products catalog






silmet S.P.A.

Index

The History of a major industrial company

Founded in 1973, Silmet is one of the major Italian operators in the metallurgic industry, belonging to the Ghidini group that is highly integrated with very old roots: as far back as 1929 the Ghidini families were already specialised in the machining of non-ferrous metals such as copper, brass, aluminium and nickel silver.

A historic dynasty that is currently led by Comm. Giampietro Ghidini, the company produces brass and plastic traps for the plumbing sector, brass tubes and bars for various industrial applications, copper plates, wires and cords for use in the building and electrical sectors and copper tubes for water and gas in sanitary, heating and industrial applications.
The group's factories are on the cutting-edge of technology and are equipped with sophisticated, modern plants.

Electricity requirements are met by the group's own hydro-electric power stations and by a modern photovoltaic power stations with an installed capacity of 3 MW; raw materials are purchased directly from mines in Chile, the Congo, Peru and Zambia, guaranteeing supplies with excellent quality standards.

Silmet is equipped with metal smelting blasting furnaces, large extrusion presses, powerful bull-block and combined drawing plants and very modern annealing furnaces and metal normalizing. Since 1994, the whole process is monitored according to standards and in compliance with the international ISO 9001:2008 standards with certified Quality System. The whole production undergoes checks, controls and inspections with the aid of its own test and alloy-analysis laboratories, equipped with the most up-to-date instruments.

Silmet is the world leader in the production of copper tubes for water, heating and sanitary applications and industrial use in Level Wound Coils; in 2007, the company started up its production of copper strips for building and industrial applications and copper downspouts. It manufactures its range of products in conformance with all world manufacturing standards and in accordance with its customers' particular needs.

The aim of this site is to share with our Clients the pride and enthusiasm with which we work on a daily basis to improve our performance so that we can satisfy the company's most precious asset: **THE CUSTOMER.**

The Qualities and Advantages of Copper

Copper tubes can be used as pipes for carrying water for human consumption in accordance with the provisions laid down in DPR no. 1095 of 3rd August 1968. Their conformance is also extended to the provisions laid down in the European Directive 98/83, on the quality of water for human consumption, and DM 174 of 6th April 2004, which implements the aforesaid Directive, establishing the possibility of using copper tubes as pipes for carrying drinking water and water for human consumption.
Heat technicians, installation engineers and end users can use copper tubes in plumbing installations with maximum tranquillity and safety

Copper tubes are used on a worldwide scale for carrying drinking water, for heating systems, gas distribution, in hospital medical gas carrying systems, as well as in air-conditioning and refrigeration applications and several types of industrial use.

The modern technologies used to work the raw material and subsequently manufacture the finished product, together with strict quality controls, make copper tubes an avant-garde and absolutely reliable product for all applications in which they are used.

Copper is a metal with an extremely high electrical and thermal conductivity, second only to silver; it has a high corrosive strength and is not magnetic. It is easy to work, extremely ductile and malleable; it is easy to recycle and has a high scrap recovery rate. Its impermeability, resistance to ultraviolet light, resistance to low temperatures, which enable it to be installed in cold periods

without any risk of breakage, constitute a high added value and give the product unique features that are a permanent guarantee of maximum reliability.

In addition, copper is bacteriostatic, that is, it combats the proliferation of bacteria on its surface. It has been found that the proliferation of Legionella is reduced when copper tubes are used. The capacity of this metal to inhibit the proliferation of bacteria on its surface was already known in the nautical sector: many anti-fouling varnishes (used to inhibit the growth of seaweed and shell-fish) to be applied to the keels of ships contained copper salts; every summer, recommendations are made to insert a copper wire in wells to kill mosquito larvae; in many American hospitals, it is obligatory to make door handles and banisters of brass (a copper-zinc alloy) to avoid the transmission of diseases and pathogenic bacteria. copper is by far the best material against Legionella and other pathogenic bacteria, such as Escherichia Coli, Streptococcus Faecalis and Staphyloccocus Aureus. In addition, copper ions kill other micro-organisms that Legionella feed on and reduce the growth of the biofilm, which tends to form a protective shield for bacteria. Its bacteriostatic property, together with other physicochemical and economic characteristics played a major role in the choice of copper alloys in the coinage of the new Euro coin.

Due to its high thermal conductivity, it is one of the most effective materials for heat exchanges: this is why it is used in heat exchangers, solar panels, and wall and floor-mounted radiating panels. The alternative products, made up of several layers of different materials, have no thermal conductivity and have different mechanical/chemical and flow characteristics for each of the layers making them up, unlike copper which has a uniform, low thermal expansion coefficient and uniform mechanical/chemical and flow characteristics. In addition, copper tubes can be supplied in various physical states (soft, half-hard and hard) and thus adapts better to users' needs. Copper is an ecological product, avant-garde for new design concepts due to its extreme adaptability to all manufacturing and installation innovations.

ESENCOR

the copper tube of the third millennium

The ideal choice for supplying drinking water, for heating plants and for the distribution of gases and combustible liquids.

Manufactured with the most modern technologies available on today's world market, the result of scientific studies and tests that guarantee a considerably lower level of residual carbon than is required by the European manufacturing standard **EN 1057**, it is an excellent product against corrosion caused by the characteristics of waters present in water beds and in the public water mains.

It complies with **D.P.R. 1095 of 3 august 1968, European Council Directive n. 98/83/EC (G.U. n. L330 of 05/12/1998), D.L. of 2 february 2001 n. 31 and D.M. of 6 april 2004 n. 174** and is therefore suitable for drinking water applications.

EN 1057 is the European reference standard at continental level for the manufacture of copper gas and water tubes in water and heating applications. It establishes characteristics in terms of chemical composition, mechanical properties, dimensions and tolerances and the tests that must be carried out during production in order to manufacature a product that complies with specifications.

Sampling plans during manufacture are applied according to the provisions of standard **EN 1057** and guarantee the product's conformity on the basis of tests performed by the internal and independent laboratory that is part of the Corporate Quality System certified according to **EN ISO 9001:2008**.

The copper tube EN 1057 is marked CE as required by 89/106/EEC EU Construction Products Directive.

TECHNICAL CHARACTERISTICS

Alloy – Rif. EN 1976	Cu-DHP CW024A (Cu = 99,90% min. - P = 0,015 ÷ 0,040%)		
Physical state according to EN 1057	Annealed R220	Half-Hard R250	Hard R290
Unit tensile strength– R min.	220 N/mm²	250 N/mm²	290 N/mm²
Percentage elongation – A min.	40%	20% o 30%	3%
Total carbon	C ≤ 0,20 mg/dm² max. according to standard EN 1057		
Inner surface	Glossy		
Marking on tube	CE SILMET EN 1057 Cu 99.9 Ø X th. year quarter ǂǂ² ESENCOR		
Dimensions and tolerances [1]	According to standard EN 1057		
Internal surface roughness	RA - 1/10 micron		
Linear thermal expansion coefficient	0,00168 mm/m °C		
Thermal conductivity at 20°C	364 W/m · K		
[1] Products with marking, dimensional tolerances and various lengths can be prepared on specific Customer request.			
[2] the symbol ǂǂ is present only in the half-hard physical state			

CE ESENCOR COPPER TUBE silmet S.P.A.

