



XPress



More information?

For detailed information about using XPress fittings please visit www.xpress-fittings.com or refer to the technical documentation which can be requested by calling Customer Services on +31 (0)35 6884 211 or by sending an e-mail to info@vsh.nl



GALVANIZED STEEL



STAINLESS STEEL

XPRESS SPRINKLER SYSTEM

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XPress Sprinkler system

Your lightweight, easy and fast to install, cost-saving alternative for dry- and wet sprinkler installations.



Disclaimer:
The technical data are not binding and not expressly warranted characteristics of the goods. These are subject to change. Please consult our General Conditions of Supply. Additional information is available upon request. It is the Designer's responsibility to select products suitable for the intended service and to ensure that pressure ratings and performance data is not exceeded. Always read and understand the installation instructions. Never remove any piping components nor correct or modify any piping deficiencies without first depressurizing and draining the system.

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1 VSH Fittings B.V.

VSH Fittings B.V. was founded in the early 1930s in Hilversum, the Netherlands, and has been a subsidiary of Aalberts Industries N.V. since 1991. The activities of VSH Fittings B.V. cover the development, production and sales of water, heating and gas piping systems.

Over time the VSH product range has expanded as more and more fittings and accessories such as stop, gas and check valves were added to the range. Each time the deciding factor behind the product development of VSH was quality and ease of use for the installer.

VSH can now offer you a complete range of brass compression, stainless and galvanized steel press fittings. The complete range of products is manufactured in Hilversum.

We have established a good reputation through innovation, manufacturing of high quality products and a high level of service logistics. You can buy our products via wholesalers, sister companies which are part of Aalberts Industries and agencies.

In the last few years VSH has developed more and more into a market oriented company. Customers' wishes and needs are the starting point for the development and marketing of new products.



Figure 1: VSH Fittings in the past



Figure 2: VSH Fittings today

2 XPress Sprinkler

2.1 Introduction XPress Sprinkler

With the growing importance of the fire safety and security market on one hand and the lack of time on the building site on the other, making the XPress system available for sprinkler installations was an obvious choice.

By obtaining the VdS approval in the beginning of 2008 for both galvanized and stainless steel, this was the start to evolve the XPress system into Press Sprinkler. Many approvals, such as FM, FG, SBSC, LPCB, UL, cUL and CNBOP, have followed since and will continue to follow.



Figure 3: XPress Sprinkler

XPress Sprinkler is available in the dimensions DN20-DN100 (22-108 mm), either in galvanized or stainless steel. XPress Sprinkler has been tested and certified for the use in wet (galvanized and stainless steel) and dry (stainless steel) fixed sprinkler systems in accordance with international guidelines such as VdS and FM. The working pressure of the system can go up to 16 bar, depending on the dimensions and relevant approvals.

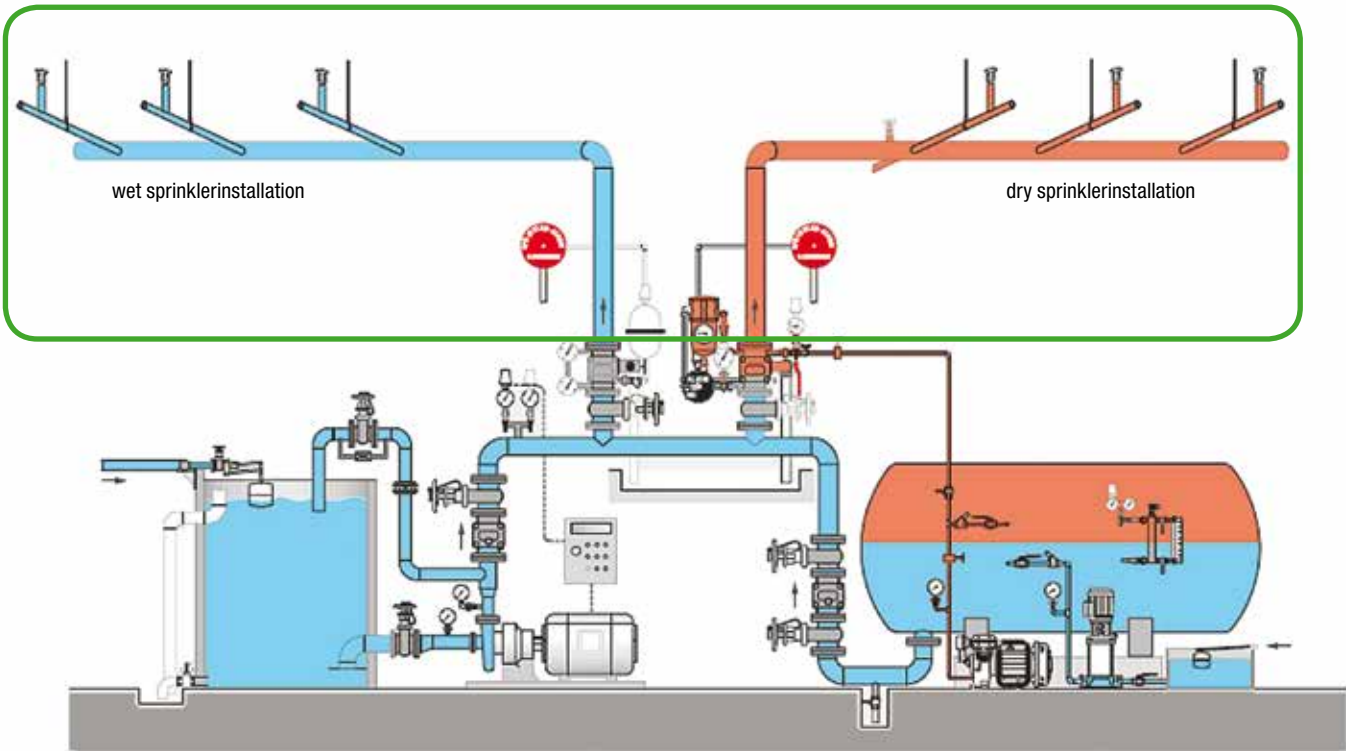


Figure 4: Area of application XPress Sprinkler

2.2 Advantages of XPress Sprinkler

In the building installation market the advantages of press systems over traditional solutions such as threading, soldering and welding have long been recognized. The same advantages apply for XPress in sprinkler installations:

- Performance guaranteed
- Reliable
- Easy & clean
- Safe
- Speed

Apart from these advantages, the aesthetics of a XPress installation (compared to e.g. black steel) are often a reason for architects and designers to prescribe our system for in-sight/exposed installations.

2.2.1 Performance guaranteed

With all fittings being manufactured in our state-of-the-art factory in the Netherlands, VSH guarantees consistent quality and supply. High-tech manufacturing, using laser welding technology, ensures that all welded fittings are 100%. This leak test is entirely integrated and automated in the laser welding process. All straight connectors with a threaded end and reducers are made out of one piece, meaning no risk of leakage and short build-in dimensions.

Performance in flow is obvious, with the extremely smooth surface of tubes and fittings, flow rates are much better than those in traditional solutions. The performance of our fittings can also be measured by the various number of national and international approvals. With certificates for drinking water, in house gas installations, ship building and now also sprinkler, there is a wide range available of system and product approvals.

2.2.2 Reliable

In XPress Sprinkler systems, the quality of the connection is mainly determined by the tool and not the operator, therefore reducing the risk of installation mistakes. All fittings are equipped with a Leak Before Pressed (LBP) function, to reduce this risk even further. The LBP function is achieved either by a special O-ring or by the specific design of the fitting. This LBP function ensures that fittings, which have not been pressed, will leak during the initial pressure test. The installer can immediately see which fitting he forgot to press and correct this. Once pressed, the system is guaranteed water and air tight.



Figure 5: State-of-the-art production



Figure 6: Leak Before Pressed

2.2.3 Easy & clean

XPress Sprinkler is an extremely user friendly solution:

- No need to thread the tubes
- No lubrication needed for installation
- Easy tube insertion of the tube in the fitting due to the special design of fittings
- Short radius bends which ensure a compact installation

Above features make sure that less skills for installation are required and that installation can take place in a more pleasant environment.

2.2.4 Safe

The installation of the XPress Sprinkler system does not require a heat source (as for example with welding or soldering) or other potentially heavy and dangerous tools. This feature makes XPress Sprinkler an ideal solution for retrofit or renovation projects, since you can ensure a minimum of disturbances during installation.

Moreover, the light weight of the precision steel tubes ensures improved labour conditions and as such brings a healthier way of working.



2.2.5 Speed

Reduced labour time is probably the most important advantage of the XPress Sprinkler system, not only resulting in reduced costs but also important in times when it is difficult to find sufficiently skilled people to work on the projects.

Based on given advantages, we are sure that the XPress Sprinkler system will have your preference for sprinkler installations in particular for distribution and branch systems.

XPress Sprinkler, an im**PRESS**ive solution!

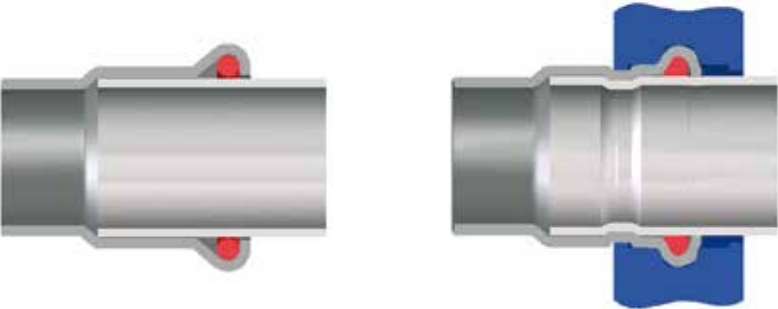
3 XPress Sprinkler: a complete system

When looking at more traditional connection methods, the products used in sprinkler installations are often approved as a product only. The XPress Sprinkler range is a complete system, where the combination of tube, fitting and tools are combined into a certified sprinkler system. The components of which our XPress Sprinkler system consist are:

- XPress Sprinkler fittings either in galvanized or stainless steel in the dimensions 22-108 mm
- XPress Sprinkler tubes, which can be Sendzimir tube in combination with our galvanized steel fittings, but also three different grades of stainless steel for our stainless steel fittings, depending on relevant approvals
- XPress Sprinkler press tools, either battery or mains operated
- Accessories such as our flexible hoses, especially adapted for an optimal combination with our XPress Sprinkler fittings and installation tools

3.1 XPress Sprinkler fittings

The joint between the tube and the fitting is created by pressure using a press tool. The fitting sleeve is deformed and adapts to the surface of the tube, which is then pressed in turn against the sealing ring on the surface of the fitting. This process ensures the sealing effect and prevents the tube from slipping out.



before pressing after pressing

Figure 7: Pressing before and after

You can recognize the XPress Sprinkler range by the laser marking on the fitting which makes it easy for you to identify the fitting used. Information such as material, approvals and dimensions are all permanently marked onto the fitting.


XPress Sprinkler Galvanized fitting		
	Laser marking	Packaging Label
	XPress Galvanized Approvals Dimension Traceability code	Type C..... Dimension Description: ...XPr C EAN Nr. Art. Nr. VSH Approvals Number of pieces

Table 1: Identification marking for galvanized steel XPress fittings


XPress Sprinkler Stainless fitting		
	Laser marking	Packaging Label
	XPress 316L Approvals Dimension Traceability code	Type R..... Dimension Description: ...XPr S EAN Nr. Art. Nr. VSH Approvals Number of pieces

Table 2: Identification marking for stainless steel XPress fittings



Figure 8: Detection of leaking fittings

Thanks to the special grooves in the O-ring (figure 9) the Leak Before Pressed O-ring (LBP) ensures optimum control of the system during pressure testing (such as for example described in the CEA 4001, no. 17.1.1). Unpressed joints will leak water resulting in pressure loss and are afterwards easy to detect (figure 8). During the pressing procedure the O-ring deforms, closing the special grooves, and the connection between the tube and fittings is sealed, ensuring a water tight joint.



Figure 9: LBP profile

All XPress fittings are equipped with LBP functionality as standard, to reduce the risk of installation errors.

The XPress Sprinkler fittings are available either in galvanized or in stainless steel. The galvanized steel fittings are manufactured from unalloyed steel (material 1.0034/St 34-2) and are protected against corrosion by means of a zinc layer (8-15 µm) which is applied by electroplating. The stainless steel fittings are manufactured from stainless steel (material 1.4404 /AISI 316L). XPress Sprinkler fittings are equipped with an EPDM O-ring as standard in the dimensions DN20 to DN100 (22-108 mm).

3.2 XPress Sprinkler tube

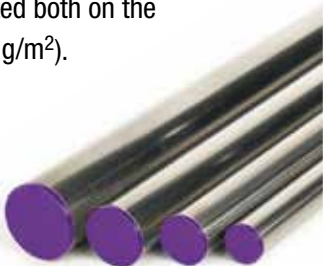
XPress Sprinkler tubes are available in the dimensions DN20 to DN100 (22-108 mm). Entry of dirt during transportation or storage is prevented by caps at both ends of the tube and utilizing the correct packaging for distribution.

Fire behaviour

XPress Sprinkler tubes are classified as non-combustible tubes of building material class A, DIN 4102, part 1.

3.2.1 XPress Sprinkler Galvanized

The XPress Sprinkler Galvanized tubes for wet sprinkler systems are precision steel tubes. The tubes are made from cold rolled steel that is galvanized using the Sendzimir process. During this process zinc is brought onto the metal strip, running through a zinc bath, covering both sides simultaneously. The tube is protected both on the inside and outside with a zinc layer. The thickness of this layer is minimal 15-27 µm (275 g/m²). After welding, the welding seam zinc is reapplied sealing the seam. With the Sendzimir process a good adhesion of the zinc layer and corrosion resistance are achieved.



3.2.2 XPress Sprinkler Stainless

The XPress Sprinkler Stainless tubes are suitable for wet and dry sprinkler systems and are also precision steel tubes. The outer- and inner surfaces of the tubes are blank, free of discolouration and are supplied free of manufacturing residue that could otherwise cause corrosion. The strict size tolerances and welding seam quality are checked on both the outside and inside.

3.3 XPress Sprinkler tools

An important part of the XPress Sprinkler range are the press tools which are used to make a press joint. The tools which we prescribe for the XPress Sprinkler range consist of a press machine and the accompanying press jaws or slings. Depending on the outside diameter of the tube, you should choose the corresponding press jaws or slings to ensure a completely tight joint.

