Install the **future**

SYSTEM **KAN-therm**

XPress Sprinkler

Fire safety
for years to come

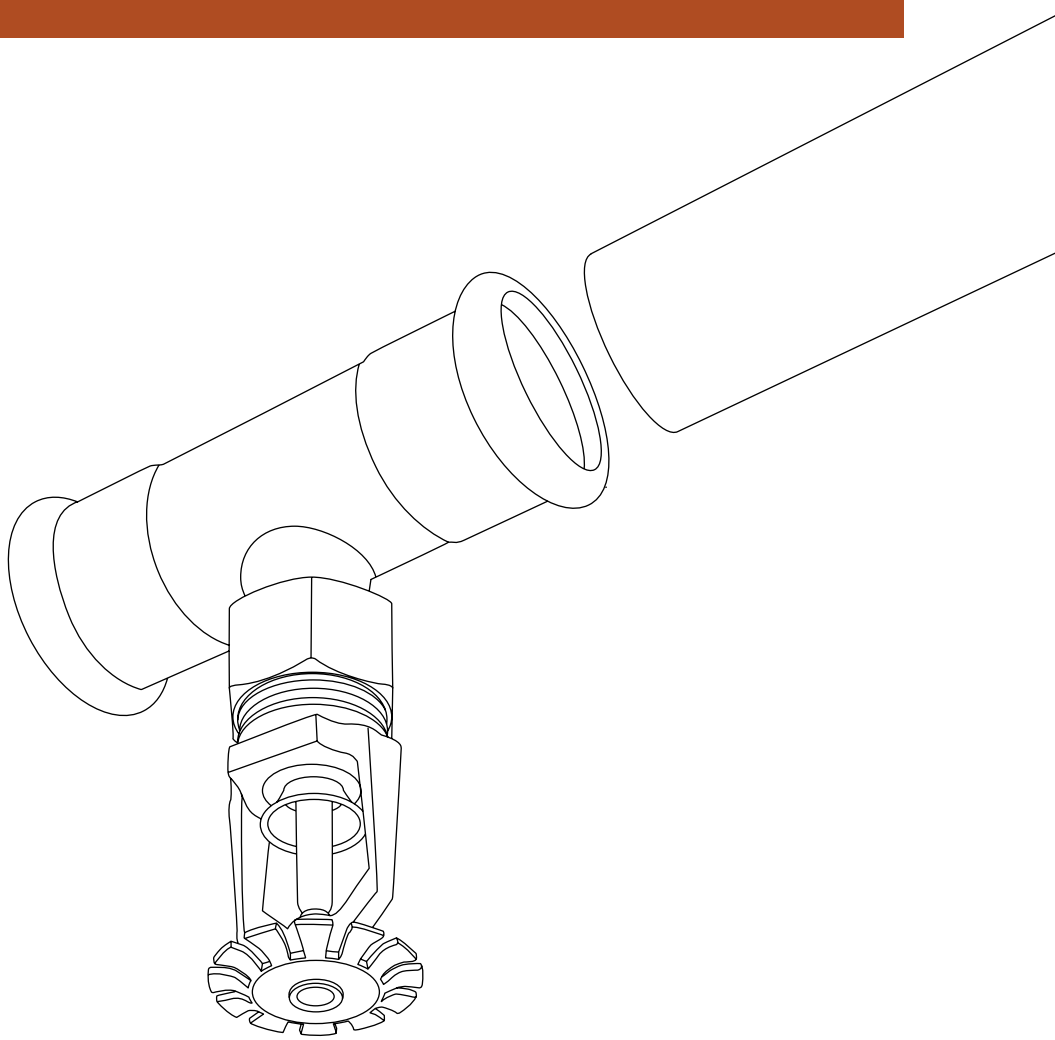
EN 24/12

∅ **22-108 mm**

KAN-therm System XPress Sprinkler

KAN-therm Steel – System XPress Sprinkler

KAN-therm Inox – System XPress Sprinkler



KAN-therm
System XPress Sprinkler

System XPress Sprinkler is a complete fire extinguishing installation system consisting of pipes and fittings made of zinc-plated carbon steel (KAN-therm Steel of system XPress Sprinkler) or stainless steel (KAN-therm Inox of system XPress Sprinkler) in 22 – 108 mm (DN20 – DN100) diameter range.

Particular system elements are joined using the state of the art, professional and, most of all, safe "Press" technique based on pressing fittings on the pipe using dedicated tools.

KAN-therm XPress Sprinkler system is designed for constructing indoor-use, fire fighting hydrant and sprinkler systems. Both material versions are verified and certified according to VdS guidelines for application in stationary sprinkler systems after emergency valves, within rooms characterized by low or medium fire hazard (LH, OH1, OH2, OH3, and to OH4 in respect to exhibition halls, cinemas, theatres and concert halls, and also approved by the CNBOP for use in internal hydrant systems).

XPress Sprinkler systems are ideal for constructing new and replacing old, traditional fire extinguishing sprinkler installations.

1 Introduction

As fire safety in newly created and renovated objects, as well as the pursue to minimize installation construction time become a big concern, innovative systems like XPress Sprinkler appear as an obvious choice.

XPress Sprinkler features

There are many systems on the constructions market using conventional solutions, such as threading, welding and soldering. The advantages brought by applying „Press" coupling technique, as compared to the above mentioned, have been already appreciated long time ago.

It is the aesthetics of systems constructed using XPress Sprinkler that is frequently the main reason for which architects and designers choose our products for constructing fire extinguishing mechanisms.

All elements of the system are manufactured in a modern plant, which allows us to guarantee unshaken quality and availability of our products. Use of the advanced technology of laser welding in the production process assures an absolute control of all elements. Fully automated tightness testing is an integral part of the laser welding process. All straight couplings with screwed ending are produced from one element, thanks to which the couplings' dimensions are limited to the minimum, just like the risk of occurrence of leaks. Thanks to an extraordinarily smooth surface of pipes and fittings, the obtained flow characteristics allow for a significantly increased efficiency, as compared to conventional solutions. The high quality of KAN-therm elements of XPress Sprinkler system has been confirmed by national and international certifying bodies.

Reliability

In KAN-therm XPress Sprinkler systems, the quality of joint mainly depends on the used tool. This minimizes risk of human-caused assembly faults.

To limit the risk of occurrence of human-caused assembly faults, all KAN-therm fittings of XPress Sprinkler system feature LBP (Leak Before Press) function, detecting non-pressed joints. For fittings of dimensions up to DN50, inclusive, the LBP functionality is assured by specific structure of the sealing O-Ring; for elements of dimensions above DN50, the fitting's stub pipe has been ovalized. The LBP function allows for occurrence of a distinct leakage from the pipe-fitting joint, if the joint has not been pressed. This makes it easy to quickly state which connections have not been pressed during installation, and perform the necessary repairs. After pressing the fitting on the pipe, tightness is guaranteed.

2 XPress Sprinkler system advantages

- quick and secure installation and assembly, without the necessity of welding or screwing pipes (risk of working with open fire eliminated),
- wide range of pipe and fitting diameters - from 22 mm to 108 mm,
- high aesthetics of the performed installations, without the necessity of painting,
- low specific weight of pipes and fittings,
- optimized fitting dimensions assure easier construction of the installation.

