

fire protection

VSH XPress





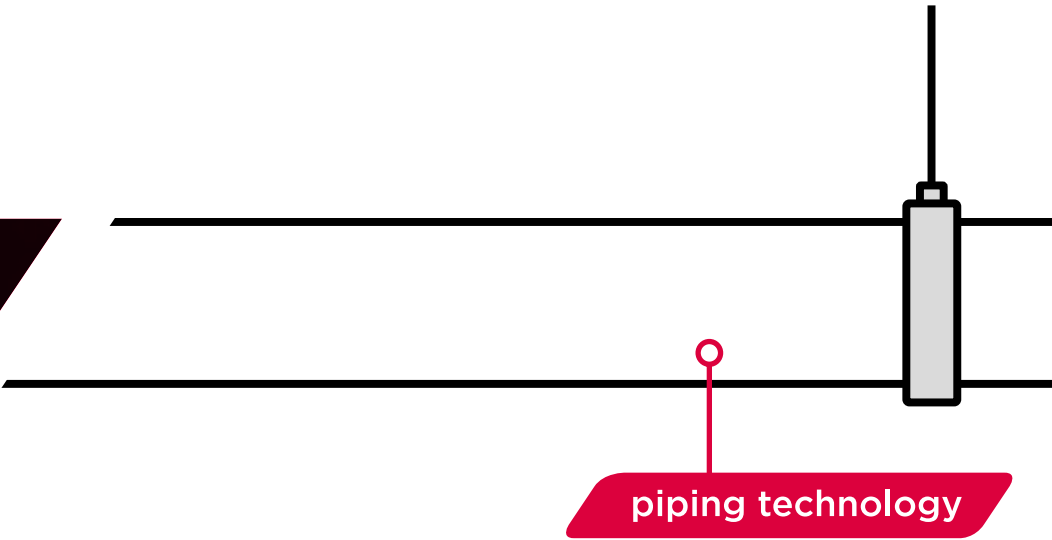


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Aalberts integrated piping systems

don't just buy
products,
buy solutions.



piping technology

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, EMEA and APAC. 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. We 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.

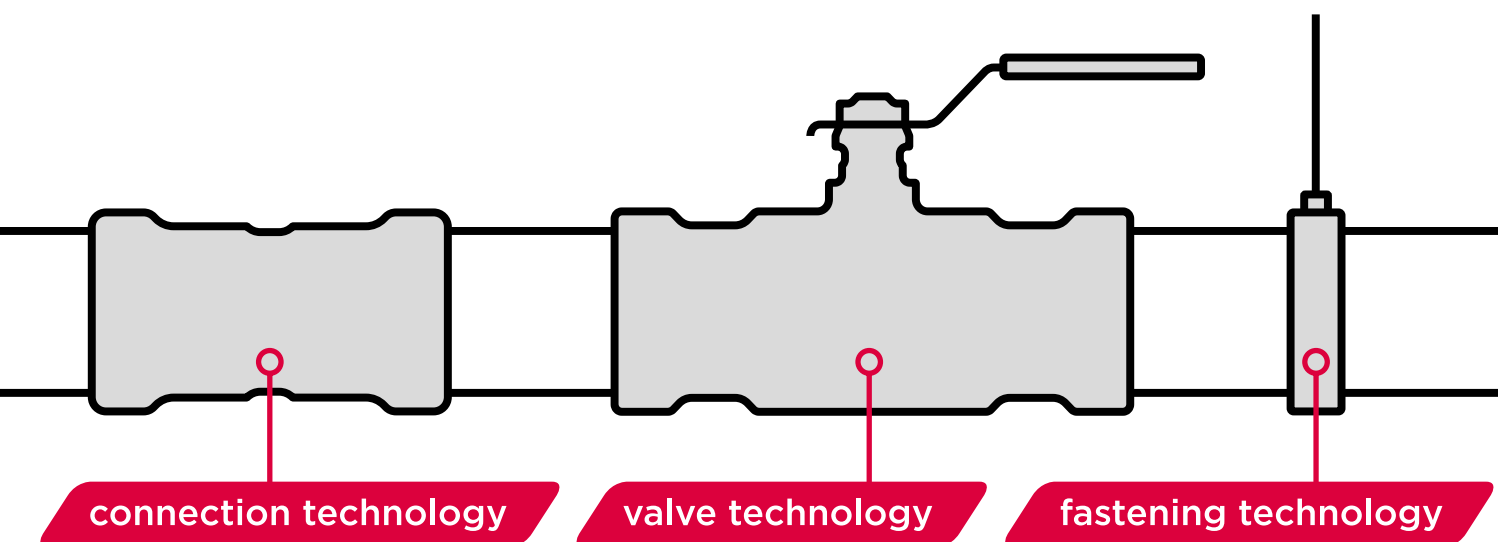
Good is never good enough.

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



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 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)

VSH XPress



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

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)

VSH SmartPress



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

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

Apollo ProFlow



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

Seppelfricke



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

VSH MultiPress



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

VSH UltraLine



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

VSH Tectite



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



total solutions
in fire protection



The market for fire protection has gained more importance in the last years. With more and more dense cities the risks increase during fire situations and people are looking into minimizing risk for people and assets. This makes the fire protection market one of increasing importance for people worldwide and for Aalberts integrated piping systems as a solution. Our systems excel in the most varied circumstances. They are particularly suitable for use in fire protection systems in residential and non-residential buildings, shipbuilding and industry.

VSH XPress can be used in the fire protection market in a number of applications in different surroundings:

- wet or dry fire mains
- high pressure dry fire mains
- wet or dry sprinkler installations
- low pressure watermist installations
- hose reel connections

the advantages of Aalberts integrated piping systemd for fire protection:

- complete fire protection piping systems with high flexibility
- personal consultant from Aalberts integrated piping systems for special project advice; from design to delivery
- easy, fast connection technologies
- BIM ready
- seamless connection to other Aalberts integrated piping systems

VSH XPress

the VSH XPress sprinkler system product range consists of press fittings, tubes, valves and tools, available in two different materials: stainless steel and carbon steel fittings that incorporate an M-profile.

VSH XPress products are manufactured using unique, modern machinery. Our completely automated factories guarantees safe and high-quality products. All welded products undergo a leak test in order to avoid any problems afterwards when installed.

VSH XPress system offers installers a complete solution with great flexibility. Tubes from other manufacturers may also be used under certain circumstances. Furthermore, VSH XPress fittings can also be pressed using various brands of press tools.

With the increasing requirements for fire safety on one hand and lack of time on the building site on the other, VSH XPress is a logical choice. The VSH XPress systems offer installers a complete solution with great flexibility and can be used for:

- wet or dry fire mains
- high pressure dry fire mains
- wet or dry sprinkler installations
- low pressure watermist-installations
- hose reel connections

VSH XPress sprinkler products have been tested and certified for use in fixed wet (carbon and stainless steel) and dry (stainless) sprinkler installations in accordance with international guidelines. The maximum operating pressure can go as high as 16 bar, depending on the dimensions and required approvals.

advantages of the VSH XPress system

- simple, fast connection technology
- complete sprinkler piping system available in 2 different systems: VSH XPress Stainless & Carbon
- fittings and tubes from 22 to 108 mm
- pre-marked insertion depth on Carbon and Stainless
- clear identification of materials and dimensions
- Leak Before Pressed function
- professional and appropriate press tools
- BIM ready

advantages



performance guaranteed:

We guarantee a consistent quality and supply, with all fittings being manufactured in Europe. In order to ensure high-value manufacturing, we employ laser-welding technology and all fittings (100%) undergo leak testing. The leak testing is fully automated and incorporated in the laser-welding process. All reducers and straight connectors with threaded ends are made from a single piece so there is no risk of leakage and are more compact which has benefits for recessed piping work. The smooth surface of the fittings and tubes means that flow characteristics are better than traditional piping systems. The quality of our fittings is also testified by the large number of national and international approval bodies. A wide range of system and product tests are available, with certificates for potable water, gas installations, shipbuilding and sprinkler systems.



reliable:

With VSH XPress systems, the quality of the connection is mainly determined by the tool and not the installer, thereby considerably reducing the risk of errors during installation. All fittings are fitted with a Leak Before Pressed (LBP) function, which reduces the risk even further. This LBP function ensures that fittings, which have not been pressed, will leak during the initial pressure test. The installer can immediately identify which fittings are not pressed. Once pressed, the system is guaranteed airtight and watertight.

insertion depth marking

Safe and secure connections depend on correct insertion depths. However, marking the insertion depth is a very time-consuming task and for that reason, all stainless steel and carbon steel fittings with tube ends supplied by Aalberts integrated piping systems are marked with a clearly visible insertion depth mark (12 to 54 mm). This means that 25% of all VSH XPress fittings no longer have to be marked by the installer. A smart benefit from VSH XPress, which makes installations much easier, saves a lot of time and results in greater safety.

easy and clean:

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

- the use of VSH XPress dispenses with the need for complicated fastening techniques, time-consuming preparations and drying times – installation is faster and cleaner.
- no need to thread the tubes.
- no lubrication needed for installation.
- easy insertion of the tube into the fitting due to the special design of the fittings.
- short radius bends ensure compact and space-saving installation.

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

safe:

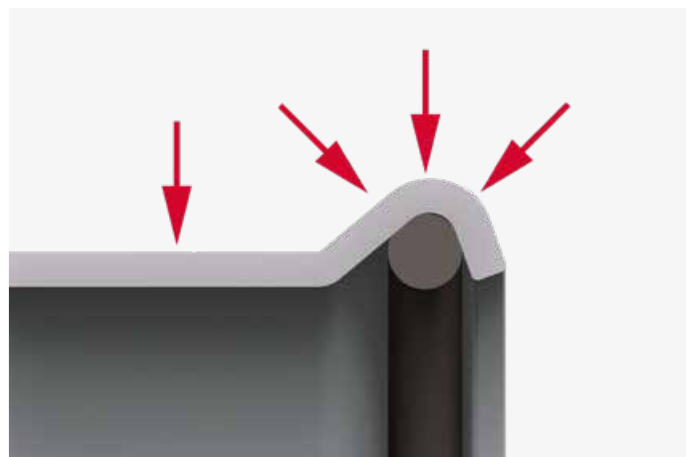
The installation of the VSH XPress system does not require any heat source (for example welding or soldering) or other heavy and potentially dangerous tools. This feature makes VSH XPress the ideal solution for repairs or renovation projects, as it ensures a minimum of disturbances at the site. Moreover, the light weight of the precision steel tubes means labour conditions are still further improved and a contribution is made to a healthier way of working.

fast:

This simple, fast connection technology and the short tube preparation time result in further considerable savings in the installation costs. As the connection is only achieved using press tools, no other materials, such as gases, adhesives, threading machines, etc., need to be purchased or hired.

advantages of the M-profile:

- the o-ring is pressed perpendicularly into the tube. This results in a seamless transition between fitting and tube that prevents leakages and any dust or dirt from getting into the joint.
- the o-ring bead creates an extra mechanical connection between fitting and tube.
- during pressing, pressure is applied to the o-ring from three angles, which results in a robust deformation of the o-ring bead and an extremely secure connection.
- due to the positioning of the o-ring at the beginning of the fitting, the o-ring can be clearly seen by the installer. This results in a safer installation process as any damage can be immediately spotted; the same is the case if the ring is wrongly placed.
- no chances of leakage due to the very accurate press profile (M-profile).



more VSH XPress benefits

The VSH XPress system is a complete range of fittings, tubes, valves and tools, easily recognisable due to laser markings. The correct VSH XPress jaws and slings are recognized by the 'X' symbol that is left on the surface of the fitting after pressing.



Major benefits are to be gained by using the complete VSH XPress system (fittings, tubes, valves and tools).

- the combination of fittings, tubes, valves and tools is an optimal match and ensures high quality connections.
- the 'X' immediately shows that the jaws and slings used are the correct choice for the job. It is a 100% guarantee that those jaws and slings match the VSH XPress system.
- it offers the possibility of having higher working pressures depending on the application (25 bar or even higher).
- the application areas of VSH XPress are very extensive: sprinkler systems, shipbuilding, high-pressure applications, etc.
- all VSH XPress Stainless and carbon steel tubes are delivered with plastic end-caps in order to prevent dirt from getting into the tubes. The cap colour specifies the type of tube material.

references

VSH XPress is being used all over the world in the widest range of applications and types of buildings.





applications



sprinkler installations

VSH XPress Carbon fittings with VSH XPress Carbon Sendzimir precision tubes that fulfil EN 10305-3 or VSH XPress Stainless fittings with VSH SudoXPress Stainless tubes, which are VdS, FM and LPCB approved.

o-rings:	EPDM (black)
operating temperature:	-35°C to +135°C
operating pressure:	Max. 16 bar (depending on application and dimensions)

VSH XPress Sprinkler is suitable for both wet and dry fixed sprinkler systems.



mains-fed sprinkler installations

VSH XPress Stainless steel fittings with VSH SudoXPress Stainless tubes.

O-rings:	EPDM (black)
Operating temperature:	-35°C to +135°C
Operating pressure:	Max. 16 bar (depending on application and dimensions)

the objective of the water line sprinkler is - in case of fire - to deliver water in residential environments in the Netherlands. The water line sprinkler can be made up of a hybrid system and a separate system, which form the components of the water line installation. Installers who wish to utilise a water line sprinkler will first have to obtain a licence from Aalberts integrated piping systems to do so.



shipbuilding

VSH XPress Carbon and VSH XPress Stainless, in addition to the necessary national approvals for sprinkler installations, also have the requisite approvals for their installation on board ships. In this case it is important to follow such provisions as those that appear in the classification documentation precisely.

VSH XPress Carbon fittings with VSH XPress Carbon precision tubes that fulfil EN 10305-3 or VSH XPress Stainless fittings with VSH SudoXPress Stainless tubes that fulfil EN 10312, certified by Bureau Veritas, DNV-GL, Lloyd's Register and RINA.

o-rings:	EPDM (black)
operating temperature:	-35°C to +135°C
max. operating pressure:	16 bar (operating pressures depending on application and dimensions)

o-rings:	FPM (green)
operating temperature:	-20°C to +200°C
operating pressure:	max. 16 bar

The shipbuilding applications are valid only if the pressing machines, jaws and slings used are in accordance with the VSH XPress Sprinkler range (with the exception of VSH XPress Copper). Please contact Aalberts integrated piping systems for further information on VSH XPress in shipbuilding applications.

fittings



VSH XPress Stainless

Produced from 1.4404 materials, fitted with an EPDM o-ring.

