

High Performance Axial Fans

Model RA-3 Series

Direct Drive



BUILDING VALUE IN AIR.

 **GREENHECK**
Building Value in Air.

February
2020

Greenheck's **high efficient, vane axial inline, direct-driven fans** are ideal for inline air ventilation in commercial, institutional or industrial buildings. The casing design and construction are well suited for **indoor or outdoor** applications and can be easily installed in ducted or non-ducted systems. The vane axial inline fan is designed to significantly reduce **operating costs** with peak total efficiency ranging up to 86%.

Features and Benefits

- Higher efficiency and lower sound levels than other axial inline fan models
- Lower maintenance compared to other vane axial inline fans
- Easy to select
- Fast lead times
- Multiple configurations
- Variety of applications
- Complete smoke control offerings

Typical Applications

- Fire and smoke exhaust
- Stairwell, lift and atrium pressurization
- General ventilation
- Parking garage and storage facility exhaust
- Emergency smoke and heat exhaust
- Industrial process ventilation
- Supply and return ventilation



Building Segments

We are known worldwide as a leading manufacturer that provides high quality air movement and control equipment. Today, our HVAC (heating, ventilation, air-conditioning) products are efficiently moving air in a variety of commercial and industrial spaces.



Mixed Use/Residential



Hospitals



Offices



Metro



Shopping



Schools/Universities



Hotels



Airports



Manufacturing

- Model RA 3 Series is available in 15 sizes that cover a broad range of volumetric flow and pressure conditions.
- Capacities range for volumes up to 214,045 CMH (126,571 cfm) and external static pressures to 1,367 Pa (5.5 in. wg).
- Licensed to bear the AMCA Sound & Air seal.



Greenheck India Pvt. Ltd. certifies that the Model RA 3 shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

High Temperature Certification

Greenheck understands that designing products for life safety applications is an important and serious matter. Products that limit the spread of smoke and fire need to be reliable, utilizing quality components to ensure and promote safety. That's why Greenheck's model RA-3 Series fans are certified in accordance with EN12101-3:2015 at Applus Laboratory headquarters in Barcelona, Spain. Additionally, our fans are certified to carry the CE marking.

Greenheck offers the following temperature classifications for our RA-3 Series fans:

- 250°C / 2 Hrs - TUV
- 400°C / 2 Hrs (752°F / 2 Hrs) (F400 Certificate 370-CPR-1848)

Units are suitable for both smoke reservoir and nonsmoke reservoir applications, certified to be used either inside or outside the reservoir. Additionally, our high temperature fans are certified for dual purpose ventilation, meaning they can be used for smoke extraction as well as normal, day-to-day ventilation.



CE Mark

The CE mark is a mandatory conformity marking for certain products sold within the European Economic Area (EEA). Greenheck declares conformity to the legal requirements necessary to achieve the CE marking.



Leading Edge Support

All Greenheck products are supported by the industry's best product literature and computer aided product selection program (CAPS®). You will also find extensive product and installation, operation and maintenance manuals (IOM) information on our website.

And, of course, you can always count on the personal service and expertise of our international representative organization. To locate your nearest Greenheck representative, visit our website at greenheck.co.in.



Universal Mounting Configurations

For ease of installation, fans for horizontal and vertical orientation each have Universal Mounting Configurations which allow for ceiling or base mounting. These supports can be removed and reinstalled to the other end of the housing, allowing for multiple mounting configurations on supply or exhaust applications.



