

SERRAVALLE COPPER TUBES

General Catalogue
Copper Tubes Division
(EN)



AIR CONDITIONING AND REFRIGERATION

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COPPER TUBES

Serravalle Copper Tubes is part of the **KME Group**, one of the world's leading producers of semi-finished products in copper and copper alloys. It shares the Group's values, expertise and know-how, together with a strong focus on the customer and on market developments.

Thanks to dedicated foundries and close integration with the Group's various production units, SCTubes benefits from significant industrial synergies, technological specialisation and consolidated expertise. The Serravalle Scrivia plant is today one of the most advanced and highly qualified production sites in Europe for the manufacture of copper tubes for the plumbing/heating-sanitary, air-conditioning and industrial application sectors. The site stands out for its fully integrated production cycle, which also includes the manufacture of the insulating sleeves used to coat the tubes. Inaugurated in 1964, the production complex has its roots in the industrial tradition of the historic SMI Group – Società Metallurgica Italiana, founded in 1886, from which the **SMISOL®** brand originates.



Certif certificate



Aenor certificate



Kiwa certificate



DVGW certificate



NF certificate



RAL certified



IGQ certificate



Sonneld certificate

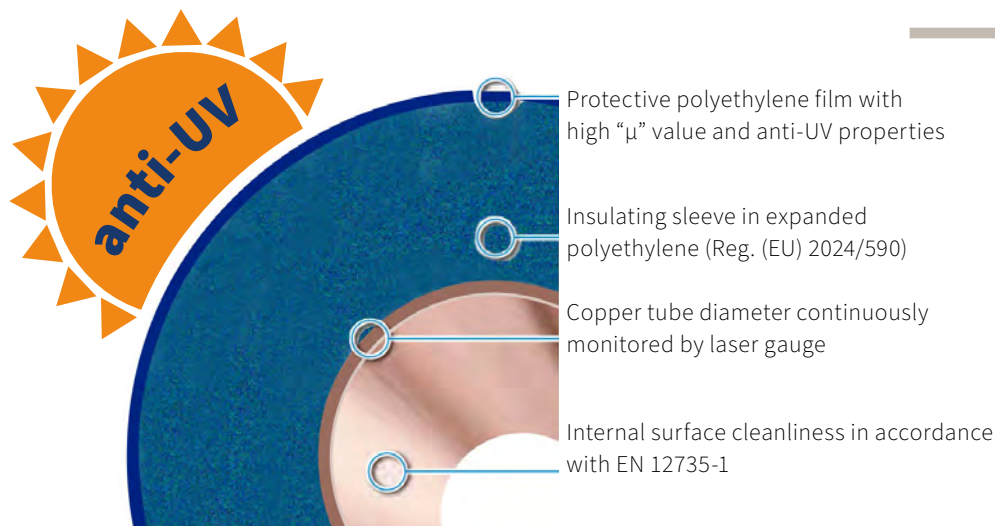


EPD certificate

SMISOL Clim Aeterna[®]

INNOVATION AND SUSTAINABILITY
IN THE ACR SECTOR





FIELDS OF APPLICATION

- Air conditioning
- Transport of refrigerants (R290, R32...)

In compliance with and within the limits set by the applicable regulations

SMISOL Clim Aeterna® represents a significant step forward in the field of air-conditioning systems.

This copper tube, manufactured in accordance with the EN 12735-1 standard, stands out for its insulating coating in closed-cell expanded polyethylene with regular cells evenly distributed in compliance with EN 14114. Designed to ensure optimal performance, the insulating sleeve is made in compliance with European Regulation 2024/590.

This regulation requires the use of expanded insulating sleeves free from CFCs and HCFCs, chemical substances recognised as harmful to health and to the environment. The thickness of the sleeve is carefully sized to meet the different requirements of installations, while ensuring both safety and high performance.

SMISOL Clim Aeterna® is not only a high-performance product, but also aligns with current environmental sustainability standards. Its features are designed to promote recycling, energy saving and circularity, aspects increasingly demanded in the construction and installation sector. Thanks to the environmental declarations on the product's life cycle, users can clearly understand the product's environmental impact of the product they are going to install.

SMISOL Clim Aeterna® offers numerous competitive advantages. Its compliance with industry requirements facilitates participation in public tenders, ensuring that products are in line with construction product regulations. Furthermore, the focus on sustainability and environmental communication represents an important added value, contributing to an overall reduction of the environmental impact.

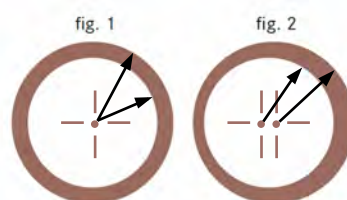
INTERNAL SURFACE OF THE TUBE

The internal surface of the copper tubes is bright, clean and free of moisture, an essential characteristic to ensure compatibility with downstream system components or another technically precise term and to facilitate brazing and connection operations.

During production, each coil is sealed at the ends to preserve the internal cleanliness until the moment of installation.

ECCENTRICITY

Low eccentricity ensures a regular wall thickness along the entire circumference of the tube. It is a fundamental parameter for flaring or swaging the tube end, as well as for greater safety of coupling with fittings.



INTERNAL CLEANLINESS

The internal cleanliness of copper tubes is a crucial aspect in ensuring the efficiency and safety of any system. A high level of cleanliness in the pipework not only prevents the build-up of contaminants and deposits, but also ensures the correct operation of the systems.

CIRCULAR CROSS-SECTION INSULATING SLEEVE

The circular cross-section insulating sleeve has been designed to fit the copper tube surface perfectly. This configuration ensures a larger contact area between the insulation and the tube, reducing the risk of voids that could compromise the effectiveness of the insulation. Good adhesion is crucial to prevent heat loss, condensation formation and to improve the overall efficiency of the system.



INSULATING COATING CHARACTERISTICS

- Thermal conductivity: $\lambda \leq 0.038 \text{ W/(m}\cdot\text{K)}$ at 40°C.
- Average water-vapour diffusion resistance factor “ μ ” > 40,000.
- Reaction to fire: BL-s1,d0 (EN 13501-1)
- Greater resistance to UV rays.
- Average coating density: 30 kg/m³
- Free from ammonia residues.
- Excellent resistance to external chemical agents.
- Free from CFCs and HCFCs (Reg. (EU) 2024/590).
- Halogen-free flame retardant.

The closed-cell expanded polyethylene coating, with an average water-vapour diffusion resistance factor “ μ ” greater than 40,000, is an advanced solution for the thermal insulation and protection of buildings and infrastructure. Insulating sleeves such as SMISOL Clim Aeterna® are designed taking into account European regulations, in particular Reg. (EU) 2024/590, which prohibits the use of CFCs and HCFCs, substances harmful both to human health and to the environment.

SMISOL Clim Aeterna® not only complies with environmental regulations, but also demonstrates a high reaction to fire as BL-s1,d0 according to the EN 13501-1 standard. These properties make the product suitable for use in contexts where safety is a fundamental priority.

The outer polyethylene film is designed to counteract the crystallisation process of polyethylene, a problem that can compromise the integrity of the material over time.

RESISTANCE TO SOLAR RADIATION

Tests carried out according to the ASTM G-155 standard, which simulates accelerated ageing conditions, confirm that SMISOL Clim Aeterna® is particularly suitable for areas with high annual solar radiation.

EPD DECLARATION

Within an increasingly stringent European regulatory framework, SMISOL Clim Aeterna® is a reliable, high-performance solution for air-conditioning systems in residential and commercial settings. The product is designed to guarantee high standards of safety, energy efficiency and durability, with performance proven over time even under conditions of exposure to solar radiation and ageing.

The Environmental Product Declaration (EPD), drawn up according to the ISO 14025 standard, provides objective and verified environmental data throughout the entire life cycle of the product, supporting sustainability-oriented design choices. The EPD is an increasingly required prerequisite in public and private tenders, in compliance with the Minimum Environmental Criteria (CAM), and contributes to obtaining environmental certifications such as LEED, BREEAM and WELL.

Thanks to the EPD certification, SMISOL Clim Aeterna® also offers a concrete advantage in regulatory, economic and fiscal terms making it an advanced and competitive technical solution.

TABLE: STANDARD PRODUCTION SIZES - COILED TUBES

Size OD x WT		Min. Guaranteed Coil Length	Min. Coating Thickness	Burst Pressure	ASTM Working Pressure	Water Content
(mm)	(inches)	(m)	(mm)	(MPa)	(MPa)	(l/m)
6,35 x 0,80	1/4"	50	6	56,54	14,14	0,018
6,35 x 1,00	1/4"	50	6	70,68	17,67	0,015
9,52 x 0,80	3/8"	50	8	37,71	9,43	0,049
9,52 x 1,00	3/8"	50	8	47,14	11,79	0,044
12,70 x 0,80	1/2"	50	10	28,27	7,07	0,097
12,70 x 1,00	1/2"	50	10	35,34	8,83	0,090
15,87 x 1,00	5/8"	25	10	28,28	7,07	0,151
19,05 x 1,00	3/4"	25	10	23,56	5,89	0,228
22,22 x 1,00	7/8"	25	10	20,20	5,05	0,321

OD = Outer Diameter WT = Wall Thickness



In an increasingly stringent regulatory context, the search for products compliant with European standards becomes essential to ensure safety and energy efficiency.

SMISOL Clim Aeterna® is an innovative and sustainable solution. Its technical characteristics, compliance with environmental regulations and high-level reaction to fire make it an excellent product for residential and commercial applications. With performance proven against ageing and solar radiation, **SMISOL Clim Aeterna®** is a safe and responsible choice in the air-conditioning sector.

