

**Specification**  
TCC/TCC.1

Widely used in production, process measurement and photovoltaic

**TCC / TCC.1**

**bf** bright finished

**ac** anodical cleaned



**1. SURFACES QUALITIES**

Inner surface	Outer surface
<b>TCC (bf)</b> <b>not defined</b> ; on request Ra <sub>avg.</sub> ≤ 0,80 μm (32 μin)	<b>not defined</b>
<b>TCC.1 (ac)</b> <b>not defined</b> ; on request Ra <sub>avg.</sub> ≤ 0,80 μm (32 μin)	<b>not defined</b>

  

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<b>TCC (bf)</b> <b>not defined</b> ; on request Ra <sub>avg.</sub> ≤ 0,80 μm (32 μin)	<b>not defined</b>
<b>TCC.1 (ac)</b> <b>not defined</b> ; on request Ra <sub>avg.</sub> ≤ 0,80 μm (32 μin)	<b>not defined</b>

Additional notes:

- Tubes and fittings are prepared for orbital welding.
- Other specified surfaces or ends are available upon request.
- Pipes and fitting will be supplied with a square cut. Different end preparations may be agreed on.
- 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 ≤ 3/8" (5.00 mm) roughness is not measured.
- TCC (bf): Cleaning and test procedure ASTM A 632, S3 and ASTM G93 – level D.
- TCC.1 (ac): Free of oil and grease acc. to CGA G-4.1-2018 and ASTM G93 – level B.

**2. MATERIALS**

Austenitic stainless steel tubes and fittings (seamless or welded) in:	
<b>TCC / TCC.1</b>	1.4435 / UNS S31603 (316L) 1.4404 / UNS S31603 (316L) UNS S31603 (316L) UNS S30403 (304L)

Hardness equivalent to:

- max. 180 HV\* according to DIN EN ISO 6507-1
- max. 90 HRB\* according to DIN EN ISO 6508-1

\* comparable to ASTM E-384 (HV) and ASTM E 18-22 (HRB)

**3. DIMENSIONS**

Imperial:		according to ASTM A269 / A270 / A632	
OD x WT	1/8" x 0.022" to 6" x 0.109"	3.18 x 0.56 mm to 152.4 x 2.77 mm	
Length	min. 19.36 ft to max. 19.98 ft (6000 mm -100/+90)		
Pipe:		according to ASTM A312	
Dimensions	NPS 8, 10, 12, 16, 20 Schedule 10S	219,08 x 3,76 mm to 508,00 x 5,54 mm	
Length	min. 19.36 ft to max. 19.98 ft (6000 mm -100/+90)		
Metric:			
Dimensions	3,00 x 0,50 mm to 35,00 x 1,50 mm		
Length	min. 19.36 ft to max. 19.98 ft (6000 mm -100/+90)		

  

Manufacturing process:	Seamless tubes (≤ 1/2")	Welded or seamless tubes (> 1/2")

**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:

**Tubes**

Acc. to ASTM A 632 / A 269 / A 270, DIN EN 10217-7 / 10216-5 with a length of 5900 - 6090 mm (max. 10% short lengths of min. 3000 mm possible). TCC.1 tubes with an outside diameter of 5.00 mm or smaller are supplied with a length of 2950 mm (+/-50 mm).

**Fittings**

According to DIN 11865, ASTM A 403 (Pipe), ASTM A 182 (Pipe)

**Marking always with**

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

Tube and fittings shall be permanently marked as per Dockweiler guideline AA 8.5.2-80. The marking must provide all necessary information to trace back the heat number and the material grade.

**6. DOCUMENTATION, PACKAGING & SHIPPING**

**Documentation**

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

**Packaging**

Bright finished tubes and fittings are capped with white/transparent PE caps and packaged in PE foil. The batch label contains the information TCC.

Anodically cleaned tubes and fittings are capped with PE/PA squares and white/transparent PE caps and packed in PE foil. The batch label contains the information TCC.1.

**Shipping**

Delivery in tubular container or wooden crate, fittings in strong cardboard box with shock absorbing filler.