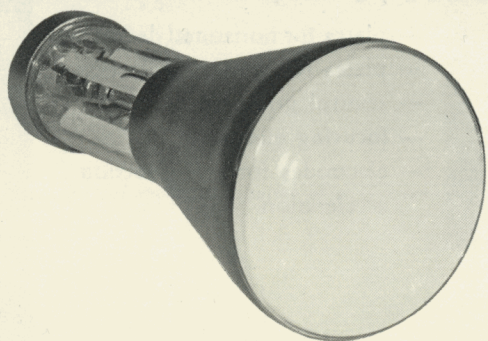
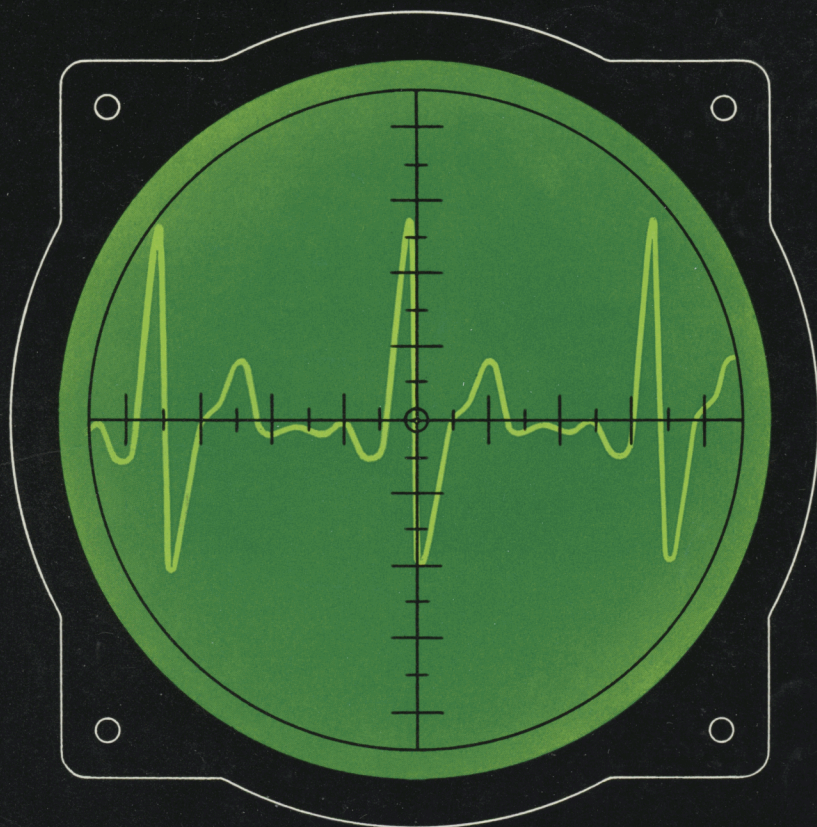


