

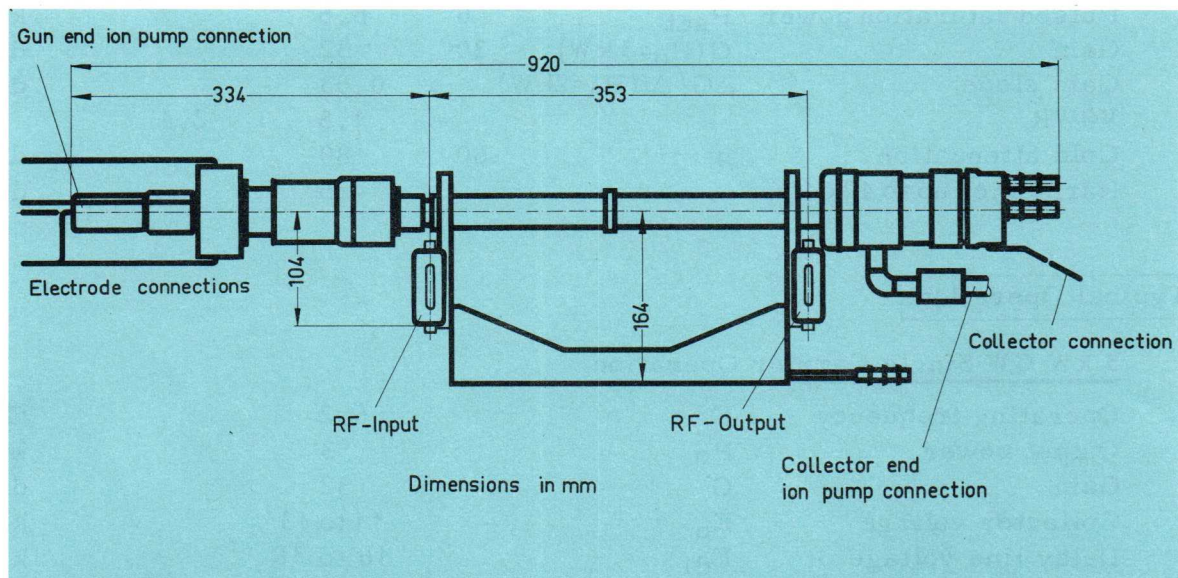
**Design and Application**

High-power traveling wave tube for multi-carrier operation in the frequency band 5.925 to 6.425 GHz with a pulse saturation power of 6 kW. In single-carrier operation the tube gives a CW output power of 3 kW at a minimum gain of 29 dB; in two-carrier operation the third order intermodulation product is -22 dB at an average CW output power of 0.5 kW per carrier.

The YH 1041 is a PPM focused traveling wave tube and is designed to operate with depressed collector.

The tube is easily replaceable in the magnet system MYH 1041.

Waveguide rf input and output ports are used. The collector and delay line are water-cooled.



Length of tube	: approx. 920 mm/(36")
Dimensions of magnet system with tube	: approx. 1036 mm x 230 mm x 380 mm (41"x9"x15")
Weight of magnet system	: approx. 60 kp/(132 lbs)
Weight of tube	: approx. 9,5 kp (21 lbs)
Waveguide *)	: F 70, DIN 47302
Flange	: UGF 70, DIN 47303

\*) Available accessory: Waveguide transition YHZ 9505, F 70 to WR 137, 34.8 mm x 15.8 mm with flange UG 344/U

## Heating

Heater voltage	$E_f$	6.5	Vac	1, 2)
Preheating voltage	$E_f'$	$0.85 \cdot E_f$	Vac	
Heater current	$I_f$	2.5	Aac	
Preheating time	$t_k$	min. 5	min	

Metal dispenser cathode

## Characteristics

(F = 6.2 GHz,  $I_k = 1.5$  Adc)

		min	nom	max	
Pulsed saturation power	$P_{sat}$	6	6.5		kW
Gain	$G(P_o=3 \text{ kW})$	30	32		dB
Gain slope	$\Delta G / \Delta f(P_o=2 \text{ kW})$		0.03		dB/MHz
VSWR			1.5	2.1	3)
Cold attenuation	$\alpha$	60	80		dB
Harmonics up to 40 GHz			-25		dB 4)

## Typical Operation

3 kW CW Single Carrier Operation

Operating frequency	F	6.2	GHz
Output power	$P_o$	3	kW
Gain	G	32	dB
Collector voltage	$E_b$	11 to 13	kVdc
Delay line voltage	$E_{d1}$	16 to 18	kVdc 1)
Grid No. 2 voltage	$E_{c2}$	2.5 to 4	kVdc 1)
Grid No. 1 voltage	$E_{c1}$	-80 to -400	Vdc 1)
Cathode current	$I_k$	1.5	Adc
Delay line current	$I_{d1}$	< 150	mAdc
Grid No. 2 current	$I_{c2}$	< 2	mAdc
AM/PM conversion	$k_p$	4.5	°/dB

- 1) The exact setting value will be indicated for each tube.
- 2) If the maximum variation of the heater voltage exceeds the absolute limits of  $\pm 2\%$  of the setting value, the operating performance and life will be impaired. Stand-by operation with 85 % of the nominal heater voltage, other electrode voltages not applied to the tube. By increasing the heater voltage to its nominal value, and switching on the electrode voltages simultaneously, the tube can then be operated immediately at full rf power.
- 3) At input and output of cold tube in the frequency range 5.925 to 6.425 GHz.
- 4) Level of all harmonics below the fundamental in the frequency range 5.925 to 6.425 GHz.