

Netzröhre für W-Helzung  
indirekt geheizt  
Parallelspeisung  
AC-Heating  
indirectly heated  
connected in parallel

# TELEFUNKEN

**EL 34**

Endpentode  
Power pentode

## Meßwerte · Measuring values

|                                     | $U_f$      | <b>6,3</b> | V |
|-------------------------------------|------------|------------|---|
|                                     | $I_f$      | 1,5        | A |
| $U_a$                               | <b>250</b> | V          |   |
| $U_{g3}$                            | <b>0</b>   | V          |   |
| $U_{g2}$                            | <b>265</b> | V          |   |
| $U_{g1}$                            | -13,5      | V          |   |
| $I_a$                               | <b>100</b> | mA         |   |
| $I_{g2}$                            | 14,9       | mA         |   |
| S                                   | 11         | mA/V       |   |
| $R_i$                               | 15         | k $\Omega$ |   |
| $\mu_{g2/g1}$                       | 11         |            |   |
| $U_{g1e}$ ( $I_{g1} = +0,3 \mu A$ ) | -1,3       | V          |   |

## Betriebswerte · Typical operation

Eintakt-A-Betrieb · Class A-amplifier

|                     |            |            |            |
|---------------------|------------|------------|------------|
| $U_b$               | <b>265</b> | <b>265</b> | V          |
| $U_a$               | <b>250</b> | <b>250</b> | V          |
| $U_{g3}$            | <b>0</b>   | <b>0</b>   | V          |
| $R_{g2}$            | <b>2</b>   | —          | k $\Omega$ |
| $U_{g1}$            | -14,5      | -13,5      | V          |
| $I_a$               | 70         | <b>100</b> | mA         |
| $I_{g2}$            | 10         | 14,9       | mA         |
| $R_a$               | 3          | 2          | k $\Omega$ |
| $U_{g1eff}$ (N)     | 9,3        | 8,7        | V          |
| N (10 %)            | 8          | 11         | W          |
| $U_{g1eff}$ (50 mW) | 0,65       | 0,5        | V          |

Als Triode geschaltet

Connected as Triode

$g_2$  an a,  $g_3$  an k

|                          |            |            |
|--------------------------|------------|------------|
| $U_{ag2}$                | <b>375</b> | V          |
| $R_k$                    | <b>370</b> | $\Omega$   |
| $I_a + I_{g2}$           | 70         | mA         |
| $I_a + I_{g2(ausgest.)}$ | 74         | mA         |
| $R_a$                    | 3          | k $\Omega$ |
| $U_{g1eff}$ (N)          | 18,9       | V          |
| N (8 %)                  | 6          | W          |
| $U_{g1eff}$ (50 mW)      | 1,7        | V          |

## Betriebswerte · Typical operation

2 Röhren in Gegentakt-AB-Betrieb

2 tubes push-pull, class AB

|                    |            |            |
|--------------------|------------|------------|
| $U_b$              | <b>375</b> | V          |
| $U_a + U_{Rk}$     | <b>355</b> | V          |
| $U_{g3}$           | <b>0</b>   | V          |
| $R_{g2}^{1)}$      | <b>470</b> | $\Omega$   |
| $R_k^{1)}$         | <b>130</b> | $\Omega$   |
| $I_a$              | 2×75       | mA         |
| $I_a(ausgest.)$    | 2×95       | mA         |
| $I_{g2}$           | 2×11,5     | mA         |
| $I_{g2(ausgest.)}$ | 2×22,5     | mA         |
| $R_{aa}$           | 3,4        | k $\Omega$ |
| $U_{g1eff}$ (N)    | 21         | V          |
| N (5 %)            | 35         | W          |

Als Trioden geschaltet

Connected as Triode

$g_2$  an a,  $g_3$  an k

|                          |            |            |
|--------------------------|------------|------------|
| $U_{ag2}$                | <b>400</b> | V          |
| $R_k^{1)}$               | <b>220</b> | $\Omega$   |
| $I_a + I_{g2}$           | 2×65       | mA         |
| $I_a + I_{g2(ausgest.)}$ | 2×71       | mA         |
| $R_{aa}$                 | 5          | k $\Omega$ |
| $U_{g1eff}$ (N)          | 22         | V          |
| N (3 %)                  | 16,5       | W          |

1) gemeinsam · common.



