

D-ECKWEILER
connecting flow to **purity**

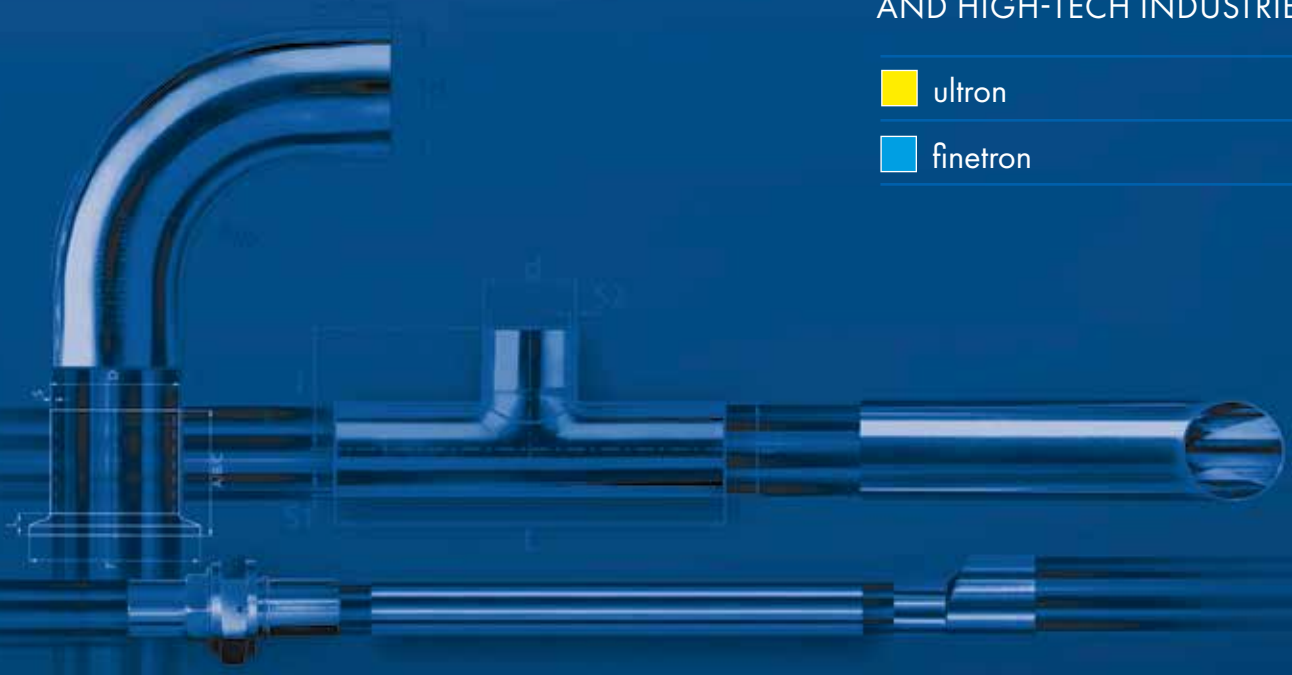
MICROELECTRONICS

TUBES, PIPES, FITTINGS AND CONNECTIONS

FOR SEMICONDUCTOR
AND HIGH-TECH INDUSTRIES

 ultron

 finetron



NORTH AMERICA

Specific inner surfaces
for safe installations.
Highest purity up to Ra 5 µin.



Dockweiler quality
from raw material to delivery.
All certificates are available on:
www.dockweiler.com

Consistent 3.1 certificates
with all important information.
End-to-end documentation
and traceability.



Engineered components
for enhanced efficiency.
Weld seams in perfection and
ultimate quality.

Disclaimer for contents: The contents of the catalog have been prepared with the greatest care. However, Dockweiler AG does not assume any liability for the correctness, completeness, reliability, usability and validity of the contents. The same applies to other Dockweiler companies that use this term. The respective customer is therefore obliged to check all contents in advance for their suitability for the intended use or to have them checked by a qualified professional.

CONTENTS

PAGE

Specifications	4
How-to-order	8

Tubes, Pipes, Fittings and Connections	CODE	10
Tubing	UL, FT, TC, T1	12
Coil-Tube	CT-UL	13
Elbow 45° WW	4L	14
Elbow 90° WW	9L	15
Tee Equal / Reducing	TE / RT	16
Concentric Reducer WW	CR / FCR	18
Weld Cap	WC	19
Removable Weld Cap (Dockweiler Cap)	RWC	20
ZeroCon	SWS	22
CleanShut	WFT	26

COAX Double Wall Tube System	CODE	28
Coaxial Tubing	CO	30
Coaxial Tee / Coaxial Reducing Tee	CTE / CRT	32
Coaxial 45° Elbow	C4L	34
Coaxial 90° Elbow	C9L	35
Coaxial Weld Sleeve (Length: 4 inch / 3 inch)	CWS / CWS3	36
Coaxial Terminator	CTM	37
Coaxial Purge Tee	CPT	38
Coaxial Bulkhead Purge Tee	CBP	39
Coaxial VCR Female / Coaxial VCR Male	CFG / CMG	40

Customized Solutions	42
Flextron	44
Process Vessels / Bubbler	46
Prefabricated Laterals / Manifolds	48

Dockweiler Group / Contacts US	50
--	-----------

For UHP gas applications in semiconductor industry and fine chemistry

ultron

ep electropolished
cleanroom cleaning and packing



1. SURFACES QUALITIES

Tubes and fittings:	Inner surface (ep)	Outer surface
ultron	Ra ≤ 10 µin (0.25 µm)	Ra ≤ 40 µin (1.0 µm)
ultron VIM-VAR	Ra ≤ 7 µin (0.18 µm)	Ra ≤ 40 µin (1.0 µm)
On request:	Ra ≤ 5 µin (0.13 µm) Ra ≤ 7 µin (0.18 µm) Ra ≤ 15 µin (0.38 µm)	

Pipes:	Inner surface (ep)	Outer surface
ultron	Ra ≤ 20 µin (0.51 µm)	Mill finish, RA not defined

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.
- Free of oil and grease acc. to CGA G-4.1-2018 and ASTM G93.
- Electropolishing procedure acc. to Dockweiler guideline Doc. 8.4-40/3.1/3.3.1
- 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) VIMVAR double melted stainless steel acc. to ASTM A 269/A 632 for OD tubing (Imperial)

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 x 0.56 mm to 152.4 x 2.77 mm
Length:	OD > 1/4": min. 19.36 ft to max. 19.98 ft (6000 mm -100/+90) OD < 1/4": min. 9.51 ft to max. 9.84 ft (2950 mm ± 50)	
Pipe:	Pipe according to ASTM A312	
Dimensions:	NPS 8, 10, 12 Schedule 10S	Length: min. 19.36 ft to max. 19.98 ft
Manufacturing process:	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	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 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

Tube, pipe and fittings shall be permanently marked as per Dockweiler guideline AA 7.5.3-80. The marking must provide 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 (99.9998% incl. inert gas), 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.

For gas applications in semiconductor industry
as well as in photovoltaics

finetron

bf **bright finished**
cleaning and testing acc.to ASTM A 632, S3



1. SURFACES QUALITIES

Tubes and fittings:	Inner surface (bf)	Outer surface
■ finetron	OD ≤ 2 1/2" (63,5 mm): Ra ≤ 16 µin (0,40 µm)	Ra ≤ 40 µin (1.0 µm)
	OD > 2 1/2" (63,5 mm): Ra ≤ 32 µin (0,80 µm)	Ra ≤ 40 µin (1.0 µm)
■ finetron passivated	Upon request: Passivation acc. ASTM A380 & A967	
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.	

2. MATERIALS

■ finetron	1.4404 / UNS S31603 (316L) 1.4435 / UNS S31603 (316L) 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	
OD x WT:	1/4" x 0.035" to 6" x 0.109"	6.35 x 0.89 mm to 152.4 x 2.77 mm
Length:	min. 19.36 ft to max. 19.98 ft	6000 mm -100/+90
Manufacturing process:	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

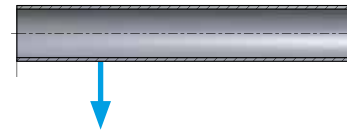
The documentation result by the Dockweiler Inspection Certificate 3.1 according to DIN EN 10204.

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.

Dockweiler Order Code System: Easy to select and combine



Order Code Selection for Tubes:

ultron Tube 1 Inch (sample)

Combine: **A** - **C**

Order Code: **UL** - **16**

A. MATERIALS

P/N	Specification	Material
UL	ultron	316L (ep)
UL-LM	ultron VIMVAR	316L VIMVAR (ep)
FT	finetron*	316L (bf)
CO-UL	Coaxial Outer: 316L/304L (bf); Inner: 316L (ep)	
CT-UL	Coil Tube ultron	316L (ep)
CT-FT	Coil Tube finetron*	316L (bf)
FX	Flextron ultron	316L (ep)

*optional: **finetron passivated**
= add **-P** as addition at the end of the order code

B. BASIC CODE FITTING TYPE

P/N	Description
4L	45° Elbow
9L	90° Elbow
TE	Tee Equal
RT	Reducing Tee
CR	Concentric Reducer
FCR	Formed Concentric Reducer
ER	Eccentric Reducer
RWC	Removable Weld Cap (Dockweiler Cap)
WC	Weld Cap
CTE	Coaxial Tee
C4L	Coaxial 45° Elbow
C9L	Coaxial 90° Elbow
CWS	Coaxial Weld Sleeve (Length: 4 inch)
CTM	Coaxial Terminator
CPT	Coaxial Purge Tee
CBP	Coaxial Bulkhead Purge Tee
CFG	Coaxial VCR Female Gland
CMG	Coaxial VCR Male Gland
CRT	Coaxial Reducing Tee
ZC	ZeroCon Connection
WFT	CleanShut Wall Feedthrough

C. BASIC CODE OUTER DIAMETER

P/N	Size (Inch)	Wall Thickness
02	1/8	0.022
04	1/4	0.035
06	3/8	0.035
08	1/2	0.049
10	5/8	0.049
12	3/4	0.065
16	1	0.065
24	1 1/2	0.065
32	2	0.065
40	2 1/2	0.065
48	3	0.065
64	4	0.083
96	6	0.109

Pipe Schedule 10S

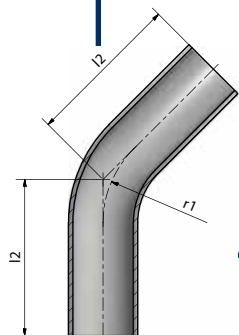
NPS128	8	0.148
NPS160	10	0.165
NPS192	12	0.180
NPS224	14	0.189
NPS256	16	0.189
NPS288	18	0.189
NPS320	20	0.218

Order Code Selection for Fittings:

finetron Elbow 45° 1/2 Inch (sample)

Combine: **A** - **B** - **C**

Order Code: **FT** - **4L** - **08**



Dockweiler Tube Systems: Tubes and Orbital Weld Fittings

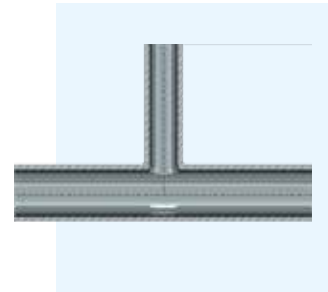
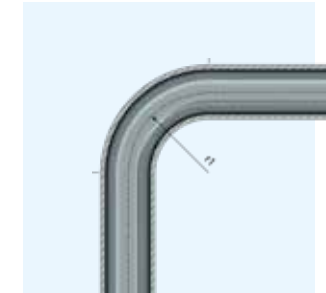
For the highest requirements for surfaces, purity and corrosion resistance. Our tubes and fittings meet the highest demands for applications in microelectronics or in other high-tech industries.



