

3CX10,000A7

High-Mu Power Triode



The Penta 3CX10,000A7 is a ceramic and metal power triode intended to be used as a zero-bias Class-B amplifier in audio or radio-frequency applications. Operation with zero grid bias offers circuit simplicity by eliminating the bias supply. In addition, grounded-grid operation is attractive since a power gain as high as twenty times can be obtained with the PL8160/3CX10,000A7.

ELECTRICAL

Filament: Thoriated-Tungsten

Voltage	7.5	Volts
Current	100	Amps
Amplification Factor	200	
Direct Interelectrode Capacitances		
Grid-Filament	59.0	pF
Grid-Plate	36.0	pF
Plate-Filament	0.2	pF
Frequency for Maximum Ratings	160	MHz

MECHANICAL

Base	Coaxial
Recommended Air-System Socket	Penta PSK-1300
Recommended Air Chimney	Penta PSK-1306
Operating Position	Vertical, base up or down
Cooling	Forced Air
Maximum Operating Temperature	
Anode Core	250 °C
Ceramic / Metal Seals	250 °C
Maximum Dimensions	
Height	8.75 in
Diameter	7.05 in
Net Weight	12 Pounds

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P E N T A L A B O R A T O R I E S
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ELECTRON TUBES FOR INDUSTRY



3CX10,000A7

High-Mu Power Triode

RADIO-FREQUENCY LINEAR AMPLIFIER Grounded Grid, Class-B

MAXIMUM RATING

DC Plate Voltage	8000	Volts
DC Plate Current	5.0	Amps
Plate Dissipation	12	kW
Grid Dissipation	500	Watts

TYPICAL OPERATION

DC Plate Voltage	7000	7000	Volts
Zero-Signal DC Plate Current ¹	0.60	0.60	Amp
Max-Signal DC Plate Current	3.72	5.00	Amps
Max-Signal DC Grid Current	0.71	1.00	Amp
Driving Impedance	35	32	Ω
Resonant Load Impedance	1020	745	Ω
Max-Signal Driving Power	885	1540	Watts
Peak Envelope Plate Output Power	17.7	24.2	kW
Power Gain	13	12	dB

1. Approximate Value.

AUDIO-FREQUENCY AMPLIFIER OR MODULATOR Class-B, Grid Driven

MAXIMUM RATING (Per Tube)

DC Plate Voltage	8000	Volts
DC Plate Current	5.0	Amps
Plate Dissipation	12	kW
Grid Dissipation	500	Watts

TYPICAL OPERATION

DC Plate Voltage	7000	7000	Volts
DC Grid Voltage	0	0	Volts
Zero-Signal DC Plate Current ¹	1.20	1.20	Amps
Max-Signal DC Plate Current	7.50	10.0	Amps
Max-Signal DC Grid Current	1.50	2.06	Amps
Driving Power	315	560	Watts
Peak AF Driving Voltage (Per Tube)	250	310	Volts
Load Resistance, Plate-to-Plate	2000	1520	Ω
Max-Signal Plate Output Power	35.6	47.7	kW

1. Approximate Value.



RADIO-FREQUENCY LINEAR AMPLIFIER

Carrier Conditions, Grounded-Grid

MAXIMUM RATING

DC Plate Voltage	8000	Volts
DC Plate Current	5.0	Amps
Plate Dissipation	12	kW
Grid Dissipation	500	Watts

TYPICAL OPERATION

DC Plate Voltage	7000	Volts
DC Grid Voltage	0	Volts
Zero-Signal DC Plate Current ¹	0.60	Amps
DC Plate Current	2.40	Amps
DC Grid Current	0.25	Amp
Driving Impedance ²	32	Ω
Peak Driving Voltage ²	310	Volts
Driving Power	330	Watts
Plate Output Power	5650	Watts

- 1. Approximate Value.
- 2. Modulation Crest Conditions

RADIO-FREQUENCY POWER AMPLIFIER OR OSCILLATOR

Class-C, Grounded-Grid

MAXIMUM RATING

DC Plate Voltage	8000	Volts
DC Plate Current	4.0	Amps
Plate Dissipation	10	kW
Grid Dissipation	500	Watts

TYPICAL OPERATION

DC Plate Voltage	7600	Volts
DC Plate Current	3.68	Amps
DC Grid Voltage	-110	Volts
DC Grid Current	775	mA
Peak RF Cathode Voltage	400	Volts
Cathode Driving Power	1510	Watts
Plate Output Power	22.5	kW

- 1. Approximate Value.



