

Climate Control

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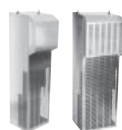
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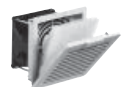


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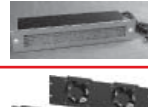
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Cooling Products

General Information

The Need for Environment Control

With wide spread use of micro-electronics in today's control systems, temperature management takes on a new priority in order to ensure steady and reliable performance. The maintenance of a correct operating temperature may combine both cooling and/ or heating inside an enclosure which can protect against costly down time and system failures.

General Selection Considerations

Cooling

Conditions	Solution	Advantages	Disadvantages
Maximum desired enclosure temperature is 10°F or 5°C above maximum outside ambient.	Oversize the enclosure.	Easy to implement, no maintenance. Maintains NEMA rating of the enclosure.	Dissipates small amount of heat. Larger enclosure size takes up more space.
	Install ventilation louvers.	Economical solution, very little maintenance, easy to implement.	Dissipates limited amount of heat. Dirt, oil or fluids could enter the enclosure. NEMA rating is affected.
	Install filter fans.	Less expensive than air/refrigeration systems. Relatively high amount of heat removed, some temperature control by using thermostats.	Must maintain filters. NEMA rating can be affected. Limited use in hostile environments such as chemical applications.
	Use an air/air heat exchanger.	Easy to install, small power consumption, temperature control via thermostat. Maintains NEMA rating of the enclosure.	Must maintain filters.
Maximum desired enclosure temperature lower than maximum outside ambient.	Use an air conditioner.	Easy to install. Temperature control via factory installed thermostat. Removes large amounts of heat. Maintains NEMA rating of enclosure, dehumidifies enclosure air.	Must maintain filter. Generally not to be used when outside temperature is below 59°F (15°) or above 130°F (52°C).

Circulation

Conditions	Solution	Advantages	Disadvantages
Localized heat or 'hot spots'.	Install circulation fans in the enclosure.	Economical solution, no maintenance, easy to install. Maintains NEMA rating of the enclosure.	Dissipates small amount of heat.

Heating

Conditions	Solution	Advantages	Disadvantages
Outside temperature is below minimum allowable equipment operation range.	Heat with radiant heater.	Economical power consumption. Reliable, can be temperature controlled.	Consumes energy, takes up internal panel space.
Condensation occurs.	Heat with radiant heater to maintain temperature above the dewpoint.	Economical power consumption. Reliable, humidity can be controlled.	Consumes energy, takes up internal panel space.

Cooling Products

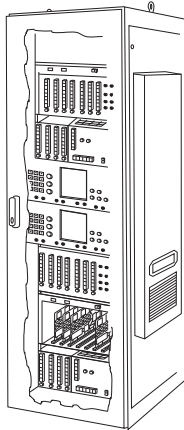
Sizing an Air Conditioner

Sizing an Air Conditioner

The proper selection of an air conditioner is determined by the following steps:

- Step 1) Internal heat load quoted as Watts that must be dissipated.
- Step 2) The exposed surface area of the enclosure.
- Step 3) Temperature differential required between maximum inside temperature and maximum outside ambient.
- Step 4) Final calculation of the above.

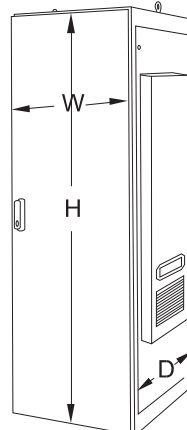
Step One



$$1 \text{ Watt} = 3.413 \text{ BTU/H}$$

Determine the internal heat load (in Watts) that must be dissipated.

Step Two



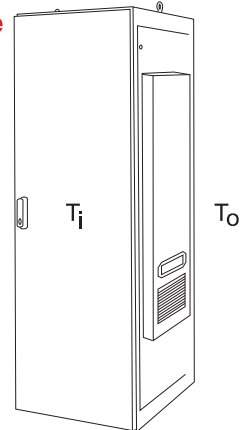
$$1 \text{ m}^2 = 10.76 \text{ ft}^2$$

Calculate the exposed surface area of the enclosure:

$$\frac{2(h'' \times w'') + 2(h'' \times d'') + (w'' \times d'')}{144} = \text{Area (ft}^2\text{)}$$

(Example for freestanding enclosure)

Step Three



$$1^\circ\text{C or } 1^\circ\text{K} \Delta T = 1.8^\circ\text{F} \Delta T$$

Determine the temperature differential by subtracting the maximum allowable temperature inside the enclosure (T_i) from the maximum ambient temperature outside the enclosure (T_o).

$$T_o - T_i = \Delta T$$

Step Four

$$(\text{Watts} \times 3.413)$$

+

$$[1.25 \times \text{Area ft}^2$$

X

$$\Delta T (^\circ\text{F})] = \text{BTU/H}$$

Capacity Required
BTU/H. Capacity Rating.

Climate Control

The DTS/DTT offering is available in the most popular selection of cooling capacities, sizes, voltages and mounting configurations. Available capacities range from 1,200 to 24,000 BTU/H in both side mounting and top mounting models. All models use powerful radial fans for maximum air circulation inside the enclosure in ambient temperatures of 125°F (+52°C). Models from 2,000 BTU/H capacity are equipped with thermal expansion valves for optimal use of the evaporator heat exchange surface under all operating conditions. For additional protection of the compressor motor, these valves are supplied as standard with Maximum Operating Pressure control devices (MOP). For energy conservation, the use of hot gas bypass valves is limited to the unloaded starting and control of large compressors from 8,000 BTU/H upwards. All air conditioners were developed, designed and subject to final inspections in accordance with international standards.

Side Mounting DTS Series

1200 BTU/H



Description

- Designed for side mounting where hot spot cooling or low capacity cooling is required.
- Compact design uses minimal surface area.
- Closed loop cooling ensures air is recirculated without ever mixing with contaminated ambient air.

Standards

- Maintains NEMA 12 rating
- IP 54
- UR, cUR and CE

Features

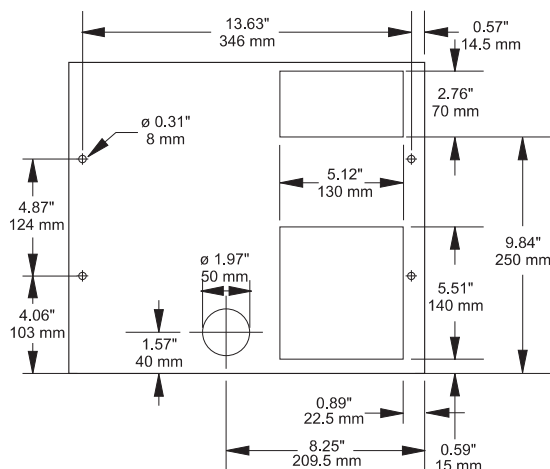
- R134a refrigerant.
- Thermostat control.
- Continuous air circulation from high capacity fans.

- EMI/RFI suppression meets CE.
- Line cord with plug (115 V).
- Washable filter mat protected within an easily removable grill.
- Gasket, mounting kit and template for enclosure cutout and drilling are included.
- Condensate drain hose and clamp provided.
- Exterior case easily removable for field service.
- Q Mount allows unit to hang in place for easy installation.

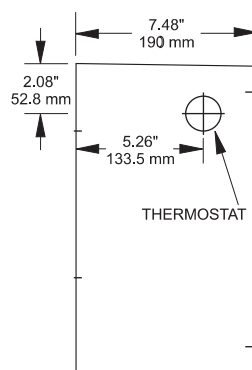
Accessories

- Gaskets...see page 456

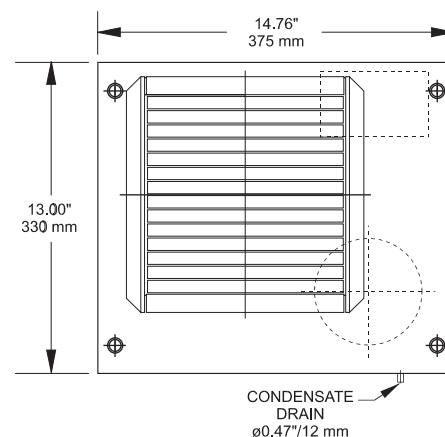
Climate Control



Drilling Template



Right Side View



Front View

Part Number	Ship Wt. lbs
DTS1200A115LG	42
DTS1200A230LG	42

Technical Data

Electrical Data	DTS1200A115LG	DTS1200A230LG
Rated Voltage	115 V 60 Hz 110 V 50 Hz	230 V 50/60 Hz
Range of Operation	103-127 V	207-253 V
Power Consumption	200 W	200 W
Running Amps	2.2 A	1.3 A
Starting Current	15.7 A	9.5 A
Line Cord	With plug	Without plug

Refrigeration Data

Rated Capacity	1,200 BTU/H (350 Watts)
Type of Refrigerant	R134a
Adjustable Control Range	+77...+131 F / +25...+45 C Factory Setting +95 F (+35 C)
Max. Ambient Air Temp.	+125°F (+52°C)
Min. Ambient Air Temp.	+46°F (+8°C)
Air Capacity (unrestricted)	Internal Circulation 106 CFM External Circulation 230 CFM
Condensate Discharge	Direct via tube
Filter Mat	150 g/m ²
Db Noise Level	≤ 62 dB(A)
Unit Weight	40 lbs (18 kg)
Exterior Case	Galvanized sheet steel
Finish	RAL7035 light grey finish
NEMA Rating	Enclosures IP 54/NEMA 12

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Side Mounting DTS Series

2000 BTU/H



Description

- Compact design for side mounting on any enclosure surface where hot spot cooling or low capacity cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.

Standards

- Maintains NEMA 12 rating
- IP 54
- UR, cUR and CE

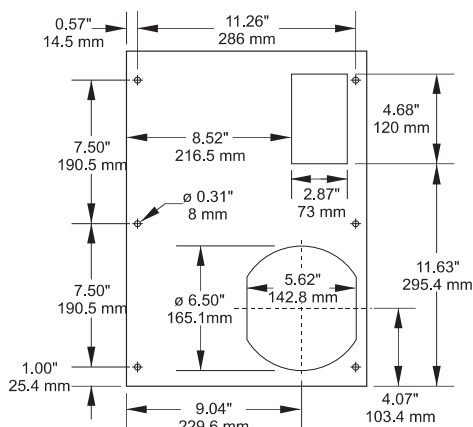
Features

- R134a refrigerant.
- Thermostat control.
- Line cord with plug (115 V).
- Washable filter mat protected within an easily removable grill.

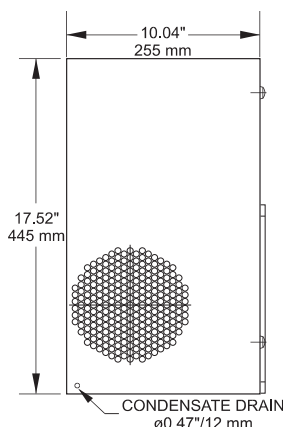
- Expansion valve permits increased efficiency through improved evaporator heat transfer and less frequent compressor operation.
- Built in condensate evaporator.
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Gasket, mounting kit and template for cutout and drilling are included.
- Condensate drain hose and clamp.
- Exterior case easily removable for field service.
- Q Mount allows unit to hang in place for easy installation.

Accessories

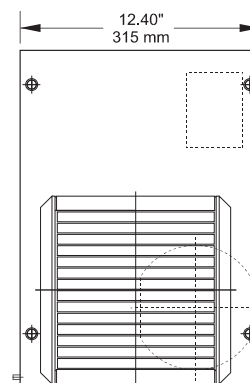
- Gaskets...see page 456



Drilling Template



Left Side View



Front View

Climate Control

Part Number	Ship Wt. lbs
DTS2000A115LG	54
DTS2000A230LG	54

Technical Data

Electrical Data	DTS2000A115LG	DTS2000A230LG
Rated Voltage	115 V 60 Hz	230 V 50/60 Hz
	110 V 50 Hz	
Range of Operation	103-127 V	207-253 V
Power Consumption	270 W	230 W
Running Amps	2.9 A	1.3 A
Starting Current	13.8 A	7.4 A
Line Cord	With plug	Without plug

Refrigeration Data

Rated Capacity	2,000 BTU/H (580 Watts)
Type of Refrigerant	R134a
Adjustable Control Range	+77...+131 F / +25...+45 C Factory Setting +95 F (+35 C)
Max. Ambient Air Temp.	+125°F (+52°C)
Min. Ambient Air Temp.	+46°F (+8°C)
Air Capacity (unrestricted)	Internal Circulation 230 CFM External Circulation 230 CFM
Condensate Discharge	Condensate evaporator
Filter Mat	150 g/m ²
Db Noise Level	≤ 62 dB(A)
Unit Weight	51 lbs (23 kg)
Exterior Case	Galvanized sheet steel
Finish	RAL7035 light grey finish
NEMA Rating	Enclosures IP 54/NEMA 12

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Side Mounting DTS Series

2500 BTU/H



Description

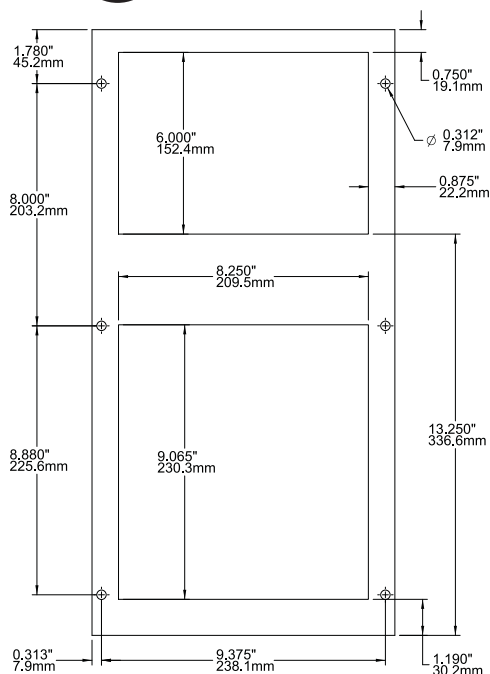
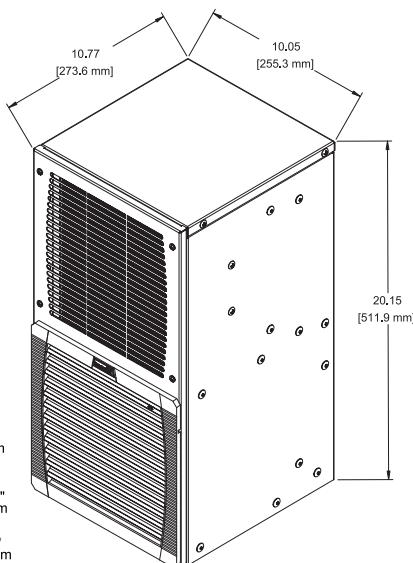
- Compact design for side mounting on any enclosure surface where hot spot or low capacity cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.

Standards

- Maintains enclosure's NEMA 12 rating
- IP 54
- UL, cUL and CE

Features

- R134a refrigerant.
- Thermostat control accessible from inside enclosure.
- Expansion valve increases efficiency with improved evaporator heat transfer and less frequent compressor operation.
- Direct condensate discharge via drain hose.
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Self-diagnostics on startup.
- Fault indication via LED light.
- Door contact for power down when enclosure door is opened.
- Gasket, mounting kit and template for cutout and drilling are included.
- Condensate drain hose and clamp
- Q Mount allows unit to hang in place for easy installation.



Drilling Template

Technical Data

Electrical Data	DTS3041A115LG	DTS3041A230LG
Rated Voltage	115v 60 Hz	230v 50/60 Hz
	110v 50 Hz	
Range of Operation	103-127v	207-253v
Power Consumption	690 W	663 W
Running Amps	6.0 A	4.1 A
Starting Current	28 A	10.4 A
Line Cord	With Plug	With Plug

Accessories

- Gaskets...see page 456
- Remote door switch...see page 452

Part Number	Ship Wt. lbs
DTS3041A115LG	56
DTS3041A230LG	56

Refrigeration Data

Rated Capacity	2500 BTU/H (585 Watts)
Type of Refrigerant	R134a
Adjustable Control Range	+77...+131 F / +25...+45 C Factory Setting +95 F (+35 C)
Max. Ambient Air Temp.	+131°F (+55°C)
Min. Ambient Air Temp.	+59°F (+15°C)
Air Capacity (unrestricted)	Internal Circulation 191 CFM External Circulation 88 CFM
Condensate Discharge	Condensate Drain
Filter Mat	Filterless
Db Noise Level	≤ 64 dB(A)
Unit Weight	51 lbs (23 kg)
Exterior Case	Galvanized sheet steel
Finish	RAL7035 light grey finish
NEMA Rating	Enclosures IP 54/NEMA 12

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Side Mounting DTS Series

3500 BTU/H

Description

- Narrow design for side mounting on any enclosure surface where hot spot or low capacity cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.

Standards

- Maintains NEMA 12 rating
- IP 54
- UL, cUL and CE

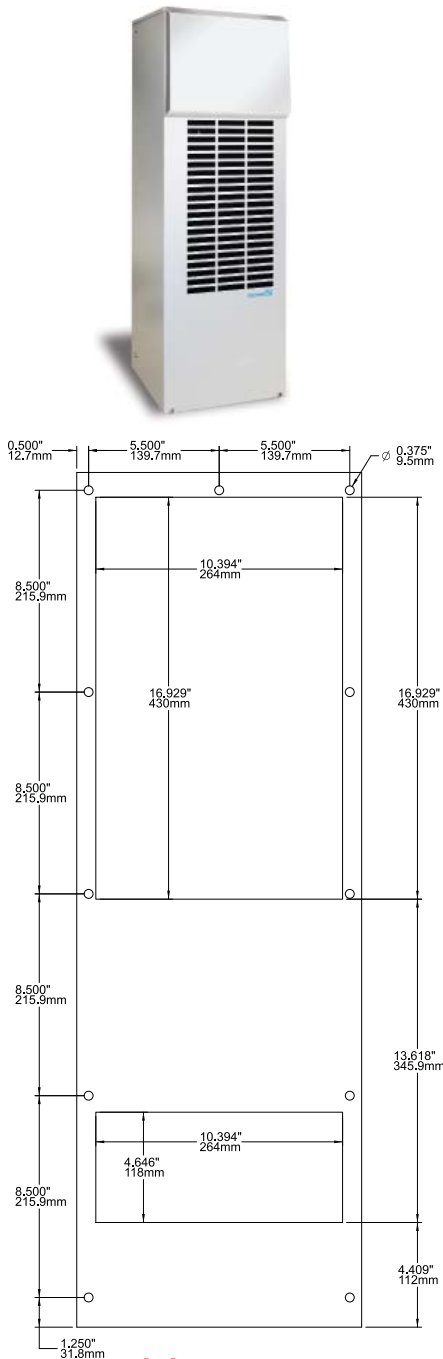
Features

- R134a refrigerant.
- Thermostat control accessible from inside enclosure.
- Expansion valve increases efficiency with improved evaporator heat transfer and less frequent compressor operation.
- Built in condensor/evaporator
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Self-diagnostics on startup.
- Fault indication via LED light.
- Door contact for power down when enclosure door is opened.
- Gasket, mounting kit and template for cutout and drilling are included.
- Condensate drain hose and clamp
- Q Mount allows unit to hang in place for easy installation.

Accessories

- Gaskets...see page 456
- Remote door switch...see page 452

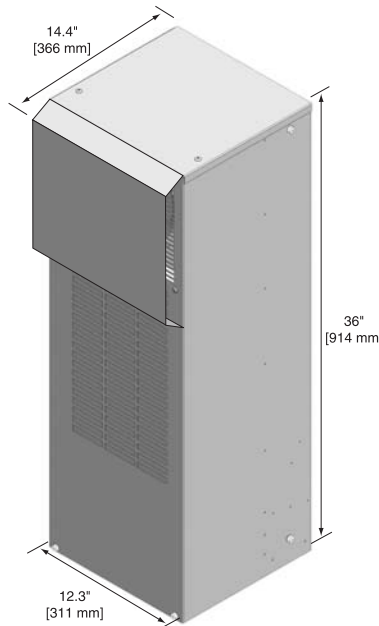
Climate Control



Drilling Template

Technical Data

Electrical Data	DTS3141SLA115LG	DTS3141SLA230LG
Rated Voltage	115 V 60 Hz	230 V 50/60 Hz
Range of Operation	103 -127 V	198-252 V
Power Consumption	917 W	890 W
Running Amps	8.5 A	4.0 A
Starting Current	28 A	14.8 A
Line Cord	Terminal Block	Terminal Block



Part Number	Ship Wt. lbs
DTS3141SLA115LG	113
DTS3141SLA230LG	113

Refrigeration Data	
Rated Capacity	3500-5000 BTU/H (1026-1466 Watts)
Type of Refrigerant	R134a
Adjustable Control Range	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)
Max Ambient Air Temp	+131 F (+55 C)
Min Ambient Air Temp	+59 F +15 C
Air Capacity (unrestricted)	Internal Circulation 341 CFM External Circulation 706 CFM
Condensate Discharge	Condensate Evaporator
Filter Mat	Filterless
Db Noise Level	<70 dB (A)
Unit Weight	108 lbs (49 kg)
Exterior Case	Galvanized Sheet Steel
Finish	RAL7035 light gray finish
Nema Rating	Enclosures IP 54/Nema 12

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Side Mounting DTS Series

4000 & 7500 BTU/H



7500 BTU/H unit shown



Description

- Designed for side mounting on any enclosure surface where high capacity system cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.
- Optimum air circulation with maximum clearance distance between warm inlet and cold outlet for reduced hot spot locations.

Standards

- Maintains enclosure's NEMA 12 rating
- IP 54
- UL, cUL and CE

Features

- R134a refrigerant.
- Thermostat control accessible from inside enclosure.
- Hot gas bypass valve prevents evaporator freeze up while minimizing heavy inrush currents on large BTU/H units.
- Built in condensate evaporator.
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Self-diagnostics on startup.
- Fault indication via LED light.
- Provision for door contact allowing power down when enclosure door is opened.
- Gasket, mounting kit and template for enclosure cutout and drilling are included.
- Condensate drain hose and clamp provided.
- Q Mount allows unit to hang in place for easy installation.

