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FLAMEPROOF ELECTRICAL ENCLOSURES LTD

Holes In Enclosures

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Concern has been expressed in some quarters about the lack of precise information in respect of the provision of holes, primarily for cabling arrangements, who may provide them and who is responsible for their compliance with the certification documentation. Like so many questions which are asked, the answer must begin "well it all depends". In this case, it depends firstly on which concept of protection is under discussion, because the philosophies have developed separately and depend primarily on the criticality of the fit between the holes and the items which fit within them. In this respect the Intrinsic Safety concept, demands only a degree of ingress protection for the enclosure of at least IP 20 and because of this need not form part of this article. The Increased Safety concept demands a degree of ingress protection of at least IP 54 and although the Flameproof Concept does not refer to any degree of ingress protection at all, it does demand flamepaths between the mating items so that the dimensions of these parts must be very closely controlled.

Taking the lattermost first, this part of the reply is relevant to:

the flameproof concept

As far as EECS is concerned, the responsibility for ensuring that any piece of certified apparatus complies with the certification documentation lies with the organisation to whom the certificate is issued, and a great deal of trouble has been taken by the certificate holder to prove to the certification service that they are capable of doing just this. Of course, there will be instances when, for example, on arrival on site, an insufficient number of holes are available for cable entry devices and the question arises as to how additional holes can be provided. The responsibility for

maintaining the certification status of the apparatus is always that of the certificate holder, who can opt for one of a number of solutions.

The holder can:

- (a) insist on the unit in question being returned to the factory for modification;
- (b) arrange for his representative to oversee the modification on site;
- (c) arrange for his representative to inspect the modification after it has been carried out by the purchaser.

If the purchaser chooses to carry out the modification without reference to the manufacturer, he then accepts responsibility for the conformity of the apparatus to the required standard. Under these circumstances the certificate may no longer be applicable to the modified apparatus.

The philosophy for empty flameproof enclosures which are covered by Component Certificates or Approvals is slightly different.

As conceived, the purpose of the Component Certification was to provide an opportunity for a manufacturer (A), who specialised in the production of flameproof enclosures to supply to a second manufacturer (B), who had neither the facilities nor the expertise to produce flameproof enclosures himself but whose specialism lay in some other area, to house equipment in a flameproof box and become the certificate holder with, if the schedule of limitations were followed, very little trouble and expense.

Under these conditions, all the machining operations on the enclosure are carried out by manufacturer A, even down to the holes for the rivets which are to be used to affix the labels and manufacturer B merely installs his equipment, affixes the label and sells the

entire item as his own product. The responsibility for the compliance of the enclosure with the requirements of the flameproof Standard remains with manufacturer A.

Instances may arise, however, when manufacturer B, may wish to carry out some machining operation on the enclosure himself. This, as the owner of the enclosure, he is perfectly entitled to do but he must realise that he then immediately becomes responsible for all the quality assurance aspects of the entire flameproof enclosure himself, and must be able to convince the certification service of his ability to do so.

A less restrictive approach may be used for:

the increased safety concept

During the certification process the position, size and number of holes for cable entry are assessed for their influence on the strength of the enclosure. Certain areas of the enclosure eg gland plate, side walls or ends of luminaires, are designated for the provision of holes. The position, number and size of the holes will usually be specified in terms of the minimum amount of enclosure wall remaining when the hole has been drilled. This minimum condition will have been assessed during certification. Using this information which is supplied by the manufacturer of the enclosure and following the code of practice BS 5345 Parts 1 and 6 for the installation of cables, paying particular attention to the degree of protection IP 54 of the enclosure, the user may machine the required entries.

The philosophy involved here is that the fit of the thread is not of paramount importance and the reliable machining and measurement of simple holes is within the ability of most users.