



StarClear™ CARTRIDGE FILTER

Owner's Manual

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MODELS: C250, C500

IMPORTANT SAFETY INSTRUCTIONS

Basic safety precautions should always be followed, including the following: Failure to follow instructions can cause severe injury and/or death.

! This is the safety-alert symbol. When you see this symbol on your equipment or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

! **WARNING** warns about hazards that **could** cause serious personal injury, death or major property damage and if ignored presents a potential hazard.

! **CAUTION** warns about hazards that **will** or **can** cause minor or moderate personal injury and/or property damage and if ignored presents a potential hazard. It can also make consumers aware of actions that are unpredictable and unsafe.

The **NOTICE** label indicates special instructions that are important but not related to hazards.

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⚠ WARNING - Read and follow all instructions in this owner's manual and on the equipment. Failure to follow instructions can cause severe injury and/or death.

⚠ WARNING – Suction Entrapment Hazard.



Suction in suction outlets and/or suction outlet covers which are, damaged, broken, cracked, missing, or unsecured can cause severe injury and/or death due to the following entrapment hazards:



Hair Entrapment- Hair can become entangled in suction outlet cover.



Limb Entrapment- A limb inserted into an opening of a suction outlet sump or suction outlet cover that is damaged, broken, cracked, missing, or not securely attached can result in a mechanical bind or swelling of the limb.



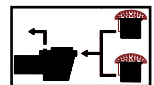
Body Suction Entrapment- A negative pressure applied to a large portion of the body or limbs can result in an entrapment.



Evisceration/ Disembowelment - A negative pressure applied directly to the intestines through an unprotected suction outlet sump or suction outlet cover which is, damaged, broken, cracked, missing, or unsecured can result in evisceration/ disembowelment.

Mechanical Entrapment- There is potential for jewelry, swimsuit, hair decorations, finger, toe or knuckle to be caught in an opening of a suction outlet cover resulting in mechanical entrapment.

⚠ WARNING - To Reduce the risk of Entrapment Hazards:



- o When outlets are small enough to be blocked by a person, a minimum of two functioning suction outlets per pump must be installed. Suction outlets in the same plane (i.e. floor or wall), must be installed a minimum of three feet (3') [1 meter] apart, as measured from near point to near point.
- o Dual suction fittings shall be placed in such locations and distances to avoid “dual blockage” by a user.
- o Dual suction fittings shall not be located on seating areas or on the backrest for such seating areas.
- o The maximum system flow rate shall not exceed 6 ft/sec in the suction line.
- o Never use Pool or Spa if any suction outlet component is damaged, broken, cracked, missing, or not securely attached.
- o Replace damaged, broken, cracked, missing, or not securely attached suction outlet components immediately.
- o In addition two or more suction outlets per pump installed in accordance with latest ASME, APSP Standards and CPSC guidelines, follow all National, State, and Local codes applicable.
- o Installation of a vacuum release or vent system, which relieves entrapping suction, is recommended.

⚠ WARNING – Failure to remove pressure test plugs and/or plugs used in winterization of the pool/spa from the suction outlets can result in an increase potential for suction entrapment as described above.

⚠ WARNING – Failure to keep suction outlet components clear of debris, such as leaves, dirt, hair, paper and other material can result in an increase potential for suction entrapment as described above.

⚠ WARNING – Suction outlet components have a finite life, the cover/grate should be inspected frequently and replaced at least every ten years or if found to be damaged, broken, cracked, missing, or not securely attached.

⚠ CAUTION – Components such as the filtration system, pumps and heater must be positioned so as to prevent their being used as means of access to the pool by young children. To reduce risk of injury, do not permit children to use or climb on this product. Closely supervise children at all times. Components such as the filtration system, pumps, and heaters must be positioned to prevent children from using them as a means of access to the pool.



⚠ WARNING – Hazardous Pressure. Pool and spa water circulation systems operate under hazardous pressure during start up, normal operation, and after pump shut off. Stand clear of circulation system equipment during pump start up. Failure to follow safety and operation instructions could result in violent separation of the pump housing and cover, and/or filter housing and clamp due to pressure in the system, which could cause property damage, severe personal injury, or death. Before servicing pool and spa water circulation system, all system and pump controls must be in off position and filter manual air relief valve must be in open position. Before starting system pump, all system valves must be set in a position to allow system water to return back to the pool. Do not change filter control valve position while system pump is running. Before starting system pump, fully open filter manual air relief valve. Do not close filter manual air relief valve until a steady stream of water (not air or air and water) is discharged.



