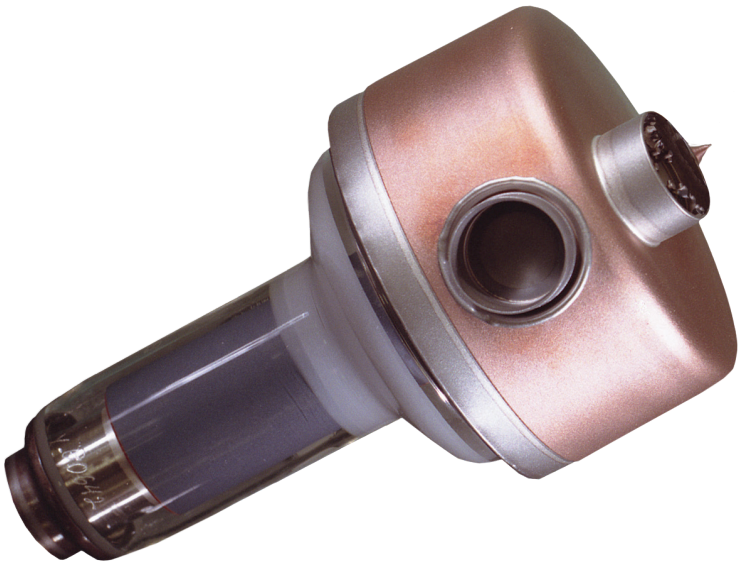
M-113T

Rotating Anode X-Ray Tube
Tubes Radiogénes à Anode Tournante
Röntgenröhre mit rotierender Anode
Tubos de Rayos-X con Ánodo Giratorio



Note: Document originally drafted in the English language.
Note : Document à l'origine rédigé dans l'anglais.
Anmerkung: Dokument ursprünglich gezeichnet in der englischen Sprache.
Nota: Documento elaborado originalmente en la lengua inglesa.

Product Description

The M-113T is a 3.0" (77 mm) 49 kV, 222 kJ (300 kHU) maximum anode heat content, rotating anode insert. This insert is specifically designed for use in Mammography systems. The insert features a 10° and 16° biangular rhenium tungsten molybdenum target and is available with the following nominal focal spots:

0.1 (10°) - 0.3 (16°)
IEC 60336

Loading Factor for Resolution:
Small - 25 kV, 30 mA
Large - 25 kV, 100 mA

Continuous Anode Input
Power: 714 Watts

Nominal Anode Input Power:
Small - 2.5 kW IEC 60613
Large - 9.9 kW IEC 60613
For the equivalent anode input power of 60 Watts

Description du Produit

Le tube M-113T, est un tube à anode tournante de 77 mm, (3,0 pouces) de diamètre; sa dissipation thermique calorifique maxima est de 222 kJ, soit 300 kUC et a une puissance de 49 kV. L'anode est particulicèrement adaptée à la mammographie; la pente de l'anode est double: 10° et 16° et composée en rhenium-tungsténe et molybdène; le tube a des foyers de:

0,1 (10°) - 0,3 (16°)
IEC 60336

Facteurs de chargement pour la résolution:
Petit - 25 kV, 30 mA
Grand - 25 kV, 100 mA

Puissance anodique nominale de l'anode:
Petit foyer - 2.5 kW CEI 60613
Grand foyer - 9.9 kW CEI 60613
Pour la puissance anodique d'equilibre thermique de 60 Watts

Produktbeschreibung

Die M-113T ist eine 77 mm (3.0") Doppelfokus Drehanoden-Röntgenröhre, mit einer Anoden Wärmespeicherkapazität von 222 kJ (300 kHU) und einer max. Spannungsfestigkeit von 49 kV. Diese Röhre findet ihren speziellen Einsatz in Mammographie Röntgensystemen. Der Rhenium, Wolfram, und Molybdän Anodenteller besitzt einen Doppelwinkel von 10°, bzw. 16° Folgende Brennfleckkombination sind lieferbar:

0.1 (10°) - 0.3 (16°)
IEC 60336

Ladefaktoren für Auflösung:
Klein - 25 kV, 30 mA
Gross - 25 kV, 100 mA

Nominale Anoden-bezugsleistung:
Klein - 2.5 kW IEC 60613
Gross - 9.9 kW IEC 60613
Gilt bei einer Aquivalent - Anodenleistung von 60 Watts

Descripcion del Producto

El M-113T es un tubo de ánodo giratorio de 77 mm (3.0"), 49 kV, 222 kJ (300 kHU) diseñado especificamente para uso en el sistema de mamografia. Consta de un objectivo aleado de renio, tungsteno y molibdeno de dos grados (10° y 16°) biangulares. Disponible con las siguientes combinaciones de marcas focales:

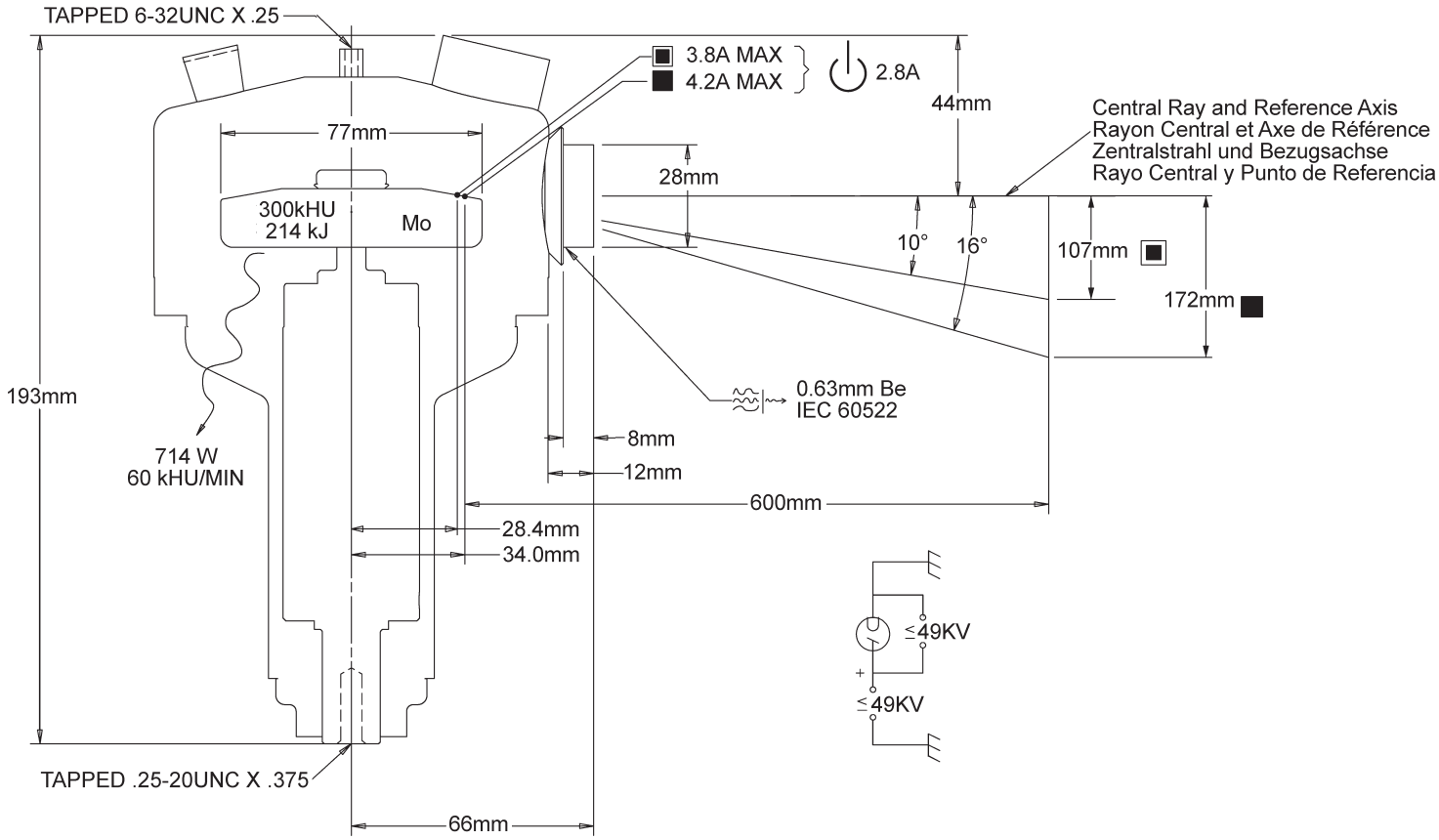
0.1 (10°) - 0.3 (16°)
IEC 60336

Factores del cargamento para la resolución:
Pequeño - 25 kV, 30 mA
Grande - 25 kV, 100 mA

Potencia nominal de entrada del anodo:
Foco fine - 2.5 kW IEC 60613
Foco grueso - 9.9 kW IEC 60613
Para una potencia equivalente del anodo de 60 Watts

Tube Outline Drawing
Dessin d'Encombrement de la Tube
Maßzeichnungen des Drehanoden-Röntgenröhre
Esquema Detallado del Tubos

Dimensions are for reference only
Les dimensions sont pour la référence seulement
Maße sind als nur Referenz
Las dimensiones están para la referencia solamente



Small -White
Petit - Blanc
Klein - Weiss
Pequeño - Blanco

Large - Black
Grand - Noir
Gross - Schwarz
Largo - Negro

Stand-By
Attente
Bereitschaft
En Espera

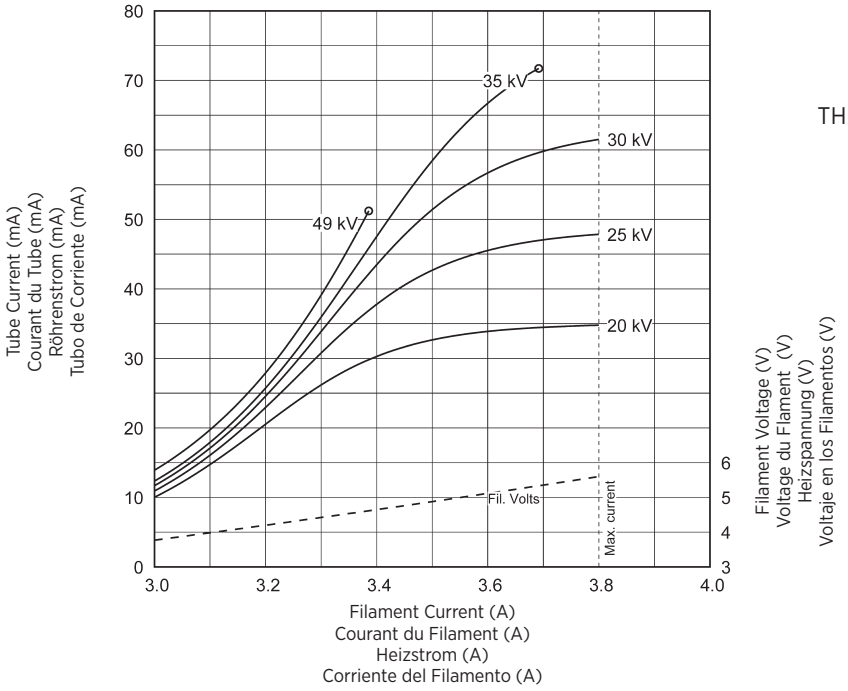
Frame or Chasis
Masse
Chassis
Soporte o Chasis

