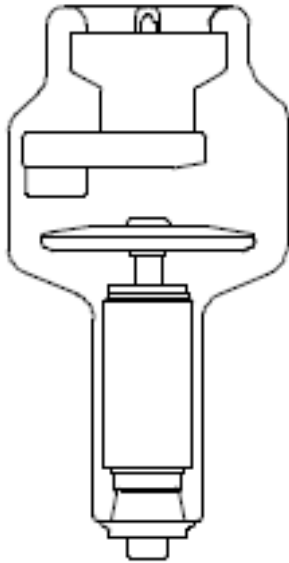


# X50 H 1.0 / 2.0

Tubo N°



CE 0051

El contenido de esta documentación debe ser transmitido al usuario del ensamblaje del tubo

Documentación N°	Versión	Fecha de Edición	Texto original
50_HAK	0	21.09.98	Italiano

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**Tabla de contenido**





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**Declaración de conformidad**

Este tubo cumple con los requerimientos esenciales de la Directiva 93/42/CEE, de acuerdo con la norma EN 60613 (IEC 613) y EN 60336 (IEC 336).

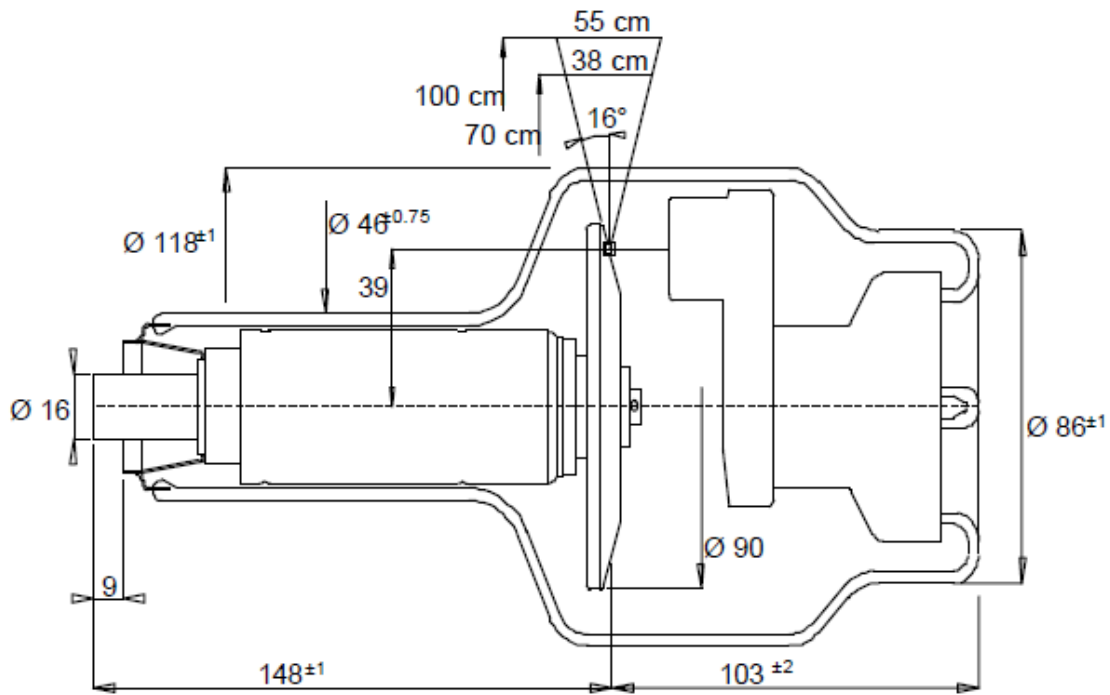
**Especificaciones**

Punto Focal	 1.0  2.0	(IEC 336, EN 60336)
Velocidad del ánodo	3000 min <sup>-1</sup>	
Potencia nominal de entrada del ánodo	 24 kW  50 kW	(IEC 613, EN 60613)
Diámetro del ánodo	90 mm	
Material del ánodo	T	
Angulo del ánodo	16°	
Campo de radiación	a 70 cm 38 cm a 100 cm 55 cm	
Filtración inherente	0.7 mm Al eq	(IEC 522)
Máximo contenido de calor del ánodo	105 kJ    140 kHU	
Máxima disipación de Calor continua	440 W	
Voltaje Nominal del tubo de Rayos X	150 kV	
Máxima corriente del filamento	5.4 A	

