



**BIJUR DELIMON**  
INTERNATIONAL

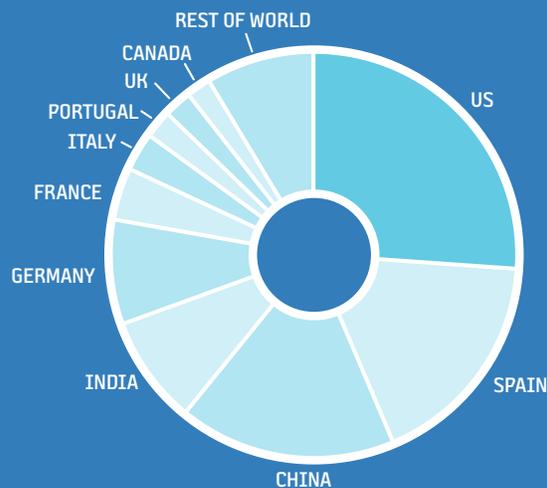
**WIND POWER  
INDUSTRY  
SOLUTIONS**

# Company Overview

Bijur Delimon International is a global manufacturer of central lubrication systems and components, with a wide range of products ideally suited for the wind power industry. With the global increase of wind energy capacity at an all time high, reliable lubrication of wind turbines is essential for continued operation and less downtime.

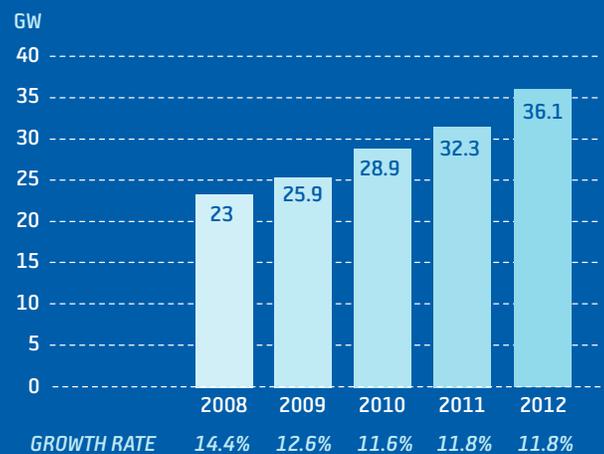
We are positioned to be a leading player in the wind power industry, with global manufacturing and sales facilities in the top six countries with new wind power capacity (see chart). And with a 155% growth forecast in total global installed capacity over the next five years, Bijur Delimon will help keep wind turbines running smoothly for years to come.

## New Capacity by Country, 2007



Country	MW	%
Germany	5,244	26.1
United States	3,522	17.5
Spain	3,449	17.2
India	1,730	8.6
China	1,667	8.3
Denmark	888	4.4
Italy	603	3.0
France	434	2.2
United Kingdom	427	2.1
Portugal	386	1.9
Rest of the World	1,726	8.6
<b>Total</b>	<b>20,076</b>	<b>100.0</b>

## Annual Installed Capacity, 2008-2012



The average growth rates during this five year period in terms of total installed capacity are expected to be 20.6%, compared with 23.4% during 2003-2007. In 2012, Europe will continue to host the largest wind energy capacity, with the total reaching 102 GW, followed by Asia with 66 GW and North America with 61.3 GW.

The North American market will grow even stronger than previously thought, led by significant growth in the US, as well as sustained development of the Canadian market. In total, North America will see an addition of 42.6 GW in the next five years, reaching 61.3 GW of total capacity in 2012. This represents an average of 8.5 GW of new capacity added every year, the bulk of which will be in the US. (GWEC Global Wind 2007 Report)

# Product Line-up

Lubricators are interchangeable in illustration on right.

## Dynamis Lubricator

Bijur Delimon's newest electric lubricator is designed specifically for the wind power industry. Its compact design features 1 or 2 mountable PV-B divider valves and can rotate 360 degrees. This flexibility allows the Dynamis lubricator to be mounted in the blade hub as well as any other location on the wind turbine. It has a built-in on-board controller and a fixed or adjustable delivery rate, depending on individual application needs.



**Operating Pressure** 300 bar (4350 psi)

**Temperature Range** -25 to 75°C (-13 to 167°F)

**Reservoir Size** 1.6 liter

## TTN Lubricator

The TTN lubricator is a rugged, compact, electric, motor-driven lubricator. It has a large reservoir, on-board controller/monitor and a small footprint, so it can be mounted easily in tight spaces. It has up to three outputs and is used with a divider valve to distribute lubricant to desired lubrication points around a wind turbine.



**Operating Pressure** 250 bar (3625 psi)

**Temperature Range** -18 to 49°C (0 to 120°F)

**Reservoir Size** 4, 6, 8 & 10 liter

## MultiPort Lubricator

MultiPort lubricators are the little brothers of the TTN lubricator. With similar motor characteristics, this lubricator features a wiper blade or follower plate to keep lubricant well-mixed in the reservoir.