EPD DECLARATION

Environmental sustainability is taking on an increasingly central role in today's landscape, influencing the decisions of companies, consumers and designers. In this context, the **EPD (Environmental Product Declaration)** is important for several reasons.

In many countries, an EPD may also be required to comply with environmental regulations, as well as to access incentives and tax breaks. This legal and financial dimension makes the EPD not only a technical document, but also a competitive advantage for improving the quality of the services offered to the end consumer.

SMISOL Clim Aeterna® holds EPD certification, which provides objective and verified information on the environmental impacts of a product throughout its entire life cycle, from production to disposal.

Certificate EPD-IES-0025027 available at <https://www.environdec.com/library/epd25027>

This data is essential to understand how a product interacts with the environment and to make informed decisions during purchasing and design. The adoption of international standards, such as ISO 14025, ensures that the information is comparable and reliable, facilitating the choice of more sustainable solutions.



In particular, in the construction sector, a product with an EPD is often preferred in public and private tenders. Tenders increasingly require minimum environmental criteria (CAM), and holding an EPD can represent a significant competitive advantage. Furthermore, to obtain prestigious certifications such as LEED, BREEAM or WELL, the availability of an EPD declaration becomes an essential requirement.





SMISOL[®] Clim

QUALITY AND
GUARANTEE

FIELDS OF APPLICATION:

- Air-conditioning systems and heat pumps (refrigerant lines).
- Transport of refrigerant gases compatible with copper (e.g. R32, R410A, R407C).

In compliance with and within the limits set by the applicable regulations.

SMISOL[®] Clim is a pre-insulated copper tube for ACR systems, developed in close cooperation with the leading market operators to meet the most stringent technical requirements, while maintaining a competitive cost-performance ratio.

The copper tube complies with the European standard EN 12735-1, which defines requirements, tests, dimensional tolerances and conditions of supply for seamless tubes intended for air-conditioning and refrigeration systems.

The thermal insulation is made of closed-cell polyethylene foam compliant with the requirements of EN 14114, ensuring high performance in terms of insulation and resistance to vapour diffusion.

SMISOL® Clim stands out for its low eccentricity values, a critical parameter for correct flaring of the lines and for the overall quality of installations.

INSULATING COATING CHARACTERISTICS

The insulating coating in closed-cell expanded polyethylene is designed to offer:

- Thermal conductivity: $\lambda \leq 0.038 \text{ W/(m}\cdot\text{K)}$ at 40 °C.
- Water-vapour diffusion resistance factor: $\mu > 40,000$.
- Average insulation density: $\sim 33 \text{ kg/m}^3$.
- Free from ammonia residues.
- High resistance to external chemical agents.
- Reaction to fire – class BL-s1,d0 according to EN 13501-1.
- Free from CFCs and HCFCs, in compliance with Reg. (EU) 2024/590.

INTERNAL SURFACE OF THE TUBE

The internal surface of the copper tubes is bright, clean and free of moisture, an essential characteristic to ensure perfect integration with the system's terminal elements and to facilitate brazing and connection operations.

During production, each coil is sealed at the ends to preserve the internal cleanliness until the moment of installation.



ECCENTRICITY

Eccentricity measures the offset between the centre of the outer circumference and that of the inner circumference of the tube. A value close to zero indicates uniform walls, essential for an optimal result of flaring operations and for the overall quality of mechanical connections.

TUBULAR CROSS-SECTION OF THE INSULATION

The tubular cross-section of the insulation ensures uniform adhesion to the copper tube, improving the overall performance of the system in terms of thermal insulation and prevention of condensation.

MARKING

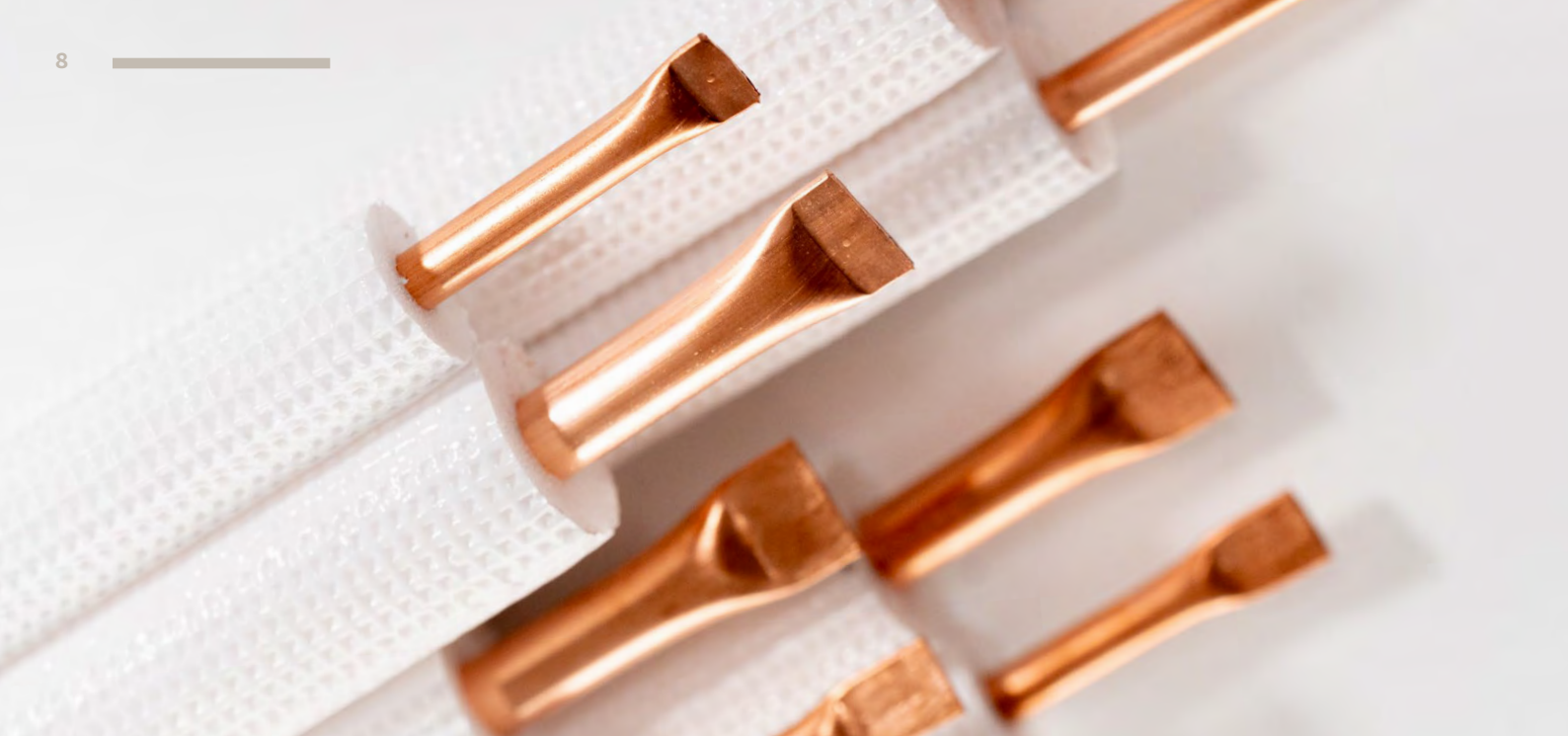
In accordance with the update of EN 12735-1, the insulation is marked with:

- Reference to the applied standard (EN 12735-1).
- Nominal dimensions in mm of the copper tube (outside diameter x wall thickness).

TABLE: STANDARD PRODUCTION SIZES - COILED TUBE

Size OD x WT		Min. Guaranteed Coil Length (m)	Min. Coating Thickness (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
(mm)	(inches)					
6,35 x 0,7	1/4"	50	6	49,47	12,37	0,019
6,35 x 0,8	1/4"	50	6	56,54	14,14	0,018
6,35 x 1	1/4"	50	6	70,68	17,67	0,015
9,52 x 0,7	3/8"	50	8	33,00	8,25	0,051
9,52 x 0,8	3/8"	50	8	37,71	9,43	0,049
9,52 x 1	3/8"	50	8	47,14	11,79	0,044
12,70 x 0,7	1/2"	50	10	24,74	6,18	0,100
12,70 x 0,8	1/2"	50	10	28,27	7,07	0,097
12,70 x 1	1/2"	50	10	35,34	8,83	0,090
15,87 x 1	5/8"	25	10	28,28	7,07	0,151
19,05 x 1	3/4"	25	10	23,56	5,89	0,228
22,22 x 1	7/8"	25	10	20,20	5,05	0,321

OD = Outer Diameter WT = Wall Thickness



SMISOL® Clim Duo

PRACTICAL AND PROFESSIONAL

FIELDS OF APPLICATION:

- Air conditioning
- Transport of refrigerant gases (R290, R32, ...)

In compliance with and within the limits set by the applicable regulations.

SMISOL® Clim Duo consists of two coupled annealed copper tubes and complies with the EN 12735-1 standard. The tubes are pre-insulated with a closed-cell expanded polyethylene sleeve and externally protected by a white corrugated film. Thanks to the bright, dry and clean internal surface, these tubes ensure safe transport of refrigerant fluids in compliance with the strictest regulations. The tube ends are sealed in the factory, preserving integrity until the moment of installation. Furthermore, the insulation is free from CFCs and HCFCs, compliant with Reg. (EU) 2024/590, with reaction-to-fire class BL-s1,d0.

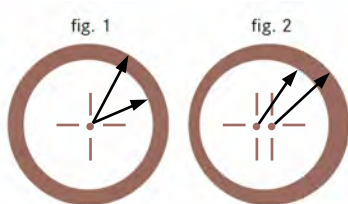
The connection system of the insulated tubes allows a simple, tool-free interconnection, facilitating quick installation. SMISOL® Clim Duo tubes are an innovative solution in the field of ACR connections, combining efficiency, safety and ease of use on site.

