



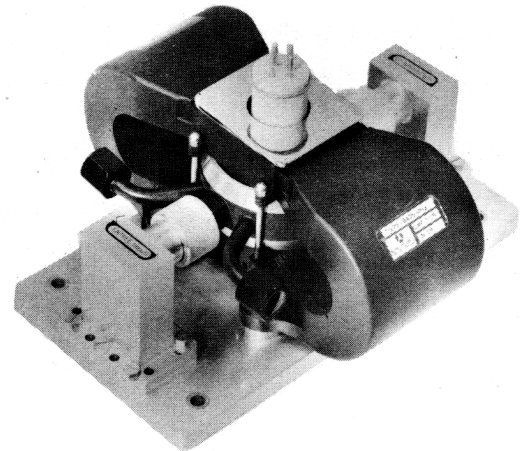
## CMP.1115 CARPITRON

The CMP.1115 CARPITRON, a crossed field tube with built-in magnet, delivers a 500 W minimum CW output power over an instantaneous bandwidth of some tens of MHz (according to the input level). Electronically tunable in the tele-communications frequency range 5925 to 6425 MHz., the tube is liquid cooled.

This tube meets the COMSAT requirements concerning transmission of telephony and television for Intelsat III and Intelsat IV satellites.

The principal features of the CMP.1115 are :

- Low size
- Low weight
- High efficiency
- High CW power level.



### GENERAL CHARACTERISTICS

#### ELECTRICAL (1) :

|                              |                                |
|------------------------------|--------------------------------|
| Cathode .....                | Impregnated, indirectly heated |
| Heater voltage (a - c) ..... | 6.3 ± 2% V                     |
| Heater current .....         | 2.5 to 3.5 A                   |
| Sole voltage .....           | -600 to -1800 V                |
| Grid 1 voltage .....         | -100 to -800 V                 |
| Anode 1 voltage .....        | 500 to 1800 V                  |
| Anode 2 voltage .....        | 2.5 to 3.7 kV                  |
| Sole current .....           | - 35 to + 3 mA                 |
| Grid 1 current .....         | - 3 to + 3 mA                  |
| Anode 1 current .....        | - 3 to + 3 mA                  |
| Anode 2 current .....        | 600 mA                         |

(1) - The voltages are specified with respect to the cathode.

#### MECHANICAL

|                           |                            |
|---------------------------|----------------------------|
| Weight .....              | 5.7 kg                     |
| Mounting position .....   | any                        |
| Ambient temperature ..... | - 40 to + 110 °C           |
| Connections :             |                            |
| - RF connections : .....  | waveguide RG 50/U          |
| - DC connections : .....  | mates with CMR. 137 flange |
|                           | refer to drawing           |



## Cooling

|                                   |    |      |
|-----------------------------------|----|------|
| Liquid cooling                    |    |      |
| Water flow (2) .....              | 4  | l/mn |
| Outlet temperature, maximum ..... | 80 | ° C  |

(2) - Please, consult us for other coolants.

## Typical operation (3)

|                               |      |     |                       |      |    |
|-------------------------------|------|-----|-----------------------|------|----|
| Frequency .....               | 6064 | MHz | Grid 1 voltage .....  | -600 | V  |
| Instantaneous bandwidth ..... | 40   | MHz | Anode 1 voltage ..... | 1500 | V  |
| Output power .....            | 600  | W   | Anode 2 voltage ..... | 3300 | V  |
| Gain .....                    | 17   | dB  | Sole voltage .....    | -900 | V  |
|                               |      |     | Anode 2 current ..... | 475  | mA |

## Absolute ratings (3)

(non simultaneous)

|                              |          |   |                                   |            |     |
|------------------------------|----------|---|-----------------------------------|------------|-----|
| Heater voltage .....         | 6.3 ± 5% | V | Sole voltage .....                | min. -600  | V   |
| Heater current .....         | 4        | A |                                   | max. -1800 | V   |
| Grid 1 voltage (4) .....     | ± 100    | V | Anode 2 current (4)....           | max. + 50  | mA  |
| Anode 1 voltage (4) ... max. | + 200    | V | Temperature of the coolant at     |            |     |
| Anode 2 voltage ..... max.   | 3800     | V | the output of the cooling circuit | 80         | ° C |

(3) - The voltages are specified with respect to the cathode.

