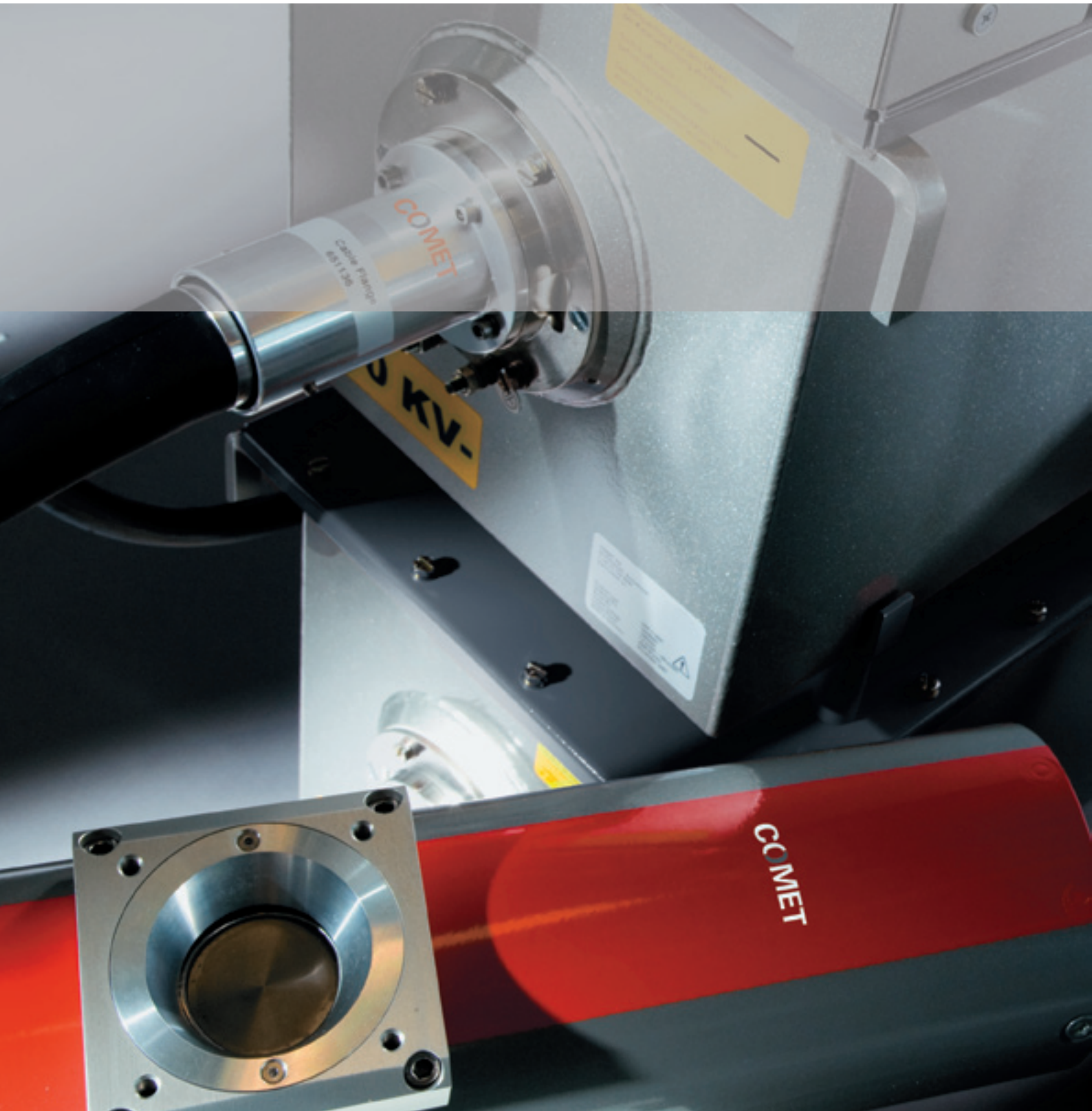


XRP Generators

Industrial X-Ray

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 600 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 (< 1 μ m) up to 6 kW in output for more power demanding requirements. From the smallest footprint for use in portable units to 800 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
- I/O Terminals included

