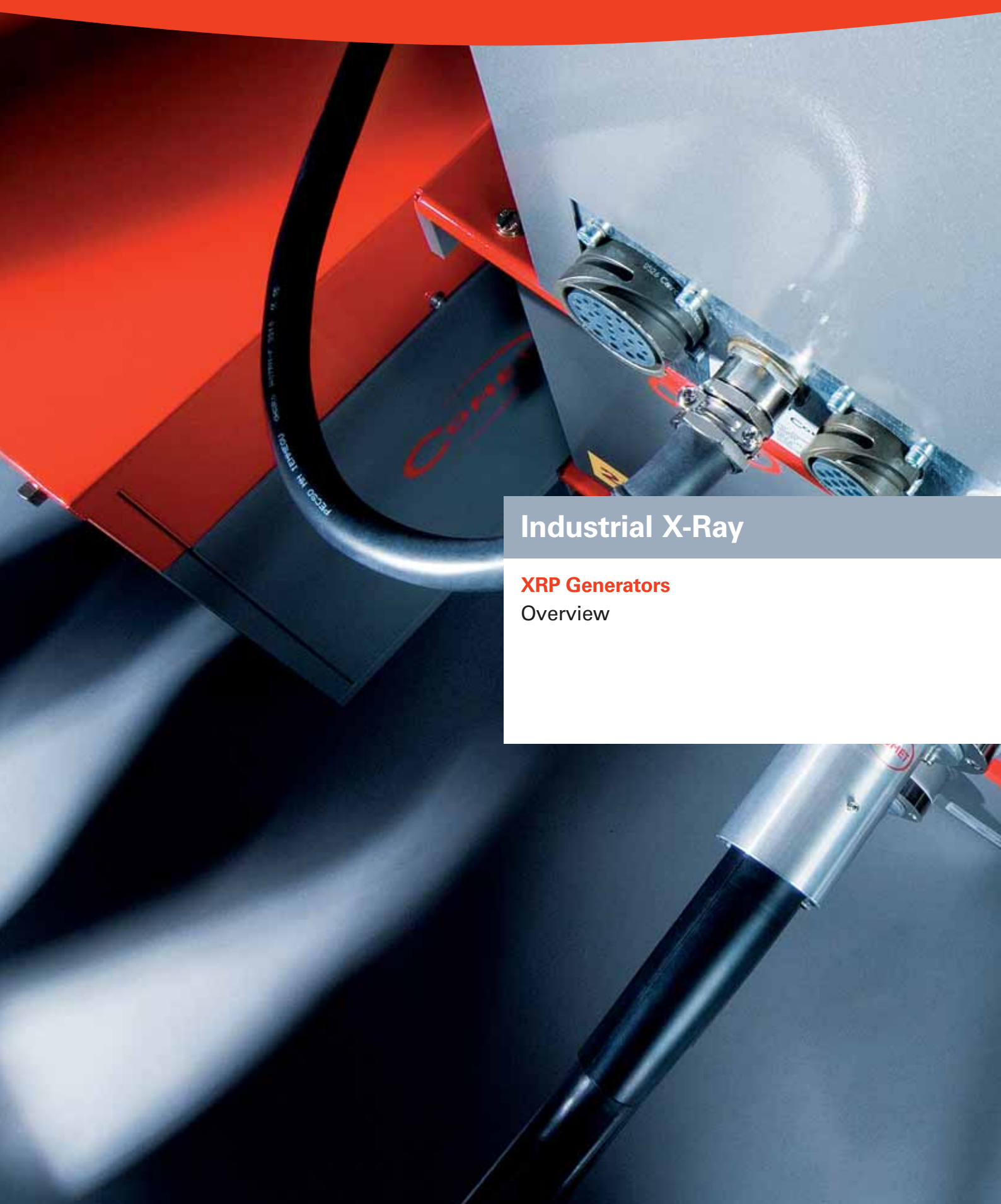




Industrial X-Ray

XRP Generators
Overview



XRP Generators

Overview

XRP Generators

COMET Industrial X-Ray generators and COMET Metal Ceramic X-Ray tubes are perfectly matched for high stable performance. The high frequency XRP Generator has been designed to meet the tough requirements of modern industrial X-Ray applications. The XRP Generator is the ideal workhorse for both radiographic and real-time applications. All generators are factory-configured and pre-tested.

