MEDIA FILTER SYSTEMS

World Leader in Irrigation Technology

JAIN

"When it comes to irrigating my crop, I trust JAIN Media Filters. With the robust 100 PSI pressure rating, large access ports for ease of loading sand, high-uniformity backflush underdrain, and capped drain ports for ease of removal, I can count on JAIN Media Filters to get the job done right!"

Perry Continente
Precision Irrigation West


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Media Filter Systems

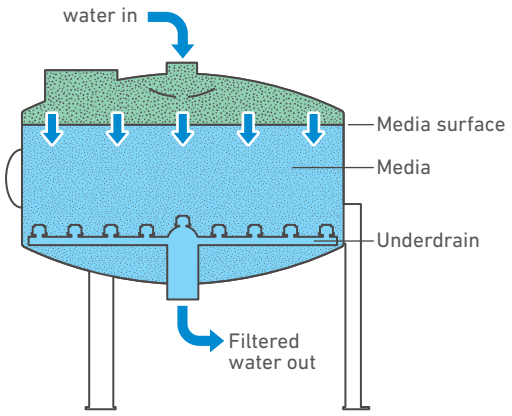
As particulate accumulates on the media surface in the tank, head loss across the tank increases. When head loss across the tank reaches a set level the tank automatically back washes. Filtered water from adjacent tanks enter the tank in back wash from the bottom. The underdrain system now directs the flow of filter water evenly up through the media bed. The flow of filtered water lifts the collected particulate from media surface and out through the top of the tank to an appropriate area for reuse.

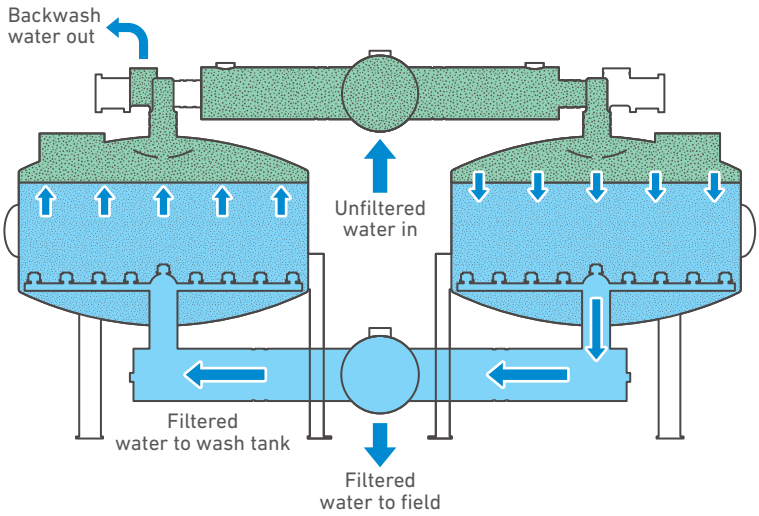
The 3 way back wash valve on tank inlets closes off incoming unfiltered water and opens a flow path for the back wash to purge the particulate from the tank. After a set back wash time the valve shuts off the flush water flow path and re-opens the inlet for unfiltered water.

The back wash controller senses the head loss differential and automatically opens and closes the back wash valve on each tank in sequence until all the tanks are back washed. The back wash sequence can also be triggered at the controller manually or by a pre-set time interval. The controller controls the run time of the tank back wash and the dwell time between tanks during the back wash sequence. The tanks and back wash valves are connected by a 304L stainless steel manifold system. Pressure of the top (inlet) manifold and the low (outlet) manifold is relayed to the controller by hydraulic tubes. Commands to the valves are relayed by electrical wire. A solenoid on each backwash valves receives the electrical signal. The solenoid redirects the system pressure to change the position of the 3 way back wash valve, from filtering to flushing.

How Media Filters Work

Pressurized water flows through tanks which contain silica sand or crushed granite (media). The unfiltered water enters the tanks from the top. The tanks provide a larger media surface area. Particles in the unfiltered water, larger than media pore space, collect on the surface of the media. The tank underdrain prevents the media from entering the system.

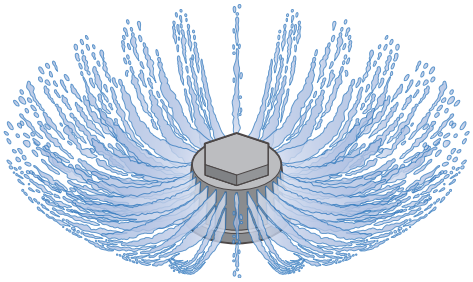




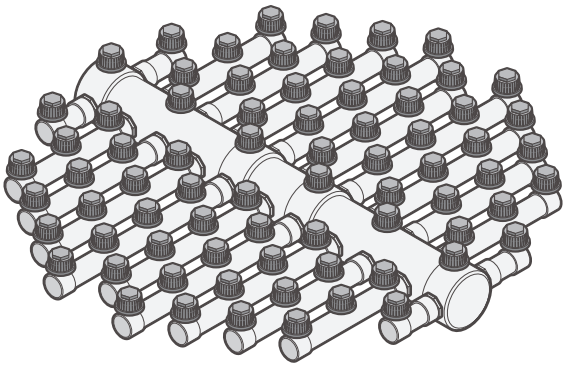
Media Filtration Systems provide automatic filtration for drip and micro irrigation systems down to 200 mesh.

