



Case Study: ECM vs. PSC Motors In Hospitality Industry

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What Is An ECM Motor?

Electronically Commutated Motor

Are motors powered by direct current (DC) electricity and have electronic commutation systems, rather than mechanical commutators and brushes.

Benefits of an EC motor:

- Higher Efficiency
- Less susceptibility to mechanical wear
- Increased reliability
- Less noise
- Full Variable Speed
- Controllability





Walk-In Refrigeration EC Motor & Fan Controlled Case Study

High Efficiency: ECM Technology

- *Efficiencies three times higher than shaded pole motors
- *Indirect energy savings: reduced compressor usage due to less heat output from EC Motors

Enhanced Programming Module: two speed program available

- *Factory/field speed programming to meet coil requirements

Increased Reliability

- *Fully encapsulated electronics
- *Form/Fit: direct replacement for existing motors in evaporators
- *Front mount/back mount/belly band mount

Shaded Pole Motor vs. EC Motor Energy Consumption						
W A T E R	140					
	120	Shaded Pole Motor				
	100					
	80					
	60					
	40		EC Motor			
	20					
	0			ECM: 800 RMP		

	Annual kW Usage	Annual \$ Energy Costs
SP Motor: 1550 RMP	1,033.68	\$103.37
EC Motor: 1550 RMP	402.96	\$40.30
ECM: 800 RMP	65.7	\$6.57
ECM: Combined*	234.33	24.43

*Typical compressor run-time: 40% - 60% based on continuous operation at \$0 - \$10/kWh



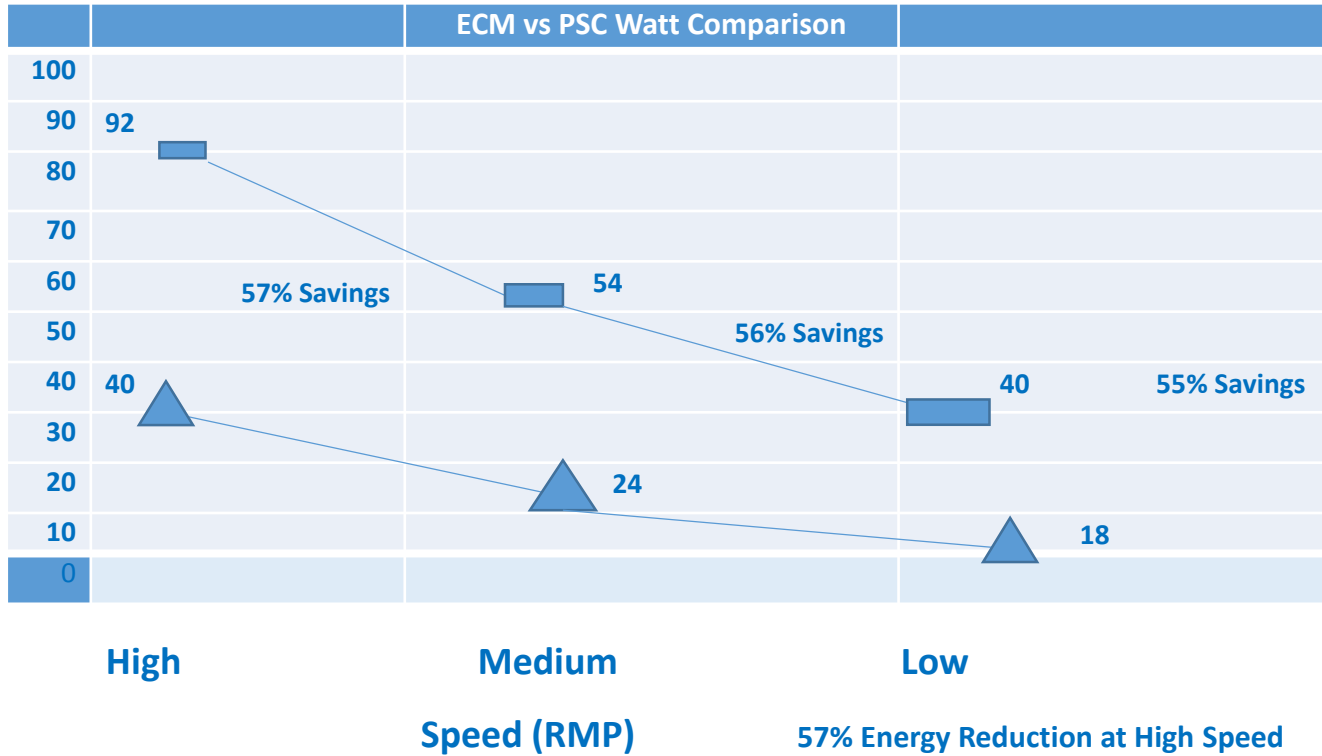
HVAC Air Moving Applications

- ✓ **FAN Coil Units**
- ✓ **Blowers/Exhausters**
- ✓ **Air Handlers**
- ✓ **Fan Filter Units**
- ✓ **VAV Terminal Box**





