



## **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.: V01

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: \_\_\_\_\_

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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

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## 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.

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

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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.

 **Caution :**

1. Do not block the air inlets or exits.
2. To avoid injury, do not touch the air inlet or fan blades of the unit.
3. Watch your step at the time of filter cleaning or air grille inspection.
4. 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.
5. Children should be prevented from playing with the appliance.

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

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. : V01

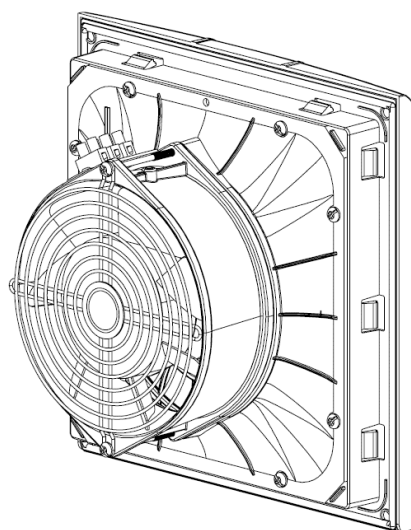
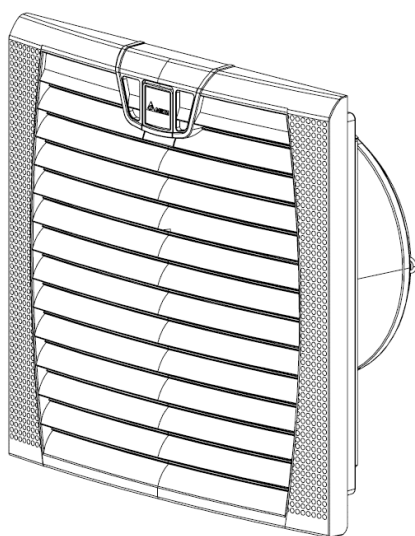
Sample revision. :

Date Code :

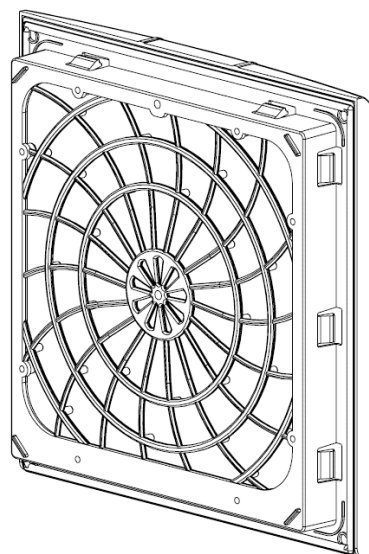
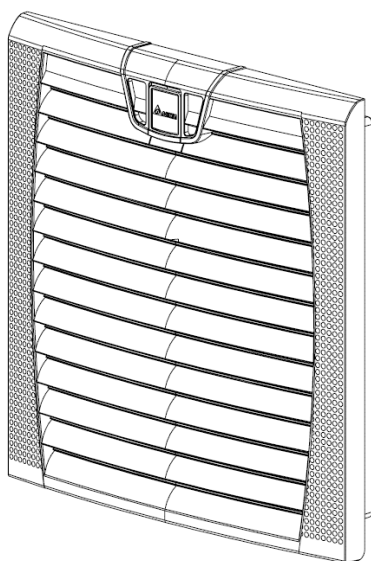
Sample issue date :

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

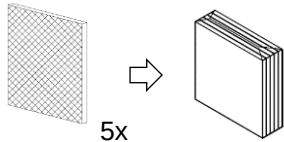
HEF070A / HEF160A / HEF500A Series is a AC Filter Fan unit with 115 VAC power input, HEF070B / HEF160B / HEF500B Series is a AC Filter Fan unit with 230 VAC power input, The filter fan revolutionizes the cabinet climate control. HEF Series filter fans are equipped with high efficiency fiber structure, 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        |
|     |                   | C     | Exhaust Grille package |
|     |                   | E     | Filter mat             |
| (5) | Edition           | A     | First                  |

Part Numbers for Filter Fan Unit / Exhaust Grille Package / Spare Filter mat

| Model                | Filter Fan Unit                                                                     | Exhaust Grille Package                                                              | Spare Filter Mats                                                                           |
|----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
|                      | IP54 / TYPE12                                                                       | IP54 / TYPE12                                                                       | IP54 / G3                                                                                   |
|                      |  |  | <br>5x |
| <b>HEF070 Series</b> | HEF070AAA<br>HEF070BAA                                                              | HEF070ACA                                                                           | HEF070AEA                                                                                   |
| <b>HEF160 Series</b> | HEF160AAA<br>HEF160BAA                                                              | HEF160ACA                                                                           | HEF160AEA                                                                                   |
| <b>HEF500 Series</b> | HEF500AAA<br>HEF500BAA                                                              | HEF500ACA                                                                           | HEF500AEA                                                                                   |

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

## 1-2. Specification

| HEF070 Series Power & Range                  |                       |                                         |             |
|----------------------------------------------|-----------------------|-----------------------------------------|-------------|
| Filter Fan Unit                              |                       |                                         |             |
| MAIN FEATURE                                 | UNIT                  | Model Name                              |             |
|                                              |                       | HEF070AAA                               | HEF070BAA   |
| 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<br>(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                 | NEMA Type 12                            |             |

