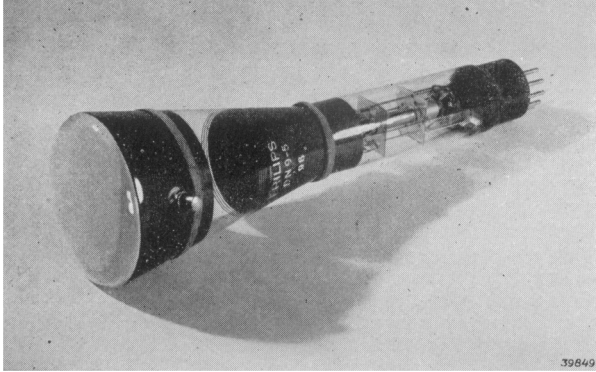


ELECTRON-RAY TUBE

**DN 9-5**



**CHARACTERISTICS**

Heater voltage . . . . .	$V_f$	=	4.0	V
Heater current . . . . .	$I_f$	=	1.0	A
Post-acceleration anode voltage . . . . .	$V_{a_3}$	=	1000	5000 V
Anode voltage . . . . .	$V_{a_2}$	=	1000	1000 V
Auxiliary anode voltage . . . . .	$V_{a_1}$	=	280	310 V
Grid bias . . . . .	$V_g$	=	0 to -40	0 to -50 V
Sensitivity of first pair of plates . . . . .	$N_1$	=	0.38	0.18 mm/V
Sensitivity of second pair of plates . . . . .	$N_2$	=	0.32	0.15 mm/V
Grid-cathode capacity . . . . .	$C_g$	=	7.5	pF
Capacity between plates of first pair . . . . .	$C_{D_1, D_1'}$	=	1.5	pF
Capacity between plates of second pair . . . . .	$C_{D_2, D_2'}$	=	2.0	pF
Type of screen . . . . .		=	persistent fluorescence	

**SPECIAL ADVANTAGES**

1. Extremely brilliant trace
2. High sensitivity
3. Writing speed up to 240 km per second

**DESCRIPTION**

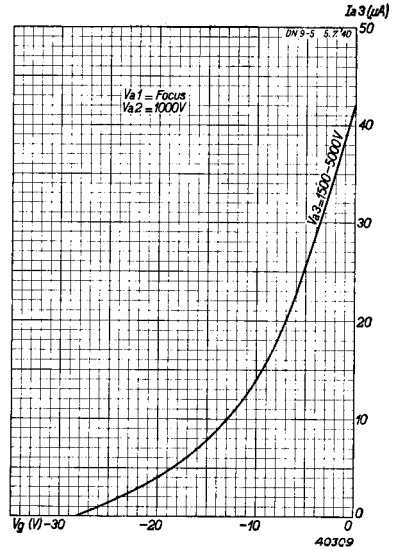
For some applications, for instance the examination of rapid aperiodic phenomena and the optical projection of oscillograms, normal electron-ray tubes provide an insufficiently bright trace. In such cases it is advantageous to use a tube of the post-acceleration type, in which the velocity of the concentrated electrons - and therefore the brightness of the trace - is markedly increased by means of a post-acceleration anode maintained at a high potential. The sensitivity of the tube is not, by this device, reduced excessively; with maximum acceleration, the sensitivity of the DN 9-5 is about half that without acceleration.

# PHILIPS "MINIWATT" SPECIAL VALVES

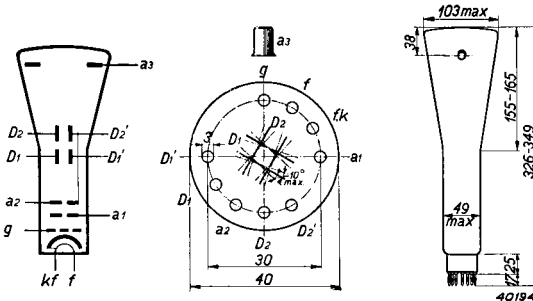
The tube has been so designed that, without acceleration and with 1000 V on the anodes  $a_2$  and  $a_3$ , a sensitivity equal to that of tube DN 9-3 is obtained; in this case the trace may occupy the whole screen, and the beam will not be cut by the edges of the deflecting plates. With maximum post-acceleration, however, the area of the trace is limited to  $40 \times 40$  millimetres.

In normal circumstances the maximum writing speed is 24 km per second (see Electron-Ray Tubes - General). With a lens of good light-transmission, aperture  $f/1$ , the speed of writing may be increased to as much as 240 km per second.

When investigating aperiodic phenomena, it rarely happens that the voltage under examination can be applied symmetrically to the deflecting plates. Usually, therefore, the voltage should be fed to the second pair of plates, which are designed for asymmetrical working. The first pair is unsuitable for asymmetrical operation, and is better used for the time base. However, when making examinations of the kind under consideration, the sweep voltage can in most cases be applied symmetrically. The screen of the DN 9-5 is of the persistent-fluorescence type, and direct observation of rapid aperiodic phenomena may accordingly be made.



Anode current shown against negative grid bias.



Arrangement of electrodes, connections and maximum dimensions in millimetres.