X-Ray Tube
Tube Radiogène
Röntgenröhre
Tubo de Rayos X

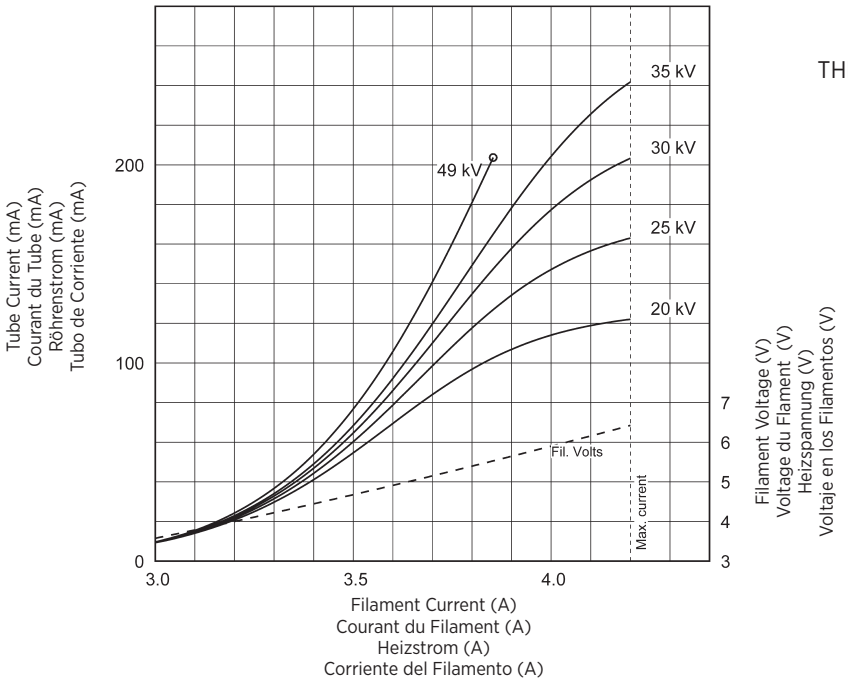
Radiation Filter or Filtration
Filtre de rayonnement
Filterung
Filtración de Radiación

3 Ø Full Wave

Filament Emission Charts IEC 60613
Abaques d' Émissions des Filaments CIE 60613
Heizfadenemissionsdiagramm IEC 60613
Curvas de Emisión de los Filamentos IEC 60613



