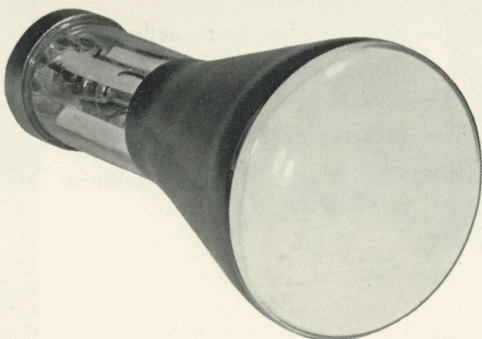
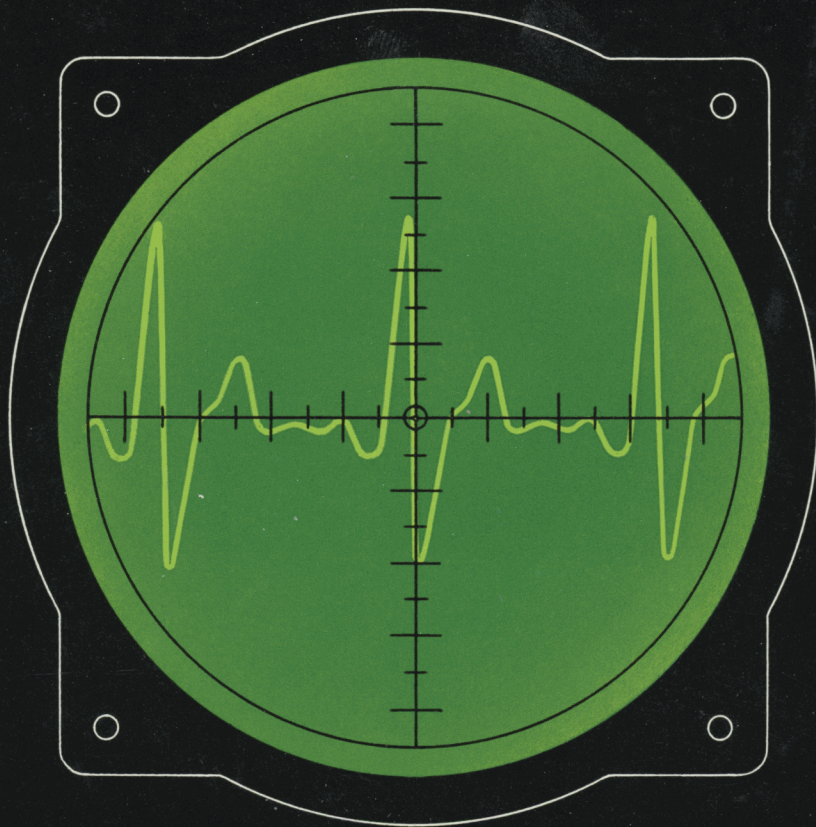


