



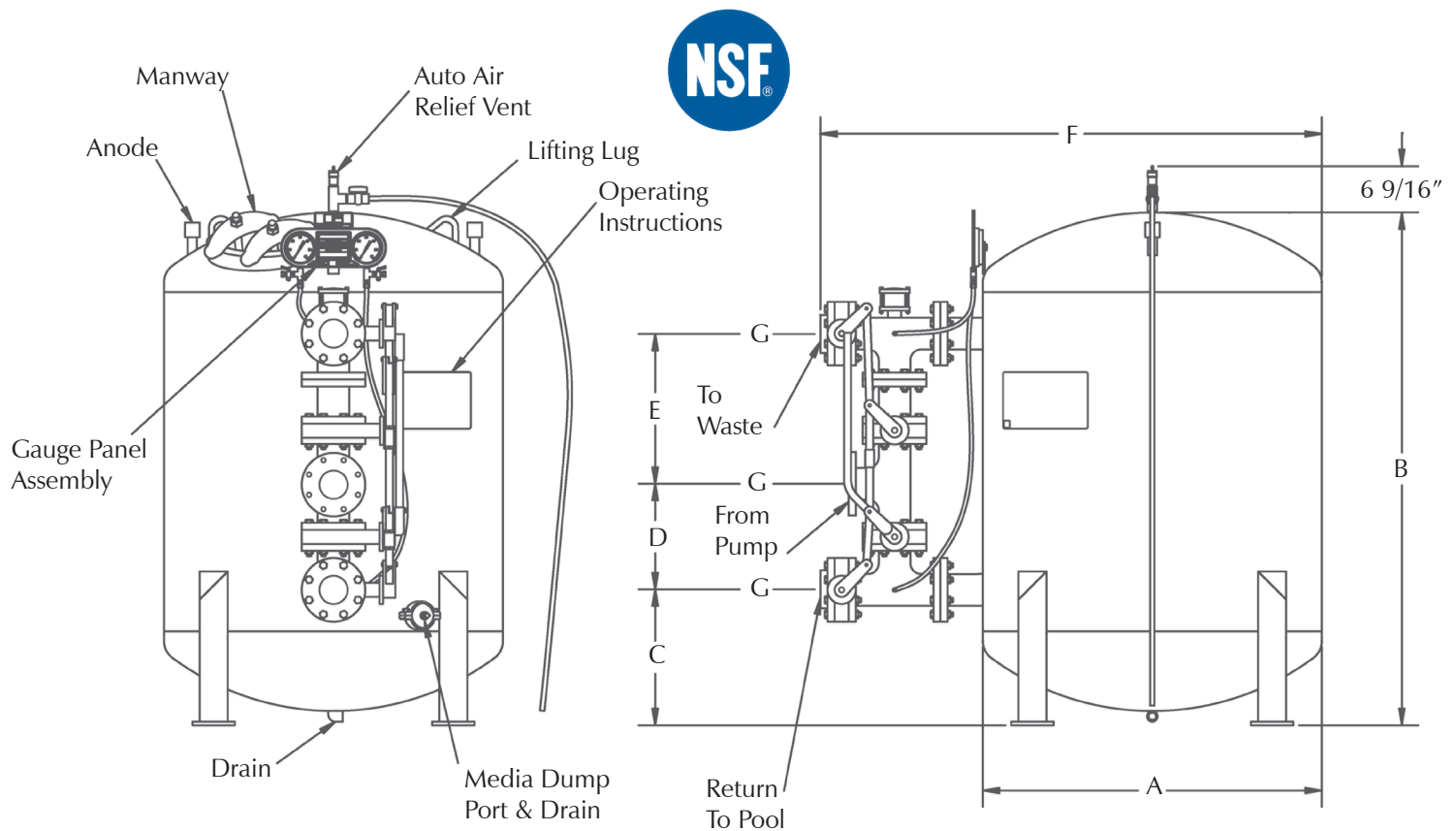
**Hi-Rate Permanent Media
Commercial Swimming Pool Filters**

