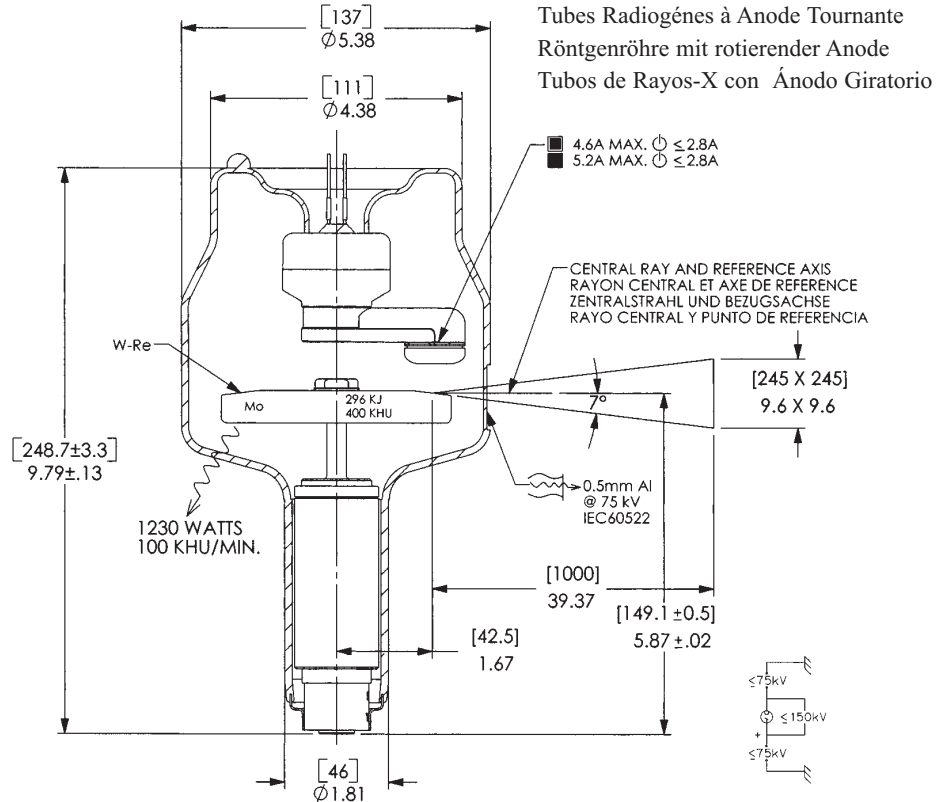


- Large - Black  
Grand - Noir  
Gross - Schwarz  
Largo - Negro
- Small - White  
Petit - Blanc  
Klein - Weiss  
Pequeño - Blanco
- ⏻ Stand - By  
Attente  
Bereitschaft  
En Espera
- ⚡ Frame or Chasis  
Masse  
Chassis  
Soporte o Chasis
- ⊕ X-Ray Tube  
Tube Radiogène  
Röntgenröhre  
Tubo de Rayos X
- ⚡ Radiation Filter or Filtration  
Filtre de rayonnement  
Filterung  
Filtración de Radiación

