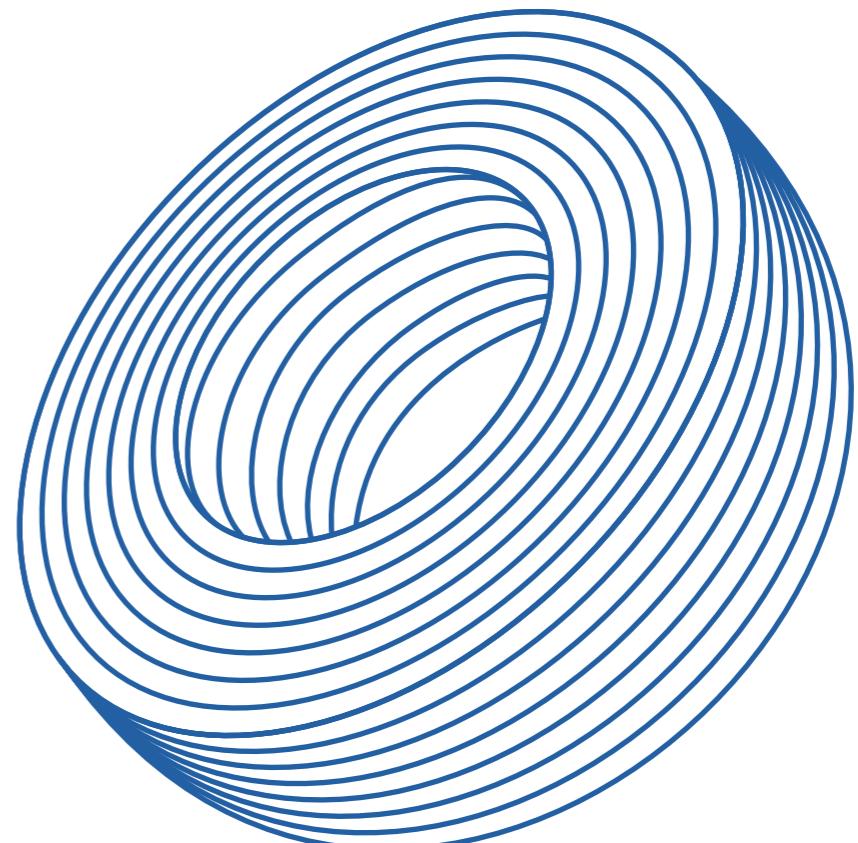


# POLYGON

## Pe-rt / Pe-xb / Pb / PAP



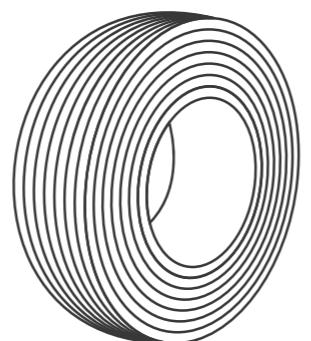
AKAN ENTERPRISE GROUP (ZHEJIANG) CO., LTD.  
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**PRODUCT  
MANUAL**

# CONTENTS

01	GROUP INTRODUCTION
09	PRODUCT CLASSIFICATION AND RAW MATERIAL AND EQUIPMENT
11	Pe-rt PIPE
23	Pe-xb PIPE
29	PAP
47	Pb PIPE
53	CASE
55	CERTIFICATES





# Brand Introduction

**1700000**  
Factory Scale

**3000**  
Group Employees

**500**  
Key Technical Personnel

**20000+**  
Marketing Network

**330+**  
City Coverage

**30+**  
Countries and Areas of  
Production and Sales

POLYGON Pipe is a well-known plastic piping system solution provider, specializing in the R&D, production and sales of plastic products of piping system, with leading technology production equipment. The products cover water supply and drainage, ground-source heat pumps, co-layered drainage, siphon rainwater, municipal engineering, HVAC systems and other fields.



▪ Baodi, Tianjin City [100, 002m<sup>2</sup>]



▪ Huzhou, Zhejiang Province [193, 000m<sup>2</sup>]



▪ Heyuan, Guangdong Province[20, 000m<sup>2</sup>]



▪ Xinxiang, Henan Province [99, 733m<sup>2</sup>]



▪ Jiangjin, Chongqing City [80, 000m<sup>2</sup>]



▪ Liuyang, Hunan Province [110, 000m<sup>2</sup>]

# HISTORY





## Digital and Intelligent Factory

The factory is in line with the times, equipped with advanced equipment at home and abroad, like advanced equipment production lines such as German KraussMaffei, Swiss Maillefer, etc., and advanced equipment including China's well-known Shuanglin of Zhejiang, Swedain of Zhangjiagang, Juyuan of Shanghai, etc. The workshop is equipped with robots and manipulators, realizing the accurate and refined production, and intelligent management and control.

**Management:** Zhisu cloud system +5S management, paperless office, keep track of machine operation, efficient management of production process, prevent production accidents.

**Automated production line:** Reduce labor costs, improve production efficiency, precision production.



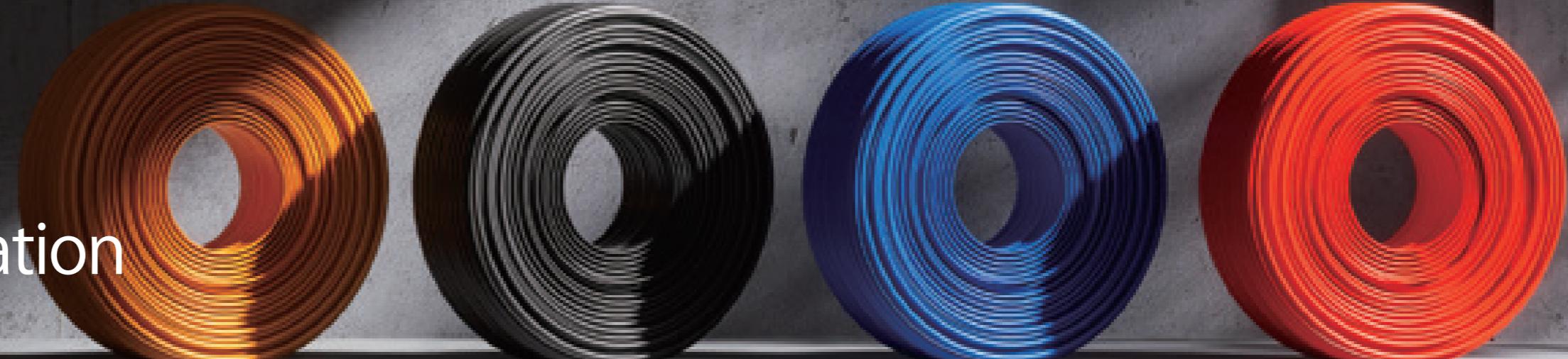


## 4 CNAS Laboratories

The group has built 4 CNAS laboratories integrating R&D, testing and inspection, and introduced hydrostatic equipment from IPT and DSC from TA. With the support of CNAS laboratories, the group has realized the whole process of quality control from raw



# Pe-rt, Pe-xb, Pb pipeline classification

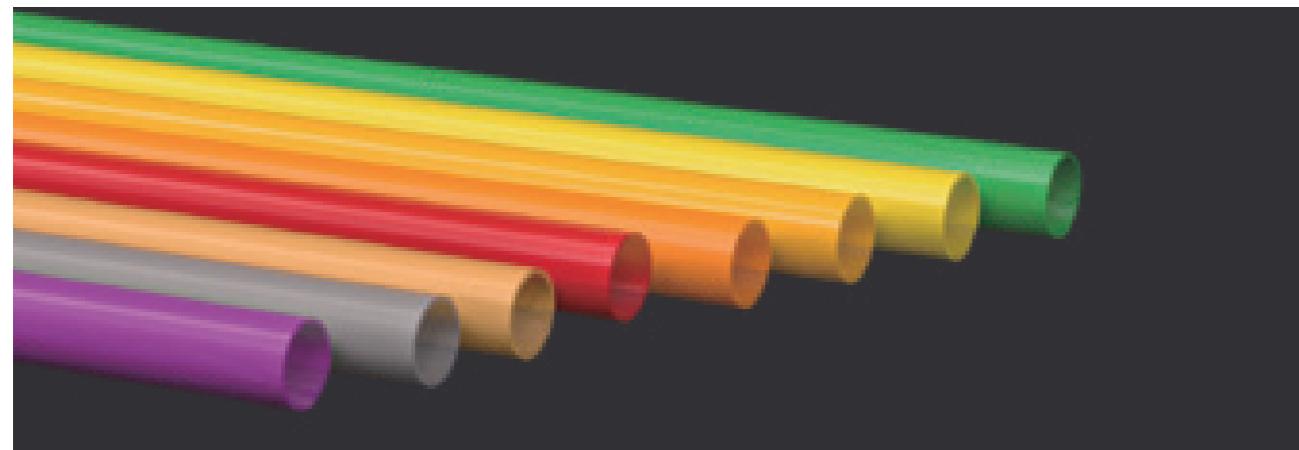


POLYGON heating pipes is divided into four types according to material: Pe-rt tube, Pe-rt II tube, Pe-xb tube, Pb tube.