45° Elbow
Page 14



90° Elbow
Page 15

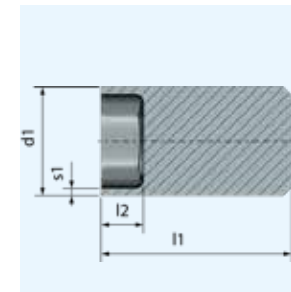


**T-Pieces
Equal and
Reduced**
Page 16

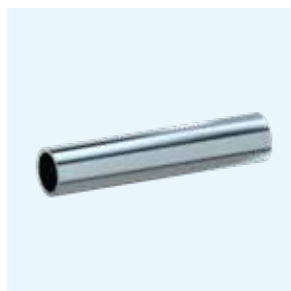


**Concentric
Reducer**
Page 18

Weld Cap
Page 19



**Dockweiler
Cap**
Page 20



**Imperial Tubes
and Pipes**
Page 12



Coil Tube
Page 13



**ZeroCon
Connection**
Page 22



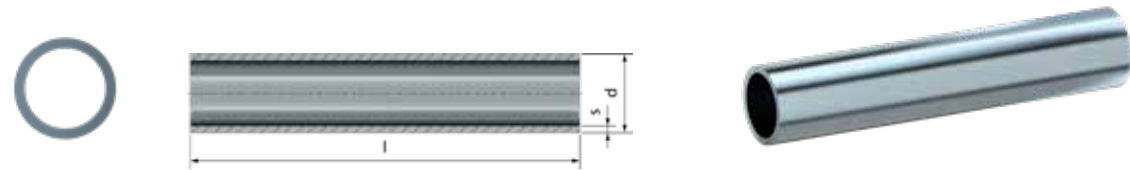
**CleanShut
Feedthrough**
Page 26

IMPERIAL TUBING AND IMPERIAL PIPE (S10)

UL, FT, TC

COIL TUBE

UL



Imperial	d / s	Weight	ultron	ultron vim var	finetron	Basic Code	*optional passivated
Inch	Inch	lbs/ft	316 L				
1/8	0.125 x 0.022	0.0811	UL	UL-LM	-	02	- *P
1/4	0.250 x 0.035	0.2736	UL	UL-LM	FT	04	- *P
3/8	0.375 x 0.035	0.4334	UL	UL-LM	FT	06	- P
1/2	0.500 x 0.049	0.7740	UL	UL-LM	FT	08	- *P
3/4	0.750 x 0.065	1.5869	UL	UL-LM	FT	12	- *P
1	1.000 x 0.065	2.1658	UL	UL-LM	FT	16	- *P
1 1/2	1.500 x 0.065	3.3239	UL		FT	24	- *P
2	2.000 x 0.065	4.4822	UL		FT	32	- *P
2 1/2	2.500 x 0.065	5.6405	UL		FT	40	- *P
3	3.000 x 0.065	6.7986	UL		FT	48	- *P
4	4.000 x 0.083	11.6023	UL		FT	64	- *P
6	6.000 x 0.109	22.9080	UL		FT	96	- *P

PIPE NPS Schedule 10S	d / s	Weight	316 L			Basic Code
NPS	Inch	lbs/ft	UL	TCC	-	
6*	6.625 x 0.130	30.9529	UL	TCC	-	NPS 96
8	8.625 x 0.150	44.6876	UL	TCC	-	NPS128
10	10.750 x 0.160	62.1923	UL	TCC	-	NPS160
12	12.750 x 0.180	80.5568	UL	TCC	-	NPS192
16	16.000 x 0.190	105.9761		TCC	-	NPS256
20	20.000 x 0.220	154.2132		TCC	-	NPS320

* optional / on demand

Further dimensions on request.

↑ ↑ ↑ ↑

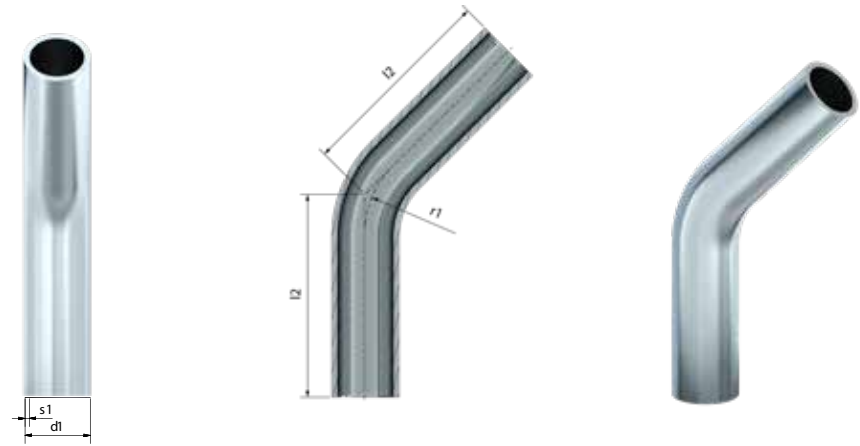
For Order Code please combine:
Product Quality - Basic Code

Imperial	d / s	Weight	ultron	finetron	Basic Code
Inch	Inch	lbs/ft	316 L		
1/8	0.125 x 0.022	0.0811		CT-FT	- 02
1/4	0.250 x 0.035	0.2736	CT-UL	CT-FT	- 04
3/8	0.375 x 0.035	0.4334	CT-UL	CT-FT	- 06
1/2	0.500 x 0.049	0.7740	CT-UL	CT-FT	- 08

For Order Code please combine:
Product Quality - Basic Code

ELBOWS 45°

4L



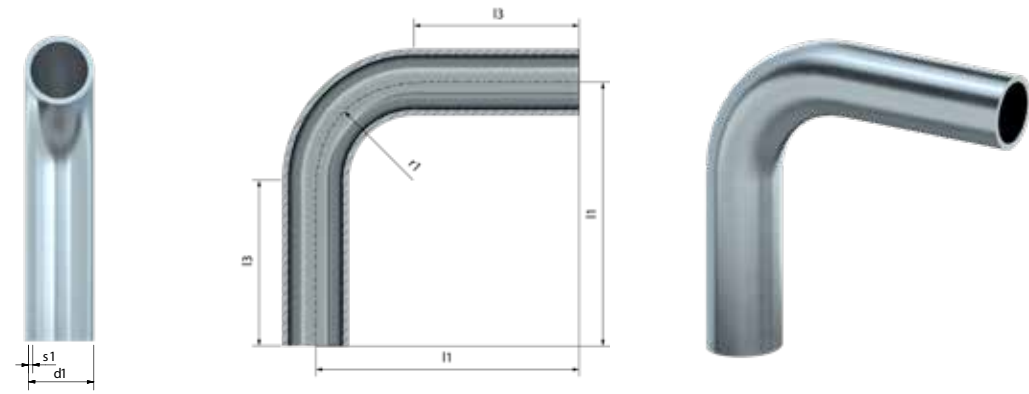
Imperial	Nominal Size	Wall Thickness	Length	Radius	ultron	ultron vim var	finetron	Basic Code	*optional passivated
	d1	s1	l2	r1					
Inch		Inch			316 L				
1/4	0.250	0.035	2.000	0.563	UL	UL-LM	FT	- 4L-04	- *P
3/8	0.375	0.035	2.000	1.126	UL	UL-LM	FT	- 4L-06	- *P
1/2	0.500	0.049	2.252	1.063	UL	UL-LM	FT	- 4L-08	- *P
3/4	0.750	0.065	2.252	1.126	UL		FT	- 4L-12	- P
1	1.000	0.065	2.252	1.500	UL		FT	- 4L-16	- *P
1 1/2	1.500	0.065	2.500	2.252	UL		FT	- 4L-24	- *P
2	2.000	0.065	3.000	3.000	UL		FT	- 4L-32	- *P
2 1/2	2.500	0.065	3.374	6.000	UL		FT	- 4L-40	- *P
3	3.000	0.065	3.626	3.752	UL		FT	- 4L-48	- *P
4	4.000	0.083	4.500	4.500	UL		FT	- 4L-64	- *P
6	6.000	0.109	6.252	6.000	UL		FT	- 4L-96	- *P

Further dimensions on request.

For Order Code please combine:
Product Quality - Basic Code

ELBOWS 90°

9L



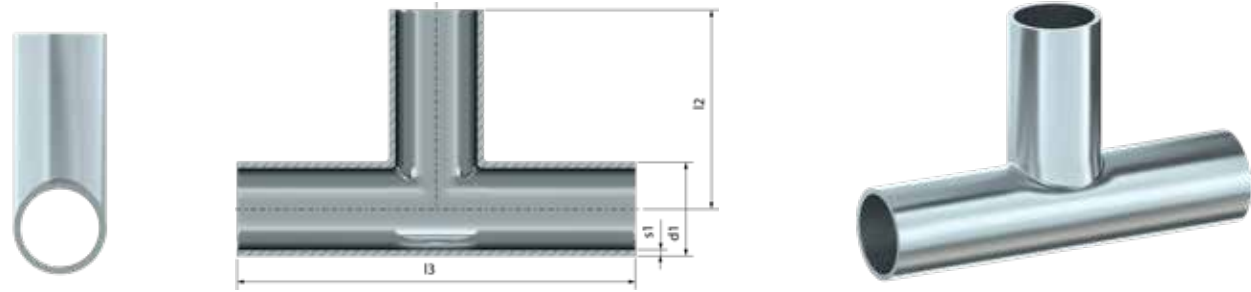
Imperial	Nominal Size	Wall Thickness	Length	Radius	ultron	ultron vim var	finetron	Basic Code	*optional passivated	
	d1	s1	l1	l3	r1					
Inch		Inch				316 L				
1/4	0.250	0.035	2.626	2.063	0.563	UL	UL-LM	FT	- 9L-04	
3/8	0.375	0.035	2.626	1.500	1.126	UL	UL-LM	FT	- 9L-06	- *P
1/2	0.500	0.049	3.000	1.937	1.063	UL	UL-LM	FT	- 9L-08	- *P
3/4	0.750	0.065	3.000	1.874	1.126	UL	UL-LM	FT	- 9L-12	- P
1	1.000	0.065	3.000	1.500	1.500	UL		FT	- 9L-16	- *P
1 1/2	1.500	0.065	3.752	1.500	2.252	UL		FT	- 9L-24	- *P
2	2.000	0.065	4.752	1.752	3.000	UL		FT	- 9L-32	- *P
2 1/2	2.500	0.065	5.500	1.748	3.752	UL		FT	- 9L-40	- *P
3	3.000	0.065	6.252	1.752	4.500	UL		FT	- 9L-48	- *P
4	4.000	0.083	8.000	2.000	6.000	UL		FT	- 9L-64	- *P
6	6.000	0.109	11.500	2.500	9.000	UL		FT	- 9L-96	- *P

Further dimensions on request.

