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Industrial & Security X-Ray Products



Flat Panel Detectors
X-ray Tubes

Varian X-Ray Products



Varian X-Ray Products (XRP) is a world leader in designing and manufacturing components and subsystems for X-ray imaging, including X-ray generating tubes and digital flat panel detectors.

Here at Varian XRP we manufacture a large line of industrial X-ray tubes, including analytical X-ray tubes used for X-ray fluorescence, and metal ceramic tubes used for non-destructive imaging, gauging and various security applications.

Our flat panel detectors, which are based on amorphous silicon technologies, have found broad applications as an alternative to image intensifier tubes and X-ray film. These flat panel detectors are incorporated into security/inspection and industrial imaging systems.

Industrial X-ray Tubes

Varian's line of metal ceramic unipolar and bipolar X-ray tubes are designed for use in industrial applications including: Non-Destructive Testing, Thickness Gauging, and Food Inspection. In addition to industrial applications Varian also provides custom designs for Security applications.

Varian is pleased to offer a full range of metal ceramic X-ray tubes with various focal spot and target angle combinations that are designed to meet even the most demanding applications. Our NDI product range features both water-cooled unipolar designs along with oil-cooled bipolar designs from 100kV up to 450kV.

Industrial Detectors

Designed to meet a broad spectrum of industrial imaging applications, Varian's line of amorphous silicon detectors are the perfect fit for on-site imaging for a wide variety of industrial environments. Small enough to virtually measure any area, Varian digital imagers prevent geometric distortion and minimize effects of magnetic fields or radiation. Best of all, they produce high resolution images that can be conveniently viewed, digitally processed and stored.

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Flat Panel Detectors



PaxScan® 2520V

Flat panel detectors present a uniform, undistorted, high resolution image throughout the rectangular field of view. They offer significant improvement in image quality and dose. With superior contrast resolution, flat panel detectors show smaller objects in greater detail than is possible with image intensifiers.



PaxScan® 1313+



PaxScan® 4030E

	1313	2520V	4030E	4030CB
Applications	NDT, Semiconductor / PCB Inspection Bioscience	NDT, Semiconductor / PCB Inspection Bioscience	Portable DR, Security, NDT	Industrial, CBCT
Pixel Size	127 µm	127 µm	127 µm	194 µm
Resolution	3.94 lp/mm 1.97 lp/mm	3.94 lp/mm 1.97 lp/mm	3.94 lp/mm 1.97 lp/mm	2.58 lp/mm 1.29 lp/mm
Fill Factor	57% a-Si	57% a-Si	57% a-Si	70% a-Si
Matrix	1024 x 1024 512 x 512	1536 x 1920 768 x 960	3200 x 2304	2048 x 1536 1024 x 768
A/D Conv.	14 bits	14 bits	14 bits	16.5 bits
Frame Rate	10fps (1x1) 30 fps (2x2)	10 fps (1x1) 30 fps (2x2)	1 fps (1x1)	7.5 fps (1x1) 30fps (2x2)
kVp Range	40-150 225 (option)	40-150 225 (option)	40-150	40-150
Interface	CameraLink (EpiX)	Gigabit Ethernet	Gigabit Ethernet	LVDS, 16 Bit (Bitflow R3)
Scintillator Option	DRZ+ / Gd ₂ O ₃ S Detached CsI	DRZ+, DRZ High, Gd ₂ O ₃ , CsI	DRZ+ / Gd ₂ O ₃ S	CsI

Unipolar X-ray Tubes

Varian manufactures a broad range of unipolar metal ceramic X-ray tube assemblies designed for use in demanding industrial applications like non-destructive testing, security, food inspection, and thickness gauging.



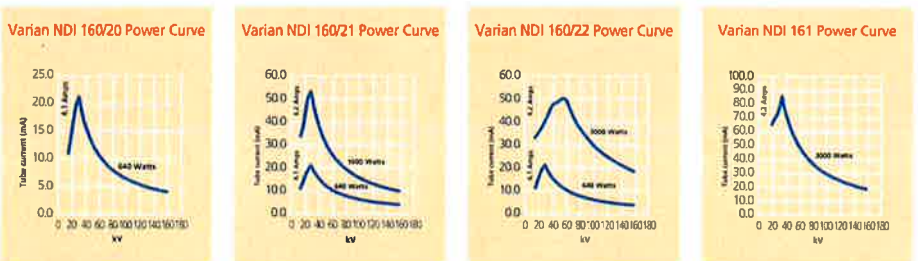
NDI 160/20, NDI 160/21, NDI 160/22, NDI 161



