

Sci Max 20

High Purity *Cleaned for O₂ Service* Tubing & Fittings Specifications

Material of Construction	<ul style="list-style-type: none"> • TP 316L, single melt, Stainless Steel; tubing to conform to ASTM A632 for OD sizes < 0.500" and ASTM A269 for OD sizes >= 0.500". • Chemical composition of tubing will follow Table 1 of ASTM A269 • All tubing will be bright annealed in dry H2 atmosphere at the producing mill • All 316L material will maintain a sulfur range of 0.005 to 0.010 % for seamless material and 0.005% to 0.017% for welded material. • Bar stock (for specific Sci Max 10 fittings) to conform to ASTM A479 • Sci Max 10 tubing, <= 1" OD will be seamless. Welded tubing will be used for sizes > 1" through 6" OD, per ASTM A270
Dimensions	Tubing: ¼" x .035" to 6" x 0.109" Fittings: ¼" x .035" to 6" x 0.109", per ASTM A269/A270/A632
Reference Documents	ASTM A269, A632, A276, A479, CGA G 4.1 (cleaned for O ₂ service), ANSI B31.3 (dimensional measurements)
Tube lengths	Nominal lengths: 20 feet, 6 meters; tube ends will be square and smooth – suitable for orbital tube welding
Hardness	60 to 80 Rb max.
Tolerances	Tubing to be in accordance with ASTM A269 & A632
Interior Surface	I.D. Surface Roughness: 20 Ra max for tubing and fittings; measured in accordance to ASME B46.1
O.D. Surface	Standard mill OD finish – 32 Ra
Traceability & OD marking	All raw material & finished products: will be mill and heat traceable, back to the original mill test report. Tubing to permanently marked with mechanical etch tool, or other approved method. Mill heat and job # to be etched within 16" (400 mm) of one end.
Surface finishing, cleaning & packaging	<ul style="list-style-type: none"> • Tube & fittings conform to process identified in ASTM G93-96 and ASTM 632.S.3 • Tubing and fittings shall be passivated for a minimum of 30 minutes at ambient temperatures. • After passivation, tubing and fittings are to be rinsed in deionized water baths and dried. • Final cleaning of tubing and fittings are to take place under ISO Class 7 cleanroom conditions. • After final cleaning, tubing and fittings are to be purged with 0.005 micron filtered N₂ and capped with LDPE caps pressed over polyamide nylon film. • Tubing and fittings are individually bagged in 4-6 mil polyethylene bags and heat-sealed. • Outer bag shall have identifying labels that product has been Cleaned for O₂ Service.
Testing & Inspection	Visual inspection, Surface roughness measurement, He leak testing (welded fittings), dimensional inspection.
Documentation	Original Mill Test Report(s) and COC for the following measurements: Surface Roughness, Dimensional Tolerance, He Leak Testing for welded fittings.