

Certified Translation

(40)

Description

Distribution head for telecommunication cables

The invention concerns a weather-resistant distribution head with overvoltage protection for telecommunication cables.

Solderless, stripless and screwless connection of insulated conductor wires to clamped contacts designated LSA
5 connecting technique are meanwhile widely used.

DE-C-2 610 461 describes a terminal element which contacts a conductor by inserting it between two legs of a leaf spring positioned at an angle of 45° to the axis of
10 the conductor.

The two legs of the leaf spring, in pressed-in condition, are relatively deflected against each other from their original position, causing them to sever the wire insulation on staggered points and to contact the
15 wire on one each of the diagonally opposite internal edges of the two legs.

For some of the hitherto known distribution heads for overhead cables (dropwire cables), the cable cores and dropwire cables must be soldered on or attached to
20 terminal screws.

In those cases, tedious loosening of the terminal screws and removal of the wires were necessary whenever tests on the cables had to be carried out.

FR-A-2 440 636 describes a distributor head for telecommunication cables, especially for overhead cables (drop-
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wire cables), with overvoltage arrester magazine whose housing is provided with a first connecting space for a first terminal strip with terminal elements for solderless, screwless and stripless connection of wires of a feeder cable inserted into the distributor head and a second connecting space for a second terminal strip with terminal elements for solderless, stripless and screwless connection of downwardly outgoing overhead cables (dropwire cables), and electrical connections between the terminal elements of both connecting spaces. The two connecting spaces are separated by a partition. Details on the solderless, screwless and stripless terminal elements are not given in FR-A-2 440 636.

636 provides no particulars on solderless, screwless and stripless terminal elements.

DE-B-1 109 236 describes furthermore a cable sealing end which provides a plug-in mounting device for a terminal strip in a connecting space.

FR-A-2 205 756 describes in addition a slot for a terminal element that is designed like a step.

A staggered arrangement of terminal elements in a telecommunication cable armature is described in FR-A-1 069 451.

Finally, DE-B-1 109 236 describes housing parts for telecommunication cables made of plastics material.

The invention was made in response to a request to develop a distribution head for telecommunication cables, in particular for overhead cables (dropwire cables), which assume a conductive and load-carrying function and which possess a large wire cross section, to which

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a special LSA technique can be applied, with a castable cable connecting space, with overhead cable terminal elements that enable improved connection of cables of various diameters, and with a feeder cable that can be
60 inserted either from above or below.

The invention concerns thus a distribution head for telecommunication cables, in particular for overhead cables (dropwire cables), with overvoltage arrester magazine, the housing of which is provided with a first
65 connecting space for a first terminal strip with terminal elements for solderless, screwless and stripless connection of cores of a feeder cable inserted into the distribution head and a second connecting space for a second terminal strip with terminal elements for solder-
70 less, screwless and stripless connection of downwardly outgoing overhead cables (dropwire cables) as well as electrical connections between the terminal elements of both connecting spaces.

The above-stated task has been solved with this distribution head in accordance with this invention by
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- a) moulding the first terminal to the housing;
- b) latching the second terminal strip to the front part of the housing by means of latching members;
- c) positioning the terminal elements at an angle of
80 45 ° to the connected cable wires and cables, respectively.;
- d) with the terminal elements of the first terminal strip arranged parallel to the longitudinal axis of the distribution head;
- 85 e) designing the slots of the terminal elements on the

second terminal strip in a steplike fashion so as to sever the wire insulation; and

f) by providing them with guide ribs designed with a guide slote taper; and

90 g) by designing a feeder cable which in a position of a symmetrically configured central housing shell provided with the insertion fitting for this cable, can be inserted into the distribution head from below and when in a position in which the shell is reversed by 180° from above.

By virtue of this invention in particular the following advantages are attained:

1. That both feeder cables and dropwire cables of various diameters can be securely connected without stripping.
- 100 2. That feeder cables can be inserted from above as well as from below into the distribution head housing without interfering with the downward outlets of the dropwire cables.

