COBALT ALLOYS / MATERIAL PROFILE

L605 Capillary Tubing

UNS R30605 / Cobalt-chromium-tungsten-nickel alloy

01 Chemical composition

Reference composition by mass. The agreed material specification sets the limits for each lot.

ELEMENT	MASS %	ELEMENT	MASS %
Chromium (Cr)	**19.0–21.0**	Iron (Fe)	**3.00 max**
Tungsten (W)	**14.0–16.0**	Carbon (C)	**0.05–0.15**
Nickel (Ni)	**9.0–11.0**	Silicon (Si)	**0.40 max**
Manganese (Mn)	**1.0–2.0**	Phosphorus (P)	**0.04 max**
Cobalt (Co)	**Balance**	Sulfur (S)	**0.030 max**

02 Typical physical properties at 22 °C

Reference values for the alloy, not measurements on a finished tube or production lot.

PROPERTY	TYPICAL VALUE
Density	**9.27 g/cm³**
Elastic modulus	**243 GPa**
Thermal conductivity	**9.4 W/(m·K)**

Choosing a tube condition

Cold drawing raises strength and reduces the ductility available for bending or flaring. If a cut tube will be formed again, specify the next operation and whether the tube must be delivered solution annealed or cold worked. Agree on acceptance tests for that condition.

Grade identification: L605 is also written L-605.

PRECISION ROUND TUBING / PRODUCT SPECIFICATION

Tube Dimensions and Finish

L605 / Custom capillary tubing, cut lengths and sleeves

03 Dimensional capabilities

MingQuan's ranges below cover its tubing program. They are not stock sizes or a guarantee for every L605 tube. We review the material condition and dimensions together at quotation.

FEATURE	CAPABILITY	SCOPE
Outside diameter (OD)	**0.3–20 mm**	Core focus: below 6 mm OD.
Wall thickness	**0.015–1.5 mm**	Depends on OD and bore.
Tube or component length	**0.8–2000 mm**	Long tubes and cut parts.
Inside / outside diameter tolerance	**±0.005 mm**	**Selected capillary sizes only.**
Cut-length tolerance	**Typically ±0.1 mm**	Length of short parts only.

04 Surface finish and cut ends

OUTER SURFACE

Ra ≤ 0.2 µm

BORE SURFACE

Ra ≤ 0.6 µm

Confirm the finish for the specified bore and length. Cut ends are burr-free; visual inspection at 20× checks for obvious surface damage. Call out any specific edge profile on the drawing.

What to include with your drawing

MATERIAL	UNS R30605, supply condition and any mechanical acceptance tests.
GEOMETRY	OD, bore, wall, length, critical tolerances and end details.
ORDER	Quantity, inspection records and material traceability requirements.

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