

Patents and Trade Marks

For Autoflug Energietechnik (Project A1200)

Minimal load shutdown position for windturbine

Clever idea, but only usable for two-bladers, and thus not relevant in the moment

Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority date:
BOEHMEKE GEORG [DE]	AUTOFLUG ENERGIETECH GMBH [DE]	F03D7/0212 F03D7/0268 F05B2260/74 (+3)	F03D7/02 (IPC1-7):F03D11/00 F03D7/02	EP0709571 (A2) 1996-05-01 EP0709571 (A3) 1996-12-11	1994-10-25

Lightning protection for wind turbine

Details of getting the lightning current certainly out of the range of sensitive equipment

Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority date:
BOEHMEKE GEORG [DE]	AUTOFLUG ENERGIETECH GMBH [DE]	F03D11/0033 H02G13/00 Y02E10/722 (+1)	F03D11/00 H02G13/00 (IPC1-7):F03D11/00 (+1)	EP0707145 (A1) 1996-04-17	1994-10-11

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For AERODYN

Day of appl.	Ident. Number	Type of Patent	Content	Explanation	Applicant	Inventor(s)	Applied / Filed
03.06.96	296 09 794.2	Gebrauchsmuster.	Getriebe-Generator-Kombination = Gearbox/Generator-combination	Basis of the MULTIBRID Concept	aerodyn	Siegfriedsen/ Böhmeke	22.08.96
12.07.96	196 28 073.7	Patent	Verfahren zur Justierung der Blattw.= Method of adjusting pitch angles	Automatic recognising of pitch angle tolerances and eliminating them by suitable pitch motions	aerodyn	Siegfriedsen/ Böhmeke	22.05.97
05.09.96	196 35 960.0	Patent (given up)	Vorrichtung z. Zuschalten eines Generators = Device to connect a generator to the grid	Speed gradient control during the phase of connecting the generator to the grid (Stall-machines only)	aerodyn	Müller/Böhmeke	
05.11.97	197 48 716.5	Patent (given up)	Rotorblatt Heizung und Blitzableitung = Rotor blade heating and lightning conductor	Combined blade heating and lightning conductor reduces the problem of lightning damage to a blade heater.	aerodyn	Böhmeke	22.06.98
17.10.98	198 47 982.4	Patent	Schwingungserfassung vom Rotorblatt	see below	aerodyn	Böhmeke	01.09.2000
22.11.97	297 20 741.5	Gebrauchsmuster	Schwingungserfassung vom Rotorblatt = Vibration measurement of rotor blades	Strain sensors of especially reliable and well-priced construction. In use in all WINWIND machines	aerodyn	Böhmeke	28.05.98

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16.12.97	297 22 109.4	Gebrauchsmuster	Fliehkraftschalter im Rotorblatt = Centrifugal switch inside the blades	A centrifugal switch directly in the blade connected to the pitch system increases safety.	aerodyn	Siegfriedsen/ Böhmeke	26.03.98
19.04.98 15.04.99	198 17 256.7 0 952 337	Patent and EU-Patent	WEA mit Windnachführung = WEC with yaw system	Special method of using the natural yaw moments to perform a wanted yaw motion (presently very relevant and worldwide used)	aerodyn	Böhmeke	11.02.99

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For WINWIND OY

Day of filing	Ident. Number	Type of Patent	Content	Explanation	Applicant	Inventor(s)	Applied / Filed
2.9.1999	1994 1630	Finnish Patent	Windenergieanlage mit verstellbaren Blättern = Wind energy converter with adjustable blades	Mechanical Synchronisation of the three pitches saves a lot of electricians and the electronic synchronisation control. Successful use in the first WWD1	PVOE OY (=Winwind, spin-off)	Böhmeke	7.9.2000
2.3.2005	06396004.1	Finnish and EU-Patent	Windmessverfahren = wind measuring method	Increasing the accuracy of the wind vane and anemometer by feed-forward signal processing	WINWIND OY	Böhmeke	18.4.2006
2.3.2005	FI 20050256 EP1701034 (A2) 2006-09-13 EP1701034 (A3) 2012-08-15	Finnish Patent enlarged to EU patent	Method for stopping the rotor of a wind power plant	Dynamic optimisation of emergency stops to reduce tower fatigue loads by applying a non-constant pitch rate	WINWIND OY	Böhmeke	21.4.2006
15.09.2006	FI117351	Finnish Patent	Menetelmä tuulivoimalan ohjauksessa	The machine parks slowly idling, and a switched-mode power supply is connected to the generator to supply the yaw. Thus the machine follows wind direction changes during grid loss.	WINWIND OY	Böhmeke	
15.09.2006	FI117352 EP1701034 (A2) 2006-09-13 EP1701034 (A3)	Finnish Patent, enlarged to EU Patent	Method for stopping the rotor of a wind power plant	Minimizing dynamic load amplification during emergency shutdowns by certain optimized pitch programs	WINWIND OY	Böhmeke	

