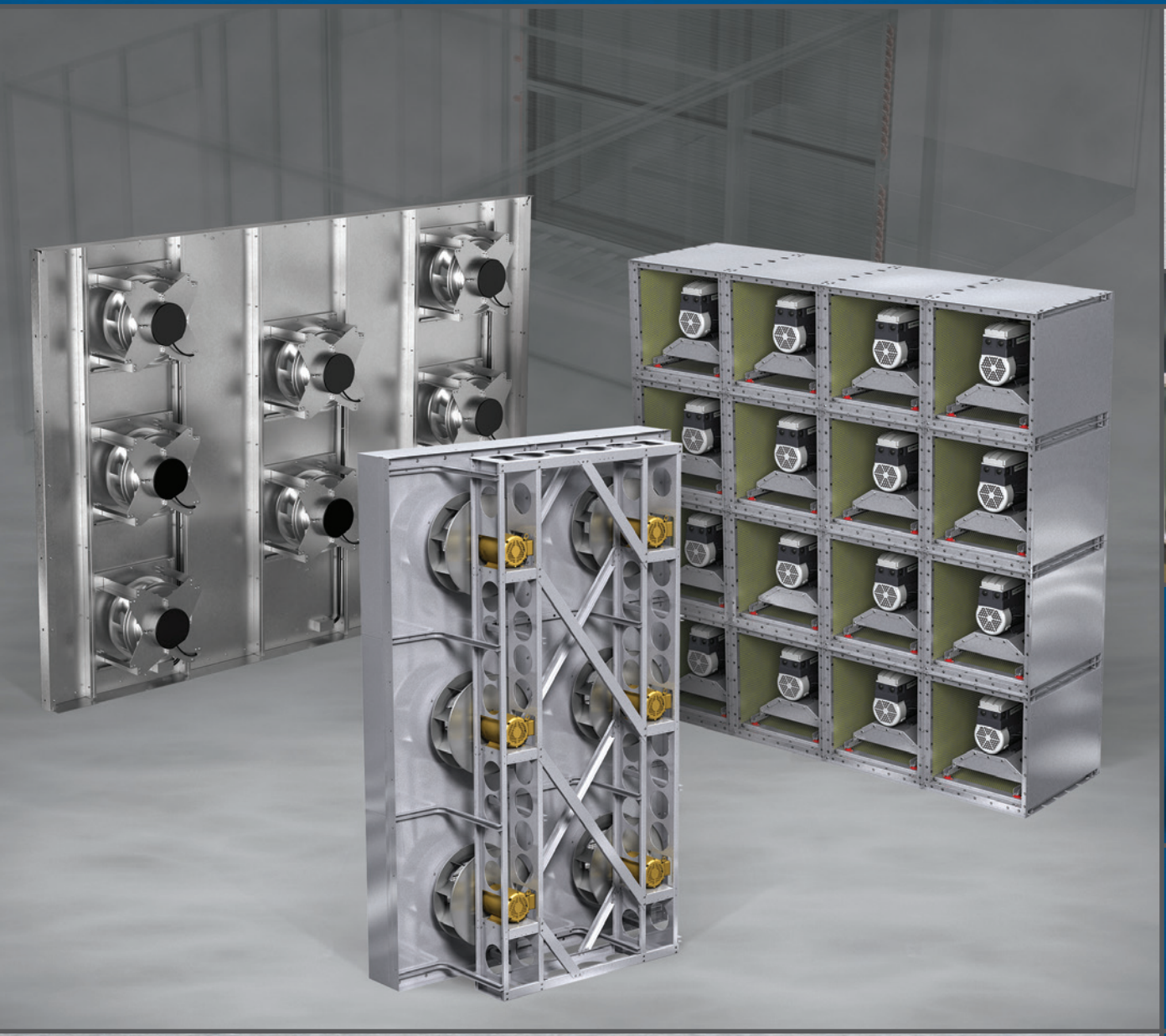
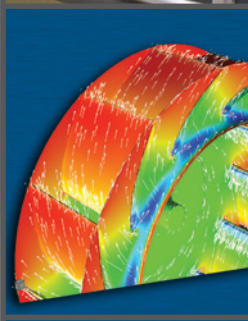
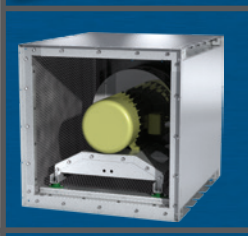
Fan Arrays

Models HPA, OPA and MOA

Direct Drive







GREENHECK®

Building Value in Air.

