PHILIPS

DB7-11
DH7-11
DN7-11
DP7-11

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

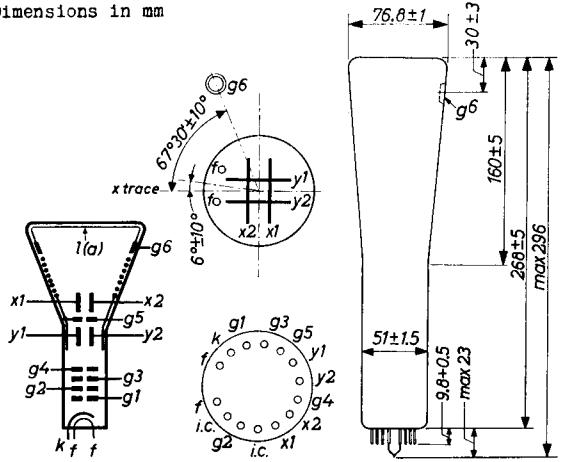
Useful screen diameter 68 mm

HEATING

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

Heater voltage V_f = 6.3 V
Heater current I_f = 95 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

PHILIPS

ACCESSORIES

Socket (supplied with tube)	Type no. 40467
Mu-metal shield	Type no. 55532

CAPACITANCES

Grid No.1 to all other electrodes	C_{g_1}	= 5.7 pF
Cathode to all other electrodes	C_k	= 3.0 pF
x_1 plate to all other electrodes except x_2 plate	C_{x_1}	= 4.0 pF
x_2 plate to all other electrodes except x_1 plate	C_{x_2}	= 4.0 pF
y_1 plate to all other electrodes except y_2 plate	C_{y_1}	= 3.5 pF
y_2 plate to all other electrodes except y_1 plate	C_{y_2}	= 3.5 pF
x_1 plate to x_2 plate	$C_{x_1-x_2}$	= 1.9 pF
y_1 plate to y_2 plate	$C_{y_1-y_2}$	= 1.7 pF

FOCUSING Electrostatic

DEFLECTION Double electrostatic; symmetrical

Angle between x and y traces 90° ± 1°

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

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

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

LINE WIDTH measured with shrinking raster method

Post accelerator voltage	V_{g6}	= 1200 V
Second accelerator voltage	V_{g4}	= 300 V
First accelerator voltage	V_{g2}	= 1200 V
Beam current	I_ℓ	= 10 µA
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 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.

PHILIPS

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	$V_{x-g4\ p}$ $V_{y-g4\ p}$	= max. 500 V = max. 500 V
Voltage between heater and cathode		
cathode positive	V_{kf}(k pos.)	= max. 100 V
cathode negative	V_{kf}(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 MΩ

External deflection plate resistance $R_x = R_y$ = max. 50 kΩ

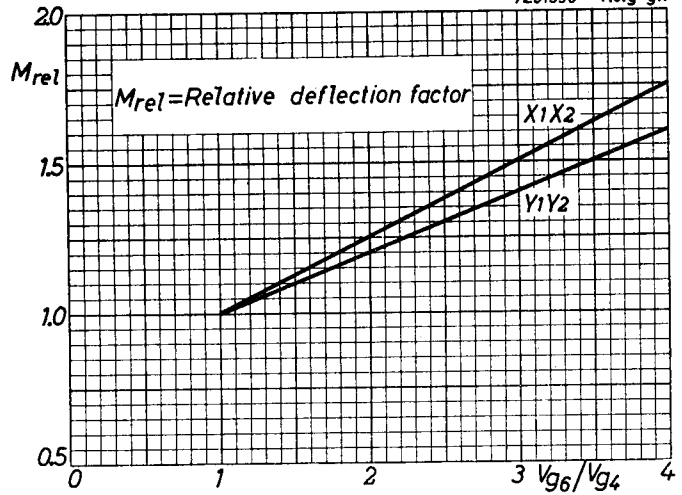
[1]) In order to obtain satisfactory focus quality and maximum screen current it is recommended not to apply to this electrode a voltage less than the indicated value

