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™ brand 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-Clover®

Tri-Clamp®


B2CMP


2FMP-14


2FMP-15


2CMP-31MP


B2KMP

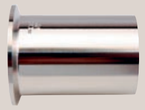

B7MP


B7RMP


B9MP


L14AM

14WMPS/14WMO


14WLMP/14LMO


14RMP


14MPW

16AMP/16AMO


13MHLA


A13MO


13MHHM


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

A Description

Designates Compliance with 3A

B2S Bend 90°, Automatic Tri-Weld	Size		Dimensions A	
	in	mm	in	mm
	B (Size)			

Available in finishes: 304 - #1 and #7; 316L - #1 and #7, PC, PL, PD and PM. See Surface Finish Codes chart.

C Material

D Finish

Surface Finish Codes

Finish Code	ID or Product Contact Surface: Maximum Surface Roughness (RA) Microinches (µ-inch)	Micrometers (µm)	ASME BPE Finish Code	Polishing Method	OD or Product Noncontact Surface
1				Unpolished	Unpolished
3	32	0.8	--	Mechanical Polished	Unpolished
7	32	0.8	--	Mechanical Polished	Polished to Ra, 32µ-inch/0.8µm

Technical Information

Service Rating of Tri-Clamp Connections

Service Ratings* (PSI)

Size Tube OD	⁄ in and ⁄in	1in and 1⁄in	2 in	2⁄in	3in	4 in	6 in
13MHLA			(Screw tightened to maximum)				
at 70˚F	–	150	150	150	150	150	–
at 250˚F	–	125	125	125	125	125	–
13HHM	(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)
⁄	0.37	0.065 / 16 ga.	0.984
⁄	0.62	0.065 / 16 ga.	0.984
1	0.87	0.065 / 16 ga.	1.984
1⁄	1.37	0.065 / 16 ga.	1.984
2	1.87	0.065 / 16 ga.	2.516
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-Clover®

Tri-Clamp®


B2CMP


B2KMP


B7MP


B7MPS

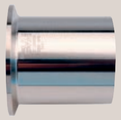

B7IMPS


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


B7WWW


B7WWM


B7WWMS


B7IWWMS


B7WMSW


B7RWWW

B7RWWM

B7RWWMS

B9WWWW

B9RWWWW

B16W

B31

B31M

B32

B32M

Miscellaneous

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 - 316L - PL

A - B - C - D

Surface Finish Codes

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

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