HAYWARD INDUSTRIAL PRODUCTS
PVC AND CPVC BAG FILTER
INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

PLEASE READ THE FOLLOWING INFORMATION PRIOR TO INSTALLING AND USING HAYWARD VALVES, STRAINERS, FILTERS, AND OTHER ASSOCIATED PRODUCTS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY.

1. Hayward guarantees its products against defective material and workmanship only. Hayward assumes no responsibility for damage or injuries resulting from improper installation, misapplication, or abuse of any product.

2. Hayward assumes no responsibility for damage or injury resulting from chemical incompatibility between its products and the process fluids to which they are subjected. Compatibility charts provided in Hayward literature are based on ambient temperatures of 70 °F and are for reference only. The customer should always test to determine application suitability.

3. Consult Hayward literature to determine operating pressure and temperature limitations before installing feet per second. Higher flow rates can result in possible damage due to the water hammer effect. Also note: The maximum operating pressure is dependent upon material selection as well as the operating temperature.

4. Hayward products are designed primarily for use with non-compressible liquids. They should NEVER be used or tested with compressible fluids such as compressed air or nitrogen.

5. Systems should always be depressurized and drained prior to installing or maintaining Hayward products.

6. Temperature effect on piping systems should always be considered when the systems are initially designed. Piping systems must be designed and supported to prevent excess mechanical loading on Hayward equipment due to system misalignment, weight, shock, vibration, and the effects of thermal expansion and contraction.

7. Because PVC and CPVC plastic products become brittle below 40 °F, Hayward recommends caution in their installation and use below this temperature.

8. Published operating torque requirements are based upon testing of new valves using clean water at 70 °F. Valve torque is affected by many factors including fluid chemistry, viscosity, flow rate, and temperature. These should be considered when sizing electric or pneumatic actuators.

9. Due to differential thermal expansion rates between metal and plastic, transmittal of pipe vibration, and pipe loading forces DIRECT INSTALLATION OF METAL PIPE INTO PLASTIC CONNECTIONS IS NOT RECOMMENDED. Wherever installation of plastic valves into metal piping systems is necessary, it is recommended that at least 10 pipe diameter in length of plastic pipe be installed upstream and downstream of the plastic valve to compensate for the factors mentioned above.

INSTALLATION:

INSPECTION
Upon receipt of the bag filter, inspect it for damage that might have occurred during transit. Report any damage to the carrier immediately.

LOCATION AND SUPPORT
The Hayward bag filter should be installed not less than 24” down stream of a Hayward strainer. The bag filter must be bolted to the floor to insure proper piping installation. An integral flange on the base of the bag filter will accept 3/4” studs.

PIPING INSTALLATION

WARNING: METAL PIPING SHOULD INCLUDE A MINIMUM OF 20” OF PLASTIC PIPE UPSTREAM AND DOWNSTREAM OF THE FILTER VESSEL.

From the Hayward strainer, a 2” line is required to the inlet of the bag filter. Connect 2” line to a valve and then to the upper 2” union on (inlet) of the bag filter. A 2” line must be piped from the bag filter 2” union bottom port (outlet) to a determined suction source (system pump suction). A 2” valve such as a Hayward Diaphragm or Butterfly valve is required on this outlet line.

It is recommended that a 2” drain valve be installed on the unused bottom 2” union port. The ¼” NPT vent fitting must be installed on the top of the unit.

THREADED CONNECTION:
Threaded end connections are manufactured to ASTM specifications D2464-88, P437-88 and ANSI B2.1. Wrap threads of pipe with Teflon tape of 3 to 3-1/2 mil thickness. The tape should be wrapped in a clockwise direction starting at the first or second full thread. Overlap each wrap by 1/2 the width of the tape. The wrap should be applied with sufficient tension to allow the threads of a single wrapped area to show through without cutting the tape. The wrap should continue for the full effective length of the thread. Pipe sizes 2” and greater will not benefit with more than a second wrap, due to the greater thread depth. To provide a leak proof joint, the pipe should be threaded into the end connection “hand tight”. Using a strap wrench only. (Never use a stillson type wrench) tighten the joint an additional 1/2 to 1-1/2 turns past hand tight. Tightening beyond this point may induce excessive stress that could cause failure.
SOCKET CONNECTION:
Socket end connections are manufactured to ASTM D2467-94. Solvent cementing of socket end connections to pipe should be performed per ASTM specifications D2855-87. Cut pipe square. Chamfer and deburr pipe. Surfaces must be cleaned and free of dirt, moisture, oil and other foreign material. Remove assembly nuts and end connectors from valve body. Slide assembly nuts, with thread facing valve, onto pipe to which the end connector is to be cemented. Apply primer to inside socket surface of end connector. Never allow primer or cement to contact valve ball or end connector o-ring sealing surfaces, as leaking may result. Use a scrubbing motion. Repeat applications may be necessary to soften the surface of the socket. Next, liberally apply primer to the male end of the pipe to the length of the socket depth. Again apply to the socket, without delay apply cement to the pipe while the surface is still wet with primer. Next apply cement lightly, but uniformly to the inside of the socket. Apply a second coat of cement to the pipe, and assemble the end connector to the pipe, rotating the end connector 1/4 turn in one direction as it is slipped to full depth on to the pipe. The end connector should be held in position for approx. 30 seconds to allow the connection to "set". After assembly wipe off excess cement. Full set time is a minimum of 30 minutes at 60 to 100 F. Full cure time should be based on the chart below.

