

# Understanding IP Ratings

To ensure products are protected against foreign debris and liquids, they are given an Ingress Protection (IP) rating to show they are built to function in certain environments. IP ratings consist of "IP" followed by two numbers and occasionally a letter.

The first number indicates protection against solids, while the second number indicates protection against liquids.


The higher the number, the higher level of protection provided.


EXAMPLE





## Solid Protection First Digit


**0**  No protection


**1**  Protection against objects with a diameter greater than 50mm, such as large surface of the body (the back of a hand) but no protection against deliberate contact with a body part

**2**  Protection against objects with a diameter greater than 12.5mm, such as fingers or similar objects

**3**  Protection against objects with a diameter greater than 2.5mm, such as tools, thick wires, etc.


**4**  Protection against objects with a diameter greater than 1mm, such as most wires, screws, and fine tools


**5**  Dust protected but not entirely prevented, causing limited ingress of dust


**6**  Dust tight with complete protection against ingress


## Liquid Protection Second Digit


**0**  No protection


**1**  Protection against vertically dripping water


**2**  Protection against vertically dripping water when the enclosure is tilted at an angle up to 15 degrees


**3**  Protection against vertical spraying water at any angle up to 60 degrees


**4**  Protection against splashing water from any angle

**5**  Protection against low pressure water jets from any direction

**6**  Protection against powerful, high pressure water jets from any direction

**7**  Protection against temporary water immersion up to 1m

**8**  Protection against continuous water immersion beyond 1m

**9**  Protection against high pressure and high temperature water jets from any direction

Duff-Norton linear actuators have varying IP ratings based on their intended use. For use in robust industrial applications, our IP66-rated linear actuators, including LT, SPA, XT, and CMLA, are ideal for safe, precise, and repeatable positioning.

Plus, custom solutions are available to meet unique and challenging application requirements.