



Specification and Manual

Customer: N/A

Description: Filter Fan Unit / Exhaust Grille package

Customer Part No.: N/A Rev.: N/A

Delta Model No.: HEF070 / HEF160 / HEF500 Series Rev.: V00

Sample Date Code: _____

Sample Issue Date: _____

Please send one copy of this specification back after
you signed approval for production pre-arrangement

Approved by: _____

Date: _____

DELTA ELECTRONICS, INC.
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Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

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Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

Description

This document is an installation and the characteristics of Delta HEF series. Before installing the unit, please read this manual thoroughly, and following the instructions contained in it. The document is the exclusive property of Delta Electronics, Inc. it should not be distributed, reproduced, or any other format without prior permission of Delta. Specifications are subject to change without notice.

Packing & Shipping

The filter fan unit is a precision instrument; it should be handled and transported with care. Do not stand on the box, or place heavy objects on top of the box. Pay attention to the below icons on the package.



Safety Notes

Please read the safety notes carefully before installing the filter fan unit, and be sure to install it correctly. After completing installation, check that the unit operates properly during start-up operation.

Meaning of WARNING and CAUTION notices:

 **Warning:**

Failure to follow these instructions properly may result in personal injury or loss of life.

 **Caution:**

Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstance.

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 **Warning:**

1. Installation work and electrical wiring should be done only by qualified personnel in accordance with all applicable codes, standards and national wiring regulations.
2. Use this unit only in the manner intended by the manufacturer. If you have questions, please contact the manufacturer.
3. Install the filter fan in accordance with the instructions in this installation manual. Improper installation may result in water leakage, electric shock or fire.
4. Make sure that all wiring is secured, that specified wires are used, and there is no strain on the terminal connections or wires.
5. Before serving or cleaning unit, disconnect power supply.
6. When cutting or drilling into enclosure, do not damage electrical wiring or equipment.
7. Be sure to use only the specified accessories and parts to complete installation.
8. This appliance is intended for use only by qualified personnel.

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 **Caution :**

1. Do not allow a child to mount onto the outdoor unit. Avoid placing any object on it.
2. Do not block the air inlets or exits.
3. Do not install the refrigeration unit at any place where there is a danger or flammable gas leakage.
4. To avoid injury, do not touch the air inlet or fan blades of the unit.
5. Watch your step at the time of filter cleaning or air grille inspection.
6. This appliance is not to be used by any persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given proper supervision or instruction.
7. Children should be prevented from playing with the appliance.

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Specification for Approval

Customer : N/A

Description : Filter Fan Unit / Exhaust Grille package

Customer P/N : N/A

Rev. :

Delta model no. : HEF070 / HEF160 / HEF500 Series

Rev. : V00

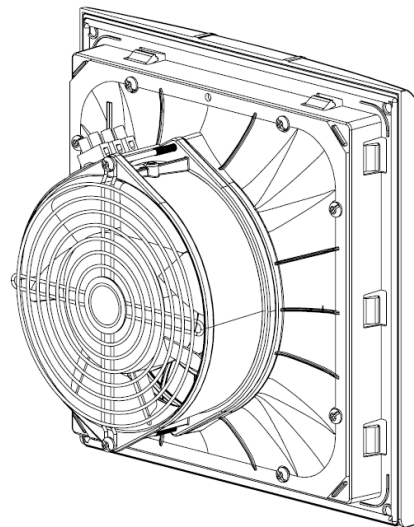
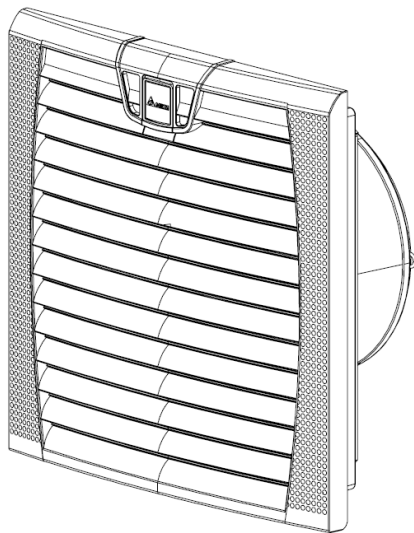
Sample revision. :

Date Code :

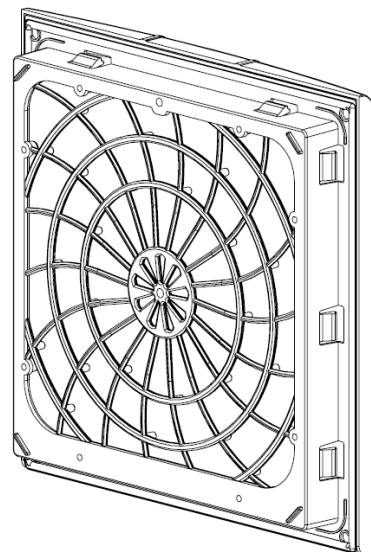
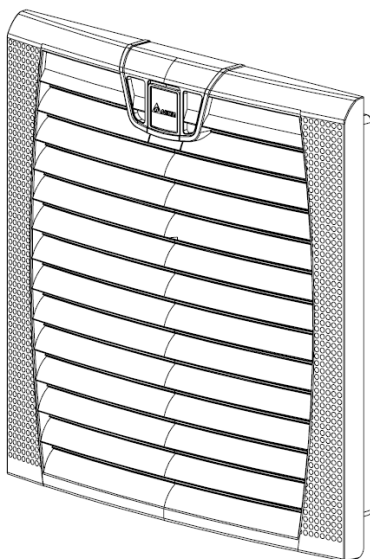
Sample issue date :

Quantity :1 pc

➤ Filter Fan Unit :



➤ Exhaust Grille package :



Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

1. Product Instruction

1-1. General Description

HEF070A / HEF160A / HEF500A Series is a AC Filter Fan unit with 115 VAC power input, HEF070B / HEF160B / HEF500B Series is a AC Filter Fan unit with 230 VAC power input, The filter fan revolutionizes the cabinet climate control. HEF Series filter fans are equipped with high efficiency fiber structure, reliably remove a wide variety of dust particles.