VSH XPress Carbon

Produced from RSt 34-2 steel and protected against corrosion by a zinc coating which provides limited protection against short-term exposure to moisture if the fittings are able to dry out quickly afterwards.

note

VSH XPress Stainless and Carbon fittings in sizes 22-54 mm are fitted with an EPDM 'Leak Before Pressed' (LBP) o-ring (see page 19 for more detailed information). Fittings in sizes 76.1-108 mm are fitted with a standard EPDM o-ring.

note

All approved press tools to fit the right product are found in our online tool selector: www.aalberts-ips.eu/tool-selector

approvals

Fixed sprinkler installations are permanently installed fire safety and extinguishing systems that independently detect fire, signal the fire and automatically start the extinguishing process. The installation of a VSH XPress system in sprinkler installations is carried out in accordance with the applicable directives (for example VdS-CEA 4001, EN 12845, ANSI/NFPA 1 'Installation of Sprinkler Systems', ANSI/NFPA 14 'Installation of Standpipe and Hose Systems' or ANSI/NFPA 15 'Fixed Water Spray Systems for Fire Protection'). Depending on the material installed (stainless steel or carbon steel), the system can be used in wet or dry sprinkler systems. VSH XPress Carbon is only permitted in fixed wet sprinkler installations. VSH XPress Stainless can be used in both wet and dry sprinkler installations (depending on the approval).



hazard classes

A range of hazard classes also apply for the various approvals, where VSH XPress is installed. For more information on the permitted hazard classes, please contact Aalberts integrated piping systems. Where a VSH XPress system is used, it is necessary to ensure that under normal conditions or in case of fire, no mechanical load can fall on the tubing; for example, ventilation and cable ducts may not be placed above the sprinkler system. Where, due to the limitations of the building structure, a load could fall on the piping network, this can be solved by securing the sprinkler tube on both sides of the load with sprinkler certified components (see illustration above).

VSH XPress fittings are tested and approved for sprinkler applications and many more. The sprinkler and marine applications for which VSH XPress fittings are currently approved are listed in the following table.

approval body	VSH XPress Stainless	VSH XPress Carbon
ATG	15-108 mm	12-108 mm
Bureau Veritas	15-108 mm	12-108 mm
CNBOP	22-108 mm	22-54 mm
DNV-GL	15-108 mm	12-108 mm*
DVGW	15-108 mm	-
FG	22-108 mm	-
FM	22-108 mm	-
Kiwa	15-108 mm	-
LPCB	22-54 mm	22-54 mm
Lloyd's Register	15-108 mm	12-108 mm
RINA	15-108 mm	15-108 mm*
SBSC	22-108 mm	22-108 mm*
VdS	22-108 mm	22-108 mm*
WRAS	15-108 mm	-

*66.7 is not approved

note

For these approvals a system approval is always issued:
VSH XPress fitting, valve, tube and tool.



sprinkler approvals

VSH XPress Stainless & Carbon sprinkler systems

Sprinkler systems must be designed and installed in accordance with the standards CEA 4001 (VdS), EN12845, NFPA13 and/or local regulations. The following steps must be carried out: **planning, installation, maintenance**

All bodies that have been involved in the last test before commissioning the system must take part in the entire process from project planning to delivery. Depending on the approvals, a range of different operating pressures is permitted. The following table provides the permitted pressures, if the system has been installed in accordance with VdS, FM or LPCB.

VSH XPress sprinkler system operating pressures [bar]

DN	Ø external [mm]	VdS		FM	LPCB	
		wet (Carbon)	wet and dry (Stainless)	wet and dry (Stainless)	wet (Carbon)	wet (Stainless)
20	22	16	16	12.1	16	16
25	28	16	16	12.1	16	16
32	35	16	16	12.1	16	16
40	42	16	16	12.1	16	16
50	54	16	16	12.1	16	16
65	76.1	12.5	16	12.1	-	-
80	88.9	10	16	12.1	-	-
100	108	10	10	12.1	-	-

Operating pressures for VSH XPress sprinkler systems



VdS certificate

VdS is a system approval. The certificate is only valid when all system components are used together: **fittings, valves, tubes and press tools**

VSH XPress sprinkler systems have been tested and certified according to VdS standards for both VSH XPress Stainless and Carbon for use in fixed sprinkler systems after the tube valve. These standards apply to VSH XPress sprinkler systems with maximum operating pressures of 16 bar for sizes DN20 to DN100 (22-108 mm) for all products from the VSH XPress sprinkler range. Its use is only approved when the system components are used together. The connection of non-VSH XPress system components is only approved where this occurs by means of a connection that can be mechanically removed. The addition of additives to the extinguisher water is not approved. Exceptions to this are anti-corrosion additives after the approval of the manufacturer and in consultation with VdS Schadenverhütung GmbH. The distance between brackets for copper tubes in accordance with VdS CEA4001 apply (see page 27).

The mounting and installation of VSH XPress sprinkler systems may only be carried out by trained and qualified technicians. For example, the CEA 4001 (VdS) guideline includes requirements for the installation of a fixed sprinkler installation. The company that carries out the installation must always adhere to these guidelines.

VSH XPress Carbon VdS (G4080007)

The VSH XPress Carbon sprinkler system may be used in accordance with the VdS certificate in fixed wet sprinkler installations for hazard classes LH to OH3 and parts of OH4 (exhibition halls, cinemas, theatres, concert halls). The certificate applies to sizes DN20 to DN100 (22-108 mm) with an operating pressure as set out in the table on the previous page.

VSH XPress Carbon sprinkler fittings are manufactured from non-alloy, galvanized steel in combination with a galvanized tube specially produced for the VSH XPress Carbon sprinkler system. The inner and outer surface of the tubes are galvanized (by the Sendzimir process). This use is limited to locations after the alarm valve in branch and distribution lines and must be regularly checked for corrosion.

VSH XPress Stainless VdS (G40800037)

The VSH XPress Stainless sprinkler system may be used in fixed wet and dry sprinkler installations in accordance with the VdS certificate for hazard classes LH to OH3 and parts of OH4 (exhibition halls, cinemas, theatres, concert halls). The certificate applies to sizes DN20 to DN100 (22-108 mm) with an operating pressure as set out in the table on page 16. The VSH XPress Stainless fittings are manufactured from material no. 1.4404 (AISI 316L) stainless steel. The tubes are manufactured from stainless 1.4401 (AISI 316). The use is limited to areas after the alarm valve.

**FM certificate****VSH XPress Stainless**

The VSH XPress Stainless sprinkler system has a FM certificate for fittings and tubes in accordance with FM standards 1630 and 1920 for use in wet and dry sprinkler installations with a maximum operating pressure of 175 psi (12.1 bar). The certificate applies to VSH XPress Stainless in sizes DN20 to DN100 (22-108 mm). In accordance with FM the system is certified for use with VSH SudoXPress Stainless tubes with material No. 1.4401 (AISI 316) and 1.4521 (AISI 444). In accordance with the FM certificate, no limitations apply to VSH XPress Stainless regarding the hazard classes.

mounting and installation

The mounting and installation of VSH XPress sprinkler systems may only be carried out by trained and qualified technicians. If there is a transition from traditional thick-walled tubes to the VSH XPress sprinkler system in sizes DN20 to DN100 (22-108 mm), it is necessary to use a press to groove transition coupling (product group C1442 and R2748).

DN	External diameter (mm)	Insertion depth (mm)
25	28	46
32	35	52
40	42	60
50	54	70
65	76.1	54
80	88.9	64
100	108	74

Minimum insertion depth of press to groove couplings

Where a press to groove coupling is installed, the entire insertion depth of the fitting must be used. The minimum insertion depth of these fittings can be found in the table above.

**LPCB certificate**

With the exception of installations where the correct transition coupling for ISO65 or EN10255 piping systems is used, the VSH XPress sprinkler system components must not be used with other press tube systems. The connection of non-system components is only approved where this occurs by means of a connection that can be mechanically removed. It is not permitted to add additives to the extinguisher water unless dispensation has been granted in consultation with VSH. Painting of the installation is permitted as long as this takes place after the connections have been pressed and the paint is water-based.

VSH XPress Carbon

The VSH XPress Carbon sprinkler system has an LPCB certificate for fittings and tubes in accordance with LPCB standards (TS1599 draft 5) for use in wet above ground sprinkler installations with a maximum operating pressure of 16 bar for sizes DN20 to DN50 (22-54 mm and for hazard classes LH to OH3).

In accordance with LPCB, the system is certified for use with VSH XPress Carbon sprinkler Sendzimir tubes. Where VSH XPress Carbon sprinkler is connected to the potable water network, it is necessary to make sure that a potable-water-approved (Kiwa, WRAS) backflow preventer is used. Installations built with VSH XPress Carbon sprinkler must be checked regularly for corrosion.

VSH XPress Stainless

The VSH XPress Stainless sprinkler system has an LPCB certificate for fittings and tubes in accordance with LPCB standards (TS1599 draft 5) for use in wet above ground sprinkler installations with a maximum operating pressure of 16 bar for sizes DN20 to DN50 (22-54 mm and for hazard classes LH to OH3). The use of VSH XPress Stainless sprinkler is permitted in embedded sprinkler lines. In accordance with LPCB, the system is certified for use with VSH XPress stainless steel tubes with material No. 1.4401 (AISI 316) and 1.4521 (AISI 444). VSH XPress Stainless sprinkler is Kiwa/WRAS approved (when installed with a 1.4401 tube).

mounting and installation

The mounting, installation and maintenance of the VSH XPress sprinkler system may only be carried out by trained and qualified technicians. For example, the guideline “LPC Rules for Automatic Sprinkler installation”, in which EN12845 is incorporated, provides requirements for the mounting and maintenance of a sprinkler installation. The installation firm must follow these guidelines at all times. When installing a VSH XPress sprinkler system, you must ensure that sufficient measures are taken for wall penetration (conforming the construction guidelines and the LPC Sprinkler standards).

When using VSH XPress Stainless for embedded systems, no specific limitations apply to the use of insulation material other than those that are set out in the VSH XPress technical manual. During installation you should take into account that there are no empty spaces between the tube and the concrete. It's very important that the concrete contains no chlorides or other substances that can have a negative influence on the stainless steel. The pressure test must be carried out before the tubes are covered in concrete. All problems that are observed, such as continued deformation, rupture or leakage, must be solved. The pressure test must then be carried out again.

threaded fittings

The VSH XPress product range also includes male and female threaded fittings. VSH XPress Stainless, Carbon and Sprinkler ML fittings with inner and outer threads are manufactured in accordance with DIN 2999/ISO 7/1. Hemp or other chloride-free sealants are suitable for the threads of VSH XPress Stainless fittings. PTFE sealing tape may not be used in conjunction with stainless steel due to the water-soluble chloride ions it contains. With threaded couplings, we recommend that the sealing be carried out before pressing, so as not to stress the press connection.

markings

VSH XPress Stainless fittings		
	marking	packaging label
	VSH XPress green ring or sticker 316L approvals dimension	type R..... dimension description EAN no. art. no. approvals quantity
VSH XPress Carbon fittings		
	marking	packaging label
	VSH XPress red ring or sticker galvanized approvals dimension	type C..... dimension description EAN no. art. no. approvals quantity

o-rings

all fittings are fitted with EPDM o-rings

EPDM 'leak before pressed' (LBP) - black		
	temperature	applications
	-35°C to +135°C	KTW recommended. For all installations for potable water and conditioned water, hot water, circulation tubes, fire mains, etc. Suitable for VSH XPress Carbon, Stainless up to 54 mm.
EPDM - black		
	temperature	applications
	-35°C to +135°C	KTW recommended. For all installations for potable water and conditioned water, hot water, circulation tubes, fire mains, etc. Suitable for VSH XPress Carbon, Stainless larger than 54 mm.

Leak Before Pressed function

VSH XPress Stainless, Carbon and Copper fittings are delivered with a Leak Before Pressed function (LBP) for all dimensions. Fittings with a Leak Before Pressed 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 press fittings will be water and air tight after being pressed.

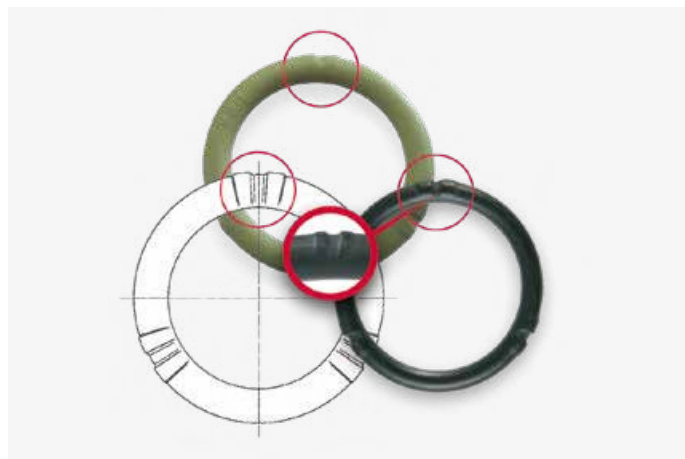


advantages Leak Before Pressed

- **additional safety:** (installation) mistakes are prevented, as it will leak until pressed.
- **easy:** easy to recognize non pressed connections because of guaranteed water leakage during pressure test.
- **warranty:** guaranteed watertight and airtight once the fitting has been pressed.
- **strength:** extra material for leak function results in a strong o-ring in contrast to solutions where material is removed.

how the VSH XPress Carbon and Stainless LBP o-rings (22-54 mm) works

The design of the VSH XPress LBP o-ring is based upon the creation of a leak path on the o-ring itself. Small grooves have been created at 3 strategic points on the surface of the o-ring by adding additional material. This results in an exceptionally strong o-ring without any weak points.



A pair of small bumps on the surface of the o-ring create a small opening where water will flow through as long as the fitting is not pressed. When pressure is increased, the fitting will start to leak. When pressed, the o-ring is deformed and, as a result, the rubber from the raised surfaces fills the gaps between them. This creates a fully watertight and airtight connection.

how the VSH XPress Carbon and Stainless LBP function (76.1-108 mm) works

The use of the LBP-o-rings for these dimensions is based on the tolerance between the diameter of the o-rings and the inner diameter of the fitting, which will cause the fitting to leak as long as it has not been pressed.

tubes



stainless steel tubes

VSH SudoXPress Stainless tubes are stainless steel precision tubes. The inner and outer surfaces of the tubes are blank, free of discolouration and are supplied free of manufacturing residue that could cause corrosion. The possibility of any dirt or dust getting into the tubes during transport or when stored is avoided by plastic protection caps on both ends of the tube. This section describes all technical information that is relevant when working with VSH SudoXPress Stainless tubes.

fire characteristics

VSH SudoXPress Stainless tubes are considered as non-combustible tubes class A1 according EN 13501-1.

