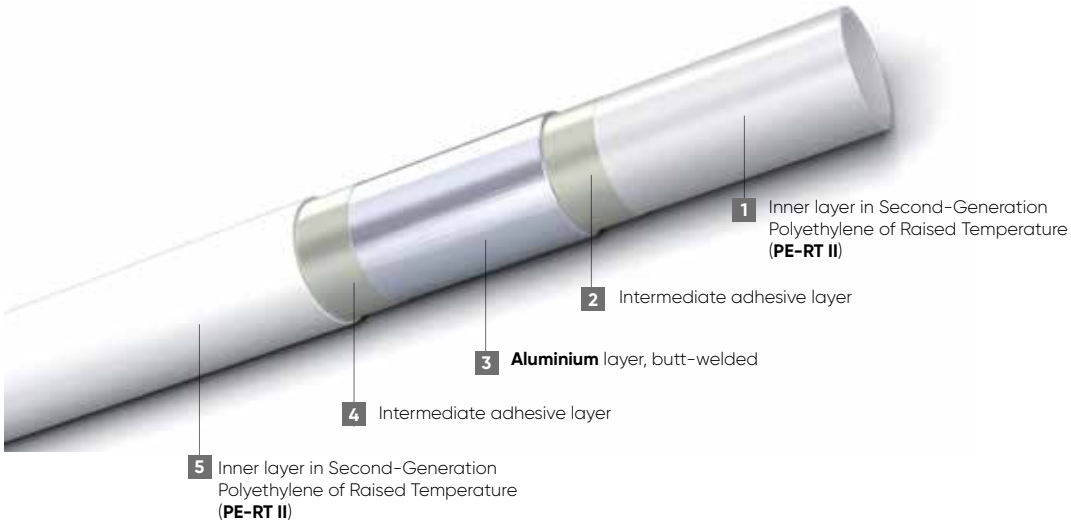
# FLUXO-Z, the new generation of multilayer pipe

Flexible. Green by design. Reliable over time.




The **Nicoll FLUXO** range expands with its latest evolution: FLUXO-Z, the multilayer pipe developed with sustainability-oriented criteria, designed to meet the contemporary needs of heating systems and domestic hot- and cold-water supply.

An integrated solution that combines innovative materials, easy installation and long-term reliability, with no compromise on performance.

### NEXT-GEN Technology and Materials

The structure of FLUXO-Z combines inner and outer layers made of next-generation polymer with a central butt-welded aluminium core, offering an optimal balance between flexibility and dimensional stability.

The pipe ensures **reliable performance in continuous operation up to 95 °C** (Classes 1, 2 and 4 – EN ISO 21003), limiting thermal expansion and ensuring long-term system durability.

Second-generation PE-RT II is an advanced material designed to withstand high thermal and chemical stress without cross-linking.

**The use of these polymers enhances recyclability at end of life and supports circular-economy models based on reuse and waste reduction.**

### Organoleptic quality and safety

The polymer used for the internal layer is selected **to ensure total organoleptic neutrality in the transport of drinking water.**

Its stable chemical structure, free from plasticizers and cross linking processes, minimizes the release of unwanted substances and helps preserve taste, smell and colour, even with domestic hot water systems and under continuous service conditions.

The smooth, non porous inner surface reduces the adhesion of microorganisms and the formation of biofilm and scale, phenomena that can negatively impact water quality over time.

PE-RT II also shows excellent chemical resistance to common disinfection treatments such as chlorine based solutions, preserving material stability and water quality throughout the entire service life.

Suitable for contact with drinking water and compliant with the main and most recent European regulatory requirements, including ACS and Italian Potability Regulation DM 174/2004.

### Concrete advantages during installation and use

The system offers **superior flexibility**, with reduced bending radius that allow faster and more efficient installation, even in complex conditions, reducing the number of required joints and increasing overall system reliability.

Its low weight simplifies handling on site, while shape memory and full compatibility with press-fitting connectors ensure maximum versatility.

### Aliaxis: sustainability that creates value

**The Green by design approach aligns with Aliaxis' sustainability and ESG strategy, focused on responsible resource management, development of recyclable solutions, emissions reduction and increased use of renewable energy.**

In Italy, this commitment translates into photovoltaic plants, environmental certifications and dedicated design solutions for a more efficient, integrated and sustainable sector.

