

Design

Fan Inlet Conditions

$$\Delta L$$

- Non-uniform flow
- Turbulent flow
- Obstructions
- Sharp turns

Chassis Resistance

$$20 \log_{10}(R)$$

- Size of inlet, outlet
- Component density
- Tortuosity

Noise Emission Limits

$$L_{WA}$$

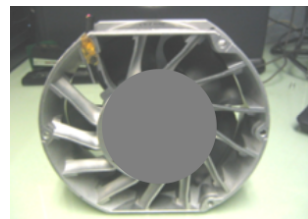
- Specifications
- Internal Guidelines
- Regulations

Cooling Requirements

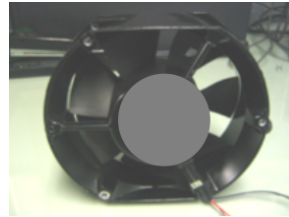
$$50 \log_{10} \left(\frac{q}{\xi \Delta T} \right)$$

- Processor type
- Processor load
- Temp. differential
- Flow distribution

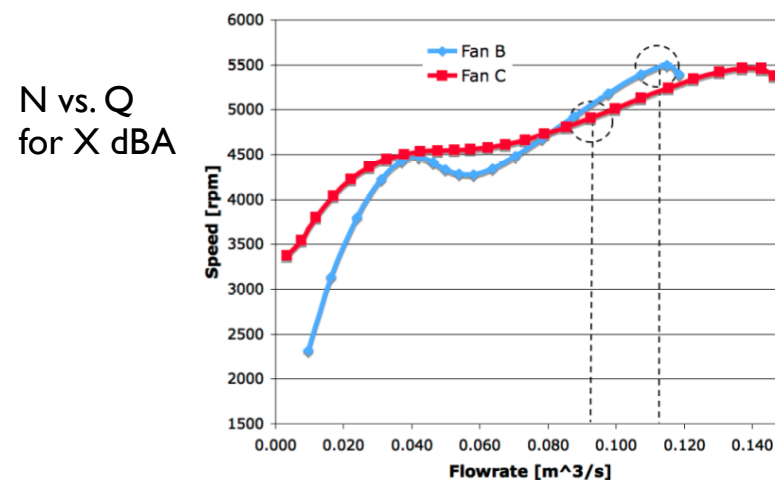
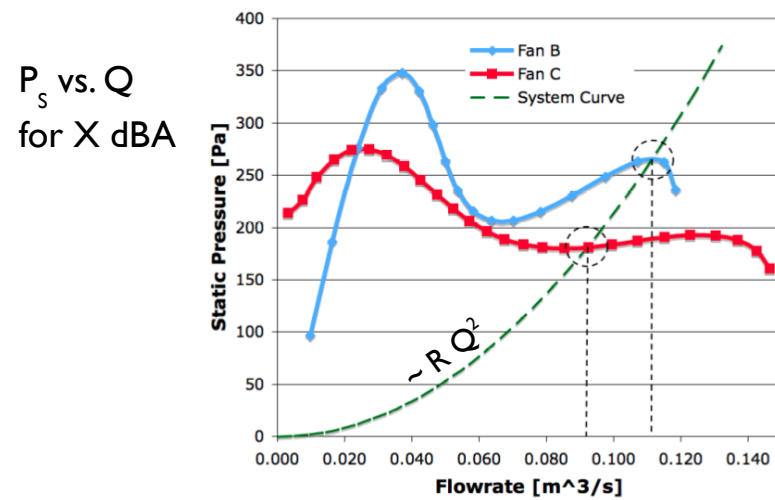
Fan Selection



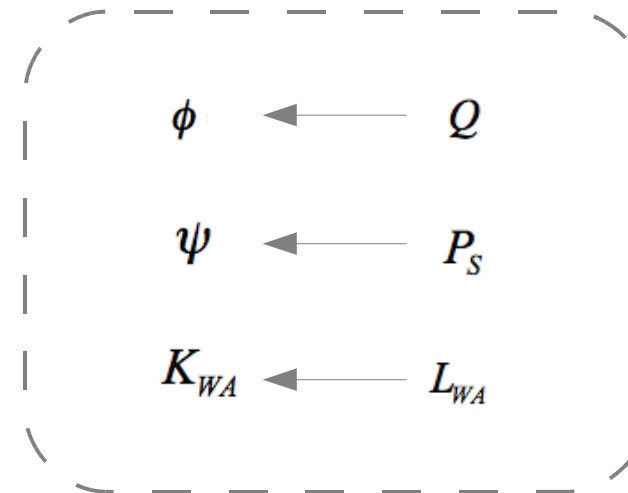
VS. ???