(4) - Operating voltages and currents are given for each tube in particular data sheets. The above-mentioned values are tolerances on these voltages.

## Operating instructions

The CARPITRON is a locked backward wave oscillator.

For a given adjustment of the supply voltages and a given input power level, the locking can be achieved if the driver frequency is in a so-called "locking bandwidth".

It must be noticed that :

- a - Control of the anode 2 current and therefore RF power is achieved by the anode 1 voltage.
- b - The operating frequency is fixed by the line to sole voltage ; the frequency adjustment is achieved by varying the sole to cathode voltage and does not need any power consumption.

### APPLICATION OF VOLTAGES

Apply voltages in the following order : Heater, grid 1, sole, anode 2, anode 1.

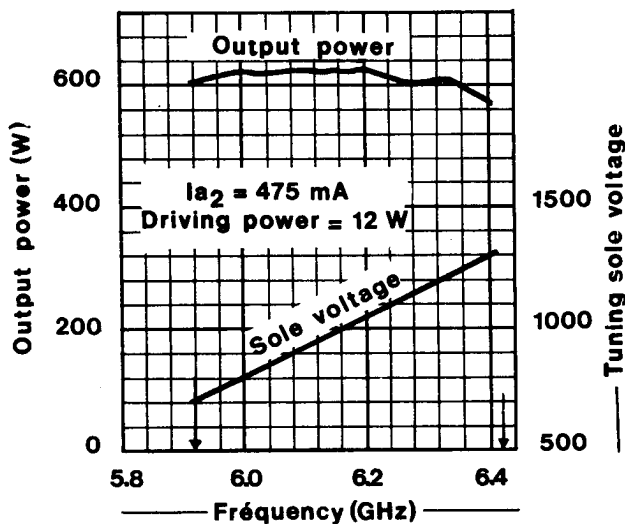
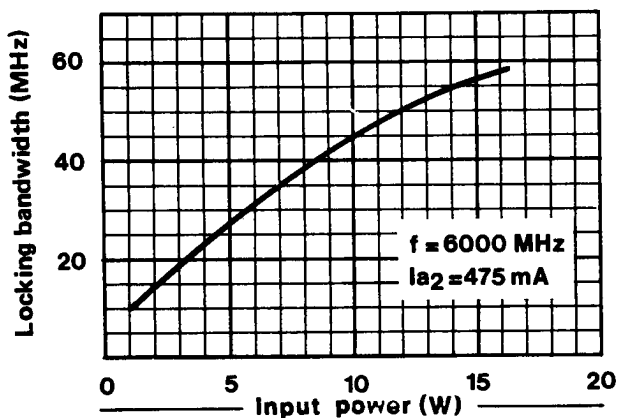
The grid 1 voltage must never be positive.

The anode 2 voltage must always be greater than anode 1 voltage.

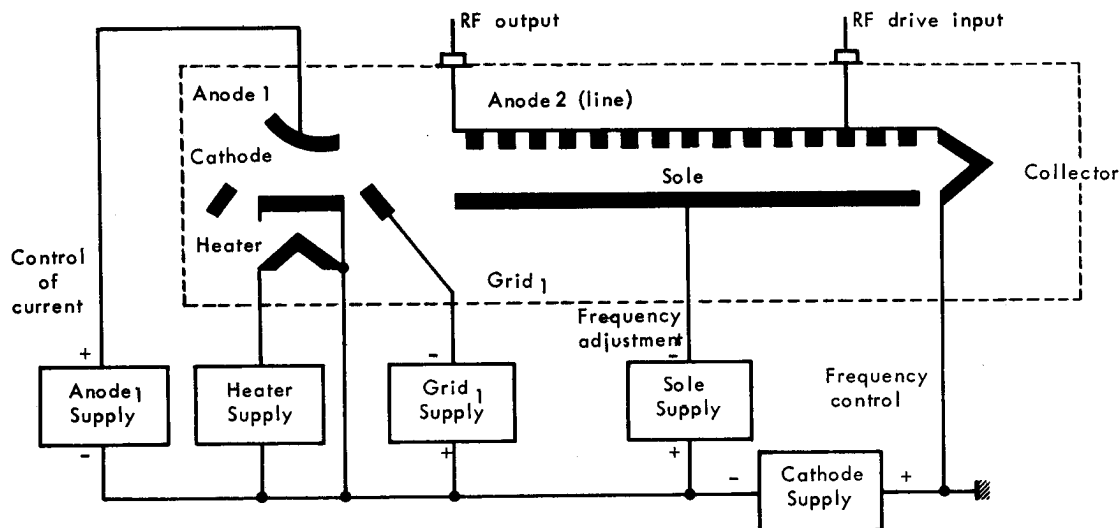
The grid 1 must not be used for modulation.