Accessories

- Gaskets...see page 456
- Remote door switch...see page 452

Technical Data

Part Number	Ship Wt. lbs.
DTS3141A115LG	99
DTS3141A230LG	99
DTS3241A115LG	127
DTS3241A230LG	127

Electrical Data	DTS3141A115LG DTS3141A230LG	DTS3241A115LG DTS3241A230LG
Rated Voltage	115 V 60 Hz/ 230 V 50/60 Hz	115 V 60 Hz/ 230 V 50/60 Hz
Range of Operation	103-127 V/198-252 V	103-127 V/198-252 V
Power Consumption	712 W/712 W	1400 W/1400 W
Running Amps	7.2 A/4.2 A	14.6 A/6.3 A
Starting Current	28.0 A/14.8 A	26.8 A/16.5 A
Line Cord	Terminal Block	Terminal Block

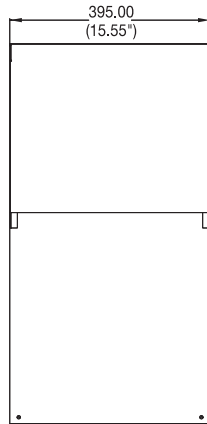
Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

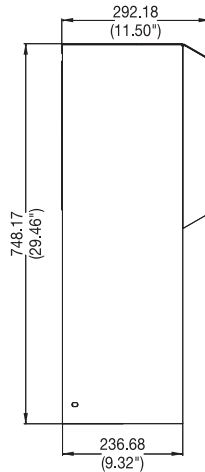
Side Mounting DTS Series

4000 & 7500 BTU/H

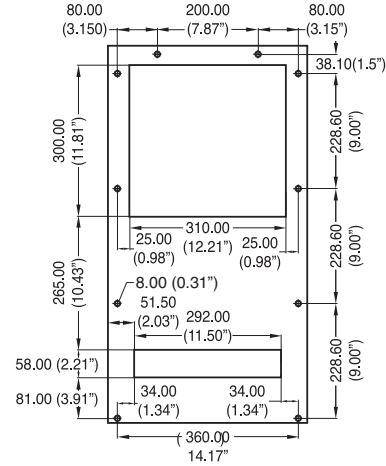
DTS 3141



Front View

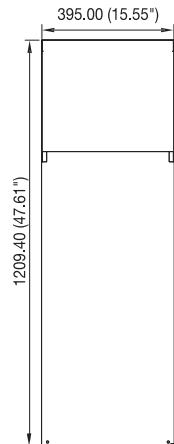


Side View

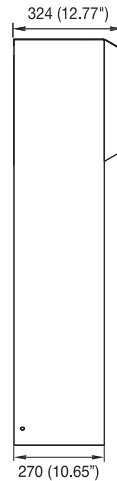


Drilling Template

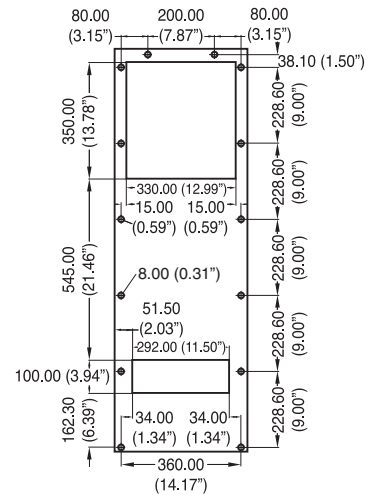
DTS 3241



Front View



Side View



Drilling Template

Refrigeration Data	DTS3141A115/ 230LG	DTS3241A115/ A230LG
Rated Capacity	4,000 BTU/H (1,172 Watts)	7,500 BTU/H (2,197 Watts)
Type of Refrigerant	R134a	R134a
Adjustable Control Range	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)
Max. Ambient Air Temp.	+125°F (+52°C)	+125°F (+52°C)
Min. Ambient Air Temp.	+46°F (+8°C)	+46°F (+8°C)
Air Capacity (unrestricted)	Internal Circulation 350 CFM External Circulation 350 CFM	Internal Circulation 580 CFM External Circulation 580 CFM
Condensate Discharge	Condensate Evaporator	Condensate Evaporator
Filter Mat	Filterless	Filterless
Db Noise Level	≤ 70 dB(A)	≤ 73 dB(A)
Unit Weight	80 lbs (36 kg)	101 lbs (46 kg)
Exterior Case	Galvanized sheet steel	Galvanized sheet steel
Finish	RAL7035 Light Grey powder finish	RAL7035 Light Grey powder finish
NEMA Rating	Enclosures IP 54/NEMA 12	Enclosures IP 54/NEMA 12

Side Mounting DTS Series

5000 - 7000 & 9000 - 12000 BTU/H



Description

- Designed for side mounting on any enclosure surface where high capacity system cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.
- Optimum air circulation with maximum clearance distance between warm inlet and cold outlet for reduced hot spot locations.
- Condensor with 3 mm fin spacing, highly effective protection against strongly contaminated and aggressive ambient air

Features

- R134a refrigerant.
- Thermostat control accessible from inside enclosure.
- Hot gas bypass valve prevents evaporator freeze up while minimizing heavy inrush currents on large BTU/H units.
- Built in condensate evaporator.
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Self-diagnostics on startup.
- Fault indication via LED light.
- Provision for door contact allowing power down when enclosure door is opened.
- Gasket, mounting kit and template for enclosure cutout and drilling are included.
- Condensate drain hose and clamp provided.
- Q Mount allows unit to hang in place for easy installation.

Standards

- Maintains enclosure's NEMA 12 rating
- IP 54
- UL, cUL and CE

Part Number	Ship Wt. lbs.
DTS3145A115LG	113
DTS3145A230LG	113
DTS3245A115LG	155
DTS3245A230LG	155

Technical Data

Electrical Data	DTS3145A115LG DTS3145A230LG	DTS3245A115LG DTS3245A230LG
Rated Voltage	115 V 60 Hz 230 V 50/60 Hz	115 V 60 Hz 230 V 50/60 Hz
Range of Operation	103-127 V / 198-252 V	103-127 V / 198-252 V
Power Consumption	1000 W / 1020 W	1600 W / 1600 W
Running Amps	8.5 A / 4.5 A	13 A / 6.5 A
Starting Current	48 A / 26 A	57 A / 30 A
Line Cord	Terminal Block	Terminal Block

Accessories

- Gaskets...see page 456
- Remote door switch...see page 452

Refrigeration Data	DTS3145A115/ 230LG	DTS3245A115/ 230LG
Rated Capacity	5000-7000 BTU/H (1466-2052 Watts)	9000-12000 BTU/H (2639-3519 Watts)
Type of Refrigerant	134a	134a
Adjustable Control Range	+ 77...+ 131 / + 25...+ 45C Factory setting +95 F (+35C)	+ 77...+ 131 / + 25...+ 45C Factory setting +95 F (+35C)
Max. Ambient Air Temp	+131 F (+55 C)	+131 F (+55 C)
Min. Ambient Air Temp	+59 F (+15 C)	+59 F (+15 C)
Air Capacity (unrestricted)	Internal Circulation 365/341 CFM External Circulation 765/706 CFM	Internal Circulation External Circulation
Condensate Discharge	Condensate Evaporator	Condensate Evaporator
Filter Mat	Filterless	Filterless
Db Noise Level	<70 dB(A)	<73 dB(A)
Unit Weight	108 lbs	150 lbs
Exterior Case	Galvanized Sheet Steel	Galvanized Sheet Steel
Finish	RAL7035 Light Grey Powder Finish	RAL7035 Light Grey Powder Finish
Nema Rating	Enclosures IP 54 / Nema 12	Enclosures IP 54 / Nema 12

Technical references and CAD downloads available at www.hammondmfg.com

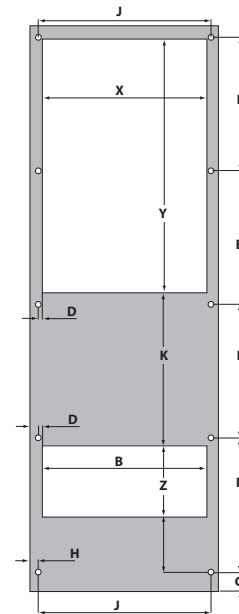
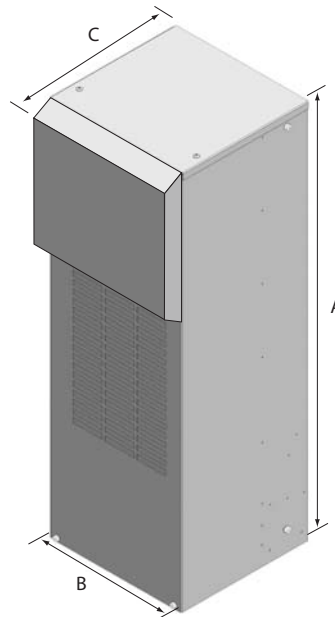
All dimensions in inches unless specified otherwise

Side Mounting DTS Series

5000 - 7000 & 9000 - 12000 BTU/H

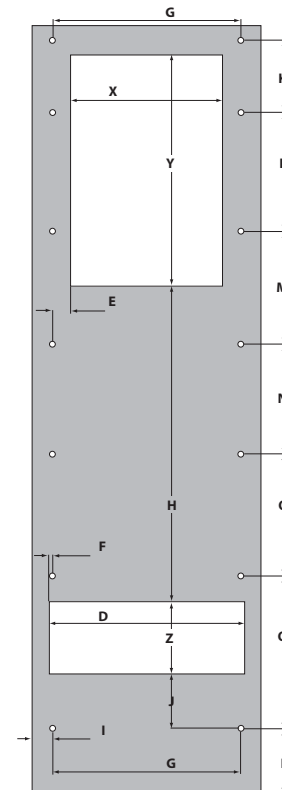
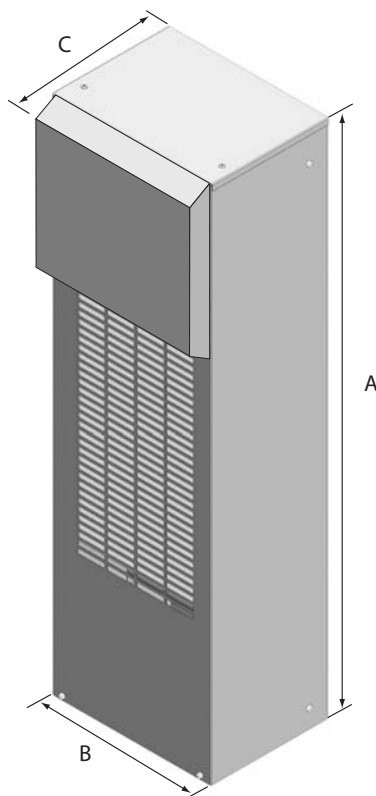
DTS 3145

Dimension	inches (mm)
A	36 (914)
B	12.25 (311)
C	14.4 (367)
D	0.3 (8)
E	8.5 (216)
F	8.5 (216)
G	1.3 (32)
H	0.5 (13)
I	3.2 (80)
J	11 (279)
K	9 (228)
X	10.4 (264)
Y	17 (430)
Z	4.7 (118)
Mounting holes Ø 10 mm	
For exact cutout information reference drilling template at pfannenbergusa.com	



DTS 3245

Dimension	inches (mm)
A	53 (1347)
B	16 (406)
C	14.4 (367)
D	13.7 (348)
E	0.98 (25)
F	0.35 (9)
G	13 (330)
H	21.1 (537)
I	1.4 (35)
J	3.6 (92)
K	5.0 (126)
L	8.2 (209)
M	7.8 (198)
N	7.6 (192)
O	8.4 (214)
P	4.5 (114)
Q	10.5 (267)
X	11 (280)
Y	16.8 (427)
Z	5.3 (135)
Mounting holes Ø 8 mm	
For exact cutout information reference drilling template at pfannenbergusa.com	



Top Mounting DTT Series

1200 - 14000 BTU/H



Description

- Designed for top mounting where space limitations do not allow side mounting on the enclosure surface.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.
- Excellent security level due to patented condensate management system, which prevents condensate from penetrating the enclosure.
- High reliability and long maintenance intervals
- Quick release mounting frame

Features

- R134a refrigerant.
- Thermostat control accessible from inside enclosure.
- Hot gas bypass valve prevents evaporator freeze up while minimizing heavy inrush currents on large BTU/H units.
- Built in condensate evaporator.
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Self-diagnostics on startup.
- Fault indication via LED light.
- Provision for door contact allowing power down when enclosure door is opened.
- Gasket, mounting kit and template for enclosure cutout and drilling are included.
- Condensate drain hose and clamp provided.

Standards

- Maintains NEMA 12 rating
- IP 54
- UR, cUR and CE

Accessories

- Remote door switch...see page 452
- Quick installation frame
...see next page

Climate Control

	DTT6101A115LG	DTT6101A230LG	DTT6201A115LG	DTT6201A230LG	DTT6201A460LG
Cooling Capacity (BTU)	1700	1700	3500	3500	3500
Rated Voltage +/- 10%	115	230	115	230	400/460
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Power Consumption (W)	569	458/532	877	663/805	706/845
Running Amps	5.2	2.2/2.4	8.05	3.39/3.83	1.5/1.8
Starting Current (A)	23			8.5/9.3	

	DTT6301A115LG	DTT6301A230LG	DTT6301A460LG	DTT6401A115LG	DTT6401A230LG	DTT6401A460LG
Cooling Capacity (BTU)	5100	5100	5100	6800	6800	6800
Rated Voltage +/- 10%	115	230	400/460	115	230	400/460
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Power Consumption (W)	1027	980/1140	962/1150	1894	1049/1275	1300/1598
Running Amps	10.8	6.3/6.4	3.1/3.2	15.5	5.1/5.5	2.3/2.4
Starting Current (A)	32	19.7	9.8	34	16.8	10/12

	DTT6601A460LG	DTT6801A460LG
Cooling Capacity (BTU)	10,000	13,600
Rated Voltage +/- 10%	400/460	400/460
Frequency	50/60 Hz	50/60 Hz
Power Consumption (W)	1700/2100	1618/2050
Running Amps	2.45/2.49	3.4/3.5
Starting Current (A)	8.9/9.9	17.1/19.5

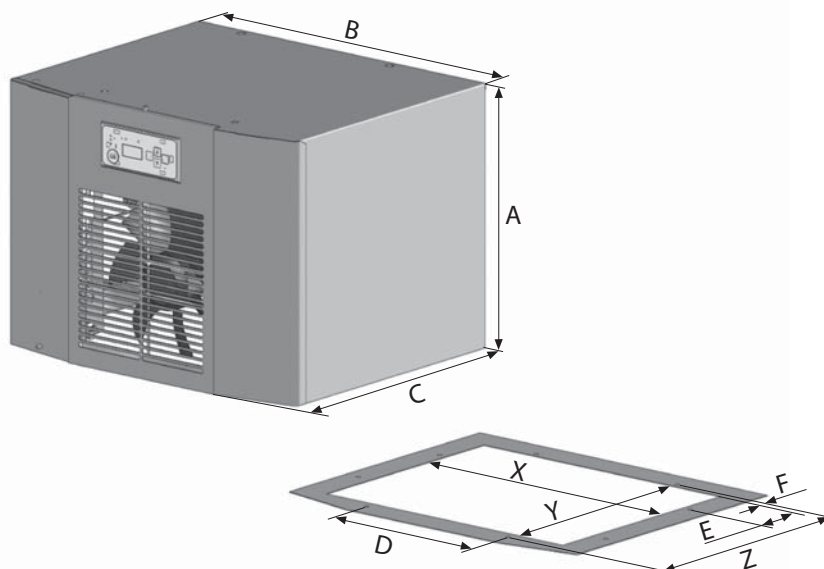
All Models	
Electrical Connection	Terminal Block with Plug
Min/Max Ambient Temp	+59...+131 F / +15...+55 C
Exterior Case	Galvanized Sheet Steel Color RAL 7035 Powder Finish

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Top Mounting DTT Series

1200 - 14000 BTU/H



Part Number	inches (mm)										Ship Wt. Lbs.
	A	B	C	D	E	F	X	Y	Z		
DTT6101A115LG	17.0 (434)	23.4 (595)	15.6 (395)	11.5 (292)	3.3 (85)	.55 (14)	18.7 (475)	10.2 (270)	11.9 (303)	80	
DTT6101A230LG	17.0 (434)	23.4 (595)	15.6 (395)	11.5 (292)	3.3 (85)	.55 (14)	18.7 (475)	10.2 (270)	11.9 (303)	80	
DTT6201A115LG	17.0 (434)	23.4 (595)	15.6 (395)	11.5 (292)	3.3 (85)	.55 (14)	18.7 (475)	10.2 (270)	11.9 (303)	85	
DTT6201A230LG	17.0 (434)	23.4 (595)	15.6 (395)	11.5 (292)	3.3 (85)	.55 (14)	18.7 (475)	10.2 (270)	11.9 (303)	85	
DTT6201A460LG	17.0 (434)	23.4 (595)	15.6 (395)	11.5 (292)	3.3 (85)	.55 (14)	18.7 (475)	10.2 (270)	11.9 (303)	99	
DTT6301A115LG	17.1 (435)	23.4 (595)	19.5 (495)	11.5 (292)	10.1 (256)	.45 (11.5)	19.5 (495)	15.6 (395)	16.5 (418)	97	
DTT6301A230LG	17.1 (435)	23.4 (595)	19.5 (495)	11.5 (292)	10.1 (256)	.45 (11.5)	19.5 (495)	15.6 (395)	16.5 (418)	109	
DTT6301A460LG	17.1 (435)	23.4 (595)	19.5 (495)	11.5 (292)	10.1 (256)	.45 (11.5)	19.5 (495)	15.6 (395)	16.5 (418)	122	
DTT6401A115LG	17.1 (435)	23.4 (595)	19.5 (495)	11.5 (292)	10.1 (256)	.45 (11.5)	19.5 (495)	15.6 (395)	16.5 (418)	107	
DTT6401A230LG	17.1 (435)	23.4 (595)	19.5 (495)	11.5 (292)	10.1 (256)	.45 (11.5)	19.5 (495)	15.6 (395)	16.5 (418)	111	
DTT6401A460LG	17.1 (435)	23.4 (595)	19.5 (495)	11.5 (292)	10.1 (256)	.45 (11.5)	19.5 (495)	15.6 (395)	16.5 (418)	123	
DTT6601A460LG	19.1 (485)	31.3 (795)	22.6 (575)	13.4 (340)	7.9 (200)	.55 (14)	27.2 (692)	15.4 (392)	16.5 (420)	182	
DTT6801A460LG	19.1 (485)	31.3 (795)	22.6 (575)	13.4 (340)	7.9 (200)	.55 (14)	27.2 (692)	15.4 (392)	16.5 (420)	187	

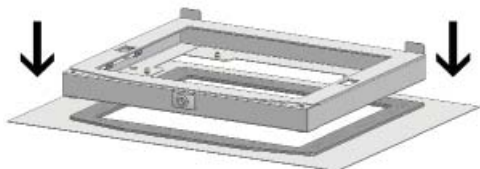
Mounting holes Ø 8 mm

For exact cutout information reference drilling template.

Quick Installation Frame

- Simple install and removal of AC for transport
- Maintains NEMA 12 Seal & Enclosure

Frame Part Number	Use with Models	Ship Wt. (lbs)
DTT61016202LG	DTT 6101 / DTT6201	14
DTT63016401LG	DTT 6301 / DTT 6401	14
DTT66016801LG	DTT 6601 / DTT 6801	18



Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Quality Products. Service Excellence.

Side Mounting DTS Series - NEMA 3R, 4, 4X

2500 BTU/H - Stainless Steel



Description

- Compact design for side mounting on any enclosure surface where spot cooling or low capacity cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.
- Ideal for outdoor or very wet conditions.

Standards

- UL, cUL, and CE
- Complies with
 - NEMA 3R, 4, 4X

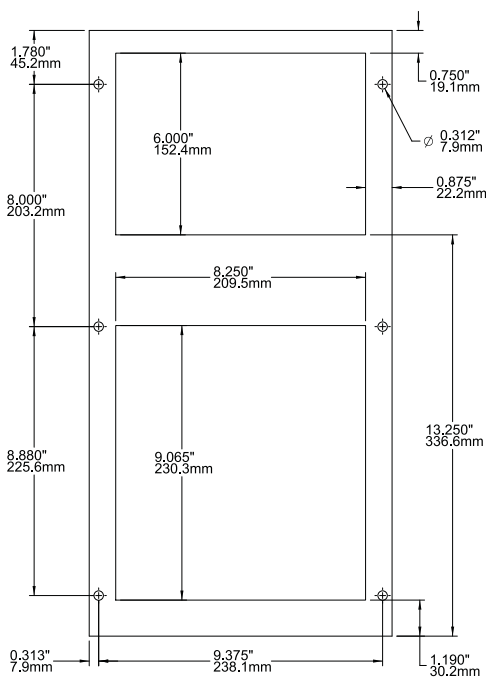
Features

- Stainless steel body.
- R134a refrigerant.
- Thermostat control.
- Line cord with plug (115 V).
- Expansion valve permits increased efficiency through improved evaporator heat transfer and less frequent compressor operation.
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE standard.
- Gasket, mounting kit, and template for cutout and drilling are included.
- Direct condensate discharge, drain hose and clamp.
- Q Mount allows unit to hang in place for easy installation.