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PLATE-MODULATED RF POWER AMPLIFIER

MAXIMUM RATING

DC Plate Voltage	8000	Volts
DC Plate Current	3.0	Amps
Plate Dissipation	6.5	kW
Grid Dissipation	500	Watts

TYPICAL OPERATION

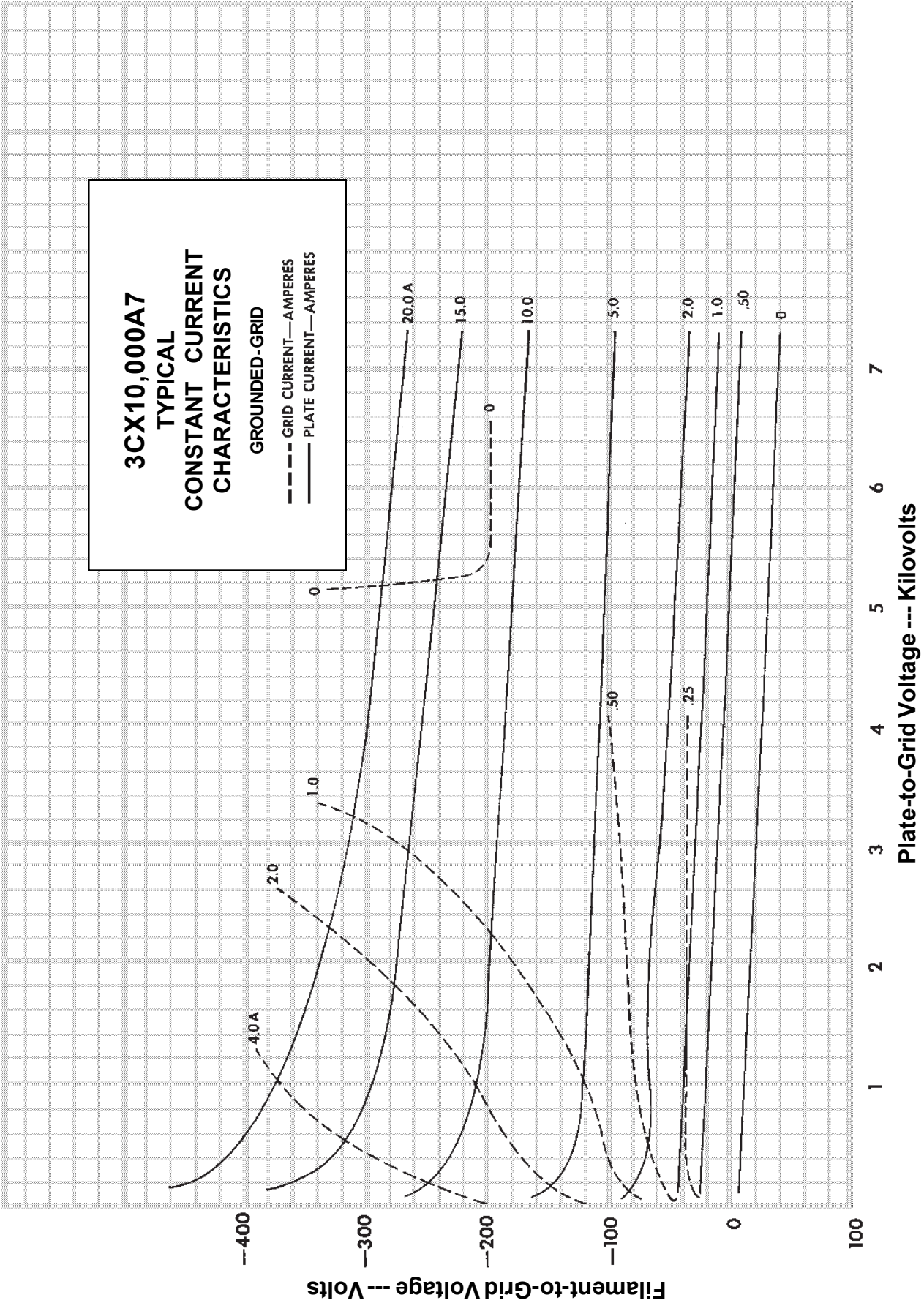
DC Plate Voltage	5000	Volts
DC Plate Current	3.0	Amps
DC Grid Voltage	-200	Volts
DC Grid Current	775	mA
Peak RF Grid Voltage	490	Volts
Grid Driving Power	380	Watts
Plate Output Power	11.9	kW

