

# **HIGH VOLUME WATER WORKS BOX**

**INSTALLATION • OPERATION • MAINTENANCE**

Part No. 8824714

Effective November 15, 2003

**MUELLER**<sup>®</sup>

THE MILK COOLING SYSTEMS SPECIALISTS<sup>™</sup>

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## **SECTION 1.0 - INTRODUCTION**

### **1.1 General**

The Mueller® high flow water box is custom designed and manufactured to provide a large capacity chemical jar and increased water fill.

### **1.2 Technical Support**

This manual provides the basic installation and operating information to ensure safe and optimum performance. Please contact your local Mueller Sales and Service Representative if you require additional technical assistance pertaining to installation or operating procedures.

Manufacturer's support is available by contacting:

**Paul Mueller Company**  
**Dairy Farm Equipment Service Department**  
**P.O. Box 828**  
**Springfield, Missouri 65801**  
**Telephone: (417) 831-3000 • 1-800-MUELLER (683-5537)**

### **1.3 Regulatory Requirements**

It is the responsibility of the purchaser and installer to seek the necessary regulatory pre-approval of an installation, ensuring that the site and method of installation meets all regulations for the locality.

Local, state, and/or county regulations pertaining to the installation, operation, and service of the equipment may vary and must be followed accordingly.

Installation and service must be performed by authorized service technicians who have the proper training and certification to install and service refrigeration and electrical equipment.

## SECTION 2.0 - INSTALLATION OF HIGH VOLUME WATER BOX

### 2.1 Site Requirements

It is the responsibility of the installer and/or purchaser to provide adequate electrical service, and water supply for the installation. Failure to do so can cause non-warranted structural damage to the milk cooler and/or costly service problems for the user.

### 2.2 Hot Water Requirements

A water heating device with adequate storage and temperature recovery capacity must be provided to wash the milk cooler and milking equipment simultaneously. The water heater should be capable of supplying water temperatures of 160-170°F (71-76.6°C) during the detergent wash cycle.



**IMPORTANT: To prevent non-warranted expansion damage to the milk cooler, the maximum wash water temperature shall not exceed 170°F (76.6°C). Installation sites that require water temperatures in excess of 170°F (76.6°C) should install a tempering valve, Mueller Part No. 8820276, to regulate the milk cooler wash water temperature at 170°F (76.6°C) or below.**

### 2.3 Water Supply Pressure

Water supply pressure to the milk coolers wash system must be maintained between 20 and 60 psig.

### 2.4 Instructions for Mounting the High Volume Water Box

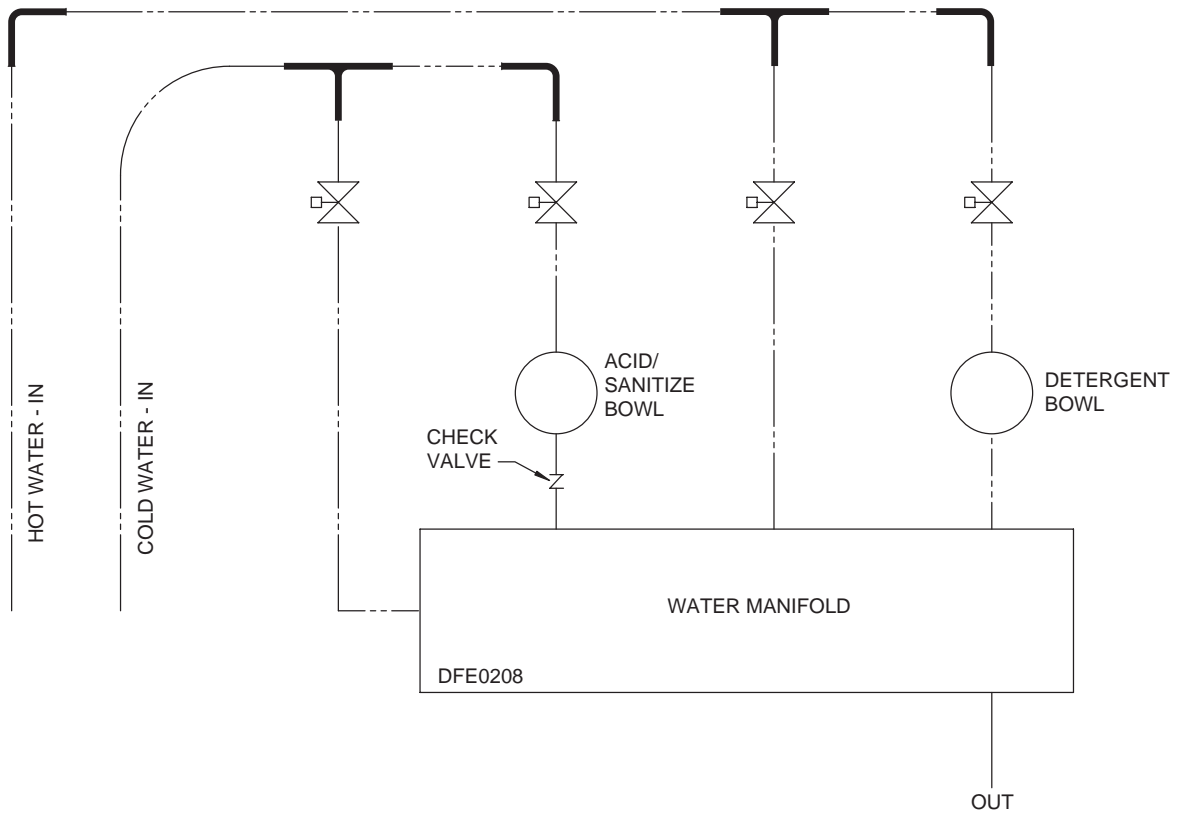
Install the water works box in an area protected from freezing and within easy access to the chemical storage drums.