Part Number	Ship Wt. lbs.
DTS3081A115N4SS	60
DTS3081A230N4SS	60

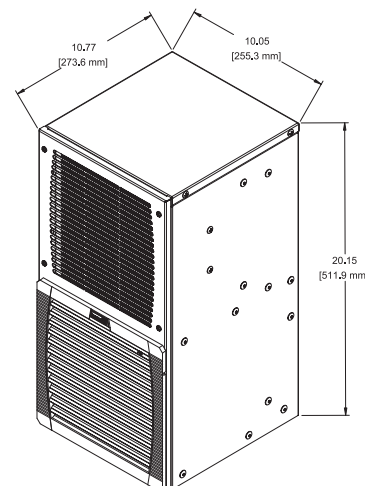
Climate Control



Drilling Template

Technical Data

Electrical Data	DTS3081A115N4SS	DTS3081A230N4SS
Rated Voltage	115 V 60 Hz 110 V 50 Hz	230 V 50/60 Hz
Range of Operation	103-127 V	198-253 V
Power Consumption	690 W	724 W
Running Amps	6.0 A	3.3 A
Starting Current	28 A	14.4 A
Line Cord	With plug	With plug



Dimensional Drawing Only

Refrigeration Data

Rated Capacity	2,500 BTU/H (732 Watts)
Type of Refrigerant	R134a
Refrigerant Charge	400 g
Adjustable Control Range	+77...+131 F / +25...+45 C Factory Setting +95 F (+35 C)
Max. Ambient Air Temp.	+131°F (+55°C)
Min. Ambient Air Temp.	+46°F (+8°C)
Air Capacity (unrestricted)	Internal Circulation 191 CFM External Circulation 88 CFM
Condensate Discharge	Condensate drain
Filter Mat	Filterless
Db Noise Level	≤ 64 dB(A)
Unit Weight	55 lbs (25 kg)
Exterior Case	304 Stainless steel
Finish	Polish #3
NEMA Rating	3R, 4, 4X

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Side Mounting DTS Series - NEMA 3R, 4, 4X

3500 BTU/H - Stainless Steel



Description

- Narrow design for side mounting on any enclosure surface where hot spot or low capacity cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.

Standards

- Complies with
 - NEMA 3R, 4, 4X rating
- IP 54
- UL, cUL and CE

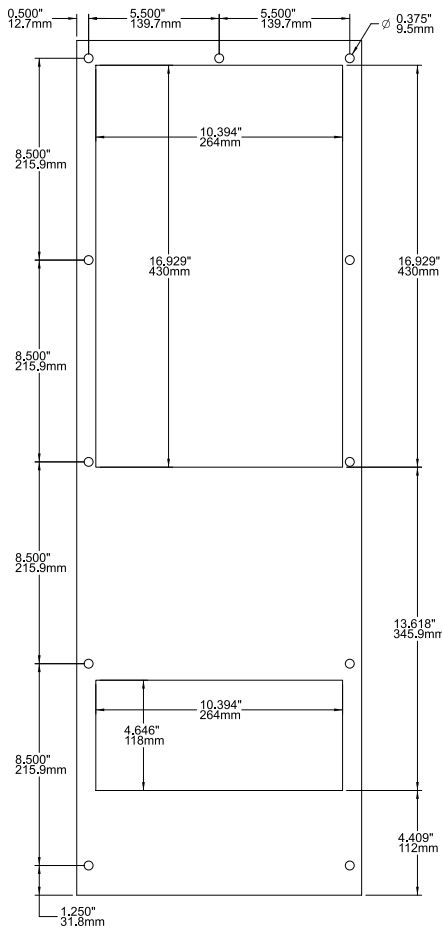
Features

- R134a refrigerant.
- Thermostat control accessible from inside enclosure.
- Expansion valve increases efficiency with improved evaporator heat transfer and less frequent compressor operation.
- Built in condensor/evaporator
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Self-diagnostics on startup.
- Fault indication via LED light.
- Door contact for power down when enclosure door is opened.
- Gasket, mounting kit and template for cutout and drilling are included.
- Condensate drain hose and clamp
- Easy install with "Click & Fit" system

Accessories

- Gaskets...see page 456
- Remote door switch...see page 452

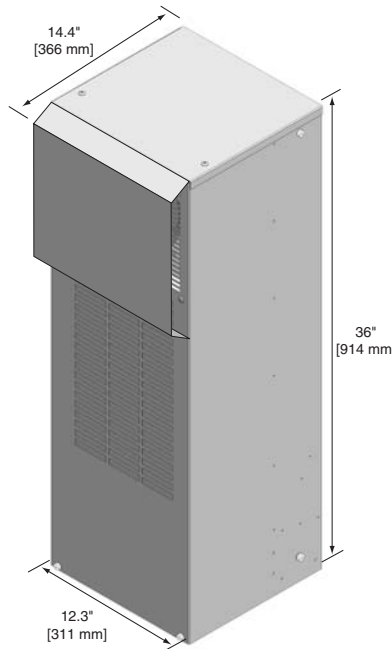
Climate Control



Drilling Template

Technical Data

Electrical Data	DTS3161SLA2N3LG / DTS3181SLA2N4SS
Rated Voltage	230 V 50/60 Hz
Range of Operation	198-252 V
Power Consumption	890 W
Running Amps	4.0 A
Starting Current	14.8 A
Line Cord	Terminal Block



Part Number	Type Rating	Ship Wt. lbs.
DTS3161SLA2N3LG	3R, 4	113
DTS3181SLA2N4SS	4X	113

Refrigeration Data	
Rated Capacity	3500-5000
Type of Refrigerant	R134a
Adjustable Set Points	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)
Max Ambient Air Temp	+131 F (+55 C)
Min Ambient Air Temp	+59 F +15 C
Air Capacity (unrestricted)	Internal Circulation 341 CFM External Circulation 706 CFM
Condensate Discharge	Condensate Evaporator
Filter Mat	Filterless
Db Noise Level	<70 dB (A)
Unit Weight	108 lbs (49 kg)
Exterior Case	Galvanized Sheet Steel /304 Stainless Steel
Finish	RAL7035 light gray finish / #4 Brush Finish SS
Nema Rating	Enclosures IP 54/Nema 3R, 4, 4X

 Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Side Mounting DTS Series - NEMA 3R, 4

4000 & 7500 BTU/H



4000 BTU/H Shown

Description

- Designed for side mounting on any enclosure surface where high capacity system cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.
- Optimum air circulation with maximum clearance distance between warm inlet and cold outlet for reduced hot spot locations.

Standards

- UL, cUL, CE
- Complies with
 - NEMA 3R, 4

Features

- R134a refrigerant.
- Thermostat control accessible from inside enclosure.
- Expansion valve prevents evaporator freeze up while minimizing heavy inrush currents on large BTU/H units.
- Built in condensate evaporator.
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Self-diagnostics on startup.
- Fault indication via LED light.
- Provision for door contact allowing power down when enclosure door is opened.
- Gasket, mounting kit and template for enclosure cutout and drilling are included.
- Condensate drain hose and clamp provided.
- Q Mount allows unit to hang in place for easy installation.
- Nema 3R/4 exterior galvanized sheet steel with powdercoat finish.

Accessories

- Gaskets...see page **456**
- Remote door switch...see page **452**

Part Number	Ship Wt. lbs.
DTS3161A115N3LG	104
DTS3161A230N3LG	104
DTS3261A115N3LG	129
DTS3261A230N3LG	129

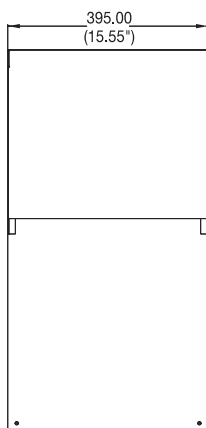
Technical Data

Electrical Data	DTS3161A115N3LG	DTS3161A230N3LG	DTS3261A115N3LG	DTS3261A230N3LG
Rated Voltage	115 V 60 Hz	230 V 50/60 Hz	115 V 60 Hz	230 V 50/60 Hz
Range of Operation	103-127 V	198-252 V	103-127 V	198-252 V
Power Consumption	950 W	860 W	1800 W	1800 W
Running Amps	7.2 A	4 A	14.6 A	6.3 A
Starting Current	17.1 A	9.3 A	26.8 A	16.5 A
Line Cord	Terminal Block	Terminal Block	Terminal Block	Terminal Block

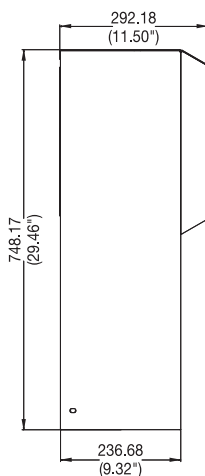
Side Mounting DTS Series - NEMA 3R, 4

4000 & 7500 BTU/H

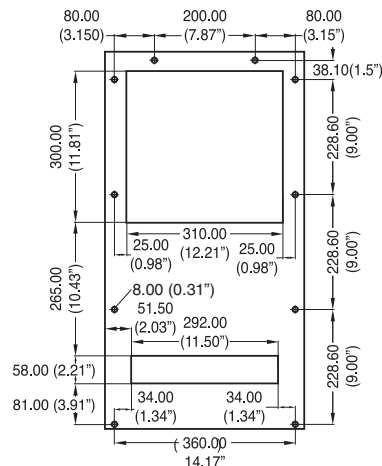
DTS 3161



Front View

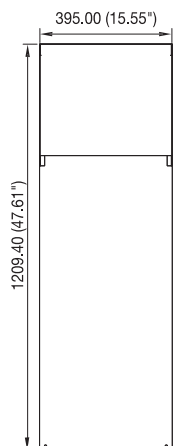


Side View

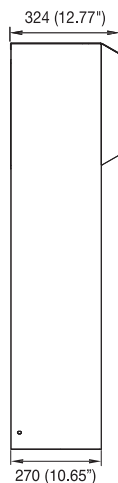


Drilling Template

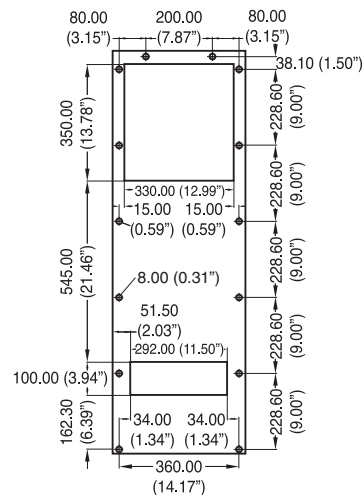
DTS 3261



Front View



Side View



Drilling Template

Climate Control

Refrigeration Data	DTS3161A115/230N3LG	DTS3261A115/230N3LG
Rated Capacity	4,000 BTU/H (1,172 Watts)	7,500 BTU/H (2,197 Watts)
Type of Refrigerant	R134a	R134a
Adjustable Control Range	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)
Max. Ambient Air Temp.	+125°F (+52°C)	+125°F (+52°C)
Min. Ambient Air Temp.	+46°F (+8°C)	+46°F (+8°C)
Air Capacity (unrestricted)	Internal Circulation 350 CFM External Circulation 350 CFM	Internal Circulation 580 CFM External Circulation 580 CFM
Condensate Discharge	Condensate Evaporator	Condensate evaporator
Filter Mat	150 g/m ²	150 g/m ²
Db Noise Level	≤ 70 dB(A)	≤ 73 dB(A)
Unit Weight	84 lbs (38 kg)	120 lbs (46 kg)
Exterior Case	Galvanized Steel Powdercoat Finish	Galvanized Steel Powdercoat Finish
Finish	RAL7035 Light Grey powder finish (LG)	RAL7035 Light Grey powder finish (LG)
NEMA Rating	Enclosures IP56 /NEMA 3R/4	Enclosures IP56 /NEMA 3R/4

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Quality Products. Service Excellence.

Side Mounting DTS Series - NEMA 3R, 4, 4X

4000 & 7500 BTU/H - Stainless Steel



Description

- Designed for side mounting on any enclosure surface where high capacity system cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.
- Optimum air circulation with maximum clearance distance between warm inlet and cold outlet for reduced hot spot locations.

Standards

- UL, cUL, CE
- Complies with
 - NEMA 3R, 4, 4X

Features

- R134a refrigerant.
- Thermostat control accessible from inside enclosure.
- Expansion valve prevents evaporator freeze up while minimizing heavy inrush currents on large BTU/H units.
- Built in condensate evaporator.
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Self-diagnostics on startup.
- Fault indication via LED light.
- Provision for door contact allowing power down when enclosure door is opened.
- Gasket, mounting kit and template for enclosure cutout and drilling are included.
- Condensate drain hose and clamp provided.
- Q Mount allows unit to hang in place for easy installation.
- Nema 4/4x exterior 304 stainless steel.

Accessories

- Gaskets...see page **456**
- Remote door switch...see page **452**

Climate Control

Part Number	Ship Wt. lbs.
DTS3181A115N4SS	107
DTS3181A230N4SS	107
DTS3281A115N4SS	144
DTS3281A230N4SS	144

Technical Data

Electrical Data	DTS3181A115N4SS	DTS3181A230N4SS	DTS3281A115N4SS	DTS3281A230N4SS
Rated Voltage	115 V 60 Hz	230 V 50/60 Hz	115 V 60 Hz	230 V 50/60 Hz
Range of Operation	103-127 V	198-252 V	103-127 V	198-252 V
Power Consumption	950 W	860 W	1800 W	1800 W
Running Amps	7.2 A	4 A	14.6 A	6.3 A
Starting Current	17.1 A	9.3 A	26.8 A	16.5 A
Line Cord	Terminal Block	Terminal Block	Terminal Block	Terminal Block

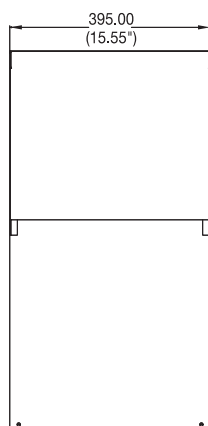
Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

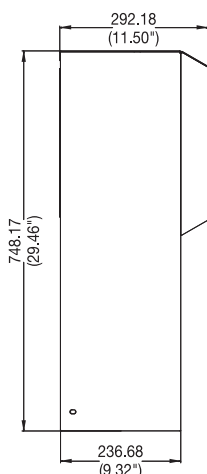
Side Mounting DTS Series - NEMA 3R, 4, 4X

4000 & 7500 BTU/H - Stainless Steel

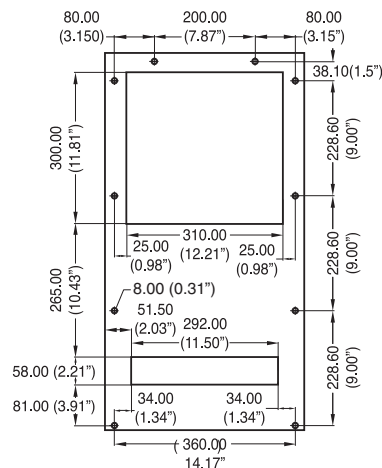
DTS 3181



Front View

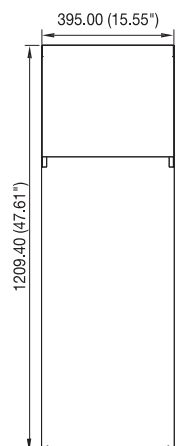


Side View

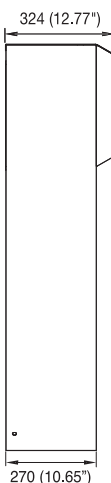


Drilling Template

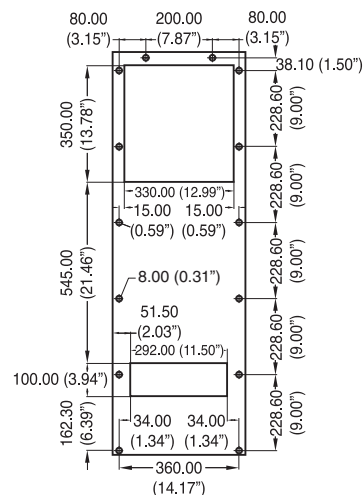
DTS 3281



Front View



Side View



Drilling Template

Climate Control

Refrigeration Data	DTS3181A115/230N4SS	DTS3281A115/230N4SS
Rated Capacity	4,000 BTU/H (1,172 Watts)	7,500 BTU/H (2,197 Watts)
Type of Refrigerant	R134a	R134a
Adjustable Control Range	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)
Max. Ambient Air Temp.	+125°F (+52°C)	+125°F (+52°C)
Min. Ambient Air Temp.	+46°F (+8°C)	+46°F (+8°C)
Air Capacity (unrestricted)	Internal Circulation 350 CFM External Circulation 350 CFM	Internal Circulation 580 CFM External Circulation 580 CFM
Condensate Discharge	Condensate Evaporator	Condensate evaporator
Filter Mat	150 g/m ²	150 g/m ²
Db Noise Level	≤ 70 dB(A)	≤ 73 dB(A)
Unit Weight	84 lbs (38 kg)	120 lbs (46 kg)
Exterior Case	304 Stainless Steel	304 Stainless Steel
Finish	Polish #3	Polish #3
NEMA Rating	Enclosures IP56 /NEMA 3R/4x	Enclosures IP56 /NEMA 3R/4x

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Quality Products. Service Excellence.

Side Mounting DTS Series - NEMA 3R, 4, 4X

5000 - 7000 & 9000 - 12000 BTU/H - Galvanized Sheet Steel & Stainless Steel



Description

- Designed for side mounting on any enclosure surface where high capacity system cooling is required.
- Closed loop cooling ensures clean enclosure air is recirculated without ever mixing with contaminated ambient air.
- Optimum air circulation with maximum clearance distance between warm inlet and cold outlet for reduced hot spot locations.
- Condensor with 3 mm fin spacing, highly effective protection against strongly contaminated and aggressive ambient air

Standards

- UL, cUL, and CE
- Complies with
 - NEMA 3R, 4, 4X

Features

- R134a refrigerant.
- Thermostat control accessible from inside enclosure.
- Hot gas bypass valve prevents evaporator freeze up while minimizing heavy inrush currents on large BTU/H units.
- Built in condensate evaporator.
- Continuous air circulation from high capacity fans.
- EMI/RFI suppression meets CE.
- Self-diagnostics on startup.
- Fault indication via LED light.
- Provision for door contact allowing power down when enclosure door is opened.
- Gasket, mounting kit and template for enclosure cutout and drilling are included.
- Condensate drain hose and clamp provided.
- Q Mount allows unit to hang in place for easy installation.

Accessories

- Gaskets...see page 456
- Remote door switch...see page 452

Part Number	Type Rating	Ship Wt. lbs.
DTS3165A115N3LG	3R, 4	113
DTS3165A230N3LG	3R, 4	113
DTS3185A115N4SS	4X	113
DTS3185A230N4SS	4X	113
DTS3265A115N3LG	3R, 4	155
DTS3265A230N3LG	3R, 4	155
DTS3285A115N4SS	4X	155
DTS3285A230N4SS	4X	155

Technical Data

Electrical Data	DTS3165A115N3LG / DTS3185A115N4SS DTS3165A230N3LG / DTS3185A230N4SS	DTS3265A115N3LG / DTS3285A115N4SS DTS3265A230N3LG / DTS3285A230N4SS
Rated Voltage	115 V 60 Hz 230 V 50/60 Hz	115 V 60 Hz 230 V 50/60 Hz
Range of Operation	103-127 V /198-252 V	103-127 V /198-252 V
Power Consumption	1000 W /1020 W	1600 W / 1600 W
Running Amps	8.5 A / 4.5 A	13 A / 6.5 A
Starting Current	48 A / 26 A	57 A / 30 A
Line Cord	Terminal Block	Terminal Block
Refrigeration Data	DTS3165A115N3LG / DTS3185A115N4SS DTS3165A230N3LG / DTS3185A230N4SS	DTS3265A115N3LG / DTS3285A115N4SS DTS3265A230N3LG / DTS3285A230N4SS
Rated Capacity	5000-7000 BTU/H (1466-2052 Watts)	9000-12000 BTU/H (2639-3519 Watts)
Type of Refrigerant	134a	134a
Adjustable Control Range	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)	+ 59...+ 131 / + 15...+ 45C Factory setting +95 F (+35C)
Max. Ambient Air Temp	+131 F (+55 C)	+131 F (+55 C)
Min. Ambient Air Temp	+59 F (+15 C)	+59 F (+15 C)
Air Capacity (unrestricted)	Internal Circulation 365/341 CFM External Circulation 765/706 CFM	Internal Circulation External Circulation
Condensate Discharge	Condensate Evaporator	Condensate Evaporator
Filter Mat	Filterless	Filterless
Db Noise Level	<70 dB(A)	<70 dB(A)
Unit Weight	108 lbs	150 lbs
Exterior Case	Galvanized Sheet Steel / 304 Stainless Steel	Galvanized Sheet Steel / 304 Stainless Steel
Finish (LG)	RAL7035 Light Grey Powder Finish	RAL7035 Light Grey Powder Finish
Finish (SS)	Polish #3	Polish #3

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

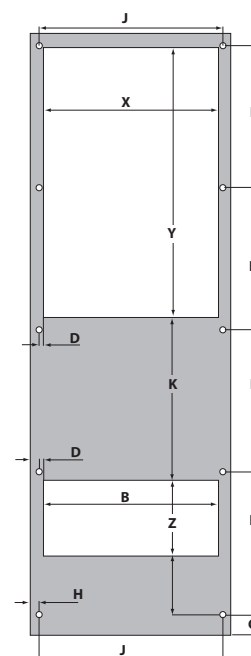
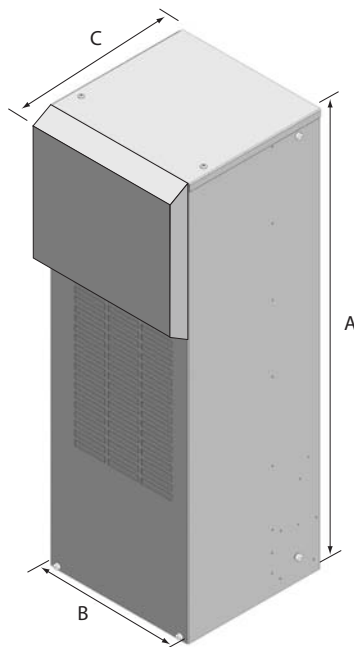
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Side Mounting DTS Series - NEMA 3R, 4, 4X

