

EFFICIENT SILENT ARRAY™

Advanced Direct Drive Plenum Fans

PRODUCT GUIDE



PENNBARRY™

TABLE OF CONTENTS

INTRODUCTION	3
CERTIFICATIONS & LISTINGS	4
FEATURES & BENEFITS	4
OPTIONS & ACCESSORIES	5
DIMENSIONS	6
ESA FAN SELECTIONS	7-8

INTRODUCTION

Efficient Silent Array ESA

The PennBarry Efficient Silent Array is a direct drive plenum fan with the flexibility to be used singularly or in parallel so you can construct a multiple fan system to meet the exact performance criteria for your application.

The ESA Advantage

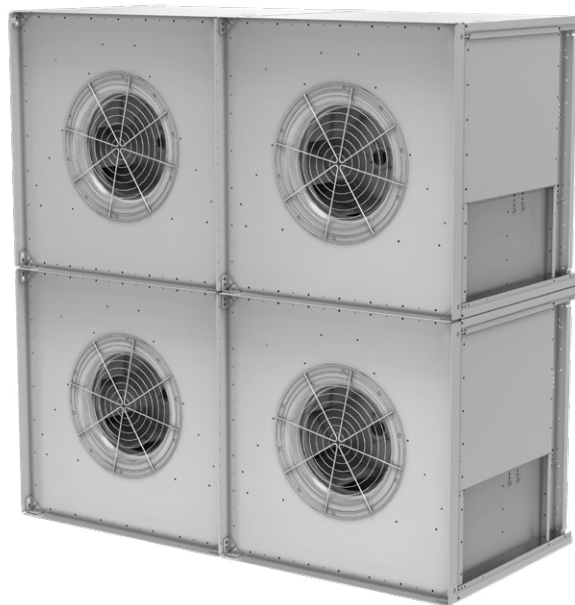
- Fan redundancy ensures the system continues to perform, even with a fan in the array shut off
- Stackable, individual units allow flexibility to meet any design criteria
- Direct drive premium NEMA motor eliminates bearings, belts, and pulleys, reducing maintenance costs significantly
- Motor base optimization eliminates unnecessary, wasteful, and costly materials
- Eliminates all resonance conditions
- PennBarry's proprietary balance process improves on currently accepted AMCA specifications by considering the effects of the rotating mass on the units as a whole, not just the wheel
- Modular units fit through standard door opening for retrofit applications
- Sound panels enclose the fan and motor to reduce attenuation levels

Applications Systems

- High performance VAV systems
- Air Handlers
- Rooftop units
- General supply and return exhaust
- Telecom data centers
- Clean rooms

ESA Features

- Available sizes: 10" through 40"
- 9 or 12 blade, aluminum airfoil wheel
- G90 mechanically fastened frame
- Performance: up to 10 in-wg and 76% efficiency



CERTIFICATIONS & LISTINGS



AMCA Certification

PennBarry certifies that the Efficient Silent Array 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 211 and AMCA publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

FEATURES & BENEFITS

Reliable Performance

Efficient direct drive configurations extend maintenance intervals while system redundancy ensures air performance across the full operating range.

Simple, Scalable Solution

With its extensible design, optimal system performance is attained by scaling the array, increasing or decreasing fan modules as your needs or system requirements change.

Industry Best Vibration Performance

Assembly balanced to G6.3.

There are no resonant conditions throughout full operating range.