Specifications and Technical Data



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HRL Series Hi-Rate Filters



Model Number	Dimensions							Head and Shell Thickness	Height of Side Shell
	A	B (max.)	C	D	E	F	G (IPS)		
HRL 48	48"	72 1/2"	19 1/8"	15"	21 1/4"	71"	4"	3/16"	48"
HRL 54	54"	75"	20 7/16"	15"	21 1/4"	77"	4"	3/16"	48"
HRL 60	60"	77 1/4"	21 1/2"	15"	21 1/4"	83"	4"	3/16"	48"
HRL 66-4	66"	79 3/4"	22 3/4"	15"	21 1/4"	89"	4"	3/16"	48"
HRL 66-6	66"	79 3/4"	22 3/4"	18 1/8"	18 1/8"	92 1/4"	6"	3/16"	48"
HRL 72	72"	81 3/4"	23 3/4"	18 1/8"	18 1/8"	98 1/4"	6"	3/16"	48"
HRL 78	78"	84 1/4"	25"	18 1/8"	18 1/8"	104 1/4"	6"	1/4"	48"
HRL 84	84"	87"	26 3/8"	18 1/8"	18 1/8"	110 1/4"	6"	1/4"	48"
HRL 90	90"	89 1/2"	27 5/8"	18 1/8"	18 1/8"	116 1/4"	6"	1/4"	48"
HRL 96-6	96"	91 3/4"	28 3/4"	18 1/8"	18 1/8"	122 1/4"	6"	1/4"	48"
HRL 96-8	96"	97 3/4"	29 3/8"	20 1/2"	20 1/2"	125 1/2"	8"	1/4"	54"
HRL 102-6	102"	94"	29 13/16"	18 1/8"	18 1/8"	128 1/4"	6"	5/16"	48"
HRL 102-8	102"	100"	30 1/2"	20 1/2"	20 1/2"	131 7/16"	8"	5/16"	54"
HRL 108	108"	102"	31 7/16"	20 1/2"	20 1/2"	137 1/2"	8"	5/16"	54"
HRL 120	120"	106 3/4"	33 7/8"	20 1/2"	20 1/2"	149 9/16"	8"	5/16"	54"

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Flow Ranges

Single vertical filters will service pools with total volumes ranging from 90,720 to 753,600 gallons. Flow ranges can be accommodated from 252 gallons per minute to 1,570 gallons per minute in standard vertical filters.

Tank assemblies are complete with an overhead distributor, lower collection tubes, gauge panel with two (2) 0 - 60 lb. gauges, manual and automatic air relief vents, face piping with butterfly valves and single lever control linkage. Systems listed do not include filter media or pump.

Model Number	Tank Diameter	Sq. Ft. of Filter Area	Rate and Capacity				Cubic Feet 1/8"-3/8" Gravel Req.	Cubic Feet #20 Sand Required	Approx. Bed Depth Required	Approx. Shipping Weight (lbs)	Approx. Operating Weight (lbs)
			15 GPM Rate	20 GPM Rate	Gal. per 6 Hours	Gal. per 8 Hours					
HRL 48	48"	12.6	—	252	90,720	120,960	20	25	24"	1,524	8,010
HRL 54	54"	15.9	238.5	—	85,860	114,480	26	32	24"	1,644	9,657
			—	318	114,480	152,640					
HRL 60	60"	19.6	294	—	105,840	141,120	32	39	24"	1,766	12,464
			—	392	141,120	188,160					
HRL 66-4	66"	23.7	355.5	—	127,980	170,640	41	47	24"	1,899	14,739
HRL 66-6	66"	23.7	—	474	170,640	227,520	41	47	24"	2,246	15,125
HRL 72	72"	28.3	424.5	—	152,820	203,760	50	57	24"	2,388	18,142
			—	566	203,760	271,680					
HRL 78	78"	33.2	498	—	179,280	239,040	61	67	24"	2,978	21,700
			—	664	239,040	318,720					
HRL 84	84"	38.5	577.5	—	207,090	277,200	73	77	24"	3,186	25,663
			—	770	277,200	369,600					
HRL 90	90"	44.2	663	—	238,680	318,240	87	89	24"	3,402	31,776
			—	884	318,240	424,320					
HRL 96-6	96"	50.3	754.5	—	271,620	362,160	102	101	24"	3,657	36,686
HRL 96-8	96"	50.3	—	1,006	362,160	482,880	104	113	27"	4,407	38,681
HRL 102-6	102"	56.7	850.5	—	306,180	408,240	118	114	24"	4,548	42,430
HRL 102-8	102"	56.7	—	1,134	408,240	544,320	121	128	27"	5,405	44,795
HRL 108	108"	63.6	954	—	343,440	457,920	140	143	27"	5,665	53,305
			—	1,272	457,920	610,560					
HRL 120	120"	78.5	1,177.5	—	423,900	565,220	183	177	27"	6,314	64,845
			—	1,570	565,200	753,600					

** Sand and gravel requirements are approximate. Please follow the operating manual for media installation instructions.

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High-Rate Filter Specifications



Part I - General

Prologue:

.01 It is the intent of these specifications to describe a swimming pool High-Rate Sand Filter constructed of A-36 carbon steel.

