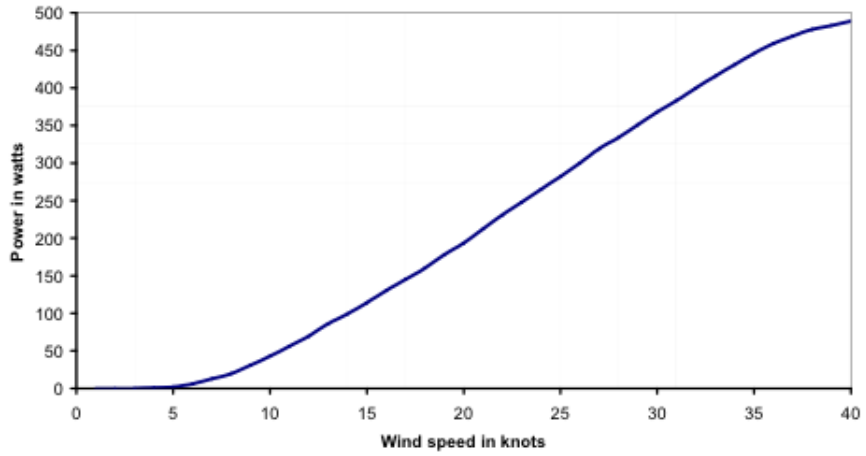
Eclectic D400

The D400 is a direct-drive wind generator, designed for a variety of marine, rooftop or terrestrial applications.
"The most powerfull turbine at low speed" according to tests made by Practical Boat Owner

- It is exceptionally quiet and vibration-free in operation, qualities that are of paramount importance for any wind generator operating in close proximity to people.
- The D400 features a powerful 3-phase alternator, and computer-designed rotor blades optimised for low speed, user-friendly operation.This innovative machine is extremely efficient in low wind speeds, yet is capable of sustained high power outputs of up to 500 watts in higher winds.
- It is small and light enough to be easily attached to most building or boat structures. • Given average wind speeds at the site of around 12 mph, one D400 StealthGen could realistically provide 15 - 20% of the average annual electricity requirement.
- Distinctive and elegant in design, the D400 is superbly engineered for long, trouble-free service, and is available in either 12 or 24 volt variant. The D400 is available in white or in black.
- Inexpensive to purchase and virtually silent in operation, once installed the D400 is no more conspicuous than a satellite dish.

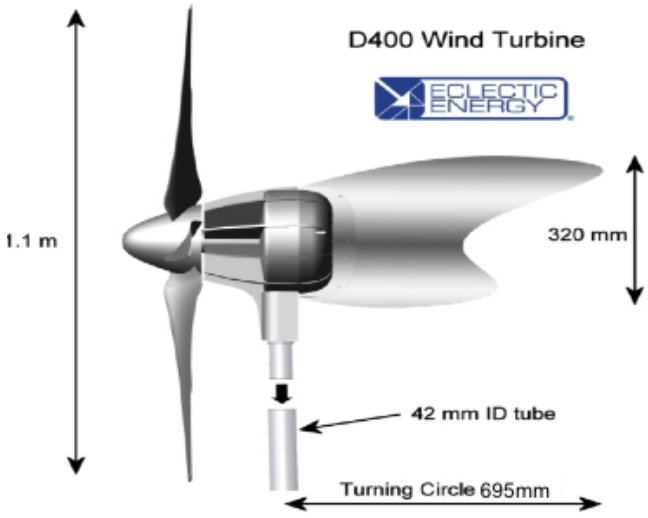
Features:

- Specifically designed for installationon boats, and on or near buildings
- Almost silent in operation
- Smooth running with optional integralanti-vibration mount
- Unparalleled low wind speed performance
- Low tip speed ratio, 1.1 metre diameter rotor
- Advanced variable camber airfoil blades
- Robustly engineered for long trouble-free service
- Highly efficient, low-speed, 3-phase axial field permanent magnet alternator
- Excellent heat dissipation with heavy duty encapsulated windings for sustained high output operation
- Aesthetically attractive design
- Corrosion-resistant materials used throughout
- Available in 12 or 24 volt DC
- Turning circle – 585 mm
- Mounting tower 2" O/D tubing
- Weight 15 kilograms



Output Guide:
10 knots wind speed produces 40 watts
15 knots wind speed produces 120 watts
20 knots wind speed produces 190 watts
25 knots wind speed produces 280 watts
32 knots wind speed produces 400 watts

NOTE: These figures are representative of performance at sea level when operating in an open, turbulence-free site.



