

Frame Member For A Switchgear Cabinet Frame

The invention relates to a frame member for a switchgear cabinet frame, which has two profiled sides standing vertically to one another forming the outer sides of the frame, and which is designed as a hollow profile section open towards the inner side.

Frame members, designed as closed hollow profiles, are known for the frame of a switchgear cabinet frame. Closed hollow profiles are expensive to manufacture, particularly when they are to satisfy in a simple way all of the requirements made of a frame, possibilities of assembly over their entire length, simple connection with corner connectors, sealing of the wall elements and doors to be attached, etc.

There are also known frame members for a switchgear cabinet frame designed as open hollow profiles, which may be simpler to manufacture with a stamped and bent part, but however which do not fulfil in a simple way all the requirements of a switchgear cabinet frame.

The purpose of the invention is to provide a frame member of the type aforementioned, which, as a simply-manufactured hollow profile section, satisfies in a simple way all the requirements made of a switchgear cabinet frame.

This object is achieved according to the invention by the combination of the following features:

- 10 a) the profile sides merge into one another via transitional sections standing vertical to one another, into a connector section standing at an angle of 135° to both profile sides,
- 15 b) the profile sides merge, opposite the transitional sides, into externally-open receiving grooves for seal elements,
- c) connecting with the receiving grooves are sections
20 standing vertically to a parallel with the associated profile sides,

d) the sections standing parallel to the associated profile sides are provided with a series of attachment means, and

- 5 e) connecting with the section standing parallel to the associated profile sides are inwardly-bent terminal sections.

The frame member designed in this way can still be
10 manufactured as a simple stamped and bent part or as an extruded section, or by profiling. The profile sides of the frame member with the inwardly-bent receiving grooves offer possibilities of accommodation for seal elements, which can also be designed as HF-seals. The
15 transitional sections and the connector section provide in the region of the outer edges a receiving means in which hinge and closure elements may be housed.

Symmetrically with the diagonal of the cross-section, in the terminal regions of the frame member there are
20 formed two plug-in receiving means for plug-in sets of corner connectors, so that the frame can easily be assembled with the frame members and correspondingly-designed corner connectors. Both rows of attachment means form, turned towards the inside, two attachment

strips standing vertically to one another, so that components may be attached to the frame member in two directions.

- 5 The frame member of this type is stamped and folded from a sheet metal strip or is produced as an extruded section.

According to one development, the possibility of
10 attachment with the corner connectors is produced in that the sections standing vertically to and parallel with the associated profile sides define, with the receiving grooves and the terminal sections, plug-in receiving means for plug-in sets of corner connectors.

15

The receiving grooves in the profile sides are formed by three sections respectively standing at right angles to one another.

20

According to another development, the transition from the receiving grooves to the continuing sections is so constructed that the sections standing vertically to

the profile sides are formed with sections of the receiving grooves in a two-layered fashion.

Furthermore, the transitional sections and the connector section form, towards the outer edges of the hollow profile section, a receiving means for folded-over edges of wall elements or of a door.

The plug-in receiving means for the plug-in sets or the corner connectors are improved in that the terminal sections stand vertically to the connector section or vertically to the associated profile sides.

The design of the frame member can be such that it is in the form of an open hollow profile section or as a closed hollow profile section.

The invention will be explained in more detail with reference to embodiments given by way of example and shown in the drawings, which show:

Figure 1: a frame member in cross-section, as an open hollow profile section, and

Figure 2: a perspective view of a portion of a frame-member in the form of a closed hollow profile section.

5 The frame member according to Figure 1 is produced for example from a sheet metal strip by stamping and bending as an open hollow profile section 10. The hollow profile section 10 does not have a formed outer edge, but is however formed symmetrically to the
10 diagonal. During assembly of the frame member, the open side of the hollow profile section 10 is turned inwards. The two profile sides 11 and 12, standing vertically to one another, form in a known way the outer sides of the frame member, but do not extend as
15 far as the outer edge. They are interconnected by the transitional sections 14 and 15 standing vertically thereto and by the connector section 13. Therefore in the corner area there results a receiving means 30, which houses not only hinge and closure elements but
20 also the folded edges 41 and 43 of doors 40 and wall elements 42.

Facing away from the transitional elements 14 and 15, the profile sides 11 and 12 merge into U-shaped

receiving grooves 16 and 17, formed by three sections_ respectively standing at right angles to one another. These receiving grooves 16 and 17 accommodate seal members 31 and 32, which abut against seal lips at the
5 doors 41 and wall elements 42. As shown by the seal strips 33, the profile sides 11 and 12 can themselves support seal strips, which is particularly useful for alignment of the frame members.