2 Röhren in Gegentakt-B-Betrieb  
2 tubes push-pull, class B

|                           |            |            |             |             |            |
|---------------------------|------------|------------|-------------|-------------|------------|
| $U_b$                     | <b>350</b> | <b>375</b> | <b>400</b>  | <b>425</b>  | V          |
| $U_a$                     | <b>325</b> | <b>350</b> | <b>375</b>  | <b>400</b>  | V          |
| $U_{g3}$                  | <b>0</b>   | <b>0</b>   | <b>0</b>    | <b>0</b>    | V          |
| $R_{g2}^{1)}$             | <b>470</b> | <b>470</b> | <b>1000</b> | <b>1000</b> | $\Omega$   |
| $U_{g1}$                  | <b>-32</b> | <b>-32</b> | <b>-38</b>  | <b>-38</b>  | V          |
| $I_a$                     | 2×35       | 2×35       | 2×30        | 2×30        | mA         |
| $I_{a \text{ ausgest.}}$  | 2×93       | 2×120      | 2×100       | 2×120       | mA         |
| $I_{g2}$                  | 2×4,7      | 2×4,7      | 2×4,4       | 2×4,4       | mA         |
| $I_{g2 \text{ ausgest.}}$ | 2×25       | 2×25       | 2×25        | 2×25        | mA         |
| $R_{aa}$                  | 3,8        | 2,8        | 4           | 3,4         | k $\Omega$ |
| $U_{g1 \text{ eff}} (N)$  | 22,7       | 22,7       | 27          | 27          | V          |
| N                         | 36         | 44         | 45          | 55          | W          |
| $k_{\text{ges}}$          | 6          | 5          | 6           | 5           | %          |

|                           |            |            |            |            |            |
|---------------------------|------------|------------|------------|------------|------------|
| $U_{ba}$                  | <b>475</b> | <b>500</b> | <b>750</b> | <b>800</b> | V          |
| $U_a$                     | <b>450</b> | <b>475</b> | <b>725</b> | <b>775</b> | V          |
| $U_{bg2}$                 | <b>375</b> | <b>400</b> | <b>375</b> | <b>400</b> | V          |
| $R_{g2}^{1)}$             | <b>750</b> | <b>750</b> | <b>750</b> | <b>750</b> | $\Omega$   |
| $U_{g3}$                  | <b>0</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>   | V          |
| $U_{g1}$                  | <b>-36</b> | <b>-36</b> | <b>-39</b> | <b>-39</b> | V          |
| $I_a$                     | 2×30       | 2×30       | 2×25       | 2×25       | mA         |
| $I_{a \text{ ausgest.}}$  | 2×102      | 2×125      | 2×84       | 2×91       | mA         |
| $I_{g2}$                  | 2×4        | 2×4        | 2×3        | 2×3        | mA         |
| $I_{g2 \text{ ausgest.}}$ | 2×25       | 2×25       | 2×19       | 2×19       | mA         |
| $R_{aa}$                  | 5          | 4          | 11         | 11         | k $\Omega$ |
| $U_{g1 \text{ eff}} (N)$  | 25,8       | 25,8       | 23,4       | 23,4       | V          |
| N                         | 58         | 70         | 90         | 100        | W          |
| $k_{\text{ges}}$          | 6          | 5          | 6          | 5          | %          |

1)  $R_{g2}$  gemeinsam.  
 $R_{g2}$  common.



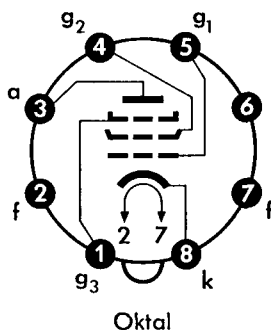
**Grenzwerte · Maximum ratings**

|                          |             |            |
|--------------------------|-------------|------------|
| $U_{ao}$                 | <b>2000</b> | V          |
| $U_a$                    | <b>800</b>  | V          |
| $N_a$                    | <b>25</b>   | W          |
| $N_{a \text{ ausgest.}}$ | <b>27,5</b> | W          |
| $U_{g2o}$                | <b>800</b>  | V          |
| $U_{g2}$                 | <b>425</b>  | V          |
| $N_{g2}$                 | <b>8</b>    | W          |
| $I_k$                    | <b>150</b>  | mA         |
| $R_{g1}^{1)}$            | <b>0,7</b>  | M $\Omega$ |
| $R_{g1}^{2)}$            | <b>0,5</b>  | M $\Omega$ |
| $U_{f/k}$                | <b>100</b>  | V          |
| $R_{f/k}$                | <b>20</b>   | k $\Omega$ |
| $t_{\text{Kolben}}$      | <b>245</b>  | °C         |

