

INSTRUMENT CATHODE-RAY TUBE

- 14 cm diagonal rectangular flat face
- domed mesh post-deflection acceleration
- symmetrical helix system for vertical deflection
- internal magnetic lens system for correction of orthogonality, astigmatism and eccentricity
- quick-heating cathode
- side contacts to deflection plates
- internal graticule
- high sensitivity and high brightness
- for oscilloscopes with up to 500 MHz bandwidth

QUICK REFERENCE DATA

| | | |
|----------------------------|----------------|--------------------------|
| Final accelerator voltage | $V_{g7(\ell)}$ | 24 kV |
| First accelerator voltage | V_{g2} | 3 kV |
| Minimum useful scan area | | 100 mm x 80 mm |
| Deflection coefficient | | |
| horizontal | M_x | 7,3 V/cm (max. 8,0 V/cm) |
| vertical | M_y | 2,9 V/cm (max. 3,0 V/cm) |
| Photographic writing speed | p.w.s. min. | 3 cm/ns |

OPTICAL DATA

| | |
|--------------------|-------------------------------------------|
| Screen | metal-backed phosphor |
| type | GH |
| colour | green |
| persistence | medium short |
| Useful screen area | ≥ 102 mm x 82 mm; note 1 (last page) |
| Useful scan area | ≥ 100 mm x 80 mm |
| Internal graticule | type 123; see Fig. 5 |

HEATING

Indirect by a.c. or d.c.*

| | | |
|-----------------------------------------------------------------------------|---------|--------|
| Heater voltage | V_f | 6,3 V |
| Heater current | I_f | 0,24 A |
| Heating time to attain 10% of the cathode current at equilibrium conditions | approx. | 5 s |

* Not to be connected in series with other tubes.



MECHANICAL DATA**Dimensions and connections** (see also outline drawings)

Overall length (socket included) ≤ 419 mm
 Faceplate dimensions $118 \pm 1,0$ mm x $98 \pm 1,0$ mm

Net mass approx. 1,2 kg

Base 12 pin, all glass, JEDEC B12-246

Mounting

The tube can be mounted in any position. It must not be supported by the socket and not by the base region alone. The reference points on adjoining edges of the faceplate (see Fig. 5) enable the tube to be mounted accurately in the front panel, thus providing optimum alignment of the internal graticule.

Accessories

Pin protector (required for shipping) supplied with tube
 Side pin protection band 3322 027 10200
 Socket with solder tags type 55594
 Socket with printed-wiring pins type 55595
 Side contact connector for ϕ 0,65 mm pin (2 required) type 55596 (cat. no. 9390 299 90002)
 Side contact connector for ϕ 0,45 mm pin (4 required) to be established
 Final accelerator contact connector connection to final accelerator electrode is made via an EHT cable attached to the tube
 Mu-metal shield to be established

FOCUSING

electrostatic

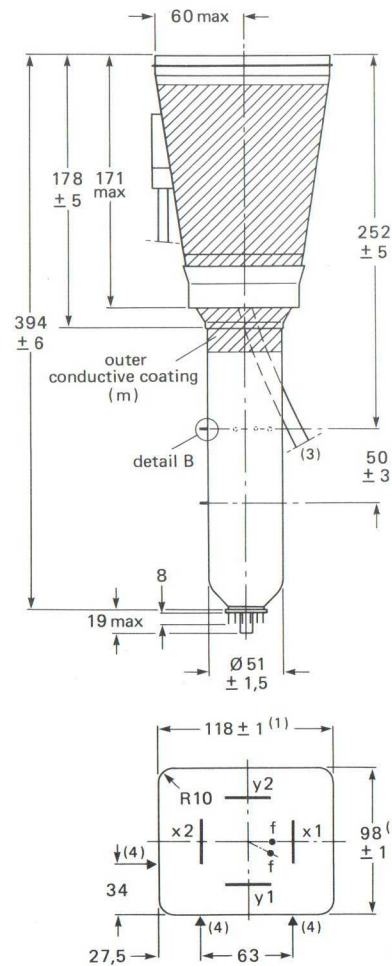
DEFLECTION

x-plates double electrostatic
 y-plates symmetrical
 Characteristic impedance of helix system symmetrical (helix system)
 Bandwidth of helix system (-3 dB) $(2 \times 165 \Omega) \pm 3\%$
 approx. 1000 MHz

