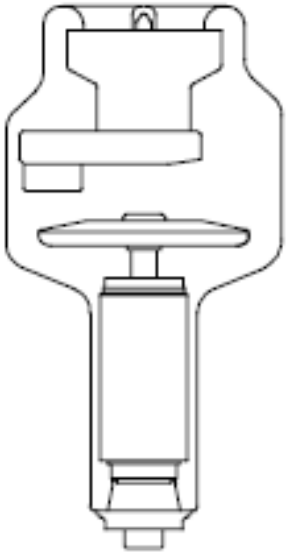
RTM 90 H 1.0 / 2.0

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
90_HAK	A	04.09.2009	Italiano

I.A.E Spa
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Tabla de contenido

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).

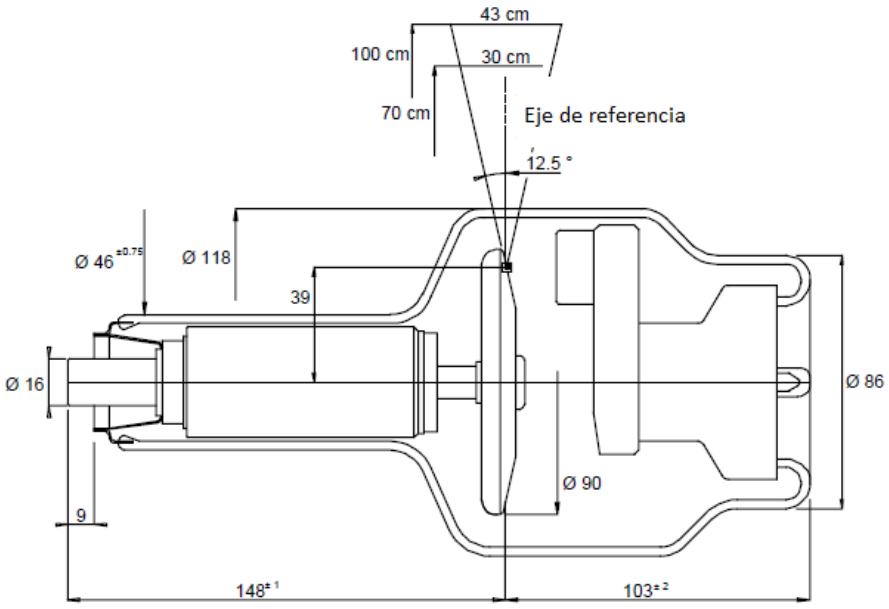
Especificaciones

Punto Focal	▣ 1.0 ■ 2.0	(IEC 336, EN 60336)
Velocidad del ánodo	3000 min^{-1}	
Potencia nominal de entrada del ánodo	▣ 40 kW ■ 75 kW	(IEC 613, EN 60613)
Diámetro del ánodo	90 mm	
Material del ánodo	RT-TZM	
Angulo del ánodo	12.5°	
Campo de radiación	a 70 cm 30 cm a 100 cm 43 cm	
Filtración inherente	0.7 mm Al eq	(IEC 522)
Máximo contenido de calor del ánodo	225 kJ 300 kHU	
Máxima disipación de calor continua	750 W 60000 HU/min	
Máxima disipación de calor	1300 W 104000 HU/min	
Voltaje Nominal del tubo de Rayos X	150 kV	
Máxima corriente del filamento	5.4 A	

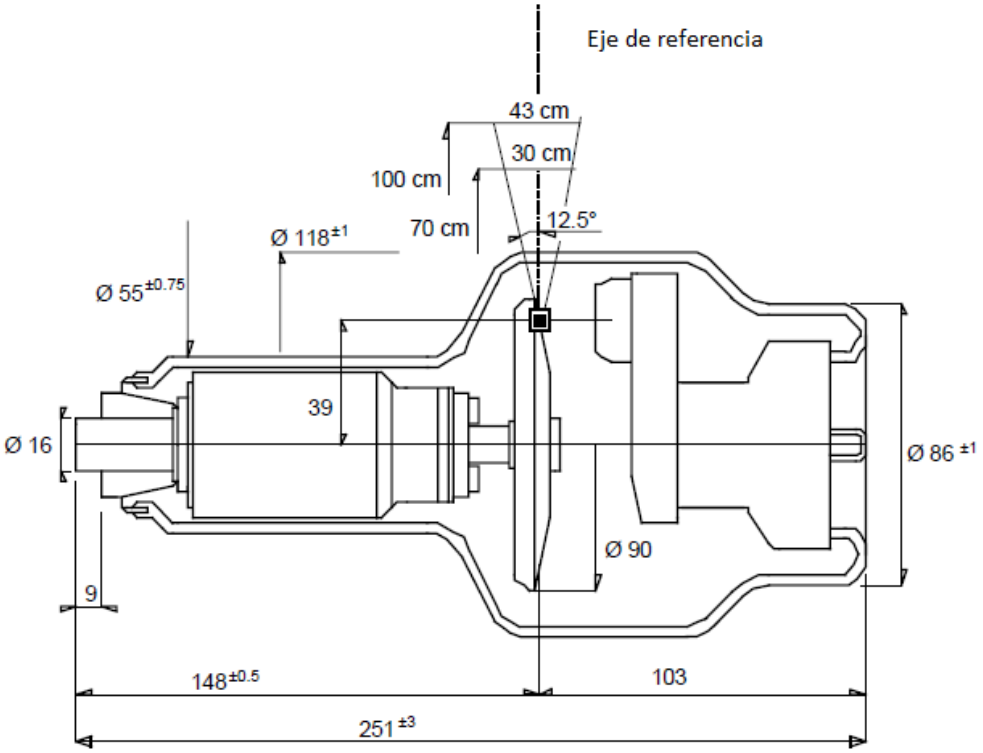
El dato indicado en este documento se refiere a:

Equivalencia de la potencia de entrada del ánodo 100 W = % máximo de contenido de calor 38 %