5000 - 7000 & 9000 - 12000 BTU/H - Galvanized Sheet Steel & Stainless Steel

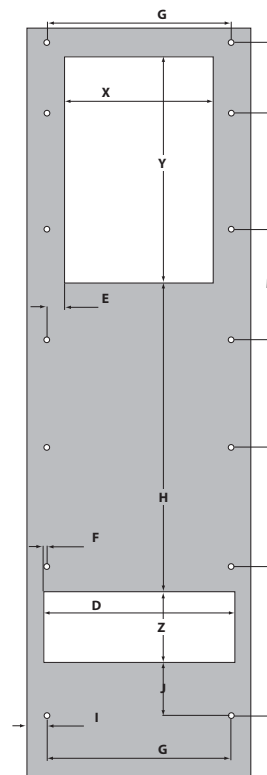
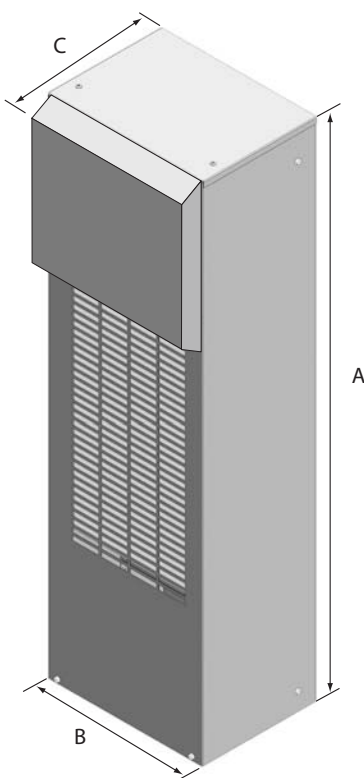
DTS 3165 & DTS 3185

Dimension	inches (mm)
A	36 (914)
B	12.25 (311)
C	14.4 (367)
D	0.3 (8)
E	8.5 (216)
F	8.5 (216)
G	1.3 (32)
H	0.5 (13)
I	3.2 (80)
J	11 (279)
K	9 (228)
X	10.4 (264)
Y	17 (430)
Z	4.7 (118)
Mounting holes Ø 10 mm	
For exact cutout information reference drilling template at pfannenbergsusa.com	



DTS 3265 & DTS 3285

Dimension	inches (mm)
A	53 (1347)
B	16 (406)
C	14.4 (367)
D	13.7 (348)
E	0.98 (25)
F	0.35 (9)
G	13 (330)
H	21.1 (537)
I	1.4 (35)
J	3.6 (92)
K	5.0 (126)
L	8.2 (209)
M	7.8 (198)
N	7.6 (192)
O	8.4 (214)
P	4.5 (114)
Q	10.5 (267)
X	11 (280)
Y	16.8 (427)
Z	5.3 (135)
Mounting holes Ø 8 mm	
For exact cutout information reference drilling template at pfannenbergsusa.com	



Side Mounting DTS Series - Large Capacity



Features

- Maintains a UL Tested NEMA Type 12 seal against enclosure
- UL Listed to UL 484, UL File #SA10300, CE approved
- Long internal airpath captures heat above components and provides cool air below
- Powder coated steel cover for rugged environments, easily painted to match machine
- Uses Standard Control logic board
- Condensate Management built into design of unit

NEMA Type 12 Indoor - Side Mount:

	DTS3341A230LG DTS3341A460LG	DTS3541A230LG DTS3541A460LG	DTS3641A230LG DTS3641A460LG
Cooling Capacity (Btu/h*)	12-14000	16-18000	20-24000
External Airflow (CFM)	991	1480	1612
Internal Airflow (CFM)	788	788	1612
NEMA Type Rating	Type 12	Type 12	Type 12
UL Listed or Recognized	Listed	Listed	Listed
Connection Type	Permanent	Permanent	Permanent

Climate Control



Features

- Maintains a UL Tested NEMA Type 3R/4 or 4/4X seal against enclosure
- UL Listed to UL 484, UL File #SA10300, CE approved
- Long internal airpath captures heat above components and provides cool air below
- Powder coated steel cover for rugged environments, easily painted to match machine
- Uses Standard Control logic board and sump heater standard
- Condensate Management built into design of unit
- Options: Low ambient package, Built-In enclosure heater

NEMA Type 3R/4 Outdoor:

	DTS3361A230N3LG DTS3361A460N3LG	DTS3561A230N3LG DTS3561A460N3LG	DTS3661A230N3LG DTS3661A460N3LG
Cooling Capacity (Btu/h*)	12-14000	16-18000	22-24000
External Airflow (CFM)	991	1480	1612
Internal Airflow (CFM)	788	788	1612
NEMA Type Rating	Type 3R/4	Type 3R/4	Type 3R/4
UL Listed or Recognized	Listed	Listed	Listed
Connection Type	Permanent	Permanent	Permanent

NEMA Type 4/4X Stainless Steel Outdoor/Washdown:

	DTS3381A230N4SS DTS3381A460N4SS	DTS3581A230N4SS DTS3581A460N4SS	DTS3681A230N4SS DTS3681A460N4SS
Cooling Capacity (Btu/h*)	12-14000	16-18000	20-24000
External Airflow (CFM)	991	1480	1612
Internal Airflow (CFM)	788	788	1612
NEMA Type Rating	Type 4/4X	Type 4/4X	Type 4/4X
UL Listed or Recognized	Listed	Listed	Listed
Connection Type	Permanent	Permanent	Permanent

Air/Water Heat Exchanger PWS Series - NEMA 12, 3R, 4



Description

- Designed to use various water sources to cool enclosures where ambient conditions involve high temperatures, harsh conditions or are subject to frequent wash-down.

Standards

- UL, cUL, and CE
- Complies with
 - NEMA 12, 3R, 4

Features

- Compatible with chilled water/glycol, tower water and other circulated coolants
- Integrated thermostat & solenoid valve with alarm contact provides automatic temperature control
- Rugged (10 bar) copper tube / aluminum fin heat exchanger w 0.5" NPTF connection
- Side, door or internal mounting provides complete installation flexibility
- Low noise, maintenance-free design
- Exterior case, galvanized steel construction finish RAL7035 Light Gray

Part Number	Dimensions (H x W x D)	Weight (without packaging)
PWS7102A115N4LG	19.68 x 7.87 x 5.91 inches	16 lbs
PWS7102A230N4LG	500 x 200 x 150 mm	7.7 Kg
PWS7152A115N4LG	37.40 x 15.75 x 4.53 inches	46 lbs
PWS7152A230N4LG	950 x 400 x 115 mm	21 Kg
PWS7332A115N4LG	37.50 x 15.75 x 7.48 inches	77 lbs
PWS7332A230N4LG	950 x 400 x 190 mm	35 Kg
PWS7502A115N4LG	55.12 x 18.11 x 9.25 inches	86 lbs
PWS7502A230N4LG	1400 x 460 x 235 mm	39 Kg
PWS7702A230N4LG	70.87 x 23.62 x 12.4 inches	127 lbs
PWS71002A23N4LG	1800 x 600 x 315 mm	57 Kg

Technical Data

Part Number	Cooling Performance * 200 liters/hr (.88gpm)	Adjustable Control Range	Voltage AC	Power Consumption Watts
PWS7102A115N4LG	3241 Btu/h (950 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	115 v 60Hz	95
PWS7102A230N4LG	3241 Btu/h (950 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	230 v 50/60Hz	84
PWS7152A115N4LG	5118 Btu/h (1500 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	115 v 60Hz	186
PWS7152A230N4LG	5118 Btu/h (1500 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	230 v 50/60Hz	182
PWS7332A115N4LG	10750 Btu/h (3150 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	115 v 60Hz	453
PWS7332A230N4LG	10750 Btu/h (3150 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	230 v 50/60Hz	385
PWS7502A115N4LG	17745 Btu/h (5200 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	115 v 60Hz	384
PWS7502A230N4LG	17745 Btu/h (5200 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	230 v 50/60Hz	385
PWS7702A230N4LG	34215 Btu/h (7,000 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	230 v 50/60Hz	680
PWS71002A23N4LG	34215 Btu/h (10,000 Watts)	+47...+122 F / +8...+70 C (Factory setting +95/+35)	230 v 50/60Hz	1200

* Note: Water temperature + 10 C (+50F) with Enclosure ambient +35 C (+95F)

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Water Chillers



EB Series



Rack Series

Description

- Designed to provide recirculated coolant for most industrial applications air/water heat exchangers, process cooling, machine hydraulics or motor cooling.

Standards

- Rack Series - UL, cUL, CE
- EB30-50 -UL, cUL (ETL), CE
- EB190-400 - UL, cUL CE

Features

- Pre-engineered, packaged design includes refrigeration, cooling tank & pump and operating controls for "plug and play" operation
- Rack Series provides reliable cooling for indoor applications with heat loads less than 1 Ton
- EB Series allows outdoor installations & many options with capacities to 20 Tons
- Larger sizes available
- Exterior case, galvanized steel construction finish RAL7035 Light Gray

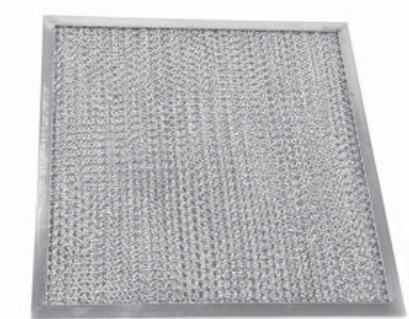
Climate Control

Part Number	Cooling Capacity * BTU/h (watts)	Adjustable Control Range	Voltage AC	Pump Flow Rate GPM (l/min)	Dimensions Height x Width x Depth
RACK1100	4610 BTU/h (1350 W)	+50...+95 F / '+10...+35 C	230 V 50/60 Hz	3.2 (12)	15.55 x 17.72 x 18.90 inches (395 x 450 x 480 mm)
RACK1700	7001 BTU/h (2050 W)	+50...+95 F / '+10...+35 C	230 V 50/60 Hz	3.2 (12)	15.55 x 17.72 x 18.90 inches (395 x 450 x 480 mm)
RACK2400	9220 BTU/h (2700 W)	+50...+95 F / '+10...+35 C	230 V 50/60 Hz	3.7 (14)	19.68 x 22.83 x 22.83 inches (500 x 580 x 580 mm)
EB30WT	16051 BTU/h (4700 W)	+59...+104 F / '+15...+40 C	400 /460 V 3 Phase 50/60 Hz	3.7 (14)	37.60 x 21.65 x 42.02 inches (955 x 550 x 610 mm)
EB60WT	22199 BTU/h (6500 W)	+59...+104 F / '+15...+40 C	400 /460 V 3 Phase 50/60 Hz	5.3 (20)	37.60 x 21.65 x 42.02 inches (955 x 550 x 610 mm)
EP90WT	34152 BTU/h (10000 W)	+59...+104 F / '+15...+40 C	400 /460 V 3 Phase 50/60 Hz	9.25 (35)	50.79 x 27.76 x 30.12 inches (1290 x 705 x 765 mm)
EB150WT	54643 BTU/h (16660 W)	+59...+104 F / '+15...+40 C	400 /460 V 3 Phase 50/60 Hz	9.25 (35)	50.79 x 27.76 x 30.12 inches (1290 x 705 x 765 mm)
EB190WT	71719 BTU/h (21000 W)	+59...+104 F / '+15...+40 C	400 /460 V 3 Phase 50/60 Hz	13.2 (50)	55.51 x 48.43 x 31.10 inches (1410 x 1230 x 790 mm)
EB250WT	94600 BTU/h (27700 W)	+59...+104 F / '+15...+40 C	400 /460 V 3 Phase 50/60 Hz	13.2 (50)	55.51 x 48.43 x 31.10 inches (1410 x 1230 x 790 mm)
EB300WT	112018 BTU/h (32800 W)	+59...+104 F / '+15...+40 C	400 /460 V 3 Phase 50/60 Hz	21.1 (80)	55.51 x 66.14 x 31.10 inches (1410 x 1680 x 790 mm)
EB350WT	130801 BTU/h (38300 W)	+59...+104 F / '+15...+40 C	400 /460 V 3 Phase 50/60 Hz	21.1 (80)	55.51 x 66.14 x 31.10 inches (1410 x 1680 x 790 mm)
EB400WT	151634 BTU/h (44400 W)	+59...+104 F / '+15...+40 C	400 /460 V 3 Phase 50/60 Hz	21.1 (80)	55.51 x 66.14 x 31.10 inches (1410 x 1680 x 790 mm)

Note: Cooling capacity including power loss in pump, water outlet temperature +64F (18C) , ambient temperature +90 F (+32C)

Air Conditioner Accessories

Filter Kits for DTS3XXX Series



- Field install kit for Condenser Fan intake
- Washable Aluminum mesh

Part Number	Description
815065000	Filter kit for DTS30xx series
18881500000	Filter kit for DTS31xx series
18881500006	Filter kit for DTS31x 1SL/31x5 series
18881500001	Filter kit for DTS32xx series
18881500007	Filter kit for DTS32x5 series
18881500002	Filter kit for DTS33 xx series
18881500003	Filter kit for DTS35xx series
18881500004	Filter kit for DTS36xx series

Water Condensate Evaporator

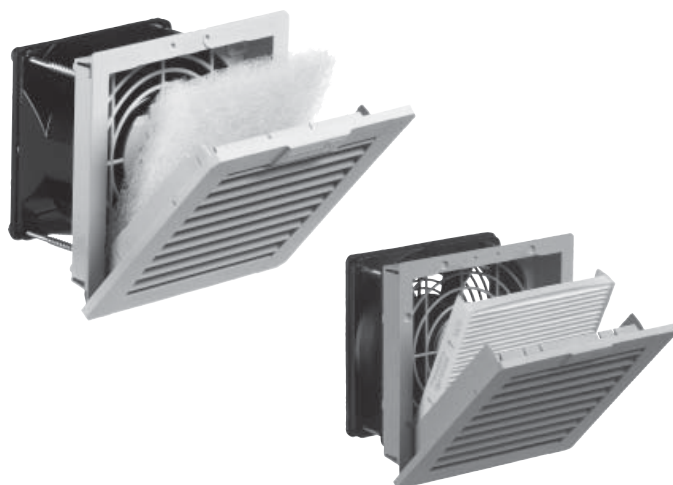


Part No. **KVDTX**

- High performance evaporation kit
- Easy to retrofit on any cooling unit

Technical Data	
Max. Water Volume	13.5 oz (400 ml)
Evaporation Rate	3.4 oz/hr (100 ml/hr)
Electrical Data	
Voltage(s)	230v /115v
Frequency	50/60 Hz
Voltage Range	100-240v
Max. Power	125 W
Power Range	20-110 W
Nominal Current	0.5 A (230v) / 0.8 A (115v)
Starting Current	1.3 A
Zero Water Current	0.09 A (230v) / 0.18 A (115v)
Mechanical Data	
Height x Width x Depth	3.35" x 10.35" x 4.00" (85 x 263 x 102 mm)
Finish	Stainless Steel
Weight	2.6 lbs (1.175 Kg)

Filterfan PF 11000-22000 / Exhaust Filter PFA 10000-20000



Features

- Maintains a UL Tested NEMA Type 12 seal against enclosure
- UL Recognized to UL 508a, category NITW2/8, UL File #E175229
- CSA #246217
- Patented "Click & Fit" design provides a hardware-free installation!
- Plastic made from strong, heat resistant (ABS-FR), UL 94 VO fire approved material
- Options: Black grills

Part Number	Voltage	Power	Mating Exhaust Filter	Ship Wt. lbs.
PF11000T12LG	115V	11W	PFA10000LG	1.5
PF11000T12LG230	230V	11W	PFA10000LG	1.5
PF11000T12LG24	24V* DC	2W	PFA10000LG	1.5
PF22000T12LG	115V	20W	PFA20000LG	2
PF22000T12LG230	230V	18W	PFA20000LG	2
PF22000T12LG24	24V* DC	5W	PFA20000LG	2

Airflow data	PF 11000	PF 22000	PFA 10000	PFA20000
Filter material	Type 12 synthetic filter mat	Type 12 fluted filter mat	Type 12 synthetic filter mat	Type 12 fluted filter mat
Unimpeded airflow	17 CFM	38 CFM	-	-
Cooling Dissipation (W) / °T	10 W/K	21 W/K	-	-
Airflow in combination	11 CFM	28 CFM	-	-
(Filterfan + Exhaust Filter)	(PF 11000 + PFA 10000)	(PF 22000 + PFA 20000)	-	-
Capacity in combination	6 W/K	15 W/K	-	-
(Filterfan + Exhaust Filter)	(PF 11000 + PFA 10000)	(PF 22000 + PFA 20000)	-	-
Max. static pressure (Airflow = 0 m3/h)	38 Pa	57 Pa	-	-
Filtration efficiency	88%	91%	88/91%	88/91%
Filter material grade	G 3 (DIN EN 779)	G 4 (DIN EN 779)	G3/ G4 (DIN EN 779)	G3/ G4 (DIN EN 779)
Duty cycle	100%	100%		

Technical data	PF 11000 AC	PF 11000 DC	PF 22000 AC	PF 22000 DC	PFA 10000 PFA 20000
Outside dimensions in mm (height x width x installation depth)	109 x 109 x 62	109 x 109 x 49	145 x 145 x 70	145 x 145 x 64	109 x 109 x 26/ 145 x 145 x 26
Bearing type	sleeve bearings	ball bearings	sleeve bearings	ball bearings	-
Fitting position	vertical	any	vertical	any	-
Construction	housing and guard of sprayed thermoplastic, self-extinguishing, UL 94 VO				
Weight	0.55 kg	0.16 kg	0.7 kg	0.44 kg	0.06 kg / 0.12 kg
Safety protection	in accordance with DIN 31 001				
Color	RAL 7035, Light Grey				
Connection	2 wires, 310 mm long	terminal strip			

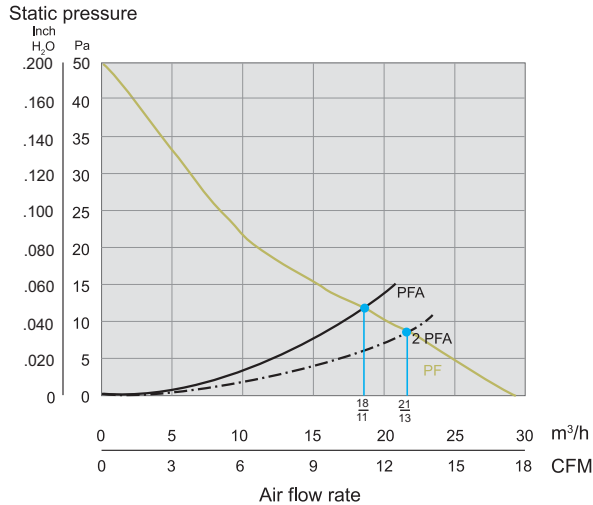
Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

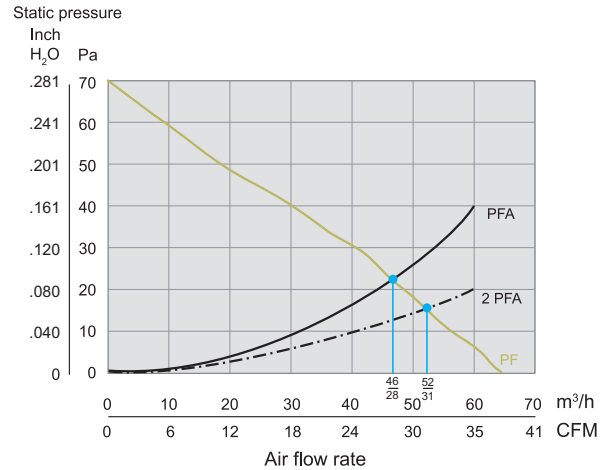
Filterfan PF 11000-22000 / Exhaust Filter PFA 10000-20000

Airflow Data:

PF 11.000 IP54 / PFA 10.000 IP54

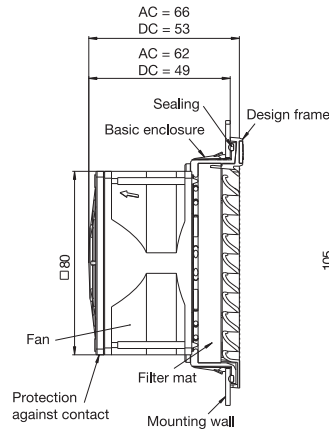


PF 22.000 IP55 / PFA 20.000 IP55

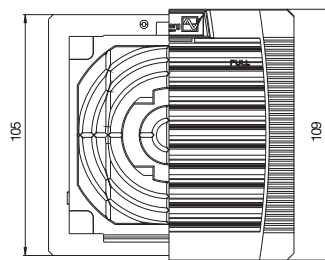


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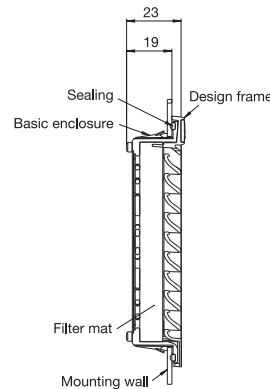
PF 11000



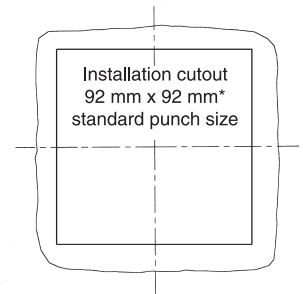
PF 11000 + PFA 10000



PFA 10000



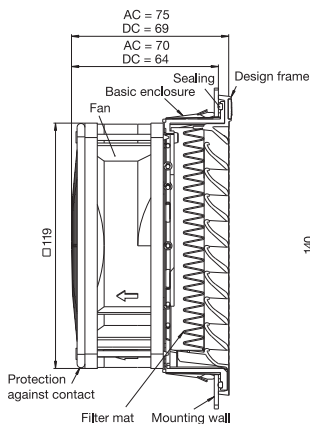
Cutout



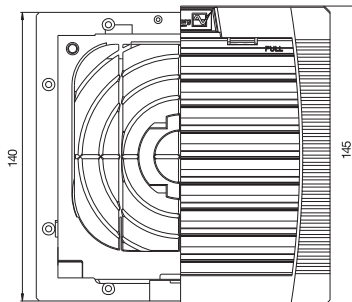
Climate Control

Mechanical Data:

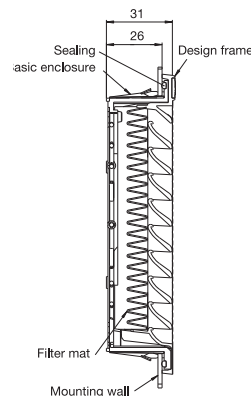
PF 22000



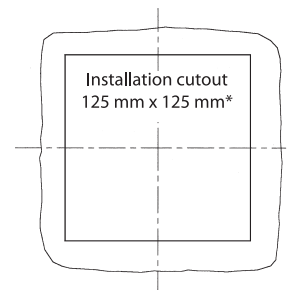
PF 22000 + PFA 20000



PFA 20000



Cutout



Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Filterfan PF 32000 / Exhaust Filter PFA 30000



Features

- Maintains a UL Tested NEMA Type 12 seal against enclosure
- UL Recognized to UL 508a, category NITW2/8, UL File #E175229
- CSA #246217
- Patented "Click & Fit" design provides a hardware free installation!
- Plastic made from strong, heat resistant (ABS-FR), UL 94 VO fire approved material
- Options: Black Grills

Part Number	Voltage	Power	Mating Exhaust Filter	Ship Wt. lbs.
PF32000T12LG	115V	20W	PFA30000LG	3
PF32000T12LG230	230V	18W	PFA30000LG	3
PF32000T12LG24	24V* DC	5W	PFA30000LG	3

Airflow data	PF 32000	PFA 30000
Filter material	Type 12 filter mat	Type 12 filter mat
Unimpeded airflow	65 CFM	-
Cooling Dissipation (W)/°T	37 W/K	-
Airflow in combination	38 CFM	-
(Filterfan + Exhaust Filter)	(PF 32000 + PFA 30000)	-
Capacity in combination	21 W/K	-
(Filterfan + Exhaust Filter)	(PF 32000 + PFA 30000)	-
Max. static pressure (Airflow = 0 m3/h)	61 Pa	-
Filtration efficiency	91%	91%
Filter material grade	G 4 (DIN EN 779)	G 4 (DIN EN 779)
Duty cycle	100%	-

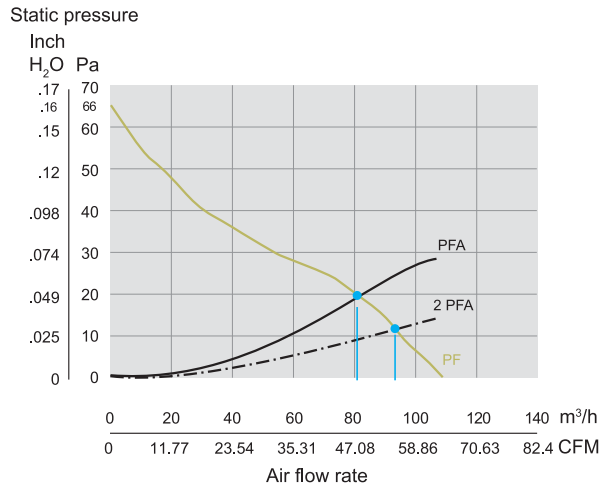
Technical data	PF 32000 AC	PF 32000 DC	PFA 30000
Outside dimensions in mm (height x width x installation depth)	202 x 202 x 87	202 x 202 x 81	202 x 202 x 34
Bearing type	sleeve bearings	ball bearings	-
Fitting position	vertical	any	any
Construction	housing and guard of sprayed thermoplastic, self-extinguishing, UL 94 VO		
Weight	0.87 kg	0.61 kg	0.26 kg
Safety protection	in accordance with DIN 31 001		
Color	RAL 7035, Light Grey		
Connections	terminal strip	cage clamp	-
Approval	NEMA Type 12, IP 55 (EN 60 529), when installed as specified		

Climate Control

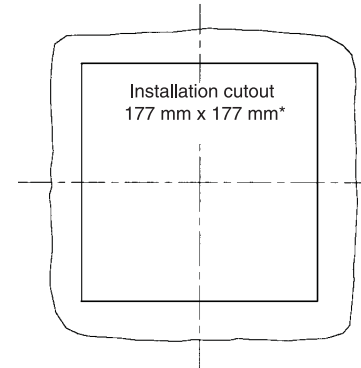
Filterfan PF 32000 / Exhaust Filter PFA 30000

Airflow Data:

PF 32.000 IP54 / PFA 30.000 IP54

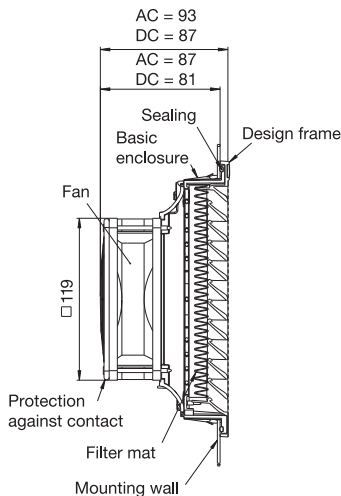


PF 32000 + PFA 30000

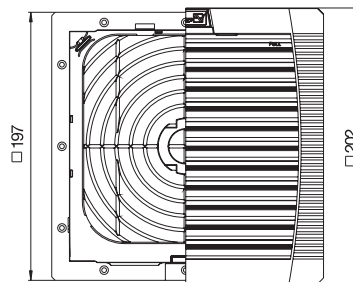


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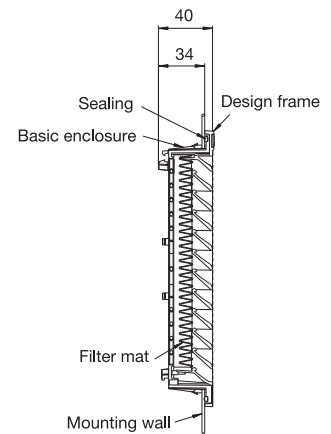
PF 32000



PF 32000 + PFA 30000



PFA 30000



Climate Control

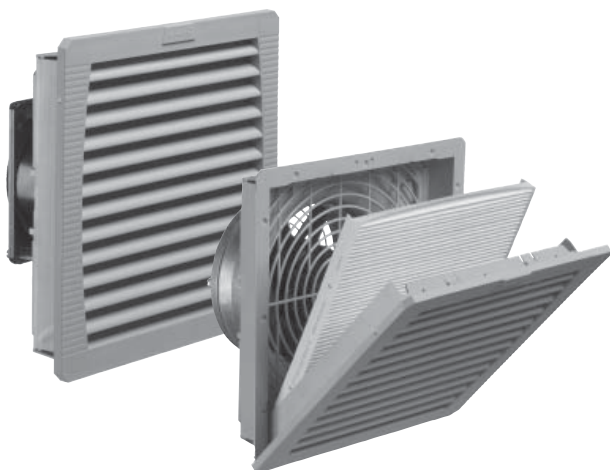
Supplementary data	PF 32000 AC	PF 32000 DC	PFA 30000
Operating temperature	- 15 °C (- 5 °F) to / bis + 55 °C (+ 131 °F)		
Storage temperature	- 20 °C (- 4 °F) to / bis + 70 °C (+ 158 °F)		
Max. relative humidity	90%		
System of protection	NEMA Type 12, IP 55 (EN 60 529), when installed as specified		
Basic Accessories	parts kit filter mat, user manual radiant heater, fan heater, thermostat, hygostat		
* Tolerance installation cutout	177 + 1/-0 thickness of material to 2 mm		
	178 + 1/-0 thickness of material > 2 mm < 3 mm		

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Quality Products. Service Excellence.

Filterfan PF 42500-43000 / Exhaust Filter PFA 40000



Features

- Maintains a UL Tested NEMA Type 12 seal against enclosure
- UL Recognized to UL 508a, category NITW2/8, UL File #E175229
- CSA #246217
- Patented "Click & Fit" design provides a hardware free installation!
- Plastic made from strong, heat resistant (ABS-FR), UL 94 VO fire approved material
- Options: Black Grills

Part Number	Voltage	Power	Mating Exhaust Filter	Ship Wt. lbs.
PF42500T12LG	115V	20W	PFA40000LG	4
PF42500T12LG230	230V	18W	PFA40000LG	4
PF42500T12LG24	24V* DC	5W	PFA40000LG	4
PF43000T12LG	115V	40W	PFA40000LG	5
PF43000T12LG230	230V	39W	PFA40000LG	5
PF43000T12LG24	24V* DC	12W	PFA40000LG	5

Airflow data	PF 42500	PF 43000	PFA 40000
Filter material	NEMA Type 12 Filtermat	NEMA Type 12 Filtermat	NEMA Type 12 Filtermat
Unimpeded airflow	94 CFM	169 CFM	-
Cooling Dissipation (W)/°T	53 W/K	188 W/K	-
Airflow in combination	67 CFM	142 CFM	-
(Filterfan + Exhaust Filter)	(PF 42500 + PFA 40000)	(PF 43000 + PFA 40000)	
Capacity in combination	38 W/K	69 W/K	-
(Filterfan + Exhaust Filter)	(PF 43000 + PFA 40000)	(PF 43000 + PFA 40000)	
Max. static pressure (Airflow = 0 m3/h)	49 Pa	112 Pa	-
Filtration efficiency	91%	91%	91%
Filter material grade	G 4 (DIN EN 779)	G 4 (DIN EN 779)	G 4 (DIN EN 779)
Duty cycle	100%	100%	-

Technical data	PF 42500 AC / DC	PF 43000 AC / DC	PFA 40000
Outside dimensions in mm (height x width x installation depth)	252 x 252 x 97	252 x 252 x 113	252 x 252 x 38
Bearing type	ball bearings	ball bearings	-
Fitting position	any, horizontal airflow preferred		any
Construction	housing and guard of sprayed thermoplastic, self-extinguishing, UL 94 VO		
Weight	1.18 kg	1.67 kg	0.46 kg
Safety protection	in accordance with DIN 31 001		
Color	RAL 7035, Light Grey		
Connections	cage clamp	cage clamp	
Approval	NEMA Type 12, IP 55 (EN 60 529), when installed as specified		

Technical references and CAD downloads available at www.hammondmfg.com

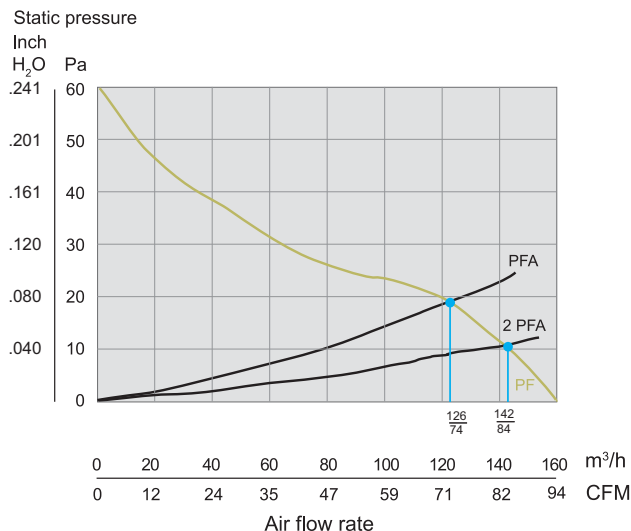
All dimensions in inches unless specified otherwise

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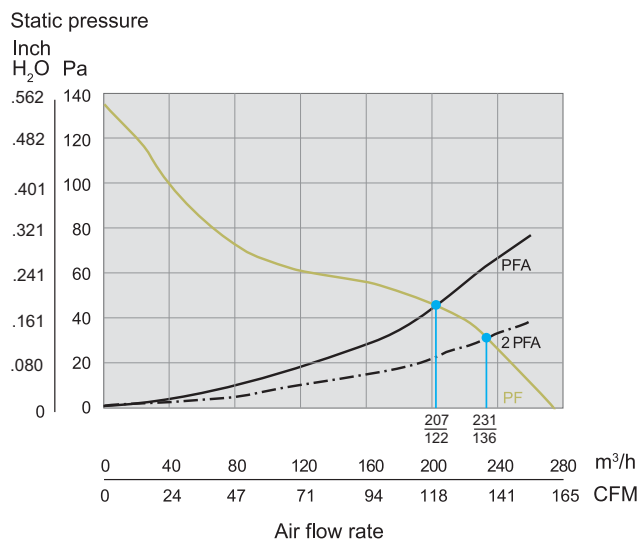
Filterfan PF 42500-43000 / Exhaust Filter PFA 40000

Airflow Data:

PF 42.500 IP55 / PFA 40.000 IP55

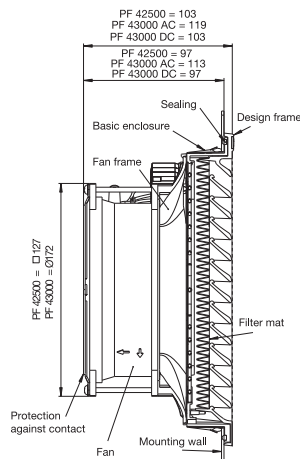


PF 43.000 IP55 / PFA 40.000 IP55

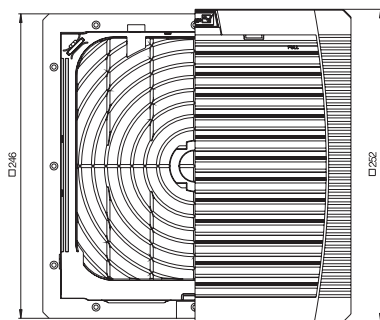


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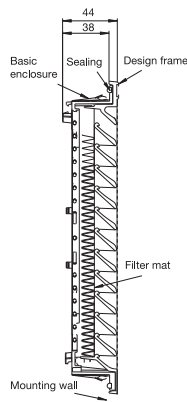
PF 42500, PF 43000



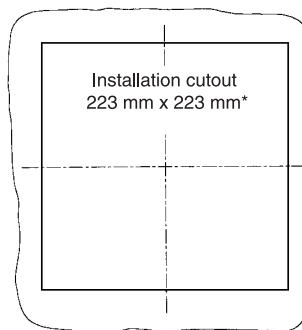
PF 42500 PF 43000, PFA 40000



PFA 40000



PF 42500, PF 43000 + PFA 40000



Climate Control

Supplementary data	PF 42500	PF 43000	PFA 40000
Operating temperature	- 15 °C (- 5 °F) to / bis + 55 °C (+ 131 °F)		
Storage temperature	- 20 °C (- 4 °F) to / bis + 70 °C (+ 158 °F)		
Max. relative humidity	90%		
System of protection	NEMA Type 12, IP 55 (EN 60 529), when installed as specified		
Basic Accessories	parts kit filter mat, user manual radiant heater, fan heater, thermostat, hygostat		
* Tolerance installation cutout	177 + 1/-0 thickness of material to 2 mm		
	178 + 1/-0 thickness of material > 2 mm < 3 mm		

Filterfan PF 65000, 66000, 67000 / Exhaust Filter PFA 60000



Features

- Maintains a UL Tested NEMA Type 12 seal against enclosure
- UL Recognized to UL 508a, category NITW2/8, UL File #E175229
- CSA #246217
- Patented "Click & Fit" design provides a hardware free installation!
- Plastic made from strong, heat resistant (ABS-FR), UL 94 VO fire approved material
- Options: Black Grills
Reverse Flow Exhaust

Part Number	Voltage	Power	Mating Exhaust Filter	Ship Wt. lbs.
PF65000T12LG	115V	90W	PFA60000LG	7.5
PF65000T12LG230	230V	150W	PFA60000LG	7.5
PF66000T12LG	115V	160W	PFA60000LG	8
PF66000T12LG230	230V	150W	PFA60000LG	8
PF67000T12LG	115V	95W	PFA60000LG	8
PF67000T12LG230	230V	214W	PFA60000LG	8

Airflow data	PF 65000	PF 66000	PF 67000	PFA 60000
Filter material	Type 12 Filtermat	Type 12 Filtermat	Type 12 Filtermat	Type 12 Filtermat
Unimpeded airflow	297 CFM	462 CFM	560 CFM	-
Cooling Dissipation (W)/°T	168 W/K / 168 W/K	257 W/K / 262 W/K	308 W/K / 317 W/K	-
Airflow in combination	224 CFM	295 CFM	368 CFM	-
(Filterfan + Exhaust Filter)	(PF 65000 + PFA 60000)	(PF 66000 + PFA 60000)	(PF 67000 + PFA 60000)	-
Capacity in combination	127 W/K	167 W/K	208 W/K	-
(Filterfan + Exhaust Filter)	(PF 65000 + PFA 60000)	(PF 66000 + PFA 60000)	(PF 67000 + PFA 60000)	-
Max. static pressure (Airflow = 0)	74 Pa	134 Pa	187 Pa	-
Filtration efficiency	91%	91%	91%	91%
Filter material grade	G 4 (DIN EN 779)	G 4 (DIN EN 779)	G 4 (DIN EN 779)	G 4 (DIN EN 779)
Duty cycle	100%	100%	100%	-

Technical data	PF 65000	PF 66000	PF 67000	PFA 60000
Outside dimensions in mm (height x width x installation depth)	320 x 320 x 150	320 x 320 x 150	320 x 320 x 150	320 x 320 x 39
Bearing type	ball bearings	ball bearings	ball bearings	-
Fitting position	any, horizontal airflow preferred	any	any	-
Construction	housing and guard of sprayed thermoplastic, self-extinguishing, UL 94 VO			
Weight	3.2 kg	3.2 kg	3.7 kg	0.7 kg
Safety protection	in accordance with DIN 31 001			
Color	RAL 7035, Light Grey			
Connections	cage clamp	cage clamp	cage clamp	-
Approval	NEMA Type 12, IP 55 (EN 60 529), when installed as specified			

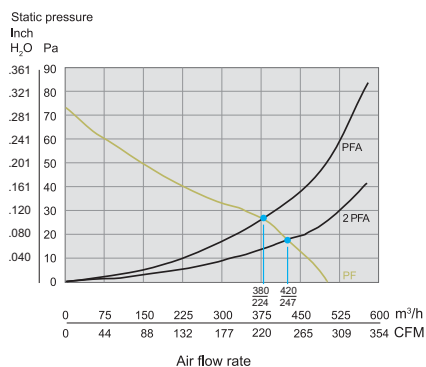
Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

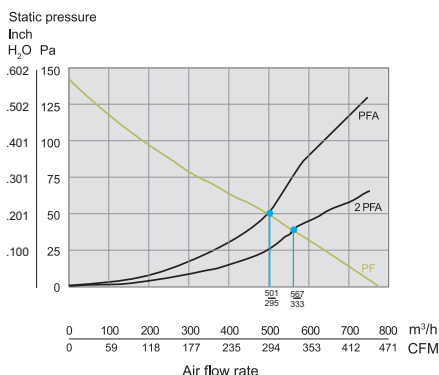
Filterfan PF 65000, 66000, 67000 / Exhaust Filter PFA 60000

Airflow Data:

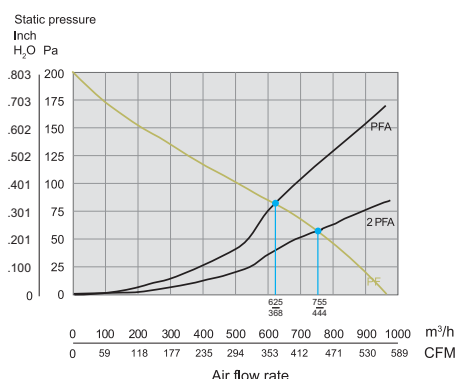
PF 65.000 IP55 / PFA 60.000 IP55



PF 66.000 IP55 / PFA 60.000 IP55

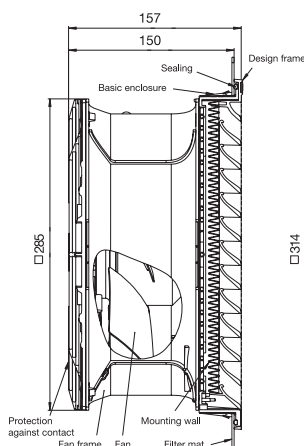


PF 67.000 IP55 / PFA 60.000 IP55

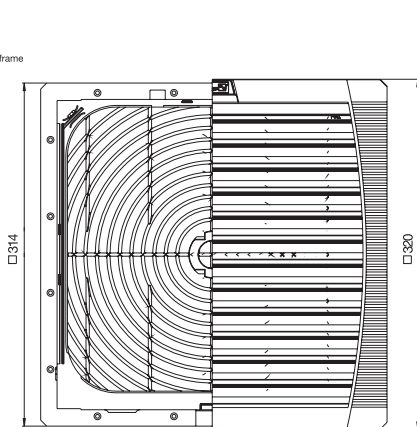


Mechanical Data:

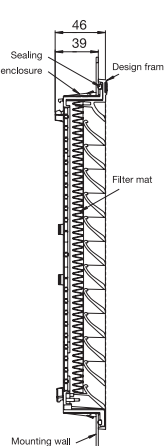
**PF 65000, PF 66000,
PF 67000**



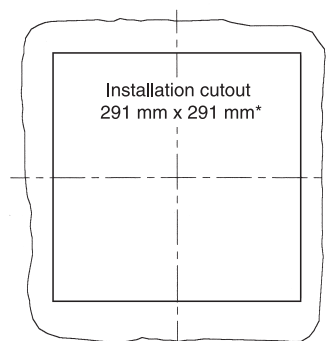
**PF 65000, PF 66000,
PF 67000 + PFA 60000**



PFA 60000



**PF 65000, PF 66000,
PF 67000 + PFA 60000**



Climate Control

Supplementary data	PF 65000	PF 66000	PF 67000
Operating temperature	- 15 °C (- 5 °F) to / bis + 55 °C (+ 131 °F)		
Storage temperature	- 20 °C (- 4 °F) to / bis + 70 °C (+ 158 °F)		
Max. relative humidity	90%		
System of protection	NEMA Type 12, IP 55 (EN 60 529), when installed as specified		
Basic Accessories	parts kit filter mat, user manual radiant heater, fan heater, thermostat, hygostat		
* Tolerance installation cutout	177 + 1/-0 thickness of material to 2 mm 178 + 1/-0 thickness of material > 2 mm < 3 mm		

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Quality Products. Service Excellence.