Horizontal Base Mount



Vertical Base Mount



Vertical Wall Mount



Horizontal Ceiling Mount*

*Shown with Flexible Duct Connectors



Vertical Ceiling Mount



Hooded Roof Fan

Horizontal Mounting

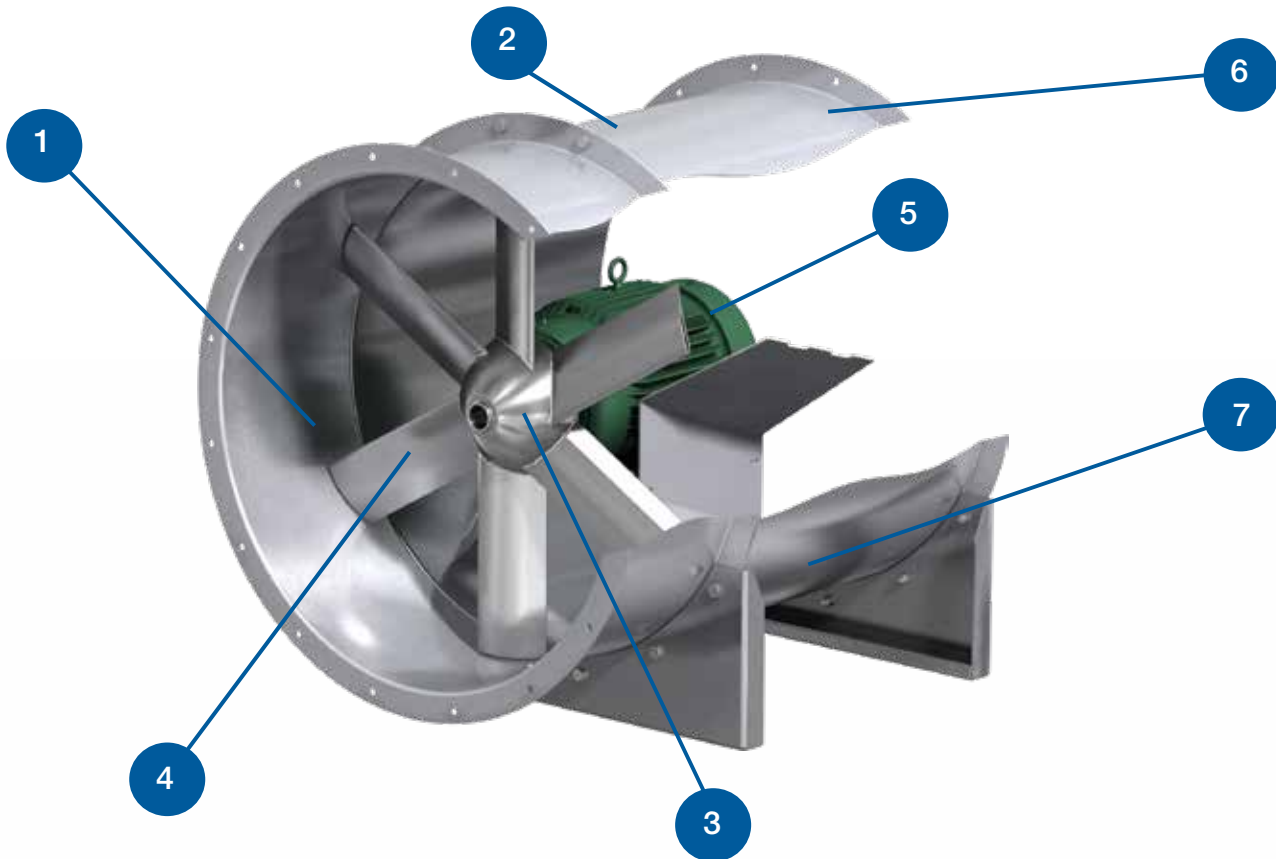
Base mount or ceiling hung fans in horizontal configuration are provided with two identical rigid steel supports, which allows the configuration to easily be changed between base mount and ceiling hung in the field.

- **Base Mount:** Fan is supported horizontally from the floor.
- **Ceiling Hung:** Fan is suspended horizontally from the ceiling.

Vertical Mounting

Vertical mounting configurations, upblast and downblast, are provided with a heavy duty bracket.

- **Base Mount:** Fan is supported vertically from the floor via the ring mounting bracket.
- **Ceiling Hung:** Fan is suspended vertically from the ceiling, connected to the ring mounting bracket under the fan.
- **Wall Mount:** Fan is supported vertically on the ring mounting bracket bolted to the wall mount accessory.
- **Hooded Roof Fan:** Fan is mounted to the roof curb. Suitable for supply or exhaust.
- **Upblast Exhaust:** Designed to exhaust high temperature or clean air.



1 High Performance Propeller (315-1600mm)
Propellers are high efficiency, airfoil aluminum. The unique design of the RA welded propeller with varying tip and root pitches for sizes up to 1120 is intended to move high volumes of air with less power, saving on energy costs and total cost of ownership. Sizes 1250 and above are constructed of cast aluminum which allow for easy adjustment in the field.

