RESCUE® EcoTech® Direct Drive Blower Motor

The High Efficiency "ECM/BPM" Drop-in Replacement Blower Motor

NIDEC MOTOR CORPORATION

Agenda

- Features and Benefits
- Product Overview
- Installation Overview
- Sales Strategy Overview

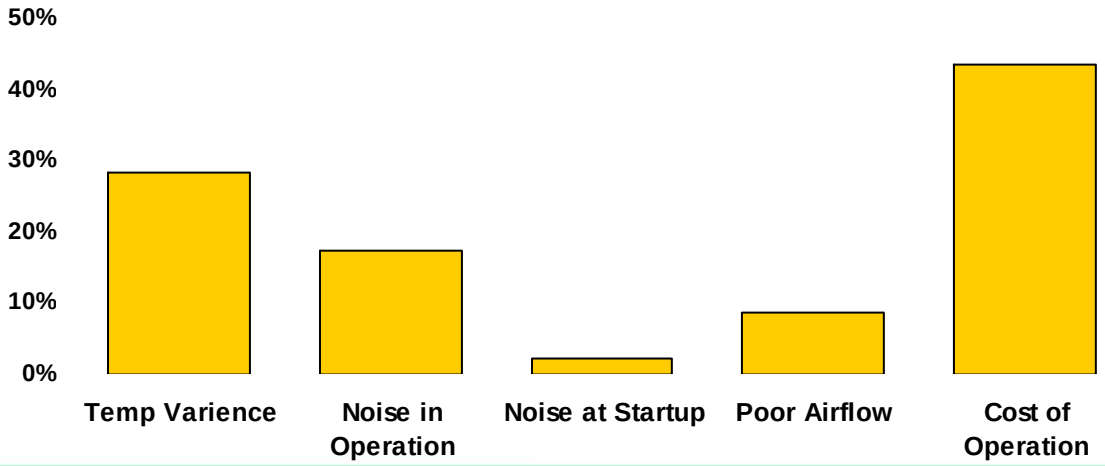
High Efficiency ECM Blower Motors Are An Emerging Market Segment

Market Segment Driven By Customer Demand For **Energy Savings** And **Indoor Air Quality!**

70% Of Homeowners Say Energy Efficiency Features Influence Their Buying Decisions

Research Indicates 61% Of Households Have A Member That Suffers Allergies Due to Airborne Particles

Homeowners #1 Concerns With HAC System



Product Overview

- A **TRUE** Drop-In Alternative To Conventional Direct Drive PSC Blower Motors
- Up To 82% Efficient **(Versus 60 – 65% For a Standard PSC)** for Energy and $ Savings
- Our Patented Motor Control Means the Wiring is as Easy as a PSC
- 5 Speeds Including a Quiet, Efficient, Continuous Fan Mode For Improved Indoor Air Quality
- Constant Torque Design Provides Active Airflow Management to Help Maintain Proper Airflow as Static Pressure Increases

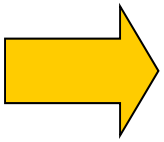
EcoTech is NOT an OEM Variable Speed Motor Replacement!

Product Specifications

- Electronically Controlled Brushless Permanent Magnet Motor
- Reversible Rotation
- No Capacitor Required
- Continuous Duty, Air Over
- ½ x 4 Inch Shafts
- 1075 RPM’s
- 2 Year Warranty
- Class B Insulation
- 40° C Ambient Rated
- 48 Frame (5.6" diameter)
- Electronically Protected Motor
- Ball Bearing
- 36" Leads

Horsepower Ratings

Current Single Voltage - Discrete HP Models			
Catalog No. & Voltage		HP	Overall Length
5520ET	115V	1/4	9.75"
		1/3	9.75"
5521ET	208–230V	1/4	9.75"
		1/3	9.75"
5530ET	115V	1/2	9.75"
5531ET	208–230V	1/2	9.75"
5540ET	115V	3/4	10.75"
5541ET	208–230V	3/4	10.75"
5550ET	115V	1	11.25"
5551ET	208–230V	1	11.25"



Multi-HP Dual Voltage Models			
Catalog No. and Voltage		HP	Overall Length
5522ET	DUAL	1/3, 1/4, 1/6	9.75"
5532ET	DUAL	1/2, 1/3, 1/4	9.75"
5542ET	DUAL	3/4, 1/2, 1/3	10.75"
5552ET	DUAL	1, 3/4, 1/2	11.25"

Expect to See Multi-HP/Dual Voltage Models in October 2011!

