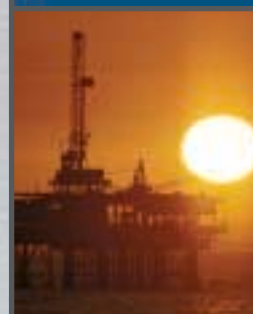
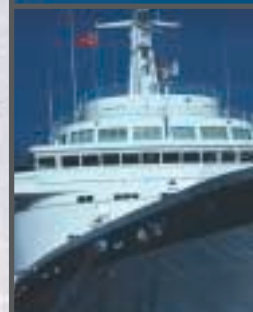


Marine Products

Dampers, Louvers, and Fans

• Selection • Construction • Performance



 **GREENHECK**
Building Value in Air.

November
2004

The Greenheck Difference

What makes Greenheck different from other manufacturers? Perhaps its having the most UL certified dampers or industry leading testing capabilities.



Aggressive research, development and testing keeps Greenheck a leader in the air movement and control industry. For over 50 years, the Greenheck name has been synonymous with innovation, product quality and customer service.



Marine Dampers, Louvers, and Fans

A complete line of Fire, Combination Fire/Smoke Dampers, Louvers, and Fans can be used in marine and offshore ventilation systems such as:



- Ferries
- Ships
- Tug boats
- Offshore oil rigs
- River Boat casinos
- Cruise ships



Greenheck is the first US manufacturer with United States Coast Guard Class A-60 division approval on Combination Fire/Smoke and Fire Dampers. The Marine dampers were tested at Underwriters Laboratories (UL) in accordance with International Maritime Organization's (IMO) Fire Test Procedure code. They are also American Bureau of Shipping (ABS) approved. Performance data testing was conducted in accordance with AMCA Standard 500-D.

A complete line of Wind-Driven Rain, Drainable and Combination Louvers are available for the severe and corrosive environments on ships. Wind-Driven Rain models offer excellent rain resistance while Drainable blade louvers additionally offer outstanding resistance to water penetration. Combination louver models can be opened or closed as desired.

Greenheck's high standards of quality and performance provides assurance for fans in marine environment applications. Greenheck has a versatile line of heavy duty fans to meet many different performances, configurations, and situation requirements. Compact designs, efficient performance, and reliable operation are what Greenheck provides in fans for marine duty environments.



In-House Testing for Marine Products

Greenheck has invested in state-of-the-art laboratory and testing facilities to help develop new products and update our existing products to provide you with the highest quality. Greenheck's laboratory facilities test products to the latest versions of AMCA, ANSI, ASHRAE, UL, USCG and other industry standards of performance.



IMO Fire Damper Test

Greenheck built a steel bulkhead to test dampers to the IMO Fire Test Procedure Code (A.754). The dampers are tested to 1733°F (945°C) for 60 minutes.



Wind-Driven Rain & Water Penetration Testing

Our in-house wind-driven rain test chamber simulates the effects of a Class II hurricane at 100 mph wind speeds to test rain rejection while allowing air passage.



Air Test Chamber

Greenheck has three AMCA registered air performance test chambers to measure air volume and horsepower requirements at different pressure levels.

A Global Presence

Greenheck operates four manufacturing locations, eight national distribution centers, and four international distribution centers.



Leading Edge Technical Support and Customer Service

All Greenheck products are supported by the industry's best product literature, electronic media, and Computer Aided Product Selection program (CAPS). You'll also find extensive information on the internet.



You can always count on the personal service and expertise of our national and international representative organizations. To locate your nearest Greenheck representative, call 715-359-6171 or visit our website at www.greenheck.com

With Greenheck's experienced staff, we can answer questions and provide solutions to your unique damper, louver, and fan applications. Greenheck's commitment to our customers doesn't end with a finished product. If you have application questions in the field, we are here to assist you.



Marine Dampers

Greenheck marine dampers are United States Coast Guard approved (Approval no. 164.139/7/0) and UL approved* (R13317). Compared to the competition our dampers are 50% lighter, which helps lower the weight of your ship.

