





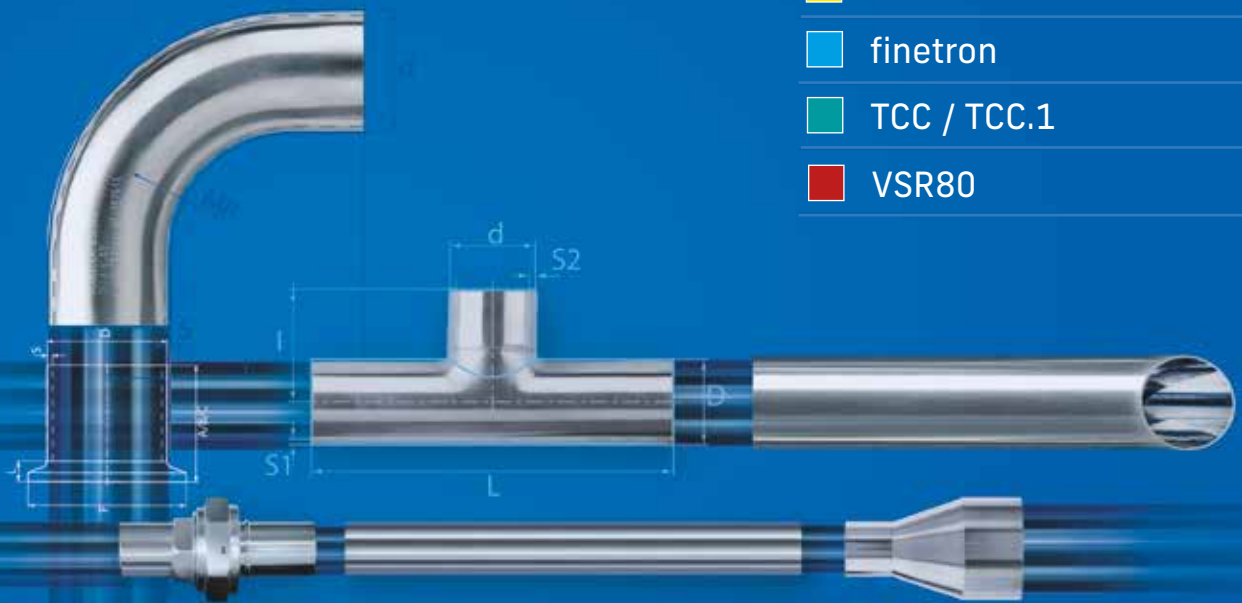
D-ECKWEILER
connecting flow to **purity**

MICROELECTRONICS

TUBES, PIPES, FITTINGS AND CONNECTIONS

FOR SEMICONDUCTOR
AND HIGH-TECH INDUSTRIES

-  ultron
-  finetron
-  TCC / TCC.1
-  VSR80



EMEA

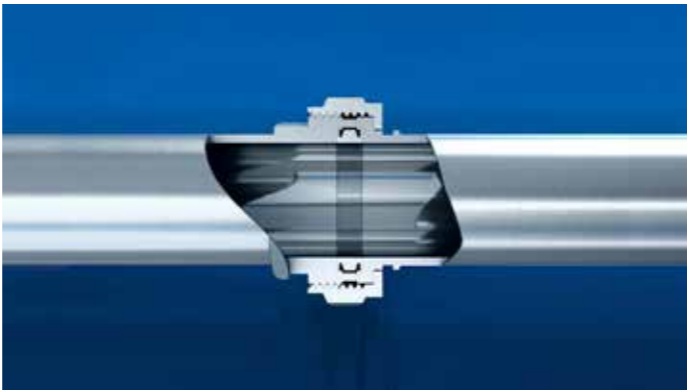




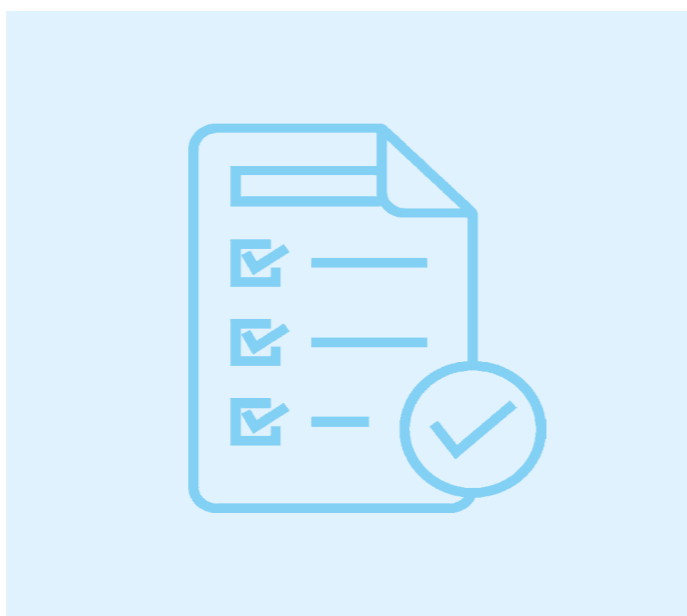
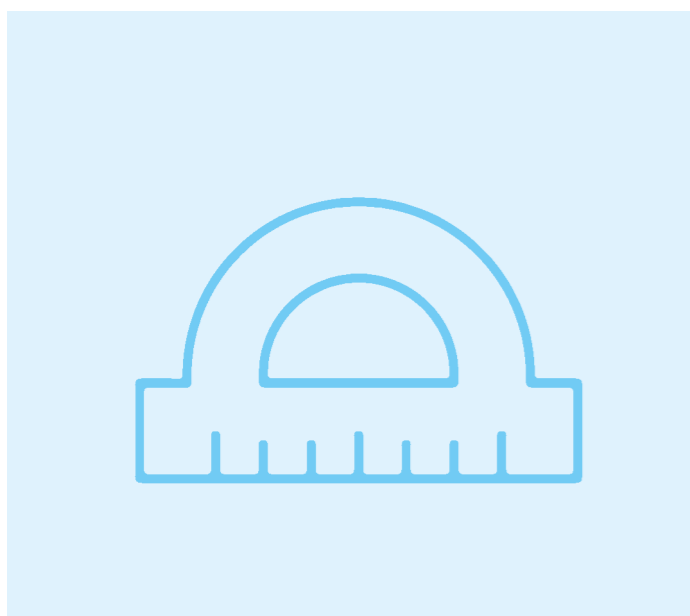
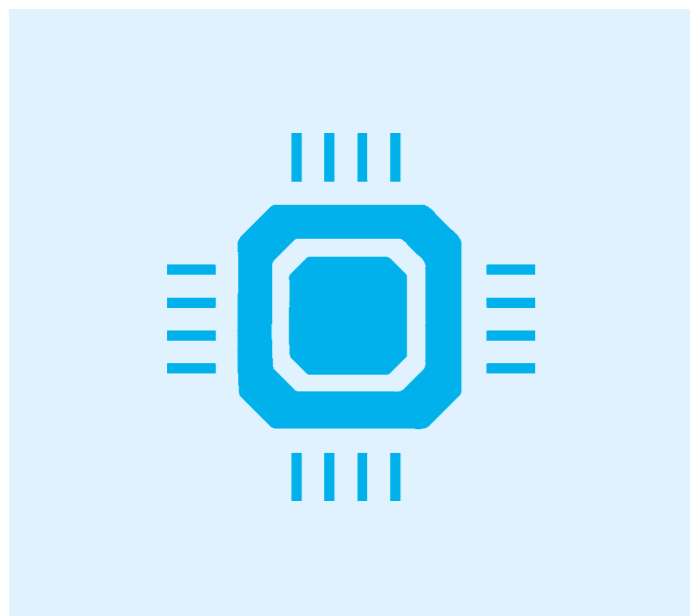
Tubes, Fittings and Components for Microelectronic Applications

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Technical Specifications

Qualities, Materials, Dimensions, Testing, Documentation & Delivery

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Specification
ultron

For UHP gas applications in semiconductor industry and fine chemistry

ultron

ep Electropolished



1. SURFACES QUALITIES

Tubes and fittings:	Inner surface (ep)	Outer surface
ultron	Ra_{avg} ≤ 0,25 µm (10 µin)	Ra_{avg} ≤ 1.0 µm (40 µin)

On request:	Ra _{avg} ≤ 0,13 µm (5 µin) Ra _{avg} ≤ 0,18 µm (7 µin) Ra _{avg} ≤ 0,38 µm (15 µin)	
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Pipe:	Inner surface (ep)	Outer surface
ultron	Ra_{avg} ≤ 0,51 µm (20 µin)	Mill finish, RA not defined

Additional notes:	<ul style="list-style-type: none"> - Tube and Fittings are prepared for orbital welding (acc. to Dockweiler guideline Doc. 8.3-9/7). - Ra values may differ for 1/8" tubes - Pipe will be supplied with a square cut (acc. to Dockweiler guideline Doc. 8.3-9/7). - 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. - Free of oil and grease acc. to CGA G-4.1-2018 and ASTM G93 – level A. - Electropolishing procedure acc. to Dockweiler guideline Doc. 8.4-40/3.1/3.3.1 - Cleanroom cleaning and packing (ISO Class 4 / Federal Class 10) 	
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2. MATERIALS

ultron	1.4404 / UNS S31603 (316L) 1.4435 / UNS S31603 (316L) UNS S31603 (316L)
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Hardness equivalent to:	<ul style="list-style-type: none"> - max. 180 HV* according to DIN EN ISO 6507-1 - max. 90 HRB* according to DIN EN ISO 6508-1 <p>* comparable to ASTM E-384 (HV) and ASTM E 18-22 (HRB)</p>
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3. DIMENSIONS

Imperial:	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

Pipe:	Pipe according to ASTM A312	
Dimensions	NPS 8, 10, 12 Schedule 10S	Length: min. 19.36 ft to max. 19.98 ft

Metric:		
OD x WT	6,00 x 1,00 mm to 35,00 x 1,50 mm	Length: 6000 mm -100/+90

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

Tubes

Acc. to ASTM A 632 / A 269 / 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). Tubes with an outside diameter of 5.00 mm or smaller are supplied with a length of 2950 mm (+/-50 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 A403 (Pipe)

Marking always with

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

Tube, pipe 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

Tubes and fittings filled with N2 (99.9998% incl. inert gas), capped with PA/PE squares and yellow PE caps, double-bagged and sealed in PE-sleeves.

The batch label on the foil contains the information ultron.

Shipping

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

Specification
finetron

For gas applications in semiconductor industry as well as in photovoltaics



1. SURFACES QUALITIES

Tubes and fittings:	Inner surface (bf)	Outer surface
finetron	Ra_{avg.} ≤ 0,40 µm (16 µin)	Ra_{avg.} ≤ 1.0 µm (40 µin)
Additional notes:	<ul style="list-style-type: none"> - Tubes and fittings are prepared for orbital welding. - 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 ≤ 3/8" (5.00 mm) roughness is not measured. - 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 – level C. 	

2. MATERIALS

Austenitic stainless steel tubes and fittings (seamless or welded / depending on diameter):	
finetron	1.4404 / UNS S31603 (316L) 1.4435 / UNS S31603 (316L) UNS S31603 (316L)
Hardness equivalent to:	<ul style="list-style-type: none"> - max. 180 HV* according to DIN EN ISO 6507-1 - max. 90 HRB* according to DIN EN ISO 6508-1 <p>* comparable to ASTM E-384 (HV) and ASTM E 18-22 (HRB)</p>

3. DIMENSIONS

Imperial:	according to ASTM A269 / A632	
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
Lenght	min. 19.36 ft to max. 19.98 ft	6000 mm -100/+90
Metric:		
OD x WT	6,00 x 1,00 mm to 35,00 x 1,50 mm	
Lenght	6000 mm -100/+90	
Manufacturing process:	Seamless tubes (≤ 1")	Welded or seamless tubes (> 1")

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).

