

Innovative water  
and heating solutions



SYSTEM **KAN-therm**

Catalogue  
technical information

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TECHNOLOGY OF SUCCESS



ISO 9001

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## EXPLANATION OF NEW CODE SYSTEM

Pipes	29	Fittings	09
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Product type, e.g. pipe

[
1129
200023
]

System name, e.g. Press

Press	10	Inox	16
Push	11	Screw fittings and supp. elements	17
PP	12	Surface heating	18
Manifolds	13	Tools	19
Cabinets	14	Others	21
Steel	15		

## LEGEND

- N** New element in KAN's offer
- \* on request (delivery time up to 4 weeks)
- \*\* availability by individual arrangements
- \*\*\* till stock ends

This commercial information is binding as of March 1st, 2017.

From the date this information is published information concerning same matter is no longer in force.

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SYSTEM **KAN-therm**

# Push Platinum



## NEW GENERATION

O-ringless fitting design,  
connection without section narrowing,  
fault-free operation,  
simple & quick assembly,  
15-year manufacturer's  
warranty...



### 18x2.5 Platinum pipes in new design

New design of 18x2.5  
PE-Xc/Al/PE-HD Platinum pipe  
means much better hydraulics  
and possibility to increase the  
heating power.



### Plastic 14-32 mm sliding sleeves

100% plastic system thanks  
to connection of new plastic  
sliding sleeve with PPSU fittings.  
New possibilities for application  
requirements related to  
plastic-only solutions.



### "ONE STEP" pipe expanding

Higher safety level and quicker  
assembly due to new 8-piece design  
of Platinum expanding heads  
"ONE STEP". Easier and better  
identification of diameters thanks  
to color marking.



**Note: For KAN-therm Push  
Platinum use only plastic  
sliding sleeves!**

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[www.kan-therm.com](http://www.kan-therm.com)

ISO 9001

# New plastic PVDF ring

**1 Symmetric design**  
means easy and safe assembly as well as no need to position the ring on the pipe.

**2 Lightweight ring** means easy transport, as well as simpler assembly and **safe connection guarantee** confirmed by KAN-therm T50 lab test\*

\*Test simulating 50-year operation cycle

**3 Versatile application** for Platinum and PE-Xc & PE-RT pipe assembly.

**4 Design and material** have been **tested in hard operational conditions.** PVDF means 100% resistance to corrosion.

**5 Unique slide limiter** protects the ring from sliding off the pipe during expansion.



## Unique ONE STEP expanding heads

Innovative 8-piece design of expanding heads enables quick and safe operation.

The assembly is done in just one cycle along with pipe end expansion - so called "ONE STEP" expansion.

### Color identification of the diameters.

Expanding heads plated and push tool inserts (black and nickel plated) are marked with colors that describe pipe diameters.

**EXPANDING HEADS ONE STEP!**  
for Platinum pipes



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Ø 14-32 mm



SYSTEM **KAN-therm**

# Push Push Platinum

Reliability and Prestige



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# 1 System **KAN-therm Push** / **KAN-therm Push Platinum**

## General information

This catalogue of the KAN-therm Push System includes a new KAN-therm Push Platinum System and the standard KAN-therm Push System.

The catalogue is divided into a Technical Part and an Assortment Part:

- KAN-therm Push Platinum System Technical Part,
- KAN-therm Push System Technical Part,
- KAN-therm Push Platinum System and KAN-therm Push System common part.

The technical part includes all information required to order products and for its assembly on a construction site etc. For more details please see „KAN-therm System Designers and Contractors Guide“.

The common assortment part of the catalogue comprises:

- 1 The KAN-therm Push Platinum System used for water supply systems and heating systems and comprising:**
  - PE-Xc/Al/PE-HD Platinum multi-layer pipes within the range of 14-32 mm diameters,
  - PPSU plastic fittings and brass fittings for PE-Xc, PE-RT and PE-Xc/Al/PE-HD Platinum pipes.
- 2 The KAN-therm Push System used for water supply systems and heating systems and comprising two material configurations of pipes and fittings:**
  - PE-Xc pipes with an anti-diffusion barrier within a range of diameters 12–32 mm,
  - PE-RT pipes with an anti-diffusion barrier within a range of diameters 12–32 mm,
  - PPSU plastic fittings and brass fittings for PE-Xc, PE-RT and PE-Xc/Al/PE-HD Platinum pipes.
- 3 Push System fittings – diameters 18×2**
- 4 Screwed joints for 12–32 mm diameters PE-Xc and PE-RT pipes.**
- 5 Tools for assembling KAN-therm Push System pipes and fittings.**
- ! CAUTION!!!**

PE-Xc and PE-RT pipes with the anti-diffusion barrier in diameters 16×2 and 20×2 designed mainly for floor heating and manifold-based heating systems are available in the catalogue KAN-therm System: Screwed joints and KAN-therm System – Surface heating.

## KAN-therm Push Platinum system

The KAN-therm Push Platinum System is a modern and complete system consisting of multi-layer PE- Xc/Al/PE-HD Platinum pipes and standard KAN-therm Push fittings made of PPSU or brass, within a diameter range of 14-32 mm.



Push Platinum System leak-tight joints without O-Rings are made by pushing a brass sleeve onto a fitting and a pipe. These connections do not require additional sealing like a PTFE tape or tow. The system is complemented by manifolds and installation cabinets available in section Manifolds, cabinets and accessories.

The latest plastic material invention PPSU – phenylene polysulfone – used for fittings production ensures:

- full resistance against corrosion,
- full neutrality against potable water,
- durability of fittings higher than that of pipes,
- high mechanical strength.

**The technology of making PPSU fittings practically excludes possible occurrence of hidden defects.**

Due to a perfect design of parts of the KAN-therm Push Platinum System and their mutual matching, provides:

- over a 50-years operation lifetime,
- high temperature operation –  $T_{work} = 80^{\circ}\text{C}$  (operating temperature),  $T_{max} = 90^{\circ}\text{C}$  (max. temperature the heat source must be protected against a temperature rise above that level),
- extremely durable PPSU joints with the max. operating temperatures limited by the pipe life,
- absolutely no corrosion irrespective of the water quality.

The KAN-therm Push Platinum System allows for a selection of best solutions both in technical and cost terms as:

- joints can be hidden in screed and under plaster,
- possibility of connecting with systems made of other materials,
- possible cost-saving distribution systems.

The KAN-therm Push Platinum System guarantees full safety of mounting and operation:

- PPSU fittings are made according to PN-EN ISO 15875-3:2005 and PN-EN ISO 22391-3:2010, and obtains hygiene certificates by PZH,
- brass „Push“ type fittings conform to PN-EN 1254-3:2004, and obtains hygiene certificates by PZH,
- multi-layer PE-Xc/Al/PE-HD Platinum pipes conform to PN-EN ISO 21003 and obtains hygiene certificates by PZH.

## Multi-layer PE-Xc/Al/PE-HD Platinum pipes

PE-Xc/Al/PE-HD Platinum pipes are manufactured as multi-layer pipes, where the base-pipe is made of the PE-Xc polyethylene subjected to molecular crosslinking by an electron beam. Laser-welded aluminium layer provides a complete protection against oxygen diffusion and significantly lowers the thermal expansion of a pipe. An external coating of the highdensity polyethylene PH-ED protects the aluminium layer against a mechanical damage. Due to their design, pipes do not have the 'shape memory' and can be given any shape.

Assortment of PE-Xc/Al/PE-HD Platinum pipes:

- PE-Xc/Al/PE-HD Platinum multi-layer pipes according to PN-EN ISO 21003-2 standard – in dia. 14, 18, 25, 32 mm.

Dimensions, application and water volumes of multi-layer PE-Xc/Al/PE-HD Platinum pipes:

Rated diameter DN	OD [mm]	Wall thickness [mm]	For installation	Water volume [dm <sup>3</sup> /m]
14	14	2.25	c.h. / t. c.w. & h.w.	0.071
18	18	2.5	c.h. / t. c.w. & h.w.	0.133
25	25	3.7	c.h. / t. c.w. & h.w.	0.243
32	32	4.7	c.h. / t. c.w. & h.w.	0.401

## Parameters of multi-layer PE-Xc/Al/PE-HD Platinum pipes

Operating parameters of multi-layer PE-Xc/Al/PE-HD Platinum pipes acc. to PN-EN ISO 21003-2:

Installation and application class (acc. to ISO 10508)	Nominal dia. DN	External diameter [mm]	Wall thickness [mm]	Operating parameters		Type of connections	
				P <sub>rob</sub> [bar]	T <sub>rob</sub> / T <sub>max</sub> [°C]	Push (with sliding sleeve)	Screwed (threaded)
Tap cold water	14	14	2.25	10	20	+	+
	18	18	2.5	10	20	+	+
	25	25	3.7	10	20	+	-
	32	32	4.7	10	20	+	-
Tap hot water (class 1)	14	14	2.25	10	60/80	+	+
	18	18	2.5	10	60/80	+	+
	25	25	3.7	10	60/80	+	-
	32	32	4.7	10	60/80	+	-
Tap hot water (class 2)	14	14	2.25	10	70/80	+	+
	18	18	2.5	10	70/80	+	+
	25	25	3.7	10	70/80	+	-
	32	32	4.7	10	70/80	+	-
Underfloor heating, radiator heating – low temperature (class 4)	14	14	2.25	10	60/70	+	+
	18	18	2.5	10	60/70	+	+
	25	25	3.7	10	60/70	+	-
	32	32	4.7	10	60/70	+	-

Installation and application class (acc. to ISO 10508)	Nominal dia. DN	External diameter [mm]	Wall thickness [mm]	Operating parameters		Type of connections	
				P <sub>rob</sub> [bar]	T <sub>rob</sub> /T <sub>max</sub> [°C]	Push (with sliding sleeve)	Screwed (threaded)
<b>Radiator heating (class 5)</b>	14	14	2.25	10	80/90	+	+
	18	18	2.5	10	80/90	+	+
	25	25	3.7	10	80/90	+	-
	32	32	4.7	10	80/90	+	-

Operating temperature  $T_{work}$  for individual classes shall be regarded as a design temperature, the maximal temp. -  $T_{max}$  - as a temperature, which should not be exceeded – the system must be protected against it.

## Multi-layer PE-Xc/Al/PE-HD Platinum pipes – Physical properties

Property	Symbol	Unit	PE-Xc/Al/PE-HD
Linear extension coefficient	$\alpha$	mm/m × K	0.025
Thermal conductivity	$\lambda$	W/m × K	0.4
Density	$\rho$	g/cm <sup>3</sup>	0.95
Module E	E	N/mm <sup>2</sup>	2950
Tensile stretch		%	-
Minimum bend radius	R <sub>min</sub>		5 × D 3 × D (with a spring)
Internal wall roughness	k	mm	0.007

## Transport and storage

Multilayer PE-Xc/Al/PE-HD Platinum pipes are delivered in 25, 50, 200 m coils in carton packages. They can be stored in different temperatures, also below 0°C. Due to vulnerability to UV rays, pipes should be protected against direct, long-lasting exposure to sunlight.

## Contact with substances containing solvents, sealing the threads

- Avoid direct contact of KAN-therm elements with solvents or solvent-containing materials, such as paints, aerosols, montage foams, adhesives, etc. Under unfavorable circumstances, these substances may damage plastic parts.
- Make sure that the connection sealants, cleaners or insulation of System KAN-therm components, do not contain compounds that cause stress cracks: ammonia, ammonia retaining compounds, solvents, aromatic or chlorinated hydrocarbons (e.g., ketones and ethers). Do not use montage foams based on methacrylate and acrylate isocyanate.
- Secure the pipes and fittings from direct contact with the adhesive strips and adhesives for isolation. Apply the adhesive tapes only on external surface of the thermal insulations.
- For the threaded connections it is recommended to use hemp in an amount such that the tops of the thread are still visible. Using too much hemp may damage the thread. Winding hemp just after first turn of the thread helps to avoid diagonal screwing and thread damage.



### CAUTION!!!

Do not use chemical sealants and adhesives.

## Push Platinum connections

Performing Push Platinum connection consist in sliding plastic sleeve over the pipe and fitting with hand operated, hydraulic or electric machine.

## Fittings for the KAN-therm Push Platinum System connections

To perform connections with the KAN-therm Push Platinum pipes, standard KAN-therm Push PPSU System fittings and brass fittings are used.



- elbows and tees,
- elbows, tees and other fittings with nickel-plated Ø15mm copper pipes,



- couplings, Platinum eurocone adapters, male and female connectors,
- wallplate elbows,
- other.

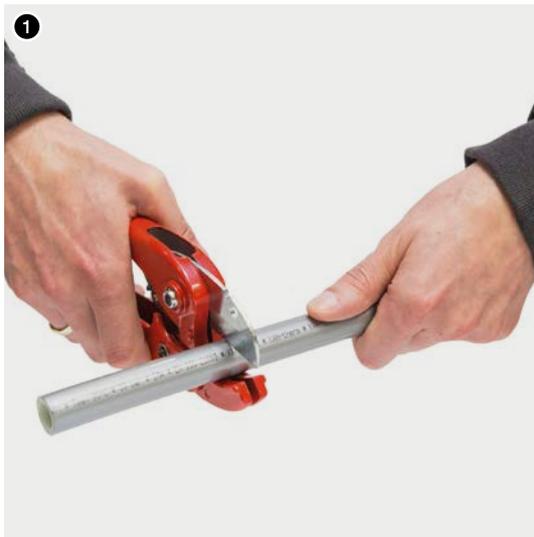
## Plastic PVDF sliding sleeves for KAN-therm Push Platinum System joints

To seal KAN-therm Push Platinum System connection of a pipe and a fitting, only plastic PVDF sliding sleeves in diameters 14 - 32 mm are used. These sleeves can also be used for connection with homogeneous pipes PE-Xc and PE-RT of KAN-therm Push system. Plastic sleeves are symmetrical and do not require positioning on the pipe.



### Assembling Push Platinum joints

**1.** Cut a multi-layer PE-Xc/Al/PEHD Platinum pipe to a required length with scissors. The cut must be perpendicular to the pipe axis.



**2.** Put the sleeve onto a pipe. Plastic sleeves are symmetrical and do not require positioning on the pipe. Select the sleeve properly to the pipe diameter.



**!** CAUTION! For cutting use only sharp blades.

**3.** The pipe expansion should be done by using the manual or battery-powered expander. The expansion should be done:

(A) in the case of the old expansion heads - pipe expansion should be done in three phases. The first two incomplete expansions, then rotate the expander by 30° and 15° in relation to the pipe. Third full pipe expansion.

(b) for "One step" expansion heads with the colored stripe - pipe expansion should be done in one stage, by expanding the pipe in the full range of the expander operation. Note: in temperatures below 0°C expansion should always be carried out in three phases, regardless of the type of heads.



**4.** Insert the fitting into a pipe up to the last bead on the fitting.

**!** CAUTION! For expanding use only Push Platinum expanding head.

5. Slide the sleeve with a hand/hydraulic or electric machine Grip fittings only at their flange. Do not slide two sleeves at the same time.

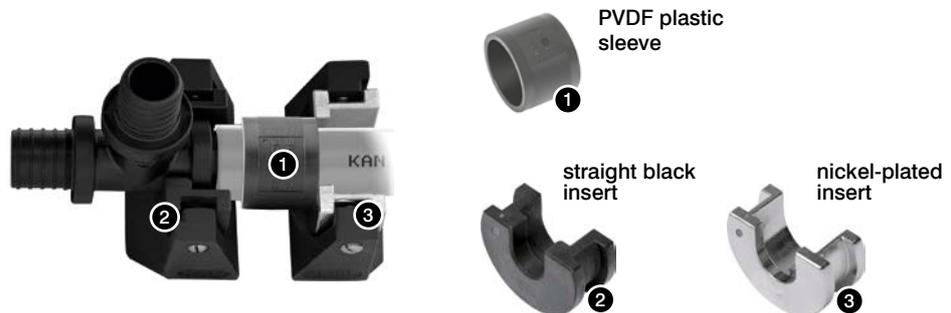
6. Observe assembling process - after sliding the sleeve up to fittings flange, the whole process should be stopped. The connection is ready for pressure test.



There is possibility of performing Push connections at temperatures below 0° under additional conditions given in KAN-therm System Designers and Contractors guide.

**! CAUTION!**

1 For assembly of a PPSU fittings use only at the side of a fitting black inserts marked T (14, 18 or 25), and at the sleeve side straight nickel-plated inserts. The PPSU fitting shall be supported at its flange directly next to the stub pipe onto which the sleeve is being pushed.



2 In the case of PPSU Ø32 mm fittings you should use bare press jaws at both: fitting and sleeve side.



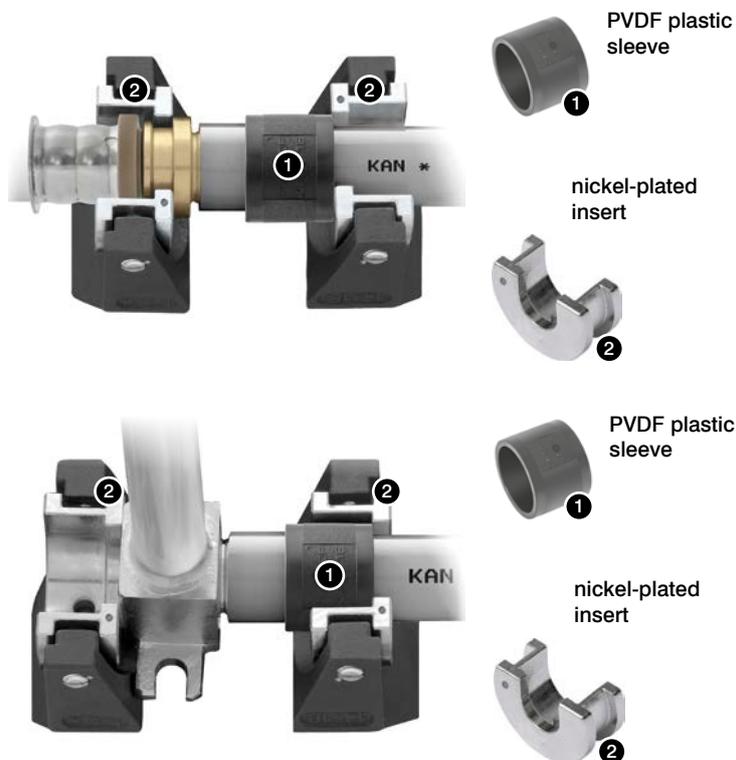
- 3 For assembly of brass elements use straight nickel-plated inserts.



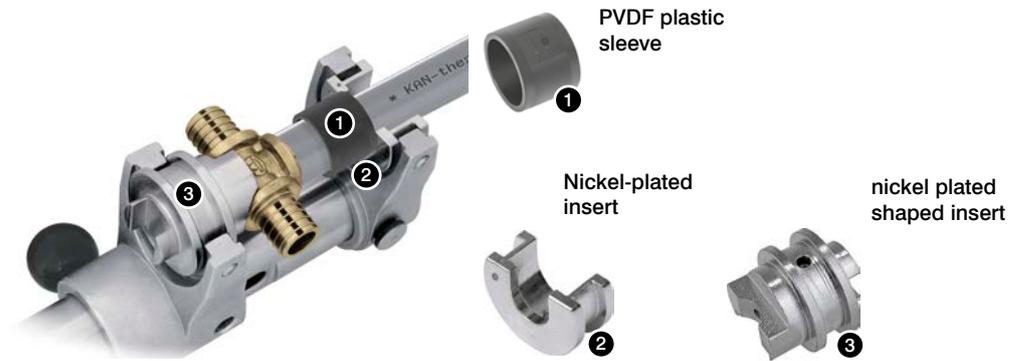
- 4 For screwed connections Ø 32 mm use only bare jaws (without inserts).



- 5 In the case of installation of the other brass elements, e.g. fittings with threads, tap connectors (with the exception of angle tap connectors) and connection fittings to radiators you should also use straight nickel plated inserts.

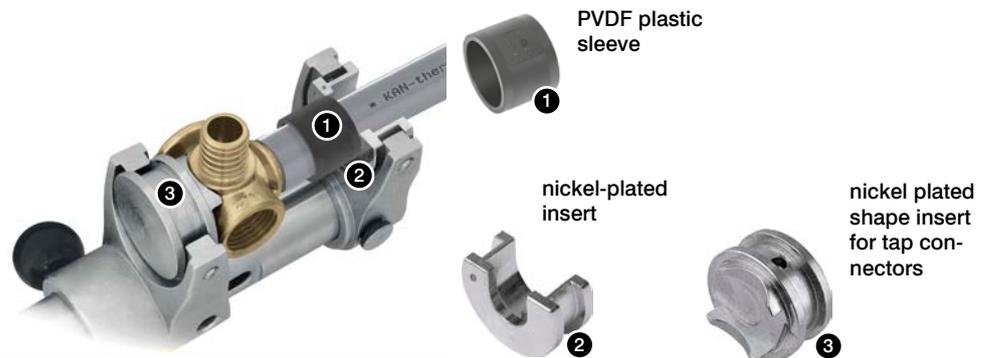


- 6 For brass tee fittings with shortened construction on branch Ø14, 18, 25 mm, use shaped nickel plated inserts at the element side. At the sleeve side use straight nickel plated inserts.



**!** **Caution: Shaped inserts are not compatible with hand chain crimping tools.**

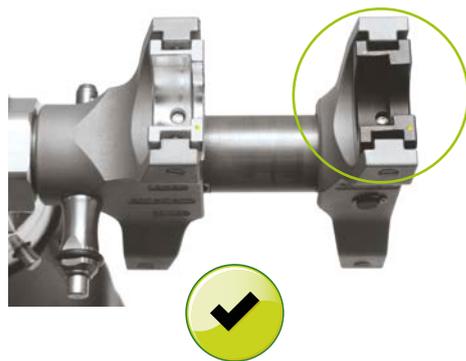
**7** For brass angular wallplate elbows Ø18 mm, use nickel plated insert for wallplate elbows at the fitting side. At the sleeve side use straight nickel plated inserts.



**!** **CAUTION!**

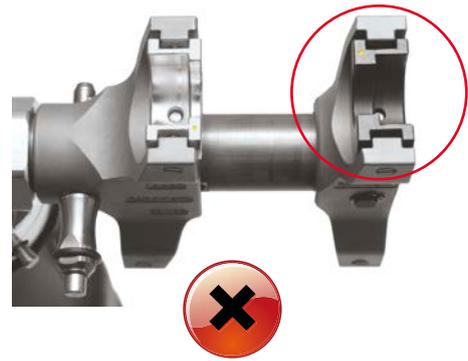
The presented above shaped inserts for brass fittings are not a standard part of tool kits, please order them separately. Shaped inserts are not compatible with hand chain crimping tools.

**Novopress tool (battery driven)**



**Correct way of mounting inserts on machine forks.**

Diameter range 14 do 25 mm.



**Incorrect way of mounting inserts on machine forks.**

Diameter range 14 do 25 mm.

## Tools for Push Platinum joints

To make a joint in the KAN-therm Push Platinum System use KAN-therm Push System tools. Tools must be provided with expanding heads for multi-layer PE-Xc/Al/PE-HD Platinum pipes.

It is possible to use the complete set of hand tools for mounting of KAN-therm Push Platinum system, fitted as standard with expansion heads for Platinum pipes.

## Heads for Push Platinum joints

For connections in the KAN-therm Push Platinum system use standard tool sets the of KAN-therm Push system, supplemented by Push Platinum heads.

Push Platinum expanding heads  
„One Step“ – 14, 18, 25, 32  
(1 piece each)



## Tools - Safety

All tools must be applied and used in accordance with their purpose and the manufacturer's instructions.

Use for other purposes or in other areas are considered to be inconsistent with the intended use.

Intended use also requires compliance with the instructions, conditions of inspection and maintenance and relevant safety regulations in their current version.

All works done with tools, which do not meet the application compatible with the intended purpose may result in damage to tools, accessories and pipes. The consequence may be the leak and / or damage.

## Screwed connections for PE-Xc/Al/PE-HD Platinum pipes

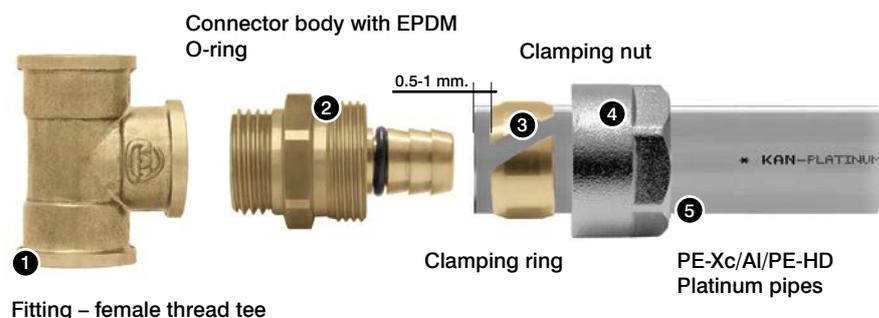
Screwed connections in System KAN-therm Push Platinum may be carried out by:

- Compression fittings for PE-Xc/Al/PE-HD Platinum pipes,
- Eurocone adapters for PE-Xc/Al/PE-HD Platinum pipes.

## Compression fittings for PE-Xc/Al/PE-HD Platinum pipes 14–18 mm

Assembling of a screwed joint:

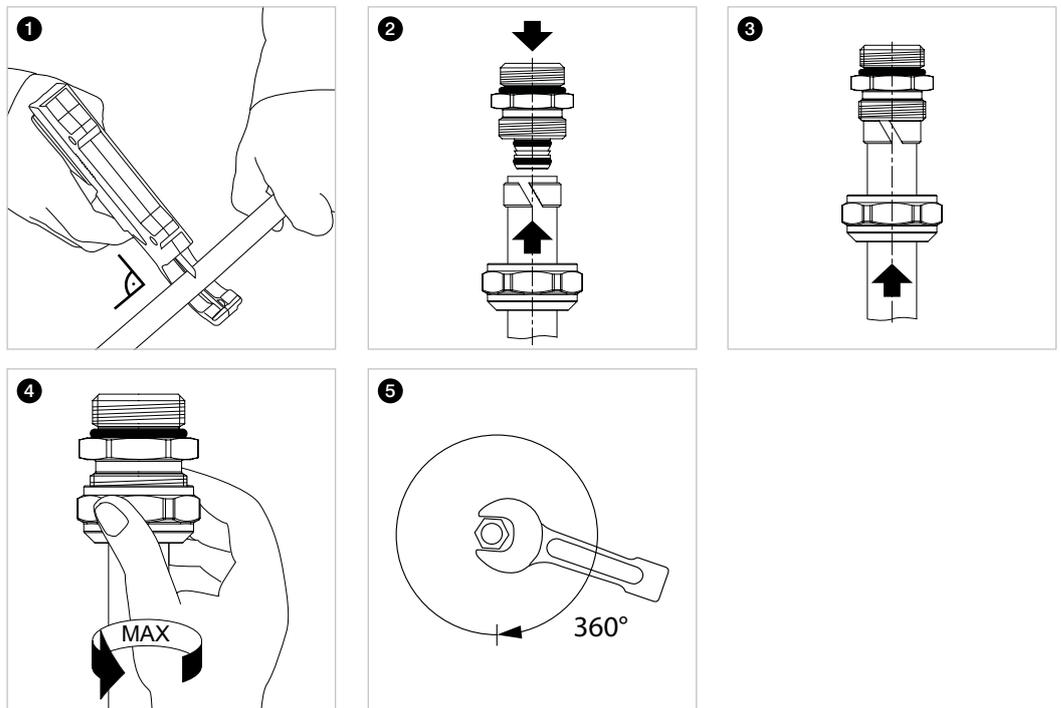
- 1 Screw the joint body into a fitting provided with a sealed thread.
- 2 Fit the nut and the compression ring on a pipe.
- 3 Push a pipe onto the coupling body and screw on a ring-clamping nut.



Fit a compression ring onto a pipe so that the ring edge is 0,5 - 1 mm away from the pipe edge. A pipe should be pushed to the end of the pipe connectors body. This connection may be taken

apart - after the connector body is pulled out of a pipe you should cut away the used pipe end and you may create a new connection.

Do not turn a fitting on a pipe during assembly and after it and do not use any lubricants to push a pipe easier onto a fitting body.



Screwed joints can be combined with:

- female threaded fittings like elbows, tees, wallplate elbows, manifolds without a nipple,
- female thread fixtures.

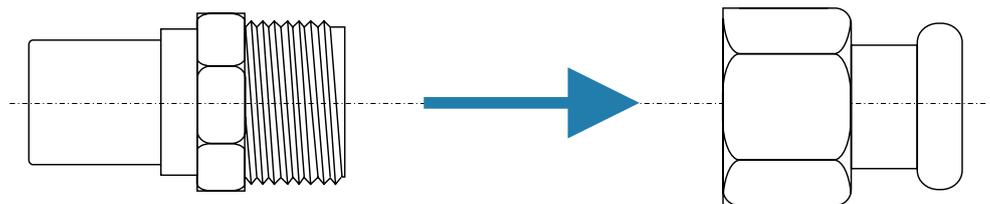


**Seal these connections:**

- Use tow and paste for sealing threads, noting that in the event of internal brass threads you should not use too much tow,
- do not conceal in floors and under the plaster.

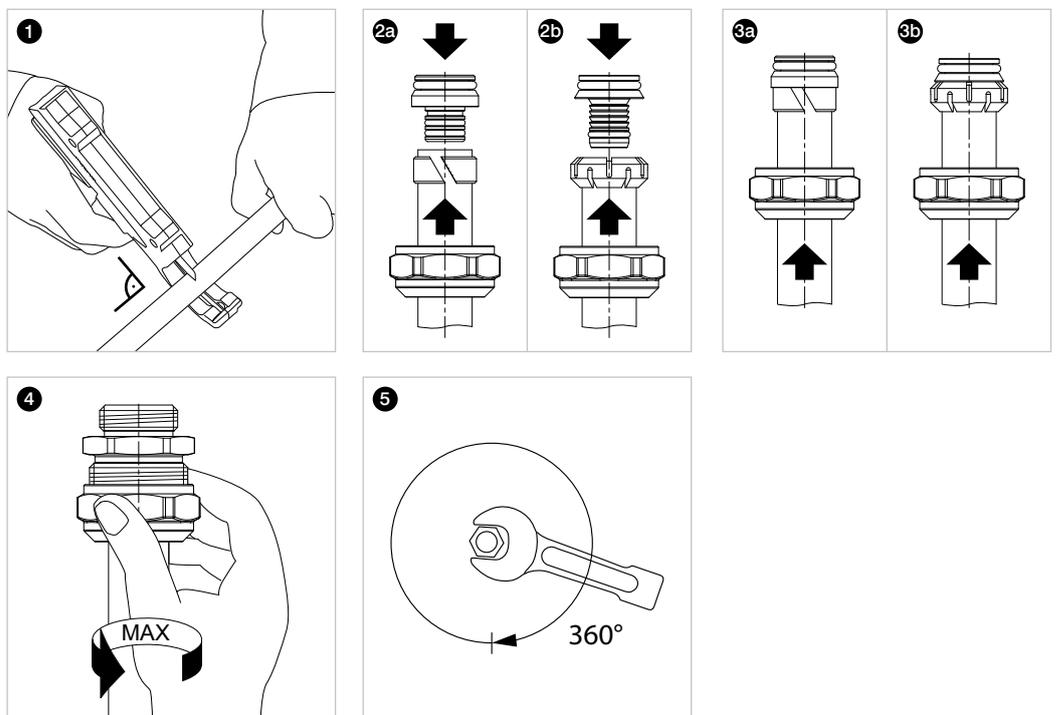
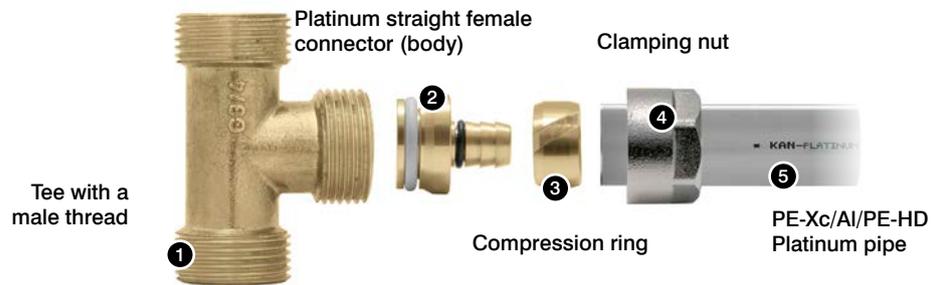
**KAN-therm brass male thread connector**

**Female steel connector**



## Union connection for PE-Xc/Al/PE-HD Platinum pipes 14 – 18 mm

Union connectors in the KAN-therm Push Platinum System are the only permissible form of union connections. The range of diameters for the KAN-therm Push Platinum union connectors is 14 – 18 mm.



Push Platinum screwed joints (with a white O-Ring) for Eurocone connections can be combined with:

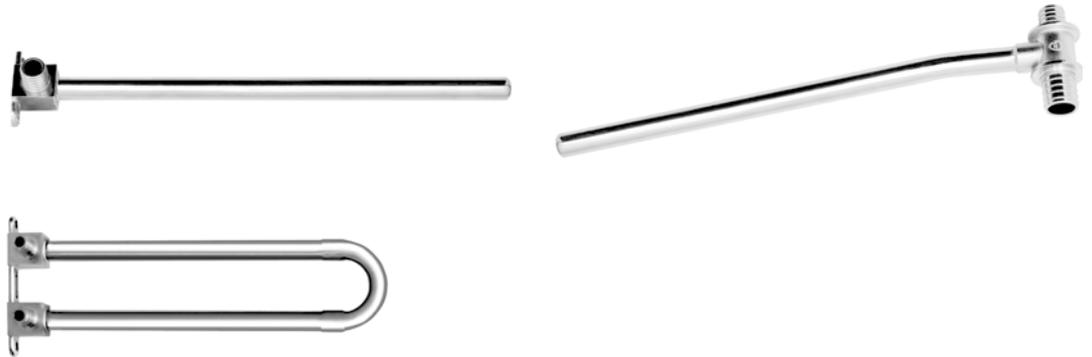
- fittings for screwed joints with a male thread (series of fittings 9012),
- manifolds equipped with special nipples,
- combined radiator valves.



This kind of joints is self-sealing and no additional sealing like PTFE tape or tow should be used. Connections must be easily accessible.

## Joining fittings with nickel-plated pipes with radiator fixtures

For good looks of a KAN-therm radiator connection both from a floor or a wall we offer special fittings with nickel-plated copper pipes.



Elbows and tees with nickel pipe should be connected with radiator valves and directly with VK type radiators utilizing connectors for Ø15 mm nickel plated copper pipes.

All joints of this kind are self-sealing and no additional sealing is needed.

## Compensation of thermal elongation

The elongation ( $\Delta L$ ) due to temperature  $\Delta T$  change can be determined according to the following formula:

$$\Delta L = \alpha \times L \times \Delta T$$

where:

$\alpha$  – coefficient of linear expansion [mm/mK]

$L$  – length of pipeline section [m]

$\Delta T$  – temperature difference (assembly and operation) [K]

Required length of an flexible arm is determined from the formula:

$$L_s = K \times \sqrt{D_z \times \Delta L}$$

where::

$K$  – material constant = 36

$D_z$  – external diameter [mm]

$L_s$  – length of the elastic arm [mm]

In the case of flush-mount installation with 14-25 mm diameters, lead the pipes with light curves (with 10% excess in relation to the straight line), which allows you to achieve self-compensation of pipeline thermal elongations.



To eliminate the phenomenon of excessive fittings mechanical load with bending force, it is forbidden to bend pipes at a distance of less than 10 external diameter from the fitting itself.



## KAN-therm Push system

The KAN-therm Push System is a complete system consisting of PE pipes PE-Xc or PE-RT and PPSU fittings or brass fittings within a diameter range Ø12-32 mm.



A KAN-therm Push System leak-tight joints without O-Rings are made by pushing a brass sleeve onto a fitting and a pipe. These joints do not require additional sealing like a PTFE tape or tow. Other complementing elements of the system are manifolds and installation cabinets.

The KAN-therm Push System was designed on a rule „fast assembly – permanent effect“ thus investment and finishing work can be substantially speed up.

## Modern technology

The latest plastic material invention PPSU – phenylene polysulfone – used for joints ensures:

- full resistance against corrosion,
- full neutrality against potable water,
- durability of fittings higher than that of pipes,
- high mechanical strength.

The technology of making PPSU fittings practically excludes possible occurrence of hidden defects.

## Technology for many years

Due to a perfect design of parts of the KAN-therm Push System and their matching merits as follows are achieved:

- over a 50-year operation life,
- possible operation at high temperatures –  $T_{work} = 80^{\circ}\text{C}$  (operating temperature),  $T_{max} = 90^{\circ}\text{C}$  (max. temperature – the heat source must be protected against a temperature rise above that level),
- extremely durable PPSU fittings the max. operating parameters are limited by the pipe life,
- absolutely no corrosion irrespective of the water quality.

## Optimum technology

The KAN-therm Push System allows for a selection of best solutions both in technical terms and cost terms as:

- Push joints can be hidden in floors,
- possible connecting with systems made of other materials,
- possible cost-saving distribution systems.

## Safe technology

The KAN-therm Push System guarantees full safety of mounting and operation:

- „Push“ type fittings made of PPSU conform to PN-EN ISO 15875-3:2005 and PN-EN ISO 22391-3:2010 and obtains hygiene certificates by PZH,
- PE-RT pipes conform to PN-EN ISO 22391-2:2010 and obtains hygiene certificates by PZH,
- PE-Xc pipes conform to PN-EN ISO 15875-2:2005 and obtains hygiene certificates by PZH,
- a 10-year guarantee for the Push system.

## PE-RT pipes

PE-RT pipes of the KAN-therm Push System are made of a high thermal resistance polyethylene.

### Assortment of PE-RT pipes:

- PE-RT pipes with an anti-diffusion barrier EVOH, series: Ø12×2; Ø14×2; Ø18×2\*; Ø18×2,5; Ø25×3,5; Ø32×4,4 for central heating systems and hot and cold tap water systems.
- PE-RT pipes with anti-diffusion barrier are also available with 6 mm insulation.



### KAN-therm Push pipes: dimensions, application and water volumes:

OD [mm]	Wall thickness [mm]	EVOH shield	For installation	Water volume [dm³/m]
12	2.0	yes	c.h. / t. c.w. & h.w.	0.050
14	2.0	yes	c.h. / t. c.w. & h.w.	0.079
18*	2.0	yes	c.h. / t. c.w. & h.w.	0.154
18	2.5	yes	c.h. / t. c.w. & h.w.	0.133
25	3.5	yes	c.h. / t. c.w. & h.w.	0.254
32	4.4	yes	c.h. / t. c.w. & h.w.	0.423

The EVOH (ethylene-vinyl alcohol) coating is applied directly on the base pipe and bound with it with a layer of glue. This coating satisfies the DIN 4726 requirements.

## PE-Xc pipes

KAN-therm Push System PE-Xc pipes are manufactured from a high-density polyethylene and are subjected to cross-linking with an electron beam („c“ – a physical method, without using chemical agents).

### Assortment of PE-Xc pipes:

- PE-Xc pipes with the EVOH anti-diffusion barrier, series: Ø12×2; Ø14×2; Ø18×2\*; Ø18×2,5; Ø25×3,5; Ø32×4,4 for central heating and hot and cold tap water systems.
- PE-Xc pipes with anti-diffusion barrier are also available with 6 mm insulation.



### Dimensions of KAN-therm Push System PE-Xc pipes, their application and water volumes:

OD [mm]	Wall thickness [mm]	EVOH coating	Installation	Water volume [dm³/m]
12	2.0	yes	c.h. / t. c.w. & h.w.	0.050
14	2.0	yes	c.h. / t. c.w. & h.w.	0.079
18*	2.0	yes	c.h. / t. c.w. & h.w.	0.154
18	2.5	yes	c.h. / t. c.w. & h.w.	0.133
25	3.5	yes	c.h. / t. c.w. & h.w.	0.254
32	4.4	yes	c.h. / t. c.w. & h.w.	0.423

The EVOH (ethylene-vinyl alcohol) coating is applied directly on the base pipe and bound with it with a layer of glue. This coating satisfies the DIN 4726 requirements.

## PE-RT and PE-Xc pipes operating parameters

PE-RT pipes acc. to PN-EN ISO 22391-2:2010 and PE-Xc pipes acc. to PN-EN ISO 15875-2:2004: Operating parameters:

Installation and application class (acc. to ISO 10508)	Nominal diameter dn [mm]	Wall thickness [mm]	EVOH coating	Operating parameters			Connection type	
				P <sub>work</sub> [bar]		T <sub>work</sub> /T <sub>max</sub> [°C]	Push	Screwed
				PE-Xc	PE-RT			
Cold tap water	12	2	yes	10	10	20	+	+
	14	2	yes	10	10	20	+	+
	18	2.5	yes	10	10	20	+	+
	25	3.5	yes	10	10	20	+	+
	32	4.4	yes	10	10	20	+	+
Hot tap water (class 1)	12	2	yes	10	10	60/80	+	+
	14	2	yes	10	10	60/80	+	+
	18	2.5	yes	10	10	60/80	+	+
	25	3.5	yes	10	10	60/80	+	+
	32	4.4	yes	10	10	60/80	+	+
Hot tap water (class 2)	12	2	yes	10	10	70/80	+	+
	14	2	yes	10	10	70/80	+	+
	18	2.5	yes	10	10	70/80	+	+
	25	3.5	yes	10	10	70/80	+	+
	32	4.4	yes	10	10	70/80	+	+
Underfloor heating, low temperature radiator heating (class 4)	12	2	yes	10	10	60/70	+	+
	14	2	yes	10	10	60/70	+	+
	18*	2	yes	10	8	60/70	+	+
	18	2.5	yes	10	10	60/70	+	+
	25	3.5	yes	10	10	60/70	+	+
	32	4.4	yes	10	10	60/70	+	+
Radiator heating (class 5)	12	2	yes	10	10	80/90	+	+
	14	2	yes	10	8	80/90	+	+
	18*	2	yes	8	6	80/90	+	+
	18	2.5	yes	10	8	80/90	+	+
	25	3.5	yes	10	8	80/90	+	+
	32	4.4	yes	10	8	80/90	+	+

Working temperature, T<sub>work</sub>, in individual classes should be treated as design temperature, and the maximum temperature, T<sub>max</sub>, as the temperature against which all installations should be protected.

## PE-RT and PE-Xc pipes: Physical properties

Property	Symbol	Unit	PE-Xc	PE-RT
Linear extension coefficient	$\alpha$	mm/m $\times$ K	0,14 (20 °C) 0,20 (100 °C)	0.18
Thermal conductivity	$\lambda$	W/m $\times$ K	0.35	0.41
Density	$\rho$	g/cm <sup>3</sup>	0.94	0.933
Module E	E	N/mm <sup>2</sup>	600	580
Tensile stretch		%	400	1000
Minimum bend radius	Rmin		5 $\times$ D	5 $\times$ D
Internal wall roughness	k	mm	0.007	0.007

### Transport and storage

PE-RT and PE-Xc pipes are delivered in coils 25, 50, 200 m in carton packages. They can be stored at different temperatures also below 0°C. As these pipes are sensitive to UV radiation protect them against a long-term sun radiation.

### Contact with substances containing solvents, sealing the threads

- Avoid direct contact of KAN-therm elements with solvents or solvent-containing materials, such as paints, aerosols, montage foams, adhesives, etc. Under unfavorable circumstances, these substances may damage plastic parts.
- Make sure that the connection sealants, cleaners or insulation of System KAN-therm components, do not contain compounds that cause stress cracks: ammonia, ammonia retaining compounds, solvents, aromatic or chlorinated hydrocarbons (e.g., ketones and ethers). Do not use montage foams based on methacrylate and acrylate isocyanate.
- Secure the KAN-therm System elements against contact with adhesive strips and adhesives for insulation. Apply the adhesive tapes only on external surface of the thermal insulations.
- For the threaded connections it is recommended to use hemp in an amount such that the tops of the thread are still visible. Using too much hemp may damage the thread. Winding hemp just after first turn of the thread helps to avoid diagonal screwing and thread damage.



#### CAUTION!

Do not use chemical sealants and adhesives.

## Push connections

A Push type connection is made by pushing a brass sleeve onto a pipe and a fitting with the help of a hand, hydraulic or battery-driven machine.



Fittings for Push connections:



- elbows and tees,
- elbows, tees and other fittings with nickel-plated pipes Ø15mm,
- connectors, screwed couplings, male thread and female thread connectors,
- wallplate elbows,
- other fittings.

PVDF plastic sleeve for Push connections:



Brass sleeve for Push connections:

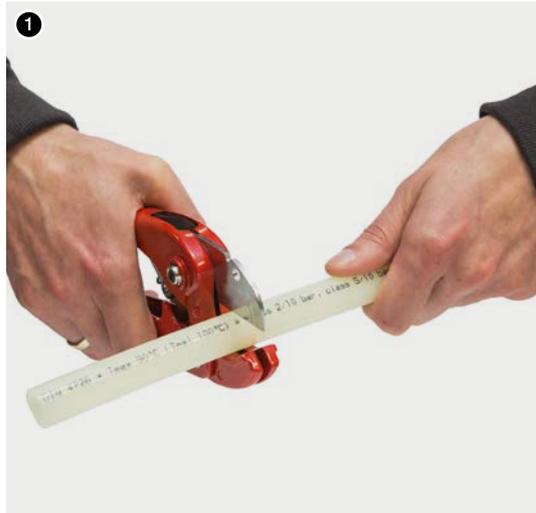


## Assembly of Push connections

**1.** Cut a PE-RT or PE-Xc pipe to a required length with scissors.

A cut shall be perpendicular to the pipe axis. For cutting use only sharp blades.

**2.** Put the sleeve onto the pipe. In case of brass sleeve with its chamfered edge toward the fitting. Plastic sleeves are symmetrical and do not require positioning. Select the sleeve appropriately to the pipe diameter



**3.** Expand the pipe with a hand or electric expanding tool. In both cases the pipe should be expanded:

A) for old expanding heads - the head should be expanded in three phases. First two expansions should not be full, and the expander should be rotated in relation to the pipe by 30° and 15°.

Third expansion should be full.

B) when using new, "One Step" expanding heads (only for diameters of 14-32 mm) - the pipe should be expanded in one step, using the full width of the expander.



**4.** Insert the fitting into a pipe up to the last bead on the fitting.

There is possibility of performing Push connections at temperatures below 0°C under additional conditions given in KAN-therm System Designers and Contractors guide.

**5.** Slide the sleeve with a hand/ hydraulic or electric machine Grip fittings only at their flange. Do not slide two sleeves at the same time.

**6.** Observe assembling process - after sliding the sleeve up to fittings flange, the whole process should be stopped. The connection is ready for pressure test.



- 1 For assembly of PPSU plastic fittings at the fitting side you must use black inserts marked T (12, 14, 18 or 25), and on the sleeve side straight, nickel-plated inserts. A PPSU fitting must be supported by the collar directly next to the stub pipe you push the sleeve onto.



- 2 When assembling a PPSU fitting dia. 32 mm use bare machine jaws at the both sides.



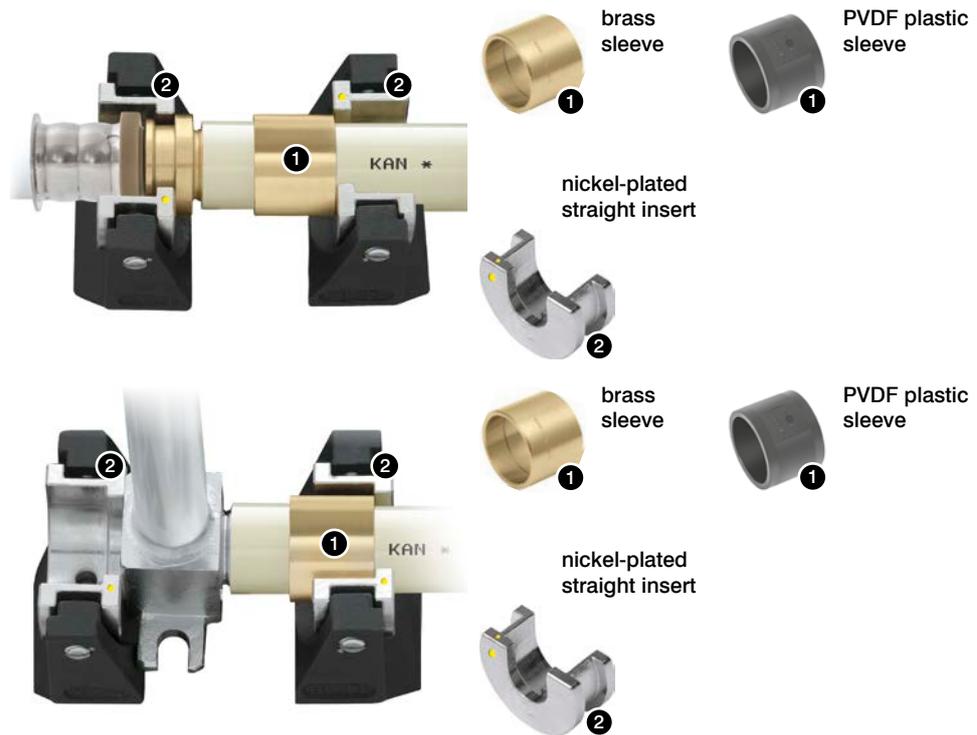
- 3 To install brass fittings with diameters of  $\text{\O}12 - 25 \text{ mm}$ , use straight nickel plated inserts at the side of fitting and sliding sleeve.



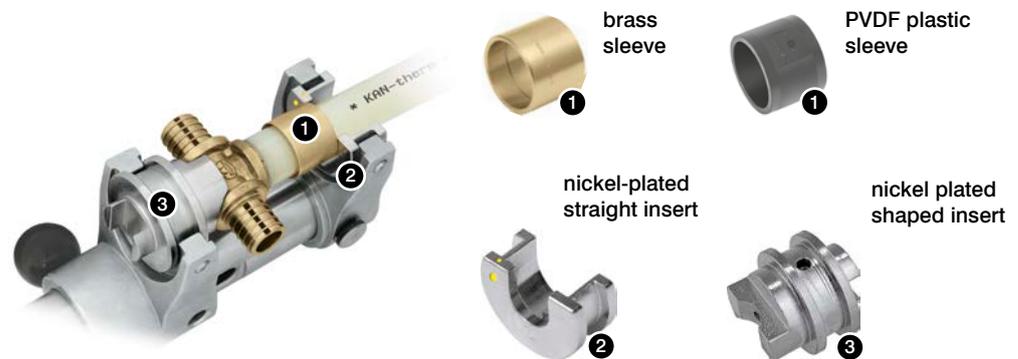
- 4 For screwed joints  $\text{\O} 32 \text{ mm}$  apply only machine forks without inserts.



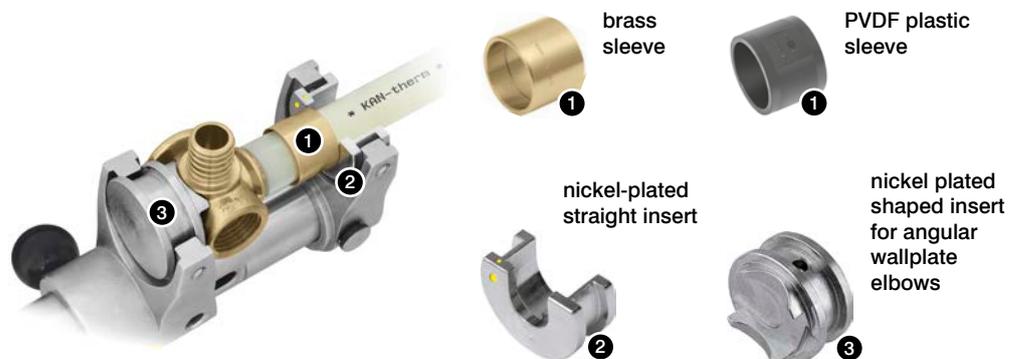
- 5 For assembly of other brass elements e.g. threaded couplings, wallplate elbows (excluding angle wallplate elbows) and radiator connectors, use nickel-plated inserts (straight).



- 6 For brass tee fittings with shortened construction branches  $\varnothing 14, 18, 25$  mm, use shaped nickel plated inserts at the element side. At the sleeve side use straight nickel plated inserts.



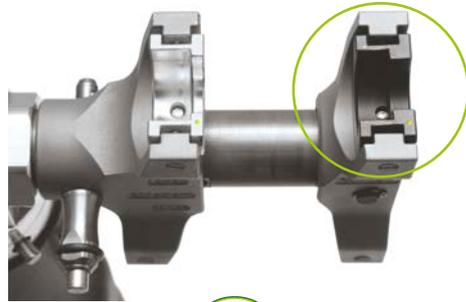
- 7 For brass angular wallplate elbows  $\varnothing 18$  mm, use shaped nickel plated inserts for wallplate elbows at the fitting side. At the sleeve side use a nickel-plated straight insert.



**! Caution: Shaped inserts are not compatible with hand chain crimping tools.**

The above presented shape inserts for brass fittings are not a standard part of tool sets; they should be ordered separately.

**Novopress tool (battery driven)**



**Correct way of mounting inserts on machine forks.**

Diameter range 14 do 25 mm.



**Incorrect way of mounting inserts on machine forks.**

Diameter range 12 do 25 mm.

## Tools for Push connections

### “One step” expanding heads

The new KAN-therm Push expander allows you to expand the pipe in one step. Currently it is the only tool available that allows for expanding PE-Xc and PE-RT pipes “at once”. This is possible due to the new and improved expanding head.

1. Innovative, 8-element body guarantees safe assembly without the risk of damaging the piping while expanding it “ONE STEP”.
2. New expanding head design allows for quick and safe assembly due to the ability to expand the end of the pipe in one cycle, using so called “ONE STEP expansion”.
3. New metal heat treatment technology greatly improves the element life.
4. Special plastic bag protects the heads from the environmental damage.
5. New, “ONE STEP” expanding heads and pipe press inserts (black and nickel plated) are marked with colors indicating the pipe diameter.
6. Special guide system inside the  $\varnothing 32$  mm, expanding head protects it from damage resulting from exposure to strong forces.



## Quick diameter recognition

All heads are marked with colored strips for easy identification and provided in a practical container. Pipe press inserts are also color coded according to their diameter. This method of identification makes the work easier for people responsible for installing pipes, selling them and people working at tool rental companies.



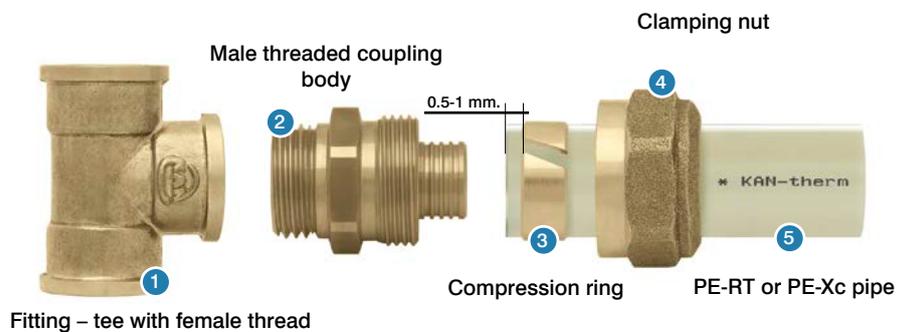
## Tools - Safety

All tools must be applied and used in accordance with their intended purpose and the user manual of the manufacturer. Use for other purposes or in another field shall be considered as contrary to the intended use. Intended use also requires compliance with the operating instructions, conditions and maintenance and appropriate safety regulations in their current version. All works done with this tool, which do not correspond with the intended purpose, may lead to damage of the tools, accessories and pipe fittings. The consequence can be leaks and/or damages to the pipe connections.

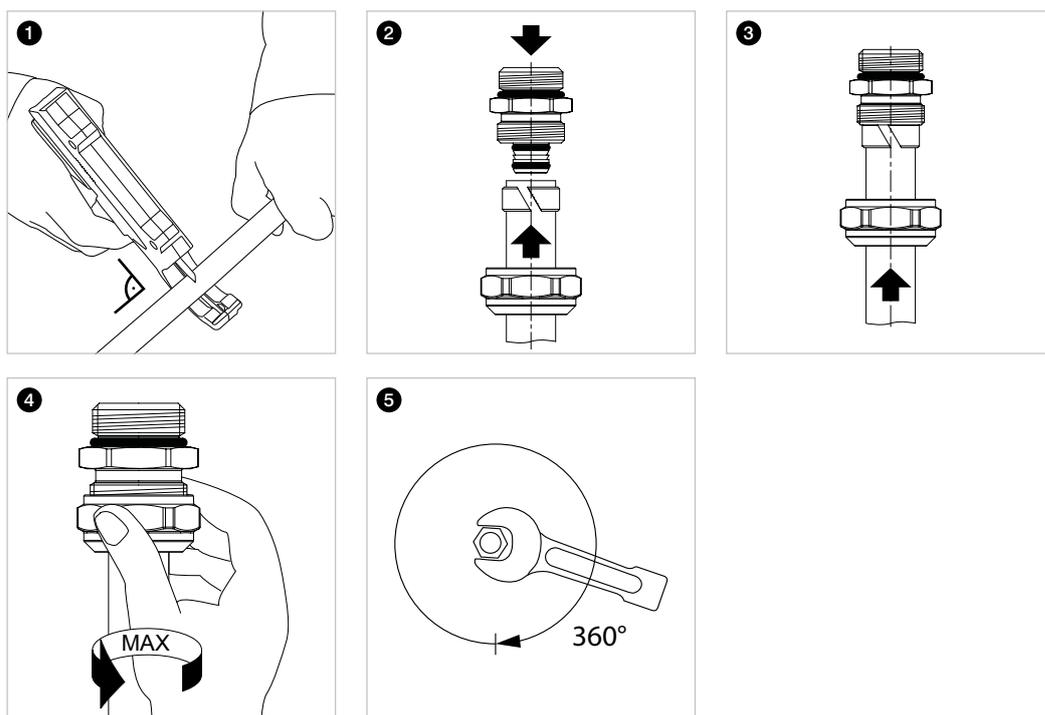
## Screwed joints for PE-RT and PE-Xc – Ø12-32 mm

Assembling of a screwed joint:

- 1 Screw the joint body into a fitting provided with a sealed thread.
- 2 Fit the nut and the compression ring on a pipe.
- 3 Push a pipe onto the coupling body and screw on a ring-clamping nut.



Fit a compression ring onto a pipe so that the ring edge is 0,5 - 1 mm away from the pipe edge. A pipe should be pushed to the end of the pipe connectors body. This connection may be taken apart - after the connector body is pulled out of a pipe you should cut away the used pipe end and you may create a new connection.



Do not turn a fitting on a pipe during assembly and after it and do not use any lubricants to push a pipe easier onto a fitting body.

**Screwed joints can be combined with:**

- Female threaded fittings like elbows, tees, wallplate elbows, manifolds without a nipple (bare),
- female thread fixtures.

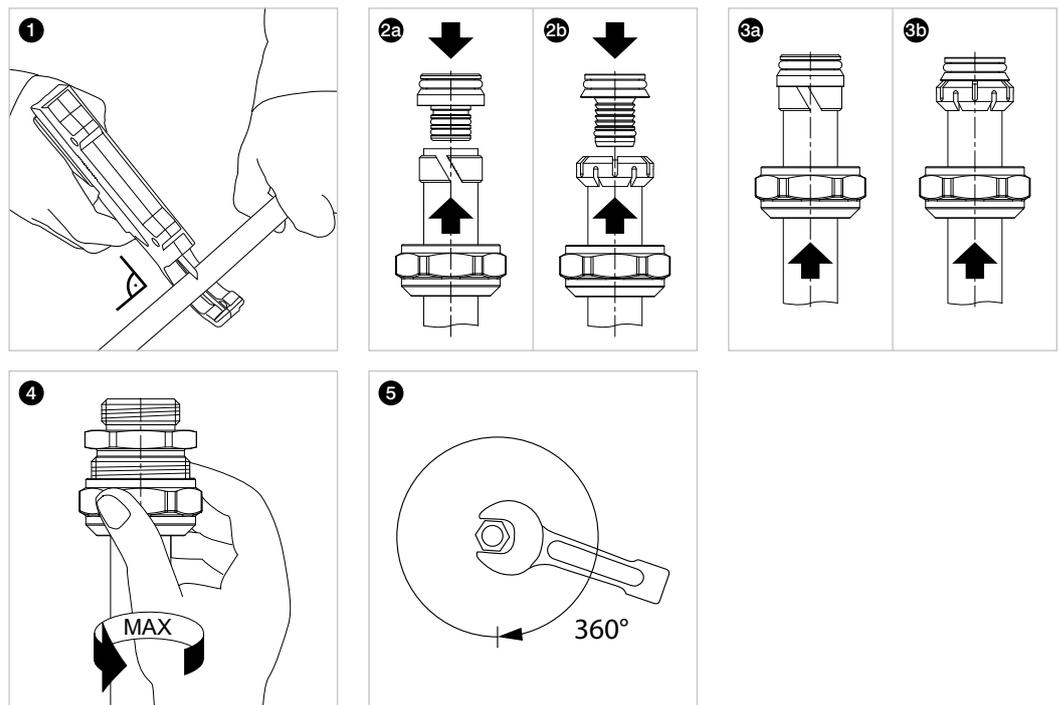
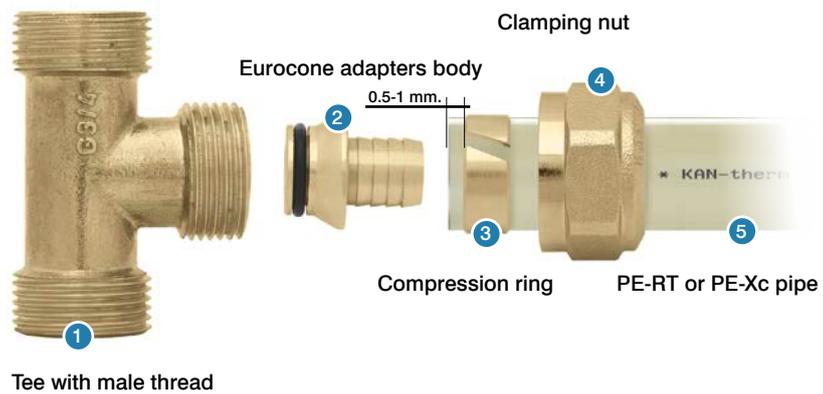


**Connections of this type should not be laid in the flooring.**

It is advised to seal threaded connections with such an amount of tow, that leaves the thread tops not covered. Using too much tow may lead to thread damage. By winding tow just after the first thread ridge you can avoid skew screwing and damaging the thread.

**Eurocone adapters for PE-RT and PE-Xc  
- Ø12-25 mm pipes**

Eurocone adapter are a version of screwed joints.



The main element of such connections is an eurocone adapter body with a sealing O-Ring between a body and a fitting. Eurocones combine with:

- a 9012 series fittings with male threads,
- manifolds with special nipples,
- combined radiator valves.



Eurocone adapters are characteristic for a sealing on the cone and an O-Ring between body and a fitting. This kind of joints is self-sealing and no additional sealing element like a PTFE tape or tow shall be used. Locate such connections at generally accessible places.

### Joining fittings with nickel-plated pipes with radiator fixtures



For good looks of a KAN-therm radiator connection both from a floor or a wall we offer special fittings with nickel-plated copper pipes.

Elbows and tees with nickel plated copper pipe should be connected with radiator valves and directly with VK type radiators utilizing fittings for connecting Ø15 mm nickel plated copper pipes.

All joints of this kind are self-sealing and no additional sealing is needed.

## Compensation of thermal elongations

Pipeline elongation ( $\Delta L$ ) under the influence of the  $\Delta T$  difference is illustrated by the following formula:

$$\Delta L = \alpha \times L \times \Delta T$$

where:

$\alpha$  - coefficient of linear expandability [mm/mK]

$L$  - length of the pipeline section (m)

$\Delta T$  - temperature difference for installation and operation(K)

The desired length of the spring arm is calculated from the formula:

$$L_s = K \times \sqrt{D_z \times \Delta L}$$

where:

$K$  - material constant = 15

$D_z$  - external diameter [mm]

$L_s$  - length of the elastic arm [mm]

In the case of flush-mount installation with 14-25 mm diameters, lead the pipes with light curves (with 10% excess in relation to the straight line), which allows you to achieve self-compensation of pipeline thermal elongations.



To eliminate the phenomenon of excessive fitting mechanical load with bending force, it is forbidden to bend pipes at a distance of less than 10 external diameter from the fitting itself.



**25 YEARS ON THE MARKET!**

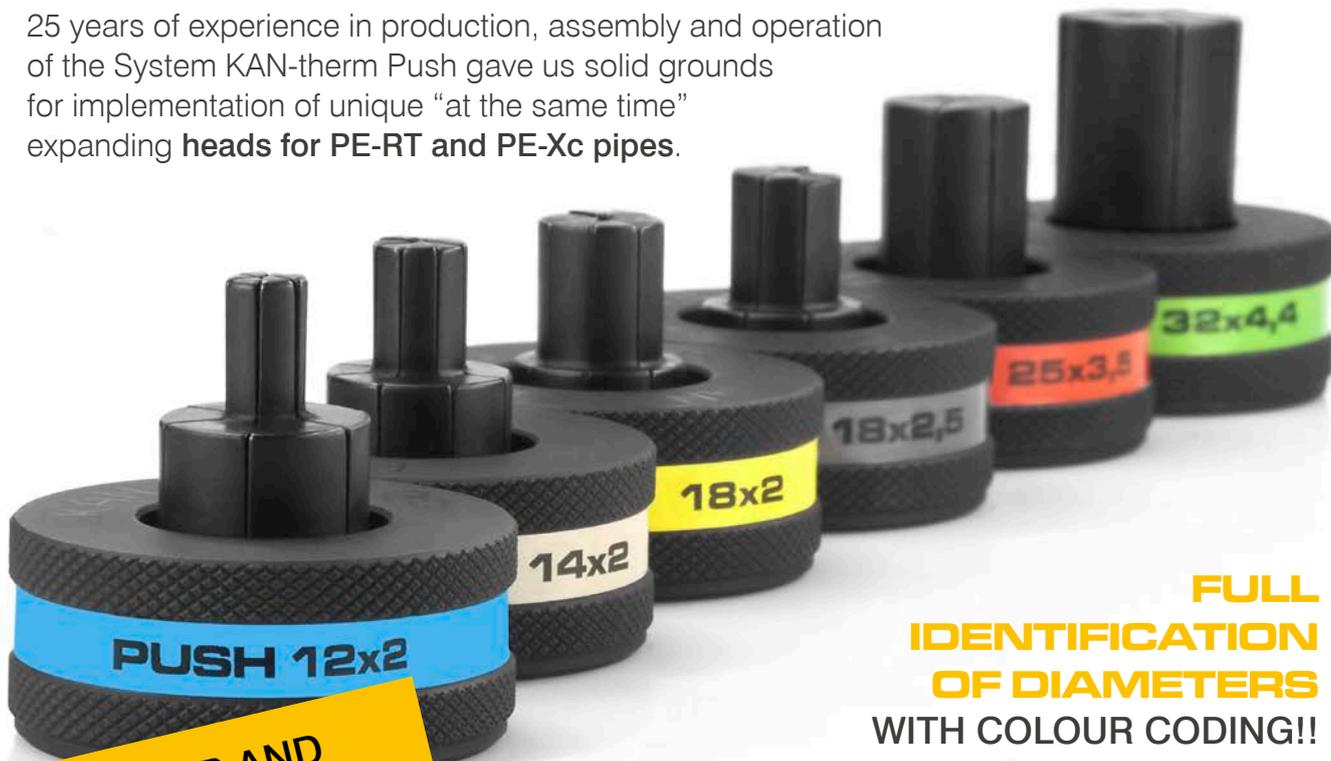
**SYSTEM KAN-therm**

# Push

25 years of experience in production, assembly and operation of the System KAN-therm Push gave us solid grounds for implementation of unique “at the same time” expanding heads for PE-RT and PE-Xc pipes.



SYSTEM  
KAN-therm



**FULL IDENTIFICATION OF DIAMETERS WITH COLOUR CODING!!**

**QUICKER AND SAFER ASSEMBLY ONE STEP!**



## KEY ADVANTAGES:

- Assembly – expansion at the same time for quicker and easier assembly.
- **Easier and quicker identification of diameters with colour coding** (colour marking of connectors and tools).
- New, innovative, 8-segment design of the heads.
- New enhanced thermal treatment technology used in manufacturing of the heads.
- The set is provided in practical and ergonomic packaging suitable for construction site conditions.



[www.kan-therm.com](http://www.kan-therm.com)

TECHNOLOGY OF SUCCESS



ISO 9001

# System **KAN-therm** Push/ Push Platinum - assortment

## multilayer pipe PE-Xc/Al/PE-HD Push Platinum

GROUP: C

Size	New code	*	Code	Packing	UM
14×2	1129 201002		0.1420	200/3000	m
<b>N</b> 18×2,5	1129 201006		0.1825N	200/3000	m
25×3,5	1129 201000		0.2535	50/750	m
32×4,4	1129 201007		0.3244	25/375	m



## pipe PE-Xc with EVOH layer acc. DIN 4726

GROUP: C

Size	New code	*	Code	Packing	UM
12×2	1129 200023		0.2144	200/4000	m
14×2	1129 200027		0.2145	200/4000	m
18×2,5	1129 200039		0.9119	200/3000	m
25×3,5	1129 200043		0.9127	50/1000	m
32×4,4	1129 200045		0.9133	25/500	m



## pipe PE-Xc with EVOH layer acc. DIN 4726 - in 6 mm thermal insulation

GROUP: C

Size	New code	*	Code	Packing	UM
12×2 red	1129 200025		0.2144-6C	100/1500	m
12×2 blue	1129 200026		0.2144-6N	100/1500	m
14×2 red	1129 200030		0.2145-6C	50/750	m
14×2 blue	1129 200031		0.2145-6N	50/750	m
18×2,5 red	1129 200041		0.9119-6C	50/750	m
18×2,5 blue	1129 200042		0.9119-6N	50/750	m



## pipe PE-RT with EVOH layer acc. DIN 4726

GROUP: C

Size	New code	*	Code	Packing	UM
12×2	1129 198025		0.2174	200/4000	m
14×2	1129 198027		0.2175	200/4000	m
18×2,5	1129 198037		0.2177	200/3000	m
25×3,5	1129 198032		0.9226	50/1000	m
32×4,4	1129 198038		0.9228	25/500	m



## pipe PE-RT with EVOH layer acc. DIN 4726 - in 6 mm thermal insulation

GROUP: C

Size	New code	*	Code	Packing	UM
14×2 red	1129 198016		0.2175-6C	50/750	m
14×2 blue	1129 198017		0.2175-6N	50/750	m
18×2,5 red	1129 198020		0.2177-6C	50/750	m
18×2,5 blue	1129 198021		0.2177-6N	50/750	m
25×3,5 red	1129 198013	*	0.9226-6C	25/375	m
25×3,5 blue	1129 198014	*	0.9226-6N	25/375	m



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### Push brass connector, with flange, with male thread

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 G½"	1109 045011		9014.580	10/150	pc
14×2 G½"	1109 045012		9006.37K	10/150	pc
18×2,5 G½"	1109 045015		9006.39K	10/150	pc
18×2,5 G¾"	1109 045000		9006.90K	10/150	pc
25×3,5 G½"	1109 044006		9014.98	5/80	pc
25×3,5 G¾"	1109 045017		9014.220	5/80	pc
25×3,5 G1"	1109 042035		9014.200	5/70	pc
32×4,4 G1"	1109 045019		9019.030	5/50	pc



### Push connector PPSU, with flange, with female thread

GROUP: A

Size	New code	*	Code	Packing	UM
14×2 G½"	1109 044000		9019.47	10/120	pc
18×2,5 G½"	1109 044001		9019.46	10/120	pc



### Push brass connector, with flange, with female thread

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 G½"	1109 044008		9014.590	10/150	pc
14×2 G½"	1109 042029		9014.270	10/150	pc
18×2,5 G½"	1109 044010		9014.290	10/150	pc
18×2,5 G¾"	1109 042031		9014.380	10/120	pc
25×3,5 G½"	1109 042033		9014.400	5/80	pc
25×3,5 G¾"	1109 044012		9014.300	5/70	pc
32×4,4 G1"	1109 044014		9019.040	5/50	pc



### PPSU Push coupling

GROUP: A

Size	New code	*	Code	Packing	UM
14×2 / 14×2	1109 042002		9019.23	10/160	pc
18×2,5 / 18×2,5	1109 042005		9019.26	10/160	pc
25×3,5 / 25×3,5	1109 042007		9019.28	5/80	pc
18×2,5 / 14×2	1109 046002		9019.27	10/160	pc
25×3,5 / 18×2,5	1109 046000		9019.30	5/80	pc



### Push coupling, reducing

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 / 12×2	1109 042008		9014.610	50/700	pc
14×2 / 14×2	1109 042009	***	9006.06	10/350	pc
32×4,4 / 32×4,4	1109 042024		9019.050	5/60	pc
14×2 / 12×2	1109 042010		9016.250	10/300	pc
18×2,5 / 12×2	1109 046006		9006.04	20/400	pc
18×2,5 / 14×2	1109 042013	***	9019.130	20/400	pc
25×3,5 / 18×2,5	1109 042020	***	9006.11CN	5/100	pc
32×4,4 / 25×3,5	1109 042022		9019.120	5/70	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## brass coupling Push - service element for PE-RT and PE-Xc pipes

GROUP: A

Size	New code	*	Code	Packing	UM
18x2 / 18x2,5	1109 046004		9006.12KPL	1/50	pc

**Caution:**

Coupling allows for connecting diameter 18x2, 5 to the existing installation made in the diameter 18x2,0.  
Connector includes two System KAN-therm Push sliding sleeves in diameter 18 mm (code 9001.80).



## Push tee PPSU

GROUP: A

Size	New code	*	Code	Packing	UM
12x2 / 12x2 / 12x2	1109 257015		9014.650	20/200	pc
14x2 / 14x2 / 14x2	1109 257018		9018.250	10/100	pc
18x2,5 / 18x2,5 / 18x2,5	1109 257026		9018.020	10/80	pc
25x3,5 / 25x3,5 / 25x3,5	1109 257049		9018.030	5/40	pc
32x4,4 / 32x4,4 / 32x4,4	1109 257060		9018.69	2/20	pc
14x2 / 12x2 / 12x2	1109 257016		9014.570	10/150	pc
14x2 / 12x2 / 14x2	1109 257017		9014.560	20/200	pc
14x2 / 18x2,5 / 14x2	1109 260019		9018.650	10/120	pc
18x2,5 / 14x2 / 14x2	1109 257024		9018.730	10/80	pc
18x2,5 / 14x2 / 18x2,5	1109 257025		9018.720	10/80	pc
18x2,5 / 25x3,5 / 18x2,5	1109 257028		9018.240	5/40	pc
25x3,5 / 14x2 / 18x2,5	1109 257039		9018.760	5/40	pc
25x3,5 / 14x2 / 25x3,5	1109 257040		9018.740	5/40	pc
25x3,5 / 18x2,5 / 18x2,5	1109 257043		9018.070	5/40	pc
25x3,5 / 18x2,5 / 25x3,5	1109 257045		9018.080	5/40	pc
32x4,4 / 18x2,5 / 25x3,5	1109 257052		9018.510	2/20	pc
32x4,4 / 18x2,5 / 32x4,4	1109 257053		9018.530	2/20	pc
32x4,4 / 25x3,5 / 25x3,5	1109 257056		9018.500	2/20	pc
32x4,4 / 25x3,5 / 32x4,4	1109 257058		9018.520	2/20	pc



## Push brass tee

GROUP: A

Size	New code	*	Code	Packing	UM
14x2 / 14x2 / 14x2	1109 257007	***	9006.16B	10/200	pc
25x3,5 / 25x3,5 / 25x3,5	1109 257006	***	9006.20B	5/60	pc
18x2,5 / 12x2 / 12x2	1109 260003		9013.580	10/120	pc
18x2,5 / 12x2 / 14x2	1109 260005		9013.660	10/120	pc
18x2,5 / 12x2 / 18x2,5	1109 260020		9013.620	10/120	pc
18x2,5 / 18x2,5 / 14x2	1009 260005		9013.73	10/100	pc
25x3,5 / 12x2 / 18x2,5	1109 257013		9013.38	5/60	pc
25x3,5 / 12x2 / 25x3,5	1109 257014		9013.40	5/60	pc
25x3,5 / 18x2,5 / 25x3,5	1109 257003	***	9006.66B	5/60	pc
25x3,5 / 32x4,4 / 25x3,5	1109 260015		9013.720	2/20	pc
32x4,4 / 14x2 / 32x4,4	1109 260017		9006.680	2/20	pc



## Push crossing pair single

GROUP: A

Size	New code	*	Code	Packing	UM
14x2 / 14x2 / 14x2	1109 257062		9019.32	1/6	pc

**Caution:**

brass passing Push tees - nickel plated version



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Push elbow PPSU

GROUP: A

Size	New code	*	Code	Packing	UM
14×2 / 14×2	1109 068009		9018.170	10/180	pc
18×2,5 / 18×2,5	1109 068012		9018.190	10/120	pc
25×3,5 / 25×3,5	1109 068014		9018.200	5/60	pc
32×4,4 / 32×4,4	1109 068017		9018.560	5/30	pc



## Push brass elbow

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 / 12×2	1109 068007		9006.09	20/400	pc
14×2 / 14×2	1109 068001	***	9006.11B	10/300	pc
25×3,5 / 25×3,5	1109 068015	***	9006.15B	5/60	pc



## Push brass elbow, with male thread

GROUP: A

Size	New code	*	Code	Packing	UM
14×2 / 15Cu - G½"	1109 068000		9029.12	10/150	pc
18×2,5 / 15Cu - G½"	1109 070002		9029.11	10/150	pc

**Caution:** the elbow with external thread should be connected with Ø15 copper pipe with elements:  
- union screw for the copper Ø15 G½" pipe, code 1709043003.