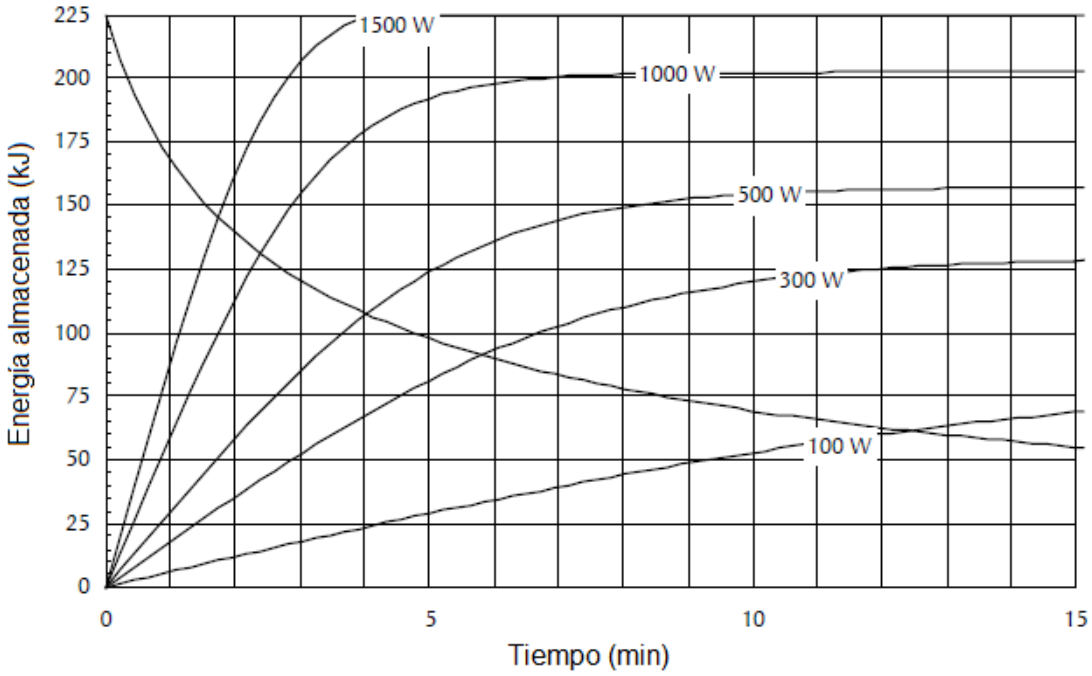
Versión estándar



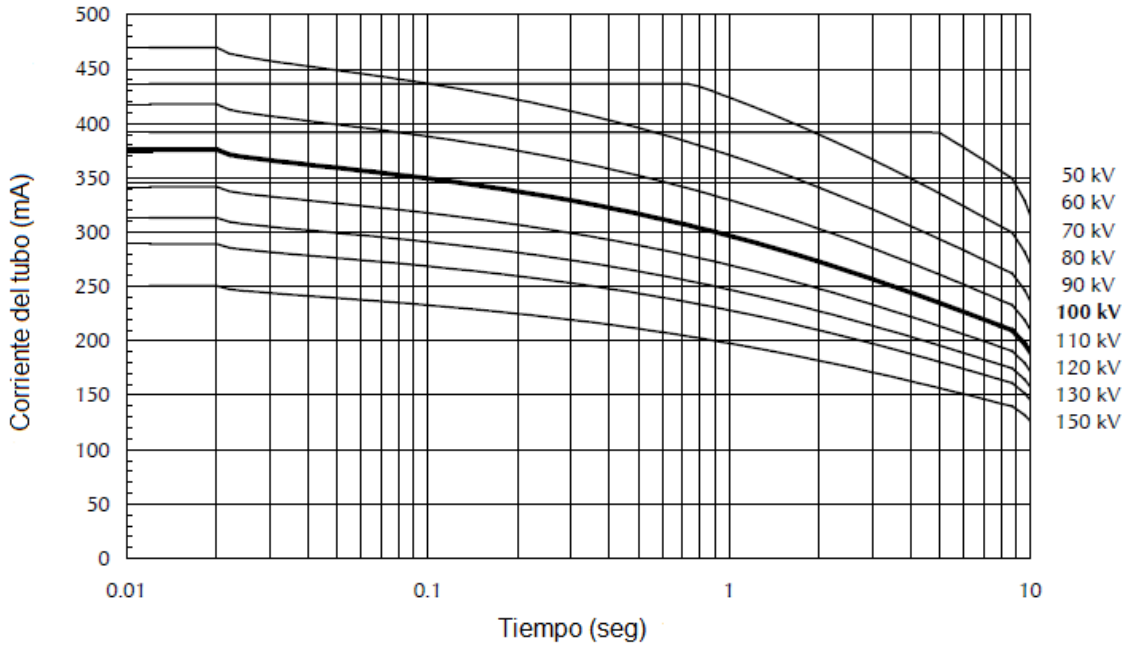
Versión especial para sustitución en carcasas GE-CGR y SIEMENS



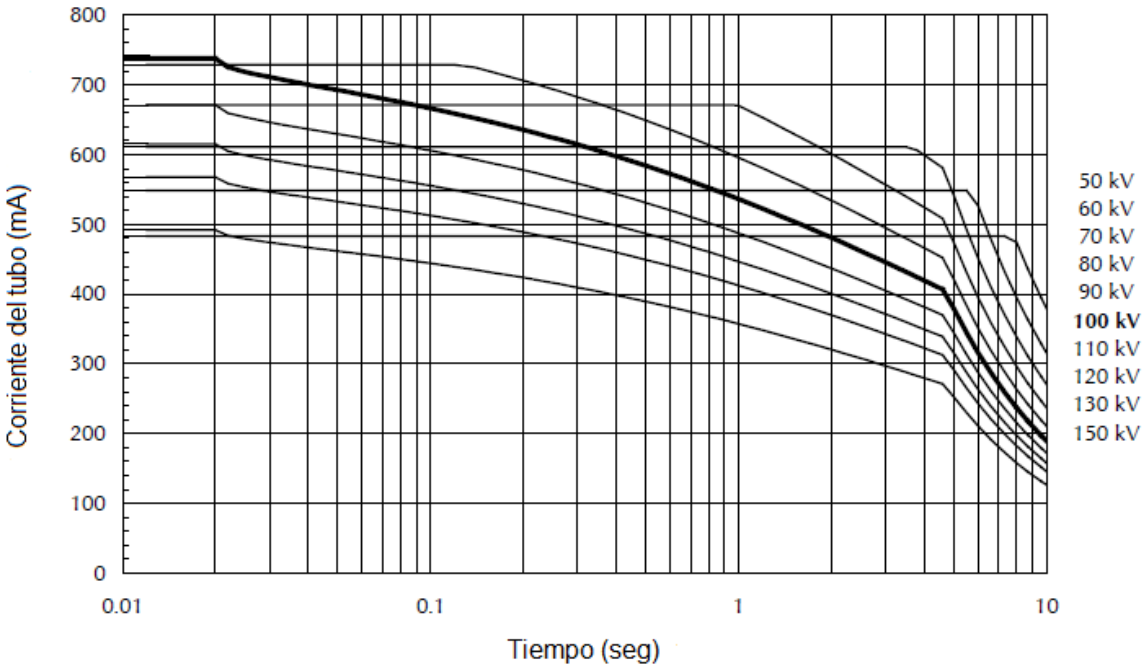
Curva de enfriamiento y calentamiento del ánodo



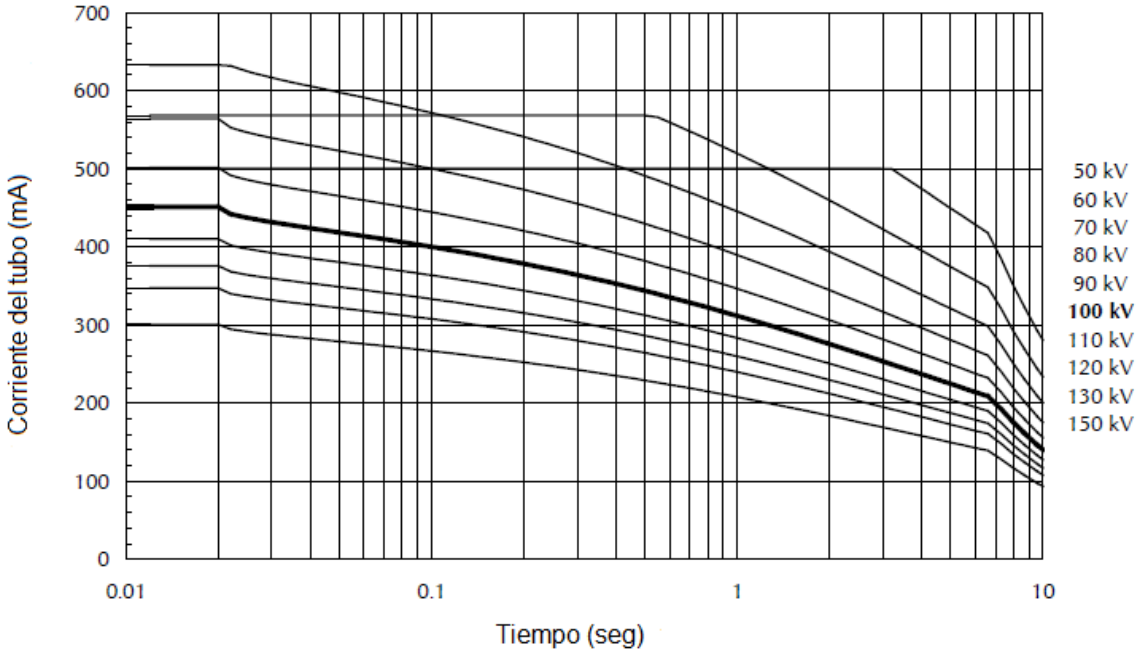
Capacidad de carga individual
▣ 1.0 – 1 ~ - 3000 min^{-1}