NDI 225/20, NDI 225/21, NDI 225/22, NDI 226, NDI 225 FB

- Nominal Voltage**
- Continuous Rating**
- Small Focus**
- Large Focus**
- Target Material**
- Target Angle**
- Coverage**
- Maximum mA @ max kV**
- Small Focus**
- Large Focus**
- Filtration**
- Focal Spot Size**
- EN 12543**
- Nominal**
- Filament Current**
- Small Max**
- Large Max**
- Cooling Medium**
- Cooling Flow, Min**
- Weight**
- Lbs**
- Kg**
- Socket Type**

NDI 160/20	NDI 160/21	NDI 160/22	NDI 161
160kV	160kV	160kV	160kV
640 Watts	640 Watts	640 Watts	
640 Watts	1600 Watts	3000 Watts	3000 Watts
Tungsten	Tungsten	Tungsten	Tungsten
20°	20°	20°	30°
40°	40°	40°	40°
4.0mA	4.0mA	4.0mA	
4.0mA	10mA	19mA	19mA
0.8mm Be	0.8mm Be	0.8mm Be	0.8mm Be
1.0mm x 1.0mm	1.0mm x 3.0mm	1.0mm x 5.5mm	7.5mm
0.4mm x 0.4mm	0.4mm x 1.5mm	0.4mm x 3.0mm	
4.1 Amps	4.1 Amps	4.1 Amps	
4.1 Amps	4.2 Amps	4.2 Amps	4.2 Amps
Water	Water	Water	Water
4 L/minute	4 L/minute	4 L/minute	4 L/minute
18lbs	18lbs	18lbs	18lbs
8kg	8kg	8kg	8kg
R24	R24	R24	R24



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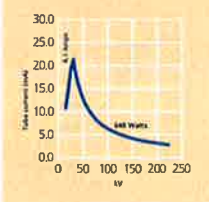
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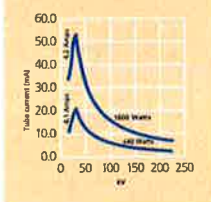


	NDI 225/20	NDI 225/21	NDI 225/22	NDI 226	NDI 225 FB
Nominal Voltage	225kV	225kV	225kV	225kV	225kV
Continuous Rating					
Small Focus	640 Watts	640 Watts	640 Watts		
Large Focus	640 Watts	1600 Watts	3000 Watts	3000 Watts	3000 Watts
Target Material	Tungsten	Tungsten	Tungsten	Tungsten	Tungsten
Target Angle	20°	20°	20°	30°	30°
Coverage	40°	40°	40°	40°	90°
Maximum mA @ max kV					
Small Focus	2.8mA	2.8mA	2.5mA		
Large Focus	2.8mA	7mA	13mA	13mA	13mA
Filtration	0.8mm Be	0.8mm Be	0.8mm Be	0.8mm Be	1.0mm Cu
Focal Spot Size					
EN 12543	1.0mm x 1.0mm	1.0mm x 3.0mm	1.0mm x 5.5mm	7.5mm	7.5mm
Nominal	0.4mm x 0.4mm	0.4mm x 1.5mm	0.4mm x 3.0mm		
Filament Current					
Small Max	4.1 Amps	4.1 Amps	4.1 Amps		
Large Max	4.1 Amps	4.2 Amps	4.2 Amps	4.2 Amps	4.2 Amps
Cooling Medium	Water	Water	Water	Water	Water
Cooling Flow, Min	4 L/minute	4 L/minute	4 L/minute	4 L/minute	4 L/minute
Weight					
Lbs	24lbs	24lbs	24lbs	24lbs	24lbs
Kg	11kg	11kg	11kg	11 kg	11kg
Socket Type	R24	R24	R24	R24	R24

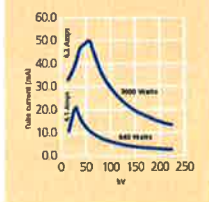
Varian NDI 225/20 Power Curve



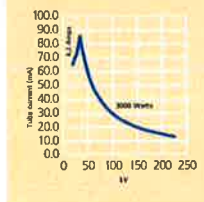
Varian NDI 225/21 Power Curve



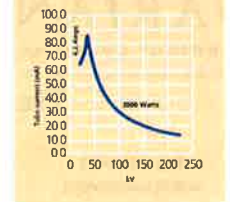
Varian NDI 225/22 Power Curve



Varian NDI 226 Power Curve



Varian NDI 225 FB Power Curve



Bipolar X-ray Tubes

Varian manufactures a broad range of bipolar metal ceramic X-ray tube assemblies designed for use in demanding industrial applications like non-destructive testing, security, food inspection, and thickness gauging.



