

**FOR THE UNITED STATES DISTRICT COURT  
IN THE EASTERN DISTRICT OF MISSOURI  
EASTERN DIVISION**

NIDEC MOTOR CORPORATION,

*Plaintiff,*

v.

BROAD OCEAN MOTOR LLC;  
BROAD OCEAN TECHNOLOGIES LLC;  
ZHONGSHAN BROAD OCEAN MOTOR  
CO. LTD;  
MOTORS AND ARMATURES, INC.; and  
BROAD OCEAN MOTOR (HONG KONG)  
CO. LTD.

*Defendants.*

Case No. 4:13-cv-01895-SEP

JURY TRIAL DEMANDED

**THIRD AMENDED PATENT INFRINGEMENT COMPLAINT**

Plaintiff Nidec Motor Corporation (“Plaintiff” or “NMC”), by and through their attorneys, for its Third Amended Complaint against Defendants Broad Ocean Motor LLC (“BOM”), Broad Ocean Technologies LLC (“BOT”), Zhongshan Broad Ocean Motor Co., Ltd. (“BOMC”), and Broad Ocean Motor (Hong Kong) Co. Ltd. (“BOMHK”) (collectively “Broad Ocean”) and Motors & Armatures, Inc. (“MARS”) (collectively “Defendants”) hereby alleges as follows:

**NATURE OF THE ACTION**

1. This is a patent infringement action brought under Title 35, United States Code, Section 271, to remedy Defendants’ direct, contributory, and/or induced infringement of Plaintiff NMC’s patented inventions.
2. The United States Patent and Trademark Office has recognized several of NMC’s inventions by awarding U.S. Patents, including patents asserted herein, to NMC.
3. NMC holds all substantial rights and interests in and to the United States Patent

No. 5,818,194 (“the ‘194 Patent”), issued on October 6, 1998, for “Direct replacement variable speed blower motor.” NMC has the right to enforce the ‘194 Patent against infringers and to sue for and collect damages for all relevant times, including the right to assert the present cause of action. A true and correct copy of the ‘194 patent is attached hereto as Exhibit 1 and made a part hereof.

4. NMC holds all substantial rights and interests in and to the United States Patent No. 7,990,092 (“the ‘092 Patent”), issued on August 2, 2011, for “Blower motor for HVAC systems.” NMC has the right to enforce the ‘092 Patent against infringers and to sue for and collect damages for all relevant times, including the right to assert the present cause of action. A true and correct copy of the ‘092 Patent is attached hereto as Exhibit 2 and made a part hereof.

5. NMC holds all substantial rights and interests to United States Patent No. 7,208,895 (“the ‘895 Patent”) for “Control Systems and Methods for Permanent Magnet Rotating Machines,” which issued on April 24, 2007. NMC has the right to enforce the ‘895 Patent against infringers and to sue for and collect damages for all relevant times, including the right to assert the present cause of action. A true and correct copy of the ‘895 Patent is attached hereto as Exhibit 3 and made a part hereof.

6. NMC holds all substantial rights and interests to United States Patent No. 7,312,970 (“the ‘970 Patent”) for “Low Cost Surge Protection,” which issued on December 25, 2007. NMC has the right to enforce the ‘970 Patent against infringers and to sue for and collect damages for all relevant times, including the right to assert the present cause of action. A true and correct copy of the ‘970 Patent is attached hereto as Exhibit 4 and made a part hereof.

7. By making, selling, offering for sale, and importing into the United States its competing line of HVAC motors, Defendants have infringed, and continue to infringe various

utility patents, asserted herein and owned by NMC and exclusively licensed to NMC.

8. Defendants' misconduct has caused and is causing damage and irreparable harm, for which NMC respectfully seeks relief.

9. NMC seeks to prevent Defendants from continuing infringement of its patent rights. Plaintiff NMC further seeks monetary damages and prejudgment interest for Defendants' past infringement of the '194, the '092, the '895, and the '970 Patents.

### **THE PARTIES**

10. Plaintiff NMC is a corporation organized and existing under the laws of the State of Delaware with a principal place of business at 8050 W. Florissant Avenue, St. Louis, MO 63136.

11. Defendant BOM is a Delaware limited liability company with a principal place of business at 201 E 5<sup>th</sup> Street, Washington, Missouri 63090 that has engaged, and is engaging, in business in Missouri and in this judicial district. Defendant BOM has technical support offices and employees with relevant knowledge in the St. Louis area.

12. Defendant BOT is a Michigan limited liability company with a principal place of business at 30120 Hudson Drive, Novi, MI 48377 that has engaged, or is engaging, in business in Missouri and in this judicial district.

13. Defendant BOMC, is a foreign corporation organized under the laws of China with a principal place of business at No. 3 Shalang Industrial Zone, West District, Zhongshan, 528411, China that has engaged, and is engaging, in business in the United States of America, Missouri and in this judicial district.

14. Defendant BOMHK is a foreign corporation organized under the laws of Hong Kong with a principal place of business at No. 3 Shalang Industrial Zone, West District, Zhongshan, 528411, China that has engaged, and is engaging, in business in the United States of

America, Missouri and in this judicial district.

15. Defendant BOT is a wholly-owned subsidiary, directly or indirectly, of Defendant BOMC.

16. Defendant BOM is a wholly-owned subsidiary, directly or indirectly, of Defendant BOMC.

17. Defendant BOMHK is a wholly-owned subsidiary, directly or indirectly, of Defendant BOMC.

18. Upon information and belief, Defendant BOMC controls BOMHK, BOM and BOT and its other subsidiaries worldwide. According to Broad Oceans' Corporate Disclosure Statement, BOMC is the parent company of BOM, BOMHK, and also the parent company of BOT.

19. Defendant MARS, is a corporation organized under the laws of the State of New York with a principal place of business at 250 Rabro Drive East, Hauppauge, NY 11788 that has engaged, and is engaging, in business in Missouri and in this judicial district.

### **JURISDICTION AND VENUE**

20. This is an action for patent infringement which arises under the Patent Laws of the United States, in particular, 35 U.S.C. §§ 271, 281, 283, 284, and 285. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331, 1332, and 1338(a).

### **Personal Jurisdiction over BOM**

21. This Court has personal jurisdiction over BOM, at least because Plaintiff's claims for patent infringement against BOM arise from BOM's acts of infringement in the State of Missouri and in the Eastern District of Missouri. BOM conducts and/or causes to be conducted business in the State of Missouri related to the Infringing Devices and regularly conducts or solicits business, engages in other persistent business conduct, and/or derives substantial revenue

from goods and products sold and services provided to Missouri residents and the residents of this District. Upon information and belief, and subject to discovery, the Infringing Devices are imported into the United States and the State of Missouri and assembled or made, used, sold and/or offered for sale in the United States by or on behalf of BOM, BOM has committed and will commit acts of infringement in this judicial district.

22. In the alternative, this Court has personal jurisdiction over BOM under Federal Rule of Civil Procedure 4(k)(2) for these same business activities arising from the Infringing Devices.

23. BOM also distributes its products, including the Infringing Devices, through established channels of distribution, namely distributors, with full awareness that substantial quantities of its products, including the Infringing Devices, are likely to be and have been shipped into the State of Missouri and the Eastern District of Missouri. Several such distributors sell Broad Oceans' Infringing Devices in this District both at local brick and mortar stores and over the Internet through websites capable of e-commerce transactions with consumers in this District.

#### **Personal Jurisdiction over BOT**

24. This Court has personal jurisdiction over BOT, at least because Plaintiff's claims for patent infringement against BOT arise from BOT's acts of infringement in the State of Missouri and in the Eastern District of Missouri. Upon information and belief, BOT directs business activities relating to the Infringing Devices in this State and specifically, within this District relating to the Infringing Devices such as making, using, selling, importing, and offering to sell as part of a joint enterprise. In the alternative, this Court has personal jurisdiction under Federal Rule of Civil Procedure 4(k)(2) for the same business activities arising from the Infringing Devices.

