



THS Series®

High Performance Horizontal Sand Filters



For commercial swimming pools and other water applications and filters up to 27 sq. ft. of filtration area. Various sizes and configurations to fit almost any body of water.

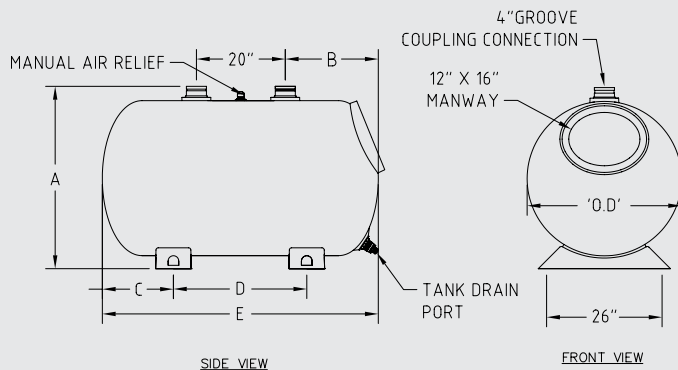
Pentair Water Commercial Pool and Aquatics™ has a state-of-the-art horizontal sand filter unlike any other on the market. The THS Series® filter is an NSF-approved 50 psi rated tank with flow rates up to 535 gpm in a single tank. The filter shell is manufactured from a unique and long-lasting composite laminate that makes winding unnecessary. Paracote®, an exclusive special coating, gives the THS series a smooth and attractive finish. An exclusive interior coating protects wet surfaces.

Standard Features

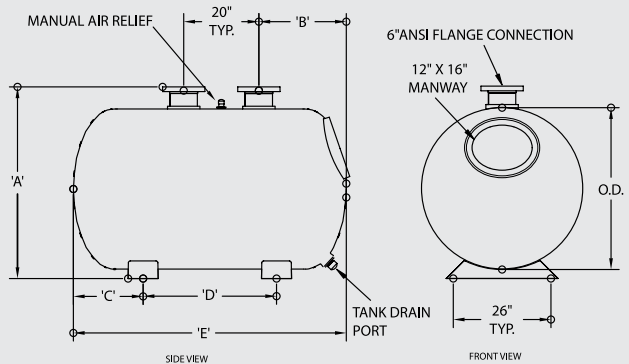
- Manway in front for easy access and smaller footprint.
- 34" diameter tanks will fit through standard doorway.
- Optional manual, semi-automatic, or fully automatic backwash systems.
- Accessible drain.
- Influent manifold distribution to prevent clogging.
- Single-bolt saddles for easy leveling.
- NSF listed.

THS Series[®]

High Performance Horizontal Sand Filters



THS 3461 Only



THS 3484, THS 4272, THS4284, THS 4296

MATERIALS AND DESIGN

Tanks

- Construction**
 Multi-layer engineered fiberglass crafted of chopped glass and directional roving in an isophthalic polyester matrix.
- Operating Pressure**
 Capable of withstanding 50 PSI internal pressure.

Tank Base

- Support Bases**
 Tanks feature ABS saddle style support bases for filter body, capable of rotation for leveling purposes.

Internals

- Headers**
 One influent header is fitted with sufficient distributors to properly distribute incoming flow evenly across the sand bed surface. An additional effluent header is supplied with sufficient laterals equally distributed not less than 12 inches below the filtering sand bed.

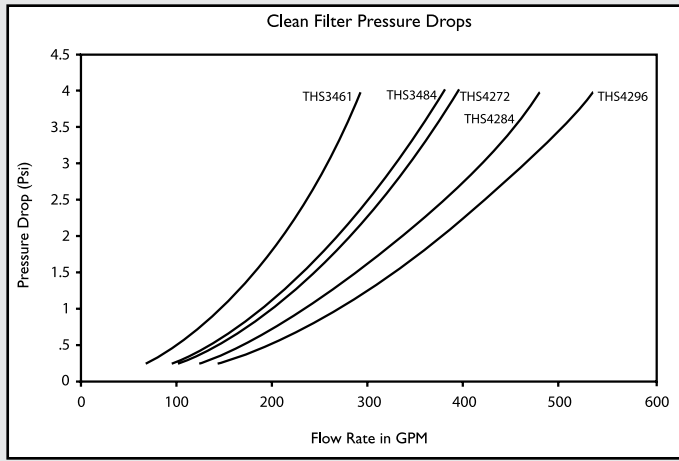
Laterals are 2 3/8" x 10" with 2" NPT connections and constructed of ABS plastic with molded 'V'-groove slots.

Operation / Performance

- Flow Rate**
 NSF Listed for 5 to 20 GPM per square foot of filter area.
- Maximum Limits**
 Working pressure 50 PSI max. Continuous water temperature 125° F.
- Sand Media**
 #20 white quartz silica sand. Effective size 0.45-0.55 mm.
- Safety provisions**
 Each tank features an automatic and manual air release system fabricated of non-corrosive materials.