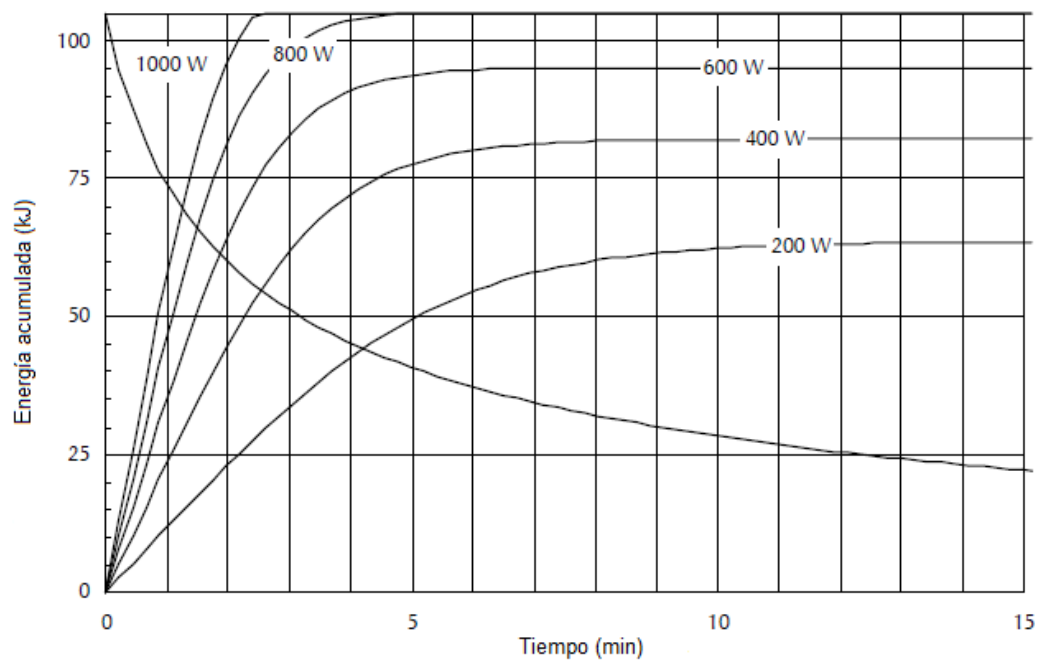
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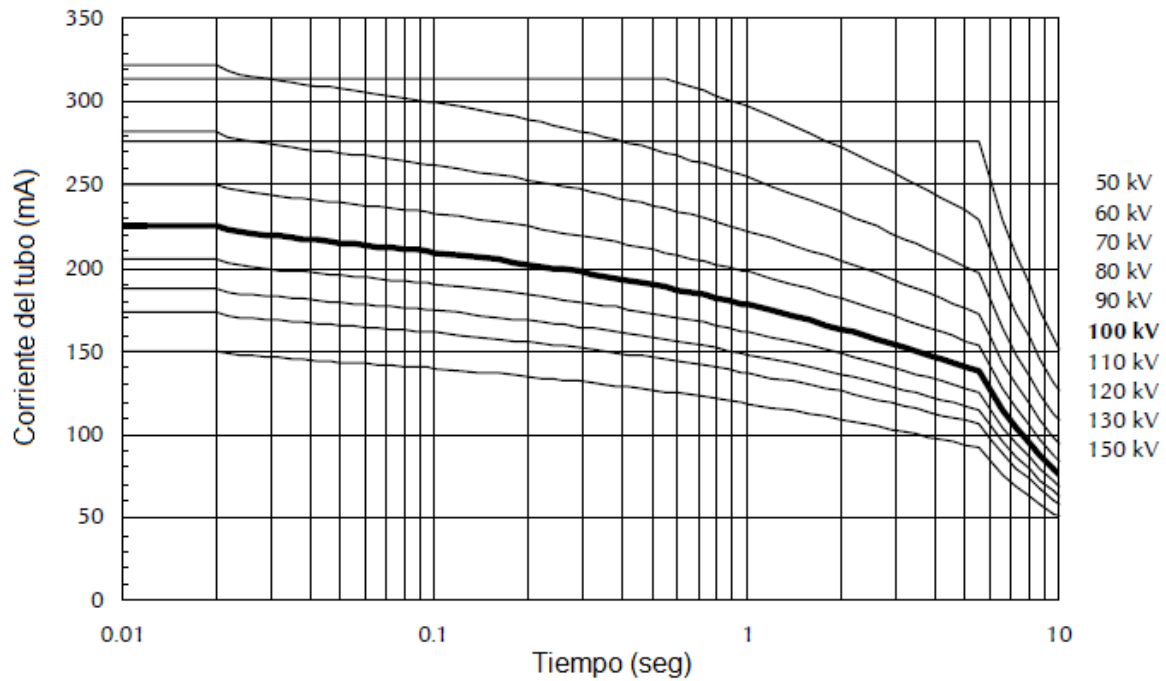
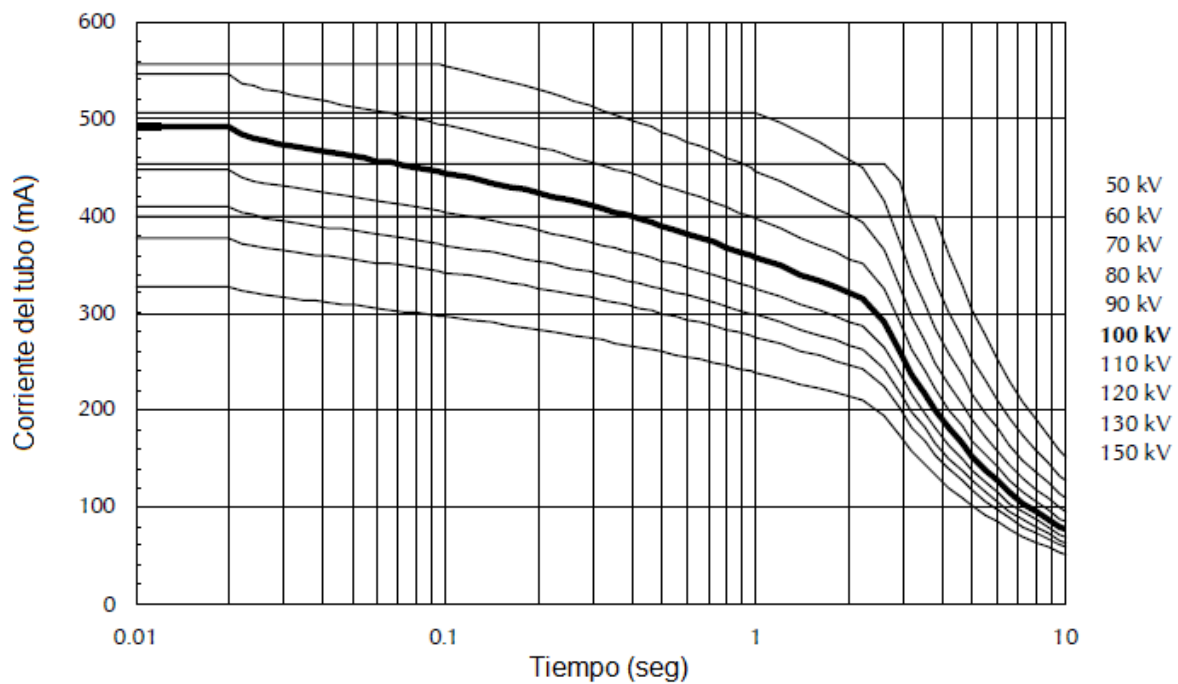