June
2023

Quiet & Efficient Fan Array

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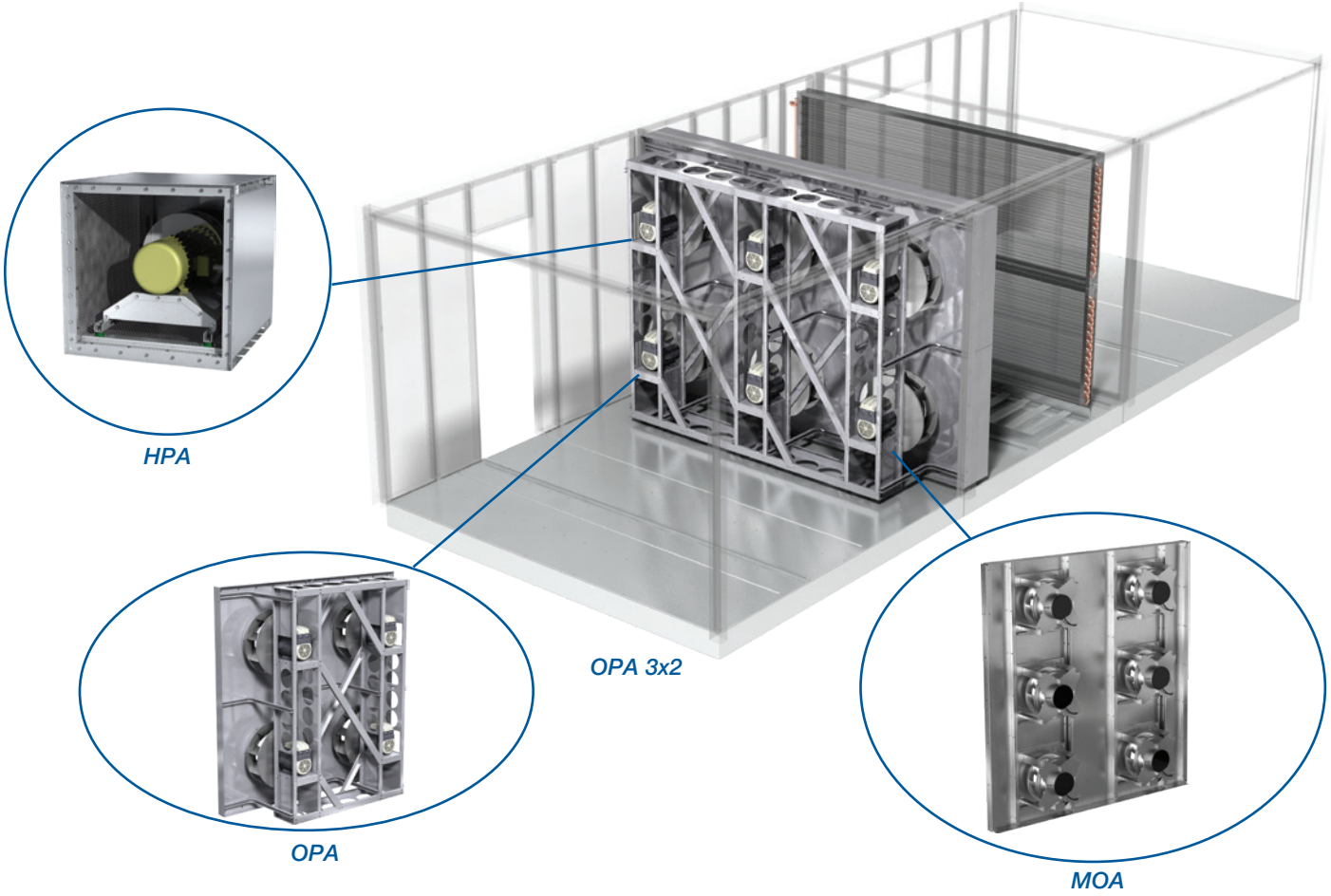
Fan arrays are designed and engineered to provide superior performance and reliability in commercial or industrial applications. Our products are manufactured with state-of-the-art laser, forming, spinning and welding equipment, and endure our quality control testing to ensure trouble free start-up. They are designed for unhoused operation, resulting in a savings of the space normally occupied by the fan housing. Additional space savings are realized when multiple duct takeoffs are required. Ductwork is connected directly to the pressurized plenum without intermediate transitions.

Typical applications include:

- Mission critical thermal management systems
- Data centers or critical IT spaces
- Custom Air Handler
- Replacement array for existing air handler

Certified data for model HPA may be found in Greenheck's Computer Aided Product Selection program (CAPS®).