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

| HEF160 Series Power & Range                  |                       |                                         |             |
|----------------------------------------------|-----------------------|-----------------------------------------|-------------|
| Filter Fan Unit                              |                       |                                         |             |
| MAIN FEATURE                                 | UNIT                  | Model Name                              |             |
|                                              |                       | HEF160AAA                               | HEF160BAA   |
| 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<br>(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                 | NEMA Type 12                            |             |



Part no.:

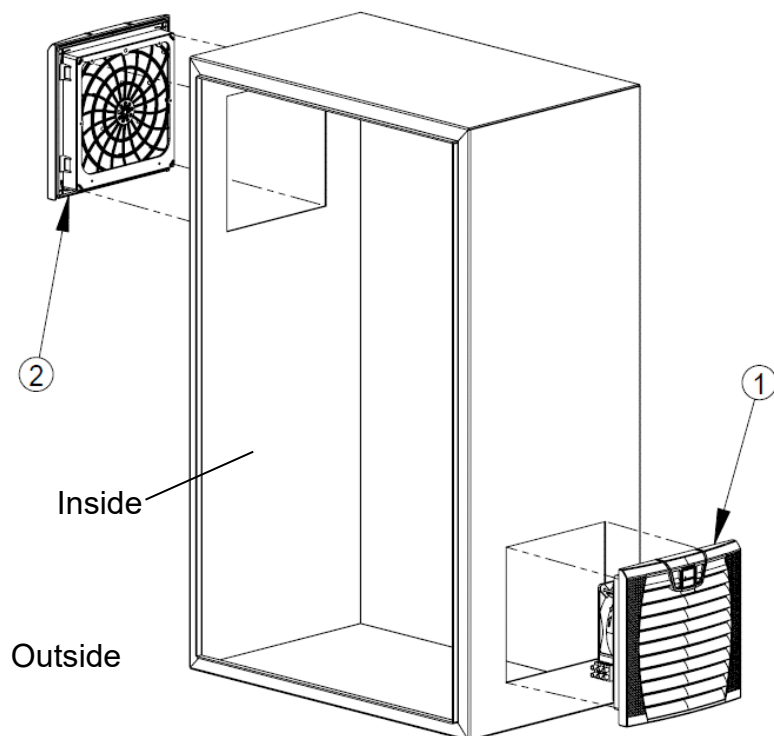
Delta model no.: HEF070 / HEF160 / HEF500 Series

| HEF500 Series Power & Range                  |                       |                                        |           |
|----------------------------------------------|-----------------------|----------------------------------------|-----------|
| Filter Fan Unit                              |                       |                                        |           |
| MAIN FEATURE                                 | UNIT                  | Model Name                             |           |
|                                              |                       | HEF500AAA                              | HEF500BAA |
| 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<br>(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                 | NEMA Type 12                           |           |

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

NOTE 1 :



①: Filter Fan Unit

②: Exhaust Grille package

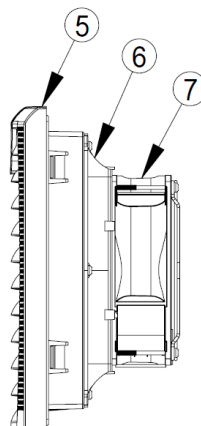
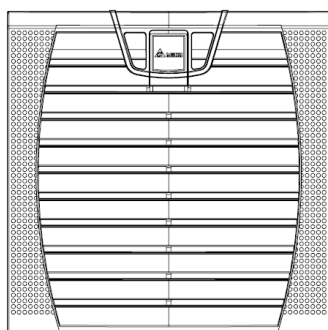
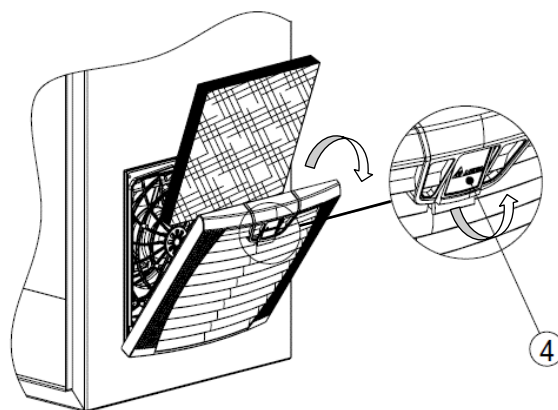
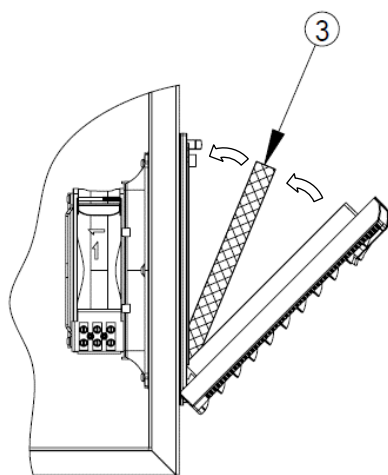
③: Filter mat

