

FERRANTI KLYSTRON

SY30

A water-cooled two resonator low noise rugged Klystron Power Amplifier with a gain of 10dB intended for C.W. operation. It is designed to be driven by an oscillator type SZ21, under which condition the power output will be in the range 150-200W. The valve has rugged tuners capable of ± 20 Mc/s. tuning range which are intended to be used for tuning the cavities up to any one SZ21.

Tentative Data.

PHYSICAL DETAILS.

Overall Length ...	185 mm. (11 $\frac{1}{4}$ in.).
For other dimensions see outline drawing.	
Output Waveguide ...	WG16 coupling to
Input Waveguide ...	1 S.S. choke flanges.
Water Connections ...	$\frac{1}{8}$ in. gas thread.

HEATER.

Heater Voltage ...	5 to 7.0 volts.
Heater Wattage ...	19-21 watts.

RATINGS.

Max. Beam Voltage ...	10.0 kV.
Max. Beam Current ...	260 mA.
Max. Focus Voltage ...	50 volts.

FREQUENCY.

*Operating Frequency ...	9500 Mc/s.
Tuning Range ...	± 20 Mc/s.

WATER COOLING.

†Minimum Water flow at 20°C. 1.0 Litre/min.

TYPICAL OPERATION AND CHARACTERISTICS.

Beam Voltage ...	8	kV.
Beam Current ...	150	mA.
Focus Voltage ...	-25	volts.
Efficiency ...	17	%
R.F. Gain ... High Level	10	dB.
Low Level	14	dB.
Input Power ...	15	25 watts.
‡Output Power ...	175	200 watts.

NOTES ON OPERATION.

1. The heater voltage should be gradually increased until a steady current within the specified range is obtained.
2. It is recommended that a pressure type water flow relay should be fitted in the drain pipe, in order to break the H.T. supply in the event of cooling water supply failure, otherwise the beam will rapidly puncture the collector if such a failure occurs.
3. Care should be taken not to exceed 2 : 1 V.S.W.R. in the output circuit, otherwise the output window may puncture.
4. The following precautions should be taken to avoid internal damage to the cathode or focus electrode in the event of flashover when the valve is first run : the focus electrode to cathode potentials should be limited in the event of breakdown to less than 500 volts. This can be readily achieved by series connected neon discharge tubes across the focus electrode supply.

*Valves can be supplied tuned to any "X" band frequency by arrangement.

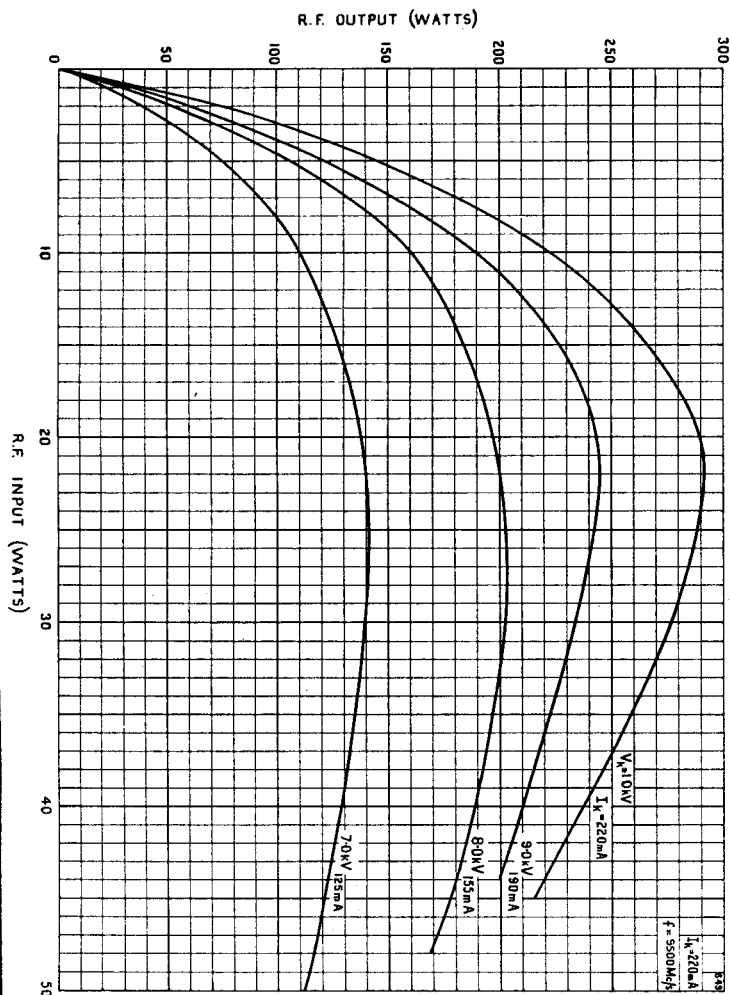
†Water input must be to collector end union.