HEF 500 A A A

(1) (2) (3) (4) (5)

No	Item	Digit	Specification
(1)	Product Message	HEF	Filter FAN Series
(2)	Air Flow(CFM)	500	500=500CFM
(3)	Operation Voltage	A	AC 115V for wall mount
		B	AC 230V for wall mount
(4)	Application type	A	Filter Fan Unit for IP54
		C	Exhaust Grille package for IP54
(5)	Edition	A	First

Part no.:

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1-2. Specification

HEF070 Series Power & Range			
Filter Fan Unit			
MAIN FEATURE	UNIT	Model Name	
		HEF 070AAA	HEF 070BAA
Input Voltage	VAC	115	230
Frequency	Hz	50 / 60	50 / 60
Rated Current (50/60Hz)	A	0.22 / 0.17	0.14 / 0.10
Power Consumption (50/60Hz)	W	15 / 12	18 / 14
Power Connection	Terminal Block		
Dimensions, Weight & Mounting method & Color			
Unit Dimension (H x W x D)	mm (inch)	204 x 204 x 107 (8.03 x 8.03 x 4.21)	
Cutout Dimension (H x W)	mm (inch)	177 x 177 (6.97 x 6.97)	
Application	NOTE 1		
Weight	Kg (lbs)	0.88 (1.94)	
Color	RAL 7035 (light-gray)		
Performance & Environmental Protection			
Free Airflow	CMH(CFM)	119 (70)	
Airflow rate in filter with Exhaust Grille	CMH(CFM)	85 (50)	
Fan Speed (50/60Hz)	RPM	2700 / 3100	
Noise (Sound pressure) (50/60Hz)	dB-A	42 / 46	
Operating Temperature Range	°C (°F)	-15 ~ +55 (+5 ~ +131)	
Service Life (L10)	hours	40,000 at 40°C	
Protection Category	EN 60529	IP54	
Protection Category	UL508	NAME Type 12	

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

HEF160 Series Power & Range			
Filter Fan Unit			
MAIN FEATURE	UNIT	Model Name	
		HEF 160AAA	HEF 160BAA
Input Voltage	VAC	115	230
Frequency	Hz	50/60	50/60
Rated Current (50/60Hz)	A	0.25 / 0.25	0.12 / 0.13
Power Consumption (50/60Hz)	W	26 / 30	27 / 31
Power Connection	Terminal Block		
Dimensions, Weight & Mounting method & Color			
Unit Dimension (H x W x D)	mm (inch)	254 x 254 x 136 (10.0 x 10.0 x 5.35)	
Cutout Dimension (H x W)	mm (inch)	224 x 224 (8.82 x 8.82)	
Application	NOTE 1		
Weight	Kg (lbs)	1.69 (3.73)	
Color	RAL 7035 (light-gray)		
Performance & Environmental Protection			
Free Airflow	CMH(CFM)	272(160)	
Airflow rate in filter with Exhaust Grille	CMH(CFM)	229(135)	
Fan Speed (50/60Hz)	RPM	2850 / 3400	
Noise (Sound pressure) (50/60Hz)	dB-A	55 / 60	
Operating Temperature Range	°C (°F)	-15 ~ +55 (+5 ~ +131)	
Service Life (L10)	hours	40,000 at 40°C	
Protection Category	EN 60529	IP54	
Protection Category	UL508	NAME Type 12	

Part no.:

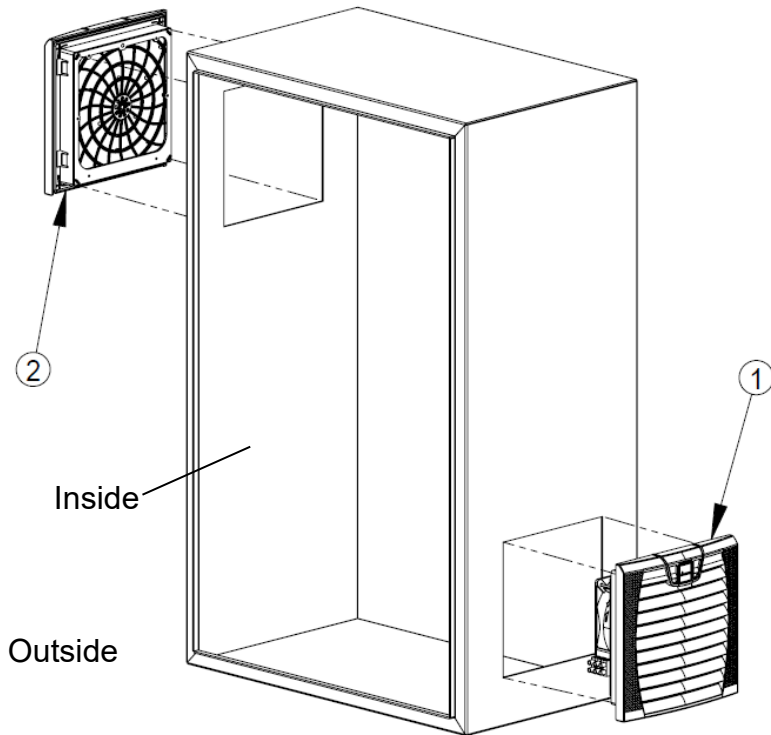
Delta model no.: HEF070 / HEF160 / HEF500 Series

HEF500 Series Power & Range			
Filter Fan Unit			
MAIN FEATURE	UNIT	Model Name	
		HEF 500AAA	HEF 500BAA
Input Voltage	VAC	115	230
Frequency	Hz	50 / 60	50 / 60
Rated Current (50/60Hz)	A	1.0 / 1.3	0.5 / 0.7
Power Consumption (50/60Hz)	W	113 / 145	117 / 156
Power Connection	Terminal Block		
Dimensions, Weight & Mounting method & Color			
Unit Dimension (H x W x D)	mm (inch)	323 x 323 x 155 (12.7 x 12.7 x 6.1)	
Cutout Dimension (H x W)	mm (inch)	292 x 292 (11.5 x 11.5)	
Application	NOTE 1		
Weight	Kg (lbs)	3.98 (8.77)	
Color	RAL 7035 (light-gray)		
Performance & Environmental Protection			
Free Airflow	CMH(CFM)	850(500)	
Airflow rate in filter with Exhaust Grille	CMH(CFM)	599(350)	
Fan Speed (50/60Hz)	RPM	2550 / 2700	
Noise (Sound pressure) (50/60Hz)	dB-A	68 / 70	
Operating Temperature Range	°C (°F)	-15 ~ +55 (+5 ~ +131)	
Service Life (L10)	hours	40,000 at 40°C	
Protection Category	EN 60529	IP54	
Protection Category	UL508	NAME Type 12	