## coupling for radiator connection with multilayer pipe, L<sub>min</sub> = 500 mm

GROUP: A

Size	New code	*	Code	Packing	UM
16×2 / 14×2	1109 122000		9027.160	-/10	pc
16×2 / 18×2,5	1109 122002		9027.180	-/10	pc



## fixed elbow for radiator connection with Ø15 copper pipe, nickel plated

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 L <sub>min</sub> = 210 mm	1109 068020		9016.230	60	pc
12×2 L <sub>min</sub> = 300 mm	1109 071009		9016.110	40	pc
12×2 L <sub>min</sub> = 750 mm	1109 071038		9016.27	25	pc
14×2 L <sub>min</sub> = 210 mm	1109 068021		9014.450	60	pc
14×2 L <sub>min</sub> = 300 mm	1109 071010		9016.000	50	pc
14×2 L <sub>min</sub> = 750 mm	1109 071022		9016.010	25	pc
18×2,5 L <sub>min</sub> = 210 mm	1109 068025		9015.230	60	pc
18×2,5 L <sub>min</sub> = 300 mm	1109 068035		9016.020	40	pc
18×2,5 L <sub>min</sub> = 750 mm	1109 068037		9016.030	25	pc

**Caution:**  
Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".

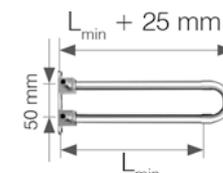


## double fixed elbow for radiator connection with Ø15 copper pipe, nickel plated

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 L <sub>min</sub> = 200 mm	1109 068026		9016.240	20	pc
14×2 L <sub>min</sub> = 200 mm	1109 068027		9014.460	20	pc
14×2 L <sub>min</sub> = 300 mm	1109 071047		9015.250	15	pc
18×2,5 L <sub>min</sub> = 200 mm	1109 068031		9015.240	20	pc
18×2,5 L <sub>min</sub> = 300 mm	1109 068034		9015.270	10	pc

**Caution:**  
Pipes (on length) should be cut using a circle mini-cutter. Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

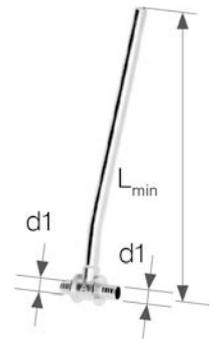
**tee for radiator connection with Ø15 copper pipe,  $L_{min} = 300$  mm, nickel plated**

**GROUP: A**

Size	New code	*	Code	Packing	UM
12×2 / 12×2	1109 261075		9013.49	50	pc
14×2 / 14×2	1109 261036		9013.14	50	pc
18×2,5 / 18×2,5	1109 261014		9006.310	50	pc
25×3,5 / 25×3,5	1109 261020		9003.700	40	pc
32×4,4 / 32×4,4	1109 261022		9019.150	25	pc

**Caution:**

All fittings are nickel plated. Use RH and LH reduction tees to connect radiators. RH tee identification: looking at bigger diameter the copper pipe bow should be at the right side. Drawing shows LH reduction tee. Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



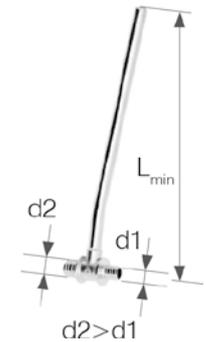
**Push reducing tee for radiator connection with Ø15 copper pipe,  $L_{min} = 300$  mm, nickel plated**

**GROUP: A**

Size	New code	*	Code	Packing	UM
14×2 / 12×2 left	1109 261076		9013.480	50	pc
14×2 / 12×2 right	1109 261077		9013.470	50	pc
18×2,5 / 12×2 left	1109 261010		9013.560	50	pc
18×2,5 / 12×2 right	1109 261011		9013.550	50	pc
18×2,5 / 14×2 left	1109 261013		9013.500	50	pc
18×2,5 / 14×2 right	1109 261000		9013.510	50	pc
25×3,5 / 18×2,5 left	1109 261018		9013.270	40	pc
25×3,5 / 18×2,5 right	1109 261019		9013.280	40	pc
32×4,4 / 25×3,5 left	1109 261021		9019.090	30	pc
32×4,4 / 25×3,5 right	1109 261002		9019.100	30	pc

**Caution:**

All fittings are nickel plated. Use RH and LH reduction tees to connect radiators. RH tee identification: looking at bigger diameter the copper pipe bow should be at the right side. Drawing shows LH reduction tee. Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



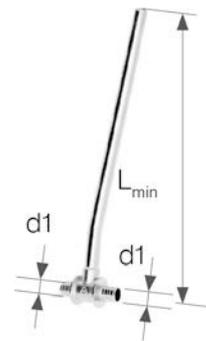
**Push brass tee with copper pipe Ø15 nickel plated,  $L_{min} = 750$  mm**

**GROUP: A**

Size	New code	*	Code	Packing	UM
12×2 / 12×2	1109 261078		9013.13	25	pc
14×2 / 14×2	1109 261056		9013.15	25	pc
18×2,5 / 18×2,5	1109 261025		9006.320	25	pc
25×3,5 / 25×3,5	1109 261030		9003.710	15	pc
32×4,4 / 32×4,4	1109 261004		9019.160	10	pc

**Caution:**

All fittings are nickel plated. Use RH and LH reduction tees to connect radiators. RH tee identification: looking at bigger diameter the copper pipe bow should be at the right side. Drawing shows LH reduction tee. Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

**Push reducing tee for radiator connection with Ø15 copper pipe,  
L<sub>min</sub> = 750 mm, nickel plated**

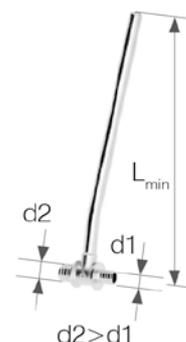
**GROUP: A**

Size	New code	*	Code	Packing	UM
14×2 / 12×2 left	1109 261079		9013.460	25	pc
14×2 / 12×2 right	1109 261080		9013.440	25	pc
18×2,5 / 14×2 left	1109 261023		9013.520	25	pc
18×2,5 / 14×2 right	1109 261024		9013.530	25	pc
25×3,5 / 18×2,5 left	1109 261029		9013.290	20	pc
25×3,5 / 18×2,5 right	1109 261001		9013.300	20	pc
32×4,4 / 25×3,5 left	1109 261031		9019.110	15	pc
32×4,4 / 25×3,5 right	1109 261003		9019.140	15	pc

**Caution:**

All fittings are nickel plated.

Use RH and LH reduction tees to connect radiators. RH tee identification: looking at bigger diameter the copper pipe bow should be at the right side. Drawing shows LH reduction tee. Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



**Push PPSU wallplate elbow with short plastic plug**

**GROUP: A**

Size	New code	*	Code	Packing	UM
12×2 G½"	1109 285001		9017.340	5/60	pc
14×2 G½"	1109 285002		9017.000	5/60	pc
18×2,5 G½"	1109 285008		9017.020	5/60	pc

**Caution:**

PPSU Wallplate elbow is sold with M8 nut and short plastic plug in a set.

Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.

Sealing compounds like adhesives which are chemical aggressive should not be used.

To seal the thread use tow with sealing compound (avoid using excessive amount of tow). Do not use with dry plaster constructions.



**Push wallplate elbow with short plastic plug**

**GROUP: A**

Size	New code	*	Code	Packing	UM
14×2 G½" (K)	1109 285036		9017.030	5/70	pc
18×2,5 G½" (K)	1109 285015		9017.050	5/70	pc
18×2,5 G½" (D)	1109 285042		9017.070	5/60	pc

(K) short version: a = 41 mm; b = 20 mm

(D) long version: a = 52,5 mm; b = 31,5 mm

**Caution:**

To fix the wallplate elbow to the wall use the mounting plate. Battery connections can be used in central heating systems in connections of a radiator with wall outputs (by cables in a wall chase) by angle valve.

Brass Wallplate elbow is sold with fixing bolt and short plastic plug in a set.

Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.

Do not use with dry plaster constructions.



**Push wallplate angle elbow with short plastic plug**

**GROUP: A**

Size	New code	*	Code	Packing	UM
18×2,5 / 18×2,5 G½"	1109 285019		9017.090	5/60	pc

**Caution:**

Used with water installation (possible flush mounting on mounting plates).

Wallplate elbow is sold with the mounting screw and short plastic plug.

Short plastic plug is only suitable for the execution of the installation tightness test.

Do not use with dry plaster constructions.



**Push brass wallplate elbow**

**GROUP: A**

Size	New code	*	Code	Packing	UM
25×3,5 G¾"	1109 285045		9017.350	2/30	pc

**Caution:**

Wallplate is sold without the plastic plug for tightness tests.



## Push stop end cup

GROUP: A

Size	New code	*	Code	Packing	UM
12×2	1109 250001		9019.39	50/500	pc
14×2	1109 250009		9019.40	10/350	pc
18×2,5	1109 250006		9019.42	10/200	pc
25×3,5	1109 250007		9019.43	5/150	pc
32×4,4	1109 250008		9019.44	5/60	pc



## plastic plug for pressure test - short - service part

GROUP: A

Size	New code	*	Code	Packing	UM
G1/2"	1700 250001		6095.33	20/300	pc

**Caution:**

Plastic plug is meant only to carry out tightness testing of the installation.  
The plug has its own sealing (O-ring).



## mounting bolt - service part

GROUP: A

Size	New code	*	Code	Packing	UM
	1700 183012		K-505100	100/2000	pc

**Caution:**

Use for wallplate elbow and tee to fix to the mounting plate.



## Push/Push Platinum plastic sleeve PVDF

GROUP: A

Size	New code	*	Code	Packing	UM
<b>N</b> 14×2A	1109 226017			50/700	pc
<b>N</b> 18×2A / 18×2,5A	1109 226018			50/500	pc
<b>N</b> 25×3,5A	1109 226019			20/200	pc
<b>N</b> 32×4,4A	1109 226020			10/100	pc

**Caution:**

During the Push connector assembly use tools with the relevant inserts.



## Push brass sliding sleeve - only for PE-Xc and PE-RT pipes

GROUP: A

Size	New code	*	Code	Packing	UM
12×2A	1109 226003		9014.490	50/700	pc
14×2A	1109 226004		9006.01	50/700	pc
18×2A / 18×2,5A	1109 226006		9001.80	50/500	pc
25×3,5A	1109 226009		9006.78	20/200	pc
32×4,4A	1109 226014		9019.07	10/100	pc

**Caution:**

During the Push connector assembly use tools with the relevant inserts.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# System **KAN-therm** Push - diameter 18x2,0

pipe PE-Xc with EVOH layer acc. DIN 4726

**GROUP: C**

Size	New code	*	Code	Packing	UM
18x2	1129 200035		0.2148	200/3000	m



pipe PE-Xc with EVOH layer acc. DIN 4726 - in 6 mm thermal insulation

**GROUP: C**

Size	New code	*	Code	Packing	UM
18x2 red	1129 200038		0.2148-6C	50/750	m
18x2 blue	1129 200037		0.2148-6N	50/750	m



pipe PE-RT with EVOH layer acc. DIN 4726

**GROUP: C**

Size	New code	*	Code	Packing	UM
18x2	1129 198031		0.2178	200/3000	m



pipe PE-RT with EVOH layer acc. DIN 4726 - in 6 mm thermal insulation

**GROUP: C**

Size	New code	*	Code	Packing	UM
18x2 red	1129 198018		0.2178-6C	50/750	m
18x2 blue	1129 198019		0.2178-6N	50/750	m



Push brass connector, with flange, with male thread

**GROUP: A**

Size	New code	*	Code	Packing	UM
18x2 G½"	1109 045013		9006.89K	10/150	pc
18x2 G¾"	1109 045021		9006.50K	10/150	pc



Push PPSU straight female connector

**GROUP: A**

Size	New code	*	Code	Packing	UM
18x2 G½"	1109 044003		9019.31	10/120	pc



Push brass connector, with flange, with female thread

**GROUP: A**

Size	New code	*	Code	Packing	UM
18x2 G½"	1109 044009		9014.280	10/150	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## PPSU Push coupling

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 18×2	1109 042004		9019.24	10/160	pc
18×2 / 14×2	1109 046003		9019.25	10/150	pc
25×3,5 / 18×2	1109 046005		9019.29	5/70	pc



## Push reducing coupling

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 12×2	1109 042014		9016.260	20/400	pc
25×3,5 / 18×2	1109 042018	***	9023.06	20/200	pc



## Push PPSU tee

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 18×2 / 18×2	1109 257032		9018.010	10/80	pc
14×2 / 18×2 / 14×2	1109 257020		9018.700	10/100	pc
18×2 / 14×2 / 14×2	1109 257030		9018.220	10/80	pc
18×2 / 14×2 / 18×2	1109 257031		9018.210	10/80	pc
18×2 / 25×3,5 / 18×2	1109 257033		9018.230	5/40	pc
25×3,5 / 14×2 / 18×2	1109 257036		9018.750	5/40	pc
25×3,5 / 18×2 / 18×2	1109 257047		9018.050	5/40	pc
25×3,5 / 18×2 / 25×3,5	1109 257048		9018.060	5/40	pc
32×4,4 / 18×2 / 25×3,5	1109 257054		9018.540	2/20	pc
32×4,4 / 18×2 / 32×4,4	1109 257055		9018.550	2/20	pc



## Push brass tee

GROUP: A

Size	New code	*	Code	Packing	UM
14×2 / 18×2 / 14×2	1109 257023	***	9013.39B	10/200	pc
18×2 / 12×2 / 12×2	1109 260008		9013.570	10/120	pc
18×2 / 12×2 / 14×2	1109 260010		9013.640	10/120	pc
18×2 / 12×2 / 18×2	1109 260012		9013.600	10/120	pc
18×2 / 18×2 / 14×2	1109 257011		9013.70	10/100	pc
18×2 / 25×3,5 / 18×2	1109 257035	***	9013.12B	5/60	pc
25×3,5 / 12×2 / 18×2	1109 257012		9013.36	5/60	pc
25×3,5 / 14×2 / 18×2	1109 257038	***	9013.43B	5/60	pc
25×3,5 / 18×2 / 18×2	1109 257004	***	9006.22B	5/60	pc
25×3,5 / 18×2 / 25×3,5	1109 257005	***	9006.21B	5/60	pc



## Push crossing pair single

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 18×2 / 18×2	1109 257066		9019.33	1/6	pc
18×2 / 14×2 / 14×2	1109 257064		9019.34	1/6	pc
18×2 / 14×2 / 18×2	1109 257065		9019.35	1/6	pc
14.2.1422	1109 257063		9019.36	1/6	pc

**Caution:**  
brass passing Push tees - nickel plated version



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### Push brass tee, with male thread

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 15Cu - G½"	1109 257010		9006.64B	10/120	pc

**Caution:**

the Push tee with male thread should be connected with Ø15 copper pipe with elements:  
 ■ union screw for the copper Ø15 G½" pipe, code 1709 043003



### Push PPSU elbow

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 18×2	1109 068013		9018.180	10/120	pc



### Push brass male elbow (for connecting cooper pipes Ø15)

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 15Cu - G½"	1109 068006		9006.65B	20/200	pc

**Caution:**

the Push elbow with male thread should be connected with Ø15 copper pipe with elements:  
 ■ union screw for the copper Ø15 G½" pipe, code 1709 043003



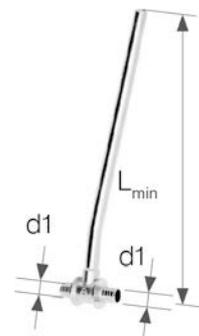
### Push tee for radiator connection with Ø15 copper pipe, L<sub>min</sub> = 300 mm, nickel plated

GROUP: A

Size	New code	*	Code	Packing	UM
182/182	1109 261045		9001.770	50	pc

**Caution:**

All fittings are nickel plated.  
 When connecting radiators with reduction tees you should use the set of left and right tee.  
 The identification of the right tee, for example, is done by looking from the larger diameter - the bend of copper pipe is to the right.  
 Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



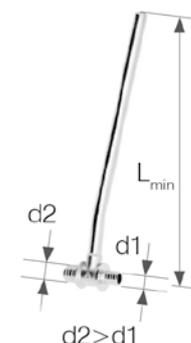
### Push reducing tee for radiator connection with Ø15 copper pipe, L<sub>min</sub> = 300 mm, nickel plated

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 14×2 left	1109 261040		9013.16	60	pc
18×2 / 14×2 right	1109 261043		9013.17	60	pc
25×3,5 / 18×2 left	1109 261015		9003.130	40	pc
25×3,5 / 18×2 right	1109 261016		9003.720	40	pc

**Caution:**

All fittings are nickel plated.  
 Use RH and LH tees to connect radiators. RH tee identification: looking at bigger diameter the copper pipe bow should be at the right side.  
 Drawing shows LH tee.  
 Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



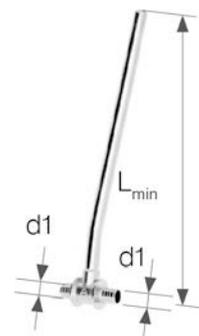
### Push tee for radiator connection with dia 15 copper pipe, L<sub>min</sub> = 750 mm, nickel plated

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 18×2	1109 261064		9001.830	25	pc

**Caution:**

All fittings are nickel plated.  
 When connecting radiators with reduction tees you should use the set of left and right tee.  
 The identification of the right tee, for example, is done by looking from the larger diameter - the bend of copper pipe is to the right.  
 Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



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\*\*\* till stock ends

**Push reducing tee for radiator connection with Ø15 copper pipe,  
L<sub>min</sub> = 750 mm, nickel plated**

**GROUP: A**

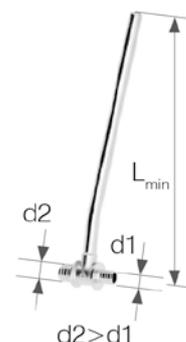
Size	New code	*	Code	Packing	UM
18×2 / 14×2 left	1109 261062		9013.18	25	pc
18×2 / 14×2 right	1109 261026		9013.19	25	pc
25×3,5 / 18×2 left	1109 261027		9003.140	20	pc
25×3,5 / 18×2 right	1109 261028		9003.730	20	pc

**Caution:**

All fittings are nickel plated.

Use RH and LH reduction tees to connect radiators. RH tee identification: looking at bigger diameter the copper pipe bow should be at the right side. Drawing shows LH reduction tee.

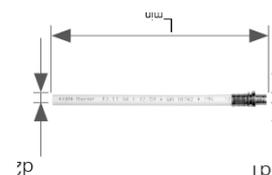
Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



**Push coupling for radiator connection with Ø16 multilayer pipe,  
L<sub>min</sub> = 500 mm**

**GROUP: A**

Size	New code	*	Code	Packing	UM
16×2 / 18×2	1109 122001		9027.170	-/50	pc



**Push fixed elbow for radiator connection with Ø15 copper pipe,  
nickel plated**

**GROUP: A**

Size	New code	*	Code	Packing	UM
18×2 L <sub>min</sub> = 210 mm	1109 068024		9014.470	60	pc
18×2 L <sub>min</sub> = 300 mm	1109 071044		9016.580	60	pc
18×2 L <sub>min</sub> = 750 mm	1109 071045		9016.590	25	pc

**Caution:**

Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



**double fixed elbow for radiator connection with Ø15 copper pipe,  
nickel plated**

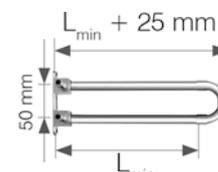
**GROUP: A**

Size	New code	*	Code	Packing	UM
18×2 L <sub>min</sub> = 200 mm	1109 068029		9014.480	20	pc
18×2 L <sub>min</sub> = 300 mm	1109 071048		9015.260	15	pc

**Caution:**

Pipes (on length) should be cut using a circle mini-cutter.

Various connection options for the fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections for pipe PE-RT and PE-Xc".



**Push PPSU wallplate elbow with short plastic plug**

**GROUP: A**

Size	New code	*	Code	Packing	UM
18×2 G½"	1109 285004		9017.010	5/60	pc

**Caution:**

PPSU Wallplate elbow is sold with M8 nut and short plastic plug in a set.

Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.

Sealing compounds like adhesives which are chemical aggressive should not be used.

To seal the thread use tow with sealing compound (avoid using excessive amount of tow). Do not use with dry plaster construction.



**Push brass wallplate elbow with short plastic plug**

**GROUP: A**

Size	New code	*	Code	Packing	UM
18÷2.	1109 285006		9017.040	5/70	pc
18×2 G½" (D)	1109 285039		9017.060	5/60	pc

(K) short version: a = 41 mm; b = 20 mm

(D) long version: a = 52,5 mm; b = 31,5 mm

**Caution:**

To fix the wallplate elbow to the wall use the mounting plate. Battery connections can be used in central heating systems in connections of a radiator with wall outputs (by cables in a wall chase) by angle valve.

Brass Wallplate elbow is sold with fixing bolt and short plastic plug in a set.

Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.

Do not use with dry plaster construction.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Push brass wallplate angle tee with short plastic plug

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 / 18×2 G½"	1109 285020		9017.080	5/60	pc

**Caution:**

To fix the wallplate elbow to the wall use the mounting plate.  
 Brass Wallplate elbow is sold with fixing bolt and short plastic plug in a set.  
 Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently  
 Do not use with dry plaster construction.



## Push brass stop end cup

GROUP: A

Size	New code	*	Code	Packing	UM
18×2	1109 250005		9019.41	10/200	pc



## plastic plug for pressure test - short - service part

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1700 250001		6095.33	20/300	pc

**Caution:**

Plastic plug is meant only to carry out tightness testing of the installation.  
 The plug has its own sealing (O-ring).



## mounting bolt - service part

GROUP: A

Size	New code	*	Code	Packing	UM
	1700 183012		K-505100	100/2000	pc

**Caution:**

Use for wallplate elbow and tee to fix to the mounting plate.



## Push/Plug Platinum plastic sleeve PVDF

GROUP: A

Size	New code	*	Code	Packing	UM
N 18×2A / 18×2,5A	1109 226018			50/500	pc

**Caution:**

During the Push connector assembly use tools with the relevant inserts.



## Push brass sliding sleeve - only for PE-Xc and PE-RT pipes

GROUP: A

Size	New code	*	Code	Packing	UM
18×2A / 18×2,5A	1109 226006		9001.80	50/500	pc

**Caution:**

During the Push connector assembly use tools with the relevant inserts.



## eurocone adapter for PE-RT & PE-Xc pipes

GROUP: A

Size	New code	*	Code	Packing	UM
18×2 G¾"	1110 271006		9006.59	10/150	pc

**Caution:**

The union screw allows for connection of PE-Xc and PE-RT pipes with splitters (with nipples), nipples and shaped elements for union screw connections.



## compression ring - service part for screw fittings

GROUP: A

Size	New code	*	Code	Packing	UM
18	1110 226004		9001.96	10/500	pc

**Caution:**

Apply to all brass screw terminals (fittings, screw unions) except for plastic screw terminals and screw fittings attached to Platinum pipes.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# KAN-therm Push/ Push Platinum System

## multilayer pipe PE-Xc/Al/PE-HD Push Platinum

GROUP: C

Size	New code	*	Code	Packing	UM
14×2	1129 201002		0.1420	200/3000	m
<b>N</b> 18×2,5	1129 201006		0.1825N	200/3000	m



## pipe PE-Xc with EVOH layer acc. DIN 4726

GROUP: C

Size	New code	*	Code	Packing	UM
12×2	1129 200023		0.2144	200/4000	m
14×2	1129 200027		0.2145	200/4000	m
16×2	1129 200032		0.2146	200/3000	m
18×2	1129 200035		0.2148	200/3000	m
18×2,5	1129 200039		0.9119	200/3000	m
25×3,5	1129 200043		0.9127	50/1000	m
32×4,4	1129 200045		0.9133	25/500	m



## pipe PE-Xc with EVOH layer acc. DIN 4726 - in 6 mm thermal insulation

GROUP: C

Size	New code	*	Code	Packing	UM
12×2 red	1129 200025		0.2144-6C	100/1500	m
12×2 blue	1129 200026		0.2144-6N	100/1500	m
14×2 red	1129 200030		0.2145-6C	50/750	m
14×2 blue	1129 200031		0.2145-6N	50/750	m
18×2 red	1129 200038		0.2148-6C	50/750	m
18×2 blue	1129 200037		0.2148-6N	50/750	m
18×2,5 red	1129 200041		0.9119-6C	50/750	m
18×2,5 blue	1129 200042		0.9119-6N	50/750	m



## pipe PE-RT with EVOH layer acc. DIN 4726

GROUP: C

Size	New code	*	Code	Packing	UM
12×2	1129 198025		0.2174	200/4000	m
14×2	1129 198027		0.2175	200/4000	m
16×2	1129 198042		0.2176	200/3000	m
18×2	1129 198031		0.2178	200/3000	m
18×2,5	1129 198037		0.2177	200/3000	m
25×3,5	1129 198032		0.9226	50/1000	m
32×4,4	1129 198038		0.9228	25/500	m



## pipe PE-RT with EVOH layer acc. DIN 4726 - in 6 mm thermal insulation

GROUP: C

Size	New code	*	Code	Packing	UM
14×2 red	1129 198016		0.2175-6C	50/750	m
14×2 blue	1129 198017		0.2175-6N	50/750	m
18×2 red	1129 198018		0.2178-6C	50/750	m
18×2 blue	1129 198019		0.2178-6N	50/750	m
18×2,5 red	1129 198020		0.2177-6C	50/750	m
18×2,5 blue	1129 198021		0.2177-6N	50/750	m
25×3,5 red	1129 198013	*	0.9226-6C	25/375	m
25×3,5 blue	1129 198014	*	0.9226-6N	25/375	m



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### eurocone adapter for PE-Xc/Al/PE-HD Platinum pipes

GROUP: A

Size	New code	*	Code	Packing	UM
14×2 G $\frac{3}{4}$ "	1109 271003		9004.16	10/120	pc
<b>N</b> 18×2,5 G $\frac{3}{4}$ "	1109 271013			15/150	pc

**Caution:** The union screw allows for connection of Platinum pipes with splitters (with nipples), nipples and shaped elements for union screw connections.



### eurocone adapter for PE-RT & PE-Xc pipes

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 G $\frac{1}{2}$ "	1110 271002		9012.91	15/300	pc
12×2 G $\frac{3}{4}$ "	1110 271003		9012.92	10/150	pc
14×2 G $\frac{1}{2}$ "	1110 271000		9003.47	15/300	pc
14×2 G $\frac{3}{4}$ "	1110 271005		9006.56	10/150	pc
16×2 G $\frac{3}{4}$ "	1110 271010		9006.57	10/150	pc
18×2 G $\frac{3}{4}$ "	1110 271006		9006.59	10/150	pc
18×2,5 G $\frac{3}{4}$ "	1110 271008		9006.48	10/150	pc
25×3,5 G1"	1110 271001		9003.67	5/80	pc

**Caution:** The union screw allows for connection of PE-Xc and PE-RT pipes with splitters (with nipples), nipples and shaped elements for union screw connections.



### brass compression straight male connector, for PE-Xc and PE-RT pipes

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 G $\frac{1}{2}$ "	1110 045001		9014.23	10/150	pc
14×2 G $\frac{1}{2}$ "	1110 045002		9006.42	10/150	pc
16×2 G $\frac{1}{2}$ "	1110 045005		9006.43	10/150	pc
18×2 G $\frac{1}{2}$ "	1110 045007		9001.94	10/150	pc
18×2,5 G $\frac{1}{2}$ "	1110 045009		9006.44	10/150	pc
25×3,5 G $\frac{1}{2}$ "	1110 045012		9014.310	5/80	pc
25×3,5 G $\frac{3}{4}$ "	1110 045014		9001.90	5/80	pc
32×4,4 G1"	1110 045015		9019.000	5/30	pc

**Caution:** Possibility of connecting with general purpose fittings.



### brass compression straight male connector for PE-Xc/Al/PE-HD Platinum pipes

GROUP: A

Size	New code	*	Code	Packing	UM
14×2 G $\frac{1}{2}$ "	1110 045004		9007.42	10/150	pc
<b>N</b> 18×2,5 G $\frac{1}{2}$ "	1110 045017			10/150	pc

**Caution:** Possibility of connecting with general purpose fittings.



### Brass compression straight female connector for PE-Xc and PE-RT pipes

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 G $\frac{1}{2}$ "	1110 044004		9014.320	10/150	pc
14×2 G $\frac{1}{2}$ "	1110 044005		9014.330	10/150	pc
16×2 G $\frac{1}{2}$ "	1110 044006		9014.340	10/150	pc
18×2 G $\frac{1}{2}$ "	1110 044008		9014.350	10/150	pc
18×2,5 G $\frac{1}{2}$ "	1110 044010		9014.360	10/150	pc
25×3,5 G $\frac{3}{4}$ "	1110 044012		9014.370	5/80	pc
32×4,4 G1"	1110 044014		9019.010	5/30	pc

**Caution:** Possibility of connecting with general purpose fittings.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## brass coupling for PE-Xc and PE-RT pipes

GROUP: A

Size	New code	*	Code	Packing	UM
12×2	1110 042003		9014.16	10/120	pc
14×2	1110 042005		9014.13	10/120	pc
16×2	1110 042006		9014.14	10/150	pc
18×2	1110 042008		981	10/120	pc
18×2,5	1110 042010		9014.17	10/120	pc
25×3,5	1110 042012		9014.19	5/60	pc
32×4,4	1110 042014		9019.02	2/30	pc

**Caution:**

This coupling is used for repair purposes (re-boring faults) as well as for joining of long pipe sections



## compression ring - service part for screw fittings for PE-Xc and PE-RT pipes

GROUP: A

Size	New code	*	Code	Packing	UM
12	1110 226001		9012.913	100/1000	pc
14	1110 226002		9006.95	10/500	pc
16	1110 226000		9006.97	10/600	pc
18	1110 226004		9001.96	10/500	pc
25	1110 226003		9001.92	5/300	pc

**Caution:**

For screw connections only.



# Tools for Push connections Push/Expand Platinum

## case set - battery crimping and expanding tools for Push connectors

GROUP: K

New code	*	Code	Packing	UM
1938 267081		KPPR-PUSHAK	1	pc

**Caution:**

It consists of the following items:

- 1938 267081 Battery crimping tool Push 12-32 mm - 1 pc
- 1938 267108 Battery expanding tool - 1 pc
- 1938 113015 Insert for connectors 12×2 - 2 pc
- 1938 113016 Insert for connectors 14×2 - 2 pc
- 1938 113017 Insert for connectors 18×2 (18×2,5) - 2 pc
- 1938 113018 Insert for connectors 25×3.5 - 2 pc
- 1938 113013 Insert for PPSU shaped elements 12×2 - 1 pc
- 1938 113014 Insert for PPSU shaped elements 14×2 - 1 pc
- 1938 113012 Insert for PPSU shaped elements 18×2 (18×2,5) - 1 pc
- 1938 113023 Insert for PPSU shaped elements 25×3.5 - 1 pc
- 1938 113001 Expansion head - 12×2 - 1 pc
- 1938 113010 Expansion head - 14×2 - 1 pc
- 1938 113003 Expansion head - 18×2 - 1 pc
- 1938 113005 Expansion head - 18×2,5 - 1 pc
- 1938 113006 Expansion head - 25×3.5 - 1 pc
- 1938 113008 Expansion head - 32×4.4 - 1 pc
- 1938 267002 Battery 12V 1,5Ah - 2 pc
- 1938 267047 Battery charger 17662-50 - 1 pc
- 1938 267100 Box for press inserts - 1 pc
- 1936 267214 Case - 1 pc
- Lubricant - 1 pc

Area of application: 12-32 mm.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## case set - battery crimping tool for Push connectors

GROUP: K

New code	*	Code	Packing	UM
1938 267039		AAP102 KPL	1	pc

### Caution:

It consists of the following items:

- 1938 267081 Battery crimping tool Push 12-32 mm - 1 pc
- 1938 113015 Insert for connectors 12×2 - 2 pc
- 1938 113016 Insert for connectors 14×2 - 2 pc
- 1938 113017 Insert for connectors 18×2 (18×2,5) - 2 pc
- 1938 113018 Insert for connectors 25×3.5 - 2 pc
- 1938 113013 Insert for PPSU shaped elements 12×2 - 1 pc
- 1938 113014 Insert for PPSU shaped elements 14×2 - 1 pc
- 1938 113012 Insert for PPSU shaped elements 18×2 (18×2,5) - 1 pc
- 1938 113023 Insert for PPSU shaped elements 25×3.5 - 1 pc
- 1938 267002 Battery 12V 1,5Ah - 2 pc
- 1938 267047 Battery charger 17662-50 - 1 pc
- 1938 267100 Box for press inserts - 1 pc
- 1936 267214 Case - 1 pc
- Lubricant - 1 pc

Area of application: Push (12-32 mm), Push Platinum (14-32 mm)



## case set - battery expanding tool for PE-Xc and PE-RT pipes (12-32 mm)

GROUP: K

New code	*	Code	Packing	UM
1938 267040		AXI102 KPL	1	pc

### Caution:

It consists of the following items:

- 1938 267108 Battery expanding tool - 1 pc
- 1938 113001 Expansion head - 12×2 - 1 pc
- 1938 113010 Expansion head - 14×2 - 1 pc
- 1938 113003 Expansion head - 18×2 - 1 pc
- 1938 113005 Expansion head - 18×2.5 - 1 pc
- 1938 113006 Expansion head - 25×3.5 - 1 pc
- 1938 113008 Expansion head - 32×4.4 - 1 pc
- 1938 267002 Battery 12V 1,5Ah - 2 pc
- 1938 267047 Battery charger - 1 pc
- 1936 267214 Case - 1 pc
- Lubricant - 1 pc

Area of application: Push (12-32 mm)



## battery crimping tool for Push

GROUP: K

New code	*	Code	Packing	UM
1938 267065		AAP102 2BAT	1	pc

### Caution:

It consists of the following items:

- 1938 267081 Battery crimping tool - 1 pc
- 1938 267002 Battery 12V 1,5Ah (standard + backup) - 2 pc

Area of application: Push (12-32 mm), Push Platinum (14-32 mm)



## battery expanding tool for KAN-therm Push System

GROUP: K

New code	*	Code	Packing	UM
1938 267109		AXI102 2BAT	1	pc

### Caution:

It consists of the following items:

- 1938 267108 Battery expanding tool - 1 pc
- 1938 267002 Battery 12V 1,5Ah (standard + backup) - 2 pc

Area of application: Push (12-32 mm), Push Platinum (14-32 mm)



## battery charger CLI 12

GROUP: K

New code	*	Code	Packing	UM
1938 267047		17662-50	1	pc

### Caution:

Battery charger works with batteries 12V 1,5Ah code: 1938 267002.



## hydraulic Push tool with foot drive

GROUP: K

New code	*	Code	Packing	UM
1938 267073		KPPN-PUSH	1	set

**Caution:**

It consists of the following items:

- 1941 267132 Tool case for hydraulic tool with foot drive - 1 pc
- 1938 267069 Hydraulic Push tool with foot drive - 1 pc
- 1938 267113 Expander for expanding PE-Xc and PE-RT pipes - 1 pc
- 1938 113015 Insert for connectors 12×2 - 2 pc
- 1938 113016 Insert for connectors 14×2 - 2 pc
- 1938 113017 Insert for connectors 18×2 (18×2,5) - 2 pc
- 1938 113018 Insert for connectors 25×3.5 - 2 pc
- 1938 113013 Insert for shaped elements 12×2 - 1 pc
- 1938 113014 Insert for shaped elements 14×2 - 1 pc
- 1938 113012 Insert for shaped elements 18×2 (18×2,5) - 1 pc
- 1938 113023 Insert for shaped elements 25×3.5 - 1 pc
- 1938 113001 Pipe expansion head - 12×2 - 1 pc
- 1938 113010 Pipe expansion head - 14×2 - 1 pc
- 1938 113003 Pipe expansion head - 18×2 - 1 pc
- 1938 113005 Pipe expansion head - 18×2.5 - 1 pc
- 1938 113006 Pipe expansion head - 25×3.5 - 1 pc
- 1938 113008 Pipe expansion head - 32×4.4 - 1 pc
- 1941 267096 Graphite lubricant for expander - 1 pc
- 1938 267050 Pipe cutting shears - 12-32 - 1 pc

**Caution:**

Expanding heads only for PE-RT and PE-Xc pipes.

Area of application: Push (12-32 mm).



## hydraulic Push tool with foot drive

GROUP: K

New code	*	Code	Packing	UM
1938 267069	*	PN01	1	pc

**Caution:**

For connection Push/Push Platinum.

Area of application: Push (12-32 mm), Push Platinum (14-32 mm)



## mechanical hand Push Platinum tool set

GROUP: K

New code	*	Code	Packing	UM
1938 267164			1	set

**Caution:**

It consists of the following items:

- 1941 267138 Case for the set with hand press - 1 pc
- 1938 267085 Manual chain press - 1 pc
- 1938 267113 Manual pipe expander - 1 pc
- 1938 267118 Set of jaws 12-18 - 2 pc
- 1938 267120 Set of jaws 25-32 - 2 pc
- 1938 113018 Insert for connectors 25×3.5 - 2 pc
- 1938 113017 Insert for connectors 18×2 (18×2,5) - 2 pc
- 1938 113016 Insert for connectors 14×2 - 2 pc
- 1938 113023 Insert for PPSU shaped elements 25×3.5 - 1 pc
- 1938 113012 Insert for PPSU shaped elements 18×2 (18×2,5) - 1 pc
- 1938 113014 Insert for PPSU shaped elements 14×2 - 1 pc
- 1938 108001 Pipe expansion head - 14×2 Platinum - 1 pc
- 1938 108002 Pipe expansion head - 18×2.5 Platinum - 1 pc
- 1938 108003 Pipe expansion head - 25×3.5 Platinum - 1 pc
- 1938 108004 Pipe expansion head - 32×4.4 Platinum - 1 pc
- 1941 267096 Graphite lubricant for expander - 1 pc
- 1938 267050 Pipe cutting shears - 12-32 - 1 pc

**Caution:**

Expanding heads for Platinum pipes.

Area of application: Push Platinum (14-32 mm).



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## mechanical hand Push tool - KPPR set

GROUP: K

New code	*	Code	Packing	UM
1938 267093		KPPR-PUSH	1	set

**Caution:**

It consists of the following items:

- 1941 267138 Case for the set with hand press - 1 pc
- 1938 267085 Manual chain press - 1 pc
- 1938 267113 Manual pipe expander - 1 pc
- 1938 267118 Set of jaws 12-18 - 2 pc
- 1938 267120 Set of jaws 25-32 - 2 pc
- 1938 113015 Insert for connectors 12×2 - 2 pc
- 1938 113016 Insert for connectors 14×2 - 2 pc
- 1938 113017 Insert for connectors 18×2 (18×2,5) - 2 pc
- 1938 113018 Insert for connectors 25×3.5 - 2 pc
- 1938 113013 Insert for PPSU shaped elements 12×2 - 1 pc
- 1938 113014 Insert for PPSU shaped elements 14×2 - 1 pc
- 1938 113012 Insert for PPSU shaped elements 18×2 (18×2,5) - 1 pc
- 1938 113023 Insert for PPSU shaped elements 25×3.5 - 1 pc
- 1938 113001 Pipe expansion head - 12×2 - 1 pc
- 1938 113010 Pipe expansion head - 14×2 - 1 pc
- 1938 113003 Pipe expansion head - 18×2 - 1 pc
- 1938 113005 Pipe expansion head - 18×2.5 - 1 pc
- 1938 113006 Pipe expansion head - 25×3.5 - 1 pc
- 1938 113008 Pipe expansion head - 32×4.4 - 1 pc
- 1941 267096 Graphite lubricant for expander - 1 pc
- 1938 267050 Pipe cutting shears - 12-32 - 1 pc

**Caution:**

Expanding heads only for PE-RT and PE-Xc pipes.

Area of application: Push (12-32 mm).



## mechanical hand Push tool - Light set

GROUP: K

New code	*	Code	Packing	UM
1938 267165		KPPR-PUSH-L	1	set

**Caution:**

It consists of the following items:

- 1941 267138 Case for the set with hand press - 1 pc
- 1938 267113 Expander for expanding PE-Xc and PE-RT pipes - 1 pc
- 1938 267085 Manual chain press - 1 pc
- 1938 267118 Set of jaws Ø12-Ø18 - 1 pc
- 1938 113014 Insert for presses (for tee fittings and Push PPSU elbows) - 14×2 - 1 pc
- 1938 113012 Insert for presses (for tee fittings and Push PPSU elbows) - 18×2 (18×2,5) - 1 pc
- 1938 113016 Insert for presses (for Push connectors) - 14×2 - 2 pc
- 1938 113017 Insert for presses (for Push connectors) - 18×2 (18×2,5) - 2 pc
- 1938 113010 Expansion head - 14×2 for PE-Xc and PE-RT pipes - 1 pc
- 1938 113005 Expansion head - 18×2.5 for PE-Xc and PE-RT pipes - 1 pc

**Caution:**

Expanding heads only for PE-RT and PE-Xc pipes.

Area of application: Push (14-18 mm).



## manual mechanical tool

GROUP: K

New code	*	Code	Packing	UM
1938 267085	*	PR01/N	1	pc

**Caution:**

For connection Push/Push Platinum.

Area of application: Push (12-32 mm), Push Platinum (14-32 mm).



## forks set - 2 pc

GROUP: K

Size	New code	*	Code	Packing	UM
12-18	1938 267118	*	MZH1418	1	set
25-32	1938 267120	*	MZH2532	1	set

**Caution:**

For connection Push/Push Platinum.

Area of application: Push (12-32 mm), Push Platinum (14-32 mm).



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### insert for mechanical Push tool

GROUP: K

Size	New code	*	Code	Packing	UM
12×2	1938 113013	*	PT1-8471	1	pc
14×2	1938 113014	*	PT1-8469	1	pc
18×2 (18×2,5)	1938 113012	*	PT1-8468	1	pc
25×3,5	1938 113023	*	PT1-8467	1	pc



**Caution:**

Can be used together with hydraulic with foot drive or mechanical or electric-hydraulic Push tool.  
For mounting of elbows and tees made of PPSU from fitting side following inserts are to be used:

- 1938 113013 for diameter 12 (black insert),
- 1938 113014 for diameter 14 (black insert),
- 1938 113012 for diameter 18 (black insert),
- 1938 113023 for diameter 25 (black insert).

In no case you should use shaped inserts, i.e. inserts for brass Push tee fittings and elbows and inserts for connections for mixers with connectors made of PPSU.

### insert for mechanical Push tool

GROUP: K

Size	New code	*	Code	Packing	UM
12×2	1938 113015	*	P1-8471	1	pc
14×2	1938 113016	*	P1-8469	1	pc
18×2 (18×2,5)	1938 113017	*	P1-8468	1	pc
25×3,5	1938 113018	*	P1-8467	1	pc



### shaped insert for KAN-therm Push system brass tee fittings and elbows

GROUP: k

Size	New code	*	Code	Packing	UM
14×2	1938 267148	*	P8465	1	pc
18×2 (18×2,5)	1938 267152	*	P8463	1	pc
25×3,5 (32×4,4)	1938 267150	*	P8464	1	pc



**Caution:**

Shaped inserts are not compatible with hand chain crimping tools.

### insert for mechanical Push tool (for Push brass wallplate elbows)

GROUP: K

Size	New code	*	Code	Packing	UM
18×2	1938 267146	*	P8470	1	pc



**Caution:**

Shaped inserts are not compatible with hand chain crimping tools.

### external bending spring for PE-Xc/Al/PE-HD Platinum pipes

GROUP: K

Size	New code	*	Code	Packing	UM
14	1936 267079	*	SZ-1410	1	pc
18	1936 267083		SZ-1814	1	pc
25	1936 267088		SZ-2620	1	pc



### special spanner for eurocone adapters G<sup>3/4</sup>"

GROUP: k

Size	New code	*	Code	Packing	UM
30 mm	1938 267035	*	K-501900	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## expanding tool for pipes

GROUP: K

Size	New code	*	Code	Packing	UM
12-32	1938 267113	*	84550N	1	pc



## grease for expanding tool

GROUP: K

New code	*	Code	Packing	UM
1941 267096		smar	1	pc



## set of probes Push Platinum "One Step"

GROUP: K

Size	*	New code	Packing	UM
N 14-32		1938 108005	1	set

### Caution:

The above expanding heads are not included in standard sets of tools for KAN-therm Push system. In the case of installation of the KAN-therm Push Platinum system, tools should be equipped individually with the above elements.

It consists of the following items:

- 1938 108001 Expansion head for PE-Xc/Al/PE-HD Platinum 14×2,2 pipes - 1 pc
- 1938 108002 Expansion head for PE-Xc/Al/PE-HD Platinum 18×2,5 pipes - 1 pc
- 1938 108003 Expansion head for PE-Xc/Al/PE-HD Platinum 25×3,5 pipes - 1 pc
- 1938 108004 Expansion head for PE-Xc/Al/PE-HD Platinum 32×4,4 pipes - 1 pc
- Box



## expansion head for PE-Xc/Al/PE-HD Platinum "One Step" pipes

GROUP: K

Size	*	New code	Packing	UM
N 14×2,2		1938 108001	1	pc
N 18×2,5		1938 108002	1	pc
N 25×3,7		1938 108003	1	pc
N 32,4		1938 108004	1	pc

### Caution:

The above expanding heads are not included in standard sets of tools for KAN-therm Push system. In the case of installation of the KAN-therm Push Platinum system, tools should be equipped individually with the above elements.



## one set of Push expanding heads "One Step"

GROUP: K

Size	New code	*	Code	Packing	UM
14-32	1938 108000		Z1-KPL	1	set

### Caution:

Do not use for KAN-therm Push Platinum System assembly.

It consists of the following items:

- 1938 113010 Expansion head for PE-RT and PE-Xc 14×2 pipes - 1 pc
- 1938 113003 Expansion head for PE-RT and PE-Xc 18×2 pipes - 1 pc
- 1938 113005 Expansion head for PE-RT and PE-Xc 18×2,5 pipes - 1 pc
- 1938 113006 Expansion head for PE-RT and PE-Xc 25×3,5 pipes - 1 pc
- 1938 113008 Expansion head for PE-RT and PE-Xc 32×4,4 pipes - 1 pc
- Box



## expanding head for pipes PE-RT and PE-Xc

GROUP: K

Size	New code	*	Code	Packing	UM
12×2	1938 113001		Z1-P12N	1	pc

### Caution:

Do not use for KAN-therm Push Platinum System assembly.



### expanding head for pipes PE-RT and PE-Xc "One Step"

GROUP: K

Size	New code	*	Code	Packing	UM
14×2	1938 113010		Z1-P14N	1	pc
18×2	1938 113003		Z1-P18N	1	pc
18×2,5	1938 113005		Z1-P185N	1	pc
25×3,5	1938 113006		Z1-P25N	1	pc
32×4,4	1938 113008		Z1-P32N	1	pc

**Caution:**

Do not use for KAN-therm Push Platinum System assembly.



### tool case for hydraulic tool with foot drive

GROUP: K

New code	*	Code	Packing	UM
1941 267132	*	002.001.003	1	pc



### tool case for manual mechanical tool

GROUP: K

New code	*	Code	Packing	UM
1941 267138	*	002.001.002	1	pc



### cutter for Ø12-32

GROUP: K

New code	*	Code	Packing	UM
1938 267050		0.2125	1/25	pc



### cutters replacement blade for Ø12-32

GROUP: K

New code	*	Code	Packing	UM
1938 267055	*	0.2125-O	1	pc



### minicutter for Ø15 copper pipes 4-16 mm

GROUP: K

New code	*	Code	Packing	UM
1941 267048		210416	1	pc



### 2.9 mm cutting wheel for mini pipe cutter

GROUP: K

New code	*	Code	Packing	UM
1938 267045	*	334R	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends



Ø 14-63 mm



SYSTEM **KAN-therm**

# Press LBP

Innovativeness and uniqueness  
- One system, six functions



TECHNOLOGY OF SUCCESS



ISO 9001

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## 2 System KAN-therm Press / KAN-therm Press LBP

System KAN-therm Press LBP is new, complete installation system consisting of new generation LBP press fittings, multilayer PE-RT/Al/PE-RT and polyethylene PE-Xc & PE-RT pipes.

Depending on the type and configuration of the material, in Systems KAN-therm Press LBP offer occur:

- multilayer pipes PE-RT/Al/PE-RT Multi Universal in diameter range 16–40 mm
- PE-Xc pipes with anti diffusion barrier in diameter range 16–20 mm
- PE-RT pipes with anti diffusion barrier in diameter range 16–20 mm

The method of connecting pipes in KAN-therm Press LBP System is “press” technique based on crimping steel sleeve. For connecting pipes to appliances there may also be used screw connection fittings present in System KAN-therm Press..

## System KAN-therm Press LBP

### New fittings construction

View and cross-section of KAN-therm Press LBP fitting

1. Fittings body
2. Crimping sleeve made of stainless steel
3. EPDM O-Ring seals
4. Colour plastic spacer rings



Components of KAN-therm Press LBP fittings

#### System KAN-therm Press LBP – features

Thanks to its special construction, KAN-therm Press LBP fittings features:

- indication of un-pressed connections (LBP – Leak Before Press) – „unpressed - leaking”,
- colour plastic identification rings,
- possibility of interchangeable use of „U” or „TH” profile jaws (in case of diameter 26 mm - „C” or „TH”),
- elimination of tube edges bevelling necessity,
- precise positioning of crimping jaws on steel sleeve,
- possibility of connecting with multilayer PE-RT/Al/PE-RT and polyethylene PE-Xc & PE-RT pipes,
- elimination of bimetallic corrosion phenomenon (in case when pipe with aluminium layer is inserted) by using plastic spacer rings,
- possibility of concealing joints in floors.

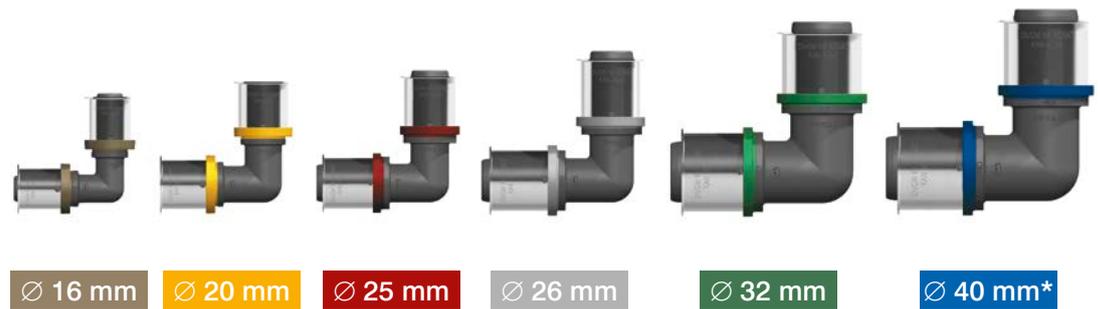
#### LBP function

LBP - „Leak Before Press”. Mistakenly un-pressed joint is detected by the visible water leak during filling installation with water without pressure - before proper pressure test. This function is consistent with DVGW recommendations („controlled leak”).



## Identification

Every fitting has polymer ring, which color depends on the diameter of the connected pipe.



\* Fittings of 40 mm diameter do not have the function of leakage control.

Such solution makes work more efficient both in the warehouse and in the construction site where it is difficult to identify fitting diameter (ex. lack of light). Regardless of the color identification, each nozzle is marked with diameter of connected pipes. Dimensions of connected pipes (outer diameter x wall thickness) are also marked on the steel sleeve.

## Universality

Special construction of KAN-therm Press LBP fittings allows for connecting multilayer PE-RT/Al/PE-RT and PE-RT and polyethylene PE-Xc & PE-RT pipes.



## Range of applications

Areas of application and operating parameters of KAN-therm Press LBP with multilayer PE-RT/Al/PE-RT pipes are shown in table:

Application (acc. to ISO 10508)	Dimension	Type of pipe
<b>Hot and cold tap water</b> [Class 1(2)] $T_{rob}/T_{max} = 60(70)/80^{\circ}\text{C}$ $P_{rob} = 10 \text{ bar}$	14 × 2,0 16 × 2,0 20 × 2,0 25 × 2,5 26 × 3,0 32 × 3,0 40 × 3,5	PE-RT/Al/PE-RT
	50 × 4,0 63 × 4,5	PE-X/Al/PE-X
<b>Surface heating, low parameter radiator heating</b> [Class 4] $T_{rob}/T_{max} = 60/70^{\circ}\text{C}$ $P_{rob} = 10 \text{ bar}$	14 × 2,0 16 × 2,0 20 × 2,0 25 × 2,5 26 × 3,0 32 × 3,0 40 × 3,5	PE-RT/Al/PE-RT
	50 × 4,0 63 × 4,5	PE-X/Al/PE-X
<b>Radiator heating</b> [Class 5] $T_{rob}/T_{max} = 80/90^{\circ}\text{C}$ $P_{rob} = 10 \text{ bar}$	14 × 2,0 16 × 2,0 20 × 2,0 25 × 2,5 26 × 3,0 32 × 3,0 40 × 3,5	PE-RT/Al/PE-RT
	50 × 4,0 63 × 4,5	PE-X/Al/PE-X
<b>For all classes</b> $T_{awarii} = 100^{\circ}\text{C}$	14 × 2,0 16 × 2,0 20 × 2,0 25 × 2,5 26 × 3,0 32 × 3,0 40 × 3,5	PE-RT/Al/PE-RT
	50 × 4,0 63 × 4,5	PE-X/Al/PE-X

Areas of application and operating parameters of KAN-therm Press LBP with polyethylene PE-Xc and PE-RT pipes are shown in table:

Areas of application (according to ISO 10508)	Dimension	Type of pipe
<b>Low parameter radiator heating</b> [Class 4] $T_{rob}/T_{max} = 60/70^{\circ}\text{C}$ $P_{rob} = 6 \text{ bar}$	16 × 2,0 20 × 2,0	PE-RT, PE-Xc
<b>Radiator heating</b> [Class 5] $T_{rob}/T_{max} = 80/90^{\circ}\text{C}$ $P_{rob} = 6 \text{ bar}$	16 2.0 20 2.0	PE-RT, PE-Xc

## Contact with substances containing solvents, sealing the threads

- Avoid direct contact of KAN-therm elements with solvents or solvent-containing materials, such as paints, aerosols, montage foams, adhesives, etc. Under unfavorable circumstances, these substances may damage plastic parts.
- Make sure that the connection sealants, cleaners or insulation of System KAN-therm components, do not contain compounds that cause stress cracks: ammonia, ammonia retaining compounds, solvents, aromatic or chlorinated hydrocarbons (e.g., ketones and ethers). Do not use montage foams based on methacrylate and acrylate isocyanate.
- Secure the pipes and fittings from direct contact with the adhesive strips and adhesives for isolation. Apply the adhesive tapes only on external surface of the thermal insulations.
- For the threaded connections it is recommended to use hemp in an amount such that the tops of the thread are still visible. Using too much hemp may damage the thread. Winding hemp just after first turn of the thread helps to avoid diagonal screwing and thread damage.



### CAUTION

Do not use chemical sealants and adhesives.

## Safety

Pipes and fittings in KAN-therm Press LBP System holds a set of necessary approvals and comply with current standards and normatives, which ensures long-lasting and trouble-free operation and full security of the installation:

- KAN-therm Press LBP PPSU fittings with steel sleeve: complies with PN-EN ISO 21003-3:2009 and positive PZH hygienic result,
- KAN-therm Press LBP brass fittings: complies with PN-EN 1254-3 and positive PZH hygienic result,
- PE-RT/Al/PE-RT pipes: complies with PN-EN ISO 21003-2:2009 and positive PZH hygienic result,
- PE-Xc pipes: complies with PN-EN ISO 15875-2:2004 and positive PZH hygienic result,
- PE-RT pipes: complies with PN-EN ISO 22391-2:2010 and positive PZH hygienic result.



Pipes and fittings of KAN-therm Press LBP System also holds positive opinion of Western certification units:

System KAN-therm Press LBP is granted with 10-year material warranty.

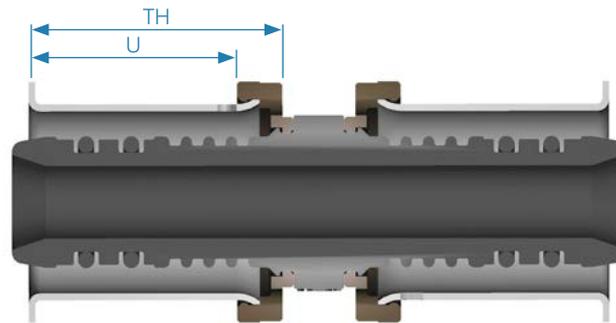


## Connections

Press connection is based on crimping steel sleeve embedded on fittings nozzle while the tube is inserted into the coupling. Each nozzle is equipped with O-ring seals made of EPDM synthetic rubber resistant to high temperatures and pressure. Crimping the steel sleeve is made by manual or electric machine equipped with (depending on the diameter) "U", "C" or "TH" profile jaw. This method allows for concealing joints in floors or plaster.

Construction KAN-therm Press LBP System fittings enables usage of different types of jaw for making joints within the same diameter – "U" and "TH" profile ("C" and "TH" for diameter 26 mm), see table below.

While making joints in KAN-therm Press System use only original tools from KAN-therm offer, or tools recommended by KAN. Tools are available as individual components or in complete sets.



### Summary of KAN-therm Press LBP fittings regarding of diameter range and crimping profiles

Fitting construction KAN-therm Press LBP	Diameter range	Clamping/ pressing profile
	distance ring colours	16
		20
		25
		26
		32
	40*	U or TH

\*Fittings of 40 mm in diameter do not have the function of leakage control.

## Assembly 16 - 40 mm

1. Cut a pipe at the right angle to its axis to a required length using scissors for multi-layer pipes or with a disc cutter.

2. Shape the pipe. Bend using the external or internal spring. Observe the min. bending radius  $R > 5 Dz$ .



### CAUTION

For cutting use only sharp blades.

3. Insert the pipe into a coupling - push the pipe centrally along the coupling axis. Check the insertion depth - the pipe edge must be visible in inspection holes in the steel ring.



4. Apply the press jaws exactly on the steel ring between the plastic distance ring and the steel ring collar perpendicularly to its axis. In case of the "TH" profile place the jaws on the plastic distance ring (the ring must be embraced by the jaws outer groove). In both cases due to the fitting design the clamping tool jaws will not shift during pressing.

5. Start the press drive and make the connection. The process of pressing lasts till the jaws close fully. The ring can be pressed on a pipe only once.



### CAUTION

**In case of KAN-therm Press LBP fittings there's no need for bevelling pipe edges. For bigger diameters (25 mm and above) to facilitate pipe insertion into the fitting it is recommended to use the calibration tool.**

Press connections should be performed at temperatures above 0°C. Before start, check tool manuals and safety conditions.

There is possibility of performing Press connections at temperatures below 0°C under additional conditions given in KAN-therm System Designers and Contractors guide.

## Tools - Safety

All tools must be applied and used in accordance with their purpose and the manufacturer's instructions. Use for other purposes or in other areas are considered to be inconsistent with the intended use.

Intended use also requires compliance with the instructions, conditions of inspection and maintenance and relevant safety regulations in their current version.

All works done with tools, which do not meet the application compatible with the intended purpose may result in damage to tools, accessories and pipes. The consequence may be the leak and / or damage.

## Compensation of thermal elongation

Guidelines for fixing pipelines, implementation of fixing points (PS), sliding supports (PP) and compensation of thermal elongation are available in technical part of KAN-therm Press directory or KAN-therm Designers and Contractors guide book.

## System KAN-therm Press

KAN-therm Press System is a complete system consisting of press fittings, screwed fittings with manifolds and cabinets, and multilayer pipes in diameters range:

- PE-RT/Al/PE-RT: Ø14-40 mm,
- PE-X/Al/PE-X: Ø50-63 mm.

## Modern technology

An ultra modern material - PPSU (phenylene polysulfone) - used in production of press fittings ensures:

- fully corrosion resistant,
- fully neutral towards potable water,
- fitting durability higher than pipes,
- high mechanical strength.

Production technology of PPSU fittings excludes any latent defects.

Multi Universal pipes of KAN-therm Press System consist of inner and outer layer of PE-RT polyethylene of high thermal resistance. Between polyethylene layers there is an aluminum layer that is permanently bounded with the polyethylene. Such a structure provides natural resistance to diffusion of oxygen into the system, elasticity, and the lack of "shape memory" (after bending pipes preserve shape), and also eight times smaller thermal elongation in comparison with polyethylene pipes.

## Long lasting technology

KAN-therm Press System, because of the perfect design of its elements and their matching, provides:

- over 50 year of service life,
- possibility of operating in high temperatures -  $T_{work}=80^{\circ}\text{C}$  (operating),  $T_{max}=90^{\circ}\text{C}$  (maximum; the heat source should be protected against exceeding that temperature) and operating pressure of 10 bar.
- extremely durable PPSU fittings whose maximum operating parameters are limited by pipe durability,
- total lack of corrosion with all kinds of water quality.

## Optimal technology

KAN-therm Press System allows to choose optimal technological and economical solutions because of:

- possibility of concealing press fittings in floor screeds and under plaster,
- possibility of using one type of pipes for water and heating systems.

## Safe technology

KAN-therm Press System guarantees full safety of assembly and operation:

- Press fittings with sleeves produced acc. to PN-EN ISO 21003-3:2009 obtains positive PZH hygienical results,
- pipes PE-RT/Al/PE-RT produced acc. to PN-EN ISO 21003-2:2009 obtains and positive PZH hygienical results,
- pipes PE-X/Al/PE-X produced acc. to PN-EN ISO 21003-2:2009 also obtains positive PZH hygienical results,
- safe design of press fittings provides full control over O-Ring seals during assembly,
- KAN-therm Press System has a 10-year warranty.

## Assembly of „pressed“ connections 50 - 63 mm

1. Cut the pipe perpendicular to its axis using special cutter.

2. Calibrate the pipe and chamfer its internal edge with a calibrator but not deeper than down to the aluminium layer.



3. Thru inspection holes in the steel ring check if a pipe is inserted right – it must be visible in the holes.

4. Apply the clamping tool jaws on a ring so it contacts the tube coupling collar. The external collar of jaws shall be pushed to the tube coupling collar but not embrace it.



5. Apply the clamping tool jaws on a ring so it contacts the tube coupling collar. The external collar of jaws shall be pushed to the tube coupling collar but not embrace it. Start the clamping tool drive and make the connection.



6. Remove the clamping jaws from the connection

**To eliminate the excessive overload on fittings by bending force, it is not recommended to bend pipes at a distance less than 10 external diameters from the fitting.**

The system assembly should be carried out in temperatures below 0 °C.

There is possibility of performing Press connections at temperatures below 0°C under additional conditions given in KAN-therm System Designers and Contractors guide.

### Press connections with a pressed-on ring

- are self-sealing,
- can be concealed in walls and also in floors, provided O-Rings have not been damaged during the assembly,
- are made using a jaw adequate to a given pipe diameter,
- should be made using tools delivered by KAN-therm (for diameters 16, 20, 25, 32, 40 mm it is permissible to use "U" standard compatible jaws, for diameter Ø26 "C" standard compatible, and for Ø50, 63 mm "TH" standard compatible according to REMS catalog),
- have a diameter range of Ø16-63 mm.

## Assembling screwed joints

1. Cut the pipe perpendicular to its axis using special cutter.



2. Shape the pipe as required. Bend using external or internal spring. Obey minimum bending radius  $R_g \geq 5 D_z$ .



3. Calibrate the pipe and chamfer its edges with a calibrator but not deeper than to the aluminium layer. Fit onto a pipe the screwed joint nut with the cut ring (or a connection nut).



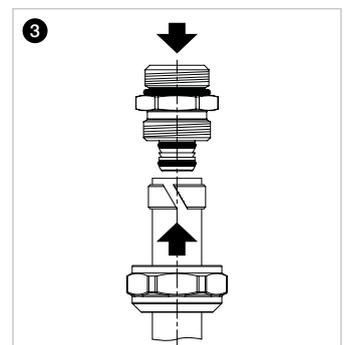
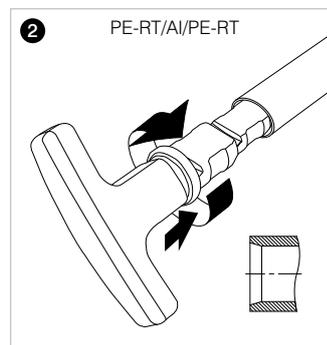
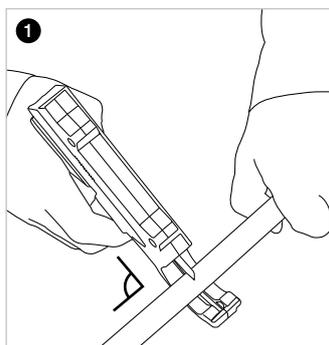
4. Insert the screwed joint body into a pipe till it definitely stops. The joint insertion depth is ca. 9 mm for pipes Ø14, 16, 20 and 12 mm for pipes Ø25, 26.

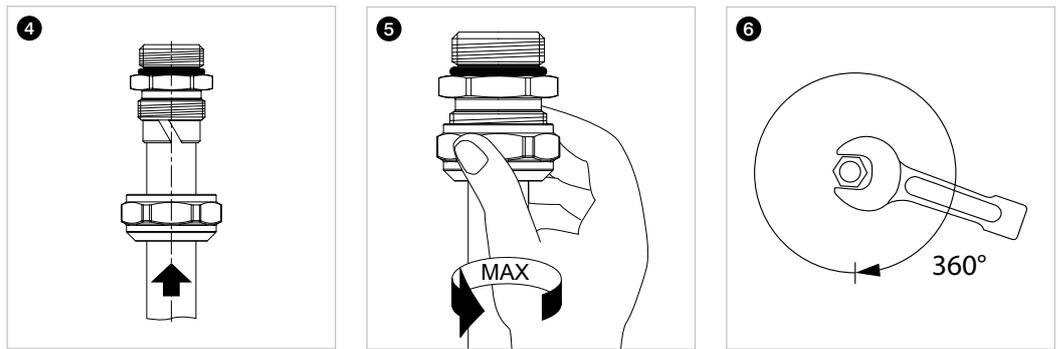


5. Slide the adapter body with the pipe into the fitting socket. Slide the compression ring to the fitting body (in case of erurocone adapter).



6. Screw the nut onto the fitting body using flat spanner.





### Screwed joints (pipe joints and couplings)

- are self-sealing – available for diameters Ø14-26mm,
- screwed joints can not be hidden in walls,
- it is not recommended to embed this kind of connections in a floor screed,
- in case of renovating an installation they can be taken apart.

### Joining fittings with nickel-plated pipes with radiator fixtures

For good looks of a KAN-therm radiator connection both from a floor or wall we offer special fittings with nickel-plated pipes.

Connect fixed elbows and tees with a nickel-plated pipe within radiator valves or directly with VK type radiators via elements like:

- union screw for the copper Ø15 G $\frac{3}{4}$ " pipe or universal union screw for Ø15 G $\frac{3}{4}$ " pipe,
- union screw for the copper Ø15 G $\frac{1}{2}$ " pipe,
- clamp for the copper Ø15 G $\frac{1}{2}$ " pipe,
- connector body G $\frac{1}{2}$ ",

All joints of this kind are self-sealing and no additional sealing is needed.

### ! CAUTION

**It is advised to seal threaded connections with such an amount of tow, that leaves the thread tops not covered. Using too much tow may lead to thread damage. By winding tow just after the first thread ridge you can avoid skew screwing and damaging the thread.**

## Fastening pipelines

For maximum distances between pipeline supports see the Table below:

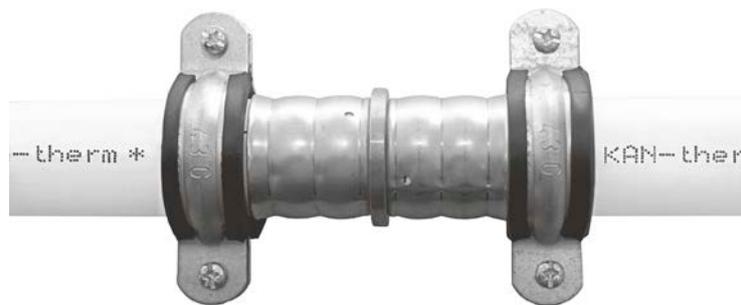
Pipe diameter	14×2	16×2	20×2	25×2,5	26×3	32×3	40×3,5	50×4	63×4,5
Max distances between pipeline fastening supports [m]	1.2	1.2	1.3	1.5	1.5	1.6	1.7	2.0	2.2

Supports can be executed as sliding supports PP. Sliding supports shall be located maintaining required distances as the pipeline weight must be supported properly. If a required location of a sliding support restricts the required length a compensating arm, instead of a sliding, support a pipeline from below.

## Fixed point PS and slidable points PP

- fixed points shall prevent any movement of a pipeline therefore they shall be mounted at connections (on both sides of a connection, e.g. coupling),
- with this system pipe clamps serving as fixed points shall not be mounted directly at fittings or on pressed-on rings,
- when mounting fixed points at tees check that pipe clamps blocking a pipeline are not mounted on branches of a diameter smaller by more than one size than a pipeline from which they branch off (forces generated by large diameter pipes can damage a smaller diameter),
- sliding supports allow only axial movements of a pipeline (they act as fixed points in the perpendicular angle to the pipeline axis) and should be made using plastic, snap-on clamps supplied within the KAN-therm System,
- do not mount sliding supports at connections as this may block the pipe thermal expansion,
- don't forget that sliding supports prevent movements transverse to the pipeline axis therefore their locations can determine the length of compensation arms..

Mounting a fixed points at a joint



tight screwed clamp fastened to building element

Mounting a fixed point at a tee

### CAUTION:

do not mount a clamp on a branch if this is smaller by more than one size than the tee nominal diameter



tight screwed clamp fastened to building element

## Thermal elongation

Every pipeline, when exposed to temperature difference  $\Delta T$  undergoes elongation (or shortening) by the  $\Delta L$  value. This amount is calculated with the below formula:

$$\Delta L = \alpha \times L \times \Delta T$$

where:

$\alpha$  – thermal linear elongation coefficient 0,025 [mm/mK]

$L$  – pipeline section length [m]

$\Delta T$  – temperature difference during installation and use [K]

## Compensators

In order to eliminate linear elongation effects (uncontrolled movements of pipelines and their deformation), compensation solutions with different structures are used (flexible arm, U- and Z-shape compensators).

$$L_s = K \times \sqrt{D_z \times \Delta L}$$

where:

$L_s$  – flexible arm's length [mm]

$K$  – material coefficient = 36

$D_z$  – external diameter of the pipe [mm]

$L$  – elongation of the pipe-line length [mm]

## „L”, „Z”, and „U” compensator selection

Table 1. Pipe elongation for different lengths and various temperature growths

L [m]	$\Delta L$ – elongation [mm]							
	$\Delta T$ – temperature difference [°C]							
	10	20	30	40	50	60	80	90
0.5	0.13	0.25	0.38	0.50	0.63	0.75	1.00	1.13
1	0.25	0.50	0.75	1.00	1.25	1.50	2.00	2.25
2	0.50	1.00	1.50	2.00	2.50	3.00	4.00	4.50
3	0.75	1.50	2.25	3.00	3.75	4.50	6.00	6.75
4	1.00	2.00	3.00	4.00	5.00	6.00	8.00	9.00
5	1.25	2.50	3.75	5.00	6.25	7.50	10.00	11.25
6	1.50	3.00	4.50	6.00	7.50	9.00	12.00	13.50
7	1.75	3.50	5.25	7.00	8.75	10.50	14.00	15.75
8	2.00	4.00	6.00	8.00	10.00	12.00	16.00	18.00
9	2.25	4.50	6.75	9.00	11.25	13.50	18.00	20.25
10	2.50	5.00	7.50	10.00	12.50	15.00	20.00	22.50
15	3.75	7.50	11.25	15.00	18.75	22.50	30.00	33.75
20	5.00	10.00	15.00	20.00	25.00	30.00	40.00	45.00
25	6.25	12.50	18.75	25.00	31.25	37.50	50.00	56.25
30	7.50	15.00	22.50	30.00	37.50	45.00	60.00	67.50
35	8.75	17.50	26.25	35.00	43.75	52.50	70.00	78.75
40	10.00	20.00	30.00	40.00	50.00	60.00	80.00	90.00

A  $\Delta L$  elongation causes a pipeline to deform along the length of an elastic arm  $A$ .

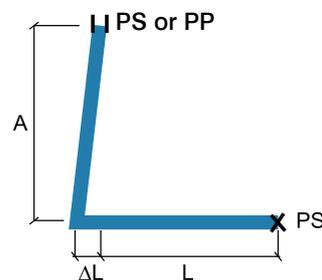
Compensation arm **A** length should not cause excessive stress in the pipeline (should not be smaller than value given in table 2) and depends on pipe external diameter, pipe thermal elongation, and a constant (linear expansion coefficient) for a given material.

**Table 2 Minimum length A of an flexible arm depending on the pipe external diameter and its elongation**

$\Delta L$ elongation [mm]	A – length of flexible arm [mm]								
	Dz – pipe OD [mm]								
	14	16	20	25	26	32	40	50	63
5	301	322	360	402	410	455	509	569	639
10	426	455	509	569	580	644	720	805	904
15	522	558	624	697	711	789	882	986	1107
20	602	644	720	805	821	911	1018	1138	1278
30	738	789	882	986	1005	1115	1247	1394	1565
40	852	911	1018	1138	1161	1288	1440	1610	1807
50	952	1018	1138	1273	1298	1440	1610	1800	2020
60	1043	1115	1247	1394	1422	1577	1764	1972	2213
70	1127	1205	1347	1506	1536	1704	1905	2130	2391
80	1205	1288	1440	1610	1642	1821	2036	2277	2556
40	1278	1366	1527	1708	1741	1932	2160	2415	2711

## Compensation of thermal expansion of pipes type L, Z, U

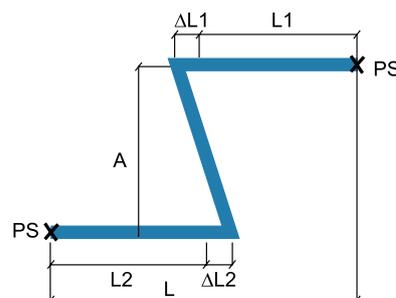
### „L” type compensator



- A** – flexible arm length
- PP** – sliding support (allows only axial movement of a pipeline)
- PS** – fixed point (prevents any movement of a pipeline)
- L** – the initial length of a pipeline
- $\Delta L$**  – pipeline thermal elongation

For compensation arm **A** dimensioning, a substitute length  $L_z=L$  is taken, and for  $L_z$  length the thermal elongation value  $\Delta L$ , determined from formula. Next, the expansion compensation length **A** is determined on the basis of Tab. 2.

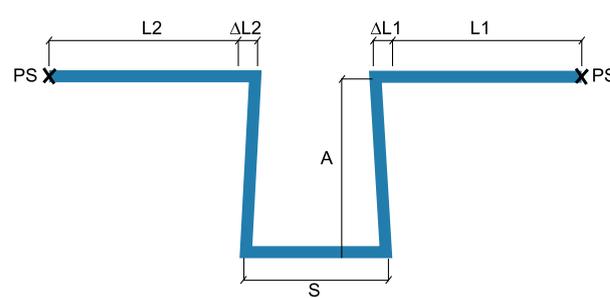
### „Z” type compensator



- A** – expansion compensation length
- PS** – fixed point (prevents the pipeline from moving)
- L** – pipeline initial length
- $\Delta L$**  – pipeline thermal elongation

For compensation arm **A** dimensioning,  $L1$  and  $L2$  sum is taken as a substitute length  $L_z=L1+L2$ , and for  $L_z$  length a substitute  $\Delta L$  is determined from formula. Next, the expansion compensation length **A** is determined on the basis of Tab. 2.

## „U” type compensator



- A** – expansion compensation length
- PS** – fixed point (prevents the pipeline from moving)
- L** – pipeline initial length
- ΔL** – pipeline thermal elongation
- S** – U type compensator width

In case of placing fixed point **PS** in the section of compensator length **S** for compensation arm **A** dimensioning, the greater value from **L1** and **L2** is taken as a substitute length for  $L_z = \max(L1, L2)$  and for this length the substitute elongation  $\Delta L$  is determined on the basis of Tab. 1, and then the length of compensation arm **A** is determined on the basis of Tab. 2.

Compensator width:  $S = A/2$ .

The width **S** of a compensator shall allow a free movement of the sections **L1** and **L2** taking into account an eventual pipe insulation thickness and conditions of assembly.

$$S \geq 2 \times g_{isol} + \Delta L1 + \Delta L2 + S_{min}$$

where:

$g_{isol}$  – insulation thickness

$\Delta L1, \Delta L2$  – elongation of sections L1 and L2

$S_{min}$  – minimum length resulting from mounting of elbows or bending pipes.

Strive to minimise the width **S**, and when the width **S** is above 10% of the value of **L1** or **L2** a **U** – compensator with its fixed point in the middle shall be determined as a **Z** type compensator taking into account the width **S** and the greater value from **L1** and **L2**.

The minimum allowed pipe bending radius  $R_{min} = 5 D_z$  (The minimum allowed pipe bending radius 32 mm),

$D_z$  – The minimum allowed pipe bending radius.