⚠ WARNING – Separation Hazard. Failure to follow safety and operation instructions could result in violent separation of pump and/or filter components. Strainer cover must be properly secured to pump housing with strainer cover lock ring. Before servicing pool and spa circulation system, filters manual air relief valve must be in open position. Do not operate pool and spa circulation system if a system component is not assembled properly, damaged, or missing. Do not operate pool and spa circulation system unless filter manual air relief valve body is in locked position in filter upper body. **Never operate or test the circulation system at more than 50 PSI. Do not purge the system with compressed air.** Purging the system with compressed air can cause components to explode, with risk of severe injury or death to anyone nearby. Use only a low pressure (below 5 PSI), high volume blower when air purging the pump, filter, or piping.



HAYWARD®



⚠ WARNING – Risk of Electric Shock. All electrical wiring **MUST** be in conformance with applicable local codes, regulations, and the National Electric Code (NEC). Hazardous voltage can shock, burn, and cause death or serious property damage. To reduce the risk of electric shock, do **NOT** use an extension cord to connect unit to electric supply. Provide a properly located electrical receptacle. Before working on any electrical equipment, turn off power supply to the equipment. To reduce the risk of electric shock replace damaged wiring immediately. Locate conduit to prevent abuse from lawn mowers, hedge trimmers and other equipment. Do **NOT** ground to a gas supply line.

⚠ WARNING – Risk of Electric Shock Failure to ground all electrical equipment can cause serious or fatal electrical shock hazard. Electrical ground all electrical equipment before connecting to electrical power supply.

⚠ WARNING – Risk of Electric Shock Failure to bond all electrical equipment to pool structure will increase risk for electrocution and could result in injury or death. To reduce the risk of electric shock, see installation instructions and consult a professional electrician on how to bond all electrical equipment. Also, contact a licensed electrician for information on local electrical codes for bonding requirements.

Notes to electrician: Use a solid copper conductor, size 8 or larger. Run a continuous wire from external bonding lug to reinforcing rod or mesh. Connect a No. 8 AWG (8.4 mm²) [No. 6 AWG (13.3 mm²) for Canada] solid copper bonding wire to the pressure wire connector provided on the electrical equipment and to all metal parts of swimming pool, spa, or hot tub, and metal piping (except gas piping), and conduit within 5 ft. (1.5 m) of inside walls of swimming pool, spa, or hot tub.

IMPORTANT - Reference NEC codes for all wiring standards including, but not limited to, grounding, bonding and other general wiring procedures.

⚠ WARNING – Risk of Electric Shock . The electrical equipment must be connected only to a supply circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the electrical equipment without the test button being pushed, a ground current is flowing, indicating the possibility of an electrical shock. Do not use this electrical equipment. Disconnect the electrical equipment and have the problem corrected by a qualified service representative before using.

⚠ CAUTION – HAYWARD® pumps are intended for use with permanently-installed pools and may be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently-installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily disassembled for storage and reassembled to its original integrity.

⚠ WARNING – Risk of Hyperthermia. To avoid hyperthermia the following “Safety Rules for Hot Tubs” are recommended by the U.S. Consumer Product Safety Commission.

1. Spa or hot tub water temperatures should never exceed 104°F [40°C]. A temperature of 100°F [38°C] is considered safe for a healthy adult. Special caution is suggested for young children. Prolonged immersion in hot water can induce hyperthermia.
2. Drinking of alcoholic beverages before or during spa or hot tub use can cause drowsiness, which could lead to unconsciousness and subsequently result in drowning.
3. Pregnant women beware! Soaking in water above 100°F [38°C] can cause fetal damage during the first three months of pregnancy (resulting in the birth of a brain-damaged or deformed child). Pregnant women should adhere to the 100°F [38°C] maximum rule.
4. Before entering the spa or hot tub, users should check the water temperature with an accurate thermometer; spa or hot tub thermostats may err in regulating water temperatures by as much as 4°F (2.2°C).
5. Persons taking medications, which induce drowsiness, such as tranquilizers, antihistamines or anti-coagulants, should not use spas or hot tubs.
6. If the pool/spa is used for therapy, it should be done with the advice of a physician. Always stir pool/ spa water before entering the pool/spa to mix in any hot surface layer of water that might exceed healthful temperature limits and cause injury. Do not tamper with controls, because scalding can result if safety controls are not in proper working order.
7. Persons with a medical history of heart disease, circulatory problems, diabetes or blood pressure problems should obtain a physicians advice before using spas or hot tubs.
8. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6°F [37°C]. The symptoms of Hyperthermia include: drowsiness, lethargy, dizziness, fainting, and an increase in the internal temperature of the body.

