

Ø 12-32 mm



SYSTEM **KAN-therm**

Push Push Platinum

Reliability and Prestige



TECHNOLOGY OF SUCCESS



ISO 9001

Contents

1 System KAN-therm Push /KAN-therm Push Platinum	
General information.....	3
System KAN-therm Push Platinum	4
Multi-layer PE-Xc/Al/PE-HD Platinum pipes	5
Parameters of multi-layer PE-Xc/Al/PE-HD Platinum pipes	5
Multi-layer PE-Xc/Al/PE-HD Platinum pipes – Physical properties.....	6
Transport and storage.....	6
Contact with substances containing solvents, sealing the threads.....	6
Push Platinum connections	7
Fittings for the KAN-therm Push Platinum System connections.....	7
Brass sleeves for KAN-therm Push Platinum System joints.....	7
Assembling Push Platinum joints	8
Tools for Push Platinum joints.....	11
Tools - Safety	12
Screwed connections for PE-Xc/Al/PE-HD Platinum pipes	12
Compression fittings for PE-Xc/Al/PE-HD Platinum pipes 14–18 mm	12
Union connection for PE-Xc/Al/PE-HD Platinum pipes 14 – 18 mm	13
Joining fittings with nickel-plated pipes with radiator fixtures	15
System KAN-therm Push	16
PE-RT pipes.....	17
PE-Xc pipes	18
PE-RT and PE-Xc pipes operating parameters.....	18
PE-RT and PE-Xc pipes: Physical properties.....	19
Transport and storage.....	19
Contact with substances containing solvents, sealing the threads.....	19
Push connections.....	20
Assembly of Push connections	21
Tools for Push connections.....	24
Tools - Safety	26
Screwed joints for PE-RT and PE-Xc – Ø12-32 mm	27
Eurocone adapters for PE-RT and PE-Xc - Ø12-25 mm pipes	28
Joining fittings with nickel-plated pipes with radiator fixtures	29
System KAN-therm Push/Push Platinum - assortment	31
System KAN-therm Push - diameter 18×2,0	39
System KAN-therm Push/Push Platinum - and screwed connections	44
Tools for Push connections Push/Push Platinum	46

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 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.

System KAN-therm Push Platinum

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 – $T_{\text{work}} = 80^{\circ}\text{C}$ (operating temperature), $T_{\text{max}} = 90^{\circ}\text{C}$ (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 PE-HD 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 ³ /m]
14	14	2,25	c.h. / t. c.w. & h.w.	0,071
18	17	2,8	c.h. / t. c.w. & h.w.	0,102
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 _{work} [bar]	T _{work} /T _{max} [°C]	Push (with sliding sleeve)	Screwed (threaded)
Tap cold water	14	14	2,25	10	20	+	+
	18	17	2,8	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	17	2,8	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	17	2,8	10	70/80	+	+
	25	25	3,7	10	70/80	+	-
	32	32	4,7	10	70/80	+	-

Installation and application class (acc. to ISO 10508)	Nominal dia. DN	External diameter [mm]	Wall thickness [mm]	Operating parameters		Type of connections	
				P _{work} [bar]	T _{work} /T _{max} [°C]	Push (with sliding sleeve)	Screwed (threaded)
Underfloor heating, radiator heating – low temperature (class 4)	14	14	2,25	10	60/70	+	+
	18	17	2,8	10	60/70	+	+
	25	25	3,7	10	60/70	+	-
	32	32	4,7	10	60/70	+	-
Radiator heating (class 5)	14	14	2,25	10	80/90	+	+
	18	17	2,8	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	α	mm/m × K	0.025
Thermal conductivity	λ	W/m × K	0.4
Density	ρ	g/cm ³	0.95
Module E	E	N/mm ²	2950
Tensile stretch		%	-
Minimum bend radius	R _{min}		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.
- 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!!!

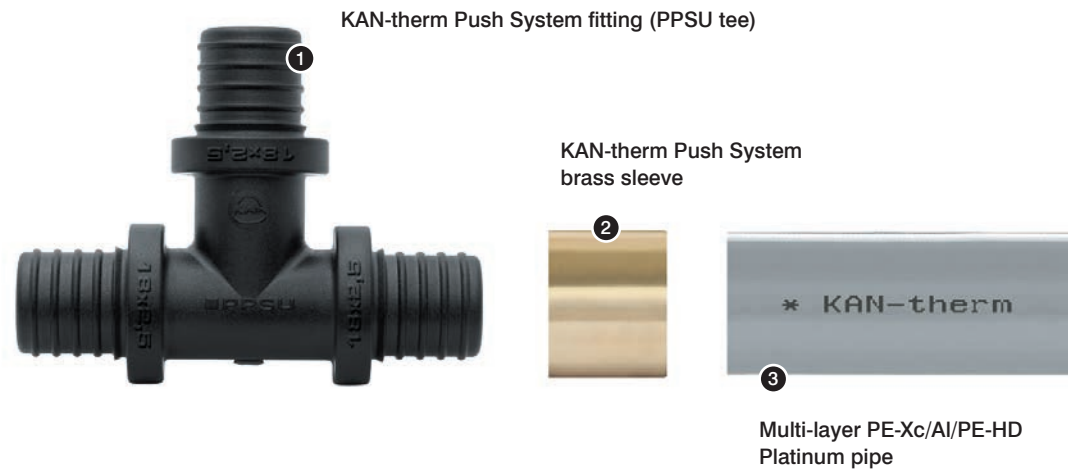
Do not use chemical sealants and adhesives.

Push Platinum connections

Performing Push Platinum connection consist in sliding brass 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.

Brass sleeves for KAN-therm Push Platinum System joints

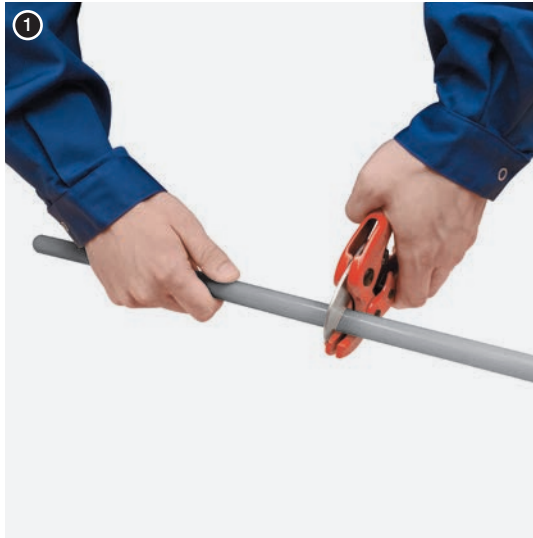
To seal KAN-therm Push Platinum System connection of a pipe and a fitting, standard KAN-therm Push brass sleeves in diameters 14 - 32 mm are used.