Suggested Wiring

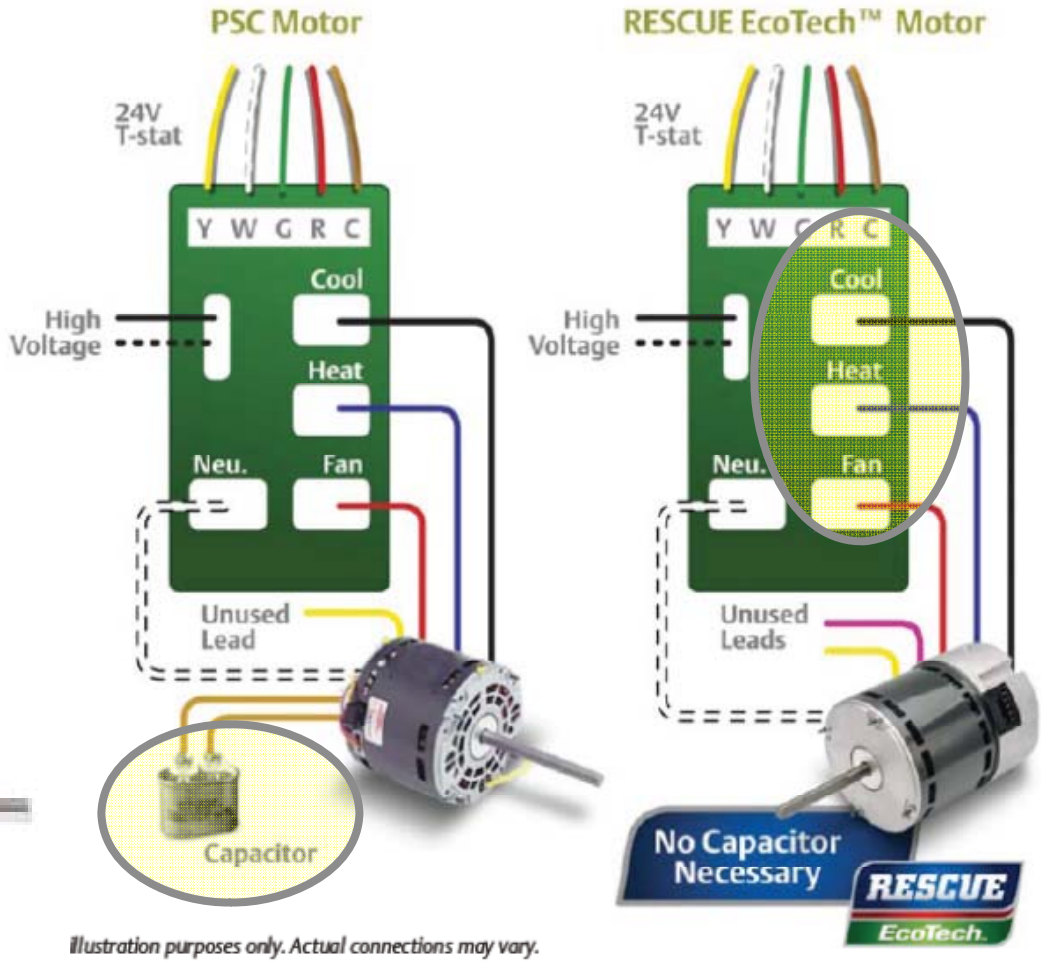
WIRING CHART Suggested Lead Color at Horsepower Shown					
HP	Speed	Cat. No. 5522ET	Cat. No. 5532ET	Cat. No. 5542ET	Cat. No. 5552ET
1/6	COOL	PURPLE			
	HEAT	YELLOW			
1/4	COOL	BLUE	PURPLE		
	HEAT	PURPLE	YELLOW		
1/3	COOL	BLACK	BLUE	PURPLE	
	HEAT	BLUE	PURPLE	YELLOW	
1/2	COOL		BLACK	BLUE	PURPLE
	HEAT		BLUE	PURPLE	YELLOW
3/4	COOL			BLACK	BLUE
	HEAT			BLUE	PURPLE
1	COOL				BLACK
	HEAT				BLUE

Wire Leads	
BLACK	HIGH
BLUE	MED-HIGH
PURPLE	MEDIUM
YELLOW	MED-LOW
RED	LOW
WHITE	COMMON

Always Confirm Airflow

Easy Installation

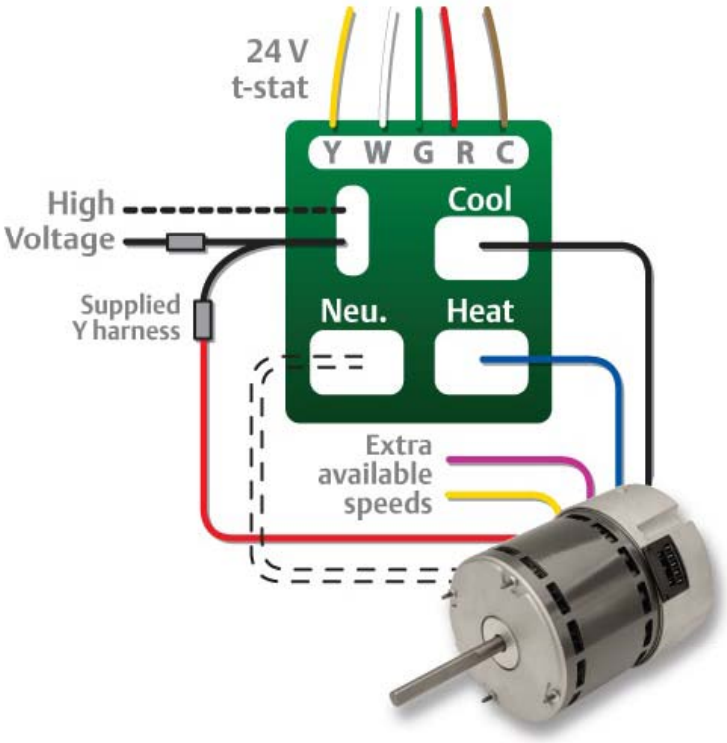
- Patented Design Senses Current in High Voltage Speed Taps
- Connects to Existing PSC Control Board
- No Capacitor Needed for RESCUE EcoTech