The original in-line coating process provides greater flexibility than comparable products, placing it at the top of its category. This specific feature is safeguarded by keeping a wider coil radius so as not to alter the malleability characteristics of the product.

This copper tube stands out for its insulating coating in closed-cell expanded polyethylene with regular cells evenly distributed in compliance with EN 15758:2016. Designed to ensure optimal performance, the insulating sleeve is made in compliance with Reg. (EU) 2024/590. This regulation requires the use of expanded insulating sleeves free from CFCs and HCFCs. The thickness of the sleeve is carefully sized to meet the different requirements of installations, while ensuring both safety and high performance.

ECCENTRICITY

Low eccentricity (see fig. 1 vs. fig. 2) ensures a regular wall thickness along the entire circumference of the tube. It is a fundamental parameter for flaring or swaging the tube end, as well as for greater safety of coupling with fittings.



CIRCULAR CROSS-SECTION INSULATING SLEEVE

The circular cross-section insulating sleeve has been designed to fit the copper tube surface perfectly. This configuration ensures a larger contact area between the insulation and the tube, reducing the risk of voids that could compromise the effectiveness of the insulation. Good adhesion is crucial to prevent heat loss and condensation formation and improves the overall efficiency of the system.

INTERNAL CLEANLINESS

The internal cleanliness of copper tubes is a crucial aspect in ensuring the efficiency and safety of any system. A high level of cleanliness in the pipework not only prevents the build-up of contaminants and deposits, but also ensures the correct operation of the systems.

COATING CHARACTERISTICS

- Thermal conductivity: $\lambda \leq 0.038 \text{ W/(m}\cdot\text{K)}$ at 40°C.
- Average water-vapour diffusion resistance factor "μ" > 40,000.
- Reaction to fire: BL-s1,d0 (EN 13501-1)
- Average coating density: 30 kg/m³.
- Free from ammonia residues.
- Excellent resistance to external chemical agents.
- Free from CFCs and HCFCs in accordance with Reg. (EU) 2024/590.
- Halogen-free flame retardant

COPPER TUBE CHARACTERISTICS

- Alloy: Cu DHP – CW024A
- Dimensions and tolerances: according to EN 12735-1
- Absolute roughness: e. = 0.0015 mm
- Thermal conductivity: at 20°C = 364 W/m°C
- Linear thermal expansion: 0.0166 mm/m°C
- Elongation: A5 min > 40%
- Temper: R220
- Carbon residue: 0.38 mg/dm²

TABLE: STANDARD PRODUCTION SIZES - COILED TUBE

Size OD x WT		Min. Guaranteed Coil Length (m)	Min. Coating Thickness (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
(mm)	(inches)					
6,35 x 0,8 - 9,52 x 0,8	1/4" - 3/8"	20	6 - 8	56,54 - 37,71	14,14 - 9,43	0,018 - 0,049
6,35 x 0,8 - 12,70 x 0,8	1/4" - 1/2"	20	6 - 10	56,54 - 28,27	14,14 - 7,07	0,018 - 0,097
6,35 x 0,8 - 15,87 x 1	1/4" - 5/8"	20	6 - 10	56,54 - 28,28	14,14 - 7,07	0,018 - 0,151
9,52 x 0,8 - 15,87 x 1	3/8" - 5/8"	20	8 - 10	37,71 - 28,28	9,43 - 7,07	0,049 - 0,151

OD = Outer Diameter WT = Wall Thickness





SMISOL® Frio

PERFORMANCE IN
HEAT AND COLD

FIELDS OF APPLICATION

- Refrigeration systems.
- Transport of heat-transfer fluids for multifunction systems.

In compliance with and within the limits set by the applicable regulations

SMISOL® Frio is a pre-insulated copper tube designed for refrigeration applications and for the transport of heat-transfer fluids, where high performance is required in terms of thermal insulation and condensation control.



The copper tube is manufactured in compliance with EN 12735, the reference standard for seamless tubes intended for refrigeration and air-conditioning systems.

The insulation is made of closed-cell expanded polyethylene, with a uniform structure and regular dimensions, compliant with the requirements of EN 14114.

The product is supplied in coils, with tube diameters expressed in millimetres, in line with the application customs of the refrigeration sector.

The insulation thickness is sized to meet the different operating requirements typical of this application area, ensuring adequate thermal protection even under severe conditions. Particular attention is paid to the outer protective polyethylene film, designed to limit condensation forming on the external surface of the pipe.

The insulating sleeve is manufactured in compliance with Reg. (EU) 2024/590, which prohibits the use of CFCs and HCFCs, substances harmful to health and the environment.

INSULATING COATING CHARACTERISTICS

- Thermal conductivity: $\lambda \leq 0.038 \text{ W/(m}\cdot\text{K)}$ at 40 °C.
- Water-vapour diffusion resistance factor: $\mu > 40,000$.
- Average insulation density: $\sim 33 \text{ kg/m}^3$.
- Free from ammonia residues.
- High resistance to external chemical agents.
- Reaction to fire: class BL-s1,d0 according to EN 13501-1.
- Free from CFCs and HCFCs, in compliance with Reg. (EU) 2024/590.

INTERNAL SURFACE OF THE TUBE

The internal surface of the copper tube is bright, clean and dry, an essential condition to ensure compatibility with the system's terminal components and to preserve the efficiency and reliability of the system over time.

The internal cleanliness of SMISOL® Frio is maintained by sealing the ends of each coil during production.

EXTERNAL PROTECTION

The outer coating in closed-cell expanded polyethylene ensures a high water-vapour diffusion resistance factor ($\mu > 40,000$), contributing significantly to the prevention of condensation. The insulating sleeve complies with European environmental requirements, is free from CFCs and HCFCs and has a reaction to fire of class BL-s1,d0 according to the EN 13501-1 standard.

DESIGN GUIDELINES

To prevent condensation forming on the external surface of the pipe, it is necessary to carefully assess the environmental conditions of installation, in particular:

- relative humidity of the environment;
- ambient temperature;
- temperature of the fluid inside the pipe.

It is recommended to verify the operating conditions using the psychrometric chart, in order to correctly select the product and the insulation thickness according to the actual operating conditions.

TABLE: STANDARD PRODUCTION SIZES - COILED TUBE

Size OD x WT (mm)	Min. Guaranteed Coil Length (m)	Min. Coating Thickness (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
6 x 1	50	6	74,80	18,70	0,013
8 x 1	50	8	56,10	14,03	0,028
10 x 1	50	8	44,88	11,22	0,050
12 x 1	50	10	37,40	9,35	0,079
14 x 1*	50	10	32,06	8,01	0,113
16 x 1*	50	10	28,05	7,01	0,154
18 x 1	50	10	24,93	6,23	0,201
22 x 1	25	10	20,40	5,10	0,314

* Sizes 14x1 and 16x1 mm are produced according to the ASTM B 68/M standard.

OD = Outer Diameter WT = Wall Thickness



MediClim®

SAFE AND PROFESSIONAL

FIELDS OF APPLICATION:

- Air-conditioning and refrigeration systems (ACR).
- Transport of refrigerant gases.
- Transport of medical gases.
- Transport of technical and industrial gases.

In compliance with and within the limits set by the applicable regulations

MediClim® meets the needs of two particularly critical technical areas: the medical sector and the air-conditioning and refrigeration sector.

MediClim® copper tubes are characterised by an extremely high degree of internal cleanliness and are suitable for conveying refrigerant gases, industrial gases and medical gases, as well as for creating vacuum systems. They can be used in high-pressure systems and offer excellent workability characteristics. Through dedicated and controlled production processes, the internal cleanliness of the pipe is guaranteed, so as to meet the particularly stringent requirements demanded by the various application areas.

MediClim® is manufactured in compliance with the standards:

- EN 13348 – Copper tubes for the transport of medical gases and for vacuum.
- EN 12735-1 – Copper tubes for air conditioning and refrigeration.

FORM OF SUPPLY AND TRACEABILITY

MediClim® is available in the following configurations:

- Straight lengths of 5 m – hard temper R290.
- Coils of 25 m – annealed temper R220.

All pipes are supplied with the ends capped directly during production, in order to preserve internal cleanliness until installation.

Each length or coil is identified by a unique batch number, which allows complete product traceability.

MediClim® pipes in straight lengths feature suitably designed packaging dedicated to the specific field of use, designed according to size, to ensure protection and integrity during transport and storage.

Production takes place according to an ISO 9001 certified Quality Management System and complies with the requirements of the European PED Directive 2014/68/EU.

The use of MediClim® tubes requires careful assessment of the intended use, the environmental conditions and the operating conditions of the system.

This assessment must be carried out at the design stage by qualified personnel. Installation must take place in full compliance with current regulations and according to good practice, in order to ensure the safety, reliability and durability of the system.

TECHNICAL CHARACTERISTICS

- Material: Cu-DHP (Cu ≥ 99.9% – P: 0.015 ÷ 0.040%) according to EN 1412.
- Dimensions and tolerances compliant with EN 13348 and EN 12735-1.
- Annealed temper of coils (R220)
Ultimate tensile strength: $R_m \geq 220$ MPa
Elongation: $A_5 \geq 40\%$
- Hard temper of straight lengths (R290)
Ultimate tensile strength: $R_m \geq 290$ MPa
Elongation: $A_5 \geq 3\%$

MEDICAL APPLICATIONS

In compliance with the EN 13348 standard, MediClim® is the specific solution for the transport of medical gases in hospital and healthcare settings, where extremely high levels of quality, safety and reliability are required. Medical gases have a direct impact on human health and must maintain their purity throughout the entire distribution system. MediClim® is suitable for transporting: oxygen, nitrous oxide, nitrogen, helium, carbon dioxide, xenon, medical air, air for surgical instruments, anaesthetic gases and vapours, at pressures up to 2,000 kPa, and vacuum systems.