FEI - Fan Energy Index



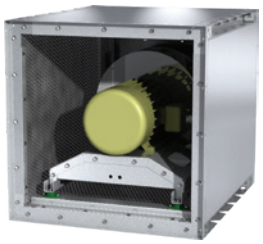
Manufactured in the USA

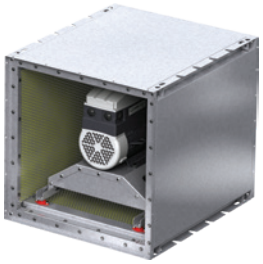
Greenheck fan arrays are designed and built in one of two manufacturing locations, Schofield, WI and Shelby, NC. Multiple manufacturing locations enable us to build fans and get them to you, our customer, faster.

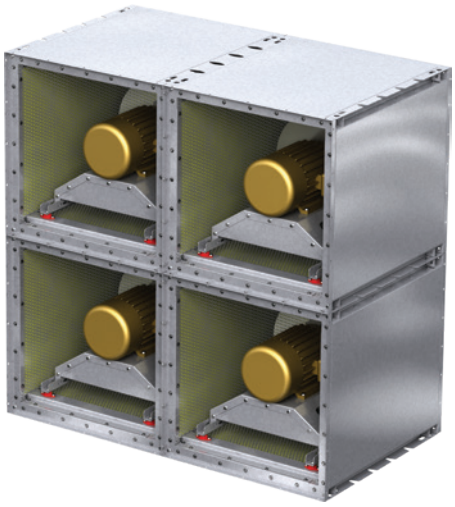
Greenheck Fan Array Benefits

- Designed, engineered, and tested prior to shipment to provide years of smooth, vibration-free operation with minimal maintenance.
- Various array designs provide flexibility in size, performance, and construction, matching the appropriate model to your application.
- Fan arrays can be selected based on the features required for the application and the features that are most important to you.
- Easy installation with integral lifting points.
- Arrangement 4, horizontal airflow.
- Quick and easy selection options along with AutoCAD® and Revit® models available for download and integration into plan drawings, custom equipment schedules and specifications.
- CAPS® selection software leads the industry in providing selection details, options, accessories, and full submittal packages. CAPS® will optimize your selection for open array configurations allowing you to select the array to fit your application.

Motor on Base





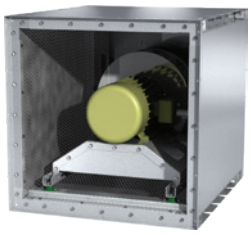


Motor on Frame

Multiple solutions for your fan array design needs

Modular Solutions:

HPA housed plenum fans are designed and engineered to provide superior performance and reliability in commercial or industrial applications. The HPA can be used as a single fan in a sound critical application or in parallel to construct a fan array system. The HPA features a modular design with a structural housing that allows multiple modules to stack side-by-side and on top of one another to form an array.



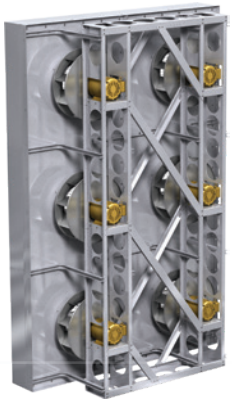
- 900 - 45,000 cfm, up to 7 in. wg
- Bolted galvanized frame
- 12-bladed aluminum airfoil wheel
- Direct drive

MOA modular array is designed and optimized for a specific opening dimension (H x W) providing laboratory tested and proven performance. The MOA is constructed of galvanized panels that are lightweight and easy to handle, ideal for retrofit or new build-up applications. The array ships knocked down for easy build-up and installation on the jobsite; each component is manageable without special rigging or lifting. The modular array is a factory-wired and programmed turnkey package with integrated controls.

The built-in Carel® controller takes a building management system (BMS) signal providing a set point and manages the array to provide performance, even with the loss of a fan. An optional touch screen is also available for user interface.

Fixed Solutions:

OPA configurable open array is designed and optimized for a specific opening dimension (H x W) providing laboratory tested and proven performance. The OPA is ideal for mission critical applications such as data centers or built up custom AHUs. The OPA arrives fully assembled and factory tested saving valuable labor during installation.



- Up to 96 in. high x 156 in. long
- Bolted galvanized frame with 2 in. foam-filled intake panel
- 7-bladed aluminum wheel
- NEMA premium induction motors or 3-phase Vari-Green® EC motors up to 10 hp

Power and Control Panel (MOA)

- Power panel, factory-wired, shipped loose, for field mounting
- NEMA-3R enclosure
- Overload protection – integral fused
- Set point control – static pressure
- BACnet® MSTP – communication protocol
- Array to controls wiring
- Control panel, factory-wired, shipped loose for field mounting
- Factory-wired – *Hand/Off/Auto*
- Factory-mounted *Ready* status light
- Factory-mounted *Alarm* status light

