

INGRESS PROTECTION: (IP) CODES AND NEMA TYPES

FIRST NUMERAL
Protection against solid bodies

0 - NO PROTECTION

1 - OBJECTS EQUAL TO OR GREATER THAN 50 mm

2 - OBJECTS EQUAL TO OR GREATER THAN 12.5 mm

3 - OBJECTS EQUAL TO OR GREATER THAN 2.5 mm

4 - OBJECTS EQUAL TO OR GREATER THAN 1.0 mm

5 - DUST-PROTECTED

6 - DUST-TIGHT

SECOND NUMERAL
Protection against liquid

0 - NO PROTECTION

1 - VERTICALLY DRIPPING WATER

2 - 75 TO 105°-ANGLED DRIPPING WATER

3 - SPRAYING WATER

4 - SPLASHING WATER

5 - WATER JETS

6 - HEAVY SEAS, POWERFUL WATER JETS

7 - EFFECTS OF IMMERSION

8 - INDEFINITE IMMERSION

Example: IP56

FIRST NUMERAL
Protection against solid bodies

0 - NO PROTECTION

1 - OBJECTS EQUAL TO OR GREATER THAN 50 mm

2 - OBJECTS EQUAL TO OR GREATER THAN 12.5 mm

3 - OBJECTS EQUAL TO OR GREATER THAN 2.5 mm

4 - OBJECTS EQUAL TO OR GREATER THAN 1.0 mm

5 - DUST-PROTECTED

6 - DUST-TIGHT

SECOND NUMERAL
Protection against liquid

0 - NO PROTECTION

1 - VERTICALLY DRIPPING WATER

2 - 75 TO 105°-ANGLED DRIPPING WATER

3 - SPRAYING WATER

4 - SPLASHING WATER

5 - WATER JETS

6 - HEAVY SEAS, POWERFUL WATER JETS

7 - EFFECTS OF IMMERSION

8 - INDEFINITE IMMERSION

Conversion of Enclosure Type numbers to IEC Classification Designations
(Cannot be used to convert IEC Classification Designations to NEMA Type numbers)

NEMA ENCLOSURE TYPE NUMBER	IEC ENCLOSURE CLASSIFICATION DESIGNATION
3	IP54
3R	IP54
3S	IP54
4 and 4X	IP56

5	IP52
6 and 6P	IP67
12 and 12K	IP52

NEMA and UL Types of Enclosures.

Type 3 Enclosure

Type 3 enclosures are intended for outdoor use primarily to provide a degree of protection against windblown dust, rain, sleet and external ice formation.

Type 3R Enclosure

Type 3R enclosures are intended for outdoor use primarily to provide a degree of protection against falling rain and external ice formation.

Type 3S Enclosure

Enclosures are intended for outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust, and to provide for operation of external mechanisms when ice laden.

Type 4 Enclosure

Type 4 enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water and external ice formation.

Type 4X Enclosure

Type 4X enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and external ice formation.

Type 7 Enclosure

Type 7 enclosures are for use indoors in locations classified as Class I, Groups A, B, C or D, as defined in the National Electrical Code®.

Type 9 Enclosure

Type 9 enclosures are for use in indoor locations classified as Class II, Groups E, F or G, as defined in the National Electrical Code®.

Type 12 Enclosure

Type 12 enclosures are intended for indoor use primarily to provide degree of protection against dust, falling dirt and dripping noncorrosive liquids.