IMO-310 Fire Damper

- USCG approved
- UL555 approved*
 - 1 1/2 hour fire rating
- Velocity up to 2000 fpm (10.2m/s)
- Pressure up to 4 in. wg (1kPa)



IMO-310 / SSIMO-310
Marine Fire Damper

SSIMO-310 Stainless Steel Fire Damper

- USCG approved
- Velocity up to 2000 fpm (10.2m/s)
- Pressure up to 4 in. wg (1kPa)



IMO-311 / SSIMO-311
Marine Combination
Fire/Smoke Damper

IMO-311 Combination Fire Smoke Damper

- USCG approved
- UL 555 & UL555S approved*
 - 1 1/2 hour fire rating
 - Leakage class I
- Velocity up to 3000 fpm (15.2m/s)
- Pressure up to 4 in. wg (1kPa)

SSIMO-311 Stainless Steel Combination Fire Smoke Damper

- USCG approved
- Velocity up to 3000 fpm (15.2 m/s)
- Pressure up to 4 in. wg (1kPa)

Weight Charts

	Actual Size - in. (mm)		Weight- lb (kg)			Actual Size - in. (mm)		Weight- lb (kg)	
IMO-310/ SSIMO-310	8 x 8	(203x203)	11	(5)	IMO-311/ SSIMO-311	8 x 8	(203x203)	16	(7.3)
	10 x 10	(254x254)	14	(6.4)		10 x 10	(254x254)	19	(8.6)
	12 x 12	(305x305)	17	(7.7)		12 x 12	(305x305)	22	(10)
	18 x 18	(457x457)	28	(12.7)		18 x 18	(457x457)	33	(15)
	20 x 20	(508x508)	31	(14)		20 x 20	(508x508)	36	(16.3)
	24 x 24	(610x610)	39	(17.7)		24 x 24	(610x610)	44	(20)
	30 x 30	(762x762)	52	(23.6)		30 x 30	(762x762)	57	(26)
	32 x 32	(813x813)	58	(26.3)		32 x 32	(813x813)	63	(28.5)
	64 x 32	(1626x813)	96	(43.5)		64 x 32	(1626x813)	103	(46.7)

Quick Reference Chart

STD = Standard OPT = Optional		IMO-310	SSIMO-310	IMO-311	SSIMO-311
Construction	Galvanized steel channel frame	STD		STD	
	304 stainless steel channel frame		STD		STD
Blade Profile	Airfoil	STD	STD	STD	STD
Closure Temperature	165° F (74° C)	STD	STD	STD	STD
	212° F (100° C)	OPT	OPT	OPT	OPT
Sizing	Minimum size	8 in. x 6 in. (203mm x 813mm)	8 in. x 6 in. (203mm x 813mm)	8 in. x 6 in. (203mm x 813mm)	8 in. x 6 in. (203mm x 813mm)
	Maximum section size	32 in. x 32 in. (813mm x 813mm)	32 in. x 32 in. (813mm x 813mm)	32 in. x 32 in. (813mm x 813mm)	32 in. x 32 in. (813mm x 813mm)
	Maximum multi-section size	64 in. x 32 in. (1626mm x 813mm)	64 in. x 32 in. (1626mm x 813mm)	64 in. x 32 in. (1626mm x 813mm)	64 in. x 32 in. (1626mm x 813mm)

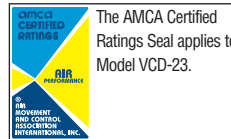
*Consult factory for UL approved sizes.

VCD-23 & SEVCD-23

Models VCD-23 and SEVCD-23 have 3-V style blades for application as an automatic control or manual balancing damper. A wide range of electric or pneumatic actuators are available for these models.