POLYGON pipes are uniform and stable. The unique support combined with the mold structure of the spiral body makes the tube wall smooth. The import international advanced Kraussmafei and Maillefer equipment with excellent plasticizing process which makes the pipe have better temperature and pressure resistance and creep resistance. Strict temperature, speed and pressure production process control and regular recording ensure product quality traceability.

POLYGON pipes has perfect testing equipment and advanced testing methods, strictly controlling from the detection of raw materials to finished products.

Category	Classic (one layer)	High-end (two layers)	Three-layer EVOH pipe	Five-layer EVOH pipe	Capillary
Pe-rt I	●	●	●	●	●
Pe-rt II	●	●	●	●	
Pe-xb	●	●	●		●
Pb	●		●		



## MAIN COOPERATING RAW MATERIAL BRANDS



## PRODUCTION LINES



The KraussMaffei Group originated in Germany, has a history of 182 years, covering all areas of injection molding, extrusion, reaction molding technology.



Maillefer, as a main equipment manufacturing plant, was established in 1917, headquartered in Switzerland. In 1961, the invention of the BM screw was patented, which set the prestige of Maillefer in plastic extrusion industry.



# Pe-rt PIPE



Pe-rt tube (also known as Pe-rt tube) is a water pipe manufactured using a high temperature resistant reinforced polyethylene material, non-crosslinked polyethylene. This material has:

- 1.High temperature resistance, which can be used for hot water transportation below 60 degrees Celsius for a long time.
- 2.It has the characteristics of low temperature resistance, which is suitable for transportation and construction in low temperature environment.
- 3.Good flexibility, good thermal creep resistance and long-term hydrostatic resistance.

Therefore, it is very suitable for use in piping systems, reducing the number of connection points.

## Product advantages

- Flexible and easy to bend, convenient to be constructed
- Roll pipe, reducing the number of connection points
- Hot melt connection, prevent water leakage
- High temperature and pressure resistance
- Excellent low temperature resistance, It can also be constructed under low temperature conditions in winter
- Good impact resistance
- High thermal conductivity
- Good anti-corrosion

## Quality Assurance

- Select the world's top 500 outstanding chemical enterprises as raw material suppliers
- The introduction of Swiss Maillefer and German Kraussmafei production technology
- Coiled pipe is tested by 20 kg pressure
- The melting is filtered through three 80-mesh filter
- Strictly tested by National Accredited Laboratories (CNAS)

## Scope of application

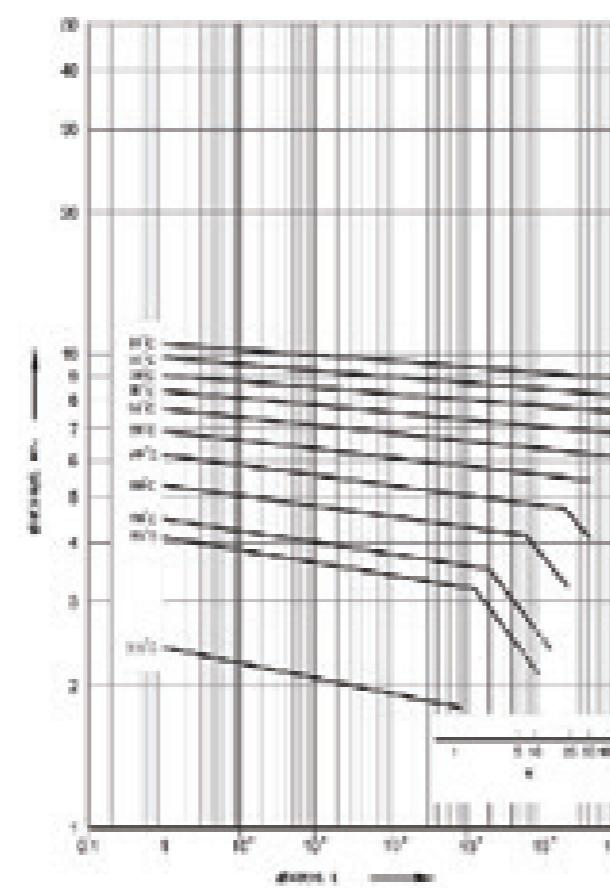
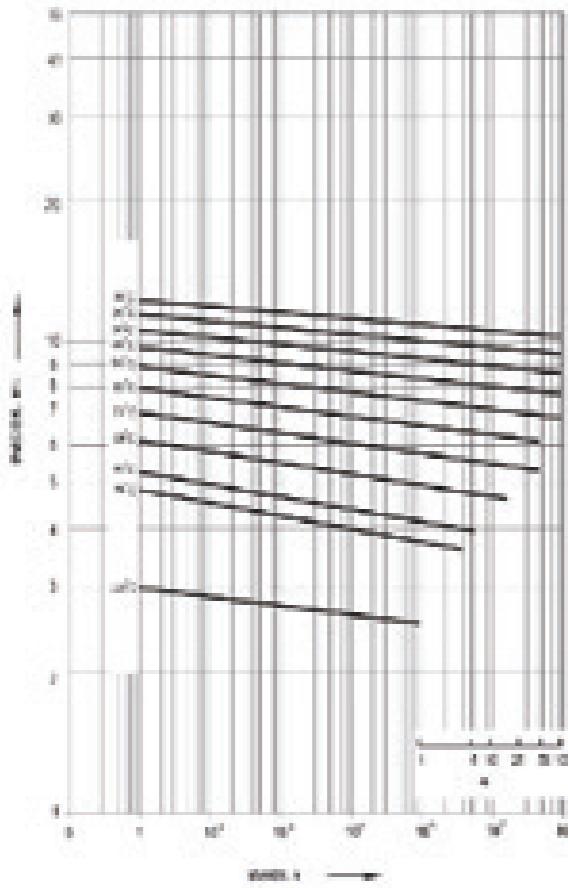
Floor heating pipe systems  
 Cold and hot water pipeline  
 Central air-conditioning systems  
 Industrial plant water supply pipe



## Pe-rt II pipe

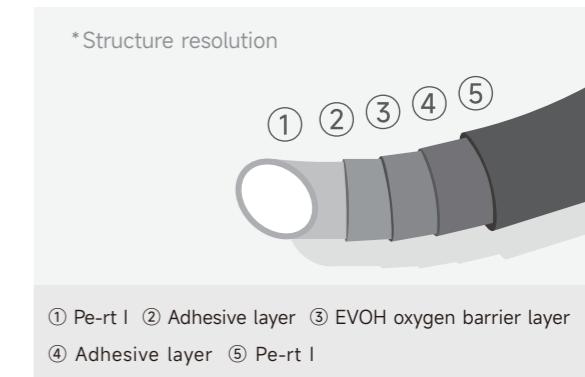
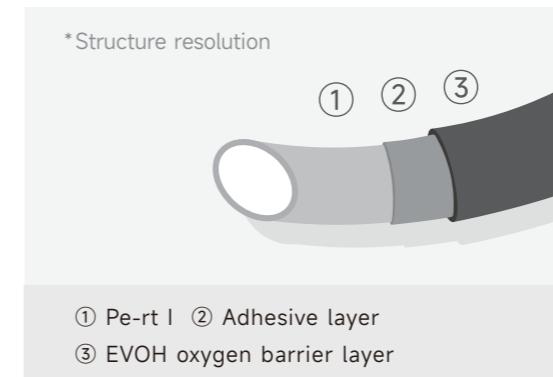
The Pe-rt II pipe has been upgraded on the material, using imported heat-resistant polyethylene (Pe-rt II) special pipeline raw materials. Compared with the Pe-rt pipe, the material used is better, and the pressure resistance and high temperature resistance are stronger. It can transport hot water below 95 degrees Celsius for a long time, with a service life of up to 50 years, and has a wider application range.

### Pe-rt I AND Pe-rt II HYDRAULIC CURVE COMPARISON



## Pe-rt Oxygen barrier pipe

THE Oxygen barrier pipe designed with resistance to light and oxygen to inhibit the microorganism and prevent the metals in heating system from corrosion and rusting. This advantage greatly prolongs the lifetime of metal parts, such as the valve, switch, boiler, etc.



## Pe-rt I pipe

**Stability:** Good creep and corrosion resistance.

**Flexible:** It's easy to be bent for convenient construction.

**Light weight:** it is easy to be installed and handled, saving time.

**Pressure resistance:** It has strong long-term hydrostatic resistance.

**Environmental protection:** Wasted pipe can be recycled and melted.

**Light weight:** it is easy to be installed and handled, saving time.

**Convenience:** Hot-melting welding, easy construction.

**Scope of application:**

Low temperature floor radiant heating system

Water distribution pipeline of solar hot water system

Snow melting pipeline system under highway

Large parking lots



## Pe-rt pipe specifications

Nominal outside diameter	Mean outside diameter		Series of pipes		
			S5	S4	S3.2
	dem,min	dem,max	Nominal wall thickness		
16	16.0	16.3	-	2.0	2.2
20	20.0	20.3	2.0	2.3	2.8
25	25.5	25.3	2.3	2.8	3.5
32	30.0	32.3	2.9	3.6	4.4

## Pe-rt I Capillary Pipe

**More comfortable:** Compared with traditional floor heating pipes, capillary tubes have smaller laying intervals due to their slim and flexible characteristics. More uniform distribution, easier to cover corners, balanced thermal radiation dense, the ground basically no temperature difference, feet feel comfortable.