TUBES IN COILS - ANNEALED PHYSICAL STATE R220

dimensions Ø X wt mm	length of coils m	water content l/m	bursting pressure MPa	operating pressure MPa	coils per pack n	total meters per pack m	app. gross weight complete pack kg
6 X 1	50	0,0126	74,80	18,70	44	2.200	335
8 X 1	50	0,0283	56,10	14,03	36	1.800	375
10 X 1	50	0,0503	44,88	11,22	28	1.400	335
12 X 1	50	0,0785	37,40	9,35	22	1.100	315
14 X 1	50	0,1131	32,06	8,01	20	1.000	335
15 X 1	50	0,1327	29,92	7,48	18	900	335
16 X 1	50	0,1539	28,05	7,01	18	900	350
18 X 1	50	0,2011	24,93	6,23	14	700	315
22 X 1	25	0,3142	20,40	5,10	14	350	225
22 X 1,5	25	0,2835	30,60	7,65	14	350	320

TUBES IN STRAIGHT LENGTHS - HALF-HARD PHYSICAL STATE R250

dimension Ø X wt mm	water content l/m	bursting pressure MPa	operating pressure MPa	bundles of tubes n	meters of bundles m	n° bundles n	meters master bun. m	app. gross weight complete master bundle kg
10 X 1	0,0503	51,00	12,75	40	200	11	2.200	530
12 X 1	0,0785	42,50	10,63	35	175	11	1.925	540
14 X 1	0,1131	36,43	9,11	30	150	11	1.650	530
15 X 1	0,1327	34,00	8,50	30	150	10	1.500	520
16 X 1	0,1539	31,88	7,97	25	125	11	1.375	520
18 X 1	0,2011	28,33	7,08	20	100	12	1.200	520
22 X 1	0,3142	23,18	5,80	15	75	13	975	515

TUBES IN STRAIGHT LENGTHS - HARD PHYSICAL STATE R290

dimension Ø X wt mm	water content l/m	bursting pressure MPa	operating pressure MPa	bundles of tubes n	meters of bundles m	n° bundles n	meters master bun. m	app. gross weight complete master bundle kg
6 X 1	0,0126	98,60	24,65	--	--	--	--	--
8 X 1	0,0283	73,95	18,49	--	--	--	--	--
10 X 1	0,0503	59,16	14,79	40	200	11	2.200	530
12 X 1	0,0785	49,30	12,33	35	175	11	1.925	540
14 X 1	0,1131	42,26	10,56	30	150	11	1.650	530
15 X 1	0,1327	39,44	9,86	30	150	10	1.500	520
16 X 1	0,1539	36,98	9,24	25	125	11	1.375	520
18 X 1	0,2011	32,87	8,22	20	100	12	1.200	520
22 X 1	0,3142	26,89	6,72	15	75	13	975	515
22 X 1,5	0,2835	40,34	10,08	15	75	10	750	510
28 X 1	0,5309	21,13	5,28	10	50	15	750	535
28 X 1,5	0,4909	31,69	7,92	10	50	10	500	550
35 X 1	0,8553	16,90	4,23	7	35	15	525	500
35 X 1,5	0,8042	25,35	6,34	7	35	10	350	500
42 X 1	1,2566	14,09	3,52	--	--	--	--	--
42 X 1,5	1,1946	21,13	5,28	--	--	--	--	--
54 X 1,5	2,0428	16,43	4,11	--	--	--	--	--
54 X 2	1,9635	21,91	5,48	--	--	--	--	--
64 X 2	2,8274	18,49	4,62	--	--	--	--	--
76,1 X 2	4,0828	15,55	3,89	--	--	--	--	--
88,9 X 2	5,6612	13,31	3,33	--	--	--	--	--
108 X 2,5	8,3323	13,69	3,42	--	--	--	--	--

silmet S.P.A. MEDICAL COPPER TUBE

MEDICAL, the ideal choice for plants for the distribution of medical gases and vacuum systems.

Manufactured according to the most modern technologies on the current world market, in observance of European standard EN 13348, compatible with equipment manufactured in accordance with the Medical Device Directive 93/42/EEC, result of scientific studies and tests that guarantee the maximum compatibility for distributing the following gases and systems:

– oxygen, nitrous oxide, nitrogen, helium, carbon dioxide, xenon;
– air for breathing;
– specific mixtures of these gases mentioned above;
– air for operating surgical instruments;
– anaesthetic gases and vapours;
– vacuum.

The inner surface meets the requirements of reference standard and is also exempted from incompatible materials with medical gases. The standard EN 13348 is harmonized under the PED Directive 97/23/EC (EU Pressure Equipment Directive), therefore the Silmet MEDICAL tubes also meet the requirements of that Directive.

TECHNICAL CHARACTERISTICS

Alloy	Cu-DHP CW024A (Cu = 99,90% min. - P = 0,015 ÷ 0,040%)		
Physical state according to EN 13348	Annealed R220	Half-Hard R250	Hard R290
Unit tensile strength – R min.	220 N/mm²	250 N/mm²	290 N/mm²
Percentage elongation – A min.	40%	20% o 30%	3%
Total carbon	C ≤ 0.02 g/m² max. in compliance with standard EN 13348		
Inner surface	Glossy		
Marking on tube	SILMET MEDICAL EN 13348 Ø X sp. Year quarter		
Dimensions and tolerances	In compliance with standard EN 13348		
Internal surface roughness	RA - 1/10 of micron		
Linear thermal expansion coefficient	0.00168 mm/m °C		
Thermal conductivity at 20°C	364 W/m · K		
* the symbol ǂ is only present in the half-hard physical state			

TABLE OF DIMENSIONS

external nominal diameter d	nominal thickness e mm						
mm	0,7	0,8	0,9	1	1,2	1,5	2
8		R V		R V			
10		R V		R V			
12				R V			
15	R V			R V			
18				R V			
22			R V	R V		R V	
28			V	V		V	
35					V	V	
42					V	V	
54					V	V	V
R tubes in coils							
V tubes in straight lengths							

Other sizes can be supplied by agreement between the purchaser and the supplier.

For availability and feasibility of these measures and for other sizes please contact our sales department.

ICE COPPER TUBE

ICE, the ideal choice for refrigeration and air-conditioning plants.

Manufactured according to the most modern technologies available on today's world market, in observance of European standard EN 12735-1, it is the result of scientific studies and tests that guarantee maximum compatibility with the latest generation of cooling liquids available on the market.

EN 12735-1
Copper and copper alloys – Seamless, round copper tubes for air conditioning and refrigeration – Tubes for piping systems

TECHNICAL CHARACTERISTICS OF ICE COPPER TUBE

Alloy – Rif. EN 1976	Cu-DHP CW024A (Cu = 99,90% min. - P = 0,015 ÷ 0,040%)		
Physical state according to EN 12735-1	Annealed R220	Half-Hard R250	Hard R290
Unit tensile strength – R min.	220 N/mm²	250 N/mm²	290 N/mm²
Percentage elongation – A min.	40%	20% o 30%	3%
Total carbon	C ≤ 0,20 mg/dm², lower than expected to standard EN 12735-1		
Internal surface	glossy		
Marking on tube[1]	SILMET EN 12735-1 Cu 99.9 Ø X wt year quarter III[2] ICE ⧺[2] ICE		
Dimensions and tolerances	According to EN 12735-1 standard		
Internal surface roughness	RA - 1/10 di micron		
Linear thermal expansion coefficient	0,00168 mm/m °C		
Thermal conductivity at 20°C	364 W/m · K		
[1] Products with marking, dimensional tolerances and various lengths can be prepared on specific Customer request.			
[2] the symbol ⧺ is present only in the half-hard physical state			

ICE COPPER TUBE

TABLE OF DIMENSIONS

external nominal diameter *d*			nominal thickness e mm						
metric series	imperial series								
mm	mm	in	0,8	1	1,25	1,5	1,65	2	2,5
	3,18	1/8	●						
	3,97	5/32	●	●					
	4,76	3/16	●						
6			—●	●					
	6,35	1/4	●	●					
	7,94	5/16	●	●					
8			—●	●					
	9,52	3/8	●	●					
10			—●	—●					
12				—●					
	12,70	1/2	●	—●					
15				—●					
	15,87	5/8		—●					
18				—●					
	19,05	3/4		●	—				
22				—●					
	22,22	7/8		●	—				
	25,40	1		—					
28						—			
	28,57	1 1/8		—	—				
	34,92	1 3/8			—				
35						—			
	41,27	1 5/8			—				
42						—			
	53,97	2 1/8			—		—		
54								—	
64								—	
	66,67	2 5/8			—		—	—	
76,1								—	
	79,37	3 1/8					—		—
	88,90	3 1/2						—	
	92,07	3 5/8					—		—
	104,77	4 1/8					—		—
108									—
133									—
—	straight lengths								
●	coils								

ICE COPPER TUBE

silmet S.P.A.