FEATURES

- Temperature 180°F (82°C)
- Velocity up to 3000 fpm (15.2 m/s)
- Pressure rating up to 5 in. wg (1.25 kPa)
- Leakage 10 cfm/sq. ft. @ 4 in. wg (183 cmh/m² @ 1 kPa)



VCD-33 & SEVCD-33

Models VCD-33 and SEVCD-33 dampers have an airfoil style blade designed to meet the highest standards established for commercial control dampers. A wide range of electric and pneumatic actuators are available for these models.

FEATURES

- Temperature 180°F (82°C)
- Velocity up to 4000 fpm (20.3 m/s)
- Pressure rating up to 8 in. wg (2 kPa)
- Leakage 6 cfm/sq. ft. @ 4 in. wg (110 cmh/m² @ 1 kPa)



STD = Standard OPT = Optional		VCD-23	VCD-33	SEVCD-23	SEVCD-33
Blade Profile	3V	STD		STD	
	Airfoil		STD		STD
Material	Galvanized	STD	STD		
	304 stainless steel	OPT	OPT		
	316 stainless steel			STD	STD
Frame Gauge inches (mm)	Aluminum	OPT			
	16 (1.5)	STD	STD	STD	STD
	14 (2)	OPT	OPT		
Blade Seals	12 (2.8)	OPT	OPT		
	Vinyl	STD		STD	
	Silicone	OPT	OPT	OPT	OPT
Jamb Seals	EPDM	OPT	STD		STD
	304 stainless steel	STD	STD		
	316 stainless steel			STD	STD
Bearings	Synthetic	STD	STD		
	Bronze	OPT	OPT		
	304 stainless steel	OPT	OPT		
Axles	316 stainless steel			STD	STD
	Steel	STD	STD		
	304 stainless steel	OPT	OPT		
Linkage Material	316 stainless steel			STD	STD
	steel	STD	STD		
	304 stainless steel	OPT	OPT		
Sizing inches (mm)	Minimum size	6x6 (152x152)	6x6 (152x152)	6x6 (152x152)	6x6 (152x152)
	Maximum single section size	48x74 (1219x1880)	60x74 (1524x1880)	48x74 (1219x1880)	60x74 (1524x1880)
	Maximum multi section size	Unlimited	Unlimited	Unlimited	Unlimited

Industrial control dampers are heavy duty flanged style dampers with various blade styles. They are designed to control airflow and provide shut off in HVAC or industrial process control systems.

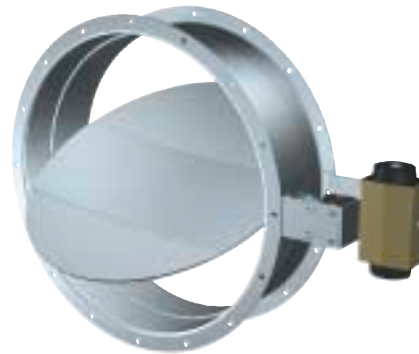
FEATURES

- 316 stainless steel option
- Pressure rating up to 45 in. wg (11,209 Pa)
- Velocity up to 6000 fpm (30.5 m/s)
- Models HCD series & HCDR series dampers



HCD series

		HCD-120	HCD-130	HCD-135	HCD-140	HCD-220	HCD-230	HCD-240	HCD-330	HCD-430	HCD-530
Pressure in. wg (Pascal)	Maximum	8.5 (2117)	8.5 (2117)	8.5 (2117)	6 (1494)	15 (3736)	15 (3736)	15 (3736)	25 (6227)	35 (8718)	45 (11209)
	Velocity fpm (m/s)	3000 (15.2)	4000 (20.3)	4000 (20.3)	6000 (30.5)	4000 (20.3)	5000 (25.4)	5000 (25.4)	5000 (25.4)	6000 (30.5)	6000 (30.5)
Maximum Temperature	Standard	180° F (82° C)	250° F (121° C)	250° F (121° C)	250° F (121° C)	250° F (121° C)	250° F (121° C)	250° F (121° C)	250° F (121° C)	250° F (121° C)	250° F (121° C)
	Optional	400° F (204° C)	400° F (204° C)	400° F (204° C)	N/A	400° F (204° C)	400° F (204° C)	400° F (204° C)	400° F (204° C)	400° F (204° C)	400° F (204° C)
Frame	Galvanized	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	304SS	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	316SS	N/A	N/A	N/A	N/A	Optional	Optional	Optional	Optional	Optional	Optional
Blade Profile	Galvanized 3V	Standard	N/A	N/A	N/A	Standard	N/A	N/A	N/A	N/A	N/A
	304SS 3V	Optional	N/A	N/A	N/A	Optional	N/A	N/A	N/A	N/A	N/A
	Galvanized Airfoil	N/A	Standard	Standard	N/A	N/A	Standard	N/A	Standard	Standard	Standard
	Aluminum Airfoil	N/A	N/A	N/A	Standard	N/A	N/A	Standard	N/A	N/A	N/A
Special Features	Blade Seals	Optional	Optional	Standard	Standard	Optional	Optional	Standard	Optional	Optional	Optional
	Jamb Seals	Optional	Optional	Standard	Standard	Optional	Optional	Standard	Optional	Optional	Optional



