

Iskra is meeting the need for affordable clean energy.

The Iskra team has many years' experience in the wind turbine and other engineering industries. The group previously led the development of the Carter Mk II 300 kW turbine.

In October 1999, Iskra won a Department of Trade and Industry SMART award for innovative technology which has been used to fund the development of our product: the AT5-1 turbine.

This work culminated in the installation and testing of the turbine in the Derbyshire Dales. Following the encouraging results of these trials, the Department of Trade and Industry gave Iskra further SMART funding to develop the production machine.

Iskra's product development has been aimed at reducing:

- Cost
- Complexity
- Weight

and improving:

- Reliability
- Corrosion protection

ISKRA



AT5-1

OVERVIEW

Iskra manufacture a 5kW small wind turbine suitable for powering community and local authority projects, farms, country estates, industrial units, rural domestic properties, offices, schools and many more applications.

Iskra market the AT5-1 turbine through a network of national and international distributors who are fully trained to sell, install and support the Iskra turbine.



AT5-1 Technical Specification

EFFICIENCY FOR MAXIMUM POWER GENERATION

Efficiency

Aerodynamic

The blades are specifically optimised for low wind speed operation. An exceptionally efficient profile for the blade aerofoil has been adopted and the blades are longer than is usual on a machine of this rating. Accurate manufacture is essential to reproduce the required blade shape and keep drag low.



Also, the passive pitch control allows the blades to be at the optimum angle for low wind speed, pitching the blades to prevent overload in high winds or at high rotor speeds.

Electrical

For very high electrical efficiency, a 3-phase generator using rare earth permanent magnets has been specially designed for the turbine.

Mechanical

The generator is designed to work at low rpm and so can be directly driven by the rotor. A gearbox is therefore not needed, thus eliminating a source of inefficiency, noise and potential

Characteristics

Generator rating	5 kW
Rotor speed	200 rpm nominal (variable)
Cut-in wind speed	3 m/s (6.7 mph)
Survival wind speed	60 m/s (134 mph)
Rotor diameter	5.4 m
Rotor orientation	Upwind
Number of blades	3
Blade material	GRP composite
Control system	Passive blade pitching
Gearbox	None
Brakes	Electro-dynamic
Generator	Permanent magnet alternator
Yaw control	Tail vane
Tower height	9m, 12 m & 15m
Tower	Free-standing or guyed.

Performance

At a particular location, the wind speed will vary about an annual mean value. The expected energy yields for the AT5-1 at various annual mean wind speeds (AMWS).

AMWS m/s	Annual MWh	Daily kWh
3	1.84	5.04
4	4.75	13.01
5	8.74	23.94
6	13.15	36.03
7	17.35	47.54
8	20.93	57.35

Note: The annual electricity consumption of a medium size home is in the region of 4 to 6 MWh. This is equivalent to a daily consumption of 11 to 16 kWh.

Contact Details

Phone: +44 (0)1509 225900
Fax: +44 (0)1509 225901
E-mail: enq@iskrawind.com
www.iskrawind.com