STANDARD DIMENSIONS - THICKNESS 0.80 mm – COILS

diameter mm	diameter in	thickness mm	water content/m l/m	bursting pressure MPa	operating pressure MPa
6,00	-	0,80	0,0152	59,84	14,96
6,35	1/4	0,80	0,0177	56,54	14,14
7,94	5/16	0,80	0,0316	45,22	11,30
8,00	-	0,80	0,0322	44,88	11,22
9,52	3/8	0,80	0,0493	37,71	9,43
10,00	-	0,80	0,0554	35,90	8,98
12,00	-	0,80	0,0849	29,92	7,48
12,70	1/2	0,80	0,0968	28,27	7,07

STANDARD DIMENSIONS - THICKNESS 1.00 mm – COILS

diameter mm	diameter in	thickness mm	water content/m l/m	bursting pressure MPa	operating pressure MPa
6,00	-	1,00	0,0126	74,80	18,70
6,35	1/4	1,00	0,0149	70,68	17,67
7,94	5/16	1,00	0,0277	56,52	14,13
8,00	-	1,00	0,0283	56,10	14,03
9,52	3/8	1,00	0,0444	47,14	11,79
10,00	-	1,00	0,0503	44,88	11,22
12,00	-	1,00	0,0785	37,40	9,35
12,70	1/2	1,00	0,0899	35,34	8,83
15,00	-	1,00	0,1327	29,92	7,48
15,87	5/8	1,00	0,1511	28,28	7,07
18,00	-	1,00	0,2011	24,93	6,23
19,05	3/4	1,00	0,2286	23,55	5,89
22,00	-	1,00	0,3142	20,40	5,10

PALLETISATION

diameter mm	diameter in	thickness mm	coils per pallet n	meters per pallet m	approx. gross weight kg
6,00	-	0,80	44	2.200	274
6,35	1/4	0,80	44	2.200	300
7,94	5/16	0,80	36	1.800	333
8,00	-	0,80	36	1.800	304
9,52	3/8	0,80	28	1.400	298
10,00	-	0,80	28	1.400	302
12,00	-	0,80	22	1.100	289
12,70	1/2	0,80	20	1.000	287
6,00	-	1,00	44	2.200	339
6,35	1/4	1,00	44	2.200	361
7,94	5/16	1,00	36	1.800	380
8,00	-	1,00	36	1.800	383
9,52	3/8	1,00	28	1.400	364
10,00	-	1,00	28	1.400	383
12,00	-	1,00	22	1.100	368
12,70	1/2	1,00	20	1.000	354
15,00	-	1,00	18	900	379
15,87	5/8	1,00	16	800	359
18,00	-	1,00	14	700	357
19,05	3/4	1,00	10	500	277
22,00	-	1,00	14*	350*	230

* meter coils

TEN COPPER TUBE

TEN, a copper tube pre-insulated with low-density closed cell expanded polyethylene, in compliance with **Law 10/91**, former Law 373, regarding the design, installation, running and maintenance of thermal systems for buildings, for the purposes of energy consumption control.

Ideal for water distribution systems, classified in fire resistance Class 1, the coating has been designed in the smallest details to respond excellently to the increasingly more qualified requirements in the design of modern plants.

The protective film is corrugated to provide greater adherence to cement mortars and has an excellent resistance to external agents.

The coating is odourless, non-toxic and is made without the use of CFC. It is suitable to be used in plants with operating temperatures ranging from -30°C to +95°C.

The TEN copper tube is supplied in 50-meter coils (25 meters with Ø 22 mm) marked at intervals also indicating the relative meters.

The core of the TEN is the ESENCOR copper tube, providing excellent protection against corrosion, the result of scientific studies and tests that guarantee a considerably lower level of residual carbon than is required by manufacturing standards.

The copper tube EN 1057 is marked CE as required by 89/106/EEC EU Construction Products Directive.

INSULATION DENSITY	: 30 kg/m³
THICKNESS OF THE INSULATING SHEATH	: from 6 to 9 mm
OPERATING TEMPERATURES	: -30 °C +95 °C
THERMAL CONDUCTIBILITY	: 0.0397 W · m^{-1} · K^{-1}
RESISTANCE TO FIRE	: Class 1 (self-extinguishing)
WRAPPING	: coils individually wrapped with transparent film to give further protection

CHARACTERISTICS OF THE ESENCOR COPPER TUBE

Alloy	Cu-DHP CW024A (Cu = 99.90% min. – P = 0.015 ÷ 0.040%)
Physical state	Annealed
Unit tensile strength	220 MPa/mm² min.
Percentage elongation	40% min.
Internal cleanliness	C max. 0,20 mg/dm²
Dimensions and tolerances [1]	in compliance with standard EN 1057
Internal surface roughness	RA 1/10 micron
Linear thermal expansion coefficient	0.00168 mm/m °C
Thermal conductivity at 20 °C	364 W/m k

[1] Products with marking, dimensional tolerances and various lengths can be prepared on specific Customer request.

TEN COPPER TUBE

silmet S.P.A.

TABLE OF DIMENSIONS OF THE SILMET TEN COPPER TUBE

dimensions without insulation mm	diameter with insulation mm	thickness of insulating sheath mm	bursting pressure MPa	operating pressure MPa	coil length m	water content per meter l/m
10 X 1	22	6	44,88	11,22	50	0,0503
12 X 1	24	6	37,40	9,35	50	0,0785
14 X 1	26	6	32,06	8,01	50	0,1131
16 X 1	29	6,5	28,05	7,01	50	0,1539
18 X 1	31	6,5	24,93	6,23	50	0,2011
22 X 1	40	9	20,40	5,10	25	0,3142

PALLETISATION OF SILMET TEN COATED COILS

dimensions Ø x thickness mm	coil length m	coils per pallet n	meters per pallet m	approx. gross pallet weight kg	dimensions of pack cm
10 X 1	50	17	850	222	h 220 X Ø 80
12 X 1	50	16	800	240	h 220 X Ø 80
14 X 1	50	15	750	270	h 220 X Ø 80
16 X 1	50	13	650	265	h 220 X Ø 80
18 X 1	50	13	650	305	**h 220 X Ø 90**
22 X 1	25	14	350	217	**h 220 X Ø 90**

The packs cannot be stacked.
A maximum of 2 packs with a large diameter (**h 220 x Ø 90 cm**) and available for other coated products, are loaded onto the pallet side-by-side together with a third smaller pallet.
The others can be loaded side-by-side in threes.

TEN copper tube is suitable for the following fields of use and with the following references:

Heating

Law 9 January 1991 n. 10
Rules for the implementation of national energy plan in the field of rational energy use, saving energy anddeveloping renewable sources of energy.

DPR August 26, 1993 n. 412
Regulation laying down rules for the design, installation, operation and maintenance of thermal systems of buildings in order to control energy consumption, implementing art. 4, paragraph 4, of the Law 9 January 1991, n. 10.

Potable water, hot and cold

DPR 1095 August 3, 1968
Amendment to Article 125 of the General Health Regulation approved by Royal Decree 3 February 1901,n. 45, and amended by Royal Decree of 23 June 1904, n. 369.

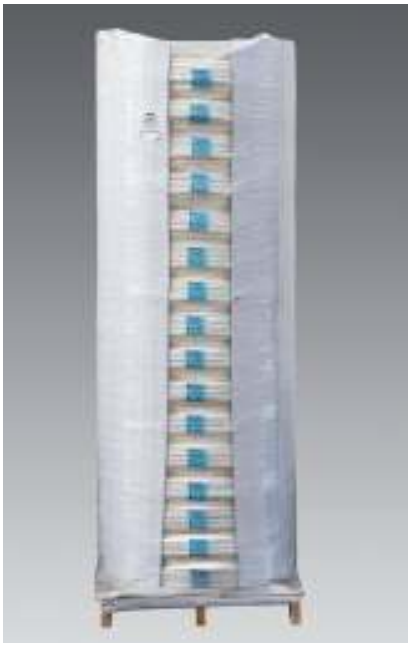
European Directive 98/83/EC of 3 November 1998
on the quality of water intended for human consumption (OJ No. L 330, 12.05.1998)

D.L. February 2, 2001 n. 31
Implementation of Directive 98/83/EC on water intended for human consumption.

