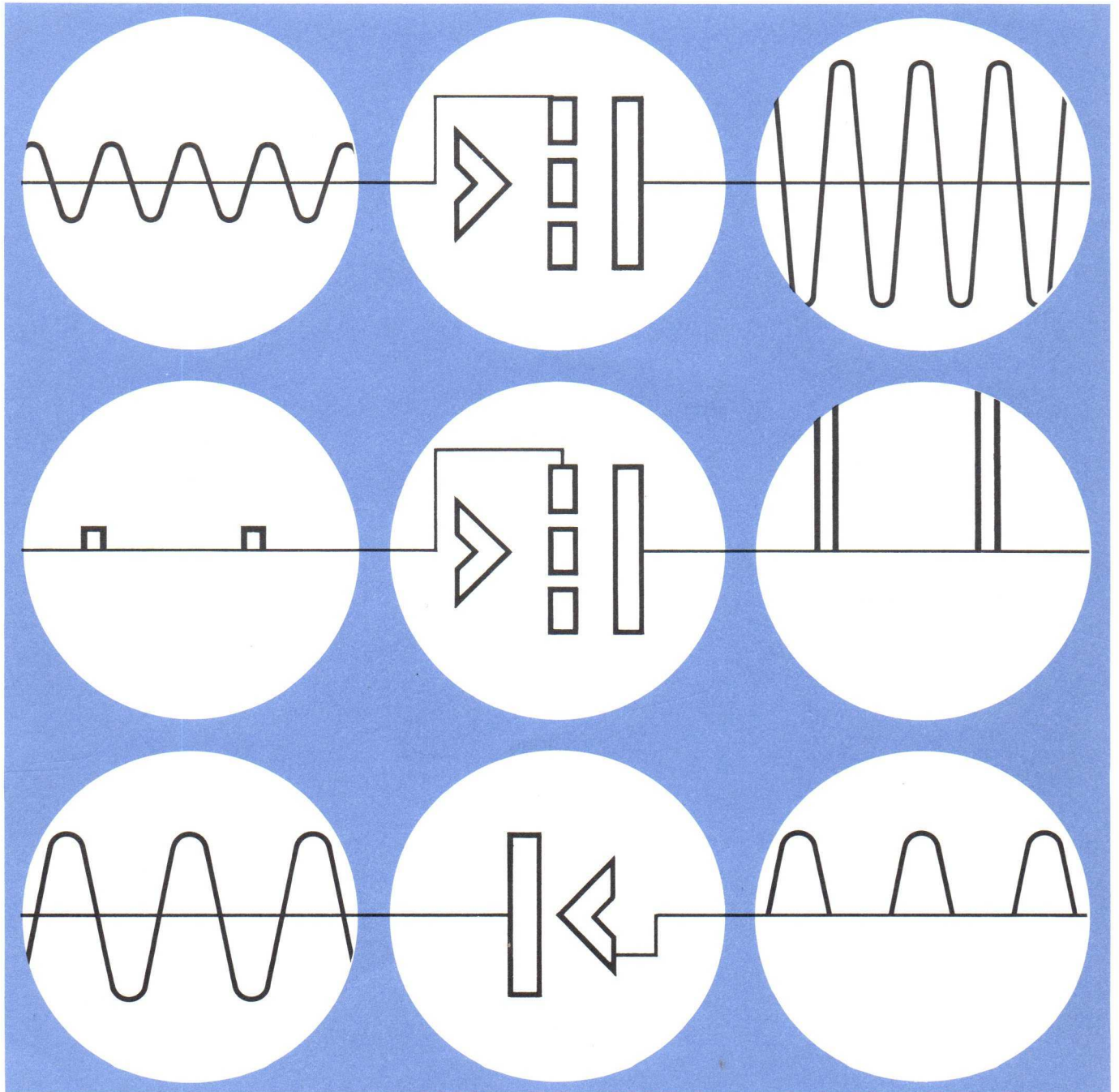


Westinghouse

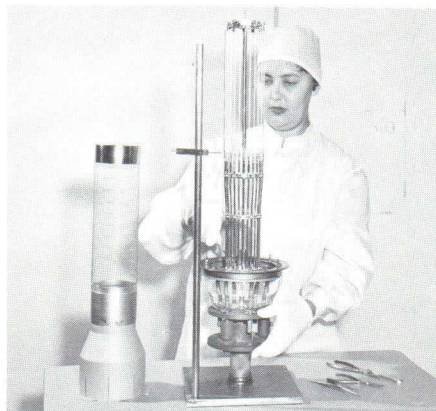


High Vacuum Amplifiers
High Vacuum Pulse Tubes
High Vacuum Diodes
Quick Reference Guide

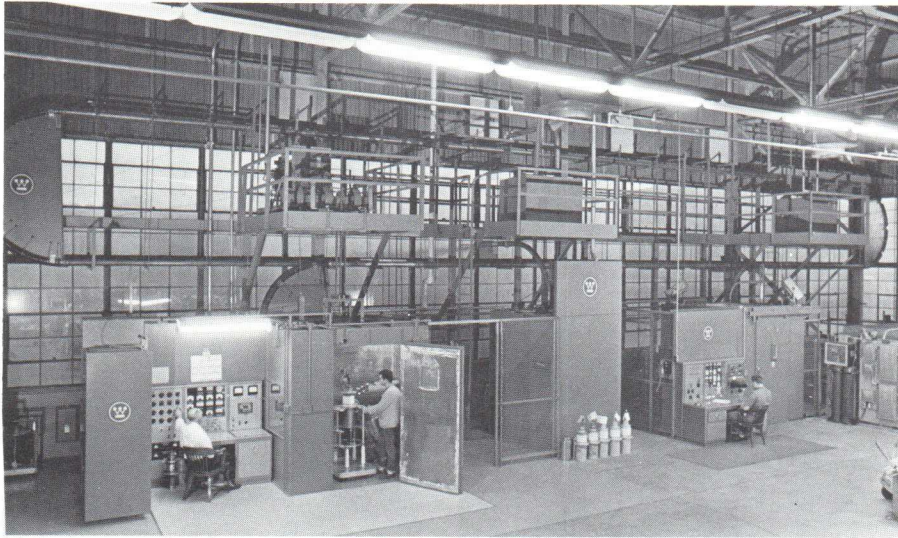




Power tubes



High vacuum tube grid assembly



Highest power privately owned test facility in the world



Design and Application Engineering

Westinghouse Capabilities

Westinghouse manufactures a broad line of electronic power tubes with plate dissipations ranging from 12 watts to 375 kilowatts and all the useful sizes in between.

High quality of products is insured by:

- a. careful training of employees
- b. complete testing of parts, assemblies and finished tubes
- c. sound engineering designs, conservatively rated.

To perform a thorough evaluation of our electronic tubes, Westinghouse has complete test facilities which can test tubes up to 1.2 million watts average power at 30 megahertz.

To help you select the optimum tubes for a particular system, Westinghouse maintains a Field Sales Engineering force and an Application Engineering staff. These people not only can advise you of the tube type best suited electrically and mechanically but can also counsel you on factors such as life, reliability and modifications for improved performance.

Complete engineering data and application assistance on these tubes, as well as price and delivery information are available from Westinghouse. Contact the Westinghouse Electronic Components & Specialty Products Sales office nearest you or write to:

Westinghouse Electric Corporation
Electronic Tube Division
P.O. Box 284
Elmira, N. Y. 14902
Phone (607) 739-7951

How to Use: Tubes are grouped according to their preferred application. In each group, the tubes are listed in sequence of increasing values of a key parameter. These key parameters are listed in the table.

Section	Group	Key Parameter
Amplifier	Triode Tetrode	Plate Dissipation Plate Dissipation
Pulse	Triode Tetrode	Dc Plate Voltage Dc Plate Voltage
Diodes	Rectifier Clipper & Charging Control & Current Limiting	Peak Inverse Volt. Peak Current Dc Load Current

