



TV 2019 KLYSTRON

TV 2019 is a very high power sealed-off amplifier klystron able to deliver a 10 MW peak power in "S" band.

It is specially designed to be used on particle accelerators.

It includes five resonators : four of them are pretuned in the factory and the fifth one, the output resonator, is at a fixed frequency.

The R.F. input is made on a "N" type coaxial plug and the output through one ceramic window set up on a waveguide.

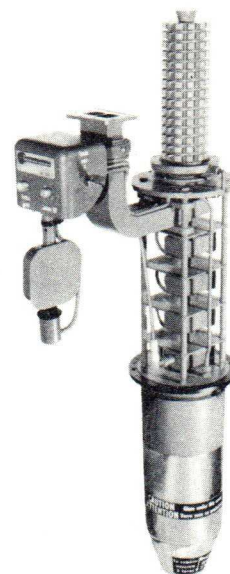
Each tube is tuned at the factory at a specified central frequency in the range 2700 - 3100 Mc/s.

Beam focalization is insured by a TV 19.009 focus coil external to the tube.

The tube body and the window are cooled by a water flow and the collector by vaporization of water.

TV 2019 high frequency amplifier, of very large peak and average powers, has the following advantages :

- High gain : 55 dB.
- High efficiency (more than 40 %).
- High operating reliability due to the Vapotron*cooling technique of the collector.
- Long life, the tube being fitted with an active getter.



Electrical

Cathode
 Heater voltage
 Heater current, approximately
 Heater warm-up timemin.

CHARACTERISTICS

unipotential, indirectly heated
 25 V \pm 10 % (1)
 24 A
 15 mn.

Mechanical

Dimensions
 Mounting position
 Weight
 Envelope
 R.F. input
 R.F. output

see drawing page 4
 vertical, cathode down
 60 Kg approximately
 metal, ceramics and glass
 UG 22 D/U plug.
 RG 48/U waveguide with reduced rectangular flange (see drawing page 3)

Active getter input
 Cooling water inlet

UG 496/U plug
 STAUBLI plug, small size

(1) The exact heating voltage is indicated on the testing sheet of each tube. This voltage is to be observed within \pm 10 %.

* C.F.T.H. reg. trade mark.



Accessories

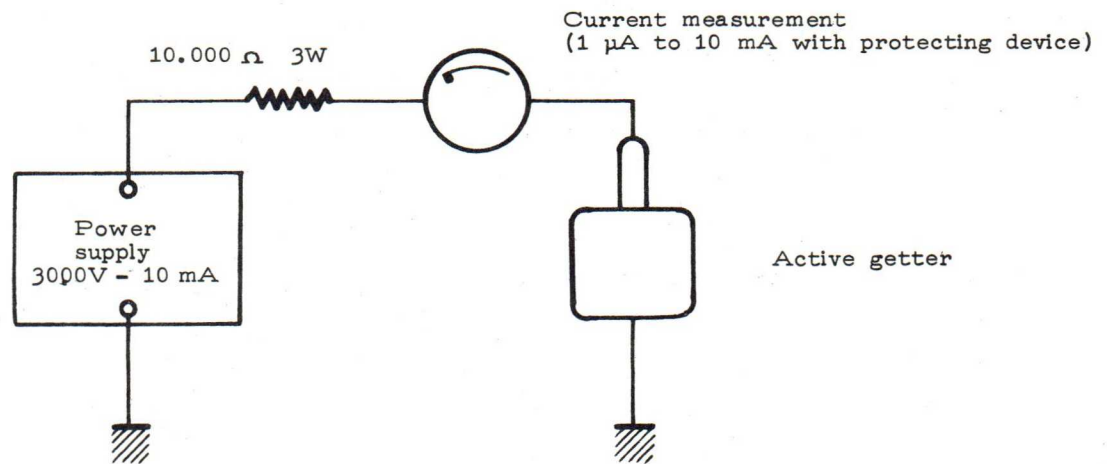
R.F. input connector	UG 21 D/U (coaxial line RG 143/U)
Waveguide flange	RH 1.404.158 or equivalent, must fit the flange of the klystron (see drawing page 3)
Active getter connector	UG 60 D/U
Water inlet connector	STAUBLI connector (provided with each tube), fits a 8 or 13 mm. inner diameter tube. When disconnected from the plug, the connector locks the water circuit.
Focus coil	TV 19.009
Heater-cathode connector	TV 19.201
Vapodyne* system	see data NZ 1253

