

TRUE GRIT.



Truly engineered to perform in sensitive Life Support Systems, when you see our LifeStar® emblem, know that we are passionate in supporting your vital aquatic systems.

With hundreds of years of combined in-house experience, our Engineering, Technical Support and Customer Service teams are well versed in what it takes to support delicate aquatic processes.

Here at Hayward Flow Control, we are committed to tackling any problem, standing shoulder to shoulder with our customers. Our products are engineered, manufactured and assembled under the same roof, proudly offering an industry-leading true 3-year warranty.

Our World-class ISO 9001:2015 certified facility embodies the American Engineering approach:

We Build for Potential.

TRUE GRIT. WE HAVE IT.





LifeStar®
AQUATIC PUMPS



WHEN LIFE MATTERS.

A TRUE L.S.S. PUMP. We understand the complexity of life support systems and the reliability they demand. Our LifeStar® Series Aquatic Pumps are a true Life Support System Pump, ideal for sensitive aquatic environments, both fresh and salt water.

Minute amounts of incompatible component materials leaching in delicate aquatic systems can be devastating to life sustainability. Knowing these dangers, the LifeStar® Series employs all wetted hardware made from 316 Stainless Steel and Silicon Carbide Shaft Seals. Models available in single or variable speed as well as multiple horsepower and voltage configurations. The LifeStar® Series Aquatic Pumps stand ready to defend your vital Life Support Systems.

Lifestar® A Series

Single Speed up to 5 HP



KEY FEATURES

- Corrosion Resistant Housing
- Self-Priming
- Suitable for High Volume Pumping
- Perforated HDPE Basket
- Clear High Capacity Basket Strainer Lid for Visual Inspection
- Elevated Base Ensures Ventilation and Protection from Flooding
- ODP and TEFC Motors Available

Lifestar® A Series VS

Variable Speed 2 HP



KEY FEATURES VARIABLE SPEED

- Multi-Position or Detachable Remote Mount Digital Control Interface
- Fully Programmable with up to 8 User Preset Functions
- Corrosion Resistant Housing
- Self-Priming
- Suitable for High Volume Pumping
- Perforated HDPE Basket
- Clear High Capacity Basket Strainer Lid for Visual Inspection
- Elevated Base Ensures Ventilation and Protection from Flooding
- TEFC Motor



EFFICIENT. VERSATILE. COMPATIBLE.

The need to reduce energy consumption and lower the carbon footprint of facilities across the Globe is real. Our LifeStar® Series Aquatic Pump line is the most hydraulically efficient in its class with a wide range of horsepower options, variable speed, VFD compatibility and an industry best 3-Year Warranty.

Lifestar® MV Series

Single Speed up to 7 HP

Lifestar® MV Series VS

Variable Speed 3 HP



KEY FEATURES

- VFD Compatible
- Modular Strainer Basket Design - Can Be Mounted Remotely
- 3" Flanged Connection - Basket to Pump
- Corrosion Resistant Housing
- Self-Priming
- Suitable for High Volume Pumping
- Perforated HDPE Basket
- Clear High Capacity Basket Strainer Lid for Visual Inspection
- Elevated Base Ensures Ventilation and Protection from Flooding
- Industrial Grade TEFC Motor
- 2.5" x 3" End Connections

KEY FEATURES VARIABLE SPEED

- Modular Strainer Basket Design - Can Be Mounted Remotely
- Multi-Position or Detachable Remote Mount Digital Control Interface
- Fully Programmable with up to 8 User Preset Functions
- Corrosion Resistant Housing
- Self-Priming
- Suitable for High Volume Pumping
- Perforated HDPE Basket
- Clear High Capacity Basket Strainer Lid for Visual Inspection
- Elevated Base Ensures Ventilation and Protection from Flooding
- Industrial Grade TEFC Motor



HAYWARD® SUPERPUMP®



SUPERPUMP® VS

We understand the need to reduce energy consumption and lower the carbon footprint of facilities across the Globe. SUPERPUMP® VS variable speed pumps are drop-in upgrades that deliver up to 80% energy cost savings over single-speed models.



THE WORLD'S BEST SELLING **FRESHWATER** PUMP.

An industry icon. Trusted to perform day-in and day-out. The SUPERPUMP® line offers rock-solid reliability, variable speed models affording up to 80% energy cost savings, multiple voltage and horsepower configurations.