Numerical Listing

Tube Type	Class of Service	Page No.	Tube Type	Class of Service	Page No.	Tube Type	Class of Service	Page No.
WL-2E26	Amplifier	12	WL-6420	Amplifier	6	WL-8032	Amplifier	12
WL-207	Amplifier	6	WL-6421	Amplifier	6	WL-8044	Pulse	14
WL-456	Rect. Diode	16	WL-6421F	Amplifier	6	WL-8094	Rect. Diode	16
WL-481B	Rect. Diode	16	WL-6422	Amplifier	8	WL-8159	Amplifier	6
WL-579B	Rect. Diode	16	WL-6423	Amplifier	6	WL-8161	Amplifier	4
WL-813	Amplifier	12	WL-6423F	Amplifier	6	WL-8170	Amplifier	12
WL-891	Amplifier	6	WL-6424	Amplifier	8	WL-8170W	Amplifier	12
WL-891R	Amplifier	4		Pulse	14	WL-8238	Amplifier	4
WL-892	Amplifier	6	WL-6425	Amplifier	8	WL-8239	Amplifier	4
WL-892R	Amplifier	4		Pulse	14	WL-8240	Amplifier	4
WL-895	Amplifier	8	WL-6425F	Amplifier	6	WL-8241	Amplifier	4
WL-895R	Amplifier	8		Pulse	14	WL-8251	Amplifier	4
WX-4099	Pulse	14	WL-6426	Amplifier	8	WL-8298	Amplifier	12
WX-4276	Amplifier	4	WL-6427	Amplifier	8	WL-8461	Pulse	14
WX-4361	Amplifier	12	WL-6567	Amplifier	8	WL-22759	Amplifier	6
	Pulse	16	WL-6623	Amplifier	4	WL-22789	Amplifier	6
WX-4629	Pulse	14	WL-6696	Amplifier	10	WL-22800	Rect. Diode	16
WX-4630	Pulse	14	WL-6697	Amplifier	8		Cont. Diode	18
WX-4675	Pulse	14	WL-6883	Amplifier	12	WL-22801	Rect. Diode	16
WX-4778	Pulse	14	WL-6893	Amplifier	12		Cont. Diode	18
WX-4834	Pulse	14	WL-6920	Pulse	14	WL-22802	Rect. Diode	16
WL-4852	Pulse	14	WL-7120	Amplifier	8		Cont. Diode	18
WX-4959	Amplifier	8	WL-7121	Amplifier	6	WL-22803	Amplifier	10
WX-5315	Amplifier	4	WL-7215	Amplifier	6	WL-23053	Pulse	14
WX-5394	Amplifier	8	WL-7255	Amplifier	6	WL-23063	Amplifier	10
WX-5456	Rect. Diode	16	WL-7328A	Amplifier	8	WL-23083	Amplifier	10
	Clip. Diode	18		Pulse	14	WL-23095	Cont. Diode	18
WL-5575	Rect. Diode	16	WL-7413	Pulse	14	WL-23102	Rect. Diode	16
WL-5576	Rect. Diode	16	WL-7463	Amplifier	6	WL-23165	Amplifier	10
WL-5604	Amplifier	6	WL-7464	Amplifier	6	WL-23178	Cont. Diode	18
WL-5606	Amplifier	6	WL-7480	Amplifier	10	WL-23185	Amplifier	10
WL-5619	Amplifier	8	WL-7482	Amplifier	10	WL-23200	Cont. Diode	18
WL-5668	Amplifier	8	WL-7482V	Amplifier	10	WL-23201	Amplifier	8
WL-5669	Amplifier	6	WL-7540	Amplifier	8	WL-23219	Cont. Diode	18
WL-5671	Amplifier	8	WL-7540VC	Amplifier	10	WL-23244	Amplifier	10
WL-5682	Amplifier	10	WL-7560	Amplifier	10	WX-30076	Pulse	14
WL-5736	Amplifier	4		Pulse	14	WX-30226	Amplifier	6
WL-5770	Amplifier	10	WL-7560V	Amplifier	10	WX-30248	Amplifier	12
WL-5859/5860	Rect. Diode	16		Pulse	14		Pulse	16
WL-5891	Amplifier	8	WL-7565	Amplifier	4	WX-30261	Cont. Diode	18
WL-5918A	Amplifier	10	WL-7604	Amplifier	4	WX-30300	Amplifier	10
WL-5919	Amplifier	8	WL-7658	Rect. Diode	16	WX-30322	Cont. Diode	18
WL-5936	Amplifier	10	WL-7685	Amplifier	4	WX-30674	Rect. Diode	16
WL-5973A	Rect. Diode	16	WL-7691	Pulse	14	WX-30675	Rect. Diode	16
	Clip. Diode	18	WL-7748	Amplifier	8	WX-31109	Rect. Diode	16
WL-5986A	Amplifier	10	WL-7750	Pulse	14		Clip. Diode	18
WL-6146B	Amplifier	12	WL-7779	Rect. Diode	16	WX-31118	Cont. Diode	18
WL-6159	Amplifier	12		Clip. Diode	18	WX-31262	Amplifier	8
WL-6293	Pulse	16	WL-7982	Amplifier	8	WX-31266	Amplifier	6
WL-6379	Amplifier	10		Pulse	14	WX-31329	Cont. Diode	18
						WX-31333	Amplifier	6

HIGH VACUUM AMPLIFIERS

High vacuum amplifiers are multielectrode tubes with heated cathodes and one or more electrodes which are able to control the current flow through the tube. These types are similar to the high vacuum rectifiers with the addition of control electrodes.

The current is limited by the formation of a negative space charge near the cathode. A positively charged grid will tend to neutralize this space charge permitting more electrons to go to the plate. A negatively charged grid will tend to increase this space charge reducing electron flow and if the grid is sufficiently negative, it will cut off the electron flow. The grid has continuous control of the number of electrons allowed to go to the plate. This controlled power ranges from a

few watts in smaller designs to hundreds of thousands of watts in the largest designs. By proper design of the electrode structure, the tube can be made to control more power in the plate circuit than is required in the grid circuit. The tube therefore can act as an amplifier. By feeding back part of the output power to the grid circuit, the tube can be made to generate sustained oscillations. This arrangement is termed an oscillator.

The cooling of the tubes handling large amounts of power must be carefully controlled. Radiation with free air convection is employed with types having low dissipation ratings for their size. With these types care must be taken that nearby components are not damaged by directly radiated heat. Tube

types with medium size dissipation ratings often have finned radiators soldered to the anode and heat is dissipated by forcing air through the radiator. High vacuum amplifiers with high dissipation ratings are operated either water cooled or vapor cooled. Both groups require water with low mineral content. Cooling system control circuits should be provided to remove power from the tube if cooling is inadequate.

High vacuum amplifiers are used to generate, amplify or modulate audio or radio frequencies in radio and television transmitters and induction and dielectric heating equipment for industrial use.

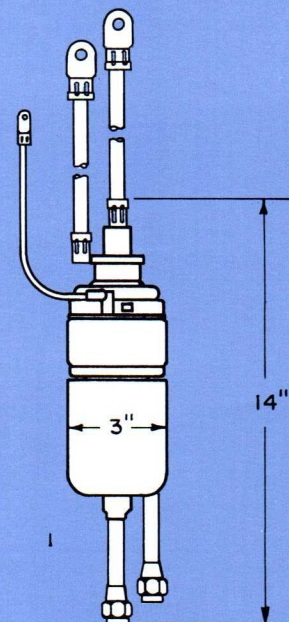
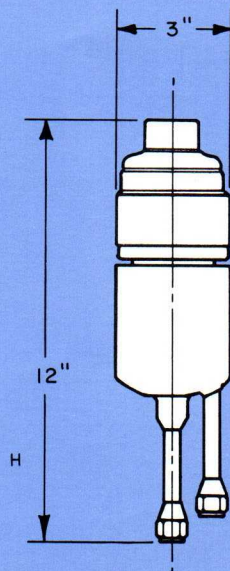
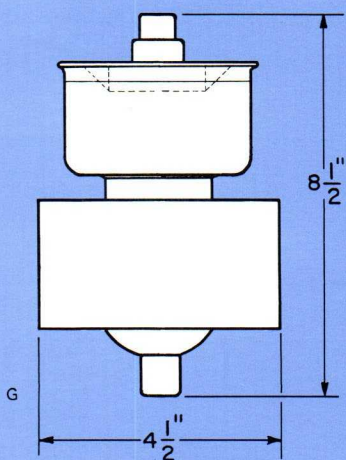
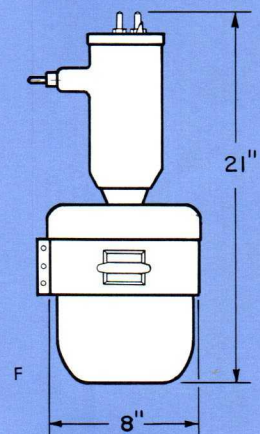
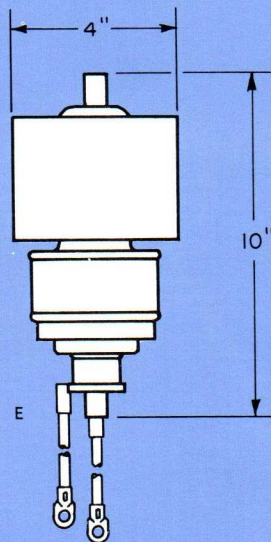
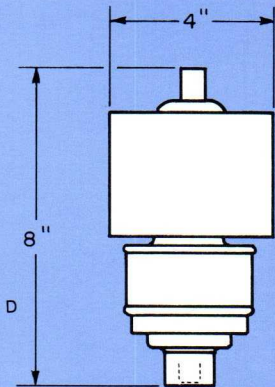
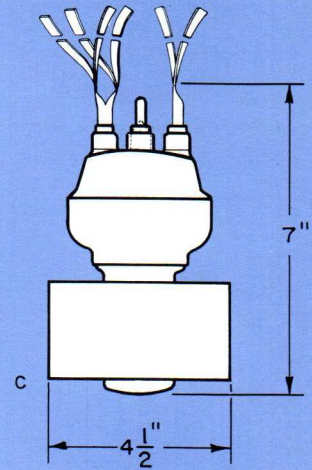
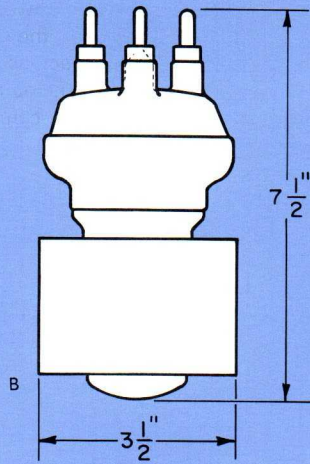
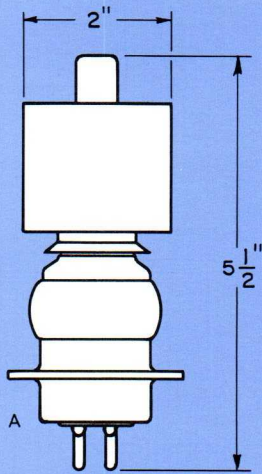
HIGH VACUUM AMPLIFIERS — TRIODES