Modular Construction

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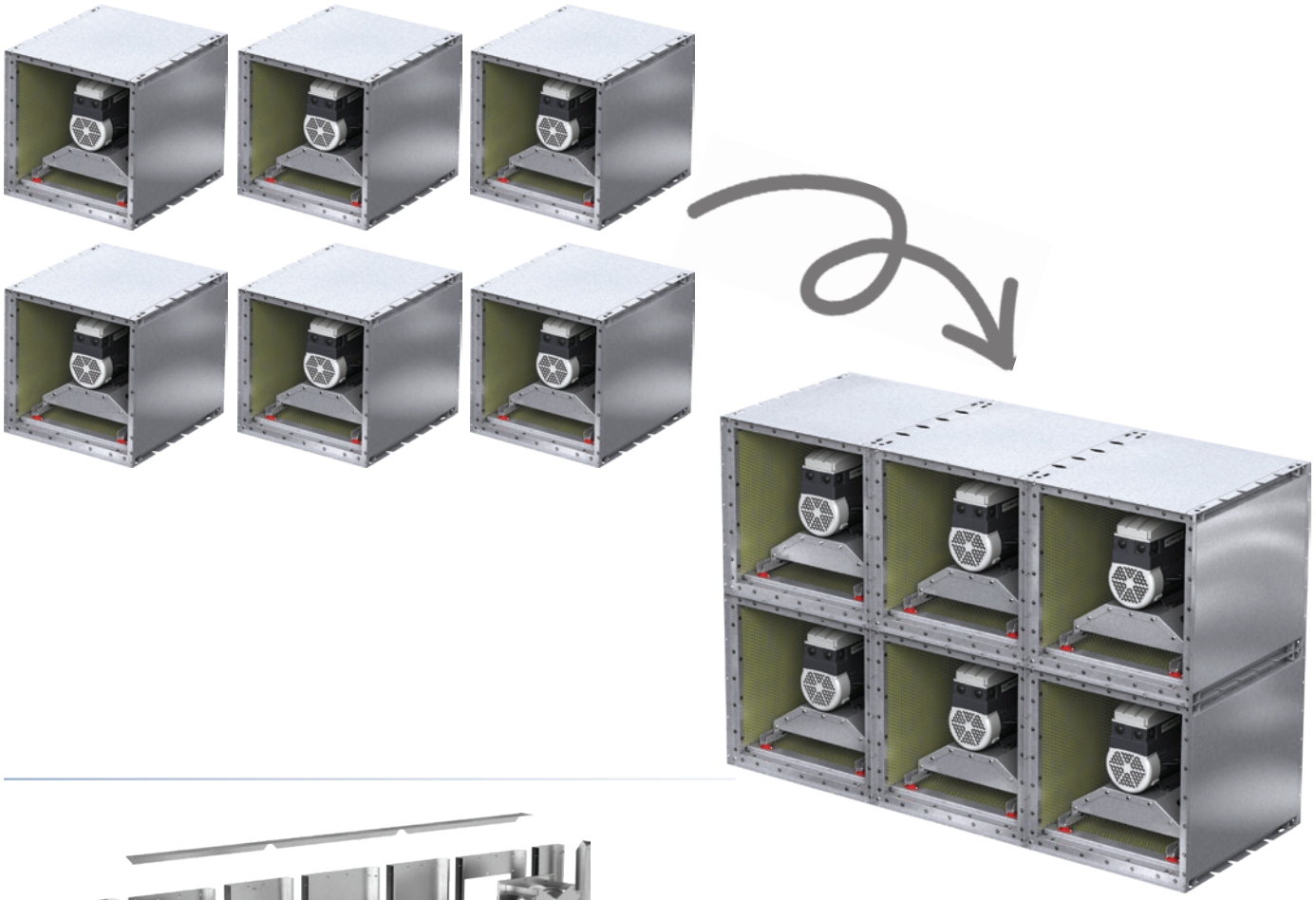