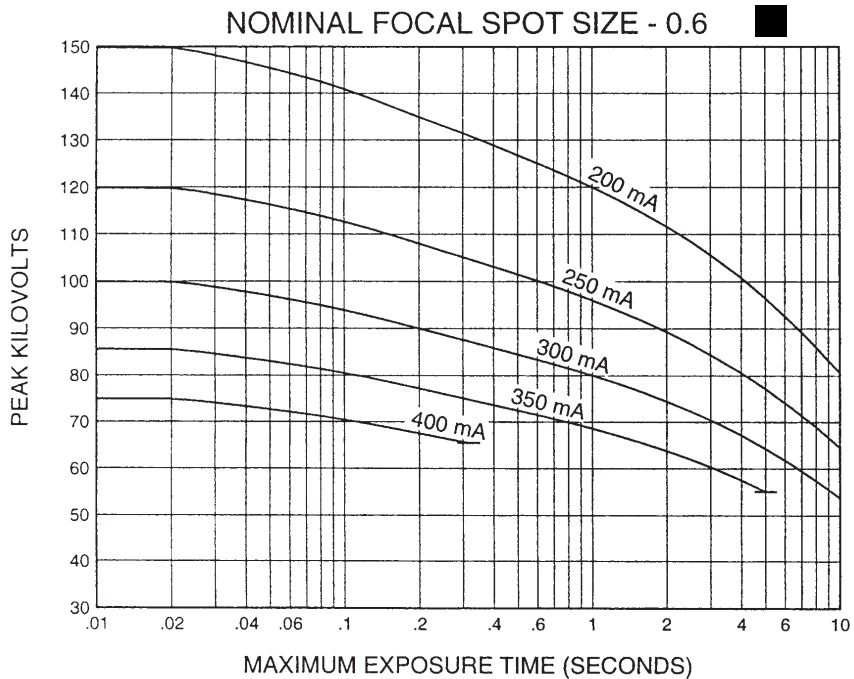
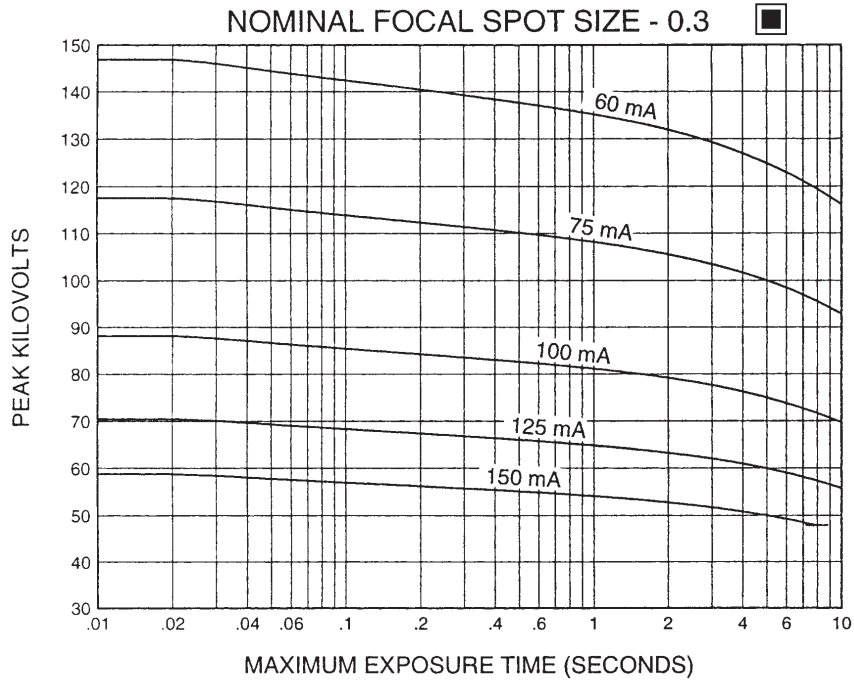


Note: Document originally drafted in the English language.

