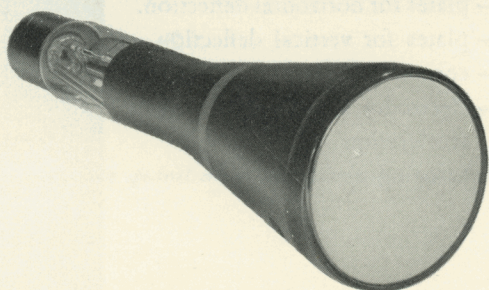
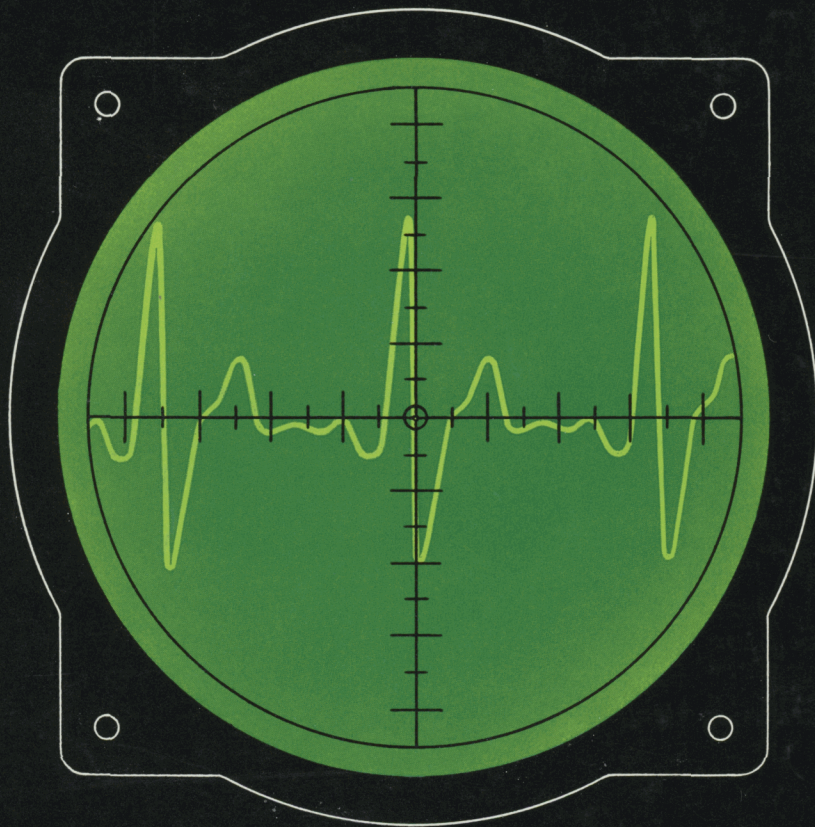