Robotically Welded Aluminum Airfoil Wheel

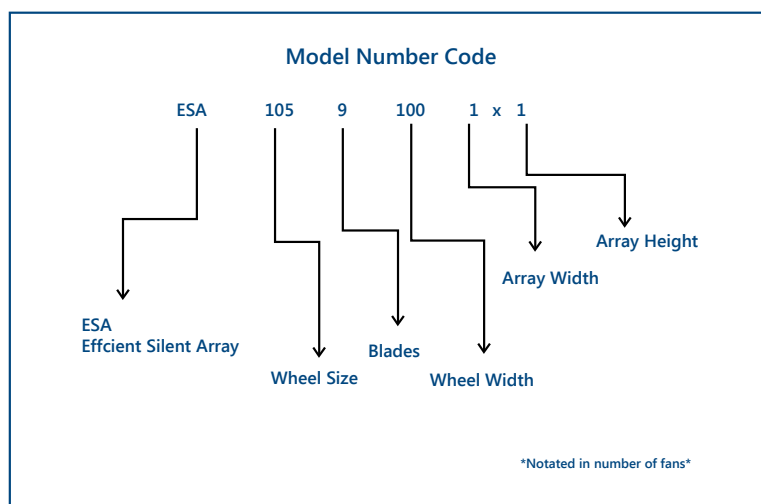
Wheels are available in 9-blade, specifically designed for efficiency, or 12-blade configurations, designed for sound performance, with wheel widths of 80%, 100%, and 120%.

Galvanized Steel Frame and Base

These sturdy features are assembled with high strength fasteners.

Low Maintenance

No belts, bearings, or sheaves results in lower costs and improved system uptime.



OPTIONS & ACCESSORIES

Piezometer Ring

This system for measuring pressure consists of pressure taps installed around the perimeter of the inlet cone.

- Measures airflow.
- Can be used as a "kill" switch for the fan.
- Can be installed by factory or in field.

Shaft Grounding Kit

This kit diverts stray voltage spikes to ground, extending motor bearing life, highly recommended for all fans.

Special Motors

PennBarry can install most NEMA frame motors.

Inlet Damper

Damper controls the airflow to each fan or array.

Inlet Screen

A safety feature used for the intake of the fan.

Cloth Wrap

Wraps are recommended for clean room applications to help reduce in-stream particles.

Outlet Guard

A safety feature used for the outlet area, ensuring no hand penetration into moving parts.

Reliable Redundancy

Efficient Silent Array's redundancy ensures the system continues performing, even with a fan in the array shut off.

Reduced Maintenance Costs

The Efficient Silent Array direct drive plenum NEMA motor eliminates bearings, belts, and pulleys, thus reducing maintenance costs significantly. Also, motor base optimization eliminates unnecessary, wasteful, and costly materials.

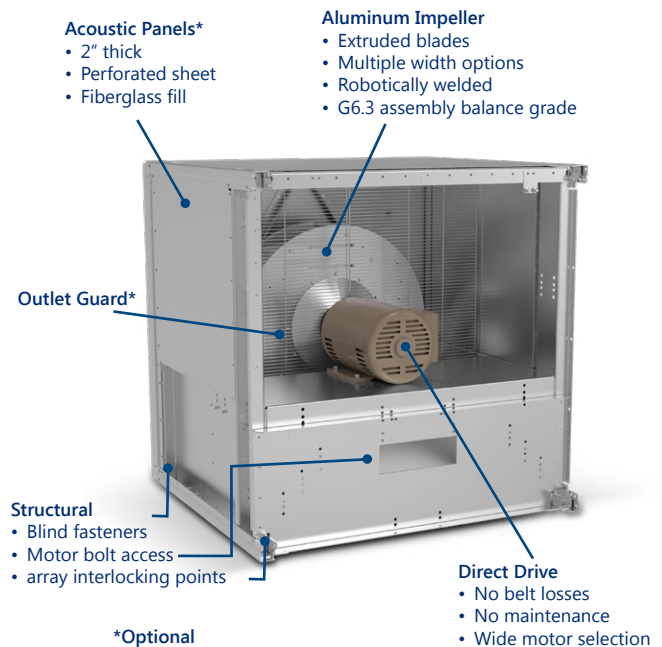
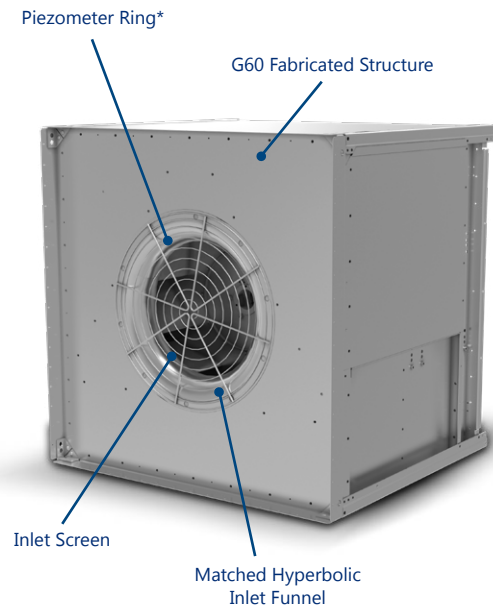
Smaller Cabinet Footprint