Cambridge, MA – 470 Guest Room Hotel



Features

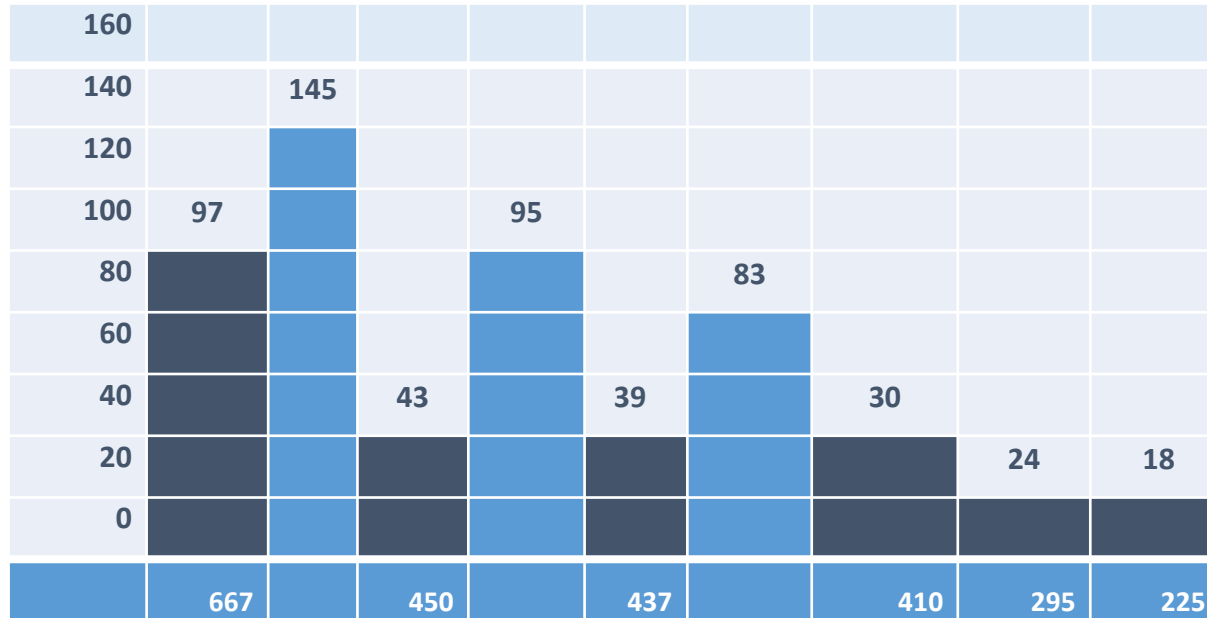
- ✓ Multiple Input Options
- ✓ PWM Variable Speed Operation
- ✓ 3 Selectable Discrete Line Voltage Speeds
- ✓ 24 Volt Input Selection
- ✓ Ball Bearing Construction
- ✓ Efficiencies Exceeding 78%
- ✓ Low Voltage Allows For Usage of Existing System Controls


PSC


ECM



PSC TO ECM MOTOR WATT COMPARISON



EON 42 

PSC Motor 

Operating the ECM motor at the specified airflow provided greater energy savings of 64% to 79% when compared to the existing setting obtainable by the PSC Motor



FAN COIL

Saving energy, money, and increased guest comfort on fan coil applications with EC motors

Features:

Multiple Input Options

- ✓ 120 or 208/240/277V AC single phase input, 50/60Hz
- ✓ 24 Volt Discrete Input Selection
- ✓ PWM Variable speed operation

Multiple Run Options

- ✓ Constant Speed
- ✓ Constant Torque
- ✓ Variable Speed

Program Parameter Adjustments

- ✓ Control Slew Rate
- ✓ Rotation
- ✓ Constant Fan

Benefits

Efficiencies exceeding 78%. Consume an average of 50% less energy.

- ✓ Low Voltage AC or DC thermostat inputs allow for use of existing system controls.
- ✓ Quiet Operation.
- ✓ Less susceptibility to mechanical wear.
- ✓ Provide exact specified CFM to the space.