The new JAIN under drain has very high uniformity with no downward jetting. High uniformity decreases back wash time, saves water, energy and decreases maintenance. Downward jetting can compromise tank coating reducing tank life.

Polyester external and epoxy internal, 6 mil coating deters environmental degradation for long life.



JAIN Media Filtration tanks feature precision engineered underdrains and carry a 5 year (100 psi) warranty.



JAIN Media Filtration Systems feature Fresno Valve and Casting back wash valves, Alextronix controllers and Parker solenoids.

Backwash Valves

- Feature Fresno Valve and Casting backwash valves
- Proven and Reliable
- Full original Manufacturer's warranty

Alextronix Filter Master Series Controllers

- 1 to 32 station flexibility
- One second timing increments
- Progressive tank cleaning
- Digital pressure differential switch

Parker Solenoids Available

- 24 VAC
- 12 VDC
- 12 VDC Latching

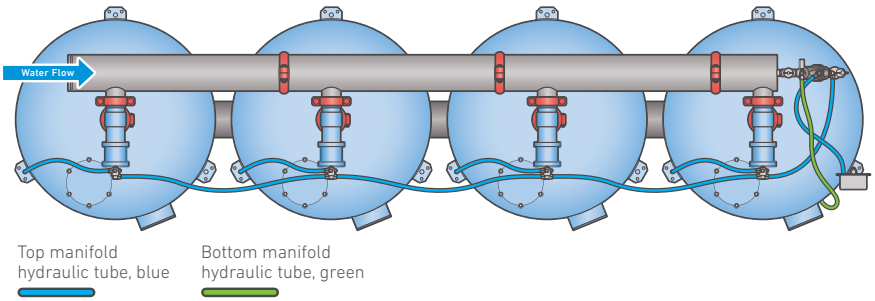
Standard Configurations

JAIN offers 12 standard Media Filtration Systems available in 3 different configurations.

End Feed Configuration

Footprint

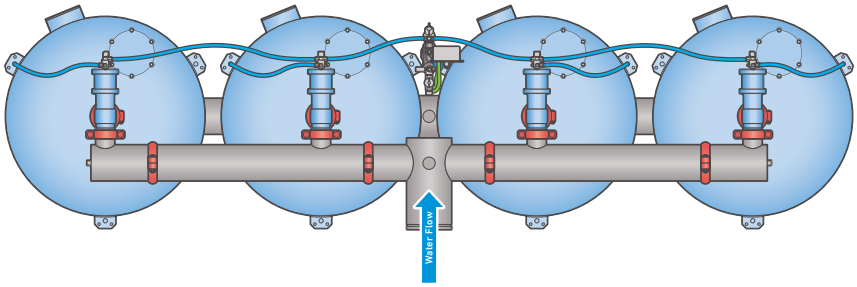
- Width = 52”
- Length = # of Tanks x 52”



Center Feed “T” Configuration

Footprint

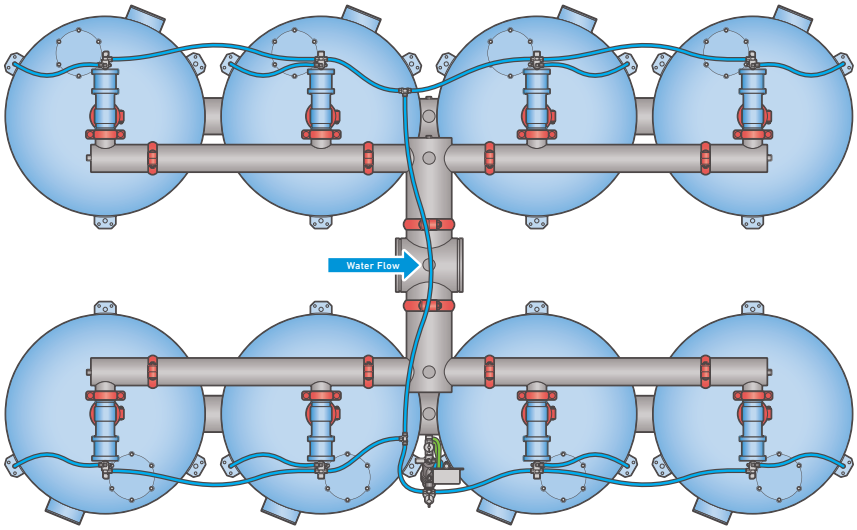
- Width = 52”
- Length = # of Tanks x 52”



“H” Configuration

Footprint

- Width = 124”
- Length = # of Tanks x 52”



Sizing A System by Water Quality

- Start by rating your water quality from 1 to 10, 10 being very clean.
- On the table to the right locate your water’s rating. Note the Divider number below your rating.
- Divide the systems flow by the Divider number selected.
- Round up to the nearest whole number and this is how many tanks are recommended.