For medical gas systems, the prescribed joining method is high-temperature brazing or welding, as indicated by EN ISO 7396-1. The joining methods must ensure that the mechanical characteristics are maintained up to an ambient temperature of 600 °C. During brazing or welding operations, the inside of the pipes must be purged with inert gas (e.g. nitrogen). Filler materials must not contain more than 0.025% cadmium.

ACR APPLICATIONS

In accordance with EN 12735-1, MediClim® is fully suitable for industrial and laboratory air-conditioning and refrigeration systems, intended for the transport of refrigerant gases such as R410A, R407C, R32, R290 and fluids compatible with copper.

The product is particularly suitable for large-capacity systems, thanks to its high mechanical characteristics and the quality of the internal surface, which is bright, clean and dry.

The production process guarantees:

- soluble residues on the internal surface < 0.38 mg/dm² (EN 12735-1),
- lubricant residues < 0.20 mg/dm² (EN 13348).

Internal cleanliness is further preserved by capping the ends of each tube directly during manufacture.

TABLE: STANDARD PRODUCTION SIZES - 25 m COILED TUBES

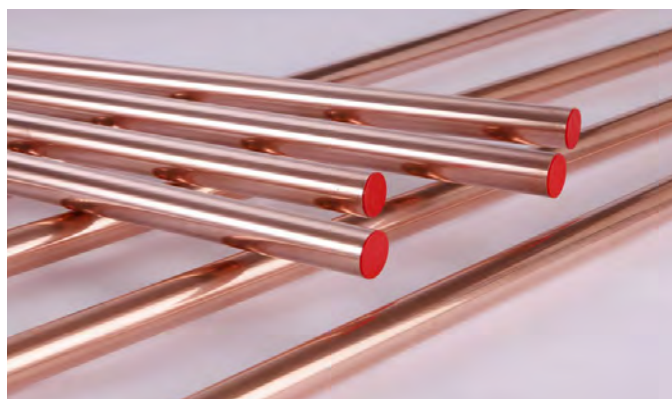
Size OD x WT (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
6 x 1	74,80	18,70	0,013
8 x 1	56,10	14,03	0,028
10 x 1	44,88	11,22	0,050
12 x 1	37,40	9,35	0,079
14 x 1	32,06	8,01	0,113
16 x 1	28,05	7,01	0,154
18 x 1	24,93	6,23	0,201
22 x 1	20,40	5,10	0,314

OD = Outer Diameter WT = Wall Thickness

TABLE: STANDARD PRODUCTION SIZES - 5 m STRAIGHT LENGTHS

Size OD x WT (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
10 x 1	59,16	14,79	0,050
12 x 1	49,30	12,33	0,079
14 x 1	42,26	10,56	0,113
15 x 1	39,44	9,86	0,133
16 x 1	36,98	9,24	0,154
18 x 1	32,87	8,22	0,201
22 x 1	26,89	6,72	0,314
22 x 1,5	40,34	10,08	0,283
28 x 1	21,13	5,28	0,531
28 x 1,5	31,69	7,92	0,491
35 x 1	16,90	4,23	0,855
35 x 1,5	25,35	6,34	0,804
42 x 1	14,09	3,52	1,256
42 x 1,5	21,13	5,28	1,194
54 x 1,5	16,43	4,11	2,042
54 x 2	21,91	5,48	1,963
64 x 2	18,49	4,62	2,826
76,1 x 2	15,55	3,89	4,081
88,9 x 2	13,31	3,33	5,658
108 x 2,5	13,69	3,42	8,326

OD = Outer Diameter WT = Wall Thickness



GELO

SAFE AND PROFESSIONAL

FIELDS OF APPLICATION:

- Air-conditioning and refrigeration systems (ACR).
- Transport of refrigerant fluids.
- Transport of technical and industrial gases.

In compliance with and within the limits set by the applicable regulations

GELO is a copper tube intended for applications in the air-conditioning and refrigeration sector, in both residential and industrial settings, designed to ensure high reliability, internal cleanliness and operating safety.

Thanks to a high degree of internal cleanliness, GELO is particularly suitable for conveying refrigerant gases, technical gases and for creating vacuum systems. The product is suitable for use in high-pressure systems and has excellent workability characteristics.

Through controlled and dedicated production processes, an internal surface free from substances or particles that could be carried by the gases and compromise the operation of sensitive, high-value equipment is ensured.

The content of residues and/or dust on the internal surface is kept below 0.38 mg/dm², in compliance with the requirements of the EN 12735-1 standard. Internal cleanliness is preserved by capping the tube ends directly during production.

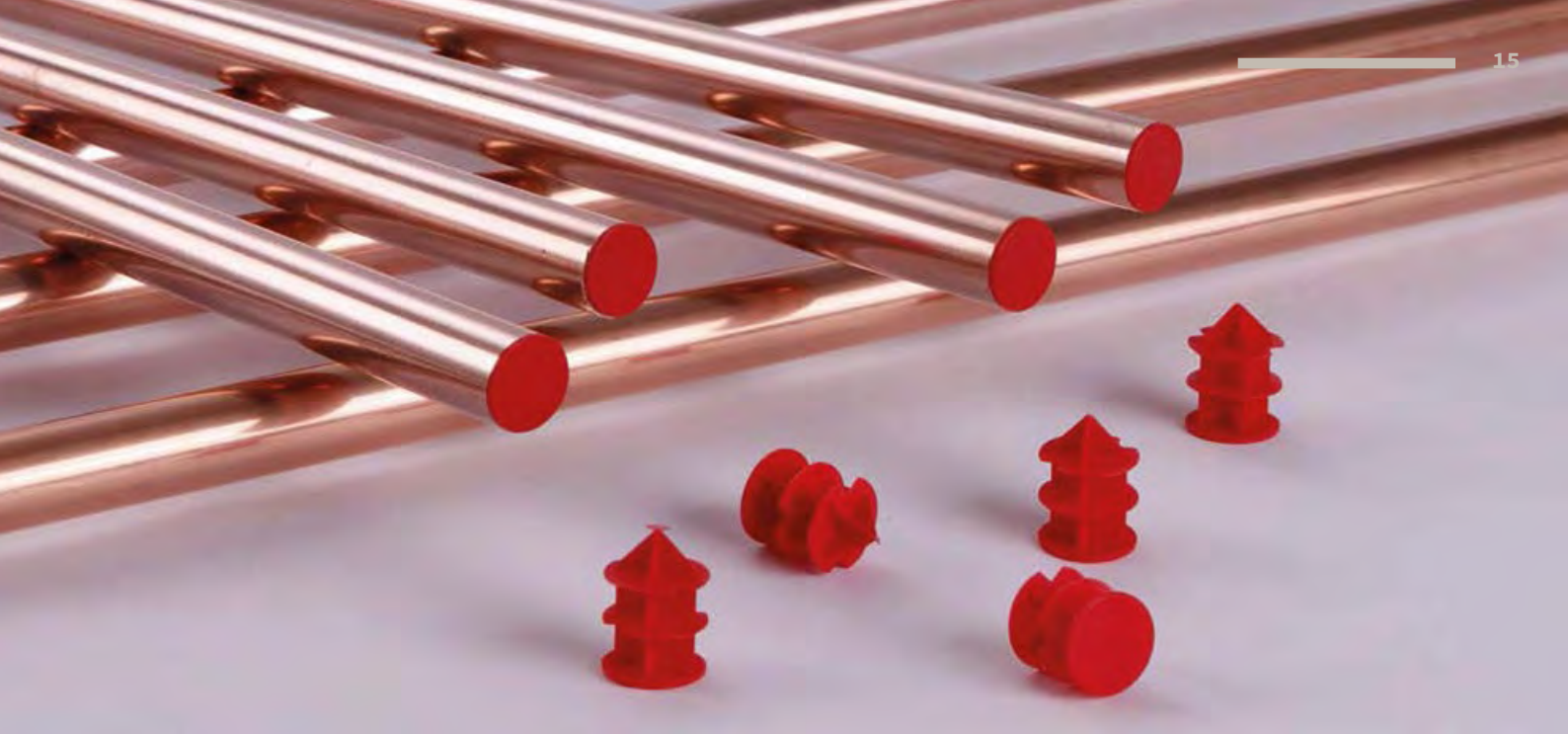
TECHNICAL CHARACTERISTICS

- Material: Cu-DHP (Cu ≥ 99.9% – P: 0.015 ÷ 0.040%) according to EN 1412.
- Dimensions and tolerances compliant with EN 12735-1.
- Temper: hard R290
- Ultimate tensile strength: Rm ≥ 290 MPa
- Elongation: A5 min. ≥ 3%

TABLE: STANDARD PRODUCTION SIZES - 5 M STRAIGHT LENGTHS

Size OD x WT		Burst Pressure	ASTM Working Pressure
(mm)	(inches)	(MPa)	(MPa)
15,87 x 1	5/8"	37,28	9,32
19,05 x 1	3/4"	31,06	7,76
22,22 x 1	7/8"	26,62	6,66
25,40 x 1	1"	23,29	5,82
28,57 x 1	1 1/8"	20,71	5,18
28,57 x 1,25	1 1/8"	25,88	6,47
31,75 x 1,25	1 1/4"	23,29	5,82
34,92 x 1,25	1 3/8"	21,18	5,29
38,10 x 1,25	1 1/2"	19,41	4,85
41,27 x 1,25	1 5/8"	17,92	4,48
53,97 x 1,65	2 1/8"	18,09	4,52

OD = Outer Diameter WT = Wall Thickness



ACR APPLICATIONS

In accordance with EN 12735-1, GELO fully meets the needs of the air-conditioning and refrigeration (ACR) sector, both for industrial applications and for large-capacity and laboratory systems. The product is suitable for the transport of refrigerant fluids compatible with copper, such as R32, R410A, R407C, and other refrigerants used in modern systems.

