

# Des-Case Solutions for Wind Energy Contamination Control

## ADDRESSING CONTAMINATION CONTROL NEEDS OF WIND TURBINE GEARBOX & HYDRAULIC SYSTEM APPLICATIONS



Land wind turbines, typically found in remote locations, are often exposed to excess airborne dust and humidity. Offshore turbines are constantly exposed to moisture. Both scenarios present maintenance challenges to the wind energy industry. Des-Case offers products to address these key issues and promote turbine reliability.

- *Extend lubricant life*
- *Enhance reliability of major components*
- *Protect bearings, seals, gearboxes*
- *Protect valves, pumps, hydraulics*
- *Reduce maintenance costs*
- *Improve profitability*

*Only when contamination is effectively controlled can the life extension of lubricants and related equipment be realized.*

Keep wind energy reliable through these simple steps:

- Minimize ingressed contamination by using Des-Case breathers on gear units and hydraulic reservoirs
- Ensure new oil meets cleanliness standards and if not, prefilter using Des-Case FlowGuard™ Filter Carts and Drum Toppers
- In high moisture environments, seal the gearbox and add Hydroguard™ expansion chamber breathers
- Protect equipment and lubricants in storage by installing Des-Case breathers, FlowGuard panel units and the Des-Case Lubrication Management System (LMS)



# Keeping wind reliable



*Maintaining clean, dry oil will extend equipment & lubricant life up to 5x the normal service life.*

**Table 1. Required Oil Cleanliness for Wind Turbine Gearboxes**

Source of Oil Sample	Required Cleanliness per ISO 4406:99
From new oil before adding to gearbox	16/14/11
From gearbox after factory testing	17/15/12
From gearbox during service	18/16/13

Source: Robert Errichello and Jane Muller, Geartech

## Des-Case Solutions for Wind Turbine Applications

Wind Energy Application	Contamination Control Tool	Features	Advantages and Benefits
Wind turbine main gearbox; ancillary wind turbine gearboxes	Desiccant Breathers	Superb, proven protection against particulate and moisture contamination; available in variety of sizes	Prevents contact fatigue failures due to airborne dust; protects moisture sensitive synthetic lubricants typical to turbine gear applications
Offshore wind turbine gearboxes	Hydroguard™ Hybrid Breather	Creates a virtually sealed system; check valves provide slight system pressurization, which allows for controlled breathing without excessive temperature build-up	Isolation from surrounding contaminants; designed specifically for low flow, high humidity gearbox applications; long breather life requires less frequent changes
Wind turbine hydraulic reservoirs	Desiccant Breathers	Superb, proven protection against particulate and moisture contamination; available in variety of sizes to match reservoir capacities	Ensures reliability and safety of braking systems; helps minimize expenses related to unscheduled downtime costs as well as valve and pump wear and replacement
Portable offline filtration for critical wind energy equipment	FlowGuard™ Drum Topper	Customizable, lightweight (45 lbs), self-contained filtration unit; quick connect couplings minimize contamination	Quality control of incoming oil batches; convenient filtration of Wind Farm equipment; extends service life and effectiveness; reduces environmental costs
Mobile offline filtration for clean transfer of turbine gear and hydraulic lubricants	FlowGuard™ Filter Carts	Easy transfer of lubes; quick connect couplings minimize contamination	Minimizes contamination of new oil; prohibits ingress during transfer
In-line filtration to protect turbine gearbox lubricants	FlowGuard™ Panel Units	Permanent, mounted unit; two filters provide dual stage filtration	Maximizes particle removal; prolongs service life of oil
Wind turbine oil storage	Lubrication Management System (LMS)	Sturdy, stackable 75 gallon pods; customizable features include dual-stage filtration, timers, quick disconnects and desiccant breather filters	Combines filtration, storage, and breather technologies to keep lubricants clean and dry; frees up valuable floor space



**DES-CASE**  
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Keeping contamination under control. ®

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