CFturbo®
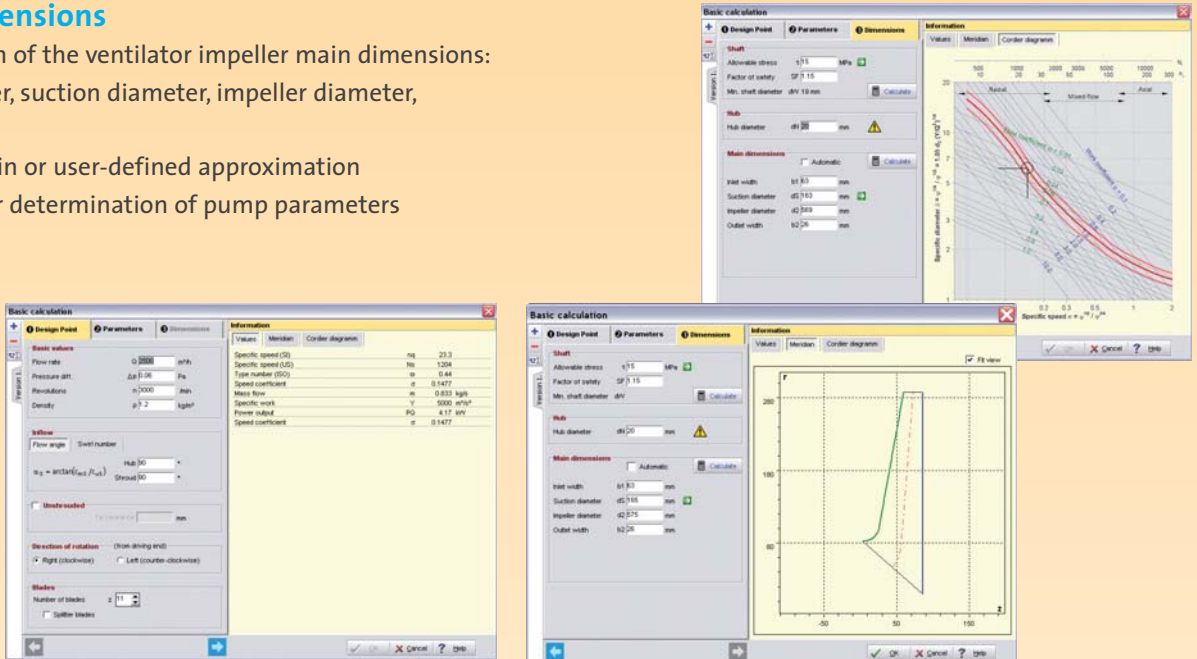
VENTILATORS – MAJOR DESIGN STEPS

1. Main dimensions

– Computation of the ventilator impeller main dimensions:
hub diameter, suction diameter, impeller diameter,
outlet width

– Use of built-in or user-defined approximation
functions for determination of pump parameters

2. Meridional contour

– Design of meridional contour by Bezier-
splines, arcs and lines or user-defined polylines

– Positioning of straight or curved leading edge

– Display information pertaining to important
geometrical parameters
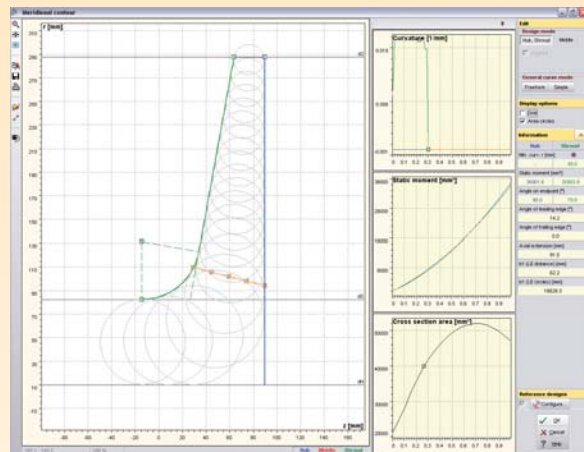
3. Blade angles

– Selecting blade shape: Free form 3D, General 2D,
Circular 2D, Straight 2D, Ruled surface blades,
Radial element blades

– Blade design on 2 to 11 meridional flow sections

– Computation of optimal blade angles considering the
contraction of the flow channel and the slip factor