.02 This specification includes but is not limited to the following components:

- Filter Tank(s)
- Interior Lining
- Interior Distribution System(s)
- Face Piping with Valves
- Single Lever Control Linkage
- Filter Media

.03 The filter system described in these specifications reflects the model HRL filters, fabricated by Eureka Manufacturing Company, Eureka, South Dakota, U.S.A.

.04 It is not the intent of these specifications to limit competition. Any substitute system must be approved by the Architect/Engineer ten (10) days prior to the bid date. All base bids must include the specified filter. Any substitutes shall be quoted by the bidding contractors as an alternate.

Reference:

.01 The following standards shall be incorporated herein, but not limited to:

- | | |
|--------|--|
| NSF - | NSF <i>International</i> |
| AISI - | American Iron and Steel Institute |
| ANSI - | American National Standards Institute |
| AWS - | American Welding Society |
| ASTM - | American Society for Testing Metals |
| ASME - | American Society of Mechanical Engineers |

Quality Assurance:

.01 The manufacturer shall have a minimum of ten (10) years experience in the fabrication of High-Rate Sand Filters for public swimming pools. The filter system shall be of the vertical type and be tested and certified by NSF *International* for a maximum flow of 20 gallons per minute per square foot of filter area.

.02 The hydraulic calculations shall be performed to assure compliance with code requirements as well as guarantee the proper recirculation rates.

.03 The material loading and storage shall be performed by the contractor. The materials shall not be stacked or stored in a manner that may cause damage. The material shall be stored in accordance with the manufacturer's specifications.

Submittals:

.01 Product data and shop drawings: Submit product data, shop drawings and installation instructions for the filter and related components clearly indicating rated capacities, gauges of material, finishes, etcetera.

Warranty:

.01 The filter(s) shall be guaranteed by the manufacturer for workmanship, materials and performance for a period of one (1) year. The warranty will not include abusive or improper treatment of the filter during construction or under operation. The company shall have no liability to correct any damage caused by neglect, misuse, improper chemical treatment of pool water, or any other external causes.

.02 The manufacturer shall provide complete instructions detailing proper care, maintenance and cleaning of the filter system.

Part II - Products:

Filter System Capacity:

.01 The filter system shall consist of one (1) filter tank(s), complete with face piping, operating valves, complete gauge panel with 4.5" (inch) gauges, automatic air relief vent, backwash sight glass, bottom drain connection with internal media retainer, internal distribution system, and single lever control linkage, unless otherwise specified.

.02 The system shall be fabricated and fully assembled by the original equipment manufacturer. The face piping and system accessories shall be removed from the system and shipped individually. The collection and diverter headers are to be factory installed and internally braced for transit.

Filter Area:

.01 The filter system shall consist of a HRL72 High-Rate Permanent Media Filter(s) with a total effective area of 28.3 sq. ft. When operating at 15 gpm per square foot of filter area, the filter system will have a capacity of filtering 152,820 gallons in 6 (six) hours.

Filter Tank:

.01 The tank shall include one (1) standard 12" (inch) x 16" (inch) manway(s) complete with steel cover, gasket, bolt, nut and yokes. The manways shall be located in the top head.

.02 The filter tank(s) shall be 72" (inch) in diameter with a side shell height of 48" (inches) and shall be constructed of high quality type A36 carbon steel. The tank shall be 3/16" (inch) thick. Dished and flanged heads shall be 3/16" (inch) thick. The Tank Systems shall be suitable for a working pressure of 60 psi and hydrostatically tested at 90 psi.

.03 The filter system shall include one (1) media dump port(s) and drain(s) in the side shell. Influent and effluent connections shall be located in the tank side shell and shall be schedule 40 steel pipe.

.04 Each filter tank shall be equipped with replaceable sacrificial anodes that protect the tank from corrosion caused by electrolysis.

.05 (option) Adjustable jack legs are available on all filter sizes.

