PET15-2W

Water Cooled Triode
For Industrial RF Heating

Drop in equivalent of ITK 15-2

- Output Power: 63 kW in CW mode
- Anode voltage: 13 kV
- Anode dissipation: 20 kW
- Frequency up to 120 MHz

Manufactured in India, in a world-class facility equipped with high quality machinery, materials and components sourced from reputed suppliers in America, Europe and Japan.

Fifty-two weeks warranty against manufacturing defects irrespective of the number of hours of operation.

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The PET15-2W is a RF power triode designed specifically for industrial applications. This tube uses a coaxial design and metal-ceramic technology. This triode may be operated in CW or pulse modes. For operation in pulse mode, the parameters depend on each equipment characteristics. Contact us for specific information. The PET15-2W is a water cooled triode.

Electrical characteristics

Filament	thoriated tungsten
Filament voltage (+ 5 %, - 10 %) (see note 1)	7.2 V
Filament current	180 A
Surge current (maximum)	500 A
Cold resistance	5 mΩ
Capacitances:	
• Grid to Anode	25 pF
• Grid to Cathode	60 pF
• Cathode to Anode (see note 2)	1.4 pF
Amplification factor	25 (approx.)
Transconductance (Va: 4 kV, Ia: 4 A)	60 mA/V (approx)

Mechanical characteristics

Operating position	vertical, anode up or down
Weight	3.8 kg (8.4 lbs) approx.
Dimensions	see outline drawing

Maximum ratings

Frequency (see note 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 grid voltage	-1500 V
Anode current	8 A
Control grid current:	
• At full load	1.6 A
• At no load	3 A
Peak cathode current, CW	40 A
Anode dissipation:	
• Industrial cooling water	20 kW
• distilled or deionized water	20 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 KΩ

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 m3/min

Typical operation (see note 4)
Class C RF oscillator for industrial applications

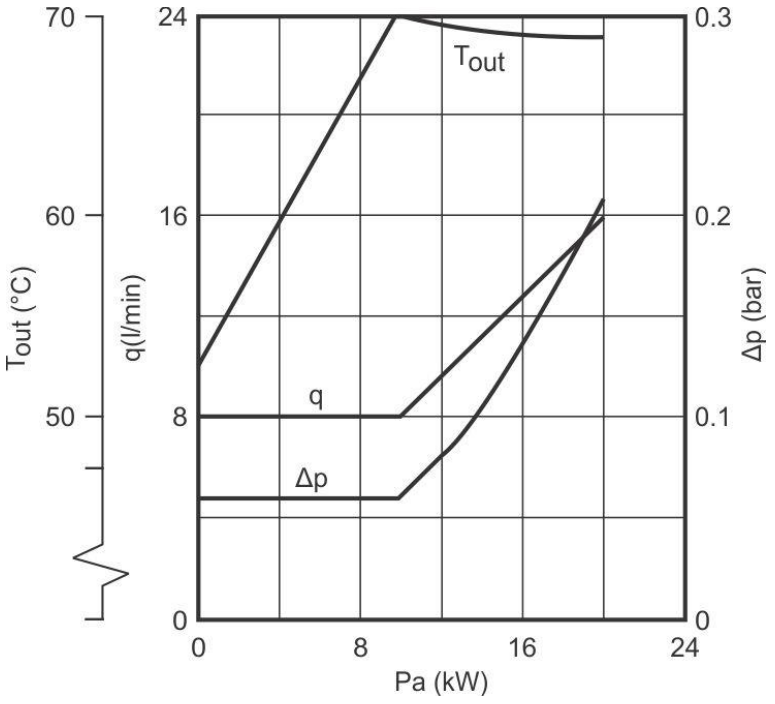
Frequency	30	30	MHz
Anode voltage	12	10	kV
Grid bias	- 700	- 610	V
Grid voltage	1060	1000	V
Anode current	6.8	7.1	A
Grid current, on load	0.70	0.87	A
Anode input power	81.6	71	kW
Anode output power	63	54	kW
Anode dissipation	18	16	kW
Grid dissipation	222	305	W
Grid resistance	1000	700	Ω
Feedback ratio	9.8	11.1	%
Oscillator efficiency	77	76.6	%

Note:

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 Pilani Electron Tubes & Devices.
4. Operation with higher frequencies on request.

Cooling Curves

Distilled or dionized water – minimum resistivity: 50 kΩ.cm



Distilled, deionized or tap (industrial) 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.