**Less space:** the capillary is light, soft, thin laying thickness, saving space.

**High efficiency and energy saving:** the capillary network is short from the ground, so the heating is rapid, the heating is efficient, and the water inlet temperature is lower and more energy saving than the traditional floor heating pipe.

### Scope of application:

low temperature floor/radiant heating

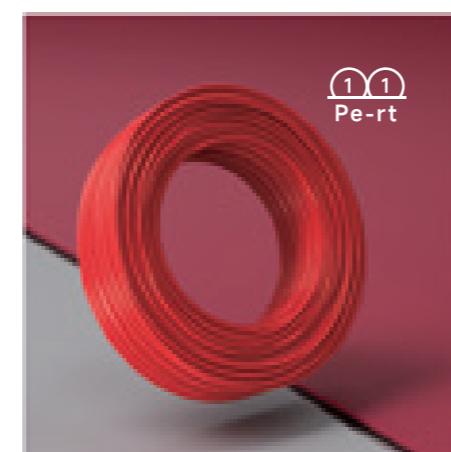
Radiant ceiling and wall heating

Low temperature radiator heating

### Specifications:

The size is: 7.2x1.1MM; 10x1.5MM; 12x1.4MM; 12x1.5MM.

Other sizes can also be customized.



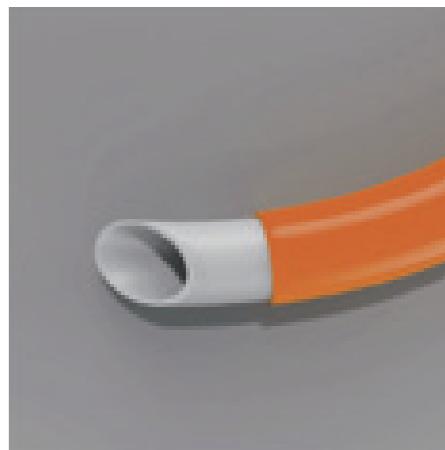
## Pe-rt I two layer pipe

**Advantage:** It increases the outer protective layer which has better shading than the natural pipe to block the light required for microbial breeding, and the system runs more smoothly.

### Specifications:

The size is: 16X1.8MM;20X2.3MM;20X1.9MM;25X2.3MM.

Other sizes can also be customized.



## Pe-rt I 3-layer EVOH Pipe

**Three-layer structure:** The structure of the pipeline from the outside to the inside is: EVOH layer/bonding layer /Pe-rt I pressure pipe.

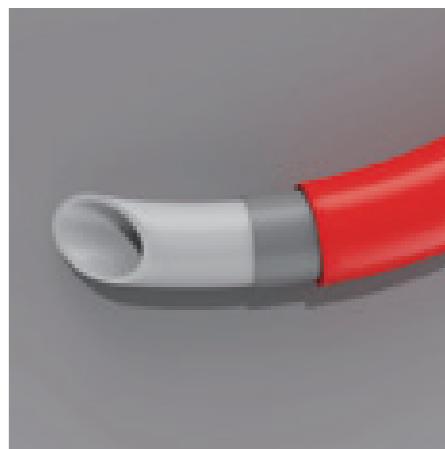
**Double protection:** The EVOH layer can effectively prevent oxygen from entering the system, reduce the corrosion of metal materials, and has the dual function of blocking light and oxygen compared with the natural color pipe, greatly extending the service life of the metal parts in the entire heating system.

**Matching tool - slicer:** Use this tool to remove oxygen blocking layer during welding to ensure welding quality.

### Specifications:

The size is: 16X1.8MM;20X2.3MM;20X1.9MM;

Other sizes can also be customized.



## Pe-rt I 5-layer EVOH Pipe

**Five-layer structure:** Pe-rt/ bonding layer /EVOH layer/bonding layer /Pe-rt

**Blocking oxygen infiltration:** Because the oxygen blocking layer is located in the middle of the pipe, the permeability resistance is good. The oxygen blocking will not be destroyed to ensure the oxygen blocking effect, which can effectively block oxygen into the thermal circulation system and reduce the corrosion of the equipment.

**Temperature and pressure resistance:** It has good pressure capacity in hot water system and the system is safer.

**Flexible and convenient construction:** The pipe is flexible and resistant to pressure, and there is no need to remove the surface material during construction which makes the installation more convenient.



### Specifications:

The size is:16X1.8MM;20X2.3MM;20X1.9MM;25x2.3MM;

25X2.3MM. Other sizes can also be customized.

## Pe-rt II pipe

**Light weight:** It's easy to be installed and handled, saving time.

**Excellent:** Compared with Pe-rt type I floor heating pipe, Pe-rt type-II has better pressure resistance, higher pressure capacity in hot water system. The system is safer and more reliable.

**Stable:** Good creep resistance, not easy to corrode.

**Flexible:** Easy bend, convenient construction.

**Environmental protection:** Waste pipe can be recycled and melted.

**Convenience:** Maintenance can be taken hot-melting welding, which makes construction easy.



## Pe-rt II two layer pipe

**Temperature and pressure resistance:** Compared with Pe-rt floor heating pipe, Pe-rt type-II has better pressure resistance, higher pressure capacity in hot water system. The system is safer and more reliable.

**Shading protection:** With a color protective layer, the shading is more obvious than the natural color pipe, weakening the light source required for microbial breeding.

**Excellent features:** It has characteristics of high temperature resistance, creep resistance, pressure durability, environmental protection as high quality Pe-rt II.

**Convenient construction:** The pipe is flexible, which can meet the construction needs of different sites.

### Scope of application:

Low temperature floor radiant heating system

Central air conditioning pipeline system

Water distribution pipeline of solar hot water system

Snow melting pipeline system under highway

Large parking lots

Branch water supply system

### Specifications:

The size is: 16X1.8MM;20X2.3MM;20X1.9MM;25X2.3MM.

Other sizes can also be customized.



## Pe-rt II 3-layer EVOH Pipe

**Three-layer structure:** The structure of the pipeline from the outside to the inside is: EVOH layer/bonding layer /Pe-rt II working pipe.

**Double protection:** EVOH layer can effectively prevent oxygen from entering the system, reduce the corrosion of metal equipment, and has the dual function of light blocking oxygen compared with the natural pipe, greatly extending the life of the metal parts in the entire heating system.

**Selected material:** Compared with Pe-rt type-I floor heating pipe, Pe-rt type-II has better pressure resistance, higher pressure capacity in hot water system, and the system is safer and reliable.

**Matching tool - slicer:** Use this tool to remove oxygen blocking layer during welding to ensure welding quality.

### Specifications:

The size is: 16X1.8MM;20X2.3MM;20X1.9MM; 25X2.8MM; 32X3.6MM

Other sizes can also be customized.



## Pe-rt II 5-layer EVOH Pipe

**Selected material:** The type-II raw materials have better characteristics of high temperature resistance, creep resistance, pressure durability, environmental protection, etc.

**Five-layer structure:** Pe-rt II/ bonding layer /EVOH layer/bonding layer /Pe-rt II.

**Blocking oxygen infiltration:** Because the oxygen blocking layer is located in the middle of the pipe, the permeability resistance is good, the oxygen blocking will not be damaged, ensuring the oxygen blocking effect. And can effectively block oxygen into the thermal circulation system and reduce the corrosion of the equipment.

**Temperature and pressure resistance:** It has good pressure capacity in the hot water system to make the system safer.

**Flexible and convenient construction:** The pipe is flexible and pressure resistant, and there is no need to remove the surface material during construction making the installation more convenient.

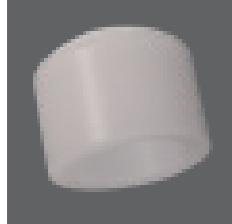
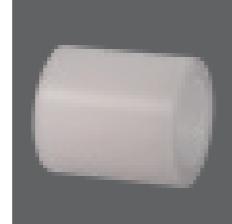
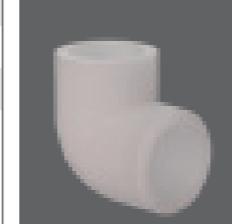
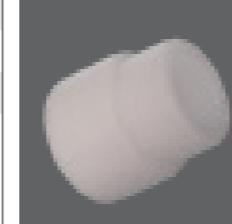
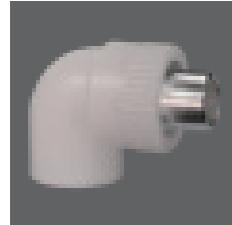
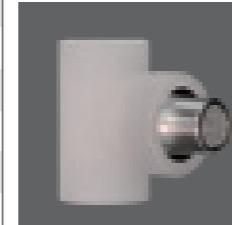


### Specifications:

The size is: 16X1.8MM;20X2.3MM;20X1.9MM;20X2.0MM.

Other sizes can also be customized.

