

"METHOD FOR WRAPPING BUS-BARS FOR PREFABRICATED
ELECTRIC DUCTS"

5 Field of the invention

 This invention concerns the field of the prefabricated electric ducts in general, also known as bus-bars, and refers in particular to a method for wrapping the bus-bars contributing to the formation of said prefabricated electric ducts.

10 State of the Art

 Electric ducts are in essence electric lines which develop following pre-set routes. They are usually made up of a casing, also known as a profile, open on one side, of bus-bars, which are placed in and which extend along the length of the casing, and of a cover or closing hood fixed on the open side
15 of the casing. The bus-bars are normally covered by an insulating sheath, usually made of polyester resin, to prevent direct contact when placed side by side.

 The covering operation of the bus-bars with an insulating sheath is commonly called wrapping, and this at present is carried out in various ways.

20 For example, one system of wrapping consists of enclosing each bus-bar in a insulating film, which can be continuous or in several parts. Another system of wrapping, for example, consists of inserting each bus-bar into a tubular insulating element, possibly heat-shrinkable. In any case, the wrapping procedures followed up to now are sources of problems, difficulties and
25 drawbacks which technicians in the sector are well aware of, heightened also

by the fact that the bus-bars are also bent to enable connecting of adjacent electric conductors and pull boxes.

Objects and Summary of the invention

This invention is aimed at efficiently avoiding the problems and
5 drawbacks complained about in the well known techniques.

It is in fact one of the objectives of the invention to provide a new, original method of wrapping whereby the covering and bending of the bus-bars can be carried out in sequence, in a simple and rational way, with high productivity, reduced need for labour and achieving better results.

10 A further objective of the invention is to form the conditions for wrapping bus-bars for prefabricated electric ducts with an insulating sheath set up to receive a bar and be able to be closed around it during the process, prior to or following bending of the bar itself together with the sheath, without however rewelding the items.

15 These objectives are reached, in compliance with this invention, by a wrapping method for prefabricated electric ducts, which in essence comprises:

- shaping an insulating sheath whose form and dimensions are compatible with the cross-section and length of the bus-bar to be covered and so that the longitudinal free edges of the sheath overlap;
- 20 - housing a bus-bar in the shaped sheath, making the longitudinal edges of the latter overlap;
- joining longitudinally the overlapping edges of the sheath so as to close it tightly around the bus-bar housed in it;
- bending the bus-bar-sheath group in correspondence with the established
25 positions;

- sealing of the overlapping edges of the sheath can be carried out by welding or gluing.

Brief Description of Drawings.

The invention will however be explained more in detail in the description made in reference to the enclosed indicative and not limitative drawings, in which:

Fig. 1 shows an initial bus-bar;

Fig. 2 shows an insulating sheath shaped to cover the bus-bar in Fig. 1;

Fig. 3 shows a bus-bar complete with insulating sheath; and

Fig. 4 shows a bus-bar complete of insulating sheath following bending.

Detailed Description of the Invention

According to the wrapping method proposed here, the initial bus-bar 11 is straight – Fig. 1, whereas the insulating sheath 12 to be used to cover the bar 11 is pre-shaped starting for example from a flat length of film, usually polyester. The cross-section and length of the sheath 12 are compatible with the forms and shapes of the bar 11 and its free longitudinal edges 13 are sized to overlap - Fig. 2. If necessary the sheath 12 can be cut in some parts 14 where the bar has to remain uncovered - Fig. 4.

Bar 11 is housed in the pre-shaped sheath 12, the longitudinal edges 13 of which overlap on one side of the bar.

According to one method of proceeding, the overlapping edges 13 are joined to close the sheath tightly around the bar – Fig. 3. The sealing of the edges can be carried out along at least one continuous or intermittent welding line 15 using in preference ultrasound or glue. This type of closing of the

sheath 12 is therefore and advantageously carried out on a straight bar 11, consequently on a flat surface.

