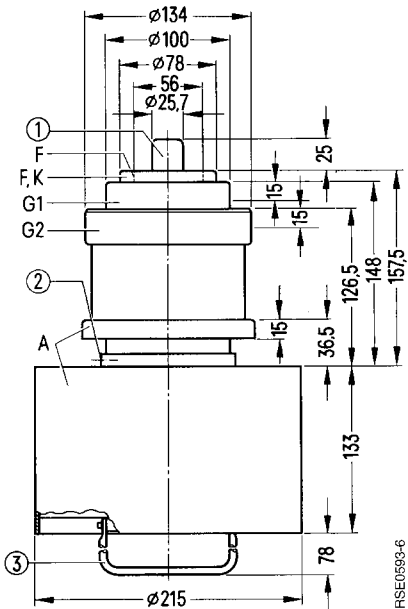


Coaxial metal-ceramic tetrode, forced-air-cooled,  
for professional broadcast and communications transmitters up to 55 kW @ 30 MHz.



Dimensions in mm

- ① Do not use as terminal
- ② Taphole M5 for tube fuse RöSich1
- ③ Handle, swingable

Approx. weight 16 kg

**Heating**

Heater voltage	$U_F$	10	V
Heater current	$I_F$	≈ 200	A
Heating: direct			
Cathode: thoriated tungsten			

**Characteristics**

Emission current @ $U_A = U_{G2} = U_{G1} = 500\text{ V}$	$I_{em}$	80	A
Amplification factor of screen grid @ $U_A = 3\text{ kV}$ , $U_{G2} = 800\text{ to }1200\text{ V}$ , $I_A = 2,5\text{ A}$	$\mu_{g2g1}$	6,6	
Transconductance @ $U_A = 3\text{ kV}$ , $U_{G2} = 1200\text{ V}$ , $I_A = 2,5\text{ A}$	$s$	65	mA/V

**Capacitances**

Cathode/control grid	$C_{kg1}$	≈ 125	pF
Cathode/screen grid	$C_{kg2}$	≈ 10	pF
Cathode/anode	$C_{ka}$	≈ 0,2	pF <sup>1)</sup>
Control grid/screen grid	$C_{g1g2}$	≈ 155	pF
Control grid/anode	$C_{g1a}$	≈ 1,6	pF <sup>1)</sup>
Screen grid/anode	$C_{g2a}$	≈ 40	pF

1) Measured by means of a 40 cm × 40 cm screening plate in the screen grid terminal plane.

**Anode and screen grid modulation,  
class C operation, grounded cathode circuit**

**Maximum ratings**

Frequency	$f$	30	MHz
Anode voltage (dc)	$U_A$	10,5	kV
Screen grid voltage (dc)	$U_{G2}$	900	V
Control grid voltage (dc)	$U_{G1}$	- 500	V
Cathode current (dc)	$I_K$	15	A
Peak cathode current	$I_{KM}$	80	A
Anode dissipation (CL)	$P_A$	30	kW
Anode dissipation (CV)	$P_A$	45	kW
Screen grid dissipation	$P_{G2}$	600	W
Control grid dissipation	$P_{G1}$	300	W

**Operating characteristics**

Frequency	$f$	≤ 30	MHz
Carrier power	$P_{trg}$	55	kW 1)
Anode voltage (dc)	$U_A$	10	kV
Screen grid voltage (dc)	$U_{G2}$	800	V
Control grid bias (dc), fixed	$U_{G1\text{ fix}}$	- 340	V
Control grid resistance	$R_{G1}$	300	Ω
Peak control grid voltage (ac)	$U_{g1\text{ m}}$	610	V
Anode current (dc)	$I_A$	6,9	A
Screen grid current (dc)	$I_{G2}$	0,5	A
Control grid current (dc)	$I_{G1}$	0,36	A
Anode input power	$P_{B\ A}$	69	kW
Drive power	$P_1$	200	W 1)
Anode dissipation	$P_A$	14	kW 2)
Screen grid dissipation	$P_{G2}$	400	W
Control grid dissipation	$P_{G1}$	40	W
Efficiency	$\eta$	80	%
Anode load resistance	$R_A$	780	Ω
Modulation factor	$m$	100	%
Peak screen grid voltage (ac)	$U_{g2\text{ m}}$	600	V 3)
Modulation power	$P_{mod}$	35	kW
Control grid current (dc)	$I_{G1}$	0,51	A 4)
Drive power	$P_1$	280	W 1) 4)
Anode dissipation @ modulation	$P_{A\ mod}$	23	kW 5)
Screen grid dissipation @ modulation	$P_{G2\ mod}$	400	W 5)

- 1) Circuit losses are not included.
- 2) Even during modulation the indicated maximum ratings must not be exceeded. It has to be observed that the plate dissipation will increase to about 1,5 times the power dissipation stated for the carrier value during 100 % modulation.
- 3) Modulation of screen grid via separate transformer winding.
- 4) Maximum values @  $U_A = 0\text{ V}$ .
- 5) Average values @  $m = 100\%$ .

