

Industrial X-Ray
Generators

Industrial X-Ray
Tube Assemblies

Industrial X-Ray
Tube Accessories



Generators

Controller

Generator tube combinations



Your benefit

Industrial x-ray generators from COMET offer the benefit of being perfectly matching to metal ceramic x-ray tubes. An XRP Generator becomes part of a system consisting of different components which have been selected to fulfill the tough requirements of modern industrial x-ray applications. The XRP generator is the ideal work horse fulfilling the requirements of many radiographic and real time applications. All generators are set up and tested together with the cable and x-ray tube prior to shipment.

COMET XRP Generators

They offer:

- a variety of voltage ranges from 100kV to 450kV
- power from 640W up to 4.5kW
- unipolar and bipolar configuration
- single or dual focal spots
- converter integrated with the high voltage tank or separate up to 2m

Outstanding reliability

Achieved by:

- a design respecting the behavior of metal ceramic x-ray tubes
- many built-in protections with error messages
- pre-programmed warm-up procedures for the whole range of COMET tubes

High stability

- voltage and current stability typically 0.05% per hour short term
- voltage and current stability typically 0.1% over 8 hours
- no influence by changes in the mains supply

High serviceability in the field

- over 30 error codes stored in the controller
- easy troubleshooting enabled by
 - a modular design that allows exchanging defective parts in the field
 - a high voltage tank that can be opened for service (no oil processing necessary)
 - the sealed epoxy assemblies in the oil that can be exchanged separately if necessary

Ease of control

- low voltage programming and monitoring signals
- optional internal RS232 circuit board is available
- incorporated intelligence to protect the x-ray tube with the benefits of opto isolation
- 12bit RS232 available with optional RS422 and extra interface functions
- easy manual operation with XRG; separate potentiometers for kV and mA

COMET XRG Controller

The versatile controller XRG1:



Hardware features

- microprocessor based controller
- 19" housing
- key switch with intermediate position for auxiliary power
- front mount potentiometers for kV, mA and time
- bright display and indication lamps
- 25 pin D-plug connection to generator
- tube configuration by internal DIL-switches

Intelligent software

- 6 operating modes (Warm Up, Radiographic, Fluoroscopic, Auto Watt, Manual and Remote Control via RS232)
- automatic operation of many basic functions
- accuracy of repeating set requirements
- separate, easy to use parametric adjustments
- up to 600 inspection techniques programmable
- detailed log file with operations points and failure modes
- including easy to use Windows software for creating and viewing log-files

Easy diagnostic

- built in 'safety' and 'fault' messages
- constant diagnostic check of generator
- constant diagnostic check of all associated equipment

Interfaces

An RS232 connection is fitted as standard, permitting the use of a host computer to control and monitor a fully integrated x-ray system

Technical specifications

Unipolar Generators

TYPE	XRP-100/600/1	XRP-100/3000/1	XRP-160/640/1 XRP-160/640/2	XRP-160/1000/1 XRP-160/1000/2	XRP-160/3000/1 XRP-160/3000/2	XRP-225/640/1	XRP-225/1600/2	XRP-225/3000/2 XRP-225/3000/1
kV Range	5 – 100	10 – 100	10 – 160	10 – 160	16 – 160	10 – 225	20 – 225	20 – 225
mA Range	0 – 12	0 – 30	0 – 10	0 – 8	0 – 30	0 – 8	0 – 30	0 – 30
Max. power (W)	600	3000	640	1000	3000	640	1600	3000
High voltage connector type*	R10	R10 or R24	R24	R24	R24	R30	R30	R30
Filament supply	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V
Stability	+/- 0.1%	+/- 0.1%	+/- 0.1%	+/- 0.1%	+/- 0.1%	+/- 0.1%	+/- 0.1%	+/- 0.1%
Voltage ripple @ full rated output	160Vpk-pk	300Vpk-pk	160Vpk-pk	170Vpk-pk	300Vpk-pk	170Vpk-pk	400Vpk-pk	400Vpk-pk
Input voltage	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz
Power requirement	1.5kVA 1ph	6kVA 1ph	1.5kVA 1ph	2.2kVA 1 ph	6kVA 1ph	1.5kVA 1ph	3.6kVA 1ph	6 kVA 1ph
Weight (kg)	102	220	102	102	220	160	240	240
Size mm (WxLxH)	360 x 613 x 482	435 x 667 x 729	360 x 613 x 482	360 x 613 x 482	435 x 667 x 729	415 x 830 x 545	435 x 818 x 780	435 x 818 x 780

