

# PET3020CL

Air Cooled Triode  
For Industrial RF Heating

Drop in equivalent of RS 3020 CL

- Output Power: 20 kW (CW mode)
- Anode voltage: 12 kV
- Anode dissipation: 10 kW max
- 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.



# PET3020CL

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The PET3020CL is a RF power triode designed for dielectric heating 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 PET3020CL is a forced-air cooled triode.

## Electrical characteristics

Cathode Filament	. . . . .	thoriated tungsten
Filament voltage	. . . . .	5.7 V
Filament current	. . . . .	135 A
Surge current (maximum)	. . . . .	405 A
Capacitances:		
• Grid to Anode	. . . . .	21 pF
• Grid to Cathode	. . . . .	52 pF
• Cathode to Anode (1)	. . . . .	1 pF
Amplification factor	. . . . .	22 Approx.
Transconductance (Va: 3 kV, Ia: 2 A)	. . . . .	36 mA/V approx.

(1) Measured with a 30 cm diameter shielding plate in the grid terminal plane.

## Mechanical characteristics

Operating position	. . . . .	vertical, anode up or down
Weight	. . . . .	5.6 kg (9 lbs) approx.
Dimensions	. . . . .	see outline drawing

## Maximum ratings

Frequency	. . . . .	120 MHz
Anode voltage:		
• Up to 40 MHz	. . . . .	12 kV
• From 40 to 80 MHz	. . . . .	11 kV
• From 80 to 120 MHz.	. . . . .	9 kV
Control grid voltage	. . . . .	- 1.3 kV
Control grid current (F < 40 MHz)		
• At full load, CW	. . . . .	0.9 A
• At no load, CW	. . . . .	1.1 A
Peak cathode current, CW	. . . . .	25 A
Anode dissipation	. . . . .	10 kW
Grid dissipation:		
• Up to 40 MHz	. . . . .	300 W
• From 40 to 80 MHz	. . . . .	230 W
• From 80 to 120 MHz.	. . . . .	180 W
Grid resistance (at blocked tube).	. . . . .	15 K $\Omega$

## Cooling

Anode cooling	. . . . .	forced air
Cooling water flow and pressure gradient	. . . . .	see cooling curves
Inlet air temperature	. . . . .	25 °C typ.
Temperature at any point on tube envelope	. . . . .	220 °C max.

**Typical Operation (Class C RF oscillator for industrial applications)**

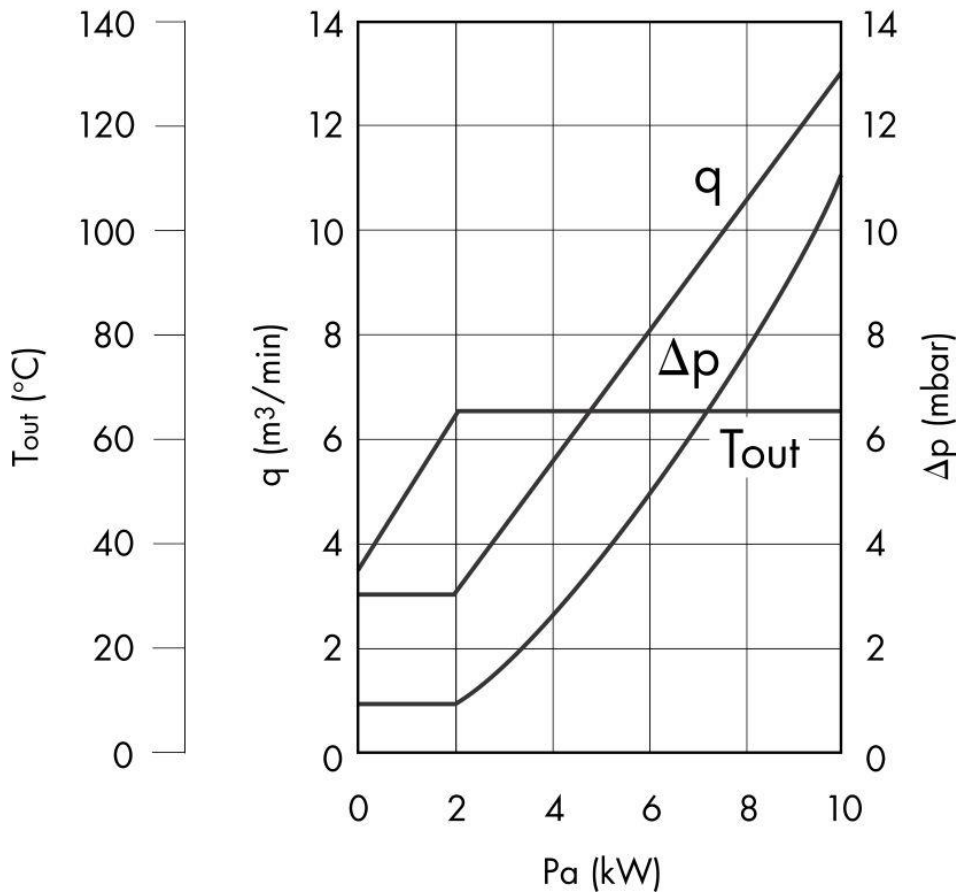
Frequency	. . . . .	<40	<80	MHz
Anode voltage	. . . . .	10	8	kV
Control grid bias	. . . . .	-900	-750	V
RF control grid voltage	. . . . .	1180	1025	V
Anode current	. . . . .	2.5	2.4	A
Control Grid current	. . . . .	620	650	mA
Anode input power	. . . . .	25	19	kW
Anode output power	. . . . .	20	15	kW
Anode dissipation	. . . . .	4.3	3.3	kW
Control Grid dissipation.	. . . . .	150	155	W
Grid resistance	. . . . .	1.45	1.15	kΩ
Feedback ratio	. . . . .	13.1	14.2	%
Oscillator efficiency	. . . . .	80	78	%