Equivalencia de la potencia de entrada del ánodo    100 W = % máximo de  
 contenido de calor    47 %

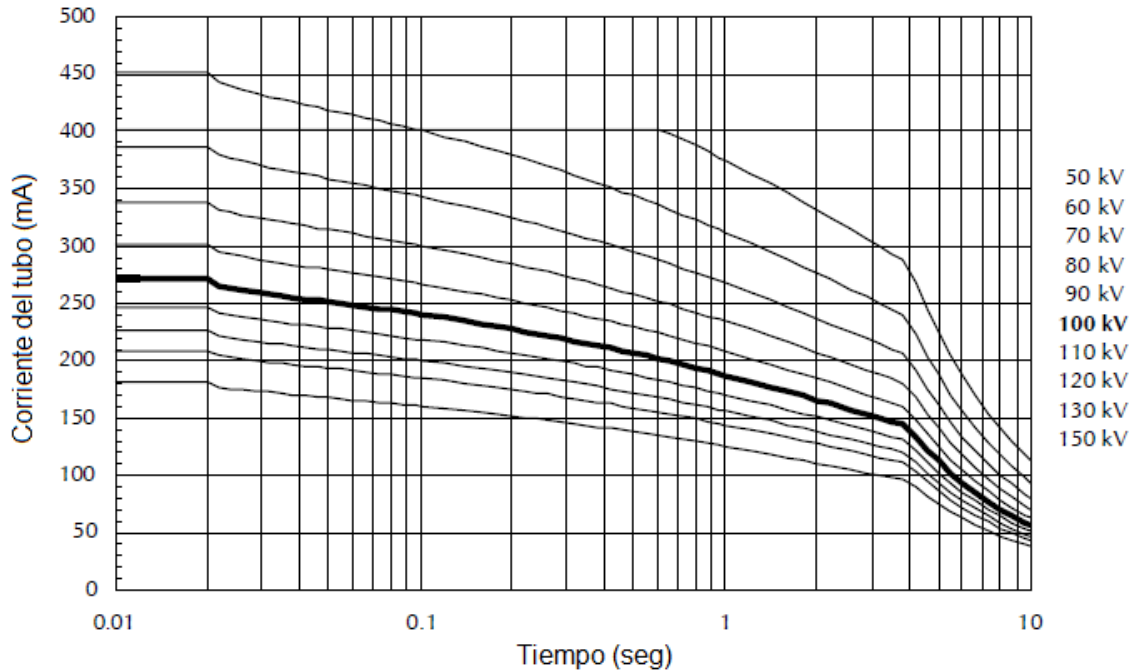
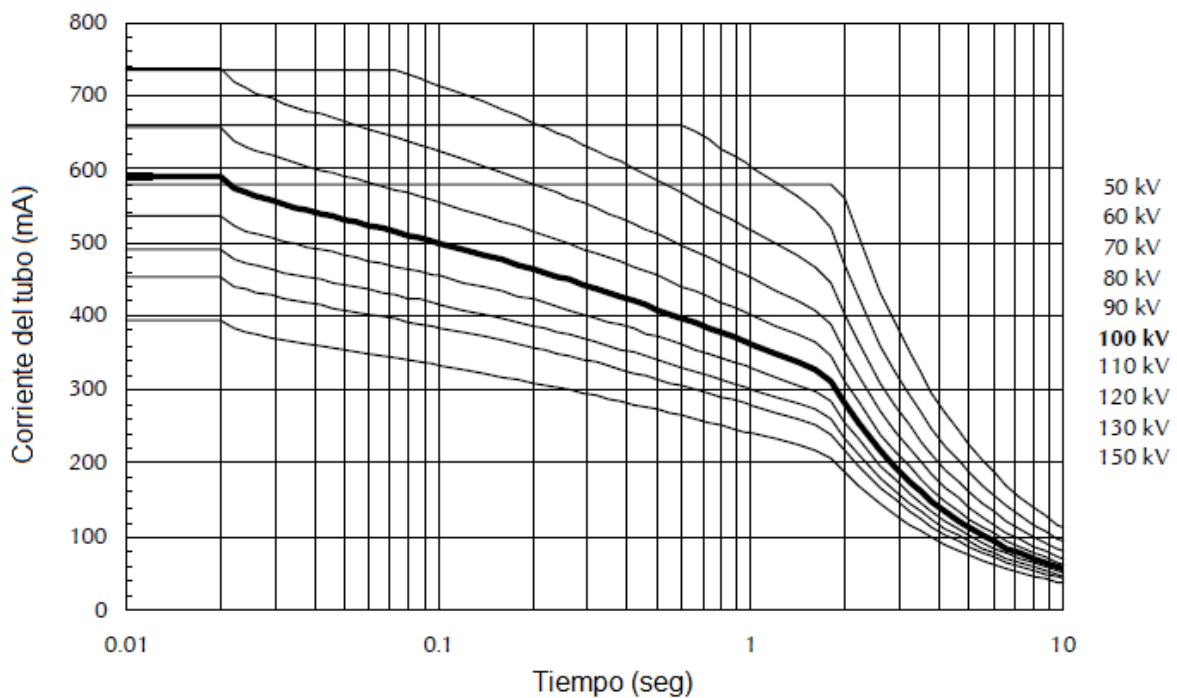
**Dimensiones**