GELO has a bright, clean and dry internal surface, a fundamental characteristic for preserving the efficiency of the system over time.

The production process guarantees a value of soluble residues on the internal surface below 0.38 mg/dm^2 , in full compliance with EN 12735-1.

Internal cleanliness is further ensured by sealing the ends of each tube with special caps, applied already during manufacture.

FORM OF SUPPLY, TRACEABILITY

GELO is supplied in 5 m straight lengths, with dimensions in inches, in hard temper R290.

Each pipe is identified by a unique batch number, which guarantees complete product traceability throughout the entire supply chain.

GELO is produced according to an ISO 9001 certified Quality Management System and complies with the requirements of the European PED Directive 2014/68/EU.

The use of GELO tubes requires a preliminary assessment of the intended use, the environmental conditions and the operating conditions of the system. This assessment must be carried out at the design stage by qualified personnel; installation must take place in full compliance with current regulations and according to good practice.

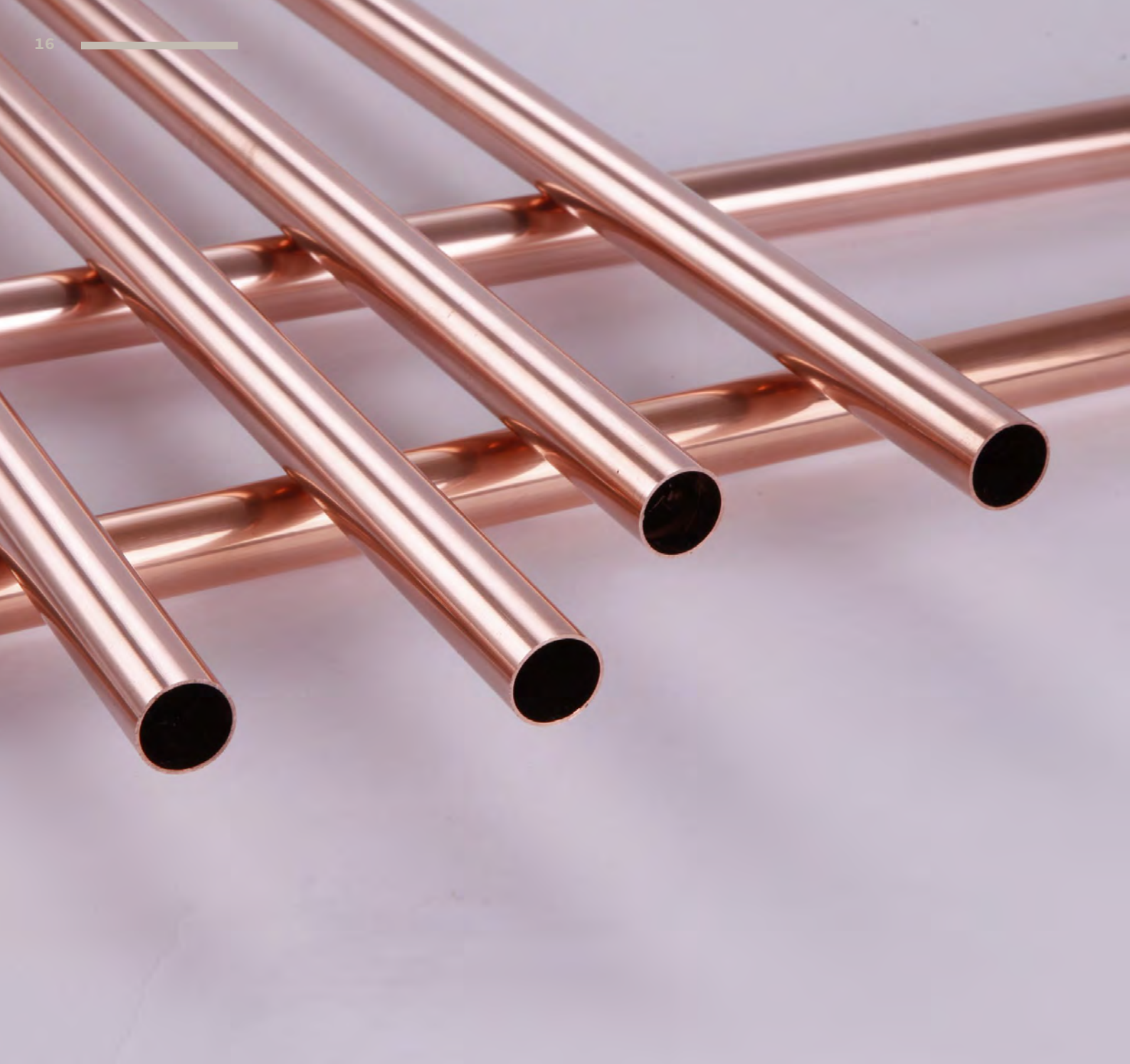
PIPE CAPPING

GELO is supplied in 5 m straight lengths, each sealed at the ends with polyethylene caps.

The sealing system uses a special cylindrical cap with a double row of permanent O-rings, which creates a stable coupling with the internal diameter of the pipe, preventing its accidental removal. This solution prevents the ingress of dust and impurities, ensuring that internal cleanliness is maintained until the moment of installation.

The high level of internal cleanliness is essential so that the refrigerant fluid does not contain contaminants that could cause clogging of the coil capillaries, compromise heat exchange and reduce the operating life of the machines.





SCUDO®

QUALITY IN ITS
PUREST FORM

FIELDS OF APPLICATION:

- Distribution of drinking water.
- Distribution of liquid and gaseous fuels.
- Heating systems and hot drinking water (subject to suitable insulation applied on site).

In compliance with and within the limits set by the applicable regulations.

SCUDO® is a copper tube made of refined Cu-DHP copper ($\text{Cu} \geq 99.90\%$). The material does not contain additives such as colourants, plasticisers or flow agents, which may instead be present in alternative materials of petrochemical origin.

Thanks to a patented production process, SCUDO® offers higher quality levels than the minimum requirements set by the reference standards, ensuring high performance, safety and durability in plumbing/sanitary, heating and gas systems.

INTERNAL PROTECTION

During the production process, SCUDO® undergoes a specific patented treatment of passivation and stabilisation of the internal wall, which ensures the reliability of the tube in compliance with hygiene and potability requirements.

The product complies with Directive (EU) 2020/2184 on the quality of water intended for human consumption, paying particular attention to the suitability of materials in contact with drinking water.

CE MARKING

Each SCUDO® tube bears the CE marking in compliance with the EN 1057 standard, in accordance with Regulation (EU) No. 305/2011 (CPR – Construction Products Regulation).

The SCUDO® copper tube is identified by stamping every 60 cm, showing all the information required by Regulation (EU) 305/2011 for construction products, ensuring traceability and regulatory compliance.

THE SMART CHOICE

Manufactured according to UNI EN 1057, SCUDO® has proven bacteriostatic properties, which make it particularly suitable for the construction of drinking water systems.

Its high melting point (1083 °C), pressure resistance and thermal conductivity make it the ideal material for traditional heating systems (in the pre-insulated version or combined with suitable insulating sleeves), and for the construction of floor or wall systems. It is also the most suitable material for domestic gas systems, where safety, reliability and impermeability performance are non-negotiable.

SCT copper tubes constitute a universal application system, compatible with all the main joining techniques (brazing, welding, press fittings and push-fit fittings), making it possible to build – in compliance with regulations – water, heating and gas systems with the same product, with clear operational and stock-management advantages.

As a further guarantee to the end consumer, SCUDO® is marked with the CE mark and the most important international Quality marks, attesting compliance with the highest quality standards.

CALIBRATION

Accurate calibration, for both straight-length and coiled tubes, is a fundamental characteristic to ensure the reliability of all types of joints, and is essential in particular for press fittings.



BACTERIOSTATIC EFFECTS

Systems made of copper have a greater capacity to reduce pathogenic germs than systems made of plastic materials, naturally contributing to the maintenance of the microbiological quality of the water.

THE NATURAL SOLUTION

Copper is non-magnetic and does not alter the natural magnetic field. Its bacteriostatic properties make it particularly suitable for plumbing/sanitary networks, helping to prevent bacterial proliferation, including Legionella.

Thanks to its direct action on the cell wall of micro-organisms, SCUDO® inhibits the formation of bacteria inside pipes intended for human consumption, reducing the risks associated with water nebulisation (showers, whirlpool baths, fountains).

The copper tube also allows remediation and decontamination treatments to be carried out (thermal shock, chlorination, chlorine dioxide) without the risk of damaging the system.

It should also be noted that plastic pipes, which are generally manufactured from petrochemical feedstocks, require – due to their composition – careful control of various chemical parameters. It is essential, first of all, to know their actual chemical composition and the possible presence of adhesives, additives, stabilisers, colourants or other compounds that may be used during production.

