S88

S88-2.1 MW
Technical overview

Suzlon Sales Offices:

Australia

Suzlon Energy Australia Pty. Ltd.
Level 42, 80 Collins Street Melbourne
Victoria 3000 Australia
Tel.: +61 3 8660 6501
Email: info-au@suzlon.com

Brazil

Suzlon Energia Eólica
do Brazil Ltda
Rua Eduardo Sabóia, 399, Papicú
CEP 60175145, Fortaleza, Ceará, Brazil
Tel.: +55 85 3265 1308
Email: suzlon@suzlon.com.br

China

Suzlon Energy (Tianjin) Ltd.
Beijing Branch
Room 1808, NCI Tower, A12
Jianguomenwai Avenue
Chaoyang District, Beijing, 100022, China
Tel.: +86 10 65695688
Email: info-china@suzlon.com

EMEA# + CASA* Sales HQ

Suzlon Wind Energy A/S
Bredskifte Allé 13
8210 Århus V
Denmark
Tel.: +45 8620 8020
Email: info-europe@suzlon.com

India

Suzlon Energy Ltd.
104-106, Delta Wing
Raheja Towers, Anna Salai
Chennai 600 002, India
Ph.: +91-44-28602345 - 49
Email: info-india@suzlon.com

Suzlon Energy Ltd.
9th Floor, Eros Corporate Tower
Nehru Place
New Delhi 110 019, India
Ph.: +91-11-41805501 / 41805502
Email: info-india@suzlon.com

Suzlon Energy Ltd.
I L & F S Financial Centre, 6th Floor
East Quadrant, Bandra Kurla Complex
Plot No. 22, 'G' Block, Bandra (E)
Mumbai 400 051, India
Ph.: +91-22-26533737 / 66393200
Email: info-india@suzlon.com

Suzlon Energy Ltd.
5th Floor, Godrej Millennium
9 Koregaon Park Road
Pune 411 001, India
Tel.: +91 20 4012 2000
Email: info-india@suzlon.com

Italy

Suzlon Wind Energy Italy S.r.l.
Viale Città d'Europa, 681
00144, Rome, Italy
Tel.: +39 06 5262481
Email: info@suzlon.it

North America

Suzlon Wind Energy Corporation
8750 Bryn Mawr Ave., Ste. 720
Chicago, IL 60631, USA
Tel.: +1 773 328 5077
Email: info@suzlon-usa.com

Portugal

Suzlon Energy Portugal, Lda.
Av. do Forte, No 3
Edifício Suécia - Piso 3 – Sala 3.38
2794 038 Carnaxide, Portugal
Tel.: +351 21 4184565
Email: info-europe@suzlon.com

Spain

Suzlon Wind Energy España S.L.
Paseo de la Castellana 155, 2°A
28046 Madrid, Spain
Tel.: +34 915 794 727
Email: info-europe@suzlon.com

*# Europe, Middle East, Africa * Central Amercia and South America*

SUZLON
POWERING A GREENER TOMORROW

www.suzlon.com

Technology for sustainable development

THEREFORE SUZLON

S88-2.1 MW

S88-2.1 MW is designed for a medium wind speed regime. The wind turbine concept is based on robust design with pitch regulated blade operation, a three-stage gearbox with 2200 kW rating and flexible coupling to the asynchronous induction generator. The Suzlon flexi-slip system provides efficient control of the load and power control and the turbine operation is effectively controlled by the Suzlon controller. These technologies are all well known in the wind power industry and have proven themselves. The S88-2.1 MW is designed to withstand extreme conditions and operate effectively with low maintenance costs.

BLADES

As with all other Suzlon blades, the AE43 blade is a fully integrated design. The blade manufacturing system, from mould engineering to state-of-the-art Resin Infusion Moulding (RIM), is implemented in close co-operation between the Dutch design team and the manufacturing plant operators. Blades for the world market are manufactured at Suzlon's in-house facilities located in India, China and the USA. Specifically in the North American market, the S88 blades are manufactured in our Pipestone, Minnesota facility.

PITCH SYSTEM

The full-span blade pitching system is based on electrical motors with individual power backup which allows fast and efficient pitching of the blades. With a resolution of 0.1° and a special fast-pitching mode, the S88-2.1 MW allows optimal power output as well as fast and safe braking of the rotor.