HCDR series

		HCDR-150	HCDR-250	HCDR-350	HCDR-351
Pressure in. wg (Pascal)	Maximum	5 (1245)	8.5 (2117)	15 (3736)	20 in. wg (4982) up to 37 in. (939mm) 15 in. wg (3736) 37 in. - 60 in. (939mm - 1524mm)
	Velocity fpm(m/s)	4000 (20.3)	5500 (27.9)	6500 (33)	6500 (33)
Maximum Temperature (Celsius)	Standard	250° F (121° C)	250° F (121° C)	250° F (121° C)	250° F (121° C)
	Optional	400° F (204° C)	400° F (204° C)	400° F (204° C)	400° F (204° C)
Frame	Painted Steel	Standard	Standard	Standard	Standard
	Painted steel Hi Temp Aluminum	N/A	N/A	N/A	Optional
	304SS	Optional	Optional	Optional	Optional
	316SS	Optional	Optional	Optional	Optional
Special Features	Blade Seals	Optional	Optional	Optional	Standard
	Bar Stops	Optional	Optional	Optional	External Standard

Combination Fire Smoke Dampers

SSFSD-211 & SEFSD-211 are combination fire smoke dampers made out of stainless steel with 3-V style blades. They may be installed vertically (with blades running horizontally) or horizontally and are rated for airflow and leakage in either direction.

FEATURES

- UL555S Leakage Class I
- UL555 1 1/2 hour fire resistance rating
- Velocity up to 3000 fpm (15.2 m/s)
- Pressure rating up to 4 in. wg (1 kPa)



FSD-311 is a high performance combination fire smoke damper with extremely low leakage. High strength airfoil blades ensure the lowest resistance to airflow in HVAC systems. FSD-311 may be installed vertically (with blades running horizontally) or horizontally and is rated for airflow and leakage in either direction.

FEATURES

- UL555S Leakage Class I
- UL555 1 1/2 hour fire resistance rating
- Velocity up to 3000 fpm (15.2 m/s)
- Pressure rating up to 4 in. wg (1 kPa)



FSDR-511 & SSFSDR-511 are true round combination fire smoke dampers. They are supplied with sleeves from the factory.

FEATURES

- UL555S Leakage Class I
- UL555 1 1/2 hour fire resistance rating
- Velocity up to 2000 fpm (10.2 m/s)
- Pressure rating up to 4 in. wg (1 kPa)