**Personal Jurisdiction over BOMHK**

25. This Court has personal jurisdiction over BOMHK, at least because Plaintiff's claims for patent infringement against BOMHK arise from BOMHK's acts of infringement in the State of Missouri and in the Eastern District of Missouri. Upon information and belief, BOMHK directs business activities relating to the Infringing Devices in this State and specifically, within this District relating to the Infringing Devices such as making, using, selling, importing, and offering to sell as part of a joint enterprise. In the alternative, this Court has personal jurisdiction under Federal Rule of Civil Procedure 4(k)(2) for the same business activities arising from the Infringing Devices

**Personal Jurisdiction over BOMC**

26. Defendant BOMC is subject to personal jurisdiction in this judicial district, at least because Plaintiff's claims for patent infringement against BOMC arise from BOMC's acts of infringement in the State of Missouri and in the Eastern District of Missouri. Specifically, BOMC directly infringed, contributed to the infringement of, and induced the infringement of the Asserted Patents, described below. Upon information and belief, and subject to discovery, the Infringing Devices are designed, engineered and manufactured by affiliates of BOMC, with the assistance of BOMC, and imported into the United States and the State of Missouri and assembled or made, used, sold and/or offered for sale in the United States by or on behalf of BOMC, BOMC has committed and will commit acts of infringement in this judicial district. BOMC also placed and places the Infringing Devices into the stream of commerce through an established distribution channel with full awareness that said products would be, and have been, shipped into and sold from, in, and into this district. By engaging said distribution channels, BOMC intended and intends that the Infringing Devices be sold in this District.

27. BOMC delivers its products, including its Infringing Devices, into the United

States. This Court has personal jurisdiction under Federal Rule of Civil Procedure 4(k)(2) for the same business activities arising from the Infringing Devices.

**Personal Jurisdiction over MARS**

28. Defendant MARS is subject to personal jurisdiction in this judicial district, at least because Plaintiff's claims for patent infringement against MARS arise from MARS' acts of infringement in the State of Missouri and in the Eastern District of Missouri. Specifically, MARS directly infringed, contributed to the infringement of, and induced the infringement of the Asserted Patents, described below. The acts of infringement included and include, but are not limited to, using, practicing, importing, assembling, providing, supplying, distributing, selling, offering to sell, and otherwise making available to consumers, directly and/or through third parties, including, but not limited to, distributors and retailers, Infringing Devices, including, but not limited to, Azure Digi-Tech motor products. MARS also placed and places the Infringing Devices into the stream of commerce through an established distribution channel with full awareness that said products would be, and have been, shipped into and sold from, in, and into this district. By engaging said distribution channels, MARS intended and intends that the Infringing Devices be sold in this District.

29. For example, according to MARS' website, <https://www.MARSdelivers.com/wps/portal/c/about-us/company-info>, MARS claims to be "the most comprehensive supplier of commercial and residential HVAC/R motors." It also claims to provide "a single source for quality products" to "customers throughout the Americas." The website further claims that MARS has "distribution facilities in Earth City (St. Louis), MO."

30. This Court has personal jurisdiction over MARS due to, at least, MARS' contacts with Missouri, including, but not limited to, the above-described activities.

**Venue for BOM**

31. Upon information and belief and pursuant to 28 U.S.C. § 1391 and *In re TC Heartland, LLC*, 821 F.3d 1338, 1342 (Fed. Cir. 2016), Defendant BOM is a resident of the Eastern District of Missouri. Upon information and belief, Defendant BOM has a regular and established place of business within this judicial district. Particularly, Defendant BOM has technical support offices and employees with relevant knowledge in the St. Louis Area (Washington, MO).

32. Upon information and belief, Defendant BOM maintains one or more sales and distribution offices relevant to the Infringing Devices within the Eastern District of Missouri.

33. Venue is proper in this District as to BOM under 28 U.S.C. §§ 1391 (b), (c), and 1400(b), because it is a domestic corporation and has committed acts of infringement in this District. Defendant BOM has committed acts within this judicial district giving rise to this action, and BOM has and continue to conduct business in this judicial district, including one or more acts of knowingly contributing to and/or inducing the infringement of NMC's Asserted Patents knowing that the directly Infringing Devices are sold in the State of Missouri and this Judicial District as well as providing service and support to Defendant BOM's customers in this District.

**Venue for BOT**

34. Upon information and belief and pursuant to 28 U.S.C. §§ 1391(b) and 1400(b) and *In re TC Heartland, LLC*, 821 F.3d at 1342, Defendant BOT has committed acts of infringement within this Judicial District giving rise to this action, and Defendant BOT has and continues to conduct business in this judicial district, including one or more acts of knowingly contributing to and/or inducing the infringement of NCM's Asserted Patents knowing that the directly Infringing Devices are sold in the State of Missouri and this Judicial District as well as



providing service and support to Defendant BOT's customers in this District.

**Venue for BOMC**

35. Venue is proper in this District as to BOMC pursuant to 28 U.S.C. §§ 1391 (b), (c), and 1400(b), because Defendant BOMC is a foreign company that is subject to personal jurisdiction in this District, has committed acts of infringement in this District, is not resident in the United States, is not incorporated in the United States, and does not have a regular and established place of business in any district in the United States. *See TC Heartland LLC v. Kraft Foods Grp. Brands LLC*, 2017 WL 2216934 at \*7 n.2 (2017).

**Venue for BOMHK**

36. Venue is proper in this District as to BOMHK pursuant to 28 U.S.C. §§ 1391 (b), (c), and 1400(b), because Defendant BOMHK is a foreign company that is subject to personal jurisdiction in this District, has committed acts of infringement in this District, is not resident in the United States, is not incorporated in the United States, and does not have a regular and established place of business in any district in the United States. *See TC Heartland LLC v. Kraft Foods Grp. Brands LLC*, 2017 WL 2216934 at \*7 n.2 (2017).

**Venue for MARS**

37. Upon information and belief and pursuant to 28 U.S.C. § 1391 and *In re TC Heartland, LLC*, 821 F.3d at 1342, Defendant MARS is a resident of the Eastern District of Missouri. Defendant MARS has a regular and established place of business within this judicial district. Particularly, Defendant MARS has sales offices and employees with relevant knowledge in the St. Louis Area (Earth City, MO).

38. Upon information and belief, Defendant MARS maintains one or more sales and distribution offices relevant to the Infringing Devices within the Eastern District of Missouri. Additionally, some of the MARS' documents related and relevant to the Infringing Devices may

be stored on MARS' servers and computer systems in Earth City, MO.

39. Venue is proper in this District as to MARS pursuant to 28 U.S.C. §§ 1391 (b), (c), and 1400(b), because it is a domestic corporation, has committed acts of infringement in this District, and has a regular and established place of business in this District.

### **FACTS**

40. NMC is a leading manufacturer of commercial, industrial, and appliance motors and controls. NMC offers products such as higher-efficiency motors, which serve industrial, residential, and commercial markets in applications ranging from water treatment, mining, oil and gas and the like. NMC brands include, among others, U.S. Motors®, Rescue®, RESCUE EcoTech®, ECOTECH EZ®, SELECTECH®, RESCUE SELECT®, RESCUE SELECT PRO®, PERFECT SPEED®, RESCUE EZ16®, RESCUE EZ13®, EZ16™, EZ13™, and THE ULTIMATE TRUCK STOP MOTOR®.

41. Known in the industry as the driving force behind many industry innovations, NMC makes significant investment in the research and development of innovative technologies. NMC prides itself as a leader in the industry and the driving force behind technological innovations in the industry.

42. NMC recognized the need for an appliance motor drive with low cost surge-protection. Traditional metal oxide varistor (MOV) surge protectors were insufficient under high voltage testing. As a result, a jumper circuit is used during insulation testing to disconnect the surge protection circuit. The requirement of connecting and disconnecting the jumper circuit adds additional cost and time to the manufacturing process. NMC acted on this need with a low-cost surge protector.

43. NMC also recognized the need existed for improvements in sensor based and sensorless control systems for rotating permanent magnet machines, including those which

control the output torque of a permanent magnet motor.

44. NMC recognized there was an important customer demand in electrical motors for reduced cost, energy savings, and improved indoor air quality. NMC understood that homeowners have rising energy costs and are looking for energy-efficient products to help lower utility bills. NMC looked at this customer need as an opportunity to resolve a critical customer problem and provide surplus value back to the customers. NMC also saw a need to assist installers by providing an easy installation method without the need to learn complicated wiring.

45. NMC invented and patented a higher-efficiency motor technology that allows for energy and cost savings to the customer. Their invention also allowed for easy installation of the higher-efficiency motor by directly connecting the motors to the old motor's PSC controls. This inventive technology provided an easy drop-in installation with no complex wiring modifications and no additional signal wires. As such, NMC designed this higher-efficiency motor to easily connect just like a PSC motor while providing the efficiency and comfort benefits of an electronically controlled motor.