Ministerial Decree April 6, 2004 n. 174
Regulation of materials and objects that can be used in stationary collection, treatment, supply and distribution of water intended for human consumption.

silmet S.P.A. CONDY COPPER TUBE

CONDY, the copper tube ideal for transporting cooling gases. It is supplied with caps at the ends to retain the high level of cleanliness of the internal surface required for installation.



The particularly well-designed coating is made from very low-density closed cell expanded polyethylene and guarantees an excellent resistance to the spread of water vapour with the resulting reduction in the formation of humidity on the outer surface of the tube.

The coating is odourless, non-toxic and made without the use of CFC. Its external surface is corrugated giving further mechanical protection. It is classified as **Class 1** fire resistant and is suitable for use in plants with operating temperatures ranging from -80°C to +98°C.

The CONDY copper tube is supplied in 50-metre coils marked at intervals also indicating the relative meters.

The core of the CONDY is the SILMET copper tube manufactured according to the European standard **EN 12735-1** and with a level of internal cleanliness that also complies with standard **ASTM B280**.

INSULATION DENSITY	: 45 kg/m³
THICKNESS OF THE INSULATING SHEATH	: from 7.5 to 10 mm
USAGE TEMPERATURE	: -80 °C +98 °C
WATER VAPOUR DISPERSION COEFFICIENT	: 5482
THERMAL CONDUCTIVITY	: 0.0397 W · m^{-1} · K^{-1}
FIRE RESISTANCE	: Class 1 (self-extinguishing)
WRAPPING	: coils individually wrapped with transparent film giving further protection

CHARACTERISTICS OF THE COPPER TUBE

Alloy	Cu-DHP CW024A (Cu = 99.90% min. – P = 0.015 – 0.040%)
Physical state	Annealed
Unit tensile strength	220 MPa/mm² min.
Elongation percentage	40% min.
Internal cleanliness	C max. 0.20 mg/dm²
Dimensions and tolerances[1]	according to standard EN 12735-1
Internal surface roughness	RA 1/10 micron
Linear thermal expansion coefficient	0.00168 mm/m °C
Thermal conductivity at 20 °C	364 W/m k

[1] Products with marking, dimensional tolerances and various lengths can be prepared on specific Customer request.

CONDY COPPER TUBE

silmet S.P.A.

TABLE OF DIMENSIONS OF THE SILMET CONDY COPPER TUBE

dimensions without insulation mm	diameter with insulation mm	thickness of insulating sheath mm	bursting pressure MPa	operating pressure MPa	coil length m	water content per meter l/m
thickness 0,80 mm						
6,35 X 0,80 – 1/4"	21,35	7,5	56,54	14,14	50	0,0177
7,94 X 0,80 – 5/16"	22,94	7,5	45,22	11,30	50	0,0316
9,52 X 0,80 – 3/8"	25,52	8	37,71	9,43	50	0,0493
12,70 X 0,80 – 1/2"	32,7	10	28,27	7,07	50	0,0968
thickness 1 mm						
6,35 X 1 – 1/4"	21,35	7,5	70,68	17,67	50	0,0149
9,52 X 1 – 3/8"	25,52	8	47,14	11,79	50	0,0444
12,70 X 1 – 1/2"	32,7	10	35,34	8,83	50	0,0899
15,87 X 1 – 5/8"	35,87	10	28,28	7,07	50	0,1511
19,05 X 1 – 3/4"	39,06	10	23,55	5,89	50	0,2286

PALLETISATION OF SILMET CONDY COATED COILS

measurement Ø x thickness mm	coil length m	coils per pallet n	meters per pallet m	approx. gross pallet weight kg	dimensions of pack cm
thickness 0,80 mm					
6,35 X 0,80 - 1/4"	50	16	800	128	h 220 X Ø 80
7,94 X 0,80 - 5/16"	50	15	750	147	h 220 X Ø 80
9,52 X 0,80 - 3/8"	50	14	700	162	h 220 X Ø 80
12,70 X 0,80 - 1/2"	50	15	750	225	h 220 X Ø 80
thickness 1 mm					
6,35 X 1 - 1/4"	50	16	800	150	h 220 X Ø 80
9,52 X 1 - 3/8"	50	14	700	190	h 220 X Ø 80
12,70 X 1- 1/2"	50	15	750	290	h 220 X Ø 80
15,87 X 1 - 5/8"	50	12	600	288	**h 220 X Ø 90**
19,05 X 1 - 3/4"	50	10	500	285	**h 220 X Ø 90**

The packs cannot be stacked.
A maximum of 2 packs with a large diameter (**h 220 x Ø 90 cm**) and available for other coated products, are loaded onto the pallet side-by-side together with a third smaller pallet.
The others can be loaded side-by-side in threes.

REFRY COPPER TUBE

REFRY, the copper tube that is ideal for distributing cooling liquids and particularly suitable for building FAN-COIL heating and cooling systems. It is supplied with caps at the end for retaining the required high level of cleanliness on the inner surface until its installation.

The particularly well-designed coating, made using low density, closed cell expanded polyethylene guarantees excellent resistance to the loss of water vapour with the resulting reduction in the formation of humidity on the external surface of the tube and complies with **Law 10/91**, former Law 373, concerning the design, installation, running and maintenance of thermal plants in buildings for the purpose of the control of energy consumption.

The coating is odourless, non-toxic and made without the use of CFC. Its external surface is corrugated giving further mechanical protection. It has class 1 fire resistance classification and is suitable to be used in plants with operating temperatures from -30°C to +95°C.

The REFRY copper tube is supplied in 50-metre coils (25 metres for Ø 22 mm) marked at intervals also indicating the relative metres.

The core of the REFRY is the ESENCOR copper tube, providing excellent protection against corrosion, the result of scientific studies and tests that guarantee a considerably lower level of carbon residue than is required by the manufacturing standards, with a level of internal cleanliness that complies with standard **ASTM B280.**

The copper tube EN 1057 is marked CE as required by 89/106/EEC EU Construction Products Directive.

INSULATION DENSITY	: 45 kg/m³
THICKNESS OF THE INSULATING SHEATH	: from 8 to 15 mm
OPERATING TEMPERATURES	: -30 °C +95 °C
WATER VAPOUR LOSS COEFFICIENT	: 5482
THERMAL CONDUCTIBILITY	: 0.0397 W · m^{-1} · K^{-1}
FIRE RESISTANCE	: Class 1 (self-extinguishing)
WRAPPING	: coils individually wrapped with transparent film to give further pro

CHARACTERISTICS OF THE ESENCOR COPPER TUBE

Alloy	Cu-DHP CW024A (Cu = 99.90% min. – P = 0.015 ÷ 0.040%)
Physical state	Annealed
Unit tensile strength	220 MPa/mm² min.
Percentage elongation	40% min.
Internal cleanliness	C max. 0.20 mg/dm²
Dimensions and tolerances [1]	in compliance with standard EN 1057
Internal surface roughness	RA 1/10 micron
Linear thermal expansion coefficient	0.00168 mm/m °C
Thermal conductivity at 20 °C	364 W/m k

[1] Products with marking, dimensional tolerances and various lengths can be prepared on specific Customer request.