## Pe-rt fittings

Name	Dimension (mm)	Name	Dimension (mm)	Name	Dimension (mm)
	dn20 dn25 dn32		dn20 dn25 dn32		dn20 dn25 dn32
Cap		Coupling		90° Elbow	
	dn20 dn25 dn32		dn20*25 dn32*25 dn40*25		dn20*25 dn32*25
Tee		Reducing Tee		Reducing Coupling	
	dn20*1/2 dn25*1/2 dn25*3/4 dn32*1		dn20*1/2 dn25*1/2 dn25*3/4 dn32*1		dn20*1/2 dn25*1/2 dn25*3/4 dn32*3/4 dn32*1
Female Threaded Coupling		Male Threaded Coupling		Female Threaded Elbow	
	dn20*1/2 dn25*1/2 dn25*3/4 dn32*3/4 dn32*1		dn20*1/2 dn25*1/2 dn25*3/4 dn32*3/4 dn32*1		dn20*1/2 dn25*1/2 dn25*3/4 dn32*3/4 dn32*1
Male Threaded Elbow		Female Threaded Tee		Male Threaded Tee	



# PEX pipe



POLYGON Pe-xb pipe, using one step method (MONSOIL) technology, adding silane modified raw materials, through high temperature steam fully cross-linked to form a stable three-dimensional network structure, so that crosslinked polyethylene has excellent physical and chemical properties, high temperature resistance, shape memory performance. Good flexibility for construction.

## Features

Environmental protection, non-toxic, tasteless;Corrosion resistance;

Temperature and pressure resistance: It can be used in an environment of minus 40 degrees, and can also be used in a high temperature environment of 110 degrees;Non-scaling

**Aging resistance:** It has good creep resistance and aging resistance.

Good thermal insulation



## Advantages

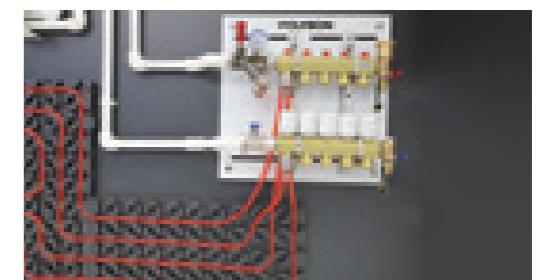
Advanced equipment, such as NOKIA-MAILLEFER Patent, USP4117195

One-step Monosil PE-X producing technology

Stam-pressure cross-linking technology is used to reduce the longitudinal shrinkage.

## Application Field

- Underfloor heating system
- Radiator heating system
- Plumbing system



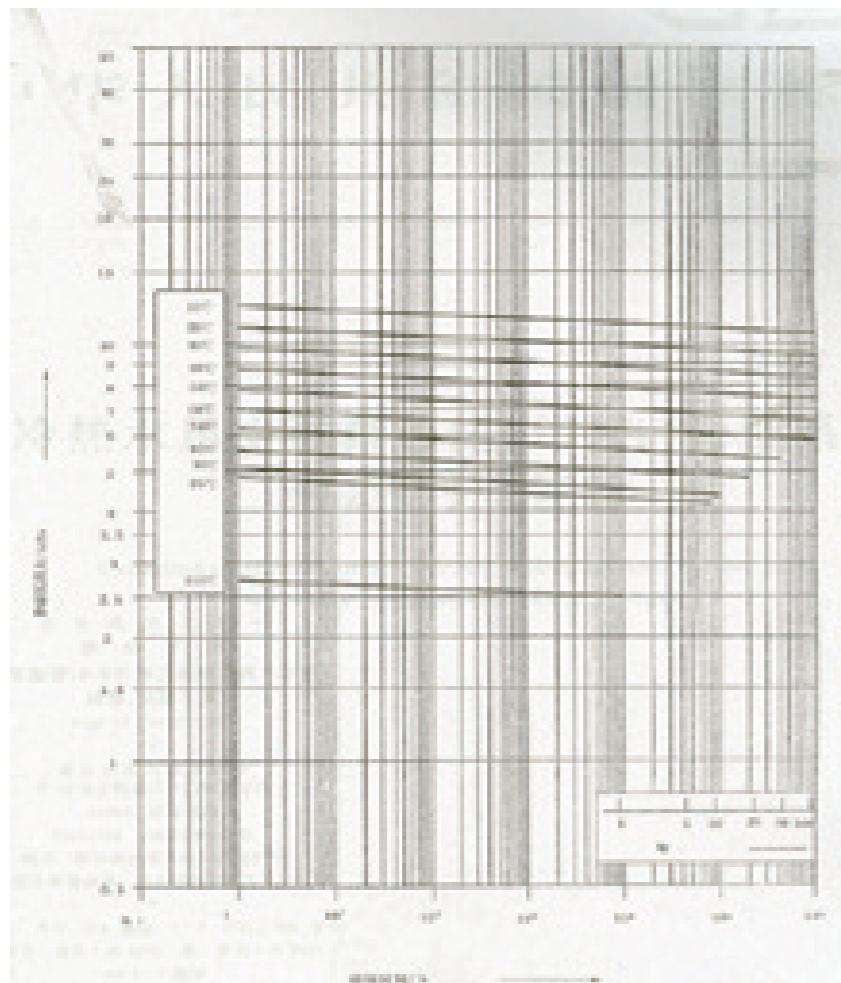
## Technical Data

Property	Value	Unit	Standard
Maxlimum usage temperature	95	°C	
Density	0.9442	G/cm <sup>3</sup>	ASTM D-792
Rate of thermal expansion between 0-70°C	1,9*10 <sup>-4</sup>	k <sup>2</sup>	ASTM D-696
Thermal conductivity	0.41	WK <sup>-1</sup> m <sup>-1</sup>	DIN 52612-1
Elasticlty of flexlon module at-40°C	498	N/mm <sup>1</sup>	
at-0°C	312	N/mm	DIN EN ISO 178
at-23c	183	N/mm <sup>2</sup>	
Resilstanceto tractlon	20	N/mm <sup>2</sup>	ASTM D-538
Elongation atrupture	400%		ASTM D-538
Superflcial resistivity	>10 <sup>12</sup> Ω	Ω	IEC 60093

## SPECIFICATIONS

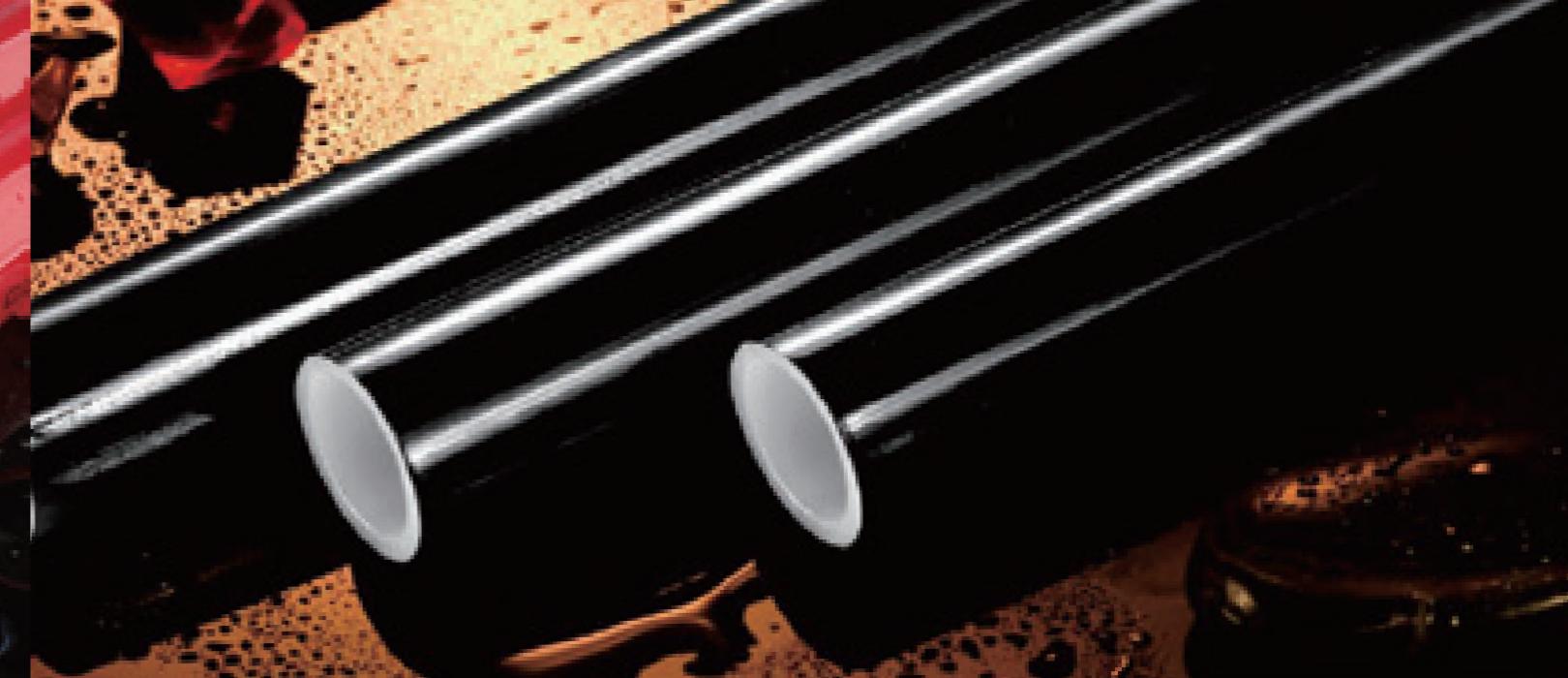
DN	Outside diameter mm	Mean outside diameter,mm		Wall thickness mm			
		dem,min	dem,max	S6,3	S5	S4	S3,2
16	16	16,0	16,0	1,3	1,5	1,8	2,2
20	20	20,0	20,0	1,5	1,9	2,3	2,8
25	25	25,5	25,5	1,9	2,3	2,8	3,5
32	32	32,0	32,0	2,4	2,9	3,6	4,4
40	40	40,0	40,0	3,0	3,7	4,5	5,5
50	50	50,0	50,0	3,7	4,6	5,6	6,9
63	63	63,0	63,0	4,7	5,8	7,1	8,7