1) A-Betrieb, AB-Betrieb

2) B-Betrieb

**Sockelschaltbild**  
Base connection



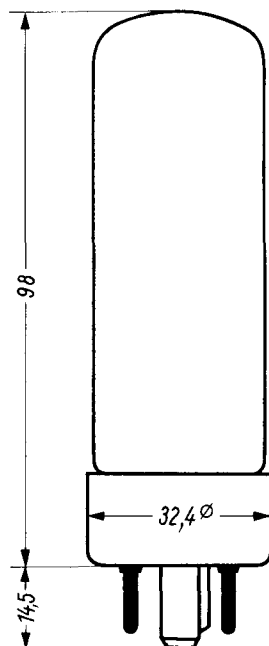
Freie Stifte bzw. freie Fassungskontakte  
dürfen nicht als Stützpunkte für Schalt-  
mittel benutzt werden.

Free pins not to be connected externally.

**Kapazitäten · Capacitances**

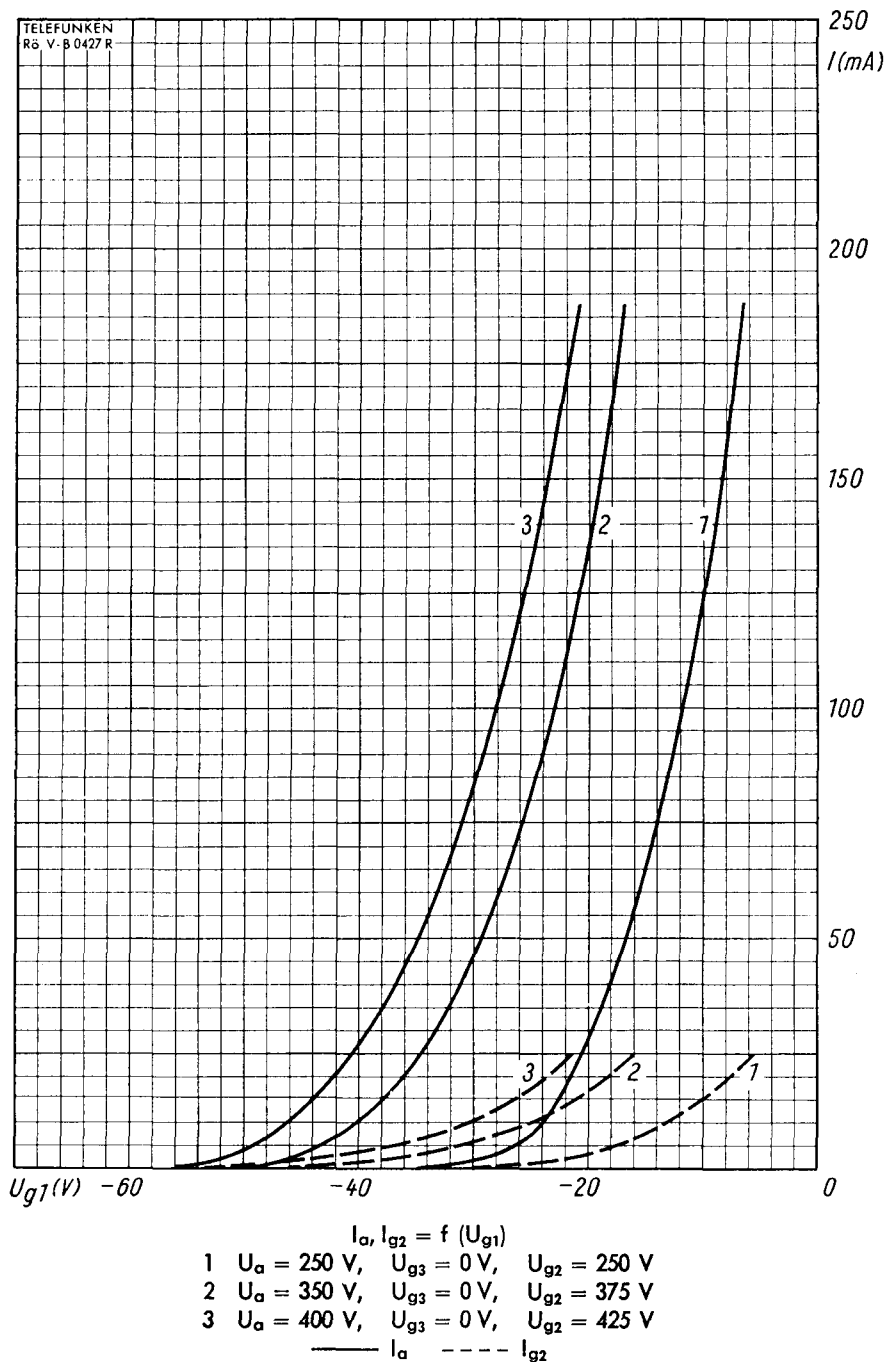
|            |          |    |
|------------|----------|----|
| $C_{g1}$   | ca. 15,2 | pF |
| $C_a$      | ca. 8,4  | pF |
| $C_{g1/a}$ | < 1,1    | pF |
| $C_{g1/f}$ | < 1      | pF |
| $C_{k/f}$  | ca. 10   | pF |

