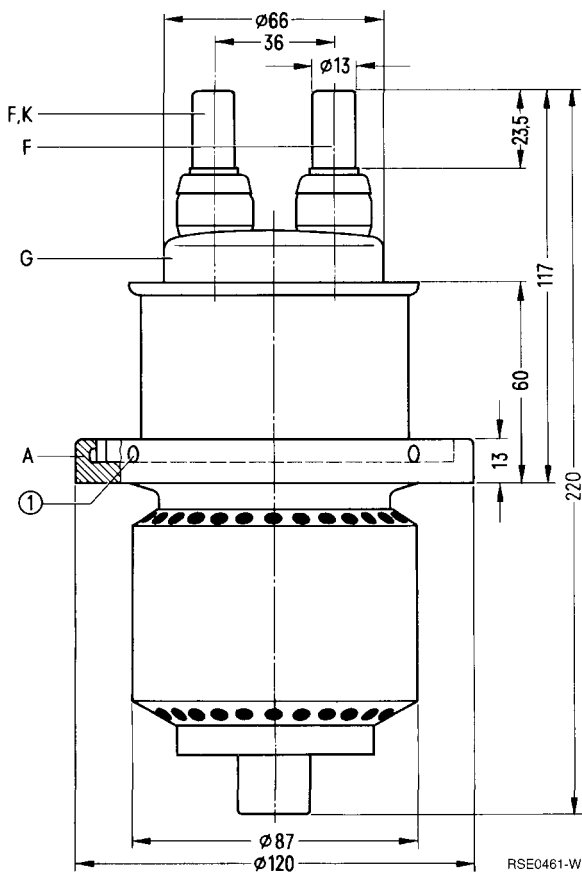


Ordering code Q53-X870

Vapor-cooled triode with coaxial grid lead-through, particularly suitable for modulators of 10 kW to 25 kW transmitters.



Dimensions in mm

① Tapholes for handle RÖZub833

Approx. weight 3,5 kg

Heating

Heater voltage	U_F	5,0	V
Heater current	I_F	≈ 80	A
Permissible starting current	I_{FM}	≤ 180	A
Heating: direct			
Cathode: thoriated tungsten			

Characteristics

Emission current at $U_A = U_G = 300$ V	I_{em}	15	A
Amplification factor at $U_A = 3$ to 6 kV, $I_A = 1$ A	μ	16	
Transconductance at $U_A = 5$ kV, $I_A = 1$ A	s	22	mA/V

Capacitances

Cathode/grid	c_{kg}	≈ 55	pF
Cathode/anode	c_{ka}	$\approx 2,0$	pF ¹⁾
Grid/anode	c_{ga}	≈ 27	pF

Accessories

Ordering code

Cathode terminal (2 for each tube)	RöKat534	Q1001-X7
Grid terminal	RöGit533	Q1001-X15
Handle	RöZub833	Q1001-X100
Boiler	RöKüV833	Q1001-X35
Water level stabilizer with control electrodes	RöZubV4	Q81-X2105
LL electrolytic target	RöEI40	C65055-A667-A40
Gasket ring for boiler		C65055-A620-C591
Gasket ring for water supply line		C65055-A620-C592
Gasket ring for vapor outlet		C65055-A620-C593

1) Measured by means of a 50 cm diameter screening plate in the grid terminal plane.

AF amplifier and modulator,
class B operation, 2 tubes in push-pull circuit

Maximum ratings

Anode voltage (dc)	U_A	10	kV
Grid voltage (dc)	U_G	– 900	V
Cathode current (dc)	I_K	4,0	A
Peak cathode current	I_{KM}	15	A
Anode dissipation	P_A	10	kW
Grid dissipation	P_G	100	W

Operating characteristics

at modulator operation for

		25 kW carrier power		20 kW carrier power		
Output power	P_2	0	20	0	16	kW
Anode voltage (dc)	U_A	7,5	7,5	6,0	6,0	kV
Grid voltage (dc)	U_G	– 460	– 460	– 370	– 370	V
Peak control grid voltage (ac) between the 2 tubes	U_{ggm}	0	1160	0	1000	V
Anode current (dc)	I_A	$2 \times 0,2$	$2 \times 2,2$	$2 \times 0,2$	$2 \times 2,2$	A
Grid current (dc)	I_G	0	$2 \times 0,1$	0	$2 \times 0,12$	A
Peak grid current	I_{GM}	0	$2 \times 0,7$	0	$2 \times 0,8$	A
Anode input power	P_{BA}	$2 \times 1,5$	$2 \times 16,5$	$2 \times 1,2$	$2 \times 13,2$	kW
Drive power	P_1	0	2×55	0	2×60	W
Anode dissipation	P_A	$2 \times 1,5$	$2 \times 6,5$	$2 \times 1,2$	$2 \times 5,2$	kW
Grid dissipation	P_G	0	2×12	0	2×15	W
Efficiency	η	–	60	–	60	%
Effective load resistance (anode to anode)	R_{AA}	–	3360	–	2640	Ω

Tube mounting

Axis vertical, anode down.
For connection of the tube use the terminals listed under “Accessories”.

