

Revealing insights.

High Power 15 Series

Precision imaging & zero downtime



comet
x-ray

HP 15 Series

A game changer for inline production

Introducing the High Power 15 series - a game-changer in continuous uptime. With redundancy built-in, this product line ensures your production never skips a beat. Two filament systems, two target areas, and the ingenious ability to switch between them when one wears out guarantees uninterrupted operation.

The demands of in-line production call for equipment that doesn't just keep up but sets the pace. Listening to our customers, we learned that while HP 11 tubes offer unmatched advantages, challenges like the heel effect pose significant barriers.

Pioneering precision & uninterrupted uptime

Traditional challenges such as the Heel Effect, which once affected the consistency of dosage, are now a thing of the past. The tube can be mounted parallel to the object through a 15-degree target angle, allowing for a more straightforward and efficient setup process.

The focal spot has been redesigned. The High Power 15's unique boxed-shaped focal spot ensures homogenous resolution throughout, making inspections smoother and more precise. In the High Power 15 series, we've elevated every facet of what makes an X-ray tube exceptional.

Each improvement, from filament design to dose distribution, was forged from real-world feedback and refined to perfection. This is more than just an evolution, it's a revolution for industries that refuse to compromise on clarity and consistency.

Say goodbye to unexpected production halts and embrace the new standard of persistent performance.



Engineered for excellence

Every aspect of the High Power 15 series is a culmination of in-depth research, customer feedback, and our commitment to excellence. Tailored for industries that refuse to settle for anything but the best, this series offers a blend of clarity, performance, and durability.



1 2 3 4 5 6

Production with minimal downtime

The two independent identical focal spots enable operation with zero downtime, allowing for an instantaneous switch to the second focal spot when the first meets the end-of-life criteria. This capability is essential, as downtime equals revenue loss. It offers significant cost savings and improved integration within inline and at-line production systems.

The High Power 15 series provides a direct operational advantage by preventing production halts, making it ideal for various production environments.

Precision imaging from every perspective

The High Power 15 series improves spatial resolution through uniform beam distribution, allowing for detailed imaging, streamlining workflow, and enhancing diagnostic accuracy. A box-shaped focal spot design, a 15° target angle, and homogeneous illumination deliver unmatched image quality from every angle.

The 15° target angle adds versatility, simplifying setup and facilitating precise imaging across angle variations, while homogeneous illumination ensures consistent dose distribution and uniform image quality. These features collectively offer a reliable and efficient imaging solution, ideal for sectors demanding precision, reliability, and ease of use, making the HP 15 an invaluable tool for professionals focused on quality and accurate diagnostics.

A compact solution

Through its expanded field of view (FOV), the HP 15 maximizes spatial efficiency without sacrificing imaging quality. This allows the detector to be positioned closer to the tube, ideal in space-constrained environments.

The proximity between the object, detector, and tube reduces space needs and shielding material, ensuring high-quality imaging in a compact, efficient design.

Optimize performance

Each customer has unique needs and expectations. With the MXR-225HP 15/04-04 tube, you have the flexibility to choose and plan how you want to use the tube:

Power Mode: Achieve the fastest imaging with up to 65% more dose compared to the HP 11 tube.

Endurance Mode: Opt for extended durability with a lifespan of up to 6,000 hours per focal spot before reaching end-of-life criteria.

Note that even in endurance mode, the HP 15 is delivering more dose than the HP 11.

Simplified setup and easy installation

The HP 15-series 15-degree target angle eliminates the need for a complex and costly tilting mechanism, allowing for easy installation with the HP 15 module in parallel to the object, facilitating a straightforward setup - resulting in easier mounting and a reduced footprint within the workspace.

Accelerated output & expanded imaging

A large X-ray beam allows for a broader field of view, permitting the detector to be positioned closer to the tube. This proximity increases the dose on the detector, enhancing the efficiency and throughput of the inspection process.

