

For gas applications in semiconductor industry  
as well as in photovoltaics



1. SURFACES QUALITIES

Tubes and fittings:	Inner surface (bf)	Outer surface
finetron	Ra <sub>max.</sub> ≤ 20 µin (0.51 µm)	Ra <sub>max.</sub> ≤ 48 µin (1.2 µm)
Additional notes: <ul style="list-style-type: none"><li>- Pipes and fitting will be supplied with a square cut. Different end preparations may be agreed on. Other specified surfaces or ends are available upon request.</li><li>- The Ra value in the cold worked area of fittings (inner and outer surface) and on the surface of circumferential welds is not defined. For dimensions OD &lt; 1/4" (6.35 mm) roughness is not defined.</li><li>- Bright finished Surface treatment: Cleaning and test procedure ASTM A 632, S3.</li><li>- Free of oil and grease according to CGA G-4.1-2018 and ASTM G93 – level C.</li></ul>		

2. MATERIALS

finetron	1.4404 / UNS S31603 (316L) 1.4435 / UNS S31603 (316L) UNS S31603 (316L)
Hardness equivalent to:	<ul style="list-style-type: none"><li>- max. 180 HV* according to DIN EN ISO 6507-1</li><li>- max. 90 HRB* according to DIN EN ISO 6508-1</li></ul> <p>* comparable to ASTM E-384 (HV) and ASTM E 18-22 (HRB)</p>

3. DIMENSIONS

Imperial	according to ASTM A269 / A270 / A632	
OD x WT:	1/4" x 0.035" to 6" x 0.109"	6.35 x 0.89 mm to 152.4 x 2.77 mm
Length:	min. 19.36 ft to max. 19.98 ft	6000 mm -100/+90
Manufacturing process:	Seamless Tubes ≤ 1" OD (25.40 mm)	Welded tubes ≥ 1 1/2" OD (38.10 mm)

4. QUALITY AND TEST PROCEDURES

Verification of basic test certificate	Visual inspection	Endoscopic inspection of bright finished tubes
Verification of dimensions	Roughness measurements	

5. TECHNICAL TERMS OF DELIVERY

Tubes and fittings are prepared for orbital welding according to the following standards:

Tubes

according to ASTM A 269/A 632/A 312 (Pipe), DIN EN 10217-7 / 10216-5 with a length of 19.35 ft - 19.98 ft (5900 - 6090 mm), max. 10% short lengths of min. 9.84 ft (3000 mm)

Tube fitting components

Prematerial according to ASTM A 269 / A 632 / A 312 / A 403 (Pipe), DIN EN 10217-7 / 10216-5

Machined components

Prematerial according to ASTM A 479, DIN EN 10088-3, DIN 17440, ASTM A 182 (Pipe)

Marking always with

DOCKWEILER / DW-Number / Dimension / Material / Heat number

Tubes are ink marked over the full length.  
Fittings are needle or laser marked.

6. DOCUMENTATION, PACKAGING AND SHIPPING

The documentation result by the Dockweiler Inspection Certificate 3.1 according to DIN EN 10204.

Bright finished tubes and fittings are closed with opaque PE caps and are individually sealed in PE foil.  
Delivery in tubular container or wooden crate, fittings in strong cardboard box with shock absorbing filler.  
The batch label on the foil contains the information finetron.