



# HAYWARD INDUSTRIAL PRODUCTS

## INSTALLATION OPERATION & MAINTENANCE OF Y-STRAINER

**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. Customer should always test to determine application suitability.
3. Consult Hayward literature to determine operating pressure and temperature limitations before installing any Hayward product. Note that the maximum recommended fluid velocity through any Hayward product is eight feet per second. Higher flow rates can result in possible damage due to the water hammer effect. Also note that maximum operating pressure is dependent upon material selection as well as 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.

**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. Apply primer to inside socket surface of the strainer. Never allow primer or cement to contact sealing surfaces or the screen, 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 strainer to the pipe, rotating the strainer 1/4 turn in one direction as it is slipped to full depth on to the pipe. The strainer 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.

Temperature Range During Cure Period(B) °F(°C)	Test Pressures for Pipe Sizes ½” to 1-1/4”		Test Pressures for Pipe Sizes 1-1/2” to 3”		Test Pressures for Pipe Sizes 4” & 5”		Test Pressures for Pipe Sizes 6” to 8”	
	Up to 180 PSI (1240 kPa)	Above 180 to 370 PSI (1240 to 2550 kPa)	Up to 180 PSI (1240 kPa)	Above 180 to 315 PSI (1240 to 2172 kPa)	Up to 180 PSI (1240 kPa)	Above 180 to 315 PSI (1240 to 2172 kPa)	Up to 180 PSI (1240 kPa)	Above 180 to 315 PSI (1240 to 2172 kPa)
60 to 100 (15 to 40)	1 hour	6 hours	2 hours	12 hours	6 hours	18 hours	8 hours	1 day
40 to 60 ( 5 to 15)	2 hours	12 hours	4 hours	1 day	12 hours	36 hours	16 hours	4 days
20 to 40 (-7 to 5)	6 hours	36 hours	12 hours	3 days	36 hours (A)	4 days (A)	3 days (A)	9 days (A)
10 to 20 (-15 to 7)	8 hours	2 days	16 hours	4 days	3 days (A)	8 days (A)	4 days (A)	12 days (A)

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 Net Fit Joints (NET FIT=in a dry fit the pipe bottoms snugly in the fitting socket without meeting interference).

**THREADED CONNECTION:**

Threaded end connections are manufactured to ASTM specifications D2464-88. F437-88 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.

**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**

FLANGE SIZE	BOLT DIA.	TORQUE FT. LBS.	FLANGE SIZE	BOLT DIA.	TORQUE FT. LBS.
1/2	1/2	10-15	2	5/8	15-25
3/4	1/2	10-15	2-1/2	5/8	20-25
1	1/2	10-15	3	5/8	20-25
1-1/4	1/2	10-15	4	5/8	20-25
1-1/2	1/2	10-15	6	3/4	30-40

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

**INSTALLATION:**

It is recommended that these strainers be installed no closer than 10 pipe diameters from a pump. At least 5 pipe diameters should be between these strainers and an elbow.

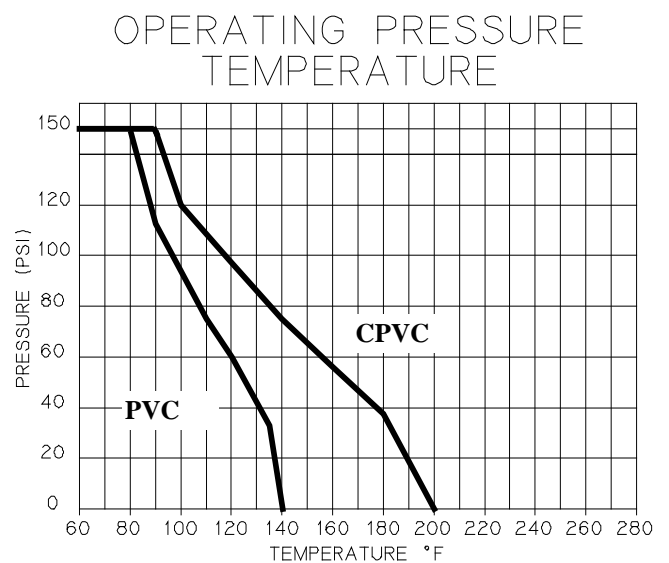
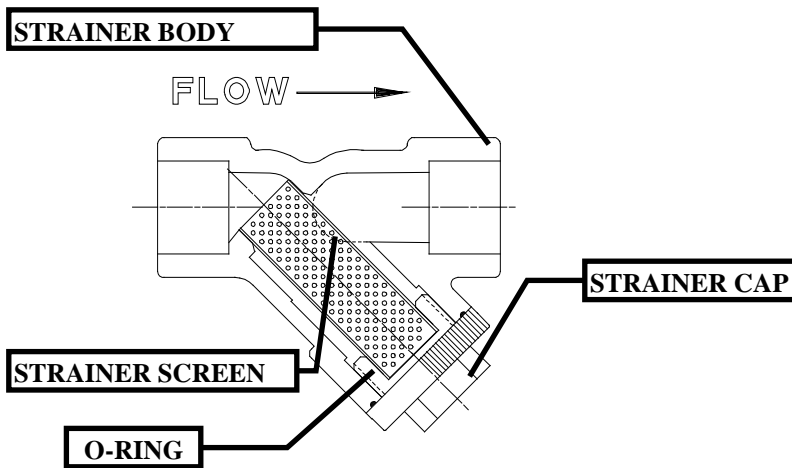
As in all plastic piping the maximum fluid velocity is 8 feet per second. This velocity minimizes the effects of valve closure and pump start up or shut down.