REFRY COPPER TUBE

TABLE OF THE DIMENSIONS OF THE SILMET REFRY COPPER TUBE

dimensions without insulation mm	diameter with insulation mm	thickness of insulating sheath mm	bursting pressure MPa	operating pressure MPa	coil length m	water content per meter l/m
6 X 1	22	8	74,80	18,70	50	0,0126
8 X 1	24	8	56,10	14,03	50	0,0283
10 X 1	28	9	44,88	11,22	50	0,0503
12 X 1	30	9	37,40	9,35	50	0,0785
14 X 1	38	12	32,06	8,01	50	0,1131
15 X 1	39	12	29,92	7,48	50	0,1327
16 X 1	40	12	28,05	7,01	50	0,1539
18 X 1	42	12	24,93	6,23	50	0,2011
22 X 1	52	15	20,40	5,10	25	0,3142

PALLETISATION OF SILMET REFRY COATED COILS

measurement Ø x thickness mm	coil length m	coils per pallet n	meters per pallet m	approx. gross pallet weight kg	dimensions of pack cm
6 X 1	22	8	74,80	18,70	50
8 X 1	24	8	56,10	14,03	50
10 X 1	28	9	44,88	11,22	50
12 X 1	30	9	37,40	9,35	50
14 X 1	38	12	32,06	8,01	50
15 X 1	39	12	29,92	7,48	50
16 X 1	40	12	28,05	7,01	50
18 X 1	42	12	24,93	6,23	50
22 X 1	52	15	20,40	5,10	25

The packs cannot be stacked.
A maximum of 2 packs with a large diameter (**h 220 x Ø 90 cm**) and available for other coated products, are loaded onto the pallet side-by-side together with a third smaller pallet.
The others can be loaded side-by-side in threes.

REFRY copper tube is suitable for the following fields of use and with the following references:

Potable water, hot and cold

DPR 1095 August 3, 1968
Amendment to Article 125 of the General Health Regulation approved by Royal Decree 3 February 1901,n. 45, and amended by Royal Decree of 23 June 1904, n. 369.

European Directive 98/83/EC of 3 November 1998
on the quality of water intended for human consumption (OJ No. L 330, 12.05.1998)

D.L. February 2, 2001 n. 31
Implementation of Directive 98/83/EC on water intended for human consumption.

Ministerial Decree April 6, 2004 n. 174
Regulation of materials and objects that can be used in stationary collection, treatment, supply and distribution of water intended for human consumption.

Heating

Subject to the provisions of the **Law of January 9, 1991 No. 10 and Presidential Decree August 26, 1993 n. 412.**

silmet S.P.A. STRONG COPPER TUBE

STRONG, a copper tube specifically designed for use on heavy engineering sites; in fact its special crush-proof coating guarantees protection against any stress that may occur on site before the tube is installed under the floor, preventing impacts, abrasions and contact with particularly aggressive materials.

The coating is made in low density, closed cell expanded polyethylene, in compliance with Law 10/91, former **Law 373**, concerning the design, installation, running and maintenance of thermal plants in buildings designed to control energy consumption.

The coating is odourless, non-toxic and made without the use of CFC. It is suitable to be used in plants with operating temperatures ranging from -70°C to +95°C.

The coils are individually wrapped in a transparent film giving further protection to the coating during handling and transport.

The STRONG copper tube is supplied in 50-metre coils, marked at intervals also indicating the relative meters.

The core of the STRONG is formed by the ESENCOR copper tube, which provides excellent protection against corrosion. It is the result of scientific studies and tests that guarantee a considerably lower level of residual carbon than that required by manufacturing standards.

The copper tube EN 1057 is marked CE as required by 89/106/EEC EU Construction Products Directive.

INSULATION DENSITY	: 160 kg/m³
THICKNESS OF THE INSULATING SHEATH	: from 6 to 6.5 mm
USAGE TEMPERATURES	: -70 °C +95 °C
THERMAL CONDUCTIVITY	: 0.0397 W · m^{-1} · K^{-1}
RESISTANCE TO FIRE	: Class 1 self-extinguishing
WRAPPING	: coils individually wrapped with transparent film for further protection

CHARACTERISTICS OF THE ESENCOR COPPER TUBE

Alloy	Cu-DHP CW024A (Cu = 99.90% min. – P = 0.015 ÷ 0.040%)
Physical state	Annealed
Unit tensile strength	220 MPa/mm² min.
Percentage elongation	40% min.
Internal cleanliness	C max. 0,20 mg/dm²
Dimensions and tolerances [1]	in compliance with standard EN 1057
Internal surface roughness	RA 1/10 micron
Linear thermal expansion coefficient	0.00168 mm/m °C
Thermal conductivity at 20 °C	364 W/m k

[1] Products with marking, dimensional tolerances and various lengths can be prepared on specific Customer request.

TABLE OF THE DIMENSIONS OF THE SILMET STRONG COPPER TUBE

dimensions without insulation mm	diameter with insulation mm	thickness of insulating sheath mm	bursting pressure MPa	operating pressure MPa	coil length m	water content per meter l/m
10 X 1	22	6	44,88	11,22	50	0,0503
12 X 1	24	6	37,40	9,35	50	0,0785
14 X 1	26	6	32,06	8,01	50	0,1131
15 X 1	27	6	29,92	7,48	50	0,1327
16 X 1	29	6,5	28,05	7,01	50	0,1539
18 X 1	31	6,5	24,93	6,23	50	0,2011

PALLETISATION OF SILMET STRONG COATED COILS

measurement Ø x thickness mm	coil length m	coils per pallet n	metres per pallet m	approx. gross pallet weight kg	dimensions of pack cm
10 X 1	50	20	1.000	344	h 220 X Ø 80
12 X 1	50	17	850	320	h 220 X Ø 80
14 X 1	50	16	800	338	h 220 X Ø 80
15 X 1	50	15	750	360	h 220 X Ø 80
16 X 1	50	15	750	370	**h 220 X Ø 90**
18 X 1	50	13	650	365	**h 220 X Ø 90**

The packs cannot be stacked.
A maximum of 2 packs with a large diameter (**h 220 x Ø 90 cm**) and available for other coated products, are loaded onto the pallet side-by-side together with a third smaller pallet.
The others can be loaded side-by-side in threes.

STRONG copper tube is suitable for the following fields of use and with the following references:

Potable water, hot and cold

DPR 1095 August 3, 1968
Amendment to Article 125 of the General Health Regulation approved by Royal Decree 3 February 1901,n. 45, and amended by Royal Decree of 23 June 1904, n. 369.

European Directive 98/83/EC of 3 November 1998
on the quality of water intended for human consumption (OJ No. L 330, 12.05.1998)

D.L. February 2, 2001 n. 31
Implementation of Directive 98/83/EC on water intended for human consumption.

Ministerial Decree April 6, 2004 n. 174
Regulation of materials and objects that can be used in stationary collection, treatment, supply and distribution of water intended for human consumption.

Distribution of liquid and gaseous fuels by:

UNI CIG 7129
Gas systems for household and similar powered by the distribution network - Design and installation.

Heating

Subject to the provisions of the **Law of January 9, 1991 No. 10 and Presidential Decree August 26, 1993 n. 412.**

PVC COPPER TUBE

SILMET PVC, a copper tube pre-insulated with PVC, produced with cutting-edge machinery, complies with all the international reference standards, is manufactured according to **D.P.R. 1095/68 and D.M. n. 174 of 06.04.2004 of Italian Department of Health - ref. European Council Directive n. 98/83/EC** as far as the transport of drinking water is concerned, and is suitable for building plants for transporting gas **(UNI CIG 7129).**

The characteristics of our coating in PVC make the tube resistant to abrasions and corrosion and the particular internal star-shaped structure allows the correct expansion of the copper tube without jeopardising the condition of the coating.

The PVC coating is odourless, non-toxic and is made without the use of CFC. It is suitable to be used in plants with operating temperatures ranging from -80°C to +100°C.

The PVC copper tube is supplied in 50-meter coils (25 meters with Ø 22 mm) marked at intervals also indicating the relative meters.

The core of the SILMET PVC is the ESENCOR copper tube providing excellent protection against corrosion, the result of scientific studies and tests that guarantee a considerably lower level of residual carbon than is required by the manufacturing standards.

