

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
29 October 2009 (29.10.2009)

PCT

(10) International Publication Number  
**WO 2009/130467 A3**

(51) International Patent Classification:  
*F03D 1/06* (2006.01)

(21) International Application Number:  
PCT/GB2009/001039

(22) International Filing Date:  
24 April 2009 (24.04.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0807515.2 24 April 2008 (24.04.2008) GB

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

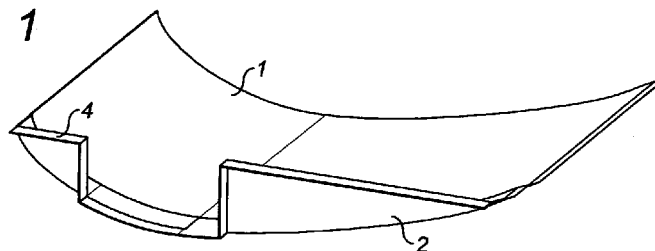
Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:  
23 September 2010

(54) Title: A WIND TURBINE BLADE

FIG. 1



(57) Abstract: A wind turbine blade comprising an elongate spar (6). A first plurality of skin panels (1) are attached in an upper high pressure row to the spar to form a substantial proportion of the external profile of one surface of the blade. A second plurality of skin panels (1) are attached in a lower low pressure row to the spar to form a substantial proportion of the external profile of the opposite lower surface of the blade. A plurality of the skin panels in each row are each integrally provided with a bulkhead (2) which supports the skin panel on the spar.



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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/GB2009/001039

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. F03D1/06 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) F03D		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 184 566 A1 (TORRES MARTINEZ M [ES]) 6 March 2002 (2002-03-06) the whole document	1-11
X	US 3 400 904 A (BEDE JAMES R) 10 September 1968 (1968-09-10) the whole document	11
A	GB 630 222 A (MILOS FABIAN) 7 October 1949 (1949-10-07) the whole document	1-10
A	EP 1 878 915 A2 (GAMESA INNOVATION & TECH SL [ES]) 16 January 2008 (2008-01-16) the whole document	1-11
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"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search	Date of mailing of the international search report	
27 July 2010	05/08/2010	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Souris, Christophe	

## INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2009/001039

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 584 817 A1 (GAMESA EOLICA S A SOC UNIPERSO [ES]) 12 October 2005 (2005-10-12) the whole document -----	1-11
A	WO 01/46582 A2 (AERODYN ENG GMBH [DE]; SIEGFRIEDSEN SOENKE [DE]) 28 June 2001 (2001-06-28) the whole document -----	1-11
A	US 4 295 790 A (EGGERT JR WALTER S) 20 October 1981 (1981-10-20) the whole document -----	1-11

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2009/001039

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1184566	A1	06-03-2002	WO 0073651 A1 ES 2178903 A1	07-12-2000 01-01-2003
US 3400904	A	10-09-1968	NONE	
GB 630222	A	07-10-1949	NONE	
EP 1878915	A2	16-01-2008	CN 101151458 A ES 2265760 A1 WO 2006103307 A2 US 2009208341 A1	26-03-2008 16-02-2007 05-10-2006 20-08-2009
EP 1584817	A1	12-10-2005	CN 1957178 A WO 2005100781 A1 US 2008145231 A1	02-05-2007 27-10-2005 19-06-2008
WO 0146582	A2	28-06-2001	AU 3151201 A DE 19962454 A1	03-07-2001 05-07-2001
US 4295790	A	20-10-1981	AR 222710 A1 AU 533483 B2 AU 5898280 A BR 8003812 A CA 1132052 A1 DE 3021929 A1 ES 8102279 A1 ES 8105826 A1 FR 2459381 A1 JP 56009672 A	15-06-1981 24-11-1983 08-01-1981 13-01-1981 21-09-1982 22-01-1981 01-04-1981 01-09-1981 09-01-1981 31-01-1981