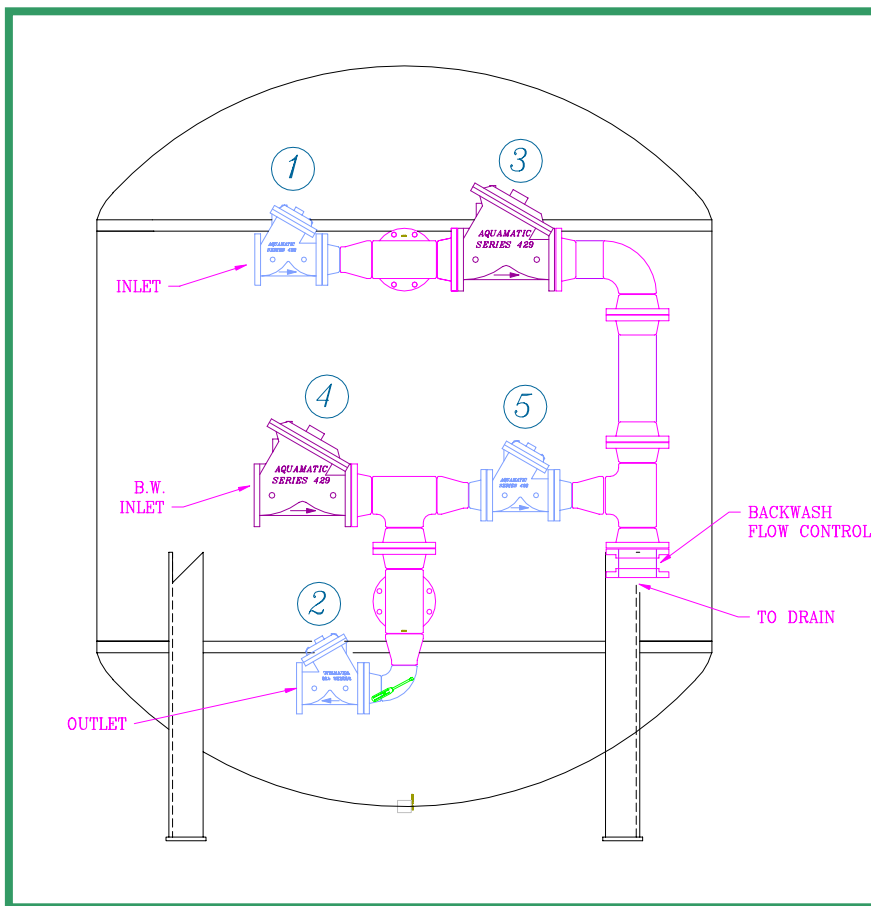


VN 78 to 120 Series Water Filters

GENERAL SPECIFICATIONS. APPLIES TO ALL TYPES OF MEDIA.

MODEL#	Dia. (in.)	Side Shell (in.)	Bed Area (ft. ²)	Valve Size (in.)		Gravel (ft. ³)	Media (ft. ³)	Dimensions		
				① ② ⑤	③ ④			Width	Depth	Height
VN 78	78	60	33.2	3	4	28	83	6'6"	7'10"	8'3"
VN 84	84	60	38.5	3	4	35	96	7'0"	8'4"	8'5"
VN 90	90	60	44.2	3	4	42	110	7'6"	8'10"	8'7"
VN 96	96	60	50.2	4	6	51	126	8'0"	10'0"	8'10"
VN 102	102	60	56.7	4	6	60	142	8'6"	10'6"	9'1"
VN 108	108	60	63.6	4	6	70	159	9'0"	11'0"	9'3"
VN 114	114	60	70.8	6	6	82	177	9'6"	12'0"	9'5"
VN 120	120	60	78.5	6	6	95	196	9'7"	12'6"	9'7"



- ① SERVICE INLET VALVE
- ② SERVICE OUTLET VALVE
- ③ BACKWASH OUTLET VALVE
- ④ BACKWASH INLET VALVE
- ⑤ RINSE OUTLET VALVE

THE MEDIA CHOICES FOR THIS SERIES OF FILTERS ARE:

- FINE SAND
- FILTER AG
- ACTIVATED CARBON
- MULTIMEDIA
- MANGANESE GREENSAND
- STABILIZATION MEDIA

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FLOW RATE IN GPM AT VARIOUS LOADING RATES									
MODEL #	Dia. (in.)	Bed Area (ft. ²)	Filter Loading in (gpm/ft. ²)						
			2	3	4	5	7.5	10	15
VN 78	78	33.2	66	100	133	166	249	332	498
VN 84	84	38.5	77	116	154	193	289	385	578
VN 90	90	44.2	88	133	177	221	332	442	663
VN 96	96	50.2	100	151	201	251	377	502	753
VN 102	102	56.7	113	170	227	284	425	567	851
VN 108	108	63.6	127	191	254	318	477	636	954
VN 114	114	70.8	142	212	283	354	531	708	1062
VN 120	120	78.5	157	236	314	393	589	785	1178

BACKWASH RATE IN GPM					
MODEL #	Fine Sand	Filter AG	Activated Carbon	Green Sand	Multimedia
VN 78	398	282	282	398	505
VM 84	462	327	327	462	585
VN 90	530	376	376	530	672
VN 96	602	427	427	602	763
VN 102	680	482	482	680	862
VN 108	763	541	541	763	967
VN 114	850	602	602	850	1076
VN 120	942	667	667	942	1193