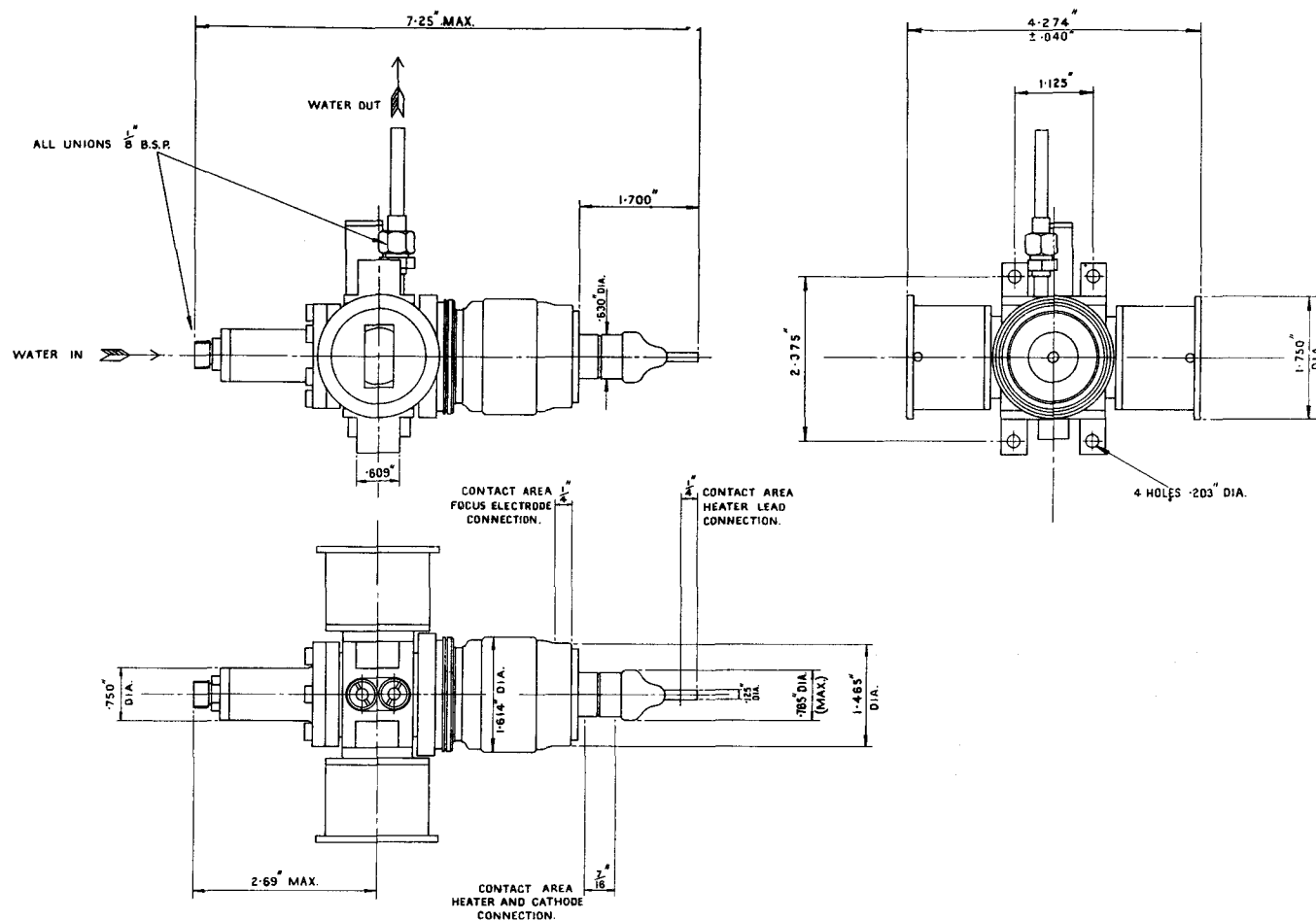
‡At 9500 Mc/s.—F.