**Curvas de calefacción y enfriamiento del ánodo**



**Capacidad de carga individual**■ 1.0 – 1 ~ - 3000 min<sup>-1</sup>**Capacidad de carga individual**■ 2.0 – 1 ~ - 3000 min<sup>-1</sup>

**Capacidad de carga individual**■ 1.0 – 3 ~ - 3000 min<sup>-1</sup>**Capacidad de carga individual**■ 2.0 – 3 ~ - 3000 min<sup>-1</sup>

**Serie capacidad de carga**  
**■ 1.0 – 1 ~ - 3000 min<sup>-1</sup>**

Potencia de entrada del ánodo como una función de n (N° de exposiciones en serie), z (tasa de exposición por segundo), tiempo de exposición (seg)																
z	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.100	0.120	0.140	0.160	0.180	0.200	0.220	0.250	n
1	17.7	17.7	17.4	17.1	16.9	16.8	16.5	16.3	16.1	16.0	15.8	15.7	15.4	15.2	14.9	5
2	17.6	17.6	17.4	17.1	16.9	16.8	16.5	16.1	15.8	15.5	15.2	14.9	14.6	14.3	13.9	
3	17.5	17.5	17.3	17.1	16.8	16.6	16.2	15.8	15.4	15.0	14.6	14.3	14.0	13.7	13.2	
4	17.5	17.5	17.2	16.9	16.7	16.4	15.9	15.5	15.0	14.6	14.2	13.9	13.5	13.2	12.7	
5	17.4	17.4	17.1	16.8	16.5	16.2	15.7	15.2	14.7	14.3	13.9	13.5	13.1	-	-	
10	17.4	17.1	16.7	16.3	16.0	15.6	14.9	14.3	-	-	-	-	-	-	-	
30	17.4	17.0	16.5	16.0	15.6	15.2	-	-	-	-	-	-	-	-	-	
1	17.6	17.6	17.4	17.1	16.9	16.8	16.5	16.1	15.8	15.5	15.2	14.9	14.6	14.3	13.9	10
2	17.5	17.5	17.2	16.9	16.6	16.4	15.9	15.4	15.0	14.6	14.2	13.9	13.5	13.2	12.7	
3	17.4	17.3	17.0	16.7	16.4	16.1	15.5	15.0	14.5	14.0	13.6	13.2	12.8	12.4	11.9	
4	17.4	17.2	16.8	16.5	16.1	15.8	15.2	14.6	14.0	13.5	13.1	12.6	12.2	11.9	11.3	
5	17.4	17.1	16.7	16.3	15.9	15.6	14.9	14.3	13.7	13.2	12.7	12.2	11.8	-	-	
10	17.4	16.8	16.2	15.7	15.2	14.7	13.9	13.1	-	-	-	-	-	-	-	
30	17.3	16.5	15.9	15.3	14.7	14.2	-	-	-	-	-	-	-	-	-	
1	17.5	17.5	17.2	16.9	16.6	16.4	15.9	15.4	15.0	14.6	14.2	13.8	12.7	11.5	10.2	20
2	17.4	17.2	16.8	16.5	16.1	15.8	15.2	14.6	14.0	13.5	13.1	12.6	12.0	10.9	9.6	
3	17.4	17.1	16.6	16.2	15.8	15.4	14.6	14.0	13.4	12.8	12.3	11.8	11.4	10.7	9.4	
4	17.4	16.9	16.4	15.9	15.4	15.0	14.2	13.5	12.9	12.3	11.7	11.2	10.8	10.4	9.3	
5	17.4	16.8	16.2	15.7	15.2	14.7	13.9	13.1	12.4	11.8	11.3	10.8	10.3	-	-	
10	17.1	16.3	15.6	14.9	14.3	13.7	12.7	11.8	-	-	-	-	-	-	-	
30	16.9	16.0	15.1	14.3	13.6	13.0	-	-	-	-	-	-	-	-	-	
1	17.4	17.2	16.8	16.5	16.1	15.8	15.2	14.1	11.8	10.1	8.8	7.9	7.1	6.4	5.7	40
2	17.4	16.9	16.4	15.9	15.4	15.0	14.2	12.7	10.6	9.1	7.9	7.0	6.3	5.8	5.1	
3	17.3	16.7	16.1	15.5	15.0	14.5	13.6	12.2	10.2	8.7	7.6	6.8	6.1	5.5	4.9	
4	17.2	16.5	15.8	15.2	14.6	14.0	13.1	12.0	10.0	8.5	7.5	6.6	6.0	5.4	4.8	
5	17.1	16.3	15.6	14.9	14.3	13.7	12.7	11.8	9.8	8.4	7.4	6.6	5.9	-	-	
10	16.8	15.7	14.7	13.9	13.1	12.4	11.3	10.3	-	-	-	-	-	-	-	
30	16.5	15.2	14.1	13.2	12.4	11.6	-	-	-	-	-	-	-	-	-	
1	17.4	17.1	16.6	16.2	15.7	15.4	13.0	10.4	8.7	7.4	6.5	5.8	5.2	4.7	4.2	60
2	17.3	16.7	16.1	15.5	15.0	14.5	11.2	8.9	7.5	6.4	5.6	5.0	4.5	4.1	3.6	
3	17.2	16.4	15.7	15.0	14.4	13.8	10.6	8.5	7.0	6.0	5.3	4.7	4.2	3.8	3.4	
4	17.1	16.2	15.4	14.6	14.0	13.4	10.3	8.2	6.8	5.9	5.1	4.6	4.1	3.7	3.3	
5	16.9	16.0	15.1	14.3	13.6	13.0	10.1	8.1	6.7	5.8	5.0	4.5	4.0	-	-	
10	16.5	15.2	14.1	13.2	12.4	11.6	9.7	7.8	-	-	-	-	-	-	-	
30	16.2	14.7	13.5	12.4	11.5	10.8	-	-	-	-	-	-	-	-	-	
1	17.4	16.9	16.4	15.9	15.4	14.2	10.7	8.5	7.1	6.1	5.3	4.7	4.3	3.9	3.4	80
2	17.2	16.5	15.8	15.2	14.1	11.8	8.8	7.1	5.9	5.1	4.4	3.9	3.5	3.2	2.8	
3	17.1	16.2	15.4	14.6	13.2	11.0	8.2	6.6	5.5	4.7	4.1	3.7	3.3	3.0	2.6	
4	16.9	15.9	15.0	14.2	12.7	10.6	7.9	6.3	5.3	4.5	4.0	3.5	3.2	2.9	2.5	
5	16.8	15.7	14.7	13.9	12.4	10.3	7.7	6.2	5.2	4.4	3.9	3.4	3.1	-	-	
10	16.3	14.9	13.7	12.7	11.8	9.8	7.4	5.9	-	-	-	-	-	-	-	
30	16.0	14.3	13.0	11.9	10.9	9.7	-	-	-	-	-	-	-	-	-	
1	17.4	16.8	16.2	15.7	14.8	12.3	9.3	7.4	6.2	5.3	4.6	4.1	3.7	3.4	3.0	100
2	17.1	16.3	15.6	14.9	11.9	9.9	7.4	5.9	5.0	4.2	3.7	3.3	3.0	2.7	2.4	
3	16.9	16.0	15.1	13.7	10.9	9.1	6.8	5.5	4.6	3.9	3.4	3.0	2.7	2.5	2.2	
4	16.8	15.7	14.7	13.1	10.4	8.7	6.5	5.2	4.4	3.7	3.3	2.9	2.6	2.4	2.1	
5	16.6	15.4	14.4	12.7	10.2	8.5	6.3	5.1	4.2	3.6	3.2	2.8	2.5	-	-	
10	16.1	14.6	13.3	12.0	9.6	8.0	6.0	4.8	-	-	-	-	-	-	-	
30	15.8	14.0	12.6	11.4	9.4	7.8	-	-	-	-	-	-	-	-	-	
1	17.2	16.5	15.9	14.8	11.8	9.8	7.4	5.9	4.9	4.2	3.7	3.3	3.0	2.7	2.4	150
2	16.9	16.0	14.8	11.1	8.9	7.4	5.6	4.4	3.7	3.2	2.8	2.5	2.2	2.0	1.8	
3	16.7	15.6	13.2	9.9	7.9	6.6	5.0	4.0	3.3	2.8	2.5	2.2	2.0	1.8	1.6	
4	16.5	15.2	12.4	9.3	7.4	6.2	4.7	3.7	3.1	2.7	2.3	2.1	1.9	1.7	1.5	
5	16.4	15.0	11.9	8.9	7.2	6.0	4.5	3.6	3.0	2.6	2.2	2.0	1.8	-	-	
10	15.7	14.0	11.0	8.2	6.6	5.5	4.1	3.3	-	-	-	-	-	-	-	
30	15.3	13.3	10.6	8.0	6.4	5.3	-	-	-	-	-	-	-	-	-	
1	16.9	16.0	14.7	11.0	8.8	7.3	5.5	4.4	3.7	3.1	2.8	2.4	2.2	2.0	1.8	300
2	16.5	14.8	9.8	7.4	5.9	4.9	3.7	3.0	2.5	2.1	1.8	1.6	1.5	1.3	1.2	
3	16.2	12.3	8.2	6.2	4.9	4.1	3.1	2.5	2.1	1.8	1.5	1.4	1.2	1.1	1.0	
4	16.0	11.1	7.4	5.6	4.4	3.7	2.8	2.2	1.9	1.6	1.4	1.2	1.1	1.0	0.9	
5	15.7	10.4	6.9	5.2	4.2	3.5	2.6	2.1	1.7	1.5	1.3	1.2	1.0	-	-	
10	15.0	8.9	6.0	4.5	3.6	3.0	2.2	1.8	-	-	-	-	-	-	-	
30	14.4	8.5	5.6	4.2	3.4	2.8	-	-	-	-	-	-	-	-	-	