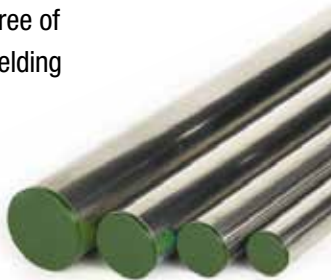


Figure 10: XPress Sprinkler tube

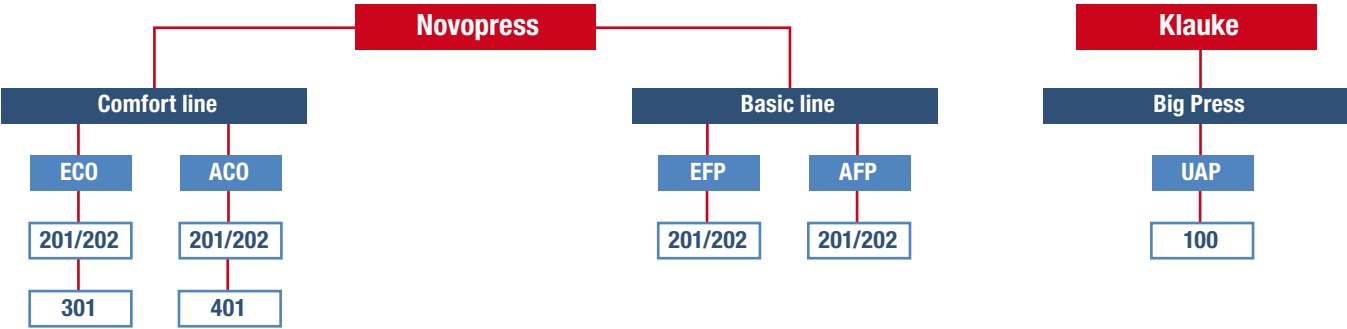



Figure 11: Sprinkler approved machines Novopress and Klauke

Only tools made by Novopress for the dimensions DN20 to DN100 (22-108 mm) or Klauke for stainless steel in the dimensions DN65 to DN100 (76,1-108 mm) (suitable for M-Profile) are permitted to be used in combination with the XPress Sprinkler system. Other brands of machines and press jaws or slings are currently not permitted due to the certification of our sprinkler range. The following machines, press jaws and slings made by Novopress and Klauke are approved (under UL/cUL only battery operated tools are allowed).

3.3.1 Range of approved Novopress press machines


VSH has passed the different certification tests for XPress Sprinkler with a wide range of machines from Novopress. Depending on the dimensions to be installed and the worksite, different machines can be used.

The Novopress ACO 202 is the preferred work site machine for the dimensions DN20 to DN50 (22-54 mm).

Novopress ACO 202 DN20-50 (22-54 mm)		
	Power supply	18 V / 3,0 Ah
	Power	400 W
	Piston force	32 kN
	Piston stroke	40 mm
	Dimensions L x W x H	410 x 80 x 125 mm
	Weight	3,3 kg


- Suitable for dimensions from DN20 to DN50 (22-54 mm)
- Battery operated with Li-Ion technology
- The low weight and ergonomic shape render even narrow press areas readily accessible
- Convenience features, such as the electronically controlled press procedure with automatic return and electronic retaining bolt securing device, guarantee perfect pressing
- The diagnostic function enables optimum fault analysis for targeted servicing
- Short press cycles, irrespective of the nominal widths, guarantee fast and economical working procedures

The Novopress ECO301 is the preferred workshop machine for the dimensions DN20 to DN50 (22-54 mm).

Novopress ECO 301 DN20-50 (22-54 mm)		
	Power supply	220 - 240 V / 50 Hz
	Power	560 W
	Piston force	45 kN
	Piston stroke	45 mm
	Dimensions L x W x H	420 x 85 x 110 mm
	Weight	5,0 kg

- Compact dimensions, suitable for dimensions from DN20 to DN50 (22-54 mm)
- ECO 301 is mains operated
- Control and monitoring of the entire press cycle is carried out by a microprocessor which ensures optimum press performance at all times over the entire period of use
- The simple operation and ergonomic design render even narrow press areas readily accessible
- Fast and economical. Short press cycles of approx. 12 seconds irrespective of the nominal widths
- The electronic retaining bolt securing device and automatic return after completion of the press cycle are tried and tested standards

When pressing sprinkler installations in the dimension DN65 to DN100 (76,1-108 mm) the machine of choice is the Novopress ACO401.

Novopress ACO401 DN65-100 (76,1-108 mm)		
	Power supply	18 V / 3,0 Ah
	Power	400 W
	Piston force	100 kN
	Piston stroke	60 mm
	Dimensions L x W x H	660 x 100 x 250 mm
	Weight	13,0 kg

The ACO401 pressmachine is a perfect solution for fire sprinkler systems, potable water, ship building and industrial purposes. The dimensions DN65 to DN100 (76,1-108 mm) can be pressed in a safe and reliable way by using the special HP401 slings.

- Battery operated with Li-Ion technology
- Control and monitoring of the entire press cycle is carried out by a microprocessor which ensures optimum press performance at all times over the entire period of use
- The simple hand operation of the machine allows the installer work at locations that are difficult to access (e.g. ceilings)
- Automatic processing including the return after completion of the press cycle is a proven standard
- Press cycles of ca. 25 seconds, independent of nominal diameter enable fast and economical performance
- The cylinder including sling adaptor can be turned 180° and enables installation at difficult access locations

Other approved Novopress machines for the dimensions DN20 to DN50 (22-54 mm):

- Novopress ECO 201 and 202
- Novopress ACO 201
- Novopress EFP 2, 201 and 202
- Novopress AFP 201 and 202

3.3.2 Approved Novopress jaws and slings

Depending on the outside diameter of the tube the pressing should be executed with a press jaw or a press sling. In the dimensions 22 and 28 mm a regular press jaw from Novopress can be used. When going to bigger dimensions the pressing should be done by means of a press sling (starting from 35 mm). Depending on the type of machine different slings can be used, which are specific HP/power versions. These special XPress Power Slings are especially designed for the XPress Sprinkler system.

Novopress jaws and slings


		DN / dimension	Outside ø (mm)
	Press jaws	20	22
		25	28
	Press slings	32	35
		40	42
		50	54
		65	76,1
		80	88,9
		100	108

Table 3: Overview of Novopress press jaws and press slings

Special care should be taken in the combination of press machine and press sling. Always make sure to use the appropriate adapter. In the table below you can find the different combinations approved of machine and press jaw and sling.

Pressing tools ECO 201/202, ACO 201/202, EFP 2/201/202 & AFP 201/202				
	Article no.	DN / dimension	Outside ø (mm)	Adapter
ECOTEC jaw	6205364	20	22	
ECOTEC jaw	6205375	25	28	
Press sling 35	6241037	32	35	ZB201/ZB203
Snap on HP 35	6341060	32	35	ZB 203
Snap on HP 42	6341071	40	42	ZB 203
Snap on HP 54	6341082	50	54	ZB 203

Table 4: Pressing with ECO 201/202, ACO 201/202, EFP 2/201/202 and AFP 201/202 press tools

Pressing tool ECO 301				
	Article no.	DN / dimension	Outside ø (mm)	Adapter
ECO 301 jaw	6205751	20	22	
ECO 301 jaw	6205760	25	28	
Press sling 35	6241037	32	35	ZB 302
XPress power sling	6241048	40	42	ZB 302
XPress power sling	6241059	50	54	ZB 302
Snap on HP 35	6341060	32	35	ZB 303
Snap on HP 42	6341071	40	42	ZB 303
Snap on HP 54	6341082	50	54	ZB 303

Table 5a: Pressing with ECO 301

Pressing tool ACO 401				
	Article no.	DN / dimension	Outside ø (mm)	Adapter
Press sling HP 401 76,1	6340092	65	76,1	
Press sling HP 401 88,9	6340103	80	88,9	
Press sling HP 401 108	6340114	100	108	

Table 5b: Pressing with ACO 401

3.3.3 Range of approved Klauke press machines (only for stainless steel)

For stainless steel installation in the dimensions DN65 to DN100 (76,1-108 mm) it is also allowed to use the Klauke UAP100 in combination with Klauke slings.

3.3.4 Approved Klauke slings


Press slings UAP 100 DN65-100 (76,1-108 mm)				
	Press sling	Article no.	DN / dimension	Outside ø (mm)
	KSP 3	6206112	65	76,1
	KSP 3	6206123	80	88,9
	KSP 3	6206134	100	108

Table 6: Overview of Klauke press slings

If the press tools referred to in tables 4, 5a, 5b and 6 are correctly used, reliable pressing with the XPress Sprinkler system is guaranteed. Regular maintenance and lubrication of the press jaws, slings, adapters and tools is required. Please see the Novopress and Klauke instructions for use and maintenance.

3.4 XPress flexible hoses

The lining up of sprinklers using rigid piping in suspended ceiling systems can be very time consuming and costly. The use of XPress flexible hoses for sprinkler installations enables a quick and easy connection of sprinkler heads within a circular area defined by the hose length. With the flexible sprinkler hoses it is possible to mount sprinklers in suspended ceilings systems without any problems, resulting in significant time and cost savings.

The supplied mounting brackets ensure a reliable and secure attachment of the sprinkler hose to the ceiling system substructure.



Figure 12: Flexible hoses

The XPress flexible hoses are part of the XPress Sprinkler VdS and FM (only DN25) approval for fixed sprinkler installations. VSH can offer you 2 versions, either with a straight end or an angle of 90°. Available dimensions are DN20 and DN25 in the lengths 800, 1000, 1500 and 2000 mm.

Application

- The XPress flexible hoses are suitable to be installed in:
- I-beam lay-in ceiling systems with mineral fiber panels and metal cassettes (main and ancillary profiles)
 - Clamping profile ceiling systems
 - Plasterboard ceiling systems
 - Suspension-mounted standard sprinklers
 - Hidden or recessed sprinklers



The special feature of these hoses is the straight pipe which is 100% compatible to the XPress Sprinkler system. The straight pipe end assures an easy connection from the flexible hose to the XPress Sprinkler systems. Where with threaded connections the whole hose needs to be rotated, with the straight pipe end you only need to position the pipe end in the fitting and you are ready for pressing.



Figure 13: Straight pipe end

Advantages

- Simple and quick installation with the flexible sprinkler hose using standard tooling
- Entire sprinkler hose is made of stainless steel
- Easy bypass of other parts and building components
- No rotation of complete hose during installation because of straight pipe end
- Flexibility of positioning the sprinkler mounting system across the ceiling panel
- No bending or lifting of ceiling elements as sprinkler hose is fixed on ceiling substructure
- Where leaks on rigid piping systems can only be detected when the ceiling panels have already been installed, leaks on sprinkler systems equipped with flexible hose are already detected in building shells. Expensive water damage can thus be prevented

- The sprinkler system does not need to be reinstalled for renovation or conversion. Hoses and brackets can be dismantled and remounted at the new location without emptying the complete installation, within the circular area defined by the hose length
- Easy vertical positioning due to scaling on sprinkler sleeve

Length (mm)	Sprinkler discharge	Sprinkler connection	Outside ø (mm)	Press. loss* (bar)	Equiv. pipe length VdS (m)	Equiv. pipe length FM (m)
1000	straight	Rp ½"	Ø22	0,9	8	-
1500	straight	Rp ½"	Ø22	1,3	12	-
2000	straight	Rp ½"	Ø22	1,7	14	-
1000	straight	Rp ½"	Ø28	0,5	8	3,7
1500	straight	Rp ½"	Ø28	0,8	11	4,5
2000	straight	Rp ½"	Ø28	1,0	12	5,5
800	90° angle	Rp ½"	Ø22	0,8	8	-
1000	90° angle	Rp ½"	Ø22	0,9	8	-
1500	90° angle	Rp ½"	Ø22	1,3	12	-
800	90° angle	Rp ½"	Ø28	0,5	8	7,0
1000	90° angle	Rp ½"	Ø28	0,5	8	7,4
1500	90° angle	Rp ½"	Ø28	0,8	11	8,6

Table 7: * Pressure loss corresponds with VdS specifications

Flexible sprinkler hoses suitable for XPress Sprinkler; flexible, simple, secure and cost saving.

4 Applications

4.1 Fixed sprinkler systems



Figure 14a: Sprinkler installation XPress Sprinkler

Fixed sprinkler systems are permanently installed fire suppression and fire protection systems, which independently detect and report a fire and automatically start the suppression process. The installation of the XPress Sprinkler system in sprinkler systems is carried out in accordance with appropriate guidelines (e.g. VdS-CEA 4001, EN 12845, ANSI/NFPA 13 "Installation of Sprinkler Systems", ANSI/NFPA 14 "Installation of Standpipe and Hose Systems" or ANSI/NFPA 15 "Water Spray Fixed Systems for Fire Protection). Depending on the material installed (stainless or galvanized steel) and the applicable approval, the system can either be used in wet or dry fixed sprinkler systems. XPress Sprinkler Galvanized is only suitable for use in fixed wet sprinkler systems, where XPress Sprinkler Stainless can be used in both wet and dry fixed sprinkler systems depending on the approval.

With different approvals under which the XPress Sprinkler system is installed, also different hazard classes may apply. For more detailed information on applicable hazard classes, please contact your XPress representative, or VSH Fittings directly.

When the XPress Sprinkler system is used, it should also be ensured that no loads can fall onto the tube network under normal conditions or in the case of a fire; for example ventilation ducts and cable trays should not be installed above the sprinkler tubes. If due to building constraints loads could fall onto the tube network this can be solved by securing the sprinkler tube on both sides of the load with sprinkler certified components.



Figure 14b: Loads above the sprinkler installation

4.2 Pipe supports

Pipe supports shall be fixed directly to the building or, if necessary, to machines, storage racks or other structures. They shall not be used to support any other installations. They shall be of the adjustable type in order to secure an even load-bearing capability. Supports shall completely surround the pipe and shall not be welded to the pipe or fittings.

Distribution pipes and risers shall have a suitable number of fixed points to take account of axial forces. No part of any support shall be made of combustible material. Nails shall not be used. Supports for stainless steel pipes shall be provided with a suitable lining with sufficient electrical resistance, in order to prevent contact corrosion (for example steel Munsen ring and/or clip with an elastomeric or fabric material).

Make sure to use the appropriate hangers for sprinkler applications which are also suitable for the outside diameters of XPress Sprinkler and that no hangers are mounted on the fittings. Where a reducer is installed, a pipe hanger shall be used adjacent to the reducer on the larger pipe.

Depending on your type of system and the approval which applies to your fixed sprinkler system, different maximum fastener distances apply. In VdS sprinkler applications the fastener distances for steel press systems are based on the values used for copper tube, where FM and LPCB have specific fastener distances prescribed for XPress. Always follow the valid local guidelines and please make sure to follow these fastener distances correctly. Make sure to use the appropriate hangers for sprinkler applications which are also suitable for the outside diameters and used material of XPress Sprinkler and that no hangers are mounted on the fittings.