The bar, complete with sheath is then bent at preset intervals, usually at the ends and in intermediate zones, for example, in correspondence to the
5 cut parts of the sheath – Fig. 4. The bar-sheath assembly can be cold or hot bent.

According to another procedure, the bar 11 is, hot or cold, bent at pre-set parts, once housed in the sheath, then the overlapping edges 13 of the sheath are sealed to close tightly around the bar. Also in this case the method
10 of sealing the edges can be continuous or intermittent welding, preferably ultrasound, or by gluing.

The result is a bus-bar which correctly fits into an insulating sheath in every part, including the most critical points in correspondence with the bent areas and where the insulating sheath is firmly closed during the process.,

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C L A I M S

1. Method of wrapping bus-bars for prefabricated electric ducts, comprising the steps of:

- shaping, starting from a flat length of film, an insulating sheath whose form and dimensions are compatible with the cross-section and length of
10 the bus-bar to be covered and so that the longitudinal free edges of the sheath overlap;
- housing a bus-bar in the shaped sheath, making the longitudinal edges of the sheath overlap;
- sealing the overlapping edges of the insulating sheath lengthwise so as to
15 close it tightly around the bus-bar it is housing;
- bending the bar-sheath assembly in correspondence with the preset intervals along its length, and wherein

the sealing of the overlapping edges of the insulating sheath is carried out on the flat bus-bar and effected either by welding or gluing.

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2. Method of wrapping bus-bars for prefabricated electric ducts, comprising the steps of:

- shaping, starting from a flat length of film, an insulating sheath whose form and dimensions are compatible with the cross-section and length of
the bus-bar to be covered and so that the longitudinal free edges of the
25 sheath overlap;

- housing a bus-bar in the shaped sheath, making the longitudinal edges of the sheath overlap;
 - bending the bar-sheath assembly in correspondence with the preset intervals along its length;
- 5 - sealing the overlapping edges of the insulating sheath lengthwise so as to close it tightly around the bus-bar it is housing, and wherein the sealing of the overlapping edges of the insulating sheath is carried out on the flat bus-bar and effected either by welding or gluing.

3. Method according to claims 1 or 2, in which the shaped insulating
10 sheath is cut in some of its preset parts before receiving the bus-bar.

4. Method according to claims 1 or 2, in which the bar-sheath assembly is hot or cold bent.

5. Method according to claims 1 or 2, in which the sealing of the overlapping edges of the insulating sheath is carried out by ultrasound
15 continuous or intermittent welding.

6. Method of wrapping bus-bars for prefabricated electric ducts, characterised by the steps of:

- shaping an insulating sheath whose form and dimensions are compatible with the cross-section and length of the bus-bar to be covered, allowing the
20 longitudinal free edges of the sheath to overlap;
- cutting the insulating sheath in some preset parts;
- housing a bus -bar in the shaped insulating sheath;
- sealing the overlapping edges of the insulating sheath lengthwise by ultrasound welding or by gluing; and

- hot or cold bending the bar-sheath group at some preset intervals along its length, bending of the bar being possible in correspondence with the cut parts of the insulating sheath.

7. Method of wrapping bus-bars for prefabricated electric ducts,
5 characterised by the steps of:

- shaping an insulating sheath whose form and dimensions are compatible with the cross-section and length of the bus-bar to be covered, allowing the longitudinal free edges of the sheath to overlap;
- cutting the insulating sheath in some preset parts;
- 10 - housing a bus –bar in the shaped insulating sheath;
- hot or cold bending the bar-sheath group at some preset intervals along its length, bending of the bar being possible in correspondence with the cut parts of the insulating sheath, and
- sealing the overlapping edges of the insulating sheath lengthwise by
15 ultrasound welding or by gluing.

8. Bus – bar for prefabricated electric ducts, characterised by a pre-shaped insulating sheath, designed to receive a bus-bar and having two overlapping longitudinal edges sealed using either continuous or intermittent welding or by gluing.