## Assembly and rules for compensation of the thermal elongation

- In the case of flush-mount installation with 14-25 mm diameters, lead the pipes with light curves (with 10% excess in relation to the straight line), which allows you to achieve self-compensation of pipeline thermal elongations.
- Do not install fixtures on pipelines at compensation arms and also do not block pipeline movements, e.g. against sliding supports. It is best to use mounted fixtures as fixed points thus a pipeline does not support the weight of fixtures or transfer forces occurring at opening or closing valves,
- by all means a pipeline section must be provided with the compensation of elongations,
- in case pipelines are connected at the right angle to steel tubes, the point of connection shall be regarded as a point preventing movements along the axis of a pipeline of multi-layer pipes – a fixed point for a steel pipeline by mounting pipe clamps on a pipeline made of multi-layer pipes is inadmissible. In the event a steel pipeline at a point of connection of multi-layer pipes can elongate substantially the section of connection of multi-layer pipes must be made as an elastic arm by placing a sliding support at a right place (a fixed point is inadmissible), and the length of that arm shall be determined according to the elongation  $\Delta L$  of a steel pipeline using Table 2,

- in case a multi-layer pipeline is joined with a steel pipeline determine a compensating elastic arm taking into account the elongation of this section resulting from the sum of elongations of both pipelines,
- at a point, where a pipeline of multi-layer pipes connects with a steel pipeline, we recommend a fixed point on a steel pipeline (this should be foreseen when planning a steel pipeline compensation),
- riser sections in shafts should be free to expand thermally. In case compensation arms in riser branches are not possible, it is recommended to use for these branches elastic PE-Xc or PE-RT pipes,
- water meters and heat meters (and fixtures) mounted on pipelines must be fixed to walls (pipelines should not transfer their weight or forces generated by operating fixtures) thus being mounted as fixed points.

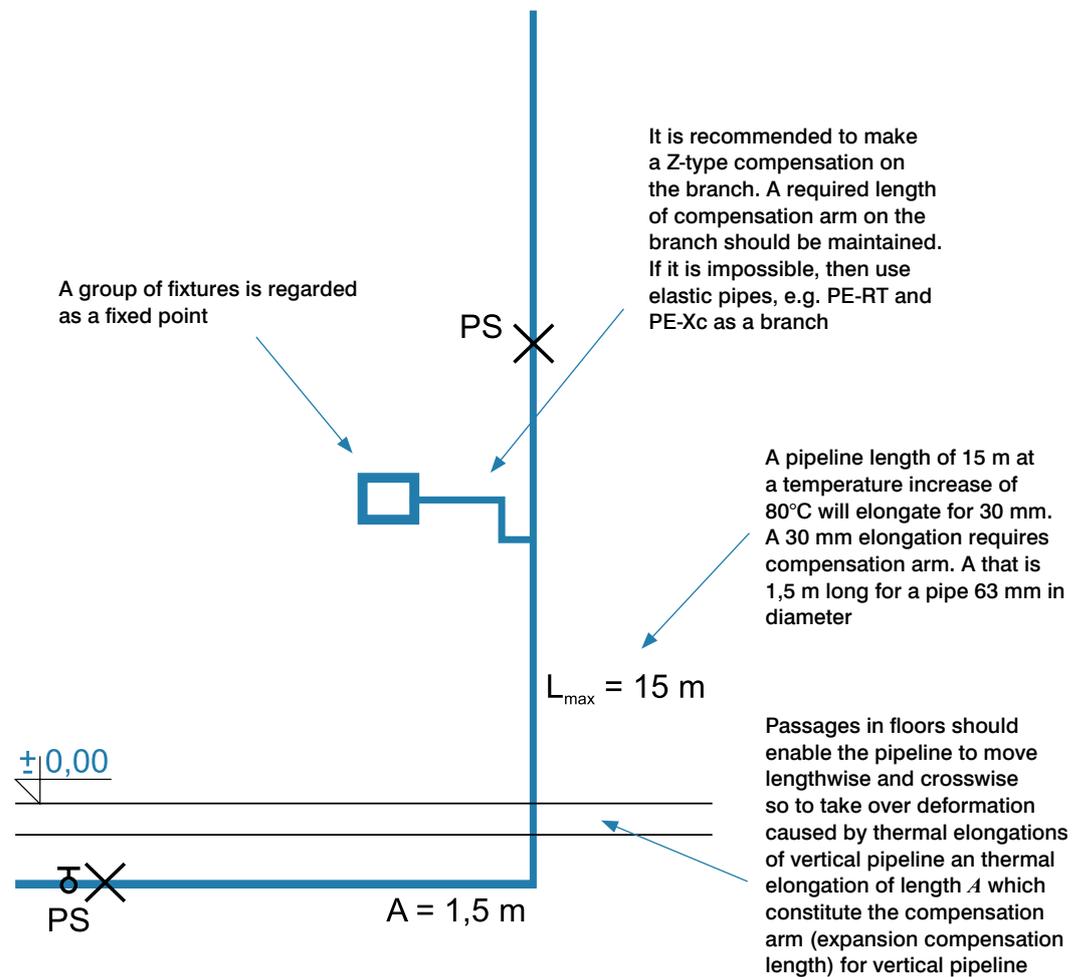


**To eliminate the excessive load on fittings by bending force, it is not recommended to bend pipes at a distance less than 10 external diameters from the fitting.**

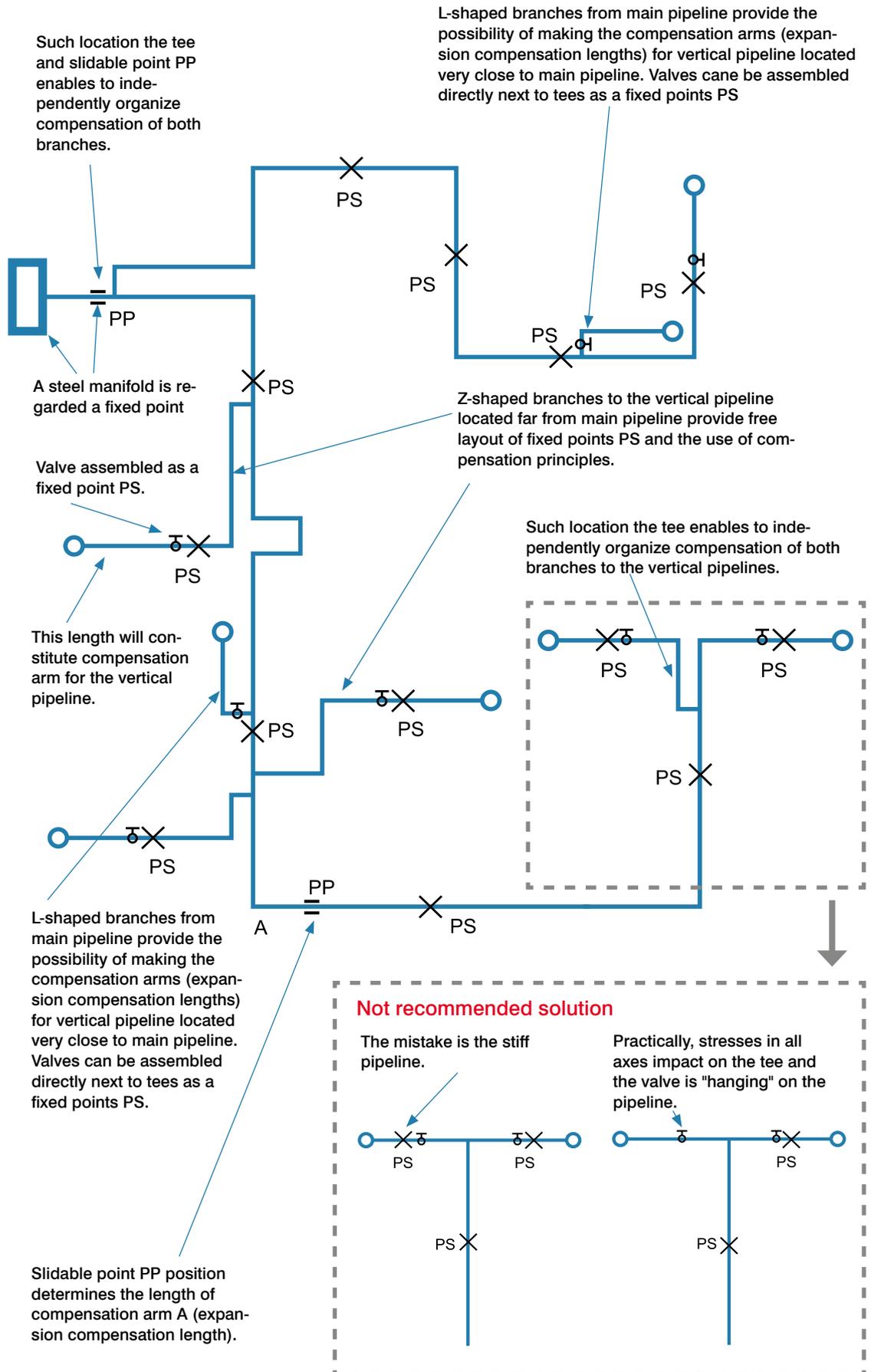
## Example of compensating risers and branches

Using the compensation arm at vertical pipeline base  $A=1,5$  m, and placing a fixed point FP half-way the vertical pipeline height, vertical pipeline height can reach 30 m high (for pipes up to dia 63 mm).

A higher vertical pipeline can be taken if a higher thermal elongation of a segment above fixed point FP is allowed and compensation arm length  $A$  is increased.



## Example of compensating elongations of main routes and it's branches



SYSTEM **KAN-therm**

Press LBP



SYSTEM  
**KAN-therm**



## Brass fittings Press LBP 4MS with diameters of 16-25 mm

**Brass fittings KAN-therm Press LBP meet the requirements of 4MS Common Approach.\***

\* The fittings are made of copper alloy meeting the requirements of 4MS Common Approach, compulsory in most European countries and used to eliminate heavy metals from drinking water.



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**NASTAVNI ZAVOD ZA  
JAVNO ZDRAVSTVO  
DR. ANDRIJA ŠTAMPAR**



TECHNOLOGY OF SUCCESS



[www.kan-therm.com](http://www.kan-therm.com)

ISO 9001

# System KAN-therm Press / Press LBP - assortment

multilayer pipe PE-RT/Al/PE-RT designed for central heating, hot and cold water systems as well as for underfloor heating systems; operating pressure max. 10 bar

GROUP: B



Size	New code	*	Code	Packing	UM
14×2	1029 196032		0.9614	200/3000	m
16×2	1029 196123		0.9616	200/3000	m
20×2	1029 196092		0.9620	100/1500	m
25×2,5	1029 196081		0.9625	50/750	m
26×3	1029 196106		0.9626	50/600	m
32×3	1029 196115		0.9632	50/600	m
40×3,5	1029 196119		0.9640	25/300	m

multilayer pipe PE-RT/Al/PE-RT designed for central heating, hot and cold water systems as well as for underfloor heating systems; operating pressure max. 10 bar

GROUP: B



Size	New code	*	Code	Packing	UM
32×3	1029 196071		0.9732	5/180	m
40×3,5	1029 196078		0.9740	5/125	m

multilayer pipe PE-Xc/Al/PE-Xc designed for central heating, hot and cold water systems as well as for underfloor heating systems; operating pressure max. 10 bar

GROUP: B



Size	New code	*	Code	Packing	UM
50×4	1029 196130		0.9550	15/480	m
63×4,5	1029 196131		0.9563	5/390	m

multilayer pipe PE-RT/Al/PE-RT designed for central heating, hot and cold water systems as well as for underfloor heating systems; operating pressure max. 10 bar - in 6 mm thermal insulation

GROUP: B



Size	New code	*	Code	Packing	UM
16×2 red	1029 195010		0.9616-6C	50/750	m
16×2 blue	1029 195011		0.9616-6N	50/750	m
20×2 red	1029 195000		0.9620-6C	50/750	m
20×2 blue	1029 195001		0.9620-6N	50/750	m
25×2,5 red	1029 195002		0.9625-6C	25/375	m
25×2,5 blue	1029 195003		0.9625-6N	25/375	m
32×3 red	1029 196114		0.9632-6C	50/300	m
32×3 blue	1029 196067		0.9632-6N	50/300	m

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

**PE-Xc pipe acc. to DIN 16892/93 with EVOH layer acc. to DIN 4726 for radiator and underfloor heating up to 6 bar**

**GROUP: C**

Size	New code	*	Code	Packing	UM
16×2	1129 200032		0.2146	200/3000	m
20×2	1829 200005	*	K-150005	200/3000	m

**Caution:**

PE-Xc pipes may only be connected with KAN-therm Press LBP fittings and Eurocone adapters for PE-Xc, PE-RT pipes.



**pipe PE-RT with EVOH layer acc. to DIN 4726 for radiator and underfloor heating up to 6 bar**

**GROUP: C**

Size	New code	*	Code	Packing	UM
16×2	1129 198042		0.2176	200/3000	m
20×2	1129 198023	*	K-100305	200/1800	m

**Caution:**

PE-RT pipes may only be connected with KAN-therm Press LBP fittings and Eurocone adapters for PE-Xc, PE-RT pipes.



**Press straight male connector**

**GROUP: F**

Size	New code	*	Code	Packing	UM
16×2×½"	1009 045005		K-900000	10/150	pc
20×2×½"	1009 045009		K-900001	10/120	pc
20×2×¾"	1009 042128		K-900002	10/120	pc
25×2,5×½"	1009 042132		K-080070	5/50	pc
25×2,5×¾"	1009 045014		K-900003	5/50	pc
25×2,5×1"	1009 045013		K-900004	5/50	pc
26×3×½"	1009 042134		K-080069	5/50	pc
26×3×¾"	1009 045043		K-080064	5/50	pc
26×3×1"	1009 045015		9024.65	5/50	pc
32×3×1"	1009 045017		K-900005	5/40	pc
32×3×1¼"	1009 045016		K-900006	5/40	pc
40×3,5×1"	1009 045061		K-080068	2/20	pc
40×3,5×1¼"	1009 045019		K-900007	2/20	pc
40×3,5×1½"	1009 045018		K-900008	2/20	pc
50×4×1½"	1009 045020		K-900009	2/20	pc
63×4,5×2"	1009 045003		K-900010	1/10	pc



**Press straight female connector**

**GROUP: F**

Size	New code	*	Code	Packing	UM
16×2×½"	1009 044002		K-900100	10/120	pc
20×2×½"	1009 042120		K-900101	10/120	pc
20×2×¾"	1009 044003		K-900102	10/80	pc
25×2,5×¾"	1009 044024		K-080125	5/50	pc
25×2,5×1"	1009 044005		K-900103	5/40	pc
26×3×¾"	1009 044029		K-080089	5/50	pc
26×3×1"	1009 044006		9024.88	5/40	pc
32×3×1"	1009 044040		K-080126	5/40	pc
32×3×1¼"	1009 044008		K-900104	5/40	pc
40×3,5×1"	1009 044051		K-080096	2/20	pc
40×3,5×1¼"	1009 044050		K-080097	2/20	pc
40×3,5×1½"	1009 044009		K-900105	2/20	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## PPSU Press stright female connector

GROUP: F

Size	New code	*	Code	Packing	UM
16×2×½"	1009 044030		K-070253	10/120	pc



## Press Compression fitting

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / 15	1009 042077		K-900381	10/150	pc
20×2 / 22	1009 042079		K-900382	10/80	pc
25×2,5 / 22	1009 042082		K-900383	5/50	pc



### Caution:

The fitting can be used with system copper Press and System KAN-therm Steel & Inox.

## Press compression elbow

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / 15	1009 068018	*	K-080551	10/120	pc



### Caution:

The coupling can be used with system copper Press and System KAN-therm Steel & Inox.

## Press transition fitting Push/Press

GROUP: F

Size	New code	*	Code	Packing	UM
14×2 / 16×2	1009 042146		K-902716	10/150	pc
18×2 / 16×2	1009 042149		K-902717	10/150	pc
18×2,5 / 16×2	1009 042145		K-902718	10/150	pc



## Press PPSU coupling

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / 16×2	1009 042013		K-900250	10/160	pc
20×2 / 20×2	1009 042015		K-900251	10/150	pc
25×2,5 / 25×2,5	1009 042017		K-900252	5/60	pc
26×3 / 26×3	1009 042039		K-070072	5/60	pc



## Press straight coupling

GROUP: F

Size	New code	*	Code	Packing	UM
14×2 / 14×2	1009 042024		K-080202	10/160	pc
<b>N</b> 16×2 / 16×2	1009 042042		K-040200	10/150	pc
<b>N</b> 20×2 / 20×2	1009 042049		K-040201	10/120	pc
<b>N</b> 25×2,5 / 25×2,5	1009 042055		K-040220	5/70	pc
32×3 / 32×3	1009 042003		K-900203	5/40	pc
40×3,5 / 40×3,5	1009 042004		K-900204	2/20	pc
50×4 / 50×4	1009 042005		K-900205	2/20	pc
63×4,5 / 63×4,5	1009 042022		K-900206	1/5	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### Press PPSU reducing coupling

GROUP: F

Size	New code	*	Code	Packing	UM
20×2 / 16×2	1009 046026		K-900350	10/120	pc
25×2,5 / 16×2	1009 046029		K-900351	5/70	pc
26×3 / 16×2	1009 046040		K-070066	5/70	pc
25×2,5 / 20×2	1009 046032		K-900352	5/70	pc
26×3 / 20×2	1009 046045		K-070076	5/70	pc



### Press reducing coupling

GROUP: F

Size	New code	*	Code	Packing	UM
<b>N</b> 20×2 / 16×2	1009 042105		K-040300	10/120	pc
<b>N</b> 25×2 / 16×2	1009 042111		K-040301	5/70	pc
<b>N</b> 25×2,5 / 20×2	1009 042117		K-040302	5/70	pc
32×3 / 16×2	1009 046075		K-080128	5/40	pc
32×3 / 20×2	1009 046072		K-900310	5/40	pc
32×3 / 25×2,5	1009 046018		K-900303	5/40	pc
32×3 / 26×3	1009 046046		9024.67	5/40	pc
40×3,5 / 20×2	1009 046047		K-080090	2/30	pc
40×3,5 / 25×2,5	1009 046052		K-900313	2/30	pc
40×3,5 / 26×3	1009 046054		K-080092	2/30	pc
40×3,5 / 32×3	1009 046048		K-900304	2/20	pc
50×4 / 32×3	1009 046002		K-900305	2/20	pc
50×4 / 40×3,5	1009 046004		K-900306	2/20	pc
63×4,5 / 40×3,5	1009 046007		K-900307	1/10	pc
63×4,5 / 50×4	1009 046008		K-900308	1/10	pc



### Press male branch tee

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / 1/2" / 16×2	1009 259000		K-903000	5/60	pc
20×2 / 1/2" / 20×2	1009 259027		K-083004	5/50	pc
20×2 / 3/4" / 20×2	1009 259001		K-903001	5/50	pc
25×2,5 / 3/4" / 25×2,5	1009 259037		K-080129	2/30	pc
25×2,5 / 1" / 25×2,5	1009 259002		K-903002	2/30	pc
26×3 / 3/4" / 26×3	1009 259043		K-080130	2/30	pc
26×3 / 1" / 26×3	1009 259040		K-083003	2/30	pc
32×3 / 1" / 32×3	1009 259046		K-903003	2/20	pc
40×3,5 / 1" / 40×3,5	1009 259003		K-903007	1/10	pc
50×4 / 1" / 50×4	1009 259006	***	9050.110	1/12	pc
63×4,5 / 1" / 63×4,5	1009 259010	***	9063.110	-/5	pc



### Press male branch reducing tee

GROUP: F

Size	New code	*	Code	Packing	UM
63×4,5 / 1" / 50×4	1009 259009	***	9063.120	-/8	pc



### brass fitting adapter female 1" × male 3/4"

GROUP: A

Size	New code	*	Code	Packing	UM
G1"×G3/4"	1009 004000	***	9032.02	5/60	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Press female branch reducing tee

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½" / 16×2	1009 258000		K-904000	5/60	pc
20×2 / ½" / 20×2	1009 258001		K-904001	5/50	pc
20×2 / ¾" / 20×2	1009 258011		K-904003	5/50	pc
25×2,5 / ½" / 25×2,5	1009 258029		K-080166	2/30	pc
25×2,5 / ¾" / 25×2,5	1009 258002		K-904002	2/30	pc
26×3 / ½" / 26×3	1009 258034		K-080167	2/30	pc
26×3 / ¾" / 26×3	1009 258036		K-084004	2/30	pc
32×3 / ½" / 32×3	1009 257279		K-084006	2/20	pc
32×3 / ¾" / 32×3	1009 257262		K-084008	2/20	pc



## Press PPSU tee

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / 16×2 / 16×2	1009 257007		K-900500	10/80	pc
20×2 / 20×2 / 20×2	1009 257009		K-900501	5/50	pc
25×2,5 / 25×2,5 / 25×2,5	1009 257010		K-900502	2/30	pc
26×3 / 26×3 / 26×3	1009 257016		9024.54	2/30	pc
32×3 / 32×3 / 32×3	1009 257020		K-900503	2/20	pc
40×3,5 / 40×3,5 / 40×3,5	1009 257023		K-900504	1/10	pc
50×4 / 50×4 / 50×4	1009 257027		9050.100	1/6	pc
63×4,5 / 63×4,5 / 63×4,5	1009 257029		9063.100	-/3	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Press PPSU tee reduced

GROUP: F.

Size	New code	*	Code	Packing	UM
16×2 / 20×2 / 16×2	1009 257083		K-900607	5/60	pc
20×2 / 16×2 / 16×2	1009 257086		K-900600	5/60	pc
20×2 / 16×2 / 20×2	1009 257089		K-900601	5/50	pc
20×2 / 20×2 / 16×2	1009 257092		K-900606	5/50	pc
20×2 / 25×2,5 / 20×2	1009 257097		K-900608	2/30	pc
20×2 / 26×3 / 20×2	1009 260007		K-070621	2/30	pc
25×2,5 / 20×2 / 16×2	1009 257106		K-070618	5/50	pc
25×2,5 / 16×2 / 20×2	1009 257100		K-900602	5/50	pc
25×2,5 / 16×2 / 25×2,5	1009 257103		K-900603	2/30	pc
25×2,5 / 20×2 / 20×2	1009 260010		K-900604	2/30	pc
25×2,5 / 20×2 / 25×2,5	1009 260000		K-900605	2/30	pc
25×2,5 / 25×2,5 / 20×2	1009 260009		K-070622	2/30	pc
25×2,5 / 32×3 / 25×2,5	1009 257063		K-070026	2/20	pc
26×3 / 16×2 / 20×2	1009 257014		9024.950	5/50	pc
26×3 / 16×2 / 26×3	1009 257015		9024.940	2/30	pc
26×3 / 20×2 / 16×2	1009 257113		K-070619	5/50	pc
26×3 / 20×2 / 20×2	1009 260019		9024.61	2/30	pc
26×3 / 20×2 / 26×3	1009 260022		9024.600	2/30	pc
26×3 / 26×3 / 20×2	1009 260026		K-070623	2/30	pc
26×3 / 32×3 / 26×3	1009 257066		K-070027	2/20	pc
32×3 / 16×2 / 32×3	1009 257019		K-900609	2/20	pc
32×3 / 20×2 / 25×2,5	1009 260027		K-900610	2/20	pc
32×3 / 20×2 / 26×3	1009 257021		9024.970	2/20	pc
32×3 / 20×2 / 32×3	1009 257022		K-900611	2/20	pc
32×3 / 25×2,5 / 25×2,5	1009 260032		K-900612	2/20	pc
32×3 / 25×2,5 / 32×3	1009 260035		K-900613	2/20	pc
32×3 / 26×3 / 26×3	1009 260038		9024.630	2/20	pc
32×3 / 26×3 / 32×3	1009 257158		9024.620	2/20	pc
32×3 / 32×3 / 20×2	1009 260102		K-070615	2/20	pc
32×3 / 32×3 / 25×2,5	1009 257073		K-070616	2/20	pc
32×3 / 32×3 / 26×3	1009 257076		K-070617	2/20	pc
40×3,5 / 20×2 / 32×3	1009 260041		K-900616	1/12	pc
40×3,5 / 20×2 / 40×3,5	1009 260042		K-900614	2/12	pc
40×3,5 / 25×2,5 / 32×3	1009 260043		K-900617	2/12	pc
40×3,5 / 25×2,5 / 40×3,5	1009 260044		K-900615	2/12	pc
40×3,5 / 26×3 / 32×3	1009 260001		9040.140	2/12	pc
40×3,5 / 26×3 / 40×3,5	1009 260045		9040.120	2/12	pc
40×3,5 / 32×3 / 32×3	1009 260048		K-900618	2/12	pc
40×3,5 / 32×3 / 40×3,5	1009 257026		K-900619	1/10	pc
40×3,5 / 40×3,5 / 32×3	1009 260049		K-071012	1/10	pc



## Press brass tee

GROUP: F.

Size	New code	*	Code	Packing	UM
<b>N</b> 16×2 / 16×2 / 16×2	1009 257129		K-041802	10/80	pc
<b>N</b> 20×2 / 20×2 / 20×2	1009 257144		K-041803	5/50	pc
<b>N</b> 25×2,5 / 25,2×2 / 25,2×2	1009 257152		K-040025	2/30	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Press brass reducing tee

GROUP: F

	Size	New code	*	Code	Packing	UM
N	20×2 / 16×2 / 16×2	1009 257205		K-041805	5/60	pc
N	20×2 / 16×2 / 20×2	1009 257211		K-041806	5/50	pc
N	20×2 / 20×2 / 16×2	1009 257217		K-041807	5/50	pc
N	20×2 / 25×2,5 / 20×2	1009 257223		K-040608	2/30	pc
N	25×2,5 / 16×2 / 20×2	1009 257229		K-040602	5/50	pc
N	25×2,5 / 16×2 / 25×2,5	1009 257234		K-040603	2/30	pc
N	25×2,5 / 20×2 / 16×2	1009 257240		K-040818	5/50	pc
N	25×2,5 / 20×2 / 20×2	1009 257246		K-040604	2/30	pc
N	25×2,5 / 20×2 / 25×2,5	1009 257252		K-040605	2/30	pc
N	25×2,5 / 25×2,5 / 20×2	1009 257258		K-040622	2/30	pc
	50×4 / 20×2 / 50×4	1009 257160		K-081101	1/10	pc
	50×4 / 25×2,5 / 40×3,5	1009 257163		K-081105	1/10	pc
	50×4 / 25×2,5 / 50×4	1009 257165		K-081102	1/10	pc
	50×4 / 26×3 / 40×3,5	1009 257168		K-081115	1/10	pc
	50×4 / 26×3 / 50×4	1009 260069		K-081116	1/10	pc
	50×4 / 32×3 / 40×3,5	1009 257172		K-081103	1/10	pc
	50×4 / 32×3 / 50×4	1009 257193		K-081104	1/10	pc
	50×4 / 40×3,5 / 40×3,5	1009 257175		K-081107	1/10	pc
	50×4 / 40×3,5 / 50×4	1009 257176		K-081106	1/8	pc
	63×4,5 / 20×2 / 63×4,5	1009 257177		K-081108	1/5	pc
	63×4,5 / 25×2,5 / 63×4,5	1009 257179		K-081109	1/5	pc
	63×4,5 / 26×3 / 63×4,5	1009 257181		K-081117	1/5	pc
	63×4,5 / 32×3 / 50×4	1009 257183		K-081110	1/5	pc
	63×4,5 / 32×3 / 63×4,5	1009 257185		K-081111	1/5	pc
	63×4,5 / 40×3,5 / 63×4,5	1009 260097		K-081118	1/5	pc
	63×4,5 / 40×3,5 / 50×4	1009 257187		K-081112	1/5	pc
	63×4,5 / 50×4 / 50×4	1009 257189		K-081114	1/5	pc
	63×4,5 / 50×4 / 63×4,5	1009 257191		K-081113	1/5	pc



## Crossing pair single Press

GROUP: F

	Size	New code	*	Code	Packing	UM
	16×2 / 16×2 / 16×2	1009 257043		K-900650	1/6	pc
	16×2 / 16×2 / 20×2	1009 257048		K-900651	1/6	pc
	20×2 / 16×2 / 16×2	1009 257044		K-900652	1/6	pc
	20×2 / 20×2 / 20×2	1009 257045		K-900654	1/6	pc
	20×2 / 16×2 / 20×2	1009 257051		K-900653	1/6	pc

**Caution:**

brass passing Press tees - nickel plated version



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### Press PPSU 90° elbow

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / 16×2	1009 068007		K-900400	10/120	pc
20×2 / 20×2	1009 068010		K-900401	10/80	pc
25×2,5 / 25×2,5	1009 068030		K-900402	5/40	pc
26×3 / 26×3	1009 068034		9024.49	5/40	pc
32×3 / 32×3	1009 068020		K-900403	2/30	pc
40×3,5 / 40×3,5	1009 068011		K-900404	2/20	pc
50×4 / 50×4	1009 068048		K-900405	2/10	pc
63×4,5 / 63×4,5	1009 068050		K-900406	-/5	pc



### Press brass 90° elbow

GROUP: F

Size	New code	*	Code	Packing	UM
<b>N</b> 16×2 / 16×2	1009 068054		K-041808	10/120	pc
<b>N</b> 20×2 / 20×2	1009 068060		K-041809	10/80	pc
<b>N</b> 25×2,5 / 25×2,5	1009 068066		K-040402	5/40	pc



### Press male branch elbow 90°

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½"	1009 068000		K-901000	10/120	pc
20×2 / ½"	1009 070010		K-081025	10/100	pc
20×2 / ¾"	1009 070013		K-901001	10/100	pc
25×2,5 / ¾"	1009 070005		K-080160	5/40	pc
25×2,5 / 1"	1009 070022		K-901002	5/40	pc
26×3 / ¾"	1009 070026		K-080161	5/40	pc
26×3 / 1"	1009 070016		K-081003	5/40	pc
32×3 / 1"	1009 070018		K-901003	2/30	pc
40×3,5 / 1¼"	1009 070029		K-080163	2/20	pc



### Press female branch elbow 90°

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½"	1009 069005		K-902000	10/120	pc
20×2 / ½"	1009 069008		K-902001	10/100	pc
20×2 / ¾"	1009 069011		K-902002	5/60	pc
25×2,5 / ¾"	1009 068029		K-902003	5/30	pc
25×2,5 / 1"	1009 069016		K-080172	5/30	pc
26×3 / ¾"	1009 069018		K-082004	5/30	pc
26×3 / 1"	1009 069020		K-080173	5/30	pc
32×3 / 1"	1009 069022		K-080174	2/30	pc
40×3,5 / 1¼"	1009 069012		K-080164	2/20	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### Press PPSU elbow 45°

GROUP: F

Size	New code	*	Code	Packing	UM
32×3 / 32×3	1009 068003		K-900410	2/30	pc
40×3,5 / 40×3,5	1009 068028		K-900411	2/20	pc
50×4 / 50×4	1009 068040		K-900412	1/10	pc
63×4,5 / 63×4,5	1009 068041		K-900413	-/5	pc



### mixer tap fixture branch Press type "U"

GROUP: F

Size	New code	*	Code	Packing	UM
16×½×16	1009 286018		K-085081	5/45	pc
20×½×20	1009 286019		K-085082	5/45	pc



### rubber acoustic guard for mixer tap fixture branches type "U"

GROUP: F

Size	New code	*	Code	Packing	UM
16-20	1009 183004		K-085035	5/25	pc



### PPSU Press wallplate elbow, with short plastic plug and M8 nut

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½"	1009 285005		K-905000	5/50	pc
20×2 / ½"	1009 285013		K-905001	5/50	pc



**Caution:**

Press Wallplate elbow is sold with steel sleeve, fixing bolt and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently. Sealing compounds like adhesives which are chemical aggressive should not be used. Use only bow with sealing compound. Do not use with dry plaster construction.

### PPSU Press wallplate elbow with nuts, (applicable for dry plaster)

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½"	1009 285029		K-085068	2/20	pc

**Caution:**

Sealing compounds like adhesives which are chemical aggressive should not be used. Use only bow with sealing compound.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### long wallplate elbow, with short plastic plug

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½"	1009 285009		K-905002	5/40	pc
20×2 / ½"	1009 285001		K-905023	5/40	pc



**Caution:**

Press Wallplate elbow is sold with steel sleeve and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently. Sealing compounds like adhesives which are chemical aggressive should not be used. Use only bow with sealing compound. Do not use with dry plaster construction.

### Press wallplate angle tee, with short plastic plug

GROUP: F

Size	New code	*	Code	Packing	UM
16÷2.	1009 285017		K-905003	5/40	pc
20×2 / ½"	1009 285040		K-085104	5/40	pc



**Caution:**

Press Wallplate elbow is sold with steel sleeve, fixing bolt and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently. Sealing compounds like adhesives which are chemical aggressive should not be used. Use only bow with sealing compound. Do not use with dry plaster construction.

### Press LBP wallplate angle tee directly fixed with short plastic plug

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½"	1009 285077		K-085071	5/50	pc
20×2 / ½"	1009 285082		K-085072	5/40	pc



**Caution:**

Press Wallplate elbow is sold with steel sleeve and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently. Sealing compounds like adhesives which are chemical aggressive should not be used. Use only bow with sealing compound.

### rubber acoustic muffler

GROUP: F.

Size	New code	*	Code	Packing	UM
16-20	1009 183002		K-085030	5/25	pc

**Caution:**

Use only with connections for water mixers with ears:

- 1009 285059:
- 1009 285062:
- 1009 285032.



### Press wallplate elbow, directly fixed

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½"	1009 285059		K-905022	5/50	pc
20×2 / ½"	1009 285062		K-085069	5/50	pc



**Caution:**

Press Wallplate elbow is sold with steel sleeve and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently. Sealing compounds like adhesives which are chemical aggressive should not be used. Use only bow with sealing compound.

### Press wallplate elbow, directly fixed - without plug

GROUP: F

Size	New code	*	Code	Packing	UM
20×2 / ¾"	1009 285032		K-085070	5/50	pc
25×2,5 / ¾"	1009 285050		K-905026	2/30	pc
26×3 / ¾"	1009 285053		K-085027	2/30	pc



**Caution:**

The connection to Press mixer is sold complete with a pressed ring. Do not use harsh chemicals to seal the threads in the profiles. Only use tow with pastes.

### Press flat wallplate tee with short plastic plug

GROUP: F

Size	New code	*	Code	Packing	UM
20×2 / ½"	1009 285056		K-905005	5/50	pc



**Caution:**

Press Wallplate elbow is sold with steel sleeve, fixing bolt and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently. Sealing compounds like adhesives which are chemical aggressive should not be used. Use only bow with sealing compound. Do not use with dry plaster construction.

### flat wallplate tee directly fixed with short plastic plug

GROUP: F

Size	New code	*	Code	Packing	UM
20×2 / ½"	1009 285057		K-085010	5/40	pc



**Caution:**

Press Wallplate elbow is sold with steel sleeve, fixing bolt and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently. Sealing compounds like adhesives which are chemical aggressive should not be used. Use only bow with sealing compound.

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Press LBP wallplate tee with nuts (applicable for dry plaster)

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½" / 16×2	1009 258012		K-084010	2/20	pc
20×2 / ½" / 16×2	1009 258017		K-084020	2/20	pc
20×2 / ½" / 20×2	1009 258018		K-084030	2/20	pc

**Caution:**

Sealing compounds like adhesives which are chemical aggressive should not be used.  
Use only bow with sealing compound.



## wallplate elbows set with mounting plate

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / ½"	1009 285000		K-201050	1/10	pc

**Caution:**

Press Wallplate elbow is sold with steel sleeve, fixing bolt and short plastic plug in a set.  
Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.  
Sealing compounds like adhesives which are chemical aggressive should not be used.  
Use only bow with sealing compound.



## Press transition fitting Press × Press

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 / 12	1009 042063	*	K-080380	20/160	pc
16×2 / 15	1009 042061		K-900344	20/160	pc
20×2 / 22	1009 042064		K-900345	10/120	pc
25×2,5 / 22	1009 042065		K-900342	5/60	pc
25×2,5 / 28	1009 042139		K-080384	5/60	pc
26×3 / 22	1009 042141		K-080386	5/60	pc
26×3 / 28	1009 042143		K-080385	5/60	pc

**Caution:**

The fitting can be used with system Copper Press and System KAN-therm Steel & Inox.



## plastic mounting plate

GROUP: A

Size	New code	*	Code	Packing	UM
single	1700 210011		6090.050	10/160	pc
double (L=150mm)	1700 210006		6090.060	10/70	pc
double (L=80mm)	1700 210010		6090.070	10/100	pc
double (L=50mm)	1700 210008		6090.080	10/120	pc

**Caution:**

Used for mounting wallplates. Do not use with dry plaster construction.



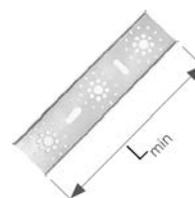
## metal mounting plate

GROUP: A

Size	New code	*	Code	Packing	UM
double (L= 80, 150mm)	1700 210014		6090.13	1/42	pc

**Caution:**

Mounting plate allows for fixing standard and directly fixed wallplate elbows.  
Mounting plate includes screws for directly fixed wallplate elbows (6pc)



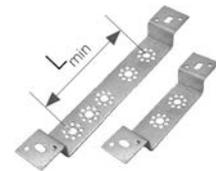
## metal mounting plate

GROUP: A

Size	New code	*	Code	Packing	UM
double (L= 50, 80, 150mm)	1700 210002		6090.09	10/20	pc
double (L= 50mm)	1700 210013		6090.10	10/80	pc

**Caution:**

Used for mounting wallplates.



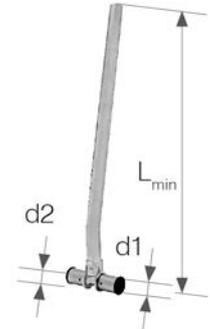
## Press tee for radiator connection with dia 15 copper pipe L=300 mm, nickel plated

GROUP: F

Size	New code	*	Code	Packing	UM
16x2 / 16x2	1009 257115		K-901930	-/40	pc
20x2 / 20x2	1009 261004		K-901931	-/30	pc
20x2 / 16x2 left	1009 261001		K-901932	-/30	pc
20x2 / 16x2 right	1009 261002		K-901933	-/10	pc

Use RH and LH reduction tees to connect radiators. RH tee identification: looking at bigger diameter the copper pipe bow should be at the right side.

**Caution:** Possibilities of connection fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



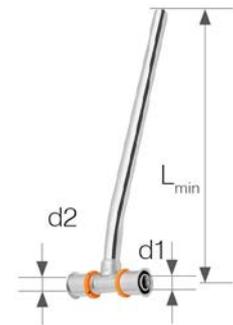
## Press tee for radiator connection with dia 15 copper pipe L=750 mm, nickel plated

GROUP: F

Size	New code	*	Code	Packing	UM
16x2 / 16x2	1009 261005		K-901934	-/25	pc
20x2 / 20x2	1009 261009		K-901935	-/20	pc
20x2 / 16x2 left	1009 261000		K-901936	-/20	pc
20x2 / 16x2 right	1009 261007		K-901937	-/20	pc

Use RH and LH reduction tees to connect radiators. RH tee identification: looking at bigger diameter the copper pipe bow should be at the right side.

**Caution:** Possibilities of connection fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



## Press brass elbow 16x2 with nickel plated copper pipe

GROUP: F

Size	New code	*	Code	Packing	UM
16x2 L <sub>min</sub> = 210 mm	1009 068001		K-901700	-/40	pc
16x2 L <sub>min</sub> = 300 mm	1009 071006		K-901701	-/40	pc
16x2 L <sub>min</sub> = 750 mm	1009 071009		K-901810	-/25	pc

**Caution:**

Possibilities of connection fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".



### Press brass double elbow 16x2 with nickel plated copper pipe

GROUP: F

Size	New code	*	Code	Packing	UM
16×2 L <sub>min</sub> = 200 mm	1009 068002		K-901800	-/15	pc
16×2 L <sub>min</sub> = 300 mm	1009 071014		K-901801	-/10	pc



**Caution:**

Possibilities of connection fittings with nickel plated tubes with all kinds of fittings are described in the technical part of the catalog - "Screw connections".

### Press LBP half union with flat rubber gasket

GROUP: F

Size	New code	*	Code	Packing	UM
16×G1/2"	1009 105000		K-080250	10/120	pc
16×G3/4"	1009 105002		K-080251	10/120	pc
20×G3/4"	1009 105006		K-080253	10/80	pc
20...G1	1009 105004		K-080252	5/60	pc
25×G3/4"	1009 105011		K-080114	5/60	pc
25×G1"	1009 105009		K-080255	5/60	pc
25×G1 1/4"	1009 105008		K-080254	5/50	pc
26×G3/4"	1009 105016		K-080108	5/60	pc
26×G1"	1009 105014		K-080109	5/60	pc
26×G1 1/4"	1009 105013		K-080110	5/50	pc
32×G1"	1009 105021		K-080107	5/50	pc
32×G1 1/4"	1009 105019		K-080257	5/40	pc
32×G1 1/2"	1009 105018		K-080256	5/40	pc
40×G1 1/2"	1009 271000		K-080258	2/30	pc
40×G2"	1009 271002		K-080259	2/30	pc



**Caution:**

Do not apply for manifold connections..

### Press eurocone adapter

GROUP: F

Size	New code	*	Code	Packing	UM
16×3/4"	1009 271013		K-900112	10/120	pc
32×1"	1009 271009		K-900111	5/50	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Press stop end

GROUP: F

Size	New code	*	Code	Packing	UM
16×2	1009 250001		K-609032	10/200	pc
20×2	1009 250002		K-609033	10/140	pc
25×2,5	1009 250003		K-609034	5/100	pc
26×3	1009 250004		K-609062	5/100	pc
32×3	1009 250005		K-609035	5/50	pc



## Screw connections

### eurocone adapter for PE-Xc & PE-RT pipes

GROUP: A

Size	New code	*	Code	Packing	UM
16× $\frac{3}{4}$ "	1110 271010		9006.57	10/150	pc
20× $\frac{3}{4}$ "	1110 271011		K-601705	10/150	pc

**Caution:**

pipe joints work with fittings for pipe couplings and distributors with nipples.



### pipe joint with PPSU casing for multilayer pipes

GROUP: A

of KAN-therm system	New code	*	Code	Packing	UM
16× $\frac{3}{4}$ "	1010 271005		9010.08N	10/150	pc

**Caution:**

pipe joints work with fittings for pipe couplings and distributors with nipples.



### eurocone adapter for multilayer pipe

GROUP: A

Size	New code	*	Code	Packing	UM
16× $\frac{1}{2}$ "	1010 271001		9012.00N	10/160	pc
16× $\frac{3}{4}$ "	1010 271002		9012.08N	10/150	pc
20× $\frac{3}{4}$ "	1010 271008		9012.02N	10/120	pc

**Caution:**

Pipe joints work with fittings for pipe couplings and distributors with nipples.



### adapter for multilayer pipe (fixed ring)

GROUP: A

Size	New code	*	Code	Packing	UM
14× $\frac{1}{2}$ "	1010 040002		9012.060	20/200	pc
14× $\frac{3}{4}$ "	1010 040001		9012.60	10/150	pc
16× $\frac{1}{2}$ "	1010 040003		9012.00	10/160	pc
16× $\frac{3}{4}$ "	1010 040006		9012.080	10/120	pc
20× $\frac{3}{4}$ "	1010 040011		9012.020	10/120	pc
20×1"	1010 040008		9012.100	5/80	pc
25×1"	1010 040013		9026.330	10/80	pc
26×1"	1010 040015		9012.040	5/80	pc



### straight male connector

GROUP: A

Size	New code	*	Code	Packing	UM
16×2× $\frac{1}{2}$ "	1010 045000		9025.01	10/150	pc
16×2× $\frac{3}{4}$ "	1010 045001		9025.04	10/150	pc

**Caution:**

The fitting is designed to be fixed directly into the manifold beam – connection sealing is provided by the O-Ring seal.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# Tools - Press

## manual press tool

GROUP: K

New code	*	Code	Packing	UM
1936 267174		ZAPR02	1	pc

**Caution:**

Used for pipe connections with Ø16, Ø20, Ø25, Ø26 mm.



## press jaw

GROUP: K

Size	New code	*	Code	Packing	UM
14	1936 267220		ZAPR14R	1	pc
16	1936 267122		ZAPR16R	1	pc
20	1936 267125		ZAPR20R	1	pc
25	1936 267127		ZAPR25R	1	pc
26	1936 267130		ZAPR26R	1	pc
32	1936 267137		ZAPRE32	1	pc
40	1936 267139		ZAPRE40	1	pc
50	1936 267134	*	ZAPRE50	1	pc
63	1936 267136	*	ZAPRE63	1	pc

**Caution:**

Ø14, Ø16, Ø20, Ø25, Ø32, Ø40 diameters - "U" profile  
 Ø26 diameter - "C" profile  
 Ø50, Ø63 diameters - "TH" profile



## pipe cutter for cutting multilayer pipes Ø14-32

GROUP: K

New code	*	Code	Packing	UM
1936 267054		RS1435	1/20	pc



## replacement blade for pipe cutter for cutting multilayer pipes Ø14-32

GROUP: K

New code	*	Code	Packing	UM
1936 267059	*	RSM1435	1	pc



## pipe roll-cutters for diameter Ø16-63

GROUP: K

New code	*	Code	Packing	UM
1936 267056		2519950	1	pc



## blade for roll-cutters for cutting multilayer pipes Ø16-63 - service element

GROUP: K

New code	*	Code	Packing	UM
1941 267039	*	290016	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### calibration and internal bevelling tool for multilayer pipes

GROUP: K

Size	New code	*	Code	Packing	UM
14	1936 267022	*	KL14	1	pc
16	1936 267026		KL16	1	pc
20	1936 267028		KL20	1	pc
25 / 26	1936 267030		KL26	1	pc



### calibration and internal bevelling universal tool for multilayer pipes

GROUP: K

Size	New code	*	Code	Packing	UM
16 / 20 / 25-26	1936 267044		KL162026	1	pc
25-26 / 32 / 40	1936 267039		KL263240	1	pc
50 / 63	1936 267046	*	KL5063	1	pc



### case for manual tools

GROUP: K

New code	*	Code	Packing	UM
N 1941 267135	*	002.001.000	1	pc



### manual press tools - case set

GROUP: K

New code	*	Code	Packing	UM
1936 267217		KPPZ/M	1	set

**Caution:**

Press tool is sold with a case.

It consists of the following items:

- 1936 267174 manual press tool, divided for Press type connectors with pressed ring
- 1936 267122 U16 jaws for the press tool
- 1936 267125 U20 jaws for the press tool
- 1936 267130 U26 jaws for the press tool
- 1936 267054 shears for multilayer pipe cutting
- 1936 267044 calibrator for multilayer pipes Ø16/Ø20/Ø25-26
- 1941 267135 case for splitted manual press tool



### manual press tools – light case set

GROUP: K

New code	*	Code	Packing	UM
1936 267218		KPPZ-L	1	set

**Caution:**

Press tool is sold with a case (1941 267135).

It consists of the following items:

- 1936 267174 zaciskarka ręczna, dzielona do łącz typu press z pierścieniem zaprasowywanym
- 1936 267122 U16 jaws for the press tool
- 1936 267125 U20 jaws for the press tool
- 1936 267026 kalibrator do rur wielowarstwowych Ø16
- 1936 267028 kalibrator do rur wielowarstwowych Ø20

The set is used for diameters of 16-20 mm.



### case for additional tools

GROUP: K

New code	*	Code	Packing	UM
N 1941 267129		002.001.006	1	set



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### case for manual press tool

GROUP: K

New code	*	Code	Packing	UM
1941 267135		002.001.000	1	set



### set of additional tools

GROUP: K

New code	*	Code	Packing	UM
1936 267216		KPPNA	1	set

The set contains:

- 1936 267044 calibrator for multilayer pipes Ø16/Ø20/Ø25-26 - 1 pc
- 1936 267039 calibrator for multilayer pipes Ø25-26, Ø32, Ø40 - 1 pc
- 1936 267046 calibrator for multilayer pipes Ø50/Ø63 - 1 pc
- 1936 267056 cutter for multilayer pipe cutting with diameter Ø16-63 - 1 pc
- 1936 267054 shears for multilayer pipe cutting with diameter Ø14-32 - 1 pc
- 1941 267129 case - 1 pc



### set of "TH" 50/63 type jaws

GROUP: K

New code	*	Code	Packing	UM
1936 267215		KPPD	1	set

The set contains:

- 1936 267134 TH50 jaws for the press tool - 1 pc
- 1936 267136 TH63 jaws for the press tool - 1 pc
- case - 1 pc



### set of "U" type 16-40 jaws with electrical press tool

GROUP: K

New code	*	Code	Packing	UM
1936 267167		ZAPR01-KPPD25	1	set

The set contains:

- 1936 267122 U16 jaws for the press tool - 1 pc
- 1936 267125 U20 jaws for the press tool - 1 pc
- 1936 267127 U25 jaws for the press tool - 1 pc
- 1936 267137 U32 jaws for the press tool - 1 pc
- 1936 267139 U40 jaws for the press tool - 1 pc
- 1936 267160 Electric press tool - 1 pc
- case - 1 pc



### Power Press ACC press tool with automatic clutch

GROUP: K

New code	*	Code	Packing	UM
1936 267219		ZAPR04	1	pc

Press tool is sold with a case.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Power Press SE electric press tool

GROUP: K

New code	*	Code	Packing	UM
1936 267160		ZAPR01	1	pc



**Caution:**

Press tool is sold with a case.  
The set doesn't include jaws and other tools

## Aku Press battery-powered press tool

GROUP: K

New code	*	Code	Packing	UM
1936 267152		ZAPRAK	1	pc



**Caution:**

Press tool is sold with battery, battery charger and case.  
The set doesn't include jaws and other tools

## ACO102 press tool with "U" type jaws

GROUP: K

Size	New code	*	Code	Packing	UM
N 16-32 U	1936 055000		47701-50 KPL	1	set

It consists of the following items:

- 1948 267161 Battery-powered ACO102 press tool - 1 pc
- 1936 267113 U16 jaws for the press tool - 1 pc
- 1936 267114 U20 jaws for the press tool - 1 pc
- 1936 267115 U25 jaws for the press tool - 1 pc
- 1936 267116 U32 jaws for the press tool - 1 pc
- 1938 267047 Battery charger - 1 pc
- 1938 267002 Battery 1.5 Ah - 2 pcs
- Case



## ACO102 press tool with "TH" type jaws

GROUP: K

Size	New code	*	Code	Packing	UM
N 16-32 TH	1936 055001	*	47756-50 KPL	1	set

It consists of the following items:

- 1948 267161 Battery-powered ACO102 press tool - 1 pc
- 1936 267108 TH16 jaws for the press tool - 1 pc
- 1936 267109 TH20 jaws for the press tool - 1 pc
- 1936 267110 TH25 jaws for the press tool - 1 pc
- 1936 267111 TH32 jaws for the press tool - 1 pc
- 1938 267047 Battery charger - 1 pc
- 1938 267002 Battery 1.5 Ah - 2 pc
- Case



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### external bending spring for multilayer pipes

GROUP: K

Size	New code	*	Code	Packing	UM
14	1936 267079	*	SZ-1410	1	pc
16	1936 267081		SZ-1612	1	pc
20	1936 267086		SZ-2016	1	pc
25-26	1936 267088		SZ-2620	1	pc



### internal bending spring for multilayer pipes

GROUP: K

Size	New code	*	Code	Packing	UM
14	1936 267073	*	SW-1410	1	pc
16	1936 267075		SW-1612	1	pc
20	1936 267077		SW-2016	1	pc
25-26	1936 267071		SW-2620	1	pc



### special spanner for eurocone adapters G<sup>3/4</sup>"

GROUP: K

Size	New code	*	Code	Packing	UM
30 mm	1938 267035	*	K-501900	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

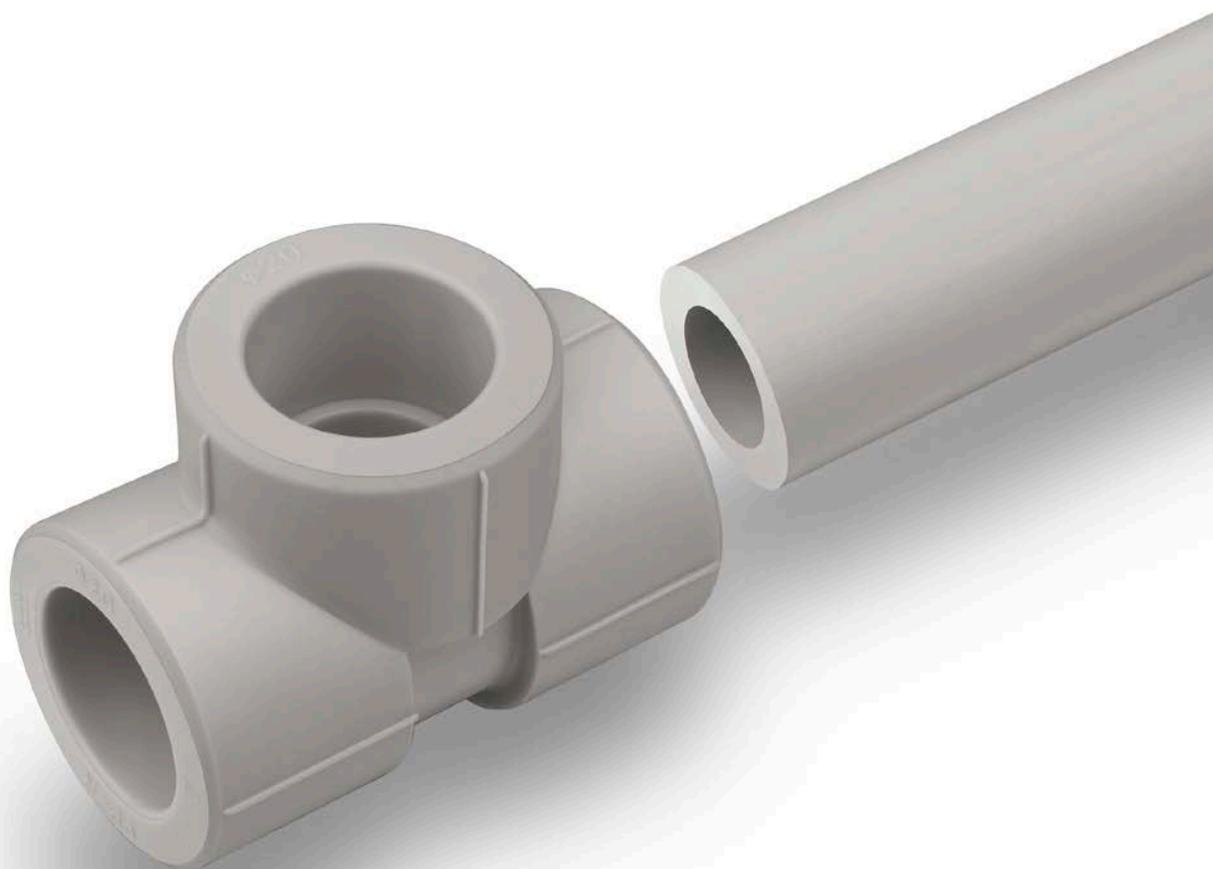
Ø 16-110 mm



SYSTEM **KAN-therm**

PP

High quality  
for reasonable price



TECHNOLOGIA SUKCESU

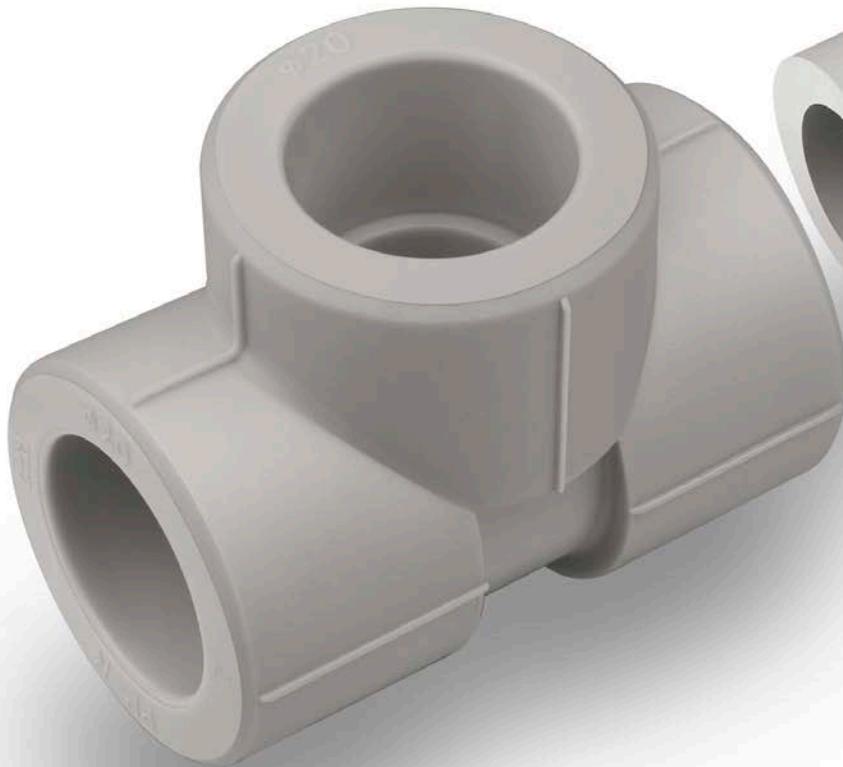


ISO 9001

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### 3 KAN-therm PP System

**System KAN-therm PP is a complete installation system consisting of pipes and fittings made of polypropylene PP-R (type3).**

The system is widely used in construction, particularly in water supply systems.

The elements of the system are connected by socket welding (thermal polyfusion) with the use of electric welders. Welding technique through a homogeneous combination provides outstanding tightness and mechanical strength of the installation.

## The material

The plastic used in the production of pipes and fittings of the System KAN-therm PP is the high quality random polypropylene copolymer (PP-R) which used to be marked as Type 3.

System KAN-therm PP is characterised by a number of advantages:

- high microbiological and physiological inertness of products
- high chemical resistance,
- resistance to material corrosion,
- low thermal conductivity,
- low specific mass,
- resistance to scale accumulation,
- dampening of flow vibrations and noises,
- mechanical strength,
- homogeneity of connections,
- high operation durability.

### The scope of uses

**The installation System KAN-therm PP, due to its material properties, has a wide range of use:**

- cold (20°C/1.0 MPa) and hot (60°C/1.0 MPa) water in residential buildings in hospitals, hotels, office buildings, schools,
- central heating systems (temp. up to 90°C, working pressure up to 0.6 MPa),
- compressed air systems,
- balneological installations,
- installations in agriculture and gardening,
- industrial pipelines, e.g. for transporting of aggressive media and food substances,
- naval installations.

The scope of applications includes new installations, as well as repairs, modernizations and replacements.

## Sanitary systems installation

System KAN-therm PP installations, thanks to the special properties of PP-R polypropylene (physiological and microbiological inertness, resistance to corrosion, to scale accumulation, vibration resistance, high thermal insulation of pipes), they are widely used especially in water supply systems, in particular in the installation of risers and horizontal pipes.

This refers to both cold and hot water installations - in residential buildings, hospitals, hotels, office buildings, schools, on ships, etc.

System KAN-therm PP installations are indispensable in the replacement of old, corroded water supply installations.

Due to the specific technique of connection, thermal polyfusion, i.e. welding, tightness and durability of the installation is guaranteed.

## Elements of the system

System KAN-therm PP includes the following elements:

- PP-R pipes in the form of straight sections, uniform and compound,
- uniform PP-R fittings,
- „adaptor“ couplings with metal threads,
- sleeves for flange connections, pipe joint connections,
- expansion bends, wallplates, ball valves,
- fixing elements,
- tools for cutting, machining and welding.

## Pipes

### Pipe types

KAN-therm PP System features four pipe types which differ in wall thickness and structure (compound pipes):

- uniform pipes PN 10 (20 –110 mm),
- uniform pipes PN 16 (20 –110 mm),
- uniform pipes PN 20 (16 –110 mm),
- compound pipes PN 16 Stabi Al (20 –75 mm),
- compound pipes PN 20 Stabi Al (16 –110 mm),
- compound pipes PN16 Glass (20-110 mm).
- compound pipes PN20 Glass (20-110 mm).

### Dimension (range) and pressure classification of PP-R pipes

$$S = (D-s)/2s$$

$$SDR = 2 \times S + 1 = D/s$$

S – pipe dimension series in accordance with ISO 4065

SDR – Standard Dimension Ratio

D – nominal external tube diameter

s – nominal tube wall thickness

PN – pipe pressure range

S	SDR	PN
5	11	10
3.2	7.4	16
2.5	6	20

Pipes PN10 (S5/SDR11)					
Dimensions	Ext. diameter D	Wall thick s	Int. diameter d	Unit volume	Unit mass
[mm]	[mm]	[mm]	[mm]	[l/m]	[kg/m]
20 × 1,9	20	1.9	16.2	0.206	0.107
25 × 2,3	25	2.3	20.4	0.327	0.164
32 × 2,9	32	2.9	26.2	0.531	0.267
40 × 3,7	40	3.7	32.6	0.834	0.412
50 × 4,6	50	4.6	40.8	1.307	0.638
63 × 5,8	63	5.8	51.4	2.075	1.010
75 × 6,8	75	6.8	61.4	2.941	1.420
90 × 8,2	90	8.2	73.6	4.254	2.030
110 × 10,0	110	10.0	90.0	6.362	3.010

Pipes PN16 (S3,2/SDR7,4)					
Dimensions	Ext. diameter D	Wall thick s	Int. diameter d	Unit volume	Unit mass
[mm]	[mm]	[mm]	[mm]	[l/m]	[kg/m]
20 × 2,8	20	2.8	14.4	0.163	0.148
25 × 3,5	25	3.5	18.0	0.254	0.230
32 × 4,4	32	4.4	23.2	0.415	0.370
40 × 5,5	40	5.5	29.0	0.615	0.575
50 × 6,9	50	6.9	36.2	1.029	0.896
63 × 8,6	63	8.6	45.8	1.633	1.410
75 × 10,3	75	10.3	54.4	2.307	2.010
90 × 12,3	90	12.3	65.4	3.358	2.870
110 × 15,1	110	15.1	79.8	4.999	4.300

Pipes PN20 (S2,5/SDR6)					
Dimensions	Ext. diameter D	Wall thick s	Int. diameter d	Unit volume	Unit mass
[mm]	[mm]	[mm]	[mm]	[l/m]	[kg/m]
16 × 2,7	16	2.7	10.6	0.088	0.110
20 × 3,4	20	3.4	13.2	0.137	0.172
25 × 4,2	25	4.2	16.6	0.216	0.266
32 × 5,4	32	5.4	21.2	0.353	0.434
40 × 6,7	40	6.7	26.6	0.556	0.671
50 × 8,3	50	8.3	33.4	0.866	1.050
63 × 10,5	63	10.5	42.0	1.385	1.650
75 × 12,5	75	12.5	50.0	1.963	2.340
90 × 15,0	90	15.0	60.0	2.827	3.360
110 × 18,3	110	18.3	73.4	4.208	5.040

Pipes PN 16 (S3,2/SDR7,4) Stabi AI					
Dimensions	Ext. diameter D	Wall thick s	Int. diameter d	Unit volume	Unit mass
[mm]	[mm]	[mm]	[mm]	[l/m]	[kg/m]
20×2,8	20 (21,7)*	2.8	14.4	0.163	0.194
25×3,5	25 (26,7)*	3.5	18	0.254	0.292
32×4,4	32 (33,7)*	4.4	23.2	0.415	0.462
40×5,5	40 (41,6)*	5.5	29	0.615	0.682
50×6,9	50 (51,6)*	6.9	36.2	1.029	1.003
63×8,6	63 (64,5)*	8.6	45.8	1.633	1.540
75×10,3	75 (76,5)*	10.3	54.4	2.307	2.590

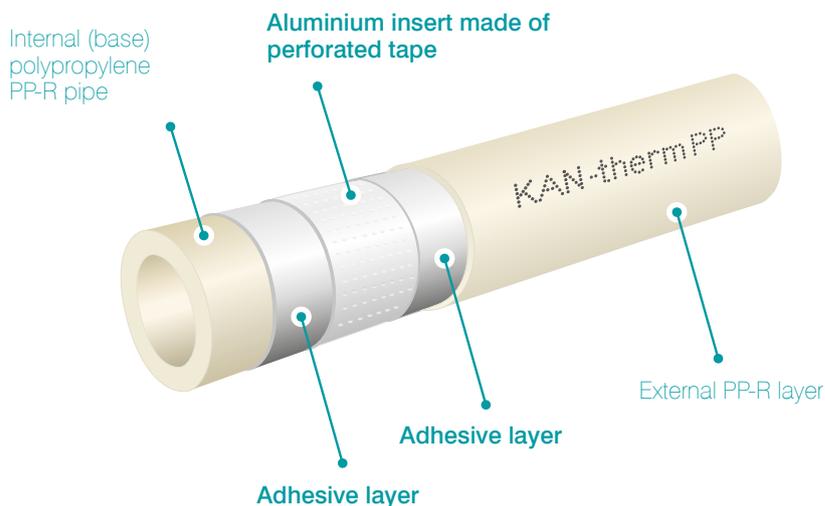
Pipes PN 20 (S2,5/SDR6) Stabi Al					
Dimensions	Ext. diameter D	Wall thick s	Int. diameter d	Unit volume	Unit mass
[mm]	[mm]	[mm]	[mm]	[l/m]	[kg/m]
16 × 2,7	16 (17,8)*	2.7	10.6	0.088	0.160
20 × 3,4	20 (21,8)*	3.4	13.2	0.137	0.218
25 × 4,2	25 (26,9)*	4.2	16.6	0.216	0.328
32 × 5,4	32 (33,9)*	5.4	21.2	0.353	0.520
40 × 6,7	40 (41,9)*	6.7	26.6	0.556	0.770
50 × 8,3	50 (51,9)*	8.3	33.4	0.866	1.159
63 × 10,5	63 (64,9)*	10.5	42.0	1.385	1.770
75 × 12,5	75 (76,9)*	12.5	50.0	1.963	2.780
90 × 15,0	90 (92)*	15.0	60.0	2.830	3.590
110 × 18,3	110 (112)*	18.3	73.4	4.210	5.340

Pipes PN 16 (S3,2/SDR7,4) Glass					
Dimensions	Ext. diameter D	Wall thick s	Int. diameter d	Unit volume	Unit mass
[mm]	[mm]	[mm]	[mm]	[l/m]	[kg/m]
20 × 2,8	20	2.8	14.4	0.163	0.160
25 × 3,5	25	3.5	18.0	0.254	0.250
32 × 4,4	32	4.4	23.2	0.415	0.430
40 × 5,5	40	5.5	29.0	0.615	0.650
50 × 6,9	50	6.9	36.2	1.029	1.000
63 × 8,6	63	8.6	45.8	1.633	1.520
75 × 10,3	75	10.3	54.4	2.307	2.200
90 × 12,3	90	12.3	65.4	3.358	3.110
110 × 15,1	110	15.1	79.8	4.999	4.610

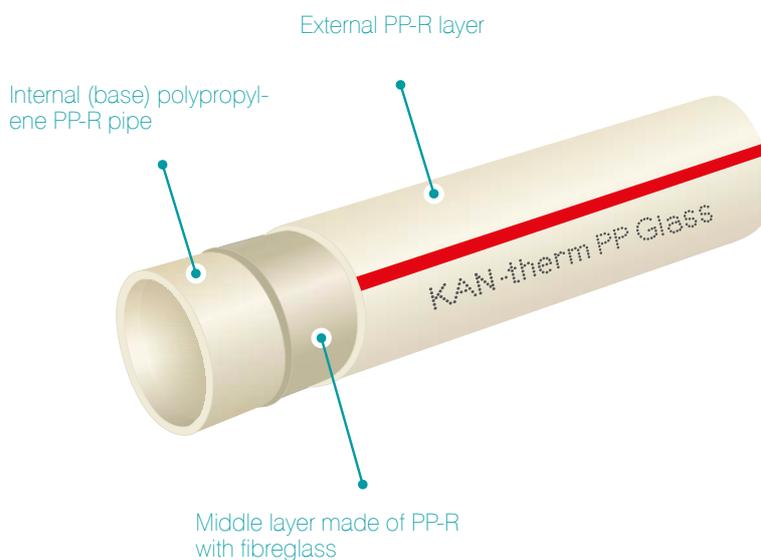
Pipes PN 20 (S2,5/SDR6) Glass					
Dimensions	Ext. diameter D	Wall thick s	Int. diameter d	Unit volume	Unit mass
[mm]	[mm]	[mm]	[mm]	[l/m]	[kg/m]
20 × 3,4	20	3.4	13.2	0.137	0.180
25 × 4,2	25	4.2	16.6	0.216	0.290
32 × 5,4	32	5.4	21.2	0.353	0.460
40 × 6,7	40	6.7	26.6	0.556	0.680
50 × 8,3	50	8.3	33.4	0.866	1.000
63 × 10,5	63	10.5	42.0	1.385	1.550
75 × 12,5	75	12.5	50.0	1.963	2.340
90 × 15,0	90	15.0	60.0	2.827	3.360
110 × 18,3	110	18.3	73.4	4.208	4.900

Application (in accordance with ISO 10508)	$P_{rob}$ (dop) [bar]	Pipe type
Cold utility water $T = 20^{\circ}\text{C}$	10	PN10 (S5) PN16 (S3,2) PN16 (S3,2) Stabi Al and Glass PN20 (S2,5) PN20 (S2,5) Stabi Al and Glass
Hot utility water [Class 1] $T_d/T_{max} = 60/80^{\circ}\text{C}$	10	PN20 (S2,5) PN20 S2 5 Stabi Al and Glass
Hot utility water [Class 2] $T_d/T_{max} = 70/80^{\circ}\text{C}$	8	PN16 (S3,2) PN16 (S3,2) Stabi Al and Glass
Hot utility water [Class 4] $T_d/T_{max} = 70/80^{\circ}\text{C}$	8	PN20 (S2,5) PN20 Stabi Al i Glass
Floor heating, low temperature radiator heating [Class 4] $T_d/T_{max} = 60/70^{\circ}\text{C}$	6	PN16 (S3,2) PN16 Stabi Al and Glass
Radiator heating [Class 5] $T_d/T_{max} = 80/90^{\circ}\text{C}$	10	PN16 (S3,2) PN16 (S3,2) Stabi Al and Glass PN20 (S2,5) Stabi Al and Glass
	6	PN16 (S3,2) PN20 (S2,5) PN16 (S3,2) Stabi Al and Glass PN20 (S2,5) Stabi Al and Glass

Compound pipes| KAN-therm PP  
Stabi Al



Compound pipes| KAN-therm PP  
Glass



## Thermal elongation

Every pipeline, when exposed to temperature difference  $\Delta T$  undergoes elongation (or shortening) by the  $\Delta L$  value. This amount is calculated with the below formula:

$$\Delta L = \alpha \times L \times \Delta T$$

where:

$\alpha$  – thermal linear elongation coefficient [mm/mK]

0,15 [mm/mK] – homogenous PP pipes

0,05 [mm/mK] – PP Glass pipes

0,03 [mm/mK] – PP Stabi pipes

$L$  – pipeline section length [m]

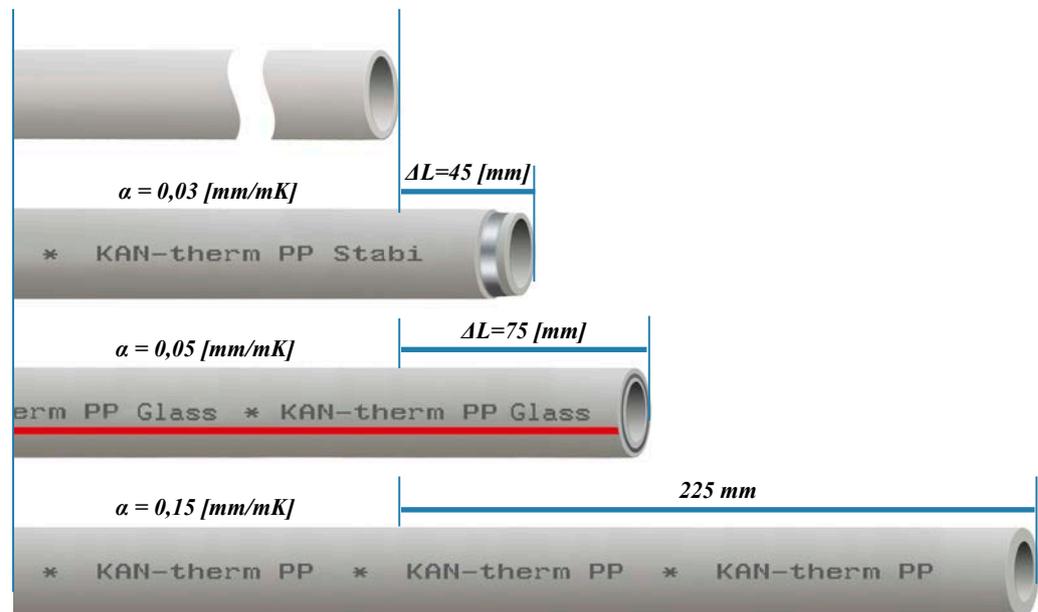
$\Delta T$  – temperature difference during installation and use [K]

### Example:

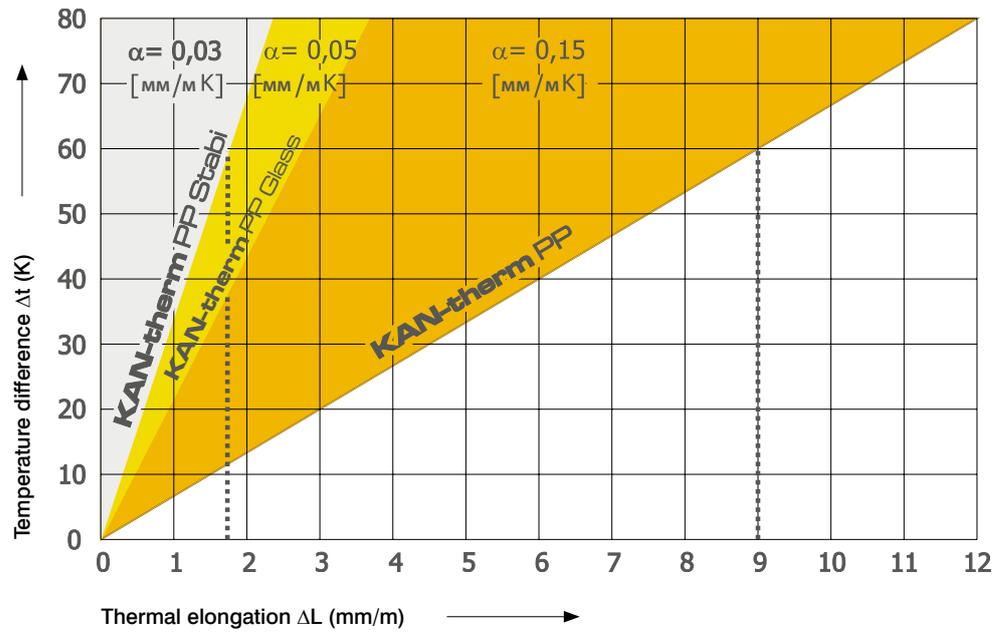
Elongation of 25 m pipe KAN-therm PP Stabi, KAN-therm PP Glass, KAN-therm PP homogenous at temperature difference 60°C.

- KAN-therm PP Stabi  $\Delta L = 0,03 \times 25 \times 60 = 45$  [mm]
- KAN-therm PP Glass  $\Delta L = 0,05 \times 25 \times 60 = 75$  [mm]
- KAN-therm PP homogenous  $\Delta L = 0,15 \times 25 \times 60 = 225$  [mm]

Elongation of 25 m pipe



Comparison of thermal elongation or KAN-therm PP pipes, homogeneous and joint Stabi Al and Glass



## Compensators

In order to eliminate linear elongation effects (uncontrolled movements of pipelines and their deformation), compensation solutions with different structures are used (flexible arm, U- and Z-shape compensators).

$$L_s = K \times \sqrt{D_z \times \Delta L}$$

where:

$L_s$  – flexible arm's length [mm]

$K$  – material coefficient = 20

$D_z$  – external diameter of the pipe [mm]

$\Delta L$  – elongation of the pipe-line length [mm]

## „L”, „Z”, and „U” compensator selection

Table 1 Required expansion compensation length A [mm] for System KAN-therm PP

Elongation values $\Delta L$ [mm]	Pipe external diameters $d_z$ [mm]									
	16	20	25	32	40	50	63	75	90	110
2	113	126	141	160	179	200	225	245	268	297
4	160	179	200	226	253	283	318	346	380	420
6	196	219	245	277	310	346	389	424	465	514
8	226	253	283	320	358	400	449	490	537	593
10	253	283	316	358	400	447	502	548	600	663
12	277	310	346	392	438	490	550	600	657	727
14	299	335	374	423	473	529	594	648	710	785
16	320	358	400	453	506	566	635	693	759	839
18	339	379	424	480	537	600	674	735	805	890
20	358	400	447	506	566	632	710	775	849	938
22	375	420	469	531	593	663	745	812	890	984
24	392	438	490	554	620	693	778	849	927	1028

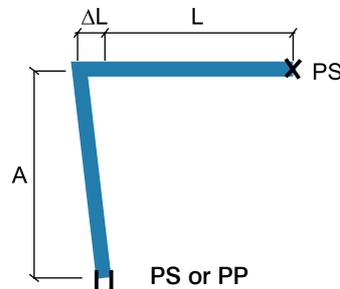
**Table 1 Required expansion compensation length A [mm] for System KAN-therm PP**

Elongation values $\Delta L$ [mm]	Pipe external diameters $d_z$ [mm]									
	16	20	25	32	40	50	63	75	90	110
26	408	456	510	577	645	721	809	883	968	1070
28	423	473	529	599	669	748	840	917	1004	1110
30	438	490	548	620	693	775	869	949	1039	1149
32	453	506	566	640	716	800	898	980	1073	1187
34	466	522	583	660	738	825	926	1010	1106	1223

Table 1 presents required expansion compensation length A for different thermal elongation values  $\Delta L$  and pipe external diameters  $d_z$ .

