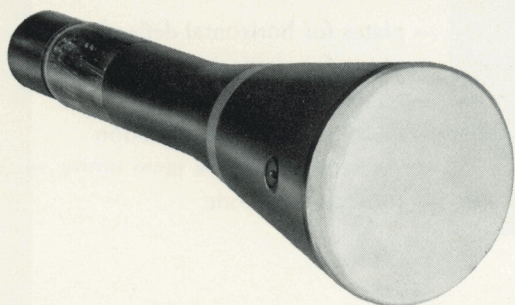
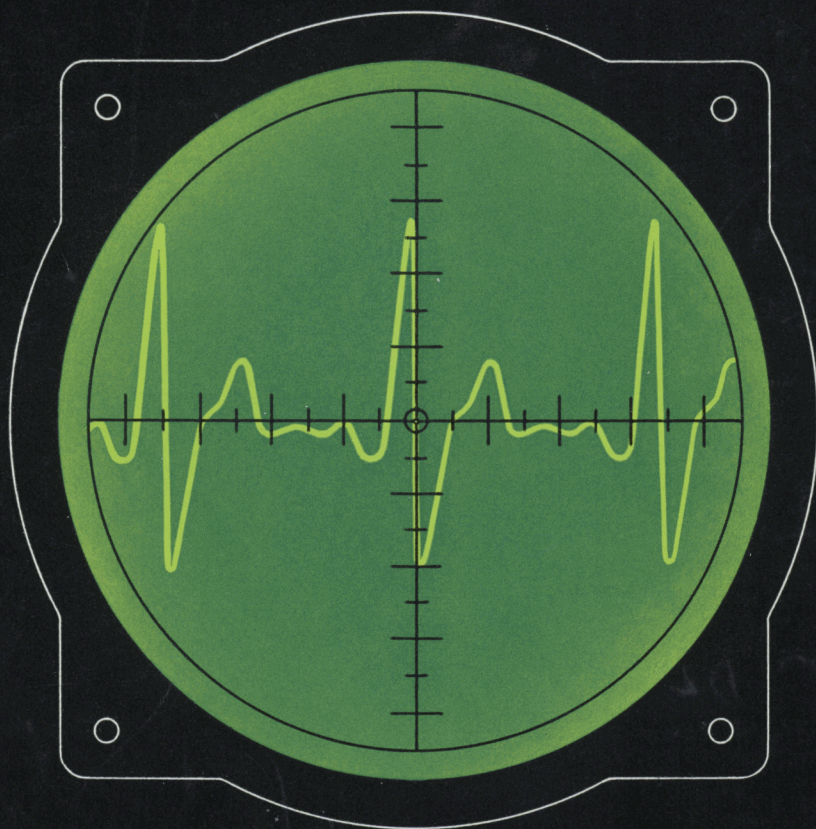