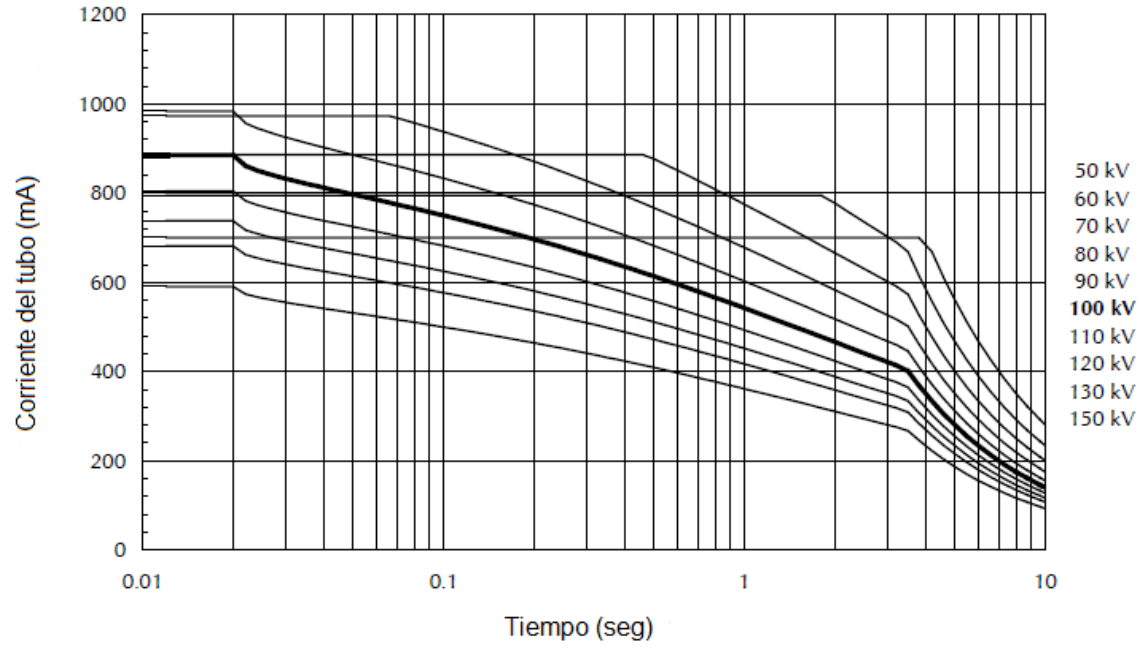
Capacidad de carga individual
■ 2.0 – 1 ~ - 3000 min^{-1}