### Characteristics curves

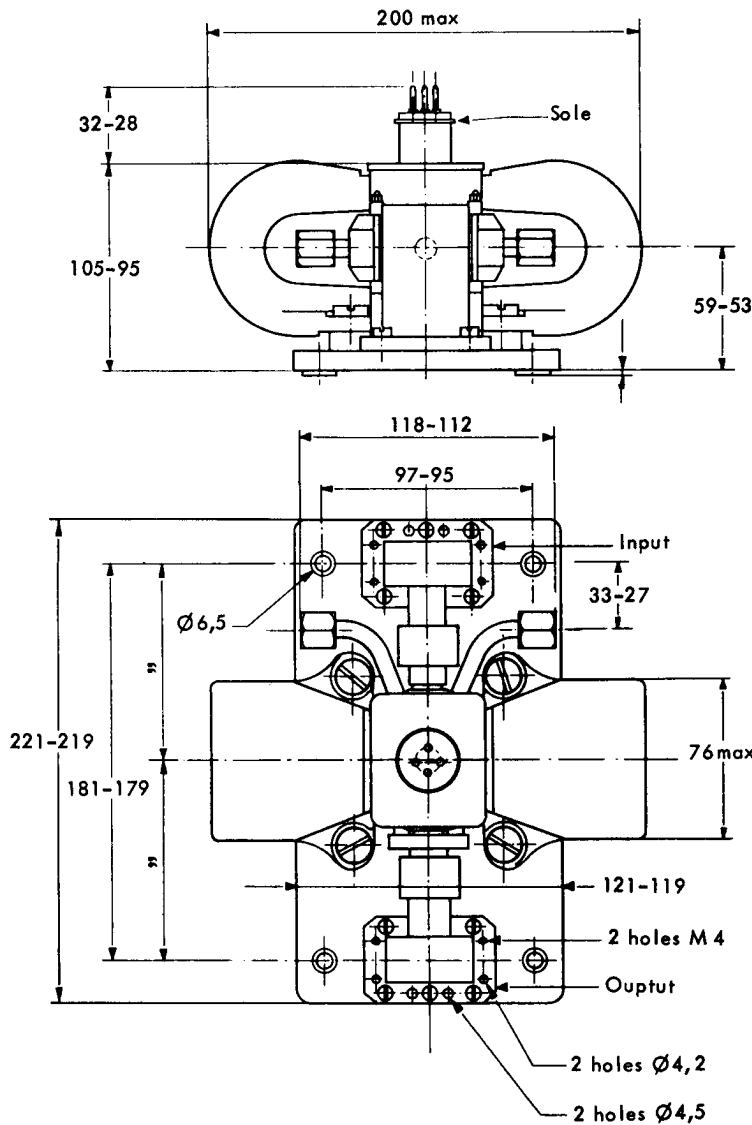


### Supply diagram

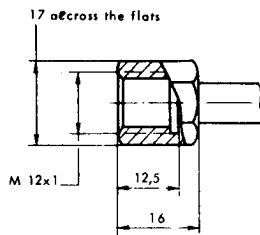




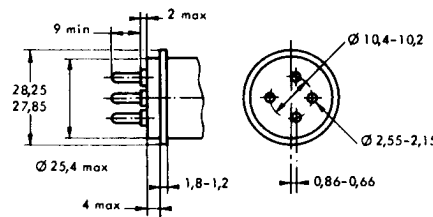
**OUTLINE DRAWING**



**Water outlet hexagonal nut**



**Pin arrangement**



The pin position with respect to the tube axes is determined within 10°

Maximum base eccentricity with respect to the sole connection : 0,3 mm.

Dimensions in mm.