TANK DIMENSIONS/MEDIA REQUIREMENTS

Model	Filter Area (ft ²)	Maximum Flow Rates			Sand Media (cu. ft.)
		Flow Rate @ 10 GPM/ft ² (GPM)	Flow Rate @ 15 GPM/ft ² (GPM)	Flow Rate @ 20 GPM/ft ² (GPM)	
THS3461	13.5	135	203	270	11.1 (1,110 lbs.)
THS3484	19.0	190	285	380	14.4 (1,440 lbs.)
THS4272	19.7	197	296	394	22.1 (2,210 lbs.)
THS4284	23.2	232	348	464	27.1 (2,710 lbs.)
THS4296	26.7	267	401	534	31.3 (3,130 lbs.)



Filter Performance



FILTER ORDERING INFORMATION

Product	Model	Description
143461	THS3461	THS 34 in. x 61 in.
143484	THS3484	THS 34 in. x 84 in.
144272	THS4272	THS 42 in. x 72 in.
144284	THS4284	THS 42 in. x 84 in.
144296	THS4296	THS 42 in. x 96 in.

FILTER ACCESSORIES INFORMATION

- 155700 THS Single Tank Manifold Kit w/Butterfly Valves
- 155720 THS Dual Tank Manifold Kit w/Butterfly Valves
- 155701 THS Single Tank 6 in. FP Kit w/Diaphragm Valves
- 155721 THS Dual 34 in. dia. 6 in. FP Kit w/Diaphragm Valves
- 155730 THS Dual 42 in. dia. FP Kit w/Diaphragm Valves
- 155800 WA-KIT Wedge Anchor Kit
- 155850 BVA-KIT in. Ball Valve Adapter Kit for manual air relief
- 156150 Flowmaster Saddle Kit
- 156100 Temperature Probe Kit
- 155702 THS3461 Single Tank Manifold Kit w/Butterfly Valves
- 155703 THS3461 Single Tank Manifold Kit w/Diaphragm Valves

- 155722 THS3461 Dual Tank Manifold w/Butterfly Valves
- 155723 THS3461 Dual Tank Manifold w/Diaphragm Valves
- 140325 Adder Kit for Third THS Filter

CONTROLLERS - Must be used with diaphragm valve kits

- 156850 Single THS Auto-backwash controller
- 156800 Dual THS Auto-backwash controller
- 156400 Single THS Semi-Automatic controller 6 in. FP
- 156450 Dual THS Semi-Automatic controller 6 in. FP

Media Requirements							Tank Dimensions					
Gravel Media (cu. ft.)	Total Media (cu. ft.)	Freeboard Height (in.)	Sand Bed Depth (in.)	Gravel Depth (in.)	Operating Weight (lbs.)	Shipping Weight (lbs.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	O.D. (in.)
5.5 (550 lbs.)	16.6 (1,660 lbs.)	7	11	8	3,500	530	41	21	16	30	61 ⁷ / ₈	35
9.1 (910 lbs.)	23.5 (2,350 lbs.)	7	11	8	4,600	630	45	21	24 ⁵ / ₈	35 ¹ / ₄	84 ⁷ / ₈	35
7.0 (700 lbs.)	29.1 (2,910 lbs.)	8 ¹ / ₂	16	7	5,700	700	52 ¹ / ₄	23 ¹ / ₄	18 ⁷ / ₈	35 ¹ / ₄	72 ⁷ / ₈	43
7.5 (750 lbs.)	34.6 (3,460 lbs.)	8 ¹ / ₂	16	7	6,700	780	52 ¹ / ₄	23 ¹ / ₄	24 ⁷ / ₈	35 ¹ / ₄	84 ⁷ / ₈	43
8.6 (860 lbs.)	39.9 (3,990 lbs.)	8 ¹ / ₂	16	7	7,700	870	52 ¹ / ₄	23 ¹ / ₄	30 ⁷ / ₈	35 ¹ / ₄	96 ⁷ / ₈	43