DN	Outside ø (mm)	Maximum fastener distances (m)			
		CEA 4001 (VdS)	FM/UL/cUL	LPCB	DIN 1988-2
20	22	2,00	3,66	2,50	2,00
25	28	2,00	3,66	2,50	2,25
32	35	2,00	3,66	3,50	2,75
40	42	2,00	3,66	3,50	3,00
50	54	2,00	3,66	3,50	3,50
65	76,1	2,00	3,66	-	4,25
80	88,9	2,00	3,66	-	4,75
100	108	2,00	3,66	-	5,00

Table 8: Fastener distances for XPress sprinkler tubes

Additional requirements for spacing and location of supports for XPress Sprinkler are:

- There shall be at least one support within 1 m of each joint;
- There shall be at least one support on each pipe section.
- The distance from any terminal sprinkler to a support shall not exceed
 - 0,9 m for DN25/28 mm diameter piping;
 - 1,2 m for piping greater than DN25/28 mm diameter.
- The distance from any upright sprinkler to a support shall not be less than 0,15 m.
- Vertical pipes shall have additional supports in the following cases:
 - pipes more than 2 m long;
 - pipes more than 1 m long feeding single sprinklers.
- Pipes that are at a low level or otherwise vulnerable to mechanical impact shall be separately supported except for the following cases:
 - horizontal pipes less than 0,45 m long feeding individual sprinklers;
 - drop or rise pipes less than 0,6 m long feeding individual sprinklers



4.3 Corrosive environment

XPress Sprinkler stainless is the preferred solution when looking to sprinkler installations which are installed in an aggressive environment such as for example paper factories or where high standards apply on hygiene such as pharma and food and beverage. Combined with the ship building approvals Germanischer Lloyd, RINA, Lloyd's Register, Bureau Veritas and Det Norske Veritas, XPress Sprinkler stainless is also a very suitable solution for sprinkler installations on ships.



5 Technical data and installation instructions

5.1 O-ring

The XPress Sprinkler fittings are supplied with an EPDM Leak Before Pressed O-ring in the dimensions DN20-DN50 (22-54 mm) with the following data:

Technical data of the XPress LBP EPDM O-ring	
Material	EPDM
Colour	black
Coating	Silicone-free
Min./max. temperature (°C)	-35°C up to +135°C
Max. short-term operating temperature (°C)	150°C
Max. operating pressure (bar)	16 bar (refer to table 20 for applicable dimensions)
Fields of operation	Wet and dry tube sprinkler systems

Table 9: Dimensions and technical data for the XPress LBP EPDM O-ring

For the dimensions DN65-DN100 (76,1-108mm) all fittings are supplied with a standard EPDM O-ring:

Technical data of the XPress EPDM O-ring	
Material	EPDM
Colour	black
Coating	Silicone-free
Min./max. temperature (°C)	-35°C until +135°C
Max. short-term operating temperature (°C)	150°C
Max. operating pressure (bar)	16 bar (refer to table 20 for applicable dimensions)
Fields of operation	Wet and dry tube sprinkler systems

Table 10: Technical data XPress EPDM O-ring

5.2 XPress Sprinkler Tube

5.2.1 Dimensions

Dimensions of XPress Sprinkler Galvanized tube						
Model	DN	Outside ø (mm)	Wall thickness (mm)	Wall thickness tolerance (mm)	Weight (kg)	Capacity (l/m)
XC22	20	22	1,5	± 0,15	0,761	0,284
XC28	25	28	1,5	± 0,15	0,980	0,491
XC35	32	35	1,5	± 0,15	1,241	0,804
XC42	40	42	1,5	± 0,15	1,542	1,195
XC54	50	54	1,5	± 0,15	1,999	2,043
XC76	65	76,1	2,0	± 0,20	3,503	4,083
XC89	80	88,9	2,0	± 0,20	4,412	5,661
XC108	100	108	2,0	± 0,20	5,382	8,495

Table 11: Dimensions of XPress Sprinkler Galvanized tube

Dimensions of XPress Sprinkler Stainless tube						
Model	DN	Outside ø (mm)	Wall thickness (mm)	Wall thickness tolerance (mm)	Weight (kg)	Capacity (l/m)
XS22	20	22	1,2	± 0,10	0,624	0,302
XS28	25	28	1,2	± 0,10	0,790	0,515
XS35	32	35	1,5	± 0,10	1,240	0,804
XS42	40	42	1,5	± 0,10	1,503	1,195
XS54	50	54	1,5	± 0,10	1,972	2,043
XS76	65	76,1	2,0	± 0,15	3,550	4,548
XS89	80	88,9	2,0	± 0,15	4,150	5,661
XS108	100	108	2,0	± 0,15	5,050	8,495

Table 12: Dimensions of XPress Sprinkler Stainless tube

The model designation, which is marked on the product, identifies the manufacturer, tube type, size and wall thickness of the pipe and is identified by the product code as follows:

- X: XPress
- C: Galvanized tube
- S: Stainless steel tube
- 22/28/35/42/54/76/89/108: outside diameter, wall thickness and nominal size according to table 11 and 12

5.2.2 Material specifications

Material specifications of XPress Sprinkler Galvanized tube	
Material	Unalloyed ULC ('Ultra Light Carbon') C-steel, E190 part no. 1.0031 according EN 10305-3
Specifications	EN10305-3
Approvals	VdS, FM, FG, CNBOP, SBSC, LPCB, SETSCO, UL, cUL
Type of tubing	HF welded
Welding deterioration reduction	100% EDDY CURRENT tested according to SEP 1925
Weld slag removal	Outside weld flat, insight raising max. 0,5 mm, for dimensions >54 mm 0,8 mm
Tolerances	According to EN10305-3
Finishing	Zinc coating of at least 20µm according steel grade ZNT275. The tube welding seam is subsequently galvanized on the outside.
Surface finish	Silver-coloured
Marking	XPress Sprinkler galvanized DN[]/[size x wall thickness] LPCB VdS G4080007 [working pressure VdS] bar <FM> [working pressure FM] psi C(UL)US Listed 4NB1 [working pressure UL] psi CRR UL [CRR UL] CRR cUL [CRR cUL] DNV GL NDE [batch number or production date] [supplier code] [max. every 60 cm the model designation repeated]
Smallest bending radius	3,5 x external diameter of the tube (max. 28 mm)
Supply mode	Tubes, length of 6 m +0/-50 mm, with protective caps
Heat expansion coefficient	0,0108 mm/m with ΔT= 1K
Max. operating pressure	16 bar

Table 13: Technical data of the XPress Sprinkler Galvanized tube

Material specifications of XPress Sprinkler Stainless tube			
	1.4401	1.4521	1.4520
Material	X5CrNiMo 17 12 2 Material no. 1.4401 according to DIN-EN 10088-2	X2CrMoTi 18 2 Material no. 1.4521 according to DIN-EN 10088-2	X2CrTi17 Material no. 1.4520 according to DIN-EN 10088-2
Specifications	EN 10312 – DVGW worksheet GW541 (2004) Table 2	EN 10312 – DVGW worksheet GW541 (2004) Table 2	EN 10296-2
Approvals	DVGW, SVGW, ETA, ÖVGW, BYGGFORSK, STF, PZH, SITAC, CSTBat, WRAS, VdS, FM, FG, CNBOP, SBSC, SETSCO, LPCB, DNV, GL, LR, UL, cUL	DVGW, SVGW, ETA, FM, ÖVGW, FG, LPCB, DNV, GL, LR, UL, cUL	FM, FG, LPCB, UL, cUL
Type of tubing	TIG or laser welded	Laser welded	Laser welded
Welding deterioration reduction	100% EDDY CURRENT tested according to SEP 1914/ EN 10246-2	100% EDDY CURRENT tested according to SEP 1914/ EN 10246-2	100% EDDY CURRENT tested according to SEP 1914/ EN 10246-2
Weld slag removal	Outside	Outside	Outside
Tolerances	According to EN 10312 table 2	According to EN 10312 table 2	According to EN 10296-2
Finishing	Annealed under a protective atmosphere W2R	Annealed under a protective atmosphere W2R	Annealed under a protective atmosphere W2R
Surface finish	Matt silver-coloured	Matt silver-coloured	Matt silver-coloured
Marking	XPress stainless DN[]/[size x wall thickness] mm, Stainless steel/Edelstahl – Sanitary/Sanitär – GAS 1.4401/AISI316 W2R EN10312 DVGW GW541 Reg.nr. DW-7301BM5610 SVGW ÖVGW W1.397 WRAS ETA BYGGFORSK STF PZH SITAC 0168/04 CSTBat 116-1482 LPCB VdS G4080037 [working pressure VdS] bar <FM> [working pressure FM] psi C(UL)US Listed 4NB1 [working pressure UL] psi DNV GL NDE KELIT [batch number or production date] [supplier code] [max. every 60 cm the model designation repeated]	XPress stainless DN[]/[size x wall thickness] mm Edelstahl/Stainless steel 1.4521/AISI444 W2R EN10312 DVGW GW541 Reg.nr. DW-7301BP5610 SVGW ÖVGW ETA LPCB <FM> [working pressure FM] psi C(UL)US Listed 4NB1 [working pressure UL] psi DNV GL NDE KELIT Tectite 316 [batch number or production date] [supplier code] [max. every 60 cm the model designation repeated]	XPress stainless DN[]/[size x wall thickness] mm Stainless steel/Edelstahl 1.4520/AISI439 Heating/Compressed air - Heizung/Druckluft LPCB <FM> [working pressure FM] psi C(UL)US Listed 4NB1 [working pressure UL] psi NDE [batch number or production date] [supplier code] [max. every 60 cm the model designation repeated]
Smallest bending radius	3,5 x external diameter of the tube (max. 28 mm)	3,5 x external diameter of the tube (max. 28 mm)	3,5 x external diameter of the tube (max. 28 mm)
Supply mode	Tubes, length of 6 m +0/-50 mm, with protective caps	Tubes, length of 6 m +0/-50 mm, with protective caps	Tubes, length of 6 m +0/-50 mm, with protective caps
Heat expansion coefficient	0,0160 mm/m with ΔT= 1K	0,0104 mm/m with ΔT= 1K	0,0104 mm/m with ΔT= 1K
Max. operating pressure	16 bar	16 bar	16 bar

Table 14: Technical data of the XPress Sprinkler Stainless tube (1.4401/1.4520/1.4521)

5.3 Threaded connections

The XPress Sprinkler product range also comprises articles with internal and external thread for connection with other threaded parts of a tube network (for example sprinklers, valves, mountings). Internal and external threads are produced in accordance with DIN 2999/ISO 7/1.

PTFE may be used as sealing material for the galvanized steel threads. Only industry standard chloride free sealants should be used to seal the thread connections in the case of stainless steel fittings. PTFE thread sealing band cannot be used in conjunction with stainless steel due to water-soluble chloride ions contained therein. For threaded connections we recommend that the pressed connections are not be subjected to a load.

5.4 XPress flexible hoses technical data

Technical data XPress flexible hoses	
Sprinkler hose	Type RS 339L92, DN20/DN25, flexible design with braiding, completely made of stainless steel, welded fittings
Sprinkler connection (straight)	Stainless steel bend pipe thread as per DIN EN 10226 (ISO 7/1), Rp½" (SW 27). Scaling for simple vertical alignment. Application when space is limited. Installation height (x) only 170 mm above lower edge of suspended ceiling
Sprinkler connection (90° design)	Stainless steel bend pipe thread as per DIN EN 10226 (ISO 7/1), Rp½" (SW 27). Scaling for simple vertical alignment. Application when space is limited. Installation height (x) only 170 mm above lower edge of suspended ceiling
Connection to water supply	Stainless steel straight pipe end with diameter of 22 or 28 mm to be connected with XPress Sprinkler fittings
Nominal length	800, 1000, 1500 and 2000 mm
Max. operating pressure	16 bar, 100% leak tightness tested

Table 15: Technical data flexible hoses

5.5 Installation instructions

Making a press joint is very easy, especially due to the light weight of fittings and tube and the machine controlled process which is taking place during the jointing of tube and fitting. To always ensure an optimal joint between tube and fitting it is mandatory to follow up the installation instructions which are illustrated below, and which are also supplied on each bag of fittings.

5.5.1 Transport and storage

During transport and storage of XPress Sprinkler tubes and press fittings it is important to avoid damage and soiling. The best storage temperature for fittings and tubes is between 10°C and 25°C and they should be stored in a dry area (maximum humidity 65%). The storage of tubes should be horizontal, separated by wooden blocks. Don't stack the bundles too high to prevent tubes from getting oval (the maximum height should not exceed 6 bundles, when stacking stack in 2x2/3x3, etc.). Please make sure not to mix tube materials (carbon and stainless steel) in storage.

5.5.2 Cutting the tube to size

After the measurements have been taken, the XPress Sprinkler tube can be cut to size with a tube cutter, a fine-toothed handsaw or a mechanical saw with motor suitable for the tube material.

The tube should always be cut completely. Never partially cut the tube and then break it (this could cause corrosion).

Do not use oil cooled saws, abrasive wheels or flame cutting.

5.5.3 Deburring the tube

The tube ends should be carefully deburred on the internally and externally after cutting to length to prevent damages to the O-ring when the tube is inserted into the press fitting. Deburring can be carried out both inside and outside using either a manual or an electric deburring tool. Burrs sticking to the tube must be removed.

5.5.4 Insertion depth marking

Mark the insertion depth on the tube in order to guarantee a safe and proper joint with a suitable marking tool as supplied by VSH. Reliable pressing with the corresponding tensile strengths can only be achieved by a proper installation. The pressing operation behind the crimp is of crucial importance for the tensile strength. The marking on the tube must remain visible (but close to the fitting) after the joint is pressed to identify any movement before or after pressing.



5.5.5 Check the fitting and tube

Before assembly, the fitting must be checked to ensure the correct position and presence of the O-rings. The tube, fitting and O-ring should be examined for foreign material (e.g. dirt, burrs), which should be removed if present.

5.5.6 Assembly of fitting and tube

Insert the tube into the press fitting up to the marked insertion depth while being rotated slightly and pushed in an axial direction at the same time. The marking for the insertion depth must still be 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 press fitting may result in damage to the O-ring and is therefore not permitted. When assembly is more difficult due to permitted tolerances in sizes, a lubricant as water or soap may be used, but never use oil or grease.



Under no circumstances should oils or grease be used as lubricants

For practical reasons and in order to optimize the installation time, it is standard procedure to establish a certain number of joints first before pressing the different joints one after the other.

This makes it important to mark the insertion depth as described under 5.5.4

Before the final pressing operation is carried out for the different tube connections, always check the minimum clearances which are listed in table 16.

