TWIN FERRULE FITTINGS

TecnAir®

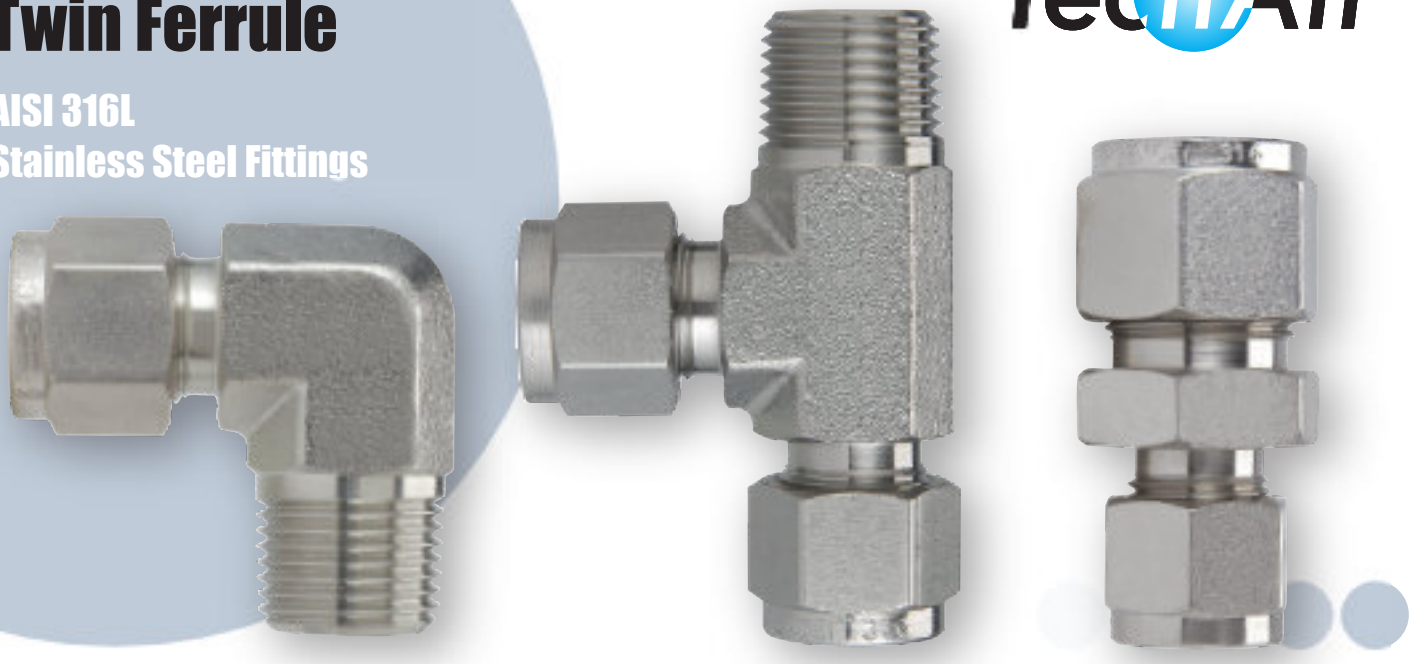
DRIVE & CONTROL TECHNOLOGY

- 316L Stainless Steel
- Heavy Duty
- Global Interchangeability

www.tecnair.co.uk

Twin Ferrule

AISI 316L
Stainless Steel Fittings



Features

Quality

TecnAir twin ferrule stainless steel fittings under go exacting test procedures and are manufactured to the highest quality making these products ideal for use in aggressive environments or in connection with corrosive fluids.

Interchangeability

Well-Lock™ twin ferrule fittings are interchangeable with the following manufacturers: Parker (A-Lok™), Hamlet, (Let-Lok™) Hoke (Gyrolok™) and Swagelok™.

Material Traceability

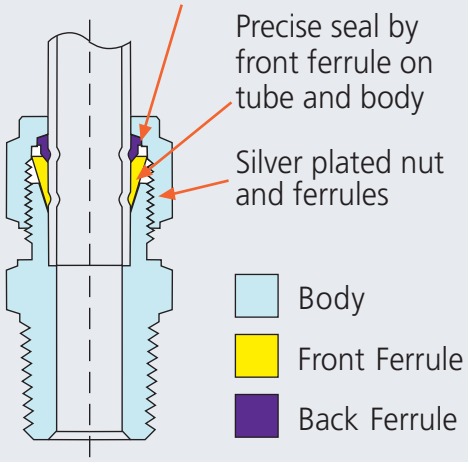
All fitting bodies and nuts are heat code traceable to the mill.