Product Description	Description du Produit	Produktbeschreibung	Descripcion del Producto
<p>The A-272 is a 4" (102 mm) 150 kV, 300 kJ (400 kHU) maximum anode heat content, rotating anode insert. This insert is specifically designed for heavy duty general radio-graphic and fluoro/spotfilm procedures. The insert features a 7° rhenium-tungsten molybdenum target and is available with the following nominal focal spots:</p> <p style="text-align: center;">0.3 - 0.6 IEC 60336</p> <p><b>Nominal Anode Input Power</b> Small - 15 kW IEC 60613 Large - 48 kW IEC 60613</p> <p>For the equivalent anode input power of 125 Watts</p> <p>This insert is intended for use in Varian B-130 housings.</p> <p>A-274 models have grid control capability.</p>	<p>Le tube A-272, à anode tournante de 102 mm, (4 pouces), 150 kV, avec une capacité calorifique maximale de 300 kJ (400 kUC) est à usage spécifique pour la radiographie de grande puissance et pour la radio-fluorographie. L'anode composite en Rhénium - Tungstène Molybdène avec pente d'anode de 7° est disponible avec les combinaisons focales suivantes:</p> <p style="text-align: center;">0,3 - 0,6 CEI 60336</p> <p><b>Puissance anodique nominale</b> Petit foyer - 15 kW CEI 60613 Grand foyer - 48 kW CEI 60613</p> <p>Pour la puissance anodique d'équilibre thermique de 125 Watts</p> <p>Ce tube est essentiellement destiné à être employé dans les gaines Varian des séries B-130.</p> <p>Les Modèles A-274 ont une fonction de commande de grille.</p>	<p>Die A-272 ist eine 4" (102 mm) Doppelfokus Drehanoden-Röntgenröhre, mit einer Anoden Wärmespeicherkapazität von 300 kJ (400 kHU) und einer max. Spannungsfestigkeit von 150 kV. Die Röhre wurde für stark frequentierte Aufnahmearbeitsplätze und für den Durchleuchtungs- und Zielgerätebetrieb (1mm FFA) ausgelegt. Der Rhenium, Wolfram, und Molybdän Anodenteller besitzt einen Winkel von 7°. Folgende Brennfleckkombination ist lieferbar:</p> <p style="text-align: center;">0.3 - 0.6 IEC 60336</p> <p><b>Nominale Anodenbezugsleistung</b> Klein - 15 kW IEC 60613 Gross - 48 kW IEC 60613</p> <p>Gilt bei einer Aequivalent - Anodenleistung von 125 Watt</p> <p>Diese Röntgenröhre ist für den Einbau in die Varian Strahlerhaube B-130 vorgesehen.</p> <p>Modell A-274 ist mit Gittersteuerungsfunktion ausgestattet.</p>	<p>El A-272 es un tubo de ánodo giratorio de 102 mm, (4"), 150 kV, 300 kJ (400 kHU) diseñado específicamente para procedimientos generales de alto volumen en radiografía y fluoroscopia. Consta de un objetivo de renio, tungsteno y molibdeno con una pendiente de 7 grados. Disponible con las siguientes combinaciones de marcas focales:</p> <p style="text-align: center;">0.3 - 0.6 IEC 60336</p> <p><b>Potencia nominal de entrada del anodo</b> Foco fino - 15 kW IEC 60613 Foco grueso - 48 kW IEC 60613</p> <p>Para una potencia equivalente del anodo de 125 W</p> <p>Este tubo es diseñado, para uso en los encajes Varian de la serie B-130.</p> <p>El modelo A-274 tiene capacidad para de rejillas controlar los electrones.</p>

**3 Ø Constant Potential**   
**50 Hz**

Abaques de Charge pour Pose Unique CEI 60613  
Brennfleck - Belastungskurven IEC 60613  
Diagramas de Exposición Radiográfica IEC 60613