**Operating Pressure** 250 bar (3625 psi)

**Temperature Range** -18 to 49°C (0 to 120°F)

**Reservoir Size** 2, 4 & 8 liter

## MV-B/ PV-B Divider Valve

A divider valve is used to divide lubricant from the lubricator and deliver it to each lubrication point. The MV-B is a manifold-type progressive divider valve available in sizes ranging from 6 to 20 outlets. It dispenses volume of 0.01 cu. in. (0.17cc) per outlet per cycle.



**Maximum Pressure** 300 bar (4350 psi)

**Temperature Range** -20 to 80°C (-5 to 176°F)

**Material** Carbon steel w/ surface protection

## Lubrication Gear

The lubrication gear is positioned so that it rotates as the wind turbine gear moves. The shaft is specially designed for lubricating the meshed surface of the gear only. To account for any tolerances in the turbine gears, a spring on the frame is provided that repositions the lubrication gear as needed.



**Material** Aluminum alloy

**Volume** Varies based on gear needs, adjustable by amount of grease supplied

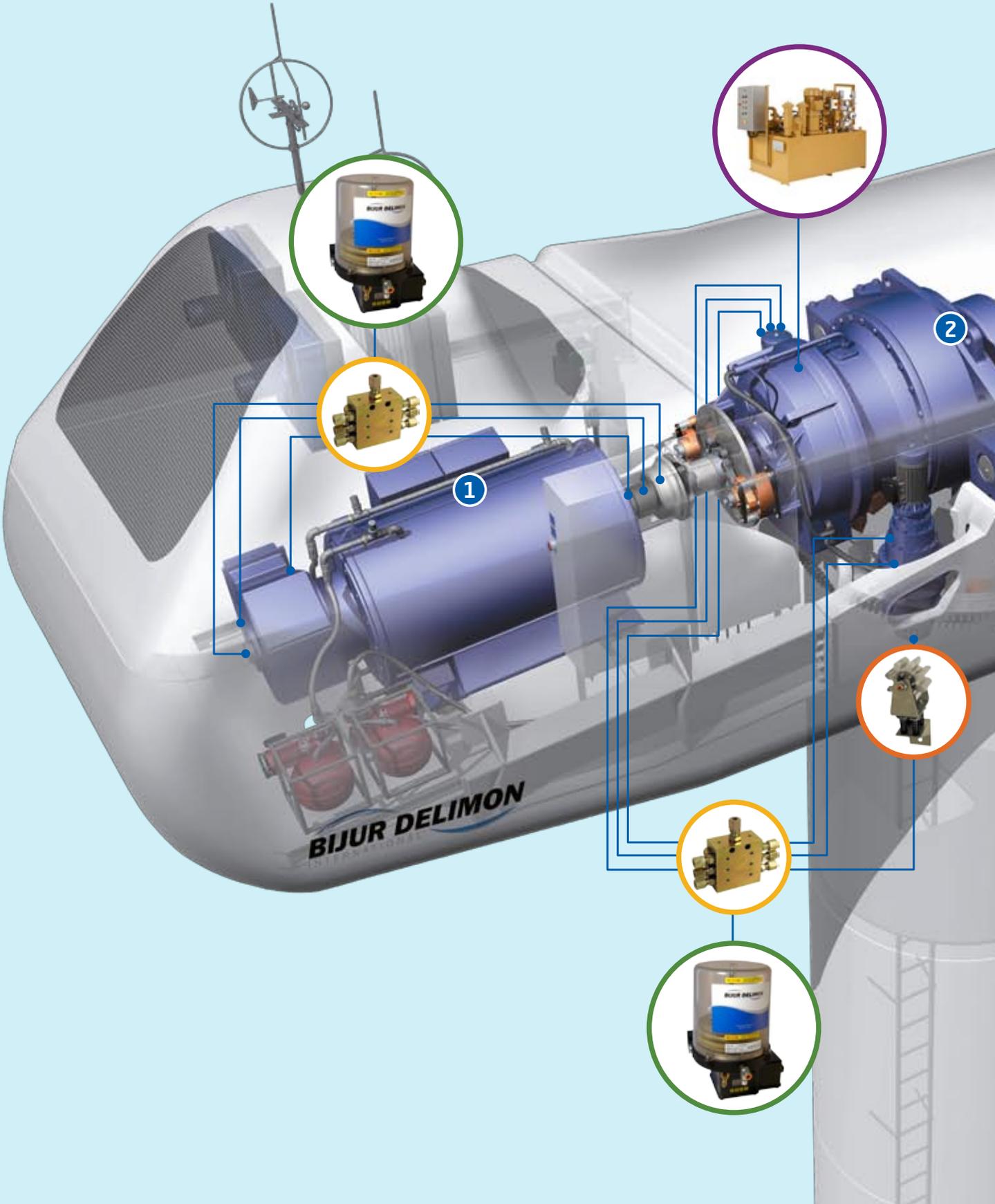
