

# VACUUM TUBE PRODUCTS

## PIRANI VACUUM GAUGE TUBES TYPES

VTP 6440

VTP 6441

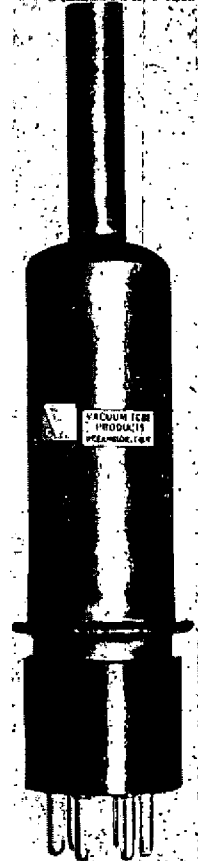


Pirani Vacuum Gauge Tubes, Type 6440 and 6441, are tubes of the thermal conductivity type, and are used for measurement of pressures in the range of .1 to 5000 microns. Both tube types are electrically identical and vary only in the exhaust tube structure. Type VTP 6440 uses an exhaust tube connection of approximately .4" diameter, with 3/8" pipe threads, for attachment to the vacuum system. Type VTP 6441 uses an exhaust tube connection of .5" O.D., suitable for connection with the system by means of either a rubber hose or a compression fitting.

These VTP Pirani tubes are designed for extreme ruggedness and versatility, having the features of an all-metal welded construction and platinum filament with a high coefficient of thermal resistivity. Dual filaments are incorporated to provide double output and increased sensitivity when operating each filament in opposite legs of a Wheatstone bridge circuit.

Due to the all-metal construction, these VTP Pirani tubes are relatively non-sensitive to radiant heat from open flames or glow coils and compensating tubes are not normally used such as required when using glass type pirani tubes. Ambient temperature variations normally do not unduly affect the gauge calibration due to the low sensitivity in this temperature range.

The platinum ribbon structure used in the VTP 6440 and VTP 6441 provides extremely fast response to pressure changes, and operation at air pressure for indefinite periods will not damage the tube or change its calibration.



### OPERATING CHARACTERISTICS

Heater Resistance Cold, Zero Current:

Heater #1 (Pins #1 and #3).....37 1/2 ohms  
Heater #2 (Pins #4 and #6).....37 1/2 ohms

Heater Resistance Hot, with 100 ma. Current in air (Note 1):

Heater #1 (Pins #1 and #3).....42 ohms  
Heater #2 (Pins #4 and #6).....42 ohms

Heater Resistance Hot, with 100 ma. Current in Hard Vacuum (Note 1):

Heater #1 (Pins #1 and #3).....60 ohms  
Heater #2 (Pins #4 and #6).....60 ohms

Heater Resistance Characteristics:

Heater Current	Resistance in Air	Resistance in Hard Vacuum
0 ma.	37.5 ohms	37.5 ohms
50 ma.	38 ohms	39 ohms
100 ma.	42 ohms	60 ohms
150 ma.	43 ohms	78 ohms
200 ma.	54 ohms	81 ohms
250 ma.	57 ohms	83 ohms
300 ma.	60 ohms	84 ohms

