

# NEMA ratings

## What are NEMA ratings?

Devised by the National Electrical Manufacturer Association (NEMA), NEMA ratings define the types of environments in which an electrical enclosure can be used. The NEMA rating system is defined by the National Electrical Manufacturer Association, and frequently signifies a fixed enclosure's ability to withstand certain environmental conditions.

Please refer to the table below for specific NEMA type designations.

NEMA ratings are mainly applied to fixed enclosures. For example, a NEMA rating would be applied to a fixed electrical box mounted outside, or a fixed enclosure used to house a wireless access point.

Most enclosures rated for use in an outside environment include a NEMA 4 rating. NEMA ratings have more stringent testing requirements to verify protection from external ice, corrosive materials, oil immersion, dust, water, etc.

These stringent testing requirements can rarely be applied to mobile devices, but there is a correlation between NEMA ratings and IP ratings. However, this correlation is limited to dust and water. Please note that while it is possible to compare NEMA ratings and IP ratings, any such comparison is only related to the protection provided against dust and moisture.

<b>NEMA type designations:</b>	
<b>1</b>	Indoor use primarily to provide a degree of protection against limited amounts of falling dirt.
<b>2</b>	Indoor use primarily to provide a degree of protection against limited amounts of falling water and dirt.
<b>3</b>	Outdoor use primarily to provide a degree of protection against rain, sleet, wind blown dust and damage from external ice formation.
<b>3R</b>	Outdoor use primarily to provide a degree of protection against rain, sleet, and damage from external ice formation.
<b>3S</b>	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.  Indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.
<b>4X</b>	Indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water, and damage from external ice formation.
<b>5</b>	Indoor use primarily to provide a degree of protection against settling airborne dust, falling dirt, and dripping non-corrosive liquids.

<b>6</b>	Indoor or outdoor use primarily to provide a degree of protection against hose-directed water, and the entry of water during occasional temporary submersion at a limited depth and damage from external ice formation.
<b>6P</b>	Indoor or outdoor use primarily to provide a degree of protection against hose-directed water, the entry of water during prolonged submersion at a limited depth and damage from external ice formation.
<b>7</b>	Indoor use in locations classified as Class I, Division 1, Groups A, B, C or D hazardous locations as defined in the National Electric Code (NFPA 70) (Commonly referred to as explosion-proof).
<b>8</b>	Indoor or outdoor use in locations classified as Class I, Division 2, Groups A, B, C or D hazardous locations as defined in the National Electric Code (NFPA 70) (commonly referred to as oil immersed).
<b>9</b>	Indoor use in locations classified as Class II, Division 1, Groups E, F and G hazardous locations as defined in the National Electric Code (NFPA 70) (commonly referred to as dust-ignition proof).
<b>10</b>	Intended to meet the applicable requirements of the Mine Safety and Health Administration (MSHA).
<b>12/K</b>	Indoor use primarily to provide a degree of protection against circulating dust, falling dirt, and dripping non-corrosive liquids.
<b>13</b>	Indoor use primarily to provide a degree of protection against dust, spraying of water, oil, and non-corrosive coolant.