

Horizontal A.C. Motors

Totally Enclosed Fan Cooled Hazardous Location Motors

Designed for use on pumps, compressors, fans, conveyors and tools, you can rely on the U.S. Motors® brand totally enclosed fan cooled hazardous location motors to meet your needs for hazardous location applications. Every hazardous location motor is built to contain explosions inside the motor casing as well as to prevent ignition outside the motor by containing sparks, flashing and explosions. These rugged motors are ideal for applications typically found in petroleum and chemical, industrial paint and coating, and grain processing operations.

- **Hazardous Location Duty**
- **1/2 to 700 Horsepower**
- **56 to 5811 Frame Sizes**
- **2, 4, 6, 8 Poles**
- **Available in 230 Volts up to 6900 Volts**
- **UL Listed and CSA Certified**
- **Single & Dual Label, Division 1 & 2**



U.S. Motors hazardous location motors and components are UL listed and CSA certified under the following file numbers:



E10336

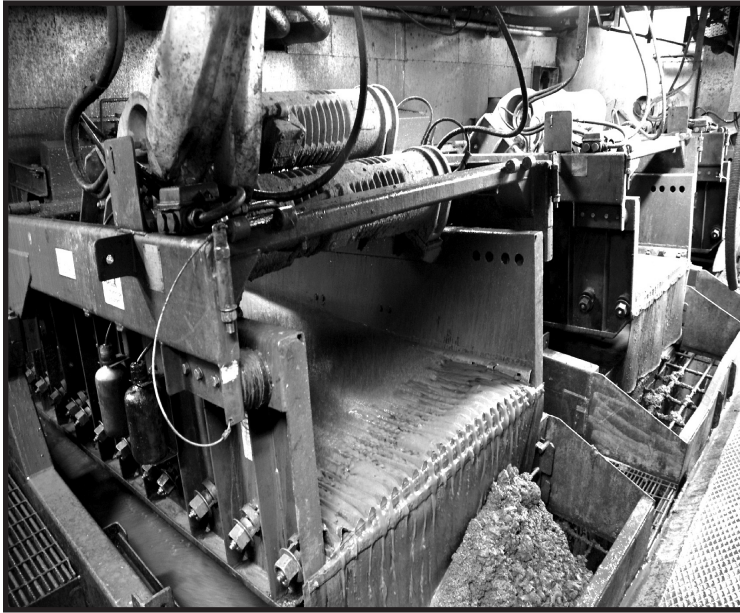


LR13009



Product Overview

Emerson's team of engineers has applied more than 100 years of motor expertise and its Motor Technology Center's cutting-edge laboratories to design and test the U.S. Motors® brand hazardous location motors. These motors are specifically designed for:



Industrial Paint and Coating Applications

Single Label Hazardous Location
Division 1, Class 1, Group D
1.15 Service Factor
Where flammable liquids or vapors are present

Petroleum and Chemical Applications

Single Label Hazardous Location
Division 1, Class 1, Group D
1.15 Service Factor
Where flammable liquids or vapors are present

Grain Processing Applications

Dual Label Hazardous Location
Division 1, Class I, Group D
Division 1, Class II, Groups F & G
Where combustible dusts are present
1.0 Service Factor, Class F insulation, Class B temperature rise
Can also be used for Petroleum & Chemical Applications as well as Industrial Paint and Coating Applications

U.S. Motors® brand hazardous location motors carry a one-year minimum warranty on all designs.

Electrical & Mechanical Features

To ensure the motor reliability, long life and superior performance, U.S. Motors® brand hazardous location motors feature the Allguard® motor quality system. Each hazardous location motor comes standard with zinc-plated hardware, regreaseable ball bearings, polyurea grease and a stainless-steel nameplate. Cast-iron inner bearing caps are found on all motors except the 140 frame. All hazardous location motors are designed to operate in ambient temperatures of 40 degrees C, in maximum altitudes of 3,300 feet above sea level and with NEMA Design B torque-current characteristics.

- 1.0 Service Factor where combustible dusts are present;
1.15 Service Factor where flammable liquids or vapors are present.
- Class B temperature rise at 1.0 Service Factor by resistance
- Class F insulation materials
- Thermal protection on dual label products
- Corro-Duty® corrosion protection on single label products
- Insulife 1000, consisting of one dip and bake of 100 percent solid polyester resins, on motors up to 350 horsepower 449 frame and below
- One cycle of 100 percent VPI solid epoxy resins on motors above 200 horsepower 5000 frame and higher

Hazardous Location Specifications

Division I, Class I – Flammable Gases or Vapors

Certain locations are hazardous because the atmosphere does or may contain gas, vapor or dust in explosive quantities. The National Electrical Code (NEC) divides these locations into Classes and Groups according to the type of explosive agent which may be present. Listed are some of the agents in each classification. For a complete list, see NFPA (National Fire Protection Association) publication 497M.

