

New blades on existing hub



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.

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Change in the power plant processes such as rebuilding the boiler or installing FGD or SCR 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 either by providing more or less pressure and /or more or less volume.

Whatever the need Howden offer a wide range of blade profiles that can meet your changed performance requirements and we tailor make solutions that suit your specific application.

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, 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



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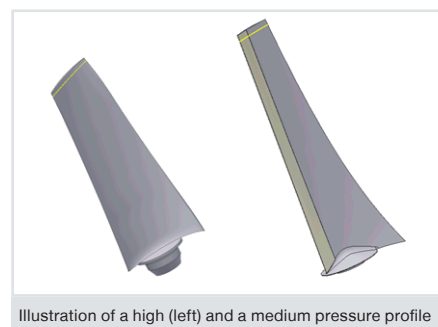
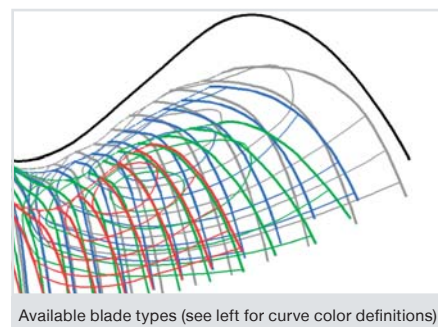


Illustration of a high (left) and a medium pressure profile



Available blade types (see left for curve color definitions)



For further information on axial fan retrofit solutions please visit www.howden.com or contact your local Howden company.

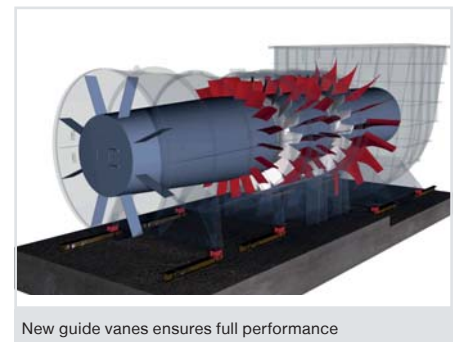
Most fans are capable of being rebuilt to use other blade profiles – cast hubs to carry new aluminium profiles and the stronger fabricated hubs to carry any blade material.

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.

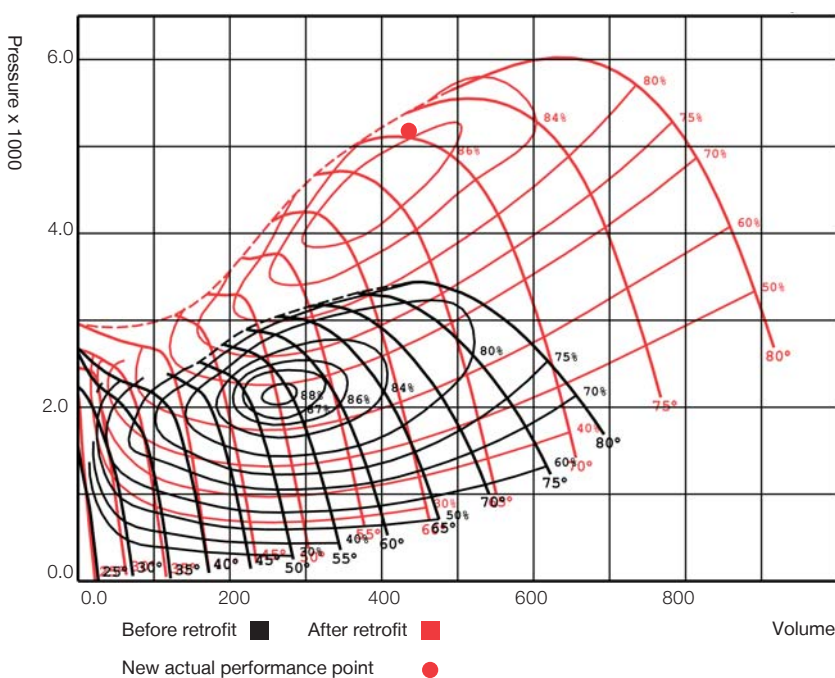
On the other hand most fan parts as well as the foundation, ducts and instrumentation can normally be reused.



New guide vanes ensures full performance

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