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## Bare Multilayer PE-RT II Pipe in Coils – Toroidal Packaging

| Ø (mm) | Pipe thickness (mm) | Reference | (mt) | (mt) | Coil (mt) |
|---|---|---|---|---|---|
| 16 | 2.0 | M01051R | 100 | 2000 | 100 |
| 16 | 2.0 | M01052R | 200 | 2000 | 200 |
| 16 | 2.0 | M01054R | 400 | 2400 | 400 |
| 16 | 2.0 | M01056R | 600 | 3000 | 600 |
| 20 | 2.0 | M01151R | 100 | 1500 | 100 |
| 26 | 3.0 | M01261R | 50 | 600 | 50 |
| 32 | 3.0 | M01321R | 50 | 400 | 50 |

## White Insulated Multilayer PE-RT II Pipe in Coils Toroidal Packaging

| Ø (mm) | Pipe thickness (mm) | Insulation thickness (mm) | Reference | (mt) | (mt) | Coil (mt) |
|---|---|---|---|---|---|---|
| 16 | 2.0 | 6 | M04050R | 50 | 700 | 50 |
| 20 | 2.0 | 6 | M04150R | 50 | 700 | 50 |
| 26 | 3.0 | 10 | M04260R | 50 | 400 | 50 |
| 32 | 3.0 | 10 | M04320R | 25 | 225 | 25 |

## Blue Insulated Multilayer PE-RT II Pipe in Coils Toroidal Packaging

| Ø (mm) | Pipe thickness (mm) | Insulation thickness (mm) | Reference | (mt) | (mt) | Coil (mt) |
|---|---|---|---|---|---|---|
| 16 | 2.0 | 6 | M04054R | 50 | 700 | 50 |
| 20 | 2.0 | 6 | M04154R | 50 | 700 | 50 |
| 26 | 3.0 | 10 | M04264R | 50 | 400 | 50 |
| 32 | 3.0 | 10 | M04324R | 25 | 225 | 25 |

## Red Insulated Multilayer PE-RT II Pipe in Rotoli Imballo Toroidale

| Ø (mm) | Pipe thickness (mm) | Insulation thickness (mm) | Reference | (mt) | (mt) | Coil (mt) |
|---|---|---|---|---|---|---|
| 16 | 2.0 | 6 | M04057R | 50 | 700 | 50 |
| 20 | 2.0 | 6 | M04157R | 50 | 700 | 50 |
| 26 | 3.0 | 10 | M04267R | 50 | 400 | 50 |
| 32 | 3.0 | 10 | M04327R | 25 | 225 | 25 |

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| Property | Technical Data | Test Method |
|---|---|---|
| Thermal conductivity | 0,4 (W/mK) | Hot Disk Method |
| Oxygen permeability | 0% | ISO 17455 |
| Potability | < 6 (mg/kg) | D.M. 174/2004 (Italian) |
| Hydrostatic resistance | no breaks on outer layer | EN ISO 1167 |
| Linear expansion coefficient | 0,026 mm/mK | - |
| Internal roughness | 0,007 mm | - |

| Aluminium layer thickness | Ø16 | Ø20 | Ø26 | Ø32 |
|---|---|---|---|---|
| (mm) | 0,2 | 0,24 | 0,3 | 0,5 |

| Flow rates | Ø16 | Ø20 | Ø26 | Ø32 |
|---|---|---|---|---|
| (l/m) | 0,113 | 0,201 | 0,314 | 0,53 |

| Insulation Sheath Technical Specifications | |
|---|---|
| Outer colours | White, Blue, Red |
| Inner insulation colour | Dark grey |
| Thickness options | 6 – 10 mm |
| Operating temperature | -45°C ÷ +105°C |
| Density | 30 Kg/m$^3$ |
| Thermal conductivity | λ = 0,039 W/(m·K) a 40 °C,<br>λ = 0,034 W/(m·K) a 0 °C |
| Vapour permeability | μ > 5000 |
| Fire reaction | Classe $B_L$ s1 d0 (EN 13501) |
| Freon-free (no HCFC, CFC, HFC) | Compliance with Law No. 549 of December 28, 1993 |
| Smoke toxicity & opacity | CSI Certificates No. 100-101/CF/T/97 of January 16, 1998 |
| Resistant to ozone, mould and insects | Excellent |

| Operating conditions at 10 bar | | |
|---|---|---|
| Technical data | Reference legislation | Certifying Institute |
| 70°C - 49 years | EN-ISO 21003 | AFNOR |
| 80°C - 1 year maximum temp. | | |
| 95°C - 100 hours malfunction temp. | | |

| Product Certifications |
|---|
| AFNOR |
| 81344 (NF 545) |

| Hygienic-Sanitary Certifications, Potability | |
|---|---|
| ACS (France) | D.M. 174/2004 (Italy) |
| 25MATLY11 | 25-040014/15 |