The above features cause XPress Sprinkler system to be easy and comfortable in assembly.

XPress Sprinkler system assembly takes place without use of open fire (as opposed to welding or soldering), or applying other heavy and potentially dangerous tools.

Thanks to the minimal requirements, XPress Sprinkler system is a perfect solution for modernizations or renovations. Additionally, the small weight of KAN-therm pipes and fittings of XPress Sprinkler and their precision of making contribute to improvement of conditions and increase of work comfort.

Short XPress Sprinkler system assembly time, as compared to conventional assembly systems, is a very important factor, decreasing costs related with investment execution.

We are convinced that the presented advantages encourage you to try XPress Sprinkler system when designing and constructing sprinkler systems.

3 XPress Sprinkler system application

XPress Sprinkler system may be used in the construction of stationary fire protection installations, both hydrants and sprinklers.

3.1 Indoor hydrant installations

XPress Sprinkler system in indoor hydrant systems is certified by National Technical Assessment issued by Polish CNBOP.

KAN-therm Steel elements of XPress Sprinkler system are suitable for performing only indoor, constantly filled with water, non-flow (until fire extinguishing) hydrant installations which are totally separated or single-side connected to potable water systems.

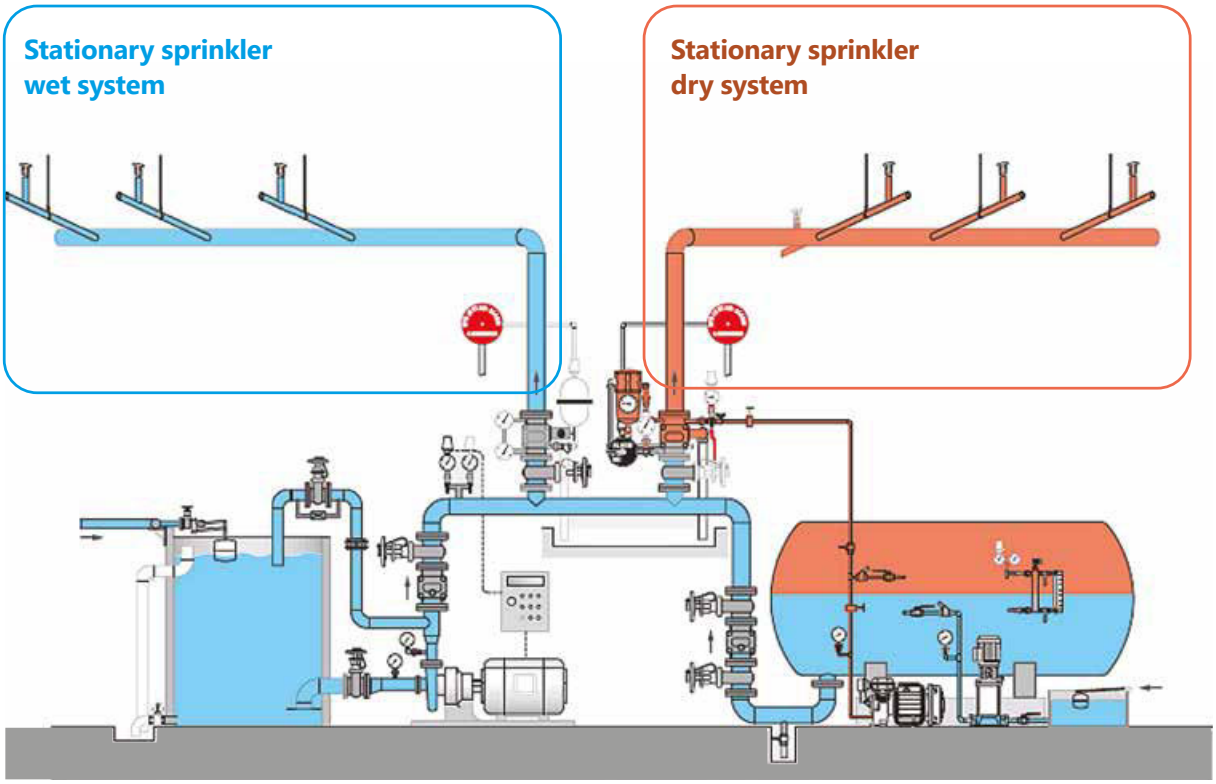
KAN-therm Inox elements of XPress Sprinkler system are suitable for performing indoor dry and constantly filled with water hydrant installations. It may be combined with or be a part of potable water systems.

3.2 Sprinkler installations

Stationary sprinkler installations are built-in fire extinguishing and prevention systems that independently detect and report fire, and automatically initiate the extinguishing process.

XPress Sprinkler system assembly in sprinkler systems should be performed according to the applicable guidelines (e.g. VdS-CEA 4001 or PN-EN 12845). Depending on the applied material (stainless steel or galvanized steel), the system may be used with water (wet) or dry stationary sprinkler systems.

KAN-therm Steel pipes and fittings of XPress Sprinkler system are designed for use with only wet sprinkler systems, whereas KAN-therm Inox pipes and fittings of XPress Sprinkler may be applied with wet, as well as dry stationary sprinkler systems.



KAN-therm Steel and KAN-therm Inox elements of XPress Sprinkler have been tested and certified according to the VdS guidelines for application in stationary sprinkler installations equipped with emergency valve.

The following guidelines refer to all products comprising XPress Sprinkler system, operating at working pressure stated in the below table:

Tab. 1. Operating pressure in XPress Sprinkler system

DN	External Ø [mm]	XPress Sprinkler system	
		KAN-therm Steel pipes and fittings of XPress Sprinkler system - wet [bar]	KAN-therm Inox pipes and fittings of XPress Sprinkler system - wet and dry [bar]
20	22	16	16
25	28	16	16
32	35	16	16
40	42	16	16
50	54	16	16
65	76,1	12,5	16
80	88,9	10	12,5
100	108	10	10

Application is limited exclusively to KAN-therm original elements of XPress Sprinkler system. Connecting elements other than the original (not included in the XPress Sprinkler system offer) is permissible only on the condition of using detachable metal connections (threaded, grooved or flanged).

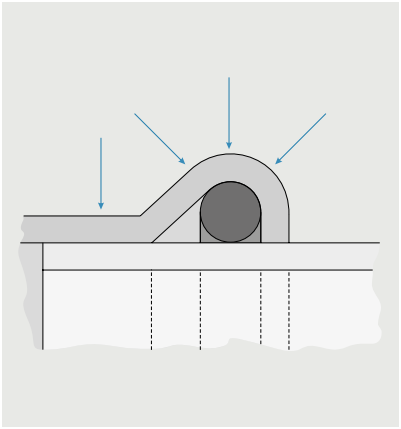
Assembly and installation of XPress Sprinkler system may be performed only by qualified technical personnel, having formal qualifications for performing sprinkler system-related works. Requirements regarding assembly of stationary sprinkler installations are included in VdS-CEA 4001 or EN 12845 guidelines. The company performing installation must assure conformity with the above guidelines.