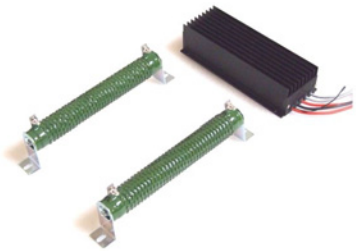
D400 Wind Turbine Specifications

Performance & Power outputs	Rated power	235 W @ 11 m/s (22 knots), 420 W @ 14 m/s (28 knots)
	Maximum power	600 + W
	Rotational speed	1100 rpm @ 14 m/s
	Cut-in speed	2.5 m/s (5 knots)
	Cut-out wind speed	None
Turbine features	Turbine type	Horizontal axis upwind
	Number of blades	5
	Airfoil type	Low Reynolds – variable camber
	Diameter of turbine	1.1 m
	Swept area	0.95 sq. m
	Tip speed ratio	4
	Typical noise level	2 – 6 dbA over background
	Blade material	Glass-filled nylon
Alternator features	Alternator type	Direct drive – axial field
		12 pole permanent magnet generator
	Design	3-phase AC with rectification
		Outputs direct current (DC)
		Annular high energy magnet rotors
		Encapsulated stator windings
	Voltages available	DC: 12 V, 24 V, 48 V, 72 V
		AC: 240 V grid connect via inverter
	Materials	Aluminium alloy housing, hermetically sealed
		Alocrom 1200 corrosion protection and polyester powder coat
		316 stainless steel shafts and A4 stainless fasteners
	EMI (electromagnetic emissions)	C.E. compliant
	MCS Accreditation	Pending
	Control system	Stall regulation
	Brake system	Electromagnetic braking switch
Yaw system	Passive	Low resonance, formed aluminium tail
		Heavy duty slip ring assembly with saddle spring loaded output brushes
	Turning circle	700 mm
Mounting	Typical stub tower	50 mm – 75 mm O/D
Weight	Total	17 kg
Finish	Colours available	White with white blades
		Black with translucent blades

Options:

Regulation:

We generally recommend that the D400 is installed together with a controler to prevent battery damage through overcharging.



Stop and protection panel:

A stop switch and complete enclosed controler with resistors can also be incorporated as part of the installation.

For informations:

Authorized Canadian Distributor:
Sogeman-Micrologg Technologies Inc.
www.micrologg-tech.com info@micrologg-tech.com
450.664.2664

TEST RESULTS

	Wind speed knots	Amps	Volts	Noise level
AEROGEN				
Aero2gen	10		12.3	quiet
	15	1	12.4	
	21	2	12.5	
	27	2	12.6	
	35	4	12.8	
Aero4gen	9	1	12.4	quiet
	12	2	12.7	
	15	3	12.8	
	17	4	13	
	19	5	13	
	20	7	13.2	
Aero6gen	9	2	12.9	quiet
	18	10	13.8	
AIR-X				
Air-X	No output recorded			light noise
AMPAIR				
Pacific 100	9	1	12.7	
	11	3	13	
	16	4	13	
	18	6	13.2	
	20	6	13.3	some noise
	25	7	13.5	above 20 knots
DUOGEN AND D400				
DuoGen	15	2	12.3	slight noise
	20	3	12.4	
	25	7	13	
	30	10	13.1	
D400	7	3	12.4	quiet
	15	7	12.8	
	19	12	13	
	20	16	13.9	
	25	21	14.3	
	30	30	15	
RUTLAND				
503	13	1	12.4	quiet
	20	1.5	12.4	
	25	2	12.5	
	30	5	12.8	
913	12	1	12.3	quiet
	16	3	12.5	
	20	4	12.6	
	25	7	13	
	30	14	13.8	

Charging ability

With an average wind of only nine knots in July on the UK's south coast, output at low wind speed is going to be paramount.