1. Approximate Value.



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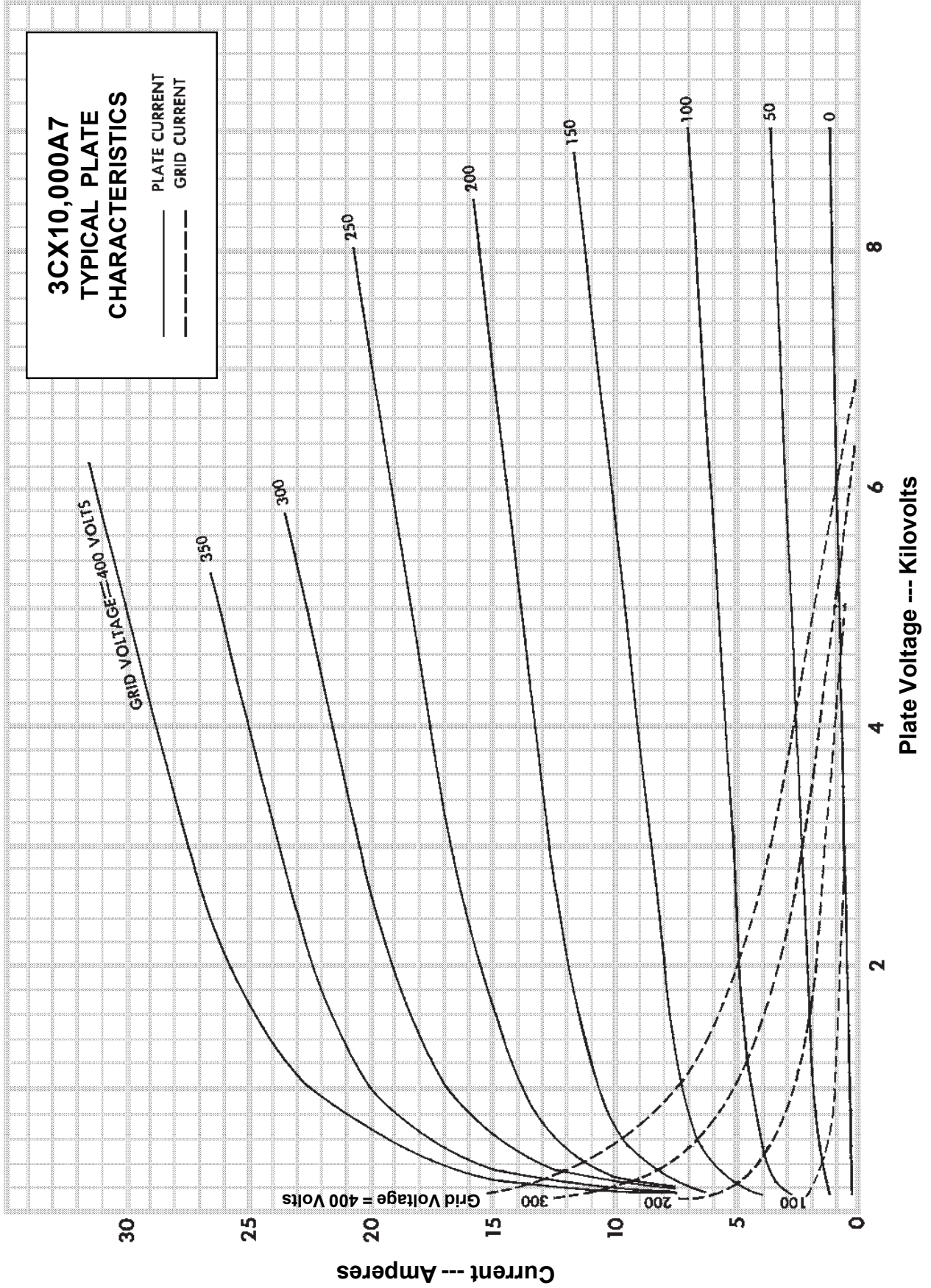
High-Mu Power Triode





