

# Major Patents

## ■ Patents registered in 2018

Registration Number	Name	Inventor(s)
Patent 6391942	LINEAR MOTOR	Akihiko Takahashi
Patent 6280761	STATOR CORE AND PERMANENT MAGNET MOTOR	Toshihito Miyashita, Manabu Horiuchi
Patent 6321393	MASTER-SLAVE INTERCOMMUNICATION DEVICE AND COMMUNICATION METHOD OF THE SAME	Makoto Kitazawa
Patent 6316035	MOTOR STRUCTURE	Toshihito Miyashita, Manabu Horiuchi
Patent 6282916	STRUCTURE FOR ATTACHING COOLING FAN	Daigo Kuraishi
Patent 6312517	MOTOR CONTROLLER	Yuji Ide, Michio Kitahara, Satoshi Yamazaki, Toshio Hiraide
Patent 6280816	WIRE FIXTURE	Tetsuya Yamazaki
Patent 6300649	PRODUCT SPECIFICATION SETTING APPARATUS AND FAN MOTOR HAVING THE SAME	Tetsuya Yamazaki, Takahisa Toda
Patent 6316714	STEPPER MOTOR	Yasushi Yoda, Koji Nakatake, Masaaki Ohashi
Patent 6282963	POWER SUPPLY VEHICLE	Shinya Otsuki, Mamoru Tomioka
Patent 6450538	FAN AND METHOD FOR MANUFACTURING THE SAME	Yoshinori Miyabara, Naoto Maeda
Patent 6282966	MOTOR CONTROL UNIT	Yuji Ide, Takao Oshimori, Hiroaki Koike
Patent 6312584	MOTOR CONTROL APPARATUS	Yuji Ide, Masahisa Koyama, Shintaro Koichi
Patent 6391431	BRAKE TORQUE MEASUREMENT DEVICE	Norio Nakamura
Patent 6391489	MOTOR CONTROL APPARATUS	Yuji Ide, Michio Kitahara, Toshio Hiraide
Patent 63645289	FAN CONTROL DEVICE AND FAN CONTROL SYSTEM	Naoki Murakami, Masashi Murakami
Patent 6289712	FAN MOTOR APPARATUS AND METHOD FOR MANUFACTURING THE SAME	Naoya Inada, Masato Kakeyama, Atsushi Yanagisawa
Patent 6420411	FAN MOTOR APPARATUS	Naoya Inada, Jiro Watanabe, Masaki Kodama
Patent 6352056	COIL INSULATING STRUCTURE / Bobbin with Grooves for Inserting Insulating Slot Closer (OF ELECTROMAGNETIC MOTOR STATOR)	Koji Nakatake, Yasushi Yoda, Masaaki Ohashi
Patent 6424078	STATOR, METHOD FOR MANUFACTURING STATOR, AND MOTOR	Toshihito Miyashita, Masashi Suzuki, Manabu Horiuchi, Masaki Musha
China Patent ZL201310098880.6	AXIAL FLOW FAN	Naoya Inada, Jiro Watanabe
China Patent ZL201310547935-7	SPLIT-CORE TYPE MOTOR AND METHOD OF MANUFACTURING ARMATURE OF SPLIT-CORE TYPE MOTOR	Toru Takeda, Shintaro Koichi, Kenta Matsuhashi
China Patent ZL201310351506-2	PERMANENT MAGNET TYPE MOTOR AND METHOD FOR MANUFACTURING PERMANENT MAGNET TYPE MOTOR	Toshihito Miyashita, Manabu Horiuchi
China Patent ZL201310351583.8	MOTOR CONTROLLER	Yuji Ide
China Patent ZL201310236622.X	BRUSHLESS MOTOR	Yoshinori Miyabara, Haruhisa Maruyama, Kei Sato, Haruka Sakai
China Patent ZL201310607207-0	WIRING STRUCTURE OF STATOR COIL	Yukio Miura, Masaaki Ohashi, Koji Nakatake
China Patent ZL201410027278.8	MOTOR CONTROLLER	Yuji Ide, Satoshi Yamazaki
China Patent ZL201410026004-7	MOTOR CONTROLLER	Yuji Ide, Satoshi Yamazaki
China Patent ZL201410128528-7	MOTOR CONTROLLER	Yuji Ide, Shunichi Miyazaki
China Patent ZL201410047974-5	SEALING-MEMBER-EQUIPPED SHIELDED CABLE	Yoshihiro Shoji, Kazuhiro Makiuchi
China Patent ZL201410118300-X	MOTOR SPEED CONTROL APPARATUS	Yuji Ide, Satoshi Yamazaki
China Patent ZL201410112800.2	LINEAR MOTOR	Yu Qi Tang, Satoshi Sugita
China Patent ZL201410231395.6	FAN MOTOR, INLINE TYPE FAN MOTOR AND ASSEMBLY METHOD OF THE SAME	Katsumichi Ishihara, Masashi Nomura, Tomoko Hayashi
China Patent ZL201410325664-5	MOTOR CONTROL DEVICE	Yuji Ide, Michio Kitahara, Satoshi Yamazaki
China Patent ZL201410492041.7	LINEAR MOTOR	Yu Qi Tang, Takashi Matsushita
China Patent ZL201410492010.1	LINEAR MOTOR UNIT	Yu Qi Tang, Kazuhito Yamaura
China Patent ZL201410681568.4	MOTOR CONTROLLER	Yuji Ide, Masahisa Koyama, Satoshi Yamazaki
China Patent ZL201510024862.2	MOTOR CONTROLLER	Yuji Ide, Satoshi Yamazaki, Michio Kitahara
China Patent ZL201510064153.7	MAGNETIC SHIELD COVER FOR ENCODER OF MAGNETIC DETECTION TYPE AND ENCODER OF MAGNETIC DETECTION TYPE	Kazuhiro Makiuchi, Yoshihiro Shoji
China Patent ZL201510245788.7	WIRE FIXTURE	Tetsuya Yamazaki
EP Patent 1847716	AXIAL FLOW FAN	Katsumichi Ishihara, Honami Osawa