Bipolar Generators

TYPE		XRP-320/1000/1	XRP-320/1600/2	XRP-320/3200/1	XRP-320/4000/1	XRP-320/4200/1	XRP-450/4500/1
kV Range		30 – 320	30 – 320	30 – 320	30 – 320	30 – 320	40 – 450
mA Range		0 – 8	0 – 30	0 – 30	0 – 30	0 – 30	0 – 20
Max. power (W)		1000	1600	3200	4000	4200	4500
High voltage connectors type*		R24	R24	R24	R24	R24	R30
Max. filament supply	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V	4.5A @ 9V	
Stability		+/- 0.1%	+/- 0.1%	+/- 0.1%	+/- 0.1%	+/- 0.1%	+/- 0.1%
Voltage ripple @ full rated output		170Vpk-pk	600Vpk-pk	600Vpk-pk	600Vpk-pk	600Vpk-pk	800Vpk-pk
Input voltage		220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz	220 VAC +/- 10% 47 – 63 Hz
Power requirement		2.2kVA 1ph	6kVA 1ph	6kVA 1ph	6kVA 1ph	6kVA 1ph	7kVA 1ph
Weight (kg)	Cathode	96	220	220	220	220	240
Size (WxLxH) mm		360x610x428	435x818x780	435x818x780	435x818x780	435x818x780	435x818x780
Weight (kg)	Anode	96	160	160	160	160	180
Size (WxLxH) mm		360x610x428	528x813x780	528x813x780	528x813x780	528x813x780	528x813x780
Weight (kg)	Converter chassis	9	9	9	9	9	9
Size (WxLxH) mm		483x515x133	483x515x133	483x515x133	483x515x133	483x515x133	483x515x133

*All high voltage connectors are tapered with flanged fittings

Drawings

Detailed drawings please find at www.comet.ch

Customised generators are available on request. Please contact us at xray@comet.ch

Configurations with Unipolar Generators												
Generator						Tube					Cable	Cooler
COMET Type	Ordering no.	Voltage range (kV)	Max. power (W)	Current range (mA)	Output connector	Recommended tube type	Ordering / Ref. no.	Focal spots (EN 12543 mm)	Terminal type Tube	Ordering no. flange	Type / Ordering no.	Type
XRP-100/600/1	10002205	10–100	640	0–12	R10	CXR-102	915102.51	2.0	R10	651142	U3/100 - R10 - R10 - Xm	XRC-1000-WA
XRP-100/1000/1	10002206	10–160	1000	0–16	R10	MXR-101 CXR-105	915343.51 915110.51	5.5 3.0	R10	651142 10001700	U3/100 - R10 - R10 - Xm	XRC-1000-WA
XRP-100/3000/1	10002207	10–100	3000	0–30	R10 or R24	MXR-102	915343.52	5.5	R10	651142	U3/100 - R10 - R10- Xm U3/100 - R24 - R10- Xm	XRC-1000-WA
XRP-160/640/1	10002208	10–160	640	0–10	R24	MXR-160/01	915313.51	0.5	R24	10001756	P3/250 - R24 - R24 - Xm	XRC-1000-WA
XRP-160/640/2	10002209	10–160	640	0–10	R24	MXR-160/20	915317.51	1.0 / 1.0	R24	10001756	P3/250 - R24 - R24 - Xm	XRC-1000-WA
XRP-160/1000/1	10002210	10–160	1000	0–16	R24	MXRP-160C CXR-150	915311.51 915200.51	0.4 x 4.0 2.0	R24	10001756	P3/250 - R24 - R24 - Xm	XRC-1000-WA
XRP-160/1000/2	10002211	10–160	1000	0–16	R24	MXR-160HP/20	915357.51	1.0 / 1.0	R24	10001756	P3/250 - R24 - R24 - Xm	XRC-1000-WA
XRP-160/1600/2	10002212	10–160	1600	0–30	R24	MXR-160/21	915302.51	1.0 / 3.0	R24	10001756	P3/250 - R24 - R24 - Xm	XRC-3000-WA
XRP-160/3000/2	10002213	10–160	3000	0–30	R24	MXR-160/22	915301.51	1.0 / 5.5	R24	10001756	P3/250 - R24 - R24 - Xm	XRC-3000-WA
XRP-160/3000/1	10002214	10–160	3000	0–30	R24	MXR-161	915305.51	7.5	R24	10001756	P3/250 - R24 - R24 - Xm	XRC-3000-WA
XRP-225/640/1	10002215	10–225	640	0–7	R30	MXR-225/01	915327.51	0.5	R24	10001756	P3/250 - R30 - R24 - Xm	XRC-1000-WA
XRP-225/1600/2	10002216	20–225	1600	0–30	R30	MXR-225/21	915325.51	1.0 / 3.0	R24	10001756	P3/250 - R30 - R24 - Xm	XRC-3000-WA
XRP-225/3000/2	10002217	20–225	3000	0–30	R30	MXR-225/22	915326.51	1.0 / 5.5	R24	10001756	P3/250 - R30 - R24 - Xm	XRC-3000-WA
XRP-225/3000/1	10002218	20–225	3000	0–30	R30	MXR-226	915332.51	7.5	R24	10001756	P3/250 - R30 - R24 - Xm	XRC-3000-WA