46. Prior to the advent of NMC's revolutionary motor technology, installers would have to spend time and money to understand and learn how to connect complicated new electronic motors. This required the installers to learn how to add additional signal wires and modify complex wiring and to invest a lot of time and money in order to provide customers with efficient energy solutions. Because of the complexity of the wiring and the need for special installer training, there was a risk of installation mistakes being made. Faulty installation and wiring problems had the potential to start fires and dangerous electric shocks, not to mention the additional time and money wasted.

47. Additionally, prior to NMC's revolutionary motor technology, installers would

install generic replacement motors that use maximum horsepower as the highest torque point. The installers were often forced to guess or make assumptions about the amount of torque needed for each succeeding point on the five taps offered, thereby undermining the efficiency of the new energy unit installation. NMC recognized this problem and invented an out-of-the-box solution that saved both time and money.

48. NMC not only solved a number of problems in the energy industry, but also created an entirely new market segment—easy-to-install higher-efficiency motors.

49. NMC's innovative motors enable homeowners to cycle air continuously with increased efficiency and low circulation of the motor, without significantly increasing their utility bills. NMC's innovative motors operate the fan continuously, which clears the home of dust and allergens and allows for improved filtration that can assist residents that are sensitive to airborne particles and suffer related allergies.

50. As a result of its innovative designs, NMC has become the industry leader in this new and important segment. However, Defendants' Infringing Devices are gaining United States market share by infringing the Asserted Patents.

51. NMC has achieved market dominance and a reputation for providing innovative technologies through its hard work and investment into the higher-efficiency motor technology. NMC offers a range of energy products with a goal of simplifying processes, increasing efficiency, and enhancing user outcomes.

52. By investing substantial time and resources in research and development, NMC has achieved unmatched dependability, ease-of-use, and flexibility in application of its patented products. These characteristics define NMC's line of motor devices.

53. NMC currently markets a number of higher-efficiency motor devices which

incorporate features of the inventions claimed in the Asserted Patents, including but are not limited to, the Rescue EcoTech® series of products. Notably, many of Defendants’ Infringing Devices are considered by installers alongside NMC’s products, thereby directly impeding the sales of NMC’s products. *See, e.g.,* <https://hvac-talk.com/vbb/showthread.php?2012781-Which-universal-ECM-to-replace-my-PSC-blower-motor>.

54. Particularly, MARS specifically advertises in the training guides for Azure MARS No. 10860 and MARS No. 10861 motors that the Infringing Devices replace NMC’s “Ecotech Rescue motors” and thereby directly impedes sales, poaches customers, and steals market share from NMC. An image of the training guide for the Infringing Product is illustrated below:

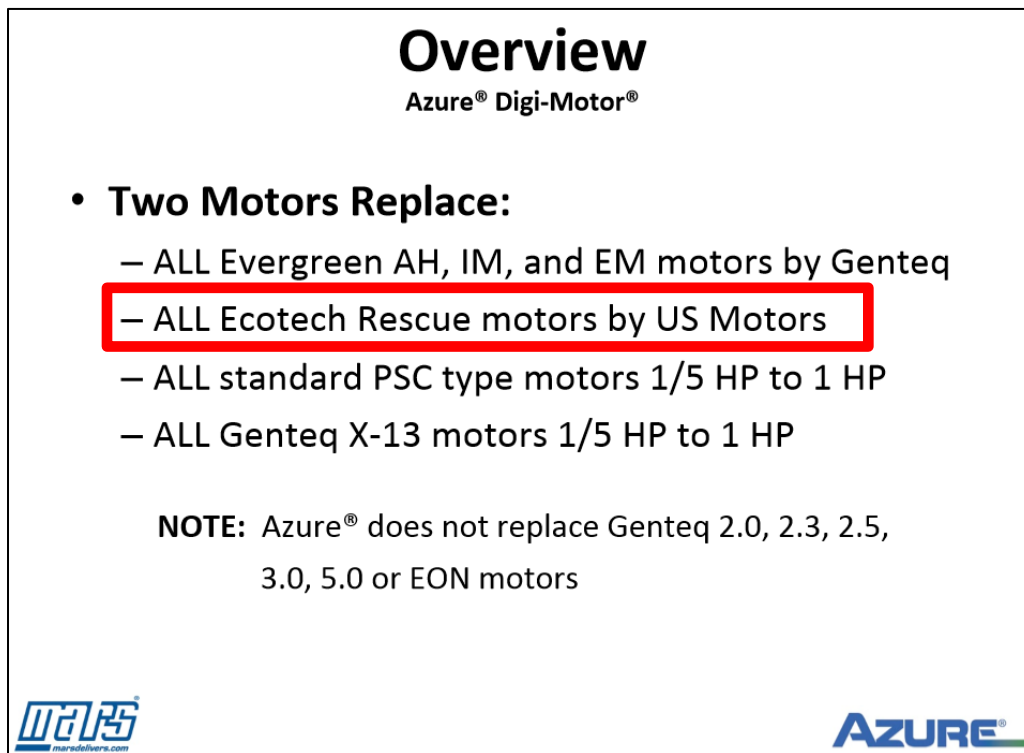


Image 1 (Training Guide for Azure MARS No. 10860 and MARS No. 10861 motors) *See, e.g.,* [https://www.marsdelivers.com/wps/wcm/connect/85ff5568-bc05-4419-8ebe-e83eadea40d2/Azure+Digi-Motor+Training\\_us.pdf?MOD=AJPERES&CONVERT\\_TO=url&CACHEID=ROOTWORKSPACE-85ff5568-bc05-4419-8ebe-e83eadea40d2-m6q4c4K](https://www.marsdelivers.com/wps/wcm/connect/85ff5568-bc05-4419-8ebe-e83eadea40d2/Azure+Digi-Motor+Training_us.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE-85ff5568-bc05-4419-8ebe-e83eadea40d2-m6q4c4K).

55. MARS also misleadingly advertises that it conceptualized and specified the unique features of the Infringing Devices, misleading and confusing customers. An image of the training guide for the Infringing Product is illustrated below:

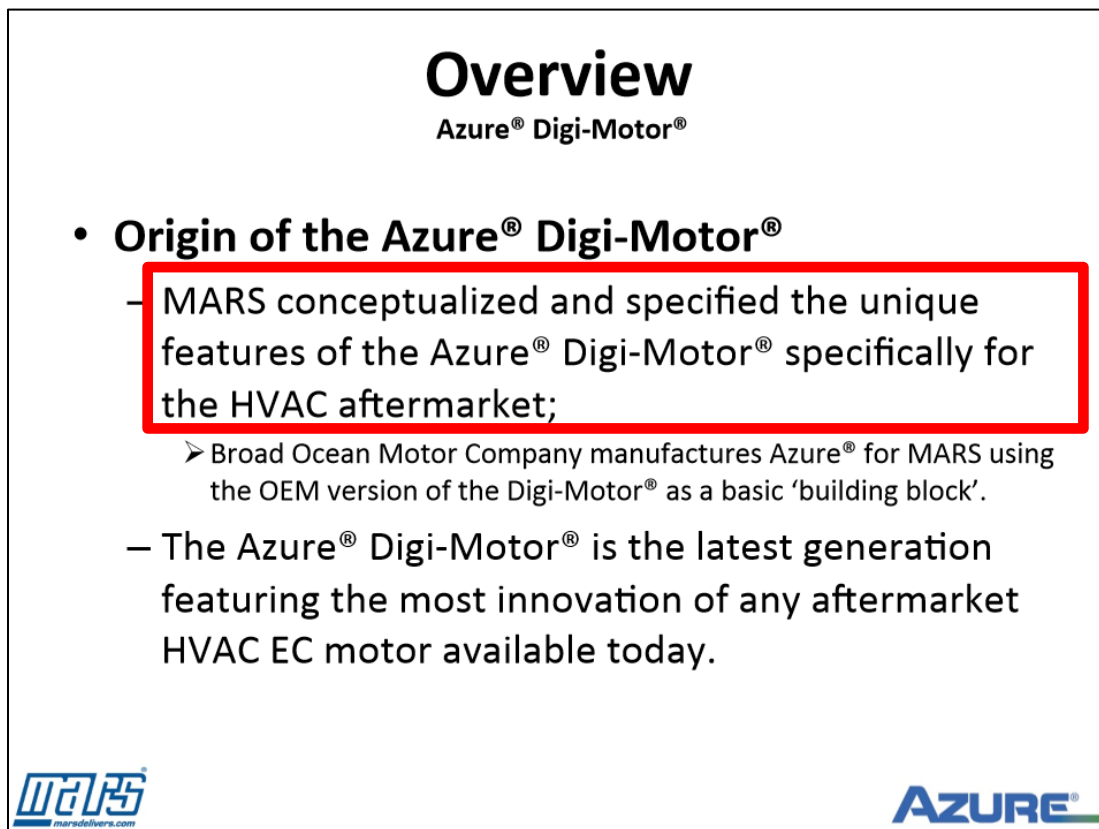


Image 2 (Training Guide for Azure MARS No. 10860 and MARS No. 10861 motors)