COMET XRP Generators Offer

- Voltages up to 450 kV
- Power up to 4.5 kW
- Unipolar and bipolar configurations
- Single or dual focal spot control

XRP Generators Include the Following Components

Control unit

Microprocessor based controller for 19" rack mounting

Power supply

- Power supply for the high voltage section as well as the external cooler
- Integrated terminal blocks: controls for the safety circuits to the cooler, door switches, warning lamps and other remote devices

High voltage tank(s)

Oil-insulated high voltage section

About the Business Unit Industrial X-Ray

COMET Industrial X-Ray is an experienced supplier of components and modules for industrial X-Ray applications and is proud of its reputation as the preferred engineering partner in terms of innovation potential, know how, flexibility and speed. Our product range features X-Ray tubes and modules with small focal spot resolution up to 6 kW in output for more power demanding requirements. From the smallest footprint for use in portable units to 450 kV fixed gantry systems that are suitable for cargo screening.

Product Highlights

Ease of control

- All COMET tubes are pre-programmed
- Constant current mode
- Constant power mode
- Language selection: English, German, French, Spanish
- Rotary-knob manual control of kV and mA
- Large LED display
- Serial interface
- Intelligent automatic tube warm up, optimized for COMET tubes
- Remote operation up to 100 m
- Easy installation with pre-manufactured interconnection cables
- RS232 C serial port for XRP controller

Industry-proven construction, compact and service friendly

- Outstanding reliability
- Rugged, oil-insulated, high voltage components
- Compact power supply for all module components including cooler, warning lamps and safety circuits
- Stackable components save floor space

Highly stable, low-ripple kV level with

- Precise and repeatable operation
- Very low high voltage ripple
- Very low temperature drift

Safety provisions

- Two separate, independently monitored safety-circuits (fail-safe, 24 V)
- Continuous system-function monitoring with fully automated system shut-down and failure indication
- Automated filament post-heating high voltage capacitor discharge upon termination
- "X-Ray on" warning lamp monitoring provided (fail-safe)
- External safety circuit for automated systems (24 V)
- High voltage primary circuit interruption for CDRH switch (US-standard)
- Monitored door lock feature
- External coolant monitoring

Additional components

- Optical interface kit

Operational features

- High HV reproducibility
- Exact HV and mA settings
- Discharge resistance allows high availability

XRP Generator Components – Unipolar

Power supply

High voltage tank

Control unit



XRP Generator Components – Bipolar

Power supply

High voltage tank (-)

High voltage tank (+)

