
  - Nominal widths DN 50 – DN 100 $P_{\text{max}} = 0.1\ \text{MPa (1 bar)}$
  
  A manometer with a reading accuracy of 100 hPa (0.1 bar) in the display range must be used.

- After achieving the test pressure, the test period is 10 minutes.

- During the test period, a visual inspection of all welded, soldered, press, clamp, plug-in, adhesive and screw connections takes place.

If a leakage is determined during the test, the stress test must be repeated after the repair.

After the impermeability has been assessed, the installation is ready for commissioning.

Dry leakage test

Unfortunately, this test method has not yet been incorporated into the EN 806-4. For this reason, we recommend the following test method in accordance with national regulations.

After assembly has been completed but before commissioning, the installation is initially checked for impermeability and then undergoes a stress test.

The following media should be used for the impermeability / stress test

- Oil-free compressed air
- Inert gases – e.g. nitrogen, carbon dioxide
- Forming gas with 5% hydrogen in nitrogen – for leak detection procedures

Safety-relevant equipment, such as a pressure reducing valve on compressors, must ensure that the intended test pressure is not exceeded.

Fig. D — 14
Procedure

- Test pressure $p = 150 \text{ hPa (150 mbar)}$ – Manometers with a reading accuracy of 1 hPa (1 bar) in the display range must be used – the established U-pipe manometer and stand pipes are permitted.
- After achieving the test pressure, the test period for systems with a pipe volume of $\leq 100$ litres should be at least 120 minutes – for each subsequent 100 litres of pipe volume, the test time should be extended by 20 minutes.
- All installation components must be rated for the test pressure or must be dismantled before the test.

The leakage test starts after the test pressure has been achieved - an appropriate waiting period for the adjustment of the medium temperature to the ambient temperature must be taken into consideration.

If a drop in pressure is determined during the test period, the leak must be rectified and the leakage test must be repeated. After impermeability of the installation has been determined, the stress test is carried out.

Commissioning

General rules

- Before the system is filled for the first time, a leakage / stress test must be carried out.
- The installation or sections of it should only be filled when normal operation is directly imminent.
- If the start of operation is delayed or not carried out fully, then hygienic risks should be ruled out by ensuring sufficient water through-put on the basis of flushing schedules or automated flushing systems – the procedure must be documented.
- The planning criteria (pipe routing etc.), logs of leak and stress tests, flushing and briefings, etc., must be given to the operator together with the instructions.
- The operator must be made aware of the necessity of regular, complete water through-put, e.g. three times a week in buildings with medical usage.
- The risk of microbial stress / contamination caused by too low temperatures in hot water and too high temperatures in cold water must be explained to the operator.
- A maintenance plan should be given to the operator and a maintenance contract should be offered.
Disinfection
For components in drinking water installations, such as pipes and connectors, the life span in normal use is more than 50 years. During this time, the unavoidable, elapsing processes in the drinking water range with metals, elastomers and plastics lead to an “aging” without causing damage. Oxidative stress, e.g. through high doses of disinfectant, can accelerate this aging process, leading to the product breaking down.
Fortunately, such high doses of disinfectant only occur in cases of average, and therefore rarely. To ensure long-lasting flawless water quality, the cause of the problems must be determined and rectified. Persistently absent success with disinfection in the long term is always a definite sign that the actual contamination source has not been found or rectified. For this reason, the following must apply:
- All materials currently used in the drinking water installation for components such as pipes and connectors can be disinfected with the licensed disinfectants in the stated concentrations, times and at the stated temperatures.
- Components with elastomers for sealant elements can also be disinfected as below. For large-scale contact with an elastomer, the guidelines and requirements of the manufacturer must be taken into consideration.
- To protect against excessive exposure times, the installation must be flushed after each disinfection until the water quality corresponds to the non-disinfected drinking water again.
- All measures must be documented and the documentation must be archived by the operator.
- If the above conditions are complied with, components of the drinking water installation are considered to be sufficiently resistant, even from disinfection.

EN 806-4
Point 6.3
Risk
Material »aging«
Cost effectiveness of pipe systems

The choice of the right pipe material for a drinking water installation is made using technical and economic aspects. Alongside long-term safety and hygiene, the assembly friendliness and economic factors play a deciding role. As regards user friendly assembly and handling, press technology offers the biggest economic advantages; further deciding factors are the availability, range and cost of the piping system’s fitting and fasteners. In the field of cellar manifolds and riser pipes, metal pipes, as opposed to plastic pipes, are the preferred option.

The advantages are

- Less space required for elongation
- Minimum expansion bend and compensation bend expense
- Reduction in fastening material
- Less stringent requirements for preventive fire protection
- Less money needs to be spent on thermal insulation thanks to minimum pipe wall thicknesses (large pipe diameters in particular)

Fig. D-15 shows the different sanctions required for the compensation of elongation of various materials. Metallic piping systems offer a clear advantage. The same is true for the work required for fastening, which is 50% or more lower in the field of cellar manifold and riser pipes.
In contrast, on the floors and in pre-wall installations only small diameters and shorter pipe lengths are required. The elongation is therefore low and the fastening work for earth laid pipes is minimal. Therefore, combining the two systems – metallic cellar distributing pipes and riser pipes and plastic floor distributing pipes – will maximise assembly benefits and costeffectiveness.

Further influences on the costeffectiveness are

- The price of pipes, fastening elements and insulation
- Assembly work (dependent on material) including wages and non-wage labour costs
- Pipe diameters, the effort required for the fastening and the compensation of thermal elongation
- Proven safety and quality of the products – SC-Contur
- Tool costs
- Inventory
- Quick availability from suppliers
Overview of metallic pipe systems

Press connectors - Approved quality with SC-Contur

Fig. D — 17

**Sanpress Inox**

Pipe: Stainless steel
Press connector: Stainless steel 15 – 108.0 mm
For all types of drinking water without restrictions.
Highest quality of material

Fig. D — 18

**Sanpress**

Pipe: Stainless steel
Press connector: Gunmetal 12 – 108.0 mm
For all types of drinking water without restrictions.
High resistance to chloride

Fig. D — 19

**Profipress**

Pipe: Copper
Press connector: Copper 12 – 108.0 mm
Observe restrictions on use with drinking water!
System descriptions

Sanpress Inox/Sanpress Inox XL

**Intended use**
The system has been designed for

- Drinking water not restricted under the terms of the European Drinking Water Ordinance
- Operating temperature $85\,^\circ\text{C}; \quad T_{\text{max}} = 110\,^\circ\text{C}$
- Operating pressure $p_{\text{max}} \leq 16\,\text{bar}$

Protect the components against high concentrations of chloride generated both by the medium and by external factors. To prevent damage, do not store stainless steel pipes on concrete floors or pull over loading sills. Mixed installations are permissible, independent of flow direction. Before using Sanpress Inox/Sanpress Inox XL in any other applications than those described, contact Viega Service Center.

**Stainless steel pipes**
With stainless steel press connectors

- Standard sizes
  - 12 – 54 mm
- XL-sizes
  - 64.0 – 108.0 mm
  - with compression ring and EPDM-sealing element
Technical data
Sanpress Inox- and Sanpress Inox XL- stainless steel pipes – thin-walled and corrosion resistant stainless steel pipes

- Material no. 1.4401 (X5 CrNiMo 17-12-2), with 2.3 % Mo for higher durability; identification marking yellow plugs
- Material no. 1.4521 (X2 CrMoTi 18-2), PRE-value 24.1; identification marking green plugs

Stainless steel

Black; EPDM (ethylene propylene diene rubber); up to 110 °C; not resistant to hydrocarbon solvents, chlorinated hydrocarbons, turpentine, petrol.

- Bars 6 m in length, with bright-finished external and internal surfaces
- Plastic plugs on pipe ends
- All pipes are leak-tested and marked as such

Pipe material no. 1.4401:
DVGW approval: DW-8501BL0551 15 – 54 mm
DW-8511BQ0245 64.0 – 108.0 mm

Pipe material no. 1.4521: DVGW approval: DW8501BS0376 (15 – 108.0 mm)

Nominal sizes [mm]
Sanpress Inox
Sanpress Inox XL

<table>
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<tr>
<th>Sanpress Inox-pipes</th>
<th>Volume per cons. metre of pipe [Liter/m]</th>
<th>Weight per cons. metre of pipe [kg/m]</th>
<th>Weight per 6 m length [kg]</th>
<th>Size</th>
<th>Material Press connector</th>
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Tab. D – 2
Sanpress / Sanpress XL

Intended use
The system is designed for
- Drinking water not restricted under the terms of the German Drinking Water Ordinance
- Operating temperature $85^\circ C$; $T_{max} = 110^\circ C$
- Operating pressure $p_{max} \leq 16\text{ bar}$

Protect against high concentrations of chloride generated both by the medium and by external factors. Mixed installations are permissible, independent of flow direction. Before using Sanpress XL in any application other than those described, contact Viega Service Center.

Stainless steel pipes with gunmetal press connectors
Standard sizes
12 – 54 mm

XL-sizes
76.1 – 108.0 mm with compression ring and EPDM-sealing element

Sanpress
Press connector system with stainless steel pipes

Press connectors made of gunmetal with EPDM-seal
12 – 54 mm

All sizes with SC-Contur
Technical data

Stainless steel pipes thin-walled and corrosion-resistant stainless steel pipes

- Material no. 1.4401 (X5 CrNiMo 17-12-2), with 2.3% Mo for higher durability; identification marking yellow plugs
- Material no. 1.4521 (X2 CrMoTi 18-2), PRE-value 24.1; identification marking green plugs

Gunmetal

Black; EPDM (ethylene propylene diene rubber); up to 110 °C; not resistant to hydrocarbon solvents, chlorinated hydrocarbons, turpentine, petrol.

- Bars 6 m in length, with bright-finished external and internal surfaces
- Plastic plugs on pipe ends
- All pipes tested for leakage and marked as such

Constantly controlled both in-house and by the NRW material testing inspectorate.

Pipe material no. 1.4401: DVGW approval:

- DW-8501AP3032 12 – 54 mm
- DW-8501AT2348 76.1 – 108.0 mm

Pipe material no. 1.4521: DVGW approval:

- DW-8501BS0377 12 – 108.0 mm

EN 10088: General requirement for welded circular pipes made from non-corroding stainless steels.

DVGW-specification W 541: non-corroding stainless steel pipes for drinking water supply systems DVGW-test symbol TS 233 (N 012)

12/15/18/22/28/35/42/54
76.1/88.9/108.0

Sanpress-pipes

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Sanpress-XL-pipes

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Tab. D – 3
Intended use
Copper pipes and connectors can only be used without restrictions for drinking water, if
- the pH-value is 7.4 or higher or
- the TOC value does not exceed 1.5 g/l at pH levels between 7.0 and 7.4

The system has been designed for
- Operating temperature $\leq 85^\circ C$; $T_{\text{max}} = 110^\circ C$
- Operating pressure $p_{\text{max}} = \leq 16$ bar

Copper components must not be installed upstream of galvanised iron materials.
Before using Profipress in any application other than those described, contact Viega Service Center.
**Technical data**
Only copper pipes compliant with EN 1057 may be used. Please regard the minimum wall thickness acc. to Tab. D-4

- 12 – 108.0 mm  copper
- Press connectors with threaded joint
  - 12 to 54 mm  gunmetal
  - 64.0 to 108.0 mm  copper

Black; EPDM (ethylene propylene diene rubber); up to 110 °C; not resistant to hydrocarbon solvents, chlorinated hydrocarbons, turpentine, petrol.

Profipress with SC-Contur  DVGW-Reg.-Nr. DW-8511AP3139
Profipress XL  DVGW-Reg.-Nr. DW-8511AT2347

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<p>| Approved copper pipes | | |
|-----------------------|-----------------|-----------------|-----------------|-------------------|-----------------|</p>
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</tr>
<tr>
<td><strong>XL-pipes</strong></td>
<td><strong>2.83</strong></td>
<td><strong>3.47</strong></td>
<td><strong>17.34</strong></td>
<td><strong>XL</strong></td>
<td><strong>Copper</strong></td>
</tr>
<tr>
<td>64.0 x 2.0</td>
<td><strong>4.08</strong></td>
<td><strong>4.14</strong></td>
<td><strong>20.72</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76.1 x 2.0</td>
<td><strong>5.66</strong></td>
<td><strong>4.86</strong></td>
<td><strong>24.30</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>88.9 x 2.0</td>
<td><strong>8.33</strong></td>
<td><strong>7.37</strong></td>
<td><strong>36.87</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Tab. D – 4*
Application technology

Insulation*
Depending on the application and pipe material, the insulation, laying and fastening of the pipes according to the technical regulations is necessary for the following reasons

- Protection against the build-up of condensation
- Prevention of external corrosion
- Preservation of drinking water quality
- Limitation of heat loss
- Prevention of noise due to elongation
- Protection against the transfer of pressure surges onto the structure
- No transfer of flowing noises

Cold water pipes
Drinking water piping systems (cold) must be insulated to avoid heat loss and condensed water formation.
The pipes must be located a sufficient distance away from heat sources such as hot pipes, chimneys, heating installations. If this is not possible, cold water pipes must be insulated to prevent impairment of drinking water quality as a result of heating.

Guide values for minimum insulation layer thicknesses – cold water

<table>
<thead>
<tr>
<th>Mounting situation</th>
<th>Insulating layer thickness at $\lambda = 0.040$ W/(mK) [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposed pipes, non-heated floor space</td>
<td>4</td>
</tr>
<tr>
<td>Exposed pipes, heated floor space</td>
<td>9</td>
</tr>
<tr>
<td>Pipes in the duct, without pipes which get hot</td>
<td>4</td>
</tr>
<tr>
<td>Pipes in the duct, adjacent to pipes that become hot</td>
<td>13</td>
</tr>
<tr>
<td>Pipes in the wall slot, riser pipes</td>
<td>4</td>
</tr>
<tr>
<td>Pipes in the wall cut-out, adjacent to pipes that become hot</td>
<td>13</td>
</tr>
<tr>
<td>Pipes on concrete ceiling</td>
<td>4</td>
</tr>
</tbody>
</table>

Tab. D – 5

1 For other thermal conductivities, insulating layer thicknesses must be converted based on a diameter $d = 20$ mm
Drinking water piping systems (PWH)*
Please use the values in the following tables to minimise the heat emission of hot water piping systems compliant with EnEV requirements.
National regulations should be observed.

Minimum insulation layer thicknesses

<table>
<thead>
<tr>
<th>Type of pipe/fitting</th>
<th>Minimum insulating layer thickness based on a heat conductivity of 0.035 W/(m·K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Internal diameter up to 22 mm</td>
</tr>
<tr>
<td>2</td>
<td>Internal diameter over 22 up to 35 mm</td>
</tr>
<tr>
<td>3</td>
<td>Internal diameter over 35 up to 100 mm</td>
</tr>
<tr>
<td>4</td>
<td>Internal diameter over 100 mm</td>
</tr>
<tr>
<td>5</td>
<td>Pipes and fittings as per rows 1–4</td>
</tr>
<tr>
<td>6</td>
<td>Piping systems from central heating according to lines 1 to 4, which were fitted between heated rooms with different users after this ordinance came into effect</td>
</tr>
<tr>
<td>7</td>
<td>Piping systems according to line 6 in floor construction</td>
</tr>
<tr>
<td>8</td>
<td>Cooling distribution and cold water pipes, as well as fittings from room air technology and air cooling systems</td>
</tr>
</tbody>
</table>

Tab. H — 1

 Except for branch lines (piping systems out with the water circulation and which are not equipped with electrical heating). Pipes with an internal diameter of 22 mm or less, are not subject to the minimum insulating layer.

Noise protection

Noises in drinking water installations mainly originate from fittings and sanitary objects. The noise can be carried audibly through the piping system and transferred onto the structure, which then produces the airborne noise.

The following measure may help to prevent this

■ Use of low-noise fittings
■ Reduction of the water pressure
■ Proper fastening of the pipes
■ Compliance with the minimal intervals between pipes regarding elongation
■ Pipes are fitted with noise insulation elements thus preventing the transfer of pressure surges onto the structure
Fire protection*

If pipes are fed through ceilings and walls in different fire zones, suitable action must be taken which delays the fire from spreading for a definite period of time. Shafts with pipes insulated with rockwool, together with layer of poured concrete in the gaps and floor level have proven effective. This allows for a professional separation of the pipes from the rest of the construction.

Also there are no prescribed minimum distances between the insulated pipes, it is recommended to leave at least 20 mm for the boring of holes. The same is true for an open shaft closed by the pouring of a concrete sealant.
Elongation – compensating members

Thermal expansions in installation systems generate stresses in pipes and appliance connectors. It is for this reason that compensation bends or expansion compensating members need to be fitted to long stretches of pipe. Expansion compensating members are stretches of pipe with U or Z-shaped expansion bends which are able to absorb movement on account of their length and fastening method.

**U- or Z-expansion compensating members**

If the installation conditions facilitate the use of U- or Z-expansion compensating members, proceed as follows to calculate the associated expansion bend lengths:

1. Determine the maximum possible temperature difference $\Delta T$
2. Identify the length of the pipe $l_0$

These values are used to calculate the total length which the section of pipe extends by the diagrams on the following pages illustrate the necessary pipe bend length $L_{BZ}$ or $L_{BU}$ for each pipe.

**Example (see following pages)**

1. The operating temperature is between 10 and 60°C – therefore: $\Delta T = 50$ K.
2. The section of pipe is: $l_0 = 20$ m.
3. The length expansion coefficient for stainless steel pipe is: $\alpha = 0.0165$ [mm/mK].
4. Insert the values into the formula:
   $$\Delta l = \alpha \frac{\text{mm}}{\text{mK}} \cdot L \frac{\text{m}}{\text{} \cdot \Delta T \text{[K]}}$$

**Result**

The length expansion: $\Delta l = 0.0165 \frac{\text{mm}}{\text{mK}} \cdot 20 \text{ [m]} \cdot 50 \text{ [K]} = 16.5$ mm

5. Select a U- or Z-bend depending on the space available.
6. Take the necessary expansion bend length $L_{BZ}$ from the U or Z diagram. In this example for Z-expansion bend:

   Go along the vertical axis at 16.5 mm horizontal to the line indicating the pipe size used and read the necessary expansion bend length from the horizontal axis below.

At the selected pipe nominal width $\varnothing 28$ mm, the expansion bend length $L_{BZ} = 1.3$ m.
Elongation of various materials

<table>
<thead>
<tr>
<th>Material</th>
<th>Heat expansion-co-efficient $\alpha$ [mm/mK]</th>
<th>Elongation with pipe length = 20 m and $\Delta T = 50$ K [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel 1.4401</td>
<td>0.0165</td>
<td>16.5</td>
</tr>
<tr>
<td>Stainless steel 1.4521</td>
<td>0.0108</td>
<td>10.8</td>
</tr>
<tr>
<td>Galvanised steel</td>
<td>0.0120</td>
<td>12.0</td>
</tr>
<tr>
<td>Copper</td>
<td>0.0166</td>
<td>16.6</td>
</tr>
<tr>
<td>Plastic</td>
<td>0.08 – 0.18</td>
<td>80.0 – 180.0</td>
</tr>
</tbody>
</table>

Tab. D – 6

Elongation of stainless steel pipes

Fig. D – 31
Calculating length of expansion bends for pipes Ø < 54 mm

Expansion bend
Z-form with expansion bend $L_{BZ}$ and as tee connection

Length calculation
of expansion bends in Z- and T-form

Fig. D — 32

Fig. D — 33

Fig. D — 34
**Length of expansion bend**

In U-form with expansion bend $L_{BU}$

**Length calculation**

For expansion bends in U-form

---

**Fig. D — 35**

**Expanding compensation**

$\Delta l$ [mm] vs. $L_{BU}$ [m]

---

**Fig. D — 36**
Calculating length of expansion bends of pipes Ø > 54 mm

Fig. D — 37  
Z expansion compensating bend with XL-connector

Fig. D — 38  
Expansion compensation length of pipe bend

Length of expansion bend $L_{BZ}$ [m]  
Expansion compensation $\Delta l$ [mm]

Fig. D — 39
**Expansion bend**

U-form with expansion bend $L_{BU}$

**Length calculation**

For U-form expansion bend

---

*Fig. D – 40*

*Fig. D – 41*
Axial compensator

The alternatives to expansion joints are compensators. They are suitable for absorbing axial movements in the pipe installations with operating temperatures between 20 and 110 °C.

- A space-saving alternative to expansion compensating members
- No pre-stressing required
- Noise-reducing
- Durable and resistant to corrosion
- Suitable for mixed installations

Assembly information

The pipes must be attached in such a way that unpermitted radial and torsional stresses are avoided. Fastening points must be assessed in such a way that they can absorb considerable forces arising through temperature-related changes in length. It is important to ensure the correct alignment of fixing points and sliding pipe routings.

- Install pipes in straight lines
- Remove any radial and torsional stress
- Only one compensator may be fitted between two fixing points
- Do not use compensators for changes in direction
- Protect stainless steel bodies from mechanical damage
**Technical data**

---

**Fig. D — 43**

### Z-dimension compensator

<table>
<thead>
<tr>
<th>Compensator D/N</th>
<th>Pressure [bar]</th>
<th>Effective body cross section A [cm²]</th>
<th>Maximum fixing point load $F_{\text{max}}$ [N]</th>
<th>Expansion compensation $1$ [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>15/12</td>
<td>10</td>
<td>3.10</td>
<td>620</td>
<td>- 7</td>
</tr>
<tr>
<td>18/15</td>
<td>10</td>
<td>3.97</td>
<td>794</td>
<td>- 9</td>
</tr>
<tr>
<td>22/20</td>
<td>10</td>
<td>6.15</td>
<td>1230</td>
<td>- 11.5</td>
</tr>
<tr>
<td>28/25</td>
<td>10</td>
<td>9.02</td>
<td>1814</td>
<td>- 14</td>
</tr>
<tr>
<td>35/32</td>
<td>10</td>
<td>13.85</td>
<td>2770</td>
<td>- 13</td>
</tr>
<tr>
<td>42/40</td>
<td>10</td>
<td>20.42</td>
<td>4048</td>
<td>- 15.5</td>
</tr>
<tr>
<td>54/50</td>
<td>10</td>
<td>30.90</td>
<td>6180</td>
<td>- 16</td>
</tr>
</tbody>
</table>

**Tab. D — 7**

### Fixed Points / Gliding Points Function

Fixed points connect the pipes firmly with the supporting structure and guide the expansion movement in the desired direction.

A pipe which is not interrupted by a change in direction or one which does not contain an expansion joint only has to contain one fixed point. In the case of long pipes, the recommendation is to position these fixed points in the centre of the segment so that the expansion is steered in two directions.
Loss of pressure in pipes

The following diagram can be used to determine sufficiently precise values for pressure loss due to pipe friction for copper and for stainless steel. For the calculation of more complex water and circulation piping systems the use of specialised software, e.g. Viptool Engineering is recommended.

\[ V_s = \text{Peak admission} \]
\[ \dot{V}_s = \text{peak flow rate} \]
\[ R = \text{pipe friction pressure gradient} \]

**Fig. D—46**

\[ \dot{V}_s = \text{Peak admission}; \ v = \text{peak flow rate}; \ R = \text{pipe friction pressure gradient} \]
Corrosion of stainless steel pipes caused by chloride

Excess chloride can corrode stainless steel pipes in drinking water supply systems. It is for this reason that the following factors need to be taken into account:

- Insulating materials must not exceed a percentage by weight of water-soluble chloride ions of 0.05%.
- Sound insulation inserts for pipe clamps must not contain any diffusing chloride.
- Stainless steel pipes must not come into contact with materials containing chloride.
- Stainless steel pipes exposed to gases or vapours containing chloride (in paint shops or surface treatment (HDG) facilities) must be protected by a plastic coating compliant with national guidelines.

On average, a chloride content of 150 mg/l in drinking water is considered higher than average. The majority of drinking water regulations set a limit value for chloride of 250 mg/l. This »chloride« is not a disinfectant but a component of sea salt and cooking salt (NaCl). With chloride contents of up to 250 mg/l, Sanpress and Sanpress Inox are suitable for use in drinking water supplies compliant with the majority of drinking water regulations.
Components

Easytop-slanted seated valves
Easytop-slanted seated valves made of gunmetal or stainless steel allow the direct press connection – without adapter – onto the Viega pipe systems Sanpress Inox, Sanpress and Profipress for drinking water installations. Their construction as free flow valves prevents surges when used and help to protect the fittings, appliances and pipe installations fitted to them.