Configurations with Bipolar Generators												
Generator						Tube					Cable	Cooler
COMET Type	Ordering no.	Voltage range (kV)	Max. power (W)	Current range (mA)	Output connector	Recommended tube type	Ordering / Ref. no.	Focal spots (EN 12543 mm)	Terminal type Tube	Ordering no. flange	Type / Ordering no.	Type
XRP-320/1000/2	10002219	30–320	1000	0–8	R24	MXR-320HP/21	915362.51	0.9 / 3.0	R24	10001711	P3/250 - R24 - R24 - Xm	XRC-1000-OA
XRP-320/1600/2	10002220	30–320	1600	0–20	R24	MXR-320/23	915334.51	1.9 / 3.6	R24	10001711	P3/250 - R24 - R24 - Xm	XRC-3000-OW XRC-3000-OA
XRP-320/3200/1	10002224	30–320	3200	0–30	R24	MXR-322	915337.51	4.5	R24	10001711	P3/250 - R24 - R24 - Xm	XRC-4500-OW XRC-4500-OA
XRP-320/4000/1	10002223	30–320	4000	0–30	R24	MXR-321	915341.51	8.0	R24	10001711	P3/250 - R24 - R24 - Xm	XRC-4500-OW XRC-4500-OA
XRP-320/4200/2	10002222	30–320	4200	0–30	R24	MXR-320/26	915358.51	3.0 / 5.5	R24	10001711	P3/250 - R24 - R24 - Xm	XRC-4500-OW XRC-4500-OA
XRP-450/4500/2	10002225	40–450	4500	0–20	R30	MXR-420/25	915331.51	3.0 / 7.0	R24	10001711	P3/250 - R30 - R24 - Xm	XRC-4500-OW XRC-4500-OA
XRP-450/4500/2	10002225	40–450	4500	0–20	R30	MXR-451	915344.53	2.5 / 5.5	R28	10001710	P3/250 - R30 - R28 - Xm	XRC-4500-OW XRC-4500-OA
XRP-450/4500/2	10002225	40–450	4500	0–20	R30	MXR-452	915344.52	2.5 / 5.5	R28	10001710	P3/250 - R30 - R28 - Xm	XRC-4500-OW XRC-4500-OA



An uncommitted bus expansion connector and spare I/O port allow for a wide range of possible expansion options.

Technical specifications

XRG Controller	
Weight	5.3 kg
Dimension mm (W x H x D)	482 x 133 x 240
Connections	<ul style="list-style-type: none"> • Generator I/O 25 way 'D' socket • RS232 9 way 'D' plug • Installation I/O 23 way chassis plug (Burndy UTGO 1823P)
Switch selectable Tube/Generator tables	128 max.
Warm up programmes per selection	4 max.
Stored technique memories	600
Internal kV & mA resolution	12 bit
Pre-warn period (adjustable)	0.1 – 30 Sec.
X-ray on indicator	Blink/Continuous
Pre-warn indicator	Blink/Continuous
Warm up power (adjustable)	10 – 100%
Real time clock	Standard
X-ray tube hours	Up to 99999.9 hrs
RS232 requests	7
RS232 commands	7
Calculation of warm up required	Automatic
Date and time of last use	Selectable

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