Nominal anode input power for the anode heat content 40%. IEC 60613

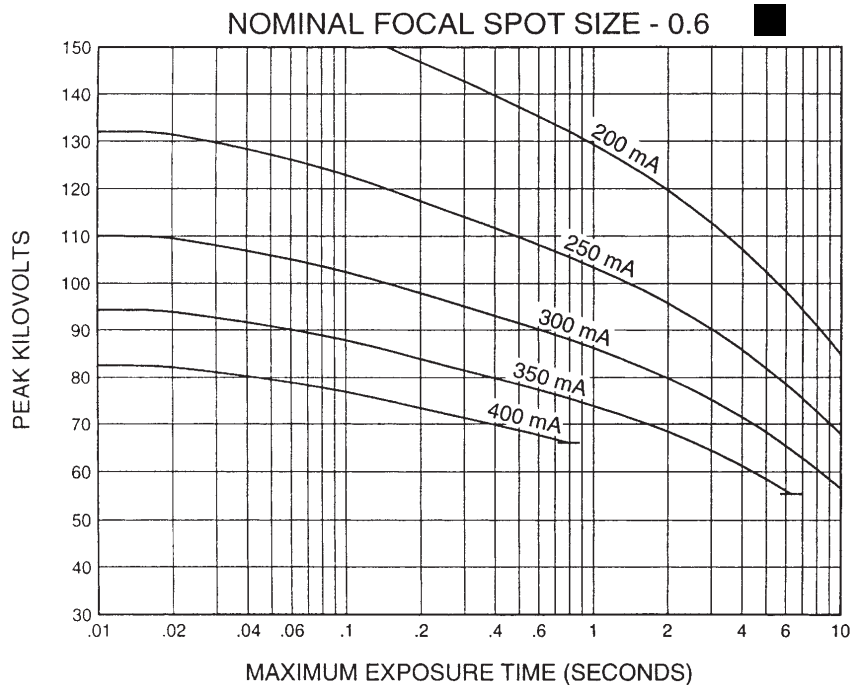
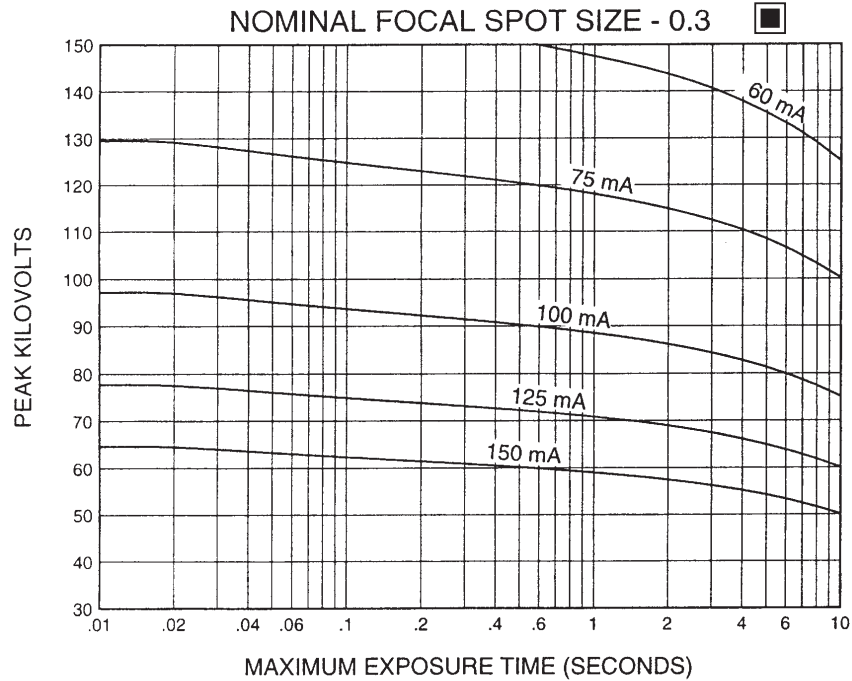
Puissance calorifique nominale de l'anode: 40%, CEI 60613

Thermische Anoden bezugsleistung bei einer Wärmespeicherung von 40%. IEC 60613

Aproximadamente el poder de penetracion para obtener un almacenaje de calor del anodo de 40%. IEC 60613

**3 Ø Constant Potential**  
**60 Hz**

Abaques de Charge pour Pose Unique CEI 60613  
Brennfleck - Belastungskurven IEC 60613  
Diagramas de Exposición Radiográfica IEC 60613