TYPICAL OPERATION (Load : VSWR \leq 1.1)

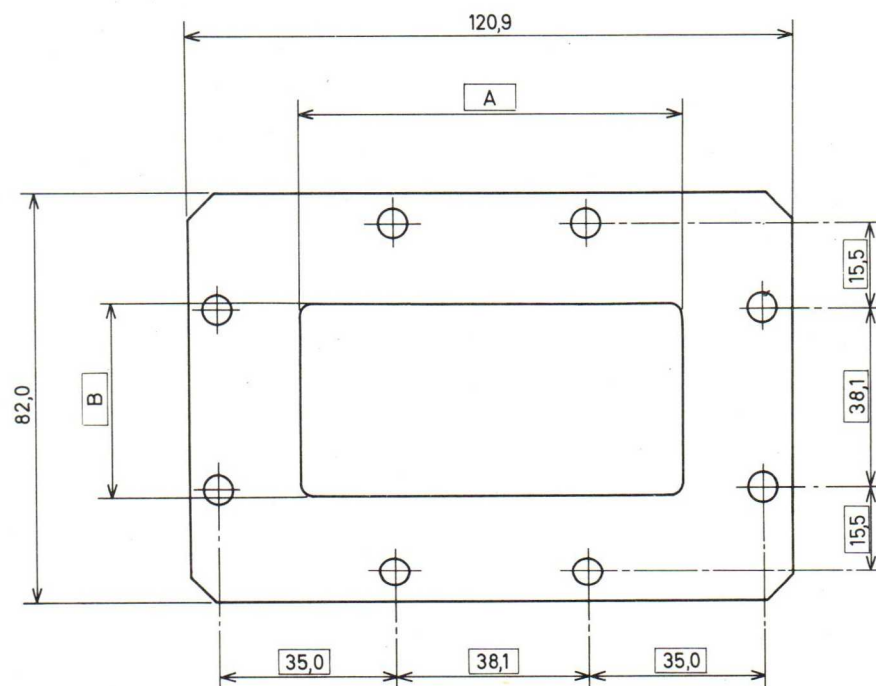
Beam voltage	170 kV
Beam current	150 A
Output, peak	10.2 MW
Output, average	15.3 kW
Gain	55 dB
Bandwidth (- 1 dB)	15 Mc/s
Efficiency	40 %
Pulse duration	5 μ s
Pulse repetition rate	300 pps
Duty cycle 002
Water flow	3 l/mn
Water inlet pressure	1 kg/cm ²

MAXIMUM RATINGS (non simultaneous)

Heater surge current	50 A
Beam voltage	190 kV
Average applied power	50 kW
Collector dissipation	50 kW
Duty cycle002
Load V.S.W.R.	1.5
Absolute pressure on the output window	4 kg/cm ²
Cooling water inlet temperature	50 °C
Cooling water flow	min. 3 l/mn
Cooling water inlet pressure	max. 8 kg/cm ² gen.