SUPERPUMP®

Single or 2-Speed

.5 to 2.5 HP



KEY FEATURES

- ODP Motor
- Corrosion Resistant Housing
- Self-Priming
- Suitable for High Volume Pumping
- Perforated HDPE Basket
- Clear High Capacity Basket Strainer Lid for Visual Inspection
- Elevated Base Ensures Ventilation and Protection from Flooding
- Freshwater applications only

SUPERPUMP® VS

Variable Speed

115V or 230V

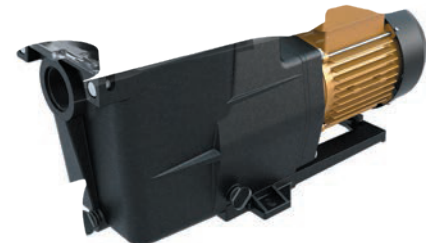


KEY FEATURES **VARIABLE SPEED**

- Multi-Position or Detachable Remote Mount Digital Control Interface
- Fully Programmable with up to 8 User Preset Functions
- TEFC Motor
- Corrosion Resistant Housing
- Self-Priming
- Suitable for High Volume Pumping
- Perforated HDPE Basket
- Clear High Capacity Basket Strainer Lid for Visual Inspection
- Elevated Base Ensures Ventilation and Protection from Flooding
- Freshwater applications only

SUPERPUMP® 700

Single Speed up to 1.5 HP



KEY FEATURES

- TEFC Motor
- Corrosion Resistant Housing
- Chemical Resistant Viton Seal
- Top-mount Wiring for Hassle-free Install
- Self-Priming
- Suitable for High Volume Pumping
- Perforated HDPE Basket
- Clear High Capacity Basket Strainer Lid for Visual Inspection
- Elevated Base Ensures Ventilation and Protection from Flooding
- Freshwater applications only

TBH Series

True Union Ball Valves

1/2" to 2" DN8-DN50 PVC, CPVC



"Patent Pending"

MATERIALS

BODY	PVC
	CPVC
SEALS	FPM
	EPDM
SEATS	PTFE

KEY FEATURES

- System2™ Sealing Technology Provides Longer Cycle Life
- 250 PSI / 16 Bar, Non-shock at 70°F / 23°C Full Pressure Rating
- Consistent Operating Torque with Adjustment-free Design
- Lockout/Tagout Mechanism Secures Directly to Valve Body for Enhanced Safety
- Ergonomic Handle for Improved Grip and Comfort
- ISO Mounting Flange Simplifies Actuation
- Permanent Markings, Eliminates Labels
- Integral Footpad for Skid or Panel Mount
- Double O-Ring Stem Seals

OPTIONS

- Pneumatic or Electric Actuators
- Stem Extensions
- Manual Limit Switch



Certified to
NSF/ANSI 61 & 372

TBH Series

Large Diameter True Union Ball Valves

2 1/2" to 6" DN65-DN150 PVC, CPVC



MATERIALS

BODY	PVC
	CPVC
SEALS	FPM
	EPDM
SEATS	PTFE

KEY FEATURES

- 235 PSI / 16 Bar, Non-shock at 70°F / 23°C Full Pressure Rating
- Consistent Operating Torque with Adjustment-free Design
- Lockout/Tagout Mechanism Secures Directly to Valve Body for Enhanced Safety
- Ergonomic Handle for Improved Grip and Comfort
- ISO Mounting Flange Simplifies Actuation
- Permanent Markings, Eliminates Labels
- Integral Footpad for Skid or Panel Mount
- Double O-Ring Stem Seals

OPTIONS

- Pneumatic or Electric Actuators
- Stem Extensions
- Manual Limit Switch



Certified to
NSF/ANSI 61 & 372

BYV Series

Butterfly Valves

2" to 12" DN50-DN300 PVC, CPVC, GFPP



MATERIALS

BODY	GFPP *Platinum
	PVC
SEALS	CPVC
	VITON®
LINER	EPDM
	NITRILE

*Disc only

KEY FEATURES

- One Piece Injection Molded Body
- Hand Lever with 19 Lockable Stop Positions & 360° Interlocking Splines
- External Disc Position and Flow Indication
- Hydro-dynamic Centric Disc for Increased Flow Performance
- Over-Sized Liner Face Maximizes Surface Contact with Flanges
- 1-Piece 316 Stainless Steel Stem with Threaded Retaining Gland
- Stem Bearing and Seal Retainer for Absolute Stem Position and Seal
- ISO 5211 Top Flange and Stem Drive
- All Sizes Meet ANSI B16.10 / ISO 5752
- Pressure Rated at 150 PSI/10 Bar in All Sizes @ 70°F Non-Shock