Drop In PSC Replacement!

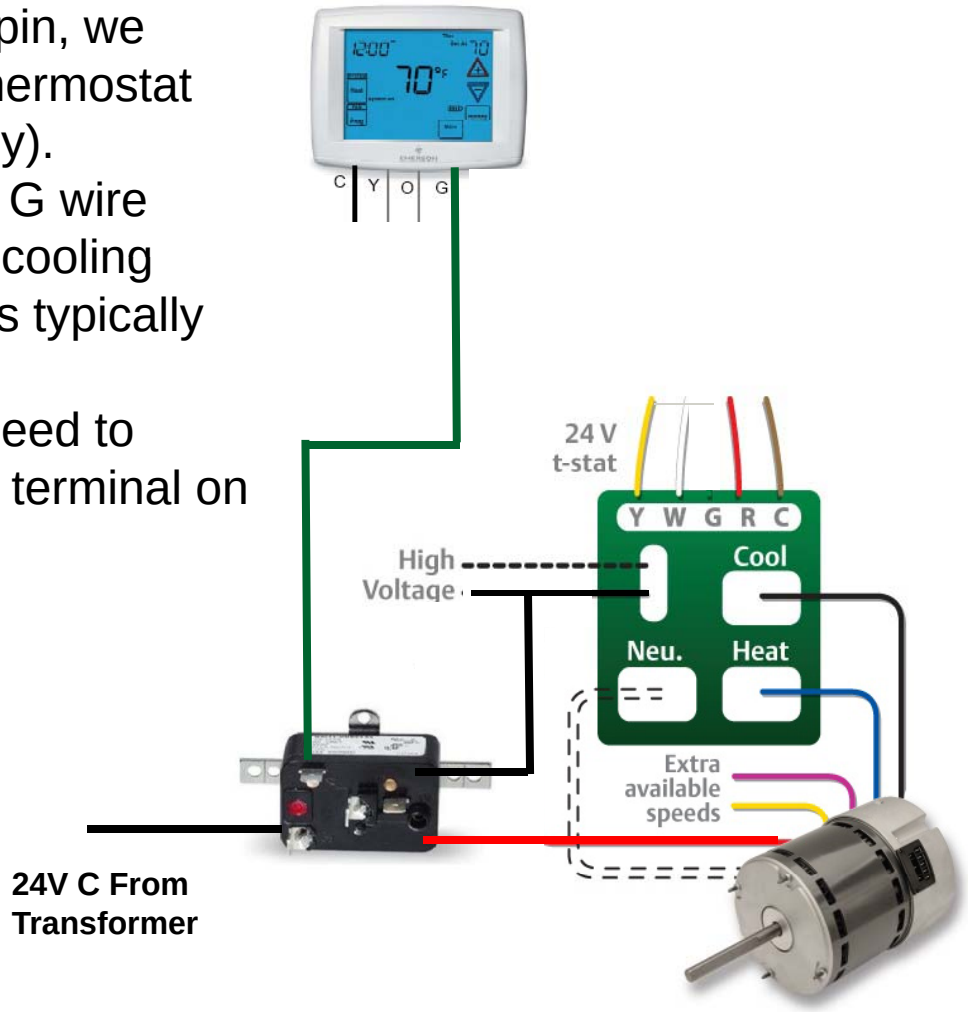
Easy Installation – Continuous Fan Mode

- The RESCUE EcoTech Motor Allows a Low Speed Continuous Fan Mode, Even on Existing Boards Without a Continuous Fan Pin
  - Connect the **RED** (Low Speed) Wire Directly to Line Voltage Using the Supplied Y-Harness
- When More Than One Speed Tap is Energized, the ECM Selects the Highest of Those Taps.
  - **Example**: (**RED** and **BLACK** Wires Energized During Cool Cycle, the Motor Operates at the **BLACK** Wire Speed)
- The Motor Circulates Air Continuously, Switching Smoothly to a Cool or Heat Speed When Called Upon by the Thermostat



