

SPECIFICATION

Requirements for Glass Faces
and Bulbs (Oscilloscopes)

REF No. JG C042

ISSUE No. 4

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TYPE REF.

1.0 Definition of Defects

1. BUBBLE An enclosed gas blister contained within the thickness of glass 0,5mm diameter or larger.
2. SEEDS A multiplicity of small bubbles under 0,5mm diameter.
3. STONE A piece of furnace brick, clay or other unmelted material embedded in the glass.
4. OPAQUE SPOT OR CARBON A defect in or on the glass through which light will not pass.
5. CORD OR STRING Boundary lines contained within the thickness of glass which may or may not reflect, distort or occlude light passing through.
6. SCRATCH Surface abrasion.
7. BRUISE A fissure in the glass which does not extend through the thickness.
8. CHIPPED The area of glass from which a portion has broken away.
9. PIT Indentation on the surface of the glass.

NOTE The Equivalent diameter of an elongated defect is $\frac{\text{length} + \text{width}}{2}$ = dia. of round defect.

2.0 Pressed Glass Faces, Backs and Flat Plates up to 150mm Dia. or Diagonal2.1 The screen shall be divided into two areas.

2.1.1 The central quality area (a) shall be 75% of total diameter or in the case of rectangular plates, 75% of the major and minor axis.

2.1.2 The outer area (b).

2.2 Acceptable Limits

<u>Defect No.</u>	<u>Area</u>	<u>Conditions for Acceptance</u>
1	a	None allowed
2,3,4 & 9	a	Max. total defects 8 comprising 2 of 0,5mm 4 of 0,35mm and 2 below 0,35mm or a combination of smaller defects not exceeding 8 in number. Minimum separation for all defects 10mm. Defects below 0,2mm dia. are not to be considered.
5	a	Permitted providing it does not distort, reflect or occlude light passing through.
6, 7 & 8	a	None
1	b	One bubble up to 1,5mm or two bubbles up to 1,0mm or five bubbles up to 0,5mm. Minimum separation 25mm.

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TYPE REF

<u>Defect No</u>	<u>Area</u>	<u>Conditions for Acceptance</u>
2	b	Maximum concentration of 4 per sq. cm. Maximum number 8.
3, 4 & 9	b	Two opaque spots, stones or pits up to 0,5mm dia. with minimum separation of 50mm from each other and any other defect. Defects below 0,2mm dia. are not to be considered.
5	b	Permitted, providing it does not distort, reflect or occlude light passing through.
6	b	Light scratches not longer than 10mm and not sufficiently deep to catch the fingernail or collect dirt are permissible.
7 & 8		Up to 3 permitted at the sealing edge only providing they do not exceed 4 mm in length or 2mm in width and there are no radial cracks associated with such defect.

2.3 General

- 2.3.1 Both Faces and Backs must conform to the dimensional limits as shown in the appropriate drawings.
- 2.3.2 Faces and Back must be free from cracks and distortions.
- 2.3.3 The distribution of glass throughout the components shall be such that when components are joined the completed Bulb shall withstand an external pressure difference of not less than 2 atmospheres.
- 2.3.4 The components shall have not more than 3 discs strain.
- 2.3.5 The components shall be unacceptable if broken blisters are present on either the inside or outside surface or such blisters are close enough to the surface to be broken by pressure from the thumbnail.

3.0 Blown Bulbs over 200mm diameter

- 3.1 The screen area shall be considered to be the maximum diameter at the closed end of the Bulb and divided into two areas.
 - 3.1.1 The central quality area (a) shall be 50% of the total diameter.
 - 3.1.2 The outer area (b).