Registration Number	Name	Inventor(s)
EP Patent 1983199	COUNTER-ROTATING AXIAL-FLOW FAN	Toshiya Nishizawa, Yasuhiro Maruyama, Hayato Murayama
EP Patent 1983198	COUNTER-ROTATING AXIAL-FLOW FAN	Toshiya Nishizawa, Yasuhiro Maruyama, Hayato Murayama
EP Patent 2172655	COUNTER-ROTATING AXIAL-FLOW FAN	Toshiyuki Nakamura, Atsushi Yanagisawa, Katsumichi Ishihara
EP Patent 2226507	METHOD OF CONTROLLING COUNTER-ROTATING AXIAL-FLOW FAN	Honami Osawa, Naruhiko Kudo, Yoshihiko Aizawa
EP Patent 2093865	AIRTIGHT-TYPE ELECTRIC MOTOR	Shigenori Miyairim, Ikuo Takeshita, Koji Nakatake, Hisayuki Miyajima
EP Patent 2317149	AXIAL FLOW FAN	Toshiyuki Nakamura, Masahiro Koike, Naoya Inada
EP Patent 2221947	ELECTRICAL APPARATUS	Haruhisa Maruyama, Tomoaki Ikeda, Takahisa Toda
EP Patent 2226918	STATOR FOR ROTARY ELECTRIC MACHINE	Masaaki Ohashi, Yoichi Horiuchi, Yasushi Yoda, Koji Nakatake
EP Patent 2256908	HEAT RADIATION STRUCTURE OF ELECTRIC APPARATUS	Toshihito Miyashita, Hiroshi Hioki, Junichi Chiku
EP Patent 2624437	MOTOR CONTROL DEVICE AND CONTROL METHOD OF THE SAME	Noriaki Taniguchi, Takahisa Toda, Yo Muramatsu
EP Patent 2706656	MOTOR CONTROL DEVICE AND MOTOR CONTROL METHOD	Yo Muramatsu, Takahisa Toda
EP Patent 2852045	CONTROL DEVICE OF FAN MOTOR	Takahisa Toda, Takashi Kaise, Jiro Watanabe
EP Patent 2886871	WATERPROOF AXIAL FLOW FAN	Katsumichi Ishihara, Akira Nakayama, Tatsuya Midorikawa, Masato Kakeyama
Hong Kong Patent 1199558	SHAFT ROTARY TYPE LINEAR MOTOR AND SHAFT ROTARY TYPE LINEAR MOTOR UNIT	Yu Qi Tang, Satoshi Sugita
Korea Patent 101865230	SPLIT-CORE TYPE MOTOR AND METHOD OF MANUFACTURING ARMATURE OF SPLIT-CORE TYPE MOTOR	Toru Takeda, Shintaro Koichi, Kenta Matsuhashi
Korea Patent 101820100	PERMANENT MAGNET TYPE MOTOR AND METHOD FOR MANUFACTURING PERMANENT MAGNET TYPE MOTOR	Toshihito Miyashita, Manabu Horiuchi
Korea Patent 101874002	THREE-PHASE PERMANENT MAGNET TYPE MOTOR	Toshihito Miyashita, Masahiro Yamaguchi
Korea Patent 101897635	PERMANENT MAGNET-EMBEDDED MOTOR AND ROTOR THEREOF	Toshihito Miyashita
Korea Patent 101883334	MOTOR CONTROLLER	Yuji Ide, Shunichi Miyazaki