### 2.5 Water Line Connections

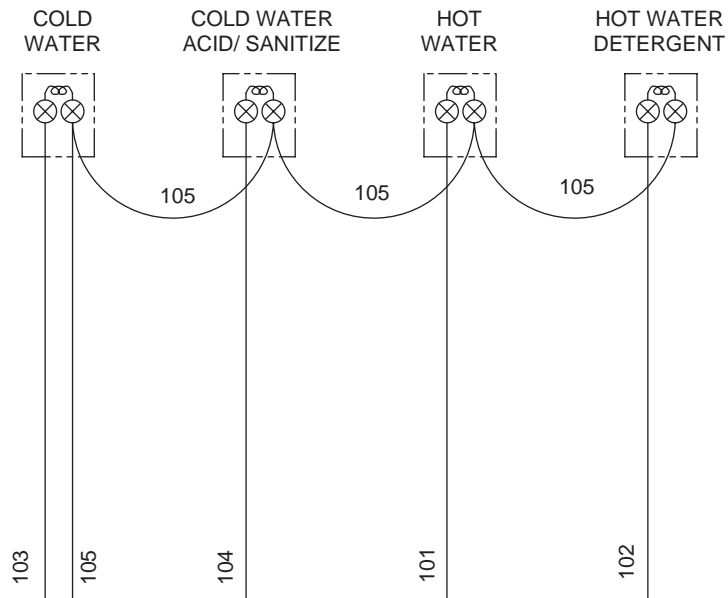
1. Connect the backflow preventors and hot and cold water fill hoses between the water supply valves and water solenoid valves.
2. Route the fill line hose between the water works box and fill nipple located on the wash pump assembly.
3. Insert the fill line disconnect in the fill line hose at a location easily accessible for the operator.

**NOTE:** The fill line disconnect should be separated when cooling or storing milk.

## 2.6 Flow Schematic



## 2.7 Electrical Wiring



## SECTION 3.0 - CHEMICAL DOSING WITH HIGH VOLUME WATER BOX

### 3.1 Determining Chemical Usage

The chemical usage will vary depending on the chemical composition, the amount of water required for each cycle, and the water quality. It is very important to have your Chemical Supplier test the water supply and determine the proper usage and concentrations of each specific chemical. This information should be posted on a cleaning chart near the milk cooler.



**IMPORTANT NOTE:** Improper chemical usage can cause non-warranted and non-repairable damage to your stainless steel milk cooler. Chemicals should be purchased from a reputable source that specializes in the proper application and usage of dairy cleansers for clean-in-place (CIP) applications.

**Table 1 - Minimum Water Requirements (Per Cycle)**

Cooler Model	U.S. Gallons
400 - 1,000	10.0
1,350 - 2,000	15.0
2,700 - 3,000	16.0
4,000 - 5,000	20.0
6,000 - 8,000	30.0

### 3.2 Determining Actual Water Usage

To estimate the actual water usage:

1. Measure the customer's water supply pressure.
2. Record the actual fill-time of the wash cycle.
3. Refer to the calculated water usage provided in Table 2.