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30.11.2007	FI118485	Finnish Patent	Menetelmä tuulivoimalan roottorin lapakulmien säätämiseksi häiriötilanteissa	A detail. A mechanical or electronic device locks a possibly defect pitch to avoid loads which would arise if the pitch could move freely.	WINWIND OY	Böhmeke WWD + Kantelberg EUROS	
29.02.2008	FI118744 EP1811172 (A 1) 2007-07-25	Finnish Patent enlarged to EU patent	Method for measuring the wind of a wind power plant	Improving the accuracy of anemometers in the rotor wake by a feed-forward treatment of the signals.	WINWIND OY	Böhmeke	
15.04.2008	FI118860 EP1788238 (A 2) 2007-05-23	EU patent	Replaceable wear element for wind turbine blade pitch adjustment mechanism	Solving a gear wear problem in the pitch drive by employing a surface-contact gear instead of a line-contact	WINWIND OY	Böhmeke	
31.07.2008	FI119121	Finnish Patent	Tuulivoimalan konehuone	Low-level invention. Improved cooling for cables going through the gearbox.	WINWIND OY	Böhmeke	

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For Samsung Heavy Industries

Date	Number	Where applied	Title	Explanation	Patent owner	Inventor	Comment
27.4.2012	1020120044718	Korean Patent	Hydraulic actuator	Activation of a fresh seal inside a hydraulic actuator without draining the oil by a fast and simple O&M action.	Samsung Heavy Industries SHI	Georg Böhmeke	Good idea
26.4.2012	1020120043984	Korean Patent	Hydraulic actuator	Variation of the same idea	SHI	Georg Böhmeke	Good idea
7.6.2012	1020120060988	Korean Patent	Nacelle Seal	Sealing despite large deformations of the sealed parts, using special tricks	SHI	G.Bö plus co-inventors	low level
25.1.2013	1020130008420	Korean Patent	Yaw brake	Play-free yaw brake mechanism, which loses the pretension under zero pressure.	SHI	G.Bö plus co-inventors	good idea, used and proven
27.7.2012	1020120082066	Korean Patent	Spar production	Curing carbon laminates by combined mold heating and direct electric current through the laminate to ensure uniform hardening without warps.	SHI	G.Bö plus co-inventors	very good idea
11.7.2012	1020120075622	Korean Patent	Pitch bearing	Stiffening a pitch bearing by clever connection of a stiffener plate.	SHI	G.Bö plus co-inventors	low level
11.7.2012	1020120075693	Korean Patent	Pitch bearing	Variant with even less material at given stiffness.	SHI	G.Bö plus co-inventors	low level

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For Future Power OY

1. Menetelmä ja sovitelma jään ilmaisemiseksi tuuliturbiinin lavassa

A lightning-proof ice sensor allowing long data transfer distances by generating its own power supply. A kind of combination of sensor and "energy harvesting"

Inventor:

BOEHMEKE GEORG [FI]
ZIEGENSPECK SVEN [DE]

Applicant:

FUTURE POWER OY [FI]

CPC: IPC:

Publication info:

FI122391 (B1)
2011-12-30

Priority date:

2010-08-26

2. Pystyakselisen tuuliturbiinin myrskyasento ja vastaava menetelmä

A method to minimize both dynamic shutdown loads and extreme loads in storm, applicable only to VAWT. Few economic value, as VAWT are not favored.

Inventor:

BOEHMEKE GEORG [FI]

Applicant:

FUTURE POWER OY [FI]

CPC: IPC:

Publication info:

FI20105107 (A)
2011-08-05

Priority date:

2010-02-04

Two more patents were filed for advantageous arrangements of wind turbines on top of mobile phone towers, so that the wind turbine forces will not affect the alignment accuracy of the antennas. These two patents have been given up.

GENERAL NOTE

As I am not owner of the patents, I do not know which one has possibly been given up. I list the patents here to show my activities as engineer. Some of the patents are trivial, as wind power is a branch which uses trivial patents everywhere to fight in competition. I do not support this tendency but cannot prevent it. For more details to the above mentioned patents please go to

<http://www.epo.org/searching/free/espacenet.html>

and search for inventor BOEHMEKE with OE instead of Ö