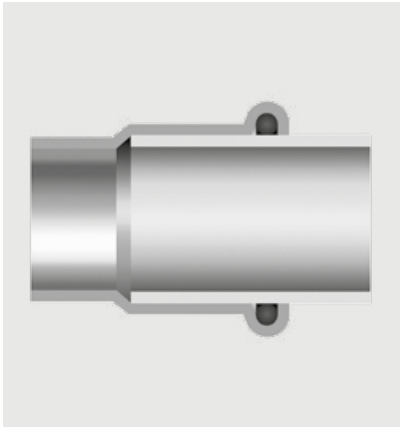
The operation and maintenance of a sprinkler system made of XPress Sprinkler components must be carried out in accordance with VdS-CEA 4001 or EN 12845.

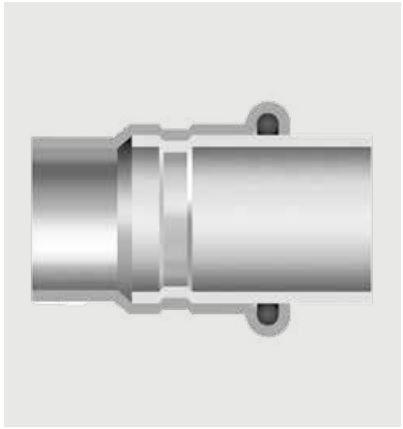
4 “Press” assembly technique

The „Press” coupling technique consists of pressing fittings on the pipe, using specialist power tools.

Tightness of the connections is assured by special O-Ring seals made of EPDM rubber resistant to high temperatures, and „M” type clamping system (O-Ring clamped in three spots). This guarantees long and reliable operation.







1. „M” type clamp system
2. Joint before pressing
3. Joint after pressing

4.1 LBP O-Ring seal

XPress Sprinkler system pressed fittings are equipped with EPDM O-Rings of the following operating parameters:

Material	EPDM LBP (DN20 – DN50)	EPDM (DN65 – DN100)
Colour	black	black
Layer	without silicone, Teflon-based	without silicone, Teflon-based
Operating temperature	-35 °C to +135 °C	-35 °C to +135 °C
Max. temperature (short term)	150 °C	150 °C
Max. operating pressure	16 bar	up to 16 bar (depending on diameter - check application conditions for a given XPress Sprinkler system)
Application range	Wet and dry sprinkler systems	Wet and dry sprinkler systems

Thanks to special slots of the LBP O-Ring body, optimum control of the system during pressure test is assured. The nonpressed joints are easy to locate, as they are not water tight. When pressing, the O-Ring changes its shape, adhering entirely to pipe and fitting surface, assuring reliable and tight joint.

XPress Sprinkler system also offers internal threaded elements that are used for connecting threaded elements from outside of the system (not comprising XPress Sprinkler system), such as sprinklers, valves or other fixtures. Internal and external threads are manufactured in compliance with DIN 2999/ISO 7/1 (taper thread). It is recommended to perform the threaded connection before pressing the fitting, not to stress the pressed joint. To tighten the joint, do not apply Teflon tapes or any other compounds containing chlorides.

5 KAN-therm tools of XPress Sprinkler system

Pressing of the KAN-therm fittings of the XPress Sprinkler system should be performed using pressing units and press jaws („M" and „HP" profile depending on the diameter - and type of fire-fighting installation), delivered by XPress Sprinkler system.

Depending on the type of installation, i.e. hydrant or sprinkler, as well as the diameter of the pipeline, it is possible to use of different tool configurations.

In order to select optimal set of tools, please follow below chart:

Tab. 2. Selection of tools table: KAN-therm Steel and KAN-therm Inox pipes and fittings of XPress Sprinkler system

Producer	Press machine		Diameter [mm]	Jaws/press collars		Adapter		Fire protection systems			
								Hydrant installations		Sprinkler installations	
	Desc.	Code		Desc.	Code	Desc.	Code	KAN-therm Steel - XPress Sprinkler	KAN-therm Inox - XPress Sprinkler	KAN-therm Steel - XPress Sprinkler	KAN-therm Inox - XPress Sprinkler
NOVOPRESS	ACO203XL	1948267181	22	[J]M	1948267139	-	-	+	+	+	+
			28	[J]M	1948267141	-	-	+	+	+	+
			35	[J]M	1948267143	-	-	+	+	-	-
			35	HP Snap ON	1948267124	ZB203	1948267000	+	+	+	+
			42	M Snap ON	1948267119			+	+	-	-
			42	HP Snap ON	1948267126			+	+	+	+
			54	M Snap ON	1948267121			+	+	-	-
			54	HP Snap ON	1948267128			+	+	+	+
			76,1	M Snap ON	1948267145	ZB221	1948267005	+	+	-	-
			88,9	M Snap ON	1948267044			+	+	-	-
			108	M Snap ON	1948267038	ZB221 ZB222	1948267005 1948267007	+	+	-	-
	EFP203	1948267210	22	[J]M	1948267139	-	-	+	+	-	-
			28	[J]M	1948267141	-	-	+	+	-	-
			35	[J]M	1948267143	-	-	+	+	-	-
			35	HP Snap ON	1948267124	ZB203	1948267000	+	+	-	-
			42	M Snap ON	1948267119			+	+	-	-
			42	HP Snap ON	1948267126			+	+	-	-
			54	M Snap ON	1948267121			+	+	-	-
			54	HP Snap ON	1948267128			+	+	-	-
	ACO102* ACO103	1948055007 1948055008	22	[J]M	1942121002	-	-	+	+	-	-
			28	[J]M	1948267097	-	-	+	+	-	-
			35	[J]M	1942121004	-	-	+	+	-	-
	ECO301*	1948267163*	22	[J]M	1944267008	-	-	+	+	+	+
			28	[J]M	1944267011	-	-	+	+	+	+
			35	HP Snap ON	1948267124	ZB303	1948267166	+	+	+	+
			42	HP Snap ON	1948267126			+	+	+	+
			54	HP Snap ON	1948267128			+	+	+	+
	ACO401* ACO403	1948267151 1948267209	76,1	HP	1948267100	-	-	+	+	+	+
			88,9	HP	1948267102	-	-	+	+	+	+
			108	HP	1948267098	-	-	+	+	+	+
KLAUKE	UAP100*	1948267159*	76,1	KSP3	1948267080	-	-	+	+	+	+
			88,9	KSP3	1948267082	-	-	+	+	+	+
			108	KSP3	1948267074	-	-	+	+	+	+
	KAN-therm Mini	1936055008	22	[J]M	1936267278	-	-	+	+	-	-
			28	[J]M	1936267282	-	-	+	+	-	-

[J] - two segment jaw, other elements are press collars and may need additional adapter to combine with press machines
* the tool is not available in the XPress Sprinkler offer