THREE PHASE EMISSION (± .15 A)
0.1



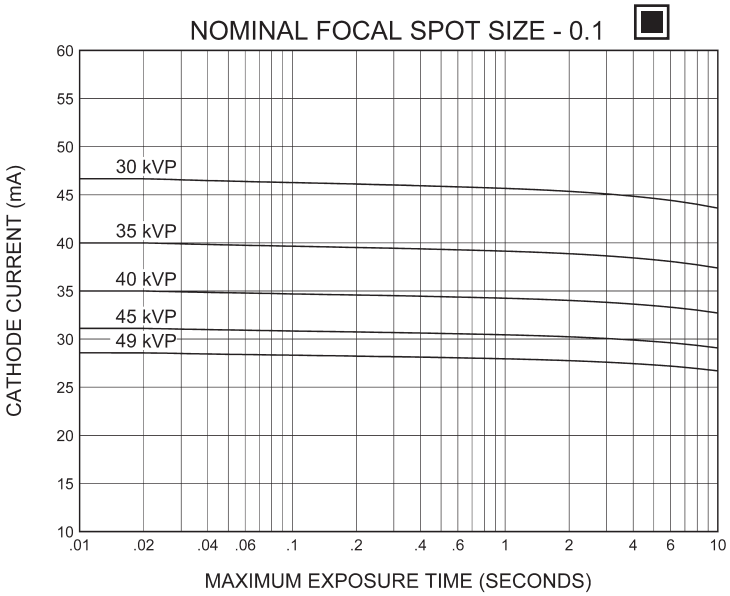
THREE PHASE EMISSION (± .15 A)
0.3

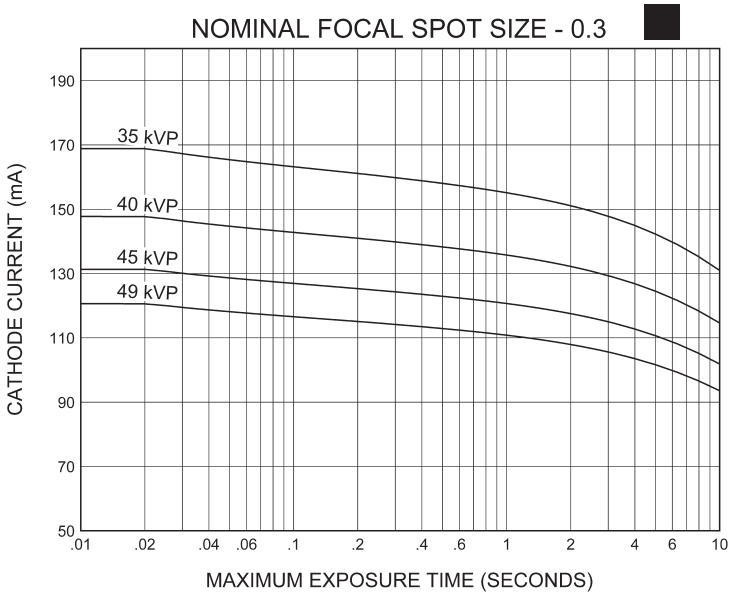
Note: When using these emission curves for trial exposures, refer to the power rating curves shown for maximum kV, tube emission, filament current, exposure time, and target speed.	**Remarque:** Lors de l'utilisation de ces abaques pour des expositions d'essai, référez-vous aux courbes maximales de kV, d'émission du filament, de temps d'exposition et de vitesse de rotation.	**Anmerkung:** Wenn Sie diese Emissionskurven für Testaufnahmen verwenden, beziehen Sie sich hierbei auf die entsprechenden Nennleistungskurven für max. kV-Werte, Röhrenemission, Heizstrom, und Anodendrehzahl.	**Nota:** Si utiliza estas curvas de emisión para exposiciones de prueba, refiérase a las curvas de gradación de potencia para el máximo de kV, tubo de emisión, corriente en los filamentos, tiempo de exposión, y a las curvas de velocidad del objetivo.

Single Load Ratings IEC 60613
Abaques de Chargepour Pose Unique CEI 60613
Brennfleck - Belastungskurven IEC 60613
Diagramas de Exposición Radiográfica IEC 60613

