HIGH-RATE SAND FILTER

Design, Installation, Operation and Maintenance Guide
HSF-FRP Series

AQUIFY

Rev. B / 25.03.17

CAUTION

Read the manual in its entirety. This manual contains essential information about the installation, operations, maintenance, and safe use of this product. Equipment must be installed and serviced by a qualified technician. Improper installation can void the warranty and cause bodily injury. All weights and dimensions are approximate. All dimensions are in inches; all weights are in pounds.

For all questions, please contact Aquify Systems or a certified Aquify Systems Support Agent.

****NOTE:**** Although every effort has been made to ensure that this manual provides up-to-date information, please note that Aquify Systems High-Rate Sand specifications are subject to change without notice. Aquify shall not be liable for the accuracy of any information provided by third party technical support personnel, or any damage caused, directly or indirectly, by acts taken or omissions made by you because of such technical support.

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GENERAL

Theory of Operation

A high-rate sand filter is designed to separate particulates from the pool to aid in water filtration and treatment. During a filter cycle, water is pumped through the granular sand bed where particulate solids are separated from the water. The water's complex path through the sand bed separates the solids as they meet the individual sand grains. As the sand bed incorporates more particulates from the supply water it can remove finer particulates, at the expense of increased pressure loss through the bed. Once the pressure loss is unacceptable, the filter must be backwashed to remove the particles from the sand. During backwashing, the flow through the influent and effluent sections is reversed & the sand media becomes "fluidized" and expands. This allows the trapped contaminants to be evacuated back through the influent diffuser network and to a drain. After backwashing the sand bed is allowed to settle and the filter cycle can repeat.

Filter Media

Filter Sand

Aquify has designed the filter specifically for use with NSF-50 #20 silica sand. Any other sand will significantly affect the performance of the filter and may damage the internals' structure.

Gravel Support Bed

When possible, a gravel support bed should be used. Gravel should be ¼in x ⅛in NSF-50 listed silica gravel. The gravel support bed is used to aid in supporting the lateral underdrain structure and provide optimal flow distribution through the bed when backwashing.

WARNING: DO NOT USE ANY OTHER MEDIA TYPE INCLUDING D.E. (DIATOMACEOUS EARTH), PERLITE (INCLUDING AQUIFY PERLITE), OR ANY TYPE OF SAND OTHER THAN NSF-50 LISTED #20 SILICA SAND. USE OF NON-STANDARD MEDIA WILL SIGNIFICANTLY IMPACT THE PERFORMANCE OF THE FILTER, DAMAGE THE INTERNAL STRUCTURE, AND MAY VOID THE WARRANTY OF THE FILTER.

AQUIFY DESIGN STANDARDS

Aquify recognizes the challenges that designers face to integrate products into their workflow in the age of automated design tools like Autodesk Revit. We provide 2D technical drawings, AutoCAD blocks for our 2D designers, and 3D files in multiple formats, including automated Revit families for our 3D designers.

Filter Selection and Design

Smart Part Numbering System Overview

HSF- [1][2]-[3][4][5]

	DESCRIPTION	VALUES											
[1]	**Filter Diameter (in)**	33			42			48			60		
[2]	**Filtration Area (SF)**	10	15	20	25	30	35	40	45	50	60	70	80
[2]	**Connection Size (NPS)**	4			6			8					
[4]	**Manway Location**	L (Single Manway, Left)			R (Single Manway, Right)			D (Dual Manway, Offset)					
[5]	**Stacking configuration**	1 (Single Filter)						2 (Stacked Filter)					

Flow Requirements and Pipe Sizing

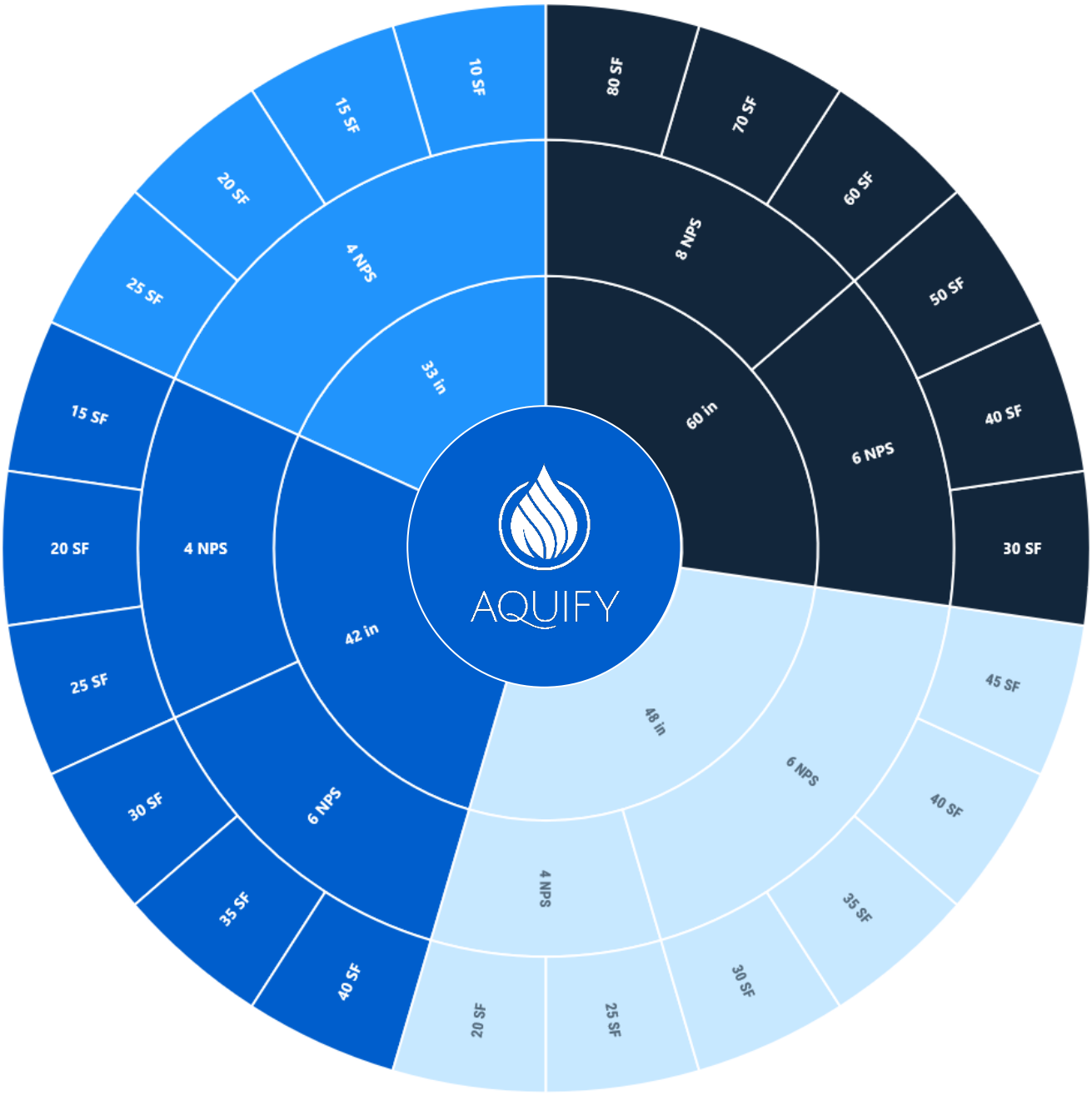
Aquify sand filters are designed to operate at **5-15 GPM/SF** based on the recommendations of the model aquatic health code. Depending on the design flow rate, a range of filter areas may be possible.

