

Figure 1

ECONOMIZER 101

Economizers are designed to provide “free” air conditioning when outside conditions are appropriate. When the outside air is cool and dry enough, the economizer automatically opens to introduce the cool air to the interior space, thereby eliminating the need to run the air conditioning compressor.

If the outside air becomes too warm or humid, the economizer automatically closes the fresh air damper and the compressor engages to begin cooling the space mechanically.

If a two stage thermostat is used it is possible to use a combination of economizer and mechanical cooling to condition the space.

The economizer can also be set to allow a minimum amount of fresh air to enter the space when the equipment’s indoor blower is operating.

Economizers are valuable tools to enhance indoor air quality, save energy and prolong the life of the air conditioning equipment.

SEQUENCE OF OPERATION

This sequence assumes employment of a single enthalpy economizer using a two stage thermostat.

1. A call for cooling comes from room thermostat.
2. The enthalpy sensor determines if the atmospheric conditions are conducive for using outside air for cooling. If YES, go to step 3. If NO, or if outdoor air temperature rises above enthalpy set point, go to step 4.
3. The outside air dampers open and modulate to maintain a mixed air temperature (outside air + indoor air) of 53 degrees F. If the outdoor air is insufficient to satisfy the thermostat alone and a second stage of cooling is required, the compressor starts and works in conjunction with the economizer

to cool the space. In a system with two compressors, if the thermostat is still not satisfied by the economizer and stage 1 compressor, the Jade control will energize the second compressor. (Go to step 5.)

4. Outdoor air dampers open to minimum position and the compressor engages to provide mechanical cooling.
5. When the thermostat is satisfied the outside air dampers return to a minimum position.

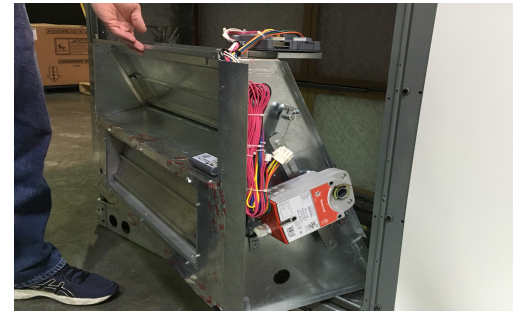


Figure 2

INSTALLATION

1. Open carton and inspect contents for shortages and damage.
2. Remove filter access and evaporator access panel from package unit. Keep the screws from the evaporator access panel.
3. Slide internal damper rack into the opening until the outside flanges of the assembly nest inside of the posts framing the opening. (Figure 2)
4. Plug 9-pin economizer plug into matching -pin plug in the unit.

NOTE: Ensure neither the wire nor the plugs interfere with the movement of the dampers during operation. Install bottom portion of the new access panel on the unit.

5. Secure access panel to the unit with the screws removed in Step 2.
6. Remove the blower access panel from the unit and mount the mixed air sensor to the blower housing. (Figure 3)
7. Feed the wire for the mixed air sensor back to the economizer and connect it on the side of the Jade control at MAT. (Figure 4)
8. Assemble hood per the instructions on page 2. (Figure 5)
9. Attach the hood to the side of the unit over the economizer damper in the place of the discarded evaporator access panel
10. Power the unit and use the Honeywell Jade Economizer instructions provided and the 4 button interface on the Jade controller to configure the economizer for your application.
11. Replace filter access panel on unit.

This product is warranted to be free from defects due to workmanship or materials, under normal use, for a period of sixty (60) months from date of installation.