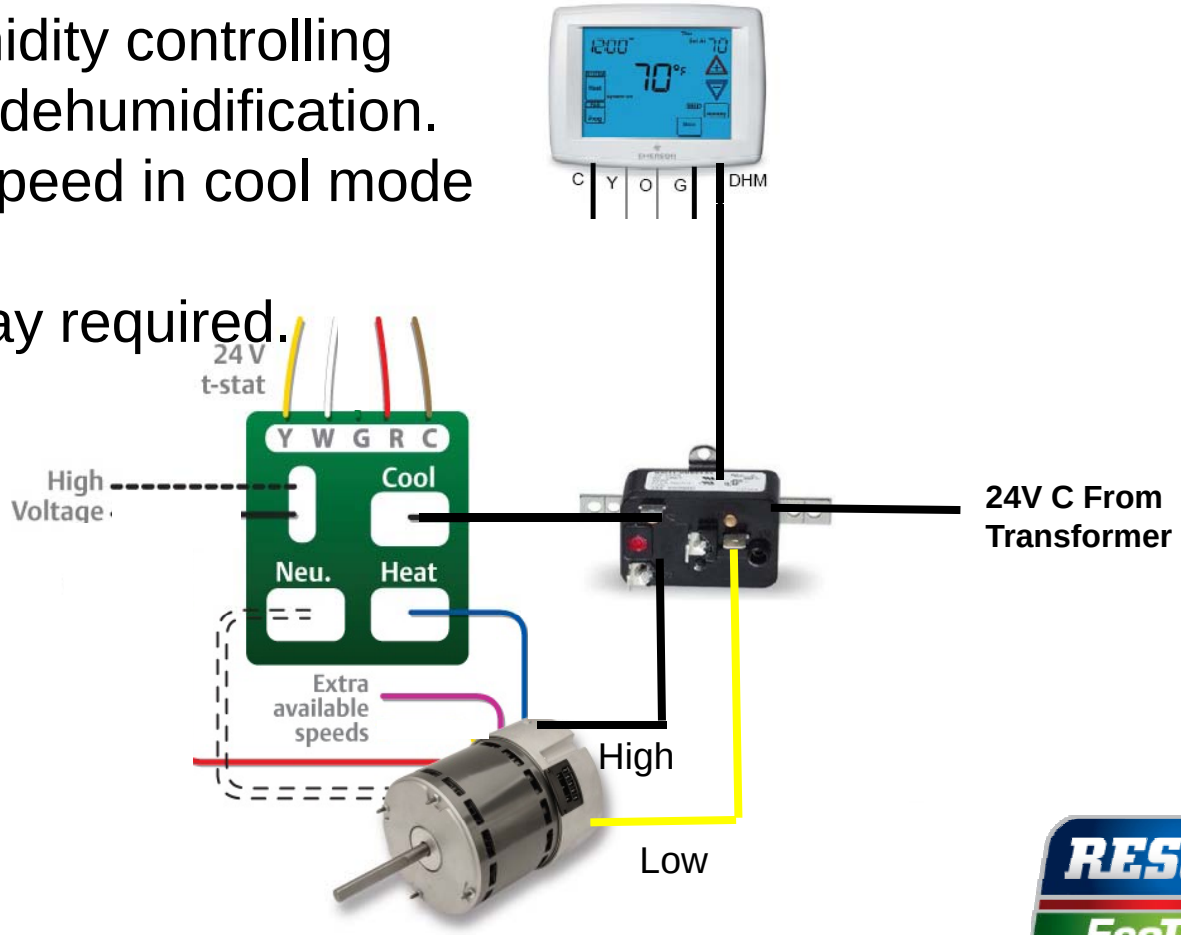
Continuous Fan Mode – New Fan Relay

- In order to maintain thermostat control in systems without a continuous fan pin, we need to use the G output of our Thermostat and a relay (purchased seperateley).
- Caution: Simply disconnecting the G wire from the control board may cause cooling issues on some systems since G is typically energized on Cool and Fan calls.
  - On these systems, you may need to jump the Yellow Wire to the G terminal on the control board.



Dehumidification Wiring

- Also works well with an advanced humidity controlling thermostat for dehumidification.
- Reduce Fan Speed in cool mode to dehumidify.
- Additional Relay required.



Easy Installation – Rotation

- Exclusive 3 Wire Reversing Connector Further Simplifies Installation
- Simply Plug Into CCW or CW (From Lead End) Side of the Connector
- Ground Pin in the Middle
- Flip Plug Over to Match Common Wire to Rotation Pin

Easy Installation – Set the Voltage

Dual Voltage Models Only!

