EN

# 0210R

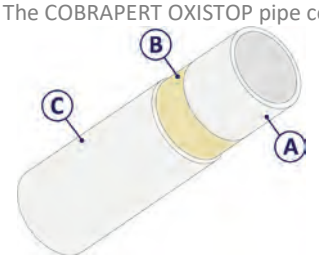
# PE-RT TYPE II POLYETHYLENE PIPE WITH ANTI-OXYGEN BARRIER “COBRAPERT OXISTOP”

## DESCRIPTION

COBRAPERT OXISTOP pipes made of PE-RT Type II (polyethylene with increased thermal resistance) can be used for water distribution in heating and/or cooling systems.
Suitable for application class 4 according to UNI EN ISO 22391.

COBRAPERT OXISTOP pipes are also equipped with an oxygen barrier consisting of coextruded ethylene vinyl alcohol (EVOH) film, in compliance with DIN 4726, which prevents the permeability of the pipe to oxygen diffusion, eliminating the problem of oxygen supply to the water flow and corrosion in the metal elements, thus prolonging the life of the system.

The COBRAPERT OXISTOP pipe consists of 3 layers:




**A**: Polyethylene layer with increased thermal resistance, not cross-linked PE-RT.
**B**: Adhesive layer.
**C**: EVOH anti-oxygen barrier layer.

## ADVANTAGES/STRENGTHS

- Fast and quick system to lay: flexible and lightweight.
- Oxygen-proof.
- Resistant to corrosion and chemical agents.
- Low pressure drops.
- Suitable for applications in heating and cooling radiant systems (low temperature).

## PRODUCT RANGE

| Art. | Code | Type | Roll length |
|---|---|---|---|
| 0210R | 021 0009 | Ø 16x1.8 RED | 300 m |
| | 021 0007 | Ø 16x1.8 RED | 600 m |
| | 021 0004 | Ø 16x2 RED | 300 m |
| | 021 0003 | Ø 16x2 RED | 600 m |
| | 021 0013 | Ø 17x2 RED | 120 m |
| | 021 0011 | Ø 17x2 RED | 300 m |
| | 021 0005 | Ø 17x2 RED | 600 m |
| | 021 0010 | Ø 20x2 RED | 300 m |
| | 021 0006 | Ø 20x2 RED | 500 m |

## TECHNICAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| External diameter | (mm) | 16 | 16 | 17 | 20 |
| Thickness | (mm) | 1.8 | 2.0 | 2.0 | 2.0 |
| Weight | (kg/m) | 0,080 | 0.087 | 0.093 | 0.112 |
| Contained water volume | (l/m) | 0.121 | 0.113 | 0.133 | 0.201 |
| Maximum operating temperature | (°C) | 70 | | | |
| Peak temperature (malfunction temperature) | (°C) | 100 | | | |
| Maximum working pressure | (Bar) | 6 | | | |
| Thermal expansion coefficient | (mm/m°C) | 0.18 | | | |
| Oxygen permeability | (mg/l) | < 0.1 | | | |
| Thermal conductivity | (W/mK) | 0.40 | | | |
| Minimum allowable bending radius | mm | 5d | | | |
| Breaking strength | Mpa | 37 | | | |
| Elongation at break | % | 780 | | | |
| Elasticity module | Mpa | 660 | | | |

## FIELD OF USE (UNI EN ISO 22391)

The performance characteristics of PE-RT polyethylene pipe are regulated by **UNI EN ISO 22391** which defines four application classes over a period of 50 years of continuous operation.
Tiemme COBRAPERT OXISTOP pipes are certified for operating pressures up to **6 bar** in class 4.

**Table Application classes and operating conditions according to UNI EN ISO 22391**

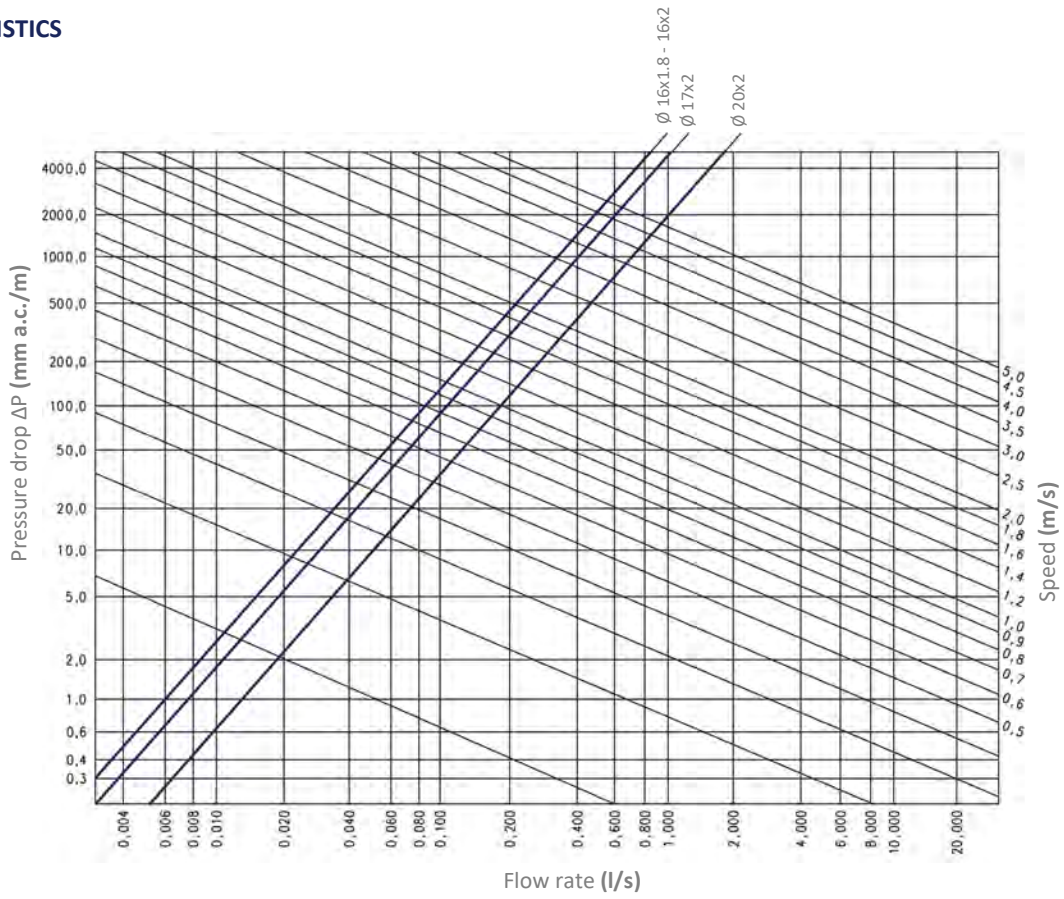
| Application Class | Operating temperature $T_D$ [°C] | Duration of $T_D$ [years] | Maximum operating temperature $T_{max}$ [°C] | Duration of $T_{max}$ [years] | Malfunction temperature $T_{mal}$ [°C] | Duration of $T_{mal}$ [hours] | Typical Applications |
|---|---|---|---|---|---|---|---|
| 4 | 20 + 40 + 60 | 2.5 + 20 + 25 | 70 | 2.5 | 100 | 100 | Underfloor heating and low temperature systems |