Capacidad de carga individual
▣ 1.0 – 3 ~ - 3000 min^{-1}



Capacidad de carga individual
■ 2.0 – 3 ~ - 3000 min^{-1}



Serie capacidad de carga

▣ 1.0 – 1 ~ - 3000 min^{-1}

Potencia de entrada al 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	29.6	29.6	29.0	28.6	28.2	28.0	27.5	27.2	26.9	26.6	26.4	26.1	25.7	25.4	24.9	
2	29.4	29.4	29.0	28.6	28.2	28.0	27.5	26.9	26.3	25.8	25.3	24.8	24.3	23.9	23.2	
3	29.2	29.2	28.8	28.4	28.0	27.7	26.9	26.3	25.6	25.0	24.4	23.9	23.3	22.8	22.1	
4	29.1	29.1	28.6	28.2	27.8	27.3	26.5	25.8	25.1	24.4	23.7	23.1	22.5	22.0	21.2	5
5	29.0	29.0	28.5	28.0	27.5	27.0	26.2	25.4	24.6	23.9	23.2	22.5	21.9	-	-	
10	29.0	28.6	27.9	27.2	26.6	26.0	24.9	23.9	-	-	-	-	-	-	-	
15	29.0	28.3	27.5	26.7	26.0	25.3	-	-	-	-	-	-	-	-	-	
30	28.8	27.7	26.6	-	-	-	-	-	-	-	-	-	-	-	-	
1	29.4	29.4	29.0	28.6	28.2	28.0	27.5	26.9	26.3	25.8	25.3	24.8	24.3	23.8	23.2	
2	29.1	29.1	28.6	28.2	27.7	27.3	26.5	25.7	25.0	24.3	23.7	23.1	22.5	22.0	21.2	
3	29.0	28.9	28.3	27.8	27.3	26.8	25.8	24.9	24.1	23.4	22.6	22.0	21.3	20.7	19.9	
4	29.0	28.7	28.1	27.5	26.9	26.3	25.3	24.3	23.4	22.6	21.8	21.1	20.4	19.8	18.9	10
5	29.0	28.6	27.9	27.2	26.6	26.0	24.8	23.8	22.8	21.9	21.1	20.4	19.7	-	-	
10	29.0	28.0	27.0	26.2	25.4	24.6	23.2	21.9	-	-	-	-	-	-	-	
15	28.8	27.6	26.5	25.5	24.5	23.6	-	-	-	-	-	-	-	-	-	
30	28.3	26.7	25.3	-	-	-	-	-	-	-	-	-	-	-	-	
1	29.1	29.1	28.6	28.2	27.7	27.3	26.5	25.7	25.0	24.3	23.7	23.1	22.5	21.9	21.2	
2	29.0	28.7	28.1	27.5	26.9	26.3	25.3	24.3	23.4	22.6	21.8	21.1	20.4	19.7	18.9	
3	29.0	28.4	27.7	26.9	26.3	25.6	24.4	23.3	22.3	21.4	20.5	19.7	19.0	18.3	17.4	
4	29.0	28.2	27.3	26.5	25.7	25.0	23.7	22.5	21.4	20.5	19.6	18.7	18.0	17.3	16.3	20
5	29.0	28.0	27.0	26.1	25.3	24.5	23.1	21.9	20.7	19.7	18.8	17.9	17.2	-	-	
10	28.6	27.2	26.0	24.8	23.8	22.8	21.1	19.7	-	-	-	-	-	-	-	
15	28.2	26.6	25.2	23.9	22.7	21.7	-	-	-	-	-	-	-	-	-	
30	27.6	25.5	23.6	-	-	-	-	-	-	-	-	-	-	-	-	
1	29.0	28.7	28.1	27.5	26.9	26.3	25.3	24.3	23.4	22.6	20.3	18.0	16.2	14.7	13.0	
2	29.0	28.2	27.3	26.5	25.7	25.0	23.7	22.5	21.4	20.4	18.9	16.8	15.1	13.8	12.1	
3	28.9	27.8	26.8	25.8	24.9	24.1	22.6	21.3	20.1	19.1	18.1	16.4	14.8	13.4	11.8	
4	28.7	27.5	26.3	25.3	24.3	23.4	21.8	20.4	19.1	18.1	17.1	16.2	14.6	13.3	11.7	40
5	28.6	27.2	25.9	24.8	23.8	22.8	21.1	19.6	18.4	17.2	16.2	15.4	14.5	-	-	
10	28.0	26.1	24.5	23.1	21.9	20.7	18.8	17.2	-	-	-	-	-	-	-	
15	27.5	25.4	23.6	22.0	20.6	19.4	-	-	-	-	-	-	-	-	-	
30	26.6	23.9	21.7	-	-	-	-	-	-	-	-	-	-	-	-	
1	29.0	28.4	27.7	26.9	26.2	25.6	24.4	23.1	19.2	16.5	14.4	12.8	11.5	10.5	9.2	
2	28.9	27.8	26.8	25.8	24.9	24.1	22.6	20.9	17.4	14.9	13.1	11.6	10.5	9.5	8.4	
3	28.6	27.3	26.1	25.0	24.0	23.1	21.4	20.0	16.8	14.4	12.6	11.2	10.1	9.2	8.1	
4	28.4	26.9	25.6	24.4	23.3	22.3	20.5	19.0	16.5	14.2	12.4	11.0	9.9	9.0	7.9	60
5	28.2	26.6	25.2	23.9	22.7	21.6	19.8	18.2	16.3	14.0	12.2	10.9	9.8	-	-	
10	27.5	25.4	23.6	22.0	20.6	19.4	17.3	15.7	-	-	-	-	-	-	-	
15	27.0	24.5	22.5	20.7	19.2	17.9	-	-	-	-	-	-	-	-	-	
30	26.0	22.8	20.4	-	-	-	-	-	-	-	-	-	-	-	-	
1	29.0	28.2	27.3	26.5	25.7	25.0	23.0	18.4	15.3	13.1	11.5	10.2	9.2	8.4	7.4	
2	28.7	27.5	26.3	25.3	24.3	23.4	20.3	16.2	13.5	11.6	10.1	9.0	8.1	7.4	6.5	
3	28.4	26.9	25.6	24.4	23.3	22.3	19.4	15.5	12.9	11.1	9.7	8.6	7.7	7.0	6.2	
4	28.2	26.5	25.0	23.7	22.5	21.4	18.9	15.1	12.6	10.8	9.5	8.4	7.6	6.9	6.1	80
5	28.0	26.1	24.5	23.1	21.9	20.7	18.6	14.9	12.4	10.7	9.3	8.3	7.5	-	-	
10	27.2	24.8	22.8	21.1	19.6	18.4	16.2	14.5	-	-	-	-	-	-	-	
15	26.6	23.9	21.6	19.8	18.2	16.9	-	-	-	-	-	-	-	-	-	
30	25.4	22.0	19.4	-	-	-	-	-	-	-	-	-	-	-	-	
1	29.0	28.0	27.0	26.1	25.3	24.5	19.5	15.6	13.0	11.1	9.7	8.7	7.8	7.1	6.2	
2	28.6	27.2	25.9	24.8	23.8	22.4	16.8	13.4	11.2	9.6	8.4	7.5	6.7	6.1	5.4	
3	28.2	26.6	25.2	23.9	22.7	21.1	15.9	12.7	10.6	9.1	7.9	7.0	6.3	5.8	5.1	
4	28.0	26.1	24.5	23.1	21.9	20.5	15.4	12.3	10.3	8.8	7.7	6.8	6.2	5.6	4.9	100
5	27.7	25.7	24.0	22.5	21.2	20.0	15.1	12.1	10.1	8.6	7.6	6.7	6.1	-	-	
10	26.9	24.3	22.2	20.4	18.9	17.6	14.6	11.7	-	-	-	-	-	-	-	
15	26.3	23.3	20.9	19.0	17.4	16.1	-	-	-	-	-	-	-	-	-	
30	24.9	21.3	18.6	-	-	-	-	-	-	-	-	-	-	-	-	
1	28.7	27.5	26.4	25.4	23.7	19.7	14.8	11.8	9.9	8.5	7.4	6.6	5.9	5.4	4.7	
2	28.2	26.6	25.2	23.9	19.3	16.1	12.1	9.7	8.1	6.9	6.0	5.4	4.8	4.4	3.9	
3	27.9	25.9	24.3	22.4	17.9	14.9	11.2	8.9	7.5	6.4	5.6	5.0	4.5	4.1	3.6	
4	27.5	25.4	23.6	21.4	17.2	14.3	10.7	8.6	7.1	6.1	5.4	4.8	4.3	3.9	3.4	150
5	27.3	24.9	23.0	20.9	16.7	13.9	10.5	8.4	7.0	6.0	5.2	4.6	4.2	-	-	
10	26.2	23.3	20.9	19.0	15.8	13.2	9.9	7.9	-	-	-	-	-	-	-	
15	25.5	22.2	19.6	17.6	15.6	13.0	-	-	-	-	-	-	-	-	-	
30	24.0	20.0	17.1	-	-	-	-	-	-	-	-	-	-	-	-	
1	28.2	26.6	25.2	20.3	16.2	13.5	10.1	8.1	6.8	5.8	5.1	4.5	4.1	3.7	3.2	
2	27.5	25.4	19.7	14.8	11.8	9.9	7.4	5.9	4.9	4.2	3.7	3.3	3.0	2.7	2.4	
3	27.0	24.5	17.3	13.0	10.4	8.7	6.5	5.2	4.3	3.7	3.2	2.9	2.6	2.4	2.1	
4	26.6	23.9	16.1	12.1	9.7	8.1	6.0	4.8	4.0	3.5	3.0	2.7	2.4	2.2	1.9	300
5	26.2	23.1	15.4	11.5	9.2	7.7	5.8	4.6	3.8	3.3	2.9	2.6	2.3	-	-	
10	24.9	20.9	13.9	10.5	8.4	7.0	5.2	4.2	-	-	-	-	-	-	-	
15	24.0	20.0	13.4	10.1	8.1	6.7	-	-	-	-	-	-	-	-	-	
30	22.2	17.6	13.0	-	-	-	-	-	-	-	-	-	-	-	-	

