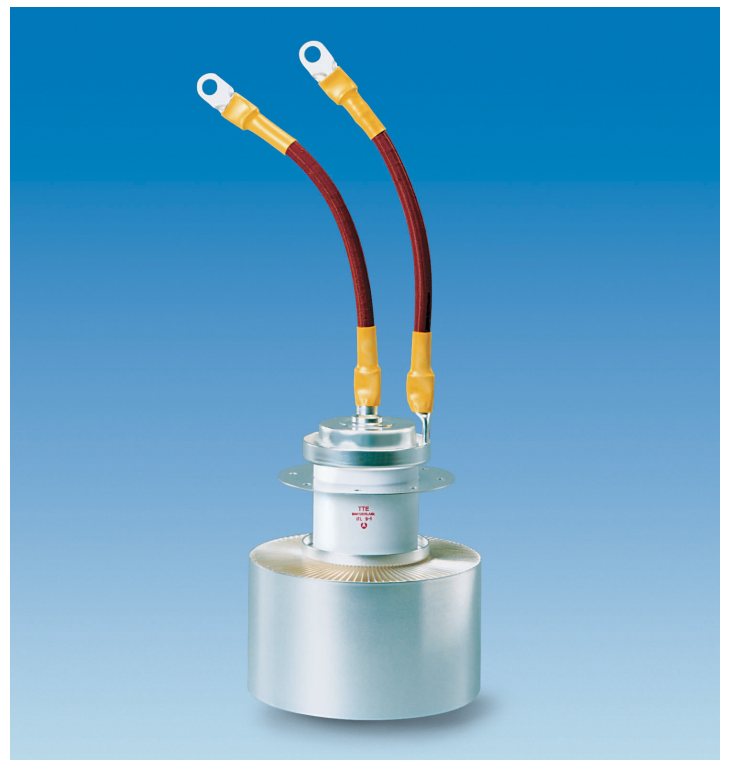


25 kW

- Output power:
25 kW in CW mode
- Anode voltage: 12 kV
- Anode dissipation: 8.5 kW
- Frequency up to 120 MHz





ITL 9-1

The ITL 9-1 is a RF power triode designed specifically for industrial applications.

This tube uses a coaxial design and metal-ceramic technology. This triode is designed to operate in CW mode.

For operation in pulse mode, the parameters depend on each equipment characteristics. Contact us for specific information.

The ITL 9-1 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) | 5.8 | V | |
| Filament current | 145 | A | |
| Surge current | 600 | A | max. |
| Cold resistance | 5 | mΩ | |
| Capacitances: | | | |
| • grid-anode | 21 | pF | |
| • grid-cathode | 55 | pF | |
| • cathode-anode (2) | 1 | pF | |
| Amplification factor | 22 | | approx. |
| Transconductance (Va: 10 kV, Ia: 4 A) | 50 | mA/V | approx. |

Mechanical characteristics

| | | | |
|--------------------|----------------------------|----|---------|
| Operating position | vertical, anode up or down | | |
| Weight | 4.4 | kg | approx. |
| Dimensions | see outline drawing | | |

Maximum ratings

| | | | |
|---------------------------------------------------|---------|-----|--|
| Frequency (3) | 120 | MHz | |
| Anode voltage: | | | |
| • up to 30 MHz | 12 | kV | |
| • from 30 to 60 MHz | 9 | kV | |
| • from 60 to 90 MHz | 7 | kV | |
| • from 90 to 120 MHz | 6 | kV | |
| Control grid voltage | - 1 500 | V | |
| Anode current | 4 | A | |
| Control grid current: | | | |
| • at full load | 0.8 | A | |
| • at no load | 1.5 | A | |
| Peak cathode current | 25 | A | |
| Anode dissipation (inlet air temperature = 45 °C) | 8.5 | A | |
| Grid dissipation: | | | |
| • up to 30 MHz | 350 | W | |
| • from 30 to 60 MHz | 320 | W | |
| • from 60 to 90 MHz | 300 | W | |
| • from 90 to 120 MHz | 280 | W | |
| Grid resistance (tube non conducting) | 10 | KΩ | |

(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 60 MHz. Please consult Thales Electron Devices.