VSH SudoXPress Stainless tube 1.4401 (AISI 316)



VSH SudoXPress Stainless tubes have been tested and approved for potable water installations by many international certifying bodies, for example, they comply with DVGW/DIN and DVGW - Worksheet GW 541.

applications

- for fire fighting and fire protection installations in accordance with DIN 1988-600, SVGW W3
- wet and dry sprinkler installations in accordance with VdS, FG, LPCB, CNBOP, SBSC and FM
- shipbuilding

technical characteristics

material	X5CrNiMo 17 12 2 material no. 1.4401 in accordance with EN 10088-2
specifications	EN 10312 - DVGW GW541
approvals	DVGW, SVGW, ETA, ÖVGW, SINTEF, STF, KIWA, PZH, SITAC, QB, WRAS, VdS, FM, FG, CNBOP, SBSC, SETSCO, LPCB, DNV-GL, RINA, BV, LR, SPF
type of tubing	TIG or laser welded
welding seam	100% EDDY CURRENT in accordance with EN 10893-2:2011
weld slag removal	outside
tolerances	in accordance with EN 10312 - table 2
surface colour	matt silver
marking	SudoXPress stainless DN [dimension x wall thickness] Edelstahl/Stainless Steel/Sanitary-GAS 1.4401/AISI316 EN 10312 DVGW GW541 Reg.no. [DVGW registration number] SVGW ÖVGW W1.397 WRAS VA1.22/20294 VA1.12/18769 SINTEF PZH SITAC 0168/04 ATEC 14.1/15-2097_V1 QB 235-2097_V1 LPCB VdS G4080037 [operation pressure LPCB/VdS] bar <FM> [operation pressure FM] psi KK NDE ATG 3057 [batch number or production date], [supplier code] [model designation, repeated every 60 cm]
smallest bend radius	3.5 x external tube diameter (max. 28 mm)
delivery	tubes, length 6 m +0/-50 mm, with protective caps (green)
heat expansion coefficient	0.0160 mm/m at ΔT= 1K
max. working pressure	16 bar

DN	outside Ø x s [mm]	inside Ø [mm]	weight [kg/m]	capacity [l/m]
20	22 x 1.2	19.6	0.624	0.302
25	28 x 1.2	25.6	0.79	0.515
32	35 x 1.5	32	1.24	0.804
40	42 x 1.5	39	1.503	1.195
50	54 x 1.5	51	1.972	2.043
65	76.1 x 2.0	72.1	3.55	4.548
80	88.9 x 2.0	84.9	4.15	5.661
100	108 x 2.0	104	5.05	8.495

dimensions, weight and capacity

VSH SudoXPress Stainless tube 1.4521 (AISI 444)



The 1.4521 VSH SudoXPress Stainless tube has been tested and approved for potable water installations, in accordance with DVGW - Worksheet GW 541, Kiwa, WRAS, ETA, ÖVGW, QB and SVGW.

applications

- for fire fighting and fire protection installations in accordance with DIN 1988-600, SVGW W3
- wet and dry fire fighting and protection installations in accordance with DIN 14462

technical characteristics

material	X2CrMoTi 18 2 material no. 1.4521 in accordance with EN 10088-2
specifications	EN 10312 - DVGW GW541
approvals	DVGW, SVGW, ETA, ÖVGW, FM, FG, CNBOP, SBSC, SETSCO, LPCB, DNV-GL, RINA, QB, VdS, WRAS, Kiwa
type of tubing	laser welded
welding seam	100% EDDY CURRENT in accordance with EN 10893-2:2011
weld slag removal	outside
tolerances	in accordance with EN 10312 - table 2
surface colour	matt silver
marking	SudoXPress stainless DN [dimension x wall thickness] Edelstahl/Stainless steel 1.4521/AISI444 EN 10312 DVGW GW541 Reg.no. [DVGW registration number] SVGW ÖVGW W1.397 WRAS VA1.22/20294 VA1.12/18769 VdS G4080037 LPCB [operation pressure VdS/LPCB] bar <FM> [operation pressure FM] psi KK ATEC 14.1/15-2097_V1 QB 235-2097_V1 Tectite 316 ATG 3057 [batch number or production date] [supplier code] [model designation, repeated every 60 cm]
smallest bend radius	3.5 x external tube diameter (max. 28 mm)
delivery	tubes, length 6 m +0/-50 mm, with protective caps (green)
heat expansion coefficient	0.0104 mm/m at $\Delta T = 1K$
max. working pressure	16 bar

DN	outside Ø x s [mm]	inside Ø [mm]	weight [kg/m]	capacity [l/m]
20	22 x 1.2	19.6	0.624	0.302
25	28 x 1.2	25.6	0.79	0.515
32	35 x 1.5	32	1.24	0.804
40	42 x 1.5	39	1.503	1.195
50	54 x 1.5	51	1.972	2.043

dimensions, weight and capacity

carbon steel tubes

The VSH SudoXPress Carbon tubes for sprinkler applications are made from cold rolled steel, which is galvanized using the Sendzimir process.

VSH XPress Carbon sprinkler tube



The VSH XPress Carbon sprinkler tubes for wet sprinkler systems are precision tubes made from cold rolled steel, galvanized using the Sendzimir process which guarantees good adhesion of the zinc layer and high corrosion resistance. In this

process, the metal strip is simultaneously coated on both sides in a zinc bath. The tube is protected on both the inside and outside with a zinc layer with a thickness of 15-27 μm (275 g/m²). After welding, the welding seam is then zinc-plated.

applications

- wet fixed sprinkler installations in accordance with DIN 1988, Part 6, VdS, LPCB, SBSC and CNBOP
- shipbuilding

technical characteristics

material	non-alloyed ULC ('Ultra Light Carbon') carbon steel, E190 mat. no. 1.0031 in accordance with EN 10305-3
specifications	EN 10305-3 (formerly DIN 2394)
approvals	VdS, LPCB, CNBOP, SETSCO, SBSC, DNV-GL, LR, RINA
type of tubing	HF-welded
welding seam	100% EDDY CURRENT in accordance with EN 10893-2:2011
weld slag removal	outside flat, inside max. raise 0.5 mm, >54 mm 0.8 mm
tolerances	in accordance with EN10305-3
finish	zinc coating of 15-27 μm (275g/m ²). The tube welding seam is subsequently galvanized on the outside.
surface colour	matt silver
marking	XPress Sprinkler galvanized DN [dimension x wall thickness LPCB VdS G4080007 [operational pressure VdS/LPCB] bar psi NDE [batch number or production date] [supplier code] [model designation, repeated every 60 cm]
smallest bend radius	3.5 x external diameter of the tube (max. 28 mm)
delivery	tubes, length 6 m +0/-50 mm, with protective caps (Lilac)
heat expansion coefficient	0.0108 mm/m at $\Delta T = 1K$
max. working pressure	16 bar

DN	outside Ø x s [mm]	inside Ø [mm]	weight [kg/m]	capacity [l/m]
20	22 x 1.5	19	0.761	0.284
25	28 x 1.5	25	0.98	0.491
32	35 x 1.5	32	1.241	0.804
40	42 x 1.5	39	1.542	1.195
50	54 x 1.5	51	1.999	2.043
65	76.1 x 2.0	72.1	3.503	4.083
80	88.9 x 2.0	84.9	4.412	5.661
100	108 x 2.0	104	5.382	8.495

dimensions, weight and capacity

press tools



Press tools consist of a press machine and corresponding press jaws or slings. The press machine can either be powered by battery or by mains. The correct sized jaws and slings must be used for each tube diameter used in the system in order to achieve a perfect connection.

All VSH XPress fittings with diameter from 22 to 108 mm can be pressed using the appropriate press tools listed in our product range. Please use the **M-profile** jaws or slings that correspond to the diameter to be installed. A special adapter is required for diameters of 35 to 108 mm, in addition to the press slings.

note

VSH XPress fittings for sprinkler applications may only be pressed with press jaws and slings stated in the certificate or found in our tool selector:

www.aalberts-ips.eu/presstool

approved press tools

All approved press tools to fit the right product are found in our online tool selector, available on our website:

www.aalberts-ips.eu/tool-selector

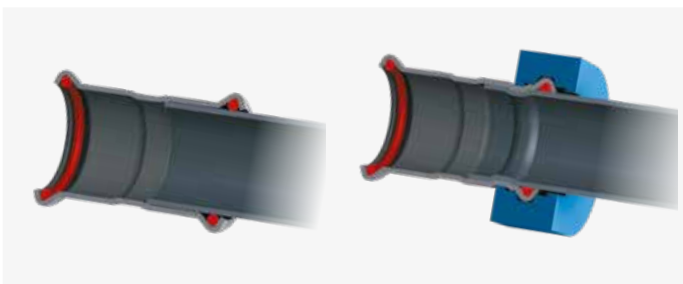
maintenance and correct usage

Correct pressing is guaranteed when the press tools are used correctly. Regular maintenance and lubrication of the press jaws, slings and tools are necessary. Please take notice of the manufacturer's instructions for usage and maintenance.

note

care must be taken to avoid any contact between lubricant and o-rings. Badly maintained and/or damaged press jaws pose a potential risk. Damaged jaws can damage the fittings, leaving metal particles behind in the jaw as a result. If the same jaw is then used to press a stainless steel fitting, these metal particles will be pressed into the fitting, which could lead to pitting corrosion. Therefore, always make sure that press jaws and slings are properly cleaned when switching between materials.

The illustrations show a cross-section of the press profile before and after pressing.



before pressing

after pressing

installation guidelines

transport and storage

When transporting and storing VSH XPress Sprinkler tubes and fittings, damage and contamination must be avoided. The optimal storage temperature for tubes and fittings is between 10°C and 25°C. The products must be stored in a dry place (max. humidity 65%). The tubes must be stored horizontally and protected by wooden blocks and should not be stacked up too high, to prevent them from becoming oval (to a maximum height of six bundles, when they are stacked as follows: 2 x 2, 3 x 3 etc.). During storage, different tube materials (carbon steel and stainless steel) must not come in to contact with each other.



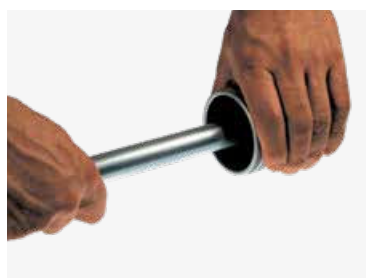
1. cut the tube to length

After measuring, the tube can be cut to length using a tube cutter (see picture), a fine-toothed handsaw or a mechanical saw with electrical motor suitable for the tube material. The tube must always be cut

completely through. Never partially cut the tube and break it off as this could cause corrosion. **Do not use oil-cooled saws, grinding wheels or flame cutters.**

VSH SudoXPress Carbon tubes with PP coating

To ensure the safe connection of a press fitting, the tube's PP coating must be removed up to the insertion depth using a stripper before assembling the press fitting.



2. deburring the tube

The tube ends must be carefully and thoroughly deburred inside and out after being cut to length. This is in order to avoid any damage to the o-ring when inserting the tube into the press fitting. Deburring the

inside of tubes prevents pitting and corrosion. A hand deburrer suitable for the material or an electrical tube deburrer may be used for both inside and outside of the tube. Burrs sticking to the tube must be removed.

3. calibration

Always ensure the tube ends are cut off radially and rounded off evenly. The tube ends must be calibrated before pressing, especially in case of copper tubes coated in accordance with DIN EN 1057 R220.

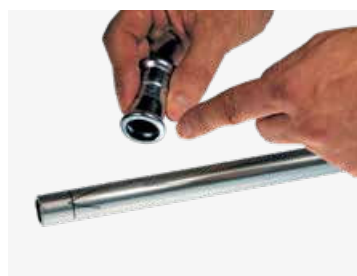


4. marking insertion depth

The required insertion depth (see table page 24) must be marked on the tube or the press fitting (the latter for fittings with tube ends) in order to guarantee a safe and

proper joint. VSH XPress Carbon and Stainless Steel 12-54 mm fittings with male end, already have the required insertion depth marked on them, which makes any manual marking unnecessary. Mark the insertion depth using the insertion depth marker for VSH XPress.

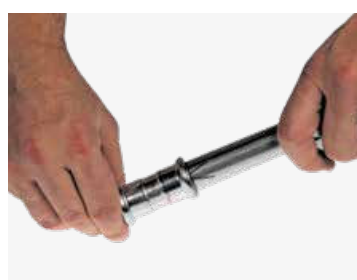
Reliable pressing with the corresponding tensile strengths can only be achieved if the elements are correctly installed. The pressing operation behind the bead is of crucial importance for the tensile strength. The marking on the tube must remain visible (but as close as possible to the fitting) to identify any movement before or after pressing.



5. check the fitting and tube

Before assembly, the fitting must be checked to ensure that the o-rings are present and correctly positioned. The tube, fitting and o-ring must be examined for any foreign materials (e.g. dirt,

burrs), which must be removed, if present.

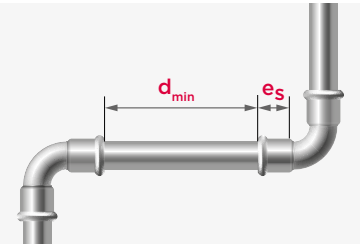


6. assembly of fitting and tube

Insert the tube carefully into the fitting up to the marked insertion depth, simultaneously rotating and pushing it in the direction of the axis. The insertion depth marking must remain

visible. In 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 tube into the fitting may result in damage to the o-ring and is therefore not permitted.

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



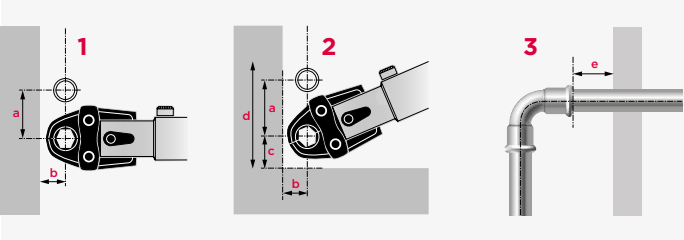
To optimize installation, time may be saved by assembling a number of connections first and then pressing the various connections one by one afterwards. Marking the distance (e_s) provides a

check that the tube has not been pushed out of the fitting during pressing. Before starting the final pressing process of the various connections, it is also important to check the minimum required installation distances (see table).

$\varnothing$ [mm]	insertion depth		minimum distance	minimum tube length	
	e_s [mm]		d_{min} [mm]	$2 \times e_s + d_{min}$ [mm]	
	VSH XPress Stainless	VSH XPress Carbon	VSH XPress Stainless / Carbon	VSH XPress Stainless	VSH XPress Carbon
18	20	20	10	50	50
22	21	21	10	52	52
28	23	23	10	56	56
35	26	26	10	62	62
42	30	30	20	80	80
54	35	35	20	90	90
76.1	55	55	55	165	165
88.9	63	63	65	191	191
108	77	77	80	234	234

minimum distances between pressings

The table below gives the minimum required installation space so that pressing can be carried out correctly using the appropriate press tools. These distances relate to the general installation configurations that are schematically depicted in figures 1, 2 and 3.



outside $\varnothing$ [mm]	fig. 1		fig. 2			fig. 3	
	a	b	a	b	c	d	e (tube depth) [mm]
22	65	25	80	31	35	150	40
28	75	25	80	31	35	150	60
35	75	30	80	31	44	170	70
42	140/115*	60/75*	140/115*	60/75*	75	265	70
54	140/120*	60/85*	140/120*	60/85*	85	290	70
76.1	140*	110*	165*	115*	115	395	80
88.9	150*	120*	185*	125*	125	435	90
108	170*	140*	200*	135*	135	470	100

minimal needed installation space (*slings)

7. pressing

Before pressing, the press jaws and slings must be checked for dirt, which must be removed if present. Furthermore, the press machine must be in good condition and the manufacturer's instructions for operating the device, maintenance must be observed. Also make sure that the correct press jaws and slings for the application are used. In order to create a correctly pressed connection, the groove of the press tool must enclose the press fitting o-ring bead. Once pressing has started, always complete the press cycle and under no circumstances interrupt the process. All the approved machines, press jaws and slings to fit the right product are available in our online tool selector on our website: www.aalberts-ips.eu/presstool

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



bending tubes

It may be necessary to bend a tube in order to carry out the installation. Manual, hydraulic or electrical-operated tube benders with the corresponding bend formers can be used for this. The tube manufacturer will determine the suitability of the bending tool. VSH SudoXPress Stainless and Carbon tubes may be bent cold, in accordance with DIN EN 1057.

The tube may not be bent when warm due to the danger of corrosion.

