aalberts integrated piping systems

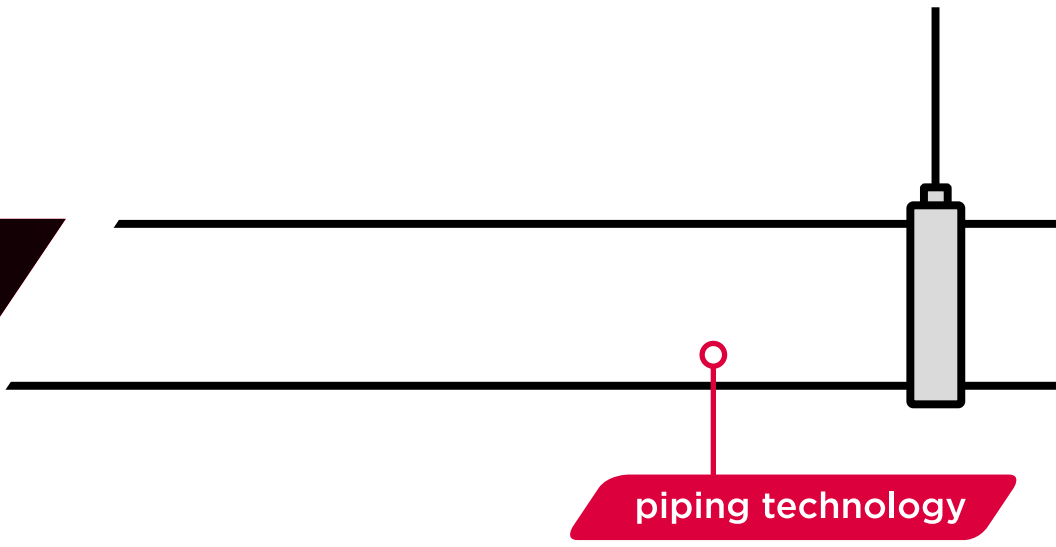
VSH PowerPress®

EN technical manual

contents

Aalberts integrated piping systems

don’t just buy products, buy solutions.



we are Aalberts integrated piping systems

Aalberts integrated piping systems engineers the most advanced integrated piping systems for the distribution and control of liquids and gases for key verticals, like industrial, utilities, commercial and residential. We offer fully integrated piping systems in valve, connection, fastening and piping technology. We work hand-in-hand with our customers to create the perfect integrated piping system, that meets their requirements. Our piping systems are easy to specify, install, control and maintain, saving important preparation and installation time. We meet the highest quality and industry standards needed in the selected verticals. We are the only business that truly offers its customers a single sourced and complete integrated piping solution, each and every time.
Don't just buy products, buy solutions.

our mission

With our integrated piping systems, supported by our unique Digital Design Service, we ensure that you will always get the best and easiest solution for the installation of an integrated piping system. From the moment that your plan is designed, you can get advice on complete and tailored solutions.
With our Revit Plug-in you have digital access to the complete product offering within Aalberts integrated piping systems. This information is always accessible and up to date, allowing the design of an optimal and economically attractive installation that will meet all your demands. So whether the task is project conception, installation, or on-going maintenance, we are the company that truly delivers a complete system and service offering. Our know-how, our can-do attitude, and our relentless innovation come as standard. We will sweat the small stuff in our quest to find the perfect solutions, even if we have to invent them.
This is how we deliver excellence.

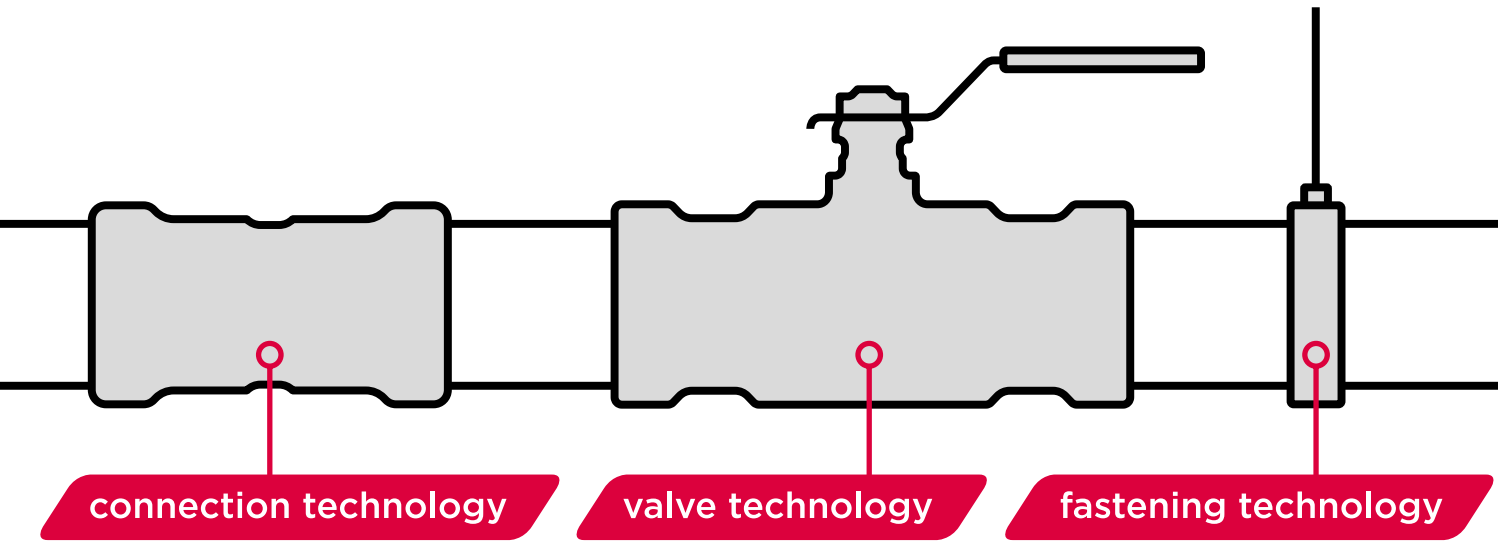
our way of working

We operate from various regions around the globe: America, United Kingdom, Middle East, Asia Pacific and Europe. As we have multiple locations in many countries, we are always close to our customers. More than 3500 mission critical employees are persistent to offer the best integrated piping system.
They work on our products, solutions and services every day. No matter how big the opportunity is, when we say we've got this, we won't let go until there is nothing left to learn. We improve ourselves by exchanging knowledge and experience to stay ahead of our competitors.
Good is never good enough.

With our sustainable spirit we contribute to circularity every single day. This belief is strongly linked to the way we do business. Rethink, reduce and recycle. We are entrepreneurial and take ownership in everything we do. We are convinced that self-development and diversity is essential.
The Aalberts way, winning with people.

the strength of Aalberts integrated piping systems

- the perfect solution for every project
- smart, fast and efficient installation
- valuable advice from the drawing board to delivery
- a very wide product range



For more information about Aalberts integrated piping systems, go to www.aalberts-ips.eu

Aalberts integrated piping systems connect: our systems are easy to combine with each other

Aalberts integrated piping systems is the combination of different companies with a strong legacy in their markets. The individual brands are well-known and each represents a long history. Together they offer the best integrated piping system for now and in the future.

our product lines

We offer product ranges that:

- connect seamlessly
- are available in dimensions from 6 mm up to 104" (DN2600)
- can be used for thick-walled pipe and thin-walled metal or plastic tube
- have press, compression, groove and push connections
- can be expanded with valves and accessories
- are BIM ready

Connection technology

VSH

VSH has been supplying quality products for 90 years and delivers piping systems and fittings throughout the world. In the 1970's VSH brought the well-known VSH Super compression fitting on the market which is still a best-seller, followed by the VSH XPress pressfitting, a technology that makes it possible to realize a connection even faster and more reliable.

Shurjoint

The history of Shurjoint dates back to 1974, when the founders produced their first grooved couplings. These first couplings were produced from malleable iron, the casting material of choice at this time. Shurjoint is recognized as a world leader in the design and manufacture of mechanical piping components.

Valve technology

Apollo

Apollo Valves has been supplying the commercial and industrial valve markets since 1928. The valves, with their signature yellow handles, are designed and manufactured in their state-of-the-art facilities in the Carolinas, USA. Apollo's vertical manufacturing integration assures better quality control, better cost control, and the shortest delivery lead times possible for their range of ball valves, automation products, safety relief valves, backflow preventers and plumbing/heating products

VSH SmartPress

material	stainless steel
suitable for	stainless steel (schedule 5S/10S)
connection	press / V-profile (ASP)
dimensions	½" - 2" (DN15 – DN50)

VSH PowerPress®

material	carbon steel
suitable for	thick-walled steel
connection	press / DW-profile
dimensions	½" - 2" (DN15 – DN50)

VSH SudoPress

material	carbon steel / stainless steel / copper
suitable for	carbon steel / stainless steel / copper
connection	press / V-profile
dimensions	12 – 108 mm (DN10 – DN100)

Apollo Valves

material	brass / bronze / carbon steel / stainless steel
suitable for	steel / carbon steel / stainless steel / copper
connection	threaded / press / push / flange
dimensions	DN15 – DN300

VSH Shurjoint

material	ductile iron / stainless steel
suitable for	thick-walled steel / stainless steel / HDPE
connection	groove
dimensions	½" - 104" (DN15 – DN2600)

VSH Super

material	brass
suitable for	carbon steel / stainless steel / copper / plastic
connection	compression
dimensions	6 – 54 mm (DN4 – DN50)

Seppelfricke

material	brass
suitable for	steel / carbon steel / stainless steel / copper
connection	press (V & M profile) / threaded
dimensions	10 – 54 mm (DN8 – DN50)

Apollo ProFlow

material	brass / ductile iron
suitable for	carbon steel / stainless steel / copper / plastic
connection	threaded / press / flange
dimensions	DN15 – DN300

VSH Tectite

material	copper / brass / stainless steel
suitable for	copper / carbon steel / stainless steel
connection	push
dimensions	10 – 54 mm (DN8 – DN50)

VSH XPress

material	carbon steel / stainless steel / copper / cunifer
suitable for	carbon steel / stainless steel / copper / cunifer
connection	press / M-profile
dimensions	12 – 108 mm (DN10 – DN100)

VSH UltraLine

material	PPSU / brass / PVDF
suitable for	plastic
connection	sliding sleeve
dimensions	14 – 32 mm (DN10 – DN25)

VSH MultiPress

material	PPSU / brass
suitable for	plastic
connection	press / U & TH profile
dimensions	14 – 63 mm (DN10 – DN50)

VSH PowerPress®

The VSH PowerPress® product range is a press system designed for thick wall carbon steel pipes according to the EN 10255, EN 10220 (EN 10216-1 and EN 10217-1) and ASTMA53, A106, A135, A795 (schedule 10 to 40) standards. Using the VSH PowerPress® system significantly reduces installation times and ensures a clean working environment.

the advantages of VSH PowerPress®

- complete range of fittings and valves from ½" to 2"
- Visu-Control® ring: visual press indicator
- Leak Before Press (LBP) function
- simple, fast connection technology
- clear identification of material and dimensions
- professional press tools

The VSH PowerPress® system offers installers a complete solution with high flexibility. The VSH PowerPress® consists of fittings, valves and tools and can be used on standard carbon steel pipes. VSH PowerPress® fittings can be installed with various press tool brands.

performance guaranteed

VSH PowerPress® products are produced using specially developed, ultra-modern machinery, which enables VSH to guarantee a consistent supply and quality. The completely automated factory supplies safe, high-quality products. All welded products undergo a 'leak test' to avoid any problems after installation. All straight connectors with a threaded end are made from a single piece so there is no risk of leakage on the weld and the installation measurements are compact.

reliable

With the VSH PowerPress® the quality of the joint is primarily determined by the tool and not by the installer. This reduces the risk of installation errors considerably. All fittings are delivered with an LBP function. As a result, the risk of errors during installation is further reduced. This LBP function ensures that fittings, which have not been pressed, will leak during the initial pressure test. The installer can see immediately which fitting has not yet been pressed.

high-tech production location for VSH PowerPress®

In addition to the LBP function, all fittings are equipped with a patented Visu-Control® ring. During pressing, the Visu-Control® ring will snap from the fitting, immediately showing which fitting has been pressed. This eliminates the need to check already pressed fittings afterwards, which offers additional safety and saves time.

cheaper

This connection technology is easy, fast and highly cost effective. As the connection is achieved using press tools alone, no other materials, such as gases, adhesives, threading machines, etc. need to be purchased or hired.

easy and clean

Compared to other 'cold' connection methods, VSH PowerPress® is an extremely user-friendly solution:

- the use of VSH PowerPress® dispenses with the need for complicated clamping techniques, time-consuming preparations and drying time, making installation faster and cleaner.
- no need to thread the pipes.
- no lubrication needed for installation.
- easy insertion of the pipe into the fitting due to the special design of the fittings combined with the Visu-Control® ring.
- short radius bends ensure a compact, space-saving installation.
- system and environment need not be dry and clean or even 100% drained to make a good connection.

The above features ensure that no special skills are required for installation and that the work can be carried out in a clean, safe environment.

safe

The installation of the VSH PowerPress® does not require any heat source (as is the case for welding or soldering) or other heavy and potentially dangerous tools. This feature makes VSH PowerPress® the ideal solution for repairs or renovation projects, since it ensures minimal disturbance at the site. The combined protection/LBP o-ring prevents the sharp internal parts from damaging subjects, inserted into the fittings.

VSH PowerPress®

technical data

applications

heating installations

VSH PowerPress® fittings with carbon steel pipes that meet the EN 10220 (EN 10216-1 and EN 10217-1), EN 10255, ASTMA53, A106, A135 or A795 (schedule 10 to 40) standard in closed-loop systems.

o-ring:	EPDM* (black)
operating temperature:	-40 to +135°C
max. temperature:	150°C (short-term)
max. operating pressure:	16 bar

cooling installations

VSH PowerPress® fittings with carbon steel pipes that meet the EN 10220 (EN 10216-1 and EN 10217-1), EN 10255, ASTMA53, A106, A135 or A795 (schedule 10 to 40) standard in closed-loop systems.

o-ring:	EPDM (black)
operating temperature:	-40 to +135°C
max. temperature:	150°C (short-term)
max. operating pressure:	16 bar

gas installations

VSH PowerPress® Gas fittings with carbon steel pipes that meet the EN 10220 (EN 10216-1 and EN 10217-1) and EN 10255 standard inside residential or commercial buildings according to Gastec KE209 or DVGW G5614-B1.

o-ring:	HNBR** (yellow)
operating temperature:	-20°C to +70°C
max. operating pressure:	5 bar inside and outside
application:	inside (HTC***, proven tightness of the connection at 650°C for 30 min) or outside buildings. Outside of buildings, only lay above ground. Local regulations must always be observed. Gastec KE209 releases these fittings for indoor applications only.

compressed air installations

VSH PowerPress® fittings with carbon steel pipes that meet the EN 10220 (EN 10216-1 and EN 10217-1), EN 10255, ASTMA53, A106, A135 or A795 (schedule 10 to 40) standard can be used for compressed air under the following conditions:

Water content: max. 880 mg/m³, class 3, ISO8573 part 1

Oil content: max. 25 mg/m³, class 5, ISO8573 part 1

class	water content [mg/m³]	oil content [mg/m³]	o-ring
1	3	0.01	EPDM/HNBR
2	120	0.1	EPDM/HNBR
3	880	1	EPDM/HNBR
4	6.000	5	EPDM/HNBR
5	7.800	25	EPDM/HNBR
6	9.400	>25	HNBR

ISO classification for compressed air

If the compressed air contains mineral or vegetable oil, then HNBR o-rings are to be used. EPDM o-rings may only be used for synthetic oil or dry compressed air (not exceeding 25 mg/m³).

o-ring:	EPDM (black)
operating temperature:	-40 to +135°C
max. temperature:	150°C (short-term)
max. operating pressure:	16 bar

o-rings:	HNBR (yellow)
operating temperature:	-20°C to +70°C
max. operating pressure:	16 bar

Compressed air piping systems must be properly tested as soon as the installation work is finished. The system designer and installation contractor must ensure that safe methods are selected for testing the system. The methods must comply with all current health and safety regulations. They may include testing compressed air lines with fluids or compressed air at a specific pressure, or a combination of both. We recommend that the maximum working pressure of the product not be exceeded under any circumstances during this process.

The provisions of Directive 2014/68 / EU (15 May 2014) of the European Parliament and Council, on harmonization of legal provisions apply in all Member States for offering pressure equipment to the market (Pressure Equipment Directive - PED). These must be observed during installation.

Please note that Article 3 (subsection 3) of the PED applies to VSH PowerPress®. This means that only sound design and safe instructions for use and maintenance are required.

