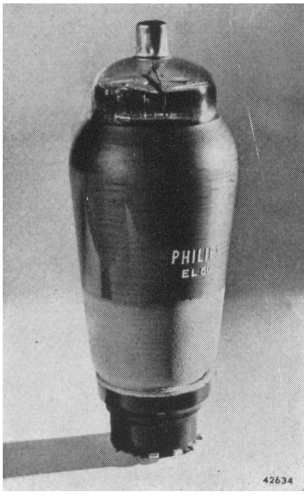
PHILIPS "Miniwatt" SPECIAL VALVES

HIGH-POWER OUTPUT PENTODE **EL 50**



CHARACTERISTICS

Heater voltage	V_f	=	6·3	V
Heater current	I_f	=	1·35	A
Anode voltage	V_a	=	800	V
Screen-grid voltage	V_{g_2}	=	400	V
Suppressor-grid voltage	V_{g_3}	=	0	V
Anode current	I_a	=	22·5	mA
Screen-grid current	I_{g_2}	=	2·5	mA
Grid bias	V_{g_1}	=	-37	V
Slope	S	=	4	mA/V
AC resistance	R_i	=	50	kΩ
Maximum output from two valves in Class AB push-pull with fixed grid bias	$W_{o\,max}$	=	84	W
Total distortion	d_{tot}	=	6·6	%
Required input per valve	V_i	=	23 V (RMS)	
Optimum load (anode to anode)	R_a	=	16	kΩ

SPECIAL ADVANTAGES

1. High efficiency
2. High sensitivity
3. Small size

DESCRIPTION

The EL 50 is an indirectly heated 18 W output pentode intended mainly for class AB push-pull stages. The best efficiency is obtained with 800 V on the anodes, 400 V on the screen grids and fixed grid bias of -37 V; under these conditions a pair of valves provides 84 W output when fully loaded, total distortion amounting to 6·6%; it is essential that the screen-grid voltage be constant if this output is to be obtained. A rectifier of minimum internal resistance should therefore be used; the gas-filled type is especially suitable.

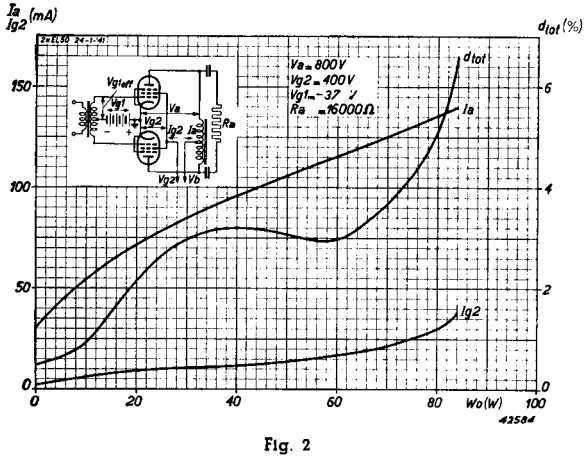


Fig. 2

Anode current I_a, screen-grid current I_{g_2} and total distortion d_{tot} shown against power output W_o for two valves EL 50 in push-pull, cl. AB with fixed bias, and V_a = 800 V, V_{g_2} = 400 V.

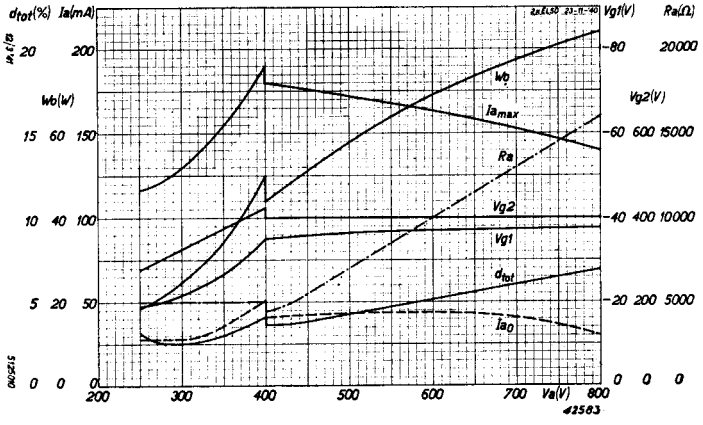
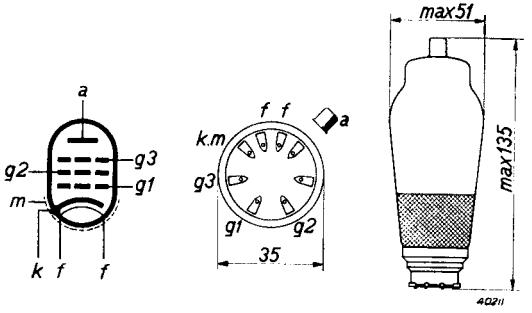


Fig. 3.

Anode current I_{amax} and standing anode current I_{ao} screen-grid voltage V_{g_2}, grid bias V_{g_1}, output power W_o, total distortion d_{tot} and anode load R_a, shown for various anode voltages, for two valves EL 50 in push-pull cl.AB with fixed bias.

Fig. 2 shows the operating conditions for a pair of valves in push-pull, with an anode voltage of 800 V.
The EL 50 may, if necessary, be used at lower voltages; the performance obtained is indicated in fig. 3, and it will be observed that, even with a high-tension supply of 400/425 V, an output of 50 W is obtainable.



Arrangement of electrodes; connections and maximum dimensions in millimetres.