Assembling Push Platinum joints

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

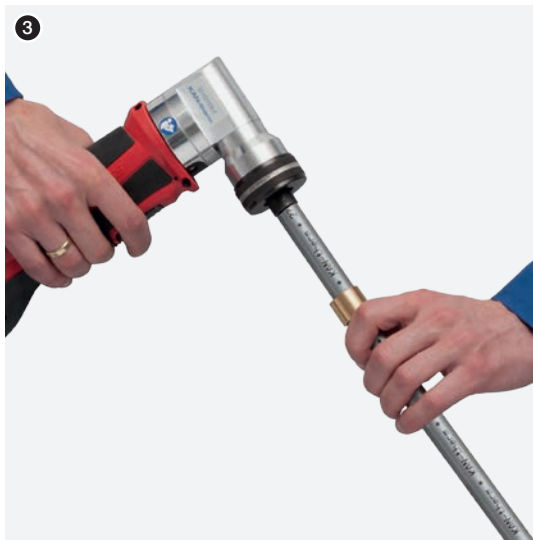
2. Put the sleeve onto a pipe with the internally chamfered end toward a fitting. Select the sleeve properly to the pipe diameter.



! CAUTION! For cutting use only sharp blades.

3. Expand the pipe with a hand or electric expanding tool. In both cases use the expanding tool in three stages. First two expansions not full, with rotation of expanding tool 30° and 15° against the pipe. The third expansion is full.

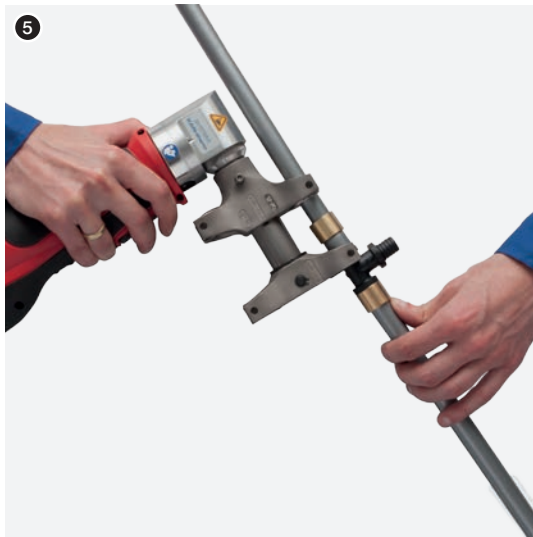
4. Insert the fitting into a pipe up to the last bead on the fitting.



! 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.



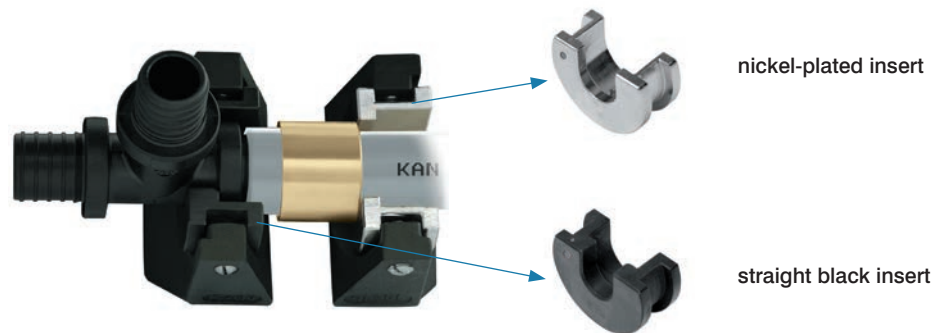
To eliminate the excessive overload on fittings by bending force, it is not recommended to bend pipes at a distance less than 10 external diameters from the fitting.

To allow self compensation of pipelines thermal elongations, make sure that all fittings are made as fixed points (for instance directly covered by mortar).

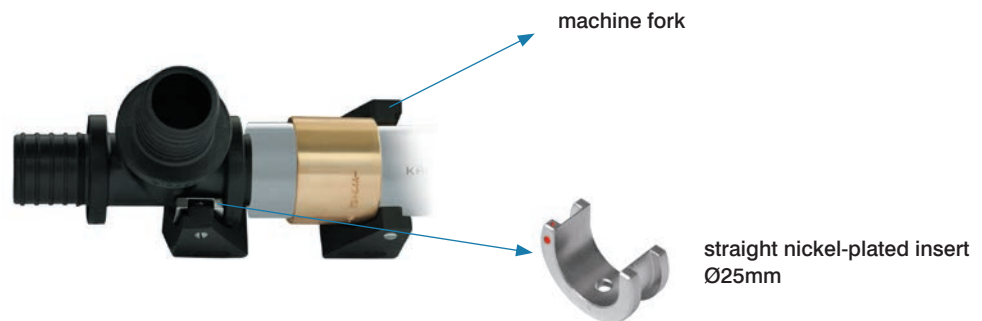
There is possibility of performing Push connections at temperatures below 0° under additional conditions given in KAN-therm System Designers and Contractors guide.

! CAUTION!

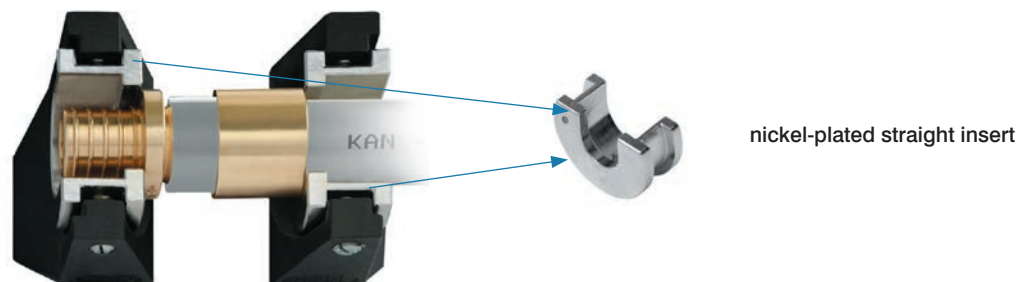
- 1 For assembly of a PPSU fittings use only at the side of a fitting black inserts marked T (14, 18 or 25), and at the sleeve side straight nickel-plated inserts. The PPSU fitting shall be supported at its flange directly next to the stub pipe onto which the sleeve is being pushed.