**PHILIPS**

**CATHODE-RAY TUBES**

*for measuring equipment*



PHILIPS ELECTRON TUBE DIVISION

DG 10-6

DB 10-6

DP 10-6

DR 10-6



# PHILIPS

## GENERAL PURPOSE CATHODE RAY TUBE

DG 10-6

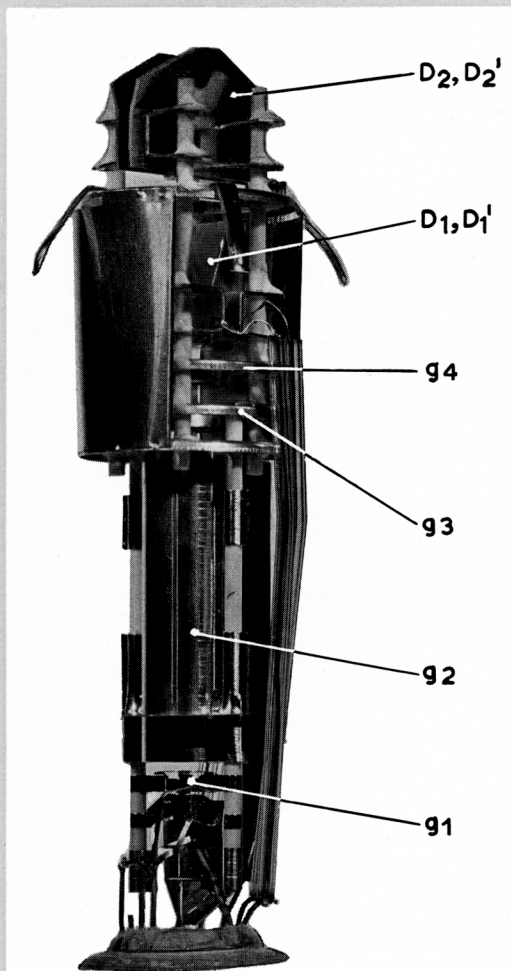
DB 10-6

DP 10-6

DR 10-6

- *High-tension post-acceleration*
- *A brilliant spot*
- *Symmetrical deflection*
- *Good linearity*
- *Four screen types*

The DG 10-6 is a general-purpose Cathode-Ray Oscilloscope Tube, with a faceplate of 10 cm (4'') diameter, featuring electrostatic double symmetrical deflection and extra high tension post-acceleration



*Electron gun of the Cathode-Ray Tube DG 10-6*

- $D_2D_2'$  — plates for horizontal deflection  
 $D_1D_1'$  — plates for vertical deflection  
 $g_1$  — control grid  
 $g_2g_4$  — electrodes for pre-deflection acceleration  
 $g_3$  — focusing electrode



The Philips Cathode-Ray Tube DG 10-6, has the following main features

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

Symmetrical deflection, providing for low interelectrode capacity and good linearity

For various applications different screen types available

G A green screen for oscilloscopy and recording of medium and high-frequency phenomena.

B A blue screen for photographic recording of non-recurrent high-speed phenomena.

P A double-layer screen with bluish fluorescence for oscilloscopy and recording of low-frequency and low-speed non-recurrent phenomena.

R A greenish-yellow screen for oscilloscopy and recording of low- and medium-frequency signals\*)

As a result of these electrical and mechanical characteristics, this tube is particularly suitable for measuring equipment.

## ELECTRICAL DATA

### Screen

Tube type	Fluorescence (colour)	Persistence	
		Character	0.1 % of max. brightness after
DG 10-6	green	medium	50 millisecc.
DB 10-6	blue	short	20 millisecc.
DP 10-6	blue (afterglow greenish-yellow)	very long	80 sec.
DR 10-6	greenish-yellow	long	20 sec.

