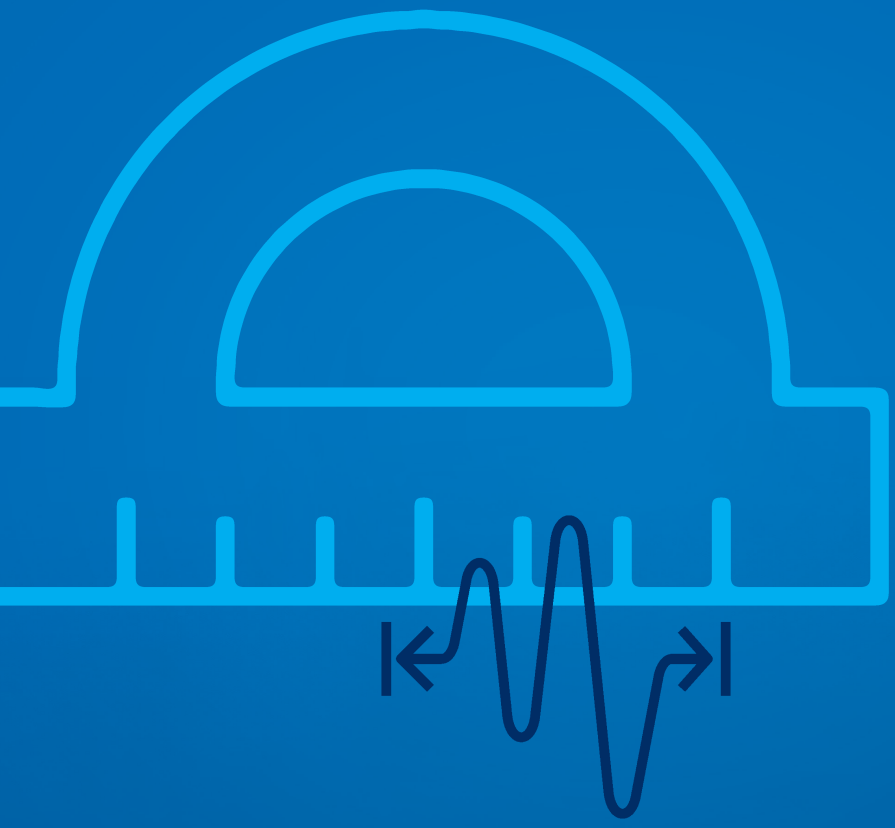
DOCKWEILER

connecting flow to purity

SPECIFICATIONS

FOR TUBES, PIPES, FITTINGS AND CONNECTIONS



FOR SEMICONDUCTOR AND HIGH-TECH INDUSTRIES

- **ultron** / **ultron** vim**var**
- **ultron** ltp
- **TCC** / **TCC** ltp

FOR PHARMA, BIOTECH AND OTHER LIFE SCIENCE INDUSTRIES

- ASME BPE Certified

ASIA PACIFIC REGION

SPECIFICATIONS
ULTRON, ULTRON VIM-VAR

For UHP gas applications in semiconductor industry and fine chemistry

ultron / ultron vim**var**

ep **electropolished**
cleanroom cleaning and packing

1. SURFACES QUALITIES

Tubes and fittings:	Inner surface (ep)	Outer surface
ultron	Ra $_{avg.}$ ≤ 10 µin (0.25 µm)	Ra $_{avg.}$ ≤ 40 µin (1.0 µm)
ultron vim**var**	Ra $_{avg.}$ ≤ 7 µin (0.18 µm)	Ra $_{avg.}$ ≤ 40 µin (1.0 µm)
On request:	Ra $_{avg.}$ ≤ 5 µin (0.13 µm) Ra $_{avg.}$ ≤ 7 µin (0.18 µm) Ra $_{avg.}$ ≤ 15 µin (0.38 µm)	

Pipes and pipe fittings:	Inner surface (ep)	Outer surface
ultron	Ra $_{avg.}$ ≤ 20 µin (0.51 µm)	RA not defined

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 ≤ 1/4" (6.35 mm) roughness is not defined.
- 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	1.4404 / UNS S31603 (316L), 1.4435 / UNS S31603 (316L), UNS S31603 (316L)
ultron vim**var**	UNS S31603 (316L) VIM-VAR double melted stainless steel

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[1] x WT:	1/8" x 0.022" to 6" x 0.109"	219.08 x 3.76 mm to 323.9 mm x 4.57 mm
	[1] VIM-VAR only available up to 1"	
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	Length: min. 19.36 ft to max. 19.98 ft
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
- 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

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

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 or ultron vimvar.