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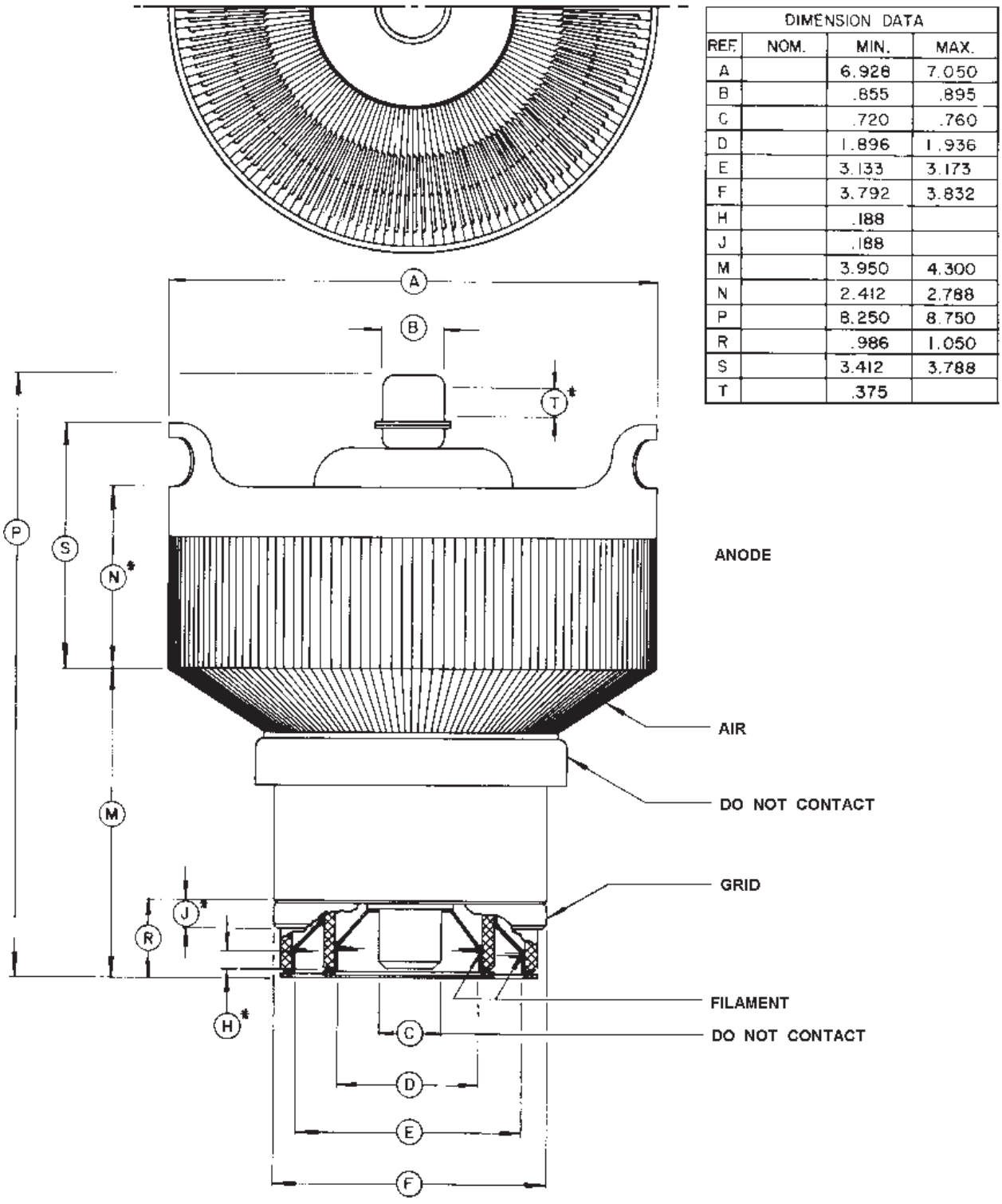
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* CONTACT SURFACE
ALL DIMENSIONS IN INCHES