* Ethylene Propylene Diene Monomer
** Hydrogenated Nitrile Butadiene Rubber
*** Higher Thermal Capacity

sprinkler installations

VSH PowerPress fittings with carbon steel pipes that meet the EN 10255 (medium and heavy classification), ASTMA53, A106, A135 or A795 (schedule 10 to 40) standard.

o-ring:	EPDM (black)
operating temperature:	-40 to +107°C
max. temperature:	150°C (short-term)
max. operating pressure:	12.1 bar (175 psi)
application:	wet sprinkler installations in accordance with FM

vacuum installations

VSH PowerPress® fittings with carbon steel pipes that meet the EN 10220 (EN 10216-1 and EN 10217-1), EN 10255, ASTMA53, A106, A135 or A795 (schedule 10 to 40) standard in closed-loop systems.

VSH PowerPress® is suitable for vacuum applications with a (relative) pressure of -0.85 bar.

fittings

technical characteristics

VSH PowerPress® are made of E235 carbon steel and protected against corrosion by a zinc-nickel coating of 3-5 µm. The zinc-nickel coating provides protection from exposure to condensation, which can form on cooling installations. VSH PowerPress® fittings are fitted with an EPDM o-ring. The VSH PowerPress® Gas fittings are fitted with an HNBR o-ring.

Note: For VSH PowerPress® Gas also observe the local approvals for the released tools. All approved press tools to fit the right product are found in our online tool selector: www.aalberts-ips.eu/tool-selector.

threaded fittings

The VSH PowerPress® range also contains components with female and male threads and is produced in accordance with ISO7-1 or ISO228. With threaded couplings, we recommend that the sealing be performed before pressing in order not to stress the press connection.

union couplings

Union couplings should be combined with male threaded counterparts with appropriate support for the seal. Usually this will be parallel (G-)thread. It is not recommended to use parts with male conical (R-)thread, for they usually supply too little support for the flat sealing.

1. check the quality and integrity of the flat sealing. Sealing and support flats must be clean and free of indentations
2. mount the union on the male thread until hand tight
3. apply ⅛ to ¼ turn, using a matching spanner. Over-turning might cause damage to the sealing ring

markings

VSH PowerPress® fittings

marking	packaging label
VSH PowerPress® dimension certificates traceability code country of origin	VSH PowerPress® type dimension EAN no. certificates art. no. quantity

VSH PowerPress® Gas fittings

marking	packaging label
VSH PowerPress® Gas dimension certificates GT5 MOP5 traceability code country of origin	VSH PowerPress® Gas type dimension EAN no. certificates art. no. quantity

o-rings

The VSH PowerPress® fittings are fitted with an EPDM profiled o-ring. The type of o-ring which has to be used depends on the application and the medium. That is why VSH PowerPress® Gas fittings are fitted with HNBR o-rings. If your application is not listed in the table below, please contact us to find out whether the medium is suitable for use in combination with the type of fitting you are using. The o-ring has been designed so that a leak-tight connection is always guaranteed, even with uneven surfaces.

o-ring EPDM - black

temperature	applications
-40 to +135°C For a short period +150°C	For all installations for hot and cold water, circulation, compressed air, sprinklers, etc.

o-ring HNBR - yellow

temperature	applications
-20°C to +70°C	Installations for combustible gases: natural gases and liquid gases in accordance with Worksheet DVGW-G260 I/II. Installations for natural gas in accordance with Worksheet DVGW-TRGI 2018, and liquid gases in accordance with DVFG-TRF 2021. Compressed air installations.

pipes

Leak Before Press (LBP) function

VSH PowerPress® is equipped with an LBP function. Fittings with an LBP function have the advantage that connections that have not been pressed will leak water during pressure testing. This means that an incomplete press connection can easily be identified. If correctly assembled, the fittings will be water and air tight after being pressed.

alternative applications

The choice of fittings and pipes depends on what the purpose of the system is, the medium to be transported and the operating conditions. Please contact us regarding approval for the use of VSH PowerPress® fittings for applications other than for heating, cooling, natural gas, sprinkler and compressed air. Installations must always comply with local regulations.

electrical heat tracing

VSH PowerPress® may be used with electrical heat tracing in order to maintain the pipe temperature. Sealed pipes must not be heated because of the danger posed by the excessive and inadmissible increase in pressure in the pipes.

equipotential bonding

All metal piping systems using equipotential bonding must comply with the requirements. Continuity checks must be conducted by a qualified electrician in accordance with the regulations, once the installation work has been finished. In combination with the associated pipes, VSH PowerPress® is an electrically conductive piping system and must therefore be included in the equipotential bonding.

carbon steel pipes for VSH PowerPress®

VSH PowerPress® fittings and accessories in the dimensions ½" up to and including 2" must be combined with carbon steel pipes in accordance with EN 10220 (EN 10216-1 and EN 10217-1), EN 10255 and ASTMA53, A106, A135 and A795. These pipes can be supplied as black steel, industrially painted, galvanized or epoxy coated. Special care should be taken when installing coated pipes. This section gives you all technical parameters that are especially relevant when working with VSH PowerPress® and carbon steel pipes.

insulation

The following must be observed when insulating steel piping systems:

- cold water lines must be protected against condensation in accordance to DIN4140.
- hot water lines must be insulated to prevent heat loss in accordance with the Energy Conservation Act (EnEG).

pipe surfaces

Pipe surfaces for each type of must be smooth, free of indentations, pits and deformations and must be clean and free of debris, rust, scale, oil and grease.

It is not necessary to completely remove protective coatings or to expose the bare steel material. To avoid leak paths, engraved or stamped pipes shall not be used with VSH PowerPress® fittings or valves (removing the engraving or stamping through the use of a grinder or other tool does not change this).

painted black (and lacquered) pipe

The pipes must be inspected for uneven layers of paint. If excessive paint runs are existing, the surface of the pipe shall be smoothed by means of fine grit sand paper. Black painted and lacquered pipes are not allowed in gas installations.

epoxy coated carbon steel pipe

Epoxy coatings on carbon steel pipe increase the external dimensions. The thickness of the coating should be reduced to allow the installation of the VSH PowerPress® products. The maximum permitted thickness of the epoxy coating is 300 µm. The surface of the pipe should be smoothed by means of fine grit sand paper. Epoxy coated carbon steel pipes are not allowed in gas installations.

gas installations

Pipes must have perfect, undamaged outer surfaces and must not be painted.

pipes according EN 10220

VSH PowerPress® can be used in combination with the EN 10220 pipe series 1. Series 2 and 3 are not released in combination with VSH PowerPress®.

dimension	DN	external diameter [mm] d	min.	max.	wall thickness [mm]
½"	15	21.3	21.0	21.8	2.0 - 5.4
¾"	20	26.9	26.5	27.3	2.0 - 8.0
1"	25	33.7	33.3	34.2	2.0 - 8.8
1¼"	32	42.4	42.0	42.9	2.0 - 10.0
1½"	40	48.3	47.9	48.8	2.0 - 12.5
2"	50	60.3	59.7	60.8	2.0 - 16.0

pipes in line with EN 10220 (series 1)

pipes in line with EN 10255

VSH PowerPress® can be used in combination with pipes in line with EN 10255. EN 10255 differentiates between heavy pipe (series H), medium type (series M) and type L, l1 and l2. Within these series, there are both longitudinal welded and seamless pipe types.

dimension	DN	external diameter [mm] d	min.	max.	wall thickness M- medium [mm]	wall thickness H - heavy [mm]
½"	15	21.3	21.0	21.8	2.6	3.2
¾"	20	26.9	26.5	27.3	2.6	3.2
1"	25	33.7	33.3	34.2	3.2	4.0
1¼"	32	42.4	42.0	42.9	3.2	4.0
1½"	40	48.3	47.9	48.8	3.2	4.0
2"	50	60.3	59.7	60.8	3.6	4.5

pipes in line with EN 10255 (series M and H)

dimension	DN	external diameter [mm] d	min.	max.	wall thickness [mm]
½"	15	21.3	21.0	21.7	2.3
¾"	20	26.9	26.4	27.1	2.3
1"	25	33.7	33.2	34.0	2.9
1¼"	32	42.4	41.9	42.7	2.9
1½"	40	48.3	47.8	48.6	2.9
2"	50	60.3	59.6	60.7	3.2

pipes in line with EN 10255 (series l and l1)

dimension	DN	external diameter [mm] d	min.	max.	wall thickness [mm]
½"	15	21.3	21.0	21.3	2.0
¾"	20	26.9	26.4	26.9	2.3
1"	25	33.7	33.2	33.8	2.6
1¼"	32	42.4	41.9	42.5	2.6
1½"	40	48.3	47.8	48.4	2.9
2"	50	60.3	59.6	60.2	2.9

pipes in line with EN 10255 (series l2)

pipes according ASTM

VSH PowerPress® can be used in combination with carbon steel pipes in line with ASTMA53, A106, A135 and A795. Within these series, there are both longitudinal welded and seamless pipe types.

dimension	DN	external diameter [mm]	schedule	wall thickness [mm]
½"	15	21.3	10	2.11
			40	2.77
¾"	20	26.7	10	2.11
			40	2.87
1"	25	33.4	10	2.77
			40	3.38
1¼"	32	42.2	10	2.77
			40	3.56
1½"	40	48.3	10	2.77
			40	3.68
2"	50	60.3	10	2.77
			40	3.91

dimensions of the pipes in line with ASTM

black steel

galvanized steel

epoxy coated

press tools

Press tools consist of a press machine and the corresponding press jaw or sling. The press machine can be either battery or electrically powered. The corresponding press slings must be used for each diameter of pipe in the system in order to achieve a perfect connection. The figure below shows a cross-section of the VSH PowerPress® profile before and after pressing.

before pressing

after pressing

All VSH PowerPress® products with a diameter of ½″ to 2″ can be pressed using the appropriate press tools. Use the DW profile that matches the diameter for installation of VSH PowerPress® (VSH XPress and VSH SudoPress jaws and slings cannot be used for VSH PowerPress® with the exception of the transition fittings to VSH XPress and VSH SudoPress). A special adaptor may be required in addition to the press slings.

maintenance and correct usage of press tools

Aalberts integrated piping systems guarantees an excellent press connection, provided the tools are used correctly. Regular maintenance and lubrication of the press jaws, slings and tools is necessary. Please observe the manufacturer‘s instructions for use and maintenance. Poorly maintained and/or damaged press jaws pose a risk.

approved press tools

Use the online tool selector to find the right tool for the right material. Visit www.aalberts-ips.eu/tool-selector.

installation guidelines

When installing VSH PowerPress®, always make sure to take proper care in using protective gear on the building site. Safety shoes, a safety helmet and safety glasses should be worn at the minimum when installing VSH PowerPress®.

1. transport and storage

When transporting and storing VSH PowerPress® fittings or valves, damage and contamination must be avoided. The optimal storage temperature is between 10°C and 25°C. The products should be stored in their original packaging in a dry place (max. humidity 65%). It is advised to not remove the product from the packaging before installing.

2. cut the pipe to length

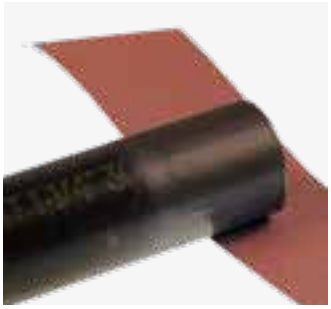
After measuring, the pipes can be cut to length using a pipe cutter, a fine-toothed handsaw or an electrical mechanical saw suitable for the pipe material. The pipe must always be cut completely through. Do not partially cut the pipe and break it off, as this could cause leakage. When cutting already installed pipes, always take into account a minimum distance to welds and bends of 3 x d (minimum 100 mm).

Note: Do not use oil-cooled saws, grinding wheels or flame cutters.

3. deburring the pipe

Pipe ends must be thoroughly deburred on the inside and the outside once they have been cut to length. This is necessary to avoid any damage to the o-ring when inserting the pipe into the press fitting. A file or hand deburrer or an electrical pipe deburrer suitable for the material may be used to deburr both the inside and outside of the pipe. Any burrs on the pipe should be removed.

4. cleaning the outside of the pipe



Always ensure that any dirt, scale, excessive paint or corrosion particles are removed from the surface of the pipe. This can be done with a wire brush or fine grit sand paper. The surface of the pipe must be smooth, free of indentations, pits and deformations and must be free of oil and grease.

5. marking insertion depth

The required insertion depth (see page 19) must be marked on the pipe or the press fitting (for fittings with pipe ends) in order to guarantee a safe and proper joint.

The marking on the pipe must remain visible (close to the union) after the connection is pressed to identify any movement before or after pressing.

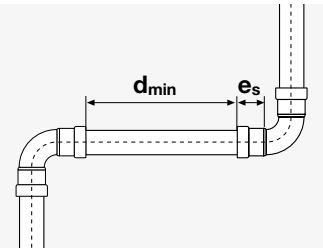
6. check the fitting and pipe

Remove he protective cap before assembly. Then check whether the o-rings are present and firmly seated. Ensure that both are clean, in good condition and free from damage and imperfections. Make sure that the Visu-Control® ring is properly aligned before pressing.

7. fitting the pipe

Insert the pipe carefully into the press fiiting while turning it and pushing it in the direction of the axis until it comes to a stroke stop in the union. The insertion depth marking must remain visible. In the case of fittings without a stop the fittings should be inserted at least as far as the marked insertion depth. Rough and careless insertion of the pipe into the fitting may result in damage to the o-ring. This is therefore not permitted.

If assembly is difficult because of the permitted tolerances in size, a lubricant, such as water or soap, may be used. Under no circumstances may oils, fats or grease be used as lubricants.



To optimise the installation time, time may be saved by first assembling a number of connections and then pressing the various pipe connections one after the other.
Marking the insertion depth (e_S) makes it possible to check whether the pipe was pulled out of the union during the pressing process. Prior to installation of the various pipe connections, it is important to check the minimum desired clearances (see table).

dimension	insertion depth e_S [mm]	minimum distance d_{min} [mm]	minimum pipe length $2 \times e_S + d_{min}$ [mm]
½″	29	5	63
¾″	32	5	69
1″	37	5	79
1¼″	49	10	108
1½″	50	10	110
2″	54	10	118

insertion depth and minimum distances between joints

The table gives the minimum required working space so that the fittings/valves can be pressed correctly using Novopress press tools. These distances relate to the general installation configurations as schematically depicted in figures 1, 2 and 3 below. Consult the relevant user manual when using another type of press tool.

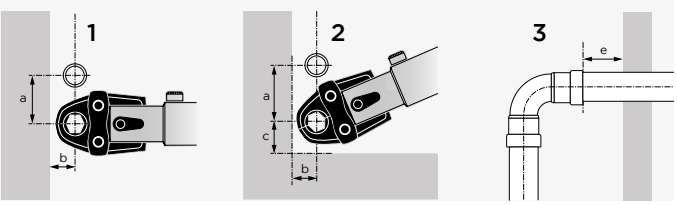


	figure 1		figure 2			figure 3
dimension	a	b	a	b	c	e
½″	70	30	70	30	50	30
¾″	80	40	90	40	60	30
1″	90	40	95	40	65	30
1¼″	100	75	100	75	75	30
1½″	115	80	115	80	85	30
2″	125	80	125	80	90	30

required installation space when using Novopress press tools

8. pressing

Before starting to press, the press jaws and slings must be checked for dirt, which should be removed if present. To create a correctly pressed connection, the press tool should enclose the collar of the fitting. Once the pressing cycle starts, it should be completed before releasing. Under no circumstances interrupt the process. Please consult our online tool selector for the most recent overview of approved machines, press jaws and slings: aalberts-ips.eu/tool-selector.

it is not permitted to press a connection more than once.

The pressing process can cause deflection (angular displacement). This behaviour can be corrected by adapting the position of the press jaw/sling on each connection. As an example, you could choose to place the machine on the left side first of all; then, for the next connection, the machine would be placed on the right side. The deflection of the joint is not something that can be prevented, but it can be minimized using the above method.

pressing gas installations

VSH PowerPress® Gas is suitable for gases of the second and third gas family (natural- and liquid gases) in accordance with DVGW Worksheet G 260 or Gastec KE209 and are installed inside buildings (with HTC) and outside buildings (without HTC).

Gas fittings and gas parts in brass, bronze, ductile grey cast iron and diecast aluminium may be connected with gas thread/press fittings or flanges. If renovations or repairs are being carried out, make sure the pipes are in accordance with the DIN-EN/DVGW standards. Pipes must have perfect, undamaged outer surfaces and must not been painted.

general technical information

Local regulations must always be observed (e.g. DVGW-TRGI 2018 and NPR3378):

1. gas fittings and pipes should be marked yellow to avoid confusion.
2. pipes must be protected during construction against mechanical damage.
3. carry out tests according to G1 Gas Guidelines (e.g. check covered pipes).
4. when laid under screed (above the reinforcement), place in concrete slots.
5. operating temperature: -20˚C to +70˚C

corrosion protection

If VSH PowerPress® fittings are used in an application where full corrosion protection is needed, always take care to protect the pipe and fitting surface.

thermal expansion

The level of thermal expansion within piping systems depends on the type of materials used. This linear expansion needs to be taken into account during the installation. Minor changes in length can be accommodated by having adequate space for expansion as well as by the elastic properties of the piping system itself. More substantial changes in length need to be offset by other means, e.g. installation of special expansion compensation devices, fixed anchoring points and sliding points.