56. MARS has also demonstrated the drop-in functionality of their Azure Digi-Tech motors at various stores, such as Morrison Supply. In these demonstrations, MARS illustrated the advantages of the straightforward installation process. The installers who attend these demonstrations were impressed by the easy drop-in functionality of Defendants' infringing Azure motors. These are the same features that NMC has worked hard to innovate and protect in its Asserted Patents. By demonstrating these innovative features, MARS enables installers to share information with others in the industry about how "straightforward" the installation of the

Infringing Devices is and the “slick” design of “a drop in ecm for psc application.” MARS is thereby using word-of-mouth marketing of these innovative patented features to positively build its brand and directly impede sales for competing NMC’s products. *See*, e.g., <https://hvac-talk.com/vbb/showthread.php?1549681-PSC-vs-ECM>.

### **NMC’s Higher-efficiency Motor Products**

57. NMC’s significant investment in research and development and innovation resulted in being awarded several U.S. design and utility patents which are valid and enforceable. Several of NMC’s patents, including the Asserted Patents herein, are directed to providing an easy-to-install solution for updating to higher-efficiency motors, as well as technology to sense current in high voltage speed taps that eliminates guesswork and training to install complex wiring. NMC’s products are marked with its patent numbers, including the Asserted Patents referred to herein. Additionally, NMC lists the patents covered under each product in its website. *See*, e.g., <https://acim.nidec.com/motors/patents>.

58. NMC has manufactured and/or currently manufactures products which are representative of the Asserted Patents including at least the Rescue EcoTech® motors.

59. NMC’s Rescue EcoTech® motor is a higher-efficiency ECM/BPM drop-in replacement incorporating the technology found in the Asserted Patents and is depicted below in Image 3:

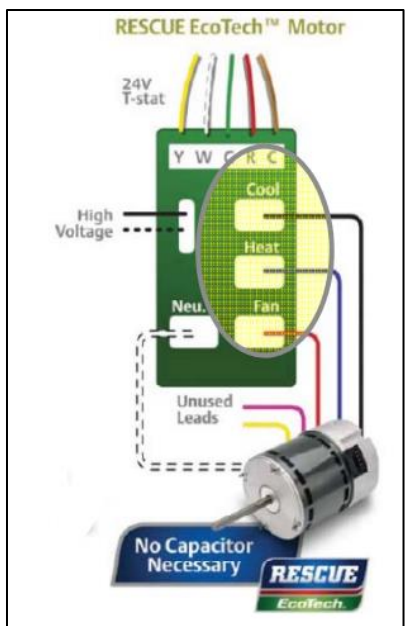


Image 3 (Rescue EcoTech Motor)

60. NMC's Rescue EcoTech® Motor also includes a patented design that senses current in high voltage speed traps. The motor is a higher-efficiency direct drive blower motor replacement for PSC blower motor applications. The Rescue EcoTech® motor provides an easy drop-in solution for a wide variety of application with no system control changes and minimal wiring modifications.

61. Another example of the Rescue EcoTech® Motor is reproduced below:





Image 4 (Rescue EcoTech® Motor)

62. The Rescue EcoTech® motor has been designed to give installers a method to boost indoor direct-drive blower performance levels and efficiencies to save time and money for the customers. The installation of the Rescue EcoTech® has been designed to be as simple as a that of a conventional PSC blower motor. The Rescue EcoTech® has been equipped with a motor-control technology that can provide energy savings and improved comfort to the customer.

**The ‘194 Patent: “Direct Replacement Variable Speed Blower Motor”**

63. On April 1, 1996, United States Patent Application No. 08/626,035 (“the ‘035 application”) was filed with the United States Patent and Trademark Office (the “USPTO”) for obtaining patent protection for the direct replacement variable speed blower motor invention. Craig J. Nordby was listed as the sole named inventor for the ‘035 application.

64. On October 6, 1998, the USPTO issued the ‘194 Patent, entitled “Direct replacement variable speed blower motor” from the ‘035 application. A true and correct copy of the issued ‘194 Patent is attached as Exhibit 1.

65. NMC is the owner by assignment of the entire right, title, and interest in and to the ‘194 Patent, including the right to sue thereon and recover for infringement thereof.

66. The ‘194 Patent expired on December 4, 2019.

67. Upon information and belief, the ‘194 Patent has been cited approximately 50 times by other patents, patent applications, and as prior art by USPTO Patent Examiners during the prosecution of other patents.

**The ‘092 Patent: “Blower motor for HVAC systems”**

68. On September 8, 2008, United States Patent Application No. 12/206,087 (“the ‘087 application”) was filed with the USPTO for obtaining patent protection for the method of

adjusting torque values of a motor with multiple torque settings and a maximum rated torque value. Arthur E. Woodward was listed as the sole inventor for the '087 application.

69. On August 2, 2011, the USPTO issued the '092 Patent, entitled "Blower motor for HVAC systems" from the '087 application. A true and correct copy of the issued '092 Patent is attached as Exhibit 2.

70. NMC holds all substantial rights in and to the '092 Patent, including all rights to recover for all past, present, and future infringements thereof.

71. The '092 Patent is currently in full force and effect.

**The '895 Patent: "Control Systems and Methods for Permanent Magnet Rotating Machines."**

72. On December 2, 2005, United States Patent Application No. 11/293,743, ("the '743 application") was filed with the USPTO for obtaining patent protection for Control Systems and Methods for Permanent Magnet Rotating Machines. The named inventors are: Joseph Marcinkiewicz, Prakash Shahi, and Michael Henderson.

73. On April 24, 2007, the USPTO issued the '895 Patent for "Control Systems and Methods for Permanent Magnet Rotating Machines" from the '743 application. A true and correct copy of the issued '895 Patent is attached as Exhibit 3.

74. NMC holds all substantial rights in and to the '895 Patent, including all rights to recover for all past, present, and future infringements thereof.

75. The '895 Patent is currently in full force and effect.

**The '970 Patent: "Low Cost Surge Protection."**

76. On January 9, 2004, United States Patent Application No. 10/754,739 ("the '739 application") was filed with the USPTO for obtaining patent protection for a low-cost surge protector. James Skinner was listed as the sole named inventor for the '739 application.

77. On December 25, 2007, the USPTO issued the '970 Patent, entitled "Low Cost Surge Protection" from the '739 application. A true and correct copy of the issued '092 Patent is attached as Exhibit 4.

78. NMC holds all substantial rights in and to the '970 Patent, including all rights to recover for all past, present, and future infringements thereof.

79. The '970 Patent is currently in full force and effect.

**NMC's Lawsuit and Broad Ocean's *Inter Partes* Review**

80. On September 25, 2013, NMC sued Broad Ocean and MARS in the Eastern District of Missouri for infringement of, *inter alia*, the '895 and '970 Patents.

81. On July 3, 2014, Broad Ocean filed a petition for *inter partes* review ("IPR") of claims 9 and 21 of the '895 Patent. This case was captioned as IPR2014-01122.

82. On July 3, 2014, Broad Ocean filed a petition to institute IPR of claims 1–5, 7, 8, 10, 11, 15–18, and 20–23 of the '970 Patent. This case was captioned as IPR2014-01123.

83. On January 21, 2015, the Patent Trial and Appeal Board ("PTAB") instituted trial on claims 9 and 21 of the '895 Patent and declined to institute trial on the '970 Patent.

84. On March 27, 2015, NMC sued Broad Ocean and MARS in the Eastern District of Texas for infringement of, *inter alia*, the '194 and '092 Patents. NMC alleged that Broad Ocean and MARS infringed these patents by making, offering, and selling the Azure Digi-Tech motor product lines associated with the following MARS product numbers: MARS No. 08025; MARS No. 08026; and MARS No. 08027.

85. On June 19, 2015, Defendants moved to transfer the case to the United States District Court for the Eastern District of Missouri.