**Table 2 - Calculated Water Usage (Fill-Time/Supply Pressure)**

Measured Fill-Time (Minutes)	Measured Water Supply Pressure		
	15 psig (Gallons)	20 psig (Gallons)	30-50 psig (Gallons)
3.00	18	21	27
4.00	24	28	36
5.00	30	35	45
6.00	36	42	54
7.00	42	49	63
8.00	48	56	72
9.00	54	63	81
10.00	60	70	90
11.00	66	77	99
12.00	72	84	108
13.00	78	91	117
14.00	84	98	126
15.00	90	105	135

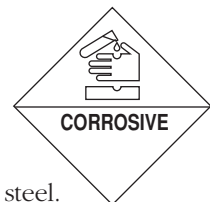
### 3.3 Chemical and Cleaning Cautions



- ▲ Wear protective clothing and eye protection when handling caustic chemicals!
- ▲ Always observe the chemical manufacturer's precautions, warnings, and usage recommendations!
- ▲ Store all chemicals in a location protected from freezing, unauthorized access, and direct sunlight.
- ▲ Wear eye protection, rubber gloves, and aprons when handling chemicals.
- ▲ Follow all instructions, warnings, and health hazard information provided by chemical manufacturer.
- ▲ Request a copy of the Material Safety Data Sheet (MSDS) for each cleaning chemical in use. Keep these readily available and be familiar with the first aid instructions and emergency contacts in case of a chemical accident or spill.
- ▲ Keep all chemicals out of reach of children.
- ▲ Only use cleaning solutions and materials specifically recommended for stainless steel and approved for food handling equipment.
- ▲ Never use more chemical than called for by the chemical manufacturer's instructions. Excessive use of cleaning chemicals can corrode and cause permanent damage to the stainless steel.
- ▲ Do not sanitize your milk cooler with solutions containing in excess of 200 parts per million of chlorine. This can cause permanent damage and corrosion to the stainless steel.
- ▲ Never mix any chlorine containing compounds with acid. This can result in damage to the stainless steel and can generate a hazardous gas dangerous to your health.
- ▲ Never wash the milk cooler with water temperatures exceeding 170°F (76.6°C).
- ▲ Never allow tools, clamps, or other wet objects to lie on the surface of the milk cooler.
- ▲ Keep all surfaces of the milk cooler clean.
- ▲ Never use abrasive materials on the stainless steel.
- ▲ Never put cleaning chemicals in an empty milk cooler. Always have water in the cooler first for proper chemical dilution.
- ▲ The milk cooler's vent assembly must be in place at all times. This milk cooler is not designed for pressure or vacuum applications. Severe damage can occur if not properly ventilated.
- ▲ Before entering the milk cooler, disconnect power to the agitator, remove and retain manway cover latch, and remove footwear that could scratch the stainless steel. An additional person must be present for safety purposes during confined entry.
- ▲ Always open manway cover for additional venting while the milk cooler is being emptied.
- ▲ Inspect the milk cooler ladder hardware on a regular basis. Never climb a ladder which is in need of repair.

## CAUTION

WEAR EYE PROTECTION,  
RUBBER GLOVES, AND  
APRONS WHEN HANDLING  
CHEMICALS



## SECTION 4.0 - SAFETY



**NOTE: See all safety, warning, and caution labels displayed in Sections 2.15, 5.2, and 10.**

### 4.1 General

1. The Mueller high volume water box should be operated by qualified personal who are familiar with the equipment and instructions.
2. Improper handling, operation, or service of the equipment, cleaning chemicals, and/or electricity can create a health hazard and possible non-warranted damage to the equipment.
3. An authorized Mueller Service Representative who is trained and certified in electrical and refrigeration work must perform all service.
4. The equipment can start automatically! Use extreme caution when servicing. All guards and covers must be in place during operation to prevent mechanical and electrical hazards.



## **SECTION 5.0 - DISPOSAL**

### **5.1 General**

If the milk cooler and controls are removed from the installation site, ensure the materials, refrigerants, and chemicals are handled and/or disposed of according to applicable codes and regulations.