OPTIONS

- Over-Molded 316 Stainless Steel Lugs
- Titanium or Hastelloy™ Stem Materials
- Gear Operators
- Complete Range of Pneumatic or Electric Actuators
- Lock Out Caps
- Stem Extensions
- 2" Square Operating Nut
- Chain Operator for Gear Box

BYV Series Large Diameter Butterfly Valves
14" to 24" available in PVC, CPVC, PP and PVDF



Certified to
NSF/ANSI 61 & 372
PVC/EPDM 2" - 12"
CPVC/EPDM 4" - 12"

"Patented & Other Patents Pending" Pat. No.:9,695,947



True Union Ball Check Valves



KEY FEATURES

OPTIONS



WCV Series



KEY FEATURES

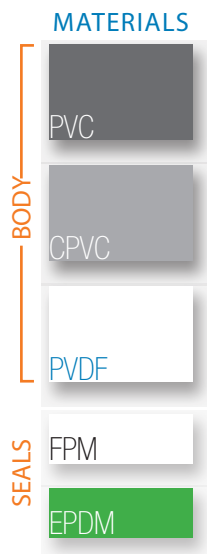
HAYWARD CHECK VALVES



- 316 Stainless Steel or Hastelloy® Disc Spring

SW Series Swing Check

YC Series



KEY FEATURES

OPTIONS

YS Series

Y-Strainers

1/2" to 2" PVC, CPVC, CLEAR PVC
2-1/2" to 4" PVC, CPVC
1/4" to 1" PVDF



BODY	MATERIALS	
	PVC	CPVC
	CLEAR PVC	
SEALS	PVDF	
	FPM	
	EPDM	

KEY FEATURES

- Available in PVC, CPVC, Clear PVC and PVDF
- PVDF 1-pc Construction
- Horizontal or Vertical Installation
- Threaded, Socket or True Union Connection
- FPM O-Ring Seals
- 2:1 Open Area Ratio
- Hex Cap for Easy Access to Screen
- Standard Screen Has 1/32" Perforation**

****Standard PVDF Screen Has 3/32" Perforation**

OPTIONS

- Stainless Steel Perf or Mesh Strainer Screens Available in Various Sizes

TRUE UNION Y-STRAINER

Hayward offers our YS Series Y-Strainer with True Union Connection for ease of installation. Available in PVC, CPVC and Clear PVC, the YS Series True Union Y-Strainers cover your size requirements, including DN15-DN100.



YS Series True Union

SB Series

Simplex & Duplex Basket Strainers

1/2" to 4" DN15-DN100 PVC, CPVC, GFPP, GFPP Platinum and Eastar®
6" to 8" DN150-DN200 PVC, CPVC
1/2" to 2" DN15-DN 50 PVDF



BODY	MATERIALS	
	GFPP	Platinum
	PVC	CPVC
SEALS	Eastar®	
	PVDF	
	FPM	
	EPDM	

KEY FEATURES

- PVC, CPVC, GFPP, PVDF and Eastar®
- Ergonomic Hand Removable Cover
- In-Line or Loop Connections
- External Cover Threads
- Integral Flat Mounting Bases
- PVC or CPVC Baskets Standard
- Ideal for protecting pumps and other critical system equipment

OPTIONS

- Stainless Steel, Monel®, Hastelloy® and Titanium Strainer Baskets
- Pressure Differential Gauge and Switch
- Baskets Available with Perforated or Mesh Liners

SYSTEM PROTECTION

Hayward offers a full line of Pressure Differential Gauge kits to help better protect your vital systems from damage. Pressure Differential Gauges indicate when to clean, change or replace your bag filter or strainer.



Certified to
NSF/ANSI 61 & 372
PVC and CPVC

FLV/CFLV Series

Simplex & Duplex Bag/Cartridge Filters

Single Length 1-1/4" - 2" DN32-DN50 GFPP, PVC, CPVC
Double Length 2-1/2" - 4" DN65 - DN100 GFPP, PVC, CPVC



BODY	MATERIALS	
	GFPP	
	PVC	CPVC
SEALS	FPM	
	EPDM	

KEY FEATURES GFPP

- Platinum GFPP Material
- Heavy Duty One-Piece Injection Molded Construction
- Standard Solid Heavy-Duty Basket
- Hand Removable Ergonomic Cover with Liquid Displacing Dome
- Vent Valve on Cover
- In-Line or Loop Configuration
- Drain Port at Bottom
- Integral Mounting Base