Nominal anode input power for the anode heat content 40%. IEC 60613

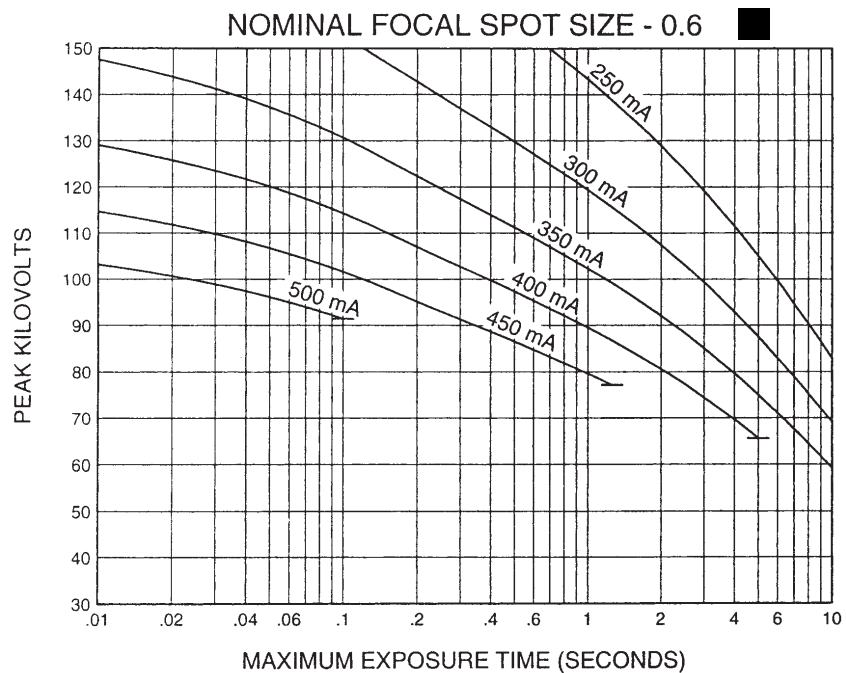
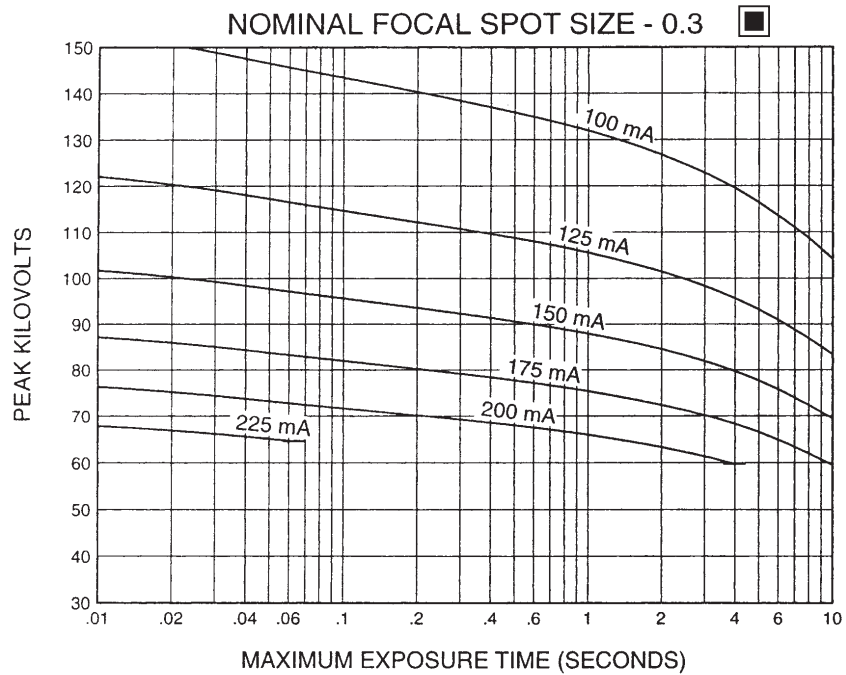
Puissance calorifique nominale de l'anode: 40%, CEI 60613