Tube Type	Class of Service	Max. Anode Diss. Kw	Max. Anode Input Kw	Max. Anode Voltage Kv	Max. Anode Current Amps	Max. Grid Current Amps	Max. Freq. for Full Input MHz	Type of Cooling	Cathode Volts	Cathode Amps	Mu Factor	Dwg. No.
WL-7604	AB-RF	0.6	1.5	4	0.6	—	60	FA	5	8	20	A
	C-CW	0.6	1.8	4	0.5	0.075	60					
WL-7685	AB-RF	0.6	1.5	4	0.6	—	60	FA	5	8	6.5	A
	AB-Audio	0.6	1.5	4	0.6	—	—					
WX-5315	AB-RF	0.6	1.5	3	0.5	—	60	FA	5	8	20	A
	C-CW	0.6	1.5	3	0.5	0.075	60					
WL-5736	B-Audio	2.5	4.2	3	1.75	—	—	FA	6	60	22	B
	B-RF	2.5	3.5	3.5	1.75	—	60					
	B-TV	2.8	4	3.5	1.75	—	88					
	C-CW	2.5	5	5	1.4	0.5	60					
	C-Phone	1.65	4	3.5	1.4	0.5	60					
WL-6623	B-Audio	2.5	4.2	3	1.75	—	—	FA	6	60	22	C
	C-CW	2.5	5	5	1.4	0.5	30					
WL-8161	B-Audio	2.5	—	6	2.5	—	—	FA	7.5	51.5	22.5	D
	C-CW	2.5	—	6	2.5	—	75					
	C-Phone	1.67	—	5	2	—	75					
WL-8251	B-Audio	2.5	—	6	2.5	—	—	FA	7.5	51.5	22.5	E
	C-CW	2.5	—	6	2.5	—	30					
	C-Phone	1.67	—	5	2	—	30					
WL-8238	AB-Audio	3	—	6	2.5	—	—	FA	7.5	51.5	5	D
WL-8239	AB-Audio	3	—	6	2.5	—	—	FA	7.5	51.5	5	E
WL-891R	A-Audio	3.5	—	10	—	—	—	FA	22	60	8	F
	B-Audio	3.5	10.5	10	2	—	—					
	B-RF	3.5	5.5	10	1	—	1.6					
	C-CW	4	15	10	2	0.15	1.6					
	C-Phone	2.5	8	8.5	1	0.15	1.6					
WL-892R	B-Audio	4	12	12.5	2	—	—	FA	22	60	5	F
	B-RF	4	6	12.5	1	—	1.6					
	C-CW	4	18	12.5	2	0.4	1.6					
	C-Phone	2.5	10	10	1	0.3	1.6					
WL-7565	A-Audio	4	4	8	—	—	—	FA	6	60	6	C
	AB-Audio	4	8	8	2.5	—	—					
WX-4276	B-Audio	5	15	12	2.5	0.5	—	FA	6	70	33	G
	C-CW	5	20	12	2	0.5	60					
WL-8240	AB-Audio	5	—	6	2.5	—	—	W	7.5	51.5	5	H
WL-8241	AB-Audio	5	—	6	2.5	—	—	W	7.5	51.5	5	I

Cooling Code — FA-Forced Air, R-Radiation, F-Vapor, W-Water

Filament Code — OC-Oxide Coated, TW-Thoriated Tungsten, W-Pure Tungsten

High Vacuum Amplifiers Triodes



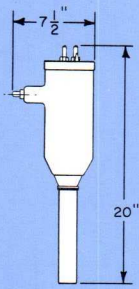
HIGH VACUUM AMPLIFIERS — TRIODES (Continued)

Tube Type	Class of Service	Max. Anode Diss. Kw	Max. Anode Input Kw	Max. Anode Voltage Kv	Max. Anode Current Amps	Max. Grid Current Amps	Max. Freq. for Full Input MHz	Type of Cooling	Cathode Volts	Amps	Mu Factor	Dwg. No.
WL-891	A-Audio	7.5	7.5	12	—	—	—	W	22	60	8	J
	B-Audio	5	20	15	2	—	—					
	B-RF	6	10	15	1	—	1.6					
	C-CW	6	18	12	2	0.15	1.6					
	C-Phone	4	8	8	1	0.15	1.6					
WL-6421F	B-Audio	7.5	20	10	2.2	—	—	FA	7	85	20	K
	B-RF	7.5	11	10	1.8	—	30					
	C-CW	7.5	20	10	2.2	0.42	30					
	C-Phone	5	12	8	1.8	0.4	30					
WL-7464	A-Audio	8	8	8	—	—	—	W	6	60	6	L
	AB-Audio	8	18	8	2.5	—	—					
WL-7215	C-CW	9	18	9.2	2	0.5	30	W	6	60	22	L
WL-7255	C-CW	9	18	9.2	2	0.5	30	W	6	60	22	M
WL-22759	C-CW	9	18	9.2	2	0.5	30	W	6	60	22	M
WL-22789	C-CW	9	21	9.3	2.3	0.5	30	W	6	60	22	M
WL-207	B-Audio	7.5	20	15	2	—	—	W	22	50	20	J
	B-RF	10	15	15	1	—	1.6					
	C-CW	10	30	15	2	0.2	1.6					
	C-Phone	6.6	10	10	1	0.2	1.6					
WL-892	B-Audio	7.5	20	15	2	—	—	W	22	60	50	J
	B-RF	10	15	15	1	—	1.6					
	C-CW	10	30	15	2	0.25	1.6					
	C-Phone	6.6	10	10	1	0.25	1.6					
WL-5604	B-Audio	10	32.5	12.5	2.75	—	—	FA	11	176	19.5	N
	B-RF	10	16	12.5	1.4	—	22.5					
	C-CW	10	32.5	12.5	3	0.45	22.5					
	C-Phone	6	12	8	1.5	0.45	22.5					
WL-5606	C-CW	10	25	14	2	0.4	1.6	W	22	60	50	O
WL-5669	C-CW	10	28	14	2	0.4	5	FA	22	60	50	P
WL-6421	B-Audio	10	20	10	2.2	—	—	FA	7	85	20	Q
	B-RF	10	15	10	1.8	—	30					
	C-CW	10	20	10	2.2	—	30					
	C-Phone	6.7	12	8	1.8	—	30					
WL-6423F	B-Audio	10	30	12.5	2.5	—	—	FA	7	85	90	R
	B-RF	10	15	12.5	1.8	—	30					
	C-CW	10	30	12.5	2.5	—	30					
	C-Phone	7	16	9	1.8	—	30					
WL-7121	AB-Audio	10	20	10	2.2	—	—	FA	7	85	4.4	Q
	AB-RF	10	20	10	2.2	0.1	30					
WX-30226	AB-Audio	10	—	6	2.5	—	—	V	7.5	51.5	5	S
WL-8159	C-CW	10	—	7	4	—	140	FA	7.5	99	20	T
	C-Phone	6.5	—	5.5	3	—	140					
	AB-RF	12	—	7	5	—	140					
WX-31333	AB-Audio	10	—	6	2.5	—	—	V	7.5	51.5	5	U
WL-6425F	B-Audio	11	40	12.5	3.5	—	—	FA	7	120	20	R
	B-RF	11	16.5	12.5	2.5	—	30					
	C-CW	11	40	12.5	3.5	0.5	30					
	C-Phone	7.5	22	9	2.5	0.5	30					
WL-7463	B-Audio	12	24	12	2.5	0.75	—	FA	6	70	33	V
	C-CW	12	26	12	2.5	0.5	60					
WL-6420	B-Audio	12.5	20	10	2.2	—	—	W	7	85	20	W
	B-RF	12.5	18	10	1.8	—	30					
	C-CW	12.5	20	10	2.2	—	30					
	C-Phone	8.3	12	8	1.8	—	30					
WL-6423	B-Audio	12.5	30	12.5	2.5	—	—	FA	7	85	90	X
	B-RF	12.5	19	12.5	1.8	—	30					
	C-CW	12.5	30	12.5	2.5	—	30					
	C-Phone	8	16	9	1.8	—	30					

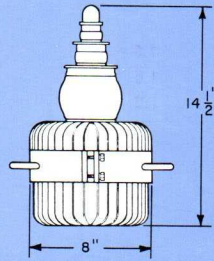
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Filament Code — OC-Oxide Coated, TW-Thoriated Tungsten, W-Pure Tungsten

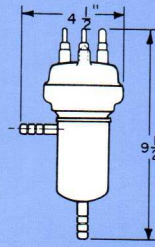
High Vacuum Amplifiers Triodes



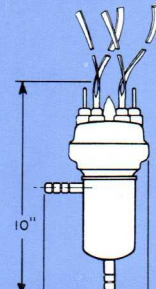
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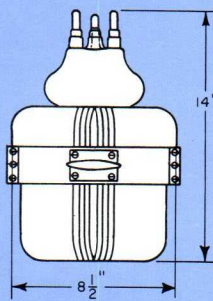
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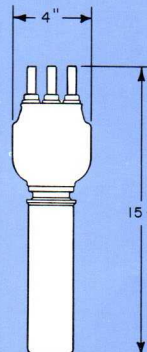
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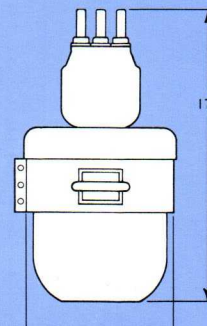
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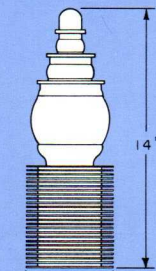
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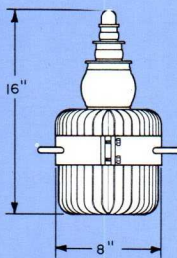
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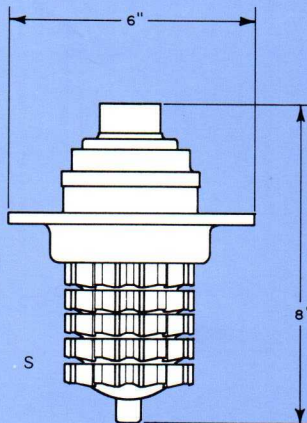
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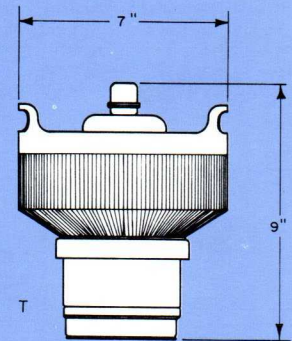
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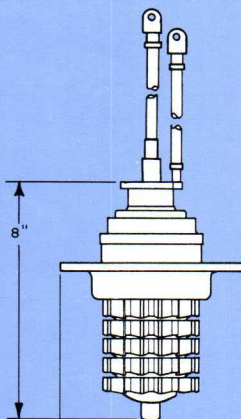
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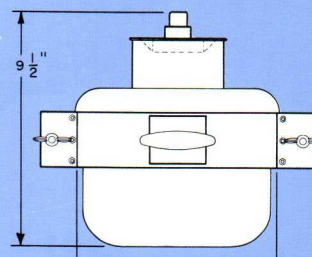
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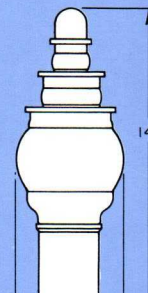
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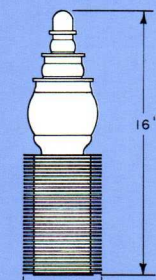
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HIGH VACUUM AMPLIFIERS — TRIODES (Continued)

