

"Miniwatt" SPECIAL VALVES

ELECTRON-RAY TUBE

DG 7-1



CHARACTERISTICS

Heater voltage	V_f	=	4.0	V
Heater current	I_f	=	1.0	A
Anode voltage	V_{a_2}	= 500	800	V
Auxiliary anode voltage	V_{a_1}	= 140	220	V
Grid voltage	V_g	= 0 to -20	0 to -30	V
Sensitivity of the first pair of plates	N_1	= 0.35	0.22	mm/V
Sensitivity of the second pair of plates	N_2	= 0.24	0.14	mm/V
Grid to cathode capacity	C_g	=	6	pF
Capacity between plates of first pair	$C_{D_1 D_1'}$	=	1	pF
Capacity between plates of second pair	$C_{D_2 D_2'}$	=	3	pF
Maximum writing speed		=	0.3	km/second
Colour of spot			green	

SPECIAL ADVANTAGES

1. Minimum length in relation to screen diameter
2. Low anode voltage; a cheap and simple supply unit suffices
3. High deflection sensitivity
4. Very bright trace

DESCRIPTION

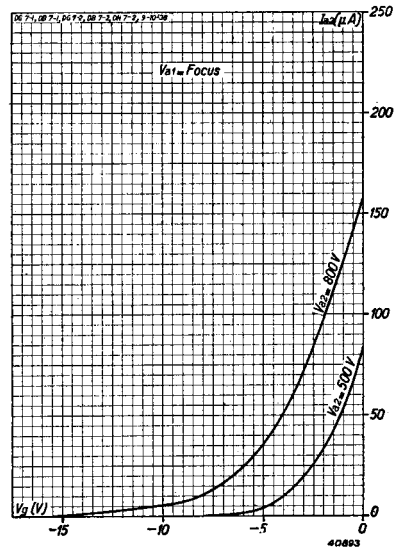
The electron-ray tube DG 7-1 has a screen of 7.5 cm in diameter. Despite the low anode potential (500-800 V), a very bright trace is obtained. Focusing of the beam is achieved by electrostatic means. Owing to the small size of the tube, and the consequent shortness of the beam, the concentrating effect of a single potential drop is insufficient, and the requisite concentration is obtained

PHILIPS "MINIWATT" SPECIAL VALVES

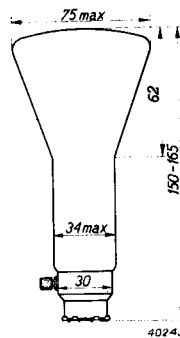
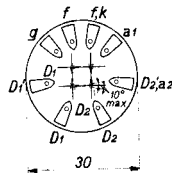
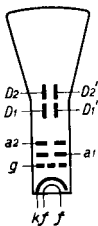
by several successive potential drops. Despite the shortness of the beam, the deflection sensitivity is high; at maximum anode potential, it amounts to 0.22 and 0.14 mm/V respectively for the first and second pairs of plates. Both sets of plates are arranged for symmetrical deflection. In order to catch secondary electrons emitted by the fluorescent screen, the inside of the bulb is coated with a conducting layer bonded to the second anode. The tube has a normal side-contact base.

The green colour of the spot is suitable both for visual examination and for photographic recording.

For the tube DG 7-1 the HT supply unit may be very simple. As a voltage of only 500-800 V is required, it is practicable to use an ordinary receiver-type rectifying valve such as the AZ 1. A conventional mains transformer may be employed, if its high-tension secondary winding is 400 + 400 V or 500 + 500 V; as the load imposed by the electron-ray tube is very light, a rectified voltage of 600 to 700 V will be obtained. Alternatively the entire HT secondary winding of a transformer for a lower voltage might be used with halfwave rectification.



Anode current shown against negative grid bias.



Arrangement of electrodes; connections and maximum dimensions in millimetres.