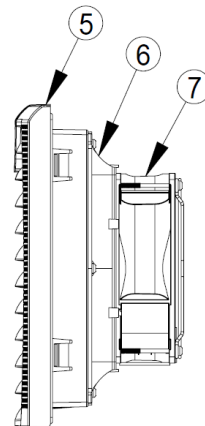
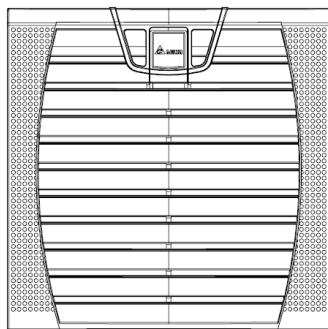
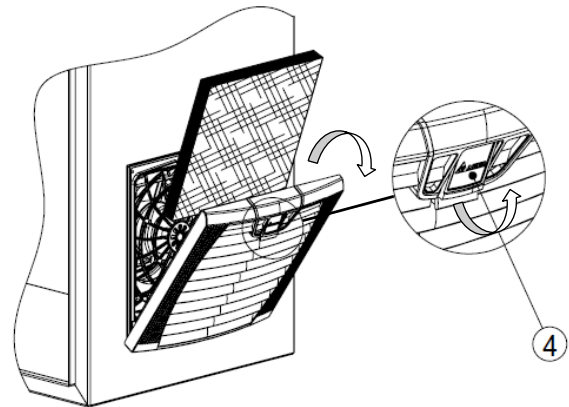
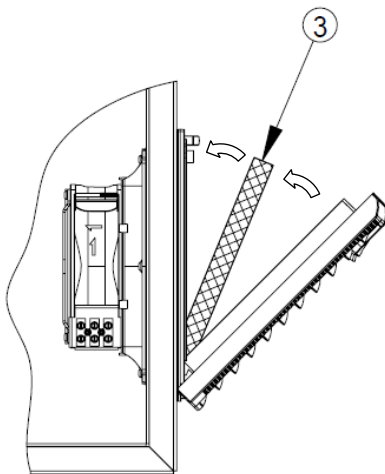
Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

NOTE 1 :

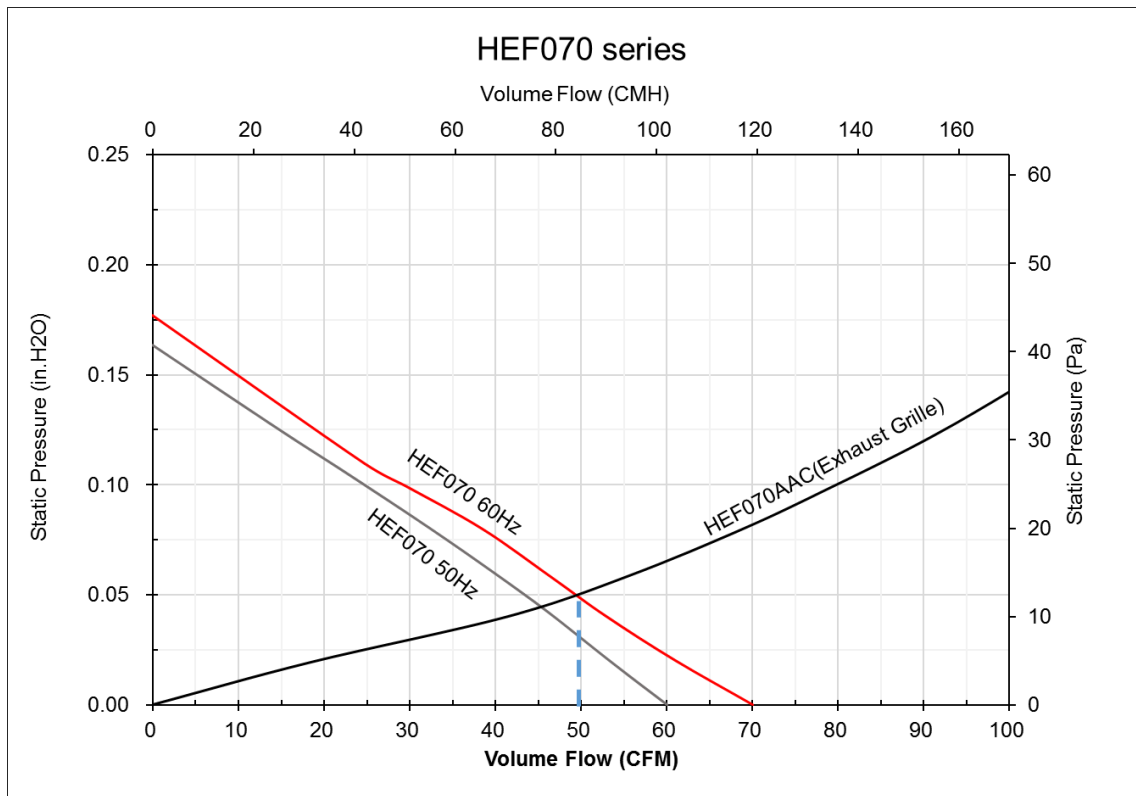


- ①: Filter Fan Unit
- ②: Exhaust Grille package
- ③: Filter mat
- ④: Grille Cover Latch
- ⑤: Outside, Grille Cover
- ⑥: Inside, Fan nozzle
- ⑦: Inside, Fan motor