For Order Code please combine:
Product Quality - Basic Code

TEE EQUAL AND REDUCING

TE, RT



Imperial	Nominal Size	Wall Thickness		Length		ultron	ultron vim var	finetron	Basic Code	*optional passivated	
	d1 x d2	s1	s2	l3	l2						
Inch	Inch	316L									
1/4 x 1/4	0.250 x 0.250	0.035	0.035	3.504	1.752	UL	UL-LM	FT	-	TE-04	
3/8 x 1/4	0.375 x 0.250	0.035	0.035	3.504	1.752	UL	UL-LM	FT	-	RT-06-04	P*
3/8 x 3/8	0.375 x 0.375	0.035	0.035	3.504	1.752	UL	UL-LM	FT	-	TE-06	P*
1/2 x 1/4	0.500x0.250	0.049	0.035	3.748	1.874	UL	UL-LM	FT	-	RT-08-04	P*
1/2 x 3/8	0.500 x 0.375	0.049	0.035	3.748	1.874	UL	UL-LM	FT	-	RT-08-06	P*
1/2 x 1/2	0.500 x 0.500	0.049	0.049	3.748	1.874	UL	UL-LM	FT	-	TE-08	P*
3/4 x 1/4	0.750 x 0.250	0.065	0.065	4.252	2.126	UL		FT	-	RT-12-04	P*
3/4 x 3/8	0.750 x 0.375	0.065	0.065	4.252	2.126	UL		FT	-	RT-12-06	P*
3/4 x 1/2	0.750 x 0.500	0.065	0.049	4.252	2.374	UL		FT	-	RT-12-08	P*
3/4 x 3/4	0.750 x 0.750	0.065	0.065	4.252	2.374	UL		FT	-	TE-12	P*
1 x 1/4	1.000 x 0.250	0.065	0.065	4.252	2.374	UL		FT	-	RT-16-04	P*
1 x 3/8	1.000 x 0.375	0.065	0.065	4.252	2.374	UL		FT	-	RT-16-06	P*
1 x 3/4	1.000 x 0.750	0.065	0.065	4.252	2.126	UL		FT	-	RT-16-12	P*
1 x 1	1.000 x 1.000	0.065	0.065	4.252	2.126	UL		FT	-	TE-16	P*

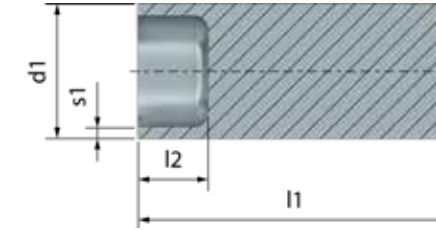
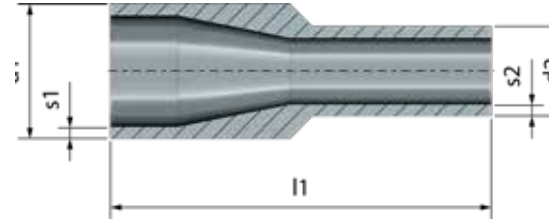
Further dimensions on request.

For Order Code please combine:
Product Quality - Basic Code

Imperial	d1 x d2	s1	s2	l3	l2	ultron	ultron vim var	finetron	Basic Code	*optional passivated	
Inch	Inch	316L									
1 1/2 x 1/2	1.500 x 0.500	0.065	0.049	4.748	2.374	UL		FT	-	RT-24-08	P*
1 1/2 x 3/4	1.500 x 0.750	0.065	0.065	4.748	2.374	UL		FT	-	RT-24-12	P*
1 1/2 x 1	1.500 x 1.000	0.065	0.065	4.748	2.374	UL		FT	-	RT-24-16	P*
1 1/2 x 1 1/2	1.500 x 1.500	0.065	0.065	4.748	2.374	UL		FT	-	TE-24	P*
2 x 1/2	2.000 x 0.500	0.065	0.049	5.748	2.626	UL		FT	-	RT-32-08	P*
2 x 3/4	2.000 x 0.750	0.065	0.065	5.748	2.626	UL		FT	-	RT-32-12	P*
2 x 1	2.000 x 1.000	0.065	0.065	5.748	2.626	UL		FT	-	RT-32-16	P*
2 x 1 1/2	2.000 x 1.500	0.065	0.065	5.748	2.626	UL		FT	-	RT-32-24	P*
2 x 2	2.000 x 2.000	0.065	0.065	5.748	2.874	UL		FT	-	TE-32	P*
2 1/2 x 1/2	2.500 x 0.500	0.065	0.049	6.252	2.874	UL		FT	-	RT-40-08	P*
2 1/2 x 3/4	2.500 x 0.750	0.065	0.065	6.252	2.874	UL		FT	-	RT-40-12	P*
2 1/2 x 1	2.500 x 1.000	0.065	0.065	6.252	2.874	UL		FT	-	RT-40-16	P*
2 1/2 x 1 1/2	2.500 x 1.500	0.065	0.065	6.252	2.874	UL		FT	-	RT-40-24	P*
2 1/2 x 2	2.500 x 2.000	0.065	0.065	6.252	2.874	UL		FT	-	RT-40-32	P*
2 1/2 x 2 1/2	2.500 x 2.500	0.065	0.065	6.252	3.126	UL		FT	-	TE-40	P*
3 x 1/2	3.000 x 0.500	0.065	0.049	6.752	3.126	UL		FT	-	RT-48-08	P*
3 x 3/4	3.000 x 0.750	0.065	0.065	6.752	3.126	UL		FT	-	RT-48-12	P*
3 x 1	3.000 x 1.000	0.065	0.065	6.752	3.126	UL		FT	-	RT-48-16	P*
3 x 1 1/2	3.000 x 1.500	0.065	0.065	6.752	3.126	UL		FT	-	RT-48-24	P*
3 x 2	3.000 x 2.000	0.065	0.065	6.752	3.126	UL		FT	-	RT-48-32	P*
3 x 2 1/2	3.000 x 2.500	0.065	0.065	6.752	3.126	UL		FT	-	RT-48-40	P*
3 x 3	3.000 x 3.000	0.065	0.065	6.752	3.374	UL		FT	-	TE-48	P*
4 x 1/2	4.000 x 0.500	0.080	0.049	8.252	3.626	UL		FT	-	RT-64-08	P*
4 x 3/4	4.000 x 0.750	0.083	0.065	8.252	3.626	UL		FT	-	RT-64-12	P*
4 x 1	4.000 x 1.000	0.083	0.065	8.252	3.626	UL		FT	-	RT-64-16	P*
4 x 1 1/2	4.000 x 1.500	0.083	0.065	8.252	3.626	UL		FT	-	RT-64-24	P*
4 x 2	4.000 x 2.000	0.083	0.065	8.252	3.874	UL		FT	-	RT-64-32	P*
4 x 2 1/2	4.000 x 2.500	0.083	0.065	8.252	3.874	UL		FT	-	RT-64-40	P*
4 x 3	4.000 x 3.000	0.083	0.065	8.252	3.874	UL		FT	-	RT-64-48	P*
4 x 4	4.000 x 4.000	0.083	0.083	8.252	4.126	UL		FT	-	TE-64	P*
6 x 4	6.000 x 4.000	0.109	0.083	11.252	5.126	UL		FT	-	RT-96-64	P*
6 x 6	6.000 x 6.000	0.109	0.109	11.252	5.626	UL		FT	-	TE-96	P*

Further dimensions on request.

For Order Code please combine:
Product Quality - Basic Code



Imperial	d1 x d2	s1	s2	l3	ultron	finetron	Basic Code	*optional passivated
Inch	Inch	Inch	Inch		316L			
3/8 x 1/4	0.375 x 0.250	0.035	0.035	1.625	UL	FT	- CR-06-04	- P*
1/2 x 1/4	0.500 x 0.250	0.049	0.035	1.496	UL	FT	- CR-08-04	- P*
1/2 x 3/8	0.500 x 0.375	0.049	0.035	1.496	UL	FT	- CR-08-06	- P*
3/4 x 1/4	0.750 x 0.250	0.049	0.035	1.496	UL	FT	- CR-12-04	- P*
3/4 x 3/8	0.750 x 0.375	0.049	0.035	2.362	UL	FT	- CR-12-06	- P*
3/4 x 1/2	0.750 x 0.375	0.065	0.035	2.000	UL	FT	- CR-12-08	- P*
1 x 1/2	0.750 x 0.500	0.049	0.049	2.362	UL	FT	- CR-16-08	- P*
1 x 3/4	0.750 x 0.500	0.065	0.049	2.362	UL	FT	- CR-16-12	- P*
1 1/2 x 1/2	0.750 x 0.500	0.065	0.065	2.125	UL	FT	- CR-24-08	- P*
1 1/2 x 3/4	1.000 x 0.500	0.065	0.049	2.362	UL	FT	- CR-24-12	- P*
1 1/2 x 1	1.000 x 0.500	0.065	0.065	2.500	UL	FT	- CR-24-16	- P*
2 x 1	1.000 x 0.750	0.065	0.049	2.362	UL	FT	- CR-32-16	- P*
2 x 1 1/2	1.000 x 0.750	0.065	0.065	2.125	UL	FT	- CR-32-24	- P*
2 1/2 x 1	1.500 x 0.500	0.065	0.049	3.150	UL	FT	- CR-40-16	- P*
2 1/2 x 1 1/2	1.500 x 0.750	0.065	0.049	3.150	UL	FT	- CR-40-24	- P*
2 1/2 x 2	1.500 x 0.750	0.065	0.065	3.000	UL	FT	- CR-40-32	- P*
3 x 1 1/2	1.500 x 1.000	0.065	0.065	2.500	UL	FT	- CR-48-24	- P*
3 x 2	2.000 x 1.000	0.065	0.065	3.375	UL	FT	- CR-48-32	- P*
3 x 2 1/2	2.000 x 1.500	0.065	0.065	2.500	UL	FT	- CR-48-40	- P*
4 x 2	2.500 x 1.000	0.065	0.065	3.937	UL	FT	- CR-64-32	- P*
4 x 2 1/2	2.500 x 1.500	0.065	0.065	3.375	UL	FT	- CR-64-40	- P*
4 x 3	2.500 x 2.000	0.065	0.065	2.500	UL	FT	- CR-64-48	- P*
6 x 3	3.000 x 1.500	0.065	0.065	4.250	UL	FT	- CR-96-48	- P*
6 x 4	3.000 x 2.000	0.065	0.065	3.375	UL	FT	- CR-96-64	- P*

Further dimensions on request.

For Order Code please combine:
Product Quality - Basic Code

Imperial	d1	s1	l1	l2	ultron	finetron	Basic Code
Inch	Inch	Inch	Inch	Inch	316L		
1/4	0.250	0.04	1.37	0.20	UL	FT	- WC-04
3/8	0.375	0.04	1.75	0.20	UL	FT	- WC-06
1/2	0.500	0.05	1.75	0.20	UL	FT	- WC-08
3/4	0.750	0.06	1.75	0.39	UL	FT	- WC-12
1	1.000	0.06	1.75	0.39	UL	FT	- WC-16
1 1/2	1.500	0.06	2.00	0.39	UL	FT	- WC-24
2	2.000	0.06	2.00	0.59	UL	FT	- WC-32
2 1/2	2.500	0.06	2.00	0.59	UL	FT	- WC-40
3	3.000	0.06	2.00	0.59	UL	FT	- WC-48
4*	4.000	0.08	2.50	0.89	UL	FT	- WC-64
6*	6.000	0.11	7.87*	5.91	UL	FT	- WC-96

Further dimensions on request.