TECHNICAL DATA

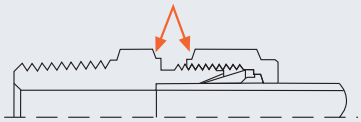
Type	Stainless steel twin ferrule fittings	
Sizes	Metric - 3mm to 25mm tube OD (Imperial - upon request)	
Materials	**BAR STOCK**	**FORGED**
	ASME-SA-479	ASME-SA-182 316
	TYPE 316-SS	BS970 316-S31
	BS970 316-S31	DIN 4401
	DIN 4401	Silver plating on nuts and ferrules to prevent galling
	ASTMA276 - 316	
Working Pressure	Refer to table below	
Working Temperature	-50 to +649°C depending on pressure and material (see table below)	
Heat Traceability	Each fitting is heat code traceable back to the original mill production heat temperature.	
Media	Gas, Air & Fluids resistant	
Tube Selection	Stainless steel 304 and 316 fully annealed seamless tubing according to ASTM A213 or ASTM A269 standards or equivalent must be used. Tube must be compatible with the process fluid, temperature and pressure and must not be used above the recommended maximum working pressure. To ensure good performance, tube must retain correct shape and be free from burrs and scratches. Tube ends must be cut square. Ideal tube hardness 80Rb.	
Applications	TecnAir SXL fittings are resistant to aggressive environments within the chemical, pharmaceutical marine and food industries.	

Well-Lock™ Twin Ferrule

Case Hardened Back Ferrule leading edge, ensures a firm mechanical & vibration free grip on the tube

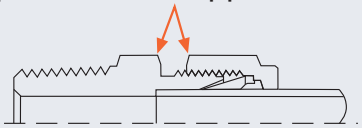


Metric - stepped shoulder



Standard Stock Items

Imperial - Non stepped shoulder



Produced to Order

TUBE OD	MAXIMUM WORKING PRESSURE (BAR)												
	WALL THICKNESS (mm)												
	0.5	0.6	0.7	0.8	1.0	1.2	1.5	1.6	1.8	2.0	2.2	2.5	3.0
3	497	607	718	828	1032								
6			331	386	497	607	774	912					
8			208	280	359	440	558	607					
10				221	280	342	440	473					
12				182	231	280	359	386	440	497			
14					195	237	302	324	369	416	463	535	654
16					169	205	361	280	319	358	398	460	564
18					150	181	230	246	280	314	349	403	496
22					121	147	185	199	225	252	280	322	394
25					108	128	162	173	196	220	244	280	342

TUBE OD	MAXIMUM WORKING PRESSURE (PSI)						
	WALL THICKNESS (inches)						
	.028	.035	.049	.065	.083	.095	0.109
1/8	8600	10900					
3/16	5500	7000	10300				
1/4	4000	5100	7500	10300			
5/16		4100	5900	8100			
3/8		3300	4800	6600			
1/2		2600	3700	5100	6700		
5/8			3000	4000	5200	6100	
3/4			2400	3300	4300	5000	5800
7/8			2100	2800	3600	4200	4900
1				2400	3200	3700	4200

Note: Working pressure (psig) for seamless tubing. Multiply pressure rating by 0.80 for single welding tubing. Multiply pressure rating by 0.85 for double weld.

Factors used to determine allowable pressure at higher temperatures

°F	°C	A.I.S.I. 316
200	93	1
400	204	0.96
600	316	0.85
800	427	0.79
1000	538	0.76
1200	649	0.37

For Example: The allowable pressure for type SS 316, Size 1/4" OD x 0.035 wall at 600^{O} F (316^{O} C) would be equivalent to 5100 psi x 0.85 = 4335 psi

GAS SERVICE

Extra care must be taken while selecting tubing for gas application. In order to achieve a gas tight seal, ferrule in instruments fittings must seal any minor surface imperfections.
The thick wall tubing helps the ferrule to overcome minor service imperfections.
The following minimum wall thickness of tubing for gas application is recommended.