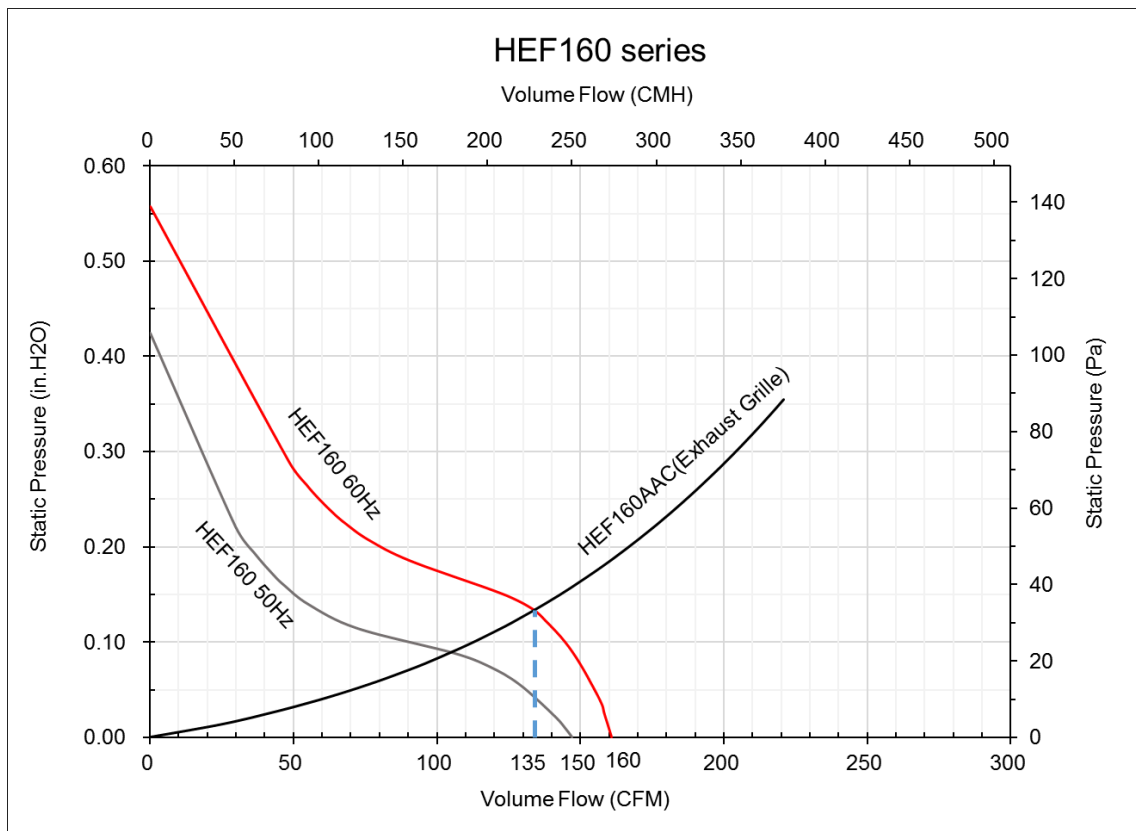


Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series



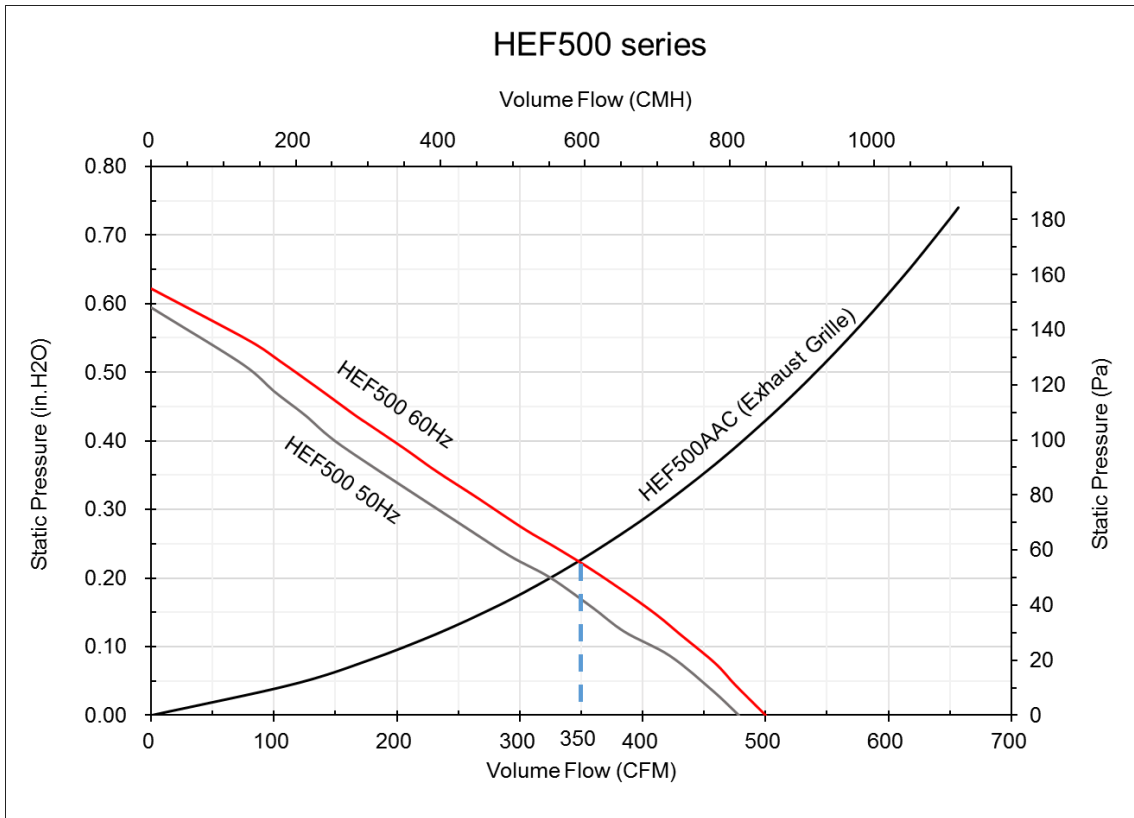
HEF070 Series Capacity Curve, IP54



HEF160 Series Capacity Curve, IP54

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series



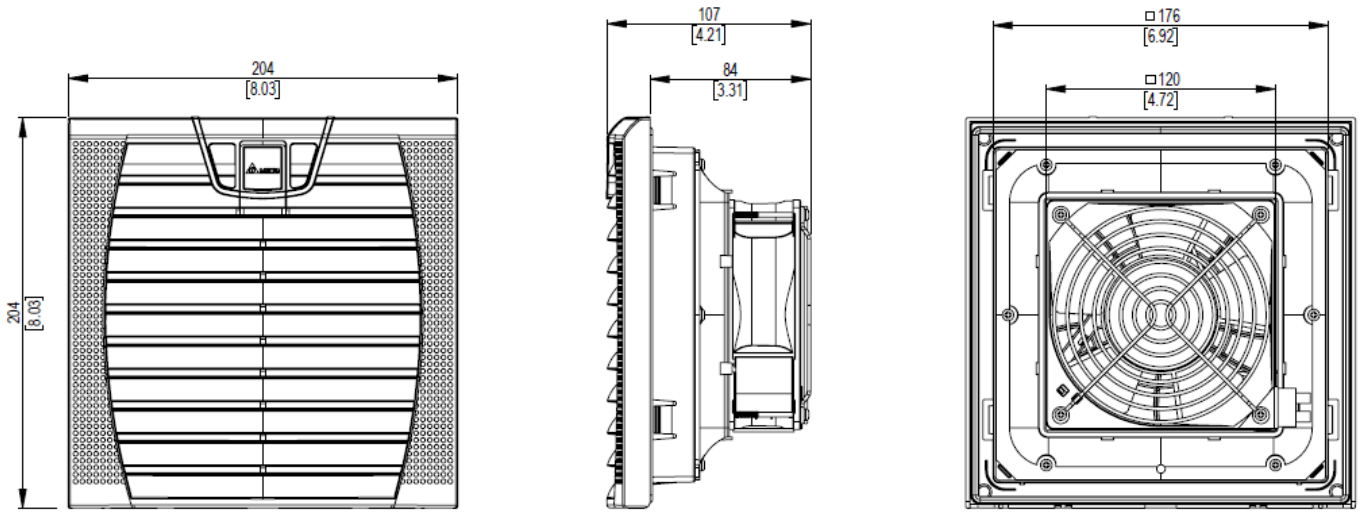
HEF500 Series Capacity Curve, IP54