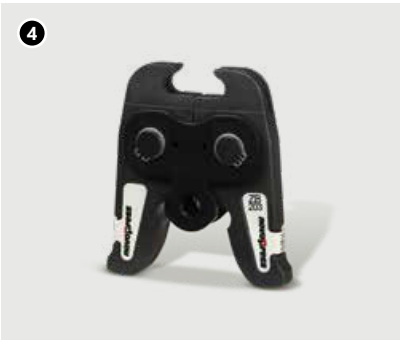
Tab. 2. Selection of tools table: KAN-therm Steel and KAN-therm Inox pipes and fittings of XPress Sprinkler system

Producer	Press machine		Diameter [mm]	Jaws/press collars		Adapter		Fire protection systems			
								Hydrant installations		Sprinkler installations	
	Desc.	Code		Desc.	Code	Desc.	Code	KAN-therm Steel - XPress Sprinkler	KAN-therm Inox - XPress Sprinkler	KAN-therm Steel - XPress Sprinkler	KAN-therm Inox - XPress Sprinkler
REMS	Power-Press SE Akku Press Power-Press ACC	1936267160 1942267002 1936267152	22	[J]M	1948267056	-	-	+	+	-	-
			28	[J]M	1948267061	-	-	+	+	-	-
			35	[J]M	1948267065	-	-	+	+	-	-
			42	[J]M	1948267067	-	-	+	+	-	-
			54	[J]M	1948267069	-	-	+	+	-	-
KAN-therm	AC 3000 DC 4000	1936267239 1936267238	22	[J]M	1936267251	-	-	+	+	-	-
			28	[J]M	1936267252	-	-	+	+	-	-
			35	[J]M	1936267253	-	-	+	+	-	-
			42	M	1936267283	ZBS1	1936267285	+	+	-	-
			54	M	1936267284	ZBS1	1936267285	+	+	-	-

[J] - two segment jaw, other elements are press collars and may need additional adapter to combine with press machines
* the tool is not available in the XPress Sprinkler offer

NOVOPRESS tools:

1. Battery-powered press ACO203XL
2. PB2 M22–35 mm jaws
3. HP/M 35–108 mm Snap On collars
4. ZB203 adapter
5. ZB221, ZB222 adapters



1. EFP203 electric press
2. PB2 M22–35 mm jaws
3. HP/M 35–54 mm Snap On collars
4. ZB203 adapter

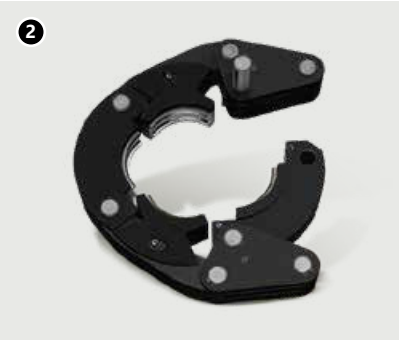
1. Battery-powered press ACO 102*
2. Battery-powered press ACO 103
3. M22–35 mm jaws
* the tool is not available in the XPress Sprinkler offer

1. ECO 301* electric press
2. PB3 M22–28 mm jaws
3. HP 35–54 mm Snap On collars
4. ZB303* adapter
* the tool is not available in the XPress Sprinkler offer.

1. Battery-powered press ACO401*
2. Battery-powered press ACO403
3. HP 76,1–108 mm collars
* the tool is not available in the XPress Sprinkler offer

KLAUKE tools:

1. Battery-powered press KAN-therm Mini
2. SBM M22–28 mm jaws



1. Battery-powered press UAP100*
2. 76,1–108 mm* jaws
* the tool is not available in the XPress Sprinkler offer

REMS tools:





1. Power-Press ACC electric press
2. Battery-powered press Akku-Press
3. Power-Press SE electric press
4. M22–35 mm jaws
5. M42–54 mm jaws

KAN-therm tools:



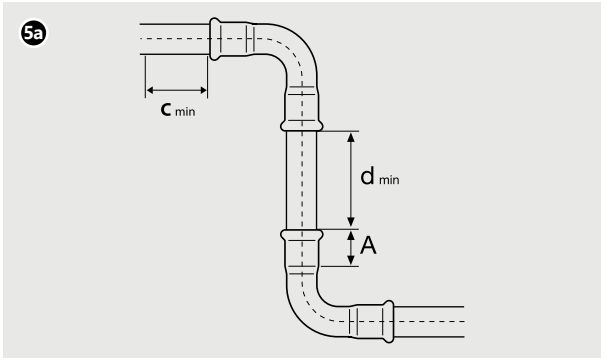


1. KAN-therm AC 3000 electric press
2. KAN-therm Battery-powered press DC 4000
3. M22–35 mm jaws
4. M42–54 mm collars
5. ZBS1 42–54 mm adapter

6 Assembly guidelines

1. Cutting pipes
Pipes must be cut perpendicularly to the axis, using pipe cutter. Cut pipes perpendicularly to the axis using a roll pipe cutter (breaking incompletely cut pipe sections is prohibited). You may also use other tools, such as hand saws and electric saws designed for cutting carbon or stainless steel, provided that the cut is made perpendicularly and the edges of the pipe are not chipped. Do not use torches or cutting discs for pipe cutting, which can generate significant amounts of heat, angle grinders, etc.
2. Bevelling
Use a manual chamfer (for 76,1 – 108 diameters – a semi-round steel file) to chamfer the internal and external edge of the pipe, removing all chips, which could potentially damage the O-Ring during assembly.

3. Control
Prior to assembly, visually inspect the presence and condition of the O-Ring. Check, if there are no chips or metal shavings or other pollutions on the pipe and the fitting, which could damage the seal during installation. Make sure if the distance between neighbouring fittings is above the permissible d_{min} (**Tab. 3 on page 16**, Fig. 5a).
4. Installing pipe and fitting
Before pressing, insert the pipe into the fitting up to the required depth (slight rotation permissible). Do not use lubricants, greases or fats when mounting the pipe (water or a soap solution is permissible – recommended for pressure tests conducted with compressed air).



5. Marking the insertion depth

To achieve sufficient joint strength, maintain correct insertion depth A (**Tab. 3 on page 16**, Pic. 5a). In the case of simultaneous assembly of many joints (sliding the pipes into the fittings) the pipe insertion depth in the fitting must be checked before pressing each subsequent joint. It is sufficient to check whether the pipe is inserted all the way.

In order to ease the identification of pipe insertion depth in the fitting the simple marking technique can be applied (not required in construction conditions).

It consist of inserting the pipe into the fitting up to the limit and making a mark on pipe with a marker, right up to the edge of the fitting socket. After pressing, the marking must be still visible but as close as possible to the fitting.

Special templates are also used for determining the insertion depth, without necessity of matching with fitting.

5a.

