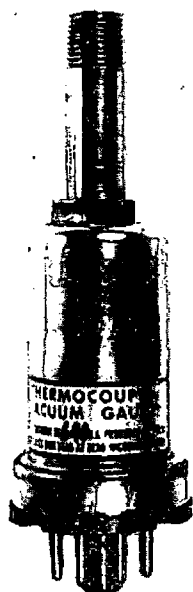


# VACUUM TUBE PRODUCTS



## THERMOCOUPLE VACUUM GAUGE TUBE Type VTP 6416

The VTP 6416 is a vacuum gauge tube of the thermocouple type, used for measuring pressures in the range of .1 to 1000 microns. The VTP 6416 is a thermal conductivity gauge that provides an output E.M.F. determined by the operating current and the heat conductivity of the residual gas. A reliable pressure reading is obtained when the heater is supplied from a stabilized source.

The VTP 6416 is of all metal construction and is assembled by projection welding methods. The internal structure is designed for maximum ruggedness, and all connections are electrically welded. This tube may be operated indefinitely at air pressure without damage to either the heater or thermocouple.

The VTP 6416 finds use in fore vacuum monitoring on large systems such as cyclotrons and accelerators, where a long pumping cycle is common and long life rather than response speed is the prime requirement.

### OPERATING CHARACTERISTICS

Heater Current Normal (Note 1).....	Approx. 600 ma.
Heater Current Maximum.....	1000 ma.
Heater Resistance (Cold) Nominal.....	.2 ohms
Heater Resistance (Hot) Nominal.....	.25 ohms
Heater to Thermocouple Resistance (Note 2).....	0
Thermocouple Output — with 55 ohm Load (Meter Internal Resistance)	
Hard Vacuum .....	10 Millivolts
Air .....	1.0 Millivolts
Thermocouple Resistance (Cold).....	3 1/2 ohms
Speed of Response.....	Approx. 15 seconds
Basing .....	RETMA 8FS

Pin No.	1	3	5	7
Element	Heater	Neg. Thermocouple	Heater	Pos. Thermocouple

Note 1: While either A.C. or D.C. may be used, A.C. is recommended due to ease of supply adjustment from a variable transformer. All gauge tubes are individually calibrated and marked with the heater current required to provide 10 millivolts output across 55 ohms when the gauge is under hard vacuum.

Note 2: Heater and thermocouple are electrically welded together at the thermocouple junction.

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