Maximum tube surface temperature

The temperature of the glass-to-metal seals must not exceed 200 °C at any point. The maximum permissible temperature between grid and anode is 220 °C. If necessary, the glass bulb must be additionally cooled by a slight air flow. At the metal-to-ceramic seals of heater and cathode lead-throughs the temperature should not exceed 200 °C.

Vapor cooling

Cooling data for maximum anode dissipation	$P_{A\max} = 10\text{ kW}$
Total power to be dissipated by the cooling system ($P_A + P_G + 0,8 P_F$)	10,4 kW
Equivalent thermal output	625 kJ/min (149 kcal/min)
Flow rate of returning water	
at returning water temperature of 20 °C	approx. 0,24 l/min
at returning water temperature of 90 °C	approx. 0,27 l/min
Volume of generated vapor	
at returning water temperature of 20 °C	approx. 0,40 m³/min
at returning water temperature of 90 °C	approx. 0,45 m³/min

Detailed information on vapor cooling upon request. Please observe instructions on vapor cooling given under “Explanations on Technical Data”.

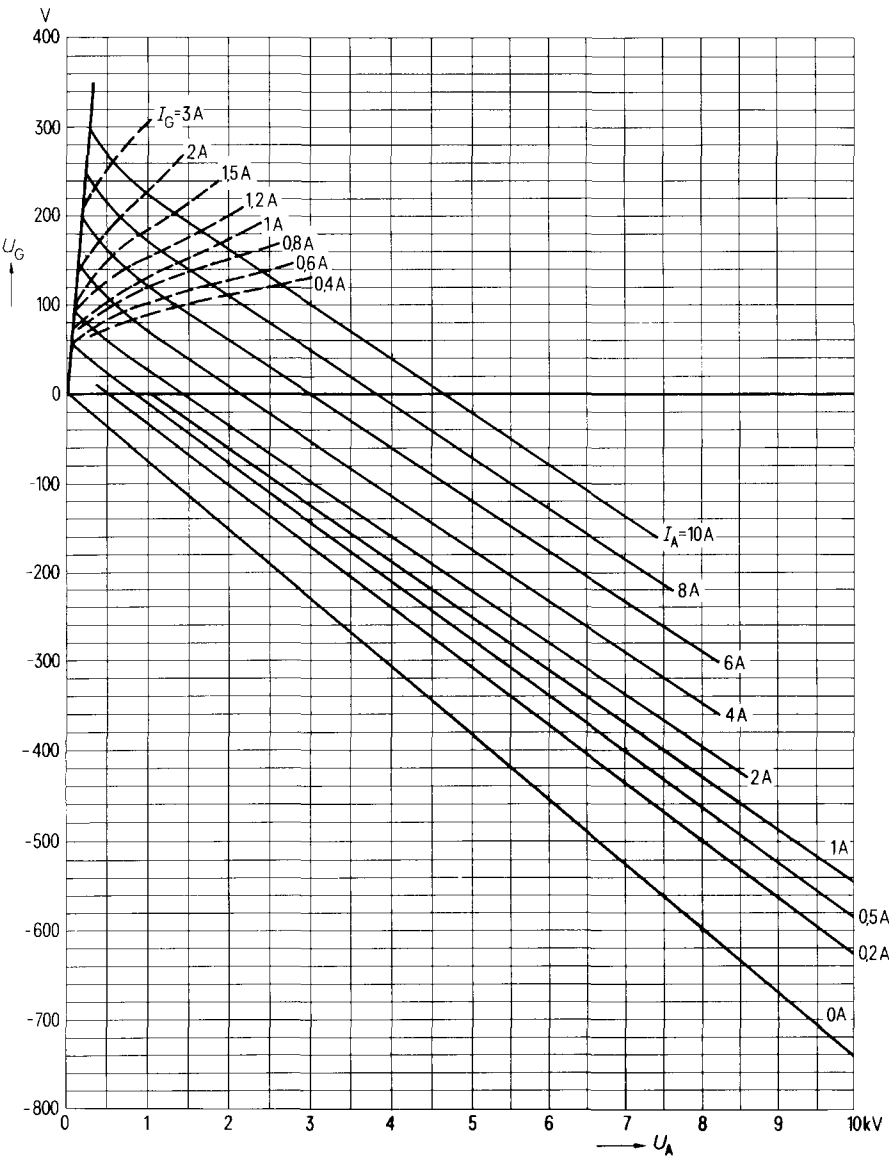
Safety precautions

The section “Safety precautions” under “Explanations on Technical Data” describes how 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.

$U_G = f(U_A)$

Parameter = I_A —————

Parameter = I_G - - - - -



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