Donaldson HY-PRO™

Windmill Gearbox Lubrication

Filter Element Upgrade Improves Efficiency

The Problem

Transforming the motion of the wind into usable energy requires complex gearing, and this complex gearing requires serious lubrication to protect all the internal components from undue wear or damage because "oil is the lifeblood of the wind turbine gearbox". The most influential reason that windmill gearing needs to maintain longer-than-average component life is the fact that the windmill gearing is harder-than-average to reach for repairs or replacements.

Eliminating non-productive periods outside of regular maintenance is also key in convincing governments and communities that windmills can be a reasonable energy source. The windmills in this particular case were experiencing higher than optimum fluid cleanliness codes, and it was anticipated that upgrading to Donaldson Hy-Pro would yield fluid cleanliness and component life were in line with the target.

The Solution

Several different Donaldson Hy-Pro elements were used to upgrade OEM specified filter elements including: HP930L16-25MB; HP800L10-10M, HP800L10-3M, HP250L7-10M.

A original breather element (HPQ240467-12MB) was also upgraded to Donaldson Hy-Pro glass media to more efficiently remove particulate contamination introduced from the air into the gear oil reservoir.

The Results

The 55 units on this particular wind farm have been upgraded improving fluid cleanliness of the gear oil and the component life of the windmill gearing. Unlike most gear lubrication systems where all of the components and the oil reservoir are in easily-accessible Locations, the most important components in a windmill, along with their lubrication oil, are perched high in the air. Time and safety begin to become important issues with every simple procedure that wouldn't merit a second thought in most other situations; and it is because of these special conditions that peace-of-mind concerning fluid cleanliness is just as important as how strong the wind is.

Want to find out more? Get in touch.

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