All types of Easytop valves comply with EN 1213: 1999 (Fitting group 1) and are available as
- Free flow valve
- Free flow valve with backflow preventer
- Backflow preventer

Fig. D — 47

1. Medium code on hand wheel
2. Spindle seal EPDM
3. Gunmetal valve disk with EPDM valve seal
4. Press connector with SC-Contur
5. Gunmetal valve housing and body
6. Stainless steel valve seat
7. Spindle
8. Position indicator
**Areas of use**

<table>
<thead>
<tr>
<th>Valve material</th>
<th>Material</th>
<th>Press connector system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easytop Inox-slanted seated valve</td>
<td>Stainless steel</td>
<td>Sanpress Inox</td>
</tr>
<tr>
<td>Easytop-slanted seated valve</td>
<td>Gunmetal</td>
<td>Sanpress/Profipress</td>
</tr>
</tbody>
</table>

*Tab. D — 8*

---

**Easytop-slanted seated valve**

For the Systems
- Sanpress Inox
- Sanpress
- Profipress

---

**Easytop-slanted seated-valve types**

- Slanted seated valve
- Combined slanted seated valve (CCV)
- Backflow preventer
**Technical data – Versions**

- For all types of drinking water
- Comforms to DVGW-AB-W270 and the KTW-recommendation
- Sizes 15 – 54 mm metallic systems, sizes 16 – 63 mm PE-Xc systems
- All Press connectors with SC-Contur
- Male thread acc. EN ISO 228-1, sizes DN15 – DN50
- Noise protection $\text{Lap} \leq 20 \text{dB (A)}$
- Operating temperature $T_{\text{max}} = 90^\circ \text{C}$
- Operating pressure $p_{\text{max}} = 16 \text{ bar}$

**Advantages**

- Spindle seal maintenance free
- Space saving construction due to the non-rising spindle
- Erosions proof stainless steel valve seat
- Valve upper part with reduced stagnation space
- Simple storage, because accessories can be delivered separately
- Precise actuation due to servo technology
- Cover with key surfaces for easy installation
- Low pressure loss

**Accessories**

The following accessories are available for Easytop-slanted seated valves

- Easytop-insulating sleeve
- Easytop-draining valve (steel and gunmetal)
- Easytop-extension piece (Stainless steel and gunmetal)
Insulating sleeves

The self-securing insulating sleeves are available in all sizes and fit all Easytop-slanted seated valve variations. The thickness of the EPP insulating material (expanded polypropylene) fulfils the requirements of the EnEV (Energy efficiency ordinance, Germany)*.

Easytop-slanted seated valves with drain valves can be fitted with insulation sleeves. In this case an extension piece made of gunmetal or stainless steel is inserted. Predetermined breaking points on the insulating sleeve allow an easy adaptation to the construction method being used. The insulation of the pipe system joins seamlessly to the flat side of the insulating sleeve.

*Fig. D — 52

 Fig. D — 53

Easytop-slanted seated valve

Accessories:
Insulating sleeve with predetermined breaking points for drain valves

Insulating sleeve and insulated piping system
Easytop Inox-slanted seated valve
Installation in a cold water manifold

Fig. D — 54

Easytop-slanted seated valve
DW-Service connection piping system with Easytop water meter connecting plate

Fig. D — 55
Easytop-slanted seated valves
Hot water manifold with Easytop-slanted seated valve and circulation control valve (CCV) without insulating sleeve

Fig. D — 56
Easytop XL-slanted seated valves with flange connection

Easytop XL-slanted seated valves with flange connection according to DIN EN1092-1 are mainly used in distributor systems or as a shut-off unit in cold and hot water installations. A transfer flange makes the transfer to the metallic Viega press connector systems Sanpress Inox XL, Sanpress XL and Profipress XL possible.

**Fig. D – 57**

**Technical data**
- DN 50, 65, 80, 100
- Sizes noise protection $L_{ap} \leq 20$ dB (A)
- Operating temperature $T_{\text{max}} = 90^\circ$C
- Operating pressure $p_{\text{max}} = 16$ bar (PN 16)
- Installation in indicated flow direction

**Characteristics**
- Drinking water installations hot and cold
- Casing made of gunmetal
- Fixed flange according to DIN EN 1092-1
- Valve seat made of stainless steel
- Drain plug and sampling point
- Spindle and shutter seal made of EPDM maintenance free
- Valve upper part free of stagnation space
- Non-rising spindle system
- Position indicator open/closed
- Medium indicator on the handle (green/red)
- Precise actuation with servo technology

**Accessories**
- Drain valve G ¼ (≤ DN50), G 3/8 (≥ DN65)
Examples of use

**Sanpress Inox-manifold**
Supply pipe with Easytop XL-slanted seat valve DN 100
Manifold outlets with Easytop XL-slanted seated valves DN80 and DN50 with Sanpress Inox XL-flange adapters

**Profipress-manifold**
Manifold outlets 54/64.0 and 76.1 mm with Easytop XL-slanted seated valves with Profipress XL- and Sanpress XL-flange adapters

**Flange adapters**
Sanpress XL
Profipress XL
Sanpress Inox XL
Pressure loss diagram Easytop fittings

Fig. D — 61

Fig. D — 62

Fig. D — 63

Fig. D — 64
Easytop sampling valves

Project description
Quality checks must be stipulated for water for public use. For example, in Germany and in some European countries, drinking water from extraction points in public / commercial buildings must regularly be sampled for chemicals and microbiology. Even for countries, in which there are not yet national regulations for the sampling of drinking water, we recommend the use of the following product solutions.

The two-piece sampling valve is made up of a permanent stainless steel extraction valve and a plug-in, sterilisable and disinfectable actuating unit made of gunmetal which is only used for sampling. Only the one-piece sampling valve is left in the drinking water installation. The actuating unit can be used for taking samples from several extraction valves. The base plate with the discharge pipe can be rotated by 360° and can be fixed at 45° increments to the extraction valve. This makes it possible to attach to almost any position in the system.

The single-component sampling valve is left completely in the installation.

<table>
<thead>
<tr>
<th>Sampling valve - two-piece</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
</tr>
<tr>
<td>Sampling valve</td>
</tr>
<tr>
<td>Actuating unit</td>
</tr>
<tr>
<td>Extraction valve</td>
</tr>
</tbody>
</table>

*Tab. D – 9*

<table>
<thead>
<tr>
<th>Sampling valve – one-piece</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
</tr>
<tr>
<td>Sampling valve</td>
</tr>
<tr>
<td>Adapter</td>
</tr>
</tbody>
</table>

*Tab. D – 10*
Easytop sampling valve, two-piece

Fig. D — 65

1. Handwheel – removable
2. Actuating unit
3. Sliding sleeve
4. Extraction valve G 1/4 made of stainless steel
5. Extraction valve G 3/8 made of stainless steel
6. Protective caps
7. Retaining clamp
8. Discharge pipe

Extraction valve

The extraction valve is installed permanently to the defined position of the system. After sampling, the extraction end is protected by a plastic cap. Extraction valves are available in two thread sizes.

**Extraction valve - Threaded connections**

<table>
<thead>
<tr>
<th>Feature</th>
<th>G 1/4</th>
<th>G 3/8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field of use Sizes of fittings [DN]</td>
<td>≤50</td>
<td>≥65 to ≤150</td>
</tr>
<tr>
<td>Sealants</td>
<td>EPDM O-ring, chamber-sealing</td>
<td>Teflon sealant, thread-sealing</td>
</tr>
</tbody>
</table>

Tab. D — 11

Extraction valve

Both made of stainless steel G 1/4 with O-ring

G 3/8 with sealant
Actuating unit

For sampling purposes, the actuating unit is inserted into the extraction valve and secured with a retaining clamp and a sliding sleeve. Positioning is possible in 45° increments up to 360°. Because the base plate and the discharge pipe can also be rotated by 360°, the sampling valve can be installed at virtually any position on the system.

Technical data

- Extraction valve of stainless steel, actuating unit made of gunmetal in accordance with DIN 50930-6
- Discharge pipe made of stainless steel, can be flame treated
- Actuating unit suitable for sterilisation in autoclaves
- Operating temperature $T_{\text{max}} = 90^\circ\text{C}$
- Operating pressure $p_{\text{max}} = 16$ bar

Features

- Sampling fitting for all kinds of sampling
- Two-piece construction – Extraction valve installed permanently
- Assembly of actuating unit without tools
- Base plate and discharge pipe can be rotated by 360°
- Extraction valve and discharge pipe made of stainless steel
- Sampling by manual actuation
- Alternative operation using air key
- Discharge amount can be regulated exactly with the handwheel
- Tamper-proof
- Protection from water theft

Easytop sampling complete valve

Fitted in discharge stops of an Easytop XL slanted seat valve with flange connection

In the Easytop slanted seat valve with press connection
Sampling
Sampling can take place at the prepared positions of the installation, without using tools, by following the following steps

- Remove the protective cap of the extraction valve.
- Insert the actuating unit into the extraction valve and secure in the end position using a retaining clamp and sliding sleeve.
- Apply flame to the discharge pipe.
- Remove water sample by opening the handwheel of the actuating unit.
- After removing the sample, close the handwheel, loosen the sliding sleeve and remove the actuating unit.
- Seal the extraction valve with a plastic cap.
- Disinfect / sterilise the discharge pipe before taking the next sample.

**Easytop sampling valve, one-piece**

![Diagram of Easytop sampling valve, one-piece](image)

*Fig. D – 71*

1. Handwheel – removable
2. Actuating unit
3. Adapter piece
4. Discharge pipe

The one-piece sampling valve is left in the drinking water installation. Sizes:
- Internal thread G 1/4 and G 3/8 with Easytop adapter piece.
- Actuating unit made of gunmetal in accordance with DIN 50930-6
- Discharge pipe made of stainless steel, can be flame-treated
- Operating temperature $T_{\text{max}} = 90^\circ\text{C}$
- Operating pressure $p_{\text{max}} = 16\text{ bar}$
Features

- Sampling fitting for all kinds of sampling
- Base plate can be rotated by 360°
- Discharge pipe can be rotated by 360°
- Sampling by manual actuation
- Alternative operation with air key
- Discharge amount can be regulated exactly with the handwheel
- Easytop adapter nipple available for G 3/8

Fig. D — 72

Fig. D — 73

Easytop sampling - Single-component sampling valve

To leave in the installation, fitted in the discharge stopper of an Easytop XL slanted seat valve with flange connection

Fitted with 54 mm
Easytop-concealed straight seated valve
For shutting off floor or storey units.

Technical data
- Suitable for all drinking waters – valve cover made of gunmetal, valve seat stainless steel
- Operating temperature $T_{\text{max}} = 95^\circ \text{C}$
- Operating pressure $p_{\text{max}} = 10 \text{ bar}$
- Zero stagnation space in upper part
- Variable installation depths up to 129 mm
- Low noise
- Limescale resistant
- Easy to operate
- One top for all sizes

Connection variations

Valve construction

Connection variations
With
- Female thread acc. EN10226
- Sanpress

Valve components

Fig. D — 74

Fig. D — 75

1 Valve body
2 Protective sleeve
3 Attachment
4 Protective cap
Easytop-concealed free-flow valves

Easytop concealed free-flow valves are used to shut off storeys and floor units. They are suitable for drinking water installations (PWH/PWC) according to TrinkwV and DIN 50930-6. Due to their construction free flow valves have short activation distances. Similar to the ball valve, they can be fully opened or closed with a quarter turn.

For pipes that require insulation, units with building material class B1 insulating sleeves, which fulfil the requirements of EnEV and DIN 4102-4, should be used.

Installation is possible in brickwork (wet construction) and in dry constructions (pre-wall/duct installations).

Technical data

- Connections: Press connection 15, 18, 22 mm, thread Rp ½ and Rp ¾
- Operating pressure 10 bar (PN 10)
- Operating temperature 90 °C
- Installation possible independent of flow direction

Characteristics

- For all types of drinking water according to TrinkwV and DIN 50930-6
- Open/close via a quarter turn
- Valve casing and upper part made of gunmetal according to DIN 50930-6
- Valve upper part without stagnation space – with maintenance-free spindle seal
- Actuation in the skeleton construction phase via protective caps
- Can be combined with the equipment sets models 2236 and 2236.10
- Shut-off component exchangeable – one kind for all kinds of valves
- Conforms to DVGW-AB W270, with KTW-recommendation
Installation dimensions

Installation depth
\[ \geq 43 \text{ (A)} \]
\[ \leq 130 \text{ mm (B)} \]

Fastening set

»Front«
Model 2235.90

Valve components

1. Valve body
2. Shut-off unit
3. Valve upper part
4. Protective sleeve
5. Attachment
6. On-site protective cap

Fig. D — 78

Fig. D — 79

Fig. D — 80
Fastening/Seal
The system offers various solutions and mounting sets for securing the valve.

Mounting by placing it through a wall
Both nuts and sealing panels clamp the protective sleeve securely in the wall (plasterboard).

The sealing action of the wall is reinforced by a self-adhesive sealing flange on the front side of the wall. The valve is permanently accessible via the protective cap.

Mounting using the assembly set
The noise decoupled mounting plate is connected to the valve body and a mounting rail (Profilrail).

Sealing through the wall is via a self-adhesive sealing flange on the front side of the wall. The valve is permanently accessible via the protective cap.
Fitting sets
For Easytop concealed straight seated valves

**Fig. D — 85**

Insulating sleeve
The self-securing insulating sleeve made of EPP-insulating material fulfils the requirements of the EnEV regarding the reduction of heat loss. One version is suitable for every type of connection.

**Fig. D — 86**

**Fig. D — 87**
Easytop-ball valves
With press connectors for the following systems
- Sanpress Inox
- Sanpress
- Profipress

Characteristics
- Suitable for all types of drinking water – valve cover made of gunmetal
- With press connection, female thread or male thread
- Operating temperature \( T_{\text{max}} = 110 \degree \text{C} \)
- Operating pressure \( p_{\text{max}} = 16 \text{ bar} \)
- Media identification mark on the handle is exchangeable
- Further application: Heating, compressed air, rainwater and industrial systems etc.
- Insulating sleeve compliant with EnEV as accessory
Thermostatic circulation regulating valve S / E

Product description
The Easytop circulation regulating valve S / E supports the provision of constant water temperatures at each extraction point in hot water circulating pipes. Through automatic opening and closing, it regulates the flow rate in dependence with the water temperature in the circulation pipe.

It is quick and safe to fit to the installation in all Viega pipe systems with press connections with 15, 18 and 22 mm or with screws in G 3/4 and G 1 (flat-sealing). It can be used in parallel and internal circulation lines.

Functional principle
The control unit of the Easytop circulation regulating valve (CRV) is equipped with an expansion material element, which reacts to temperature changes of the warm water in the circulation loop. If the pre-set target valve deviates from the actual valve, the flow rate is changed using the valve lift, thus regulating the water temperature.

- The valve opens if the target value is fallen below
- The valve closes if the target value is exceeded

The hydraulic/thermal compensation has occurred when the target and actual value conform.

Fig. D — 94

- Temperature setting
- Control unit
- Ball valve
- Press connection with SC-Contur
- Modes of operation: Riser pipe, building storey, thermal disinfection
- Valve casing made of gunmetal
- Stopper for discharge valve
Thermal disinfection
The circuits are individually disinfected one after the other in systems with several circulation loops. You should follow the steps below

- Ensure that the temperature in the hot water tank is at least 70 °C.
- Close the ball valves of all CRV.
- To flush the first circulation loop, open the ball valve of the CRV.
- Set the mode of operation to »t. D.« on the circulation regulating valve.
- One after the other, completely open all discharge fittings and allow to flush with water for at least 3 minutes at a discharge temperature of 70 °C.
- Set the CRV back to the operating position and close the ball valve.
- Do the same with the other circulation loops one after the other.

Assembly

Place and site of installation
It is possible to install in either a riser pipe or on a building storey. Installation on a building storey always occurs in connection with a static CRV in the riser pipe.

CRVs must be installed between the outlet of the hot water tank and the inlet of the circulation line of the hot water tank.

Uses
Thermostatically in the riser pipe with switch position II

On a building storey with switch position I in connection with a static circulation regulating valve in the riser pipe

The actuator should preferably be installed in a vertical and horizontal location. Above-head assembly should be avoided because unfavourable operating conditions (e.g. contaminated water) can reduce the life span.
Setting of the flow rate regulation

- On the building storey – Switch position »I« with minimum flow rate of 0.042 m³/h
- Riser pipe – Switch position »II« with minimum flow rate of 0.060 m³/h
- t. D. – Thermal disinfection flow rate according to table below

![Flow rate setting diagram](image)

**Fig. D — 97**

### Circulation regulating valve settings – Flow regulation

<table>
<thead>
<tr>
<th>Flow temperature</th>
<th>Temperature setting [°C]</th>
<th>kV (Δp 1000 mbar) [m³/h]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>65</td>
<td>60</td>
</tr>
<tr>
<td>65.0</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>t. D.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tab. D — 12**

Thermal disinfection 70 °C

0.72
Actuator - Connection to the building control system
In connection with a building control system (on-site), the actuator set Model 1013.9 should be used.

Functional principle
The actuator is equipped with an electrically heated expansion material element, whose movements are transferred via a valve lifter to the valve - the higher the heating energy (operating voltage), the wider open the valve. When activating the operating voltage - after the delay has elapsed - the valve opens against the pressure of a pressure spring. The closing force of the pressure spring is coordinated with the closing force of conventional valves and holds the valve closed in a de-energised state. After deactivating the operating voltage, the valve closes after the pause has elapsed.

Note: The actuator is supplied in a “first open function”, this means: Initially, it is “open in a de-energised state”.
This permits operation during building phases, even when the electrical wiring has not yet been completed. The “first open function” is automatically switched off as soon as the operating voltage remains in contact for more than 6 minutes.

Fig. D — 98
Retrofitting of an actuator set

The manually adjusted valve top of the circulation regulating valve can be replaced with an electrical actuator (model 1013.9).

The regulating electronics / building control system should be provided on-site.

**Fig. D — 99**
Remove the valve top of circulation regulating valve

**Fig. D — 100**
Screw in the valve insert

**Fig. D — 101**
Fit actuator

**Fig. D — 102**
Remove the stopper

**Fig. D — 103**
Screw in the discharge valve

**Fig. D — 104**
Insert temperature sensor
Alternative: Analogue thermometer

**Fig. D — 105**
Wiring
Actuator set

24V AC
L1 L2
Electrical installation

Lines
For the installation, we recommend pipework in accordance with the table below.

<table>
<thead>
<tr>
<th>Types of pipe</th>
<th>Description</th>
<th>Diameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bell wire</td>
<td>Y (R)</td>
<td>0.8 mm²</td>
</tr>
<tr>
<td>Non-metallic sheathed wire</td>
<td>NYM</td>
<td>1.5 mm²</td>
</tr>
</tbody>
</table>

*Tab. D – 13*

Calculation for the maximum pipe length (copper pipe) with 24 V nominal voltage as per formula:

\[ L = K \cdot A / n \]

With:

- A Cross-section of the pipe in mm²
- n Number of actuators
- K Constant (269 m / mm²²)
- L Pipework length in m

Transformer (24 V)
Safety transformers as per DIN EN 60335 must be used. The output is dependent on the switching capacity of the actuator and is approximately:

\[ P_{Trafo} = 6W \cdot n \]

With:

- n Number of actuators

Technical data

**Thermostatic regulating valve**

<table>
<thead>
<tr>
<th>Operating pressure max</th>
<th>10 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting range</td>
<td>40 to 65 °C</td>
</tr>
<tr>
<td>Factory setting</td>
<td>57 °C</td>
</tr>
</tbody>
</table>

*Tab. D – 14*

**Temperature sensor**

<table>
<thead>
<tr>
<th>Resistance</th>
<th>3.85 Ω/°C⁺</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting cable</td>
<td>TF45</td>
</tr>
<tr>
<td>Measuring range</td>
<td>-20 to +105 °C</td>
</tr>
<tr>
<td>Measuring element</td>
<td>1 x Pt1000 / dual conductor/ Cl. B</td>
</tr>
<tr>
<td>Protective pipe material</td>
<td>1.4571</td>
</tr>
<tr>
<td>Protective pipe diameter</td>
<td>6.0 mm</td>
</tr>
<tr>
<td>Protective pipe length</td>
<td>50.0 mm</td>
</tr>
<tr>
<td>Connection / length of pipe</td>
<td>2 x 0.34 mm2 PVC, grey / 2.5 m</td>
</tr>
<tr>
<td>Protection class</td>
<td>Min. IP 54</td>
</tr>
<tr>
<td>Time constant</td>
<td>Min. 20 s</td>
</tr>
<tr>
<td>Permitted drop</td>
<td>With and without packaging 1 m</td>
</tr>
</tbody>
</table>

*Tab. D – 15*
Actuator

<table>
<thead>
<tr>
<th>Ausführung</th>
<th>Closed without power / open without power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>24 V AC / DC</td>
</tr>
<tr>
<td></td>
<td>+ 20% ... - 10%</td>
</tr>
<tr>
<td></td>
<td>0 to 60 Hz</td>
</tr>
<tr>
<td>Starting current max.</td>
<td>250 mA for max. 2 min</td>
</tr>
<tr>
<td>Operating current</td>
<td>75 mA</td>
</tr>
<tr>
<td>Operating efficiency</td>
<td>1.8 W</td>
</tr>
<tr>
<td>Closing and opening times</td>
<td>Approx. 3 min</td>
</tr>
<tr>
<td>Displacement</td>
<td>4.0 mm</td>
</tr>
<tr>
<td>Actuating power</td>
<td>100 N ± 5%</td>
</tr>
<tr>
<td>Medium temperature</td>
<td>0 to 100 °C¹</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>- 25 to + 60 °C</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>0 to +60 °C</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 542</td>
</tr>
<tr>
<td>CE conformity</td>
<td>In accordance with EN 60730</td>
</tr>
<tr>
<td>Casing / Casing colour</td>
<td>Polyamide / grey</td>
</tr>
<tr>
<td>Weight</td>
<td>100 g with 1 m connecting cable</td>
</tr>
<tr>
<td>Connecting pipe / pipe length</td>
<td>2 x 0.75 mm² PVC, grey / 11 m</td>
</tr>
<tr>
<td>Excess voltage resistance</td>
<td>In accordance with EN 60730-1</td>
</tr>
</tbody>
</table>

Tab. D — 16

1 Can also be higher, depending on the adapter
2 In all installation locations

Static circulation regulating valve

Product description

The static Easytop circulation regulating valve is used for the hydraulic calibration of riser pipes and in installations with circulation loops, if thermostatic circulation regulating valves are installed on a building level.

The flow quantities are taken from pressure loss diagrams and manually adjusted to a scale. The found setting position (maximum flow quantity) can be mechanically fixed and can be reproduced at any time, even if the valve has been actuated in the meantime.

Technical data

- Operating pressure $p_{max} = 10$ bar
- Setting range $0 – 6.9$

Note

The flow direction must be taken into consideration during installation (arrow on the CRV).

A straight length of pipe with a minimum length of $3 \times da$ must be fitted in front of the fitting.
Pressure loss diagrams

**Fig. D — 107**

**Fig. D — 108**

**Fig. D — 109**
Smartloop-Inliner circulation line

Intended use
The system is suitable for use as an internal circulation line in drinking water installations, especially in hot water riser pipes from 28 mm, together with the Viega press connector systems.

To lay a drinking water installation with Smartloop-Inliner technology, we recommend using the Viega Viptool planning software. Installation is only permitted by trained specialists exclusively using Viega components. Any applications differing from those described here must be agreed with Viega Service Center.

System Description
The system consists of the components
- Connecting kit, with end connector and Smartloop-pipe connections
- Smartloop-pipe, flexible.
The circulation of hot water in the pipe is achieved by permanently channeling water back into the water heating system from the last T-piece of the riser pipe. This ensures that sufficient hot water is available at hygienically flawless temperatures at every floor outlet.