Expansion can be offset by the use of a pipe segment, U-bend or compensators. The level of expansion to be offset can be determined beforehand by calculating the changes in length.

The equation for calculating the changes in length is as follows:

$$\Delta l = l \times \alpha \times \Delta T$$

Δl	= total linear expansion in [mm]
l	= length of the segment in question [m]
ΔT	= temperature difference [K]
α	= linear coefficient of expansion

pressure loss

Every fluid that flows through a piping system experiences continuous and local flow resistance. This is called pressure loss. There is a difference between continuous and local pressure losses. A continuous pressure loss is primarily caused by the flow resistance in straight pipe sections, which is essentially the result of the friction between the fluid and the pipe wall. Local pressure loss, on the other hand, are caused by the flow resistance at a number of places on the circulation system, such as a change in the internal diameter, a pipe branch, an elbow, etc.

continuous pressure loss

To calculate the resistance of a fluid flow in a straight section of a piping system, first determine the resistance in a unit of length and then multiply the total length by this value. This value can be determined analytically using the Hazen-Williams formula.

$$p = \frac{6.05 \times 10^5}{C^{1.85} \times di^{4.87}} \times Q^{1.85}$$

p = pressure loss in the pipe [bar/m]
Q = flow [l/m]
di = internal diameter of the pipe [mm]
C = constant for type and condition of the pipe

If you wish to perform these calculations, please consult the relevant specialised literature.

local pressure loss

A local pressure loss is the flow resistance that is the result of changes in the flow direction, changes in diameter, flow splitting over multiple channels, etc. There are, in principle, two ways of calculating such flow resistance: the direct analytical method and the method that uses “equivalent lengths”.

equivalent length method

This method assumes that pressure loss at a particular point can be considered to be the same as an equivalent increase in the length of a straight piping system with the same internal diameter. The final result is a pressure loss that is equal to the real pressure loss. In other words, the equivalent lengths of the individual joints are added to the actual length of the piping system (see below).
The actual length is then multiplied by the pressure loss per unit length to be able to calculate the total system pressure drop. This method is not as accurate as the direct method but has the advantage that the calculation can be carried out faster.

direct analytical method [ζ] / equivalent length method [m]

dimension													
	DN	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]
¾″	20	0.61	0.37	0.51	0.32	0.38	0.24	0.96	0.59	0.32	0.20	-	-
1″	25	0.64	0.53	0.54	0.46	0.42	0.35	1.06	0.89	0.29	0.24	0.32	0.20
1¼″	32	0.51	0.62	0.38	0.47	0.32	0.39	0.93	1.13	0.26	0.31	0.35	0.29
1½″	40	0.45	0.65	0.32	0.47	0.29	0.42	0.83	1.22	0.22	0.33	0.26	0.31
2″	50	0.48	0.94	0.35	0.69	0.29	0.57	0.93	1.82	0.22	0.44	0.26	0.38

equivalent lengths and zeta values

direct analytical method

The local pressure drop can be calculated using the following equation:

$$\Delta p_L = \Sigma\zeta \times v^2 \times \gamma/2 \times 10^{-5}$$

Δp_L = pressure loss in fitting [bar]
v = flow velocity of the fluid [m/s]
γ = specific density of the fluid [kg/m³]
ζ = local flow resistance coefficient

The table above shows the zeta [ζ] value for each type of fitting. We can assume that the zeta value is velocity independent for those velocities that occur in domestic installations or in other normal applications; this is supported by the fact that the change in zeta as a function of the Reynolds number in these velocity ranges is only minimal. Once the zeta value is known, you can calculate the corresponding local pressure drop-off using the formula above.

heat loss

Just as with all other types of pipes made from metal or plastic, adequate measures must be taken to limit heat losses. Please consult the relevant regulations on insulation thickness and the insulation standards.

built-in

welding requirements

The following requirements have to be considered when welding in the vicinity of VSH PowerPress® products.

welding adjacent to already installed VSH PowerPress® fittings/valves

When welding close to an installed VSH PowerPress® connection, the installer must remain at least 10 cm away from the connection to prevent damage to the o-ring. The installer should take the following precautions to protect the VSH PowerPress® connections while welding:

- make the welded connections before the press connections are made. The pipe must have cooled down before the fitting/valve is installed.
- wrap the connection in a cold, wet rag.
- protect the connection with a weld blanket.
- use spray as a coolant.

welding in an installation with VSH PowerPress® fittings/valves

When welding a pipe with an installed VSH PowerPress® connection, the installer must remain at least 90 cm away from the connection to prevent damage to the o-ring. The installer should take the following precautions to keep the VSH PowerPress® connections cool while welding:

- make the welded connections before the press connections are made. The pipe must have cooled down before the fitting/valve is installed.
- wrap the connection in a cold, wet rag.
- protect the connection with a weld blanket.
- use spray as a coolant.

guidelines for distances of mounting brackets

Always make sure to have hangers and supports conform to local requirements. All parts of the hangers and supports must be designed and installed so that they support the piping. Always make sure to place sliding hangers so that they do not become rigid hangers by accident.

dimension	max. distance [m]
½″	2.75
¾″	3.00
1″	3.50
1¼″	3.75
1½″	4.25
2″	4.75

distance between mounting brackets in accordance with EN806, part 4

When using VSH PowerPress® in sprinkler installations, different guidelines for distances of mounting brackets might apply.

Observance of the above distances between attachment points is not sufficient in itself. Heat expansion also needs to be appropriately compensated for in horizontal stretches The distances stated above will possibly have to be adapted for this purpose.

mounting pipes

When securing the pipes, the following should be kept in mind: The load-bearing capacity of the mounting brackets must correspond to the weight of the (filled) pipes and withstand expansion and torsion forces. Mounting brackets, such as fixed mounting points and clips, must therefore be correctly placed and assembled.

Attachment points may only be fitted onto straight pipe sections. Mounting brackets on fittings and valves is not permitted.

pressure test

Once a piping system has been installed it must be checked for leaks before being built in and concealed. With heating and cooling installations, the pressure test can be carried out with water, air or inert gases. The test medium and the results of the pressure test should be documented in a pressure test report.

Important: The piping system must be pressure-tested in all cases for VSH PowerPress®. Before being covered up, insulated, painted or walled in, a piping system must first undergo a pressure test to be certain that there are no leaks. Pressure tests must always be performed in accordance with local regulations. As a rule of thumb, a pressure of 1.5 times the operating pressure is used for pressure tests with water.

Important: When testing a VSH PowerPress® installation, make sure no water remains in the system afterwards, in order to avoid the risk of corrosion, unless the system is going to be put into service shortly afterwards.

pressure test for heating systems and cooling systems

Important: As a rule, the pressure test for piping that has already been laid is carried out with water in accordance with DIN-VOB 18380.

- the test pressure at each point of the system must be 1.3 times the operating pressure with overpressure of at least 1 bar
- immediately after the cold water pressure test, the water must be heated up to the highest hot water temperature on which the calculations were based in order to be certain that the system remains watertight at high temperatures
- there must be no drop in pressure during the pressure test
- the pressure test must be adequately documented

pressure test with air
Important: The pressure test with air or inert gases can be carried out in accordance with the ZVSHK/BHKS technical bulletins, “Pressure Test with Air or Inert Gases”, (at 100 l pipe capacity a leak tightness test at 110 mbar for at least 30 minutes. For every additional 100 l, the time must be increased by 10 minutes. After the leak tightness test, the strength of the connection is to be tested during 10 minutes at: max. 3 bar up to and including DN50). For safety reasons, the maximum test pressure is set at 3 bar.

pressure test for natural gas systems
Important: The pressure test for natural gas and liquid gas systems must be performed in accordance with local regulations.

pressure testing of sprinkler systems
The pipes of a sprinkler system must be subjected to a pressure test in accordance with the applicable standards such as CEA 4001, no. 17.1.1. (VdS) for at least two hours. A pressure (measured at the alarm valves) corresponding to 1.5 times the permitted positive operating pressure – but of at least 15 bar – must be maintained during the test. This pressure test is a check of both the strength and tightness of the system. The system must be monitored for 24 hours for any pressure drop due, for example, to temperature changes. Any faults identified, such as permanent deformations, ruptures or leakages must be corrected and the pressure test repeated.

flushing the piping system

Each piping system must be flushed thoroughly before being put into use so that any dirt and other matter is removed from the inside of the pipe surface so that hygiene problems and corrosion damage are largely prevented.
Installation regulations and worksheets, must be followed. In exceptional cases, it may be necessary to flush the system with a disinfecting substance.When flushing with water containing a disinfectant addition, special care must be taken to ensure that no chlorides remain in the piping system. Always make sure to flush with clean, potable water.

corrosion

There are different kinds of corrosion: chemical corrosion, electro-chemical corrosion, internal and external local corrosion, stray current corrosion, etc. All these kinds of corrosion have very particular chemical or mechanical causes. The following paragraphs provide some simple hints on how to avoid such problems.

electro-chemical corrosion

Electro-chemical corrosion occurs under the following circumstances:

- electrochemical potential difference between both parts.
- presence of a conductive fluid (electrolyte), such as water.
- presence of oxygen.

If heating installations are installed and used properly, they will not contain a substantial amount of oxygen, making the risk of corrosion small. It is critical that the VSH PowerPress® system components be installed only downstream of other, metallurgically inferior (lower quality) components that may be present in these kinds of installations. A branch can, for example, be made with VSH XPress stainless steel. In such a case, a non-ferrous metal or synthetic connection piece must be used (see DIN1988).

Another important factor is the ratio between the surface of the noble metal and that of the less noble metal. The higher this ratio, the greater the corrosion rate may be.

stray currents

Corrosion by stray currents rarely occurs in practice and is immediately recognisable as it starts on the outside of the pipe with a cone-shaped crater to the inside. Stray current corrosion requires a direct current that turns the metal into an anode. The current which in practice – in spite of insulation measures – penetrates into the earth and other metal structures in the vicinity goes through part of the system first of all and only then back to earth. To penetrate into the piping system, the earth current must have an entry point at a spot where the normal protective cover of the pipe or connection is damaged or missing.

For this reason, metal piping systems must be earthed (see EU Regulations). Direct current installations are generally not used in domestic households and no real problems occur with alternating current.

carbon steel pipes

internal corrosion

Internal corrosion cannot occur with closed-loop water heating systems. The oxygen in the water in closed-loop systems creates a layer of iron oxide on the inside of the pipe thereby preventing any further corrosion. When the heating system is not in use, it must be kept filled at all times or, alternatively, be completely drained and subsequently dried out, to avoid the presence of water and oxygen in the system at the same time.

The necessary additives should be added to prevent frost damage, calcification or corrosion. We will be pleased to answer any enquiries about the use of additives. Please observe the applicable legislation, regulations and local rules regarding corrosion.

external corrosion

Steel piping systems are generally installed in such a way that the outer surfaces do not come into contact with corrosive media. If this does nevertheless occur, appropriate measures must be taken.

prevention of corrosion

Instructions will be found in the following paragraphs on how to prevent corrosion problems in the most usual places. A distinction is made between inner and outer corrosion, and the area of application.

internal corrosion

heating installations

The penetration of oxygen in closed-loop heating installations will be prevented if high-quality accessories and compensators with closed membranes are used. When filling the installation, the small quantity of oxygen contained in the water is directly absorbed into the inner pipe surface, in the process of which a thin layer of iron oxide is formed and after which there is no longer any possibility of corrosion. The loss in wall thickness can be disregarded. The loss in wall thickness is negligible. The heating water is virtually free of oxygen following this reaction.

carbon steel pipes

Internal corrosion is normally impossible in closed-loop heating installations as oxygen from outside cannot penetrate the installation.

water additives

Oxygen scavengers and corrosion inhibitors can be added to the heating-circuit water as a preventive measure against inadmissible oxygen absorption. Observe the supplier's instructions for use.

external corrosion

There are few situations in which outer corrosion occurs in buildings. It is, however, possible in many cases that installations are exposed for a longer period to undesired penetration of rain, humidity or damp and this can lead to problems. Responsibility for taking relevant measures rests, however, with the user and the installer. Only suitable corrosion protection can offer permanent certainty against corrosion. One way of doing so is to use 'closed cell' insulation, which must be applied in a guaranteed waterproof condition.

Suitable primers - or metallic paints may offer minimal corrosion protection. It is advisable to always use corrosion protection on the piping in situations where corrosion is likely to occur (damp room, crawl spaces, etc.).

carbon steel pipes

Special attention must be paid to preventing outer corrosion where an environment remains humid for longer periods.

In addition, piping systems should be properly sized to minimise the risk of erosion and corrosion resulting from excessive velocities.

impact of application and processing

underground installations

VSH PowerPress® and black carbon steel pipes are approved for underground installations (with the exception of sprinkler installations). All installations must, however, comply with local regulations. Proper authorisation must be obtained prior to underground installation from the local authority having jurisdiction.

galvanized carbon steel pipe

With galvanized carbon steel pipe, waterline corrosion can occur as a result of interaction between three actors (water - metal - gas (air)). This corrosion can be prevented if the installation remains permanently filled once filled for the first time. Partial filling will take place, for example, if the pipes are emptied again after a pressure test with water, in which case a pressure test using gas/air is recommended.

insulation

Insulation does not, as a rule, offer any protection against corrosion, except in the case of ‘closed cell insulation’ (sealed and watertight), which offers effective protection against corrosion. The installation instructions of the supplier of the insulation material must always be followed carefully. Remove dust, dirt, oil or water from the piping prior to insulating.

The different sections of the insulation material must be carefully joined, taking care that no moisture or water can enter the material.

Also take care that the water barrier of the insulation material is not damaged during installation as moisture could otherwise penetrate under the insulation material.

insulating carbon steel

No corrosion can occur if there is no humidity between the insulation material and the pipe. If there is a possibility of damp (e.g. condensation) occurring under the insulation, the outside of the pipe will corrode.

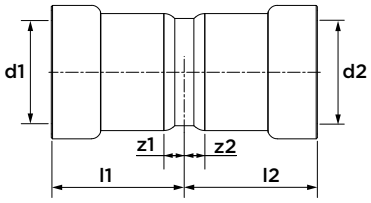
warranty

Please contact Aalberts integrated piping systems for the most recent warranty conditions that apply to VSH PowerPress®.

VSH PowerPress®

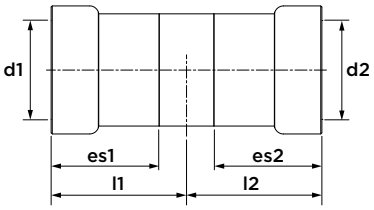
fittings

C9401 straight coupling
(2 x press)



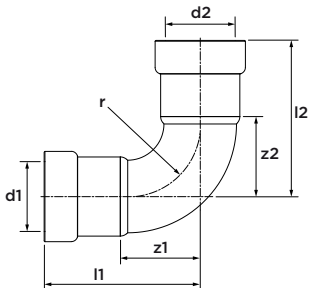
dimension	article no.	l1/l2	z1/z2
½"	PWR9400809	34	5
¾"	PWR9400811	37	6
1"	PWR9400820	42	5
1¼"	PWR9400831	56	7
1½"	PWR9400842	57	8
2"	PWR9400853	61	7

C9403 slip coupling
(2 x press)



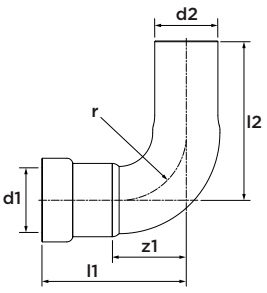
dimension	article no.	l1/l2	es1/es2
½"	PWR9400864	39	29
¾"	PWR9400875	42	32
1"	PWR9400886	47	37
1¼"	PWR9400897	59	49
1½"	PWR9400908	63	49
2"	PWR9400919	65	54

C9408 bend 90°
(2 x press)



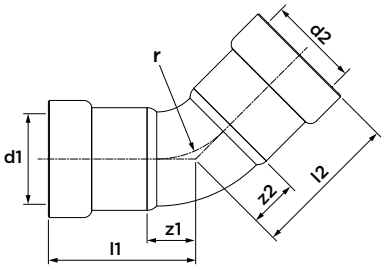
dimension	article no.	l1/l2	z1/z2	r
½"	PWR9400006	55	26	25
¾"	PWR9400017	63	32	30
1"	PWR9400028	76	40	38
1¼"	PWR9400039	97	48	45
1½"	PWR9400041	103	54	50
2"	PWR9400050	122	68	65

C9411 bend 90°
(press x male)



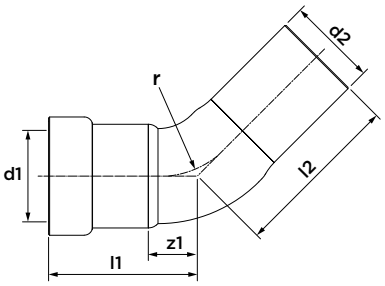
dimension	article no.	l1	l2	z1	r
½" x Ø½"	PWR9400061	55	69	26	25
¾" x Ø¾"	PWR9400072	63	75	32	30
1" x Ø1"	PWR9400083	76	91	40	38
1¼" x Ø1¼"	PWR9400094	97	109	48	45
1½" x Ø1½"	PWR9400105	114	114	64	50
2" x Ø2"	PWR9400116	122	140	68	65