④: Grille Cover Latch

⑤: Outside, Grille Cover

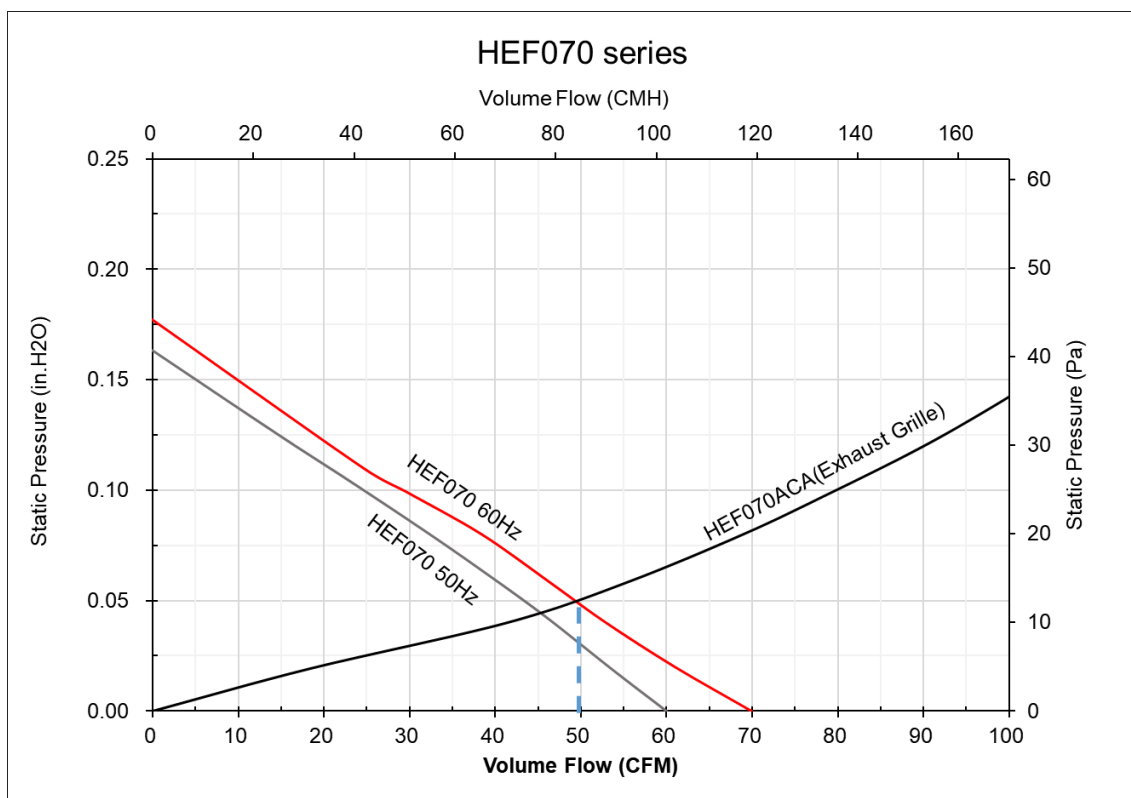
⑥: Inside, Fan nozzle

⑦: Inside, Fan motor

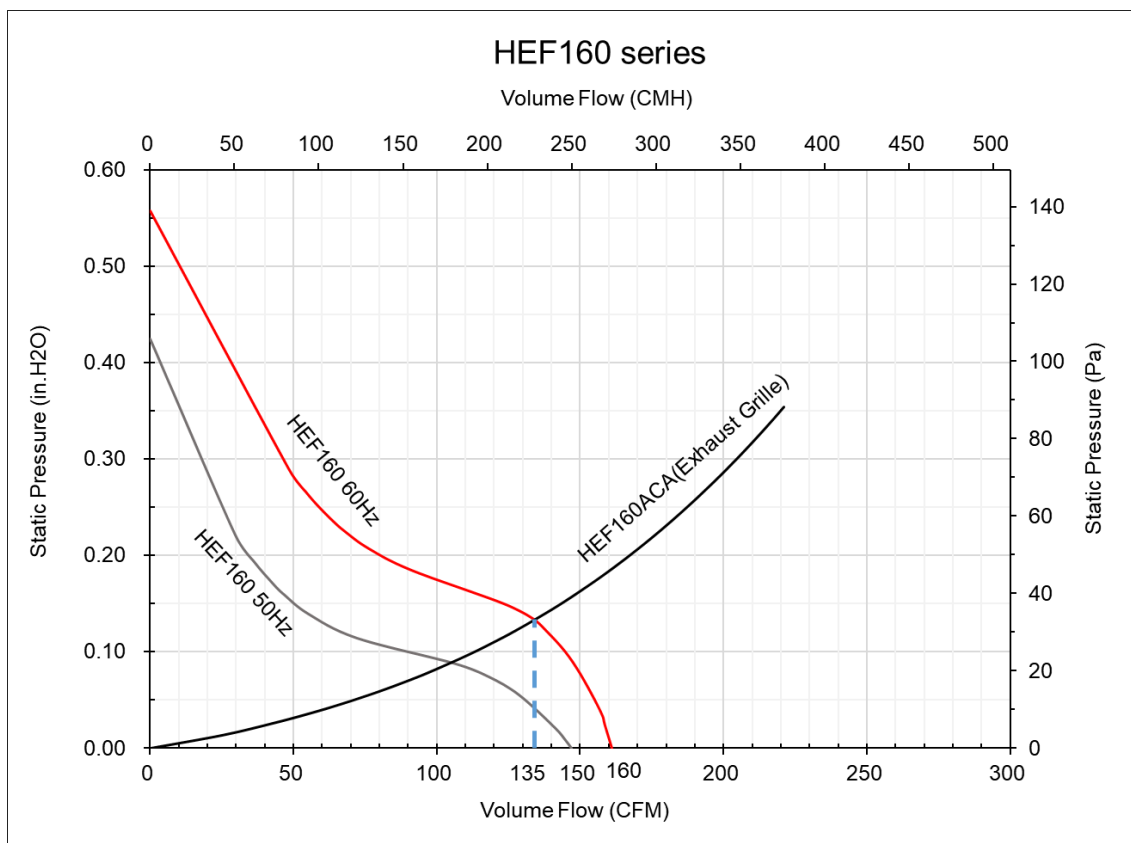


Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series



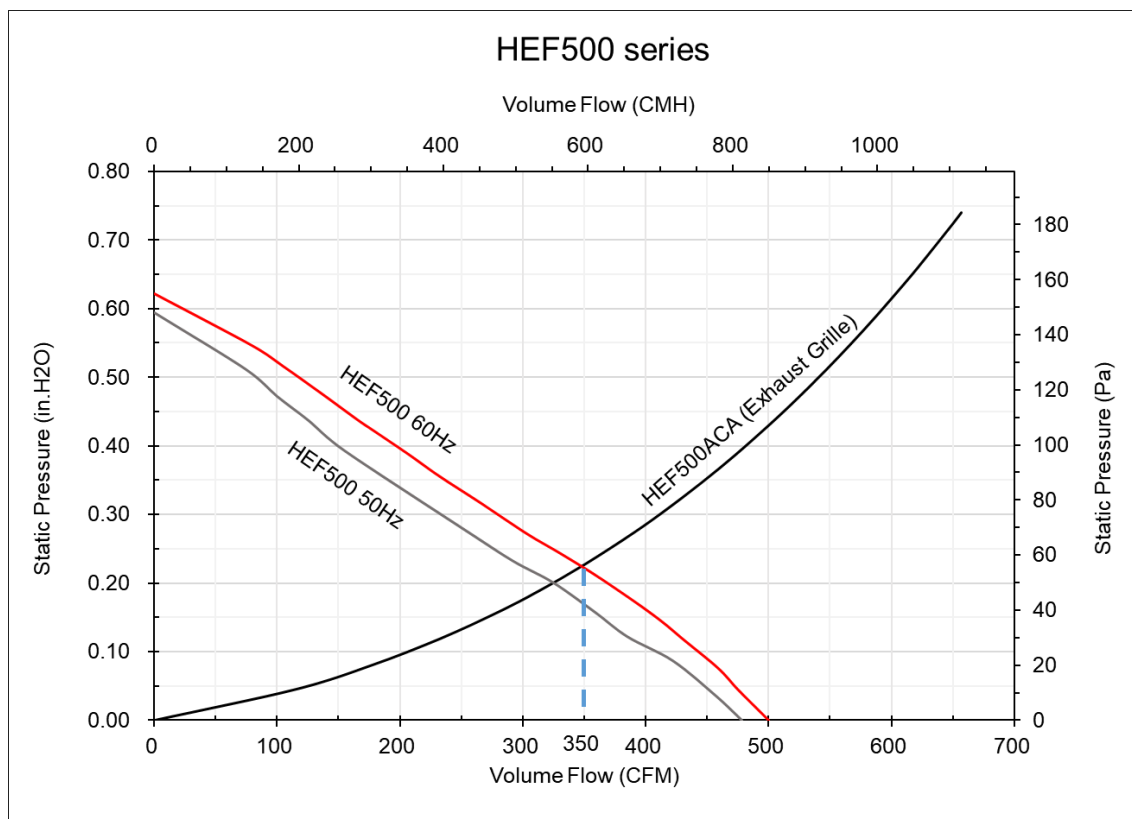
**HEF070 Series Capacity Curve, IP54**



**HEF160 Series Capacity Curve, IP54**

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series



**HEF500 Series Capacity Curve, IP54**

Filter mat key data :

| FILTER MEDIA                                          |                  | Filter mat (IP54)                      |                                        |                                          |
|-------------------------------------------------------|------------------|----------------------------------------|----------------------------------------|------------------------------------------|
| Dimensions                                            | mm<br>(inch)     | HEF070 Series                          | HEF160 Series                          | HEF500 Series                            |
|                                                       |                  | 167 x 167 x 15<br>(6.57 x 6.57 x 0.59) | 215 x 215 x 15<br>(8.64 x 8.64 x 0.59) | 283 x 283 x 15<br>(11.14 x 11.14 x 0.59) |
| Filter class to EN 779:2012                           |                  | G3                                     |                                        |                                          |
| Filtration efficiency                                 | %                | 80 – 90                                |                                        |                                          |
| Recom. Final pressure drop*                           | Pa               | 250                                    |                                        |                                          |
| Dust holding capacity approx.<br>AC fine up to 200 Pa | g/m <sup>2</sup> | 700                                    |                                        |                                          |
| Thermal stability                                     | °C               | Up to 100                              |                                        |                                          |
| Moisture resistance                                   | %                | Up to 100                              |                                        |                                          |
| Material                                              |                  | Chemical fiber                         |                                        |                                          |