dockweiler.com | Microelectronics | APAC 01-2025

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	Ra $_{avg.}$ ≤ 10 µin (0.25 µm)	Ra $_{avg.}$ ≤ 40 µin (1.0 µm)
ultron ltp A Size > 150 A	Ra $_{avg.}$ ≤ 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 $_{avg.}$ ≤ 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 dimensions 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. 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
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	
Dimensions:	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 dimensions
- 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

acc. to ASTM A 269 / A 632 / A 312 (Pipes), DIN EN 10217-7/ 10216-5 / JIS G 3459 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, 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.

dockweiler.com | Microelectronics | APAC 01-2025

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.

dockweiler.com | Microelectronics | APAC 01-2025

SPECIFICATIONS
TCC ltp

Widely used in production, process measurement and photovoltaic **in particular for Asia-Pacific and US markets**

TCC ltp

bf **bright finished**

1. SURFACES QUALITIES

Tubes and fittings:	Inner surface	Outer surface
TCC ltp	Ra $_{avg.}$ ≤ 20 µin (0,50 µm)	Ra $_{avg.}$ ≤ 40 µin (1.0 µm)
Pipe and pipe fittings:	**Inner surface**	**Outer surface**
TCC ltp	Ra $_{avg.}$ ≤ 32 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 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. 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
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**	
Dimensions:	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 dimensions
- Roughness measurements

5. TECHNICAL TERMS OF DELIVERY

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

Tubes

acc. to ASTM A 269 / A 632 / A 312 (Pipes), DIN EN 10217-7/ 10216-5 / JIS G 3459 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, 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

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 ltp.

Shipping

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

Specification
ASME BPE

For pharma, biotech and other life science industries

ASME BPE

mp ASME BPE SF1 / mechanically polished
ep ASME BPE SF4 / electropolished

1. SURFACE QUALITIES

Tubes and fittings:	Inner surface (mechanically polished)*
ASME BPE SF0 - on request	No finish requirements
■ ASME BPE SF1	**Ra max. ≤ 0,51 µm / 20 µin** (Dockweiler Standard)
ASME BPE SF2 - on request	Ra max. ≤ 0,64 µm / 25 µin
ASME BPE SF3 - on request	Ra max. ≤ 0,76 µm / 30 µin

Tubes and fittings:	Inner surface (electropolished)
■ ASME BPE SF4	**Ra max. ≤ 0,38 µm / 15 µin** (Dockweiler Standard)
ASME BPE SF5 - on request	Ra max. ≤ 0,51 µm / 20 µin
ASME BPE SF6 - on request	Ra max. ≤ 0,64 µm / 25 µin

Surface treatment:	- Mechanically polished (or any other finishing method that meets the Ra max.): Cleaning and test procedure ASTM A 632, S3 - Electropolished: Procedure acc. to Spec. Doc. 8.4-40/3.2/3.3.2 - Free of oil and grease acc. to CGA G-4.1-2018 and ASTM G93 – level B (SF4) / level C (SF1)

2. MATERIALS

■ **ASME BPE**	UNS S31603 (316L)*, UNS S31603 (316L), 1.4404, 1.4435* * defined sulphur of 0.005 - 0.017%

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:	acc. to ASME BPE, Part DT	
OD x WT	1/4" to 6" (0.250 x 0.035 inch to 6.000 x 0.109 inch)	6,35 x 0,89 mm to 152,40 x 2,77 mm

Manufacturing process:	Welded or seamless 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

Acc. to ASME BPE-2024, ASTM A 269/270, tubes with a length of 5900 - 6090 mm (19.35 ft - 19.98 ft), max. 10% short lengths of min. 3000 mm (9.84 ft)

Marking always with

DOCKWEILER / DW-Number / Dimension / Material / Heat Number / ASME Certification Mark, Surface Finish Designation

Tubes, pipes and fittings shall be permanently marked as per ASME BPE-2024, DT-11. The marking must provide 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

Mechanically polished tubes and fittings are closed with transparent PE caps and are individually sealed in PE foil. The batch label on the foil contains the information ASME BPE SF1.

Electropolished tubes and fittings are closed with PA/PE squares and yellow PE caps, sleeved and sealed in PE. The batch label on the foil contains the information ASME BPE SF4.

Shipping

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

Life Science APAC 01-2025 / dockweiler.com

Dockweiler Asia Co., Ltd.
TRR Tower
238 Naradhiwat Rajanagarindra Road
12th Floor, Chong Nonsi, Yan Nawa
Bangkok 10120 | Thailand

+66-32-709-662
sales.asia@dockweiler.com

www.dockweiler.com

SPEC APAC / EN 01-2025