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

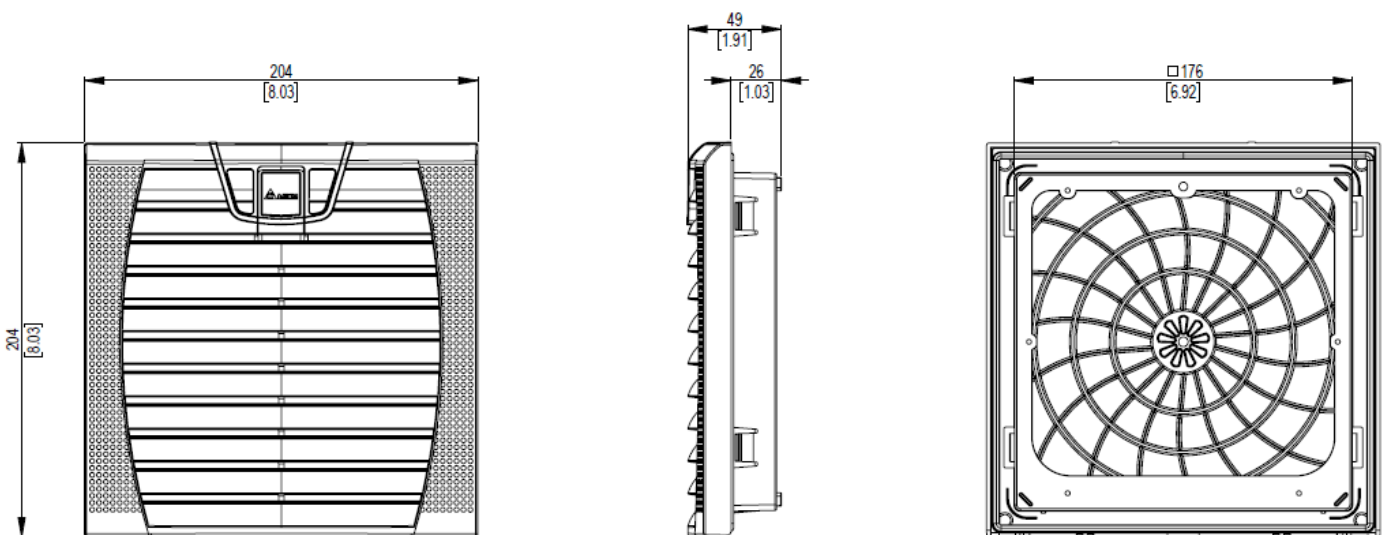
1-3. Unit Dimension

➤ Filter Fan Unit (HEF070 Series)



mm [inch]

➤ Exhaust Grille package (HEF070 Series)

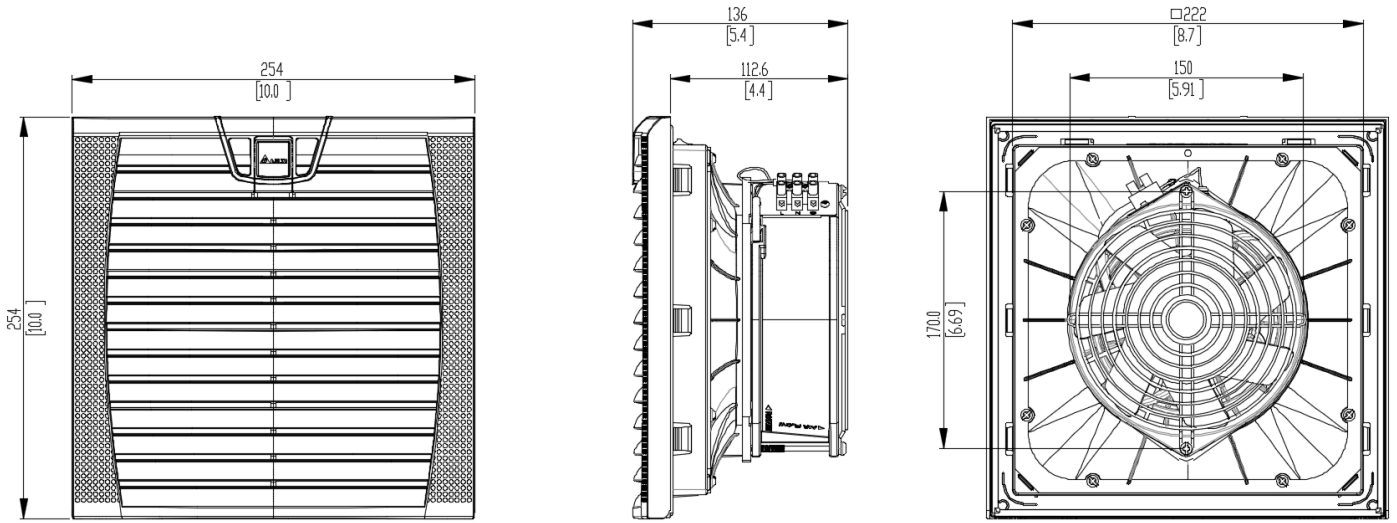


mm [inch]

Part no.:

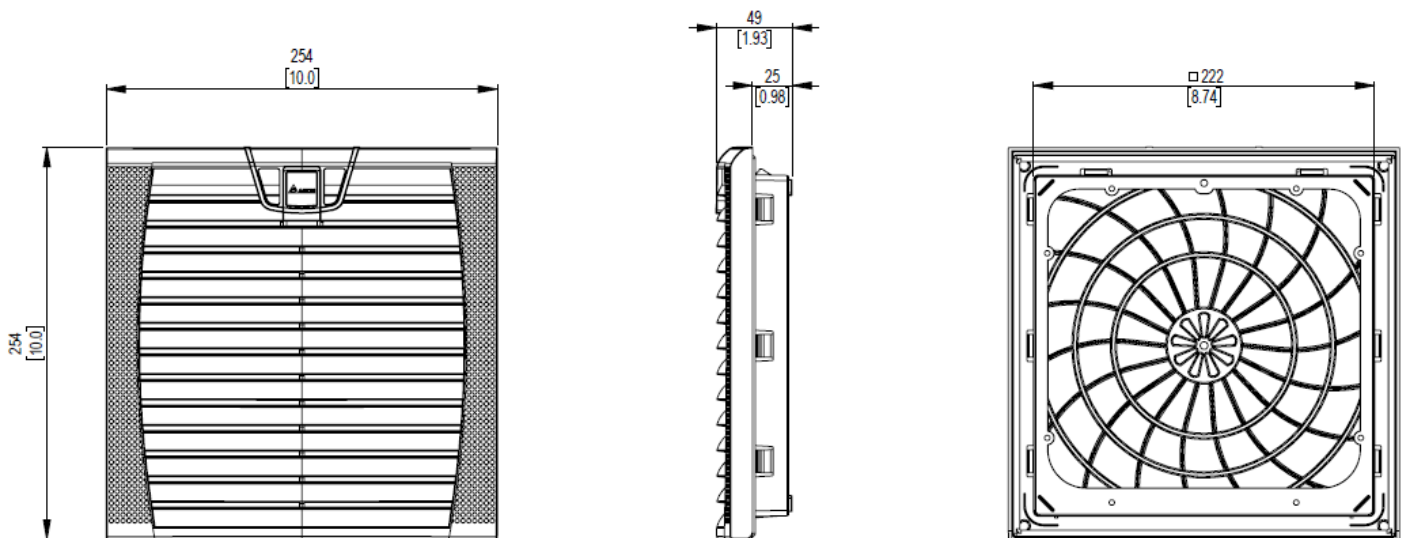
Delta model no.: HEF070 / HEF160 / HEF500 Series

