

Technical Bulletin

## **Protection ratings for service unit**

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This technical bulletin provides you with information on specific technical subjects. It is based on the current rules and regulations and on our current test results. The contents of this document is not legally binding.

## Service units and protection ratings

Due to repeated enquiries regarding the degrees of protection for service unit – in particular with regard to GRAF9 – we wish to use the following technical bulletin to explain the requirements placed on service units.

### Basic information

Housings containing electrical resources are classified using protection ratings. The standards DIN VDE 0470 Part 1 (EN 60529 – Degrees of protection provided by enclosures (IP code)) and DIN EN 50102 (Degrees of protection provided by enclosures against external mechanical impacts (IK code)) specify the appropriate requirements and agreements.

**The guaranteed protection ratings must remain intact during correct operation.**

### Which protection aims are defined?

The following protection aims are defined in the standards:

1. Protection of people by restricting access to dangerous parts inside the housing.
2. Protection of resources within the housing against the ingress of solid foreign bodies.
3. Protection of resources within the housing against the damaging effects of the ingress of water.

### What is a housing?

In accordance with the terminology in EN 60529 and DIN 50102, a housing is a place of installation for electrical devices. Covers and the design of the openings must be suited to limit or prevent the ingress of the specified testing probes. Covers and openings are considered part of the housing, except if they can be removed without the use of a key or a tool.

### Do the protection ratings also apply to installed service units?

From the term, we can derive the fact that flushfloor service units GES and variable height service units (e.g. GRAF9) do **not** belong to the housings described by the standards EN 60529 and EN 50102, as the cover of the inserts can be opened without a tool.

The protection ratings to be maintained for service units are therefore specified by an independent product standard (DIN VDE 0634).

## Protection ratings for service units

### What are the protection ratings defined for service units?

As the protection ratings contained in EN 60529 and EN 50102 do not apply to service units, the product standard DIN VDE 0634, Part 1, contains the definition of the protection ratings. Large parts of this standard therefore deal with the protection to be maintained against the ingress of solid bodies and moisture into the installation compartments of electrical installations.

The protection to be maintained against moisture is primarily orientated towards floor coverings and the typical methods of cleaning for them. The standard makes a distinction between floors which are treated with water and those which are not. No further distinction is made. Floors are considered to be washed when liquids are used to clean them, and it cannot be excluded that pools or wetting occur, even briefly.

The primary requirements can be seen in Figure 1.

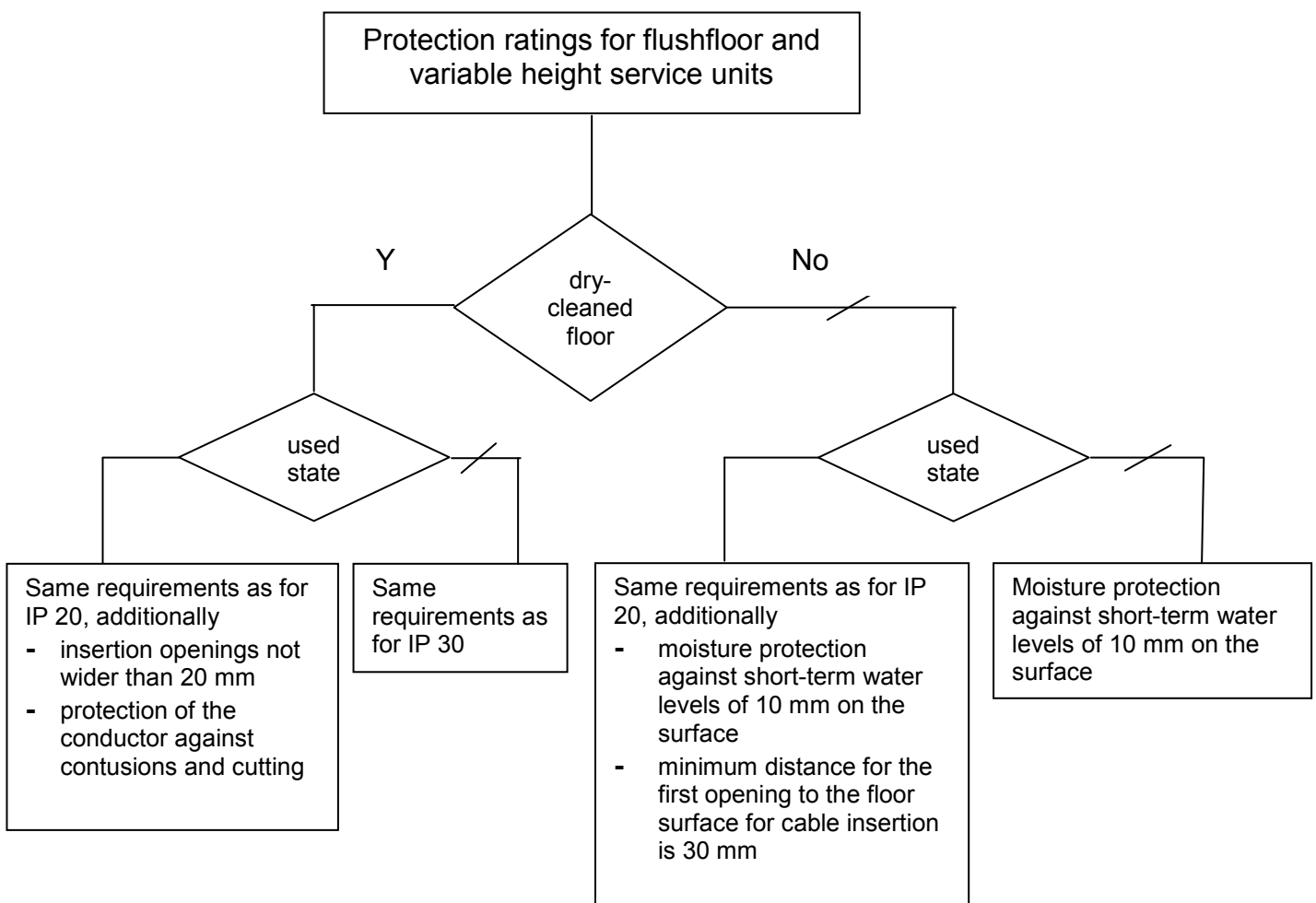


Figure 1: Definition of the protection ratings for service units as required by DIN VDE 0634

## Protection ratings for service units

### Evaluation of the protection ratings on service units GES and GRAF9

The flushfloor service units – GES – can:

- not offer the same protection rating in the used state – as indicated as IP 30 according to EN 60529 – protection against solid bodies with a diameter of more than 2.5 mm;
- offer the same protection rating in the used state – as indicated as IP 20 according to EN 60529 – protection against solid bodies with a diameter of greater than 12 mm. However, the conductor insertion openings may not be 20 mm high with a limited width.

The variable height service unit – GRAF9 – can:

- offer moisture protection in the unused state against a short-term water level of 10 mm on the cover, comparable to a short-term IP code of IP 65;
- offer moisture protection in the used state against a short-term water level of 10 mm on the unit and conductor insertion opening is 30 mm from the surface of the floor. This produces a comparable IP code of IP 20.