5.5.7 Pressing

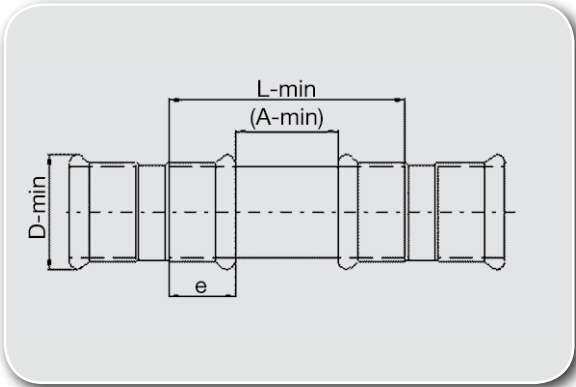
Before starting to press, the press jaws and slings must be checked for dirt, which must be removed if present. Furthermore, it must be ensured that the press machine is in good condition and that the instructions for operating the device, maintenance and the manufacturers' instructions have been followed. Also make sure that you use the correct press jaws and slings for the XPress Sprinkler application. In order to create a proper pressed joint, the groove of the press tool must enclose the press fitting O-ring bead. Once the pressing has started, always complete the press cycle and under no circumstances interrupt the process.

It is not allowed to press a fitting twice or more



5.6 Minimum distance between fittings

The XPress fittings are all equipped with the M-profile. To ensure a proper mounting of the press jaws and slings there should always be a minimum clearance available between the fittings. Before the final pressing operation is carried out for the different tube connections, the minimum clearances must be checked (see table 16).



5.7 Available space needed for press tool

Using a press tool including the press jaws and slings can be limited due to the available space for the press tool. To make sure that there is enough space available for the press tool, please make sure to follow the minimum distances in the table below. Table 17 lists the important minimum distances and the space requirement for an installation in order to guarantee correct processing.

Insertion depth				Minimum distance between 2 pressings		Minimum tube length required	
DN	Outside ø (mm)	e (mm)		A-min (mm)		2 x e + A-min (mm) L-min	
		C-steel	St. steel	C-steel	St. steel	C-steel	St. steel
20	22	21	21	10	10	52	52
25	28	23	23	10	10	56	56
32	35	26	26	10	10	62	62
40	42	30	30	20	20	80	80
50	54	35	35	20	20	90	90
65	76,1	55	55	40	40	165	165
80	88,9	63	63	50	50	186	186
100	108	77	77	50	50	234	234

Table 16: Minimum distance between pressings

The sizes refer to the general installation geometries and are shown schematically in illustrations 15, 16 and 17.

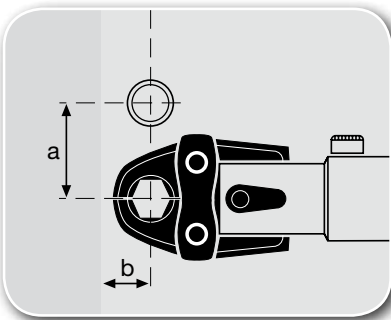


Figure 15

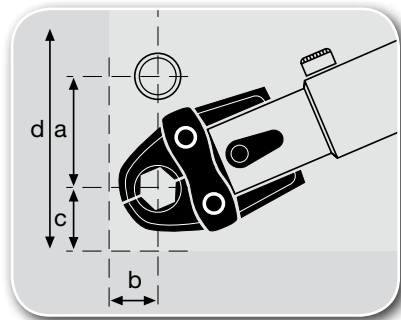


Figure 16

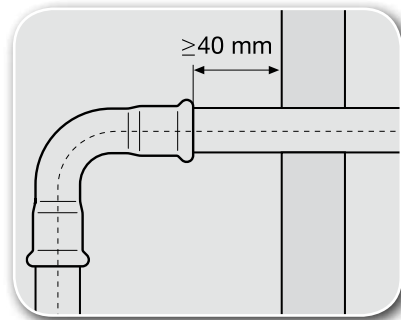


Figure 17

Figure 15				Figure 16				Figure 17
DN	Outside ø (mm)	a	b	a	b	c	d	Tube depth (mm)
20	22	65	25	80	31	35	150	40
25	28	75	25	80	31	35	150	60
32	35*	115	75	115	75	75	265	70
40	42*	120	75	115	75	75	265	70
50	54*	200	85	120	85	85	290	70
65	76,1*	250	170	200	170	190	390	80
80	88,9*	250	170	250	170	210	460	90
100	108*	250	170	250	170	210	460	100

Table 17: Space needed for installation (* press slings)

5.8 Bending

Depending on the system, it may be necessary to bend the tube during installation. For this, commercially available manual, hydraulic or electric bending tools with the corresponding bending segments are used. The suitability of the bending tool is defined by the manufacturer. XPress Sprinkler tubes for sprinkler installations are cold pliable in the sizes 22 and 28 mm.

The minimum bending radius is as follows:

Galvanized and stainless steel tube	$r_{min} = 3,5 \times d$ (max. 28 mm)
XPress flexible hoses	22 mm = 70 mm
	28 mm = 85 mm

Due to the danger of corrosion the tube must not be bent when it is warm

5.9 General instructions for use

5.9.1 Flushing the network

After completion of the installation work the entire sprinkler system has to be thoroughly rinsed through with potable water. Flushing of the system is necessary in order to guarantee that it is working correctly and to prevent contamination within the system. After the system has been rinsed through it has to be drained off. The sprinklers then have to be attached after the removal of all the materials required for flushing the network.

5.9.2 Filling and bleeding the tube network

After flushing of the tube network has been carried out, the network should be filled with potable water and completely bled.

5.9.3 Pressure testing

The tubes belonging to the sprinkler system must be subjected to a pressure test according to valid guidelines, for example CEA 4001, no. 17.1.1. (VdS). In general testing should last at least two hours at a the test pressure (measured at the alarm valves) corresponding to 1,5 times the maximum operating pressure - but at least 15 bar - must be maintained. The pressure loss, for example due to temperature changes, should be monitored for 24 h. Dry sprinkler systems shall also be tested pneumatically to a pressure of not less than 2,5 bars for not less than 24 hours. Every leakage which occurs and results in a pressure drop of more than 0,15 bar for the 24 h, shall be corrected. Any faults disclosed, such as permanent deformations, ruptures or leakages shall be corrected, and the pressure test must be repeated.

5.9.4 Flow loss

Every fluid that flows through a tubing system experiences continuous and local flow resistances that are apparent from the pressure drop in the system. There is a difference between the continuous and the local pressure drop. The continuous pressure drop is mainly caused by the flow resistance in straight tube sections, which in turn essentially results from the friction between the fluid and the tube wall. Local pressure drops, on the contrary, are those flow resistances that are caused by turbulence, for instance where there is a change of internal tube diameter, a tube branch, in an elbow, etc.

5.9.5 Continuous pressure drop

To calculate the total pressure drop resulting from the flow of fluids in a straight section of the tubing system, first determine the pressure drop over a unit of length and then multiply the total length with 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]
- di = mean internal diameter of the tube [mm]
- C = constant for type and condition of the tube
= 140 for XPress Sprinkler tube

The pressure loss due to velocity may be ignored.

5.9.6 Local pressure drops

Local pressure drop is, as mentioned in the introduction 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. There are in general two possibilities to calculate these flow resistances: the direct analytical method and the method using equivalent lengths.

Equivalent length method

This is a calculation method that solves the calculation problem as a function of a particular local resistance and gives the equivalent length of a straight piece of tube with the same diameter that would have the same pressure drop. In order to use this method of calculation all length-equivalent values for each fitting type in table 18 are to be added to the actual length of the supply network. The total calculation of the equivalent length is multiplied by continuous pressure drop [bar/m]. This will show the overall resistance in the circuit. This method is not as accurate as the direct analytical method but has the advantage that the calculation can be carried out faster.








OD	DN	ζ Direct analytical method / equivalent length (m)													
															
		ζ	(m)	ζ	(m)	ζ	(m)	ζ	(m)	ζ	(m)	ζ	(m)	ζ	(m)
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	-	-	-	-

Table 18: Table of localized flow loss values and equivalent meters

Direct analytical method

The local pressure drop can be calculated with the following mathematical equation:

$$\Delta p_L = \sum \zeta \times v^2 \times \gamma / 2 \times 10^{-5} \text{ [bar]}$$

- v = flow velocity of the fluid [m/s]
- γ = specific density of the fluid [kg/m³]
- ζ = local flow resistance coefficient

Table 18 gives the [ζ] values for every type of fitting. We can assume that [ζ] is velocity independent for those velocities that occur in domestic installations or in other normal applications; this is supported by the fact that the change of [ζ] as a function of the Reynolds number in these velocity ranges is only minimal. Once the [ζ] value is known, one can read off directly the corresponding local pressure drop.

6 Certificates and approvals

6.1 Design of sprinkler systems

Sprinkler systems must be designed and installed in accordance with guideline CEA 4001 (VdS), EN12845, NFPA13 and/or local regulations. Here the following steps must be carried out.

- Planning
- Installation
- Maintenance

All of the bodies involved in the acceptance test for the system must be included in the entire process from project planning to the acceptance test itself. Depending on the approvals, different working pressures apply. Please check the table below for the applicable pressures when installing under VdS, FM, UL, cUL or LPCB.

Working pressures XPress Sprinkler									
DN	Outside ø (mm)	VdS		FM		UL		LPCB	
		Wet (galv.)	Wet and dry (stainless)	Wet (galv.)	Wet and dry (stainless)	Wet (galv.)	Wet and dry (stainless)	Wet (galv.)	Wet (stainless)
20	22	16 bar	16 bar	175 psi	175 psi	175 psi	175 psi	16 bar	16 bar
25	28	16 bar	16 bar	175 psi	175 psi	175 psi	175 psi	16 bar	16 bar
32	35	16 bar	16 bar	175 psi	175 psi	175 psi	175 psi	16 bar	16 bar
40	42	16 bar	16 bar	175 psi	175 psi	175 psi	175 psi	16 bar	16 bar
50	54	16 bar	16 bar	175 psi	175 psi	175 psi	175 psi	16 bar	16 bar
65	76,1	12,5 bar	16 bar	-	175 psi	175 psi	175 psi	-	-
80	88,9	10 bar	12,5 bar	-	175 psi	175 psi	175 psi	-	-
100	108	10 bar	10 bar	-	175 psi	-	175 psi	-	-

Table 20: Working pressures XPress Sprinkler

6.2 VdS certificate

VdS is a system approval, meaning that the approval is only valid when all components are combined:

- XPress Sprinkler fitting
- XPress Sprinkler tube
- XPress tools



The XPress Sprinkler system has been tested and certified in accordance with the VdS guidelines for both the galvanized and stainless steel system for use in fixed sprinkler systems behind the alarm valve. These guidelines refer to the XPress Sprinkler system with a working pressure of as stated in table 20 in the dimensions DN20 up to DN100 (22-108 mm), for all products within in the XPress Sprinkler range.

The use is limited to the connection of the system components among each other. The connection of other non-system components is only admissable via detachable metal connections. It is not allowed to insert additives in the extinguishing water. Exceptions are anticorrosive agents according to the manufacturer release and previous agreement with VdS Schadenverhütung. The admissable hanger spacings for copper pipes according to VdS CEA4001 do apply (see chapter 4.2).

6.2.1 XPress Sprinkler Galvanized VdS (G4080007)

The XPress Sprinkler Galvanized system may be used in fixed wet sprinkler systems in the hazard classes LH up to partially OH4 (exhibition halls, theaters, concert halls, movie theaters). The approval applies to the dimensional range with a diameter DN20 up to DN100 (22-108 mm) with a maximum operating pressure as mentioned in table 20. XPress Sprinkler Galvanized fittings are made of zinc-plated unalloyed steel, combined with a carbon-steel tube produced specifically for the XPress Sprinkler Galvanized system which inner and outer surface is galvanized (Sendzimir tube). The application is limited to installations behind the alarm valve in branch and distribution lines and should be inspected regularly on corrosion.

6.2.2 XPress Sprinkler Stainless VdS (G40800037)

The XPress Sprinkler stainless system may be used in fixed wet and dry sprinkler systems in the hazard classes LH up to partially OH4 (exhibition halls, theaters, concert halls, movie theaters). The approval applies to the dimensional range with a diameter DN20 to DN100 (22-108 mm) with an operating pressure as stated in table 20. The XPress Stainless fittings are made of 1.4404 (AISI 316L) stainless steel, the tubes are made of 1.4401 (AISI 316) stainless steel. The application is limited to installation behind the alarm valve.

6.2.3 Assembly and installation of VdS approved sprinkler installations

The assembly and installation of the XPress Sprinkler system may only be performed by trained technical personnel who are qualified to work on sprinkler systems, For example, the guideline CEA 4001 (VdS) contains the requirements for the assembly of a fixed sprinkler system. The company performing the installation must comply at all times with the guidelines.

6.3 <FM> certificate

6.3.1 XPress Sprinkler Galvanized <FM>

The XPress Sprinkler Galvanized system has a FM certification for fittings and tubes according the FM approval standards 1630 and 1920 for the application in wet sprinkler systems with a maximum pressure of 175 psi (12,1 bar). The approval refers to the XPress Sprinkler system in the dimensions DN20 to DN50 (22-54 mm). According FM the system is certified for using XPress Galvanized Sendzimir tubes. No limitations on hazard classes apply, when using XPress Sprinkler Galvanized, when installing according to FM standards.



6.3.2 XPress Sprinkler Stainless <FM>

The XPress Sprinkler Stainless system has a FM certification for fittings and tubes according FM approval standard 1630 and 1920 for application in wet and dry sprinkler system with a maximum pressure of 175 psi (12,1 bar). The approval refers to the XPress Sprinkler system in the dimensions DN20 to DN100 (22-108 mm). According FM the system is certified for using XPress stainless steel tubes with material code 1.4401 (AISI 316), 1.4520 (AISI 439) and 1.4521 (AISI 444). No limitations on hazard classes apply when using XPress Sprinkler stainless and installing according to FM standards.

6.3.3 Assembly and Installation of approved sprinkler installations

The assembly and installation of the XPress Sprinkler system may only be performed by trained technical personnel who are qualified to work on sprinkler systems. When making a transition from traditional thick wall tubes to the XPress Sprinkler system in the dimensions DN20 to DN100 (22-108 mm), it is mandatory to use a transition from press to grooved coupling (product group C 1442 and R 2748).

DN	Outside ø (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



Table 21: Minimum insertion depth transition coupling

When installing the transition coupling from press to grooved, always make sure to use the complete insertion depth.

6.4 LPCB certificate

The XPress Sprinkler system has been tested and certified in accordance with the LPCB guidelines (TS1599 draft 5) for both the galvanized and stainless steel system for use in fixed sprinkler systems for above ground applications. These guidelines refer to the XPress Sprinkler system with a working pressure as stated in table 20 in the dimensions DN20 up to DN50 (22-54 mm). Except where correct fittings are used to connect the system to other ISO65 or EN10255 medium weight piping systems, XPress system components shall not be used in conjunction with other press piping systems. The connection of other non-system components is only admissible via detachable metal connections. It is not allowed to insert additives or anticorrosive agents in the extinguishing water unless previously released by VSH Fittings. Painting of the installation is allowed as long as the painting is done after installation and the paint used is water based. For XPress Sprinkler installations according to LPCB allowed hazard classes range from LH up to OH3.



