

# INTERNATIONAL SEARCH REPORT

International application No.

**PCT/CN2016/082344****A. CLASSIFICATION OF SUBJECT MATTER**

H02K 7/14 (2006.01) i; B25F 5/00 (2006.01) i; B23B 45/02 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

H02K; B25F; B23B

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 practicable, search terms used)

CNPAT, CNKI, WPI, SIPOABS: brushless, motor, control, communicat+

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 103547415 A (HITACHI KOKI CO., LTD.), 29 January 2014 (29.01.2014), description, paragraphs [0052]-[0092], and figures 1-6	1-8
Y	CN 102825585 A (HITACHI KOKI CO., LTD.), 19 December 2012 (19.12.2012), description, paragraphs [0008]-[0009], and figure 1	1-8
Y	CN 201956803 U (SHANGHAI WENTE ELECTRICAL APPLIANCE CO., LTD.), 31 August 2011 (31.08.2011), description, paragraphs [0022]-[0023]	2
E	CN 105871117 A (ZHEJIANG MINGLEI TOOLS INDUSTRY CO., LTD.), 17 August 2016 (17.08.2016), description, paragraphs [0026]-[0038], and figures 1-4	1-8
A	W0 2009141705 A1 (ATLAS COPCO BLM SRL et al.), 26 November 2009 (26.11.2009), the whole document	1-8
A	CN 104588727 A (ZHEJIANG MINGLEI TOOLS INDUSTRY CO., LTD.), 06 May 2015 (06.05.2015), the whole document	1-8
A	EP 2471633 A2 (HITACHI KOKI KK), 04 July 2012 (04.07.2012), the whole document	1-8

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
“A” document defining the general state of the art which is not considered to be of particular relevance	“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
“E” earlier application or patent but published on or after the international filing date	“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	“&” document member of the same patent family
“O” document referring to an oral disclosure, use, exhibition or other means	
“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  
23 November 2016 (23.11.2016)Date of mailing of the international search report  
**05 January 2017 (05.01.2017)**Name and mailing address of the ISA/CN:  
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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.

**PCT/CN2016/082344**

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 103547415 A	29 January 2014	EP 2712338 A2	02 April 2014
		WO 2012160799 A3	21 February 2013
		US 2014069672 A1	13 March 2014
		WO 2012160799 A2	29 November 2012
CN 102825585 A	19 December 2012	JP 2013000834 A	07 January 2013
		CN 102825585 B	27 July 2016
		US 2012319509 A1	20 December 2012
		JP 5757172 B2	29 July 2015
		US 2016199972 A1	14 July 2016
		US 9289832 B2	22 March 2016
CN 201956803 U	31 August 2011	None	
CN 105871117 A	17 August 2016	None	
WO 2009141705 A1	26 November 2009	EP 2280806 A1	09 February 2011
		IT MI20080171 U1	22 November 2009
		US 8172607 B2	08 May 2012
		US 2011132155 A1	09 June 2011
CN 104588727 A	06 May 2015	None	
EP 2471633 A2	04 July 2012	JP 5936302 B2	22 June 2016
		CN 102528720 B	04 November 2015
		CN 102528720 A	04 July 2012
		US 2013000934 A1	03 January 2013
		US 9457459 B2	04 October 2016
		JP 2012139747 A	26 July 2012