Control unit

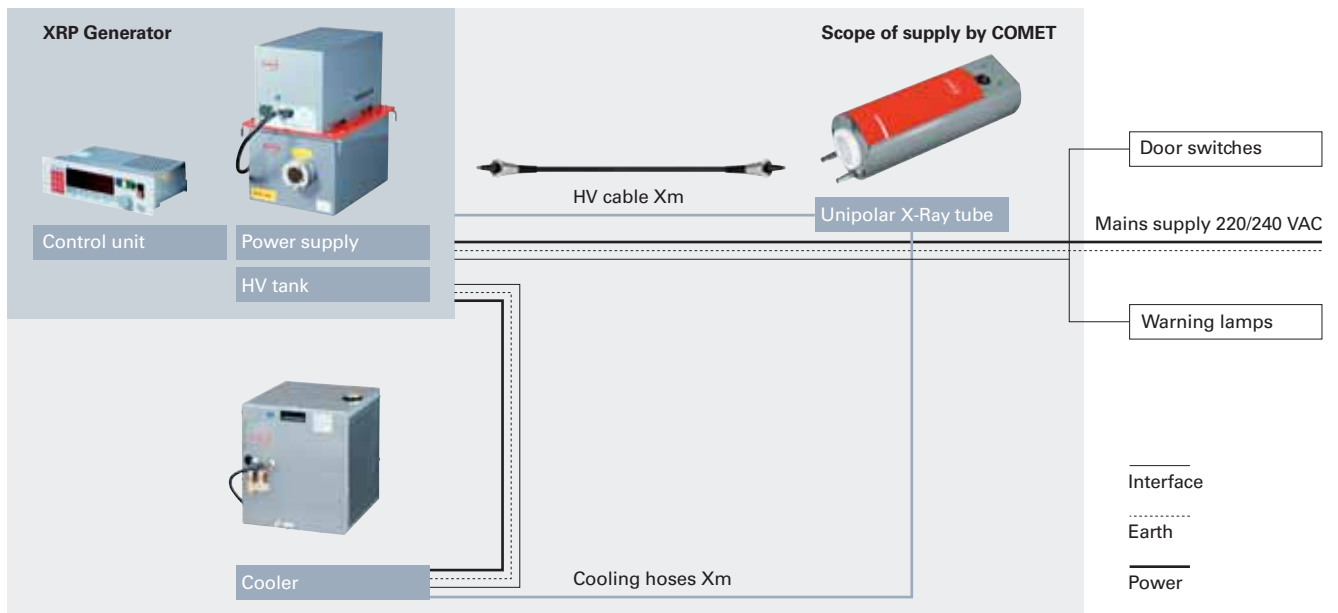


XRP Generators

Overview and Configuration Information

Unipolar X-Ray Source

Diagram of a Unipolar X-Ray Source XRS and its environment.



“One Stop Shop” for Industrial X-Ray: COMET’s XRS

COMET is pleased to offer all of the necessary components for a customized X-Ray module: The new XRS modules contain a COMET X-Ray tube, XRP Generator, HV-cables, cooler and interconnections designed for easy integration that will optimize system performance.

All XRS modules are factory pre-tested for hassle free installation and operation. This solution demonstrates COMET’s continuous commitment and investment in delivering real added value to our worldwide customer base.

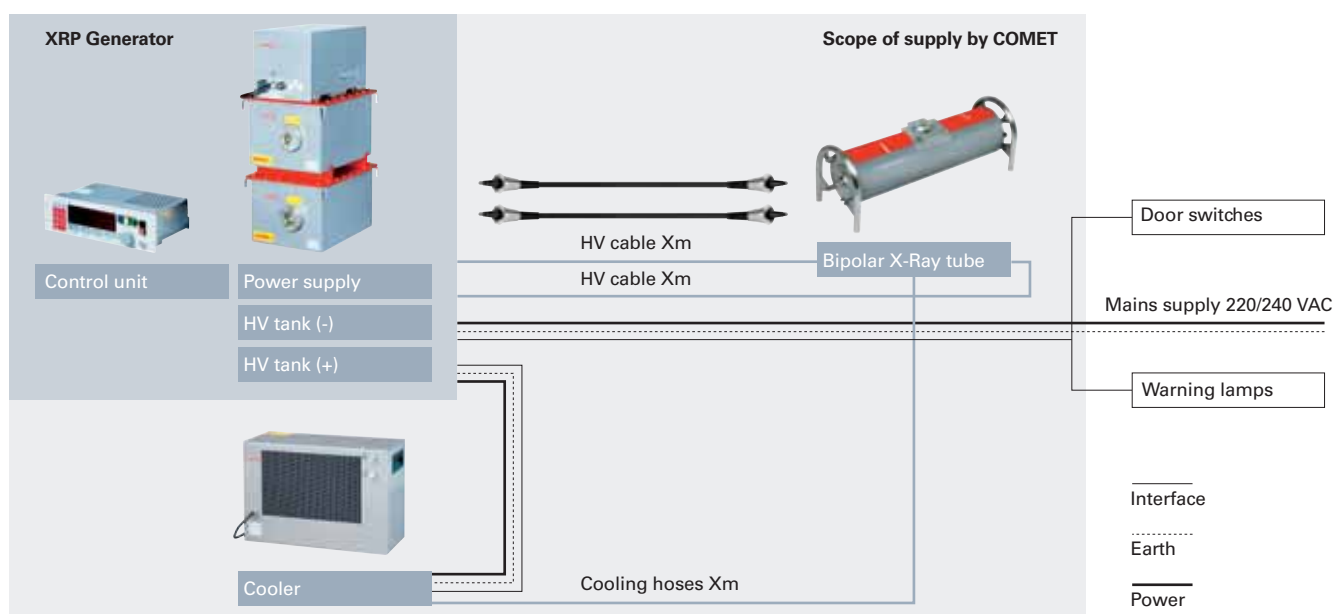
XRP Generators – Configuration Information (examples)

Overview of high voltage generators and fitting module components; tube, high voltage cable and cooler.