6.4.1 XPress Sprinkler Galvanized LPCB

The XPress Sprinkler Galvanized system has a LPCB certification for fittings and tubes according the LPCB approval standard TS1599 for the application in wet sprinkler systems with a maximum working pressure of 16 bar. The approval refers to the XPress Sprinkler Galvanized system in the dimensions DN20 to DN50 (22-54 mm). According LPCB the system is certified for using XPress Sprinkler Galvanized Sendzimir tubes. When installing XPress Sprinkler Galvanized to a potable water network, care should be taken to use a WRAS approved water backflow preventer. Installations made by XPress Sprinkler Galvanized should be inspected regularly on corrosion.

6.4.2 XPress Sprinkler Stainless LPCB

The XPress Sprinkler Stainless system has a LPCB certification for fittings and tubes according the LPCB approval standard TS1599 for the application in wet sprinkler systems with a maximum pressure of 16 bar. XPress Sprinkler Stainless is also allowed to be used in embedded installations. The approval refers to the XPress Sprinkler system in the dimensions DN20 to DN50 (22-54 mm). According LPCB the system is certified for using XPress stainless steel tubes with material code 1.4401 (AISI 316), 1.4520 (AISI 439) and 1.4521 (AISI 444). XPress Sprinkler Stainless is WRAS approved (when using the 1.4401 grade tube).

6.4.3 Assembly, installation and maintenance of LPCB approved sprinkler installations

The assembly, installation and maintenance of the XPress Sprinkler system may only be performed by trained technical personnel who are qualified to work on sprinkler systems. For example, the guideline LPC Rules for Automatic Sprinkler installation, incorporating BS EN12845 contains the requirements for the assembly and maintenance of a fixed sprinkler system. The company performing the installation must comply at all times with the guidelines. When installing XPress Sprinkler, the installer must always ensure that adequate (meeting the requirements of the building regulations and LPC Sprinkler Rules) fire stopping is undertaken following the routing of the pipes.

When installing XPress Stainless embedded in concrete, no specific limitations apply on isolation (thermal or acoustic) other than those prescribed in the XPress technical manual. During the installations special care should be taken to ensure the concrete fully surrounds the piping and to avoid any empty spaces between concrete and piping. It is of great importance to use a concrete mixture which doesn't contain chlorides or other substances which could negatively influence the stainless steel.

Pressure testing of the installation has to be done before embedding the pipes and fittings in concrete. Any faults disclosed, such as permanent deformations, ruptures or leakages shall be corrected, and the pressure test must be repeated.

6.5 UL/cUL certificate

The XPress Sprinkler system has been tested and certified in accordance with the UL/cUL guidelines (VIZM/VIZY) for both the galvanized and stainless steel system for use in fixed sprinkler systems for above ground applications. These guidelines refer to the XPress Sprinkler system with a working pressure as stated in table 20 in the dimensions DN20 up to DN80 (22-88,9 mm) for XPress Sprinkler Galvanized and DN20 up to DN100 (22-108 mm) for XPress Sprinkler Stainless. Per NFPA13, steel water distribution piping of DN25 (28 mm) minimum diameter shall be used. Based on this, DN20 (22 mm) is limited to use in trim and drain applications. Fittings are to be UL Listed for use with a maximum ambient temperature of 65,6°C (150°F) and cUL listed for use with a maximum ambient temperature of 48,9°C (120°F). Only the use of battery operated Novopress tools is allowed within the UL/cUL certificate. The use is limited to the connection of the system components among each other. No limitations on hazard classes apply, when using XPress Sprinkler, when installing according to NFPA13. The UL/cUL Listing requires use of a C-factor of 120 for XPress Sprinkler Galvanized pipe.

According to the UL Listings, straight unions and threaded connectors are intended for the sole use of connecting to fire equipment, i.e. backflows, pressure reliefs, drain valves, etc., items typically removed for maintenance or replaced throughout the life of the system. The maximum weight and hanger spacing of these components is found in the table below:

Maximum weight and hanger spacing for straight unions and connectors			
DN	Outside ø (mm)	Max. weight (kg)	Max. support (cm)
20	22	5,4	61
25	28	8,2	61
32	35	8,2	61
40	42	8,2	61
50	54	13,6	61

Table 22: Maximum weight and hanger spacing for straight unions and connectors



According to the UL/cUL Listing, tees with threaded outlets are for the sole use of joining sprinkler heads and flexible drops. Threaded steel pipe shall not be joined to these fittings, with exception to the Tee piece with 2" outlet which have to fulfill the hangers requirements as stated in table 22.

6.5.1 XPress Sprinkler Galvanized UL/cUL

The XPress Sprinkler Galvanized system has a UL/cUL certification for fittings and tubes according the UL/cUL approval standards under the category VIZM/VIZY for the application in wet sprinkler systems with a maximum pressure of 175 psi (12,1 bar). The approval refers to the XPress Sprinkler system in the dimensions DN20 to DN80 (22-88,9 mm). According UL/cUL the system is certified for using XPress Galvanized Sendzimir tubes.

6.5.2 XPress Sprinkler Stainless UL/cUL

The XPress Sprinkler Stainless system has a UL/cUL certification for fittings and tubes according UL/cUL approval standards under the category VIZM/VIZY for application in wet and dry sprinkler system with a maximum pressure of 175 psi (12,1 bar). The approval refers to the XPress Sprinkler system in the dimensions DN20 to DN100 (22-108 mm). According UL/cUL the system is certified for using XPress stainless steel tubes with material code 1.4401 (AISI 316), 1.4520 (AISI 439) and 1.4521 (AISI 444).

6.5.3 Assembly and Installation of UL/cUL approved sprinkler installations

The assembly and installation of the XPress Sprinkler system may only be performed by trained technical personnel who are qualified to work on sprinkler systems. When making a transition from traditional thick wall tubes to the XPress Sprinkler system in the dimensions DN20 to DN100 (22-108 mm), it is mandatory to use a transition from press to a listed grooved coupling (product group C 1442 and R 2748). When installing the transition coupling from press to grooved, always make sure to use the complete insertion depth. as stated in table 21. The installer must verify that the XPress grooved fitting dimensions are within the groove specification for the coupling.

XPress



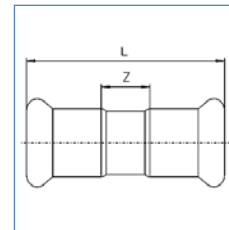
7.1 XPress Sprinkler Galvanized

C 1461 XPress Sprinkler Galvanized tube
(6m length)



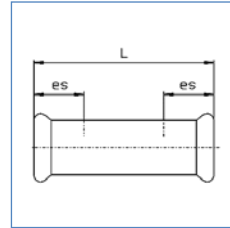
Dimensions	DN	Article no.
22 x 1,5	20	6241114
28 x 1,5	25	6241125
35 x 1,5	32	6241136
42 x 1,5	40	6241147
54 x 1,5	50	6241158
76,1 x 2,0	65	6241378
88,9 x 2,0	80	6241389
108 x 2,0	100	6241391

C 1401 Straight coupling
(2 x press)



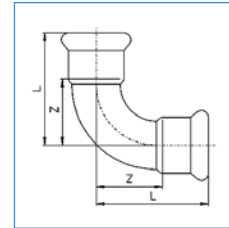
Dimensions	Article no.	L	Z
22 x 22	6201382	55,0	13,0
28 x 28	6201393	59,0	13,0
35 x 35	6201404	65,0	13,0
42 x 42	6201415	76,0	16,0
54 x 54	6201426	86,0	16,0
76,1 x 76,1	6206200	142,0	28,0
88,9 x 88,9	6206211	160,0	34,0
108 x 108	6206222	199,0	41,0

C 1403 Slip coupling
(2 x press)



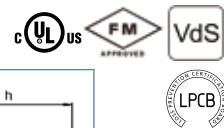
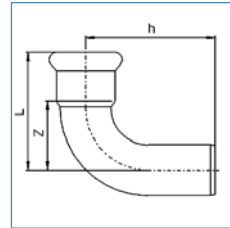
Dimensions	Article no.	L	es
22 x 22	6201461	84,0	25,0
28 x 28	6201470	91,0	30,0
35 x 35	6201481	102,0	30,0
42 x 42	6201492	120,0	40,0
54 x 54	6201503	140,0	40,0
76,1 x 76,1	6206233	230,0	60,0
88,9 x 88,9	6206244	262,0	70,0
108 x 108	6206255	304,0	80,0

C 1408 Elbow 90°
(2 x press)



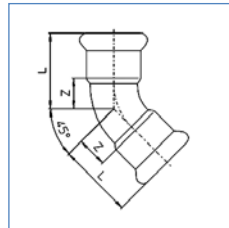
Dimensions	Article no.	L	Z
22 x 22	6201571	51,0	30,0
28 x 28	6201580	60,0	37,0
35 x 35	6201591	71,0	45,0
42 x 42	6201602	86,0	56,0
54 x 54	6201613	105,0	70,0
76,1 x 76,1	6208004	150,0	95,0
88,9 x 88,9	6208048	174,0	111,0
108 x 108	6208059	215,0	139,0

C 1411 Elbow 90°
(press x male)



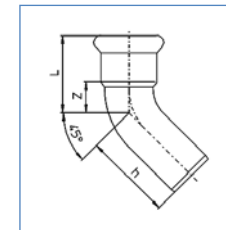
Dimensions	Article no.	L	Z	h
22 x Ø22	6201657	51,0	30,0	58,1
28 x Ø28	6201668	60,0	37,0	65,5
35 x Ø35	6201679	71,0	45,0	75,9
42 x Ø42	6201681	86,0	56,0	92,5
54 x Ø54	6201690	105,0	70,0	110,6
76,1 x 76,1	6208061	149,0	94,0	166,0
88,9 x 88,9	6208070	172,0	109,0	190,0
108 x 108	6208081	198,0	122,0	230,0

C 1413 Elbow 45°
(2 x press)



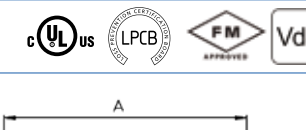
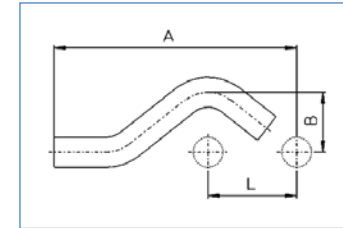
Dimensions	Article no.	L	z
22 x 22	6201723	35,2	14,2
28 x 28	6201734	40,1	17,1
35 x 35	6201745	46,4	20,4
42 x 42	6201756	56,1	26,1
54 x 54	6201767	66,9	31,9
76,1 x 76,1	6208125	98,0	43,0
88,9 x 88,9	6208136	113,0	50,0
108 x 108	6208147	138,0	62,0

C 1412 Elbow 45°
(press x male)



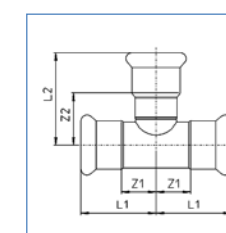
Dimensions	Article no.	L	Z	h
22 x Ø22	6201791	35,2	14,2	42,3
28 x Ø28	6201800	40,1	17,1	45,6
35 x Ø35	6201811	46,4	20,4	51,3
42 x Ø42	6201822	56,1	26,1	62,6
54 x Ø54	6201833	66,9	31,9	72,5
76,1 x 76,1	6208092	96,0	41,0	119,0
88,9 x 88,9	6208103	110,0	47,0	130,0
108 x 108	6208114	137,0	61,0	160,0

C 1417 Crossover
(2 x male)



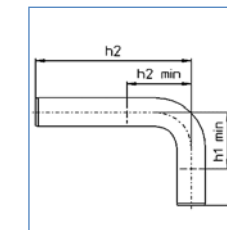
Dimensions	Article no.	L	A	B
Ø22 x Ø22	6201954	64,5	177,0	37,0
Ø28 x Ø28	6201965	75,0	215,0	43,0

C 1414 Tee equal
(3 x press)



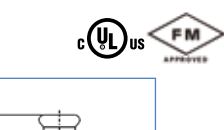
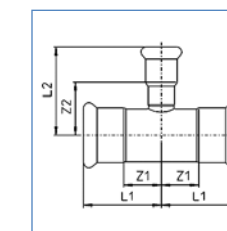
Dimensions	Article no.	L1	Z1	L2	Z2
22 x 22 x 22	6202515	39,5	18,5	48,5	27,5
28 x 28 x 28	6202526	44,5	21,5	53,5	30,5
35 x 35 x 35	6202537	51,0	25,0	60,0	34,0
42 x 42 x 42	6202548	60,0	30,0	66,5	36,5
54 x 54 x 54	6202559	71,0	36,0	77,5	42,5
76,1 x 76,1 x 76,1	6206442	116,0	61,0	121,0	61,0
88,9 x 88,9 x 88,9	6206453	131,0	68,0	126,0	63,0
108 x 108 x 108	6206464	152,0	78,0	152,0	74,0

C 1425 Bend 90°
(2 x male)



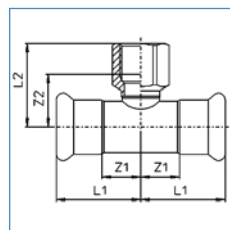
Dimensions	Article no.	h1	h1min	h2	h2min
Ø22 x Ø22	6201877	72,0	70,0	120,0	70,0
Ø28 x Ø28	6201888	82,0	80,0	120,0	80,0
Ø35 x Ø35	6201899	120,0	100,0	200,0	100,0
Ø42 x Ø42	6201901	150,0	120,0	250,0	120,0
Ø54 x Ø54	6201910	200,0	145,0	300,0	145,0

C 1415 Tee reduced
(3 x press)