C9413 bend 45°
(2 x press)



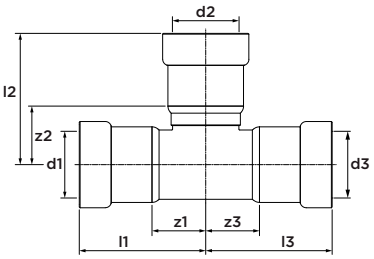
dimension	article no.	l1/l2	z1/z2	r
½"	PWR9400127	41	12	25
¾"	PWR9400138	46	14	30
1"	PWR9400149	54	17	38
1¼"	PWR9400151	71	22	45
1½"	PWR9400160	74	25	50
2"	PWR9400171	84	30	65

C9412 bend 45°
(press x male)



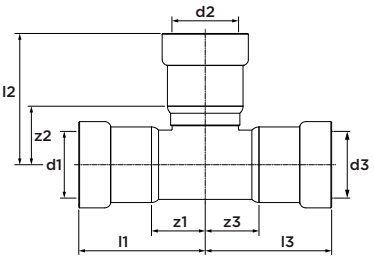
dimension	article no.	l1	l2	z1	r
½" x Ø½"	PWR9400182	41	54	12	25
¾" x Ø¾"	PWR9400193	46	58	15	30
1" x Ø1"	PWR9400204	54	68	18	38
1¼" x Ø1¼"	PWR9400215	71	80	22	45
1½" x Ø1½"	PWR9400226	84	85	35	50
2" x Ø2"	PWR9400237	84	98	30	65

C9414 tee
(3 x press)



dimension	article no.	l1/l3	l2	z1/z3	z2
½"	PWR9400248	52	53	23	24
¾"	PWR9400259	57	59	26	27
1"	PWR9400261	66	68	30	31
1¼"	PWR9400270	82	85	33	36
1½"	PWR9400281	89	89	39	40
2"	PWR9400292	96	100	42	46

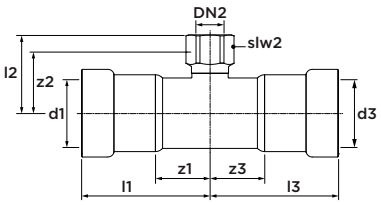
C9415 tee reduced
(3 x press)



dimension	article no.	l1/l3	l2	z1/z3	z2
¾" x ½" x ¾"	PWR9400303	57	56	26	26
1" x ½" x 1"	PWR9400314	66	60	30	30
1" x ¾" x 1"	PWR9400325	66	63	30	30
1¼" x ½" x 1¼"	PWR9400336	82	56	33	33
1¼" x ¾" x 1¼"	PWR9400347	82	63	33	33
1¼" x 1" x 1¼"	PWR9400358	82	72	33	33
1½" x ½" x 1½"	PWR9400369	89	66	39	39
1½" x ¾" x 1½"	PWR9400371	89	68	39	39
1½" x 1" x 1½"	PWR9400380	89	74	39	39
1½" x 1¼" x 1½"	PWR9400391	89	87	39	39
2" x ½" x 2"	PWR9400402	96	73	42	42
2" x ¾" x 2"	PWR9400413	96	76	42	42
2" x 1" x 2"	PWR9400424	96	81	42	42
2" x 1¼" x 2"	PWR9400435	96	95	42	42
2" x 1½" x 2"	PWR9400446	96	97	42	42

C9418 tee

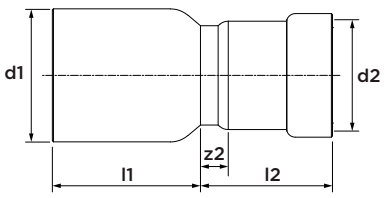
(press x female thread x press)



dimension	article no.	l1/l3	l2	z1/z3	z2	slw2
½″ x Rp½″ x ½″	PWR9400457	52	36	23	36	27
¾″ x Rp½″ x ¾″	PWR9400468	57	42	26	42	27
1″ x Rp½″ x 1″	PWR9400479	66	46	30	46	27
1″ x Rp¾″ x 1″	PWR9400481	66	47	30	47	32
1¼″ x Rp½″ x 1¼″	PWR9400490	82	50	33	50	27
1¼″ x Rp¾″ x 1¼″	PWR9401700	82	48	33	36	32
1¼″ x Rp1″ x 1¼″	PWR9401711	82	50	33	37	41
1½″ x Rp½″ x 1½″	PWR9400501	89	52	39	52	27
1½″ x Rp¾″ x 1½″	PWR9400512	89	53	39	53	32
1½″ x Rp1″ x 1½″	PWR9400523	89	57	39	57	41
2″ x Rp½″ x 2″	PWR9400534	96	60	42	60	27
2″ x Rp¾″ x 2″	PWR9400545	96	61	42	61	32
2″ x Rp1″ x 2″	PWR9400556	96	65	42	65	41

C9407 reducer

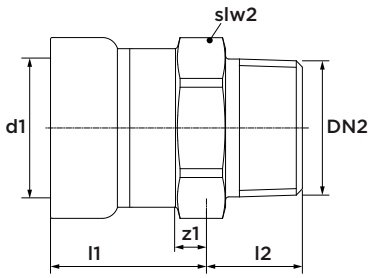
(press x male)



dimension	article no.	l1	l2	z2
Ø¾″ x ½″	PWR9400921	29	35	1
Ø1″ x ½″	PWR9400930	29	40	1
Ø1″ x ¾″	PWR9400941	32	37	1
Ø1¼″ x ½″	PWR9400952	29	55	1
Ø1¼″ x ¾″	PWR9400963	32	53	1
Ø1¼″ x 1″	PWR9400974	37	48	1
Ø1½″ x ½″	PWR9400985	43	65	15
Ø1½″ x ¾″	PWR9400996	46	63	15
Ø1½″ x 1″	PWR9401007	37	49	1
Ø1½″ x 1¼″	PWR9401018	49	48	1
Ø2″ x ½″	PWR9401029	43	74	15
Ø2″ x ¾″	PWR9401031	46	72	15
Ø2″ x 1″	PWR9401040	50	69	14
Ø2″ x 1¼″	PWR9401051	49	48	1
Ø2″ x 1½″	PWR9401062	50	50	1

C9405 straight connector

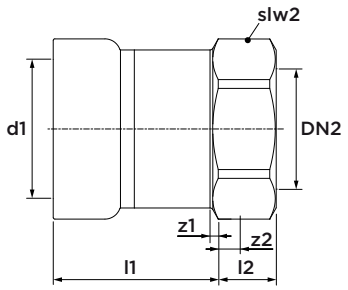
(press x male thread)



dimension	article no.	l1	l2	slw2
½″ x R½″	PWR9400567	35	15	28
¾″ x R¾″	PWR9400578	36	16	36
1″ x R1″	PWR9400589	41	23	41
1¼″ x R1¼″	PWR9400591	54	20	50
1½″ x R1½″	PWR9400600	54	20	57
2″ x R2″	PWR9400611	59	20	70

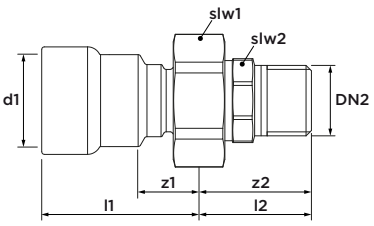
C9402 straight connector

(press x female thread)



dimension	article no.	l1	l2	z1	z2	slw2
½″ x Rp½″	PWR9400622	32	14	3	6	28
¾″ x Rp¾″	PWR9400633	33	16	1	7	36
1″ x Rp1″	PWR9400644	39	18	3	8	41
1¼″ x Rp1¼″	PWR9400655	50	21	1	8	50
1½″ x Rp1½″	PWR9400666	51	20	2	8	57
2″ x Rp2″	PWR9400677	56	20	2	5	70

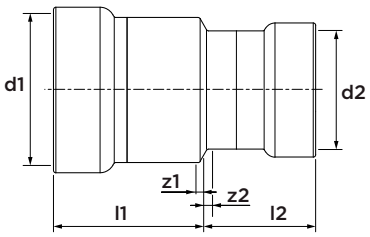
C9435 straight union
(press x male thread)



dimension	article no.	l1	l2	z1	slw1	slw2
½" x R½"	PWR9401436	48	33	19	36	25
¾" x R¾"	PWR9401447	53	38	22	41	32
1" x R1"	PWR9401458	59	42	23	50	39
1¼" x R1¼"	PWR9401469	73	46	24	57	45

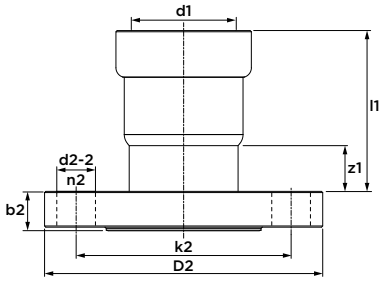
the maximum operating temperature is limited to 120°C
including flat seal (pay attention to the installation instructions 'union couplings' on 14)

C9439 reducer
(2 x press)



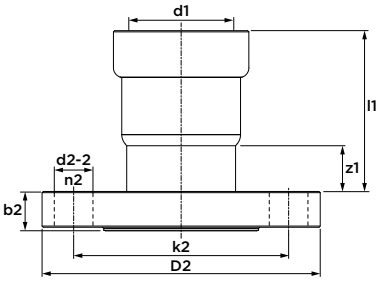
dimension	article no.	l1	l2	z1	z2
¾" x ½"	PWR9401073	34	29	3	1
1" x ½"	PWR9401084	41	29	5	1
1" x ¾"	PWR9401755	39	31	3	0
1¼" x ¾"	PWR9401766	55	31	7	0
1¼" x 1"	PWR9401777	53	36	5	0
1½" x 1¼"	PWR9401788	53	50	4	2
2" x 1¼"	PWR9401799	61	50	8	2
2" x 1½"	PWR9401801	59	51	6	2

C9427 flanged connector PN6
(1 x press)



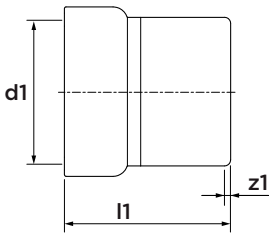
dimension	article no.	l1	z1	k2	b2	D2	d2-2	n2
1¼" (DN32)	PWR9400688	76	40	90	12	120	14	4
1½" (DN40)	PWR9400699	81	44	100	12	130	14	4
2" (DN50)	PWR9400701	82	41	110	12	140	14	4

C9426 flanged connector PN 10/16
(1 x press)



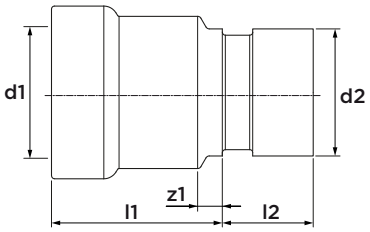
dimension	article no.	l1	z1	k2	b2	D2	d2-2	n2
1¼" (DN32)	PWR9400710	76	44	100	16	140	18	4
1½" (DN40)	PWR9400721	81	48	110	16	150	18	4
2" (DN50)	PWR9400732	82	45	125	16	165	18	4

C9429 stop end
(1 x press)



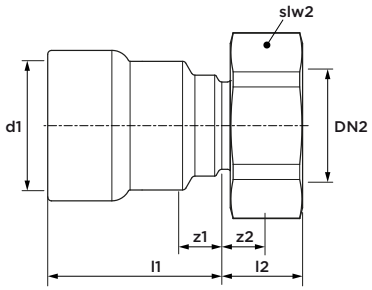
dimension	article no.	l1	z1
½"	PWR9400743	35	6
¾"	PWR9400754	38	6
1"	PWR9400765	43	7
1¼"	PWR9400776	56	7
1½"	PWR9400787	57	8
2"	PWR9400798	62	8

C9448 transition for grooved couplings
(press x groove)



dimension	article no.	l1	l2	z1
1" x 33.7	PWR9401095	45	24	8
1¼" x 42.4	PWR9401106	58	24	9
1½" x 48.3	PWR9401117	58	24	9
2" x 60.3	PWR9401128	63	24	9

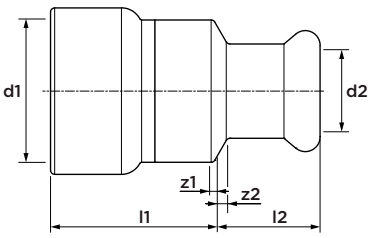
C9446 coupling with nut
(press x female thread)



dimension	article no.	l1	l2	z1	z2	slw2
½" x G¾"	PWR9401359	46	9	17	0	36
¾" x G1"	PWR9401361	51	12	20	1	41
1" x G1¼"	PWR9401370	57	12	21	1	50
1" x G1½"	PWR9401381	54	12	17	1	57
1¼" x G1½"	PWR9401392	71	12	22	1	57
1¼" x G2"	PWR9401403	53	16	4	1	70
1½" x G2"	PWR9401414	75	16	25	1	70
2" x G2½"	PWR9401425	83	20	29	1	85

the maximum operating temperature is limited to 120°C
including flat seal (pay attention to the installation instructions 'union couplings' on 14)

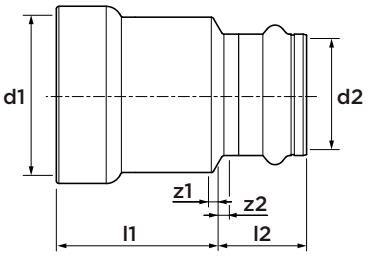
C9441 transition to VSH XPress
(2 x press)



dimension	article no.	l1	l2	z1	z2
½" x 15	PWR9401216	30	22	1	2
¾" x 15	PWR9401238	32	23	1	2
¾" x 22	PWR9401227	39	24	3	4
1" x 15	PWR9401249	33	23	2	3
1" x 28	PWR9401251	38	25	1	2
1¼" x 35	PWR9401260	51	29	2	3
1½" x 42	PWR9401271	52	33	2	3
2" x 54	PWR9401282	56	38	2	3

C9440 transition to VSH SudoPress

(2 x press)



dimension	article no.	l1	l2	z1	z2
½″ x 15	PWR9401139	32	24	3	2
¾″ x 15	PWR9401141	35	25	4	3
1″ x 15	PWR9401150	41	26	5	4
¾″ x 22	PWR9401161	34	25	3	2
1″ x 28	PWR9401172	39	26	3	2
1¼″ x 35	PWR9401183	52	27	3	2
1½″ x 42	PWR9401194	53	39	4	3
2″ x 54	PWR9401205	57	45	3	4

C9452 flat seal

(black, EPDM)

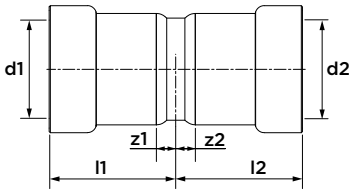
dimension	article no.
suitable for G¾″	PWR9401722
suitable for G1″	PWR9401471
suitable for G1¼″	PWR9401480
suitable for G1½″	PWR9401491
suitable for G2″	PWR9401733
suitable for G2½″	PWR9401502

the maximum operating temperature is limited to 120°C

VSH PowerPress®

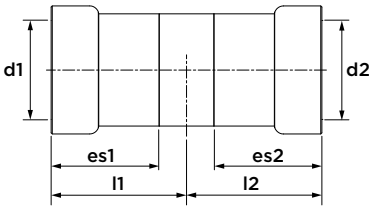
Gas fittings

C9401G straight coupling
(2 x press)



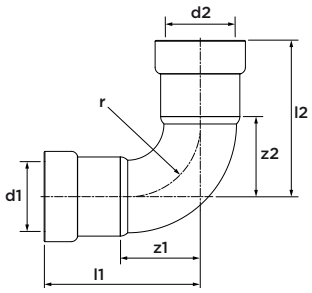
dimension	article no.	l1/l2	z1/z2
½″	123 459 094	34	5
¾″	123 459 095	37	6
1″	123 459 096	42	5
1¼″	123 459 097	56	7
1½″	123 459 098	57	8
2″	123 459 099	61	7

C9403G slip coupling
(2 x press)



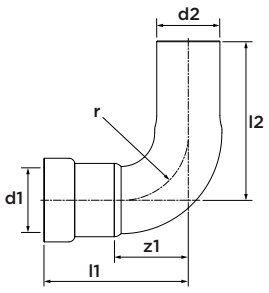
dimension	article no.	l1/l2	es1/es2
½″	123 459 106	39	29
¾″	123 459 107	42	32
1″	123 459 108	47	37
1¼″	123 459 109	59	49
1½″	123 459 110	63	49
2″	123 459 111	65	54