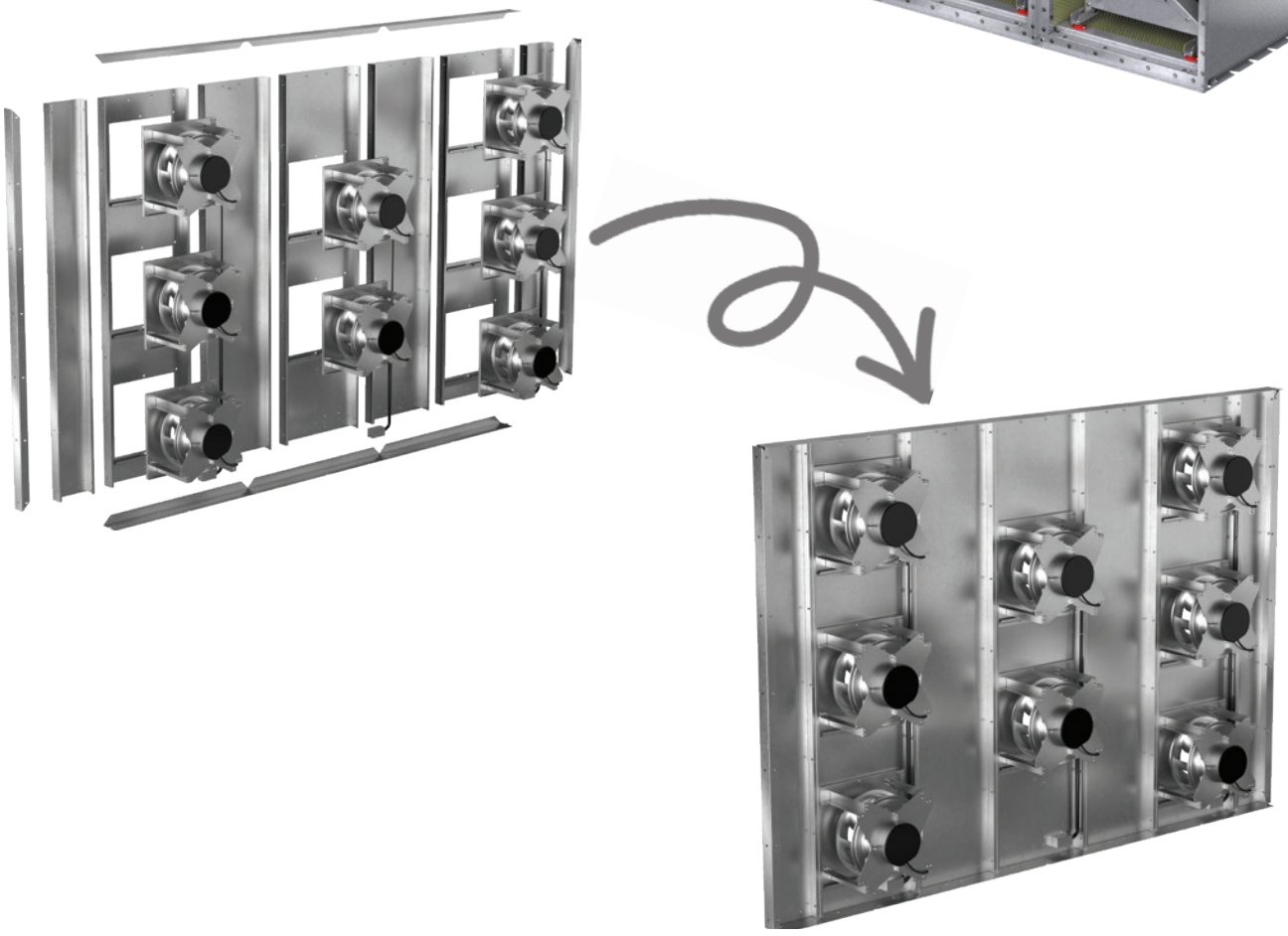

Standard Construction and Features

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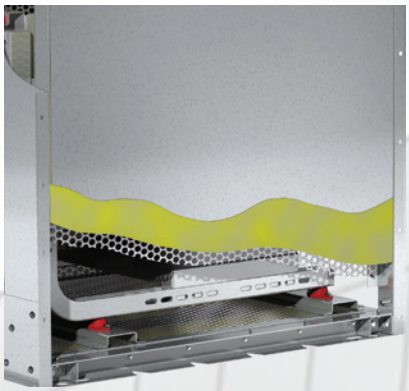
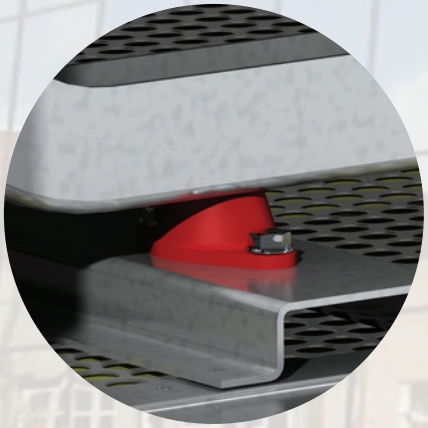
Sound-Attenuating Housing (HPA)

The fan assembly is mounted inside a sound-attenuating housing. The housing has a perforated galvanized inner liner that directs sound waves into two inches of sound-absorbing fiberglass between the inner liner and solid outer shell. The result is a reduction of sound levels.



Internal Vibration Isolation (HPA)

Neoprene isolators mounted between the fan assembly and the sound-attenuating housing reduce vibration, eliminate the need for isolators and gaskets between modules. Flexible gasket material between the inlet cone and sound-attenuating housing creates an airtight seal.

