New blades on an existing hub can increase the efficiency of the plant and hereby establish energy savings which improves the fan economy. The solution saves costs by keeping existing ducts, foundation and most of the static parts.

Change in the power plant processes create new performance demands. By installing new blade types on the existing hub it is possible to change the performance and optimise the efficiency of the fans.

Replacing blades with a new type and design can cover medium pressure profiles, volume profiles, and high pressure profiles or the latest available from our fan programme: A super high pressure profile.

Our blade profiles are supplied in different materials ranging from cast or forged aluminium, nodular cast iron, cast steel to special cast nickel alloy.

**Blade designs**

We offer five different types of blade designs:

- **Medium-pressure profile**
- **The volume profile**
- **The high-pressure profile**
- **The high-pressure profile with pre-swirl inlet guide vanes**
- **Super high-pressure profile**

Blade materials range from aluminium, nodular cast iron, cast steel to special cast nickel alloy.

Illustration of a high (left) and a medium pressure profile

Available blade types (see left for curve color definitions)
Most fans are capable of being rebuilt to use other blade profiles – cast hubs to carry new aluminium profiles and the stronger fabricated hubs to carry any blade material.

Installing new blade types can give substantial increase in pressure and volume.

As an extreme example changing from a volume profile to a super high pressure profile can, at same tip speed, deliver up to 80% more pressure and 30% more flow.

To obtain the full aerodynamic performance of the fan curves both the upstream and the downstream guide vanes must normally be replaced.

On the other hand most fan parts as well as the foundation, ducts and instrumentation can normally be reused.

**Performance data**

Figure 1: Curve showing fan performance before and after retrofit

Curve showing the existing fan with volume blade profiles on fabricated hub and the upgraded fan with super high pressure profile blades on existing fabricated hub.