


Sanitary Fittings



Alfa Laval is your complete source for specialized fittings and tubing for your food, dairy or beverage processing application. Smooth, crevice-free interiors and secure, self-aligning joints are characteristic of our Tri-Clover fittings. Each offers superior corrosion-resistance and unmatched service life. Our fittings are designed and manufactured to ensure dimensional accuracy and structural integrity, making them easy to install.



Tri-Clamp®

									
B2CMP	2FMP-14	2FMP-15	2CMP-31MP	B2KMP		B7MP	B7RMP	B9MP	
									
L14AM	14WMPS/14WMO	14WLMP/14LMO	14RMP	14MPW	16AMP/16AMO				
							 	 	 
13MHLA	A13MO	13MHMH	A13MHM	13MW	13MHHS	13MHP	40MP/40MO	40MPF/40MOF	A40MP/A40MO-GR
									
14MPHR	14MPHT	17MP-14	17MP-15	21MP	22MP	B31-14MP	B32-14MP		

Tri-Weld®

B2S	L2S	2WCL	L2CM	L2C	L2F	B2KS	B2KMW	2WK	2WUL
B7WWW	B7WWM	B7RWWW	B7RWWM	B9WWWW		16W	19WB	L31	L32

Bevel Seat

L14A	14PRFS	14WL		L15A	15TRFS	15WL		13H	16A

Miscellaneous

14VA	14VB	38SL		A24FCF	B24FCF	C24FCF	D24FCF	E24FCF

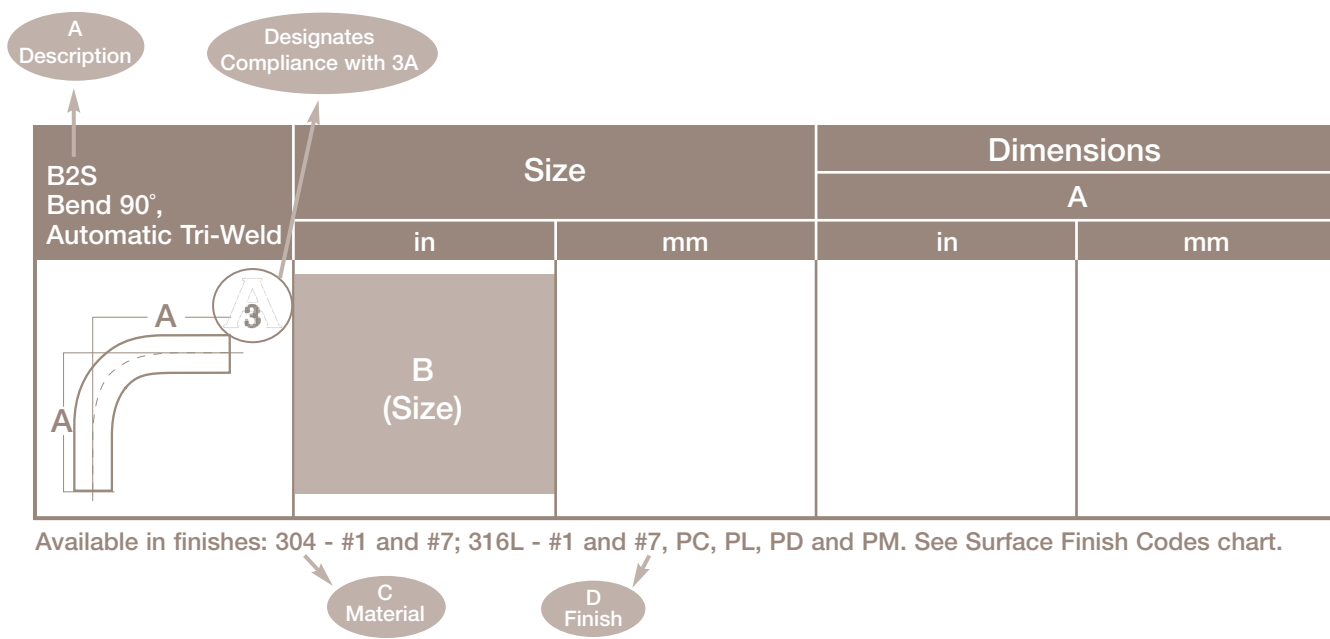
Ordering Information

When ordering, please specify the complete part number including: description, size, material and surface finish

Example:

B2S - 1 - 304 - 7

A - B - C - D



Surface Finish Codes

Finish Code	ID or Product Contact Surface			Dimensions	
	Maximum Surface Roughness (RA)			A	
	Microinches (μinch)	Micrometers (μm)	ASME BPE Finish Code	in	mm
1					
3	32	0.8	--		
7	32	0.8	--		

Technical Information

Service Rating of Tri-Clamp Connections

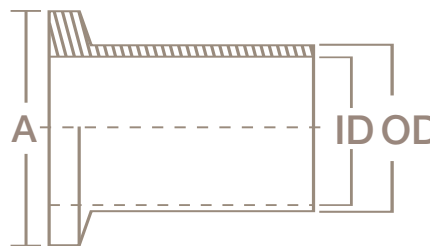
Service Ratings* (PSI)