RF linear amplifier,  
SSB modulation, grounded cathode circuit,  $I_{G1} = 0$

Maximum ratings

Frequency	$f$	30	MHz
Anode voltage (dc)	$U_A$	12	kV
Screen grid voltage (dc)	$U_{G2}$	1400	V
Control grid voltage (dc)	$U_{G1}$	- 350	V
Cathode current (dc)	$I_K$	15	A
Peak cathode current	$I_{KM}$	80	A
Anode dissipation (CL)	$P_A$	30	kW
Anode dissipation (CV)	$P_A$	45	kW
Screen grid dissipation	$P_{G2}$	600	W
Control grid dissipation	$P_{G1}$	300	W

Operating characteristics

		I	II 1)	III 1)	
Output power	$P_2$	0	33	16,5	kW 2)
Anode voltage (dc)	$U_A$	10	10	10	kV
Screen grid voltage (dc)	$U_{G2}$	1200	1200	1200	V
Control grid voltage (dc)	$U_{G1}$	- 185	- 185	- 185	V
Peak control grid voltage (ac)	$U_{g1 m}$	0	160	160	V
Anode current (dc)	$I_A$	2,0	5,2	3,3	A
Screen grid current (dc)	$I_{G2}$	0	250	80	mA
Anode input power	$P_{B A}$	20	52	33	kW
Anode dissipation	$P_A$	20	19	16,5	kW
Screen grid dissipation	$P_{G2}$	0	300	96	W
Efficiency	$\eta$	-	63	50	%
Third order intermodulation product	$d_3$	-	-	≥ 36	dB 3)
Fifth order intermodulation product	$d_5$	-	-	≥ 44	dB 3)

- I No modulation
- II 1-tone modulation
- III 2-tone modulation

1) Carrier suppressed.

2) Circuit losses are not included.

3) Level of non-linear cross talk resulting from third and fifth order intermodulation products as measured by the 2-tone method @  $f = 30$  MHz.

## Tube mounting

Axis vertical, anode down. The forced-air-cooled version RS 1082 CL can also be mounted anode-up in the cavity. For this reason the tube is provided with a swingable handle at the anode base.

For connection of the tube use the terminals listed under "Accessories". The complete header sockets for broadcast and communications transmitters in the medium and short-wave range can be selected corresponding to the required circuit. For grounded cathode operation in communications transmitters the two-part short-wave header sockets (RöKat82c in conjunction with RöGit82d) can be used, if a stable base as support for the screen-grid connector flange is provided in the transmitter. The individual connectors are intended for modulator applications.

## Maximum tube surface temperature

The temperature of the metal-ceramic seals of the tube must not exceed 220 °C at any point. The header sockets for transmitter applications are provided with an air inlet port through which the cooling air is evenly distributed over the connectors. The air flow rate required to keep below the specified maximum temperature is 0,6 m<sup>3</sup>/min at a pressure drop of approx. 1,5 mbar. If separate connectors are used, an evenly distributed air flow across these parts must be provided especially at higher frequencies.

## Forced-air cooling

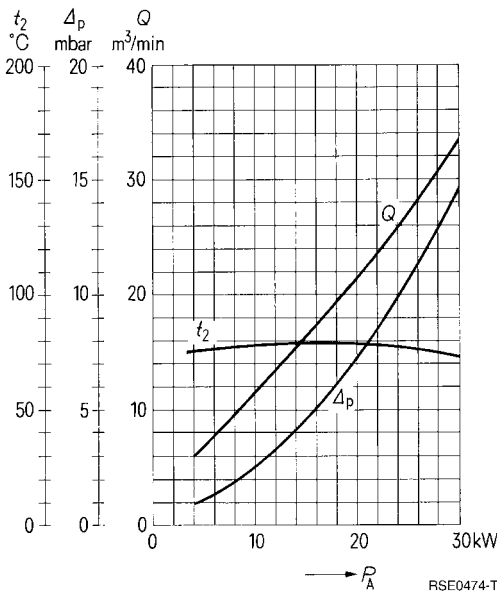
The minimum air flow rate required for the maximum anode dissipation is given in the cooling air diagram, valid for an air inlet temperature of 25 °C and a normal air pressure of 1 bar (sea level). The cooling air is supplied from the electrode terminal side.

