X-Ray Tubes

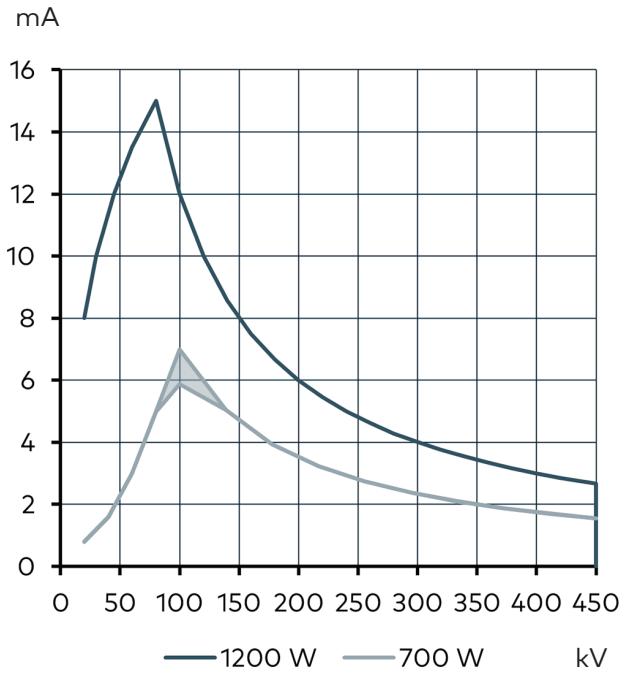
MXC-453HP/11

Product Description

The MXC-453HP/11 is a bipolar oil-cooled X-ray tube assembly with integrated radiation protection. It comprises a dual focal spot, a high power tungsten anode and a directional beam. The tube is specifically designed for non-destructive imaging applications.

Power rating chart

Power rating at a given filament current



The highlighted area shows the range of max.-values.

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Product Specifications

Nominal tube voltage	450 kV
Continuous rating (non-cyclic)	700 W | 1200 W
Maximum cyclic rating[1]	700 W | 1200 W
Focal spot acc. to EN12543-2:2008	d = 0.4 mm[2] | d = 1.2 mm
Typical focal spot acc. to ASTM E1165-20[3],[4]	d = 0.8 mm | d = 1.2 mm
Typical focal spot class acc. to ASTM E1165-20[3],[4]	FS 8-9 | FS 6-7
Filament current, max	3.6 A | 4.2 A
Filament voltage, typical	2.3 V | 4.5 V
Inherent filtration	3.0 mm + 2.0 mm Be
Target material	W
Target angle	11°
Radiation coverage	40° x 30°
Leakage radiation, max. ar loading factors in 1 m distance PTB Type Approval	5 mSv/h
Weight	47.6 kg
Terminal type	R28
Gapping spring-loaded HV-cable	2 rings visible (~ 7 mm)
Gapping non-spring-loaded HV-cable	5.5 - 6 mm
Grease quantity for HV-cable terminal	1.4 ml
Product No.	915706.51

Cooling

Cooling medium	Oil
Cooling medium flow, min.	14 l/min
Cooling medium temp. at inlet, max.	50° C
Pressure at cooling medium inlet, max.	10 bar
Level of dielectric strength of insulating oil	≥ 50kV acc. DIN EN 60156
Only use Insulating- / Cooling Oil used and specified by Comet	See Integrator Manual X-Ray Tubes
Post-cooling time after switchoff, min.	2 min

1 Definition of cyclic rating: More than 15 ON/OFF cycles per day or more than 3000 cycles per year. Cycles include both ON/OFF and changes in set-points (kV and mA).

2 Deviation from EN 12543-2:2008 evaluation of the focal spot based on 30% threshold.

3 Typical values are provided for reference only and do not represent guaranteed specifications.

4 ASTM E1165-20 and DIN EN ISO 32543-1:2025-12 describe the same focal-spot size measurement procedure.

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General Information

General

The control of high-voltage, tube current and filament current as well as the design of the cooling system and the radiation protection are within the responsibility of the integrator. Settings in the generator must assure that the X-ray tube will be protected against overcurrent, overvoltage and lack of cooling. Otherwise the tube and/or the radiation protection may be damaged and become a hazard. For detailed instructions always refer to the "X-Ray Tube Manual."

Radiation protection

When installing an X-ray tube assembly into an X-ray equipment and/or operating an X-ray equipment, the responsibility for radiation protection is with the integrator. Compliance with local regulatory requirements and limit values must be assured. After each tube exchange, repair, modification or upgrade of the unit, radiation protection integrity should be performed. Any modification of a Comet product will result in the warranty being invalidated.

Connection of the X-ray tube

High-voltage cables must be installed by trained personnel only. Please proceed with the installation as follows: Cleaning, greasing and gapping. Respect the cleanliness, the correct amount of grease and the correct pressure of the plug inside the high-voltage receptacle.

Cooling

The integrator is in charge that the cooling circuit is properly connected to the cooling system. Prior to operating the tube, the cooler must be turned on. Make sure that the coolant flow meets the required cooling conditions and is monitored. If any of the cooling conditions is not met, the high-voltage has to be switched off immediately. When the tube is switched off intentionally, the coolant flow must continue for at least two minutes in order to protect the anode and the lead protection from overheating.

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