Proposing the best cooling solution for the customers.

Addressing the customer demands into commercialization in a short period of time.

With these two points as targets, Japan Servo proactively promotes commercialization (introduction of CAD, CAE, DA) in product development process.

For fan and blower products, Japan Servo challenges new technology in many fields including aerodynamic analysis based on fluid simulation analysis, analysis of rotary magnetic field on motor iron-core, resin flow within the die for precision-molded products, and stress analysis under high-temperature conditions for propeller so that the best products can be developed within a short period of time utilizing digital engineerings.

The outcomes have been seen not only in the new products of axial fans described in this catalog but also development of low-noise centrifugal blower, unique fans ordered specially for customers, and designing of assembled tray unit.

Furthermore, the automatic propeller designing system which Japan Servo has developed based on these fundamental analyzing technologies has already started. This system creates the optimal propeller design by calculating possibilities for all shapes when the desired static pressure and flow rate performance are input.

With these latest technologies that are continued to be improved, Japan Servo continues to provide new products following the concept of "providing the best solution for the customers."

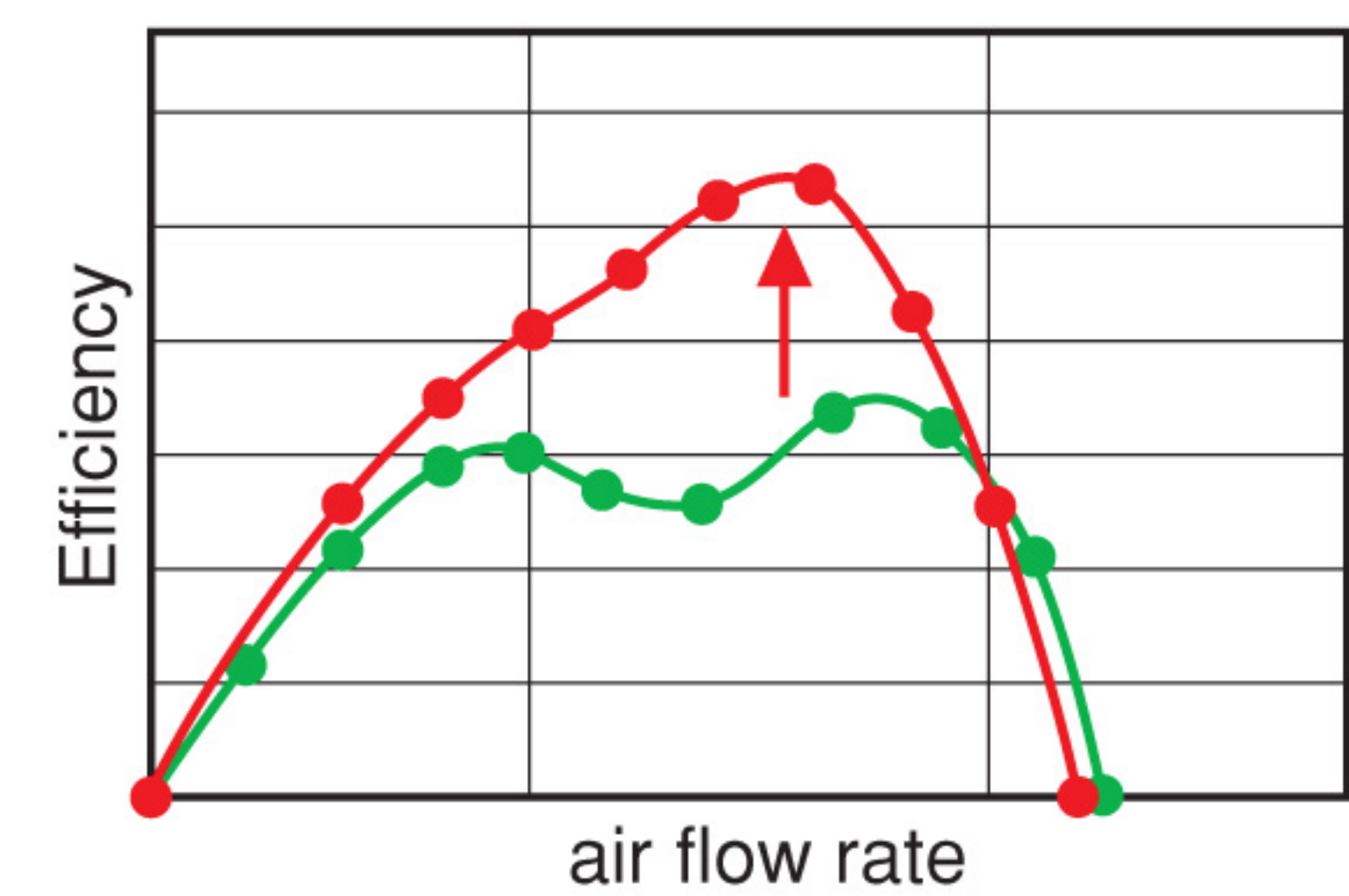## *Fluid analysis and propeller design*
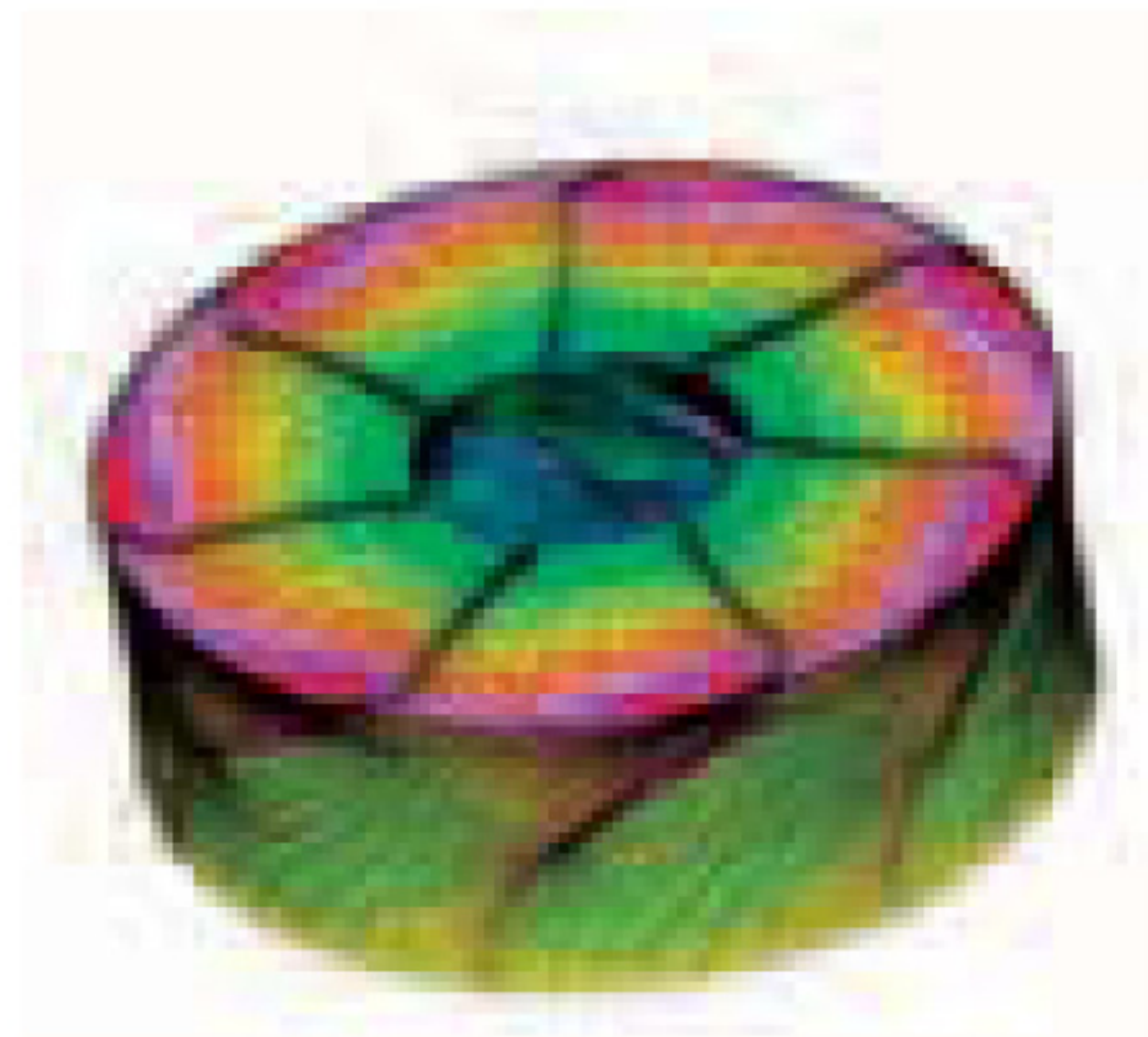
Example of analysis results on flowline in propeller