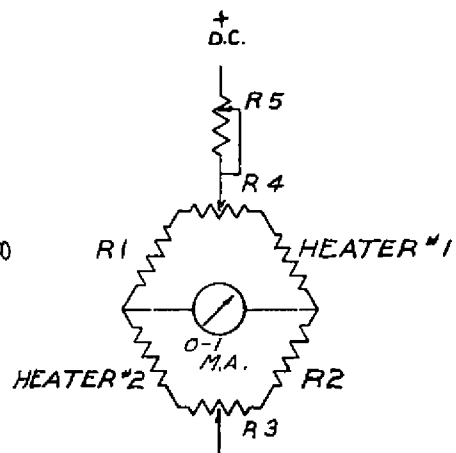
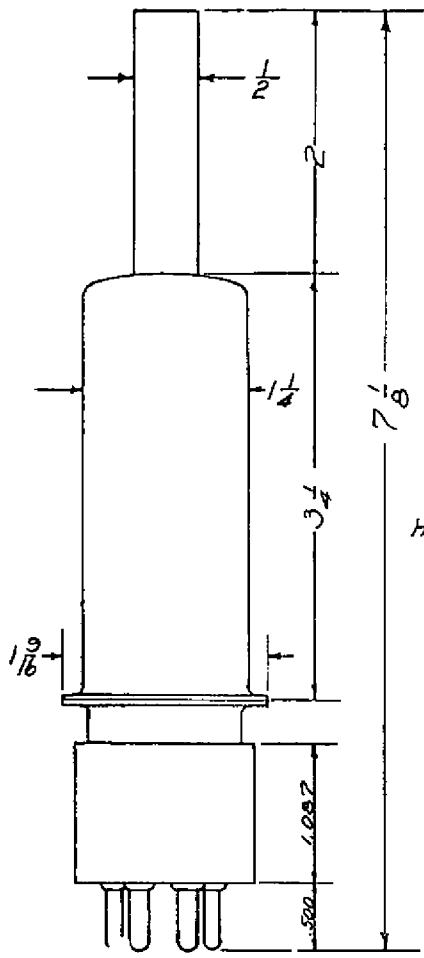
Heater Current Normal..... 100 ma.  
Heater Current Maximum..... 300 ma.  
Heater Voltage (Note 2)..... 10 volts  
Speed of Response..... 600 Milliseconds  
Basing ..... RETMA 6CQ

Pin No.	1	2	3	4	5	6
Element	Htr. #1	Gnd.	Htr. #1	Htr. #2	Gnd.	Htr. #2

Note 1: Heater resistance is dependent upon circuit use and absolute pressure. Data is supplied for 100 ma. current inasmuch as these values are obtained when using the recommended circuit.

Note 2: Heater voltage is dependent upon circuit use and value noted is as used in recommended circuit with resistance values noted.

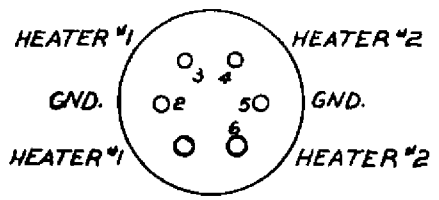
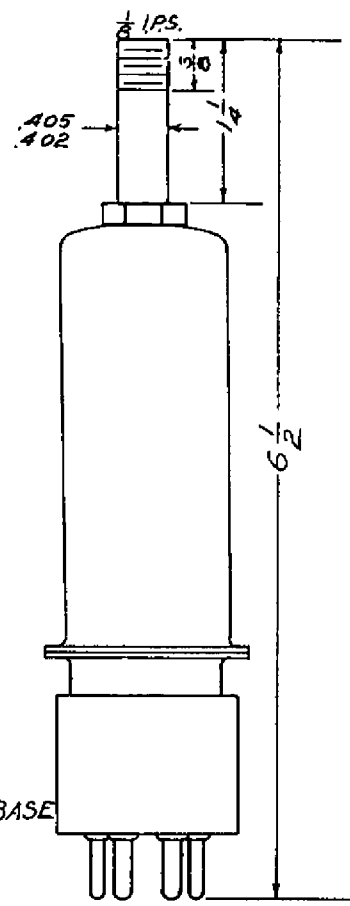
VACUUM TUBE PRODUCTS, 506 SOUTH CLEVELAND STREET, OCEANSIDE, CALIFORNIA  
TELEPHONE: OCEANSIDE 6567



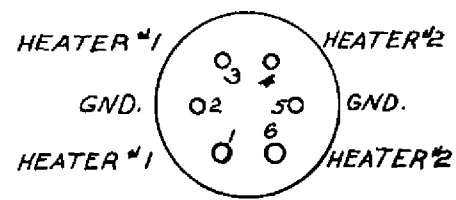
TYPICAL CIRCUIT

- R1-R2 50 OHMS
- R3-R4 5 OHMS
- R5 AS REQUIRED
- D.C. 10 VOLTS

MEDIUM SHELL REGULAR BASE



BASING 6CQ



BASING 6CQ

Typical Calibration Curve  
Meter Scale 0-1 Ma.