The main characteristics of the SILMET PVC sheath are excellent plasticity, mechanical resistance to abrasions and corrosion, all ensuring that the tube lasts for a long time.

The pre-insulated copper PVC SILMET tube is mainly used in under-floor heating plants, water distribution systems and in the production of gas and air lines.

The copper tube EN 1057 is marked CE as required by 89/106/EEC EU Construction Products Directive.

THICKNESS OF THE INSULATING SHEATH	: 2 mm
USAGE TEMPERATURES	: -80 °C +100 °C
THERMAL CONDUCTIVITY	: 0,0397 W · m^{-1} · K^{-1}
RESISTANCE TO FIRE	: self-extinguishing
WRAPPING	: coils individually wrapped with transparent film for further protection

CHARACTERISTICS OF THE ESENCOR COPPER TUBE

Alloy	Cu-DHP CW024A (Cu = 99.90% min. – P = 0.015 ÷ 0.040%)
Physical state	Annealed
Unit tensile strength	220 MPa/mm² min.
Percentage elongation	40% min.
Internal cleanliness	C max. 0,20 mg/dm²
Dimensions and tolerances [1]	in compliance with standard EN 1057
Internal surface roughness	RA 1/10 micron
Linear thermal expansion coefficient	0.00168 mm/m °C
Thermal conductivity at 20 °C	364 W/m k

[1] Products with marking, dimensional tolerances and various lengths can be prepared on specific Customer request.

PVC COPPER TUBE

silmet S.P.A.

TABLE OF THE DIMENSIONS OF THE SILMET PVC COPPER TUBE

dimensions without insulation mm	diameter with insulation mm	thickness of insulating sheath mm	bursting pressure MPa	operating pressure MPa	coil length m	water content per meter l/m
6 X 1	10	2	74,80	18,70	50	0,0126
8 X 1	12	2	56,10	14,03	50	0,0283
10 X 1	14	2	44,88	11,22	50	0,0503
12 X 1	16	2	37,40	9,35	50	0,0785
14 X 1	18	2	32,06	8,01	50	0,1131
15 X 1	19	2	29,92	7,48	50	0,1327
16 X 1	20	2	28,05	7,01	50	0,1539
18 X 1	22	2	24,93	6,23	50	0,2011
22 X 1	26	2	20,40	5,10	25	0,3142

PALLETISATION OF SILMET PVC COATED COILS

measurement Ø x thickness mm	coil length m	coils per pallet n	metres per pallet m	approx. gross pallet weight kg	dimensions of pack cm
10 X 1	50	30	1.500	425	h 220 X Ø 80
12 X 1	50	30	1.500	512	h 220 X Ø 80
14 X 1	50	27	1.350	545	h 220 X Ø 80
15 X 1	50	26	1.300	585	h 220 X Ø 80
16 X 1	50	25	1.250	600	h 220 X Ø 80
18 X 1	50	23	1.150	614	h 220 X Ø 90
22 X 1	25	26	650	460	h 220 X Ø 90

The packs cannot be stacked.
A maximum of 2 packs with a large diameter (**h 220 x Ø 90 cm**) and available for other coated products, are loaded onto the pallet side-by-side together with a third smaller pallet.
The others can be loaded side-by-side in threes.

PVC copper tube is suitable for the following fields of use and with the following references:

Potable water, hot and cold

DPR 1095 August 3, 1968
Amendment to Article 125 of the General Health Regulation approved by Royal Decree 3 February 1901,n. 45, and amended by Royal Decree of 23 June 1904, n. 369.

European Directive 98/83/EC of 3 November 1998
on the quality of water intended for human consumption (OJ No. L 330, 12.05.1998)

D.L. February 2, 2001 n. 31
Implementation of Directive 98/83/EC on water intended for human consumption.

Ministerial Decree April 6, 2004 n. 174
Regulation of materials and objects that can be used in stationary collection, treatment, supply and distribution of water intended for human consumption.

Distribution of liquid and gaseous fuels by:

UNI CIG 7129
Gas systems for household and similar powered by the distribution network - Design and installation.

Heating

Subject to the provisions of the **Law of January 9, 1991 No. 10 and Presidential Decree August 26, 1993 n. 412.**

silmet S.P.A. PVC GAS COPPER TUBE

SILMET PVC GAS, a copper tube pre-insulated with PVC, produced with cutting-edge machinery, complies with all the international reference standards, is manufactured according to **D.P.R. 1095/68 and D.M. n. 174 of 06.04.2004 of Italian Department of Health - ref. European Council Directive n. 98/83/EC** as far as the transport of drinking water is concerned and is suitable for building plants for transporting gas (**UNI CIG 7129**).

It is coated with a yellow polyvinyl chloride (PVC) sheath that makes it easy to recognise during installation; it is non-toxic, odourless and free from chlorofluorocarbons (CFC).

The characteristics of our coating in PVC GAS make the tube resistant to abrasions and corrosion and the particular internal structure allows the correct expansion of the copper tube without jeopardising the condition of the coating.

The PVC coating is odourless, non-toxic and is made without the use of CFC. It is suitable to be used in plants with operating temperatures ranging from -80°C to +100°C.

The PVC GAS copper tube is supplied in 50-meter coils (25 meters with Ø 22 mm) marked at intervals also indicating the relative meters.

The main characteristics of the PVC GAS sheath are excellent plasticity, mechanical resistance to abrasions and corrosion, all ensuring that the tube lasts for a long time. Perfect adherence to the tube without insulation: the coating complies with **UNI 10823** "Coated copper tubes for gas application in underground zones".

The copper tube EN 1057 is marked CE as required by 89/106/EEC EU Construction Products Directive.

THICKNESS OF THE INSULATING SHEATH	: 2 mm
USAGE TEMPERATURES	: -80 °C +100 °C
THERMAL CONDUCTIVITY	: 0,0397 W · m^{-1} · K^{-1}
RESISTANCE TO FIRE	: self-extinguishing
WRAPPING	: coils individually wrapped with transparent film for further protection

CHARACTERISTICS OF THE ESENCOR COPPER TUBE

Alloy	Cu-DHP CW024A (Cu = 99.90% min. – P = 0.015 ÷ 0.040%)
Physical state	Annealed
Unit tensile strength	220 MPa/mm² min.
Percentage elongation	40% min.
Internal cleanliness	C max. 0,20 mg/dm²
Dimensions and tolerances [1]	in compliance with standard EN 1057
Internal surface roughness	RA 1/10 micron
Linear thermal expansion coefficient	0.00168 mm/m °C
Thermal conductivity at 20 °C	364 W/m k

[1] Products with marking, dimensional tolerances and various lengths can be prepared on specific Customer request.

PVC GAS COPPER TUBE

TABLE OF THE DIMENSIONS OF THE SILMET PVC GAS COPPER TUBE

dimensions without insulation mm	diameter with insulation mm	thickness of insulating sheath mm	bursting pressure MPa	operating pressure MPa	coil length m	water content per meter l/m
10 X 1	14	2	44,88	11,22	50	0,0503
12 X 1	16	2	37,40	9,35	50	0,0785
14 X 1	18	2	32,06	8,01	50	0,1131
15 X 1	19	2	29,92	7,48	50	0,1327
16 X 1	20	2	28,05	7,01	50	0,1539
18 X 1	22	2	24,93	6,23	50	0,2011
22 X 1,5	26	2	30,60	7,65	25	0,2835

PALLETISATION OF SILMET PVC GAS COATED COILS

measurement Ø x thickness mm	coil length m	coils per pallet n	metres per pallet m	approx. gross pallet weight kg	dimensions of pack cm
10 X 1	50	30	1.500	425	h 220 X Ø 80
12 X 1	50	30	1.500	512	h 220 X Ø 80
14 X 1	50	27	1.350	545	h 220 X Ø 80
15 X 1	50	26	1.300	585	h 220 X Ø 80
16 X 1	50	25	1.250	600	h 220 X Ø 80
18 X 1	50	23	1.150	614	**h 220 X Ø 90**
22 x 1,5	25	26	650	460	**h 220 X Ø 90**

The packs cannot be stacked.
A maximum of 2 packs with a large diameter (**h 220 x Ø 90 cm**) and available for other coated products, are loaded onto the pallet side-by-side together with a third smaller pallet.
The others can be loaded side-by-side in threes.