**SCREEN CLEANING:**

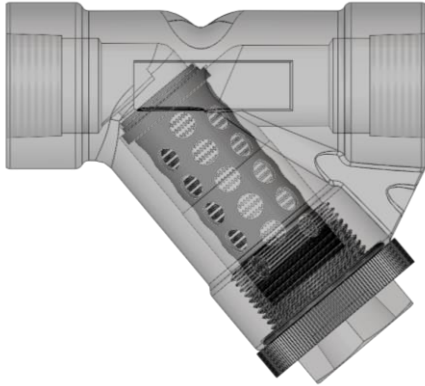
**EXTREME CAUTION MUST BE TAKEN WHEN WORKING ON THIS STRAINER.**

**THE PIPING SYSTEM MUST BE DEPRESSURIZED AND DRAINED. PROPER CARE MUST BE TAKEN. CONSULT M.S.D.S. (MATERIAL SAFETY DATA SHEETS) INFORMATION REGARDING YOUR SPECIFIC APPLICATION.**

When the pressure drop across the strainer is in excess of 5 PSI the screen requires cleaning. To clean the screen remove the screen cap nut from the strainer by turning counter clockwise. The collected debris should be removed with the screen. Clean the screen. **DO NOT POUND OR DEFORM THE SCREEN.** Insert the screen back into the strainer with the flange, if one is on the screen, into the body first. (Placing the screen in the cap may aid assembly and avoid screen damage.) Install the o-ring in the body groove. Use a non-petroleum base lubricant to lubricate the o-ring and thread, and re-assemble the cap to the strainer.



**HAYWARD SERIES YS  
PVDF Y-STRAINER  
INSTALLATION, OPERATION AND  
MAINTENANCE INSTRUCTIONS**



**SAFETY WARNINGS**

**PLEASE READ THE FOLLOWING INFORMATION PRIOR TO INSTALLING AND USING HAYWARD SERIES YS Strainer. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY, OR EVEN DEATH.**

- Hayward Flow Control (Hayward), a division of Hayward Industries, guarantees its products against defective material and workmanship only. Hayward assumes no responsibility for property damage or personal injury resulting from improper installation, misapplication, or abuse of any product.
- Hayward assumes no responsibility for property damage or personal injury resulting from chemical incompatibility between its products and the process fluids to which they are exposed. Determining whether a particular PVC, CPVC, PP or PVDF product is suitable for an application is the responsibility of the user. Chemical compatibility charts provided in Hayward literature are based on ambient temperatures of 70°F and are for reference only.
- Hayward products are designed for use with non-compressible liquids.

**WARNING**

Hayward PVC and CPVC products should NEVER be used or tested with compressible fluids such as compressed air or nitrogen. Use of PVC and CPVC products in compressible fluid applications may result in product damage, property damage, personal injury, or even death.

**WARNING**

The Series YS is intended for use in liquid service only. Do not attempt to use this valve for controlling air or gases. Use of this product in air or gas service may result in product damage, property damage, personal injury, or even death.

