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FLAMEPROOF

ENCLOSURE OF ELECTRICAL

APPARATUS

BRITISH STANDARDS INSTITUTION

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BRITISH STANDARD SPECIFICATION

FLAMEPROOF ENCLOSURE OF ELECTRICAL APPARATUS

B.S. 229 : 1946

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THIS BRITISH STANDARD having been approved by the Electrical Industry Committee and endorsed by the chairman of the Engineering Divisional Council, was published under the authority of the General Council on 13th May, 1946.

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The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

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CO-OPERATING ORGANISATIONS

The Electrical Industry Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organisations:

Admiralty
Air Ministry
Central Electricity Board
Electricity Commissioners
General Post Office
*Ministry of Fuel and Power
*Ministry of Labour (Factory Dept.)
Ministry of Supply
Ministry of Works
National Physical Laboratory
Association of Consulting Engineers
*British Electrical & Allied Manufacturers' Association
*British Electrical & Allied Industries Research Association
*British Electrical Development Association
*Cable Makers' Association
Electric Lamp Manufacturers' Association
Electric Light Fittings Association
Electrical Contractors' Association (Incorporated)
Incorporated Association of Electric Power Companies
*Incorporated Municipal Electrical Association
*Institution of Electrical Engineers
London Electricity Supply Association
Provincial Electric Supply Association
Public Service Transport Association
Railway Companies of Great Britain
Radio Industry Council

The Government departments and scientific and industrial organisations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard.

Home Office
Fire Offices Committee
Association of Mining Electrical Engineers
Lloyds Register of Shipping
Mining Association of Great Britain
Institute of Petroleum

FOREWORD

Earlier editions of this specification, published in 1926, 1929 and 1940 provided only for the Coal Mining Industry, where the explosion hazard is that due to the inflammable gas methane, or firedamp.

When the edition of 1940 was published it was described as Part 1, and it was intended that Part 2 should be issued to cover various inflammable gases and vapours which are used in other industries, as soon as the necessary information was available.

In the interval, research has been carried out by the British Electrical and Allied Industries Research Association, in collaboration with the Safety in Mines Research Board, into the characteristics of a number of inflammable gases and vapours for which an adequate body of data was formerly lacking, whereby it is now possible to prescribe the maximum permissible gaps for flameproof joints for those gases and vapours, as set out in table 1 of this edition.

To avoid repetition and cross references in the specification, it was decided that, instead of issuing Part 2 of the specification as a separate document, it would be better to reprint B.S. 229 with such additions and alterations in the text as would suffice to make it complete with respect to all those inflammable gases and vapours for which the necessary information has now been obtained.

It will be seen that table 1 now prescribes maximum permissible gap dimensions in three groups, each covering one or more inflammable gases or vapours, and that in the fourth group are placed those gases and vapours for which the permissible gap, after making due allowance for a factor of safety, is considered to be too small to be practicable according to the ordinary methods of production.

It is intended that the list of gases and vapours included in any group shall be added to from time to time, when information becomes available.

This British Standard requires reference to the following:

B.S. 28. Dimensions of British Standard Whitworth (B.S.W.) black bolts and nuts, studs, locknuts and washers.
B.S. 31. Steel conduits and fittings for electrical wiring.
B.S. 32. Steel bars for the production of machined parts for general engineering purposes.
B.S. 190. Dimensions for British Standard Whitworth (B.S.W.) bright hexagon bolts, set-screws and nuts, split-pins, washers and studs.
*B.S. 191. Dimensions for British Standard Fine (B.S.F.) bright hexagon bolts, set-screws and nuts, split-pins, washers and studs.
*B.S. 193. British Standard Whitworth (small hexagon) (B.S.W.S.) bright hexagon bolts, nuts and set-screws, split-pins, washers and studs.
B.S. 239. White pigment for paints.
B.S. 292. Dimensions of ball and roller bearings.
B.S. 789. Steel tubes and tubulars, gas (light), water (medium), steam (heavy) qualities.
B.S. 803. Solid bituminous filling compounds for cable boxes on systems up to and including 11 000 volts.
B.S. 889. Flameproof electric lighting fittings for use in coal mines etc.
B.S. 1259. Intrinsically safe electrical apparatus and circuits.

* See B.S. war emergency specification B.S. 1083.