The smallest bending radius is as follows:

stainless steel (12 - 28 mm)	$r_{\min} = 3.5 \times d$
carbon steel (12 - 28 mm)	$r_{\min} = 3.5 \times d$

- a smaller bend radius is not permitted.
- diameters larger than 28 mm can be bent by machine.

corrosive environments

A VSH XPress Stainless sprinkler system is the right solution for sprinkler installations in aggressive environmental conditions, such as in a paper mill, or where high standards of hygiene are required, like pharmaceutical and food industries.

Combined with shipbuilding certificates as Germanische Lloyd, RINA, Lloyd's Register, Bureau Veritas and Det Norske Veritas, the VSH XPress Stainless sprinkler system is also the right solution for marine sprinkler installations.

putting the piping system into service

flushing the network

Before putting into service, each piping system must be flushed and rinsed thoroughly so that any foreign matter is removed from the tube surface, so that contamination and corrosion is prevented. The system must be flushed as soon as possible after installation and pressure testing is done.

Installation regulations, such as the Potable Water Act and worksheets, must be followed. In exceptional cases, it may be necessary to flush the system with a disinfecting substance. In that case, special care must be taken to ensure that no chlorides remain in the piping system. Always make sure to flush with clean potable water.

filling and deaerating the piping system

After the tubes have been cleaned, they must be filled with clean potable water and deaerated completely.

pressure test

As soon as a tubing system has been installed, it must be checked for leaks before being covered up and embedded. The pressure test can be carried out with water, air or inert gases. The test medium and the results of the pressure test must be documented in a so-called pressure test report.

important

When pressure testing an VSH XPress Carbon sprinkler system, 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 testing sprinkler piping systems

Sprinkler piping systems 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. Dry sprinkler systems must also be tested pneumatically to a pressure of not less than 2.5 bar for at least 24 hours. Any leakage, which occurs and results in a pressure drop of more than 0.15 bar over the 24 hours, must be corrected. Any faults identified, such as permanent deformations, ruptures or leakages must be corrected and the pressure test repeated.

general technical information

pressure loss

Every fluid that flows through a piping system experiences continuous and local flow resistances, the so-called pressure drops. There is a difference between the continuous and the local pressure drop. A continuous pressure drop is mainly caused by the flow resistance in straight tube sections, which essentially is a result of the friction between the fluid and the tube wall. Local pressure drops, on the contrary, are those flow resistances that are created by, for instance, a change in the internal tube diameter, a tube branch, an elbow, etc.

continuous pressure drop

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.

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

- p** = pressure loss in the tube [bar/m]
Q = flow through the tube [l/min]
d_i = mean internal diameter of the tube [mm]
C = constant for type and condition of the tube
 = 140 for VSH XPress stainless and carbon steel

If there is the need to perform these calculations, please consult the relevant specialized literature.

local pressure drops

A local pressure drop is, as mentioned at the start of this section, the resistance to flow that results from changes in the flow direction and cross-sectional area, flow splitting over several channels, etc. In general, there are two ways of calculating such flow resistances: the direct analytical method and the method that uses 'equivalent lengths'.

equivalent length method

This method assumes that the pressure drop 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 drop that is equal to the real pressure drop. In other words, the actual length of the piping system is added to all the equivalent lengths of the individual joints. The actual length is then multiplied by the pressure drop per unit-length R in order to be able to calculate the total pressure drop of the system. This method is not as accurate as the direct method but has the advantage that the calculation can be carried out more quickly.

direct analytical method ζ / equivalent length method [m]

		W90		W45		TA ^b		TD ^b		K		RED		W90	
Ø	DN	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]	ζ	[m]
12	10	1.29	0.38	0.61	0.18	0.30	0.09	0.90	0.27	0.26	0.08	0.09	0.09	-	-
15	12	1.02	0.49	0.69	0.33	0.40	0.19	1.13	0.55	0.36	0.17	0.52	0.25	0.64	0.31
18	15	0.93	0.58	0.77	0.48	0.50	0.32	1.41	0.89	0.46	0.29	1.06	0.67	0.96	0.60
22	20	0.44	0.35	0.38	0.30	0.15	0.12	1.05	0.84	0.11	0.08	0.73	0.59	1.29	1.04
28	25	0.35	0.38	0.28	0.32	0.13	0.28	0.93	1.01	0.05	0.06	0.65	0.72	0.82	0.92
35	32	0.31	0.43	0.29	0.40	0.08	0.11	0.93	1.34	0.03	0.04	0.53	0.79	1.47	2.19
42	40	0.25	0.48	0.22	0.42	0.11	0.20	1.20	2.27	0.06	0.11	0.46	0.85	-	-
54	50	0.30	0.79	0.19	0.49	0.09	0.24	1.15	3.06	0.06	0.14	0.36	1.43	-	-
76.1	65	0.25	1.04	0.15	0.62	0.08	0.31	1.07	4.42	0.04	0.17	0.32	1.68	-	-
88.9	80	0.24	1.22	0.13	0.66	0.07	0.36	1.06	5.38	0.04	0.20	0.27	2.10	-	-
108	100	0.23	1.51	0.12	0.76	0.07	0.43	1.05	6.90	0.03	0.20	-	-	-	-

equivalent lengths and values of local pressure drops

mounting

brackets

Brackets must be fitted directly to the building walls or, where necessary to machines, storage areas or other structures and may not be used to support other installations. Pipe brackets must be adjustable to ensure an even weight distribution. Brackets must fully enclose the lines and may not be welded to the lines or attachments.

Headers and risers must be sufficiently anchored to resist axial forces. Bracket components shall not be made of flammable materials. The use of nails is not permitted. Brackets for stainless steel tubes must be fitted with a suitable coating of sufficient electrical insulation to prevent contact corrosion (for example, a steel Munsen ring and/or clip with an elastomer or fabric insert). Ensure that the correct brackets for sprinkler applications are used, which are also suitable for external diameters of VSH XPress fittings, and that brackets are not mounted onto the fittings. Wherever a reducer is installed, a bracket must be placed next to the fitting on the larger tube diameter.

Depending on the system and certification used, which is applicable to fixed sprinkler systems, a range of distances between brackets will apply. For steel press systems in VdS sprinkler installations, the distance between the brackets is derived from the values for copper tubes. FM and LPCB prescribe specific distances between brackets when using VSH XPress. Always follow any applicable local directives and make sure that the appropriate distance between the brackets is observed. It is important to always use the right brackets designed for sprinkler applications so that the external diameter and the material used are compatible with the VSH XPress system.

extra notes:

- at a max. distance of 1 m of each connection
- at least 1 bracket for each tube section
- the distance between the last sprinkler on a sprinkler line and a bracket may not be more than:
 - 0.9 m for DN25/28 mm diameter
 - 1.2 m for sizes larger than DN25/28 mm diameter
- extra brackets must be used on vertical sections when:
 - tubes are longer than 2 m
 - tubes are longer than 1 m that feed a single sprinkler
- tubes that are fitted at low height or in some other way vulnerable to physical damage must be supported separately, except in the following cases:
 - horizontal tubes shorter than 0.45 m that only feed one sprinkler
 - risers or drop lines shorter than 0.6 m that only feed one sprinkler

mounting tubes

When securing the tubes, the following must be kept in mind: The load-bearing capacity of the mounting brackets must correspond to the weight of the tubes and also withstand expansion and torsion forces. Mounting brackets, such as fixed mounting points and clips, must therefore be placed and assembled correctly. Attachment points may only be fitted onto straight tube sections. Mounting directly onto fittings is not allowed.

DN	external Ø [mm]	maximum distance between brackets [m]			
		CEA4001 (VdS)	NFPA13/FM	LPCB	DIN 1988-200
20	22	2.0	3.66	2.5	2.00
25	28	2.0	3.66	2.5	2.25
32	35	2.0	3.66	3.5	2.75
40	42	2.0	3.66	3.5	3.00
50	54	2.0	3.66	3.5	3.50
65	76.1	2.0	3.66	-	4.25
80	88.9	2.0	3.66	-	4.75
100	108	2.0	3.66	-	5.00

distances between brackets for VSH SudoXPress tubes



VSH XPress

Stainless



R2750 stainless steel tube 1.4401 (AISI 316)
(3 and 6 m length)



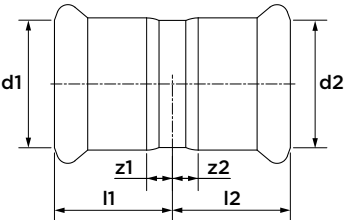
dimension	article no.	DN
22 x 1.2 (3 m)	6118081	20
22 x 1.2 (6 m)	6117936	20
28 x 1.2 (3 m)	6118090	25
28 x 1.2 (6 m)	6117947	25
35 x 1.5 (3 m)	6118101	32
35 x 1.5 (6 m)	6117958	32
42 x 1.5 (3 m)	6118112	40
42 x 1.5 (6 m)	6117969	40
54 x 1.5 (3 m)	6118123	50
54 x 1.5 (6 m)	6117971	50
76.1 x 2.0 (6 m)	6117980	65
88.9 x 2.0 (6 m)	6117991	80
108 x 2.0 (6 m)	6118002	100

R2752 stainless steel tube 1.4521 (AISI 444)
(6 m length)



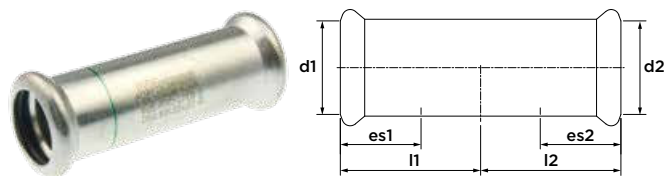
dimension	article no.	DN
22 x 1.2	6194023	20
28 x 1.2	6194034	25
35 x 1.5	6194045	32
42 x 1.5	6194056	40
54 x 1.5	6194067	50

R2701 straight coupling
(2 x press)



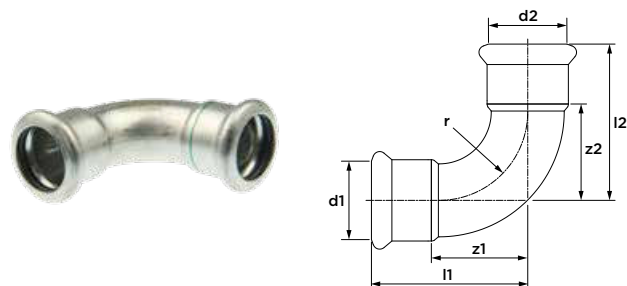
dimension	article no.	l1/l2	z1/z2
22	6190965	26	5
28	6190976	28	5
35	6190987	31	5
42	6190998	36	6
54	6191009	41	6
76.1	6204154	71	16
88.9	6204165	82	19
108	6204176	96	19

R2703 slip coupling (2 x press)



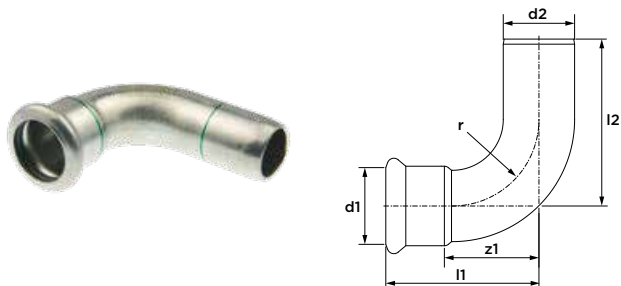
dimension	article no.	l1/l2	es1/es2
22	6191306	42	21
28	6191317	46	23
35	6191328	51	26
42	6191339	60	30
54	6191341	70	35
76.1	6204286	115	55
88.9	6204297	129	62
108	6204308	153	77

R2708 bend 90° (2 x press)



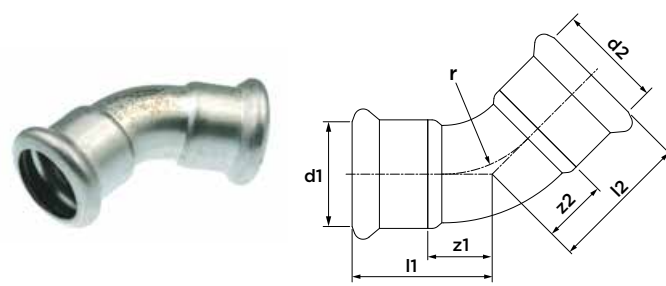
dimension	article no.	l1/l2	z1/z2	r
22	6190228	51	30	27
28	6190239	60	37	34
35	6190241	71	45	42
42	6190250	86	56	51
54	6190261	105	70	65
76.1	6230004	150	95	91
88.9	6230015	174	111	107
108	6230026	215	138	130

R2711 bend 90° (press x male)



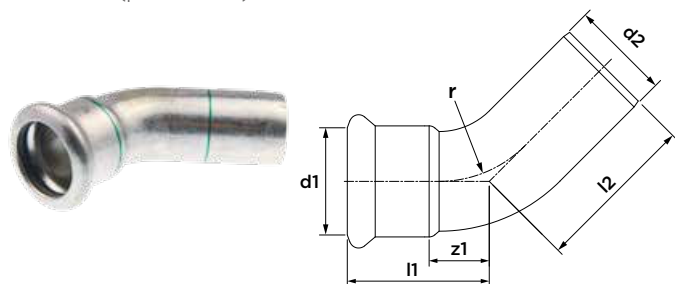
dimension	article no.	l1	l2	z1	r
22	6190360	51	60	30	27
28	6190371	60	66	37	34
35	6190382	71	76	45	42
42	6190393	86	93	56	51
54	6190404	105	111	70	65
76.1	6230037	150	165	95	91
88.9	6230048	175	190	112	107
108	6230059	216	238	139	130

R2713 bend 45° (2 x press)



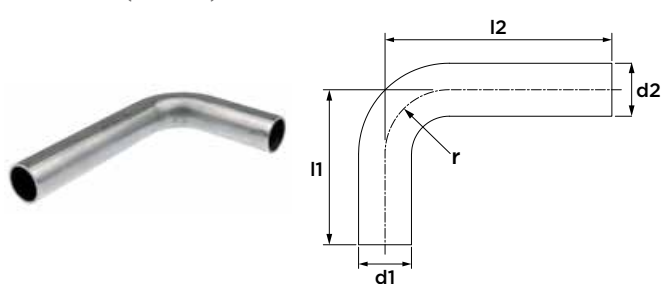
dimension	article no.	l1/l2	z1/z2	r
22	6190063	35	14	27
28	6190074	40	17	34
35	6190085	47	21	42
42	6190096	56	26	51
54	6190107	67	32	65
76.1	6230061	98	43	91
88.9	6230070	112	49	107
108	6230081	138	61	130

R2712 bend 45° (press x male)



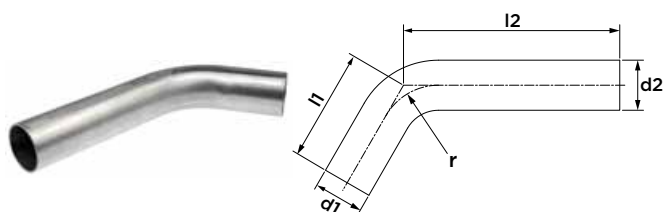
dimension	article no.	l1	l2	z1	r
22	6190131	35	42	14	27
28	6190140	40	46	17	34
35	6190151	46	51	20	42
42	6190162	56	63	26	51
54	6190173	65	73	30	65
76.1	6230092	98	117	43	91
88.9	6230103	112	131	49	107
108	6230114	138	154	61	130