Serie de capacidad de carga
■ 2.0 – 1 ~ - 3000 min^{-1}

Potencia de entrada al 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	57.7	57.7	56.1	54.9	54.1	53.4	52.2	51.3	50.5	49.8	49.2	48.6	47.7	46.8	45.5	
2	57.1	57.1	56.1	54.9	54.1	53.4	52.1	50.6	49.1	47.8	46.5	45.3	44.2	43.1	41.6	
3	56.7	56.7	55.6	54.6	53.5	52.6	50.7	49.0	47.4	45.9	44.5	43.1	41.9	40.7	39.0	
4	56.4	56.4	55.1	53.9	52.8	51.7	49.7	47.8	46.0	44.4	42.8	41.4	40.1	38.8	37.1	5
5	56.1	56.1	54.7	53.4	52.2	51.0	48.8	46.7	44.9	43.1	41.5	40.0	38.7	-	-	
10	56.1	55.0	53.2	51.4	49.8	48.3	45.6	43.1	-	-	-	-	-	-	-	
15	56.1	54.2	52.1	50.1	48.3	46.6	-	-	-	-	-	-	-	-	-	
30	55.6	52.6	49.9	-	-	-	-	-	-	-	-	-	-	-	-	
1	57.1	57.1	56.1	54.9	54.1	53.4	52.0	50.5	49.1	47.8	46.5	45.3	44.2	43.1	41.6	
2	56.4	56.4	55.1	53.9	52.8	51.7	49.6	47.7	45.9	44.3	42.8	41.3	40.0	38.8	37.0	
3	56.1	55.8	54.3	52.9	51.5	50.3	47.9	45.7	43.8	42.0	40.3	38.8	37.3	36.0	34.2	
4	56.1	55.3	53.6	52.1	50.6	49.1	46.5	44.2	42.1	40.2	38.4	36.8	35.3	34.0	32.1	10
5	56.1	54.9	53.1	51.3	49.7	48.2	45.4	42.9	40.7	38.7	36.9	35.3	33.8	-	-	
10	56.1	53.4	51.0	48.8	46.7	44.9	41.5	38.7	-	-	-	-	-	-	-	
15	55.5	52.3	49.5	47.0	44.7	42.6	-	-	-	-	-	-	-	-	-	
30	54.2	50.1	46.6	-	-	-	-	-	-	-	-	-	-	-	-	
1	56.4	56.4	55.1	53.9	52.8	51.7	49.6	47.7	45.9	43.2	37.8	33.6	30.3	27.5	24.2	
2	56.1	55.3	53.6	52.0	50.5	49.1	46.5	44.2	42.1	40.1	36.5	32.4	29.2	26.5	23.3	
3	56.1	54.5	52.5	50.7	49.0	47.3	44.4	41.8	39.5	37.4	35.6	32.0	28.8	26.2	23.0	
4	56.1	53.9	51.7	49.6	47.7	45.9	42.8	40.0	37.6	35.5	33.5	31.8	28.6	26.0	22.9	20
5	56.1	53.4	50.9	48.7	46.6	44.8	41.4	38.6	36.1	33.9	31.9	30.2	28.5	-	-	
10	54.9	51.3	48.2	45.4	42.9	40.7	36.9	33.8	-	-	-	-	-	-	-	
15	54.1	49.9	46.3	43.2	40.5	38.1	-	-	-	-	-	-	-	-	-	
30	52.3	47.0	42.6	-	-	-	-	-	-	-	-	-	-	-	-	
1	56.1	55.3	53.6	52.0	50.5	49.1	40.6	32.4	27.0	23.2	20.3	18.0	16.2	14.7	13.0	
2	56.1	53.9	51.7	49.6	47.7	45.9	37.8	30.3	25.2	21.6	18.9	16.8	15.1	13.8	12.1	
3	55.8	52.9	50.2	47.9	45.7	43.7	36.9	29.5	24.6	21.1	18.5	16.4	14.8	13.4	11.8	
4	55.3	52.0	49.1	46.5	44.2	42.1	36.5	29.2	24.3	20.8	18.2	16.2	14.6	13.3	11.7	40
5	54.9	51.3	48.2	45.4	42.9	40.7	36.2	29.0	24.1	20.7	18.1	16.1	14.5	-	-	
10	53.4	48.7	44.8	41.4	38.6	36.1	31.9	28.5	-	-	-	-	-	-	-	
15	52.2	46.9	42.5	38.8	35.8	33.2	-	-	-	-	-	-	-	-	-	
30	49.9	43.2	38.1	-	-	-	-	-	-	-	-	-	-	-	-	
1	56.1	54.5	52.5	50.7	46.2	38.5	28.8	23.1	19.2	16.5	14.4	12.8	11.5	10.5	9.2	
2	55.8	52.9	50.2	47.9	41.8	34.8	26.1	20.9	17.4	14.9	13.1	11.6	10.5	9.5	8.4	
3	55.1	51.7	48.6	45.9	40.3	33.6	25.2	20.2	16.8	14.4	12.6	11.2	10.1	9.2	8.1	
4	54.5	50.7	47.3	44.4	39.6	33.0	24.8	19.8	16.5	14.2	12.4	11.0	9.9	9.0	7.9	60
5	54.1	49.8	46.3	43.1	39.2	32.7	24.5	19.6	16.3	14.0	12.2	10.9	9.8	-	-	
10	52.2	46.8	42.5	38.8	35.8	31.9	23.9	19.2	-	-	-	-	-	-	-	
15	50.9	44.8	39.9	36.1	32.9	30.2	-	-	-	-	-	-	-	-	-	
30	48.2	40.7	35.3	-	-	-	-	-	-	-	-	-	-	-	-	
1	56.1	53.9	51.7	46.0	36.8	30.7	23.0	18.4	15.3	13.1	11.5	10.2	9.2	8.4	7.4	
2	55.3	52.0	49.1	40.6	32.4	27.0	20.3	16.2	13.5	11.6	10.1	9.0	8.1	7.4	6.5	
3	54.5	50.7	47.3	38.7	31.0	25.8	19.4	15.5	12.9	11.1	9.7	8.6	7.7	7.0	6.2	
4	53.9	49.6	45.9	37.8	30.3	25.2	18.9	15.1	12.6	10.8	9.5	8.4	7.6	6.9	6.1	80
5	53.4	48.7	44.7	37.3	29.8	24.9	18.6	14.9	12.4	10.7	9.3	8.3	7.5	-	-	
10	51.3	45.4	40.7	36.2	29.0	24.1	18.1	14.5	-	-	-	-	-	-	-	
15	49.9	43.1	38.0	34.0	28.7	23.9	-	-	-	-	-	-	-	-	-	
30	46.9	38.8	33.2	-	-	-	-	-	-	-	-	-	-	-	-	
1	56.1	53.4	50.9	39.0	31.2	26.0	19.5	15.6	13.0	11.1	9.7	8.7	7.8	7.1	6.2	
2	54.9	51.3	44.7	33.5	26.8	22.4	16.8	13.4	11.2	9.6	8.4	7.5	6.7	6.1	5.4	
3	54.1	49.8	42.3	31.7	25.4	21.1	15.9	12.7	10.6	9.1	7.9	7.0	6.3	5.8	5.1	
4	53.4	48.7	41.1	30.8	24.6	20.5	15.4	12.3	10.3	8.8	7.7	6.8	6.2	5.6	4.9	100
5	52.8	47.7	40.3	30.3	24.2	20.2	15.1	12.1	10.1	8.6	7.6	6.7	6.1	-	-	
10	50.5	44.2	38.9	29.2	23.3	19.4	14.6	11.7	-	-	-	-	-	-	-	
15	49.0	41.8	36.5	28.8	23.0	19.2	-	-	-	-	-	-	-	-	-	
30	45.7	37.3	31.5	-	-	-	-	-	-	-	-	-	-	-	-	
1	55.4	52.2	39.5	29.6	23.7	19.7	14.8	11.8	9.9	8.5	7.4	6.6	5.9	5.4	4.7	
2	54.1	48.3	32.2	24.2	19.3	16.1	12.1	9.7	8.1	6.9	6.0	5.4	4.8	4.4	3.9	
3	53.0	44.7	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	
4	52.2	42.9	28.6	21.4	17.2	14.3	10.7	8.6	7.1	6.1	5.4	4.8	4.3	3.9	3.4	150
5	51.5	41.8	27.9	20.9	16.7	13.9	10.5	8.4	7.0	6.0	5.2	4.6	4.2	-	-	
10	48.9	39.6	26.4	19.8	15.8	13.2	9.9	7.9	-	-	-	-	-	-	-	
15	47.1	38.9	25.9	19.4	15.6	13.0	-	-	-	-	-	-	-	-	-	
30	43.5	34.5	25.4	-	-	-	-	-	-	-	-	-	-	-	-	
1	54.1	40.5	27.0	20.3	16.2	13.5	10.1	8.1	6.8	5.8	5.1	4.5	4.1	3.7	3.2	
2	52.2	29.6	19.7	14.8	11.8	9.9	7.4	5.9	4.9	4.2	3.7	3.3	3.0	2.7	2.4	
3	50.9	26.0	17.3	13.0	10.4	8.7	6.5	5.2	4.3	3.7	3.2	2.9	2.6	2.4	2.1	
4	48.3	24.2	16.1	12.1	9.7	8.1	6.0	4.8	4.0	3.5	3.0	2.7	2.4	2.2	1.9	300
5	46.2	23.1	15.4	11.5	9.2	7.7	5.8	4.6	3.8	3.3	2.9	2.6	2.3	-	-	
10	41.8	20.9	13.9	10.5	8.4	7.0	5.2	4.2	-	-	-	-	-	-	-	
15	40.3	20.2	13.4	10.1	8.1	6.7	-	-	-	-	-	-	-	-	-	
30	38.9	19.4	13.0	-	-	-	-	-	-	-	-	-	-	-	-	