86. On July 24, 2015, BOMC filed a petition for IPR of the '092 Patent. This case was captioned as IPR2015-01617.

87. On August 3, 2015, BOMC filed a petition for IPR of the '194 Patent. This case was captioned as IPR2015-01663.

88. On January 6, 2016, the PTAB refused to institute IPR proceedings against claims 1–6 of the '092 Patent because BOMC had not demonstrated a reasonable likelihood of prevailing on its challenge of claims 1–6 and granted the petition to institute IPR proceeding against only claims 7–13 of the '092 Patent.

89. On January 12, 2016, the PTAB issued its Final Written Decision concerning the '895 Patent, holding that the two claims upon which trial had been instituted were unpatentable.

90. On February 12, 2016, the PTAB refused to institute IPR proceedings against the '194 Patent.

91. On March 3, 2016, the United States District Court for the Eastern District of Texas granted a joint motion to stay deadlines pending transfer to the Eastern District of Missouri and in light of the IPR petitions.

92. On March 24, 2016, the case was transferred to the United States Court for Eastern District of Missouri.

93. On December 21, 2016, the PTAB held that claims 7–13 of the '092 Patent were not unpatentable.

94. On April 25, 2017, this Court extended the stay entered in this matter to accommodate BOMC's appeal of PTAB's decision of the '092 patent to the Federal Circuit.

95. Plaintiff appealed the USPTO's finding that claim 21 of the '895 Patent was unpatentable. On March 14, 2017, the Federal Circuit Court of Appeals reversed the ruling. On April 28, 2017, the Court denied the petition for rehearing.

96. On appeal, the Federal Circuit affirmed the PTAB's decision as to the

patentability of claims 1–13 of the ‘092 Patent.

97. On May 8, 2018, BOMC filed a Combined Petition for Panel and En Banc Rehearing with the Federal Circuit regarding claims 1–6 of the ‘092 Patent that PTAB had refused to address and claim 7–13 of the ‘092 Patent that were held patentable by PTAB.

98. On June 14, 2018, the Federal Circuit affirmed PTAB’s determination that claims 7–13 were not shown to be unpatentable, but remanded proceeding in accordance with *SAS Institute, Inc. v. Iancu*, 138 S. Ct. 1348 (2018) for institution of IPR with respect to claims 1–6 of the ‘092 Patent.

99. On February 18, 2019, Defendants sought to have the claims of the ‘970 Patent reexamined at the USPTO through an *ex parte* reexamination procedure. Reexamination was ordered by the USPTO on April 9, 2019. Upon reexamination, patent claims 1–5, 7, 8, 10, 11, 15–18, and 20–23 were confirmed patentable by the USPTO.

100. On April 25, 2019, after remand, the PTAB found that BOMC had not demonstrated that claims 1–13 were anticipated by prior art and held that claims 1–13 of the ‘092 Patent had not been shown to be unpatentable by BOMC.

### **Broad Ocean and MARS’ Acts of Infringement**

101. NMC restates and realleges each of the allegations set forth above and incorporates them herein.

102. Defendants make, sell, offer for sale, and/or import into this District and elsewhere in the United States, Azure Digi-Tech products that include, but are not limited to, Azure Direct Drive Moto, Azure Condenser Fan Motor, and Azure 3.3” Commercial Refrigeration Evaporator Fan Motor and product lines associated with the following MARS and Broad Ocean product numbers: MARS No. 08025; MARS No. 08026; MARS No. 08027; MARS No. 10800; MARS No. 10801; MARS No. 10860; and MARS No. 10861, the 1/2HP

208~230V Unit Broad Ocean Part Number ZWK702B5380901, the “1HP 115~120V Broad Ocean Part Number ZWK702E0750501; Broad Ocean Part No. ZWK702B53857301; Broad Ocean Part No. ZWK702B5384805 (the “Infringing Devices”). On information and belief, Defendants have additional product numbers with infringing features for which further discovery is needed.

103. The Infringing Devices are imported into the United States and distributed in the United States through distributors and retailers online and in brick and mortar stores.

104. The Azure Digi-Tech motor is described as a “higher-efficiency variable speed direct drive blower motor” and is depicted below in Image 5:



Image 5 (Azure Digi-Tech motor).

105. The Azure Digi-Tech motor is described to be designed for easy installation by wiring exactly like a PSC motor “but without the capacitor.” See <https://heatingcooling.fergusonhvac.com/wp-content/uploads/2017/05/AzureTri-Fold-98895.pdf>.

106. The Azure Digi-Tech motor has at least two operating speeds and can select an operating speed using a reference input as depicted below in Image 6 and Image 7:

**Adjusting Motor Speeds (24V & PWM Variable Speed)**

The Azure™ motor has five 24V low voltage speed taps that offer five different motor speeds based on the load. Select the necessary taps to provide the correct airflow for all modes of operation:

- Tap 1 Orange: Low Speed
- Tap 2 White: Med Low Speed
- Tap 3 Gray: Med Speed
- Tap 4 Yellow: Med High Speed
- Tap 5 Red: High Speed (also PWM Input)

Image 6 (from Azure Digi-Motor Installation Guide, page 7).

Common	L1	Ground	Neutral L2	
Tap 1 Low	Tap 2 Med Low	Tap 3 Med	Tap 4 Med High	Tap 5 High

**Wiring Diagram A: Azure™ Harness Connections**

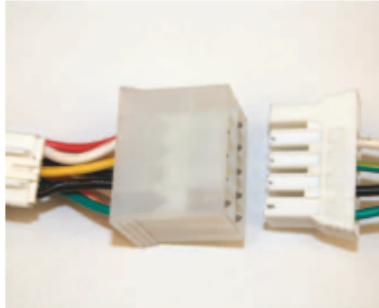
Image 7 (from Azure Digi-Motor Installation Guide, page 5).

107. The Azure Digi-Tech motor has a power input that includes at least a first current input and a second current input. The current inputs are coupled to the motor so that an operating current applied to either of the current inputs supply operating power to the motor as depicted below in Image 8:

1) X-13 motor applications may not require the use of the Azure™ supplied 4-wire power harness. For X-13 applications, confirm that factory power wiring corresponds to the Azure™ power wiring before plugging factory harness directly into the female connector within the motor wire harness. Refer to Wiring Diagram A. If the factory harness corresponds with Azure's™ connections, plug it into the Azure™ harness, skip the remainder of this section and proceed to the **AUTO SIZING THE MOTOR** section. For PSC motor applications or non-standard X-13 applications use the Azure™ supplied 4-wire power harness; ensure it is securely plugged into the female connector within the Azure™ motor wire harness. Refer to Image 4. The use of a capacitor is not required with Azure™.

2) Connect the black lead (L1) to a continuous **HOT** power source after the door switch.

3) Connect the white lead (Neutral/L2) to the main power **NEUTRAL or HOT** (for 230V apps)



**Image 4: Power Harness**

Image 8 (from Azure Digi-Motor Installation Guide, page 5).

108. The Azure Digi-Tech motor includes a multiplexing unit coupled to the power input and the reference input wherein the multiplexing unit selects one of at least a pair of

reference signals and applies the selected reference signals to the reference input. The selection depends on which of the current inputs has an operating current applied to it.

109. The Azure Digi-Tech motor includes a reference source coupled to the multiplexing unit and supplies the at least a pair of reference signals thereto.

110. A wiring diagram from Azure Digi-Motor's Installation Guide illustrates the drop-in electrical connections of the Azure Motor. The wiring diagram is illustrated below in Image 9:

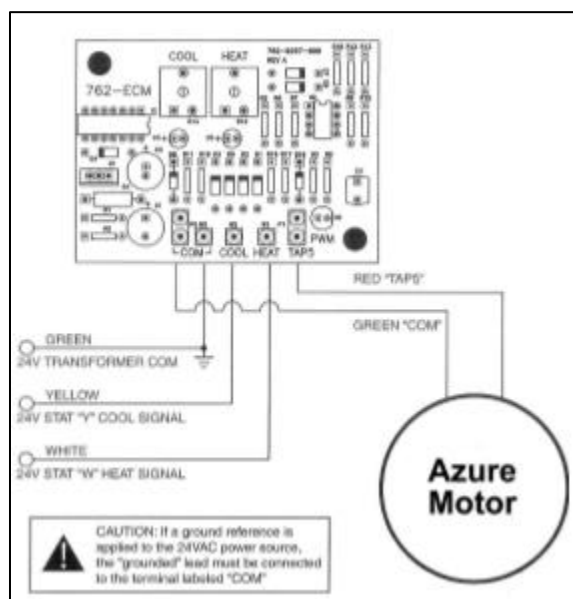


Image 9 (Wiring Diagram for Azure Motor).