Tube fitting components

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

Marking always with

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

Tubes 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 transparent PE caps and are individually sealed in PE foil.

The batch label on the foil contains the information finetron.

Shipping

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

Specification
TCC/TCC.1

Widely used in production, process measurement and photovoltaic

TCC / TCC.1

bf bright finished

ac anodical cleaned



1. SURFACES QUALITIES

Tubes and fittings:	Inner surface	Outer surface
■ TCC (bf)	not defined ; on request Ra _{avg.} ≤ 0,80 μm (32 μin)	not defined
■ TCC.1 (ac)	not defined ; on request Ra _{avg.} ≤ 0,80 μm (32 μin)	not defined

Pipe and pipe fittings:	Inner surface	Outer surface
■ TCC (bf)	not defined ; on request Ra _{avg.} ≤ 0,80 μm (32 μin)	not defined
■ TCC.1 (ac)	not defined ; on request Ra _{avg.} ≤ 0,80 μm (32 μin)	not defined

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:
■ TCC / TCC.1	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.

Specification
VSR80

For leak-tight but detachable connections with controlled hardness for easy installation

VSR80

bf bright finished



1. SURFACES QUALITIES

Tubes:	Inner surface	Outer surface
VSR80	Ra values are not defined	Ra_{avg.} ≤ 1.0 μm (40 μin) free of longitudinal and vertical scratches

2. MATERIALS

VSR80	1.4404 / UNS S31603 (316L) 1.4571 / S31635
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Hardness equivalent to:	- max. 70-90 HRB* according to DIN EN ISO 6508-1 * comparable to ASTM E-384 (HV) and ASTM E 18-22 (HRB)
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3. DIMENSIONS

Imperial:	according to ASTM A269 and DIN 11866 Series C	
OD x WT	1/16" (0,0625"x 0,010") to 1" (1,000" x 0,065 ")	1,59 mm x 0,25 mm to 25,40 mm x 1,65 mm
Length	min. 19.36 ft to max. 19.98 ft (6000 mm -100/+90)	

Metric:	according to DIN 11866 Series A	
Dimensions	3,00 mm x 0,50 mm to 28,00 mm x 1,50 mm	Length: 6000 mm -100/+90

Manufacturing process:	Seamless austenitic stainless steel tubes
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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 according to the following standards:

Tubes

Acc. to ASTM A 632 / A 269 / A 270, DIN EN 10217-7 / 10216-5 with a length of 19.35 ft - 19.98 ft (max. 10% short lengths of 9.8 ft min. possible)

Marking always with

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

Tubes are permanently marked in accordance with Dockweiler guideline AA 8.5.2-80.

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

The batch label on the foil contains the information VSR80.

Shipping

Delivery in tubular container or case for safe transport.

How to Order Dockweiler Order Code System

Order Code for Dockweiler products:

- 1. Dockweiler quality** (Inner surface in combination with the material)
- 2. Product-Code**
- 3. Diameter**

Qualities highlighted in **blue colour** are stock products.
Others articles are non-stock products.



Sample for **TCC.1 ac**, 90° Elbow, 1 Inch

IMPERIAL / DIN 11865

Dimensions	d1	s1	l1	l3	r1	316L				Code	
						TCC bf	TCC.1 ac	finetron bf	ultron ep		
Inch	mm										
1/4	6,35	0,89	66,70	52,40	14,30	T	T1	F	U	-	E9-04
3/8	9,53	0,89	66,70	38,10	28,60	T	T1	F	U	-	E9-06
1/2	12,70	1,24**	76,20	49,20	27,00	T	T1	F	U	-	E9-08
1/2	12,70	1,65	76,20	47,60	28,60	T	T1	F	U	-	E9-08
3/4	19,05	1,24**	76,20	50,20	26,00	T	1.	F	U	-	2. 3.
3/4	19,05	1,65	76,20	47,60	28,60	T	1.	F	U	-	2. 3.
1	25,40	1,65	76,20	38,10	38,10	T	T1	F	U	-	E9-16
1 1/2	38,10	1,65	95,30	38,10	57,20	T	T1	F	U	-	E9-24
2	50,80	1,65	120,70	44,50	76,20	T	T1	F	U	-	E9-32
2 1/2	63,50	1,65	139,70	44,40	95,30	T	T1	F	U	-	E9-40
3	76,20	1,65	158,80	44,50	114,30	T	T1	F	U	-	E9-48
4	101,60	2,11	203,20	50,80	152,40	T	T1	F	U	-	E9-64
6	152,40	2,77	292,10	63,50	228,60	T	T1	F	U	-	E9-96

Order Code: **T1-E9-16**



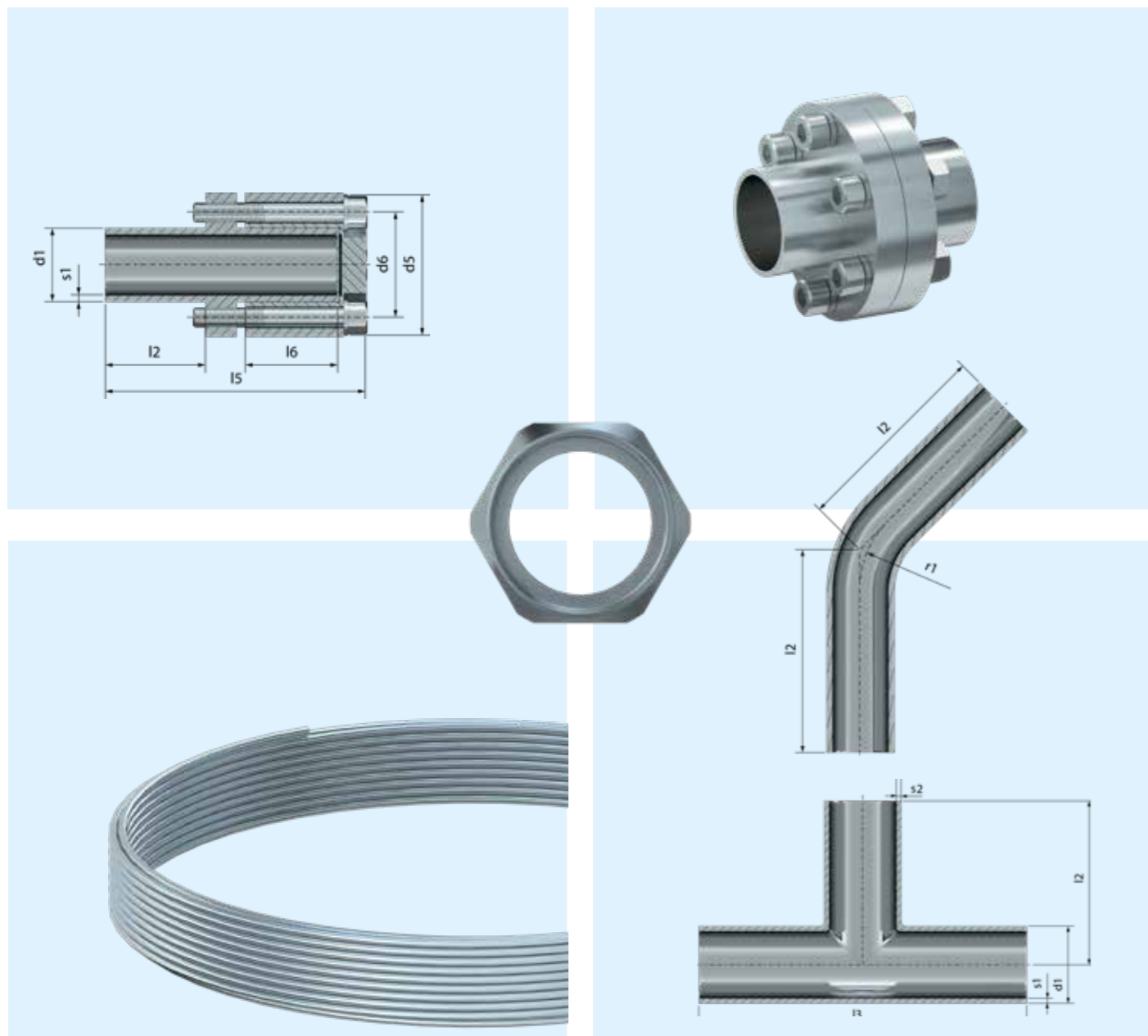
Sample for **ultron ep**, Coaxial 45° Elbow, 1/2 Inch

IMPERIAL







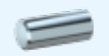




Inch	Inner Tube		Outer Tube		Dimensions			316L	Code
	d1	s1	d2	s2	l1	l2	MR1		
mm									
1/4	6,35	0,89	12,70	1,24	98,45	79,40	38,10	T	1. - CE4-08 bent
3/8	9,53	0,89	15,88	1,24	98,45	79,40	57,00	T	1. - 2. 3. bent
1/2	12,70	1,24	19,05	1,65	109,26	90,21	85,00	T	U - CE4-08 bent
3/4	19,05	1,65	25,40	1,65	135,61	110,21	85,00	T	U - CE4-12 bent
1	25,40	1,65	38,10	1,65	88,90	63,50	38,10	T	U - CE4-16 welded

Order Code: **U-CE4-08**

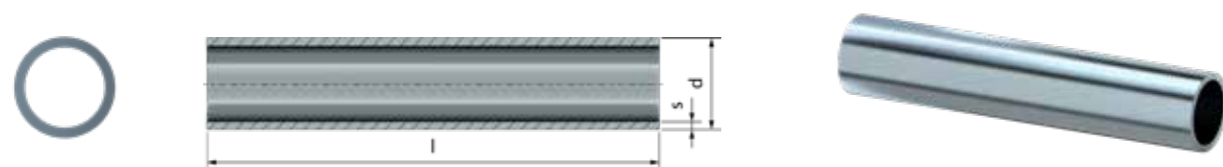
If you require stainless steel grade **1.4435 / UNS S31603** or **1.4404 / UNS S31603**, please add **-35** or **-04** at the end of the order code.



Tubes, Fittings and Connections Microelectronics

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Tube
Imperial / PIPE NPS / Metric



IMPERIAL

Dimensions		d x s	Weight	VSR 80	TCC bf	TCC.1 ac	finetron bf	ultron ep	Code
Inch	mm			kg/m	316L*				
1/8	3,18	x 0,56	0,04	V	T			U	- 02
1/4	6,35	x 0,89	0,12	V	T	T1	F	U	- 04
3/8	9,53	x 0,89	0,20	V	T	T1	F	U	- 06
1/2	12,70	x 1,24	0,35	V	T	T1	F	U	- 08
1/2	12,70	x 1,65	0,46	V	T	T1	F	U	- 08-65
3/4	19,05	x 1,24	0,55	V	T	T1	F	U	- 12-49
3/4	19,05	x 1,65	0,72	V	T	T1	F	U	- 12
1	25,40	x 1,65	0,98	V	T	T1	F	U	- 16
1 1/2	38,10	x 1,65	1,51		T	T1	F	U	- 24
2	50,80	x 1,65	2,03		T	T1	F	U	- 32
2 1/2	63,50	x 1,65	2,56		T	T1	F	U	- 40
3	76,20	x 1,65	3,08		T	T1	F	U	- 48
4	101,60	x 2,11	5,26		T	T1	F	U	- 64
6	152,40	x 2,77	10,39		T	T1	F	U	- 96

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

PIPE NPS / SCHEDULE 10

Dimensions		d x s	Weight	TCC bf	ultron ep	Code
NPS	mm			kg/m	316L*	
6*	168,28	x 3,40	14,04	T	U	- 96NPS
8	219,08	x 3,76	20,27	T	U	- 128NPS
10	273,05	x 4,19	28,21	T	U	- 160NPS
12	323,85	x 4,57	36,54	T	U	- 192NPS
16	406,40	x 4,78	48,07	T	-	- 256NPS
20	508,00	x 5,54	69,95	T	-	- 320NPS