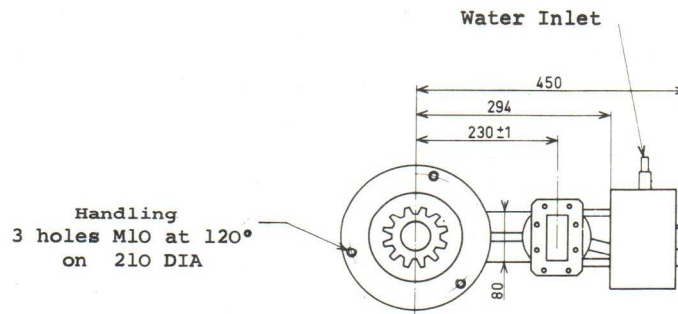
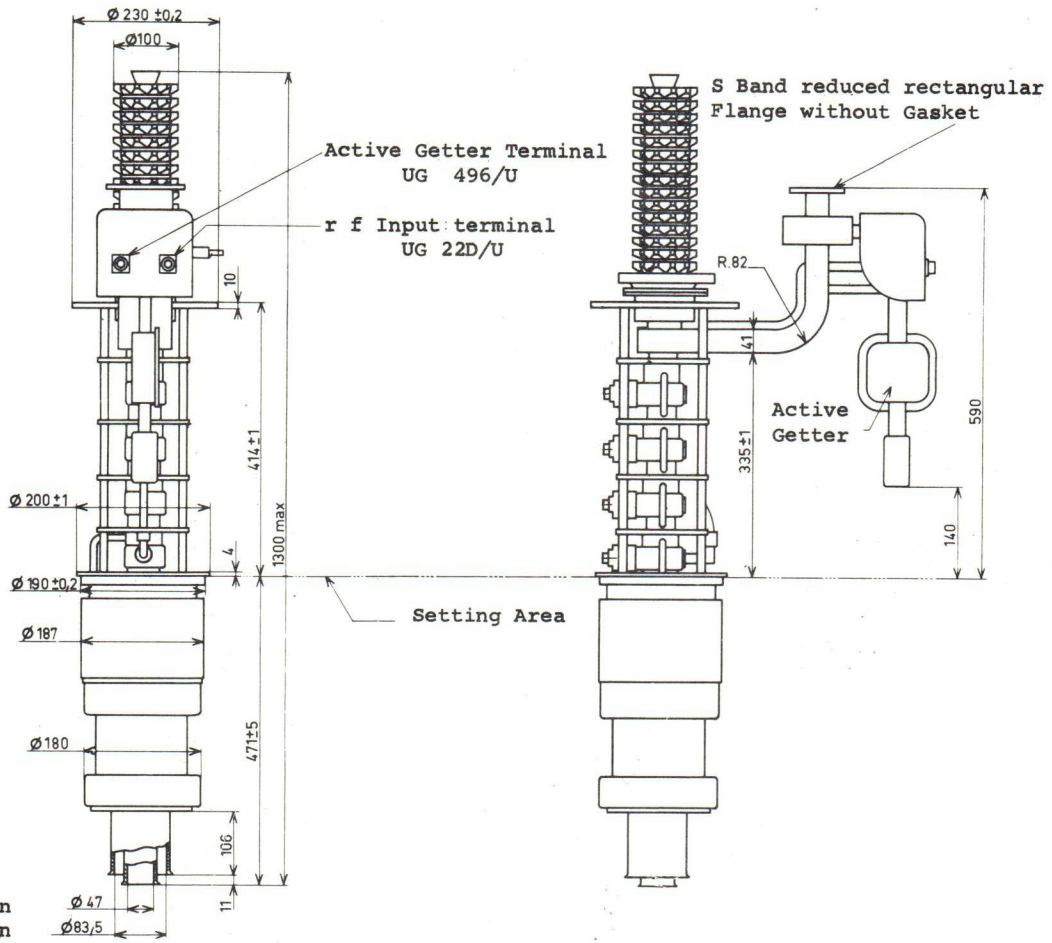
ACTIVE GETTER FEEDING CIRCUIT


The active getter operation requires the use of a TV 19500 permanent magnet supplied with TV 19.009 Focus Coil.

KLYSTRON OUTPUT FLANGE


all dimensions in mm.

8 holes ϕ 6,2^{+0,2} \rightarrow 0,2
group \leftarrow 0,5 AB



All dimensions in mm