OPTIONS

- Vent Gauge with Gauge Guard
- Pressure Differential Gauge and Switch
- EPDM Seals
- Cartridge Adapters - CFLV only

KEY FEATURES PVC & CPVC

- True Union End Connections - Socket, Threaded or Flanged
- Hand Removable, Ergonomic Cover with Liquid Displacing Dome
- Vent Valve Included On Cover
- Rated up to 100 GPM
- In-Line or Loop Flow Configurations
- Solid 1-Piece Basket
- Drain Port at Bottom
- Integral Mounting Base

OPTIONS

- Pressure Gauge with Gauge Guard
- Pressure Differential Gauge and Switch
- EPDM Seals
- Duplex Configurations

Patented Pat. No.:9,630,127



HCF Series

Commercial Sand Filters



KEY FEATURES

- Ideal for Saltwater and Freshwater Systems
- UV-Resistant External Surface Coating for Easier Cleaning, Longer Life Outdoors and Increased UV Protection
- Durable Heavy Duty Fiberglass Filter Body
- Transparent Manway Design Simplifies Operation and Improves Durability
- Commercial-grade PVC and ABS Injection Molded Internals with 360° Slotted Laterals
- Industrial Valve and Pressure Gauge
- Available in 30", 34" and 36" Sizes
- Flow Rates up to 143GPM
- 2" Inlet/Outlet Connections

OPTIONS

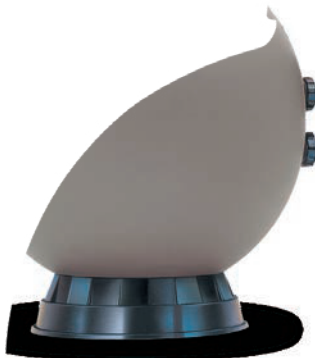
- HFC Commercial 6-Way Multiport Valve (Fresh Water Only)



Certified to
NSF/ANSI 50

LS Series

Aquatic Sand Filters



KEY FEATURES

- Ideal for Sensitive Aquatic Environments both Fresh and Salt Water Systems
- All Wetted Hardware Manufactured from 316 Stainless Steel
- Corrosion Resistant Thermoplastic Housing and Base
- Durable Flanged Inspection Cover
- Integral Top Diffuser
- Available in 31" and 32" Sizes
- Efficient, Multilateral Underdrain Assembly
- Integral Molded Drain Plug
- 2" Inlet/Outlet Connections

IN A TIGHT SPOT?

Hayward offers our ProSeries™ top-mount and side-mount sand filters for those unique installs. Available in 22" to 30" sizes.



ProSeries™ Sand Filters

OPTIONS

- LS Aquatic 6-Way Multi-port Valve (Fresh Water Only)

HCF Series

Commercial Cartridge Filters



KEY FEATURES

- Ideal for Freshwater Systems
- 700ft² of High Performance Polyester Filter Media
- Commercial-grade Glass Reinforced Co-polymer Housing
- Combination Pressure and Filter Cleaning Cycle Indicator Gauge
- Heavy-Duty, Tamper-proof One-Piece Tank Clamp
- Commercial Capacity Dual Quad-Cluster Cartridge Elements
- Full Size Integral Molded Drain Plug
- Flow Rates up to 150GPM
- 2" by 2.5" Inlet/Outlet Connections
- Covered by Hayward Industries, Inc. Pool division Warranty.

OPTIONS

- HFC Commercial 6-Way Multi-port Valve (Fresh Water Only)

SwimClear™

Single Element Cartridge Filter



KEY FEATURES

- For Saltwater and Freshwater Applications
- Ideal for Small Systems and Systems with Limited Backwash Water
- Available in 100ft², 150ft² and 200ft² Sizes
- Corrosion Resistant Thermoplastic Construction
- Easy-off Ring Lock Lid
- Nominal 30 Micron Polyester Cartridge
- Includes Pressure Gauge, Relief Valve and Drain Fitting
- 2" by 2.5" Union Connection Inlet/Outlets
- Up to 75 GPM
- Covered by Hayward Industries, Inc. Pool division Warranty.

SwimClear™

Multi-Element Cartridge Filter



KEY FEATURES

- For Saltwater and Freshwater Applications
- Ideal for Small Systems and Systems with Limited Backwash Water
- 225ft² up to 700ft² Sizes
- Corrosion Resistant Thermoplastic Construction
- Center Based Ring Clamp for Lid Removal
- Nominal 30 Micron Polyester Cartridge
- Includes Pressure Gauge, Relief Valve and Drain Fitting
- 2" by 2.5" Union Connection Inlet/Outlets
- Up to 150 GPM
- Covered by Hayward Industries, Inc. Pool division Warranty.