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

METRIC

Dimensions		d x s	Weight	VSR 80	TCC bf	TCC.1 ac	finetron bf	ultron ep	Code
DN	mm			kg/m	316L*				
2	3,00	x 0,50	0,03	V	T			U	- 02M
4	6,00	x 1,00	0,13	V	T	T1	F	U	- 04M
6	8,00	x 1,00	0,18	V	T	T1	F	U	- 06M
8	10,00	x 1,00	0,23	V	T	T1	F	U	- 08M
10	12,00	x 1,00	0,28	V	T	T1	F	U	- 10M
15	18,00	x 1,50	0,62	V	T	T1	F	U	- 15M
20	23,00	x 1,50	0,81	V	T	T1	F	U	- 20M
25	28,00	x 1,50	1,00	V	T	T1	F	U	- 25M

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

Instrument Tubings



d / s	Weight	d / s	Weight
mm	kg/m	mm	kg/m
0,30 x 0,06	0,0004	5,00 x 1,00	0,1002
0,80 x 0,20	0,0030	6,00 x 0,50	0,0689
1,20 x 0,10	0,0028	6,00 x 1,00	0,1252
1,20 x 0,20	0,0050	6,00 x 1,50	0,1690
1,59 x 0,25	0,0084	6,35 x 0,89	0,1240
1,59 x 0,30	0,0097	7,00 x 0,50	0,0814
1,59 x 0,40	0,0119	8,00 x 0,50	0,0939
1,59 x 0,45	0,0128	8,00 x 1,00	0,1753
1,59 x 0,59	0,0148	8,00 x 1,50	0,2441
2,00 x 0,20	0,0090	9,53 x 0,89	0,1925
2,00 x 0,40	0,0160	9,53 x 1,65	0,3256
2,00 x 0,50	0,0188	10,00 x 0,50	0,1189
3,18 x 0,56	0,0367	10,00 x 1,00	0,2254
3,18 x 0,71	0,0432	12,00 x 0,20	0,0591
4,00 x 0,50	0,0438	12,00 x 2,00	0,5008
4,00 x 1,00	0,0751		

Further dimensions on request. Subject to alteration.

These dimensions are only a selection of instrumentation and capillary tubes and not all are available from stock. These tubes are available in various alloys (e.g. 304L, 316L, 316 Ti) and specifications (hard as drawn, annealed). Further dimensions and materials on request.

Coil Tube Imperial / Metric

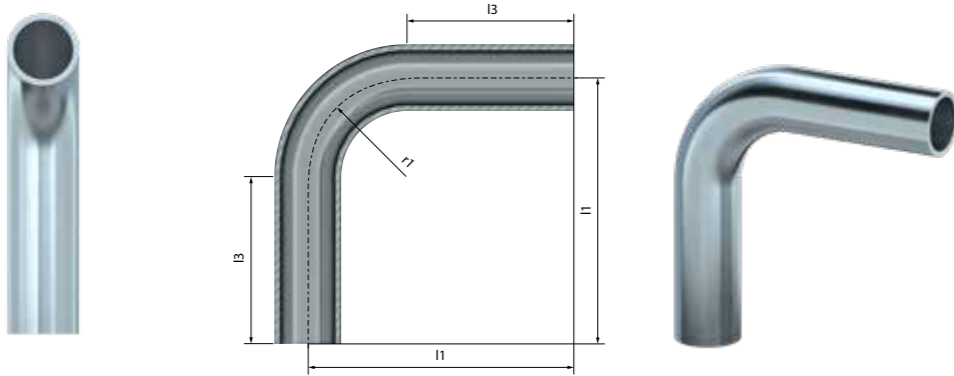


IMPERIAL	d / s	Weight	TCC bf	finetron bf	ultron ep	Code
Inch	mm	kg / m	316L*			
1/8	3,18 x 0,56	0,0368	T			CT-02
1/4	6,35 x 0,89	0,1241	T	F	U	CT-04
3/8	9,53 x 0,89	0,1966	T	F	U	CT-06
1/2	12,70 x 1,24**	0,3511	T	F	U	CT-08

METRIC	d / s	Weight	TCC bf	finetron bf	ultron ep	Code
DN	mm	kg / m	316L*			
2	3,00 x 0,50	0,0368	T			CT-02M
4	6,00 x 1,00	0,1241	T	F	U	CT-04M

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

Elbows 90°
Imperial / Metric



IMPERIAL

Dimensions	d1	s1	l1	l3	r1	TCC bf	TCC.1ac	finetron bf	ultron ep	Code
						■	■	■	■	
Inch	mm					316L*				
1/4	6,35	0,89	66,70	52,40	14,30	T	T1	F	U	- E9-04
3/8	9,53	0,89	66,70	38,10	28,60	T	T1	F	U	- E9-06
1/2	12,70	1,24	76,20	49,20	27,00	T	T1	F	U	- E9-08
1/2	12,70	1,65	76,20	47,60	28,60	T	T1	F	U	- E9-08-65
3/4	19,05	1,24	76,20	50,20	26,00	T	T1	F	U	- E9-12-49
3/4	19,05	1,65	76,20	47,60	28,60	T	T1	F	U	- E9-12
1	25,40	1,65	76,20	38,10	38,10	T	T1	F	U	- E9-16
1 1/2	38,10	1,65	95,30	38,10	57,20	T	T1	F	U	- E9-24
2	50,80	1,65	120,70	44,50	76,20	T	T1	F	U	- E9-32
2 1/2	63,50	1,65	139,70	44,40	95,30	T	T1	F	U	- E9-40
3	76,20	1,65	158,80	44,50	114,30	T	T1	F	U	- E9-48
4	101,60	2,11	203,20	50,80	152,40	T	T1	F	U	- E9-64
6	152,40	2,77	292,10	63,50	228,60	T	T1	F	U	- E9-96

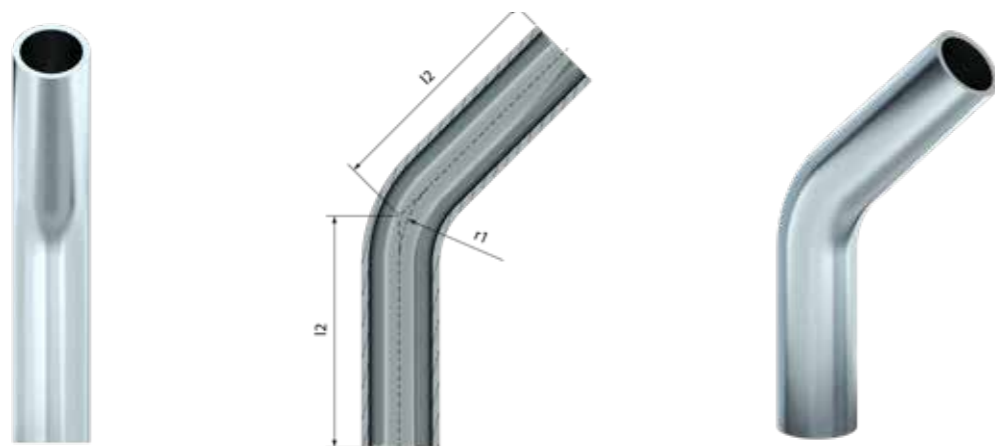
*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

METRIC

Dimensions	d1	s1	l1	l3	r1	TCC bf	TCC.1ac	finetron bf	ultron ep	Code
						■	■	■	■	
DN / NW	mm					316L*				
4	6,00	1,00	40,00	24,00	16,00	T	T1	F	U	- E9-04M
6	8,00	1,00	45,00	25,00	20,00	T	T1	F	U	- E9-06M
8	10,00	1,00	50,00	25,00	25,00	T	T1	F	U	- E9-08M
10	12,00	1,00	51,00	25,00	26,00	T	T1	F	U	- E9-10M
15	18,00	1,50	60,00	25,00	35,00	T	T1	F	U	- E9-15M
20	23,00	1,50	65,00	25,00	40,00	T	T1	F	U	- E9-20M
25	28,00	1,50	90,00	40,00	50,00	T	T1	F	U	- E9-25M

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

Elbows 45°
Imperial / Metric



IMPERIAL

Dimensions	d1	s1	l2	r1	TCC bf	TCC.1 ac	finetron bf	ultron ep	
Inch	mm				316L*				Code
1/4	6,35	0,89	50,80	14,30	T	T1	F	U	E4-04
3/8	9,53	0,89	50,80	28,60	T	T1	F	U	E4-06
1/2	12,70	1,24	57,20	27,00	T	T1	F	U	E4-08
1/2	12,70	1,65	57,20	28,60	T	T1	F	U	E4-08-65
3/4	19,05	1,24	57,20	26,00	T	T1	F	U	E4-12-49
3/4	19,05	1,65	57,20	28,60	T	T1	F	U	E4-12
1	25,40	1,65	57,20	38,10	T	T1	F	U	E4-16
1 1/2	38,10	1,65	63,50	57,20	T	T1	F	U	E4-24
2	50,80	1,65	76,20	76,20	T	T1	F	U	E4-32
2 1/2	63,50	1,65	85,70	95,30	T	T1	F	U	E4-40
3	76,20	1,65	92,10	114,30	T	T1	F	U	E4-48
4	101,60	2,11	114,30	152,40	T	T1	F	U	E4-64
6	152,40	2,77	158,80	228,60	T	T1	F	U	E4-96

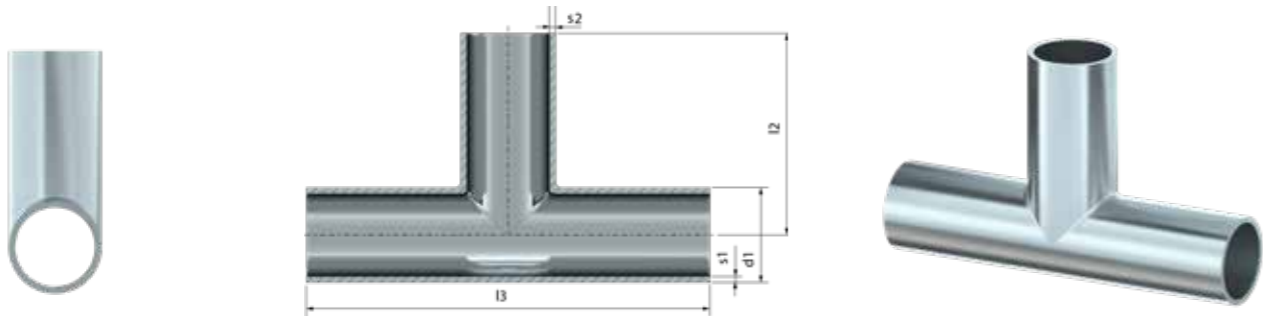
*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

METRIC

Dimensions	d1	s1	l2	r1	TCC bf	TCC.1 ac	finetron bf	ultron ep	
DN / NW	mm				316L*				Code
4	6,00	1,00	32,10	16,00	T	T1	F	U	E4-04M
6	8,00	1,00	32,10	24,00	T	T1	F	U	E4-06M
8	10,00	1,00	33,30	24,00	T	T1	F	U	E4-08M
10	12,00	1,00	35,80	26,00	T	T1	F	U	E4-10M
15	18,00	1,50	35,80	26,00	T	T1	F	U	E4-15M
20	23,00	1,50	41,60	40,00	T	T1	F	U	E4-20M
25	28,00	1,50	60,70	50,00	T	T1	F	U	E4-25M