TECHNICAL CHARACTERISTICS

- Alloy: Cu DHP CW024A (Cu: 99.9% min. P: 0.015 ÷ 0.040%) according to EN 1412
- Dimensions and tolerances: according to EN 1057
- Melting point: 1083 °C
- Absolute roughness e.: e. = 0.0015 mm (low pressure drops)
- Coefficient of linear thermal expansion: 0.0168 mm/m°C
- Thermal conductivity: at 20 °C = 364 W/m°C (over 1,000 times higher than that of plastics)
- Thermal expansion: ≈ 1.2 mm/m with $\Delta T = 70$ °C
- Does not soften at high temperatures
- Absolute impermeability to gases
- UV-resistant
- Temper: R 220 or R 290 according to EN 1057

Coiled tubes are supplied in annealed temper (R220) with the following characteristics:

- Ultimate tensile strength: R. min. ≥ 220 MPa (N/mm²)
- Elongation: A5 min. $> 40\%$

Straight-length tubes are supplied in hard temper (R290) with the following characteristics:

- Ultimate tensile strength: R. min. ≥ 290 MPa (N/mm²)
- Elongation: A5 min. $> 3\%$
- Carbon residue (coiled tubes): C < 0.06 mg/dm² (compared to C ≤ 0.20 mg/dm² required by the EN 1057 standard)

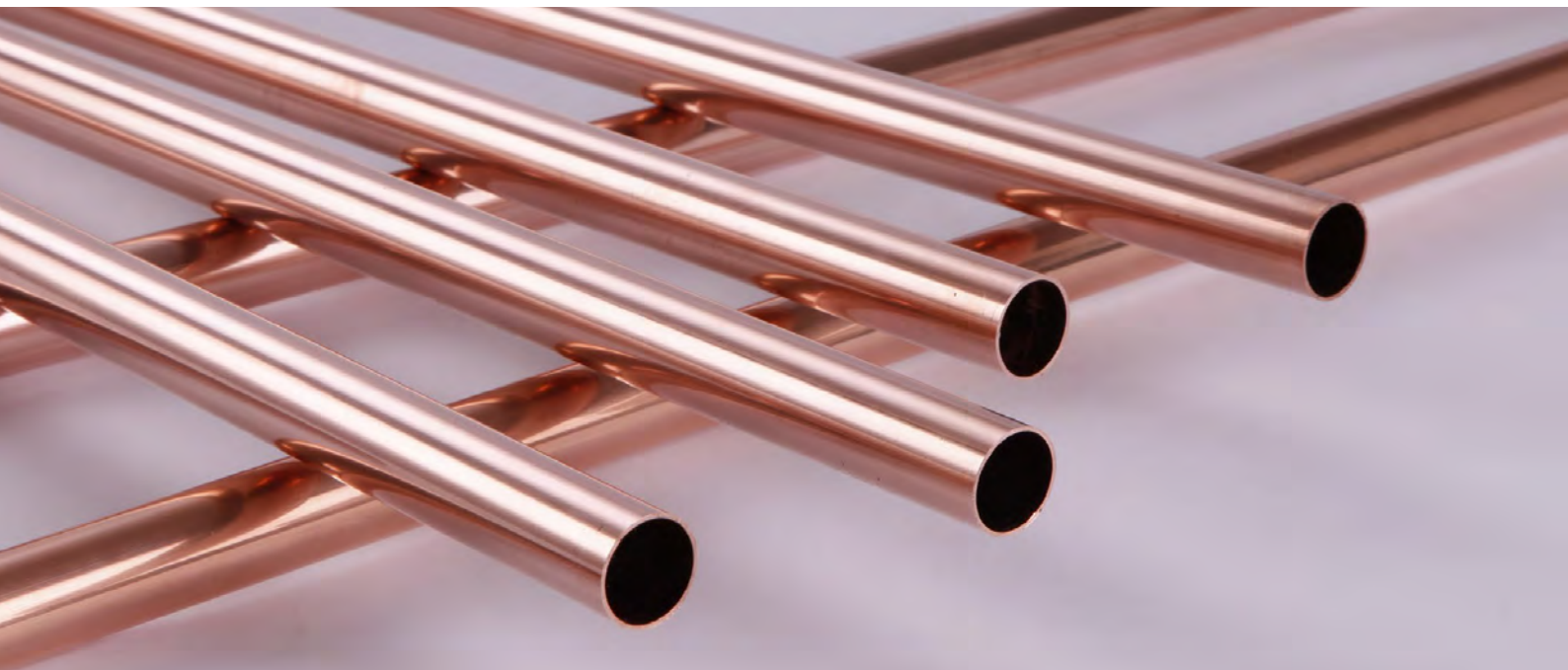


TABLE: STANDARD PRODUCTION SIZES - COILED TUBES

Size OD x WT (mm)	Min. Guaranteed Coil Length (m)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
6 x 1	50	74,80	18,70	0,013
8 x 1	50	56,10	14,03	0,028
10 x 1	50	44,88	11,22	0,050
12 x 1	50	37,40	9,35	0,079
14 x 1	50	32,06	8,01	0,113
15 x 1	50	29,92	7,48	0,133
16 x 1	50	28,05	7,01	0,154
18 x 1	50	24,93	6,23	0,201
22 x 1	25	20,40	5,10	0,314
22 x 1,5	25	30,60	7,65	0,283

OD = Outer Diameter WT = Wall Thickness

TABLE: STANDARD PRODUCTION SIZES - 5 M STRAIGHT LENGTHS

Size OD x WT (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
6 x 1	98,60	24,65	0,013
8 x 1	73,95	18,49	0,028
10 x 1	59,16	14,79	0,050
12 x 1	49,30	12,33	0,079
14 x 1	42,26	10,56	0,113
15 x 1	39,44	9,86	0,133
16 x 1	36,98	9,24	0,154
18 x 1	32,87	8,22	0,201
22 x 1	26,89	6,72	0,314
22 x 1,5	40,34	10,08	0,283
28 x 1	21,13	5,28	0,531
28 x 1,5	31,69	7,92	0,491
35 x 1	16,90	4,23	0,855
35 x 1,2	20,28	5,07	0,834
35 x 1,5	25,35	6,34	0,804
42 x 1	14,09	3,52	1,256
42 x 1,2	16,90	4,23	1,231
42 x 1,5	21,13	5,28	1,194
54 x 1,5	16,43	4,11	2,042
54 x 2	21,91	5,48	1,963
64 x 2	18,49	4,62	2,826
76,1 x 2	15,55	3,89	4,081
88,9 x 2	13,31	3,33	5,658
108 x 2,5	13,69	3,42	8,328

OD = Outer Diameter WT = Wall Thickness

SMISOL[®] Gas

STRONG AND
IMPERMEABLE





FIELDS OF APPLICATION:

- Distribution of liquid and gaseous fuels, with particular reference to underground installation. *In compliance with and within the limits set by the applicable regulations.*

SMISOL® Gas is the copper tube manufactured according to the EN 1057 standard, coated during production with a special solid-section (non-star) sleeve of polyvinyl chloride (PVC) compliant with UNI 10823.

The properties of SMISOL® Gas in terms of melting point, resistance to fire and pressure, impermeability to gases and absolute tightness of brazing and joints become indispensable in the case of domestic combustible-gas distribution, where safety guarantees are essential and mandatorily required by technical standards and legal provisions.

Furthermore, to protect the end consumer, in compliance with EU Regulation 305/2011 for construction products (CPR), the EN 1057-compliant copper tubes produced by SCT are marked with the CE mark. A further guarantee of compliance with current regulations is provided by obtaining the UNI-IGQ Quality mark.

COATING CHARACTERISTICS

- Coating in special stabilised PVC resin, uniform and seamless, compliant with UNI 10823.
- Solid section (non-star) ensuring perfect adhesion to the copper tube surface.
- Minimum coating thickness: ≥ 1.5 mm, continuously monitored by laser gauge.
- Sleeve made from first-quality virgin PVC granulate for durability over time.
- Excellent resistance to external chemical agents.
- Progressive ink marking every metre.
- Electrical insulation resistance: $\geq 100 \text{ M}\Omega \cdot \text{m}^2$ as required by UNI 10823.

EXTERNAL PROTECTION

Coating in stabilised polyvinyl resin, tested and guaranteed.

The coating protects against external chemical or mechanical action from construction materials (e.g. quick-setting cement) and against damage caused by impacts during transport on site. It allows use in the field of underground pipes, as indicated by the UNI 10823 standard itself: "the coating is obtained by extrusion, seamless, continuous, smooth externally and internally, with uniform nominal thickness, adhering to the external wall of the copper tube over its entire surface to ensure the absence of residual air pockets and prevent it from slipping off".

It is tested in-line in order to guarantee the electrical insulation resistance which, as required by the UNI 10823 standard, must be equal to or greater than $100 \text{ M}\Omega \cdot \text{m}^2$; it also satisfies the requirements of UNI 7129 regarding the omission of the dielectric joint required for underground sections no longer than 3 m.

INTERNAL PROTECTION

During production, it undergoes a patented treatment of passivation and stabilisation of the internal wall. The SMISOL® Gas copper tube has a carbon residue $C < 0.06 \text{ mg/dm}^2$, much lower than that required by the EN 1057 standard, which sets a carbon content of $C \leq 0.20 \text{ mg/dm}^2$.

TABLE: STANDARD PRODUCTION SIZES - COILED TUBES

Size OD x WT (mm)	Min. Guaranteed Coil Length (m)	Min. Coating Thickness (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
12 x 1	50	1,5	37,40	9,35	0,079
14 x 1	50	1,5	32,06	8,01	0,113
15 x 1	50	1,5	29,92	7,48	0,133
16 x 1	50	1,5	28,05	7,01	0,154
18 x 1	50	1,5	24,93	6,23	0,201
22 x 1	25	1,5	20,40	5,10	0,314

OD = Outer Diameter WT = Wall Thickness



SMISOL® Tekgas

PRACTICAL
AND SAFE

FIELDS OF APPLICATION:

- Distribution of liquid and gaseous fuels, with particular reference to masonry structures where the use of non-metallic protective sleeves/ conduits is required.