**Serie de capacidad de carga**  
**■ 2.0 – 1 ~ - 3000 min<sup>-1</sup>**

Potencia de entrada del ánodo como una función de n (N° de exposiciones en serie), z (tasa de exposición por segundo), tiempo de exposición (seg)																
z	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.100	0.120	0.140	0.160	0.180	0.200	0.220	0.250	n
1	38.4	38.4	37.4	36.6	36.0	35.6	34.8	34.2	33.7	33.2	32.8	32.4	31.8	31.2	30.3	5
2	38.1	38.1	37.4	36.6	36.0	35.6	34.7	33.7	32.8	31.9	31.0	30.2	29.5	28.8	27.7	
3	37.8	37.8	37.1	36.4	35.7	35.0	33.8	32.7	31.6	30.6	29.6	28.8	27.9	27.1	26.0	
4	37.6	37.6	36.8	36.0	35.2	34.5	33.1	31.8	30.7	29.6	28.6	27.6	26.7	25.9	24.7	
5	37.4	37.4	36.5	35.6	34.8	34.0	32.5	31.1	29.9	28.8	27.7	26.7	25.8	-	-	
10	37.4	36.7	35.4	34.3	33.2	32.2	30.4	28.8	-	-	-	-	-	-	-	
15	37.4	36.1	34.7	33.4	32.2	31.0	-	-	-	-	-	-	-	-	-	
30	37.1	35.1	33.3	-	-	-	-	-	-	-	-	-	-	-	-	
1	38.1	38.1	37.4	36.6	36.0	35.6	34.7	33.7	32.7	31.9	29.9	26.6	23.9	21.7	19.1	10
2	37.6	37.6	36.7	35.9	35.2	34.4	33.1	31.8	30.6	29.5	28.5	25.8	23.2	21.1	18.6	
3	37.4	37.2	36.2	35.3	34.4	33.5	31.9	30.5	29.2	28.0	26.9	25.5	23.0	20.9	18.4	
4	37.4	36.9	35.8	34.7	33.7	32.8	31.0	29.5	28.1	26.8	25.6	24.5	22.8	20.8	18.3	
5	37.4	36.6	35.4	34.2	33.1	32.1	30.3	28.6	27.2	25.8	24.6	23.5	22.5	-	-	
10	37.4	35.6	34.0	32.5	31.1	29.9	27.7	25.8	-	-	-	-	-	-	-	
15	37.0	34.9	33.0	31.3	29.8	28.4	-	-	-	-	-	-	-	-	-	
30	36.1	33.4	31.0	-	-	-	-	-	-	-	-	-	-	-	-	
1	37.6	37.6	36.7	35.9	35.2	34.4	31.7	25.4	21.1	18.1	15.9	14.1	12.7	11.5	10.2	20
2	37.4	36.9	35.7	34.7	33.7	32.7	29.9	23.9	19.9	17.1	15.0	13.3	12.0	10.9	9.6	
3	37.4	36.4	35.0	33.8	32.6	31.6	29.3	23.4	19.5	16.7	14.6	13.0	11.7	10.7	9.4	
4	37.4	35.9	34.4	33.1	31.8	30.6	28.5	23.2	19.3	16.6	14.5	12.9	11.6	10.5	9.3	
5	37.4	35.6	33.9	32.5	31.1	29.8	27.6	23.0	19.2	16.5	14.4	12.8	11.5	-	-	
10	36.6	34.2	32.1	30.3	28.6	27.2	24.6	22.5	-	-	-	-	-	-	-	
15	36.1	33.3	30.9	28.8	27.0	25.4	-	-	-	-	-	-	-	-	-	
30	34.9	31.3	28.4	-	-	-	-	-	-	-	-	-	-	-	-	
1	37.4	36.9	35.7	34.7	28.3	23.6	17.7	14.1	11.8	10.1	8.8	7.9	7.1	6.4	5.7	40
2	37.4	35.9	34.4	31.7	25.4	21.1	15.9	12.7	10.6	9.1	7.9	7.0	6.3	5.8	5.1	
3	37.2	35.2	33.5	30.5	24.4	20.3	15.3	12.2	10.2	8.7	7.6	6.8	6.1	5.5	4.9	
4	36.9	34.7	32.7	29.9	23.9	19.9	15.0	12.0	10.0	8.5	7.5	6.6	6.0	5.4	4.8	
5	36.6	34.2	32.1	29.5	23.6	19.7	14.8	11.8	9.8	8.4	7.4	6.6	5.9	-	-	
10	35.6	32.5	29.8	27.6	23.0	19.2	14.4	11.5	-	-	-	-	-	-	-	
15	34.8	31.2	28.3	25.9	22.9	19.0	-	-	-	-	-	-	-	-	-	
30	33.3	28.8	25.4	-	-	-	-	-	-	-	-	-	-	-	-	
1	37.4	36.4	34.7	26.0	20.8	17.3	13.0	10.4	8.7	7.4	6.5	5.8	5.2	4.7	4.2	60
2	37.2	35.2	29.8	22.4	17.9	14.9	11.2	8.9	7.5	6.4	5.6	5.0	4.5	4.1	3.6	
3	36.7	34.4	28.2	21.1	16.9	14.1	10.6	8.5	7.0	6.0	5.3	4.7	4.2	3.8	3.4	
4	36.4	33.8	27.4	20.5	16.4	13.7	10.3	8.2	6.8	5.9	5.1	4.6	4.1	3.7	3.3	
5	36.0	33.2	26.9	20.2	16.1	13.5	10.1	8.1	6.7	5.8	5.0	4.5	4.0	-	-	
10	34.8	31.2	25.9	19.5	15.6	13.0	9.7	7.8	-	-	-	-	-	-	-	
15	33.9	29.8	25.6	19.2	15.4	12.8	-	-	-	-	-	-	-	-	-	
30	32.1	27.2	23.5	-	-	-	-	-	-	-	-	-	-	-	-	
1	37.4	35.9	28.4	21.3	17.1	14.2	10.7	8.5	7.1	6.1	5.3	4.7	4.3	3.9	3.4	80
2	36.9	34.7	23.6	17.7	14.1	11.8	8.8	7.1	5.9	5.1	4.4	3.9	3.5	3.2	2.8	
3	36.4	32.9	22.0	16.5	13.2	11.0	8.2	6.6	5.5	4.7	4.1	3.7	3.3	3.0	2.6	
4	35.9	31.7	21.1	15.9	12.7	10.6	7.9	6.3	5.3	4.5	4.0	3.5	3.2	2.9	2.5	
5	35.6	31.0	20.7	15.5	12.4	10.3	7.7	6.2	5.2	4.4	3.9	3.4	3.1	-	-	
10	34.2	29.5	19.7	14.8	11.8	9.8	7.4	5.9	-	-	-	-	-	-	-	
15	33.2	28.8	19.4	14.5	11.6	9.7	-	-	-	-	-	-	-	-	-	
30	31.2	25.9	19.0	-	-	-	-	-	-	-	-	-	-	-	-	
1	37.4	35.6	24.7	18.5	14.8	12.3	9.3	7.4	6.2	5.3	4.6	4.1	3.7	3.4	3.0	100
2	36.6	29.7	19.8	14.9	11.9	9.9	7.4	5.9	5.0	4.2	3.7	3.3	3.0	2.7	2.4	
3	36.0	27.3	18.2	13.7	10.9	9.1	6.8	5.5	4.6	3.9	3.4	3.0	2.7	2.5	2.2	
4	35.6	26.1	17.4	13.1	10.4	8.7	6.5	5.2	4.4	3.7	3.3	2.9	2.6	2.4	2.1	
5	35.2	25.4	16.9	12.7	10.2	8.5	6.3	5.1	4.2	3.6	3.2	2.8	2.5	-	-	
10	33.7	23.9	15.9	12.0	9.6	8.0	6.0	4.8	-	-	-	-	-	-	-	
15	32.6	23.4	15.6	11.7	9.4	7.8	-	-	-	-	-	-	-	-	-	
30	30.5	23.0	15.3	-	-	-	-	-	-	-	-	-	-	-	-	
1	36.9	29.5	19.7	14.8	11.8	9.8	7.4	5.9	4.9	4.2	3.7	3.3	3.0	2.7	2.4	150
2	36.0	22.2	14.8	11.1	8.9	7.4	5.6	4.4	3.7	3.2	2.8	2.5	2.2	2.0	1.8	
3	35.4	19.8	13.2	9.9	7.9	6.6	5.0	4.0	3.3	2.8	2.5	2.2	2.0	1.8	1.6	
4	34.8	18.6	12.4	9.3	7.4	6.2	4.7	3.7	3.1	2.7	2.3	2.1	1.9	1.7	1.5	
5	34.3	17.9	11.9	8.9	7.2	6.0	4.5	3.6	3.0	2.6	2.2	2.0	1.8	-	-	
10	32.6	16.4	11.0	8.2	6.6	5.5	4.1	3.3	-	-	-	-	-	-	-	
15	31.4	15.9	10.6	8.0	6.4	5.3	-	-	-	-	-	-	-	-	-	
30	29.0	15.5	10.3	-	-	-	-	-	-	-	-	-	-	-	-	
1	36.0	22.0	14.7	11.0	8.8	7.3	5.5	4.4	3.7	3.1	2.8	2.4	2.2	2.0	1.8	300
2	29.5	14.8	9.8	7.4	5.9	4.9	3.7	3.0	2.5	2.1	1.8	1.6	1.5	1.3	1.2	
3	24.7	12.3	8.2	6.2	4.9	4.1	3.1	2.5	2.1	1.8	1.5	1.4	1.2	1.1	1.0	
4	22.2	11.1	7.4	5.6	4.4	3.7	2.8	2.2	1.9	1.6	1.4	1.2	1.1	1.0	0.9	
5	20.8	10.4	6.9	5.2	4.2	3.5	2.6	2.1	1.7	1.5	1.3	1.2	1.0	-	-	
10	17.9	8.9	6.0	4.5	3.6	3.0	2.2	1.8	-	-	-	-	-	-	-	
15	16.9	8.5	5.6	4.2	3.4	2.8	-	-	-	-	-	-	-	-	-	
30	15.9	8.0	5.3	-	-	-	-	-	-	-	-	-	-	-	-	