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

T-Pieces Equal and Reduced Imperial



IMPERIAL

Size	d1 x d 2	s1	s2	l3	l2	TCC bf	TCC.1 ac	finetron bf	ultron ep	316L*	Code
Inch	mm	mm	mm	mm	mm						
1/4 x 1/4	6,35 x 6,35	0,89	0,89	89,00	44,50	T	T1	F	U	-	TE-04
3/8 x 1/4	9,53 x 6,35	0,89	0,89	89,00	44,50	T	T1	F	U	-	TR-06-04
3/8 x 3/8	9,53 x 9,53	0,89	0,89	89,00	44,50	T	T1	F	U	-	TE-06
1/2 x 1/4	12,70 x 6,35	1,24	0,89	95,20	47,60	T	T1	F	U	-	TR-08-04
1/2 x 3/8	12,70 x 9,53	1,24	0,89	95,20	47,60	T	T1	F	U	-	TR-08-06
1/2 x 1/2	12,70 x 12,70	1,24	1,24	95,20	47,60	T	T1	F	U	-	TE-08
1/2 x 1/4	12,70 x 6,35	1,65	0,89	101,60	47,60	T	T1	F	U	-	TR-08-65-04
1/2 x 3/8	12,70 x 9,53	1,65	0,89	101,60	47,60	T	T1	F	U	-	TR-08-65-06
1/2 x 1/2	12,70 x 12,70	1,65	1,65	101,60	47,60	T	T1	F	U	-	TE-08-65
3/4 x 1/4	19,05 x 6,35	1,24	0,89	101,60	50,80	T	T1	F	U	-	TR-12-49-04
3/4 x 3/8	19,05 x 9,53	1,24	0,89	101,60	50,80	T	T1	F	U	-	TR-12-49-06
3/4 x 1/2	19,05 x 12,70	1,24	1,24	101,60	50,80	T	T1	F	U	-	TR-12-49-08
3/4 x 3/4	19,05 x 19,05	1,24	1,24	101,60	50,80	T	T1	F	U	-	TE-12-49
3/4 x 1/4	19,05 x 6,35	1,65	0,89	101,60	50,80	T	T1	F	U	-	TR-12-04
3/4 x 3/8	19,05 x 9,53	1,65	0,89	101,60	50,80	T	T1	F	U	-	TR-12-06
3/4 x 1/2	19,05 x 12,70	1,65	1,65	101,60	50,80	T	T1	F	U	-	TR-12-08-65
3/4 x 3/4	19,05 x 19,05	1,65	1,65	101,60	50,80	T	T1	F	U	-	TE-12
1 x 1/4	25,40 x 6,35	1,65	0,89	108,00	54,00	T	T1	F	U	-	TR-16-04
1 x 3/8	25,40 x 9,53	1,65	0,89	108,00	54,00	T	T1	F	U	-	TR-16-06
1 x 1/2	25,40 x 12,70	1,65	1,24	108,00	54,00	T	T1	F	U	-	TR-16-08
1 x 1/2	25,40 x 12,70	1,65	1,65	108,00	54,00	T	T1	F	U	-	TR-16-08-65
1 x 3/4	25,40 x 19,05	1,65	1,24	108,00	54,00	T	T1	F	U	-	TR-16-12-49
1 x 3/4	25,40 x 19,05	1,65	1,65	108,00	54,00	T	T1	F	U	-	TR-16-12
1 x 1	25,40 x 25,40	1,65	1,65	108,00	54,00	T	T1	F	U	-	TE-16

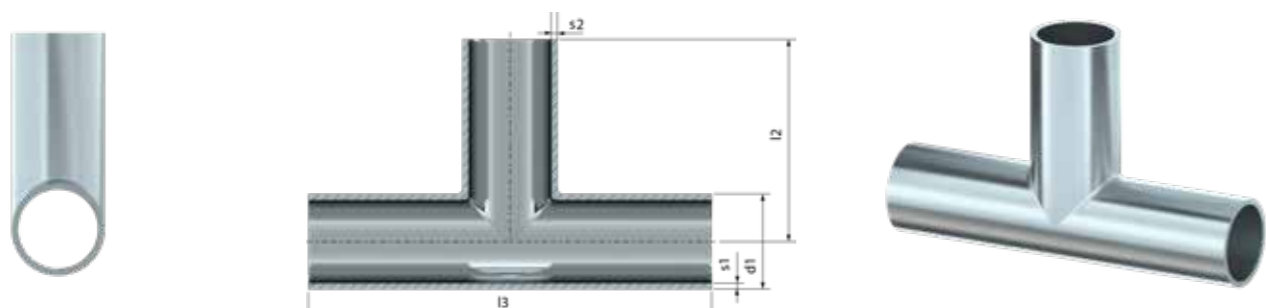
*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

IMPERIAL

Size	d1 x d 2	s1	s2	l3	l2	TCC bf	TCC.1 ac	finetron bf	ultron ep	316L*	Code
Inch	mm	mm	mm	mm	mm						
1 1/2 x 1/2	38,10 x 12,70	1,65	1,24	120,60	60,30	T	T1	F	U	-	TR-24-08
1 1/2 x 1/2	38,10 x 12,70	1,65	1,65	120,60	60,30	T	T1	F	U	-	TR-24-08-65
1 1/2 x 3/4	38,10 x 19,05	1,65	1,24	120,60	60,30	T	T1	F	U	-	TR-24-12-49
1 1/2 x 3/4	38,10 x 19,05	1,65	1,65	120,60	60,30	T	T1	F	U	-	TR-24-12
1 1/2 x 1	38,10 x 25,40	1,65	1,65	120,60	60,30	T	T1	F	U	-	TR-24-16
1 1/2 x 1 1/2	38,10 x 38,10	1,65	1,65	120,60	60,30	T	T1	F	U	-	TE-24
2 x 1/2	50,80 x 12,70	1,65	1,24	146,00	66,70	T	T1	F	U	-	TR-32-08
2 x 1/2	50,80 x 12,70	1,65	1,65	146,00	66,70	T	T1	F	U	-	TR-32-08-65
2 x 3/4	50,80 x 19,05	1,65	1,24	146,00	66,70	T	T1	F	U	-	TR-32-12-49
2 x 3/4	50,80 x 19,05	1,65	1,65	146,00	66,70	T	T1	F	U	-	TR-32-12
2 x 1	50,80 x 25,40	1,65	1,65	146,00	66,70	T	T1	F	U	-	TR-32-16
2 x 1 1/2	50,80 x 38,10	1,65	1,65	146,00	66,70	T	T1	F	U	-	TR-32-24
2 x 2	50,80 x 50,80	1,65	1,65	146,00	73,00	T	T1	F	U	-	TE-32
2 1/2 x 1/2	63,50 x 12,70	1,65	1,24	158,80	73,00	T	T1	F	U	-	TR-40-08
2 1/2 x 1/2	63,50 x 12,70	1,65	1,65	158,80	73,00	T	T1	F	U	-	TR-40-08-65
2 1/2 x 3/4	63,50 x 19,05	1,65	1,65	158,80	73,00	T	T1	F	U	-	TR-40-12
2 1/2 x 1	63,50 x 25,40	1,65	1,65	158,80	73,00	T	T1	F	U	-	TR-40-16
2 1/2 x 1 1/2	63,50 x 38,10	1,65	1,65	158,80	73,00	T	T1	F	U	-	TR-40-24
2 1/2 x 2	63,50 x 50,80	1,65	1,65	158,80	73,00	T	T1	F	U	-	TR-40-32
2 1/2 x 2 1/2	63,50 x 63,50	1,65	1,65	158,80	79,40	T	T1	F	U	-	TE-40
3 x 1/2	76,20 x 12,70	1,65	1,24	171,50	79,40	T	T1	F	U	-	TR-48-08
3 x 1/2	76,20 x 12,70	1,65	1,65	171,50	79,40	T	T1	F	U	-	TR-48-08-65
3 x 3/4	76,20 x 19,05	1,65	1,65	171,50	79,40	T	T1	F	U	-	TR-48-12
3 x 1	76,20 x 25,40	1,65	1,65	171,50	79,40	T	T1	F	U	-	TR-48-16
3 x 1 1/2	76,20 x 38,10	1,65	1,65	171,50	79,40	T	T1	F	U	-	TR-48-24
3 x 2	76,20 x 50,80	1,65	1,65	171,50	79,40	T	T1	F	U	-	TR-48-32
3 x 2 1/2	76,20 x 63,50	1,65	1,65	171,50	79,40	T	T1	F	U	-	TR-48-40
3 x 3	76,20 x 76,20	1,65	1,65	171,40	85,70	T	T1	F	U	-	TE-48
4 x 1/2	101,60 x 12,70	2,11	1,24	209,60	92,10	T	T1	F	U	-	TR-64-08
4 x 1/2	101,60 x 12,70	2,11	1,65	209,60	92,10	T	T1	F	U	-	TR-64-08-65
4 x 3/4	101,60 x 19,05	2,11	1,65	209,60	92,10	T	T1	F	U	-	TR-64-12
4 x 1	101,60 x 25,40	2,11	1,65	209,60	92,10	T	T1	F	U	-	TR-64-16
4 x 1 1/2	101,60 x 38,10	2,11	1,65	209,60	92,10	T	T1	F	U	-	TR-64-24
4 x 2	101,60 x 50,80	2,11	1,65	209,60	98,40	T	T1	F	U	-	TR-64-32
4 x 2 1/2	101,60 x 63,50	2,11	1,65	209,60	98,40	T	T1	F	U	-	TR-64-40
4 x 3	101,60 x 76,20	2,11	1,65	209,60	98,40	T	T1	F	U	-	TR-64-48
4 x 4	101,60 x 101,60	2,11	2,11	209,60	104,80	T	T1	F	U	-	TE-64
6 x 3	152,40 x 76,20	2,77	1,65	285,80	130,20	T	T1	F	U	-	TR-96-48
6 x 4	152,40 x 101,60	2,77	2,11	285,80	130,20	T	T1	F	U	-	TR-96-64
6 x 6	152,40 x 152,40	2,77	2,77	285,80	142,90	T	T1	F	U	-	TE-96

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

T-Pieces Equal and Reduced
Metric

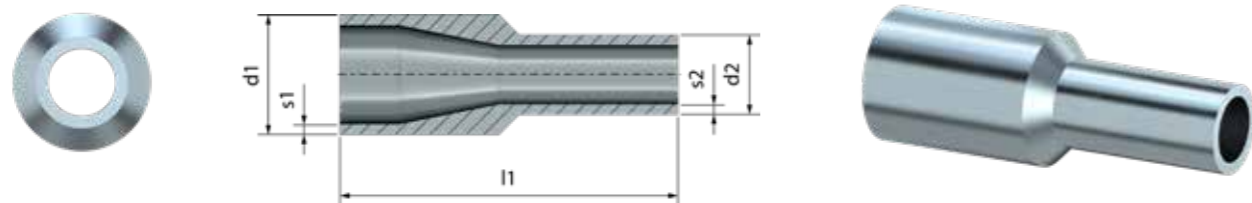


METRIC

Size	d1 x d 2	s1	s2	l3	l2	TCC bf	TCC.1 ac	finetron bf	ultron ep	Code
Inch	mm	mm				316L*				
4 x 4	6,00 x 6,00	1,00	1,00	60,00	30,00	T	T1	F	U	TE-04M
6 x 4	8,00 x 6,00	1,00	1,00	60,00	30,00	T	T1	F	U	TR-06M-04M
6 x 6	8,00 x 8,00	1,00	1,00	60,00	30,00	T	T1	F	U	TE-06M
8 x 6	10,00 x 8,00	1,00	1,00	60,00	30,00	T	T1	F	U	TR-08M-06M
8 x 8	10,00 x 10,00	1,00	1,00	60,00	30,00	T	T1	F	U	TE-08M
10 x 6	12,00 x 8,00	1,00	1,00	70,00	35,00	T	T1	F	U	TR-10M-06M
10 x 8	12,00 x 10,00	1,00	1,00	70,00	35,00	T	T1	F	U	TR-10M-08M
10 x 10	12,00 x 12,00	1,00	1,00	70,00	35,00	T	T1	F	U	TE-10M
15 x 6	18,00 x 8,00	1,50	1,00	70,00	35,00	T	T1	F	U	TR-15M-06M
15 x 8	18,00 x 10,00	1,50	1,00	70,00	35,00	T	T1	F	U	TR-15M-08M
15 x 10	18,00 x 12,00	1,50	1,00	70,00	35,00	T	T1	F	U	TR-15M-10M
15 x 15	18,00 x 18,00	1,50	1,50	70,00	35,00	T	T1	F	U	TE-15M
20 x 10	23,00 x 12,00	1,50	1,00	80,00	40,00	T	T1	F	U	TR-20M-10M
20 x 15	23,00 x 18,00	1,50	1,50	80,00	40,00	T	T1	F	U	TR-20M-15M
20 x 20	23,00 x 23,00	1,50	1,50	80,00	40,00	T	T1	F	U	TE-20M
25 x 10	28,00 x 12,00	1,50	1,00	100,00	50,00	T	T1	F	U	TR-25M-10M
25 x 15	28,00 x 18,00	1,50	1,50	100,00	50,00	T	T1	F	U	TR-25M-15M
25 x 20	28,00 x 23,00	1,50	1,50	100,00	50,00	T	T1	F	U	TR-25M-20M
25 x 25	28,00 x 28,00	1,50	1,50	100,00	50,00	T	T1	F	U	TE-25M

