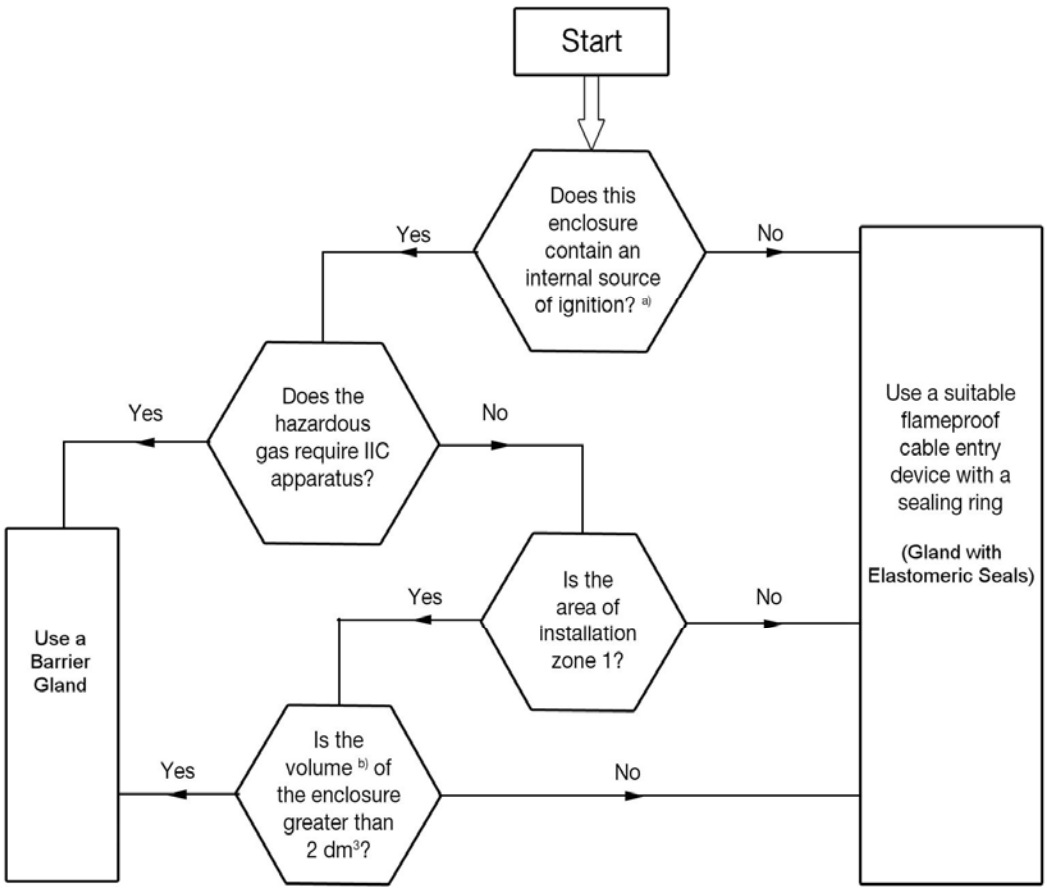
Barrier Glands …….

Barrier glands have been a necessary evil for many years. When a specifying engineer is confronted with an application that requires their use they typically get a sinking sensation. The primary problems are that they are expensive, require a higher level of installation expertise and that the total installation time is a great deal longer than for glands featuring an elastomeric Exd Flameproof seal.

The use of Exd Flameproof enclosures has declined with the advance of Exd components and Exe Increased Safety equipment. Consequently the use of barrier glands has dropped as well as the understanding of where they must be used to maintain the integrity of an Exd installation.

It has become a common problem that glands featuring an elastomeric Exd seal are used where a barrier gland is required. This is easy to understand, if you consider the specification of a typical gland featuring an elastomeric Exd seal it will confirm that the gland is suitable for use in ATEX categories 2G (Zones 1 & 2), gas group IIC and as passive components they have no temperature classification limitations. However when the installation code: *IEC 60079-14 Electrical Apparatus for Explosive Gas Atmospheres Part 14 Electrical Installations in Hazardous Areas (other than mines) 3rd Edition 2002-10*, is considered it is clear that a more detailed examination of the application should be made.



The chart translates into specifiers having to answer these questions in order to establish whether or not they should use a barrier gland:

Q1 Is the cable substantially round and compact and can it be deemed to be effectively filled and that the fillers, if any, are non-hygroscopic ?
If not, a barrier gland must be used
If yes, go to Q2

Note:
This is generally the toughest question to answer as cable companies do not declare their cable's compliance and it is left to the specifiers to decide whether or not an explosion within the enclosure could be transmitted to the surrounding atmosphere through the cable.

Q2 Does the equipment have an Internal Source of Ignition?
If no, a gland with an elastomeric seal may be used.
If yes, go to Q3

Q3 Does the hazardous gas require IIC Apparatus?
If yes a barrier gland must be used.
If no, go to Q4

Q4 Is the installation on Zone 1?
If no, a gland with an elastomeric seal may be used.
If yes go, to Q5

Q5 Is the Enclosure Volume greater than 2 litres?
If no, a gland with an elastomeric seal may be used.
If yes, a barrier gland must be used

Peppers fully appreciate that barrier glands are rightly considered to be a necessary evil. They have developed the CR range of barrier glands with the aim of taking a good deal of pain out of their use.

The greatest advance has been the development of a compound which, when used at a typical ambient (21°C), allows the conductors to be disturbed without creating voids in the compound chamber, allowing termination within the equipment after only one hour. The equipment can be energised after only four hours. This provides a significantly quicker installation than existing designs on the market, leading to substantial cost savings.

The installation of the CR range is far simpler than any competing barrier glands, the compound chamber can be inspected fully and as a further cost saving the CR range chamber has an acceptance range up to 17% greater than other barrier glands currently on the market.

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