2 Robust Casing
Casings are constructed of continuously welded galvanized steel to prevent air leakage. Rolled inlet and outlet flanges are provided with mounting holes for easy, airtight ductwork connections. Flanges have punched holes in accordance with Eurovent 1/2.

3 Hubs
A wide selection of hub diameters further optimizes the fan performance in a cost-effective manner by choosing the right hub for the required volume and performance.

4 Blades
Tight tip clearance improves overall efficiency and in turn overall sound levels. For quieter operation, blades are engineered for wide blade shapes and unique blade count.

5 Motors
Motors are IEC design, located in the airstream. Utilizes extruded motor leads with an external junction box.

Single or two-speed motors are available in 50 or 60 Hz. Additional motor options include asynchronous three-phase or single-phase.

6 Long Casing Standard
Greenheck's design utilizes a standard long casing to aid in ease of installation and maintenance.

7 Aerodynamic Vane Section
Greenheck's developed vane section design ensures improved efficiency of the axial fan.

Other Features

Research & Development (R&D)

Greenheck's engineers use Computational Fluid Dynamics (CFD) and Finite Element Analysis (FEA) to optimize all performance factors of the fan.

Performance Testing

Aerodynamic design and structural endurance testing take place in Greenheck's state-of-the-art (R&D) facilities and performance testing labs.

Certified Performance

The entire line of model RA-3 Series fans are licensed to bear the AMCA Air & Sound Seal ensuring your fan will perform as expected.

World Class Manufacturing Process

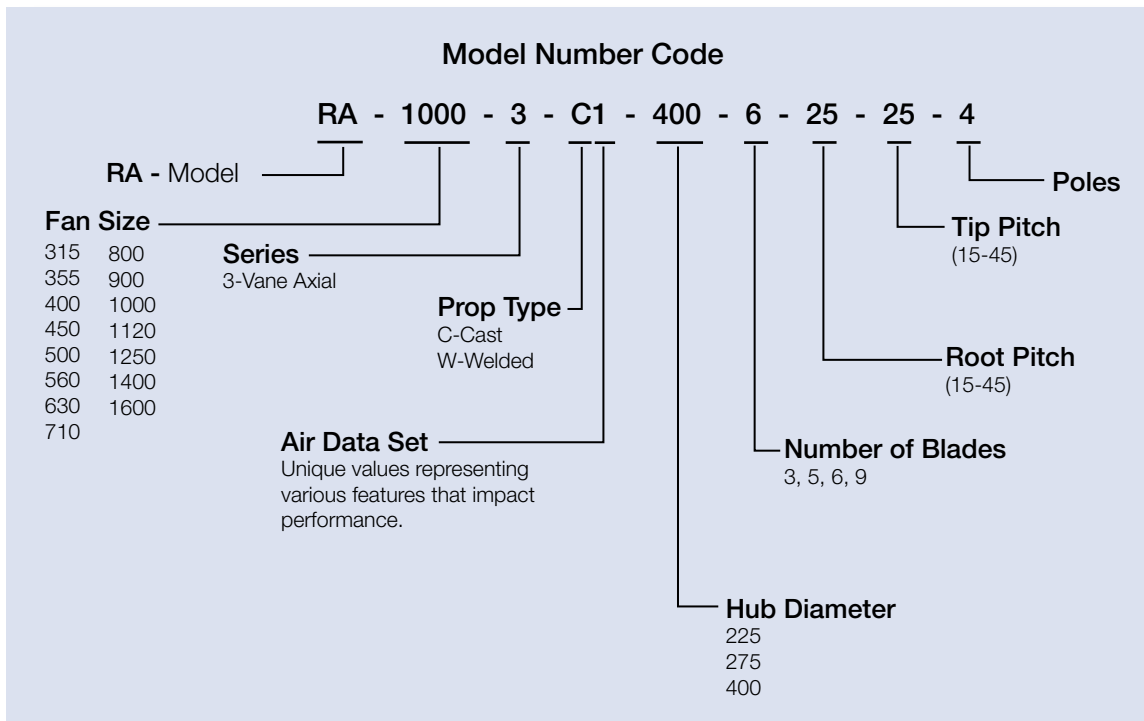
The success of the design relies on the ability of the manufacturing processes to produce accurate parts that are consistent and fit together properly. To manufacture the model RA-3 Series fan, a combination of world-sourced modern technology and custom-built equipment is used to achieve repeatable performance and product quality.