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ENGINEERING SPECIFICATIONS

- The filter system shall be a model _____ as manufactured by Pentair Water Pool and Spa®, and shall be approved by the National Sanitation Foundation (NSF).
- The system shall contain ___ high rate type filter tanks, with each tank containing ___ square feet of filter area totaling ___ square feet of effective filtration area. The system shall have the capacity of filtering ___ gpm when filtered at ___ gpm per square foot. Each tank shall be of the horizontal type, ___ inch inside diameter and ___ inches long.
- The vessel(s) shall be constructed of multi-layer fiberglass. Layers shall consist of a combination of chopped glass and woven roving in an isophthalic-polyester matrix. The vessel shall be assembled from one side shell and two domed ends which shall be joined with an adhesive and reinforced with FRP layup. The vessel(s) shall be capable of withstanding 50 psi internal pressure. Alternate construction methods shall not be acceptable.
- Vessels shall be provided with ABS saddle style support bases with a means of rotating the saddle for leveling purposes. The use of adhesive to hold the saddle to the vessel is not acceptable.
- The wetted surface shall be a modified polyester gel coat (GC). The gel coat shall be a modified polyester gel coat equivalent to a Cook gel coat 943-AN-023 with a thickness of no less than 10 mils.
- The external surface shall be smooth in appearance and be free of cracks or other defects. The exterior surface shall be supplied with an all weather coating. Coating shall be urethane based with UV inhibitors. The surface coating shall be almond colored.
- Each tank shall have one influent header fitted with sufficient distributors to properly distribute incoming flow evenly across the sand bed surface and one effluent header with sufficient laterals equally distributed not less than 12 inches below the filtering sand bed with a total effective slot area such that the average velocity through the slots will not exceed 6 feet per second at the design flow rate. Both headers shall be fabricated of schedule 80 PVC and all distributors and laterals shall be threaded and replaceable. The laterals shall be 2 3/8 inch diameter by 10 inches long with 2" NPT connections and constructed of ABS plastic with molded "V"-groove slots. Laterals with machined or cut slots shall not be accepted. Laterals shall be threaded at right angles into the header pipe.
- Exterior influent and effluent pipe connections shall be 6" VanStone-style flanges.
- Each tank shall have a 12 inch by 16 inch access manhole with yokes, molded cover, o-ring, and T316 stainless steel hardware.
- The system shall be designed for installation against a back or side wall with all servicing accessible without moving tank(s). When the system is off, the tank(s) must remain full of water and not allow water to gravity drain back to the source in order to prevent disturbance of the sand bed. Each tank shall have an automatic and manual air release system and shall be of non-corrosive materials. A sufficient quantity of #20 U.S. grade clean crystal silica sand to cover filter elements with a minimum 12 inch sand bed shall be furnished and installed into each tank and shall be free of limestone or clay. The following is an acceptable gradation for this media:

#20 SILICA SAND

Effective size: 0.45 mm (0.018 in.) to 0.55mm (0.022 in.)

Uniformity coefficient: less than 1.5

Grain Sphericity: GRTR 0.7

- The filter vessel shall carry a ten (10) year limited warranty covering defects in material and workmanship, the first three years of which shall not be pro-rated.

For Single Tank System Diaphragm Valve Face Piping Kits

- The system, including external piping, shall be fully solvent-welded. System shall be supplied with media dump port and anchor setting template.
- The backwash procedure must be accomplished by backwashing using water from the pool in reverse flow through the filter to the waste line.
- The influent, effluent, and waste manifolds shall be constructed of schedule 80 PVC piping and fittings. The system shall include (2) three-way hydraulically operated diaphragm valves to direct the flow during the backwash cycle.

For Two Tank System Diaphragm Valve Face Piping Kits

- The system, including external piping, shall be fully solvent-welded. System shall be supplied with media dump ports and anchor setting templates.
- Each tank in system shall be capable of being backwashed individually using filtered water from the remaining tanks. The common method of backwashing by using raw source water in a reverse flow through the filter or filters will not be acceptable.
- The influent, effluent, and waste manifolds shall be constructed of schedule 80 PVC piping and fittings. The system shall include (1) three-way hydraulically operated diaphragm valve per tank to direct the flow during the backwash cycle. And one two-way hydraulically operated diaphragm valve as a priority valve.

Semi-Automatic Controls for Diaphragm Valve Face Piping Kits

- Valve actuation to initiate the backwash cycle shall be a single-knob control using a multi-port control valve to distribute water to hydraulically operated diaphragm valves. Multi-port control valve, and influent, effluent, and multi-port pressure gages shall be mounted on a common panel.

Automatic Controls for Diaphragm Valve Face Piping Kits

- An automatic controller having an Underwriters Laboratory (UL) listing shall be included to control the operation of the filters. The unit shall consist of a computerized and reprogrammable microprocessor which can provide all automatic functions necessary to initiate backwash, triggered by any one of the following four modes:
 - 1) Differential Pressure only
 - 2) Time only
 - 3) Differential Pressure or Time
 - 4) Differential Pressure and Time together
- The controller shall operate filtration systems made up of 1 to 2 filter vessels and shall have an internal clock with rechargeable battery backup and liquid crystal display. The controller shall be capable of reprogramming for: number of filters, time of each backwash, pressure differential backwash initiation point, time of day, day of week, and mode which initiates backwash. The input power shall be 24-volt AC at 2 AMP minimum (50 watts) provided by an external step down isolation class II transformer. Controllers shall not be powered with more than 24 volts.

Certifications

The THS shall be tested and certified by a nationally recognized testing laboratory to conform to NSF (National Sanitation Foundation) Standard 50.



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