

TECHNICAL DATA



OA500

OA600

Rotor		
Diameter:	39.83 m	40.58 m
Area swept:	1246 m ²	1293 m ²
Speed of revolution:	Variable, OPSC @ (<i>Opti Power Speed Control</i>), 0..29 rpm	Variable, OPSC @ (<i>Opti Power Speed Control</i>) , 0 ..29 rpm
Number of blades:	3	3
Length of blades:	19m	19m
Blade material:	LM 19.1 Type (Denmark) stall type, with integral lightning protection	LM 19.1 Type (Denmark) stall type, with integral lightning protection
Type:	Upwind rotor	Upwind rotor

Tower		
Type:	Steel, painted Quality St52-3N	Steel, painted Quality St52-3N
Hub height (approx.)	38 m	38 m

Generator		
Type:	3 phase, Asynchronous, 4 pole	3 phase, Asynchronous, 4 pole
Name plate rating:	730 kW (ambient temp. 40°C) 530kW continuous (ambient temp. 55°C)	730 kW (ambient temp. 40°C) 600kW continuous (ambient temp. 50°C)
Nominal Voltage:	690 V	690 V
Nominal frequency:	50 Hz	50 Hz
Hub:		
Cooling:	Self cooled	Self cooled

Operational data		
Nominal output:	500 kW	600 kW
Cut-in wind speed:	4 m/s	4 m/s
Cut-out wind speed:	None	None
Nominal wind speed:	13 m/s	13 m/s
Power regulation:	Stall + OPSC @	Stall + OPSC @

Gearbox		
Type:	Full third base Planetary heavy type	Full third base Planetary heavy type
Ratio:	1:52.18	1:52.18
Main shaft:		
Main bearing:	2 elastically couplings, one on the low-speed shaft and another on the high-speed shaft to the generator	2 elastically couplings, one on the low-speed shaft and another on the high-speed shaft to the generator
Cooling:	2 independent oil flow/cooling circuits	2 independent oil flow/cooling circuits

Control		
Braking system:	<ul style="list-style-type: none"> • 2 Disk brakes. 2 independent hydraulic circuits (low-speed & high-speed brake, fail-safe emergency type) • Normal braking to <u>zero</u> speed via inverter current (public network intact, no emergency!) • Emergency braking via DC current powered from inverter (Emergency but network intact) • Over-torque limiting system (in case of generator short-circuit). 	<ul style="list-style-type: none"> • 2 Disk brakes. 2 independent hydraulic circuits (low-speed & high-speed brake, fail-safe emergency type) • Normal braking to <u>zero</u> speed via inverter current (public network intact, no emergency!) • Emergency braking via DC current powered from inverter (Emergency but network intact) • Over-torque limiting system (in case of generator short-circuit).
Yaw control:	<ul style="list-style-type: none"> • Ball bearing • 2 friction fail-safe type electrical motor brakes • Drive mechanism: Two AC gear motors driven via a 4-quadrant AC converter-inverter system. • Speed and continuous soft position control. • Gearbox, total 6416.6:1 	<ul style="list-style-type: none"> • Ball bearing • 2 friction fail-safe type electrical motor brakes • Drive mechanism: Two AC gear motors driven via a 4-quadrant AC converter-inverter system. • Speed and continuous soft position control. • Gearbox, total 6416.6:1
Type:	<ul style="list-style-type: none"> • PLC based control of all turbine functions with master-slave units, remote controlling and monitoring by modem or remote network. • OPSC@ of the Electrical power. • Continuous dynamic control of PF (-0.8 to +0.8) by pulsed, IGBT type active line converter. Ability of producing additionally reactive power until nominal input current. 	<ul style="list-style-type: none"> • PLC based control of all turbine functions with master-slave units, remote controlling and monitoring by modem or remote network. • OPSC@ of the Electrical power. • Continuous dynamic control of PF (-0.8 to +0.8) by pulsed, IGBT type active line converter. Ability of producing additionally reactive power until nominal input current.

Lightning protection		
Type:	Lightning protection of all mechanical – electrical – electronic systems, from blade tips to base of tower.	Lightning protection of all mechanical – electrical – electronic systems, from blade tips to base of tower.
Blades:	Integral lightning protection	Integral lightning protection

Sensors		
RPM sensors:	Pulse generator on generator shaft	Pulse generator on generator shaft
Temperature sensors:	Gear, generator, controller, hydraulic, ambient, bearings, drive	Gear, generator, controller, hydraulic, ambient, bearings, drive
Thermal sensors/warning:	Gear, generator, controller, hydraulic, ambient, bearings, drive	Gear, generator, controller, hydraulic, ambient, bearings, drive
Vibration sensor:	Nacelle	Nacelle
Meteorology:	Anemometer, wind vane	Anemometer, wind vane
Hydraulic systems:	Pressure sensitive switches, pressure transducer	Pressure sensitive switches, pressure transducer