XRS Module	Generator						
	Type	Ordering No.	Voltage range (kV)	Current range (mA)	Max. power (W)	Output connector	Ordering No. flange
XRS-100	XRP-100/2250/2	10008861	5 – 100	0 – 22.5	2250	R24	651136
	XRP-100/4500/2	10008862					
XRS-160	XRP-160/2250/2	10008863	7.5 – 160	0 – 22.5	2250	R24	651136
	XRP-160/4500/2	10006465	7.5 – 160	0 – 45	4500	R24	651136
XRS-225	XRP-225/2250/2	10008864	10 – 225	0 – 15	2250	R28	10001710
	XRP-225/4500/2	10006466	10 – 225	0 – 30	4500	R28	10001710
XRS-320	XRP-320/4500/2	10006467	15 – 320	0 – 22.5	4500	R24	651136
XRS-450	XRP-450/4500/2	10006468	20 – 450	0 – 15	4500	R28	10001710

Bipolar X-Ray Source

Diagram of a Bipolar X-Ray Source XRS and its environment.



Tube

Tube type example	Ordering No.	Focal spots (EN 12543 mm)	Terminal type	Ordering No. flange
MXR-101	915343.51	5.5	R10	651142
MXR-160HP/11	915370.51	0.4 / 1.0	R24	10001756
MXR-160/22	915301.51	1.0 / 5.5	R24	10001756
MXR-225HP/11	915371.51	0.4 / 1.0	R24	10001756
MXR-225/22	915326.51	1.0 / 5.5	R24	10001756
MXR-320/26	915358.51	3.0 / 5.5	R24	10001711
MXR-320HP/11	915368.51	0.4 / 1.0	R24	10001711
MXR-451HP/11	915369.51	0.4 / 1.0	R28	10001710
MXR-452	915344.51	2.5 / 5.5	R28	10001710

Cable

Type	Ordering No.
U3/100-R24-R10-Xm	
N3/160-R24-R24-Xm	
N3/160-R24-R24-Xm	
P3/250-R28-R24-Xm	
P3/250-R28-R24-Xm	
N3/160-R28-R24-Xm	
N3/160-R28-R24-Xm	
P3/250-R28-R28-Xm	
P3/250-R28-R28-Xm	

Cooler

Type	Ordering No.
XRC-3001-WA	10008640
XRC-3001-WA	10008640
XRC-3001-WW	10008641
XRC-3001-WA	10008640
XRC-3001-WA	10008640
XRC-4501-OW	10008643
XRC-4501-OA	10008642
XRC-4501-OW	10008643
XRC-4501-OA	10008642

XRP Generators

Technical Data



XRP100/2250/2



XRP100/4500/2

Ordering No.

10008861

Voltage range

5 – 100 kV

Adjustment increments (minimum step)

0.1 kV/step

Accuracy

+/- 1% of output value +/- 0.1 kV

Reproducibility (at constant temperature)

+/- 0.01% of maximum kV-value

High voltage ripple (with 10 m high voltage cable)

5 V/mA, min. 20 V

Temperature induced drift

80 ppm/°C based on output value

10008862

5 – 100 kV

0.1 kV/step

+/- 1% of output value +/- 0.1 kV

+/- 0.01% of maximum kV-value

5 V/mA, min. 20 V

80 ppm/°C based on output value

Current range

0 – 22.5 mA

Adjustment standard range

in 0.05 mA steps from 0.5 mA to maximum value

High resolution range (recommended)

in 0.01 mA steps from 0.0 mA to maximum value

Accuracy (at constant temperature)

+/- 0.2% of output value +/- 0.01 mA

Reproducibility (at constant temperature)

+/- 2 µA

Temperature induced drift

50 ppm/°C of output value
(on request 30 ppm/°C possible)

0 – 45 mA

in 0.05 mA steps from 0.5 mA to maximum value

in 0.01 mA steps from 0.0 mA to maximum value

+/- 0.2% of output value +/- 0.01 mA

+/- 2 µA

50 ppm/°C of output value
(on request 30 ppm/°C possible)

Maximum power

2250 W

High voltage connector type

R24

4500 W

R24

Control Unit

Dimensions (W x H x D)

483 mm x 133 mm x 300 mm

Weight

12.5 kg

XRG

483 mm x 133 mm x 300 mm

12.5 kg

Power Supply

Dimensions (W x H x D)

340 mm x 200 mm x 628 mm

Weight

26 kg

XRP-POWER-4500

340 mm x 350 mm x 628 mm

45 kg

High Voltage Tank (Oil Insulated)

Dimensions (W x H x D)