Additional components

- Optical interface kit

Operational features

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



XRP Generator Components – Unipolar

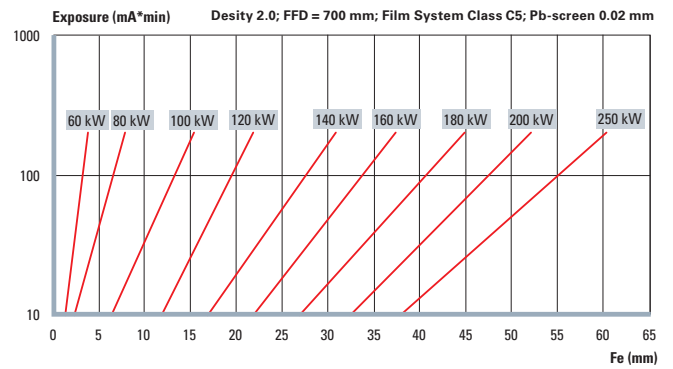


XRP Generator Components – Bipolar



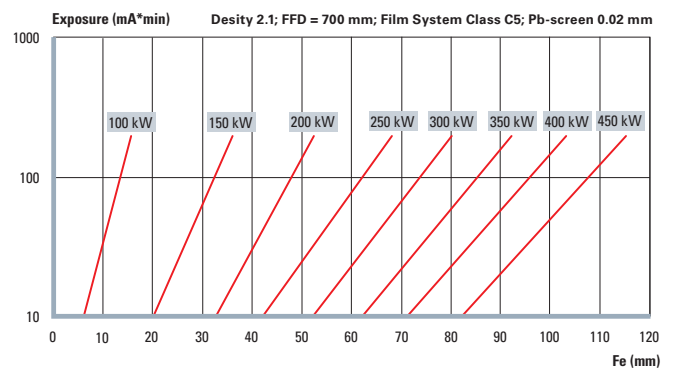
Exposure charts

Constant Potential X-Ray Systems



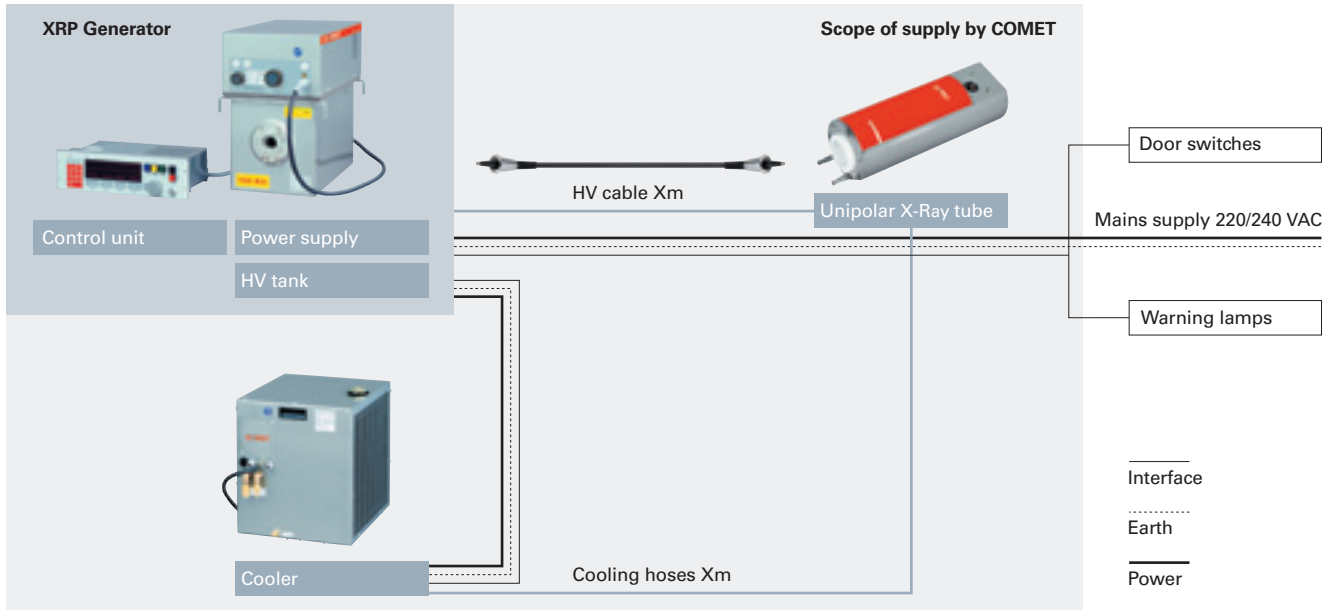
Exposure charts

Constant Potential X-Ray Systems



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.