### **5.2 Chemical Disposal**

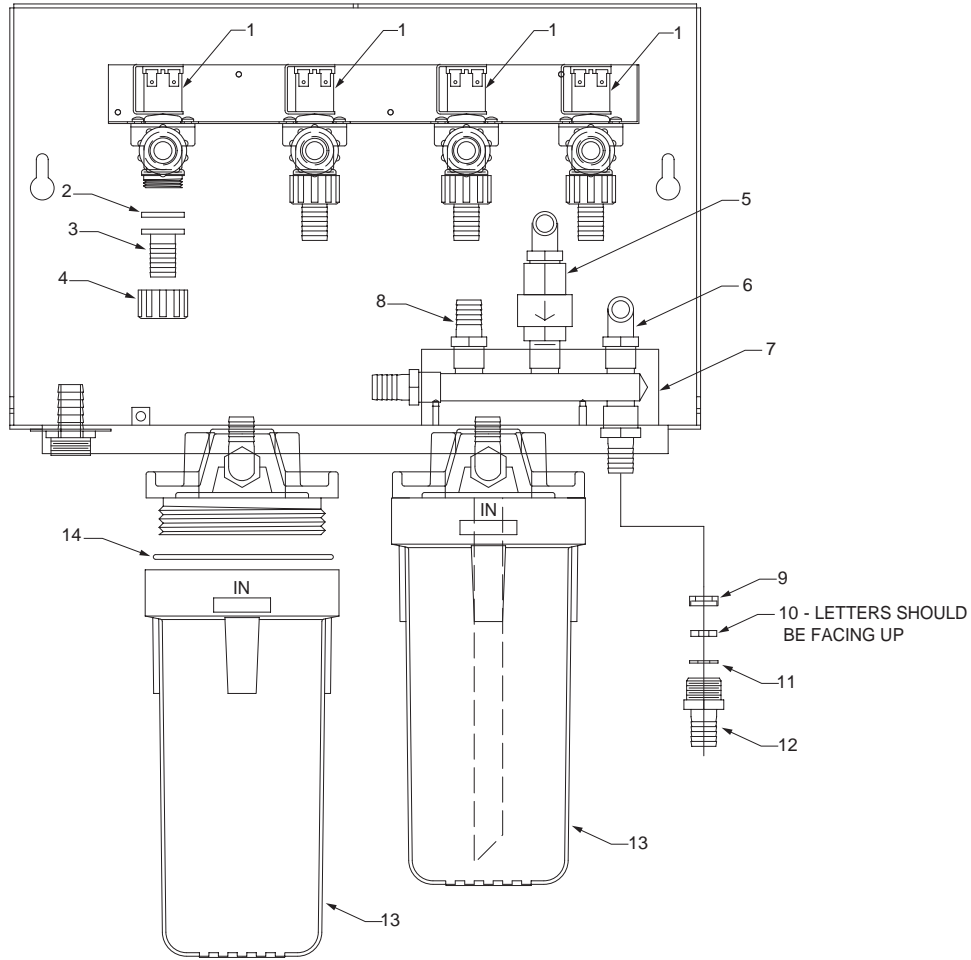
All detergents, acids, sanitizers, refrigerants, and oils can be harmful and toxic to the environment if not properly disposed of. Consult each chemical label and comply with all local environmental regulations and agencies.

### **5.3 Solid Component Disposal**

The milk cooler's basic components consist of steel, copper, rubber, and plastics which may be separated and recycled. The "CFC-Free" foam insulation should be disposed of according to local environmental regulations and agencies.

## SECTION 6.0 - REPLACEMENT PARTS

### 6.1 Replacement Parts Diagram



### 6.2 Replacement Parts List

ITEM	PART NO.	DESCRIPTION
1	8824651	SOLENOID VALVE, SINGLE, 24 VAC, .75" NHT X .75" NHT
2	3975	HOSE WASHER/GASKET
3	8824761	STEM, GARDEN HOSE, .625" HOSE BARB
4	8824760	NUT, GARDEN HOSE
5	8824753	CHECK VALVE, .5" MPT X .5" FPT
6	8824756	ELBOW, 90 DEGREE, .5" NPT X .625" HOSE BARB
7	8824657	MANIFOLD, SOLUTION
8	8824759	ADAPTER, .5" NPT X .625" HOSE BARB
9	8824725	HOUSING, BODY, FLOW CONTROL ORIFICE
10	8824729	ORIFICE, FLOW CONTROL, 7.0 GPM (CODE L)
11	8824726	HOUSING, COVER, FLOW CONTROL ORIFICE
12	8824735	ADAPTER, .75" NPT X .625" HOSE BARB
13	8824649	FILLER, ASSEMBLY
14	8824817	O-RING, EPDM, 3.859" ID X .139" DIA

**MUELLER**®

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