375 mm x 335 mm x 625 mm

Weight

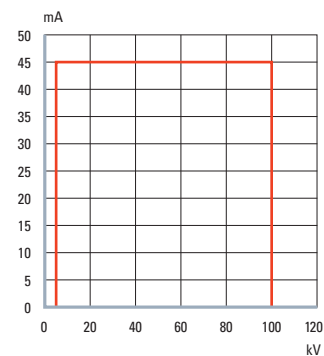
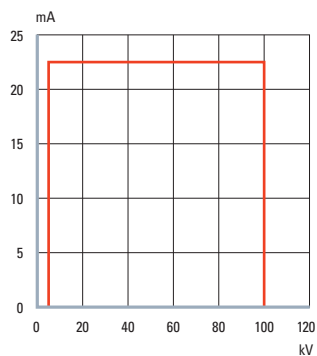
80 kg

XRP-T100K

375 mm x 335 mm x 625 mm

80 kg

Generator diagram





XRP160/2250/2

10008863
7.5 – 160 kV
0.1 kV/step
+/- 1% of output value +/- 0.1 kV
+/- 0.01% of maximum kV-value
5 V/mA, min. 20 V
80 ppm/°C based on output value
0 – 22.5 mA
in 0.05 mA steps from 0.5 mA to maximum value
in 0.01 mA steps from 0.0 mA to maximum value
+/- 0.2% of output value +/- 0.01 mA
+/- 2 µA
50 ppm/°C of output value (on request 30 ppm/°C possible)
2250 W
R24

XRG

483 mm x 133 mm x 300 mm
12.5 kg

XRP-POWER-2250

340 mm x 200 mm x 628 mm
26 kg

XRP-T160K

375 mm x 335 mm x 625 mm
80 kg



XRP160/4500/2

10006465
7.5 – 160 kV
0.1 kV/step
+/- 1% of output value +/- 0.1 kV
+/- 0.01% of maximum kV-value
5 V/mA, min. 20 V
80 ppm/°C based on output value
0 – 45 mA
in 0.05 mA steps from 0.5 mA to maximum value
in 0.01 mA steps from 0.0 mA to maximum value
+/- 0.2% of output value +/- 0.01 mA
+/- 2 µA
50 ppm/°C of output value (on request 30 ppm/°C possible)
4500 W
R24

XRG

483 mm x 133 mm x 300 mm
12.5 kg

XRP-POWER-4500

340 mm x 350 mm x 628 mm
45 kg

XRP-T160K

375 mm x 335 mm x 625 mm
80 kg



XRP225/2250/2

10008864
10 – 225 kV
0.1 kV / step
+/- 1% of output value +/- 0.1 kV
+/- 0.01% of maximum kV-value
5 V/mA, min. 20 V
80 ppm/°C based on output value
0 – 15 mA
in 0.05 mA steps from 0.5 mA to maximum value
in 0.01 mA steps from 0.0 mA to maximum value
+/- 0.2% of output value +/- 0.01 mA
+/- 2 µA
50 ppm/°C of output value (on request 30 ppm/°C possible)
2250 W
R28

XRG

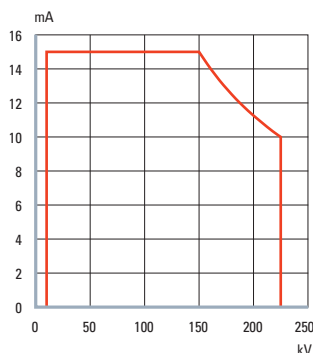
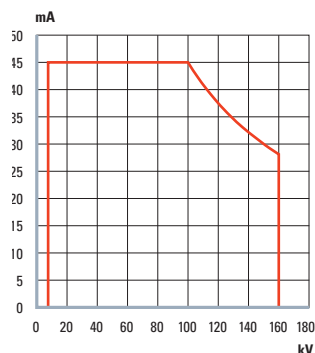
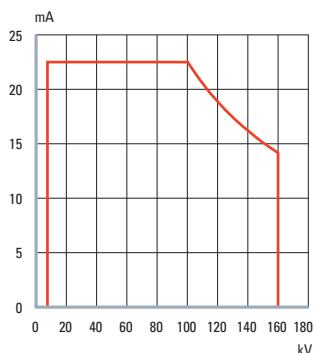
483 mm x 133 mm x 300 mm
12.5 kg