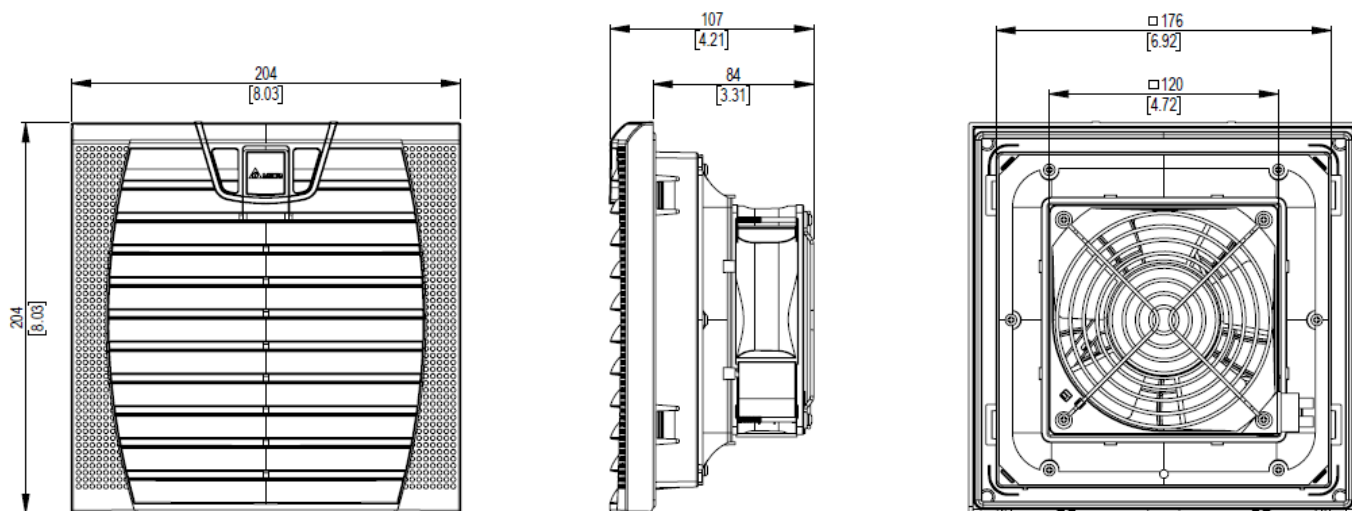
\* For cost-efficiency or system-specific reasons it may be appropriate to change the filters before reaching the final pressure drop stated.

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

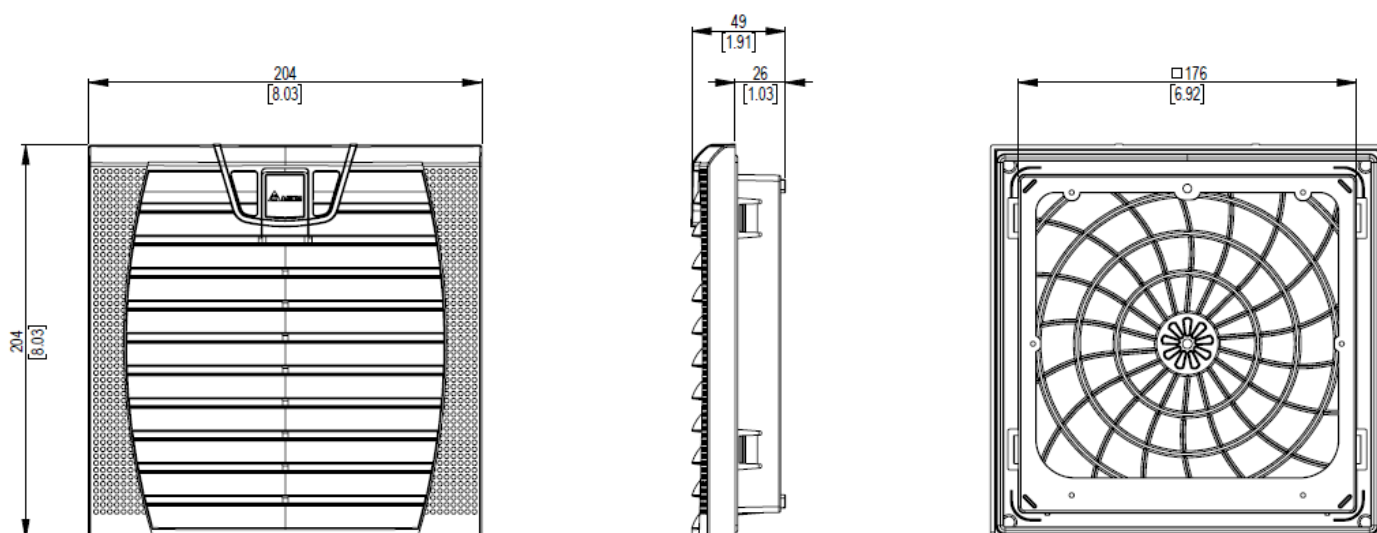
### 1-3. Unit Dimension

#### ➤ Filter Fan Unit (HEF070 Series)



mm [inch]