- The maximum recommended fluid velocity through any Hayward product is eight feet per second (8 ft/s). Higher fluid velocity can result in damage due to the water hammer effect.
- Piping systems must be designed and supported to prevent excess mechanical loading on Hayward products due to system misalignment, weight, shock, vibration, and the effects of thermal expansion and contraction.
- The effect of temperature on plastic piping systems must be considered when the systems are initially designed. The pressure rating of plastic systems must be reduced with increasing temperature. Maximum operating pressure

is dependent upon material selection as well as operating temperature. Before installing any Hayward product, consult Hayward product literature for pressure vs. temperature curves to determine any operating pressure or temperature limitations.

- PVC and CPVC plastic products become brittle below 40°F. Use caution in their installation and operation below this temperature.

**WARNING**

Hayward PVC and CPVC products should not be used in services with operating temperature below 34°F.

- Due to differential thermal expansion rates between metal and plastic, transmittal of pipe vibration and pipe loading forces, **DIRECT INSTALLATION OF PLASTIC VALVES INTO METAL PIPING SYSTEMS IS NOT RECOMMENDED.** Wherever installation of plastic valves into metal piping systems is necessary, it is recommended that at least 10 pipe diameters in length of plastic pipe be installed upstream and downstream of the plastic valve to compensate for the factors mentioned above.
- Published operating requirements are based on testing of new product using clean water at 70°F. Product performance is affected by many factors including fluid chemistry, viscosity, specific gravity, flow rate, and temperature. These should be considered when sizing Hayward products.
- Systems should always be depressurized and drained prior to installing or maintaining any Hayward product.

**WARNING**

Failure to depressurize and drain system prior to installing or maintaining valve may result in product damage, property damage, personal injury, or even death.

- Always follow your site and or company procedures for any safety training and or site specific precautions or warnings in addition to those in this document.

**INSTALLATION:**

It is recommended that these strainers be installed no closer than 10 pipe diameters from the discharge of a pump. At least 5 pipe diameters should be between these strainers and an elbow.

As in all plastic piping the maximum fluid velocity is 8 ft./s.

Typically the strainer is installed horizontally with the cartridge under the line or vertically with the cartridge pointing down and with a downward flow direction. This facilitates debris being trapped in the strainer cartridge.

Hayward YS Series PVDF Y-Strainers are intended to be installed via socket fusion or NPT threaded ends. If using socket fusing refer to your company and pipe supplier procedures. If using threaded connection, apply PTFE tape to pipe threads, thread pipe into strainer body and hand tighten plus 1/8 to 1/4 turn. If installing via socket fusion, remove cap and cartridge assembly prior to fusing ends to allow heat from fusion to escape body and prevent damage to the cartridge assembly.

**OPERATION:**

When the pressure drop across the strainer is in excess of 5 psi the cartridge screen requires cleaning.

**MAINTENANCE:**

**WARNING**

**EXTREME CAUTION MUST BE TAKEN WHEN WORKING ON THIS STRAINER. THE PIPING SYSTEM MUST BE COMPLETELY DEPRESSURIZED AND DRAINED. PROPER CARE MUST BE TAKEN. CONSULT M.S.D.S. (MATERIAL SAFETY DATA SHEETS) INFORMATION REGARDING YOUR SPECIFIC APPLICATION.**

**Cartridge Removal:**

The collected debris should be removed with the cartridge assembly. There may be fluid trapped in the body of the Y strainer even after draining of the line. To access the cartridge assembly remove the screen cap from the strainer by turning the cap counter clockwise. Do not use channel locks, pliers, vise-grips, or pipe wrench to engage and remove the cap- damage to the cap or strainer may occur. Hayward recommends the use of an adjustable wrench, box wrench or socket to remove the cap.

**Cleaning the Cartridge:**

The cartridge assembly consists of 4 pieces; the cartridge, two cartridge rings, and the mesh (see Figure 2).

To remove cartridge assembly, first remove the screen cap from the strainer by turning counter clockwise. The screen cap will unscrew from the body. There is an O-ring between the cap and the body.

The cartridge assembly may come out of the strainer as a unit with the cap as it is unscrewed, or it may remain in the body of the strainer. Remove the cartridge assembly from the cap or the body. The collected debris should primarily be removed with the cartridge assembly.

The debris in the cartridge assembly can be flushed without disassembly of the cartridge assembly. It is open on both ends. Take care not to lose the cartridge rings. Holding the cartridge assembly from both ends while cleaning will aid in keeping it together.

To clean the cartridge assembly more thoroughly, remove the cartridge rings from both ends of the cartridge. Then slip the mesh screen from inside the cartridge assembly. Clean, inspect, and replace the mesh as necessary. The mesh and O-ring are available in a spare part kit. The cartridge assembly, including the mesh and O-ring, is also available as a spare part kit.