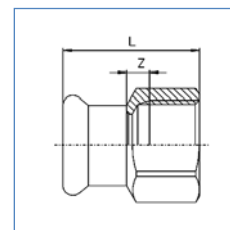
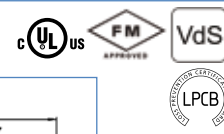
Dimensions	Article no.	L1	Z1	L2	Z2
22 x 28 x 22	6202801	39,5	18,5	52,0	29,0
28 x 22 x 28	6202647	44,5	21,5	51,5	30,5
35 x 22 x 35	6202671	51,0	25,0	55,0	34,0
35 x 28 x 35	6202680	51,0	25,0	57,0	34,0
42 x 22 x 42	6202691	60,0	30,0	57,5	36,5
42 x 28 x 42	6202702	60,0	30,0	59,5	36,5
42 x 35 x 42	6202713	60,0	30,0	62,5	36,5
54 x 22 x 54	6202724	71,0	36,0	63,5	42,5
54 x 28 x 54	6202735	71,0	36,0	65,5	42,5
54 x 35 x 54	6202746	71,0	36,0	68,5	42,5
54 x 42 x 54	6202757	71,0	36,0	72,5	42,5
76,1 x 22 x 76,1	6207047	116,0	61,0	68,0	45,0
76,1 x 28 x 76,1	6207058	116,0	61,0	71,0	47,0
76,1 x 35 x 76,1	6207069	116,0	61,0	75,0	48,0
76,1 x 42 x 76,1	6207071	116,0	61,0	79,0	47,0
76,1 x 54 x 76,1	6206475	116,0	61,0	80,0	43,0
88,9 x 22 x 88,9	6209654	131,0	68,0	76,0	53,0
88,9 x 28 x 88,9	6209665	131,0	68,0	75,5	51,5
88,9 x 35 x 88,9	6209676	131,0	68,0	83,0	56,5
88,9 x 42 x 88,9	6209687	131,0	68,0	85,0	53,0
88,9 x 54 x 88,9	6209698	131,0	68,0	92,5	55,5
88,9 x 76,1 x 88,9	6206486	131,0	68,0	128,0	73,0
108 x 22 x 108	6209711	156,0	78,0	85,0	62,0
108 x 28 x 108	6209720	156,0	78,0	87,5	63,5
108 x 35 x 108	6209731	156,0	78,0	93,5	66,0
108 x 42 x 108	6209742	156,0	78,0	96,0	64,0
108 x 54 x 108	6209753	156,0	78,0	102,0	65,0
108 x 76,1 x 108	6209764	156,0	78,0	125,0	70,0
108 x 88,9 x 108	6206497	156,0	78,0	135,0	72,0

C 1418 Tee threaded
(press x female thread x press)



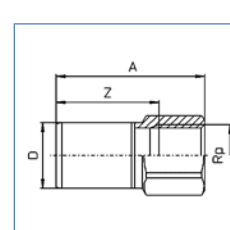
Dimensions	Article no.	L1	Z1	L2	Z2
22 x Rp1/2 x 22	6202834	39,5	18,5	39,0	24,0
22 x Rp3/4 x 22	6206706	39,5	18,5	41,0	24,7
28 x Rp1/2 x 28	6202845	44,5	21,5	42,0	27,0
28 x Rp3/4 x 28	6207181	44,5	21,5	44,0	27,7
28 x Rp1 x 28	6209601	44,5	21,5	46,0	27,5
35 x Rp1/2 x 35	6202856	51,0	25,0	45,5	30,5
35 x Rp3/4 x 35	6207102	51,0	25,0	47,5	31,2
35 x Rp1 x 35	6209610	51,0	25,0	50,0	31,0
42 x Rp1/2 x 42	6202867	60,0	30,0	48,0	33,0
42 x Rp3/4 x 42	6207113	60,0	30,0	50,0	33,7
42 x Rp1 x 42	6209621	60,0	30,0	52,5	33,5
54 x Rp1/2 x 54	6202878	71,0	36,0	54,0	39,0
54 x Rp3/4 x 54	6207124	71,0	36,0	56,0	39,7
54 x Rp1 x 54	6207795	71,0	36,0	60,0	41,0
76,1 x Rp3/4 x 76,1	6206508	116,0	61,0	69,0	52,0
88,9 x Rp3/4 x 88,9	6206519	131,0	68,0	76,0	59,0
108 x Rp3/4 x 108	6206521	156,0	78,0	86,0	69,0

C 1402 Straight connector
(press x female thread)



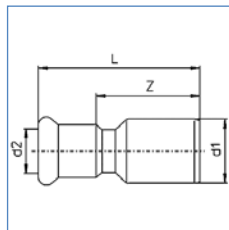
Dimensions	Article no.	L	Z
22 x Rp1/2	6340202	36,5	4,5
22 x Rp3/4	6202405	43,0	5,7
28 x Rp1/2	6207806	38,0	2,0
28 x Rp3/4	6209830	40,5	1,0
28 x Rp1	6202416	49,0	7,0
35 x Rp1/2	6340917	42,0	5,3
35 x Rp3/4	6340928	43,0	5,2
35 x Rp1	6340939	46,0	7,0
35 x Rp1 1/4	6206695	50,0	2,3
42 x Rp1 1/2	6341192	54,0	2,0
54 x Rp2	6341203	63,0	2,0

C 1433 Straight connector
(male x female thread)



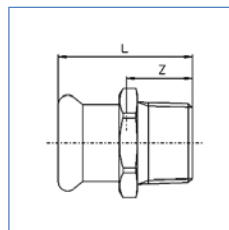
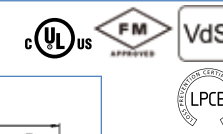
Dimensions	Article no.	A	Z	D
Ø22 x Rp1/2	6202460	50,0	35,0	22,0
Ø22 x Rp3/4	6202471	53,0	36,7	22,0

C 1407 Reducer
(male x press)



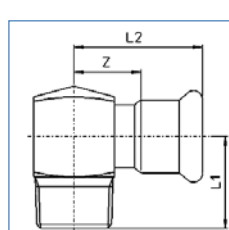
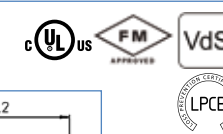
Dimensions	Article no.	L	Z	d1	d2
Ø28 x 22	6202196	63,0	42,0	28,0	22,0
Ø35 x 22	6202207	68,0	47,0	35,0	22,0
Ø35 x 28	6202218	69,0	46,0	35,0	28,0
Ø42 x 22 *	6206651	80,0	59,0	42,0	22,0
Ø42 x 28	6206662	79,0	56,0	42,0	28,0
Ø42 x 35	6202229	76,0	50,0	42,0	35,0
Ø54 x 22 *	6202231	89,0	68,0	54,0	22,0
Ø54 x 28 *	6202240	87,0	64,0	54,0	28,0
Ø54 x 35	6206684	89,0	63,0	54,0	35,0
Ø54 x 42	6202251	91,0	61,0	54,0	42,0
Ø76,1 x 42	6206387	151,0	121,0	76,1	42,0
Ø76,1 x 54	6206398	145,0	109,0	76,1	54,0
Ø88,9 x 54	6206409	157,0	122,0	88,9	54,0
Ø88,9 x 76,1	6206411	157,0	105,0	88,9	76,1
Ø108 x 76,1	6206420	196,0	144,0	108,0	76,1
Ø108 x 88,9	6206431	192,0	133,0	108,0	88,9

C 1405 Straight connector
(press x male thread)



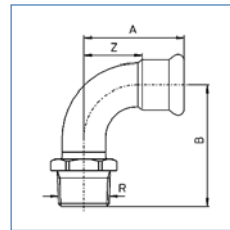
Dimensions	Article no.	L	Z
22 x R1/2	6206717	43,0	22,0
22 x R3/4	6202317	44,0	23,0
22 x R1	6206728	50,0	29,0
28 x R3/4	6209852	46,0	23,0
28 x R1	6202328	48,0	25,0
35 x R1	6341247	52,7	26,7
35 x R1 1/4	6202339	55,0	29,0
42 x R1 1/2	6202341	59,0	29,0
54 x R2	6202350	69,0	34,0
76,1 x R2 1/2 **	6204781	123,0	68,0
88,9 x R3 **	6204792	134,0	71,0

C 1428 Angle adapter 90°
(press x male thread)



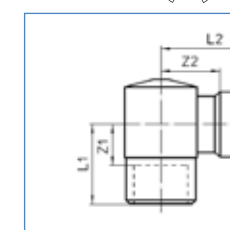
Dimensions	Article no.	L2	Z	L1
Ø22 x Rp1/2	6202460	50,0	35,0	22,0

C 1430 Elbow 90°
(press x male thread)



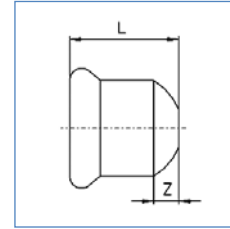
Dimensions	Article no.	B	Z	A
22 x R3/4	6202011	61,5	30,0	51,0
28 x R1	6202020	73,5	37,0	60,0
35 x R1 1/4	6202031	85,5	45,0	71,0
42 x R1 1/2	6202042	95,5	56,0	86,0
54 x R2	6202053	115,5	70,0	105,0

C 1409 Angle adapter 90°
(press x female thread)



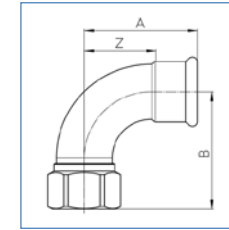
Dimensions	Article no.	L1	L2	Z1	Z2
22 x Rp1/2	6341038	31,0	44,5	16,0	23,0
28 x Rp1/2	6341049	35,0	50,5	20,0	26,7
35 x Rp1/2	6341051	35,0	56,5	20,0	29,4

C 1429 Stop end
(1 x press)



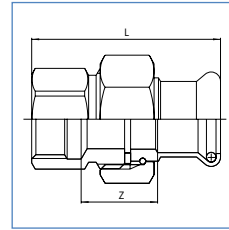
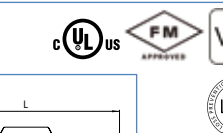
Dimensions	Article no.	L	Z
22	6202977	28,5	7,5
28	6202988	32,3	9,3
35	6202999	34,4	8,4
42	6203001	43,2	13,2
54	6203010	51,8	16,8
76,1	6206915	70,0	15,0
88,9	6206926	87,0	24,0
108	6206937	98,0	21,0

C 1438 Elbow 90°
(press x female thread)



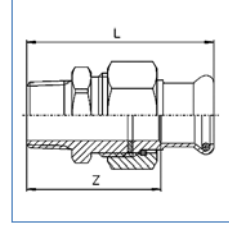
Dimensions	Article no.	B	Z	A
22 x Rp1/2	6209577	59,0	30,0	51,0
22 x Rp3/4	6200964	59,0	30,0	51,0
28 x Rp1/2	6207025	65,0	37,0	60,0
28 x Rp3/4	6200986	65,0	37,0	60,0
28 x Rp1	6209588	69,5	37,0	60,0
35 x Rp1/2	6201063	74,5	45,0	71,0
35 x Rp3/4	6201074	74,5	45,0	71,0
35 x Rp1	6209599	74,5	45,0	71,0

C 1444 Straight union
(press x female thread)



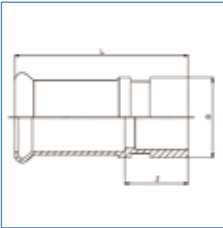
Dimensions	Article no.	L	Z
22 x Rp3/4	6208928	63,0	22,0
28 x Rp1	6208939	65,0	19,0
35 x Rp1 1/4	6208941	75,5	24,5
42 x Rp1 1/2	6208950	82,5	27,5
54 x Rp2	6208961	92,5	28,0

C 1435 Straight union
(press x male thread)



Dimensions	Article no.	L	Z
22 x R3/4	6207201	70,0	49,0
28 x R1	6207212	74,7	51,7
35 x R1 1/4	6207223	81,8	55,8
42 x R1 1/2	6207234	88,0	58,0
54 x R2	6207245	100,0	65,0

C 1442 Transition for grooved couplings
(press x groove)



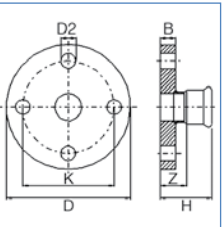
Dimensions	Article no.	L	D	Z
28 x 33,7	6241301	72,5	33,7	26,0
35 x 42,4	6241345	81,0	42,4	26,0
42 x 48,3	6241356	86,0	48,3	26,0
54 x 60,3	6241367	96,5	60,3	26,0
76,1 x 73,1	6341181	91,9	73,0	41,0
76,1 x 76,1	6340774	90,0	76,1	36,0
88,9 x 88,9	6340785	100,0	88,9	36,0
108 x 114	6340796	110,0	114,3	36,0

C 1443 Slip coupling
(press x female thread)



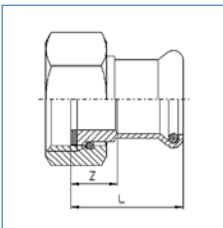
Dimensions	Article no.	A	B	C	ΔL
22 x Rp1/2	6241312	92,0	25,0	15,0	40,0
22 x Rp3/4	6241323	97,0	25,0	16,0	40,0
28 x Rp1/2	6241268	94,0	30,0	15,0	40,0
28 x Rp3/4	6241279	93,0	30,0	16,0	40,0

C 1426 Flanged connector PN 10/16
(press x flange)



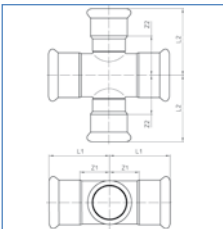
Dim	Article no.	DN	Z	D	D2	H	K	B	holes
35	6341500	32	44,0	140,0	14,0	70,0	100,0	18,0	4
42	6341511	40	47,0	150,0	18,0	77,0	110,0	18,0	4
54	6341522	50	52,0	165,0	18,0	87,0	125,0	18,0	4
76,1	6206596	65	79,0	185,0	18,0	134,0	145,0	18,0	4
88,9	6206607	80	78,0	200,0	18,0	141,0	160,0	20,0	8
108	6206618	100	88,0	220,0	18,0	166,0	180,0	20,0	8

C 1446 Coupling with nut
(press x female thread)



Dimensions	Article no.	L	Z
22 x G1	6340554	32,0	11,0
28 x G1 1/4	6340565	33,0	10,0
35 x G1 1/2	6340576	36,0	10,0
42 x G1 3/4	6340587	43,0	13,0
54 x G2 3/8	6340598	50,0	15,0

C 1447 Crossing
(4 x press)



Dimensions	Article no.	L1	Z1	L2	Z2
35 x 35 x 35 x 35	6340972	51,5	60,0	25,3	33,8
42 x 42 x 42 x 42	6340983	60,7	66,5	30,4	36,3
54 x 54 x 54 x 54	6340994	71,0	77,5	36,0	42,5
35 x 28 x 35 x 28	6341005	51,5	57,0	25,3	33,7
42 x 28 x 42 x 28	6341016	60,7	59,5	30,4	36,2
54 x 28 x 54 x 28	6341027	71,0	65,5	36,0	42,2

C 1451 O-ring leak before pressed
(black, EPDM) for galvanized steel and stainless steel



