

Predictive Maintenance of an Intelligent Fan Coil Unit

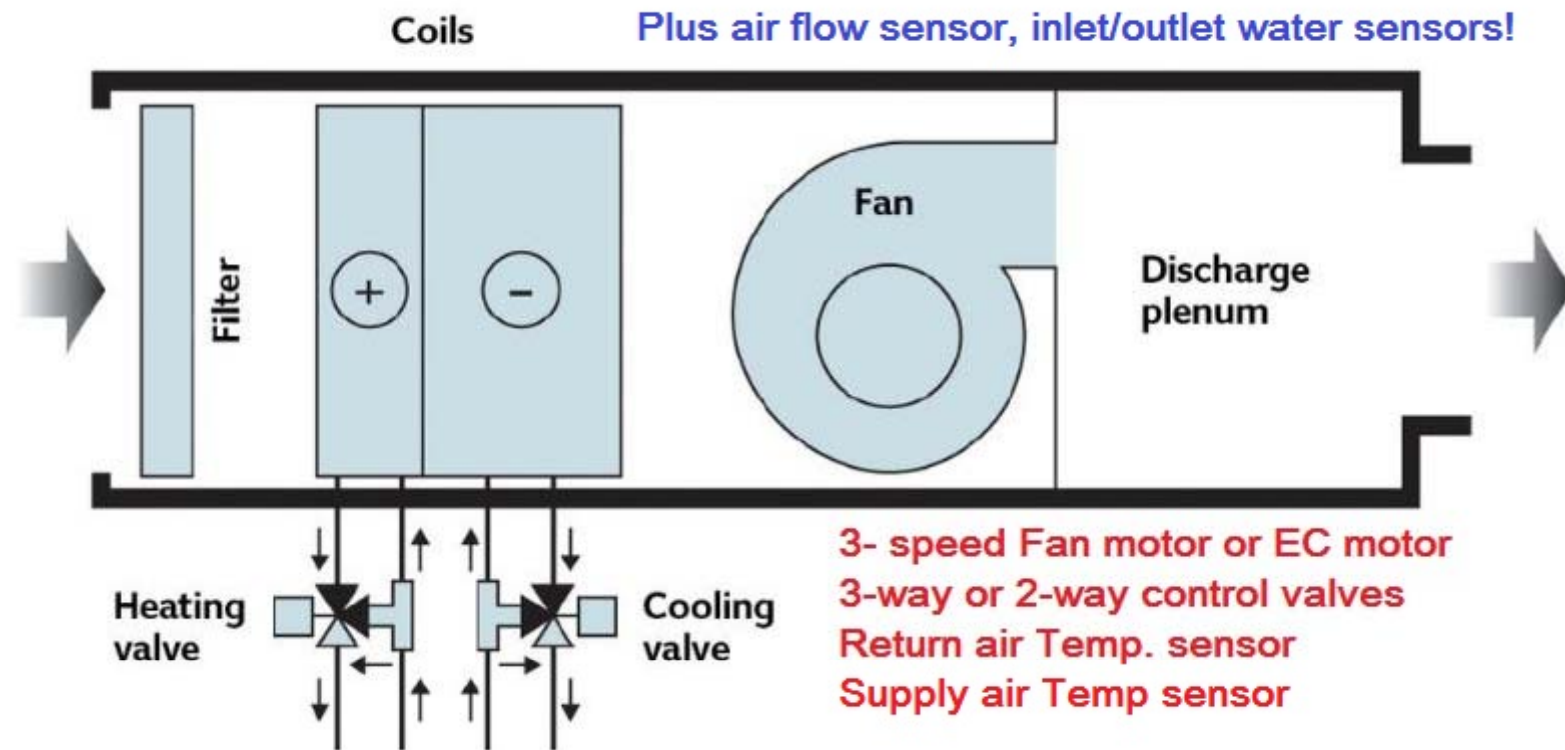
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Smart Controls – Fan Coil Unit