C9408G bend 90°
(2 x press)



dimension	article no.	l1/l2	z1/z2	r
½″	123 459 133	55	26	25
¾″	123 459 134	63	32	30
1″	123 459 135	76	40	38
1¼″	123 459 136	97	48	45
1½″	123 459 137	103	54	50
2″	123 459 138	122	68	65

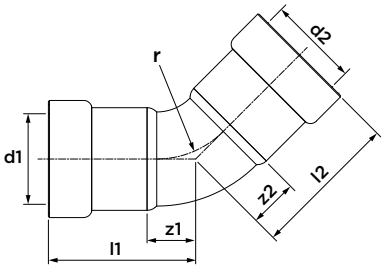
C9411G bend 90°
(press x male)



dimension	article no.	l1	l2	z1	r
½″ x Ø½″	123 459 139	55	69	26	25
¾″ x Ø¾″	123 459 140	63	75	32	30
1″ x Ø1″	123 459 141	76	91	40	38
1¼″ x Ø1¼″	123 459 142	97	109	48	45
1½″ x Ø1½″	123 459 143	114	114	64	50
2″ x Ø2″	123 459 144	122	140	68	65

C9413G bend 45°

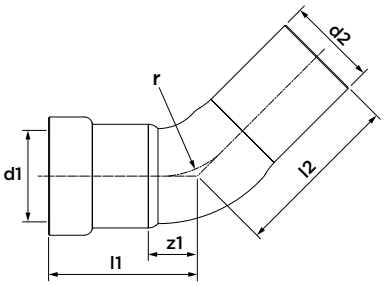
(2 x press)



dimension	article no.	l1/l2	z1/z2	r
½"	123 459 151	41	12	25
¾"	123 459 152	46	14	30
1"	123 459 153	54	17	38
1¼"	123 459 154	71	22	45
1½"	123 459 155	74	25	50
2"	123 459 156	84	30	65

C9412G bend 45°

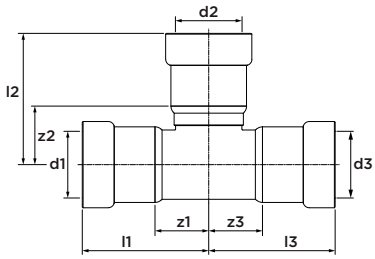
(press x male)



dimension	article no.	l1	l2	z1	r
½" x Ø½"	123 459 145	41	54	12	25
¾" x Ø¾"	123 459 146	46	58	15	30
1" x Ø1"	123 459 147	54	68	18	38
1¼" x Ø1¼"	123 459 148	71	80	22	45
1½" x Ø1½"	123 459 149	84	85	35	50
2" x Ø2"	123 459 150	84	98	30	65

C9414G tee

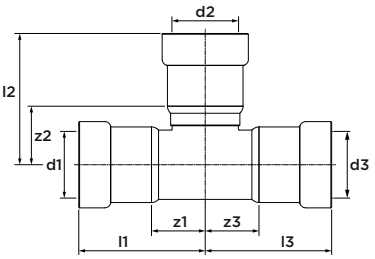
(3 x press)



dimension	article no.	l1/l3	l2	z1/z3	z2
½"	123 459 157	52	53	23	24
¾"	123 459 158	57	59	26	27
1"	123 459 159	66	68	30	31
1¼"	123 459 160	82	85	33	36
1½"	123 459 161	89	89	39	40
2"	123 459 162	96	100	42	46

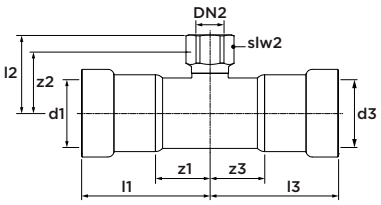
C9415G tee reduced

(3 x press)



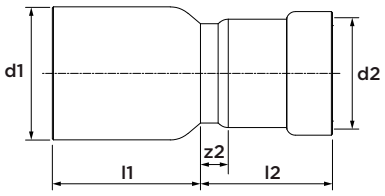
dimension	article no.	l1/l3	l2	z1/z3	z2
¾" x ½" x ¾"	123 459 163	57	56	26	26
1" x ½" x 1"	123 459 164	66	60	30	30
1" x ¾" x 1"	123 459 165	66	63	30	30
1¼" x ½" x 1¼"	123 459 166	82	56	33	33
1¼" x ¾" x 1¼"	123 459 167	82	63	33	33
1¼" x 1" x 1¼"	123 459 168	82	72	33	33
1½" x ½" x 1½"	123 459 169	89	66	39	39
1½" x ¾" x 1½"	123 459 170	89	68	39	39
1½" x 1" x 1½"	123 459 171	89	74	39	39
1½" x 1¼" x 1½"	123 459 172	89	87	39	39
2" x ½" x 2"	123 459 173	96	73	42	42
2" x ¾" x 2"	123 459 174	96	76	42	42
2" x 1" x 2"	123 459 175	96	81	42	42
2" x 1¼" x 2"	123 459 176	96	95	42	42
2" x 1½" x 2"	123 459 177	96	97	42	42

C9418G tee
(press x female thread x press)



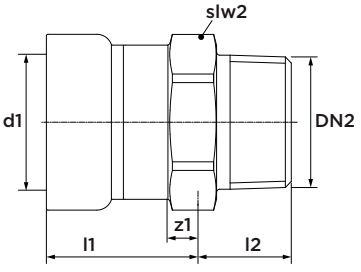
dimension	article no.	l1/l3	l2	z1/z3	z2	slw2
½" x Rp½" x ½"	123 459 178	52	36	23	36	27
¾" x Rp½" x ¾"	123 459 179	57	42	26	42	27
1" x Rp½" x 1"	123 459 180	66	46	30	46	27
1" x Rp¾" x 1"	123 459 181	66	47	30	47	32
1¼" x Rp½" x 1¼"	123 459 182	82	50	33	50	27
1¼" x Rp¾" x 1¼"	123 459 183	82	48	33	36	32
1¼" x Rp1" x 1¼"	123 459 184	82	50	33	37	41
1½" x Rp½" x 1½"	123 459 185	89	52	39	52	27
1½" x Rp¾" x 1½"	123 459 186	89	53	39	53	32
1½" x Rp1" x 1½"	123 459 187	89	57	39	57	41
2" x Rp½" x 2"	123 459 188	96	60	42	60	27
2" x Rp¾" x 2"	123 459 189	96	61	42	61	32
2" x Rp1" x 2"	123 459 190	96	65	42	65	41

C9407G reducer
(press x male)



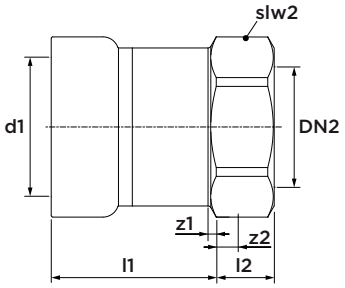
dimension	article no.	l1	l2	z2
Ø¾" x ½"	123 459 118	29	35	1
Ø1" x ½"	123 459 119	29	40	1
Ø1" x ¾"	123 459 120	32	37	1
Ø1¼" x ½"	123 459 121	29	55	1
Ø1¼" x ¾"	123 459 122	32	53	1
Ø1¼" x 1"	123 459 123	37	48	1
Ø1½" x ½"	123 459 124	43	65	15
Ø1½" x ¾"	123 459 125	46	63	15
Ø1½" x 1"	123 459 126	37	49	1
Ø1½" x 1¼"	123 459 137	49	48	1
Ø2" x ½"	123 459 128	43	74	15
Ø2" x ¾"	123 459 129	46	72	15
Ø2" x 1"	123 459 130	50	69	14
Ø2" x 1¼"	123 459 131	49	48	1
Ø2" x 1½"	123 459 132	50	50	1

C9405G straight connector
(press x male thread)



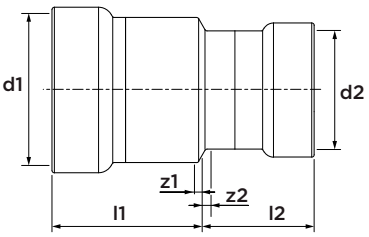
dimension	article no.	l1	l2	slw2
½" x R½"	123 459 112	35	15	28
¾" x R¾"	123 459 113	36	16	36
1" x R1"	123 459 114	41	23	41
1¼" x R1¼"	123 459 115	54	20	50
1½" x R1½"	123 459 116	54	20	57
2" x R2"	123 459 117	59	20	70

C9402G straight connector
(press x female thread)



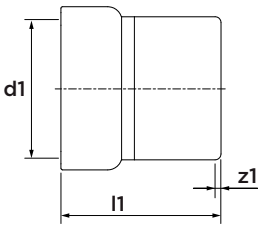
dimension	article no.	l1	l2	z1	z2	slw2
½" x Rp½"	123 459 100	32	14	3	6	28
¾" x Rp¾"	123 459 101	33	16	1	7	36
1" x Rp1"	123 459 102	39	18	3	8	41
1¼" x Rp1¼"	123 459 103	50	21	1	8	50
1½" x Rp1½"	123 459 104	51	20	2	8	57
2" x Rp2"	123 459 105	56	20	2	5	70

C9439G reducer
(2 x press)



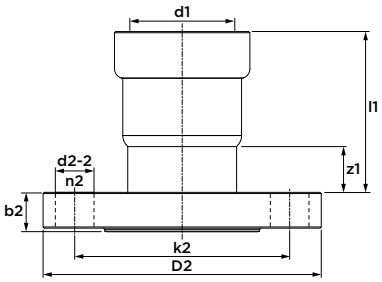
dimension	article no.	l1	l2	z1	z2
¾" x ½"	123 459 200	34	29	3	1
1" x ½"	123 459 201	41	29	5	1
1" x ¾"	123 459 202	39	31	3	0

C9429G stop end
(1 x press)



dimension	article no.	l1	z1
½"	123 459 194	35	6
¾"	123 459 195	38	6
1"	123 459 196	43	7
1¼"	123 459 197	56	7
1½"	123 459 198	57	8
2"	123 459 199	62	8

C9426G flanged connector PN 10/16
(1 x press)



dimension	article no.	l1	z1	k2	b2	D2	d2-2	n2
1¼" (DN32)	123 459 191	92	43	100	16	140	18	4
1½" (DN40)	123 459 192	97	47	110	16	150	18	4
2" (DN50)	123 459 193	98	44	125	16	165	18	4

VSH PowerPress®

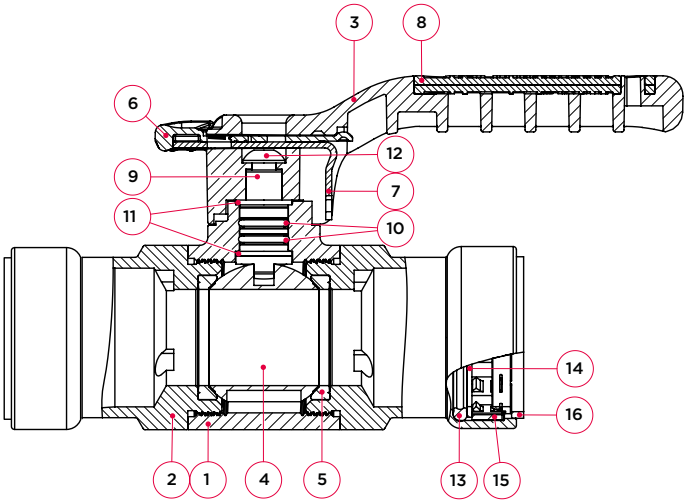
valves

PP550 ball valve PN16

(2 x press)

specifications

- maximum pressure 16 bar
- operating temperature -10 to 135°C
- lockable latching handle
- identifiable lock indication
- reversible handle insert (red/blue)
- chrome plated brass full bore ball
- PTFE ball seats

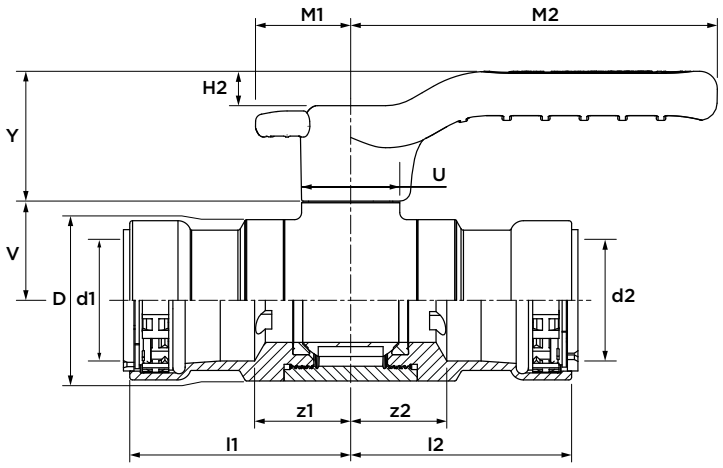


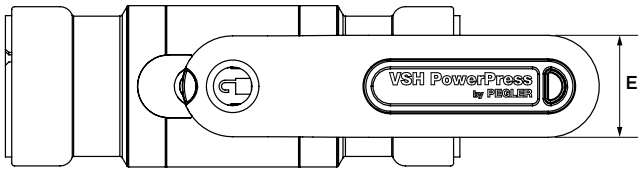
no.	part	material
1	body	DZR brass (CW511L)
2	press end	carbon steel zinc nickel plated
3	handle	zamak
4	ball	DZR brass (CW511L)
5	seat	PTFE
6	latch grip	nylon 6
7	latch	stainless steel
8	handle insert	TPE
9	spindle	stainless steel
10	spindle seal	EPDM
11	spindle bearing	PTFE
12	screw	stainless steel
13	o-ring	EPDM
14	spacer ring	stainless steel
15	grab ring	stainless steel
16	Visu-Control® ring	polypropylene

maximum pressure [bar]

operating pressure	test pressure shell	test pressure seat
16	24	17.6

pressure equipment directive category	
all sizes	SEP





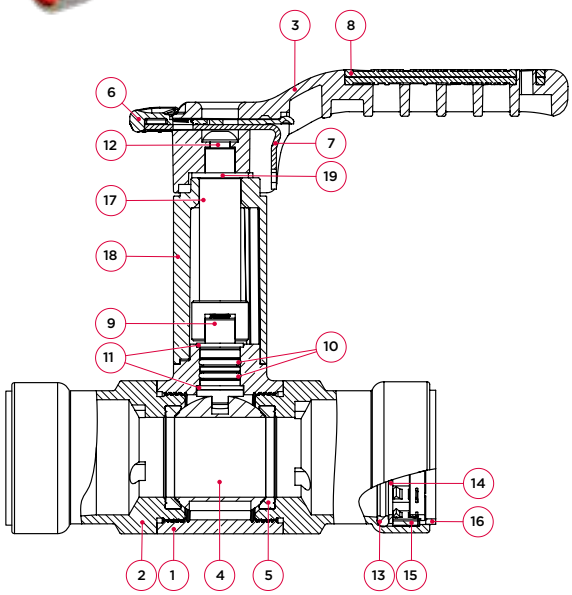
dimension		article no.	weight [kg]	Kvs [m³/h]	l1/l2	z1/z2	U[Ø]	V	Y	H2	E	M1	M2	D
½"	(DN15)	PWR9440002	0.57	17	55	27	28	23	37	10	29	27/34	105	31
¾"	(DN20)	PWR9440013	0.67	41	55	24	28	25	37	10	29	27/34	105	38
1"	(DN25)	PWR9440024	0.92	70	63	28	28	28	37	10	29	27/34	105	46
1¼"	(DN32)	PWR9440035	1.31	121	80	32	28	34	37	10	29	27/34	105	57
1½"	(DN40)	PWR9440046	1.76	200	83	35	28	41	37	10	29	27/34	165	66
2"	(DN50)	PWR9440057	2.77	292	93	40	28	48	37	10	29	27/34	165	83

PP550 EL ball valve with extended stem PN16

(2 x press)

specifications

- maximum pressure 16 bar
- operating temperature -10 to 135°C
- lockable latching with extended stem
- identifiable lock indication
- reversible handle insert (red/blue)
- chrome plated brass full bore ball
- PTFE ball seats