The 15° target angle ensures homogeneous illumination across the field of view for uniform dose delivery, achieving faster imaging, hence minimizing inspection time.

iXRS 225 HP 15



225 kV

Tube type	Product no.	Continuous rating	Focal spot ASTM E1165-20	Radiation coverage	Target angle	Target material
MXR-225HP 15/14-14	915417.51	2250 W	d = 1.4 mm d = 1.4 mm	50° x 40°	15°	W
MXR-225HP 15/04-04	915430.51	850 W	d = 0.4 mm d = 0.4mm	50° x 40°	15°	W

X-ray module configurations

Generators	Coolers	Cables
iVario-225/2.25	XRC-3023-WA	P3/250-R24SL-R28SL 5 meter
	XRC-3023-WW	P3/250-R24SL-R28SL 10 meter
		P3/250-R24SL-R28SL 15 meter

iXRS 450 HP 15



450 kV

Tube type	Product no.	Continuous rating	Focal spot ASTM E1165-20	Radiation coverage	Target angle	Target material
MXR-450 HP 15/18-18	915431.51	1800 W	d = 1.8 mm d = 1.8 mm	40° x 30°	15°	W

X-ray module configurations

Generators	Coolers	Cables
iVario-450/4.5	XRC-4523-OA	P3/250-R28SL-R28SL 5 meter
	XRC-4523-OW	P3/250-R28SL-R28SL 10 meter
		P3/250-R28SL-R28SL 15 meter

High Power 15 insights

The carefully tuned features

The High Power 15 series enhance spatial resolution in several key ways.

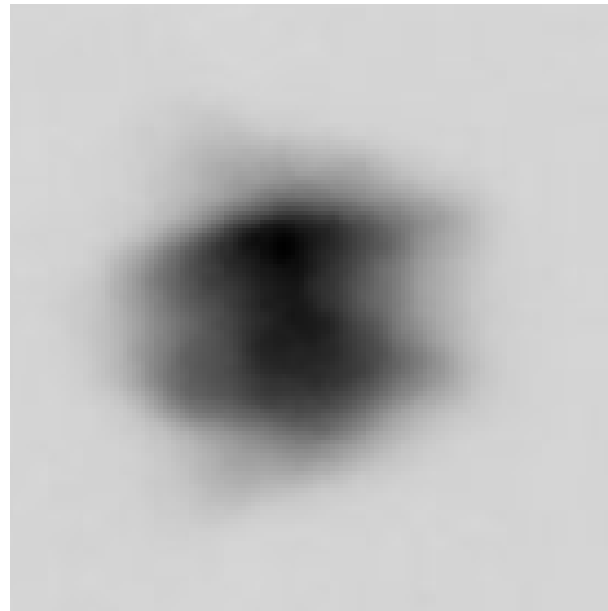
Focal spot symmetry: As shown in the images on the right, the focal spots are highly symmetrical, ensuring consistent resolution along both the X and Y axes.

Focal spot form: Even being slightly bigger than the HP11 according to EN12543-2:2008, the 0.4 mm focal spot of the HP 15 comes almost on the same size as an HP 11 when measuring according to EN12543-2:2021 or ASTM E1165. This was achieved through a "wing-less" focal spot.

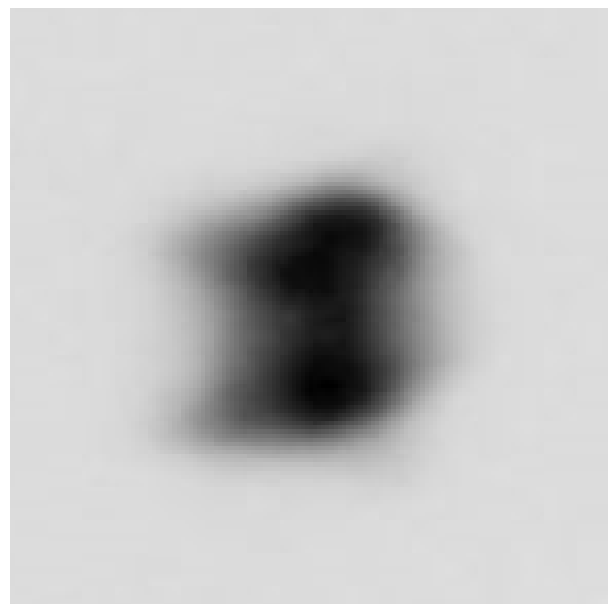
Spatial resolution: The 15° target angle reduces focal spot distortion as the focal spot is observed away from the beam centre. This results in a reduction of the distortion by approximately 20% compared to the HP11 when viewed 25° radially and 15° axially, toward the cathode.

Dose uniformity: The uniform illumination provides consistent dose distribution, leading to uniform image quality across the entire field.

These combined features deliver a reliable and efficient imaging solution, making the HP 15 series ideal for industries where precision, reliability, and ease of use are critical. This makes the HP 15 an invaluable tool for professionals seeking high-quality imaging and accurate diagnostics.