– Display velocity triangles and tabular listing of
velocity components and flow angles

DESIGN SOFTWARE FOR RADIAL & MIXED FLOW VENTILATOR IMPELLERS
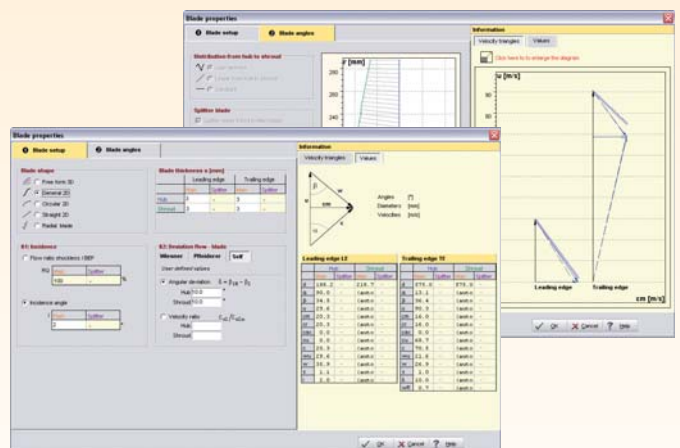
4. Mean lines

– Definition of mean lines by Bezier-splines or user-defined polylines
– Coupled or non-coupled manipulation of blade shape
– Free choice to determine the wrap angle
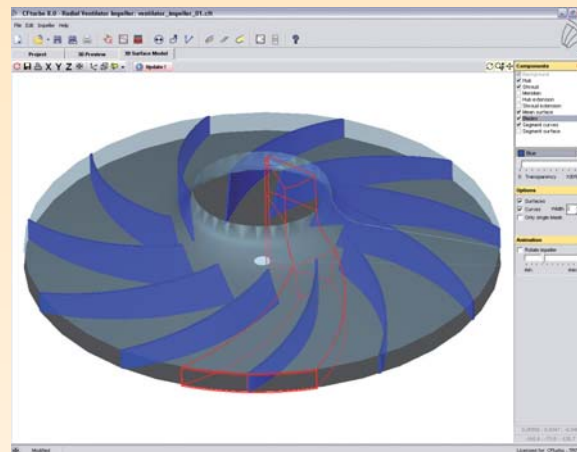– Display of blade angle distributions
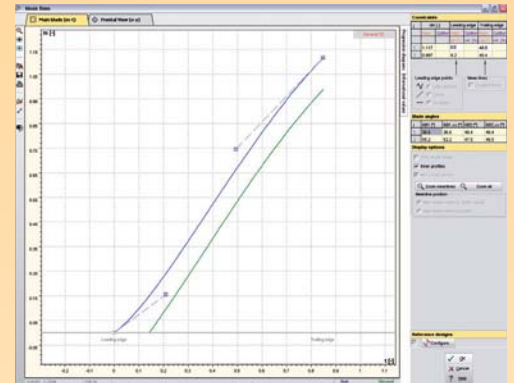
5. Blade profiles, leading edges

– Specification of blade thickness on all profile sections
– Round leading edges by Bezier-splines or ellipses
– Display of designed impeller in frontal view
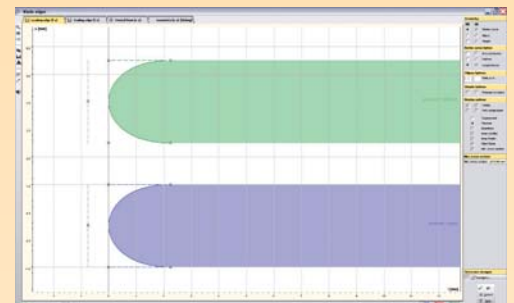
6. 3D-views

– Dynamic 3D-representation (rotate, move, zoom)
– Partial views
– Cutting plane
– Assembly view

7. Data export

– Neutral formats like IGES, STEP, DXF
– Direct interfaces to major CAD- and CAE/CFD-systems
– Special export formats available on customer request

8. Performance map estimation

– Computation of fundamental losses for impeller and volute by proven empirical relations
– Performance curve display for different speed
– Various possibilities to set-up and to show relevant values on diagram

DESIGN SOFTWARE FOR RADIAL & MIXED FLOW VENTILATOR IMPELLERS