PHILIPS

CATHODE-RAY TUBES

for measuring equipment



PHILIPS ELECTRON TUBE DIVISION

DG 7-5

DB 7-5

DP 7-5

DR 7-5

PHILIPS

INSTRUMENT CATHODE-RAY TUBE

DG 7-5

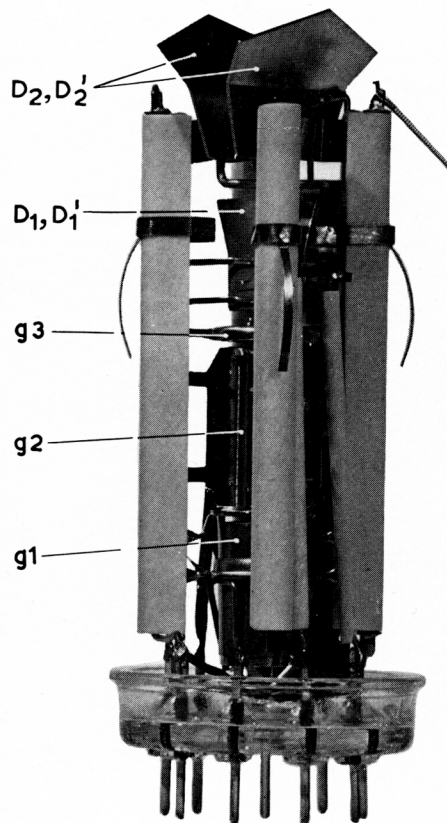
DB 7-5

DP 7-5

DR 7-5

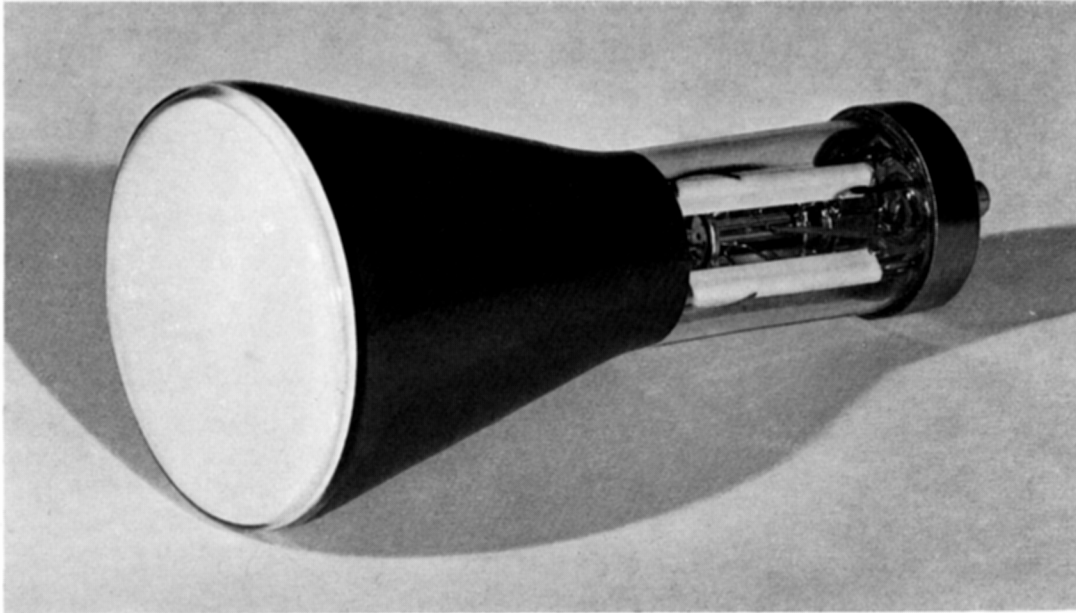
- *Overall length only*
16 cm ($6\frac{5}{16}$ ")
- *A brilliant spot*
- *No deflection defocusing*
- *Symmetric deflection*
- *Four screen types*

The Philips Cathode Ray Tube DG 7-5 with its 7 cm (3") screen, gives ample screen area and spot-brilliance for small and easily transportable low-cost oscilloscopes.



Electron gun of the cathode-ray tube DG 7-5

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



The Philips Cathode-Ray Tube DG 7-5 has the following main features:

Thanks to the small dimensions and electrical characteristics, this tube will give outstanding service in all applications where low-cost, light-weight apparatus for oscilloscopy are of prime importance.

800 Volts accelerating voltage; which can easily be obtained from a relatively simple high tension supply.

A brilliant spot owing to excellent screen properties.

A remarkably good picture over the entire screen surface.

Symmetric 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. *)

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

ELECTRICAL DATA

Screen

Tube type	Fluorescence (colour)	Persistence	
		Character	0.1% of max. brightness after
DG 7-5	green	medium	50 milli sec.
DB 7-5	blue	short	20 milli sec.
DP 7-5	blue (afterglow greenish-yellow)	very long	80 sec.
DR 7-5	greenish-yellow	long	20 sec.

Heating Indirect by A.C. or D.C.

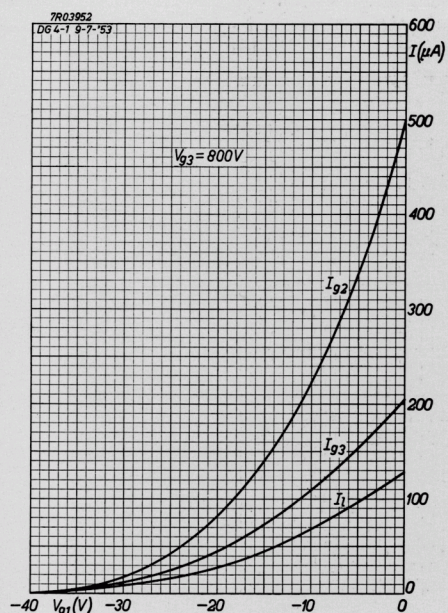
Heater voltage: . . . $V_f = 6.3$ V

Heater current: . . . $I_f = 0.31$ A

Deflection Double electrostatic D_1D_1' symmetric
 D_2D_2' symmetric

Focusing Electrostatic

Line width at $V_{g3} = 800$ V
 $I_l = 0.5$ μ A = 0.7 mm *)



Grid No 3, grid No 2 and screen current as a function of grid cut-off voltage

INTERELECTRODE CAPACITANCES

Electrodes	Symbol	Value (pF)	Electrodes	Symbol	Value (pF)
D_1 to D_1'	CD_1D_1'	0.6	D_1' to all	CD_1'	5.3
D_2 to D_2'	CD_2D_2'	0.8	D_2 to all	CD_2	4.5
$D_1 + D_1'$ to $D_2 + D_2'$	$CD_1D_1' - D_2D_2'$	0.15	D_2' to all	CD_2'	4.5
D_1 to all	CD_1	5.3	Grid 1 to all	C_{g1}	10