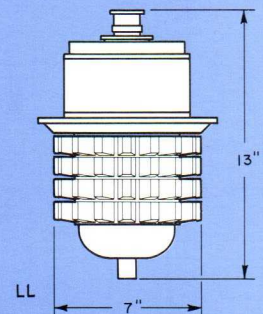
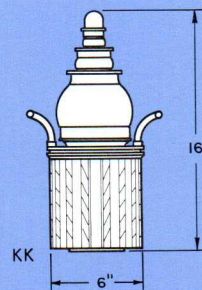
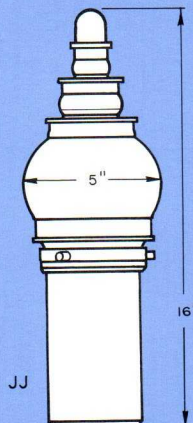
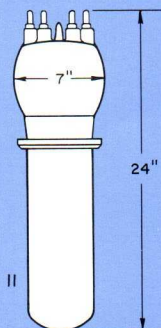
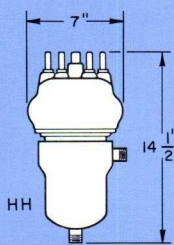
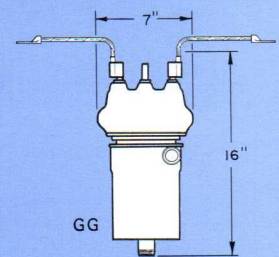
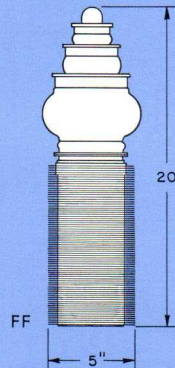
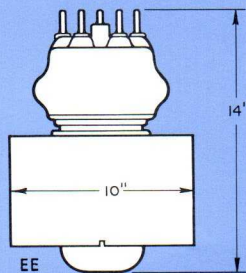
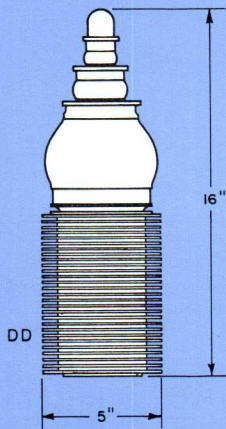
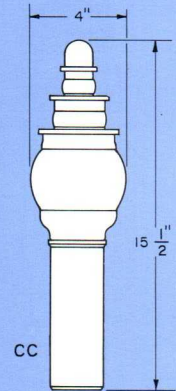
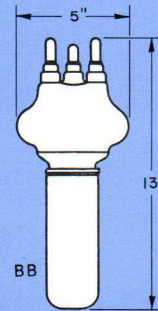
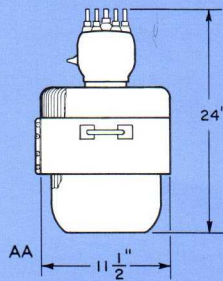
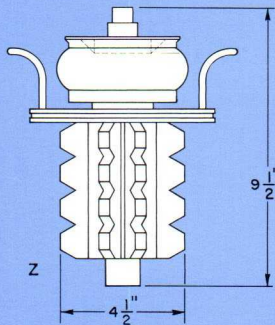
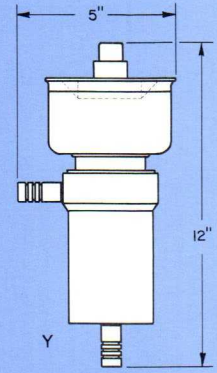
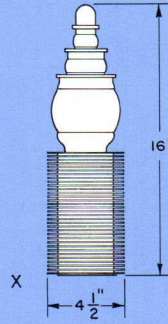
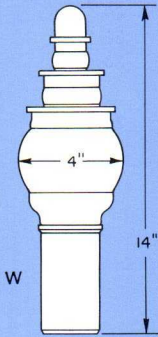
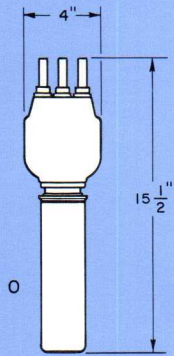
Tube Type	Class of Service	Max. Anode Diss. Kw	Max. Anode Input Kw	Max. Anode Voltage Kv	Max. Anode Current Amps	Max. Grid Current Amps	Max. Freq. for Full Input MHz	Type of Cooling	Cathode Volts	Cathode Amps	Mu Factor	Dwg. No.
WL-6425	B-Audio	12.5	40	12.5	3.5	—	—	FA	7	120	20	X
	B-RF	12.5	19	12.5	2.5	—	30					
	C-CW	12.5	40	12.5	3.5	—	30					
	C-Phone	8	22	9	2.5	—	30					
WL-7120	AB-Audio	12.5	20	10	2.2	—	—	W	7	85	4.4	W
	AB-RF	12.5	20	10	2.2	0.1	30					
WL-6567	B-Audio	15	26	12	2.5	0.5	—	W	6	70	33	Y
	C-CW	15	24	12	2.5	0.75	50					
WX-4959	B-Audio	15	24	9.5	2.5	0.5	—	V	6	70	20	Z
	C-CW	15	24	9.5	2.5	0.75	30					
WL-895R	B-Audio	20	50	17	9	—	—	FA	19	139	37	AA
	C-CW	20	110	17	9	1.5	6					
	C-Phone	13.5	62.5	12.5	5	1.5	6					
WL-5619	B-Audio	20	32.5	12.5	3	—	—	W	11	176	19.5	BB
	B-RF	16	18.5	12.5	1.5	—	22.5					
	C-CW	20	32.5	12.5	3	0.45	22.5					
	C-Phone	15	15	10.5	1.5	0.45	22.5					
WL-5668	C-CW	20	28	14	2	0.4	5	W	22	60	50	O
WL-6422	B-Audio	20	30	12.5	2.5	—	—	W	7	85	90	CC
	B-RF	20	22	12.5	1.8	—	30					
	C-CW	20	30	12.5	2.5	—	30					
	C-Phone	13	16	9	1.8	—	30					
WL-6424	B-Audio	20	40	12.5	3.5	—	—	W	7	120	20	CC
	B-RF	20	30	12.5	2.8	—	30					
	C-CW	20	40	12.5	3.5	—	30					
	C-Phone	13	22	9	2.5	—	30					
WL-6427	B-Audio	20	60	12.5	7	—	—	FA	8	200	20	DD
	B-RF	20	32	12.5	6	—	30					
	C-CW	20	80	12.5	8	1	30					
	C-Phone	13	53	9	5.5	1	30					
WL-7328A	AB-Audio	20	50	10	10	—	—	FA	7	245	6	EE
WL-23201	C-CW	20	80	12.5	10	1.25	30	FA	8	185	20	EE
WL-5891	B-Audio	25	90	15	6	—	—	FA	11	95	36	AA
	C-CW	25	100	15	8	1.5	10					
	C-Phone	17	75	12.5	6	1.5	30					
WL-5671	B-Audio	25	90	15	6	—	—	FA	11	285	40	AA
	C-CW	25	100	15	8	1	10					
	C-Phone	17	55	12.5	4.5	1	10					
WL-5919	C-CW	35	175	17.5	14	2	22	FA	26.5	150	37	AA
WL-6697	B-Audio	35	110	16	11	—	—	FA	13	205	20	FF
	B-RF	35	55	16	9	—	30					
	C-CW	35	120	16	11	2	30					
	C-Phone	23	81	10	8.5	2	30					
WL-7540	AB-Audio	35	70	15	10	—	—	W	5	250	5	GG
WL-7748	C-CW	35	80	12.5	10	1.25	30	W	8	185	20	HH
WL-7982	AB-Audio	35	75	10	10	—	—	W	7	265	5.5	HH
WL-895	B-Audio	40	100	17	9	—	—	W	19	139	37	II
	C-CW	40	150	17	9	2	6					
	C-Phone	27	62.5	12.5	5	1.5	6					
WL-6426	B-Audio	40	80	12.5	8	—	—	W	8	200	20	JJ
	B-RF	40	80	12.5	8	—	30					
	C-CW	40	80	12.5	8	1	30					
	C-Phone	26	53	9	6	1	30					
WX-5394	B-Audio	40	80	12.5	8	—	—	V	8	200	20	KK
	B-RF	40	80	12.5	8	—	30					
	C-CW	40	80	12.5	8	1	30					
	C-Phone	26	53	9	6	1	30					
WX-31262	C-CW	40	80	12.5	10	—	75	V	5	265	20	LL
	C-CW	40	70	10	10	—	110					

NOTE 1. Current per phase; 3 phase

Cooling Code — FA-Forced Air, R-Radiation, F-Vapor, W-Water

Filament Code — OC-Oxide Coated, TW-Thoriated Tungsten, W-Pure Tungsten

High Vacuum Amplifiers Triodes



HIGH VACUUM AMPLIFIERS — TRIODES (Continued)