The effects of Hyperthermia include:

1. Unawareness of impending danger.
2. Failure to perceive heat.
3. Failure to recognize the need to leave the spa.
4. Physical inability to exit the spa.
5. Fetal damage in pregnant women.
6. Unconsciousness resulting in danger of drowning.

SAVE THESE INSTRUCTIONS



GENERAL INFORMATION

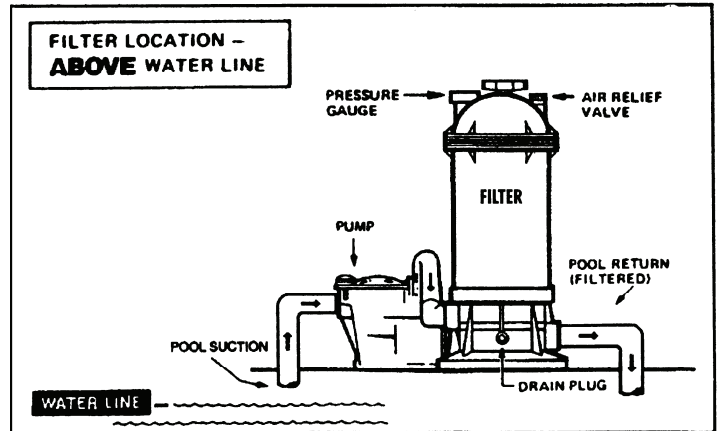
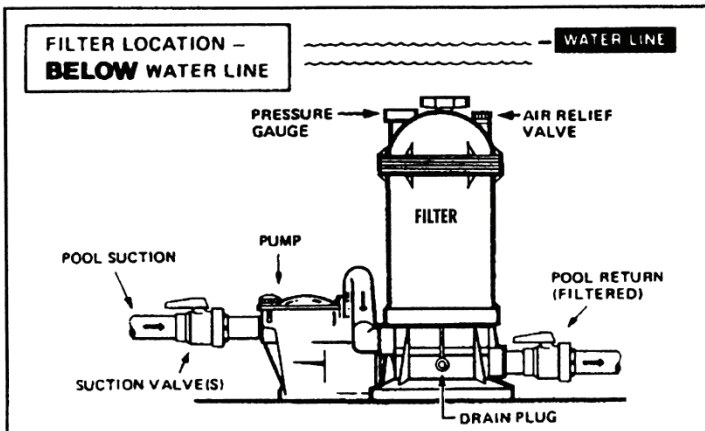
The Hayward StarClear filter is a high performance swimming pool filter with a residential filtration rating of 1,500 gallons (5.6 kl) per hour (Model C250), or 3,000 gallons (11.3 kl) per hour (Model C500). Manufactured from durable, corrosion-proof materials, they are designed for continuous or intermittent operation, for installation above or below the pool water line, for fresh or saltwater swimming pools or spas. StarClear filters utilize a reusable single element, reinforced polyester filter cartridge to provide a high degree of water clarity with absolute minimum care. Their unique design is such that no tools are needed to remove or replace the cartridge in the filter assembly. Simply spin off the locking knob, lift off the filter cover and remove the cartridge. It's that easy.

PUMP SELECTION AND LOCATION

To power your StarClear filter, select a continuous duty pump designed for swimming pool or spa service. It is important to first determine where your pump and filter will be located. If above the water line, a self-priming pump must be used. Self-priming pumps such as Hayward's Super Pump®, Super II™, or TriStar™ have the ability to lift water from a lower level and prime automatically. Select a pump appropriate for your application. Take into consideration, operation of hydrotherapy fittings, automatic cleaners, required turnover rates and losses in the system. A dealer can help you select the proper size pump for your system.

