

CATHODE-RAY TUBE for use in transistorized oscilloscopes with flat face and post-deflection acceleration by means of a helical electrode

SCREEN

For screen properties please refer to front of this section

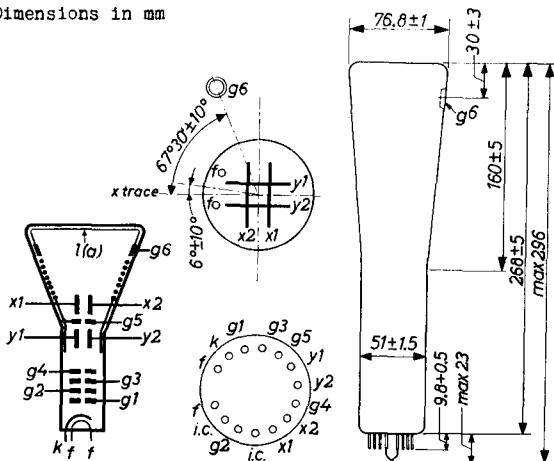
Useful screen diameter 68 mm

HEATING

Indirect by A.C. or D.C; parallel supply

Heater voltage $V_f = 6.3 \text{ V}$
Heater current $I_f = 95 \text{ mA}$

Dimensions in mm



The post-deflection acceleration helix is connected between $g6$ and the isolation shield $g5$.

The resistance of the helix is min. 40 MΩ

Net weight with socket 370 g

Shipping weight 1100 g

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ACCESSORIES

Socket (supplied with tube)

Type no. 40467

Mu-metal shield

Type no. 55532

CAPACITANCES

Grid No. 1 to all other electrodes

$C_{g1} = 5.7 \text{ pF}$

Cathode to all other electrodes

$C_k = 3.0 \text{ pF}$

x_1 plate to all other electrodes
except x_2 plate

$C_{x1} = 4.0 \text{ pF}$

x_2 plate to all other electrodes
except x_1 plate

$C_{x2} = 4.0 \text{ pF}$

y_1 plate to all other electrodes
except y_2 plate

$C_{y1} = 3.5 \text{ pF}$

y_2 plate to all other electrodes
except y_1 plate

$C_{y2} = 3.5 \text{ pF}$

x_1 plate to x_2 plate

$C_{x1-x2} = 1.9 \text{ pF}$

y_1 plate to y_2 plate

$C_{y1-y2} = 1.7 \text{ pF}$

FOCUSING Electrostatic

DEFLECTION Double electrostatic; symmetrical

Angle between x and y traces $90^\circ \pm 1^\circ$

If use is made of the full deflection capabilities of the tube, the deflection plates will intercept part of the electron beam near the edge of the scan; a low impedance deflection plate drive is therefore desirable in this case

Deflection factors

$$V_{g6}/V_{g4} = 1 \left\{ \begin{array}{l} M_x = 17.9 - 22.8 \text{ V/cm} \\ M_y = 6.9 - 8.8 \text{ V/cm} \end{array} \right\} \text{ per kV of } V_{g4}$$

$$V_{g6}/V_{g4} = 4 \left\{ \begin{array}{l} M_x = 31.3 - 40.0 \text{ V/cm} \\ M_y = 10.7 - 13.7 \text{ V/cm} \end{array} \right\}$$

LINE WIDTH measured with shrinking raster method

Post accelerator voltage $V_{g6} = 1200 \text{ V}$

Second accelerator voltage $V_{g4} = 300 \text{ V}$

First accelerator voltage $V_{g2} = 1200 \text{ V}$

Beam current $I_b = 10 \text{ } \mu\text{A}$

Line width l.w. = 0.65 mm

OPERATING CHARACTERISTICS

Post accelerator voltage	$V_{g6} =$	1200 V
Isolation shield voltage	$V_{g5} =$	300 ± 30 V
Second accelerator voltage	$V_{g4} =$	$300(+40 \text{ or } -15)$ V
Focusing voltage	$V_{g3} =$	20 to 150 V
First accelerator voltage	$V_{g2} =$	1200 V
Negative grid No.1 voltage for visual extinction of focused spot	$-V_{g1} =$	30 to 80 V
Deflection factors		
in the x direction	$M_x =$	9.4 to 12 V/cm
in the y direction	$M_y =$	3.2 to 4.1 V/cm
Useful scan		
in the x direction	$d_x =$	60 mm
in the y direction	$d_y =$	45 mm

Deviation of the linearity of deflection max. 2 %

The sensitivity of each plate pair at a deflection of less than 75 % of the useful scan will not differ from the sensitivity at a deflection of 25 % of the useful scan by more than 2 %

Pattern distortion max. 2 %

With a raster pattern the size of which is adjusted so that the widest points just touch the sides of a square of 40.8 mm sides, no point of the pattern sides will be within a concentric square of 39.2 mm sides

Undeflected spot position

With the tube shielded the spot will be within a circle of 4 mm radius, the circle being centred with respect to the tube face.