**Serie de capacidad de carga**

■ 1.0 – 3 ~ - 3000 min<sup>-1</sup>

Potencia de entrada del ánodo como una función de n (N° de exposiciones en serie), z (tasa de exposición por segundo), tiempo de exposición (seg)																
z	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.100	0.120	0.140	0.160	0.180	0.200	0.220	0.250	n
1	21.2	21.2	20.7	20.4	20.1	19.9	19.5	19.2	18.9	18.7	18.5	18.3	18.0	17.7	17.3	5
2	21.1	21.1	20.7	20.4	20.1	19.9	19.4	19.0	18.5	18.1	17.6	17.2	16.9	16.5	16.0	
3	20.9	20.9	20.6	20.2	19.9	19.6	19.0	18.4	17.9	17.4	16.9	16.5	16.1	15.7	15.1	
4	20.8	20.8	20.4	20.0	19.7	19.3	18.7	18.0	17.5	16.9	16.4	15.9	15.5	15.0	14.4	
5	20.7	20.7	20.3	19.9	19.5	19.1	18.4	17.7	17.1	16.5	15.9	15.4	15.0	-	-	
10	20.7	20.4	19.8	19.2	18.7	18.2	17.3	16.5	-	-	-	-	-	-	-	
15	20.7	20.1	19.4	18.8	18.2	17.6	-	-	-	-	-	-	-	-	-	
30	20.6	19.6	18.7	-	-	-	-	-	-	-	-	-	-	-	-	
1	21.1	21.1	20.7	20.4	20.1	19.9	19.4	18.9	18.5	18.0	17.6	17.2	16.8	16.5	16.0	10
2	20.8	20.8	20.4	20.0	19.7	19.3	18.6	18.0	17.4	16.9	16.4	15.9	15.4	15.0	14.4	
3	20.7	20.6	20.2	19.7	19.3	18.9	18.1	17.4	16.7	16.1	15.5	15.0	14.5	14.0	13.4	
4	20.7	20.5	20.0	19.4	19.0	18.5	17.6	16.9	16.1	15.5	14.9	14.3	13.8	13.3	12.7	
5	20.7	20.4	19.8	19.2	18.7	18.2	17.3	16.4	15.7	15.0	14.4	13.8	13.2	-	-	
10	20.7	19.9	19.1	18.4	17.7	17.1	15.9	15.0	-	-	-	-	-	-	-	
15	20.5	19.5	18.6	17.8	17.0	16.3	-	-	-	-	-	-	-	-	-	
30	20.1	18.8	17.6	-	-	-	-	-	-	-	-	-	-	-	-	
1	20.8	20.8	20.4	20.0	19.7	19.3	18.6	18.0	17.4	16.9	15.9	14.1	12.7	11.5	10.2	20
2	20.7	20.5	19.9	19.4	18.9	18.5	17.6	16.8	16.1	15.5	14.9	13.3	12.0	10.9	9.6	
3	20.7	20.2	19.6	19.0	18.4	17.9	16.9	16.0	15.3	14.5	13.9	13.0	11.7	10.7	9.4	
4	20.7	20.0	19.3	18.6	18.0	17.4	16.4	15.4	14.6	13.8	13.2	12.5	11.6	10.5	9.3	
5	20.7	19.9	19.1	18.3	17.7	17.0	15.9	14.9	14.1	13.3	12.6	12.0	11.4	-	-	
10	20.4	19.2	18.2	17.3	16.4	15.7	14.4	13.2	-	-	-	-	-	-	-	
15	20.1	18.7	17.6	16.5	15.6	14.8	-	-	-	-	-	-	-	-	-	
30	19.5	17.8	16.3	-	-	-	-	-	-	-	-	-	-	-	-	
1	20.7	20.5	19.9	19.4	18.9	18.5	17.6	14.1	11.8	10.1	8.8	7.9	7.1	6.4	5.7	40
2	20.7	20.0	19.3	18.6	18.0	17.4	15.9	12.7	10.6	9.1	7.9	7.0	6.3	5.8	5.1	
3	20.6	19.7	18.9	18.1	17.4	16.7	15.3	12.2	10.2	8.7	7.6	6.8	6.1	5.5	4.9	
4	20.5	19.4	18.5	17.6	16.8	16.1	14.9	12.0	10.0	8.5	7.5	6.6	6.0	5.4	4.8	
5	20.4	19.2	18.2	17.3	16.4	15.7	14.3	11.8	9.8	8.4	7.4	6.6	5.9	-	-	
10	19.9	18.3	17.0	15.9	14.9	14.1	12.6	11.4	-	-	-	-	-	-	-	
15	19.5	17.7	16.3	15.0	14.0	13.0	-	-	-	-	-	-	-	-	-	
30	18.7	16.5	14.8	-	-	-	-	-	-	-	-	-	-	-	-	
1	20.7	20.2	19.6	19.0	18.4	17.3	13.0	10.4	8.7	7.4	6.5	5.8	5.2	4.7	4.2	60
2	20.6	19.7	18.9	18.1	17.4	14.9	11.2	8.9	7.5	6.4	5.6	5.0	4.5	4.1	3.6	
3	20.4	19.3	18.3	17.4	16.6	14.1	10.6	8.5	7.0	6.0	5.3	4.7	4.2	3.8	3.4	
4	20.2	19.0	17.9	16.9	16.0	13.7	10.3	8.2	6.8	5.9	5.1	4.6	4.1	3.7	3.3	
5	20.1	18.7	17.5	16.5	15.6	13.5	10.1	8.1	6.7	5.8	5.0	4.5	4.0	-	-	
10	19.5	17.7	16.3	15.0	13.9	13.0	9.7	7.8	-	-	-	-	-	-	-	
15	19.1	17.0	15.4	14.1	12.9	12.0	-	-	-	-	-	-	-	-	-	
30	18.2	15.7	13.8	-	-	-	-	-	-	-	-	-	-	-	-	
1	20.7	20.0	19.3	18.6	17.1	14.2	10.7	8.5	7.1	6.1	5.3	4.7	4.3	3.9	3.4	80
2	20.5	19.4	18.5	17.6	14.1	11.8	8.8	7.1	5.9	5.1	4.4	3.9	3.5	3.2	2.8	
3	20.2	19.0	17.9	16.5	13.2	11.0	8.2	6.6	5.5	4.7	4.1	3.7	3.3	3.0	2.6	
4	20.0	18.6	17.4	15.9	12.7	10.6	7.9	6.3	5.3	4.5	4.0	3.5	3.2	2.9	2.5	
5	19.9	18.3	17.0	15.5	12.4	10.3	7.7	6.2	5.2	4.4	3.9	3.4	3.1	-	-	
10	19.2	17.3	15.7	14.3	11.8	9.8	7.4	5.9	-	-	-	-	-	-	-	
15	18.7	16.5	14.7	13.3	11.6	9.7	-	-	-	-	-	-	-	-	-	
30	17.7	15.0	13.0	-	-	-	-	-	-	-	-	-	-	-	-	
1	20.7	19.9	19.1	18.3	14.8	12.3	9.3	7.4	6.2	5.3	4.6	4.1	3.7	3.4	3.0	100
2	20.4	19.2	18.2	14.9	11.9	9.9	7.4	5.9	5.0	4.2	3.7	3.3	3.0	2.7	2.4	
3	20.1	18.7	17.5	13.7	10.9	9.1	6.8	5.5	4.6	3.9	3.4	3.0	2.7	2.5	2.2	
4	19.9	18.3	17.0	13.1	10.4	8.7	6.5	5.2	4.4	3.7	3.3	2.9	2.6	2.4	2.1	
5	19.7	18.0	16.6	12.7	10.2	8.5	6.3	5.1	4.2	3.6	3.2	2.8	2.5	-	-	
10	18.9	16.8	15.2	12.0	9.6	8.0	6.0	4.8	-	-	-	-	-	-	-	
15	18.4	16.0	14.2	11.7	9.4	7.8	-	-	-	-	-	-	-	-	-	
30	17.4	14.5	12.4	-	-	-	-	-	-	-	-	-	-	-	-	
1	20.5	19.5	18.6	14.8	11.8	9.8	7.4	5.9	4.9	4.2	3.7	3.3	3.0	2.7	2.4	150
2	20.1	18.7	14.8	11.1	8.9	7.4	5.6	4.4	3.7	3.2	2.8	2.5	2.2	2.0	1.8	
3	19.8	18.2	13.2	9.9	7.9	6.6	5.0	4.0	3.3	2.8	2.5	2.2	2.0	1.8	1.6	
4	18.6	17.7	12.4	9.3	7.4	6.2	4.7	3.7	3.1	2.7	2.3	2.1	1.9	1.7	1.5	
5	17.9	17.4	11.9	8.9	7.2	6.0	4.5	3.6	3.0	2.6	2.2	2.0	1.8	-	-	
10	16.4	16.0	11.0	8.2	6.6	5.5	4.1	3.3	-	-	-	-	-	-	-	
15	15.9	15.2	10.6	8.0	6.4	5.3	-	-	-	-	-	-	-	-	-	
30	15.5	13.5	10.3	-	-	-	-	-	-	-	-	-	-	-	-	
1	20.1	18.7	14.7	11.0	8.8	7.3	5.5	4.4	3.7	3.1	2.8	2.4	2.2	2.0	1.8	300
2	14.8	14.8	9.8	7.4	5.9	4.9	3.7	3.0	2.5	2.1	1.8	1.6	1.5	1.3	1.2	
3	12.3	12.3	8.2	6.2	4.9	4.1	3.1	2.5	2.1	1.8	1.5	1.4	1.2	1.1	1.0	
4	11.1	11.1	7.4	5.6	4.4	3.7	2.8	2.2	1.9	1.6	1.4	1.2	1.1	1.0	0.9	
5	10.4	10.4	6.9	5.2	4.2	3.5	2.6	2.1	1.7	1.5	1.3	1.2	1.0	-	-	
10	8.9	8.9	6.0	4.5	3.6	3.0	2.2	1.8	-	-	-	-	-	-	-	
15	8.5	8.5	5.6	4.2	3.4	2.8	-	-	-	-	-	-	-	-	-	
30	8.0	8.0	5.3	-	-	-	-	-	-	-	-	-	-	-	-	

