

KL 4 Output pentode

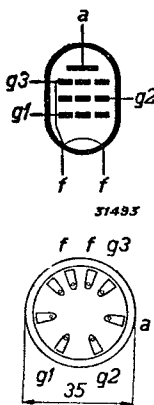


Fig. 2
Arrangement of
electrodes and
base connections.

The KL 4 is an output valve using a relatively small filament current (0.15 A). The sensitivity is very high, only a small input voltage being required for full excitation; with 135 V on anode and screen the KL 4 will deliver 0.47 W, with 11.2 % distortion. This valve is suitable for use only in balanced output stages operating without grid current; the quality of reproduction is then excellent and the output obtainable at the above-mentioned anode and screen voltage is approximately 0.8 W.

FILAMENT RATINGS

- Heating: direct by battery; parallel supply.
Filament voltage. $V_f = 2.0$ V
Filament current. $I_f = 0.150$ A

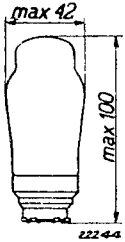


Fig. 1
Dimensions in mm.

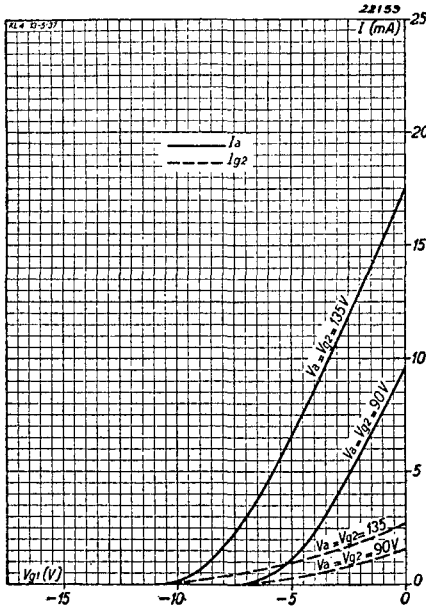


Fig. 3
Anode and screen-grid current as functions of the
grid bias, with $V_a = V_{g2} = 135$ and 90 V.

OPERATING DATA

- Anode voltage
 $V_a = 90$ 135 V
Screen-grid voltage
 $V_{g2} = 90$ 135 V
Grid bias
 $V_{g1} = -2.6$ -5 V
Anode current
 $I_a = 4.7$ 7 mA
Screen-grid current
 $I_{g2} = 0.8$ 1.1 mA
Mutual conductance
 $S = 1.8$ 2.1 mA/V
Internal resistance
 $R_i = 150,000$ 130,000 ohms
Load resistor
 $R_a = 19,000$ 19,000 ohms
Output power (10 % dist)
 $W_o = 0.16$ 0.44 W
Alternating input voltage
 $V_i = 1.9$ 3.3 V_{eff}

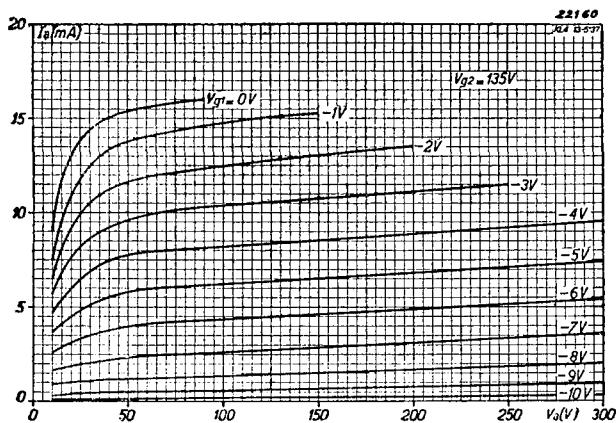


Fig. 4
Anode current as a function of the anode voltage, with grid bias as parameter, at a screen voltage of 135 V.

MAXIMUM RATINGS

V_a	= max. 135 V	W_{g2} ($W_o = \text{max}$)	= max. 0.30 W
W_a	= max. 1 W	I_k	= max. 10 mA
V_{g2}	= max. 135 V	R_{g1}	= max. 1 M ohm
W_{g2} ($V_i = 0$)	= max. 0.15 W	V_{g1} ($I_{g1} = + 0.3 \mu\text{A}$)	= max. -0.2 V

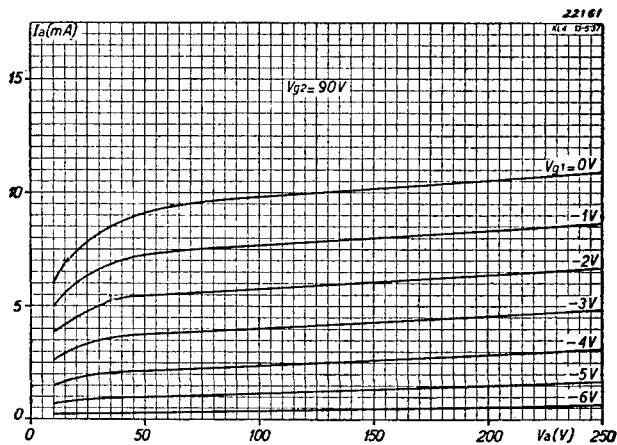


Fig. 5
Anode current as a function of the anode voltage, with grid bias as parameter, for a screen voltage of 90 V.