Operating characteristics

Grid no. 3 voltage $V_{g3} = 800$ V

Grid no. 2 voltage $V_{g2} = 200 - 300$ V

Negative grid no. 1 voltage for visual extinction of the focused spot $-V_{g1} = 0 - 50$ V

Deflection sensitivity $D_1D_1' = 0.25$ mm/V

Deflection sensitivity $D_2D_2' = 0.16$ mm V

Limiting values

Grid no. 3 voltage $V_{g3} = \text{max. } 1000$ V
min. 800 V

Grid no. 2 voltage $V_{g2} = \text{max. } 400$ V

Grid no. 1 voltage (negative value) $-V_{g1} = \text{max. } 100$ V

Grid no. 1 voltage (positive value) $+V_{g1} = \text{max. } 0$ V

Peak voltage on deflection plates D_1D_1' $V_{D_1D_1'p} = \text{max. } 450$ V

Peak voltage on deflection plates D_2D_2' $V_{D_2D_2'p} = \text{max. } 750$ V

Screen dissipation $W_l = \text{max. } 3$ mW/cm²

Maximum circuit values

Deflection plate circuit resistance $R_D = \text{max. } 5$ Mohm

Grid no. 1 circuit resistance $R_{g1} = \text{max. } 0.5$ Mohm

MECHANICAL DATA

Mounting position: any

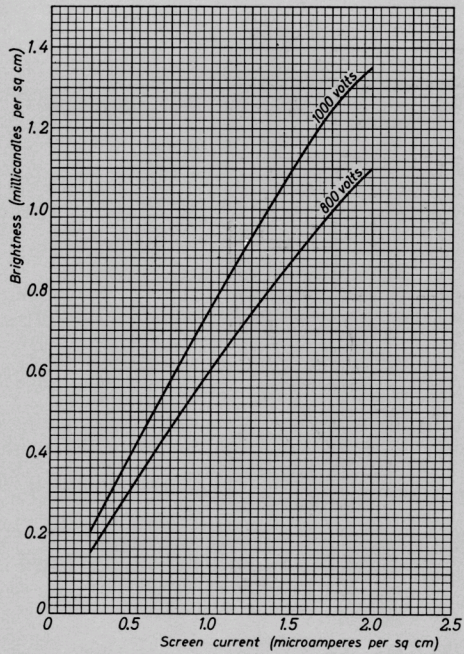
Nett weight: 140 g (5 ounces)

Dimensions: overall length 16 cm ($6\frac{5}{16}$ "")
screen diameter 7 cm (3")

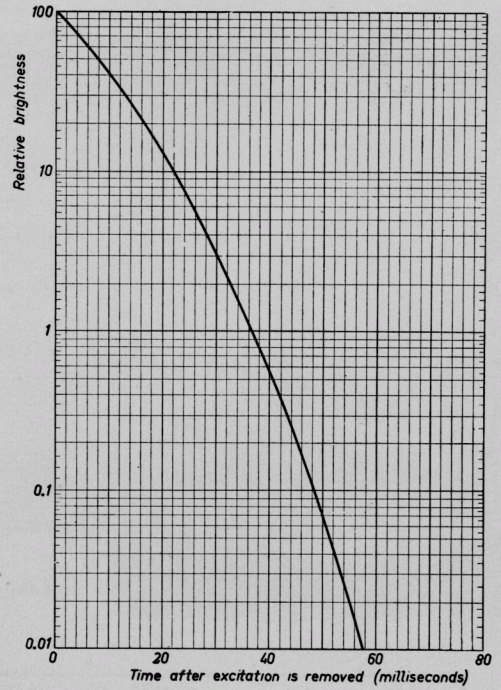
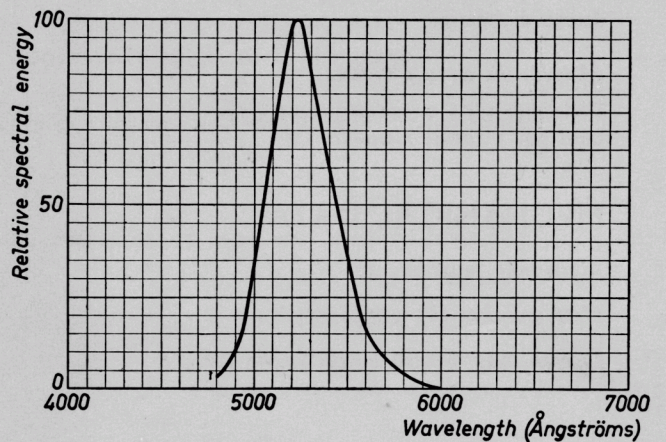
*) Measured on a circle of 50 mm diameter.