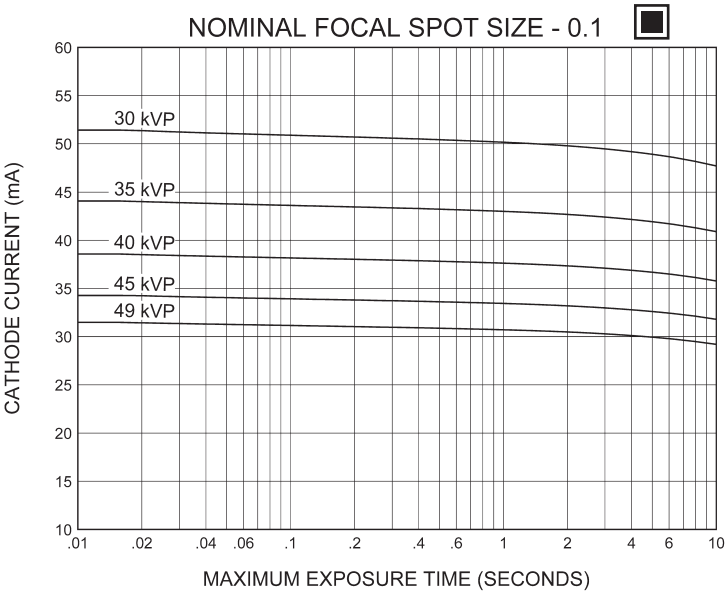
3 Ø Constant Potential ⎓

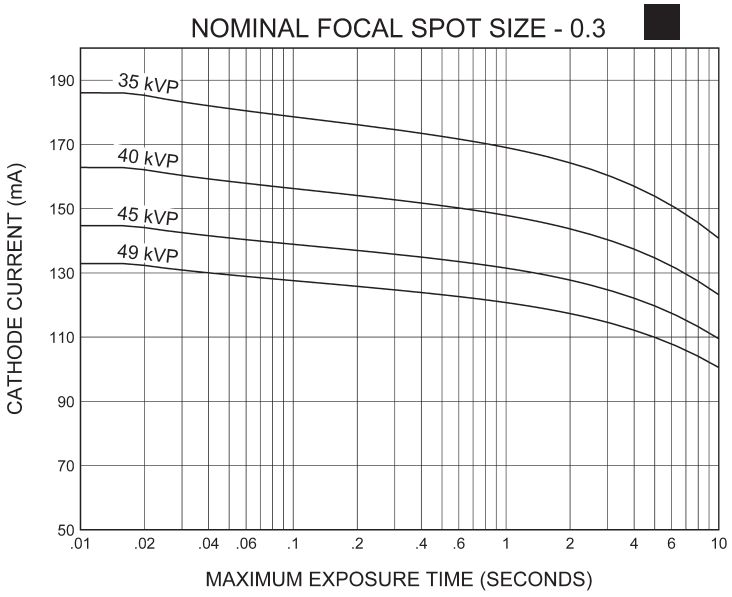
50 Hz





60 Hz



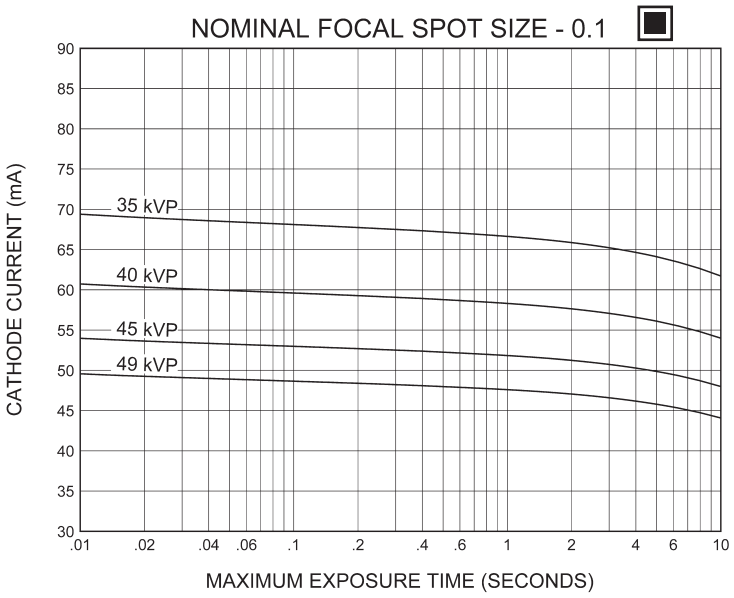


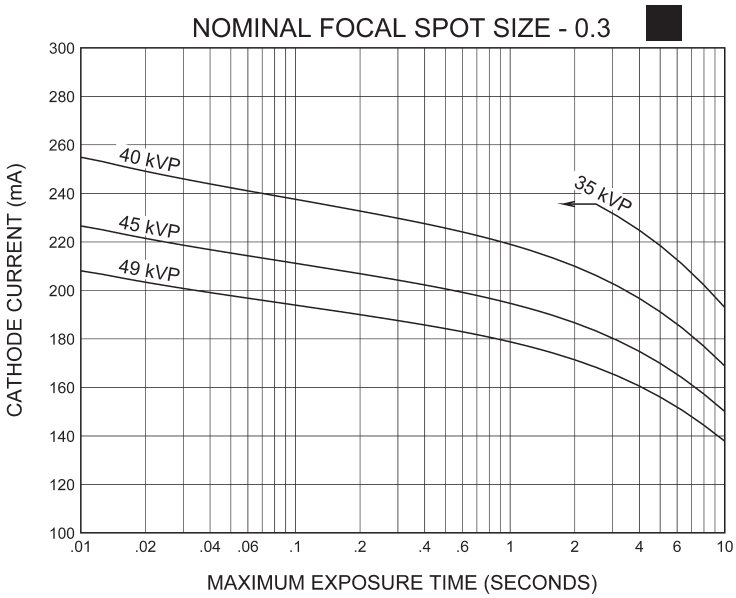
Nominal anode input power for the anode heat content 40%. IEC 60613	Puissance calorifique nominale de l'anode: 40%, CEI 60613	Thermische Anodenbezugsleistung bei einer Wärmespeicherung von 40%. IEC 60613	Aproximadamente el poder de penetracion para obtener un almacenaje de calor del anodo de 40%. IEC 60613

Single Load Ratings IEC 60613
Abaques de Chargepour Pose Unique CEI 60613
Brennfleck - Belastungskurven IEC 60613
Diagramas de Exposición Radiográfica IEC 60613