* Differing design: not machined but formed end welded to tube stub

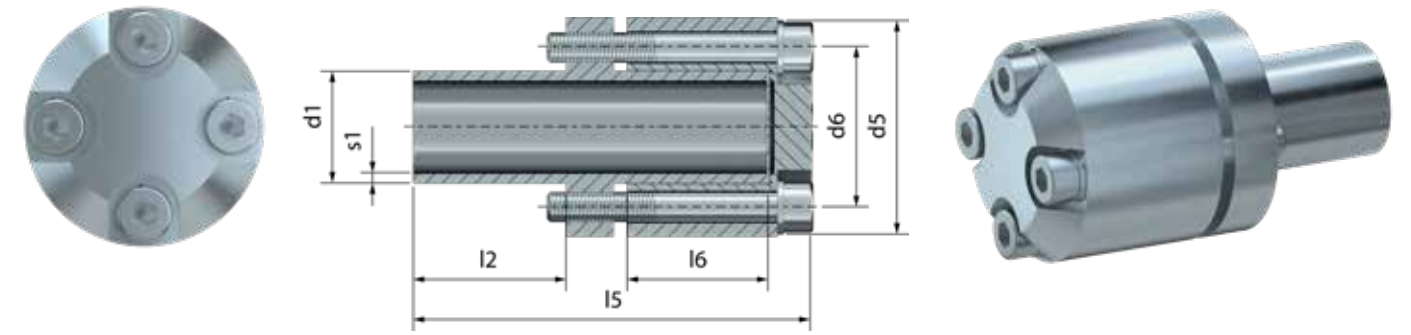
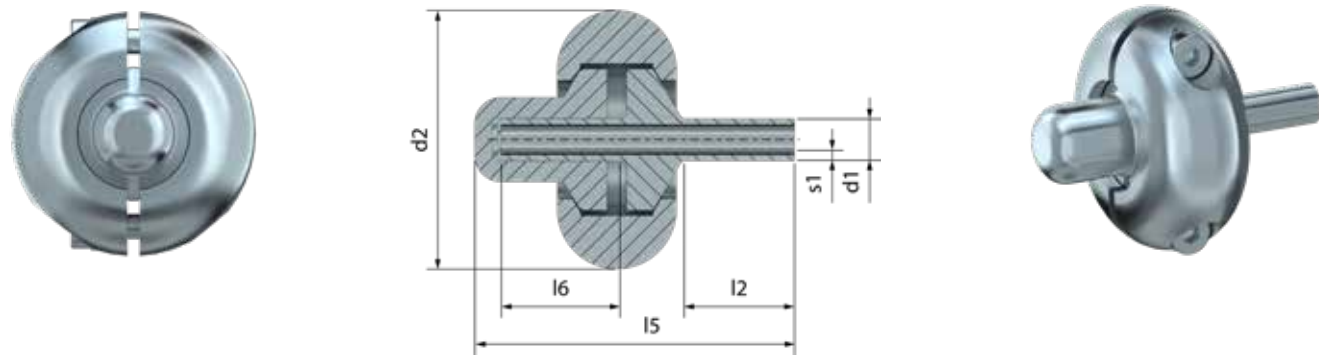
For Order Code please combine:
Product Quality - Basic Code

REMOVABLE WELD CAP (DOCKWEILER CAP TYPE A)

DWCAP-A

REMOVABLE WELD CAP (DOCKWEILER CAP TYPE B)

DWCAP-B



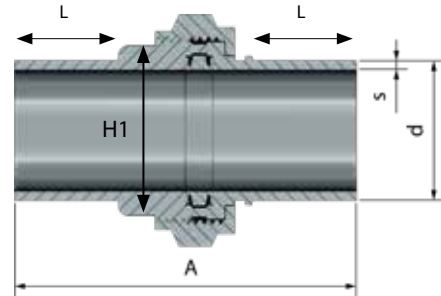
Imperial		d1	s1	l2	l5	d5	d6	l6	ultron	Basic Code
Inch	Type	Inch							316L	
1/4	A	0.250	0.035	0.750	1.910	1.540	-	1.050	UL	DWCAP-A-04

For Order Code please combine:
Product Quality - Basic Code

Imperial		d1	s1	l2	l5	d5	d6	l6	ultron	Basic Code
Inch	Type	Inch							316L	
1/2	B	0.049	1.020	2.620	1.070	-	1.020	1.020	UL	DWCAP-B-08
3/4	B	0.065	1.020	2.650	1.460	1.060	1.020	1.020	UL	DWCAP-B-12
1	B	0.065	1.020	2.690	1.710	1.310	1.020	1.020	UL	DWCAP-B-16
1 1/2	B	0.065	1.180	3.040	2.280	1.850	1.180	1.180	UL	DWCAP-B-24
2	B	0.065	1.770	4.300	2.780	2.350	1.770	1.770	UL	DWCAP-B-32
2 1/2	B	0.065	1.770	4.340	3.280	2.850	1.770	1.770	UL	DWCAP-B-40
3	B	0.065	1.770	4.380	3.780	3.350	1.770	1.770	UL	DWCAP-B-48
4	B	0.083	2.170	5.210	4.780	4.350	2.170	2.170	UL	DWCAP-B-64
6	B	0.109	2.170	5.290	6.780	6.350	2.170	2.170	UL	DWCAP-B-96

For Order Code please combine:
Product Quality - Basic Code

Complete Kit



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



Dimensions		d	s	A	L	H1	H2	ultron	finetron	Basic Code
System	Inch	Inch		Inch (mm)				316L		
20-1	1/4	0.250	0.035	2.453	0.748	7/16" (11 mm)	3/4" (19 mm)	UL	FT	- Z-SK-04
40-2	3/8	0.375	0.035	2.453	0.748	9/16" (14 mm)	15/16" (24mm)	UL	FT	- Z-SK-06
60-3	1/2	0.500	0.049	2.453	0.748	5/8" (16 mm)	1 1/16" (27 mm)	UL	FT	- Z-SK-08
90-4	3/4	0.750	0.065	2.453	0.748	7/8" (22 mm)	1 1/4" (32 mm)	UL	FT	- Z-SK-12
130-5	1	1.000	0.065	2.453	0.748	1 1/16" (27 mm)	1 1/2" (38 mm)	UL	FT	- Z-SK-16

↑ ↑ ↑
Product Quality + Basic Code
for Order Code please combine

Gaskets		Tube (d)	ultron	finetron	Basic Code
System	Inch	Inch	316L		
20	1/4	1/4	UL	FT	- Z-SR-04
40	3/8	3/8	UL	FT	- Z-SR-06
60	1/2	1/2	UL	FT	- Z-SR-08
90	3/4	3/4	UL	FT	- Z-SR-12
130	1	1	UL	FT	- Z-SR-16

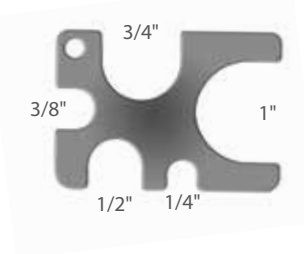
↑ ↑ ↑
For Order Code please combine:
Product Quality - Basic Code

The ZeroCon Kit consists of:

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

The ZeroCon Disassembly Tool

Order Code: Z-DT



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

Nuts		Tube (d)	Nut (d)	ultron	finetron	Basic Code
System	Inch	Inch	Inch	316L		
1	1/4	1/4	6.350	FT	-	Z-N-1
2	3/8	3/8	9.530	FT	-	Z-N-2
3	1/2	1/2	12.700	FT	-	Z-N-3
4	3/4	3/4	19.050	FT	-	Z-N-4
5	1	1	25.400	FT	-	Z-N-5

↑ ↑ ↑
For Order Code please combine:
Product Quality - Basic Code

Complete Kit



Dimensions					Wrench Size			ultron	finetron	Basic Code
	d	s	A	L	Screw Set	H1	H2			
Inch	Inch				316L					
1	1.000	0.065	2.283	0.787	1F	10 (3/8")	5 (3/16")	UL	FT	- Z-FK-16
1 1/2	1.500	0.065	2.441	0.787	2F	13 (1/2")	6 (7/32")	UL	FT	- Z-FK-24
2	2.000	0.065	2.441	0.787	2F	13 (1/2")	6 (7/32")	UL	FT	- Z-FK-32
3	3.000	0.065	2.441	0.787	3F	16 (5/8")	8 (5/16")	UL	FT	- Z-FK-48
4	4.000	0.083	2.441	0.787	4F	16 (5/8")	8 (5/16")	UL	FT	- Z-FK-64

↑ ↑ ↑
Product Quality + Basic Code
for Order Code please combine

Gaskets		ultron	finetron	Basic Code
Inch		316L		
1		UL	FT	- Z-SR-16
1 1/2		UL	FT	- Z-SR-24
2		UL	FT	- Z-SR-32
3"		UL	FT	- Z-SR-48
4"		UL	FT	- Z-SR-64

↑ ↑ ↑
Product Quality + Basic Code
for Order Code please combine

The ZeroCon Kit consists of:

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

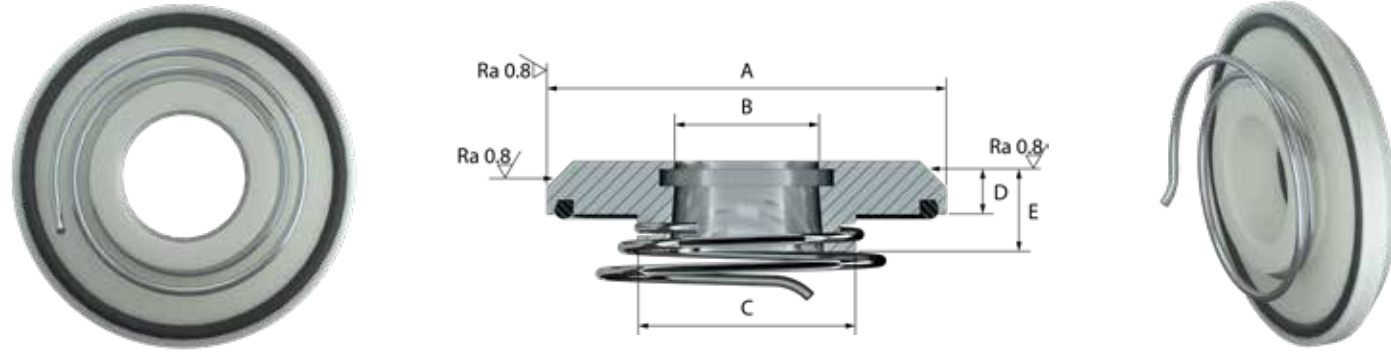


Please follow the assembly instructions for the correct use of the tool. The instruction is part of the ZeroCon kit.

Disassembly Tool	Dimensions of Screws	Order Code
System	Bolt / mm	
1F	M6 x 30	Z-DT-1F
2F	M8 x 35	Z-DT-2F
3F	M10 x 35	Z-DT-3F
4F	M10 x 35	Z-DT-3F

Screw Set	Dimensions of Screws		Amount of Screws	Lock washer	ultron	finetron	Basic Code
System	Bolt / mm	Nut / mm			316L		
1F	M6 x 30	M6 x 1	6	SWS-M6		FT	- Z-SN-1F
2F	M8 x 35	M8 x 1	8	SWS-M8		FT	- Z-SN-2F
3F	M10 x 35	M10 x 1	8	SWS-M10		FT	- Z-SN-3F
4F	M10 x 35	M10 x 1	10	SWS-M10		FT	- Z-SN-4F

↑ ↑
Product Quality + Basic Code
for Order Code please combine



Imperial

Clean Shut Dimensions

Tube Dimensions	Clean Shut Dimensions					Order Code	
	Cover width	Tube Feedthrough	Wall Feedthrough	Thickness	Length		
	Ø A	Ø B	Ø C	D	E		
Inch	Inch						
1/2	0.500	2.520	0.508	1.339	0.394	0.709	WFT - 08 - PV
3/4	0.750	2.953	0.758	1.772	0.394	0.709	WFT - 12 - PV
1	1.000	2.953	1.008	1.772	0.394	0.709	WFT - 16 - PV
1 1/2	1.500	4.134	1.508	2.953	0.394	0.787	WFT - 24 - PV
2	2.000	4.134	2.008	2.953	0.394	0.787	WFT - 32 - PV
2 1/2	2.500	5.433	2.508	4.252	0.394	0.866	WFT - 40 - PV
3	3.000	5.433	3.008	4.252	0.394	0.866	WFT - 48 - PV
4	4.000	5.866	4.008	5.000	0.394	0.866	WFT - 64 - PV

Further dimensions on request.