Water Quality Rating Chart

Rating	1	2	3	4	5	6	7	8	9	10
Divider	188	200	213	225	238	250	263	275	288	300

Example: Water quality rating of 3 gives a divider of 213. If design flow is 1250gpm. 1250÷213=5.9, use 6 Tanks

Media Filters: Models and Specifications

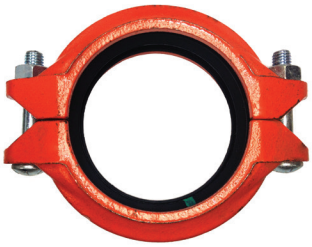
Part #	Model #	Description	Optimal Operating Range					
			Q_{min} gpm	Q_{max} gpm	P_{min} psi	P_{max} psi	Wt* Lbs	Vol* ft^3
End Feed								
13640261362	MFS-4802-06E-F4P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (2), SS End Feed manifold, FV and C backwash valves (2), Alextronix FM4, Controller mount, 12VDC Prkr Slnds (2), Take-off kit, 3/8" PE Tube, 6" inlet and outet clamps	375	625	35	100	1,152	180
13640361362	MFS-4803-06E-F4P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (3), SS End Feed manifold, FV and C backwash valves (2), Alextronix FM4, controller mount, 12VDC Prkr Slnds (2), Take-off kit, 3/8" PE Tube, 6" inlet and outet clamps	563	938	35	100	1,738	271
13640481362	MFS-4804-08E-F8P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (4), SS End Feed manifold, FV and C backwash valve (4), Alextronix FM4/8, controller mount, 12VDC Prkr Slnds (4), Take-off kit, 3/8" PE Tube, 8" inlet and outet clamps	750	1,250	35	100	2,390	371
Center Feed "T" Configuration								
1364040236	MFS-4804-10T-F4P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (4), SS Center feed "T" manifold, FV and C backwash valves (4), Alextronix FM4/8, controller mount, 12VDC Prkr Slnds (4), Take-off kit, 3/8" PE Tube, 10" inlet and outet clamps	750	1,250	35	100	2,389	370
1364050236	MFS-4805-10T-F8P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (5), SS Center feed "T" manifold, FV and C backwash valves (5), Alextronix FM4/8, controller mount, 12VDC Prkr Slnds (5), Take-off kit, 3/8" PE Tube, 10" inlet and outet clamps	938	1,563	35	100	2,974	461
1364060236	MFS-4806-10T-F8P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (6), SS Center feed "T" manifold, FV and C backwash valves (6), Alextronix FM4/8, controller mount, 12VDC Prkr Slnds, Take-off kit, 3/8" PE Tube, 10" inlet and outet clamps	1,125	1,875	35	100	3,560	553
"H" Configuration								
13640723362	MFS-4807-12H-F8P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (7), SS "H" configuration manifold, FV and C backwash valves (7), Alextronix FM4/8, controller mount, 12VDC Prkr Slnds (7), Take-off kit, 3/8" PE Tube, 12" inlet and outet clamps	1,313	2,188	35	100	4,330	664
13640823362	MFS-4808-12H-F8P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (8), SS "H" configuration manifold, FV and C backwash valves (8), Alextronix FM4/8, controller mount, 12VDC Prkr Slnds (8), Take-off kit, 3/8" PE Tube, 12" inlet and outet clamps	1,500	2,500	35	100	4,915	755
13640913362	MFS-4809-14H-F12P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (9), SS "H" configuration manifold, FV and C backwash valves (10), Alextronix FM12, controller mount, 12VDC Prkr Slnds (10), Take-off kit, 3/8" PE Tube, 14" inlet and outet clamps	1,688	2,813	35	100	5,853	872
13641013362	MFS-4810-14H-F12P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (10), SS "H" configuration manifold, FV and C backwash valves (10), Alextronix FM12, controller mount, 12VDC Prkr Slnds (10), Take-off kit, 3/8" PE Tube, 14" inlet and outet clamps	1,875	3,125	35	100	6,457	965
13641113362	MFS-4811-14H-F12P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (11), SS "H" configuration manifold, FV and C backwash valves (11), Alextronix FM12, controller mount, 12VDC Prkr Slnds (11), Take-off kit, 3/8" PE Tube, 14" inlet and outet clamps	2,963	3,438	35	100	7,061	1,059
13641213362	MFS-4812-14H-F12P12D	Jain Media Filter system: Cast Iron Single Chamber 48"Tanks (12), SS "H" configuration manifold, FV and C backwash valves (12), Alextronix FM12, controller mount, 12VDC Prkr Slnds (12), Take-off kit, 3/8" PE Tube, 14" inlet and outet clamps	2,250	3,750	35	100	7,665	1,153

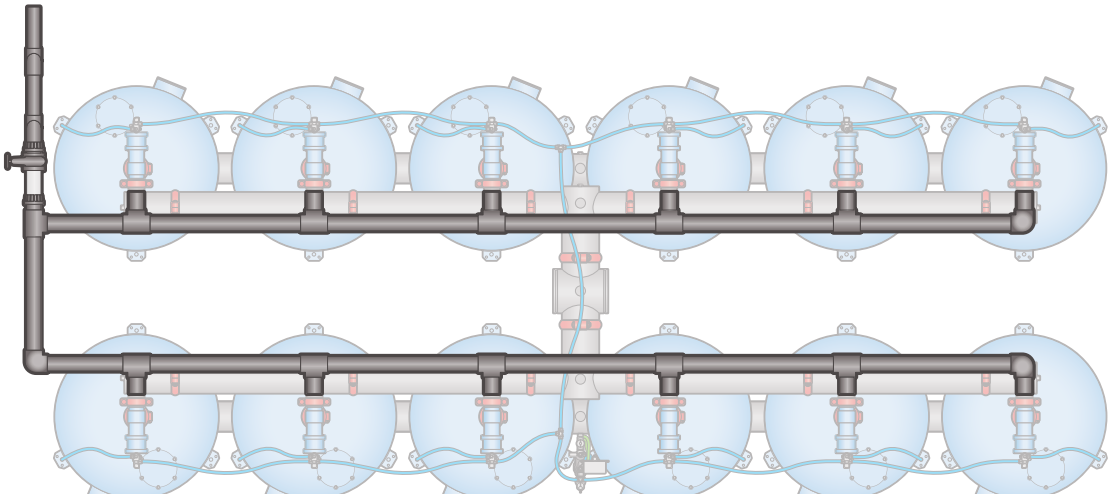
*** Does not include media. Gravel is not required. Plan on 19 ft_2 of media per tank. (~ 1800lbs)**