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

Reducers Concentric
Imperial / Metric



IMPERIAL

Size	d1 x d2	s1	s2	l1	TCC bf	TCC.1 ac	finetron bf	ultron ep	316L*	Code
Inch	mm	mm	mm	mm						
3/8 x 1/4	9,53 x 6,35	0,89	0,89	41,28	T	T1	F	U	-	RC-06-04
1/2 x 1/4	12,70 x 6,35	1,24	0,89	38,00	T	T1	F	U	-	RC-08-04
1/2 x 1/4	12,70 x 6,35	1,65	0,89	47,63	T	T1	F	U	-	RC-08-65-04
1/2 x 3/8	12,70 x 9,53	1,24	0,89	38,00	T	T1	F	U	-	RC-08-06
1/2 x 3/8	12,70 x 9,53	1,65	0,89	47,63	T	T1	F	U	-	RC-08-65-06
3/4 x 1/4	19,05 x 6,35	1,24	0,89	38,00	T	T1	F	U	-	RC-12-49-04
3/4 x 1/4	19,05 x 6,35	1,65	0,89	38,00	T	T1	F	U	-	RC-12-04
3/4 x 3/8	19,05 x 9,53	1,24	0,89	60,00	T	T1	F	U	-	RC-12-49-06
3/4 x 3/8	19,05 x 9,53	1,65	0,89	50,80	T	T1	F	U	-	RC-12-06
3/4 x 1/2	19,05 x 12,70	1,24	1,24	60,00	T	T1	F	U	-	RC-12-49-08
3/4 x 1/2	19,05 x 12,70	1,65	1,24	60,00	T	T1	F	U	-	RC-12-08
3/4 x 1/2	19,05 x 12,70	1,65	1,65	53,98	T	T1	F	U	-	RC-12-08-65
1 x 1/2	25,40 x 12,70	1,65	1,24	60,00	T	T1	F	U	-	RC-16-08
1 x 1/2	25,40 x 12,70	1,65	1,65	63,50	T	T1	F	U	-	RC-16-08-65
1 x 3/4	25,40 x 19,05	1,65	1,24	60,00	T	T1	F	U	-	RC-16-12-49
1 x 3/4	25,40 x 19,05	1,65	1,65	53,98	T	T1	F	U	-	RC-16-12
1 1/2 x 1/2	38,10 x 12,70	1,65	1,24	80,00	T	T1	F	U	-	RC-24-08
1 1/2 x 1/2	38,10 x 12,70	1,65	1,65	80,00	T	T1	F	U	-	RC-24-08-65
1 1/2 x 3/4	38,10 x 19,05	1,65	1,24	80,00	T	T1	F	U	-	RC-24-12-49
1 1/2 x 3/4	38,10 x 19,05	1,65	1,65	76,20	T	T1	F	U	-	RC-24-12
1 1/2 x 1	38,10 x 25,40	1,65	1,65	63,50	T	T1	F	U	-	RC-24-16
2 x 1	50,80 x 25,40	1,65	1,65	85,73	T	T1	F	U	-	RC-32-16
2 x 1 1/2	50,80 x 38,10	1,65	1,65	63,50	T	T1	F	U	-	RC-32-24
2 1/2 x 1	63,50 x 25,40	1,65	1,65	100,00	T	T1	F	U	-	RC-40-16
2 1/2 x 1 1/2	63,50 x 38,10	1,65	1,65	85,73	T	T1	F	U	-	RC-40-24
2 1/2 x 2	63,50 x 50,80	1,65	1,65	63,50	T	T1	F	U	-	RC-40-32
3 x 1 1/2	76,20 x 38,10	1,65	1,65	107,95	T	T1	F	U	-	RC-48-24
3 x 2	76,20 x 50,80	1,65	1,65	85,73	T	T1	F	U	-	RC-48-32
3 x 2 1/2	76,20 x 63,50	1,65	1,65	66,68	T	T1	F	U	-	RC-48-40
4 x 2	101,60 x 50,80	2,11	1,65	130,18	T	T1	F	U	-	RC-64-32
4 x 2 1/2	101,60 x 63,50	2,11	1,65	107,95	T	T1	F	U	-	RC-64-40
4 x 3	101,60 x 76,20	2,11	1,65	98,43	T	T1	F	U	-	RC-64-48
6 x 3	152,40 x 76,20	2,77	1,65	184,15	T	T1	F	U	-	RC-96-64
6 x 4	152,40 x 101,60	2,77	2,11	142,88	T	T1	F	U	-	RC-96-48

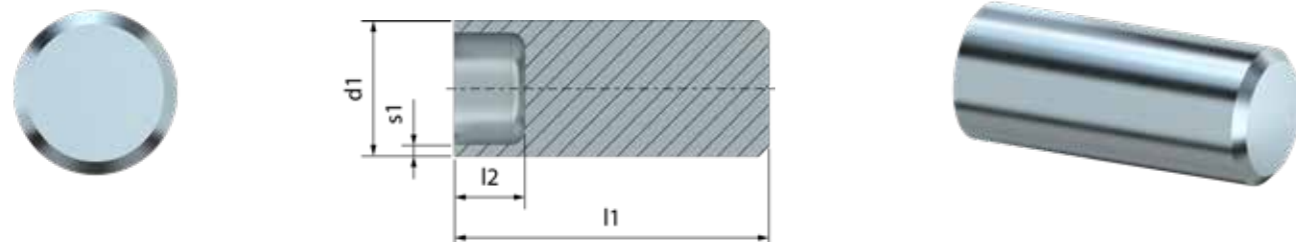
*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

METRIC

Size	d1 x d2	s1	s2	l1	TCC bf	TCC.1 ac	finetron bf	ultron ep	316L*	Code
DN	mm	mm	mm	mm						
6 x 4	8,00 x 6,00	1,00	1,00	38,00	T	T1	F	U	-	RC-06M-04M
8 x 4	10,00 x 6,00	1,00	1,00	38,00	T	T1	F	U	-	RC-08M-04M
8 x 6	10,00 x 8,00	1,00	1,00	38,00	T	T1	F	U	-	RC-08M-06M
10 x 4	12,00 x 6,00	1,00	1,00	38,00	T	T1	F	U	-	RC-10M-04M
10 x 6	12,00 x 8,00	1,00	1,00	38,00	T	T1	F	U	-	RC-10M-06M
10 x 8	12,00 x 10,00	1,00	1,00	38,00	T	T1	F	U	-	RC-10M-08M
15 x 8	18,00 x 10,00	1,50	1,00	38,00	T	T1	F	U	-	RC-15M-08M
15 x 10	18,00 x 12,00	1,50	1,00	38,00	T	T1	F	U	-	RC-15M-10M
20 x 10	23,00 x 12,00	1,50	1,00	60,00	T	T1	F	U	-	RC-20M-10M
20 x 15	23,00 x 18,00	1,50	1,50	60,00	T	T1	F	U	-	RC-20M-15M
25 x 15	28,00 x 18,00	1,50	1,50	70,00	T	T1	F	U	-	RC-25M-15M
25 x 20	28,00 x 23,00	1,50	1,50	70,00	T	T1	F	U	-	RC-25M-20M
32 x 20	35,00 x 23,00	1,50	1,50	80,00	T	T1	F	U	-	RC-32M-20M
32 x 25	35,00 x 28,00	1,50	1,50	80,00	T	T1	F	U	-	RC-32M-25M

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimensions on request

Weld Cap
Imperial / Metric



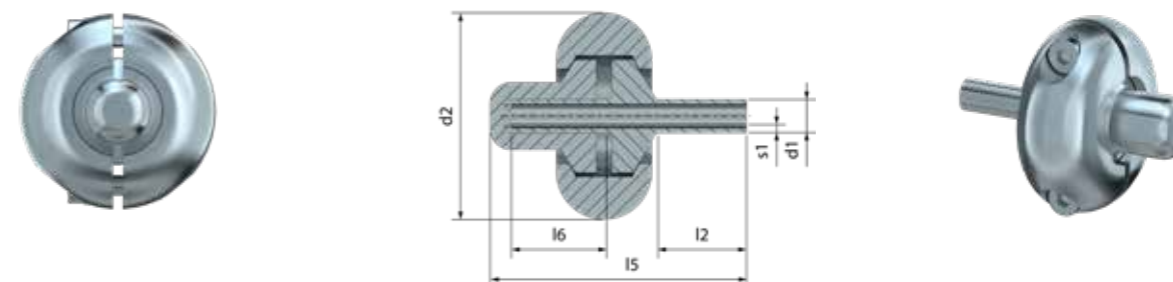
IMPERIAL		d1	s1	l1	l2	TCC bf	TCC.1 ac	finetron bf	ultron ep	316L*		Code
Inch	mm											
1/4	6,35	0,89	34,75	5,00	T	T1	F	U	-			WC-04
3/8	9,53	0,89	44,45	5,00	T	T1	F	U	-			WC-06
1/2	12,70	1,24	44,45	5,00	T	T1	F	U	-			WC-08
1/2	12,70	1,65	44,45	5,00	T	T1	F	U	-			WC-08-65
3/4	19,05	1,24	44,45	10,00	T	T1	F	U	-			WC-12-49
3/4	19,05	1,65	44,45	10,00	T	T1	F	U	-			WC-12
1	25,40	1,65	44,45	10,00	T	T1	F	U	-			WC-16
1 1/2	38,10	1,65	50,80	10,00	T	T1	F	U	-			WC-24
2	50,80	1,65	50,80	15,00	T	T1	F	U	-			WC-32
2 1/2	63,50	1,65	50,80	15,00	T	T1	F	U	-			WC-40
3	76,20	1,65	50,80	15,00	T	T1	F	U	-			WC-48
4	101,60	2,11	63,50	22,50	T	T1	F	U	-			WC-64
6**	152,40	2,77	200,00	150,00	T	T1	F	U	-			WC-96

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
** Differing design: not machined but dished boiled end welded to tube stub.
Blue marked = Stock item / Further dimesions on request

METRIC		d1	s1	l1	l2	TCC bf	TCC.1 ac	finetron bf	ultron ep	316L*		Code
DN	mm											
10	12,00	1,00	37,00	5,00	T	T1	F	U	-			WC-10M
15	18,00	1,50	37,00	10,00	T	T1	F	U	-			WC-15M
20	23,00	1,50	45,00	10,00	T	T1	F	U	-			WC-20M
25	28,00	1,50	45,00	10,00	T	T1	F	U	-			WC-25M
32	35,00	1,50	45,00	10,00	T	T1	F	U	-			WC-32M