WARNING: EFFECTIVE FILTRATION RATES ABOVE 15 GPM/SF MAY DEGRADE FILTER PERFORMANCE.

Filters can be configured with different manifold sizes depending on the desired effective filtration rate. It is recommended to keep the velocity of water through any PVC pipe below 10 ft/sec maximum.

DESIGN FILTRATION RATE			
Filtration Area (SF)	Min (GPM)	Max (GPM)	Pipe Size (NSP)
10	50	150	4
15	75	225	4
20	100	300	4
25	125	375	4
30	150	450	6
35	175	525	6
40	200	600	6
45	225	675	6
50	250	750	6
60	300	900	8
70	350	1050	8
80	400	1200	8

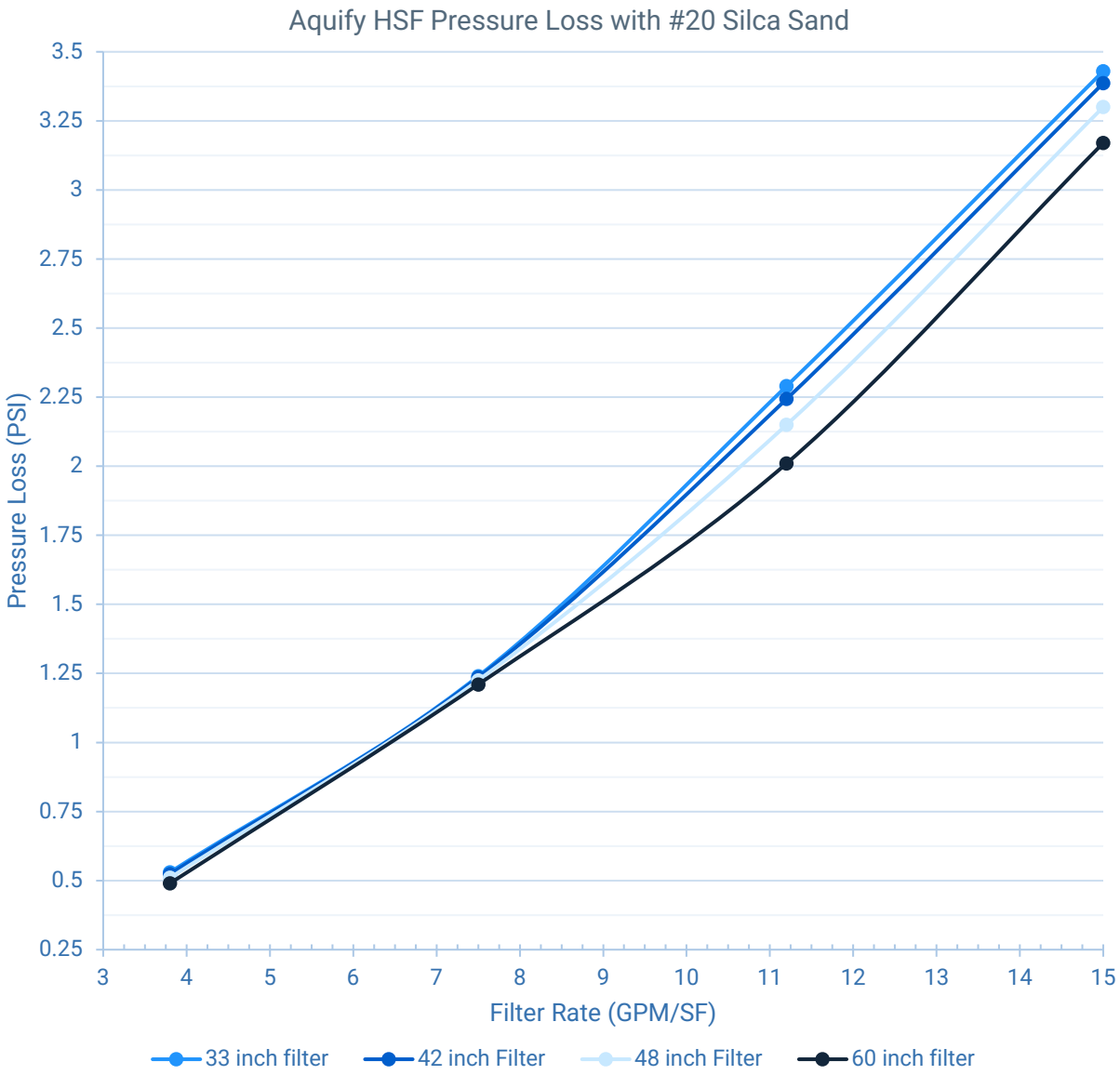
Filter Selection Chart



Filter Head Loss Curves

Effective Diameter	0.45 – 0.55 mm
Uniformity Coefficient	1.65
Sphericity	0.7
Porosity	0.4

The head loss of the filter varies for each filter, and throughout the range of filtration. The following chart may be used to aid in optimal filter selection.