R2725 bend tube 90° (2 x male)



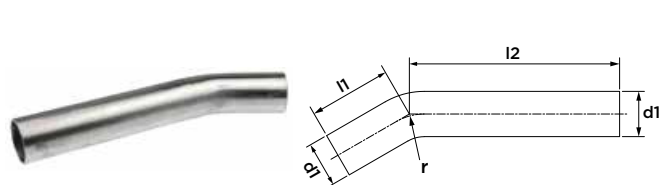
dimension	article no.	l1	l2	r
Ø22	6190294	72	120	27
Ø28	6190305	82	120	34
Ø35	6190316	120	200	42
Ø42	6190327	150	250	51
Ø54	6190338	200	300	65

R2724 bend tube 60° (2 x male)



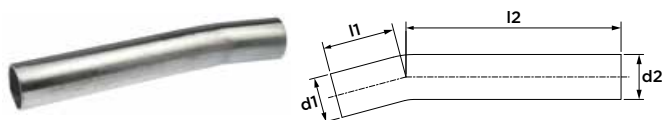
dimension	article no.	l1	l2	r
Ø28	6190184	63	121	34
Ø35	6190195	97	203	42
Ø42	6191878	102	256	51
Ø54	6191889	162	306	65

R2723 bend tube 30° (2 x male)



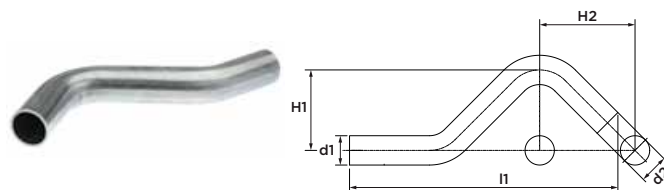
dimension	article no.	l1	l2	r
Ø28	6190021	51	130	34
Ø35	6190030	73	214	42
Ø42	6191856	99	272	51
Ø54	6191867	134	326	65

R2722 bend tube 15° (2 x male)



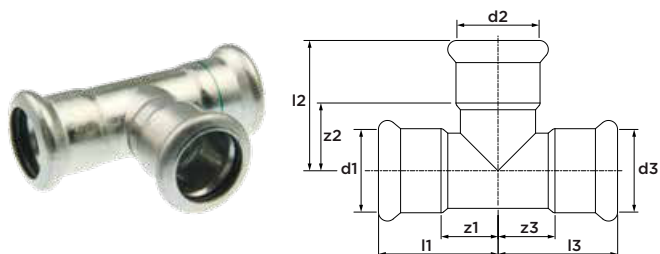
dimension	article no.	l1	l2	r
Ø28	6190008	45	134	34
Ø35	6190019	73	222	42
Ø42	6191834	89	280	51
Ø54	6191845	122	337	65

R2717 crossover (2 x male)



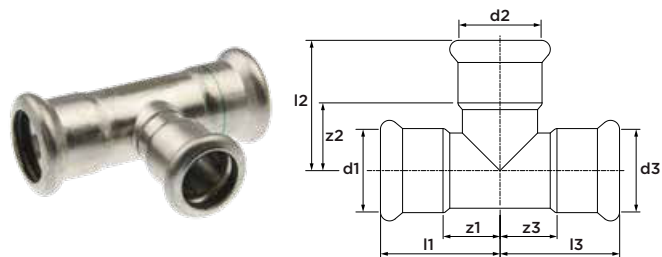
dimension	article no.	l1	H1	H2
Ø22	6191108	163	44	65
Ø28	6191119	195	50	74

R2714 tee (3 x press)



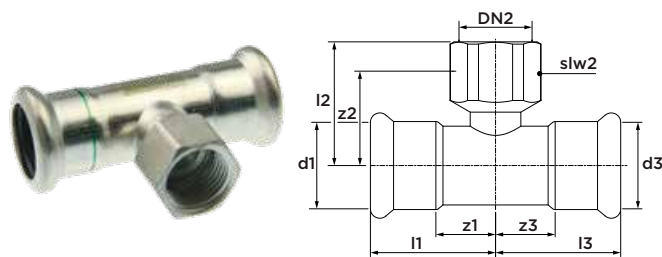
dimension	article no.	l1/l3	l2	z1/z3	z2
22	6191405	40	44	19	23
28	6191449	45	49	22	26
35	6191493	51	55	25	29
42	6191537	60	62	30	32
54	6191581	71	72	36	37
76.1	6204319	116	115	61	60
88.9	6204321	131	127	68	64
108	6204330	156	155	79	78

R2715 tee reduced (3 x press)



dimension	article no.	l1/l3	l2	z1/z3	z2
28 x 22 x 28	6191438	45	47	22	26
35 x 22 x 35	6191471	51	50	25	29
35 x 28 x 35	6191482	51	52	25	29
42 x 22 x 42	6191504	60	53	30	32
42 x 28 x 42	6191515	60	55	30	32
42 x 35 x 42	6191526	60	58	30	32
54 x 22 x 54	6191548	71	59	36	38
54 x 28 x 54	6191559	71	61	36	38
54 x 35 x 54	6191561	71	64	36	38
54 x 42 x 54	6191570	71	58	36	28
76.1 x 22 x 76.1	6204341	116	68	61	45
76.1 x 28 x 76.1	6204352	116	71	61	47
76.1 x 35 x 76.1	6204363	116	75	61	48
76.1 x 42 x 76.1	6204374	116	79	61	47
76.1 x 54 x 76.1	6204385	116	80	61	43
88.9 x 22 x 88.9	6204396	131	76	68	53
88.9 x 28 x 88.9	6204407	131	76	68	52
88.9 x 35 x 88.9	6204418	131	83	68	56
88.9 x 42 x 88.9	6204429	131	85	68	53
88.9 x 54 x 88.9	6204431	131	93	68	56
88.9 x 76.1 x 88.9	6204440	131	116	68	61
108 x 22 x 108	6204451	156	85	79	62
108 x 28 x 108	6204462	156	88	79	64
108 x 35 x 108	6204473	156	94	79	67
108 x 42 x 108	6204484	156	96	79	64
108 x 54 x 108	6204495	156	102	79	65
108 x 76.1 x 108	6204506	156	125	79	70
108 x 88.9 x 108	6204517	156	135	79	72

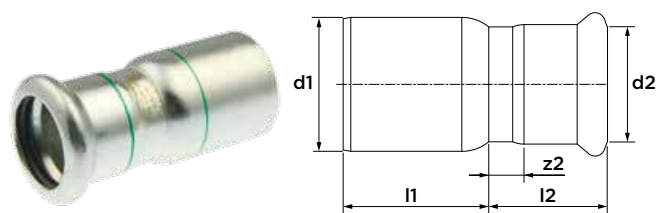
R2718 tee female branch (press x female thread x press)



dimension	article no.	l1/l3	l2	z1/z3	z2	slw2
22 x Rp1/2" x 22	6191625	40	37	19	27	24
22 x Rp3/4" x 22	6191636	40	39	19	28	30
28 x Rp1/2" x 28	6191647	45	40	22	30	24
28 x Rp3/4" x 28	6191658	45	42	22	31	30
28 x Rp1" x 28	6198599	45	46	22	33	38
35 x Rp1/2" x 35	6191669	51	44	25	34	24
35 x Rp3/4" x 35	6191671	51	46	25	35	30
35 x Rp1" x 35	6198601	51	50	25	37	38
42 x Rp1/2" x 42	6191680	60	46	30	36	24
42 x Rp3/4" x 42	6191691	60	48	30	37	30
42 x Rp1" x 42	6198610	60	52	30	39	38
54 x Rp1/2" x 54	6191702	71	52	36	42	24
54 x Rp3/4" x 54	6191724	71	54	36	43	30
54 x Rp1" x 54	6198621	71	58	36	45	38
54 x Rp2" x 54	6191713	71	65	36	47	67
76.1 x Rp3/4" x 76.1	6204528	116	68	61	55	30
76.1 x Rp2" x 76.1	6204550	116	81	61	59	65
88.9 x Rp3/4" x 88.9	6204539	131	87	68	74	30
88.9 x Rp2" x 88.9	6204561	131	88	68	66	65
108 x Rp3/4" x 108	6204541	156	86	79	73	30
108 x Rp2" x 108	6204572	156	98	79	76	65

R2707 reducer

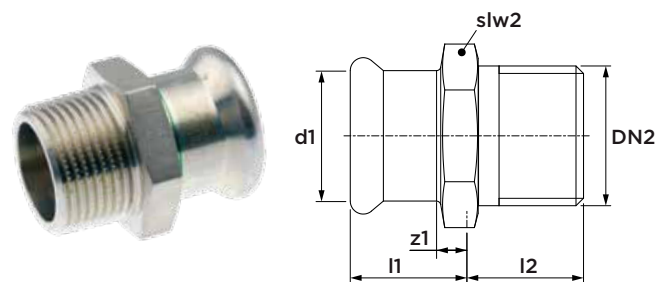
(male x press)



dimension	article no.	l1	l2	z2
Ø28 x 22	6191174	34	29	8
Ø35 x 22	6191196	42	29	8
Ø35 x 28	6191207	38	31	8
Ø42 x 22	6191218	53	33	12
Ø42 x 28	6191229	51	31	8
Ø42 x 35	6191231	42	34	8
Ø54 x 22	6191240	66	33	12
Ø54 x 28	6191251	62	34	11
Ø54 x 35	6191262	60	34	8
Ø54 x 42	6191273	55	40	10
Ø76.1 x 42	6204211	72	79	49
Ø76.1 x 54	6204220	98	42	7
Ø88.9 x 54	6204231	114	42	7
Ø88.9 x 76.1	6204242	88	68	13
Ø108 x 54	6204253	138	66	31
Ø108 x 76.1	6204264	127	69	14
Ø108 x 88.9	6204275	113	77	14

R2705 straight connector

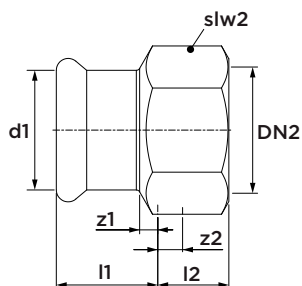
(press x male thread)



dimension	article no.	l1	l2	z1	slw2
22 x R½"	6190635	27	15	6	32
22 x R¾"	6190646	27	16	6	32
22 x R1"	6190624	29	20	8	34
28 x R¾"	6190679	28	17	5	38
28 x R1"	6190657	28	20	5	38
28 x R1¼"	6190668	31	21	8	43
35 x R1"	6190681	33	20	7	45
35 x R1¼"	6190701	33	22	7	49
35 x R1½"	6190690	34	22	8	49
42 x R1¼"	6190723	37	22	7	54
42 x R1½"	6190712	37	22	7	54
54 x R1½"	6190734	43	22	8	67
54 x R2"	6190745	43	26	8	67
76.1 x R2½"	6204759	64	33	9	82
88.9 x R3"	6204761	73	36	10	95

R2702 straight connector

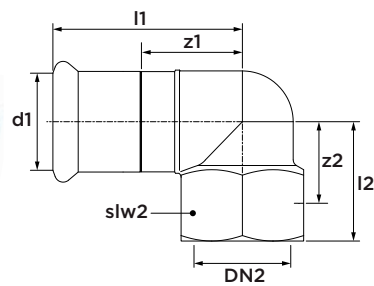
(press x female thread)



dimension	article no.	l1	l2	z1	z2	slw2
22 x Rp½"	6190461	21	15	0	5	32
22 x Rp¾"	6190470	23	17	2	6	32
22 x Rp1"	6190459	24	20	3	7	38
28 x Rp½"	6193308	26	12	3	1	38
28 x Rp¾"	6190503	23	17	0	6	38
28 x Rp1"	6190481	25	20	2	7	38
28 x Rp1¼"	6190492	25	22	2	7	46
35 x Rp1"	6190514	27	20	1	7	46
35 x Rp1¼"	6190536	28	22	2	7	46
35 x Rp1½"	6190525	28	22	2	8	54
42 x Rp1¼"	6190558	30	22	0	0	54
42 x Rp1½"	6190547	32	22	2	8	54
54 x Rp1½"	6190569	36	22	1	8	67
54 x Rp2"	6190571	37	26	2	8	67

R2709 angle adapter 90°

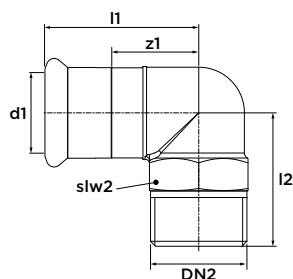
(press x female thread)



dimension	article no.	l1	l2	z1	z2	slw2
22 x Rp½"	6198456	45	31	24	16	24
22 x Rp¾"	6190844	49	33	28	17	30
28 x Rp½"	6198467	48	35	25	20	24
28 x Rp¾"	6198478	51	35	28	19	30
28 x Rp1"	6190855	55	37	32	24	38
35 x Rp½"	6198489	56	35	30	20	24
35 x Rp¾"	6198491	58	37	32	21	30
35 x Rp1"	6198500	58	41	32	28	38
35 x Rp1¼"	6190866	62	42	36	27	46

R2728 angle adapter 90°

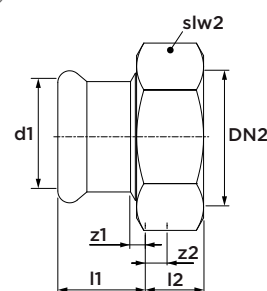
(press x male thread)



dimension	article no.	l1	l2	z1	slw2
22 x R¾"	6190899	49	39	28	30
28 x R1"	6190901	53	46	30	34
35 x R1¼"	6190910	60	52	34	43
42 x R1½"	6190921	69	58	39	49
54 x R2"	6190932	82	68	47	62

R2704 coupling with nut

(press x female thread)

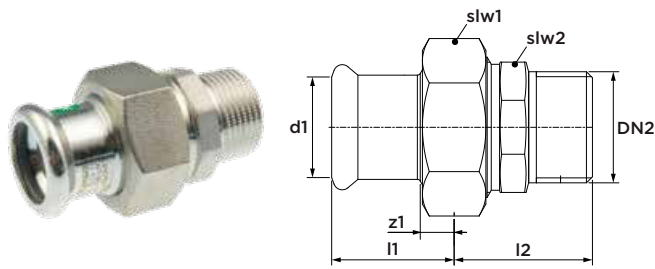


dimension	article no.	l1	l2	z1	z2	slw2
22 x G1"	6191757	30	10	9	2	37
28 x G1¼"	6191768	31	10	8	2	46
35 x G1½"	6191779	34	11	8	2	52
42 x G1¾"	6191781	41	11	11	2	58
54 x G2¾"	6191790	47	11	12	3	75

including flat seal

R2735 straight union

(press x male thread)