PHILIPS

CATHODE-RAY TUBES

for measuring equipment



PHILIPS ELECTRON TUBE DIVISION

GENERAL-PURPOSE

Cathode-Ray Tube

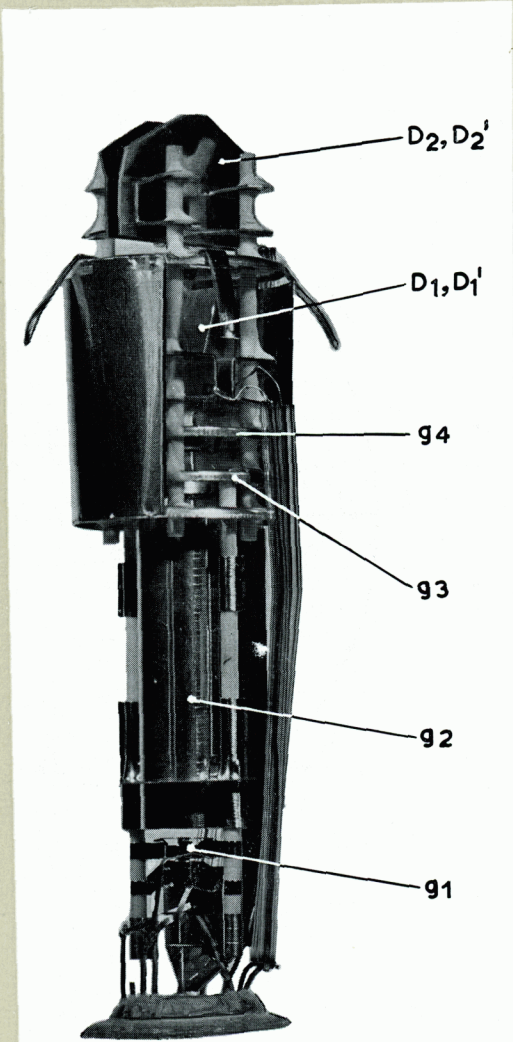
DG 10-74

CATHODE-RAY TUBE WITH FLAT FACEPLATE

DG 10-74

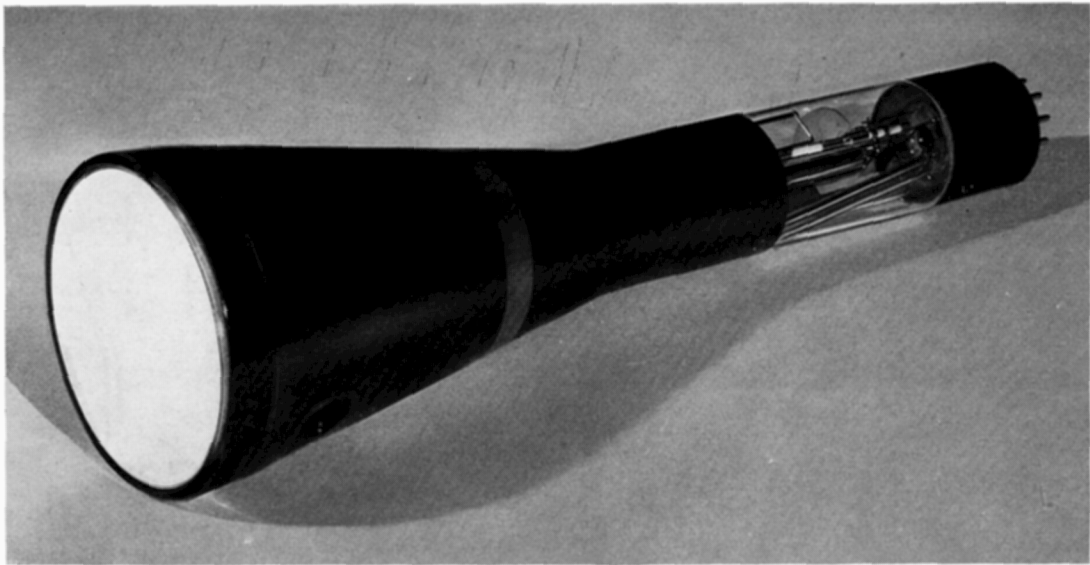
- *Plane parallel faceplate*
- *Symmetrical deflection*
- *High-tension post acceleration*
- *Large screen diameter;
10 cm (4")*
- *Interchangeable with the
DG 10-6*

The DG 10-74 is a general-purpose Cathode-Ray Oscilloscope Tube, with a flat faceplate of 10 cm diameter, double symmetrical deflection and extra high-tension post acceleration.



Electron gun of the cathode-ray tube DG 10-74

- 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 plane parallel faceplate of high-quality glass ensures correct reading, drawing or photographic recording of the oscillograms without parallax.

The symmetrical deflection minimizes the occurrence of distortion.

Thanks to the high-grade phosphor screen and extra high-tension post acceleration, high brilliancy at small spot dimensions is achieved.

The G-phosphor of the DG 10-74 gives a green phosphorescence with medium persistence on which full particulars are given in this folder.

The tube, which is interchangeable with the DG 10-6, is particularly suitable for measuring equipment, as a result of the electrical and mechanical characteristics.