Gas Application Tubing

TUBE OD (Imperial)	NOMINAL MINIMAL WALL THICKNESS (Imperial)
1/8"	0.028"
3/16"	0.028"
1/4"	0.028"
5/16"	0.035"
3/8"	0.035"
1/2"	0.049"
5/8"	0.065"
3/4"	0.065"
7/8"	0.083"
1"	0.083"

TUBE OD (Metric)	NOMINAL MINIMAL WALL THICKNESS (Metric)
3mm	0.8mm
6mm	0.8mm
8mm	1.0mm
10mm	1.0mm
12mm	1.0mm
14mm	1.2mm
16mm	1.5mm
18mm	1.5mm
20mm	1.8mm
22mm	2.0mm
25mm	2.2mm

SPECIAL THREADS

NPT Threads

Fittings can be ordered with NPT threads by changing the last digits of the part number from 'RT' or 'EO' to 'N'

Other Threads

Special fittings and threads can be ordered to suit specific customer requirements. For further details please our sales office.

PIPE END NPT AND ISO PRESSURE RATINGS

Fitting that has both tube and pipe thread ends can have different pressure ratings. The pipe end pressure ratings chart given below for SS316 shows the pressure ratings for male and female pipe thread ends.

Working pressure is calculated on ANSI code for pressure piping B31.3 basis.

NPT/BSPT PIPE SIZE	WORKING PRESSURE IN PSIG			
	MALE THREAD		FEMALE THREAD	
	Straight Fittings	Shape Fitting	Straight Fittings	Shape Fitting
1/8"	9100	9100	6400	5500
1/4"	7500	7500	6600	5600
3/8"	7200	7200	5300	5000
1/2"	6600	5800	5200	4500
3/4"	6400	6400	4300	3500
1"	4600	4600	4500	3900

SAE/MS Pressure Ratings for SS316

Pressure ratings are from SAE J1926/3

SAE/MS THREAD SIZE	Non Positionable	Positionable
	PSIG	PSIG
5/16-24	4568	4568
7/16-20	4568	4568
1/2-20	4568	4568
9/16-18	4568	3626
3/4-16	4568	3626
7/8-14	3626	2900
$1^{1}/_{16}$-12	3626	2900
$1^{3}/_{16}$-12	2900	2320
$1^{5}/_{16}$-12	2900	2320

MALE CONNECTOR TAPER

Tube OD (mm)	BSPT M	Part Number
4	1R/8	MC-4-125-RT
4	R1/4	MC-4-250-RT
6	R1/8	MC-6-125-RT
6	R1/4	MC-6-250-RT
6	R3/8	MC-6-375-RT
6	R1/2	MC-6-500-RT
8	R1/8	MC-8-125-RT
8	R1/4	MC-8-250-RT
8	R3/8	MC-8-375-RT
8	R1/2	MC-8-500-RT
10	R1/8	MC-10-125-RT
10	R1/4	MC-10-250-RT
10	R3/8	MC-10-375-RT
10	R1/2	MC-10-500-RT
12	R1/4	MC-12-250-RT
12	R3/8	MC-12-375-RT
12	R1/2	MC-12-500-RT
12	R3/4	MC-12-750-RT
14	R3/8	MC-14-375-RT
14	R1/2	MC-14-500-RT
16	R1/2	MC-16-500-RT
16	R3/4	MC-16-750-RT
18	R3/4	MC-18-750-RT
18	R1	MC-18-1000-RT
22	R3/4	MC-22-750-RT
22	R1	MC-22-1000-RT
25	R1	MC-25-1000-RT

REDUCER

Tube OD (mm)	Tube OD (mm)	Part Number
3	4	R-3-4
3	6	R-3-6
3	10	R-3-10
4	6	R-4-6
6	3	R-6-3
6	10	R-6-10
6	12	R-6-12
6	18	R-6-18
8	10	R-8-10
8	12	R-8-12
10	6	R-10-6
10	12	R-10-12
10	16	R-10-16
10	18	R-10-18
12	6	R-12-6
12	10	R-12-10
12	16	R-12-16
12	18	R-12-18
12	25	R-12-25
16	12	R-16-12
18	12	R-18-12
18	16	R-18-16
18	22	R-18-22
22	18	R-22-18
25	18	R-25-18