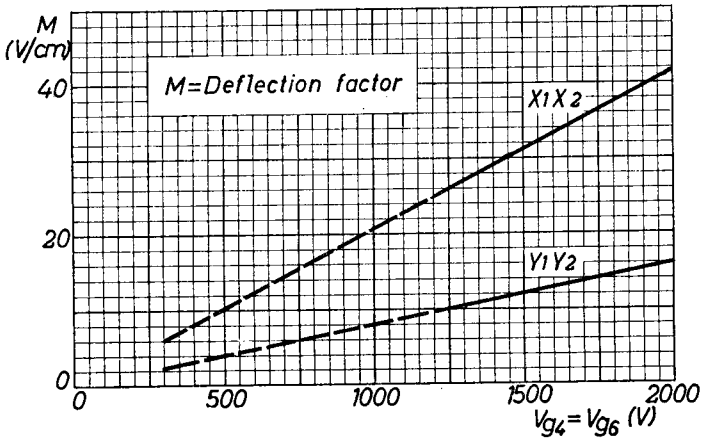
[2]) For calculation of the grid No.3 voltage potentiometer these current limits must be taken into account

PHILIPS

DB7-11
DH7-11
DN7-11
DP7-11

7Z01590—4.8.g-gh



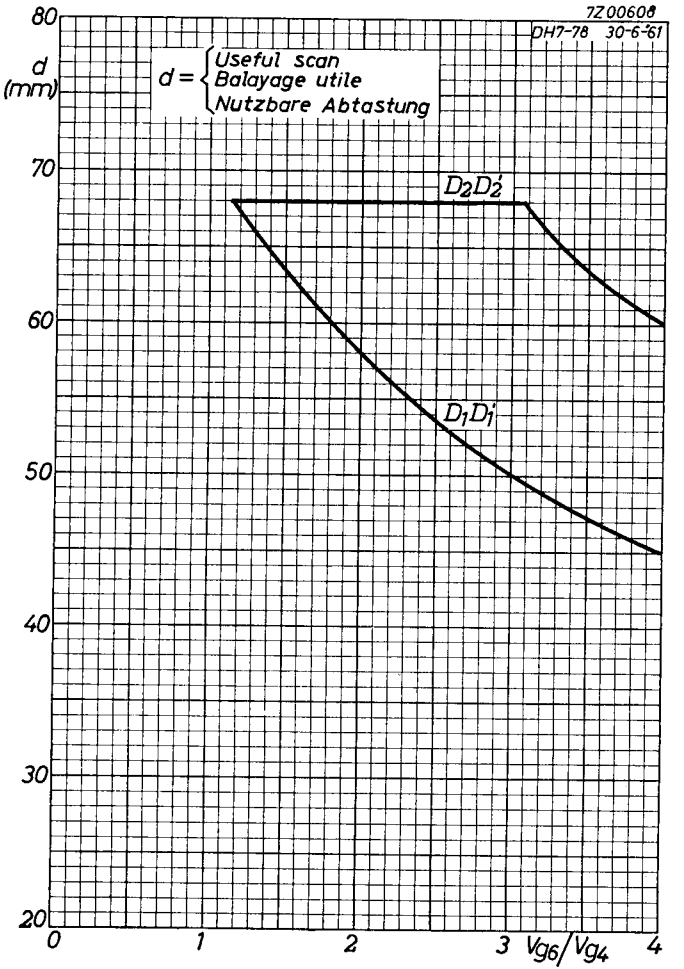


2.2.1963

A

DB7-11
DH7-11
DN7-11
DP7-11

PHILIPS



B

PHILIPS

Electronic Tube

HANDBOOK

DB7-11 DH7-11 DN7-11 DP7-11

page	sheet	date
1	1	1963.02.02
2	2	1963.02.02
3	3	1963.02.02
4	4	1963.02.02
5	A	1963.02.02
6	B	1963.02.02
7	FP	2000.09.24