Serie de capacidad de carga

▣ 1.0 – 3 ~ - 3000 min^{-1}

Potencia de entrada al ánodo como una función de n (N° de exposiciones en serie), z (tasa de exposición por segundo), tiempo de exposición (seg)

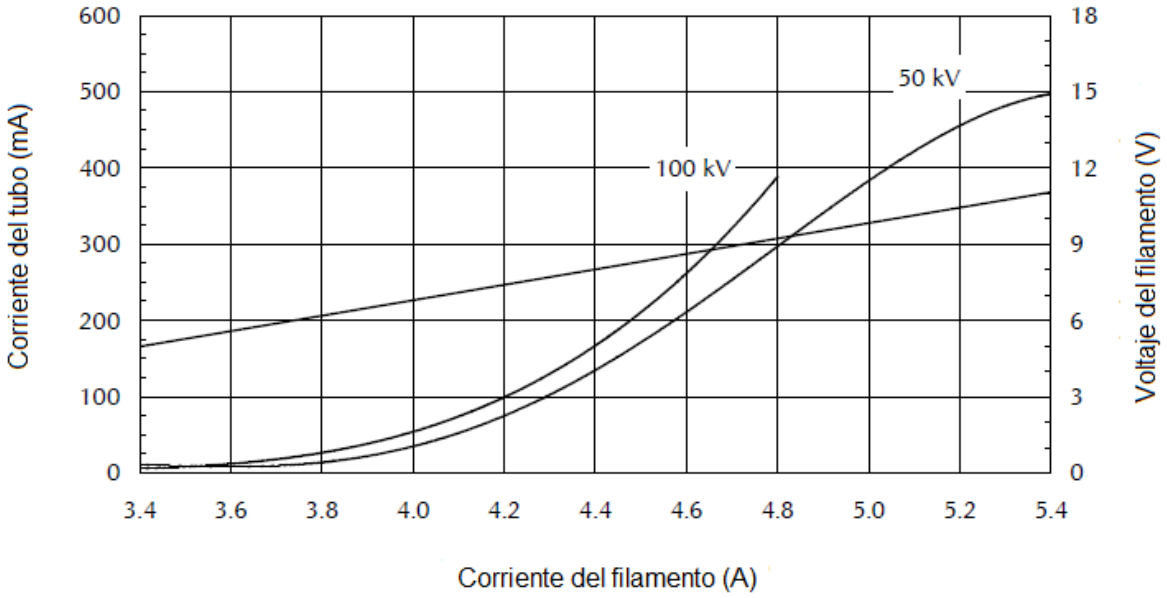
z	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.100	0.120	0.140	0.160	0.180	0.200	0.220	0.250	n
1	35.4	35.4	34.5	33.9	33.5	33.1	32.5	32.0	31.6	31.2	30.9	30.5	30.0	29.5	28.8	
2	35.1	35.1	34.5	33.9	33.5	33.1	32.4	31.6	30.8	30.1	29.4	28.7	28.1	27.5	26.6	
3	34.9	34.9	34.3	33.7	33.2	32.7	31.7	30.7	29.9	29.0	28.2	27.5	26.8	26.1	25.2	
4	34.7	34.7	34.0	33.4	32.8	32.2	31.1	30.1	29.1	28.2	27.3	26.5	25.8	25.0	24.0	5
5	34.5	34.5	33.8	33.1	32.5	31.8	30.6	29.5	28.5	27.5	26.6	25.7	24.9	-	-	
10	34.5	34.0	33.0	32.1	31.2	30.4	28.9	27.5	-	-	-	-	-	-	-	
15	34.5	33.5	32.4	31.3	30.3	29.4	-	-	-	-	-	-	-	-	-	
30	34.3	32.7	31.2	-	-	-	-	-	-	-	-	-	-	-	-	
1	35.1	35.1	34.5	33.9	33.5	33.1	32.4	31.6	30.8	30.1	29.4	28.7	28.1	27.5	26.6	
2	34.7	34.7	34.0	33.4	32.8	32.2	31.1	30.0	29.1	28.1	27.3	26.5	25.7	25.0	24.0	
3	34.5	34.4	33.6	32.8	32.1	31.4	30.1	28.9	27.8	26.8	25.9	25.0	24.2	23.4	22.3	
4	34.5	34.1	33.3	32.4	31.6	30.8	29.4	28.1	26.9	25.8	24.8	23.9	23.0	22.2	21.1	10
5	34.5	33.9	32.9	32.0	31.1	30.3	28.8	27.4	26.1	25.0	23.9	23.0	22.1	-	-	
10	34.5	33.1	31.8	30.6	29.5	28.5	26.6	24.9	-	-	-	-	-	-	-	
15	34.2	32.5	31.0	29.6	28.4	27.2	-	-	-	-	-	-	-	-	-	
30	33.5	31.3	29.4	-	-	-	-	-	-	-	-	-	-	-	-	
1	34.7	34.7	34.0	33.4	32.8	32.2	31.1	30.0	29.0	28.1	27.3	26.5	25.7	25.0	24.0	
2	34.5	34.1	33.2	32.4	31.6	30.8	29.4	28.1	26.9	25.8	24.8	23.8	23.0	22.2	21.1	
3	34.5	33.7	32.7	31.7	30.7	29.8	28.2	26.7	25.4	24.2	23.1	22.2	21.2	20.4	19.3	
4	34.5	33.4	32.2	31.1	30.0	29.1	27.3	25.7	24.3	23.1	21.9	20.9	20.0	19.1	18.0	20
5	34.5	33.1	31.8	30.6	29.5	28.4	26.5	24.9	23.4	22.1	21.0	19.9	19.0	-	-	
10	33.9	32.0	30.3	28.8	27.4	26.1	23.9	22.1	-	-	-	-	-	-	-	
15	33.5	31.2	29.3	27.5	26.0	24.6	-	-	-	-	-	-	-	-	-	
30	32.5	29.6	27.2	-	-	-	-	-	-	-	-	-	-	-	-	
1	34.5	34.1	33.2	32.4	31.6	30.8	29.4	28.1	26.9	23.2	20.3	18.0	16.2	14.7	13.0	
2	34.5	33.4	32.2	31.1	30.0	29.0	27.3	25.7	24.3	21.6	18.9	16.8	15.1	13.8	12.1	
3	34.4	32.8	31.4	30.1	28.9	27.8	25.9	24.1	22.6	21.1	18.5	16.4	14.8	13.4	11.8	
4	34.1	32.4	30.8	29.4	28.1	26.9	24.8	23.0	21.4	20.1	18.2	16.2	14.6	13.3	11.7	40
5	33.9	32.0	30.3	28.8	27.4	26.1	23.9	22.0	20.4	19.1	17.9	16.1	14.5	-	-	
10	33.1	30.6	28.4	26.5	24.9	23.4	21.0	19.0	-	-	-	-	-	-	-	
15	32.5	29.6	27.1	25.0	23.3	21.7	-	-	-	-	-	-	-	-	-	
30	31.2	27.5	24.6	-	-	-	-	-	-	-	-	-	-	-	-	