Thermische Anoden bezugsleistung bei einer Wärmespeicherung von 40%. IEC 60613

Aproximadamente el poder de penetracion para obtener un almacenaje de calor del anodo de 40%. IEC 60613

**3 ∅ Constant Potential**  
**150 Hz**

Abaques de Charge pour Pose Unique CEI 60613  
Brennfleck - Belastungskurven IEC 60613  
Diagramas de Exposición Radiográfica IEC 60613



Nominal anode input power for the anode heat content 40%. IEC 60613

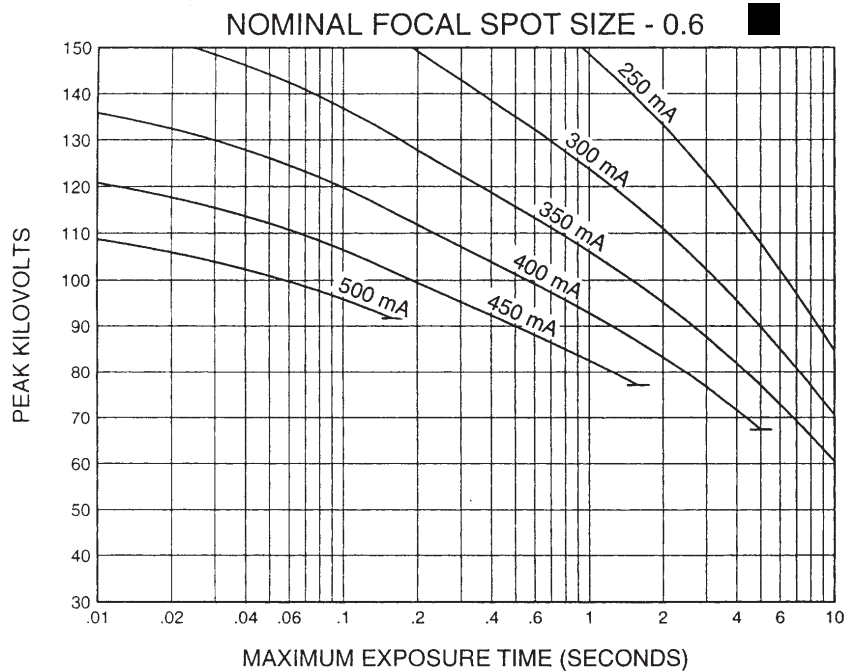
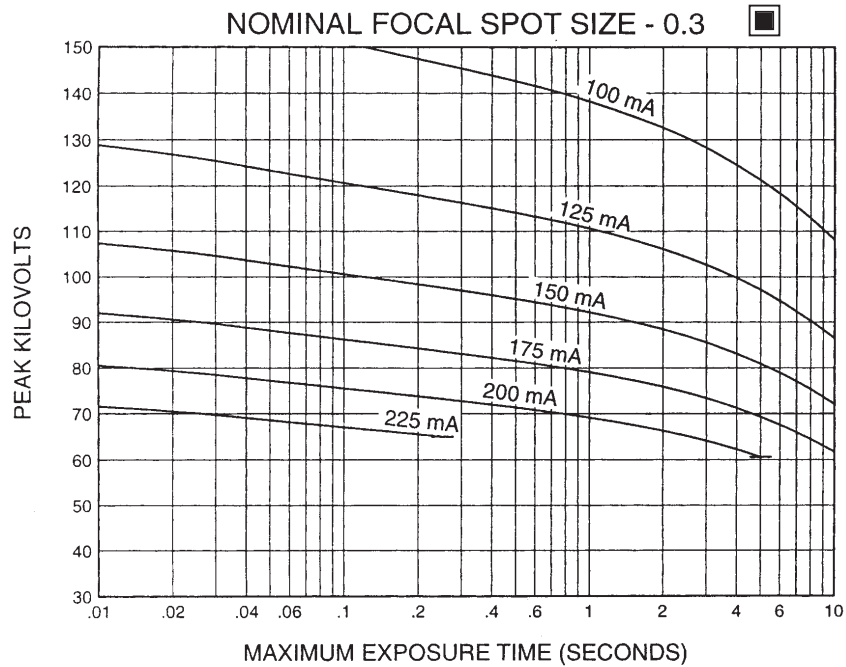
Puissance calorifique nominale de l'anode: 40%, CEI 60613