**PHILIPS**

# CATHODE-RAY TUBES

*for measuring equipment*



PHILIPS ELECTRON TUBE DIVISION

DG 7-6

DB 7-6

DP 7-6

DR 7-6

# PHILIPS

## INSTRUMENT CATHODE-RAY TUBE

DG 7-6

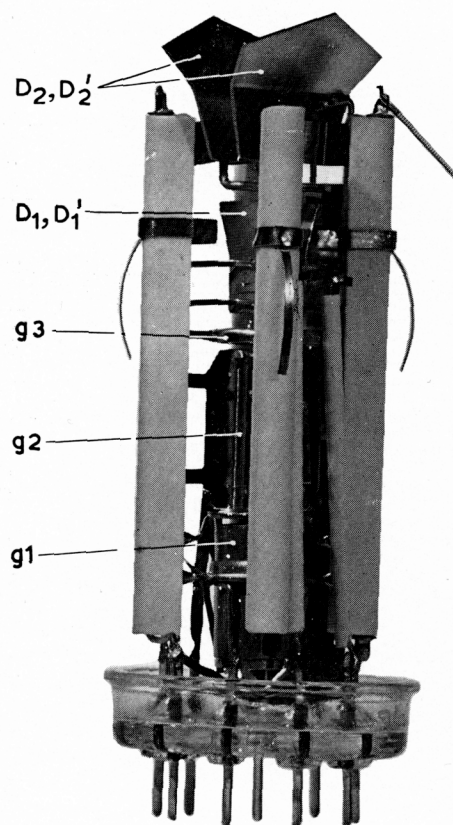
DB 7-6

DP 7-6

DR 7-6

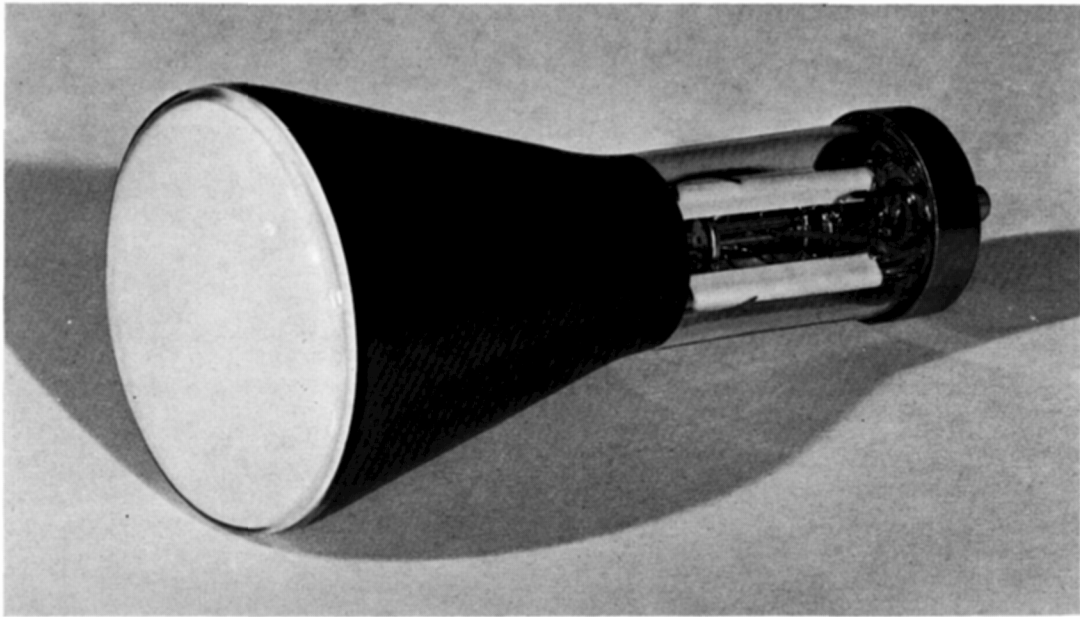
- *Overall length only of 16 cm ( $6\frac{5}{16}$ " )*
- *A brilliant spot*
- *No deflection defocusing*
- *Asymmetric deflection*
- *Different screen types*

The Philips Cathode Ray Tube DG 7-6 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 7-6*

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



The Philips Cathode-Ray Tube DG 7-6 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.

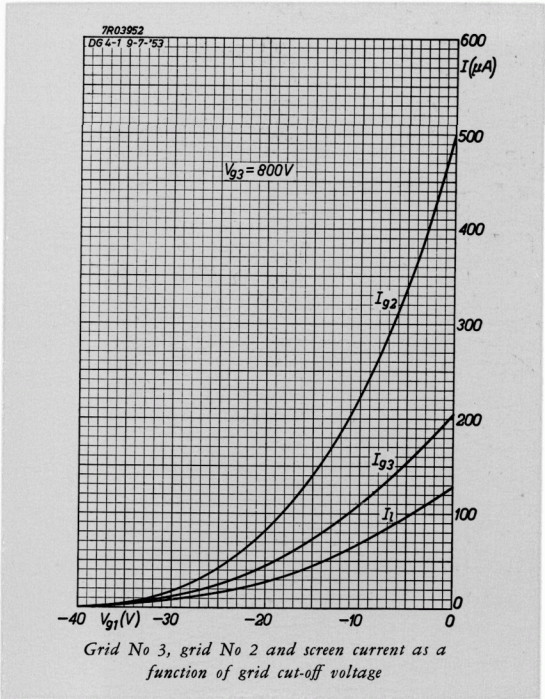
Asymmetric deflection, asking only a simple design of the timebase.