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

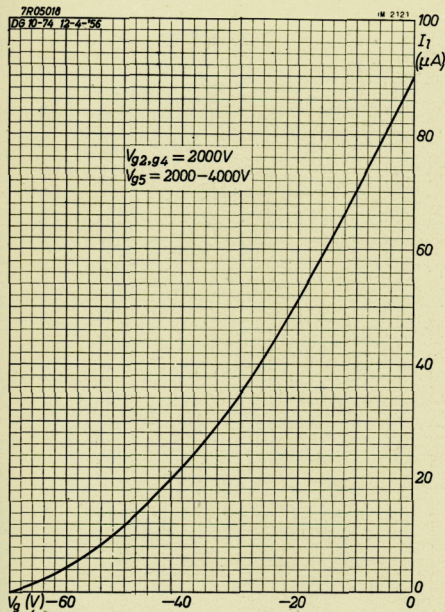
double electrostatic

$= D_1 D_1'$ symmetric
 $= D_2 D_2'$ symmetric

Line width at

Grid No. 5 voltage	V_{g3}	$= 2000$ V	
Grid No. 2 and grid No. 4 voltage	$V_{(g3+g4)}$	$= 2000$ V	0.4 mm*)
Screen current	I_{ϕ}	$= 0.5$ μ A	
Grid No. 5 voltage	V_{g5}	$= 4000$ V	
Grid No. 2 and grid No. 4 voltage	$V_{(g2+g4)}$	$= 2000$ V	0.3 mm*)
Screen current	I_l	$= 0.5$ μ A	

*) Measured on a circle of 50 mm diameter.



Negative grid No. 1 voltage, for visual extinction of the focused spot, as a function of the screen current

INTERELECTRODE CAPACITANCES		
Electrodes	Symbol	Value (pF)
D_1 to D_1'	$C_{D_1 D_1'}$	1.9
D_2 to D_2'	$C_{D_2 D_2'}$	2.5
$D_1 + D_1'$ to $D_2 + D_2'$	$C_{D_1 D_1' - D_2 D_2'}$	0.2
D_1 to all	C_{D_1}	4.7**)
D_1' to all	$C_{D_1'}$	4.7**)
D_2 to all	C_{D_2}	5.5**)
D_2' to all	$C_{D_2'}$	5.5**)
Grid 1 to all	C_{g_1}	4.6
Cathode to all	C_k	6.0
Grid 1 to $D_1 D_1' D_2 D_2'$	$C_{g_1 - D_1 D_1' D_2 D_2'}$	0.15
Cathode to $D_1 D_1' D_2 D_2'$	$C_{k - D_1 D_1' D_2 D_2'}$	0.35

Operating characteristics

Grid No. 5 voltage
 Grid No. 2 grid No. 4 voltage
 Grid No. 3 voltage
 Grid No. 3 current
 Negative grid No. 1 voltage***)
 Deflection sensitivity
 Deflection sensitivity

	with post acceleration	without post acceleration
V_{g_5}	= 4000	2000 V
$V_{(g_2 + g_4)}$	= 2000	2000 V
V_{g_3}	= 400 — 720	400 — 720 V
I_{g_3}	= — 15 to + 10	— 15 to + 10 μA
$-V_{g_1}$	= 45 — 100	45 — 100 V
$D_1 D_1'$	= 0.25 0.31	0.32 0.38 mm/V
$D_2 D_2'$	= 0.19 0.25	0.24 0.30 mm/V

Limiting values (design center values)

Grid No. 5 voltage
 Grid No. 2 and grid No. 4 voltage
 Grid No. 3 voltage
 Grid No. 1 voltage (negative value)
 Grid No. 1 voltage (positive value)
 Peak voltage on $D_1 D_1'$
 Peak voltage on $D_2 D_2'$
 Voltage between cathode and heater
 Screen dissipation
 Grid No. 2 and grid No. 4 dissipation

V_{g_5}	= max. 5000 V
$V_{(g_2 + g_4)}$	= max. 2500 V
V_{g_3}	= max. 1000 V
$-V_{g_1}$	= max. 150 V
$+V_{g_1}$	= max. 0 V
$V_{D_1 D_1'p}$	= max. 450 V
$V_{D_2 D_2'p}$	= max. 450 V
V_{kf}	= max. 125 V
W_l	= max. 3 mW/cm ²
$W_{(g_2 + g_4)}$	= max. 4 W

