



The pipe system

isoplus' pre-insulated pipe systems are bonded systems. The pipes consist of a steel carrier pipe and a HDPE jacket pipe, which are cast into a fixed sandwich structure with polyurethane insulation.

Steel pipe

Standard quality longitudinal weld or spiral weld, P235GH.

Technical terms of delivery for single pipes acc. to EN 253; for double pipes acc. to EN 15698-1 and EN 15698-2.

Weld factor V = 1.0

Test certificate as per EN 10 204 - 3.1.

Bevelled ends as per EN/ISO 9692-1.

Max. operating pressure 25 bar

Specifications for special steel pipes can be provided by contacting isoplus' technical department.

Insulation

The insulation is polyurethane foam with cyclopentane used as blowing agent, for optimum insulation values.

Compressive strength: 0.3 N/mm²

Continuous operating temperature, single pipe 120°C

Continuous operating temperature, double pipe 120°C

Jacket pipe

The jacket pipe is made of polyethylene that is resistant to impact and fracture.

Material: Bimodal - HDPE

Density: over 940 kg/m³

Melt flow index: 0.2-0.7g/10 min., 5 kg as per ISO 1133

Elongation at fracture: min. 350%

Internal corona treatment: to optimise bonding characteristics. (Traditionally produced pipes)

The pre-insulated pipe

The pre-insulated pipe meets the requirements in DS/EN 253. The axial shear strength of the pipe, between the steel pipe, PUR and casing pipe, is at least 0.12 N/mm².

Exposed end of steel pipe: 220 mm

Standard lengths: 6, 12 and 16 m

Corrosion protection is applied to exposed ends on delivery.

Alarm system

isoplus pipes and components can be supplied with two integrated copper wires (1.5 mm²) for electronic monitoring.

Fittings

All fittings are produced in accordance with the requirements in DS/EN 13941-1.

All isoplus pre-insulated components for double pipe systems are equipped with fixing plates, designed for a max. temperature difference between supply and return pipes of 60°K.

**Diffusion barrier**

isoplus can produce pipes with jacket pipe dimensions $\leq \text{ø}355$ mm as energy-saving, continuously produced pipes with a diffusion barrier inserted between the jacket pipe and the polyurethane foam.

For pipes with jacket pipes in dimension $>\text{ø}355$ mm, the jacket pipe functions as a diffusion barrier due to its thickness.

The diffusion barrier secures isoplus pre-insulated pipes against ageing, and the heat loss is therefore constant throughout the pipe's technical service life.

Series 1 pipes are normally supplied as traditionally produced pipes without an inserted diffusion barrier. However, dimensions with jacket pipes $\leq \text{ø}355$ mm can be supplied as continuously produced as a special delivery.



Pipe system

isoplus' pre-insulated isopex are complete piping systems. The pipes consist of a PEX carrier pipe and an LLDPE jacket pipe merged into a complete unit with insulating polyurethane foam. The flexible insulation and LLDPE jacket pipe ensure maximum flexibility.

PEX carrier pipe

The carrier pipe is made of cross-linked polyethylene (PE-X) to EN/ISO 15875-2.

isopex pre-insulated flexible pipes

Technical delivery conditions isopex pre-insulated flexible pipes acc. to EN 15632-1, EN 15632-2.

With the temperature profile below, isopex is designed for a lifetime of min. 30 years:

Operating temperature	80°C for 29 years
Max. operating temperature	90°C for 7,760 hours 95°C for 1,000 hours
Malfunction	100°C for 100 hours

Max. operating pressure respectively 6 bar (6 bar district heating) or 10 bar (10 bar district heating or 10 bar domestic water).

isopex heating 6 bar

Dimensions acc. to pipe series 5 ISO 4065 (SDR 11)
EVAL oxygen diffusion barrier acc. to EN/ISO 15875-2.

Max. operating pressure	6 bar
Carrier pipe colour	red

isopex heating 10 bar

Dimensions acc. to pipe series 3,2 ISO 4065 (SDR 7,4)
EVAL oxygen diffusion barrier acc. to EN/ISO 15875-2.

Max. operating pressure	10 bar
Carrier pipe colour	grey



Domestic water pipes

Dimensions pipe series 3,2 ISO 4065 (SDR 7,4)

Max. operating pressure	10 bar
Carrier pipe colour	white

Insulation

The pipes are insulated with polyurethane, foamed using the blowing agent cyclopentane, thus ensuring optimum insulation values.

