

## INDUSTRY STANDARDS

### Enclosure Ratings

In order to assist in the selection of an enclosure, rating classifications have been established by the National Electrical Manufacturers Association (NEMA). These ratings identify the ability of the enclosure to provide a degree of protection against incidental contact with the enclosed equipment and protection to the enclosed equipment from environmental elements such as dirt, dust, water and other corrosive agents. Underwriters Laboratories (UL) and the Canadian Standards Association (CSA) are widely recognized testing organizations that perform enclosure product testing to these standards and provide regular follow up service to ensure that manufacturers conform to established product and manufacturing specifications.

These ratings, however, are intended to be used only as a guide. To ensure a proper choice, it is recommended that an assessment of the application and environment be conducted before product selection.

### NEMA 1

Indoor use to provide a degree of protection against falling dirt.

### NEMA 2

Indoor use to provide a degree of protection against limited amounts of falling water and dirt.

### NEMA 3

Indoor or outdoor use to provide a degree of protection against falling dirt, rain, sleet, snow and wind-blown dust; and that will be undamaged by the external formation of ice on the enclosure.

### NEMA 3R

Indoor or outdoor use to provide a degree of protection against falling dirt, rain, sleet and snow; and that will be undamaged by the external formation of ice on the enclosure.

### NEMA 4

Indoor or outdoor use to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, hose-directed water; and that will be undamaged by the external formation of ice on the enclosure.

### NEMA 4X

Indoor or outdoor use to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, hose-directed water and corrosion; and that will be undamaged by the external formation of ice on the enclosure.

### NEMA 6P

Indoor or outdoor use primarily to provide a degree of protection against the entry of water during occasional temporary submersion at a limited depth.

### NEMA 12

Indoor use to provide a degree of protection against falling dirt; circulating dust, lint, fibers and flyings; and dripping and light splashing of liquids.

### NEMA 13

Indoor use to provide a degree of protection against falling dirt; circulating dust, lint, fibers and flyings; and spraying and seepage of water, oil and non-corrosive coolants.

### International Standards IP Protection Classification Data

The first digit character represents the degree of protection against a person's contact with live parts and the protection of the equipment against the ingress of solid foreign bodies. The second digit represents the degree of protection against the ingress of liquids. Both of these values are represented in ascending value with the larger number equaling the greatest protection.

First Digit		Second Digit	
IP	Test	IP	Test
0	No protection	0	No protection
1	Protection against solid bodies larger than 50 mm (for example accidentally touching with the hand)	1	Protection against vertical water drops and condensation
2	Protection against solid bodies larger than 12 mm (for example a finger)	2	Protection against water drops up to 15° from the vertical
3	Protection against solid bodies larger than 2.5 mm (tools, wires)	3	Protected against rain up to 60° from the vertical
4	Protection against solid bodies larger than 1mm (tools, wires)	4	Protected against water splashing from a hose from all directions
5	Protection against dust (no harmful deposits)	5	Protected against water sprayed from a hose from all directions
6	Complete protection against dust	6	Protected against water projections similar to sea wave splashes
		7	Protected against the effects of immersion
		8	Protected against effects of prolonged immersion under pressure

### Conformance to Industry Standards

Industrial enclosures manufactured by Allied Moulded Products and bearing the UL and CSA labels have been tested and certified to the following standards:

- UL 50 Enclosures For Electrical Equipment
- UL 508 Industrial Control Equipment
- UL 746C Polymeric Materials – Use In Electrical Equipment Evaluations
- CSA-C22 No. 14 Industrial Control Equipment
- CAN/CSA-C22 No. 94 Special Purpose Enclosures

*Allied Moulded Products enclosures series AMU, AM and AM-R maximum size 30 x 24 x 10 are certified:*

- UL Types 1, 2, 3, 4, 4X, 12, and 13
- CSA Types 1, 2, 3, 3R, 4, 4X, 12 and 13
- NEMA Types 1, 2, 3, 3R, 4, 4X, 12 and 13

AMU models utilizing covers secured with four mounting screws are UL and CSA listed Type 6P.

*Allied Moulded Products enclosures series AM sizes 36 x 30 x 12 and larger are certified:*

- UL Types 1, 4, and 4X
- CSA Types 1, 4, and 4X
- NEMA Types 1, 4, and 4X

AM and AMU series meet IEC60529 Type IP66. Models rated NEMA 6P meet IEC60529 Type IP68 submersible up to 24 hours at a depth of 6 feet (1.8meters)