## FLUID DYNAMIC CHARACTERISTICS

The pressure drops shown in the graph refer to thermal energy carrier fluid at 10 °C.

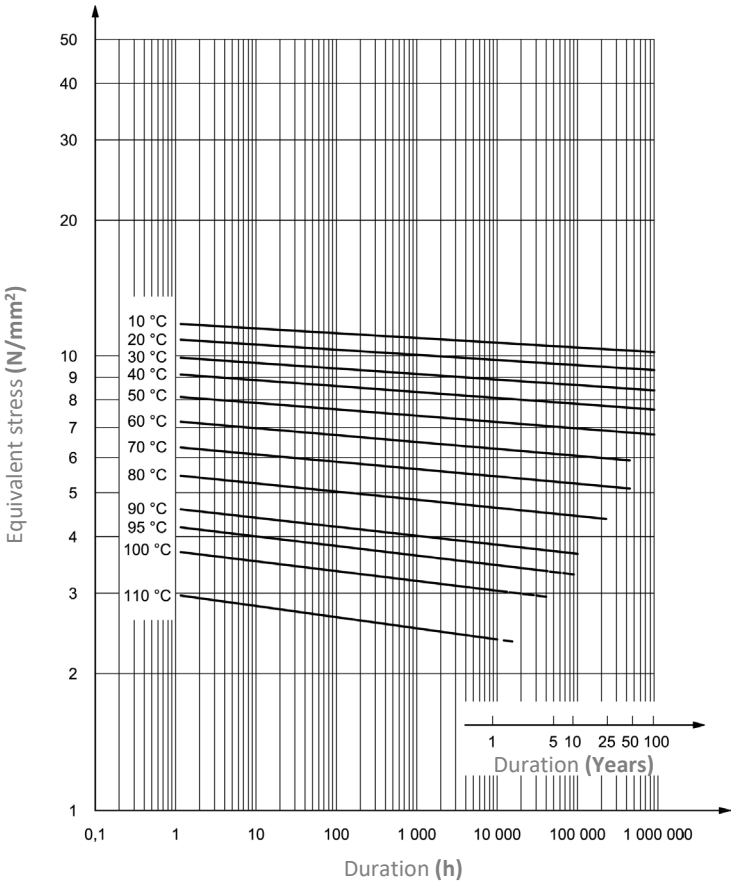
For different temperatures of the fluid it is necessary to multiply the values of the pressure drops, obtained from the graph, by the corrective factors indicated in the table below.

| Correction factors | |
|---|---|
| Fluid Temp. (°C) | Corrective factor |
| 15 | 0.971 |
| 20 | 0.939 |
| 30 | 0.882 |
| 40 | 0.834 |
| 50 | 0.793 |
| 60 | 0.762 |
| 70 | 0.740 |
| 80 | 0.718 |
| 90 | 0.695 |




## REGRESSION CURVES

The regression curves are the result of accelerated tests, depending on the operating pressures and temperatures, conducted according to the specifications of the standard assumed to determine the assumed minimum operating life cycle of the PE-RT pipes.
The diagram on the side is then normally used to establish the life cycle of a system with PE-RT pipes once the operating pressure and temperature are known.



## ITEM SPECIFICATIONS

**0210R Series**

Tiemme COBRAPERT OXISTOP polyethylene pipe. Material: PE-RT Type II (polyethylene with increased thermal resistance) with anti-oxygen barrier consisting of ethylene vinyl alcohol (EVOH) film.
Application classes (UNI EN ISO 22391) 4 (underfloor heating and low temperature systems).
Max working pressure: 6 bars. Maximum operating temperature +70 °C. Conforms to **UNI EN ISO 22391**. Supplied in rolls.
Available measures: 16x1.8 - 16x2 - 17x2 - 20x2.

## CERTIFICATIONS