

FRANKLIN
DELIVERING INNOVATIVE SOLUTIONS SINCE 1954

wieland

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National Contracts Manger

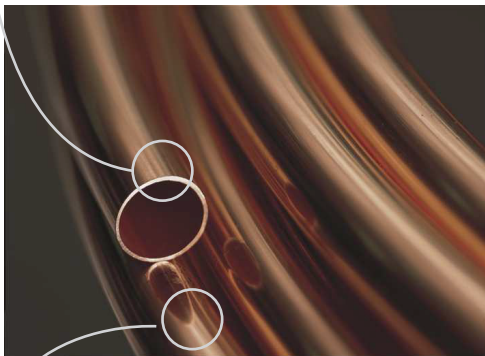
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SANCO copper plumbing tubes – material designation and homogeneity

Features:

- Pure copper Cu-DHP / Wieland K20; > 99.9% Cu and 0.015 – 0.040 P
- Straight lengths hard temper: Tensile strength min. 290 MPa and Elongation > 3%
- Every tube is 100% tested by Eddy Current Testing (ECT)
- Eddy Current Testing is done with increased testing precision (higher level compared to product standards)



SANCO copper plumbing tubes - outside surface features

Features:

- Smooth plain outside surface without grooves
- Perfect roundness, OD tolerances for hard temper R290:

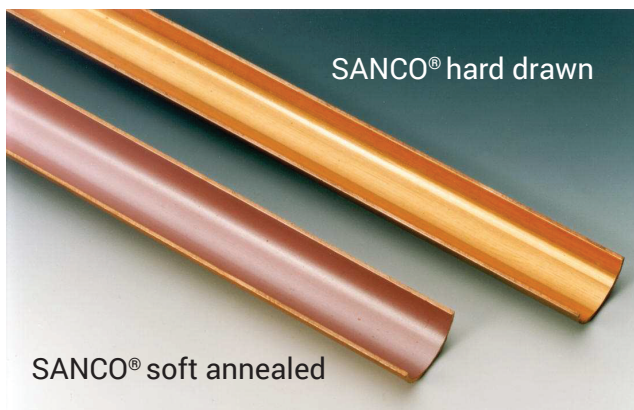
Nominal outside diameter		Tolerances on nominal diameter		
<i>d</i>		Applicable to mean diameter	Applicable to any diameter	
Over	Up to and including	All material conditions	R290 (hard) material condition	R250 (half hard) material condition
6 ^b	18	± 0,04	± 0,04	± 0,09
18	28	± 0,05	± 0,06	± 0,10
28	54	± 0,06	± 0,07	± 0,11
54	76,1	± 0,07	± 0,10	± 0,15
76,1	88,9	± 0,07	± 0,15	± 0,20
88,9	108	± 0,07	± 0,20	± 0,30
108	159	± 0,2	± 0,7	± 0,4
159	267	± 0,6	± 1,5	–
NOTE 1	Tolerances for tubes in R220 (annealed) material condition are applicable only to mean diameter.			
NOTE 2	In case of dispute, to improve the accuracy when determining the mean diameter, the tube may be re-rounded before measurement			
^a Including deviation from circular form				
^b Including 6				

- Best for press fittings!
- Product marked every 60 cm (even with production date and time): 100% traceability

SANCO copper plumbing tubes – inside surface features

Features:

- Internal surfaces treated
- The whole production process - casting, drawing and finishing – is designed to create a special inner surface
- 100% free from carbonaceous films = increased resistance against aggressive water



It is important to avoid carbon containing films as they can cause corrosion.

Wieland obtain the SANCO surface through a patented process.

- The soft and half hard tubes have an inner oxide layer
- The hard tubes are bare inside.

Quantitative and qualitative specification for carbon residues EN 1057

Nominal outside diameter <i>d</i> mm	Material condition	Quantitative method - Total Carbon ^a max. mg/dm ²	Qualitative method - Carbon film test
from 10 up to and including 54	R220 (annealed)	0,20	yes
	R250 (half hard)	0,20	yes
	R290 (hard)	0,20	yes
over 54	R250 (half hard)	0,20	yes
	R290 (hard)	1,0	no
NOTE To establish the inspection and control documents, only the quantitative method shall be used (see EN 723).			
^a Definition according to EN 723.			

All tubes according to EN 12735-1 and EN 13348 are bare inside. (Oxide layers can cause damage in these applications)

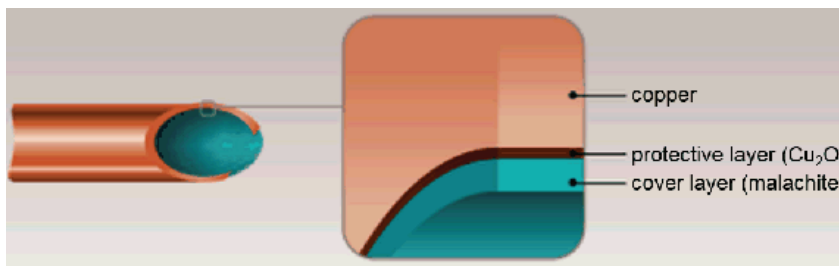
EN 13348 Medical-Gas-Tubes

Diameter mm		Weight mg/dm ²
Above	To	max
6 ^a	133	0,20
133	219	0,38
^a Including 6.		

A value of 0.38mg/dm² must not be exceeded for ACR-tubes according to EN 12735-1. Our standard refrigeration tubes in straight lengths (cuprofrio/cupromed) meet the requirements of both EN 13348 and EN 12725-1 and can therefore be used in both areas.(Soft condition from stock only EN 12735-1; EN 13348 on request)

Brief description of the formation of protective/cover layers in drinking water installations:

When an installation comprising of copper tubes is put into operation, initially the natural reaction of copper with the oxygen dissolved in the water leads to the formation of a protective layer of copper (I) oxide (Cu₂O) on the working side of the tube. After that, the surface of the protective layer will react with the gases and salts which are contained in the water. Above the protective layer, a cover layer is formed which predominantly consists of basic copper carbonates (predominantly malachite). Depending on the composition of the water, the colour of this cover layer may vary from turquoise blue to a deep green (usually it's a greenish color). Furthermore, the colour of the cover layer is dependent on the oxygen content of water and therefore generally adopts a brown shade in hot-water. Therefore, in copper tube installations, the formation of a cover layer is natural, useful and, above all, a desired process. The special SANCO surface supports a homogeneous formation of the layers. The period for the completion of the layers is also significantly influenced by the water quality.



As a result of the greenish color, these desired coating layers are often confused with verdigris. However, verdigris is a salt of acetic acid i.e. a product of the reaction between copper and acetic acid. Since there is not generally any vinegar in potable water, the formation of any verdigris is impossible.