MXR-225HP 15/04-04 focal spot A



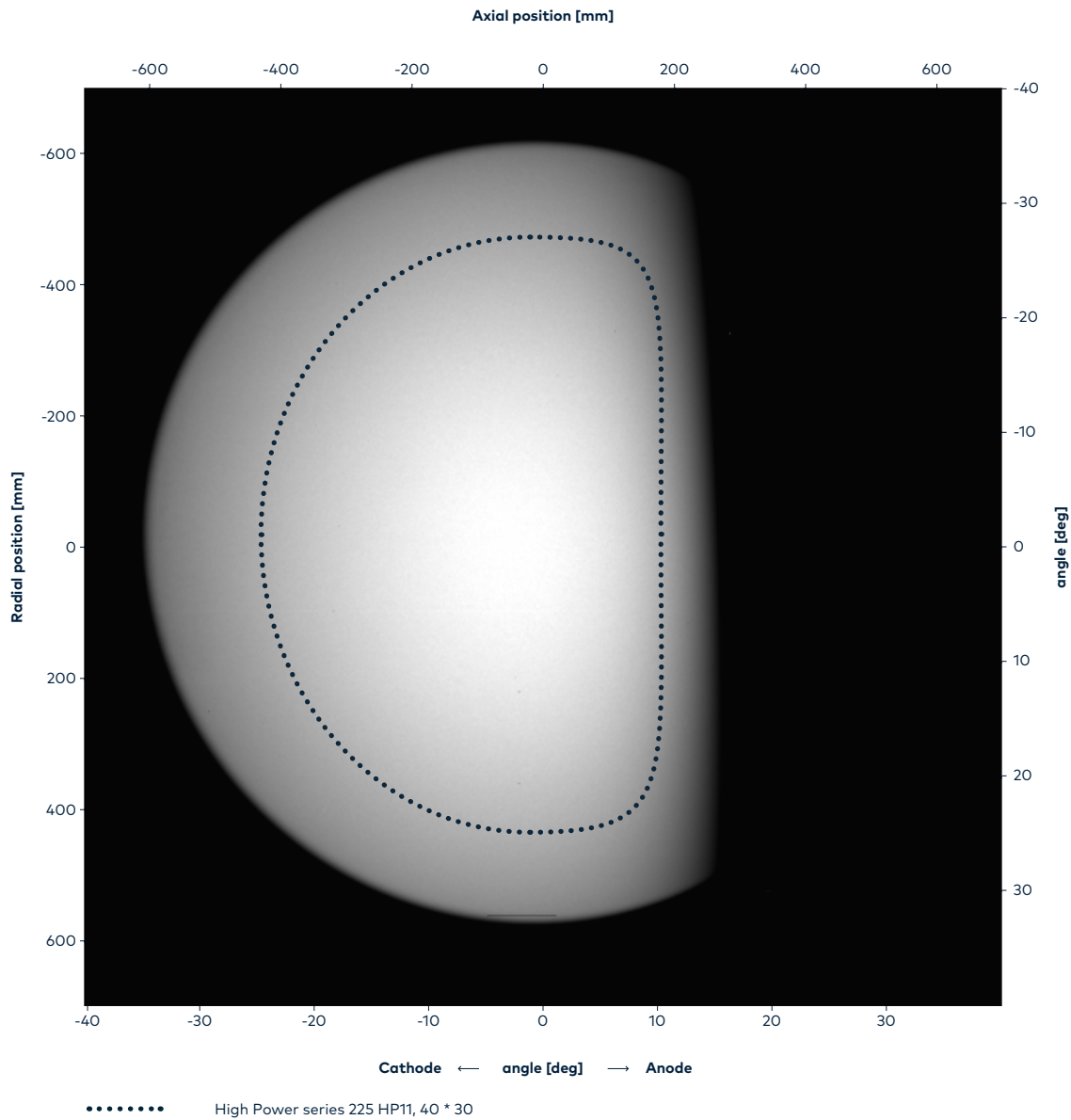
MXR-225HP 15/04-04 focal spot B

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The new High Power 15 series is a game changer for at- and inline applications. Focal spot redundancy ensures no production stops and a much improved lifetime. Additionally, combining a 15° target angle and nicely box-shaped focal spots enhances spatial resolution and field of view while increasing the dose.