Pa: anode dissipation

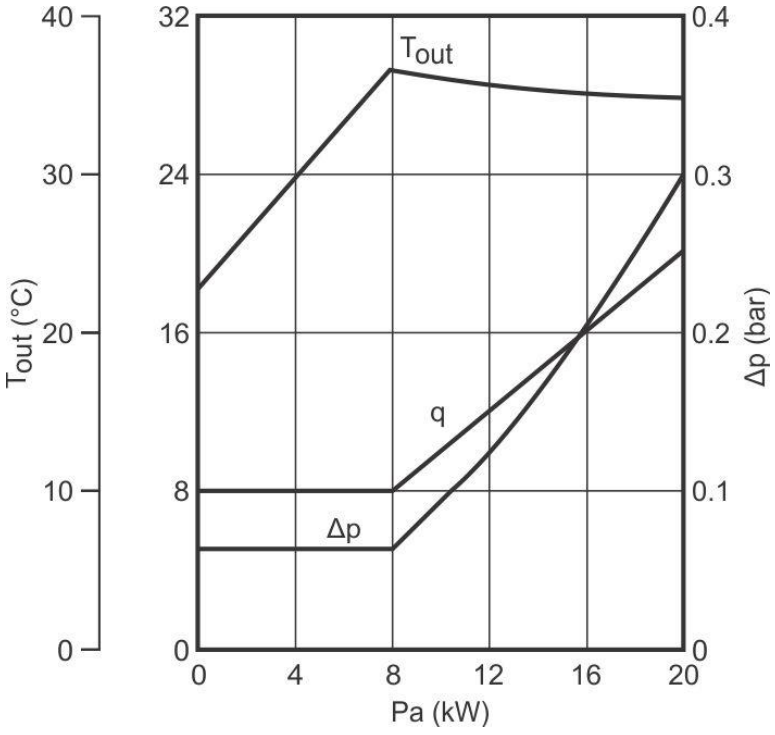
Δp: pressure drop across the water cooler

q: water flow rate

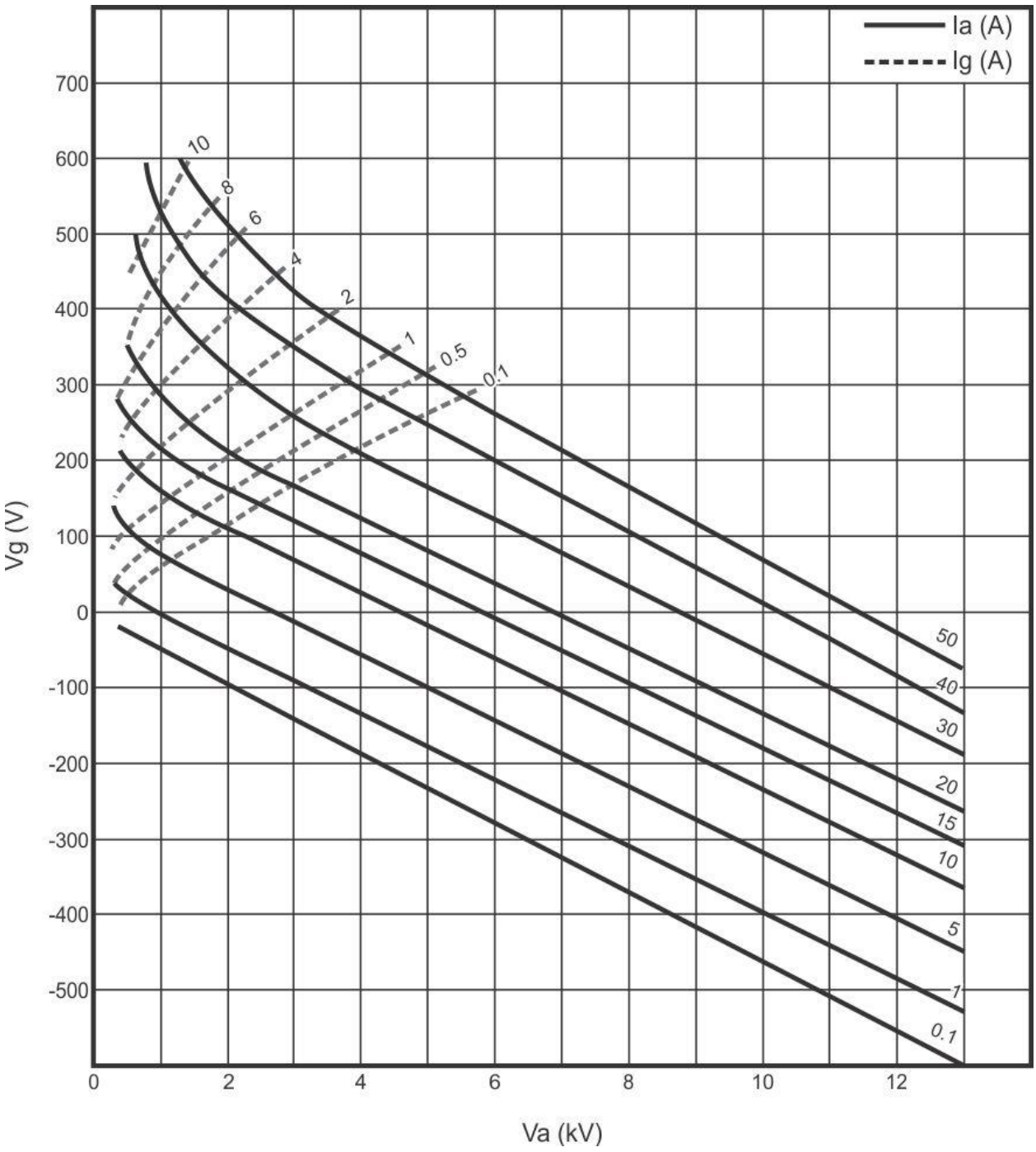
Tout: outlet water temperature

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

Industrial water – minimum resistivity: 5 kΩ.cm



Constant current chatacteristics



Outline diagram (in mm)