

# ARTICLE REPRINT

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## FEATURES

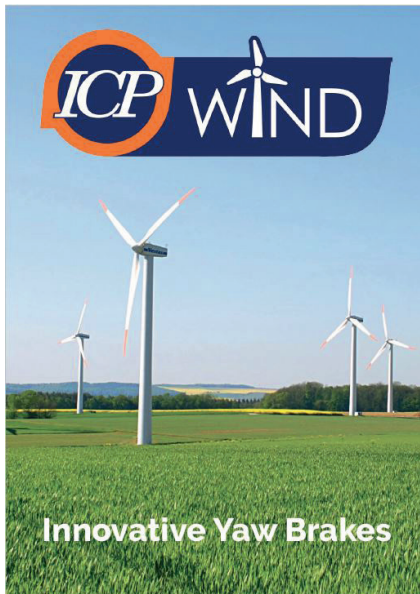
- » Brochure to hand out
- » Digital copy included

## BENEFITS

- » Reach a wider market
- » Use on social media and sales platforms

**COST: £950 for 1,000 copies**

### FRONT COVER



### INSIDE DOUBLE PAGE SPREAD



**WIND TURBINE BRAKES**

**RELIABLE AND EFFICIENT AFTER-MARKET CARE**

Over the last 30 years the growing interest in sustainability and alternative power sources has led to increased funding for renewable energy sources. Along with the growth of this industry comes an increased need for reliable and efficient after-market care

At ICP Wind, we understand that high quality maintenance of wind turbines is of the utmost importance in ensuring efficiency levels, ensuring reliability and reaching any concerns or issues that may occur.

Our ex-Faneco friction formations have over 75 years' experience in the friction material industry and have been working to address specific, commonly recurring issues in the wind industry.

**QUALITY AND RELIABILITY**  
Striving towards maintaining indisputable quality and reliability, 2018 has seen a significant investment into a new second test machine for ICP Wind. As one of the most modern, highest performing test machines in the world, this rig allows us to simulate realistic test conditions and perform application related functional tests. Employing the machine allows us to frequently test our own brake and HPU designs, ensuring the utmost quality and efficiency. This rig allows for the testing of stacks, noise, mating surfaces, friction coefficients, wear and contamination.

**WIND TURBINE BRAKES**

A commonly noted concern in the wind industry is that of excessive noise – particularly in large farms located near populated areas. Community annoyance is a key contributor to the refusal of wind energy and it is imperative that the industry works to manage noise pollution and maintain the support of the public.

Yaw brake squeaks are often a significant contributor to the noise produced by wind turbine generators and often the noise is created by contact between media coated yaw brake pads and discs during nacelle alignment into the wind.

A key factor in the creation of noise pollution is vibration in static slip vibration. This vibration can have dangerous consequences, affecting many areas of the wind turbine and causing damage to individual components.

After five years of development, our ex-Faneco formations have perfected our newest innovation, FTL146 – a medium friction, rigid, non-metallic material. This material has exceptional mechanical resistance and may be used dry or in oil immersed applications.

The Secret Test Machine has allowed us to develop and improve our new formations in-house, allowing ICP Wind a head start to providing successful industry solutions. Our latest innovations include new yaw brake formations FTL201, FTL203 composite and FTL146.

ICP Wind's newest formation, FTL146 has been thoroughly tested to increase by our state-of-the-art test rigs. Our tests indicated that the material is low in noise, smooth in operation, offers excellent wear and works well when contaminated with oil.

**SUCCESS STORY 1**  
**MAJOR US WINDFARM**  
When ICP Wind was contacted to investigate the cause of severe noise pollution in a major USA windfarm, we found, after thorough investigation, that the yaw brake squeaks were the main noise contributors.

Thorough investigation into these turbines taught us that their yaw brakes had been fitted with four of our competitor's hydraulic brakes, brakes which, although good for normal industry applications, are not yaw brakes and are therefore not suitable for turbine applications.

When used as a yaw brake, the carrier pads struggled to resist movement against the wind and would shift sideways as the wind tried to move the turbine from its braked position. This movement caused seal leakage and oil contamination of brake pads, which resulted in greatly reduced braking efficiency and necessitated for the change of brake pads every few weeks.

Such frequent need for servicing was a constant time-consuming and costly problem, not only with labour costs, plus brake pads and seals, but pilots and other components, needing change on a regular basis.

It is an attempt to solve the problem, attract friction resistance away from the carrier brakes – none of which would work sufficiently with the oil-contamination created by the incompatible brake design. ICP therefore employed our own brake engineers to come up with an efficient and viable solution to the problem.

**SOLUTION**  
The development of our own yaw brake – H4B-2-40 – has worked successfully in operation with these turbines, it has succeeded in eliminating seal leakage and oil contamination. H4B-2-40 has been designed to fit onto the same mountings as the original carriers, therefore avoiding expensive turbine modifications in installing the new brakes.

Due to the vast savings made due to reduced maintenance costs, our customers at this major UK windfarm have been gradually employing the H4B-2-40 yaw brake across their entire windfarm.

**SUCCESS STORY 2**  
**KEYKIT MOOR WINDFARM**  
In early 2018, ICP Wind was asked to investigate the structural high maintenance needs of WDCS wind turbines at a major UK windfarm. Having been in operation since the early 1980s it was tantamount to the urgency of these vintage turbines that they required exceptional after-care and efficient maintenance.

### BACK COVER



**WIND TURBINE BRAKES**


**ORGANIC BRAKE PADS**

**SINTERED BRAKE PADS**

**COMPOSITE BRAKE PADS**

Manufactured to original equipment specification, ICP Wind brake pads are the result of over 40 years' experience of formulating friction. Materials suitable for oil or dry running applications.

**FRICITION PADS FOR WIND TURBINE ROTOR BRAKES & YAW BRAKES.**



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