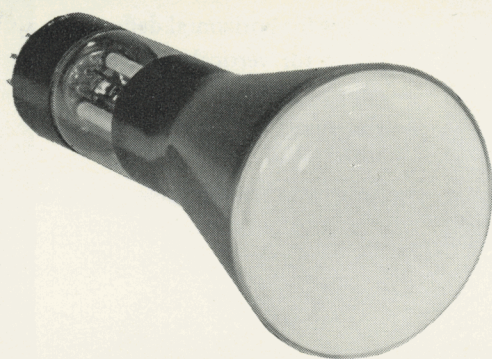
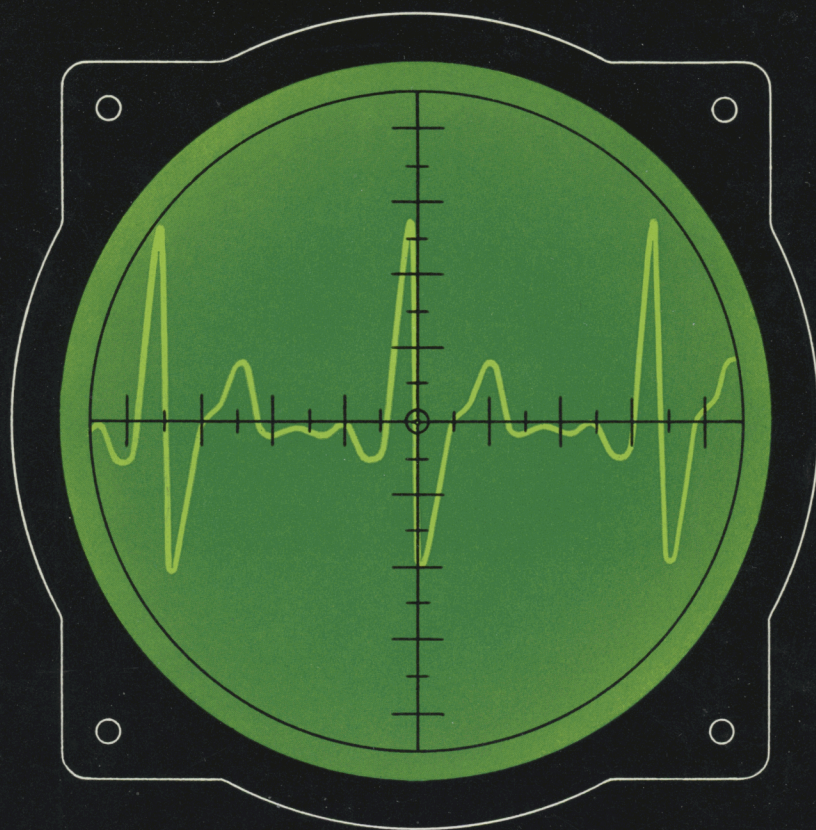