Compressive strength:	≥ 0.2 MPa
Closed cells:	≥ 88%

Jacket pipe

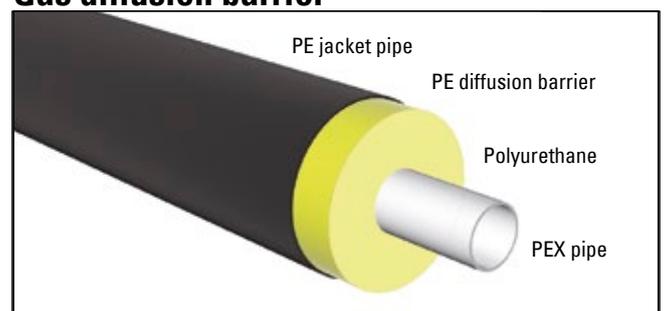
Material:	Bimodal - LLDPE
Density:	approx. 924 kg/m ³
Melt index:	0.3 g/10 min., 5 kg

PE diffusion barrier between jacket pipe and foam.

Approval

Domestic water pipes are approved for drinking water in dimensions 20-110 mm.

Gas diffusion barrier





Pipe system (Flexible pipes)

isoplus' pre-insulated isocu are complete piping systems. The pipes consist of a copper carrier pipe and an LLDPE jacket pipe bonded to form a complete unit with insulating polyurethane foam. The flexible insulation and LLDPE jacket pipe ensure maximum flexibility.

CU carrier pipes

isocu pipes are made of cold drawn, seamless annealed copper piping to EN 1057. Dimensions and tolerances to EN 12449.

Material - annealed copper (R220)
Terms of delivery in accordance with EN 12449.

isocu pre-insulated flexible pipes

Technical delivery conditions isocu pre-insulated flexible pipes acc. to EN 15632-1, EN 15632-4.
With the temperature profile below, isocu is designed for a lifetime of min. 30 years:

Max. continuous operating temperature	120°C for 30 years
Mulfuction	140°C for 300 hours
Max. operating pressure	16 bar

Pipe system (Straight pipes)

isoplus pre-insulated copper pipes are complete piping systems. The pipes consist of a copper carrier pipe and an HDPE jacket pipe bonded to form a complete sandwich construction with insulating polyurethane foam.

Straight copper pipes are made of cold drawn, seamless, hard copper piping to EN 1057. Dimensions and tolerances to EN 12449.

Material - half hard copper (R250) - 5 m lengths
Material - annealed copper (R220) - 12 m lengths
Terms of delivery in accordance with EN 12449.



Max. operating pressure	16 bar
Max. short-term operating temperature:	140°C
Max. continuous operating temperature:	120°C

Joints

Pipes are joined by means of capillary brazing (using either flaring or braze fittings) or press couplings.

Insulation

The pipes are insulated with polyurethane, foamed using the blowing agent cyclopentane, thus ensuring optimum insulation values.

Compressive strength:	≥ 0.2 MPa
Closed cells:	≥ 88%

Jacket pipe (Flexible pipes)

Material:	Bimodal - LLDPE
Density:	approx. 924 kg/m ³
Melt index:	0.3 g/10 min., 5 kg

Aluminium diffusion barrier between jacket pipe and foam.

Jacket pipe (Straight pipes)

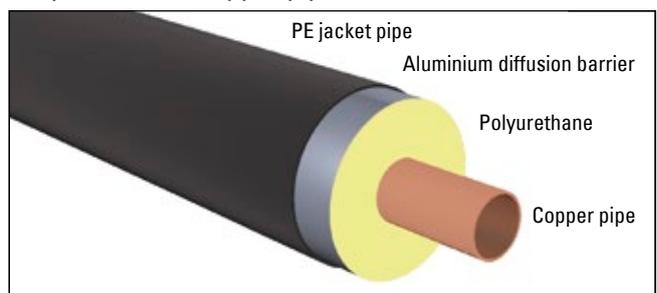
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Alarm system

Available with break resistant alarm wires with perforated PTFE coating.

Gas diffusion barrier

Only on flexible copper pipes.





Pipe system

isoplus' pre-insulated isoflex pipes are complete piping systems. The pipes consist of a steel carrier pipe and an LLDPE jacket pipe bonded to form a complete unit with insulating polyurethane foam. The flexible insulation and LLDPE jacket pipe ensure maximum flexibility.

Steel pipes

Steel pipes are made from longitudinal welded precision steel piping to P195GH + N (1.0348). Technical delivery terms per option 1, EN 10305-3. Approved certificate to EN 10204 / 3.1.

isoflex pre-insulated flexible pipes

Technical delivery conditions isoflex pre-insulated flexible pipes acc. to EN 15632-1, EN 15632-4.