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BRITISH STANDARD SPECIFICATION FOR THE

FLAMEPROOF ENCLOSURE OF ELECTRICAL APPARATUS

FOR POWER AND LIGHTING PLANT

1. SCOPE

SCOPE

1. This specification is intended both to define the performance required from the flameproof enclosure of electrical apparatus and to prescribe those features of design and construction which are considered to be essential or desirable to secure reliability in service.

Pending the revision of existing British standards for particular types of flameproof apparatus to make them accord with this specification where applicable, this specification shall take precedence over the individual specifications for apparatus where there is any conflict as regards flameproof requirements.

For the purposes of this specification various inflammable gases and vapours, which constitute an explosion hazard in industry, are placed in four groups, according to the maximum permissible dimensions of joint gaps and other openings in the enclosure of the apparatus, as set out in table 1, in clause 4.

It is intended to add to this list of gases and vapours, from time to time, when the necessary information is available.

It will be seen that in group IV are placed those gases and vapours with regard to which the maximum experimental safe gap, as determined by research, is too small to be practicable for the generality of apparatus and to justify certification on the basis of type tests.

NOTE 1. It is not intended that this specification shall be applicable to apparatus certified as flameproof by the recognised testing authority (see clause 25) before the date of publication, but where provisional reports have been issued by that Authority for apparatus now placed in group III it is to be understood that certificates when issued in substitution for such provisional reports will require acceptance of the dimension of 0·008 in. in place of the dimension of 0·010 in. previously permitted for such apparatus.

NOTE 2. This specification is not intended to apply in detail to such apparatus as bells and telephones and their accessories, but the same principles of construction are applicable, unless the apparatus already complies with the requirements of B.S. 1259 as regards intrinsic safety.

2. DEFINITION OF FLAMEPROOF ENCLOSURE

DEFINITION OF FLAMEPROOF ENCLOSURE

2. A flameproof enclosure for electrical apparatus is one that will withstand, without injury, any explosion of the prescribed inflammable gas that may occur within it under practical conditions of operation within the rating of the apparatus (and recognised overloads, if any, associated therewith), and will prevent the transmission of flame such as will ignite the prescribed inflammable gas which may be present in the surrounding atmosphere.

NOTE 1. *Inflammable gases.* Inflammable gas may originate within the enclosure of particular kinds of apparatus, such as gases derived from the cracking of hydrocarbon

oil under the action of the electric arc in oil-immersed switch and control gear. The inflammable gases within and without the enclosure may differ in such cases.

Due consideration to this condition has been given in this specification, limiting dimensions appropriate to these different inflammable gases being prescribed for joint surfaces and other openings in the flameproof enclosure.

NOTE 2. *Control of circuit.* As the condition of flameproof enclosure is limited to operation within the rating of the apparatus, means should be provided to ensure that the highest recognised overload of the apparatus, *or in the case of circuit breakers, the rated breaking capacity*, shall not be exceeded.

The consequences of a destructive short circuit within the apparatus must be guarded against by the provision of means to ensure the automatic interruption of the short circuit elsewhere before the risk of destruction of the enclosure supervenes.

NOTE 3. *Maintenance of structure.* As the condition of flame-proofness depends upon maintenance of the structure in its designed condition, including the filling of spaces intended to be occupied by insulation compound or by oil, and maintenance of the latter at the correct design level, it is essential that due attention shall be paid to this condition at all times, and that corrosion, deformation, or wear of components shall be remedied before this results in such enlargement of any designed openings or gaps in the enclosure, as will exceed the limits laid down in this specification.

NOTE 4. *Oil immersed resistors.* If an oil immersed starting resistor is left in circuit, or is operated more frequently than the design provides for, the temperature of the oil may increase dangerously and vapour may issue through openings of the prescribed dimensions in the enclosing case, at such a temperature as to ignite spontaneously when mixed with air.

The prevention of such misuse is in the hands of the user.

NOTE 5. *Normal operating temperature.* The normal operating temperature of some apparatus, in particular resistors, space heaters and lighting fittings, may exceed the safe temperature for certain inflammable media. For example, the Cellulose Solutions Regulations, 1934 (S.R. & O. 1934, No. 990) put the danger point for the solid residue at 180°F. (82°C.). There may be other instances where precautions should be taken, e.g. with regard to the vapour or ethyl ether. In cases of doubt, expert advice should be sought.