Media Filter Packages

Flush Manifold Package

- 4" Brass Restricting Valve
- 4" Sight Tube
- 4" Grooved Clamps
- 4" PVC SCH80 GRV x PE Adaptors
- 4" PVC SCH40; Adaptors, Tees and Elbows
- 4" PVC CL125 IPS SW Pipe



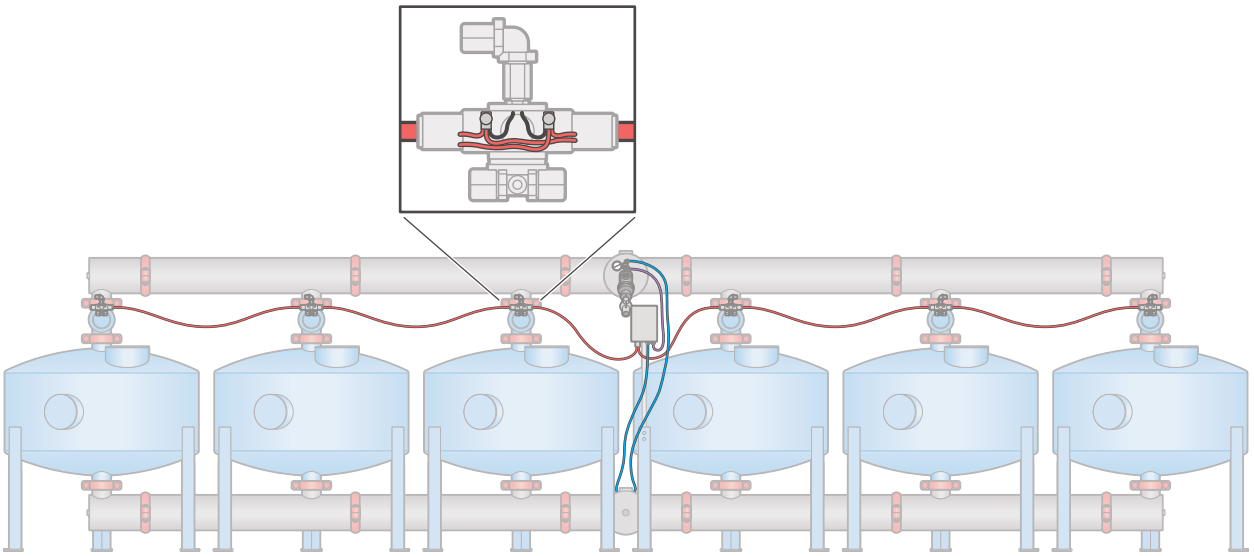


Part #	Model #	Description	Wt Lbs	Vol ft3
13350500	MF FK2E6	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 2E6	58	5
13350501	MF FK3E6	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 3E6	69	6
13350502	MF FK4E8	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 4E8, 4T10	81	7
13350503	MF FK5T10	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 5T10	92	7
13350504	MF FK6T10	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 6T10	104	8
13350505	MF FK7H12	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 7H12	121	9
13350506	MF FK8H12	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 8H12	132	10
13350507	MF FK9H14	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 9H14	144	11
13350508	MF FK10H14	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 10H14	155	12
13350509	MF FK11H12	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 11H14	166	13
13350510	MF FK12H12	MF Flush Manifold Kit: Restricting Valve, Site Tube, Fittings and Pipe for 12H14	178	13

Configuration code example: 6T10=6 tanks, "T" configuration (Center Feed), 10" grooved inlet and outlet.

Wiring Package

- Wire 22AWG-5 Irrigation Cable (10'/tank)
- Wire Connectors
- 1/2" Conduit
- Conduit Tees, Elbows and Adaptors
- ½" PVC SCH80 Nipples

