

# NEMA Enclosure Types Defined



## **NEMA TYPE 1.**

General Purpose - Type 1 enclosures are intended for use indoors, primarily to prevent accidental contact of personnel with the enclosed equipment, in areas where unusual service conditions do not exist. See Part ICS 1-108. In addition, they provide protection against falling dirt.

## **NEMA TYPE 2.**

Dripproof-Indoor - Type 2 enclosures are intended for use indoors to protect the enclosed equipment against falling non-corrosive liquids and falling dirt. They shall have provision for drainage. If provision is made for the entrance of conduit at the top, it shall consist of a conduit hub or the equivalent. When completely and properly installed, these enclosures shall prevent the entrance of dripping liquid at a higher level than the lowest live part within the enclosure.

## **NEMA TYPE 3.**

Dusttight, Raintight and Sleet - (Ice-) Resistant-Outdoor - Type 3 enclosures are intended for use outdoors to protect the enclosed equipment against windblown dust and water. They are not sleet- (ice-) proof. They shall have conduit hubs or equivalent provision for watertight connection at the conduit entrance, mounting means external to the equipment cavity, and provision for locking.

## **NEMA TYPE 3R.**

Rainproof and Sleet- (Ice-) Resistant-Outdoor - Type 3R enclosures are intended for use outdoors to protect the enclosed equipment against rain and meet the requirements of Underwriters' Laboratories, Inc., Publication No. UL 508, applying to "Rainproof Enclosures." They are not dust-, snow-, nor sleet (ice-) proof. They shall have conduit hub or equivalent provision for watertight connection at the conduit entrance when the conduit enters at a level higher than the lowest live part, provision for locking, and provision for drainage. When completely and properly installed, these enclosures shall prevent the entrance of rain at a level higher than the lowest live part.

## **NEMA TYPE 3S.**

Dusttight, Raintight and Sleet- (ice-) Proof-Outdoor - Type 3S enclosures are intended for use outdoors to protect the enclosed equipment against windblown dust and water and to provide for its operation when the enclosure is covered by external ice or sleet. These enclosures do not protect the enclosed equipment against malfunction resulting from internal icing; where this is a requirement, the apparatus manufacturer should be consulted. These enclosures shall have conduit hubs or equivalent provision for watertight connection at the conduit entrance, mounting means external to the equipment cavity, and provision for locking. In addition, they shall have sleet- (ice-) proof operating mechanisms, the ability to support the additional weight of the ice, and the ability to withstand removal of the ice by a hand tool to permit access to the enclosure interior.

## **NEMA TYPE 4.**

Watertight and Dusttight-Indoor and Outdoor - Type 4 enclosures are intended for use indoors or outdoors to protect the enclosed equipment against splashing water, seepage of water, falling or hose directed water, and severe external condensation. They are sleet-resistant but not sleet- (ice-) proof. They shall have conduit hubs or

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equivalent provision for watertight connection at the conduit entrance and mounting means external to the equipment cavity.

## **NEMA TYPE 4X.**

Watertight, Dusttight and Corrosion-Resistant - In door and Outdoor - Type 4X enclosures have the same provisions as Type 4 enclosures and, in addition, are corrosion-resistant.

## **NEMA TYPE 5.**

Superseded by Type 12 for Control Apparatus.

## **NEMA TYPE 6.**

Submersible, Watertight, Dusttight and Sleet-( Ice-) Resistant-Indoor and Outdoor - Type 6 enclosures are intended for use indoors or outdoors where occasional submersion is encountered. They shall protect the enclosed equipment against a static head of water of 6 feet for 30 minutes, dust, splashing or external condensation of non corrosive liquids, falling or hose-directed water, lint and seepage. They are not sleet- (ice-) proof. They shall have conduit hubs or equivalent provision for watertight-connection at the conduit entrance and mounting means external to the equipment cavity.