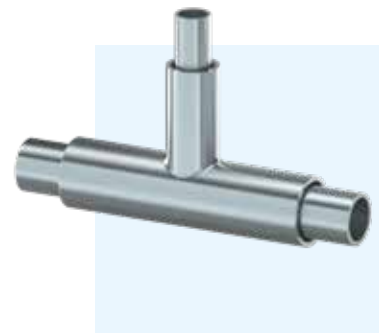
COAX – The Coaxial Tube System

COAX double wall tube system is a safe solution for transport of explosive, toxic, corrosive, or highly viscous media. COAX tubes and fittings consist of an inner process tube and an outer safety tube. Spacers on the inside ensure safe flow.



Coaxial
Tubing

Page 30



Coaxial Tee /
Reducing Tee

Page 32

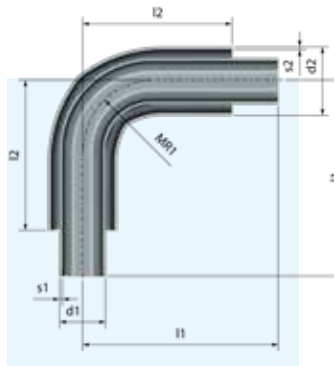
Coaxial
45° Elbow

Page 34



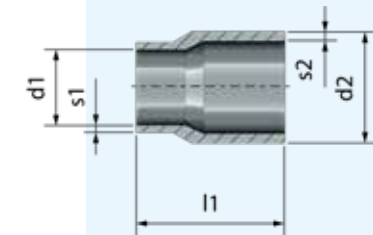
Coaxial
90° Elbow

Page 35



Coaxial
Weld Sleeve

Page 36

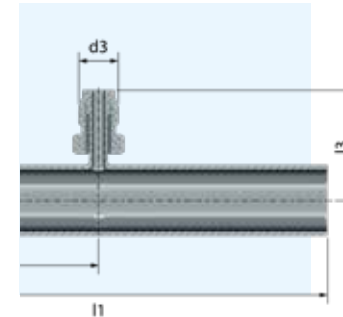


Coaxial
Terminator

Page 37

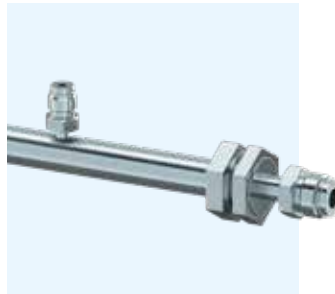
Coaxial
Purge Tee

Page 38



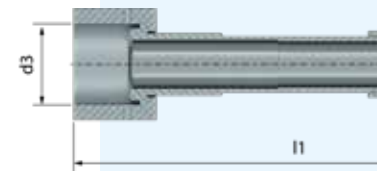
Coaxial Bulkhead
Purge Tees

Page 39



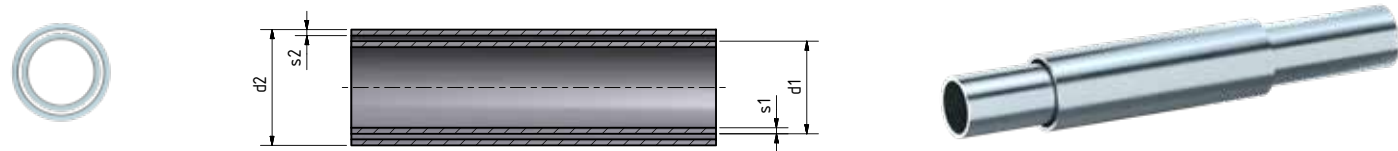
Coaxial
VCR® Female
Gland

Page 40



Coaxial
VCR® Male
Gland

Page 41



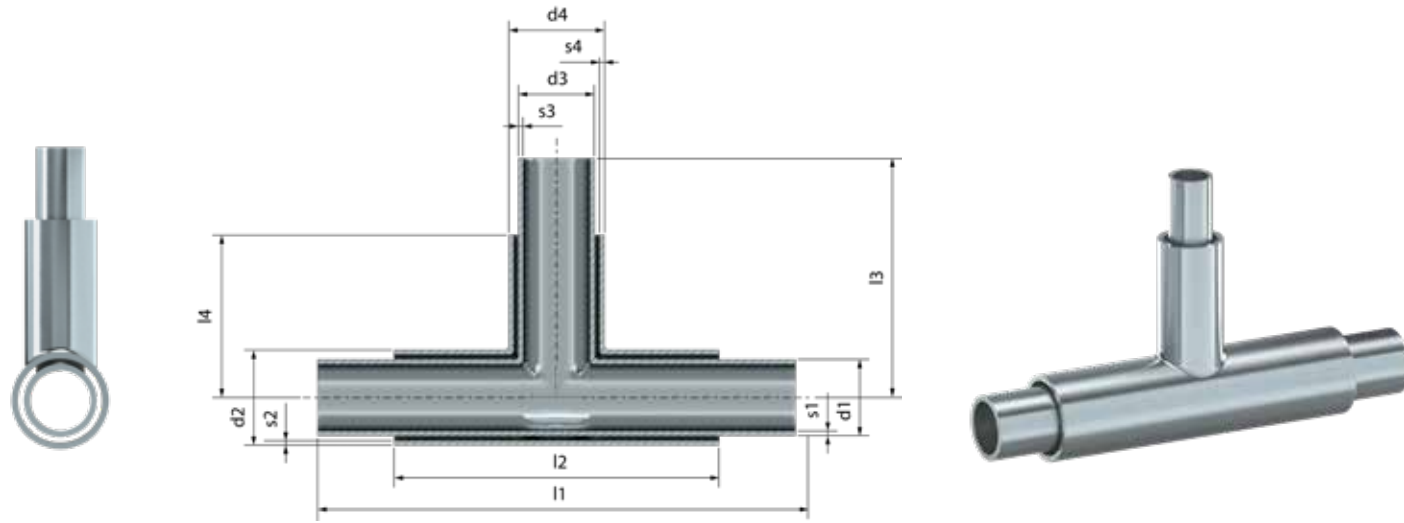
Imperial	Inner Tube		Outer Tube		ultron	Basic Code	
	d1	s1	d2	s2		316L ¹	304L ²
Inch	Inch						
1/4	0.250	0.035	0.500	0.049	CO-UL	04-T6	04-T4
3/8	0.375	0.035	0.625	0.049	CO-UL	06-T6	06-T4
1/2	0.500	0.049	0.750	0.065	CO-UL	08-T6	08-T4
3/4	0.750	0.065	1.000	0.065	CO-UL	12-T6	12-T4
1	1.000	0.065	1.500	0.065	CO-UL	16-T6	16-T4

Product Quality + Basic Code
for Order Code please combine

¹⁾²⁾ Inner tube always 316L (ep), outer tube 316L or 304L (bf).

Coaxial tube represented using inner tube dimensions.

Further dimensions on request.



Imperial

Inner Tube

Outer Tube

Main Tube

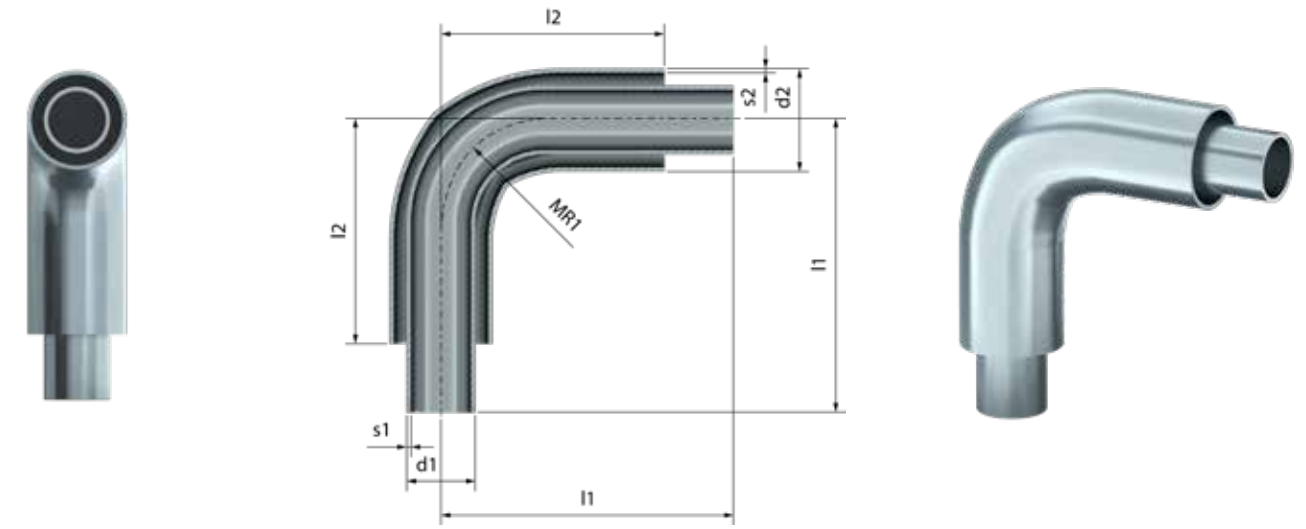
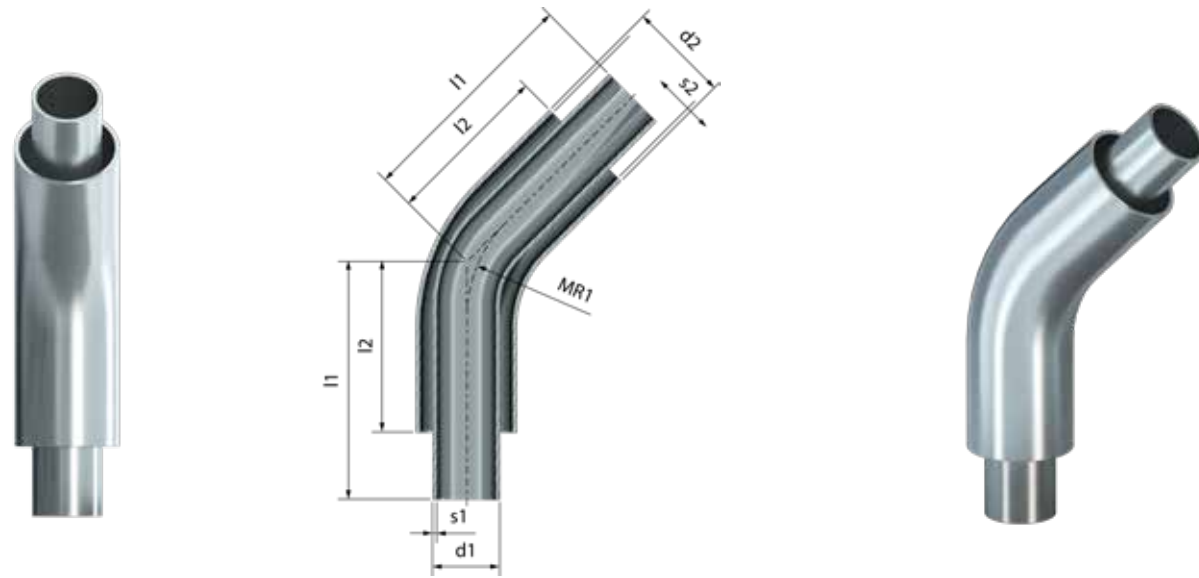
Branch

