WESTWIND 60 KW

GENERAL

Cut in speed	— 4 m/s — 14.4 km/h
Cut out speed	— none (stall regulated)
R.P.M.	— 34.5 and 45
Rated power	— 60 kw
Blade cone	— 4°
Nacelle angle	— 4°

BLADES

Material	— Fibreglass reinforced polyester
No blades	— 3
Diameter	— 18 m 11M FOR 30KW
Swept area	201 sq. m.

Pitch — Fixed (stall regulated) with safety tip brakes — tip brakes deploy at 20% overspeed.

TOWER

Height	— 23m hub height
Weight	— including blades and nacelle 12 tonne.

Design — 8 sided continuous tapered steel. Has lockable door, internal ladder to internal landing 1.8m below nacelle. Access to nacelle via separate ladder from this landing.

NACELLE

Weight — 5 tonne including blades

Design — Robust fabricated design, hot dip galvanised. Clamshell cover doors, easily opened (even during high winds) to allow inspection of working parts whilst machine is still in operation. Open covers provide wide safe working platform when servicing or inspecting the machine. Ladder from the nacelle to the internal landing near tower top allows access to the nacelle regardless of the orientation of the mill.

GENERATOR - 60kw

Dual speed 8P / 6P generator 750/1000 r.p.m. with 'H' class insulation and thermister temperature monitoring.

WIND TRACKING (YAWING) SYSTEM

Wind direction —

Measured via wind vane. Micro switches signal direction change via micro processor.

Yaw Drive

Reduction drive to slewing pinion operating on slewing ring. Motor controlled by wind direction vane via micro processor.

CONTROL PANELS

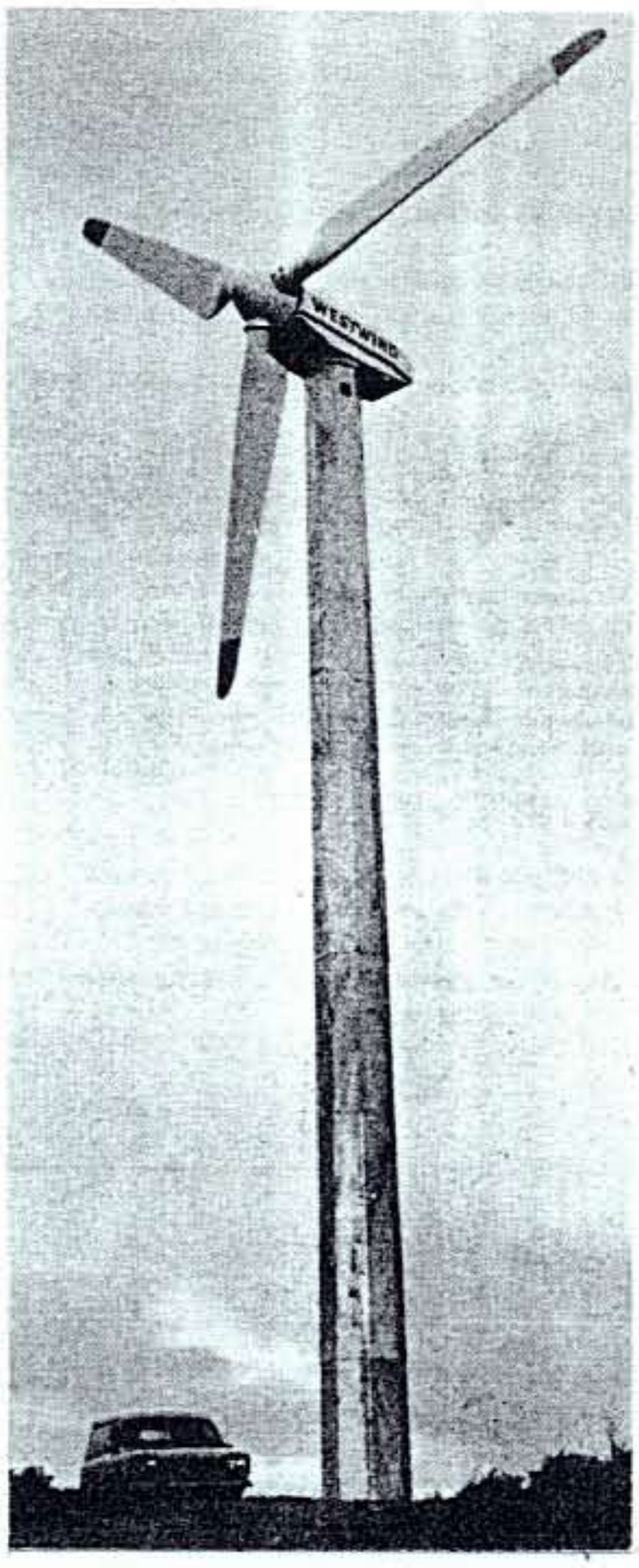
Design	Modular design with separate enclosures for distinct separation of all low voltage functions (micro processor) from high voltage controls (contractors, relays, etc.)
Location	Inside the tower, protected against corrosion and unauthorised interference.
Controls	Automatic controls. (Manual control for testing purposes also). Operation of controller and main power relays visible through clear enclosure cover/windows.

DURABILITY/SIMPLICITY

The wind turbine is designed with a minimum of moving parts to minimise complexity and hence service problems. Bearings, shafts, gearboxes, etc. are designed / selected for durability and long life.

SERVICEABILITY

All major components are easily accessable for service. Generator, gearbox and main shaft assembly can each be individually removed for service without affecting other major components.



MICRO PROCESSOR CONTROLLER

Solid state micro processor controls the functions of the wind turbine and has built in diagnostics for fault finding.

SAFETY & SECURITY

- Total internal access to nacelle. Machine can be inspected while still running without interruption to normal operation.
- All controls located inside the tower and only accessable via lockable door.
- Internal ladder
- Nacelle cover clamshells open to provide safety platform for servicing and inspection purposes.
- Fail safe (spring applied electro magnetic—ally held off) disc brake of 120Kw capacity.
- Out of balance control.
- Centrifugally operated blade tip brakes.
- Voltage, phase, frequency controls.
- Over temperature control.
- Automatic cable untwist.

TILT TOWER

Tilt tower feature available for sites where larger cranes for installation purposes are not readily available (This is an extra cost, non standard feature).

SINGLE GENERATOR - DUAL SPEED

Fitted with specially wound dual speed generator — avoids the extra complexity of two generators — used to take advantage of a range of wind speeds, also avoids service problems associated with belt drive systems on dual generatorswind turbines.