

INDUSTRIAL
RF HEATING

RS 3500 CJ

Water-cooled triode

Триод с водяным охлаждением

750 kW

- Output power:
750 kW in CW mode
- Anode voltage: 18 kV
- Anode dissipation: 300 kW max.
- Frequency up to 30 MHz



THALES

INDUSTRIAL

RF HEATING



RS 3500 CJ

The RS 3500 CJ 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 RS 3500 CJ is a water cooled triode.

This product is designed, developed and manufactured at an ISO 9001 production site registered.

Electrical characteristics

Filament	thoriated tungsten		
Filament voltage (+ 5 %, - 10 %)	17.5	V	
Filament current	510	A	
Surge current	1 530	A	max.
Capacitance:			
• grid-anode	135	pF	
• grid-cathode	350	pF	
• cathode-anode (1)	10	pF	
Amplification factor	21		approx.
Transconductance (Va: 4 kV, Ia: 10 A)	180	mA/V	approx.

Mechanical Characteristics

Operating position	vertical, anode up or down		
Weight	67	kg	approx.
Dimensions	see outline drawing		

Maximum ratings

Frequency (2)	30	MHz	
Anode voltage:			
• up to 15 MHz	18	kV	
• from 15 to 30 MHz	14	kV	
Control-grid voltage	- 2.5	kV	
Control-grid current (F < 15 MHz):			
• at full load, CW	11	A	
• at no load, CW	14	A	
Peak cathode current, CW	350	A	
Anode dissipation	300	kW	
Grid dissipation:			
• up to 15 MHz	7	kW	
• from 15 to 30 MHz	5	kW	
Grid resistance (at blocked tube)	3	kΩ	

(1) Measured with a 30 cm diameter shielding plate in the grid terminal plane.
(2) Conditions above 30 MHz, please consult Thales Electron Devices.

RS 3500 CJ

Cooling

Anode cooling	water		
Cooling water flow and pressure gradient	see cooling curves		
Cooling water inlet pressure	5	bar	max.
Water inlet temperature	35	°C	max.
Temperature at any point on tube envelope	220	°C	max.
Air flow on tube terminal side	5	m ³ /mn	

Typical operation (3)

Class C RF oscillator for industrial applications

Examples	1	2	
Frequency	< 15	< 15	MHz
Anode voltage	16	14	kV
Control grid bias	- 1.3	- 1.2	kV
RF control grid voltage	1.94	1.8	kV
Anode current	59.5	54.8	A
Control grid current	9.7	9.5	A
Anode input power	952	767	kW
Anode output power (4)	750	600	kW
Anode dissipation	184	151	kW
Control grid dissipation	5.1	4.7	kW
Grid resistance	134	126	Ω
Feedback ratio	13.4	14.3	%
Oscillator efficiency	79	78	%

(3) Operation with higher frequencies on request.

(4) Without taking circuit losses into account.

Nota: Data sheets are for information only. For design purpose, please ask for our latest specification.

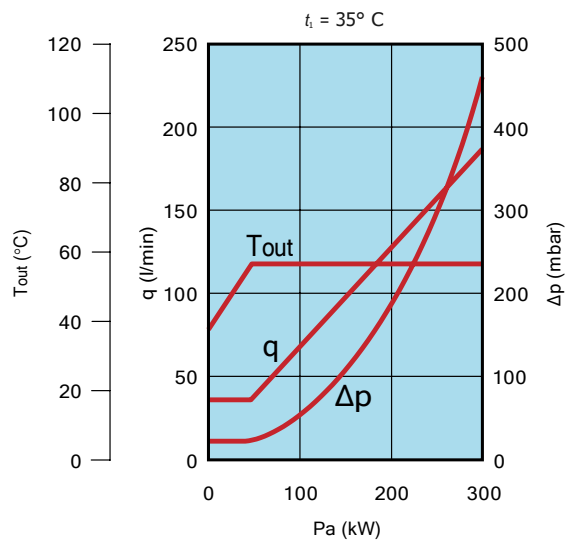
Cooling water curves:

Pa : anode dissipation

Δp : pressure drop

q : water flow rate

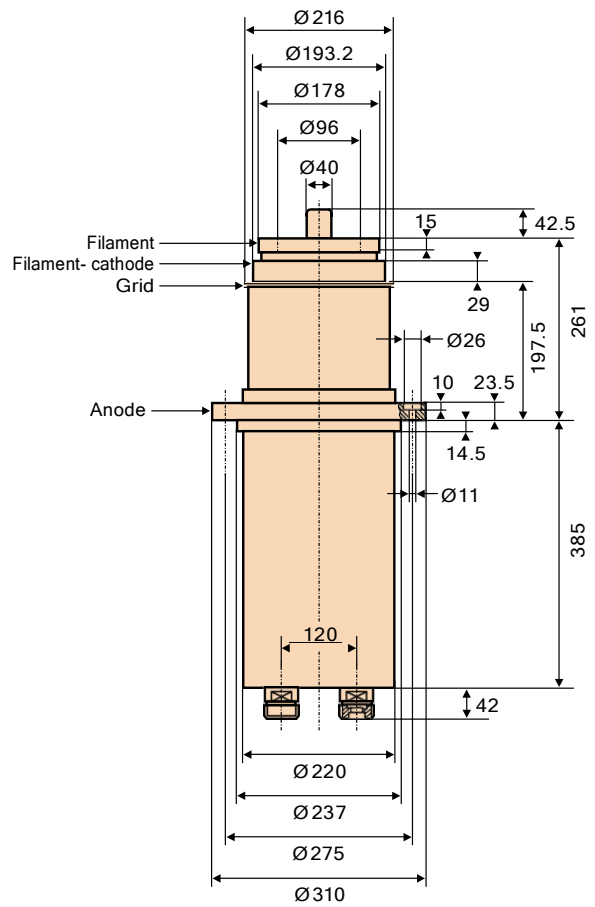
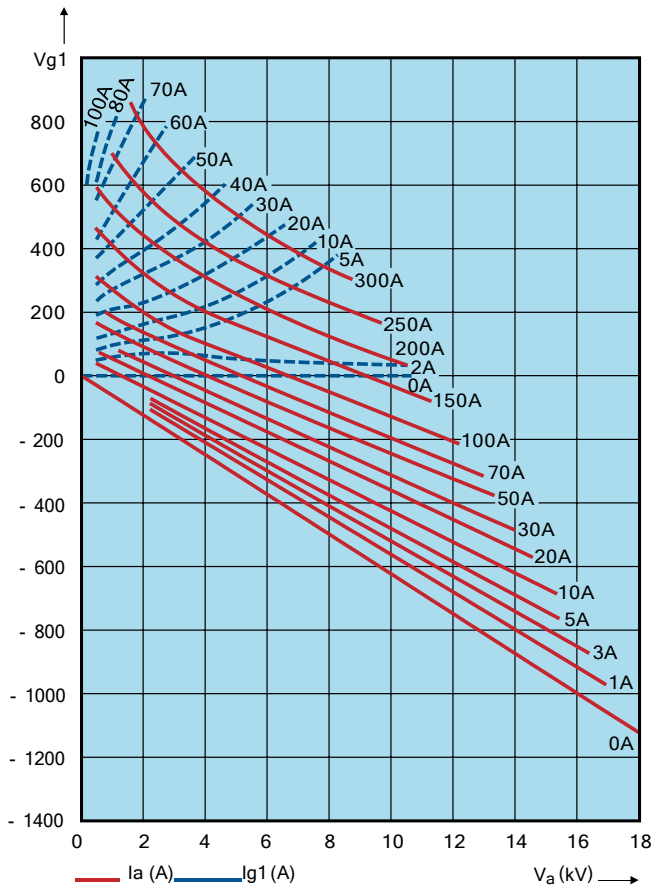
T_{out} : water outlet temperature



RS 3500 CJ

Constant current characteristics

Outline drawing (mm)



This document cannot be considered to be a contractual specification. The information given herein may be modified without notice due to product improvement or further development. Consult Thales Electron Devices before making use of this information for equipment design.

For further information, please contact:

THALES ELECTRON DEVICES

2 bis, rue Latécoère - 78941 Vélizy Cedex - France
 Tel: + 33 1 30 70 35 00 - Fax: + 33 1 30 70 35 35
www.thalesgroup.com/electrondevices

AUTHORISED RESELLER
NOVA-PROM LLC
 195176 RUSSIA, St.Petersburg
 25 A, Piskarevskiy ave., www.nova-prom.com