1. Ships Setup and Ready to Use For 208 - 230V
2. Remove Door Flap IF Converting to 115V
3. Fully Insert the Included 115V Jumper Plug. It is Now Set For 115V

1

2

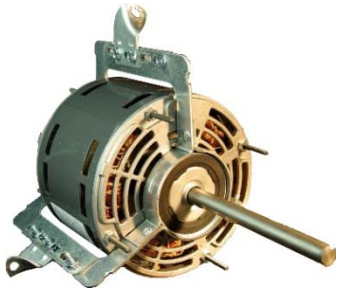
3

Easy Installation – Mounting

- The RESCUE EcoTech Motor Fits Most Belly Mounts

- Replace Flex (Torsion) and Hub Ring Mounts Using Catalog Number 44 or 17 Flex Mount Kits

Or



Use

Kit 17

Kit 44

Rheem/Ruud Brackets? Use Kit 24

Rescue EcoTech Selection Example

Example Scenario:

- OEM Motor has 10.0 Amp draw with 40 MFD capacitor (115V) and labeled as 3/4 HP
- Since that 40MFD capacitor is larger than the typical 20MFD, the 3/4HP is not the suggested motor.
- For the Rescue EcoTech upgrade, the 1HP rated 5550ET motor is the best premium choice!

PSC Motor Nameplate Amps	PSC Motor Nameplate Hp	Typical Capacitor MFD*	Rescue EcoTech To Use
115V Replacements			
2.5-5.5	1/4-1/3	5-7.5	5520ET
5.6-8.4	1/3-1/2	7.5-10	5530ET
8.5-10.5	1/2-3/4	10-15	5540ET
10.6+	3/4-1	15-20	5550ET
208-230V Replacements			
1.5-2.7	1/4-1/3	5-7.5	5521ET
2.8-3.6	1/3-1/2	7.5-10	5531ET
3.7-5.0	1/2-3/4	10-15	5541ET
5.1+	3/4-1	20-25	5551ET

Pay Attention to Larger Than Normal Capacitors! They are Telling YOU Something!

Typical Homeowner Hot Buttons

Is there anything we can do about all this dust?

What can I do to lower my utility bills?

My children are suffering from allergies!

How do I fix uneven temperatures throughout my home?

I know my A/C system needs replacement, but isn't my furnace still good?

Lower Utility Bills – Energy Savings

Solution for Homeowner Seeking Energy Savings

Est. Annual Homeowner Savings – RESCUE EcoTech vs. PSC

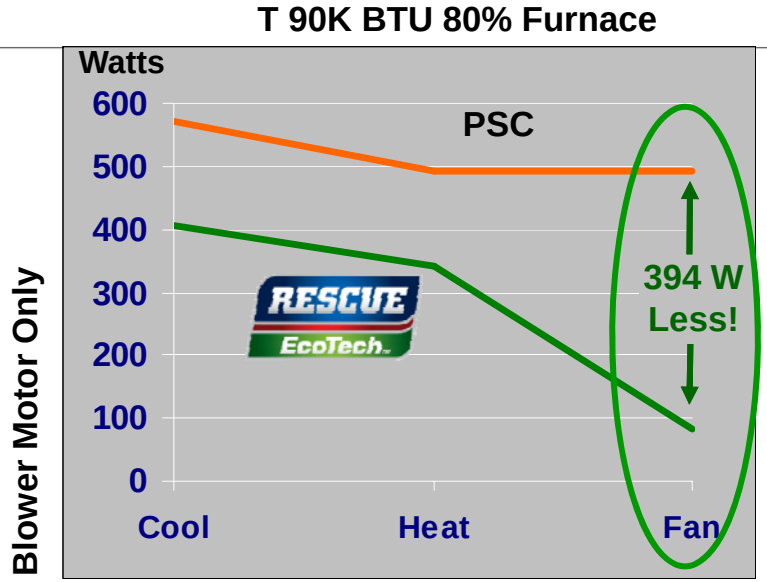
Continuous Fan Operation

Cents/ kWhr	½ hp	¾ hp	1hp
22¢	$342	$378	$504
20¢	$311	$344	$458
18¢	$280	$309	$413
16¢	$249	$275	$367
14¢	$218	$241	$321
12¢	$186	$206	$275