#### ➤ Exhaust Grille package (HEF070 Series)

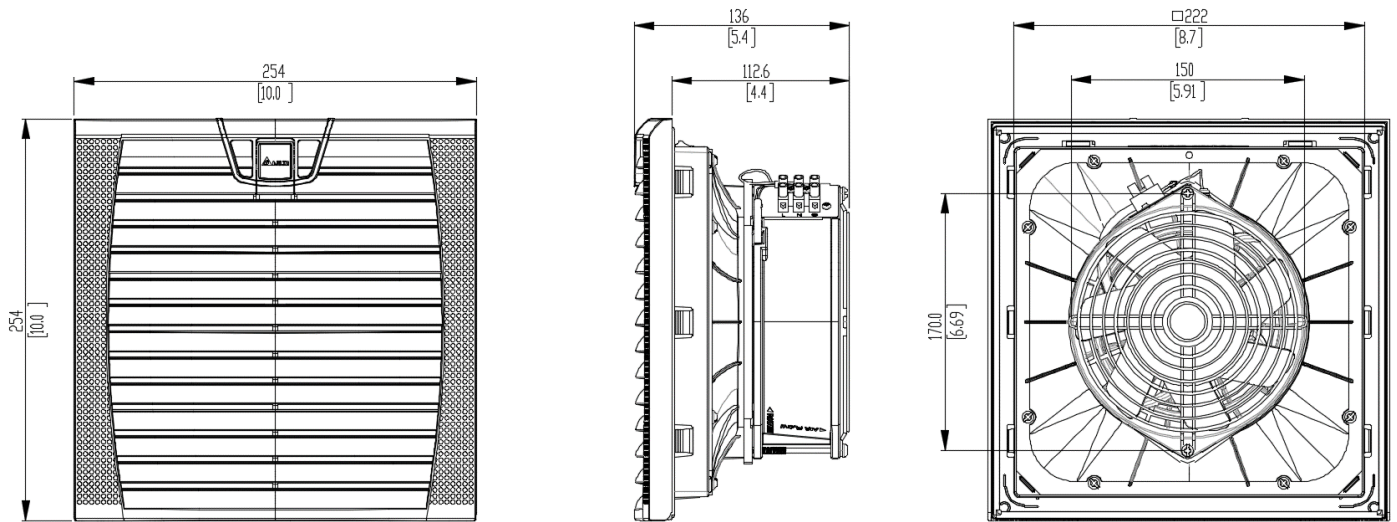


mm [inch]

Part no.:

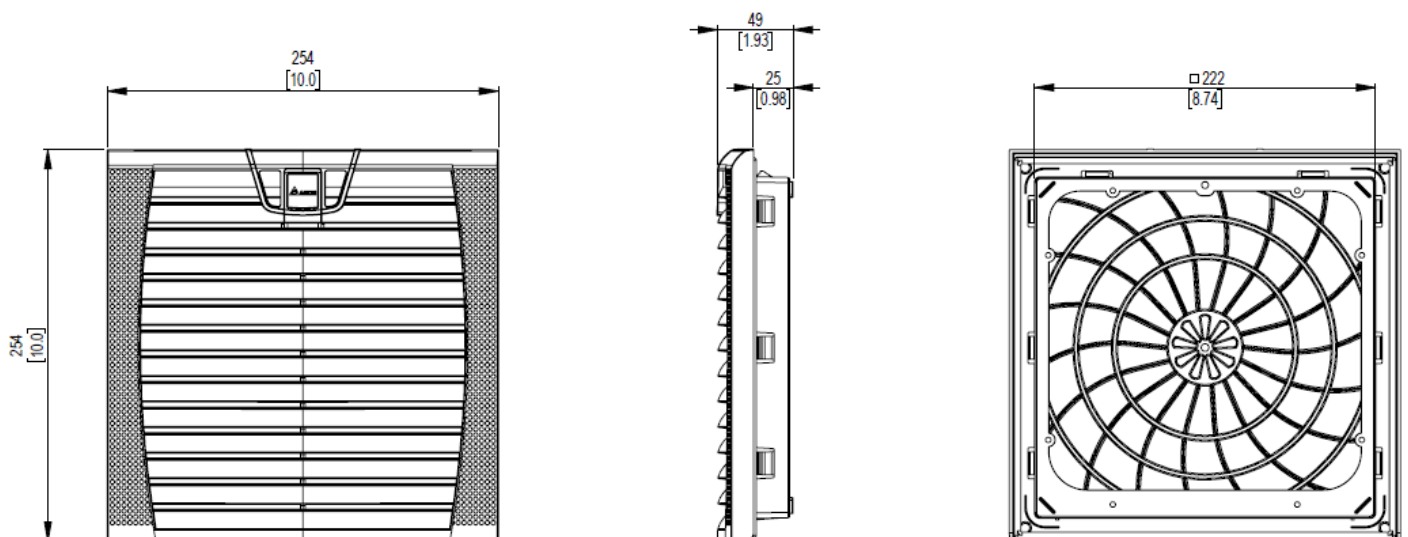
Delta model no.: HEF070 / HEF160 / HEF500 Series

➤ Filter Fan Unit (HEF160 Series)



mm [inch]

➤ Exhaust Grille package (HEF160 Series)