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.

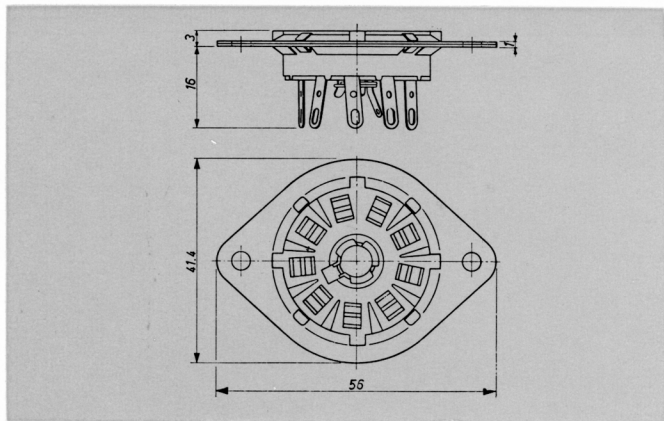


Relative spectral energy distribution of a G-screen

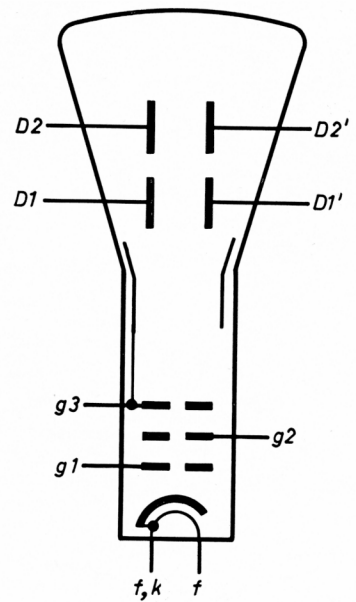


Persistence characteristic of a G-screen.

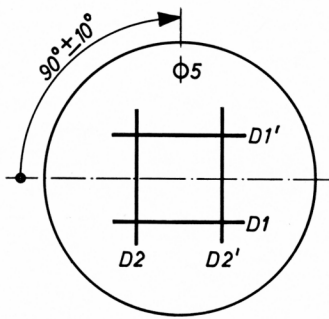
Brightness of a G-screen as a function of the screen current per square cm screen area, with the accelerating potential as a parameter.



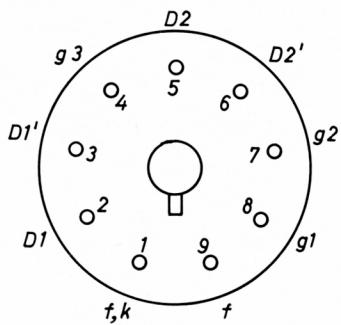
Base: English loctal 9 pins



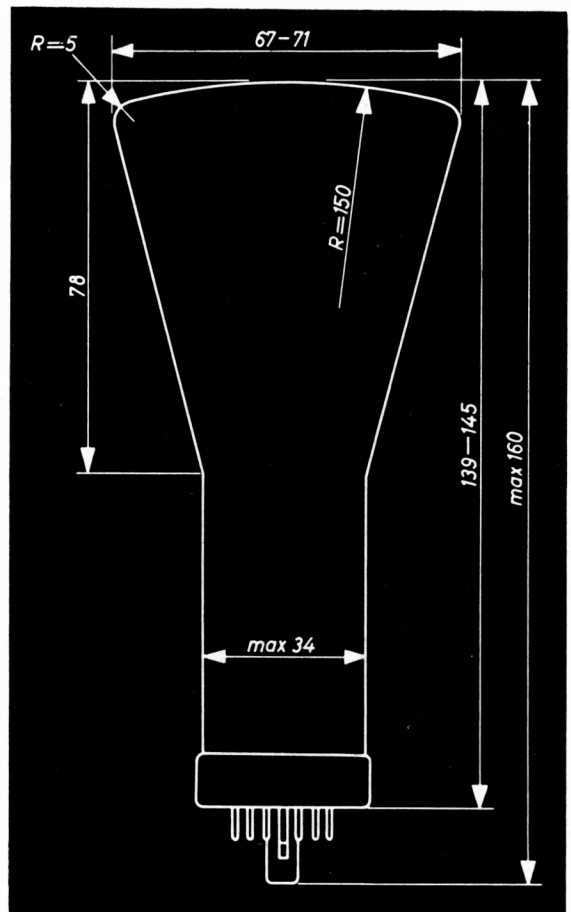
Electrode arrangement



Position of the deflection plates



Base connections



Outline drawing of the DG 7-5 (dimensions in mm)