

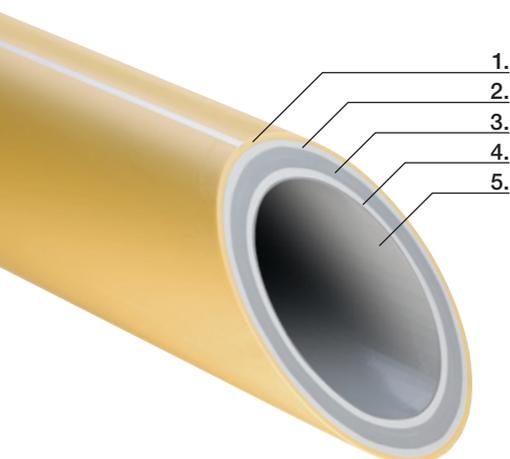
# 5-Layer Hot & Cold Water Piping

## POLO-POLYMUTAN ML<sup>5</sup>



### POLO-POLYMUTAN ML<sup>5</sup> . The development of PP-R multilayer technology

A new innovation has now been added to the successful polypropylene pipe system from POLOPLAST! The company's experience in multilayer technology proved particularly beneficial in developing this new type of pipe. The development of a polymer compound has also been applied. The newly devised 5-layer fibre composite pipe POLO-POLYMUTAN ML<sup>5</sup> combines the advantages of PP-R CT and glass-fibre reinforced PP-R in one product thanks to the sandwich structure.



5 layers – 5 benefits!

#### 1. External layer made from PP-R 80

The outer layer made from high grade polypropylene granulate features the colour coding of the pipe and is used to guarantee the renowned safe processing as well as to protect the inner layers.

#### 2. Second layer made from POLOPLAST compound HPCE

This PP-R glass fibre compound is the result of detailed research carried out at the POLOPLAST Polymer-Engineering division and is a new development in this field. The perfect interaction between the corresponding glass fibres and the PP-R provides outstanding properties in terms of linear expansion, deflection and low-temperature impact strength.

#### 3. Intermediate layer made from PP-R CT

The PP-R CT material is a Polypropylene-Random-Copolymer with a modified material structure. It allows improved long-term stress behaviour with longer periods of operation, especially at higher temperatures

#### 4. Intermediate layer made from POLOPLAST compound HPCE

This layer too offers outstanding properties in terms of linear expansion, deflection and low-temperature impact strength.

#### 5. Inner layer made from PP-R CT

Here, as in the middle layer, improved long-term stress behaviour over longer periods of operation is guaranteed at higher temperatures. The production process ensures a smooth inner surface which reduces deposits and encrustations.

Promotion folder is not valid for UK, Ireland and Malta.



## More layers, more benefits

**Smooth inner pipe surfaces** prevent the build-up of deposits and encrustations.

**Low weight design** ensures low-cost storage and relocation.

**Tried and trusted connecting technology** is compatible with POLO-POLYMUTAN PP-R for all areas of application.

**Lifespan** of at least 50 years (extrapolated).

**No special accessories required:** can be used with normal welding tools/ welding machines.

**Connection with normal moulded parts** from the POLO-POLYMUTAN assortment.

**Environmentally-friendly** thanks to the use of modern materials.

**Homogenous connection of the layers** - produced using one-time extrusion technology.



## Simple, safe and compatible: the new, 5-layer comprehensive drinking water installation

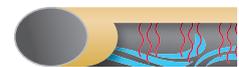
### Quality – made in Germany

POLO-POLYMUTAN ML<sup>5</sup> is fully compatible with the existing range of moulded parts, guaranteeing the simple and secure connection of pipes and fittings. POLO-POLYMUTAN ML<sup>5</sup> is setting new standards in drinking water supply and is suitable for all qualities of drinking water.

#### From the water meter to the final outlet point:

POLO-POLYMUTAN ML<sup>5</sup> offers glass-fibre reinforced 5-layer technology for comprehensive drinking water installation in the well-established 'made in Germany' quality.

## The structure makes it all possible: system optimisation thanks to the 5-layer technology



#### Low linear expansion\* $\alpha$ 0,038 mm/mK

The multilayer structure of the POLO-POLYMUTAN ML<sup>5</sup> fibre pipe is characterised by a linear expansion coefficient of 0.038 mm/m K and reduces expansion by 75% compared to a PP-R pipe!

