Explosion-Proof Controls

Control panels located in hazardous locations need to be built to NEMA Type 7 or 9 specifications using explosion proof enclosures, operators, and indicators.

Explosion-Proof Controls More Info

There are many uses for Explosion Proof Panels, all of which have demanding safety requirements. Classic use in the Gas and Oil industries has expanded into the wastewater, manufacturing, HVAC, and other process industries. Required uses involve any environmental condition where a possible spark from the Panel could ignite flammable gases or airborne particles causing a fire or explosion.

General Notes about Explosion Proof protection requirements:

Type of Protection / Method of Protection

- Explosion proof / Containment
- Increased Safety / Mechanical
- Intrinsically Safe / Electrical

Potential Environments

- Potentially explosive gas or vapor
- Potentially explosive dust Potentially explosive fiber
- Potentially explosive substance present under normal operating conditions
- Potentially explosive substance present under abnormal operating conditions

In Hazardous Locations, when completely and properly installed and maintained, Type 7 and 10 enclosures are designed to contain an internal explosion without causing an external hazard. Type 8 enclosures are designed to prevent combustion through the use of oil-immersed equipment. Type 9 enclosures are designed to prevent the ignition of combustible dust.

- Type 7 Enclosures constructed for indoor use in hazardous (classified) locations classified as Class I, Division 1, Groups A, B, C, or D as defined in NFPA 70.
- Type 8 Enclosures constructed for either indoor or outdoor use in hazardous (classified) locations classified as Class I, Division 1, Groups A, B, C, and D as defined in NFPA 70.
- Type 9 Enclosures constructed for indoor use in hazardous (classified) locations classified as Class II, Division 1, Groups E, F, or G as defined in NFPA 70.
- Type 10 Enclosures constructed to meet the requirements of the Mine Safety and Health Administration, 30 CFR, Part 18.

Table B-1
[From NEMA 250-2003]
Comparison of Specific Applications of Enclosures
for Indoor Hazardous Locations
(If the installation is outdoors and/or additional protection is required a combination-type enclosure is required.)

Provides a Degree of Protection Against Atmospheres Typically Containing (See NFPA 497M for Complete Listing)	Class	Enclosure Types 7 and 8, Class I Groups **				Enclosure Type 9, Class II Groups			
		A	B	C	D	E	F	G	10
Acetylene	I	X	...	...	...	...	...	...	...
Hydrogen, manufactured gas	I	...	X	...	...	...	...	...	...
Diethyl ether, ethylene, cyclopropane	I	...	...	X	...	...	...	...	...
Gasoline, hexane, butane, naphtha, propane, acetone, toluene, isoprene	I	...	...	...	X	...	...	...	...
Metal dust	II	...	...	...	...	X	...	...	...
Carbon black, coal dust, coke dust	II	...	...	...	...	...	X	...	...
Flour, starch, grain dust	II	...	...	...	...	...	...	X	...
Fibers, flyings *	III	...	...	...	...	...	...	X	...
Methane with or without coal dust	MSHA	...	...	...	...	...	...	...	X

* For Class III type ignitable fibers or combustible flyings see the National Electrical Code, Article 500.

** Due to the characteristics of the gas, vapor, or dust, a product suitable for one Class or Group may not be suitable for another Class or Group unless marked on the product.

This Large Panel is for a Grit Collection Control Application