



YD 1160 FL / ITL 5-1

Air-cooled triode for industrial RF heating



13 kW triode for RF dielectric heating

Based on more than 60 years of experience in the design and manufacture of electron tubes, Thales is a long-standing partner to most producers of industrial heating machines. And we are the benchmark supplier of grid tubes.

The YD 1160 FL / ITL 5-1 triode is intended for low power dielectric heating applications and delivers continuous RF power of 13 kW. It is especially well suited to industrial applications, such as plastic welding.

This air-cooled triode uses a coaxial design and metal-ceramic technology. It may be operated in CW or pulsemodes. For operation in pulse mode, the parameters depend on each equipment characteristics. Contact us for specific information.

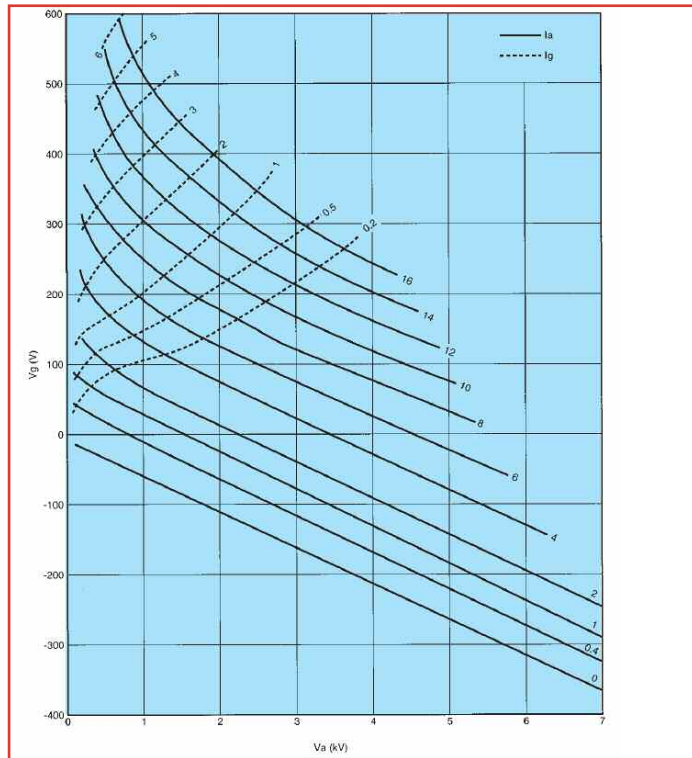
Thales is fully committed to the long-term viability of tube technology, and to delivering high-tech products based on our proven expertise in complex processes. We offer the widest range on the market, whether for dielectric or induction and laser applications, backed by all the customer support and technical assistance services you need.

- Output power: 13 kW (CW mode)
- Anode voltage: 7.2 kV
- Anode dissipation: 6 kW
- Frequency up to 150 MHz

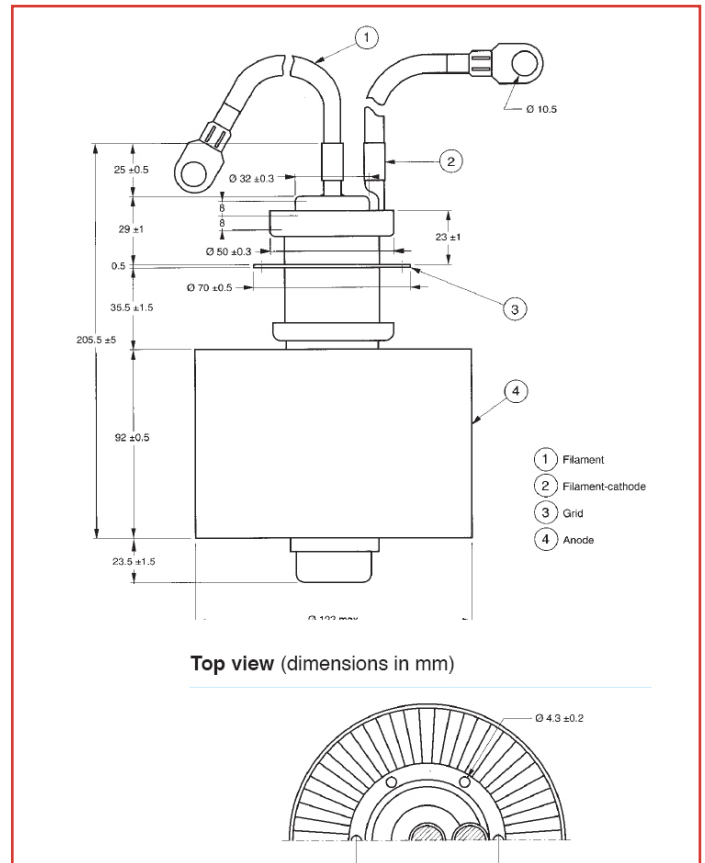
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Industrial RF Heating triode

Constant current characteristics



Outline drawing (in mm)



Technical specifications

Cathode	thoriated tungsten	
Filament voltage	6.3	V
Filament current	66	A
Max. heater surge current	250	A
Amplification factor	20	
Capacitance		
• grid-anode	16	pF
• grid-cathode	21	pF
• cathode-anode	0.6	pF

Mechanical characteristics

Operating position	vertical
Weight	2.9 kg
Dimensions	123 x 206 mm

Cooling characteristics

Max. air temperature at tube inlet	45 °C
Max. air temperature at tube outlet	75 °C
Min. air flow cooling (for Pa=6 kW)	8 m ³ /min
Min. air pressure cooling (for Pa=6 kW)	5.8 mbar
Max. T° at any point on the tube envelop	220 °C

Maximum ratings

Frequency	150	MHz
Anode voltage up to 85 MHz	7.2	kV
Anode voltage from 85 to 150 MHz	6	kV
Grid voltage	-1000	V
Anode current, CW	2.5	A
Grid current at full load, CW	0.55	A
Grid current, at no load, CW	0.75	A
Peak cathode current CW	15	A
Anode dissipation (for inlet T°=45°C)	5	kW
Anode dissipation (for inlet T°=25°C)	6	kW
Grid dissipation up to 85 MHz	200	W
Grid dissipation from 85 to 150 MHz	170	W
Grid resistance (tube non conducting)	20	kΩ

Class C, RF oscillator for industrial applications

Frequency	30	30	MHz
Anode voltage	6.8	5.5	kV
Anode current	2.5	2.3	A
Grid current, on load	0.43	0.43	A
Anode input power	17	12.7	kW
Anode output power	12.9	9.5	kW
Anode dissipation	3.9	3	kW
Grid dissipation	142	127	W
Grid resistance	1.250	1.050	Ω
Feedback ratio	15	16	%
Oscillator efficiency	75.8	74.3	%

Operations at higher frequencies available on request.

For more technical information regarding this tube, feel free to ask our distributor Richardson Electronics - www.rell.com

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