Rules for selection of different types of compensators are given below:

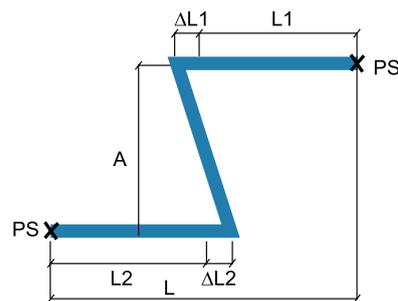
**„L” type compensator**



- $A$  – flexible arm length
- $PP$  – sliding support (allows only axial movement of a pipeline)
- $PS$  – fixed point (prevents any movement of a pipeline)
- $L$  – the initial length of a pipeline
- $\Delta L$  – pipeline thermal elongation

For compensation arm  $A$  dimensioning, a substitute length  $L_z=L$  is taken, and for  $L_z$  length the thermal elongation value  $\Delta L$ , is determined from formula. Next, the expansion compensation length  $A$  is determined on the basis of Tab. 1.

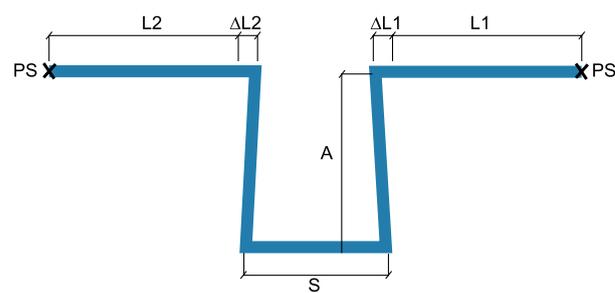
**„Z” type compensator**



- $A$  – flexible arm length
- $PS$  – fixed point (prevents any movement of a pipeline)
- $L$  – the initial length of a pipeline
- $\Delta L$  – pipeline thermal elongation

For compensation arm  $A$  dimensioning  $L1$  and  $L2$  sum is taken as a substitute length  $L_z=L1+L2$  and for  $L_z$  length a substitute  $\Delta L$  is determined from formula. Next, the expansion compensation length  $A$  is determined on the basis of Tab. 1.

## „U” type compensator



$A$  – flexible arm length

$PS$  – fixed point  
(prevents any movement of a pipeline)

$L$  – the initial length of a pipeline

$\Delta L$  – pipeline thermal elongation

$S$  – szerokość kompensatora U kształtowego

In case of placing fixed point  $PS$  in the section of compensator length  $S$ , for compensation arm  $A$  dimensioning, the greater value from  $L_1$  and  $L_2$  is taken as a substitute length for  $L_z$ :  $L_z = \max(L_1, L_2)$  and for this length the substitute elongation  $\Delta L$  is determined on the basis of formula, and then compensation arm  $A$  of Tab. 1.

Compensator width:  $S = A/2$ .

## Connection technique

1. Cutting the pipes with scizors.
2. Removing of the aluminum foil with a coarse file (only for compound Stabi pipes).



3. Marking of the welding depth.
4. Heating of the pipe and the connector. Parameters:  
- welding depth,  
- welding time.



5. Connecting of the elements. Parameters:  
- joining time.
6. Holding and cooling of the joint. Parameters:  
- cooling time.



**!** CAUTION!

In order to make a tight and strong connection between a pipe and a KAN-therm PP System fitting, it is advised to use heating cover plates available in the KAN-therm PP System offer.

Ext. pipe diameter	Welding parameters			
	Welding depth	Heating time	Joining time	Cooling time
[mm]	[mm]	[sek.]	[sek.]	[min.]
16	13.0	5	4	2
20	14.0	5	4	2
25	15.0	7	4	2
32	16.0	8	6	4
40	18.0	12	6	4
50	20.0	18	6	4
63	24.0	24	8	6
75	26.0	30	10	8
90	29.0	40	10	8
110	32.5	50	10	8

The heating time of thin-walled pipes (PN 10) is reduced by half (the heating time for fittings remains unchanged). The heating time at external temperatures below +5°C should be increased by 50%. It is forbidden to cool the welded components rapidly (e.g. with cold water).

**Thread sealing**

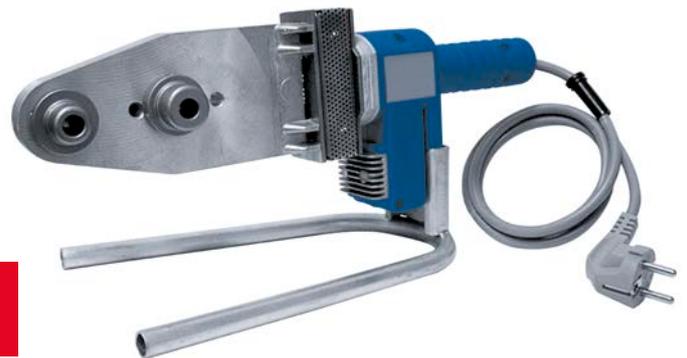
It is advised to seal threaded connections with such an amount of hemp, that leaves the thread tops not covered. Using too much hemp may lead to thread damage. By winding hemp just after the first thread ridge you can avoid skew screwing and damaging the thread.

**!** CAUTION

**Do not use chemical sealants or glues.**

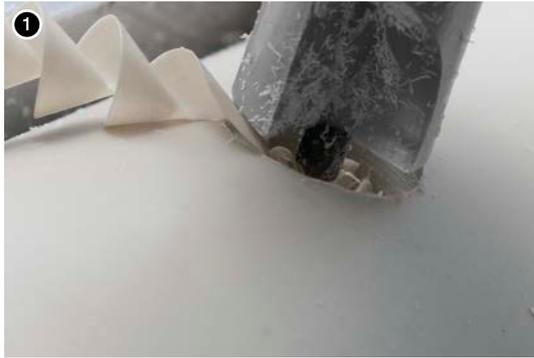


**Welding temperature  
260°C**



## Installation of pipe saddle fittings PP

1. Drilling a hole under the pipe saddle fitting
2. Processing the hole – removing the burrs made when drilling..

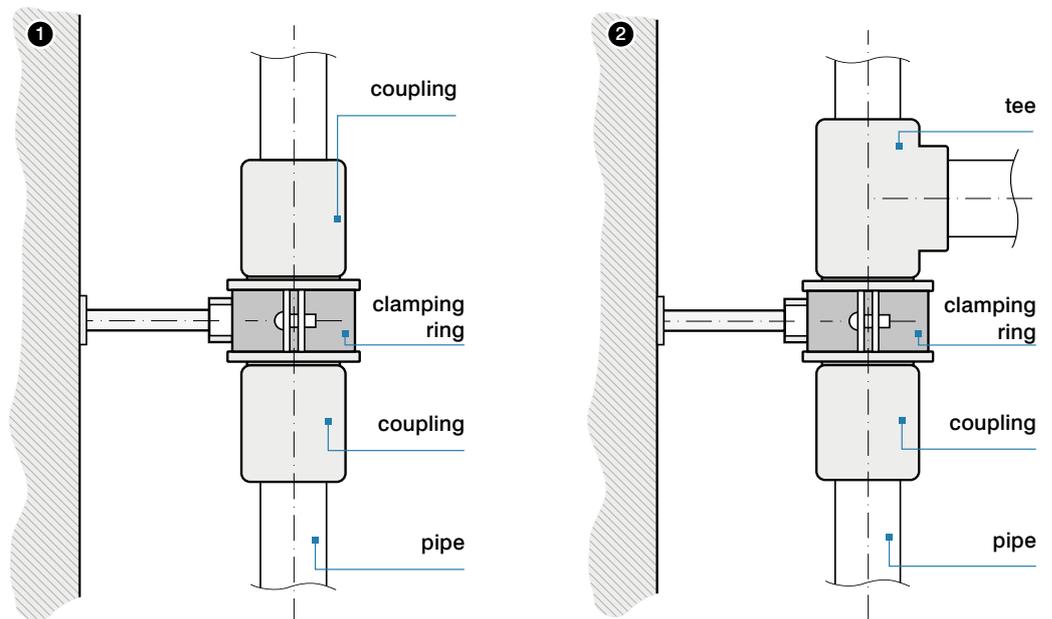


3. Welding the pipe saddle fitting.
4. Ready connection.



## Installation procedures

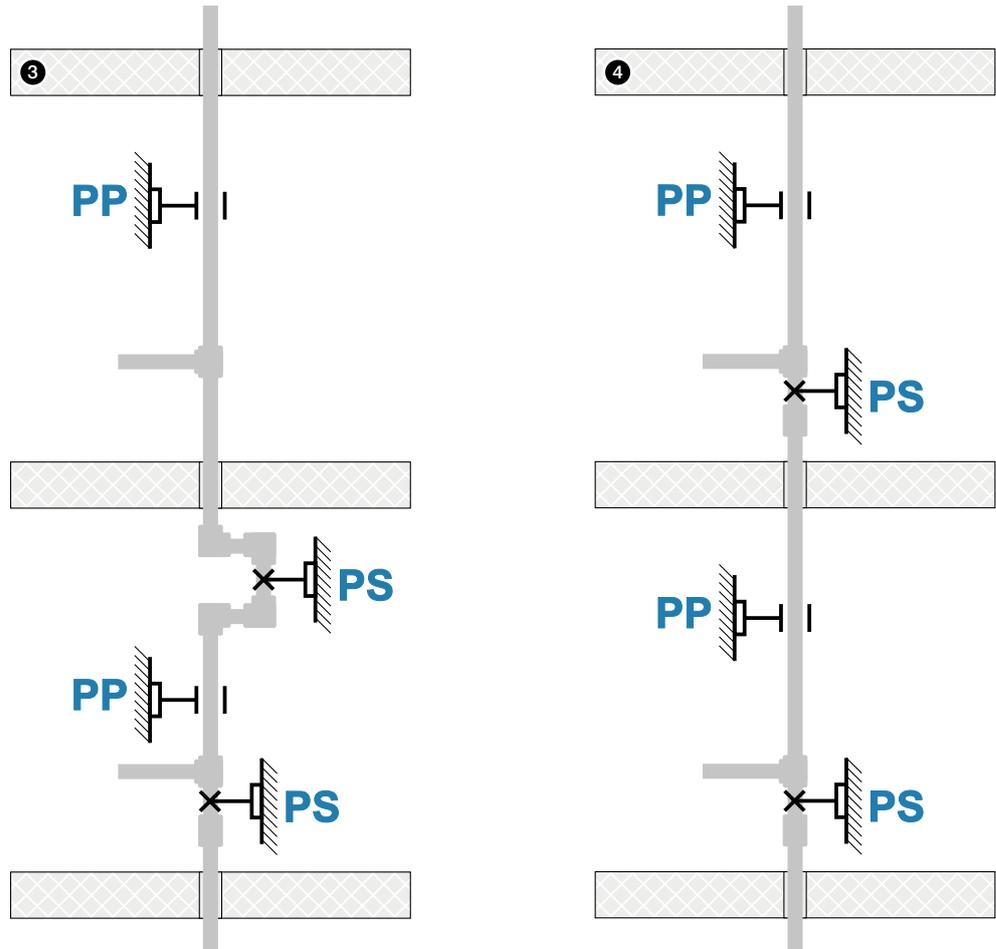
Fixed installation points - installation examples (Fig. 1 and 2)



Examples of installation of hot water risers depending on pipe types (Fig. 3 and 4)

**3.** Installation made of pipes: System KAN-therm PP PN16, PN20

**4.** Installation made of pipes: System KAN-therm PP Stabi and KAN-therm PP Glass: PP – slidable point, PS – fixed point



Maximum distances between supports for KAN-therm PP System uniform pipes depending on the diameter and medium temperature. For vertical pipeline sections, the distance between the supports can be increased by about 30%.

T [°C]	External pipe diameter D [mm]									
	16	20	25	32	40	50	63	75	90	110
Distance between fixing points [cm]										
20	50	60	70	90	100	120	140	150	160	180
30	50	60	70	90	100	120	140	150	160	180
40	50	60	65	80	90	110	130	140	150	170
50	50	60	65	80	90	110	130	140	150	170
60	50	55	60	75	85	100	115	125	140	160
70	50	50	60	70	80	95	105	115	125	140

Maximum distances between supports for KAN-therm Stabi AI System pipes depending on the diameter and medium temperature. For vertical pipeline sections, the distance between the supports can be increased by about 30%.

T [°C]	External pipe diameter D [mm]									
	16	20	25	32	40	50	63	75	90	110
Distance between fixing points [cm]										
20	100	120	130	150	170	190	210	220	230	250
30	100	120	130	150	170	190	210	220	230	240
40	100	110	120	140	160	180	200	210	220	230
70	70	90	100	120	140	160	180	190	200	200

Maximum distances between supports for KAN-therm Stabi Al System pipes depending on the diameter and medium temperature. For vertical pipeline sections, the distance between the supports can be increased by about 30%.

T [°C]	External pipe diameter D [mm]									
	16	20	25	32	40	50	63	75	90	110
50	100	110	120	140	160	180	200	210	220	210
60	80	100	110	130	150	170	190	200	210	200
70	70	90	100	120	140	160	180	190	200	200

Maximum distances between supports for KAN-therm System PP Glass pipes depending on the diameter and medium temperature. For vertical pipeline sections, the distance between the supports can be increased by about 30%.

T [°C]	External pipe diameter D [mm]								
	20	25	32	40	50	63	75	90	110
Distance between fixing points [cm]									
0	120	140	160	180	205	230	245	260	290
20	90	105	120	135	155	175	185	195	215
30	90	105	120	135	155	175	185	195	210
40	85	95	110	125	145	165	175	185	200
50	85	95	110	125	145	165	175	185	190
60	80	90	105	120	135	155	165	175	180
70	70	80	95	110	130	145	155	165	170

## Tools - safety

All tools must be applied and used in accordance with their purpose and the manufacturer's instructions.

Use for other purposes or in other areas are considered to be inconsistent with the intended use.

Intended use also requires compliance with the instructions, conditions of inspection and maintenance and relevant safety regulations in their current version.

All works done with tools, which do not meet the application compatible with the intended purpose may result in damage to tools, accessories and pipes.

The consequence may be the leak and / or damage.

Table: selection of Steel flange connections

Code	Size	Amount of screws/nuts	Screw size	Screw class	Nut class	Amount of washers	Flange	Flat O-Ring
04109140	40 DN32 PN16	4	M16	8.8	8	4	DN32	DN32 EPDM
04109150	50 DN40 PN16	4	M16	8.8	8	4	DN40	DN40 EPDM
04109163	63 DN50 PN16	4	M16	8.8	8	4	DN50	DN50 EPDM
04109175	75 DN65 PN16	8	M16	8.8	8	8	DN65	DN65 EPDM
04109190	90 DN80 PN16	8	M16	8.8	8	8	DN80	DN80 EPDM
04109110	110 DN100 PN16	8	M16	8.8	8	8	DN100	DN100 EPDM

# System KAN-therm PP - assortment

## pipe PN10 (S5/SDR11)

GROUP: L

Size	New code	*	Code	Packing	UM
20×1,9	1229 202002		04000120	4/200	m
25×2,3	1229 202004		04000125	4/160	m
32×2,9	1229 202006		04000132	4/80	m
40×3,7	1229 202009		04000140	4/60	m
50×4,6	1229 202010		04000150	4/40	m
63×5,8	1229 202012		04000163	4/24	m
75×6,8	1229 202014		04000175	4/20	m
90×8,2	1229 202016		04000190	4/12	m
110×10,0	1229 202000		04000111	4/8	m



## pipe PN16 (S3,2/SDR7,4)

GROUP: L

Size	New code	*	Code	Packing	UM
20×2,8	1229 203001		04000220	4/160	m
25×3,5	1229 203003		04000225	4/100	m
32×4,4	1229 203005		04000232	4/60	m
40×5,5	1229 203008		04000240	4/40	m
50×6,9	1229 203010		04000250	4/28	m
63×8,6	1229 203012		04000263	4/16	m
75×10,3	1229 203014		04000275	4/12	m
90×12,3	1229 203016		04000290	4/8	m
110×15,1	1229 203000		04000211	4/4	m



## pipe PN20 (S2,5/SDR6)

GROUP: L

Size	New code	*	Code	Packing	UM
16×2,7	1229 206031		04000316	4/200	m
20×3,4	1229 206033		04000320	4/160	m
25×4,2	1229 206035		04000325	4/100	m
32×5,4	1229 206037		04000332	4/60	m
40×6,7	1229 206039		04000340	4/40	m
50×8,3	1229 206041		04000350	4/28	m
63×10,5	1229 206043		04000363	4/16	m
75×12,5	1229 206045		04000375	4/12	m
90×15,0	1229 206047		04000390	4/8	m
110×18,3	1229 206029		04000311	4/4	m



## pipe PN16 (S3,2/SDR7,4) Stabi Al

GROUP: M

Size	New code	*	Code	Packing	UM
20×2,8	1229 206003		03800020	4/100	m
25×3,5	1229 206007		03800025	4/80	m
32×4,4	1229 206011		03800032	4/40	m
40×5,5	1229 206015		03800040	4/28	m
50×6,9	1229 206019		03800050	4/20	m
63×8,6	1229 206022		03800063	4/12	m
75×10,3	1229 206025		03800075	4/8	m



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

pipe PN20 (S2,5/SDR6) Stabi AI

GROUP: M

Size	New code	*	Code	Packing	UM
16×2,7	1229 205003		03900016	4/160	m
20×3,4	1229 205005		03900020	4/100	m
25×4,2	1229 205007		03900025	4/80	m
32×5,4	1229 205009		03900032	4/40	m
40×6,7	1229 205012		03900040	4/28	m
50×8,3	1229 205015		03900050	4/20	m
63×10,5	1229 205018		03900063	4/12	m
75×12,5	1229 205021		03900075	4/8	m
90×15,0	1229 205000		03900090	4/8	m
110×18,3	1229 205002		03900011	4/4	m



pipe PN16 (S3,2/SDR7,4) Glass

GROUP: M

Size	New code	*	Code	Packing	UM
20×2,8	1229 204002		03810020	4/100	m
25×3,5	1229 204003		03810025	4/80	m
32×4,4	1229 204004		03810032	4/40	m
40×5,5	1229 204005		03810040	4/28	m
50×6,9	1229 204006		03810050	4/20	m
63×8,6	1229 204007		03810063	4/12	m
75×10,3	1229 204008		03810075	4/8	m
90×12,3	1229 204009		03810090	4/8	m
110×15,1	1229 204000		03810011	4/4	m



pipe PN20 (S2,5/SDR6) Glass

GROUP: M

Size	New code	*	Code	Packing	UM
20×3,4	1229 205025		03910020	4/100	m
25×4,2	1229 205026		03910025	4/80	m
32×5,4	1229 205027		03910032	4/40	m
40×6,7	1229 205011		03910040	4/28	m
50×8,3	1229 205014		03910050	4/20	m
63×10,5	1229 205017		03910063	4/12	m
75×12,5	1229 205020		03910075	4/8	m
90×15,0	1229 205024		03910090	4/8	m
110×18,3	1229 205001		03910011	4/4	m



saddle coupler PP x Push

GROUP: N

Size	New code	*	Code	Packing	UM
63 / 18×2	1209 238010		04118263	20/160	pc
75 / 18×2	1209 238011		04118275	20/160	pc
90 / 18×2	1209 238012		04118290	20/160	pc
110 / 18×2	1209 238009		04118211	20/160	pc



saddle coupler PP GW

GROUP: N

Size	New code	*	Code	Packing	UM
63×GW½	1209 230007		04118163	20/160	pc
75×GW½	1209 230009		04118175	20/160	pc
90×GW½	1209 230011		04118190	20/160	pc
110×GW½	1209 230003		04118111	20/160	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

**crossover****GROUP: N**

Size	New code	*	Code	Packing	UM
16	1209 036000		04101016	20	m
20	1209 036002		04101020	20	m
25	1209 036003		04101025	15	m
32	1209 036004		04101032	10	m

Crossover's diameter Ø150, length 370 mm.

**crossover****GROUP: N**

Size	New code	*	Code	Packing	UM
16	1209 269000		04102016	200	m
20	1209 269001		04102020	150	m
25	1209 269002		04102025	100	m
32	1209 269003		04102032	60	m

**straight coupling****GROUP: N**

Size	New code	*	Code	Packing	UM
16	1209 245001		04103016	80/1360	pc
20	1209 245002		04103020	100/700	pc
25	1209 245003		04103025	50/550	pc
32	1209 245004		04103032	40/280	pc
40	1209 245005		04103040	30/180	pc
50	1209 245006		04103050	110	pc
63	1209 245007		04103063	60	pc
75	1209 245008		04103075	45	pc
90	1209 245009		04103090	24	pc
110	1209 245000		04103011	16	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## reducer

GROUP: N

Size	New code	*	Code	Packing	UM
20×16	1209 220004		04108020	100/1200	pc
25×16	1209 220005		04108025	50/1100	pc
25×20	1209 220006		04108026	100/900	pc
32×20	1209 220007		04108032	80/640	pc
32×25	1209 220008		04108033	80/560	pc
40×20	1209 220009		04108040	50/400	pc
40×25	1209 220010		04108041	50/350	pc
40×32	1209 220011		04108042	50/300	pc
50×32	1209 220000		04108050	30/180	pc
50×40	1209 220012		04108051	30/150	pc
63×32	1209 220013		04108063	100	pc
63×40	1209 220014		04108064	100	pc
63×50	1209 220015		04108065	100	pc
75×50	1209 220016		04108075	80	pc
75×63	1209 220017		04108076	50	pc
90×50	1209 220018		04108090	48	pc
90×63	1209 220019		04108091	45	pc
90×75	1209 220020		04108092	45	pc
110×63	1209 220001		04108012	27	pc
11075	1209 220002		04108013	27	pc
110×90	1209 220003		04108011	27	pc

**Caution:**

Reducers are intended for direct welding into the fitting socket.



## straight female connector

GROUP: N

Size	New code	*	Code	Packing	UM
16 × 1/2"	1209 050002		04103116	20/200	pc
20 × 1/2"	1209 050003		04103120	20/180	pc
20 × 3/4"	1209 050004		04103121	30/150	pc
25 × 1/2"	1209 050005		04103125	20/160	pc
25 × 3/4"	1209 050006		04103126	30/150	pc



## straight female connector

GROUP: N

Size	New code	*	Code	Packing	UM
32 × 3/4"	1209 050008		04103131	100	pc
32 × 1"	1209 050007		04103132	100	pc
40 × 1 1/4"	1209 050009		04103140	60	pc
50 × 1 1/2"	1209 050011		04103150	35	pc
63 × 2"	1209 050012		04103163	18	pc
75 × 2 1/2"	1209 050013		04103175	12	pc
90 × 3"	1209 050014		04103190	8	pc



**Caution:**

spanner can be used within the element.

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### straight male connector

GROUP: N

Size	New code	*	Code	Packing	UM
16×½"	1209 051003		04103216	20/160	pc
20×½"	1209 051004		04103220	20/160	pc
20×¾"	1209 051005		04103221	30/120	pc
25×½"	1209 051006		04103225	20/140	pc
25×¾"	1209 051007		04103226	30/120	pc



### straight male connector

GROUP: N

Size	New code	*	Code	Packing	UM
32×¾"	1209 051009		04103231	80	pc
32×1"	1209 051008		04103232	80	pc
40×1¼"	1209 051010		04103240	50	pc
50×1½"	1209 051012		04103250	36	pc
63×2"	1209 051013		04103263	18	pc
75×2½"	1209 051014		04103275	10	pc
90×3"	1209 051015		04103290	6	pc

**Caution:**

spanner can be used within the element



### elbow 90°

GROUP: N

Size	New code	*	Code	Packing	UM
16	1209 068010		04104016	50/900	pc
20	1209 068011		04104020	100/500	pc
25	1209 068012		04104025	50/350	pc
32	1209 068013		04104032	20/200	pc
40	1209 068014		04104040	20/120	pc
50	1209 068015		04104050	60	pc
63	1209 068016		04104063	32	pc
75	1209 068017		04104075	20	pc
90	1209 068018		04104090	12	pc
110	1209 068009		04104011	8	pc



### nipple elbow 90°

GROUP: N

Size	New code	*	Code	Packing	UM
16	1209 068022		04104216	50/1000	pc
20	1209 068023		04104220	100/600	pc
25	1209 068024		04104225	50/400	pc
32	1209 068025		04104232	50/200	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

**elbow 45°**

**GROUP: N**

Size	New code	*	Code	Packing	UM
16	1209 068000		04104316	50/950	pc
20	1209 068001		04104320	100/700	pc
25	1209 068002		04104325	50/400	pc
32	1209 068003		04104332	40/200	pc
40	1209 068004		04104340	20/140	pc
50	1209 068005		04104350	80	pc
63	1209 068006		04104363	40	pc
75	1209 068007		04104375	25	pc
90	1209 068008		04104390	14	pc



**nipple elbow 45°**

**GROUP: N**

Size	New code	*	Code	Packing	UM
16	1209 068019		04104116	50/1050	pc
20	1209 068020		04104120	100/700	pc
25	1209 068021		04104125	50/450	pc



**wallplate elbow**

**GROUP: N**

Size	New code	*	Code	Packing	UM
16 × 1/2"	1209 069006		04104416	20/140	pc
20 × 1/2"	1209 069007		04104420	20/140	pc
25 × 1/2"	1209 069008		04104425	20/120	pc



**male elbow 90°**

**GROUP: N**

Size	New code	*	Code	Packing	UM
16 × 1/2"	1209 070000		04104516	20/140	pc
20 × 1/2"	1209 070001		04104520	30/90	pc
20 × 3/4"	1209 070002		04104521	30/90	pc
25 × 1/2"	1209 070003		04104525	20/120	pc
25 × 3/4"	1209 070004		04104526	30/90	pc
32 × 3/4"	1209 070005		04104532	30/60	pc
32 × 1"	1209 070006		04104534	50	pc



**elbow with female thread**

**GROUP: N**

Size	New code	*	Code	Packing	UM
16 × 1/2"	1209 069000		04104616	20/180	pc
20 × 1/2"	1209 069001		04104620	20/140	pc
20 × 3/4"	1209 069002		04104621	30/120	pc
25 × 1/2"	1209 069003		04104625	20/120	pc
25 × 3/4"	1209 069004		04104626	30/120	pc
32 × 3/4"	1209 069005		04104632	30/90	pc
32 × 1"	1209 069009		04104634	50	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## reducing tee

GROUP: N

Size	New code	*	Code	Packing	UM
20×16×20	1209 257011		04105020	20/380	pc
25×16×25	1209 257012		04105025	20/260	pc
25×20×25	1209 257013		04105026	20/240	pc
32×16×32	1209 257016		04105032	20/140	pc
32×20×32	1209 257017		04105033	20/140	pc
32×25×32	1209 257018		04105034	20/140	pc
40×20×40	1209 257019		04105040	20/80	pc
40×25×40	1209 257020		04105041	15/90	pc
40×32×40	1209 257021		04105042	15/90	pc
50×20×50	1209 257022		04105050	60	pc
50×25×50	1209 257023		04105051	65	pc
50×32×50	1209 257024		04105052	60	pc
50×40×50	1209 257025		04105053	50	pc
63×32×63	1209 257026		04105063	30	pc
63×40×63	1209 257027		04105064	22	pc
63×50×63	1209 257028		04105065	22	pc
75×40×75	1209 257029		04105075	17	pc
90×50×90	1209 257030		04105090	12	pc
90×63×90	1209 257031		04105091	10	pc
90×75×90	1209 257032		04105092	12	pc



## tee

GROUP: N

Size	New code	*	Code	Packing	UM
16	1209 257001		04105116	40/640	pc
20	1209 257002		04105120	80/400	pc
25	1209 257003		04105125	20/240	pc
32	1209 257004		04105132	20/140	pc
40	1209 257005		04105140	15/75	pc
50	1209 257006		04105150	50	pc
63	1209 257007		04105163	24	pc
75	1209 257008		04105175	15	pc
90	1209 257009		04105190	10	pc
110	1209 257000		04105111	8	pc



## corner tee

GROUP: N

Size	New code	*	Code	Packing	UM
20	1209 257010		04105416	40/360	pc



## four way fitting

GROUP: N

Size	New code	*	Code	Packing	UM
16	1209 057000		04106016	80/480	pc
20	1209 057001		04106020	40/320	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## tee with male thread

GROUP: N

Size	New code	*	Code	Packing	UM
20×½"	1209 259000		04105316	20/120	pc



## tee with female thread

GROUP: N

Size	New code	*	Code	Packing	UM
16×½"×16	1209 258000		04105216	20/140	pc
20×½"×20	1209 258002		04105220	20/120	pc
20×¾"×20	1209 258003		04105221	30/90	pc
25×½"×25	1209 258004		04105225	20/180	pc
25×¾"×25	1209 258005		04105226	30/180	pc
32×¾"×32	1209 258006		04105232	15/60	pc
32×1"×32	1209 258007		04105233	15/60	pc



## straight union with gasket

GROUP: N

Size	New code	*	Code	Packing	UM
20×¾"	1209 065001		04107020	20/200	pc



## half union with flat gasket

GROUP: N

Size	New code	*	Code	Packing	UM
16×¾"	1209 105000		04107116	50/300	pc
20×¾"	1209 105001		04107120	50/400	pc
25×1"	1209 105002		04107125	20/100	pc



## union with flat gasket

GROUP: N

Size	New code	*	Code	Packing	UM
16×½"	1209 271000		04107216	20/200	pc
20×½"	1209 271001		04107220	20/200	pc
20×¾"	1209 271002		04107221	20/200	pc
25×¾"	1209 271004		04107225	20/100	pc
25×1"	1209 271003		04107226	20/100	pc
32×1"	1209 272000		04107232	20/60	pc



## flange with flat O-Ring seal

GROUP: N

Size	New code	*	Code	Packing	UM
40	1209 091016		04109340	1/40	pc
50	1209 091017		04109350	1/30	pc
63	1209 091018		04109360	1/20	pc
75	1209 091019		04109375	1/15	pc
90	1209 091020		04109390	1/10	pc
110	1209 091015		04109310	1/6	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

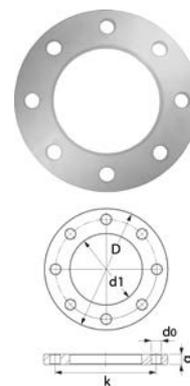
\*\*\* till stock ends

## steel flange PN16

GROUP: N

Size	New code	*	Code	Packing	UM
40	1209 091002		04109140	1	pc
50	1209 091003		04109150	1	pc
63	1209 091004		04109163	1	pc
75	1209 091005		04109175	1	pc
90	1209 091006		04109190	1	pc
110	1209 091001		04109110	1	pc

DN	D	d1	k	d0	q	N
32	140	43	100	18	18	4
40	150	53	110	18	18	4
50	165	66	125	18	20	4
65	185	78	145	18	20	8
80	200	95	160	18	20	8
100	220	114	180	18	22	8



## stop end

GROUP: N

Size	New code	*	Code	Packing	UM
16	1209 025001		04110016	100/1000	pc
20	1209 025002		04110020	200/1000	pc
25	1209 025003		04110025	100/700	pc
32	1209 025004		04110032	50/500	pc
40	1209 025005		04110040	50/250	pc
50	1209 025006		04110050	170	pc
63	1209 025007		04110063	80	pc
75	1209 025008		04110075	50	pc
90	1209 025009		04110090	30	pc
110	1209 025000		04110011	20	pc



## ball valve

GROUP: N

Size	New code	*	Code	Packing	UM
20	1209 278001		04111220	10/90	pc
25	1209 278002		04111225	10/50	pc
32	1209 278014		04111232	5/25	pc
40	1209 278003		04111240	5/15	pc
50	1209 278004		04111250	2/10	pc
63	1209 278005		04111263	2/8	pc
75	1209 278006		04111275	1/5	pc



## globe valve

GROUP: N

Size	New code	*	Code	Packing	UM
20	1209 280000		04112220	1/30	pc
25	1209 280001		04112225	1/30	pc
32	1209 280002		04112232	1/30	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## concealed globe valve

GROUP: N

Size	New code	*	Code	Packing	UM
20	1209 280006		04113220	1/30	pc
25	1209 280007		04113225	1/30	pc
32	1209 280008		04113232	1/30	pc

Valves delivered with two plugs for marking hot water (red) or cold water (blue).



## concealed globe valve with masking and mini handle

GROUP: N

Size	New code	*	Code	Packing	UM
20	1209 280003		04114220	1/30	pc
25	1209 280004		04114225	1/30	pc
32	1209 280005		04114232	1/30	pc



## pipe clamp

GROUP: N

Size	New code	*	Code	Packing	UM
16	1209 107030		04111016	20/1000	pc
20	1209 107031		04111020	20/800	pc
25	1209 107032		04111025	20/700	pc
32	1209 107033		04111032	20/440	pc
40	1209 107034		04111040	20/300	pc
50	1209 107035		04111050	20/240	pc
63	1209 107036		04111063	20/120	pc
75	1209 107037		04111075	20/100	pc
90	1209 107038		04111090	10/60	pc

**Caution:**

Use only for uniform pipes.

For Stabi pipes use clamps with rubber insert.



## single pipe clamp with rubber dumper - double-sided lock with metric thread

GROUP: A

Size	New code	*	Code	Packing	UM
15-18	1700 081025		UP-G16	100	pc
20-23	1700 081028		UP-G20	100	pc
25-28	1700 081029		UP-G25	100	pc
32-36	1700 081030		UP-G32	50	pc
40-44	1700 081031		UP-G40	50	pc
47-52	1700 081032		UP-G50	50	pc
57-63	1700 081034		UP-G63	50	pc
75	1700 081035		UP-G75	25	pc
90	1700 081036		UP-G90	25	pc
110	1700 081023		UP-G110	25	pc

**Caution:**

Single pipe clamp with rubber dumper contains the closing screws (code WK 8x70) and extension anchor (code KR-12).



### double pipe clamp with rubber dumper - double-sided lock with metric thread

GROUP: A

Size	New code	*	Code	Packing	UM
16	1700 081019		UD-G16	50	pc
20	1700 081020		UD-G20	50	pc
25	1700 081021		UD-G25	50	pc
32	1700 081022		UD-G32	50	pc

**Caution:**

Single pipe clamp with rubber dumper contains the closing screws (code WK 8x70) and extension anchor (code KR-12).



### plastic mounting plate

GROUP: N

Size	New code	*	Code	Packing	UM
16-25	1209 210000		04111000	30/150	pc



## Tools PP

### coarse file for Stabi Al pipe

GROUP: K

Size	New code	*	Code	Packing	UM
16/20	1933 267041		04212016	1	pc
20/25	1933 267043		04212020	1	pc
25/32	1933 267045		04212025	1	pc
32/40	1933 267047		04212032	1	pc
50	1933 267049		04212050	1	pc
63	1933 267051		04212063	1	pc
75	1933 267053		04212075	1	pc
90	1933 267055		04212090	1	pc
110	1933 267039		04212011	1	pc



### coarse file blade - service element

GROUP: K

New code	*	Code	Packing	UM
1933 267035	*	04210000	1	pc



### pipe cutters

GROUP: K

Size	New code	*	Code	Packing	UM
16-40 mm	1933 267029		04212200	1	pc



### roll-cutters

GROUP: K

Size	New code	*	Code	Packing	UM
50-100 mm	1933 267032		04212201	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## welding machine

GROUP: K

Size, power	New code	*	Code	Packing	UM
16-50mm, 800W	1933 267062		04212100	1	pc
63-110mm, 1600W	1933 267064		04212101	1	pc

**Caution:**

Every set includes: electric welding machine, welding machine's stand, metal box, set of inserts (depending on the diameter).



## long clamping screw for welding machine PP - maintenance component - service element

GROUP: K

New code	*	Code	Packing	UM
1933 267037	*	04212104	1	pc



## tool kit for saddle coupler assembly

GROUP: K

Size	New code	*	Code	Packing	UM
63	1933 267006		04212463	1	pc
75	1933 267007		04212475	1	pc
90	1933 267008		04212490	1	pc
110	1933 267002		04212411	1	pc

The set includes a female and male connector and a mounting screw (hexagonal).  
Sockets to saddle connector welding are not included in the welding sets (1933 267062, 1933 267064).



## drill for saddle connectors

GROUP: k

Size	New code	*	Code	Packing	UM
25	1933 267038		04212425	1	pc



## welding sockets

GROUP: K

Size	New code	*	Code	Packing	UM
16	1933 267011		04212316	1	set
20	1933 267013		04212320	1	set
25	1933 267015		04212325	1	set
32	1933 267017		04212332	1	set
40	1933 267019		04212340	1	set
50	1933 267021		04212350	1	set
63	1933 267023		04212363	1	set
75	1933 267025		04212375	1	set
90	1933 267027		04212390	1	set
110	1933 267009		04212311	1	set

**Caution:**

Welding sockets are sold in sets (pc), welding socket for the fitting and a pipe.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

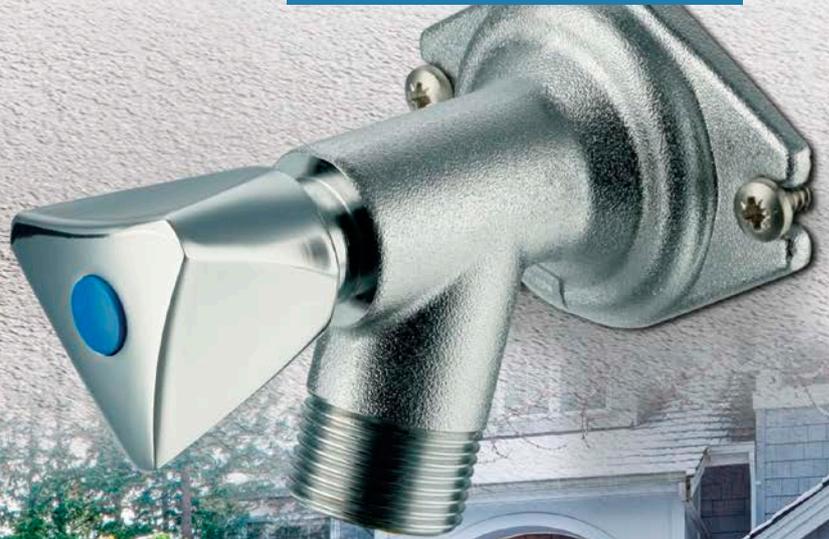
# KAN-therm SYSTEM

## Frostproof garden tap

DN15



**NEW**  
No more emptying of garden installations!  
**NO FREEZING IN WINTER!**



## Comfort and safety

### Garden valve with frost protection

- Thanks to its unique construction the valve seat is protected against bursting due to low temperatures.
- The valve holds the certificate of German Institute of Water and Gas (DVGW) and of Polish National Institute of Hygiene (PZH).
- Its aesthetic nickel-plated knob can be replaced any time with a tap featuring anti-water theft protection.

TECHNOLOGY OF SUCCESS



[www.kan-therm.com](http://www.kan-therm.com)

ISO 9001

## Application - potable water

The DN15 frostproof garden valve is designed for potable water installations and should be applied at the outer walls of 100-478 mm thickness. It is equipped with a 3/4" screw thread for connecting the valve with a garden hose.

It comes with a built-in dehydrator, which ensures water flow regardless of time of the year, including a connected garden hose. The valve is easy to install thanks to a built-in type "click" self-tightening joint. The set includes a handwheel and wrench with a safeguard.

### Advantages:

- Compact construction
- For walls of 100-478 mm thickness.
- Adjustable to a proper length.
- Easy to install thanks to a built-in type "click" self-tightening joint.
- Ensured frost protection even when a garden hose is connected
- Built-in back-flow insulator providing protection for potable water installation
- Operation via handwheel or wrench with a safeguard.
- Corrosion resistance
- DVGW and PZH certificates



L = 500mm

### Materials:

Body	Chromed brass
Handwheel	Chromed zinc alloy
Wrench + cap	Polyamide reinforced with glass fibre
Pipe	Copper
Internal pipe	Copper
Flange	Polyamide reinforced with glass fibre
O-ring	EPDM

### Technical specification:

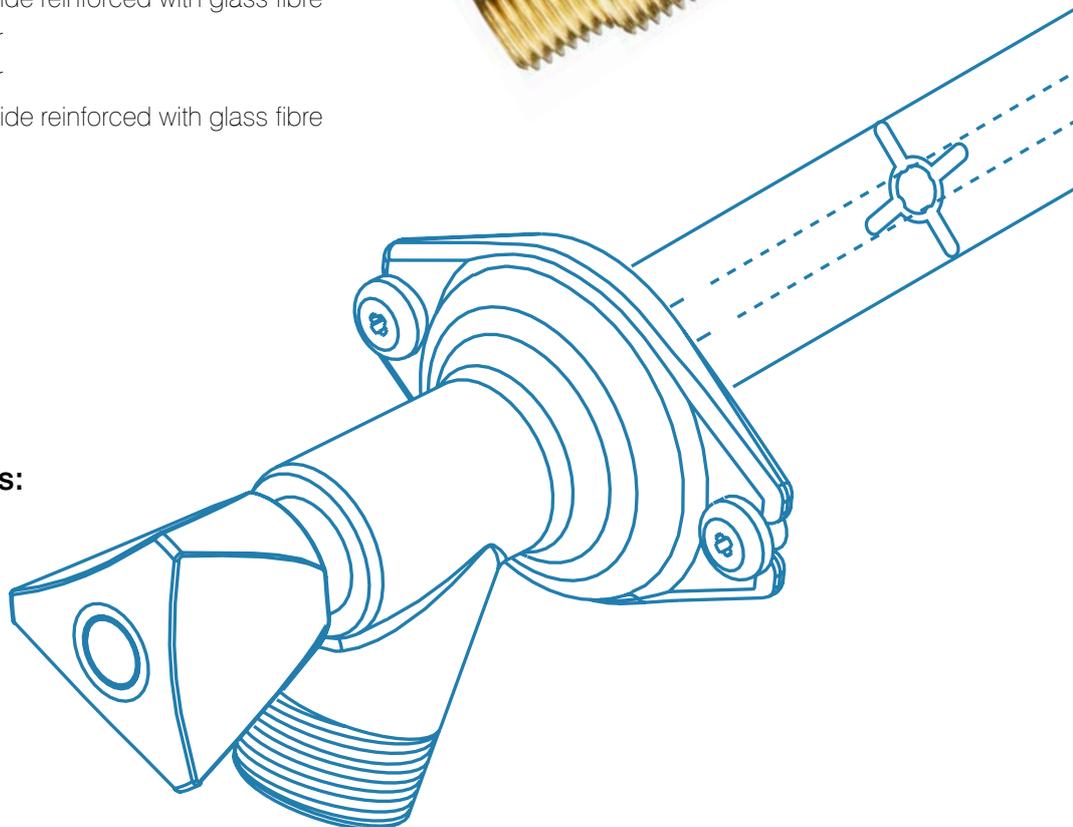
Internal connection - 1/2"

External connection - 3/4"

Maximum pressure - PN10

Maximum temperature - 21 °C

### Certificates and approvals:



**KAN** Sp. z o.o.

Zdrojowa 51 St., 16-001 Białystok-Kleosin

phone +48 85 74 99 200, fax +48 85 74 99 201

e-mail: [kan@kan-therm.com](mailto:kan@kan-therm.com)

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TECHNOLOGY OF SUCCESS



ISO 9001



SYSTEM **KAN-therm**

manifolds, cabinets  
and supplementary  
elements

Quality and reliability



TECHNOLOGY OF SUCCESS



ISO 9001

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# Fittings for eurocone adapters

## nipple

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 174003		6032.22	20/300	pc
G½" (MN)	1709 174004		6032.22C	20/300	pc
G¾"	1709 174001		6033.22	10/150	pc
G1"	1709 174000		6034.22	10/100	pc

(MN) - nickel-plated nipple

**Caution:**

Nipples are special designed for connection to unions of pipes PE-Xc and PE-RT and PE-RT/Al/PE-RT and nuts for copper pipes.



## nipple reducer

GROUP: A

Size	New code	*	Code	Packing	UM
G¾"×G½"	1709 174013		6033.42	10/150	pc
G1"×G¾"	1709 174009		6034.42	10/100	pc

**Caution:**

Nipples are special designed for connection to unions of pipes PE-Xc and PE-RT or PE-RT/Al/PE-RT and nuts for copper pipes.



## male elbow

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 068008		9012.20	20/200	pc
G¾"	1709 068010		9012.22	10/120	pc

**Caution:**

It can be used with eurocone adapter for pipes PE-RT and PE-Xc or PE-RT/Al/PE-RT.



## male-female elbow

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 068004		9012.24	10/150	pc
G¾"	1709 068006		9012.26	10/80	pc
G1"	1709 068018		9012.28	5/50	pc

**Caution:**

It can be used with eurocone adapter for pipes PE-RT and PE-Xc or PE-RT/Al/PE-RT.



## male tee

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 257009		9012.30	10/120	pc
G¾"	1709 257011		9012.32	5/70	pc
G1"	1709 257007	***	9012.34	5/40	pc

**Caution:**

It can be used with eurocone adapter for pipes PE-RT and PE-Xc or PE-RT/Al/PE-RT.



## male - female - male tee

GROUP: A

Size	New code	*	Code	Packing	UM
G¾"×G½"×G¾"	1709 257021	***	9012.36	5/70	pc
G1"×G½"×G1"	1709 257004	***	9012.38	5/40	pc
G1"×G¾"×G1"	1709 257005	***	9012.40	5/40	pc

**Caution:**

It can be used with eurocone adapter for pipes PE-RT and PE-Xc or PE-RT/Al/PE-RT.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### brass adaptor female - male thread GW1"×GZ¾"

GROUP: A

Size	New code	*	Code	Packing	UM
G1"×G¾"	1709 004000	***	9032.02	5/60	pc



### elbow male-female, directly fixed, with short plastic plug

GROUP: A

Size	New code	*	Code	Packing	UM
G½"×G¾"	1709 285024		9017.160	5/60	pc

**Caution:**

It can be used with eurocone adapter for pipes PE-RT and PE-Xc or PE-RT/AI/PE-RT. Wallplate angle tee is sold with fixing bolt and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.



### wallplate elbow, with short plastic plug

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 285000		9017.180	5/70	pc

**Caution:**

It can be used with eurocone adapter for pipes PE-RT and PE-Xc or PE-RT/AI/PE-RT. Wallplate angle tee is sold with fixing bolt and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.



### wallplate straight tee, with short plastic plug

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 285009	***	9017.200	5/60	pc

**Caution:**

It can be used with eurocone adapter for pipes PE-RT and PE-Xc or PE-RT/AI/PE-RT. Wallplate angle tee is sold with fixing bolt and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.



### wallplate angle tee, with short plastic plug

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 285005	***	9017.220	5/60	pc

**Caution:**

It can be used with eurocone adapter for pipes PE-RT and PE-Xc or PE-RT/AI/PE-RT. Wallplate angle tee is sold with fixing bolt and short plastic plug in a set. Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.



### plastic plug for pressure test - short - service part

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1700 250001		6095.33	20/300	pc

**Caution:**

Plastic plug is meant only to carry out tightness testing of the installation. The plug has its own sealing (O-ring).



### mounting bolt - service part

GROUP: A

Size	New code	*	Code	Packing	UM
	1700 183012		K-505100	100/2000	pc

**Caution:**

Use for wallplate elbow and tee to fix to the mounting plate.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## wall male elbow for radiator connection with dia 15 copper pipe, nickel plated

GROUP: A

Size	New code	*	Code	Packing	UM
G $\frac{3}{4}$ " (MN) L = ~220	1709 068015	***	9016.22	20	pc
G $\frac{1}{2}$ " (MN) L = ~100	1709 183004	***	4400.30	70	pc

(MN) - brass fitting, nickel plated

### Caution:

On request. It can be used with eurocone adapter, adapter for pipes PE-RT and PE-Xc, PE-RT/Al/PE-RT. All types of the possible connections of the KAN-therm fittings with  $\varnothing$ 15 copper pipes nickel plated with all types of the sanitary fittings are described in the technical part of the catalogue of products – "Assembling the screw fittings".



## Connections for copper pipes $\varnothing$ 15

### eurocone adapter for copper pipe G $\frac{3}{4}$ "

GROUP: A

Size	New code	*	Code	Packing	UM
15 G $\frac{3}{4}$ "	1709 043005		9023.08	15/150	pc

### Caution:

It can be used for male screw fittings and compact valves.



### universal eurocone adapter for 15 mm metal pipes

GROUP: A

Size	New code	*	Code	Packing	UM
15 G $\frac{3}{4}$ "	1709 043010		9023.10	15/150	pc

### Caution:

universal eurocone adapter allows for connecting metal pipes (copper, nickel plated copper, KAN-therm Steel or KAN-therm Inox) 15 mm diameter. New construction allows for its multiple use.



### eurocone adapter for copper pipe G $\frac{1}{2}$ "

GROUP: A

Size	New code	*	Code	Packing	UM
15 G $\frac{1}{2}$ "	1709 043003		K-609010	20/300	pc

### Caution:

It can be used for nipples and male screw fittings.



### compression set for copper pipe $\varnothing$ 15

GROUP: A

Size	New code	*	Code	Packing	UM
G $\frac{1}{2}$ "	1709 043011		729202W	20/300	pc

### Caution:

Compression coupling works with KAN fittings, different types of thermostatic valves and also with screw fittings with female thread 2 G $\frac{1}{2}$ ".



### straight female nipple body, nickel plated

GROUP: A

Size	New code	*	Code	Packing	UM
G $\frac{1}{2}$ " x G $\frac{1}{2}$ "	1709 040000		9001.35	20/200	pc

### Caution:

Adapter body with clamp for the CU  $\varnothing$ 15 pipe is used to connect the VK heater (bottom connection) with a  $\varnothing$ 15 copper pipe.



### single and double cap for copper pipe Cu $\varnothing$ 15

GROUP: A

Size	New code	*	Code	Packing	UM
15	1709 043015	***	9016.34	10/150	pc
15 (joint)	1709 043016	***	9016.35	2/50	pc

### Caution:

For special order (completion date up to 3 weeks).

1. Caps for pressure tests (reusable elements).
2. Double cap can be used if distance between connections is 50 mm, e.g. for VK radiators.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# General purpose fittings

## straight male/female union connector

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 271005		4912.00	100	pc
G¾"	1709 271006		4913.00	60	pc
G1"	1709 271004		4914.00	30	pc



## elbow male/female union connector

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 271002		4917.00	70	pc
G¾"	1709 271003	***	4918.00	40	pc
G1"	1709 271001	***	4919.00	25	pc



## female elbow

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 068001		9001.88	10/100	pc
G¾"	1709 068002		9001.87	5/50	pc
G1"	1709 068000		4930.00	-/50	pc
G1¼"	1709 068014	***	4931.00	-/20	pc



## female tee

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 257002		9001.85	5/70	pc
G¾"	1709 257003		9001.84	5/50	pc
G1"	1709 257014		4932.00	-/30	pc



## female coupling

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1709 245010		90N	20/200	pc
G¾"	1709 245012		91N	10/120	pc
G1"	1709 245003		4950.00	10/80	pc
G1¼"	1709 245004	***	4951.00	5/50	pc



## female, reducing coupling

GROUP: A

Size	New code	*	Code	Packing	UM
G¾"×G½"	1709 245014		9850	10/120	pc



## male-female extension

GROUP: A

Size	New code	*	Code	Packing	UM
G½" short	1709 080003		0200.12	10/150	pc
G½" long	1709 080001		0200.12d	10/100	pc
G¾" short	1709 080006	***	6038.32	10/100	pc



### Caution:

Short extension: 30 mm, long extension: 45 mm.

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### male - female extension for eurocone adapters

GROUP: A

Size	New code	*	Code	Packing	UM
G $\frac{3}{4}$ "	1709 080008	***	6038.32E	10/100	pc

**Caution:**  
extension length 41 mm.



### reducer

GROUP: A

Size	New code	*	Code	Packing	UM
G $\frac{1}{2}$ " $\times$ G $\frac{3}{8}$ "	1709 220006	***	6036.52	20/400	pc
G $\frac{3}{4}$ " $\times$ G $\frac{1}{2}$ "	1709 220007		6037.52	20/200	pc
G1" $\times$ G $\frac{3}{4}$ "	1709 220003		6038.52	10/120	pc
G1" $\times$ G $\frac{1}{2}$ "	1709 220011		4940.00	10/200	pc
G1 $\frac{1}{4}$ " $\times$ G $\frac{3}{4}$ "	1709 220001	***	4941.00	10/100	pc
G1 $\frac{1}{4}$ " $\times$ G1"	1709 220000	***	4942.00	10/100	pc



### female cap

GROUP: A

Size	New code	*	Code	Packing	UM
G $\frac{1}{2}$ "	1709 250001		6095.22	20/500	pc
G $\frac{3}{4}$ "	1709 250002		6095.23	20/300	pc
G1"	1709 250000		6095.24	10/150	pc



### female wallplate elbow, with short plastic plug

GROUP: A

Size	New code	*	Code	Packing	UM
G $\frac{1}{2}$ "	1709 285012	***	9017.100	5/70	pc

**Caution:**  
To fix the wallplate elbow to the wall use the mounting plates.  
To apply to water installations (possibility to fix to the wall with mounting plates). Battery connections can be used in central heating systems in connections of a radiator with wall outputs (by pipes in a wall chase) by angle valve.  
Female wallplate elbow is sold with fixing bolt and short plastic plug in a set.  
Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.



### male-female wallplate elbow, directly fixed, with short plastic plug

GROUP: A

Size	New code	*	Code	Packing	UM
G $\frac{1}{2}$ "	1709 285022	***	9017.120	5/60	pc

**Caution:**  
For wall mounting using expansion anchors.  
Montage directly on the wall using special stud.  
Male-female wallplate elbow, directly fixed is sold with fixing bolt and short plastic plug in a set.  
Plastic short plug is used to make a pressure test only and it shouldn't be used to blank off the installation permanently.



### plastic plug for pressure test - short - service part

GROUP: A

Size	New code	*	Code	Packing	UM
G $\frac{1}{2}$ "	1700 250001		6095.33	20/300	pc

**Caution:**  
Plastic plug is meant only to carry out tightness testing of the installation.  
The plug has its own sealing (O-ring).



### mounting bolt - service part

GROUP: A

Size	New code	*	Code	Packing	UM
	1700 183012		K-505100	100/2000	pc

**Caution:**  
Use for wallplate elbow and tee to fix to the mounting plate.



# Manifolds

## 1" manifold type 81 without accessories

GROUP: E

Size	New code	*	Code	Packing	UM
2 (326×100×80)	1345 156007		81020	1	pc
3 (326×150×80)	1345 156008		81030	1	pc
4 (326×200×80)	1345 156009		81040	1	pc
5 (326×250×80)	1345 156010		81050	1	pc
6 (326×300×80)	1345 156011		81060	1	pc
7 (326×350×80)	1345 156012		81070	1	pc
8 (326×400×80)	1345 156013		81080	1	pc
9 (326×450×80)	1345 156014		81090	1	pc
10 (326×500×80)	1345 156015		81100	1	pc
11 (326×550×80)	1345 156016		81110	1	pc
12 (326×600×80)	1345 156017		81120	1	pc

**Caution:**

Manifold outputs with internal thread G½" and 50 mm distance between each one.



## 1" manifold type 61 with eurocone nipples

GROUP: E

Size	New code	*	Code	Packing	UM
2 (326×100×80)	1345 158007		61020	1	pc
3 (326×150×80)	1345 158008		61030	1	pc
4 (326×200×80)	1345 158009		61040	1	pc
5 (326×250×80)	1345 158010		61050	1	pc
6 (326×300×80)	1345 158011		61060	1	pc
7 (326×350×80)	1345 158012		61070	1	pc
8 (326×400×80)	1345 158013		61080	1	pc
9 (326×450×80)	1345 158014		61090	1	pc
10 (326×500×80)	1345 158015		61100	1	pc
11 (326×550×80)	1345 158016		61110	1	pc
12 (326×600×80)	1345 158017		61120	1	pc

**Caution:**

Manifold mate with eurocone adapters G¾". Manifold output has a 50 mm distance between each one.



## 1" manifold type 74 with open-close valve

GROUP: E

Size	New code	*	Code	Packing	UM
2 (326×100×80)	1345 161000		74020	1	pc
3 (326×150×80)	1345 161002		74030	1	pc
4 (326×200×80)	1345 161004		74040	1	pc
5 (326×250×80)	1345 161006		74050	1	pc
6 (326×300×80)	1345 161008		74060	1	pc
7 (326×350×80)	1345 161010		74070	1	pc
8 (326×400×80)	1345 161012		74080	1	pc
9 (326×450×80)	1345 161014		74090	1	pc
10 (326×500×80)	1345 161016		74100	1	pc
11 (326×550×80)	1345 161018		74110	1	pc
12 (326×600×80)	1345 161020		74120	1	pc

**Caution:**

Open-close valves built in the lower and upper body of manifold, it's possible to close every circuit. Manifold mate with eurocone adapters G¾". Manifold output has a 50 mm distance between each one.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## steel manifold 1 1/4" for central heating (series 10)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (325×136×90)	1347 156000		S10020	1	pc
3 (325×186×90)	1347 156001		S10030	1	pc
4 (325×236×90)	1347 156002		S10040	1	pc
5 (325×286×90)	1347 156003		S10050	1	pc
6 (325×336×90)	1347 156004		S10060	1	pc
7 (325×386×90)	1347 156005		S10070	1	pc
8 (325×436×90)	1347 156006		S10080	1	pc
9 (325×486×90)	1347 156007		S10090	1	pc
10 (325×536×90)	1347 156008		S10100	1	pc
11 (325×586×90)	1347 156009		S10110	1	pc
12 (325×636×90)	1347 156010		S10120	1	pc

### Caution:

Manifold is suitable only for closed, pressurised heating systems. Beams with female thread G1". Circuits with female thread G1/2" with 50 mm spacing. Use only with 1300 174018 nipples.



## steel manifold 1 1/4" for central heating with nipples (series 20)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (325×136×90)	1347 158000		S20020	1	pc
3 (325×186×90)	1347 158002		S20030	1	pc
4 (325×236×90)	1347 158003		S20040	1	pc
5 (325×286×90)	1347 158005		S20050	1	pc
6 (325×336×90)	1347 158007		S20060	1	pc
7 (325×386×90)	1347 158009		S20070	1	pc
8 (325×436×90)	1347 158011		S20080	1	pc
9 (325×486×90)	1347 158013		S20090	1	pc
10 (325×536×90)	1347 158015		S20100	1	pc
11 (325×586×90)	1347 158017		S20110	1	pc
12 (325×636×90)	1347 158019		S20120	1	pc

### Caution:

Manifold is suitable only for closed, pressurised heating systems. Beams with female thread G1". Manifold mate with eurocone adapters G3/4". Manifold output has a 50 mm distance between each one. Use only with 1300 174018 nipples.



## 1 1/4" manifold type 91 with eurocone nipples

GROUP: E

Size	New code	*	Code	Packing	UM
2 (297×117×80)	1345 158019	*	91020	1	pc
3 (297×167×80)	1345 158020	*	91030	1	pc
4 (297×217×80)	1345 158021	*	91040	1	pc
5 (297×267×80)	1345 158022	*	91050	1	pc
6 (297×317×80)	1345 158023	*	91060	1	pc
7 (297×367×80)	1345 158024	*	91070	1	pc
8 (297×417×80)	1345 158025	*	91080	1	pc
9 (297×467×80)	1345 158026	*	91090	1	pc
10 (297×517×80)	1345 158027	*	91100	1	pc
11 (297×567×80)	1345 158028	*	91110	1	pc
12 (297×617×80)	1345 158029	*	91120	1	pc

### Caution:

Manifold type 91 union connector 1 1/4"×1" code 91000 or 1 1/4"×3/4" code 91001 should be used. Manifold mate with eurocone adapters G3/4". Manifold output has a 50 mm distance between each one.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## 1" brass manifold with adjustable bracket and 100 mm output spacing, without nipples (82 series)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (250-400×150×80)	1343 183007		82020	1	pc
3 (250-400×250×80)	1343 183008		82030	1	pc
4 (250-400×350×80)	1343 183009		82040	1	pc

Special design allows for connecting additional fixtures (e.g. water meters, heat meters) on each circuit

**Caution:** Manifold beams have G1" female thread.

Adjustable beams spacing in range 250 – 400 mm.

Outputs for individual circuits with G½" female thread and spacing 100 mm.



## Accessories for manifolds

### manifold type 91 union connector

GROUP: E

Size	New code	*	Code	Packing	UM
1¼" × 1"	1300 105000	*	91000	5/50	pc
1¼" × ¾"	1300 105001	*	91001	5/70	pc

**Caution:** Use half-union connector for manifold 91 series.



### 1" manifold body for utility water systems (type 1) with air vent hole

GROUP: E

Size	New code	*	Code	Packing	UM
2 (100)	1300 154000	*	1.02	1/10	pc
3 (150)	1300 154001	*	1.03	1/10	pc
4 (200)	1300 154002	*	1.04	1/10	pc
5 (250)	1300 154003	*	1.05	1/10	pc
6 (300)	1300 154004	*	1.06	1/10	pc
7 (350)	1300 154005	*	1.07	1/10	pc
8 (400)	1300 154006	*	1.08	1/10	pc
9 (450)	1300 154007	*	1.09	1/10	pc
10 (500)	1300 154008	*	1.10	1/10	pc
11 (550)	1300 154009	*	1.11	1/10	pc
12 (600)	1300 154010	*	1.12	1/10	pc

**Caution:**

It has outputs for individual circuits with female thread G½", manifold inputs G1", hole in upper part for automatic air vent. Manifold outputs has a 50 mm distance between each one



### 1" manifold body for utility water systems (type 2) without air vent hole

GROUP: E

Size	New code	*	Code	Packing	UM
2 (100)	1300 154037	*	2.02	1/10	pc
3 (150)	1300 154038	*	2.03	1/10	pc
4 (200)	1300 154039	*	2.04	1/10	pc
5 (250)	1300 154040	*	2.05	1/10	pc
6 (300)	1300 154041	*	2.06	1/10	pc
7 (350)	1300 154042	*	2.07	1/10	pc
8 (400)	1300 154043	*	2.08	1/10	pc
9 (450)	1300 154044	*	2.09	1/10	pc
10 (500)	1300 154045	*	2.10	1/10	pc
11 (550)	1300 154046	*	2.11	1/10	pc
12 (600)	1300 154047	*	2.12	1/10	pc

**Caution:**

It has outputs for individual circuits with female thread G½", manifold inputs G1". Manifold outputs has a 50 mm distance between each one.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## bracket for manifold

GROUP: E

	New code	*	Code	Packing	UM	
	1700 029001	*	5309	50	pc	



## nipple for manifold with O-Ring

GROUP: E

Size	New code	*	Code	Packing	UM	
G $\frac{3}{4}$ " $\times$ G $\frac{1}{2}$ "	1300 174003		P06	20/200	pc	
G $\frac{3}{4}$ " $\times$ G $\frac{1}{2}$ "	1300 174018		P09	20/200	pc	
G $\frac{1}{2}$ " $\times$ G $\frac{1}{2}$ "	1300 174019		P10	20/200	pc	

**Caution:**

P06 nipple works with Eurocone adapters G $\frac{3}{4}$ ".  
 P09 nipple is used only for steel manifolds 1 $\frac{1}{4}$ " 10, 20 series.  
 P10 nipple works with Eurocone adapters G $\frac{1}{2}$ ".



## nipple for manifold series 82 for flat gasket

GROUP: E

Size	New code	*	Code	Packing	UM	
G $\frac{1}{2}$ " $\times$ G $\frac{1}{2}$ "	1300 174020		P12	20/200	pc	

**Caution:**

Nipple is equipped with O-ring to seal at manifold side. Depending on desired type of sealing, design enables to connect eurocone adapters (self-sealing connections) or fixtures sealed with flat gasket (gasket not included).



## reducer

GROUP: E

Size	New code	*	Code	Packing	UM	
G1" $\times$ G $\frac{1}{2}$ "	1300 220002		4.12	10/120	pc	
G1" $\times$ G $\frac{3}{4}$ "	1300 220003		4.13	10/120	pc	

**Caution:**

Reduction code 1300 220002 and 1300 220003 contains O-Ring code 1300 182000.



## male plug with hex socket

GROUP: E

Size	New code	*	Code	Packing	UM	
G $\frac{1}{2}$ "	1709 250004		6095.34	20/300	pc	

**Caution:**

The plug contains its own O-ring seal. To tighten, use 12 hex wrench.



## male plug

GROUP: E

Size	New code	*	Code	Packing	UM	
G $\frac{1}{2}$ "	1300 025000	***	6095.35	20/300	pc	
G $\frac{3}{4}$ "	1300 250019		6095.32	20/300	pc	
G1"	1300 025002		6095.43	10/150	pc	

**Caution:**

Plugs code 1709 250003, 1709 025000 contain their own O-ring seal. Other plugs without O-rings.



## O-Ring - service part

GROUP: E

Size	New code	*	Code	Packing	UM	
18,3 $\times$ 2,4	1700 182002	*	U18	100	pc	
N 17 $\times$ 2	1700 182001	*	U17X2	100	pc	
N 24 $\times$ 2	1700 182004	*	U24X2	100	pc	
28 $\times$ 3	1700 182005	*	U28	100	pc	

**Caution:**

O-Ring code 1700 182002 used for nipples for splitter code 1300 174003 and 1300 174019.  
 O-Ring Code 1700 182001 used for the plug code 1709 250004.  
 O-Ring Code 1700 182004 used for the plug code 1709 250003.  
 O-Ring Code 1300 182000 used for the plug code 1709 025000 and reduction, code 1300 220002 and 1300 220003.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## coupling for manifolds

GROUP: E

Size	New code	*	Code	Packing	UM
G1"	1300 174028		R543	10/100	pc

**Caution:**

For manifold to extend it by one more circuit.



## male-female terminal with special seal

GROUP: E

Size	New code	*	Code	Packing	UM
G1"×G½"×G½"	1300 257001		R542	5/70	pc

**Caution:**

For manifold to extend it by one more circuit.



## valve set, straight

GROUP: E

Size	New code	*	Code	Packing	UM
G1"×G1"	1300 183006		K-600400	1/20	kpl.

**Caution:**

Set of valves with screw connection for manifolds of KAN-therm System fixed on a 1" profile without any additional sealing. For manifold with side supply connection



## valve set, angle

GROUP: E

Size	New code	*	Code	Packing	UM
G1"×G1"	1300 183007		K-600500	1/20	kpl.

**Caution:**

Set of valves with screw connection and elbows for manifolds of KAN-therm System fixed on a 1" profile without any additional sealing. For manifolds supplied from floor.



## male terminal with automatic air vent and drain

GROUP: E

Size	New code	*	Code	Packing	UM
G1"	1300 257002		R541	5/100	pc

**Caution:**

Use for splitters with 1" profile, 51A, 55A, 71A, 75A, 61, 81, 82, 74 series.



## manual air vent

GROUP: E

Size	New code	*	Code	Packing	UM
G½"	1300 005004		5322	50/500	pc



## manual drain and air vent

GROUP: E

Size	New code	*	Code	Packing	UM
G½"	1300 005003		10612	25/100	pc

**Caution:**

Use by reducing 1"×½" for manifolds of 1" profile series 51A, 55A, 71A, 75A, 61, 81, 82, 74.



## manual drain and air vent

GROUP: E

Size	New code	*	Code	Packing	UM
G½"	1300 277000		1305.11	25/100	pc

**Caution:**

Use by reducing 1"×½" for manifolds of 1" profile series 51A, 55A, 71A, 75A, 61, 81, 82, 74.



## automatic air vent with stop valve

GROUP: E

Size	New code	*	Code	Packing	UM
G½"	1300 005000		0.52071	1/100	pc

**Caution:**

Stop valve makes possible to remove air vent without draining the system.



## Cabinets

### wall-mounted cabinet SWNE type, for manifolds without mixing unit

GROUP: D

Size	New code	*	Code	Packing	UM
4 (585×350×110)	1445 180002		1100Z	48	pc
6 (585×450×110)	1445 180003		1110Z	36	pc
8 (585×550×110)	1445 180004		1120Z	32	pc
10 (585×650×110)	1445 180000		1130Z	26	pc
13 (585×800×110)	1445 180001		1140Z	24	pc

Features:

- removable painted body,
- removable back wall for easy installation of manifold and system parts,
- four mounting holes in a back wall for extension anchors,
- universal lock (coin, screwdriver),
- white colour, RAL 9016.

**Caution:** Cheaper non-painted cabinets SWNE on request.



### wall-mounted cabinet SWN type, for manifolds without mixing unit

GROUP: D

Size	New code	*	Code	Packing	UM
4 (630×350×110)	1445 180008		1100S	39	pc
6 (630×450×110)	1445 180009		1110S	34	pc
8 (630×550×110)	1445 180010		1120S	26	pc
10 (630×650×110)	1445 180006		1130S	21	pc
13 (630×800×110)	1445 180007		1140S	16	pc

Features:

- removable screwed front body crosspiece for easy installation,
- four mounting holes in a back wall for extension anchors,
- universal lock (coin, screwdriver),
- white colour, RAL 9016.

**Caution:** Cheaper non-painted cabinets SWN on request.



### in wall -mounting cabinet SWPSE type with 45° frame for manifolds without/with mixing unit

GROUP: D

Size	New code	*	Code	Packing	UM
4 (560-660×350×110-165)	1445 117024		1300Z	42	pc
6 (560-660×450×110-165)	1445 117013		1310Z	34	pc
10/3 (560-660×580×110-165)	1445 117011		1320Z	24	pc
13/7 (560-660×780×110-165)	1445 117012		1330Z	20	pc
15/10 (560-660×930×110-165)	1445 117014		1340Z	17	pc

\*SWPSE - 10/3 (10 heating circuits without mixing system/3 heating circuits with mixing system).

\*SWPSE - 13/7 (13 heating circuits without mixing system/7 heating circuits with mixing system).

\*SWPSE - 15/10 (15 heating circuits without mixing system/10 heating circuits with mixing system).

\*\*External cabinet body dimensions (min. installation recess dimensions).

Features:

- cabinet height adjustment from 560 to 660 mm,
- front panel height adjustment using masking part from 525 to 560 mm,
- wall cavity depth adjusted from 110 to 165 mm,
- universal lock (coin, screwdriver),
- white colour, RAL 9016,
- shutter type cabinet sides,
- 45° front panel edge angle provides good flush.

**Caution:** Cheaper non-painted cabinets SWPSE on request.



## in wall -mounting cabinet SWPS type with 45° frame for manifolds without/with mixing unit

GROUP: D

Size**	New code	*	Code	Packing	UM
4 (680-780×350×110-165)	1445 117000		1300S	34	pc
6 (680-780×450×110-165)	1445 117001		1310S	27	pc
10/3 (680-780×580×110-165)	1445 117002		1320S	20	pc
13/7 (680-780×780×110-165)	1445 117003		1330S	17	pc
15/10 (680-780×930×110-165)	1445 117004		1340S	14	pc

SWPS - 10/3 (10 heating circuits without mixing system/3 heating circuits with mixing system).  
SWPS - 13/7 (13 heating circuits without mixing system/7 heating circuits with mixing system).  
SWPS - 15/10 (15 heating circuits without mixing system/10 heating circuits with mixing system).

\*\*External cabinet body dimensions (min. installation recess dimensions).

Features:

- cabinet height adjustment from 680 to 780 mm,
- frame height adjustment using masking part from 570 to 625 mm,
- wall cavity depth adjusted from 110 to 165 mm,
- universal lock (coin, screwdriver),
- white colour, RAL 9016,
- shutter type cabinet sides,
- 45° front panel edge angle provides good flush.

Caution:

90° front panel edge angle for above types (on request) as well as cheaper non-painted cabinets SWPS on request.



## cabinet front panel RAMSE type with 45° frame for manifolds without/with mixing unit

GROUP: D

Size**	New code	*	Code	Packing	UM
4 (525-560×350)	1445 096011		1600Z	40	pc
6 (525-560×450)	1445 096002		1610Z	40	pc
10/3 (525-560×580)	1445 096011		1620Z	36	pc
13/7 (525-560×780)	1445 096014		1630Z	26	pc
15/10 (525-560×930)	1445 096016		1640Z	20	pc

RAMSE - 10/3 (10 heating circuits without mixing system/3 heating circuits with mixing system).  
RAMSE - 13/7 (13 heating circuits without mixing system/7 heating circuits with mixing system).  
RAMSE - 15/10 (15 heating circuits without mixing system/10 heating circuits with mixing system).

\*\*Recess assembly dimensions.

Features:

- front can be used directly for recess masking purpose without mounting of SWPS and SWPSE cabinets,
- mounting lugs, 150 mm long, for direct front panel installation,
- fastening extension anchors,
- panel height adjustment using masking part from 570 to 625 mm,
- universal lock (coin, screwdriver),
- white colour, RAL 9016,
- 45° front panel edge angle provides good flush.

Caution:

2 pcs. in one packing.

Cheaper non-painted front RAMS on request.



## cabinet front panel RAMS type with 45° frame for manifolds without/with mixing unit

GROUP: D

Size**	New code	*	Code	Packing	UM
4 (570-625×350)	1445 096006	*	1600S	40	pc
6 (570-625×450)	1445 096018	*	1610S	40	pc
10/3 (570-625×580)	1445 096008	*	1620S	36	pc
13/7 (570-625×780)	1445 096002	*	1630S	26	pc
15/10 (570-625×930)	1445 096001	*	1640S	20	pc

RAMS - 10/3 (10 heating circuits without mixing system/3 heating circuits with mixing system).  
RAMS - 13/7 (13 heating circuits without mixing system/7 heating circuits with mixing system).  
RAMS - 15/10 (15 heating circuits without mixing system/10 heating circuits with mixing system).

\*\*Recess assembly dimensions.

Features:

- front can be used directly for recess masking purpose without mounting of SWPS and SWPSE cabinets,
- mounting lugs, 150 mm long, for direct front panel installation,
- fastening extension anchors,
- panel height adjustment using masking part from 570 to 625 mm,
- universal lock (coin, screwdriver),
- white colour, RAL 9016,
- 45° front panel edge angle provides good flush.

Caution:

2 pcs. in one packing.

Cheaper non-painted front RAMS on request.



## lock & key

GROUP: D

	New code	*	Code	Packing	UM	
	1400 151001		85/834	1	pc	

Features:

- many key combinations,
- can be used for all type of KAN cabinets and front panels.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# Installation equipment and mounting accessories

## corrugated (protection) pipe - red

GROUP: A

Name	New code	*	Code	Packing	UM
12-14 (Dz23mm)	1700 049018		1904C	50	m
16-18 (Dz25mm)	1700 049021		1900C	50	m
20 (Dz28mm)	1700 049025		1906C	50	m
25-26 (Dz35mm)	1700 049030		1901C	50	m
32 (Dz43mm)	1700 049034		1908C	50	m
40 (Dz50mm)	1700 049038		1910C	25	m



**Caution:**

Apply for hot and cold water system and central heating, as a protecting pipe, in the case of embedding the system in concrete.

## corrugated (protection) pipe - blue

GROUP: A

Name	New code	*	Code	Packing	UM
12-14 (Dz23mm)	1700 049019		1904N	50	m
16-18 (Dz25mm)	1700 049022		1900N	50	m
20 (Dz28mm)	1700 049026		1906N	50	m
25-26 (Dz35mm)	1700 049031		1901N	50	m
32 (Dz43mm)	1700 049035		1908N	50	m
40 (Dz50mm)	1700 049039		1910N	25	m



**Caution:**

Apply for hot and cold water system and central heating, as a protecting pipe, in the case of embedding the system in concrete.

## plastic mounting plate

GROUP: A

Size	New code	*	Code	Packing	UM
Single	1700 210011		6090.050	10/160	pc
Double (L = 150mm)	1700 210006		6090.060	10/70	pc
Double (L = 80mm)	1700 210010		6090.070	10/100	pc
Double (L = 50mm)	1700 210008		6090.080	10/120	pc



**Caution:**

Used for mounted wallplates. Do not use with dry construction.

## metal mounting plate

GROUP: A

Size	New code	*	Code	Packing	UM
Double (L = 80, 150mm)	1700 210014		6090.13	1/42	pc



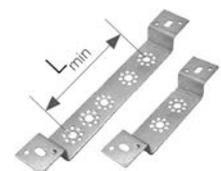
**Caution:**

Mounting plate allows for fixing standard and directly fixed wallplate elbows. Mounting plate includes screws for directly fixed wallplate elbows (6pc).

## metal mounting plate

GROUP: A

Size	New code	*	Code	Packing	UM
Double (L = 50, 80, 150mm)	1700 210002		6090.09	40	pc
Double (L = 50mm)	1700 210013		6090.10	150	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### single plastic pipe hook

GROUP: A

Size	New code	*	Code	Packing	UM
12-20/12-26 (L = 48mm, 8mm)	1700 112010		0.8048	100/5000	pc
12-20/12-26 (L = 77mm, 8mm)	1700 112012		8051	100/4000	pc
12-20/12-26 (L = 100mm, 10mm)	1700 112015		8053	100/3000	pc

**Caution:**

The length of the hook and the drill diameter for the hole to attach the hook was given in the brackets.