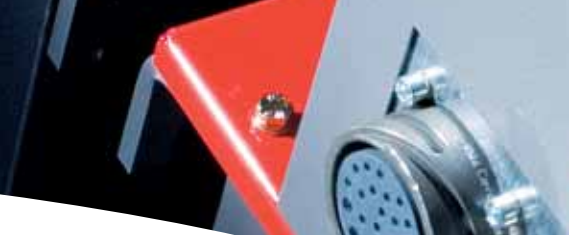
XRP-POWER-2250

340 mm x 200 mm x 628 mm
26 kg

XRP-T225K

514 mm x 364 mm x 624 mm
125 kg





XRP225/4500/2

10006466
10 – 225 kV
0.1 kV/step
+/- 1% of output value +/- 0.1 kV
+/- 0.01% of maximum kV-value
5 V/mA, min. 20 V
80 ppm/°C based on output value
0 – 30 mA
in 0.05 mA steps from 0.5 mA to maximum value
in 0.01 mA steps from 0.0 mA to maximum value
+/- 0.2% of output value +/- 0.01 mA
+/- 2 µA
50 ppm/°C of output value (on request 30 ppm/°C possible)
4500 W
R28

XRG

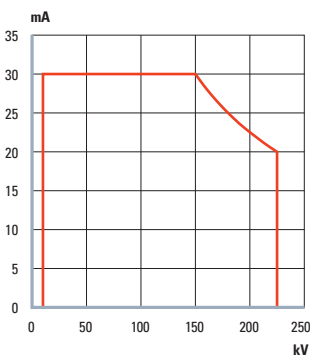
483 mm x 133 mm x 300 mm
12.5 kg

XRP-POWER-4500

340 mm x 350 mm x 628 mm
45 kg

XRP-T225K

514 mm x 364 mm x 624 mm
125 kg



XRP320/4500/2

10006467
15 – 320 kV
0.2 kV/step
+/- 1% of output value +/- 0.2 kV
+/- 0.01% of maximum kV-value
10 V/mA, min. 40 V
80 ppm/°C based on output value
0 – 22.5 mA
in 0.05 mA steps from 0.5 mA to maximum value
in 0.01 mA steps from 0.0 mA to maximum value
+/- 0.2% of output value +/- 0.01 mA
+/- 2 µA
50 ppm/°C of output value (on request 30 ppm/°C possible)
4500 W
R24

XRG

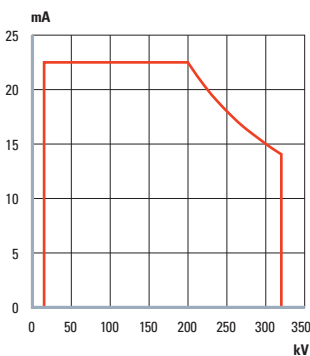
483 mm x 133 mm x 300 mm
12.5 kg

XRP-POWER-4500

340 mm x 350 mm x 628 mm
45 kg

XRP-T160K / XRP-T320A

375 mm x 335 mm x 625 mm
80 kg



XRP450/4500/2

10006468
20 – 450 kV
0.2 kV/step
+/- 1% of output value +/- 0.2 kV
+/- 0.01% of maximum kV-value
10 V/mA, min. 40 V
80 ppm/°C based on output value
0 – 15 mA
in 0.05 mA steps from 0.5 mA to maximum value
in 0.01 mA steps from 0.0 mA to maximum value
+/- 0.2% of output value +/- 0.01 mA
+/- 2 µA
50 ppm/°C of output value (on request 30 ppm/°C possible)
4500 W
R28

XRG

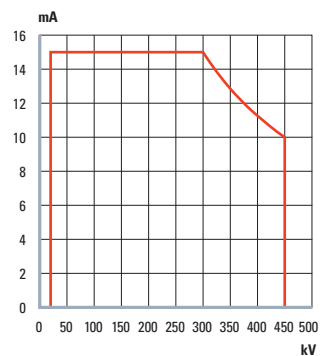
483 mm x 133 mm x 300 mm
12.5 kg

XRP-POWER-4500

340 mm x 350 mm x 628 mm
45 kg

XRP-T225K / XRP-T450A

514 mm x 364 mm x 624mm
125 kg





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Cable Flange
10001710

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High Voltage
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Do Not Touch
When Energized
See Manual
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COMET

225KV

COMET is a successful international technology company in the growth markets of security, inspection, electronics and communication. As an expert in the field of applied physics, COMET provides a complete and highly flexible portfolio of components, modules, systems and services from a single source.

COMET Industrial X-Ray is an experienced supplier of components and modules for industrial X-Ray applications and is proud of its reputation as the preferred engineering partner in terms of innovation potential, know how, flexibility and speed.

COMET – The X-perts for security, inspection, electronics and communication



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