PVC GAS copper tube is suitable for the following fields of use and with the following references:

Distribution of liquid and gaseous fuels by:

UNI CIG 7129
Gas systems for household and similar powered by the distribution network - Design and installation.

silmet S.P.A. SYSTEM GAS COPPER TUBE

SYSTEM GAS, Tube in Cu DHP 99.9% copper - **EN 1057**, insulated with sheath in closed cell, expanded polyethylene, produced with cutting-edge machinery and explicitly made for building gas transport plants in civil residential buildings and according to the prescriptions of standard **UNI CIG 7129** for under-floor tubes.

The internal air chamber, between the copper tube and the coating itself, allows gas to exit the building if there are any leaks from the feeding plant.

Silmet SYSTEM GAS is the optimal solution for building under-floor gas transport systems.

The core of the SILMET SYSTEM GAS is the ESENCOR copper tube, providing excellent protection against corrosion, the result of scientific studies and tests that guarantee a considerably lower level of residual carbon than is required by the manufacturing standards.

The Silmet SYSTEM GAS copper tube is supplied in 50-meter coils (25 meters with Ø 22 mm) marked at intervals also indicating the relative meters.

CE

The copper tube EN 1057 is marked CE as required by 89/106/EEC EU Construction Products Directive.

INSULATION DENSITY	: 130 kg/m³
THICKNESS OF THE INSULATING SHEATH	: 6 mm
USAGE TEMPERATURES	: -30 °C +95 °C
THERMAL CONDUCTIVITY	: 0,0397 W · m^{-1} · K^{-1}
RESISTANCE TO FIRE	: Class 1 (self-extinguishing)
WRAPPING	: coils individually wrapped with transparent film to give further protection

CHARACTERISTICS OF THE ESENCOR COPPER TUBE

Alloy	Cu-DHP CW024A (Cu = 99.90% min. – P = 0.015 ÷ 0.040%)
Physical state	Annealed
Unit tensile strength	220 MPa/mm² min.
Percentage elongation	40% min.
Internal cleanliness	C max. 0,20 mg/dm²
Dimensions and tolerances [1]	in compliance with standard EN 1057
Internal surface roughness	RA 1/10 micron
Linear thermal expansion coefficient	0.00168 mm/m °C
Thermal conductivity at 20 °C	364 W/m k

[1] Products with marking, dimensional tolerances and various lengths can be prepared on specific Customer request.

SYSTEM GAS COPPER TUBE silmet S.P.A.

TABLE OF THE DIMENSIONS OF THE SILMET SYSTEM GAS COPPER TUBE

dimensions without insulation mm	diameter with insulation mm	thickness of insulating sheath mm	bursting pressure MPa	operating pressure MPa	coil length m	water content per meter l/m
12 X 1	24	6	37,40	9,35	50	0,0785
14 X 1	26	6	32,06	8,01	50	0,1131
15 X 1	27	6	29,92	7,48	50	0,1327
16 X 1	28	6	28,05	7,01	50	0,1539
18 X 1	30	6	24,93	6,23	50	0,2011
22 X 1,5	34	6	30,60	7,65	25	0,2835

PALLETISATION OF SILMET SYSTEM GAS COATED COILS

measurement Ø x thickness mm	coil length m	coils per pallet n	metres per pallet m	approx. gross pallet weight kg	dimensions of pack cm
12 X 1	50	17	850	335	h 220 X Ø 80
14 X 1	50	16	800	363	h 220 X Ø 80
15 X 1	50	15	750	383	h 220 X Ø 80
16 X 1	50	15	750	394	h 220 X Ø 80
18 X 1	50	13	650	375	**h 220 X Ø 90**
22 x 1,5	25	18	450	456	**h 220 X Ø 90**

The packs cannot be stacked.
A maximum of 2 packs with a large diameter (**h 220 x Ø 90 cm**) and available for other coated products, are loaded onto the pallet side-by-side together with a third smaller pallet.
The others can be loaded side-by-side in threes.

SYSTEM GAS copper tube is suitable for the following fields of use and with the following references:

Distribution of liquid and gaseous fuels by:

UNI CIG 7129
Gas systems for household and similar powered by the distribution network - Design and installation.

COPPER/PE ATLAS TUBE

ATLAS is a composite copper tube, with reduced thickness, and polyethylene and is compatible with the fittings on the market.

It is used in the plumbing, transport of cold potable water and for the heating and cooling radiant systems.

Also ideal for the construction of heat storage and geothermal heating systems.

The copper tube, with reduced thickness, is joined indissolubly to the polyethylene that protects the outer surface.

Copper, the core of this product, is in contact with the circulating fluid and are therefore guaranteed the benefits of this unique metal: antibacterial, performance and hygiene.

Conforms to the **DPR 1095/68** and according to the **Decree of the Ministry of Health no. 174 of 06.04.2004** with reference to the **European Directive n. 98/83/EC** as regards the transport of drinking water

CHARACTERISTICS OF THE ATLAS TUBE

Alloy of internal material in contact with fluids	Cu-DHP CW024A (Cu = 99,90% min. – P = 0,015 ÷ 0,040%)
Coating	Polyethylene
Internal cleanliness	C max. 0,20 mg/dm² (rif. EN 1057)
Dimensions and tolerances	according to UNI 11342 standard
Internal surface roughness	RA 1/10 di micron
Linear thermal expansion coefficient	0,00168 mm/m °C
Thermal conductivity at 20 °C	0,36 W m/k

TABLE OF DIMENSIONS OF THE SILMET ATLAS TUBE

dimensions Ø x thickness mm	**copper thickness** mm	**operating pressure** bar	**coil length** m	**water content per meter** l/m
14 X 2	0,30	33	100	0,0785
16 X 2	0,35	32	100	0,1131
20 X 2	0,50	34	50	0,2011

COPPER/PE ATLAS TEN TUBE silmet S.P.A.

ATLAS TEN, a copper tube pre-insulated with low-density closed cell expanded polyethylene, in compliance with **Law 10/91**, former Law 373, regarding the design, installation, running and maintenance of thermal systems for buildings, for the purposes of energy consumption control.

Ideal for water distribution systems, classified in fire resistance **Class 1**, the coating has been designed in the smallest details to respond excellently to the increasingly more qualified requirements in the design of modern plants.

The protective film is corrugated to provide greater adherence to cement mortars and has an excellent resistance to external agents.

The coating is odourless, non-toxic and is made without the use of CFC. It is suitable to be used in plants with operating temperatures up to +95 °C in continuous.

The ATLAS TEN copper tube is supplied in 50-meter coils marked at intervals also indicating the relative meters.