DOWNFLOW HOOD ASSEMBLY

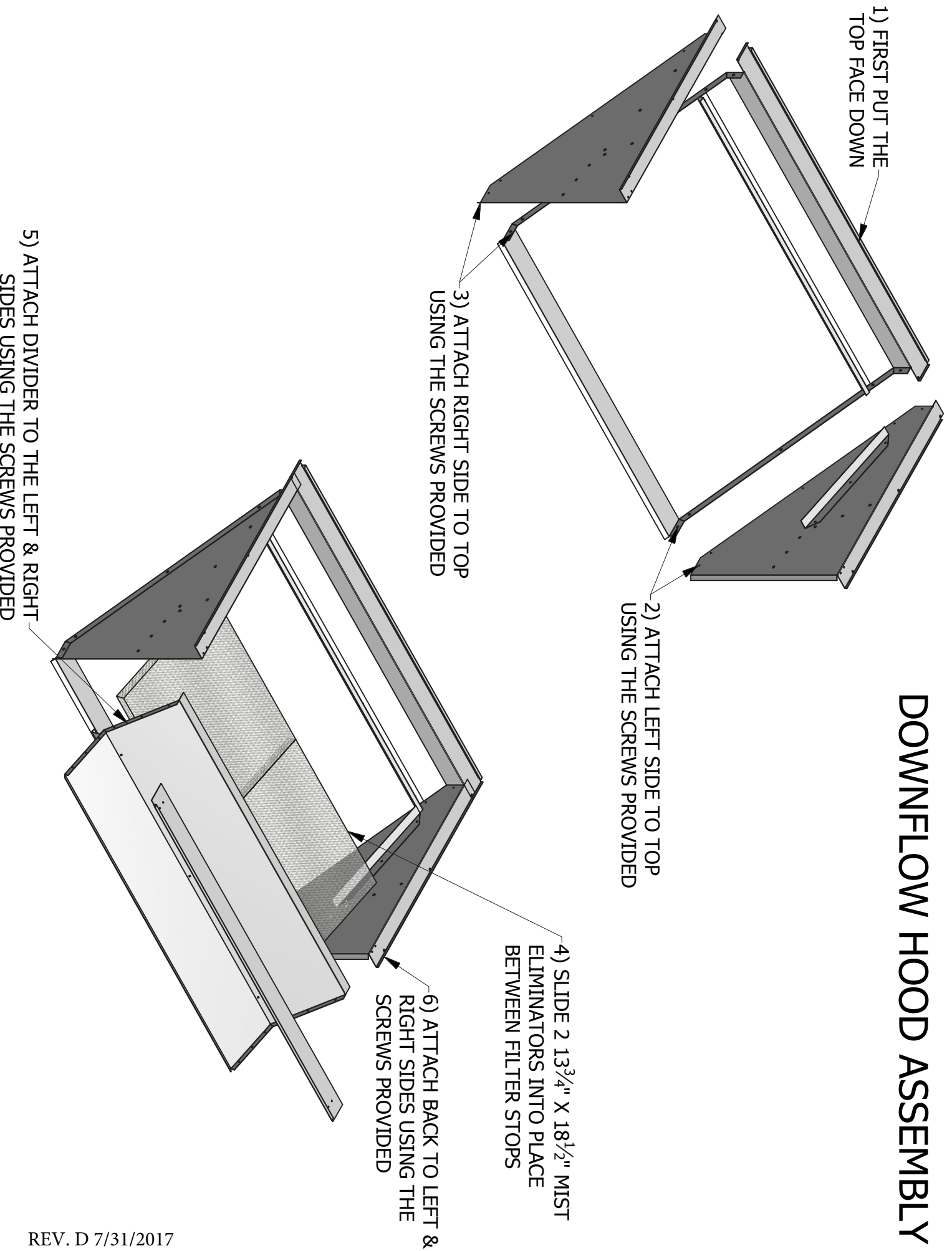




Figure 3

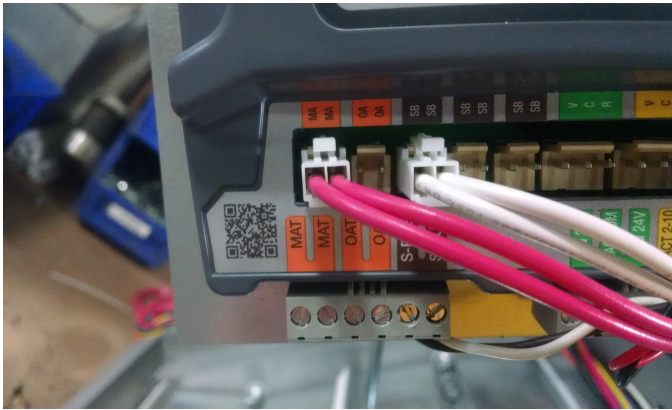


Figure 4

The equation below may be used to set the minimum position. The mixed air temperature and outside air temperature may be discerned by looking at the status menu on the Jade controller.