Underwriters' Laboratories (UL) tests motors and other devices for safety in explosive atmospheres and publishes a list of those meeting its standards for each Class and Group. Use of UL Listed devices does not necessarily make an installation conform to the NEC or local codes. Consult Chapter 5 of the NEC local building codes, OSHA requirements and insurance inspectors for detailed data as to proper procedures.

Gases and vapors are grouped by severity of expected explosion pressure and extent of flame propagation between parts. For Class I applications, Emerson offers hazardous location products for:

- Group C -- ethyl-ether, ethylene and cycle propane
- Group D -- gasoline, hexane, naphtha, benzene, butane, propane, alcohol, lacquer solvent vapors and natural gas

Division I, Class II – Combustible Dusts

Dusts are grouped by combustibility, penetrability between parts, blanketing effect, ignition temperature and ability to contribute to creation of an ignition source through abrasiveness or electrical conductivity. For Class II applications, Emerson offers hazardous location products for:

- Group F -- carbon black, coal or coke
- Group G -- flour, starch or grain

Temperature

In addition to the identification of the class, group and division, it is necessary to obtain the temperature code or maximum surface temperature for the hazardous location motor. This code or temperature indicates the maximum surface temperature for all conditions including burnout, overload, single phasing and locked rotor. The maximum surface temperature, or "T" code, must be identified on the nameplate.

All hazardous location motors have a temperature code that defines the maximum allowable frame temperature. These codes are as follows:

Temperature Identification Numbers		
Maximum Temperature (For All Conditions)		T-Code
Celsius	Fahrenheit	
280*	536	T2A***
260*	500	T2B***
230**	446	T2C***
215**	419	T2D***
200**	392	T3
180**	356	T3A
165**	329	T3B
160**	320	T3C
135**	275	T4
120**	248	T4A
100**	212	T5

* Class I, Group D only, requires caution statement

** Requires thermostats

*** Not applicable to motors for use in Class II locations

Options and Accessories

Emerson stocks many U.S. Motors® brand hazardous location motors. A sampling of 4-pole dual-label motors are as follows:

Horsepower	Frame Size	Voltage	Winding Type	Class, Group Available			
				I,C	I,D	II,F	II,G
1/2-3/4	56	230 / 460	random-wound		X	X	X
1-2	143T-145T	230 / 460	random-wound		X	X	X
3-10	182T-215T	230 / 460	random-wound		X	X	X
15-100	254T-405T	230 / 460	random-wound	X	X	X	X
125-300	444T-449T	230 / 460	random-wound	X	X	X	X
up to 500	5807	460/575	random-wound	X	X	X	X
up to 600	5809-5811	460/575	random-wound		X	X	X
up to 150	5004	2300/4000	form-wound		X	X	X
up to 350	5008	2300/4000	form-wound		X	X	X
up to 400	5807	2300/4000	form-wound	X	X	X	X
up to 500	5809	2300/4000	form-wound	X	X	X	X
up to 800	5811	2300/4000	form-wound	X	X	X	X

Many additional sizes and specifications are available and can be found in the Full Line Standard Motor Catalog (FL600) and NEMA® Horizontal Custom Motor Catalog (PB202).

When calling, please have the following parameters on hand:

- Horsepower and poles
- Frequency and voltage
- Class and group of all contaminants that will or may be present in the motor's operating environment
- Temperature code that defines the motor's maximum allowable frame temperature

Additional Accessories

Emerson offers the following options on its U.S. Motors® brand hazardous location motors:

- Premium efficient, Energy efficient and Standard efficient
- UL-listed metal breather located near the drain to allow for condensation release
- Multiple mounting configurations available for 180 frame sizes and larger

Emerson also offers inverter suitable motors for Class I, Single Label, temperature code T2B applications with 10:1 variable torque, 2:1 constant torque.

Emerson, a global leader in the design and manufacture of electrical motors, provides a complete line of general and special purpose electric motors from 1/200 through 5,000 horsepower. Brands such as Emerson®, U.S. Motors® and Hurst® allow Emerson to support a wide variety of applications including commercial and industrial, appliance, hermetic, automotive, and HVAC. Emerson (NYSE: EMR), based in St. Louis, is a global leader in bringing technology and engineering together to provide innovative solutions to customers through its network power, process management, industrial automation, climate technologies, and appliance and tools businesses.

NEMA® is a registered trademark of the National Electrical Manufacturers Association.



Emerson Motor Company

8100 West Florissant Ave.

St. Louis, MO 63136

Phone: 888-637-7333

Fax: 314-553-2087

