

TURBOGUARD®

High Performance Water Treatment for Power Generation

Aegis® TurboGuard® Pre-Filters

Graver Technologies, Aegis® TurboGuard®, is a technically improved 6 inch (152 mm) high-flow filter for the utility market.

Graver is the world's largest supplier of condensate system filters and components and has been manufacturing precoat and non-precoat septa for condensate systems for more than 50 years. Graver is the consistent technology innovator with more than 40 patents and numerous technical advances for condensate and high purity water applications.

Graver's family of TurboGuard High Flow Filters will provide superior CRUD removal upstream of deep bed demineralizers.

Graver's TurboGuard line of filters are manufactured in the USA at Graver Technologies manufacturing plants, under an ISO registered quality system.



Filter Specifications	
Media	Pleated Proprietary Multi-Layer Polypropylene
End Caps	Polypropylene
Cage	Polypropylene
O-Rings	EPDM, Quad Seal
Core (if required)	Polypropylene
DIMENSIONS	
Outside Diameter	6" (152 mm)
Nominal Lengths	20" (508 mm) 40" (1,016 mm) 60" (1,524 mm)
OPERATING CONDITIONS	
Max. Operating Temperature	180°F (85°C)
Maximum Forward Operating Differential Pressure	50 psid (3.4 bar) @ 68°F (20°C) 35 psid (2.4 bar) @ 160°F
Recommended Maximum Changeout Differential Pressure	35 psid (2.4 bar)



Aegis TurboGuard Pre-Filters deliver revolutionary features and benefits in easy-to-use formulations

FEATURES

- > Flow is from the inside core to the outer pleats
- > TurboGuard Filters are wrapped in a one-piece extruded outer cage preventing both media migration during inside out flow, and tearing during removal
- > One-piece molded end caps, including molded-in bail for secure handling during installation and removal
- > Thermally bonded construction and low pressure drop at specified flow rates
- > Maximum Flow Rates (lower flow rates will affect performance)
 - 20" Element up to 175 gpm (663 lpm)
 - 40" Element up to 350 gpm (1,325 lpm)
 - 60" Element up to 500 gpm (1,893 lpm)

BENEFITS

- > TurboGuard's one-piece extruded outer cage allows for easier maintenance and removal
- > Quad Seal gasket system to provide maximum sealing surfaces
- > A complete line of ASME Code Section VIII Division 1 Housings are available
- > Optimized media surface area allows the full use of installed media area — not blocked off by media "squeezing"

Aegis TurboGuard Pre-Filters

Graver's TurboGuard High Flow Filter integrates a number of improvements over currently available elements. With the most experience of any supplier in condensate applications, Graver can access more than 50 years of experience when improving fundamental filtration in condensate and high purity water applications.

Graver's TurboGuard High Flow Filter is designed specifically for use in combined cycle or high cycling plants with or without deep beds. TurboGuard should also be used

in other critical utility applications where substantial dirt holding and CRUD removal properties are essential. TurboGuard High Flow Filters are typically installed upstream of the condensate demineralizers to prevent ion exchange resin bead fouling. Unique media design is focused specifically on utility applications and the specific contaminants in condensate – type systems. Graver TurboGuard High Flow Filter will retrofit competitive inside-out vessels designed for 6" diameter (152 mm) x 60" (1,524 mm) long filters.

TurboGuard High Flow Nomenclature Information

	Retention Rating (Microns)	Length Inches	Gasket or O-Ring	Internal Core (If Required)
TurboGuard (TBG) High Flow Series	1	20" (508 mm)	P = EPDM	C = Polypropylene
	3	40" (1,016 mm)	S = Silicone	
	5	60" (1,524 mm)	B = Buna N	
	10		V = Viton	
	20			
	40			
	60			
	100			

Example: TBG 5-60-P = TurboGuard High Flow Filter, 5 microns, 60 inches, EPDM. / TBG-5-60-PC (same as above) with center core.

TurboGuard High Flow Series Element Pressure Drop

Microns	Element Pressure Drop psid/gpm			Element Pressure Drop Mbar/M ³ /Hr		
	20"	40"	60"	20"	40"	60"
1	0.0200	0.0097	0.0065	6.0845	2.9395	1.9820
3	0.0167	0.0081	0.0054	5.0705	2.4495	1.6516
5	0.0076	0.0037	0.0025	2.3179	1.1198	0.7550
10	0.0046	0.0022	0.0015	1.3908	0.6719	0.4530
20	0.0021	0.0010	0.0007	0.6374	0.3079	0.2076
40	0.0017	0.0008	0.0006	0.5215	0.2520	0.1699
60	0.0015	0.0007	0.0005	0.4552	0.2199	0.1483
100	0.0010	0.0050	0.0003	0.3035	0.1466	0.0989

Note: For chemical compatibility, flow rates, and temperature requirements please consult the factory or your local Graver distributor.



Graver Technologies

All information and recommendations appearing in this bulletin concerning the use of products described herein are based on tests believed to be reliable. However, it is the user's responsibility to determine the suitability for his own use of such products. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by Graver Technologies as to the effects of such use or the results to be obtained. Graver Technologies assumes no liability arising out of the use by others of such products. Nor is the information herein to be construed as absolutely complete, since additional information may be necessary or desirable when particular exceptional conditions or circumstances exist or because of applicable laws or governing regulations. Aegis and TurboGuard are registered trademarks of Graver Technologies. © 2019 Graver Technologies, LLC. All rights reserved.

Graver Technologies, LLC

200 Lake Drive, Glasgow, DE 19702

T 800.533.6623

T 302.731.1700

F 302.731.1707

info@gravertech.com

gravertech.com

China

RM 16D, Building B

No. 1118, Changshou Road

Shanghai, China 200042

T +(86) 21.5238.6576

F +(86) 21.5238.6579

Europe

Koenigstrasse, 10c. D-70173

Stuttgart, Germany

T +33 (6) 1933.1110

India

T +(91) 9212.722.691

United States

Quality Management System

ISO 9001

FM 38860



A Marmon Water/Berkshire Hathaway Company

GTx502 06/2019