- 2 When assembling a PPSU fitting dia. 32 mm insert at the fitting end, use a straight nickel-plated insert. dia. 25 mm, and on the sleeve side empty machines fork.



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



- 4 For screwed connections Ø 32 mm use only forks (no inserts).

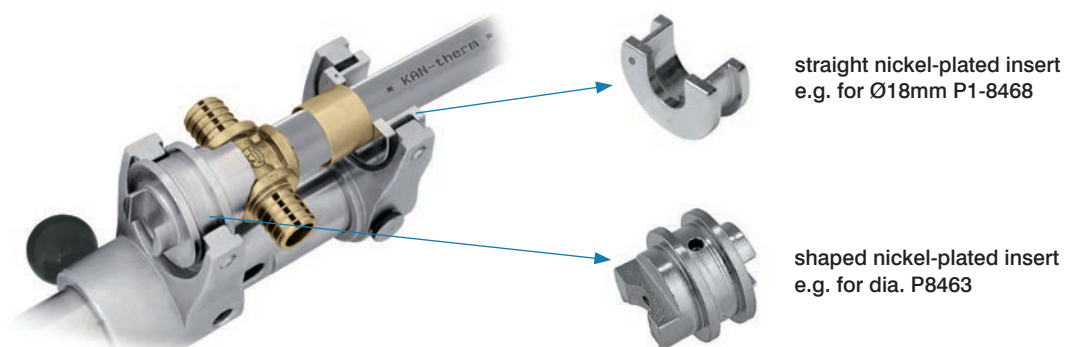


assembling a Ø32 joint without using inserts

- 5 For assembly of other brass elements e.g. screwed couplings, wallplate elbows (excluding angle wallplate elbows) and elements of connections to radiators use straight nickel-plated inserts marked: P1-8471, P1-8469, P1-8468, P1-8467.

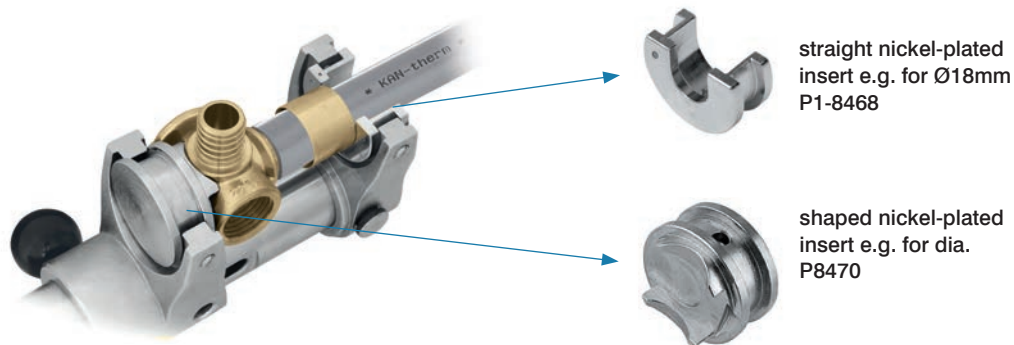


- 6 For brass tees Ø14, 18, 25 mm use at the side of fitting nickel-plated shaped inserts marked respectively P8465, P8463, P8464. At the sleeve side use straight nickel-plated inserts.



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

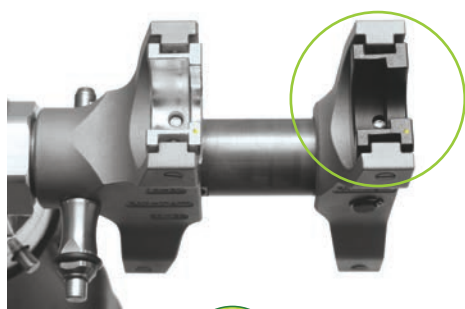
- 7 For brass angle wallplate elbows Ø18 mm use at the fitting side shaped nickel-plated insert marked P8470. At the sleeve side use a straight nickel-plated insert.



! CAUTION!

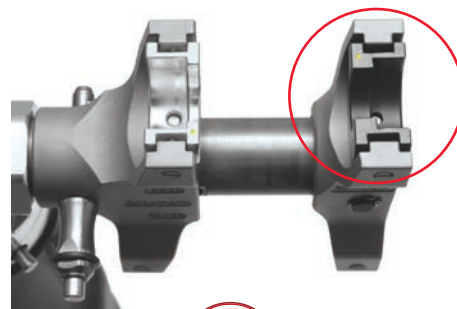
The presented above shaped inserts for brass joints are not a standard part of tool kits, please order them separately. Shaped inserts are not compatible with hand chain crimping tools.

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.

There is possibility to order KPPR-PLAT tool set with Platinum expanding heads.

Heads for Push Platinum joints

For connections of the KAN-therm Push Platinum System use standard set of tools additionally equipped with Push Platinum heads.

Push Platinum expanding heads
– 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

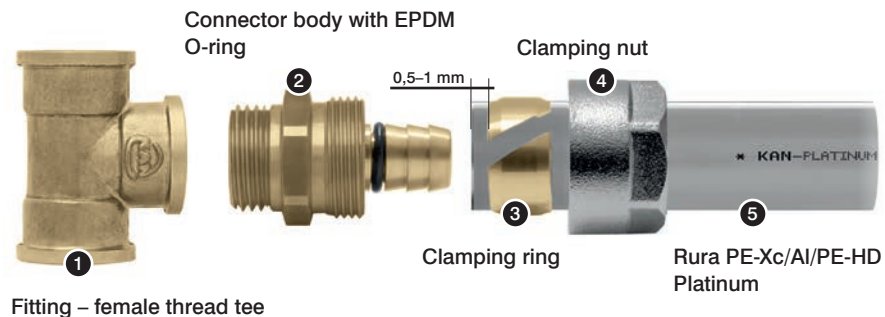
Screwed connections in System KAN-therm Push Platinum may be carried out by:

- 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

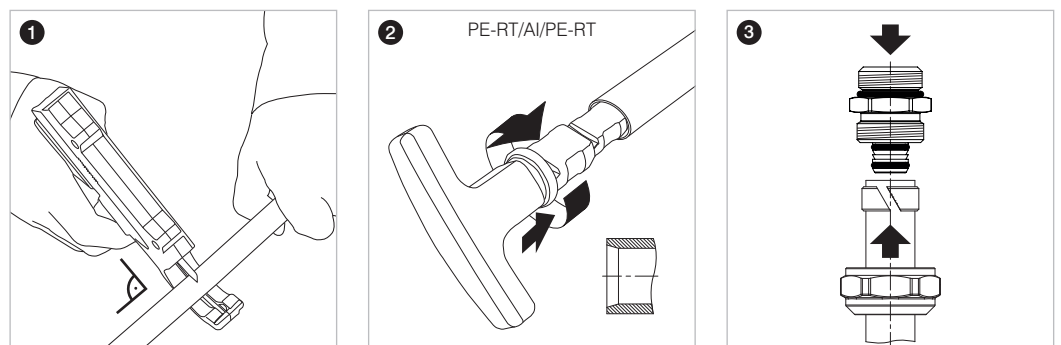
Assembling of a screwed joint:

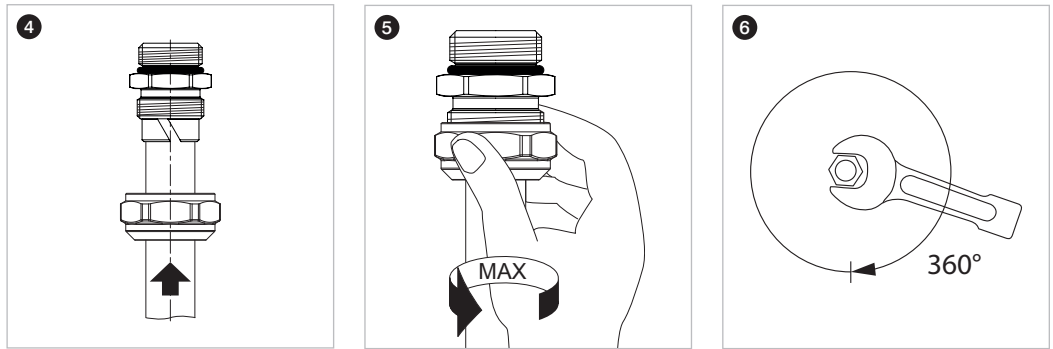
- 1 Screw the joint body into a fitting provided with a sealed thread.
- 2 Fit the nut and the compression ring on a pipe.
- 3 Push a pipe onto the coupling body and screw on a ring-clamping nut.



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.

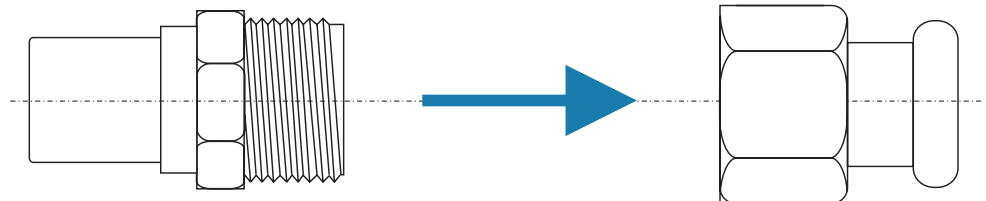


Seal these connections:

- with tow and a paste additive but in case of brass female threads do not use too much tow,
- observe the rule that female thread pipe connectors and fittings should not be combined with element other than KAN-therm System pieces,
- do not embed them in a floor.

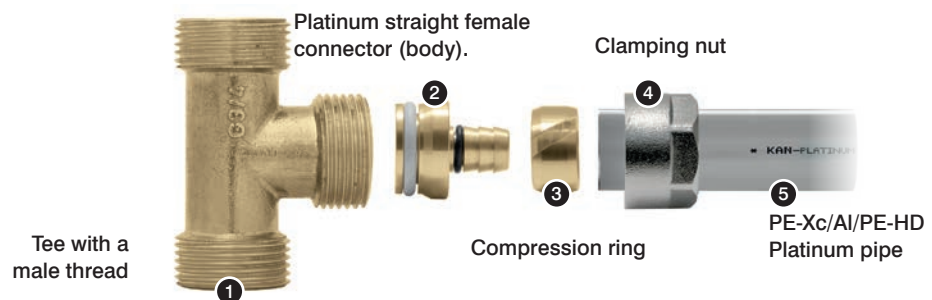
KAN-therm brass male thread connector

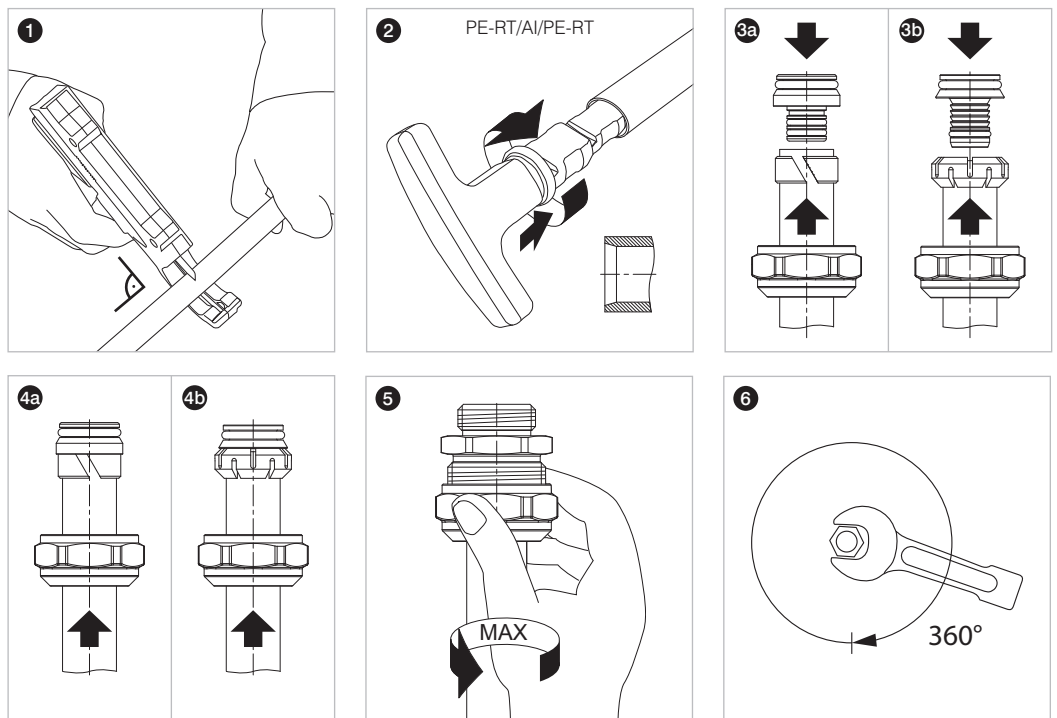
Female steel connector



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 System is 14 – 18 mm.