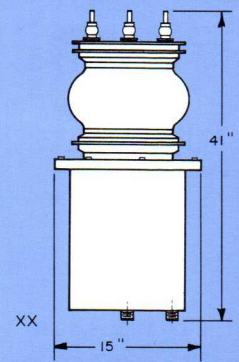
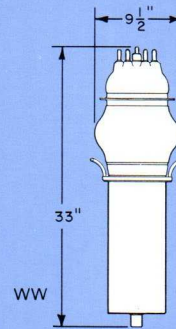
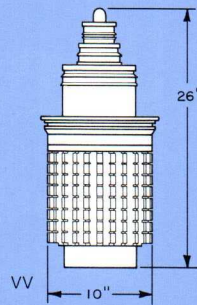
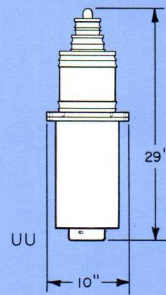
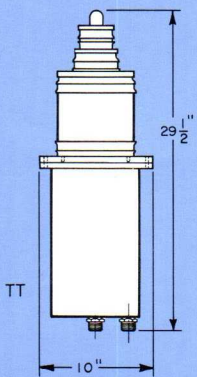
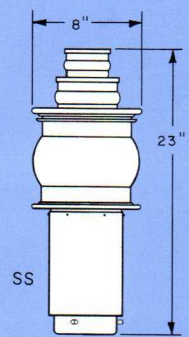
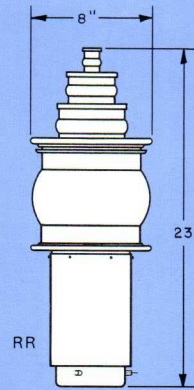
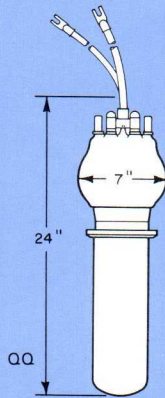
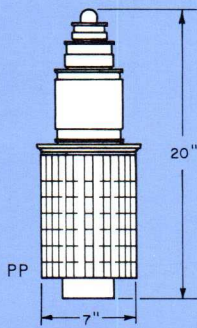
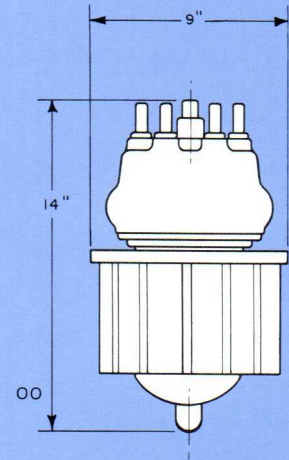
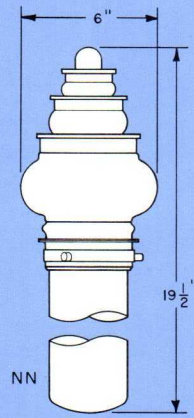
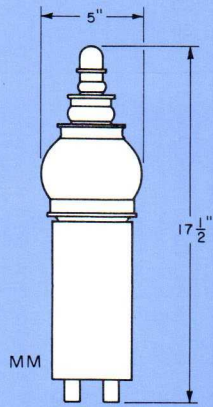
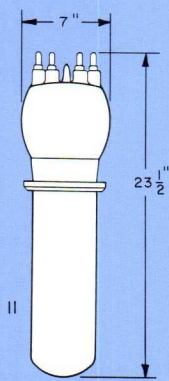
Tube Type	Class of Service	Max. Anode Diss. Kw	Max. Anode Input Kw	Max. Anode Voltage Kv	Max. Anode Current Amps	Max. Grid Current Amps	Max. Freq. for Full Input MHz	Type of Cooling	Volts	Cathode Amps	Mu Factor	Dwg. No.
WX-30300	B-Audio	40	80	12.5	8	—	—	W	8	200	20	MM
	B-RF	40	80	12.5	8	—	30					
	C-CW	40	80	12.5	8	1	30					
	C-Phone	26	53	9	6	1	30					
WL-5770	B-Audio	50	90	15	6	—	—	W	11	285	39	II
	C-CW	50	150	17	9	1.25	20					
	C-Phone	33	60	12.5	5	1.25	20					
WL-6696	B-Audio	60	120	16	11	—	—	W	13	205	20	NN
	B-RF	60	90	16	9	—	30					
	C-CW	60	120	16	11	2	30					
	C-Phone	40	81	10	8.5	2	30					
WL-5918A	B-Audio	70	175	17.5	15	—	—	W	11	285	37	II
	B-RF	70	100	17.5	12	—	22					
	C-CW	70	300	17.5	18	2	22					
	C-Phone	47	165	14	12	2	22					
WL-5936	B-Audio	70	180	18	10	—	—	W	20	143	37	II
	C-CW	70	180	18	10	2	15			Note 1		
	C-Phone	46	70	14	5	2	15					
WL-6379	AB-Audio	70	150	17.5	15	—	—	W	11	285	5	II
WL-7540VC	AB-Audio	75	100	15	10	—	—	V	5	250	5	OO
WL-7480	AB-Audio	80	—	16	11	—	—	V	13	205	20	PP
	AB-RF	80	—	16	11	—	40					
	C-CW	80	—	16	11	2	40					
	C-Phone	53	—	10	8.5	2	40					
	AB-Phone	80	—	16	9	—	40					
WL-5986A	C-CW	90	240	17.5	15	2	15	W	11	285	37	QQ
WL-23165	B-Audio	90	150	15	10	—	—	W	11	95	36	II
	C-CW	90	150	15	10	1.5	10			Note 1		
	C-Phone	60	94	12.5	7.5	1.5	10					
WL-23185	C-CW	90	220	17.5	15	2	2	W	12.6	300	21	II
WL-5682	B-Audio	120	280	16	18	—	—	W	16.5	325	30	RR
	B-RF	120	150	16	14	—	30					
	B-TV	120	170	9	20	4	88					
	C-CW	120	300	16	20	4	30					
	C-Phone	80	185	14	14	4	30					
WL-23083	C-CW	160	370	16.5	22.5	3	30	W	16.5	325	27	SS
WL-7560	B-Audio	175	600	20	30	—	—	W	14.5	450	45	TT
	AB-RF	175	—	20	—	—	30					
	C-CW	175	600	20	35	4	30					
	C-Phone	115	300	15	20	4	30					
WL-7560V	B-Audio	175	600	20	30	—	—	W	14.5	450	45	TT
	AB-RF	175	—	20	—	—	30					
	C-CW	175	600	20	35	4	30					
	C-Phone	115	300	15	20	4	30					
WL-23244	B-Audio	175	600	20	30	—	—	W	16.5	325	45	UU
	AB-RF	175	—	20	—	—	30					
	C-CW	175	600	20	35	4	30					
	C-Phone	115	300	15	20	4	30					
WL-7482	B-Audio	200	—	20	30	—	—	V	14.5	450	45	VV
	AB-RF	200	—	20	—	—	30					
	C-CW	200	600	20	35	4	30					
	C-Phone	130	300	15	20	4	30					
WL-7482V	B-Audio	200	—	20	30	—	—	V	14.5	450	45	VV
	AB-RF	200	—	20	—	—	30					
	C-CW	200	600	20	35	4	30					
	C-Phone	130	300	15	20	4	30					
WL-22803	C-CW	200	600	22	33	5	15	W	13.5	550	35	WW
WL-23063	C-CW	375	1000	25	60	5.5	15	W	13.5	375	22	XX

NOTE 1 Current per phase; 3 phase

Cooling Code — FA-Forced Air, R-Radiation, F-Vapor, W-Water

Filament Code — OC-Oxide Coated, TW-Thoriated Tungsten, W-Pure Tungsten

High Vacuum Amplifiers Triodes



HIGH VACUUM AMPLIFIERS — TETRODES AND BEAM TUBES

Tube Type	Class of Service	Max. Anode Diss. Kilowatts	Max. Anode Input Kilowatts	Max. Anode Voltage Kilovolts	Max. Anode Current Amperes	Max. Grid 2 Voltage Kilovolts	Max. Grid 2 Diss. Watts	Max. Grid 1 Current Amperes	Max. Frequency For Full Input MHz	Type of Cooling	Filament Volts	Filament Amperes	Dwg. No.
WL-2E26	AB-Audio	10W	30W	600V	75mA	250V	2.5	—	—	R	6.3	0.8	A
	C-CW	10W	30W	500V	75mA	200V	2.5	3.5mA	125				
	C-Phone	6.7W	20W	400V	60mA	200V	1.7	3.5mA	125				
WL-6893	AB-Audio	10W	30W	600V	75mA	250V	2.5	—	—	R	12.6	0.8	A
	C-CW	10W	30W	500V	75mA	200V	2.5	3.5mA	125				
	C-Phone	6.7W	20W	400V	60mA	200V	1.7	3.5mA	125				
WL-6159	AB-Audio	20W	62.5W	600V	125mA	250V	3	—	—	R	26.5	0.3	B
	C-CW	20W	75W	600V	140mA	250V	3	3.5mA	60				
	C-Phone	13.3W	45W	480V	117mA	250V	2	3.5mA	60				
WL-6883	AB-Audio	20W	62.5W	600V	125mA	250V	3	—	—	R	12.6	0.625	B
	C-CW	20W	75W	600V	140mA	250V	3	3.5mA	60				
	C-Phone	13.3W	45W	480V	117mA	250V	2	3.5mA	60				
WL-8032	AB-Audio	20W	62.5W	600V	125mA	250V	3	—	—	R	13.5	0.585	B
	C-CW	20W	75W	600V	140mA	250V	3	3.5mA	60				
	C-Phone	13.3W	45W	480V	117mA	250V	2	3.5mA	60				
WL-8298	AB-Audio	20W	62.5W	600V	125mA	250V	3	—	—	R	6.75	1.165	B
	C-CW	20W	75W	600V	140mA	250V	3	3.5mA	60				
	C-Phone	13.3W	45W	480V	117mA	250V	2	3.5mA	60				
WL-6146B	AB-Audio	27W	90W	600V	175mA	250V	3	—	—	R	6.3	1.25	B
	AB-RF	27W	—	600V	175mA	250V	3	—	60				
	C-CW	27W	90W	600V	175mA	250V	3	3.5mA	60				
	C-Phone	18W	60W	480V	145mA	250V	2	3.5mA	60				
WL-813	AB-Audio	100W	360W	2250V	180mA	1100V	22	—	—	R	10	5	C
	B-RF	100W	150W	2000V	100mA	400V	15	—	30				
	C-CW	100W	360W	2000V	180mA	400V	22	25mA	30				
	C-Phone	67W	240W	1600V	150mA	400V	15	25mA	30				
WL-8170	AB-Audio	6	—	7.5	4	1.5	250	—	—	FA	7.5	75.5	D
	AB-RF	6	—	7.5	4	1.5	250	—	30				
	C-CW	5	—	7.5	3	1.5	250	—	30				
	C-CW	5	—	6.5	2.6	1.5	250	—	110				
	C-Phone	3.5	—	5	2.5	1	250	—	30				
WL-8170W	AB-Audio	6	—	7.5	4	1.5	250	—	—	FA	7.5	75.5	D
	AB-RF	6	—	7.5	4	1.5	250	—	30				
	C-CW	5	—	7.5	3	1.5	250	—	30				
	C-CW	5	—	6.5	2.6	1.5	250	—	110				
	C-Phone	3.5	—	5	2.5	1	250	—	30				
WX-4361	C-Phone	175	—	17.5	30	1.25	4250	—	—	W	23.4	190 Note 1	E
WX-30248	C-CW	120	—	17.5	30	1.25	4250	—	—	V	23.4	190 Note 1	F