Media Requirements

Aquify recommends a media section with a support pea gravel bed of ¼in x ⅛in below the laterals and a #20 silica sand bed above the gravel bed. This will yield the best filtration results and most uniform flow during backwashing of the filter.

	WITH SUPPORT GRAVEL					WITHOUT SUPPORT GRAVEL		
MODEL	Sand Height [in]	Gravel Height [in]	Total Height [in]	Sand Weight [lbs]	Bags [qty]	Sand Height [in]	Sand Weight [lbs]	Bags [qty]
HSF-3310	12	7	19	950	**19**	19	1250	**25**
HSF-3315	12	7	19	1450	**29**	19	1900	**38**
HSF-3320	12	7	19	1900	**38**	19	2550	**51**
HSF-3325	12	7	19	2400	**48**	19	3200	**64**
HSF-4215	15	7	22	1750	**35**	22	2150	**43**
HSF-4220	15	7	22	2300	**46**	22	2850	**57**
HSF-4225	15	7	22	2900	**58**	22	3600	**72**
HSF-4230	15	7	22	3450	**69**	22	4300	**86**
HSF-4235	15	7	22	4050	**81**	22	5050	**100**
HSF-4240	15	7	22	4600	**92**	22	5750	**115**
HSF-4820	18	8	26	2750	**55**	26	3400	**67**
HSF-4825	18	8	26	3450	**69**	26	4250	**85**
HSF-4830	18	8	26	4150	**83**	26	5100	**102**
HSF-4835	18	8	26	4850	**97**	26	6000	**120**
HSF-4840	18	8	26	5550	**111**	26	6850	**137**
HSF-4845	18	8	26	6250	**125**	26	7700	**154**
HSF-6030	24	10	34	5600	**112**	34	6744	**135**
HSF-6040	24	10	34	7450	**149**	34	9050	**181**
HSF-6050	24	10	34	9350	**187**	34	11350	**227**
HSF-6060	24	10	34	11200	**224**	34	13650	**273**
HSF-6070	24	10	34	13150	**263**	34	16050	**320**
HSF-6080	24	10	34	15000	**300**	34	18300	**366**

Backwashing Requirements

The Aquify High-Rate Sand filter is designed to continuously capture debris of various sizes, becoming increasingly efficient in filtering finer particles over time. This progressive filtration process ensures optimal filter efficiency and helps mitigate common water quality issues.

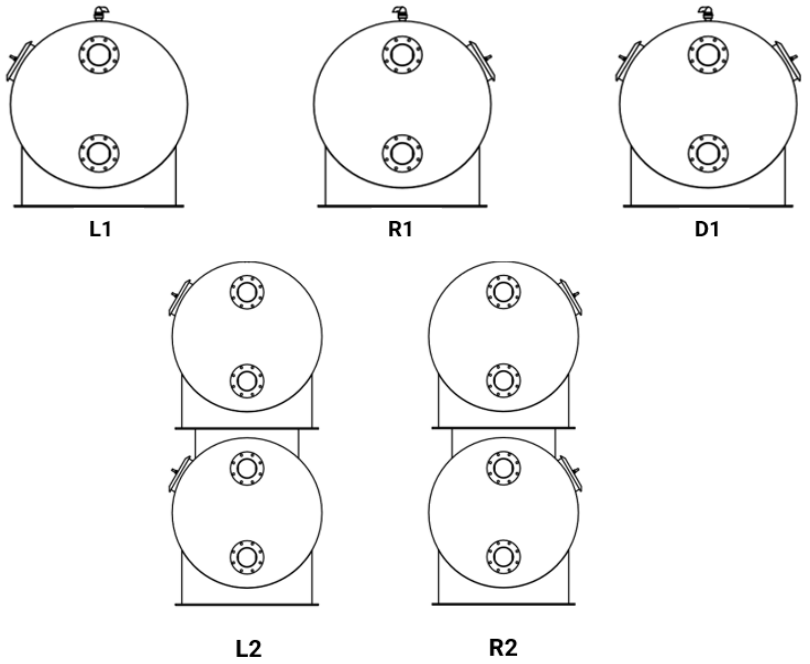
To maintain the filter's performance, it is important to utilize the complete filter cycle. Backwashing too frequently can result in cloudy water and may not allow the filter to reach its peak efficiency.

To determine when backwashing is necessary, the operator should monitor the clean differential pressure. The standard clean differential pressure is the starting pressure of the filter. Once the pressure rises by 7 psi over the starting clean differential pressure, it indicates that the filter has accumulated enough debris and backwashing should be initiated.

During the backwashing cycle, which typically lasts approximately 5 minutes, the filter is cleaned by reversing the flow of water through it. This process helps remove trapped debris and restores the filter's effectiveness. Once the backwashing cycle is complete, the filter should be returned to its normal filtration cycle to continue providing clean and clear water.

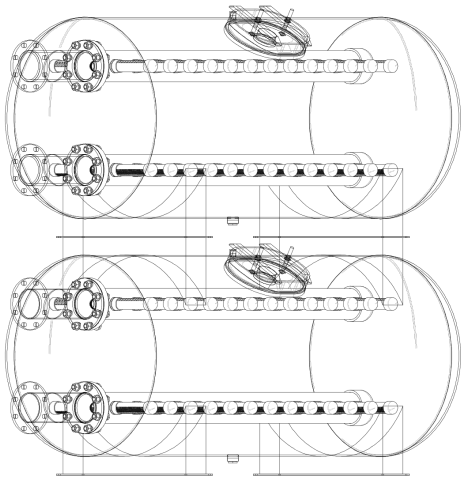
Manway Configurations

All high-rate sand filter internals are accessed using the integral filter manway.



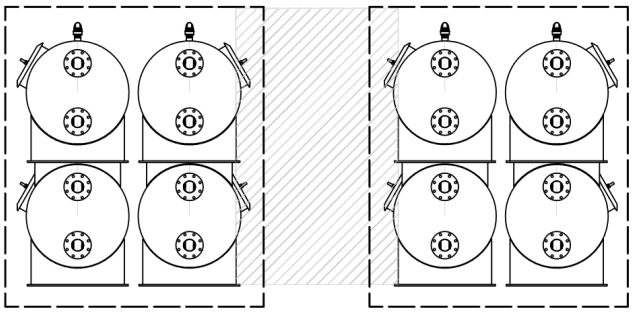
Designing Large Filtration Setups

Some filtration setups with large filtration areas or limited mechanical room space may be achieved by splitting the filtration requirements amongst multiple filters. In this case, the filters operate in parallel. Filters may be configured in a stacked configuration to save footprint in the mechanical room or add additional filtration area as required.