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. \*)

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\*) 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 7-6    | green                            | medium      | 50 milli sec.                 |
| DB 7-6    | blue                             | short       | 20 milli sec.                 |
| DP 7-6    | blue (afterglow greenish-yellow) | very long   | 80 sec.                       |
| DR 7-6    | 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  
 $D_2D_2'$  asymmetric

**Focusing** Electrostatic

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

| 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 $D_2 + D_2'$ | $CD_1D_1' - D_2D_2'$ | 0.5        | $D_2'$ 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 . . . . .  $V_{g3} = \begin{matrix} \text{max. } 1000 \text{ V} \\ \text{min. } 800 \text{ V} \end{matrix}$

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/cm<sup>2</sup>

### 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

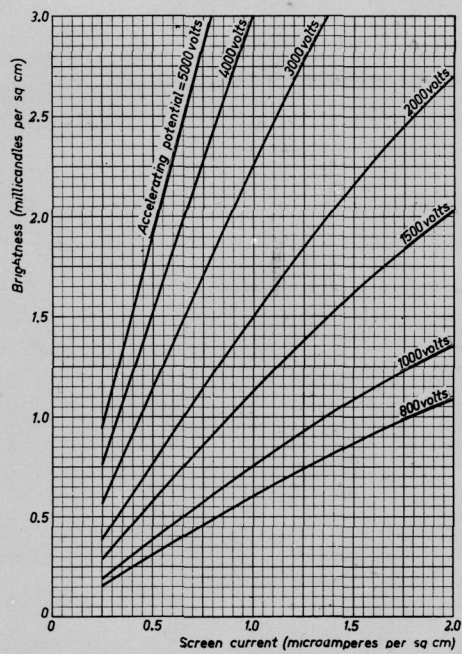
**Nett weight:** 140 g (5 ounces)

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

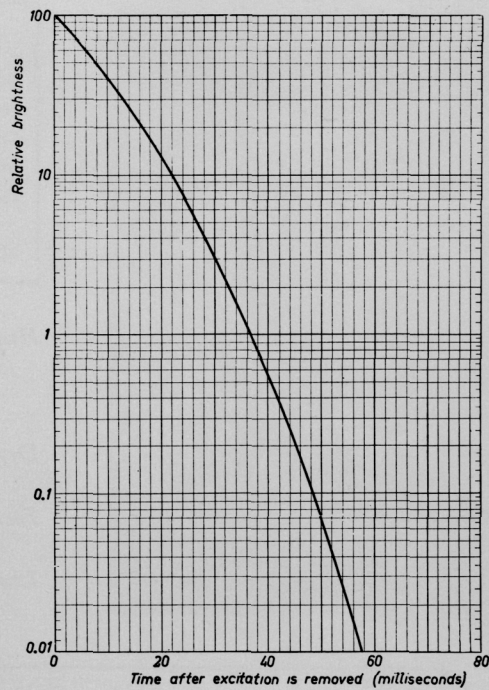
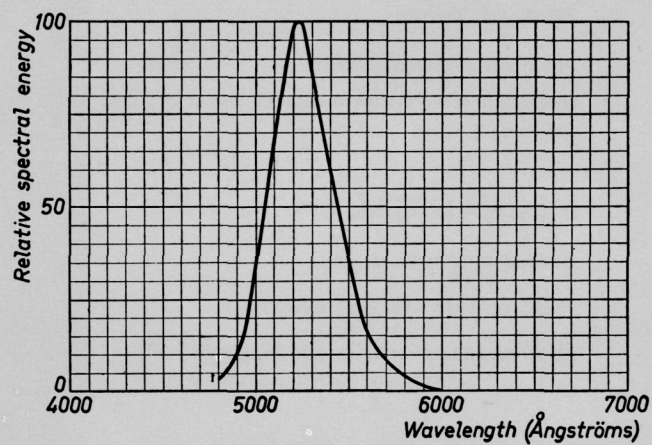
\*) Measured on a circle of 50 mm diameter.