Thermische Anoden bezugsleistung bei einer Wärmespeicherung von 40%. IEC 60613

Aproximadamente el poder de penetracion para obtener un almacenaje de calor del anodo de 40%. IEC 60613

**3 Ø Constant Potential**   
**180 Hz.**

Abaques de Charge pour Pose Unique CEI 60613  
Brennfleck - Belastungskurven IEC 60613  
Diagramas de Exposición Radiográfica IEC 60613



Nominal anode input power for the anode heat content 40%. IEC 60613

Puissance calorifique nominale de l'anode: 40%, CEI 60613

Thermische Anoden bezugsleistung bei einer Wärmespeicherung von 40%. IEC 60613

Aproximadamente el poder de penetracion para obtener un almacenaje de calor del anodo de 40%. IEC 60613

## ANGIOGRAPHIC RATINGS

### HOW TO USE ANGIOGRAPHIC CHARTS

**General:** Serial Radiography puts a severe demand on the x-ray tube due to the large number of exposures made in rapid succession. Intervals between exposures are fixed and so short that it is not possible for the anode track to cool to any extent during the exposure series. Therefore, the temperature of the anode track increases from exposure to exposure. The kW values used in the angiographic charts have been determined to prevent damage to the anode. The angiographic rating charts are usable to 100% anode heat storage. Exceeding 100% anode heat storage will cause anode track erosion with high risk of tube destruction.

#### Definition of Terms

**Number of Exposures in Series:** The number of exposures made in succession or the number of exposures made during one contrast injection.

**Exposure Rate:** The number of exposures made per second. For a series of exposures where the exposure rate changes, it must be assumed that all exposures will be made at the maximum rate. For example, if during a series 10 exposures will occur at one per second and 30 exposures at 4 per second, use the kW ratings in the 40 exposure column at 4 per second rate.

**Exposure Time:** Time in seconds of each exposure.

#### USING THE CHARTS:

##### Select Correct Chart:

50/60 or 150/180 Hz  
0.3 or 0.6 Focal Spot

**Note:** 150/180 Hz rotor speed recommended for all angiography.

**Determine the number of exposures in Series:** With cut film angiography the number of exposures are known, however in Digital Angiography the number of exposures commonly are not known. When determining the number of exposures, assume worst case or past history.

**Note:** Most angiographic x-ray tubes fail from underestimating the number of exposures made in a series.

**Determine kW of each exposure in Series:** Referring to chart —find block under “Number of Exposures in Series” that is greater than or equal to expected number of exposures in Series. On left side directly opposite this block under “Exposure Rate per Second” column, select maximum rate per second that will be used for the exposure series. At the intersection of exposure rate and exposure time in seconds, find maximum kW allowed for each exposure.

**kW = pkV x mA:** The kW of the exposure can be any combination of mA and pkV allowed by the Radiographic and Filament Emission charts.

For Example: 80 pkV and 500 mA = 40 kW

**Example:** From chart A-272/A-274 150/180 Hz 3 Phase 0.6 Focal Spot, determine kW allowed with following known factors.

Maximum number of exposures .....40  
Exposure time .050 second (50 milliseconds)  
Maximum Exposure per second .....4

From chart find 40 exposure block. On left side directly opposite this block under “Exposure Rate per Second” column, select 4 exposures per second. Find .050 seconds at top of chart. At intersection of exposure rate line and exposure time, find 33.1 kW.