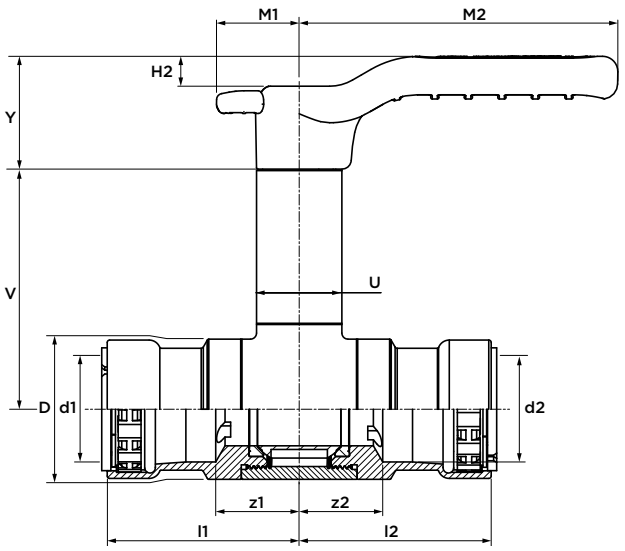


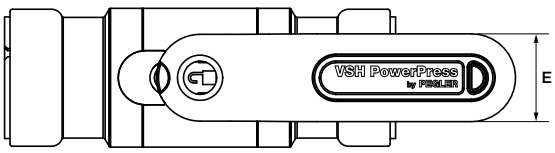
no.	part	material
1	body	DZR brass (CW511L)
2	press end	carbon steel zinc nickel plated
3	handle	zamak
4	ball	DZR brass (CW511L)
5	seat	PTFE
6	latch grip	nylon 6
7	latch	stainless steel
8	handle insert	TPE
9	spindle	stainless steel
10	spindle seal	EPDM
11	spindle bearing	PTFE
12	screw	stainless steel
13	o-ring	EPDM
14	spacer ring	stainless steel
15	grab ring	stainless steel
16	Visu-Control® ring	polypropylene
17	extended spindle	stainless steel
18	handle extension	zamak
19	handle extensions bearing	PTFE

maximum pressure [bar]

operating pressure	test pressure shell	test pressure seat
16	24	17.6

pressure equipment directive category	
all sizes	SEP





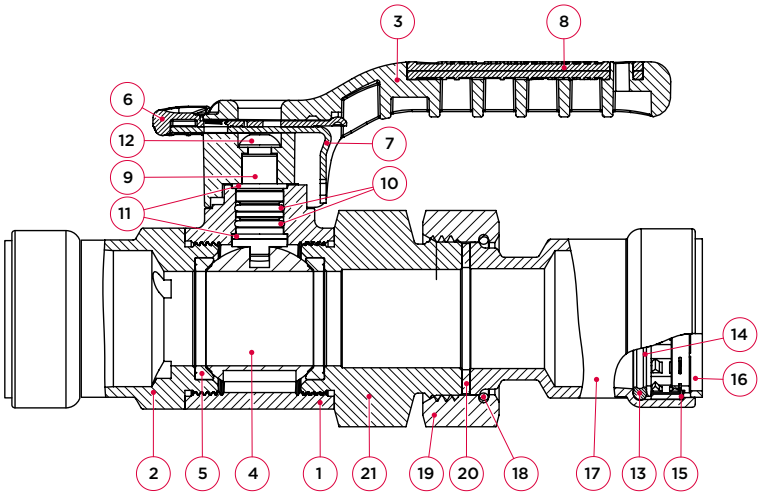
dimension		article no.	weight [kg]	Kvs [m³/h]	l1/l2	z1/z2	U[Ø]	V	H2	Y	E	M1	M2	D
½"	(DN15)	PWR9440123	0.71	17	55	27	28	74	10	37	29	27/34	105	31
¾"	(DN20)	PWR9440134	0.81	41	55	24	28	76	10	37	29	27/34	105	38
1"	(DN25)	PWR9440145	1.06	70	63	28	28	80	10	37	29	27/34	105	46
1¼"	(DN32)	PWR9440156	1.45	121	80	32	28	86	10	37	29	27/34	105	57
1½"	(DN40)	PWR9440167	1.90	200	83	35	28	92	10	37	29	27/34	165	66
2"	(DN50)	PWR9440178	2.91	292	93	40	28	99	10	37	29	27/34	165	83

PPSU550 ball valve PN16

(2 x press, with union connection)

specifications

- maximum pressure 16 bar
- operating temperature -10 to 120°C
- lockable latching handle
- identifiable lock indication
- reversible handle insert (red/blue)
- chrome plated brass full bore ball
- PTFE ball seats

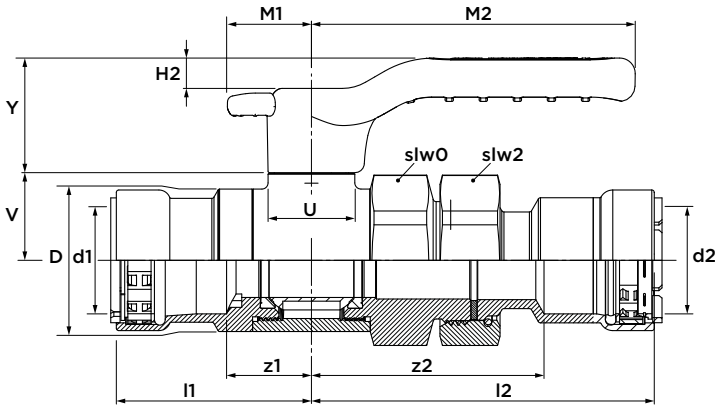


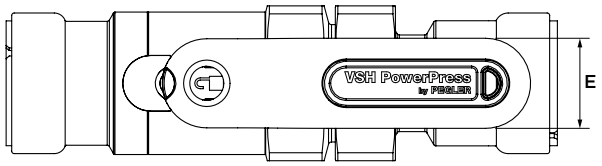
no.	part	material
1	body	DZR brass (CW511L)
2	press end	carbon steel zinc nickel plated
3	handle	zamak
4	ball	DZR brass (CW511L)
5	seat	PTFE
6	latch grip	nylon 6
7	latch	stainless steel
8	handle insert	TPE
9	spindle	stainless steel
10	spindle seal	EPDM
11	spindle bearing	PTFE
12	screw	stainless steel
13	o-ring	EPDM
14	spacer ring	stainless steel
15	grab ring	stainless steel
16	Visu-Control® ring	polypropylene
17	press end with union connection	carbon steel zinc nickel plated
18	circlip	stainless steel
19	union nut	carbon steel zinc nickel plated
20	flat seal	EPDM
21	union end adaptor	carbon steel zinc nickel plated

maximum pressure [bar]

operating pressure	test pressure shell	test pressure seat
16	24	17.6

pressure equipment directive category	
all sizes	SEP





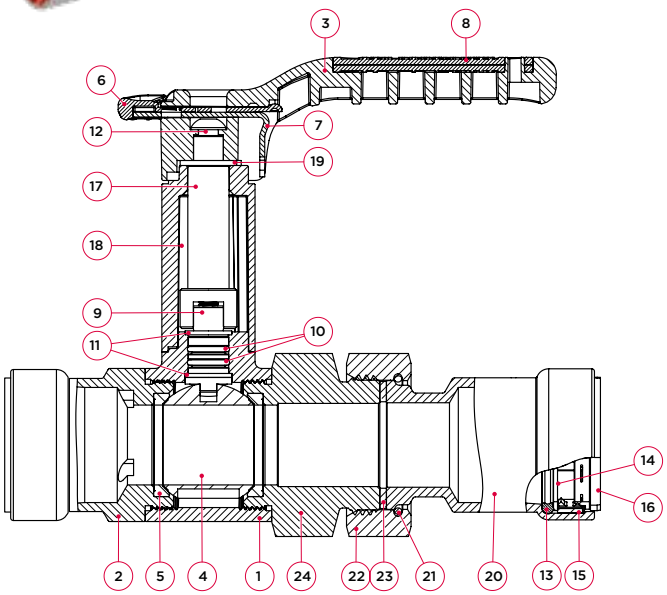
dimension		article no.	weight [kg]	Kvs [m³/h]	l1	z1	l2	z2	slw0	slw2	U [Ø]	V	Y	H2	E	M1	M2	D
½"	(DN15)	PWR9440068	0.84	17	55	27	96	68	36	36	28	23	37	10	29	27/34	105	31
¾"	(DN20)	PWR9440079	1.00	41	55	24	102	72	41	41	28	25	37	10	29	27/34	105	38
1"	(DN25)	PWR9440081	1.42	70	63	28	111	75	50	50	28	28	37	10	29	27/34	105	46
1¼"	(DN32)	PWR9440090	1.94	121	80	32	126	76	60	57	28	34	37	10	29	27/34	105	57
1½"	(DN40)	PWR9440101	2.73	200	83	35	139	90	70	70	28	41	37	10	29	27/34	165	66
2"	(DN50)	PWR9440112	4.14	292	93	40	158	105	85	85	28	48	37	10	29	27/34	165	83

PPSU550 EL ball valve with extended stem PN16

(2 x press, with union connection)

specifications

- maximum pressure 16 bar
- operating temperature -10 to 120°C
- lockable latching with extended stem
- identifiable lock indication
- reversible handle insert (red/blue)
- chrome plated brass full bore ball
- PTFE ball seats

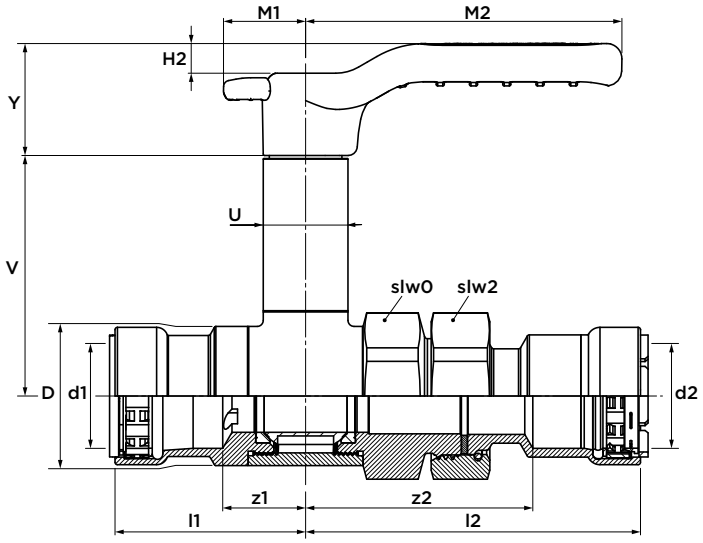


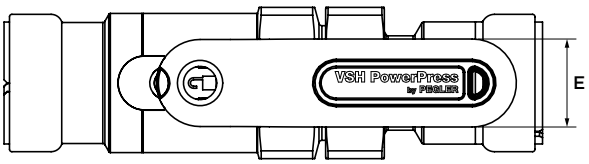
no.	part	material
1	body	DZR brass (CW511L)
2	press end	carbon steel zinc nickel plated
3	handle	zamak
4	ball	DZR brass (CW511L)
5	seat	PTFE
6	latch grip	nylon 6
7	latch	stainless steel
8	handle insert	TPE
9	spindle	stainless steel
10	spindle seal	EPDM
11	spindle bearing	PTFE
12	screw	stainless steel
13	o-ring	EPDM
14	spacer ring	stainless steel
15	grab ring	stainless steel
16	Visu-Control® ring	polypropylene
17	extended spindle	stainless steel
18	handle extension	zamak
19	handle extensions bearing	PTFE
20	press end with union connection	carbon steel zinc nickel plated
21	circlip	stainless steel
22	union nut	carbon steel zinc nickel plated
23	flat seal	EPDM
24	union end adaptor	carbon steel zinc nickel plated

maximum pressure [bar]

operating pressure	test pressure shell	test pressure seat
16	24	17.6

pressure equipment directive category	
all sizes	SEP





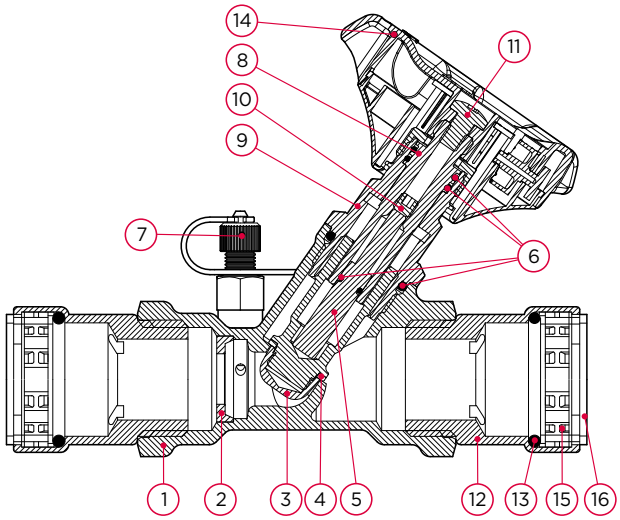
dimension		article no.	weight [kg]	Kvs [m³/h]	l1	l2	z1	z2	slw0	slw2	U [Ø]	V	H2	Y	E	M1	M2	D
½"	(DN15)	PWR9440189	0.98	17	55	96	27	68	36	36	28	74	10	37	29	27/34	105	31
¾"	(DN20)	PWR9440191	1.14	41	55	102	24	72	41	41	28	76	10	37	29	27/34	105	38
1"	(DN25)	PWR9440200	1.56	70	63	111	28	75	50	50	28	80	10	37	29	27/34	105	46
1¼"	(DN32)	PWR9440211	2.08	121	80	126	32	78	60	57	28	86	10	37	29	27/34	105	57
1½"	(DN40)	PWR9440222	2.87	200	83	139	35	90	70	70	28	92	10	37	29	27/34	105	66
2"	(DN50)	PWR9440233	4.28	292	93	158	40	105	85	85	28	99	10	37	29	27/34	105	83

PP1260 static balancing valve

(2 x press)

specifications

- max. operating pressure 16 bar
- operating temperature -10°C to 120°C
- fixed orifice measuring (FODRV)
- handle with visual digital positioning indicator
- memory stop for setting fixation
- test points for needle connection
- socket transport protection
- visual press indicators

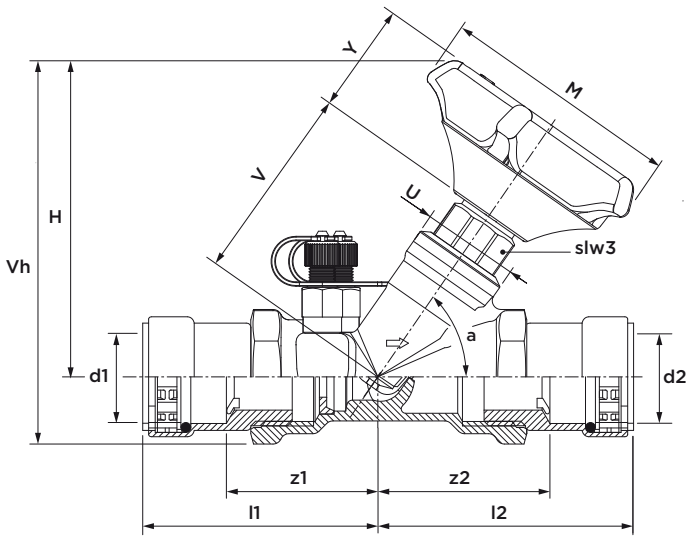


no.	component	material
1	body	brass (CW511L)
2	orifice plate	brass (CW511L)
3	disc	brass (CW511L)
4	disc seal	PTFE
5	regulator pin	brass (CW511L)
6	o-rings	EPDM
7	test point	DZR brass (CW602N)
8	spindle	brass (CW511L)
9	bonnet	brass (CW511L)
10	adjustment screw	brass (CW511L)
11	set screw	brass
12	press end	carbon steel zinc nickel plated
13	o-ring	EPDM
14	handle	30% glass filled PA 66
15	grab ring	stainless steel
16	Visu-Control® ring	polypropylene

maximum pressure [bar]

operating pressure	test pressure shell	test pressure seat
16	24	17.6

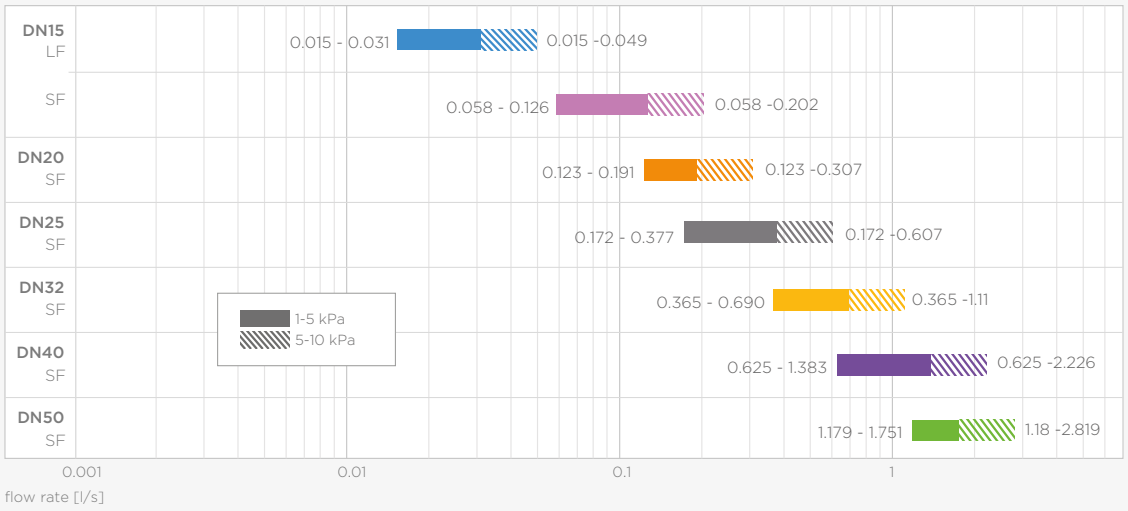
pressure equipment directive category	
all sizes	SEP