#### Greater security

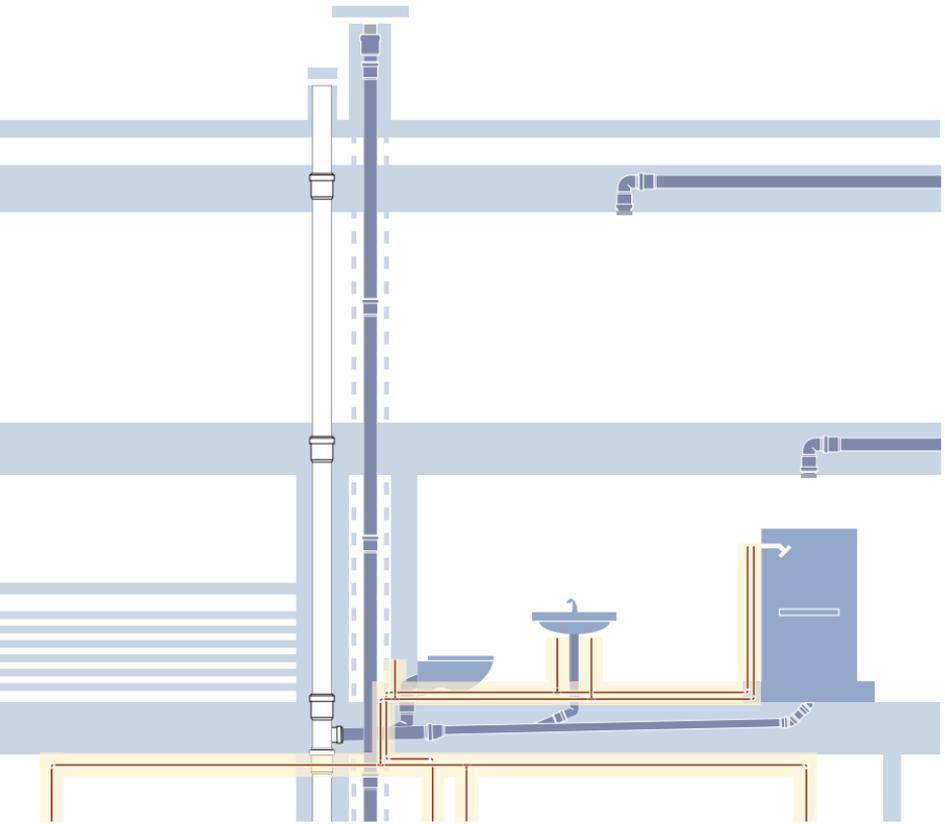
The new material PP-R CT ensures increased security compared to standard PP-R materials, especially at higher temperatures and over longer periods of operation.

#### Increased flow rate inner diameter

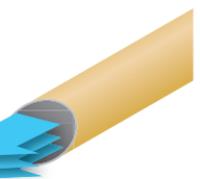
The sandwich structure of the pipe enables increased inner diameters and therefore higher hydraulic capacity. Economical pipe network.

\*Linear expansion was tested by the Austrian Research Institute for Chemistry and Technology (OFT)

# layer glass-fibre reinforced pipe system for technology.



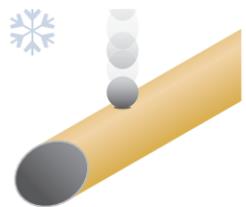
## Technology



low due to greater diameter  
The structure of the pipe system allows for the use of thinner layers, which results in a greater diameter. The higher capacity ensures the pipe system can handle larger dimensions of the pipe as a whole.



**Greater span distances thanks to increased stability**  
POLO-POLYMUTAN ML<sup>5</sup> offers numerous significant benefits in terms of handling. The high stability level of the new pipe system enables greater span distances when laying the pipes.



**Higher impact strength with small dimensions**  
The use of a special compound developed by the company in the reinforced layers significantly improves the low-temperature impact strength, especially in the smaller and more vulnerable dimensions.

) according to defined test apparatus (test number: 406.255-1).

The advantages of

## POLO-POLYMUTAN ML<sup>5</sup>

### Low linear expansion

5-layer technology for minimal linear expansion with  $\alpha$  0,038 mm/mK and 75% less expansion compared to a standard PP-R pipe.

### Greater security

5-layer technology for optimised internal robustness to pressure and increased security especially at higher temperatures thanks to the use of the PP-RCT material.

### Increased flow

5-layer technology for greater internal diameter.

### Increased stability

5-layer technology for greater span distances.

### Higher impact strength

A special compound for increased impact strength.



5 layers – 5 benefits!





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