**Safety precautions**

The tube is to be protected against damage due to electric overload or insufficient cooling. A copper wire with 0,20 mm diameter should be used to test the anode overcurrent trip circuit.

For protection against thermal anode overload the tube R6Sich1/R6Sich4 is recommended. In conjunction with pull switch R6Kt11 it disconnects the voltages at the tube in case of overload.

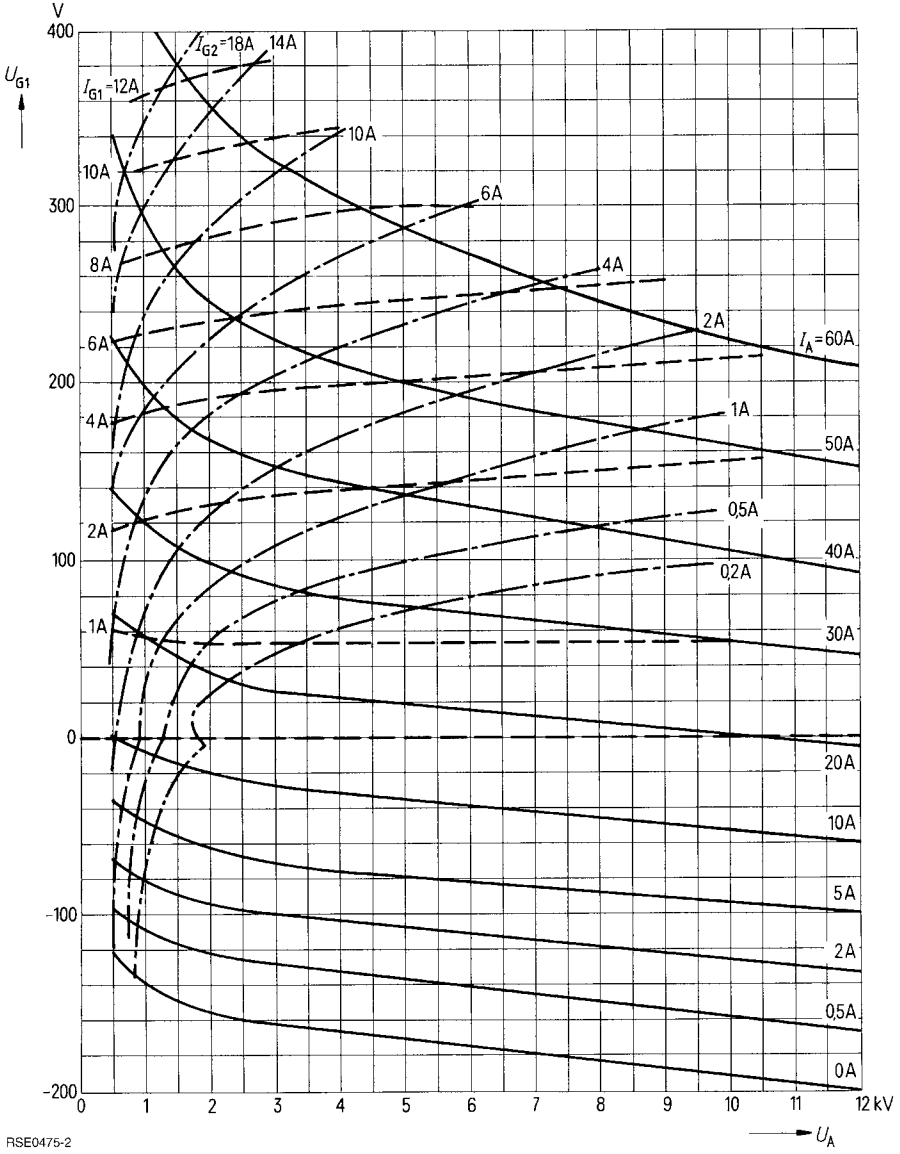
**Cooling air diagram (RS 1082 CL)**



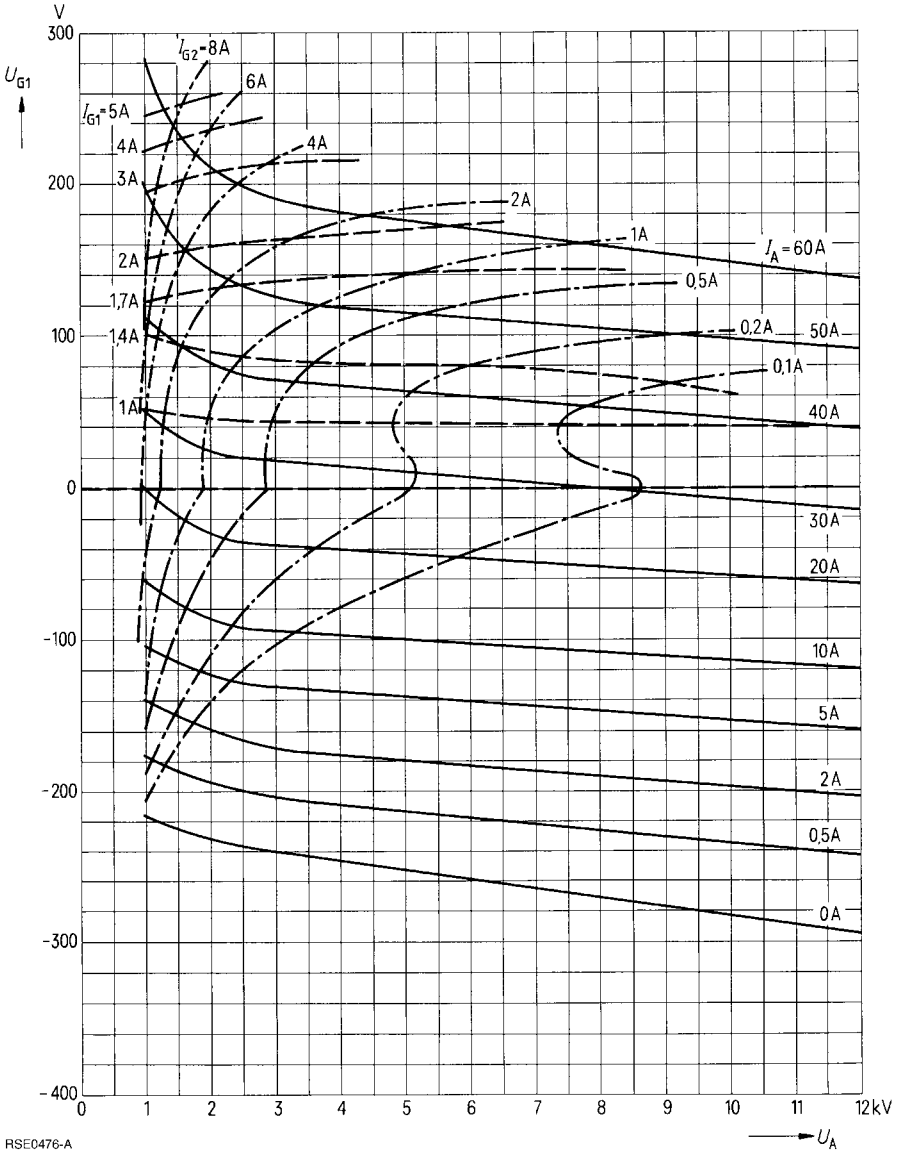
The cooling air is supplied from the electrode terminal side.

Air pressure = 1 bar  
 $t_1 = 25$  °C

$U_{G1} = f(U_A)$   
 $U_{G2} = 800 \text{ V}$   
 Parameter =  $I_A$  —————  
 Parameter =  $I_{G2}$  - - - - -  
 Parameter =  $I_{G1}$  - - - - -



$U_{G1} = f(U_A)$   
 $U_{G2} = 1200 \text{ V}$   
 Parameter =  $I_A$  —————  
 Parameter =  $I_{G2}$  - - - - -  
 Parameter =  $I_{G1}$  - - - - -



$U_{G1} = f(U_A)$   
 $U_{G2} = 1500 \text{ V}$   
 Parameter =  $I_A$  —————  
 Parameter =  $I_{G2}$  - - - - -  
 Parameter =  $I_{G1}$  - - - - -