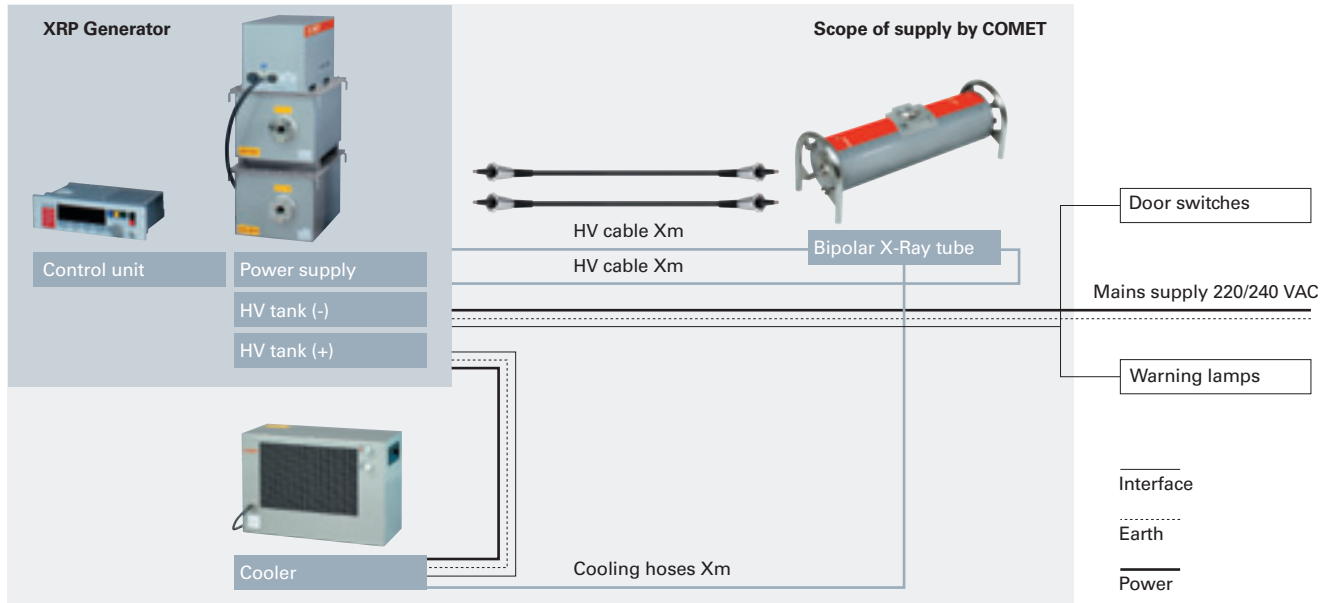
XRP Generators – Configuration Information (examples)

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

GENERATOR							
XRS Module	Type	Ordering No.	Voltage range (kV)	Current range (mA)	Max. power (W)	Output connector	Ordering No. flange
XRS-75	XRP-75/1000/1	20032831	5 - 75	0 – 17.5	1000	CA11	–
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					
XRS-225	XRP-225/2250/2	10008864	10 – 225	0 – 15	2250	R28	10001710
	XRP-225/4500/2	10006466		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
XRS-600	XRP-600/4500/2	20033926	20 - 600	0 - 10	4500	R30	651138

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)	Terminal type	Ordering No. flange
MXR-75/30	915376.51	5.5	CA11	-
MXR-75HP/20	915377.51	1.0	CA11	-
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
MXC-451HP/11	915702.51	0.4 / 1.0	R28	10001710
MXR-600HP/11	915378.51	0.4 / 1.0	R30	651138

CABLE

Type	Ordering No.
L3/75-CA11-CA11-Xm	
L3/75-CA11-CA11-Xm	
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	
F3/300-R30-R30-Xm	

COOLER

Type	Ordering No.
XRC-1001-WA	20033773
XRC-1001-WA	20033773
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
XRC-4501-OA	10008642



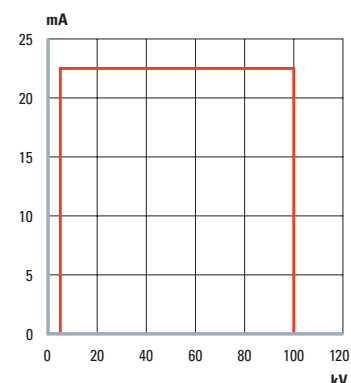
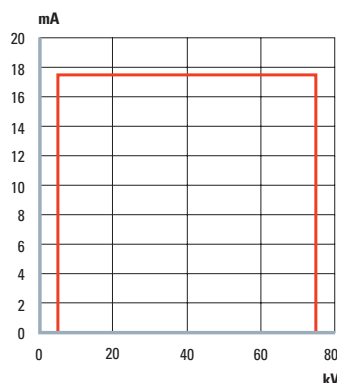
XRP-75/1000/1