*Operations at higher frequencies available upon request*

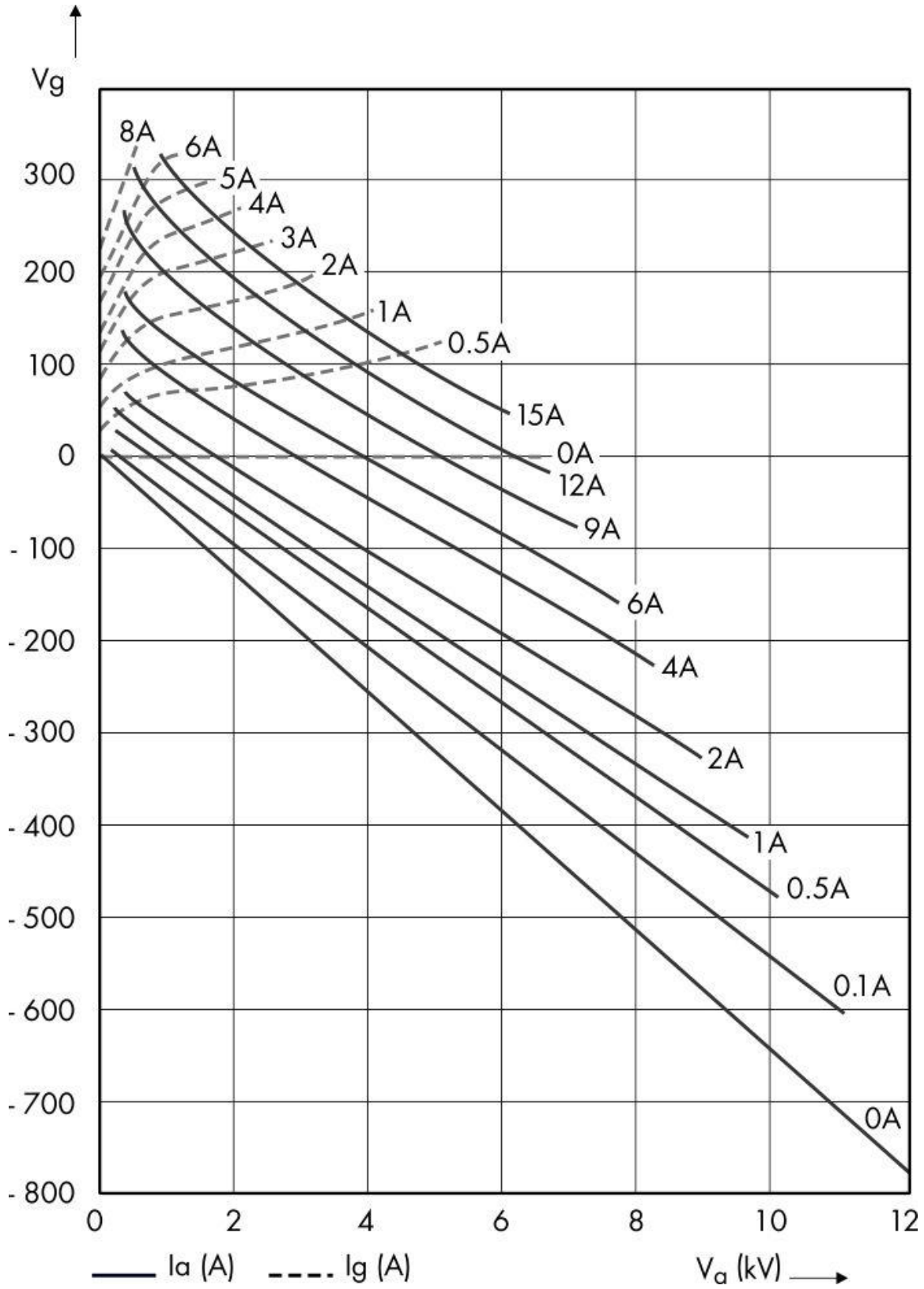
**Cooling Curves**

Pa : anode dissipation    Δp : pressure drop  
 q : air flow rate    Tout : air outlet temperature