STD = Standard OPT = Optional		FSD-311	SDR-511	SEFSD-211	SSFSD-211	SSFSDR-511
Frame	Galvanized steel	STD	STD			
	304SS				STD	STD
	316SS			STD		
Blade Profile	3-V			STD	STD	
	Airfoil	STD				
	Round		STD			STD
Closure Temperature	165°F (74°C)	STD	STD	STD	STD	STD
	212°F (100°C)	OPT	OPT	OPT	OPT	OPT
	250°F (121°C)	OPT	OPT	OPT	OPT	OPT
	286°F (141°C)	OPT	OPT	OPT	OPT	OPT
	350°F (177°C)	OPT	OPT	OPT	OPT	OPT
Closure Device	Fusible link		STD			STD
	RRL	STD	OPT	STD	STD	OPT
	TOR	OPT	OPT	OPT	OPT	OPT
	PRV	OPT	OPT	OPT	OPT	OPT
Sizing	Min. size	8 in. x 6 in. (203mm x 152mm)	6 in. 152mm)	8 in. x 6 in. (203mm x 152mm)	8 in. x 6 in. (203mm x 152mm)	6 in. (152mm)
	Maximum single section size	32 in. x 36 in. (813mm x 914mm)	24 in. 610mm)	24 in. x 30 in. (610mm x 762mm)	24 in. x 30 in. (610mm x 762mm)	24 in. (610mm)
	Maximum multi section size	96 in. x 50 in. V (2438mm x 1270mm) 128 in. x 100 in. H (3251mm x 2540mm)	NA	48 in. X 30 in. (1219mm x 762mm)	48 in. X 30 in. (1219mm x 762mm)	NA

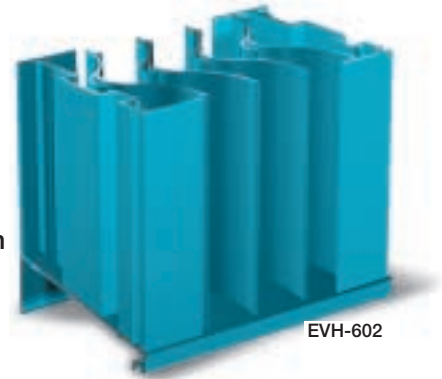
Wind-Driven Rain Louvers

For the extreme conditions of maritime applications, Greenheck offers a complete line of Wind-Driven Rain Louvers to meet your requirements. Wind-Driven Rain louvers offer the best resistance to water penetration.

Models EVH, EHH

FEATURES AND BENEFITS

- All Greenheck Wind-Driven Rain Louvers are subjected to the more stringent 50 mph wind/8 inches rain per hour test
- Greenheck's Wind-Driven Rain Louvers are available in both vertical and horizontal blade configurations
- Vertical blade models are the most effective in minimizing water penetration through openings that are sensitive to wind-driven rain in a building's exterior wall
- Horizontal blade models offer excellent performance against wind-driven rain, along with the aesthetically pleasing look of a horizontal blade
- Horizontal (EHH) and vertical (EVH) blade models available include:
 - EHH-201, EVH-201 (Two inch frame depth)
 - EHH-401, EVH-401 (Four inch frame depth)
 - EHH-501 (Five inch frame depth)
 - EHH-601, EVH-602 (Six inch frame depth)
 - EHH-701 (Seven inch frame depth)
 - EVH-801 (Eight inch frame depth)



RAIN RESISTANT EXTRUDED LOUVERS		EVH-201	EVH-401	EVH-602	EVH-801	EHH-201	EHH-401	EHH-501	EHH-601	EHH-701
FEATURES & PERFORMANCE		RR	RR	RR	RR	RR	RR	RR	RR	RR
Blade	Style	RR	RR	RR	RR	RR	RR	RR	RR	RR
Blade	Thickness (inches)	.062	.081	.081	.081	.062	.081	.081	.081	.081
Frame	Thickness (inches)	.062	.081	.081	.081	.062	.081	.081	.081	.081
Free Area (48 x 48)	Square Feet	5.71	6.38	5.88	5.05	6.20	6.72	6.80	7.58	7.17
Free Area (48 x 48)	%	36	40	37	32	39	42	43	47	45
Free Area Intake Velocity @ Beginning Point of Water Penetration	(Ft/Min)	1250	1250	1250	1250	914	1250	1250	1250	1250
Pressure Drop @ Maximum Intake Velocity	(in. wg)	-	.370	.161	.100	-	.296	.224	.324	.491
Maximum Intake Volume Flow Rate	48 x 48 unit (cfm)	-	7975	7350	6313	-	8400	8500	9475	8962
Exhaust Volume Flow Rate @ 0.15 in. wg	(cfm)	-	5895	7832	8625	-	5820	5998	6094	4015

RR = Rain Resistant

Wind Driven Rain Penetration Classes	
Class	Effectiveness
A	100%-99%
B	98.9%-95%
C	94.9%-80%
D	Below 80%

NOTES: Based on louver size 48 in. x 48 in. ¹ Core area is the open area of the louver face (face area less louver frames). Core area velocity is the airflow velocity through the core area of the louver.