1	34.5	33.7	32.7	31.7	30.7	29.8	28.2	23.1	19.2	16.5	14.4	12.8	11.5	10.5	9.2	
2	34.4	32.8	31.4	30.1	28.9	27.8	25.9	20.9	17.4	14.9	13.1	11.6	10.5	9.5	8.4	
3	34.0	32.2	30.5	29.0	27.7	26.5	24.3	20.2	16.8	14.4	12.6	11.2	10.1	9.2	8.1	
4	33.7	31.7	29.8	28.2	26.7	25.4	23.1	19.8	16.5	14.2	12.4	11.0	9.9	9.0	7.9	60
5	33.5	31.2	29.2	27.5	25.9	24.6	22.2	19.6	16.3	14.0	12.2	10.9	9.8	-	-	
10	32.5	29.6	27.1	25.0	23.2	21.7	19.2	17.1	-	-	-	-	-	-	-	
15	31.8	28.4	25.7	23.4	21.5	19.9	-	-	-	-	-	-	-	-	-	
30	30.3	26.1	23.0	-	-	-	-	-	-	-	-	-	-	-	-	
1	34.5	33.4	32.2	31.1	30.0	29.0	23.0	18.4	15.3	13.1	11.5	10.2	9.2	8.4	7.4	
2	34.1	32.4	30.8	29.4	28.1	26.9	20.3	16.2	13.5	11.6	10.1	9.0	8.1	7.4	6.5	
3	33.7	31.7	29.8	28.2	26.7	25.4	19.4	15.5	12.9	11.1	9.7	8.6	7.7	7.0	6.2	
4	33.4	31.1	29.0	27.3	25.7	24.3	18.9	15.1	12.6	10.8	9.5	8.4	7.6	6.9	6.1	80
5	33.1	30.6	28.4	26.5	24.9	23.4	18.6	14.9	12.4	10.7	9.3	8.3	7.5	-	-	
10	32.0	28.8	26.1	23.9	22.0	20.4	17.9	14.5	-	-	-	-	-	-	-	
15	31.2	27.5	24.6	22.2	20.3	18.6	-	-	-	-	-	-	-	-	-	
30	29.6	25.0	21.7	-	-	-	-	-	-	-	-	-	-	-	-	
1	34.5	33.1	31.8	30.6	29.4	26.0	19.5	15.6	13.0	11.1	9.7	8.7	7.8	7.1	6.2	
2	33.9	32.0	30.3	28.7	26.8	22.4	16.8	13.4	11.2	9.6	8.4	7.5	6.7	6.1	5.4	
3	33.5	31.2	29.2	27.5	25.4	21.1	15.9	12.7	10.6	9.1	7.9	7.0	6.3	5.8	5.1	
4	33.1	30.6	28.4	26.5	24.6	20.5	15.4	12.3	10.3	8.8	7.7	6.8	6.2	5.6	4.9	100
5	32.8	30.0	27.7	25.7	24.0	20.2	15.1	12.1	10.1	8.6	7.6	6.7	6.1	-	-	
10	31.6	28.1	25.3	23.0	21.1	19.4	14.6	11.7	-	-	-	-	-	-	-	
15	30.7	26.7	23.7	21.2	19.3	17.6	-	-	-	-	-	-	-	-	-	
30	28.9	24.2	20.7	-	-	-	-	-	-	-	-	-	-	-	-	
1	34.2	32.5	31.0	29.5	23.7	19.7	14.8	11.8	9.9	8.5	7.4	6.6	5.9	5.4	4.7	
2	33.5	31.2	29.2	24.2	19.3	16.1	12.1	9.7	8.1	6.9	6.0	5.4	4.8	4.4	3.9	
3	32.9	30.3	28.0	22.4	17.9	14.9	11.2	8.9	7.5	6.4	5.6	5.0	4.5	4.1	3.6	
4	32.5	29.6	27.1	21.4	17.2	14.3	10.7	8.6	7.1	6.1	5.4	4.8	4.3	3.9	3.4	150
5	32.1	28.9	26.3	20.9	16.7	13.9	10.5	8.4	7.0	6.0	5.2	4.6	4.2	-	-	
10	30.7	26.7	23.7	19.8	15.8	13.2	9.9	7.9	-	-	-	-	-	-	-	
15	29.7	25.3	22.0	19.4	15.6	13.0	-	-	-	-	-	-	-	-	-	
30	27.7	22.5	18.9	-	-	-	-	-	-	-	-	-	-	-	-	
1	33.5	31.2	27.0	20.3	16.2	13.5	10.1	8.1	6.8	5.8	5.1	4.5	4.1	3.7	3.2	
2	29.6	29.5	19.7	14.8	11.8	9.9	7.4	5.9	4.9	4.2	3.7	3.3	3.0	2.7	2.4	
3	26.0	26.0	17.3	13.0	10.4	8.7	6.5	5.2	4.3	3.7	3.2	2.9	2.6	2.4	2.1	
4	24.2	24.2	16.1	12.1	9.7	8.1	6.0	4.8	4.0	3.5	3.0	2.7	2.4	2.2	1.9	300
5	23.1	23.1	15.4	11.5	9.2	7.7	5.8	4.6	3.8	3.3	2.9	2.6	2.3	-	-	
10	20.9	20.9	13.9	10.5	8.4	7.0	5.2	4.2	-	-	-	-	-	-	-	
15	20.2	20.2	13.4	10.1	8.1	6.7	-	-	-	-	-	-	-	-	-	
30	19.4	19.4	13.0	-	-	-	-	-	-	-	-	-	-	-	-	