Korea Patent 101919477	SEALING-MEMBER-EQUIPPED SHIELDED CABLE	Yoshihiro Shoji, Kazuhiro Makiuchi
Korea Patent 101897637	LINEAR MOTOR	Yu Qi Tang, Satoshi Sugita
Korea Patent 101916894	MOTOR CONTROL DEVICE	Yuji Ide, Michio Kitahara, Satoshi Yamazaki
Korea Patent 101854386	COIL INSULATING STRUCTURE / Bobbin with Grooves for Inserting Insulating Slot Closer (OF ELECTROMAGNETIC MOTOR STATOR)	Koji Nakatake, Yasushi Yoda, Masaaki Ohashi
Korea Patent 101904446	LINEAR MOTOR UNIT	Yu Qi Tang, Kazuhito Yamaura
Korea Patent 101826126	THREE – PHASE ELECTROMAGNETIC MOTOR	Toshihito Miyashita, Manabu Horiuchi
Philippine Patent 1-2013-000181	MOTOR CONTROLLER	Takahisa Toda
Philippine Patent 1-2013-000163	BRUSHLESS MOTOR	Yoshinori Miyabara, Haruhisa Maruyama, Kei Sato, Haruka Sakai
Philippine Patent 1-2013-000262	AXIAL FLOW FAN	Atsushi Yanagisawa
Philippine Patent 1-2004-000274	POWER CONVERTER	Masahiko Nagai
Philippine Patent 1-2014-000377	WATERPROOF AXIAL FLOW FAN	Katsumichi Ishihara, Akira Nakayama, Tatsuya Midorikawa, Masato Kakeyama
Taiwan Patent 620875	FAN FRAME	Masahiro Koike, Soma Araki, Toshiki Ogawara
Taiwan Patent I 631283	AXIAL FLOW FAN	Naoya Inada, Jiro Watanabe
Taiwan Patent I 632767	MOTOR CONTROLLER	Yuji Ide, Satoshi Yamazaki
Taiwan Patent 618344	MOTOR CONTROLLER	Yuji Ide, Satoshi Yamazaki
Taiwan Patent 613880	LINEAR MOTOR	Yu Qi Tang, Satoshi Sugita
Taiwan Patent 618338	SHAFT ROTARY TYPE LINEAR MOTOR AND SHAFT ROTARY TYPE LINEAR MOTOR UNIT	Yu Qi Tang, Satoshi Sugita
Taiwan Patent I 638504	FAN MOTOR, INLINE TYPE FAN MOTOR AND ASSEMBLY METHOD OF THE SAME	Katsumichi Ishihara, Masashi Nomura, Tomoko Hayashi
Taiwan Patent I 632768	MOTOR CONTROL DEVICE	Yuji Ide, Michio Kitahara, Satoshi Yamazaki
Taiwan Patent I 641203	THREE – PHASE ELECTROMAGNETIC MOTOR	Toshihito Miyashita, Manabu Horiuchi
U.S. Patent 9871421	SPLIT-CORE TYPE MOTOR AND METHOD OF MANUFACTURING ARMATURE OF SPLIT-CORE TYPE MOTOR	Toru Takeda, Shintaro Koichi, Kenta Matsuhashi
U.S. Patent 10050481	PERMANENT MAGNET TYPE MOTOR AND METHOD FOR MANUFACTURING PERMANENT MAGNET TYPE MOTOR	Toshihito Miyashita, Manabu Horiuchi