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

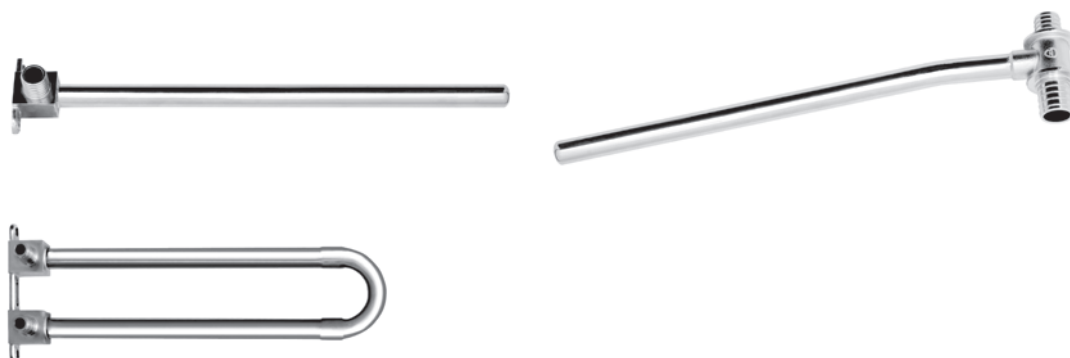
- fittings for screwed joints with a male thread (series of fittings 9012),
- manifolds equipped with special nipples,
- combined radiator valves.



Real advantage of pipe couplings is their automatic sealing after fitting. Connections of this kind are self-sealing and need no additional seal, such as Teflon tape or tow. The combinations should be located in easily available places. 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.



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

- screwed joint for a copper pipe Ø15 G $\frac{3}{4}$ " , code 9023.08 or universal pipe joints Ø15 G $\frac{3}{4}$ " , code 9023.10,
- screwed joint for a copper pipe Ø15 G $\frac{1}{2}$ " , code K-609010,
- clamp for a copper pipe Ø15 G $\frac{1}{2}$ " , code 729202W,
- coupling body G $\frac{1}{2}$ " , code 9001.35.

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

Compensation of thermal elongation

The elongation (ΔL) due to temperature ΔT change can be determined from the following formula:

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

where:

α – coefficient of linear expansion [mm/mK]

L – length of pipeline section [m]

ΔT – 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

D_z – external diameter [mm]

L_s – length of the elastic arm [mm]

In case a system within diameters 14-25 mm is embedded, we suggest to lay pipes in tight curves for self compensation of the pipelines thermal elongation.

System KAN-therm Push

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 work 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 do for central heating systems and hot and cold tap water systems.
- PE-RT pipes with an anti-diffusion barrier within diameters 14×2 and 18×2*, 18×2,5, 25×3,5 are available also in a 6 mm thick thermal 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 an anti-diffusion barrier within diameters Ø14×2 and Ø18×2*, Ø18×2,5 are available also in a 6 mm thick thermal 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 [mm]	Wall thickness [mm]	EVOH coating	Operating parameters			Connection type	
				P _{work} [bar]		T _{work} /T _{max} [°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	+	+

Installation and application class (acc. to ISO 10508)	Nominal diameter [mm]	Wall thickness [mm]	EVOH coating	Operating parameters			Connection type	
				P _{work} [bar]		T _{work} /T _{max} [°C]	Push	Screwed
				PE-Xc	PE-RT			
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, $T_{rob'}$ in individual classes should be treated as design temperature, and the maximum temperature, $T_{max'}$ 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	α	mm/m × K	0.14 (20 °C) 0.20 (100 °C)	0.18
Thermal conductivity	λ	W/m × K	0.35	0.41
Density	ρ	g/cm ³	0.94	0.933
Module E	E	N/mm ²	600	580
Tensile stretch		%	400	1000
Minimum bend radius	R _{min}		5 × D	5 × 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.

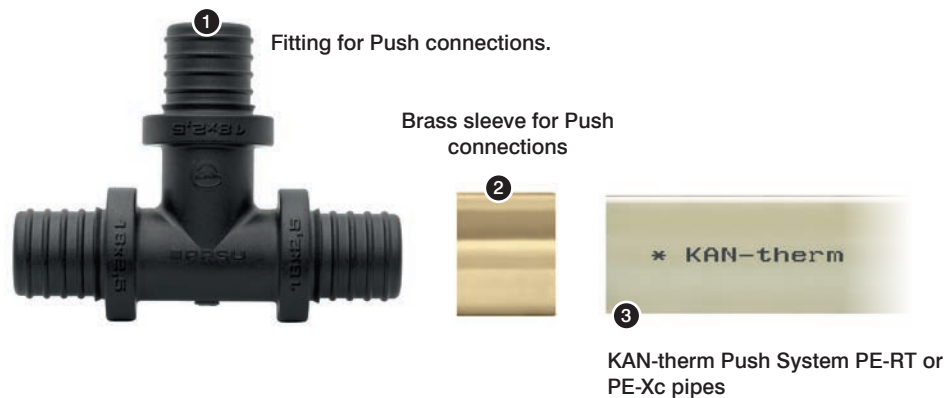
For the threaded connections it is recommended to use hemp in an amount such that the tops of the thread are still visible. Using too much hemp may damage the thread. Winding hemp just after first turn of the thread helps to avoid diagonal screwing and thread damage.

! 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.

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 with its chamfered end toward the fitting. 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, "At once" 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.

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.

To allow self compensation of pipelines thermal elongations, make sure that all fittings are made as fixed points (for instance directly covered by mortar).

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.

