

CTK 30-1
CTK 30-2

High- μ triode

95 kW

- Output power : 95 kW in CW mode
- Anode voltage : 14 kV
- Anode dissipation : 50 kW
- Frequencies up to 100 MHz
- Water cooled





CTK 30-2

The CTK 30-1 and CTK 30-2 are high-power, high- μ triodes designed specifically for industrial applications. These tubes use a coaxial design and metal-ceramic technology. They may be operated in CW or pulse modes.

For operation in pulse mode, the parameters depends on each equipment characteristics, contact us for specific information. These products are designed, developed and manufactured at an ISO 9001 registered production site.

Electrical characteristics

Cathode	thoriated tungsten		
Filament voltage (+5 %, -10 %) (1)	11	V	
Filament current	240	A	
Surge current	900	A	max.
Cold resistance	6	m Ω	
Capacitances :			
• grid-anode	52	pF	
• grid-cathode	105	pF	
• cathode-anode (2)	0.45	pF	
Amplification factor	200		approx.
Transconductance (Va : 8 kV, Ia : 6 A)	105	mA/V	approx.

Mechanical characteristics

Operating position	vertical, anode up or down		
Weight	10.3	kg	approx.
Dimensions	see outline drawing		
Filament connections :			
• CTK 30-2	filament connection by flexible leads - length 400 mm without leads	mm	approx.
• CTK 30-1			

Maximum ratings

Frequency (3)	100	MHz	
Anode voltage :			
• up to 30 MHz	14	kV	
• from 30 to 60 MHz	12.5	kV	
• from 60 to 100 MHz	11	kV	
Control grid voltage	- 1500	V	
Peak cathode current, CW	80	A	
Anode dissipation :			
• deionized or distilled water	50	kW	
• industrial water	40	kW	
Grid dissipation :			
• up to 30 MHz	2	kW	
• from 30 to 60 MHz	1.75	kW	
• from 60 to 100 MHz	1.6	kW	
Grid resistance (tube non conducting)	10	k Ω	max.

(1) At frequencies above 50 MHz, the filament voltage is reduced so that the ratio of filament voltage to current becomes the same as that without an anode voltage.

(2) Measured with a 40 x 40 cm shielding plate attached to the grid plate.

(3) Limited conditions above 30 MHz. Please consult Thales Electron Devices.

Cooling

Anode cooling	water
Cooling water flow and pressure gradient	see cooling curves
Temperature at outlet (industrial water)	60 °C max.
Cooling water inlet pressure	5 bar max.
Temperature at any point on tube envelope	220 °C max.
Air flow on filament head	0.5 m ³ /mn

Typical operation (4)

Class C, RF amplifier or oscillator, CW

Frequency	30	MHz
Anode voltage	12	kV
Grid bias	- 260	V
Grid voltage	640	V
Anode current (5)	9.9	A
Grid current (5)	3.3	A
Anode input power	119	kW
Anode output power (oscillator)	90	kW
Anode dissipation (5)	26.5	kW
Grid dissipation (5)	1.1	kW
Grid drive power (6) (circuit losses not included)	2	kW
Grid resistance (oscillator)	80	Ω

(4) Other type of operation possible on request (higher frequencies, AB2-linear amplifier, class B RF amplifier in pulsed operation).

(5) Average value.

(6) Cathode-grounded operation. Grid-grounded operation possible on request.

Cooling curves

Distilled, deionized or tap water may be used for cooling. The water flow rate and pressure drop required for a particular anode dissipation are indicated on the cooling curves.

P_a : anode dissipation

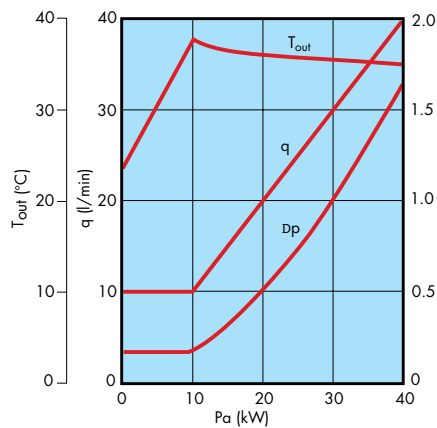
Δp : pressure drop across the water cooler

q : water flow rate

T_{out} : outlet water temperature

(for an inlet water temperature of 20°C with industrial water and 50°C with distilled or deionized water).

Industrial water - minimum resistivity : 5 kΩ.cm



Distilled or deionized water - minimum resistivity : 50 kΩ.cm