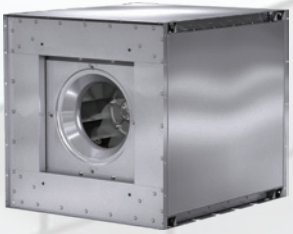


Housing Options (HPA)

Three different sound-attenuating housing sizes make sizing the HPA extremely flexible. The standard housing is sized for optimum performance versus footprint. The compact housing offers a smaller footprint for applications with space constraints and the large housing offers increased air performance for higher efficiencies.

Construction - Galvanized (HPA)

The fan assembly and sound-attenuating housing are constructed of laser cut and die-formed heavy-gauge galvanized material.



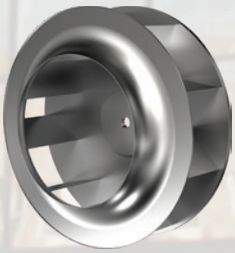
Wheels

7-Bladed (MOA)

The 7-bladed high-efficiency curved wheel is made of composite construction.

12-Bladed (HPA)

Backward inclined airfoil centrifugal wheel constructed from an aluminum material. The design saves energy and improves overall sound quality by reducing low frequency tones that are difficult to attenuate.



7-Bladed (OPA)

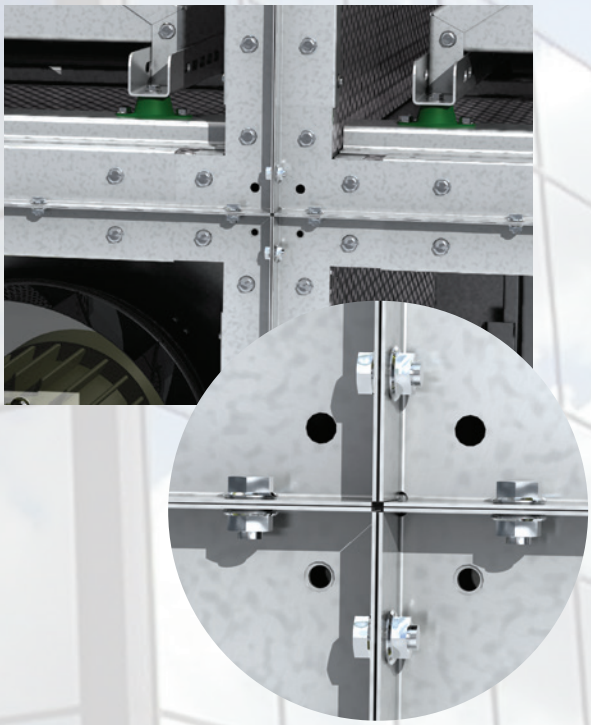
Highly efficient, aluminum airfoil 7-bladed backward curved wheel or standard 7-bladed aluminum backward curved wheel.

Drives

All fan arrays are available with a direct drive fan. There are no belts to tension, sheaves to replace or fan bearings to lubricate. Lubricating the motor bearings is the only maintenance required.

Modular Construction

The lightweight design makes the **HPA** plenum fans easy to transport and stack. There are no fasteners on the external casing, making it clean and easy to install. Inlet and outlet flanges make connecting adjacent units quick and easy.



Non-Modular Construction

OPA model arrives fully assembled as a self-supporting structure. Foam wall construction makes for fast and easy installation that results in low labor costs.

The **MOA** ships knocked down in small pieces. Lightweight, but strong structure. Assembly is as easy as a Lego® model. As a pre-engineered, turnkey package – all array wiring to the controls is provided.

Array Controls

The power panel is a 3R enclosure designed and listed to UL508A standards featuring integral fuses for each fan circuit (up to a 10-fan array) with a lockable disconnect. The control panel contains a Carel® c.pCO controller featuring run enable/status, alarm and BACnet® MSTP. The factory-programmed controls take a set point from a BMS and maintain the set point while monitoring differential pressure. The panel features an HOA, ready status light, alarm status light and an optional 7 in. touch screen as an advanced U/I. Wire connections from the array to controls are simple plug and play with enough wire to mount the controls up to 10 ft. from the array.