NDI 320/23, NDI 320/26,
NDI 321, NDI 322,
NDI 350/23, NDI 350/26



NDI 451, NDI 452

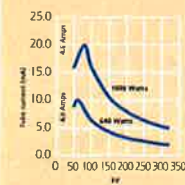
- Nominal Voltage**
- Continuous Rating**
- Small Focus**
- Large Focus**
- Target Material**
- Target Angle**
- Coverage**
- Maximum mA @ max kV**
- Small Focus**
- Large Focus**
- Filtration**
- Focal Spot Size**
- EN 12543**
- Nominal**
- Filament Current**
- Small Max**
- Large Max**
- Cooling Medium**
- Cooling Flow, Min**
- Weight**
- Lbs**
- Kg**
- Socket Type**

	NDI 320/23	NDI 320/26	NDI 321	NDI 322
Nominal Voltage	320kV	320kV	320kV	320kV
Continuous Rating				
Small Focus	640 Watts	1500 Watts		
Large Focus	1600 Watts	4200 Watts	4000 Watts	3200 Watts
Target Material	Tungsten	Tungsten	Tungsten	Tungsten
Target Angle	20°	20°	30°	20°
Coverage	40°	40°	40°	80° x 8°
Maximum mA @ max kV				
Small Focus	2mA	4.5mA		
Large Focus	5mA	13mA	12.5mA	10mA
Filtration	3.0mm Be	3.0mm Be	3.0mm Be	0.2mm Cu + 0.4mm Fe
Focal Spot Size				
EN 12543	1.9mm x 3.6mm	3.0mm x 5.5mm	8.0mm	4.5mm
Nominal	0.8mm x 1.8mm	1.5mm x 4.0mm		
Filament Current				
Small Max	4.9 Amps	4.9 Amps		
Large Max	4.6 Amps	4.6 Amps	4.6 Amps	4.6 Amps
Cooling Medium	Oil	Oil	Oil	Oil
Cooling Flow, Min	14L/minute	14 L/minute	14 L/minute	14 L/minute
Weight				
Lbs	88lbs	88lbs	88lbs	88lbs
Kg	40kg	40kg	40kg	40kg
Socket Type	R24	R24	R24	R24

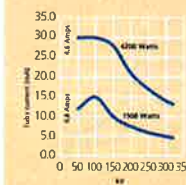
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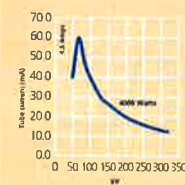
Varian NDI 320/23 Power Curve



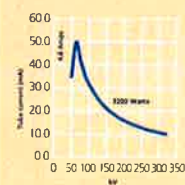
Varian NDI 320/26 Power Curve



Varian NDI 321 Power Curve



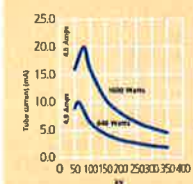
Varian NDI 322 Power Curve



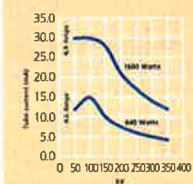


	NDI 350/23	NDI 350/26	NDI 451	NDI 452
Nominal Voltage	350kV	350kV	450kV	450kV
Continuous Rating				
Small Focus	640 Watts	1500 Watts	900 Watts	900 Watts
Large Focus	1600 Watts	4200 Watts	4500 Watts	4500 Watts
Target Material	Tungsten	Tungsten	Tungsten	Tungsten
Target Angle	20°	20°	30°	30°
Coverage	40°	40°	40°	90° x 20°
Maximum mA @ max kV				
Small Focus	1.8mA	4.3mA	2mA	2mA
Large Focus	4.6mA	12mA	10mA	10mA
Filtration	3.0mm Be	3.0mm Be	5mm Be	2.3mm Fe + 1.0mm Cu
Focal Spot Size				
EN 12543	1.9mm x 3.6mm	3.0mm x 5.5mm	2.5mm x 5.5mm	2.5mm x 5.5mm
Nominal	0.8mm x 1.8mm	1.5mm x 4.0mm	1.5mm 4.0mm	1.5mm x 4.0mm
Filament Current				
Small Max	4.9 Amps	4.9 Amps	4.9 Amps	4.9 Amps
Large Max	4.6 Amps	4.6 Amps	4.6 Amps	4.6 Amps
Cooling Medium	Oil	Oil	Oil	Oil
Cooling Flow, Min	14 L/minute	14 L/minute	14 L/minute	14 L/minute
Weight				
Lbs	88lbs	88lbs	209lbs	209lbs
Kg	40kg	40kg	95kg	95kg
Socket Type	R24	R24	R28	R28

