

Technical bulletin

Protection ratings for service outlets

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These sheets provide you with information on specific technical subjects. They are based on the current rules and regulations and on our current test results. The contents of this document are not legally binding.

Service outlets and protection ratings

Due to repeated enquiries regarding the degrees of protection for service outlets – in particular with regard to GRAF9 – we wish to use the following technical bulletin to explain the requirements placed on service outlets. Service outlets are of the type GES, GESRM2 and cassette types RK/RKF/RKS, RKR/RKFR/RKSR and RKN/RKFN/RKSN.

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 resources. 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 units (service outlets)?

From the term, we can derive the fact that screed-flush units (GES .. inserts) and variable height inserts (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 outlets are therefore specified by an independent product standard (DIN VDE 0634).

How are the protection ratings defined for service outlets?

As the protection ratings contained in EN 60529 and EN 50102 do not apply to service outlets, 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 resources.

The protection to be maintained against moisture is primarily orientated towards floor coverings and the typical methods of caring for them. The standard makes a distinction between floors which are treated with water (wet cleanable) and those which are not (dry cleanable). No further distinction is made. Floors are considered to be cleaned wet 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.

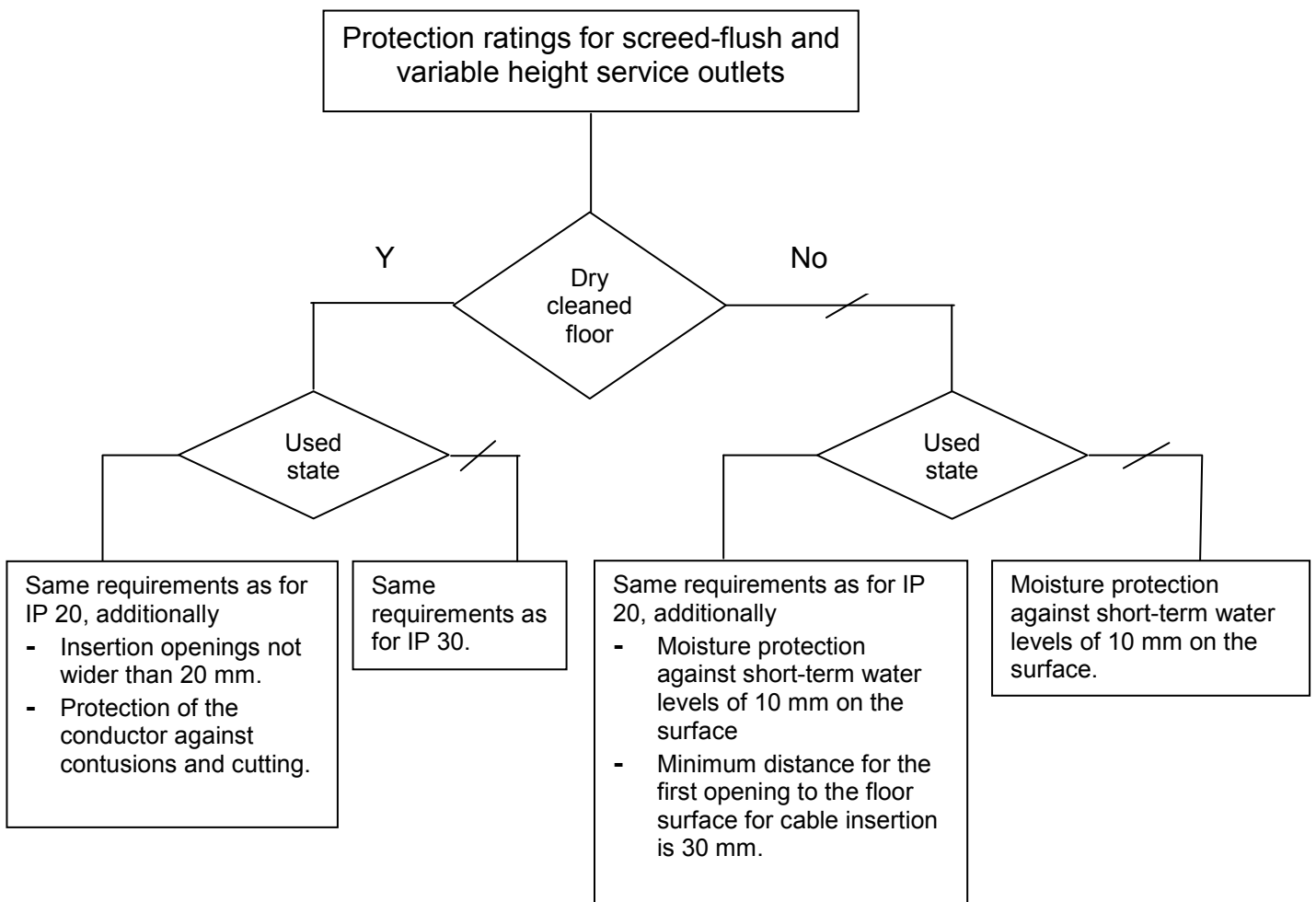


Figure 1: Definition of the protection ratings for installation units (service outlets) as required by DIN VDE 0634

Evaluation of the protection ratings on the service outlets

The screed-flush service outlets are indicated by a flush floor cord outlet which is connected to the lid by a hinge.

Service outlets – GES.. – and cassette versions – RKS, RKSR, RKSN – can:

- offer the same protection rating in the used state as indicated by IP 20 according to EN 60529 – protection against solid bodies with a diameter of greater than 12 mm. However, the cable insertion openings (cord outlets) may not be higher than 20 mm.
- offer the same protection rating in the unused state as indicated by IP 30 according to EN 60529 – protection against solid bodies with a diameter not smaller than 2.5 mm.

The variable height service outlets are indicated by a cord outlet providing an outlet for cables with a distance of 30 mm from the surface of the flooring (in the used state) or are installed flush with the floor surface (in the unused condition).

Service outlets – GRAF9 – and cassette versions – RK/RKF, RKR/RKFR, RKN/RKFN – 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.

The service outlet GESRM2 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 the same protection rating in the used state as indicated by IP 20 according to EN 60529 – protection against solid bodies with a diameter of greater than 12 mm.