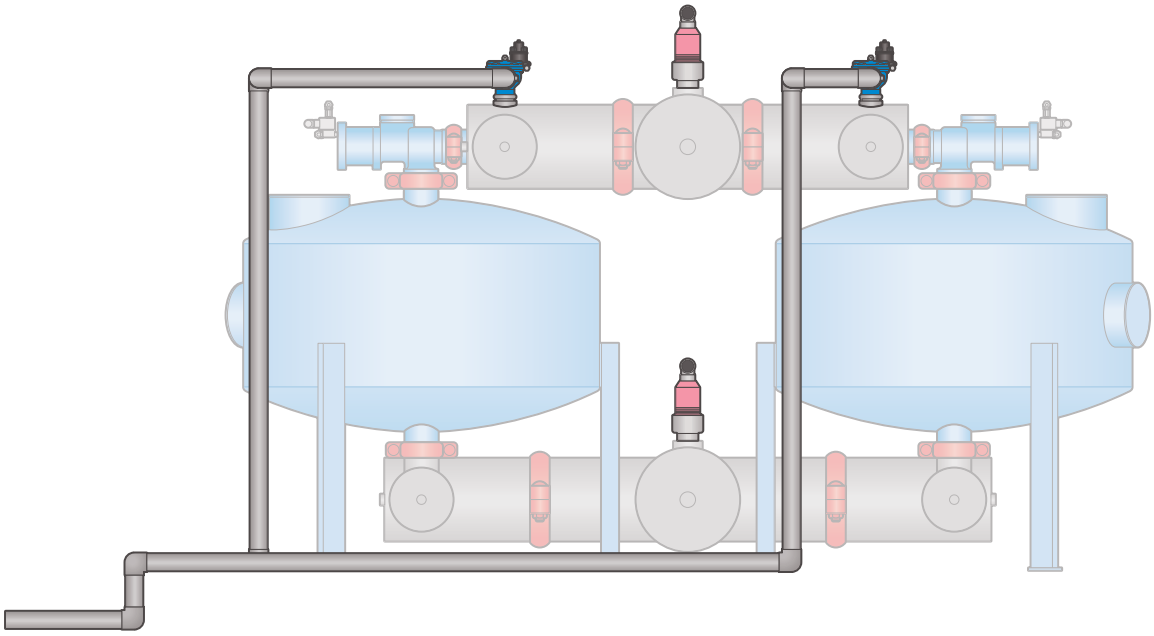


Part #	Model #	Description	Wt Lbs	Vol ft3
13350520	MF WK2E6	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 2E6	5	1
13350521	MF WK3E6	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 3E6	8	1
13350522	MF WK4E8	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 4E8	11	1
13350523	MF WK4T10	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 4T10	10	1
13350524	MF WK5T10	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 5T10	12	2
13350525	MF WK6T10	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 6T10	15	2
13350526	MF WK7H12	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 7H12	17	2
13350527	MF WK8H12	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 8H12	20	2
13350528	MF WK9H14	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 9H14	22	3
13350529	MF WK10H14	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 10H14	25	3
13350530	MF WK11H14	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 11H14	27	3
13350531	MF WK12H14	MF Wiring Kit: Conduit, Fittings, Wire, Wire connectors for 12H14	30	4

Media Filter Packages

Vent and Pressure Relief Package

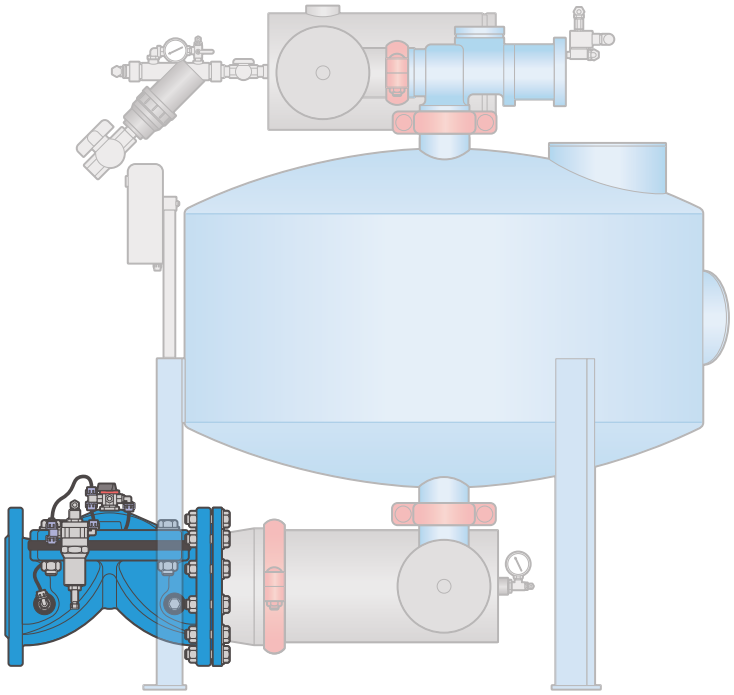
- ARV-2 Air vent/s
- A020Gh-MPSs pressure relied valve/s
- Grooved Clamp/s
- PVC SCH40 EL's and adaptors
- PVC SCH80 grooves x mipt nipples
- PCV CL125 IPS SW Pipe



Part #	Model #	Description	Wt Lbs	Vol ft3
13350540	MF VRK E6	MF Vent Relief Kit: Combination Air Vent, Pressure Relief and Fittings for 2E6, 3E6	49	1
13350541	MF VRK E8	MF Vent Relief Kit: Combination Air Vent, Pressure Relief and Fittings for 3E8	74	2
13350542	MF VRK T	MF Vent Relief Kit: Combination Air Vent, Pressure Relief and Fittings for T systems	33	1
13350543	MF VRK H	MF Vent Relief Kit: Combination Air Vent, Pressure Relief and Fittings for H systems	67	2