StarClear™ & StarClear™ Plus

Single-Element Cartridge Filter



KEY FEATURES

- For Freshwater Applications Only
- Ideal for Small Systems and Systems with Limited Backwash Water
- 25ft² up to 175ft² Sizes
- Corrosion Resistant Thermoplastic Construction
- Single Locking Knob for Lid Removal
- Nominal 30 Micron Polyester Cartridge
- Includes Pressure Gauge, Relief Valve and 1/2" Drain Fitting
- 1" or 2" Connection Inlet/Outlets
- Up to 66 GPM
- Covered by Hayward Industries, Inc. Pool division Warranty.



WHEN LIFE MATTERS.

HAYWARD AQUATIC ACTUATION. Hayward offers a comprehensive actuation line of electric, pneumatic and gear automation. Control is critical in vital Life Support Systems. With features like **Corrosion Resistant Housings, Fail-Safe Battery Backups, Manual Overrides, Local Control Stations** an industry leading **3-year warranty, we have you covered.**

EAU1 Series

Commercial Electric Actuators

Ball Valves up to 2" DN50



KEY FEATURES

- ISO5211 Compliant F05 Base
- UL/CSA Listed Motor
- Thermoplastic NEMA 4 / 4X Enclosure
- 2.5 Second, 90° Cycle Time
- Permanently Lubricated Gear Train
- Motor Brake
- 90° Operation
- Unidirectional, Not Reversing
- Terminal Block Connections
- Standard 120 VAC
- End of Travel Dry Contact Limit Switch
- Thermal Overload Protection
- Lightweight, Compact and Inexpensive

OPTIONS

- Voltage Options of 12, 24 or 230 VAC and 12, 24 VDC



ECP Series

Industrial Electric Actuators

Ball & Butterfly Valves up to 6" DN150



KEY FEATURES

- Ideal for Corrosive Atmosphere and Environments
- Corrosion-Resistant GFPP Housing
- LED Status Light
- Anti-Condensation Heater
- Manual Override
- Position Indicator
- 4 SPDT Micro Limit Switches
- Lightweight - Easy for Installation
- Namur-Style Solenoid Mounting
- ISO 5211 Mounting Base
- Stainless Steel Fasteners 303 SS
- 100% Factory Tested
- CE Mark

OPTIONS

- Digital Positioner 0-20mA, 4-20mA or 0-10V
- Single Phase 120/230V & 12/24V
- Battery Backup



HRS Series

Industrial Electric Actuators

266 - 177,000 Torque in/lbs



KEY FEATURES

- Units are equipped with two (2) volt-free Form A Auxiliary switches
- ISO5211 compliant mounting with a double square female drive socket
- Raised visual position indicator*
- NEMA 4X/IP67 compliant
- EMT entry ports with sealed cable glands
- Internal Heater Standard
- Manual Override

OPTIONS

- Power Supply Flexibility
- On / Off Proportional Control
- Local Control Stations
- IP68 Submersion
- Battery Backup
- Supercap Backup
- Interchangeable ISO5211 Flange & Drives



Liquid Level, Flow and Analytical products from Hayward Flow Control measure and control wide ranging Aquatic, Municipal, Commercial and Industrial processes.



HLS Series Level Sensors



KEY FEATURES

- Highly accurate hydrostatic pressure measurement, 0.25% accuracy full scale
- All CPVC housing with Al_2O_3 (Alumina) sensing diaphragm
- 0-15 and 0-33 ft measurement range, 33 and 49 ft of PTFE coated cable std
- 10-35 VDC power required
- 4-20mA analog output signal
- 0-140°F temperature range
- MP10 desiccant tube and MP11 protection volume breather protection available
- Ceramic Sink Weights available for high specific gravity applications

HLST Series Indicating Level Transmitter



KEY FEATURES

- Dual Channel input and display (CH2 is RTD for temperature)
- Configurable, multi-color LCD display
- Simple, Intuitive menu makes set-up quick and easy
- NEMA 4X (IP65) Face, 1/4 DIN chassis dimensions
- 100-240 VAC, 50-60 Hz power range std.
- Programmable dual relays and dual open collectors
- Optional HMCENC NEMA 4X Electrical Enclosure, 1/4 DIN Cutout, 6 wire connectors