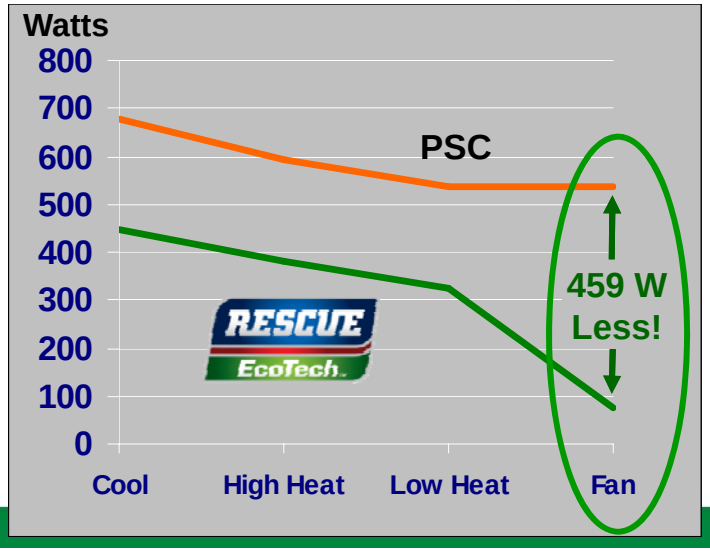
Heat/Cool Operation Only

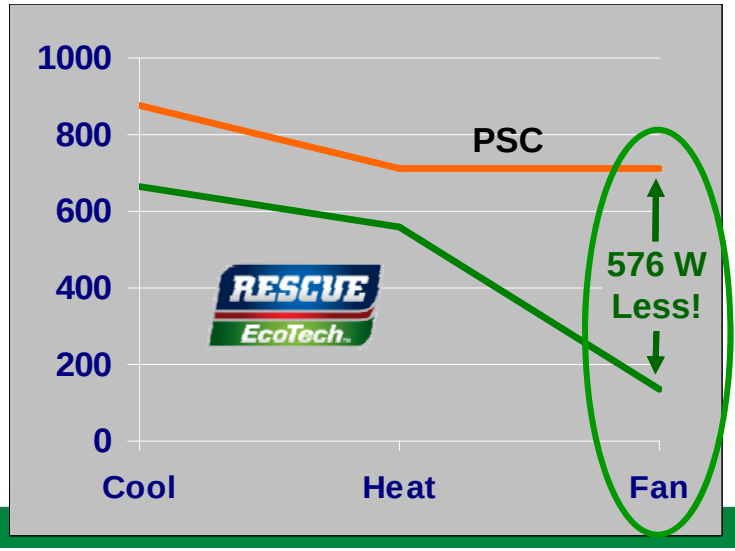
Cents/ kWhr	½ hp	¾ hp	1hp
22¢	$124	$134	$179
20¢	$113	$122	$162
18¢	$101	$110	$146
16¢	$90	$97	$130
14¢	$79	$85	$114
12¢	$68	$73	$97

Lower Utility Bills – How?



- **Full Load: High efficiency provides a 170 to 370 watts reduction = 29% Savings!**
- **Circulation Speed: Low 600 RPM speed provides very efficient airflow**
  - **Circulation speed uses less than 100 watts (1/2hp motor)**
  - **75% Watt Savings over PSC typical**
- **Like a CFL bulb, the EcoTech motor runs on the same voltage, puts out equal power, but uses fewer watts!**





With Rescue EcoTech, its about improved magnetics. Does this make sense to you?

Uneven Temperatures – Continuous Air Circulation

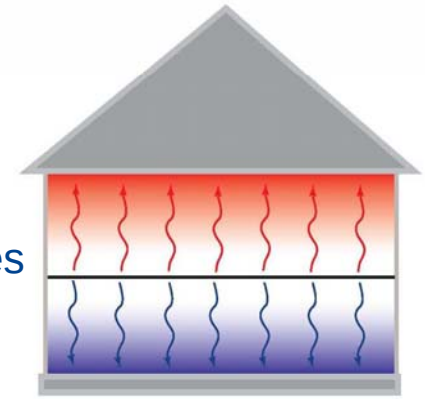
Ask the **RIGHT** question:

WHERE in your house do you have Hot or Cold Spots?

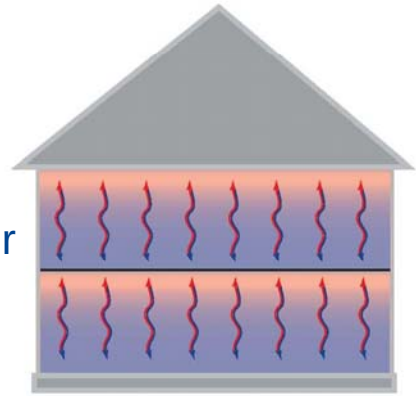
Problem: Caused by stagnant air once your AC or furnace stops circulating

Solution: Set fan to **ON** position for constant mixing of the air and more event temperatures.

Problem:
Stagnant Air -
Warm Air Rises
Cool Air Sinks



Solution:
Continuous Air Circulation



Studies Show Continuous Air Flow can Reduce Temperature Differences by 3˚ – 6˚

Allergies and Dust – Continuous Air Circulation

Ask the **RIGHT** question:

WHO in your house suffers from Asthma or Allergies?

Problem: Dust or Allergens not being adequately filtered.

Solution: Set fan to **ON** position for increased filtration especially during Spring and Fall seasons when system run time is typically low.