Arnaud Sottas, Product Manager

MXR-225HP 15 versus HP 11 beam comparison, captured on a flat panel



Accelerated output & expanded imaging

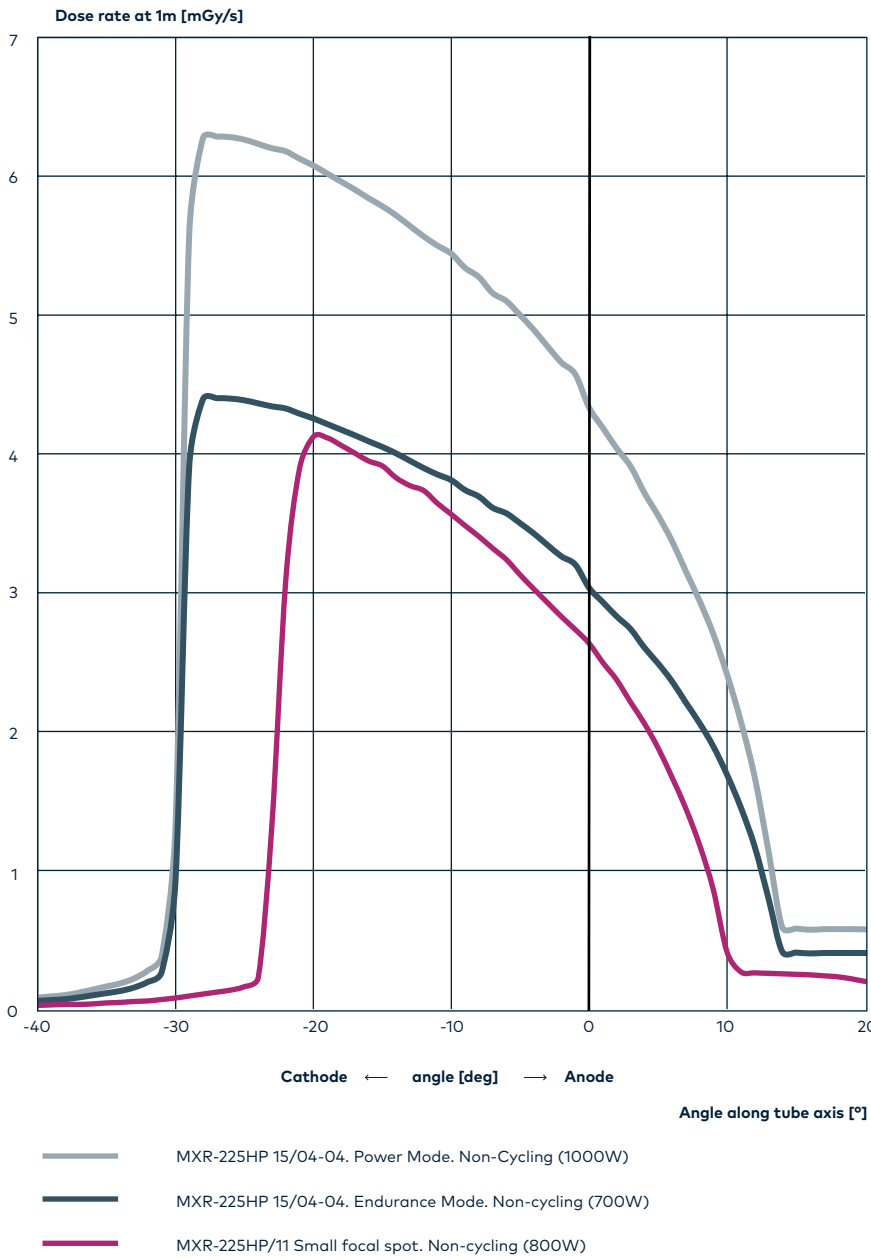
A large X-ray beam allows for a broader field of view, permitting the detector to be positioned closer to the tube. This proximity increases the dose on the detector, to the square, enhancing the efficiency and throughput of the inspection process.

The 15° target angle ensures homogeneous illumination across the field of view for uniform dose delivery, achieving faster imaging, hence minimizing inspection time.

*Intensity is
proportional to*

$$\frac{1}{FDD^2}$$

Dose profile comparison along the tube axis: MXR-225HP 15/04-04 versus its siblings in HP 11 series



Balance dose with longevity

Each customer has specific needs and expectations regarding the required dose and desired tube lifespan to optimize their tasks. The MXR-225HP 15/04-04 tube allows customers to tailor its usage to their specific requirements.

Power Mode: The tube is optimized for fast imaging, delivering up to 65% more doses than the HP11 tube. This increased dose allows for a 40% reduction in inspection time, setting a new benchmark

for speed. However, this performance comes with a trade-off, as the tube is expected to reach its end-of-life after approximately 4,000 hours, with both filaments used.

Endurance Mode: Opt for extended durability with a lifespan of up to 6,000 hours per focal spot before reaching end-of-life criteria.

Note: In endurance mode, the HP 15 is delivering more dose than the HP 11.

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