Designing Filter Banks

The total required filtration area can be split up amongst filters to create a system of filters with a very large filtration area. It is recommended to use identical model filters within a single bank so that uniform filtration for each filter is achieved.



INSTALLATION AND COMMISSIONING

Installing the filter requires site preparation & orientation, plumbing to run to the filter, and installation of the filter media. Before starting the installation, visually inspect each part of the filter, the media and confirm the area is clean of debris.

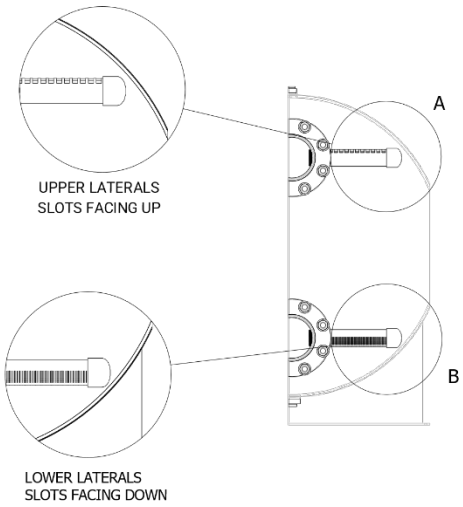
Site Preparation

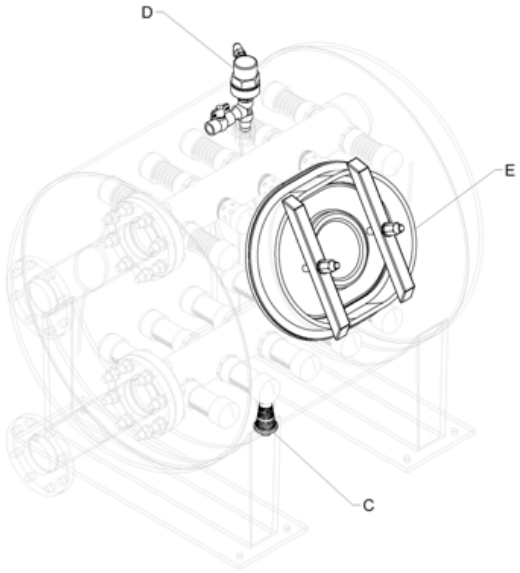
Before plumbing the filter, ensure the selected site has sufficient floor space and height for easy access to the manway, drains, air release, or any other ports. Confirm there is adequate room for maintenance with a minimum of six inches of space from obstructions on every side. The Aquify filter should be installed on a level concrete pad.

Anchoring

Once a suitable spot is determined, mark locations to drill into the pad according to the pre-drilled holes on the filter saddle. If no design is required from the site engineer, use ½in anchoring bolts to mount the saddle to the concrete.

Installation & Plumbing





1. After anchoring, attach the influent and effluent connections to the face piping.
2. Check the condition of the filter internals.
    a. Laterals
    b. Diffusers
    c. Integral Filter Drain/Strainer
    d. Air Relief Valve Assembly
    e. Filter Access Port and Gasket
3. Make sure the lower drain is plugged or the valve for it is shut off.
4. Fill the filter halfway with water. This protects the lower lateral structure from damage when adding media.
5. **FILTERS WITHOUT SUPPORT GRAVEL:** Fill the filter with sand to cover the lower effluent piping and level the bed. Pour sand slowly to avoid damage to the laterals.
   FILTERS WITH SUPPORT GRAVEL: Fill the bottom of the filter by hand with gravel. Take care not to damage the laterals. The gravel height is designed to level at the centerline of the lateral pipe. Add/remove gravel as needed to achieve a uniform support bed.
6. Add the remaining sand to the correct total sand height. Ensure that the sand bed is uniformly leveled to avoid channeling during start-up.
7. Close the access port and tighten the nuts. Do not exceed 100 lb-ft of torque or damage to the fiber-nuts may occur.
8. Open the air-relief valve. Air should be bled from the air vent valve upon initial start-up.

Face Piping

Aquify provides two production style face piping configurations as well as custom configured options to meet the needs of your filter installation.

Face piping configurations are built-to-order and must be configured at time of purchase.

FILTER STYLE	SINGLE	DUAL TIED	CUSTOM
Single Filter	•		
Filter Stack Individual Operation	•		
Filter Stack Parallel Operation		•	
Filter Bank Parallel		•	•
Custom configuration			•

Filter and Backwash Modes

Aquify provides detailed instructions on a data-plate and on the face piping and filter for each configuration. Each filter can be operated in two modes: filter mode (normal operation) and backwash mode.

FILTER MODE: The valves direct the flow of water from the pump to the influent flange of the filter and out the effluent flange of the filter to the pool.

BACKWASH MODE: The valves direct the flow of water opposite of normal operation to lift the dirt from the sand bed and divert the dirty water and waste to the drain. On multiple filter systems or banks plumbed in parallel, only one filter can be backwashed at a time.

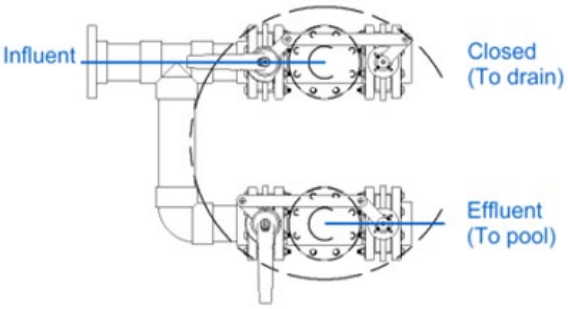
WARNING: FAMILIARIZE YOURSELF WITH BOTH THE DATA PLATE ON THE FILTER SHOWING THE VALVE POSITION DURING EACH MODE AS WELL AS THE OPERATION OF THE VALVES. TRAIN ALL PERSONNEL IN THE OPERATION OF THE FACE PIPING VALVES WHILE THE FILTER IS OFF.