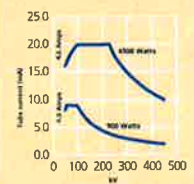
Varian NDI 350/23 Power Curve



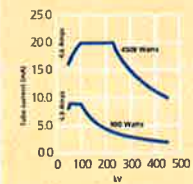
Varian NDI 350/26 Power Curve



Varian NDI 451 Power Curve



Varian NDI 452 Power Curve



High Power X-ray Tubes

Varian's new line of HPX series high power X-ray tubes are designed to meet the demanding requirements for industrial high speed digital imaging applications. Available in both unipolar and bipolar configurations.



HPX 160/20, HPX 160/11, HPX 225/11, HPX 225/20



HPX 320/11, HPX 450/11



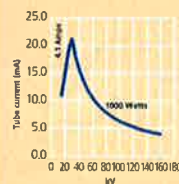
- Nominal Voltage**
- Continuous Rating**
- Small Focus**
- Large Focus**
- Target Material**
- Target Angle**
- Coverage**
- Maximum mA @ max kV**
- Small Focus**
- Large Focus**
- Filtration**
- Focal Spot Size**
- EN 12543**
- Filament Current**
- Small Max**
- Large Max**
- Cooling Medium**
- Cooling Flow, Min**
- Weight**
- Lbs**
- Kg**
- Socket Type**

HPX 160/20	HPX 160/11	HPX 225/11	
160kV	160kV	225 kV	
1000 Watts	800 Watts	800 Watts	
1000 Watts	1800 Watts	1800 Watts	
Tungsten	Tungsten	Tungsten	
20°	11°	11°	
40°	40° x 30°	40° x 30°	
Maximum mA @ max kV			
Small Focus	6.25 mA	5.0 mA	3.5 mA
Large Focus	6.25 mA	11,25 mA	8.0 mA
Filtration	0.8 mm Be	0.8 mm Be	0.8 mm Be
Focal Spot Size			
EN 12543	1.0 mm x1.0 mm	0.4 mm x 1.0 mm	0.4 mm x 1.0 mm
Filament Current			
Small Max	4.1 Amps	4.1 Amps	4.1 Amps
Large Max	4.1 Amps	4.1 Amps	4.1 Amps
Cooling Medium	Water	Water	Water
Cooling Flow, Min	4 L/minute	4 L/minute	4 L/minute
Weight			
Lbs	18 lbs	18 lbs	24 lbs
Kg	8 kg	8 kg	11 kg
Socket Type	R24	R24	R24

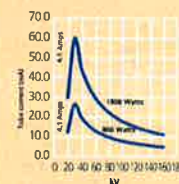
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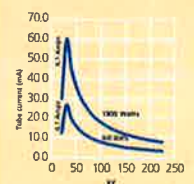
Varian HPX 160/20 Power Curve



Varian HPX 160/11 Power Curve



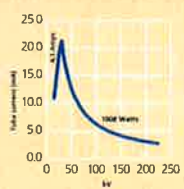
Varian HPX 225/11 Power Curve



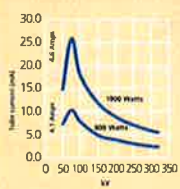


	HPX 225/20	HPX 320/11	HPX 450/11
Nominal Voltage	225 kV	320kV	450kV
Continuous Rating			
Small Focus	1000 Watts	800 Watts	700 Watts
Large Focus	1000 Watts	1800 Watts	1500 Watts
Target Material	Tungsten	Tungsten	Tungsten
Target Angle	20°	11°	11°
Coverage	40°	40° x 30°	40° x 30°
Maximum mA @ max kV			
Small Focus	4.4 mA	2.5 mA	1.5 mA
Large Focus	4.4 mA	5.6 mA	3.3 mA
Filtration	0.8 mm Be	3.0 mm Be	5.0 mm Be
Focal Spot Size			
EN 12543	1.0 mm x 1.0 mm	0.4 mm x 1.0 mm	0.4 mm x 1.0 mm
Filament Current			
Small Max	4.1 Amps	4.1 Amps	4.1 Amps
Large Max	4.1 Amps	4.6 Amps	4.6 Amps
Cooling Medium	Water	Oil	Oil
Cooling Flow, Min	4 L/minute	14 L/minute	14 L/minute
Weight			
Lbs	24 lbs	88 lbs	209 lbs
Kg	11 kg	40 kg	95 kg
Socket Type	R24	R24	R28