FILTER LOCATION

1. Since plumbing fittings offer a resistance to water flow, position the filter as close to the swimming pool as local codes allow. Keep the number of fittings to a minimum. Select a well-drained area, one that will not flood when it rains.
2. Set the filter on a solid level surface. Allow a minimum top clearance for cartridge removal of 11" (280mm) for the C250 and allow 31" (787mm) for the C500. Be sure filter, pump, drain & pressure gauge are accessible for convenient operation.
3. Position the filter so the tank can drain by gravity.
4. If practical, place pump and filter in the shade to shield it from continuous, direct heat from the sun.



PLUMBING

1. Use 1-1/2" piping or hoses joined with insert fittings and stainless steel clamps. When making permanent connections, be sure to provide unions for easy servicing.
2. Refer to the diagrams on previous page for basic suggested valve installation. Ball valves are recommended where needed. While systems vary, the main consideration is to provide the desired control of water flow from the pool to the pump and filter, and back to the pool. When the filter is located below water level, provide valves to prevent back flow of water to the filter during cleaning and routine servicing.
3. All plumbing on the StarClear filter is 1-1/2" female NPT. When making threaded connections to the filter use plastic adapters. Apply three turns of TFE tape (or use special plastic pipe sealant) to male threads. Screw the fitting into the thread hand tight; then using a wrench, tighten one more full turn. Additional tightening is unnecessary and could result in broken or damaged fittings.
4. Connect the pool suction plumbing between the skimmer, pool outlet, etc. and the pump.
5. Install the pool return plumbing.
6. If the pressure gauge is not installed, apply three wraps of TFE tape to the gauge threads, and *carefully* screw the gauge into the threaded hole in the filter head.
7. A filter drain plug is furnished with each filter and is all that is needed for complete filter draining. A manual air relief valve is furnished to aid in bleeding off unwanted air when starting the filter. The auto air relief provides air removal during operation.
8. All electrical connections should be made in accordance with local codes.
9. Check for joint leaks before operating.
10. Refer to pump instruction booklet for pump information.



STARTING THE FILTER

Be sure filter drain plug is closed. Open manual air relief valve a few turns and open the suction and return valves (when used).

▲ WARNING COMPONENT SEPARATION HAZARD: Failure to could cause severe personal injury and/or property damage. OPEN all suction and discharge valves before starting the system.

Be sure locking knob is secure (hand tighten-only slight pressure is required).

Stand clear of the filter and prime and start the pump, following the manufacturer's instructions. Air trapped in the system will automatically vent to the pool and out air relief valve. Close air relief valve as soon as air is vented.

FILTERING

Filtration starts as soon as flow is steady through the filter. As the filter cartridge removes dirt from the pool water, the accumulated dirt causes a resistance to flow. As a result, the gauge pressure will rise and the flow will decrease. When the pressure rises 7-10 psi (.49-.70 Bar) above the starting pressure, or when flow decreases below desired rate, clean or replace the filter cartridge.

CLEAN / REPLACE CARTRIDGE

REMOVING CARTRIDGE ELEMENT

1. Shut off the pump.
2. If filter is located below water level, close valves or block off suction & discharge lines to prevent backflow of water from the pool.
3. Remove drain plug and allow water to drain from filter. Close drain plug. (To assist draining process; open air vent a few turns.)
4. Unscrew and remove locking knob (counterclockwise direction) and carefully lift off top cover to gain access to filter cartridge.
5. Lift out cartridge and clean. Or, replace with clean, spare cartridge. (See Cleaning Cartridge.)

REINSTALLING CARTRIDGE ELEMENT

1. Clean any collected debris from the bottom of filter body.
2. Carefully replace cartridge element over tie rod and into filter body ensuring that the cartridge sits evenly on the collector hub in bottom of filter body.
3. Place cover on filter body (being sure filter head o-ring is in place and clean). Fit tie rod end through center hole.
4. Tighten locking knob in clockwise direction. (Hand tight only.)
5. Proceed as in **STARTING THE FILTER.**

CLEANING CARTRIDGE

The cartridge filter element can be cleaned by pressure washing inside and out with a garden hose. (The cartridge is easier to clean when dry.) After hosing the cartridge, for best results, allow cartridge to dry and carefully brush pleated surface areas to remove fine particles. **Do not pressure wash, as it can damage the filter element.**

Algae, suntan oil and body oils can form a coating on the cartridge pleats which may not be thoroughly removed by hosing. To remove such materials, soak the cartridge in a solution of filter element cleaner (various brands available at pool dealer). Follow manufacturer's directions for use and allow an hour for soaking. Hose thoroughly before reinstalling in filter.