Typical Face Piping Flow

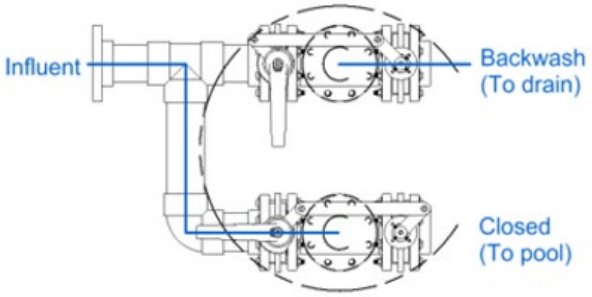
The face piping uses linked valves to switch between two operating modes, filter, and backwash. Each configuration will ship with diagrams to aid in designing and installing the correct plumbing connections to the three filter lines and are also provided at the time of purchase. The general flow for filter and backwash is shown below for a single filter.

Operating Face Piping Valves

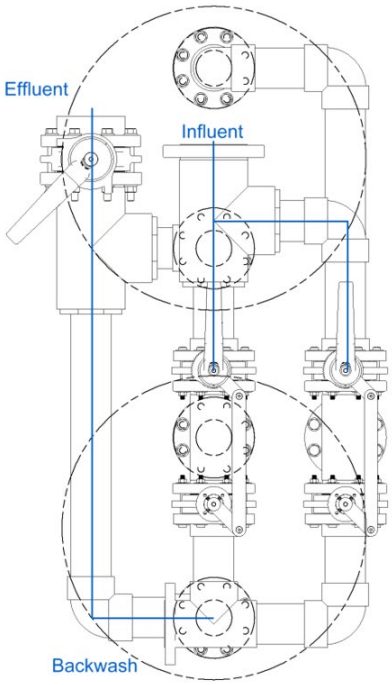
The valve-connection assembly is the major component to the filter assembly. Each valve uses a locking handle to switch between the two operating modes: filter, and backwash. Squeeze the handle and rotate the valve to switch from filter mode to backwash mode. The flow of water is easily identified by the direction of the handle.

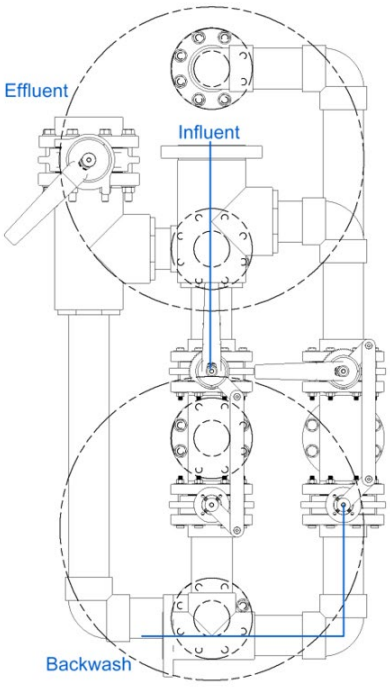


Filter Mode

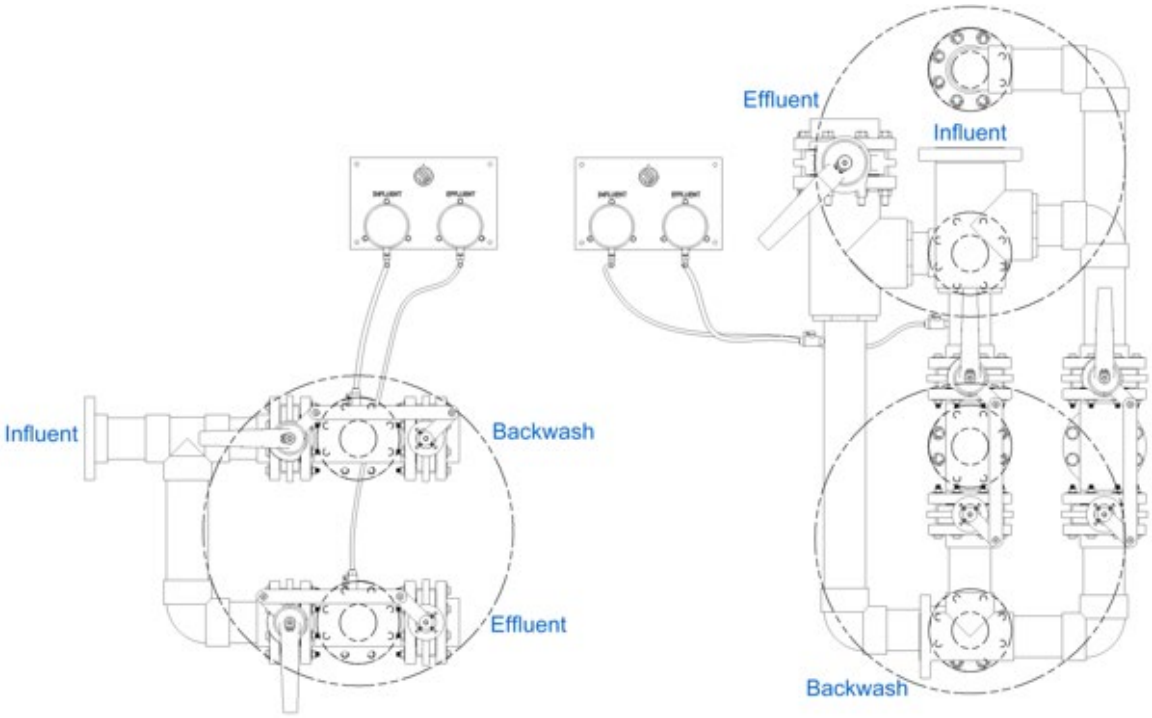


Backwash Mode





Gauge Panel Installation



Single Filter System **Stacked Filter System**

NEED MORE INFORMATION? WE PROVIDE DETAILED FACE PIPING DOCUMENTATION FOR YOUR PARTICULAR CONFIGURATION ON OUR WEBSITE WWW.AQUIFYSYSTEMS.COM. IF YOU HAVE A CUSTOM CONFIGURATION, YOU WILL RECEIVE DOCUMENTATION AT THE TIME OF ORDER; CONTACT AQUIFY FOR REPLACEMENT DOCUMENTATION IF IT BECOMES LOST OR DAMAGED.

