

MEDIUM VOLTAGE SWITCHGEAR HAVING DISCONNECTING SWITCHES
AND THREE-POSITION SWITCHES

5 The invention relates to a medium-voltage switchgear assembly with disconnecting switches and three-position switches in accordance with the preamble of patent claim 1.

10 Disconnecting switches and three-position switches are designed for two typical current-carrying capacities in medium-voltage switchgear assemblies. A common standard-compliant value in accordance with IEC is 1,250 amperes and a further value is 2,500 amperes. For the different current-carrying capacities, therefore,
15 different components of said switches are also required.

This different configuration has disadvantages in terms of manufacturing technology.

20 The invention is therefore based on the object of developing a medium-voltage switchgear assembly of the generic type such that different realizations of the current-carrying capacity can be achieved more easily.

25 The stated object is achieved in a medium-voltage switchgear assembly of the generic type according to the invention by the characterizing features of patent claim 1.

30 Further advantageous configurations are specified in the dependent claims.

35 The essence of the invention consists in that, by virtue of a multiple arrangement of identical contact systems (1) per phase (L1, L2, L3) in a parallel arrangement on a common switching shaft (2), the current-carrying capacity which can be achieved is

increased in comparison with a basic current-carrying capacity.

5 It is therefore now possible for the contact components to all be manufactured uniformly, and only the number of contact systems or switches arranged in parallel and per phase therefore structurally increases the respectively desired current-carrying capacity.

10 In an advantageous configuration in this regard, the basic current-carrying capacity is 1,250 amperes, and the contacts of the disconnectors and/or three-position switches are designed for this current-carrying capacity.

15 In a further advantageous configuration, the current-carrying capacity of 2,500 amperes is provided by arranging two contact arrangements positioned in parallel with one another on a switching shaft, each of
20 said contact arrangements being designed for a basic current-carrying capacity of 1,250 amperes.

In a further advantageous configuration, the switching shaft consists of plastic. As a result, simple
25 isolation of the contact arrangements with respect to one another is provided, and the contacts of all three AC phases can thus be positioned on one switching shaft.

30 As an alternative to this the switching shaft can also consist of a ceramic material.

In order to ensure a high mechanical rotational rigidity, the configuration is advantageously such that
35 a mechanical anti-rotation or anti-torsion element is integrated in the switching shaft, whereby the switching shaft itself is mechanically rotationally rigid.

A further advantageous design alternative is characterized by the fact that the switching shaft consists of metal, and the switching levers of the disconnecting switches or three-position switches consist of plastic.

The invention is illustrated in the drawing and described in more detail below.

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Figure 2 shows an arrangement of three contact components or arrangements 1 on a switching shaft, with this being for in each case all three AC phases L1, L2 and L3. Here, in each case one contact arrangement per AC phase is provided.

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Figure 1 shows that in each case two parallel contact arrangements 1 for each phase are arranged on the shaft or switching shaft 2. For understanding of the function, mention will once again be made of the fact that this shaft moves the levers which, for their part, again themselves move the contacts. In the illustration in figure 2, each contact arrangement, i.e. per phase, is designed to have a current-carrying capacity of 1,250 amperes. Owing to the double arrangement in figure 1, a total current-carrying capacity of 2,500 amperes is thus achieved.

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By virtue of a simple multiple arrangement of contact arrangements per phase, an integral multiple of a basic current-carrying capacity can thus be achieved, for example. However, structurally different contact arrangements can also be used which result in combinable individual current-carrying capacities with one another to give any desired total current-carrying capacities per phase.

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Thus, 1,250 ampere switchgear assemblies with the same prefabricated contact arrangements as, for example, 2,500 ampere switchgear assemblies can be established. This is performed simply by doubling the contact
5 arrangements per phase, with this being on one and the same switching shaft.

Patent Claims

1. A medium-voltage switchgear assembly having disconnecting switches and three-position switches,
5 **characterized**
in that, by virtue of a multiple arrangement of identical contact systems (1) per phase (L1, L2, L3) in a parallel arrangement on a common switching shaft (2), the current-carrying capacity which can be achieved is
10 increased in comparison with a basic current-carrying capacity.
2. The medium-voltage switchgear assembly as claimed in claim 1,
15 **characterized**
in that the basic current-carrying capacity is 1,250 amperes, and the contacts of the disconnectors and/or three-position switches are designed for this current-carrying capacity.
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3. The medium-voltage switchgear assembly as claimed in claim 2,
characterized
in that the current-carrying capacity of 2,500 amperes
25 is provided by arranging two contact arrangements positioned parallel to one another on a switching shaft, each of said contact arrangements being designed for a basic current-carrying capacity of 1,250 amperes.
- 30 4. The medium-voltage switchgear assembly as claimed in claim 2 or 3,
characterized
in that the switching shaft consists of plastic.
- 35 5. The medium-voltage switchgear assembly as claimed in claim 2 or 3,
characterized

in that the switching shaft consists of a ceramic material.

6. The medium-voltage switchgear assembly as claimed
5 in claim 5,

characterized

in that a mechanical anti-rotation or anti-torsion
element is integrated in the switching shaft, whereby
the switching shaft itself is mechanically rotationally
10 rigid.

7. The medium-voltage switchgear assembly as claimed
in one of claims 1 to 3,

characterized

15 in that the switching shaft consists of metal, and the
switching levers of the disconnecting switches or
three-position switches consist of plastic.