JOINT CURE SCHEDULE:
The cure schedules are suggested as guides. They are based on laboratory test data, and should not be taken to be the recommendations of all cement manufacturers. Individual manufacturer's recommendations for their particular cement should be followed.

<table>
<thead>
<tr>
<th>Temperature Range</th>
<th>Test Pressures for Pipe Sizes 1/2&quot; to 1-1/4&quot;</th>
<th>Test Pressures for Pipe Sizes 1-1/2&quot; to 3&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>*F ('C)</td>
<td>180 to 370 PSI (1240 to 2550 kPa)</td>
<td>Above 180 to 2172 PSI (1240 to 2172 kPa)</td>
</tr>
<tr>
<td>60 to 100 (15 to 40)</td>
<td>1 hour</td>
<td>2 hours</td>
</tr>
<tr>
<td>40 to 60 (5 to 15)</td>
<td>2 hours</td>
<td>4 hours</td>
</tr>
<tr>
<td>20 to 40 (-7 to 5)</td>
<td>6 hours</td>
<td>12 hours</td>
</tr>
<tr>
<td>10 to 20 (-15 to 7)</td>
<td>8 hours</td>
<td>16 hours</td>
</tr>
</tbody>
</table>

Colder than 10 (-15) Extreme care should be exercised on all joints made where pipe, fittings or cement is below 10° F.

A: It is important to note that at temperatures colder than 20°F on sizes that exceed 3 in., test results indicate that many variables exist in the actual cure rate of the joint. The data expressed in these categories represent only estimated averages. In some cases, cure will be achieved in less time, but isolated test results indicate that even longer periods of cure may be required.
B: These cure schedules are based on laboratory test data obtained on NPT Fit Joints (NET FIT=in a dry fit the pipe bottoms snugly in the fitting socket without meeting interference).

FLANGED CONNECTION:
Flange bolts should be tight enough to slightly compress the gasket and make a good seal, without distorting or putting excessive stress on the flanges. Suitable washers should be used between the bolt head and flange and the nut and flange. Bolts should be tightened in alternating sequence.

RECOMMENDED FLANGE BOLT TORQUE

<table>
<thead>
<tr>
<th>SIZE</th>
<th>BOLT DIAMETER</th>
<th>TORQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5/8</td>
<td>15-25</td>
</tr>
</tbody>
</table>

NOTE: USE WELL LUBRICATED METAL BOLTS AND NUTS. USE SOFT RUBBER GASKETS.

OPERATION:
OPERATING INFORMATION

The Hayward PVC and/or CPVC bag filter is designed as an integral part of the Hayward filtration-bag filter system. When installed down stream of the Hayward strainer, the Hayward bag filter concentrates the solids, and provides convenient, economical removal of the solids from the process with very low liquid losses.

Large solids are separated from the liquid with the Hayward strainer while smaller solids are accumulated by the bag filter. The bag filter concentrates the solids in a disposable bag, while clean liquid is piped back to the process.
SYSTEM STARTUP

Follow the procedure below for changing the bag for initial bag installation.

**WARNING: REMOVE PRESSURE FROM VESSEL BEFORE OPENING OR VENTING.**

THE PIPING SYSTEM SHOULD BE PURGED OF AIR BEFORE FULL PRESSURE IS APPLIED.

1. Close the valve on the outlet of the bag filter.
2. Open the vent located on the top of the bag filter.
3. Slowly and partially open the valve on the inlet of the bag filter.
4. Carefully vent all the air from the bag filter. Close the vent when liquid begins to discharge.
5. Fully open the inlet valve.
6. Fully open the outlet valve.

The system is now in operation. Solids which are collected in the filter bag need to be removed periodically. A pressure differential gauge should be used so that the bag is changed when the differential pressure reaches or exceeds 15 PSIG.

NEVER DISASSEMBLE THE BAG FILTER WHILE THERE IS FLUID IN IT. DRAIN ALL PROCESS FLUID BEFORE REMOVING THE COVER.

TO CHANGE THE BAG:

1. Close the inlet valve.
2. Close the outlet valve.
3. Open the drain on the bag filter.
4. Slowly open vent to fully drain the bag filter.
5. Remove bag filter cover.
6. Remove the bag retainer and then the bag.
7. Install the new bag, the bag retainer and the cover.
8. Repeat steps 3-6 under start-up

SPECIFICATIONS

MAXIMUM WORKING PRESSURE: 150 PSIG @ 70°F
MAXIMUM FLOW: 100 GPM WITHOUT BAG
SHIPPING WEIGHT: FLT1202 63 POUNDS
SOLIDS COLLECTION CAPACITY: 25 POUNDS
INLET/OUTLET/DRAIN VENT
SEALS 2" Union 1/4" NPT
FLUOROCARBON ELASTOMER

[Graph showing temperature and pressure range for PVC and CPVC]

FLT110M REV A
7/17/03 ECR 315T