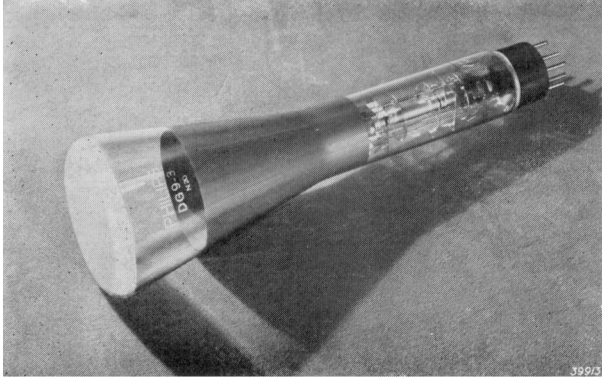


PHILIPS "Miniwatt" SPECIAL VALVES

ELECTRON-RAY TUBE

DG 9-3



CHARACTERISTICS

Heater voltage	V_f	= 4.0	V
Heater current	I_f	= 1.0	A
Anode voltage	V_{a_2}	= 1000	V
Auxiliary anode voltage	V_{o_1}	= 400	V
Grid bias	V_g	= 0 to -40	V
Sensitivity of first pair of plates	N_1	= 0.40	mm/V
Sensitivity of second pair of plates	N_2	= 0.31	mm/V
Grid-to-cathode capacity	C_g	= 7.5	pF
Capacity between plates of first pair	$C_{D_1D_1'}$	= 2.6	pF
Capacity between plates of second pair	$C_{D_2D_2'}$	= 2.8	pF
Maximum writing speed		= 0.5	km/second
Colour of spot	green	blue	persistent fluorescence
	(DG 9-3)	(DB 9-3)	(DN 9-3)

SPECIAL ADVANTAGES

1. High deflection sensitivity
2. Very clear spot
3. Convenient size
4. Asymmetrical deflection by second pair of plates

DESCRIPTION

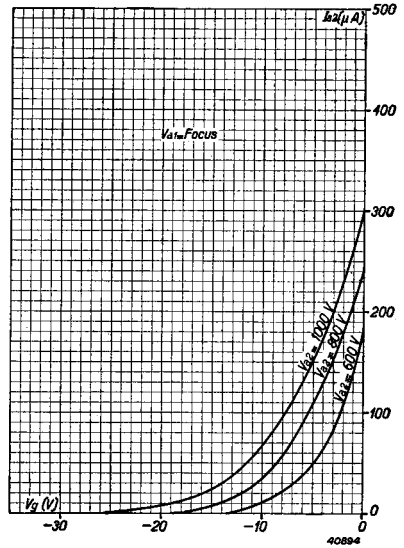
The screen diameter of the DG 9-3 is 10 cm; thus the tube is not too large for use in portable oscillographs, while the oscillograms obtained are big enough to show every detail clearly. Focusing and deflection of the beam are effected by electrostatic means. The deflection sensitivity is very high; $N_1 = 0,40$ mm/V, $N_2 = 0,31$ mm/V. The advantage of high sensitivity is especially apparent when the voltages under examination are too low for direct deflection of the beam.

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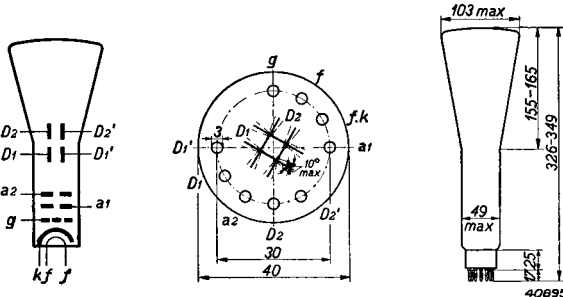
It is then necessary to use an amplifier with a response uniform over a wide range of frequencies, if a faithful picture of the input voltage is to be obtained; the anode-circuit loads in such an amplifier must be small, in order that inter-electrode capacities shall not cause undue attenuation of high frequencies. Therefore, if a high voltage is needed, the amplifier must be fitted with large output valves consuming a heavy current and working at a high anode potential. Such, however, is the sensitivity of the tube DG 9-3 that a voltage of only about 100 V (RMS) suffices for full deflection; two ordinary AF valves in push-pull will easily provide this voltage across a load of only a few thousand ohms.

The second pair of plates is designed for asymmetrical deflection, so that a simple time-base circuit may be used; to the first pair of plates the deflecting voltage is better applied symmetrically, but, even if one plate is earthed, distortion will not be appreciable. The green colour of the spot is convenient both for visual examination and for photography.

The tube is supplied not only with a green screen (DN 9-3), or with a blue screen (DB 9-3). For observing aperiodic or very slow phenomena, the persistent-fluorescence screen is an advantage; when oscillograms are to be directly recorded on photographic paper the blue screen is preferable.



Anode current shown against negative grid bias.



Arrangement of electrodes, connections, and maximum dimensions in millimetres.