## Pe-xb HYDRAULIC CURVE



ASTM standard PEX tubing ASTM F876/F877/CTS-OD SDR9			Operating pressure (P <sub>N</sub> ,Mpa) and maximum working temperature (T <sub>max</sub> ,°C)	
Nominal tubing size inch	Dimension			
	Out diameter ,inch	wall thichness,inch		
3/8	0.500±0.003	0.070±0.010	(1) PN=0.69Mpa(100psi), Tmax=82°C (180F)	
1/2	0.625±0.004	0.070±0.010		
5/8	0.750±0.004	0.083±0.010		
3/4	0.875±0.004	0.097±0.010		
1	1.125 ±0.005	0.125±0.0013		

(1) PN=0.69Mpa(100psi),  
Tmax=82°C (180F)  
(2) PN=1.0mPA(145psi),  
Tmax=23°C (73F)



## PEX Oxygen Barrier Pipe

The PEX oxygen barrier pipes designed with resistance to light and oxygen to inhibit the microorganism and prevent the metals in the heating system from corrosion and rusting. This advantage greatly prolongs the lifetime of metal parts, such as the valve, switch, boiler, etc, and ensures the wide application in high end housing. It is used in ground heating system, drinking water piping systems and other applications.

### Features

#### Equipment and material

POLYGON PEX oxygen barrier pipe adopts the imported EVOH material, equipment and patented mould of Swiss Nokia-Maillefer. The material is resistant to oxygen.

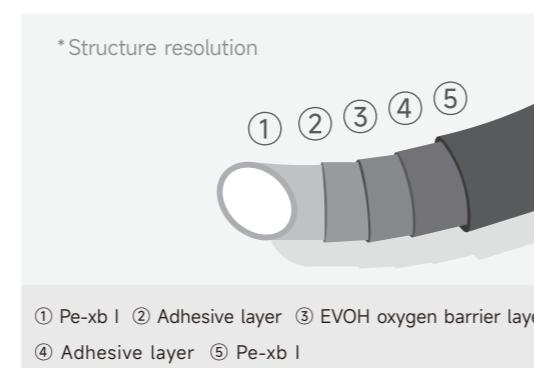
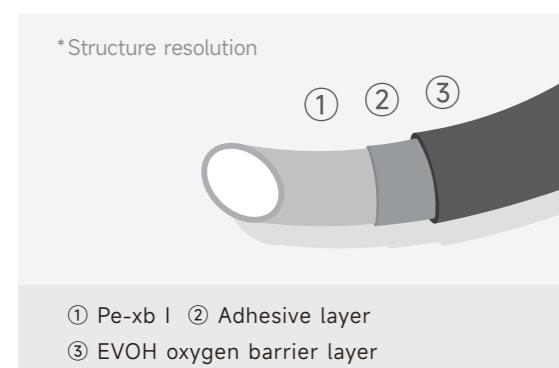
#### Certified quality

It has passed the oxygen-resisting test of authoritative organization. The patented technology ensures the uniform thickness of each layer.

#### Easy construction

Thanks to the good flexibility, large curving radius, high fluid-mechanical performance, it is convenient to construct with.

### 3 layers and 5 layers oxygen barrier are both available



## ANTI-UV PEX Pipe

Polygon Anti-UV silane cross-linked polyethylene (Pex-Anti UV) pipe is a newly developed products specially for outdoors' field, Nokia Mailefer Extruder, one-step MONOSIL silane cross-linking PE technology imported carbon black material is adopted to ensure everything in high quality.

### Features

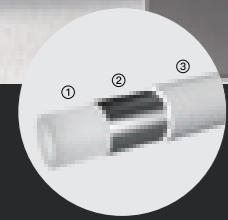
Beside the advantages of PEX pipe(Green products ,Safe Connection, No leakage, Corrosion resistance; Long service life, Easy installation,) Polygon Anti-UV pipe have their such special superiority.

Anti-Aging:Internal Carton Black Lager can Anti ultraviolet rays from the sunshine to last long the service life of PEX pipe while installing outdoors. Usually, it serves as long as 25 years if installed outdoors and 50 years installed indoors.

### Application Field

Because of its Anti-UV abilities, this new kind of PEX pipe is very suitable for being installed outdoors and can be applied for many fields, Such as Solar facilities System, Drink water System, Hot and Cold water system, Central air-conditioning System Agriculture and Irrigation system. Rain water and Swimming pool pipe network System and so on.

# PAP pipe



Structural analysis

- ① PEX or PE or PERT layer
- ② AL aluminum layer
- ③ PEX or PE or PERT layer

PAP pipes combine the advantages of metal pipes and plastic pipes. Among them, PEX-AL pipe has high strength and high temperature resistance, which meets the design requirements of water supply temperature of 95°C, and is also an excellent pipe for high temperature radiator heating.



Polygon PEX-AL pipe is a three-layer composite pipe that combines the advantages of a metal and plastic pipe and eliminates the disadvantages of both materials at the same time.

**Good oxygen resistance:** the aluminum layer and all metal fittings can completely isolate the penetration of oxygen, which can not only greatly reduce the breeding of microorganisms in the pipeline system, but also effectively extend the service life of the metal components in the heating system.

**Aluminum belt interface:** butt welded aluminum belt, smooth welding, uniform pipe wall, good tube roundness. **Heat and pressure resistance index:** PEX aluminum pipe mainly by the aluminum layer to bear the stress load. The aluminum layer of POLYGON's PEX aluminum pipe is thicker, the long-term use temperature can reach 95°C, and the working pressure is 1.25MPa.

## Application Field

- High temperature radiator heating system
- Wall hanging furnace heating pipeline system
- Solar piping system
- Central air conditioning piping system



## Technical data of the PEX-AL multilayer pipe

## Specifications

Outside Diameter	mm	16*2	18*2	20*2	25*2.5	26*3	32*3
Wall Thickness	mm	3	2	2	2.5	3	3
Coil Length	m	100	100	100	100	50	50
Straight Length	m	5.8	5.8	5.8	5.8	5.8	5.8
Water Volume	1/m	0.113	0.154	0.201	0.314	0.314	0.531
Operating Temperature	°C	-45~95	-45~95	-45~95	-45~95	-45~95	-45~95
Maximum Operating Temperature	°C	95	95	95	95	95	95
Minimum Operating Temperature 95°C	bar	10	10	10	10	10	10
Min Pipe Ring Strength	N	2300	2300	2500	2500	2500	2500
Min Burst Pressure	Mpa	6	6	5	4	4	4
Long-term Hydrostatic Strength	Mpa	2.7	2.7	2.3	2.3	2.3	2.1
Coefficient Of Linear Expansion	mm/m. k	0.026	0.026	0.026	0.026	0.026	0.026
Internal Thermal Conductivity	w/mk	0.43	0.43	0.43	0.43	0.43	0.43
Internal Roughness	mm	0.007	0.007	0.007	0.007	0.007	0.007
Oxygen Diffusion	mg/l	0	0	0	0	0	0

PEX-AL-PEX Hot water/heating pipe	XPX1216	1216	200	700x230x700
	XPX1620	1620	200	600x230x600
	XPX2026(5)	2026(5)	200	800x230x800
			100	650x230x650
			100	850x230x850
	XPX2632	2632	100	680x230x680

PERT-AL-PERT hot water/heating pipe	PP1216	1216	200	700x230x700
	PP1620	1620	200	600x230x600
			100	800x230x800
			100	650x230x650
	PP2026(5)	2026(5)	200	850x230x850
			100	680x230x680
	PP2632	2632	100	800x230x800
			50	600x230x600

## Specifications

NAME	ART.NO.	SPECIFICATIONS (mm)	PACKING METER/ROLL	CARTONS SIZES
PEX-AL-PE Hotwater/heating pipe	XPE1216	1216	200	700x230x700
			100	600x230x600
	XPE1620	1620	200	800x230x800
			100	650x230x650
	XPE2026(5)	2026(5)	200	850x230x850
			100	680x230x680
	XPE2632	2632	100	800x230x800
			50	600x230x600

HDPE-AL-HDPE GAS PIPE	PE1216	1216	200	700x230x700
	PE1620	1620	200	600x230x600
			100	800x230x800
			100	650x230x650
	PE2026(5)	2026(5)	200	850x230x850
			100	680x230x680
	PE2632	2632	200	800x230x800
			50	600x230x600



## Sliding sleeve connection

Sliding sleeve connection is produced in order to make the pipeline in the radiator heating system more compact and more reliable connection, with simple operation and strong connection.

