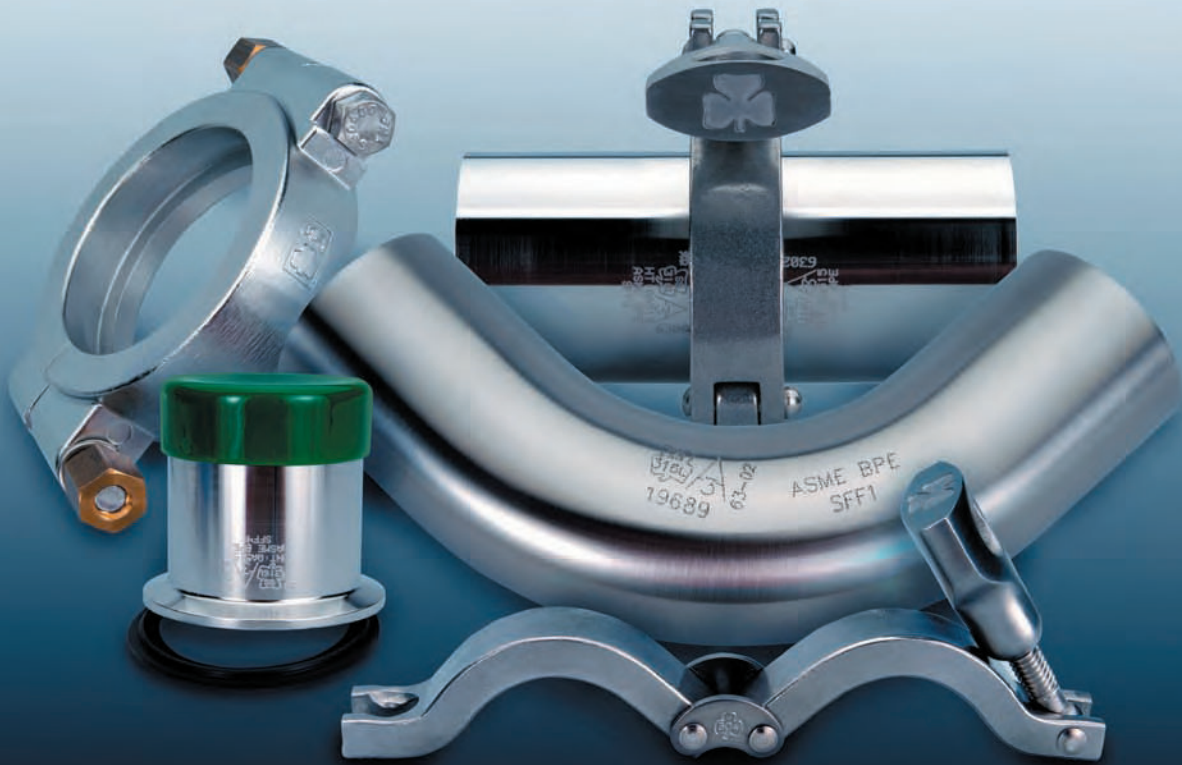




# The industry standard for quality

Product data for Sanitary and Biopharm Fittings



# The industry standard

For over 80 years, you've relied on Tri-Clover® fittings, including the proven Tri-Clamp® and Tri-Weld®. Whether your application is in the Food, Beverage, Brewery, Dairy or Biopharm industry, the fittings you've come to know and trust meet today's strict sanitary and quality standards and ensure increased productivity and controlled costs.



Since 1919, Tri-Clover has been North America's leading source of sanitary fluid handling equipment.

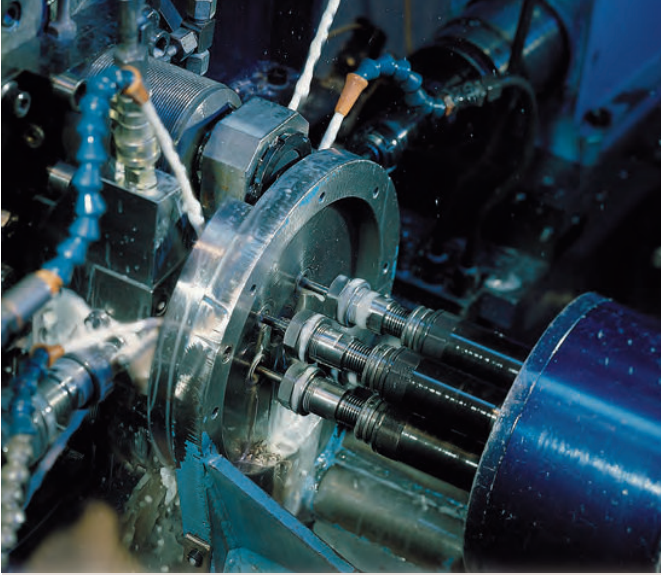


Tri-Clover fittings catalog circa 1947.

# 1. Fittings

Alfa Laval constantly focuses on producing installation material with long durability, problem-free welding and assembly, and highest possible strength.

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## Everything you need, everywhere you need it

Alfa Laval is a world-leading supplier of installation material for a wide range of sanitary applications within the food, dairy, beverage, bio-pharm and personal care industries. Our products are developed not only to meet your exacting demands for safety, reliability, efficiency and hygiene, but also to ensure the careful handling of your products.

One of the features that distinguishes us from our competitors is our breadth of application. We can supply components for all stages of your process – besides installation material, our sanitary range includes pumps, valves, tank equipment and heat exchangers. As a world wide supplier, Alfa Laval can accommodate your ISO, SMS, SWG, DS, BS, DIN and JIS international Fittings standards (upon request).