**Heating** indirect by A.C. or D.C.

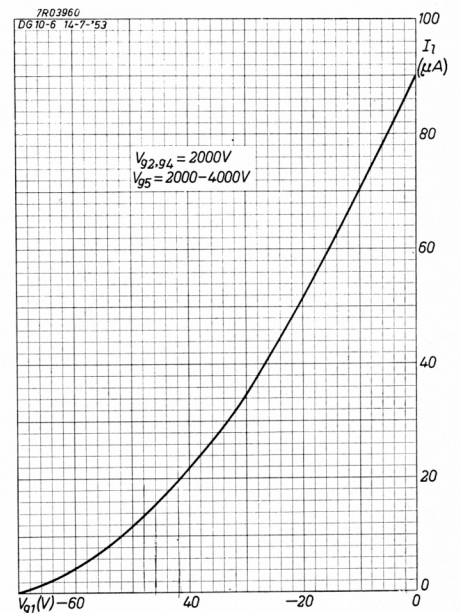
Heater voltage:  $V_f = 6.3 \text{ V}$

Heater current:  $I_f = 0.3 \text{ A}$

**Deflection** double electrostatic  $D_1D_1'$  symmetric  
 $D_2D_2'$  symmetric

**Focusing** electrostatic

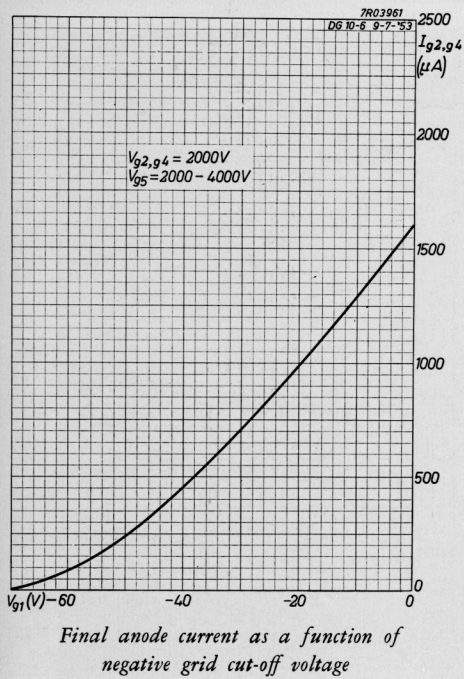
**Line width** at  $V_{g5} = 2000 \text{ V}$   
 $V_{(g2 + g4)} = 2000 \text{ V}$  0.4 mm \*\*)  
 $I_l = 0.5 \text{ } \mu\text{A}$   
 $V_{g5} = 4000 \text{ V}$   
 $V_{(g2 + g4)} = 2000 \text{ V}$  0.3 mm \*\*)  
 $I_l = 0.5 \text{ } \mu\text{A}$



Screen current as a function of negative grid cut-off voltage

\*) Detailed information on all phosphors is given in a folder dealing with data and characteristics of Philips phosphors.

\*\*\*) Measured on a circle of 50 mm diameter.



INTERELECTRODE CAPACITANCES		
Electrodes	Symbol	Value (pF)
$D_1$ to $D_1'$	$C_{D_1D_1'}$	1.9
$D_2$ to $D_2'$	$C_{D_2D_2'}$	2.5
$D_1$ 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

### Operating characteristics

Grid No. 5 voltage  
 Grid No. 2 + No. 4 voltage\*  
 Grid No. 3 voltage  
 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 V
$-V_{g_1}$	= 45	100 V
$D_1D_1'$	= 0.25	0.31 0.32 0.38 mm/V
$D_2D_2'$	= 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  
 Ratio  $V_{g_5}/V_{(g_2+g_4)}$   
 Grid No. 3 voltage  
 Grid No. 1 voltage (negative value)  
 Grid No. 1 voltage (positive value)  
 Peak voltage on  $D_1D_1'$   
 Peak voltage on  $D_2D_2'$   
 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
$V_{g_5}/V_{(g_2+g_4)}$	= max. 2
$V_{g_3}$	= max. 1000 V
$-V_{g_1}$	= max. 150 V
$+V_{g_1}$	= max. 0 V
$V_{D_1D_1'p}$	= max. 450 V
$V_{D_2D_2'p}$	= max. 450 V
$V_{kf}$	= max. 125 V
$W_l$	= max. 3 mW/cm <sup>2</sup>
$W_{(g_2 + g_4)}$	= max. 4 W

### Maximum circuit values

Deflection plate circuit resistance  
 Grid No. 1 circuit resistance

$R_D$	= max. 5 M $\Omega$
$R_{g_1}$	= max. 1.5 M $\Omega$

## MECHANICAL DATA

Mounting position any

Dimensions overall-length max. 341 mm (13<sup>27</sup>/<sub>64</sub>"")  
 screen diameter 10 cm (4")

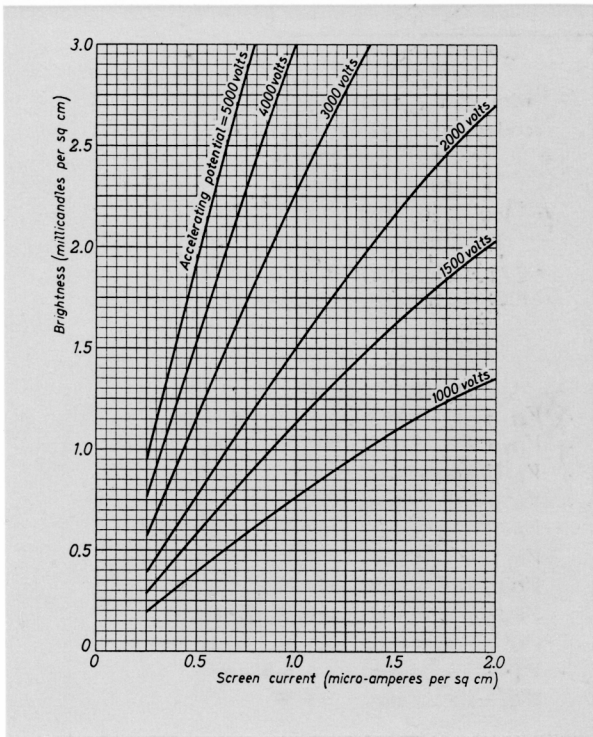
Anode contact B1.885.06.