**Fig. D — 113**

1. End closing piece
2. Storey connection pipe – warm
3. Warm water distribution pipe
4. Circulation collector pipe
5. Connection piece
6. Warm water riser pipe
7. Internal circulation pipe
Temperature Graduation

In comparison to conventional circulation, the temperature in the riser pipe area does not drop continually in the direction of flow with Smartloop-Inliner circulation. The lowest temperature in the riser pipe is not at the crossover between the riser pipe and circulation collector pipe. Instead, it is in the end connection near the direction change in the internal circulation. With large-scale systems with several lines, this leads to an increase of temperature in the circulation collector pipe. As a result, the temperature of the back-flow water is higher than with conventional circulation systems, which, in turn, has advantages in terms of energy.

Fig. D – 114

1 Hot water floor outlet
2 Hot water distribution pipe
Advantages
- 20 to 30% less heat distribution losses
- Guarantee of drinking water quality as a result of temperature maintenance and circulation
- Lower heat emissions in the duct supports temperature maintenance in cold water
- Approx. 20% lower costs for core drillings, fire protection, pipe insulation and fastenings
- Lower assembly costs as there is no need for a separately laid circulation pipe system
- More living space due to smaller installation ducts
- Flexible Smartloop pipe permits parallel offset in the riser pipe
Components

Connection set
Model 2276.1

Tension coupling
Model 2276.9

Repair coupling
Model 2276.8

Smartloop-pipe
Model 2007.3

Fig. D — 116
1. End closure plug
2. Adaptor
3. Connecting piece
4. Press sleeve

Fig. D — 117
1. Support sleeve
2. Jack head

Fig. D — 118
1. Repair coupling
2. Press sleeve

Fig. D — 119
Assembly
The components and tools required to assemble a Smartloop-Inliner in a Sanpress, Sanpress Inox or Profipress riser pipe are shown on the side before previous page. The press connection for the Smartloop-pipe can be carried out using manual pressing tools (Model 2782) or the pressing pliers (Model 2799.7) and a suitable press machine – we recommend using the Viega press machines PT2, PT3H, PT3-AH, PT3-EH or Pressgun 4E and 4B. Pressgun 5.

Assembly with Parallel Offset
The flexible Smartloop-pipe also enables assembly in offset riser pipes. Even wall projections and ducts that are not aligned with one another are no obstacle for professional assembly. The Materialprüfungsamt NRW has inspected and examined the assembly in the case of parallel offsetting of the riser pipe for the necessary requirements. Vertical offsetting of the riser pipe in a position does not affect the function or the assembly of the Inliner. Any installation situations differing from those shown should be agreed with Viega Service Center. To incorporate the Smartloop-pipe, we recommend using the tension coupling or, for more pronounced offsetting, the adapted assembly method.

Maximum offset – Material suggestion

<table>
<thead>
<tr>
<th>Offset</th>
<th>Minimal</th>
<th>45°</th>
<th>90°</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diversion</td>
<td>L [mm]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 – 45</td>
<td>≥45 – 500</td>
<td>≥150 – 500</td>
<td></td>
</tr>
<tr>
<td>Compo-</td>
<td>1 bend 45°</td>
<td>2 bend 45°</td>
<td>2 bend 45°</td>
</tr>
<tr>
<td>nents</td>
<td>1 bend 45°,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>required</td>
<td>with insertion ends</td>
<td></td>
<td>with insertion ends</td>
</tr>
</tbody>
</table>

Tab. D − 17
Assembly with slight or no offsetting
Assembly of the riser pipe with subsequent incorporation of the Smartloop-pipe.

1. Build the riser pipe and press on a Tee above and below.
2. Create floor outlets size 22 mm, if necessary reduce.
3. In the case of slight offsetting, combine two 45° arches: the upper with the shank, the lower with two press ends.
4. The tension coupling (Model 2276.9) is helpful for incorporation of the Smartloop-pipe.
5. Introduce the Smartloop-pipe from above into the hot water riser pipe until the pipe protrudes at the lower end of the riser pipe by about 30 cm.
7. Push the press sleeve onto the upper pipe end.
8. Push the end connection into the pipe and check the insertion depth using the inspection panel.
9. Press the connection with a suitable pressing tool.

Fig. D — 120
Fig. D — 121
Fig. D — 122
Fig. D — 123
Fig. D — 124
Fig. D — 125
Fig. D — 126
Fig. D — 127
Fig. D — 128
1 Drinking water installations – Components

- Tighten the Smartloop-pipe on the lower end using assembly pliers and cut to length 40 mm below the Tee at a right-angle.
- Tighten the Smartloop-pipe.
- Push the press sleeve onto the lower Smartloop-pipe end.
- Push the crossover part of the connection into the Smartloop-pipe and check the insertion depth using the inspection panel.
- Remove assembly pliers.
- Push the connection to the end of the lower Tee of the hot water riser pipe and press.

- Push the connection to the end of the crossover part and press.
- Apply manual pressing pliers at a right-angle and compress until the pliers can be reopened.
- Create a connection from the hot water riser pipe and the circulation pipe to the relevant cellar distribution and collector pipes.
- Check the entire piping system for leaks in accordance with ZVSHK datasheet.

Fig. D — 129
Fig. D — 130
Fig. D — 131
Fig. D — 132
Fig. D — 133
Fig. D — 134
Repair coupling

In the case of a damaged riser pipe or the extension of the installation, Smartloop-pipe is repaired using the repair coupling model 2276.8 and the riser pipe using the sliding coupling models 2215.4 and 2215.5.

1. Cut through the installation pipe and the Smartloop-pipe completely.
2. Using a fine toothed saw or pipe cutter, cut the piece of pipe – the length of the sliding coupling – out of the riser pipe.
3. Push the sliding sleeve model 2215.5 onto the lower pipe.
4. Push the sliding sleeve with the insertion part model 2215.4 onto the upper pipe.
5. Place the repair coupling model 2276.9 onto the Smartloop-pipe.
6. –Press the repair coupling
   –Apply manual pressing pliers at a right-angle and compress until the pliers can be reopened.
7. Join the sliding sleeves together.
8. Place the sliding sleeves in such a position that the minimum insertion depth in the press sleeve is ensured.
In general, in Viega piping systems 4 elastomers are used. Each has an individual performance profile, depending on the application. NBR is only used for cold water, such as cooling water or earth laid service pipes. Whereas a HNBR seal possesses a high elasticity at low temperatures, such as exposed gas installations, an EPDM quality seal from Viega provides an excellent performance for the majority of water and heating applications, even for those above 70°C. Especially metallic piping systems are often used in the renovation and extension of commercial and industrial units, where high operating temperatures are to be found. For this reason, press connectors with EPDM seals are regarded as being universally applicable for heating and drinking water systems. EPDM (ethylene propylene diene rubber) is a synthetically made and peroxide-cured all-purpose rubber. It is highly resistant to ageing, ozone, sunlight, weathering and environmental influences, alkalines, alkaline solutions and chemicals. For these reasons the user can expect a long-term secure connection, when the conditions of use are observed. Finally, FKM sealing elements fulfill the highest requirements in terms of operating temperature, e.g. in solar thermal systems with heat pipe collectors. Viega press connectors for drinking water supply systems are factory-fitted with black EPDM sealing elements. On account of its high resistance to hot water and steam, EPDM is also used for seals and moulded parts in heating engineering, in fittings and domestic appliances (washing machines, pumps, dishwashers, etc.) at operating temperatures of up to $T_{\text{max}} = 110^\circ\text{C}$.
Mixed installations

Installation in the flow direction

<table>
<thead>
<tr>
<th>System</th>
<th>Before galvanized iron materials</th>
<th>After galvanized iron materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanpress Inox</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sanpress</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Profipress</td>
<td>–</td>
<td>✓</td>
</tr>
</tbody>
</table>

Tab. D – 18

Insulated pipe joint

In the event of higher drinking water hardness, Sanpress insulated pipe joints should be installed in order to avoid contact corrosion and crustification.

Fig. D – 145

1. Gumetal threaded gland with Rp female thread to EN 10226
2. EPDM flat seal, not electrically conductive
3. Sanpress/Profipress bronze press-in gland with SC-Contur
4. Isolating ring for electrical isolation
5. Cap nut
**Boiler connection**

If using insulated pipe joints to connect the boiler, the boiler itself must not be incorporated into the potential equalisation.

---

**Potential equalisation**

If sections of the pipe system are modernised, once work is complete, potential equalisation must be restored. If you are using insulated pipe joints, you must use an NYM-J 1 x 6 mm² earth conductor to bypass the pipe section.

---

The section between the insulated joints should not be incorporated into the potential equalisation.

The national regulations should be observed.
Assembly

Pipe sizes and fastening intervals of pipes [m]

<table>
<thead>
<tr>
<th>Sizes [mm]</th>
<th>Sanpress</th>
<th>Sanpress Inox</th>
<th>Profipress</th>
<th>Fastening interval [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard</td>
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<td></td>
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<tr>
<td>12</td>
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<td>XL</td>
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<td>✓</td>
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<td>88,9</td>
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<td>✓</td>
<td>✓</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Tab. D - 19

Storage and transportation

Sanpress stainless steel pipes are thin-walled welded pipes made from material 1.4401 or 1.4521 compliant with EN 10088. To prevent damage impairing hygienic characteristics, the following information must be taken into account when transporting and storing pipes:

- Do not remove protective foils and protective caps until immediately before use.
- Do not store the pipes on hard floors without protection.
- Do not stick protective foils or similar to pipes.
- Do not pull pipes over loading sills.
- Only use a stainless steel cleaning agent to clean the surfaces of pipes.

Copper pipes meet the requirements of EN 1057. The manufacturer’s information must be observed in regards to storage and transportation.

Pipes

Cutting

Copper pipes and stainless steel pipes can be cut to length with pipe cutters, fine-toothed metal saws or motorised saws.

When cutting pipes to length, note:

- Do not use angle grinders or flame cutters.
- Only use separating tools and separating agents compatible with the pipe material in question.
- You must use a suitable saw when cutting soft copper pipes (ring material) and factory-insulated copper pipes to length.
- Following separation you must de-burr the pipes internally and externally.
Bending
Suitable machines must be used to bend Sanpress stainless steel pipes or copper pipes. Refer to the production information provided by the pipe manufacturer for bending radii. Generally valid for Sanpress-stainless steel and copper pipes R ≥3.5 x d.

- Expansion bends must be straight and at least 50 mm in length in order to ensure that press connector sleeves can be connected correctly.
- Bending tension between bend and press connector must be avoided.
- Check compatibility with pipe material before using bending sprays.
- Stainless steel pipes may only be bent when cold. Heat treatment can cause corrosion and is not permissible.
- Observe manufacturer specifications when working with copper pipes.

Routing and fastening
Fasten pipes using commercially available pipe clamps with chloride-free protective inlay. General fastening rules apply

- Only use plugs with building inspection approval.
- Do not use pipes that have been previously installed as a mount for other pipes and components.
- Pipe hooks are not permissible.

To ensure that the pipe system functions correctly, observe the fastening intervals specified in Tab. D-11.

Fastening method
Pipes can be fastened so that they are rigid or flexible.
Rigid fastening points create a fixed connection between the pipe and the component, whilst flexible points facilitate axial expansion movement.

Rigid points must be arranged in such a way

- as to exclude torsional stress due to elongation insofar as is possible
- so that straight sections of pipe only have one rigid point.

Flexible points must be located a sufficient distance away from connectors. The anticipated elongation must be taken into account.

Fig. D — 148

Fig. D — 149
Concealed installation of pipes that become hot

Expansion movement causes cracking noises and flow noise. Therefore, insulation must be used to isolate the pipe system completely from the building structure.

When insulating pipes, note

■ Only use suitable insulating materials.
■ Do not flush-mount pipes.
■ Take particular care when insulating tees and bends.

Threaded joints

Only commercially available hemp-free and chloride-free sealants may be used to seal threads on adapters connecting to Viega press systems. We do not recommend the use of Teflon tape, as experience has shown that it presses out of the connector when the latter is screwed in.

Pipe connectors have conical female threads (e.g. R ¾) and cylindrical male threads (e.g. Rp ¾).

During mounting, you should connect the threaded joint first and then the press connector.

Flanged connections

Flanged connections in sizes between 15.0 and 108.0 mm may be used in metallic press systems.

Accessories available

■ Screw sets in galvanised or stainless steel
■ Seals made from EPDM or asbestos-free sealant should be selected depending on the area of application

During mounting, you should connect the flanged connection first and then the press connector.
Making the press connection

Pipe sizes 12 – 54 mm
The press connection provides an easy and reliable means of connecting stainless steel and copper pipes.
To make this connection, you will need
- Pipe cutters or a fine-toothed steel saw
- De-burrer and coloured pen to mark the insertion depth
- Viega press tool with press jaw suitable for pipe diameter

**How to proceed**

1. Cut the pipe to length at a right angle.
2. De-burr pipe internally and externally.
3. Check that the sealing element is seated correctly.
4. Slide the press connector onto the pipe as far as the stop.

Use pipe cutters or a fine-toothed steel saw. Cutting with an angle grinder will temper the material. Risk of corrosion! Do not use any oils or greases!
Mark the insertion depth.

Place the press jaw onto the press tool. Push in the retaining pin until it snaps into place.

Open the press jaw and set at a right angle to the connector (check the insertion depth). Start pressing.

Once press connector is complete, open the press jaw.
Sanpress XL – pipe sizes 76.1 – 108.0 mm
The press connection provides an easy and reliable means of connecting stainless steel and copper pipes.

- Pipe cutters or a fine-toothed steel saw
- De-burrer and coloured pen for marking
- Viega press connector machine with jaw suitable for pipe diameter
- Press connector chain of a suitable size

Place the tension jaw on the Viega press connector machine and push in the retaining pin until it snaps into place.

**How to proceed**

1. Cut the pipe to length at a right angle.
2. Use the vice with caution! The end of the pipe must be perfectly round.
3. De-burr pipe internally and externally.
4. Mark the insertion depth.
   - ø 64.0 mm = 43 mm
   - ø 76.1 mm = 50 mm
   - ø 88.9 mm = 50 mm
   - ø 108.0 mm = 60 mm
Check that the sealing element and compression ring are seated correctly.

Slide the press connector onto the pipe as far as the insertion depth marking.

Place the press ring onto the connector and check that the position is correct.

Open the tension jaw and latch into the receivers on the press ring.

Connect the press tool and start pressing.

Remove the control sticker. The connection will now be marked as »pressed«.
Sanpress Inox XL/Profipress XL – pipe sizes 64.0 – 108.0 mm

The press connection provides an easy and reliable means of connecting stainless steel pipes.

- Pipe cutters or fine-toothed steel saw
- De-burrer and coloured pen for marking
- Viega press tool with press jaw suitable for pipe diameter

Place the hinged tension jaw on the Viega press tool and push in the retaining pin until it snaps into place.

**Required tools**

**Preparation**

Cut the pipe to length at a right angle.

Use the vice with caution! The end of the pipe must be perfectly round.

De-burr pipe internally and externally.

Mark the insertion depth.

- ø 64.0 mm = 43 mm
- ø 76.1 mm = 50 mm
- ø 88.9 mm = 50 mm
- ø 108.0 mm = 60 mm
Check that the sealing element and compression ring are seated correctly.

Slide the press connector onto the pipe as far as the insertion depth marking.

Place the press ring onto the connector and check that the position is correct.

Open the hinged tension jaw and latch into the receivers on the press ring.

Start the press tool and start pressing.

Remove the control sticker. The connection will now be marked as »pressed«.
Space requirement for pressing

Pipe sizes 12–54 mm
For technically flawless press connectors, you need space in which to use the press tool. The following tables contain data indicating the minimum space requirements for a variety of installation conditions.

Note that values for mains operation differ from those for battery operation.

Pressing between pipes

<table>
<thead>
<tr>
<th>Pipe-ødₐ [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>15</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>18</td>
<td>20</td>
<td>55</td>
</tr>
<tr>
<td>22</td>
<td>25</td>
<td>60</td>
</tr>
<tr>
<td>28</td>
<td>25</td>
<td>70</td>
</tr>
<tr>
<td>35</td>
<td>30</td>
<td>85</td>
</tr>
<tr>
<td>42</td>
<td>45</td>
<td>100</td>
</tr>
<tr>
<td>54</td>
<td>50</td>
<td>115</td>
</tr>
</tbody>
</table>

**Tab. D — 20**
**Mains operated**
Pressgun 4 E, Pressgun 5
PT2
PT3-EH

**Battery**
Pressgun 4 B, Pressgun 5
PT3-AH

<table>
<thead>
<tr>
<th>Pipe-ødₐ [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>25</td>
<td>55</td>
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<tr>
<td>15</td>
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<td>60</td>
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<td>25</td>
<td>65</td>
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<tr>
<td>28</td>
<td>25</td>
<td>65</td>
</tr>
</tbody>
</table>

**Tab. D — 21**
**Battery**
Picco, Pressgun Picco
Minimum space requirements

Space requirement on structures

Wall spacing
In combination with a tension jaw, \( a_{\text{min}} \) can be reduced

Distance between pressings
Canting avoided
Sealing is assured

Press gun 5/4B/4E, PT2, PT3-AH, PT3-EH

<table>
<thead>
<tr>
<th>Pipe-( \varphi )d_a [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
<th>c [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>25</td>
<td>40</td>
<td>65</td>
</tr>
<tr>
<td>15</td>
<td>25</td>
<td>40</td>
<td>65</td>
</tr>
<tr>
<td>18</td>
<td>25</td>
<td>40</td>
<td>75</td>
</tr>
<tr>
<td>22</td>
<td>30</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>28</td>
<td>30</td>
<td>50</td>
<td>85</td>
</tr>
<tr>
<td>35</td>
<td>50</td>
<td>50</td>
<td>95</td>
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<td>42</td>
<td>50</td>
<td>70</td>
<td>115</td>
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<tr>
<td>54</td>
<td>55</td>
<td>80</td>
<td>140</td>
</tr>
</tbody>
</table>

Tab. D — 22

Fig. D — 182

Press connector bead

Picco

<table>
<thead>
<tr>
<th>Pipe-( \varphi )d_a [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
<th>c [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>30</td>
<td>40</td>
<td>65</td>
</tr>
<tr>
<td>15</td>
<td>30</td>
<td>40</td>
<td>70</td>
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<td>18</td>
<td>30</td>
<td>40</td>
<td>70</td>
</tr>
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<td>22</td>
<td>30</td>
<td>40</td>
<td>75</td>
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<tr>
<td>28</td>
<td>30</td>
<td>40</td>
<td>80</td>
</tr>
</tbody>
</table>

Tab. D — 23

Fig. D — 183

Wall spacing
In combination with a tension jaw, \( a_{\text{min}} \) can be reduced

Distance between pressings
Canting avoided
Sealing is assured

Minimum space requirement \( a_{\text{min}} \) [mm]

<table>
<thead>
<tr>
<th>Pipe-( \varphi )d_a [mm]</th>
<th>PT2</th>
<th>PT3-AH</th>
<th>PT3-EH</th>
<th>Picco Pressgun</th>
<th>Picco Pressgun 5/4B/4E</th>
</tr>
</thead>
<tbody>
<tr>
<td>12–54</td>
<td>45</td>
<td>50</td>
<td>35</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

Tab. D — 24

<table>
<thead>
<tr>
<th>Pipe-( \varphi )d_a [mm]</th>
<th>Minimum distance a [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
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<tr>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>35</td>
<td>10</td>
</tr>
<tr>
<td>42</td>
<td>15</td>
</tr>
<tr>
<td>54</td>
<td>25</td>
</tr>
</tbody>
</table>

Tab. D — 25
Pipe sizes 76.1–108.0 mm Sanpress XL with ring

Between pipes

<table>
<thead>
<tr>
<th>Pipe-ø da [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>76.1</td>
<td>90</td>
<td>185</td>
</tr>
<tr>
<td>88.9</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>108.0</td>
<td>110</td>
<td>215</td>
</tr>
</tbody>
</table>

Tab. D — 26

Between pipe and wall

<table>
<thead>
<tr>
<th>Pipe-ø da [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
<th>c [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>76.1</td>
<td>90</td>
<td>185</td>
<td>130</td>
</tr>
<tr>
<td>88.9</td>
<td>100</td>
<td>200</td>
<td>140</td>
</tr>
<tr>
<td>108.0</td>
<td>110</td>
<td>215</td>
<td>155</td>
</tr>
</tbody>
</table>

Tab. D — 27

Space requirement on structures

<table>
<thead>
<tr>
<th>Pipe-ø da [mm]</th>
<th>Minimum distance a [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>76.1</td>
<td>not required!</td>
</tr>
<tr>
<td>88.9</td>
<td></td>
</tr>
<tr>
<td>108.0</td>
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</tr>
</tbody>
</table>

Tab. D — 28

<table>
<thead>
<tr>
<th>Minimum space requirement a_min [mm]</th>
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</thead>
<tbody>
<tr>
<td>Pipe-ø da [mm]</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>76.1</td>
</tr>
<tr>
<td>88.9</td>
</tr>
<tr>
<td>108.0</td>
</tr>
</tbody>
</table>

Tab. D — 29

Distance between pressings
- Canting avoided
- Sealing is assured

Wall spacing
- Also valid for Sanpress Inox XL and Profipress 64.0 mm
Press tool for Sanpress Inox XL/Profipress 64.0 mm

**Between pipes**

<table>
<thead>
<tr>
<th>Pipe-ø dₐ [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.0</td>
<td>110</td>
<td>185</td>
</tr>
<tr>
<td>76.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>88.9</td>
<td>120</td>
<td>200</td>
</tr>
<tr>
<td>108.0</td>
<td>135</td>
<td>215</td>
</tr>
</tbody>
</table>

*Fig. D — 186*

**Between pipe and wall**

<table>
<thead>
<tr>
<th>Pipe-ø dₐ [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
<th>c [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.0</td>
<td>110</td>
<td>185</td>
<td>130</td>
</tr>
<tr>
<td>76.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>88.9</td>
<td>120</td>
<td>200</td>
<td>140</td>
</tr>
<tr>
<td>108.0</td>
<td>135</td>
<td>215</td>
<td>155</td>
</tr>
</tbody>
</table>

*Fig. D — 187*

**Space requirement on structures**

<table>
<thead>
<tr>
<th>Pipe-ø dₐ [mm]</th>
<th>Minimum distance a [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.0</td>
<td></td>
</tr>
<tr>
<td>76.1</td>
<td></td>
</tr>
<tr>
<td>88.9</td>
<td>15</td>
</tr>
<tr>
<td>108.0</td>
<td></td>
</tr>
</tbody>
</table>

*Tab. D — 30*

<table>
<thead>
<tr>
<th>Pipe-ø dₐ [mm]</th>
<th>Minimum distance a [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.0</td>
<td></td>
</tr>
<tr>
<td>76.1</td>
<td></td>
</tr>
<tr>
<td>88.9</td>
<td>20</td>
</tr>
<tr>
<td>108.0</td>
<td></td>
</tr>
</tbody>
</table>

*Tab. D — 31*
Basic rules for commissioning

- Do not fill the supply system until immediately before operation is due to commence. Should commissioning be delayed, the system must be flushed and this process recorded.
- Keep records of leakage testing, flushing, commissioning and training and hand this documentation over to the operator.
- Explain the benefits of a service agreement to the operator.
- Point out the necessity to change the water regularly and completely (approx. three times per week at all points of use).

SC-Contur
The Viega SC-Contur, which can be found on every Viega press connector, guarantees the identification of non-pressed connections throughout the entire pressure range from 22 mbar to 3 bar (dry) and from 1 bar to 6.5 bar (wet). If the pressure test is carried out during frosty periods, a dry test is recommended in smaller installations as well.

Disinfection
If the water quality does not meet microbiological requirements, it can be disinfected in the Viega press connector system following the disinfection procedures permitted under the terms of the European drinking water ordinance in the defined time periods (total or batch disinfection). The system must always be flushed following disinfection until the concentration of disinfectant meets the concentration levels permissible for continuous disinfection.

We recommend having all disinfection work carried out exclusively by qualified and experienced specialists.

We generally recommend the use of hydrogen peroxide (H₂O₂) and chlorine dioxide, preferred on account of their increased material compatibility.
In accordance with DVGW W 551, 50 mg/l chlorine over 1 – 2 hours is sufficient to disinfect supply systems contaminated with legionella pneumophila. Please refer to the ZVSHK information leaflet entitled »Flushing, disinfecting and commissioning drinking water systems« for more information about the disinfection procedure.