PHILIPS

CATHODE - RAY TUBES

for measuring equipment



LOW-VOLTAGE

Cathode-Ray Tube

DG 7-32

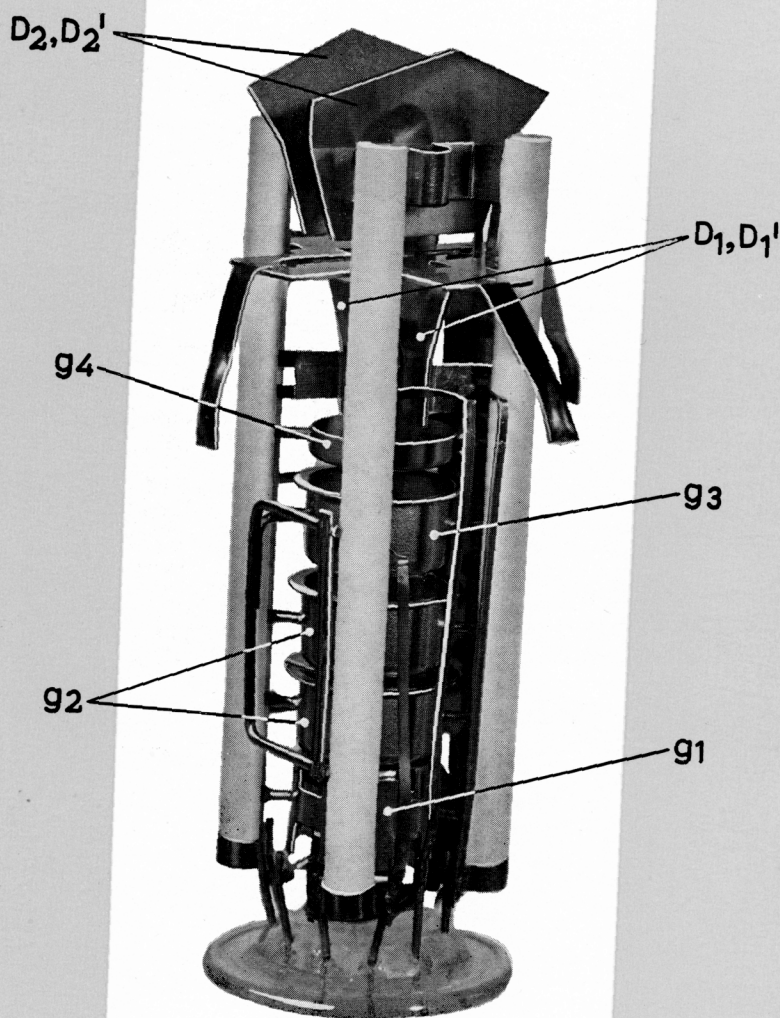
PHILIPS ELECTRON TUBE DIVISION

PHILIPS

LOW-VOLTAGE INSTRUMENT CATHODE-RAY TUBE

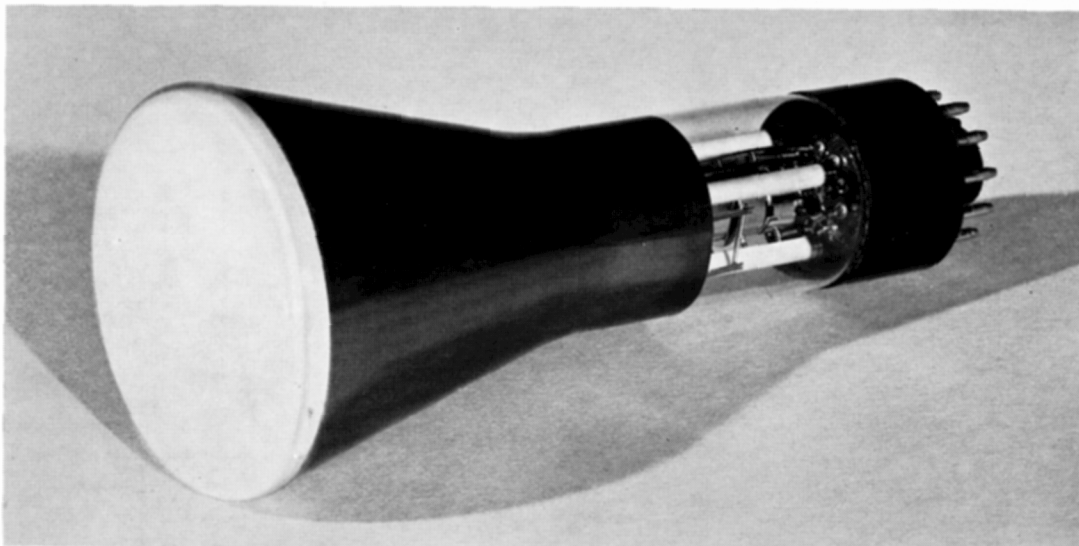
DG 7-32

- 400 V final anode voltage
- Deflection sensitivity 0.4 mm/V
- Overall length only 17 cm ($6\frac{3}{4}$ ")
- High brilliancy
- Small spot size
- Excellent contrast



*Electron gun of the cathode-ray
tube DG 7-32*

- D_2D_2' — plates for horizontal deflection
 D_1D_1' — plates for vertical deflection
 g_1 — control grid
 g_2, g_4 — electrodes for pre-deflection
acceleration
 g_3 — focusing electrode



The DG 7-32 is a new type in our range of 7 cm (3'') cathode-ray tubes with characteristics making the tube particularly suitable for applications in low-cost, low-voltage, indicating instruments such as small, light-weight service oscilloscopes etc.

The type DG 7-32 has the following main features:

- Low anode voltage (400V) without screenburn or screencharge, thanks to the gun construction and a conductive layer placed in between the inner glass surface and the phosphor screen;
- High deflection sensitivity (0,4 mm/V) owing to the special design of the deflection plates;
- Fine and brilliant spot with a high contrast ratio;
- Symmetrical deflection to ensure minimum distortion and to minimize deflection voltages;
- Overall length of only 17 cm (6³/₄'').

