Simpler, Faster Solution for Fan Design

SmartBlades automates generation of fan geometry and flow analysis processes

Features and Benefits

- Automates generation of fan geometry CAD data using parameter settings that define the number of blades and profile of blade shapes in sections

- Automates solver set-up, calculations and postprocessing

- Enables engineers to optimize fan designs without CAD or CFD knowledge
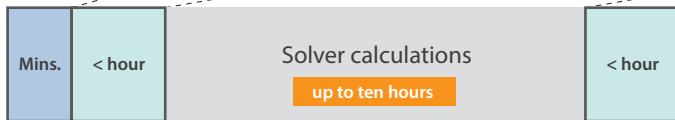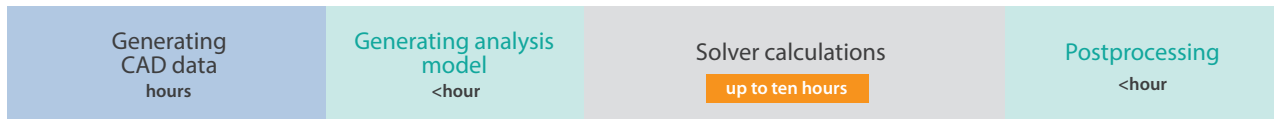
- Improves overall cost-effectiveness

Comparison of simulation set-up and analysis time with and without SmartBlades
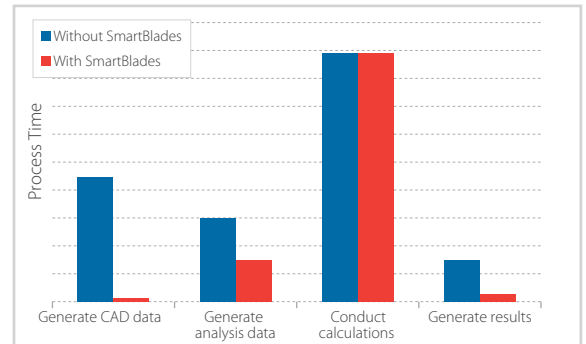
Without SmartBlades

- Tasks are performed manually
- Engineers must be proficient with CAD and fluid analysis software

*Calculation time depends on hardware capabilities

| Generating CAD data **hours** | Generating analysis model **<hour** | Solver calculations **up to ten hours** | Postprocessing **<hour** |

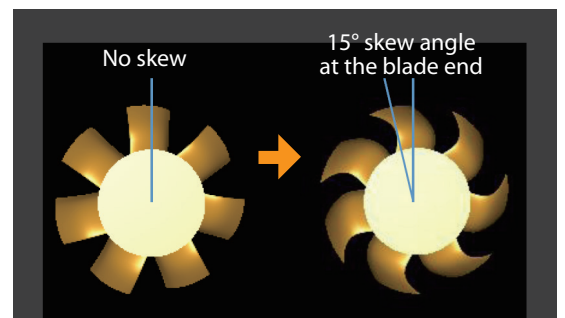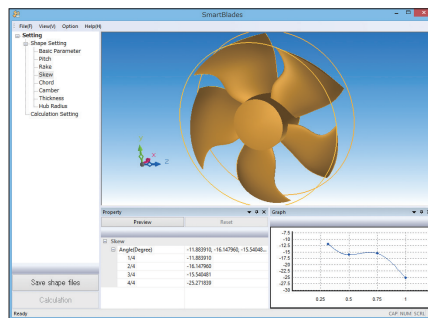| **Mins.** | **< hour** | Solver calculations **up to ten hours** | **< hour** |

With SmartBlades

- Tasks are automated (only requires parameter inputs using GUI [Graphical User Interface])

- Engineers without CAD and fluid analysis software proficiency can perform these tasks

■ Without SmartBlades
■ With SmartBlades

Process Time

Generate CAD data | Generate analysis data | Conduct calculations | Generate results

Qualitative process time comparison

Evaluation case study for an axial fan using SmartBlades

· Engineers can generate blade geometry by setting a minimal number of parameters

· Engineers can also generate a blade shape by dragging graph lines to adjust rake angles, skew angles, thickness, and other parameters

No skew → 15° skew angle at the blade end

SmartBlades automates the overall process and minimizes process time for fan design.

Geometry data generation
Operating condition setting → Flow analysis → Postprocessing

Modify parameters