Dimensions	Article no.
22	6222238
28	6222249
35	6222251
42	6222260
54	6222271



R 2760 O-ring standard
(black, EPDM) for galvanized steel and stainless steel

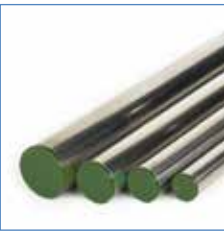


Dimensions	Article no.
76,1	6208015
88,9	6208026
108	6208037



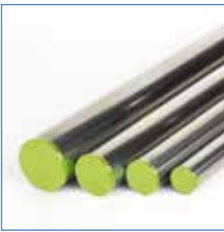
7.2 XPress Sprinkler Stainless

R 2750 Stainless steel tube 1.4401
(6m length)



Dimensions	DN	Article no.
22 x 1,2	20	6117936
28 x 1,2	25	6117947
35 x 1,5	32	6117958
42 x 1,5	40	6117969
54 x 1,5	50	6117971
76,1 x 2,0	65	6117980
88,9 x 2,0	80	6117991
108 x 2,0	100	6118002

R 2752 Stainless steel tube 1.4521
(6m length)



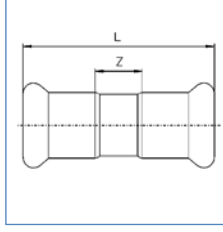
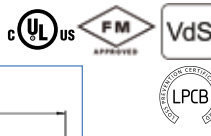
Dimensions	DN	Article no.
22 x 1,2	20	6193121
28 x 1,2	25	6193132
35 x 1,5	32	6193143
42 x 1,5	40	6193154
54 x 1,5	50	6193165

R 2753 Stainless steel tube 1.4520
(6m length)



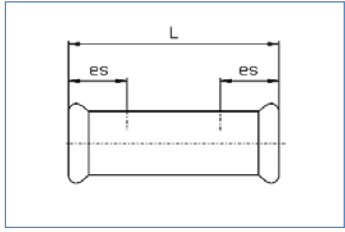
Dimensions	DN	Article no.
22 x 1,2	20	6193022
28 x 1,2	25	6193033
35 x 1,5	32	6193044
42 x 1,5	40	6193055
54 x 1,5	50	6193066

R 2701 Straight coupling
(2 x press)



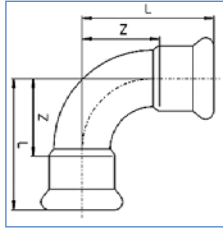
Dimensions	Article no.	L	Z
22 x 22	6190965	52,0	10,0
28 x 28	6190976	56,2	10,2
35 x 35	6190987	62,3	10,3
42 x 42	6190998	73,3	13,3
54 x 54	6191009	83,0	13,0
76,1 x 76,1	6204154	142,0	32,0
88,9 x 88,9	6204165	163,0	37,0
108 x 108	6204176	192,0	38,0

R 2703 Slip coupling
(2 x press)



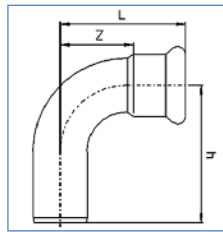
Dimensions	Article no.	L	es
22 x 22	6191306	84,0	21,0
28 x 28	6191317	91,2	23,0
35 x 35	6191328	102,2	26,0
42 x 42	6191339	120,3	30,0
54 x 54	6191341	140,0	35,0
76,1 x 76,1	6204286	230,0	60,0
88,9 x 88,9	6204297	258,0	70,0
108 x 108	6204308	305,0	80,0

R 2708 Elbow 90°
(2 x press)



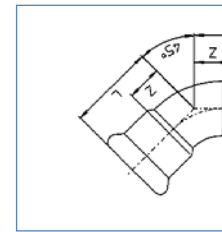
Dimensions	Article no.	L	Z
22 x 22	6190228	51,0	30,0
28 x 28	6190239	60,1	37,1
35 x 35	6190241	71,1	45,1
42 x 42	6190250	86,1	56,1
54 x 54	6190261	105,0	70,0
76,1 x 76,1	6230004	150,0	95,0
88,9 x 88,9	6230015	175,0	112,0
108 x 108	6230026	214,0	137,0

R 2711 Elbow 90°
(press x male)



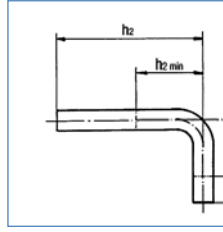
Dimensions	Article no.	L	Z	H
22 x Ø22	6190360	51,0	30,0	60,0
28 x Ø28	6190371	60,1	37,1	65,5
35 x Ø35	6190382	71,1	45,1	75,9
42 x Ø42	6190393	86,1	56,1	92,5
54 x Ø54	6190404	105,0	70,0	110,6
76,1 x Ø76,1	6230037	150,0	95,0	165,0
88,9 x Ø88,9	6230048	174,0	112,0	190,0
108 x Ø108	6230059	216,0	137,0	238,0

R 2713 Elbow 45°
(2 x press)



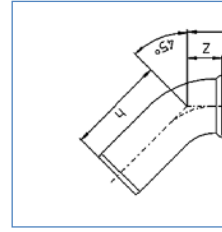
Dimensions	Article no.	L	Z
22 x 22	6190063	35,2	14,2
28 x 28	6190074	40,2	17,2
35 x 35	6190085	46,5	20,5
42 x 42	6190096	56,3	26,3
54 x 54	6190107	66,9	31,9
76,1 x 76,1	6230061	98,0	43,0
88,9 x 88,9	6230070	112,0	49,0
108 x 108	6230081	138,0	61,0

R 2725 Bend 90°
(2 x male)



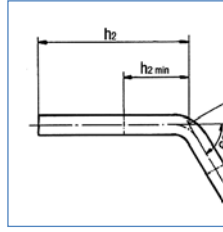
Dim.	Article no.	h2	h2min	h1	h1min
Ø22 x Ø22	6190294	120,0	70,0	72,0	70,0
Ø28 x Ø28	6190305	120,0	80,0	82,0	80,0
Ø35 x Ø35	6190316	200,0	100,0	120,0	100,0
Ø42 x Ø42	6190327	250,0	120,0	150,0	120,0
Ø54 x Ø54	6190338	300,0	145,0	200,0	145,0

R 2712 Elbow 45°
(press x male)



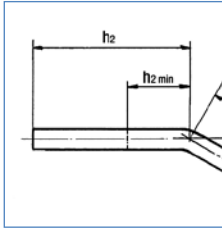
Dimensions	Article no.	L	Z	H
22 x Ø22	6190131	35,2	14,2	42,3
28 x Ø28	6190140	40,2	17,2	45,6
35 x Ø35	6190151	46,5	20,5	51,3
42 x Ø42	6190162	56,3	26,3	62,6
54 x Ø54	6190173	66,9	31,9	72,5
76,1 x Ø76,1	6230092	98,0	43,0	117,0
88,9 x Ø88,9	6230103	112,0	49,0	131,0
108 x Ø108	6230114	138,0	61,0	154,0

R 2724 Bend 60°
(2 x male)



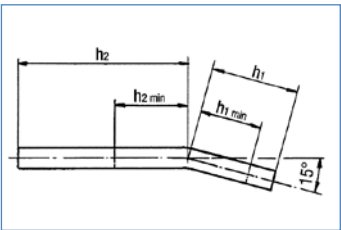
Dim.	Article no.	h2	h2min	h1	h1min
Ø28 x Ø28	6190184	121,0	63,0	63,0	63,0
Ø35 x Ø35	6190195	203,0	77,0	97,0	77,0
Ø42 x Ø42	6191878	256,0	90,0	120,0	90,0
Ø54 x Ø54	6191889	306,0	107,0	162,0	107,0

R 2723 Bend 30°
(2 x male)



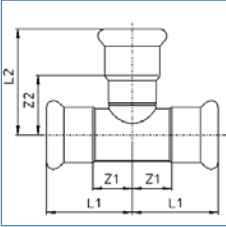
Dim.	Article no.	h2	h2min	h1	h1min
Ø28 x Ø28	6190021	130,0	51,0	51,0	51,0
Ø35 x Ø35	6190030	214,0	60,0	73,0	60,0
Ø42 x Ø42	6191856	272,0	69,0	99,0	69,0
Ø54 x Ø54	6191867	326,0	79,0	134,0	79,0

R 2722 Bend 15°
(2 x male)



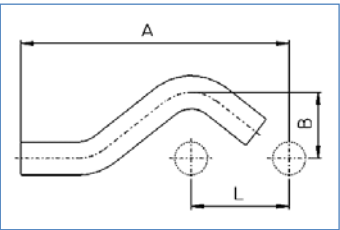
Dimensions	Article no.	h2	h2min	h1	h1min
Ø28 x Ø28	6190008	134,0	45,0	45,0	45,0
Ø35 x Ø35	6190019	222,0	53,0	73,0	53,0
Ø42 x Ø42	6191834	280,0	59,0	89,0	59,0
Ø54 x Ø54	6191845	337,0	67,0	122,0	67,0

R 2714 Tee equal
(3 x press)



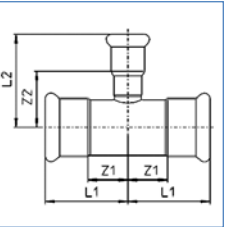
Dimensions	Article no.	L1	Z1	L2	Z2
22 x 22 x 22	6191405	39,5	18,5	43,5	22,5
28 x 28 x 28	6191449	44,5	21,5	48,5	25,5
35 x 35 x 35	6191493	51,0	25,0	55,0	29,0
42 x 42 x 42	6191537	60,0	30,0	61,5	31,5
54 x 54 x 54	6191581	71,0	36,0	72,5	37,5
76,1 x 76,1 x 76,1	6204319	116,0	61,0	115,0	60,0
88,9 x 88,9 x 88,9	6204321	131,0	68,0	127,0	64,0
108 x 108 x 108	6204330	156,0	79,0	155,0	78,0

R 2717 Cross over
(2 x male)



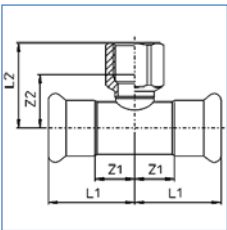
Dimensions	Article no.	A	B	L
Ø22 x Ø22	6191108	178,0	44,0	65,0
Ø28 x Ø28	6191119	210,0	50,0	74,0

R 2715 Tee reduced
(3 x press)



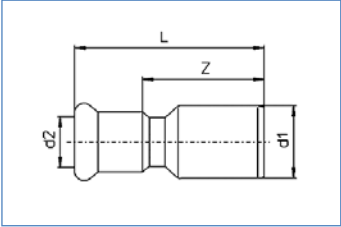
Dimensions	Article no.	L1	Z1	L2	Z2
28 x 22 x 28	6191438	44,5	21,5	46,5	25,5
35 x 22 x 35	6191471	51,0	25,0	50,0	29,0
35 x 28 x 35	6191482	51,0	25,0	52,0	29,0
42 x 22 x 42	6191504	60,0	30,0	52,5	31,5
42 x 28 x 42	6191515	60,0	30,0	54,5	31,5
42 x 35 x 42	6191526	60,0	30,0	57,5	31,5
54 x 22 x 54	6191548	71,0	36,0	58,5	37,5
54 x 28 x 54	6191559	71,0	36,0	60,5	37,5
54 x 35 x 54	6191561	71,0	36,0	63,5	37,5
54 x 42 x 54	6191570	71,0	36,0	67,5	37,5
76,1 x 22 x 76,1	6204341	116,0	61,0	68,0	45,0
76,1 x 28 x 76,1	6204352	116,0	61,0	71,0	47,0
76,1 x 35 x 76,1	6204363	116,0	61,0	75,0	48,0
76,1 x 42 x 76,1	6204374	116,0	61,0	79,0	47,0
76,1 x 54 x 76,1	6204385	116,0	61,0	80,0	43,0
88,9 x 22 x 88,9	6204396	131,0	68,0	76,0	53,0
88,9 x 28 x 88,9	6204407	131,0	68,0	76,0	52,0
88,9 x 35 x 88,9	6204418	131,0	68,0	83,0	56,0
88,9 x 42 x 88,9	6204429	131,0	68,0	85,0	53,0
88,9 x 54 x 88,9	6204431	131,0	68,0	93,0	56,0
88,9 x 76,1 x 88,9	6204440	131,0	68,0	116,0	61,0
108 x 22 x 108	6204451	156,0	79,0	85,0	62,0
108 x 28 x 108	6204462	156,0	79,0	88,0	64,0
108 x 35 x 108	6204473	156,0	79,0	94,0	67,0
108 x 42 x 108	6204484	156,0	79,0	96,0	64,0
108 x 54 x 108	6204495	156,0	79,0	102,0	65,0
108 x 76,1 x 108	6204506	156,0	79,0	125,0	70,0
108 x 88,9 x 108	6204517	156,0	79,0	135,0	72,0

R 2718 Tee threaded
(press x female thread x press)



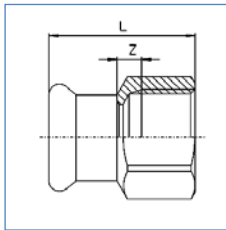
Dimensions	Article no.	L1	Z1	L2	Z2
22 x Rp1/2 x 22	6191625	39,5	18,5	39,0	22,0
22 x Rp3/4 x 22	6191636	39,5	18,5	41,0	23,0
28 x Rp1/2 x 28	6191647	44,5	21,5	42,0	25,0
28 x Rp3/4 x 28	6191658	44,5	21,5	44,0	26,0
28 x Rp1 x 28	6198599	44,5	21,5	46,0	27,5
35 x Rp1/2 x 35	6191669	51,0	25,0	45,5	28,5
35 x Rp3/4 x 35	6191671	51,0	25,0	47,5	29,5
35 x Rp1 x 35	6198601	51,0	25,0	50,0	31,0
42 x Rp1/2 x 42	6191680	60,0	30,0	48,0	31,0
42 x Rp3/4 x 42	6191691	60,0	30,0	50,0	32,0
42 x Rp1 x 42	6198610	60,0	30,0	52,5	33,5
54 x Rp1/2 x 54	6191702	71,0	36,0	54,0	37,0
54 x Rp3/4 x 54	6191724	71,0	36,0	56,0	38,0
54 x Rp1 x 54	6198621	71,0	36,0	58,0	39,0
54 x Rp2 x 54	6191713	71,0	36,0	64,7	46,7
76,1 x Rp3/4 x 76,1	6204528	116,0	55,0	68,0	55,0
76,1 x Rp2 x 76,1	6204550	116,0	55,0	81,0	59,0
88,9 x Rp3/4 x 88,9	6204539	131,0	63,0	87,0	74,0
88,9 x Rp2 x 88,9	6204561	131,0	63,0	88,0	66,0
108 x Rp3/4 x 108	6204541	156,0	77,0	86,0	73,0
108 x Rp2 x 108	6204572	156,0	77,0	98,0	76,0

R 2707 Reducer
(press x male)