The transparent, contrast improving and conductive layer between the face and the phosphor, being connected to the final anode, gives full protection against "electrostatic body-effect" even at high operation potential.

The fine characteristics of the tube render it very suitable for a wide range of applications in the indicating instruments field.

ELECTRICAL DATA

Screen

Fluorescence: green

Persistence: medium

Heating indirect by a.c. or d.c.;
series or parallel supply

Heater voltage $V_f = 6.3$ V

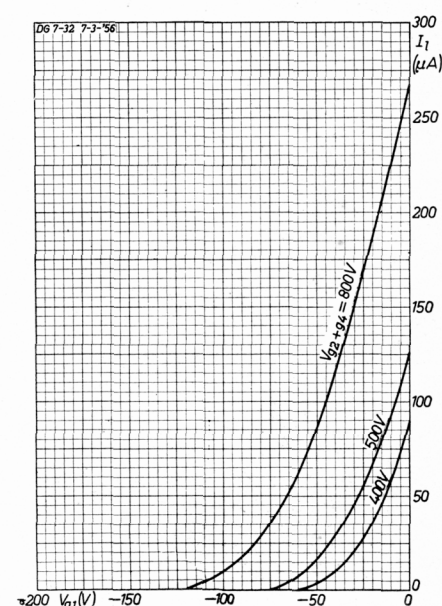
Heater current $I_f = 0.3$ A

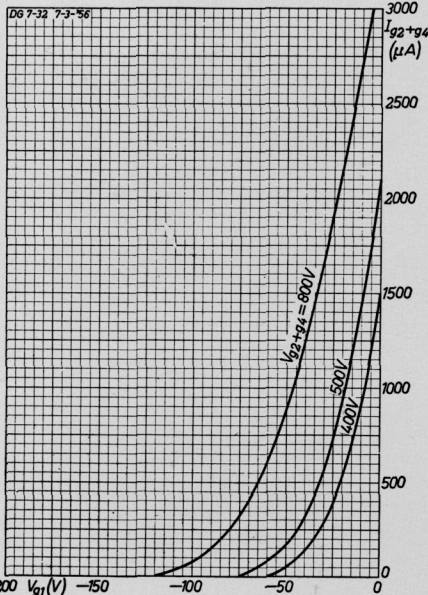
Focusing electrostatic

Deflection double electrostatic D_1D_1' symmetric
 D_2D_2' symmetric

Line width at $V_{(g_2 + g_4)} = 500$ V
 $I_f = 0.5$ μ A = 0.5 mm ¹⁾

¹⁾ Measured on a circle of 50 mm diameter.





INTERELECTRODE CAPACITANCES		
electrodes	symbol	value (pF)
D_1 to D_1'	$C_{D_1 D_1'}$	1.0
D_2 to D_2'	$C_{D_2 D_2'}$	1.4
$D_1 + D_1'$ to $D_2 + D_2'$	$C_{D_1 D_1' - D_2 D_2'}$	0.27
D_1 to all	C_{D_1}	2.9
D_1' to all	$C_{D_1'}$	3.1
D_2 to all	C_{D_2}	3.7
D_2' to all	$C_{D_2'}$	3.7
Grid 1 to all	C_{g_1}	7.8
Cathode to all	C_k	4.0
Grid 1 to $D_1 D_1' D_2 D_2'$	$C_{g_1 - D_1 D_1' D_2 D_2'}$	0.45
Cathode to $D_1 D_1' D_2 D_2'$	$C_{k - D_1 D_1' D_2 D_2'}$	0.14

Operating characteristics

Grid No. 2 and grid No. 4 voltage	$V_{(g_2 + g_4)}$	=	500	V
Grid No. 3 voltage	V_{g_3}	=	0-120	V ¹⁾
Negative grid No. 1 voltage for visual extinction of the focused spot	$-V_{g_1}$	=	50-100	V
Deflection sensitivity	$D_1 D_1'$	=	0.35-0.43	mm/V
Deflection sensitivity	$D_2 D_2'$	=	0.22-0.28	mm/V