## **NEMA TYPE 7.**

Class 1, Division 1, Group A, B, C or D- Indoor Hazardous Locations-Air-break Equipment - Type 7 enclosures are intended for use indoors, in the atmospheres and locations defined as Class 1, Division I and Group A, B, C or D in the National Electrical Code. The letter or letters A, B, C or D which indicate the gas or vapor atmospheres in the hazardous location shall appear as a suffix to the designation "Type 7" to give the complete NEMA designation and correspond to Class 1, Division 1, Group A, B, C or D, respectively, as defined in the National Electrical Code. These enclosures shall be designed in accordance with the requirements of Underwriters' Laboratories, Inc., "Industrial Control Equipment for Use in Hazardous Locations," UL 698, and shall be marked to show the Class and Group letter designations.

## **NEMA TYPE 8.**

Class 1, Division 1, Group A, B, C or D-indoor Hazardous Locations-Oil-immersed Equipment - Type 8 enclosures are intended for use indoors, in the atmospheres and locations defined as Class 1, Division I and Group A, B, C or D in the National Electrical Code. The letter or letters A, B, C or D which indicate the gas or vapor atmospheres in the hazardous location shall appear as a suffix to the designation "Type 8" to give the complete NEMA designation and correspond to Class 1, Division 1, Group A, B, C or D, respectively, as defined in the National Electrical Code. These enclosures shall be designed in accordance with the requirements of Underwriters' Laboratories, Inc., Publication No. UL 698, and shall be marked to show the Class and Group letter designations.

## **NEMA TYPE 9.**

Class II, Division 1, Group E, F, or G-indoor Hazardous Locations-Air-break Equipment - Type 9 enclosures are intended for use indoors in the atmospheres defined as Class 11, Division I and Group E, F, or G in the National Electrical Code. The letter or letters E, F, or G which indicate the dust atmospheres in the hazardous

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location shall appear as a suffix to the designation "Type 9" to give the complete NEMA designation and correspond to Class 11, Division 1, Group E, F, or G, respectively, as defined in the National Electrical Code. These enclosures shall prevent the ingress of explosive amounts of hazardous dust. If gaskets are used, they shall be mechanically attached and of a noncombustible non deteriorating, verminproof material. These enclosures shall be designed in accordance with the requirements of Underwriters' Laboratories, Inc., Publication No. UL 698, and shall be marked to show the Class and Group letter designations.

## **NEMA TYPE 10.**

MESA (Formally Bureau of Mines) Type 10 enclosures shall be designed to meet the requirements of Schedule 2G (1968) of the Mining Enforcement Safety Administration, U.S. Department of the Interior, for equipment to be used in mines with atmospheres containing methane or natural gas, with or without coal dust. Additional information may be found in Bulletin 541 and Information Circular 8227.

## **NEMA TYPE 11.**

Corrosion-resistant and Dripproof- Oil-immersed-Indoor - Type 11 enclosures are corrosion-resistant and are intended for use indoors to protect the enclosed equipment against dripping, seepage and external condensation of corrosive liquids. In addition, they protect the enclosed equipment against the corrosive effects of fumes and gases by providing for immersion of the equipment in oil. They shall have conduit hubs or equivalent provision for watertight connection at the conduit entrance and mounting means external to the equipment cavity.

## **NEMA TYPE 12.**

Industrial Use-Dusffight and Driptight-Indoor - Type 12 enclosures are intended for use indoors to protect the enclosed equipment against fibers, flying, lint, dust and dirt, and light splashing, seepage, dripping and external condensation of noncorrosive liquids. There shall be no holes through the enclosure and no conduit knockouts or conduit openings, except that oil tight or dusttight mechanisms may be mounted through holes in the enclosure when provided with oil-resistant gaskets. Doors shall be provided with oil-resistant gaskets. In addition, enclosures for combination controllers shall have hinged doors, which swing horizontally and require a tool to open. When intended for wall mounting, Type 12 enclosures shall have mounting means external to the equipment cavity, captive closing hardware, and provision for locking.

## **NEMA TYPE 13.**

Oiltight and Dusttight-Indoor - Type 13 enclosures are intended for use indoors primarily to house pilot devices such as limit switches, foot switches, pushbuttons, selector switches, pilot lights, etc., and to protect these devices against lint and dust, seepage, external condensation, and spraying of water, oil or coolant. They shall have oil resistant gaskets and, when intended for wall or machine mounting, shall have mounting means external to the equipment cavity. They shall have no conduit knockouts or unsealed openings providing access into the equipment cavity. All conduit openings shall have provision for oiltight conduit entry.