SPECIFICATIONS
ULTRON LTP

For UHP applications
in particular for Asia-Pacific and US markets

ultron ltp

ep **electropolished**
cleanroom cleaning and packing

1. SURFACES QUALITIES

Tubes and fittings:	Inner surface (ep)	Outer surface
ultron ltp A Size ≤ 150 A	Ra $_{avg.}$ ≤ 10 µin (0.25 µm)	Ra $_{avg.}$ ≤ 40 µin (1.0 µm)
ultron ltp A Size > 150 A	Ra $_{Max}$ ≤ 20 µin (0.51 µm)	Ra $_{avg.}$ ≤ 40 µin (1.0 µm)
On request:	Ra $_{avg.}$ ≤ 5 µin (0.13 µm) Ra $_{avg.}$ ≤ 7 µin (0.18 µm)	

Pipes:	Inner surface (ep)	Outer surface
ultron ltp	Ra $_{Max}$ ≤ 20 µin (0.51 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 dimmensions OD ≤ 5,00 mm roughness is not measured.
- Free of oil and grease acc. to CGA G-4.1-2018 and ASTM G93 – level A.
- Cleanroom cleaning and packing (Federal Class 10 / ISO Class 4)

2. MATERIALS

ultron ltp	SUS 316LTP acc. to JIS G3459, SEMI F 20 and ASTM A 269 / A 632 for OD tubing and A-Size
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. DIMMENSIONS

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
Tubes and fittings:	**A-Size according to JIS G 3459**	
	Schedule Number 5S 6A – 300A (10.50 x 1.00mm – 318.00 x 4.00mm) Schedule Number 10S 6A – 300A (10.50 x 1.20mm – 318.00 x 4.50mm)	
Manufacturing process:	Seamless Tubes ≤ 1" OD (25.40 mm) Seamless Tubes ≤ 15A OD (21.70 mm)	Welded tubes ≥ 1 1/2" OD (38.10 mm) Welded tubes ≥ 20A OD (27.20 mm)

Pipes:	Straight pipes as per ASTM A312 Schedule 10S	
Dimmensions:	NPS 8 to NPS 24 Schedule 10S	219.08 x 3.76 mm to 609.60 mm x 6.35 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 dimmensions
- Roughness measurements
- Conductivity test (DI water)
- TOC-measurement of DI water
- Particle measurements
- Scanning electron microscope (SEM)
- XPS / ESCA
- Auger analysis (AES)

5. TECHNICAL TERMS OF DELIVERY

Tubes and fittings are prepared for orbital welding. Different end preparations may be agrred on.

Tubes and Pipes

According to ASTM A 632/ A 269 / A 270 / 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). Tubes with an outside diameter of 5.00 mm or smaller are supplied with a length of 2950 mm (+/-50 mm).

Tube fitting components

Manufacturing and tolerances according to DIN11865, JIS G 3459, ASTM A 403 (Pipes) and ASME B16.9 (Pipes).

Machined components

Prematerial according to JIS G 4303 and ASTM A 479

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

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

Tubes and fittings filled with N2 (99.999%), closed with PA/PE squares and yellow PE caps, double-bagged and sealed in PE-sleeves.

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 ultron ltp.