Velocity and static pressure are expressed in a color scale and the air flow direction as vector line diagram so that the air behavior for each load condition is visualized.
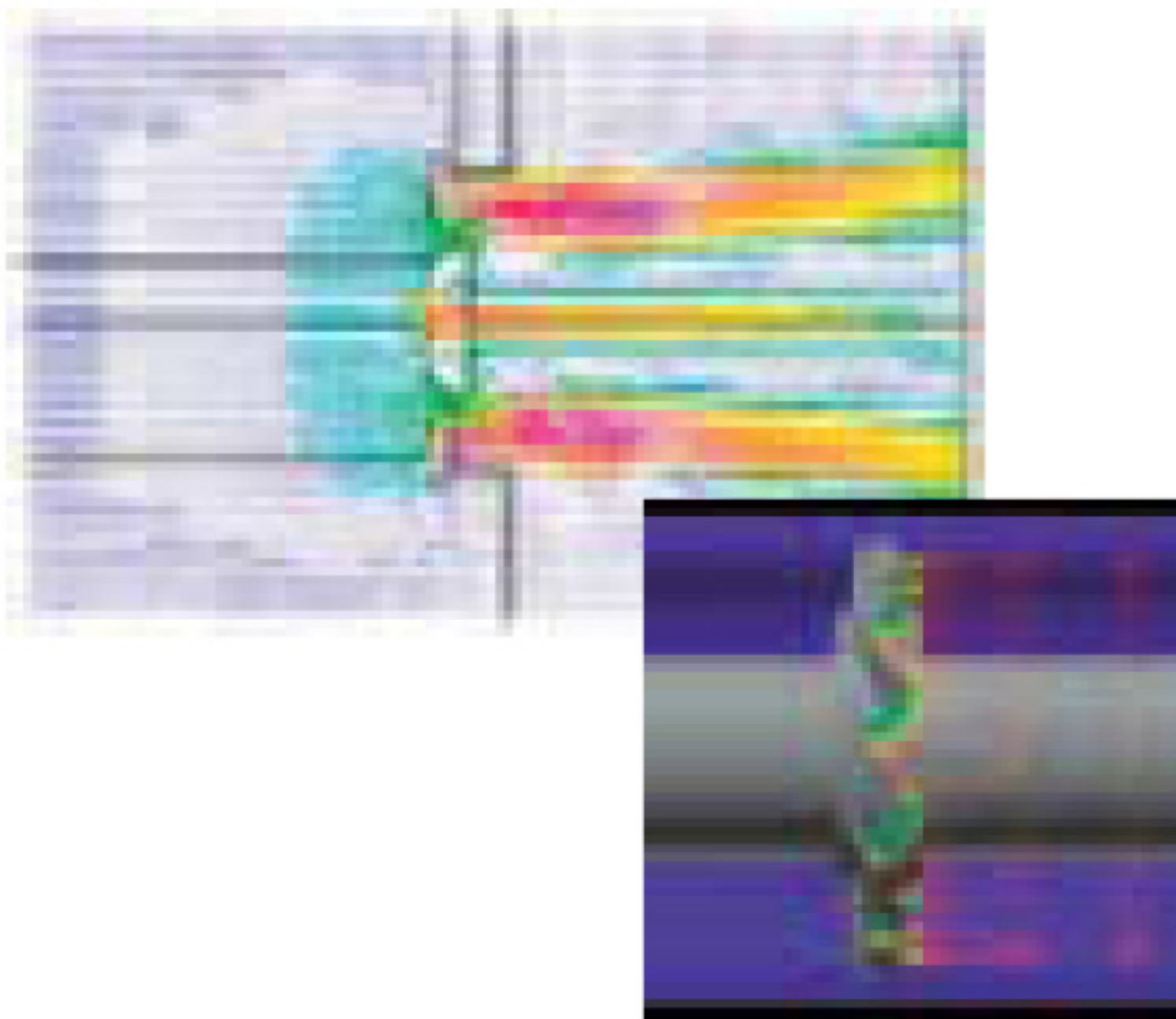