Model Comparison

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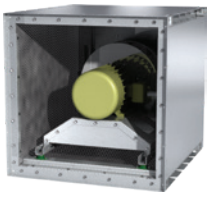
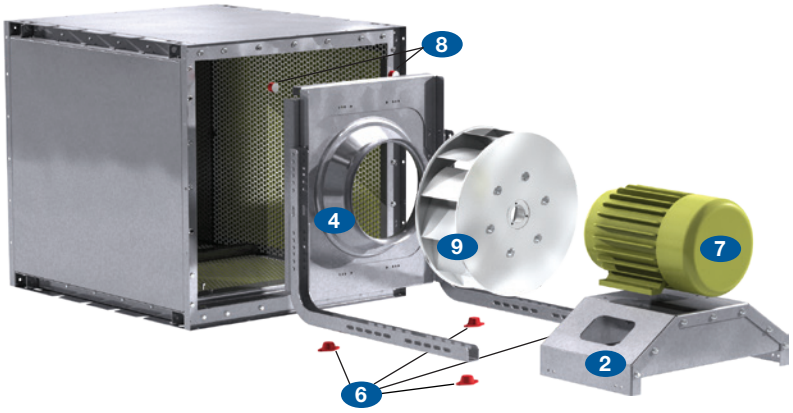
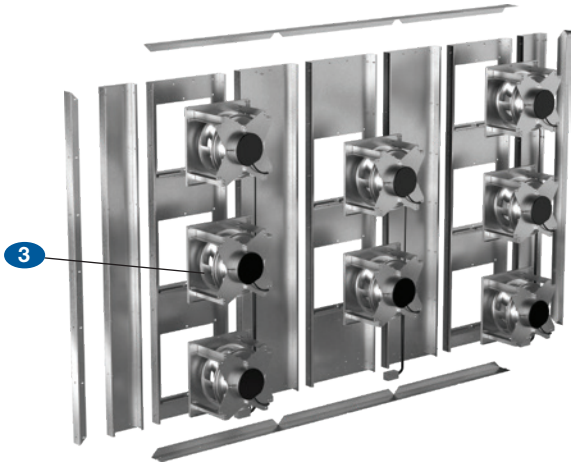
				
MODEL COMPARISON		**HPA**	**MOA**	
Performance	Volume (CFM max (m^3/hr))	45,000 (76,500)		
	Static Pressure (Ps max)	7 in. wg (1,740 Pa)	8 in. wg (1,990 Pa)	
	Sizes	15 - 36	16 and 22	
	Max Height x Max Width	–	–	
Standard Construction	Arrangement, Configuration	4, Horizontal	4, Horizontal	
	Drive Type	Direct	Direct	
	Wheel	12 Blades	7 Blades	
	Wheel Type	Airfoil	Airfoil	
	Wheel Material	Aluminum	Composite	
	Wheel Construction	Welded	–	
	Frame Material	Galvanized Steel	Galvanized Steel	
	Frame Construction	Bolted	Bolted	
	Single Pressure Tap	Included	Included	
	Factory Vibration Test	Yes	Yes	
		BV-4	BV-4	
	AMCA Certification	Sound and Air	–	
Accessories	Extended Lube Lines Kit	Yes	–	
	Inlet Guard	Yes	Yes	
	Outlet Guard / Safety Screen	Yes	–	
	Inlet Damper	Yes	–	
	Blank-off Panel	Yes	Yes	
	Sure-Aire™ Airflow Measurement	Yes, with Electronics	Yes, with Electronics	
	Vibration Isolators	Yes	–	
Options	Warranty	1, 2 or 3 years	1, 2 or 3 years	
	High Voltage UL Panel	–	Yes	
	Low Voltage Control Panel	–	Yes	

	OPA	MODEL COMPARISON	
		Volume (CFM max (m^3/hr))	Performance
	8 in. wg (1,990 Pa)	Static Pressure (Ps max)	
	14 - 24	Sizes	
	96 in. x 636 in.	Max Height x Max Width	
	4, Horizontal	Arrangement, Configuration	Standard Construction
	Direct	Drive Type	
	7 Blades	Wheel	
	Airfoil or Backward Curved	Wheel Type	
	Aluminum	Wheel Material	
	Welded	Wheel Construction	
	Galvanized Steel	Frame Material	
	Bolted	Frame Construction	
	Included	Single Pressure Tap	
	Yes	Factory Vibration Test	
	BV-3		
	N/A	AMCA Certification	
	Yes	Extended Lube Lines Kit	Accessories
	Yes	Inlet Guard	
	–	Outlet Guard / Safety Screen	
	Yes	Inlet Damper	
	–	Blank-off Panel	
	Yes, with Electronics	Sure-Aire™ Airflow Measurement	
	–	Vibration Isolators	
	1, 2 or 3 years	Warranty	Options
	–	High Voltage UL Panel	
	–	Low Voltage Control Panel	

