SPECIFICATIONS
TCC

Widely used in production, process measurement and photovoltaic

TCC

bf **bright finished**

1. SURFACES QUALITIES

Tubes and fittings:	Inner surface	Outer surface
TCC	Ra $_{avg.}$ ≤ 30 µin (0,80 µm)	Ra $_{avg.}$ ≤ 40 µin (1.0 µm)

Pipes and pipe fittings:	Inner surface	Outer surface
TCC	Ra $_{avg.}$ ≤ 30 µin (0,80 µm)	Ra $_{avg.}$ ≤ 40 µin (1.0 µm)

Additional notes:
- 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.

2. MATERIALS

TCC	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

Tubes and fittings:	Imperial according to ASTM A269 / A270 / A632	
OD x WT:	1/8" x 0.022" to 6" x 0.109"	3.18 mm x 0.56 mm to 152.4 mm x 2.77 mm
Manufacturing process:	Seamless Tubes ≤ 1" OD (25.40 mm)	Welded tubes ≥ 1 1/2" OD (38.10 mm)

Pipes:	according to ASTM A312	
Dimensions:	NPS 8, 10, 12 Schedule 10S	219.08 x 3.76 mm to 323.9 mm x 4.57 mm
Manufacturing process:	Welded Tubes	

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. Different end preparations may be agrred on.

Tubes and Pipes

acc. to ASTM A 269 / A 632 / A 312 (Pipes), 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

Manufacturing and tolerances according to DIN11865, ASTM A 403 (Pipes) and ASME B16.9 (Pipes).

Machined components

Prematerial acc. to ASTM A 479, DIN EN 10088-3, DIN 17440, ASTM A 182 (Pipes)

Marking always with

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

Tubes, pipes and fittings are permanently marked. The marking provides all necessary information to trace back the heat number and the material grade.

6. DOCUMENTATION, PACKAGING AND 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 sealed with white/ transparent PE caps and packaged in PE foil.
The batch label contains the information TCC.

Shipping

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

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