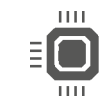


For gas applications in semiconductor industry  
as well as in photovoltaics

**finetron**

**bf** bright finished



### 1. SURFACES QUALITIES

| Tubes and fittings: | Inner surface (bf)                                 | Outer surface                        |
|---------------------|--|--------------------------------------|
| <b>finetron</b>     | OD ≤ 2 1/2": Ra <sub>avg.</sub> ≤ 16 μin (0,40 μm) | Ra <sub>avg.</sub> ≤ 40 μin (1.0 μm) |
|                     | OD > 2 1/2": Ra <sub>avg.</sub> ≤ 32 μin (0,80 μm) | Ra <sub>avg.</sub> ≤ 40 μin (1.0 μm) |

Additional notes:

- 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.
- 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 < 1/4" (6.35 mm) roughness is not defined.
- Bright finished Surface treatment: Cleaning and test procedure ASTM A 632, S3.
- Free of oil and grease acc. to CGA G-4.1-2018 and ASTM G93 and ASTM G93 – level D.

### 2. MATERIALS

|                 |   |
|-----------------|---|
| <b>finetron</b> | 1.4404 / UNS S31603 (316L)<br>1.4435 / UNS S31603 (316L)<br>UNS S31603 (316L) |
|-----------------|---|

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 |                                     |
|-------------------------------|--------------------------------------|-------------------------------------|
| <b>OD x WT:</b>               | 1/4" x 0.035" to 6" x 0.109"         | 6.35 x 0.89 mm to 152.4 x 2.77 mm   |
| <b>Length:</b>                | min. 19.36 ft to max. 19.98 ft       | 6000 mm -100/+90                    |
| <b>Manufacturing process:</b> | 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

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

#### Machined components

Prematerial acc. 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 transparent 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.