FEMALE CONNECTOR TAPER

Tube OD (mm)	BSPT F	Part Number
3	R1/8	FC-3-125-RT
3	R1/4	FC-3-250-RT
4	R1/8	FC-4-125-RT
6	R1/8	FC-6-125-RT
6	R1/4	FC-6-250-RT
6	R3/8	FC-6-375-RT
6	R1/2	FC-6-500-RT
8	R1/8	FC-8-125-RT
8	R1/4	FC-8-250-RT
8	R3/8	FC-8-375-RT
8	R1/2	FC-8-500-RT
10	R1/4	FC-10-250-RT
10	R3/8	FC-10-375-RT
10	R1/2	FC-10-500-RT
12	R1/4	FC-12-250-RT
12	R3/8	FC-12-375-RT
12	R1/2	FC-12-500-RT
16	R1/2	FC-16-500-RT
22	R3/4	FC-22-750-RT
22	R1	FC-22-1000-RT
25	R3/4	FC-25-750-RT
25	R1	FC-25-1000-RT

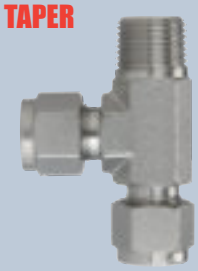
MALE CONNECTOR PARALLEL

Tube OD (mm)	BSP M	Part Number
3	G1/8	MC-3-125-RP
3	G1/4	MC-3-250-RP
4	G1/8	MC-4-125-RP
6	G1/8	MC-6-125-RP
6	G1/4	MC-6-250-RP
6	G3/8	MC-6-375-RP
6	G1/2	MC-6-500-RP
8	G1/8	MC-8-125-RP
8	G1/4	MC-8-250-RP
8	G3/8	MC-8-375-RP
8	G1/2	MC-8-500-RP
10	G1/4	MC-10-250-RP
10	G3/8	MC-10-375-RP
10	G1/2	MC-10-500-RP
12	G1/4	MC-12-250-RP
12	G3/8	MC-12-375-RP
12	G1/2	MC-12-500-RP
12	G3/4	MC-12-750-RP
15	G1/2	MC-15-500-RP
16	G3/8	MC-16-375-RP
16	G1/2	MC-16-500-RP
18	G1/2	MC-18-500-RP
18	G3/4	MC-18-750-RP
20	G1/2	MC-20-500-RP
20	G3/4	MC-20-750-RP
22	G3/4	MC-22-750-RP
22	G1	MC-22-1000-RP
25	G3/4	MC-25-750-RP
25	G1	MC-25-1000-RP

TEE

Tube OD (mm)		Part Number
3		UT-3
4		UT-4
6		UT-6
8		UT-8
10		UT-10
12		UT-12
14		UT-14
16		UT-16
18		UT-18
20		UT-20
22		UT-22
25		UT-25

MALE RUN TEE TAPER



Tube OD (mm)	BSPT M	Part Number
6	R1/8	MRT-6-125-RT
6	R1/4	MRT-6-250-RT
8	R1/8	MRT-8-125-RT
10	R1/4	MRT-10-250-RT
10	R3/8	MRT-10-375-RT
12	R3/8	MRT-12-375-RT
12	R1/2	MRT-12-500-RT
16	R1/2	MRT-16-500-RT

MALE BRANCH TEE TAPER

Tube OD (mm)	BSPT M	Part Number
6	R1/8	MBT-6-125-RT
6	R1/4	MBT-6-250-RT
8	R1/8	MBT-8-125-RT
8	R1/4	MBT-8-250-RT
10	R1/4	MBT-10-250-RT
10	R3/8	MBT-10-375-RT
12	R1/4	MBT-12-250-RT
12	R3/8	MBT-12-375-RT
12	R1/2	MBT-12-500-RT
16	R1/2	MBT-16-500-RT

CROSS

Tube OD (mm)		Part Number
3		UC-3
6		UC-6
8		UC-8
10		UC-10
12		UC-12
16		UC-16
18		UC-18
20		UC-20
25		UC-25