Inch	Main Tube		Branch		Main Tube		Branch		Inch	Inch	Inch	Inch	ultron	Basic Code
	d1	s1	d3	s3	d2	s2	d4	s4						
1/4 x 1/4	0.250	0.035	0.250	0.035	0.500	0.049	0.500	0.049	5.000	3.500	2.500	1.750	CO-UL	CTE-04
3/8 x 1/4	0.375	0.035	0.250	0.035	0.625	0.049	0.500	0.049	5.000	3.500	2.500	1.750	CO-UL	CRT-06-04
3/8 x 3/8	0.375	0.035	0.375	0.035	0.625	0.049	0.625	0.049	5.000	3.500	2.500	1.750	CO-UL	CTE-06
1/2 x 1/4	0.500	0.049	0.250	0.049	0.750	0.065	0.500	0.049	5.250	3.750	2.625	1.875	CO-UL	CRT-08-04
1/2 x 3/8	0.500	0.049	0.375	0.049	0.750	0.065	0.625	0.049	5.250	3.750	2.625	1.875	CO-UL	CRT-08-06
1/2 x 1/2	0.500	0.049	0.500	0.049	0.750	0.065	0.750	0.065	5.250	3.750	2.625	1.875	CO-UL	CTE-08
3/4 x 1/4	0.750	0.065	0.250	0.065	1.000	0.065	0.500	0.049	5.250	3.750	2.625	1.875	CO-UL	CRT-12-04
3/4 x 3/8	0.750	0.065	0.375	0.065	1.000	0.065	0.625	0.049	5.250	3.750	2.625	1.875	CO-UL	CRT-12-06
3/4 x 1/2	0.750	0.065	0.500	0.065	1.000	0.065	0.750	0.065	5.250	3.750	2.625	1.875	CO-UL	CRT-12-08
3/4 x 3/4	0.750	0.065	0.750	0.065	1.000	0.065	1.000	0.065	5.250	3.750	2.625	1.875	CO-UL	CTE-12
1 x 1/4	1.000	0.065	0.250	0.065	1.500	0.065	0.500	0.049	6.250	4.250	3.125	2.125	CO-UL	CRT-16-04
1 x 3/8	1.000	0.065	0.375	0.065	1.500	0.065	0.625	0.049	6.250	4.250	3.125	2.125	CO-UL	CRT-16-06
1 x 1/2	1.000	0.065	0.500	0.065	1.500	0.065	0.750	0.065	6.250	4.250	3.125	2.125	CO-UL	CRT-16-08
1 x 3/4	1.000	0.065	0.750	0.065	1.500	0.065	1.000	0.065	6.250	4.250	3.125	2.125	CO-UL	CRT-16-12
1 x 1	1.000	0.065	1.000	0.065	1.500	0.065	1.500	0.065	6.250	4.250	3.125	2.125	CO-UL	CTE-16

Coaxial tube represented using inner tube dimensions.
Standard is inner tube UL, outer tube TC.

Further dimensions and qualities on request.

Product Quality + Basic Code
for Order Code please combine



Imperial	Inner Tube		Outer Tube		Dimensions			ultron	Basic Code	
	d1	s1	d2	s2	l1	l2	MR1			
Inch	Inch							316 L		
1/4	0.250	0.035	0.500	0.049	3.876	3.126	1.500	CO-UL	-	C4L-04 bent
3/8	0.375	0.035	0.625	0.049	3.876	3.126	2.244	CO-UL	-	C4L-06 bent
1/2	0.500	0.049	0.750	0.065	4.302	3.552	3.346	CO-UL	-	C4L-08 bent
3/4	0.750	0.065	1.000	0.065	5.339	4.339	3.346	CO-UL	-	C4L-12 bent
1	1.000	0.065	1.500	0.065	3.500	2.500	1.500	CO-UL	-	C4L-16 welded

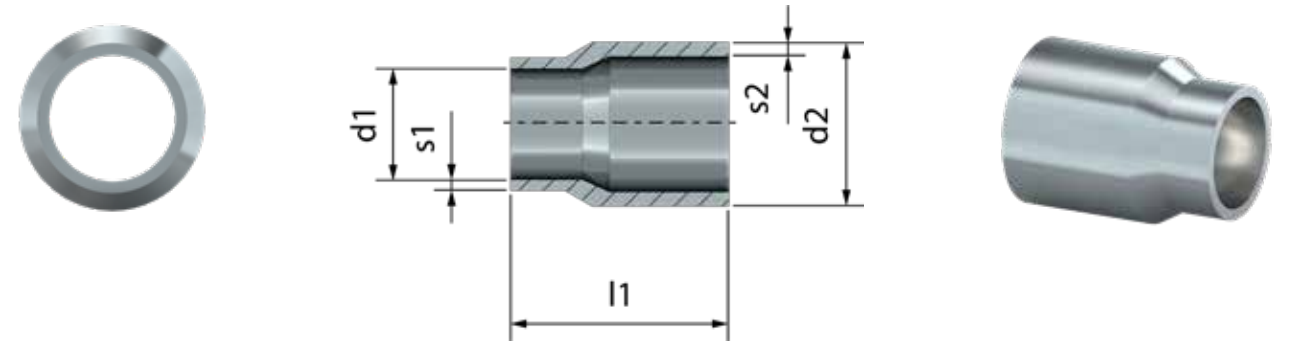
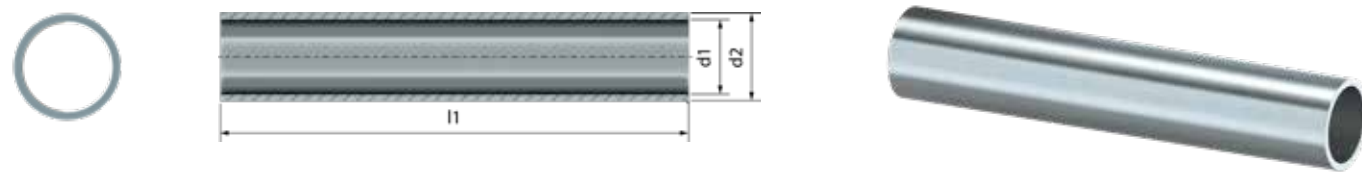
Imperial	Inner Tube		Outer Tube		Dimensions			ultron	Basic Code	
	d1	s1	d2	s2	l1	l2	MR1			
Inch	Inch							316 L		
1/4	0.250	0.035	0.500	0.049	4.752	4.002	1.500	CO-UL	-	C9L-04 bent
3/8	0.375	0.035	0.625	0.049	5.146	4.396	2.244	CO-UL	-	C9L-06 bent
1/2	0.500	0.049	0.750	0.065	7.260	6.510	3.346	CO-UL	-	C9L-08 bent
3/4	0.750	0.065	1.000	0.065	7.510	6.510	3.346	CO-UL	-	C9L-12 bent
1	1.000	0.065	1.500	0.065	4.251	3.251	1.500	CO-UL	-	C9L-16 welded

Coaxial tube represented using inner tube dimensions.
Standard is inner tube UL, outer tube TC.
Further dimensions and qualities on request.

Coaxial tube represented using inner tube dimensions.
Standard is inner tube UL, outer tube TC.
Further dimensions and qualities on request.

**Product Quality + Basic Code
for Order Code please combine**

**Product Quality + Basic Code
for Order Code please combine**



Imperial	For outer tube		Sleeve		Basic Code
	d		d1	d2	
Inch	Inch		Inch		
1/4	0.500		0.508	0.625	4.000
3/8	0.625		0.634	0.750	4.000
1/2	0.750		0.760	0.875	4.000
3/4	1.000		1.008	1.181	4.000
1	1.500		1.512	1.669	4.000

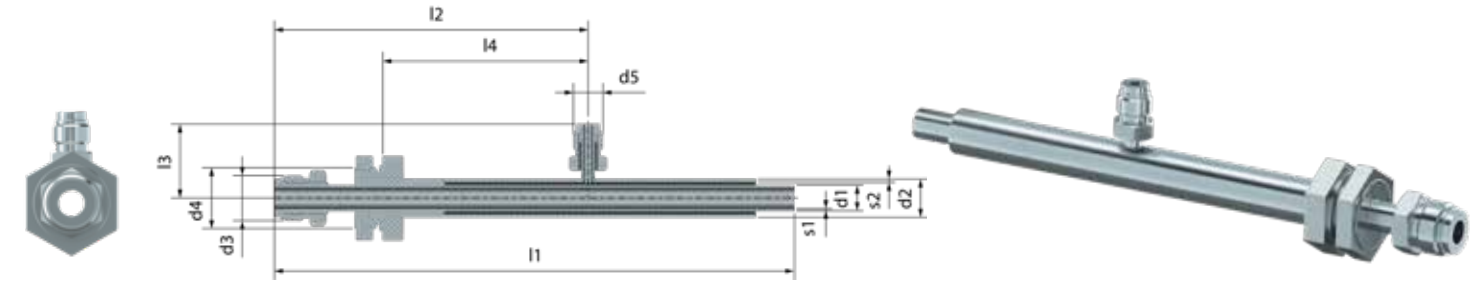
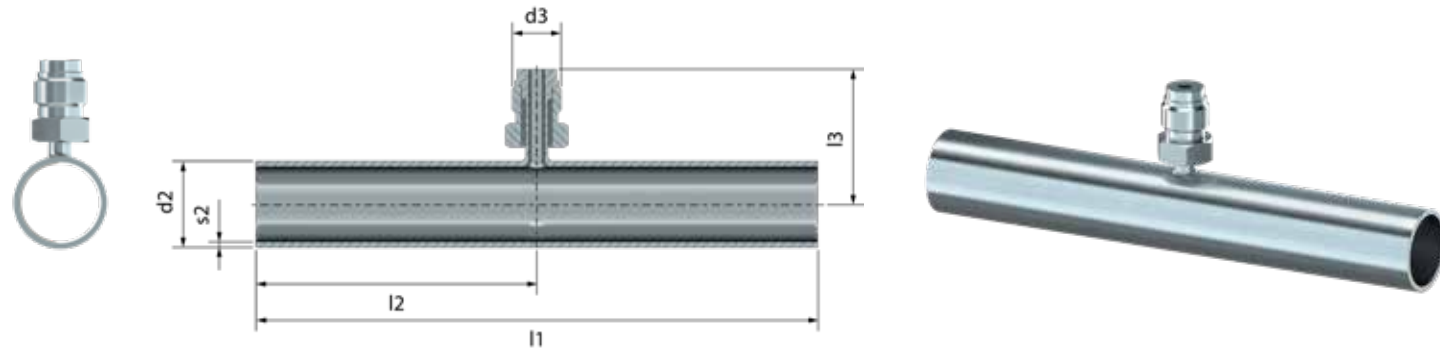
316 L
CO-TC - CWS-04
CO-TC - CWS-06
CO-TC - CWS-08
CO-TC - CWS-12
CO-TC - CWS-16

Product Quality + Basic Code
for Order Code please combine

Imperial	Sleeve			Basic Code
	d1	d2	l1	
Inch				
1/4	0.250	0.500	1.000	
3/8	0.375	0.625	1.000	
1/2	0.500	0.750	1.000	
3/4	0.750	1.000	1.250	
1	1.000	1.500	1.250	

316 L
CO-TC - CTM-04
CO-TC - CTM-06
CO-TC - CTM-08
CO-TC - CTM-12
CO-TC - CTM-16

Product Quality + Basic Code
for Order Code please combine



Imperial	Inner Tube ¹ Nominal Size		Outer Tube						VCR ²	Basic Code	
	d1	d2	d2	s2	l1	l2	l3	d3			
Inch	Inch		Inch		Inch				Inch	316 L	
1/4"	0.250	0.035	0.500	0.049	5.748	2.874	1.311	1/4	CO-TC	-	CPT-04
3/8"	0.375	0.035	0.625	0.049	6.000	3.000	1.370	1/4	CO-TC	-	CPT-06
1/2"	0.500	0.049	0.750	0.065	6.000	3.000	1.433	1/4	CO-TC	-	CPT-08
3/4"	0.750	0.065	1.000	0.065	6.500	3.250	1.559	1/4	CO-TC	-	CPT-12
1"	1.000	0.065	1.500	0.065	6.500	3.250	1.805	1/4	CO-TC	-	CPT-16

¹ The inner tube is not part of the scope of delivery.