In compliance with and within the limits set by the applicable regulations

SMISOL® Tekgas is the copper tube manufactured according to the EN 1057 standard, coated during production with a special low-density closed-cell polyethylene sleeve, manufactured in the sizes prescribed by UNI 7129.

Thanks to the special coating, co-extruded continuously onto the copper tube, and the presence of spacers wound helically relative to the tube axis, it is particularly suitable for the transport of liquid and gaseous fuels.

The spacers ensure that the sleeve has an internal diameter 10 mm larger than the external diameter of the pipe.

This geometric feature makes it possible to use the pipe for crossing walls and floors without adding a further metal sleeve, in full compliance with UNI 7129-1, which states at point 4.4.1.5: “when crossing perimeter and external walls, solid bricks, hollow bricks and prefabricated panels, the gas supply pipe must have no joints, with the exception of the inlet and outlet joints, and must be protected with a through sleeve impermeable to gas. The sleeve may be either metal or polymeric material; the sleeve must have an internal diameter 10 mm larger than the external diameter of the pipe.”

This pipe can be installed concealed (in chases) even in critical situations where the walls contain cavities (for example hollow bricks); this is always possible thanks to the polymeric sleeve that continuously wraps the copper tube. During installation it is sufficient to embed SMISOL Tekgas in 15 mm of cement mortar to comply with UNI 7129-1, point 4.5.5.5 and point 4.5.5.6.

TABLE: STANDARD PRODUCTION SIZES - COILED TUBES

Size OD x WT (mm)	Min. Guaranteed Coil Length (m)	Tube Outside Diameter (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
12 x 1	50	24	37,40	9,35	0,079
14 x 1	50	26	32,06	8,01	0,113
15 x 1	50	27	29,92	7,48	0,133
16 x 1	50	28	28,05	7,01	0,154
18 x 1	50	30	24,93	6,23	0,201
22 x 1	25	32	20,40	5,10	0,314

OD = Outer Diameter WT = Wall Thickness

The helical arrangement of the spacers ensures that the gap between tube and sleeve remains constant even on 90° bends, avoiding crushing; in this way, in the event of a leak, the danger of gas pockets forming is avoided.

The in-line coating process ensures high malleability, superior to similar products on the market. In order to preserve this exclusive feature, SMISOL® Tekgas coils have a very large winding diameter which, together with the characteristics already described, makes it a practical and particularly professional product at the same time. Furthermore, to protect the end consumer, in compliance with EU Regulation 305/2011 for construction products (CPR), the EN 1057-compliant copper tubes produced by SCT are marked with the CE mark. A further guarantee of compliance with current regulations is provided by obtaining the UNI-IGQ Quality mark.

COATING CHARACTERISTICS

- Coating in closed-cell low-density polyethylene (LDPE).
- Integrated helical spacers.
- Minimum air gap: ≥ 5 mm.
- High resistance to external chemical agents.
- Progressive ink marking every metre.
- Anti-crushing properties.
- Reaction to fire: class BL-s1,d0 according to EN 13501-1.

EXTERNAL PROTECTION

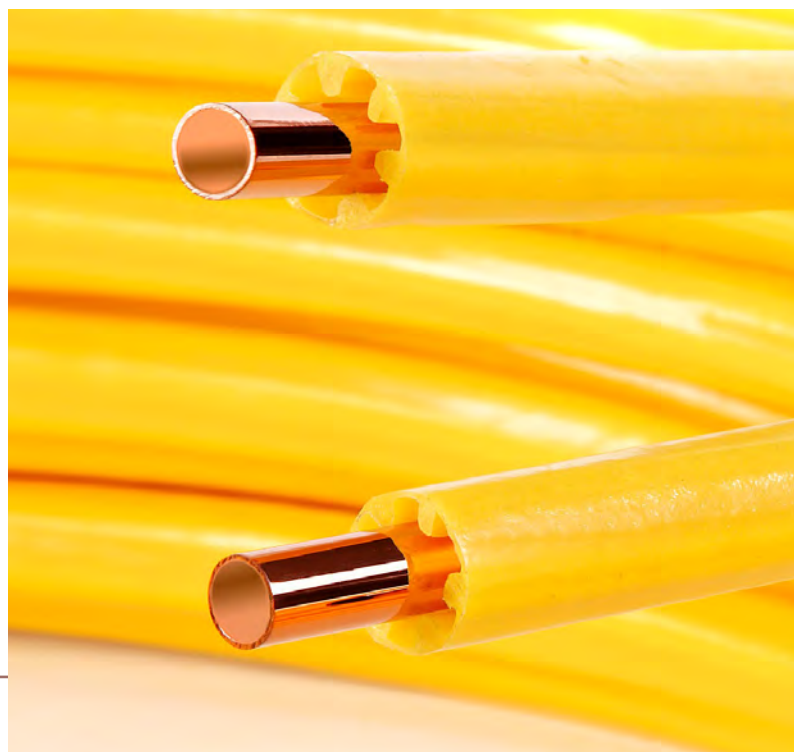
The low-density closed-cell polyethylene coating protects the tube against attacks from the outside by construction materials (e.g. quick-setting cement) and against damage caused by impacts during transport on site. It complies with reg. EEC/EU 2037/2000 and has a reaction to fire of class BL-s1,d0 (EN 13501-1).

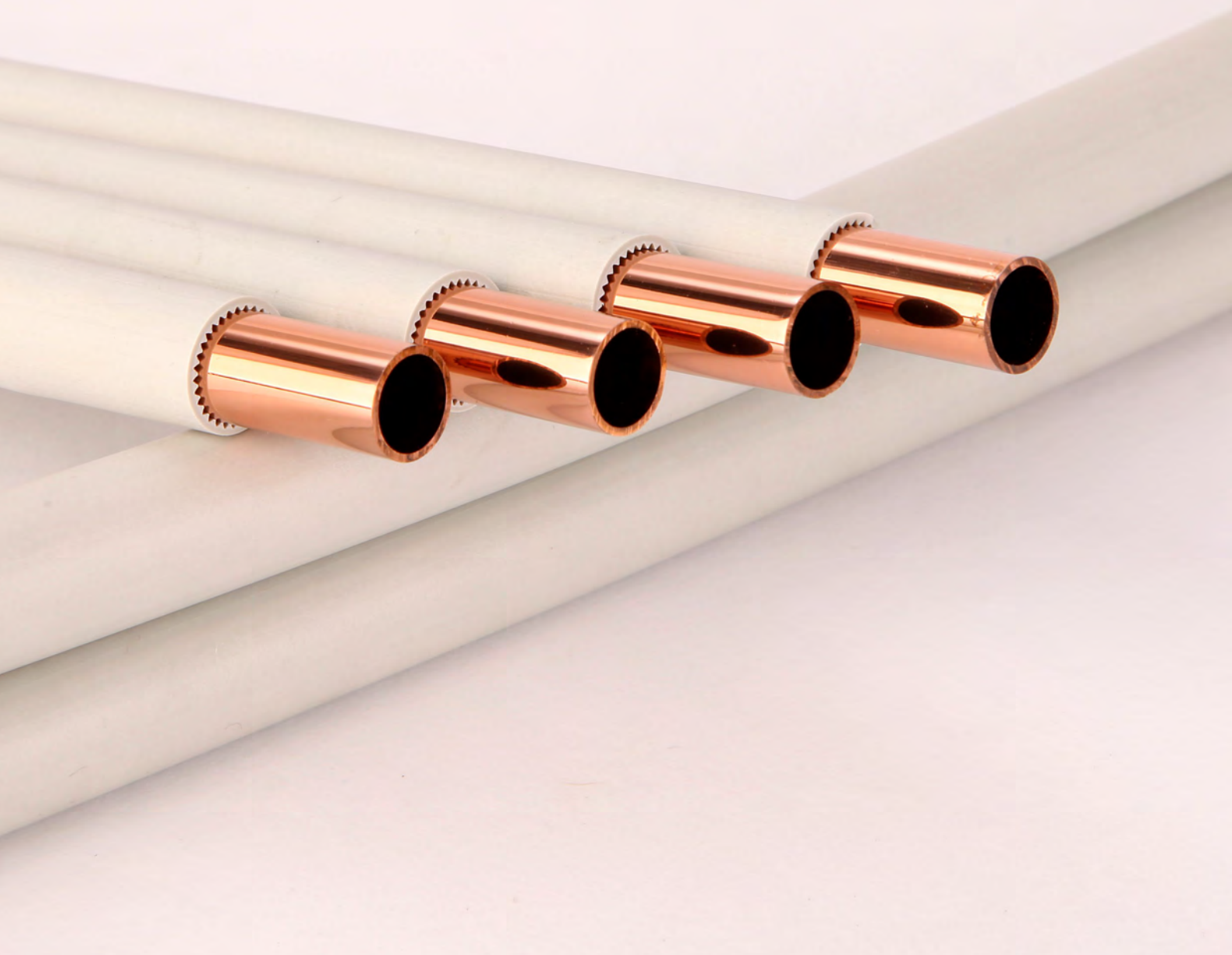
INTERNAL PROTECTION

During production, it undergoes a patented treatment of passivation and stabilisation of the internal wall. The SMISOL® Tekgas copper tube has a carbon residue $C < 0.06$ mg/dm², much lower than that required by the EN 1057 standard, which sets a carbon content of $C \leq 0.20$ mg/dm².

BENDING

Bending must be carried out using suitable tube benders. The dies and counter-dies may vary depending on the make and model of the equipment used.





SMISOL[®] Plus

TRIED
AND TESTED



FIELDS OF APPLICATION:

- Distribution of drinking water.
- Distribution of liquid and gaseous fuels.

In compliance with and within the limits set by the applicable regulations.