\*) Earthing of  $g_2, g_4$  is recommended.  
 \*\*) For visual extinction of the focused spot.

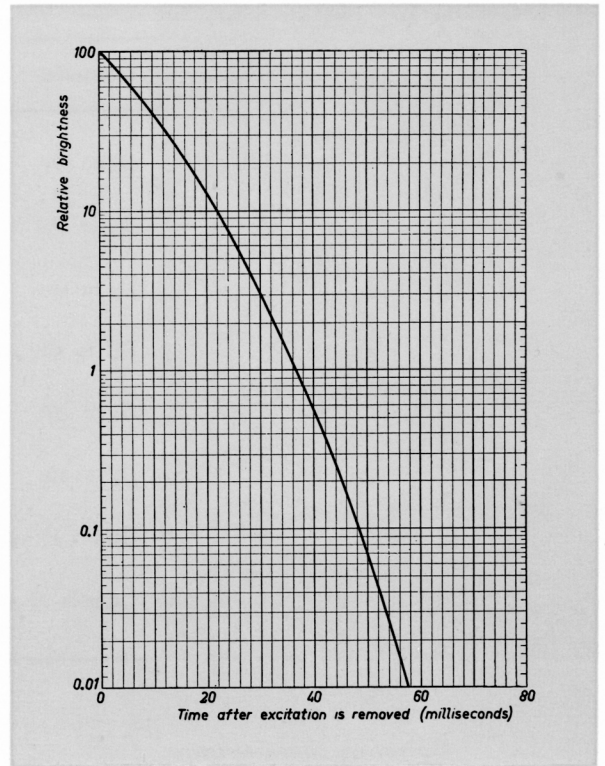


# G-screen

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.

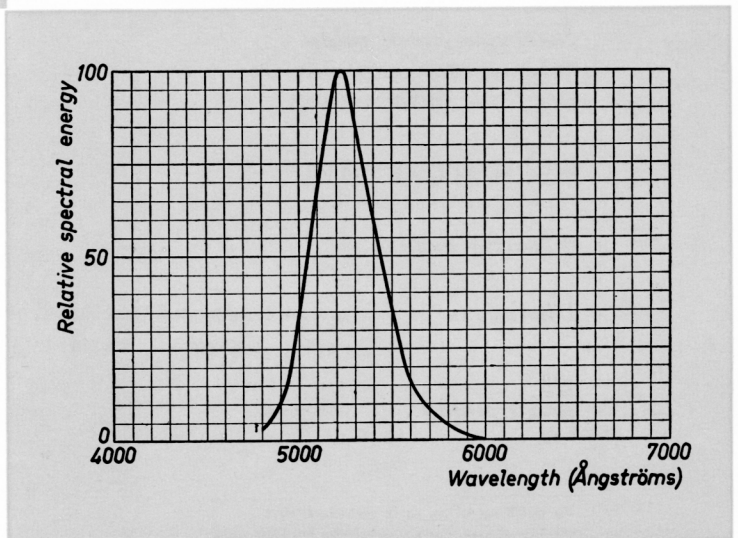


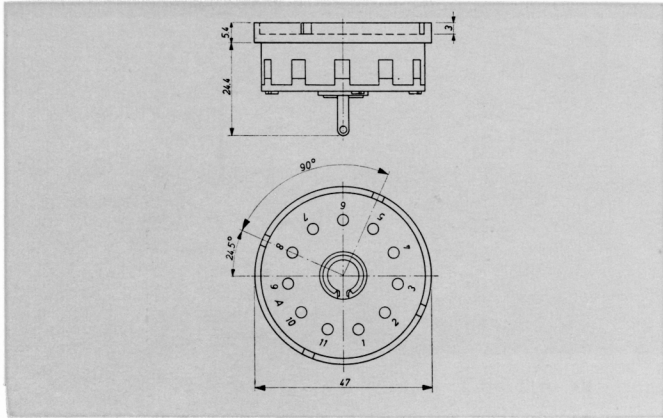
Relative spectral energy distribution of a G-screen