### single polyamide hook for the pipe

GROUP: A

Size	New code	*	Code	Packing	UM
12-20/12-26 (L = 80mm, 10mm)	1700 112017		1851W	100/4000	pc

**Caution:**

The length of the hook and the drill diameter for the hole to attach the hook was given in the brackets.



### double plastic pipe hook

GROUP: A

Size	New code	*	Code	Packing	UM
12-20/12-26 (L = 48mm, 8mm)	1700 112000		0.8049	100/3000	pc
12-20/12-26 (L = 77mm, 8mm)	1700 112003		8052	100/2400	pc
12-20/12-26 (L = 100mm, 10mm)	1700 112005		8054	100/2000	pc

**Caution:**

The length of the hook and the drill diameter for the hole to attach the hook was given in the brackets.



### double polyamide hook for the pipe

GROUP: A

Size	New code	*	Code	Packing	UM
12-20/12-26 (L = 80mm, 10mm)	1700 112007		1951W	100/2000	pc

**Caution:**

The length of the hook and the drill diameter for the hole to attach the hook was given in the brackets.



### snap-in pipe clip with extension anchor and spacer

GROUP: A

Size	New code	*	Code	Packing	UM
16-18 single	1700 107003	*	1730	100	pc
16-18 double	1700 107002	*	1630U	100	pc

**Caution:**

Use directly on pipe (without corrugated pipe).



### masking Ø15

GROUP: A

Size	New code	*	Code	Packing	UM
Single	1700 183008		2215	100	pc
Double	1700 183007		2220	50	pc

**Caution:**

Used for masking of floor outgoing pipes.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### single pipe clamp with insulation

GROUP: A

Size	New code	*	Code	Packing	UM
15-18	1700 081025		UP-G16	100	pc
20-23	1700 081028		UP-G20	100	pc
25-28	1700 081029		UP-G25	100	pc
32-36	1700 081030		UP-G32	50	pc
40-44	1700 081031		UP-G40	50	pc
47-52	1700 081032		UP-G50	50	pc
54	1700 081033		UP-G60	50	pc
57-63	1700 081034		UP-G63	50	pc
76.1	1700 081035		UP-G75	25	pc
88.9	1700 081036		UP-G90	25	pc
108	1700 081023		UP-G110	25	pc
139	1700 081024	**	UP-G139	1/-	pc
168	1700 081027	**	UP-G168	1/-	pc

**Caution:**

The clamp includes the two-thread bolt with collar (code 1700 081056) and a plastic dowel (code 1700 081010).



### double pipe clamp with insulation

GROUP: A

Size	New code	*	Code	Packing	UM
15-18	1700 081019		UD-G16	50	pc
20-23	1700 081020		UD-G20	50	pc
25-28	1700 081021		UD-G25	50	pc
32-36	1700 081022		UD-G32	50	pc

**Caution:**

The clamp includes a two-thread bolt with collar (code 1700 081056) and a plastic dowel (code 1700 081010).



### plastic hinged pipe clip

GROUP: A

Size	New code	*	Code	Packing	UM
16	1700 029003		8019950A	50	pc
20	1700 029005		8020950A	50	pc
25	1700 029007		8021950A	50	pc
32	1700 029009		8022950A	50	pc
40	1700 081018		8023950A	40	pc
50	1700 029012		8024950A	25	pc
63	1700 029000		8025950A	25	pc

**Caution:**

Use only as the sliding support.



### plastic plug for pressure test - long

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1700 250003		2100C	20/360	pc
G¾"	1700 250007	*	2110C	20/360	pc

**Caution:**

It may be repeatedly use (has O-Ring seal) and should be used for all KAN-therm wallplate elbows and wallplate tees.



### plastic plug for pressure test - long

GROUP: A

Size	New code	*	Code	Packing	UM
G½"	1700 250005		2100N	20/360	pc
G¾"	1700 250008	*	2110N	20/360	pc

**Caution:**

It may be repeatedly use (has O-Ring seal) and should be used for all KAN-therm wallplate elbows and wallplate tees.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## anti-freezing agent

GROUP: A

Wersja	New code	*	Code	Packing	UM	
-20°C	1800 002002	*	0.1008	20	I	
-25°C	1800 002003	*	0.1009	20	I	
-35°C	1800 002004	*	0.1010	20	I	

**Caution:**

Used for central heating, air conditioning, cooling and solar systems.



## double metal floor clip for pipe in protecting tube

GROUP: A

Size	New code	*	Code	Packing	UM	
12-18/16-26	1700 107005		276	50/1000	pc	
16-32/25-40	1700 107006		278	40/400	pc	

**Caution:**

Use for attaching pipeline to the building structure.  
The first range is valid for the pipes in a conduit, second for pipes without a conduit.



## plastic bend support

GROUP: A

Size	New code	*	Code	Packing	UM	
- /14-18	1700 218003		8058	50/200	pc	
12-14/20	1700 218000		8059	100	pc	
12-18/25	1700 218004		8060	80	pc	

**Caution:**

The first range is valid for the pipes in a conduit, second for pipes without a conduit.



## metal bend support

GROUP: A

Size	New code	*	Code	Packing	UM	
25-26	1700 164002		265	50	pc	
12-18	1700 164000		267	120	pc	



## slip lock elbow

GROUP: A

Size	New code	*	Code	Packing	UM	
14-18	1700 107000		8008	100	pc	

**Caution:**

Used for pipe connection to a radiator (to set in concrete).



## plastic protection for slip lock elbow

GROUP: A

Size	New code	*	Code	Packing	UM	
14-18	1700 107001		0.8050	100	pc	

**Caution:**

Used as a mask or protection for pipes PE-Xc or PE-RT connected to a radiator.



## plastic plug for pressure test - short - service part

GROUP: A

Size	New code	*	Code	Packing	UM	
G½"	1700 250001		6095.33	20/300	pc	

**Caution:**

Plastic plug is meant only to carry out tightness testing of the installation.  
The plug has its own sealing (O-ring).



### nut M8 - service part for wallplate elbow

GROUP: A

Size	New code	*	Code	Packing	UM	
M8	1728 177000		6096.03	100/3000	pc	



### mounting bolt - service part

GROUP: A

	New code	*	Code	Packing	UM	
	1700 183012		K-505100	100/2000	pc	



**Caution:**

Use for wallplate elbow and tee to fix to the mounting plate.

### frost-proof garden valve DN15

GROUP: A

Size	New code	*	Code	Packing	UM	
L = 500 mm	1709 277000		AQS-DN15	1	pc	



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

Ø 12-108 mm



SYSTEM **KAN-therm**

Steel

Traditional material  
in modern technology



TECHNOLOGY OF SUCCESS



ISO 9001

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## 5 **KAN-therm Steel system**

**System KAN-therm Steel is a system made of carbon steel pipes and fittings of diameters 12 to 108 mm. Pipes and fittings produced of high quality carbon steel covered with thin zinc layer which protects external surface against corrosion.**

### **Modern connection technology**

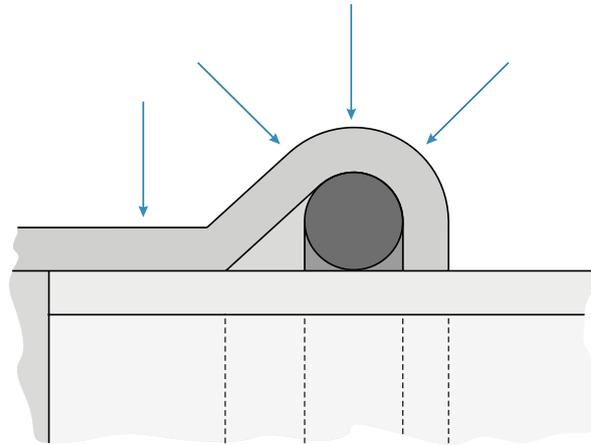
“Press” technology used in System KAN-therm Steel enables to make fast and reliable connections by pressing fittings using widely available press tools, and to eliminate twisting and welding of individual elements. The system permits a very quick assembly even when using pipes and fittings in large diameters.

System KAN-therm Steel pipes and fittings are made of thin-walled steel, which significantly decreases weight of individual elements and facilitates system assembly.

Connecting elements in “press” technology allows to obtain connections with minimized pipe section narrowing, which significantly decreases waste of system pressure and creates excellent hydraulic conditions.

## Long-lasting connection technology

Connection leak tightness in System KAN-therm Steel is provided by special O-Ring seals and a three-point crimping profile „M”.



### Application possibilities

- closed water heating installation (cannot be used for potable water installations),
- closed cooling water systems.

### Advantages

- quick and reliable system assembly without welding and twisting,
- wide range of pipe and fitting diameters up to 108 mm,
- wide range of operating temperatures: from -35°C to 135°C,
- high operating pressure up to 16 bar,
- compatible with plastic systems KAN-therm Press and Push,
- lightweight pipes and fittings,
- system high aesthetics,
- resistance to mechanical damage.

### Fitting assembly



#### 1 Pipe cutting

Pipes should be cut perpendicular to their axes using pipe roll-cutter (full cut, with no breaking off nicked pipe segments). Using other tools is permissible provided the cut is perpendicular and cut edges are not damaged (no breaking off, no material decrements or other deformations of pipe section). Tools that emit a lot of heat, e.g. a flame torch, an angle grinder, etc., cannot be used.



## 2 Beveling

Using a hand operated stripping tool (for 66,7-108 mm half-rounded steel file), bevel outside and inside the tip of the cut pipe, and remove all file dust that can damage an O-Ring during assembly. Stripping tool may also be mounted on electric machines (for instance electric drill).



## 3 Marking the insertion depth of the pipe in the fitting

In order to obtain proper connection strength it is necessary to keep the correct insertion depth (Tab.1, Fig 1 ) of the pipe in the fitting (it should be slid home). To make sure the pipe is properly slid into the fitting during pressing, mark the required insertion depth with a pen marker. After the connection have been made, the marking should be visible just next to edge of the fitting. Also, there are special markers for marking the insertion depth.



## 4 Control

Before assembly, check visually that there is an O-Ring in the fitting, whether it is not damaged, and whether there are no file dust or any other sharp objects which can cause damage to the O-Ring during assembly. In order to proper assembling it is necessary to check the minimal allowed distance between the fittings according to Table. In order to proper assembling it is necessary to check the minimal allowed distance between the fittings according to Table 1. Fig.1).

## 5 Pipe and fitting assembly

Before making the connection, axially insert the pipe into the fitting to a marked depth (To make the assembly easier it is possible to slightly twist the pipe in relation to the fitting).

Using any kinds of oils, lubricating oils and fats in order to make the montage of the pipe into the fitting easier is not allowed (it is allowed to use only water or spoiled soap - recommended in case of pressure test by air) In the case of making many connections (inserting pipes into fittings and pressing) it is very important to watch the pipe insertion depth. To do so watch previously made markings on pipes near fitting edges.



## 6 Making a press connection

Before the beginning of the process of making the press connection, please check the efficiency of tools. Recommended is the usage of pressing machine and jaws provided by the System KAN-therm. Always choose the suitable size of the jaw to the diameter of executing connection. The jaw should be placed on the fitting in the way, which will ensure that the grooves in the jaw will cover the space, where are the O-Rings placed (raised parts of the fitting). After start of pressing, the process takes place automatically and cannot be stopped. If for some reasons the process of the pressing will be aborted, the connection need to be disassembled (cut out) and then the new connection should be executed one more time in correct way. If the contractors have different machines and jaws than those supplied by KAN, every use of them must be consulted with the KAN company individually.

## 7 Making a press connection in range 66,7–108 mm Preparing the jaw

To make a press connection of the three biggest dimensions of the Steel (64; 66,7; 76,1; 88,9; 108) a special jaws should be used (tetramerous) and the Klauke pressing machine. The jaw after release should be unlocked by removing the special bolt.



## 8 Locking the jaw

Unlocked jaw need to be put on the fitting. The jaw has special groove, where the fitting edge need to be placed.

## ! Caution The label on the jaw should be always at the pipe side (see picture).

- 9 After the correct assembling the jaw onto the fitting, the jaw need be to locked using the special bolt. At this moment the jaw is ready to do the connection.



10 **Assembling the machine to the jaw**

The machine need to be connected with the jaw in the way how it is shown on the picture. The arms of the machine have to be slip in up to the end. Maximal slip in is marked on the arm of the machine.

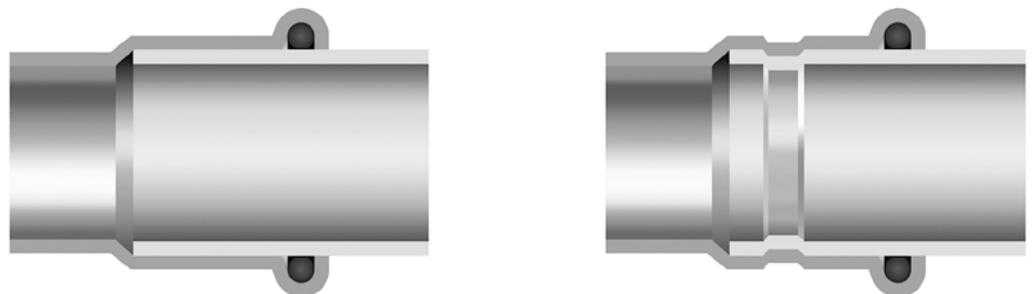
Now, the machine is ready to be started.

11 **Making a connection**

The time of the full press connection is about 1 min. After the start of pressing, the process takes place automatically and cannot be stopped. If, for some reasons the process of the pressing will be aborted, the connection need to be disassembled (cut out) and then the new connection should be executed one more time in correct way. After the connection is finished, the machine will automatically back to the previous position. The arms of the machine need to be move out form the jaw. To remove the jaw from the fitting, the jaw need to be unlocked. The jaws should be stored in the locked box.

Check and lubricate the equipment before starting work and during the intervals determined by the producer.

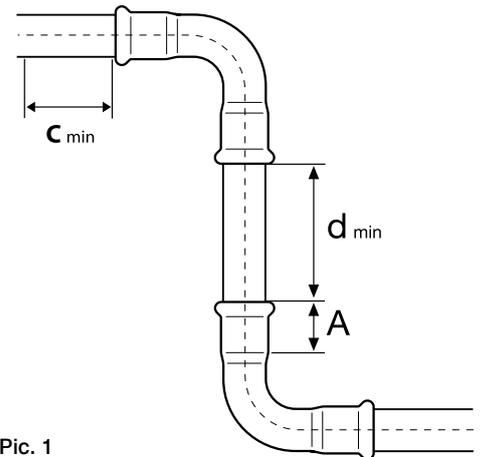
Press conection before and after press



## Mounting distance

Table 1. Pipe insertion depth in the fitting and minimum distance between pressed fittings

$\varnothing$ [mm]	A [mm]	$d_{min}$ [mm]
12	17	10
15	20	10
18	20	10
22	21	10
28	23	10
35	26	10
42	30	20
54	35	20
64	50	30
66.7	50	30
76.1	55	55
88.9	63	65
108	77	80



Pic. 1

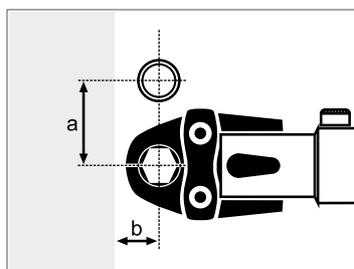
A – Pipe insertion depth in the fitting,

$d_{min}$  – minimum distance between fittings allowing for press correctness

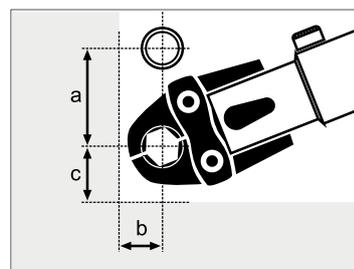
Table 2. Minimum assembly distances

$\varnothing$ [mm]	Pic. 2		Pic. 3		
	a [mm]	b [mm]	a [mm]	b [mm]	c [mm]
12/15	56	20	75	25	28
18	60	20	75	25	28
22	65	25	80	31	35
28	75	25	80	31	35
35	75	30	80	31	44
42	140/115*	60/75*	140/115*	60/75*	75
54	140/120*	60/85*	140/120*	60/85*	85
64	145*	110*	145*	100*	100*
66.7	145*	110*	145*	100*	100*
76.1	140*	110*	165*	115*	115
88.9	150*	120*	185*	125*	125
108	170*	140*	200*	135*	135

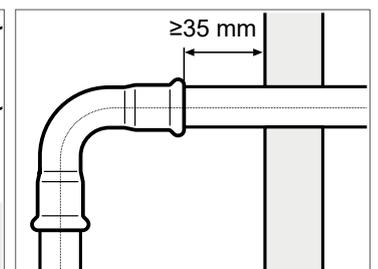
\*applies to four-part pressing jaws



Pic. 2



Pic. 3



Pic. 4

## Tools

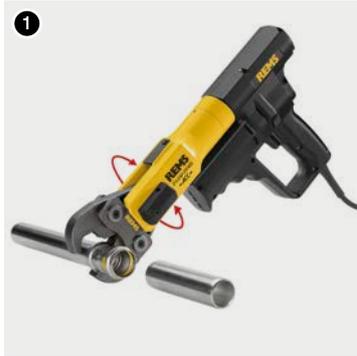
Depending on the diameter, KAN-therm provides various configuration of tools. In order to select optimal set of tools, please follow chart:

**Tab. 3 Selection of tools table: System KAN-therm Steel & Inox**

Brand	Press machine		Diameter [mm]	Press jaws / collars		Adapter		Type of System KAN-therm					
	Mark- ing	Code		Marking	Code	Mark- ing	Code	Steel	Inox	Steel Sprinkler	Inox Sprinkler		
REMS	Power Press SE Aku Press, Power Press ACC	1936267160, 1942267002 1936267152	12	M12	1948267046	-	-	+	-	-	-		
			15	M15	1948267048	-	-	+	+	-	-		
			18	M18	1948267052	-	-	+	+	-	-		
			22	M22	1948267056	-	-	+	+	-	-		
			28	M28	1948267061	-	-	+	+	-	-		
			35	M35	1948267065	-	-	+	+	-	-		
			42	M42	1948267067	-	-	+	+	-	-		
			54	M54	1948267069	-	-	+	+	-	-		
KLAUKE	UAP100	1948267159	64	KSP3 64	1948267076	-	-	+	-	-	-		
			67	KSP3 66,7	1948267078	-	-	+	-	-	-		
			76.1	KSP3 76,1	1948267080	-	-	+	+	-	-		
			88.9	KSP3 88,9	1948267082	-	-	+	+	-	-		
			108	KSP3 108	1948267074	-	-	+	+	-	-		
NOVOPRESS	ACO102	1938055000	15	M15	1948267093	-	-	+	+	-	-		
			18	M18	1948267095	-	-	+	+	-	-		
			22	M22	1942121002	-	-	+	+	-	-		
	ECO301	1944267021	28	M28	1948267097	-	-	+	+	-	-		
			12	M12	1948267084	-	-	+	-	-	-		
			15	M15	1948267085	-	-	+	+	-	-		
			18	M18	1948267087	-	-	+	+	-	-		
			22	M22	1944267008	-	-	+	+	+	+		
			28	M28	1944267011	-	-	+	+	+	+		
			35	HP 35 Snap On	1948267124	ZB 303	1944267005	+	+	+	+		
			42	HP 42 Snap On	1948267126			+	+	+	+		
			54	HP 54 Snap On	1948267128			+	+	+	+		
			66.7	M 67	1948267089	ZB 323	1948267009	+	+	-	-		
			ACO401	1948267151	76.1	HP 76,1	1948267100	-	-	+	+	+	+
					88.9	HP 88,9	1948267102	-	-	+	+	+	+
108	HP 108	1948267098			-	-	+	+	+	+			
139.7	HP 139,7	1948267071			-	-	-	+	-	-			
168.3	HP 168,3	1948267072			-	-	-	+	-	-			

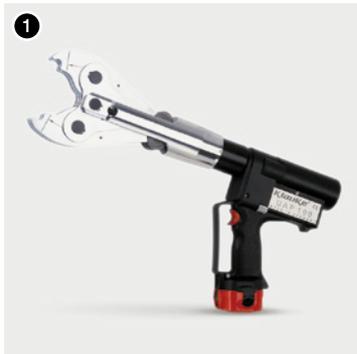
### REMS tools:

1. Power Press ACC machine
2. Aku Press machine
3. Power Press SE machine
4. Press jaw M12-54 mm



### KLAUKE tools:

1. UAP100 machine
2. Press jaw KSP3 64-108 mm

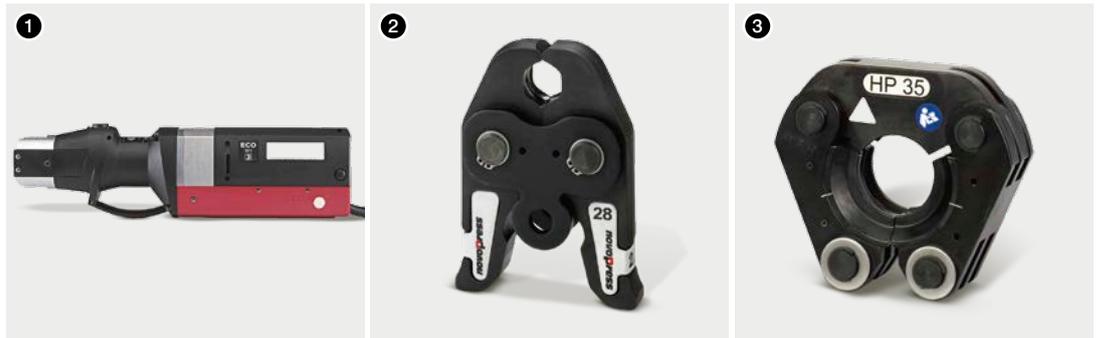


## NOVOPRESS tools:

1. ACO 102 machine
2. Press jaw M12-28 mm



1. ECO 301 machine
2. Press jaw M12-28 mm
3. Press jaw HP 35 Snap On



4. ACO401 machine
5. Press jaw HP 42, HP 54 Snap On
6. Press jaw M67



7. Press jaw HP 76,1 – 108
8. Adapter ZB 303
9. Adapter ZB 323



## Tools - safety

All tools must be applied and used in accordance with their purpose and the manufacturer's instructions.

Use for other purposes or in other areas are considered to be inconsistent with the intended use.

Intended use also requires compliance with the instructions, conditions of inspection and maintenance and relevant safety regulations in their current version.

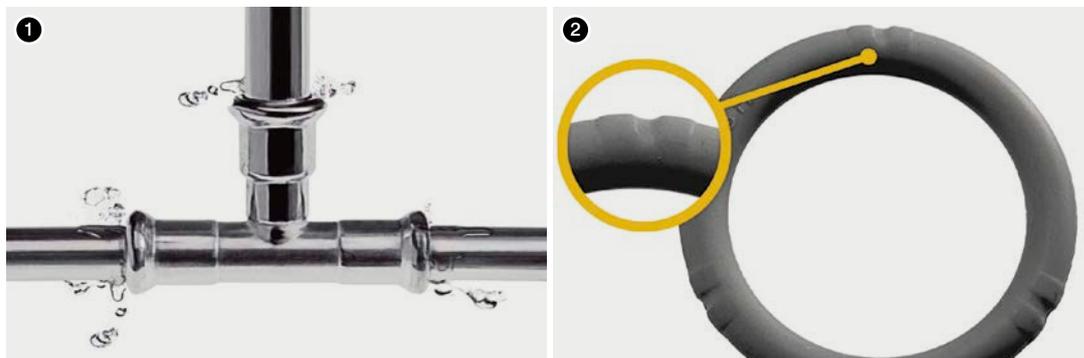
All works done with tools, which do not meet the application compatible with the intended purpose may result in damage to tools, accessories and pipes. The consequence may be the leak and / or damage.

## LBP Function

All the KAN-therm Steel System fittings have LBP function (signaling unpressed connections - LBP-Leak Before Press). In scope of 12–54 mm diameters the function is implemented by means of special construction of O-rings. Thanks to their special grooves, the LBP O-rings guarantee optimal connection control during pressure test.

Unpressed connections are leaky and therefore easy to locate. In diameters over 54 mm the LBP function is realized by means of an appropriate fitting construction (fitting socket ovalization).

1. The activity of O-Rings with the function of signalling not pressed connections (LBP).
2. O-Rings with the function of signalling not pressed connections (LBP)



## Detailed information

### Pipes and fittings - material

Carbon steel RSt 34-2 (1.0034 acc. DIN EN 10305-3), pipes externally zinc coated (Fe/Zn 88), zinc layer thickness 8–15  $\mu\text{m}$ .

### O-Rings and flat gaskets

O-Ring	Properties and work parameters	Application
<p>EPDM (butyl rubber)</p> 	<p>color: black  max. operating pressure: 16 bar  operating temperature: -35°C do 135°C  short duration: 150°C</p>	<p>potable water  hot water  treated water  (softened, decalcified, distilled,  with glycol up to 50%)  compressed air (dry)</p>
<p>FPM / Viton (fluorine rubber)</p> 	<p>color: green  max. operating pressure: 16 bar  operating temperature: -30°C do 200°C  short duration: 230°C</p>	<p>solar systems  compressed air  fuel oil  vegetable fat  engine fuels  Caution  Not suitable for pure hot water  applications.</p>
<p>Flat gasket FPM Viton</p> 	<p>color: green  max. operating pressure: 16 bar  operating temperature: -30°C do 200°C  short duration: 230°C</p>	<p>solar installations (glycol)  compressed air  heating oil  vegetable fats  motor fuels  Caution!!  do not use in clean hot water systems.</p>



### Fittings come with standard EPDM O-Rings.

For special applications, Viton O-Rings are delivered separately. In case of exchanging the standard EPDM to the VITON O-Rings, it is not allowed to use again the dismantled O-Rings. Areas of application that are outside the elementary scope of the closed heating installations, should be always consulted with the company KAN.

## Elongation and thermal conductivity data

Material	Linear elongation coefficient [mm/(m×K)]	Elongation of 4 m segment at 60°C [mm]	Thermal conductivity [W/(m²×K)]
Steel	0.0108	2.59	58

### Guidelines for applications

- KAN-therm Steel system pipes and fittings made of 1.0034 carbon steel cannot be used in installations exposed to additional mechanical loads (e.g. hanging on pipelines, devastations, etc.).
- KAN-therm Steel pipes cannot be bent when warm. Cold bending is permissible provided the minimum bending radius is kept ( $R=3.5 \times dz$ ). Do not expose pipe external surface to prolonged direct moisture during storage and use.
- Pipes over  $\varnothing 28$  mm should not be bent.
- Use ready-made pipe bends or 90° and 45° elbows offered by System KAN-therm Steel.
- It is not allowed to cut pipes using tools which emit a lot of heat, e.g. flame torches or grinders. To cut KAN-therm Steel pipes use only pipe cutters (hand operated and mechanical).
- Systems filled with water should not be emptied. In the case a system has to be emptied after a pressure test, it is advised to perform pressure tests using compressed air.
- When KAN-therm Steel system is concealed in building elements, pipes and fittings should be tightly insulated, allowing for compensation of thermal elongation and building chemicals protection.
- If pipes and fittings of System KAN-therm Steel may contact with water or other corrosive environment it is necessary to use tight anti-corrosion protection. The thickness of used insulation should make possible free thermal movement of installation – compensation.
- In the case of transporting chemical substances the possible use of KAN-therm Steel pipes should be consulted with KAN Technical Department.
- System KAN-therm Steel installations require potential equalization.

## Screw connections and joining with other KAN-therm Systems

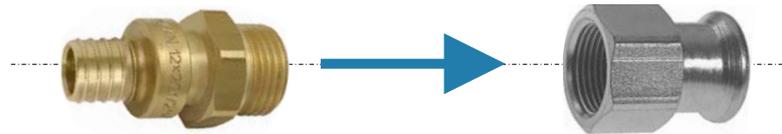
System KAN-therm Steel offers the wide range of male and female threaded fittings. Because in the Steel and Inox fittings threads are the cone-shaped, to make a connections with KAN-therm Push and Press brass fittings, use only male threads with the small quantity of tow at the brass side.

To not stress the press connection, it is advised to make a screw connection before the press one.

Recommended method of connecting plastic systems (Push, Press) with steel systems (Steel, Inox) is a properly made screw connection.

Male brass fitting **System KAN-therm Push, KAN-therm Press**

Female steel fitting **System KAN-therm Steel, KAN-therm Inox**



### Thread sealing

It is advised to seal threaded connections with such an amount of tow, that leaves the thread tops not covered. Using too much tow may lead to thread damage. By winding tow just after the first thread ridge you can avoid skew screwing and damaging the thread.



### Caution

Do not use chemical sealants or glues.

Elements of the System KAN-therm Steel can be assembled (through the screw or flanged connections) with elements made of others materials (see the table below).

### Possibility of connections for Systems KAN-therm Steel and Inox with other materials

Type of installation		Pipes/Fittings			
		Copper	Bronze/Brass	Carbon steel	Stainless steel
Steel	closed	yes	yes	yes	yes
	open	no	no	no	no
Inox	closed	yes	yes	yes	yes
	open	yes	yes	no	yes

Remember, that connecting directly the elements made of the stainless steel with the elements made of zinc plated carbon steel (eg. pipes) can lead to corrosion. This process can be eliminated by using the plastic inserts or independent metal inserts (bronze, brass) with minimal length of 50 mm (eg. using the brass ball valve).

## Flange connections



Table of Steel flange connections

Code	Size	Amount of screws/nuts	Screw size	Screw class	Nut class	Amount of washers	Flange	Flat O-Ring
1509091000	35 DN32 PN16	4	M16	8.8	8	8	DN32	DN32 EPDM
1509091001	42 DN40 PN16	4	M16	8.8	8	8	DN40	DN40 EPDM
1509091002	54 DN50 PN16	4	M16	8.8	8	8	DN50	DN50 EPDM
1509091007	64 DN65 PN16	4	M16	8.8	8	8	DN65	DN65 EPDM
1509091005	66,7 DN65 PN16	4	M16	8.8	8	8	DN65	DN65 EPDM
1509091003	76,1 DN65 PN16	4	M16	8.8	8	8	DN65	DN65 EPDM
1509091004	88,9 DN80 PN16	8	M16	8.8	8	16	DN80	DN80 EPDM
1509091010	108 DN100 PN16	8	M16	8.8	8	16	DN100	DN100 EPDM

## Pipeline assembly

Maximum distances between attachment points are presented in Table 4:

Table 4 Maximum distances between pipeline attachment points

Pipe diameter [mm]	Distance between attachment points [m]
12	1.00
15	1.25
18	1.50
22	2.00
28	2.25
35	2.75
42	3.00
54	3.50
64	3.75
66.7	4.25
76.1	4.25
88.9	4.75
108	5.00

### Attachment points can be done as:

- slidable points PP - slidable points should enable free axial motion of the pipeline (caused by thermal motions), that is why they shouldn't be fixed next to the fittings (minimal distance from fitting flange must be higher than maximum elongated of pipeline). The slidable point can be made as "unscrewed" metal clamps with rubber pads,

- fixed points PS - to make fixed point, the metal clamp with rubber pad should be used, it should enables precise and reliability stabilization of the pipe on the whole circuit. The metal clump should be maximally tighten on the pipe,
- attachment points preventing the pipeline from moving downwards; used if the pipeline movement on compensation arm length was blocked by required PP position.

### Fixed (PS) and slidable (PP) points

- fixed points should prevent any movement of pipelines and should be fixed next to fittings (at both sides of a fitting, e.g. coupling, tee connection),
- fixed or slidable points cannot be fixed directly onto fittings,
- when fixing PSs near tee connections make sure that clamps blocking the pipeline are not fixed onto branches of smaller diameters than one dimension in relation to the pipeline (forces induced by large diameter pipes can damage small diameters), PPs enable only axial motion of the pipeline (they should be treated as fixed points for perpendicular direction to the pipeline axis) and should be made by clamps,
- PPs should not be fixed next to fittings because this may block thermal motions of the pipeline,
- remember that PPs prevent the pipeline from moving transverse to its axis and that is why their position may determine compensation arms length.

### Elongation compensation

Along with water temperature rise  $\Delta T$  pipelines become elongated by  $\Delta L$  value. Thermal elongation  $\Delta L$  causes pipeline deformation on expansion compensation length  $A$ . Expansion compensation length  $A$  should not cause excessive stresses in the pipeline and depends on the pipeline external diameter, thermal elongation  $\Delta L$  and a linear expansion coefficient for a given material. Elongations  $\Delta L$  in function of pipe length  $L$  and temperature rise  $\Delta T$  are presented in Table 5:

**Table 5 Total length elongation  $\Delta L$  [mm] – System KAN-therm Steel**

L [m]	$\Delta T$ [°C]									
	10	20	30	40	50	60	70	80	90	100
1	0.11	0.22	0.32	0.43	0.54	0.65	0.76	0.86	0.97	1.08
2	0.22	0.43	0.65	0.86	1.08	1.30	1.51	1.73	1.94	2.16
3	0.32	0.65	0.97	1.30	1.62	1.94	2.27	2.59	2.92	3.24
4	0.43	0.86	1.30	1.73	2.16	2.59	3.02	3.46	3.89	4.32
5	0.54	1.08	1.62	2.16	2.70	3.24	3.78	4.32	4.86	5.40
6	0.65	1.30	1.94	2.59	3.24	3.89	4.54	5.18	5.83	6.48
7	0.76	1.51	2.27	3.02	3.78	4.54	5.29	6.05	6.80	7.56
8	0.86	1.73	2.59	3.46	4.32	5.18	6.05	6.91	7.78	8.64
9	0.97	1.94	2.92	3.89	4.86	5.83	6.80	7.78	8.75	9.72
10	1.08	2.16	3.24	4.32	5.40	6.48	7.56	8.64	9.72	10.80
12	1.30	2.59	3.89	5.18	6.48	7.78	9.07	10.37	11.66	12.96
14	1.51	3.02	4.54	6.05	7.56	9.07	10.58	12.10	13.61	15.12
16	1.73	3.46	5.18	6.91	8.64	10.37	12.10	13.82	15.55	17.28
18	1.94	3.89	5.83	7.78	9.72	11.66	13.61	15.55	17.50	19.44
20	2.16	4.32	6.48	8.64	10.80	12.96	15.12	17.28	19.44	21.60

## „L”, „Z”, and „U” compensator selection

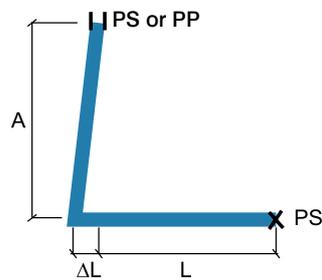
Table 6 Required expansion compensation length  $A$  [mm] for KAN-therm Steel System

Elongation values $\Delta L$ [mm]	External pipe diameter $d_z$ [mm]												
	12	15	18	22	28	35	42	54	64	66.7	76.1	88.9	108
2	220	246	270	298	337	376	412	468	509	520	555	600	661
4	312	349	382	422	476	532	583	661	720	735	785	849	935
6	382	427	468	517	583	652	714	810	882	900	962	1039	1146
8	441	493	540	597	673	753	825	935	1018	1039	1110	1200	1323
10	493	551	604	667	753	842	922	1046	1138	1162	1241	1342	1479
12	540	604	661	731	825	922	1010	1146	1247	1273	1360	1470	1620
14	583	652	714	790	891	996	1091	1237	1347	1375	1469	1588	1750
16	624	697	764	844	952	1065	1167	1323	1440	1470	1570	1697	1871
18	661	739	810	895	1010	1129	1237	1403	1527	1559	1665	1800	1984
20	697	779	854	944	1065	1191	1304	1479	1610	1644	1756	1897	2091
22	731	817	895	990	1117	1249	1368	1551	1689	1724	1841	1990	2193
24	764	854	935	1034	1167	1304	1429	1620	1764	1800	1923	2079	2291
26	795	889	973	1076	1214	1357	1487	1686	1836	1874	2002	2163	2385
28	825	922	1010	1117	1260	1409	1543	1750	1905	1945	2077	2245	2475
30	854	955	1046	1156	1304	1458	1597	1811	1972	2013	2150	2324	2561
32	882	986	1080	1194	1347	1506	1650	1871	2036	2079	2221	2400	2645
34	909	1016	1113	1231	1388	1552	1700	1928	2099	2143	2289	2474	2727

Table 6 presents required expansion compensation length  $A$  for different thermal elongation values  $\Delta L$  and pipe external diameters  $d_z$ .

Rules for selection of different types of compensators are given below:

### „L” type compensator



$A$  – flexible arm length

$PP$  – sliding support (allows only axial movement of a pipeline)

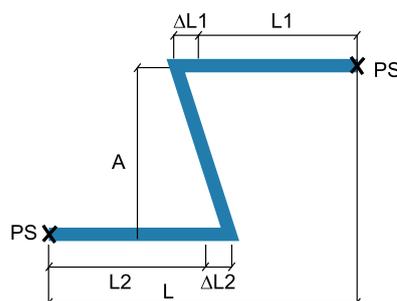
$PS$  – fixed point (prevents any movement of a pipeline)

$L$  – the initial length of a pipeline

$\Delta L$  – pipeline thermal elongation

For compensation arm  $A$  dimensioning, a substitute length  $L_z=L$  is taken, and for  $L_z$  length the thermal elongation value  $\Delta L$ , is determined from Tab. 5. Next, the expansion compensation length  $A$  is determined on the basis of Tab. 6.

### „Z” type compensator



$A$  – flexible arm length

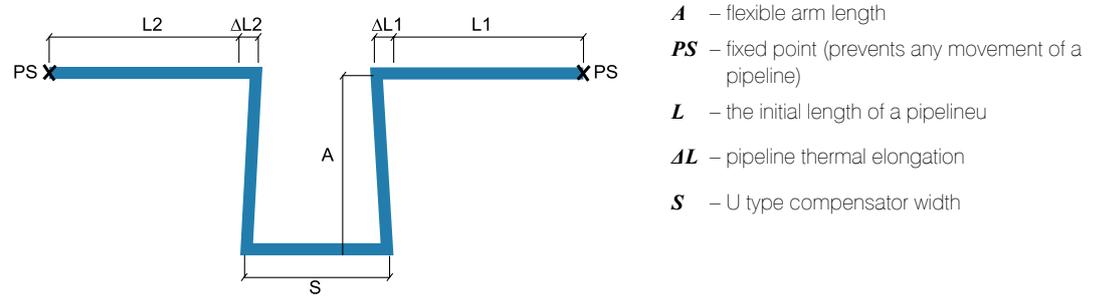
$PS$  – fixed point (prevents any movement of a pipeline)

$L$  – the initial length of a pipeline

$\Delta L$  – pipeline thermal elongation

For compensation arm  $A$  dimensioning,  $L1$  and  $L2$  sum is taken as a substitute length  $Lz=L1+L2$  and for  $Lz$  length a substitute  $\Delta L$  is determined on the basis of Tab. 5. Next, the expansion compensation length  $A$  is determined on the basis of Tab. 6.

### „U” type compensator



In case of placing fixed point  $PS$  in the section of compensator length  $S$  or compensation arm  $A$  dimensioning, the greater value from  $L1$  and  $L2$  is taken as a substitute length for  $Lz$ :  $Lz=\max(L1, L2)$  and for this length the substitute elongation  $\Delta L$  is determined on the basis of Tab. 5, and then the length of compensation arm  $A$  is determined on the basis of Tab. 6.

Compensator width:  $S = A/2$ .

# System KAN-therm Steel - assortment

## press carbon steel pipe, zinc coated - bar 6 m

GROUP: J

Size	New code	*	Code	Packing	UM
12×1,2	1530 207027	*	620459.4	6/624	m
15×1,2	1530 207028		620460.5	6/1290	m
18×1,2	1530 207029		620461.6	6/1524	m
22×1,5	1530 207030		620462.7	6/1290	m
28×1,5	1530 207031		620463.8	6/624	m
35×1,5	1530 207032		620464.9	6/402	m
42×1,5	1530 207033		620465.1	6/150	m
54×1,5	1530 207034		620466.0	6/366	m
66,7×1,5	1530 207036		620483.6	6/222	m
76,1×2	1530 207037		620480.3	6/222	m
88,9×2	1530 207038		620481.4	6/222	m
108×2	1530 207026		620482.5	6/114	m



## press male connector

GROUP: I

Size	New code	*	Code	Packing	UM
12×R $\frac{3}{8}$	1509 045002	*	620226.2	10/200	pc
15×R $\frac{3}{8}$	1509 045005		620227.3	10/200	pc
15×R $\frac{1}{2}$	1509 045003		620228.4	10/200	pc
18×R $\frac{1}{2}$	1509 045006		620229.5	10/160	pc
18×R $\frac{3}{4}$	1509 045007		620230.6	10/100	pc
22×R $\frac{1}{2}$	1509 045019		6241015	10/70	pc
22×R $\frac{3}{4}$	1509 045009		6240135	10/100	pc
22×R1	1509 257031		6241026	10/60	pc
28×R $\frac{3}{4}$	1509 042021		6249852	10/60	pc
28×R1	1509 045010		6240146	10/60	pc
35×R1	1509 045020		6341247	10/40	pc
35×R1 $\frac{1}{4}$	1509 045012		6240157	5/40	pc
42×R1 $\frac{1}{2}$	1509 045013		6240168	4/24	pc
54×R2	1509 045014		6240179	4/12	pc
66,7×R2 $\frac{1}{2}$	1509 042022		6340422	2/4	pc
76,1×R2 $\frac{1}{2}$	1509 045016		6302823	2/26	pc
88,9×R3	1509 045017		6302825	2/20	pc



## press male union connector

GROUP: I

Size	New code	*	Code	Packing	UM
15×R $\frac{1}{2}$	1509 272000		620719.0	2/50	pc
18×R $\frac{1}{2}$	1509 272006		6207036	2/60	pc
22×R $\frac{3}{4}$	1509 272001		6240916	2/40	pc
28×R1	1509 272002		6240927	2/30	pc
35×R1 $\frac{1}{4}$	1509 272003		6240938	2/16	pc
42×R1 $\frac{1}{2}$	1509 272004		6240949	2/12	pc
54×R2	1509 272005		6240951	2/4	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press female union connector (for VK radiators)

GROUP: I

Size	New code	*	Code	Packing	UM
15×G¾	1509 271000		620816.9	10/100	pc
18×G¾	1509 271001		620817.1	10/100	pc



press half union with flat gasket

GROUP: I

Size	New code	*	Code	Packing	UM
15×G¾	1509 106000	*	6340521	10/120	pc
18×G¾	1509 106001	*	6340532	10/100	pc
22×G1	1509 106002	*	6340554	10/60	pc
28×G1¼	1509 106003	*	6340565	10/40	pc
35×G1½	1509 106004	*	6340576	4/32	pc
42×G1¾	1509 106005	*	6340587	4/12	pc
54×G2¾	1509 106006	*	6340598	4/8	pc



press female union connector

GROUP: I

Size	New code	*	Code	Packing	UM
15×Rp½	1509 050000		6208906	2/50	pc
18×Rp½	1509 050004		6208917	2/60	pc
22×Rp¾	1509 050001		6208928	2/40	pc
28×Rp1	1509 050002		6208939	2/30	pc
35×Rp1¼	1509 050007		6208941	2/16	pc
42×Rp1½	1509 050008		6208950	2/12	pc
54×Rp2	1509 050003		6208961	2/4	pc



press female connector

GROUP: I

Size	New code	*	Code	Packing	UM
12×Rp½	1509 044001	*	620236.1	10/130	pc
15×Rp½	1509 044003		620237.2	10/130	pc
18×Rp½	1509 044005		620238.3	10/120	pc
18×Rp¾	1509 044006		620239.4	10/80	pc
22×Rp½	1509 044008		6302708	20/100	pc
22×Rp¾	1509 044010		6240102	10/100	pc
28×Rp½	1509 044015		6240113	10/60	pc
28×Rp¾	1509 044014		6249830	10/60	pc
28×Rp1	1509 044011		6240124	10/60	pc
35×Rp½	1509 042002		6340917	10/40	pc
35×Rp¾	1509 044017		6340928	10/40	pc
35×Rp1	1509 044000		6340939	10/40	pc
35×Rp1¼	1509 044016		6241004	10/30	pc
42×Rp1½	1509 044012		6302721	4/24	pc
54×Rp2	1509 044013		6302723	4/12	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press nipple female connector

GROUP: I

Size	New code	*	Code	Packing	UM
12×Rp $\frac{3}{8}$	1509 076002	*	620987.4	10/150	pc
12×Rp $\frac{1}{2}$	1509 076000	*	620242.7	10/150	pc
15×Rp $\frac{1}{2}$	1509 076003		620243.8	10/150	pc
18×Rp $\frac{1}{2}$	1509 076004		620244.9	10/150	pc
18×Rp $\frac{3}{4}$	1509 076005		620245.1	10/100	pc
22×Rp $\frac{1}{2}$	1509 076006		6240960	10/70	pc
22×Rp $\frac{3}{4}$	1509 076007		6240971	10/100	pc



press coupling

GROUP: I

Size	New code	*	Code	Packing	UM
12×12	1509 245002	*	620135.1	10/140	pc
15×15	1509 245003		620136.0	10/140	pc
18×18	1509 245004		620137.1	10/140	pc
22×22	1509 245006		6240003	10/80	pc
28×28	1509 245007		6240014	10/60	pc
35×35	1509 245008		6240025	5/40	pc
42×42	1509 245009		6240036	4/24	pc
54×54	1509 245010		6240047	4/16	pc
66,7×66,7	1509 245000		6340411	2/4	pc
76,1×76,1	1509 245011		6206200	2	pc
88,9×88,9	1509 245012		6206211	2	pc
108×108	1509 245001		6206222	2	pc



press reducing coupling

GROUP: I

Size	New code	*	Code	Packing	UM
22×15	1509 052000		620112.9	10/140	pc



press slip coupling

GROUP: I

Size	New code	*	Code	Packing	UM
12×12	1509 080002	*	620143.7	10/140	pc
15×15	1509 080003		620144.8	10/140	pc
18×18	1509 080004		620145.9	10/100	pc
22×22	1509 080005		6240058	10/60	pc
28×28	1509 080006		6240069	5/40	pc
35×35	1509 080007		6240071	5/20	pc
42×42	1509 080008		6240080	4/16	pc
54×54	1509 080009		6240091	2/8	pc
66,7×66,7	1509 080014		6341357	2/4	pc
76,1×76,1	1509 080011		6206233	2	pc
88,9×88,9	1509 080012		6206244	2	pc
108×108	1509 080000		6206255	2	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### press 90° elbow

GROUP: I

Size	New code	*	Code	Packing	UM
12×12	1509 068005	*	620154.7	10/150	pc
15×15	1509 068037		620155.8	10/150	pc
18×18	1509 068038		620156.9	10/90	pc
22×22	1509 068039		6240181	10/60	pc
28×28	1509 068040		6240190	5/30	pc
35×35	1509 068041		6240201	5/20	pc
42×42	1509 068042		6240212	2/8	pc
54×54	1509 068043		6240223	2/8	pc
66,7×66,7	1509 068049		6340281	1/2	pc
76,1×76,1	1509 068045		6208004	2	pc
88,9×88,9	1509 068047		6208048	2	pc
108×108	1509 068036		6208059	2	pc



### press nipple 90° elbow

GROUP: I

Size	New code	*	Code	Packing	UM
12×12	1509 068052	*	620162.4	10/120	pc
15×15	1509 068053		620163.5	10/120	pc
18×18	1509 068054		620164.6	10/80	pc
22×22	1509 068055		6240410	10/60	pc
28×28	1509 068056		6240421	5/30	pc
35×35	1509 068058		6240432	5/20	pc
42×42	1509 068059		6240443	2/8	pc
54×54	1509 068060		6240454	2/6	pc
66,7×66,7	1509 068066		6340290	1/2	pc
76,1×76,1	1509 068062		6208061	2	pc
88,9×88,9	1509 068064		6208070	2/4	pc
108×108	1509 068050		6208081	2/4	pc



### press 45° elbow

GROUP: I

Size	New code	*	Code	Packing	UM
15×15	1509 068006		620170.1	10/150	pc
18×18	1509 068007		620171.2	10/120	pc
22×22	1509 068008		6240511	10/70	pc
28×28	1509 068009		6240520	10/40	pc
35×35	1509 068010		6240531	5/25	pc
42×42	1509 068011		6240542	4/16	pc
54×54	1509 068012		6240553	2/8	pc
66,7×66,7	1509 068018		6340312	1/2	pc
76,1×76,1	1509 068014		6208125	2/4	pc
88,9×88,9	1509 068016		6208136	2/4	pc
108×108	1509 068004		6208147	2	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## press nipple 45° elbow

GROUP: I

Size	New code	*	Code	Packing	UM
15×15	1509 068023		620177.8	10/150	pc
18×18	1509 068024		620178.9	10/120	pc
22×22	1509 068025		6240465	10/60	pc
28×28	1509 068026		6240476	10/40	pc
35×35	1509 068027		6240487	5/25	pc
42×42	1509 068028		6240498	4/16	pc
54×54	1509 068029		6240509	2/8	pc
66,7×66,7	1509 068019		6340301	1/2	pc
76,1×76,1	1509 068031		6208092	2	pc
88,9×88,9	1509 068033		6208103	2	pc
108×108	1509 068021		6208114	2	pc



## press tee

GROUP: I

Size	New code	*	Code	Packing	UM
12×12×12	1509 257009	*	620248.2	10/100	pc
15×15×15	1509 257010		620249.3	10/80	pc
18×18×18	1509 257011		620250.4	10/40	pc
22×22×22	1509 257012		6240564	10/40	pc
28×28×28	1509 257013		6240575	5/25	pc
35×35×35	1509 257014		6240586	5/15	pc
42×42×42	1509 257015		6240597	4/8	pc
54×54×54	1509 257016		6240608	2/6	pc
66,7×66,7	1509 257025		6340334	1/2	pc
76,1×76,1×76,1	1509 257018		6206442	2	pc
88,9×88,9×88,9	1509 257019		6206453	2	pc
108×108×108	1509 257008		6206464	2	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press reducing tee

GROUP: I



Size	New code	*	Code	Packing	UM
12×15×12	1509 260007	*	620276.8	10/100	pc
15×12×15	1509 260009	*	620256.1	10/100	pc
15×18×15	1509 257027		620277.9	10/60	pc
15×22×15	1509 257028		620278.1	10/60	pc
18×12×18	1509 260010	*	620257.0	10/70	pc
18×15×18	1509 260011		620258.1	10/60	pc
18×22×18	1509 257029		620279.0	10/50	pc
22×12×22	1509 260012	*	620259.2	10/50	pc
22×15×22	1509 260014		620260.3	10/50	pc
22×18×22	1509 260015		620261.4	10/50	pc
22×28×22	1509 257030		6240718	5/30	pc
28×15×28	1509 260017		620262.5	5/30	pc
28×18×28	1509 260018		620263.6	5/30	pc
28×22×28	1509 260020		6240729	5/30	pc
35×15×35	1509 260021		620265.8	5/20	pc
35×18×35	1509 260022		620266.9	5/20	pc
35×22×35	1509 260024		6240731	5/20	pc
35×28×35	1509 260025		6240740	5/20	pc
42×22×42	1509 260026		6240751	4/12	pc
42×28×42	1509 260027		6240762	4/12	pc
42×35×42	1509 260028		6240773	4/12	pc
54×22×54	1509 260029		6240784	2/8	pc
54×28×54	1509 260030		6240795	2/8	pc
54×35×54	1509 260031		6240806	2/8	pc
54×42×54	1509 260032		6240817	2/8	pc
66,7×28×66,7	1509 260054		6340345	1/2	pc
66,7×35×66,7	1509 260037		6340356	1/2	pc
66,7×42×66,7	1509 260055		6340367	1/2	pc
66,7×54×66,7	1509 260056		6340378	1/2	pc
76,1×22×76,1	1509 260038		6303371	2/14	pc
76,1×28×76,1	1509 260039		6303373	2/14	pc
76,1×35×76,1	1509 260040		6303375	2/14	pc
76,1×42×76,1	1509 260041		6303377	2/14	pc
76,1×54×76,1	1509 260044		6206475	2	pc
76,1×66,7×76,1	1509 260057		6340389	1	pc

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## press reducing tee

GROUP: I

Size	New code	*	Code	Packing	UM
88,9×22×88,9	1509 260045		6303379	2/14	pc
88,9×28×88,9	1509 260046		6303381	2/6	pc
88,9×35×88,9	1509 260047		6303383	2	pc
88,9×42×88,9	1509 260048		6303385	2/12	pc
88,9×54×88,9	1509 260049		6303387	2/12	pc
88,9×66,7×88,9	1509 260058		6340391	1	pc
88,9×76,1×88,9	1509 260052		6206486	2	pc
108×22×108	1509 260000		6303389	2/12	pc
108×28×108	1509 260001		6303391	2/12	pc
108×35×108	1509 260002		6303393	2/12	pc
108×42×108	1509 260003		6303395	2/12	pc
108×54×108	1509 260004		6303397	2/12	pc
108×76,1×108	1509 260005		6303399	2/10	pc
108×88,9×108	1509 260006		6206497	2	pc



## press reducing tee

GROUP: I

Size	New code	*	Code	Packing	UM
22×15×15	1509 260013		620673.9	10/50	pc
22×22×15	1509 260016		620674.1	10/50	pc



## press pipe cross

GROUP: I

Size	New code	*	Code	Packing	UM
15×15×15×15	1509 057002		620288.9	5/40	pc
18×15×18×15	1509 057004		620289.1	5/40	pc
22×15×22×15	1509 057005		620290.0	10/30	pc
22×18×22×18	1509 057006		620291.1	10/30	pc
28×15×28×15	1509 057007		620713.5	5/15	pc
28×18×28×18	1509 057008		620714.6	5/15	pc
28×22×28×22	1509 057009		6240828	5/20	pc



## press crossing

GROUP: I

Size	New code	*	Code	Packing	UM
35×35×35×35	1509 057025	*	6340972	2/8	pc
42×42×42×42	1509 057027	*	6340983	2/8	pc
54×54×54×54	1509 057029	*	6340994	4	pc
35×28×35×28	1509 057024	*	6341005	2/14	pc
42×28×42×28	1509 057026	*	6341016	2/8	pc
54×28×54×28	1509 057028	*	6341027	4	pc



## press crossing pair single

GROUP: I

Size	New code	*	Code	Packing	UM
18×12	1509 257000	*	620685.1	10	pc
22×12	1509 257005	*	620687.1	10	pc
28×12	1509 257002	*	620689.3	10	pc
15×15	1509 257003		620684.9	10	pc
18×15	1509 257004		620686.0	10	pc
22×15	1509 257006		620688.2	10	pc
28×15	1509 257007		620690.4	8	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press crossing pair double

GROUP: I

Size	New code	*	Code	Packing	UM
12×12	1509 057013	*	620675.0	8	pc
15×12	1509 057015	*	620676.1	8	pc
18×12	1509 057000	*	620678.3	8	pc
28×12	1509 057001	*	620681.6	8	pc
15×15	1509 057017		620677.2	8	pc
18×15	1509 057019		620679.4	8	pc
22×15	1509 057021		620680.5	6	pc
28×15	1509 057022		620682.7	6	pc
35×15	1509 057023		620683.8	3	pc



press nipple reducer

GROUP: I

Size	New code	*	Code	Packing	UM
15×12	1509 221019	*	620211.9	10/200	pc
18×12	1509 221020	*	620212.1	10/200	pc
22×12	1509 221022	*	620214.1	10/150	pc
18×15	1509 221021		620213.0	10/200	pc
22×15	1509 221023		620215.2	10/140	pc
22×18	1509 221024		620216.3	10/120	pc
28×15	1509 221025		620217.4	10/70	pc
28×18	1509 221026		620218.5	10/100	pc
28×22	1509 221027		6240234	10/80	pc
35×22	1509 221028		6240245	5/50	pc
35×28	1509 221029		6240256	5/60	pc
42×22	1509 221039		6246651	4/24	pc
42×28	1509 221040		6240267	4/24	pc
42×35	1509 221030		6240278	4/24	pc
54×18	1509 221031		620667.3	4/16	pc
54×22	1509 221032		6240289	4/16	pc
54×28	1509 221033		6240291	4/16	pc
54×35	1509 221041		6240300	4/16	pc
54×42	1509 221034		6240993	4/16	pc
66,7×28	1509 221010		6340213	2/4	pc
66,7×35	1509 221011		6340224	2/4	pc
66,7×42	1509 221012		6340235	2/4	pc
66,7×54	1509 221013		6340246	2/4	pc
76,1×42	1509 221035		6206387	4	pc
76,1×54	1509 221036		6206398	4	pc
76,1×66,7	1509 221016		6340257	2/4	pc
88,9×54	1509 221037		6206409	4	pc
88,9×66,7	1509 221014		6340268	2/4	pc
88,9×76,1	1509 221038		6206411	4/16	pc
108×66,7	1509 221015		6340279	2/4	pc
108×76,1	1509 221017		6206420	2	pc
108×88,9	1509 221018		6206431	2	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press male elbow

GROUP: I

Size	New code	*	Code	Packing	UM
12×R $\frac{3}{8}$	1509 070000	*	620197.6	10/150	pc
15×R $\frac{3}{8}$	1509 070003		620198.7	10/150	pc
15×R $\frac{1}{2}$	1509 070002		620199.8	10/100	pc
18×R $\frac{1}{2}$	1509 070004		620200.9	10/60	pc
22×R $\frac{3}{4}$	1509 070005		6240366	10/50	pc
28×R1	1509 070006		6240377	5/30	pc
35×R1 $\frac{1}{4}$	1509 070007		6240388	5/10	pc
42×R1 $\frac{1}{2}$	1509 070008		6240399	2/12	pc
54×R2	1509 070009		6240401	2/8	pc



press male elbow - short

GROUP: I

Size	New code	*	Code	Packing	UM
12×R $\frac{3}{8}$	1509 070010	*	620206.4	10/100	pc
15×R $\frac{3}{8}$	1509 070013		620207.5	10/100	pc
15×R $\frac{1}{2}$	1509 070012		620208.6	10/80	pc
18×R $\frac{1}{2}$	1509 070014		620209.7	10/80	pc
22×R $\frac{3}{4}$	1509 070015		6240982	10/60	pc



press female elbow

GROUP: I

Size	New code	*	Code	Packing	UM
15×Rp $\frac{3}{8}$	1509 069005		620093.1	10/150	pc
15×Rp $\frac{1}{2}$	1509 069004		620094.2	10/100	pc
18×Rp $\frac{1}{2}$	1509 069006		620095.3	10/60	pc
22×Rp $\frac{1}{2}$	1509 068000		6249577	10/24	pc
22×Rp $\frac{3}{4}$	1509 068001		6240964	10/50	pc
28×Rp $\frac{1}{2}$	1509 069007		6241169	5/30	pc
28×Rp $\frac{3}{4}$	1509 069008		6241171	5/30	pc
28×Rp1	1509 069009		6249588	5/30	pc
35×Rp $\frac{1}{2}$	1509 069010		6241180	5/10	pc
35×Rp $\frac{3}{4}$	1509 069011		6241061	5/10	pc
35×Rp1	1509 068002		6249599	5/20	pc



press female elbow - short

GROUP: I

Size	New code	*	Code	Packing	UM
22×Rp $\frac{1}{2}$	1509 069012	*	6341038	10/50	pc
28×Rp $\frac{1}{2}$	1509 069013	*	6341049	5/30	pc
35×Rp $\frac{1}{2}$	1509 069014	*	6341051	5/10	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press female tee

GROUP: I

Size	New code	*	Code	Packing	UM
15×Rp½×15	1509 258004		620281.2	10/70	pc
18×Rp½×18	1509 258005		620282.3	10/50	pc
18×Rp¾×18	1509 258006		620984.1	10/50	pc
22×Rp½×22	1509 258008		6240619	10/50	pc
22×Rp¾×22	1509 258007		6240621	10/40	pc
28×Rp½×28	1509 258009		6240630	5/30	pc
28×Rp¾×28	1509 258010		6240641	5/30	pc
28×Rp1×28	1509 257021		6249601	5/30	pc
35×Rp½×35	1509 258011		6240652	5/20	pc
35×Rp¾×35	1509 258012		6240663	5/20	pc
35×Rp1×35	1509 257022		6249610	5/20	pc
42×Rp½×42	1509 258014		6240674	4/16	pc
42×Rp¾×42	1509 258015		6240685	4/12	pc
42×Rp1×42	1509 257023		6249621	4/12	pc
54×Rp½×54	1509 258016		6240696	2/8	pc
54×Rp¾×54	1509 258018		6240707	2/8	pc
54×Rp1×54	1509 258000		6241070	2/8	pc
66,7×Rp¾×66,7	1509 257024		6340400	1/2	pc
76,1×Rp¾×76,1	1509 258020		6206508	2	pc
88,9×Rp¾×88,9	1509 258021		6206519	2	pc
108×Rp¾×108	1509 258001		6206521	2	pc



crossover

GROUP: I

Size	New code	*	Code	Packing	UM
12×12	1509 178000	*	620192.1	10/80	pc
15×15	1509 022005		620193.2	10/70	pc
18×18	1509 022006		620194.3	10/60	pc
22×22	1509 022007		6240883	10/50	pc
28×28	1509 022008		6240894	5/20	pc



bend 90°

GROUP: I

Size	New code	*	Code	Packing	UM
12×12	1509 011000	*	620184.4	10/80	pc
15×15	1509 011002		620185.5	10/70	pc
18×18	1509 011003		620186.6	10/50	pc
22×22	1509 011004		6240839	10/30	pc
28×28	1509 011005		6240841	5/20	pc
35×35	1509 011007		6240850	2/8	pc
42×42	1509 011008		6240861	2/4	pc
54×54	1509 011009		6240872	2	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## press cup

GROUP: I

Size	New code	*	Code	Packing	UM
15	1509 250002		620295.5	20/80	pc
18	1509 250003		620296.6	20/300	pc
22	1509 250004		6240311	10/150	pc
28	1509 250005		6240322	10/130	pc
35	1509 250006		6240333	5/75	pc
42	1509 250007		6240344	4/48	pc
54	1509 250008		6240355	4/32	pc
66.7	1509 250025		6340171	1/4	pc
76.1	1509 250010		6206915	2/4	pc
88.9	1509 250012		6206926	2/4	pc
108	1509 250001		6206937	2/4	pc

**Caution:**

In case of using a plug 64 mm in diameter it is necessary to use a sleeve of the same diameter in order to make a connection.

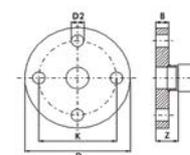


## press flange PN16

GROUP: I

Size	New code	*	Code	Packing	UM
35	1509 091000		6341500	1/6	pc
42	1509 091001		6341511	1/4	pc
54	1509 091002		6341522	1/2	pc
66.7	1509 091005		6340323	1/2	pc
76.1	1509 091003		620659.6	1/4	pc
88.9	1509 091004		620660.7	1/2	pc
108	1509 091010		620661.8	1/2	pc

Code	Z	D	D2	K	B
1509091000	44	140	14	100	18
1509091001	47	150	18	110	18
1509091002	52	165	18	125	18
1509091005	39	185	18	145	18
1509091003	79	185	18	145	18
1509091004	78	200	18	160	20
1509091010	88	220	18	188	20



## flat gasket FPM Viton

GROUP: I

Size	New code	*	Code	Packing	UM
15/18	1509 237000		6118301	20/500	pc
22	1509 237001		6118310	20/500	pc
28	1509 237002		6118321	20/400	pc
35	1509 237003		6118332	20/400	pc
42	1509 237004		6118343	20/300	pc
54	1509 237005		6118354	20/300	pc

**Caution:**

Flat gaskets FPM/Viton may be used in KAN-therm Steel and Inox systems.

**Caution:**

Do not use in hot water systems.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## LBP EPDM O-Ring

GROUP: I

Size	New code	*	Code	Packing	UM
12	1509 182021	*	622220.5	20/1000	pc
15	1509 182022		6222216	20/600	pc
18	1509 182023		6222227	20/500	pc
22	1509 182024		6222238	20/500	pc
28	1509 182025		6222249	20/400	pc
35	1509 182026		6222251	20/400	pc
42	1509 182027		6222260	20/300	pc
54	1509 182028		6222271	20/300	pc

**Caution:**

The LBP EPDM O-Rings can be used in System KAN-therm Steel and Inox.



## O-Ring LBP FPM Viton

GROUP: I

Size	New code	*	Code	Packing	UM
15	1509 182030		6119401	20/600	pc
18	1509 182029		6119410	20/500	pc
22	1509 182031		6119421	20/500	pc
28	1509 182032		6119432	20/400	pc
35	1509 182033		6119443	20/400	pc
42	1509 182034		6119454	20/300	pc
54	1509 182035		6119465	20/300	pc

**Caution:**

The LBP FPM/Viton O-Rings can be used in System KAN-therm Steel and Inox.

**Caution:**

Do not use in hot water installations.



## EPDM O-Ring

GROUP: I

Size	New code	*	Code	Packing	UM
66.7	1609 182007		6208180	5/100	pc
76.1	1609 182023		620801.5	5/100	pc
88.9	1609 182024		620802.6	5/100	pc
108	1609 182025		620803.7	5/50	pc



## O-Ring FPM Viton

GROUP: I

Size	New code	*	Code	Packing	UM
66.7	1609 182015		6119475	20/300	pc
76.1	1609 182020		611937.7	5/100	pc
88.9	1609 182021		611938.8	5/100	pc
108	1609 182022		611939.9	5/50	pc

**Caution:**

Do not use in hot water installations.



# Tools for Steel

## cutter for steel pipes

GROUP: K

Size	New code	*	Code	Packing	UM
12-54 mm	1948 267025		113000	1	pc
35-108 mm	1948 267027		113100	1	pc



## wheel for cutter for steel pipes - service element

GROUP: K

New code	*	Code	Packing	UM
1941 267037		341614	1	pc



## electric cutter

GROUP: K

Size	New code	*	Code	Packing	UM
22-108 mm	1948 267021		845000	1	pc

Caution: Electric cutter is sold without the cutting wheel.



## cutting wheel for electrical equipment for cutting Cu/Inox steel pipes

GROUP: K

New code	*	Code	Packing	UM
1941 267041		845050	1	pc



## electric cutter

GROUP: K

Size	New code	*	Code	Packing	UM
108-169 mm	1948 267034		845004	1	pc

The set contains the pipe cutting machine and cutting wheel.



## support for the pipe for pipe cutting machine

GROUP: K

New code	*	Code	Packing	UM
1948 267029		845220	1	pc



## stripping tool -drill set

GROUP: K

Size	New code	*	Code	Packing	UM
12-54 mm	1948 267015		113835	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### set of additional tools

GROUP: K

New code	*	Code	Packing	UM
<b>N</b> 1948 267023	*	KPSN	1	kpl.

It consists of the following items:

- 1948 267025 wheel cutter for steel pipes 12-54 mm
- 1948 267015 beveller 12-54 mm
- 1941 267129 case



### ACO102 press tool with "M" type jaws

GROUP: K

Size	New code	*	Code	Packing	UM
<b>N</b> 15-28	1948 055007	*	44033-50 KPL	1	kpl.

It consists of the following items:

- 1948 267161 Battery-powered press tool - 1 pc
- 1948 267093 M15 jaws for the press tool - 1 pc
- 1948 267095 M18 jaws for the press tool - 1 pc
- 1942 121002 M22 jaws for the press tool - 1 pc
- 1948 267097 M28 jaws for the press tool - 1 pc
- 1938 267047 Battery charger - 1 pc
- 1938 267002 Battery 1.5 Ah - 2 pcs
- Case



### electric press tool Power Press ACC with automatic clutch

GROUP: K

New code	*	Code	Packing	UM
<b>N</b> 1936 267219		ZAPR04	1	pc

The press tool is sold in the case.



### electric press tool 230V - Power Press SE Basic Pack

GROUP: K

Size	New code	*	Code	Packing	UM
12-54	1936 267160		ZAPR01	1	pc

The press tool is sold in the case.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## rechargeable press tool - Aku Press

GROUP: K

Size	New code	*	Code	Packing	UM
12-54 mm.	1936 267152		ZAPRAK	1	pc



### Caution:

The press tool is sold with battery, battery charger and case.  
The set doesn't include jaws and other tools.

## M profile press jaws for Power and Aku Press

GROUP: K

Size	New code	*	Code	Packing	UM
12	1948 267046		570100	1	pc
15	1948 267048		570110	1	pc
18	1948 267052		570120	1	pc
22	1948 267056		570130	1	pc
28	1948 267061		570140	1	pc
35	1948 267065		570150	1	pc
42	1948 267067		570160	1	pc
54	1948 267069		570170	1	pc



## jaws set "M" type

GROUP: K

Size	New code	*	Code	Packing	UM
N 42-54	1948 267130		KPSD	1	pc

It consists of the following items:

- 1948 267067 jaw "M" for diameter 42 mm
- 1948 267069 jaw "M" for diameter 54 mm
- case



## jaws set "M" type with electric press tool

GROUP: K

Size	New code	*	Code	Packing	UM
N 15-35	1948 267033		KPSM	1	pc

It consists of the following items:

- 1948 267048 jaw "M" for diameter 15 mm
- 1948 267052 jaw "M" for diameter 18 mm
- 1948 267056 jaw "M" for diameter 22 mm
- 1948 267061 jaw "M" for diameter 28 mm
- 1948 267065 jaw "M" for diameter 35 mm
- 1936 267160 electric press tool
- case



## rechargeable press tool UAP100

GROUP: K

Size	New code	*	Code	Packing	UM
64-108 mm.	1948 267159		UAP100	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### press jaws for UAP100

GROUP: K

Size	New code	*	Code	Packing	UM
64	1948 267076	***	BP64M	1	pc
66.7	1948 267078		BP667M	1	pc
76.1	1948 267080		BP761M	1	pc
88.9	1948 267082		BP889M	1	pc
108	1948 267074		BP108M	1	pc



### set of tools for installing pipes Ø76,1-108

GROUP: K

New code	*	Code	Packing	UM
1948 267031		KPSDU	1	pc

It consists of the following items:

- 1948 267151 Battery-powered press tool UAP100
- 1948 267080 jaw for the UAP100 Ø76,1 press tool
- 1948 267082 jaw for the UAP100 Ø88,9 press tool
- 1948 267074 jaw for the UAP100 Ø108 press tool



### ECO 301 press machine

GROUP: K

Size	New code	*	Code	Packing	UM
12-66.7	1948 267163		620570.5	1	pc



### ECO 301 press jaw

GROUP: K

Size	New code	*	Code	Packing	UM
12	1948 267084		620572.7	1	pc
15	1948 267085		620573.8	1	pc
18	1948 267087		620574.9	1	pc
22	1948 267164		620575.1	1	pc
28	1948 267165		620576.0	1	pc



### ECO 301 HP Snap On collar

GROUP: K

Size	New code	*	Code	Packing	UM
35	1948 267124		634106.0	1	pc
42	1948 267126		634107.1	1	pc
54	1948 267128		634108.2	1	pc
66.7	1948 267089		634139.0	1	pc



**Caution:**

Jaws for diameter 35 - 54 mm, use with ZB 303 adapter.  
 Jaws for diameter 66,7 mm, use with ZB 323 adapter.

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

adapter ZB303 for ECO 301 press machine

GROUP: K

Size	New code	*	Code	Packing	UM
35-42-54	1948 267166		634111.5	1	pc



adapter ZB 323 for ECO301

GROUP: K

Size	New code	*	Code	Packing	UM
66.7	1948 267009		634143.4	1	pc



ACO401 press machine (battery powered)

GROUP: K

Size	New code	*	Code	Packing	UM
76.1-168	1948 267151		634008.1	1	pc



HP collar for ACO 401 press machine

GROUP: K

Size	New code	*	Code	Packing	UM
76.1	1948 267100		634009.2	1	pc
88.9	1948 267102		634010.3	1	pc
108	1948 267098		634011.4	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends



Ø 12-168,3 mm



SYSTEM **KAN-therm**

Inox

Noble material  
Giga possibilities



TECHNOLOGY OF SUCCESS



ISO 9001

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## 6 KAN-therm Inox system

System KAN-therm Inox is a system made of stainless steel pipes and fittings in diameters 12 to 168 mm. The use of stainless steel enables to design long-lasting and failure-free systems for transporting highly corrosive media.

### Modern connection technology

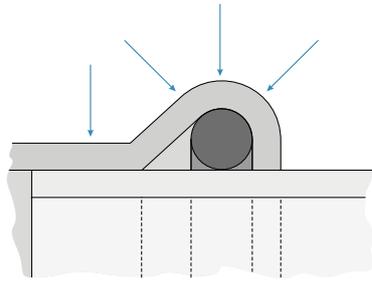
Z„Press“ technology used in System KAN-therm Inox enables to make fast and reliable connections by pressing fittings using widely available press tools, eliminating twisting and welding of individual elements. The system permits a very quick assembly even when using pipes and fittings in large diameters.

System KAN-therm Inox pipes and fittings are made of thin-walled steel, which significantly decreases weight of individual elements and facilitates system assembly.

Connecting elements in „press“ technology allows to obtain connections of minimized pipe section narrowing, which significantly decreases waste of system pressure and creates excellent hydraulic conditions.

## Long-lasting connection technology

Connection leak tightness in System KAN-therm Inox is provided by special O-Ring seals and a three-point „M” type jaw.



## Application possibilities

- central heating, hot and cold potable water systems (Attention!!! 1.4301 steel type pipes are not suitable for potable water installations),
- fire protection systems,
- industrial systems,
- compressed air systems,
- cooling water systems,
- heat pumps.

## Advantages

- quick and reliable system assembly without welding and twisting,
- wide range of pipe and fitting diameters up to 168 mm,
- wide range of working temperatures: from -35°C to 135°C,
- high pressure resistance up to 16 bar,
- compatible with plastic systems KAN-therm Press and Push,
- lightweight pipes and fittings,
- system high aesthetics,
- resistance to mechanical damage.

## Fitting assembly



### 1 Pipe cutting

Pipes should be cut perpendicular to their axes using pipe roll-cutter (full cut, with no breaking off nicked pipe segments). Using other tools is permissible provided the cut is perpendicular and cut edges are not damaged (no breaking off, no material decrements or other deformations of pipe section). Tools that emit a lot of heat, e.g. a flame torch, an angle grinder, etc., cannot be used.



## 2 Beveling

Using a hand operated stripping tool (for 76,1-168,3 mm half-rounded steel file), bevel outside and inside the tip of the cut pipe, and remove all file dust that can damage an O-Ring during assembly. Stripping tool may also be mounted on electric machines (for instance electric drill).



## 3 Marking the insertion depth of the pipe in the fitting

In order to obtain proper connection strength it is necessary to keep the correct insertion depth (Tab.1, Fig.1) of the pipe in the fitting (it should be slid home).

To make sure the pipe is properly slid into the fitting during pressing, mark the required insertion depth with a pen marker. After the connection have been made, the marking should be visible just next to edge of the fitting. Also, there are special markers for marking the insertion depth.



## 4 Control

Before assembly, check visually that there is an O-Ring in the fitting, whether it is not damaged, and whether there are no file dust or any other sharp objects which can cause damage to the O-Ring during assembly. In order to proper assembling it is necessary to check the minimal allowed distance between the fittings according to Table In order to proper assembling it is necessary to check the minimal allowed distance between the fittings according to Table 1, Pic.1).

## 5 Pipe and fitting assembly

Before making the connection, axially insert the pipe into the fitting to a marked depth (To make the assembly easier it is possible to slightly twist the pipe in relation to the fitting).

Using any kinds of oils, lubricating oils and fats in order to make the montage of the pipe into the fitting easier is not allowed (it is allowed to use only water or spoiled soap - recommended in case of pressure test by air). In the case of making many connections (inserting pipes into fittings and pressing) it is very important to watch the pipe insertion depth. To do so watch previously made markings on pipes near fitting edges.

## 6 Making a press connection

Before the beginning of the process of making the press connection, please check the efficiency of tools. Recommended is the usage of pressing machine and jaws provided by the System KAN-therm.

Always choose the suitable size of the jaw to the diameter of executing connection.

The jaw should be placed on the fitting in the way, which will ensure that the grooves in the jaw will cover the space, where are the O-Rings placed (raised parts of the fitting). After start of pressing, the process takes place automatically and cannot be stopped. If for some reasons the process of the pressing will be aborted, the connection need to be disassembled (cut out) and then the new connection should be executed one more time in correct way. If the contractors have different machines and jaws than those supplied by KAN, every use of them must be consulted with the KAN company individually.

## 7 Making a press connection in range 76,1–168 mm Preparing the jaw

To make a press connection of the three biggest dimensions of the Steel and Inox (76,1; 88,9; 108; 139,7; 168,3) a special jaws should be used (tetramerous) and the Klauke pressing machine. The jaw after release should be unlocked by removing the special bolt.



- 8** The unfolded jaw is put onto the shaped element. The press jaw has a groove which should fit the flange fittings.

**Caution:** In the case of the 76,1-108 jaws for Klauke UAP100 press tool, the plate with printed jaw size (visible in the figure) should be always located toward the pipe side.

- 9** After the correct assembling the jaw onto the fitting, the apparent need be is locked using the special bolt. At this moment the jaw is ready to do the connection.



- 10** Putting the 168,3 jaw onto the fitting

In the event of a 168;3 GigaSize diameter, to unfold the jaw you need to press the pin indicated in the figure and unlock the adapter.



The unfolded jaw is put onto the fitting. The press jaw has a groove which should fit the flange fittings. After correct fitting the jaw on the fitting you should secure it by pressing the pin again and locking the adapter.



