HAYWARD FLOW CONTROL
LCH SERIES BALL VALVE
INSTALLATION & OPERATION INSTRUCTIONS

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

1. 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.
2. 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, or PP 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.
3. 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 LCH Ball Valve 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.

4. 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.
5. 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.
6. 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.
7. 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.

8. 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.
9. Published operating requirements are based on testing of new valves using clean water at 70°F. Valve performance is affected by many factors including fluid chemistry, viscosity, specific gravity, flow rate, and temperature. These should be considered when sizing Hayward products.
10. 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.

11. 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.

1. INSTALLATION:

1.1. Threaded End Connections

1.1.1. Wrap male threads of connection with PTFE tape. Proper application of PTFE tape will provide a sufficient seal for threaded joints.

WARNING

Do not use "pipe dope," liquid sealant, or threaded sealant on any PVC, CPVC, or GFPP threaded connections. Pipe dope and thread sealant may react with the PVC, CPVC, or GFPP, weakening the material and potentially resulting in failure of the joint, product damage, property damage, personal injury, or even death.

1.1.2. Thread the male and female ends together until "hand tight." Using a strap wrench only (never use a pipe wrench), tighten the connection only to the point required to form a seal; ½ turn past hand tight is typically sufficient to form a seal. (Caution: tightening beyond this point may introduce excessive stress that could cause failure of the joint.)

1.2. Hose Barb End Connections

1.2.1. Insert the hose completely onto the barb without using a tool.

1.2.2. Fix the hose to the hose barb using a hose clamp.

2.0 OPERATION

2.1 The valve is shipped in the open position. To close the valve, turn the handle clockwise.
2.2 To open the valve, turn the handle counterclockwise.

3.0 PRODUCT SPECIFICATIONS:

Max Pressure: 150 psi @ 70°F (see chart 1 for operating pressures at elevated temperatures)
Max Temperature: PVC: 140°F (see chart 1)

Lubricant: DOW 111 Silicone Lubricant
Screw Material: 18-8 Stainless Steel

End Connection	Flow Capacity, Cv, at 90° open
¼" Female NPT x ¼" Female NPT	2.6
¼" Male NPT x ¼" Male NPT	2.6
¼" Hose Barb x ¼" Hose Barb	0.6

Table 1: Flow Coefficients

WARNING

The maximum recommended fluid velocity through any plastic piping system is eight feet per second (8 ft/s). Higher fluid velocity can create excess water hammer effect, resulting in property damage, personal injury, or even death.

Caution

Published operating requirements are based on testing of new valves using clean water at 70°F. Valve performance is affected by many factors including fluid chemistry, viscosity, specific gravity, flow rate, and temperature. These should be considered when sizing Hayward products.

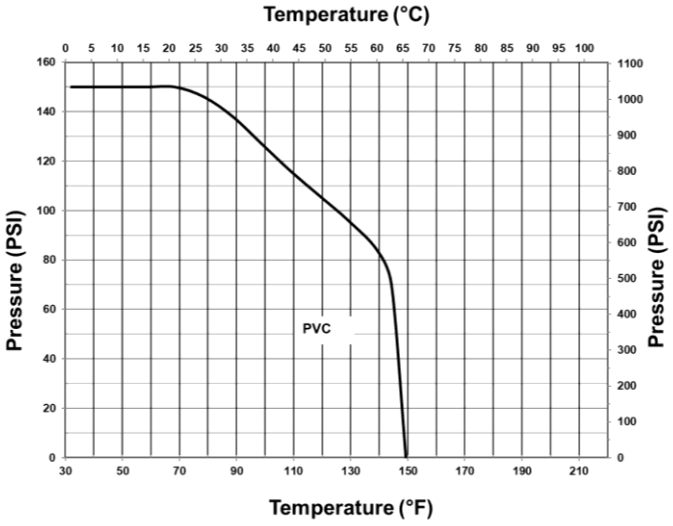

Chart 1: Operating Pressures at Elevated Temperatures

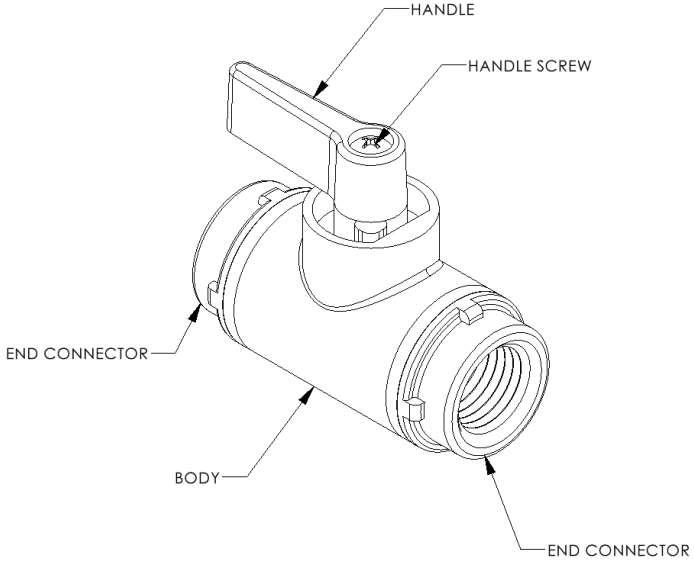

Figure 1: Parts List

4.0 WARRANTY TERMS AND CONDITIONS:

THREE YEAR WARRANTY: All products manufactured by Hayward are warranted against defects in material or workmanship for a period of three years from date of shipment. Our sole obligation under this warranty is to repair or replace, at our option, any product or any part or parts thereof found to be defective. HAYWARD MAKES NO OTHER REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The warranty set forth above is the only warranty applicable to Hayward products and in no event shall Hayward be liable for any delay, work stoppage, cartage, shipping, loss of use of equipment, loss of time, inconvenience, loss of profits of any direct or indirect incidental resulting from or attributable to a breach of warranty. The remedies under this warranty shall be the only remedies available. OUR MAXIMUM LIABILITY SHALL NOT IN ANY EVENT EXCEED THE CONTRACT PRICE FOR THE PRODUCT.