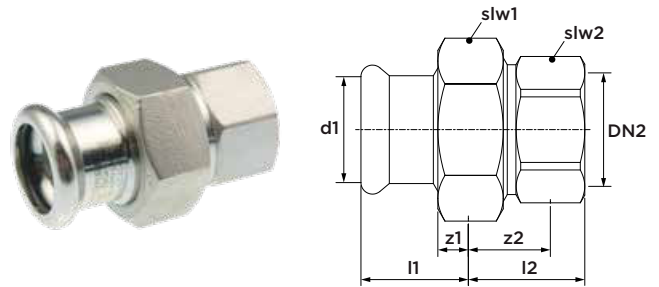


dimension	article no.	l1	z1	l2	slw1	slw2
22 x R $\frac{1}{2}$ "	6192164	30	9	33	37	25
22 x R $\frac{3}{4}$ "	6192175	30	9	29	37	32
22 x R1"	6192186	30	9	42	37	39
28 x R1"	6192197	31	8	42	46	39
35 x R1 $\frac{1}{4}$ "	6192208	34	8	44	52	49
42 x R1 $\frac{1}{2}$ "	6192219	41	11	44	58	51
54 x R2"	6192296	47	12	53	75	65

including flat seal

R2738 straight union

(press x female thread)

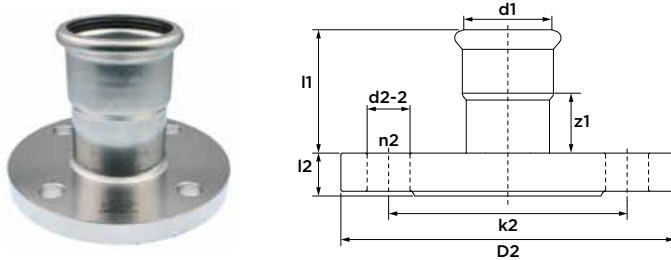


dimension	article no.	l1	l2	z1	z2	slw1	slw2
22 x Rp $\frac{3}{4}$ "	6192065	30	33	9	22	37	30
22 x Rp1"	6192076	30	36	9	23	37	38
28 x Rp1"	6192087	31	34	8	21	46	38
35 x Rp1 $\frac{1}{4}$ "	6192098	34	39	8	24	52	46
42 x Rp1 $\frac{1}{2}$ "	6192109	41	41	11	27	58	54
54 x Rp2"	6192111	47	44	12	26	75	67

including flat seal

R2726 flanged connector PN 10/16

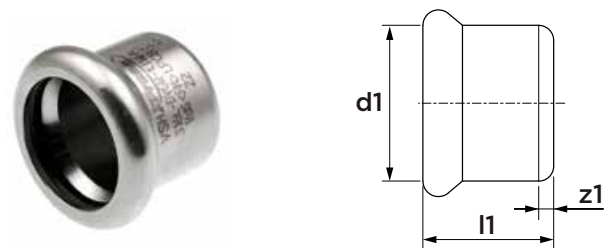
(1 x press)



dimension	DN	article no.	l1	l2	z1	k2	D2	d2-2	n2
22	20	6190778	45	14	24	75	105	14	4
28	25	6190789	49	16	26	85	115	14	4
35	32	6190791	51	17	26	100	140	18	4
42	40	6190800	59	18	29	110	150	18	4
54	50	6190811	69	18	34	125	165	18	4
76.1	65	6204121	108	18	53	145	185	18	4
88.9	80	6204132	127	20	64	160	200	18	8
108	100	6204143	147	20	70	180	220	18	8

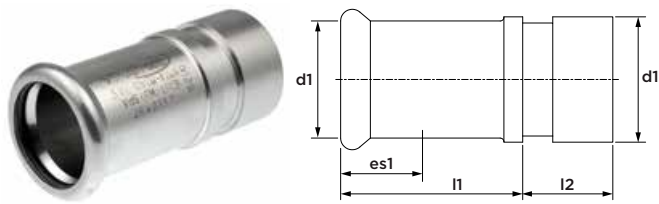
R2729 stop end

(1 x press)



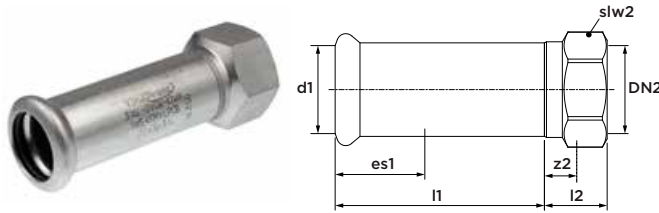
dimension	article no.	l1	z1
22	6191031	24	3
28	6191042	26	3
35	6191053	29	3
42	6191064	37	7
54	6191075	42	7
76.1	6204187	95	40
88.9	6204198	107	44
108	6204209	127	50

R2748 transition for grooved couplings
(press x groove)



dimension	article no.	l1	l2	es1
28 x Ø33.7	6198555	49	24	23
35 x Ø42.4	6198566	54	24	26
42 x Ø48.3	6198577	61	24	30
54 x Ø60.3	6198588	73	24	35
76.1 x Ø73	6198841	68	24	50
76.1 x Ø76.1	6193319	66	24	55
88.9 x Ø88.9	6193321	76	24	63
108 x Ø114	6193330	84	26	77

R2741 slip coupling
(press x female thread)



dimension	article no.	l1	l2	z2	es1	slw2
22 x Rp½"	6198511	70	19	15	21	28
22 x Rp¾"	6198522	70	24	17	21	32
28 x Rp½"	6198533	70	21	15	23	34
28 x Rp¾"	6198544	70	21	17	23	34

C1451 o-ring Leak Before Pressed (LBP)
(black, EPDM) for carbon steel and stainless steel



dimension	article no.
22	6222238
28	6222249
35	6222251
42	6222260
54	6222271

C1452 flat seal
(black, EPDM) for carbon steel and stainless steel



dimension	article no.
22	6228024
28	6228035
35	6228046
42	6228057
54	6228068

R2760 o-ring
(black, EPDM) for carbon steel and stainless steel



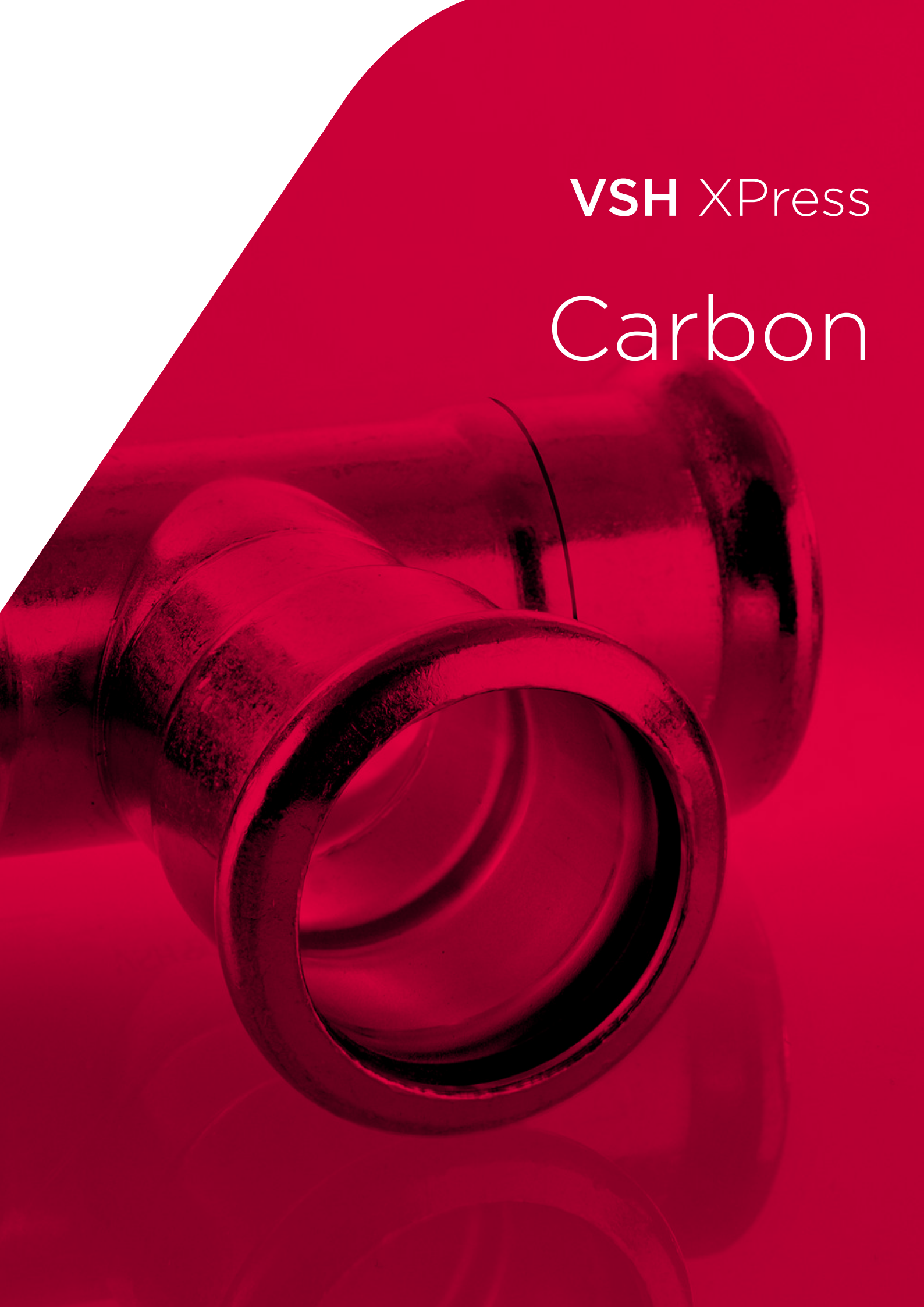
dimension	article no.
76.1	6208015
88.9	6208026
108	6208037





VSH XPress

Carbon

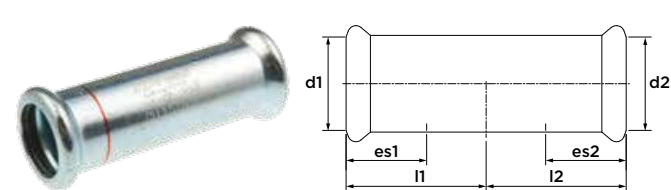


C1461 VSH XPress sprinkler carbon tube (6 m length)



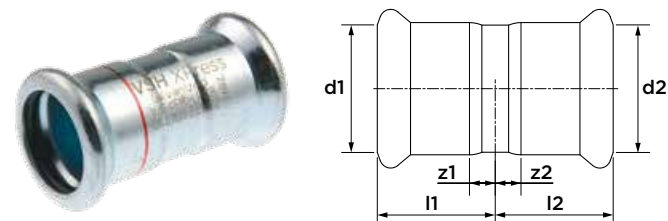
dimension	article no.	DN
22 x 1.5	6241114	20
28 x 1.5	6241125	25
35 x 1.5	6241136	32
42 x 1.5	6241147	40
54 x 1.5	6241158	50
76.1 x 2.0	6241378	65
88.9 x 2.0	6241389	80
108 x 2.0	6241391	100

C1403 slip coupling (2 x press)



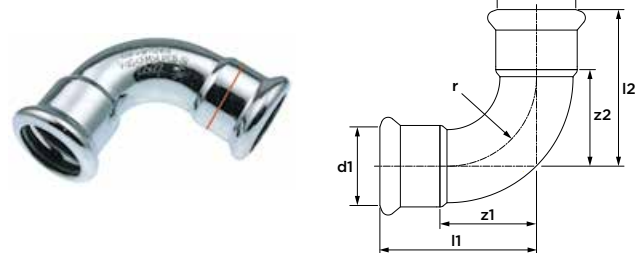
dimension	article no.	l1/l2	es1/es2
22	6201461	42	21
28	6201470	46	23
35	6201481	52	26
42	6201492	61	30
54	6201503	70	35
76.1	6206233	115	55
88.9	6206244	131	63
108	6206255	151	77

C1401 straight coupling (2 x press)



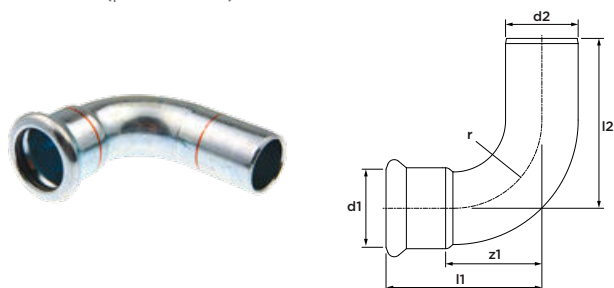
dimension	article no.	l1/l2	z1/z2
22	6201382	26	5
28	6201393	28	5
35	6201404	31	5
42	6201415	37	7
54	6201426	41	6
76.1	6206200	63	8
88.9	6206211	72	9
108	6206222	86	9

C1408 bend 90° (2 x press)



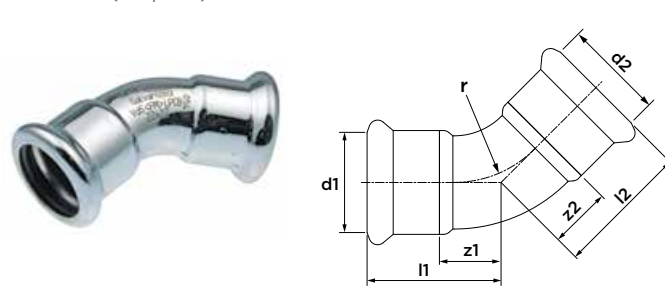
dimension	article no.	l1/l2	z1/z2	r
22	6201571	51	30	27
28	6201580	61	38	34
35	6201591	72	46	42
42	6201602	87	57	51
54	6201613	105	70	65
76.1	6208004	155	100	92
88.9	6208048	179	116	107
108	6208059	216	139	130

C1411 bend 90° (press x male)



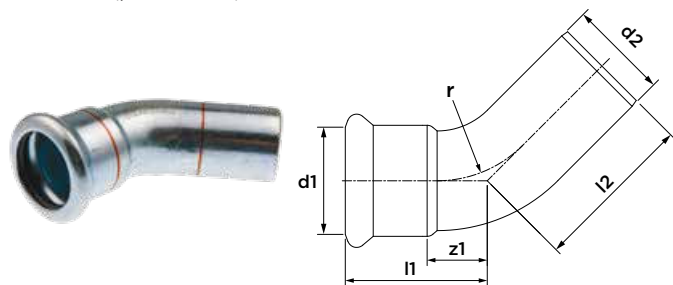
dimension	article no.	l1	l2	z1	r
22 x Ø22	6201657	51	58	30	27
28 x Ø28	6201668	61	66	38	34
35 x Ø35	6201679	72	76	46	42
42 x Ø42	6201681	87	93	57	51
54 x Ø54	6201690	105	111	70	65
76.1 x Ø76.1	6208061	155	168	100	92
88.9 x Ø88.9	6208070	179	193	116	107
108 x Ø108	6208081	216	233	139	130

C1413 bend 45° (2 x press)



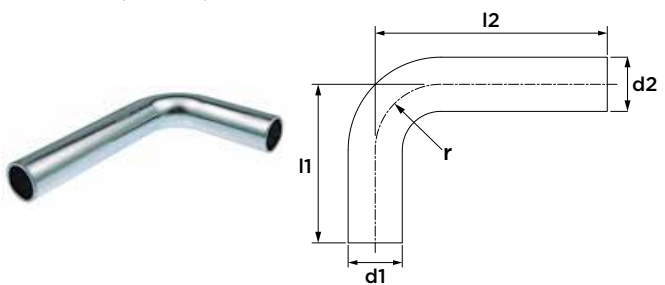
dimension	article no.	l1/l2	z1/z2	r
28	6201734	40	17	34
35	6201745	46	20	42
42	6201756	56	26	51
54	6201767	67	32	65
76.1	6208125	101	46	92
88.9	6208136	116	53	107
108	6208147	139	62	130

