

GRF® Condensate Polishers



Graver's GRF® Condensate polishers are a proven solution for treating condensate for reuse as boiler feed water and reduce the need for fresh makeup process water. In addition, GRF prevents contamination risks within the production cycle which could result in loss of boiler efficiency and possible mechanical damage to key components. GRF® Polishers remove corrosion products such as iron, copper and other metal oxides as well as dissolved solids from the steam condensate, including hardness (calcium/magnesium) and other multi-valent cations resulting in efficient maintenance of boiler water quality.

What the GRF Does

The GRF® typically functions as a sodium cycle ion exchanger which removes hardness that creates scale deposits on downstream equipment. GRF is effective at temperatures up to 300° F using specially processed cation resins that have been selected for their ability to withstand this high temperature without degradation. In addition, the GRF functions as a filter that removes suspended solids called crud and is designed to utilize the entire depth of the resin bed, resulting in long run lengths.

Regeneration

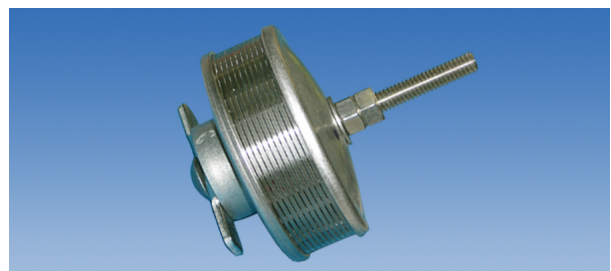
Regeneration is accomplished either internally (typical) or externally. Chemical regeneration of the ion exchange resin is typically accomplished using salt brine and available in amine or ammonia cycle option upon request. Frequency of regeneration is determined by solids load and flow rates.

Effective Underdrain System

The Graver underdrain system, incorporating stainless steel Partilok® Strainers, assures uniform collection and distribution of water during both service and regeneration cycles. These strainers utilize self-cleaning venturi slots, designed for low headloss and high jet velocity during backwash. Testing equivalent to over 16 years of use indicate no effect of wear, fatigue or decrease in particle retention capabilities. Our standard subsurface washer effectively cleans the bed of accumulated crud.

Contaminant Removal Efficiency of GRF		
Contaminant	Influent	Effluent
Iron	40 PPB	20 PPB
Copper	1 PPB	-
Hardness	1000-3000 PPB	< 500 PPB*
Suspended Solids	1000 PPB	250 PPB

* Limit of test procedure accuracy

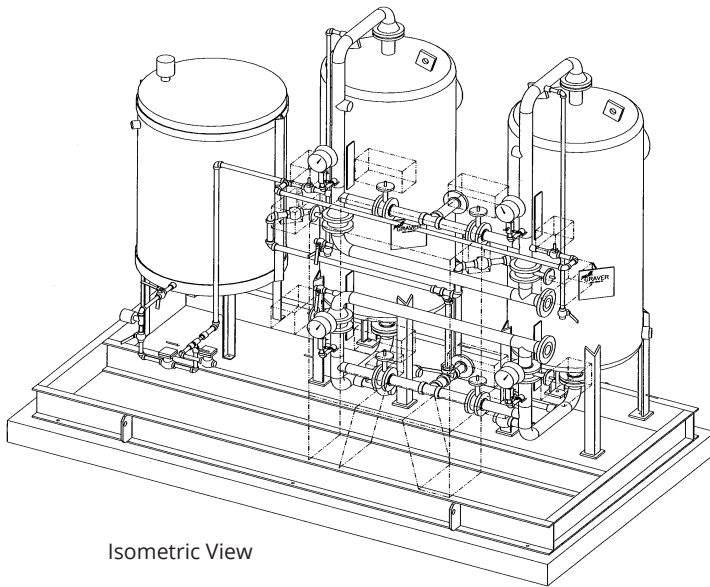


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Specifications

Model	Vessel Diameter (")	Max Flow Rate (gpm)	Resin Quantity (cf)	Capacity Range (grains)	Inlet/Outlet Pipe Sizes (")	Brine Tank Diameter x Height (")	Approximate Dimensions LxDxH (")
GRF36	36	213	18	360,000 - 468,000	3	48x48	156" x 60" x 120"
GRF42	42	288	24	480,000 - 624,000	3	48x48	156" x 60" x 120"
GRF48	48	378	32	640,000 - 832,000	4	48x48	180" x 72" x 132"
GRF54	54	477	40	800,000 - 1,040,000	4	48x48	180" x 72" x 132"
GRF60	60	588	49	980,000 - 1,274,000	6	48x48	204" x 84" x 132"
GRF66	66	711	59	1,180,000 - 1,534,000	6	48x48	204" x 84" x 132"
GRF72	72	849	71	1,420,000 - 1,846,000	6	60x60	240" x 96" x 132"
GRF78	78	996	83	1,660,000 - 2,158,000	6	60x60	240" x 96" x 132"
GRF84	84	1155	96	1,920,000 - 2,496,000	8	60x60	264" x 108" x 132"
GRF90	90	1325	111	2,220,000 - 2,886,000	8	60x60	264" x 108" x 132"
GRF96	96	1506	126	2,520,000 - 3,276,000	8	60x60	276" x 114" x 132"



Isometric View

Features	Std.	Opt.
Carbon Steel Pressure Tank with 60" Straight Side	X	
Vessel has 100 psig ASME Code Construction	X	
Stainless Steel Strainer Underdrain	X	
Carbon Steel Flanged and ASME IX Welded Face Piping	X	
Carbon Steel flanged diaphragm valves (up to 2")	X	
316 SS Disc and Stem B-fly Valves with Pneum. Act.(3"+)	X	
Automatic Fast Rinse and Backwash Flow Control	X	
Subsurface Wash	X	
Automatic Brine Float Valve	X	
Welded Stainless Steel Brine & Subsurface wash headers	X	
Pressure Relief Valve	X	
Upgrade: Lined CS tank		X
Upgrade: SS tank, facepiping, valves and internals		X
Add: Anti-Flash Valve		X
Add: Manual System Isolation Valves		X
Add: Raw Water Bypass		X
Add: Stainless Steel Resin Trap		X
Add: Skid Assembly		X
Instrumentation and Controls		
Electronic Programmable Controller in NEMA 4X Encl.	X	
Inlet and Outlet Pressure Gauges	X	
Outlet Sample Valve	X	
Upgrade: Allen Bradley PLC in NEMA 4X Enclosure		X
Add: Differential Pressure Switch		X
Add: System Flow Sensor		X
Add: Stainless Steel Outlet Water Sample Cooler		X
Add: HACH Automated Hardness Analyzer		X
Regeneration Initiation Methods		
Manual	X	
Timer	X	
Differential Pressure Switch		X
Flow		X
Conductivity (Amine systems)		X

Contact Us

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