



# ALL STAINLESS STEEL PLATE COOLERS

The Coburn All Stainless Steel Plate Cooler is a low-maintenance, efficient tool for dairy farms. Proper use and maintenance of a Plate Cooler will:

1. Provide better quality milk through rapid cooling.
2. Save on energy and expense through shorter run time on compressor.
3. Extend compressor life because of shorter daily run time.
4. Supply warm water for hot water tank, stock tanks, and cleaning.

## CONSTRUCTION

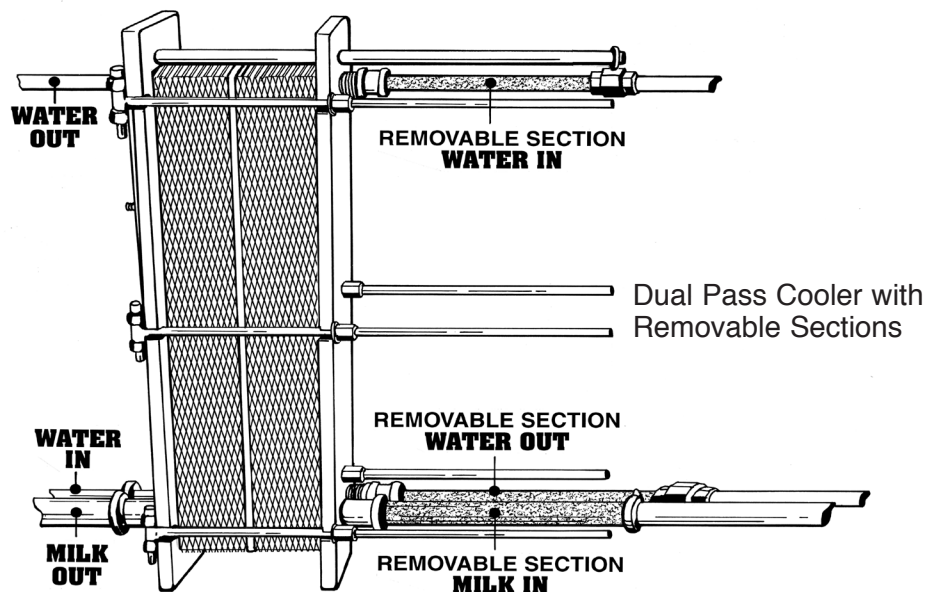
The end plates of Coburn Single and Dual Pass Plate Coolers are made of type 316 stainless steel. All water and milk inlets and outlets are solidly welded and are also made of type 316 stainless steel. Cooling plates are made of type 316 stainless steel. Gaskets are made of nitrile rubber and are attached to the plates with an FDA-approved adhesive. Mounting brackets and connecting bolts are made of stainless steel.

## INSTALLATION

The Plate Cooler should be mounted in the milkhouse after the milk filters in a place with easy access for maintenance, water connection and milk line connection. A bracket is provided for mounting the unit on the wall or the ceiling. The unit should always be mounted in a position that guarantees proper drainage. When installing the Cooler in a horizontal configuration, it should be positioned so the milk inlet is on the bottom edge of the Cooler. The mounting bracket should be shimmed to allow the milk to drain back to the milk inlet. A short section of stainless steel with ferrules should be mounted in the discharge pipes to allow easy disconnection for cleaning. (See illustration below.) After mounting, the unit should be connected to the milk line with clamp-type fittings and clamps.

The Plate Coolers are assembled and tested for leaks up to 60 PSI water pressure. However, units sometimes loosen in transit, requiring tightening. They also will need to be tightened after manual cleaning.

The correct measurement of the distance between the two heavy end plates (inside measurement) should equal the number of cooling plates times 3mm (.118 inch.) Before tightening the Cooler beyond this recommendation, check to make sure the milk is flowing at the proper flow rate free of any obstructions which could restrict the water flow rate.



## WATER SUPPLY

For proper cooling, you must ensure use of the coldest water possible with a low mineral content. Low water temperature provides greater efficiency and cost savings.

For the smaller Coolers, the water flow rate should be three times the calculated milk flow. For all other models, the water flow rate should be two times the calculated milk flow rate.

The water feed pipe should be free of any restrictions which could reduce the water flow rate. The fittings on the Cooler are 1" NPT and should not be reduced.

Water from the Cooler outlet should not be returned to source supply as it will raise the inlet water temperature and reduce efficiency. Pump the water instead to a stock tank or holding tank.

To reduce water use, Coburn's Heavy Duty Brass Solenoid Valve may be used on the water inlet. The Solenoid Valve should be wired to the milk pump circuit so it can open to allow water flow whenever the milk pump is running. It is also highly recommended to run a bypass around the valve which allows a small trickle of cold water to continuously run through the Cooler. See our website or call for information on Solenoid Valves available.

## CLEANING THE PLATE COOLER

The Plate Cooler is designed to be cleaned in place during the normal wash cycle. It is recommended that the unit be opened and cleaned manually every two or three months. Any internal build-up can reduce the cooling efficiency and flow rate. Follow this procedure:

After removing the milk outlet connection, the bolts can be loosened and the unit opened. Chemical cleaning of the plate surfaces is the best method. Soft brushes with plastic bristles may be used for more thorough cleaning. Wire bristle brushes or metal pads should NEVER be used as they can scratch plates or gaskets. The cooling plates can be cleaned without removal from the frame. If it is necessary to remove a cooling plate, this can be done easily by twisting the plate and pulling it out. Be sure to replace it in the same position so flow is not interrupted. After cleaning, reassemble the Cooler and tighten according to recommendations given below.

## UNIT ASSEMBLY IF COOLER IS TAKEN APART (Images are shown on next page.)

1. Chassis should not be in a horizontal position, the ideal position is inclined, Images 1 and 2.
2. Next start to place the elements one opposite of the other, Images 3.
3. After placing all the elements and put the other part of the chassis on, Images 4 and 5.
4. Put Plate Cooler in a vertical position, place each bolt and start to tighten by hand, Images 6 and 7.
5. Next, tighten nuts with a pneumatic tool, Images 8 and 9, starting with the bolts of the middle. It is very important not to tighten nuts too fast; tightening should be done gradually.
6. To know how much to tighten nuts, use the following formulas:

**Small Plate Coolers:** 3.5mm x number of plates

**Medium and Large Plate Coolers:** 3.2mm x number of plates

7. After tightening every nut a little, you should start to tighten again every nut at a rate of 1 cm in each round, Image 10. Repeat this step as many times as needed to achieve the desired width of the Plate Cooler.

8. After reaching the desired width, the Plate Cooler is completely assembled and ready for use, Image 11.

Image 1



Image 2



Image 3



Image 4



Image 5



Image 6



Image 7



Image 8

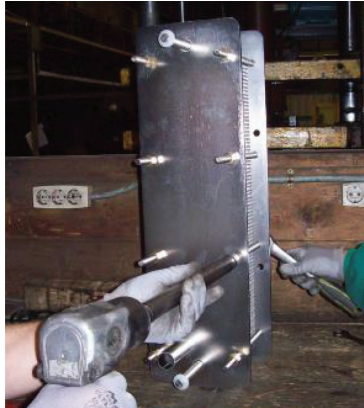


Image 9



Image 10



Image 11