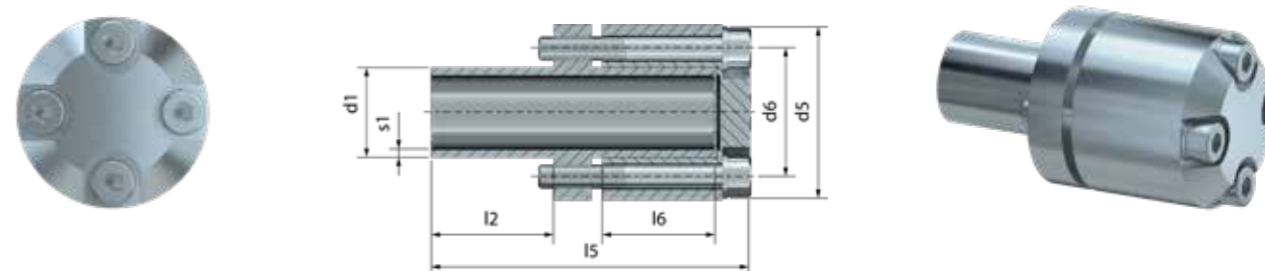
*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Blue marked = Stock item / Further dimesions on request

Dockweiler Cap Type A & B
Imperial



IMPERIAL		d1	s1	l2	l5	d5	d6	l6	TCC.1 ac	ultron ep	316L*		Code
Inch	Type												
1/4	A	6,35	0,89	19,05	48,40	39,00	-	26,65	T1	U	-		DC-04

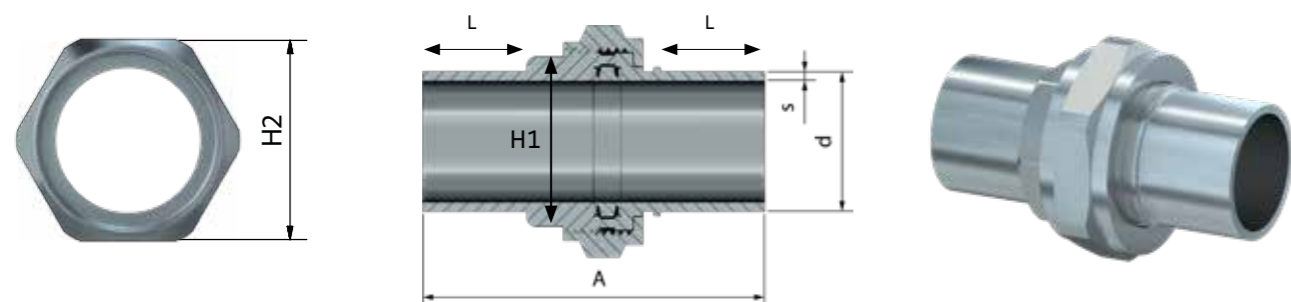
Cap Type B



IMPERIAL		d1	s1	l2	l5	d5	d6	l6	TCC.1 ac	ultron ep	316L*		Code
Inch	Type												
1/2	B	12,70	1,24	26,00	66,60	27,30	19,30	26,00	T1	U	-		DC-08
1/2	B	12,70	1,65	26,00	66,30	27,30	19,30	26,00	T1	U	-		DC-08-65
3/4	B	19,05	1,24	26,00	67,30	37,05	27,05	26,00	T1	U	-		DC-12-49
3/4	B	19,05	1,65	26,00	67,30	37,05	27,05	26,00	T1	U	-		DC-12
1	B	25,40	1,65	26,00	68,30	43,40	33,40	26,00	T1	U	-		DC-16
1 1/2	B	38,10	1,65	30,00	77,30	57,90	46,90	30,00	T1	U	-		DC-24
2	B	50,80	1,65	45,00	109,30	70,60	59,60	45,00	T1	U	-		DC-32
2 1/2	B	63,50	1,65	45,00	110,30	83,30	72,30	45,00	T1	U	-		DC-40
3	B	76,20	1,65	45,00	111,30	96,00	85,00	45,00	T1	U	-		DC-48
4	B	101,60	2,11	55,00	132,30	121,40	110,40	55,00	T1	U	-		DC-64
6	B	152,40	2,77	55,00	134,30	172,20	161,20	55,00	T1	U	-		DC-96

*According to the Dockweiler standard, the material is usually double certified as 1.4404/316L or 1.4435/316L.
Further dimesions on request.

ZeroCon up to 1"
Complete Kit Screwed



IMPERIAL

Dimensions		d	s	A	L	H1	H2	finetron bf	ultron ep	Code
System	Inch	mm	mm	mm	mm	mm (Inch)	mm (Inch)	1.4435 / 316L		
20-1	1/4	6,35	0,89	62,80	19,00	11 (7/16")	19 (3/4")	F	U	Z-SK-04
40-2	3/8	9,53	0,89	62,80	19,00	14 (9/16")	24 (15/16")	F	U	Z-SK-06
60-3	1/2	12,70	1,24	62,80	19,00	16 (5/8")	27 (1 1/16")	F	U	Z-SK-08
50-3	1/2	12,70	1,65	62,30	19,00	16 (5/8")	27 (1 1/16")	F	U	Z-SK-08-65
100-4	3/4	19,05	1,24	62,30	19,00	22 (7/8")	32 (1 1/4")	F	U	Z-SK-12-49
90-4	3/4	19,05	1,65	62,80	19,00	22 (7/8")	32 (1 1/4")	F	U	Z-SK-12
130-5	1	25,40	1,65	62,80	19,00	27 (1 1/16")	38 (1 1/2")	F	U	Z-SK-16

Blue marked = Stock item / Further dimensions on request

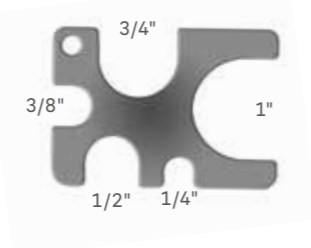
The ZeroCon Kit consists of:

- Pressure joint (1x)
- Screw joint (1x)
- Metal gasket (1x)
- Nut (1x)
- Assembly instruction

Please follow the assembly instructions for the correct use of the tool. The instruction is part of the ZeroCon kit.

The ZeroCon Disassembly Tool

Order Code: Z-SDT



ZeroCon up to 1"
Parts



Please note: The system size for the screwed ZeroCon kit is always based on the number for the gasket and the number for the connecting nut



Gaskets

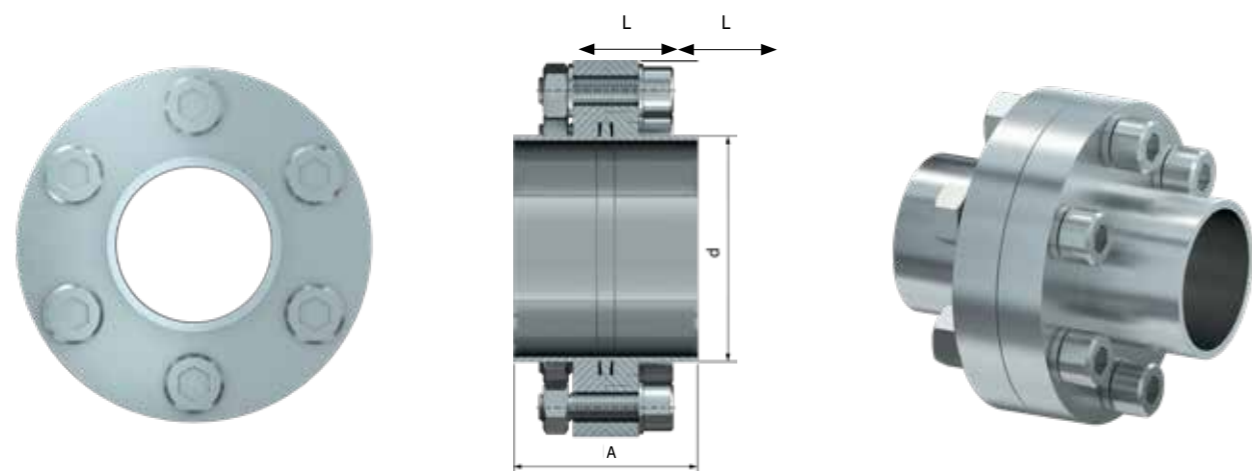
System	d	finetron bf	ultron*	Code
System	mm	1.4435 / 316L		
20	8,95	F	U	Z-SR-04
40	12,35	F	U	Z-SR-06
60	15,25	F	U	Z-SR-08
50	15,25	F	U	Z-SR-08-65
100	21,60	F	U	Z-SR-12-49
90	21,60	F	U	Z-SR-12
130	27,20	F	U	Z-SR-16

* For technical reasons, the seal is not electropolished. The gasket has an RA value of 0,4 µm and is cleanroom cleaned.

Nuts

System	Tube (d)	Code
System	Inch	
1	1/4	Z-N-04
2	3/8	Z-N-06
3	1/2	Z-N-08
4	3/4	Z-N-12
5	1	Z-N-16

ZeroCon from 1"
Complete Kit Flanged



Dimensions					Wrench Size			finetron bf		ultron ep		Code
Inch	mm	d	s	A	L	Screw Set	H1	H2	1.4435	316L		
1	25,40	1,65	58,00	20,00	20,00	1F	10 (3/8")	5 (3/16")	F	U	-	Z-FK-16
1 1/2	38,10	1,65	62,00	20,00	20,00	2F	13 (1/2")	6 (7/32")	F	U	-	Z-FK-24
2	50,80	1,65	62,00	20,00	20,00	2F	13 (1/2")	6 (7/32")	F	U	-	Z-FK-32
3	76,20	1,65	62,00	20,00	20,00	3F	16 (5/8")	8 (5/16")	F	U	-	Z-FK-48
4	101,60	2,11	62,00	20,00	20,00	4F	16 (5/8")	8 (5/16")	F	U	-	Z-FK-64

Blue marked = Stock item / Further dimensions on request

The ZeroCon Kit consists of:

- Fixed flange (1x)
- Rotatable flange (1x)
- Metal gasket (1x)
- Screw set (1x)
- Assembly instruction

Please follow the assembly instructions for the correct use of the tool. The instruction is part of the ZeroCon kit.



System	Bolt / mm	Code
1F	M6 x 30	Z-FDT-M6
2F	M8 x 35	Z-FDT-M8
3F	M10 x 35	Z-FDT-M10
4F	M10 x 35	Z-FDT-M10



Gaskets

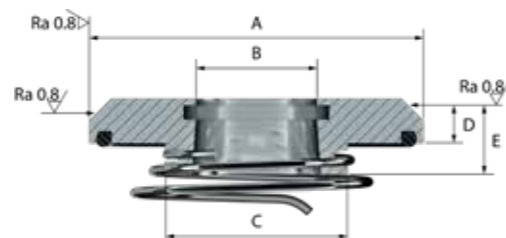
Dimensions		finetron bf		ultron**		Code
Inch	d (mm)	1.4435	316L	1.4435	316L	
1	27,20	F	U	-	-	Z-SR-16
1 1/2	42,90	F	U	-	-	Z-SR-24
2	56,60	F	U	-	-	Z-SR-32
3"	85,00	F	U	-	-	Z-SR-48
4"	109,65	F	U	-	-	Z-SR-64

** For technical reasons, the seal is not electropolished. The gasket has an RA value of 0,4 µm and is cleanroom cleaned.