Fan Testing and Vibration Analysis

Assembled fans are test run at the factory with motor amp, speed and voltage measurements taken to ensure proper operation.

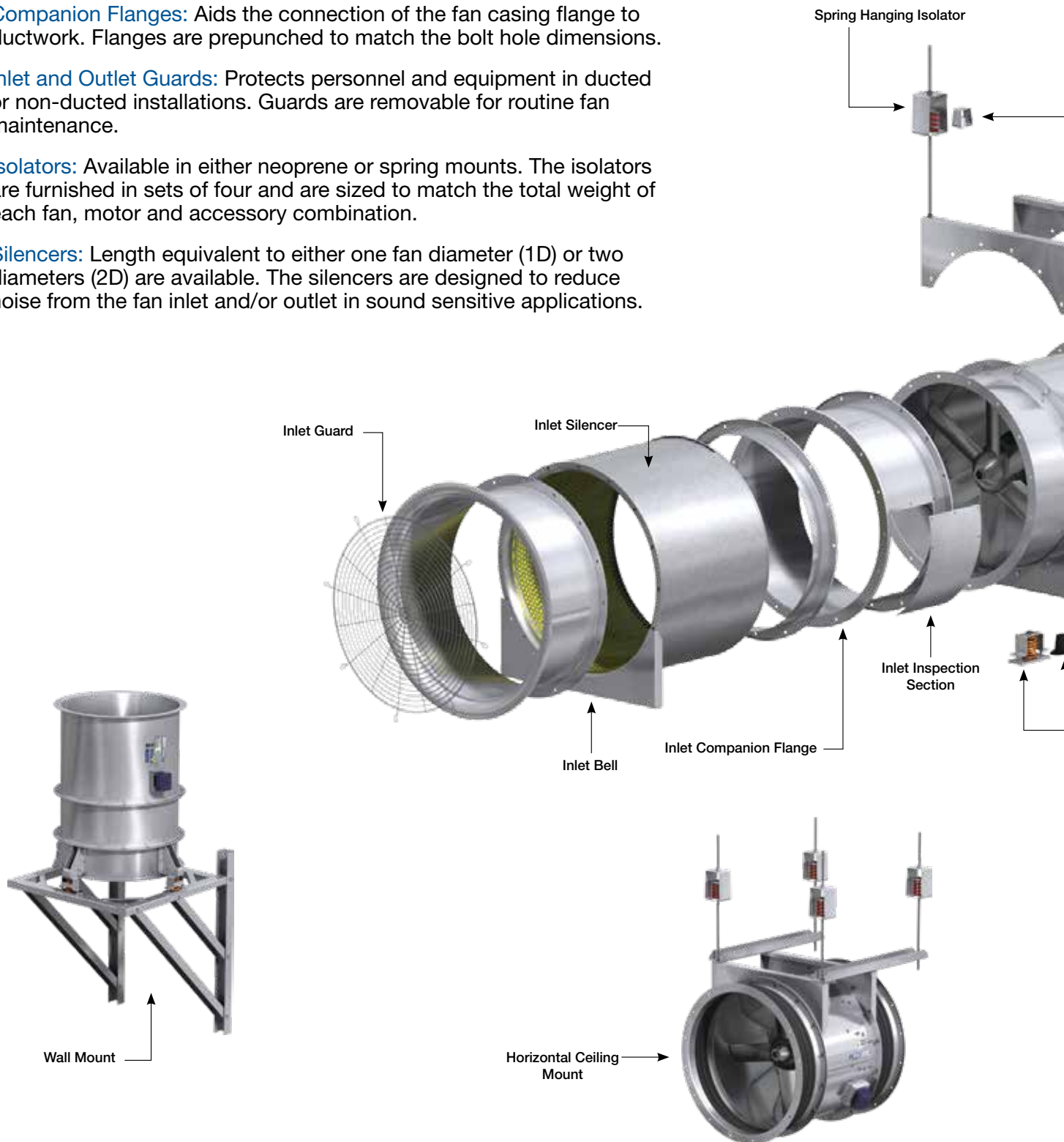
All Greenheck RA-3 Series fans endure a complete mechanical vibration test after assembly. Our proprietary balancing system measures the vibration on six planes at the design operating speed. A permanent record for each fan's performance is kept on file and is available upon request.