➤ Filter Fan Unit (HEF160 Series)



mm [inch]

➤ Exhaust Grille package (HEF160 Series)

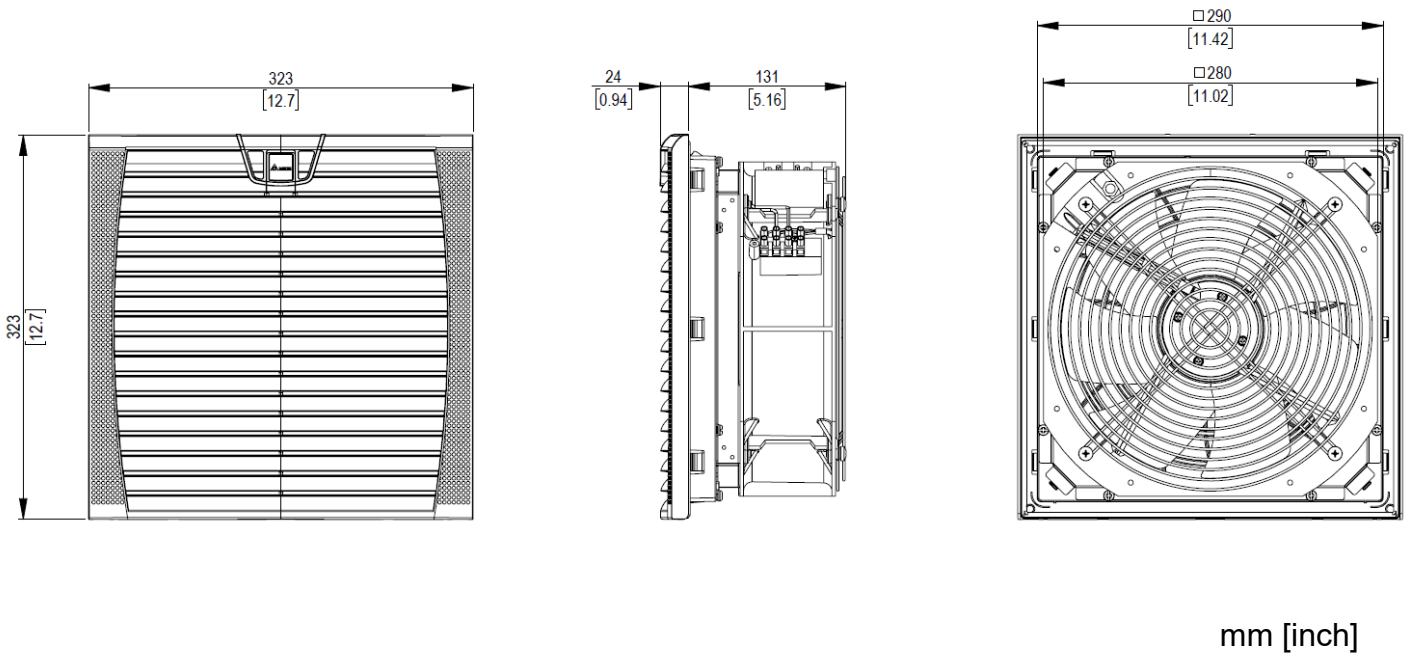


mm [inch]

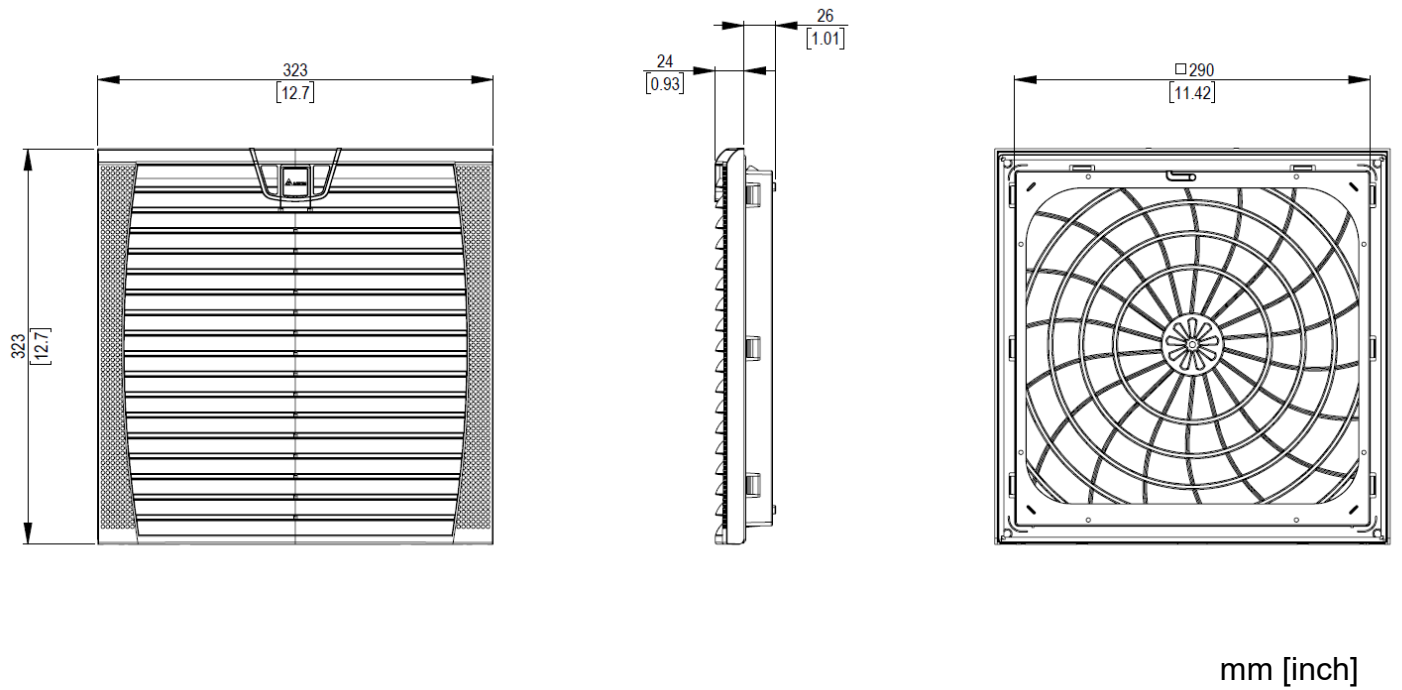
Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