Filter Testing and Commissioning

Pressure Testing

Once the filter is filled & sealed and all vents are closed, increase pressure within it slowly. If any leaks show at the lid, tighten each bolt on it. If sealing still is not successful, depressurize and verify that the flange and gasket are free of sand and debris. The gasket should be made damp before resealing and tighten all bolts again evenly. After your pressure successfully reaches the desired level, ensure that all drains, inputs, outlets, or ports are leak-free.

Start-Up

Begin the filter operating at a low filter rate (5 GPM/SF) to purge the air and clear the piping system of any construction debris and dirt. Continue operating in this mode until the water viewed from the filter manway sight glass is clear. In cases where excessive dirt/mud is expected, it is recommended to bypass the filter and pump the dirt directly to the drain. This helps to keep the sand bed from becoming excessively contaminated prematurely.

Initial Backwashing

Prior to starting normal operation, the filter should be backwashed to ensure a level sand bed across the vessel and to remove any fine dust in the sand left from the manufacturing. The process should take no longer than 5 minutes per. Little or no debris may be present in the initial cleaning. After this initial backwash, return the system to regular operation mode and release any built-up air from the air vent. Once completed take note of the filter system pressure differential and retain this information for future users.

TROUBLE SHOOTING

TYPE	RECOMMENDATION
Missing or damaged parts	• Call Aquify to order replacement parts.
Leaking manway lid	• Depressurize, clean manway gasket, re-torque bolts. • Inspect gasket and sealing surface for damage. • Inspect manway sight glass for damage.
Leaking drain or small fitting	• Check drains fitting and hole thread condition; reapply Teflon tape, tighten if required. • If replacement is required, use NPT threaded PVC SCH-80 fittings only.
Other leaks	• Check the condition of gaskets and flanges. • If the leak does not occur because of fitting/sealing surface call Aquify immediately.
Leaking sand while backwashing	• Ensure sand type meets Aquify specification. • Ensure bed height does not exceed the Aquify specification. • Ensure backwash flow rate does not exceed Aquify specification.
Leaking sand during filter cycle	• Ensure sand type meets Aquify specification. • Remove sand bed, inspect and replace broken or damaged laterals.
Differential pressure during filter cycle is high	• Backwash the filter. • Ensure sand type meets Aquify specification. • Ensure sand bed depth meets Aquify specification. • Finally contact Aquify if the problem remains afterwards.

MAINTENANCE PROCEDURES

Schedule for Backwashing

The process of backwashing should only be performed when the filter has become dirty, typically a 7 psi rise minimum in differential pressure from the corresponding clean value. Backwashing too frequently will prevent the filter from reaching its peak performance.

****NOTE:**** Indoor facilities where large debris is not a concern, it is possible that the pressure may not rise by 7 psi over the starting clean differential pressure. To address this, it is advisable to establish a maximum time schedule for backwashing, regardless of the pressure differentials. A recommended timeframe is no more than 6 weeks between backwashing cycles.

Schedule for Inspection

DAILY: The differential pressure should be inspected for a rise of 7 psi.

PERIDICALLY: The Aquify filter uses an automatic air relief valve to remove air buildup which occurs in the filter during normal operation. This valve should be inspected to confirm proper operation. Any large buildup of air will affect the performance of the filter.

ANNUALLY: The internals should be inspected to ensure sand media has not shifted around or channeled in any areas.

Filter Draining

During any maintenance where the filter needs to be drained, this can be done by opening the lower drain and the air vent on top.

Internals Access

The internals may be accessed by first depressurizing the filter and draining the filter, removing the manway lid, and entering the vessel. This process should be done with a partner to ensure safety. No obstructions should be in the way of entry into the filter. Ideally, a rake can be used to perform most of the maintenance or clear obstructions without entering the filter.

****NOTE:**** Follow confined space requirements prior to entering the filter.

Filter Media Maintenance

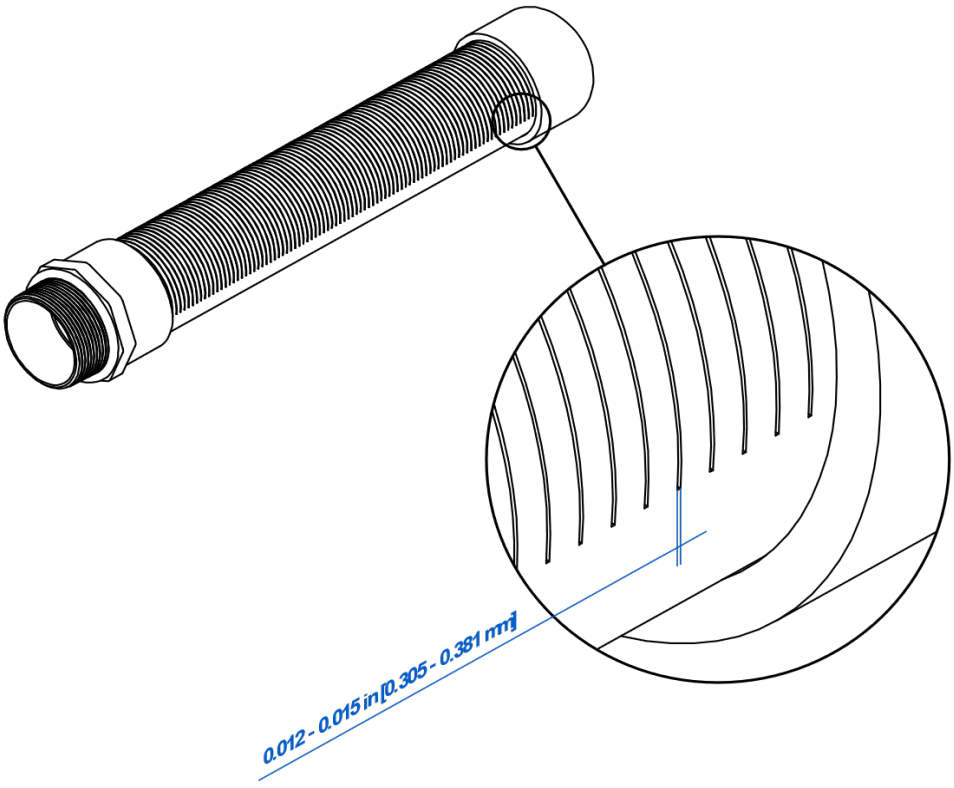
Use only NSF-50 listed #20 silica sand in the filtration system. Using other sand types can lead to poor performance, increased head pressure, or sand discharge through the internals to the pool. When used correctly, the sand is designed to last 5 - 7 years under normal conditions.