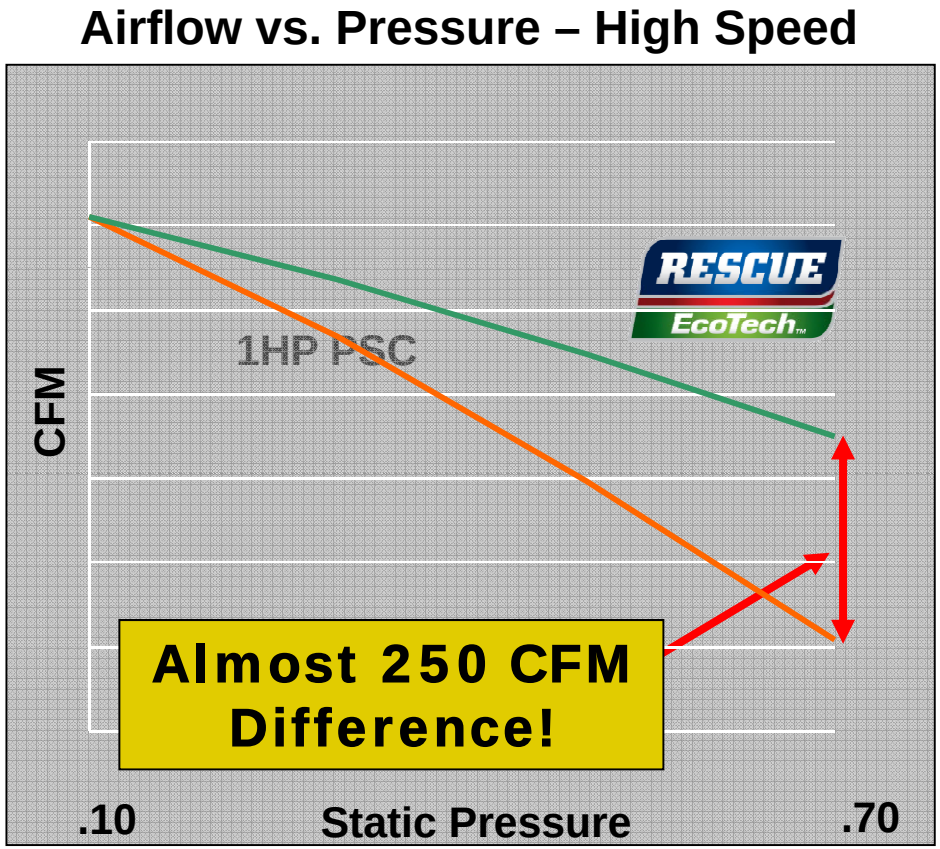
This Provides You, the Contractor, an Opportunity to Sell More filters!

Improve Internal Air Quality w/ Continuous Fan

- Research Indicates that 61% of Households Have a Member that Suffer Allergies Due to Airborne Particles
- Contractor Feedback on IAQ:
- “People are Looking for Peace of Mind”
- “Kids are a big driver”
- “They complain that it is HOT upstairs and cold downstairs.”

This is a Great Bundling Opportunity for Advanced IAQ Equipment!

Improved Air Circulation - Active Airflow Management



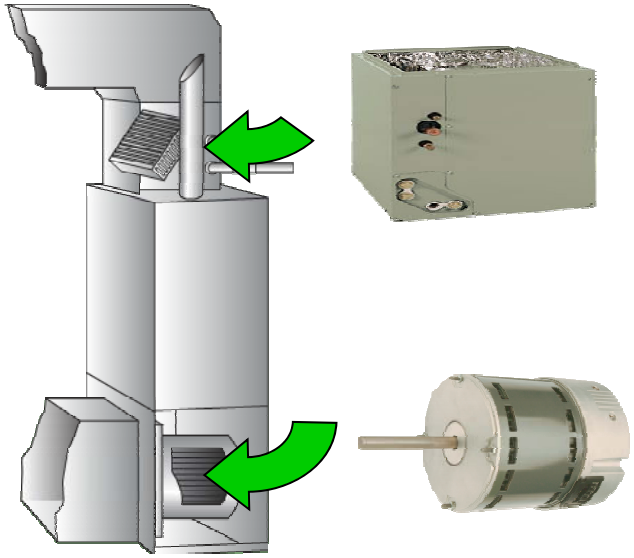
Works To Maintain Airflow As Static Pressure Increases From:

- Dirty Filters
- Closed Vents
- Changes in Static Pressure Cause Variable Airflow with a PSC

Furnace Upgrade w/ AC Replacement

Scenario: A/C Condenser and Coil Getting Replaced with new High Efficiency Unit

- Customer wants to upgrade furnace electrically, without buying a complete system
- Rescue EcoTech gives them most of the benefits of a new furnace without the cost



Upgrade Blower When Replacing A/C

Presenting the Rescue EcoTech

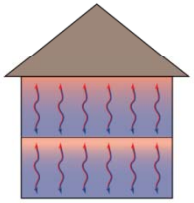
The Solution Driven Service Call

System Allows Tech's to Offer a Solution Without having to Sell

Address the "Hot Buttons"

All homeowners have "hot button" issues.