C1412 bend 45° (press x male)



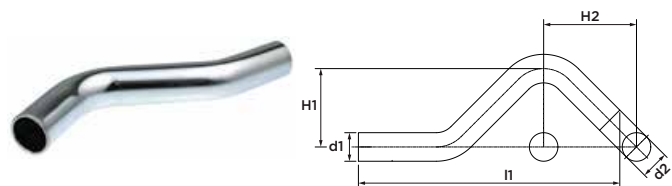
dimension	article no.	l1	l2	z1	r
22 x Ø22	6201791	35	42	14	27
28 x Ø28	6201800	40	46	17	34
35 x Ø35	6201811	46	51	20	42
42 x Ø42	6201822	56	63	26	51
54 x Ø54	6201833	67	73	32	65
76.1 x Ø76.1	6208092	101	114	46	92
88.9 x Ø88.9	6208103	116	130	53	107
108 x Ø108	6208114	139	157	62	130

C1425 bend 90° (2 x male)



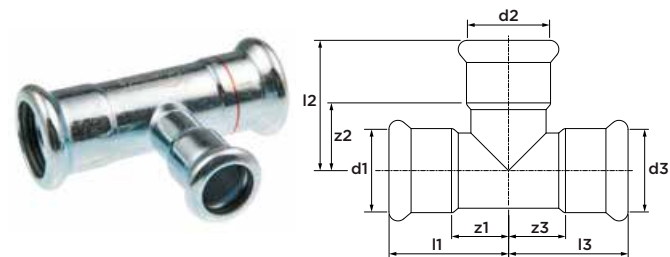
dimension	article no.	l1	l2	r
Ø22	6201877	74	122	27
Ø28	6201888	84	122	34
Ø35	6201899	122	202	42
Ø42	6201901	152	252	51
Ø54	6201910	202	302	65

C1417 crossover (2 x male)



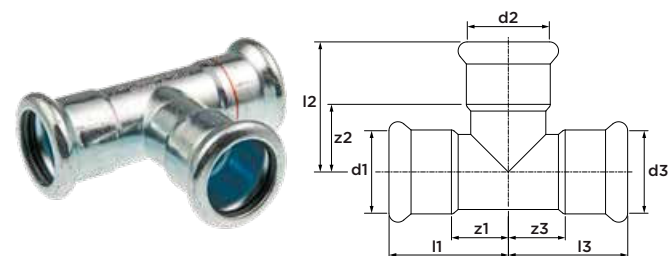
dimension	article no.	l1	H1	H2
Ø22	6201954	163	44	65
Ø28	6201965	194	50	74

C1415 tee reduced (3 x press)



dimension	article no.	l1/l3	l2	z1/z3	z2
22 x 28 x 22	6202801	40	52	19	29
28 x 22 x 28	6202647	45	52	22	31
35 x 22 x 35	6202671	52	55	26	34
35 x 28 x 35	6202680	52	57	26	34
42 x 22 x 42	6202691	60	58	30	37
42 x 28 x 42	6202702	60	60	30	37
42 x 35 x 42	6202713	60	63	30	37
54 x 22 x 54	6202724	71	64	36	43
54 x 28 x 54	6202735	71	66	36	43
54 x 35 x 54	6202746	71	69	36	43
54 x 42 x 54	6202757	71	73	36	43
76.1 x 22 x 76.1	6207047	115	68	60	47
76.1 x 28 x 76.1	6207058	115	85	60	62
76.1 x 35 x 76.1	6207069	115	87	60	61
76.1 x 42 x 76.1	6207071	115	97	60	67
76.1 x 54 x 76.1	6206475	115	110	60	75
88.9 x 22 x 88.9	6209654	130	76	67	55
88.9 x 28 x 88.9	6209665	130	92	67	69
88.9 x 35 x 88.9	6209676	130	97	67	71
88.9 x 42 x 88.9	6209687	130	105	67	75
88.9 x 54 x 88.9	6209698	130	117	67	82
88.9 x 76.1 x 88.9	6206486	130	117	67	62
108 x 22 x 108	6209711	155	85	78	64
108 x 28 x 108	6209720	155	102	78	79
108 x 35 x 108	6209731	155	107	78	81
108 x 42 x 108	6209742	155	115	78	85
108 x 54 x 108	6209753	155	128	78	93
108 x 76.1 x 108	6209764	155	128	78	73
108 x 88.9 x 108	6206497	155	137	78	82

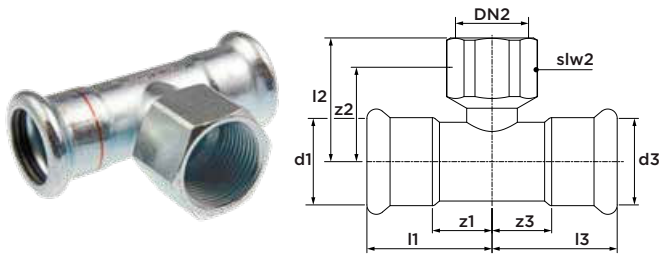
C1414 tee (3 x press)



dimension	article no.	l1/l3	l2	z1/z3	z2
22	6202515	40	49	19	28
28	6202526	45	54	22	31
35	6202537	52	60	26	34
42	6202548	61	67	31	37
54	6202559	71	78	36	43
76.1	6206442	115	110	60	55
88.9	6206453	130	128	67	65
108	6206464	155	153	78	76

C1418 tee branch female

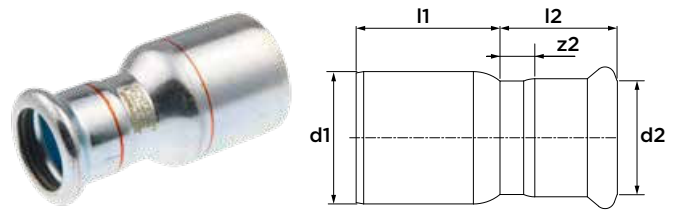
(press x female thread x press)



dimension	article no.	l1/l3	l2	z1/z3	z2	slw2
22 x Rp½" x 22	6202834	40	39	19	24	24
22 x Rp¾" x 22	6206706	40	41	19	25	30
22 x Rp1" x 22	6341995	40	46	19	23	41
28 x Rp½" x 28	6202845	45	42	22	27	24
28 x Rp¾" x 28	6207181	45	44	22	28	30
28 x Rp1" x 28	6209601	45	48	22	25	41
35 x Rp½" x 35	6202856	52	46	26	31	24
35 x Rp¾" x 35	6207102	52	48	26	31	30
35 x Rp1" x 35	6209610	52	52	26	29	41
42 x Rp½" x 42	6202867	61	48	31	33	24
42 x Rp¾" x 42	6207113	61	50	31	34	30
42 x Rp1" x 42	6209621	61	54	31	31	41
54 x Rp½" x 54	6202878	71	54	36	39	24
54 x Rp¾" x 54	6207124	71	56	36	40	30
54 x Rp1" x 54	6207795	71	60	36	37	41
76.1 x Rp¾" x 76.1	6206508	115	82	60	66	30
88.9 x Rp¾" x 88.9	6206519	130	84	67	68	30
108 x Rp¾" x 108	6206521	155	94	78	78	30

C1407 reducer

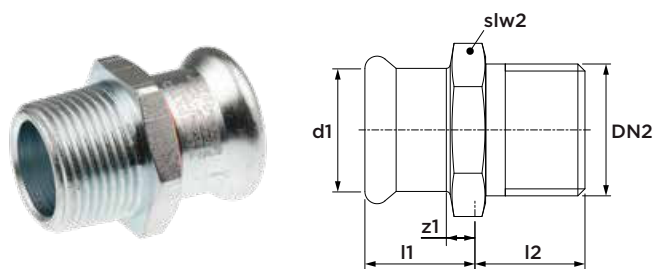
(male x press)



dimension	article no.	l1	l2	z2
Ø28 x 22	6202196	33	33	12
Ø35 x 22	6202207	41	30	9
Ø35 x 28	6202218	34	36	13
Ø42 x 22	6206651	51	32	11
Ø42 x 28	6206662	51	32	9
Ø42 x 35	6202229	41	39	13
Ø54 x 22	6202231	63	34	13
Ø54 x 28	6202240	58	33	10
Ø54 x 35	6206684	57	38	12
Ø54 x 42	6202251	52	44	14
Ø76.1 x 42	6206387	97	50	20
Ø76.1 x 54	6206398	86	55	20
Ø88.9 x 54	6206409	101	54	19
Ø88.9 x 76.1	6206411	90	68	13
Ø108 x 76.1	6206420	120	68	13
Ø108 x 88.9	6206431	110	77	14

C1405 straight connector

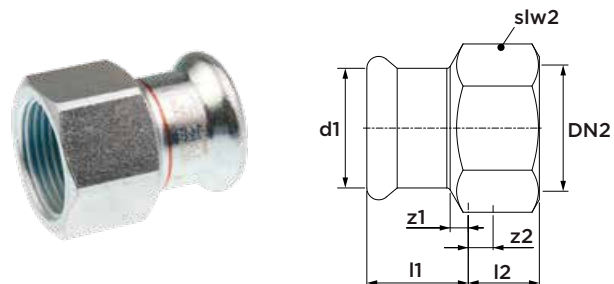
(press x male thread)



dimension	article no.	l1	l2	z1	slw2
22 x R $\frac{1}{2}$ "	6206717	26	17	5	32
22 x R $\frac{3}{4}$ "	6202317	26	18	5	32
22 x R1"	6206728	28	22	7	34
28 x R $\frac{3}{4}$ "	6209852	28	22	5	38
28 x R1"	6202328	28	20	5	41
35 x R1"	6341247	33	20	7	46
35 x R1 $\frac{1}{4}$ "	6202339	33	22	7	46
42 x R1 $\frac{1}{2}$ "	6202341	35	24	5	55
54 x R2"	6202350	41	28	6	70
76.1 x R2 $\frac{1}{2}$ "	6204781	64	33	9	80
88.9 x R3"	6204792	73	36	10	95

C1402 straight connector

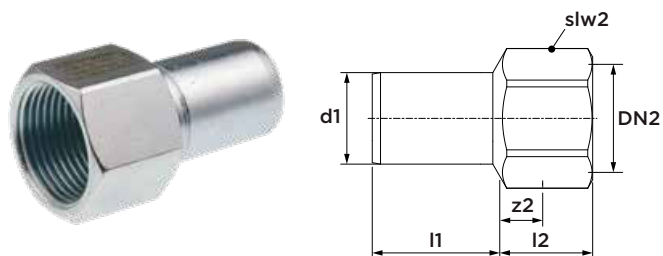
(press x female thread)



dimension	article no.	l1	l2	z1	z2	slw2
22 x Rp $\frac{1}{2}$ "	6340202	22	14	1	0	32
22 x Rp $\frac{3}{4}$ "	6202405	23	20	2	4	32
28 x Rp $\frac{1}{2}$ "	6207806	24	14	1	1	41
28 x Rp $\frac{3}{4}$ "	6209830	24	17	1	0	38
28 x Rp1"	6202416	26	23	3	4	41
35 x Rp $\frac{1}{2}$ "	6340917	30	12	4	1	46
35 x Rp $\frac{3}{4}$ "	6340928	28	15	2	3	46
35 x Rp1"	6340939	33	13	7	0	46
35 x Rp1 $\frac{1}{4}$ "	6206695	28	22	2	7	46
42 x Rp1 $\frac{1}{2}$ "	6341192	32	22	2	6	54
54 x Rp2"	6341203	37	26	2	8	67

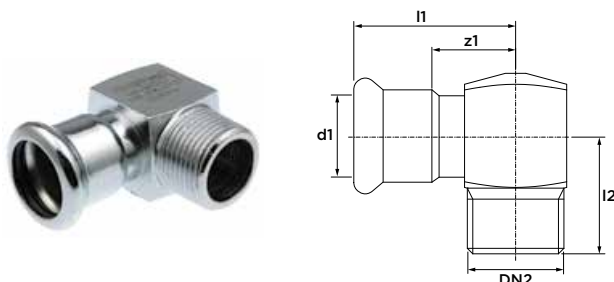
C1433 straight connector

(male x female thread)



dimension	article no.	l1	l2	z2	slw2
Ø22 x Rp $\frac{1}{2}$ "	6202460	29	21	6	24
Ø22 x Rp $\frac{3}{4}$ "	6202471	29	24	8	30

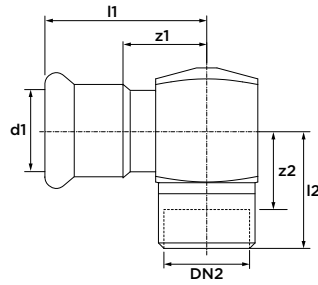
when pressing, take care that the jaws do not interfere with the wrench flats!

C1428 angle adapter 90°

dimension	article no.	l1	l2	z1
22 x R $\frac{3}{4}$ "	6202108	45	32	24

C1409 angle adapter 90°

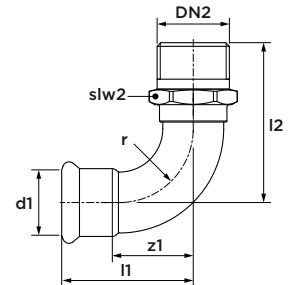
(press x female thread)



dimension	article no.	l1	l2	z1	z2
22 x Rp½"	6341038	45	31	24	16
28 x Rp½"	6341049	51	35	28	20
35 x Rp½"	6341051	57	35	31	20

C1430 bend 90°

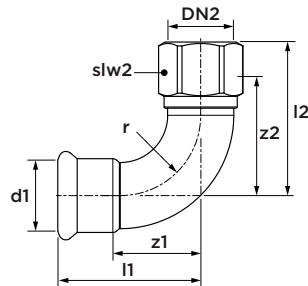
(press x male thread)



dimension	article no.	l1	z1	l2	slw2	r
22 x R¾"	6202011	51	30	62	30	27
28 x R1"	6202020	61	38	74	36	34
35 x R1¼"	6202031	72	46	86	46	42
42 x R1½"	6202042	87	57	96	50	51
54 x R2"	6202053	105	70	116	60	65

C1438 bend 90°

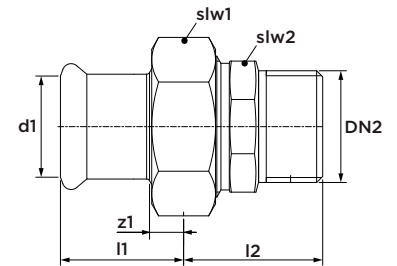
(press x female thread)



dimension	article no.	l1	l2	z1	z2	slw2	r
22 x Rp½"	6209577	51	59	30	44	27	27
22 x Rp¾"	6200964	51	59	30	43	30	27
28 x Rp½"	6207025	61	65	38	50	32	34
28 x Rp¾"	6200986	61	65	38	49	32	34
28 x Rp1"	6209588	61	70	38	51	41	34
35 x Rp½"	6201063	72	75	46	55	41	42
35 x Rp¾"	6201074	72	75	46	54	41	42
35 x Rp1"	6209599	72	75	46	56	41	42