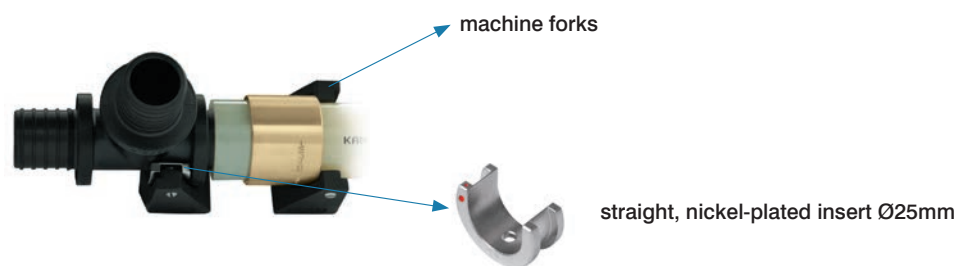


! CAUTION!

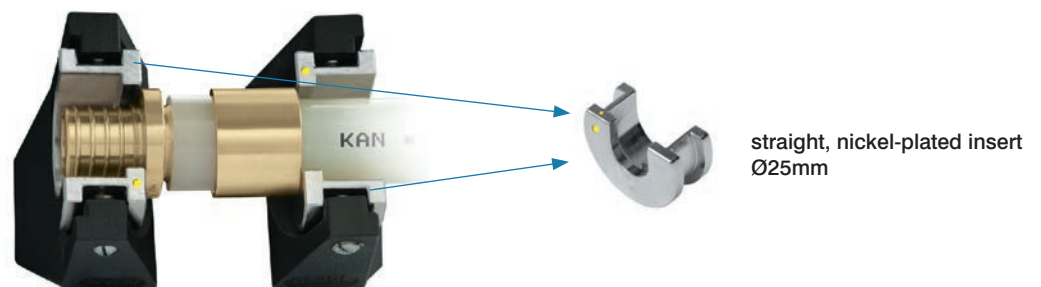
- 1** For assembly of PPSU plastic fittings on the fitting side you must use black inserts marked T (12, 14, 18 or 25), and on the sleeve side straight, nickel-plated inserts. A PPSU fitting must be supported at the collar directly next to the stub pipe you push the sleeve onto.



- 2** When assembling a PPSU fitting dia. 32 mm insert at the fitting end a straight nickel-plated insert. dia. 25 mm, and on the sleeve side empty machines fork.



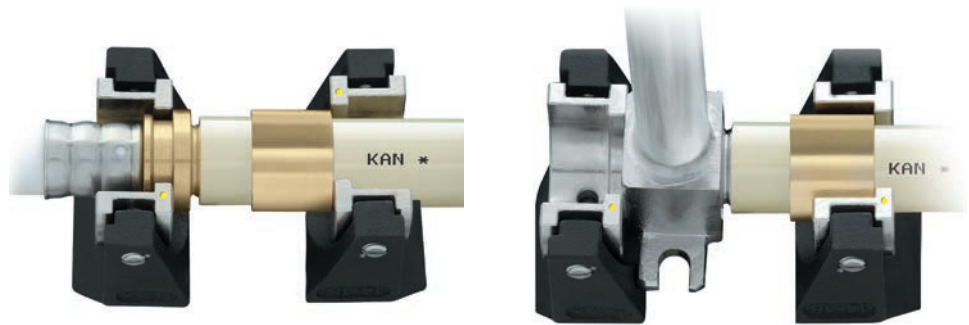
- 3** Brass elements are assembled using straight, nickel-plated inserts



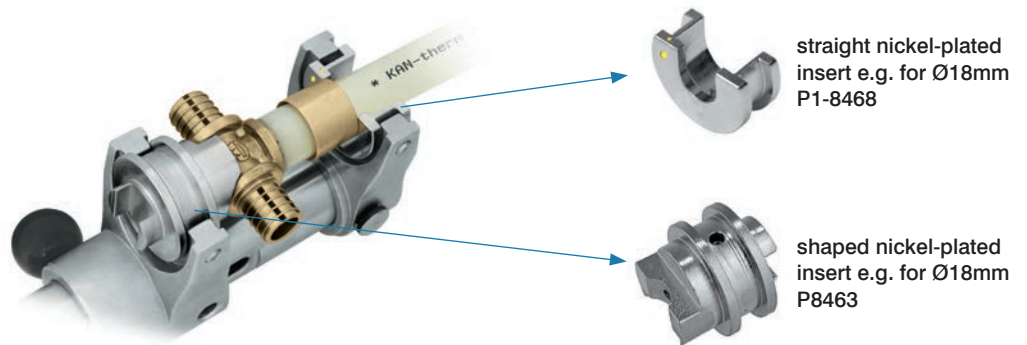
- 4** For screwed joints Ø 32 mm apply only machine forks without inserts.



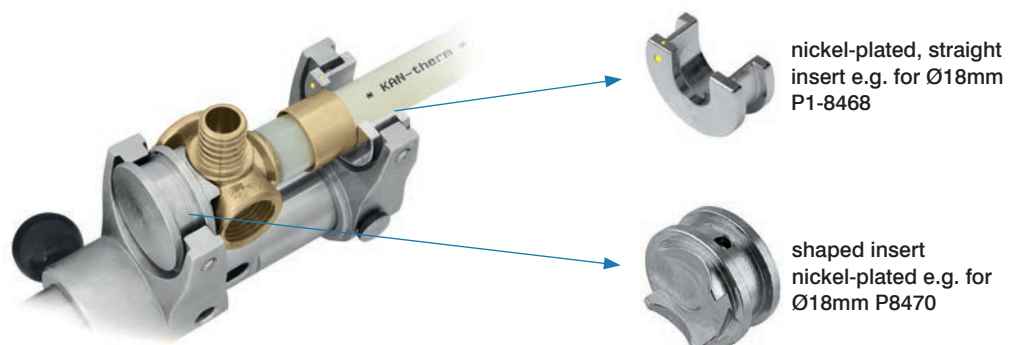
- 5 For assembly of other brass elements e.g. threaded couplings, wallplate elbows (excluding angle wallplate elbows) and connection pieces to radiators use nickel-plated inserts marked: P1-8471, P1-8469, P1-8468, P1-8467.



- 6 For brass tees (stub pipes at branches) Ø14, 18, 25 mm at the side of fittings use nickel-plated shaped inserts marked: P8465, P8463, P8468, P8464. At the sleeve side use nickel-plated straight inserts.



- 7 For brass, angle wallplate elbows Ø18 mm use at the fitting side a nickel-plated insert marked P8470. At the sleeve side use a nickel-plated straight insert.