Continuous chlorination compliant with DVGW W 551 – is not suitable for the prophylaxis of legionella pneumophila.

Quote (translated from the original German): »We do not recommend continuous disinfection with chemicals. It will not rid the system of legionella pneumophila.« However, should continuous disinfection prove necessary in the context of a transition phase during modernisation work, this must be carried out in accordance with the terms of the German drinking water ordinance.

Consumers must be informed accordingly (German drinking water ordinance Sections 16 and 20).

European drinking water ordinance specifies limit values for free chlorine of 0.1 to 0.3 mg/l (up to 0.6 mg/l is permitted in exceptional cases approved by the ministry of health). In cases where decentralised disinfection facilities (with the exception of chlorine dioxide) are used in buildings, consumers must prove compliance with the mandatory limit values for trihalogen methane (THM, e.g. chloroform); this is a complex and costly process.

Please contact our Attendorn plant for more information about disinfecting supply systems in buildings in the US.
### Appendix

#### Loss of pressure – tables

**Cold water in stainless steel pipes**

Pipe friction pressure gradient «R» and flow rate «Vs» as a function of peak flow rate «Vs» at a temperature of 10°C for copper and non-corroding steel pipes compliant with DVGW specification sheet W 541.

**Sizes 15 mm to 54 mm**

<table>
<thead>
<tr>
<th>di (mm)</th>
<th>15 x 1.0 mm</th>
<th>18 x 1.0 mm</th>
<th>22 x 1.2 mm</th>
<th>28 x 1.2 mm</th>
<th>35 x 1.5 mm</th>
<th>di (mm)</th>
<th>42 x 1.5 mm</th>
<th>54 x 1.5 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>V (l/m)</td>
<td>R mbar/m</td>
<td>V m/s</td>
<td>R mbar/m</td>
<td>V m/s</td>
<td>R mbar/m</td>
<td>V (l/m)</td>
<td>R mbar/m</td>
<td>V m/s</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>di (mm)</th>
<th>13.0 0.13</th>
<th>16.0 0.20</th>
<th>19.6 0.30</th>
<th>25.6 0.51</th>
<th>32.0 0.80</th>
<th>39.0 1.19</th>
<th>51.0 2.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>V (l/m)</td>
<td>R mbar/m</td>
<td>V m/s</td>
<td>R mbar/m</td>
<td>V m/s</td>
<td>R mbar/m</td>
<td>V (l/m)</td>
<td>R mbar/m</td>
</tr>
</tbody>
</table>

Tab. D – 34
Cold water in stainless steel pipes

**XL-Sizes 64.0 to 108.0 mm**

<table>
<thead>
<tr>
<th>di (mm)</th>
<th>V (l/m)</th>
<th>R mbar/m</th>
<th>V (m/s)</th>
<th>R mbar/m</th>
<th>V (m/s)</th>
<th>R mbar/m</th>
<th>V (m/s)</th>
<th>R mbar/m</th>
<th>V (m/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.0</td>
<td>64.0</td>
<td>15.7</td>
<td>3.2</td>
<td>4.2</td>
<td>5.9</td>
<td>8.4</td>
<td>1.2</td>
<td>2.3</td>
<td>1.8</td>
</tr>
<tr>
<td>76.1</td>
<td>76.1</td>
<td>11.3</td>
<td>5.9</td>
<td>2.5</td>
<td>2.0</td>
<td>2.3</td>
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<td>1.7</td>
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<tr>
<td>60.0</td>
<td>60.0</td>
<td>13.2</td>
<td>5.9</td>
<td>2.5</td>
<td>2.0</td>
<td>2.3</td>
<td>1.5</td>
<td>2.0</td>
<td>1.7</td>
</tr>
<tr>
<td>88.9</td>
<td>88.9</td>
<td>11.8</td>
<td>5.9</td>
<td>2.5</td>
<td>2.0</td>
<td>2.3</td>
<td>1.5</td>
<td>2.0</td>
<td>1.7</td>
</tr>
<tr>
<td>106.0</td>
<td>106.0</td>
<td>11.2</td>
<td>5.9</td>
<td>2.5</td>
<td>2.0</td>
<td>2.3</td>
<td>1.5</td>
<td>2.0</td>
<td>1.7</td>
</tr>
</tbody>
</table>

*Tab. D – 35*
Warm water in stainless steel pipes

Pipe friction pressure gradient »R« and flow rate »V« as a function of peak flow rate »Vs« at a temperature of 60°C for copper and non-corroding steel pipes compliant with DVGW specification sheet W 541.

<table>
<thead>
<tr>
<th>Sizes 15mm to 54mm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>di</strong> (mm) <strong>V</strong> (l/m)</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td><strong>Vs</strong></td>
</tr>
<tr>
<td>0.05</td>
</tr>
<tr>
<td>0.08</td>
</tr>
<tr>
<td>0.10</td>
</tr>
<tr>
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| Tab. D – 36 |

1 Drinking water installations – Appendix

107
Loss of Pressure: Warm water in stainless steel pipes

**XL-Sizes 64.0 to 108.0mm**

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**Tab. D — 37**
Report – Flushing with water

Building project

Customer represented by

1. Pressure testing was performed on

2. Pipe system material

3. Table: Standard values for the minimum number of points of use to be opened based on the largest nominal width of the distribution piping system

<table>
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<th>Largest nominal width of the distribution pipeline in current flushing section</th>
<th>25</th>
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<td>Minimum number of extraction points to be opened</td>
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On a single floor, the points of use are opened starting with the point of use furthest away from the riser run.

After a 5-minute flushing period at the last flushing point opened, the points of use are closed one after the other in the reverse order.

5. The drinking water used for flushing is filtrated. Static pressure \( P_w \) = _______ bar.

6. Maintenance fittings (floor shut-off devices, preliminary shutoff devices) are opened fully.

7. Sensitive fittings and instruments are dismantled and replaced by adapters or bridged by flexible lines.

8. Water jet regulators, aerators, flow limiters are dismantled.

9. Installed dirt trap sieves and dirt traps in front of fittings are to be cleaned after flushing with water.

10. Starting from the main shutoff valve, the system is flushed in sequence section by section as far as the furthest point of use.

The drinking water system has been properly flushed

Place ____________________________________________ Date ________________________________

______________________________________________  _______________________________________
Signature of Customer/Representative                Signature Contractor/Representative
Systems: Sanpress, Sanpress Inox, Profipress – Test medium: Compressed air or inert gas

Building project

Building section

Customer represented by

Contractor represented by

Pipe system material

Type of connection

System pressure ______ bar
Ambient temperature ______ °C
Test medium ______ °C

Test medium 

- Oil-free compressed air
- Nitrogen
- Carbon dioxide

The drinking water system has been tested as

- Complete unit
- In ______ sections

All pipes are closed with metallic plugs, caps, blanking disks or blanking-off flanges. Instruments, pressure vessels or dirking water heaters are isolated from the pipes. A visual check of all pipe connections to ensure that these are correct has been carried out.

1. Leakage test

Title pressure 110 mbar
Up to 100 litres of pipe capacity minimum test period 30 minutes; the test period must be increased by a further 10 minutes for each additional 100 litres.

Piping system capacity _____ litres 
Test period ____ minutes

Wait for temperature adjustment and steady-state condition with plastic materials before starting the test period.

Yes No
Carry out a visual check of line system/check using a pressure gauge U-tube/standpipe water column carried out?

Any evidence of air passing through during leak testing?

2. Load test under increased pressure

Wait for temperature adjustment and steady-state condition with plastic materials before starting the test period.

Test pressure ≤ DN50 max. 3 bar
Test pressure > DN50 max. 1 bar
Test pressure: 10 Minutes

Place ___________________________ Date ___________________________

Signature of Customer/Representative Signature Contractor/Representative
Report – Pressure test for drinking water supply systems

Systems: Sanpress, Sanpress Inox, Profipress – Test medium: Water
Pressure gauges which will clearly indicate pressure changes of 0.1 mbar must be used.

Building project

Building section

Customer represented by

Contractor represented by

Have all vessels, appliances and fittings which are not suitable for pressurisation been isolated from the system/section to be tested during the pressure test?  Yes ☐ No ☐

Has the system/section to be tested been filled with filtrated water and completely vented? ☐ ☐

**SC-Contur functional test**
In the event of significant temperature differences (10 K) between ambient and fill-up water temperature, has a 30-minute waiting time for temperature adjustment been adhered to following establishment of the test pressure? ☐ ☐

Pressure corresponds to the available supply pressure of ____ bar but does not exceed 6.5 bar! ☐ ☐

Carry out a visual check of line system/check using a pressure gauge ☐ ☐

Did the pressure drop during the functional test? ☐ ☐

Were any leaks detected during the functional test? ☐ ☐

**System pressure test**
Was pressure testing of the drinking water supply system carried out at a minimum test pressure of 15 bar? ☐ ☐

The test period is 10 minutes. ☐ ☐

Did the pressure drop during the test period? ☐ ☐

Were any leaks detected during the test period? ☐ ☐

Place ____________________________ Date ____________________________

Signature of Customer/Representative ________________________

Signature Contractor/Representative ________________________
Combination of pipe materials in drinking water installations

This chapter gives us an overview of the relevant aspects concerning the planning and application of metallic Viega piping and press connector systems. In practice, there are requirements relating to storey distributors, which, in addition to metallic cellar distributors and riser pipes, can be fulfilled excellently using plastic piping systems. PE-Xc pipes with PE-protective pipes have been especially effective here.

Viega produces these types of piping systems as well as pre-wall installation systems with flushing technology for wall-hung WCs and urinals in its range. Further details can be found in Application Technology Vol. 2 and on your national Viega website.
2 Heating technology

Copper piping systems

Profipress – System description

**Intended use**

Profipress is a heating installation system with press connecting technology especially for the connection of heating boilers and units in warm water heating system. The system is designed for heating installations according to EN 12828

- Operating temperature \( T_{\text{max}} \leq 105^\circ\text{C} \)
- Performance \( \leq 1 \text{ MW} \).

Apart from drinking water pipes with a wall thickness of at least 1 mm, heating systems with copper pipes with smaller wall strengths according to EN 1057\(^1\) can be used.

You must seek approval from Viega Service Center before using Profipress in any application other than those described.

**Other uses**

- Manifold
- Manifold and riser pipes
- Solar thermic systems
- Distance heating systems (>110 °C – with FKM-sealing element)

---

\(^1\) Regard the minimum wall thickness acc. to Tab. H – 1

**Connectors**

With press- and threaded connectors

---

*Fig. H – 1  Fig. H – 2*
Technical data
Copper pipes according to EN 1057 (Minimum wallthickness see Tab. H-1)

- Press connector 12 – 108.0 mm copper
- Press connector with threaded joint
  - 12 – 54 mm gunmetal
  - 64.0 – 108.0 mm copper

Black; EPDM (ethylene propylene diene rubber) up to 110 °C; not resistant to hydrocarbon solutions or chlorinated hydrocarbons, turpentine and petrol

Rod and rolls (see table)

- Profipress with SC-Contur  DVGW-Reg.-Nr. DW-8511AP3139
- Profipress XL  DVGW-Reg.-Nr. DW-8511AT2347

Copper pipes according to EN 1057

12/15/18/22/28/35/42/54
64.0/76.1/88.9/108.0

<table>
<thead>
<tr>
<th>d x s_{\text{min}}</th>
<th>Volume per running metre of pipe [Litres/m]</th>
<th>Size</th>
<th>Material</th>
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<tbody>
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</tr>
<tr>
<td>54 x 1.2</td>
<td>2.04</td>
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</tbody>
</table>

| Profipress-XL       |                                            |      |          |
| 64.0 x 2.0          | 2.83                                        | XL   | Copper   |
| 76.1 x 2.0          | 4.08                                        |      |          |
| 88.9 x 2.0          | 5.66                                        |      |          |
| 108.0 x 2.5         | 8.33                                        |      |          |

*Tab. H – 2*
Components

Fig. H – 3

Pipes
Alongside drinking water pipes with a wall thicknesses of at least 1 mm, heating systems with copper pipes with smaller wall thicknesses according to EN 1057 can be used (Minimum wall thickness see Tab. H–1).

Press connectors
The comprehensive Profipress range allows a great number of installation and connection possibilities in the boiler and fitting connection field as well as with boiler, manifolds and risers. XL-Sizes are identical to those of the drinking water installation. The construction of prefabricated manifold systems and the connection of valves, fittings and appliances is made possible by flanges, adapters and threaded connectors with a direct press connection.
All sizes are identical to those of the drinking water installation. The construction of prefabricated manifold systems and the connection of valves, fittings and appliances is made possible by flanges, adapters and threaded connectors with a direct press connection.

Profipress – XL-Sizes

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<thead>
<tr>
<th>d x s [mm]</th>
<th>Volume per running metre of pipe [Litre/m]</th>
<th>Size</th>
<th>Material Press connector</th>
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<td>XL</td>
<td>Copper</td>
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<tr>
<td>76.1 x 2.0</td>
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<td>88.9 x 2.0</td>
<td>5.66</td>
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</tr>
<tr>
<td>108.0 x 2.5</td>
<td>8.33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Copper connectors

For the connection of fittings and valves

With all the advantages of the Viega system range

- Tested according to DVGWW 534
- SC-Contur
- Press connection for nearly all connection variations
- Press machine with battery or mains powered
- More than 500 System-components
Easytop-ball valves

Easytop-ball valves are suitable for heating installations according to EN 12828 and configured for a maximum operating temperature of 105 °C. They are the preferred choice for manifold installation and the installation of connection and maintenance fittings, units and apparatus and storey and riser pipe shut-offs.

Coloured caps make it possible to colour code the different media for example heating supply; red, heating backflow; blue a new addition to the easy top ball valve range is the ball valve with pump connection optional with a gravity brake.

Fig. H — 6
Sealing elements

Factory fitted EPDM sealing elements

- Maximum safe operating temperature $T_{\text{max}} = 110^\circ \text{C}$
- Maximum operating pressure $p_{\text{max}} = 10$ bar

- FKM sealing elements (special accessory)
  - Maximum operating temperature $T_{\text{max}} = 140^\circ \text{C}$
  - Maximum operating pressure $p_{\text{max}} = 16$ bar

The factory fitted seal elements made of (black) EPDM offer enough safety precautions for typical applications in building technology. In case of higher requirements for example for solar pipe collectors FKM sealing elements can be ordered and manually exchanged, also the Pro-fipress S system can be used (fittings assembled with FKM sealing elements).

FKM sealing elements may not be used for gas and drinking water installations.
Application technology

Riser pipes
In cross connections water flows around the internal pipe, this principal allows pipes on the same level to be crossed. The assembly takes places flat on the wall or in floor space.

Advantages
- Low installation height
- Installation on one level
- Breaking work no longer necessary
- Ideal in cramped conditions
- Easy installation even on the floor
- Less material required

The cross pieces and the bridging piece make it possible for direct connection on the riser, even in very cramped conditions.

Advantages
- Time saving assembly
- Suitable for cramped conditions
- Optically attractive visible installations
- Tried and tested solution for public buildings
Back flow connection
Backflow connections for radiators can be supplied with press connections in angled or straight through versions.

Advantages
- Cold press connection technology: no extra work with soldering iron
- No time lost dismantling heat sensitive seals and re-assembly after cooling phase
- No burnt or melted connection points
- Optically attractive gun metal, nickel plated

Fig. H — 9

Radiator connection
Renovation without the danger of fire

Fig. H — 10

Burn marks and traces of handling may be unavoidable with soldering

Fig. H — 11

The cold press connection technology – clean work from the beginning
Radiator connections

With Central Floor manifold

The Floor manifold – also allowed in inaccessible areas – avoids the crossing of pipes. *Fig. H–12* shows the radiator connection via many interconnected Floor manifolds in connection with factory insulated copper pipe:

- Space saving as no heat circuit manifold necessary
- Crossing free pipes with low floor construction height
- Short assembly time
- No extra connections necessary
- Installation of the complete floor distribution with press connectors

Three interconnected Floor manifolds supply four outlets for radiator connection. It is possible to fit a reducer sleeve at the manifold end (e.g. 22 x 15).

When turning on a Floor manifold, observe supply and backflow.

---

*Fig. H – 12*
Possible applications

- For radiator connection via multiple connected Floor manifolds
- For installation in inaccessible areas, avoids the overlaying of pipes and allows the professional insertion in the floor
With Crossover-tee

**Fig. H — 16**

**Crossover-tee**
With copper piping out of the floor

**Fig. H — 17**

When turning the Crossover-tee pay attention to the outlets for supply and backflow.
Bare pipes and press connection should be isolated and protected from external mechanical influences.
Assembly tip
The following should be observed when laying pipes,

- The installation is tension-free.
- The pipes will not touch each other or cause damage due to thermal expansion.
- Gliding pipe fasteners being used do not restrict the pipes when they change length.
- Pipe fasteners do not become fixing points by mistake.
With Tee-installation

![Fig. H — 21](image1)
![Fig. H — 22](image2)

Connection with Radiator connection block
Radiator with Radiator connection set and adapter set (for valve radiators with male or female thread). The Radiator connection block is installed in the wall, connected with copper pipes, laid in the equalising layer in the screed construction.
If the screed construction height is more than 90 mm then we recommend the Radiator connection block with a construction height of 225 mm.

![Fig. H — 23](image3)
![Fig. H — 24](image4)

Tee-installation
Connection through the floor and via the radiator connection block out of the wall

Assembly situation
Advantages of assembling the Radiator connection block

- Pre-fabricated connection intervals of 50 mm
- Radiator fitting after all plastering, screed and paintwork is completed.
- No extra work due to repeated assembly and disassembly of the radiator
- No damage to the radiator and connecting pipes during construction work
- No need for temporary storage, no damage to the radiator all the way to the final assembly
- No extra bleeding of the heating system necessary
- Leak test and test heating with radiator assembly (Winter mode)
- Low construction depth in the bare wall
- Colour co-ordination between stainless steel and galvanised steel radiator connection piece
With Baseboard radiator connection

- For standard skirting boards
- Optically attractive, with connection pieces made of nickel plated gunmetal
- For all standard radiator-variations
- No fire prevention measures necessary.
Adapter sets for valve radiators

<table>
<thead>
<tr>
<th>Radiator connection pieces/sets</th>
<th>Valve radiator</th>
<th>G ¾ Adapter set model</th>
<th>Rp ½ Adapter set model</th>
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<tbody>
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<td></td>
<td></td>
<td>1022.5</td>
<td>1022.6</td>
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<td>1096.9</td>
<td>1096.8</td>
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</table>

*Tab. H — 4*

Required adapter set and valve radiator connection piece for radiator with male and female thread.
Insulation and laying of pipe systems*
Depending on the application and pipe material, the insulation, laying and fastening of the pipes according to the technical regulations is necessary for the following reasons:

- Protection against the build up of condensation
- Prevention of external corrosion
- Limitation of heat loss
- Prevention of noise due to elongation
- No transfer of flowing noises

Pipes, if not already coated or insulated in the factory, should be protected against external corrosion, irrelevant of heat insulation requirements and should be insulated against the transfer of flowing noises, as should all moulded and connection pieces. When laying the pipes, they should be fastened in such a way that elongation due to heat should not cause any noises which could disturb the user.

If piping systems are laid on a supporting surface they must be fastened. When fitting the insulating layer, at least the footfall insulation, it is necessary to obtain an even surface. For levelling above the piping system only secured filler should be used.

Insulation against heat loss*
To limit the heat loss in pipe systems for heat distribution they should be insulated.
Heat distributing systems
Heating piping systems are regarded as heating distributing systems and
have to be insulated to reduce heat loss according to EnEV, Appendix 5
General advice for floor laid piping systems
- pipes in floors between heated rooms, even those from different owners, need to be insulated with only 9 mm – based on
  $\lambda = 0.04 \text{ W/mK}$.
- If pipes from central heating from lines 1 – 4 in heated rooms or in areas between heated rooms of one owner and their heat emission can be controlled via freely accessible shut-off valves then there are no requirements for the minimum thickness of the insulating layer.

### Minimum insulation layer thicknesses

<table>
<thead>
<tr>
<th>Type of pipe/fitting</th>
<th>Minimum insulating layer thickness based on a heat conductivity of 0.035 W/(m·K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Internal diameter up to 22 mm</td>
<td>20 mm</td>
</tr>
<tr>
<td>2 Internal diameter over 22 up to 35 mm</td>
<td>30 mm</td>
</tr>
<tr>
<td>3 Internal diameter over 35 up to 100 mm</td>
<td>Equal to internal diameter</td>
</tr>
<tr>
<td>4 Internal diameter over 100 mm</td>
<td>100 mm</td>
</tr>
<tr>
<td>5 Pipes and fittings according to lines 1 to 4 in walls and ceiling openings, pipe crossings, at piping system connection points, at piping system network manifolds</td>
<td>1/2 the requirement from lines 1 to 4</td>
</tr>
<tr>
<td>6 Piping systems from central heating according to lines 1 to 4, which were fitted between heated rooms with different users after this ordinance came into effect</td>
<td>1/2 the requirement from lines 1 to 4</td>
</tr>
<tr>
<td>7 Piping systems according to line 6 in floor construction</td>
<td>6 mm</td>
</tr>
<tr>
<td>8 Cooling distribution and cold water pipes, as well as from room air technology and air cooling systems</td>
<td>6 mm</td>
</tr>
</tbody>
</table>

Tab. $H - 5$
Pipes in floors

Tab. H-4 refers to minimum insulation layer thicknesses based on a conductivity of the insulation material of 0.035 W/mK. If an insulating material is used which is not in the WLG 035 group the minimal thickness of the insulation layer must be recalculated. In this example we use WICU-extra pipes, which are factory insulated pipes whose insulating material has a heat conductivity of 0.025 W/mK. This leads to a minimising of the total outer diameter which allows minimal floor construction heights.

Examples

Fig. H – 33

1. Cement screed
2. PE-Foil
3. Footfall insulation
4. Leveling layer WLG 040 (e.g. polystyrene tiles)
5. Pipes, coated
6. Filling (Meabite/Perlite)
7. Concrete ceiling
8. Pipe fastener (Nylon)

Insulating of pipes in the floor
Copper 15 mm, plastic coated, in ceiling between heated rooms belonging to one owner
Insulation of piping systems in the floor

Copper pipe, 50%, 15 mm, with factory fitted surrounding insulation ($\lambda = 0.026 \text{ W/mK}$), in closed ceiling between heated rooms from different users.

**Fig. H – 34**

1. Cement screed
2. PE-Foil
3. Footfall insulation
4. Leveling layer WLG 040 (e.g. polystyrene tiles)
5. Factory fitted insulation
6. Filling (Meabite/Perlite)
7. Concrete ceiling

Insulation of piping systems in the floor

Copper pipe, 50%, 15 mm, with factory fitted surrounding insulation ($\lambda = 0.026 \text{ W/mK}$), in the floor against the earth, outside air or unheated rooms.

**Fig. H – 35**

1. Cement screed
2. PE-Foil
3. Footfall insulation
4. Leveling layer WLG 040 (e.g. polystyrene tiles)
5. Factory fitted insulation
6. Filling (Meabite/Perlite)
7. Concrete ceiling
8. Ground (broken stones)
Mixed installations
Because during the heating of the unit nearly the entire oxygen content is thermally removed from the system, the Profipress system can be mixed with other pipes and components of other metallic materials without risk of corrosion.

An undue oxygen intake in the heating water must be prevented via competent construction of the heating system, secured fittings and installation of the compensating tank (MAG).

If an oxygen build up in the system cannot be safely prevented the technical standard VDI 2035 gives further information on how to continue, for example, the chemical binding of oxygen.

Leakage test
With water
All pipes should be tested in a finished condition although not yet covered with a leakage test.

The system will be tested with a pressure equal to the response pressure the safety valve.