For the gravel support bed use NSF-50 listed ¼ x ⅛in silica gravel.

Lateral Inspection and Replacement Procedure

If sand is passing to the pool during normal operation, there is a chance that the lateral assembly has become damaged and will require replacement.

1. Ensure that the proper sand is used. Only #20 silica sand or equivalent NSF-listed sand must be used. Other sand types may be too fine and will pass through laterals during normal operation.
2. Depressurize the filter, remove sand.
3. Inspect laterals for damage. The laterals can be unscrewed by hand from the manifold.
4. Using a feeler gauge (you may use a “spark plug gap tool”) inspect the slot width of the laterals.



5. Mark laterals to be replaced and set aside. Call Aquify to order replacements.
6. Replace laterals facing down and follow instructions for filter commissioning. It is recommended that the standard procedures for testing are performed before resuming normal operation of the filter.

Repair and Replacement Parts

If any parts have degraded after inspection or efficiency has noticeably decreased, it is time to order replacement parts from Aquify service and schedule an appointment with an authorized service technician. Be sure to note that this filter is manufactured with a composite fiberglass structure. Damage to the filament-wound shell, fiberglass flanges and nozzles, head, and joining supports should only be done by Aquify.

DANGER: DO NOT ATTEMPT FIBERGLASS REPAIRS ON A DAMAGED OR CRACKED FILTER. THE VESSEL CAN BE UNDER TREMENDOUS PRESSURE DURING OPERATION. INCORRECT REPAIR MAY FURTHER DAMAGE THE PRESSURE VESSEL, ACCELERATE THE DAMAGE, OR COULD LEAD TO EXPLOSION OF THE VESSEL. CONTACT AQUIFY IMMEDIATELY IF ANY DAMAGE TO THE FILTER IS DETECTED. ALL REPAIRS MUST BE DONE BY AQUIFY OR AN APPROVED AQUIFY SERVICE TECHNICIAN. ANY REPAIR NOT AUTHORIZED BY AQUIFY MAY VOID THE WARRANTY OF THE FILTER.

MAINTENANCE LOG

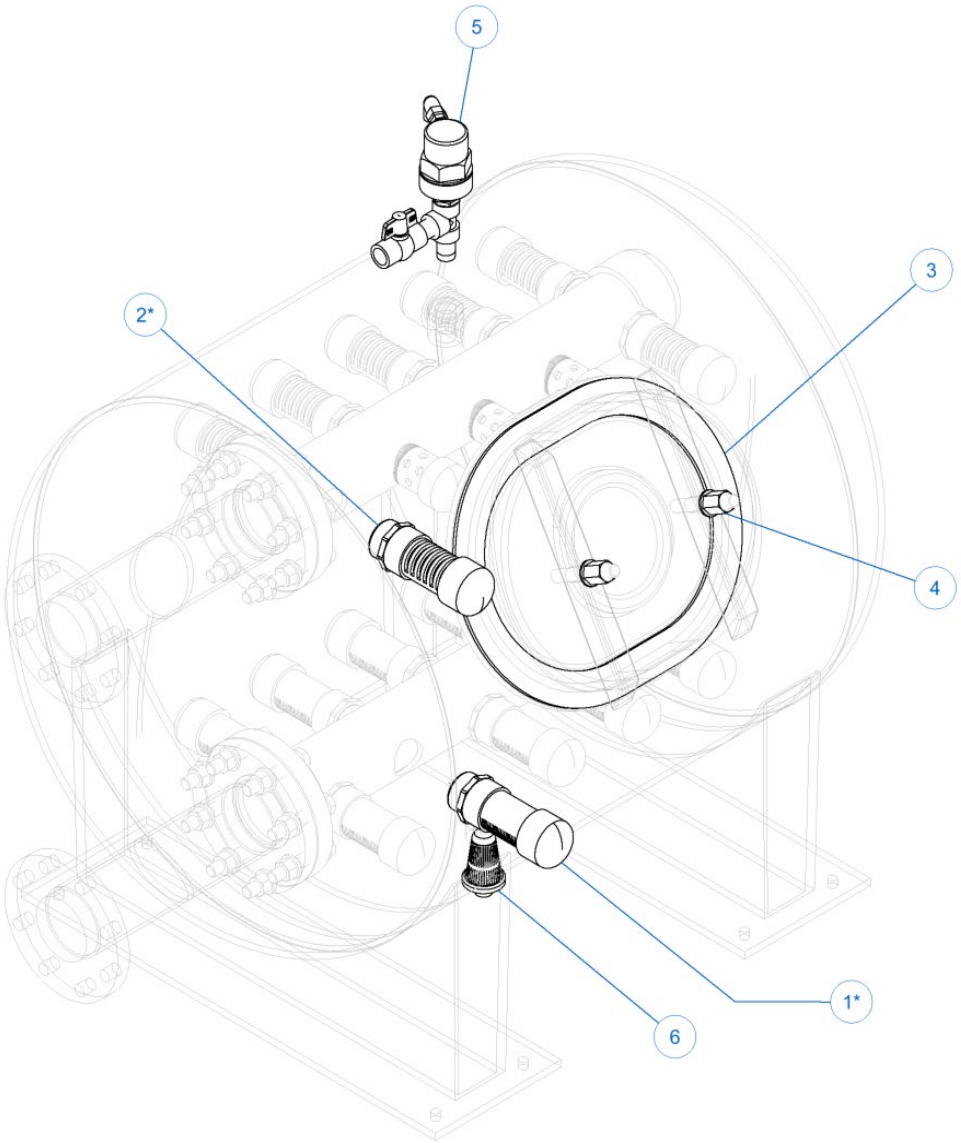
Maintenance should only be performed by a qualified pool professional. Prior to removing the manway cover, make sure to turn off all circulation pumps and electrical power. Set all system valves in a position to prevent water from flowing to the filter and place the air relief valve in an open position.