To rebuild, first slip the mesh into the cartridge. The shorter side of the mesh should be aligned with the long axis of the cartridge. The mesh will overlap itself along the long axis of the cartridge. Space it evenly to both ends of the cartridge. Then insert a cartridge ring from either side being careful to overlap the mesh between the nose of the cartridge ring and the inside of the cartridge. There is a minimal press fit between the cartridge ring and the cartridge. Repeat for the other end of the cartridge. The mesh should have no buckles and be retained between the cartridge rings and the cartridge. If the mesh is not between the inside of the cartridge and the cartridge ring, disassemble and attempt the process again.

**Installing the Cartridge Assembly:**

Once cleaning and cartridge assembly is complete, insert the cartridge assembly into the cap. One end of the cartridge assembly has a square end and one end has a step on it. The square end should be inserted into the cap; the end with the step on it should be inserted into the Y-Strainer body.

**Installing the Cap:**

Inspect the O-ring and the seal faces of the O-ring in the body and the cap.

Rebuild the strainer by installing the O-ring and threading the cap, containing the cartridge assembly, back into the body. Insure the cartridge assembly step end leads into the body. Insure the O-ring is properly located between the cap and body.

**Cartridge Assembly:**

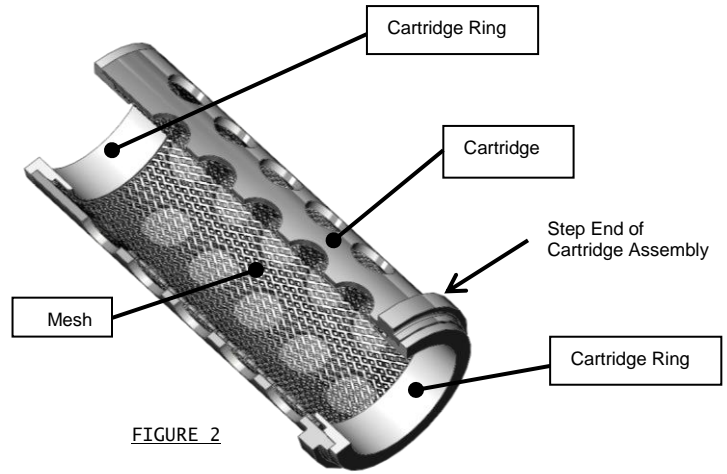


FIGURE 2

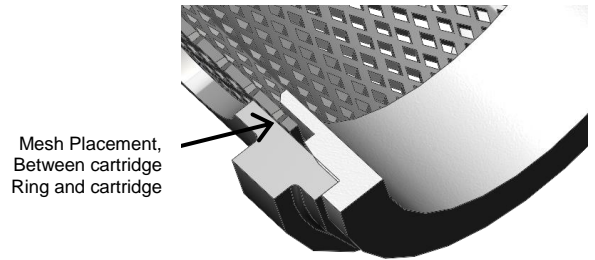


FIGURE 3

**YS Assembly:**

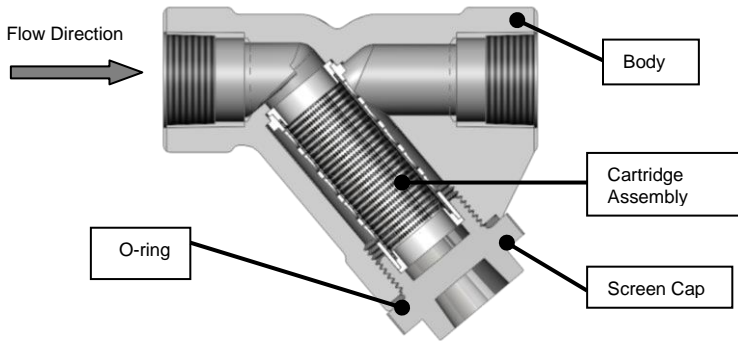


FIGURE 1

**TECHNICAL DATA:**

Sizes	1/2", 3/4", 1"	Materials of Construction	
Connections:	NPT, Socket Fusion	Body, Cap, and Cartridge	PVDF
Maximum Temperature	240°F (115°C) PVDF	O-Ring	FPM
Maximum Operating Pressure at 70°F	150 psi (10 Bar) at 70°F (21.1°C)	Cartridge Rings and Mesh	PTFE