111. The Azure Digi-Tech motor assigns torque values to each of its speed taps and self-programs itself to the correct horsepower for the application.

<https://heatingcooling.fergusonhvac.com/wp-content/uploads/2017/05/AzureTri-Fold-98895.pdf>.

112. Furthermore, Azure products automatically size to each application and display percentage of torque being applied by the speed tap being energized. Azure provides a hand-held programmer (MARS No. 08502) to manually increase or decrease torque motor speed to customize the installation.



113. The Azure Digi-Tech motor has multiple torque settings and a maximum rated torque value as seen in Image 10 and Image 11 below:

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Outboard replaceable surge protector</li><li>• Variable speed PWM (with use of MARS No. 08501)</li><li>• 600 RPM constant fan mode</li><li>• Reversible rotation</li><li>• High efficiency 85%</li></ul> | <ul style="list-style-type: none"><li>• <b>Multi-horsepower</b>, Direct Drive</li><li>• Dual voltage</li><li>• 5 Speeds</li><li>• Belly band mount</li><li>• No capacitor required</li></ul> |
|--|--|

Image 10 (Multiple torque settings, Page 3 of the Installation Guide).

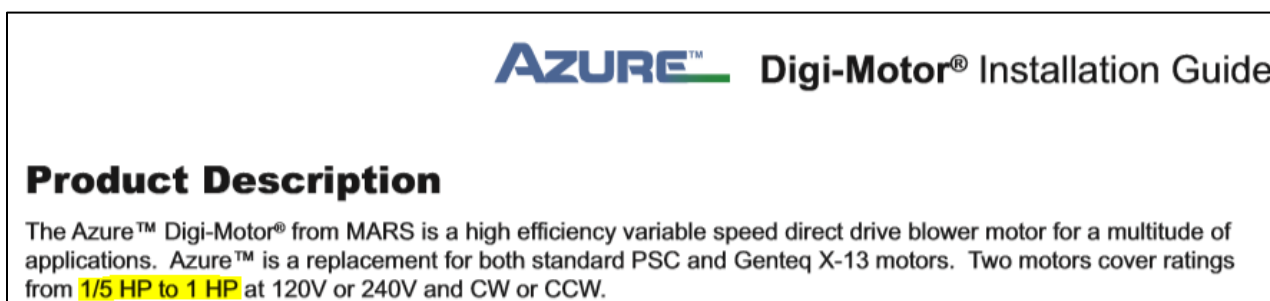


Image 11 (Maximum Torque Value corresponding to rating of 1/5 HP to 1 HP, Page 3 of the Installation Guide).

114. The Azure Digi-Tech motor selects an adjustment factor to obtain the adjusted maximum torque value that is less than the maximum rated torque value where the adjustment factor is between 60% to 99%. The Azure Digi-Tech motor can adjust torque values through auto-sizing or a hand-held programming. In the auto-sizing mode, the motor control adjusts torque values to the correct horsepower for the application as seen in Image 12 below. The hand-held programmer (MARS No. 08502) can adjust the torque value applied to the motor which directly corresponds to the motor speed and serves as a point of reference when increasing or decreasing and setting motor speeds on any of the taps. The hand-held programmer also displays the percentage of torque (between 20 and 90%) being applied by the motor as seen in Image 12, Image 13, and Image 14 below:

Azure® features an auto sizing learn mode. In start-up learn mode, Azure® runs for approximately 2 minutes measuring the external static pressure of the system application. Azure® then assigns torque values to each of its speed taps self-programming itself to the correct horsepower for the application.

If none of the four speeds provides perfect airflow for the application or if duplicate speeds are desired on 2 or more taps, an optional hand held programmer (MARS No. 08502) can be used. The programmer connects to Azure® and displays the percentage of torque applied to the speed tap being energized. The percentage (motor speed) can then be increased or decreased and permanently set with the programmer. This tool overrides the motor torques established in the auto sizing mode.

Image 12 (Auto sizing and hand-held programmer used to assign torque values). See [https://www.marsdelivers.com/wps/wcm/connect/d64ae164-c26b-4432-aabc-6fc077d77109/Azure+MARSTech-98703.pdf?MOD=AJPERES&CONVERT\\_TO=url&CACHEID=ROOTWORKSPACE-d64ae164-c26b-4432-aabc-6fc077d77109-mh1uU3L](https://www.marsdelivers.com/wps/wcm/connect/d64ae164-c26b-4432-aabc-6fc077d77109/Azure+MARSTech-98703.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE-d64ae164-c26b-4432-aabc-6fc077d77109-mh1uU3L).

## Key Features

Azure® Digi-Motor®

- **Optional Hand Held Programmer** (MARS No. 08502)
  - Increase speed for high altitude applications
  - Decrease speed for high humidity applications
  - Duplicate speeds on any of the 4 speed taps
  - Optimize blower performance in multi-stage systems
  - Cost is about the same as a single PWM control card
  - Works with ALL generation 2 motors
  - Displays % of torque being applied by the motor on the tap being energized.




Image 13 (Hand held programmer, Azure Digi-Tech motor training guide).

2) Using one of the methods above, close the blower housing door and energize the Azure® motor. The programmer will display a 2-digit numerical value (between about 20 and 90). This represents the % of torque being applied by the motor.

Image 14 (Percentage of Torque applied to the motor using the hand-held programmer,

Installation Instructions of the Azure Hand Held Programmer).

115. The Azure Digi-Tech motor then operates the motor at the proportionally reduced torque settings.

116. A photograph of the 1/2 HP Broad Ocean Motor and its permanent magnet rotating machine - is provided below (Image 15):



Image 15 (Photograph, 1/2 HP Broad Ocean Motor)

117. Furthermore, the HP Broad Ocean Motor includes a speed sensor. Upon information and belief, the HP Broad Ocean Motor uses the speed of the motor as sensed by the speed sensor as the feedback element to control how the torque demand is scaled in order to achieve the result of a substantially constant rotor torque over a range of rotor speeds. A photograph of the HP Broad Ocean Motor having a speed sensor (xHall Device “40AF139”) is provided below (Image 16):

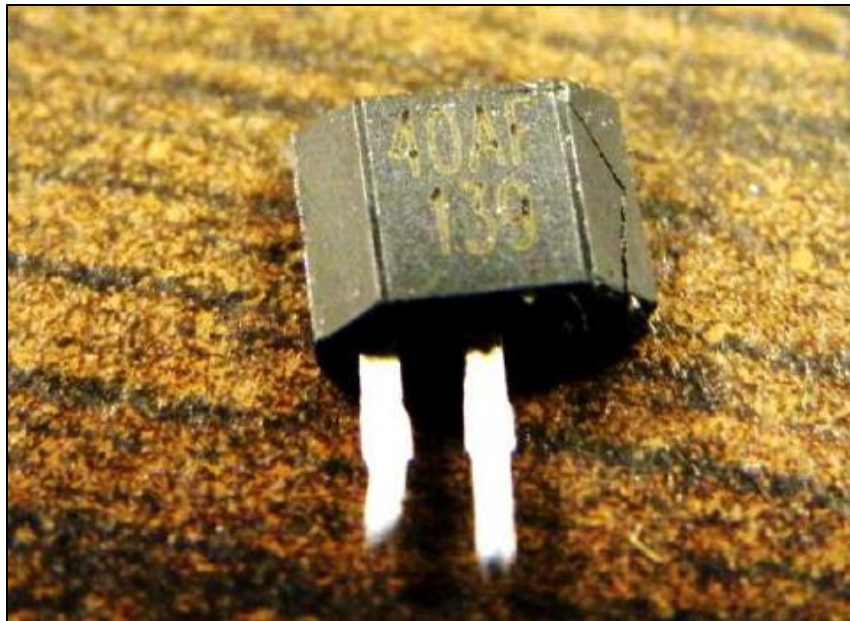


Image 16 (Photograph, HP Broad Ocean Motor with xHall Device “40AF139”)

118. Defendants had knowledge of the Asserted Patents and knew their acts constituted infringement thereof at least since the service of the initial complaint in this case. Defendants knew the Azure Digi-Tech motor products are especially made or especially adapted for use in an infringement of the Asserted Patents and are not a staple article or commodity of commerce suitable for substantial non-infringing use.

119. Upon information and belief, Defendants contract with customers and/or end users and provides the Infringing Devices to them in this jurisdiction. Upon information and belief, Defendants enter into agreements with customers and/or end users and others concerning the operation, use and creation of the Infringing Devices and functionality within this jurisdiction and elsewhere.

