

# NORWIN 29-STALL-225 kW

## TECHNICAL DATA

|                         |  |
|-------------------------|--|
| Nominal electric power: | 225 kW   |
| Power regulation:       | Stall  |
| Rotor diameter:         | 29.1 m (95.4 ft)   |
| Rotor speed:            | 37.6 rpm at full load  |
| Rotor:                  | Three blades placed upwind of tower  |
| Swept area:             | 664 m <sup>2</sup> (7145 ft <sup>2</sup> )   |
| Tilt angle:             | 5°   |
| Coning angle:           | 0°   |
| Blades make:            | LM 13.4 m  |
| Pitch angle:            | App.: -2.3° (Will be adjusted during running in)   |
| Air brake:              | Turnable blade tips  |
| Mechanical brake:       | A fail-safe type disk brake on the high-speed shaft of the gearbox                                       |
| Brake torque:           | 2.0 times of nominal torque or soft brake system (1 times of nominal torque) by normal braking sequences |
| RPM max. value:         | 1600 (50 Hz) or 1920 (60 Hz), observed on the high-speed shaft   |
| Generator:              | Closed, 4-pole, asynchronous, single wound, induction, IP54  |
| Generator speed:        | 1500 (50 Hz) or 1800 (60 Hz) rpm at sync. speed  |
| Loss in generator:      | App.: 3% at full load  |
| Generator cut-in:       | Thyristor controlled gradual cut-in  |
| Grid connection:        | 50 Hz - 400 V or 60 Hz - 480 V   |
| Yaw motors:             | 2 pcs. active drives, electrical   |
| Yaw brakes:             | 3 pcs. active hydraulic operated brakes  |
| Yaw bearing:            | Slide bearing)   |
| Tower type:             | Conical steel tower  |
| Hub height:             | 30 m (98.4 ft) or 40 m (131.2 ft)  |
| Controller:             | PLC and microprocessor based   |
| Cut-in wind speed:      | 4 m/s (9 mph)  |
| Cut-out wind speed:     | 25 m/s (60 mph), based on 5-min. average   |
| Survival wind speed:    | 67 m/s (150 mph)   |
| Approximate masses:     |  |
| Nacelle excl. rotor:    | 7.63 tons  |
| Complete rotor:         | 5.30 tons  |
| Nacelle total:          | 12.93 tons   |
| Tower 30 m:             | 13.25 tons   |
| Tower 40 m:             | 20.70 tons   |
| Maximum noise level:    | 98 dBA   |

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