➤ Filter Fan Unit (HEF500 Series)



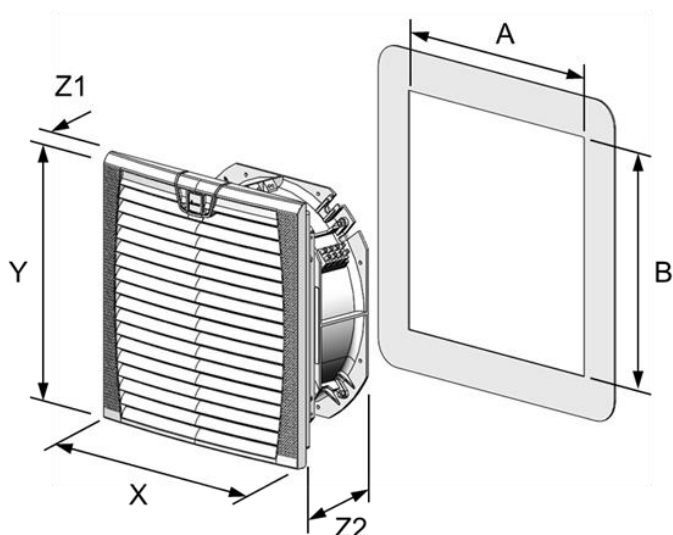
➤ Exhaust Grille package (HEF500 Series)



Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

1-4. Mounting Plane Cutout

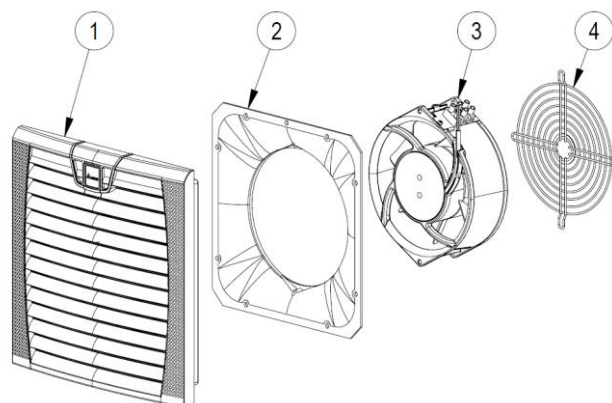


mm (inch)	HEF070 Series	HEF160 Series	HEF500 Series
X	204 (8.03)	254 (10.0)	323 (12.7)
Y	204 (8.03)	254 (10.0)	323 (12.7)
Z1	23 (0.91)	24 (0.94)	24 (0.94)
Z2	84 (3.31)	106 (4.17)	131 (5.16)
A*	177 (6.97)	224 (8.82)	292 (11.5)
B*	177 (6.97)	224 (8.82)	292 (11.5)

*For material thicknesses up to 2+1 mm for thickness of material > 2 mm ≤ 3 mm.

1-5. Configuration & Maintenance

1. Cutout hole in enclosure using the appropriate cutout size for the model you purchased.
2. Deburr the cutting edge.
3. Insert fan or grille and push into opening until all four corners are snapped and locked.
4. Mounting fasteners are required in order to maintain the IP / Type 12 rating.
5. In order to install the mounting fasteners, removal of the grille is required.
6. Torque fasteners to 20-25 in-lbs (2.3-2.8 Nm). See Figure 5 on page 4.
7. Wire the filter fan following the Wire Diagrams on page 5 for the appropriate model being installed.

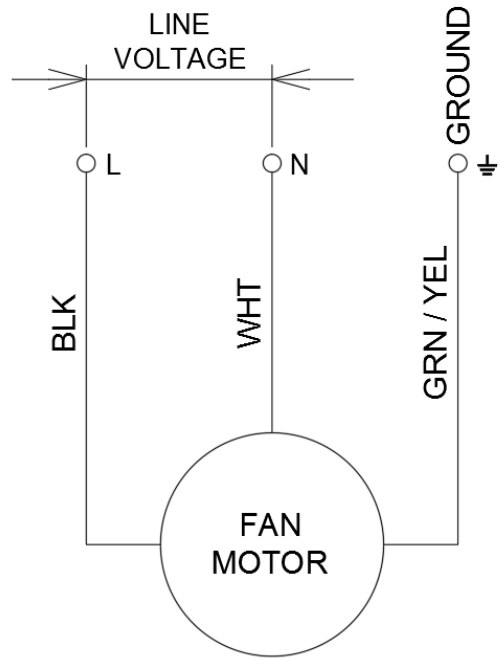


NO.	Q'TY	DESCRIPTION
1	1	Exhaust Grille
2	1	Fan nozzle
3	1	Axial Fan
4	1	Fan Guard

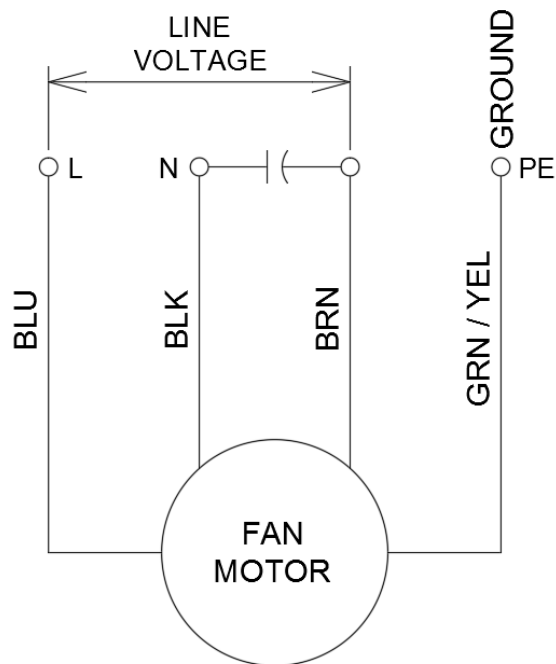
Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