	Airflow (cfm)	Free Area Velocity (fpm)	Core Area Velocity (fpm)	Wind Velocity - 29 mph Rainfall - 3 in./hr. ²		Wind Velocity - 50 mph Rainfall - 8 in./hr. ²	
				Effectiveness	Classification	Effectiveness	Classification
EVH-201	9798	1716	689	100%	A		
	9798	1716	689			99.9	A
EVH-401	9715	1523	689	100%	A		
	8333	1306	591			99.7%	A
EVH-602	9157	1557	689	99.4%	A		
	7854	1336	591			99.1%	A
EVH-801	9157	1813	689	99.6%	A	99.7%	A
EHH-201	2817	454	197	99.9%	A		
	1401	226	98			99.5%	A
EHH-401	8380	1247	591	99.2%	A	-	-
	1390	207	98			99.1%	A
EHH-501	9550	1404	689	99.1%	A		
	9550	1404	689			97.2%	B
EHH-601	9577	1263	689	100%	A		
	4101	541	295			99.1%	A
EHH-701	9577	1336	689	99.9%	A		
	5477	764	394			99.1%	A



Greenheck certifies that the models shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program.

The AMCA Certified Ratings Seal applies to air performance, water penetration, and wind-driven rain ratings for models: EHH-501 and 701. The AMCA Certified Ratings Seal applies to air performance and wind-driven rain for models EVH-602 and EVH-801.

Greenheck offers a complete line of Drainable Blade Louvers that offer outstanding resistance to water penetration.

Models ESD, EDD, EHM

FEATURES AND BENEFITS

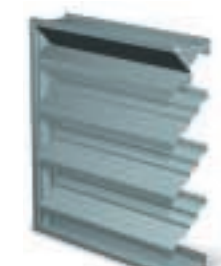
- A drain gutter is located on each blade of ESD models, capturing rain water and channeling it to louver jamb members, where it then flows down integral downspouts to the sloped sill and drains away from the louver
- Models ESD-435 and ESD-635 offer 35° blades and increased free area without compromising water penetration performance
- Model EDD is a dual drainable blade model with a second drain gutter to further catch water
- Model EHM offers a recessed mullion design for continuous blade appearance



ESD-603




EDD-601



EHM-601

STATIONARY DRAINABLE EXTRUDED LOUVERS		ESD-202	ESD-403	ESD-435	ESD-603	ESD-635	EDD-401	EDD-601	EHM-601
FEATURES & PERFORMANCE									
Blade	Style	D	D	D	D	DD	DD	DD	DD
Blade	Thickness (inches)	.063	.081	.081	.081	.081	.081	.081	.081
Frame	Thickness (inches)	.063	.081	.081	.081	.081	.081	.081	.081
Free Area (48 x 48)	Square Feet	6.02	8	8.98	8.53	9.4	8.22	8.58	7.91
Free Area (48 x 48)	%	38	50	56	53	59	51	54	49
Free Area Intake Velocity @ Beginning Point of Water Penetration (Ft/Min)		1058	1007	1151	1250	1250	1112	1201	1065
Pressure Drop @ Maximum Intake Velocity (in. wg)		.141	.180	.213	.260	.220	.182	.240	.200
Maximum Intake Volume Flow Rate 48 x 48 unit (cfm)		6369	8056	10336	10663	11753	9141	10305	8424
Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)		5963	8188	9285	8359	11292	8312	8399	6577



Greenheck certifies that the models shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program.