10 Connecting with the receiving grooves 16 and 17, the sections 18 and 21 are inwardly bent vertically to the profile sides 11 and 12, being in a double-layered form with the adjacent section of the receiving grooves 16 and 17. Connecting with the sections 18 and 20 are
15 sections 19 and 22, which stand respectively parallel to the associated profile sides 11 and 12 and are provided with a series of attachment means 24 and 25.

Finally, the terminal sections 20 and 23 connecting
20 with the sections 19 and 22 form, with the sections 18 and 19 or 21 and 22 and the receiving grooves 16 and 17, receiving means 26 and 27 for plug-in sets of corner connectors, as shown in dotted lines. The terminal sections 20 and 23 are aligned parallel to one

another and stand vertically to the connector section 13. They may however stand vertical to the associated profile sides 11 and 12 also, and better surround the plug-in sets of the corner connectors.

5

The sections 19 and 22 form, with their rows of attachment means 24 and 25 over the entire length of the hollow profile section 10, attachment means in two seals standing vertically to one another. In this case additional assembly rails may simultaneously be connected with the sections 19 and 22, reinforcing the hollow profile section 10.

In the embodiment according to Figure 2 there is involved a frame member 10, formed as a closed hollow profile section, which may for example be produced as an extruded section. The difference from the frame member 10 according to Figure 1 resides in the fact that the terminal sections 20 and 23 stand vertically to the connector section 13 and are interconnected by a section 28. This section 28 can be connected to the connector section 13. The section 28 can also comprise two part-sections, which connect to the terminal sections 20 and 23. The receiving means 26 and 27 for

plug-in sets of a corner connector can in this case_ also include the profile sides 11 and 12 and the transitional sections 13 and 14. However, two receiving means remain for two plug-in sets, although
5 with a different cross-section. Moreover, the frame member according to Figure 2 satisfies all the requirements made of a frame member.

10

15

20



CLAIMS

1. Frame member for a switchgear cabinet frame, having two profile sides standing vertically to one another, forming the outer sides of a frame member, and which is in the form of a hollow profile section forming towards the inner side a receiving means, characterised by the combination of the following features:
- a) the profile sides (11, 12) merge into one another via transitional sections (14, 15) standing vertical to one another, into a connector section (13) standing at an angle of 135° to both profile sides (11, 12),
- b) the profile sides (11, 12) merge, opposite the transitional sections (14, 15), into externally-open receiving grooves (16, 17) for seal elements (31, 32),
- c) connecting with the receiving grooves (16, 17) are sections (18, 19; 21, 22) standing vertically to and parallel with the associated profile sides (11, 12),
- d) the sections (19, 22) standing parallel to the associated profile sides (11, 12) are provided with a series of attachment means (24, 25), and



e) connecting with the sections (19, 22) standing parallel to the associated profile sides (11, 12) are inwardly-bent terminal sections (20, 23).

5

2. Frame member according to Claim 1, characterised in that it is stamped and bent from a sheet metal strip, or is manufactured as an extruded section or by profiling.

10

3. Frame member according to Claim 1 or 2, characterised in that, the sections (18, 19; 21, 22) standing vertically to and parallel with the associated profile sides (11, 12) define with the receiving grooves (16, 17) and the terminal sections (20, 23) plug-in receiving means (26, 27) for plug-in sets of corner connectors.

4. Frame member according to one of Claims 1 to 3, characterised in that the outer sides of the profile sections (11, 12) may be connected to seal strips (33).

20



5. Frame member according to Claim 1 to 4,
characterised in that
the receiving grooves (16, 17) are formed by three
sections respectively standing at right angles to one
5 another.

6. Frame member according to one of Claims 1 to 5,
characterised in that
the sections (18, 21) standing vertically to the
10 profile sides (11, 12) are formed in a double layer
with sections of the receiving grooves (16, 17).

7. Frame member according to one of Claims 1 to 6,
characterised in that
15 the transitional sections (14, 15) and the connector
section (13) form, towards the outer edges of the
hollow profile section (10), a receiving means (30) for
folded edges (41, 43) of wall elements (42) or of a
door (40).

20

8. Frame member according to one of Claims 1 to 7,
characterised in that



the terminal sections (20, 23) stand vertically to the connector section (13) or vertically to the associated profile sides (11, 12).

- 5 9. Frame member according to one of Claims 1 to 8, characterised in that
- it is in the form of an open hollow profile section (Figure 1) or as a closed hollow profile section (Figure 2).