120. To the extent that some elements of a claim are performed by a different party than Defendants, Defendants—through their Infringing Devices—participate in the infringement (as described above and herein) and receive a benefit upon performance of the steps of the patented method. For example, Defendants provide the software that establishes the manner

and/or timing of the performance of the steps such as software that self-programs the steps of adjusting the torque value. Defendants receive a benefit from such actions by the customer as it allows them to provide a product that would be desired or allows customers to purchase and service products from Defendants. Defendants' contracts with a user also create an agency relationship or governs infringing activity for purposes of joint infringement.

121. NMC has not granted any license to Defendants under the Asserted Patents.

122. Defendants' statutory violations and other wrongful acts have injured and threaten to irreparably injure NMC, including the resulting loss of customers, revenue and market share.

123. As a result of said injuries, NMC's market share, reputation, and good will in the motor industry will be irreparably harmed if Defendants are allowed to continue their infringing activities.

124. Upon information and belief, Defendants' employees, within this District and elsewhere, use Infringing Devices.

125. Defendants provide their customers and/or users of the Infringing Devices instructions, materials, advertisements, services, encouragement and software to use, install and operate the Infringing Devices in an infringing manner or to create and use an infringing device. Further, Defendants have actively induced infringement by their customers and/or users of the Infringing Devices in this judicial district. Upon information and belief, Defendants knowingly and specifically designed the Infringing Devices wherein to operate in the same manner as patented.

126. The Infringing Devices cannot operate without infringing the claims. Defendants thus necessarily have no substantial non-infringing use. Defendants have acted with specific intent to induce or cause infringement and to conduct acts of infringement as described herein

within the jurisdiction and elsewhere.

**COUNT ONE**

**PATENT INFRINGEMENT – U.S. PATENT NO. 5,818,194**

127. NMC restates and realleges each of the allegations set forth above and incorporates them herein.

128. Defendants have infringed, directly or indirectly, and continue to infringe, at least claim 1 of the '194 Patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Infringing Devices.

129. Defendants have also infringed individually, directly or indirectly, and continue to infringe, at least claim 1 of the '194 Patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Infringing Devices.

130. Claim 1 of the '194 Patent states:

A variable speed blower motor unit comprising:

a variable speed motor having at least two operating speeds and a reference input for selecting an operating speed;

a power input comprising a first and a second current input, each of the current inputs coupled to the motor so that an operating current applied to either of the current inputs supplies operating power to the motor;

a multiplexing unit coupled to the power input and the motor reference input, the multiplexing unit selecting one of at least a pair of reference signals and applying the selected reference signal to the reference input, the selection depending upon which of the first and the second current inputs has an operating current applied thereto; and

a reference source coupled to the multiplexing unit and supplying the at least a pair of reference signals thereto.

131. The Infringing Devices infringe at least claim 1 of the '194 Patent at least as follows:

- a. Azure Digi-Tech motors are “variable speed” motors;
- b. Azure Digi-Tech motors include the capability to operate in at least two speeds (Low, Medium Low, Medium, Medium High, and High);
- c. Azure Digi-Tech motors include a reference input;
- d. Azure Digi-Tech motors include a power input comprising a first and a second current input that are coupled to the motor controller and supply operating power to the motor;
- e. the Azure Digi-Tech motors include a multiplexing unit that is coupled to the power input and the motor reference input and select a pair of reference signals depending upon which of the first and second current inputs has an operating current applied thereto; and
- f. the Azure Digi-Tech motors include a reference source that is coupled to the multiplexing unit and supply the pair of reference signals thereto.

132. Defendants were on notice, at least as early as March 27, 2015, of the '194 Patent and knew or should have known that the Infringing Devices infringe the '194 Patent. Acting with such knowledge, Defendants intentionally instruct, encourage, and collaborate with each other and/or authorized resellers and/or potential customers to use the Infringing Devices in an infringing manner.

133. Upon information and belief, Defendants contribute to others' infringing use of



the Infringing Devices with the knowledge that the Infringing Devices and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. Defendants, knowing of the '194 Patent and with specific intent to cause others to directly infringe it, offer to sell and sell the Infringing Devices to other distributors and/or to authorized resellers and/or to customers to enable them to infringe the '194 Patent.

134. As a direct and proximate result of Defendants' direct, induced, and/or contributory infringement of the '194 Patent, NMC has been injured and has been caused significant financial damage.

135. NMC alleges upon information and belief that Defendants have, knowingly or with willful blindness, willfully infringed one or more claims of the '194 Patent. Defendants had knowledge of the Asserted Patents as alleged above, having been advised of the existence and substance of the Asserted Patents by NMC. Defendants acted with knowledge of the Asserted Patents and, despite its knowledge or despite that it should have known of an objectively high likelihood that its actions constituted infringement of NMC's valid patent rights, continue to infringe.

136. This objectively-defined risk was either known or so obvious that it should have been known to Defendants. NMC seeks enhanced damages pursuant to 35 U.S.C. § 284 from Defendants.

## **COUNT TWO**

### **PATENT INFRINGEMENT – U.S. PATENT NO. 7,990,092**

137. NMC restates and realleges each of the allegations set forth above and incorporates them herein.

138. Defendants have infringed, directly or indirectly, and continue to infringe, at least claim 1 of the '092 Patent under 35 U.S.C. § 271, literally and/or under the doctrine of



equivalents, by making, using, selling, offering to sell, and/or importing the Infringing Devices.

139. Defendants have also infringed individually, directly or indirectly, and continues to infringe, at least claim 1 of the '092 Patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Infringing Devices.

140. Claim 1 of the '092 Patent states:

A method of adjusting torque values of a motor having multiple torque settings and a maximum rated torque value, the method comprising:

selecting an adjustment factor to obtain an adjusted maximum torque value that is less than the maximum rated torque value wherein the adjustment factor is a percentage between 60% and 99%;

adjusting all the torque settings of the motor with the adjustment factor to obtain proportionally reduced torque settings; and

operating the motor at the proportionally reduced torque settings.

141. The Infringing Devices infringe at least claim 1 of the '092 Patent at least as follows:

- a. Azure Digi-Tech motors are described as having multiple torque settings and a maximum rates torque value;
- b. Azure Digi-Tech motors have the capability of adjusting torque values either by auto-sizing or through a hand-held programming tool. Azure Digi-Tech motors select an adjustment factor between 60% and 99% to obtain an adjusted maximum torque value that is less than the maximum rated torque value;
- c. The Azure Digi-Tech motors adjust the torque settings of the motor with the

adjustment factor to obtain proportionally reduced torque settings; and

- d. The Azure Digi-Tech motor are operated at the proportionally reduced torque settings.

142. Defendants were on notice, at least as early as March 27, 2015, of the '092 Patent and knew or should have known that the Infringing Devices infringe the '092 Patent. Acting with such knowledge, Defendants intentionally instruct, encourage, and collaborate with each other and/or authorized resellers and/or potential customers to use the Infringing Devices in an infringing manner.

143. Upon information and belief, Defendants contribute to others' infringing use of the Infringing Devices with the knowledge that the Infringing Devices and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. Defendants, knowing of the '092 Patent and with specific intent to cause others to directly infringe it, offer to sell and sell the Infringing Devices to other distributors and/or to authorized resellers and/or to customers to enable them to infringe the '092 Patent.

144. As a direct and proximate result of Defendants' direct, induced, and/or contributory infringement of the '092 Patent, NMC has been injured and has been caused significant financial damage.

145. Defendants' aforementioned acts have caused damage to NMC and will continue to do so unless and until enjoined.

146. NMC alleges upon information and belief that Defendants have, knowingly or with willful blindness, willfully infringed one or more claims of the '092 Patent. Defendants had knowledge of the Asserted Patents as alleged above, having been advised of the existence and substance of the Asserted Patents by NMC. Defendants acted with knowledge of the Asserted

Patents and, despite its knowledge or despite that it should have known of an objectively high likelihood that its actions constituted infringement of NMC's valid patent rights, continue to infringe.

147. This objectively-defined risk was either known or so obvious that it should have been known to Defendants. NMC seeks enhanced damages pursuant to 35 U.S.C. § 284 from Defendants.

### **COUNT THREE**

#### **PATENT INFRINGEMENT – U.S. PATENT NO. 7,208,895**

148. NMC restates and realleges each of the allegations set forth above and incorporates them herein.

149. Defendants have infringed, directly or indirectly, and continue to infringe, at least claim 21 of the '895 Patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Infringing Devices.