The core of the product is the ATLAS copper composite tube, providing excellent protection against corrosion, the result of scientific studies and tests that guarantee a considerably lower level of residual carbon than is required by manufacturing standards

INSULATION DENSITY : 30 kg/m³
THICKNESS OF THE INSULATING SHEATH : from 6 to 9 mm
OPERATING TEMPERATURES : up to +95 °C in continuous
THERMAL CONDUCTIBILITY : 0,0397 W · m^{-1} · K^{-1}
RESISTANCE TO FIRE : Class 1 (self-extinguishing)
WRAPPING : coils individually wrapped with transparent film to give further protection

CHARACTERISTICS OF THE ATLAS TUBE

Alloy of internal material in contact with fluids	Cu-DHP CW024A (Cu = 99,90% min. – P = 0,015 ÷ 0,040%)
Coating	Polyethylene
Internal cleanliness	C max. 0,20 mg/dm² (rif. EN 1057)
Dimensions and tolerances	according to UNI 11342 standard
Internal surface roughness	RA 1/10 di micron
Linear thermal expansion coefficient	0,00168 mm/m °C
Thermal conductivity at 20 °C	0,36 W m/k

TABLE OF DIMENSIONS OF THE SILMET ATLAS TEN TUBE

dimensions Ø x thickness mm	**copper thickness** mm	**operating pressure** bar	**coil length** m	**water content per meter** l/m
14 X 2	0,30	33	50	0,0785
16 X 2	0,35	32	50	0,1131
20 X 2	0,50	34	50	0,2011

LWC COPPER TUBE

QUALITY: THE SILMET LIFE STYLE

All Silmet Lewel Wound Coils for industrial use and ACRs are produced in compliance with all international standards and also with the specific requirements of customers.
Particular attention is paid to dimensional uniformity, uniformity of the physical state, the absence of faults and internal cleanliness.
The length, approximate weight, number of faults present, dimensions and all references aimed at guaranteeing the traceability of the product with regard to laboratory tests carried out in compliance with stringent sampling and control plans implemented during production, are highlighted for each individual coil.

The internal cleanliness of the tubes is considerably above the limit of 0.038 g/m².

The Silmet Quality System is certified in compliance with standard **ISO 9001:2008** and the Quality Service is assigned to highly qualified, constantly updated personnel with functions that are independent from production departments; they use the most sophisticated laboratory and production control equipment.

Tutte le fasi del processo produttivo, a partire dall'accettazione materia prima, sono sottoposte a piani di All phases of the production process, starting from acceptance of raw materials, are subject to very severe sampling and control plans aimed at guaranteeing that the end products achieve very high quality standards.

Silmet S.p.A. has been manufacturing copper tubes for usage in water and gas tubes in sanitary and heating applications and in the industrial sectors since 1973. Over recent years, due to its excellent conductivity, machinability, resistance to corrosion and user-friendliness, the copper tube has made a name for itself as the ideal product for air-conditioning/refrigeration equipment and for the heating industry.

Silmet has always been aware of the needs of the market and is constantly up-to-date technologically.

With all these things in mind, in order to help its customers with the growing trend in production automation and to be able to satisfy their requirements, Silmet is equipped with cutting-edge Level Wound Coils production plants.

COPPER CHEMICAL/PHYSICAL/TECHNOLOGICAL PROPERTIES

Symbol	Cu
Atomic number	29
Atomic weight	2.6625
Crystalline structure	cubic with faces centred with the side of the cube 3.6078 Å
smelting temperature	1083° C
Boiling temperature	2595° C
Volumic mass (density) at 20° C	8.94 g/cm³
Coefficient of linear thermal expansion at 20° C	0.0000165 · K^{-1}
Solidification shrinkage	4.92%
Specific heat at 20° C	385 J/kg K
Latent smelting heat	205 kj/kg
Thermal conductivity at 20° C	391 W/m K
Electric resistivity at 20° C annealed physical state	0.017241 Ω mm²/m
Electric resistivity temperature coefficient at 20° C	0.00393 · K^{-1}
Alloy for the production of LWC	Cu-DHP CW024A (Cu = 99.90% min. - P = 0.015 ÷ 0.040%)

MECHANICAL CHARACTERISTICS OF COPPER AND LOW ALLOY COPPER ALLOYS - EN 12449

Designation material state	thickness t mm max.	resistance to tensile strength Rm N/mm² min.	yield at 0,2% Rp0,2 N/mm² min.	yield at 0,2% Rp0,2 N/mm² max.	elongation A % min.	hardness HV min.	hardness HV max.	hardness HB min.	hardness HB max.
R200	20	200	-	110	40	-	-	-	-
H040	20	-	-	-	-	40	65	35	60

TOLERANCES ON EXTERNAL DIAMETER IN COMPLIANCE WITH EN 12449 - TUBES IN LWC

external nominal diameter mm greater than	external nominal diameter mm up to and including	tolerances on nominal diameter mm applicable to mean diameter	tolerances on nominal diameter mm applicable to any diameter including deviation from circular form
3	6	± 0,06	± 0,30
6	10	± 0,06	± 0,50
10	20	± 0,08	± 0,70
20	30	± 0,12	± 0,90

TOLERANCES ON THICKNESS ACCORDING TO EN 12449 - TUBES IN LWC

external nominal diameter mm greater than	external nominal diameter mm up to and including	tolerances on nominal thickness t % t from 0.3 mm up to and including 1 mm	tolerances on nominal thickness t % t greater than 1 mm up to and including 3 mm
3	28	± 15	± 13

Even if not included in this table, measurements must be agreed when the order is made.

LWC tubes can be delivered WITH or WITHOUT cardboard coils.

The coils are stacked on wooden pallets and secured with a sheet of heat-shrunk plastic. The practical dimensional limits of the pallets are 2.1 m in height and 1.5 tons in weight.

Any other packing requirement can be assessed when the order is made.

NASTRI DI RAME

Copper strip for building and industrial applications

Silmet, a traditional copper tube manufacturer, has started manufacturing copper strip and sheet for building and industrial applications.

In line with its long tradition, which has always distinguished Silmet's investments, the strategies and industrial choices have focused on the very best and most advanced manufacturing technologies available for this type of product.

Copper, a raw material used to produce the whole range of Silmet's products, has proven to be the best material due to its excellent electrical and thermal conductivity, has a 100% recycling rate, not to mention its special mechanical and physical properties that distinguish the products manufactured using this raw material.

The production and finishing lines, which are largely automated, guarantee the state-of-the-art quality standards of the products present on the market.

Silmet's copper strip and sheet are ideal for use in the building industry for producing eaves, downpipes, claddings and roofings; in industry, they meet all the strictest quality standards in terms of annealing, dimensional tolerances and coil weights.

Its laminates can be used as they are, without having to coat them with paint or other kind of protective covering; they require no particular maintenance and have an excellent corrosive strength, not to mention the attractive external appearance of copper parts.

The international standards to which the Silmet strips conform are:

EN 1172
Sheet and strip for building purposes

EN 1652
Plate, sheet, strip and circles for general purposes

To Specification
Products with marks, dimensional tolerances, physical states and other characteristics defined on specific request by the Customer, even in partial modification of the specifications indicated above

Supply Conditions:

Raw material:
Cu-DHP (Cu 99.9% min. – P from 0.015% to 0.040%)
Cu-ETP (Cu 99.9% min. – Bi max. 0.0005% – O max. 0.040%1 – Pb max. 0.005%)
1 is allowed an oxygen content up to 0.060%, by agreement between the buyer and the supplier

Maximum width: 1,250 mm

Thickness: from 0.10 mm to 2.5 mm

Weight of coil: up to 12,000 kg

Cu DOWNSPOUTS – PLUVIO silmet S.P.A.

Electowelded Downspouts in Copper - PLUVIO

Standard: **EN 612**

Diameter: 60 - 75 - 76 - 80 - 87 - 100 - 120 mm

Thicknesses: 0,50 - 0,55 - 0,60 - 0,70 - 0,80 - 0,90 - 1,00 mm

Standard lengths: 2.000 - 3.000 - 4.000 - 6.000 mm

Diameters, thicknesses and lengths available

Ø downspouts	thickness - mm							length - mm			
mm	0,50	0,55	0,60	0,70	0,80	0,90	1,00	2.000	3.000	4.000	6.000
60	X	X	X					X	X		
75		X	X					X		X	
76			X					X		X	
80	X	X	X	X	X	X	X	X	X	X	X
87			X					X	X	X	
100	X	X	X	X	X	X	X	X	X	X	X
120			X	X	X		X	X	X	X	

note

silmet S.P.A.

25030 Torbole Casaglia (Brescia) Italy – Via Martiri della Libertà, 31
Tel. +39 030 2650275 – Fax +39 030 2651061 – www.silmet.com – info@silmet.com

Cod. Fisc. 00311120174 – P.IVA 03488610175