Selected European standard brass CW617N after hot forging precision manufacturing, and annealing process, effectively eliminate the internal stress of metal structure and enhance the strength of pipe fittings, which ensures no cracking. Tensile strength  $\geq 280\text{N/mm}^2$ , elongation  $\geq 10\%$ . It is suitable for the connection of S3.2 series PEX butt welding aluminum-plastic composite pipe of dn16\*2.2, dn20\*2.8, dn25\*3.5 specifications. The product specifications are complete and can fully meet the actual installation requirements. The pipe fittings are treated with bright nickel plating, which makes them luminous and long-lasting without discoloration. After installation, the pipeline is horizontal and vertical, beautiful and natural, and can be matched with the installation of the open mounting buckle groove.



## Product characteristics

**Easy operation:** Slip-tight connections are quick and convenient, saving time and effort.

**Strong sealing:** No need for O-rings and sealing materials, adaptable to a variety of harsh working environments.

**Super adaptation:** It has a full series of pipe fittings, and can apply PE-X, PE-rt, Pb and other pipes to meet various installation needs.

**High-quality material:** Selection of European standard brass CW617N hot forging and precision machining manufacturing, and annealing process, effectively eliminating internal stress in the metal organisation, to enhance the strength of the fittings, to prevent cracking.

## Specifications

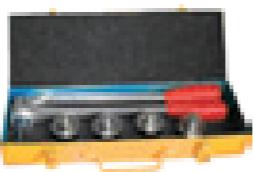
Name	Dimension (mm)	Name	Dimension (mm)	Name	Dimension (mm)
	Φ16 Φ20 Φ25		Φ16×20 Φ20×25 Φ16×25		Φ16×1/2 Φ20×1/2 Φ25×3/4 Φ16×3/4 Φ20×3/4 Φ25×1
	Φ16×1/2 Φ20×1/2 Φ16×3/4 Φ20×3/4 Φ25×3/4		Φ16×20×16, Φ20×16×16 Φ20×20×16, Φ20×16×20 Φ25×16×16, Φ25×16×20 Φ25×16×25, Φ25×20×20 Φ25×20×25, Φ25×25×20		Φ16×1/2 Φ20×1/2 Φ20×3/4 Φ25×3/4
	Φ16 Φ20 Φ25		Φ16 Φ20 Φ25		Φ20×3/4F Φ25×3/4F
	Φ20×3/4F Φ25×3/4F		Φ20×1/2F-20		Φ16
	Φ16×1/2 Φ20×1/2 Φ20×3/4 Φ25×3/4		Φ20×20×20 Φ20×16×16 Φ20×16×20 Φ20×20×16		Φ16×2.2 Φ20×2.8 Φ25×3.5
	Φ16 Φ20 Φ16 Φ20		Φ16 Φ20 Φ16 Φ20		

# Specifications

Name	Dimension (mm)	Name	Dimension (mm)
Straight fitting male	16x1/2"	Straight fitting female	16x1/2"
	16x3/4"		16x3/4"
	20x1/2"		20x1/2"
	20x3/4"		20x3/4"
	25x1/2"		25x1/2"
	25x3/4"		25x3/4"
	25x1"		25x1"
	32x1"		32x1"
Straight fitting double	16x16	Elbow male	16x1/2"
	20x20		16x3/4"
	25x25		20x1/2"
	32x32		20x3/4"
			25x3/4"
Elbow female	16x1/2"		32x1"
	16x3/4"	Elbow double	16x16
	20x1/2"		20x20
	20x3/4"		25x25
	25x3/4"		32x32
Tee male	16x1/2"x16	Tee female	16x1/2"x16
	20x1/2"x20		20x1/2"x20
	20x3/4"x20		20x3/4"x20
	25x3/4"x25		25x3/4"x25
	32x1"x32		32x1"x32
Tee	16x16	Wall plate elbow	16x1/2"
	20x20		16x3/4"
	25x25		20x1/2"
	32x32		20x3/4"
			25x1/2"
			25x3/4"

Name	Dimension (mm)	Name	Dimension (mm)
Reducing Tee	16x20x16	Irregular Reducing Tee	20X16X16
	16x25x16		20X20X16
	20x16x20		32X25X25
	20X25X20		32X25X32
	25X20X25		25X20X20
Reducing Union	20X16	High Elbow Female End With Fixing Base	16x1/2"
	25X16		20x1/2"
	25X20		
	32X25		
Swivel Union Female	16x1/2"	Swivel Elbow Female	16x1/2"
	16x3/4"		20x3/4"
	20x1/2"		
	20x3/4"		
	25x1"		
	25x3/4"		
	32x1"		
Cap Male	1/2"	Cap Female	1/2"
	3/4"		3/4"
	1"		1"
	1 1/4"		1 1/4"
Ring	16	Brass Bushing Fitting	32x1
	20		
	25		
	32		

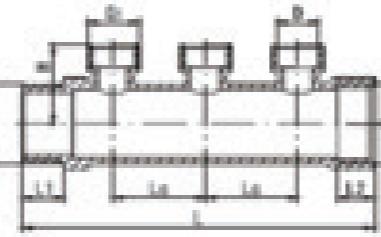
## Specifications

Name	Dimension (mm)	Name	Dimension (mm)
Assembly Tool	ST16-32	Expander	SK16-32
			

Assembly Expansion Tool	12-25	Plastic box for elbow fitting	
			

Name	Dimension (mm)
Manifold with Ends	3/4×16 2S
	3/4×16 3S
	3/4×20 2S
	3/4×20 3S
	1×16 2S
	1×16 3S
	1×20 2S
	1×20 3S

	18010				
	3/4" M x 3/4" F x 1/2" M1" M x 1" F x 1/2" M				
	1.Brass body, the thread in accordance with the ISO228-1 standard.				
	Manifolds	2 ways	3 ways	4 ways	5 ways
	Lc	36	36	36	36
	G1	G1/2"	G1/2"	G1/2"	G1/2"
	D	16.1	16.1	16.1	16.1
	L(G3/4"/G1")	92/97	128/133	164/169	200/205
	H(G3/4"/G1")	30.5/33.5	30.5/33.5	30.5/33.5	30.5/33.5

## Clamping type fitting

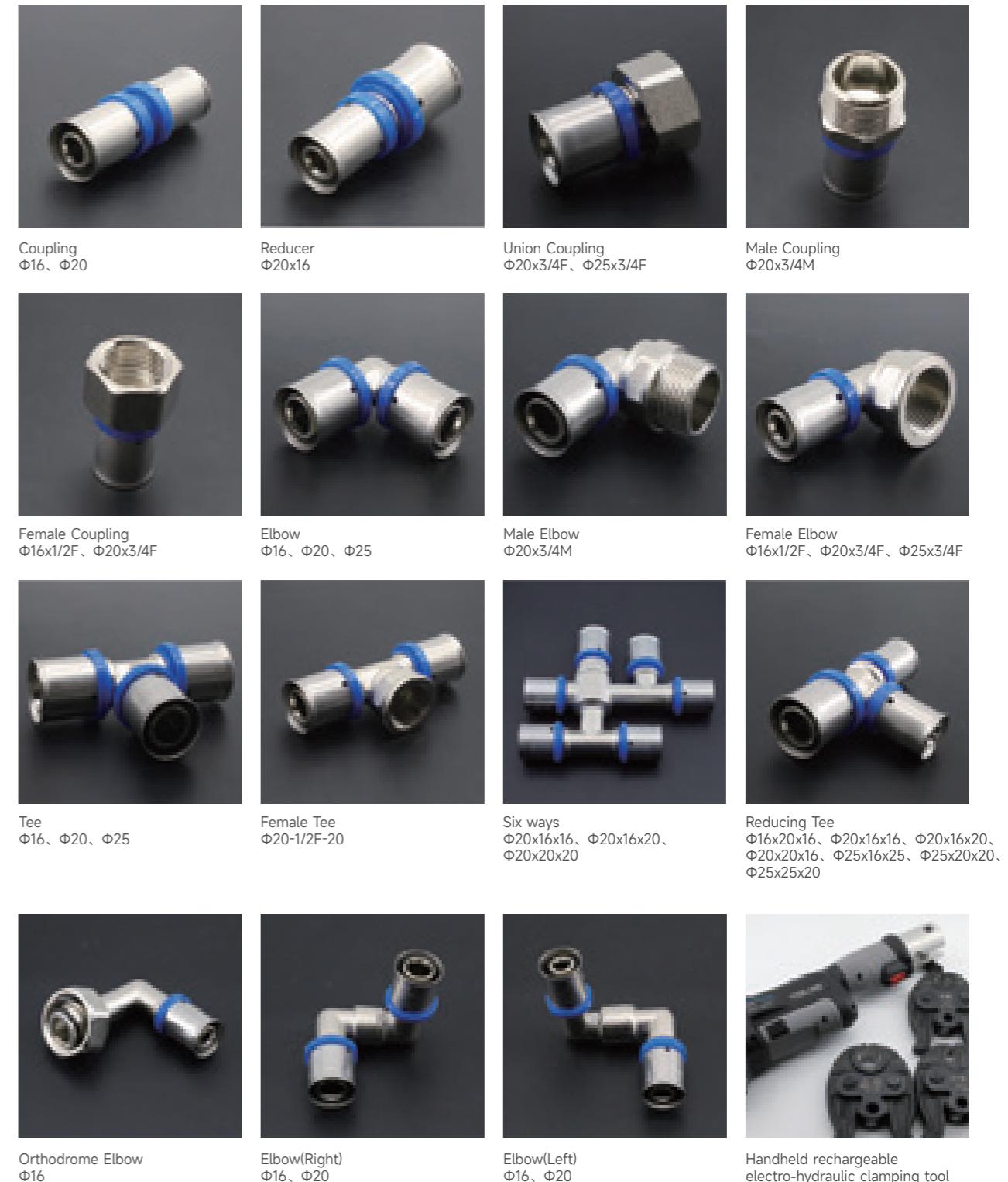
The clamping type fitting is to insert the pipe into the fitting, and use a special clamping tool to fix the pipe into the fitting. As a more advanced connector, it is widely used in water system, heating system, gas systems and other piping systems. In the application of aluminum-plastic pipe connection, it can play its high pressure resistance, prevent leakage, tight and other characteristics.