150. Defendants have also infringed individually, directly or indirectly, and continue to infringe, at least claim 21 of the '895 Patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Infringing Devices.

151. Claim 21 of the '895 Patent is a dependent claim of claim 12 of the '895 Patent. Claim 12 states:

A method of controlling a permanent magnet rotating machine, the machine

including a stator and a rotor situated to rotate relative to the stator, the stator having a plurality of energizable phase windings situated therein, the method comprising:

calculating an IQr demand from a speed or torque demand;  
calculating a dr-axis injection current demand as a function of a  
speed of the rotor;  
and combining the IQr demand and the dr-axis injection current  
demand to produce an IQdr demand that is compensated for any  
torque contribution of dr-axis-current.

152. Claim 21 of the '895 Patent states:

A permanent magnet rotating machine and controller assembly  
configured to perform the method of claim 12.

153. The Infringing Devices infringe at least claim 21 of the '895 Patent at least as  
follows:

- a. upon information and belief, the HP Broad Ocean Motor is configured for  
“calculating an IQr demand from a speed or torque demand;”
- b. upon information and belief, the HP Broad Ocean Motor is configured for  
“calculating a dr-axis injection current demand as a function of a speed of  
the rotor;” and
- c. upon information and belief, the HP Broad Ocean Motor is configured for  
“combining the IQr demand and the dr-axis injection current demand to  
produce an IQdr demand that is compensated for any torque contribution  
of dr-axis-current.”

154. Defendants were on notice, at least as early as September 25, 2013, of the '895  
Patent and knew or should have known that the Infringing Devices infringe the '895 Patent.  
Acting with such knowledge, Defendants intentionally instruct, encourage, and collaborate with

each other and/or authorized resellers and/or potential customers to use the Infringing Devices in an infringing manner.

155. Upon information and belief, Defendants contribute to others' infringing use of the Infringing Devices with the knowledge that the Infringing Devices and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. Defendants, knowing of the '895 Patent and with specific intent to cause others to directly infringe it, offer to sell and sell the Infringing Devices to other distributors and/or to authorized resellers and/or to customers to enable them to infringe the '895 Patent.

156. As a direct and proximate result of Defendants' direct, induced, and/or contributory infringement of the '895 Patent, NMC has been injured and has been caused significant financial damage.

157. Defendants' aforementioned acts have caused damage to NMC and will continue to do so unless and until enjoined.

158. NMC alleges upon information and belief that Defendants have, knowingly or with willful blindness, willfully infringed one or more claims of the '895 Patent. Defendants had knowledge of the Asserted Patents as alleged above, having been advised of the existence and substance of the Asserted Patents by NMC. Defendants acted with knowledge of the Asserted Patents and, despite its knowledge or despite that it should have known of an objectively high likelihood that its actions constituted infringement of NMC's valid patent rights, continue to infringe.

159. This objectively-defined risk was either known or so obvious that it should have been known to Defendants. NMC seeks enhanced damages pursuant to 35 U.S.C. § 284 from Defendants.

**COUNT FOUR**

**PATENT INFRINGEMENT – U.S. PATENT NO. 7,312,970**

160. NMC restates and realleges each of the allegations set forth above and incorporates them herein.

161. Defendants have infringed, directly or indirectly, and continue to infringe, at least claim 1 of the '970 Patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Infringing Devices.

162. Defendants have also infringed individually, directly or indirectly, and continue to infringe, at least claim 1 of the '970 Patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Infringing Devices.

163. Claim 1 of the '970 Patent states:

A motor drive for an electric machine, comprising:

a live line;

a second line;

a ground line;

a rectifier that communicates with said live line, said second line and said ground line and that converts an AC power input to a DC power output;

a first capacitor that is coupled between a first output of said rectifier and said second line;

a second capacitor that is coupled between a second output of said rectifier and said second line; and

a surge protector including:

a first varistor; and  
a gas discharge tube (GDT) that is non-conductive below a trigger voltage and that is conductive above said trigger voltage,  
wherein said first varistor and said GDT are connected in series between one of said live line and said second line and said second line and said ground line.

164. The Infringing Devices infringe at least claim 1 of the '970 Patent at least as follows:

- a. The Infringing Devices are motor drives for an electric machine;
- b. As recited in claim 1, the Infringing Devices comprise “a live line,” “a second line,” “a ground line,” “a rectifier,” “a first capacitor,” “a second capacitor,” and “a surge protector;”
- c. The rectifier of the Infringing Devices is configured such that it “communicates with said live line, said second line and said ground line and that converts an AC power input to a DC power output;”
- d. The first capacitor of the Infringing Devices is configured such that it “is coupled between a first output of said rectifier and said second line;”
- e. Upon information and belief, there is a wired connection between the first output of the rectifier and the second line of the circuit of the One HP Broad Ocean Motor;
- f. The second capacitor of the Infringing Devices is configured such that it “is coupled between a second output of said rectifier and said second

line;”

- g. Upon information and belief, there is a wired connection between the second output of the rectifier and the second line of the circuit of the Infringing Devices;
- h. The surge protector of the Infringing Devices is configured to comprise “a first varistor; and a gas discharge tube (GDT) that is non-conductive below a trigger voltage and that is conductive above said trigger voltage, wherein said first varistor and said GDT are connected in series between one of said live line and said second line and said second line and said ground line;” and
- i. Upon information and belief, the first varistor and the GDT of the Infringing Devices are connected in series between the second line and the ground line.

165. Defendants were on notice, at least as early as September 25, 2013, of the ‘970 Patent and knew or should have known that the Infringing Devices infringe the ‘970 Patent. Acting with such knowledge, Defendants intentionally instruct, encourage, and collaborate with each other and/or authorized resellers and/or potential customers to use the Infringing Devices in an infringing manner.

166. Upon information and belief, Defendants contribute to others’ infringing use of the Infringing Devices with the knowledge that the Infringing Devices and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. Defendants, knowing of the ‘970 Patent and with specific intent to cause others to directly infringe it, offer to sell and sell the Infringing Devices to other distributors



and/or to authorized resellers and/or to customers to enable them to infringe the '970 Patent.

167. As a direct and proximate result of Defendants' direct, induced, and/or contributory infringement of the '970 Patent, NMC has been injured and has been caused significant financial damage.

168. Defendants' aforementioned acts have caused damage to NMC and will continue to do so unless and until enjoined.

169. NMC alleges upon information and belief that Defendants have, knowingly or with willful blindness, willfully infringed one or more claims of the '970 patent. Defendants had knowledge of the Asserted Patents as alleged above, having been advised of the existence and substance of the Asserted Patents by NMC. Defendants acted with knowledge of the Asserted Patents and, despite its knowledge or despite that it should have known of an objectively high likelihood that its actions constituted infringement of NMC's valid patent rights, continue to infringe.

170. This objectively-defined risk was either known or so obvious that it should have been known to Defendants. NMC seeks enhanced damages pursuant to 35 U.S.C. § 284 from Defendants.

#### **JURY DEMAND**

171. Plaintiff hereby demands a jury on all issues so triable.

#### **PRAYER FOR RELIEF**

172. WHEREFORE, Plaintiff NMC respectfully requests that the Court:

- A. Enter judgment that Defendants directly, contribute to, or induce others to infringe one or more claims of the Asserted Patents literally and/or under the doctrine of equivalents;
- B. Permanently enjoin Defendants, their agents, servants, and employees, and all

those in privity with Defendants or in active concert and participation with Defendants, from engaging in acts of infringement of the Asserted Patents;

- C. Award Plaintiff past and future damages together with prejudgment and post-judgment interest to compensate for the infringement by Defendants of the Asserted Patents in accordance with 35 U.S.C. § 284, and increase such award by up to three times the amount found or assessed in accordance with 35 U.S.C. § 284;
- D. Award Plaintiff its costs, disbursements, attorneys' fees;
- E. Award Plaintiff prejudgment and post-judgment interest to the maximum extent provided under the law; and
- F. Award Plaintiff such further and additional relief as is deemed appropriate by this Court.

Dated: November 9, 2021

Respectfully submitted,

By: /s/ Steven E. Holtshouser

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**CERTIFICATE OF SERVICE**

I hereby certify that on this 9th day of November, 2021 I caused the foregoing to be filed electronically with the Clerk of Court and to be served via the Court's Electronic Filing System upon all counsel of record.

*/s/ Steven E. Holtshouser*