Screw Set

System	Bolt / mm	Nut / mm	Amount of Screws	Lock washer	Code
1F	M6 x 30	M6 x 1	6	SWS-M6	Z-SN-M6
2F	M8 x 35	M8 x 1	8	SWS-M8	Z-SN-M8
3F	M10 x 35	M10 x 1	8	SWS-M10	Z-SN-M10-8
4F	M10 x 35	M10 x 1	10	SWS-M10	Z-SN-M10-10

CleanShut
Wall and Ceiling Feedthroughs



IMPERIAL

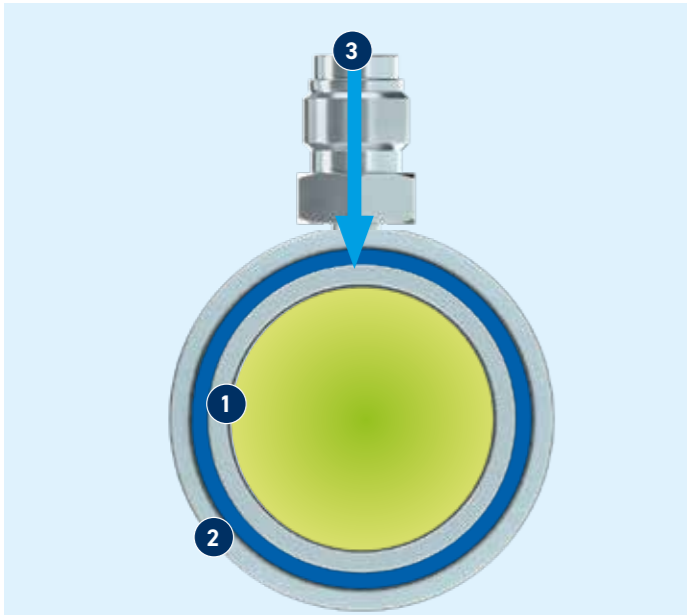
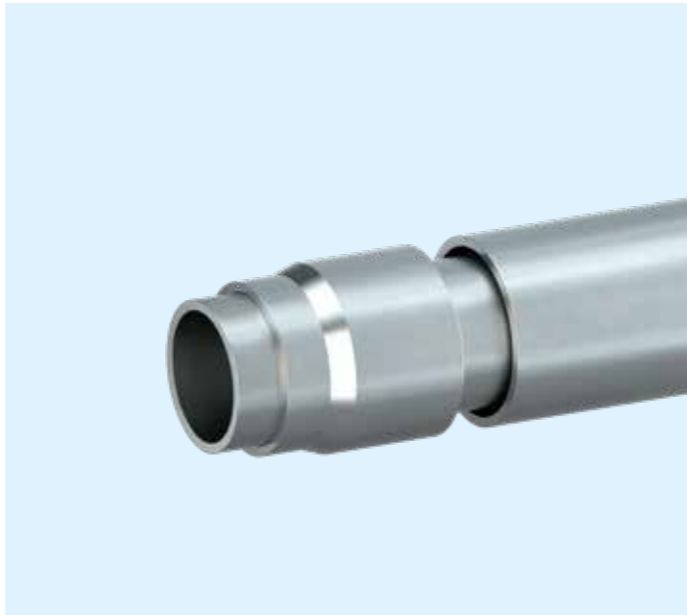
Size	OD Tube	A	B	C	D	E	Order Code				
Inch		mm					Code			PVDF	
1/2	12,70	64,00	12,90	34,00	10,00	18,00	WFT	-	08	-	PV
3/4	19,05	75,00	19,25	45,00	10,00	18,00	WFT	-	12	-	PV
1	25,40	75,00	25,60	45,00	10,00	18,00	WFT	-	16	-	PV
1 1/2	38,10	105,00	38,30	75,00	10,00	20,00	WFT	-	24	-	PV
2	50,80	105,00	51,00	75,00	10,00	20,00	WFT	-	32	-	PV
2 1/2	63,50	138,00	63,70	108,00	10,00	22,00	WFT	-	40	-	PV
3	76,20	138,00	76,40	108,00	10,00	22,00	WFT	-	48	-	PV
4	101,60	149,00	101,80	127,00	10,00	22,00	WFT	-	64	-	PV

Blue marked = Stock item
Further dimensions and materials on request. Subject to alteration.

METRIC

Size	OD Tube	A	B	C	D	E	Order Code				
DN		mm					Code			PVDF	
10	13,00	64,00	13,20	34,00	10,00	18,00	WFT	-	10M	-	PV
15	19,00	75,00	19,20	45,00	10,00	18,00	WFT	-	15M	-	PV
20	23,00	75,00	23,20	45,00	10,00	18,00	WFT	-	20M	-	PV
25	29,00	87,00	29,20	57,00	10,00	18,00	WFT	-	25M	-	PV
32	35,00	87,00	35,20	57,00	10,00	18,00	WFT	-	32M	-	PV
40	41,00	105,00	41,20	75,00	10,00	20,00	WFT	-	40M	-	PV
50	53,00	105,00	53,20	75,00	10,00	20,00	WFT	-	50M	-	PV
65	70,00	138,00	70,20	108,00	10,00	22,00	WFT	-	65M	-	PV
80	85,00	138,00	85,20	108,00	10,00	22,00	WFT	-	80M	-	PV
100	104,00	149,00	104,20	127,00	10,00	22,00	WFT	-	100M	-	PV








Blue marked = Stock item
Further dimensions and materials on request. Subject to alteration.



Design of the COAX Tube System

- 1 Inner process tube (ultron or TCC)**
For explosive, toxic, aggressive or highly viscous media.
- 2 Outer safety tube (TCC)**
For safety or accumulation as well as for temperature-controlled media for heating or cooling.
- 3 VCR connector**
The interface of the VCR connection enables sensory measurements.

COAX – The Coaxial Tube System
For Enhanced Safety

Products		Page
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	Coaxial Terminator	43
	Coaxial 90° Elbow	44
	Coaxial 45° Elbow	45
	Coaxial Tee / Coaxial Reducing Tee	46
	Coaxial Purge Tee	48

Coaxial Tube System
Coaxial Tubes



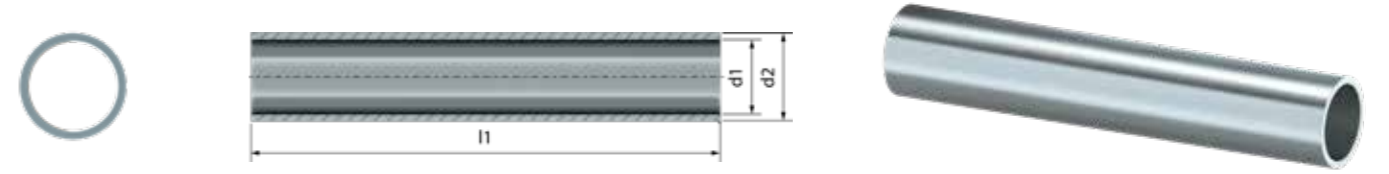
IMPERIAL	Inner Tube		Outer Tube		Weight kg/m	TCC bf		ultron ep		Code
	d1	s1	d2	s2		316L*				
Inch	mm									
1/4	6,35	0,89	12,70	1,24	0,4752	T	U	-		CO-04
3/8	9,53	0,89	15,88	1,24	0,6512	T	U	-		CO-06
1/2	12,70	1,24	19,05	1,65	1,0709	T	U	-		CO-08
3/4	19,05	1,65	25,40	1,65	1,7022	T	U	-		CO-12
1	25,40	1,65	38,10	1,65	2,4901	T	U	-		CO-16

* Other material on request.

Blue marked = Stock item / Further dimensions on request



Coaxial Tube System
Coaxial Weld Sleeve

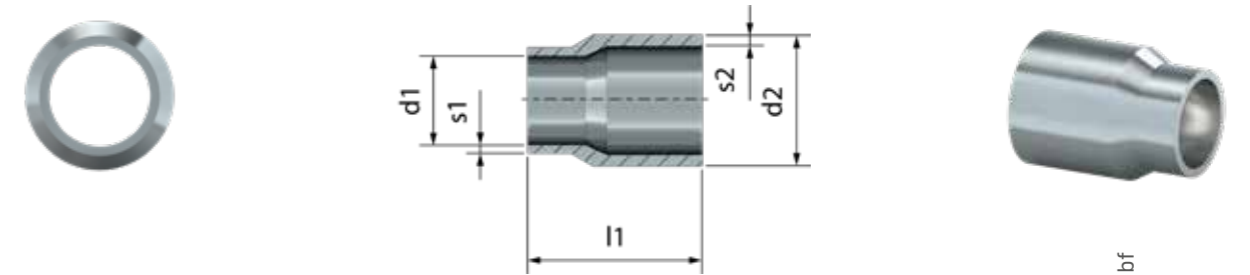


IMPERIAL	For outer tube		Sleeve			TCC bf		Code
	d		d1	d2	l1	316L*		
Inch	mm		mm					
1/4	6,35	12,70	12,90	15,88	101,60	T	-	CS-04
3/8	9,53	15,87	16,11	19,05	101,60	T	-	CS-06
1/2	12,70	19,05	19,30	22,23	101,60	T	-	CS-08
3/4	19,05	25,40	25,60	30,00	101,60	T	-	CS-12
1	25,40	38,10	38,40	42,40	101,60	T	-	CS-16

*Other materials on request

Blue marked = Stock item / Further dimensions on request

Coaxial Terminator

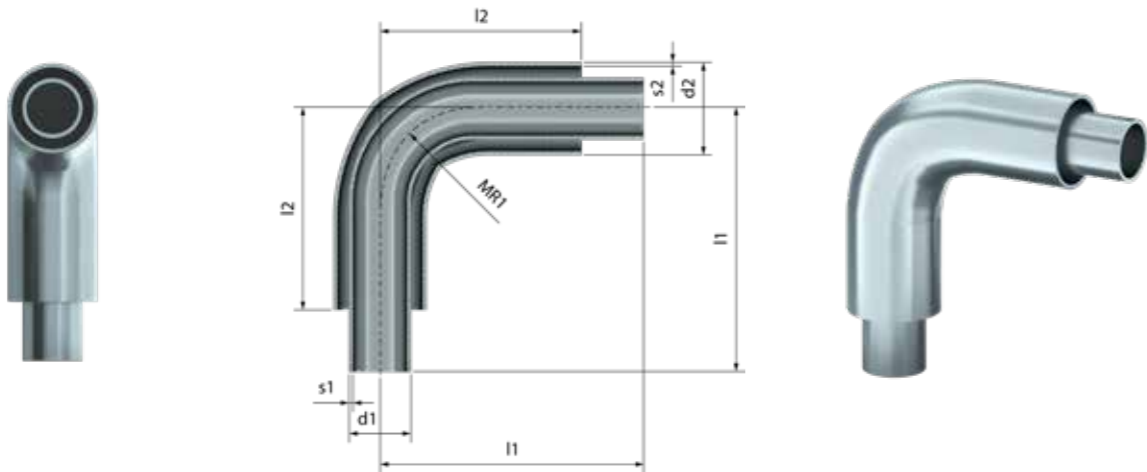


IMPERIAL	Sleeve			TCC bf		Code
	d1	d2	l1	316L*		
Inch						
1/4	6,35	12,70	25,40	T	-	CTM-04
3/8	9,53	15,88	25,40	T	-	CTM-06
1/2	12,70	19,05	25,40	T	-	CTM-08
3/4	19,05	25,40	31,75	T	-	CTM-12
1	25,40	38,10	31,75	T	-	CTM-16