Further dimensions on request.

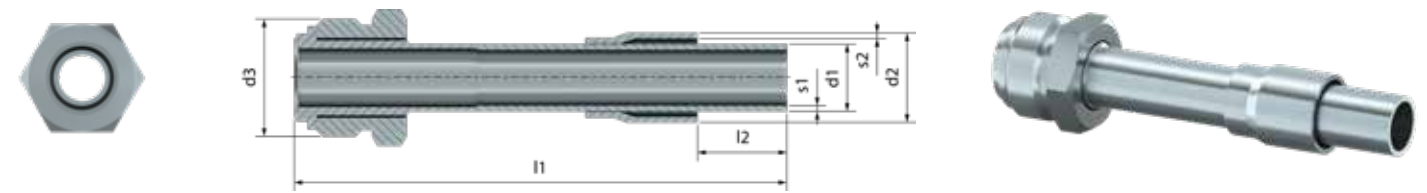
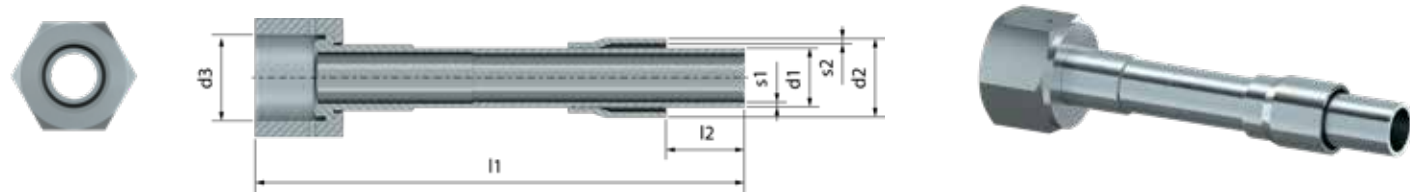
Product Quality + Basic Code
for Order Code please combine

Imperial	Main tube		Branch						Main tube	Branch	Straight thread	ultron	Basic Code		
	d1	s1	d2	s2	l1	l2	l3	l4	VCR ² Size	VCR ² Tube Size	VCR ² Size			Size	Size
Inch	Inch								Inch	Inch	Inch	316 L			
1/4	0.250	0.035	0.500	0.049	9.563	5.689	1.305	2.165	1/4	1/4	1/4	M20 x 1.5	CO-UL	-	CBP-04
3/8	0.375	0.035	0.625	0.049	10.087	6.087	1.370	2.102	1/4	1/4	1/4	M30 x 2	CO-UL	-	CBP-06
1/2	0.500	0.049	0.750	0.065	10.087	6.087	1.433	2.102	1/4	1/4	1/4	M30 x 2	CO-UL	-	CBP-08

Further dimensions on request.

(Wall aperture)

Product Quality + Basic Code
for Order Code please combine



Imperial Dimensions							VCR* Size	ultron	Basic Code
d1	s1	d2	s2	l1	l2	d3			
Inch							Inch	316 L	
1/4	0.250	0.035	0.500	0.049	3.500	0.750	1/4	CO-UL	CFG-04
3/8	0.375	0.035	0.625	0.049	3.500	0.750	1/2	CO-UL	CFG-06
1/2	0.500	0.049	0.750	0.065	3.500	0.750	1/2	CO-UL	CFG-08
3/4	0.750	0.065	1.000	0.065	5.500	1.000	3/4	CO-UL	CFG-12
1	1.000	0.065	1.500	0.065	5.500	1.000	1	CO-UL	CFG-16

↑ ↑

Product Quality + Basic Code
for Order Code please combine

Further dimensions on request.

Imperial Dimensions							VCR* Size	ultron	Basic Code
d1	s1	d2	s2	l1	l2	d3			
Inch							Inch	316 L	
1/4	0.250	0.035	0.500	0.049	3.500	0.750	1/4	CO-UL	CMG-04
3/8	0.375	0.035	0.625	0.049	3.500	0.750	1/2	CO-UL	CMG-06
1/2	0.500	0.049	0.750	0.065	3.500	0.750	1/2	CO-UL	CMG-08
3/4	0.750	0.065	1.000	0.065	5.500	1.000	3/4	CO-UL	CMG-12
1	1.000	0.065	1.500	0.065	5.500	1.000	1	CO-UL	CMG-16

↑ ↑

Product Quality + Basic Code
for Order Code please combine

Further dimensions on request.

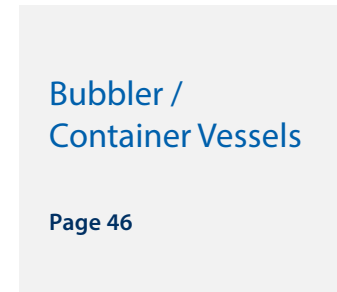
Optimized designs, the purest surfaces, perfected welds

When it comes to implementing complex components and systems Dockweiler is your manufacturing specialist. Maximizing productivity is the primary goal. This requires a highly reliable and efficient solution. The focus here is on low dead space and surface optimization.



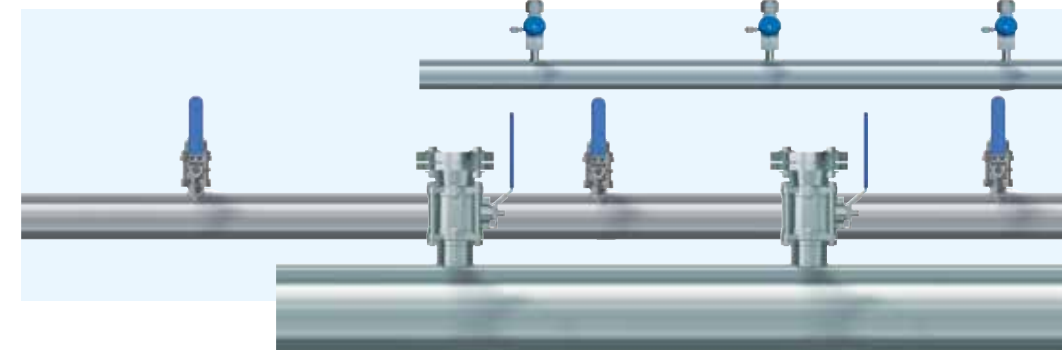
Flextron
Corrugated
Hoses

Page 44



Bubbler /
Container Vessels

Page 46



Prefabricated
Laterals

Page 48

FLEXTRON – THE “FLEXIBLE” STAINLESS STEEL TUBE

Flextron is manufactured from mechanically corrugated stainless steel (1.4404), as standard. An additional braid of stainless steel wire ensures a higher pressure resistance and protects the hose from damage. The unique combination of an electropolished surface and a flexible corrugated hose minimizes the risk of contamination and enables gas transport under full UHP conditions throughout the system. With Flextron, oscillations and vibrations can be decoupled and done to the highest purity standards.



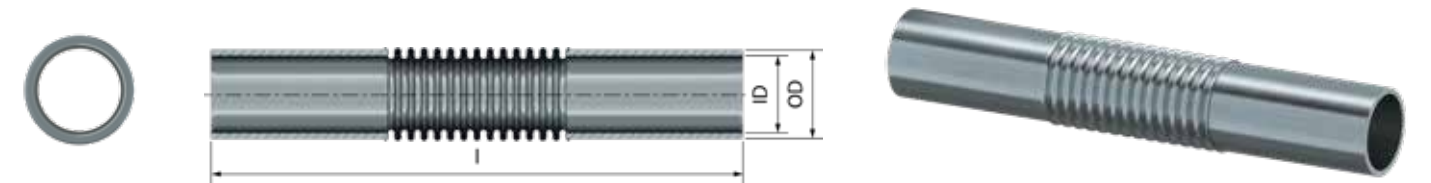
Flextron DN6 with VCR® connection



Flextron DN6 with optional wire braiding and welding ends



Flextron DN8 with ZeroCon connection



Features	Variants
Material	1.4404 UNS S31603 (316L)
System lengths (including welding ends)	6", 12", 24" and 36" (up to 60" on request)
Hose diameter	DN 6, DN 10 and DN 20
Hose couplings	1/4", 3/8", 1/2", 3/4", 1"
Surface treatment	Electropolished $Ra \leq 24 \mu\text{in}$ (0,60 μm) i/d Surface Valley $Ra \leq 16 \mu\text{in}$ (0,40 μm) i/d Surface Peak
Connections	Welding ends VCR® ZeroCon KF- / CF flanges and others on request
Wire braiding (optional)	1.4301 UNS S30403 (304L)

Imperial	Type	OD / AD	ID	Minimum Bending radius static ¹	Bending radius dynamic ¹	Pressure rating ¹	Weight	Flextron
Inch			Inch			[psig]	[lb/ft]	
1/4	not braided	0.4	0.2	1	5.5	261	0.08	U
	braided	0.5	0.2	1	5.5	1,160	0.16	U
3/8	not braided	0.4	0.2	1	5.5	261	0.08	U
	braided	0.5	0.2	1	5.5	1,160	0.16	U
1/2	not braided	0.56	0.4	1.5	7.5	116	0.07	U
	braided	0.6	0.4	1.5	7.5	1,160	0.16	U
3/4	not braided	1	0.8	2.8	11.2	44	0.18	U
	braided	1.1	0.8	2.8	11.2	653	0.33	U
1	not braided	1	0.8	2.8	11.22	44	0.18	U
	braided	1.1	0.8	2.8	11.22	653	0.33	U

¹ Tested acc. ISO 10380 at room Temperature (20°C)

PROCESS VESSELS (BUBBLER) FOR ORGANOMETALLIC COMPOUNDS

Dockweiler process vessels guarantee safety when feeding ultra-pure media to critical manufacturing steps such as metal organic vapor phase epitaxy (MOVPE). In addition they offer a plus in safety due to their absolute tightness (helium leakage rate $\leq 4.0 \times 10^{-9}$ mbar l s⁻¹) and robust design.

HPL SERIES

The Dockweiler HPL series stands out from the competition by offering the most efficient utilization of the medium (e.g. trimethylgallium/TMG) .

Electropolishable orbital welding seams, optimal vessel size and shape and the elimination of dead space ensure the highest level of saturation of the carrier gas.

HPS SERIES

With the patented HPS solids bubbler. Dockweiler has developed a completely new bubbler design.

To ensure continuous saturation of the carrier gas with the filling medium, the HPS bubbler has a patented chamber system through which the flow of carrier gas is channeled.

ECO SERIES

The Dockweiler ECO series offers a variant of the HPL bubbler designed for the evaporation of liquids.

Dockweiler has systematically standardized the components used to offer an inexpensive alternative to the HPL bubbler.



OPTIONS

Dockweiler's HPL and HPS series bubblers can be customized with a wide range of options to create the ideal match for your application.

Valves 1

We use Ham-Let 90° monolever rotating diaphragm valves as standard for our bubblers. Valves from the following manufacturers are also optionally available: Swagelok, Carten Controls, Parker and other valves on request.

Crossover Function 2

The crossover function is a purging option with no dead space for eliminating oxygen from the system (including the inlet and outlet valves) during filling on the chemical manufacturer's premises or while the bubbler is connected to a process. It thus offers a simple, efficient solution for cleaning the gas path.



