2MW
UNISON Wind Turbine Generator System

U88/U93/U93E

Integrated Drive Train.

- Proven performance in the market.
- Compromised gear ratio(1:72.28)
- Patented single main bearing drive train for high reliability & durability.
- High efficiency with encapsulated PM generator.
- Grid friendly electricity by AC/DC/AC full power conversion system.
- Simple drive train structure provides enlarged space for maintenance.
- Own developed Unison WPPIS(Wind Power Plant Information Service)

Options available

- CMS(Condition Monitoring System)
- LVRT(Low-Voltage-Ride-Through)
- Power ramping up/down

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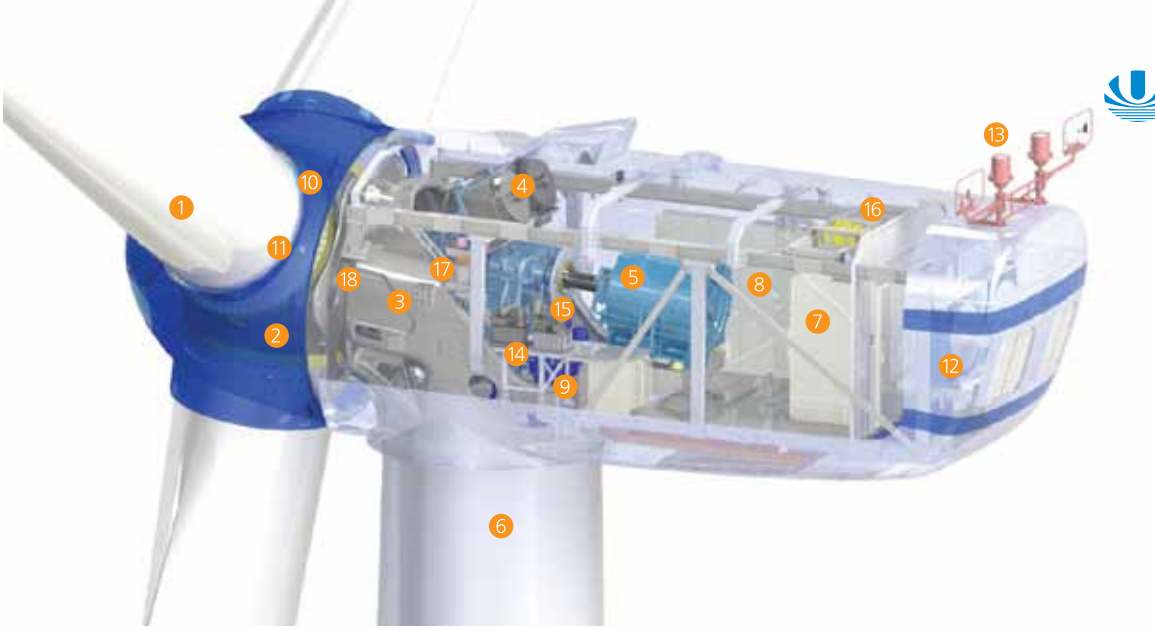
UNISON®



1. Blade 2. Rotor Hub 3. Machine Frame 4. Gearbox 5. PM Generator 6. Conical Steel Tower 7. Power Converter 8. Controller 9. Yaw Drive 10. Pitch Drive 11. Pitch Control Box 12. Cooler 13. Wind Sensor 14. Hydraulic Unit 15. Coupling 16. Service Crane 17. Auto Lubrication system 18. Lightning system

2MW Series		U88	U93	U93E
Type		Horizontal axis, Upwind, Variable speed	Horizontal axis, Upwind, Variable speed	Horizontal axis, Upwind, Variable speed
Rated power		2,000kW	2,000kW	2,000kW
Rotor diameter		88m	93m	93m
Hub height		80m,Tubular steel tower	80/100m,Tubular steel tower	80/100m,Tubular steel tower
Power regulation		Pitch Control	Pitch Control	Pitch Control
Rotational speed		6~17.5rpm	6~17.5rpm	6~17.5rpm
Cut-in / Cut-out wind speed		3m/s / 25m/s	3m/s / 25m/s	3m/s / 25m/s
Rated wind speed		12m/s	11.5m/s	11.5m/s
Extreme wind speed(V_e50)		59.5m/s	52.5m/s	59.5m/s
Design type class		IEC IIA	IEC IIIA	IEC S(IEC IIIA+)
Design life time		20years	20years	20years
Temperature range		Operation: -10 ℃ to 40℃, Standstill: -20℃ to 50℃		
Drive train	Main bearing	Single double-row tapered roller bearing		
	Gearbox	Two planetary stages and one helical stage, Ratio 1 : 72.28		
	Generator	Radial flux with permanent magnet, Synchronous		
Power converter		Full capacity AC / DC / AC Grid connection, IGBT Type		
Brake systems		Aerodynamic brake with pitch battery back up, mechanical rotor brake		
Control system		PLC with embedded software based on RTOS(real time operating system)		
Pitch system		Independent blade pitch via electric motor drive		
Yaw system		Active yaw control