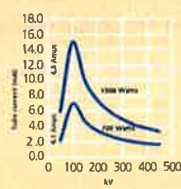
Varian HPX 225/20 Power Curve



Varian HPX 320/11 Power Curve



Varian HPX 450/11 Power Curve



Ordering Information

X-Ray Products

Varian Medical Systems X-Ray Products (XRP) is the world's premier independent supplier of X-ray tubes and flat panel digital detectors for filmless X-ray imaging. Its products are used in X-ray imaging equipment for medical diagnostics, dental imaging, veterinary care, industrial inspection, and security.

XRP is a business unit of Varian Medical Systems, a Fortune 1000 company headquartered in Palo Alto, CA. Varian employs approximately 5,100 people located at manufacturing sites in North America, China, and Europe and in 79 sales and support offices around the world.

Ordering Information

Varian requires confirmation of all orders in writing. For international orders, please advise ultimate destination, special shipment instructions, customer requirements, and any necessary regulatory requirements. (i.e. CE mark)

When ordering, please specify:

- Application
- High voltage cable receptacle angle (horn angle)

Warranty>Returns

All products returned to Varian Medical Systems must have an RA number clearly marked on the packaging and shipping documents.

To request an RA number, complete the online form at

http://www.varian.com/dynaform/warranty_indust_indus.php

Terms

Net thirty (30) days from date of invoice with approved credit. Shipping charges are additional, ex-works Factory. Appropriate Varian Medical Systems Terms and Conditions of Sale apply.

Conservation

In the interest of conservation of scarce materials and efficient utilization of high value parts, products may contain remanufactured parts. Such parts are subject to the same high standards of quality control applied to other parts and are covered by a standard warranty.

Tube Disposal

Please be aware of our environment and dispose of X-ray tubes in accordance with applicable regulations. It is recommended that failed tubes be returned to the manufacturer or an appropriate facility to ensure proper handling. All tubes returned to Varian Medical Systems for disposal will be handled in a manner that safeguards neighboring communities and the global environment.

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Varian Medical Systems X-Ray Products is currently registered or certified under the following regulations and standards:

- ISO 13485
- Varian holds an EC certificate under the requirements of Council Directive 93/42/EEC
- Canadian Medical Device Regulation, P.C.
- ISO 9001
- UL/IEC 60601-1
- CSA 22.2 No. 601.1
- Chinese SFDA Registration Nos. 0712278, 0714670, 0004482
- Japanese PAL/Yakuji-Ho: Controlled MD
- Russian MHSD: Federal Law No. 184-FZ

Salt Lake City, UT

- FDA 21 CFR, Sub-Chapter J. Initial report number 7410266
- ISO 9001 Certificate Number FM21804
- ISO 13485 Certificate Number FM77566
- CE Mark Certificate Number CE 00999
- Canadian Medical Device Regulations (CMDCAS)

Charleston, SC

- FDA 21 CFR, Sub-Chapter J. Initial report number 8612039
- ISO 9001 Certificate Number FM81645
- ISO 13485 Certificate Number FM84906
- CE Mark Certificate Number CE 00999

Willich, Germany

- ISO 13485 Certificate Number FM84906
- CE Mark Certificate Number CE 00999

Beijing, China

- YY/T 0287 Certificate No. 04709Q10016ROS-1
- Beijing Hua Guang Certification of Medical Devices Co. Ltd. (CMD)

Varian X-Ray Products complies with requirements of:

- WEEE (Waste Electrical and Electronic Equipment) Directive 2002/96/EC
- RoHS (Reduction of Hazardous Substances) Directive 2002/95/EC
- Administrative Measure on the Control of Pollution Caused by Electronic Information Products, No. 39 (28 February 2006 – People's Republic of China) SJ/T11364-2006

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X-Ray Products – Interay

(X-ray tubes for immediate delivery from inventory)

3235 Fortune Drive
North Charleston, SC 29418
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E-Mail: interay.sales@varian.com

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