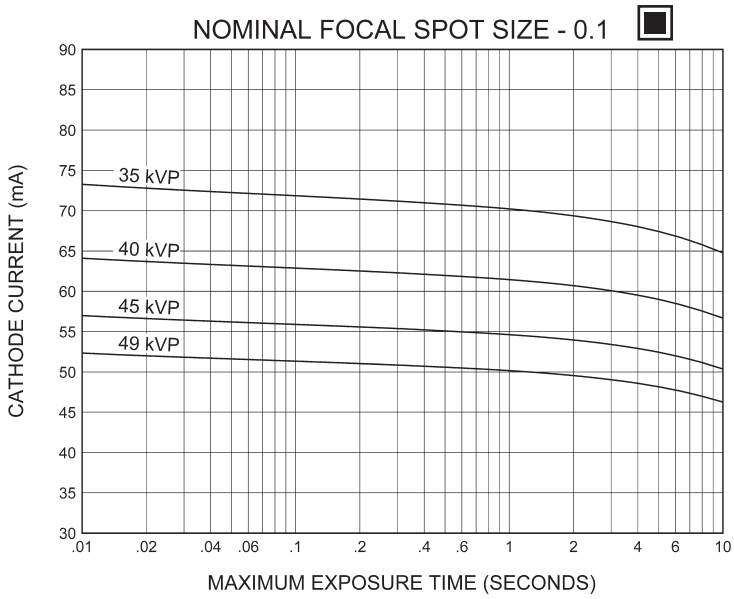
3 Ø Constant Potential ⎓

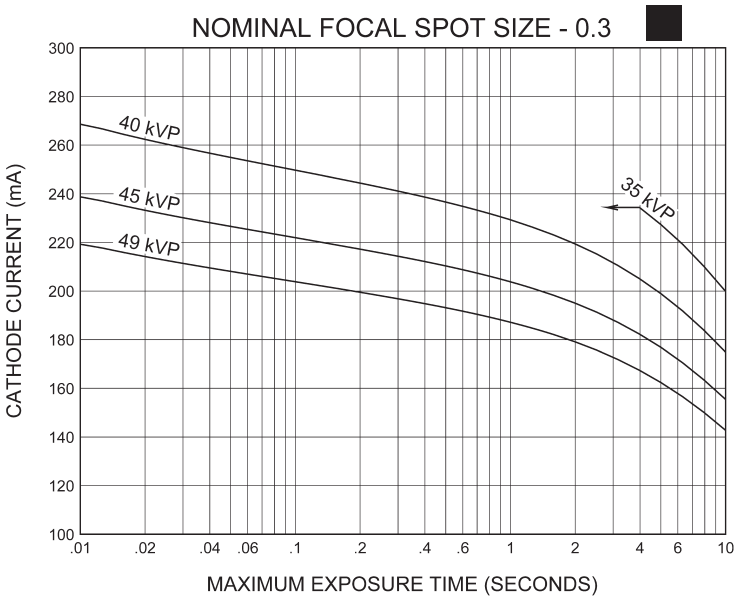
150 Hz





180 Hz





Nominal anode input power for the anode heat content 40%. IEC 60613	Puissance calorifique nominale de l'anode: 40%, CEI 60613	Thermische Anodenbezugsleistung bei einer Wärmespeicherung von 40%. IEC 60613	Aproximadamente el poder de penetracion para obtener un almacenaje de calor del anodo de 40%. IEC 60613

VOLUMETRIC/HELICAL SCAN RATING CHART

M-113T FOCAL SPOT: 0.1 10 Degrees 3 PHASE 2800 RPM

Volume scan time (seconds)	Maximum allowed tube current (mA) as a function of the following starting heat storage and tube voltages								
	Starting heat storage = 20 %			Starting heat storage = 40 %			Starting heat storage = 60 %		
	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV
1	30	30	20	30	30	20	30	30	20
2	30	30	20	30	30	20	30	30	20
3	30	30	20	30	30	20	30	30	20
4	30	30	20	30	30	20	30	30	20
5	30	30	20	30	30	20	30	30	20
6	30	30	20	30	30	20	30	30	20
8	30	30	20	30	30	20	30	30	20
10	30	30	20	30	30	20	30	30	20
15	30	30	20	30	30	20	30	30	20
20	30	30	20	30	30	20	30	30	20

NOTES
1. *(kW) of scan equals mA x kVp ÷ 1000*
   For example – 70 kV x 300 mA = 21 kW
2. *Limits are based on maximum track rating except for the following codes:*
   (a) – limited by available heat storage
   (b) – limited by window heating
   (c) – limited by filament emission

Thu Mar 14 12:48:18 2024

VOLUMETRIC/HELICAL SCAN RATING CHART

M-113T FOCAL SPOT: 0.1 10 Degrees 3 PHASE 3400 RPM

Volume scan time (seconds)	Maximum allowed tube current (mA) as a function of the following starting heat storage and tube voltages								
	Starting heat storage = 20 %			Starting heat storage = 40 %			Starting heat storage = 60 %		
	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV
1	40	30	30	40	30	30	40	30	30
2	40	30	30	40	30	30	40	30	30
3	40	30	30	40	30	30	40	30	30
4	40	30	30	40	30	30	40	30	30
5	40	30	30	40	30	30	40	30	30
6	40	30	30	40	30	30	40	30	30
8	40	30	30	40	30	30	40	30	30
10	40	30	30	40	30	30	40	30	30
15	40	30	30	40	30	30	40	30	30
20	40	30	30	40	30	30	40	30	30

NOTES
1. *(kW) of scan equals mA x kVp ÷ 1000*
   For example – 70 kV x 300 mA = 21 kW
2. *Limits are based on maximum track rating except for the following codes:*
   (a) – limited by available heat storage
   (b) – limited by window heating
   (c) – limited by filament emission

Thu Mar 14 12:48:54 2024

VOLUMETRIC/HELICAL SCAN RATING CHART

M-113T FOCAL SPOT: 0.1 10 Degrees 3 PHASE 8500 RPM

Volume scan time (seconds)	Maximum allowed tube current (mA) as a function of the following starting heat storage and tube voltages								
	Starting heat storage = 20 %			Starting heat storage = 40 %			Starting heat storage = 60 %		
	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV
1	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
2	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
3	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
4	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
5	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
6	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
8	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
10	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
15	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
20	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40

NOTES
1. *(kW) of scan equals mA x kVp ÷ 1000*
   For example – 70 kV x 300 mA = 21 kW
2. *Limits are based on maximum track rating except for the following codes:*
   (a) – limited by available heat storage
   (b) – limited by window heating
   (c) – limited by filament emission

Thu Mar 14 12:49:19 2024

VOLUMETRIC/HELICAL SCAN RATING CHART

M-113T FOCAL SPOT: 0.1 10 Degrees 3 PHASE 9600 RPM

Volume scan time (seconds)	Maximum allowed tube current (mA) as a function of the following starting heat storage and tube voltages								
	Starting heat storage = 20 %			Starting heat storage = 40 %			Starting heat storage = 60 %		
	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV
1	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
2	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
3	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
4	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
5	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
6	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
8	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
10	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
15	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40
20	50 (c)	50	40	50 (c)	50	40	50 (c)	50	40

NOTES
1. *(kW) of scan equals mA x kVp ÷ 1000*
   For example – 70 kV x 300 mA = 21 kW
2. *Limits are based on maximum track rating except for the following codes:*
   (a) – limited by available heat storage
   (b) – limited by window heating
   (c) – limited by filament emission