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U.S. Patent 10014736	PERMANENT MAGNET-EMBEDDED MOTOR AND ROTOR THEREOF	Toshihito Miyashita
U.S. Patent 9929631	INTERIOR MAGNET LINEAR INDUCTION MOTOR	Satoshi Sugita, Yu Qi Tang, Yasushi Misawa, Shigenori Miyairi
U.S. Patent 9874215	FAN MOTOR CONTROL UNIT	Yo Muramatsu, Takahisa Toda, Kenta Nishimaki
U.S. Patent 9859765	WINDING INSULATION STRUCTURE OF STATOR OF ELECTROMAGNETIC MOTOR	Kazuhiro Yoda, Masaaki Ohashi, Shogo Yoda
U.S. Patent 10044241	COIL INSULATING STRUCTURE / Bobbin with Grooves for Inserting Insulating Slot Closer (OF ELECTROMAGNETIC MOTOR STATOR)	Koji Nakatake, Yasushi Yoda, Masaaki Ohashi
U.S. Patent 10069365	THREE – PHASE ELECTROMAGNETIC MOTOR	Toshihito Miyashita, Manabu Horiuchi
U.S. Patent 9869321	WATERPROOF AXIAL FLOW FAN	Katsumichi Ishihara, Akira Nakayama, Tatsuya Midorikawa, Masato Kakeyama
U.S. Patent 9899889	MOTOR STRUCTURE	Toshihito Miyashita, Manabu Horiuchi
U.S. Patent 9958025	STRUCTURE FOR ATTACHING COOLING FAN	Daigo Kuraishi
U.S. Patent 14987847	FAN CASING AND FAN APPARATUS	Naoya Inada, Honami Osawa
U.S. Patent 9857209	MEASUREMENT DEVICE	Katsumichi Ishihara, Takahisa Toda, Yo Muramatsu
U.S. Patent 9857202	SENSOR FOR MOTOR	Takayoshi Seki
U.S. Patent 10036660	MEASUREMENT DEVICE	Katsumichi Ishihara, Takahisa Toda, Yo Muramatsu, Masahiro Koike, Hikaru Urushimoto

## Internal Recognition: Invention Grand Prize (Excellence Award)

April 2018 Commendations

Prize	Subject	Division	Name
Excellence Award	Stator for Rotary Electric Machine and its Assembling Method	Servo Systems Div., Design Dept. 1	Mitsuaki Shioiri, Koji Nakatake, Yasushi Yoda, Kazuhiro Yoda, Shogo Yoda
		Servo Systems Division Application Engineering Dept.	Hong Zhang
Excellence Award	Fan Motor Protection Cap	Cooling Systems Div., Design Dept.	Haruhisa Maruyama, Yusuke Okuda, Yoshihisa Yamazaki

## Internal Recognition: Manufacturing Grand Prize (Excellence Award)

May 2018 Commendations

Prize	Subject	Division	Name
Excellence Award	Insulator Mold Mechanism with Excellent Releasability	Cooling Systems Div., Production Dept. Production Engineering Sect. 2	Shinsuke Okubo, Shunya Yamada
Excellence Award	For automating the rotor assembly process for compact AC servo motors	Servo Systems Division Production Engineering Dept., Production Engineering and Development Sect.	Kazuhiro Yoshihara, Shinichi Takeda
		Servo Systems Division Production Engineering Dept., Process Engineering Sect. 1	Kenichi Kawashima