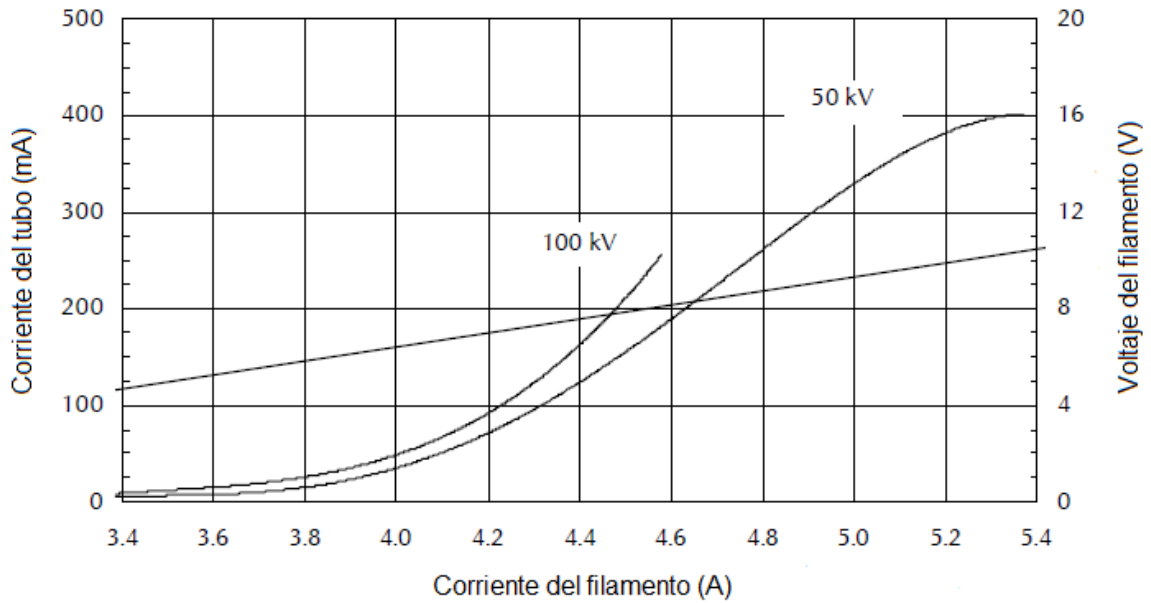
**Serie de capacidad de carga**

**■ 2.0 – 3 ~ - 3000 min<sup>-1</sup>**

Potencia de entrada del ánodo como una función de n (N° de exposiciones en serie), z (tasa de exposición por segundo), tiempo de exposición (seg)															n
z	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.100	0.120	0.140	0.160	0.180	0.200	0.220	
1	45.9	45.9	44.4	43.3	42.5	41.9	40.8	40.0	39.3	38.7	38.1	37.6	36.7	36.0	34.8
2	45.4	45.4	44.4	43.3	42.5	41.9	40.7	39.3	38.0	36.8	35.7	34.7	33.7	32.7	31.4
3	45.0	45.0	44.0	43.0	42.1	41.2	39.5	37.9	36.5	35.1	33.9	32.7	31.7	30.6	29.2
4	44.7	44.7	43.5	42.4	41.4	40.4	38.5	36.8	35.2	33.8	32.5	31.3	30.1	29.1	27.6
5	44.4	44.4	43.1	41.9	40.8	39.7	37.7	35.9	34.2	32.7	31.4	30.1	28.9	-	-
10	44.4	43.4	41.7	40.1	38.7	37.3	34.9	32.7	-	-	-	-	-	-	-
15	44.4	42.7	40.7	38.9	37.2	35.7	-	-	-	-	-	-	-	-	-
30	44.0	41.2	38.7	-	-	-	-	-	-	-	-	-	-	-	-
1	45.4	45.4	44.4	43.3	42.5	41.9	40.7	39.3	38.0	34.2	29.9	26.6	23.9	21.7	19.1
2	44.7	44.7	43.5	42.4	41.3	40.3	38.5	36.7	35.2	33.1	29.0	25.8	23.2	21.1	18.6
3	44.4	44.1	42.8	41.4	40.2	39.1	36.9	35.0	33.3	31.7	28.7	25.5	23.0	20.9	18.4
4	44.4	43.7	42.1	40.7	39.3	38.0	35.7	33.7	31.8	30.2	28.5	25.4	22.8	20.8	18.3
5	44.4	43.3	41.6	40.0	38.6	37.2	34.7	32.6	30.7	29.0	27.5	25.3	22.8	-	-
10	44.4	41.9	39.7	37.7	35.9	34.2	31.4	28.9	-	-	-	-	-	-	-
15	43.8	40.9	38.4	36.1	34.1	32.3	-	-	-	-	-	-	-	-	-
30	42.7	38.9	35.7	-	-	-	-	-	-	-	-	-	-	-	-
1	44.7	44.7	43.5	42.4	41.3	40.3	31.7	25.4	21.1	18.1	15.9	14.1	12.7	11.5	10.2
2	44.4	43.7	42.1	40.7	39.3	38.0	29.9	23.9	19.9	17.1	15.0	13.3	12.0	10.9	9.6
3	44.4	43.0	41.1	39.4	37.9	36.4	29.3	23.4	19.5	16.7	14.6	13.0	11.7	10.7	9.4
4	44.4	42.4	40.3	38.5	36.7	35.2	29.0	23.2	19.3	16.6	14.5	12.9	11.6	10.5	9.3
5	44.4	41.9	39.6	37.6	35.8	34.2	28.8	23.0	19.2	16.5	14.4	12.8	11.5	-	-
10	43.3	40.0	37.2	34.7	32.6	30.7	27.5	22.8	-	-	-	-	-	-	-
15	42.6	38.7	35.5	32.8	30.5	28.5	-	-	-	-	-	-	-	-	-
30	40.9	36.1	32.3	-	-	-	-	-	-	-	-	-	-	-	-
1	44.4	43.7	42.1	35.4	28.3	23.6	17.7	14.1	11.8	10.1	8.8	7.9	7.1	6.4	5.7
2	44.4	42.4	40.3	31.7	25.4	21.1	15.9	12.7	10.6	9.1	7.9	7.0	6.3	5.8	5.1
3	44.1	41.4	39.0	30.5	24.4	20.3	15.3	12.2	10.2	8.7	7.6	6.8	6.1	5.5	4.9
4	43.7	40.7	38.0	29.9	23.9	19.9	15.0	12.0	10.0	8.5	7.5	6.6	6.0	5.4	4.8
5	43.3	40.0	37.2	29.5	23.6	19.7	14.8	11.8	9.8	8.4	7.4	6.6	5.9	-	-
10	41.9	37.6	34.2	28.8	23.0	19.2	14.4	11.5	-	-	-	-	-	-	-
15	40.9	36.0	32.2	28.6	22.9	19.0	-	-	-	-	-	-	-	-	-
30	38.7	32.8	28.5	-	-	-	-	-	-	-	-	-	-	-	-