Pressure Sustaining Package

- JHV PSM hydraulic control valve
- SS Grv x Flg reducing adaptor
- Bolt pack with gasket, nuts and bolts



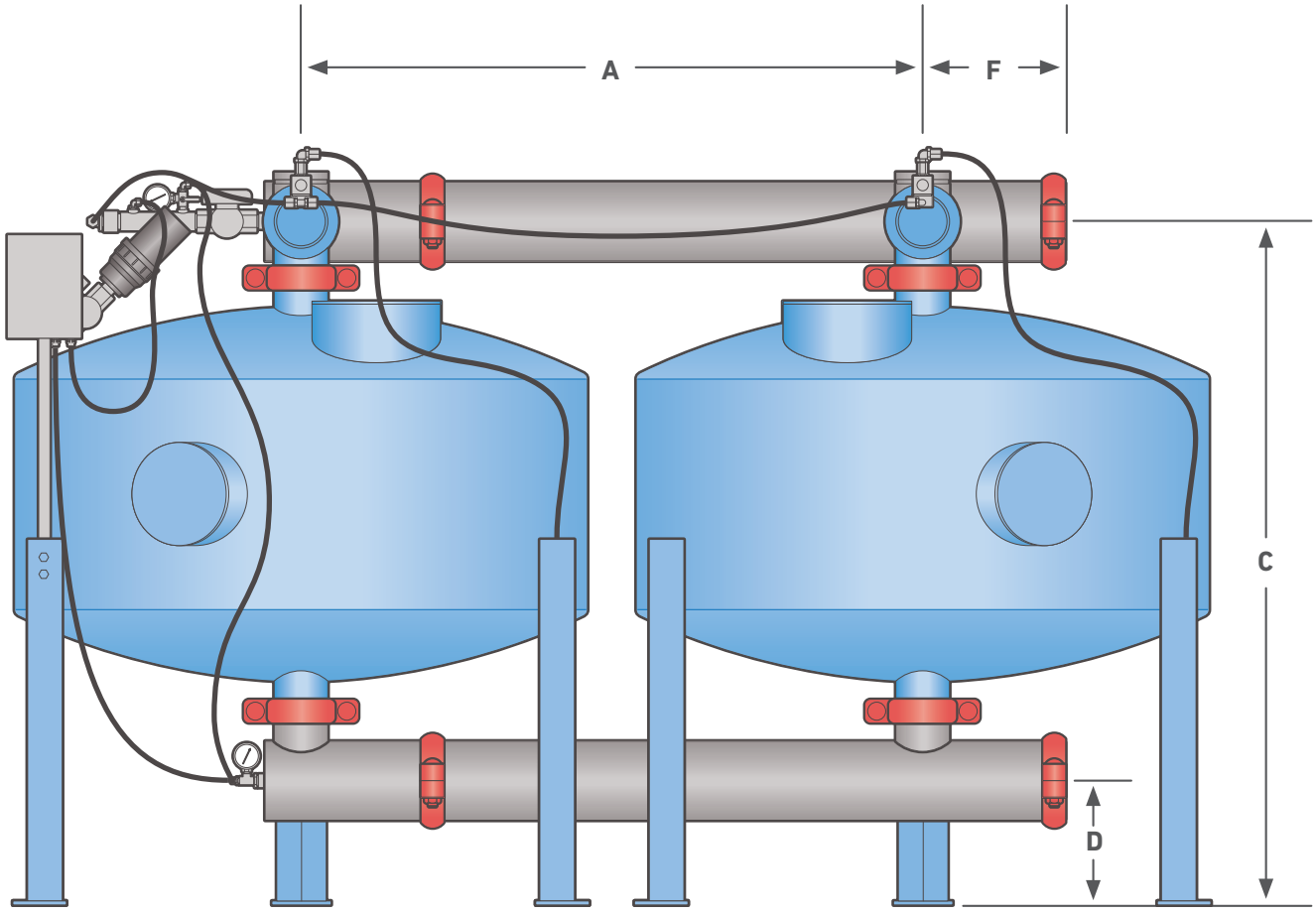
PRM valves automatically maintain the set upstream pressure for proper back wash by decreasing pressure and flow down stream. They also allow for manual operation.

Part #	Model #	Description	Wt Lbs	Vol ft3
13350550	MF PSK E6	MF Pressure Sustaining Kit; PSM Valve, Cnc Adaptors and Hardware for E6	61	1
13350551	MF PSK E8	MF Pressure Sustaining Kit; PSM Valve, Cnc Adaptors and Hardware for E8	184	2
13350552	MF PSK T10	MF Pressure Sustaining Kit; PSM Valve, Cnc Adaptors and Hardware for T10	249	5
13350553	MF PSK H12	MF Pressure Sustaining Kit; PSM Valve, Cnc Adaptors and Hardware for H12	548	11
13350554	MF PSK H14	MF Pressure Sustaining Kit; PSM Valve, Cnc Adaptors and Hardware for H14	559	13