## Application classes according to EN-ISO 21003

| Application Class | Operating temperature $T_D$ °C | Time $T_D$ (anni) | $T_{max}$ (°C) | Time $T_{max}$ (anni) | $T_{mal}$ (°C) | Time $T_{mal}$ (h) | Application |
|---|---|---|---|---|---|---|---|
| 1[a] | 60 | 49 | 80 | 1 | 95 | 100 | Domestic hot water (60°C) |
| 2[a] | 70 | 49 | 80 | 1 | 95 | 100 | Domestic hot water (70°C) |
| 4[b] | 20 + 40 + 60 | 2,5 + 20 + 25 | 70 | 2,5 | 100 | 100 | Underfloor heating and low-temperature radiators |
| 5[b] | 20 + 40 + 80 | 14 + 25 + 10 | 90 | 1 | 100 | 100 | High-temperature radiator heating |

A country may choose either Application Class 1 or Application Class 2 in accordance with national legislation.
When there are multiple operating temperatures for a single class, the duration of each temperature may be added together;
the temperature profile for a total of 50 years for Class 5 is: 14 years at 20°C, 25 years at 60°C, 10 years at 80°C, 1 year at 90°C, and 100 hours at 100°C.
NOTE: For values of Td, Tmax, and Tmal exceeding those in the table, this International Standard is not applicable.

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## Pipe bending

One of the main advantages of the FLUXO system is its extraordinary ease of bending. This is achieved thanks to the tube's multilayer structure, designed to ensure high mechanical performance
even with optimized wall thicknesses. This ensures not only remarkable overall strength, but also simple, precise bending and perfect geometric stability during installation.

**Bending Methods**
- Manual bending
- Bending with a tube-bending tool

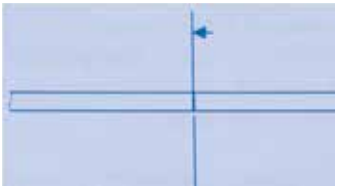
**Manual bending**
Recommended for small diameters and large radii. Installer must ensure no surface flattening occurs.

The table below reports the values of the minimum attainable radii of curvature.

| Tube bending | | | | |
|---|---|---|---|---|
| Outer diameter (mm) | Ø16 | Ø20 | Ø26 | Ø32 |
| Manual bending radius (mm) | 80 | 100 | 110 | 160 |
| Bending radius with tube bender (mm) | 45 | 60 | 95 | 125 |

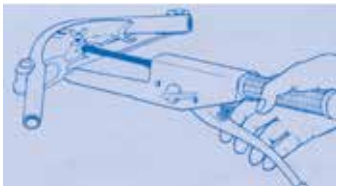
*Note: The indicated diameter refers to the pipe without insulation.*

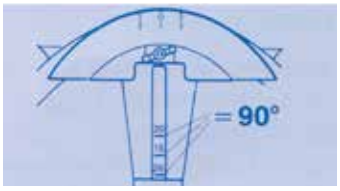
**With bending tool:**
To obtain smaller bending radii and/or using pipes with larger diameters, it is preferable to use the bending pliers as illustrated below.



**1 -** Mark curve midpoint

**2 -** Place pipe in bending tool






**3 -** Actuate lever to reach desired angle

**4 -** Release the ratchet to free the pipe

**Attention:** Use only the correctly sized die for each pipe diameter.

**Specification item**

*Multilayer pipe consisting of an inner layer of second-generation Polyethylene of Raised Temperature (PE-RT II) in contact with the fluid, a butt-welded aluminum layer ensuring oxygen barrier properties and dimensional stability, and an additional outer layer of PE-RT II providing protection against external agents. Suitable for heating and cooling systems, including UFH installations, as well as for hot and cold domestic water distribution.*

*Compliant with EN ISO 21003 and with the requirements of D.M. 174/2004 and ACS for contact with potable water. Nominal operating pressure of 10 bar, maximum operating temperature of 95 °C, and peak temperature of 100 °C. Application classes: Class 1 (domestic hot water at 60 °C), Class 2 (domestic hot water at 70 °C), Class 4 (underfloor heating and low-temperature radiators), and Class 5 (high-temperature heating), with a service life of up to 50 years in accordance with the specified thermal profiles.*

*Physical properties: internal roughness 0.007 mm, linear thermal expansion coefficient 0.026 mm/mK, thermal conductivity 0.40 W/mK.*

*Available diameters: 16 mm (wall thickness 2 mm), 20 mm (wall thickness 2 mm), 26 mm (wall thickness 3 mm), 32 mm (wall thickness 3 mm).*

*Supplied in coils, bare or with insulating sheath in white, blue, or red, with insulation thicknesses ranging from 6 to 10 mm.*