GEARBOX

Suzlon has always placed significant focus on gearbox design. The design philosophy is based on years of experience with wind turbines in harsh environments and our internal design standards exceeding the industry standards. The power rating of the Winergy gearbox for the S88-2.1 MW is actually 2.2 MW. With the acquisition of Hansen Transmission, Suzlon is further able to secure supply and design development of superior gearbox technology for the benefit of our customers.

SERVICE AND MAINTENANCE

Suzlon has teams of trained wind farm technicians around the globe who focus on excellence in service, maintenance and monitoring. Our service technicians aim to maximise energy production from the wind, and ensure the turbines operate reliably and with minimal maintenance costs during their life span. The key emphasis is on maximizing availability and efficiency in operation thus providing ease of mind for our clients. Suzlon provides intensive and continuous training programs for its wind farm technicians, both in and out of field and complement our own training resources by using highly respected and reputable industry training consultants to tutor and train our technicians and technical support engineers.

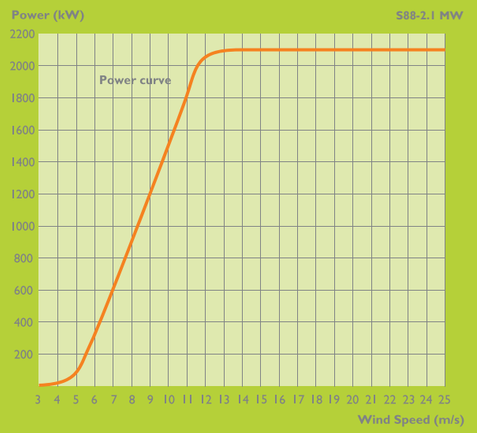
MANUFACTURING

Suzlon's manufacturing facilities for wind turbine generator components and rotor blades are currently located in India, China, Belgium and the USA. As part of Suzlon's strategic growth plans to significantly increase manufacturing capacity of all key turbine components, a number of new facilities are currently planned or under construction. This meets our objective to vertically integrate the entire supply chain, ensuring that Suzlon brings to the market the most cost efficient and reliable technology. It also enables us to control the supply chain to secure quality, volume and growth, as well as deliver long term service support.




World's 5th largest and fastest growing integrated wind turbine manufacturer | 350kW to 2.1MW capacity wind turbines | Workforce of 14,000 people in USA, Australia, Belgium, Brazil, China, Denmark, Germany, Greece, India, Italy, Nicaragua, Portugal, Romania, South Africa, South Korea, Spain, The Netherlands, Turkey, Ukraine, United Kingdom and USA | R&D in Germany and The Netherlands | Global Management Headquarters in Amsterdam

MODEL	S.88 – 2.1 MW
OPERATING DATA	
Rated power	2.1 MW
Cut-in wind speed	4 m/s
Rated wind speed	14 m/s
Cut-out wind speed	25 m/s
50 years gust wind speed	59.5 m/s
Hub height	79 m
Wind Class	IECIIA
Rotational Speed	15.0 - 17.6 rpm
ROTOR	
Pitch system	Pitch regulated, electrical
Diameter	88 m
Swept area	6082 m^2
Blade material type	Fiberglas/Epoxy
GENERATOR	
Type	Asynchronous 4 poles with slip ring
Rated power	2100 kW
Rated voltage	690 / 600 V
Frequency	50 / 60 Hz
Protection	IP 54
Cooling system	Air cooled
Insulation	Class H
Slip control	Unique Flexi-Slip providing slip up to 16.67%
BRAKING SYSTEM	
Aerodynamic brake	3 independent systems with blade pitching
Mechanical brake	Hydraulic fail-safe disc brake system
GEARBOX	
Type	3 stages (1 planetary & 2 helical)
Ratio	1:98.8 / 1:118.1
Nominal load	2200 kW
YAW SYSTEM	
Type	Driven by 3 electrical driven planetary drives
Bearings	Polyamide slide
CERTIFICATIONS	
Design standards	GL 2003
Quality	ISO 9001:2000
TOWER	
Type	Tubular in 4 sections
Corrosion protection	Epoxy/PU coated



Wind speed m/s	Power output [kW]	Wind speed m/s	Power output [kW]
4	14	16	2100
5	138	17	2100
6	312	18	2100
7	546	19	2100
8	840	20	2100
9	1180	21	2100
10	1535	22	2100
11	1856	23	2100
12	2037	24	2100
13	2088	25	2100
14	2100	-	-
15	2100	Air density: 1.225 kg/m³	