Thu Mar 14 12:49:44 2024

VOLUMETRIC/HELICAL SCAN RATING CHART

M-113T FOCAL SPOT: 0.3 16 Degrees 3 PHASE 2800 RPM

Volume scan time (seconds)	Maximum allowed tube current (mA) as a function of the following starting heat storage and tube voltages								
	Starting heat storage = 20 %			Starting heat storage = 40 %			Starting heat storage = 60 %		
	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV
1	150	130	110	150	130	110	150	130	110
2	150	130	110	150	130	110	150	130	110
3	150	130	110	150	130	110	150	130	110
4	150	130	110	150	130	110	150	130	110
5	150	130	110	150	130	110	150	130	110
6	150	130	110	150	130	110	150	130	110
8	150	130	110	150	130	110	150	130	110
10	150	130	110	150	130	110	150	130	110
15	150	130	110	150	130	110	110 (a)	90 (a)	80 (a)
20	150	130	110	130 (a)	110 (a)	90 (a)	90 (a)	70 (a)	60 (a)

NOTES
1. *(kW) of scan equals mA x kVp ÷ 1000*
   For example – 70 kV x 300 mA = 21 kW
2. *Limits are based on maximum track rating except for the following codes:*
   (a) – limited by available heat storage
   (b) – limited by window heating
   (c) – limited by filament emission

Thu Mar 14 12:50:15 2024

VOLUMETRIC/HELICAL SCAN RATING CHART

M-113T FOCAL SPOT: 0.3 16 Degrees 3 PHASE 3400 RPM

Volume scan time (seconds)	Maximum allowed tube current (mA) as a function of the following starting heat storage and tube voltages								
	Starting heat storage = 20 %			Starting heat storage = 40 %			Starting heat storage = 60 %		
	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV
1	160 (c)	140	120	160 (c)	140	120	160 (c)	140	120
2	160 (c)	140	120	160 (c)	140	120	160 (c)	140	120
3	160 (c)	140	120	160 (c)	140	120	160 (c)	140	120
4	160 (c)	140	120	160 (c)	140	120	160 (c)	140	120
5	160 (c)	140	120	160 (c)	140	120	160 (c)	140	120
6	160 (c)	140	120	160 (c)	140	120	160 (c)	140	120
8	160 (c)	140	120	160 (c)	140	120	160 (c)	140	120
10	160 (c)	140	120	160 (c)	140	120	160 (c)	140 (a)	120 (a)
15	160 (c)	140	120	160 (c)	140	120	110 (a)	90 (a)	80 (a)
20	160 (c)	140	120	130 (a)	110 (a)	90 (a)	90 (a)	70 (a)	60 (a)

NOTES
1. *(kW) of scan equals mA x kVp ÷ 1000*
   For example – 70 kV x 300 mA = 21 kW
2. *Limits are based on maximum track rating except for the following codes:*
   (a) – limited by available heat storage
   (b) – limited by window heating
   (c) – limited by filament emission

Thu Mar 14 12:50:41 2024

VOLUMETRIC/HELICAL SCAN RATING CHART

M-113T FOCAL SPOT: 0.3 16 Degrees 3 PHASE 8500 RPM

Volume scan time (seconds)	Maximum allowed tube current (mA) as a function of the following starting heat storage and tube voltages								
	Starting heat storage = 20 %			Starting heat storage = 40 %			Starting heat storage = 60 %		
	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV
1	160 (c)	210 (c)	180	160 (c)	210 (c)	180	160 (c)	210 (c)	180
2	160 (c)	210 (c)	180	160 (c)	210 (c)	180	160 (c)	210 (c)	180
3	160 (c)	210 (c)	180	160 (c)	210 (c)	180	160 (c)	210 (c)	180
4	160 (c)	210 (c)	180	160 (c)	210 (c)	180	160 (c)	210 (c)	180
5	160 (c)	210 (c)	180	160 (c)	210 (c)	180	160 (c)	210 (c)	180
6	160 (c)	210 (c)	180	160 (c)	210 (c)	180	160 (c)	210 (c)	180
8	160 (c)	210 (c)	180	160 (c)	210 (c)	180	160 (c)	170 (a)	140 (a)
10	160 (c)	210 (c)	180	160 (c)	210 (c)	180	160 (c)	140 (a)	120 (a)
15	160 (c)	200 (a)	170 (a)	160 (c)	150 (a)	130 (a)	110 (a)	90 (a)	80 (a)
20	160 (c)	150 (a)	130 (a)	130 (a)	110 (a)	90 (a)	90 (a)	70 (a)	60 (a)

NOTES

1. *(kW) of scan equals mA x kVp ÷ 1000*
   For example – 70 kV x 300 mA = 21 kW
2. *Limits are based on maximum track rating except for the following codes:*
   (a) – limited by available heat storage
   (b) – limited by window heating
   (c) – limited by filament emission