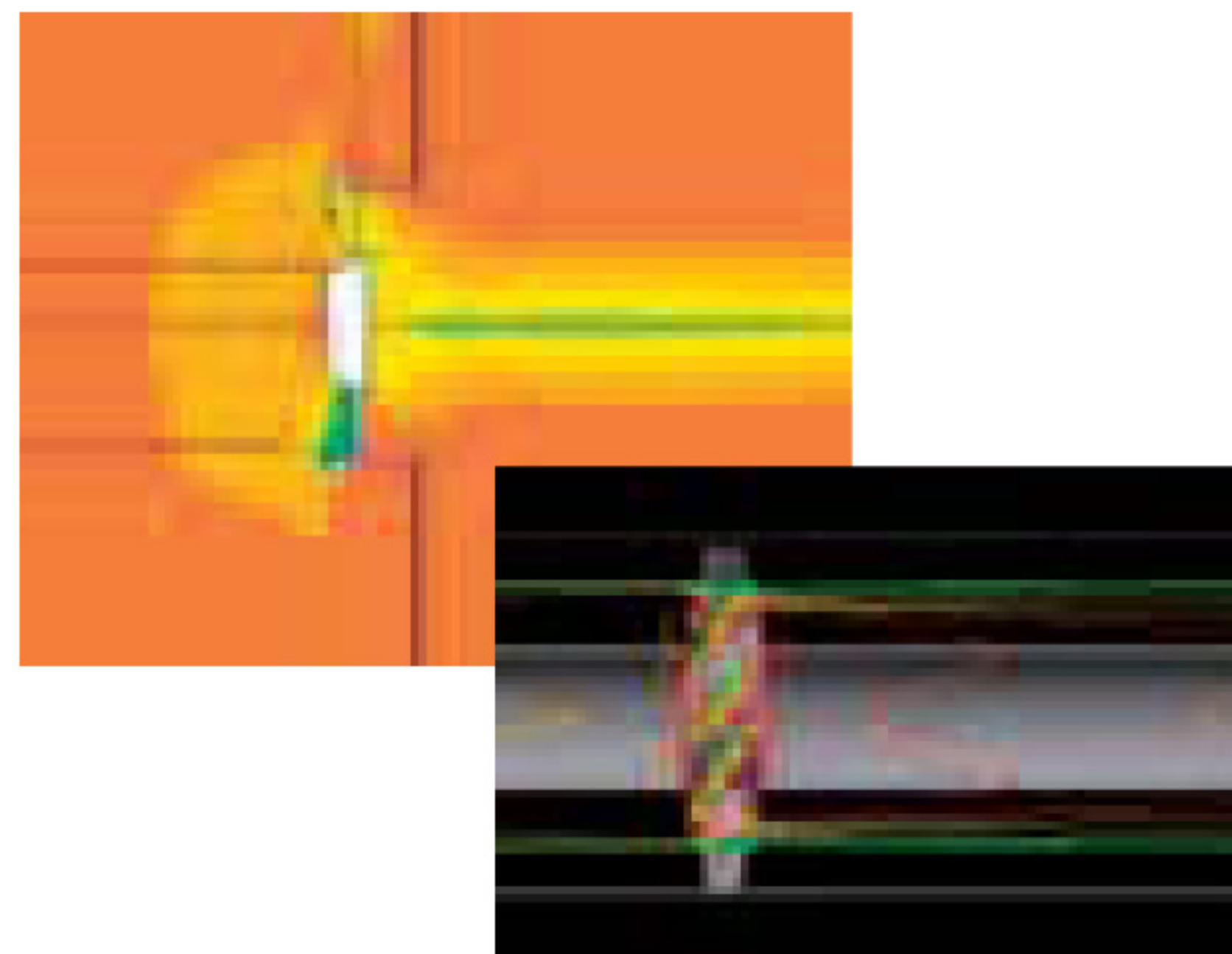Flow at the axis block is checked by extracting an optional blade cross section.

Several hundred propeller shapes are put to trial calculation to select the shape with best efficiency.

The propeller selected in automatic calculation is output as a 3D data.

Air flow velocity distribution in forward /backward direction of the fan

Static pressure distribution in forward /backward direction of the fan