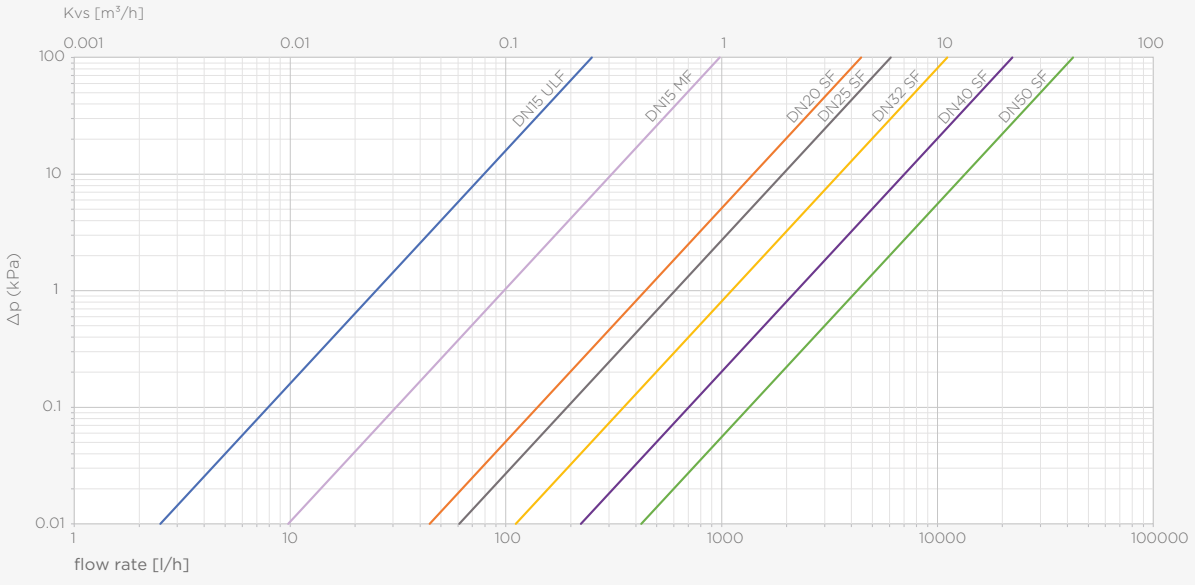
dimension	article no.	weight [kg]	l1	l2	z1	z2	slw3	U [Ø]	a [°]	V	Vh	Y	M	H
½″ (DN15) LF	PWR9440486	0.68	73	75	46	48	25	27	55	64	107	38	90	92
½″ (DN12) SF	PWR9440497	0.68	73	75	46	48	25	27	55	64	107	38	90	92
¾″ (DN20) SF	PWR9440508	0.80	74	83	43	52	25	27	55	64	114	38	90	96
1″ (DN25) SF	PWR9440519	1.15	88	96	53	60	25	33	55	73	131	38	90	108
1 ¼″ (DN32) SF	PWR9440521	1.93	110	126	62	78	32	41	55	81	154	38	90	126
1 ½″ (DN40) SF	PWR9440530	2.52	114	129	66	81	35	60	55	85	163	38	90	132
2″ (DN50) SF	PWR9440541	4.02	133	149	80	96	35	58	55	103	189	38	90	151

dimension		Kv [m³/h]	Kvs [m³/h]	flow [l/s] min.	flow [l/s] max.	flow [l/min] min.	flow [l/min] max.	flow [l/h] min.	flow [l/h] max.
½" (DN15)	LF	0.55	0.49	0.015	0.031	0.91	1.84	54.7	110.5
½" (DN12)	SF	2.09	2.02	0.058	0.126	3.49	7.54	209.2	452.5
¾" (DN20)	SF	3.07	4.43	0.123	0.191	7.37	11.45	442.4	686.9
1" (DN25)	SF	6.19	6.07	0.172	0.377	10.32	22.61	619.2	1356.8
1 ¼" (DN32)	SF	13.13	11.10	0.365	0.690	21.89	41.38	1313.3	2482.6
1 ½" (DN40)	SF	22.49	22.26	0.625	1.383	37.48	82.95	2248.9	4977.0
2" (DN50)	SF	28.19	42.46	1.180	1.751	70.77	105.07	4246.2	6304.3

flow rate



flow rate



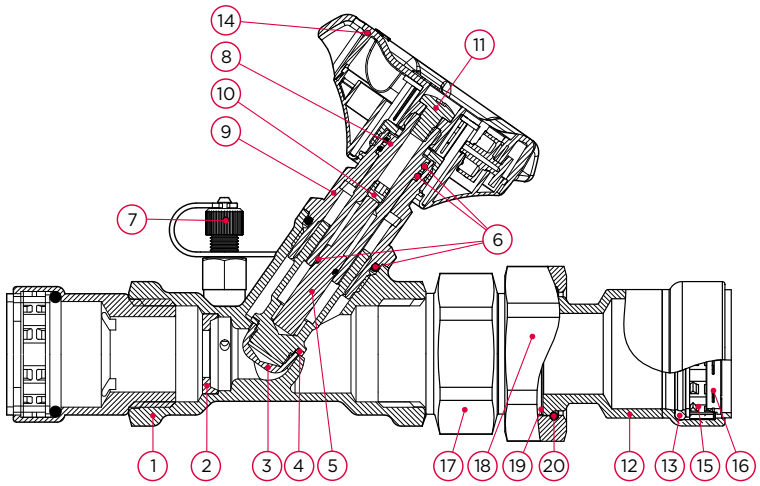
pressure loss

PPSU1260 static balancing valve PN16

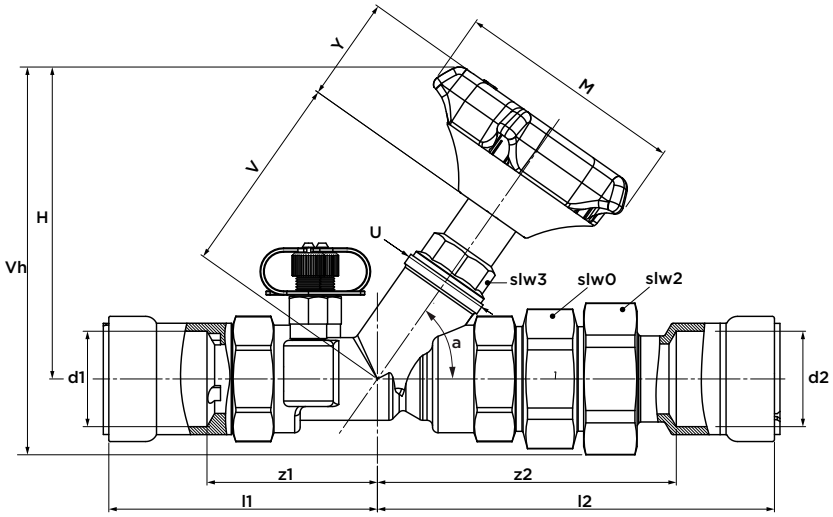
(2 x press, with union connection)

specifications

- max. operating pressure 16 bar
- operating temperature -10°C to 120°C
- fixed orifice measuring (FODRV)
- handle with visual digital positioning indicator
- memory stop for setting fixation
- test points for needle connection
- socket transport protection
- visual press indicators



no.	part	material
1	body	brass (CW511L)
2	orifice plate	brass (CW511L)
3	disc	brass (CW511L)
4	disc seal	PTFE
5	regulator pin	brass (CW511L)
6	o-rings	EPDM
7	test point	DZR brass (CW602N)
8	spindle	brass (CW511L)
9	bonnet	brass (CW511L)
10	adjustment screw	brass (CW511L)
11	set screw	brass
12	press end	carbon steel zinc nickel plated
13	o-ring	EPDM
14	handle	30% glass filled PA 66
15	grab ring	stainless steel
16	Visu-Control® ring	polypropylene
17	union end adaptor	carbon steel zinc nickel plated
18	union nut	carbon steel zinc nickel plated
19	flat seal	EPDM
20	circlip	stainless steel



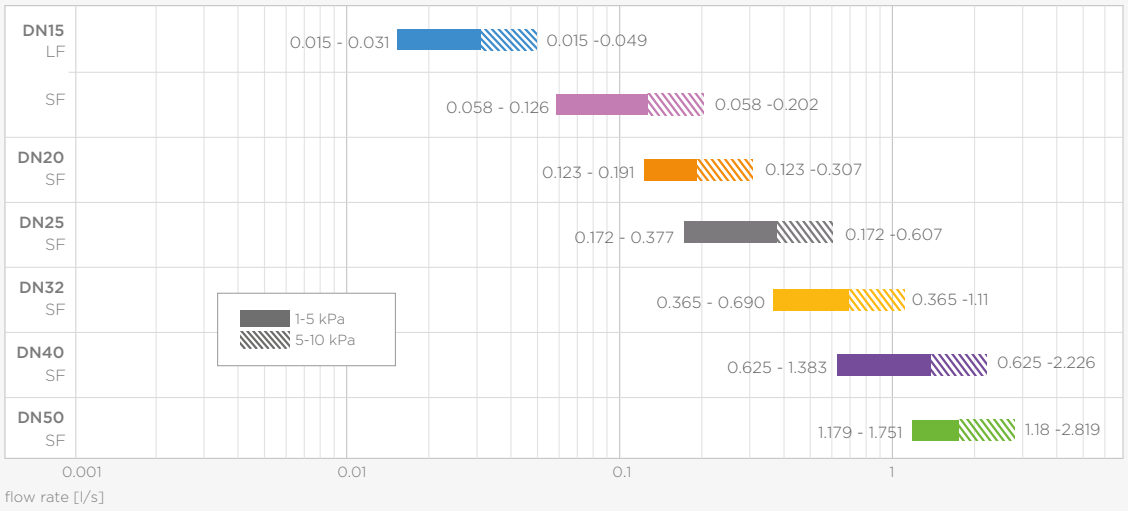
maximum pressure [bar]		
operating pressure	**test pressure shell**	**test pressure seat**
16	24	17.6

pressure equipment directive category	
all sizes	SEP

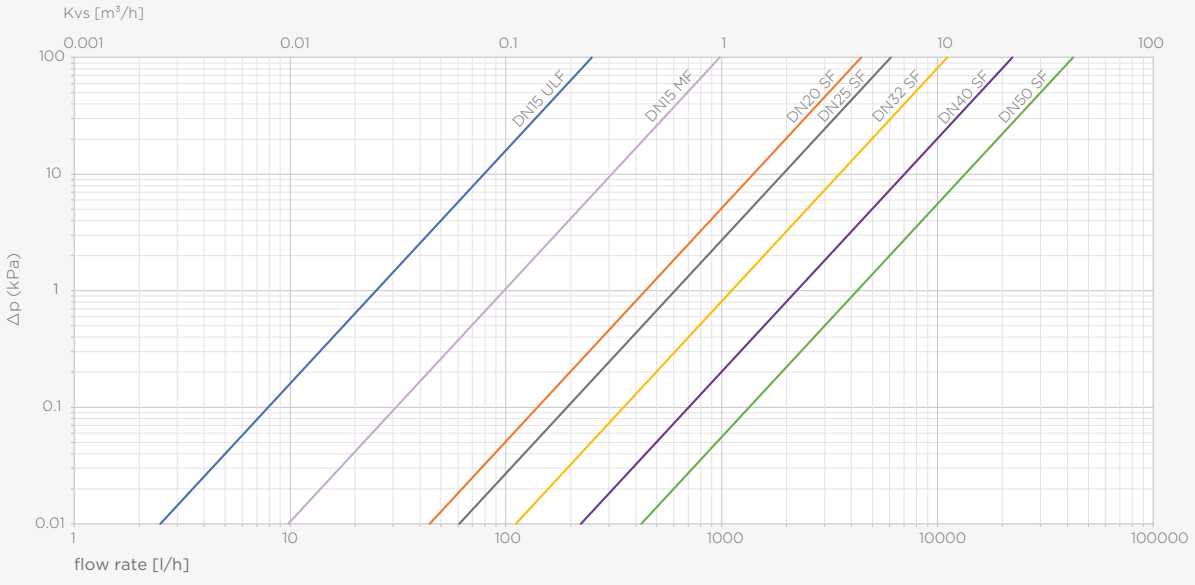
dimension		article no.	weight [kg]	l1	z1	l2	z2	slw0	slw2	slw3	U [Ø]	a [°]	V	H	Y	M	Vh
½"	(DN15) LF	PWR9440552	0.90	78	50	120	92	27	36	22	27	55	64	106	38	90	126
½"	(DN15) SF	PWR9440563	0.90	78	50	120	92	27	36	22	27	55	64	106	38	90	126
¾"	(DN20) SF	PWR9440574	1.10	83	53	132	102	32	41	22	27	55	64	106	38	90	128
1"	(DN25) SF	PWR9440585	1.63	98	62	144	109	46	50	25	32	55	73	113	38	90	141
1¼"	(DN32) SF	PWR9440596	2.37	116	68	174	126	50	57	32	41	55	81	120	38	90	151
1½"	(DN40) SF	PWR9440607	3.10	120	71	187	138	60	70	35	50	55	85	123	38	90	162
2"	(DN50) SF	PWR9440618	4.80	137	83	219	165	75	85	35	29	55	103	138	38	90	185

dimension		Kv [m³/h]	Kvs [m³/h]	flow [l/s] min.	flow [l/s] max.	flow [l/min] min.	flow [l/min] max.	flow [l/h] min.	flow [l/h] max.
½"	(DN15) LF	0.40	0.41	0.01	0.025	0.7	1.5	41	89
½"	(DN15) SF	1.86	2.15	0.06	0.12	3.6	6.9	216	414
¾"	(DN20) SF	3.36	4.78	0.13	0.21	8.0	12.5	480	750
1"	(DN25) SF	6.11	8.11	0.23	0.38	13.5	22.8	810	1368
1¼"	(DN32) SF	12.65	15.41	0.43	0.79	25.7	47.1	1542	2826
1½"	(DN40) SF	19.00	22.23	0.62	1.18	37.1	70.8	2226	4248
2"	(DN50) SF	28.42	48.21	1.34	1.77	80.4	105.9	4824	6354

flow rate



flow rate



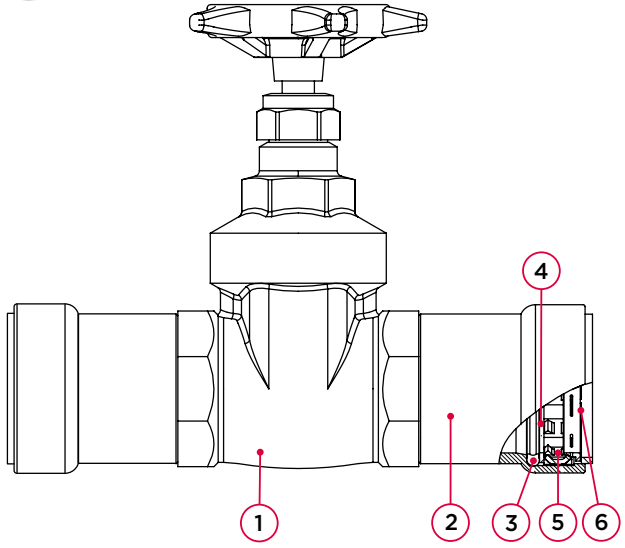
pressure loss

PP1070/125 gate valve PN16

(2 x press)

specifications

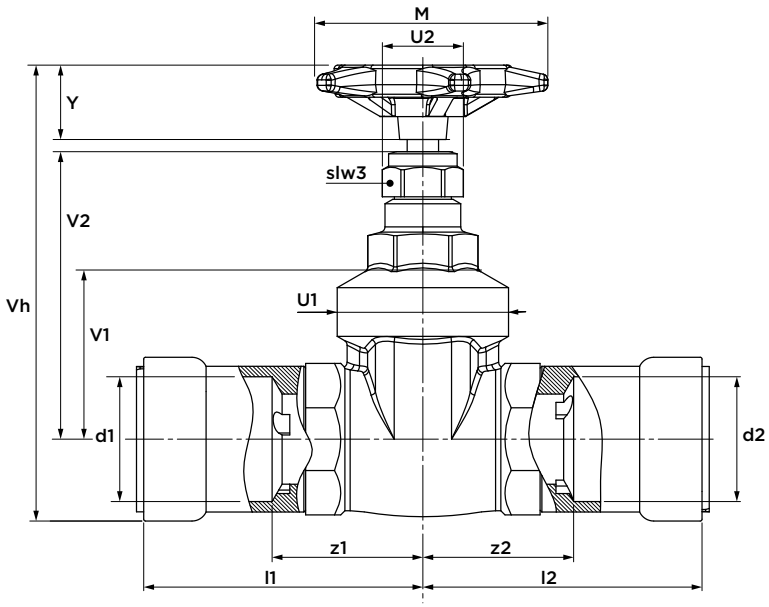
- maximum pressure 16 bar
- operating temperature -10 to 110°C
- solid gunmetal wedge
- non rising stem
- gland packed



no.	part	material
1	body	gunmetal
2	adapter	carbon steel zinc nickel plated
3	o-ring	EPDM
4	spacer ring	stainless steel
5	grab ring	stainless steel
6	Visu-Control® ring	stainless steel

maximum pressure [bar]		
operating pressure	**test pressure shell**	**test pressure seat**
16	24	17.6

pressure equipment directive category	
all sizes	SEP



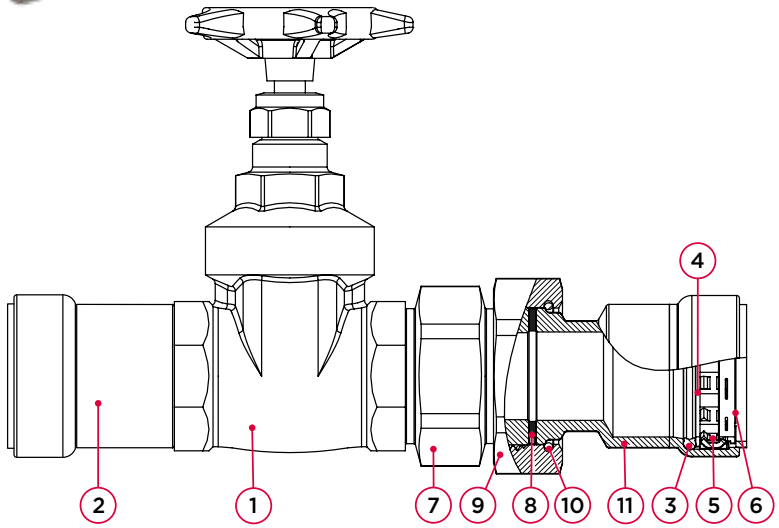
dimension		article no.	weight [kg]	Kvs [m³/h]	l1/l2	z1/z2	U1 [Ø]	U2 [Ø]	V1	V2	Y	slw3	M	Vh
½"	(DN15)	PWR9440365	0.48	14	64	36	33	23	32	58	17	20	60	100
¾"	(DN20)	PWR9440376	0.68	32	68	38	40	23	39	68	18	20	60	113
1"	(DN25)	PWR9440387	1.01	57	78	42	48	23	47	80	21	20	70	126
1¼"	(DN32)	PWR9440398	1.57	90	96	48	56	28	56	92	21	25	75	147
1½"	(DN40)	PWR9440409	2.07	129	100	52	65	28	65	109	26	25	95	178
2"	(DN50)	PWR9440411	3.08	230	109	56	81	33	87	130	29	29	104	203