3. ELECTRICAL FEATURES, RATING AND PERFORMANCE

DESIGN OF APPARATUS

3. In electrical features, rating and performance, the design of the apparatus shall not be below the general requirements of the current British Standard for such apparatus.

Where the complete unit comprises two or more distinct pieces of electrical apparatus, the several components shall not be below the general requirements of the corresponding current British Standards.

4. GROUPING OF GASES AND GAP DIMENSIONS

GROUPING OF GASES AND GAP DIMENSIONS

4. For the purposes of this specification, inflammable gases and vapours met with in industry are arranged in groups, with corresponding maximum permissible dimensions for gaps between joint surfaces and for other openings in the structure, such as shaft glands, as set out in table 1.

Class A Dimensions (columns 3 and 4) apply to apparatus normally filled with air:

(i) Gaps between joint surfaces (see clause 7) and diametral clearances for operating rods and spindles (see clause 8).

(ii) Diametral clearance for shaft glands for motors and generators, other than labyrinth glands (see clause 9).

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Class B Dimension (column 5) applies to apparatus normally containing hydrocarbon oil, or parts of apparatus in gaseous communication therewith :

(iii) Gaps between joint surfaces (see clause 7) and diametral clearance for operating rods and spindles (see clause 8).

TABLE 1. GROUPING OF INFLAMMABLE GASES AND VAPOURS AND CORRESPONDING GAP DIMENSIONS

1	2	3	4	5
Group	Inflammable gas or vapour	Maximum permissible dimension (inch)		
		Class A (i)	Class A (ii)	Class B (iii)
I	Methane (*firedamp*)	0·020	0·020	0·006
II *a*	Blast-furnace gas	0·016	0·016	0·006
b	Propane	,,	,,	,,
	Butane	,,	,,	,,
	Pentane	,,	,,	,,
	Hexane	,,	,,	,,
	Heptane	,,	,,	,,
	Iso-octane	,,	,,	,,
	Decane	,,	,,	,,
c	Benzene	,,	,,	,,
	Xylene	,,	,,	,,
	Cyclo-hexane	,,	,,	,,
d	Acetone	,,	,,	0·006
	Ethylene	,,	,,	*
	Methyl-ethyl-ketone	,,	,,	*
	Methyl acetate	,,	,,	*
	Ethyl acetate	,,	,,	*
	Propyl acetate	,,	,,	*
	Butyl acetate	,,	,,	*
	Amyl acetate	,,	,,	*
	Methyl alcohol	,,	,,	*
	Ethyl alcohol	,,	,,	*
	Iso-butyl alcohol	,,	,,	*
	Butyl alcohol (normal)	,,	,,	*
	Amyl alcohol	,,	,,	*
	Ethyl ether (see clause 2, Note 5)	,,	,,	*
III	Coal gas (town's gas)	0·008	0·016	*
	Coke-oven gas	,,	,,	*
IV	Excluded gases and vapours (see clause 1) Acetylene Carbon disulphide Hydrogen	see Note 3 on page 11		

See Amdt. No. 2.

See Amdt. No. 1.

* No data available at present, see Note 1.

NOTE 1. The dimension of 0·006 in. in column (5), heading (B) (iii), of table 1 was adopted by the recognised testing authority in 1931 upon information then available, with respect to methane or pentane in the surrounding atmosphere, as affording an adequate margin of safety, hydrogen being used for the internal mixture.

In some experiments, with particular apparatus, a maximum experimental safe gap of 0·006 in. was found when using oil gas inside and methane outside the experimental vessel.

The oil-gas consisted of a mixture of 85 per cent hydrogen and 15 per cent acetylene ; 19 per cent of the mixed gas with air was used inside and 8·5 per cent methane with air outside the vessel.

The prescription of 0·006 in., as the permissible gap with respect to the gases and vapours now included in group II *a*, *b* and *c*, and for acetone, in group II *d*, with the omission of prescription elsewhere in groups II and III, column 5, is provisional pending the results of further research.

NOTE 2. For particulars of the conditions under which the tests, as to flameproof enclosure, are now made, refer to Appendix B.

NOTE 3. Regarding the gases and vapours in column (2), the following comments are added, for information :

Group I. Methane, the major constituent of firedamp, occurs naturally in coal mines.