## Features and advantages of products

- Stable performance:** can withstand low and high temperature
- Double seal design:** avoid leakage hazards, long overall service life
- Smooth surface:** bright nickel plating treatment, lasting without discoloration
- Easy installation:** beautiful pipe installation
- Prevent cracking:** high strength, good toughness, ensure no cracking
- Anticorrosive and durable:** external steel sleeve thickness 0.7mm, more safe and reliable; After special treatment, excellent corrosion resistance

## Clamping type fitting



## Open installation tube seat

Lock design: unique lock design, not easy to deform and loose;  
 Impact resistance: with excellent impact resistance, fully prepared for open installation;  
 Easy installation: pre-punched design, base is a special track for integrated pipe clamp;  
 Flexible installation: can be fixed separately, can also be moved at will, to adapt to a variety of scene changes;  
 Environmental protection and health: green environmental protection, the selection of lead-free formula, the performance of the material is long-term stable;  
 Safe and beautiful: flame retardant material, safe and assured, simple appearance.



## Application



\*copper-aluminum composite radiator, steel plate radiator, bathroom radiator, etc

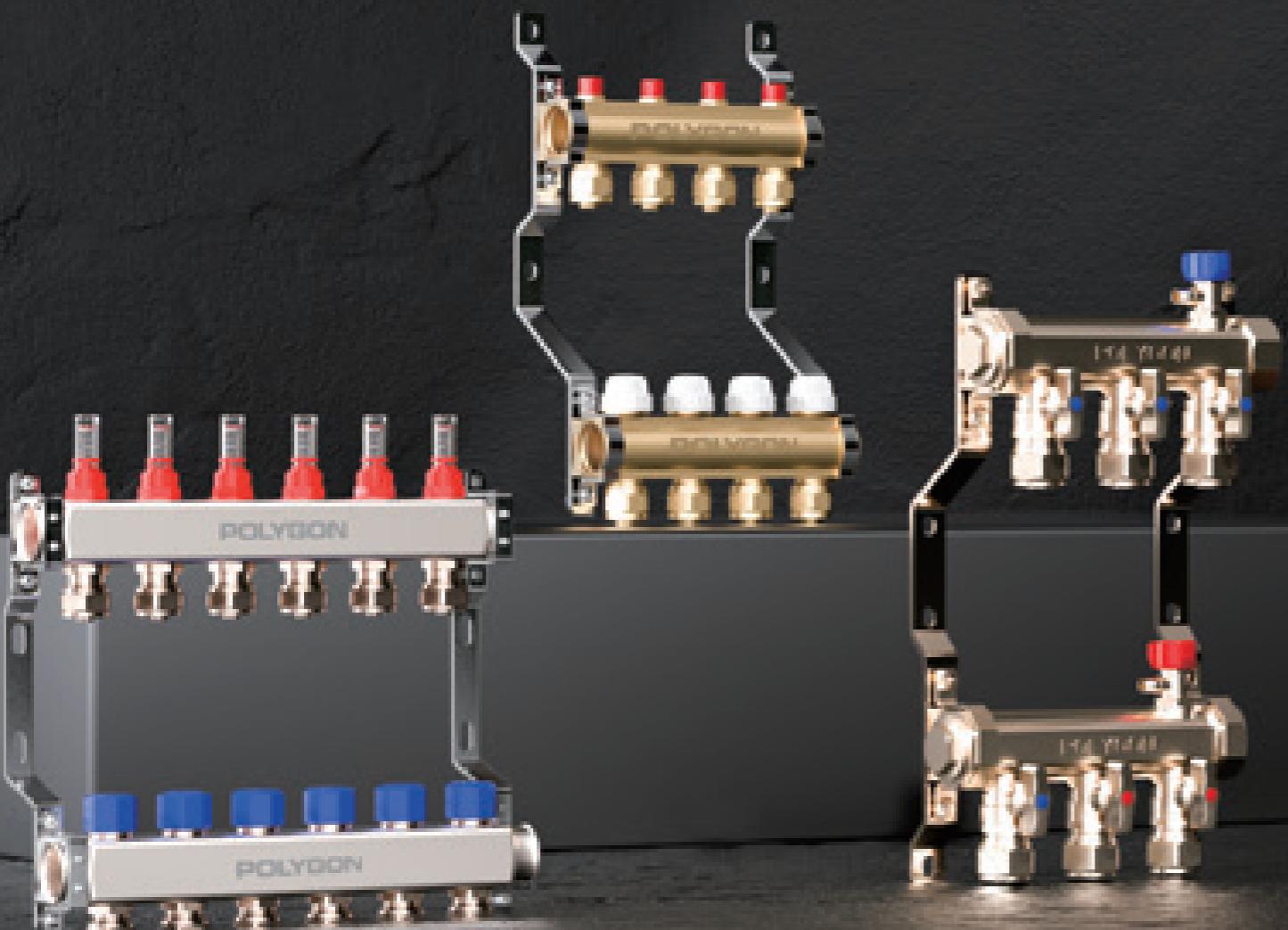
## Technical Date

	Specifications (mm)	L	W	H
	Φ65×32(2m)	2000	65	32
	Φ76×35(2m)	2000	76	35

## Open installation tube seat assembly

Name	Dimension (mm)	Name	Dimension (mm)	Name	Dimension (mm)
	dn76×35 dn65x32		dn76×35 dn65x32		dn76×35 dn65x32
Coupling	90°Elbow	Internal corner Elbow			
	dn76×35 dn65x32		dn76×35 dn65x32		dn76×35 dn65x32
External corner Elbow	Tee	Pipe slot seal			
	dn76×35 dn65x32		dn16 dn20 dn25 dn16/20(dn65X32)		dn76×35 dn65x32
Exit wall Straight tube cap	Clamp	Exit wall Elbow cap			
	dn76×35 dn65x32		dn76×35 dn65x32		dn65X32
S-bend (left)	S-bend (Right)	Long and high tee			
Pipe slot cutting tool					

# Manifold



Diversity water collector refers to the distribution of water supply and return, flow regulation and control, gas collection can be manually or automatically excluded. The water separator consists of a water distribution main and a water collection main. The water distribution main is connected to the water supply pipe of the pipe network system. Its main function is to distribute the hot water from the pipe network system to the rooms that need heating indoors through the heating pipe buried under the floor. When hot water flows in the floor heating pipe, it transfers heat to the floor, and then radiates heat to the room through the floor.

## O-type Manifold and Collector

**Integrated forging:** One piece forging avoids leakage and improves reliability greatly.

**Anti-corrosion and durability:** The surface is treated with three protective processes, including surface densification enhancement treatment, anticorrosion treatment, and surface spraying treatment, which fundamentally solves the discoloration problem of ordinary copper surface, with longer life and more stable performance.