Maximum circuit values

Deflection plate circuit resistance
 Grid No. 1 circuit resistance

R_D	= max. 5 MΩ
R_{g_1}	= max. 1.5 MΩ

MECHANICAL DATA

Mounting position any

Dimensions Overall length 341 mm (13⁷/₁₆"")
 Screen diameter 10 cm (4")

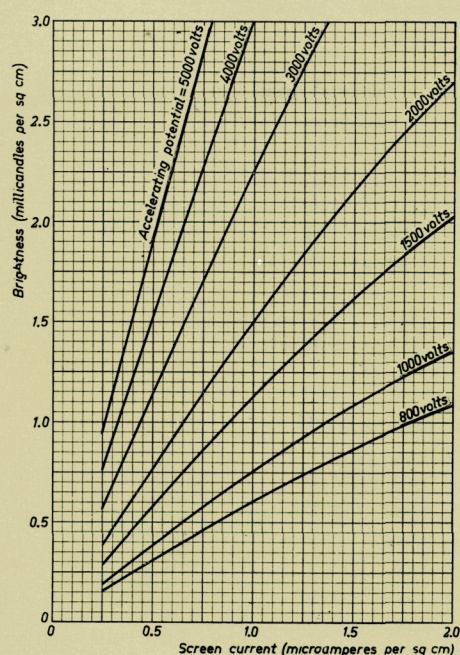
Anode contact B1.885.06

Net weight 330 g. (11.5 ounces)

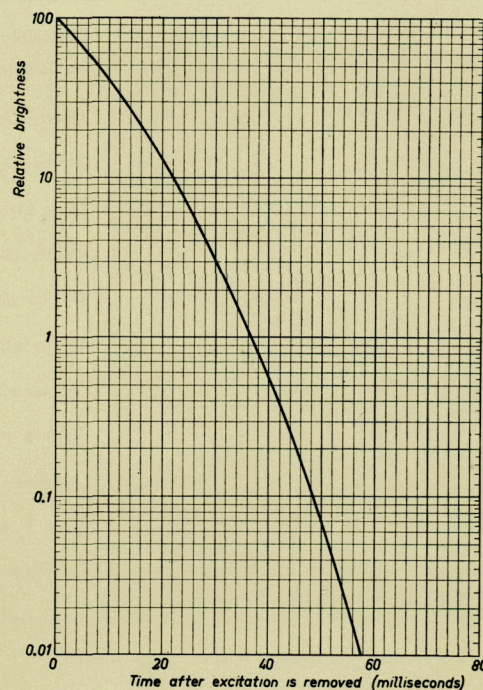
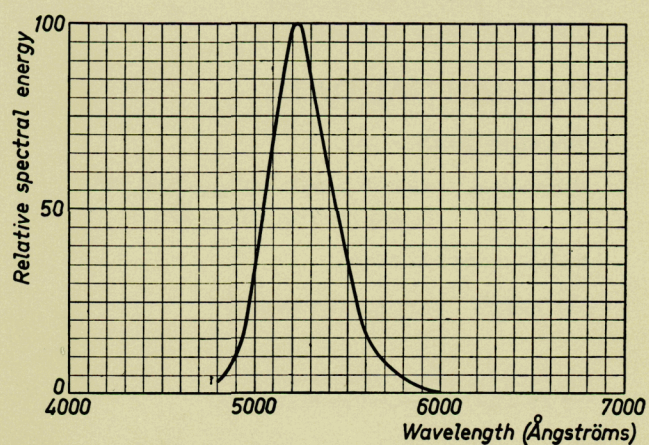
**) Except the opposite deflection plate.
 ***) For visual extinction of the focused spot.

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.