With air
The leakage test of the Profipress-System in heating systems can also be carried out with pressurised air or inert gases.
District heating systems
Profipress can be used in district heating systems

EPDM sealing elements (Standard sealing elements)
- Maximum safe operating temperature 110 °C
- Maximum operating pressure 10 bar

FKM sealing elements (special accessory)/Profipress S system
- Maximum operating temperature 140 °C
- Maximum operating pressure 16 bar

FKM-Sealing elements

<table>
<thead>
<tr>
<th>Press system</th>
<th>Profipress</th>
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<tbody>
<tr>
<td>Name</td>
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</tr>
<tr>
<td>Area of use</td>
<td>Solar systems</td>
</tr>
<tr>
<td></td>
<td>Vacuum pipes</td>
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<tr>
<td></td>
<td>District heating systems</td>
</tr>
<tr>
<td>Colour</td>
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<td>Sizes</td>
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Order data

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<td>108.0 x 5.0</td>
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</table>

Tab. H – 6

If additives are present in the district heating water, e.g. corrosion or frost prevention solutions, Profipress can only be used with permission from Viega Service Center.
Profipress S – System description

Intended use
Profipress S-press connectors are suitable for use in heating systems with temperatures of over 100 °C and short term peak temperatures of over 280 °C together with copper pipes in accordance with DIN EN 1057.
- Solar systems
- District heating systems
- Low pressure steam systems

Use with Profipress-press connectors is allowed, if it retrofitted with FKM sealing elements (12 - 35 mm).

The use of the system in plants with additives (e.g. anti-corrosion or anti-freeze solutions) in the heating water or for other uses other than those described must be approved by Viega Service Center.

Operating conditions for district heating systems
- Operating pressure $p_{\text{max}} \leq 16$ bar
- Operating temperature $T_{\text{max}} \leq 140$ °C

Operating conditions for low pressure steam systems
- Operating pressure $p_{\text{max}} < 1$ bar
- Operating temperature $T_{\text{max}} \leq 120$ °C

Marking
- White dot on the SC-Contur crimp.
- White square with FKM ID mark.

Use of Profipress S- and Profipress-press connectors with FKM sealing elements is not permitted in drinking water and gas installations.

Fig. H — 37
Fig. H — 38
Application technology

Piping system
- The supply is with rising gradient, the backflow with falling gradient, therefore allowing the system to be emptied if required.
- When emptying the system the heat transfer medium must be collected in a container.
- When laying the collector piping system the maximum expected thermal elongation should be taken into account.

Example of thermal elongation: If the length of a pipe at an average temperature of 15°C is 15 m then the pipe expands by roughly 21 mm at an average temperature of 100°C.

Pipe material
For use in solar thermic systems, copper pipes with low wall strengths, which conform to EN 1057, can be used with Profipress (See minimum wall thickness acc. to Tab. H-1).

Warning with pre-insulated pipes!
The maximum operating temperature of the insulating material is normally only 100°C.
Refer to the manufacturer’s documentation.

Flushing
The simple flushing process is adequate to flush the system with Profipress that means with water and normal pressure. The whole collector system is flushed including solar thermic unit, collector and storage all in flow direction of the pump.

To prevent boiling or freezing of the flushing liquid the unit should not be flushed at extremely high or low external temperatures.

Pressure test
The pressure test is to be carried out according to the documentation of the individual collector manufacturer.

Attention: detailed information for the assembly of solar thermic units can be obtained, for example, from the Deutsches Kupfer Institut.
Solar thermic system
Domestic connection

Fig. H — 39
Steel piping systems

Prestabo – System description

**Intended use**
The Prestabo-system is designed for use in industrial and heating units and not suitable for use in drinking water installations. Pipes and connectors are therefore marked with a red symbol »not for drinking water installations«.

Prestabo-components may only be used with components that belong to the system. Use of the system for applications other than those described is only permitted with permission from Viega Service Center.

The press connectors come with SC-Contur and a visibly leaky in an unpressed condition.

**Conditions of use when applied with EPDM sealing elements**

- Water, closed system: Operating temperature $T_{\text{max}} = 110 ^\circ \text{C}$; $p_{\text{max}} \leq 16 \text{ bar}$
- Pressurised air, dry and oil free: $p_{\text{max}} \leq 16 \text{ bar}$

**Conditions of use with FKM sealing element**

- Water: Operating temperature $T_{\text{max}} = 140 ^\circ \text{C}$; $p_{\text{max}} \leq 16 \text{ bar}$
- High pressure air, dry but contains oil: $p_{\text{max}} \leq 16 \text{ bar}$
Technical data
Non-alloyed steel material no 1.0308 according to EN10305-3, externally galvanized. Pipe sizes 15 to 54 mm also available with 1.0 mm PP coating.

Factory fitted EPDM sealing element as O-ring for operating temperatures \( \leq 110 ^\circ C \) and operating pressure up to 16 bar.

6 m lengths, tested against leakage and marked as such

12/15/18/22/28/35/42/54
64.0/76.1/88.9/108.0

- Solar thermic systems (PP coated pipe excluded)
- Air-conditioning units
- Heating systems
- Pressurised air systems
- Vacuum systems
- Systems for technical gases (on request)

### Pipe statistics Prestabo-pipe, blank

<table>
<thead>
<tr>
<th>Pipe ( \text{\varnothing}_{\text{external}} \times s ) [mm]</th>
<th>Volume per metre [Liter/m]</th>
<th>Weight per metre [kg/m]</th>
<th>Weight per 6 m length [kg]</th>
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<td>5.66</td>
<td>4.29</td>
<td>25.7</td>
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<td>8.49</td>
<td>5.23</td>
<td>31.4</td>
<td>598358</td>
</tr>
</tbody>
</table>

### Pipe statistics Prestabo-pipe, coated

<table>
<thead>
<tr>
<th>Pipe ( \text{\varnothing}_{\text{external}} \times s ) [mm]</th>
<th>Volume per metre [Liter/m]</th>
<th>Weight per metre [kg/m]</th>
<th>Weight per 6 m length [kg]</th>
<th>Article-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 x 2.2</td>
<td>0.13</td>
<td>0.45</td>
<td>2.7</td>
<td>577117</td>
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<tr>
<td>20 x 2.2</td>
<td>0.19</td>
<td>0.60</td>
<td>3.3</td>
<td>577124</td>
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<td>24 x 2.5</td>
<td>0.28</td>
<td>0.82</td>
<td>4.9</td>
<td>577131</td>
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<td>30 x 2.5</td>
<td>0.49</td>
<td>1.10</td>
<td>6.4</td>
<td>577148</td>
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<tr>
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<td>0.80</td>
<td>1.30</td>
<td>8.1</td>
<td>577551</td>
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<tr>
<td>44 x 2.5</td>
<td>1.19</td>
<td>1.60</td>
<td>9.7</td>
<td>577568</td>
</tr>
<tr>
<td>56 x 2.5</td>
<td>2.04</td>
<td>2.10</td>
<td>12.6</td>
<td>577575</td>
</tr>
</tbody>
</table>

Tab. H — 8
Components

Pipes
Prestabo steel pipes are thin-walled, lengthwise welded pipes made of non-alloyed steel Material no 1.0308 according to EN 10305-3 externally galvanized with a zinc layer thickness of 8 to 15 µm (blue chromatised). They are stable with low heat expansion and therefore ideal for cellar and risers in heating installations.

Pipe sizes
- Blank – all sizes: For concealed installations, cellars and riser pipes. Heat carrying pipes will be insulated retrospectively.
- Coated 15 – 54 mm with PP coating optically attractive visible installations.
- Pipe lengths of 6 m with metallic blank outer and inner surface.
- The pipe ends are closed with red plastic caps to prevent contamination.
- All pipes are tested for leakage.

Fig. H – 42

Marking
Not suitable for drinking water (also refer to next page)
Pipe markings

![Pipe markings diagram](image)

Fig. H — 43

1. System manufacturer/system name
2. Material No.
3. Coating material
4. Nominal width x wall thickness
5. Abbreviation of pipe manufacture
6. Date of manufacture
7. Charge number

Fig. H — 44

1. System manufacturer/system name
2. Material No.
3. Nominal width x wall thickness
4. Charge number
5. Certification symbol/-number
6. Pressure level

Storage and transportation
To ensure the uncompromised quality of the Prestabo steel pipes, the following guidelines must be taken into account when transporting and storing pipes:

- Packaging and protective films (only for pipes wrapped in PP film) shall only be removed shortly before use.
- The pipe ends must be closed with end caps when delivered before use.
- Do not store the pipes on the concrete floor without protection.
- Do not stick protective foils or similar to pipes.
- Do not pull pipes over loading sills.
- Only use a steel cleaning agent to clean the surfaces of pipes.
Press connectors
All press connectors are made non-alloyed steel material no 1.0308 according EN 10305-3, externally galvanized with a zinc coating of 8 – 15 μm (blue chromatised).

SC-Contur
The SC-Contur flags up non-pressed press connectors when the system is filling up. Non-pressed press connectors, indicated by water leaking or the pressure reading on the test gauge, can be detected reliably at pressures from 1 bar to 6.5 bar and pressed immediately.

Technical characteristics
- SC-Contur – red marking on the crimp
- Precise insertion zone, in diameter, length and straightness
- Pre-determined insertion depth through moulded stopper
- Factory fitted sealing element made of EPDM
- The volume of the press sleeve crimp made exactly for the sealing element
- In accordance with the recognised engineering standards
- Extensive fitting range
- Viega-Press machines – battery or mains operated – for the economical one man assembly
Sealing elements

EPDM

Prestabo-Press connectors are factory fitted with EPDM sealing elements, which are adequate for most applications. Some typical applications are listed in the following table.

### Prestabo-application with EPDM-sealing element

<table>
<thead>
<tr>
<th>Field of application</th>
<th>Application range</th>
<th>$T_{\text{max}}$ [°C]</th>
<th>$p_{\text{max}}$ [bar]</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating</td>
<td>Pump hot water heating 95°C Radiator connection</td>
<td>max. 105</td>
<td>–</td>
<td>EN 12828</td>
</tr>
<tr>
<td>Solar thermic systems</td>
<td>Solar circuit</td>
<td>–</td>
<td>6</td>
<td>for flat collectors</td>
</tr>
<tr>
<td>Air-conditioning units</td>
<td>Secondary circuit closed</td>
<td>–</td>
<td>10</td>
<td>Inhibitors for cold water sets, see material constitution</td>
</tr>
<tr>
<td>Pressurised air</td>
<td>Whole piping system</td>
<td>20</td>
<td>16</td>
<td>Dry, max. oil concentration 25mg/m³</td>
</tr>
<tr>
<td>Vacuum</td>
<td>Whole piping system</td>
<td>20</td>
<td>1.0 mbar</td>
<td></td>
</tr>
<tr>
<td>Technical gases</td>
<td>Whole piping system</td>
<td>20</td>
<td>–</td>
<td>Feedback required!</td>
</tr>
</tbody>
</table>

*Tab. H — 9*

FKM

For application areas with higher temperatures and pressure, press connectors can be fitted with an FKM sealing element. The factory fitted EPDM sealing element can be exchanged for the FKM sealing element. Examples in the following table.

### Prestabo-areas of use with FKM-sealing elements

<table>
<thead>
<tr>
<th>Area of use</th>
<th>Application</th>
<th>$T_{\text{max}}$ [°C]</th>
<th>$p_{\text{max}}$ [bar]</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>District heating</td>
<td>District heating after house connection</td>
<td>140</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Steam</td>
<td>Low pressure steam systems</td>
<td>120</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Solar thermic systems</td>
<td>Solar circuits</td>
<td>–</td>
<td>6</td>
<td>For vacuum collectors</td>
</tr>
</tbody>
</table>

*Tab. H — 10*

### Order Data FKM-sealing elements

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 2.35</td>
<td>459376</td>
<td>42 x 4.13</td>
<td>459444</td>
</tr>
<tr>
<td>15 x 2.60</td>
<td>459390</td>
<td>54 x 4.13</td>
<td>459451</td>
</tr>
<tr>
<td>18 x 2.60</td>
<td>459406</td>
<td>64.0 x 5</td>
<td>614461</td>
</tr>
<tr>
<td>22 x 3.10</td>
<td>459413</td>
<td>76.1 x 5</td>
<td>614485</td>
</tr>
<tr>
<td>28 x 3.10</td>
<td>459420</td>
<td>88.9 x 5</td>
<td>614478</td>
</tr>
<tr>
<td>35 x 3.25</td>
<td>459437</td>
<td>108.0 x 5</td>
<td>614492</td>
</tr>
</tbody>
</table>

*Tab. H — 11*
Application technology

Protection from external corrosion

Prestabo pipes and connectors are protected by an external galvanisation. Nevertheless, additional protective measures are needed against long-term moisture or in case of contact with corrosive building materials.

- Use of closed-cell insulation tubes with professional sealing of all abutting and cut edges using a suitable filler.
- Check separating foil in floor constructions for complete impermeability.
- Installation outside of areas at risk of moisture.
- Visible radiator connections rising from the floors should be avoided if floors will be cleaned frequently with water and/or cleaning agents/disinfectants, for example in retirement homes and care homes. Wall connections make cleaning easier and also exclude any additional risks of corrosion.
- If the radiator connections do come from the floor, professional corrosion protection and professional sealing of the joints must be ensured in order to rule out any risk of corrosion caused by penetrating cleaning water.
- Use of covered pipes (Prestabo) – Other pipe qualities must be protected additionally against corrosion in accordance with the manufacturer’s instructions.

As a basic principle, connecting radiators from the wall, professional sealing joints and using covered pipes are the best measures to avoid corrosion.

If, despite the above measures, no permanent protection against moisture can be guaranteed or if the areas of use have particular requirements - e.g. in cooling circuits - then special corrosion protection measures must be taken and checked in each individual care. The manufacturer information of the produces used along with the AGI Worksheet Q 151 must be heeded for these measures.

Irrespective of corrosion protection, the location of thermal insulation must be checked in each individual case.

Industrial use

For installations within the industrial area, with contamination caused by aggressive ambient air, the pertinent internal factory standards must also be taken into consideration. If pipes are installed in components of bathrooms, industrial kitchens and butchers’ shops that are continually subject to moist conditions, then the following protective measures have proven themselves to be effective

- Use of closed-cell insulation tubes, with careful sealing of all abutting and cut edges using a suitable filler.
- Waterproofing of the installed pipes using separating foil in floor constructions.
- Installation of pipes away from the areas at risk.
Cooling water circuits
The Viega Prestabo press connector system can be used in all closed cooling water circuits, in which it is not possible for oxygen to enter during operation.
Due to the operating conditions in cooling water systems, it can be necessary to equip the carrier medium with an anti-freeze agent. If the glycol proportion of the total water content is less than 50%, standard EPDM sealing elements can be used. Viega Sendzimir galvanised pipes are not suitable for this use.
According to DIN EN 14868 (2005-11), the refilling of a system does not normally lead to significant oxygenation. However, the oxygenation can lead to system damage (corrosion) if the circulation water in the system is regularly topped up as the result of losses or - e.g. through automatic dosing - considerable amounts of fresh water are added.
Following the VDI Guideline 2035 Tab. 1, the oxygen content of low-salt water should be less than 0.1 mg/l. For salty water, this should be less than 0.02 mg/l.

Protection from internal corrosion (three-phase limit)
When it comes to metallic materials, corrosion can occur in the region of the three-phase limit of water, material and air. This corrosion can be avoided if the system remains completely full of water after the first filling and ventilation procedure. If the system is not commissioned immediately after installation, we recommend a pressure and leakage test with air or inert gases.

Insulation and installation*
Depending on the use and pipe material, the insulation, installation and attachment of pipes must be carried out in accordance with the recognised rules of technology for the following reasons
- Protection from the build-up of condensation
- Avoidance of external corrosion
- Limiting of heat losses
- Avoidance of cracking sounds due to thermal expansion
- No transfer of flow noise

Blank Prestabo pipes and all forms and connecting parts must be insulated against external corrosion and from the transmission of flow noises on-site - irrespective of the insulation requirements of the EnEV.
During installation, pipes must be attached in such a way that operation-related elongations do not cause any cracking sounds, which can severely reduce the comfort of the user.
If the installation is fed through fire compartments, the product information of the insulation manufacturer must be taken into consideration for the heating pipes.

Addition of glycol

Permitted oxygen content

The EnEV (Energy Saving Regulation) requirements apply.
Insulation against heat losses
To limit heat transfer from the pipes to the heat distribution, we recommend insulating these in accordance with EnEV, Appendix 5. National regulations must be taken into consideration.

Examples with pipes installed in the floor

![Fig. H — 46](image)

Example: Insulation of pipes in floor constructions
Prestabo pipe 15 mm, with Exzentroflex insulation (h = 38 mm) as radiator connector in the ceiling between the heated rooms of various users
EnEV, Appendix 5, Table 1, Line 7

![Fig. H — 47](image)

Example: Insulation of pipes in floor constructions
Prestabo pipe 15 mm, with Exzentroflex insulation (h = 59 mm) as radiator connector, in the floor structure against soil, external air and unheated rooms
EnEV, Appendix 5, Table 1, Line 1

1. Cement screed
2. PE film
3. Impact sound insulation
4. WLG 040 compensating layer
5. Thermal insulation pipe
6. Raw ceiling
7. Soil (gravel)
Example:

**Insulation of pipes in floor constructions**

Prestabo pipe 15 mm, with 9 mm surrounding insulation ($\lambda = 0.04 \text{ W/m.K}$) in the ceiling between the heated rooms of various users

EnEV, Appendix 5, Table 1, Line 7

Example:

**Insulation of pipes in floor constructions**

Prestabo pipe 15 mm, with 26 mm surrounding insulation ($\lambda = 0.04 \text{ W/m.K}$) against soil, external air or unheated rooms

EnEV, Appendix 5, Table 1, Line 1

---

**Fig. H — 48**

1. Cement screed
2. PE film
3. Impact sound insulation
4. WLG 040 compensating layer
5. Thermal insulation pipe
6. Ballast (Meabit / perlite)
7. Raw ceiling
8. Soil (gravel)
Example:
Insulation of pipes in floor constructions
Prestabo pipe 15 mm, plastic coated, in the ceilings between the heated rooms of various users

Fig. H — 50
1. Cement screed
2. PE film
3. Impact sound insulation
4. WLG 040 compensating layer
5. Pipe (coated in PP)
6. Ballast (Meabit / perlite)
7. Raw ceiling
8. Impact dowel (nylon)

Potential equalisation*
The Prestabo system is an electrically conductive system and must therefore be taken into account when dealing with potential equalisation. If a piping system or part of it is exchanged as part of a renovation the potential equalisation must be checked by an electrical engineer. The person who constructs the electrical system is responsible for the potential equalisation.

Mixed installations
The Prestabo-System can be used in conjunction with individual gunmetal components (Viega-Sanpress). Adapter from Prestabo onto system parts made of copper or stainless steel should be made with gunmetal fittings. Because during the heating of the unit nearly the entire oxygen content is thermally removed from the system, the Profipress-system can be mixed with other pipes and components of other metallic materials without risk of corrosion. An oxygen intake in the heating water must be prevented via competent construction of the heating system, secured fittings and installation of the compensating tank. If an oxygen build up in the system cannot be safely prevented the technical standard VDI 2035 gives further information on how to continue for example the chemical binding of oxygen. The mixing of entire installations is not permitted.
Pipe fitting and fastening
For the fitting of the pipes standard pipe clamps with chloride free sound
proofing inlays should be used.
The general rules of fastening technology should be observed.

■ Fastened pipes may not be used as support for other pipe systems or
components
■ Pipe hooks may not be used
■ Distance to connectors must be observed
■ Expansion direction should be observed fix and gliding points should
be planned
To avoid the build up of noise through vibrations fastening gaps in the table

<table>
<thead>
<tr>
<th>Pipe size [mm]</th>
<th>Fastening gap pipe rod [m]</th>
<th>Pipe size [mm]</th>
<th>Fastening gap pipe rod [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1.25</td>
<td>42</td>
<td>3.00</td>
</tr>
<tr>
<td>15</td>
<td>1.25</td>
<td>54</td>
<td>3.50</td>
</tr>
<tr>
<td>18</td>
<td>1.50</td>
<td>64.0</td>
<td>4.00</td>
</tr>
<tr>
<td>22</td>
<td>2.00</td>
<td>76.1</td>
<td>4.25</td>
</tr>
<tr>
<td>28</td>
<td>2.25</td>
<td>88.9</td>
<td>4.75</td>
</tr>
<tr>
<td>35</td>
<td>2.75</td>
<td>108.0</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Tab. H — 12

Elongation – compensating members
The expansion, due to heat, experienced in a piping system varies depend-
ing on the pipe material.
To avoid unwanted tension in the pipe network this should be taken into
account when planning a piping system network. Special attention should be
paid to the use of
■ Fix- and gliding points
■ Expansion compensating members like expansion bends
■ Axial-compensators
The expansion $\Delta l$ of piping systems is dependent on the following physical values
■ The temperature difference $\Delta T$ of the medium,
■ from the length of the piping system $l_0$ and
■ the thermal elongation co-efficient $\alpha$.

$\Delta l$ can be taken from diagrams such as Fig. H-48 or can be calculated.

Example
Given operating conditions
■ The operating temperature is between 10 and 60 °C – there, $\Delta T = 50 K$
■ The section of pipe is $l_0 = 20 m$
■ The length expansion coefficient for galvanised steel pipes is $\alpha = 0.0120 [\text{mm/mK}]$

Insert the values into the formula: $\Delta l = \alpha [\text{mm/mK}] \cdot L [m] \cdot \Delta T [K]$

Result
$\Delta l = 0.0120 [\text{mm/mK}] \cdot 20 [m] \cdot 50 [K] = 12 \text{ mm elongation}$
Elongation Prestabo-piping systems

**Calculating the elongation**
Follow the x-axis to find the temperature difference up to the pipe length, then on the left on the y-axis you can find the elongation value.

**Elongation of various materials**

<table>
<thead>
<tr>
<th>Material</th>
<th>Thermal elongation co-efficient $\alpha$ [mm/mK]</th>
<th>Elogation pipe length $= 20$ m and $\Delta T = 50$ K [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel (1.4401)</td>
<td>0.0165</td>
<td>16.5</td>
</tr>
<tr>
<td>Galvanized steel</td>
<td>0.0120</td>
<td>12.0</td>
</tr>
<tr>
<td>Copper</td>
<td>0.0166</td>
<td>16.6</td>
</tr>
<tr>
<td>Plastic</td>
<td>0.08 – 0.18</td>
<td>80 – 180</td>
</tr>
</tbody>
</table>

*Tab. H – 13*
U- or Z-expansion compensating members – calculation
Thermal expansions in installation systems generate stresses in pipes and appliance connectors. For this reason, compensation bends or expansion compensating members need to be fitted to long stretches of pipes. Expansion compensating members are lengths of pipe with U or Z-shaped expansion joints and are able to absorb movement and prevent damage to the piping system because of their length and fastening method.

This is done by deliberately placing the elongation movement on parts of the piping system that are flexible enough due to their length. These are called expansion bends.

Calculating the length of expansion bend required is simple.
- Determine the maximum possible temperature difference $\Delta T$.
- Identify the length of the pipe $l_0$.
- These values are used to calculate the total length by which the section of pipe extends, in the example in the previous chapter, $\Delta l = 12$ mm.
- The diagrams in Fig. H-52 and H-53 allows the length of expansion bends required $L_{BZ}$ or $L_{BU}$ to be read immediately.

**Fig. H — 52**

**Fig. H — 53**

**Fig. H — 54**
Expansion bend
Z- and t-form

Calculation of the length of the expansion bend (Ø ≤ 54 mm)

Expansion compensation

\[ \Delta l \ [\text{mm}] \]

Length of expansion bend \( L_{BZ} \ [\text{m}] \)

Fig. H — 55

Expansion bend
U-form

Expansion compensation

\[ \Delta l \ [\text{mm}] \]

Length of expansion bend \( L_{BU} \ [\text{m}] \)

Fig. H — 56
Expansion bend
Z-form with expansion bend \( L_{ez} \) and as t-connection
\( \varnothing \geq 64.0 \text{mm} \)

Expansion bend
U-form with expansion bend \( L_{bu} \) \( \varnothing \geq 64.0 \text{mm} \)
Expansion bend
Z- and t-form
Calculation of the length of the expansion bend (Ø ≥ 64 mm)

Expansion bend
U-form

Fig. H – 60

Fig. H – 61
Assembly

Storage and transportation
To prevent damage of the zinc layer the pipes should not be stored directly on the ground to protect against damage via transport and do not draw along the edge of the transporter.