D= Drainable DD= Dual Drainable

Combination louvers incorporate both stationary and adjustable blades, allowing the louver to be opened or closed as desired. The louver appearance does not change when the adjustable damper blade is closed as stationary blades maintain their position.


Model EAC

FEATURES AND BENEFITS

- Linkage is concealed
- Four and six inch frame depths
- Stainless steel jamb seals
- Electric or pneumatic actuators

COMBINATION EXTRUDED LOUVER DAMPERS		EAC-401	EAC-601
FEATURES & PERFORMANCE			
Blade	Style	DA	DA
Blade	Thickness (inches)	.081	.081
Frame	Thickness (inches)	.125	.125
Free Area (48 x 48)	Square Feet	6.34	7.41
Free Area (48 x 48)	%	40	46
Free Area Intake Velocity Point of Water Penetration (Ft/Min)		1192	1020
Pressure Drop @ Maximum Intake Velocity (in. wg)		.170	.160
Maximum Intake Volume Flow Rate 48 x 48 unit (cfm)		7557	7558
Exhaust Volume Flow Rate @ 0.15 in. wg (cfm)		6050	7212

DA = Drainable Adjustable



Greenheck certifies that the models shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program.



EAC-601

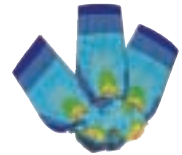
Greenheck offers the most AMCA-licensed louvers in the industry. For more information on Greenheck's complete line of louvers and architectural products, please see contact information on back cover.

Greenheck has a full line of fans that are suitable for use in marine duty environments. Fans are designed and built for strength, long life, low maintenance, and corrosion resistance. Greenheck provides heavy duty quality products with a variety of options for construction materials, superior powder coatings for marine environments and a full line of accessories.

Quality from design through manufacturing and inspection

Using state of the art design, testing and measuring equipment, Greenheck leads the HVAC industry in providing reliable products with superior performance and construction.

- Finite element analysis, strain gauge testing, computational fluid dynamics, product life testing, and testing in AMCA registered sound and air performance labs are some of the methods used to design and verify structural integrity and performance.
- Belt driven fans have shaft bearings with a life in excess of L(10) 80,000 hours (average life of 400,000 hours).
- Electrostatically applied powder coatings provide even coverage on all surfaces of the fan components. These coatings are developed and tested to withstand the harshest chemicals and environments.
- All fans are test run at the factory to ensure proper operation. Amp readings are taken on motors and each assembled fan must pass a stringent vibration requirement. Electrical test results and vibration test reports are maintained as a permanent record for each fan.



Motors for the most severe applications

Greenheck has motors that are designed and approved for use in marine applications. Marine duty construction options that are available on motors from Greenheck include:

- IEEE 45 and USCG Marine Duty
- Marine Duty API RP14F for Offshore Platforms
- NEMA MG1-1.26.6 Waterproof Specification
- IEEE 841 Standard for Petroleum and Chemical Industry - Severe Duty
- NEMA Premium Efficiency
- Inverter Duty



Quick Selection

Models	SCROLL TYPE					INLINE TYPE				
	AFSW	AFDW	BISW	BIDW	IPA	AX	TBI-CA	TBI-FS	QEI	QEID
Volume Range (cfm)	100 - 190,000	200 - 370,000	100 - 230,000	200 - 360,000	50 - 140,000	50 - 115,000	1,500 - 96,000	3,000 - 77,000	2,000 - 95,000	1,000 - 96,000
Max Ps (inch wg)	15	15	22	15	31	5	3.25	4.5	8.5	9.5
AMCA										
AMCA Air	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
AMCA Sound	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
UL										
Electrical (705)	OPT	OPT	OPT	OPT		OPT	OPT	OPT	OPT	OPT
Emergency Smoke			OPT			OPT		OPT	OPT	
Drive Type	Belt	Belt	Belt / Direct	Belt	Belt	Direct	Belt	Belt	Belt	Direct
Construction										
Coated Steel Casing	STD	STD	STD	STD	STD	STD	STD	STD	STD	STD
316 Stainless Steel - Entire			OPT		OPT			OPT		
Aluminum Prop/Wheel	OPT	OPT	OPT	OPT	OPT	STD	STD		OPT	OPT
Aluminum - Entire	OPT	OPT	OPT	OPT		OPT	OPT			