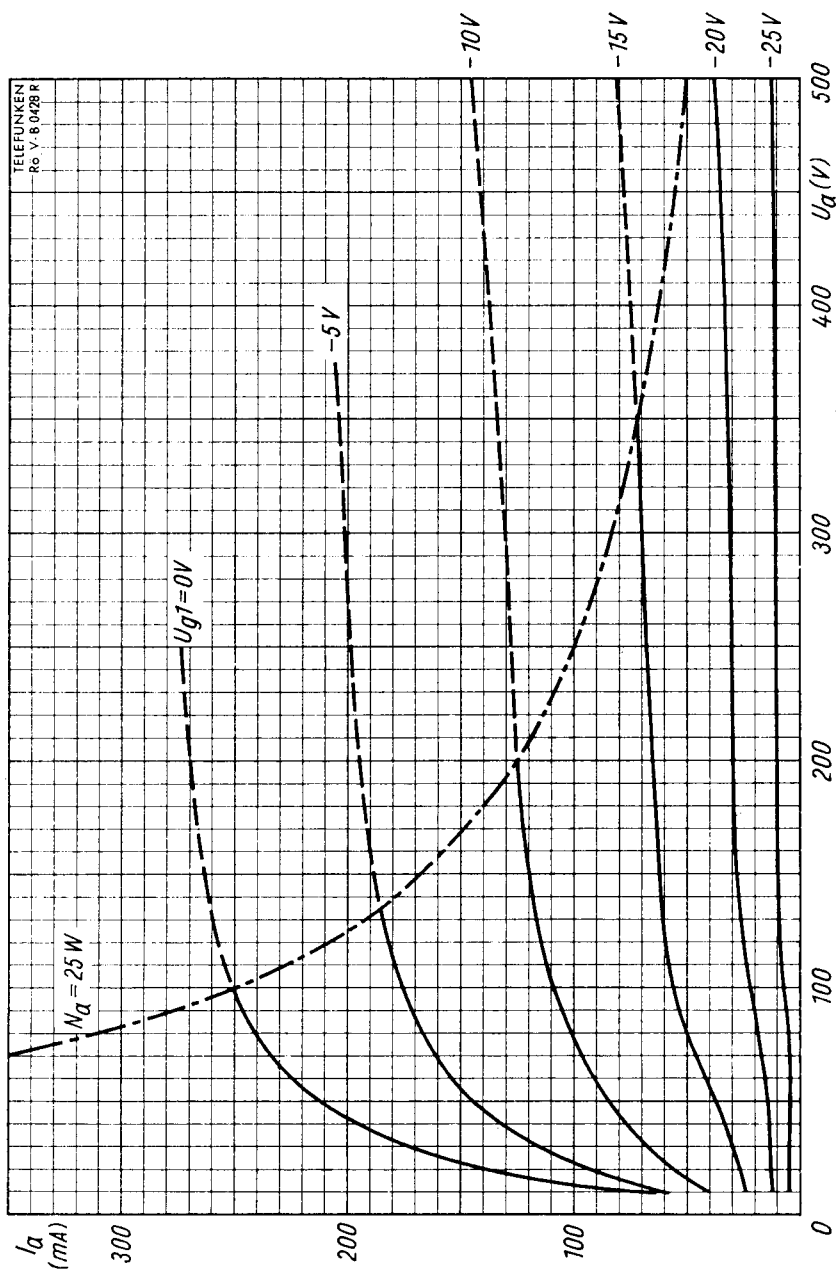
**max. Abmessungen**  
max. dimensions



**Gewicht · Weight**  
max. 50 g

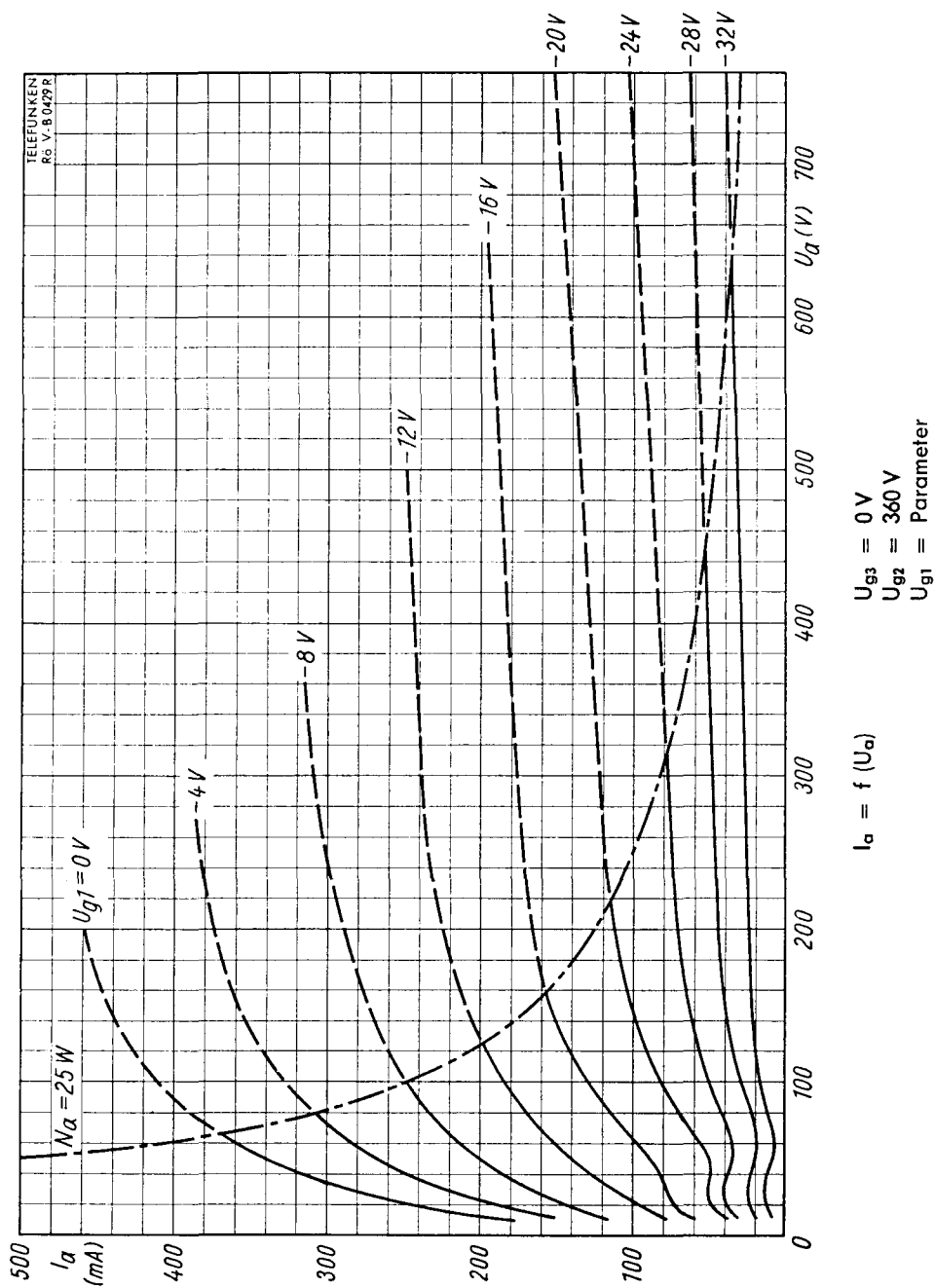


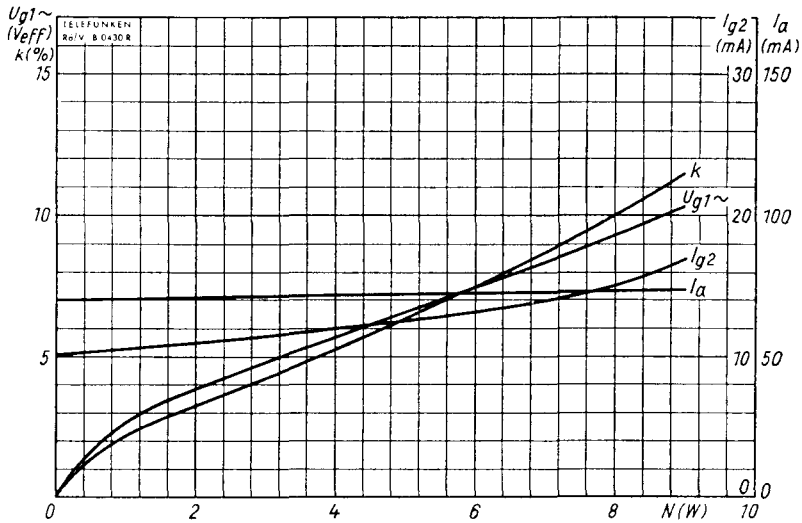




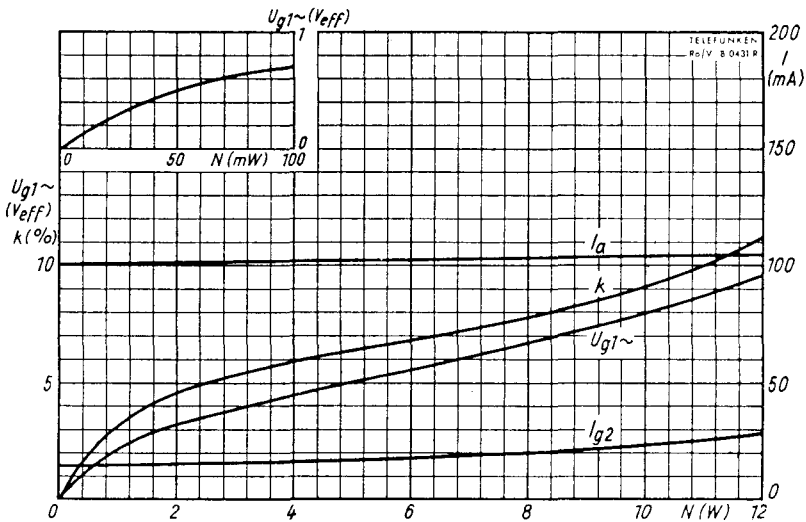
$U_{g3} = 0\text{ V}$   