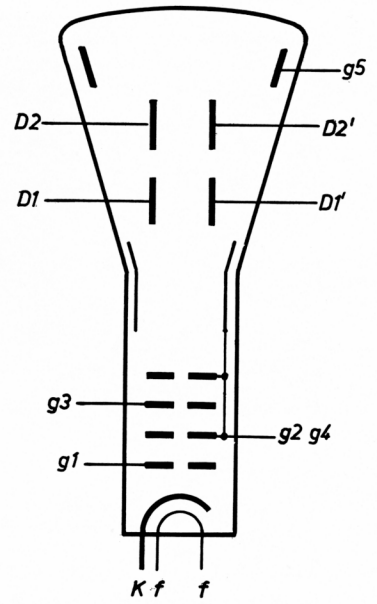
Persistence characteristic of a G-screen.

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

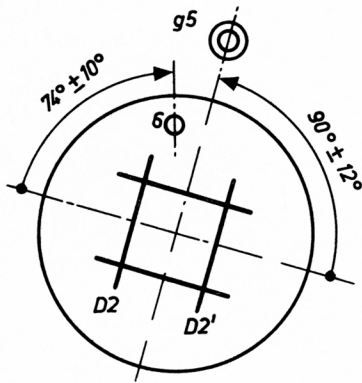




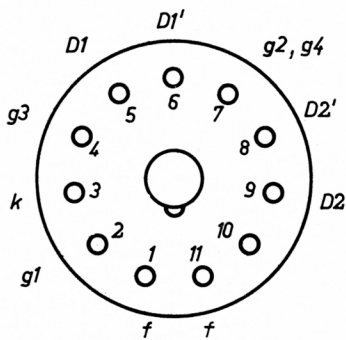
Base: Magnal



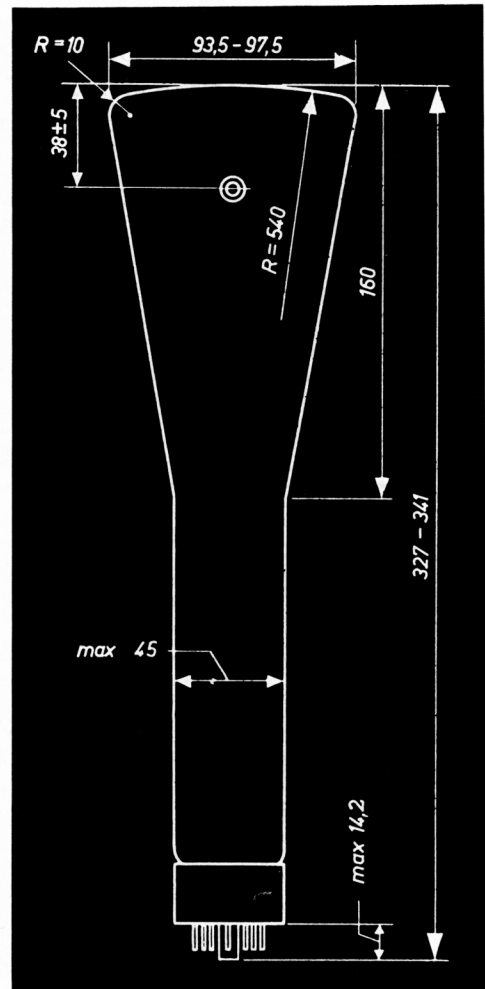
Electrode arrangement



Position of the deflection plates



Base connections



Outline drawing of the DG 10-6