## Oil Recirculating System

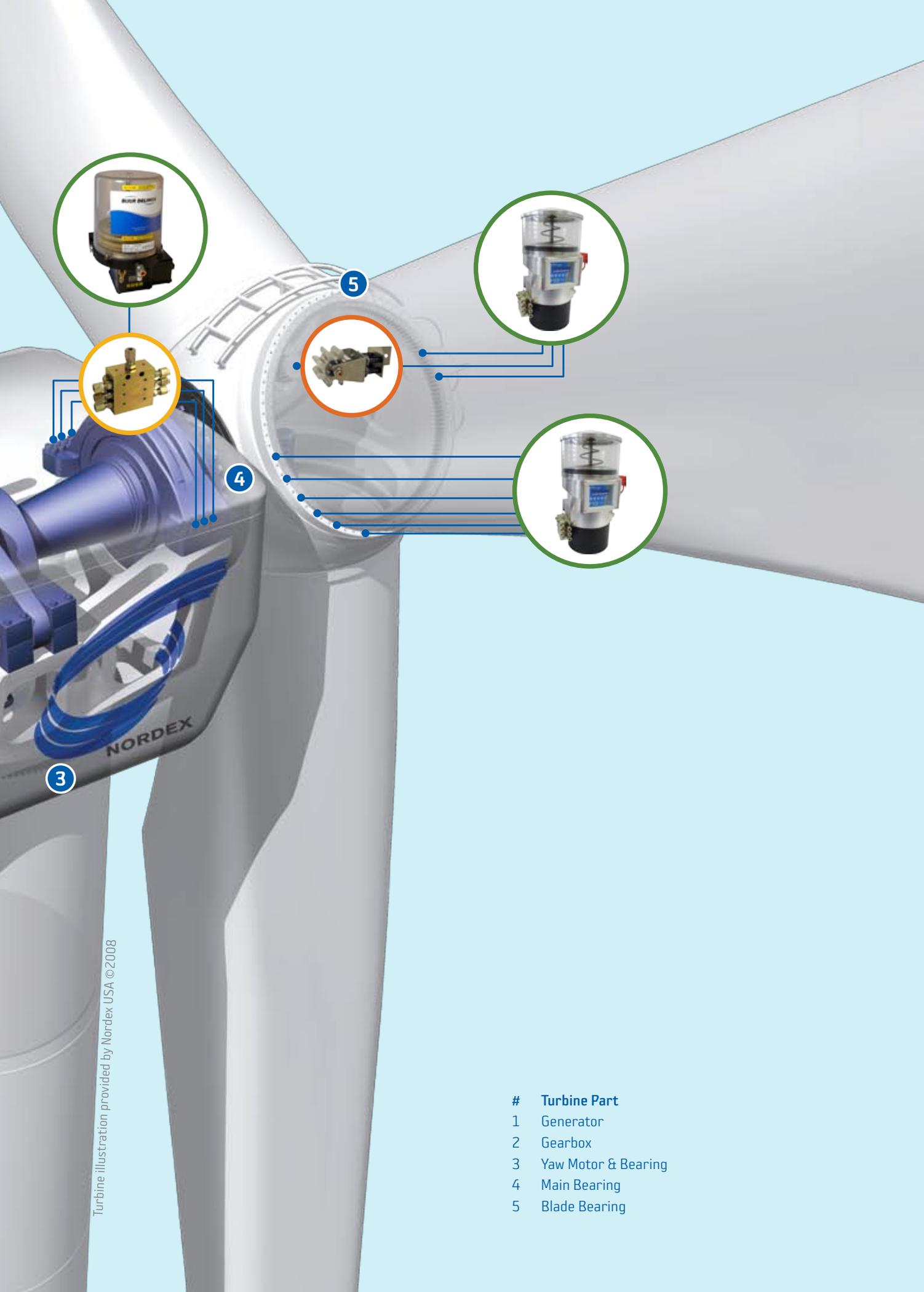
Bijur Delimon oil recirculating systems and conditioning lubrication systems are designed for continuous operation in harsh environments and provide precise individual lubrication point metering, control and monitoring. They are available in many standard sizes, component combinations, functions and control options.



\*Specs vary for each system

# Centralized Lubrication for Wind Power





Turbine illustration provided by Nordex USA ©2008

- # Turbine Part
- 1 Generator
- 2 Gearbox
- 3 Yaw Motor & Bearing
- 4 Main Bearing
- 5 Blade Bearing

## Innovators of engineered lubrication technology since 1923

Bijur Delimon International has ISO 9001:2000 and ISO 14001:2000 quality certified manufacturing facilities around the world, so your centralized lubrication system meets the highest industry quality standards. It's all part of our commitment to quality and customer service.



### GLOBAL HEADQUARTERS

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