A – pipe insert depth

d_{min} – minimum distance between fittings in order to ensure correct pressing

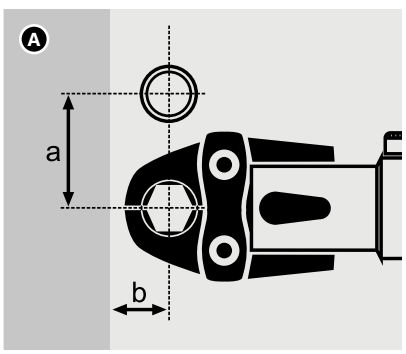
c_{min} – minimum distance of fitting from the wall

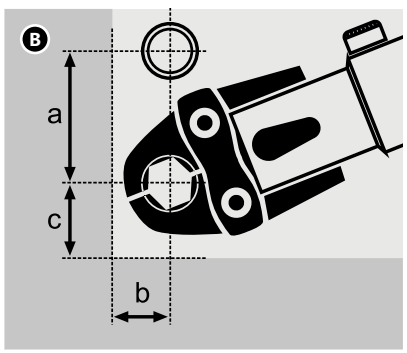
Note: Insertion depth marking templates are not part of the basic system offer and may be available depending on the specific market where the product is sold.

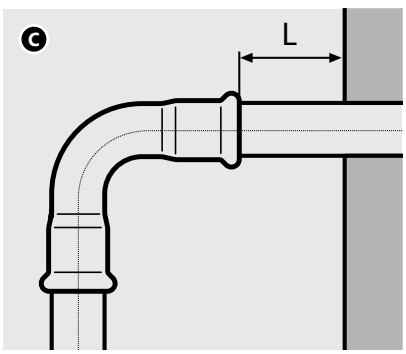
Tab. 3. Pipe insert depth and minimum installation spaces

DN	Ø external	Insert depth	Minimum distance between two pressed joints	Minimum pipe length
	[mm × mm]	A [mm]	d_{min} [mm]	d_{min}+2×A [mm]
20	22×1,2	21	10	52
25	28×1,2	23/46*	10	62
32	35×1,5	26/52*	10	80
40	42×1,5	30/60*	20	90
50	54×1,5	35/70*	20	90
65	76,1×2,0	55/54*	40	165
80	88,9×2,0	63/64*	50	186
100	108×2,0	77/74*	60	234

* applies to Groove type couplings







Tab. 4. Installation distances

DN	Ø external	Fig. A		Fig. B			Fig. C
	[mm × mm]	a	b	a	b	c	L - Pipe stand-off from wall distance [mm]
20	22×1,2	65	25	80	31	35	40
25	28×1,2	75	25	80	31	35	60
32*	35×1,5	115	75	115	75	75	70
40*	42×1,5	120	75	115	75	75	70
50*	54×1,5	200	85	120	85	85	70
65*	76,1×2,0	250	170	200	170	190	80
80*	88,9×2,0	250	170	250	170	210	90
100*	108×2,0	250	170	250	170	210	100

* applies to press collars

6. Pressing
Before starting any works, verify the proper operation of your tools. Use press tools and jaws recommended by KAN.
Select the size of your press jaw basing on the diameter of the joint. Place the jaws on the joint so that its notch embraces the protruding part of the fitting (the space where the O-Ring is located). After starting the press, the process takes place automatically and cannot be stopped. If, for any reason, the process of pressing is stopped, the joint needs to be disassembled (cut off) and a new one needs to be executed. If the installer has press tools and jaws not supplied by the KAN-therm, the possibility of using them should be consulted with KAN's Technical Support Department.

Pipe bending (for diameters up to Ø28)

If needed, „cold" bending may be performed, on the condition of maintaining minimum bend radius:

$$R_{min} \geq 3,5 \times D$$

For greater diameters use available system bends and elbows.

For pipes bending, use manual, hydraulic or electrical bender. The pipes should not be „hot" bent.

6.1 Threaded connections

XPress Sprinkler system also includes external and internal thread elements, which serve the purpose of connecting other threaded elements of the system (such as sprinklers, valves or other). External and internal threads are manufactured according to DIN 2999 / ISO 7/1 (taper thread). It is recommended to perform threaded connection before pressing the fitting, not to stress the pressed joint.

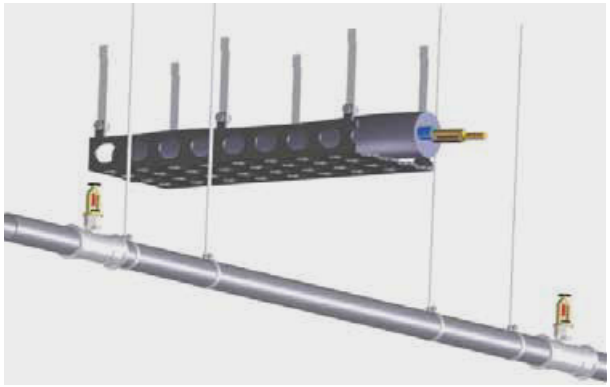
7 General information regarding system installation

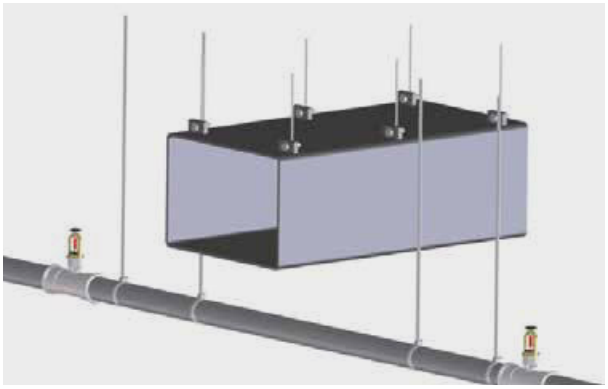
7.1 Fitting pipelines

While installing XPress Sprinkler system, care must be taken not to overstress the pipelines network, while standby, as well as during an emergency. A/C channels or cable racks should not be placed above the sprinkler pipe.

In case if design or structural reasons make it impossible to avoid the sprinkler pipe crossing other system elements, such as A/C channels or cable racks, the sprinkler system should be secured from over stressing, using additional, certified fixture elements.

The required space between fixtures is provided in the table. Fixture distance from pipe ending must not exceed 90 cm.





DN	Pipe dimensions Ø [mm] external	Max clamp spacing [m]	
		DIN 1988–2	CEA 4001 (VdS)
20	22	2	2
25	28	2,25	2
32	35	2,75	2
40	42	3	2
50	54	3,5	2
65	76,1	4,25	2
80	88,9	4,75	2
100	108	5	2

XPress Sprinkler maximal clamp distances apply only, if there are no other installations (pipelines, channels) above the sprinkler system pipe.

There should be at least one clamp within at least 0,9 m from each joint. Each pipe section should be held by at least one clamp. Clamps and supports must be designed and constructed in conformity with EN 12845.

7.2 Pipeline flushing

After performing the installation, the entire sprinkler system must be thoroughly flushed with treated water. The flushing is necessary for assuring proper operation of the sprinkler system and protecting it from contamination. After flushing, the installation should be emptied. After removing all materials required for flushing, sprinklers should be installed.

Filling and deaerating pipe networks

After flushing the pipelines, they must be filled with treated water and completely deareated. After rinsing and draining the installation performed using KAN-therm Steel system of XPress Sprinkler it should be immediately filled with filtered water again in order to protect against possible corrosion.

8 Tightness test

Pipelines of the sprinkler system must be pressure tested, in conformity with applicable guidelines, such as CEA 4001, no. 17.1.1. (VdS). The test should last at least two hours at a pressure (measured at emergency valves) being a 1,5 multiple of admissible operating pressure, but not smaller than 15 bar.

