

Box for a ballast

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The invention relates to a ballast box comprising a base for fixing to a substructure, a cap which can be connected to the base and which covers it in the installation position and a temperature-resistant adaptor plate for fixing electronic components in the ballast box.

10 Ballast boxes of that kind are preferably used for installing ballasts in covers separately from the individual lamps in order to keep the ballasts out of the actual lamp housing and thus, by virtue of the size thereof, to be able to make the structural size of the lamp housing smaller. The connection of the ballast box to the lamp housing and the lighting means
15 arranged therein is normally made by way of a cable.

The problem which arises in relation to ballast boxes of that kind is that inductive ballasts can develop higher temperatures of up to 350° or more in the core. That temperature can mean that a ballast box comprising thermoplastic material melts; at the least however the position of the
20 ballast in the ballast box can change. In accordance with a VDE Directive (Association of German Electrotechnical Engineers Directive), such a change in position of electrical units, in particular ballasts, is not permissible. To prevent those unwanted changes in position the ballast box can be made from a temperature-resistant material such as for example
25 metal or a thermosetting plastic; in addition it is possible to provide suitable cost-intensive cooling devices. Ballast boxes of that configuration however are relatively expensive. Overall however it is desirable to use inductive instead of electronic ballasts as inductive ballasts are considerably less expensive than electronic ones.

30 In accordance with the invention there is to be provided a ballast box which on the one hand is inexpensive but at the same time is of such a design that no change in position of an inductive ballast in the ballast box occurs even upon a considerable rise in temperature.

In accordance with the invention that object is attained in that a passage opening is provided in the base and there is provided a temperature-resistant spacer portion which in the installation position can be fitted into the passage opening and on to which the adaptor plate can be fitted in the installation position. The temperature-resistant spacer portion is made from a material which withstands at least the core temperatures occurring in an inductive ballast, without geometrical changes. The spacer portion can be made for example from a metal or a thermosetting plastic material. In the context of mounting, that spacer portion is mounted between the temperature-resistant adaptor plate on which the inductive ballast is mounted and the substructure to which the ballast box is fixed or on which it is disposed. In that situation the spacer portion is fitted into the passage opening in the base and thus passes through the base in order to sit directly on the substructure. In the case of a considerable increase in the temperature of the ballast, even upon a change in the configuration of the ballast box, that does not involve a change in the position of the ballast; the VDE Directive is accordingly met by the ballast box according to the invention.

Preferably the spacer portion is provided directly on the adaptor plate in order to avoid an additional mounting step.

It has proven to be particularly advantageous for the adaptor plate to be in the form of an adaptor sheet portion and for a plurality of spacer portions to be provided on the adaptor sheet portion; for example the spacer portions can be in the form of individual tongues provided directly on the adaptor sheet portion. In the individual case those tongues which function as spacer portions can be designed in such a way that they can be bent over.

In addition the ballast box according to the invention can also have a further cover for covering the connecting elements, which can be connected to the base releasably separately from the cap.

The invention is described hereinafter by means of a preferred embodiment by way of example, with reference to the accompanying drawings in which:

Figure 1 shows a perspective view of the ballast box according to the invention,

Figure 2 shows a perspective view of the base from above,

Figure 3 shows a view on an enlarged scale of the detail III in Figure 2,

Figure 4 shows a view on an enlarged scale of the detail IV in Figure 2,

Figure 5 shows a perspective view of the base from below,

Figure 6 shows a perspective view of the cap,

Figure 7 shows a perspective view of the cover, and

Figure 8 shows a perspective view of the adaptor sheet portion according to the invention.

Accordingly the ballast box comprises a base 1, a cap 2 which can be fitted releasably on to the base and a cover 3 which can also be fixed releasably to the base 1. Both the cap 2 and also the cover 3 are of a dome-like configuration and extend over the base 1 in order thereby to provide between the top side of the base 1 and the cap 2 and the cover 3 an installation space for receiving the ballasts and other electronic units. Arranged within those spaces is an adaptor sheet portion 4 which is not visible in Figure 1 (see Figure 8). The cover 3 extends over the connecting region of the ballast box for connection of the cables (not shown).

Preferably thermoplastic materials, in particular PC, ABS, PA, PBT, POM and blends thereof as well as further thermoplastic materials are used for manufacture of such a ballast box. The parts are either injection moulded or shaped.

Referring to Figures 2 to 4 the base 1 comprises a plate-shaped element with a peripherally extending longitudinal rim 1a which in the installation position projects upwardly in transverse relationship with the surface of the base 1. Integrally formed at each of the front and rear regions of the base 1 are two latching hooks 1b which project upwardly transversely from the surface of the base 1. At their upper ends those latching hooks 1b are provided with latching projections which in the

installation position engage into corresponding undercut configurations on the cap 2.

5 Provided in the bottom of the base 1 in mutually spaced relationship are a total of four passage openings 1c which each are of a rectangular geometry.

It will be seen from Figures 6 and 7 that both the cap 2 and also the cover 3 are each also provided with latching hooks 2a and 2b respectively which are integrally formed thereon for connection to and for latching engagement into corresponding openings on the base 1.

10 Figure 5 shows a perspective view of the adaptor plate 4 according to the invention for fixing an inductive ballast (not shown) in the ballast box. For that purpose the ballast is fixed on the surface of the adaptor plate 4.

15 The adaptor plate 4 which is stamped out of a metal sheet is provided with various openings and holes. What are essential for the invention are the four tongues 4a which are stamped out at a spacing from each other at the edge region and which perform the function of the spacer portions according to the invention. Upon assembly those tongues 4a are bent downwardly from the position shown in Figure 8 through 90° out of
20 the plane of the adaptor plate 4. The tongues can now be fitted into the passage openings 1c in the base upon fitment of the adaptor plate 4 on to the base 1 and they are thus seated directly on the substructure in the installation position. Various bores 4b for grounding of the connecting terminals are provided at the ends of the adaptor plate. In addition at the
25 ends the adaptor plate has elongate openings 4c which serve as undercut configurations for engagement of the latching hooks provided for mounting the adaptor plate to the base 1.

Even if the inductive ballast in the ballast box is heated to such a severe extent that the surrounding plastic housing of the ballast box melts,
30 the position of the ballast does not change as it is seated on the metal adaptor plate 4 which is supported by way of the tongues 4a directly on the substructure without being seated on the base 1 of the ballast box.

List of references

- 1 base
- 1a rim
- 1b latching hook
- 1c passage opening
- 2 cap
- 2a latching hook
- 3 cover
- 3b latching hook
- 4 adaptor plate
- 4a tongue
- 4b bore
- 4c opening

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1. A ballast box comprising a base (1) for fixing to a substructure, a cap (2) which can be connected to the base (1) and which covers it in the installation position and a temperature-resistant adaptor plate for fixing electronic components in the ballast box, characterised in that a passage opening (1c) is provided in the base (1) and there is provided a temperature-resistant spacer portion which in the installation position can be fitted into the passage opening (1c) and on to which the adaptor plate can be fitted in the installation position.

2. A ballast box according to claim 1 characterised in that the spacer portion is provided on the adaptor plate.

3. A ballast box according to claim 2 characterised in that the adaptor plate is in the form of an adaptor sheet portion (4) and that a plurality of spacer portions are provided on the adaptor sheet portion.

4. A ballast box according to claim 3 characterised in that the spacer portions have tongues (4c) which are provided on the adaptor sheet portion (4).

5. A ballast box according to one of the preceding claims characterised in that it has a cover (3) which can be releasably connected to the base (1).