A spare cartridge filter element is an excellent investment. It provides convenience and ensures that your filter will always be ready to operate at peak efficiency.

WINTERIZING (Filter)

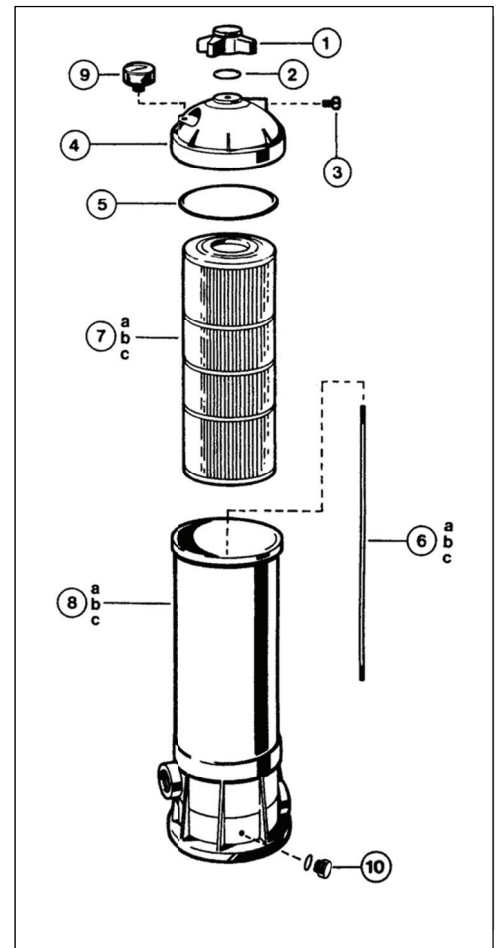
In areas where sub-freezing temperatures can be expected, the filter should be drained and/or removed from its, operating location and stored indoors. Remove and clean cartridge. Reinstall cartridge in filter tank. Tighten locking knob only a few turns when storing.

SERVICE AND REPAIRS

Consult your local authorized Hayward dealer or service center. No returns may be made directly to the factory without the expressed written authorization of Hayward Pool Products.

REPLACEMENT PARTS

Ref No	PART NO.	DESCRIPTION	NO. REQ'D.
1	CX250G	Locking Knob	1
2	CX250Z7	O-Ring	1
3	ECX1322A	Air Relief Valve w/ O-ring	2
4	CX250C	Filter Head (Dome)	1
5	CX250F	Filter Seal Gasket	1
6a	CX250Z2S	Tie Rod C250	1
6b	CX500Z2S	Tie Rod C500	1
6c	CX750Z2S	Tie Rod C750	1
7a	CX250RE	Cartridge Element (C250)	1
	CX250REBVS	Value Element (C250)	
7b	CX500RE	Cartridge Element (C500)	1
	CX500REBVS	Value Element (C500)	
7c	CX750RE	Cartridge Element (C750)	1
	CX750REBVS	Value Element (C750)	
8a	CX250AA1	Filter Body w/Tie Rod (C250)	1
8b	CX500AA1	Filter Body w/Tie Rod (C500)	1
8c	CX750AA1	Filter Body w/Tie Rod (C750)	1
9	ECX27091	Pressure Gauge	1
10	CX250Z14A	1/2" Drain Plug with O-Ring	1



MODEL	EFFECTIVE FILTRATION AREA		DESIGN FLOW RATE RESIDENTIAL		REQUIRED CLEARANCE			
	FT ²	M ²	GPM	LPM	SIDE		ABOVE	
					IN	CM	IN	CM
C250	25	2.3	25	95	18	46	18	46
C500	50	4.7	50	190	18	46	28	71

MAXIMUM WORKING PRESSURE IS 50 PSI (3.45 BAR)

PROBLEM SOLVING

	LOW WATER FLOW	SHORT FILTER CYCLES	POOL WATER WON'T CLEAR UP
REMEDY	<ol style="list-style-type: none"> 1. Check skimmer and pump strainer baskets for debris. 2. Check for restrictions in intake and discharge lines. 3. Check for air leak in intake line (indicated by bubbles returning to pool). 4. Clean Filter Cartridges (see Page 5) 	<ol style="list-style-type: none"> 1. Check for algae in pool and treat as required. 2. Be sure chlorine and pH levels are in proper range (adjust as required). 	<ol style="list-style-type: none"> 1. Check chlorine, pH and total alkalinity levels and adjust as required. 2. Be sure flow rate through filter is sufficient. 3. Operate filter for longer periods.