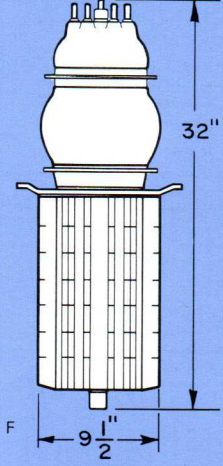
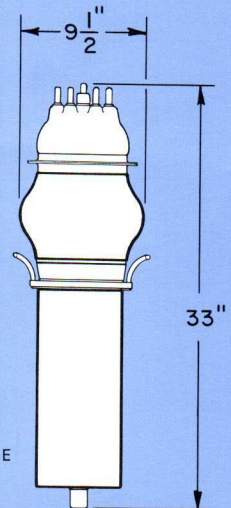
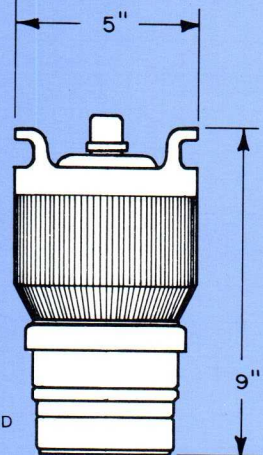
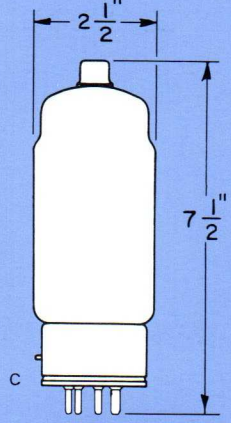
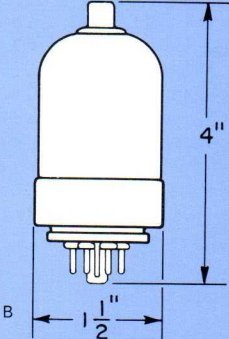
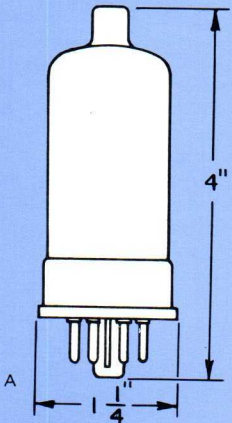
NOTE

1. Current per phase; 3 phase

Cooling Code — FA-Forced Air, R-Radiation, F-Vapor, W-Water

Filament Code — OC-Oxide Coated, TW-Thoriated Tungsten, W-Pure Tungsten

High Vacuum Amplifiers Tetrodes and Beam Tubes



HIGH VACUUM PULSE TUBES

High Vacuum Switch tubes are three electrode tubes similar in construction to High Vacuum Amplifiers except they are specially designed to endure high dc voltages and very large peak currents. When the grid voltage is changed from a large negative value to a large positive value, the plate current shifts from no current (cut-off) to very large current (saturation). The effect is similar to closing a switch. This switch is electronically actuated and may be opened and closed thousands of times in a second. In recent years, the demand for precise pulse-wave trains and high pulse recurrence rates in radar systems has dictated the use of

hardtube, jitter-free modulators to replace hydrogen-thyratron line type modulators. Westinghouse has a line of triodes specifically designed as pulse modulator tubes with high average power dissipation and high peak current capability. They will operate over a range of voltages, which, in many instances, eliminates the need for pulse-transformer coupling to the RF generator. Thoriated-tungsten filaments are employed in these tubes to allow a wide latitude of pulse durations up to one millisecond. Thoriated tungsten filaments have a history of long and reliable life in broadcast and R. F. heating service.

HIGH VACUUM PULSE TRIODES*

Tube Type	Filament Volts	Filament Amps	Filament Type	Mu	Max. Dc Kv	Max. Peak Amps	Max. Duty	Max. Plate Diss. Kw	Type of Cooling	Dwg. No.
WX-4778	5	8	OC	20	9	9	0.003	0.6	FA	A
WL-23053	6	60	TW	22	17.5	16	0.025	3	FA	B
WX-4630	6	60	TW	22	17.5	16	0.025	8	W	C
WL-7328A	7	265	TW	5.5	20	88	0.01	20	FA	D
WL-7982	7	265	TW	5.5	20	88	0.01	35	W	E
WX-4099	6	70	TW	33	25	20	0.05	12	FA	F
WX-4629	6	70	TW	33	25	20	0.05	15	W	G
WL-7750	8	180	TW	20	25	80	0.02	8	FA	H
WL-8044	8	180	TW	20	25	80	0.02	20	FA	D
WL-6424	7	120	TW	20	35	40	0.03	20	W	I
WL-6425	7	120	TW	20	35	40	0.03	12.5	FA	J
WL-6425F	7	120	TW	20	35	40	0.03	11	FA	K
WL-6920	11	285	TW	41	40	100	0.002	10	FA	L
WL-7413	12	309	TW	21	55	150	0.01	70	W	M
	13	318	TW	21	55	400	0.0012	70	W	
WL-7560	14.5	450	TW	45	55	450	0.01	175	W	N
WL-7560V	14.5	450	TW	45	55	450	0.01	175	W	N
WL-7691	12	309	TW	21	55	150	0.01	10	FA	L
	13	318	TW	21	55	400	0.0012	10	FA	
WX-4675	12	309	TW	21	55	200	0.01	10	FA	L
	13	318	TW	21	55	400	0.0012	10	FA	
WX-4834	12	309	TW	21	55	200	0.01	70	W	M
	13	318	TW	21	55	400	0.0012	70	W	
WX-30076	12	309	TW	23	55	200	0.01	25	FA	O
	13	318	TW	23	55	400	0.0012	25	FA	
WL-8461	15	200 (Note 1)	TW	25	60	600	0.01	200	W	P
WL-4852	15	390 (Note 1)	TW	22	60	1400	0.008	375	W	Q

NOTE

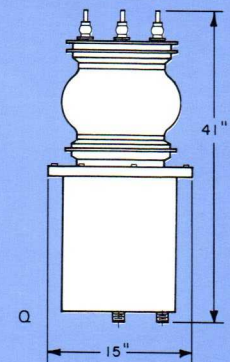
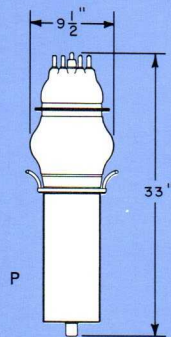
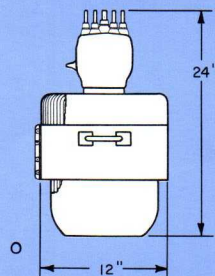
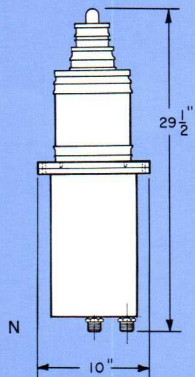
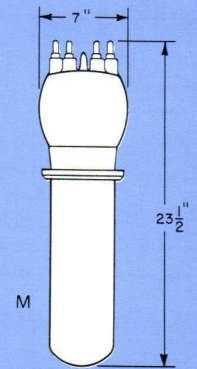
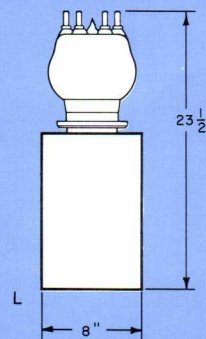
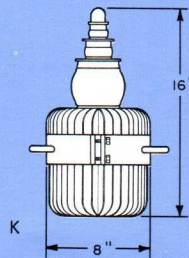
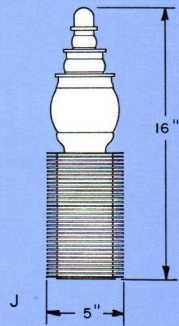
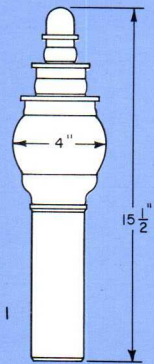
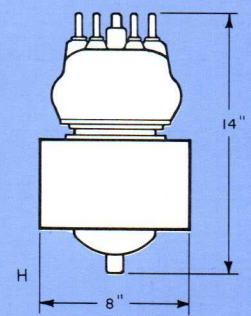
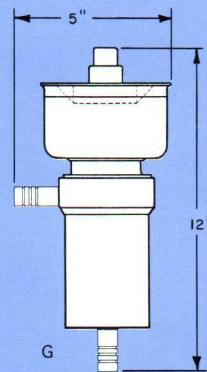
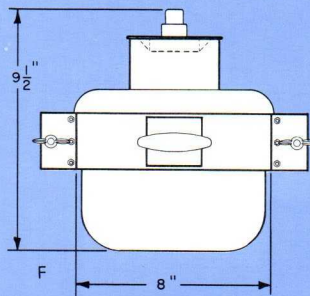
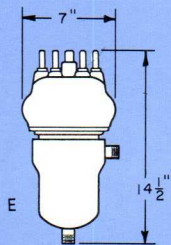
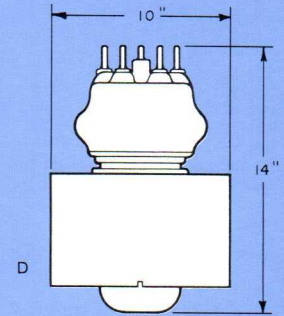
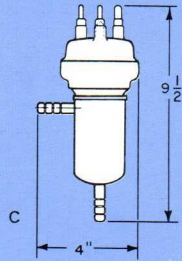
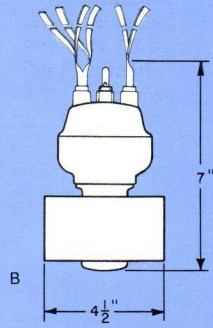
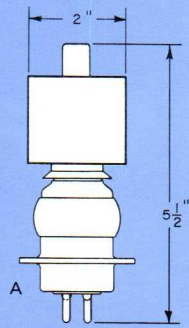
1. Current per phase; 3 - phase filament