 $U_{g2} = 250\text{ V}$   
 $U_{g1} = \text{Parameter}$

$I_a = f(U_a)$

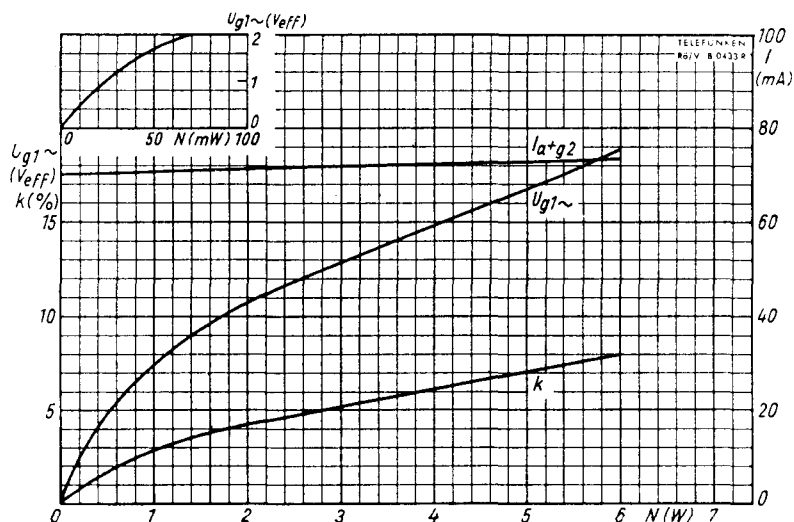



**Eintakt-A-Betrieb · Class-A-amplifier**

$U_b = 265 \text{ V}$        $U_{g3} = 0 \text{ V}$        $R_a = 3 \text{ k}\Omega$   
 $U_a = 250 \text{ V}$        $U_{g1} = -14,5 \text{ V}$        $R_{g2} = 2 \text{ k}\Omega$


**Eintakt-A-Betrieb · Class-A-amplifier**

$U_b = 265 \text{ V}$        $U_{g3} = 0 \text{ V}$        $R_a = 2 \text{ k}\Omega$   
 $U_a = 250 \text{ V}$        $U_{g1} = -13,5 \text{ V}$        $R_{g2} = 0 \text{ k}\Omega$