C1435 straight union

(press x male thread)

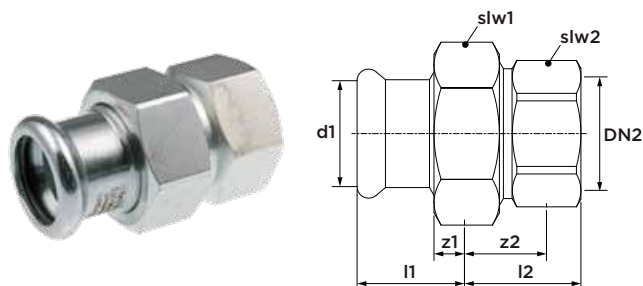


dimension	article no.	l1	z1	l2	slw1	slw2
22 x R¾"	6207201	30	9	40	36	32
28 x R1"	6207212	31	8	44	46	39
35 x R1¼"	6207223	34	8	48	52	49
42 x R1½"	6207234	41	11	47	58	51
54 x R2"	6207245	47	12	53	75	65

including flat seal

C1444 straight union

(press x female thread)

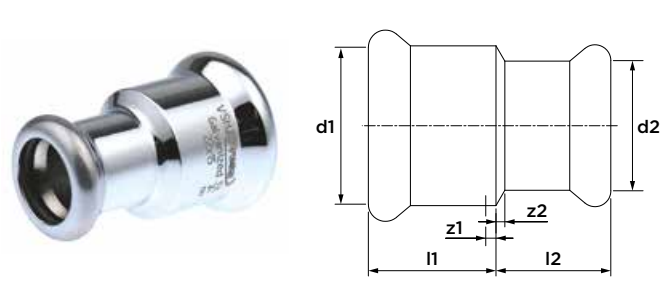


dimension	article no.	l1	l2	z1	z2	slw1	slw2
22 x Rp $\frac{3}{4}$ "	6208928	30	33	9	17	36	34
28 x Rp1"	6208939	31	34	8	15	46	42
35 x Rp1 $\frac{1}{4}$ "	6208941	34	42	8	20	52	50
42 x Rp1 $\frac{1}{2}$ "	6208950	41	42	11	20	58	55
54 x Rp2"	6208961	47	46	12	20	75	70

including flat seal

C1439 reducer

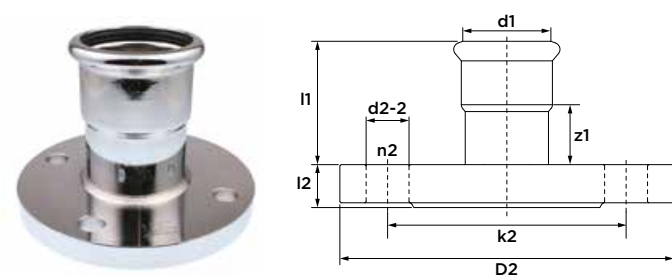
(2 x press)



dimension	article no.	l1	l2	z1/z2
28 x 22	6201131	25	23	2

C1426 flanged connector PN 10/16

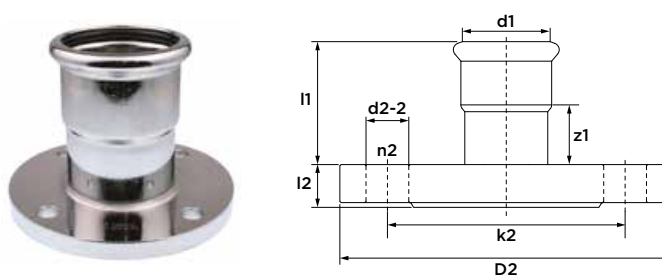
(1 x press)



dimension	DN	article no.	l1	l2	z1	k2	D2	d2-2	n2
35	32	6341500	52	18	26	100	140	18	4
42	40	6341511	59	18	29	110	150	18	4
54	50	6341522	69	18	34	125	165	18	4
76.1	65	6206596	94	18	39	145	185	18	4
88.9	80	6206607	98	20	35	160	200	18	8
108	100	6206618	94	20	17	180	220	18	8

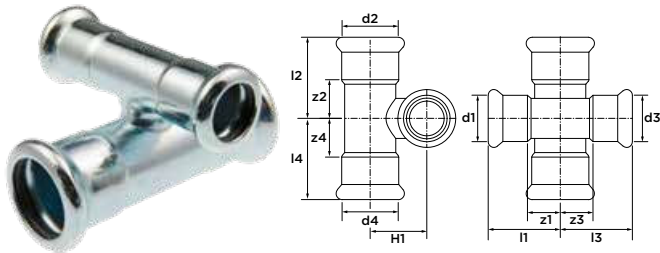
C1427 flanged connector PN6

(1 x press)



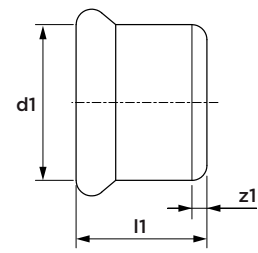
dimension	DN	article no.	l1	l2	z1	k2	D2	d2-2	n2
76.1	65	6206629	94	14	39	130	160	14	4
88.9	80	6206631	98	16	35	150	190	18	4
108	100	6206640	94	16	17	170	210	18	4

C1434 crossing 90° (4 x press)



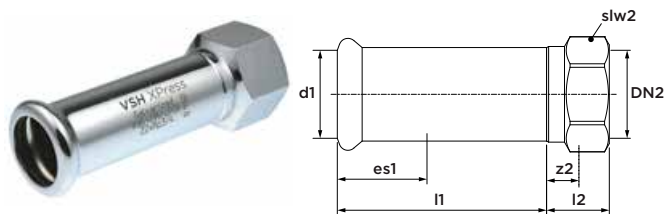
dimension	article no.	l1/l3	l2/l4	z1/z3	z2/z4	H1
28 x 22 x 28 x 22	6207157	45	40	22	19	31

C1429 stop end (1 x press)



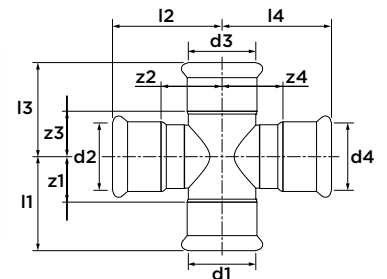
dimension	article no.	l1	z1
22	6202977	24	3
28	6202988	26	3
35	6202999	29	3
42	6203001	37	7
54	6203010	42	7
76.1	6206915	64	9
88.9	6206926	72	9
108	6206937	97	20

C1443 slip coupling (press x female thread)



dimension	article no.	l1	l2	z2	es1	slw2
22 x Rp½"	6241312	92	22	15	21	28
22 x Rp¾"	6241323	97	27	17	21	32
28 x Rp½"	6241268	94	24	15	23	32
28 x Rp¾"	6241279	93	23	17	23	32

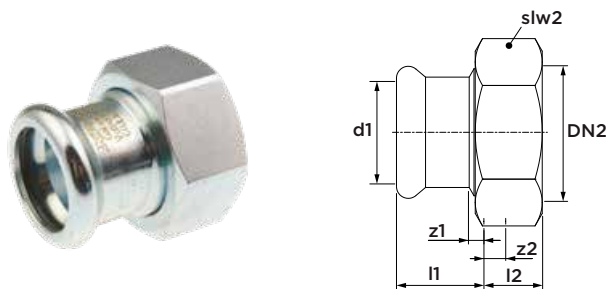
C1447 crossing 90° (4 x press)



dimension	article no.	l1/l3	l2/l4	z1/z3	z2/z4
35	6340972	52	60	26	34
42	6340983	61	67	31	37
54	6340994	71	78	36	43
35 x 28 x 35 x 28	6341005	52	57	26	34
42 x 28 x 42 x 28	6341016	61	60	31	37
54 x 28 x 54 x 28	6341027	71	66	36	43

C1446 coupling with nut

(press x female thread)

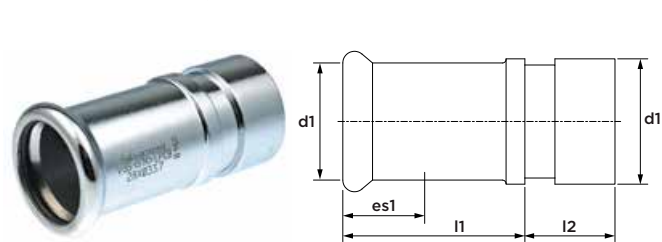


dimension	article no.	l1	l2	z1	z2	slw2
22 x G $\frac{3}{4}$ "	6342479	44	8	23	2	30
22 x G1"	6340554	30	10	9	2	36
28 x G $\frac{5}{4}$ "	6340565	31	10	8	2	46
35 x G $\frac{3}{2}$ "	6340576	34	11	8	2	52
42 x G1 $\frac{3}{4}$ "	6340587	41	11	11	2	52
54 x G2 $\frac{1}{2}$ "	6340598	47	11	12	3	75

including flat seal

C1442 transition for grooved couplings

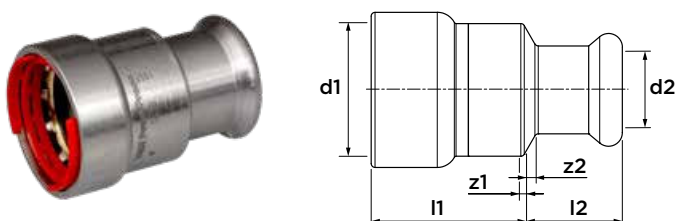
(press x groove)



dimension	article no.	l1	l2	es1
28 x 33.7	6241301	49	24	23
35 x 42.4	6241345	54	24	26
42 x 48.3	6241356	61	24	30
54 x 60.3	6241367	73	24	35
76.1 x 76.1	6340774	66	24	55
88.9 x 88.9	6340785	76	24	63
108 x 114	6340796	84	26	77

C9441 transition to VSH PowerPress

(VSH PowerPress x VSH XPress)



dimension	article no.	l1	l2	z1	z2
$\frac{3}{4}$ " x 22	PWR9401227	39	24	3	4
1" x 28	PWR9401251	38	25	1	2
1 $\frac{1}{4}$ " x 35	PWR9401260	51	29	2	3
1 $\frac{1}{2}$ " x 42	PWR9401271	52	33	2	3
2" x 54	PWR9401282	56	38	2	3

C1451 o-ring Leak Before Pressed (LBP)

(black, EPDM) for carbon steel and stainless steel



dimension	article no.
22	6222238
28	6222249
35	6222251
42	6222260
54	6222271

R2760 o-ring
(black, EPDM) for carbon steel and stainless steel



dimension	article no.
76.1	6208015
88.9	6208026
108	6208037



C1452 flat seal
(black, EPDM) for carbon steel and stainless steel



dimension	article no.
22	6228024
28	6228035
35	6228046
42	6228057
54	6228068





fire protection tools and accessories



P6013/6014/6015 press tools Novopress
ECO203/ACO203(XL)



	dimension	article no.
ECO203 + case	12-54	6342094
ACO203 BT + battery 2.0Ah + charger + case	12-54	6342490
ACO203 BT + jaws 22-28 + adapter + HP slings 35-54 + 2 batteries 5.0Ah + charger + cases	22-54 (sprinkler)	6342545

P6000/6001 press tools and slings
Novopress ACO401/403



	dimension	article no.
ACO403 + 2 batteries 5.0Ah + charger + case	76.1-108	6342424
HP401/403 sling + case	76.1	6340092
HP401/403 sling + case	88.9	6340103
HP401/403 sling + case	108	6340114

P5990/6016/6017/6019 press jaws and
slings Novopress
for ECO203/
ACO203(XL)



	dimension	article no.
snap-on sling HP	35	6341060
snap-on sling HP	42	6341071
snap-on sling HP	54	6341082
set: snap-on slings HP 35-54 + ZB203 adapter + case	35-42-54	6341775
set: snap-on slings HP 42-54 + ZB203 adapter + case	42-54	6341225
MoS ₂ lubricant for copper	42-108	6342567

P5991/6002/6004 battery + charger



	article no.
ACO202/203 battery 2.0Ah 18V	6341588
ACO202/203/401/403 battery 5.0Ah 18V	6342446
ACO202/203/401/403 charger	6340125

P5990/5991/5997/6000/6013/6016 case



	dimension	article no.
case ECO/ACO203XL		6342028
case ACO403		6342468
case slings + adapter	35-42-54 + ZB2/3 series	6342303

P2743 deburring tool



dimension	article no.
12-54	6211898

P2742 insertion depth marker



dimension	article no.
12-108 (for VSH XPress Carbon and Stainless)	6212646

disclaimer:

The technical data are non-binding and do not reflect the warranted characteristics of the products. They are subject to change. Please consult our General Terms and Conditions. Additional information is available upon request. It is the designer's responsibility to select products suitable for the intended purpose and to ensure that pressure ratings and performance data are not exceeded. The installation instructions should always be read and followed. The system must always be depressurized and drained before any components, whether defective or otherwise, are removed, modified or corrected.

more information?

For a complete and up-to-date product range and our additional services, visit: www.aalberts-ips.eu

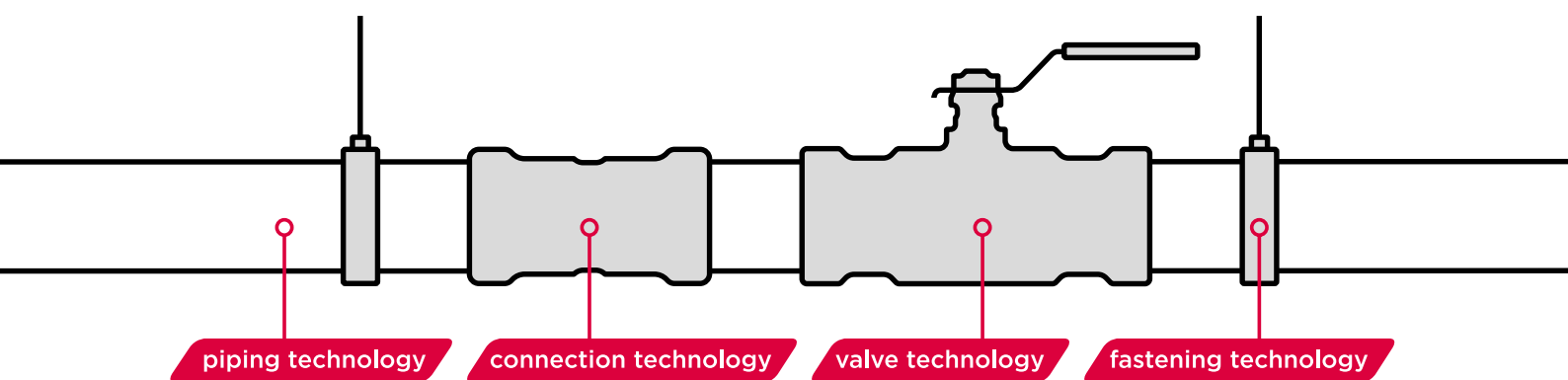
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Please contact:

Aalberts integrated piping systems Customer Service

+31 (0)35 68 84 330

salesupport.emea@aalberts-ips.com



Aalberts integrated piping systems B.V.

Oude Amersfoortseweg 99 / 1212 AA Hilversum

P.O. Box 498 / 1200 AL Hilversum

The Netherlands

www.aalberts-ips.eu