PPSU1070/125 gate valve PN16

(2 x press, with union connection)

specifications

- maximum pressure 16 bar
- operating temperature -10 to 110°C
- solid gunmetal wedge
- non rising stem
- gland packed



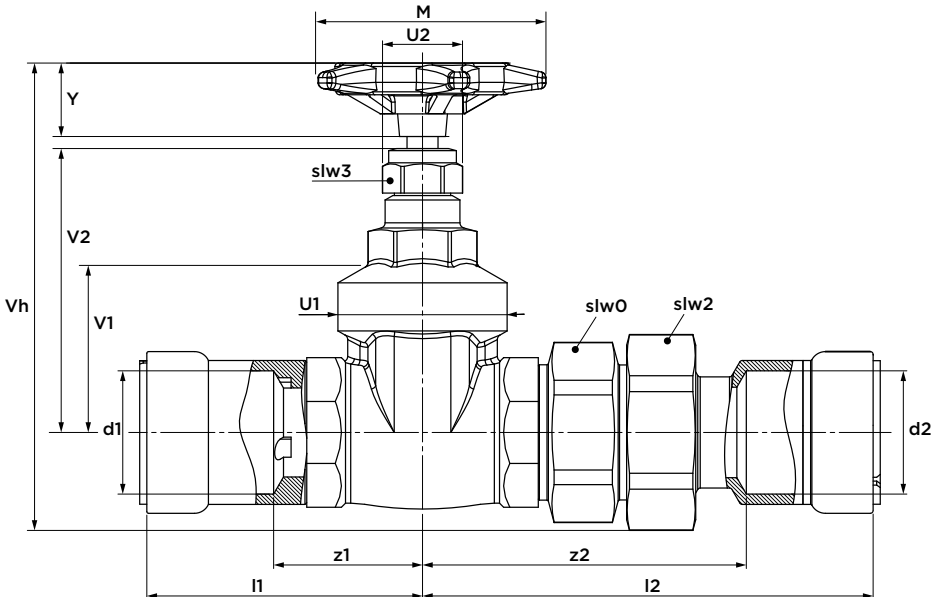
no.	part	material
1	body	gunmetal
2	adapter	carbon steel zinc nickel plated
3	o-ring	EPDM
4	spacer ring	stainless steel
5	grab ring	stainless steel
6	Visu-Control® ring	stainless steel
7	union end adaptor	carbon steel zinc nickel plated
8	flat seal	EPDM
9	union nut	carbon steel zinc nickel plated
10	circlip	stainless steel
11	union end	carbon steel zinc nickel plated

maximum pressure [bar]

operating pressure	test pressure shell	test pressure seat
16	24	17.6

pressure equipment directive category

all sizes	SEP



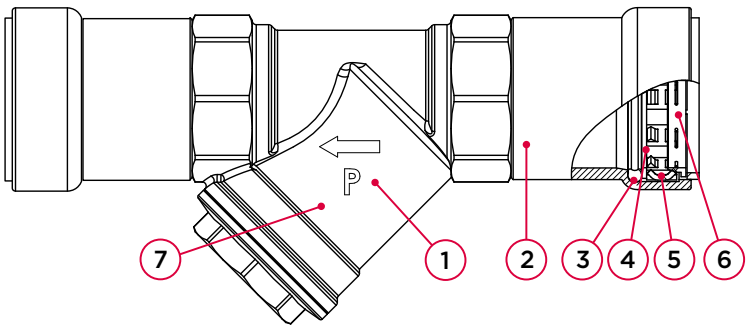
dimension		article no.	weight [kg]	Kvs [m³/h]	l1	z1	l2	z2	U1 [Ø]	U2 [Ø]	V1	V2	Y	slw0	slw2	slw3	M	Vh
½"	(DN15)	PWR9440420	0.69	14	64	36	107	79	33	23	32	58	17	27	36	20	60	103
¾"	(DN20)	PWR9440431	0.98	32	68	38	117	87	40	23	39	68	18	32	41	23	60	117
1"	(DN25)	PWR9440442	1.51	57	78	42	127	91	48	23	47	80	21	46	50	27	70	131
1¼"	(DN32)	PWR9440453	2.16	90	96	48	146	98	56	28	56	92	21	50	57	30	75	151
1½"	(DN40)	PWR9440464	2.94	129	100	52	156	107	66	28	65	109	26	60	70	32	95	185
2"	(DN50)	PWR9440475	4.49	230	109	56	177	124	81	33	87	130	29	75	85	40	104	213

PP913 y-strainer PN16

(2 x press)

specifications

- maximum pressure 16 bar
- operating temperature -10 to 120°C
- high effective protection from system debris
- y pattern
- stainless steel mesh (0.92 mm)

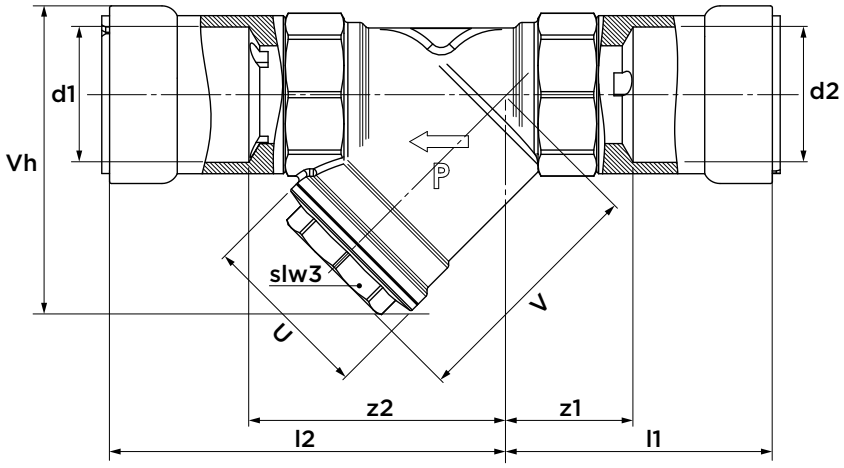


nr	part	material
1	body	gunmetal
2	press end	carbon steel zinc nickel plated
3	o-ring	EPDM
4	spacer ring	stainless steel
5	grab ring	stainless steel
6	Visu-Control® ring	polypropylene
7	Mesh	stainless steel

maximum pressure [bar]

operating pressure	test pressure shell	test pressure seat
16	24	17.6

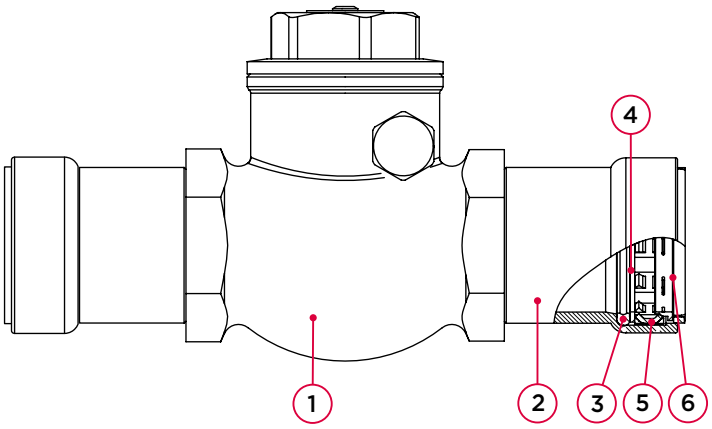
pressure equipment directive category	
all sizes	SEP



dimension		article no.	weight [kg]	l1	l2	z1	z2	U [Ø]	V	H	slw3	Vh
½"	(DN15)	PWR9440961	0.59	59	80	31	52	31	45	40	22	56
¾"	(DN20)	PWR9440970	0.74	58	88.1	28	58	37	54	48	26	67
1"	(DN25)	PWR9440981	1.02	68	102	33	66	44	63	56	32	79
1¼"	(DN32)	PWR9440992	1.87	96	138	48	89	50	73	65	35	96
1½"	(DN40)	PWR9441003	2.32	97	148	48	99	59	86	75	38	105
2"	(DN50)	PWR9441014	3.33	101	164	48	111	35	106	92	45	129

PP1060A swing check valve PN16

(2 x press)



specifications

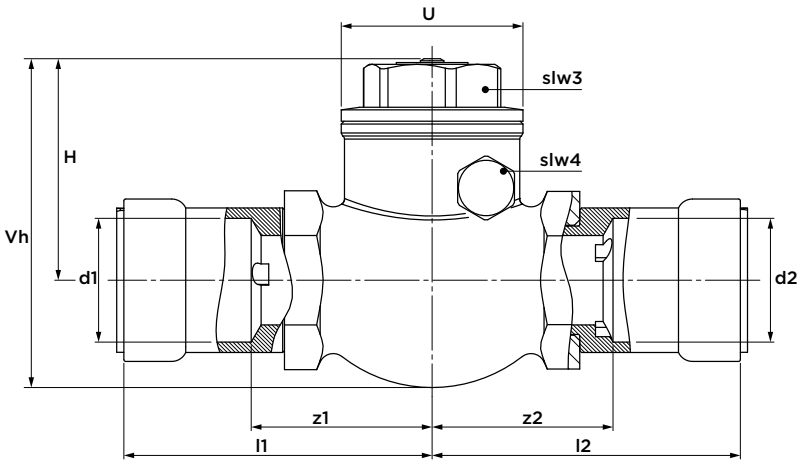
- maximum pressure 16 bar
- operating temperature 0 to 65°C
- bronze metal seated check valve
- horizontal and vertical fixing, indicated by flow directional arrow

no.	part	material
1	body	gunmetal
2	press end	carbon steel zinc nickel plated
3	o-ring	EPDM
4	spacer ring	stainless steel
5	grab ring	stainless steel
6	Visu-Control® ring	polypropylene

maximum pressure [bar]

operating pressure	test pressure shell	test pressure seat
16	24	17.6

pressure equipment directive category	
all sizes	SEP



dimension	flow [l/s]	Kv [m³/h]
½" (DN15)	0.04	1.8
	0.1	3.7
	0.2	5.1
	0.4	5.7
¾" (DN20)	0.04	2.7
	0.1	5.5
	0.4	13.6
	1	15.3
1" (DN25)	0.01	7.7
	0.2	13.9
	0.3	18.4
	1	25.3
1¼" (DN32)	0.2	15
	0.3	26.6
	0.4	25.3
	1	32.6
1½" (DN40)	0.4	30.3
	0.6	40.2
	0.8	48.5
	3	54.4
2" (DN50)	0.6	42
	0.8	54
	1.5	86.2
	4	98

flow rate

dimension	article no.	weight [kg]	Kvs [m³/h]	l1	z1	l2	z2	U1 [Ø]	U2 [Ø]	H	slw3	slw4	Vh
½" (DN15)	PWR9440244	0.555	5.7	69	41	69	41	40	29	46	26	13	68
¾" (DN20)	PWR9440255	0.835	15.3	78	48	78	48	48	35	54	31	14	81
1" (DN25)	PWR9440266	1.208	25.3	86	51	86	51	51	40	62	35	16	92
1¼" (DN32)	PWR9440277	1.837	32.6	107	59	107	59	57	43	68	38	16	103
1½" (DN40)	PWR9440288	2.357	54.4	116	68	116	68	65	50	77	43	16	120
2" (DN50)	PWR9440299	3.551	98.0	129	76	129	76	85	58	93	51	18	143

VSH PowerPress®

tools and accessories

P6100 press tools Novopress

version	dimension	article no.
ACO203BT + 2 batteries 5.0Ah + charger 220V + case	½" - 2"	6342556

P6101 press jaws and slings Novopress

version	dimension	article no.
PB2 ECOTEC jaw - DW	½"	6360002
PB2 ECOTEC jaw - DW	¾"	6360013
PB2 ECOTEC jaw - DW	1"	6360024
ZB203 adapter	1¼" - 2"	6580145
snap-on sling - DW	1¼"	6360035
snap-on sling - DW	1½"	6360046
snap-on sling - DW	2"	6360057
set: case + snap-on slings	1¼" + 1½" - 2" + ZB203	6360090
set: jaws ½" - 1" + case	½" - 1"	6360167
set: jaws and slings ½" - 2" + ZB203 adapter + case	½" - 2"	6360178

P6102 case

version	dimension	article no.
case for jaws + snap-on sling + adapter	½" - 2"	6360145

P6002 battery + charger

version	article no.
battery ACO203 2.0 Ah 18V	6341588
battery ACO203 5.0 Ah 18V	6342446
charger ACO203 230V	6340125

P6103 insertion depth marker

version	dimension	article no.
insertion depth marker for VSH PowerPress®	½" - 2"	PWR9401744

integrated
piping systems

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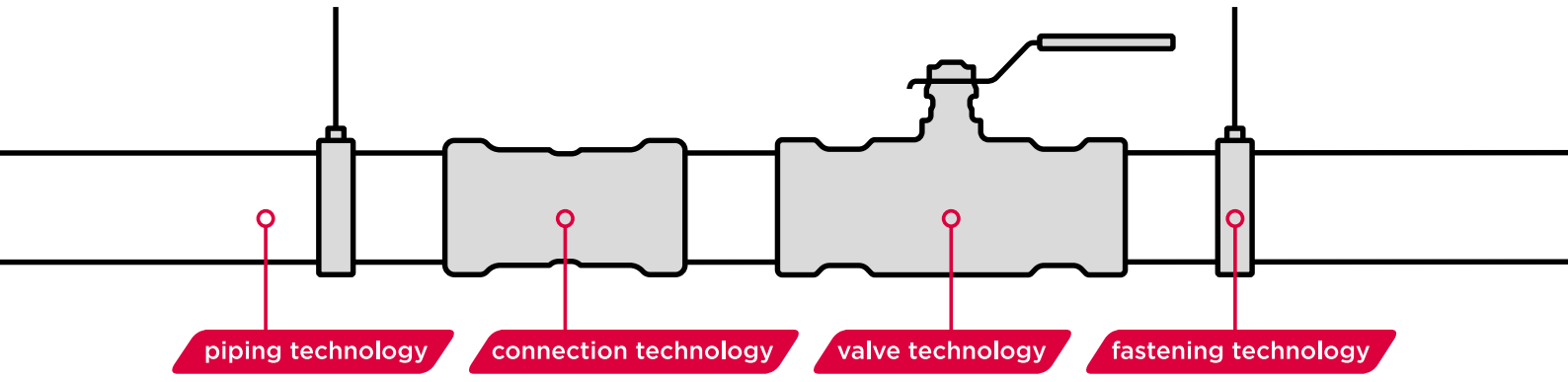

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5008 828-2022-3.0 EN