1-6. WIRE DIAGRAMS



HEF160, HEF070 Series
AC POWERED



HEF500 Series
AC POWERED

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

2. Environmental Condition

- **Operating Temperature**
-15°C ~ +55 °C (14 °F ~ +131 °F)
- **Storage Temperature**
-40 °C ~ +70 °C (-40 °F ~ 158 °F)
- **Operation Humidity**
Internal air : 0 ~ 80 % RH, non-condensing
- **Ingress Protection Rating**
IP54 (IEC60529) on external side
UV-resistant plastic

3. Reliability Table

Test item	Condition
Vibration Resistance	ISTA 2A / ISTA 2B
High Temperature Exposure	IEC 60068-2-14 test Na
Low Temperature Exposure	IEC 60068-2-14 test Na
Temperature Cycle	IEC 60068-2-14 test Nb
Ingress protection (external side)	IEC 60529 IP54 / NEMA 12
Salt Fog Test	IEC 60068-2-11
Package bump	ISTA 2A
Surge Voltage	IEC 61000-4-5, EN 55024
Electrostatic discharge	IEC 61000-4-2, EN 55024
Electrical Fast Transient	IEC 61000-4-4, EN 55024
Abnormal Voltage	

4. Safety Certification

Test item	Condition
CE Declaration of Conformity	2014/30/EU & 2014/35/EU & RoHS
NEMA / UL / cUL	UL508 Type 12

5. Accessory

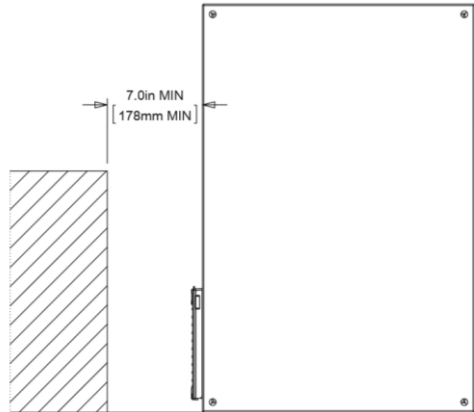
TBD

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

6. Installation Notice

Verify the location of the enclosure with installed filter fan has a minimum clearance of 7.00 (178 mm).



7. Warranty

Delta Electronics, Inc. Warranty for Cabinet Thermal Solutions Products

Delta Electronics, Inc warrants that Filter fan and accessories within its Cabinet Thermal Solutions product family and manufactured by Delta Electronics, Inc., herein referred to as (“products”), will be free from defects in material and workmanship for a period of one (1) year from the date of shipment by Delta Electronics, Inc. This warranty covers repair or replacement of product at the sole discretion of Delta Electronics, Inc. and is subject to the following Conditions and Exclusions:

A. Conditions.

- All products must be installed and operated according to Delta product Specification(s) and product Instruction/User Manual(s):
- Maximum voltage variation is no greater than normal operation and instruction in Delta product Specification(s) and product Instruction/User Manual(s), with avoidance to power line disturbances of any kind.
- Application is not to exceed minimum and maximum stated operation temperatures and humidity range as indicated in the Delta product Specification(s) and product Instruction/User Manual(s).
- Filters (if applicable) must be cleaned regularly.
- Products and any parts thereof must not be modified, unless prior written authorization is received from Delta Electronics, Inc.
- All products must be installed and grounded in accordance with all relevant electrical and safety codes, as well as the National Electric Code and OSHA rules and

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regulations.

- All products must be installed in a stationery application, free of vibration and shock.
- A violation of any one of these conditions shall render the warranty hereunder void and of no effect.

B. Exclusions.

This warranty does not cover the following:

- Applications where products are being misapplied. This includes inappropriate selection of products for the environment and conditions in which it is to be used.
- Damages caused by shipping carrier or any other accident after products have left Delta Electronics, Inc. manufacturing facility. Shipping claims are the responsibility of the customer and are to be completed in a timely manner.
- Reimbursement of labor for installation or removal of any warranted products, or for parts and labor resulting from repairs performed by any other source besides Delta Electronics, Inc.

This is the complete warranty and is in lieu of any other warranty expressed or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. Delta Electronics, Inc. will in no way be liable for incidental or consequential damage whatsoever or for any other claims by the customer for damages in connection with Delta Electronics Inc. products, even if advised in advance of the possibility of such damage.

Return Procedure

All returns require a Return Material Authorization number (RMA #), regardless of reason for return, whether it be for warranty or out of warranty repair. Returns without an RMA # will be refused by Delta Electronics, Inc. Approval for return requests are at the sole discretion of Delta Electronics, Inc.

Buyer should provide the following information at the time of RMA request:

1. Complete Model Number, Serial Number and description of damaged unit requested to be returned.
2. Original Buyer Purchase Order number and date product was received by Buyer.
3. Quantity to be returned and a brief description of failure for each unit, if different.

All returns to Delta Electronics, Inc must be securely packed, using original cartons if possible. All returns must have the RMA number visible on the outside of the carton. Delta Electronics, Inc. is not responsible for material damaged in transit.

Shipping cost for all non-warranty repairs is the responsibility of the sender and must be shipped prepaid. Shipping costs for all warranty related repairs will be covered by

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Delta Electronics, Inc. provided the products are returned using a Delta Electronics, Inc approved carrier. If after diagnosis, products determined by Delta Electronics, Inc. are not covered under warranty, Buyer will be responsible for all shipping charges and will be billed accordingly.

LIMITATION OF LIABILITY

DELTA ELECTRONICS, INC. WILL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION ANY LOST PROFITS OR LABOR COSTS, ARISING FROM THE SALE, USE OR INSTALLATION OF THE GOODS, FROM THE PRODUCTS BEING INCORPORATED INTO OR BECOMING A COMPONENT OF ANOTHER PRODUCT, FROM ANY BREACH OF THIS AGREEMENT OR FROM ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON WARRANTY (EXPRESSED OR IMPLIED) OR OTHERWISE BASED ON CONTRACT, OR ON TORT OR OTHER THEORY OF LIABILITY, AND REGARDLESS OF ANY ADVICE OR REPRESENTATIONS THAT MAY HAVE BEEN RENDERED BY DELTA ELECTRONICS, INC. CONCERNING THE SALE, USE OR INSTALLATION OF THE PRODUCTS.

8. Reclaim



At the end of the unit working life, the produce must not be disposed of as urban waste. It must be taken to a special local authority differentiated waste collection center or to a dealer providing this service.

9. Versions

REV.	DESCRIPTION	ISSUE DATE
00	First SPEC release.	2020.03.18