Serie de capacidad de carga
■ 2.0 – 3 ~ - 3000 min^{-1}

Potencia de entrada al 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	68.9	68.9	66.6	65.0	63.8	62.8	61.3	60.0	58.9	58.0	57.2	56.4	55.1	53.9	52.2	
2	68.1	68.1	66.6	65.0	63.8	62.8	61.0	59.0	57.1	55.3	53.6	52.0	50.5	49.1	47.1	
3	67.5	67.5	66.0	64.5	63.1	61.7	59.2	56.9	54.7	52.7	50.8	49.1	47.5	46.0	43.9	
4	67.0	67.0	65.3	63.6	62.0	60.5	57.7	55.2	52.9	50.7	48.7	46.9	45.2	43.6	41.5	5
5	66.6	66.6	64.7	62.9	61.2	59.5	56.5	53.8	51.4	49.1	47.0	45.1	43.4	-	-	
10	66.6	65.1	62.5	60.2	58.0	56.0	52.3	49.1	-	-	-	-	-	-	-	
15	66.6	64.0	61.0	58.3	55.9	53.6	-	-	-	-	-	-	-	-	-	
30	66.0	61.8	58.1	-	-	-	-	-	-	-	-	-	-	-	-	
1	68.1	68.1	66.6	65.0	63.8	62.8	61.0	58.9	57.0	55.2	53.6	52.0	50.5	49.1	46.7	
2	67.0	67.0	65.3	63.6	62.0	60.5	57.7	55.1	52.8	50.6	48.6	46.8	45.1	43.5	41.4	
3	66.6	66.2	64.1	62.2	60.3	58.6	55.4	52.5	49.9	47.6	45.5	43.5	41.7	40.1	37.8	
4	66.6	65.6	63.2	61.0	59.0	57.1	53.6	50.5	47.8	45.3	43.1	41.1	39.3	37.6	35.3	10
5	66.6	65.0	62.4	60.0	57.8	55.8	52.1	48.9	46.0	43.5	41.2	39.2	37.3	-	-	
10	66.6	62.9	59.5	56.5	53.8	51.4	47.0	43.4	-	-	-	-	-	-	-	
15	65.8	61.4	57.5	54.2	51.1	48.4	-	-	-	-	-	-	-	-	-	
30	64.0	58.3	53.6	-	-	-	-	-	-	-	-	-	-	-	-	
1	67.0	67.0	65.3	63.6	62.0	60.5	57.7	55.1	50.4	43.2	37.8	33.6	30.3	27.5	24.2	
2	66.6	65.5	63.2	61.0	58.9	57.0	53.6	50.5	47.7	41.7	36.5	32.4	29.2	26.5	23.3	
3	66.6	64.5	61.7	59.2	56.8	54.6	50.8	47.4	44.5	41.2	36.0	32.0	28.8	26.2	23.0	
4	66.6	63.6	60.5	57.7	55.1	52.8	48.6	45.1	42.1	39.4	35.8	31.8	28.6	26.0	22.9	20
5	66.6	62.8	59.5	56.5	53.7	51.2	46.9	43.3	40.1	37.4	35.1	31.7	28.5	-	-	
10	65.0	60.0	55.8	52.1	48.9	46.0	41.2	37.3	-	-	-	-	-	-	-	
15	63.8	58.1	53.3	49.2	45.7	42.7	-	-	-	-	-	-	-	-	-	
30	61.4	54.2	48.4	-	-	-	-	-	-	-	-	-	-	-	-	
1	66.6	65.5	63.2	61.0	58.9	54.1	40.6	32.4	27.0	23.2	20.3	18.0	16.2	14.7	13.0	
2	66.6	63.6	60.5	57.7	55.1	50.4	37.8	30.3	25.2	21.6	18.9	16.8	15.1	13.8	12.1	
3	66.2	62.1	58.6	55.4	52.5	49.2	36.9	29.5	24.6	21.1	18.5	16.4	14.8	13.4	11.8	
4	65.5	61.0	57.0	53.6	50.5	47.7	36.5	29.2	24.3	20.8	18.2	16.2	14.6	13.3	11.7	40
5	65.0	60.0	55.8	52.1	48.8	46.0	36.2	29.0	24.1	20.7	18.1	16.1	14.5	-	-	
10	62.8	56.5	51.2	46.9	43.3	40.1	35.1	28.5	-	-	-	-	-	-	-	
15	61.3	54.0	48.3	43.6	39.8	36.6	-	-	-	-	-	-	-	-	-	
30	58.1	49.2	42.7	-	-	-	-	-	-	-	-	-	-	-	-	
1	66.6	64.5	61.7	57.7	46.2	38.5	28.8	23.1	19.2	16.5	14.4	12.8	11.5	10.5	9.2	
2	66.2	62.1	58.6	52.3	41.8	34.8	26.1	20.9	17.4	14.9	13.1	11.6	10.5	9.5	8.4	
3	65.3	60.5	56.4	50.4	40.3	33.6	25.2	20.2	16.8	14.4	12.6	11.2	10.1	9.2	8.1	
4	64.5	59.1	54.6	49.5	39.6	33.0	24.8	19.8	16.5	14.2	12.4	11.0	9.9	9.0	7.9	60
5	63.8	58.0	53.2	49.0	39.2	32.7	24.5	19.6	16.3	14.0	12.2	10.9	9.8	-	-	
15	31.8	28.4	25.7	23.4	21.5	19.9	-	-	-	-	-	-	-	-	-	
30	30.3	26.1	23.0	-	-	-	-	-	-	-	-	-	-	-	-	
1	34.5	33.4	32.2	31.1	30.0	29.0	23.0	18.4	15.3	13.1	11.5	10.2	9.2	8.4	7.4	
2	34.1	32.4	30.8	29.4	28.1	26.9	20.3	16.2	13.5	11.6	10.1	9.0	8.1	7.4	6.5	
3	33.7	31.7	29.8	28.2	26.7	25.4	19.4	15.5	12.9	11.1	9.7	8.6	7.7	7.0	6.2	
4	33.4	31.1	29.0	27.3	25.7	24.3	18.9	15.1	12.6	10.8	9.5	8.4	7.6	6.9	6.1	80
5	33.1	30.6	28.4	26.5	24.9	23.4	18.6	14.9	12.4	10.7	9.3	8.3	7.5	-	-	
10	32.0	28.8	26.1	23.9	22.0	20.4	17.9	14.5	-	-	-	-	-	-	-	
15	31.2	27.5	24.6	22.2	20.3	18.6	-	-	-	-	-	-	-	-	-	
30	29.6	25.0	21.7	-	-	-	-	-	-	-	-	-	-	-	-	
1	34.5	33.1	31.8	30.6	29.4	26.0	19.5	15.6	13.0	11.1	9.7	8.7	7.8	7.1	6.2	
2	33.9	32.0	30.3	28.7	26.8	22.4	16.8	13.4	11.2	9.6	8.4	7.5	6.7	6.1	5.4	
3	33.5	31.2	29.2	27.5	25.4	21.1	15.9	12.7	10.6	9.1	7.9	7.0	6.3	5.8	5.1	
4	33.1	30.6	28.4	26.5	24.6	20.5	15.4	12.3	10.3	8.8	7.7	6.8	6.2	5.6	4.9	100
5	32.8	30.0	27.7	25.7	24.0	20.2	15.1	12.1	10.1	8.6	7.6	6.7	6.1	-	-	
10	31.6	28.1	25.3	23.0	21.1	19.4	14.6	11.7	-	-	-	-	-	-	-	
15	30.7	26.7	23.7	21.2	19.3	17.6	-	-	-	-	-	-	-	-	-	
30	28.9	24.2	20.7	-	-	-	-	-	-	-	-	-	-	-	-	
1	34.2	32.5	31.0	29.5	23.7	19.7	14.8	11.8	9.9	8.5	7.4	6.6	5.9	5.4	4.7	
2	33.5	31.2	29.2	24.2	19.3	16.1	12.1	9.7	8.1	6.9	6.0	5.4	4.8	4.4	3.9	
3	32.9	30.3	28.0	22.4	17.9	14.9	11.2	8.9	7.5	6.4	5.6	5.0	4.5	4.1	3.6	
4	32.5	29.6	27.1	21.4	17.2	14.3	10.7	8.6	7.1	6.1	5.4	4.8	4.3	3.9	3.4	150
5	32.1	28.9	26.3	20.9	16.7	13.9	10.5	8.4	7.0	6.0	5.2	4.6	4.2	-	-	
10	30.7	26.7	23.7	19.8	15.8	13.2	9.9	7.9	-	-	-	-	-	-	-	
15	29.7	25.3	22.0	19.4	15.6	13.0	-	-	-	-	-	-	-	-	-	
30	27.7	22.5	18.9	-	-	-	-	-	-	-	-	-	-	-	-	
1	33.5	31.2	27.0	20.3	16.2	13.5	10.1	8.1	6.8	5.8	5.1	4.5	4.1	3.7	3.2	
2	29.6	29.5	19.7	14.8	11.8	9.9	7.4	5.9	4.9	4.2	3.7	3.3	3.0	2.7	2.4	
3	26.0	26.0	17.3	13.0	10.4	8.7	6.5	5.2	4.3	3.7	3.2	2.9	2.6	2.4	2.1	
4	24.2	24.2	16.1	12.1	9.7	8.1	6.0	4.8	4.0	3.5	3.0	2.7	2.4	2.2	1.9	300
5	23.1	23.1	15.4	11.5	9.2	7.7	5.8	4.6	3.8	3.3	2.9	2.6	2.3	-	-	
10	20.9	20.9	13.9	10.5	8.4	7.0	5.2	4.2	-	-	-	-	-	-	-	
15	20.2	20.2	13.4	10.1	8.1	6.7	-	-	-	-	-	-	-	-	-	
30	19.4	19.4	13.0	-	-	-	-	-	-	-	-	-	-	-	-	

Características de emisión del cátodo
◘ 1.0 – 3 ~ - (± 0.2 A)



Características de emisión del cátodo
■ 2.0 – 3 ~ - (± 0.2 A)