- 11** Connection of the press tool to the jaw

The press tool should be connected to the jaw. It is essential to ensure that the press tool is properly connected to the jaw in accordance with the instructions attached to the specific tool.

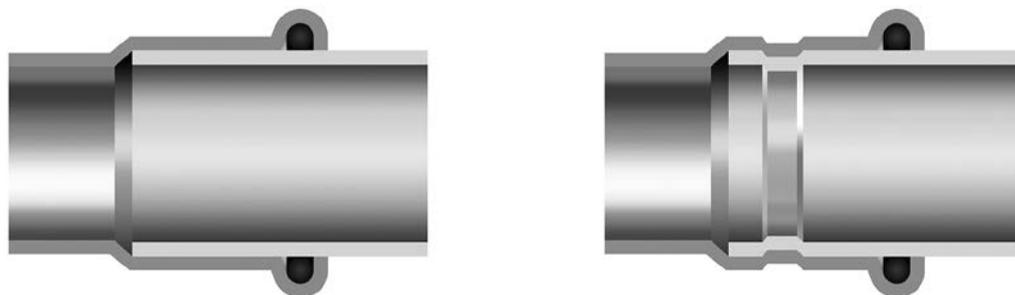
The press tool connected to the jaw may be started to achieve the full connection pressing.

## 12 Pressing

The time of pressing is approx. 1 minute (for diameters: 76,1-108 mm). In the case of the 139,7 and 168,3 mm diameters the full time of pressing may be longer. After starting the press tool the pressing process is done automatically and cannot be stopped. If for some reason the process of pressing is interrupted, the connection must be removed (cut) and performed new in the proper manner. After the pressing the press tool automatically returns to its original position. Then you need to remove the machine from the jaw. To remove the jaw from the fitting you have to unlock it again by removing the pin (diameter 76,1-108 mm) or pressing and unlocking the adapter (applies to diameter 139,7-168,3 mm), then unfold. The jaws should be stored in the cases in safe mode - locked.

Before starting each work and in intervals as defined by the manufacturer you should check and lubricate the tools.

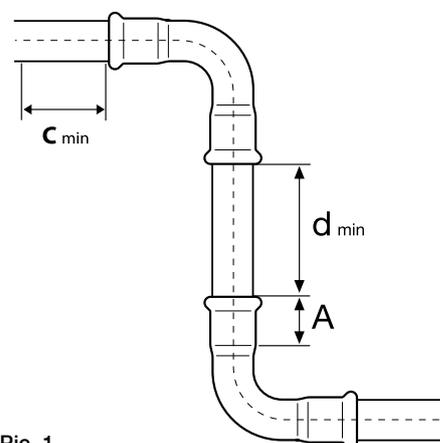
Press conection before and after press



### Mounting distance

Table 1 Pipe insertion depth into the fitting and minimum distance between pressed fittings

Ø [mm]	A [mm]	d <sub>min</sub> [mm]
12	17	10
15	20	10
18	20	10
22	21	10
28	23	10
35	26	10
42	30	20
54	35	20
76	55	55
88	63	65
108	77	80
139	100	32
168	121	37



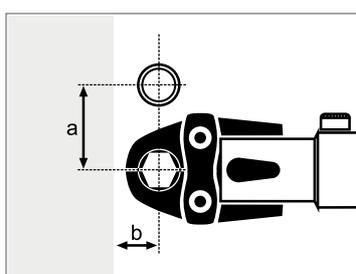
Pic. 1

A – Pipe insertion depth in the fitting,  
d<sub>min</sub> – minimum distance between fittings allowing for press correctness  
C<sub>min</sub> – minimalna odlegość kształtki od ściany

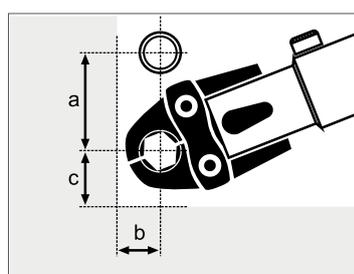
Table 2 Minimum assembly distances

Ø [mm]	Pic. 2		Pic. 3		
	a [mm]	b [mm]	a [mm]	b [mm]	c [mm]
12/15	56	20	75	25	28
18	60	20	75	25	28
22	65	25	80	31	35
28	75	25	80	31	35
35	75	30	80	31	44
42	140/115*	60/75*	140/115*	60/75*	75
54	140/120*	60/85*	140/120*	60/85*	85
76	140*	110*	165*	115*	115
88	150*	120*	185*	125*	125
108	170*	140*	200*	135*	135
139	290*	230*	290*	230*	230*
168	330*	260*	330*	260*	260*

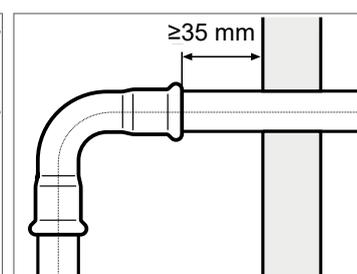
\*applies to four-part pressing jaws



Pic. 2



Pic. 3



Pic. 4

## Tools

Depending on the diameter, KAN-therm provides various configuration of tools. In order to select optimal set of tools, please follow chart:

Tab. 3 Selection of tools table: System KAN-therm Steel & Inox

Brand	Press machine		Diameter [mm]	Press jaws / collars		Adapter		Type of System KAN-therm			
	Marking	Code		Marking	Code	Marking	Code	Steel	Inox	Steel Sprinkler	Inox Sprinkler
REMS	Power Press SE Aku Press, Power Press ACC 1936267160, 1942267002 1936267152		12	M12	1948267046	-	-	+	-	-	-
			15	M15	1948267048	-	-	+	+	-	-
			18	M18	1948267052	-	-	+	+	-	-
			22	M22	1948267056	-	-	+	+	-	-
			28	M28	1948267061	-	-	+	+	-	-
			35	M35	1948267065	-	-	+	+	-	-
			42	M42	1948267067	-	-	+	+	-	-
			54	M54	1948267069	-	-	+	+	-	-

Tab. 3 Selection of tools table: System KAN-therm Steel & Inox

Brand	Press machine		Diameter [mm]	Press jaws / collars		Adapter		Type of System KAN-therm					
	Marking	Code		Marking	Code	Marking	Code	Steel	Inox	Steel Sprinkler	Inox Sprinkler		
KLAUKE	UAP100	1948267159	64	KSP3 64	1948267076	-	-	+	-	-	-		
			67	KSP3 66,7	1948267078	-	-	+	-	-	-		
			76.1	KSP3 76,1	1948267080	-	-	+	+	-	-		
			88.9	KSP3 88,9	1948267082	-	-	+	+	-	-		
			108	KSP3 108	1948267074	-	-	+	+	-	-		
NOVOPRESS	ACO102	1938055000	15	M15	1948267093	-	-	+	+	-	-		
			18	M18	1948267095	-	-	+	+	-	-		
			22	M22	1942121002	-	-	+	+	-	-		
			28	M28	1948267097	-	-	+	+	-	-		
			12	M12	1948267084	-	-	+	-	-	-		
	ECO301	1944267021	15	M15	1948267085	-	-	+	+	-	-		
			18	M18	1948267087	-	-	+	+	-	-		
			22	M22	1944267008	-	-	+	+	+	+		
			28	M28	1944267011	-	-	+	+	+	+		
			35	HP 35 Snap On	1948267124	ZB 303	1944267005	+	+	+	+		
			42	HP 42 Snap On	1948267126			+	+	+	+		
			54	HP 54 Snap On	1948267128			+	+	+	+		
			66.7	M 67	1948267089	ZB 323	1948267009	+	+	-	-		
			ACO401	1948267151	76.1	HP 76,1	1948267100	-	-	+	+	+	+
					88.9	HP 88,9	1948267102	-	-	+	+	+	+
108	HP 108	1948267098			-	-	+	+	+	+			
139.7	HP 139,7	1948267071			-	-	-	+	-	-			
168.3	HP 168,3	1948267072			-	-	-	+	-	-			

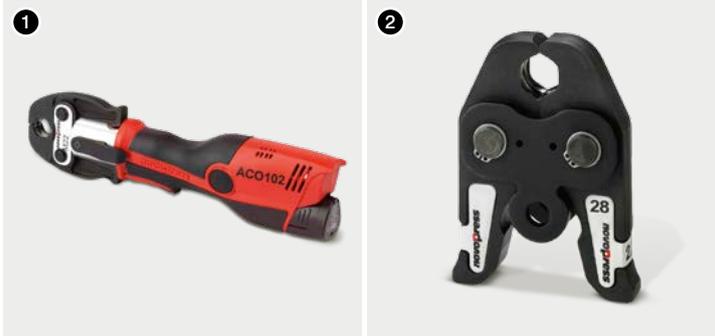
REMS tools:

1. Power Press ACC machine
2. Aku Press machine
3. Power Press SE machine
4. Press jaw M12-54 mm



**NOVOPRESS tools:**

- 1. ACO 102 machine
- 2. Press jaw M12-28 mm



- 1. ECO 301 machine
- 2. Press jaw M12-28 mm
- 3. Press jaw HP 35 Snap On



- 4. ACO401 machine
- 5. Press jaw HP 42, HP 54 Snap On
- 6. Press jaw M67



- 7. i 8. Press jaw HP 76,1 – 168,3
- 9. Adapter ZB 303
- 10. Adapter ZB 323



## KLAUKE tools:

1. UAP100 machine
2. Press jaw KSP3 64-108 mm



For connecting KAN-therm Inox Giga Size 139,7 mm and 168,3 mm elements, company KAN delivers appropriate tools directly to the building site.

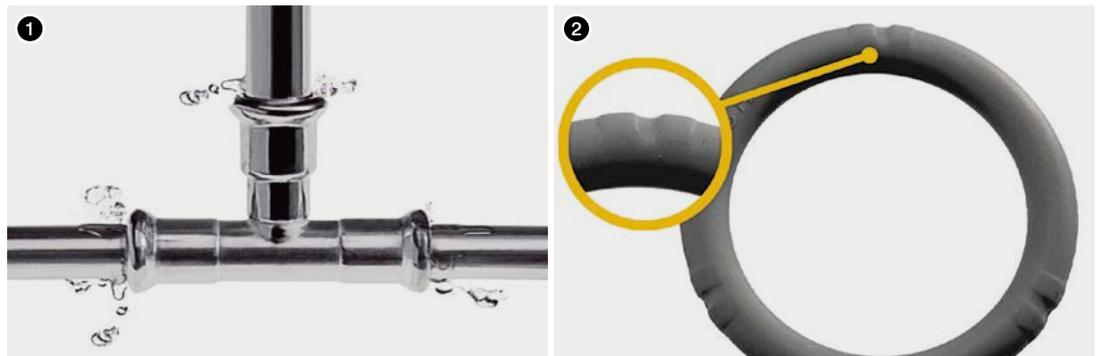
## Tools - Safety

All tools must be applied and used in accordance with their purpose and the manufacturer's instructions. Use for other purposes or in other areas are considered to be inconsistent with the intended use. Intended use also requires compliance with the instructions, conditions of inspection and maintenance and relevant safety regulations in their current version. All works done with tools, which do not meet the application compatible with the intended purpose may result in damage to tools, accessories and pipes. The consequence may be the leak and / or damage.

## LBP Function

All the KAN-therm Inox System fittings in diameter range of 12-168 mm have LBP function (signaling unpressed connections - LBP-Leak Before Press). In scope of 12–54 mm diameters the function is implemented by means of special construction of O-rings. Thanks to their special grooves the LBP O-rings guarantee optimal connection control during pressure test. Unpressed connections are leaky and therefore easy to locate. In diameters over 54 mm the LBP function is realized by means of an appropriate fitting construction (stub ovalization).

1. The activity O-Rings with the function of signalling not pressed connections (LBP)
2. O-Rings with the function of signalling not pressed connections (LBP)



## Detailed information

### Pipes and fittings - material

- Corrosion-resistant austenitic steel, chrome-nickel-molybdenum X2CrNiMo17-12-2, no 1.4404 acc. to DIN-EN 10088, in accordance with DIN EN 10088, according to AISI 316L.
- Corrosion-resistant ferritic steel, chrome-nickel-molybdenum X2CrNiMo17-12-2, no 1.4521 acc. to DIN-EN 10088, in accordance with DIN EN 10088, according to AISI 444.

## O-Rings and flat gaskets

O-Ring	Properties and work parameters	Application
<p>EPDM (butyl rubber)</p> 	<p>color: black  max. operating pressure: 16 bar  operating temperature: -35 °C  do 135 °C  short duration: 150 °C</p>	<p>potable water  hot water  treated water (softened, decalcified,  distilled, with glycol up to 50%)  compressed air (with no oil content)</p>
<p>FPM /Viton (fluorine rubber)</p> 	<p>color: green  max. operating pressure: 16 bar  operating temperature: -30 °C  do 200 °C  short duration: 230 °C</p>	<p>solar systems  compressed air  fuel oil  Pressed fat  engine fuels  Caution!!  Not suitable for pure hot water  installations. Do not use in potable  water systems.</p>
<p>Flat gasket FPM Viton</p> 	<p>color: green  max. operating pressure: 16 bar  operating temperature: -30 °C  do 200 °C  short duration: 230 °C</p>	<p>solar installations (glycol)  compressed air  heating oil  vegetable fats  motor fuels  Caution!!  Do not use in clean hot water  systems.</p>
<p>FPM /Viton (fluorine rubber)</p> 	<p>color: gray  max. operating pressure: 9 bar  operating temperature:  -20°C to 175°C  short duration: 190°C</p>	<p>steam installations 15–54 mm</p>



### Fittings come with standard EPDM O-Rings.

For special applications Viton O-Rings are delivered separately. In case of exchanging the standard O-Rings EPDM to the VITON one it is not allowed to use again the dismantled O-Rings. Areas of application that are outside the elementary scope of the closed heating installations, should be always consulted with the company KAN.

## Elongation and thermal conductivity data

Material	Linear elongation coefficient [mm/(m×K)]	Elongation of 4 m segment at 60°C [mm]	Thermal conductivity [W/(m²×K)]
Inox	0.0160	3.84	15

## Recommendations

- System KAN-therm Inox pipes made of thin walled stainless steel 1.4404 and 1.4301 can not be used in installations that will be exposed to additional loads (such as hanging on the pipes, devastation, etc.).
- KAN-therm Inox steel pipes cannot be bent when warm. Cold bending is permissible provided the minimum bending radius is kept ( $R=3.5 \times dz$ ). Do not expose pipe external surface to prolonged direct moisture during storage and use.
- Pipes over  $\varnothing$  28 mm should not be bent.
- Use ready-made pipe bends or 90° and 45° elbows offered by System KAN-therm Inox.
- It is not allowed to cut pipes using tools which emit a lot of heat, e.g. flame torches or grinders. To cut KAN-therm Inox pipes use only pipe cutters (hand operated and mechanical).
- When KAN-therm Inox pipes are concealed in walls, pipes should be insulated because of thermal elongation compensation and construction chemicals.
- In the case of using external heat sources (e.g. heating cables) heating a pipe wall, the pipe wall temperature should not exceed 60°C.

- General content of chlorides in water cannot exceed 250 mg/l. In the case of transporting chemical substances the possible use of KAN-therm Inox pipes should be consulted with KAN Technical Department.
- System KAN-therm Inox installations require potential equalization.

## Screw connections and joining with other KAN-therm Systems

KAN-therm Steel and Inox System offers a wide range of connectors with male and female threads. In fittings with male thread there are taper threads (pipe), therefore in brass fittings for brass couplings only male threads are acceptable, sealed e.g. with a small amount of hemp. To avoid loading the clamp connection it is advised to make a threaded connection (screwing) before pressing the connector.

Standard PTFE (Teflon) tape and other halide agents (e.g. chlorides) must not be used to seal threads in KAN-therm Inox installations.

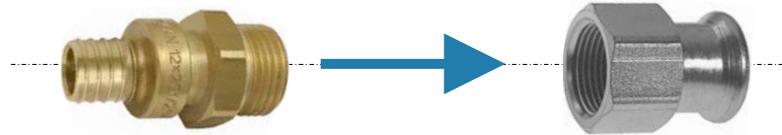
### Thread sealing

It is advised to seal threaded connections with such an amount of tow, that leaves the thread tops not covered. Using too much tow may lead to thread damage. By winding tow just after the first thread ridge you can avoid skew screwing and damaging the thread.

Recommended method of connecting plastic systems (Push, Press) with steel systems (Steel, Inox) is a properly made screw connection..

Male brass fitting **System KAN-therm Push, KAN-therm Press**

Female steel fitting **System KAN-therm Steel, KAN-therm Inox**



### Caution

Do not use chemical sealants or glues.

Elements of the System KAN-therm Steel can be assembled (through the screw or flanged connections) with elements made of others materials (see the table below).

### Possibility of connections for Systems KAN-therm Steel and Inox with other materials

Type of product		Pipes/Fittings			
		Copper	Bronze/Brass	Carbon steel	Stainless steel
Steel	closed	yes	yes	yes	yes
	open	no	v	no	no
Inox	closed	yes	yes	yes	yes
	open	yes	yes	no	yes

Remember, that connecting directly the elements made from the stainless steel with the elements made of carbon steel zinc plated ( eg. pipes ) can lead to corrosion. This process can be eliminated by using the plastic inserts or independent metal inserts (bronze, brass) with minimal length of 50 mm (eg. using the brass ball valve).

## Flange connections



Table of Inox flange connections

Code	Size	Amount of screws/nuts	Screw size	Screw class	Nut class	Amount of washers	Flange	Flat O-Ring
1609091004	15 DN15 PN16	4	M12	8.8	8	8	DN15	DN12 EPDM
1609091005	18 DN15 PN16	4	M12	8.8	8	8	DN15	DN15 EPDM
1609091006	22 DN20 PN16	4	M12	8.8	8	8	DN20	DN20 EPDM
1609091007	28 DN25 PN16	4	M12	8.8	8	8	DN25	DN25 EPDM
1609091001	35 DN32 PN16	4	M16	8.8	8	8	DN32	DN32 EPDM
1609091008	42 DN40 PN16	4	M16	8.8	8	8	DN40	DN40 EPDM
1609091009	54 DN50 PN16	4	M16	8.8	8	8	DN50	DN50 EPDM
1609091002	76,1 DN65 PN16	4	M16	8.8	8	8	DN65	DN65 EPDM
1609091003	88,9 DN80 PN16	8	M16	8.8	8	16	DN80	DN80 EPDM
1609091000	108 DN100 PN16	8	M16	8.8	8	16	DN100	DN100 EPDM
1609091010	139,7 DN125 PN16	8	M18	8.8	8	16	DN125	DN125 EPDM
1609091011	168,3 DN150 PN16	8	M22	8.8	8	16	DN150	DN150 EPDM

## Pipeline assembly

Maximum distances between attachment points are presented in Table 4:

Table 4 Maximum distances between pipeline attachment points

Diameter rury [mm]	Odlegość mocowań [m]
12	1.00
15	1.25
18	1.50
22	2.00
28	2.25
35	2.75
42	3.00
54	3.50
76.1	4.25

**Table 4 Maximum distances between pipeline attachment points**

Diameter rury [mm]	Odległość mocowań [m]
88.9	4.75
108	5.00
139	5.00
168	5.00

**Attachment points can be done as:**

- slidable points PP - slidable points should enable free axial motion of the pipeline (caused by thermal motions), that is why they shouldn't be fixed next to the fittings (minimal distance from fitting flange must be higher than maximum elongated of pipeline). The slidable point can be made as "unscrewed" metal clamps with rubber pads,
- fixed points PS - to make fixed point, the metal clamp with rubber pad should be used, it should enables precise and reliability stabilization of the pipe on the whole circuit. The metal clump should be maximally tighten on the pipe,
- attachment points preventing the pipeline from moving downwards; used if the pipeline movement on compensation arm length was blocked by required PP position.

**Fixed (PS) and slidable (PP) points**

- fixed points should prevent any movement of pipelines and should be fixed next to fittings (at both sides of a fitting, e.g. coupling, tee connection),
- fixed or slidable points cannot be fixed directly onto fittings,
- when fixing PSs near tee connections make sure that clamps blocking the pipeline are not fixed onto branches of smaller diameters than one dimension in relation to the pipeline (forces induced by large diameter pipes can damage small diameters),
- PPs enable only axial motion of the pipeline (they should be treated as fixed points for perpendicular direction to the pipeline axis) and should be made by clamps,
- PPs should not be fixed next to fittings because this may block thermal motions of the pipeline,
- remember that PPs prevent the pipeline from moving transverse to its axis and that is why their position may determine compensation arms length..

**Elongation compensation**

Along with water temperature rise  $\Delta T$  pipelines become elongated by  $\Delta L$  value. Thermal elongation  $\Delta L$  causes pipeline deformation on expansion compensation length A. Expansion compensation length A should not cause excessive stresses in the pipeline and depends on the pipeline external diameter, thermal elongation  $\Delta L$  and a linear expansion coefficient for a given material. Elongations  $\Delta L$  in function of pipe length (L) and temperature rise  $\Delta T$  are presented in Table 5:

**Table 5 Total length elongation  $\Delta L$  [mm] – System KAN-therm Inox**

L [m]	$\Delta T$ [°C]									
	10	20	30	40	50	60	70	80	90	100
1	0.16	0.32	0.48	0.64	0.80	0.96	1.12	1.28	1.44	1.60
2	0.32	0.64	0.96	1.28	1.60	1.92	2.24	2.56	2.88	3.20
3	0.48	0.96	1.44	1.92	2.40	2.88	3.36	3.84	4.32	4.80
4	0.64	1.28	1.92	2.56	3.20	3.84	4.48	5.12	5.76	6.40
5	0.80	1.60	2.40	3.20	4.00	4.80	5.60	6.40	7.20	8.00
6	0.96	1.92	2.88	3.84	4.80	5.76	6.72	7.68	8.64	9.60
7	1.12	2.24	3.36	4.48	5.60	6.72	7.84	8.96	10.08	11.20
8	1.28	2.56	3.84	5.12	6.40	7.68	8.96	10.24	11.52	12.80

Table 5 Total length elongation  $\Delta L$  [mm] – System KAN-therm Inox

L [m]	$\Delta T$ [°C]									
	10	20	30	40	50	60	70	80	90	100
9	1.44	2.88	4.32	5.76	7.20	8.64	10.08	11.52	12.96	14.40
10	1.60	3.20	4.80	6.40	8.00	9.60	11.20	12.80	14.40	16.00
12	1.92	3.84	5.76	7.68	9.60	11.52	13.44	15.36	17.28	19.20
14	2.24	4.48	6.72	8.96	11.20	13.44	15.68	17.92	20.16	22.40
16	2.56	5.12	7.68	10.24	12.80	15.36	17.92	20.48	23.04	25.60
18	2.88	5.76	8.64	11.52	14.40	17.28	20.16	23.04	25.92	28.80
20	3.20	6.40	9.60	12.80	16.00	19.20	22.40	25.60	28.80	32.00

## „L”, „Z”, and „U” compensator selection

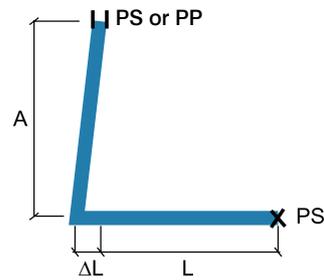
Table 6 Required expansion compensation length A [mm] for System KAN-therm Inox

Value wydłuż. $\Delta L$ [mm]	External pipe diameter $d_z$ [mm]												
	12	15	18	22	28	35	42	54	76.1	88.9	108	139.7	168.3
Wymagana flexible arm length A [mm]													
2	12	246	270	298	337	376	412	468	555	600	661	753	826
4	220	349	382	422	476	532	583	661	785	849	935	1064	1168
6	312	427	468	517	583	652	714	810	962	1039	1146	1303	1431
8	382	493	540	597	673	753	825	935	1110	1200	1323	1505	1652
10	441	551	604	667	753	842	922	1046	1241	1342	1479	1683	1846
12	493	604	661	731	825	922	1010	1146	1360	1470	1620	1843	2022
14	540	652	714	790	891	996	1091	1237	1469	1588	1750	1990	2185
16	583	697	764	844	952	1065	1167	1323	1570	1697	1871	2128	2336
18	624	739	810	895	1010	1129	1237	1403	1665	1800	1984	2257	2477
20	661	779	854	944	1065	1191	1304	1479	1756	1897	2091	2379	2611
22	697	817	895	990	1117	1249	1368	1551	1841	1990	2193	2495	2738
24	731	854	935	1034	1167	1304	1429	1620	1923	2079	2291	2606	2860
26	764	889	973	1076	1214	1357	1487	1686	2002	2163	2385	2712	2977
28	795	922	1010	1117	1260	1409	1543	1750	2077	2245	2475	2815	3090
30	825	955	1046	1156	1304	1458	1597	1811	2150	2324	2561	2914	3198
32	854	986	1080	1194	1347	1506	1650	1871	2221	2400	2645	3009	3302
34	882	1016	1113	1231	1388	1552	1700	1928	2289	2474	2727	3102	3404

Table 6 presents required expansion compensation length A for different thermal elongation values  $\Delta L$  and pipe external diameters  $d_z$ .

Rules for selection of different types of compensators are given below:

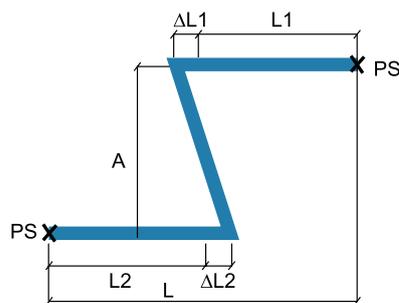
### „L” type compensator



- $A$  – flexible arm length
- $PP$  – sliding support (allows only axial movement of a pipeline)
- $PS$  – fixed point (prevents any movement of a pipeline)
- $L$  – the initial length of a pipeline
- $\Delta L$  – pipeline thermal elongation

For compensation arm  $A$  dimensioning, a substitute length  $L_z=L$  is taken, and for  $L_z$  length the thermal elongation value  $\Delta L$  is determined from Tab. 5. Next, the expansion compensation length  $A$  is determined on the basis of Tab 6.

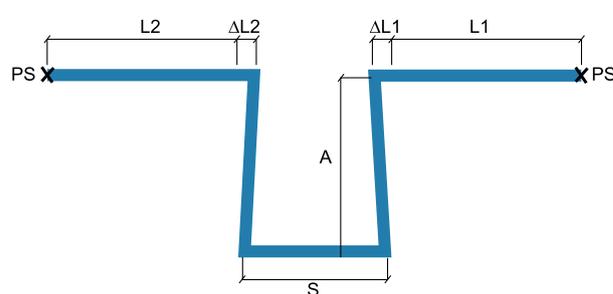
### „Z” type compensator



- $A$  – flexible arm length
- $PS$  – fixed point (prevents any movement of a pipeline)
- $L$  – the initial length of a pipeline
- $\Delta L$  – pipeline thermal elongation

For compensation arm  $A$  dimensioning,  $L1$  and  $L2$  sum is taken as a substitute length sum  $L_z=L1+L2$  and for  $L_z$  length a substitute  $\Delta L$  is determined on the basis of Tab. 5. Next, the expansion compensation length  $A$  is determined on the basis of Tab. 6.

### „U” type compensator



- $A$  – flexible arm length
- $PS$  – fixed point (prevents any movement of a pipeline)
- $L$  – the initial length of a pipeline
- $\Delta L$  – pipeline thermal elongation
- $S$  – U type compensator width

In case of placing fixed point  $PS$  in the section of compensator length  $S$  for compensation arm  $A$  dimensioning, the greater value from  $L1$  and  $L2$  is taken as a substitute length for  $L_z$ :  $L_z=\max(L1, L2)$  and for this length the substitute elongation  $\Delta L$  is determined on the basis of Tab. 5, and then the length of compensation arm  $A$  is determined on the basis of Tab. 5.

Compensator width:  $S = A/2$ .

# System KAN-therm Inox - assortment

## stainless steel pipe - 1.4404 - bar 6 m

GROUP: H

Size	New code	*	Code	Packing	UM
12×1,0	1629 194065	**	6118046	6/624	m
15×1,0	1629 194001		611791.4	6/840	m
18×1,0	1629 194002		611792.5	6/450	m
22×1,2	1629 194003		611793.6	6/360	m
28×1,2	1629 194004		611794.7	6/300	m
35×1,5	1629 194005		611795.8	6/180	m
42×1,5	1629 194006		611796.9	6/150	m
54×1,5	1629 194007		611797.1	6/90	m
76,1×2	1629 194008		611798.0	6/168	m
88,9×2	1629 194009		611799.1	6/136	m
108×2	1629 194000		611800.2	6/108	m
139,7×2,0	1629 194035	**	6310100	6/108	m
168,3×2,0	1629 194036	**	6310101	6/84	m



## press stainless steel pipe - 1.4521 - bar 6 m

GROUP: H

Size	New code	*	Code	Packing	UM
15×1,0	1629 194021		6221506	6/840	m
18×1,0	1629 194023		6221807	6/450	m
22×1,2	1629 194025		6222207	6/360	m
28×1,2	1629 194027		6222808	6/300	m
35×1,5	1629 194029		6223510	6/180	m
42×1,5	1629 194031		6224212	6/150	m
54×1,5	1629 194033		6225412	6/90	m



## press male connector

GROUP: G

Size	New code	*	Code	Packing	UM
12×R $\frac{3}{8}$	1609 045042		6198918	10/200	pc
12×R $\frac{1}{2}$	1609 045041		6198929	10/200	pc
15×R $\frac{1}{2}$	1609 045004		6190580	10/200	pc
15×R $\frac{3}{4}$	1609 045005		6190591	10/80	pc
18×R $\frac{1}{2}$	1609 045006		6190602	10/160	pc
18×R $\frac{3}{4}$	1609 045007		6190613	10/100	pc
22×R $\frac{1}{2}$	1609 045009		6190635	10/70	pc
22×R $\frac{3}{4}$	1609 045010		6190646	10/100	pc
22×R1	1609 045008		6190624	10/60	pc
28×R $\frac{3}{4}$	1609 045013		6190679	10/50	pc
28×R1	1609 045012		6190657	10/60	pc
28×R1 $\frac{1}{4}$	1609 045011		6190668	10/30	pc
35×R1	1609 045015		6190681	10/40	pc
35×R1 $\frac{1}{4}$	1609 045016		6190701	5/40	pc
35×R1 $\frac{1}{2}$	1609 045014		6190690	10/20	pc
42×R1 $\frac{1}{4}$	1609 045018		6190723	4/12	pc
42×R1 $\frac{1}{2}$	1609 045017		6190712	4/24	pc
54×R1 $\frac{1}{2}$	1609 045019		6190734	4/16	pc
54×R2	1609 045020		6190745	4/12	pc
76,1×R2 $\frac{1}{2}$	1609 045002		620475.9	2	pc
88,9×R3	1609 045003		620476.1	2	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press union connector

GROUP: G

Size	New code	*	Code	Packing	UM
15×R½	1609 272000		6192120	2/50	pc
15×R¾	1609 272011		6192131	2/60	pc
18×R½	1609 272012		6192142	2/60	pc
18×R¾	1609 272003		6192153	2/60	pc
22×R½	1609 272005		6192164	2/40	pc
22×R¾	1609 272013		6192175	2/40	pc
22×R1	1609 272004		6192186	2/30	pc
28×R1	1609 272014		6192197	2/30	pc
35×R1¼	1609 272015		6192208	2/16	pc
42×R1½	1609 272009		6192219	2/12	pc
54×R2	1609 272016		6192296	2/4	pc



press female connector

GROUP: G

Size	New code	*	Code	Packing	UM
12×Rp¾	1609 042026		6198931	10/130	pc
12×Rp½	1609 042025		6198940	10/130	pc
15×Rp½	1609 042000		6190415	10/130	pc
15×Rp¾	1609 042001		6190426	10/90	pc
18×Rp½	1609 042002		6190437	10/120	pc
18×Rp¾	1609 042003		6190448	10/80	pc
22×Rp½	1609 042005		6190461	10/100	pc
22×Rp¾	1609 042006		6190470	10/100	pc
22×Rp1	1609 042004		6190459	10/60	pc
28×Rp½	1609 042027		6193308	10/40	pc
28×Rp¾	1609 042009		6190503	10/40	pc
28×Rp1	1609 042007		6190481	10/60	pc
28×Rp1¼	1609 042008		6190492	10/30	pc
35×Rp1	1609 042012		6190514	10/20	pc
35×Rp1¼	1609 042011		6190536	10/30	pc
35×Rp1½	1609 042010		6190525	10/20	pc
42×Rp1¼	1609 042014		6190558	4/12	pc
42×Rp1½	1609 042013		6190547	4/24	pc
54×Rp1½	1609 042015		6190569	4/12	pc
54×Rp2	1609 042016		6190571	4/12	pc



press female union connector

GROUP: G

Size	New code	*	Code	Packing	UM
15×Rp½	1609 271000		6192021	2/60	pc
15×Rp¾	1609 271001		6192032	2/40	pc
18×Rp½	1609 271002		6192043	2/40	pc
18×Rp¾	1609 271003		6192054	2/40	pc
22×Rp¾	1609 271010		6192065	2/40	pc
22×Rp1	1609 271004		6192076	2/30	pc
28×Rp1	1609 271011		6192087	2/26	pc
35×Rp1¼	1609 271012		6192098	1/20	pc
42×Rp1½	1609 271013		6192109	2/8	pc
54×Rp2	1609 271009		6192111	2/4	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

**press half union connector (with flat gasket)**

**GROUP: G**

Size	New code	*	Code	Packing	UM
15×G¾"	1609 271014		6191735	10/120	pc
18×G¾"	1609 271015		6191746	10/100	pc
22×G1"	1609 271016		6191757	10/60	pc
28×G1¼"	1609 271017		6191768	10/40	pc
35×G1½"	1609 271018		6191779	4/32	pc
42×G1¾"	1609 271019		6191781	4/12	pc
54×G2½"	1609 271020		6191790	4/8	pc



**press coupling**

**GROUP: G**

Size	New code	*	Code	Packing	UM
12×12	1609 245002	**	6198874	10/140	pc
15×15	1609 245003		6190943	10/140	pc
18×18	1609 245004		6190954	10/140	pc
22×22	1609 245012		6190965	10/80	pc
28×28	1609 245013		6190976	10/60	pc
35×35	1609 245014		6190987	5/40	pc
42×42	1609 245015		6190998	4/24	pc
54×54	1609 245016		6191009	4/16	pc
76,1×76,1	1609 245010		620415.4	4	pc
88,9×88,9	1609 245011		620416.5	4	pc
108×108	1609 245000		620417.6	4	pc
139,7×139,7	1609 245017	**	6310001	1	pc
168,3×168,3	1609 245018	**	6310011	1	pc



**press slip coupling**

**GROUP: G**

Size	New code	*	Code	Packing	UM
15×15	1609 080001		6191284	10/140	pc
18×18	1609 080002		6191295	10/100	pc
22×22	1609 080003		6191306	10/60	pc
28×28	1609 080004		6191317	10/40	pc
35×35	1609 080005		6191328	5/20	pc
42×42	1609 080010		6191339	4/16	pc
54×54	1609 080007		6191341	2/8	pc
76,1×76,1	1609 080008		620428.6	2	pc
88,9×88,9	1609 080009		620429.7	2	pc
108×108	1609 080000		620430.8	2	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### press 90° elbow

GROUP: G

Size	New code	*	Code	Packing	UM
12×12	1609 068149	**	6198885	10/150	pc
15×15	1609 068150		6190206	10/150	pc
18×18	1609 068151		6190217	10/90	pc
22×22	1609 068152		6190228	10/60	pc
28×28	1609 068115		6190239	5/30	pc
35×35	1609 068153		6190241	5/20	pc
42×42	1609 068154		6190250	2/8	pc
54×54	1609 068155		6190261	2/8	pc
76,1×76,1	1609 068125		6230004	2	pc
88,9×88,9	1609 068128		6230015	2	pc
108×108	1609 068107		6230026	1	pc
139,7×139,7	1609 068156	**	6310002	1	pc
168,3×168,3	1609 068157	**	6310012	1	pc



### press nipple 90° elbow

GROUP: G

Size	New code	*	Code	Packing	UM
12×12	1609 068142		6198896	10/120	pc
15×15	1609 068143		6190349	10/120	pc
18×18	1609 068144		6190351	10/60	pc
22×22	1609 068133		6190360	5/60	pc
28×28	1609 068145		6190371	5/30	pc
35×35	1609 068146		6190382	5/10	pc
42×42	1609 068147		6190393	2/8	pc
54×54	1609 068148		6190404	2/6	pc
76,1×76,1	1609 068139		6230037	1	pc
88,9×88,9	1609 068141		6230048	1	pc
108×108	1609 068130		6230059	1	pc



### press 45° elbow

GROUP: G

Size	New code	*	Code	Packing	UM
15×15	1609 068079		6190041	10/150	pc
18×18	1609 068080		6190052	10/120	pc
22×22	1609 068051		6190063	10/70	pc
28×28	1609 068052		6190074	10/40	pc
35×35	1609 068081		6190085	5/25	pc
42×42	1609 068082		6190096	2/16	pc
54×54	1609 068083		6190107	2/8	pc
76,1×76,1	1609 068057		6230061	2	pc
88,9×88,9	1609 068059		6230070	2	pc
108×108	1609 068048		6230081	2	pc
139,7×139,7	1609 068084	**	6310003	1	pc
168,3×168,3	1609 068085	**	6310013	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## press nipple 45° elbow

GROUP: G

Size	New code	*	Code	Packing	UM
15×15	1609 068073		6190118	10/150	pc
18×18	1609 068074		6190129	10/120	pc
22×22	1609 068075		6190131	10/60	pc
28×28	1609 068076		6190140	10/40	pc
35×35	1609 068066		6190151	5/25	pc
42×42	1609 068077		6190162	4/16	pc
54×54	1609 068078		6190173	2/8	pc
76,1×76,1	1609 068070		6230092	2	pc
88,9×88,9	1609 068072		6230103	2	pc
108×108	1609 068061		6230114	2	pc



## press tee

GROUP: G

Size	New code	*	Code	Packing	UM
12×12×12	1609 257045	**	6198907	10/80	pc
15×15×15	1609 257002		6191350	10/80	pc
18×18×18	1609 257046		6191372	10/40	pc
22×22×22	1609 257005		6191405	10/40	pc
28×28×28	1609 257047		6191449	5/25	pc
35×35×35	1609 257048		6191493	5/15	pc
42×42×42	1609 257049		6191537	4/8	pc
54×54×54	1609 257050		6191581	2/6	pc
76,1×76,1×76,1	1609 257010		620431.9	2	pc
88,9×88,9×88,9	1609 257011		620432.1	2	pc
108×108×108	1609 257000		620433.0	2	pc
139,7×139,7×139,7	1609 257001	**	6310004	1	pc
168,3×168,3×168,3	1609 257003	**	6310014	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press reducing tee

GROUP: G



Size	New code	*	Code	Packing	UM
18×15×18	1609 260014		6191361	10/60	pc
22×15×22	1609 260046		6191383	10/50	pc
22×18×22	1609 260047		6191394	10/50	pc
28×15×28	1609 260048		6191416	5/30	pc
28×18×28	1609 260049		6191427	10/30	pc
28×22×28	1609 260050		6191438	5/30	pc
35×15×35	1609 260020		6191451	5/20	pc
35×18×35	1609 260021		6191460	5/20	pc
35×22×35	1609 260022		6191471	5/20	pc
35×28×35	1609 260051		6191482	5/20	pc
42×22×42	1609 260024		6191504	4/12	pc
42×28×42	1609 260052		6191515	4/12	pc
42×35×42	1609 260053		6191526	4/12	pc
54×22×54	1609 260054		6191548	2/8	pc
54×28×54	1609 260030		6191559	2/8	pc
54×35×54	1609 260055		6191561	2/8	pc
54×42×54	1609 260032		6191570	2/8	pc
76,1×22×76,1	1609 260035		620434.1	2	pc
76,1×28×76,1	1609 260036		620435.2	2	pc
76,1×35×76,1	1609 260037		620436.3	2	pc
76,1×42×76,1	1609 260038		620437.4	2	pc
76,1×54×76,1	1609 260039		620438.5	2	pc
88,9×22×88,9	1609 260040		620439.6	2	pc
88,9×28×88,9	1609 260041		620440.7	2	pc
88,9×35×88,9	1609 260042		620441.8	2	pc
88,9×42×88,9	1609 260043		620442.9	2	pc
88,9×54×88,9	1609 260044		620443.1	2	pc
88,9×76,1×88,9	1609 260045		620444.0	2	pc
108×22×108	1609 260000		620445.1	2	pc
108×28×108	1609 260001		620446.2	2	pc
108×35×108	1609 260002		620447.3	2	pc
108×42×108	1609 260003		620448.4	2	pc
108×54×108	1609 260004		620449.5	2	pc
108×76,1×108	1609 260005		620450.6	2	pc
108×88,9×108	1609 260006		620451.7	2	pc
139,7×76,1×139,7	1609 260008	**	6310007	1	pc
139,7×88,9×139,7	1609 260009	**	6310006	1	pc
139,7×108×139,7	1609 260007	**	6310005	1	pc
168,3×76,1×168,3	1609 260012	**	6310018	1	pc
168,3×88,9×168,3	1609 260013	**	6310017	1	pc
168,3×108×168,3	1609 260010	**	6310016	1	pc
168,3×139,7×168,3	1609 260011	**	6310015	1	pc

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press nipple reducer

GROUP: G

Size	New code	*	Code	Packing	UM
12×15	1609 220000	**	6198951	10/200	pc
18×15	1609 221003		6191121	10/200	pc
22×15	1609 221023		6191130	10/140	pc
22×18	1609 221024		6191141	10/120	pc
28×15	1609 221025		6191152	10/70	pc
28×18	1609 221007		6191163	10/100	pc
28×22	1609 221026		6191174	10/80	pc
35×15	1609 221027		6192221	5/50	pc
35×18	1609 221028		6191185	5/50	pc
35×22	1609 221029		6191196	5/50	pc
35×28	1609 221030		6191207	5/60	pc
42×15	1609 221031		6192230	5/30	pc
42×18	1609 221032		6192241	5/30	pc
42×22	1609 221033		6191218	4/24	pc
42×28	1609 221034		6191229	4/24	pc
42×35	1609 221035		6191231	4/24	pc
54×15	1609 221036		6192252	4/16	pc
54×18	1609 221037		6192263	4/16	pc
54×22	1609 221015		6191240	4/16	pc
54×28	1609 221016		6191251	4/16	pc
54×35	1609 221038		6191262	4/16	pc
54×42	1609 221039		6191273	4/16	pc
76,1×42	1609 221019		620421.1	2	pc
76,1×54	1609 221020		620422.0	4	pc
88,9×54	1609 221021		620423.1	2	pc
88,9×76,1	1609 221022		620424.2	2	pc
108×54	1609 221000		620425.3	2	pc
108×76,1	1609 221001		620426.4	2	pc
108×88,9	1609 221002		620427.5	2	pc
139,7×88,9	1609 221041	**	6310009	1	pc
139,7×108	1609 221040	**	6310008	1	pc
168,3×88,9	1609 221044	**	6310021	1	pc
168,3×108	1609 221042	**	6310020	1	pc
168,3×139,7	1609 221043	**	6310019	1	pc



press male elbow

GROUP: G

Size	New code	*	Code	Packing	UM
15×R½	1609 070000		6190877	10/80	pc
18×R½	1609 070002		6190888	10/80	pc
22×R¾	1609 070004		6190899	10/60	pc
28×R1	1609 070005		6190901	10/30	pc
35×R1¼	1609 070006		6190910	5/20	pc
42×R1½	1609 070009		6190921	2/16	pc
54×R2	1609 070010		6190932	2/8	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press female elbow

GROUP: G

Size	New code	*	Code	Packing	UM
15×Rp½	1609 068000		6190822	10/80	pc
18×Rp½	1609 068001		6190833	10/90	pc
22×Rp½	1609 068003		6198456	10/50	pc
22×Rp¾	1609 068002		6190844	10/50	pc
28×Rp½	1609 068009		6198467	10/30	pc
28×Rp¾	1609 068005		6198478	10/30	pc
28×Rp1	1609 068008		6190855	10/30	pc
35×Rp½	1609 068011		6198489	5/10	pc
35×Rp¾	1609 068007		6198491	5/10	pc
35×Rp1	1609 068010		6198500	5/10	pc
35×Rp1¼	1609 068012		6190866	5/10	pc



nipple elbow with female thread

GROUP: G

Size	New code	*	Code	Packing	UM
15×Rp½ short	1609 068013		6192274	10/40	pc



press female tee

GROUP: G

Size	New code	*	Code	Packing	UM
15×Rp½×15	1609 257014		6191592	10/70	pc
18×Rp½×18	1609 257015		6191603	10/50	pc
18×Rp¾×18	1609 257016		6191614	10/50	pc
22×Rp½×22	1609 257017		6191625	10/40	pc
22×Rp¾×22	1609 257018		6191636	10/40	pc
28×Rp½×28	1609 257038		6191647	5/30	pc
28×Rp¾×28	1609 257039		6191658	10/30	pc
28×Rp1×28	1609 257019		6198599	10/30	pc
35×Rp½×35	1609 257040		6191669	5/20	pc
35×Rp¾×35	1609 257041		6191671	5/20	pc
35×Rp1×35	1609 257022		6198601	10/20	pc
42×Rp½×42	1609 257027		6191680	4/16	pc
42×Rp¾×42	1609 257042		6191691	4/12	pc
42×Rp1×42	1609 257026		6198610	4/16	pc
54×Rp½×54	1609 257031		6191702	2/8	pc
54×Rp¾×54	1609 257044		6191724	2/8	pc
54×Rp1×54	1609 257030		6198621	2/6	pc
54×Rp2×54	1609 257043		6191713	2/6	pc
76,1×Rp¾×76,1	1609 257035		620452.8	2	pc
76,1×Rp2×76,1	1609 257034		620455.0	2	pc
88,9×Rp¾×88,9	1609 257037		620453.9	2	pc
88,9×Rp2×88,9	1609 257036		620456.1	2	pc
108×Rp¾×108	1609 257013		620454.1	2	pc
108×Rp2×108	1609 257012		620457.2	2	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### press short wallplate elbow

GROUP: G

Size	New code	*	Code	Packing	UM
15×Rp½	1609 285009		6191801	10/90	pc
18×Rp½	1609 285002		6191812	10/90	pc
22×Rp¾	1609 285003		6191823	10/50	pc



### press long wallplate elbow

GROUP: G

Size	New code	*	Code	Packing	UM
15×Rp½	1609 285004		6191999	20/40	pc
18×Rp½	1609 285007		6192001	20/40	pc
22×Rp¾	1609 285008		6192010	10/40	pc



### press cup

GROUP: G

Size	New code	*	Code	Packing	UM
15	1609 250002		6191011	20/80	pc
18	1609 250004		6191020	20/300	pc
22	1609 250006		6191031	10/150	pc
28	1609 250020		6191042	10/130	pc
35	1609 250010		6191053	5/75	pc
42	1609 250012		6191064	4/48	pc
54	1609 250021		6191075	4/24	pc
76.1	1609 250016		620418.7	4	pc
88.9	1609 250018		620419.8	4	pc
108	1609 250000		620420.9	4	pc



### crossover

GROUP: G

Size	New code	*	Code	Packing	UM
15×15	1609 178000		6191086	10/80	pc
18×18	1609 178001		6191097	10/50	pc
22×22	1609 178002		6191108	10/50	pc
28×28	1609 178003		6191119	10/20	pc



### bend 15°

GROUP: G

Size	New code	*	Code	Packing	UM
28×28	1609 011002		6190008	10/40	pc
35×35	1609 011003		6190019	5/15	pc
42×42	1609 011004		6191834	2/20	pc
54×54	1609 011005		6191845	2/10	pc



### bend 30°

GROUP: G

Size	New code	*	Code	Packing	UM
28×28	1609 011009		6190021	10/40	pc
35×35	1609 011008		6190030	4/12	pc
42×42	1609 011010		6191856	2/20	pc
54×54	1609 011011		6191867	2/8	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### bend 60°

GROUP: G

Size	New code	*	Code	Packing	UM
28×28	1609 011014		6190184	5/30	pc
35×35	1609 011015		6190195	4/12	pc
42×42	1609 011016		6191878	5/5	pc
54×54	1609 011017		6191889	2/6	pc



### bend 90°

GROUP: G

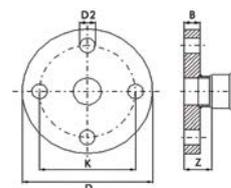
Size	New code	*	Code	Packing	UM
15×15	1609 011018		6190272	10/70	pc
18×18	1609 011019		6190283	10/50	pc
22×22	1609 011025		6190294	10/30	pc
28×28	1609 011026		6190305	5/20	pc
35×35	1609 011027		6190316	4/8	pc
42×42	1609 011028		6190327	2/4	pc
54×54	1609 011029		6190338	2/2	pc



### press flange PN16

GROUP: G

Size	New code	*	Code	Packing	UM
15	1609 091004		6190756	1/15	pc
18	1609 091005		6190767	1/15	pc
22	1609 091006		6190778	1/12	pc
28	1609 091007		6190789	1/12	pc
35	1609 091001		6190791	1/6	pc
42	1609 091008		6190800	1/4	pc
54	1609 091009		6190811	1/2	pc
76.1	1609 091002		620412.1	4	pc
88.9	1609 091003		620413.2	2	pc
108	1609 091000		620414.3	2	pc
139.7	1609 091010	**	6310010	1	pc
168.3	1609 091011	**	6310022	1	pc



Code	Z	D	D2	K	B
1609091004	34	95	14	65	11
1609091005	40	95	14	65	11
1609091006	42.5	105	14	75	12
1609091007	48	115	14	85	14
1609091001	53	140	18	100	15
1609091008	61	150	18	110	16
1609091009	77	165	18	125	18
1609091002	71	185	18	145	18
1609091003	84	200	18	160	20
1609091000	90	220	18	180	20
1609091010	46	250	18	210	25
1609091011	53	285	22	240	26

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

press flange connector

GROUP: G

Size	New code	*	Code	Packing	UM
15×1½	1609 090001		6191891	20/100	pc
15×1½	1609 090000		6191900	20/100	pc
18×1¼	1609 090011		6191911	20/100	pc
18×1½	1609 090010		6191922	20/100	pc
22×1¼	1609 090005		6191933	20/80	pc
22×1½	1609 090004		6191944	20/80	pc
28×1½	1609 090006		6191955	20/80	pc
35×2	1609 090007		6191966	10/30	pc
42×2¼	1609 090008		6191977	10/30	pc
54×2¾	1609 090012		6191988	5/20	pc



FPM Viton flat seal

GROUP: I

Size	New code	*	Code	Packing	UM
15/18	1509 237000		6118301	20/500	pc
22	1509 237001		6118310	20/500	pc
28	1509 237002		6118321	20/400	pc
35	1509 237003		6118332	20/400	pc
42	1509 237004		6118343	20/300	pc
54	1509 237005		6118354	20/300	pc



Caution: Not suitable for hot water installations.

LBP EPDM O-Ring

GROUP: I

Size	New code	*	Code	Packing	UM
12	1509 182021		622220.5	20/600	pc
15	1509 182022		6222216	20/600	pc
18	1509 182023		6222227	20/500	pc
22	1509 182024		6222238	20/500	pc
28	1509 182025		6222249	20/400	pc
35	1509 182026		6222251	20/400	pc
42	1509 182027		6222260	20/300	pc
54	1509 182028		6222271	20/300	pc



Caution: The LBP EPDM O-Rings can be used in System KAN-therm Steel and Inox.

LBP FPM Viton O-Ring

GROUP: I

Size	New code	*	Code	Packing	UM
15	1509 182030		6119401	20/600	pc
18	1509 182029		6119410	20/500	pc
22	1509 182031		6119421	20/500	pc
28	1509 182032		6119432	20/400	pc
35	1509 182033		6119443	20/400	pc
42	1509 182034		6119454	20/300	pc
54	1509 182035		6119465	20/300	pc



Caution: LBP O-Rings can be used in System KAN-therm Steel and Inox.  
Caution: Not suitable for hot water installations.

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## EPDM O-Ring

GROUP: I

Size	New code	*	Code	Packing	UM
76.1	1609 182023		620801.5	5/100	pc
88.9	1609 182024		620802.6	5/100	pc
108	1609 182025		620803.7	5/50	pc
N 139.7	1609 182016	**		1	pc
N 168.3	1609 182017	**		1	pc



## FPM Viton O-Ring

GROUP: I

Size	New code	*	Code	Packing	UM
76.1	1609 182020		611937.7	5/100	pc
88.9	1609 182021		611938.8	5/100	pc
108	1609 182022		611939.9	5/50	pc
N 139.7	1609 182018	**		1	pc
N 168.3	1609 182019	**		1	pc



Caution: Not suitable for hot water installations.

## LBP Viton O-Ring grey

GROUP: I

Size	New code	*	Code	Packing	UM
15	1509 182039		6119784	20/600	pc
18	1509 182040		6119795	20/500	pc
22	1509 182041		6119806	20/500	pc
28	1509 182042		6119817	20/400	pc
35	1509 182038		6119828	20/400	pc
42	1509 182043		6119839	20/300	pc
54	1509 182044		6119841	20/300	pc



Caution: use for water steam installation only.

## Tools Inox

### cutter for steel pipes

GROUP: K

Size	New code	*	Code	Packing	UM
12-54 mm.	1948 267025		113000	1	pc
35-108 mm.	1948 267027		113100	1	pc



### wheel for cutter for steel pipes - service element

GROUP: K

New code	*	Code	Packing	UM
1941 267037		341614	1	pc



### electric cutter

GROUP: K

Size	New code	*	Code	Packing	UM
22-108 mm.	1948 267021		845000	1	pc

Caution: Electric cutter is sold without the cutting wheel.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### wheel for electric cutter for steel pipes - service element

GROUP: K

New code	*	Code	Packing	UM
1941 267041		845050	1	pc



### electric cutter

GROUP: K

Size	New code	*	Code	Packing	UM
108-169 mm.	1948 267034		845004	1	pc

The set contains the pipe cutting machine and cutting wheel.



### support for the pipe for pipe cutting machine

GROUP: K

New code	*	Code	Packing	UM
1948 267029		845220	1	pc



### stripping tool - drill set

GROUP: K

Size	New code	*	Code	Packing	UM
12-54 mm.	1948 267015		113835	1	pc



### set of additional tools

GROUP: K

New code	*	Code	Packing	UM
1948267023		KPSN	1	set

It consists of the following items:

- 1948 267025 wheel cutter for steel pipes 12-54 mm
- 1948 267015 beveller 12-54 mm
- Case



### ACO102 press tool with "M" type jaws

GROUP: K

Size	New code	*	Code	Packing	UM
15-28	1948 055007		44033-50 KPL	1	set

It consists of the following items:

- 1948 267161 Battery-powered press tool - 1 pc
- 1948 267093 M15 jaws for the press tool - 1 pc
- 1948 267095 M18 jaws for the press tool - 1 pc
- 1942 121002 M22 jaws for the press tool - 1 pc
- 1948 267097 M28 jaws for the press tool - 1 pc
- 1938 267047 Battery charger - 1 pc
- 1938 267002 Battery 1.5 Ah - 2 pcs
- Case



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Power Press ACC press tool with automatic clutch

GROUP: K

New code	*	Code	Packing	UM
1936 267219		ZAPR04	1	pc

The press tool is sold in the case.



## electric press tool 230V - Power Press E Basic Pack

GROUP: K

Size	New code	*	Code	Packing	UM
12-54 mm.	1936 267160		ZAPR01	1	pc

The press tool is sold in the case.



## rechargeable press tool - Aku Press

GROUP: K

Size	New code	*	Code	Packing	UM
12-54 mm.	1936 267152		ZAPRAK	1	pc

### Caution:

The press tool is sold complete with battery, charger and the case.  
The set doesn't include jaws and other tools



## "M" profile press jaws for Power and Aku Press

GROUP: K

Size	New code	*	Code	Packing	UM
12	1948 267046		570100	1	pc
15	1948 267048		570110	1	pc
18	1948 267052		570120	1	pc
22	1948 267056		570130	1	pc
28	1948 267061		570140	1	pc
35	1948 267065		570150	1	pc
42	1948 267067		570160	1	pc
54	1948 267069		570170	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## "M" type set of jaws

GROUP: K

Size	New code	*	Code	Packing	UM
42-54	1948 267130		KPSD	1	pc

It consists of the following items:

- 1948 267067 jaw "M" for diameter 42 mm
- 1948 267069 jaw "M" for diameter 54 mm
- case



## Set of "M" type jaws with electrical press tool

GROUP: K

Size	New code	*	Code	Packing	UM
15-35	1948 267033		KPSM	1	pc

It consists of the following items:

- 1948 267048 jaw "M" for diameter 15 mm
- 1948 267052 jaw "M" for diameter 18 mm
- 1948 267056 jaw "M" for diameter 22 mm
- 1948 267061 jaw "M" for diameter 28 mm
- 1948 267065 jaw "M" for diameter 35 mm
- 1936 267160 electric press tool
- case



## rechargeable press tool UAP100

GROUP: K

Size	New code	*	Code	Packing	UM
76.1-108 mm.	1948 267159		UAP100	1	pc



## press jaws for UAP100

GROUP: K

Size	New code	*	Code	Packing	UM
76.1	1948 267080		BP761M	1	pc
88.9	1948 267082		BP889M	1	pc
108	1948 267074		BP108M	1	pc



## set of tools for installing pipes Ø76,1-108

GROUP: K

New code	*	Code	Packing	UM
1948 267031		KPSDU	1	set

It consists of the following items:

- 1948 267151 Battery-powered press tool UAP100
- 1948 267080 jaw for the UAP100 Ø76,1 press tool
- 1948 267082 jaw for the UAP100 Ø88,9 press tool
- 1948 267074 jaw for the UAP100 Ø108 press tool



x3



## ECO 301 press machine

GROUP: K

Size	New code	*	Code	Packing	UM
12-66.7	1948 267163		620570.5	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### ECO 301 press jaw

GROUP: K

Size	New code	*	Code	Packing	UM
12	1948 267084		620572.7	1	pc
15	1948 267085		620573.8	1	pc
18	1948 267087		620574.9	1	pc
22	1948 267164		620575.1	1	pc
28	1948 267165		620576.0	1	pc



### ECO 301 HP Snap On collar

GROUP: K

Size	New code	*	Code	Packing	UM
35	1948 267124		634106.0	1	pc
42	1948 267126		634107.1	1	pc
54	1948 267128		634108.2	1	pc



**Caution:**

Collars 35 – 54 mm needs additional adapter ZB 303.

### adapter ZB 303 for ECO 301 press machine

GROUP: K

Size	New code	*	Code	Packing	UM
35-42-54	1948 267166		634111.5	1	pc



### ACO 401 press machine (battery powered)

GROUP: K

Size	New code	*	Code	Packing	UM
76.1-168	1948 267151		634008.1	1	pc



### HP collar for ACO 401 press machine

GROUP: K

Size	New code	*	Code	Packing	UM
76.1	1948 267100		634009.2	1	pc
88.9	1948 267102		634010.3	1	pc
108	1948 267098		634011.4	1	pc
139.7	1948 267071		BF139	1	pc
168.3	1948 267072		BF168	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends



SYSTEM **KAN-therm**

# Surface heating

Comfort and efficiency



TECHNOLOGY OF SUCCESS



ISO 9001

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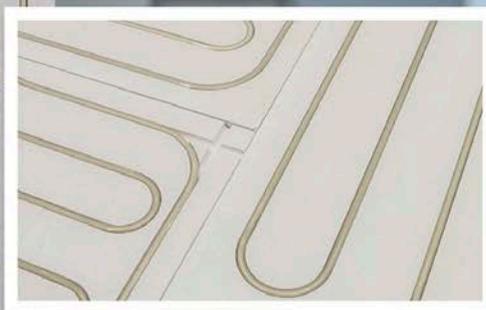
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# KAN-therm WALL

## Wall heating



SYSTEM  
KAN-therm



Wall heating in dry method



Wall heating in wet method

- **Comfortable** - the effect of the radiating walls, temperature distribution close to optimum.
- **Practical** - possibility of free shaping of heated/cooled room - heating/cooling is supplied where you are.
- **Economic** - heating energy saving - possibility of reducing seasonal wear of thermal energy in comparison with radiator heating.
- **Clean** - clean surfaces, using the wall heating system eliminates dust flow.
- **Permanent** - system operating life exceeds 50 years.
- **Secure** - low temperature of the heating element is applied, the product has a 10-year warranty and is insured for PLN 30 million.
- **Fast and easy** to install.

TECHNOLOGY OF SUCCESS



[www.kan-therm.com](http://www.kan-therm.com)

ISO 9001

**KAN-therm** SYSTEM



**BASIC+**

Wired automatic control



## New look for wired automatic control

- Large area handling — strips available up to 10 zones
- Up to 18 servomotors can be connected
- Flexible investment configuration — 5 servomotors can be connected to one zone
- Changeable for NC or NO servomotors
- Pump and boiler control
- Elegant design, ideally fits to modern interiors
- Simple thermostat handling

TECHNOLOGY OF SUCCESS



[www.kan-therm.com](http://www.kan-therm.com)

ISO 9001

# KAN-therm SYSTEM

New in surface heating



SYSTEM  
KAN-therm

**CHOOSE WISE**  
Choose stainless steel!



## Stainless manifolds for surface heating

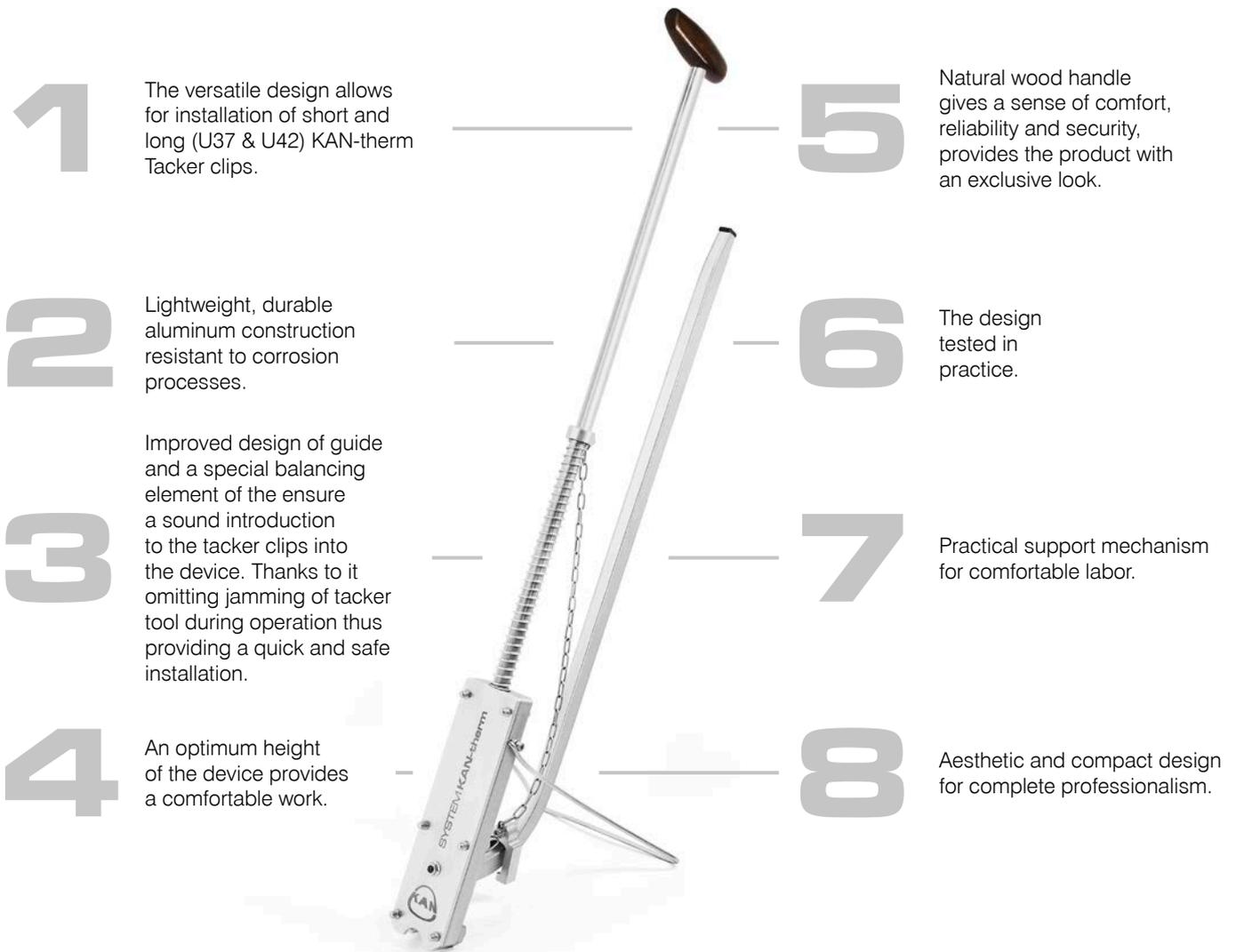
Completely new stainless manifolds dedicated for underfloor heating, wall and ceiling heating.

Stainless steel ensures greater durability of use. When compared to typical brass manifolds on 1 inch profiles, the stainless steel manifolds allows **for more than 1,5 times greater flow**.

- Stainless beam with 1 1/4" profile with female thread 1"
- 3/4" nipples with 50 mm span for easy and a secure connection with pipes by Eurocone adapters
- Valves for electric servomotors with M30x1.5 thread
- Material resistant to glycol mixtures up to 50%
- With or without a drain-bleed section
- Clear indication of beams for easy installation
- The rubber insert damping vibration ensures quiet operation
- Resistance to 6 bar and 70°C
- More than 1,5 times greater flow when compared to typical brass manifolds

# KAN-therm Tracker system

New, universal tacker for clips



**1** The versatile design allows for installation of short and long (U37 & U42) KAN-therm Tacker clips.

**2** Lightweight, durable aluminum construction resistant to corrosion processes.

**3** Improved design of guide and a special balancing element of the ensure a sound introduction to the tacker clips into the device. Thanks to it omitting jamming of tacker tool during operation thus providing a quick and safe installation.

**4** An optimum height of the device provides a comfortable work.

**5** Natural wood handle gives a sense of comfort, reliability and security, provides the product with an exclusive look.

**6** The design tested in practice.

**7** Practical support mechanism for comfortable labor.

**8** Aesthetic and compact design for complete professionalism.

## New clip

### New stacking quality for surface heating

- Increased range of supported diameters, even up to 20 mm,
- Cheap packaging and handy clip sets,
- Proven on a difficult and demanding German market,
- The product recommended by German installers.



TECHNOLOGY OF SUCCESS



## 7 KAN-therm system surface heating

The KAN Company, manufacturer of the KAN-therm systems for many years promotes modern and user-friendly surface heating installations. The design of a System KAN-therm surface heating is very simple. Thanks to a rich selection of design solutions, wide assortment of system elements (manifolds, installation cabinets and automation elements) you can precisely select a heating system depending on the local conditions.

### Among surface heating systems we offer:

- heating of surfaces in contact with open air (sports field pitches, stadium pitches, transport routes, garage drives/ramps, external stairs and terraces),
- floor, ceiling and wall type heating inside buildings.

For heating inside buildings different designs of surface heaters can be chosen depending on construction conditions, the use of a building etc:

- sports halls with elastic floors,
- wooden structure floors with an air void,
- poured structures of a floor heating – laid by a so-called wet method,
- structures of a floor heating laid by a dry method – especially useful for an overhaul or adaptation of buildings,
- structures of wall heating laid by wet method,
- structures of wall heating laid by dry method - especially useful for an overhaul or adaptation of buildings, as well as rooms with irregular shapes (e.g. attics).

### Advantages of a System KAN-therm floor heating:

- best temperature distribution in a room,
- energy saving,
- possible cooperation with cost-effective heat sources, e.g. heat pumps and condensing boilers,
- maximum use of the space surface,
- system friendly for allergists,
- in summer the system can cool spaces,
- high quality and reliability,
- competitive price,
- fast and easy assembly,
- rich selection of system designs,
- quiet run, no vibration,
- resistance against corrosion
- materials do not cover in limestone,
- environment friendly materials..

**The KAN Company supplies also computer programmes aiding to design floor heating systems:**

- **KAN co-Graf** for designing heating systems with an option for designing a floor heating,
- **KAN Quick Floor** an Internet programme for a quick calculation of a floor heating based on the EN 1264 standard with an option of listing materials,
- **KAN ozc**, as an addition for calculating heat losses in buildings and individual spaces,
- **KAN SDG** is a programme for quick selection of floor heating and convection heaters, with an option to approximately calculate rooms design heat load.

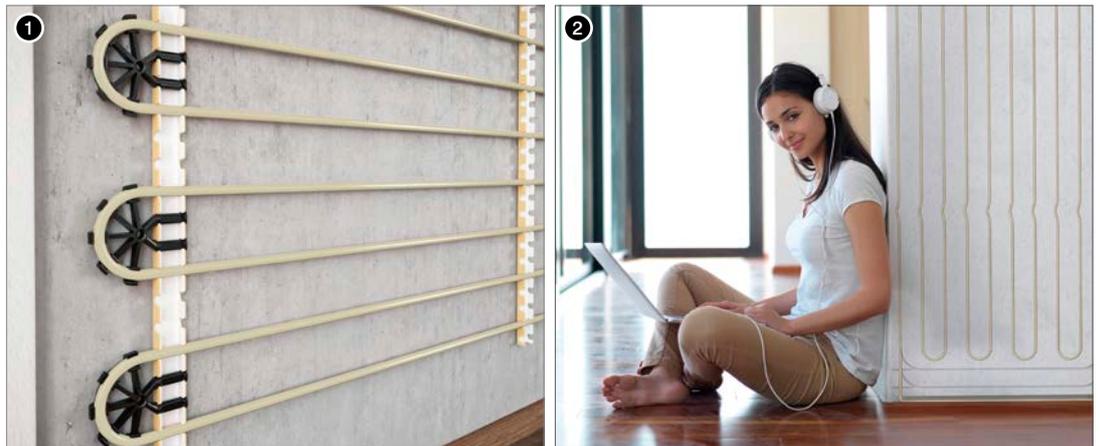
**All programmes are available at [www.kan-therm.com](http://www.kan-therm.com)**

## Basic information

The wall heating involves installation of heating pipes in the inner vertical layers of construction partitions. This can be achieved in two ways - by fixing the heating pipes to the construction layer and covering with plaster (wet method) or by finishing the inner surface of the walls with plasteboards with embedded heating pipes (dry method). Heating of this type not only provides optimum thermal comfort but also reduces heat loss from the room (transmission of heat from the warmer to the colder place through the partition of a higher temperature is physically impossible). Heating of this type is ideal for use in rooms with sloping walls (attics) which are difficult to arrange.

Wall heating:

1. laid using wet method - pipes covered with plaster.
2. laid with dry method - pipes embedded in gypsum fibre boards.



A floor heating is directly immersed in a poured on layer of screed (floor leveller). Thus a heater is made, which in fact is a floor itself.

This kind of heating is very popular and can be successfully used in one-family houses and high standard apartment buildings.

The floor heating system has turned out to be the best solution to maintain the best warmth comfort in the building industry, e.g:

- churches,
- public buildings (sports halls, exhibition halls),
- industrial buildings.

Wet laid floor heating – pipes embedded in a cast screed



## Thermal comfort

Surface heating is a heating system, where the most of the heat is given up by radiation. The heat flux is conducted by the pipe, then thru the concrete layer as the heating plate, and next thru the flooring and is given up to the environment.

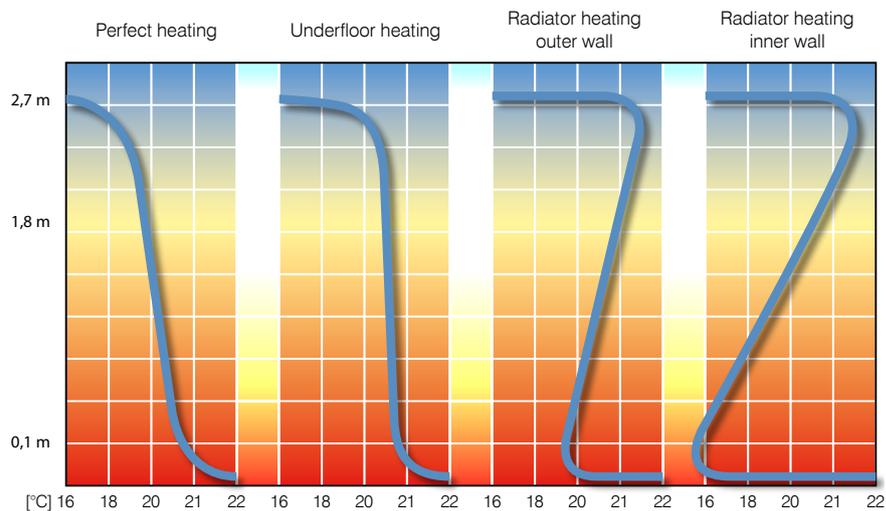
The floor temperature is raised thus it is not a cold barrier (does not cool feet) and does not negatively affect the wind chill (the resultant of the air temperature, wall temperature and floor temperature in a room), which decides on the warmth comfort.

Therefore the air temperature in a room of 20°C provides the same thermal comfort as 21°C - 22°C, achieved with traditional heaters and convectors. The human body does not feel variations of the room temperature by 1°C.

With the floor and wall heating a heat distribution almost ideal for the human is achieved.

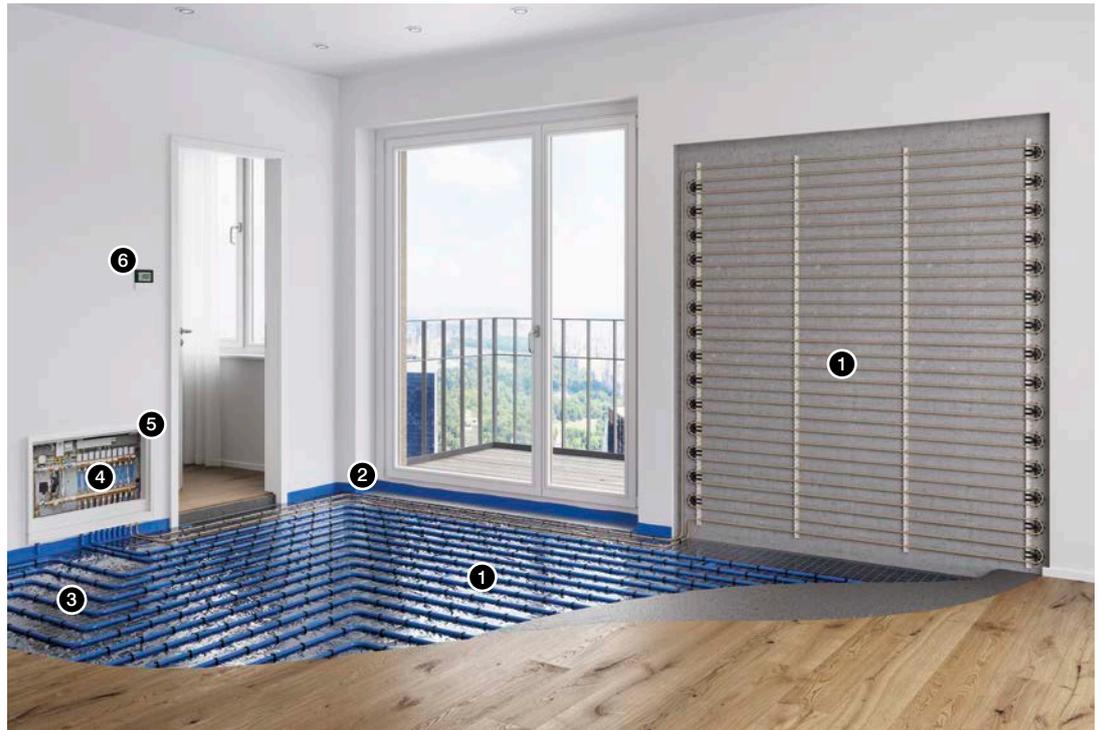
What's important with a surface heating is the reduced air convection as compared to radiators (convection type), which can raise dust.

Vertical distribution of temperature for various types of heating



## System KAN-therm surface heating - elements

1. Heating pipes.
2. Edge insulation.
3. Thermal insulation and damp insulation
4. Distributor for floor heating
5. Installation cabinet.
6. Temperature regulator



### Pipes

Plastic pipes laid and fixed to Styrofoam sheets are the heating element of the System KAN-therm.

The KAN-therm System for floor and wall heating offers a very wide assortment of pipes both in terms of diameters and types. This allows selecting a best technical and cost-effective solution to satisfy all customers' requirements.

For construction of a KAN-therm floor heating two kinds of plastic pipes can be used: PE-Xc and PE-RT with an antidiffusion barrier or multi-layer PE-RT/Al/PE-RT pipes with an aluminum insert. Depending on the required heat capacity of a floor heating system we use pipes of a diameter between  $\text{Ø}12$  and  $26$  mm. For wall heating system we use  $\text{Ø}8 - 16$  mm pipes covered with a special plaster or in finished panels mounted on the wall.

Pipes are available in coils 100-600 m depending on the pipe diameter. The use of pipe decoiler Uncoiling pipes from coils 600 m allows you to form heating coils fast and easy without turning them around their axis. Turning pipes around their axis causes tensions and a tendency of a pipe to separate from a substrate therefore forces to make it fast to the substrate must be greater.

1. RPipe in coil
2. Decoiler for pipe coils
3. uncoiler guide



## Edge and damp-proof insulation

Materials for damp proof insulation:

- PE foil in rolls,
- metalized or laminated foil on Tacker plates,
- PS-foil on Profil plates.