HAYWARD®

HAYWARD® Pool Products Limited Warranty

To original purchasers of this equipment, Hayward Pool Products, Inc. warrants its products to be free from defects in materials and workmanship for a period of ONE (1) year from the date of purchase, when used in single family residential applications.

The limited warranty excludes damage from freezing, negligence, improper installation, improper use or care or any Acts of God. Parts that fail or become defective during the warranty period shall be repaired or replaced, at our option, within 90 days of the receipt of defective product, barring unforeseen delays, without charge.

Proof of purchase is required for warranty service. In the event proof of purchase is not available, the manufacturing date of the product will be the sole determination of the purchase date.

To obtain warranty service, please contact the place of purchase or the nearest Hayward Authorized Service Center. For assistance on your nearest Hayward Authorized Service Center please visit us at www.hayward.com.

Hayward shall not be responsible for cartage, removal, repair or installation labor or any other such costs incurred in obtaining warranty replacements or repair.

The Hayward Pool products warranty does not apply to components manufactured by others. For such products, the warranty established by the respective manufacturer will apply.

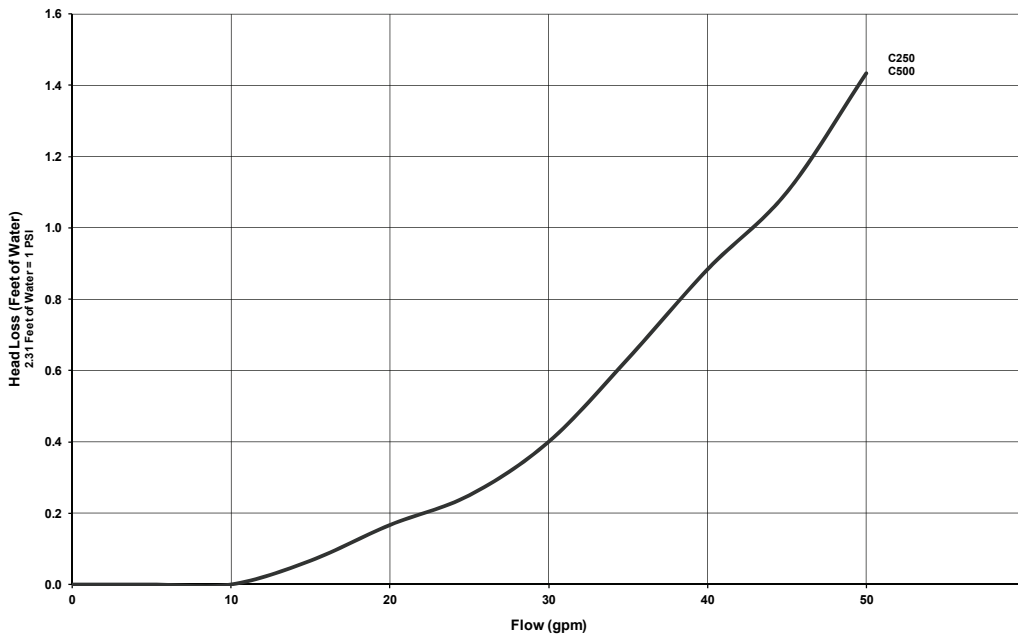
The express limited warranty above constitutes the entire warranty of Hayward Pool Products with respect to its' pool products and is in lieu of all other warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose. In no event shall Hayward Pool products be responsible for any consequential, special or incidental damages of any nature.

Some states do not allow a limitation on how long an implied warranty lasts, or the exclusion of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Hayward Pool Products
620 Division Street
Elizabeth, NJ 07207

***Supersedes all previous publications.**

HEAD LOSS CURVE



SUGGESTED POOL CHEMISTRY LEVELS

pH	7.2 to 7.8
TOTAL ALKALINITY	80 to 120 ppm
CALCIUM HARDNESS	200 to 400 ppm
COMBINED CHLORINE	.2 ppm Maximum
CHLORINE (STABILIZED)	1.0 to 3.0 ppm
CHLORINE STABILIZER (Cyanuric Acid)	60 to 80 ppm