HEX800 Series Flowmeter



KEY FEATURES

- Insertion Electromagnetic Flow Sensor, 1" to 12"
- No moving parts, provides high reliability
- PVC Wetted Body, PVDF end cap, Hastelloy C Electrodes, EPDM o-ring, Cast AL Housing
- 0.28 to 20 FPS Velocity Range equals <1 GPM to 7000 gpm based on line diameter
- 150 psi @ 75F max, 32 to 130F
- +/- 1% Accuracy of Full Scale
- Blind 4-20mA output or integral (Built-in) Indicating Transmitter (HFT440)
- Full range of required insertion fittings available

HMC200 SERIES MULTI-PARAMETER CONTROLLER



KEY FEATURES HMC200

- pH, ORP, conductivity & flow parameters available
- Highly visible large backlit LCD display
- Flexible and easy calibration, including multipoint conductivity calibration for acids and bases
- 4-20mA process output with range scaling and PID Control
- Universal mounting hardware for surface and panel mounting

HMC300 SERIES WEB ENABLED MULTI-INPUT CONTROLLER



KEY FEATURES HMC300

- Inputs for four 4-20 mA sensors of any kind in any combination: pH, ORP, conductivity, dissolved O₂, Chlorine, level and more
- Inputs for three frequency or pulse counters, including Hayward HEX flow sensors
- Outputs of four relays programmable for any of the inputs
- Alarm notifications by e-mail, text, and/or display for each input

PROBES

- PRO15-10 pH, 10 ft wire, BNC, 3/4" MNPT process connection
- PRO25-10 ORP, 10 ft wire, BNC, 3/4" MNPT process connection
- ZRDPH100, Industrial pH, 10 foot wire standard, BNC, 3/4" MNPT connections on both ends
- ZRDORP100, Industrial ORP, 10 ft wire standard, BNC, 3/4" MNPT connections on both ends





HAYWARD® GOT HEAT?

Hayward Industries offers both gas and electric heat pump options up to 500,000 BTU's. Please consult Hayward Flow Control Aquatics team for sizing, applications and Aquatic Life Support Systems for more information.

Universal H-Series

High Performance Gas Heater

Propane or Natural Gas



KEY FEATURES

- Up to 500,000 BTU's
- For Freshwater Use Only
- Standard Cupro Nickel Heat Exchanger
- Exclusive "Totally Managed" Cupro Nickel Heat Exchanger Water Flow
- Patented Header By-pass Design
- Uniform Water Velocity Through All Piping for Faster Heating
- Up to 18% Savings by Reducing Pump Run-Time
- 2" by 2.5" Union Connection Inlet/Outlets
- Low NOx Emissions Meets Clean Air Quality Standards
- Covered by Hayward Industries, Inc. Pool division Warranty.

OPTIONS

- Propane or Natural Gas



Universal H-Series ASME

High Performance Commercial Gas Heater

Propane or Natural Gas



KEY FEATURES

- Up to 500,000 BTU's
- For Freshwater Use Only
- Patented Cupro Nickel Fin Plate™ Heat Exchanger
- Electronic Lock-out Prevents Unauthorized Access to Control Panel
- Patented Header By-pass Design
- ASME Pressure Relief Valve Standard
- Dual Voltage Conversion with Fuse-protected Circuit Boards
- 2" by 2.5" Union Connection Inlet/Outlets
- Low NOx Emissions Meets Clean Air Quality Standards
- Covered by Hayward Industries, Inc. Pool division Warranty.

OPTIONS

- Propane or Natural Gas

HeatPro Series

High Performance Heat Pump

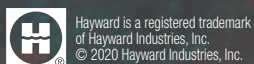


KEY FEATURES

- Up to 140,000 BTU's (heat only)
- For Freshwater Use Only
- Exclusive 'Ultra Gold' Evaporator Coil Corrosion Resistant
- Extremely Quiet Operation
- AHRI Certified Performance
- 2" by 2.5" Union Connection Inlet/Outlets
- 240V Single Phase
- Lightweight for Ease of Installation
- Covered by Hayward Industries, Inc. Pool division Warranty.

Hayward Flow Control is passionate about solving our customer's problems. Our products serve vital roles in numerous unforgiving processes that impact all walks of life. With an industrial mindset and a passion for excellence, Hayward Flow Control continues to drive forward with purpose, forward thinking and American ingenuity. We mean it when we say:

TRUE GRIT. WE HAVE IT.



AQG1120