Limiting values (design centre values)

			max. 800	V
Grid No. 2 and grid No. 4 voltage	$V_{(g_2 + g_4)}$	=	min. 400	V
Grid No. 3 voltage	V_{g_3}	=	max. 200	V ¹⁾
Grid No. 1 voltage (negative value)	$-V_{g_1}$	=	max. 160	V
Grid No. 1 voltage (positive value)	$+V_{g_1}$	=	max. 0	V
Peak voltage on $D_1 D_1'$	$V_{D_1 D_1' p}$	=	max. 450	V
Peak voltage on $D_2 D_2'$	$V_{D_2 D_2' p}$	=	max. 750	V
Voltage between cathode and heater	V_{kf}	=	max. 125	V
Screen dissipation	W_l	=	max. 3	mW/cm ²
Grid No. 2 and grid No. 4 dissipation	$W_{(g_2 + g_4)}$	=	max. 0.5	W

Maximum circuit values

Deflection plate circuit resistance	R_D	=	5	MΩ
Grid No. 1 circuit resistance	R_{g_1}	=	0.5	MΩ

MECHANICAL DATA

Mounting position: any

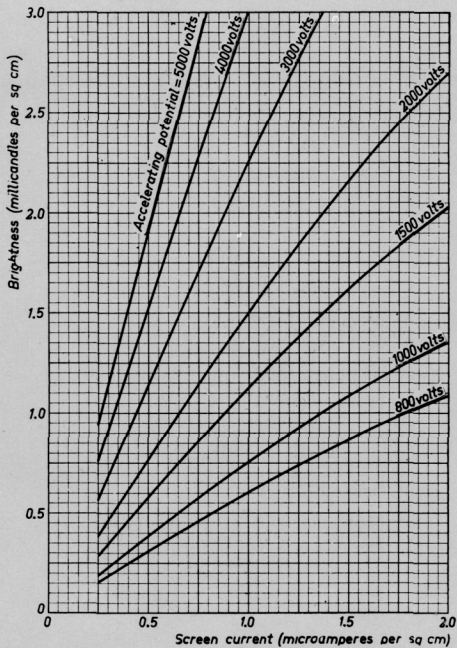
Dimensions: overall length 172 mm (6³/₄"")
screen diameter 70 mm (3"")

Net weight: 120 g (4.2 ounce)

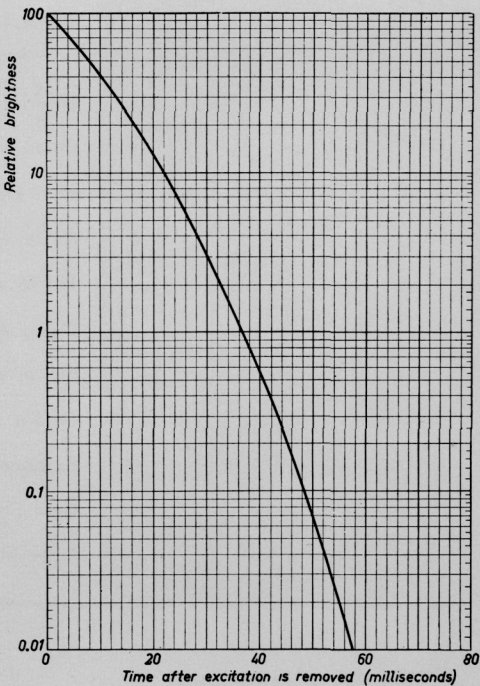
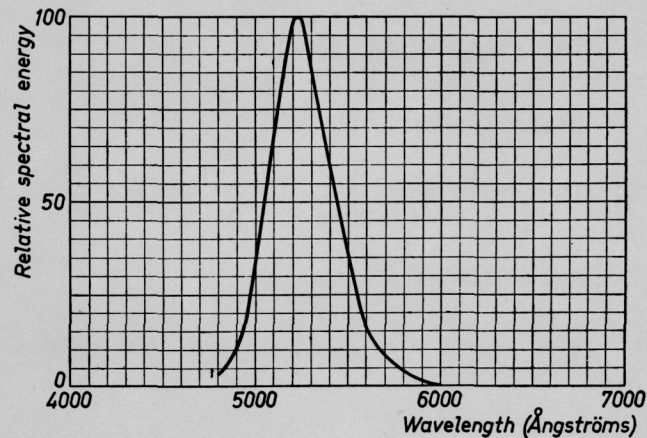
1) For calculation of the grid 3 potentiometer a grid 3 current of min. -15 μA and max. +10 μA must be taken into account.

G-screen

The green fluorescent G-screen provides high visual contrast under conditions of normal ambient illumination. It has medium persistence and can be used for visual observation of recurrent phenomena in the majority of applications.