Bandwidth : to 3 dB points—18.5 Mc/s.
to 1 dB points— 10 Mc/s.



SY30

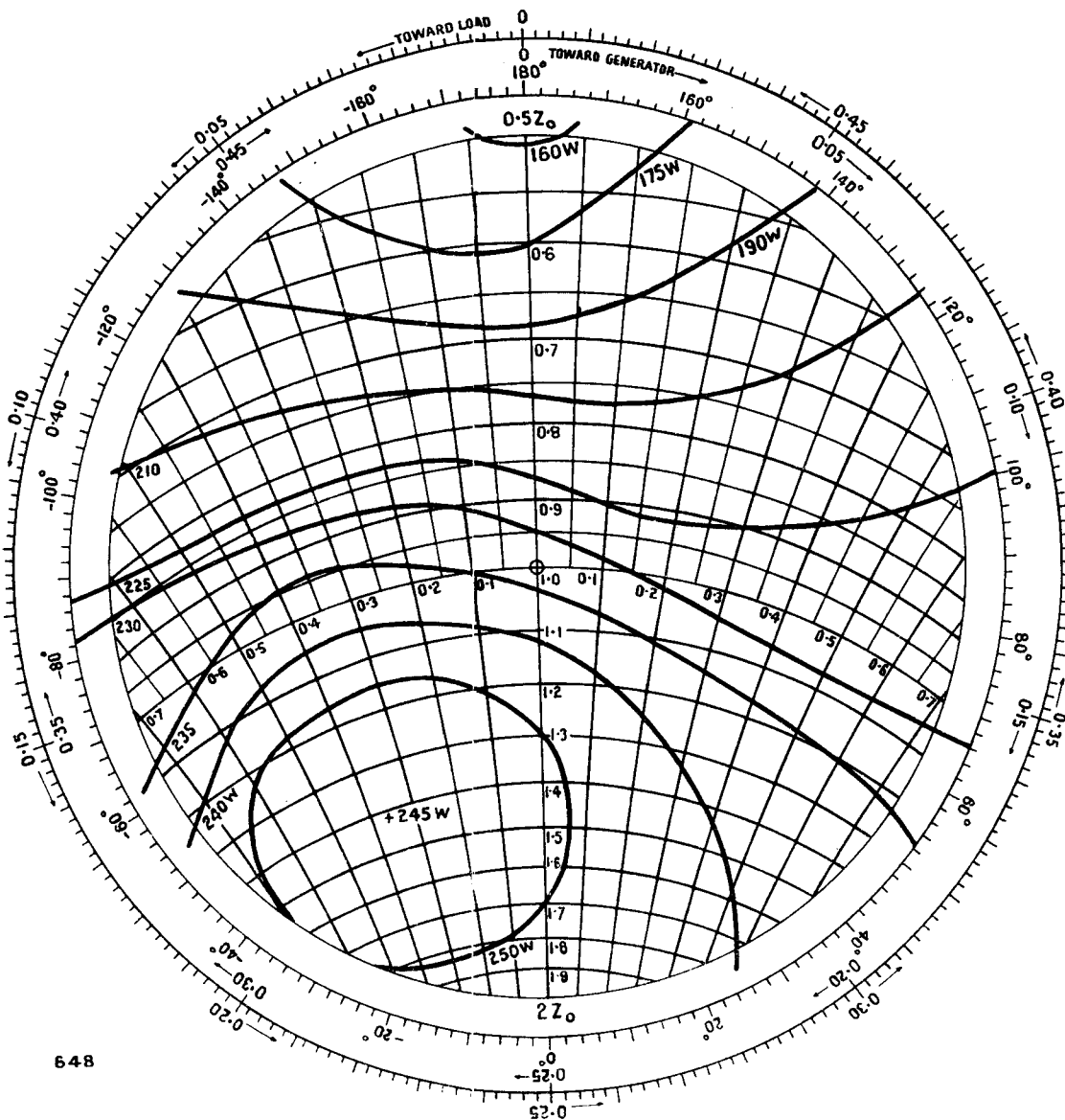




All dimensions
shown are in
millimetres
(max.).



RIEKE DIAGRAM



648



Beam Voltage = 8 kV.
 Beam Current 150 mA.
 Drive Power for max. power output in
 matched conditions.
 180° corresponds to the plane of output
 flange.