With the temperature profile below, isoflex is designed for a lifetime of min. 30 years:

Max. continuous operating temperature	120°C for 30 years
Mulfunction	140°C for 300 hours
Max. operating pressure	25 bar

Insulation

The pipes are insulated with polyurethane, foamed using the blowing agent cyclopentane, thus ensuring optimum insulation values.

Compressive strength: ≥ 0.2 MPa

Closed cells: $\geq 88\%$

Jacket pipe

Material: Bimodal - LLDPE

Density: approx. 924 kg/m³

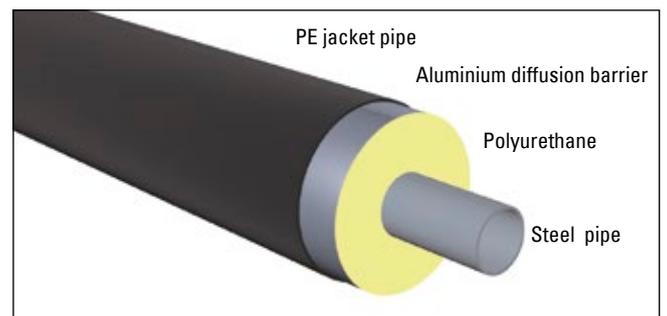
Melt index: 0.3 g/10 min., 5 kg

Aluminium diffusion barrier between jacket pipe and foam.

Alarm system

Available with break resistant alarm wires with perforated PTFE coating.

Gas diffusion barrier





Pipe system

isoplus' pre-insulated isoalupex pipes are complete piping systems. The pipes consist of an alupex carrier pipe and a LLDPE jacket pipe bonded to form a complete unit with insulating polyurethane foam. The flexible insulation and LLDPE jacket pipe ensure maximum flexibility.

Alupex carrier pipes

The alupex pipe is designed as a sandwich construction, consisting of an aluminium pipe encased on both inside and outside by pex pipe EN / ISO 21003-2.

isoalupex pre-insulated flexible pipes

Technical delivery conditions isoalupex pre-insulated flexible pipes acc. to EN 15632-1, EN 15632-2. With the temperature profile below, isoalupex is designed for a lifetime of min. 30 years:

Operating temperature	80°C for 29 years
Max. operating temperature	90°C for 7,760 hours 95°C for 1,000 hours
Malfunction	100°C for 100 hours
Max. operating pressure	10 bar

Insulation

The pipes are insulated with polyurethane, foamed using the blowing agent cyclopentane, thus ensuring optimum insulation values.

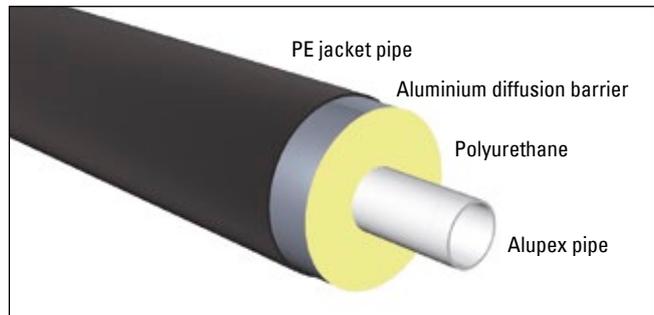
Compressive strength:	≥ 0.2 MP
Closed cells:	≥ 88%

Jacket pipe

Material:	Bimodal - LLDPE
Density:	approx. 924 kg/m ³
Melt index:	0.3 g/10 min., 5 kg

Aluminium diffusion barrier between jacket pipe and foam.

Gas diffusion barrier





Pipe system

isoplus' pre-insulated isoclima pipes are complete piping systems. The pipes consist of a HDPE 100 carrier pipe and an LLDPE jacket pipe bonded to form a complete unit with insulating polyurethane foam. The flexible insulation and LLDPE jacket pipe ensure maximum flexibility.

isoclima (HDPE 100 pipe)

The carrier pipe is a seamless, extruded HDPE 100 pipe, impact and break resistant, hard and elastic.

Max. continuous operating temperature: 40°C

Min. continuous operating temperature: -40°C

Cold water - various applications

Carrier pipe acc. to DS/EN 12201-2.

Max. operating pressure 10 bar

The carrier pipe is approved for drinking water.

Insulation

The pipes are insulated with polyurethane, foamed using the blowing agent cyclopentane, thus ensuring optimum insulation values.

Compressive strength: ≥ 0.2 MPa

Closed cells: $\geq 88\%$

Jacket pipe

Material: Bimodal - LLDPE

Density: approx. 924 kg/m³

Melt index: 0.3 g/10 min., 5 kg

PE diffusion barrier between jacket pipe and foam.

Gas diffusion barrier