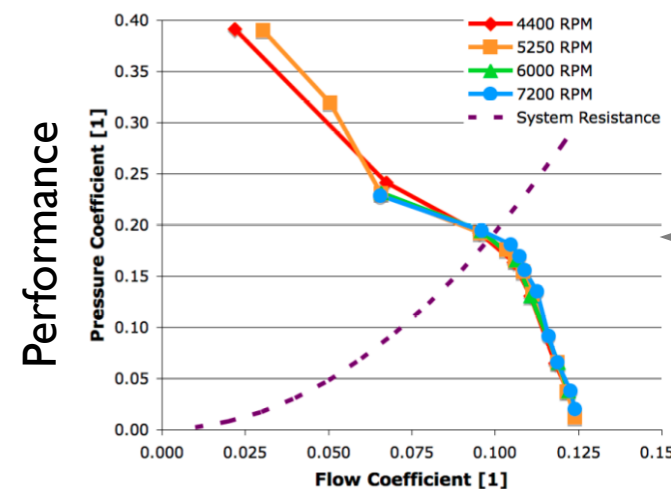
Format (axial, blower...)
Aerodynamic design
"Sweet spot"



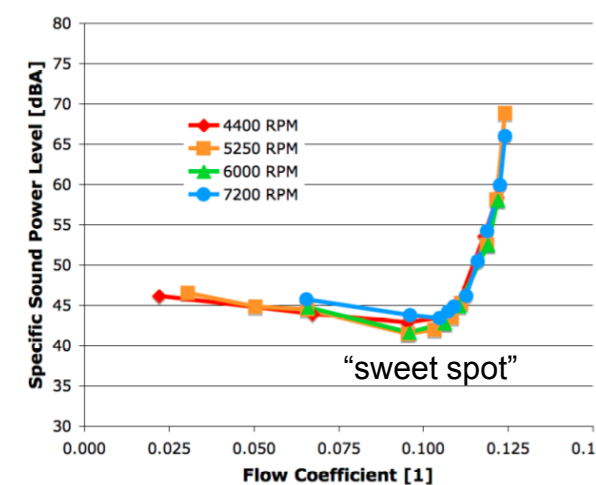
Analysis



Non-Dimensional

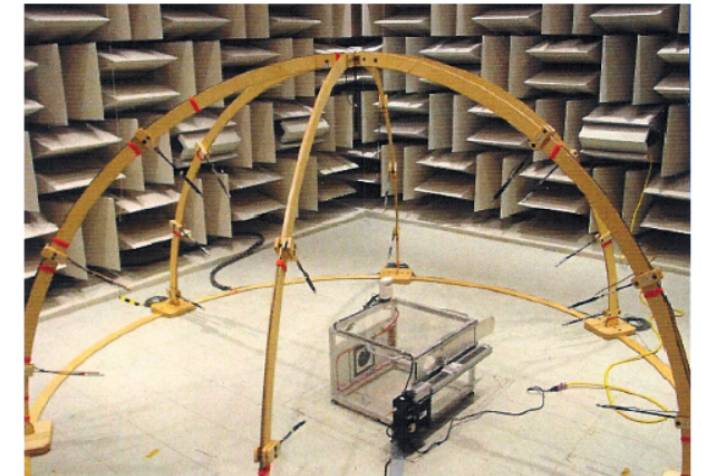


Noise Emission

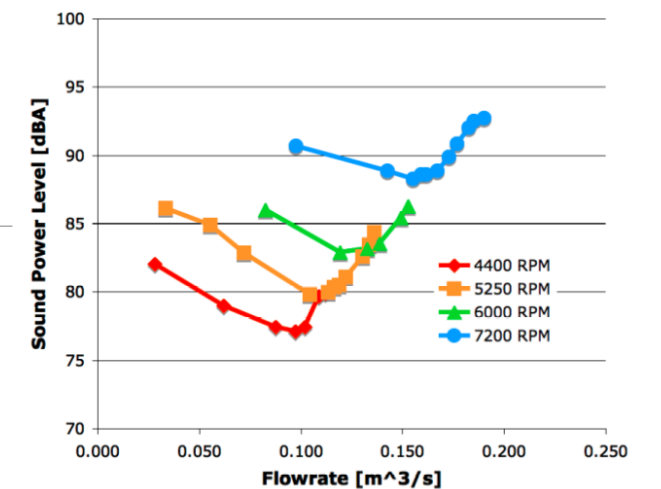
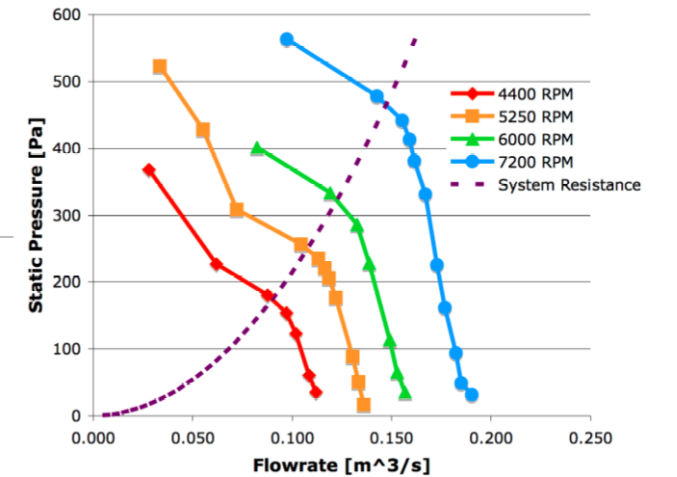


Testing

ISO 10302
ISO 3744
Sound Quality



Dimensional



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