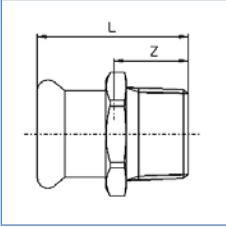
Dimensions	Article no.	L	Z
Ø28 x 22	6191174	61,2	40,2
Ø35 x 22	6191196	69,0	48,0
Ø35 x 28	6191207	68,1	45,1
Ø42 x 22 *	6191218	84,5	63,5
Ø42 x 28	6191229	77,9	54,9
Ø42 x 35	6191231	77,6	51,6
Ø54 x 22 *	6191240	96,5	75,5
Ø54 x 28 *	6191251	95,5	72,5
Ø54 x 35	6191262	94,6	68,6
Ø54 x 42	6191273	95,1	65,1
Ø76,1 x 42	6204211	151,0	119,0
Ø76,1 x 54	6204220	140,0	103,0
Ø88,9 x 54	6204231	156,0	119,0
Ø88,9 x 76,1	6204242	156,0	101,0
Ø108 x 54	6204253	204,0	167,0
Ø108 x 76,1	6204264	196,0	141,0
Ø108 x 88,9	6204275	190,0	127,0

R 2702 Straight connector
(press x female thread)



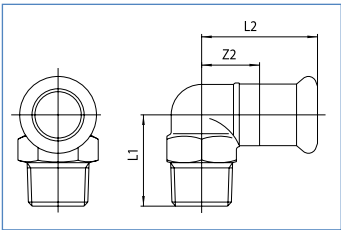
Dimensions	Article no.	L	Z
22 x Rp1/2	6190461	36,5	5,5
22 x Rp3/4	6190470	39,5	7,5
22 x Rp1	6190459	43,6	9,6
28 x Rp1/2	6193308	38,0	4,5
28 x Rp3/4	6190503	40,0	6,0
28 x Rp1	6190481	44,6	8,6
28 x Rp1 1/4	6190492	47,0	9,0
35 x Rp1	6190514	46,0	7,0
35 x Rp1 1/4	6190536	50,0	9,0
35 x Rp1 1/2	6190525	50,0	10,0
42 x Rp1 1/4	6190558	52,0	3,0
42 x Rp1 1/2	6190547	54,0	10,0
54 x Rp1 1/2	6190569	58,0	9,0
54 x Rp2	6190571	63,0	10,0

R 2705 Straight connector
(press x male thread)



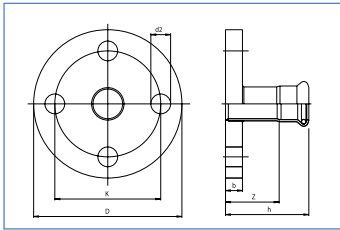
Dimensions	Article no.	L	Z
22 x R1/2	6190635	42,0	21,0
22 x R3/4	6190646	43,3	22,3
22 x R1	6190624	48,5	27,5
28 x R3/4	6190679	45,2	22,2
28 x R1	6190657	48,0	25,0
28 x R1 1/4	6190668	51,5	28,5
35 x R1	6190681	52,7	26,7
35 x R1 1/4	6190701	55,0	29,0
35 x R1 1/2	6190690	56,0	30,0
42 x R1 1/4	6190723	59,0	29,0
42 x R1 1/2	6190712	59,0	29,0
54 x R1 1/2	6190734	64,7	29,7
54 x R2	6190745	69,0	34,0
76,1 x R2 1/2	6204759 **	125,0	70,0
88,9 x R3	6204761 **	138,0	75,0

R 2728 Angle adapter 90°
(press x male thread)



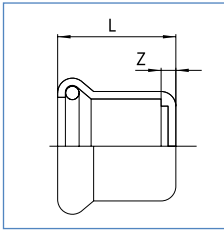
Dimensions	Article no.	L2	Z	L1
22 x R3/4	6190899	48,5	27,5	38,5
28 x R1	6190901	53,0	30,0	46,0
35 x R1 1/4	6190910	60,0	34,0	52,0
42 x R1 1/2	6190921	69,0	39,0	58,0
54 x R2	6190932	82,0	47,0	68,0

R 2726 Flanged connector PN 10/16
(press x flange)



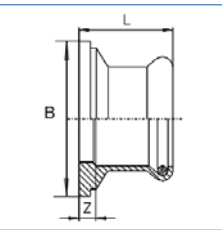
Dim.	Article no.	DN	Z	D	D2	H	K	B	holes
22	6190778	20	42,5	105,0	14,0	63,5	75,0	12,0	4
28	6190789	25	48,0	115,0	14,0	71,0	85,0	14,0	4
35	6190791	32	53,0	140,0	18,0	79,0	100,0	15,0	4
42	6190800	40	61,0	150,0	18,0	91,0	110,0	16,0	4
54	6190811	50	77,0	165,0	18,0	112,0	125,0	18,0	4
76,1	6204121	65	71,0	185,0	18,0	126,0	145,0	18,0	4
88,9	6204132	80	84,0	200,0	18,0	147,0	160,0	20,0	8
108	6204143	100	90,0	220,0	18,0	167,0	180,0	20,0	8

R 2729 Stop end
(1 x press)



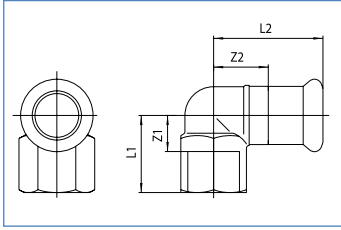
Dimensions	Article no.	L	Z
22	6191031	24,1	3,1
28	6191042	26,1	3,1
35	6191053	29,1	3,1
42	6191064	36,1	6,6
54	6191075	41,6	6,6
76,1	6204187	95,0	40,0
88,9	6204198	107,0	44,0
108	6204209	127,0	50,0

R 2736 Coupling
(press x flat seal)



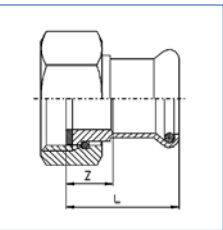
Dimensions	Article no.	L	Z	B
22 x 1 1/4	6191933	28,0	7,0	38,8
22 x 1 1/2	6191944	28,0	7,0	44,4
28 x 1 1/2	6191955	30,5	7,5	44,4
35 x 2	6191966	33,0	7,0	56,0
42 x 2 1/4	6191977	37,0	7,0	62,0
54 x 2 3/4	6191988	44,0	9,0	77,6

R 2709 Angle adapter 90°
(press x female thread)



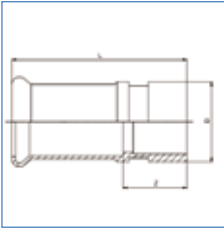
Dimensions	Article no.	L2	Z2	L1	Z1
22 x Rp1/2	6198456	45,0	24,0	31,0	16,0
22 x Rp3/4	6190844	48,5	27,5	33,0	16,7
28 x Rp1/2	6198467	47,5	24,5	35,0	16,0
28 x Rp3/4	6198478	50,5	27,5	35,0	18,5
28 x Rp1	6190855	54,5	31,5	37,0	17,5
35 x Rp1/2	6198489	56,0	30,0	35,0	20,0
35 x Rp3/4	6198491	57,5	31,5	37,0	21,0
35 x Rp1	6198500	58,0	32,0	40,5	21,0
35 x Rp1 1/4	6190866	62,0	36,0	42,2	20,5

R 2704 Coupling with nut
(press x female thread)



Dimensions	Article no.	L	Z
22 x G1	6191757	32,0	11,0
28 x G1 1/4	6191768	33,0	10,0
35 x G1 1/2	6191779	36,0	10,0
42 x G1 3/4	6191781	43,0	13,0
54 x G2 3/8	6191790	50,0	15,0

R 2748 Transition for grooved couplings
(press x groove)



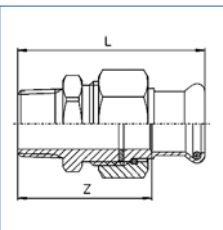
Dimensions	Article no.	L	D	Z
28 x 33,7	6198555	72,5	33,7	26,0
35 x 42,4	6198566	81,0	42,4	26,0
42 x 48,3	6198577	86,0	48,3	26,0
54 x 60,3	6198588	96,5	60,3	26,0
76,1 x 73,0	6198841	91,9	73,0	41,0
76,1 x 76,1	6193319	90,0	76,1	36,0
88,9 x 88,9	6193321	100,0	88,9	36,0
108 x 114,4	6193330	110,0	114,3	36,0

C 1451 O-ring leak standard
(black, EPDM) for galvanized and stainless steel



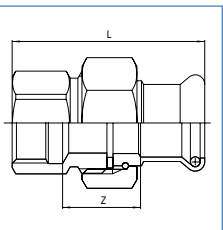
Dimensions	Article no.
22	6222238
28	6222249
35	6222251
42	6222260
54	6222271

R 2735 Straight union
(press x male thread)



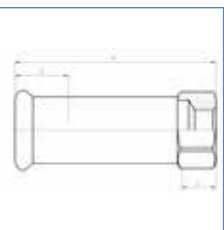
Dimensions	Article no.	L	Z
22 x R1/2	6192164	63,0	42,0
22 x R3/4	6192175	68,5	47,5
22 x R1	6192186	71,8	50,8
28 x R1	6192197	72,8	49,8
35 x R1 1/4	6192208	78,2	52,2
42 x R1 1/2	6192219	85,4	55,4
54 x R2	6192296	100,0	65,0

R 2738 Straight union
(press x female thread)



Dimensions	Article no.	L	Z
22 x Rp3/4	6192065	63,0	25,5
22 x Rp1	6192076	65,8	25,3
28 x Rp1	6192087	65,0	22,5
35 x Rp1 1/4	6192098	73,0	25,3
42 x Rp1 1/2	6192109	82,0	30,0
54 x Rp2	6192111	91,0	30,0

R 2741 Slip coupling
(press x female thread)



Dimensions	Article no.	A	B	C	ΔL
22 x Rp1/2	6198511	92,0	25,0	15,0	40,0
22 x Rp3/4	6198522	97,0	25,0	16,0	40,0
28 x Rp1/2	6198533	94,0	30,0	15,0	40,0
28 x Rp3/4	6198544	93,0	30,0	16,0	40,0

R 2760 O-ring leak before pressed
(black, EPDM) for galvanized and stainless steel



Dimensions	Article no.
76,1	6208015
88,9	6208026
108	6208037



7.3 XPress tools and accessoires

P 6002 Novopress press tool & P 5990 Novopress jaws & sling



	Dimension (DN)	Dimension (mm)	Article no.
	ACO 202 + battery + charger + case	20-50	22-54
	ECOtec jaw	20	22
	ECOtec jaw	25	28
	Snap on HP 35	32	35
	Snap on HP 42	40	42
	Snap on HP 54	50	54
	ZB 203 adapter	32-50	35-54

P 5997 Novopress press tool & P 5989 Novopress jaws & sling



	Dimension (DN)	Dimension (mm)	Article no.
	ECO 301	20-50	22-54
	ECO 301 jaw	20	22
	ECO 301 jaw	25	28
	Snap on HP 35	32	35
	Snap on HP 42	40	42
	Snap on HP 54	50	54
	ZB 303 adapter	32-50	35-54

P 6000 Novopress press tool & P 6001 Novopress slings



	Dimension (DN)	Dimension (mm)	Article no.
	ACO 401 + 2 batteries + charger + case	65-100	76,1-108
	HP 401 76,1 sling + case	65	76,1
	HP 401 88,9 sling + case	80	88,9
	HP 401 108 sling + case	100	108

R 2742 Insertion depth marker

Dimension	Article no.
12-54	6212041

R 2743 Deburr tool

Dimension	Article no.
12-54	6211898

R 2745 / R 2746 Flexible hoses



	Dimension	Article no.
	Straight	Rp 1/2" x Ø22, l=1000
	Straight	Rp 1/2" x Ø22, l=1500
	Straight	Rp 1/2" x Ø22, l=2000
	Straight	Rp 1/2" x Ø28, l=1000
	Straight	Rp 1/2" x Ø28, l=1500
	Straight	Rp 1/2" x Ø28, l=2000
	90° angle	Rp 1/2" x Ø22, l=800
	90° angle	Rp 1/2" x Ø22, l=1000
	90° angle	Rp 1/2" x Ø22, l=1500
	90° angle	Rp 1/2" x Ø28, l=800
	90° angle	Rp 1/2" x Ø28, l=1000
	90° angle	Rp 1/2" x Ø28, l=1500

All flexible hoses are supplied including the universal mounting brackets:
1 square pipe 700 mm
1 moveable sprinkler clamp (closed)
2 multiclips

TS 301 re-usable end cap for pressure testing PN16 (push-fit)

	Dimension	Article no.
	22	4756213
	28	4756224
	35	4756235
	42	4756246
	54	4756257
	O-ring for re-usable end cap	
	35	4752374
	42	4752385
	54	4752396
	Replacement grip ring	
	35	4753199
	42	4753201
	54	4753210
	Demounting tool	
	22	4752321
	28	4752330
	35-54	4752352

XPress Sprinkler ML: a complete piping system for embedded sprinkler installations

XPress Sprinkler ML is a high quality complete VdS-certified piping system for the application of sprinkler installations embedded in concrete. XPress Sprinkler ML is available in 4 different dimensions: d32, d40, d50 en d63 giving the customer a wide degree of freedom in the design and engineering phase. The fittings are completely made from plastics with stainless steel sleeves eliminating the need for "taping" the fittings before embedding them in concrete.

The components of which our XPress Sprinkler ML system consist are:

- XPress Sprinkler ML tube – multilayer plastic-aluminium tube (PE-Xc/AL/PE-Xc)
- XPress Sprinkler ML fittings – pressfittings in PVDF
- XPress Sprinkler ML tools – pressmachines to get the perfect connection between tube and fittings

Advantages XPress Sprinkler ML

The application of XPress Sprinkler ML tube combines the advantages of plastics and metal, eliminating the disadvantages at the same time for embedded systems. Top quality of the PVDF press fittings and user friendly press tools are other benefits. Combined this creates a high performance and reliable sprinklersystem.

Advantages multilayer PE-XC/AL/PE-Xc tubes:

- Entirely corrosion-resistant, also resistant against chemicals and electrochemicals
- High temperature and pressure resistance
- Smooth internal and external surface (C-factor = 140)
- 100% oxygen-tight and water vapour diffusion tight
- Low coefficient of linear expansion, similar to metal pipe
- Just as light weight as full plastic piping
- Flexible, easy to bend, also at low temperatures. Keeps it's form

Advantages PVDF press-couplings:

- Corrosion resistant
- High temperature and pressure resistance
- Light weigth
- Flexible
- Highest quality plastics

For more information regarding XPress Sprinkler ML, please consult the "XPress Sprinkler ML" catalogue which is available on request or can be downloaded from our website.