XRP100/2250/2

Ordering No.	20032831
Voltage range	5–75 kV
Adjustment increments (minimum step)	0.1 kV increments
Accuracy	+/- 0.5%
Reproducibility (at constant temperature)	+/- 0.1%
High voltage ripple (with 10m high voltage cable)	+/- 0.1%
Temperature induced drift	< 50 ppm/C° of output value
Current range	0 – 17.5 mA
Adjustment standard range	0.1 mA increments
High resolution range (recommended)	–
Accuracy (at constant temperature)	–
Reproducibility (at constant temperature)	+/- 0.1%
Temperature induced drift	< 50 ppm/C° of output value
Maximum power	1000 W
High voltage connector type	CA11
Control Unit	XRG (PC Required, No integrated Controller)
Dimensions (W x H x D)	–
Weight	–
Power Supply	
Dimensions (W x H x D)	
Weight	
High Voltage Tank (Oil Insulated)	XRP-T75K
Dimensions (W x H x D)	320 mm x 130 mm x 250 mm
Weight	15 kg

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 10m high voltage cable)	5 V/mA, min. 20 V
Temperature induced drift	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)
Maximum power	2250 W
High voltage connector type	R24
Control Unit	XRG
Dimensions (W x H x D)	483 mm x 133 mm x 300 mm
Weight	12.5 kg
Power Supply	XRP-POWER-2250
Dimensions (W x H x D)	340 mm x 200 mm x 628 mm
Weight	26 kg
High Voltage Tank (Oil Insulated)	XRP-T100K
Dimensions (W x H x D)	375 mm x 335 mm x 625 mm
Weight	80 kg

Generator diagram



**XRP100/4500/2**

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

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

4500 W
R24

XRG

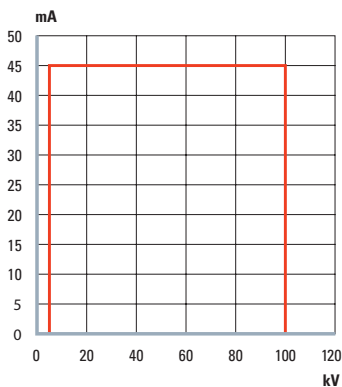
483 mm x 133 mm x 300 mm
12.5 kg

XRP-POWER-4500

340 mm x 350 mm x 628 mm
45 kg

XRP-T100K

375 mm x 335 mm x 625 mm
80 kg

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

2250 W
R24

XRG

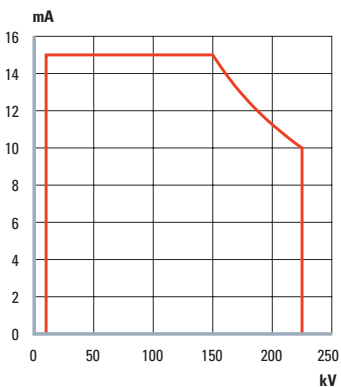
483 mm x 133 mm x 300 mm
12.5 kg

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

4500 W
R24

XRG

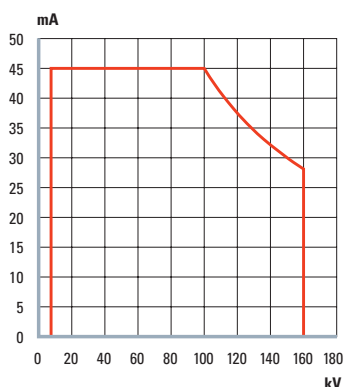
483 mm x 133 mm x 300 mm
12.5 kg

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

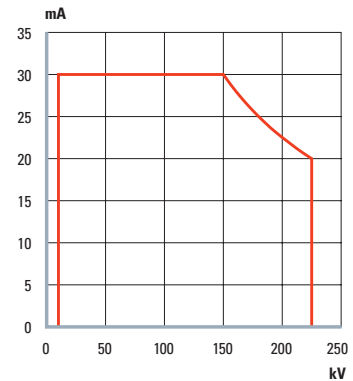
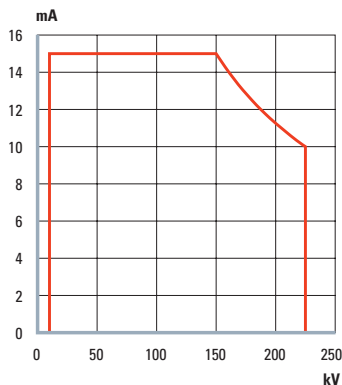
XRP225/4500/2