Cooling Code — FA-Forced Air, R-Radiation, F-Vapor, W-Water

Filament Code — OC-Oxide Coated, TW-Thoriated Tungsten, W-Pure Tungsten

*High Vacuum Pulse Triodes may be applied in "series tube" service where they can perform the functions of regulation and/or dc switching. In dc switch service the tube operates with low drop at currents no higher than its average current rating. The tube may be biased to cutoff in a few microseconds thereby performing the function of a high speed switch.

High Vacuum Pulse Tubes Triodes



HIGH VACUUM PULSE TUBES — TETRODES AND BEAM TUBE

Tube Type	Filament Volts	Filament Amps	Filament Type	Max. Dc Kv	Max. Peak Amps	Max. Grid 2 Volts	Max. Grid 2 Input Watts	Max. Duty	Max. Plate Diss. Kw	Type of Cooling	Dwg. No.
WL-6293	6.3	1.25	OC	4	3	200	1.75	0.003	10	R	A
				2	1	500	1.75	0.04	10		
WX-4361	26.0	200 (Note 1)	TW	80	500	3000	4250	0.008	175	W	B
WX-30248	26.0	200 (Note 1)	TW	80	500	3000	4250	0.008	175	V	C

NOTES

1. Current per phase, 3 - phase filament

HIGH VACUUM DIODES — RECTIFIER DIODES

Tube Type	Max. Peak Inverse Kilovolts	Max. Peak Amperes	Max. Average Amperes	Filament Volts	Filament Amperes	Filament Type	Type of Cooling	Dwg. No.
WL-579B	20	0.27	0.025	2.5	6	TW	R	A
WL-481B	25	0.15	0.03	2.5	5	TW	R	B
WL-7779	25	20	6	13	36	TW	FA	C
WX-30674	25	20	3	7.5	51	TW	FA	D
WX-30675	25	20	3	7.5	51	TW	FA	E
WL-22801	30	30	10	5	125	TW	FA	F
WL-22800	50	60	20	7	250	TW	FA	G
WL-22802	50	60	20	7	250	TW	W	H
WX-31109	50	200	20	7	265	TW	W	H
WL-23102	75	0.75	0.24	20	19	W	R	I
WL-5973A	75	5	1	16	19.1	TW	R	J
WX-5456	85	165	33	15	200 (Note 1)	TW	W	K
WL-8094	110	10	1.3	12	23	TW	R	L
WL-7658	125	0.75	0.15	4	6.8	TW	Oil	M
WL-456	140	0.5	0.06	11	20	W	R	N
WL-5859/5860	140	—	0.1 (Note 2)	10.6	11.9	W	Oil	O
WL-5575	150	1	0.33	20	24	W	R	L
WL-5576	150	2.5	0.834	20	32	W	R	L

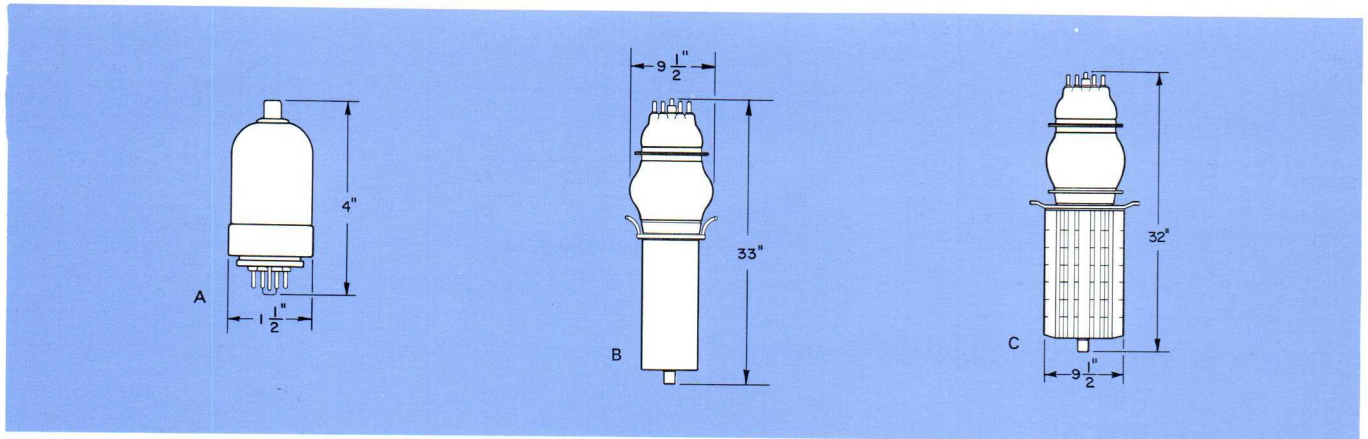
NOTES

1. Current per phase; 3 - phase filament
2. X-ray rectifier rating; see data sheet.

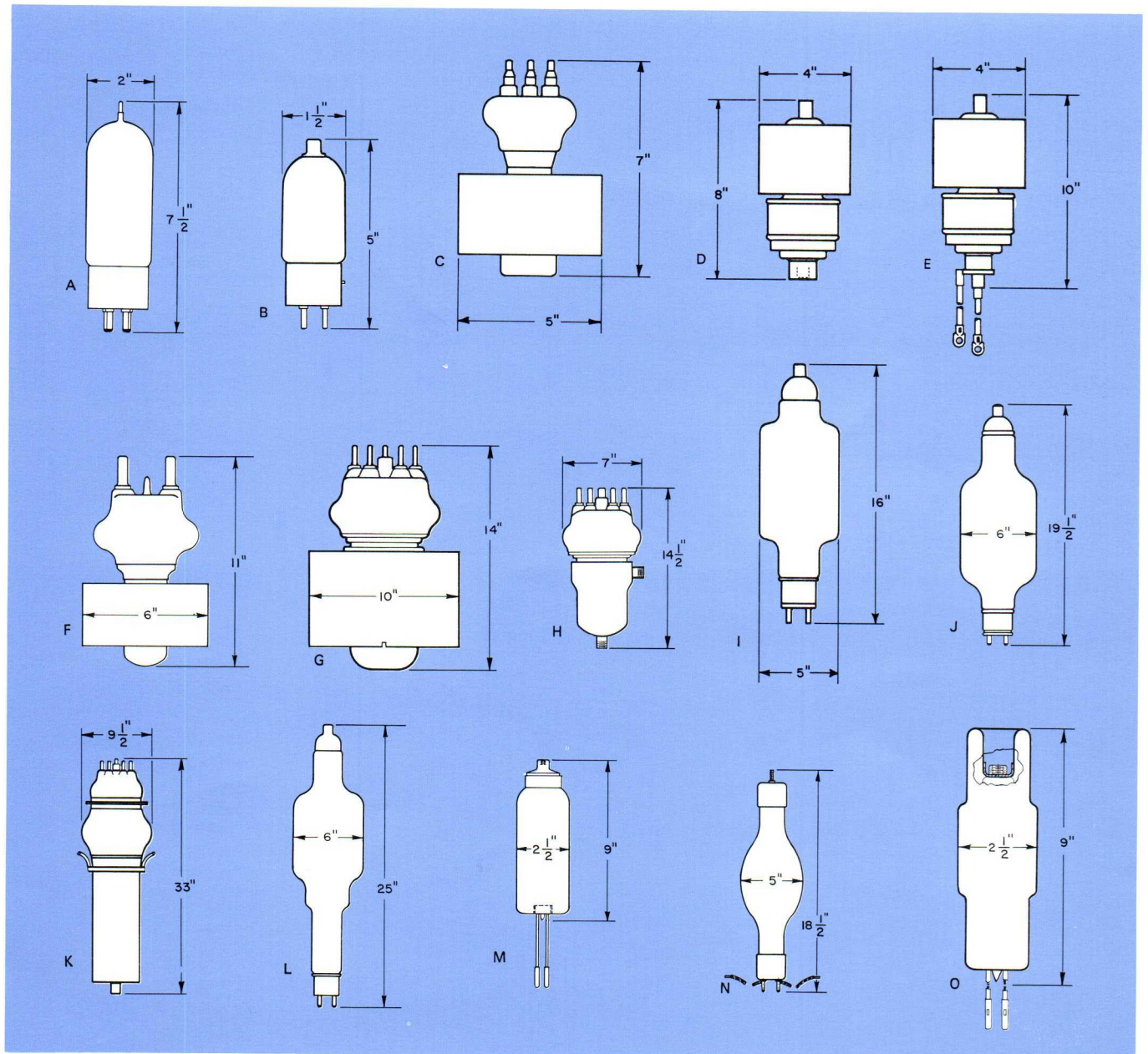
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High Vacuum Pulse Tubes Tetrodes and Beam Tube



Rectifier Diodes



HIGH VACUUM DIODES

CLIPPER AND CHARGING DIODES

Tube Type	Max. Peak Amperes	Max. Peak Inverse Kilovolts	Max. R. M. S. Amperes	Filament Type	Filament Volts	Filament Amperes	Type of Cooling	Dwg. No.
WL-5973A	20	75	2.4	TW	16	19.1	R	A
WL-7779	50 75	30 30	0.7 0.2	TW	13	36	FA	B
WL-22801	90	30	10	TW	5	125	FA	C
WL-22800	160	50	20	TW	7	250	FA	D
WL-22802	160	50	20	TW	7	250	W	E
WX-31109	160	50	20	TW	7	265	W	E
WX-5456	450	85	25	TW	15	200 (Note 1)	W	F

NOTE

1. Current per phase; 3 phase filament.

CONTROL and CURRENT-LIMITING DIODES

Regulation and current-limiting protection in high power electronic equipment may be provided by control and current-limiting diodes. These tubes have pure tungsten fil-

aments and operate emission current limited as a series element in high voltage systems.