The standard vibration levels attained meet the requirements of Fan Application BV-3 as defined in AMCA Standard 204-05 "Balance Quality and Vibration Levels for Fans."

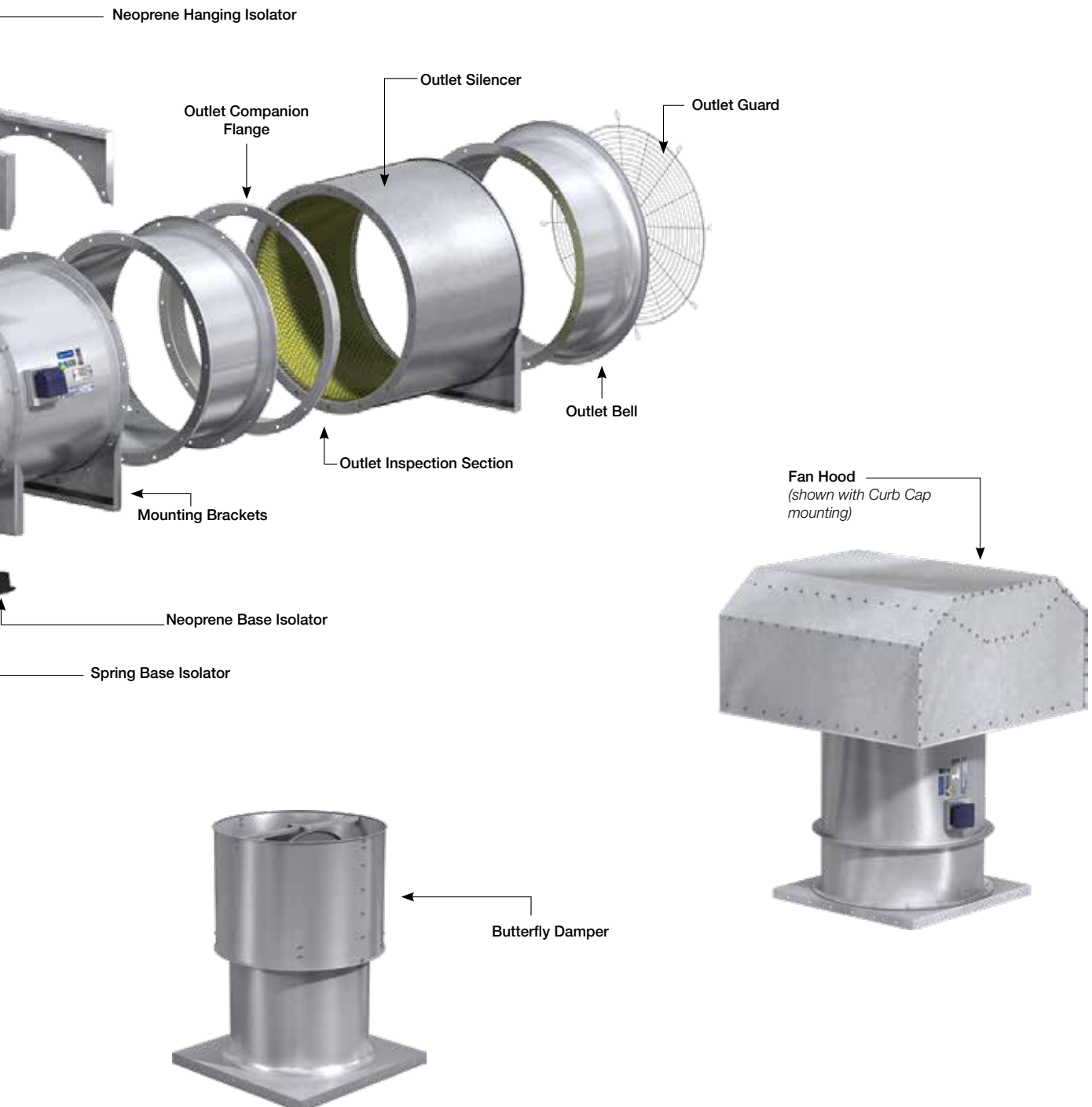


Options & Accessories

- **Mounting Brackets:** Allows for horizontal ceiling or base mount applications. The brackets also provide an attachment point for any vibration isolation devices.
- **Inlet and Outlet Bells:** Minimizes entry losses into the fan from free (non-ducted) inlet conditions to provide improved performance.
- **Companion Flanges:** Aids the connection of the fan casing flange to ductwork. Flanges are prepunched to match the bolt hole dimensions.
- **Inlet and Outlet Guards:** Protects personnel and equipment in ducted or non-ducted installations. Guards are removable for routine fan maintenance.
- **Isolators:** Available in either neoprene or spring mounts. The isolators are furnished in sets of four and are sized to match the total weight of each fan, motor and accessory combination.
- **Silencers:** Length equivalent to either one fan diameter (1D) or two diameters (2D) are available. The silencers are designed to reduce noise from the fan inlet and/or outlet in sound sensitive applications.



- **Fan Hood:** Constructed of galvanized steel and are available for upblast and downblast, roof mount configurations.
- **Inspection Sections:** Allows access to the fan for cleaning or visual inspection of the propeller or motor. Inspection sections are available for the inlet, outlet, or both.
