START POWER s.r.l.

ITL 15-2

Forced-air cooled triode

45 kW

- Output power: 45kW in CW mode
- Anode voltage: 13kV
- Anode dissipation: 17kW
- Frequency up tp 120 Mhz

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For operation in pulse mode, the parameters depend on each equipment characteristics. Contact us for specific information. The ITL 15-2 is an air cooled triode. This product is designed, developed and manufactured at an ISO 9001 registered production site.

Electrical characteristics

Filament	thoriated tungsten		
Filament voltage (+ 5 %, - 10 %) (1)	7.2	V	
Filament current	180	A	
Surge current	500	A	max.
Cold resistance	5	mW	
Capacitances:			
• grid-anode	25	pF	
• grid-cathode	60	pF	
• cathode-anode (2)	1.4	pF	
Amplification factor	25		approx.
Transconductance (Va: 4 kV, Ia: 1 A)	60	mA/V	approx.

Mechanical characteristics

Operating position	vertical, anode up or down		
Weight	9	kg	approx.
Dimensions	see outline drawing		

Cooling

Anode cooling	forced air		
Inlet air temperature	45	°C	max.
Cooling air flow	5	m^3/min	min.
Temperature at any point on tube envelope	220	°C	max.

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Maximum ratings

Frequency(3)	120	MHz
Anode voltage:		
• up to 30 MHz	13	kV
• from 30 to 60 MHz	11	kV
• from 60 to 90 MHz	9	kV
• from 90 to 120 MHz	7	kV
Control gridvoltage	-1 500	V
Anode current, CW	8	A
Control-grid current:		
• at full load, CW	1.6	A
• at no load, CW	3	A
Peak cathode current, CW	40	A
Anode dissipation:		
• inlet air temperature = 25°C	17	kW
• inlet air temperature = 45°C	15	kW
Grid dissipation:		
• up to 30 MHz	600	W
• from 30 to 60 MHz	520	W
• from 60 to 90 MHz	460	W
• from 90 to 120 MHz	400	W
Grid resistance (tube non conducting)	10	KW

(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.

Typical operation (4)

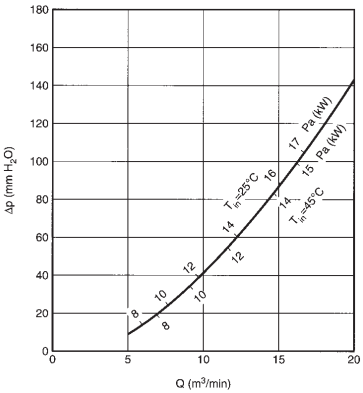
Class C RF oscillator for industrial applications

Examples	1	2	
Frequency	30	30	MHz
Anode voltage	12	10	kV
Grid bias	- 650	- 600	V
Grid voltage	910	920	V
Anode current	5	6	A
Grid current, on load	0.33	0.6	A
Anode input power	60	60	kW
Anode output power	45	45	kW
Anode dissipation	14.5	14.5	kW
Grid dissipation	75	170	W
Grid resistance	1 970	1 000	W
Feedback ratio	8.4	10.2	%
Oscillator efficiency	75	75	%

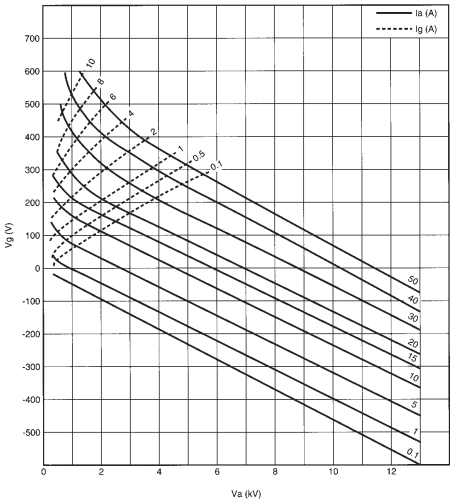
(4) Operation with higher frequencies on request.

Cooling curve

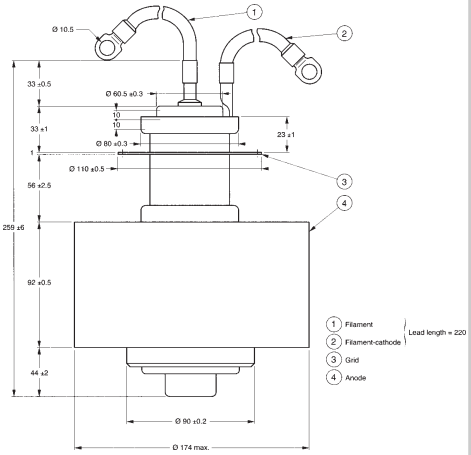
The required flow rates and pressures drop may be read off the cooling curve.
This is valid for both air-flow directions.
Pa: anode dissipation
Δp: pressure drop across the cooler fins
q: air flow rate
T_{in}: inlet air temperature



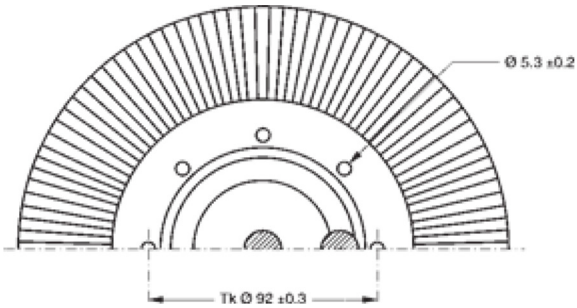
Constant current characteristics



Outline drawing (dimensions in mm)



Top view (dimensions in mm



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