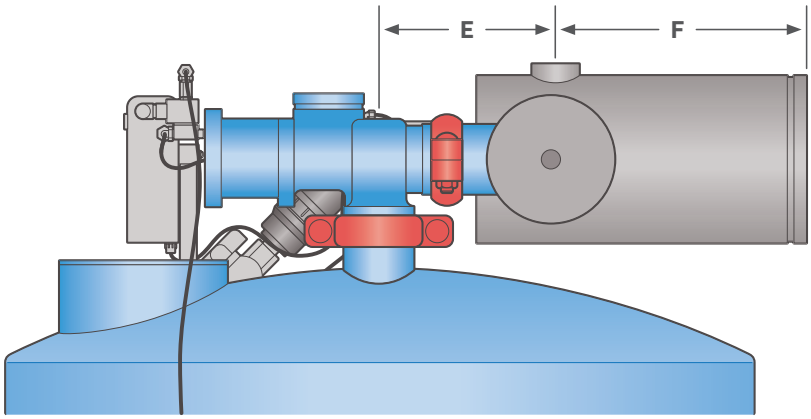
Installation Dimensions

Standard 48" Tank Media Filter System Dimensions

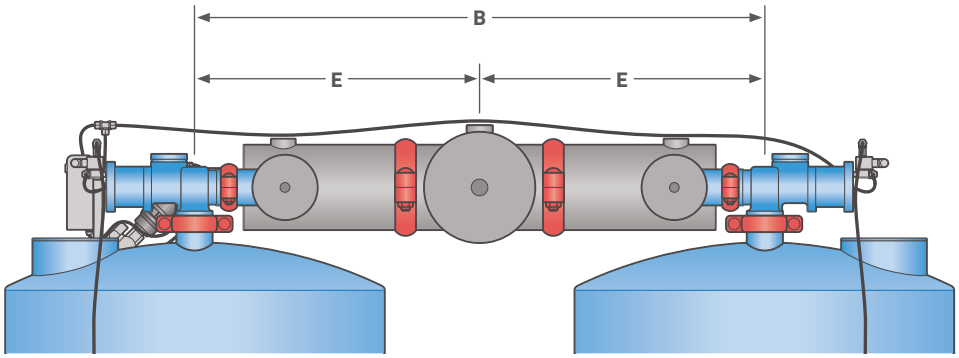
		2E6	3E6	4E8	4T10	5T10	6T10	7H12	8H12	9H14	10H14	11H14	12H14
A	Tank center line to center line, in row	52"	52"	52"	52"	52"	52"	52"	52"	52"	52"	52"	52"
B	Tank row center line to tank row center line (H configuration)	NA	NA	NA	NA	NA	NA	72"	72"	72"	72"	72"	72"
C	Inlet center line height	57.25"	57.25"	57.25"	57.25"	57.25"	57.25"	57.25"	57.25"	57.25"	57.25"	57.25"	57.25"
D	Outlet center line height	10.4"	10.4"	9.4"	9.4"	9.4"	9.4"	9.4"	9.4"	9.4"	9.4"	9.4"	9.4"
E	Inlet Off-Set; tank center line to manifold inlet center line	10.25"	10.25"	11.25	11.25	11.25	11.25	36.0"	36.0"	36.0"	36.0"	36.0"	36.0"
F	Inlet centerline to face	11"	11"	11"	16.0"	16.0"	16.0"	7.0"	7.0"	8.0"	8.0"	8.0"	8.0"

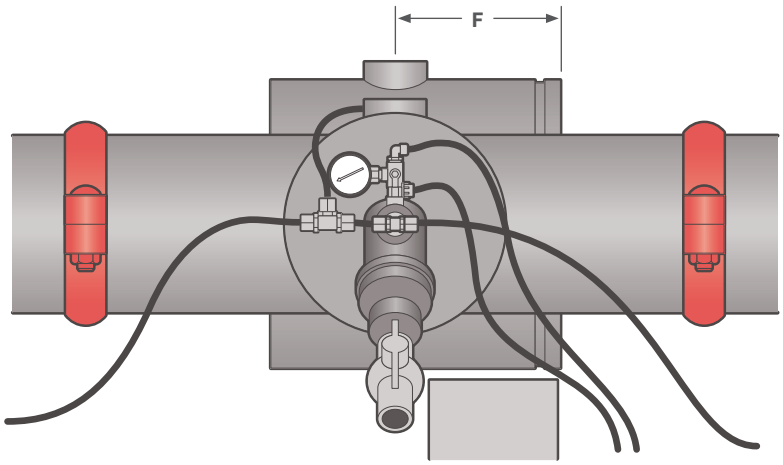


End Feed Configuration (E) and Center Feed T Configuration (E+F)



H Configuration





Design Notes

- A flushing tank increases system demand approximately 200gpm.
- Head loss through properly sized media filter systems with tanks in a condition just prior to backwash is approximately 20psi. This includes the head loss through tanks, manifolds and valves.
- Design water supply and zones (blocks) so that inlet pressure to the filters is relatively constant. The restricting valve is not automatic. Spikes in pressure can purge media. Lows in pressure can reduce flushing of particulate and compromise the media bed if prolonged.
- Channel back wash and pressure relief flow to a designated area for re-use. Design conveyance to prevent erosion and adverse effect. Keep the discharge lines short, straight and sloping downward or flat. Never discharge submerged in water or buried below grade. The termination of the discharge pipe should be where the operator can observe and feel the back wash water.
- Stationary filtration system should be placed on a level 6" thick, 5000psi concrete pad with #4- 6" OC, minimum. Subgrade should be compacted to 90% minimum. Surrounding area should be graded for proper drainage.
- Design chemigation injection upstream of the filters to protect the infield emission devises. Allow sufficient travel path and time for planned chemical reaction upstream of the filters to prevent larger particles from precipitating after the filters.
- Select media per the emission devise or the most limiting system component. The manufactures typically provides a filtration requirement. If a filtration requirement is not provided, typically particle size is limited to no greater than 1/6th to 1/10th the smallest flow path's cross sectional dimension.