Pressure decrease, e.g. due to meteorological factors, must be monitored at 24h basis.

Dry sprinkler installations must be pneumatically tested for pressure not smaller than 2,5 bar for a period of at least 24 hours. Each leak that causes a decrease of pressure greater than 0,15 bar for a period of at least 24 h, must be sealed. All detected defects, such as permanent deformations, breaks or leaks must be fixed and be tested again. During pneumatic test all leaks may be localized acoustically or utilizing foaming agents approved for contact with EPDM gaskets.

Hydrant installations should be pressure tested identically like potable water systems:

- test pressure = 1,5x admissible operating pressure but not less than 10 bar.

9 Transport and storage

- When transporting and storing KAN-therm pipes and pressed fittings of XPress Sprinkler system, they should be kept away from damage or contamination hazards.
- KAN-therm elements of XPress Sprinkler should not be stored together with elements of other metal systems.
- It is not allowed to store system elements directly on the ground (concrete or earth).
- It is not allowed to store the elements in direct vicinity of chemical compounds.
- Pipe bundles should be stored and transported on wooden or plastic pads (avoid direct contact with other steel elements, such as steel pipe racks). To avoid ovalization of pipes, it is recommended to form piles not higher than 6 bundles. During transport, loading and unloading, avoid scratching or else mechanically damaging pipes and fittings - do not: throw, pull and bend.
- Rooms for storing the elements must be dry (maximum permissible relative humidity must not exceed 65%). Recommended temperature for storage is in the range of 10 to 25 °C.
- External pipe surfaces during storage, construction and operation must not be exposed to extensive and direct contact with humidity.

10 General hydraulic dimensioning guidelines for XPress Sprinkler systems

10.1 Pressure losses

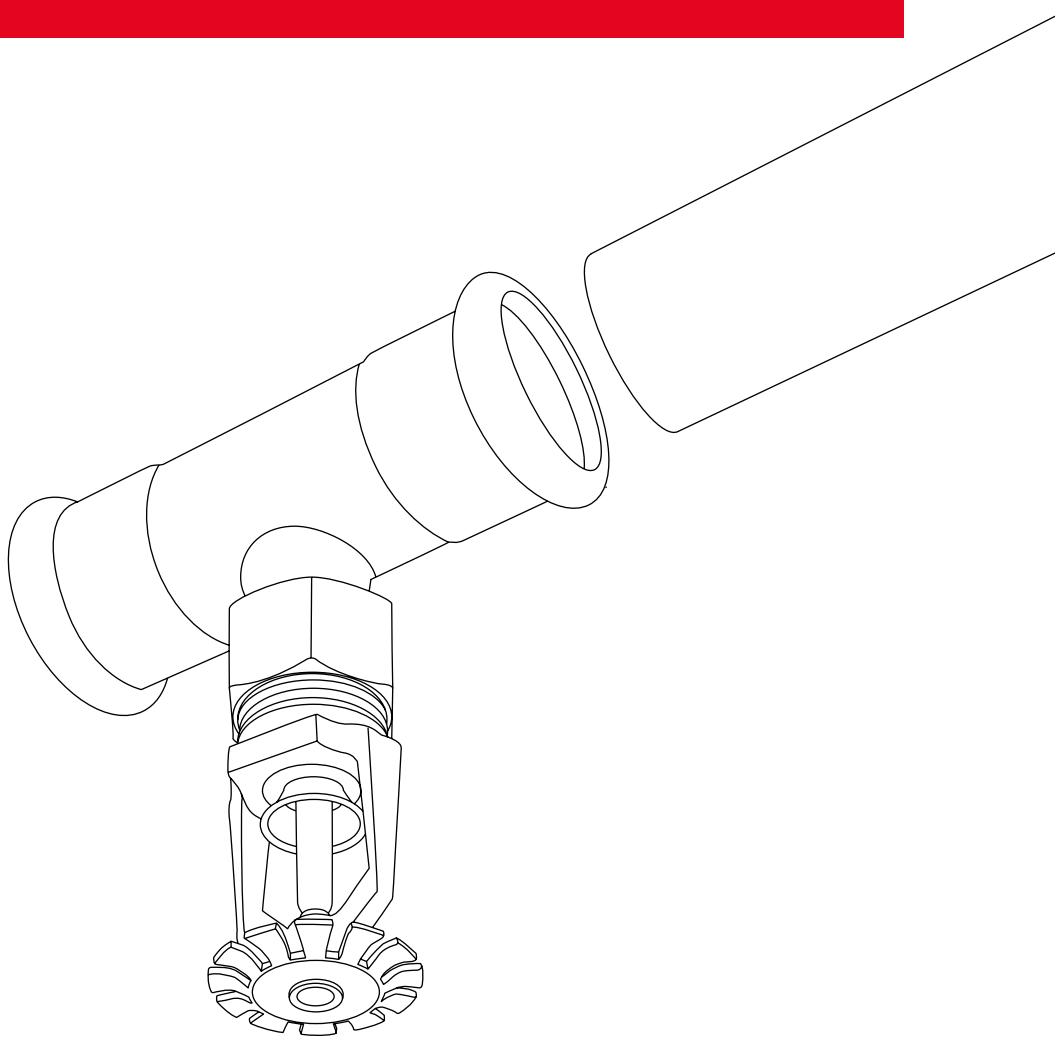
To calculate pressure loss in pipe network of sprinkler systems, Hazen-Williams formula should be applied.

$$p = \frac{6{,}05 \times 10^5}{C^{1{,}85} \times d^{4{,}87}} \times Q^{1{,}85} \times L$$

where:
p – linear pressure loss [bar]
Q – flow intensity [l/min]
d – internal pipe diameter
C – pipe constant, for KAN-therm Steel and Inox of XPress Sprinkler system C = 140
L – substitute length for pipes and fittings [m]

The formula covers linear losses on the length of the calculated section of the pipelines, as well as local losses in form of equivalent (substitute) lengths for fittings and fixtures.

Designing and hydraulic dimensioning principles for sprinkler systems are defined by EN 12845 standard. Stationary fire extinguishing units. Automatic sprinkler systems. Design, assembly and maintenance.



KAN-therm Steel – System XPress Sprinkler

1 Application and operating conditions

KAN-therm Steel system of XPress Sprinkler is designed for constructing pipelines (distributing or pipe branches) of stationary wet (permanently filled with water) sprinkler systems installed in small or medium fire hazard areas (LH, OH1, OH2, OH3 and up to OH4 - in reference to exhibition rooms, theatres and concert halls) (according to VdS CEA 4001 guidelines).

KAN-therm Steel system of XPress Sprinkler is also suitable for performing indoor, permanently filled with water, non-flow* (until fire fighting action), fully separated or single-side connected to potable water system hydrant installations.

Application in other fire extinguishing systems and dry sprinkler systems is prohibited.