- Allergies and/or Asthma
- Personal Comfort
- Equipment Life - Investment
- Noise
- Environment
- Dollar Savings



Clearly Addressing "Buttons" Makes RESCUE EcoTech Easy For Homeowners

Run your service call like a Doctor runs an office call

The Doctors Office

1. Receptionist asks questions to help ensure a proper diagnosis
2. Nurse asks questions and takes basic reading to help ensure a proper diagnosis
3. Doctor asks questions and run tests to ensure a proper diagnosis
4. Determines what is causing the symptoms
5. Explains to the patient what is causing the symptoms
6. Explains how to fix the problem
7. Writes a prescription or course of action

Run your service call like a Doctor runs an office call

The HVAC Service Call

1. Office staff asks initial question to help ensure proper diagnosis
2. Technician asks questions and does a basic overview of the system
3. Technician reviews problem looking for a root cause, asks more questions, and runs additional tests or takes additional measurements to ensure proper diagnosis
4. Determines exactly what is causing the symptoms
5. Explains to the customer what is causing the problem
6. Explains how to fix the problem
7. Writes a course of action

Two Most Important Questions

Ask the **Right** Questions!

- **What** areas of the house are too hot in the summer and / or too cold in the winter?
- **Who** in your home suffers from Allergies or Asthma?
  - **When** are they the worst? Spring and Fall? That is when you system runs the least amount of time.

Symptom

Cause

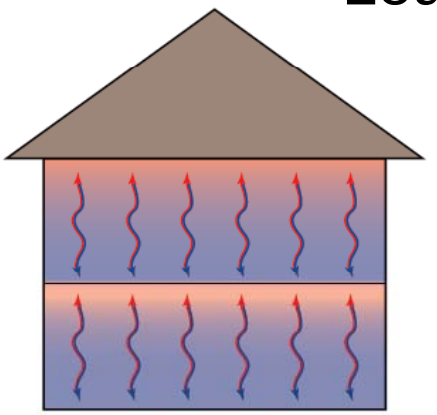
Prescription

You are Not Filtering the Air if the Fan isn't Running !

Review Findings with your Customer

Did you find the Hot Buttons?

- Hot and Cold Spots – Circulation Mode
- Allergies and/or Asthma – Circulation Mode
  - IAQ Equipment – Filters and Humidifiers?
- Utility Bills – EcoTech Helps at Full Load and Circulation Mode



Tools For the Contractor – Presenting the Rescue EcoTech

1. Be Sure to Quote the Customer on a PSC Replacement to Establish the Baseline First
2. Present the RESCUE EcoTech as an Upgrade Option Based on Their “Hot Button.”
3. Use the Homeowner Brochure to Help Show Them the Benefits and That This is a Quality US Motors Product.
4. Use the Savings Calculator to Show Them the Savings and/or Payback Period for Their Situation.

   Example: $300 Upgrade Cost. $0.12/kWhr, 3/4HP Blower in Continuous Fan Mode to Relieve Allergies. $206 Annual Energy Savings. Payback Period is **Only 18 Months!**
5. Higher Comfort and Savings for them, Larger Invoice and Profit Billings for You!

Tools For the Contractor – Presenting the Rescue EcoTech

Example:

- Value: Homeowner Comfort Benefits and $ Savings.
- The 1/2HP EcoTech is Presented as a $270 Upgrade to the Homeowner.
- This is a 1.45 Year Payback Based on $0.12/kWh in Continuous Fan Mode for Them.
- You, the Contractor, Make an EXTRA $64 on the Installation!
- This a “Win-Win” for You and Your Satisfied Customer!

Motor Replacement Example		
	PSC	EcoTech
Total Billing:	$ 400	$ 670
Motor	$ 62	$ 270
Capacitor	$ 2	$ -
Mounting Kit	$ 15	$ 15
Profit Over Cost	$ 321	$ 385
Extra Profit		$ 64

Support Tools For the Contractor

- RESCUE EcoTech® Website featuring technical information, FAQs and other sales tools
- Contractor Sales Tools
- Homeowner Brochures
- Savings Calculator
- Introduction Support With PR, Wholesaler & Contractor Training

Rescue EcoTech Quiz

- **Is this a replacement for OEM variable speed motors?**

  No. The RESCUE EcoTech motor is specifically designed to connect to standard PSC controls only

- **What types of systems will work with the RESCUE EcoTech motor?**

  M*ost residential furnace and air handler systems that utilize a PSC 6-pole (1075 RPM) direct-drive blower motor.*

- **Is Rescue EcoTech a variable speed motor?**

  Yes, with one important difference, the patented motor control allows use of the high voltage speed taps directly from a PSC furnace or air handler control board, providing 5 discrete speeds.

Think Opportunity…We Did

RESCUE EcoTech Adds To The
Toolbox Of Solutions For Contractors And Homeowners

Designed In The RESCUE Motor Tradition To Save Time And Make Money For Contractors

A Smart Way To Meet Homeowner's Energy Saving And Indoor Comfort Needs

Rescue EcoTech Motors: Responsible Use Of Energy Through Technology

RESCUE EcoTech™