CAPACITANCES

| | | |
|------------------------------------------------------------|---------------------|----------|
| x ₁ to all other elements except x ₂ | C _{x1(x2)} | 3,2 pF |
| x ₂ to all other elements except x ₁ | C _{x2(x1)} | 3,2 pF |
| x ₁ to x ₂ | C _{x1x2} | 3,0 pF |
| x ₁ to y ₁ | C _{x1y1} | < 0,2 pF |
| x ₂ to y ₁ | C _{x2y1} | < 0,2 pF |
| x ₁ to y ₂ | C _{x1y2} | < 0,2 pF |
| x ₂ to y ₂ | C _{x2y2} | < 0,2 pF |
| Control grid to all other elements | C _{g1} | 6,2 pF |
| Cathode to all other elements | C _k | 3,8 pF |
| Focusing electrode to all other elements | C _{g3} | 7,6 pF |

DIMENSIONS AND CONNECTIONS



7Z95537.1

Fig. 1 Outlines.

- (1) Dimensions of faceplate only. The complete assembly of faceplate and cone (frit seal included) will pass through an opening of 122 x 102 mm (diagonal 153 mm).
- (2) The coil is fixed to the envelope with resin and adhesive tape.
- (3) The length of the connecting leads of the rotation coil is min. 350 mm.
- (4) Reference points on faceplate for graticule alignment (see Fig. 5).
- (5) The centre of the final accelerator contact is situated within a square of 10 mm x 10 mm around the indicated position.
- (6) The length of the E.H.T. cable is min. 900 mm.

Dimensions in mm

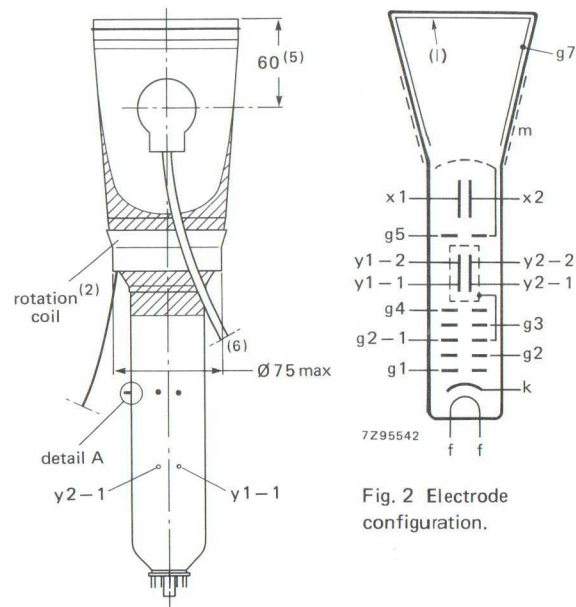


Fig. 2 Electrode configuration.

NOTES

1. As the frit seal is visible through the faceplate, and not necessarily aligned with the internal graticule, application of an external passe-partout with open area of max. 102 mm x 82 mm is recommended. The internal graticule is aligned with the faceplate by using the faceplate reference points (see Fig. 5).
2. The tube features internal magnetic correction for orthogonality between x- and y-traces, spot shaping (astigmatism) and eccentricity calibration. Correction is obtained at $V_{g2-1, g4} = 2500$ to 3300 V; optimum at $V_{g2-1, g4} = 3000$ V.
3. For some applications a mean x-potential up to 50 V positive with respect to mean y-potential is inevitable. In this case V_{g5} must be made equal to mean x-potential, and a range of 0 to -50 V with respect to mean y-potential will be required on $g4$ for astigmatism correction. The circuit resistance for V_{g4} should be ≤ 10 k Ω .
4. Deviation of mean y-plate potential with respect to V_{g2-1} will introduce spot distortion.
5. Deviation of linearity is defined as the proportional deviation of the deflection coefficient over any division on the x-axis and y-axis from the average values over the central eight (horizontal) and central six (vertical) divisions respectively.
6. A graticule consisting of concentric rectangles of 100 mm x 80 mm and 98 mm x 78 mm is aligned with the internal graticule. With optimum trace rotation correction the edges of a raster will fall between these rectangles.
7. The tube has a trace rotation coil, fixed onto the lower cone part. The coil has 1000 turns and a resistance of $185 \pm 20 \Omega$ at 20°C , which increases by approx. 0,4%/K for rising temperature. Approx. 6,7 mA causes 1° trace rotation.
8. Measured with the shrinking raster method in the centre of the screen under typical operating conditions, adjusted for optimum spot size at a beam current $I_b = 10 \mu\text{A}$.