Filterfan PTF 60500, 60700, 61000 / Exhaust Filter PTFA 60000



Features

- Maintains a NEMA 12 seal against enclosure
- UL Recognized to UL 508a, category NITW2/8, UL File #E175229
- Patented “Click & Fit” design provides a hardware-free installation!
- Metal Pagoda Cover for rugged environments, easily painted to match machine color
- Fan Motor is CSA Approved

Part Number	Voltage	Power	Mating Exhaust Filter	Ship Wt. lbs.
PTF60500LG	115V	24W	PFA60000LG	14
PTF60500LG230	230V	24W	PFA60000LG	14
PTF60700LG	115V	90W	PFA60000LG	14
PTF60700LG230	230V	80W	PFA60000LG	14
PTF61000LG	115V	170W	PFA60000LG	15
PTF61000LG230	230V	150W	PFA60000LG	15

Airflow data	PTF 60500	PTF 60700	PTF 61000	PTFA 60000
Filter material	NEMA 12 Filtermat	NEMA 12 Filtermat	NEMA 12 Filtermat	NEMA 12 Filtermat
Unimpeded airflow	226 CFM	356 CFM	485 CFM	-
Cooling Dissipation (W)/°T	113 W/K	177 W/K	242 W/K	-
Airflow in combination	149 CFM	227 CFM	304 CFM	-
(Filterfan + Exhaust Filter)	(PTF 60500 + PFA 60000)	(PTF 60700 + PFA 60000)	(PTF 61000 + PFA 60000)	-
Capacity in combination	74 W/K	113 W/K	152 W/K	-
(Filterfan + Exhaust Filter)	(PTF 60500 + PFA 60000)	(PTF 60700 + PFA 60000)	(PTF 61000 + PFA 60000)	-
Max. static pressure (Airflow = 0)	71 Pa	88 Pa	158 Pa	-
Filtration efficiency	81%	81%	81%	-
Filter material grade	G 3 (DIN EN 779)	G 3 (DIN EN 779)	G 3 (DIN EN 779)	-
Duty cycle	100%	100%	100%	-

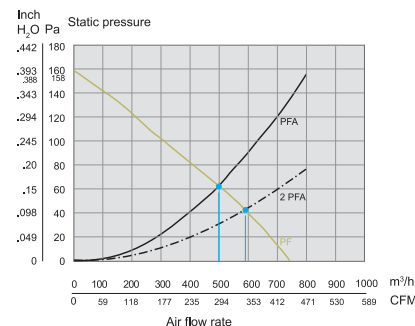
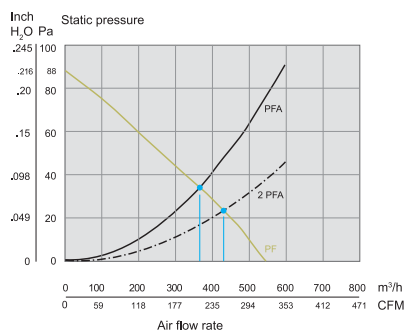
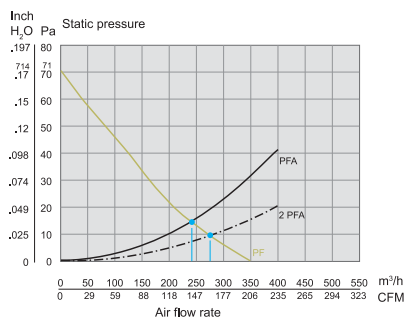
Technical data	PTF 60500	PTF 60700	PTF 61000	PTFA 60000
Outside dimensions in mm (height x width x installation depth)	125 x 430 x 430 x 50	140 x 470 x 470 x 50	140 x 470 x 470 x 50	-
Bearing type	ball bearings	ball bearings	ball bearings	-
Fitting position	horizontal	horizontal	horizontal	any
Construction	metal chassis cover powder coated, snap-in plastic housing			
Weight	5.5 kg	5.8 kg	6.0 kg	3.1 kg
Safety protection	in accordance with DIN 31 001			
Color	RAL 7035, Light Grey			
Connections	terminal strip	terminal strip	terminal strip	-
Approval	NEMA Type 12, IP 55 (EN 60 529), when installed as specified			

Technical references and CAD downloads available at www.hammondmfg.com

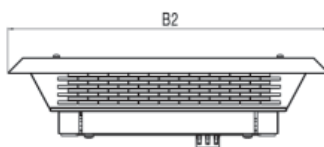
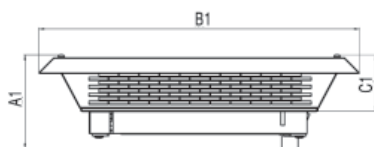
All dimensions in inches unless specified otherwise

Filterfan PTF 60500, 60700, 61000 / Exhaust Filter PTFA 60000

Airflow Data:

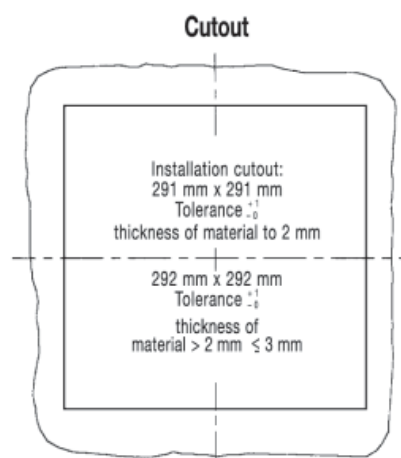


Mechanical Data:



	PTF 60500	PTF 60700	PTF 61000	PTFA 60000
A1	125	140	140	110*
B1/B2	430	470	470	430
C1	75	90	90	75

Airflow data:	PTFA 60000
Filter material	P 300
Filtration efficiency	81%
Filter material grade (DIN EN 779)	G 3



Climate Control

Technical data:	PTFA 60000
Outside dimensions in mm (Height x Width x Depth x Installation depth)	110 x 430 x 430 x 35
Construction	metal chassis, cover powder-coated; snap-in body of sprayed thermoplastic (ABS-FR) self-extinguishing, UL 94 VO
Weight	3.1 kg
Safety protection	in accordance with DIN 31 001
Color	RAL 7035, RAL 7032, other colors on request

Supplementary data:	PTFA 60000
Operating temperature	-10 C (+14 F) to +55 C (+131 F)
Storage temperature	-20 C (-4 F) to +70 C (+158 F)
Max. relative humidity	90%
System of protection	IP 33, IP 54 (EN 60 529), when installed as specified
Accessories	radiant heater, fan heater, thermostat, see Thermal Management
Tolerance installation cutout	291 thickness of material to 2 mm, 292 thickness of material > 2 mm < 3mm

Slimline Filterfan PF 33000, 65000, 67000 SL



Features

- Low installation depth
- Maintains a UL Tested NEMA Type 12 seal against enclosure
- UL Recognized to UL 508a, category NITW2/8, UL File #E175229
- CSA #246217
- Patented "Click & Fit" design provides a hardware free installation!
- Plastic made from strong, heat resistant (ABS-FR), UL 94 VO fire approved material
- Options: Black Grills
Reverse Flow Exhaust

Part Number	Voltage	Power	Mating Exhaust Filter	Ship Wt. lbs.
PF33000T12LGSL	115V	20W	PFA30000LG	4
PF33000T12LGSL2	230V	19W	PFA30000LG	4
PF330DCT12LGSL2	24V DC	5W	PFA30000LG	4
PF65000T12LGSL	115V	80W	PFA60000LG	8
PF65000T12LGSL2	230V	80W	PFA60000LG	8
PF67000T12LGSL	115V	120W	PFA60000LG	10
PF67000T12LGSL2	230V	127W	PFA60000LG	10
PF67000T12LGSL4	400V/460V	110W	PFA60000LG	10

Airflow data	PF 33000 SL	PF 65000 SL	PF 67000 SL
Filter material	Type 12 Filtermat	Type 12 Filtermat	Type 12 Filtermat
Unimpeded airflow	297 CFM	462 CFM	560 CFM
Cooling Dissipation (W)/°T	168 W/K	262 W/K	317 W/K
Airflow in combination	230 CFM	295 CFM	368 CFM
(Filterfan + Exhaust Filter)	(PF 33000 + PFA 30000)	(PF 65000 + PFA 60000)	(PF 67000 + PFA 60000)
Capacity in combination	127 W/K	167 W/K	208 W/K
(Filterfan + Exhaust Filter)	(PF 33000 + PFA 30000)	(PF 65000 + PFA 60000)	(PF 67000 + PFA 60000)
Max. static pressure (Airflow = 0)	74 Pa	134 Pa	187 Pa
Filtration efficiency	91%	91%	91%
Filter material grade	G 4 (DIN EN 779)	G 4 (DIN EN 779)	G 4 (DIN EN 779)
Duty cycle	100%	100%	100%

Technical data	PF 33000SL	PF 65000SL	PF 67000SL
Outside dimensions in mm (height x width x installation depth)	202 x 202 x 87	320 x 320 x 124	320 x 320 x 127
Cut Out Dimension	177 x 177	291 x 291	291 x 291
Bearing type	ball bearings	ball bearings	ball bearings
Fitting position	any, horizontal airflow preferred		any
Construction	housing and guard of sprayed thermoplastic, self-extinguishing, UL 94 VO		
Weight	3.2 kg	3.2 kg	3.7 kg
Safety protection	in accordance with DIN 31 001		
Color	RAL 7035, Light Grey		
Connections	cage clamp	cage clamp	cage clamp
Approval	NEMA Type 12, IP 55 (EN 60 529), when installed as specified		

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Filterfan Accessories

Exhaust Filters:



Part Number	Filtration Efficiency %
PFA10000LG*	88%
PFA20000LG	91%
PFA30000LG	91%
PFA40000LG	91%
PFA60000LG	91%

* Standard grill color: RAL 7035 Light Grey

Features

- Maintains a UL Tested NEMA Type 12 seal against enclosure
- UL Recognized to UL 508a, category NITW2/8, UL File #E175229
- CSA #246217
- Patented "Click & Fit" design provides a hardware free installation!
- Plastic made from strong, heat resistant (ABS-FR) UL 94 VO fire approved material

Replacement Filters:



Part Number	Use with 4th Gen FF
PFF10000*	PF/PFA 1XXXX
PFF20000	PF/PFA 2XXXX
PFF30000	PF/PFA 3XXXX
PFF40000	PF/PFA 4XXXX
PFF60000	PF/PFA 6XXXX

* Standard synthetic fiber filter.

Features

- Special patent pending fluted filter design increases the time between maintenance by 3X.
- Allows for greater CFM in dirty environments
- Sold in Packs of 5.

Climate Control

PF Filter Fans



PF3000 and PF2000

Description

- This line of fans provides innovative technology for fan cooling and pressurizing of industrial cabinets. A high quality filter fan provides an economical method of ensuring your enclosure does not overheat.
- Filtered passive ventilation can be provided by an exhaust filter for either convection cooling or in combination with a fan in forced air cooling.
- The slim-line design of this fan line is unique, when installed, the front louvered grill protrudes less than one quarter inch. The attractive grill maintains the sleek aesthetics of an enclosure system.

Standards

- UR, CUR and CE.
- Built to IP54 standards (except PF1000/PFA1000 - IP43 standards).
- Maintains NEMA 12 integrity of enclosure.
- Fan CSA Listed.

Features

- Available in 115V and 230V versions
- High performance fan motors with finger guards.
- ABS-FR grills (except PF1000 Series which is polystyrene FR).
- Durable, reusable filter mat.
- Grills are black allowing for a complementary match to all cabinet colors.
- Integral gasket to seal against enclosure. (except PF1000 - use PFG1000)

Easy Installation

- The patented "Click and Fit" system allows for rapid filter fan and exhaust filter installation without screws.
- After using the convenient cutout template (provided with every unit), the fan and/or exhaust filter just snaps into the opening.

Options

- Reverse flow (exhaust) available on 5,6,7000 models

Accessories

- Exhaust filters...see page 385
- Replacement grills...see page 385
- Replacement filters...see page 385

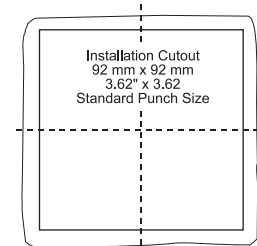
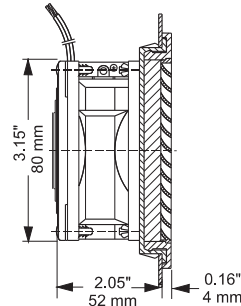
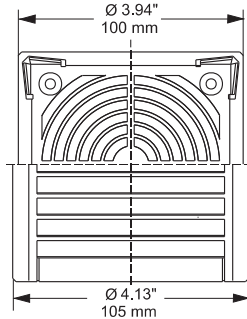
Part No.	Voltage	Free Flow Air Delivery (CFM)	Air Delivery w/Exhaust (CFM)	Max. Static Pressure (Pa)	Filter Density (g/m ²)	Filtering Level	Sound Level (dB)	Connector Type	Ambient Temp. °F Max/Min	Comparable IP Standard	Ship Wt. lbs
PF1000	115	16	10	29	150	73%	39	2 - 12" wires	140/14	IP43	1.5
PF2000	115	38	28	69	150	73%	49	terminal strip	122/14	IP54	2
PF2500	115	89	62	57	150	73%	55	terminal strip	122/14	IP54	4
PF3000	115	169	142	89	150	73%	55	terminal strip	122/14	IP54	4
PF5000	115	324	249	205	150	73%	69	terminal strip	122/14	IP54	7
PF6000	115	410	295	225	150	73%	71	terminal strip	122/14	IP54	8
PF7000	115	506	368	158	150	73%	72	terminal strip	122/14	IP54	8
PF1000230	230	16	10	29	150	73%	39	2 - 12" wires	140/14	IP43	1.5
PF2000230	230	38	28	69	150	73%	49	terminal strip	122/14	IP54	2
PF2500230	230	89	62	57	150	73%	55	terminal strip	122/14	IP54	4
PF3000230	230	169	142	89	150	73%	55	terminal strip	122/14	IP54	4
PF5000230	230	324	249	205	150	73%	69	terminal strip	122/14	IP54	7
PF6000230	230	410	295	225	150	73%	71	terminal strip	122/14	IP54	8
PF7000230	230	506	368	158	150	73%	72	terminal strip	122/14	IP54	8

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

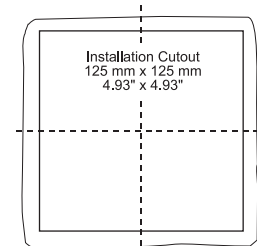
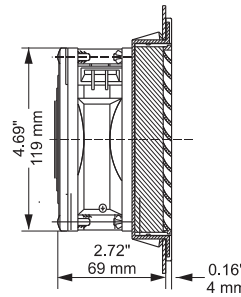
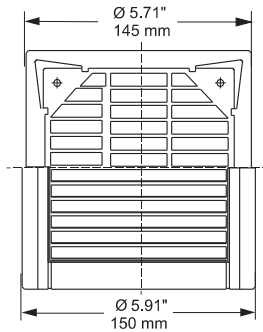
PF Filter Fans

Mechanical Data: PF 1000



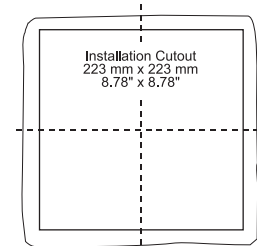
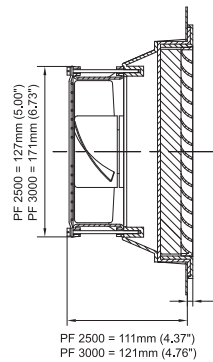
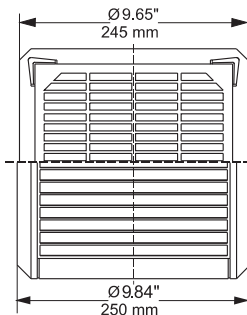
Installation Cutout

PF 2000



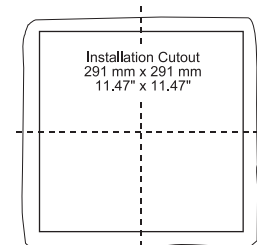
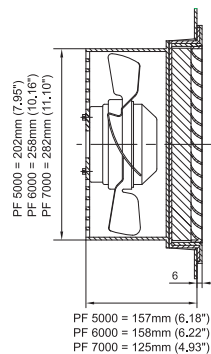
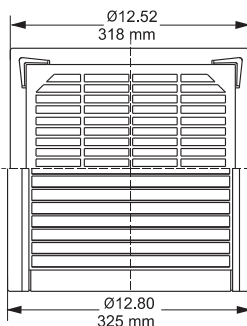
Installation Cutout

PF 2500 & 3000



Installation Cutout

PF 5000, 6000 & 7000



Installation Cutout

Note: All cutout tolerances +1/- 0 mm

Climate Control

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Fan Accessories



Exhaust Filters

- Built to IP54 standards (except PFA1000 - IP43 standards).
- ABS-FR grills (except PF1000 Series which is polystyrene FR).
- Grills are black to complement all cabinet colors.
- Grills also available (see below)
- Integral gasket seals against enclosure.

Part No.	Filter Density (g/m ²)	Filtering Level	Comparable IP Standard
PFA1000	150	73%	IP43
PFA2000	150	73%	IP54
PFA3000	150	73%	IP54
PFA5000	150	73%	IP54



Replacement Grill

- Packaged individually.
- Consists of replacement grill only.

Black Part No.	RAL7032 Beige Part No.	Use With Filter Fan	Use With Exhaust Filter
PG1BK	PG1RAL	PF1000	PFA1000
PG2BK	PG2RAL	PF2000	PFA2000
PG3BK	PG3RAL	PF2500/PF3000	PFA3000
PG5BK	PG5RAL	PF5000/PF6000/PF7000	PFA5000



Replacement Filters

- Packaged in quantities of 5.

Part No.	Dimensions			Use With Filter Fan	Filter Density (g/m ²)
		A	B		
PFF1000	inch mm	3.40 85	3.40 85	PF1000	150
PFF2000	inch mm	4.50 115	4.50 115	PF2000	350
PFF3000	inch mm	8.30 210	8.30 210	PF2500/PF3000	350
PFF5000	inch mm	11.00 280	11.00 280	PF5000/PF6000/PF7000	350

Call Hammond for other Cooling Solutions....

- Integral Door Air Conditioners
- Air/Water Heat Exchangers
- Custom Air/Air Heat Exchangers
- EMC Filter Fans
- other customer cooling solutions

Filterfan Rainhoods - NEMA 3R



Application

- Type 3R / Outdoor Rainhoods
- Protection against rain and snow or large airborne debris
- Sold individually

Features

- Easy installation
- Covers many external mounted Fans & Grills
- Fits PF2000/PF22000 thru PF5/6/7000 series Filterfans
- Tamperproof hardware and sealing gasket provided

Standards

- UL -50 type 3R file # E65324
- CSA C22.2 #94 file # LR21001

Finish

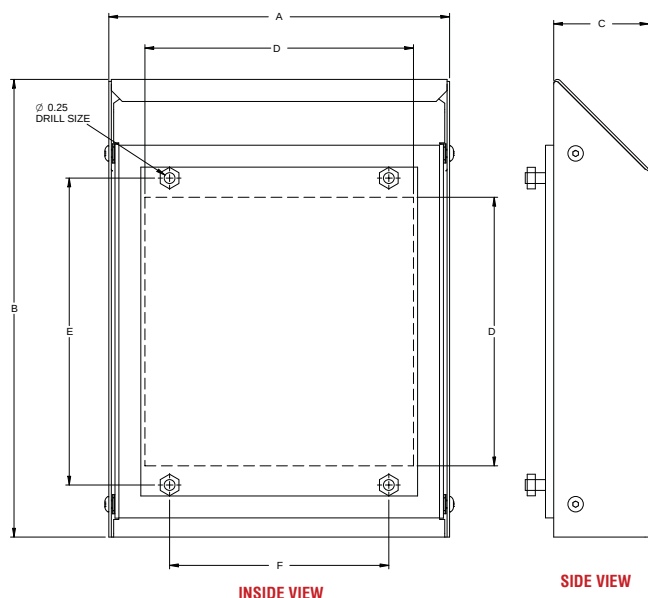
- Cover offered in ANSI61 gray or RAL7035 light gray powder coated finish on mild steel. Type 304 SS on stainless models.
- Base in Galvanized sheet steel

Accessories

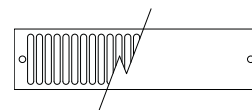
- Grill/Solid Cover Kit (see below)



Part Number	Use with	Finish
RH20000GY	PF2000/PF22000 Series	ANSI 61 Gray
RH20000LG	PF2000/PF22000 Series	RAL7035
RH20000SS	PF2000/PF22000 Series	Stainless Steel
RH40000GY	PF25, 30, 32, 43000 Series	ANSI 61 Gray
RH40000LG	PF25, 30, 32, 43000 Series	RAL7035
RH40000SS	PF25, 30, 32, 43000 Series	Stainless Steel
RH60000GY	PF5,6,7000, 65, 67000 Series	ANSI 61 Gray
RH60000LG	PF5,6,7000, 65, 67000 Series	RAL7035
RH60000SS	PF5,6,7000, 65, 67000 Series	Stainless Steel



Grill/Solid Cover Kit



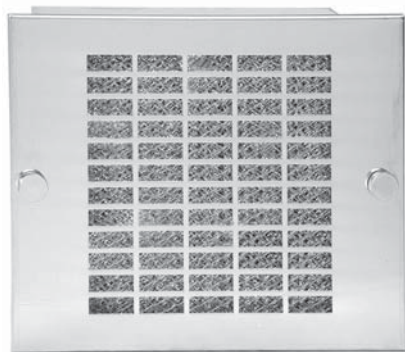
Features

- Can be installed in bottom opening of rain hood
- Grill allows ventilation while preventing unwanted entry of large contaminants
- Solid cover allows sealing of opening when fan/filter not in use

Part Number	Use With	Finish
RHA20000G	RH20000GY,LG,SS	Galvanized Steel
RHA40000G	RH40000GY, LG, SS	Galvanized Steel
RHA60000G	RH60000GY,LG, SS	Galvanized Steel

Series	Overall Dimensions			Cut-out		Bolt Pattern	
	A	B	C	D	E	F	
RH20000	7.77	10.44	2.17	6.12	7.00	5.00	
RH40000	11.71	14.57	3.35	10.12	11.00	9.00	
RH60000	14.66	15.88	4.33	13.00	13.88	12.00	

Filtered Fan Boxes and Filter Grills



Filtered Fan Box



Filter Grill

Description

- In a typical cooling arrangement, the filtered fan box pulls air into the enclosures and the filter grill is used as an air outlet.
- The washable aluminum filter grill and the air filter are easily accessible and can be removed for cleaning.
- The filtered fan boxes are available in either 115 VAC or 230 VAC, 50/60 Hz.
- Filtered passive ventilation can be provided by an exhaust filter for either convection cooling or in combination with a fan in forced air cooling.