105 Further advantageous design variations in accordance with this invention are indicated in the secondary claims.

In the following, the invention is explained in detail based on the design example depicted in the drawing; 110 with:

Fig. 1 showing the main view of the distributor head, whereby the RH part depicts the front view and the LH part the rear view;

Fig. 2 showing the side view of the distribution head together with the two cable connecting spaces, here with 115



the feeder cable inserted from above;

Fig. 3 showing the LSA terminal element with the stepped slot used for the distribution head;

Fig. 3a showing the plan view in accordance with Fig. 3;

120 and

Fig. 3b showing section A-A in accordance with Fig. 3a.

The RH side of Fig. 1, shows the front connecting space 5 with terminal strip 6 together with the terminal elements 9 shown on Fig. 3 for connection of the drop-

125 wire cables 3.

Following fitting of terminal elements 9, terminal strip 6 is latched onto front side 12 of the central housing shell 15 with the aid of latching members 13.

Slots 8 depicted on Fig. 3, 3a and 3b of terminal elements 9 fitted to terminal strip 6 are designed like steps; this enables the severing of very rigid and thick insulations on the dropwire cable 3 with very little force applied.

Figures 3, 3a, 3b show that the connectable dropwire cables 3 with almost identical conductor diameter may be provided with variously thick insulations to suit different purposes. Thin cables 3a are inserted through the downwardly tapering guide ribs 22 into the guide slot taper and are thus protected from shock. The thick cables 3b, situated above the tapered end of the slot, are protected from shock, too.

In the middle of this dropwire terminal strip 6, an overvoltage arrester magazine 14 can be plugged-in in the familiar fashion.

145 As may be gathered from Fig. 1, the LH and RH terminal elements 9a, 9b of terminal strip 6 are not placed

opposite one another, but are instead staggered. Thanks
to this arrangement, use of commercially available over-
voltage arrester magazines from the LSA program is still
150 possible, notwithstanding the larger mass of the termi-
nal elements.

The LH side of Fig. 1, shows rear cable connecting
space 4 of distribution head 1.

The familiar terminal elements 10 for feeder cable 2 are
155 shown. Terminal strip 7 is moulded to the central hous-
ing shell 15 in the cable connecting space 4. The re-
quired slots for the contact lugs are closed with so-
called moulding skin (not shown) which seal off terminal
elements 10 in the housing.

160 By placing the cable feeder in an inclined position, it
is possible to arrange terminal elements 10a, 10b paral-
lel to the longitudinal axis of the distribution head 1
(shown as a broken line on Fig. 1), to greatly simplify
terminal elements 10 without departing from the inclined
165 position of same to the axis of the core.

Fig. 2 shows the individual components of the distri-
bution head 1, including a hood 11, central housing
shell 15, a rear wall 17, bottom panel 16 and gasket 23.
The central housing shell 15 with insertion fitting 18
170 is of symmetrical design so that bottom panel 16 with
the outgoing dropwire cable outlets can be fitted to
both front ends of the housing shell 15 and thus feeder
cable 2 be inserted from above and dropwire cables 3
from below or both feeder cable 2 and the dropwire
175 cables inserted from below.

There is the possibility to close off the rear cable
connecting space 4 with the gasket 23. This gasket 23
which can be buttoned onto the housing is provided with

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two unsymmetrical filler openings (which can be cut off)
180 for casting connecting space 4. Depending on the way
the gasket is mounted - filler opening on top and/or
bottom - complete or only partial casting (only in the
vicinity of the fitting) is possible. Gasket 23 keeps
humidity from penetrating into the cable connecting
185 space.

The cable sheath 19 in cable connecting space 4 is
electrically connected to the ground connections 20
arranged in the front connecting space 5 as well as the
tap lugs 21 of terminal strip 6.

190 Distribution head 1 is screwed to rear wall 17 which has
previously been fixed to a pole or wall after feeder
cable 2 has been inserted; or the housing shell 15 and
the rear wall 17 are together fixed to pole or wall
following assembly of the two parts.

195 Once the hood 11 has been pushed on, the distribution
head 1 is protected from rainwater through familiar
constructive measures such as inclined run-offs, diver-
sion ribs, so that nothing can possibly harm the equip-
ment.

I hereby certify that the above is a true and complete
translation from the original German text shown me this day



Berlin, 30 October 1986


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