Level Sensor 3

The level sensor is a signal generator that, together with a fill level indicator, reliably displays the residual amount of organometallic compound in the bubbler. Dockweiler offers an ultrasonic sensor for the bubbler, featuring specified switching points (90%, 70%, 30%, 10%) for signaling the fill level.

Polarized Connectors 4

The standard design features male face seal for both connectors. To prevent confusion when connecting, Dockweiler offers male and female connectors.

TECHNICAL DATA

Application Areas

HPL and ECO series for Fluids
HPS for Solids

Materials

1.4404, 1.4435, UNS S31603 (316L),
UNS N08367 (AL-6XN),
UNS N08904 (904L), UNS N06022 (C22)

Volumes

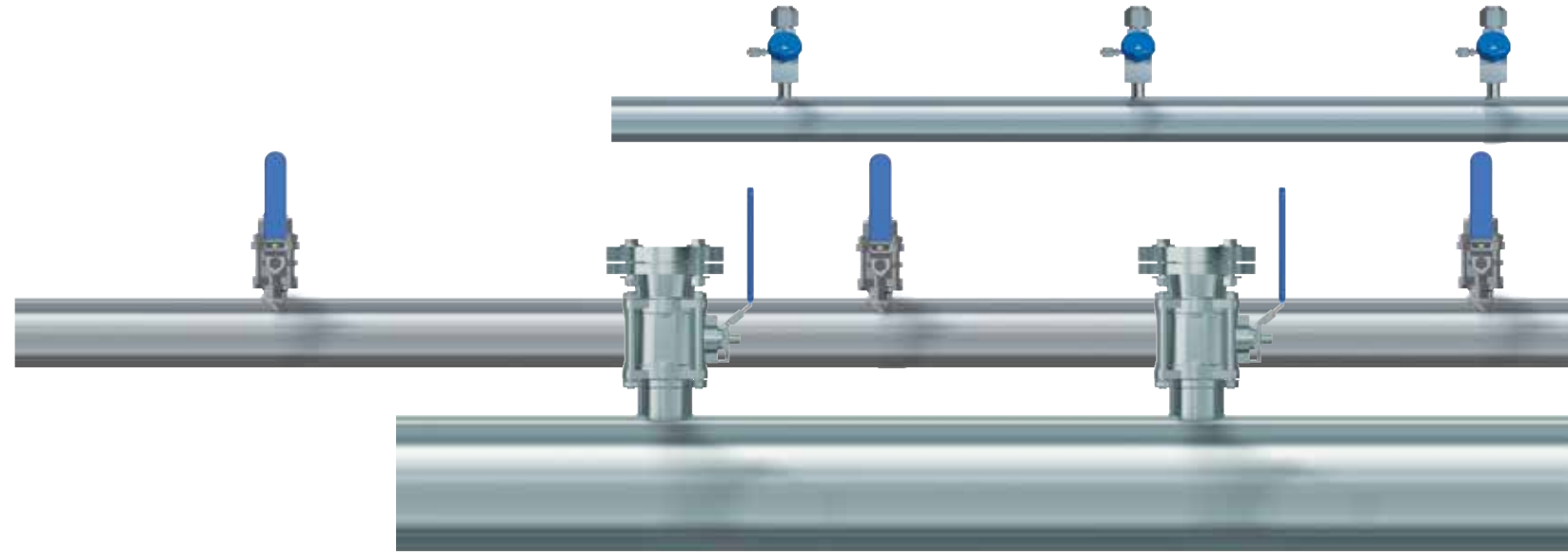
from 200 ml to 56 l

Surface Options

- Ra $\leq 16 \mu\text{m}$ and Ra $\leq 10 \mu\text{m}$ for electropolished version
- bright finished, anodical cleaned, electropolished

PREFABRICATED LATERALS

Manifolds for utility lines are designed to simplify UHP, CFOS and PCW installations. UHP Manifolds are necked out and then welded, tested and packaged in an ISO 14644-1 Class 4 cleanroom. The use of prefabricated manifolds reduces the overall installation and acceptance process of the system through faster purge time and reduced particle count.



LATERAL

Maximum length
 24 ft./7.3 m

Welding
 • SEMI F78-0611
 • SEMI F81-0611

Tests / Documentation
 Leak test:
 100% Helium Leak Tested to 1×10^{-9} scc/sec



Weld Logs
 Material Certifications

TUBE

Material
 UNS S31603 (316L) / 1.4404 / 1.4435

Dimensions
 1/2" up to 6" Further dimensions on request

Surface options

Inner surface:	≤1"	Ra 7 μin; Ra _{max} 10μin
 ultron	>1"	Ra ≤ 7 μin and 5 μin on request
Inner surface:	≤1"	Ra 16 μin; Ra _{max} 19 μin
 TCC	>1"	Ra 30 μin; Ra _{max} 36 μin

VALVES

Type
 Diaphragm valve or equivalent valves.
 Multiple configurations available.

Dimensions
 1/4" up to 1"

Handle color
 White (standard); color handles are available

Air operated valves available upon request



Headquarter
Dockweiler AG
Neustadt-Glewe | Germany
Phone: +49 387 57 58 0
Email: info@dockweiler.com

www.dockweiler.com

Austria
Dockweiler Austria GMBH
Ried/Innkreis
Phone: +43 775 28 59 81
Email: office@dockweiler.at

China
Dockweiler Japan Ltd.
Chuo-ku. Tokyo
Phone: +81 3 3277 0250
Email: sales@dockweiler.co.jp

Netherlands and Belgium
Dockweiler B.V.
Zeewolde
Phone: +31 36 845 01 21
Email: info@dockweiler.nl

India
Dockweiler India (Pvt.) Ltd
Haryana
Phone: +91 (0) 124 410 8614
Email: sales@dockweiler.in

Israel
Dockweiler Middle East Ltd.
Givataim
Phone: +972 3 571 5005
Email: sales@dockweiler-me.com

Japan
Dockweiler Japan Ltd.
Chuo-ku. Tokyo
Phone: +81 3 3277 0250
Email: sales@dockweiler.co.jp

Thailand
Dockweiler Asia Co.. Ltd.
Bangkok
Phone: +66 32 709 662
Email: info@dockweiler.com

United Kingdom
Dockweiler UK Ltd.
Wrexham
Phone: +44 19 78 66 03 30
Email: sales@dockweiler-uk.com

United States of America
Dockweiler USA Inc.
Tualatin, Oregon
Phone: 503-997-3717
Email: sales.us@dockweiler.com

New England
1 Industrial Drive
Danvers, MA 01923
Phone: 978-777-0080
[NewEnglandSales@
bannerindustries.com](mailto:NewEnglandSales@bannerindustries.com)

Malta, New York
20 Tech Trail
Suite 305
Malta, NY 12020
Phone: 518-899-6400
[MaltaSales@
bannerindustries.com](mailto:MaltaSales@bannerindustries.com)

TriState
754 Roble Road
Unit 130
Allentown, PA 18109
Phone: 610-231-0338
[TriStateSales@
bannerindustries.com](mailto:TriStateSales@bannerindustries.com)

Midwest
9360 Innovation Campus Way,
Suite 300, New Albany,
OH 43054
Phone: 740-854-8055
[MidwestSales@
bannerindustries.com](mailto:MidwestSales@bannerindustries.com)

MidAtlantic
10100 Nokesville Rd
Manassas, VA 20110
Phone: 703-392-1320
[MidAtlanticSales@
bannerindustries.com](mailto:MidAtlanticSales@bannerindustries.com)

Southeast
1601 E. Geer Street
Unit B
Durham, NC 27704
Phone: 919-956-8545
[SouthEastSales@
bannerindustries.com](mailto:SouthEastSales@bannerindustries.com)

Dallas Region
1354 Exchange Drive
Richardson, TX 75081
Phone: 972-406-1900
[DallasSales@
Bannerindustries.com](mailto:DallasSales@Bannerindustries.com)

Austin Region
1000 New Meister Lane
Suite 200
Pflugerville, TX 78660
Phone: 512-251-6210
[AustinSales@
Bannerindustries.com](mailto:AustinSales@Bannerindustries.com)

Mountain States
4000 North Flash Drive
Trailer T-1
Lehi, UT 84043
Phone: 801-816-0200
[MountainStateSales@
Bannerindustries.com](mailto:MountainStateSales@Bannerindustries.com)

Southwest
260 S McQueen Rd
Suite 101
Gilbert, AZ 85233
Phone: 480-961-1111
[SouthWestSales@
Bannerindustries.com](mailto:SouthWestSales@Bannerindustries.com)

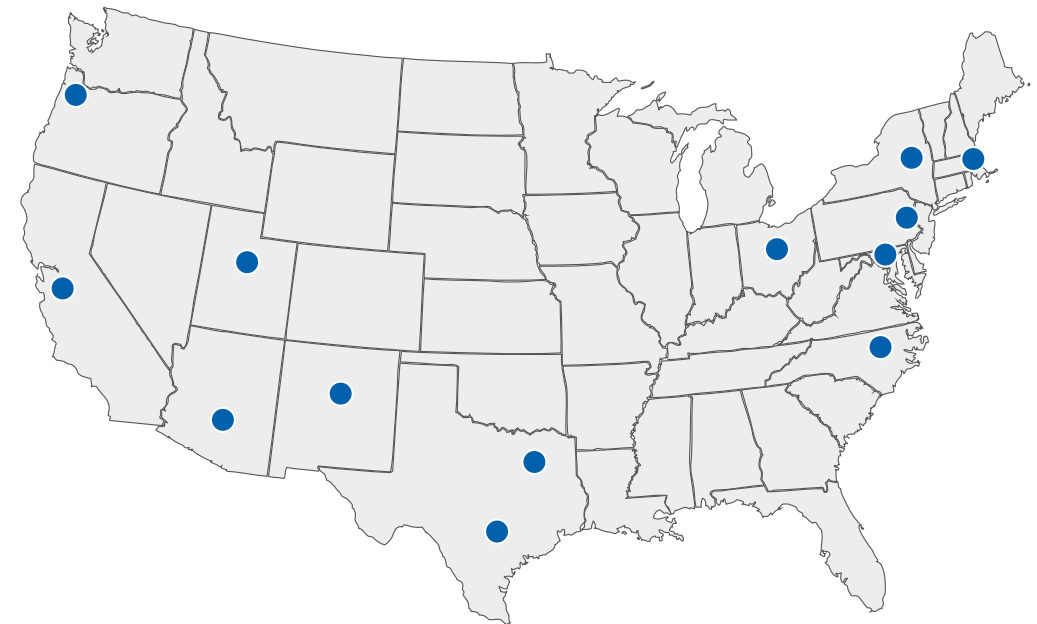
New Mexico
5200 Pasadena Avenue, N.E.
Suite D
Albuquerque,
New Mexico, USA 87113
Phone: 505-230-0030
[NewMexicoSales@
Bannerindustries.com](mailto:NewMexicoSales@Bannerindustries.com)

Northwest
7205 NE Evergreen Pkwy #900,
Hillsboro, OR 97124
Phone: 503-924-8377
[NorthWestSales@
Bannerindustries.com](mailto:NorthWestSales@Bannerindustries.com)

California
3201 Keller Street
Santa Clara, CA 95054
Phone: 408-564-0079
[CaliforniaSales@
Bannerindustries.com](mailto:CaliforniaSales@Bannerindustries.com)



REPRESENTATIONS IN OVER 40 COUNTRIES WORLDWIDE



Dockweiler USA Inc.

Tualatin, Oregon
USA

☎ 503-997-3717

✉ sales.us@dockweiler.com

Dockweiler AG

An der Autobahn 30
19306 Neustadt-Glewe
Germany

☎ + 49 38757 58-0

✉ sales@dockweiler.com

www.dockweiler.com