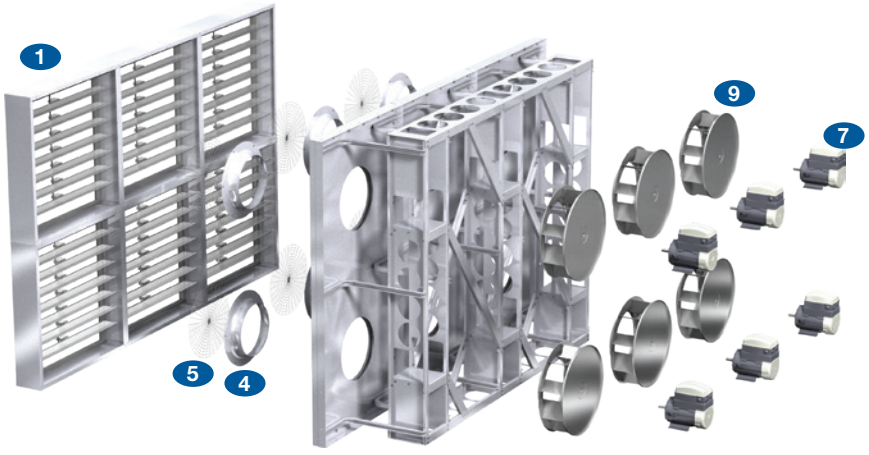
1. Dampers
2. Drive Frame
3. Fan
4. Inlet Cone
5. Inlet Guard
6. Isolators
7. Motor
8. Thrust Isolators
9. Wheel



HPA



MOA



OPA

Model Number Codes:

HPA - 18 - 95 - S - B 750

- **Model**: Housed Plenum Array
- **Wheel Size**: 15-36
- **Wheel Width**: 50-100
- **Housing Size**: C = Compact; S = Standard; L = Large
- **Motor RPM**: A = 1770; B = 1170; M = 3500
- **Motor HP**: 150 = 15; 200 = 20; 250 = 25; 300 = 30; 400 = 40; 500 = 50; 600 = 60; 750 = 75

OPA - 315

- **Model**: Open Plenum Array
- **Wheel Size (mm)**: 15-36

MOA - 560

- **Model**: Modular Open Array
- **Wheel Size (mm)**: 15-36

Vibration Analysis

HPA fans are tested at the design speed in the factory after final assembly. They are checked for amp draw with levels recorded. HPA fans are also subjected to a complete vibration analysis in three planes. The recorded filter-in vibration levels at the FRPM meet the requirements of AMCA/ANSI Standard 204-05 (Balance Quality and Vibration Levels for Fans). A permanent record of the test is kept on file at the factory for future reference. A copy of the test report is available upon request.

The following vibration limits apply to an assembled fan tested in Greenheck's factory.

Fan Category	Rigidly Mounted in./s	Flexibly Mounted in./s
BV-1	.50	.60
BV-2	.20	.30
BV-3	.15	.20
BV-4	.10	.15
BV-5	.08	.10

Fan Array Offering

HPA – a direct drive plenum fan mounted inside a sound attenuating housing, designed and engineered to provide superior performance and reliability in commercial and industrial applications. Model HPA can be used as a single fan in a sound critical application or in parallel to construct a fan array system. The HPA features a modular design with a structural housing that allows multiple modules to stack side-by-side and on top of one another to form an array or fan wall. Typical applications include packaged, built-up and custom air handlers, general supply and return systems and retrofit projects.

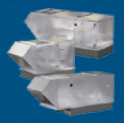
Maximum Volume	45,000 cfm
Maximum Pressure	7 in. wg
AMCA FEI, Sound and Air Performance	

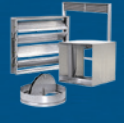
OPA – a configurable, open plenum array designed and optimized for a specified height and width. Each design point will offer multiple solutions allowing for selections based on criteria such as sound, HP, number of fans or overall efficiency. Construction of the OPA is foam-filled, galvanized steel panels with laser cut and formed galvanized steel structure. The array is fully assembled and factory tested. The array can be designed with NEMA premium AC induction motors up to 10 hp or 3-phase Vari-Green® motors with integrated drives providing industry leading IE5 efficiencies. Aluminum wheel construction is standard on all selections with optional airfoil construction available.

Maximum Height	96 inches
Maximum Width	636 inches
Maximum Pressure	9 in. wg

MOA – an optimized array configuration designed for a users' width and height. Construction of the MOA is galvanized panels that are lightweight and easy to handle, ideal for retrofit or new build-up applications. The array ships knocked down for easy build-up and installation on the jobsite; each component is manageable without special rigging or lifting. The modular array is a factory-wired and programmed turnkey package with integrated controls. The built-in Carel® controller takes a BMS signal providing a set point and manages the array to provide performance even with the loss of a fan. An optional touch screen for user interface is also available.

Configurable Height	
Configurable Width	
Maximum Pressure	8 in. wg





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.

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00.CVI.1040 R1 6-2023