FAQs: Motors
1. Publication MG1-1993 Motors and Generators is missing Figure 4-3. Is there another page that has C Face dimensional reference?
2. I am looking for a method by which to calculate electric motor torque for 3 phase motors under 100hp.
3. We have a request for a Class M type motor. Can you please advise what this type of class is?
4. I am looking for a description of NEMA "B" motor specification.
5. Do you know where I can find NEMA motor envelope dimensions in a .DWG or .DXF format?
6. Regarding electric motors, what is the standard NEMA B design or NEMA D design, specifically referring to?
7. A customer of mine currently uses class 1, group D, class 2, group f & g motors. He is considering purchasing a piece of equipment from Europe and the motors are classified as Flameproof. Can you tell us how that compares with our rating?

Publication MG1-1993 Motors and Generators is missing Figure 4-3. Is there another page that has C Face dimensional reference? MG 1-1993 has been superceded. The current edition of MG 1 is 1998 with Revision 1 issued in August 2000. All errors noted in the 1993 edition were corrected between 1993 and the present. MG 1-1998 can be ordered from the Global Engineering Company at 800.854.7179.

I am looking for a method by which to calculate electric motor torque for 3 phase motors under 100hp. NEMA Standards Publication MG 1-1998 contains more than 500 pages of manufacturing and performance data on industrial electric motors and generators, including information on various torques. MG 1 can be ordered from Global Engineering at 800.854.7179 or at www.global.ihs.com. When ordering, please be sure to also ask for Revision 1, published in August 2000. In response to your request for information on calculating motor torque, MG1 states the following: 1.46 FULL-LOAD TORQUE: The full-load torque of a motor is the torque necessary to produce its rated horsepower at full-load speed. In pounds at a foot radius, it is equal to the horsepower times 5252 divided by the full-load speed.

We have a request for a Class M type motor. Can you please advise what this type of class is? NEMA Standards Publication MG1-1998 contains more than 500 pages of manufacturing and performance data on industrial electric motors and generators, including descriptions of each motor design. MG1 can be ordered from Global Engineering 800.854.7179 or at www.global.ihs.com. From MG 1: 1.19.2.2 Design M: A Design M motor is a single-phase medium motor designed to withstand full-voltage starting and to develop a breakdown torque as shown in 10.34 with a locked-rotor current not to exceed the values shown in 12.34.

I am looking for a description of NEMA "B" motor specification. NEMA Standards Publication MG1-1998 contains more than 500 pages of manufacturing and performance data on industrial electric motors and generators, including descriptions of each motor design. MG1 can be ordered from the Global Engineering Company at 800.854.7179 or
Do you know where I can find NEMA motor envelope dimensions in a .DWG or .DXF format? Those dimensions for which we have developed standards are contained in publication MG 1 in .pdf format; we do not make them available in the editable formats such as those you've requested. The MG 1 standard is available in hard copy, CD-ROM, and .pdf from Global Engineering. You may call them directly at 1-800-854-7179, or 1-303-397-7956 (outside the U.S.) or go to their website, www.ihs.global.com.

Regarding electric motors, what is the standard NEMA B design or NEMA D design, specifically referring to? 1.18.1.2 Design B. A Design B motor is a squirrel-cage motor designed to withstand full-voltage starting, developing locked-rotor, breakdown, and pull-up torques adequate for general application as specified in 12.38, 12.39, and 12.40, drawing locked-rotor current not to exceed the values shown in 12.35.1 for 60 hertz and 12.35.3 for 50 hertz, and having a slip at rated load of less than 5 percent. 1.18.1.4 Design D. A Design D motor is a squirrel-cage motor designed to withstand full-voltage starting, developing high locked rotor torque as shown in 12.38, with locked rotor current not greater than shown in 12.35.1 for 60 hertz and 12.35.3 for 50 hertz, and having a slip at rated load of 5 percent or more. NEMA Standards Publication MG1-1998 contains more than 500 pages of manufacturing and performance data on industrial electric motors and generators. MG 1 can be ordered from the Global Engineering Company at 800.854.7179 or at www.global.ihs.com. When ordering, please be sure to also ask for Revision 1, published in August 2000.

A customer of mine currently uses class 1, group D, class 2, group f & g motors. He is considering purchasing a piece of equipment from Europe and the motors are classified as Flameproof. Can you tell us how that compares with our rating? I cannot answer your question regarding European "flameproof" motors. The following is the definition of an explosion-proof machine, as given in NEMA Standards Publication MG1-1998 "Motors and Generators." 1.26.10 Explosion-Proof Machine 1. An explosion-proof machine is a totally enclosed machine whose enclosure is designed and constructed to withstand an explosion of a specified gas or vapor which may occur within it and to prevent the ignition of the specified gas or vapor surrounding the machine by sparks, flashes or explosions of the specified gas or vapor which may occur within the machine casing. I See ANSI/NFPA 70, National Electrical Code, Article 500. For Hazardous Locations, Class I, Groups A, B, C, or D. See ANSI/NFPA 70, National Electrical Code, Article 500. For Hazardous Locations, Class II, Groups E, F, or G. Please note that the standard refers the user to the National Electrical Code. NEMA defers to the NEC on safety issues involving hazardous locations. Underwriters
Laboratories Standard UL674 "Motors for Use in Hazardous Locations" may also be helpful.