New blades on new hub

Change of the power plant processes like installing FGD or SCR or making other changes will create new performance demands. By installing new blade types with a new hub of increased strength it is possible to fine-tune the performance and upgrade the fan efficiency to an optimum.

When you install new blade types together with a new hub of increased strength you will not only optimise the performance for both volume and pressure, you will also get energy savings and improve the economy of the plant.

Whatever the needs Howden offer a wide range of blade profiles that can meet your changed performance requirements:

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

To ensure maximum strength of the impeller we offer various hub designs which can be implemented on your fan.

All performance curves are tested and verified in our own AMCA 210 registered state-of-the-art aerodynamic laboratory. The performance curves are verified according to US standard AMCA 802 which does not allow any scaling effect from model to full-size fan.

Replacing blades with a new type and design can cover medium pressure profiles, volume profiles, high pressure profiles or the latest available from our fan programme – a super high pressure profile blade. Our blade profiles are supplied in different materials ranging from cast or forged aluminium, nodular cast iron, cast or fabricated steel to special cast nickel alloy all depending on operating conditions.

Most of the Howden hubs are capable of being rebuilt to use other blade profiles – casted hubs to carry new aluminium profiles and the stronger fabricated hubs to carry any blade material.

Installing new blade types can give huge increases in pressure and volume. The example in figure 1 shows how the performance will change if a fan is upgraded with new types of both hub and blades still keeping the fan speed and the size of the hub and blades unchanged.

![Blade profiles](image)

To obtain the full performance of the fan curves both the upstream and the downstream guide vanes must be replaced. Most fan parts as well as the foundation, duct and instrumentation can normally be reused.

![Fig. 1](image)