**Large flow:** 32.5mm main body diameter and 13.5mm branch inner diameter provide stable and sufficient flow guarantee.

**Large wall thickness:** The average wall thickness is 2.3mm with better pressure performance.

### Fittings



### Technical parameter

Nominal pressure	material	Medium temperature	Main pipe Path diameter	Branch distance	Main pipe Wall thickness	Surface treatment	Connecting port
PN16	HPb59-1	5-90°C	Φ32.5	50mm	2.3mm	Gold powder paint	G1"

Ways Two ways Three ways Four ways Five ways Six ways Seven ways Eight ways Nine ways Ten ways Eleven ways Twelve ways

Model	1"×20×2.0	1"×20×2.0	1"×20×2.0	1"×20×2.0	1"×20×2.0	1"×20×2.0	1"×20×2.0	1"×20×2.0	1"×20×2.0	1"×20×2.0	1"×20×2.0
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## Intelligent I-type Manifold and Collector

**High-quality material:** High-quality brass 59-1, one piece forging.

**Sealed joint:** The joint adopts double O-ring seal, which is safe and reliable.

**Surface treatment:** Sand-blasted surface and pickling treatment make the surface high-end and easy to be cleaned.

### Fittings



### Technical parameter

Nominal pressure	material	Medium temperature	Main pipe Path diameter	Branch distance	Main pipe Wall thickness	Surface treatment	Connecting port
PN16	HPb59-1	5-90°C	Φ30	50mm	2.0mm	Sandblasting and pickling	G1

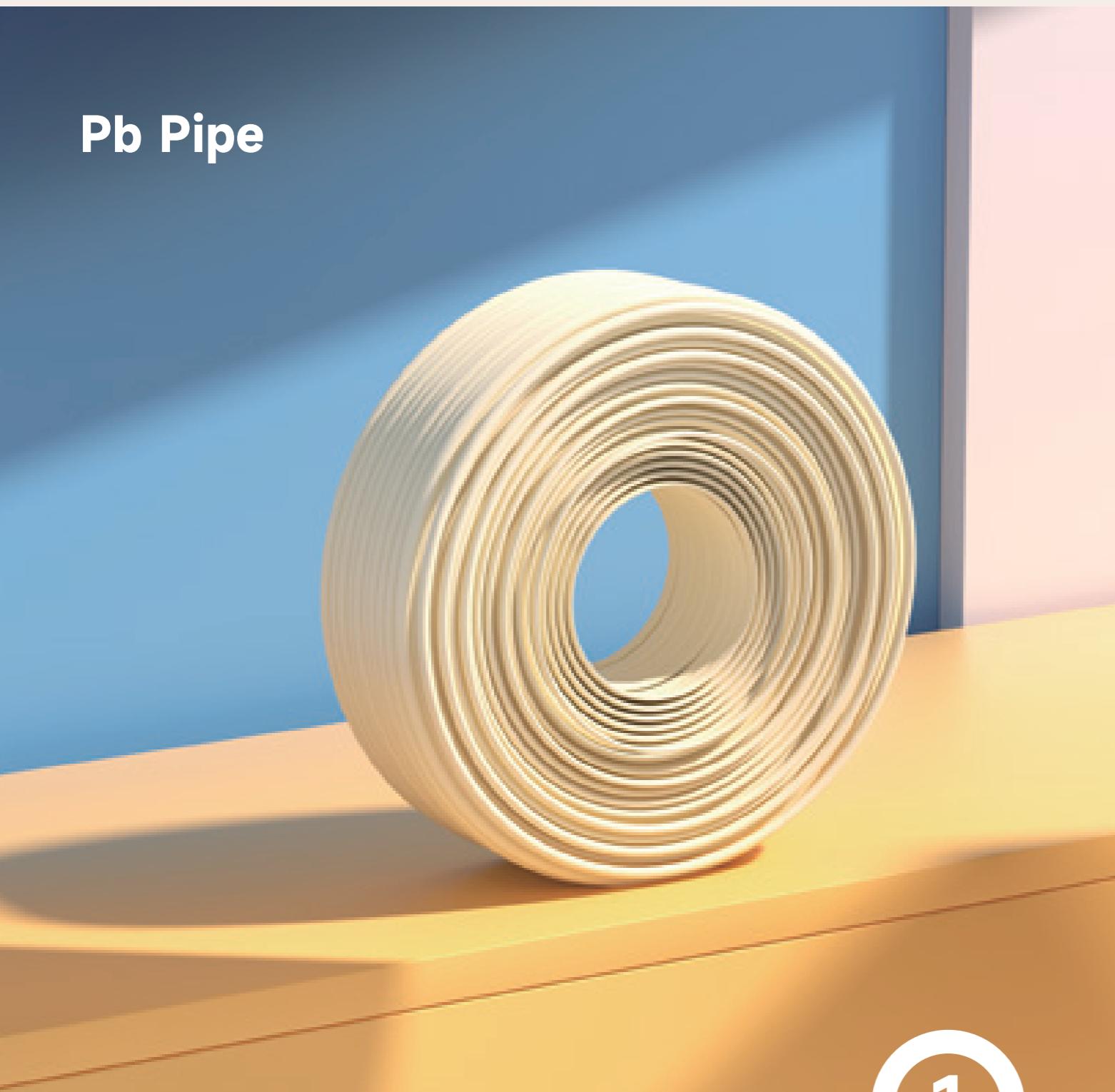
Ways Two ways Three ways Four ways Five ways Six ways Seven ways Eight ways Nine ways Ten ways

Model	1"×16×2.0, 1"×20×2.0, 1"×20×2.3	1"×20×2.0, 1-1/4"×20×2.0, 1-1/4"×20×2.3	1"×20×2.0, 1-1/4"×20×2.0, 1-1/4"×20×2.3						
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# Pb Pipe



Pb is a polybutene polymer material, as its light weight, good flexibility, corrosion resistance, high temperature resistance, safety and health, easy installation and other characteristics, has become one of the world's most advanced chemical materials, known as "plastic gold".

**Environmental protection and stability:** polybutene (Pb-H), composed of only carbon and hydrogen elements, has stable chemical performance, known as "gold in plastic".

**Smooth wall:** the inner wall is smooth and not suitable for scaling; the water flow speed is fast, and it is convenient to clean pipe in non-heating season.

**Easy installation:** the pipe has good flexibility, impact resistance and light weight(density0.90~0.94g/cm<sup>3</sup>), easy to be bent, constructed, transported and operated with hot-melt welding under 235(±5)°C.

**Temperature and pressure resistance:** it has stable performance and good long-term hydrostatic performance, and can adapt to harsh heating environment.

**Application:**

- Low temperature floor radiant heating system
- Solar hot water system water distribution pipeline
- High temperature radiator heating system
- Snow melting pipeline system under the highway
- Large parking lot

Nominal outside diameter dn	Mean outside diameter		Nominal wall thickness		
	Minimum mean outside diameter	Maximum mean outside diameter	S5	S4	S3.2
16	16,0	16,0	/	2	
20	20,0	20,0	2	2.3	
25	25,5	25,5	2.3	2.8	
32	32,0	32,0	2.9	3.6	

**Tube S series selection**

Design pressure PaMpa	Lv.1	Lv.2	LV.4	LV.5
0.4	10	10	10	10
0.6	8	8	8	6.3
0.8	6.3	6.3	6.3	5
1	5	5	5	4

**Mechanical properties of pipes**

Item	Demand	Hydrostatic pressure MPa	Experimental temperature °C	Experiment time h
Hydrostatic test	No penetration and no rupture	15.5	20	1
		6.5	95	22
		6.2	95	165
		6	95	1000
		2.4	110	8760

## Pb fittings



45° Elbow



90° Elbow



Coupling



shoulder-to-shoulder



Male Threaded Union



Over Bridge Bow



Tee



Cap



Reducer



Female Threaded Union



Female Threaded Tee



Male Threaded Elbow



Reducing Tee



Male Threaded Coupling



Female Threaded Coupling



Male Threaded Tee



Female Threaded Elbow



Double Union Ball Valve

# Other product categories of POLYGON pipe



\*Fresh air piping system



PVC electrical piping system



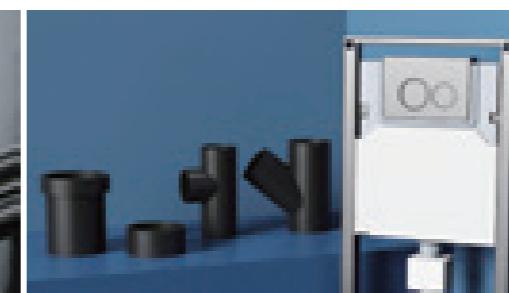
PVC drainage piping system



PPR water supply piping system



HDPE Municipal water supply system



HDPE same floor drainage system



HDPE Siphon drainage system



## ENGINEERING CASE



Shanghai International World Financial Center  
Snow Dragon South Board Research Ship  
German Consulate in Shanghai  
Nanjing Langsey international block  
Yufeng Garden  
Shangcheng County  
New Oriental  
Century Garde

Shenyang Industrial university  
Rongqiao Real Estate in Xi'an  
Xi'an Zhonghai Real Estate  
Xi'an Merlin Pick Garden  
Vanke Xi'an New Town  
Xi'an Fuli City  
Changqing Oilfield Lakeside Garden  
Beijing Hongshan Community

Renovation of Caoshanling Old City  
Dalian Wanda Pearl Square  
Yadu Garden, Tianjin Tanggu Development Zone  
Beijing Military District Tianjin Nursing Home  
Baoding Huazhong Holiday Athens City  
Baoding Jinpeng Swan Bay  
Qinhuangdao Yanda Mangrove Bay  
Qinhuangdao Beidaihe Guanhai Garden

Dongwangling New Village Reconstruction Project  
Shijiazhuang Mocha Town  
Sanmenxia Civil Service Community  
Zhoukou Power Community  
Shangqiu City Pipe Network  
Zhongyuan Lida High Speed Rail Package  
Dalian Wanda Mansion  
Shenyang Olympic Sports Center

Fushun Big Ethylene Park  
Anshan Fortune Center  
Tianjin Tanggu Offshore Oil  
Tianjin Tanggu Free Trade Zone Logistics Building  
Tangshan Guangyuan Garden  
Taicang Shanghai Holiday Garden  
Changzhou Laijun Garden

## CERTIFICATES