Group II. Blast-furnace gas, sub-class *a*, is of varying composition, the major inflammable constituent being carbon monoxide, about 33 per cent, with nitrogen, about 56 per cent, as an inert diluent.

The group of hydrocarbons in the sub-class *b*, being products of the distillation of crude oil, are of concern mainly in the petroleum industry and to users of petroleum.

Sub-class *c* includes liquids derived from coal tar, which are used in industry. The group of solvents in sub-class *d* have various applications in industrial processes, e.g. as cellulose solvents, in the manufacture of paints and varnishes and for other purposes.

Group III. Coal gas (town's gas) and coke-oven gas are of varying composition. An average sample of coal gas may contain up to 57 per cent hydrogen and 25 per cent methane, as the important inflammable constituents. Coke oven gas may contain up to 55 per cent hydrogen.

Group IV. The maximum safe gap, as determined experimentally for these gases, is too small to be practicable for the class of apparatus to which flameproof enclosure is commonly applied.

NOTE 4. It is intended that the list of gases and vapours in these groups shall be added to when information is available. *See also Appendix F.*

NOTE 5 - See Amdt. No. 2.

5. DESIGN AND CONSTRUCTION OF FLAMEPROOF ENCLOSURE

INTERNAL SHORT CIRCUIT, OR OTHER FAILURE OF INSULATION

5. In view of the risk of damage to the flameproof enclosure which might result from an internal short circuit or other failure of insulation, adequate attention to relevant details of design and manufacture is necessary.

Insulating material shall be such that it does not readily absorb moisture, is not unduly brittle and does not carbonise readily.

As a precaution against the opening of a flameproof compartment, for examination or for any other purpose while the contents are live, whereby the risk of arcing at exposed contacts may be introduced, warning inscriptions upon doors or cover plates giving access to the contents are required, as follows :

(i) Switchgear, control gear or fusegear without an associated isolating switch, or with such an isolator in the same compartment of the enclosure as the switchgear, control gear or fusegear ; an inscription warning against opening the cover of the switchgear, control gear or fusegear unless the circuit is isolated elsewhere.

(ii) Switchgear, control gear or fusegear with an associated isolating switch contained in a separate compartment of the enclosure ; an interlock

NOTE. For premises to which the Factories Act, 1937, applies, the inclusion of an isolator in the same compartment as the switchgear, control gear or fusegear which it protects, is not generally acceptable.

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between the isolator and the cover of the protected gear and an inscription warning against opening the cover of the isolating switch unless the circuit is isolated elsewhere.

MECHANICAL STRENGTH OF THE ENCLOSURE

6. The containing case shall be of metal, except inspection windows and cover glasses where necessary, but insulating materials carrying terminals for the electrical circuit may be used as barriers to cover openings in the wall of the structure, provided that the insulating materials are of adequate quality and thickness.

The structure as a whole shall be designed to withstand rough usage without fracture or such deformation as might imperil the enclosure and, in particular, projecting parts or attached accessories, unless adequately shielded, shall be so designed.

The enclosure shall be capable of withstanding an internal explosion, as provided for in clause 2, with an adequate factor of safety (see clause 23).

Inspection windows and cover glasses shall also be capable of withstanding such impact and other tests as may be provided for in this or other relevant British Standards (see clause 10).

JOINTS

7. All joints in a flameproof enclosure between compartments or components, or between covers and compartments, shall be either flanged joints, spigoted joints or screwed joints, or a combination of such joints, without the intervention of any loose or perishable packing, except as provided for later in this clause.

All such joints shall fit as closely as the method of manufacture permits, and in no case shall the gap between joints at any part exceed the limits given in table 1, clause 4, for the group and class for which the apparatus is intended.

For compound-filled compartments where, for technical reasons, joint packing is necessary, such may be accepted, provided that any conductors in the compartment are completely covered with compound applied during the process of manufacture, and that the structure is capable of withstanding an internal pressure of 50 lb. per sq. in. above atmospheric pressure.

For oil-filled compartments where, for technical reasons, joint packing is necessary, such may be accepted, provided that the packing is not relied on to complete the flameproof joint.

For requirements as to cable sealing and dividing boxes and conduit stopper boxes, see clause 20.