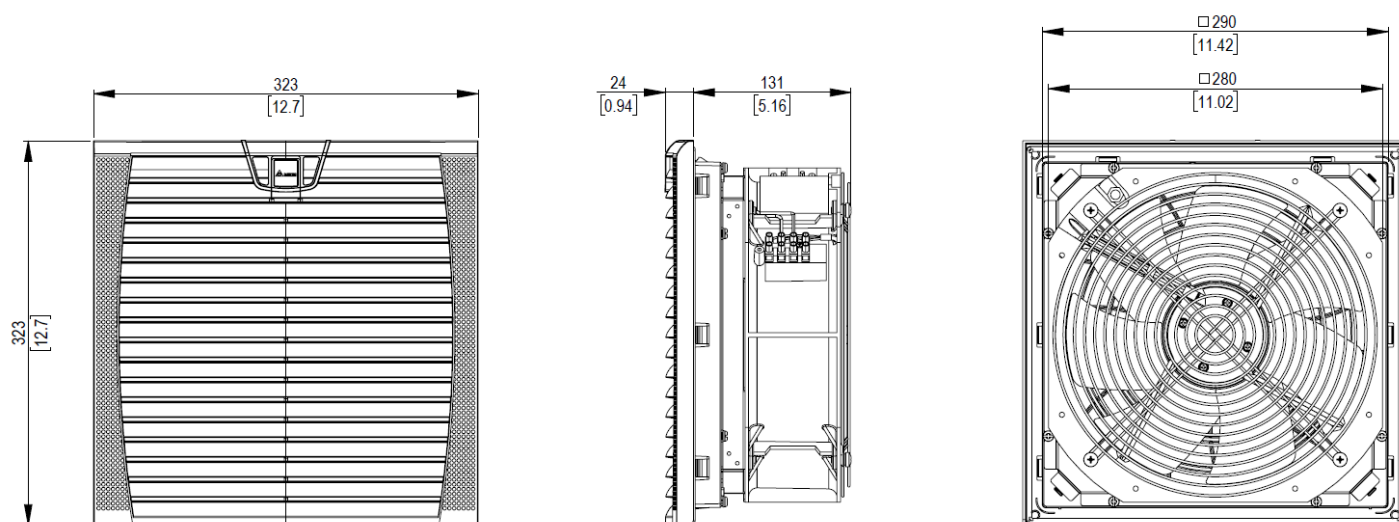


mm [inch]

Part no.:

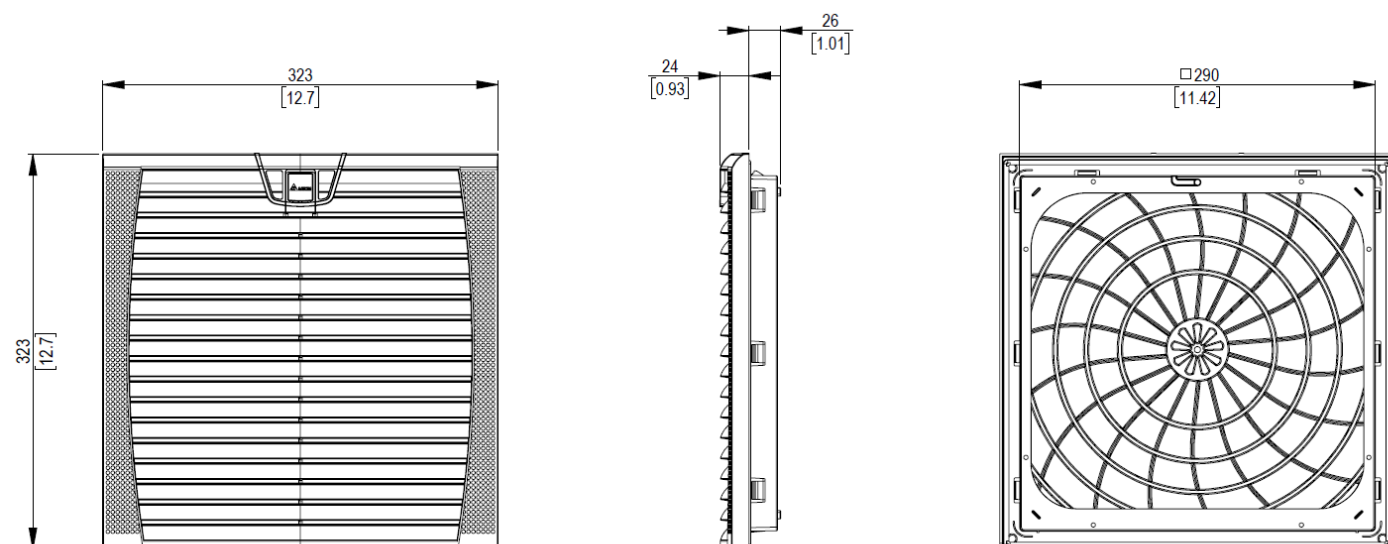
Delta model no.: HEF070 / HEF160 / HEF500 Series

➤ Filter Fan Unit (HEF500 Series)



mm [inch]

➤ Exhaust Grille package (HEF500 Series)



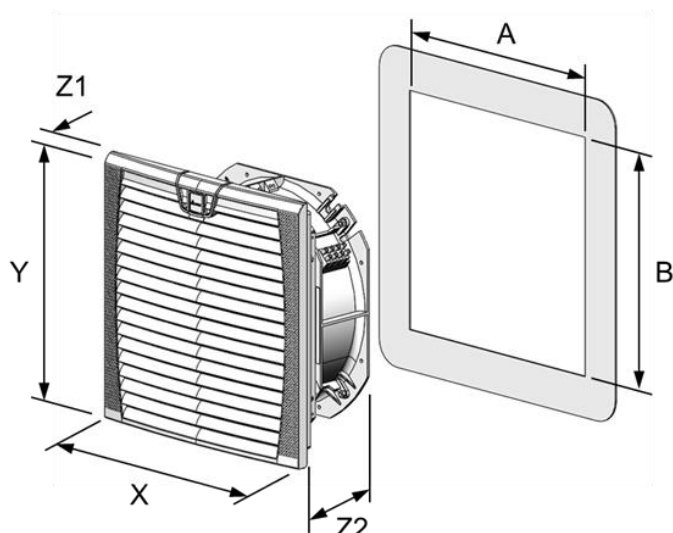
mm [inch]



Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

#### 1-4. Mounting Plane Cutout

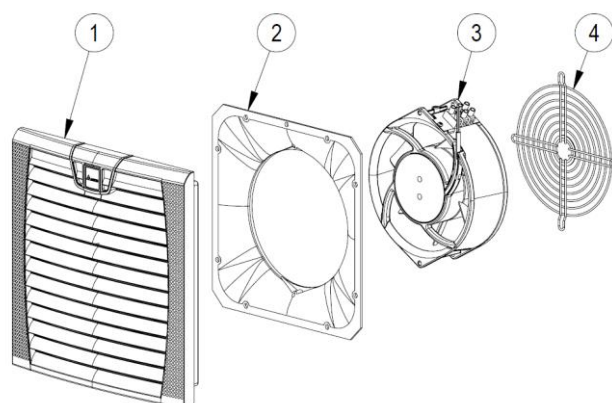


| mm<br>(inch) | HEF070<br>Series | HEF160<br>Series | HEF500<br>Series |
|--------------|------------------|------------------|------------------|
| X            | 204<br>(8.03)    | 254<br>(10.0)    | 323<br>(12.7)    |
| Y            | 204<br>(8.03)    | 254<br>(10.0)    | 323<br>(12.7)    |
| Z1           | 23<br>(0.91)     | 24<br>(0.94)     | 24<br>(0.94)     |
| Z2           | 84<br>(3.31)     | 106<br>(4.17)    | 131<br>(5.16)    |
| A*           | 177<br>(6.97)    | 224<br>(8.82)    | 292<br>(11.5)    |
| B*           | 177<br>(6.97)    | 224<br>(8.82)    | 292<br>(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 be snapped and locked.  
See Page 10.
4. Wire the filter fan following the Wire Diagrams on page 17 for appropriate installation.



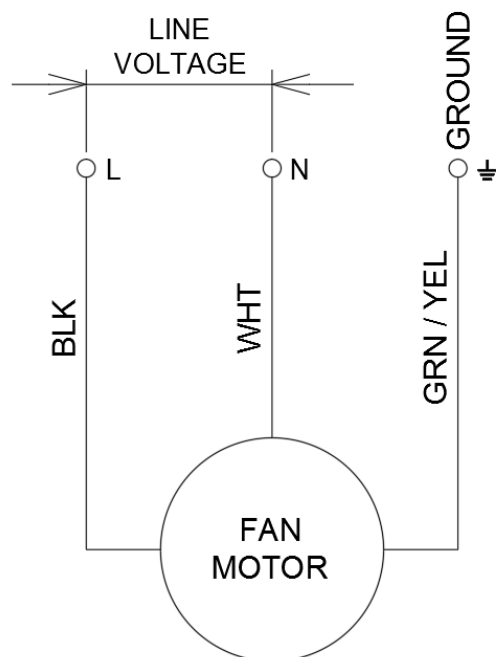
| NO. | Q'TY | DESCRIPTION    |
|-----|------|----------------|
| 1   | 1    | Exhaust Grille |
| 2   | 1    | Fan nozzle     |
| 3   | 1    | Axial Fan      |
| 4   | 1    | Fan Guard      |



Part no.:

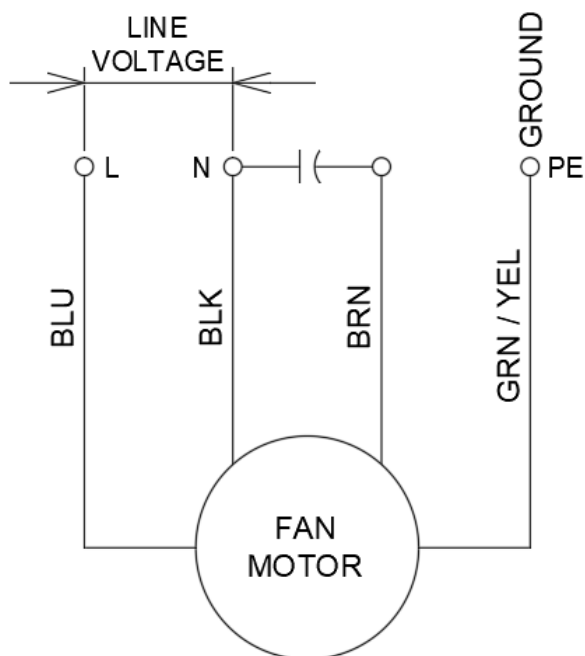
Delta model no.: HEF070 / HEF160 / HEF500 Series

## 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

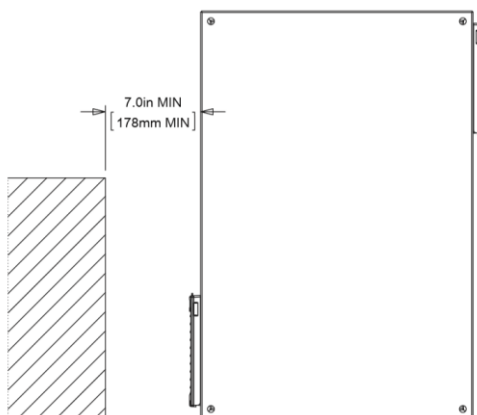
TBD

Part no.:

Delta model no.: HEF070 / HEF160 / HEF500 Series

## 6. Installation Notice

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



## 7. 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.

## 8. Versions

| REV. | DESCRIPTION                                                                                | ISSUE DATE |
|------|--------------------------------------------------------------------------------------------|------------|
| 00   | First SPEC release.                                                                        | 2020.05.07 |
| 01   | 1. Add part number list on section 1.1.<br>2. Remove section 8.<br>3. Add filter key data. | 2020.07.24 |

# Mouser Electronics

Authorized Distributor

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