MINIMUM SET POINT EQUATION

$$(To \times OA) + (Tr \times RA) = Tm$$

To = Outdoor air temperature

OA= Percent of outdoor air

Tr = Return air temperature

RA= Percent of return air

Tm= Resulting mixed air temperature

Example:

Fresh air required is 10% outdoor air.

Outdoor air temperature is 60 degrees F.

Return air temperature is 75 degrees F.

$$(0.1 \times 60) + (0.9 \times 75) =$$

$$6.0 + 67.5 = 73.5$$

Mixed air temperature will be 73.5 degrees F when the OA is 60 degrees F and the RA is 75 degrees F with 10% outdoor air.

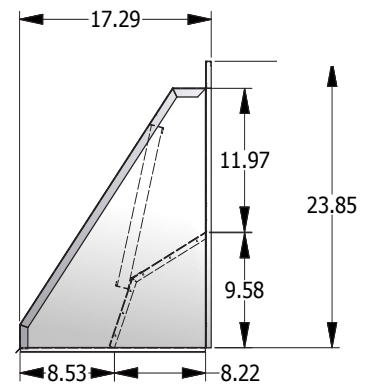


Figure 5

CONTENTS

| | |
|---|------------------------------------|
| 1 | Damper rack w/ economizer controls |
| 1 | Hood Assembly |
| 2 | Fresh Air Mist Eliminator |
| 1 | Screw package |
| 1 | Mixed Air Sensor |
| 1 | Installation/Component Manual |

ACCESSORIES / CAPABILITIES

Dual Enthalpy - Requires an additional C7400 enthalpy control installed in the return air duct.

Demand Control Ventilation - Requires a CO2 sensor.

Power Exhaust - DPE3672(2/4) power exhaust used in applications where barometric relief is not sufficient.

Remote Minimum Positioner - For applications requiring minimum position adjustments inside the conditioned space.

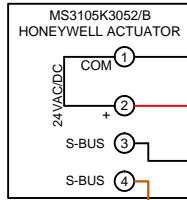
Important Notes

- Please see enclosed brochure for Honeywell component trouble shooting in instructions as well as instructions for heat pump set up.
- Heat pump applications require Goodman part number IRKT-01 isolation relay kit.
- The fresh air mist eliminator should be flushed periodically with warm soapy water.
- A two stage thermostat is recommended with this accessory.

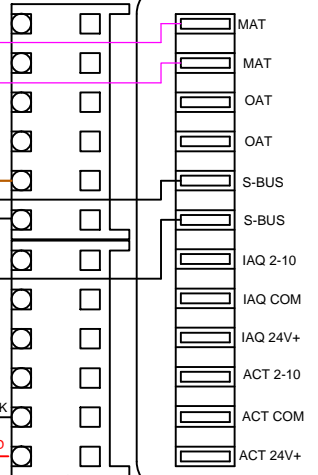
JADE WIRE DIAGRAM 3105 REV4

GROUND

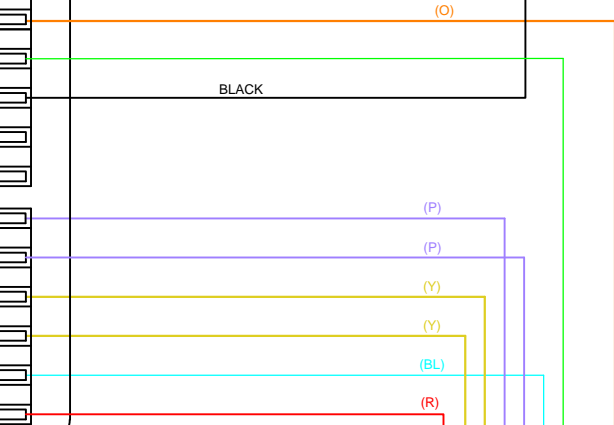
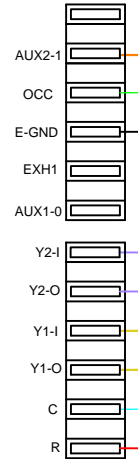
GROUND LUG