Standards

- UL recognized, CSA certified, CE approved fans/motors

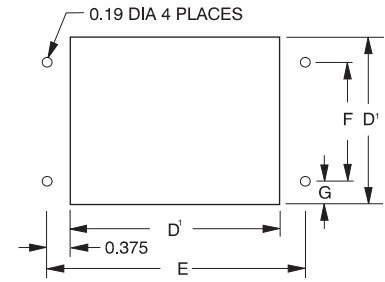
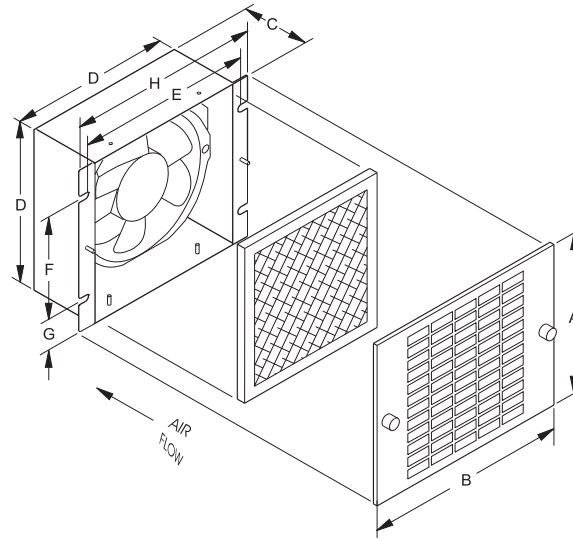
Features

- 115 VAC or 230 VAC, 50/60 Hz.
- 10" lead wires.
- Exceptionally quiet operation.
- Versatile mounting and adaptability.
- Heavy-gauge steel construction.
- Attractive stainless steel grills.
- Shipped with air flow to pressurize. Can be user modified to exhaust.
- Aluminum filter is coated with adhesive baffle surfaces for dust and dirt collection. Can be recoated after cleaning for optimum performance.
- Drilling template included.
- NOTE: One grill and filter are included with each fan package. Normally, an additional exhaust grill and filter are required for each installation and must be ordered separately.

Accessories

- Filter coat...see page **388**
- Replacement Filter...see page **388**

Filtered Fan Boxes and Filter Grills



Cutout Detail

Filtered Fan Boxes

Part No.	Free Flow Air Delivery CFM	Volts	RPM Nominal	Running Amps	Watts	A	B	C	D	D ¹	E	F	G	H	Ship Wt. lbs
XF4115	105	115	3000	0.24	22	6.13	7.38	2.38	5.63	5.75	6.5	4.13	0.81	7.0	5
XF4230	105	230	3000	0.13	21	6.13	7.38	2.38	5.63	5.75	6.5	4.13	0.81	7.0	5
XF6115	220	115	3400	0.54	42	7.63	8.88	3.00	7.13	7.25	8.0	4.50	1.34	8.5	6
XF6230	220	230	3400	0.28	46	7.63	8.88	3.00	7.13	7.25	8.0	4.50	1.34	8.5	6
XF10115	550	115	1650	0.24	33	11.63	13.00	4.56	11.13	11.25	12.0	6.88	2.16	12.5	12
XF10230	550	230	1650	0.14	33	11.63	13.00	4.56	11.13	11.25	12.0	6.88	2.16	12.5	12

Exhaust Grill and Filters

Part No	A	B	D	E ¹	F ¹	H ¹
XFG4	6.13	7.38	5.63	6.38	4.13	7.00
XFG6	7.63	8.88	7.13	7.88	4.50	8.50
XFG10	11.63	13.00	11.13	11.88	6.88	12.50

Replacement Filters

Part No	Pkg. Qty.
XFF4	3
XFF6	3
XFF10	3

¹ Dimension for mounting and cabinet cutout. Secure sheet metal with #8 hardware.



Filter Coat

- Provides a filter adhesive with a grease-like consistency which absorbs and traps dust particles.
- 10 oz. bottle with environmentally friendly trigger spray.

Part No. **1475Q**

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Blowers and Fans

General Selection Considerations

General Specifications

All Hammond blowers and filter fans are engineered for performance and built for reliability. This versatile line includes a blower, fan tray and filter fans.

Blowers and fans use forced convection cooling, which means ambient air flows through a filter into the enclosure to cool heated components. Both blowers and fans are sized in CFM (cubic feet per minute).

It is recommended that an exhaust filter be used in combination with the blower or filter fan to act both as an exhaust point for the hot internal air plus aid in the pressurization of the enclosure, reducing the chance of unfiltered air entering the enclosure. Whenever possible, the blower or filter fan should be located in the bottom third of the enclosure and the filtered exhaust grill placed as high as possible on the opposing side. Performance levels can be further increased by adding a second exhaust filter.

Sizing Blowers and Fans

To determine the CFM (cubic feet per minute) required in any standard situation, use the following calculation, (non-standard situations would consist of high air density - significantly more than 0.075 lbs per cubic foot.)

$$\text{CFM} = \frac{\text{Power to be dissipated (Watts)} \times 3.17}{\text{Maximum Allowable Internal Temperature (°F)} - \text{Maximum Ambient Temperature (°F)}}$$

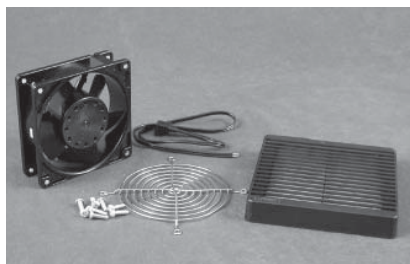
Note - The calculation above is exact, but adding an additional 25% to the CFM level is a standard safety factor.

If the air density is high (significantly more than 0.075 lbs per cubic foot), use the number calculated above in the following formula:

$$\frac{\text{CFM} \times (0.075)}{\text{Non-standard Air Density (lbs per cubic foot)}}$$

Note: Ambient Temperature must be lower than maximum internal temperature for fan/blower to be effective.

Filter Fan Kits



- Easy to order kit - one part number (save time & cost)
- Kit includes: Fan, plastic filter grill, filter, metal grill, cord & mounting hardware (as shown).
- Flame retardant, ABS plastic filter fan grill is molded in a choice of four colors to match our racks & accessories. "BK" (Black), "CG" (Gray/Beige - RAL7032), "GY" (ANSI 61 Gray) or "LG" (Light Gray - RAL7035).

115 VAC (50/60 Hz)

Part Number	Fan Size	Fan CFM	Cord	Filter Grill Color
DNFF080BK115	3.15" (80mm)	32	11" leads	Black
DNFF080CG115	3.15" (80mm)	32	11" leads	Gray/Beige
DNFF080GY115	3.15" (80mm)	32	11" leads	ANSI Gray
DNFF080LG115	3.15" (80mm)	32	11" leads	Light Gray
DNFF120BK115	4.7" (120mm)	105	24" cord	Black
DNFF120CG115	4.7" (120mm)	105	24" cord	Gray/Beige
DNFF120GY115	4.7" (120mm)	105	24" cord	ANSI Gray
DNFF120LG115	4.7" (120mm)	105	24" cord	Light Gray

230 VAC (50/60 Hz)

Part Number	Fan Size	Fan CFM	Cord	Filter Grill Color
DNFF080BK230	3.15" (80mm)	32	11" leads	Black
DNFF080CG230	3.15" (80mm)	32	11" leads	Gray/Beige
DNFF080GY230	3.15" (80mm)	32	11" leads	ANSI Gray
DNFF080LG230	3.15" (80mm)	32	11" leads	Light Gray
DNFF120BK230	4.7" (120mm)	105	24" cord	Black
DNFF120CG230	4.7" (120mm)	105	24" cord	Gray/Beige
DNFF120GY230	4.7" (120mm)	105	24" cord	ANSI Gray
DNFF120LG230	4.7" (120mm)	105	24" cord	Light Gray

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Fan Kits



Filter Fan Grills

- Mounts easily with 4 screws using the template provided.
- All mounting hardware included.
- Standard 80mm/3.15" and 120mm/4.70" fans can be attached with hardware provided to make a filter fan.
- Can be used alone as an enclosure exhaust.
- Moulded in flame retardant ABS.
- Synthetic filter supplied.
- Integral gasket on reverse of grill seals against enclosure surface.
- Available in black, RAL7035 light gray, RAL7032 beige and ASA61/ RAL7011 gray to match enclosures.

Accessories

- Spare hardware kit, Part No. **1421F4**

Black Part No.	Beige Part No.	Gray Part No.	Light Gray Part No.	H	W	Optional Compatible Fan Part No.	Size	CFM	Repl. Filter (pkg. 5)
XPFA80BK	XPFA80CG	XPFA80GY	XPFA80LG	4.13	4.13	FAN80AC115	80mm/3.15"	32	PFF1000
XPFA120BK	XPFA120CG	XPFA120GY	XPFA120LG	5.91	5.91	DNMF100AC115	120mm/4.70"	102	PFF2000

AC Fans and Guards



Fan Cords and Daisy Chains (10 amp, 115V)

Part No.	Description	Lead Length (In)	Connector	Fan End Termination
DNMFC	Fan Cord	24"	45°	none
DNFC48P	Fan Cord	48"	45°	2 pin 115V plug
DNFC72P	Fan Cord	72"	45°	none
DNFCDC2P	Daisy Chain	24"	2x45°, 12" apart	2 pin 115V plug
DNFCDC3P	Daisy Chain	24"	3x45°, 12" apart	none

Part No.	Size(mm)	Size (In.)	CFM	AC Voltage	Use Fan Guard	Use Filter Fan Grill
FAN80AC115	80	3.15	32	115	FAN80FG	XPFA80... ¹
FAN80AC230	80	3.15	32	230	FAN80FG	XPFA80... ¹
DNMF100AC115	120	4.70	105	115	DNFG	XPFA120... ¹
DNMF100AC230	120	4.70	105	230	DNFG	XPFA120... ¹
FAN150AC115	150	6.00	220	115	FAN150FG	n/a
FAN150AC230	150	6.00	220	230	FAN150FG	n/a
FAN10A115	255	10.00	550	115	FAN10FG	n/a
FAN10A220	255	10.00	550	230	FAN10FG	n/a

¹"..." specify color - BK (black), CG (RAL 7032), LG (RAL 7035) or GY (ASA61 gray)

UL recognized, CSA listed, CE certified

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

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Fan Tray

300, 600 and 900 CFM



Description

- Rack mount fan trays provide a compact, economical solution for cooling in electronic cabinets.
- Fan trays can be positioned at the bottom of an enclosure to force air through the cabinet, at the top to exhaust air out of the cabinet or below specific pieces of equipment for spot cooling.

Standards

- cULus recognized.

Features

- 300, 600 and 900 CFM sizes.
- 115VAC, 50/60Hz.
- 19" panel width mounting.
- Low profile 1.75" (1U) height.
- 600 and 900 CFM units include removable rear support brackets.
- Circuit breaker protected.
- 6 foot 14/3 SJTW cord with molded 3 prong plug.
- Thermally protected, ball bearing fans.
- Integral finger guards above and below fans.
- Shipped fully assembled.
- Available with or without ON/OFF switch.

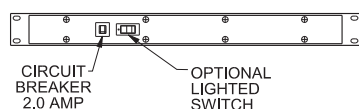
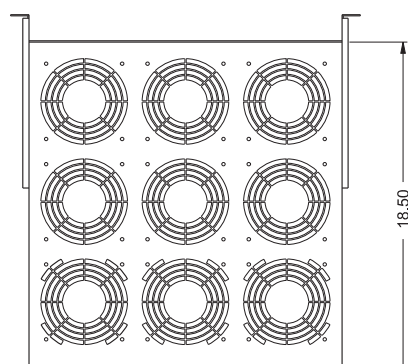
Finish

- Stocked in textured, black body finish.
- Textured black face panel.

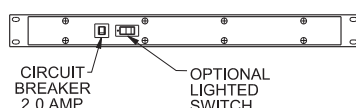
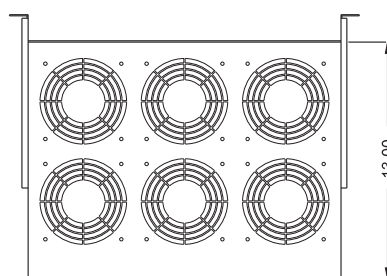
Options

- Contact Hammond for information on:
 - 24" panel width mounting.
 - 230 V version (with IEC 320-C14 INLET).
 - 15 foot cord
 - Optional colors

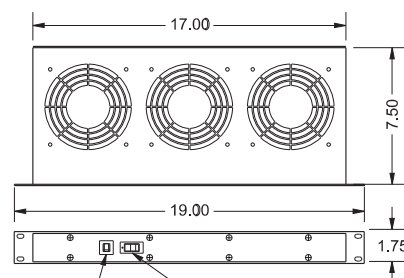
Climate Control



FT900HA1BK



FT600HA1BK

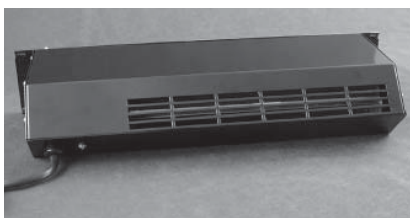


FT300HA1BK

Note: All cad drawings are shown with optional lighted switch. All units are also available without switch - see chart below.

Without Switch Part No.	With Lighted Switch Part No.	CFM	Running Amps	Watts	Panel Width	Case Width	Case Depth	Rear Bracket Depth	
								Min.	Max.
FT300TA1BK	FT300HA1BK	300	0.55	45	19	17.00	7.50	n/a	n/a
FT600TA1BK	FT600HA1BK	600	1.10	90	19	17.00	13.00	2.40	19.20
FT900TA1BK	FT900HA1BK	900	1.70	140	19	17.00	18.50	7.90	24.70

Blowers and Fan Panels



Packaged Blowers - Intake

- Standard 19" rack mount
- Each unit contains a dual centrifugal blower, powered by a single precision ball-bearing motor (except HB2160A which is traverse flow).
- Air delivery from more than 50% of their 17" width
- Internal neoprene isolation mounts reduce transmission of vibration to the rack
- Air intake only, to pressurize the rack with filtered air
- Heavy steel construction
- Attractive 19" stainless steel grille included

- 115 VAC, 50/60Hz motor is UL recognized, CSA certified, ball bearing type, cooled by incoming air
- Includes permanent filter (replacement filters available below)
- Comes with 6' STJW 3- wire cord
- Control your rack temperature with our economical, compact thermostat

Accessories

- Filter coat...see page **388**

Part No.	Voltage	Frequency	Free Flow Air Delivery (CFM)	RPM Nominal	Panel Height	Mounting Width	Body Width	Overall Depth	Air Delivery Width	Replacement Filter	Ship Wt. lbs
HB2160A	115 Vac	50 / 60 Hz	145 / 125	2500 / 3000	2U - 3.50	19.00	17.10	6.75	11.75	HB2UFILTER	10
HB3250A	115 Vac	50 / 60 Hz	155 / 200	2750 / 3000	3U - 5.25	19.00	17.25	7.75	4.60 (2x)	HB3UFILTER	15
HB4500A	115 Vac	50 / 60 Hz	405 / 465	2750 / 3300	4U - 7.00	19.00	17.25	10.00	4.60 (2x)	HB4UFILTER	21



Fan Panel Assembly

- 3U 19" Rack Mount Fan Panel
- Target hot-spots
- 4.7" Fans with grill
- Includes 24" power cable
- Black powder coated

Part Number	Description
PPGPFPA	Two (2) Fans - (Total 210 CFM, 60 dBA)
FP3F115	Three (3) Fans - (Total 315 CFM, 60 dBA)

Heating Products

General Information and Sizing

General Information

Heating products protect electronic and electrical components from temperature problems that are below acceptable tolerances. There are obvious circumstances when extremely low ambient (outside cabinet) temperatures would require a heater, but there are also less apparent times that a heater should be considered. For example, a system may run all day having its components generate heat, but once the system shuts down for the night, the quick drop in temperature could cause condensation and possibly corrosion - a heater could maintain a safe, constant temperature.

Combined Cooling and Heating

Some components today are sensitive enough that both cooling and heating could be required in the same enclosure. When designing your system, be aware of the need to maintain a relatively constant temperature inside the enclosure as ambient temperatures swing from cool to very hot. Hammond thermostats (one for heaters and one for cooling products) can control both systems automatically.

Heater Sizing Information

P_H	=	Total power required for this application (W)
P_V	=	Existing power from components (W)
DT	=	Temperature differential (Kelvin) ambient to cabinet interior (1°Kelvin = 1°C = 1.8°F)
A	=	Free-standing cabinet surface area (ft ²)
k	=	Heat transmission coefficient (W/ft ² K) convection in quiet air:
		Painted steel approx. 0.51 W/ft ² K
		Aluminum approx. 1.115 W/ft ² K
		Plastic approx. 0.325 W/ft ²
		Stainless Steel approx. .344 W/ft ²

Formula

$$P_H = (DT \times k \times A) - P_V$$

If enclosure located **outside**, use **x2** (DT x k x A)

Sample with solution:

$$\begin{aligned}
 DT &= 10K \\
 k &= \text{Painted steel} = 0.51 \text{ W/ft}^2 \text{ K} \\
 A &= 50 \text{ ft}^2 \\
 P_V &= 45 \text{ W} \\
 P_H &= (10 \times 0.51 \times 45) - 50 \\
 &= 229.5 - 50 \\
 &= 179.5 \text{ W}
 \end{aligned}$$

Recommend: FLHTF200A115



Fan Heater with Thermostat

- Designed to prevent condensation or maintain minimum temperature in enclosures.
- Built in Thermostat. (-18 C to +38 C) (0 F to +100 F)
- Fan Auto/On switch with pilot light for Heat On indication
- 20 CFM airflow
- High temperature safety protection
- Aluminum alloy outer casing
- Connection via terminal block.



Part No.	Watts	Voltage	Hz	Overall Dimensions Height x Width x Depth	Ship Wt. lbs
FLHTF125A115	125 W	120 V	60	5.5" x 4.0" x 5.3"	2.2
FLHTF125A230	105/125 W	220/240 V	50/60	5.5" x 4.0" x 5.3"	2.2
FLHTF200A115	200 W	120 V	60	5.5" x 4.0" x 5.3"	2.2
FLHTF200A230	165/200 W	220/240 V	50/60	5.5" x 4.0" x 5.3"	2.2
FLHTF400A115	400 W	120 V	60	7.5" x 4.0" x 5.3"	3.0
FLHTF400A230	335/400 W	220/240 V	50/60	7.5" x 4.0" x 5.3"	3.0
FLHTF800A115	800 W	120 V	50	7.5" x 4.0" x 5.3"	3.0
FLHTF800A230	670/800 W	220/240 V	50/60	7.5" x 4.0" x 5.3"	3.0

Heating Products



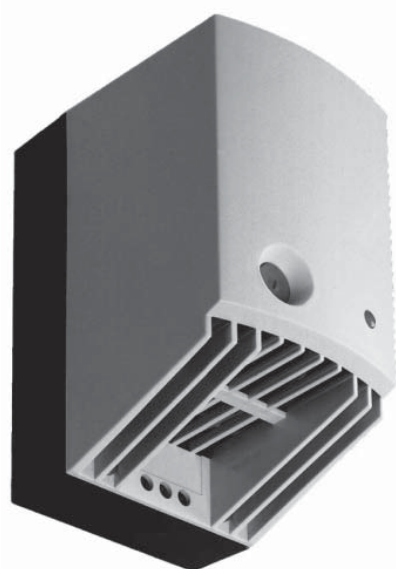
Fan Heaters

- For use when larger heating capacities or internal forced air circulation is required.
- Designed to prevent condensation or maintain minimum temperature in enclosures.
- Thermostats are also available.