- **Flexible Duct Connectors:** Flexible, airtight joint used to isolate vibration and minimize noise between the fan and duct system.



High Efficiency Props

Greenheck's model RA-3 props are available in fabricated (welded) or cast aluminum options. Fabricated aluminum props are offered from 315mm to 1120mm while cast aluminum props are available from 560mm to 1600mm. The blades on the fabricated prop have the ability to be twisted resulting in an increased efficiency.



Fabricated Aluminum

- More economical at low pressures
- Lighter weight
- Wide variety of efficient performances
- Twisted or straight blades to optimize performance
- AMCA Certified for Sound and Air Performance



Cast Aluminum

- Field adjustable blade pitch
- Ideal for medium to high pressures
- Robust design suitable for industrial applications
- AMCA Certified for Sound and Air Performance

RA 3 Prop & Housing Reference Guide

Fan Diameter		225 Hub			275 Hub		400 Hub	
		W1	W2	W4	C1	C2	C3	C4
315-500	315							
	355							
	400							
	450							
	500							
560-900	560							
	630							
	710							
	800							
	900							
1000-1600	1000							
	1120							
	1250							
	1400							
	1600							

Motor Size

Foot/pad mount housings are available based on motor size.



- Small motor size
- Pad mount housing
- 315-1120mm
- Motor frames of 80-100L



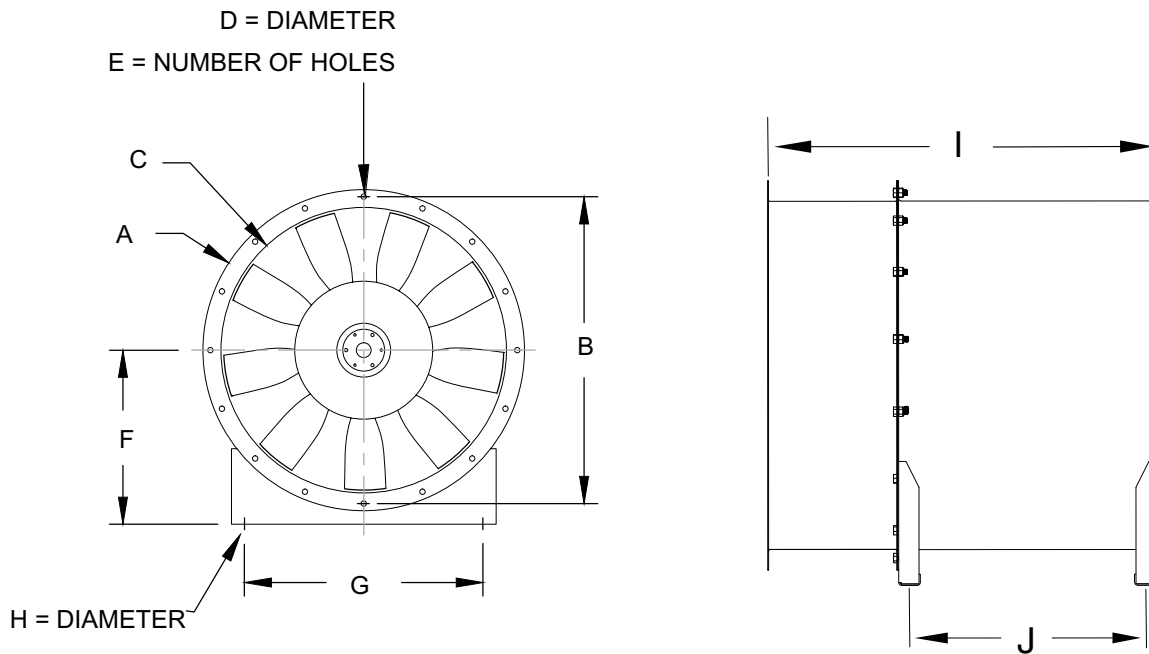
- Medium motor size
- Foot mount housing
- 630-1600mm
- Motor frames of 112-180L