MALE ELBOW TAPER

Tube OD (mm)	BSPT M	Part Number
3	R1/8	ME-3-125-RT
3	R1/4	ME-3-250-RT
4	R1/8	ME-4-125-RT
4	R1/4	ME-4-250-RT
6	R1/8	ME-6-125-RT
6	R1/4	ME-6-250-RT
6	R3/8	ME-6-375-RT
6	R1/2	ME-6-500-RT
8	R1/8	ME-8-125-RT
8	R1/4	ME-8-250-RT
8	R3/8	ME-8-375-RT
8	R1/2	ME-8-500-RT
10	R1/8	ME-10-125-RT
10	R1/4	ME-10-250-RT
10	R3/8	ME-10-375-RT
10	R1/2	ME-10-500-RT
12	R1/4	ME-12-250-RT
12	R3/8	ME-12-375-RT
12	R1/2	ME-12-500-RT
12	R3/4	ME-12-750-RT
16	R3/8	ME-16-375-RT
16	R1/2	ME-16-500-RT
16	R3/4	ME-16-750-RT
18	R1/2	ME-18-500-RT
18	R3/4	ME-18-750-RT
22	R1/2	ME-22-500-RT
22	R3/4	ME-22-750-RT
25	R3/4	ME-25-750-RT
25	R1	ME-25-1000-RT

ELBOW

Tube OD (mm)		Part Number
3		UE-3
4		UE-4
6		UE-6
8		UE-8
10		UE-10
12		UE-12
14		UE-14
16		UE-16
18		UE-18
20		UE-20
22		UE-22
25		UE-25

FEMALE ELBOW TAPER

Tube OD (mm)	BSPT F	Part Number
6	R1/8	FE-6-125-RT
6	R1/4	FE-6-250-RT
6	R1/2	FE-6-500-RT
8	R1/4	FE-6-250-RT
10	R1/8	FE-8-125-RT
10	R1/4	FE-10-125-RT
12	R1/4	FE-12-250-RT
12	R3/8	FE-12-375-RT
12	R1/2	FE-12-500-RT
16	R1/2	FE-16-500-RT

BULKHEAD UNION

Tube OD (mm)		Part Number
3		BU-3
4		BU-4
6		BU-6
8		BU-8
10		BU-10
12		BU-12
16		BU-16
14		BU-14
16		BU-16
18		BU-18
20		BU-20

UNION

Tube OD (mm)		Part Number
3		U-3
4		U-4
6		U-6
8		U-8
10		U-10
12		U-12
14		U-14
16		U-16
18		U-18
20		U-20
22		U-22
25		U-25

REDUCING UNION

Tube OD (mm)	Tube OD (mm)	Part Number
6	3	RU-6-3
6	4	RU-6-4
8	6	RU-8-6
10	6	RU-10-6
10	8	RU-10-8
12	6	RU-12-6
12	8	RU-12-8
12	10	RU-12-10
16	10	RU-16-10
16	12	RU-16-12
18	12	RU-18-12
25	18	RU-25-18

PLUG

Tube OD (mm)		Part Number
3		P-3
4		P-4
6		P-6
8		P-8
10		P-10
12		P-12
16		P-16
18		P-18
20		P-20
22		P-22
25		P-25

NUT

Tube OD (mm)		Part Number
3		N-3
4		N-4
6		N-6
8		N-8
10		N-10
12		N-12
14		N-14
15		N-15
16		N-16
18		N-18
20		N-20
22		N-22
25		N-25

FRONT FERRULE

Tube OD (mm)		Part Number
3		FF-3
4		FF-4
6		FF-6
8		FF-8
10		FF-10
12		FF-12
14		FF-14
15		FF-15
16		FF-16
18		FF-18
20		FF-20
22		FF-22
25		FF-25

BACK FERRULE

Tube OD (mm)		Part Number
3		BF-3
4		BF-4
6		BF-6
8		BF-8
10		BF-10
12		BF-12
14		BF-14
15		BF-15
16		BF-16
18		BF-18
20		BF-20
22		BF-22
25		BF-25

TUBE INSERT

Tube inserts are available upon request when TecnAir Twin Ferrule fittings are required to work with flexible tubing.
For further information please contact our sales office.

TecnAir®

DRIVE & CONTROL TECHNOLOGY

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