Part No.	Watts	Surface Temperature	Starting Current	Dimensions L x W x D	Ship Wt. lbs
SHGL04600	250 W	167°F	2.2 A	7.00 x 3.15 x 3.15	2
SHGL04601	400 W	167°F	3.5 A	9.76 x 3.15 x 3.15	3

Operating Voltage:	AC 110-120 V, 50/60 Hz
Circulation Power:	20 CFM Free Blowing
Axial Fan:	Ball bearing
Durability:	30,000 hrs. at 68°F ambient temperature
Heating Element:	Resistance heating element with temperature limiter
Heating Body:	Extruded aluminum, black anodized
Connection:	3 pole terminal for 12 AWG
Mounting:	Easily installed by clip mounting on 35 mm DIN rails (included)
Protection Class:	1 (tested for grounding at 1250 V)
Protection:	IP20
Approval:	UL Recognized Component, cUL Recognized Component, CE



High Wattage Fan Heater

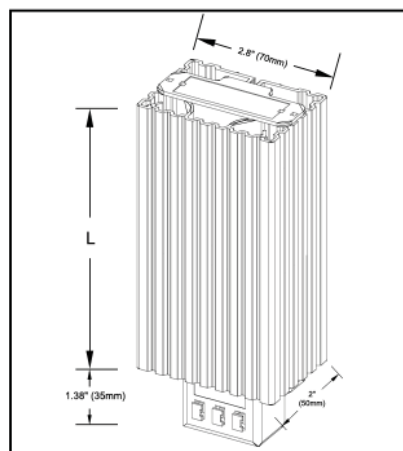
- For large heating capacity requirements.
- Maintains minimum operating temperatures in enclosures.
- Helps prevent failures to components caused by condensation and corrosion.
- Built-in thermostat and control light.
- Heating power adjusts to ambient temperature.
- Heat exits top of fan heater. (add 2" clearance for heat sensitive parts)

Part No.	Watts	Inrush Current (Amps)	Volts	Temperature Maximum with Fan	Ship Wt. lbs
SCR027009	550 W	11 A	AC 120	250°F/120°C	2
SCR027009230	550 W	13 A	AC 230	250°F/120°C	2
SCR027019	650 W	12 A	AC 120	320°F/160°C	2.4

Air Flow:	20 CFM (550W), 26 CFM (650W)
Thermostat Range:	32 - 140 degrees Fahrenheit
Heating Element:	PTC - Semiconductor/resistor
Housing:	Plastic, rated UL94-VO
Connection:	3 pole terminal, AWG 14 max (2.5 mm ²)
Mounting:	Clip for 35mm DIN rail
Protection Class:	II (Double Insulated)
Protection Type:	IP20
Approval:	UL Recognized Component, cUL Recognized Component, CE



Heating Products



Heaters

- Designed to provide enclosed electronic, pneumatic, hydraulic and mechanical equipment with protection from low temperatures, condensation and corrosion.
- The PTC (Positive Temperature Coefficient) heater unit maintains a stable temperature environment within enclosures, allowing critical components to perform with consistent reliability for longer periods.
- Heating power adjusts to ambient temperature
- Push connectors for quick and easy wiring



Part No.	Watts ¹	Max. Current ²	L (in.)	Max Surface Temperature	Ship Wt lbs
SHG14000	15 W	1.5 A	2.56	131°F/55°C	1
SHG14001	30 W	3.0 A	2.56	131°F/55°C	1
SHG14003	45 W	3.5 A	2.56	121°F/105°C	1
SHG14005	60 W	2.5 A	5.51	121°F/105°C	1
SHG14006	75 W	4.0 A	5.51	148°F/120°C	1
SHG14007	100 W	4.5 A	5.51	266°F/130°C	2
SHG14008	150 W	8.0 A	8.46	302°F/150°C	2

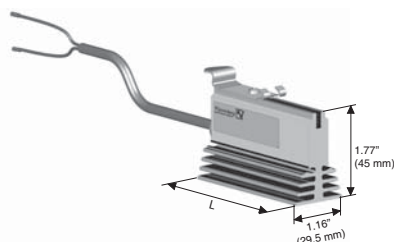
¹ At 68°F (20°C) ambient temperature.

² Inrush current

Operating Voltage:	AC 110 - 250 V
Heating Element:	PTC resistor, self regulating
Heating Body:	Anodized extruded aluminum
Connection:	Push-type terminals for stranded and solid wire 3 x AWG 20 AWG 16 (0.5 - 1.5 mm ²)
Mounting:	Easily installed by clip mounting on 35 mm DIN rails (included)
Protection Class:	I, test voltage 1600 V
Protection:	IP20
Approval:	UL Recognized Component, cUL Recognized Component, CE

Mini Radiant Heaters

- Designed for use in small enclosure housing or for heating of isolated spots in sensitive areas
- Heating power adjusts to ambient temperature
- Compact design



Part No.	Watts	Max. Current	L (in.)	Ship Wt lbs
SHGM1410	10	1	1.97	0.5
SHGM1420	20	1.1	2.95	0.5
SHGM1430	30	1.2	2.95	0.5

Operating Voltage:	110-250 AC 50/60 Hz
Heating Element:	Resistor, self regulating
Heating Body:	Aluminum, black anodised
Max surface temperature:	10w @ 203°F/95°C 20w @ 239°F/115°C 30w @ 284°F/140°C
Connection:	Connecting cable 11.8"
Mounting:	Din rail 35mm profile
Protection class:	IP20
Approval:	UL Recognized Component, cUL Recognized Component, CE

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Heating Products



Control Panel Heater

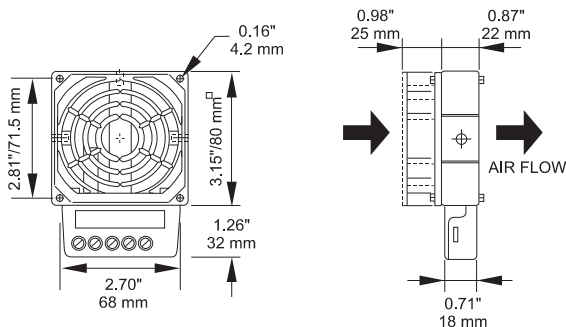
- When larger heating capacities or internal forced air circulation is required and space is limited.
- Compact design to prevent condensation or maintain minimum temperature in enclosures.
- Fan is included.
- Thermostats available

Part No.	Watts	Operating Current (Amps)	Volts	Temperature Maximum with Fan	Ship Wt. lbs
SHV031029	100 W	0.89	AC 120	250°F/120°C	1
SHV031039	150 W	1.30	AC 120	320°F/160°C	1
SHV031139	200 W	1.79	AC 120	250°F/120°C	2
SHV031149	300 W	2.62	AC 120	320°F/160°C	2
SHV031159	400 W	3.45	AC 120	360°F/180°C	2

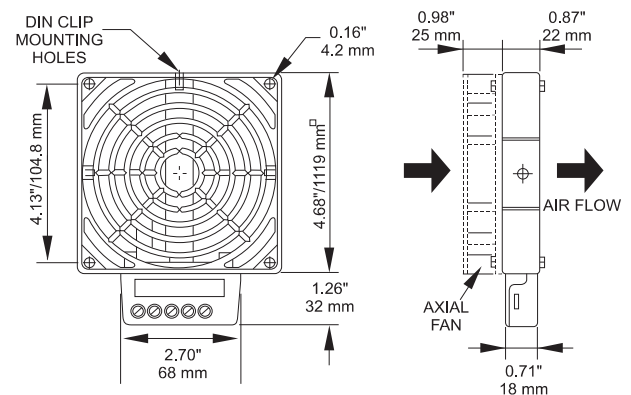


Operating Voltage:	AC 110 -120 V 50/60 Hz
Air Flow:	20 CFM (100W, 150W heaters), 63 CFM (200W, 300W, 400W heaters)
Axial Fan:	Ball bearing
Durability:	50,000 hrs. at 77°F ambient temperature
Heating Element:	Cartridge heater
Heating Body:	Die cast aluminum
Connection:	5 pole terminal for 14 AWG (maximum)
G/L1/N1:	Heater
L2/N2:	Fan
Mounting:	Easily installed by clip mounting on 35 mm DIN rails (included)
Protection class:	1 (tested for grounding at 1500 V)
Protection:	IP20
Approval:	UL Recognized Component, cUL Recognized Component, CE

Climate Control

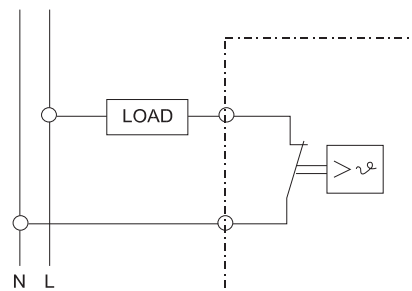


100 W, 150 W Heaters



200 W, 300 W, 400 W Heaters

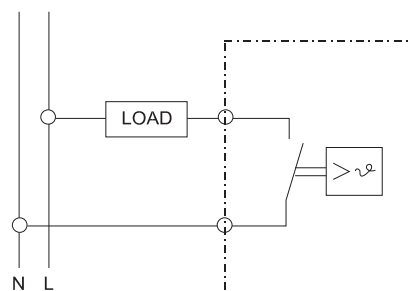
Accessory Products



NC - Normally Closed (Red)

Used in conjunction with heaters.

Contact opens when rising temperatures reach the set point temperature shutting heater off.



NO - Normally Open (Blue)

Used in conjunction with fans.

Contact closes when rising temperatures reach the set point temperature turning fan on.

Thermostat

- Designed to provide air temperature control and monitoring in cabinets.
- Thermostat NC (Normally Closed) for the control of heaters and heater fans.
- Thermostat NO (Normally Open) for the control of cooling units, or for switching signal transmitters in case of overheating.
- Available in Fahrenheit or Celsius.

Sensor Element:	Thermostatic bi-metal
Switching difference (hysteresis):	±4°F (±3°K)
Adjustment Range:	30-140°F / 0-60°C
Connection:	2 pole terminal for AWG 14 (2.5mm ²)
Mounting:	Easily installed by clip mounting on 35 mm or 38 mm DIN rails (included)
Housing:	Flame retardant plastic UL94VO
Color:	Gray (SB)
Protection:	IP20
Approval:	UL Recognized Component , cUL Recognized Component, CE, CSA Listed

Part No.	Scale	Contact Type	Dimensions Height x Width x Depth	Switching Capacity	Ship Wt. lbs
SKT011409NC	°F	Normally Closed	2.83 x 1.57 x 1.4	15 A (1) AC 120 V, 10 A (1) AC 250 V	1
SKT011409NC-C	°C	Normally Closed	2.83 x 1.57 x 1.4	15 A (1) AC 120 V, 10 A (1) AC 250 V	1
SKT011419NO	°F	Normally Open	2.83 x 1.57 x 1.4	15 A (1) AC 120 V, 10 A (1) AC 250 V	1
SKT011419NO-C	°C	Normally Open	2.83 x 1.57 x 1.4	15 A (1) AC 120 V, 10 A (1) AC 250 V	1

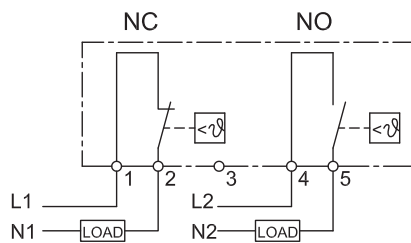


Twin Thermostats

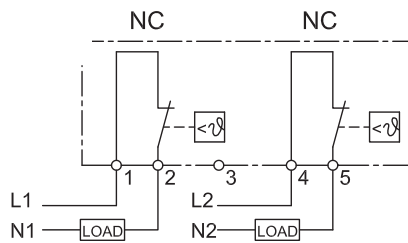
- Designed to provide air temperature control and monitoring in cabinets
- Twin thermostats integrates two independently switchable thermostats, unlike thermostats with changeover contacts, connected devices can be switched in different temperature ranges.
- Available with N.C./N.O., N.C./N.C., N.O./N.O.

		Part Number	
Scale: (Fahrenheit)	SKTD541	SKTD542	SKTD543
Scale: (Celsius)	SKTD541C	SKTD542C	SKTD543C
Type of contact:	N.C. / N.O. with spring contact	N.C. / N.C. with spring contact	N.O. / N.O. with spring contact
Suitable for the operation of	Fan and Heater	Heaters and Alarms	Fans and Alarms
Switching tolerance:	+ - 4K		
Switching Capacity:	N.C. 240 VAC /10A	N.O. 120 VAC / 15 A	DC max 30watts
Adjustment Range:	32-140° F / 0-60° C		
Connection:	Screw terminal for AWG 14 / (2.5mm2)		
Mounting:	Clip mounting on 35 mm DIN rails		
Dimension	Height 3.17" (80.5mm)	Width 2.32" (59mm)	Depth 1.5" (38mm)
Housing:	Flame retardant plastic UL94VO		
Color:	Light Gray RAL7035		
Protection:	IP20		
Approval:	UL Recognized Component, cUL Recognized Component, CE		

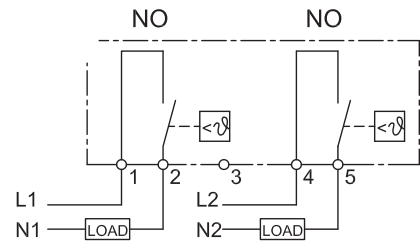
SKTD541



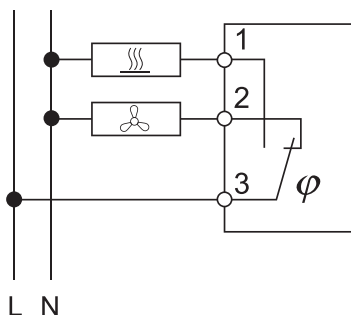
SKTD542



SKTD543



Accessory Products



Mechanical Humidistat



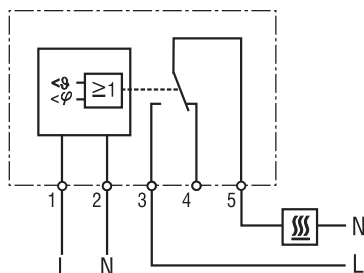
- Mechanical Humidistat regulates the control of heaters or fans whenever the preset level of relative humidity.

Part No.	Dimensions	Switching Capacity	
	Height x Width x Depth		
SKH600NCC	3.5 x 1.5 x 1.8	NOC FAN	AC 120 V - 2A
		NOC FAN	AC 240 V - 2A
		NCC Heater	AC 120 V - 5A
		NCC Heater	AC 240 V - 5A
			DC 30 Watts

Control Range:	40 to 90% r.H.
Differential Gap:	Approximately 5%
Switch Point Accuracy:	+/- 4% based on 50% r.H.
Working Temperature Range:	30°F to 140°F (0°C to 60°C)
Storage Temperature:	-5°F to 180°F (-20°C to 80°C)
Type of Contact:	Change-over switch
Sensor:	Polyamide band
Type of Connection:	2-pole clamp, For AWG14 (2.5mm ²)
Color:	RAL 7035 - Grey
Protection Category:	IP20
Mounting:	Easily installed by clip mounting on 35mm DIN rail (7 included)
Approval:	CE

Electronic Humidity and Temperature Control

- Designed to provide both air temperature and humidity control as well as monitoring in electrical and electronic enclosures.
- Independently senses the relative humidity and temperature. Resistive and inductive loads (heaters or filter fans) can be switched.
- Highly effective in ATMs, parking control gates, ticket dispensers and traffic control systems where equipment is exposed to wide ranging outdoor elements.



Part No.	Dimensions	Switching Capacity
	Height x Width x Depth	
SKTH012009230	3.03 x 2.36 x 1.69	NC: AC 240 V - 6A resistive, 1A inductive
		NO: AC 240 V - 8A resistive, 1.6A inductive
SKTH012009	3.03 x 2.36 x 1.69	NC: AC 120 V - 6A resistive, 1A inductive
		NO: AC 120 V - 8A resistive, 1.6A inductive
		DC 24 V - 4A resistive

Temperature Range:	32°F to 140°F (0°C to 60°C)
Switching difference (hysteresis):	Approximately 2°K
Humidity range:	50% to 90% relative humidity
Response time humidity:	Approximately 5 seconds
Function Indication:	LED
Life expectancy:	50,000 cycles
Mounting :	Easily installed by clip mounting on 35mm DIN rail
Housing :	Flame retardant plastic UL94VO
Color:	Gray
Protection:	IP20
Approval:	UL Recognized Component, cUL Recognized Component, CE

Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Accessory Products



Breather Kit (Pressure Compensation Plug)



- Packaged individually.
- Provides for controlled pressure compensation due to temperature variations (i.e. night/day operation).
- Recommend two plugs per cabinet in opposite locations.
- Minimum cutout diameter 1.46"

Part No.	Dimensions (Diameter x Depth)	Ship Wt. lbs
SDA412	2.6" x 1.2"	1

Mounting:	PG 29 (1.14") thread with union nut, minimum cutout diameter
Material:	Polycarbonate UL94VO
Protection:	IP45
Color:	RAL 7032 beige



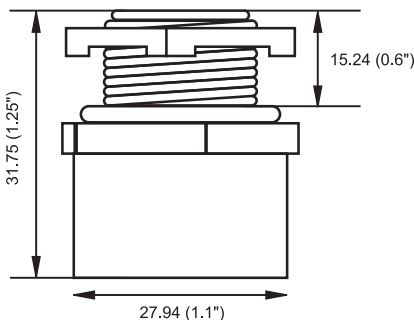
Breather Kit (Pressure Compensation Plug)



- Packaged individually.
- Provides for controlled pressure compensation due to temperature variations (i.e. night/day operation).
- Recommend two plugs per cabinet in opposite locations.
- Pipe Thread M20 1.5 pitch (actual dia. 0.76")

Part No.	BDN4XN1
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Climate Control



CSA/A Ex Approvals:	Class I, Zone 1, Ex e II Class I Division 2 Groups ABCD Class II EFG, Class III
Ingress Protection:	IP66, CSA Enclosure Type NEMA 4X
Impact Resistance:	20Nm (7Nm GF Nylon)
Materials:	Durethan BKV 30 N1 30% Glass Filled Nylon O Ring - Nitrile Fixing nut - Brass
Operating Temp:	-50C to +85C

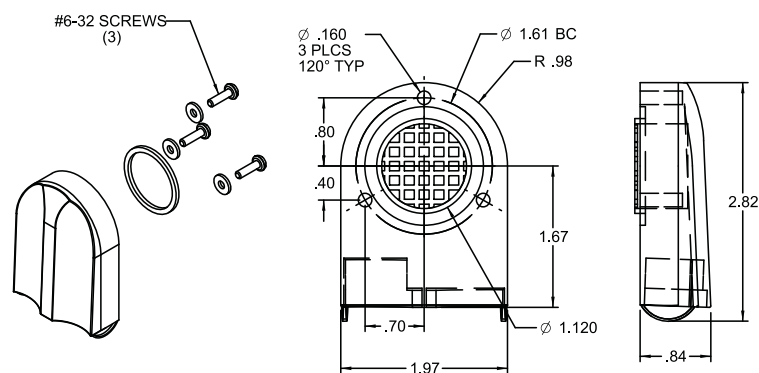
Accessory Products

Large Rainproof Ventilator



- Designed to equalize internal / external pressure and temperature
- Ventilators assist in condensation prevention by allowing enclosures to breathe
- Suitable for most types of metallic and non-metallic enclosures
- Molded in corrosion resistant thermal set plastic, finish RAL7035 Light Gray
- Gasket protection to enclosure wall
- Mount to enclosure wall thickness up to .14" with standard screws
- Internal vent channel & grille reduces insect intrusion
- Package quantity 2

Part No. **SDV280**

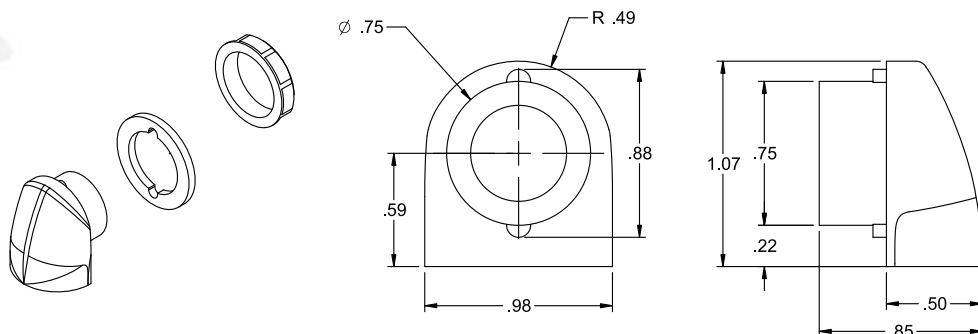


Small Rainproof Ventilator



- Designed to equalize internal / external pressure and temperature
- Ventilators assist in condensation prevention by allowing enclosures to breathe
- Suitable for most types of metallic and non-metallic enclosures
- Molded in corrosion resistant thermal set plastic, finish RAL7035 Light Gray
- Gasket protection to enclosure wall with built in compression stop
- Mount to enclosure wall thickness up to .14" with standard screws
- Internal vent channel & grille reduces insect intrusion
- Package quantity 2

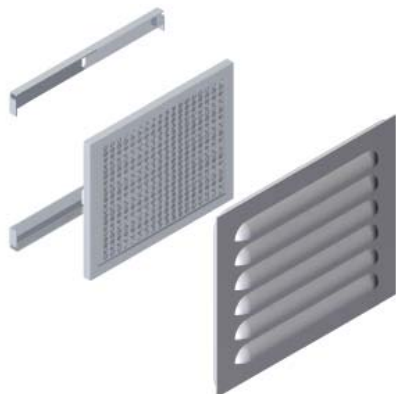
Part No. **SDV180**



Technical references and CAD downloads available at www.hammondmfg.com

All dimensions in inches unless specified otherwise

Accessory Products



Louvered Vent Kits

- Provides ventilation in enclosures for either Indoor or outdoor locations
- Gasketed sealing kit provides protection to nema 3R
- Aluminum filter mesh provides ingress protection for both solid debris and outdoor rain conditions
- Easily field install kit includes all hardware.
- Louver plates are offered in both 14 gauge steel with ANSI61 Gray power coat finish or 304 Stainless Steel
- Sold in QTY 1



Part Number	Overall Size H x W (in)	Number of Louvers	Louver Length (in)
1481L3R55GY	5.56 x 5.3	3	3
1481L3R55SS	5.56 x 5.3	3	3
1481L3R56GY	5.30 x 6.30	3	4
1481L3R56SS	5.30 x 6.30	3	4
1481L3R66GY	6.40 x 6.30	4	4
1481L3R66SS	6.40 x 6.30	4	4
1481L3R68GY	6.40 x 8.30	4	6
1481L3R88GY	6.40 x 8.30	6	6
1481L3R610GY	6.62 x 10.30	4	8
1481L3R810GY	9.0 x 10.30	6	8
1481L3R1110GY	11.37 x 10.30	8	8
1481L3R1510GY	16.12 x 10.30	9	8

Replacement Aluminum Filters

- Sold in Qty 2

Part Number	Size H x W (in)
LFK55	3.15 x 3.00
LFK56	2.90 x 4.00
LFK66	4.02 x 4.00
LFK68	4.02 x 6.00
LFK88	6.28 x 6.00
LFK610	4.21 x 8.00
LFK810	6.59 x 8.00
LFK1110	8.96 x 8.00
LFK1510	13.71 x 8.00

Climate Control



Louvered Ventilating Plate

- Provides ventilation in enclosures where required.
- Easily installed in the field by cutting a square hole of the proper size and bolting the ventilator in place.
- Finished in gray.
- Hole diameter is 0.22".



Part No.	Plate Size		No. of Louvers	No. of Rows	Louvers Length	Opening Area (in ²)
	Height	Width				
1481L44	5.62	5.5	4	1	4	4.5
1481L66	7.87	7.5	14	2	2	5.3
1481L88	10.56	10.5	18	2	4	20.2

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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