These stackable, individual units allow flexibility to meet any design criteria. The Efficient Silent Array's unit design is compact and figurable.

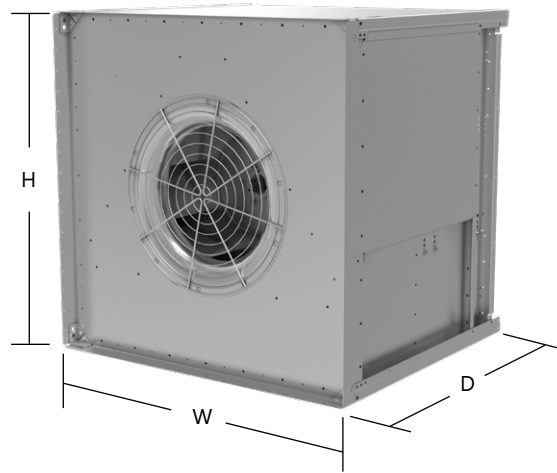
Reduced Ecological Footprint

PennBarry's experienced design engineers and technicians utilize state of the art engineering and laboratory facilities to provide solutions to help meet the needs of the present without compromising the ability of future generations to meet their own needs.

In addition, PennBarry products are produced in multiple factory locations, which ensures optimized logistics and freight cost savings.



DIMENSIONS



Efficient Silent Array™ Dimensional Data					
Wheel Size	Housing Dimensions			Max Stacked Cubes **	Max Motor Frame Size
	Width (W)	Height (H)	Depth (D)*		
10	20.03	18.79	24.56	4	184T
12	22.66	20.89	25.81	4	184T
13	24.53	22.4	28.06	4	213T
15	26.78	24.2	30.63	3	215T
16	29.03	25.75	35.31	3	254T
18	30.41	30	36.77	3	256T
20	33.75	34	37.85	3	284T
22	37.41	37.1	39.19	2	284T
25	41.43	41	40.57	2	284T
27	44.88	44.88	39.76	2	286T
30	49.25	49.25	44.56	2	326T
33	53.75	53.75	46.91	2	326T
36	59.38	59.38	50.52	2	405T
40	64.75	64.75	51.85	1	405T

* Cabinet dimension only. Overall length including motor will vary based on motor type, size, and manufacturer.

**Recommended max stacked cubes based on max hp. Higher stacks are possibly with smaller hp-contact PennBarry engineering.

All dimensions are in inches.

ESA FAN SELECTIONS

Model

ESA = Efficient Silent Array

Construction

<p>Application Flow (CFM) <enter value></p> <p>Application Static Pressure (inwc) <enter value></p> <p>Application E = Exhaust / Relief S = Supply / Intake</p> <p>Drive Type D = Direct</p> <p>Fan RPM <####></p>	<p>Plenum Array A = 1x1 B = 1x2 C = 2x1 D = 2x2 E = 2x3 F = 3x1 G = 3x2 H = 3x3 J = 4x2 K = 4x3 L = 4x4 M = 5x2 N = 5x3 P = 5x4</p> <p>Unit Size 105 122</p>	<p>135 150 165 182 200 222 245 270 300 330 365 402</p> <p>Wheel Width 1 = 9-blade airfoil, 80% wheel width 2 = 9-blade airfoil, 100% wheel width 3 = 9-blade airfoil, 120% wheel width 4 = 12-blade airfoil, 80% wheel width 5 = 12-blade airfoil, 100% wheel width 6 = 12-blade airfoil, 120% wheel width</p>
---	--	---