* As non-flow hydrant installations with no intake points other than hydrant valves are understood, and the water flow occurs only during the fire fighting operation and / or annual performance tests, in accordance with EN 671-3 Fixed fire fighting equipment. Internal hydrants. Part 3: Maintenance of indoor hydrants with semi-rigid hose and indoor hydrants with flat folded hose.

System pipes and fittings hold certificates issued by Fire Protection Scientific Research Centre CNBOP and VdS certificate.


VdS

Certificate

of

Approval

of

Components and Systems

VSH Fittings B.V.
Oude Amersfoortseweg 99

NL-1212AA Hilversum

G 4080037	7	09.11.2009	24.02.2013

Pipe system, stainless steel
Type "VSH Press Sprinkler Edelstahl"

in Stationary water extinguishing systems

Procedure Guidelines - VdS 2344en: 2005-12

Guidelines for Water Extinguishing Systems - Requirements and Test Methods for Metal Press Fitting Pipe Systems
VdS 2100-26: 2007-03 (draft)

Köln (Cologne), 09.11.2009

Schlingen

i. V. Hensels

The installation should be designed and constructed according to guidelines included in this document, as well as with applicable standards and regulations.

Designing, assembly and commissioning of the sprinkler system is defined by EN 12845 standard. Stationary fire extinguishing units. Automatic sprinkler units. Design, assembly and maintenance.

The maximum working pressure for a hydrant system made with KAN-therm Steel system of XPress Sprinkler pipes and fittings is:

- for 22–108 mm diameters: 16 bar

The maximum operating pressure for a sprinkler system made from KAN-therm Steel system of XPress Sprinkler pipes and fittings is:

- 22–54 mm diameters: 16 bar
- 76,1 mm diameter: 12,5 bar
- 88,9 mm and 108 mm diameters: 10 bar

External corrosion

Pipes and fittings of the KAN-therm Steel system of XPress Sprinkler system are externally zinc-coated. This coating can be treated as an effective corrosion protection in case of short contact with water. If there is a possibility of prolonged contact with moisture from the outside (maximum permissible relative humidity 65%), pipes and fittings should be equipped with waterproof insulation.

In a situation of prolonged moisture, there is a risk of external corrosion of pipes and fittings. Therefore, in any case, the insulation must not contain moisture from, for example, precipitation, penetrating through the thickness of the insulation or condensation (this can especially occur with mineral fiber insulation). The insulation must be airtight for the entire operation time of the pipelines.

Full and completely sealed protection of elements of the KAN-therm Steel system of XPress Sprinkler system with non-absorbent moisture insulation made of closed-cell material, laid in such a way as to prevent water penetration and dampness of pipes and fittings is absolutely required in cases:

- installing the KAN-therm Steel system of XPress Sprinkler system in environments with corrosivity class C2 and higher according to EN ISO 12944-2.
- installations with a lower temperature of the working medium than the ambient temperature and/or in poorly ventilated areas where there is a high risk of condensation on the external surfaces of pipes and fittings.

In each of the above cases, the system components must be further protected by two coats of paint before insulation is laid.

Water-based acrylic paint coatings (suitable for galvanized surfaces) are permitted.

The opinion of the manufacturer of paint coatings on the absence of negative effects on KAN-therm system components should be obtained in each case. It is not recommended to lay KAN-therm Steel system of XPress Sprinkler pipes in floors and walls (even if they are run in insulation).

2 System XPress Sprinkler – KAN-therm Steel carbon steel pipes

KAN-therm Steel system of XPress Sprinkler system pipes for water sprinkler installations are precise carbon steel no. 1.0031 (EN 10305-3 compliant) pipes. They are made of cold rolled strip, galvanized using the Sendzimir method of coating the metal plate with zinc by immersing it in electrolytic zinc, after which the zinc is applied on both sides simultaneously. This means the pipe is protected by zinc layer on inside and outside. The zinc layer is 15-27 µm thick. The Sendzimir galvanization is known for guaranteeing particularly good adherence and high resistance to corrosion.

Fire environment properties

KAN-therm Steel system of XPress Sprinkler system carbon steel pipes may be classified as class A incombustible materials, according to DIN 4102, part 1.

Tab. 1. Technical details of pipes

DN	External diameter × wall thickness	Internal diameter	Unit mass	Water capacity
	mm × mm	[mm]	[kg/m]	[l/m]
20	22 × 1,5	19,0	0,761	0,284
25	28 × 1,5	25,0	0,980	0,491
32	35 × 1,5	32,0	1,241	0,804
40	42 × 1,5	39,0	1,542	1,195
50	54 × 1,5	51,0	1,999	2,043
65	76,1 × 2,0	72,1	3,503	4,083
80	88,9 × 2,0	84,9	4,412	5,661
100	108 × 2,0	104,0	5,382	8,495

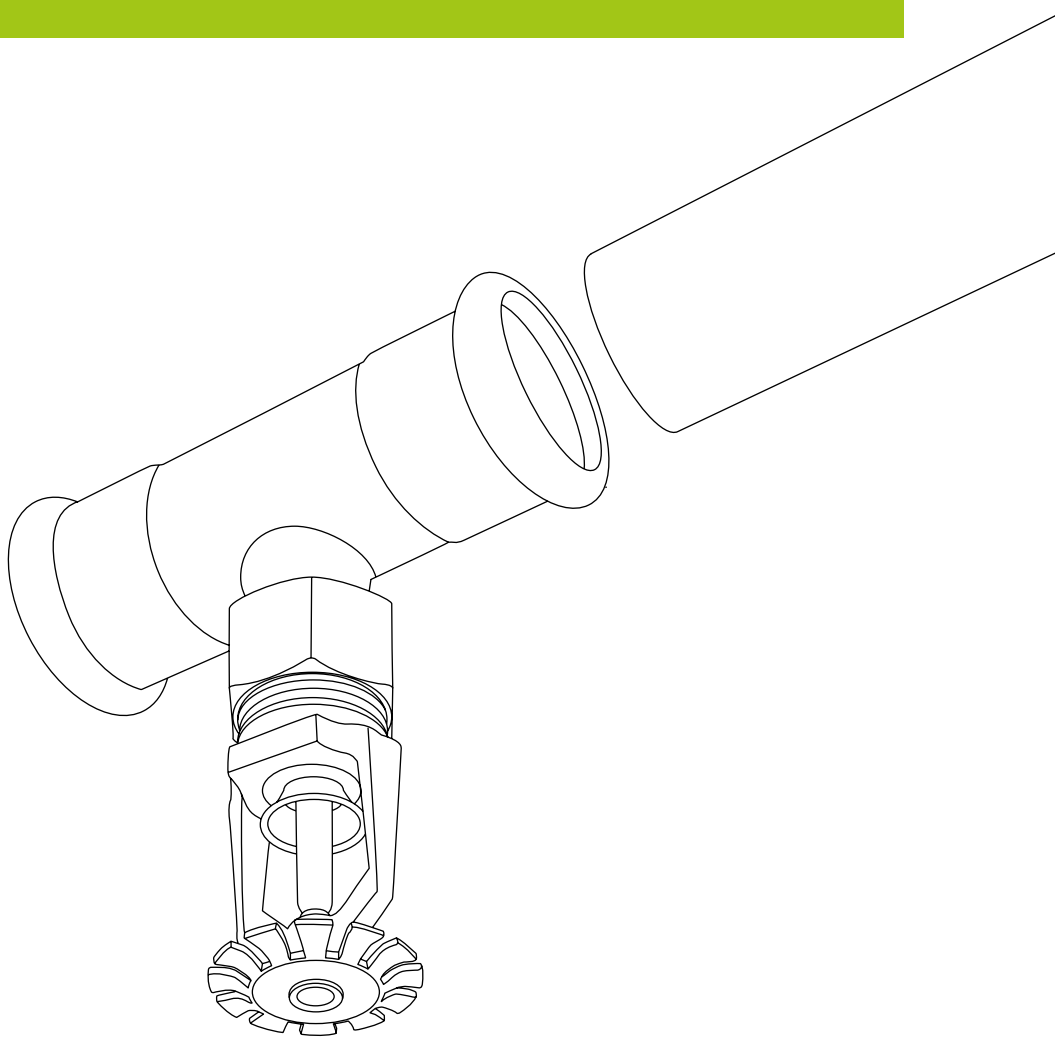
Tab. 2. KAN-therm Steel system of XPress Sprinkler pipes for fire fighting installations