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LIMITING VALUES (Design centre limits)

Post accelerator voltage	V_{g6}	= max. 2500 V = min. 1200 V
Isolation shield voltage	V_{g5}	= max. 2200 V
Second accelerator voltage	V_{g4}	= max. 2100 V = min. 300 V
Focusing voltage	V_{g3}	= max. 1000 V
First accelerator voltage	V_{g2}	= max. 1600 V = min. 800 V ¹⁾
Grid No.1 voltage		
negative value	$-V_{g1}$	= max. 200 V
positive value	$+V_{g1}$	= max. 0 V
Voltage ratio	V_{g6}/V_{g4}	= max. 4
Peak voltage between grid No.4 and any deflection plate	$V_{x-g4 \text{ p}}$ $V_{y-g4 \text{ p}}$	= max. 500 V = max. 500 V
Voltage between heater and cathode		
cathode positive	$V_{kf}(\text{k pos.})$	= max. 100 V
cathode negative	$V_{kf}(\text{k neg.})$	= max. 15 V
Screen dissipation	W_{ℓ}	= max. 3 mW/cm ²
Cathode current	I_k	= max. 200 μA (RMS)

CIRCUIT DESIGN VALUES

Negative grid No.1 voltage for visual extinction of focused spot	$-V_{g1}$	= 30 to 60 V per kV of V_{g2}
Grid No.3 current	I_{g3}	= -15 to +10 μA ²⁾

MAX. CIRCUIT VALUES

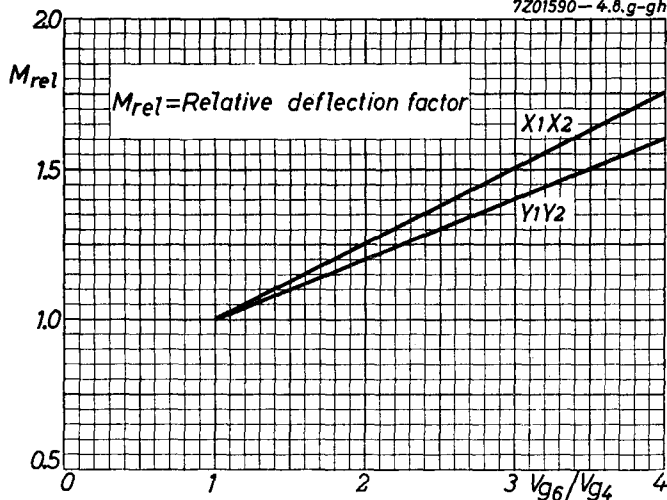
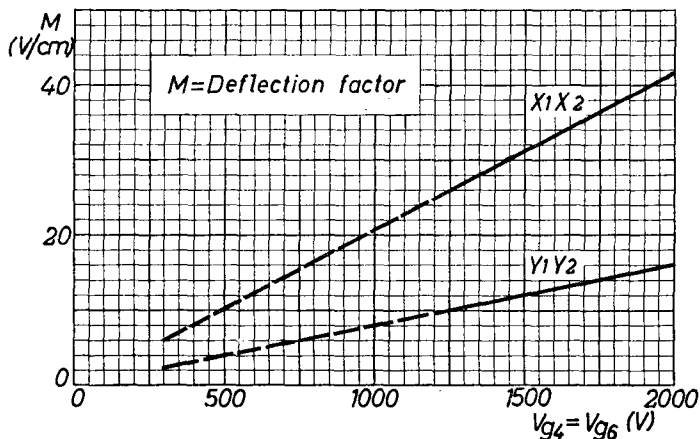
External grid No.1 resistance	R_{g1}	= max. 1.5 M Ω
External deflection plate resistance	$R_x = R_y$	= max. 50 k Ω

- ¹⁾ In order to obtain satisfactory focus quality and maximum screen current it is recommended not to apply to this electrode a voltage less than the indicated value
- ²⁾ For calculation of the grid No.3 voltage potentiometer these current limits must be taken into account

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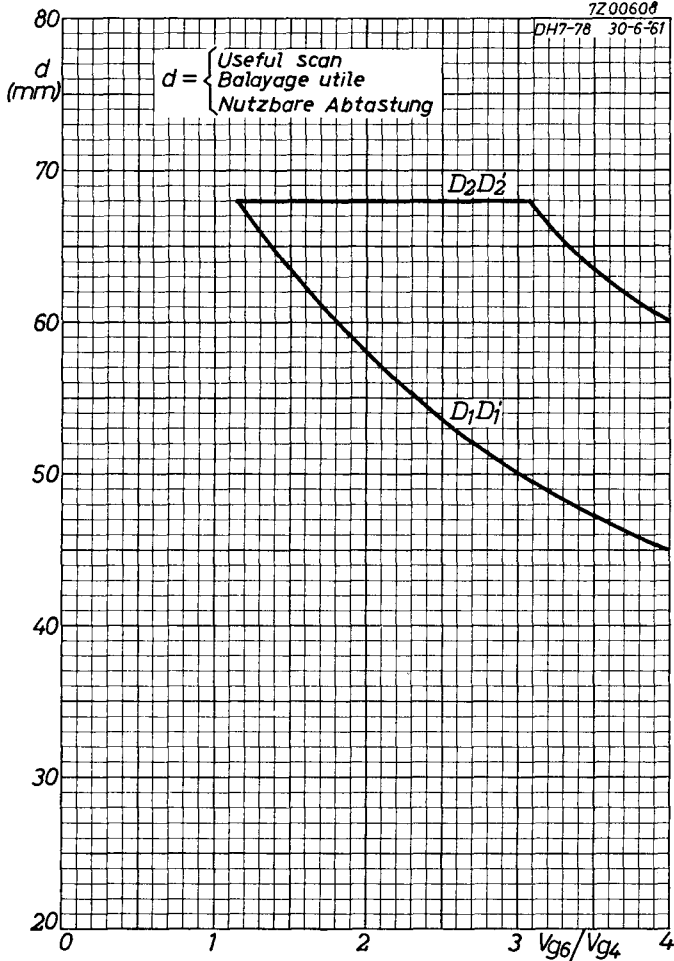
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DH7-78 30-6-61



B



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5	A	1963.02.02
6	B	1963.02.02
7	FP	2000.09.24