Preparation

Shortening
Blank pipes can be shortened with pipe cutters, fine tooth metal saws or automatic saws. The use of disc saws or cutting torches is not allowed. With factory coated pipes the area for the press connectors must be removed. The use of the Prestabo dismantling tool guarantees the correct dismantling according to insertion.

Lengthways grooves on the outer surface of the pipes should be avoided.

Dismantling
The dismantling tool ① allows the precise removal of the plastic coating in the area of the press sleeve ②, damage to the metal surface is prevented and only removes as much material as is required for the insertion depth ③. The use of other tools is not recommended.

Attention: do not sharpen blades, replace them

Fig. H — 62

Stripping tool
Removes exactly the required amount for the press sleeve's insertion depth
(The colour of the stripping tool may vary)
De-burring
The pipe ends must be de-burred both internally and externally after cutting; this prevents damage to the sealing element or canting of the press connection during assembly.

Bending
Prestabo pipes, blank 12, 15, 18, 22 mm can be bent cold using standard bending machines. The pipe ends must be at least 50 mm long so that the press connector can be properly fitted.

Attention: Coated Prestabo pipes should not be bent as there is currently no suitable bending tool available.

Expansion bend
U-form with expansion bend \( L_{BU} \geq 64.0 \text{mm} \)

Fig. H — 63
Assembly examples

Heating system
Manifold installation with Prestabo

Radiator connection
Easytop-ball valves

Press tools
Press technology in areas of restricted access
Fastening methods – fixed and gliding points

Pipes can be laid with fixed points or with gliding fasteners

- Fixed points are rigidly connected to the component
- Gliding points allow an axial expansion

Fixed points should be arranged, so that

- Torsion tensions due to length difference are mostly avoided
- Pipes that have no change in direction and only have a fixed point.

Gliding points should be fitted with adequate distance to connectors; at this point the expected elongation due to heating should be taken into consideration.
Concealed installation
A pre-wall pipe or a pipe in an installation shaft has enough room at its disposal for expansion. When laying concealed pipes or in screed constructions a soft installation material for example foam must be used so that this space is created, this is especially true in areas close to T-pieces and bends because mechanical forces have extra effect on these places.

Laying in screed
Pipes under floating floor screed are mostly laid in the equalising layer or the footfall insulation where adequate expansion is available. The point where the pipe protrudes vertically from the screed must be created by using suitable insulating material.
Laying in tar screed – mastic asphalt

Storey manifold with Prestabo connectors require professional installation. In underfloor heating Prestabo press connections must be protected by 20 cm of non-flammable material on each side. The system should be filled before laying the screed.

Fig. H — 75

1. Bare concrete ceiling
2. Sand filler behind the edge insulation strips
3. Tiles
4. Tar screed (mastic asphalt) with cover
5. Cardboard cover
6. Equalising/Insulating layer
Space requirement for pressing

Pipe sizes 12–54 mm
For technically flawless press connectors, you need space in which to use the press tool. The following tables contain data indicating the minimum space requirements for a variety of installation conditions.
Note that values for mains operation differ from those for battery operation.

Pressing between pipes

**Fig. H — 76**

**Fig. H — 77**

<table>
<thead>
<tr>
<th>Pipe-ød_{a} [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>15</td>
<td>20</td>
<td>50</td>
</tr>
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<td>18</td>
<td>20</td>
<td>55</td>
</tr>
<tr>
<td>22</td>
<td>25</td>
<td>60</td>
</tr>
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<td>28</td>
<td>25</td>
<td>70</td>
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<td>85</td>
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<td>45</td>
<td>100</td>
</tr>
<tr>
<td>54</td>
<td>50</td>
<td>115</td>
</tr>
</tbody>
</table>

**Tab. H — 14**

Mains operated
Pressgun 5
Pressgun 4 E
PT2
PT3-EH

Battery
Pressgun 5/4 B
PT3-AH

**Tab. H — 15**

Battery
Picco, Pressgun Picco

**Minimum space requirements**
Pressing against structure

**Press tool**
With different space requirements
Pressing between pipe and wall

**Pipe-ø dₐ**

<table>
<thead>
<tr>
<th>DN [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
<th>c [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>25</td>
<td>40</td>
<td>65</td>
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<td>85</td>
</tr>
<tr>
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<td>80</td>
<td>140</td>
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</table>

**Tab. H — 16**

Pressing between structures

<table>
<thead>
<tr>
<th>DN [mm]</th>
<th>Pipe-ø dₐ [mm]</th>
<th>PT2</th>
<th>PT3-AH</th>
<th>Pressgun Picco</th>
<th>Pressgun 5/4B/4E</th>
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<td>10–50</td>
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</table>

**Tab. H — 18**
Pipe sizes 64.0 – 108.0 – Prestabo XL

Space requirements on components

### Pressing between pressings

<table>
<thead>
<tr>
<th>Pipe ø dₐ [mm]</th>
<th>Minimum distance a [mm]</th>
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<tr>
<td>64.0</td>
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<td>76.1</td>
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<td>88.9</td>
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</tr>
<tr>
<td>108.0</td>
<td></td>
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</tbody>
</table>

*Tab. H – 22*

### Space between pressings

- Canting is avoided
- Sealing is assured

### Distance to walls

<table>
<thead>
<tr>
<th>Pipe ø dₐ [mm]</th>
<th>Minimum distance a [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.0</td>
<td>20</td>
</tr>
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<td>88.9</td>
<td></td>
</tr>
<tr>
<td>108.0</td>
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</table>

*Tab. H – 23*

### Minimum space requirements

<table>
<thead>
<tr>
<th>Pipe ø dₐ [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
<th>c [mm]</th>
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<td>64.0</td>
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*Fig. H – 80, Fig. H – 81, Tab. H – 20, Tab. H – 21*
### Pressing with pressings 12 – 54 mm

![Fig. H – 82](image)

![Fig. H – 83](image)

<table>
<thead>
<tr>
<th>Pipe-Ø $d_a$ [mm]</th>
<th>a [mm]</th>
<th>b [mm]</th>
<th>c [mm]</th>
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<td>54</td>
<td>65</td>
<td>90</td>
<td>65</td>
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</tbody>
</table>

*Tab. H – 24*
Making the press connection

Pipe sizes 12 – 54 mm
Prestabo pipes are easily and reliably connected. The ends of coated pipes must be dismantled using the Prestabo pipe dismantler to allow the pipe sleeve to be attached. The steps following this are the same for both types of pipe.

- Pipe cutters or a fine toothed saw
- De-burrer and a coloured pen to mark the insertion depth
- Viega-Presstool with suitable jaw for pipe diameter
- Pipe dismantler

1. Stripped Prestabo-pipe cut the pipe to length at as near to a right angle as possible with a fine toothed saw.

2. Dismantle the pipe end with the pipe dismantler.

3. De-burr internally and externally. Continue with steps for Prestabo-pipe, blank (see next page)

Use pipe cutter or fine toothed steel saw. Do not use oils or greases!
Prestabo-pipe, blank

Fig. H — 87
Fig. H — 88

1. Stripped Prestabo-pipe cut the pipe to length at as near to a right angle as possible.

2. De-burr pipe internally and externally.

Fig. H — 89
Fig. H — 90

3. Check the sealing element is seated correctly.

4. Slide the press connector onto the pipe as far as the stop.

Fig. H — 91
Fig. H — 92

5. Mark the insertion depth.

6. Place press jaw onto the press tool. Push in the retaining pin until it snaps into place.
Open press jaw and set a right angle to the connector.

Check the insertion depth and start pressing.

Once press connection complete, open the press jaw.
Pipe sizes 64.0 – 108.0 mm
Prestabo pipes are easily and reliably joined with press connectors.

- Pipe cutters or a fine toothed steel saw
- Deburrer and coloured pen for marking insertion depth.
- Viega press tool with press jaw and press ring suitable for pipe diameter

**Required tools**

**Prestabo-pipe, blank**

1. Cut the pipe to length using pipe cutters or the fine toothed steel saw. Use no oils or greases.
2. Use vice with caution! The end of the pipe must be perfectly round.
3. De-burr pipe internally and externally.
4. Mark insertion depth
   - \( \varnothing 64.0 \text{ mm} = 43 \text{ mm} \)
   - \( \varnothing 76.1 \text{ mm} = 55 \text{ mm} \)
   - \( \varnothing 88.9 \text{ mm} = 55 \text{ mm} \)
   - \( \varnothing 108.0 \text{ mm} = 65 \text{ mm} \)
Check the sealing element and compression ring are seated correctly.

Place the press ring onto the connector and check that the position is correct.

Start pressing.

Slide the connector onto the pipe as far as the insertion depth marking.

Open the hinged tension jaw and latch into the receivers on the press ring.

Remove the control sticker. The connection will now be marked as “pressed”.

Fig. H — 100
Fig. H — 101

Fig. H — 102
Fig. H — 103

Fig. H — 104
Fig. H — 105
Leakage test

Criteria

- Water leakage tests are part of the service contract and the responsibility of the contractor. The system to be tested will be tested with the response pressure of the safety valve.
- Leakage test with oil-free pressurised air or noble gases must be clearly detailed and be included in the contract for work and services.
- All pipes should be tested in a finished installed, but not covered condition.
- The leakage test in heating systems can be carried out using pressurised air or noble gases.
- Leakage tests should be documented.
Gas installation* – Basic principles

Use of natural gas
Gas installations are normally assembled using metallic piping systems. The relevant national regulations determine the installation process greatly. The following information is based on the technical regulations in Germany and should be regarded as a recommendation, insofar as it does not contradict national regulations.

In Germany over 40% of domestic heating uses natural gas as its fuel, more than 75% of new building are fitted with natural gas heating. Alongside natural gas heating with central drinking water heating, cooking or drying clothes with gas is nothing new. It is still remains necessary to inform the customer of the versatility of natural gas and natural gas-fuelled household appliances. New advanced gas appliances such as clothes dryers, fireplaces and heat emitters or terraced barbecues add to the range of domestic uses.

Fig. G – 1
**Viega system philosophy**

Requirements of an »innovative gas installation« in the household

- Technically efficient and economical installation
- Short assembly times
- Fireproof gas pipes even in inaccessible areas
- Without extra safety measures
- Pipe connections according to HTB (High thermal stability) requirements
- Press connections must be able to be fitted to every type of pipe that is certified for gas installation

House fully catered for by natural gas

**Fig. G — 2**

1. House inlet with HAE (house service connection)
2. Gas meter with meter connection plate
3. Storey manifold
4. Warm water boiler
5. Gas clothes dryer
6. Gas oven
7. Concealed gas socket
8. Gas fire
9. Outside gas socket with gas barbecue
Requirements for gas sockets

National regulations should be observed which either restrict or forbid the use of this type of appliance connection. The use of non-stationed gas appliances such as gas ovens, clothes dryers, patio burners and patio grills requires the installation of gas sockets. The following is required of gas sockets:

- The appliance connection must have a flexible gas hose with a plug which can be connected and disconnected as often as necessary without presenting a danger to the user.
- It must conform to all safety standards.
- The design must be similar to that of electric sockets.

During this, constructive solutions are necessary to ensure that safety standards are guaranteed.

Possible dangers and safety measures

- Gas leakage due to ripped or damaged hose
  - Monitoring using a gas flow controller
- Unauthorised manipulation of the socket unit
  - Safety through multi stage or lockable fittings
- Gas leakage in case of fire
  - Safety through TAE (thermal shut-off system)
- Improper installation of appliances
  - Safety plug nipple on the gas appliance

Viega concealed and visible gas sockets as well as the flexible gas connection hoses fulfill every one of these requirements.
System descriptions

Profipress G/Profipress G XL

Intended use
The pipe connector systems Profipress G and Profipress G XL are approved for gases according to DVGW-AB G 260 for domestic applications. The installation should be carried out according to DVGW G 600, TRGI 2008 and TRF 2012. Only copper pipes according to EN 1057\(^1\) in conjunction with DVGW-AB-GW 392 may be used.

Approved for
- Gases acc. to DVGW-G 260
- Gas and liquid gas in the gas phase\(^2\) for domestic use

Max. pressure
- \(p_{\text{max}} = 5\) bar

Max. pressure at HTB-requirements
- \(p_{\text{max}} = 1\) bar

Max operating and surrounding temperature.
- \(T_{\text{max}} = 70^\circ\)C

The use of Profipress G/-XL for applications other than those described above must be approved by Viega Service Center.

---

\(^1\) Regard the minimum wallthickness acc. to Tab. G-1.

\(^2\) Sanpress Inox G should be used in liquid gas installations in areas with high thermal load (HTB), with a response pressure of the SAV (safety shut-off valve) in the pressure flow device > 1 bar.
Technical data
Copper pipes acc. to EN 1057
Made of copper/gunmetal
Constantly tested by the material testing commission NRW
Yellow dot on both sides of the press sleeve
Yellow HNBR-sealing element
Viega-Press tools (s. tools chapter)
Profipress G 12 – 54 mm With press jaw
Profipress G XL 64.0 mm With press ring
Profipress G DG-4550 AU 0070
Profipress G XL DG-8531 BR 0258

Approved pipes in gas installations

<table>
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<tr>
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<th>Rings</th>
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</tr>
<tr>
<td>54 x 1.5</td>
<td>✓</td>
<td>–</td>
</tr>
<tr>
<td>64.0 x 2.0 XL</td>
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</tr>
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</table>

Tab. G — 1

Profipress G XL
Press connectors and flanges
Markings of the press connectors
Profipress G and Profipress G XL-Press connections are marked

- Gas For gas piping systems
- MOP 5 Operating pressure 5 bar
- GT/1 at higher thermal stability (HTB at 1 bar operating pressure)

- For approval in the Netherlands (12 – 54 mm)
- For approval in Poland (12 – 54 mm)

Advantages of the system
- SC-Contur
- Press for many connection variations
- Press tools with storage battery or mains operated

HTB-requirements
The criteria for high thermal stability are orientated around the ignition temperature of natural gas in the air (approx 640 °C). To prevent an explosive mixture of gas forming, it is paramount that in case of fire that no dangerous quantity of gas below this temperature is found anywhere in the building. The durability requirements of 650 °C for 30 minutes are in accordance with recognised engineering standards.
Gas systems
Profipress G- and Profipress G XL-Press connectors can be used in the following gas systems.

Gas systems acc. to DVGW-TRGI 2008
- Low pressure < 100 mbar, medium pressure ≥ 100 mbar up to 1 bar
- Industrial, commercial and process technological systems with the relevant DVGW-approval and technical regulation e.g. DVGW-AB G 614, »Exposed pipes on company ground behind the transfer point«

Liquid gas systems acc. to TRF 2012
For liquid gas installations in areas with a requirement of higher thermal exposure (HTB) with a response pressure of the SAV > 1 bar it is necessary to use Sanpress Inox G.
- With liquid gas containers in the medium pressure range
  - with pressure control appliance first stage on the liquid gas container to an approved operating pressure \( P_z = 5 \) bar
- With liquid gas container in low pressure range
  - with pressure control device second stage
- With liquid gas pressurised gas container (liquid gas bottles < 14 kg)
  - after the small bottle pressure control device
- With liquid gas pressurised gas container ≥ 14 kg
  - after the large bottle pressure control device
Sanpress Inox G/Sanpress Inox G XL

Intended use
The press connector piping systems Sanpress Inox G and Sanpress Inox G XL are approved for gases according to DVGW-AB G 260. The installation should be carried out according to DVGW worksheet G 600, TRGI 2008 and TRF 2012.
Only Sanpress stainless steel pipes according to DIN EN 10088 and DVGW worksheet GW 541 – material 1.4401 may be used.

Approvals
- Gases acc. DVGW G 260
- Liquid gas in the gas phase for domestic and commercial applications.

Maximum operating and surrounding temperature

\[ T_{\text{max}} = 70 \, ^\circ\text{C} \]

Sanpress Inox G/XL – MOP5/GT5
- Max. pressure \( p_{\text{max}} = 5 \) bar
- Max. pressure with at HTB-requirement \( p_{\text{max}} = 5 \) bar

The use of Sanpress Inox G/-XL for applications other than those described above requires approval from Viega Service Center.
Technical data
Sanpress stainless steel pipes – thin-walled and corrosion resistant stainless steel pipes. Material no. 1.4401 (X5 CrNiMo 17-12-2) with 2.3 % Mo for higher durability.
All sizes made of stainless steel 1.4401
Constantly tested by the material testing commission NRW
Yellow rectangle and yellow dot on the press sleeve
Yellow HNBR-sealing element
Viega-Press tools (s. chapter »Tools«)
Sanpress Inox G 15 to 54 mm Press jaw
Sanpress Inox G XL 64.0 to 108.0 mm Pressring
Sanpress Inox G DG-8531B00393
Sanpress Inox G XL DG-8531BR0333

Approved stainless steel pipes

<table>
<thead>
<tr>
<th>d_a x s [mm]</th>
<th>Volume per running metre of pipe [litre/m]</th>
<th>Weight per running metre of pipe [kg/m]</th>
<th>Material Press connector</th>
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Tab. G — 2

Fig. G — 9
Markings of the Press connectors
Sanpress Inox G/XL-Press connectors are marked with
- Gas for Gas piping systems,
- MOP 5 for operating pressure 5 bar,
- GT/5 at higher thermal stability (HTB at 5 bar)

Press connectors with SC-Contur
Sanpress Inox G-System is also fitted with the SC-Contur system, noticeable by the yellow dot on the bead. Non-pressed connections can be seen during pressure leakage tests as the pressure loss appears on the manometer.

Liquid gas system TRF 2012
See chapter Profipress G.
Assembly

General rules of assembly for gas piping systems
The following conditions are valid for the laying of gas pipes

- Gas pipes must be free laid ① with gaps concealed without hollow room ② or in shafts or channels ③.
- Pipes with operating pressures >100 mbar may not be used in concealed installation.
- They should be laid in such a way that dampness, both dripping and condensed water, from other pipes and components do not affect them.
- The shut-off devices and detachable connections must be easily accessible.
- They must not be concealed in screed (see following page).

Installation examples

![Pipe installation](image)

Fig. G — 12

① With gaps
② Without hollow space
③ In ventilated channels

Requirements for concealed installations
- They must be carried out with zero tension.
- They should be protected against corrosion.
- Detachable connections (threaded connections) are not permissible
- Copper pipes must not be treated with materials containing nitrite or ammonium, stainless steel pipes must not be treated with materials containing chloride
Pipe installation and fastening
Gas pipes must not be fastened to or used as support for any other pipes. Gas pipes are only allowed to be supported using non-flammable pipe holders (for example metallic pipe clamps) and standard fastening plugs (plastic) on components with adequate stability when the pipe connection is able to display adequate mechanical axial stability see DVGW-TRGI 2008 5.3.7 Tab. 8. Profipress G/XL and Sanpress Inox G/XL connections are non-detachable, tight and secure press connections.

![Image of Profipress G- and Sanpress Inox G-press connectors]

Connections with considerable longitudinal force

Benchmark for horizontally laid piping systems

<table>
<thead>
<tr>
<th>DN</th>
<th>Øexternal x Wall thickness [mm]</th>
<th>Fastening interval [m]</th>
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<td></td>
<td><strong>Profipress G</strong></td>
<td><strong>Sanpress Inox G</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Standard</strong></td>
<td><strong>Standard</strong></td>
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<td>64</td>
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</tr>
<tr>
<td>108</td>
<td>108.0 x 2.0</td>
<td>–</td>
</tr>
</tbody>
</table>

*Fig. G—13*

*Tab. G—3*
Laying in floors
Gas pipes may not (not even partially) be laid in screed. Permitted ways of laying

- On the raw ceiling within a compensating layer or impact sound insulation
- Partially within a cavity in the raw ceiling and partially within a compensating layer or impact sound insulation (see Fig. G — 14)
- Completely within a cavity in the raw ceiling (see Fig. G — 15).

Gas pipes that are laid under screed must be protected against corrosion. DVGW-TRGI 2008, Pt. 3.3.8.5: »Requirements for earth laid piping systems«

Corrosion protection
Uncovered pipes in rooms normally require no external corrosion protection. Exceptions

- In rooms with aggressive building materials – for example, copper pipes in areas with building materials containing nitrite or ammonium or stainless steel pipes in surroundings containing chloride.
- In aggressive atmospheres.
- When they are laid inside a gap in the floor, the equalising course or the footfall insulation they should be treated like earth laid piping systems according to DVGW-TRGI 2008, Pt. 5.3.7.8.4

Requirements according to DVGW-TRGI 2008 Pt. 5.2.7
Retro fitting of corrosion protection should be carried out with corrosion protective binding or heat shrinkage tubing.

- For copper and stainless steel pipes with exposure class A (non-corrosive floor) or B (corrosive floor).
- For fittings, pipe connections and moulded parts with exposure class A and B, shrink material class C.
System descriptions

Megapress

Intended use
The Megapress system is suitable for installations of heating, cooling and industrial systems in connection with steep pipes in accordance with DIN EN 10255 und DIN EN 10220 (see pipe specifications).

The Megapress system is not suitable
- For use in drinking water installations – labelling of components with “Not for drinking water installations” symbol.
- For combustion gases as per DVGW G 260

Megapress connectors must only be used together with the components belonging to the system.
Using the system for any other uses than those described must be agreed with the Viega Service Center.
The press connectors are visibly leaky in their unpressed state. A leakage test must be carried out before commissioning.

Operating conditions
- Water, closed system
  - Operating temperature
    \[ T_{\text{max}} = 110 \, ^\circ\text{C} \]
  - Operating pressure
    \[ p_{\text{max}} \leq 16 \, \text{bar} \]
- Compressed air, dry and oil-free
  - Operating pressure
    \[ p_{\text{max}} \leq 16 \, \text{bar} \]
Technical data
Steel pipes - seamless and welded along the longitudinal seam: black, galvanised, industrially painted or powder coated in accordance with
- DIN EN 10255 (Formerly: DIN 2440, 2441, 2442) or
- DIN EN 10220 (Formerly: DIN 2448 / 1 und 2458/1) with minimal wall thickness $s_{\text{min}} = 1.0 \text{ mm}$; to DN 32 with $s_{\text{min}} = 0.5 \text{ mm}$.

Steel, non-alloy, material 1.0308, with high-quality zinc-nickel coating 3 – 5 $\mu$m

EPDM with integrally shaped sealing lips, for $T_{\text{max}} \leq 110 \text{ °C}$ and $p_{\text{max}} \leq 16 \text{ bar}$

$\frac{1}{2}$ (DN 15), $\frac{3}{4}$ (DN 20), 1 (DN 25), 1 $\frac{1}{4}$ (DN 32), 1 $\frac{1}{2}$ (DN 40), 2 (DN 50)

www.viega.de / Service / Download Center

VDS – For wet and wet / dry sprinklers; TÜV; shipbuilding; various country licences – e.g. for France: CSDBat

Uses
Use of welded and threaded connections for new installations and repairs
- Closed heating and cooling circuits
- Industrial systems – nitrogen, etc.
- Compressed air systems
- Fire extinguisher and sprinkler systems
- Systems for technical gases (on request)

Features / advantages
- Rapid processing, without handling of gas bottles or thread-cutting machinery – time saving of up to 60%
- No smoke, no risk of fire, damage, fireguard, cooling phases
- Zinc-nickel coating 3 – 5 $\mu$m – corrosion resistant with a long life span
- Profile sealing element for rough pipe surfaces
Profile sealing element
Megapress press connectors are equipped with specially designed EPDM sealing elements. Integrally shaped sealing lips with several sealing levels safely seal even pipe surfaces with slight unevenness or grooves.

![Fig. I — 2](image_url)

![Fig. I — 3](image_url)

Press connectors - leaky when unpressed
Megapress press connectors are leaky in their unpressed state. Inadvertently unpressed connections easily become visible when the system is filled.

- with water in the pressure range from 1.0 to 6.5 bar,
- with air or inert gases in the pressure range from 22 mbar to 3.0 bar.

![Fig. I — 4](image_url)

Sliding collar
The Megapress sliding collar has no internal block, meaning it is generally used for repairing defective pipe sections or expanding systems - e.g. for installing T-pieces in cramped conditions.