Thu Mar 14 12:51:08 2024

VOLUMETRIC/HELICAL SCAN RATING CHART

M-113T FOCAL SPOT: 0.3 16 Degrees 3 PHASE 9600 RPM

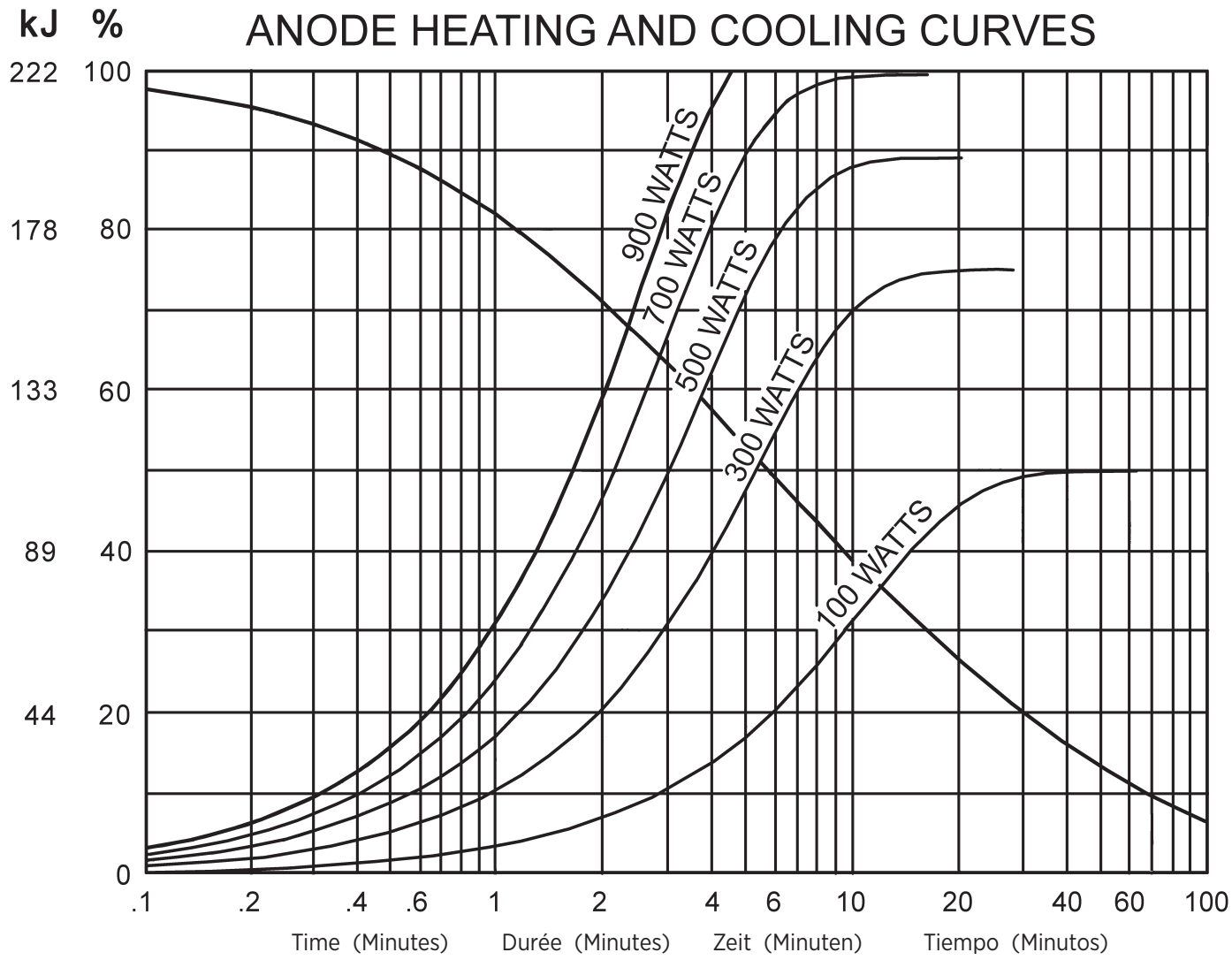
Volume scan time (seconds)	Maximum allowed tube current (mA) as a function of the following starting heat storage and tube voltages								
	Starting heat storage = 20 %			Starting heat storage = 40 %			Starting heat storage = 60 %		
	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV	25 kV	30 kV	35 kV
1	160 (c)	210 (c)	190	160 (c)	210 (c)	190	160 (c)	210 (c)	190
2	160 (c)	210 (c)	190	160 (c)	210 (c)	190	160 (c)	210 (c)	190
3	160 (c)	210 (c)	190	160 (c)	210 (c)	190	160 (c)	210 (c)	190
4	160 (c)	210 (c)	190	160 (c)	210 (c)	190	160 (c)	210 (c)	190
5	160 (c)	210 (c)	190	160 (c)	210 (c)	190	160 (c)	210 (c)	190
6	160 (c)	210 (c)	190	160 (c)	210 (c)	190	160 (c)	210 (c)	190
8	160 (c)	210 (c)	190	160 (c)	210 (c)	190	160 (c)	170 (a)	140 (a)
10	160 (c)	210 (c)	190	160 (c)	210 (c)	190 (a)	160 (c)	140 (a)	120 (a)
15	160 (c)	200 (a)	170 (a)	160 (c)	150 (a)	130 (a)	110 (a)	90 (a)	80 (a)
20	160 (c)	150 (a)	130 (a)	130 (a)	110 (a)	90 (a)	90 (a)	70 (a)	60 (a)

NOTES

1. *(kW) of scan equals mA x kVp ÷ 1000*
   For example – 70 kV x 300 mA = 21 kW
2. *Limits are based on maximum track rating except for the following codes:*
   (a) – limited by available heat storage
   (b) – limited by window heating
   (c) – limited by filament emission

Thu Mar 14 12:51:37 2024

Anode Heating & Cooling Chart
Abaques d' Échauffement et de Refroidissement de L'Anode
Anoden Aufheiz - und Abkühl Kurven
Curvas de Calentamiento y Enfriamiento del Anodo



Salt Lake City, UT 1-801-972-5000

For a complete listing of our global offices, visit www.varexim aging.com

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