See Amdt. No. 3.

~~The breadth of all joints, or the length of the path through or across~~ any joint surface or opening in the structure, shall not in general be less than 1 in. where the volume of the empty casing exceeds 100 cu. in. or ¾ in. for smaller casings, but ½ in. may be accepted for such apparatus as bells and their accessories or parts of telephones. For operating rods and spindles, refer to clause 8; for shafts and bearings of motors and generators, refer to clause 9.

For close metal-to-metal joints the presence of bolt holes may be ignored in determining the breadth of the joint. The edge of the hole shall not, in general, ~~be less than ⅜ in. from the inner edge of the joint surface.~~

~~For spigot joints the length of the path may be measured over the spigot~~ and flange together, provided that both spigot and flange portions are continuous.

In measuring the length of path over a screwed joint, the distance in a straight line across the threads shall be taken.

OPERATING RODS AND SPINDLES

8. *a.* Where an operating rod or spindle passes through the wall of a flameproof enclosure it shall be of metal and it shall enter through a hole not less than 1 in. long, fitting as closely as operating conditions permit. In no case shall the diametral clearance between rod and hole exceed the dimensions given in table 1 for the group and class for which the apparatus is intended.

b. If a sleeve or bushing gland is provided for the passage of the rod or spindle, it shall be of metal and shall be attached to the wall of the enclosure so that it cannot readily become detached, and if subject to wear it shall be arranged so that it may be replaced.

c. If an operating rod or spindle is intended for such continuous or repeated use as would be likely to result in rapid wear of a plain spindle or of the bushing, special means shall be provided to prevent such wear, or the requirements of clause 9 (except 9*f*) shall be substituted for the requirements of this clause.

d. Where a stuffing box or packed gland is required, this shall be provided in addition to, and not in substitution for, the plain hole or sleeve, or bushing gland.

SHAFTS AND BEARINGS FOR MOTORS OR GENERATORS (See Appendix A *d*)

See Amdt. No. 3.

~~9. *a.* Where the shaft of a motor or generator passes through the end shield,~~ a flameproof gland ~~shall be provided, and it shall be designed~~ so that it shall not be subjected to wear due to decentralising or wear of the bearings, up to ~~the limit that can occur in practice.~~

~~*b.* For association with machines having ball and roller bearings, either~~ a plain gland or a labyrinth gland shall be used.

b. A plain gland may be either fixed in relation to the end shield or it may be floating upon the shaft and permanently spaced therefrom by an auxiliary ball or roller bearing to carry the gland.

~~*c.* For association with machines having sleeve bearings, either a labyrinth gland or a floating gland shall be used.~~

c. Where a plain gland is used, the length of the gland, exclusive of grease seals, shall be not less than 1 in. and the diametral clearance shall not exceed the dimension given in table 1 for the group for which the apparatus is intended. In no case shall the diametral clearance be less than 0·0075 in. In assessing the length of the gland, the lands between the grease grooves may be included at the discretion of the testing authority.

d. Where a plain gland, either fixed or floating, is used in apparatus intended for group III, in table 1, the eccentricity and/or looseness of fit of all parts, which may affect the clearance between the shaft and the gland, shall not in the aggregate be sufficient to cause the gland to be eccentric with the shaft to such an extent that the radial gap can exceed 0·012 in. at one side or can be less than 0·003 in. on the opposite side, when all the parts are finally assembled. The eccentricity and the clearance, if any, in the bearing

New sub-clause d – see Amdt. 3.

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shall be included for this purpose. An adequate and approved method of gauging the parts concerned shall be used to ensure that these requirements are complied with.

g. Where a labyrinth gland is used, the dimensions shall be such as may be approved by the recognised testing authority for the particular application.

h. Ball bearings and parallel roller bearings shall comply with the requirements of B.S. 292, with respect to the permissible error due to eccentricity.

~~NOTE. Ball or roller bearings are to be preferred to sleeve bearings. Typical illustrations of a plain gland, a labyrinth gland, and a floating gland are shown in figs. 18, 19 and 20 respectively.~~

WINDOWS (OTHER THAN PROTECTING COVERS FOR LAMPS)

10. *a.* Glass windows shall have a minimum thickness of ¼ in. and the type and thickness shall be selected to withstand with an adequate factor of safety the explosion pressure, having regard to the size of the enclosure and the dimensions of the window.