Interior Lining:

.01 All interior, wetted surfaces of the filter tank(s) and all penetrations shall be degreased and sandblasted prior to lining installation.



High-Rate Filter Specifications

.02 Tank lining shall be an epoxy-type coating, and shall be applied to all wetted surfaces of the tank and tank penetrations in two successive coats. Twelve hours of curing time shall be allowed between coats, and the total thickness shall be 8 to 12 mils.

.03 The finished lining shall be smooth, dust free, and completely nontoxic. The lining shall be visually examined and spark tested for pinholes.

Exterior Coating:

.01 The filter shall be painted with one (1) coat of zinc oxide primer after the trial assembly by the original equipment manufacturer.

.01 (option) External epoxy coating.

Internal Distribution System:

.01 Filter internal equipment shall include an upper distribution assembly and a lower collection system, hydraulically balanced to prevent turbulence and/or displacement of the media during filtration. Standard pipe arrangement or internal valving systems will not be acceptable.

.02 The upper distribution system shall include hydraulic injection molded ABS plastic distribution lenses located uniformly over the filter bed. They shall be joined to the influent connection by means of a schedule 80 PVC pipe header.

.03 The lower collection system shall consist of a schedule 80 PVC pipe header and cyclac laterals designed to retain the filter media with minimum head loss. The internal distribution system shall be designed to promote media bed circulation during backwash.

Face Piping with Valves:

.01 The High-Rate Sand Filter(s) shall be provided with all the necessary face piping and valves which shall be pre-assembled by the original equipment manufacturer. The face piping shall consist of flanged standard cast iron fittings and a sight glass.

.02 Face piping shall be 6" (six inches) I.P.S. with flanged fittings, matching influent and effluent connections on the filter tank.

.03 The butterfly valves up to and including 8" (eight inches) shall be of the wafer type with a cast iron body, nylon coated disc, stainless steel stem, with a 100 psi bubble tight shut off.

.04 Piping is to be drilled and tapped at the influent and effluent ports to accommodate gauge panel tubing.

.05 A sight glass designed for 150 psi working pressure shall be fitted on the backwash line. It shall consist of a 1.5" (inch) I.P.S. cast brass base and cap with a 3" (inch) diameter lens.

Single Lever Control Linkage:

.01 The linkage shall consist of a unilever operator linkage complete with double operator arms of aluminum which shall be heat treated to a T6 temper for strength and durability. Couplings and jam nuts shall be provided to facilitate adjustment of linkage. Connecting rods and high strength shear pins shall also be provided.

.02 Valves shall be set to move concurrently with one pair opening and the other pair closing to avoid water hammer and to simplify operation.

Filter Media:

.01 (not included) Filter media shall consist of uniformly graded silica sand which shall be free of limestone or clay. Filter media shall be grade #20, effective size of .45 - .55 millimeter with a uniformity coefficient of 1.75 maximum. Support media shall be hard, uniformly graded 1/8" (inch) to 3/8" (inch) gravel. No limestone or clay shall be present. Alternative media must be approved by Eureka Manufacturing Company.

Engineering Notes

Head loss through all Hi-Rate Permanent Media Filters is three (3) psi on startup. The filter should be backwashed when a 15 psi differential is indicated on the influent and effluent pressure gauges.

When sizing the main recirculating pump for the filters, calculate head loss for the maximum dirt load at 15 to 20 psi through the filter and face piping.



HRL Series Permanent Media Commercial Swimming Pool Filters

The Hi-Rate filter concept utilized in Eureka Manufacturing Company's Hi-Rate Permanent Media Filters has been refined and tested with thousands of systems successfully installed and operating throughout the world. These filters are designed for and installed in large commercial aquatic centers, public swimming pools and commercial water parks.

Automatic Backwash Systems

It is possible to have a fully automated, microprocessor-controlled system installed on any Eureka Hi-Rate Sand Filter. The programmable system will switch your Hi-Rate Sand Filter from filter mode, to backwash mode, and return it to filter mode without supervision.

Backwashing reverses the normal flow of water within the filter. The agitation within the filter during the backwash cycle releases the trapped

particles, which are then flushed from the filter.

Once the recommended backwash cycle is complete, the filter can immediately be returned to service. The total time devoted to backwashing the filter is usually only about four minutes.

Reduce your long-term labor costs by installing a Eureka HRL Series Sand Filter. No labor intensive procedures between cleaning cycles are required. Contact us at 1-800-472-1712 today!

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