Material	ULC („Ultra Light Carbon") galvanized (Sendzimir method) material no. 1.0031 acc. to EN 10305-3
External diameter tolerance	acc. to EN 10305-3
Thermal expansion coefficient	0,0108 mm/m at ΔT= 1K
Minimum bend radius (for diameters up to Ø28 mm)	3,5 × external pipe diameter (up to -10°C)
Delivery	6 m ± 50 mm lengths
Marking	name or manufacturer label, material identification, outside diameter x wall thickness, approval no., manufacture date
Zinc layer	15-27 µm. The pipe joints are extra galvanized.
Max. operating pressure	16 bar (22-54 mm); 12,5 bar (76,1 mm); 10 bar (88,9-108 mm)

3 System XPress Sprinkler – pressed KAN-therm Steel carbon steel couplings

KAN-therm Steel system of XPress Sprinkler system pressed couplings are made of material no. 1.0034 [34-2 steel] carbon steel. They are rust protected by the applied zinc layer (8-15 µm). The couplings are equipped with EPDM rubber sealing ring (O-Ring). The DN20–DN50 O-Rings feature non-pressed joints detection function LBP (Leak Before Press).

Coupling diameter range DN20–DN100



KAN-therm Inox
– System XPress Sprinkler

1 Application and operational conditions

KAN-therm Inox system of XPress Sprinkler is designed for constructing pipelines (distributing or pipe branches) of stationary sprinkler systems wet (permanently filled with water) or dry (air) installed in small or medium fire hazard areas (LH, OH1, OH2, OH3 and up to OH4 - in reference to exhibition rooms, theatres and concert halls) (according to VdS CEA 4001 guidelines).

KAN-therm Inox system of XPress Sprinkler is also suitable for indoor hydrant installations. These installations may be both separate as well as a part of potable water systems.

Application in other fire extinguishing systems is prohibited.

System pipes and fittings hold certificates issued by Fire Protection Scientific Research Centre CNBOP as well as VdS and FM.


VdS Certificate of Approval of Components and Systems

The installation should be designed and constructed according to guidelines included in this document, as well as with applicable standards and regulations.

Designing, assembly and commissioning of the sprinkler system is defined by EN 12845 standard. Stationary fire extinguishing units. Automatic sprinkler units. Design, assembly and maintenance.

The maximum working pressure in a hydrant system made with KAN-therm Inox system of XPress Sprinkler pipes and fittings is:

- for 22–108 mm diameters: 16 bar

The maximum operating pressure in a sprinkler system made of KAN-therm Inox system of XPress Sprinkler pipes and fittings is:

- for 22–76,1 mm diameters: 16 bar
- for 88,9 mm diameter: 12,5 bar
- for 108 mm diameter: 10 bar

External corrosion

External corrosion of elements of the KAN-therm Inox system of XPress Sprinkler can occur when pipes or fittings are in a humid environment containing or producing compounds of chlorine or other halogens. Corrosion processes are intensified at temperatures above 50 °C.

In addition, elements of the KAN-therm Inox system of XPress Sprinkler can be installed and operated in environments with a corrosivity class no higher than C3 according to EN ISO 12944-2.

Therefore, in situations:

- contact with building components (e.g. mortar, insulation) emitting chlorine compounds,
- environment containing chlorine or its compounds in gaseous form or water containing salt (brine) or other halogen compounds,
- the use of the KAN-therm Inox system of XPress Sprinkler in an environment with a corrosivity class of C4 and higher, it is necessary to use full, watertight and non-absorbent waterproofing made of material with a closed cell structure that does not emit chlorides and halides.

If there is a risk of mechanical damage to the external insulations then these must be adequately protected, for example, with protective steel coating.

2 System XPress Sprinkler – KAN-therm Inox system stainless steel pipes

KAN-therm Inox system of XPress Sprinkler pipes for sprinkler and hydrant systems are precise X5CrNiMo (1.4401 acc. to EN 10088 AISI 316) stainless steel pipes.

KAN-therm Inox system of XPress Sprinkler pipes may be classified as A category incombustible materials, acc. to DIN 4102, part 1.

The pipes are distributed in 6 meters lengths. Minimum pipe bend radius 3,5 × D (for DN20–DN25 diameters).

Tab. 1. Pipe technical specification

DN	External diameter × wall thickness	Internal diameter	Unit mass	Water capacity
	mm × mm	[mm]	[kg/m]	[l/m]
20	22 × 1,5	19,6	0,624	0,302
25	28 × 1,5	25,6	0,790	0,515
32	35 × 1,5	32,0	1,240	0,804
40	42 × 1,5	39,0	1,503	1,195
50	54 × 1,5	51,0	1,972	2,043
65	76,1 × 2,0	72,1	3,550	4,548
80	88,9 × 2,0	84,9	4,150	5,661
100	108 × 2,0	104,0	5,050	8,495

Tab. 2. KAN-therm Inox system of XPress Sprinkler pipes for fire fighting systems

Material	X5CrNiMo stainless steel material no. 1.4401 acc. to EN 10088-2 (AISI 316)
External diameter tolerance	acc. to EN 10305-3
Thermal expansion coefficient	0,0160 mm/m at ΔT= 1K
Minimum bend radius (for diameters up to Ø28 mm)	3,5 × external pipe diameter (up to -10 °C)
Delivery	6 m ± 50 mm lengths
Marking	name or manufacturer label, material identification, outside diameter x wall thickness, approval no., manufacture date
Max. operating pressure	16 bar (22-76,1 mm); 12,5 bar (88,9 mm); 10 bar (108 mm)

3 System XPress Sprinkler – pressed KAN-them Inox stainless steel couplings

KAN-therm Inox system of XPress Sprinkler pressed couplings are made of stainless steel, material no. 1.4404 acc. to EN 10088. The couplings are equipped with EPDM rubber sealing ring (O-Ring).

Coupling diameter range DN20–DN100

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