Coil Housings for Hazardous Locations

Explosion-proof coil housing on Atkomatic valves are NEMA 7 & 9 enclosures and meet the requirements for Division I, Class I, groups C & D.

The National Electrical Code defines various types of hazardous areas and classifies them by class, group, and division. The Code is maintained by the National Fire Protection Association and is recognized as the standard for electrical installations in the United States. Basically, class defines a distinction between types of explosive hazards in the atmosphere. Class I atmospheres contain hazardous vapors of volatile chemicals and class II atmospheres contain hazardous concentrations of dust or particulate that are potentially explosive. Each of these class designations is subdivided into groups that identify specific types of hazardous materials present. These are:

Class I group classifications:

Group A. Atmospheres containing acetylene

Group B. Atmospheres containing hydrogen or vapors of equivalent hazard such as butadiene, ethylene oxide, propylene oxide, and acrolein.

Group C. Atmospheres such as ethyl ether and ethylene.

Group D. Atmospheres such as acetone, ammonia, benzene, butane, cyclopropane, ethanol, gasoline, hexane, methanol, methane, natural gas, naptha, and propane.

Class II group classifications:

Group E. Atmospheres containing combustible metal dusts including aluminum, magnesium, and their alloys.

Group F. Atmospheres containing combustible carbonaceous dusts including carbon black, charcoal, and coal.

Group G. Atmospheres containing other combustible dusts including flour, grain, wood, or plastics.

Industrial facilities are divided into two Divisions as follows:

Division I. These are areas where any of the hazardous atmospheres as defined above are present in the normal operation. For solenoid enclosures, this requires a housing that meets the requirements of NEMA 7 or 9.

Division II. These are areas where either:

1. Where volatile and flammable liquids or gases are handled and processed but where the vapors are confined within closed containers or systems from which they can only escape in case of accidental rupture or breakdown.
2. Where ignitable concentrations of vapors are prevented by mechanical ventilation.

For solenoids, explosion-proof NEMA 7 or 9 enclosures are not required by the National Electric Code for these Division II locations.

The National Electrical Manufactures Association (NEMA) defines physical requirements of solenoid enclosures for use in hazardous locations in NEMA standard # 250 (some of the requirements are in referenced Underwriters Laboratories standards ANSI/UL 698 or 1002).