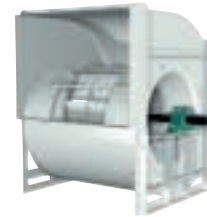
Single Width Single Inlet Centrifugal Models AFSW and BISW

Versatile airfoil and backward inclined centrifugal models offer a wide range of configurations and arrangements. Ventilation applications include clean air, emergency smoke exhaust, or contaminated process air and high temperature exhaust. Available in four classes of construction and eight different discharge positions.



Double Width Double Inlet Centrifugal Models AFDW and BIDW

Provides high volume capacities and pressure in a compact housing. Usually used for relatively clean air applications with unducted inlets such as built-up or custom air handlers.



High Pressure Blower Model IPA

Radial bladed wheel provides a full range of volume capabilities with higher pressures than centrifugal wheels. Heavy gauge materials are used throughout for increased strength and durability. Used in applications that have clean air, process exhaust or high temperature ventilation.



High Performance Axial, Direct Drive Model AX

Compact axial fan with a high efficiency airfoil blade designed to decrease energy requirements and lower sound levels. Blade pitch can be adjusted for onsite balancing. Direct drive construction reduces maintenance. Casing options include standard length, shorter casing for wall mounting and also a bolt-on vane section for increased pressure capabilities.



Medium Pressure Axial, Belt Drive Model TBI

TBI series of fans features two different impeller types; cast aluminum and fabricated steel. Cast aluminum hub and blades provide spark resistant construction and manual adjustability for on-site balancing. Heavy duty fabricated steel impellers are used for applications that include elevated airstream temperatures or smoke exhaust.



Mixed Flow, Inline Model QEI and QEID

Mixed flow fans have the advantage of both high efficiency and low sound levels in an inline fan. Integral air straightening vanes and venturi inlet improve the fan performance.



Full line of accessories

All models have as available options:

- Guarding for inlets, outlets and drive components
- Silencers to reduce noise (AX, TBI, QEI, QEID)
- Isolators to reduce vibration transmission
- Inlet bells
- Companion flanges

The Greenheck Advantage

Complete and Innovative Dampers & Louvers Product Offering!

- Commercial & Industrial Control Dampers
- Fire, Smoke, and Combination Fire Smoke Dampers
- Ceiling Radiation Dampers
- Backdraft Dampers
- Pressure Relief Dampers
- Manual Balancing Dampers
- Access Doors
- Marine Dampers
- Severe Environment Dampers
- Industrial Smoke Damper
- Insulated Thermally Broken Dampers
- Mechanical and Architectural Louvers
- Miami-Dade Louvers
- Wind-Driven Rain Louvers
- Thinline Louvers
- Sightproof Louvers
- Adjustable Louvers
- Acoustical Louvers
- Fabricated Louvers
- Combination Louver/Dampers
- Louver Penthouses
- Architectural Sunshades
- Equipment Screens
- Architectural Grilles
- Brick Vents
- Specialty Shapes



Top Quality Ventilation... Centrifugal Fan Product Offering!

- Material Handling
- Industrial Process
- Paint Booths
- Emergency Smoke Exhaust
- Marine Duty
- Tunnel Ventilation
- Grease Exhaust
- Laboratory Fume Exhaust Systems
- Air Handlers
- High Temperature
- General Ventilation

Our Warranty

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of one year from the purchase date. Any units or parts which prove defective during the warranty period will be replaced at our option when returned to our factory, transportation prepaid. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by Greenheck prove defective during this period, they should be returned to the nearest authorized motor service station. Greenheck will not be responsible for any removal or installation costs.

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

