

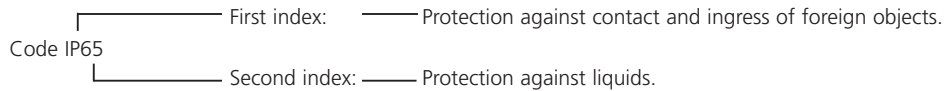
## Degrees of Protection (IP) according to DIN EN IEC 60529



## Definition of the degrees of protection according to DIN EN IEC 60529

The levels of protection are indicated by a code made up of two constant letters IP and two characteristic numbers for the degree of protection, e.g. IP54.

## Example:



Degree of protection against access and foreign bodies		
First Index	Designation	Scope of protection
0	<b>Non-protected</b>	No special protection for persons against direct contact with live or moving parts. No protection of the equipment against ingress of solid foreign objects.
1	<b>Protection against medium-sized foreign bodies</b>	Protection against accidental contact of large areas with live and internal moving parts, e.g. back of hand, but not protection against deliberate access to the parts. Protection against ingress of solid foreign objects with a diameter greater than 50 mm.
2	<b>Protection against medium-sized foreign bodies</b>	Protection against contact between the finger and live or internal moving parts. Protection against ingress of solid foreign objects with a diameter greater than 12.5 mm.
3	<b>Protection against small foreign bodies</b>	Protection against contact between live or internal moving parts and tools, wires and the like with a thickness greater than 2.5 mm. Protection against ingress of solid foreign objects with a diameter greater than 2.5 mm.
4	<b>Protection against granular foreign objects</b>	Protection against contact between live or internal moving parts and tools, wires and the like with a thickness greater than 1 mm. Protection against ingress of solid foreign objects with a diameter greater than 1 mm.
5	<b>Protection against dust deposits</b>	Complete protection against contact with live or internal moving parts, protection against hazardous dust deposits. The ingress of dust is not completely prevented, but dust may not penetrate in such quantities as to impair the function.
6	<b>Protection against dust entry</b>	Complete protection against contact with live or internal moving parts. Protection against the ingress of dust.

Degrees of protection for water		
Second Index	Designation	Scope of protection
0	<b>Non-protected</b>	No special protection.
1	<b>Protection against vertically dripping water</b>	Water dripping vertically must cause no damage.
2	<b>Protection against dripping water (tilted)</b>	Water dripping at an angle of 15° to the vertical from any direction must cause no damage.
3	<b>Protection against spraying water</b>	Water dripping at an angle of 60° to the vertical from any direction must cause no damage.
4	<b>Protection against splashing water</b>	Water that splashes against the equipment from any direction must cause no damage.
5	<b>Protection against water jets</b>	A water jet from a nozzle that is directed against the equipment from any direction must cause no damage.
6	<b>Protection against flooding</b>	Water must not penetrate the equipment in hazardous quantities in cases of temporary flooding, e.g. due to heavy seas.
7	<b>Protection during temporary immersion</b>	Water must not penetrate the equipment in hazardous quantities if the equipment is immersed in water under the specified conditions of pressure and time (1m for 30 min.).
8	<b>Protection during continuous immersion</b>	Water must not penetrate the equipment in hazardous quantities if the equipment is immersed in water (at least 2 bar for 2 h for HelaGuard IP68 non-metallic fittings and 5 bar for 5 h for HelaGuard IP68 metallic fittings.)
9k	<b>Protection against high pressure/ steam jet cleaning</b>	Highly pressurised water directed at the enclosure from any direction must cause no damage.