Cooling

| | | forced air | | |
|-------------------------------------------|--|------------|---------------------|------|
| Inlet air temperature | | 45 | °C | max. |
| Cooling air flow | | 2 | m ³ /min | min. |
| Temperature at any point on tube envelope | | 220 | °C | max. |

Typical operation (4)

| Examples | Class C RF oscillator for industrial applications | | |
|-----------------------|---------------------------------------------------|-------|-----|
| | 1 | 2 | |
| Frequency | 30 | 60 | MHz |
| Anode voltage | 10 | 8 | kV |
| Grid bias | - 610 | - 520 | V |
| Grid voltage | 860 | 775 | V |
| Anode current | 3.3 | 3.4 | A |
| Grid current, on load | 0.35 | 0.4 | A |
| Anode input power | 33 | 27.2 | kW |
| Anode output power | 24.7 | 19 | kW |
| Anode dissipation | 8 | 7.6 | kW |
| Grid dissipation | 76 | 88 | W |
| Grid resistance | 1 750 | 1 300 | Ω |
| Feedback ratio | 9.6 | 11.1 | % |
| Oscillator efficiency | 74.8 | 70 | % |

(4) Operation with higher frequencies on request.

Cooling curve

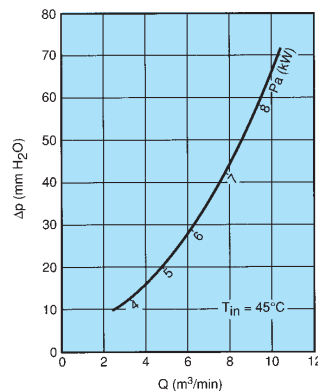
The required flow rates and pressures drop may be read off the cooling curve. This is valid for both air-flow directions.

Pa: anode dissipation

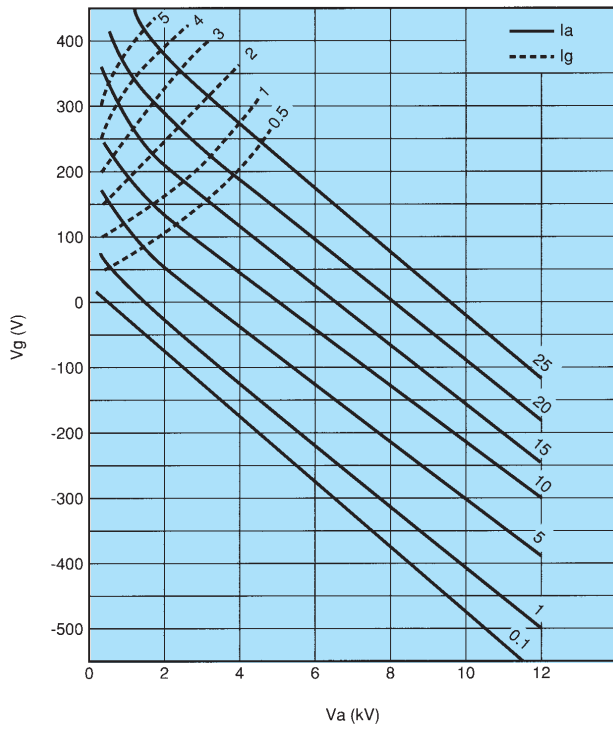
Δp : pressure drop across the cooler fins

q: air flow rate

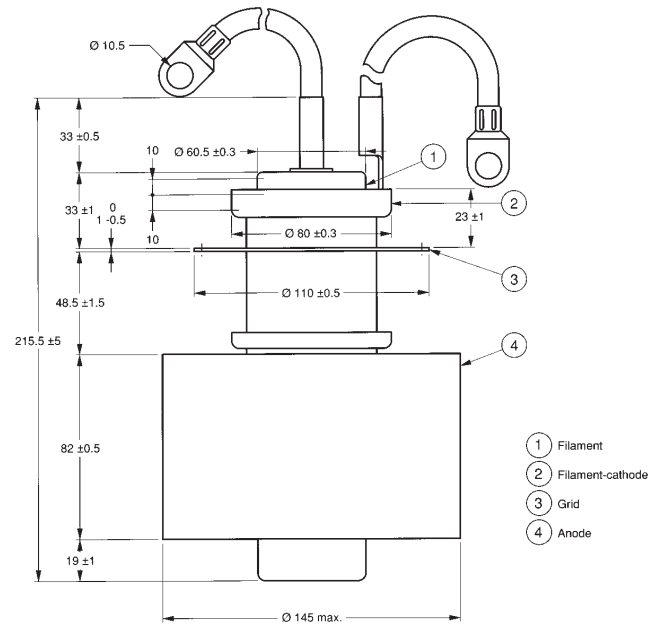
T_{in} : inlet air temperature



Constant current characteristics



Outline drawing (dimensions in mm)



Top view (dimensions in mm)