This is a partial listing describing some of these diodes which are currently in use. Higher voltage and current types are also available upon request.

CONTROL AND CURRENT LIMITING DIODES (Note 1)

Tube Type	Max. Supply Kilovolts	Max. Dc Load Amperes	Volts Drop Note 2	Filament Volts	Filament Amperes	Type of Cooling	Plate Dissipation Kilowatts	Dwg. No.
WX-30261	15	1.3	1000	16	25	W	9	A
WX-31329	15	1.3	1000	15	24	FA	3	B
WL-23178	15	2	1000	16	32.5	W	9	A
WL-23200	15	4.5	1000	22	48	W	9	A
WL-23095	15	3.5	450	9.25	135	W	45	C
WL-23219	15	7	900	12.5	170	W	45	C
WX-31118	25	10	1400	11	174	W	20	D
WX-30322	20	18	900	22	240	W	100	E

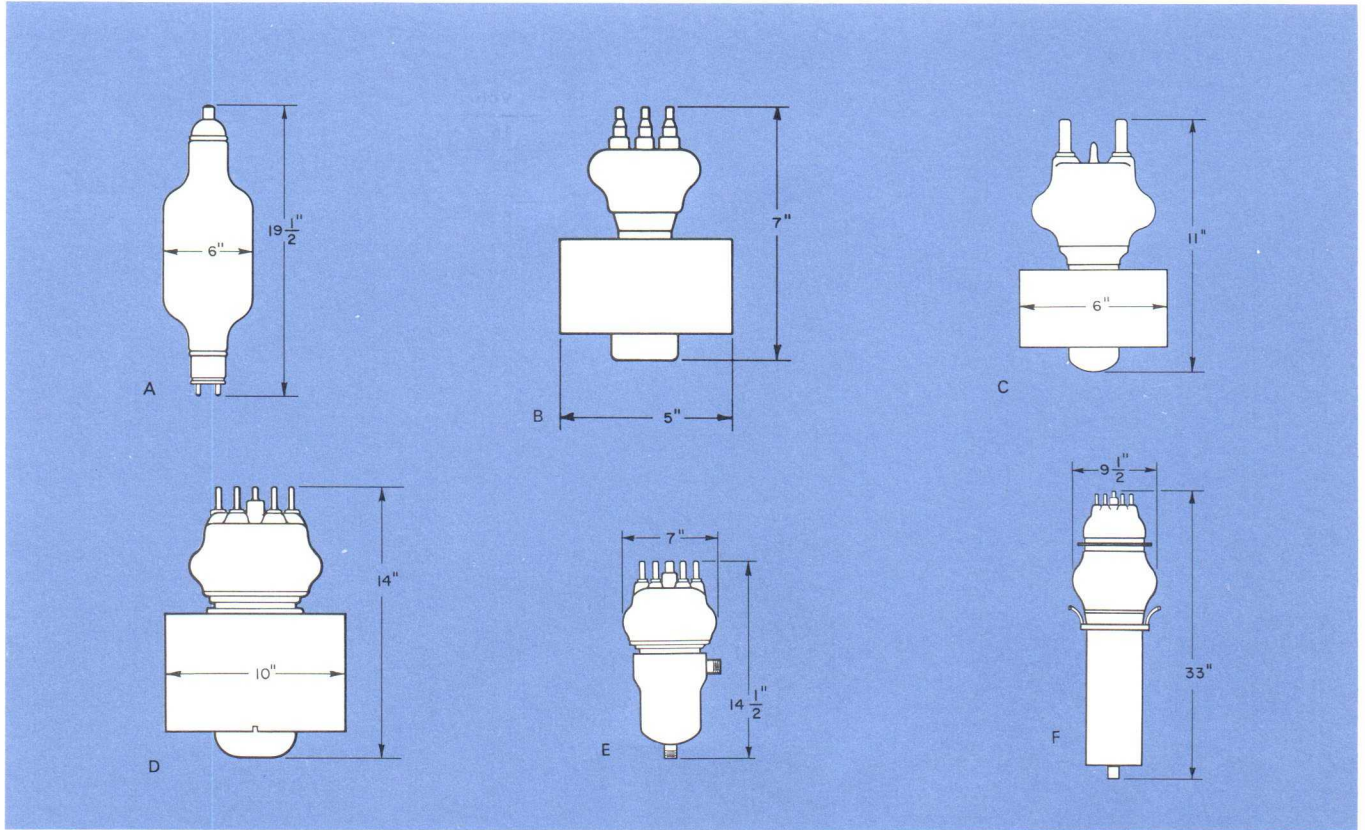
NOTES

1. Data listed are for CONTROL DIODE service, In CURRENT LIMITING service, at the rated maximum supply voltage, load current will be limited to approximately 1.5 times the rated maximum dc current.
2. Voltage drop is measured with specified filament voltage and rated load current.

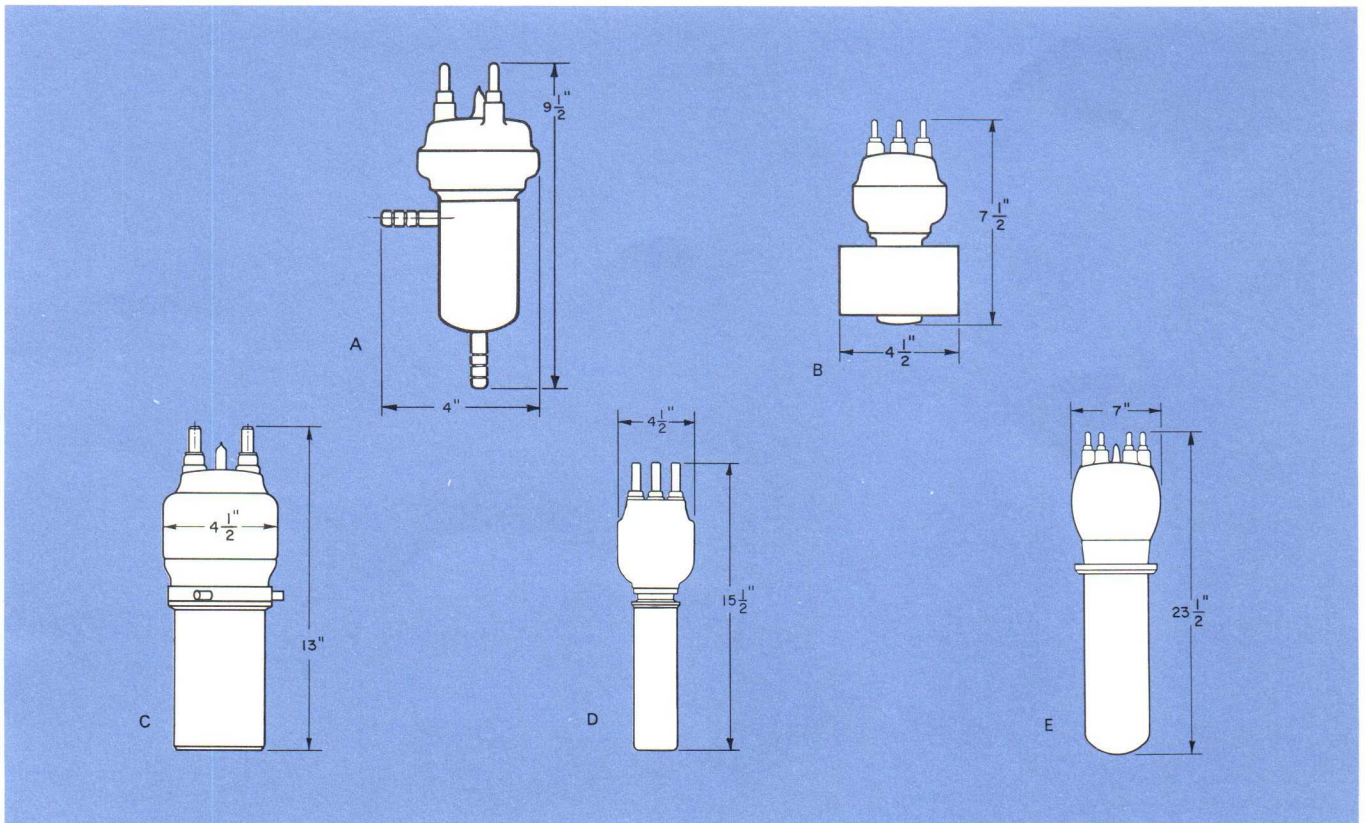
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Filament Code — OC-Oxide Coated, TW-Thoriated Tungsten, W-Pure Tungsten

High Vacuum Diodes Clipper and Charging Diodes



Control and Current Limiting Diodes



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