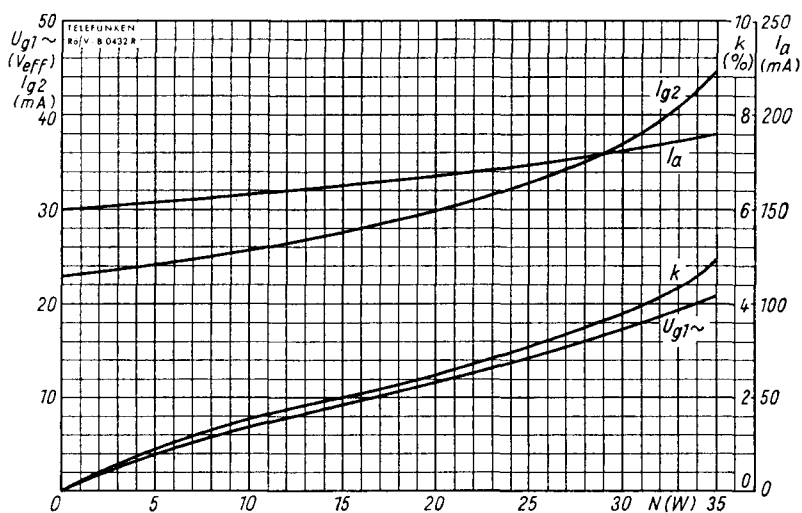
**Eintakt-A-Betrieb als Triode,  $g_2$  an a**Connected as triode,  $g_2$  to a, class-A-amplifier

$$U_b = 375 \text{ V}$$

$$R_k = 370 \Omega$$

$$U_{g3} = 0 \text{ V}$$

$$R_a = 3 \text{ k}\Omega$$

**2 Röhren in Gegentakt-AB-Betrieb • 2 tubes push-pull, class AB**

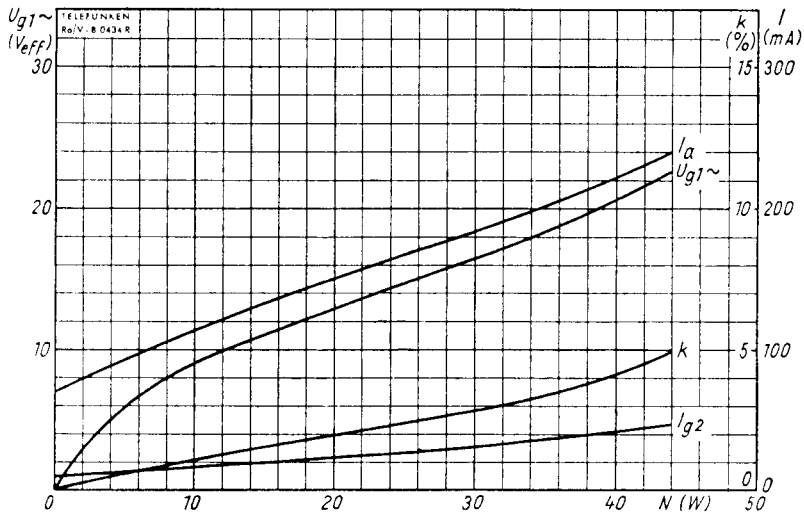
$$U_b = 375 \text{ V}$$

$$R_k = 130 \Omega$$

$$R_{g2} = 470 \Omega$$

$$R_{aa} = 3,4 \text{ k}\Omega$$





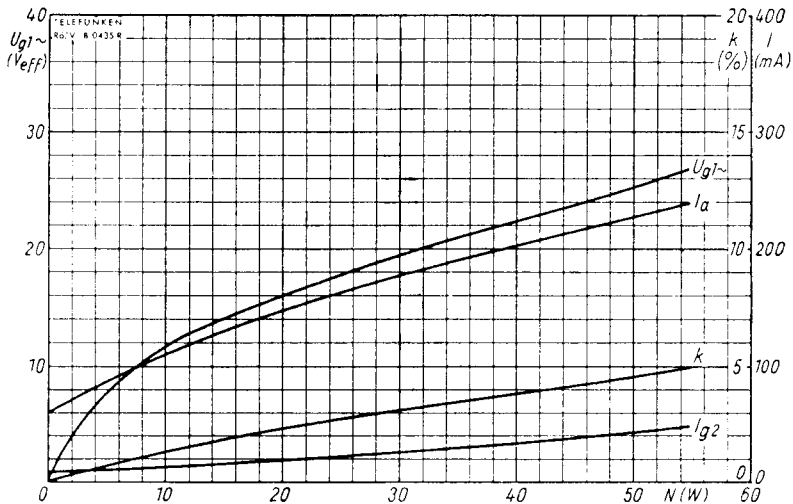
**2 Röhren in Gegentakt-B-Betrieb** · 2 tubes push-pull, class B