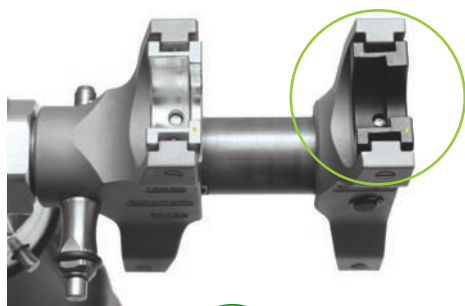


- ! Caution! Shaped inserts are not compatible with hand chain crimping tools.

! CAUTION!

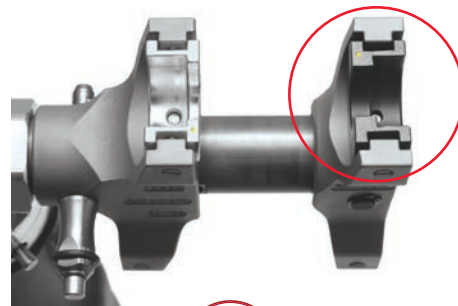
The above presented shape inserts for brass fittings are not a standard part of tool sets; they should be ordered separately.

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.



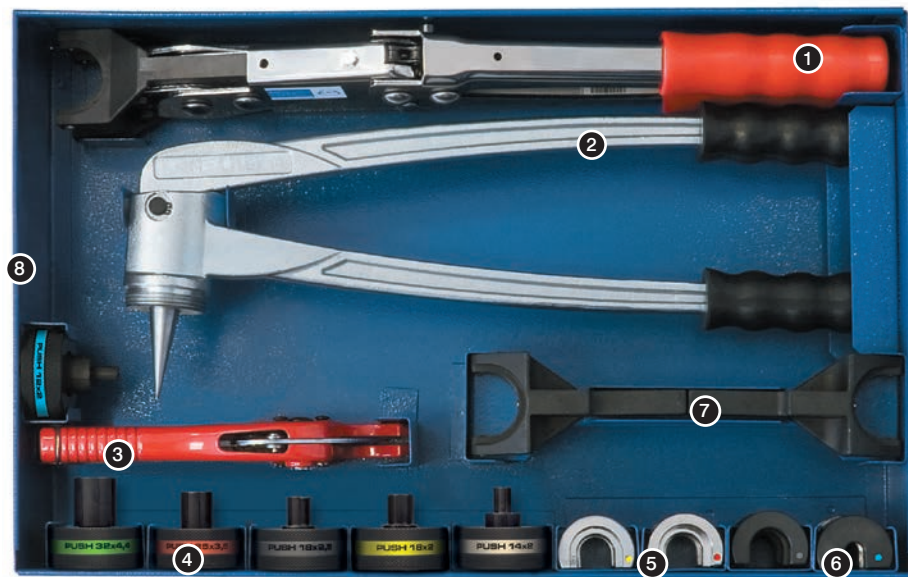
Set – foot driven hydraulic tool

1. foot driven hydraulic tool
2. expanding tool for pipes
3. scissors for PE-RT and PE-Xc pipes
4. set of heads for the expanding tool (12x2; 14x2; 18x2; 18x2.5; 25x3.5; 32x4.4) – only for pipes PE-RT and PE-Xc
5. set of inserts for PPSU fittings
6. set of inserts for brass fittings or sleeves (T12, T14; T18; T25) – 2 pieces each
7. hexagonal key
8. case



Set – hand tool

1. hand chain machine
2. expanding tool for pipes
3. scissors for pipes
4. set of expanding heads:
KPPR-PUSH (12x2,0; 14x2,0;
18x2,0; 18x2,5; 25x3,5; 32x4,4
for PE-RT & PE-Xc pipes) or
KPPR-PLAT (14x2,0; 18x2,5;
25x3,5; 32x4,4 for Platinum
pipes)
5. set of inserts for sleeves 12,
14, 18, 25 (2 piece each)
6. set of inserts for PPSU fittings
(T12, T14; T18; T25) – 1 piece
each
7. two pairs of forks for
connections of a dia.12-18 mm
and 25-32 mm
8. case



Set – expanding tool and a battery-driven tool for Push 12-32 mm connections

1. Battery driven tool AAP101/
AAP102 - 1 pcs.
2. Battery driven expanding tool
AXI101/AXI102 - 1 pcs.
3. Battery 9,6V 3,0Ah or 12V
1,5Ah (standard) - 2 pcs.
4. Charger - 1 pcs.
5. Case - 1 pcs.
6. Box for inserts - 1 pcs.
7. Black inserts (for PPSU fittings)
12x2, 14x2, 18x2 (18x2,5),
25x3,5 (1 pcs. each)
8. Inserts (for brass fittings and
sleeves) 12x2, 14x2, 18x2, 18x2,
25x3,5 (2 pcs each.).
9. Expanding head - 12x2,
14x2, 18x2, 18x2,5, 25x3,5,
32x4,4 (1 pcs. each) – only for
PE-RT and PE-Xc pipes.



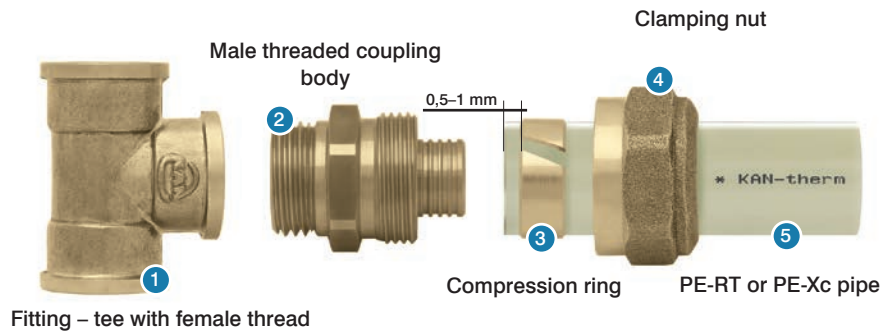
Tools - Safety

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.

