



case study



case study 12

Large Hastelloy® construction fan impeller for harsh acid environments

Many fan applications demand something more than a stock fan solution. When a multinational chemical company required a large fan assembly to operate in a harsh environment in their Malaysian plant, they turned to Halifax Fan to draw upon the company's extensive experience in the design, manufacture and test of fans for specialist applications.

Application benefits

- Design, manufacture and over-speed testing of a large impeller
- Flexible approach to meet the customer's demanding requirements
- Special corrosion resistant alloy construction
- Over-speed test rig designed to meet test specification



Arduous Duty Specification

This particular application, the manufacture of titanium dioxide, called for a 1.8m diameter impeller to operate at 75°C and capable of handling air saturated with concentrated sulphuric acid and chlorine ions. Such an operating environment demanded the use of a corrosion resistant alloy and Halifax Fan, based upon previous experience, selected Hastelloy® C22 for this installation.

Water jet cutting and specialist welding skills were both employed. The impeller/ shaft assembly was constructed to the ICI Arduous Duty specification, which in turn, necessitated over-speed testing of the assembly. To meet this need and ensure compliance, Halifax Fan designed and constructed a special test rig.

The mild steel shaft was part

overlaid with Hastelloy® to ensure corrosion resistance in the contact area. Assembly of the shaft and impeller required cryogenic cooling to shrink the shaft sufficiently to fit into the fan centre boss. Upon returning to ambient temperature, the result was a unified shaft/ impeller assembly, that was then precision balanced in-house and shipped as one complete unit.

Halifax Fan Limited

Mistral Works, Unit 11, Brookfoot Business Park, Elland Road, Brighouse, West Yorkshire, HD6 2SD, UK
T: +44 (0)1484 475123 F: +44 (0)1484 475122 E: sales@halifax-fan.co.uk

Halifax-Fan (Shenzhen) Co Ltd

1 & 2F, No. 4 Building, Creative Industrial Park, Shang Xia Wei, ShaJing, ShenZhen, GuangDong Province, China
Telephone No. 0086 755 8149 0059 Fax No. 0086 755 8149 0019

www.halifax-fan.co.uk

Produced by Kirk-MarCom Ltd e: eddie@kirk-marcom.com