Edge insulation:

- reduces heat losses through walls;
- constitutes dilatation of concrete heating panel from outer walls and structural components,
- laid up to concrete layer high (in case of ceramic floor covering, also ceramic covering should has dilatation from walls and structural components).

Materials of edge insulation:

1. Wall tape with incision
2. Wall tape with incision and apron
3. Expansion joint profile with feet.



## Thermal insulation

Requirements for thermal insulation to PN-EN 1264:

- $R = 0,75$  [ $m^2K/W$ ] – required insulation thermal resistance above a heated space,
- $R = 1,25$  [ $m^2K/W$ ] – required insulation thermal resistance above a not heated space or on the ground ( $T_z \geq 0$  °C),
- $R = 2,00$  [ $m^2K/W$ ] – required insulation thermal resistance on the ground ( $-5$  °C  $\geq T_z \geq -15$  °C).

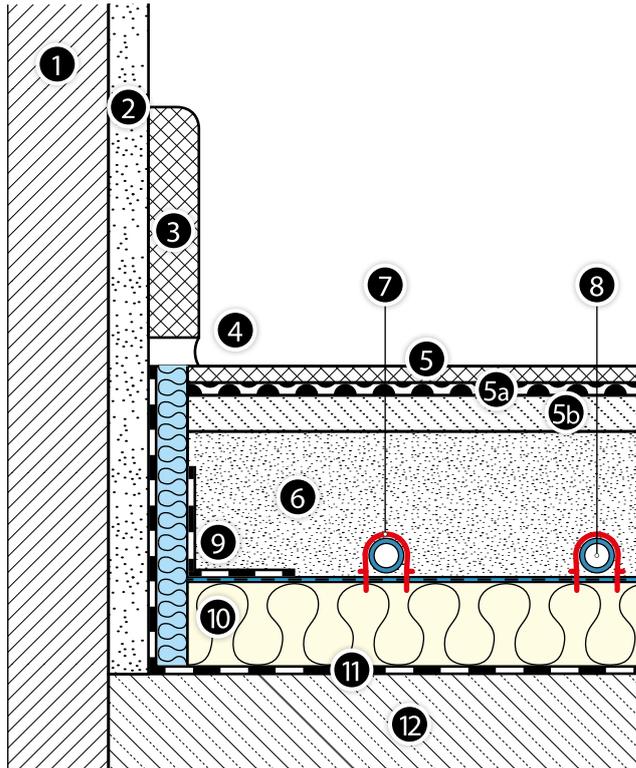
Material for thermal insulation:

- Styrofoam sheets Tacker with a metalised or laminated foil 20, 30, 35 and 50 mm thick,
- Styrofoam sheets Profil – 2 and 4 thickness 11 and 30 mm,
- Styrofoam sheets TBS – thickness 25 mm.

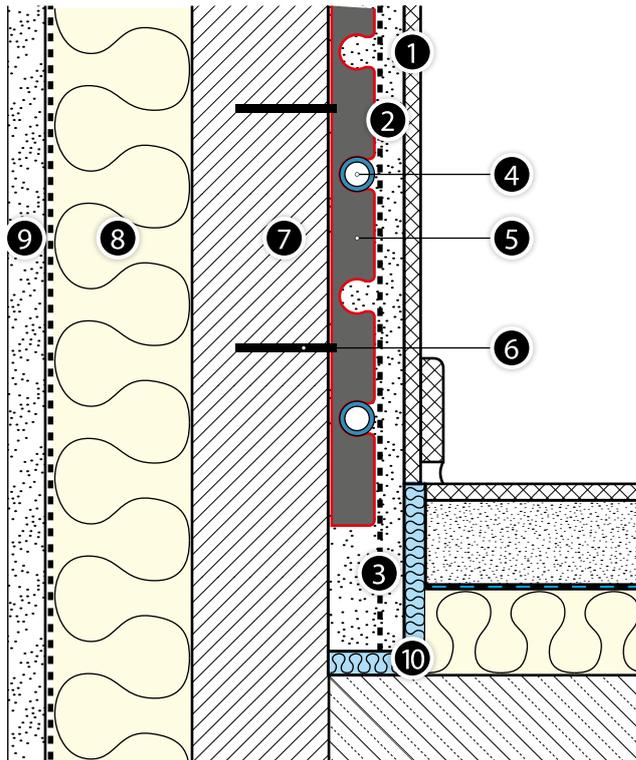
When you lay Styrofoam on a bitumen substrate use a separating PE-foil.

## Heating plate design

1. Wall
2. Plaster layer
3. Plinth made of tiles
4. Expansion joint
5. Sports floor covering
  - 5a. Fibre glass coating
  - 5b. Elastic layer 10 mm
6. Screed
7. Pipe clip
8. KAN-therm heating pipe
9. Wall tape with PE protective cover
10. KAN-therm Tacker system board, thickness A, with metallized or laminate film
11. Damp insulation (only at ground level!)
12. Concrete ceiling



1. Wallcovering (wallpaper, ceramic tiles)
2. Plaster
3. Mounting mesh 7x7 mm
4. KAN-therm heating pipe
5. Mounting rail
6. Dowel
7. Wall construction
8. Thermal insulation
9. External plaster
10. Expansion joints



For detailed requirements for heating plates (screeds) see instructions delivered by KAN company.

## Manifolds

The basic adjustment of a floor heating consists in equalisation of flow resistance thru individual loops to ensure an even water flow distribution.

This regulation can be done with:

- regulation valves on their lower beam of 51A and 71A manifolds,
- regulation and measuring valves (flow meters) on the bottom beam of 55A and 75A series manifolds N75A and N75E.



Manifold series N75A



Manifold series N75E



Manifold series 51A



Manifold series 71A



Manifold series 55A



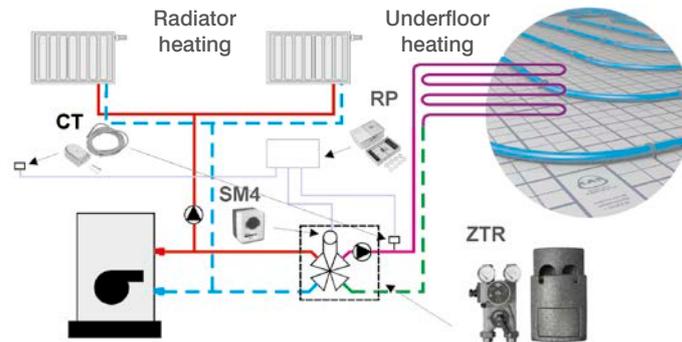
Manifold series 75A

## Mixing systems

Surface heating is a system operating on low parameters. The max supply temperature shall not exceed 55°C. Therefore in case of supplying a surface heating from the same source as traditional radiators local or central mixing sets shall be used:

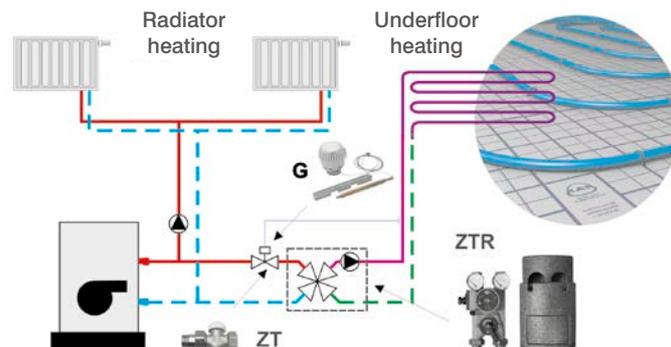
**Central mixing sets:** are used in case a surface heating is planned on a number of building stories. These sets are usually installed in a boiler room, close to a boiler.

— with automatic control,



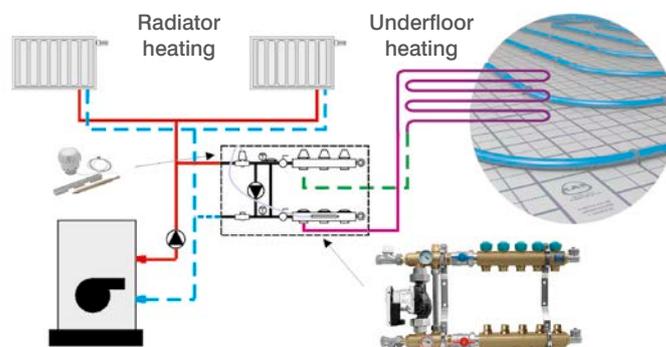
A KAN Bloc (ZTR) mixer provided additionally with an servomotor, weather regulator (RP) and temperature sensors adjusts the system automatically, e.g. as a function of the external temperature.

— with semi-automatic control.



A KAN Bloc (ZTR) mixer with a 4-way valve provided additionally with a thermostatic valve (ZT), adjusts a system semi-automatically.

**Local mixing units:** are used in case a surface heating is planned within one storey. These sets shall be installed in installation cabinets, close that a heating installation cabinets, near the underfloor heating system.



A 73E and 77E series manifold connected directly to a heating system operates as a local mixing system. A thermostatic head with a capillary tube serves as a protection against a possible temperature rise. It can be adjusted "down" from 55°C.

Caution! do not use with low temperature heat sources.

## Installation cabinets

Manifolds for surface heating shall be mounted in special installation cabinets available in three versions: surface –mounted, embedded and clad with glazed tiles.



Due to the design of cabinets for floor heating manifolds can be mounted with or without a mixing device. In cabinets there is also room for electrical terminal blocks. Terminal blocks are attached by screws, which enter into special holes in a mounting strip in the upper part of a box.

The Table 1 below allows a fast selection of cabinets depending on the manifold type, basic equipment and the way of connection.

**Tab. 1 Selection of installation cabinets for floor heating depending on the type of manifold and basic equipment**

Cabinet type	Code	Height [mm]	Width [mm]	Depth [mm]	Number of circuits		
					OP Manifold	OP + Set-P/ Set-K Manifold	Manifold OP with a mixing system*
SWN-OP – 10/3	1446180000	710	580	140	2-10	2-7/2-6	2-3
SWN-OP – 13/7	1446180001	710	780	140	11-13	8-11/7-10	4-7
SWN-OP – 15/10	1446180002	710	930	140	14-15	12-14/11-13	8-10
SWPG-OP – 10/3	1446117002	570	580	110-165	2-10	2-7/2-6	2-3
SWPG-OP – 13/7	1446117001	570	780	110-165	11-13	8-11/7-10	4-7
SWPG-OP – 15/10	1446117000	570	930	110-165	14-15	12-14/11-13	8-10
SWP-OP – 10/3	1446117003	750-850	580	110-165	2-10	2-7/2-6	2-3
SWP-OP – 13/7	1446117004	750-850	780	110-165	11-13	8-11/7-10	4-7
SWP-OP – 15/10	1446117005	750-850	930	110-165	14-15	12-14/11-13	8-10

\* Required depth of cabinet: 140 mm

**OP manifold** – manifold series 51A, 55A, 71A and 75A for floor heating,

**OP + Set-P/Set-K manifold** – manifold series 51A, 55A, 71A and 75A for floor heating with Set-K angle valves or straight valves type Set-P (2-7/2-6 – number of circuits with Set-K valves/ number of circuits with Set-P valves),

**OP manifold with a mixing unit** – manifold series 73E and 77E with a mixing unit.

## Design of floor heaters - pipe fastening system

### System KAN-therm Tacker

System KAN-therm delivers insulation plates with a metalised or laminated plate with an overprint every 5 cm.

- Use plates Tacker EPS 100 038 (PS20) for standard floor slab loads up to 3.5 kN/m<sup>2</sup> in residential or office buildings,
- Plates Tacker EPS 200 036 (PS30) shall be used for higher floor slab loads up to 5.0 kN/m<sup>2</sup>, e.g. conference rooms or lecture rooms,
- Tacker EPS T-30 dB plates shall be used in sound-proof rooms; e.g. recording studios.



The foil glued onto plates serves as a damp proof insulation to DIN 18560 and can be overlapped, thus plates can be laid tight.

To seal places, where plates join, use adhesive tape dispensed from a hand feeder.

Pipes are fixed to Tacker plates with clips driven with a tacker tool. For 20 mm thick Styrofoam plates use short clips driven with a tacker tool for short clips.



Thanks to an overprinted grid it is easy to lay pipes at a determined spacing. You can use Ø14×2, 16×2, 18×2, 20×2 mm pipes spaced every 10-30 cm.

Pipes can be fastened to Styrofoam sheets of the Tacker type also using mounting rails provided with an adhesive tape or with NET nets with clamps (see: System KAN-therm Rail and NET).

When laying Tacker plates with a foil observe requirements from the EN 1264 standard regarding the minimum heat resistance of a floor-ceiling assembly with the floor heating. In case of floors on the ground and floor slabs in contact with atmospheric air under the EPS system plates there should be an additional insulation. For requirements and versions of using multi-layer system plates type EPS with an additional foil see Table 2.

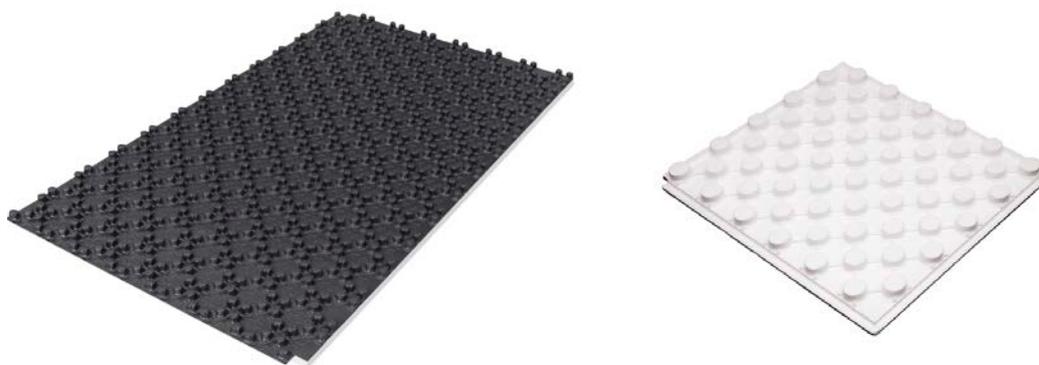
Tab.2 System KAN-therm Tacker – Minimum requirements for insulation according to EN 1264 standard

Required insulation thickness above a heated room $R=0,75$ [ $m^2K/W$ ] (PN-EN 1264)			
Floor heating system	Additional insulation	Insulation resistance	Insulation thickness [mm]
System Tacker 30 mm	-	$R=0,775$	30
System Tacker 20 mm	foamed polystyrene EPS100 (PS20) 20 mm	$R=0,875$	40
Required insulation thickness above an unheated room or on the ground ( $T_z \geq 0$ °C) $R=1,25$ [ $m^2K/W$ ] (PN-EN 1264)			
Floor heating system	Additional insulation	Insulation resistance	Insulation thickness [mm]
System Tacker 50 mm	-	$R=1,250$	50
System Tacker 30 mm	foamed polystyrene EPS100 (PS20) 20 mm	$R=1,250$	50
System Tacker 20 mm	foamed polystyrene EPS100 (PS20) 40 mm	$R=1,375$	60
Required insulation thickness in case of the contact with air ( $-5$ °C $\geq T_z \geq -15$ °C) $R=2,00$ [ $m^2K/W$ ] (PN-EN 1264)			
Floor heating system	Additional insulation	Insulation resistance	Insulation thickness [mm]
System Tacker 50 mm	foamed polystyrene EPS100 (PS20) 30 mm	$R=2,000$	80
System Tacker 30 mm	foamed polystyrene EPS100 (PS20) 50 mm	$R=2,000$	80
System Tacker 20 mm	foamed polystyrene EPS100 (PS20) 70 mm	$R=2,129$	90

### System KAN-therm Profil

KAN-therm system provides Profil system plates, where pipes are attached by inserting into the shaped top part of the plate. You can use PE-Xc, PE-RT, Platinum or multilayer pipes with diameter range  $\varnothing 16 \times 2$  to  $18 \times 2$  mm.

Profil foamed polystyrene boards



Profile foamed polystyrene boards:

- Profil1 30 mm - polystyrene foamed plates with PS foil with thickness of 30 mm and dimensions  $0.84 \times 1.44$  m. Plate height with profiled part is 48 mm, and permissible load is  $5.0$  kN/m<sup>2</sup>. Profil1 plate fulfils the requirements for ceilings between heated spaces  $R=0.75$  m<sup>2</sup>/k/W.
- Profil2 11 mm - polystyrene foamed plates with PS foil with thickness of 11 mm and dimensions  $0.84 \times 1.44$  m. Plate height with profiled part is 29 mm, and permissible load is  $1.5$  kN/m<sup>2</sup>.
- Profil3 - PS foil without foamed polystyrene plate with thickness 1 mm and dimensions  $0.84 \times 1.44$  m. PS plate height with profiled part is 20 mm.
- Profil4 20 mm - polystyrene foamed plates without PS foil with thickness of 20 mm and dimensions  $1.2 \times 0.6$  m. PS plate height with profiled part is 43 mm.

When laying Profil1, Profil2 and Profil4 boards apply EN 1264 standard regarding minimum thermal resistance of floor with underfloor heating. Requirements and application variants of Profil boards are given in Tab. 3.

**Tab. 3 KAN-therm Profil System - minimum requirements for insulation according to EN 1264 standard**

Required insulation thickness above a heated room $R=0,75$ [ $m^2K/W$ ] (PN-EN 1264)			
Underfloor heating system	Additional insulation	Insulation resistance	Insulation thickness [mm]
System Profil1 30 mm	-	$R=0,750$	30
System Profil2 11 mm	foamed polystyrene EPS100 (PS20) 20 mm	$R=0,810$	31
System Profil4 20 mm	foamed polystyrene EPS100 (PS20) 20 mm	$R=1,145$	40
Required insulation thickness above an unheated room or on the ground ( $T_z \geq 0^\circ C$ ) $R=1,25$ [ $m^2K/W$ ] (PN-EN 1264)			
Underfloor heating system	Additional insulation	Insulation resistance	Insulation thickness [mm]
System Profil1 30 mm	foamed polystyrene EPS100 (PS20) 20 mm	$R=1,250$	50
System Profil2 11 mm	foamed polystyrene EPS100 (PS20) 40 mm	$R=1,310$	51
System Profil4 20 mm	foamed polystyrene EPS100 (PS20) 30 mm	$R=1,395$	50
Required insulation thickness in case of the contact with air ( $-5^\circ C \geq T_z \geq -15^\circ C$ ) $R=2,00$ [ $m^2K/W$ ] (PN-EN 1264)			
Underfloor heating system	Additional insulation	Insulation resistance	Insulation thickness [mm]
System Profil1 30 mm	foamed polystyrene EPS100 (PS20) 50 mm	$R=2,000$	80
System Profil2 11 mm	foamed polystyrene EPS100 (PS20) 70 mm	$R=2,060$	81
System Profil4 20 mm	foamed polystyrene EPS100 (PS20) 60 mm	$R=2,145$	80

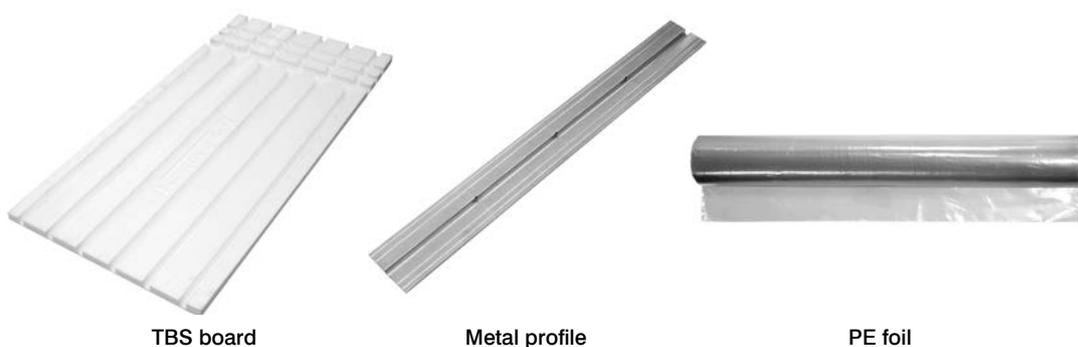
### System KAN-therm TBS

System KAN-therm TBS underfloor heating is made using "dry" method, i.e. after laying the underfloor heating system, it is covered with dry „jointless“ floor (special floor panels).

Assembly of the system of pipe laying can take place only on totally dry and leveled floor surfaces. After laying TBS boards and pipes the system is covered with PE foil for protection and to avoid possible sounds of structure thermal movements.

Next, covering board of jointless floor 35-45 mm thick is laid. All information on covering boards (permitted loads) should be obtained from the producer of covering boards.

System KAN-therm includes:



- insulation board, insulation profiled board TBS 25 mm EPS200 (PS30) with dimensions 0.5×1.0 m;
- complementary insulation board, TBS 25 mm EPS200 (PS30) with dimensions 0.5×1.0 m,
- straight metal profile TBS with dimensions 1.0×0.12 m;
- PE foil in rolls.

System KAN-therm TBS allows to lay PE-RT, PE-Xc or PE-RT/Al/PE-RT pipes of diameters Ø16×2 mm with 167 - 250 - 333 mm spacing. Because of pipe thermal expansion, straight pipe section should not be longer than 10 m and it is recommended to use PE-RT/Al/PE-RT pipes. Metal profile is pushed in laid roll formed TBS boards and then pipe is pushed in such a way that it is inside the metal profile. The metal profile has lateral incisions, which facilitates easy adjustment of its length by breaking, every 250 mm. The edge of the metal profile should end approx. 50 mm before the beginning of pipes direction change (avoiding friction of pipes against the profile as a result of thermal expansion). When laying roll formed TBS boards take into consideration planned coil shape; meander shape is recommended. Complementary insulation board TBS is used in situations when basic boards profile precludes pipes from accessing the manifold (pipe density). In such situations a required profile is cut out by a TBS cutter in complementary board.



TBS insulation cutter



TBS cutter tip

When laying TBS boards comply with requirements of EN 1264 regarding minimum thermal resistance of floor with underfloor heating. Requirements and variants of TBS boards application are given in Table 4.

Tab. 4 KAN-therm TBS System - minimum requirements for insulation according to EN 1264 standard

Required insulation thickness above a heated room $R=0,75$ [ $m^2K/W$ ] (PN-EN 1264)			
Underfloor heating system	Additional insulation	Insulation resistance	Insulation thickness [mm]
System TBS 25 mm	foamed polystyrene EPS100 (PS20) 20 mm	$R=1,210$	45
Required insulation thickness above an unheated room or on the ground ( $T_z \geq 0^\circ C$ ) $R=1,25$ [ $m^2K/W$ ] (PN-EN 1264)			
System ogrzewania podłogowego	Additional insulation	Insulation resistance	Insulation thickness [mm]
System TBS 25 mm	foamed polystyrene EPS100 (PS20) 30 mm	$R=1,460$	55
Required insulation thickness in case of the contact with air ( $-5^\circ C \geq T_z \geq -15^\circ C$ ) $R=2,00$ [ $m^2K/W$ ] (PN-EN 1264)			
System ogrzewania podłogowego	Additional insulation	Insulation resistance	Insulation thickness [mm]
System TBS 25 mm	foamed polystyrene EPS100 (PS20) 60 mm	$R=2,210$	85

### System KAN-therm Rail

An essential element of KAN-therm Rail System are special plastic mounting rails for pipe attachment. You can use PE-Xc, PE-RT and PE-RT/Al/PE-RT pipes with diameters Ø12×2, Ø14×2, Ø16×2, Ø18×2, Ø20×2, Ø25, Ø26 mm. The pipes can be laid with 10-30 cm distance - with spacing of 5 cm (for standard rails) or spacing of 10 cm (for modular mounting rail).



### KAN-therm TBS system

System KAN-therm NET is a system of pipe laying on wire nets, available in the following assortment:

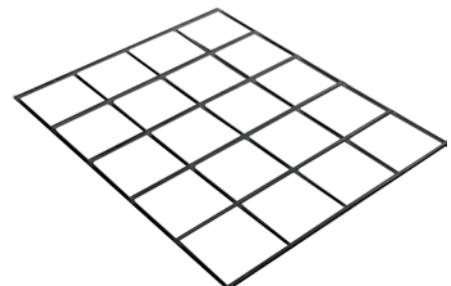
- PE foil 2,0 m×50 m×0,8 mm,
- 3 mm wire net 1.2 m×2.1 m and mesh spacing 150×150 mm,
- fastening bands for tying nets,
- PE fastening peg 80 mm - Ø8 mm for foil fastening,
- pipe fastening grips Ø16-18 mm and Ø20mm.

On thermal insulation made of EPS 100 038 boards or EPS 200 036 moisture insulation made of PE foil is laid and then wire nets. On wire nets with given spacing pipe grips are mounted (on the wire or crossing of wires) in which pipes are pushed. Spacing between pipe and insulation layer is 17 mm.

System KAN-therm NET can be successfully applied in order to fasten pipes to Tacker foamed polystyrene boards with metalized foil or laminated foil. In such cases do not use additional foil.



PE foil, dimension 2,0 m×50 m×0,8 mm



NET steel wire net is made of steel wire 3 mm thick, mesh size 150×150 mm



Fastening band for connecting NET nets



Peg for foil fastening size 80 mm - Ø8 mm



Grip for fastening pipes on NET Ø16-18 mm and Ø20 mm

## Execution of floor screed

Prepared floor heating systems should be covered with a layer of concrete or anhydrite screed (wet). In the case of anhydrite screeds must comply with its manufacturer's / supplier.

When making underfloor heating systems, observe the following guidelines:

- while laying screed keep pipes under pressure at least 3 bar (recommended 6 bar),
- pipes should be protected from mechanical damage during construction,
- determine passageways for example by using boards,
- screed needs to be nurtured,
- cement screed bonding period is 21-28 days, only after this period, you can run the heating,
- Installation start is carried out with an initial water temperature of 20°C, temperature should be raised about 5°C each day until its value reaches designed level,
- after start-up periods screed should be basked min for 4 days with a maximum (designed) temperature to remove excess moisture,
- floor coverings should be laid at a temperature of 18-20°C of the floor, after screed is basked,
- pay attention to the proper implementation of joint of ceramic tiles (they should coincide with dilatation),
- adhesives should be permanently flexible at 55°C (hold manufacturers certificates for use in underfloor heating).

Requirements for concrete slab:

- minimum layer thickness over the pipe: 4.5 cm (6.5 cm thick over the thermal insulation),
- using concrete plasticizer BETOKAN Plus you can reduce the thickness of concrete slab above the pipe to 2.5 cm (4.5 cm thick over the thermal insulation),
- large casted areas should be divided into smaller with dilatation tape (with minimum thickness of 0.5 cm) so that the length of homogeneous plates do not exceed 8 m, the whole area of 30 m, and the ratio of the length of its width is 1:2,
- in case of ceramic tiles and ceilings carrying heavy loads, we recommended reinforcement by placing over the pipes fiberglass mesh with a mesh of 40×40 mm. Using reinforcement is not essential, however, the strength of the floor in the event of a crack is reduced in the height and width. Mesh must be stopped in the dilatation points. For floors carrying heavy loads (more than for residential buildings) such type of insulation and concrete slab height should be selected, so that the deflection does not exceed 5 mm,
- use B20 concrete class with the addition of a new plasticizer BETOKAN or BETOKAN Plus,
- concrete slab as a result of thermal work can not create pressure for structural elements of buildings (use dilatation joints).

The composition of cement to aggregate ratio is 1:4.5 parts by weight:

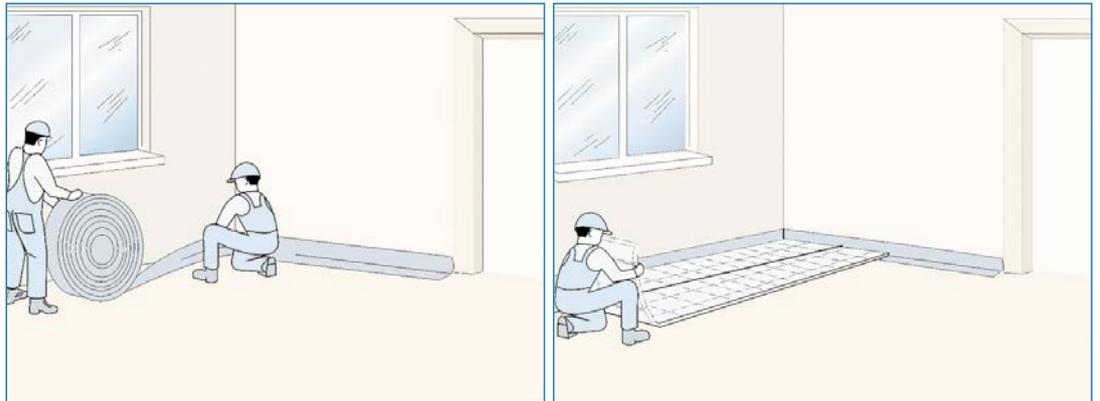
- 50 kg cement CEM I (DIN 1164),
- 225 kg of aggregate (60% sand with a grain size up to 4 mm and 40% gravel with a grain size of 4 - 8 mm), in case of use of BETOKAN plasticize:
  - 16 – 18 l of water,
  - 0,2 kg of BETOKAN,
  - Use 0.25 - 0.6% related to the cement mass (on average 200 ml for 50 kg of cement), together with batched water and aggregate. In hot weather it is recommended to double this dose to extend concrete workability.

— in case of use BETOKAN Plus plasticizer:

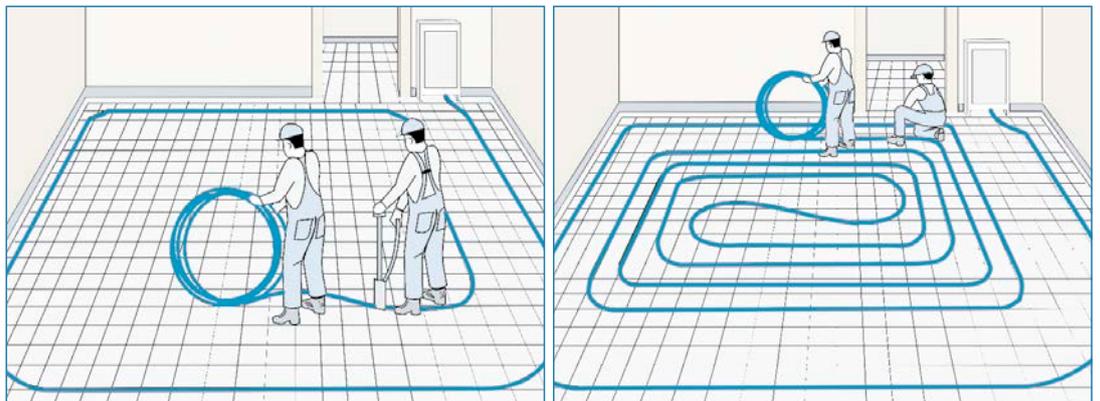
- 8 – 10 l of water,
- 5 kg of BETOKAN Plus,
- average consumption rate is: 10 kg per 7,5 m<sup>2</sup> of screed, at slab thickness 4,5 cm, which is 30 to 35 kg per 1 m<sup>3</sup> of concrete.

## Assembly

**1** Deploy the wall edge tape.



**2** Spread the Styrofoam with PE-foil on top of it.



**3** Connect the supply pipe to the manifold, lay at a required spacing (doubled), fasten pipes with clips at right places.

**4** Lay the outlet pipe „backwards“ between the supply pipe coils.

For detailed information on the assembly of System KAN-therm floor heating and on the start-up of the system see: “Laying the System KAN-therm by the Wet Method”.

## Construction of wall heaters - pipe fastening systems

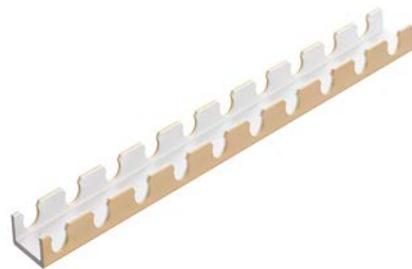
### Wet method

KAN-therm wall heating elements are ideal for the construction of various types of heating and cooling systems mounted on the vertical construction partitions. Having all the advantages of surface heating, KAN-therm water wall heating is further characterized by the following beneficial features:

- may function as the only independent room heating, or serve as a supplementary heating in the absence of sufficient space for underfloor heating in the room. It may also support the radiator heating, while increasing the comfort in the rooms (used for the modernization of the heated building),
- it ensures uniform, almost ideal temperature distribution in the room and as a result high thermal comfort.
- vertical partitions, due to the identical heat transfer coefficients both for heating and cooling, are ideal for dual systems (heating/cooling).
- heat transfer takes place primarily through favourable radiation (approx. 90%),
- the temperature of the heating surface may be higher than in the underfloor heating (35°C) resulting in a higher heat efficiency,
- approximate heat output 120-160 W/m<sup>2</sup> (provided the maximum wall temperature is not exceeded).
- due to the smaller thickness of the heating / cooling panel and a small (or zero) thermal resistance of the outer layers (cladding) of the walls, the thermal inertia is lower and the temperature adjustment becomes easier.

The main feature are special rail plastic strips for fastening pipes. You can use the following pipes: PB, PE-Xc, PE-RT and PE-RT/Al/PE-RT with the diameter Ø8×1, Ø12×2, Ø14×2, Ø16×2 mm. Pipes may be laid with a distance of 6-30 cm - in steps of 6 cm (diameter 8 × 1 mm) or 10-30 cm - with step of 5 cm for the remaining diameters.

1. Mounting rail for pipes of Ø8 mm.
2. Profiling curve D60 mm for pipes of Ø8 mm..

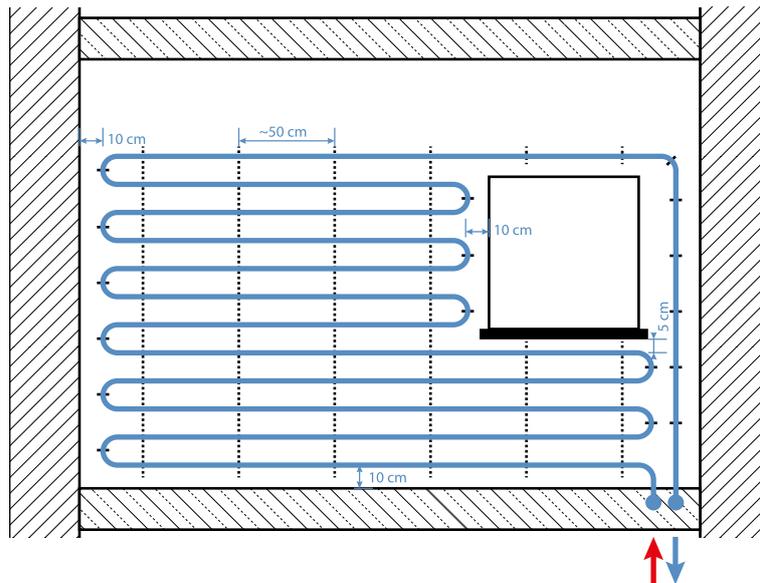


1. Mounting rail.
2. Modular mounting rail.



Wall heating is mounted on the external walls with a penetration coefficient of  $U \leq 0.35 \text{ W/m}^2 \times \text{K}$ . If the penetration coefficient exceeds  $0.4 \text{ W/m}^2$ , the wall must be additionally insulated. It is recommended that installation be done near window openings, e.g. under the window sills. Heating may also be laid in the inner walls. You should use KAN-therm system pipes PB or PE-RT with the diameter of  $8 \times 1$ , KAN-therm system pipes PE-Xc or PE-RT with the diameter of  $12 \times 2$ ,  $14 \times 2$  i  $16 \times 2$  and multilayer KAN-therm system pipes PE-RT/Al/PE-RT with the diameter of  $14 \times 2$  and  $16 \times 2$ . Recommended spacing between the pipes is 25 cm. Pipes should be installed with a meander pattern. In case of small spacing, pipes may be installed with a double meander pattern. The heating surfaces should be kept clear of furniture, paintings, curtains. Before laying the surface heaters you should first complete all installation and electrical works. The minimum distances between the heating pipes and the adjacent partitions and holes are presented in the following figure.

Mounting distances in wall heating



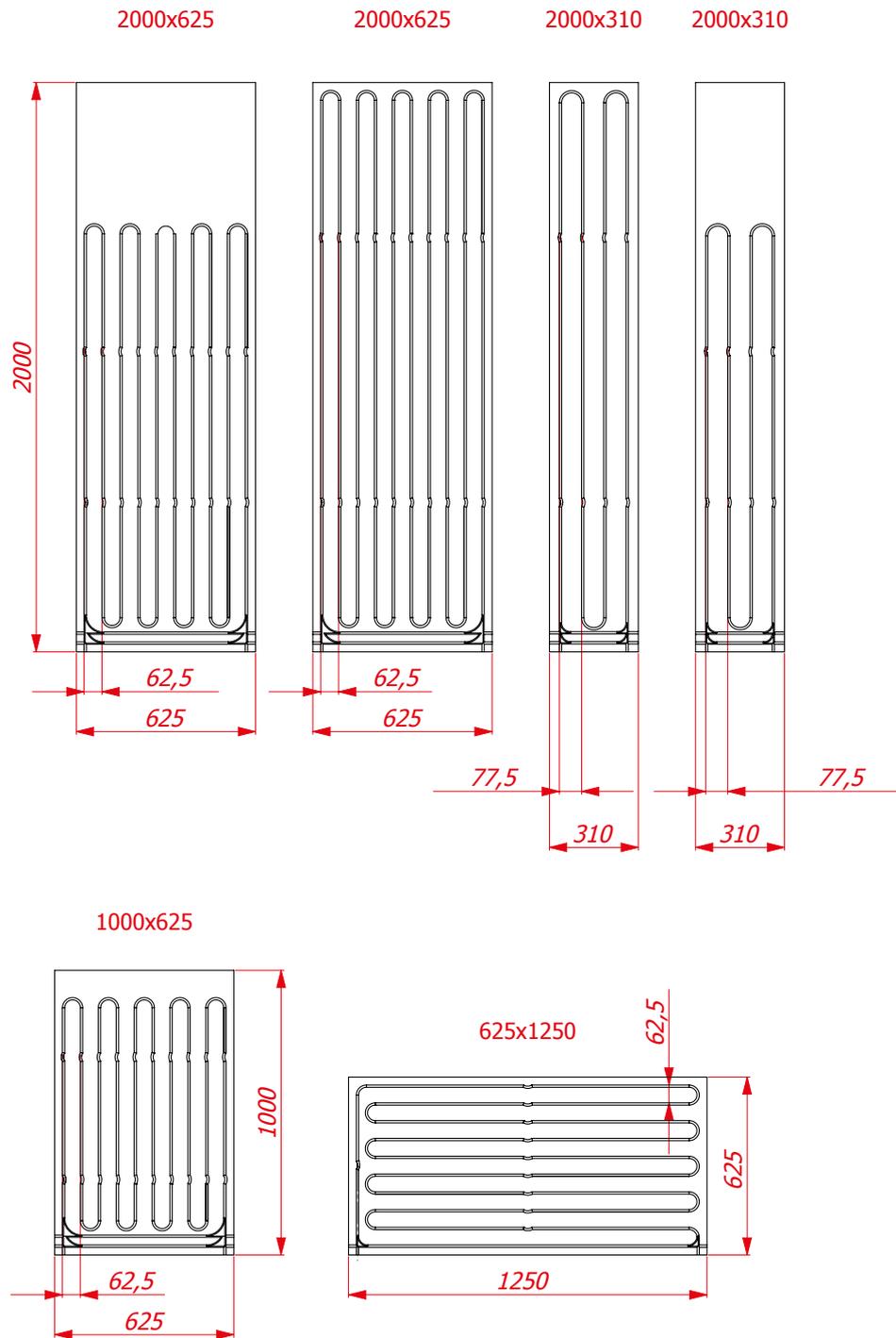
The contact points between the heating walls and adjacent partitions should be fitted with expansion joints. Coil supply pipes laid on the floor should be provided with insulation or protective tube. At the transition from the floor to the wall the pipe should be laid with a 90° guide. The heating loops are supplied by KAN-therm manifolds for surface heating. The coils may also be supplied with counter-current Tichelmann system, provided the length of each connected circuit is identical. To determine the position of the heating pipes in the existing wall systems you may use a thermal imaging camera or a special heat-sensitive film.

### Installation of wall heating using wet method

Pipes should be mounted with KAN-therm Rail mounting rails which are fixed to the wall using dowels. The spacing between the mounting rails should not exceed 50 cm. The plaster layer of the heating plate should have good thermal conductivity (min.  $0.37 \text{ W/m} \times \text{K}$ ), resistance to temperature (approx.  $70^\circ \text{C}$  for cement-lime plasters,  $50^\circ \text{C}$  for gypsum plasters), flexibility and low expansion coefficient. The type of plaster must be suitable for the room concerned. You may use cement-lime plasters, gypsum plasters, as well as clay mortars. Recommended finished plasters: e.g. KNAUF MP-75 G/F. The air temperature during plastering works should not be lower than  $5^\circ \text{C}$ . The plaster should be applied in steps: first layer with a thickness of approx. 20 mm should completely cover the heating pipes. The fresh layer must be covered with fibreglass mesh of  $40 \times 40 \text{ mm}$ , then apply the second layer with a thickness of 10 – 15 mm. The mesh strips should overlap each other and those of adjacent surfaces (approx. 10 – 20 cm). The maximum height of the heating field is 2 m. The surface of the field should not exceed  $6 \text{ m}^2$ / heating circuit. During plastering the heating pipes should be filled with water under pressure (min. 1,5 bar). The heating-up stage should be started only after the plaster has dried (the time specified by the manufacturer of plaster - from 7 days for gypsum plasters, up to 21 for cement plasters). The plaster may be covered with paints, wallpaper, structural paints and ceramic tiles.

## Dry method

The main feature are gypsum fibre boards with embedded polybutylene heating pipe  $\text{Ø}8 \times 1$  mm. The boards are available in wide selection of dimensions, with coil spacing of 6,25 and 7,75 cm. The thickness of the board is 15 mm.



The boards are mounted on the external walls with a penetration coefficient of  $U \leq 0.35 \text{ W/m}^2 \times \text{K}$ . If the penetration coefficient exceeds  $0.4 \text{ W/m}^2$ , the wall must be additionally insulated. Heating may also be laid in the inner walls. You should use polyurethane adhesives or appropriate screws / mounting dowels. The pipes may be connected in series or with counter-current Tichelmann system using multilayer pipes of  $\text{Ø}16 \times 2 \text{ mm}$ . This is done using special sections for toolless connection. You should not exceed the total length of a single loop 80 m.

1. Union for pipes  $8 \times 1 \text{ G}3/4"$ .
2. Click joint for pipes  $8 \times 1$ .
3. Reduction joint Press-Click 16 / 8
4. Tee with an off-take Press-Click-Press16 / 8 / 16.



The heating surfaces should be kept clear of furniture, paintings, curtains. Before laying the surface heaters you should first complete all installation and electrical works.

The contact points of the board should be filled with plaster, whereas the contact points between the heating walls and adjacent partitions should be fitted with expansion joints. Coil supply pipes laid on the floor should be provided with insulation or protective tube. At the transition from the floor to the wall the pipe should be laid with a  $90^\circ$  guide. The heating loops are supplied by KANtherm manifolds for surface heating. To determine the position of the heating pipes in the existing wall systems you may use a thermal imaging camera or a special heat-sensitive film. The boards may be covered with plaster, paints, wallpaper, structural paints and ceramic tiles.

## Automatic control of heating/cooling systems

Presently the automatic control even the most simple one counts as an indispensable element of heating systems (mounted in single family houses, blocks of apartments, public houses and industrial buildings) and as well of all types of external surface heating.

Diversity of technical solutions for the heating technology and in first line solutions of very commonly used mixed heating systems, e.g. a surface heating combined with a conventional radiator heating, despite many advantages, without proper control elements, can lead to a substantial discomfort. Usually overheating, underheating or not a uniform temperature in individual spaces causes this discomfort.

Without a correctly configured automatic control controlling individual heating systems can cause significant heat losses (overheated rooms), therefore an increase in the operation cost of a heating system.

System KAN-therm offer of surface heating automatic control allows to optimise a heating system depending on local requirements by selection of appropriate devices, elements etc.

Automation components for radiant heating KAN-therm System come in three versions:

- terminal blocks and thermostats – version Basic,
- terminal blocks and thermostats – version Basic+,
- Terminal blocks with LAN module, room thermostats and servomotors SMART.



## Terminal blocks Basic

With the Basic 230V or 24V terminal block as a version with or without a pump module – you can connect thermostats and servomotors at one place (e.g. in an installation cabinet above a manifold). It is possible to connect max. 6 thermostats and 12 servomotors.



Terminal block with pump module, enables to connect the circulation pump 73 and 77 series manifolds and pump groups.

Terminal block has a heating function.

**The pump module** – stops a pump in case all floor heating servomotors are shut down by a thermostat because a required temperature in a room has been reached. A pump is restarted when at least one servomotor opens.

24V terminal blocks are delivered without a power converter.

**The Basic terminal block for heating and cooling, with pump module in 230V and 24V version.**



Terminal block enables connection of thermostats and servomotors in one place (e.g. in a cabinet over the manifold). It is possible to connect max. 6 thermostats and 12 servomotors.

As a standard function a terminal block heats, however, by using special thermostats it can cool.

Both versions (230V and 24V) may be equipped with a pump module.

The 230 V terminal blocks are delivered without a power cord and the 24V version without a power converter.

## Room thermostats Basic



**Electronic, room thermostat Basic with a diode, 230 or 24V** – for an individual temperature control in a room. A LED under the thermostat housing signals the operation status of the heating installation – when ON, the system is active.



**Electronic, room thermostat Basic – for heating and cooling, 230 or 24V** – for an individual temperature control in a room. It may operate in heating and cooling installations thanks to Basic heating / cooling terminal block.

## Week thermostats Basic



**230V weekly thermostat with floor sensor** - allows for individual adjustment of temperature in the room. The thermostat has the function of weekly programming. It is equipped with a floor temperature sensor. The thermostat has the option of a manual and automatic control. It may cooperate with Basic and Basic+ terminal blocks in 230V version.



**The 230V or 24V weekly thermostat** - allows for individual adjustment of temperature in the room. The thermostat has the function of weekly programming. The thermostat allows for temperature adjustment in manual and automatic mode. It is possible to link the thermostat with the Basic 230V or 24V terminal block. Two AA batteries are required.

## The additional elements Basic



**230V - 24V Voltage transformer for Basic/Basic+ electrical strip** - compensating element for the Basic terminal block in 24V version.



**An M28 x 1,5 Smart adapter for electric servomotors (grey)** – used for valves on the upper beam of 71A, 75A, 73E, 77E.



**An M30 x 1,5 adapter for electric servomotors (grey)** – used for thermostatic valves e.g. on the manifold supply with a mixing system 73E, 77E and for valves on the upper beam of manifolds N75A and N75E.

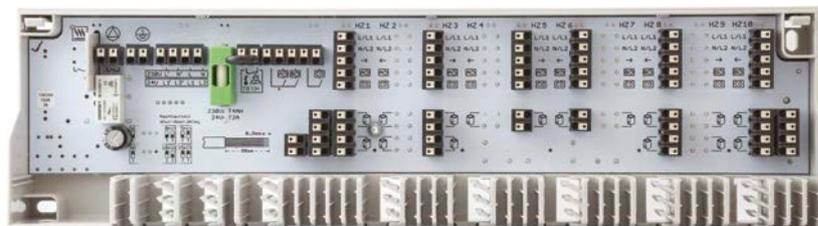


**KAN-therm servomotor** - 230V or 24V version "First Open" function for easy installation of the servomotor and pressure test. NO or NC operating mode versions. Quick installation with KAN-therm M28x1.5 or M30x1.5 adapters. Solid mounting with three-point locking system. Servomotor calibration - automatic alignment to the valve. Visualization of the servomotor operating status. Servomotor assembly in any position. 100% protection against water and moisture. Energy efficiency - power consumption of only 1W.

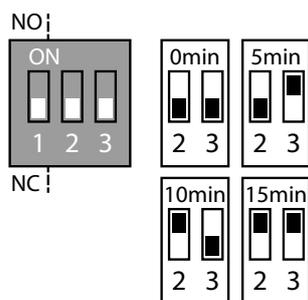
## Basic+ automation



**Basic+ automation** - a set of devices for wired, precise temperature control in rooms. Basic+ is the ideal solution for both simple and complex heating or cooling systems. Its modern design perfectly blends with the various interior arrangements.



**Basic+ terminal blocks** provide power for all control elements. Available with heating - cooling version with possibility to control 6 or 10 heating zones. Both versions are available in 230V and 24V version (required 230/24 V AC transformer). Terminal blocks can control the boiler and circulation pump operation. In addition the automatic mode can be set to work with Normally Closed or Normally Open servomotors.



The operation mode setting is carried out using Jumper 1:

**NO** mode: Jumper 1 = ON

**NC** mode: Jumper 1 = OFF

The constant overtravel time of the pump or boiler of 2 min may be increased by a further 5, 10 or 15 minutes using Jumper 2 and 3:

Additional time	Jumper 2	Jumper 3
0 min	OFF	OFF
5 min	OFF	ON
10 min	ON	OFF
15 min	ON	ON

Terminal block Basic+	24V	230V
Ground connector		+
Pump / boiler power outlets (230 V)		+
Dew point sensor connector (24 V)	+	
Selectable pump / boiler switch delay	+	+
Direct operation pump module		+
Temperature limiter connector	+	+
External timer connection	+	+
Heating / cooling change over (CO)	+	+
Servomotor type (NC or NO)	selectable	selectable
LED indicators	+	+
Number of heating zones	6 or 10	6 or 10

## Basic+ thermostats

1. Analogue room thermostat.
2. Room thermostat with LCD Standard.
3. Room thermostat with LCD Control.



Funktionalität	Analogue room thermostat		Thermostat with LCD	
	Heating	Heating / Cooling	Standard	Control
Operation in heating systems	1802265024 1802265025	1802265032 1802265033	1802265020 1802265021	1802012005 1802012004
Operation in cooling systems	+	+	+	+
NC and NO servomotors operation				+
Constant value night temperature setback	+	+	+	
Variable temperature set-point for both: heating and cooling operation				+

Funktionalität	Analogue room thermostat		Thermostat with LCD	
	Heating 1802265024 1802265025	Heating / Cooling 1802265032 1802265033	Standard 1802265020 1802265021	Control 1802012005 1802012004
User comfort programs				+
Variable mode: Day / Night / Auto			+	+
Temperature reduction signal input	+	+	+	
Temperature reduction signal output				+
Internal timer				+
Voltage sustain				+
Change Over (CO) connector		+		+
Temperature measurement correction			+	+
Temperature settings limiter	+	+	+	+
Valve protection function		+	+	+
Protection against system freezing	+	+	+	+
Lock against operation in heating or cooling mode				+
Smart Start / Smart Stop function				+
Floor temperature sensor connector				+

## Additional elements Basic+



**230V - 24V power converter for Basic/  
Basic+ terminal block**



**M28 × 1.5 Smart Adapter for the electric servomotor**  
(gray) - used for valves on the upper beam of 71A, 75A,  
73E, 77E manifolds.



**M30 × 1.5 Adapter for the electric servomotor**  
(gray) - used for thermostatic expansion valves, e.g. on the  
manifold with the mixer motor series 73E, 77E and to the  
valve on the top beam N75A and N75E.



**KAN-therm servomotor** - 230V or 24V version "First Open" function for easy installation of the servomotor and pressure test. NO or NC operating mode versions. Quick installation with KAN-therm M28x1.5 or M30x1.5 adapters. Solid mounting with three-point locking system. Servomotor calibration - automatic alignment to the valve. Visualization of the servomotor operating status. Servomotor assembly in any position. 100% protection against water and moisture. Energy efficiency - power consumption of only 1W.

## SMART automatics

### Smart and intelligent - new KAN-therm Smart wireless automatics system

A comfortable and energy efficient home is the goal and the dream of today's families planning to build or modernize their houses and apartments. The method of heating is one of the most important factors determining the operating costs and the sense of security and comfort of use. Surface heating (floor or wall) is the optimal solution that assures meeting such requirements. However, like any heating system, it requires a proper control system. Precise devices regulating the temperature in the room provide an adequate thermal comfort and on the other hand allow for significant energy savings. The regulation can be done manually or in the automatic mode, with the use of the appropriate sensors, regulators and servomotors.

The requirements of the users are constantly increasing. They are expecting not only the reliability and effective operation of these devices but also hassle-free, easy operation and the possibility of varied configuration, including remote configuration using mobile devices such as a laptop or a smartphone. The attractive aesthetics of these devices and the possibility to expand the system in the future are also of great significance.

KAN-therm radiant heating and cooling offer includes a wide range of modern solutions like controlling devices and automatic regulation of the temperature. This also includes technologically advanced wireless devices communicating through the radio waves, greatly simplifying installation of the heating system controls and eliminating the problems and costs associated with distributing many meters of wires in the building. They are virtually indispensable in the case of retrofitting existing modernized installations with automatics.



Devices of the KAN-therm Smart System are a completely new generation in this group of automation elements, offering unprecedented operating and handling possibilities. They are used for the wireless control and regulation of temperature and other parameters of the heating and cooling systems, which determine the sense of comfort in the rooms. The System also provides a number of additional advanced features, which make the operation and handling of the heating system very effective, energy efficient and user-friendly.

Basic component and the heart of KAN-therm Smart System is the modern wireless terminal block with an LAN connection. Using radio communication (868 MHz, two-way transmission) it communicates with the wireless, elegant thermostats with LCD display, which function both as temperature sensors in the rooms and are also displaying and transmitting a number of settings and information controlling the entire system. This information is transmitted, through the terminal block, to the executive elements - modern, energy-efficient KAN-therm Smart servomotors located on the valves of the manifolds of the heating (or cooling) circuits. The terminal blocks and servomotors are available in the 230 and 24V power supply options. Depending on the used version, the terminal block can operate 4, 8 or 12 thermostats controlling respectively 6, 12 or 18 servomotors.

The KAN-therm Smart system is a multi-functional system which in addition to controlling and regulating the temperature in various heating zones, also realizes the switching between heating / cooling modes, the control of the heat source and operation of the pump as well as control of humidity in the cooling mode. The terminal blocks also enable connecting a temperature limiter and an external control timer. Functions such as protection of the pump and valves (activated after periods of extended downtime) and protection from frost and excessive critical temperature are also realized.

Measure of the system's high technological advancement is the method of installation and configuration. These operations can be done in several ways:

- Configuration using a microSD card. Using the computer and the intuitive KAN-therm Manager program we can determine individual configuration settings, which are then transferred using a microSD card to the terminal block equipped with a card reader.
- Remote configuration of the terminal block connected directly to the Internet or the local network through the KAN-therm Manager software interface.
- Direct configuration thanks to KAN-therm Smart thermostat (with the use of the LCD display).

In any case, the configuration and operation of the system is user friendly. Many processes take place automatically and the settings both with thermostat or the KAN-therm Manager program are very intuitive. The expansion of the system and a quick update of the terminal block settings does not cause any trouble either.

Thanks to the radio technique, in the case of bigger installations, with the use of 2 or 3 KANtherm Smart terminal blocks, it is possible to combine them into one system enabling mutual communication.



### KAN-therm Smart wireless terminal blocks with LAN connection



- Two-way 868 MHz wireless technology,
- 230V or 24V (with a power converter),
- The possibility of connecting up to 12 thermostats and up to 18 servomotors,
- Heating and cooling modes as a standard,
- Pump protection and manifold valves protection functions, frost protection function, safety temperature limiter, emergency mode,
- Operating modes of the servomotors: NC (normally closed) or NO (normally open),
- MicroSD card reader,
- RJ 45 Ethernet socket (for connecting to the Internet),
- The ability to connect additional devices: pump module, dew point sensor, external timer, additional heat source controller,
- Clear visualization of the operating status with LED indicators,
- 25 m range inside buildings,
- Start „SMART“ function – the ability to run an automatic adjustment of the system to the conditions in the room / building,
- Configuration using a microSD card, through the software interface of the network version or by the wireless thermostat,
- The possibility of easy and simple expansion of the system and quick updating of settings (through the network or the microSD card).

## Wireless LCD thermostat KAN-therm Smart



- Modern and elegant design, high quality scratch-resistant material,
- Small size of the device 85 x 85 x 22 mm,
- Large (60 × 40 mm) clear LCD display with a backlight,
- Communication System based on pictograms and a rotary knob ensure intuitive and easy operation,
- Very low energy consumption - over two years battery lifetime,
- Possibility of connecting a floor temperature sensor,
- Two-way radio data transmission within a range of 25 m,
- Comfortable and safe use guaranteed by a three-level MENU layout: user functions, parameters of user settings, installer settings (service),
- Many useful features such as: child safety lock, standby mode, modes of operation day / night or auto, „Party“, „Vacation“ features,
- A number of possible parameter settings - temperature (heating / cooling, temperature drop), timer, programs.

## KAN-therm Smart Servomotors



- 230V or 24V Version,
- „First Open“ feature facilitating installation of the servomotor and the performance of the pressure test,
- NC or NO operating mode versions,
- Fast installation with the use of M28×1,5 or M 30×1,5 KAN-therm adapters,
- Reliable mounting with a three-point locking system,
- Calibration of the servomotor – automatic adjustment to the valve,

- Visualization of the operating mode of the servomotor,
- Installation of the servomotor in any position,
- 100% protection against water and moisture,
- Energy efficiency - only 1W power consumption.

## Automation additional elements



**External surface ice controller with the external temperature and icing sensor** - in cooperation with the heating system it protects against icing and snow depositing on stairs, parking lots, driveways, etc.



The snow and ice sensor, as well as the external temperature sensor is assembled with a 15 m electric wire.



# Surface heating/cooling of **KAN-therm** System - assortment

## wall heating panel with a PB 8×1 pipe

**GROUP: A**

	Size	New code	*	Code	Packing	UM
<b>N</b>	2000×625 (100%)	1800 188004		K-400105	1	pc
<b>N</b>	2000×625 (75%)	1800 188005		K-400110	1	pc
<b>N</b>	2000×310 (100%)	1800 188001		K-400120	1	pc
<b>N</b>	2000×310 (75%)	1800 188002		K-400130	1	pc
<b>N</b>	1000×625 (100%)	1800 188000		K-400140	1	pc
<b>N</b>	625×1250 (100%)	1800 188006		K-400150	1	pc

**Caution:**

Percentages represent a usable heating surface.



## covering panel

**GROUP: A**

	Size	New code	*	Code	Packing	UM
<b>N</b>	2000×625	1800 188007		K-400160	1	pc



## grooved panel

**GROUP: A**

	Size	New code	*	Code	Packing	UM
<b>N</b>	2000×625	1800 188003		K-400170	1	pc



## polyurethane adhesive

**GROUP: A**

	Version	New code	*	Code	Packing	UM
<b>N</b>	310 ml	1800 183002		79233	1	pc



## pilot curve for 8mm pipes

**GROUP: A**

	Size	New code	*	Code	Packing	UM
<b>N</b>	8×1	1800 011000		K-400350	100/3000	pc



## mounting rail for pipes fixing

**GROUP: A**

	Size	New code	*	Code	Packing	UM
<b>N</b>	8×1	1800 209006		K-400360	2/100	m



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

polybutylene pipe with anti-diffusion layer

GROUP: C

Size	New code	*	Code	Packing	UM
8×1	1829 197000		K-400317	600/7200	m



PE-RT pipe with anti-diffusion layer

GROUP: C

Size	New code	*	Code	Packing	UM
8×1	1829 198004		K-400108	600/7200	m



tee press click LBP for wall heating

GROUP: F

Size	New code	*	Code	Packing	UM
16×8×16	1809 257000		K-400320	5/60	pc



reducer press click LBP

GROUP: F

Size	New code	*	Code	Packing	UM
16×8	1809 042001		K-400330	20/200	pc



Eurocone click

GROUP: F

Size	New code	*	Code	Packing	UM
8×1 / G¾"	1809 271000		K-400340	15/150	pc



coupling click

GROUP: F

Size	New code	*	Code	Packing	UM
8×1	1809 042000		K-400318	20/200	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# Floor Heating - Tubes and equipment for pipe

Blue Floor PE-RT pipe with EVOH layer acc DIN 4726 - for surface heating, class 4/6 bar,  $T_{max}$  70°

GROUP: C

Size	New code	*	Code	Packing	UM
16×2	1829 198014		0.2176OP	200/3000	m
16×2	1829 198018		0.2176OP 600M	600/1800	m
18×2	1829 198022		0.2178OP	200/3000	m
18×2	1829 198023		0.2178OP 600M	600/1800	m
202	1829 198027		0.2180OP	200/1800	m
20×2	1829 198028		0.2180OP 300M	300/1800	m



pipe PE-Xc with EVOH layer acc. DIN 4726

GROUP: C

Size	New code	*	Code	Packing	UM
12×2	1129 200023		0.2144	200/4000	m
14×2	1129 200027		0.2145	200/4000	m
16×2	1129 200032		0.2146	200/3000	m
18×2	1129 200035		0.2148	200/3000	m
20×2	1829 200005	*	K-150005	200/3000	m
N 25×2,5	1829 200014		K-150114	300/1800	m



Operating parameters  $T_{work}$  80°C ( $T_{max}$  - maximum 90°C,  $T_{mal}$  - malfunction 100°C), pressure 6 bar, for central heating and underfloor heating systems.

pipe PE-RT with EVOH layer acc. DIN 4726

GROUP: C

Size	New code	*	Code	Packing	UM
12×2	1129 198025		0.2174	200/4000	m
14×2	1129 198027		0.2175	200/4000	m
25×3,5	1129 198032		0.9226	50/1000	m



Operating parameters  $T_{work}$  80°C ( $T_{max}$  - maximum 90°C,  $T_{mal}$  - malfunction 100°C), pressure 6 bar, for central heating and underfloor heating systems.

multilayer pipe PE-RT/Al/PE-RT Multi Universal designed for central heating, hot and cold water systems as well as for floor heating systems; operating pressure max 10 bar

GROUP: B

Size	New code	*	Code	Packing	UM
14×2	1029 196032		0.9614	200/3000	m
16×2	1029 196123		0.9616	200/3000	m
16×2	1029 196031		0.9616 600M	600/2400	m
20×2	1029 196092		0.9620	100/1500	m



Operating parameters  $T_{work}$  90°C ( $T_{max}$  - maximum 95°C,  $T_{mal}$  - malfunction 100°C), pressure 10 bar, for central heating and underfloor heating systems.

screwed coupling

GROUP: A

Size	New code	*	Code	Packing	UM
12×2	1110 042003		9014.16	10/120	pc
14×2	1110 042005		9014.13	10/120	pc
16×2	1110 042006		9014.14	10/150	pc
18×2	1110 042008		981	10/120	pc
20×2	1110 245000	*	K-101205	10/100	pc
25×3,5	1110 042012		9014.19	5/60	pc



Caution:

The coupling is used for repair purposes (pipe damage, e.g. boring) and for joining long pipe sections. Do not place directly in screed.

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Push coupling

GROUP: A

Size	New code	*	Code	Packing	UM
12×2 / 12×2	1109 042008		9014.610	50/700	pc
14×2 / 14×2 (P)	1109 042002		9019.23	10/160	pc
18×2 / 18×2 (P)	1109 042004		9019.24	10/160	pc
25×3,5 / 25×3,5 (P)	1109 042007		9019.28	5/80	pc

(P) - PPSU fitting

**Caution:**

Tools for assembly Push connectors available in chapter System KAN-therm - Tools for Push connections.



## Push/Push Platinum plastic sleeve PVDF

GROUP: A

Size	New code	*	Code	Packing	UM
N 14×2A	1109 226017			50/700	pc
N 18×2A / 18×2,5A	1109 226018			50/500	pc
N 25×3,5A	1109 226019			20/200	pc

**Caution:**

During the Push fitting assembly use tools with the relevant inserts.

**Caution:**

Tool for assembly of Push fittings are available at System KAN-therm - Tools for Push/Push Platinum fittings.



## Push brass sliding sleeve

GROUP: A

Size	New code	*	Code	Packing	UM
12×2A	1109 226003		9014.490	50/700	pc
14×2A	1109 226004		9006.01	50/700	pc
18×2A / 18×2,5A	1109 226006		9001.80	50/500	pc
25×3,5A	1109 226009		9006.78	20/200	pc

**Caution:**

Size with A letter means use of sleeve for pipes PE-Xc or PE-RT with EVOH layer only.

When assembling Push connections use assembly tools for PE-RT and PE-Xc pipes with appropriate inserts (purchase or rental of tools available in KAN branches).

**Caution:**

Tools used to montage the Push couplings are presented in System KAN-therm - tools for Push connections chapter.



## Press PPSU coupling

GROUP: A

Size	New code	*	Code	Packing	UM
16×2 / 16×2	1009 042013		K-900250	20/200	pc
20×2 / 20×2	1009 042015		K-900251	10/150	pc
25×2,5 / 25×2,5	1009 042017		K-900252	5/60	pc

**Caution:**

Tools used to montage the Press couplings are presented in System KAN-therm - tools for Press connections chapter,



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# Tacker - pipe fastening system

**Tacker foamed polystyrene board EPS100 038 (PS20) with foil - sheet 5 m<sup>2</sup>**

**GROUP: A1**

Size	*	New code	Code	UM
30 mm (1×5 m) with metalized foil		1818 211027	720N	pc
20 mm (1×5 m) with metalized foil		1818 211034	726N	pc
30 mm (1×5 m) with laminated foil		1818 211036	725	pc
50 mm (1×5 m) with laminated foil		1818 211037	727	pc



**Tacker foamed polystyrene board EPS200 036 (PS30) with foil - hard - sheet 5 m<sup>2</sup>**

**GROUP: A1**

Size	*	New code	Code	UM
30 mm (1×5 m) with metalized foil		1818 211013	728N	pc



**Tacker foamed polystyrene board EPS T-30 dB with foil - elastic (sound absorbing) - sheet 5 m<sup>2</sup>**

**GROUP: A1**

Size	*	New code	Code	UM
35-3 mm (1×5 m) with metalized foil		1818 211006	729N	pc



**adhesive tape with KAN logo**

**GROUP: A**

Size	New code	*	Code	Packing	UM
60 m	1800 183013		K-200700	1	pc



**U42 clips on tape for tacker assembly in blocks of 50 pcs**

**GROUP: A**

Size	*	New code	Code	UM
14-18 (42 mm) - 1000 pc		1800 191001	22022S	pack.
14-18 (42 mm) - 300 pc		1800 191010	K-200604	pack.



**U42 clips on tape for tacker assembly in blocks of 30 pcs**

**GROUP: A**

Size	*	Code	Code	UM
20 (42 mm) - 300 pc		1800 191006	22024S	pack.



**U42 clips in bulk for manual assembly**

**GROUP: A**

Size	*	Code	Code	UM
14-18 (42 mm) - 100 pc		1800 191000	22022	pack.
14-18 (42 mm) - 200 pc		1800 191002	22022N	pack.



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\*\* availability by individual arrangements

\*\*\* till stock ends

## U55 clips on tape for tacker assembly in blocks of 25 pcs

GROUP: A

Size	*	New code	Code	UM	
14-18 (55mm) - 500 pc		1800 191021		pack.	



## U37 clips on tape for tacker assembly in blocks of 50 pcs

GROUP: A

Size	*	New code	Code	UM	
14-18 (37,2 mm) - 1000 pc		1800 191009	K-200601	pack.	



# Rail - pipe fastening system

## mounting rail for pipe fastening

GROUP: A

Size	*	New code	Code	UM	
16 - lenght 2 m, high 24 mm		1800 209007	K-201109	m	
18 - lenght 2 m, high 24 mm		1800 209003	0.1025	m	
20 - lenght 3 m, high 26 mm		1800 209011	K-201105	m	
25 - lenght 3 m, high 30 mm	*	1800 209012	K-201106	m	

Caution: mounting rails allow for pipe spacing 5 cm.



## mounting rail for pipe fastening

GROUP: A

Size	New code	*	Code	Packing	UM	
12-17 - lenght 0,2 m, high 23 mm	1800 209000		K-201117	1/100	m	
16-17 - lenght 0,5 m, high 24 mm	1800 209001		K-201003	1/100	m	
12-22 - lenght 1 m, high 29 mm	1800 209009		K-201120	1/100	m	

Caution: rails 1800 209000 and 1800 209009 allow for pipe spacing 10 cm.



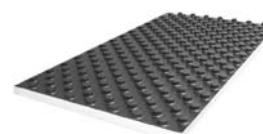
# Profil - pipe fastening system

## Profil2 foamed polystyrene board EPS200 036 (PS30) with PS foil - hard - sheet 1,12 m<sup>2</sup>

GROUP: A

Size	*	New code	Code	UM	
11 mm (0,8×1,40 m)	***	1818 211002	K-300100	m <sup>2</sup>	

Total board thickness with roll formed part is 31 mm.

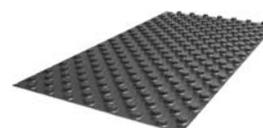


## profiled PS foil (polystyrene) Profil3 - sheet 1,12 m<sup>2</sup>

GROUP: A

Size	*	New code	Code	UM	
1 mm (0,8×1,40 m)	***	1818 211004	K-300200	m <sup>2</sup>	

Total board thickness with roll formed part is 20 mm.



## Profil1 foamed polystyrene board EPS T-24 dB with PS foil - elastic (sound absorbing) - sheet 1,12 m<sup>2</sup>

GROUP: A

Size	*	New code	Code	UM	
30-2 mm (0,8×1,40 m)	***	1818 211003	K-300300	m <sup>2</sup>	

Total board thickness with roll formed part is 50 mm.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

**foamed polystyrene board Profile2 EPS150 (PS30) with PS foil - hard - sheet 1.2 m<sup>2</sup>**

**GROUP: A1**

Size	*	New code	Code	UM
N 11 mm (0,84x1,44 m)		1818 211011	K-310310	m <sup>2</sup>

Total board thickness with roll formed part is 29 mm.



**profiled PS foil (polystyrene) Profil3 - sheet 1,2 m<sup>2</sup>**

**GROUP: A**

Size	*	Code	Code	UM
N 1 mm (0,84x1,44 m)	*	1818 211000	K-310320	m <sup>2</sup>

Total board thickness with roll formed part is 20 mm.



**foamed polystyrene board Profil1 EPS T-28 with PS foil - elastic (soundproof) - sheet 1.2 m<sup>2</sup>**

**GROUP: A1**

Size	*	New code	Code	UM
N 30-2 mm (0,84x1,44 m)	*	1818 211012	K-310300	m <sup>2</sup>

Total board thickness with roll formed part is 48 mm.



**Profil4 foamed polystyrene board EPS200 036 (PS30) whitout foil - hard - sheet 0,77 m<sup>2</sup>**

**GROUP: A1**

Size	*	New code	Code	UM
20 mm (1,1x0,7 m)	***	1818 211008	730	m <sup>2</sup>

Total board thickness with roll formed part is 47 mm.



**foamed polystyrene board Profil4 EPS200 without foil - sheet 0.72 m<sup>2</sup>**

**GROUP: A1**

Size	*	New code	Code	UM
N 22 mm (1,2x0,6 m)		1818 211397		m <sup>2</sup>

Total board thickness with roll formed part is 43 mm.



## TBS - pipe fastening system

**TBS foamed polystyrene board EPS200 036 (PS30) - hard - sheet 0,5 m<sup>2</sup>**

**GROUP: A1**

Size	*	New code	Code	UM
25 mm (0,5x1,0 m)		1818 211001	K-400000	pc



**TBS metal profile**

**GROUP: A**

Size	New code	*	Code	Packing	UM
0,4 mm (1,0x0,12 m)	1800 213000		K-400100	1/40	pc

**Caution:**  
Profile made of galvanised steel.



**TBS complementary foamed polystyrene board EPS200 036 (PS30) - hard - sheet 0,5 m<sup>2</sup>**

**GROUP: A**

Size	*	New code	Code	UM
25 mm (0,5x1,0 m)	*	1818 211017	K-400200	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## PE foil

GROUP: A

Size	New code	*	Code	Packing	UM
0,2 mm (2,0×50 m)	1818 183000		K-500200	100	m <sup>2</sup>

**Caution:**

Apply as system covering before laying dry jointless floor.



# NET - pipe fastening system

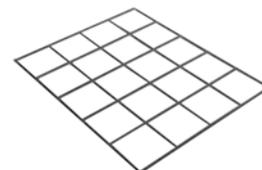
## NET steel wire net

GROUP: A

Size	*	New code	Code	UM
1,2 m×2,1 m - 2,52m <sup>2</sup>	*	1800 183010	K-500300	pc

**Caution:**

Net is made of 3 mm steel wire. Spacing - 150×150 mm.



## grip for fastening pipes on NET net

GROUP: A

Size	New code	*	Code	Packing	UM
16-18 mm.	1800 107001		K-500600	1000	pc
20 mm	1800 107002	*	K-500601	1000	pc



## plastic band for fastening pipes on NET net

GROUP: A

	New code	*	Code	Packing	UM
	1800 107000	*	K-500401	100	opk.



## fastening band for connecting NET nets

GROUP: A

	New code	*	Code	Packing	UM
	1800 183008	*	K-500400	100	pc



## PE foil

GROUP: A

Size	New code	*	Code	Packing	UM
0,2 mm (2,0×50 m)	1818 183000		K-500200	100	m <sup>2</sup>

**Caution:**

Apply as moisture insulation beneath NET net..



## PE foil mounting peg

GROUP: A

Size	New code	*	Code	Packing	UM
8 mm L=94 mm	1800 183003		K-500500	100	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# Underfloor heating accessories

## corrugated (protection) pipe - red

GROUP: A

Name	New code	*	Code	Packing	UM
12-14 (Dz23mm)	1700 049018		1904C	50	m
16-18 (Dz25mm)	1700 049021		1900C	50	m
20 (Dz28mm)	1700 049025		1906C	50	m
25-26 (Dz35mm)	1700 049030		1901C	50	m
32 (Dz43mm)	1700 049034		1908C	50	m
40 (Dz50mm)	1700 049038		1910C	25	m

**Caution:**

Apply for hot and cold water system and central heating, as a protecting pipe, in the case of embedding the system in concrete



## corrugated (protection) pipe - blue

GROUP: A

Name	New code	*	Code	Packing	UM
12-14 (Dz23mm)	1700 049019		1904N	50	m
16-18 (Dz25mm)	1700 049022		1900N	50	m
20 (Dz28mm)	1700 049026		1906N	50	m
25-26 (Dz35mm)	1700 049031		1901N	50	m
32 (Dz43mm)	1700 049035		1908N	50	m
40 (Dz50mm)	1700 049039		1910N	25	m

**Caution:**

Apply for hot and cold water system and central heating, as a protecting pipe, in the case of embedding the system in concrete



## concrete additive: BETOKAN (New Formula)

GROUP: A

New code	*	Code	Packing	UM
1800 014001		0.1005	10	pc
1800 014003		0.1004	5	pc

**Caution:**

Apply for underfloor heating to improve concrete strength.



## concrete additive: BETOKAN Plus

GROUP: A

New code	*	Code	Packing	UM
1800 014005		K-500900	10	pc

**Caution:**

Apply for underfloor heating to improve concrete strength. Allows to reduce floor thickness to 4.5 cm above insulation.



## fibre glass mesh - roll 50 m<sup>2</sup>

GROUP: A

Size	New code	*	Code	Packing	UM
0,017×1×50 m	1800 183011		K-500310	1	m <sup>2</sup>

Mesh size 40×40 mm.

**Caution:**

Mesh used with small amount of BETOKAN or BETOKAN Plus concrete increases floor elasticity and perfectly protects against cracks and offsets (keeps the flooring surface even)..



## anti-freezing agent

GROUP: A

Version	*	New code	Code	UM
-20°C - 20 l	*	1800 002002	0.1008	pc
-25°C - 20 l	*	1800 002003	0.1009	pc
-35°C - 20 l	*	1800 002004	0.1010	pc

**Caution:**

Used for central heating, air conditioning, cooling and solar systems..



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### wall tape with incision

GROUP: A

Size	New code	*	Code	Packing	UM
8×150 - with notch	1818 255002		0.1022	25	m
8×150 - with skirt	1818 255003		0.1021	25	m

**Caution:**

Apply to insulate underfloor heating boards from walls.



### dilatation tape with fastening strip

GROUP: A

Size	New code	*	Code	Packing	UM
10×150	1800 255000		0.1026	25	m

**Caution:**

Apply for expanding underfloor heating boards. Pipes going through the expansion shape should also be laid in a corrugated (protection) pipe.



### dilatation set

GROUP: A

Name	New code	*	Code	Packing	UM
PE foam E	1800 183007		K-501001	2	m
rail	1800 209014		K-501000	2	m
corrugated (protection) pipe 0,4m*	1700 183010		K-501002	10	pc



## Manifolds and accessories for manifoldsy

### manifold 1" for underfloor heating with control valves (51A series)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (326×100×80)	1346 160000		51020A	1	pc
3 (326×150×80)	1346 160001		51030A	1	pc
4 (326×200×80)	1346 160002		51040A	1	pc
5 (326×250×80)	1346 160003		51050A	1	pc
6 (326×300×80)	1346 160004		51060A	1	pc
7 (326×350×80)	1346 160005		51070A	1	pc
8 (326×400×80)	1346 160006		51080A	1	pc
9 (326×450×80)	1346 160007		51090A	1	pc
10 (326×500×80)	1346 160008		51100A	1	pc
11 (326×550×80)	1346 160009		51110A	1	pc
12 (326×600×80)	1346 160010		51120A	1	pc

**Caution:**

The manifold is compatible with Eurocone adapter (for PE-Xc and PE-RT) G $\frac{3}{4}$ " and adapter for multilayer pipe (fixed ring) G $\frac{3}{4}$ ". Manifold outputs has a 50 mm distance between each one.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## manifold 1" for underfloor heating with flowmeters (55A series)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (326×100×80)	1346 157000		55020A	1	pc
3 (326×150×80)	1346 157001		55030A	1	pc
4 (326×200×80)	1346 157002		55040A	1	pc
5 (326×250×80)	1346 157003		55050A	1	pc
6 (326×300×80)	1346 157004		55060A	1	pc
7 (326×350×80)	1346 157005		55070A	1	pc
8 (326×400×80)	1346 157006		55080A	1	pc
9 (326×450×80)	1346 157007		55090A	1	pc
10 (326×500×80)	1346 157008		55100A	1	pc
11 (326×550×80)	1346 157009		55110A	1	pc
12 (326×600×80)	1346 157010		55120A	1	pc

### Caution:

The manifold works with Eurocone adapters G $\frac{3}{4}$ " and G $\frac{3}{4}$ " fittings. The outputs on the individual circuits have a 50 mm span. Adjusting range for flowmeters 0.6 - 2.4 l/min.



