

APPLICATIONS

- Cold drinking water.
- Distribution of liquid and gaseous fuels.
- Heating and hot water (after on-site insulation).

In compliance with applicable regulations.

SCUDO® is composed of refined copper, essentially pure material (Cu DHP 99.9% min.) and is precisely certified as such by SCT. It does not contain additive elements such as dyes, plasticisers and fluidising agents that may be present otherwise in alternative materials derived from petroleum.

SCUDO®, thanks to a patented production process, can offer a quality level that is superior to that specified by regulatory provisions and, therefore, assures much better overall performances compared to that of commonly available commercial tubing products.

INTERNAL PROTECTION

During manufacture, the tubes are subjected to a **patented treatment for passivation and stabilisation of the internal walls**, thus assuring absolute compliance to the potability parameters required by European legislation for transported drinking water (European Directive 98/83).

The enactment of the European Directive 98/83/EC on water intended for human consumption has highlighted the issue of the suitability of materials used for the various components in water systems, aiming at guaranteeing that drinking water does not suffer any alteration of its potability characteristics.

SCUDO complies with D.M. 174/04 (O.J. 166 of 17/07/04), which defines the parameters to be met by materials in contact with drinking water.

THE SMART CHOICE

Manufactured according to EN 1057, it has proven bacteriostatic properties that make it particularly suitable for drinking water systems. The **high melting point** (1083 °C), **pressure resistance** and its **thermal conductivity**, render this material ideal for the installation of traditional heating systems (in the pre-insulated version or in combination with suitable insulating sheaths) and for underfloor or wall heating installations. It is also the most suitable material for domestic gas installations, where **safety criteria, reliability and watertightness** are mandatory.

Furthermore, SCT copper tubes adhere to a universal application system for every category of joint, independently of specific contexts and limiting boundary conditions. Subject to regulation compliance, with the same type of tube materials, different plant systems can be fitted (heating, water and gas), with obvious operating advantages and economy of scale in stock management. It should be further noted that the calibration applied to SCT copper tubing significantly simplifies the new jointing techniques (press fittings and compression couplings). Moreover, in the interests of consumer protection, in accordance with **EU Regulation 305/2011 for construction products (CPR)**, SCUDO® copper tubes are certified with the **CE mark**.

A further guarantee of compliance with prevailing regulation standards is assured with the achievement of **UNI-IGQ Quality certification**.

CE MARKING

Each individual tube shows the EEC marking as prescribed by standard EN 1057 in accordance with EU Regulation 305/2011.

PUNCHED MARKINGS

The markings on SCUDO® copper tubes are repeated at 60 cm intervals and declare all information required by the EU Regulation 305/2011 regarding construction products (CPR).

CALIBRATION

Calibration, both for straight lengths and coils, is an essential aspect for the correct execution of all coupling operations. In particular, it is essential for press fittings.

BACTERIOSTATIC EFFECTS

Copper plumbing plants have a greater capability to reduce pathogenic germs in water compared to installations constructed with plastic materials.



Escherichia coli bacterial colonies in contact with copper before and after 24 hours.



THE NATURAL SOLUTION

Copper is intrinsically non-magnetic and, therefore, does not alter the natural magnetic field. It has proven **bacteriostatic properties**, which make it particularly suitable for all drinking water systems, preventing the proliferation of bacteria such as Legionella.

Thanks to its action on the cell walls of pathogenic microorganisms, SCUDO® copper tube inhibits the formation of bacteria in installations that carry water for human consumption. These pathogens unleash their very dangerous effects when nebulised and inhaled, for example, during the taking of showers and exposure to whirlpool systems or fountains.

In addition to its preventive properties, copper tubes, thanks to their physical and chemical characteristics, ensure the adoption of appropriate decontamination procedures (eg. thermal shock, chlorination, disinfection with chlorine dioxide, ...) without risking any damage to the plant itself. At the end of its long life cycle, copper is completely and easily **recyclable**, thus reducing the amount of waste requiring disposal.

Unlike other materials, copper tubes are well-known for their high **recovery value**, both as cut-off residue and salvaged scrap. When this value is properly quantified, the choice of copper emerges as even more competitive on a cost basis compared to other materials, in particular to plastic products.

It should also be noted that tubes made of plastic materials, given their derivation from a synthesis of petroleum-based processes, have a material composition that requires accurate control of several chemical parameters. It is fundamental, first of all, to know their actual chemical composition and to evaluate the presence of adhesives, additives, stabilisers, dyes or other compounds that can 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. = 0,0015 mm (low-pressure losses)
Linear thermal expansion coefficient:	0,0168 mm/m°C
Thermal conductivity:	at 20°C = 364 W/m°C (more than 1.000 times higher than that of plastic materials)
Thermal expansion:	≅ 1,2 mm/m with $\Delta T = 70^\circ\text{C}$
Does not soften at high temperatures Absolute impermeability to gases UV-rays resistant Temper:	R 220 or R 290 in accordance with EN 1057

Tubes in coils are supplied in annealed temper (R220) with the following characteristics:

Ultimate unit tensile stress:	R. min. ≥ 220 MPa (N/mm ²)
Elongation percentage:	A ₅ min. > 40%

Tubes in straight lengths are supplied in hard temper (R290) with the following characteristics:

Ultimate unit tensile stress:	R. min. ≥ 290 MPa (N/mm ²)
Elongation percentage:	A ₅ min. > 3%

Carbon residue (tubes in coils):	C < 0,06 mg/dm ² (compared to C \leq 0,20 mg/dm ² required by EN 1057)
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TABLE OF STANDARD PRODUCT DIMENSIONS - COILS

dimensions Ed x Th	coil length min. guaranteed	burst pressure	operating pressure ASTM	water content
(mm)	(m)	(MPa)	(MPa)	(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

TABLE OF STANDARD PRODUCT DIMENSIONS- STRAIGHT LENGTHS (5 m)

dimensions Ed x Th	burst pressure	operating pressure ASTM	water content
(mm)	(MPa)	(MPa)	(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

Ed = External diameter Th = wall thickness

Other dimensions compliant to EN 1057 are available on request.