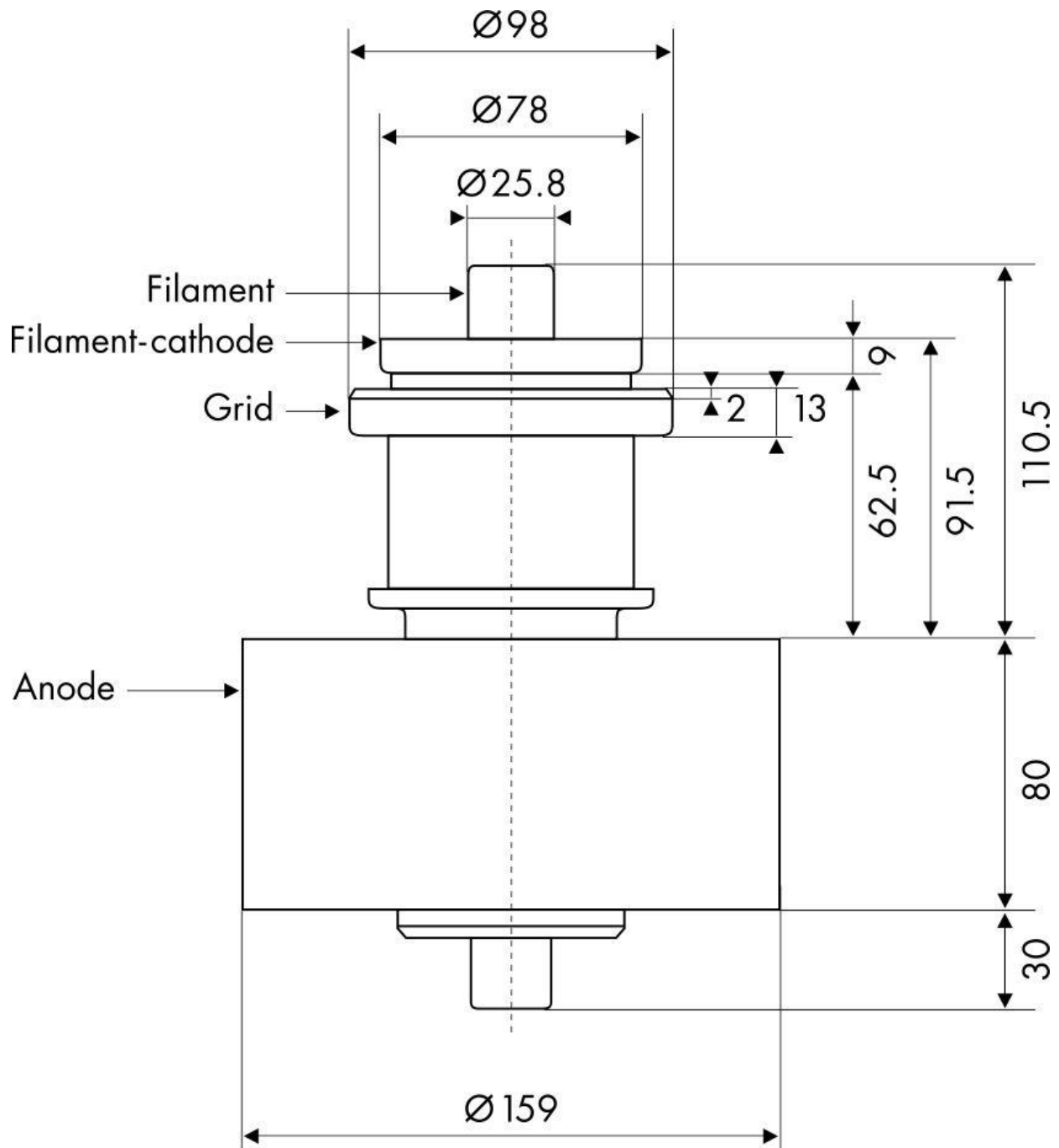
$t_i = 25^\circ \text{C}$



Constant Current Characteristics



Outline Drawing (in mm)



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