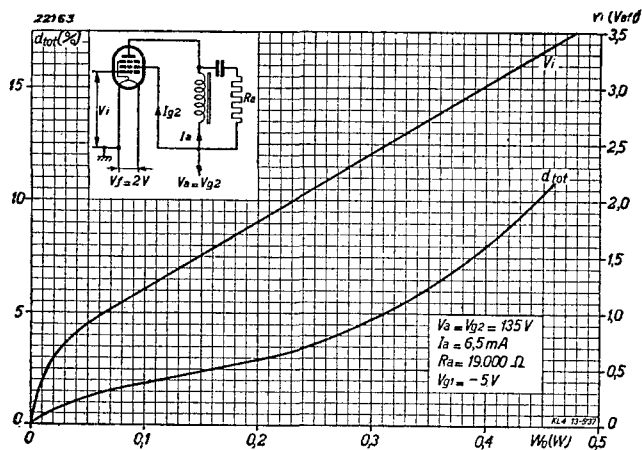


Fig. 6
Alternating grid voltage V_i and total distortion of the KL 4 as functions of the output power, on $V_a = V_{g2} = 135 \text{ V}$.

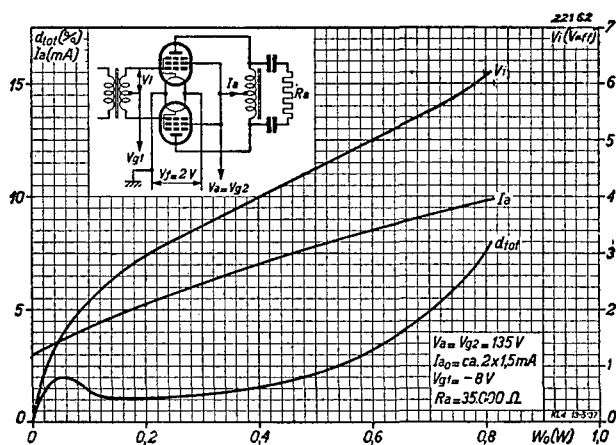


Fig. 7
Alternating grid voltage V_i , total distortion and combined anode current as functions of the output power of two KL 4 valves in a balanced circuit operating without grid current ($V_a = V_{g2} = 135 \text{ V}$).

Fig. 8
Alternating grid voltage V_i
and total distortion of the
KL 4 as functions of the out-
put power with $V_a = V_{g2} =$
90 V.

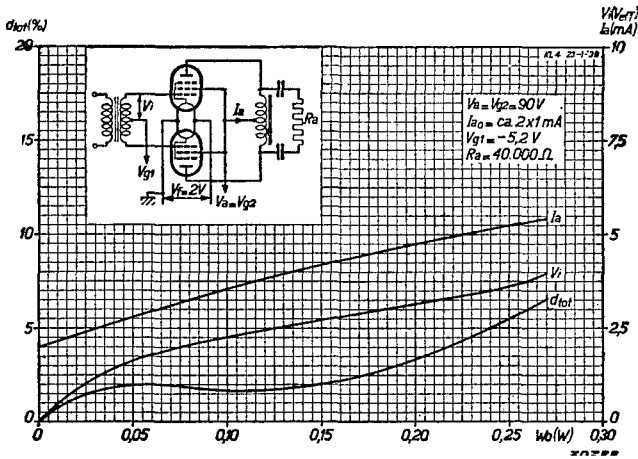
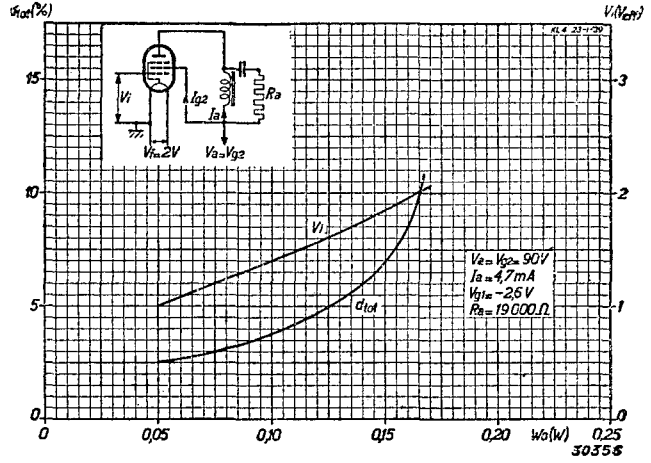


Fig. 9
Alternating grid voltage V_i ,
total distortion and combined
anode current as functions of
the output power of two KL 4
valves in a balanced circuit
operating without grid current
($V_a = V_{g2} = 90V$).