Size	Tube OD	1/4in and 1/2in	1in and 1 1/2in	2in	2 1/2in	3in	4in	6in
13MHLA (Screw tightened to maximum)								
at 70°F	–	150	150	150	150	150	–	–
at 250°F	–	125	125	125	125	125	–	–
13MHM (Wing nut tightened to 25 in. lb. of torque)								
at 70°F	–	500	450	400	350	350	150	–
at 250°F	–	300	300	200	195	195	75	–
13MHHS (Wing nut tightened to 25 in. lb. of torque)								
at 70°F	2200	600	550	450	350	350	–	–
at 250°F	1200	300	275	225	175	175	–	–
13MHP (Bolts tightened to 20 ft. lb. of torque)								
at 70°F	–	1500	1000	1000	1000	1000	300	–
at 250°F	–	1200	800	800	800	800	200	–
A13MO (1-3" tightened to 20 in. lb., 4" to 30 in. lb.)								
at 70°F	–	500	350	300	200	200	75	–
at 250°F	–	250	200	150	100	100	50	–
A13MHM (Wing nut tightened to 25 in. lb. of torque)								
at 70°F	–	500	450	400	350	350	150	–
at 250°F	–	300	250	200	175	175	75	–

*Service ratings are based on hydrostatic tests using standard-molded Buna-N material gaskets, with proper installation of ferrules, assembly of joints and absence of shock pressure. Contact Alfa Laval for service of other type and material gaskets, and for ratings at higher temperatures. All ratings shown are dependent upon related components within the systems and proper installation. For temperatures above 250°F, we recommend using only 13MHP clamps. This information is only valid if Alfa Laval clamps, ferrules, and gaskets are used.

Tri-Clamp Gasket Materials

Characteristic	Buna-N (U)	EPDM (E)	Fluoro-elastomer (SFY)	Silicone (X)	PTFE (G)
Original Physical Properties					
Hardness, Shore A	70	70	70	70	–
Tensile Strength, psi	1875	1650	1212	1340	–
Elongation, %	340	317	272	260	–
Temperature Range	-65 to 200°F	-60 to 300°F	-20 to 350°F	-40 to 450°F	-40 to 200°F
Acid Resistance	Good	Good to Excellent	Good to Excellent	Poor to Good	Good to Excellent
Alkali Resistance	Fair to Good	Good to Excellent	Poor to Good	Poor to Fair	Excellent
Resistance to Fats/Oils	Good to Excellent	Poor	Good to Excellent	Poor to Good	Excellent
Abrasion Resistance	Excellent	Good	Good to Excellent	Poor	Fair
Compression Set Resistance	Good	Fair	Good to Excellent	Good to Excellent	Cold Flows



Basic Dimensions of Tri-Clamp Connections for Sanitary OD-Tubing

OD Outer Diameter (inches)	ID Inner Diameter (inches)	Wall Thickness (inches/gauge)	A Ferrule Face (inches)
1/2	0.37	0.065 / 16 ga.	0.984
3/4	0.62	0.065 / 16 ga.	0.984
1	0.87	0.065 / 16 ga.	1.984
1 1/2	1.37	0.065 / 16 ga.	1.984
2	1.87	0.065 / 16 ga.	2.516
2 1/2	2.37	0.065 / 16 ga.	3.047
3	2.87	0.065 / 16 ga.	3.579
4	3.87	0.083 / 14 ga.	4.682

Biopharmaceutical Fittings

Alfa Laval's line of fittings for the Pharmaceutical and Biotechnology industries consist of Tri-Clover parts with either Tri-Weld® ends suitable for use with orbital welding equipment or self-aligning Tri-Clamp® end connections. Our full line of Biopharm fittings are manufactured in compliance with the current revision of the ASME BPE Standards.

Our Biopharmaceutical fittings are available in a wide range of surface finishes. They are individually capped and bagged, and each shipment includes MTRs.



Tri-Clamp®

B2CMP	B2KMP		B7MP	B7MPS	B7IMPS	B7RMP	B7RMPS	B9MP	
14WMPS/14WMO	BS14AM	13MHLA	A13MO	13MHHM	A13MHM	13MW	13MHHS	13MHHS Fractional	13MHP
42MP	40MP/40MO	40MPF/40MOF	A40MP/A40MO-GR	16AMP/16AMO	14MPHR	21MP	22MP	B31-14MP	B32-14MP