SMISOL® Plus is a copper tube manufactured according to the EN 1057 standard, coated during production with a special star-section sleeve of polyvinyl chloride (PVC). The product complies with Directive (EU) 2020/2184 on the quality of water intended for human consumption, paying particular attention to the suitability of materials in contact with drinking water. The original in-line coating process makes it possible to achieve superior malleability compared to similar products on the market, placing it at the top of its category. It has proven bacteriostatic properties, which make it a material particularly suitable for plumbing/sanitary networks, in order to help limit bacterial proliferation, including Legionella. Its absolute impermeability to gases also allows it to be used for the transport of liquid and gaseous fuels.

Furthermore, to protect the end consumer, in compliance with EU Regulation 305/2011 for construction products (CPR), the EN 1057-compliant copper tubes produced by SCT are marked with the CE mark.

COATING CHARACTERISTICS

- Coating in special stabilised PVC resin.
- Star section.
- Min. coating thickness: 1.5 mm (continuously monitored by laser gauge).
- Sleeve made from first-quality virgin granulate.
- Excellent resistance to external chemical agents.
- Ink marking every metre

EXTERNAL PROTECTION

Coating in stabilised polyvinyl resin, tested and guaranteed. Other specific advantages are provided by:

- Reduction or elimination of unsightly and unhygienic damp stains on walls.
- The star section of SMISOL® Plus allows the absorption of small thermal expansions (coefficient of linear thermal expansion = 0.00168 mm/m°C).
- Protection against damage caused by impacts during transport and installation on site.

INTERNAL PROTECTION

During production, it undergoes a patented treatment of passivation and stabilisation of the internal wall, which makes it absolutely reliable, in compliance with the potability parameters set by European regulations on transported drinking water (European Directive 2020/2184/EU). The SMISOL® Plus copper tube has a carbon residue $C < 0.06 \text{ mg/dm}^2$, much lower than that required by the UNI EN 1057 standard, which sets a carbon content of $C \leq 0.20 \text{ mg/dm}^2$.

TABLE: STANDARD PRODUCTION SIZES - COILED TUBES

Size OD x WT (mm)	Min. Guaranteed Coil Length (m)	Min. Coating Thickness (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
10 x 1	50	1,5	44,88	11,22	0,050
12 x 1	50	1,5	37,40	9,35	0,079
14 x 1	50	1,5	32,06	8,01	0,113
16 x 1	50	1,5	28,05	7,01	0,154
18 x 1	50	1,5	24,93	6,23	0,201
22 x 1	25	1,5	20,40	5,10	0,314

OD = Outer Diameter WT = Wall Thickness

SMISOL[®] One

VERSATILE AND
PROFESSIONAL





FIELDS OF APPLICATION:

- Hot and cold drinking water
- Distribution of drinking water.
- Heating

In compliance with and within the limits set by the applicable regulations.

SMISOL® One is a seamless drawn copper tube compliant with the EN 1057 standard, pre-insulated during production with closed-cell expanded polyethylene, characterised by a uniform and regular structure. The insulating sleeve is further protected by an outer polyethylene film that improves mechanical strength and durability during installation.

The product is suitable for the distribution of heat-transfer fluids inside heated environments and complies with the insulation requirements set by national regulations on energy-consumption containment (Law 10/91 and subsequent updates, now transposed into Legislative Decree 192/2005 as amended, with related implementing decrees).

The insulating sleeve is made in compliance with European environmental regulations (Reg. (EU) 2024/590), being totally free from CFCs and HCFCs. The in-line production process ensures perfect adhesion of the insulation to the external wall of the copper tube, preventing the formation of air gaps that would reduce the efficiency of the thermal insulation.

Direct co-extrusion onto the tube also ensures high malleability and ease of installation, even on complex routes.

In compliance with EU Regulation 305/2011 (CPR), the EN 1057-compliant copper tubes are CE marked.

INSULATING COATING CHARACTERISTICS

- Thermal conductivity: $\lambda \leq 0.038 \text{ W/(m}\cdot\text{K)}$ at 40 °C
- Average density: $\sim 33 \text{ kg/m}^3$
- Minimum coating thickness: 6 mm (9 mm for diameter 22 x 1 mm)
- Closed-cell expanded polyethylene structure
- Free from ammonia residues
- Excellent resistance to external chemical agents
- Reaction to fire: class BL-s1,d0 according to EN 13501-1
- Free from CFCs and HCFCs (Reg. (EU) 2024/590)

EXTERNAL PROTECTION

The insulating sleeve in closed-cell expanded PE compliant with Reg. (EU) 2024/590 (without the use of CFCs and HCFCs) with an outer green polyethylene film, corrugated on the surface. The coating has a reaction to fire of class BL-s1,d0 (EN 13501-1).

INTERNAL PROTECTION

The copper tube has natural bacteriostatic properties, which make it particularly suitable for plumbing/sanitary systems, helping to limit bacterial proliferation (e.g. Legionella).

SMISOL® One complies with Directive (EU) 2020/2184 on the quality of water intended for human consumption, paying particular attention to the suitability of materials in contact with drinking water.

During production, the tube undergoes a patented treatment of passivation and stabilisation of the internal surface, obtaining a carbon residue $C < 0.06 \text{ mg/dm}^2$, well below the maximum limit set by EN 1057 ($C \leq 0.20 \text{ mg/dm}^2$).

TABLE: STANDARD PRODUCTION SIZES - COILED TUBES

Size OD x WT (mm)	Min. Guaranteed Coil Length (m)	Min. Coating Thickness (mm)	Burst Pressure (MPa)	ASTM Working Pressure (MPa)	Water Content (l/m)
10 x 1	50	6	44,88	11,22	0,050
12 x 1	50	6	37,40	9,35	0,079
14 x 1	50	6	32,06	8,01	0,113
15 x 1	50	6	29,92	7,48	0,133
16 x 1	50	6	28,05	7,01	0,154
18 x 1	50	6	24,93	6,23	0,201
22 x 1	25	9	20,40	5,10	0,314

OD = Outer Diameter WT = Wall Thickness



Strato

HIGH PERFORMANCE THANKS TO A CORE OF COPPER

FIELDS OF APPLICATION:

- Drinking water distribution
- Radiator heating
- Chilled water distribution

In compliance with and within the limits set by the regulations in force.

Strato is a seamless composite tube with a copper core, combining the ease of installation of multilayer systems with the superior performance of copper in terms of mechanical strength, pressure tightness, hygiene and durability.

The product is made according to the UNI 11342 standard by means of a permanent co-extrusion of a reduced-thickness copper tube with a polyethylene layer. Externally it is pre-insulated with closed-cell expanded polyethylene, compliant with the thermal-insulation requirements set by the regulations on energy-consumption containment (Law 10/91 and subsequent updates).

Thanks to the internal copper surface, Strato is suitable for the distribution of drinking water and for high-temperature heating systems, ensuring natural bacteriostaticity, low pressure drops and the absence of contamination.

MAIN ADVANTAGES

- High resistance to pressure and temperature, thanks to the metal core
- Hygiene and bacteriostaticity: the fluid is in contact exclusively with copper
- No longitudinal welds, unlike traditional multilayer tubes
- Total impermeability and oxygen barrier, ideal for heating systems
- Flexibility and ease of installation, with no memory effect
- Reduced thermal expansion, with high dimensional stability
- Low pressure drops, thanks to the very low internal roughness ($\sim 1.5 \mu\text{m}$)

JOINING TECHNOLOGY

Strato is compatible with fittings compliant with EN 1254-8 commonly used in multilayer systems.

It is an open solution, not tied to a proprietary system, compatible with fittings of the following types:

- Press
- Compression
- Quick push-fit.

Full-bore fittings are also available, allowing the use of smaller diameters with economic advantages and reduced masonry work.

INSTALLATION

- Cutting, calibration and deburring with standard market tools
- Manual bending or using standard copper-tube benders
- Joining by means of commercially available mechanical fittings.

TECHNICAL CHARACTERISTICS OF THE TUBE

- Dimensions and tolerances: according to UNI 11342
- Internal contact material: Cu-DHP copper
- Internal surface roughness: 1.5 μm
- Outer layer: PE-RT
- Maximum continuous operating temperature: 95 °C continuous
- Ultimate tensile strength: R. min. $\geq 220 \text{ MPa (N/mm}^2\text{)}$
- Elongation: A5 min. $> 40\%$

TECHNICAL CHARACTERISTICS OF THE INSULATION

- Insulating material: Cross-linked polyethylene (PE-X), closed-cell expanded
- Insulating sleeve thickness: 6 mm/9 mm
- Thermal conductivity of the insulation (λ): 0.039 W/mK
- Average insulation density: 30 kg/m³
- Water-vapour diffusion resistance (μ): > 9000
- Reaction to fire: Class 1 (Ministerial Decree 26/06/84)
- Resistance to chemical agents: very good (ASTM 543-56 T)
- Sound absorption: ~60% (DIN 4109 300-2500Hz)

TABLE: STANDARD SIZES - COILED TUBES

Size OD x WT (mm)	Min. Guaranteed Coil Length (m)	Min. Coating Thickness (mm)	ASTM Working Pressure (MPa)	Water Content (l/m)	Min. Bending Radius With Bender (mm)	Min. Manual Bending Radius (mm)
14 x 2	50	6	35	0,079	56	84
16 x 2	50	6	32	0,113	64	96
20 x 2	50	6	25	0,201	80	120
26 x 3	25	9	25	0,314	104	156
32 x 3	25	9	23	0,531	128	192

OD = Outer Diameter WT = Wall Thickness



Further information

WWW.SCTUBES.COM

Contact:

Serravalle Copper Tubes S.r.l.

Via Cassano, 113 15069 Serravalle Scrivia (AL) ITALY

info-plumbing@sctubes.com www.sctubes.com www.kme.com/sctubes

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