The Aero2gen gives only about 0.3A at nine knots, producing about 7Ah per day. The Rutland 503, gave a little more at 0.4A, equating to about 10Ah per day.

The Aero4gen, Air-X, Ampair Pacific 100 and Rutland 913 all produce about 1A at nine knots, so will produce about 24Ah per day – enough to run a well insulated fridge.

The Aero6gen and the DuoGen both give about 1.5A at nine knots (manufacturers' claimed figures), so provide 38Ah per day for our average day.

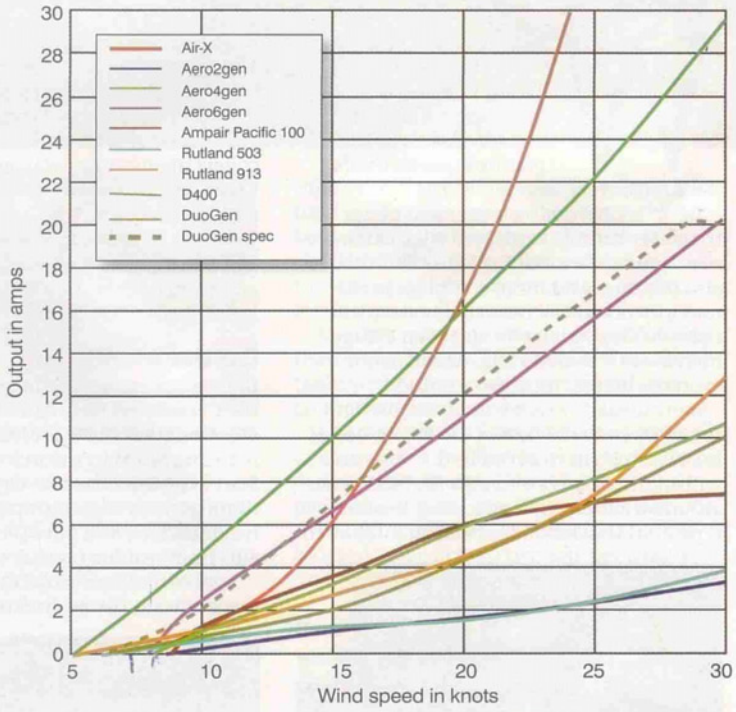
The D400 produces 3.8A at nine knots, so you are looking at a very respectable 91Ah per day.

* Manufacturers' figures

GENERATOR OUTPUT

	Amps at nine knots	Ah per day at nine knots
Aero2gen	0.3	7.2
Aero4gen	0.8	19.2
Aero6gen	1.6	38.4
Air-X	1*	24*
Ampair Pacific 100	1	24
DuoGen	1.5*	36*
D400	3.8	91.2
Rutland 503	0.4	9.6
Rutland 913	1	24

OUTPUT RESULTS



Conclusion

Wind turbines will be turning 24 hours a day, 365 days a year in all weathers and have a very hard life. Although we have indicated best buys, these cannot reflect the turbine's long term reliability or customer satisfaction. For that reason, personal recommendation and the use of the Internet forums (see www.ybw.com), will help the potential buyer to form his own opinion.

It's unlikely that wind energy will supply a cruising yacht's electrical requirements under average conditions. This mirrors what we found last month with solar panels. Using 60W of solar panels and a medium-sized wind turbine could produce around 50Ah per average day along the South Coast in summer – still well short of the average cruising yacht's requirements when not using marinas. However, in combination, they should allow extended time away from shore support if your battery bank is large enough.