Ordering No.	10008864
Voltage range	10 – 225 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 10m high voltage cable)	5 V/mA, min. 20 V
Temperature induced drift	80 ppm/°C based on output value
Current range	0 – 15 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)
Maximum power	2250 W
High voltage connector type	R28
Control Unit	XRG
Dimensions (W x H x D)	483 mm x 133 mm x 300 mm
Weight	12.5 kg
Power Supply	XRP-POWER-2250
Dimensions (W x H x D)	340 mm x 200 mm x 628 mm
Weight	26 kg
High Voltage Tank (Oil Insulated)	XRP-T225K
Dimensions (W x H x D)	514 mm x 364 mm x 624 mm
Weight	125 kg

Ordering No.	10006466
Voltage range	10 – 225 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 10m high voltage cable)	5 V/mA, min. 20 V
Temperature induced drift	80 ppm/°C based on output value
Current range	0 – 30 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)
Maximum power	4500 W
High voltage connector type	R28
Control Unit	XRG
Dimensions (W x H x D)	483 mm x 133 mm x 300 mm
Weight	12.5 kg
Power Supply	XRP-POWER-4500
Dimensions (W x H x D)	340 mm x 350 mm x 628 mm
Weight	45 kg
High Voltage Tank (Oil Insulated)	XRP-T225K
Dimensions (W x H x D)	514 mm x 364 mm x 624 mm
Weight	125 kg

Ordering No.	10006466
Voltage range	10 – 225 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 10m high voltage cable)	5 V/mA, min. 20 V
Temperature induced drift	80 ppm/°C based on output value
Current range	0 – 30 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)
Maximum power	4500 W
High voltage connector type	R28
Control Unit	XRG
Dimensions (W x H x D)	483 mm x 133 mm x 300 mm
Weight	12.5 kg
Power Supply	XRP-POWER-4500
Dimensions (W x H x D)	340 mm x 350 mm x 628 mm
Weight	45 kg
High Voltage Tank (Oil Insulated)	XRP-T225K
Dimensions (W x H x D)	514 mm x 364 mm x 624 mm
Weight	125 kg

Generator diagram





XRP320/4500/2

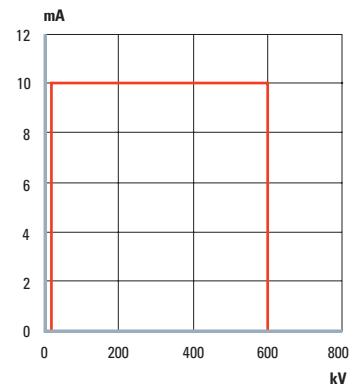
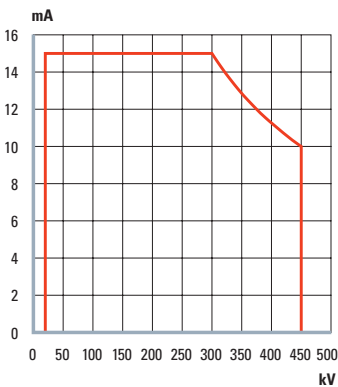
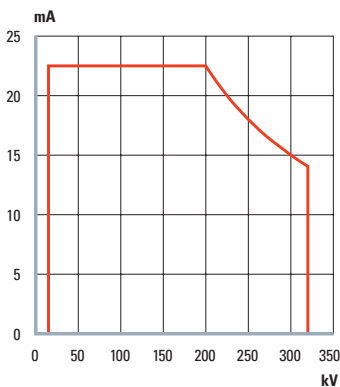
10006467
15 – 320 kV
0.2 kV/step
+/- 1% of output value +/- 0.2 kV
+/- 0.01% of maximum kV-value
10 V/mA, min. 40 V
80 ppm/°C based on output value
0 – 22.5 mA
in 0.05 mA steps from 0.5 mA to maximum value
in 0.01 mA steps from 0.0 mA to maximum value
+/- 0.2% of output value +/- 0.01 mA
+/- 2 µA
50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

XRP-600/4500/2

20033926
20 – 600
0.2 kV increments
+/- 1%
+/- 0.01%
10 V/mA, min. 40 V
80 ppm/°C
0 – 10 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
4500 W
R30
XRG-600
483 mm x 133 mm x 300 mm
12.5 kg
XRP-POWER-600
340 mm x 350 mm x 628 mm
45 kg
XRP-T300K / XRP-T600A
950 mm x 417 mm x 557 mm
180 kg





Juni 2010, specification subject to change without notice

COMET

Technology with Passion

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