![Fig. I — 5](image_url)
Assembly
Pressing tools
Megapress press connectors are pressed with special press jaws / press rings. The press rings / press jaws of the metallic Viega press connector systems “Profipress, Sanpress, Sanpress Inox and Prestabo” cannot be used.
Press connections up to DN 25 are created using press jaws, for dimensions DN 15 to DN 25 press rings can be used.
We recommend using Viega press jaws, press rings and hinged press jaws.

![Fig. I — 6](image1)

![Fig. I — 7](image2)

Pressing tools - For Megapress press connectors

<table>
<thead>
<tr>
<th>Press machines</th>
<th>Press jaws</th>
<th>Press rings</th>
<th>Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2</td>
<td>DN 15 to DN 25</td>
<td>DN 32 to DN 50, model 4296.1</td>
<td>Press jaws DN 15 to DN 25</td>
</tr>
<tr>
<td>PT 3 AH / EH</td>
<td>DN 15 to DN 25</td>
<td>With hinged press jaws Z2 Model 2296.2</td>
<td>Press rings DN 32 to DN 50</td>
</tr>
<tr>
<td>Pressgun 4 / 5</td>
<td>Mod. 4299.9</td>
<td></td>
<td>Hinged press jaws Mod. 4299.61</td>
</tr>
</tbody>
</table>

Tab. I — 1

Use the system’s own pressing tools!

Press jaws
DN 15 to DN 25
Model 4299.9

Press rings
DN 32 to DN 50
Model 4296.1
General assembly information
To comply with the high quality of the Megapress system components, the following advice should be followed
- Only remove Megapress system components from the packaging directly before use.
- Only use conventional chloride-free sealants to seal the threads of the adapter pieces to Viega press connections.
- Always create the threaded connection first when assembling components or pipe sections with combined threaded and press connections.

Trimming and refining of pipes
The steel pipes can be separated using the following tools, taking into account the pipe coating
- Pipe cutter
- Fine-toothed saws
- Compound mitre saw – slow cutting speed required
- Angle grinder
Deburr both the inside and outside of the pipe after trimming.

Preparation of pipe ends for press connections
The Megapress system is suitable for the use of black, galvanised, industrially painted or powder-coated steel pipes in accordance with DIN EN 10255/10220.

To guarantee technically flawless press connections are created, undamaged, non-deformed pipes and sufficiently smooth and clean pipe ends, which are free from loose particles of dirt and rust, are needed.

Requirements on pipe ends
- Technically accurate, right-angled cut-to-length
- Internal and external pipe wall free from burrs
- Round cross section, without deformations, e.g. vice marks
- Minimum interval to welded seams 3 x D – but at least 100 mm

Requirements on pipe surfaces
- Smooth and even – without damage e.g. from vices or threading machines
- Free of grease and oil
- Free from loose particles of dirt and rust and unevenly (manually) applied coatings
Examples
Without further treatment, the following pipe surfaces are suitable for creating press connections, if they are free from any dirt or damage
① Black,
② alvanised,
③ Industrially painted / powder-coated pipes.

Before creating the press connection, the pipe surfaces around the press connections must be refined if they have the following properties
■ Unevenly applied paint layers *Fig. I–11*
■ Bumps, damage, corrosion and loose adhesions *Fig. I–12*
Suitable tools for refining include
① Wire brushes
② Cleaning fleece/abrasive emery paper
③ Angle grinder with roughing disc.

After making these refinements, the quality of the pipe surface should be as shown in Fig. I–16.
Pipe attachments
The general rules of fastening technology apply - e.g.

- No additional pipes or components must be attached to existing pipe installations.
- The use of pipe hooks is not permitted.
- Take into account thermal expansion – plan fixing and floating points.

Fastening intervals

<table>
<thead>
<tr>
<th>$\varnothing_{\text{external}}$ [mm]</th>
<th>Nominal width [DN]</th>
<th>Fastening interval (m)</th>
<th>In acc. with manufacturer’s instructions</th>
<th>In acc. with VdS CEA 4001</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.3</td>
<td>15</td>
<td>2.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.9</td>
<td>20</td>
<td>3.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33.7</td>
<td>25</td>
<td>3.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.4</td>
<td>32</td>
<td>3.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.3</td>
<td>40</td>
<td>4.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60.3</td>
<td>50</td>
<td>4.75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tab. I — 2

Protection from external corrosion / insulation
The high-quality zinc-nickel coating of the press connector offers the best protection from corrosion – e.g. for arising condensation in cooling systems.
The pipes must be provided with suitable corrosion protection - take note of the manufacturer’s information.
Pipes and connectors must be insulated according to the generally accepted rules of technology.

Commissioning
A pressure test must be carried out before the system is put into operation – the result must be documented.

Procedure

- Completely fill the system with the test medium – e.g. inert gas / filtered drinking water.
- Carry out pressure test – for sprinkler systems, please note VdS CEA 4001, Chapter 17.
- Document the results of the pressure test in a log.
- Provide the client with the log, which has been confirmed by an authorised technician.
Creating the press connection

1. Trim the steel pipe professionally, right-angled with pipe cutter, angle grinder or fine-toothed saw – Do not use a flame cutter.

2. Pay attention when clamping – avoid deforming the pipe end.

3. Deburr the inside and outside of the pipe with a deburrer – up to DN 40 with Mod. 2292.2, DN 50 with Mod. 2292.4 XL

4. Remove any particles of dirt or rust from the pressing area using wire brushes and cleaning fleece or abrasive emery paper.

5. Ensure the sealing element, separating ring and cutting ring are positioned correctly.

6. Measure the insertion depth and mark it on the pipe.

7. Slide the press connector - without twisting - as far as it will go along the pipe.

8. Position Megapress press jaws (≤ DN 25) around the press connector – Make sure they are positioned correctly. Carry out the pressing procedure until the press jaws are completely closed.

9. Position the Megapress press ring (≥ DN 32) around the press connections – Make sure it is positioned correctly. Carry out the pressing procedure with the help of the press jaws until the press ring is completely closed.
Remove the control sticker - this labels the connector as “pressed”.

**Space requirement when pressing**

Space is required to position the press machine for a technically flawless press connection. The following tables contain information about the minimum space requirement in various installation situations.

### Pressing between pipes - press jaws up to DN 25

<table>
<thead>
<tr>
<th>Size</th>
<th>a</th>
<th>b</th>
</tr>
</thead>
<tbody>
<tr>
<td>½</td>
<td>30</td>
<td>70</td>
</tr>
<tr>
<td>¾</td>
<td>35</td>
<td>80</td>
</tr>
<tr>
<td>1</td>
<td>45</td>
<td>95</td>
</tr>
</tbody>
</table>

*Tab. I — 3*

### Pressing between pipe and wall - press jaws up to DN 25

<table>
<thead>
<tr>
<th>Size</th>
<th>a</th>
<th>b</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td>½</td>
<td>35</td>
<td>50</td>
<td>80</td>
</tr>
<tr>
<td>¾</td>
<td>40</td>
<td>55</td>
<td>90</td>
</tr>
<tr>
<td>1</td>
<td>50</td>
<td>65</td>
<td>105</td>
</tr>
</tbody>
</table>

*Tab. I — 4*

### Distance to wall - press jaws up to DN 25

<table>
<thead>
<tr>
<th>Größe</th>
<th>Minimum space requirement $a_{\text{min}}$ (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>½</td>
<td>50</td>
</tr>
<tr>
<td>¾</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*Tab. I — 5*
**Minimum distance between the pressings - press jaws up to DN 25**

<table>
<thead>
<tr>
<th>Size</th>
<th>Minimum space requirement $a_{\text{min}}$ [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>½</td>
<td>5</td>
</tr>
<tr>
<td>¾</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

*Tab. I — 6*

**Pressing between pipes - press jaws DN32 – DN50**

<table>
<thead>
<tr>
<th>Size</th>
<th>a</th>
<th>b</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ¼</td>
<td>95</td>
<td>125</td>
</tr>
<tr>
<td>1 ½</td>
<td>105</td>
<td>135</td>
</tr>
<tr>
<td>2</td>
<td>140</td>
<td>140</td>
</tr>
</tbody>
</table>

*Tab. I — 7*

**Pressing between pipes - press jaws DN32 – DN50**

<table>
<thead>
<tr>
<th>Size</th>
<th>a</th>
<th>b</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ¼</td>
<td>95</td>
<td>125</td>
<td>80</td>
</tr>
<tr>
<td>1 ½</td>
<td>105</td>
<td>135</td>
<td>80</td>
</tr>
<tr>
<td>2</td>
<td>140</td>
<td>140</td>
<td>80</td>
</tr>
</tbody>
</table>

*Tab. I — 8*

**Distance to wall – press rings DN 32 – DN50**

<table>
<thead>
<tr>
<th>Size</th>
<th>Minimum space requirement $a_{\text{min}}$ [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ¼</td>
<td>20</td>
</tr>
<tr>
<td>1 ½</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
</tr>
</tbody>
</table>

*Tab. I — 9*

**Minimum distance between the pressings - press jaws DN32 - DN50**

<table>
<thead>
<tr>
<th>Size</th>
<th>Minimum space requirement $a_{\text{min}}$ [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ¼</td>
<td>15</td>
</tr>
<tr>
<td>1 ½</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
</tr>
</tbody>
</table>

*Tab. I — 10*
Profipress/Sanpress Inox/Profipress G /Sanpress Inox G/Prestabo

**Intended use**

The press connector systems Profipress/Profipress G as well as Sanpress Inox and Sanpress Inox G are suitable for the transportation of special media in industrial conditions.

The choice of system is dependent on the particular operating conditions such as pressure, temperature and concentration and the media to be transported. The suitability of the Prestabo systems as well as all of the systems for further media can be checked with Viega Service Center by filling out the material request form (Checklist at the end of chapter).

The systems Profipress/Profipress G as well as Sanpress Inox and Sanpress Inox G are not only being used in domestic installations, but also for the transportation of special media.

Many operating conditions of the media, such as pressure, temperature and concentration demand a great deal of thought when choosing the system and sealant. Special media with prescribed operating conditions, for example, technical gases, oils, lubricants etc. can be examined by in Viega’s own facilities or in special cases other laboratories, if required.

With help from this information, the areas of use which ensure the maximum safety for running the unit and for the builder can be worked out.

The press connector systems made of copper and stainless steel are preferred in the following units.

- Pressurised air
- Cooling water
- Technical gases
- Operating water
- Processed water
- Media containing oil

**Areas of use**
Profipress / Profipress G

Approved for
- Gas and liquid gas
- Heating oil and diesel fuel
- Wet sprinkler systems
- Oxygen piping systems
- Connector labs-free (Free of substances aggressive to laquer )

Press connector with SC-Contur
The SC-Contur is marked in colour on every connector
- Yellow  Profipress G-connectors
- Green    Profipress-connectors,
- White    Profipress with FKM sealing element.
**Technical data**

Only use copper pipes acc. to EN 1057. Regard the minimum wall thickness acc. to Tab. H-1.

Press connectors with threaded joint
- 12 – 54 mm gunmetal
- 64.0 – 108.0 mm copper

Black: EPDM (ethylene propylene diene rubber) up to 110 °C – not resistant to hydrocarbon solutions or chlorinated hydrocarbons, turpentine and petrol.

Bars and rolls (s. table)

<table>
<thead>
<tr>
<th>Press connectors-</th>
<th>Sealing elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profipress with SC-Contur</td>
<td>DVGW-Reg.-Nr. DW-8511AP3139</td>
</tr>
<tr>
<td>Profipress XL</td>
<td>DVGW-Reg.-Nr. DW-8511AT2347</td>
</tr>
<tr>
<td>Copper pipes</td>
<td>EN 1057 and DVGW GW 392</td>
</tr>
</tbody>
</table>

**Pipes to be used in drinking water installations**

<table>
<thead>
<tr>
<th>External-Ø x Wallthickness d_a x s [mm]</th>
<th>Delivery range</th>
<th>Sizes</th>
<th>Material Press connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rods</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hard</td>
<td>Semihard</td>
<td>Soft</td>
</tr>
<tr>
<td>12 x 0.8</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>15 x 1.0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>18 x 1.0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>22 x 1.0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>28 x 1.0</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>35 x 1.2</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>42 x 1.2</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>54 x 1.5</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>64.0 x 2.0</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>76.1 x 2.0</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>88.9 x 2.0</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>108.0 x 2.5</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Tab. I — 11
Sanpress Inox/Sanpress Inox XL

Technical data
Sanpress- and Sanpress XL-stainless steel pipes are laser welded conduit pipes made of stainless steel.

Material no. 1.4401 (X5 CrNiMo 17-12-2), with 2.3 % Mo for higher durability alternative: Material no. 1.4521 (X2 CrMoTi 18-2), with a PRE-value of 24.1

Stainless steel
EPDM (Ethylene-Propylene-Diene-Rubber); up to 110 °C; not resistant to hydrocarbon solutions or chlorinated hydrocarbons, turpentine and petrol

6m Lengths, with blank external and internal surface
Pipe ends with plastic caps
All pipes are tested for leakage and marked as such

<table>
<thead>
<tr>
<th>Nominal sizes [mm]</th>
<th>15 – 54 mm</th>
<th>64.0 – 108.0 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanpress Inox</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanpress Inox XL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Press connectors
15 – 54 mm stainless steel,
XL-Sizes
64.0 – 108.0 mm stainless steel,
with compression ring, separating ring and EPDM-sealing element
All sizes with SC-Contur

Fig. I – 30

Fig. I – 31
Sanpress Inox-Pipes

<table>
<thead>
<tr>
<th>d x s [mm]</th>
<th>Volume per metre pipe [Liter/m]</th>
<th>Weight per metre pipe [kg/m]</th>
<th>Weight per 6 metre length [kg]</th>
<th>Size</th>
<th>Material Press connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 x 1.0</td>
<td>0.13</td>
<td>0.35</td>
<td>2.10</td>
<td>Standard</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>18 x 1.0</td>
<td>0.20</td>
<td>0.43</td>
<td>2.55</td>
<td>Standard</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>22 x 1.2</td>
<td>0.30</td>
<td>0.65</td>
<td>3.89</td>
<td>Standard</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>28 x 1.2</td>
<td>0.51</td>
<td>0.84</td>
<td>5.02</td>
<td>Standard</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>35 x 1.5</td>
<td>0.80</td>
<td>1.26</td>
<td>7.55</td>
<td>Standard</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>42 x 1.5</td>
<td>1.19</td>
<td>1.52</td>
<td>9.13</td>
<td>Standard</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>54 x 1.5</td>
<td>2.04</td>
<td>1.97</td>
<td>11.83</td>
<td>Standard</td>
<td>Stainless Steel</td>
</tr>
</tbody>
</table>

Sanpress Inox XL-Pipes

<table>
<thead>
<tr>
<th>Size</th>
<th>Material Press connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL</td>
<td>Stainless Steel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>d x s [mm]</th>
<th>Volume per metre pipe [Liter/m]</th>
<th>Weight per metre pipe [kg/m]</th>
<th>Weight per 6 metre length [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.0 x 2.0</td>
<td>2.83</td>
<td>3.04</td>
<td>18.24</td>
</tr>
<tr>
<td>76.1 x 2.0</td>
<td>4.08</td>
<td>3.70</td>
<td>22.20</td>
</tr>
<tr>
<td>88.9 x 2.0</td>
<td>5.66</td>
<td>4.34</td>
<td>26.00</td>
</tr>
<tr>
<td>108.0 x 2.0</td>
<td>8.49</td>
<td>5.30</td>
<td>31.80</td>
</tr>
</tbody>
</table>

*Tab. I — 12*
Prestabo

**Intended use**
The Prestabo-System is designed for use in industrial and heating units and not suitable for use in drinking water installations. Pipes and connectors are therefore marked with a red symbol “Not suitable for drinking water installations”.

The sendzimir galvanised Prestabo-pipe can also be used for wet sprinkler systems and pressurised air installations.

![Fig. I – 32](image1)

![Fig. I – 33](image2)

**Characteristics of sendzimir galvanised pipes for sprinklers**
- Red line, white writing
- Symbol »Not for drinking water installations«
- Symbol »Sprinkler«
- Pipe ends with white caps
- Sizes 15-108.0 mm
- From size 22 mm upwards, VdS certification for pipe and press connectors
- 20µm zinc layer, internal and external
Application technology

SC-Contur – DVGW-tested safety

The SC-Contur flags up non-pressed press connectors when the system is filling up. Non-pressed press connectors (indicated by water leaking or the pressure reading on the test gauge) can be detected reliably at pressures from 1 bar to 6.5 bar and pressed immediately.

![Diagram of SC-Contur](image)

**Fig. I – 34**

<table>
<thead>
<tr>
<th>Test criteria</th>
<th>Requirements according to DVGW-W 534</th>
<th>Viega test values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance to pressure</td>
<td>At least 25 bar</td>
<td>Between 50 and 200 bar</td>
</tr>
<tr>
<td>Pressure surge</td>
<td>Every 10,000 times, alternating</td>
<td>Every 10,000 times, alternating</td>
</tr>
<tr>
<td></td>
<td>between 1 and 15 bar excess pressure</td>
<td>between 1 and 15 bar excess pressure</td>
</tr>
<tr>
<td></td>
<td>at room temperature and 95°C</td>
<td>at room temperature and 95°C</td>
</tr>
<tr>
<td>Temperature changes</td>
<td>Every 10,000 times alternating</td>
<td>Every 10,000 times alternating</td>
</tr>
<tr>
<td></td>
<td>Every 15 minutes at 20 °C and 95 °C</td>
<td>Every 15 minutes at 20 °C and 95 °C</td>
</tr>
<tr>
<td></td>
<td>at a pressure of 10 bar and</td>
<td>at a pressure of 10 bar and pre-stressing of 2 N/mm²</td>
</tr>
<tr>
<td></td>
<td>pre-stressing of 2 N/mm²</td>
<td></td>
</tr>
<tr>
<td>Negative pressure</td>
<td>–0.8 bar</td>
<td></td>
</tr>
<tr>
<td>Sealing elements</td>
<td>Special test</td>
<td></td>
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</table>

Tab. I – 13
**Sealing elements**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>EPDM</th>
<th>HNBR</th>
<th>FKM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Ethylene-Propylene-Diene-Rubber</td>
<td>Acrylnitril-Butadiene-Natural rubber</td>
<td>Fluor-elastomer</td>
</tr>
<tr>
<td>colour</td>
<td>Black-gloss</td>
<td>Yellow</td>
<td>Black-matt</td>
</tr>
<tr>
<td>Temperature [°C max.]</td>
<td>110</td>
<td>70</td>
<td>140</td>
</tr>
<tr>
<td>Pressure [bar]</td>
<td>16</td>
<td>PN5/GT1</td>
<td>16</td>
</tr>
<tr>
<td>KTW</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>HTB</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Area of Application**

- DW Heating
- Solar (Flat collectors)
- Gases acc. to GW260 Heating oil Diesel fuel acc. EN 590
- Solar (Pipe collectors) District heating (Consultation required)

*Tab. I — 14*

**Material request**

<table>
<thead>
<tr>
<th>Customer</th>
<th>Viega</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material request</td>
<td>1</td>
<td>Request received in service centre</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Information gathering Manufacturer/Sales partner</td>
</tr>
<tr>
<td>Fill out questionnaire, obtain specification sheets</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Data preparation</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Laboratory experiments Laboratory manufacturer</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Feedback to the service centre</td>
</tr>
<tr>
<td>Completion of the installation</td>
<td>6</td>
<td>Result: Info to the customer</td>
</tr>
</tbody>
</table>

*Tab. I — 15*
Flanged connections

Flanged connections in sizes between 28.0 and 108.0 mm may be metallic press systems.
Stainless steel flanges in sizes between 64.0 and 108.0 mm are available for Sanpress Inox and can be provided with press connector sleeves or female threads.
Seals made from EPDM or asbestos-free sealant should be selected depending on the area of application.

Areas of use

Compressed air systems
Compressed air is one of the most important media in industry and is used in various qualities and quantities. As a compressed medium, it places a high demand on the connection points on the pipes and the press connections. Alongside the operating safety, the choice of the suitable pipe system plays an important role. Compressed air produced in compressors contains finely distributed oil, which precipitates onto the inside wall of the pipe and can attack unsuitable materials. Copper from Profipress/Profipress G and stainless steel from Sanpress Inox/Sanpress Inox G are corrosion resistant.
The factory fitted EPDM sealing elements from the Profipress und Sanpress Inox systems should only be used with an oil concentration of ≤25 mg/m³. If the concentration is higher, then we recommend the use of HNBR sealing elements with Profipress G and Sanpress Inox.
### Areas of use

<table>
<thead>
<tr>
<th>Viega Press connector system</th>
<th>Operating pressure $p_{\text{max}}$ [bar]</th>
<th>Oil concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profipress / Sanpress Inox</td>
<td>16</td>
<td>✓</td>
</tr>
<tr>
<td>Profipress G / Sanpress Inox G</td>
<td>16</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Sanpress</td>
<td>16</td>
<td>✓ Use HNBR or FKM</td>
</tr>
<tr>
<td>Prestabo</td>
<td>16</td>
<td>✓ FKM</td>
</tr>
</tbody>
</table>

*Tab. I — 16*

### Air quality classes

<table>
<thead>
<tr>
<th>ISO 8573-1 classes</th>
<th>Oil concentration max. $[\text{mg/m}^3]$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$\leq 0.01$</td>
</tr>
<tr>
<td>2</td>
<td>$\leq 0.1$</td>
</tr>
<tr>
<td>3</td>
<td>$\leq 1.0$</td>
</tr>
<tr>
<td>4</td>
<td>$\leq 5.0$</td>
</tr>
<tr>
<td>5</td>
<td>$\leq 25.0$</td>
</tr>
</tbody>
</table>

*Tab. I — 17*

When assembling a compressed air piping system, the current safety guidelines and regulations of the professional governing body must be observed.
Cooling water systems
A carrier medium of water or a mixture of up to 50 % water glycol is used in the transport of cooling water in many industrial production processes. The pipe systems Profipress Sanpress Inox and Sanpress can be used in cooling water systems.

For use in connection with bore and cooling emulsions, it is necessary to obtain confirmation from Viega Service Center. The Profipress system is not suitable for the transport of cooling agents.

In the interest of operating safety of professionally fitted installations, systems carrying different media must be visibly marked.
Process water system
Water prepared for chemical, medical and other processes is known as processed water or treated water. It deals with water which is not suitable for drinking according to current regulation*.

Treated water is split into different categories. These include
- Partially or fully desalinised water
- Softened water
- Re-treated water
- De-mineralised and de-ionised water
- Osmose-Water etc.

Before installing, it is necessary to carry out a case study and consult Viega Service Center.

Fully desalinised water is free from salts and their ions. It has a low conductivity and high solubility factor and therefore attempts to dissolve materials in its environment for example the materials of the piping system. In softened water the calcium and magnesium ions of the carbonates have been exchanged for sodium ions. When using copper the low pH value increases the possibility of an even surface corrosion.

The pipe system Sanpress Inox and the suitable press connectors are especially suitable for softened water. Substances in the material are lost in barely measurable quantities.

Fig. 1 — 40
Systems for technical gases

The expression »technical gases« is used as a general term for gases used in the chemical and pharmaceutical industry. The technical ruling for pressurised gases splits gases according to there qualities. Not only gases but also gas mixtures (natural gas etc.) are determined this way. For the transportation of a variety of these media it is possible to use the Profipress, Profipress G, Sanpress Inox and Sanpress Inox G pipe systems.

The choice of the suitable press connector system with the suitable sealing element for the application of Profipress, Profipress G and Sanpress Inox/Sanpress Inox G is shown in the following table.

<table>
<thead>
<tr>
<th>Technical gases and suitable connector systems</th>
<th>Profipress/ Sanpress Inox EPDM-sealing element</th>
<th>Profipress G/ Sanpress Inox G HNBR-sealing element</th>
<th>Operating pressure $p_{\text{max}}$ [bar]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed air</td>
<td>✓</td>
<td>✓</td>
<td>16</td>
</tr>
<tr>
<td>Carbon dioxide CO$_2$ dry</td>
<td>–</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Nitrogen N$_2$</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Argon</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Corgon-protective gas</td>
<td>✓</td>
<td>✓</td>
<td>16</td>
</tr>
<tr>
<td>Vacuum</td>
<td>✓</td>
<td>✓</td>
<td>1.0 mbar</td>
</tr>
<tr>
<td>Oxygen</td>
<td>✓</td>
<td>–</td>
<td>10</td>
</tr>
<tr>
<td>Natural and liquid gas</td>
<td>–</td>
<td>✓</td>
<td>5</td>
</tr>
</tbody>
</table>

Tab. I — 18

For applications other than those mentioned here it is necessary to obtain permission from Viega Service Center.
Technical gases are used in many applications. In the chemical industry, Carbon Dioxide is used for cooling or for cleaning steel. Oxygen is used for producing ozone. Nitrogen and Argon are used in the chemical and pharmaceutical industry in large quantities as protective gases for inertisation.