This brochure includes the following Alfa Laval line of high-quality sanitary installation material:

- Unions, Tri-Clamp™ Fittings & Flanges
- Bends, Tees & Reducers
- Tubing
- Butterfly Valves

For more detailed technical information and specifications of our products, please refer to the relevant product sheet provided by your local Alfa Laval supplier, or to our website, [www.alfalaval.us](http://www.alfalaval.us)

## Connection Types

### Clamp Fittings

A Connection is made up of a plain ferrule, a clamp, and a gasket. Tees, elbows and reducers are available with Tri-Clamp connections. All three styles are in compliance with 3A standards for Clean In Place (CIP). The three types of clamp fittings are designed for use in food, dairy, pharmaceutical and chemical Industries.

- Tri-Clamp connections are the industry standard, having nueter-style ferrules to simplify design and installation.
- H-Line and HDI-Line male/female ferrules self-align during tightening so joints are quick and easy to assemble or take apart.
- H-Line uses the same series of clamps as the Tri-Clamp.

### Threaded Fittings

A connection is made up of a plain ferrules, a threaded ferrule, a nut and a gasket. The faces on Bevel Seat fittings are angled to create a metal to metal sealing surface. A John Perry fitting consists of a flat-faced threaded ferrule, a flat-faced plain ferrule and a profiled gasket. These joints are particularly useful with swing connections and flow diverter panels. A DC fitting utilizes the Bevel Seat plain ferrule and a threaded ferrule with a grooved face to retain a gasket. The three types of threaded fittings are designed for use in the food, dairy, and beverage processing industries. Bevel Seat Joints are in compliance with 3A standards for manual cleaning. Both John Perry and DC fittings are in compliance with 3A standards for CIP.



Tri-Clamp - The industry standard.

Alfa Laval's program of bends, tees and reducers are available in diameters from 1" to 6" in size.



## Bends, Tees & Reducers

Alfa Laval constantly focuses on producing installation material with long durability, problem-free welding and assembly, and highest possible strength. Key criteria in the manufacturing process include tight tolerances, a variety of finishes and uniform wall thickness.

### Welding

Alfa Laval is aware of the constantly increasing demands placed upon the quality of welding. In accordance with these demands, all our reducers meet the highest of standards.

The reducers have cylindrical welding ends and are available for all tube combinations, ensuring that you will always get the right diameter and wall thickness for your process.

### Tolerances

Alfa Laval ensures that all the angles are exact and that all the tube, bend and tee connections are uniform. It is very important that our customers do not have to compensate for any welding irregularities.

### Finishes

Alfa Laval offers a range of mechanical polish as well as electropolishing finishes. Mechanical polishing is achieved by using a progressive series of abrasives, from low to high grit. This allows a consistent internal finish and both optimal and economical cleaning. Electropolishing is a further process that promotes a chromium-enriched surface layer that maximizes corrosion resistance as well as minimizing bacterial buildup on surface cavities.

In order to ensure that you are able to select a finish that exactly matches your needs, Alfa Laval offers a wide range of surface finishes.

## The Right Part for Your Application

Alfa Laval offers installation material in different standards so you can always find the right part, with the process quality you need, for your specific application.

### Sanitary

Manufactured to the 3A sanitary standard, all product surfaces are polished to 32 microinch Ra or better. Tri-Clover's number 3 and 7 finishes also meet 3A standards.

### BioPharm

BioPharm products are manufactured to the BPE standard. Available in four finishes, PC and PL have a contact surface finish of 20 microinch Ra. PD and PM are electropolished finishes with a contact surface finish of 15 microinch Ra.

## Tubing

Alfa Laval offers a variety of tubing for all sanitary applications. It is available in a full line of sizes and finishes and is manufactured to stringent specifications for perfect matching with Tri-Weld fittings.

- Common source for fittings raw material and finishes tubing
- Compliant with ASME, BPE, ASTM A269/A270 and 3A, where applicable
- Sizes are available from stock are 1/2 inch to 6 inch



Whatever your sanitary application,  
Alfa Laval is able to supply the right tube.



The industry standard for quality.

## BioPharm Fittings

Alfa Laval is proud to present their line of fittings designed for use in the pharmaceutical and bio-technologies industries. This line consists of parts with either Tri-Weld ends suitable for use with orbital welding equipment or self-aligning Tri-Clamp end connections. Alfa Laval offers a full line of BioPharm fittings that are manufactured in compliance with the ASME BPE standards.

### Metallurgy

Incoming raw material goes through a stringent inspection process to ensure its chemistry will be ideal for both welding and electropolishing.

### Quality Control Methods

Our manufacturing facilities operate under an ISO 9001 approved quality standard. Wall thickness integrity is maintained through the use of fabrication grade minimum wall tubing for all cold-formed tubular products. Our BPE fittings are designed for use with all current orbital welding equipment. After cold forming, our tube product is resized to ensure that the ovality falls within the prescribed BPE tolerances. End facing is provided with a machined square-cut method.

This allows for the most accurate and consistent orbital weld result. All fittings are put through 100% visual inspection and ovality and squareness tolerances are inspected with calibrated equipment. Surface finish is inspected with a calibrated profilometer to ensure the Roughness average (Ra) maximum is not exceeded.

### Material Test Reports

Every new BioPharm Tri-Clover fitting will include a Material Test Report (MTR). As a new Alfa Laval standard, BPE fittings will be shipped with an MTR in the bag. This new MTR has a five letter Reference ID that takes traceability and validation to a new level. The Reference ID is stenciled on all fittings and together the heat numbers, part number, description, manufacturing reference number, and date manufactured. This information along with the chemistry, mechanical properties, and raw material specification will be listed on the MTR's.

As another key benefit, the Reference ID can be used to look up fitting information on the internet. This new MTR web application will give 24/7 access to distributors and customers via [www.alfalaval.us](http://www.alfalaval.us)