Glass windows shall also be capable of withstanding a blow equivalent to that which would be struck by a 4 lb. weight falling through a distance of 6 in. and having at the point of impact a hardened steel hemisphere of 1 in. diameter.

NOTE. 1. Substitutes for glass may be considered when evidence of their suitability is available.

NOTE 2. For requirements as to cover glasses for lighting fittings refer to the appropriate British Standard, e.g. B.S. 889.

b. Typical accepted methods of fixing glass windows are given in Appendix A, (*a*) and these may be either of the cemented or non-cemented type.

(i) *Cemented type.* The glass window shall be cemented into a separate detachable metal frame, so designed that a window complete in its frame can be replaced without any cementing having to be done on site.

Where, as in the instance of an instrument housing with a detachable front cover plate, the cover plate serves, substantially, the purpose of a detachable mounting, the glass window may be cemented directly into the cover plate.

The cement employed shall be approved by the testing authority and may be any of the following kinds:

(1) Litharge and glycerine.
(2) Calcium sulphate.
(3) Any other cement.

NOTE. Refer to Appendix C for information as to the purpose, choice and use of certain cements.

Any fixing screws on the outside of the detachable frame for clamping to the flameproof enclosure must be in recessed holes so that the screw heads do not stand proud of the surface.

The glass window shall be clamped into its frame, either by a metal clamp fixed by screws, which shall not be accessible from the outside (see fig. 1(*a*), (*b*), (*c*)), or by a ring screwed into a recess in the frame (see figs. 1(*d*) and 1(*e*),), so arranged that if accessible from the outside, the edge of the hole in the frame shall be peened or spun over the ring to prevent removal by unauthorised persons.

With either type of clamp ring there shall be no clearance between the joint surfaces of clamp ring and frame after final clamping.

The breadth of the seating between the outer periphery of the glass and the inner periphery of the frame, and between the outer periphery of the glass and the inner periphery of the clamp ring shall in each case be not less than 5/16 in.

The window and its frame and clamp ring shall be designed and mounted in such a manner that the length of path between the air inside the enclosure, and outside of the enclosure, i.e. over the cemented surface of the glass or over any metal to metal joint which secures the frame to the enclosure, shall not be less than ~~¾~~ in. ~~for a volume of the empty casing up to and including 100 cu. in., or 1 in. for a volume of the empty casing exceeding 100 cu. in.~~ The cemented joint must be made in such a manner that it fills the space entirely without the possibility of any air gaps. The distance between the faces of the metal-to-metal joint at the point where the frame is secured to the enclosure shall not exceed the values in table 1 for the group and class for which the apparatus is intended.

(ii) *Non-cemented type.* The glass window may be mounted directly in the wall or cover of the flameproof enclosure, no separate detachable frame being necessary in this case (see figs. 2(*a*) and 2(*b*), Appendix A). It shall be clamped in position by a metal ring fixed by screws, the heads of which shall only be accessible from the inside of the flameproof enclosure, the cover being removed to give such access when replacing a window.

~~The breadth of the seating (dimension X, fig. 2(*b*)) between the glass~~ and the wall or cover in which it is mounted shall be not less than:

¾ in. for a volume of the empty casing up to and including 100 cu. in.
~~1 in. for a volume of the empty casing exceeding 100 cu. in.~~

The distance between the two surfaces of joint over such a length shall not exceed the values given in table 1 for the group and class for which the apparatus is intended.

An elastic seating, e.g. a fabricated cork gasket cemented to the surface of the glass, may be accepted by the testing authority if satisfied that the seating is unlikely to be displaced or to disintegrate.

c. Clamping screws. Distances between centres of adjacent clamping screws (dimension A, figs. 1 and 2) shall not exceed 2½ in. measured along a line drawn through the centres at a constant distance from the periphery.

PARTITIONS

11. Where an enclosure comprises two or more communicating compartments, the opening or openings between the compartments shall be large enough to preclude abnormal explosion pressures resulting from pre-compression of the gas in one compartment following ignition of the gas in another compartment.

Where the enclosure comprises two or more separate flameproof compartments the requirements of this specification shall apply to any partitions forming such compartments and to the passage of terminals or of operating rods or spindles through such partitions.

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