*Other materials on request

Blue marked = Stock item / Further dimensions on request

Coaxial Tube System
Coaxial 90° Elbow

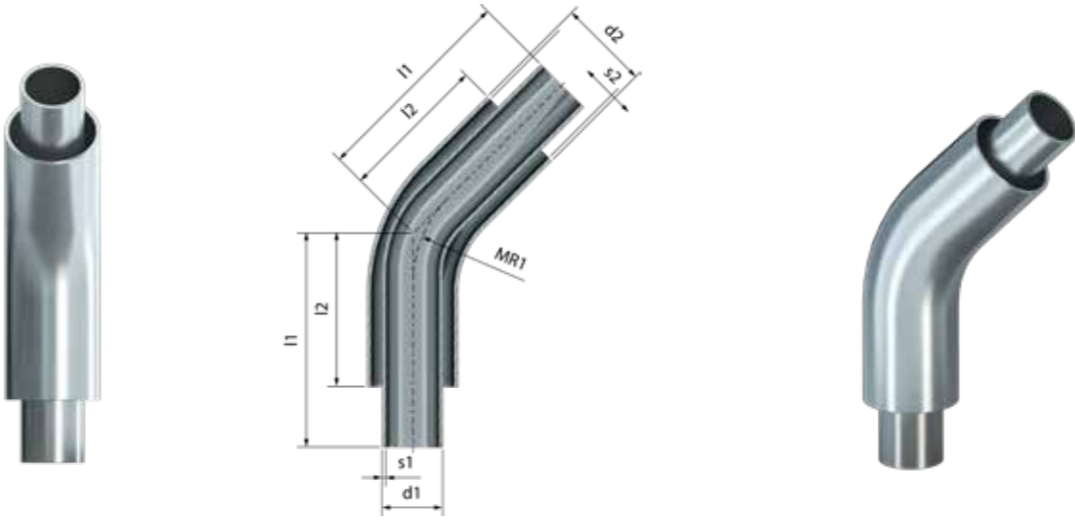


IMPERIAL

Inch	Inner Tube		Outer Tube		Dimensions			TCC bf	ultron ep	316L*	Code	
	d1	s1	d2	s2	l1	l2	MR1					
	mm											
1/4	6,35	0,89	12,70	1,24	120,70	101,65	38,10	T	U	-	CE9-04	bent
3/8	9,53	0,89	15,88	1,24	130,70	111,65	57,00	T	U	-	CE9-06	bent
1/2	12,70	1,24	19,05	1,65	184,40	165,35	85,00	T	U	-	CE9-08	bent
3/4	19,05	1,65	25,40	1,65	190,75	165,35	85,00	T	U	-	CE9-12	bent
1	25,40	1,65	38,10	1,65	107,97	82,57	38,10	T	U	-	CE9-16	welded

* Other material on request.
Blue marked = Stock item / Further dimesions on request

Coaxial Tube System
Coaxial 45° Elbow

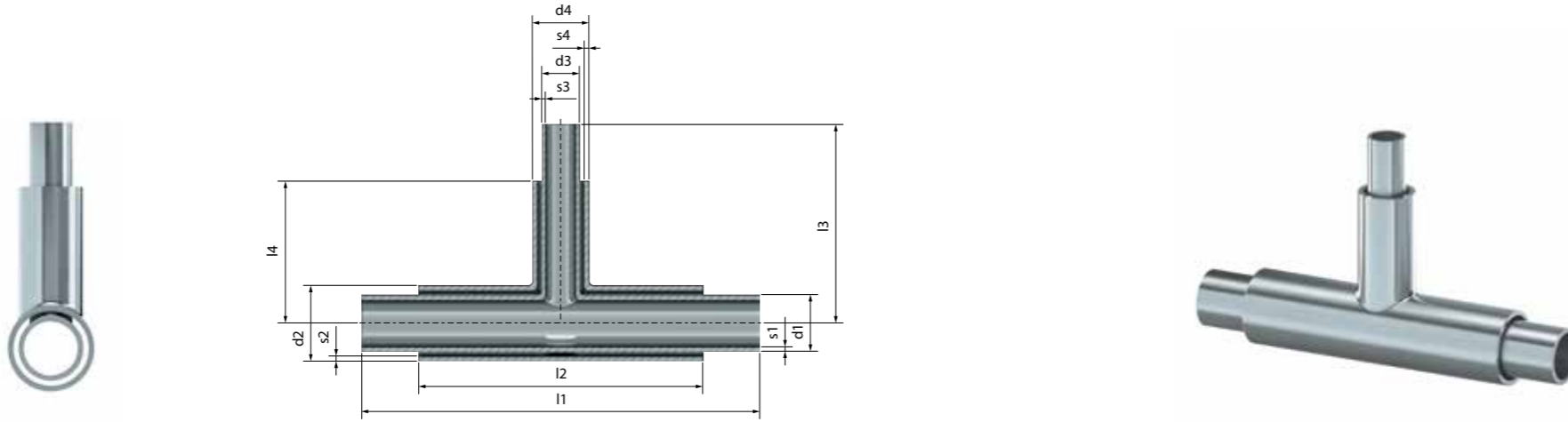


IMPERIAL

Inch	Inner Tube		Outer Tube		Dimensions			TCC bf	ultron ep	316L*	Code	
	d1	s1	d2	s2	l1	l2	MR1					
	mm											
1/4	6,35	0,89	12,70	1,24	120,70	101,65	38,10	T	U	-	CE9-04	bent
3/8	9,53	0,89	15,88	1,24	130,70	111,65	57,00	T	U	-	CE9-06	bent
1/2	12,70	1,24	19,05	1,65	184,40	165,35	85,00	T	U	-	CE9-08	bent
3/4	19,05	1,65	25,40	1,65	190,75	165,35	85,00	T	U	-	CE9-12	bent
1	25,40	1,65	38,10	1,65	107,97	82,57	38,10	T	U	-	CE9-16	welded

* Other material on request.
Blue marked = Stock item / Further dimesions on request

Coaxial Tube System
Coaxial Tee / Reducing Tee



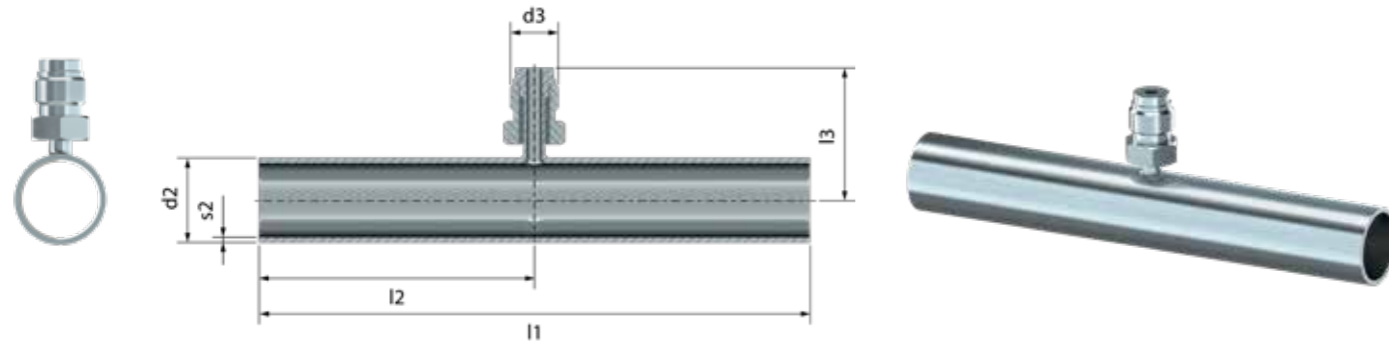
IMPERIAL

Inch	Inner Tube				Outer Tube				Main Tube		Branch		TCC bf	ultron ep	Code	
	Main Tube		Branch		Main Tube		Branch		Inner Tube	Outer Tube	Outer Tube	Inner Tube				
	d1	s1	d3	s3	d2	s2	d4	s4	l1	l2	l3	l4				
	mm	mm	mm	mm	mm	mm	mm	mm				316L*				
1/4 x 1/4	6,35	0,89	6,35	0,89	12,70	1,24	12,70	1,24	127,00	88,90	63,50	44,45	T	U	-	CTE-04
3/8 x 1/4	9,53	0,89	6,35	0,89	15,88	1,24	12,70	1,24	127,00	88,90	63,50	44,45	T	U	-	CTR-06-04
3/8 x 3/8	9,53	0,89	9,53	0,89	15,88	1,24	15,88	1,24	127,00	88,90	63,50	44,45	T	U	-	CTE-06
1/2 x 1/4	12,70	1,24	6,35	0,89	19,05	1,65	12,70	1,24	133,35	95,25	66,68	47,63	T	U	-	CTR-08-04
1/2 x 3/8	12,70	1,24	9,53	0,89	19,05	1,65	15,88	1,24	133,35	95,25	66,68	47,63	T	U	-	CTR-08-06
1/2 x 1/2	12,70	1,24	12,70	1,24	19,05	1,65	19,05	1,65	133,35	95,25	66,68	47,63	T	U	-	CTE-08
3/4 x 1/4	19,05	1,65	6,35	0,89	25,40	1,65	12,70	1,24	133,35	95,25	66,68	47,63	T	U	-	CTR-12-04
3/4 x 3/8	19,05	1,65	9,53	0,89	25,40	1,65	15,88	1,24	133,35	95,25	66,68	47,63	T	U	-	CTR-12-06
3/4 x 1/2	19,05	1,65	12,70	1,24	25,40	1,65	19,05	1,65	133,35	95,25	66,68	47,63	T	U	-	CTR-12-08
3/4 x 3/4	19,05	1,65	19,05	1,65	25,40	1,65	25,40	1,65	133,35	95,25	66,68	47,63	T	U	-	CTE-12
1 x 1/4	25,40	1,65	6,35	0,89	38,10	1,65	12,70	1,24	158,75	107,95	79,38	53,98	T	U	-	CTR-16-04
1 x 3/8	25,40	1,65	9,53	0,89	38,10	1,65	15,88	1,24	158,75	107,95	79,38	53,98	T	U	-	CTR-16-06
1 x 1/2	25,40	1,65	12,70	1,24	38,10	1,65	19,05	1,65	158,75	107,95	79,38	53,98	T	U	-	CTR-16-08
1 x 3/4	25,40	1,65	19,05	1,65	38,10	1,65	25,40	1,65	158,75	107,95	79,38	53,98	T	U	-	CTR-16-12
1 x 1	25,40	1,65	25,40	1,65	38,10	1,65	38,10	1,65	158,75	107,95	79,38	53,98	T	U	-	CTE-16

* Other material on request.

Blue marked = Stock item / Further dimensions on request

Coaxial Tube System
Coaxial Purge Tee



IMPERIAL	Inner Tube		Outer Tube				VCR*	TCC bf	316L*	Code
	d1	s1	d2	s2	l1	l2				
Inch	mm							Inch		
1/4	6,35	0,89	12,70	1,24	146,00	73,00	33,30	1/4	T	- CPT-04
3/8	9,53	0,89	15,88	1,24	152,40	76,20	34,80	1/4	T	- CPT-06
1/2	12,70	1,24	19,05	1,65	152,40	76,20	36,40	1/4	T	- CPT-08
3/4	19,05	1,65	25,40	1,65	165,10	82,55	39,60	1/4	T	- CPT-12
1	25,40	1,65	38,10	1,65	165,10	82,55	45,85	1/4	T	- CPT-16

* Other material on request.

Blue marked = Stock item / Further dimensions on request

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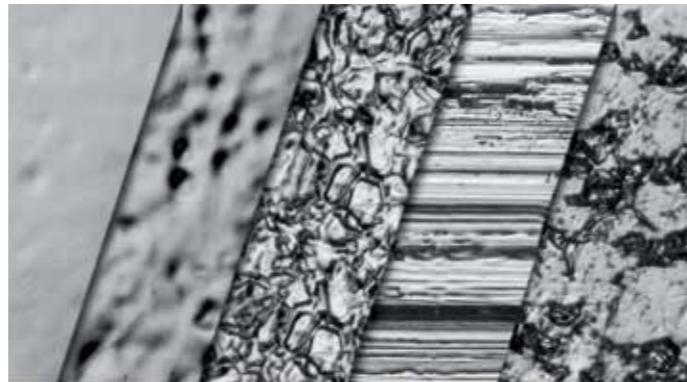


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