  Jain does not supply media. A local source qualified in aggregate screening is best. Product can vary. Handling and transport may increase fines after grading. Do not accept soft materials that will crush or degrade. Silica sand or crushed granite are the most common. They have angular and subangular particle geometry which increases solids holding capacity. Material with spherical partial geometry is not normally used. Specify less than 10% fines . Companies qualified in aggregate screening typically express graded material in this manor: -140 +170 mesh, 90%. This represent US sieve Sizes and that 90% of the particle sizes are between these two sieve sizes. In the common irrigation this would be #16 media and provide 160mesh filtration.

  Allow 19 cu-ft for each 48" tank. One cu-ft weights between 85 to 95 lbs. (depending media spec & moisture content).

  Jain's precision Tapered V-slot Mushroom underdrain does not require a gravel pack. The media is placed below, around and on top of the underdrain.

Common Filtration Medias

	Effective Pore Space		Average Particle Diameter	
Media	~Mesh	~Micron	~mm	~in
#8 Crushed Granite	~ 80	~ 177	2.38	0.0937
#10 Crushed Granite	~ 100	~ 149	2.00	0.0787
#16 Silica Sand	~ 160	~ 99	1.19	0.0469
#20 Silica Sand	~ 200	~ 74 - 63	0.84	0.0331

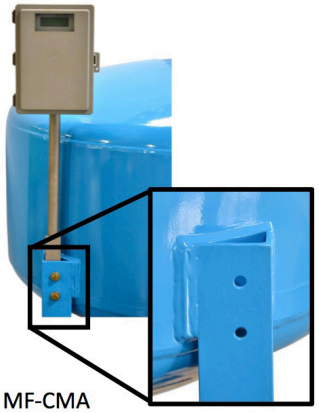
Maintenance and Operation Notes

- Use gasket lube on the internal surface of the grooved clamps. Failure to do so can compromise gaskets.
- Before filling tanks with media; completely plumb the media filters system, remove and inspect the cap on the bottom clean out port of each tank, properly re-install the cap, inspect the pressure vessels (tanks) and the under drain for damage and address any concerns. Pour media into each tank from 8" or more above the top port allowing the wind to blow away fines and allowing you to visually inspect what is going into the tank. Fill each tank up to the indicated fill level (1" to 2" below the upper weld bead).
- Before charging the tanks close off the valves to the field and open mainline flush valves to a area capable of conveying the flow with out damage to the environment or property. Adjust the flow to maintain operating pressure at the inlet to the tanks, via manipulation of the supply and the main line flush valves. Run the tanks through several back wash sequences while adjusting the restricting valve to purge fines from the media tanks.
- Set the restricting valve to allow very slight media loss. To do so barely touch the invert of the discharging back wash flow with the fingers of a cupped hand. As the cupped hand fills with water larger particle tumbling within the lower stream will deposit between your fingers. Do this after the water appears visually clean. Start with the restricting valve ¼ open. Open it little by little until you collect a trace of media.
- With the zone (Block) valves still closed thoroughly flush all mains and sub mains.
- Open the first complete Zone (Block) valve/s. Thoroughly flush the manifolds and lateral. Bring the block up to pressure. And reset the restricting valve while operating under design flow and pressure. Do this for each zone (Block) then remove the handle of the restricting valve when set to the best setting for all zones.
- Keep filters and system clean of organic growth by monitoring and controlling the pH. Flushing the system lines regularly as required. Consider seasonal shock treatments and through flushing. But do not exceed pH limits of the system components. Typically a pH range of between 6 and 8. Down to 5.5 for shock treatments. After shock treatments let the water sit in the system for a day then flush thoroughly.

Products Coming Soon

- 24", 36" and 60" Media Tanks
- Dual Chamber Tanks
- Z-Up Package
- Z-Down Package
- Chemigation Package
- Ultrasonic Flow Meter Package
- JAIN Logic Monitoring Package
- JAIN Logic Control Package

All JAIN Media Filter tanks come standard with a durable controller mount.



MF-CMA

Jain is a fully integrated global food / plant production company recognized by Harvard Business to be one of five global sustainability champions, the G-20 for lifting people out of poverty, and Fortune magazine for being a "Change the World Company." Our irrigation manufacturing capabilities include everything from behind the pump to the flush valve at the end of the lateral and everything in between. We lead the industry in manufacturing technology, owning both our extrusion and mold manufacturing equipment providers.

Jain leads plant science research globally across a variety of food crops and is staffed with some of the world's leading research scientists. With the Gandhi Library, Jain now houses the leading collection of the world's best plant science knowledge in a single facility. Our agronomic knowledge is integrated from our world class plant tissue culture operations through our food processing businesses. We research, educate, advance, manufacture, finance, propagate plants, and purchase produce for processing all in an effort to fulfill the Jain mission:

"Leave This World Better Than You Found It"

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