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Standard Fan Coil Unit

- Automatic Controls Operation
 - Cascaded Room temperature PI Control, with high and low limiting of the supply air temperature
- Fan Motor Control
 - 3-speed automatic selection control based on capacity, or
 - Continuous Modulation EC Fan motor
- Filter set EU3 (G3)

Standard Maintenance - FCU

- Maintenance tasks
 - Every 3 months clean filter
 - Every 12 months change filter
 - Every 12 months inspect condensate drain
 - Every 24 months clean water coil

Intelligent FCU

- A smart FCU has some more sensors than supply air temp and room temp sensors:
 - A single point air velocity sensor.
 - Two Temperature sensors on inlet / outlet of water coil.
- FCU Capacity modulation of the control valve:
 - At Low speed up to 60% of max. capacity
 - At Middle speed up to 85% of max. capacity
 - At High speed up to 100% of max. capacity

Predictive Maint. on Intelligent FCU

- On water coil enter/leaving to check the correct **Delta T** (12C-7C).
- **Approach temperature** of the coil Heat exchanger (14C – 7C).
- **Temperature cross** of the coil HX (14C-12C).
- **Air flow** through filter on fan high speed for estimating the life of the EU filter.

Intelligent fan coil unit – Pd M.

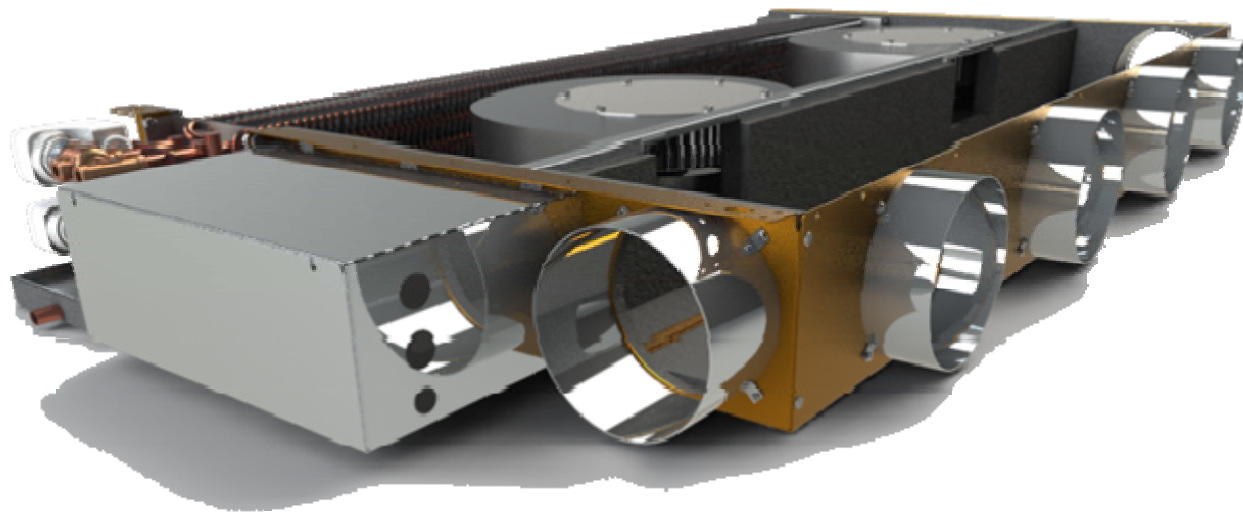
- **Strategy for Maintenance cost savings**
 - Time for filter cleaning ___ hrs.
 - Time for procurement and change filter ___ hrs.
 - Time for inspection and cleaning drainage ___ hrs.
 - Time for inspection and clean water coil ___ hrs.
 - Time for controls testing ___ hrs.

 - **Total Time required for project ___ hrs. (___ days).**

Intelligent fan coil unit – Pd M.

- What happens when Pd M is designed?
 - Depending on quantities in a building or in facilities, the maintenance time can be reduced by 67% or more!

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