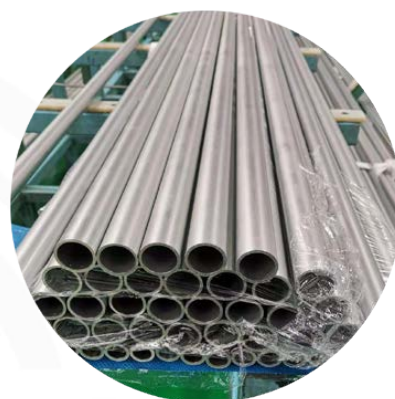


Steel Tubes for Precision Applications - Seamless Cold Drawn Tubes

Standard & Material

EN 10305-1 E235 1.0308 (Steel Number)

It specifies the technical delivery conditions for seamless cold drawn steel tubes of circular cross section for precision applications. It can also cover other types of cross section. Tubes according to EN 10305-1 are characterized by having precisely defined tolerances on dimensions and a specified surface roughness. Typical fields of application are in the vehicle, furniture and general engineering industries.



Chemistry Composition

C, % 0.17 max

Si, % 0.35 max

Mn, % 1.20 max

P, % 0.025 max

S, % 0.025 max

Mechanical Properties

Minimum values for the delivery condition of E235 (1.0308)	cold drawn / hard	cold drawn / soft	cold drawn and stress relieved	annealed	normalized
	+C	+LC	+SR	+A	+N
Tensile Strength (R_m), MPa	480 min	420 min	420 min	315 min	340-480
Yield Strength (R_{eH}), MPa	$0.8R_m$ min	$0.7R_m$ min	350 min	$0.5R_m$ min	235 min
Elongation (A), %	6 min	10 min	16 min	25 min	25 min

Wall Thickness: average wall thickness

Developed Length: standard length 6000mm

Straightness: tubes with an outside diameter greater than 15 mm the deviation from straightness of any tube length L shall not exceed a) - $0,0015 L$ for $R_{eH} \leq 500\text{MPa}$; - b) - $0,002 L$ for $R_{eH} > 500\text{MPa}$. Deviations from straightness over one meter length shall not exceed 3mm.

Manufacture: the tubes made by cold drawn or cold rolled process.

Delivery Condition: black, bright, phosphorylated, zinc coating.

Inspection & Test: chemistry composition analysis, tensile test, flattening test, flaring test, NDT, surface inspection and dimension check.

Further Process: bending, cutting, forming, swaging, punching, etc.