# G-screen

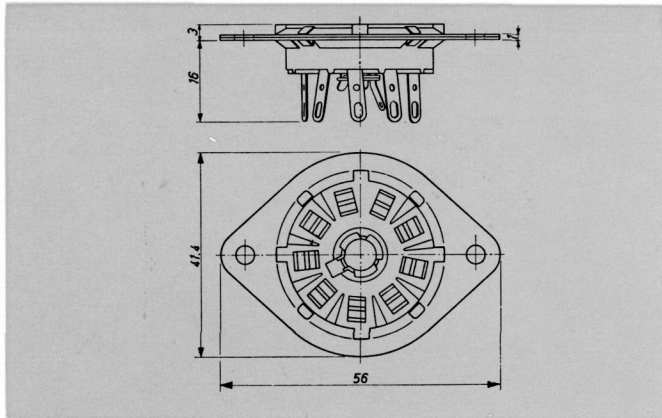
The green fluorescent G-screen provides high visual contrast under conditions of normal ambient illumination. It has medium persistence and can be used for visual observation of recurrent phenomena in the majority of applications.



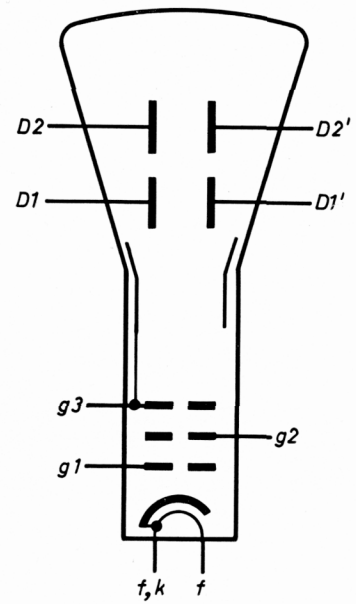
Relative spectral energy distribution of a G-screen



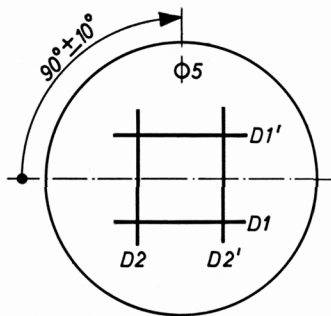
Persistence characteristic of a G-screen.



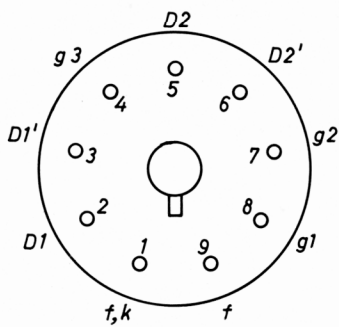
Base: English loctal 9 pins



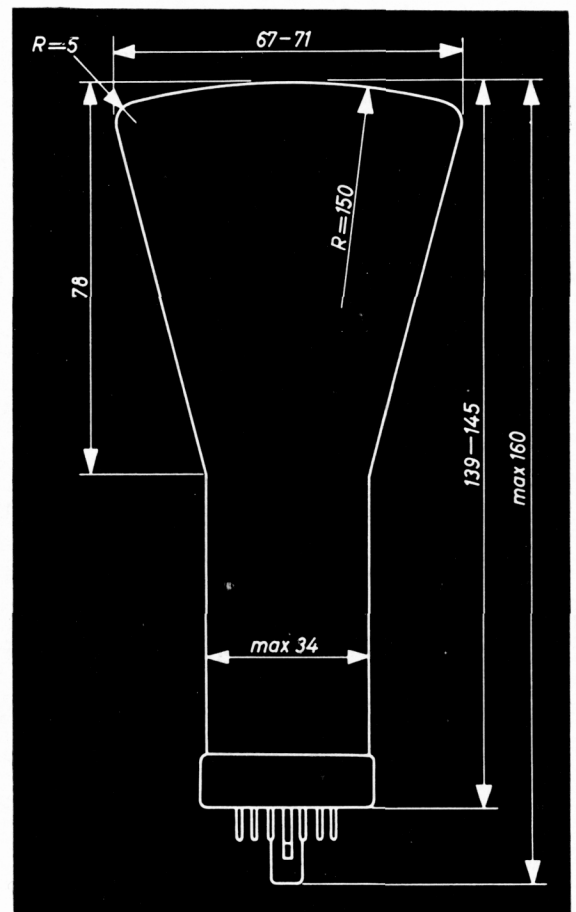
Electrode arrangement



Position of the deflection plates



Base connections



Outline drawing of the DG 7-6 (dimensions in mm)