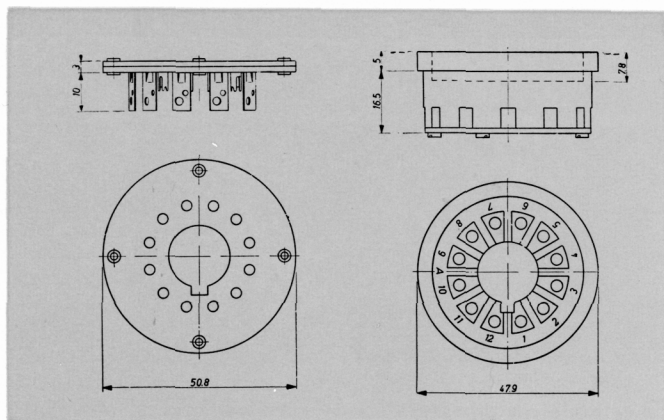


Relative spectral energy distribution of a G-screen

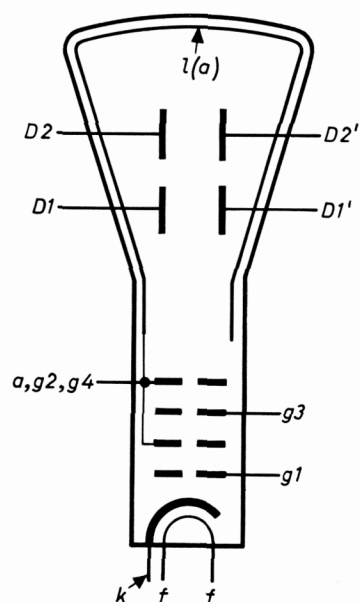


Persistence characteristic of a G-screen.

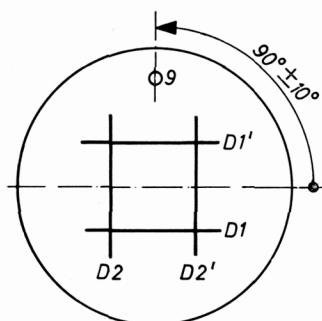
Brightness of a G-screen as a function of the screen current per square cm screen area, with the accelerating potential as a parameter.



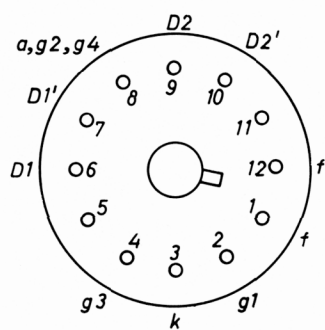
Base: duodecal 12-pins



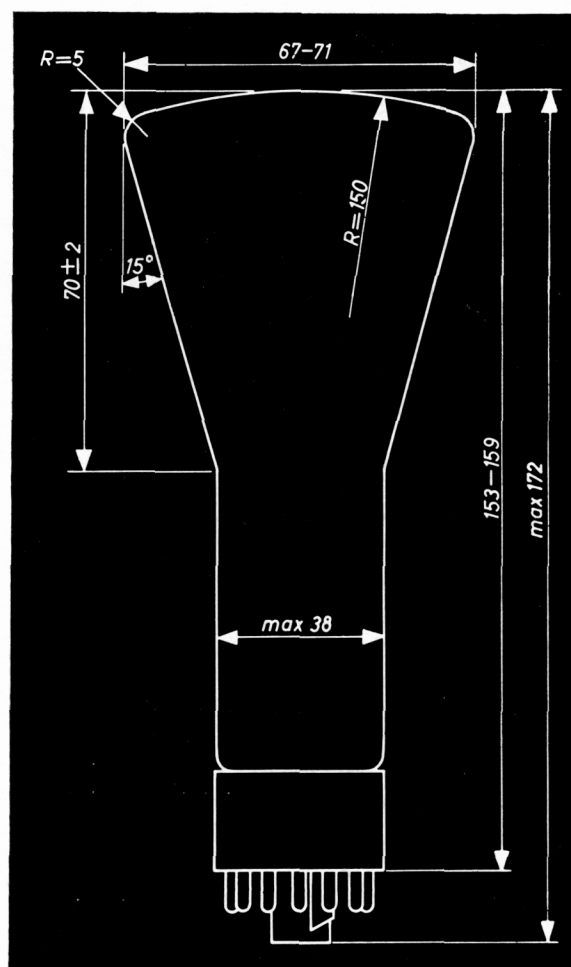
Electrode arrangement



Position of the deflection plates



Base connections



Outline drawing of the DG 7-32 (dimensions in mm)