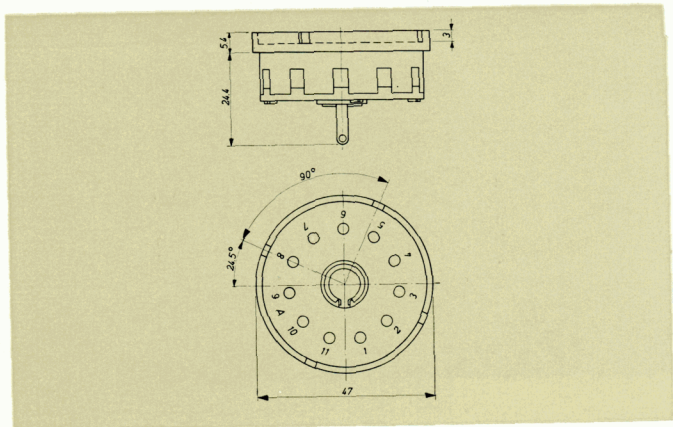


Relative spectral energy distribution of a G-screen

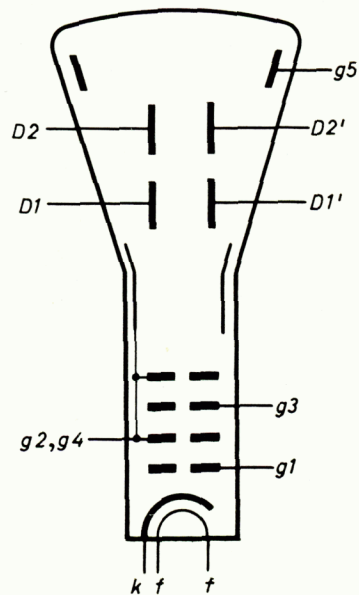


Persistence characteristic of a G-screen.

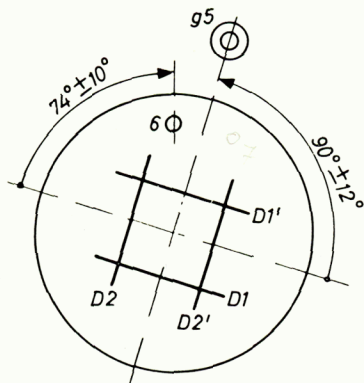
Brightness of a G-screen as a function of the screen current per square cm screen area, with the accelerating potential as a parameter.



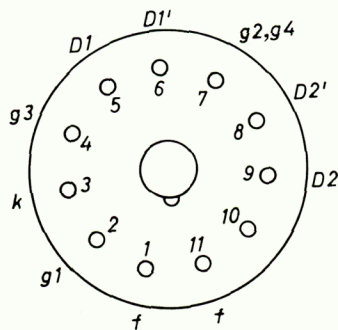
Base: Magnal 11 pins



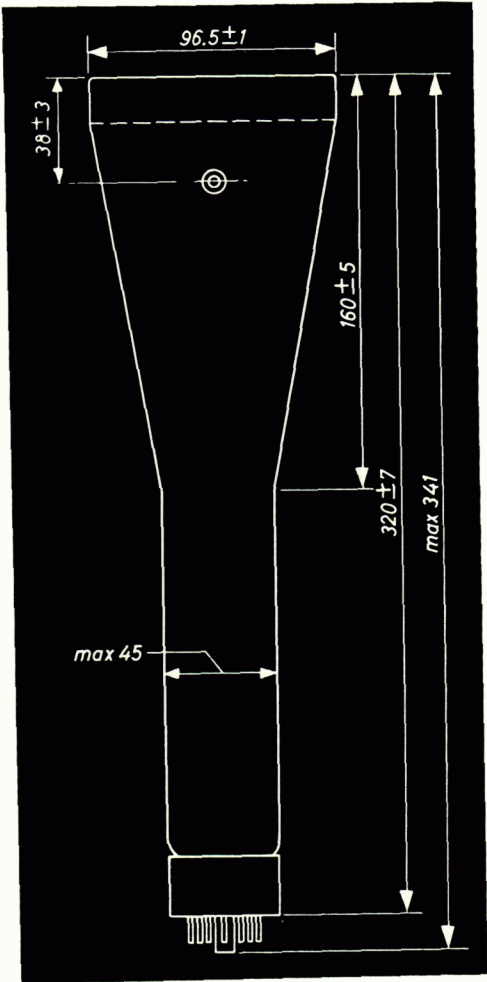
Electrode arrangement



Position of the deflection plates



Base connections



Outline drawing of the DG 10-74 (dimensions in mm)