MODEL #	Gravel (ft. ³)	Media (ft. ³)	No. 1 Anthracite	0.45 - 0.55 mm Sand	30 / 40 Garnet	8 / 12 Garnet
VN 78	28	83	41	29	17	9
VM 84	35	96	48	33	20	9
VN 90	42	110	49	34	20	10
VN 96	51	126	50	35	23	11
VN 102	60	142	51	36	26	13
VN 108	70	159	52	37	29	14
VN 114	82	177	53	38	32	16
VN 120	95	196	54	39	35	18

NOTES:

1. CALCULATIONS ARE BASED ON BACKWASH FLOW ON THE FILTER AG AND ACTIVATED CARBON FILTER AT 8.5 GPM/FT², ON THE FINE SAND AND GREEN SAND FILTER AT 12 GPM/FT², AND ON THE MULTIMEDIA FILTER AT 15 GPM/FT².
2. CALCULATIONS ARE BASED ON CONTINUOUS FLOW AT 5 GPM/FT² (APPLIES TO ALL TYPES OF MEDIA).
3. SPECIFICATIONS LISTED ARE NOT SKID MOUNTED SYSTEMS. SKID DIMENSIONS – GIVEN UPON REQUEST.

VN 78 TO 120 – 4F AND – 6F FILTER SPECIFICATIONS

MINERAL TANK (STANDARD NON CODE VESSELS). The non-code vessel shall be A36 carbon steel or better rated at 100 psi working pressure designed to a factor of safety of 3.0.

MINERAL TANK (OPTIONAL CODE VESSELS). ASME code stamped tanks shall be available. Tank shall be clearly specified as code or non-code with a specified working pressure. Tanks “built to ASME code but not stamped” shall not be acceptable as ASME code. An ASME U1 form shall be provided with each ASME code tank.

COATING AND LINING. Tanks shall be prepared for internal and external coating with a SPCC 11 near white sand blast. Internal and external coating shall be two 3 - 4 mill coats of white Series 20 Tnemec Epoxy. Paint shall be applied according to manufacturer’s recommendations.

INTERNALS. The bottom distributor shall be hub and lateral design with SCH 80 PVC hub and SCH 40 PVC slotted laterals. The slots shall be .012" - .016" wide to retain mineral and the total slot area shall be equal to or larger than the unit pipe size. A four point SCH 80 PVC upper distributor with an opening equal to or larger than the unit pipe size shall be installed in the mineral tank.

FACE PIPING. For models with a –4F or –6F designation the inlet and outlet connection shall be 4" or 6" flanges and the pipe shall be schedule 40 galvanized grooved fittings. Tanks shall have double drilled double tapped pad flanges on the side shell for inlet and outlet.

MEDIA. The filtration media shall be in quantities noted above. Underbedding shall be #20 graded washed flint gravel sieved between 1/8" and 1/16".

VALVES. The valves shall be Water King DMB Series cast iron body valves with grooved connections. The valve can be operated by air or water. The diaphragm shall be preformed, nylon fabric reinforced natural rubber. Internal parts shall be stainless steel and brass. Working pressure on the valve is 230 psi with maximum temperature of 175°F.

STAGER. Diaphragm valves shall be operated by a rotary pilot valve (stager) with multiple ports through which control fluid is directed, thereby operating the diaphragm valves installed in a process system. Standard units shall use staggers constructed of durable, non-corroding, self-lubricating material for long, maintenance free life. The stager shall function by opening and closing its ports, singly or in combination, in a sequence that accomplishes the five cycles of softening. The stager shall use either water or air for the operating fluid. Process fluid, if pressurized, and not damaging to the internal parts of the stager or diaphragm valve, may be drawn from the main line to the inlet of the stager. Otherwise, an independent source of control fluid is required. The pressure of the control fluid must be equal to or greater than the line pressure of the system. The stager enclosure shall be a 10" x 8" x 6" NEMA 4 fiberglass control box which houses both the stager and the timer. Maximum pressure shall be 100 psi with a maximum temperature rating of 150°F. Ports are 1/8" NPT. Power shall be either 120 VAC/60 Hz or 230 VAC/50 Hz. Flexible tubing (¼" O.D.) shall connect stager ports to diaphragm valves.

OPERATING CONDITIONS. Maximum temperature shall be 100°F. Pressure shall be 25 to 100 psi.

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CONTROL. Standard filter control an electromechanical system using a 6-day timer and a stager. The timer shall be housed in the NEMA 4 control box with the stager and initiates regeneration at certain, preset times. Manual regeneration shall be available at the stager.

MULTIPLE FILTERS. Filters shall sequentially backwash based on timer initiation. Timers shall be either an independent 6- or 7- day timer on each unit or a 6- or 7- day timer on the lead unit and an ARC cycle timer on the remaining units operating in a master slave relationship to cause sequential backwashing.

DIFFERENTIAL PRESSURE INITIATION (OPTIONAL). A differential pressure gauge shall provide initiation of backwash when the pressure difference between the inlet and outlet header on the filter(s) exceeds a certain preset value (usually 10 psi).

OTHER ITEMS. A complete set of instructions, including installation, loading, start-up, adjustments, servicing, and a parts list shall be provided with the equipment.

QUALIFICATIONS. A company that has continuously manufactured water softeners for at least 10 years shall construct the equipment.

PRESSURE GAUGE AND TEST TAP KIT. A kit containing two liquid filled, stainless steel pressure gauges with 2 ½" Ø face, two brass ball valve sample taps with hose barb connections and associated brass connection fittings shall be provided for mounting in the 1/4" FNPT predrilled and tapped ports in the inlet and outlet diaphragm valves.

Installation. Due to the size of these systems and freight cost of shipping tanks, tanks will be shipped to site directly from place of fabrication. All assembly including face piping, internals, tubing and electrical shall be performed on site by installing contractor.