$$U_b = 375 \text{ V}$$

$$R_{g2} = 470 \Omega$$

$$U_{g1} = -32 \text{ V}$$

$$R_{aa} = 2,8 \text{ k}\Omega$$



**2 Röhren in Gegentakt-B-Betrieb** · 2 tubes push-pull, class B

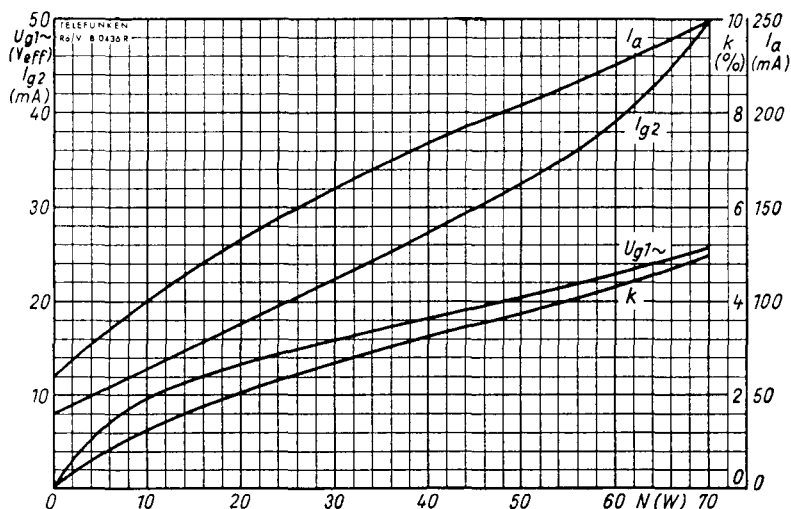
$$U_b = 425 \text{ V}$$

$$R_{g2} = 1 \text{ k}\Omega$$

$$U_{g1} = -38 \text{ V}$$

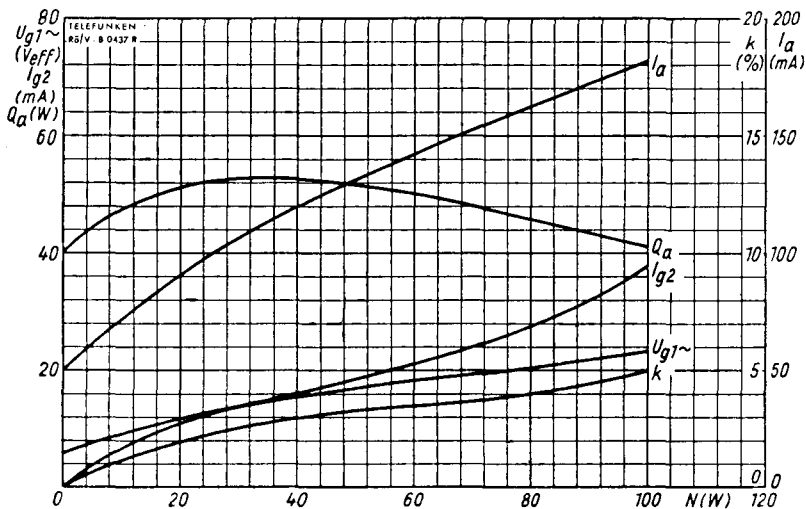
$$R_{aa} = 3,4 \text{ k}\Omega$$





2 Röhren in Gegentakt-B-Betrieb • 2 tubes push-pull, class B

$U_{ba} = 500 \text{ V}$        $U_{g3} = 0 \text{ V}$        $R_{g2} = 750 \Omega$   
 $U_{bg2} = 400 \text{ V}$        $U_{g1} = -36 \text{ V}$        $R_{aa} = 4 \text{ k}\Omega$



2 Röhren in Gegentakt-B-Betrieb • 2 tubes push-pull, class B

$U_{ba} = 800 \text{ V}$        $U_{g3} = 0 \text{ V}$        $R_{g2} = 750 \Omega$   
 $U_{bg2} = 400 \text{ V}$        $U_{g1} = -39 \text{ V}$        $R_{aa} = 11 \text{ k}\Omega$