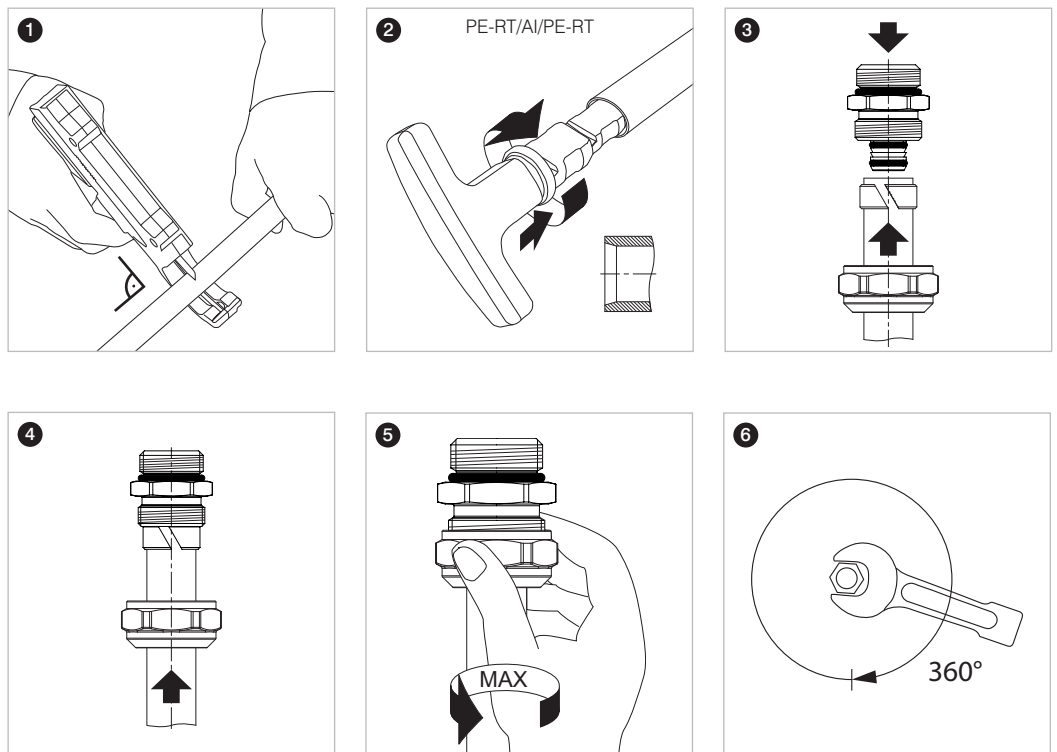
Screwed joints for PE-RT and PE-Xc – Ø12-32 mm

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,
- female thread fixtures.

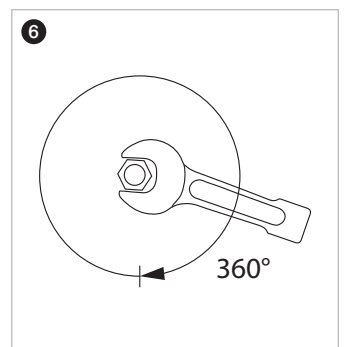
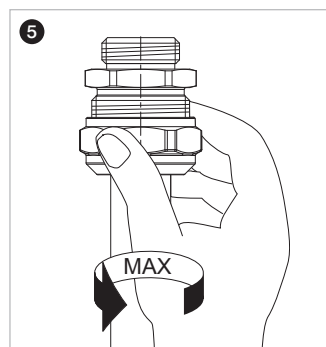
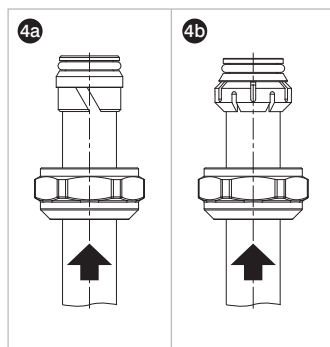
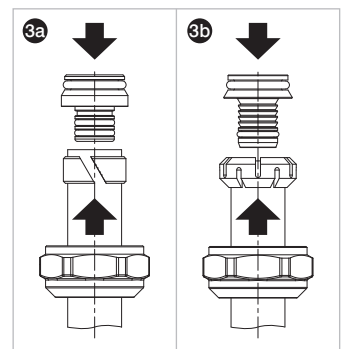
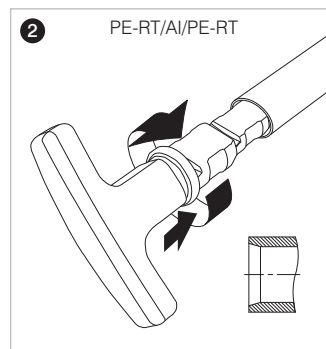
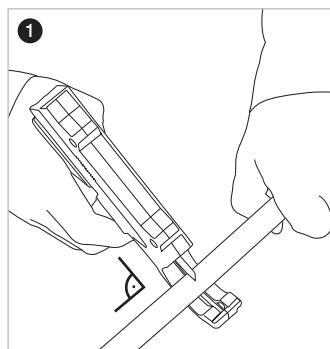
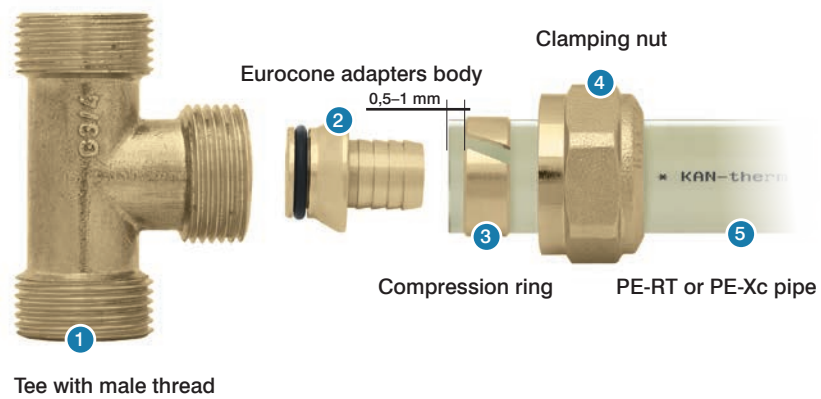


Connections of this type should not be laid in the flooring.

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.

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

- screwed joint for a copper pipe $\text{Ø}15 \text{ G}\frac{3}{4}$ ", code 9023.08 or universal pipe joints $\text{Ø}15 \text{ G}\frac{3}{4}$ ", code 9023.10,
- screwed joint for a copper pipe $\text{Ø}15 \text{ G}\frac{1}{2}$ ", code K-609010,
- clamp for a copper pipe $\text{Ø}15 \text{ G}\frac{1}{2}$ ", code 729202W,
- coupling body $\text{G}\frac{1}{2}$ ", code 9001.35.

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