DAILY MAINTANCE LOG						
Date:						
Inspect Pressure Differential						

MONTLY MAINTANCE LOG						
Date:						
Check Automatic Air Relief Valve for Pressure Build Up						

ANNUAL YEAR MAINTANCE LOG						
Date:						
Inspect Internals						
Inspect Gaskets						
Inspect Media						

SPARE PARTS LIST



	PART NUMBER	DESCRIPTION
[1]*	WS12-MXX	Filter Lateral *SPECIFY LENGTH*
[2]*	WS25-MXX	Filter Diffuser *SPECIFY LENGTH*
[3]	3B17-1814	Gasket, Manway
[4]	2333-0M00	Nut, Manway
[5]	1100-0002	Air Relief Valve Assembly
[6]	3010-0M00	Filter Drain Assembly

ALL OTHER PARTS CALL AQUIFY SERVICE FOR INFORMATION

TESTING AND COMMISSIONING – SIGN OFF

Each filter undergoes pressure testing and quality control inspection prior to packaging. These quality assurance steps ensure that the system meets performance standards, operates safely, and maintains structural integrity.

Upon receiving the filter system, inspect it carefully for any potential damage sustained during shipping. If any damage is detected, take photo documentation and immediately contact Aquify or a certified Aquify support agent.

As part of the commissioning process, Aquify Systems and the End-Customer (_____) acknowledges and will sign-off on the following items to confirm successful installation and readiness for operation:

- ☐ The Filter is installed according to the manual – sufficient floor space and height for easy access to the manway, drains, air release and other ports and anchored correctly.
- ☐ The Linkages and Air Relief Valve is installed correctly, and the Gauge Panel installed so it can be easily read.
- ☐ Media has been added according to the Aquify Sand and Gravel Requirements.
- ☐ The gasket and manway are properly in place, ensuring the filter is sealed correctly.
- ☐ Functionality testing and walkthrough was performed.
- ☐ Filter operational test is performed, including one backwash to eliminate any construction debris and the influent and effluent reading is documented.
- ☐ A second operational test was conducted for 30 minutes.
- ☐ The manual is available and has been reviewed, and the End-Customer has been instructed to read it.

I, (INSERT NAME), hereby sign and acknowledge that Aquify High-Rate Sand Filter system, reference (job name & body of water) with serial number _____ is operating as intended, according to the above.

CUSTOMER: _____

Title: _____

By: _____

Date: _____

Aquify Systems or Aquify Certified Representative

Title: _____

By: _____

Date: _____

WARRANTY

Aquify and our partners use state-of-the-art workmanship, materials, and manufacturing processes to create and develop the most innovative equipment. We are committed to delivering the highest quality products backed by our industry leading warranties. All products are carefully inspected for quality and manufacturing conformity prior to shipment. Aquify warrants its products to be free from deficiencies in materials and workmanship under normal use for the period denoted below from the date of installation and/or twelve (12) months after shipment:

- Filter Body ten (10) years
- Filter Internals two (2) years
- Filter Linkage System five (5) years

If a defect occurs during the warranty period, AQUIFY will, at our discretion, repair or replace the defective component free of charge, provided that:

1. Customer fully cooperates with AQUIFY, in the manner requested by AQUIFY, in attempting to diagnose and resolve the problem by way of phone and email service support.
2. If the problem can be diagnosed and verified by telephone support and a replacement part is required, AQUIFY will either ship at AQUIFY's expense, a repaired, reworked or new part to the Customer, who will install such part as directed by AQUIFY or direct Customer to acquire, at AQUIFY's expense, such part from a third party and to install such part as directed by AQUIFY.
3. In the event that AQUIFY determines that the problem cannot be resolved by way of telephone support and/or shipment by AQUIFY, or acquisition by the Customer of a replacement part for installation by the Customer, AQUIFY will send one or more persons to make an onsite inspection of the problem. If an onsite visit is made, AQUIFY's personnel will evaluate the problem and repair or replace any Equipment determined to be in warranty. If the problem is determined to be attributed to a breach of this warranty, AQUIFY reserves the right to invoice the Customer for this service.
4. The Equipment is covered, and the failure occurs within the Warranty Period.

AQUIFY will, at our option, use new and/or reconditioned parts in performing warranty repair. AQUIFY has the right to use parts or products of original or improved design in the repair or replacement.

Limitations: This warranty shall not apply to any failure or defect which results from:

1. Damage due to mishandling, misuse, abuse or failure to operate equipment as specified in the owner's manual.
2. Damage due to unauthorized product modifications or failure to use Aquify's original replacement parts.
3. Damage caused by negligence, or failure to properly maintain products as specified in the owner's manual.
4. Damage caused by failure to maintain water chemistry and conformity within the standards of the swimming pool industry for any length of time.

This warranty does not cover:

1. Equipment components manufactured by third parties but furnished to Customer by AQUIFY are warranted by the original manufacturer, only to the extent of the original manufacturer's warranty.
2. Normal wear and tear of the product.

3. Consumable components such as gaskets.
4. Costs related to removal, installation, or troubleshooting of the damaged component.
5. Damage caused by improper installation, installation not in accordance with Aquify's current published installation and operation manual.
6. Acts of God, terrorism, biological infestations, or input voltage that create operating conditions beyond the minimum or maximum limits listed in the Operations Manual including high input voltage from generators and lightning strikes.
7. Damage caused by improper return packaging Taxes, duties or brokerage fees (if any).

This warranty is the exclusive remedy for all claims based on a failure of or defect in the Equipment, whether the claim is based on contract (including fundamental breach), tort (including negligence), strict liability or otherwise. This warranty is in lieu of all other warranties whether written, oral, implied or statutory. Without limitation, no warranty of merchantability or fitness for a particular purpose shall apply to the Equipment.

AQUIFY does not assume any liability for personal injury or property damage caused by use or misuse of the Equipment. AQUIFY shall not in any event be liable for special, incidental, indirect or consequential damages including, without limitation, lost profits, lost business opportunities, lost revenue or loss or depreciation of goodwill, even if it has been advised of the possibility thereof. AQUIFY's liability shall, in all instances, be limited to repair or replacement of Equipment in breach of this warranty and shall not exceed the cost of such repair or replacement. This liability with respect to repair or replacement will terminate upon the expiration date of this warranty.

In addition to the foregoing, in no event shall AQUIFY's liability relating to the Equipment, or the agreement between AQUIFY and the Customer relating to the Equipment, exceed that portion of the purchase price for the Equipment which is actually paid to AQUIFY.

Aquify Systems

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