BLACK
RED
WHITE
BROWN

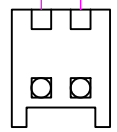


HONEYWELL
W720

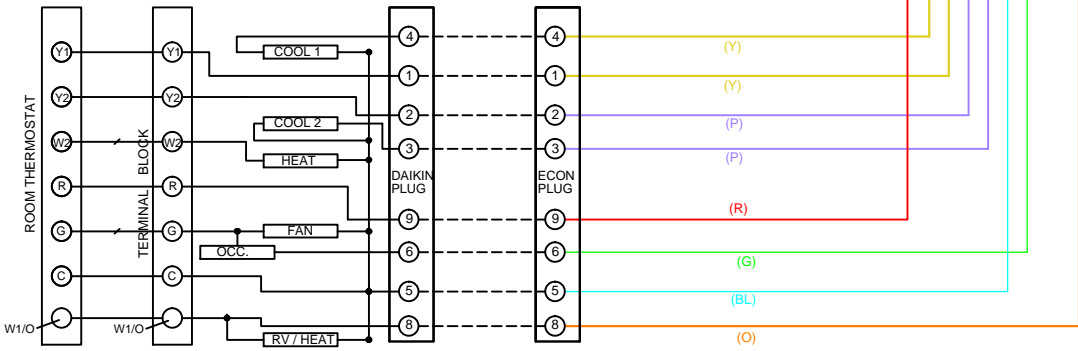


MOLEX 3597706**
50048926-002

CONNECT TO
C7400S1000
ENTHALPY CONTROL

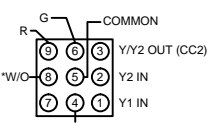


CONNECT TO
C7250A1001
MIXED AIR SENSOR



COLOR CODES FOR 9 PIN PLUG

- ① (Y) YELLOW
- ② (P) PURPLE
- ③ (P) PURPLE
- ④ (Y) YELLOW
- ⑤ (BL) BLUE
- ⑥ (G) GREEN
- ⑧ (O) ORANGE
- ⑨ (R) RED



* WHITE WIRE ON DCG
ORANGE WIRE ON DCH

McDaniel Metals

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1318 Buschong, Houston, TX 77039
www. mcdanielmetals.com

DDNECNJ3672C

LOW LEAK TITLE 24 DOWNFLOW
ECONOMIZER FITS DAIKIN DCC, DCG,
DCH 036-072

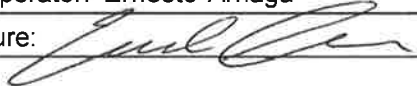



Reliability Certification

Model: McDaniel Metals DDNECNJ3672C

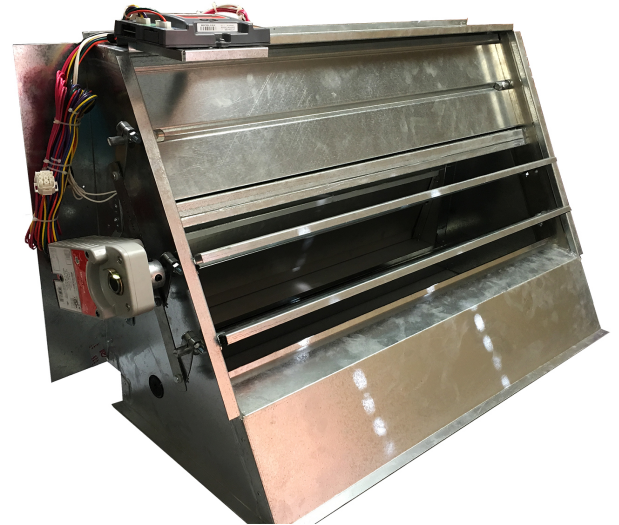
The damper sections of this economizer are in full compliance with the reliability requirements set forth in California Title 24 Building efficiency standard as verified by Energistics Laboratory, Houston, TX. The standard states:

"Suppliers of economizers shall certify that the economizer assembly, including but not limited to outdoor air damper, return air damper, drive linkage and actuator have been tested and are able to open and close against the rated air-flow and pressure of the system after 60,000 damper opening and closing cycles."

| |
|--|
| Test Start Information |
| Test Number: 0440 |
| Start Date: 11/20/2013 |
| Start Time: 4:40 P.M. |
| Test Operator: Ernesto Arriaga |
| Signature:  |

| |
|--|
| Test End Information |
| End Date: 12/16/2013 |
| End Time: 1:20 P.M. |
| Cycles: 66652 |
| Test Operator: Ernesto Arriaga |
| Signature:  |

| |
|----------------------------------|
| Economizer Information |
| OEM: Daikin |
| OEM Part Number: DDNECNJ3672C |
| McDaniel Metals PN: DDNECNJ3672C |
| Actuator: Honeywell MS3105K |
| Actuator Torque: 44 lbs. |



This economizer design has been tested and approved to open and close against the rated airflow of this system after opening and closing for at least 60,000 cycles.

| | |
|--|--------------------|
| McDaniel Metals Engineering Manager  | Date 12/16/2013 |
|--|--------------------|

McDaniel Metals

281-987-8400 • 281-987-9494 (fax)
1318 Buschong, Houston, TX 77039
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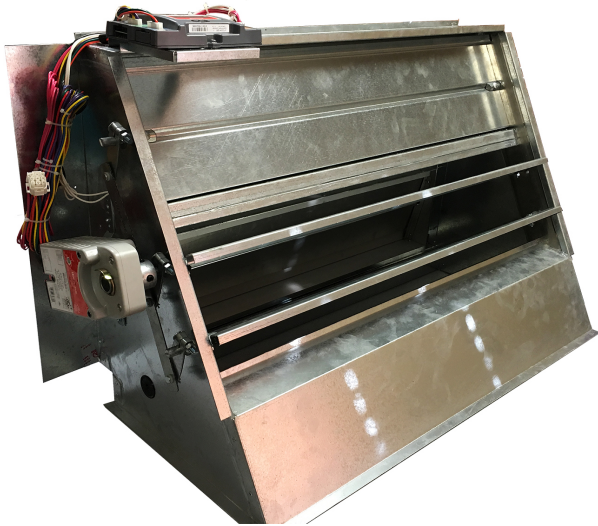
DDNECNJ3672C

LOW LEAK TITLE 24 DOWNFLOW
ECONOMIZER FITS DAIKIN DCC, DCG,
DCH 036-072



Application

The DDNECNJ3672B features dampers constructed to conform to California Title 24 requirements of less than 10 CFM air leakage per square foot of damper area and tested according to AMCA 500 Standards.



Test Results

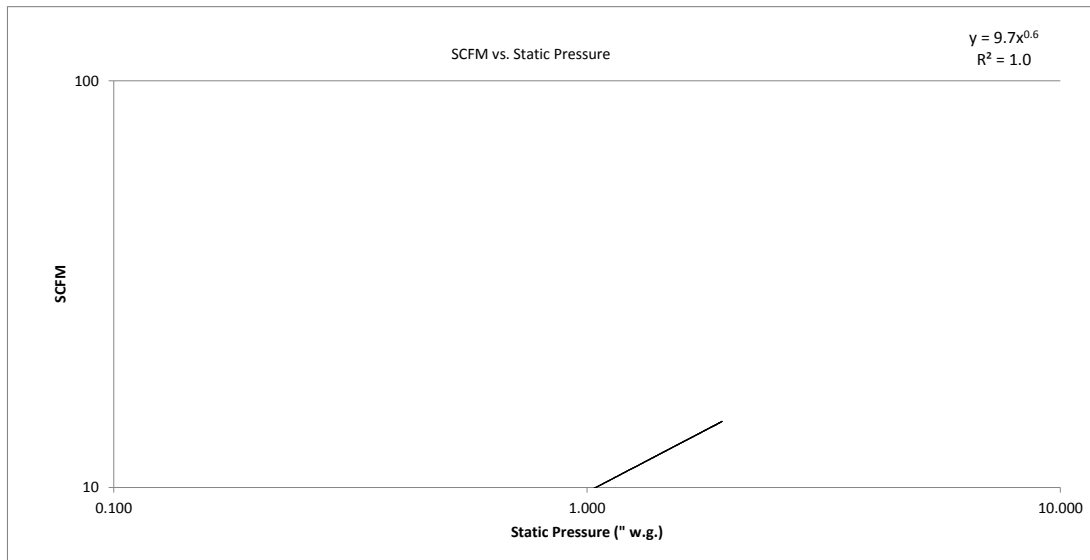
Fresh Air Damper
Static Pressure: +1.0" w.g.
Leakage: 10.0 CFM Square
Footage: 2.44