## manifold 1" for underfloor heating with control valves (lower manifold body) and servomotor valves (upper manifold body) (71A series)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (326×100×80)	1346 160011		71020A	1	pc
3 (326×150×80)	1346 160012		71030A	1	pc
4 (326×200×80)	1346 160013		71040A	1	pc
5 (326×250×80)	1346 160014		71050A	1	pc
6 (326×300×80)	1346 160015		71060A	1	pc
7 (326×350×80)	1346 160016		71070A	1	pc
8 (326×400×80)	1346 160017		71080A	1	pc
9 (326×450×80)	1346 160018		71090A	1	pc
10 (326×500×80)	1346 160019		71100A	1	pc
11 (326×550×80)	1346 160020		71110A	1	pc
12 (326×600×80)	1346 160021		71120A	1	pc

### Caution:

The manifold works with Eurocone adapters G $\frac{3}{4}$ " and G $\frac{3}{4}$ " fittings. The outputs on the individual circuits have a 50 mm span. Use adapters for M28×1.5 servomotors.



## Manifold 1" for underfloor heating with servomotor valves (upper manifold body) and flowmeter valves (lower manifold body) (75A series)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (326×100×80)	1346 157011		75020A	1	pc
3 (326×150×80)	1346 157012		75030A	1	pc
4 (326×200×80)	1346 157013		75040A	1	pc
5 (326×250×80)	1346 157014		75050A	1	pc
6 (326×300×80)	1346 157015		75060A	1	pc
7 (326×350×80)	1346 157016		75070A	1	pc
8 (326×400×80)	1346 157017		75080A	1	pc
9 (326×450×80)	1346 157018		75090A	1	pc
10 (326×500×80)	1346 157019		75100A	1	pc
11 (326×550×80)	1346 157020		75110A	1	pc
12 (326×600×80)	1346 157021		75120A	1	pc

### Caution:

The manifold works with Eurocone adapters G $\frac{3}{4}$ " and G $\frac{3}{4}$ " fittings. The outputs on the individual circuits have a 50 mm span. Use adapters for M28×1.5 servomotors. Adjusting range for flowmeters 0.6 - 2.4 l/min.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### stainless steel manifold 1 1/4", with flowmeter and servomotor valves M30x1.5 (series N75A)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (326×199×80)	1316 157022		N75020A	1	pc
3 (326×249×80)	1316 157025		N75030A	1	pc
4 (326×299×80)	1316 157028		N75040A	1	pc
5 (326×349×80)	1316 157031		N75050A	1	pc
6 (326×399×80)	1316 157034		N75060A	1	pc
7 (326×449×80)	1316 157037		N75070A	1	pc
8 (326×499×80)	1316 157040		N75080A	1	pc
9 (326×549×80)	1316 157043		N75090A	1	pc
10 (326×599×80)	1316 157046		N75100A	1	pc
11 (326×649×80)	1316 157049		N75110A	1	pc
12 (326×699×80)	1316 157052		N75120A	1	pc

**Caution:**

The manifold is compatible with Eurocone adapters G3/4" and fittings G3/4".  
 Manifold outputs for individual circuits have 50 mm spacing between them.  
 Use servomotors with adapter M30×1.5.  
 Manifold supply - lower part.  
 Manifold return - upper part



### stainless steel manifold 1 1/4", with flowmeter and servomotor valves M30x1.5 (series N75E)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (326×143×80)	1316 157024		N75020E	1	pc
3 (326×193×80)	1316 157027		N75030E	1	pc
4 (326×243×80)	1316 157030		N75040E	1	pc
5 (326×293×80)	1316 157033		N75050E	1	pc
6 (326×343×80)	1316 157036		N75060E	1	pc
7 (326×393×80)	1316 157039		N75070E	1	pc
8 (326×443×80)	1316 157042		N75080E	1	pc
9 (326×493×80)	1316 157045		N75090E	1	pc
10 (326×543×80)	1316 157048		N75100E	1	pc
11 (326×593×80)	1316 157051		N75110E	1	pc
12 (326×643×80)	1316 157054		N75120E	1	pc

**Caution:**

The manifold is compatible with Eurocone adapters G3/4" and fittings G3/4".  
 Manifold outputs for individual circuits have 50 mm spacing between them.  
 Use servomotors with adapter M30×1.5.  
 Manifold supply - lower part.  
 Manifold return - upper part.



### reducer

GROUP: E

Size	New code	*	Code	Packing	UM
G1"×G1/2"	1300 220002		4.12	10/120	pc
G1"×G3/4"	1300 220003		4.13	10/120	pc

**Caution:**

Reducer code 1300 220002 and 1300 220003 contains O-Ring Code 1300 182000.



### male plug

GROUP: E

Size	New code	*	Code	Packing	UM
G1"	1709 025000		6095.43	10/150	pc

**Caution:**

Male plug contains O-Ring code 1300 182000.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## valve set, straight

GROUP: E

Size	New code	*	Code	Packing	UM
G1"×G1"	1300 183006		K-600400	1/20	set

**Caution:**

Set of valves with screw connection for manifolds of System KAN-therm fixed on a 1" profile without any additional sealing. For manifold with side supply connection.



## valve set, angular

GROUP: E

Size	New code	*	Code	Packing	UM
G1"×G1"	1300 183007		K-600500	1/20	set

**Caution:**

Set of valves with screw connection and elbows for manifolds of System KAN-therm fixed on a 1" profile without any additional sealing. For manifolds supplied from floor.



## brass handle for manifold

GROUP: A

Size	New code	*	Code	Packing	UM
M28×1,5	1300 183001		6095.28	20/200	pc
M30×1,5	1300 183002		6095.30	20/200	pc

**Caution:**

Apply the element for thermostatic valves to cut-off each circuit flow:  
M28×1,5 - in manifolds 71, 75, 73A and 77A series.  
M30×1,5 - in manifolds 73E, 77E series on pump unit connection and manifolds N75A, N75E.



## extension element with flowmeter

GROUP: E

Size	New code	*	Code	Packing	UM
G1" L=50mm	1300 079005		752	1/20	set

**Caution:**

The element should be applied to manifolds 55A, 75A series via the 1" nipple in order to extend the manifold by one circuit. Adjusting range for flowmeters 0.6 - 2.4 l/min.



## extension element with control valve

GROUP: E

Size	New code	*	Code	Packing	UM
G1" L=50mm	1300 079002		512	1/20	set

**Caution:**

The element should be applied to manifolds 51A, 71A series via the 1" nipple in order to extend the manifold by one circuit.



## extension element with servomotor cut-off valve

GROUP: E

Size	New code	*	Code	Packing	UM
G1" L=50mm	1300 079003		712	1/20	pc

**Caution:**

The element should be applied to manifolds 71A, 75A series via the 1" nipple in order to extend the manifold by one circuit. Use adapters for M28x1.5 servomotors.



## coupling for manifolds

GROUP: E

Size	New code	*	Code	Packing	UM
G1	1300 174028		R543	10/100	pc

**Caution:**

For manifold to extend it by one more circuit.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### male-female terminal with special seal

GROUP: E

Size	New code	*	Code	Packing	UM
G1"×G1/2"×G1/2"	1300 257001		R542	5/70	pc

**Caution:**

For manifold to extend it by one more circuit.



### new male plug with hex socket

GROUP: E

Size	New code	*	Code	Packing	UM
G1/2"	1709 250004		6095.34	20/300	pc

**Caution:**

It contains O-Ring.



### male terminal with automatic air vent and drain

GROUP: E

Size	New code	*	Code	Packing	UM
G1"	1300 257002		R5541	5/50	pc

**Caution:**

Suitable for 1" manifold 51A, 55A, 71A, 75A series.



### manual air vent valve

GROUP: E

Size	New code	*	Code	Packing	UM
G1/2"	1300 005004		5322	50/500	pc



### plastic male air vent and drain valve

GROUP: E

Size	New code	*	Code	Packing	UM
G1/2"	1300 005003		10612	25/100	pc

**Caution:**

Use by reducing 1"×1/2" for manifolds of 1" profile series 51A, 55A, 71A, 75A.



### male air vent and drain valve

GROUP: E

Size	New code	*	Code	Packing	UM
G1/2"	1300 277000		1305.11	25/100	pc

**Caution:**

Use by reducing 1"×1/2" for manifolds of 1" profile series 51A, 55A, 71A, 75A.



### automatic air vent with stop valve

GROUP: E

Size	New code	*	Code	Packing	UM
G1/2"	1300 005000		0.52071	1/100	pc

**Caution:**

Foot valve makes it possible to screw out a vent without necessity to remove water from the installation. Use tow to seal.



### disc thermometer 100°C

GROUP: E

Size	New code	*	Code	Packing	UM
red	1300 264001	*	K-601400	1	pc
blue	1300 264002	*	K-601401	1	pc

**Caution:**

Use as a service element for manifolds series 73E and 77E as well as mixing units 1346 103000.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

## Manifold 1" for underfloor heating with mixing unit (series 73E)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (410×451×123)	1346 166009		7302E	1	pc
3 (410×501×123)	1346 166010		7303E	1	pc
4 (410×551×123)	1346 166011		7304E	1	pc
5 (410×601×123)	1346 166012		7305E	1	pc
6 (410×651×123)	1346 166013		7306E	1	pc
7 (410×701×123)	1346 166014		7307E	1	pc
8 (410×751×123)	1346 166015		7308E	1	pc
9 (410×801×123)	1346 166016		7309E	1	pc
10 (410×851×123)	1346 166018		7310E	1	pc

**Caution:**

Use adapters for M28×1.5 servomotors on upper beam. Do not use low-parameter heat sources.



## Manifold 1" for underfloor heating with mixing unit and flowmeters (series 73E)

GROUP: E

Size	New code	*	Code	Packing	UM
2 (410×451×123)	1346 166023		7702E	1	pc
3 (410×501×123)	1346 166024		7703E	1	pc
4 (410×551×123)	1346 166025		7704E	1	pc
5 (410×601×123)	1346 166026		7705E	1	pc
6 (410×651×123)	1346 166027		7706E	1	pc
7 (410×701×123)	1346 166028		7707E	1	pc
8 (410×751×123)	1346 166029		7708E	1	pc
9 (410×801×123)	1346 166030		7709E	1	pc
10 (410×851×123)	1346 166031		7710E	1	pc

**Caution:**

Use adapters for M28×1.5 servomotors on upper beam. Do not use low-parameter heat sources. Adjusting range for flowmeters 0 - 2.5 l/min.



## electronic pump group

GROUP: E

Size	New code	*	Code	Packing	UM
	1346 103000		K-803002	1	pc

**Caution:**

Not suitable for a low parameter heating sources.



## electronic pump group with three-way mixing valve

GROUP: E

Size	New code	*	Code	Packing	UM
35-60°C	1300 103001		K-803003	1	pc
20-43°C	1300 103003		K-803005	1	pc

**Caution:**

Not suitable for flow exceeding 10 l/min.



## straight thermostatic valve 1/2", with M30×1,5 thread

GROUP: A

Size	New code	*	Code	Packing	UM
Rp 1/2"	1700 277001		1181104N	1	pc

**Caution:**

Used as a service element for manifolds series 73E and 77E and KAN-Therm pump groups. Through the use of M30×1,5 adapter (grey), electric servomotor and room thermostat, it may be used to control the temperature of the whole heating zone. Configured with a thermostatic head with a rebate and four-way valve may function as a semi-automatic surface heating control system.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### straight return valve 1/2", pre-set

GROUP: A

Size	New code	*	Code	Packing	UM
Rp 1/2"	1700 277000		1091162N	1	pc

**Caution:**

Used as a service element for manifolds series 73E and 77E and KAN-therm pump groups. It enables hydraulic control of surface heating - adjustment of heating coil supply temperature.



### thermostatic head with remote sensor

GROUP: A

Size	New code	*	Code	Packing	UM
M30x1,5	1802 108006		K-600802	1	pc

**Caution:**

The component used for 73E and 77E series manifolds and pumping KAN-therm groups - full protection against excess temperature in air flow installation. In cooperation with thermostatic valve and four-way valve it may be a semi-automatic adjustment system for surface heating installation.



### servomotor SMART adapter

GROUP: A

Size	New code	*	Code	Packing	UM
Adapter M28x1,5	1802 003002		K-800019	20/160	pc

**Caution:**

Use adapter M28x1,5 for valves mounted in manifolds 71A, 73E, 75A and 77E System KAN-therm with servomotors 1802 003004, 1802 003003, 1802 003006, 1802 003005.



### servomotor adapter

GROUP: A

Size	New code	*	Code	Packing	UM
Adapter M30x1,5	1802 003001		K-600702	20/300	pc

**Caution:**

M30x1.5 adapter should be used on thermostatic valves in 73E and 77E series manifolds and on thermostatic valves in pumping groups 1346 103000, as well as on upper beams of N75A and N75E manifolds. The adapter works with SMART servomotors, codes: 1802 003004, 1802 003003, 1802 003006, 1802 003005.



### Eurocone adapter (nickel plated nut) for PE-Xc and PE-RT pipes

GROUP: A

Size	New code	*	Code	Packing	UM
12x2 G1/2"	1110 271002		9012.91	15/300	pc
12x2 G3/4"	1110 271003		9012.92	15/150	pc
14x2 G1/2"	1110 271000		9003.47	15/300	pc
14x2 G3/4"	1110 271005		9006.56	15/150	pc
16x2 G3/4"	1110 271010		9006.57	15/150	pc
18x2 G3/4"	1110 271006		9006.59	15/150	pc
18x2,5 G3/4"	1110 271008		9006.48	15/150	pc
20x2 G3/4"	1110 271011		K-601705	15/150	pc
25x3,5 G1"	1110 271001		9003.67	10/80	pc

**Caution:**

It enables connections with manifolds with male nipples and fittings.



### compression ring - service part for screw fittings

GROUP: A

Size	New code	*	Code	Packing	UM
12	1110 226001		9012.913	100/1000	pc
14	1110 226002		9006.95	100/1000	pc
16	1110 226000		9006.97	100/1000	pc
18	1110 226004		9001.96	100/1000	pc
20	1110 226006		9014.183	100/1000	pc
25	1110 226003		9001.92	50/500	pc

**Caution:**

Apply to all brass Eurocones and coupling except for plastic Eurocones and screw fittings for Platinum pipes.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### adapter for multilayer pipe (fixed ring)

GROUP: A

Size	New code	*	Code	Packing	UM
14 G $\frac{1}{2}$ "	1010 040002		9012.060	20/200	pc
14 G $\frac{3}{4}$ "	1010 040001		9012.60	15/150	pc
16 G $\frac{1}{2}$ "	1010 040003		9012.00	20/200	pc
16 G $\frac{3}{4}$ "	1010 040006		9012.080	10/120	pc
20 G $\frac{3}{4}$ "	1010 040011		9012.020	10/120	pc
20 G1"	1010 040008		9012.100	5/80	pc
25 G1"	1010 040013		9026.330	10/80	pc
26 G1"	1010 040015		9012.040	10/80	pc

**Caution:**

All these elements are available in the nickel plated version (implementation deadline 2 weeks)



### plastic Eurocone adapter for multi-layer KAN-therm System pipes

GROUP: A

Size	New code	*	Code	Packing	UM
16 G $\frac{3}{4}$ "	1010 271005		9010.08N	15/150	pc

**Caution:**

Eurocone adapter work with fittings for pipe couplings and manifolds with nipples.



### Eurocone adapter for multilayer pipe

GROUP: A

Size	New code	*	Code	Packing	UM
16 G $\frac{1}{2}$ "	1010 271001		9012.00N	20/200	pc
16 G $\frac{3}{4}$ "	1010 271002		9012.08N	15/150	pc
20 G $\frac{3}{4}$ "	1010 271008		9012.02N	10/120	pc

**Caution:**

May be used with KAN-therm nipple or KAN-therm male tee or male elbow.



### straight male connector

GROUP: A

Size	New code	*	Code	Packing	UM
16x2 G $\frac{1}{2}$ "	1010 045000		9025.01	10/150	pc
16x2 G $\frac{3}{4}$ "	1010 045001		9025.04	10/150	pc

**Caution:**

The fitting is designed to be fixed directly into the manifold beam – connection sealing is provided by the O-Ring seal.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# Underfloor heating cabinets

## surface mounted cabinet SWN-OP for manifolds without/with mixing units

GROUP: D

Size	New code	*	Code	Packing	UM
10 / 3 (710×580×140)	1446 180000		1100-OP	20	pc
13 / 7 (710×780×140)	1446 180001		1110-OP	14	pc
15 / 10 (710×930×140)	1446 180002		1120-OP	11	pc



Table for cabinet choice SWN-OP

Cabinet type	Code	Height [mm]	Width [mm]	Depth [mm]	Number of circuits		
					manifold OP	Manifold OP+ Set-P/Set-K	manifold OP with mixing unit*
SWN-OP - 10/3	1100-OP	710	580	140	2-10	2-7/2-6	2-3
SWN-OP - 13/7	1110-OP	710	780	140	11-13	8-11/7-10	4-7
SWN-OP - 15/10	1120-OP	710	930	140	14-15	12-14/11-13	8-10

\* Required depth of cabinet: min.140 mm

## in wall -mounted cabinet SWP-OP type for manifolds without/with mixing unit

GROUP: D

Size	New code	*	Code	Packing	UM
10 / 3 (750-850×580×110-165)	1446 117003		1300-OP	20	pc
13 / 7 (750-850×780×110-165)	1446 117004		1310-OP	17	pc
15 / 10 (750-850×930×110-165)	1446 117005		1320-OP	14	pc



Table for cabinet choice SWP-OP

Cabinet type	Code	Height [mm]	Width [mm]	Depth [mm]	Number of circuits		
					manifold OP	Manifold OP+ Set-P/Set-K	Manifold OP with mixing unit*
SWP-OP - 10/3	1300-OP	750-850	580	110-165	2-10	2-7/2-6	2-3
SWP-OP - 13/7	1310-OP	750-850	780	110-165	11-13	8-11/7-10	4-7
SWP-OP - 15/10	1320-OP	750-850	930	110-165	14-15	12-14/11-13	8-10

\* Required depth of cabinet: min.140 mm

\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# Basic - automatics

## electronic room thermostat with led indicator

GROUP: A

Version	New code	*	Code	Packing	UM
230V	1802 265028	***	K-800100	1	pc
24V	1802 265030	***	K-800101	1	pc

**Caution:**

Thermostat works with servomotors, codes 1802 003004 and 1802 003006 via terminals, codes 1802 212002, 1802 212003, 1802 212004, 1802 212005.  
Required at least 3-wire installation.



## electronic room thermostat heating/cooling

GROUP: A

Version	New code	*	Code	Packing	UM
230V	1802 265005	***	K-800035	1	pc
24V	1802 265006	***	K-800036	1	pc

**Caution:**

The thermostat works with servomotors, codes 1802 003004 and 1802 003006 using the Basic terminal with heating and cooling option 1802 212006 and 1802 212007.  
Required at least 4-wire installation.



## bimetallic room thermostat

GROUP: A

Version	New code	*	Code	Packing	UM
230V	1802 265022		0.6106	1/25	pc
230V / 24V	1802 265023		0.6107	1/25	pc

**Caution:**

The thermostat is compatible with servomotors code 1802 003004 and 1802 003006, by means of strips code 1802 212002, 1802 212003, 1802 212004, 1802 212005. Thermostat 1802 265022 - 3-wire. Thermostat 1802 265023 - 2-wire.



## week controller

GROUP: A

	New code	*	Code	Packing	UM
	1802 265034	***	K-800201	1	pc

**Caution:**

Controller with battery power supply. Required at least 2-wire installation.



## week controller with floor temperature sensor

GROUP: A

	New code	*	Code	Packing	UM
	1802 265038		TH232-AF-230	1	pc

**Caution:**

Flush-mounted. Required at least 3-wire installation.



## Sensor for thermostat TH232-AF-230 - service element

GROUP: A

	New code	*	Code	Packing	UM
	1802 012002		K-800208	1	pc



## terminal block for underfloor heating 230V

GROUP: A

	New code	*	Code	Packing	UM
230V	1802 212002	***	B2012	1	pc
230V with pump module	1802 212003	***	B2022	1	pc

**Caution:**

The terminal block is applied to connect servomotors with thermostats 230V.  
Additionally, the terminal block with pump module turns off the pump when all servomotors are closed.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### terminal block for underfloor heating 24V

GROUP: A

Version	New code	*	Code	Packing	UM
24V	1802 212004	***	B4012	1	pc
24V with pump module	1802 212005	***	B4022	1	pc

**Caution:**

The terminal block is applied to connect servomotors with thermostats 24V. Additionally, the terminal block with pump module turns off the pump when all servomotors are closed. The 24V terminal block has no transformer



### terminal block heating/cooling with pump module Basic 230V (without power cord)

GROUP: A

	New code	*	Code	Packing	UM
	1802 212006	***	K-800030	1	pc



### terminal block heating/cooling with pump module Basic 24V (without power adapter)

GROUP: A

	New code	*	Code	Packing	UM
	1802 212007	***	K-800031	1	pc



### power adapter 230V - 24V for Basic terminal block

GROUP: A

	New code	*	Code	Packing	UM
	1802 265041	***	K-800310	1	pc



### servomotor 230V

GROUP: A

Version:	New code	*	Code	Packing	UM
NC type	1802 003004		K-800011	1	pc
NO type	1802 003003	*	K-800012	1	pc



### servomotor 24V

GROUP: A

Version	New code	*	Code	Packing	UM
NC type	1802 003006		K-800013	1	pc
NO type	1802 003005	*	K-800014	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

# Basic+ - automatics

## analogue room thermostat Basic+

GROUP: A

Version	New code	*	Code	Packing	UM
N 230V	1802 265024		K-800214	1	pc
N 24V	1802 265025		K-800212	1	pc

**Caution:**

The thermostat is compatible with servomotors code 1802 003004 and 1802 003006 by means of strips code 1802 212013, 1802 212014, 1802 212015, 1802 212016. Required at least 3-wire installation.



## analogue room thermostat Basic+ heating/cooling

GROUP: A

Version	New code	*	Code	Packing	UM
N 230V	1802 265032		K-800218	1	pc
N 24V	1802 265033		K-800216	1	pc

**Caution:**

The thermostat is compatible with servomotors code 1802 003004 and 1802 003006 by means of strips code 1802 212013, 1802 212014, 1802 212015, 1802 212016. Required at least 3-wire installation (heating) or 4-wire installation (cooling).



## room thermostat Basic+ with LCD Standard

GROUP: A

Version:	New code	*	Code	Packing	UM
N 230V	1802 265020		K-800222	1	pc
N 24V	1802 265021		K-800220	1	pc

**Caution:**

The thermostat is compatible with servomotors code 1802 003004 and 1802 003006 by means of strips code 1802 212013, 1802 212014, 1802 212015, 1802 212016. Required at least 3-wire installation.



## room thermostat Basic+ with LCD Control

GROUP: A

Version	New code	*	Code	Packing	UM
N 230V	1802 012004		K-800202	1	pc
N 24V	1802 012005		K-800204	1	pc

**Caution:**

The thermostat is compatible with servomotors code 1802 003004 and 1802 003006 by means of strips code 1802 212013, 1802 212014, 1802 212015, 1802 212016. Required at least 3-wire installation (heating) or 4-wire installation (cooling).



## floor sensor for thermostat LCD Control 230V and 24 V - 3m

GROUP: A

Version	New code	*	Code	Packing	UM
	1802 012006		K-800206	1	pc



## terminal block Basic+ heating/cooling - 6 zones

GROUP: A

Version	New code	*	Code	Packing	UM
N 230V	1802 212015		K-800226	1	pc
N 24V	1802 212016		K-800224	1	pc

**Caution:**

Up to 6 room thermostats and 10 servomotors.



## terminal block Basic+ heating/cooling - 10 zones

GROUP: A

Version	New code	*	Code	Packing	UM
N 230V	1802 212013		K-800230	1	pc
N 24V	1802 212014		K-800228	1	pc

**Caution:**

Up to 10 room thermostats and 18 servomotors.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### servomotor 230V

GROUP: A

Version	New code	*	Code	Packing	UM
NC type	1802 003004		K-800011	1	pc
NO type	1802 003003	*	K-800012	1	pc



### servomotor 24V

GROUP: A

Version	New code	*	Code	Packing	UM
NC type	1802 003006		K-800013	1	pc
NO type	1802 003005	*	K-800014	1	pc



### power adapter 230V - 24V for Basic+ terminal block

GROUP: A

	New code	*	Code	Packing	UM
N	1802 265040		K-800232	1	pc



## Smart - automatics

### room thermostat with LCD display

GROUP: A

Version	New code	*	Code	Packing	UM
without floor sensor	1802 265019		K-800004	1	pc
with floor sensor	1802 265039		K-800005	1	pc



### 230V terminal block with LAN module

GROUP: A

Version	New code	*	Code	Packing	UM
up to 4 room thermostats and 6 servomotors	1802 265008		K-800007	1	pc
up to 8 room thermostats and 12 servomotors	1802 265009		K-800009	1	pc
up to 12 room thermostats and 18 servomotors	1802 265007		K-800016	1	pc



### 24V terminal block with LAN module and power converter

GROUP: A

Version	New code	*	Code	Packing	UM
up to 4 room thermostats and 6 servomotors	1802 265011		K-800008	1	pc
up to 8 room thermostats and 12 servomotors	1802 265012		K-800010	1	pc
up to 12 room thermostats and 18 servomotors	1802 265010		K-800018	1	pc



### servomotor 230V

GROUP: A

Version	New code	*	Code	Packing	UM
NC type	1802 003004		K-800011	1	pc
NO type	1802 003003	*	K-800012	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### servomotor 24V

GROUP: A

Version	New code	*	Code	Packing	UM
NC type	1802 003006		K-800013	1	pc
NO type	1802 003005	*	K-800014	1	pc



### external antenna

GROUP: A

New code	*	Code	Packing	UM
1802 010000		K-800020	1	pc

Set includes 5 m cable.



### repeater

GROUP: A

New code	*	Code	Packing	UM
1802 010002		K-800022	1	pc

Set includes 230V power converter.



## Additional accessories

### servomotor SMART adapter

GROUP: A

Version	New code	*	Code	Packing	UM
Adapter M28×1,5	1802 003002		K-800019	20/160	pc

**Caution:**

Adapter M28×1,5 used for valves installed in 71A, 73E, 77E, 75A and 77E series manifolds KAN-therm System with servomotors on the upper beam 1802 003004, 1802 003003, 1802 003006, 1802 003005.



### servomotor adapter

GROUP: A

Version	New code	*	Code	Packing	UM
Adapter M30×1,5	1802 003001		K-600702	20/300	pc

**Caution:**

Use adapter M30×1,5 for thermostatic valves mounted in manifolds series 73E and 77E and for thermostatic valves in pump groups codes 1346 103000 and on upper beam of manifolds N75A and N75E.

The adapter works with SMART servomotors, codes: 1802 003004, 1802 003003, 1802 003006, 1802 003005.



### four-way H 6 valve 1" with by-pass

GROUP: A

New code	*	Code	Packing	UM
1802 166004	*	014001	1	pc



### Mixing unit with four-way valve - KAN Bloc T - 60 Delta HE 55 with insulation

GROUP: A

New code	*	Code	Packing	UM
1802 166016	*	010454	1	pc

**Caution:**

Valve insulation included.



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\*\*\* till stock ends

## SM 4 servomotor

GROUP: A

	New code	*	Code	Packing	UM
	1802 166019	*	004002	1	pc

**Caution:**

The servomotor allows to use automatic control of mixing unit with four-way valve KAN-Bloc with weather controller, or using boiler automatics (boiler automatics has to have possibility to control an additional mixing circuit).



## whether controller indented for on wall assembly

GROUP: A

	New code	*	Code	Packing	UM
	1802 166017	*	002187N	1	pc

**Caution:**

Used with mixing unit with four-way valve - KAN-Bloc with SM4 servomotor (code 1802 166019). Regulator contains the external temperature sensor (APS), attached power temperature sensor (VFAS), socket attached to the regulator (wall assembly).



## room temperature sensor with remote control and LCD screen

GROUP: A

	New code	*	Code	Packing	UM
	1802 166001	*	002160N	1	pc

**Caution:**

The sensor is an optional equipment for weather regulator, code 1802 166017.



## pump thermal switch

GROUP: A

	New code	*	Code	Packing	UM
	1802 265018	*	K-801800	1	pc



## underfloor heating unit with valve, thermostatic head and vent pcs. in one Code

GROUP: A

	New code	*	Code	Packing	UM
	1802 183000	*	K-801300	1	pc



## ice cover controller

GROUP: A

	New code	*	Code	Packing	UM
	1802 047003	*	K-802305	1	pc

**Caution:**

Controller requires snow and ice sensor.



## snow and ice sensor with 15 m cord

GROUP: A

	New code	*	Code	Packing	UM
	1802 047000	*	K-802304	1	pc

**Caution:**

The snow and ice sensor works with ice controller for open surface heating, code 1802 047003.



## temperature and humidity sensor

GROUP: A

	New code	*	Code	Packing	UM
	1802 047001	*	K-802306	1	pc

**Caution:**

The temperature and humidity sensor works with ice controller for open surface heating, code 1802 047003.



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\*\*\* till stock ends

## tacker tool

GROUP: K

New code	*	Code	Packing	UM
1950 267002		K-200502	1	pc

Tacker operates with clips on tape: standard, short (U37 and U42).



## plastic tacker tool

GROUP: K

New code	*	Code	Packing	UM
1950 254001		T-1U4255K	1	pc

Tacker operates with clips on tape: standard, short and long (U37, U42 and U55).



## adhesive tape hand feeder

GROUP: A

New code	*	Code	Packing	UM
1800 183009	*	K-200800	1	pc



## universal pipe de-coiler

GROUP: K

New code	*	Code	Packing	UM
1915 270000		K-100620	1	pc



## uncoiler guide

GROUP: K

New code	*	Code	Packing	UM
1928 270000			1	pc



## TBS cutter tip

GROUP: K

New code	*	Code	Packing	UM
1950 267005		K-400300	1	pc

Caution:  
TBS cutter is suitable for cutting grooves for pipes Ø16 mm in TBS styroboards.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

### TBS cutter tip

GROUP: K

	New code	*	Code	Packing	UM	
	1950 267000		K-400400	1	pc	



### flowmeter with thermometer

GROUP: E

Size	New code	*	Code	Packing	UM	
G $\frac{3}{4}$ " $\times$ G $\frac{3}{4}$ " L = 8 cm	1300 183009	***	K-601501	5/40	pc	

**Caution:**

Used to check the flow rate through the air circuit coil. The measurement range of 1 to 4 l/min, 0-40°C.



### special spanner for Eurocone adapters

GROUP: K

Size	New code	*	Code	Packing	UM	
30 mm	1938 267035	*	K-501900	1	pc	

**Caution:**

The spanner intended for Eurocone adapter G $\frac{3}{4}$ " montage.



### shears for cutting PB and PE-RT pipe Ø8

GROUP: K

Size	New code	*	Code	Packing	UM	
8 $\times$ 1	1950 060000		K-400008	1	pc	



### cutter for PE-Xc and PE-RT pipe Ø12-32

GROUP: K

	New code	*	Code	Packing	UM	
	1938 267050		0.2125	1/25	pc	



### replacement blade for cutter for PE-Xc and PE-RT pipes Ø12-32

GROUP: K

	New code	*	Code	Packing	UM	
	1938 267055	*	0.2125-O	1	pc	



### pipe cutter for cutting multilayer pipes Ø14-32

GROUP: K

	New code	*	Code	Packing	UM	
	1936 267054		RS1435	1/20	pc	

**Caution:**

May be used to cut the Platinum pipes.



### replacement blade for pipe cutter for cutting multilayer pipes Ø14-32

GROUP: K

	New code	*	Code	Packing	UM	
	1936 267059	*	RSM1435	1	pc	

**Caution:**

May be used to cut the Platinum pipes.



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends

**calibration and internal bevelling tool for multilayer pipes**

**GROUP: K**

Size	New code	*	Code	Packing	UM
14	1936 267022	*	KL14	1	pc
16	1936 267026		KL16	1	pc
20	1936 267028		KL20	1	pc
25 / 26	1936 267030		KL26	1	pc



**calibration and internal bevelling universal tool for multilayer pipes**

**GROUP: K**

Size	New code	*	Code	Packing	UM
16 / 20 / 25-26	1936 267044		KL162026	1	pc



**internal bending spring for multilayer pipes**

**GROUP: K**

Size	New code	*	Code	Packing	UM
14	1936 267073	*	SW-1410	1	pc
16	1936 267075		SW-1612	1	pc
20	1936 267077		SW-2016	1	pc
25-26	1936 267071		SW-2620	1	pc



**external bending spring for multilayer pipes**

**GROUP: K**

Size	New code	*	Code	Packing	UM
14	1936 267079	*	SZ-1410	1	pc
16	1936 267081		SZ-1612	1	pc
20	1936 267086		SZ-2016	1	pc
25-26	1936 267088		SZ-2620	1	pc



\* on request (delivery time up to 4 weeks)

\*\* availability by individual arrangements

\*\*\* till stock ends



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0.1005	265	0.2175-6C	47	0.9228	47	03810075	116	04101020	117
0.1008	147	0.2175-6N	35	0.9550	79	03810090	116	04101025	117
0.1008	265	0.2175-6N	47	0.9563	79	03900011	116	04101032	117
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0.1010	265	0.2176OP 600M	259	0.9616	259	03900032	116	04102032	117
0.1021	266	0.2177	35	0.9616 600M	259	03900040	116	04103011	117
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6190283	212	6190789	212	6191284	205	6191781	205	6192296	204
6190294	212	6190791	212	6191295	205	6191790	205	6193308	204
6190305	212	6190800	212	6191306	205	6191801	211	6198456	210
6190316	212	6190811	212	6191317	205	6191812	211	6198467	210
6190327	212	6190822	210	6191328	205	6191823	211	6198478	210
6190338	212	6190833	210	6191339	205	6191834	211	6198489	210
6190349	206	6190844	210	6191341	205	6191845	211	6198491	210
6190351	206	6190855	210	6191350	207	6191856	211	6198500	210
6190360	206	6190866	210	6191361	208	6191867	211	6198599	210
6190371	206	6190877	209	6191372	207	6191878	212	6198601	210
6190382	206	6190888	209	6191383	208	6191889	212	6198610	210
6190393	206	6190899	209	6191394	208	6191891	213	6198621	210
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6190470	204	6190976	205	6191471	208	6191977	213	6198940	204
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6190492	204	6190998	205	6191493	207	6191999	211	620093.1	175
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6190514	204	6191011	211	6191515	208	6192010	211	620095.3	175
6190525	204	6191020	211	6191526	208	6192021	204	620112.9	169
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6190547	204	6191042	211	6191548	208	6192043	204	620136.0	169
6190558	204	6191053	211	6191559	208	6192054	204	620137.1	169
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6190624	203	6191121	209	6191625	210	6192120	204	620162.4	170
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6190657	203	6191152	209	6191658	210	6192153	204	620170.1	170
6190668	203	6191163	209	6191669	210	6192164	204	620171.2	170
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620192.1	176	620282.3	176	620455.0	210	620659.6	177	6208906	168
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620197.6	175	620290.0	173	620459.4	167	620667.3	174	6208939	168
620198.7	175	620291.1	173	620460.5	167	620673.9	173	6208941	168
620199.8	175	620295.5	177	620461.6	167	620674.1	173	6208950	168
620200.9	175	620296.6	177	620462.7	167	620675.0	174	6208961	168
620206.4	175	620412.1	212	620463.8	167	620676.1	174	620984.1	176
620207.5	175	620413.2	212	620464.9	167	620677.2	174	620987.4	169
620208.6	175	620414.3	212	620465.1	167	620678.3	174	6221506	203
620209.7	175	620415.4	205	620466.0	167	620679.4	174	6221807	203
620211.9	174	620416.5	205	620475.9	203	620680.5	174	622220.5	178
620212.1	174	620417.6	205	620476.1	203	620681.6	174	622220.5	213
620213.0	174	620418.7	211	620480.3	167	620682.7	174	6222207	203
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620218.5	174	620423.1	209	620570.5	217	620687.1	173	6222238	178
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620228.4	167	620426.4	209	620573.8	182	620690.4	173	6222249	213
620229.5	167	620427.5	209	620573.8	218	6206915	177	6222251	178
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620236.1	168	620429.7	205	620574.9	218	6206937	177	6222260	178
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620244.9	169	620435.2	208	6206211	169	620801.5	178	6224212	203
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620250.4	171	620439.6	208	6206255	169	620803.7	178	6230026	206
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620263.6	172	620447.3	208	6206453	171	6208103	171	6230103	207
620265.8	172	620448.4	208	6206464	171	6208114	171	6230114	207
620266.9	172	620449.5	208	6206475	172	6208125	170	6240003	169
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6240069	169	6240564	171	6241171	175	6310020	209	6341016	173
6240071	169	6240575	171	6241180	175	6310021	209	6341027	173
6240080	169	6240586	171	6246651	174	6310022	212	6341038	175
6240091	169	6240597	171	6249577	175	6310100	203	6341049	175
6240102	168	6240608	171	6249588	175	6310101	203	6341051	175
6240113	168	6240619	176	6249599	175	634008.1	183	634106.0	182
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6240135	167	6240630	176	6249610	176	634009.2	183	634107.1	182
6240146	167	6240641	176	6249621	176	634009.2	218	634107.1	218
6240157	167	6240652	176	6249830	168	634010.3	183	634108.2	182
6240168	167	6240663	176	6249852	167	634010.3	218	634108.2	218
6240179	167	6240674	176	6302708	168	634011.4	183	634111.5	183
6240181	170	6240685	176	6302721	168	634011.4	218	634111.5	218
6240190	170	6240696	176	6302723	168	6340171	177	6341247	167
6240201	170	6240707	176	6302823	167	6340213	174	6341357	169
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6240223	170	6240729	172	6303371	172	6340235	174	634143.4	183
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6240487	171	6240982	175	6310012	206	6340598	168	7304E	271
6240498	171	6240993	174	6310013	206	6340917	168	7305E	271
6240509	171	6241004	168	6310014	207	6340928	168	7306E	271
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74030	136	81050	136	9006.01	260	9012.020	273	9013.460	40
74040	136	81060	136	9006.04	36	9012.02N	93	9013.470	39
74050	136	81070	136	9006.06	36	9012.02N	273	9013.480	39
74060	136	81080	136	9006.09	38	9012.040	93	9013.49	39
74070	136	81090	136	9006.11B	38	9012.040	273	9013.500	39
74080	136	81100	136	9006.11CN	36	9012.060	93	9013.510	39
74090	136	81110	136	9006.12KPL	37	9012.060	273	9013.520	40
74100	136	81120	136	9006.15B	38	9012.080	93	9013.530	40
74110	136	82020	138	9006.16B	37	9012.080	273	9013.550	39
74120	136	82030	138	9006.20B	37	9012.08N	93	9013.560	39
75020A	267	82040	138	9006.21B	43	9012.08N	273	9013.570	43
75030A	267	845000	179	9006.22B	43	9012.100	93	9013.580	37
75040A	267	845000	214	9006.310	39	9012.100	273	9013.600	43
75050A	267	845004	179	9006.320	39	9012.20	131	9013.620	37
75060A	267	845004	215	9006.37K	36	9012.22	131	9013.640	43
75070A	267	845050	179	9006.39K	36	9012.24	131	9013.660	37
75080A	267	845050	215	9006.42	48	9012.26	131	9013.70	43
75090A	267	845220	179	9006.43	48	9012.28	131	9013.720	37
75100A	267	845220	215	9006.44	48	9012.30	131	9013.73	37
75110A	267	84550N	54	9006.48	48	9012.32	131	9014.13	49
75120A	267	85/834	143	9006.48	272	9012.34	131	9014.13	259
752	269	9001.35	133	9006.50K	42	9012.36	131	9014.14	49
7702E	271	9001.770	44	9006.56	48	9012.38	131	9014.14	259
7703E	271	9001.80	41	9006.56	272	9012.40	131	9014.16	49
7704E	271	9001.80	46	9006.57	48	9012.60	93	9014.16	259
7705E	271	9001.80	260	9006.57	93	9012.60	273	9014.17	49
7706E	271	9001.830	44	9006.57	272	9012.91	48	9014.183	272
7707E	271	9001.84	134	9006.59	46	9012.91	272	9014.19	49
7708E	271	9001.85	134	9006.59	48	9012.913	49	9014.19	259
7709E	271	9001.87	134	9006.59	272	9012.913	272	9014.200	36
7710E	271	9001.88	134	9006.64B	44	9012.92	48	9014.220	36
79233	257	9001.90	48	9006.65B	44	9012.92	272	9014.23	48
8008	147	9001.92	49	9006.66B	37	9013.12B	43	9014.270	36
8019950A	146	9001.92	272	9006.680	37	9013.13	39	9014.280	42
8020950A	146	9001.94	48	9006.78	41	9013.14	39	9014.290	36
8021950A	146	9001.96	46	9006.78	260	9013.15	39	9014.300	36
8022950A	146	9001.96	49	9006.89K	42	9013.16	44	9014.310	48
8023950A	146	9001.96	272	9006.90K	36	9013.17	44	9014.320	48
8024950A	146	9003.130	44	9006.95	49	9013.18	45	9014.330	48
8025950A	146	9003.140	45	9006.95	272	9013.19	45	9014.340	48
8051	145	9003.47	48	9006.97	49	9013.270	39	9014.350	48
8052	145	9003.47	272	9006.97	272	9013.280	39	9014.360	48
8053	145	9003.67	48	9007.42	48	9013.290	40	9014.370	48
8054	145	9003.67	272	9010.08N	93	9013.300	40	9014.380	36
8058	147	9003.700	39	9010.08N	273	9013.36	43	9014.400	36
8059	147	9003.710	39	9012.00	93	9013.38	37	9014.450	38
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9014.490	41	9018.030	37	9019.27	36	9050.110	82	K-040603	85
9014.490	260	9018.050	43	9019.28	36	9063.100	83	K-040604	85
9014.560	37	9018.060	43	9019.28	260	9063.110	82	K-040605	85
9014.570	37	9018.070	37	9019.29	43	9063.120	82	K-040608	85
9014.580	36	9018.080	37	9019.30	36	90N	134	K-040622	85
9014.590	36	9018.170	38	9019.31	42	91000	138	K-040818	85
9014.610	36	9018.180	44	9019.32	37	91001	138	K-041802	84
9014.610	260	9018.190	38	9019.33	43	91020	137	K-041803	84
9014.650	37	9018.200	38	9019.34	43	91030	137	K-041805	85
9014.98	36	9018.210	43	9019.35	43	91040	137	K-041806	85
9015.230	38	9018.220	43	9019.36	43	91050	137	K-041807	85
9015.240	38	9018.230	43	9019.39	41	91060	137	K-041808	86
9015.250	38	9018.240	37	9019.40	41	91070	137	K-041809	86
9015.260	45	9018.250	37	9019.41	46	91080	137	K-070026	84
9015.270	38	9018.500	37	9019.42	41	91090	137	K-070027	84
9016.000	38	9018.510	37	9019.43	41	91100	137	K-070066	82
9016.010	38	9018.520	37	9019.44	41	91110	137	K-070072	81
9016.020	38	9018.530	37	9019.46	36	91120	137	K-070076	82
9016.030	38	9018.540	43	9019.47	36	91N	134	K-070253	81
9016.110	38	9018.550	43	9023.06	43	981	49	K-070615	84
9016.22	133	9018.560	38	9023.08	133	981	259	K-070616	84
9016.230	38	9018.650	37	9023.10	133	9850	134	K-070617	84
9016.240	38	9018.69	37	9024.49	86	AAP102 2BAT	50	K-070618	84
9016.250	36	9018.700	43	9024.54	83	AAP102 KPL	50	K-070619	84
9016.260	43	9018.720	37	9024.600	84	AQS-DN15	148	K-070621	84
9016.27	38	9018.730	37	9024.61	84	AXI102 2BAT	50	K-070622	84
9016.34	133	9018.740	37	9024.620	84	AXI102 KPL	50	K-070623	84
9016.35	133	9018.750	43	9024.630	84	B2012	275	K-071012	84
9016.580	45	9018.760	37	9024.65	80	B2022	275	K-080064	80
9016.590	45	9019.000	48	9024.67	82	B4012	276	K-080068	80
9017.000	40	9019.010	48	9024.88	80	B4022	276	K-080069	80
9017.010	45	9019.02	49	9024.940	84	BF139	218	K-080070	80
9017.020	40	9019.030	36	9024.950	84	BF168	218	K-080089	80
9017.030	40	9019.040	36	9024.970	84	BP108M	182	K-080090	82
9017.040	45	9019.050	36	9025.01	93	BP108M	217	K-080092	82
9017.050	40	9019.07	41	9025.01	273	BP64M	182	K-080096	80
9017.060	45	9019.090	39	9025.04	93	BP667M	182	K-080097	80
9017.070	40	9019.100	39	9025.04	273	BP761M	182	K-080107	92
9017.080	46	9019.110	40	9026.330	93	BP761M	217	K-080108	92
9017.090	40	9019.120	36	9026.330	273	BP889M	182	K-080109	92
9017.100	135	9019.130	36	9027.160	38	BP889M	217	K-080110	92
9017.120	135	9019.140	40	9027.170	45	K-040025	84	K-080114	92
9017.160	132	9019.150	39	9027.180	38	K-040200	81	K-080125	80
9017.180	132	9019.160	39	9029.11	38	K-040201	81	K-080126	80
9017.200	132	9019.23	36	9029.12	38	K-040220	81	K-080128	82
9017.220	132	9019.23	260	9032.02	82	K-040300	82	K-080129	82
9017.340	40	9019.24	43	9032.02	132	K-040301	82	K-080130	82
9017.350	40	9019.24	260	9040.120	84	K-040302	82	K-080160	86

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K-080163	86	K-084020	90	K-400200	263	K-800005	278	K-802306	280
K-080164	86	K-084030	90	K-400300	281	K-800007	278	K-803002	271
K-080166	83	K-085010	89	K-400317	258	K-800008	278	K-803003	271
K-080167	83	K-085027	89	K-400318	258	K-800009	278	K-803005	271
K-080172	86	K-085030	88	K-400320	258	K-800010	278	K-900000	80
K-080173	86	K-085035	87	K-400330	258	K-800011	276	K-900001	80
K-080174	86	K-085068	87	K-400340	258	K-800011	278	K-900002	80
K-080202	81	K-085069	89	K-400350	257	K-800011	278	K-900003	80
K-080250	92	K-085070	89	K-400360	257	K-800012	276	K-900004	80
K-080251	92	K-085071	88	K-400400	282	K-800012	278	K-900005	80
K-080252	92	K-085072	88	K-500200	264	K-800012	278	K-900006	80
K-080253	92	K-085081	87	K-500200	264	K-800013	276	K-900007	80
K-080254	92	K-085082	87	K-500300	264	K-800013	278	K-900008	80
K-080255	92	K-085104	88	K-500310	265	K-800013	279	K-900009	80
K-080256	92	K-100305	80	K-500400	264	K-800014	276	K-900010	80
K-080257	92	K-100620	281	K-500401	264	K-800014	278	K-900100	80
K-080258	92	K-101205	259	K-500500	264	K-800014	279	K-900101	80
K-080259	92	K-150005	80	K-500600	264	K-800016	278	K-900102	80
K-080380	90	K-150005	259	K-500601	264	K-800018	278	K-900103	80
K-080384	90	K-150114	259	K-500900	265	K-800019	272	K-900104	80
K-080385	90	K-200502	281	K-501000	266	K-800019	279	K-900105	80
K-080386	90	K-200601	262	K-501001	266	K-800020	279	K-900111	92
K-080551	81	K-200604	261	K-501002	266	K-800022	279	K-900112	92
K-081003	86	K-200700	261	K-501900	53	K-800030	276	K-900203	81
K-081025	86	K-200800	281	K-501900	98	K-800031	276	K-900204	81
K-081101	85	K-201003	262	K-501900	282	K-800035	275	K-900205	81
K-081102	85	K-201050	90	K-505100	41	K-800036	275	K-900206	81
K-081103	85	K-201105	262	K-505100	46	K-800100	275	K-900250	81
K-081104	85	K-201106	262	K-505100	132	K-800101	275	K-900250	260
K-081105	85	K-201109	262	K-505100	135	K-800201	275	K-900251	81
K-081106	85	K-201117	262	K-505100	148	K-800202	277	K-900251	260
K-081107	85	K-201120	262	K-600400	140	K-800204	277	K-900252	81
K-081108	85	K-300100	262	K-600400	269	K-800206	277	K-900252	260
K-081109	85	K-300200	262	K-600500	140	K-800208	275	K-900303	82
K-081110	85	K-300300	262	K-600500	269	K-800212	277	K-900304	82
K-081111	85	K-310300	263	K-600702	272	K-800214	277	K-900305	82
K-081112	85	K-310310	263	K-600702	279	K-800216	277	K-900306	82
K-081113	85	K-310320	263	K-600802	272	K-800218	277	K-900307	82
K-081114	85	K-400000	263	K-601400	270	K-800220	277	K-900308	82
K-081115	85	K-400008	282	K-601401	270	K-800222	277	K-900310	82
K-081116	85	K-400100	263	K-601501	282	K-800224	277	K-900313	82
K-081117	85	K-400105	257	K-601705	93	K-800226	277	K-900342	90
K-081118	85	K-400108	258	K-601705	272	K-800228	277	K-900344	90
K-082004	86	K-400110	257	K-609010	133	K-800230	277	K-900345	90
K-083003	82	K-400120	257	K-609032	93	K-800232	278	K-900350	82
K-083004	82	K-400130	257	K-609033	93	K-800310	276	K-900351	82
K-084004	83	K-400140	257	K-609034	93	K-801300	280	K-900352	82
K-084006	83	K-400150	257	K-609035	93	K-801800	280	K-900381	81
K-084008	83	K-400160	257	K-609062	93	K-802304	280	K-900382	81

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K-900400	86	K-901930	91	KPPZ/M	95	PT1-8469	53	SZ-2016	283
K-900401	86	K-901931	91	KPPZ-L	95	PT1-8471	53	SZ-2620	53
K-900402	86	K-901932	91	KPSD	181	R542	140	SZ-2620	98
K-900403	86	K-901933	91	KPSD	217	R542	270	SZ-2620	283
K-900404	86	K-901934	91	KPSDU	182	R543	140	T-1U4255K	281
K-900405	86	K-901935	91	KPSDU	217	R543	269	TH232-AF-230	275
K-900406	86	K-901936	91	KPSM	181	R5541	140	U17X2	139
K-900410	87	K-901937	91	KPSM	217	R5541	270	U18	139
K-900411	87	K-902000	86	KPSN	180	RS1435	94	U24X2	139
K-900412	87	K-902001	86	KPSN	215	RS1435	282	U28	139
K-900413	87	K-902002	86	MZH1418	52	RSM1435	94	UAP100	181
K-900500	83	K-902003	86	MZH2532	52	RSM1435	282	UAP100	217
K-900501	83	K-902716	81	N75020A	268	S10020	137	UD-G16	125
K-900502	83	K-902717	81	N75020E	268	S10030	137	UD-G16	146
K-900503	83	K-902718	81	N75030A	268	S10040	137	UD-G20	125
K-900504	83	K-903000	82	N75030E	268	S10050	137	UD-G20	146
K-900600	84	K-903001	82	N75040A	268	S10060	137	UD-G25	125
K-900601	84	K-903002	82	N75040E	268	S10070	137	UD-G25	146
K-900602	84	K-903003	82	N75050A	268	S10080	137	UD-G32	125
K-900603	84	K-903007	82	N75050E	268	S10090	137	UD-G32	146
K-900604	84	K-904000	83	N75060A	268	S10100	137	UP-G110	124
K-900605	84	K-904001	83	N75060E	268	S10110	137	UP-G110	146
K-900606	84	K-904002	83	N75070A	268	S10120	137	UP-G139	146
K-900607	84	K-904003	83	N75070E	268	S20020	137	UP-G16	124
K-900608	84	K-905000	87	N75080A	268	S20030	137	UP-G16	146
K-900609	84	K-905001	87	N75080E	268	S20040	137	UP-G168	146
K-900610	84	K-905002	88	N75090A	268	S20050	137	UP-G20	124
K-900611	84	K-905003	88	N75090E	268	S20060	137	UP-G20	146
K-900612	84	K-905005	89	N75100A	268	S20070	137	UP-G25	124
K-900613	84	K-905022	89	N75100E	268	S20080	137	UP-G25	146
K-900614	84	K-905023	88	N75110A	268	S20090	137	UP-G32	124
K-900615	84	K-905026	89	N75110E	268	S20100	137	UP-G32	146
K-900616	84	KL14	95	N75120A	268	S20110	137	UP-G40	124
K-900617	84	KL14	283	N75120E	268	S20120	137	UP-G40	146
K-900618	84	KL16	95	P06	139	smar	54	UP-G50	124
K-900619	84	KL16	283	P09	139	SW-1410	98	UP-G50	146
K-900650	85	KL162026	95	P10	139	SW-1410	283	UP-G60	146
K-900651	85	KL162026	283	P12	139	SW-1612	98	UP-G63	124
K-900652	85	KL20	95	P1-8467	53	SW-1612	283	UP-G63	146
K-900653	85	KL20	283	P1-8468	53	SW-2016	98	UP-G75	124
K-900654	85	KL26	95	P1-8469	53	SW-2016	283	UP-G75	146
K-901000	86	KL26	283	P1-8471	53	SW-2620	98	UP-G90	124
K-901001	86	KL263240	95	P8463	53	SW-2620	283	UP-G90	146
K-901002	86	KL5063	95	P8464	53	SZ-1410	53	Z1-KPL	54
K-901003	86	KPPD	96	P8465	53	SZ-1410	98	Z1-P12N	54
K-901700	91	KPPNA	96	P8470	53	SZ-1410	283	Z1-P14N	55
K-901701	91	KPPN-PUSH	51	PN01	51	SZ-1612	98	Z1-P185N	55
K-901800	92	KPPR-PUSH	52	PR01/N	52	SZ-1612	283	Z1-P18N	55
K-901801	92	KPPR-PUSHAK	49	PT1-8467	53	SZ-1814	53	Z1-P25N	55

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ZAPR01	180
ZAPR01	216
ZAPR01-KPPD25	96
ZAPR02	94
ZAPR04	96
ZAPR04	180
ZAPR04	216
ZAPR14R	94
ZAPR16R	94
ZAPR20R	94
ZAPR25R	94
ZAPR26R	94
ZAPRAK	97
ZAPRAK	181
ZAPRAK	216
ZAPRE32	94
ZAPRE40	94
ZAPRE50	94
ZAPRE63	94

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1009042003	81	1009045013	80	1009069012	86	1009257043	85	1009257279	83
1009042004	81	1009045014	80	1009069016	86	1009257044	85	1009258000	83
1009042005	81	1009045015	80	1009069018	86	1009257045	85	1009258001	83
1009042013	81	1009045016	80	1009069020	86	1009257048	85	1009258002	83
1009042013	260	1009045017	80	1009069022	86	1009257051	85	1009258011	83
1009042015	81	1009045018	80	1009070005	86	1009257063	84	1009258012	90
1009042015	260	1009045019	80	1009070010	86	1009257066	84	1009258017	90
1009042017	81	1009045020	80	1009070013	86	1009257073	84	1009258018	90
1009042017	260	1009045043	80	1009070016	86	1009257076	84	1009258029	83
1009042022	81	1009045061	80	1009070018	86	1009257083	84	1009258034	83
1009042024	81	1009046002	82	1009070022	86	1009257086	84	1009258036	83
1009042039	81	1009046004	82	1009070026	86	1009257089	84	1009259000	82
1009042042	81	1009046007	82	1009070029	86	1009257092	84	1009259001	82
1009042049	81	1009046008	82	1009071006	91	1009257097	84	1009259002	82
1009042055	81	1009046018	82	1009071009	91	1009257100	84	1009259003	82
1009042061	90	1009046026	82	1009071014	92	1009257103	84	1009259006	82
1009042063	90	1009046029	82	1009105000	92	1009257106	84	1009259009	82
1009042064	90	1009046032	82	1009105002	92	1009257113	84	1009259010	82
1009042065	90	1009046040	82	1009105004	92	1009257115	91	1009259027	82
1009042077	81	1009046045	82	1009105006	92	1009257129	84	1009259037	82
1009042079	81	1009046046	82	1009105008	92	1009257144	84	1009259040	82
1009042082	81	1009046047	82	1009105009	92	1009257152	84	1009259043	82
1009042105	82	1009046048	82	1009105011	92	1009257158	84	1009259046	82
1009042111	82	1009046052	82	1009105013	92	1009257160	85	1009260000	84
1009042117	82	1009046054	82	1009105014	92	1009257163	85	1009260001	84
1009042120	80	1009046072	82	1009105016	92	1009257165	85	1009260005	37
1009042128	80	1009046075	82	1009105018	92	1009257168	85	1009260007	84
1009042132	80	1009068000	86	1009105019	92	1009257172	85	1009260009	84
1009042134	80	1009068001	91	1009105021	92	1009257175	85	1009260010	84
1009042139	90	1009068002	92	1009183002	88	1009257176	85	1009260019	84
1009042141	90	1009068003	87	1009183004	87	1009257177	85	1009260022	84
1009042143	90	1009068007	86	1009250001	93	1009257179	85	1009260026	84
1009042145	81	1009068010	86	1009250002	93	1009257181	85	1009260027	84
1009042146	81	1009068011	86	1009250003	93	1009257183	85	1009260032	84
1009042149	81	1009068018	81	1009250004	93	1009257185	85	1009260035	84
1009044002	80	1009068020	86	1009250005	93	1009257187	85	1009260038	84
1009044003	80	1009068028	87	1009257007	83	1009257189	85	1009260041	84
1009044005	80	1009068029	86	1009257009	83	1009257191	85	1009260042	84
1009044006	80	1009068030	86	1009257010	83	1009257193	85	1009260043	84
1009044008	80	1009068034	86	1009257014	84	1009257205	85	1009260044	84
1009044009	80	1009068040	87	1009257015	84	1009257211	85	1009260045	84
1009044024	80	1009068041	87	1009257016	83	1009257217	85	1009260048	84
1009044029	80	1009068048	86	1009257019	84	1009257223	85	1009260049	84
1009044030	81	1009068050	86	1009257020	83	1009257229	85	1009260069	85
1009044040	80	1009068054	86	1009257021	84	1009257234	85	1009260097	85
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1009044051	80	1009068066	86	1009257023	83	1009257246	85	1009261000	91
1009045003	80	1009069005	86	1009257026	84	1009257252	85	1009261001	91

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1009261004	91	1010271002	273	1109044001	36	1109071047	38	1109257031	43
1009261005	91	1010271005	93	1109044003	42	1109071048	45	1109257032	43
1009261007	91	1010271005	273	1109044006	36	1109122000	38	1109257033	43
1009261009	91	1010271008	93	1109044008	36	1109122001	45	1109257035	43
1009271000	92	1010271008	273	1109044009	42	1109122002	38	1109257036	43
1009271002	92	1029195000	79	1109044010	36	1109226003	41	1109257038	43
1009271009	92	1029195001	79	1109044012	36	1109226003	260	1109257039	37
1009271013	92	1029195002	79	1109044014	36	1109226004	41	1109257040	37
1009285000	90	1029195003	79	1109045000	36	1109226004	260	1109257043	37
1009285001	88	1029195010	79	1109045011	36	1109226006	41	1109257045	37
1009285005	87	1029195011	79	1109045012	36	1109226006	46	1109257047	43
1009285009	88	1029196031	259	1109045013	42	1109226006	260	1109257048	43
1009285013	87	1029196032	79	1109045015	36	1109226009	41	1109257049	37
1009285017	88	1029196032	259	1109045017	36	1109226009	260	1109257052	37
1009285029	87	1029196067	79	1109045019	36	1109226014	41	1109257053	37
1009285032	89	1029196071	79	1109045021	42	1109226017	41	1109257054	43
1009285040	88	1029196078	79	1109046000	36	1109226017	260	1109257055	43
1009285050	89	1029196081	79	1109046002	36	1109226018	41	1109257056	37
1009285053	89	1029196092	79	1109046003	43	1109226018	46	1109257058	37
1009285056	89	1029196092	259	1109046004	37	1109226018	260	1109257060	37
1009285057	89	1029196106	79	1109046005	43	1109226019	41	1109257062	37
1009285059	89	1029196114	79	1109046006	36	1109226019	260	1109257063	43
1009285062	89	1029196115	79	1109068000	38	1109226020	41	1109257064	43
1009285077	88	1029196119	79	1109068001	38	1109250001	41	1109257065	43
1009285082	88	1029196123	79	1109068006	44	1109250005	46	1109257066	43
1009286018	87	1029196123	259	1109068007	38	1109250006	41	1109260003	37
1009286019	87	1029196130	79	1109068009	38	1109250007	41	1109260005	37
1010040001	93	1029196131	79	1109068012	38	1109250008	41	1109260008	43
1010040001	273	1109042002	36	1109068013	44	1109250009	41	1109260010	43
1010040002	93	1109042002	260	1109068014	38	1109257003	37	1109260012	43
1010040002	273	1109042004	43	1109068015	38	1109257004	43	1109260015	37
1010040003	93	1109042004	260	1109068017	38	1109257005	43	1109260017	37
1010040003	273	1109042005	36	1109068020	38	1109257006	37	1109260019	37
1010040006	93	1109042007	36	1109068021	38	1109257007	37	1109260020	37
1010040006	273	1109042007	260	1109068024	45	1109257010	44	1109261000	39
1010040008	93	1109042008	36	1109068025	38	1109257011	43	1109261001	40
1010040008	273	1109042008	260	1109068026	38	1109257012	43	1109261002	39
1010040011	93	1109042009	36	1109068027	38	1109257013	37	1109261003	40
1010040011	273	1109042010	36	1109068029	45	1109257014	37	1109261004	39
1010040013	93	1109042013	36	1109068031	38	1109257015	37	1109261010	39
1010040013	273	1109042014	43	1109068034	38	1109257016	37	1109261011	39
1010040015	93	1109042018	43	1109068035	38	1109257017	37	1109261013	39
1010040015	273	1109042020	36	1109068037	38	1109257018	37	1109261014	39
1010045000	93	1109042022	36	1109070002	38	1109257020	43	1109261015	44
1010045000	273	1109042024	36	1109071009	38	1109257023	43	1109261016	44
1010045001	93	1109042029	36	1109071010	38	1109257024	37	1109261018	39
1010045001	273	1109042031	36	1109071022	38	1109257025	37	1109261019	39
1010271001	93	1109042033	36	1109071038	38	1109257026	37	1109261020	39
1010271001	273	1109042035	36	1109071044	45	1109257028	37	1109261021	39

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1109261024	40	1110044008	48	1129198014	47	1129200035	259	1209051006	119
1109261025	39	1110044010	48	1129198016	35	1129200037	42	1209051007	119
1109261026	45	1110044012	48	1129198016	47	1129200037	47	1209051008	119
1109261027	45	1110044014	48	1129198017	35	1129200038	42	1209051009	119
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1109261031	40	1110045005	48	1129198019	42	1129200041	35	1209051014	119
1109261036	39	1110045007	48	1129198019	47	1129200041	47	1209051015	119
1109261040	44	1110045009	48	1129198020	35	1129200042	35	1209057000	121
1109261043	44	1110045012	48	1129198020	47	1129200042	47	1209057001	121
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1109261056	39	1110045015	48	1129198021	47	1129200043	47	1209068000	120
1109261062	45	1110045017	48	1129198023	80	1129200045	35	1209068001	120
1109261064	44	1110226000	49	1129198025	35	1129200045	47	1209068002	120
1109261075	39	1110226000	272	1129198025	47	1129201000	35	1209068003	120
1109261076	39	1110226001	49	1129198025	259	1129201002	35	1209068004	120
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1109285019	40	1110271001	48	1129198042	47	1209025008	123	1209068017	119
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1110042003	259	1110271005	272	1129200026	35	1209050003	118	1209068024	119
1110042005	49	1110271006	46	1129200026	47	1209050004	118	1209068025	119
1110042005	259	1110271006	48	1129200027	35	1209050005	118	1209069000	120
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1110042006	259	1110271008	48	1129200027	259	1209050007	118	1209069002	120
1110042008	49	1110271008	272	1129200030	35	1209050008	118	1209069003	120
1110042008	259	1110271010	48	1129200030	47	1209050009	118	1209069004	120
1110042010	49	1110271010	93	1129200031	35	1209050011	118	1209069005	120
1110042012	49	1110271010	272	1129200031	47	1209050012	118	1209069006	120
1110042012	259	1110271011	93	1129200032	47	1209050013	118	1209069007	120
1110042014	49	1110271011	272	1129200032	80	1209050014	118	1209069008	120
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1209070003	120	1209230003	116	1209258002	122	1229203016	115	1300005004	140
1209070004	120	1209230007	116	1209258003	122	1229204000	116	1300005004	270
1209070005	120	1209230009	116	1209258004	122	1229204002	116	1300025000	139
1209070006	120	1209230011	116	1209258005	122	1229204003	116	1300025002	139
1209091001	123	1209238009	116	1209258006	122	1229204004	116	1300079002	269
1209091002	123	1209238010	116	1209258007	122	1229204005	116	1300079003	269
1209091003	123	1209238011	116	1209259000	122	1229204006	116	1300079005	269
1209091004	123	1209238012	116	1209269000	117	1229204007	116	1300103001	271
1209091005	123	1209245000	117	1209269001	117	1229204008	116	1300103003	271
1209091006	123	1209245001	117	1209269002	117	1229204009	116	1300105000	138
1209091015	122	1209245002	117	1209269003	117	1229205000	116	1300105001	138
1209091016	122	1209245003	117	1209271000	122	1229205001	116	1300154000	138
1209091017	122	1209245004	117	1209271001	122	1229205002	116	1300154001	138
1209091018	122	1209245005	117	1209271002	122	1229205003	116	1300154002	138
1209091019	122	1209245006	117	1209271003	122	1229205005	116	1300154003	138
1209091020	122	1209245007	117	1209271004	122	1229205007	116	1300154004	138
1209105000	122	1209245008	117	1209272000	122	1229205009	116	1300154005	138
1209105001	122	1209245009	117	1209278001	123	1229205011	116	1300154006	138
1209105002	122	1209257000	121	1209278002	123	1229205012	116	1300154007	138
1209107030	124	1209257001	121	1209278003	123	1229205014	116	1300154008	138
1209107031	124	1209257002	121	1209278004	123	1229205015	116	1300154009	138
1209107032	124	1209257003	121	1209278005	123	1229205017	116	1300154010	138
1209107033	124	1209257004	121	1209278006	123	1229205018	116	1300154037	138
1209107034	124	1209257005	121	1209278014	123	1229205020	116	1300154038	138
1209107035	124	1209257006	121	1209280000	123	1229205021	116	1300154039	138
1209107036	124	1209257007	121	1209280001	123	1229205024	116	1300154040	138
1209107037	124	1209257008	121	1209280002	123	1229205025	116	1300154041	138
1209107038	124	1209257009	121	1209280003	124	1229205026	116	1300154042	138
1209210000	125	1209257010	121	1209280004	124	1229205027	116	1300154043	138
1209220000	118	1209257011	121	1209280005	124	1229206003	115	1300154044	138
1209220001	118	1209257012	121	1209280006	124	1229206007	115	1300154045	138
1209220002	118	1209257013	121	1209280007	124	1229206011	115	1300154046	138
1209220003	118	1209257016	121	1209280008	124	1229206015	115	1300154047	138
1209220004	118	1209257017	121	1229202000	115	1229206019	115	1300174003	139
1209220005	118	1209257018	121	1229202002	115	1229206022	115	1300174018	139
1209220006	118	1209257019	121	1229202004	115	1229206025	115	1300174019	139
1209220007	118	1209257020	121	1229202006	115	1229206029	115	1300174020	139
1209220008	118	1209257021	121	1229202009	115	1229206031	115	1300174028	140
1209220009	118	1209257022	121	1229202010	115	1229206033	115	1300174028	269
1209220010	118	1209257023	121	1229202012	115	1229206035	115	1300183001	269
1209220011	118	1209257024	121	1229202014	115	1229206037	115	1300183002	269
1209220012	118	1209257025	121	1229202016	115	1229206039	115	1300183006	140
1209220013	118	1209257026	121	1229203000	115	1229206041	115	1300183006	269
1209220014	118	1209257027	121	1229203001	115	1229206043	115	1300183007	140
1209220015	118	1209257028	121	1229203003	115	1229206045	115	1300183007	269
1209220016	118	1209257029	121	1229203005	115	1229206047	115	1300183009	282
1209220017	118	1209257030	121	1229203008	115	1300005000	141	1300220002	139

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1300220003	268	1345158011	136	1346157020	267	1347156008	137	1446180002	274
1300250019	139	1345158012	136	1346157021	267	1347156009	137	1509011000	176
1300257001	140	1345158013	136	1346160000	266	1347156010	137	1509011002	176
1300257001	270	1345158014	136	1346160001	266	1347158000	137	1509011003	176
1300257002	140	1345158015	136	1346160002	266	1347158002	137	1509011004	176
1300257002	270	1345158016	136	1346160003	266	1347158003	137	1509011005	176
1300264001	270	1345158017	136	1346160004	266	1347158005	137	1509011007	176
1300264002	270	1345158019	137	1346160005	266	1347158007	137	1509011008	176
1300277000	140	1345158020	137	1346160006	266	1347158009	137	1509011009	176
1300277000	270	1345158021	137	1346160007	266	1347158011	137	1509022005	176
1316157022	268	1345158022	137	1346160008	266	1347158013	137	1509022006	176
1316157024	268	1345158023	137	1346160009	266	1347158015	137	1509022007	176
1316157025	268	1345158024	137	1346160010	266	1347158017	137	1509022008	176
1316157027	268	1345158025	137	1346160011	267	1347158019	137	1509042002	168
1316157028	268	1345158026	137	1346160012	267	1400151001	143	1509042021	167
1316157030	268	1345158027	137	1346160013	267	1445096001	142	1509042022	167
1316157031	268	1345158028	137	1346160014	267	1445096002	142	1509044000	168
1316157033	268	1345158029	137	1346160015	267	1445096002	142	1509044001	168
1316157034	268	1345161000	136	1346160016	267	1445096006	142	1509044003	168
1316157036	268	1345161002	136	1346160017	267	1445096008	142	1509044005	168
1316157037	268	1345161004	136	1346160018	267	1445096011	142	1509044006	168
1316157039	268	1345161006	136	1346160019	267	1445096011	142	1509044008	168
1316157040	268	1345161008	136	1346160020	267	1445096014	142	1509044010	168
1316157042	268	1345161010	136	1346160021	267	1445096016	142	1509044011	168
1316157043	268	1345161012	136	1346166009	271	1445096018	142	1509044012	168
1316157045	268	1345161014	136	1346166010	271	1445117000	142	1509044013	168
1316157046	268	1345161016	136	1346166011	271	1445117001	142	1509044014	168
1316157048	268	1345161018	136	1346166012	271	1445117002	142	1509044015	168
1316157049	268	1345161020	136	1346166013	271	1445117003	142	1509044016	168
1316157051	268	1346103000	271	1346166014	271	1445117004	142	1509044017	168
1316157052	268	1346157000	267	1346166015	271	1445117011	141	1509045002	167
1316157054	268	1346157001	267	1346166016	271	1445117012	141	1509045003	167
1343183007	138	1346157002	267	1346166018	271	1445117013	141	1509045005	167
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1345156007	136	1346157005	267	1346166025	271	1445180000	141	1509045009	167
1345156008	136	1346157006	267	1346166026	271	1445180001	141	1509045010	167
1345156009	136	1346157007	267	1346166027	271	1445180002	141	1509045012	167
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1345156015	136	1346157013	267	1347156001	137	1445180009	141	1509045020	167
1345156016	136	1346157014	267	1347156002	137	1445180010	141	1509050000	168
1345156017	136	1346157015	267	1347156003	137	1446117003	274	1509050001	168
1345158007	136	1346157016	267	1347156004	137	1446117004	274	1509050002	168
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1509050008	168	1509068036	170	1509076003	169	1509182030	178	1509221041	174
1509052000	169	1509068037	170	1509076004	169	1509182030	213	1509237000	177
1509057000	174	1509068038	170	1509076005	169	1509182031	178	1509237000	213
1509057001	174	1509068039	170	1509076006	169	1509182031	213	1509237001	177
1509057002	173	1509068040	170	1509076007	169	1509182032	178	1509237001	213
1509057004	173	1509068041	170	1509080000	169	1509182032	213	1509237002	177
1509057005	173	1509068042	170	1509080002	169	1509182033	178	1509237002	213
1509057006	173	1509068043	170	1509080003	169	1509182033	213	1509237003	177
1509057007	173	1509068045	170	1509080004	169	1509182034	178	1509237003	213
1509057008	173	1509068047	170	1509080005	169	1509182034	213	1509237004	177
1509057009	173	1509068049	170	1509080006	169	1509182035	178	1509237004	213
1509057013	174	1509068050	170	1509080007	169	1509182035	213	1509237005	177
1509057015	174	1509068052	170	1509080008	169	1509182038	214	1509237005	213
1509057017	174	1509068053	170	1509080009	169	1509182039	214	1509245000	169
1509057019	174	1509068054	170	1509080011	169	1509182040	214	1509245001	169
1509057021	174	1509068055	170	1509080012	169	1509182041	214	1509245002	169
1509057022	174	1509068056	170	1509080014	169	1509182042	214	1509245003	169
1509057023	174	1509068058	170	1509091000	177	1509182043	214	1509245004	169
1509057024	173	1509068059	170	1509091001	177	1509182044	214	1509245006	169
1509057025	173	1509068060	170	1509091002	177	1509221010	174	1509245007	169
1509057026	173	1509068062	170	1509091003	177	1509221011	174	1509245008	169
1509057027	173	1509068064	170	1509091004	177	1509221012	174	1509245009	169
1509057028	173	1509068066	170	1509091005	177	1509221013	174	1509245010	169
1509057029	173	1509069004	175	1509091010	177	1509221014	174	1509245011	169
1509068000	175	1509069005	175	1509106000	168	1509221015	174	1509245012	169
1509068001	175	1509069006	175	1509106001	168	1509221016	174	1509250001	177
1509068002	175	1509069007	175	1509106002	168	1509221017	174	1509250002	177
1509068004	170	1509069008	175	1509106003	168	1509221018	174	1509250003	177
1509068005	170	1509069009	175	1509106004	168	1509221019	174	1509250004	177
1509068006	170	1509069010	175	1509106005	168	1509221020	174	1509250005	177
1509068007	170	1509069011	175	1509106006	168	1509221021	174	1509250006	177
1509068008	170	1509069012	175	1509178000	176	1509221022	174	1509250007	177
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1509068014	170	1509070003	175	1509182023	178	1509221027	174	1509257000	173
1509068016	170	1509070004	175	1509182023	213	1509221028	174	1509257002	173
1509068018	170	1509070005	175	1509182024	178	1509221029	174	1509257003	173
1509068019	171	1509070006	175	1509182024	213	1509221030	174	1509257004	173
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1509068023	171	1509070008	175	1509182025	213	1509221032	174	1509257006	173
1509068024	171	1509070009	175	1509182026	178	1509221033	174	1509257007	173
1509068025	171	1509070010	175	1509182026	213	1509221034	174	1509257008	171
1509068026	171	1509070012	175	1509182027	178	1509221035	174	1509257009	171
1509068027	171	1509070013	175	1509182027	213	1509221036	174	1509257010	171
1509068028	171	1509070014	175	1509182028	178	1509221037	174	1509257011	171
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1509257016	171	1509260022	172	1609011004	211	1609045015	203	1609068142	206
1509257018	171	1509260024	172	1609011005	211	1609045016	203	1609068143	206
1509257019	171	1509260025	172	1609011008	211	1609045017	203	1609068144	206
1509257021	176	1509260026	172	1609011009	211	1609045018	203	1609068145	206
1509257022	176	1509260027	172	1609011010	211	1609045019	203	1609068146	206
1509257023	176	1509260028	172	1609011011	211	1609045020	203	1609068147	206
1509257024	176	1509260029	172	1609011014	212	1609045041	203	1609068148	206
1509257025	171	1509260030	172	1609011015	212	1609045042	203	1609068149	206
1509257027	172	1509260031	172	1609011016	212	1609068000	210	1609068150	206
1509257028	172	1509260032	172	1609011017	212	1609068001	210	1609068151	206
1509257029	172	1509260037	172	1609011018	212	1609068002	210	1609068152	206
1509257030	172	1509260038	172	1609011019	212	1609068003	210	1609068153	206
1509257031	167	1509260039	172	1609011025	212	1609068005	210	1609068154	206
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