## Brushless DC Compressor Motors

### Author

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### Description

Permanent magnet brushless DC motors can be 10% more efficient than their brushed counterparts (1). Using these motors in the compressors of DX cooling systems has the potential to increase their efficiency.

### Modeler Description

For each DX cooling coil in the model, increase the COP by the user-defined amount (default 2%). The default is not well supported, but since the motor efficiency increase is 10%, the overall increase in COP should be lower because the compressor motor is only one of the energy-consuming parts of the system.

### Use Case Types

Retrofit, New Construction

### Arguments

No arguments

### Initial Condition Message

### Final Condition Message

The total number of DX cooling coils whose COPs were increased.

### Not Applicable Messages

Not applicable if no DX cooling coils were found in the model.

### Warning Messages

### Information Messages

List each DX cooling coil’s before and after COP.

### Error Messages

### Code Outline

* For each DX cooling coil (1 and 2 speed)
  + Increase the COP by the user-specified percentage

### Tests

**This measure applies to:**

1. Large Office
2. Medium Office
3. Primary School
4. Secondary School
5. Large Hotel
6. Hospital
7. Small Office
8. Stand-Alone Retail
9. Strip Mall
10. Supermarket
11. Quick Service Restaurant
12. Full Service Restaurant
13. Small Hotel
14. Outpatient Healthcare
15. Warehouse
16. Midrise Apartment

### References

1. <http://energy.gov/sites/prod/files/2014/02/f8/Motor%20Energy%20Savings%20Potential%20Report%202013-12-4.pdf>