Return Air Damper
Static Pressure: +1.0" w.g.
Leakage: 25.0 CFM Square
Footage: 3.46

Leakage Test Summary

| CFM | Static Pressure |
|-----|-----------------|
| 10 | 1.000 |
| 8 | 0.750 |
| 6 | 0.500 |
| 4 | 0.250 |
| 3 | 0.150 |
| 2 | 0.100 |
| 2 | 0.050 |

| Equation Coefficients | |
|-----------------------|-----|
| A: | 9.7 |
| B: | 0.6 |
| R ² : | 1.0 |



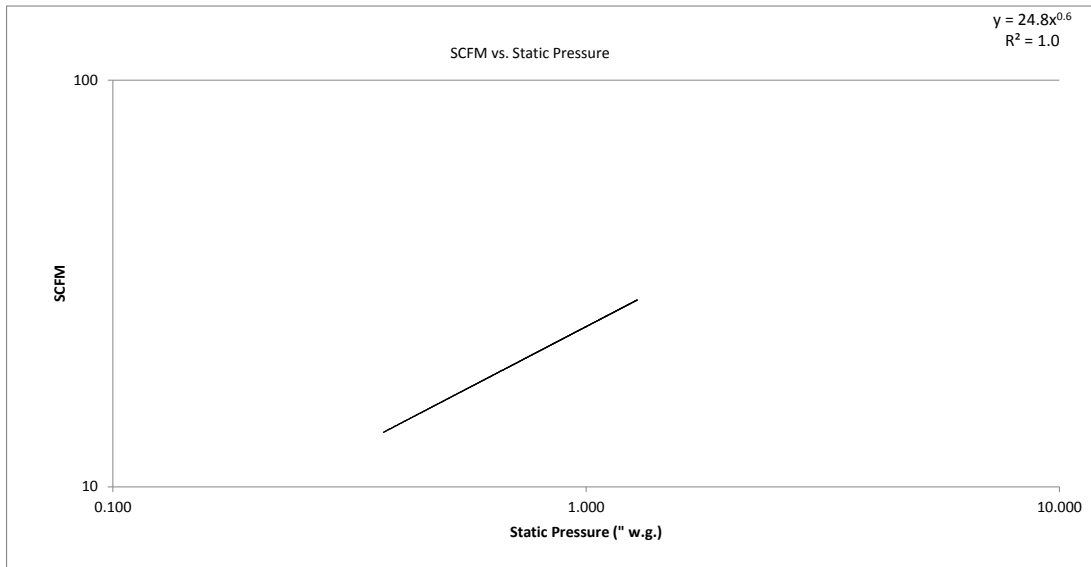
DDNECNJ3672C Fresh Air Damper

Leakage Test Summary

Enter Static

| CFM | Static Pressure |
|-----|-----------------|
| 25 | 1.000 |
| 21 | 0.750 |
| 16 | 0.500 |
| 11 | 0.250 |
| 8 | 0.150 |
| 6 | 0.100 |
| 4 | 0.050 |

| Equation Coefficients | |
|-----------------------|------|
| A: | 24.8 |
| B: | 0.6 |
| R ² : | 1.0 |



DDNECNJ3672C Return Damper