- Large motor size
- Foot mount housing
- 1120-1600mm
- Motor frames of 200-280L

Size	A	B	C	D	E	F	G	H	I	J
RA-315-3	395	355	315	10	8	220	300	10	515	477
RA-355-3	435	395	355	10	8	238	330	10	515	477
RA-400-3	480	450	400	12	8	260	350	12	515	477
RA-450-3	530	500	450	12	8	293	440	12	515	477
RA-500-3	594	560	500	12	12	318	520	12	533	478
RA-560-3	654	620	460	12	12	347	510	12	533	476
RA-630-3	724	690	630	12	12	400	625	12	533	476
RA-710-3	804	770	710	12	16	440	625	12	533	476
RA-800-3	894	860	800	12	16	488	770	12	533	476
RA-900-3	1006	970	900	15	16	561	770	15	610	546
RA-1000-3	1106	1070	1000	15	16	611	970	15	610	545
RA-1120-3	1258	1190	1120	15	20	735	985	15	610	523
RA-1250-3	1388	1320	1250	15	20	818	1125	15	824	737
RA-1400-3	1538	1470	1400	15	20	873	1230	15	824	737
RA-1600-3	1760	1680	1600	20	24	967	1485	20	802	715

NOTE: Dimensions in millimeters (mm)



Design and Selection Support

Enjoy Greenheck's extraordinary service, before, during and after the sale.

Greenheck offers added value to our wide selection of top performing, energy-efficient products by providing unique Greenheck service programs.

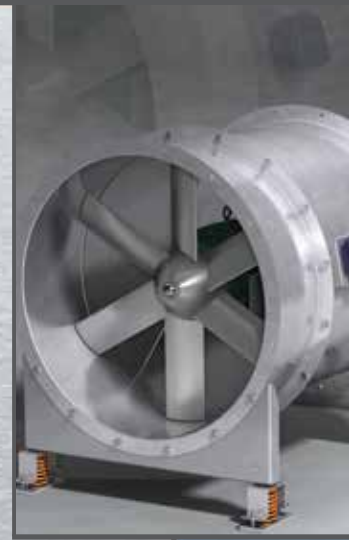


- Greenheck's free Computer Aided Product Selection program (CAPS) is rated by many as the best in the industry. CAPS helps you conveniently and efficiently select the right products for the challenge at hand.



- Greenheck continues to take an industry-wide leadership position to affect positive global sustainability. We believe that providing education on products we offer contributes to reducing energy consumption and improving healthier indoor environments.

Find out more about these special Greenheck services at greenheck.com or greenheck.co.in



Building Value in Air

Greenheck delivers value to mechanical engineers by helping them solve virtually any air quality challenges their clients face with a comprehensive selection of

top quality, innovative air-related equipment. We offer extra value to contractors by providing easy-to-install, competitively priced, reliable products that arrive on time.

And building owners and occupants value the energy efficiency, low maintenance and quiet dependable operation they experience long after the construction project ends.

Our Commitment

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

Product warranties can be found online at Greenheck.com, either on the specific product page or in the literature section of the website at Greenheck.com/Resources/Library/Literature.



00.INT.2030 R1 2-2020
Copyright © 2020 Greenheck Fan Corp.

Greenheck India: 201-202, 2nd Floor, Landmark Cyber Park, Sector-67, Gurgaon, Haryana-122018 • www.greenheck.co.in
Greenheck U.S.A.: P.O. Box 410 • Schofield, WI 54476-0410 • Phone +1 (715) 359-6171 • www.greenheck.com

Greenheck India Private Ltd has been independently audited and confirmed as being in conformity with ISO 9001:2015 and ISO 14001:2015.