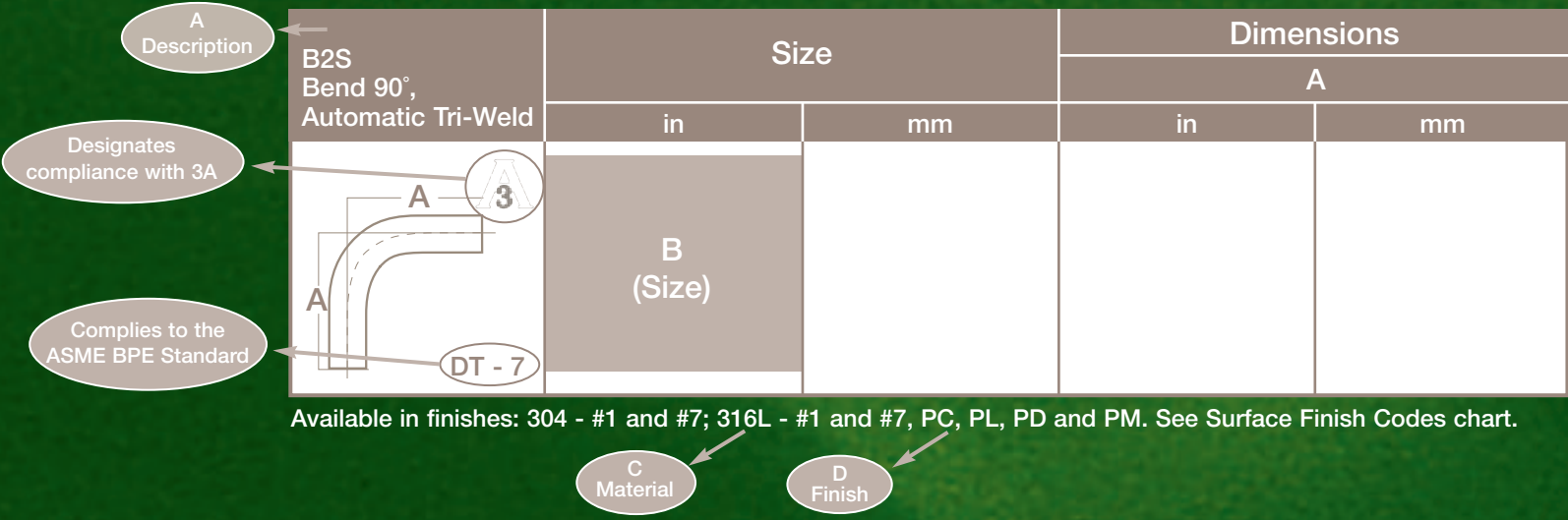
Tri-Weld®

B2S	B2CMW	B2KS	B2KMW	B2UMPBOA	B2UMPSOA	A24FCF	B24FCF	C24FCF	D24FCF
E24FCF	B7WWW	B7WWM	B7WWMS	B7IWWMS	B7WMSW	B7RWWW	B7RWWM	B7RWWMS	B9WWWW
B9RWWWW	B16W	B31	B31M	B32	B32M				

Ordering Information

When ordering, please specify the complete part number including: description, size, material and surface finish

Example: B2S - 1 - 316L - PL A - B - C - D



Surface Finish Codes

Finish Code	ID or Product Contact Surface				OD or Product Noncontact Surface
	Maximum Surface Roughness (RA)			Polishing Method	
	Microinches (μ-inch)	Micrometers (μm)	ASME BPE Finish Code		
1				Unpolished	Unpolished
3	32	0.8	–	Mechanical Polished	Unpolished
7	32	0.8	–	Mechanical Polished	Polished to Ra, 32μ-inch/0.8μm
PC	20	0.5	SFF1	Mechanical Polished	Unpolished
PD	15	0.4	SFF4	Mechanical Polished and Electropolished	Unpolished
PL	20	0.5	SFF1	Mechanical Polished	Polished to Ra, 32μ-inch/0.8μm
PM	15	0.4	SFF4	Mechanical Polished and Electropolished	Polished to Ra, 32μ-inch/0.8μm

Material Test Reports (MTRs) for Fittings are available online.

As one of the most comprehensive and technologically advanced reports in the market, our new Material Test Reports (MTRs) provide detailed information that takes traceability and validation to a new level. Alfa Laval has established a new standard as all MTRs are available 24 hours a day, 7 days a week online at www.alfalaval.us

Simply type a 5-alpha character code (e.g. AAABC) called the serial ID, which you can find stenciled on each new 316SS fitting, to access the following information:

- All heat certification numbers used to manufacture the fitting
- Date the fitting was manufactured
- The fitting's part number and description
- View/print any MTR and this above information



This web site will even allow you to print the MTR or original heat certification from the raw material supplier. If you do not know the actual number, MTRs can be searched by either MTR serial ID or heat certification number.

Technical Information

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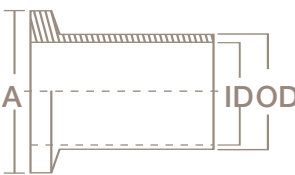
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at 250°F	–	125	125	125	125	125	125	–
13HHM		(Wing nut tightened to 25 in. lb. of torque)						
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at 70°F	2200	600	550	450	350	350	350	–
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