1	44.4	43.0	34.7	26.0	20.8	17.3	13.0	10.4	8.7	7.4	6.5	5.8	5.2	4.7	4.2
2	44.1	41.4	29.8	22.4	17.9	14.9	11.2	8.9	7.5	6.4	5.6	5.0	4.5	4.1	3.6
3	43.5	40.3	28.2	21.1	16.9	14.1	10.6	8.5	7.0	6.0	5.3	4.7	4.2	3.8	3.4
4	43.0	39.4	27.4	20.5	16.4	13.7	10.3	8.2	6.8	5.9	5.1	4.6	4.1	3.7	3.3
5	42.5	38.7	26.9	20.2	16.1	13.5	10.1	8.1	6.7	5.8	5.0	4.5	4.0	-	-
10	40.8	36.0	25.9	19.5	15.6	13.0	9.7	7.8	-	-	-	-	-	-	-
15	39.6	34.2	25.6	19.2	15.4	12.8	-	-	-	-	-	-	-	-	-
30	37.2	30.7	25.3	-	-	-	-	-	-	-	-	-	-	-	-
1	44.4	42.4	28.4	21.3	17.1	14.2	10.7	8.5	7.1	6.1	5.3	4.7	4.3	3.9	3.4
2	43.7	35.4	23.6	17.7	14.1	11.8	8.8	7.1	5.9	5.1	4.4	3.9	3.5	3.2	2.8
3	43.0	32.9	22.0	16.5	13.2	11.0	8.2	6.6	5.5	4.7	4.1	3.7	3.3	3.0	2.6
4	42.4	31.7	21.1	15.9	12.7	10.6	7.9	6.3	5.3	4.5	4.0	3.5	3.2	2.9	2.5
5	41.9	31.0	20.7	15.5	12.4	10.3	7.7	6.2	5.2	4.4	3.9	3.4	3.1	-	-
10	40.0	29.5	19.7	14.8	11.8	9.8	7.4	5.9	-	-	-	-	-	-	-
15	38.7	29.1	19.4	14.5	11.6	9.7	-	-	-	-	-	-	-	-	-
30	36.0	28.6	19.0	-	-	-	-	-	-	-	-	-	-	-	-
1	44.4	37.0	24.7	18.5	14.8	12.3	9.3	7.4	6.2	5.3	4.6	4.1	3.7	3.4	3.0
2	43.3	29.7	19.8	14.9	11.9	9.9	7.4	5.9	5.0	4.2	3.7	3.3	3.0	2.7	2.4
3	42.5	27.3	18.2	13.7	10.9	9.1	6.8	5.5	4.6	3.9	3.4	3.0	2.7	2.5	2.2
4	41.9	26.1	17.4	13.1	10.4	8.7	6.5	5.2	4.4	3.7	3.3	2.9	2.6	2.4	2.1
5	41.3	25.4	16.9	12.7	10.2	8.5	6.3	5.1	4.2	3.6	3.2	2.8	2.5	-	-
10	39.3	23.9	15.9	12.0	9.6	8.0	6.0	4.8	-	-	-	-	-	-	-
15	37.9	23.4	15.6	11.7	9.4	7.8	-	-	-	-	-	-	-	-	-
30	35.0	23.0	15.3	-	-	-	-	-	-	-	-	-	-	-	-
1	43.8	29.5	19.7	14.8	11.8	9.8	7.4	5.9	4.9	4.2	3.7	3.3	3.0	2.7	2.4
2	42.5	22.2	14.8	11.1	8.9	7.4	5.6	4.4	3.7	3.2	2.8	2.5	2.2	2.0	1.8
3	39.7	19.8	13.2	9.9	7.9	6.6	5.0	4.0	3.3	2.8	2.5	2.2	2.0	1.8	1.6
4	37.2	18.6	12.4	9.3	7.4	6.2	4.7	3.7	3.1	2.7	2.3	2.1	1.9	1.7	1.5
5	35.8	17.9	11.9	8.9	7.2	6.0	4.5	3.6	3.0	2.6	2.2	2.0	1.8	-	-
10	32.9	16.4	11.0	8.2	6.6	5.5	4.1	3.3	-	-	-	-	-	-	-
15	31.9	15.9	10.6	8.0	6.4	5.3	-	-	-	-	-	-	-	-	-
30	30.9	15.5	10.3	-	-	-	-	-	-	-	-	-	-	-	-
1	42.5	22.0	14.7	11.0	8.8	7.3	5.5	4.4	3.7	3.1	2.8	2.4	2.2	2.0	1.8
2	29.5	14.8	9.8	7.4	5.9	4.9	3.7	3.0	2.5	2.1	1.8	1.6	1.5	1.3	1.2
3	24.7	12.3	8.2	6.2	4.9	4.1	3.1	2.5	2.1	1.8	1.5	1.4	1.2	1.1	1.0
4	22.2	11.1	7.4	5.6	4.4	3.7	2.8	2.2	1.9	1.6	1.4	1.2	1.1	1.0	0.9
5	20.8	10.4	6.9	5.2	4.2	3.5	2.6	2.1	1.7	1.5	1.3	1.2	1.0	-	-
10	17.9	8.9	6.0	4.5	3.6	3.0	2.2	1.8	-	-	-	-	-	-	-
15	16.9	8.5	5.6	4.2	3.4	2.8	-	-	-	-	-	-	-	-	-
30	15.9	8.0	5.3	-	-	-	-	-	-	-	-	-	-	-	-

**Características de emisión del cátodo**

■ 1.0 – 3 ~ - ( $\pm 0.2$  A)



**Características de emisión del cátodo**

■ 2.0 – 3 ~ - ( $\pm 0.2$  A)