For many applications the standard quality is not sufficient and the high quality is reduced due to impurities which enter the system through leakages or reactions with gases with the materials of fittings of pipe systems.

Where the boundaries of conventional industrial gases have been reached above average gas qualities with high levels of purities are required. In these purest gases impurities such as minerals and trace elements are only to be found in ppm range (parts per million). The purity of gases is determined according to a point notation system, a shortened form of the percentage the number before the point defines the number of 9’s the number behind the point is the first number which is not a nine,

Examples

- Nitrogen 3.8 Purity 99.98 Vol.-% 
  3 »nines«, the last number is »8«
- Acetylene 2.4 Purity 99.4 Vol.-% 
  2 »nines«, the last number is »4«
Low pressure steam systems
The Profipress-System may only be used in low pressure steam systems with FKM-sealing elements.

- Maximum temperature: 120°C
- Maximum pressure: 1 bar

Low pressure steam system

<table>
<thead>
<tr>
<th>Press system</th>
<th>Profipress S or Profipress with FKM Sealing element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Fluor-Elastomer</td>
</tr>
<tr>
<td>Area of use</td>
<td>Solar thermic systems</td>
</tr>
<tr>
<td></td>
<td>Vacuum pipes</td>
</tr>
<tr>
<td></td>
<td>District heating systems</td>
</tr>
<tr>
<td>Colour</td>
<td>Black, matt</td>
</tr>
<tr>
<td>Sizes</td>
<td>12–108.0mm</td>
</tr>
</tbody>
</table>

Tab. I — 19

Fig. I — 43

It is necessary to consult Viega Service Center for applications with higher temperatures or pressures.

Application in shipbuilding
Profipress is approved for shipbuilding. Address all queries to our agents or our service department.
Sanpress Inox/Prestabo Labs-free

In the automobile industry and paint shops only piping systems which are free from lacquer network destructive substances (labs), such as silicone, fat, oil etc. may be used. These materials can cause problems on the surface during the production process resulting in lacquer damage.

If connectors with lab free qualities are required Sanpress Inox labs free should be used. Labs free connectors are individually packaged and must be used immediately after opening the packaging. The press connectors are marked with a blue dot “Easytop slanted seated valves labs free” and “Easytop ball valves labs free” size 15 – 54 mm also belong to this system.

Labs-free connectors are not to be used with substances, which are aggressive to car lacquer/paint, such as oils and greases!
Easytop ball valves

Easytop ball valves are suitable for use in industrial installations for non-flammable gases. In pressurised air systems and all applications with non-flammable technical gases, the maximum operating pressure in the ambient temperature is 10 bar.

Profipress G ball valves are certified for flammable gases according to DVGW G260 to PN5 with HTB requirements GT/1.

Characteristics

- Maintenance, easily assembled
- Press technology for quick work and short down times
- Coloured caps for consequent media recognition

Fig. I — 47

Fig. I — 48

Fig. I — 49
## Material suitability request

**Contact**
Service Center – Technical Consulting  
Telephone: +49 2722 61 1100  
Fax: +49 2722 61 1101  
Email: service-werkstoffanfrage@viega.de

### Material recommendations

<table>
<thead>
<tr>
<th>Date</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(for Viega use only)

<table>
<thead>
<tr>
<th>Viega process-No.</th>
<th>Viega project-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Customer/Company**

<table>
<thead>
<tr>
<th>Customer/Company</th>
<th>End consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Street</th>
<th>Postcode/Town</th>
<th>Project size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact person</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Running metre</th>
<th>Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Dimension (mark the Viega System in question with a cross)

<table>
<thead>
<tr>
<th>System/material</th>
<th>Connector/ sealing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profipress Copper</td>
<td>Copper/Gunmetal EPDM</td>
</tr>
<tr>
<td>Copper S</td>
<td>Copper/Gunmetal EPDM</td>
</tr>
<tr>
<td>Sanpress-Pipe Stainless steel</td>
<td>Stainless steel EPDM</td>
</tr>
<tr>
<td>Sanpress-Pipe Stainless steel</td>
<td>Stainless steel EPDM</td>
</tr>
<tr>
<td>Sanpress-Pipe 1.4401 Stainless steel</td>
<td>Stainless steel EPDM</td>
</tr>
<tr>
<td>Sanpress-Pipe 1.4401 Stainless steel</td>
<td>Stainless steel EPDM</td>
</tr>
<tr>
<td>Sanpress-Pipe 1.4521 Stainless steel</td>
<td>Stainless steel EPDM</td>
</tr>
<tr>
<td>Sanpress-Pipe 1.4521 Stainless steel</td>
<td>Stainless steel EPDM</td>
</tr>
<tr>
<td>Profipress G Copper</td>
<td>Copper/Gunmetal EPDM</td>
</tr>
<tr>
<td>Sanpress Inox G Stainless steel</td>
<td>Stainless steel EPDM</td>
</tr>
<tr>
<td>Prestabo Galvanized steel</td>
<td>Galvanized steel EPDM</td>
</tr>
<tr>
<td>Prestabo sendzimir Galvanized steel</td>
<td>Galvanized steel EPDM</td>
</tr>
<tr>
<td>Megapress Steel</td>
<td>Steel Zink-Nickel Beschichtung EPDM</td>
</tr>
</tbody>
</table>

### Function of the whole system?

<table>
<thead>
<tr>
<th>Function of the whole system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### What function do the Viega components have in the system?

<table>
<thead>
<tr>
<th>What function do the Viega components have in the system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Which media will the material to be tested be exposed to? (Please enclose safety data sheets and specification sheets)

<table>
<thead>
<tr>
<th>Which media will the material to be tested be exposed to?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Are other substances expected in the medium?  
Example: Additives, cleaning materials, etc.  
When yes which substances and which concentration.

<table>
<thead>
<tr>
<th>Are other substances expected in the medium?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### What quantity of the medium is to be transported?  
Please include relationship of the components when more than one.

<table>
<thead>
<tr>
<th>What quantity of the medium is to be transported?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Operating conditions

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp. max.</td>
<td></td>
</tr>
<tr>
<td>Temp. min.</td>
<td></td>
</tr>
<tr>
<td>Pressure surges</td>
<td>yes/no</td>
</tr>
<tr>
<td>Stagnation</td>
<td>yes/no</td>
</tr>
<tr>
<td>System</td>
<td>open/closed</td>
</tr>
<tr>
<td>Location of the unit</td>
<td>outdoors/indoors</td>
</tr>
<tr>
<td>pH max.</td>
<td></td>
</tr>
<tr>
<td>pH min.</td>
<td></td>
</tr>
</tbody>
</table>

### What is the planned lifespan of the system?

<table>
<thead>
<tr>
<th>What is the planned lifespan of the system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Our recommendation are based on the information given reading use and operating conditions. The existing guarantee, especially the statutory guarantee, is not extended by this recommendation.
5 Tool systems

System descriptions

Intended use
The functional safety of the Viega press connector system depends primarily on the flawless state of the press machine and pressing tools used. The detailed usage instructions enclosed when you purchase your pressing tools must be taken into consideration. When lending out or borrowing press machines, all the product information must be given to the user.

Press machines can be used at temperatures between -5 and +40°C - operating temperature assumed.
If the temperature is considerably less than 0°C, the hydraulic oil becomes viscous and the machines must be warmed up to room temperature before use. If this does not occur, the functionality will be affected and the mechanism may become damaged.
If a press machine is completely immersed in water, it must be sent for inspection to an authorised service station.
Irrespective of the legal regulations, Viega guarantees the impermeability of the connection as per the transferred liability agreement agreed with the ZVSHK and BHKS.
It extends the guarantee period required by the legislative authorities if Viega press machines and Viega pressing tools are used.

Fig. W — 1
Press machines

Safe, low-maintenance pressing tools are an important component of the Viega system. They are optimised for the materials and dimensions of the Viega press connectors, guaranteeing safety and function when used on the building site. Also because they can be used anywhere - with and without a mains connection.

We recommend using the following press machines

- Pressgun 5 with mains adapter
- Pressgun 5 with battery
- Pressgun 4 E
- Pressgun 4 B
- Pressgun Picco
- Picco
- PT3-EH
- PT3-AH
- PT2

Pressgun 5 with mains adapter

230 V – mains operation

Features

- for all press connector sizes from 12 to 108.0 mm
- Optimal handling due to ergonomic pistol shape for one-handed operation
- Weight-reduced to 3.5 kg (without press jaws)
- 180° rotatable head
- Tripping delay, pin retainer, forced pressing and automatic return
- Lower maintenance and repair needs
- Service only needed after 42,000 pressings
Pressgun 5 with battery
Battery press machine with the latest lithium ion technology

The latest lithium ion battery technology enables smaller batteries with the same capacity, better performance with low temperatures and without the memory effect. Due to the rapid build-up of power, the pressing takes 3 to 4 seconds, depending on the size of the pipe.

Features
- for all press connector sizes from 12 to 108.0 mm
- Ergonomic shape for optimal one-handed handling
- Weight-reduced to 3.2 kg (without press jaws)
- 180° rotatable head
- Tripping delay, pin retainer, forced pressing and automatic return
- Lower maintenance and repair needs
- Service only needed after 42,000 pressings

Pressgun 5 in set with press jaws – Delivery overview

<table>
<thead>
<tr>
<th>Pressgun 5</th>
<th>Model</th>
<th>Art.-No.</th>
<th>Use for press connector systems</th>
<th>Press jaw sizes [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains supply</td>
<td>2293.1</td>
<td>707026</td>
<td>Metal</td>
<td>15 / 22 / 28</td>
</tr>
<tr>
<td>Battery</td>
<td>2293.2</td>
<td>707019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mains supply</td>
<td>5393.1</td>
<td>707040</td>
<td>Raxofix</td>
<td>16 / 20 / 25</td>
</tr>
<tr>
<td>Battery</td>
<td>5393.2</td>
<td>707033</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mains supply</td>
<td>2295.1</td>
<td>707163</td>
<td>Without press jaws</td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>2295.2</td>
<td>707156</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tab. W – 1
Pressgun Picco – Battery

Pressgun Picco is the lightest and smallest of the Viega press machines. It is particularly handy and makes it possible to work in the smallest space and in narrow pre-wall constructions. It is predominantly used for installing Viega plastic pipe installation systems and for repair work in the customer service department.

Picco press jaws are designed to be weight-reduced, making them incompatible with the other Viega pressing tools.

Features
- For metallic press connectors, sizes 12 to 35 mm
- For plastic press connectors, sizes 12 to 40 mm
- Ergonomic shape for optimal one-handed handling
- Weight-reduced to 2.5 kg (without press jaws)
- 180° rotatable head
- Pin retainer
- Lower maintenance and repair needs
- Service only needed after 32,000 pressings
Compatibility with Pressgun 4 battery and battery charger
The batteries and battery chargers of the Pressgun 4 and the new Pressgun 5 are compatible.

Compatibility with products from other manufacturers
The prerequisite for certifications of the Viega pipe systems includes the successful inspection of the connecting technology in accordance with DVGW Worksheet W 534 by an authorised testing institute. To do this, the press connections are only made with Viega press machines and Viega pressing tools. If the technician uses press machines and tools from other manufacturers, it is recommended to obtain relevant proof of suitability in the sense of a liability immunity. If it can be proven in the case of a complaint that damage was caused by the use of pressing tools from other manufacturers, then Viega will reject any compensation claims.
Pressing tools

Jointed press rings
The patented Viega press rings and the jointed press jaws allow the press ring to rotate by up to 180°. The joint makes it easier to press on hard-to-access components, pipe shafts and front-wall constructions.

For Viega pipe systems made of metal
Press jaws and press rings are compatible with all Viega press machines.

For XL press connectors
For Viega press connectors Sanpress Inox XL, Prestabo XL and Profipress XL (press connectors made of copper) in XL dimensions: 64.0 / 76.1 / 88.9 and 108.0 mm.

Press ring set
Case set
12 to 35 mm
with
hinged press jaws P1
Without fig.:
42 to 54 mm
with Z2

Press rings
64.0 to 108.0 mm
with
Hinged press jaws Z 2,
also available as a set
in a case
Press chains / press jaws

Press chains with hinged press jaws
For Pressgun 5
XL dimensions: 76.1 to 108.0 mm
For Sanpress XL press connector made of gunmetal

Fig. W — 11

Fig. W — 12
For Raxofix press connector system. Suitable for all Viega press machines except Picco, Pressgun Picco.
- Sizes 12 to 63 mm for plastic pipe systems
- Sizes 12 to 54 mm for metallic press connector systems

Fig. W — 13
For Picco and Pressgun Picco
- Sizes 12 to 40 mm for plastic pipe systems
- Sizes 12 to 35 mm for metallic press connector systems

Fig. W — 14
For Raxofix press connector system. Suitable for all Viega press machines except Picco, Pressgun Picco. Sizes: 16 to 63 mm

Fig. W — 15
For Raxofix press connector system. For press machines Picco, Pressgun Picco
Sizes: 16 to 40 mm
## Compatibility

<table>
<thead>
<tr>
<th>Pressing tool sets</th>
<th>Press jaws</th>
<th>Press rings</th>
<th>Press chains</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Product description</strong></td>
<td><strong>Model / Article number</strong></td>
<td><strong>Dimension (mm)</strong></td>
<td><strong>Bolt – Diameter (mm)</strong></td>
</tr>
<tr>
<td>SOM</td>
<td>2299.6/313012</td>
<td>12–35</td>
<td>15</td>
</tr>
<tr>
<td>SOM</td>
<td>2299.62/449377</td>
<td>15–28</td>
<td>15</td>
</tr>
<tr>
<td>PT2</td>
<td>2299.9</td>
<td>12–35</td>
<td>14</td>
</tr>
<tr>
<td>SOM</td>
<td>2299.2</td>
<td>12–54, 14/16</td>
<td>15</td>
</tr>
<tr>
<td>SOM</td>
<td>2299.4/262211</td>
<td>42–54</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profipress/G</td>
</tr>
<tr>
<td>Seapress</td>
</tr>
<tr>
<td>Prestabo</td>
</tr>
<tr>
<td>Sanpress Inox/G</td>
</tr>
<tr>
<td>Sanpress</td>
</tr>
</tbody>
</table>

### Pressgun 5
- Press gun mains
- Press gun with battery

| Pressgun Picco |

| Pressgun 4E |

| Pressgun 4B |
## Tool systems – System descriptions

<table>
<thead>
<tr>
<th>SOM/M</th>
<th>Picco</th>
<th>Z1</th>
<th>Z2</th>
<th>PT2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2299.4M/315337</td>
<td>2484.9</td>
<td>2296.2/472733</td>
<td>2296.2/472740</td>
<td>2497.3XL/562854</td>
</tr>
<tr>
<td>42–54</td>
<td>12–35</td>
<td>12–35/16–25</td>
<td>42–108.0/32–63</td>
<td>76.1–108.0</td>
</tr>
<tr>
<td>15</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

- No longer available

Only size 42

| Only size 42 | ✓ | ✓ | ✓ | ✓ | ✓ |

Only size 42

| Only size 42 | ✓ | ✓ | ✓ | ✓ | ✓ |

Only size 42

| Only size 42 | ✓ | ✓ | ✓ | ✓ | ✓ |

Only size 42

| Only size 42 | ✓ | ✓ | ✓ | ✓ |

<table>
<thead>
<tr>
<th>Profipress/G</th>
<th>Seapress</th>
<th>Prestabo</th>
<th>Sanpress Inox/G</th>
<th>Sanpress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prestabos XL</td>
<td>Sanpress Inox/XL</td>
<td>Sanpress Inox G/XL</td>
<td>Profipress XL (only press connectors made of copper)</td>
<td>Seapress XL</td>
</tr>
</tbody>
</table>
### Compatibility

<table>
<thead>
<tr>
<th>Pressing tool sets</th>
<th>Press gun mains</th>
<th>Press gun with battery</th>
<th>Only sizes ≤35mm</th>
<th>Pressgun Picco</th>
<th>Pressgun 4E</th>
<th>Pressgun 4B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press jaws</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>–</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Press rings</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>–</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Press chains</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>–</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Model / Article number</strong></td>
<td><strong>Dimension {mm}</strong></td>
<td><strong>Bolt – Diameter {mm}</strong></td>
<td><strong>PT2</strong></td>
<td><strong>SOM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2296.1</td>
<td>12 – 54</td>
<td>–</td>
<td>2297.1XL/362959</td>
<td>2297.81/490652</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2297.2XL</td>
<td>76.1 – 108.0</td>
<td>14</td>
<td>2297.2XL</td>
<td>16 – 32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2297.3XL/362959</td>
<td>76.1 – 108.0</td>
<td></td>
<td>2297.1XL/359232</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2299.81/490652</td>
<td>16 – 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pressgun 5**

Press gun mains

Press gun with battery

Only sizes ≤35mm

Pressgun Picco

Pressgun 4E

Pressgun 4B

**Systems**

Profipress/G
Seapress
Prestabo
Sanpress
Sanpress Inox/G
Sanpress

Profipress XL
Sanpress XL

Sanfix
Fosta/Plus
<table>
<thead>
<tr>
<th>SOM</th>
<th>PT2</th>
<th>PT2/SOM</th>
<th>Picco</th>
<th>PT2</th>
<th>PT2</th>
<th>9696.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2299.8/357139</td>
<td>2299.41/612191</td>
<td>2299.7</td>
<td>2484.7</td>
<td>9696.6/469764</td>
<td>9696.7/469771</td>
<td>20–63</td>
</tr>
<tr>
<td>16, 20</td>
<td>50, 63</td>
<td>14–63</td>
<td>12–40</td>
<td>20–25</td>
<td>32–63</td>
<td>–</td>
</tr>
<tr>
<td>15</td>
<td>14</td>
<td>14/15</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>–</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sanfix Fosta/Plus</th>
<th>Sanfix Fosta</th>
<th>Sanfix Fosta/Plus Fonterra</th>
<th>Geopress</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
## Compatibility

<table>
<thead>
<tr>
<th>Pressing tool sets</th>
<th>Pressringset + P1</th>
<th>P1</th>
<th>PT2</th>
<th>Combi-press jaw</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press jaws</td>
<td>2496.3/622664</td>
<td>2296.4/472764</td>
<td>2496.1/622657</td>
<td>2799.7/425302</td>
</tr>
<tr>
<td>Press rings</td>
<td>12–35</td>
<td>42–54</td>
<td>12–35</td>
<td>12</td>
</tr>
<tr>
<td>Press chains</td>
<td>12</td>
<td>14</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Press gun mains</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Press gun Picco</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Press gun 4E</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Press gun 4B</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanpress</td>
<td>12–22 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanpress Inox/G</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanfix Fosta/Plus</td>
<td>14–20 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool System</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PT2</td>
<td>5399.8/645380</td>
<td>16–20</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5399.81/645397</td>
<td>16–32</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Picco</td>
<td>5384.7</td>
<td>16–40</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5396.1</td>
<td>16–63</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

- ✓: Available
- –: Not available

### Only sizes ≤35mm

- ✓: Available
- –: Not available

**Raxofix**
Maintenance

Care und cleaning

Pressing tools
Store the press jaws socket with the press rollers in a dry and clean place. After every use, clean the pressing tools with a cloth. When necessary, oil any moveable parts, such as bolts and press rollers. Regularly furbish and oil inserts and contours of the press jaws with fine steel wool or cleaning fleece.

Press machines
The functional safety of the press machines and the long-term sealing of the press connection depend on the condition of the pressing tools in the first instance. Viega press machines are electro-hydraulic devices, which achieve a pre-set pressure during the pressing procedure. Only a solid hydraulic system guarantees operational safety and reliability. Like all electro-hydraulic tools, Viega press machines are subject to a natural wear-and-tear. For this reason, they must be regularly maintained or left with Viega-appointed service points for inspection.

Maintenance intervals for Viega press machines

<table>
<thead>
<tr>
<th>Type</th>
<th>Maintenance interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressgun 5</td>
<td>After 40,000 pressings, a service notification can be seen on the LED display. After another 2,000 pressings, a safety shutdown occurs. Maintenance after no more than 4 years.</td>
</tr>
<tr>
<td>Pressgun Picco</td>
<td>After 30,000 pressings, a service notification can be seen on the LED display. After another 2,000 pressings, a safety shutdown occurs. Maintenance after no more than 4 years.</td>
</tr>
<tr>
<td>Pressgun 4 E</td>
<td>After 20,000 pressings, a service notification can be seen on the LED display. After another 2,000 pressings, a safety shutdown occurs. Maintenance after no more than 4 years.</td>
</tr>
<tr>
<td>Pressgun 4 B</td>
<td>After 20,000 pressings, a message is displayed on the LED. Maintenance after no more than 4 years.</td>
</tr>
<tr>
<td>Type PT3-AH</td>
<td>After 20,000 pressings, a service notification can be seen on the LED display. After another 2,000 pressings, a safety shutdown occurs. Maintenance after no more than 4 years.</td>
</tr>
<tr>
<td>Picco</td>
<td>Every 2 years.</td>
</tr>
<tr>
<td>Type PT3-H/EH</td>
<td>At least annually.</td>
</tr>
<tr>
<td>Type 2</td>
<td>Every 2 years.</td>
</tr>
<tr>
<td>Model 2478</td>
<td>At least annually.</td>
</tr>
<tr>
<td>Model 2475</td>
<td>After 20,000 pressings, a message is displayed on the LED. Maintenance after no more than 4 years.</td>
</tr>
</tbody>
</table>

Tab. W — 2
Press rings / press jaws
To maintain functionality, we recommend having press rings and press jaws maintained regularly with the press machines. During the maintenance procedure, consumables are replaced, press jaw contours are revised and the press jaws are reset.
Since January 2012, we have started to provide Viega press jaws with maintenance stickers.

Fig. W – 16

Tool Service

<table>
<thead>
<tr>
<th>Repairs and maintenance</th>
<th>Austria</th>
<th>2020 Hollabrunn</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>König &amp; Landl</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>Indu Tools</td>
<td>1850 Grimbergen</td>
</tr>
<tr>
<td></td>
<td>Ridge Tool Europe</td>
<td>3001 Heverlee</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Mátl &amp; Bulla</td>
<td>66461 Brno</td>
</tr>
<tr>
<td>Denmark</td>
<td>Scherer’s</td>
<td>2610 Rodovre</td>
</tr>
<tr>
<td>Finland</td>
<td>Alpillan</td>
<td>810 Helsinki</td>
</tr>
<tr>
<td>France</td>
<td>Fa. Striebel</td>
<td>67602 Selestat</td>
</tr>
<tr>
<td>Great Britain</td>
<td>MEP Hire</td>
<td>ML43NH Glasgow</td>
</tr>
<tr>
<td></td>
<td>Broughten Plant Hire and Sales</td>
<td>RN3 8UJ Romford, Essex</td>
</tr>
<tr>
<td>Greece</td>
<td>Ergon Equipment</td>
<td>15344 Athen</td>
</tr>
<tr>
<td>Italy</td>
<td>Elmes</td>
<td>39040 Neumarkt</td>
</tr>
<tr>
<td></td>
<td>O.R.E</td>
<td>47900 Rimini</td>
</tr>
<tr>
<td>Netherlands</td>
<td>MG Service</td>
<td>5388 RT Nistelrode</td>
</tr>
<tr>
<td>Norway</td>
<td>Grønbovd Maskinservice</td>
<td>0613 Oslo</td>
</tr>
<tr>
<td>Spain</td>
<td>Tecno Izqueierdo</td>
<td>28026 Madrid</td>
</tr>
<tr>
<td>Sweden</td>
<td>AB Lindströms</td>
<td>39241 Kalmar</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Von Arx</td>
<td>4450 Sissach</td>
</tr>
</tbody>
</table>

Tab. W – 3