Motor

<p>Efficiency P = Premium S = Standard</p> <p>Horsepower 0.250 = 1/4 0.333 = 1/3 0.500 = 1/2 0.750 = 3/4 01.00 = 1 01.50 = 1 1/2 02.00 = 2 03.00 = 3 05.00 = 5 07.50 = 7 1/2 10.00 = 10 15.00 = 15 20.00 = 20 25.00 = 25 30.00 = 30 40.00 = 40</p>	<p>50.00 = 50 60.00 = 60 75.00 = 75 X = Special</p> <p>Motors and Drives F = Factory mounted G = Factory mounted w/SGR</p> <p>Motor Enclosure 0 = None 2 = TE w/o Overload 4 = ODP w/o Overload 5 = EXP C2D1 6 = Severe Duty X = Special</p> <p>Motor Pole 1 = 1800 4 pole motor 2 = 3600 2 pole motor 3 = 3000 2 pole motor</p>	<p>4 = 1500 4 pole motor 5 = 1200 6 pole motor 6 = 1000 6 pole motor 7 = 0870 8 pole motor</p> <p>Voltage/Phase/Cycle 2 = 200V/3PH/60Hz C = 115V/1PH/60HZ F = 208V/1PH/60HZ G = 208V/3PH/60HZ J = 220V/3PH/50HZ K = 230V/1PH/60HZ L = 230V/3PH/60HZ Q = 380V/3PH/50HZ R = 380V/3PH/60HZ V = 460V/3PH/60HZ X = Special Y = 575V/3PH/60HZ</p>
--	---	--

ESA FAN SELECTIONS

Electrical Accessories

Junction Box Location

1 = F1
2 = F2

Paint/Coating

0 = None
F = Epoxy powder coat (light gray)
X = Special

Paint Color

0 = None
01 = Standard color (gray)
X = Special

Pressure Transducer

0 = None
P = Pressure transducer

Switches / Sensors

0 = None
G = Piezometer pressure gauge

Options and Accessories

Balance Vibration Category

3 = BV-3
4 = BV-4
X = Special

Block Off Plate

0 = None
B = Block off plate

Cloth Wrap

0 = None
W = Cloth wrap

Damper

0 = None
BD = Parallel blade damper
X = Special

Guard/Screen

0 = None
N = Inlet guard
T = Inlet and outlet guard
U = Outlet guard

Sound Block Insulation

0 = None
A = Acoustic Panels

PENNBARRY PRODUCT SOLUTIONS



Commercial

- Roof & wall exhaust centrifugal fans
- Ceiling, wall, & inline centrifugal fans
- Roof supply centrifugal fans
- Square & round centrifugal fans
- Wall mounted axial fans
- Hooded roof axial fans
- Upblast roof axial fans
- Gravity ventilators
- Roof curbs



Industrial

- Freestanding centrifugal fans
- Industrial & material handling fans
- Tubular centrifugal inline fans
- Mixed flow centrifugal fans
- Plug & plenum fans
- Wall mounted propeller fans
- Tube axial fans
- Vane axial fans
- Bifurcator fans
- Lab exhaust



Kitchen ventilation

- Make-up air units
- Exhaust fans



Energy recovery

- Outdoor units
- Indoor units

PennBarry is proud to be your preferred manufacturer of commercial and industrial fans and blowers. Learn how PennBarry can assist you in your next application by contacting your PennBarry Representative or visiting us on the web at www.pennbarry.com

PennBarry | www.pennbarry.com | pennbarrysales@pennbarry.com | Tel 972 212 4700 | Fax 972 212 4702

PennBarry reserves the right to make changes at any time, without notice, to models, construction, specifications, options and availability. This document illustrates the appearance of PennBarry products at the time of publication. View the latest updates on the PennBarry website.

© 2018 PennBarry. All rights reserved. ESA SEPTEMBER 2018.



PENNBARRY™