

Cable type X-ray units “BASTION” series

The “BASTION” series X-ray units are designed for radiography at stationary conditions and for use with X-ray TV systems. They are developed on the basis of the latest achievements in the field of high-voltage engineering.

These units are provided with metal-ceramic X-ray tubes manufactured by the Swiss company “COMET”.

The high-voltage generator is designed in a metal cylindrical body. On the one end the body is equipped with a high-voltage socket for connecting with the high-voltage cable. On the other end an oil compensator and a low-voltage connector are fixed. The generator is filled with transformer oil under vacuum. The oil is an insulating medium and heat carrier.

Current and voltage instability makes no more than 0,05 % per hour for shorttime exposure and 0,1 % – for long-time exposure.

The Power and Control block (PCB) consists of functional devices both with power electronics and microprocessor control. The devices are mounted on printed-circuit boards and collected in rectangular box with the integrated fan. In the standard complete set the PCB design provides its wall-mounted installation.

The length of the high-voltage cable can be 5, 10, 15, 20 m, etc. according to the customer requirements.

Operation of the device is carried out from a remote PC according to the standard interface (RS-232 or RS-485). However, it

Standard delivery set:

- High-voltage generator;
- Power and Control block (PCB);
- Portable Remote control unit (RCU);
- X-ray metal-ceramic tube COMET;
- Autonomic liquid cooling system;

can be replaced by the portable remote control unit with liquid-crystal display delivered at the customer’s request.

The unit has automated self-diagnostics and X-ray tube training routines as well as all necessary electronic protection circuits ensuring its reliable operation.



- Set of hoses;
- High-voltage cable;
- Set of cables;
- Operation manuals.

Stationary X-ray Units

Technical parameter BASTION 160 kV	160/320	160/640	160/1000	160/1000 P
Anode voltage	10 ± 160 kV		20 ± 160 kV	40 ± 160 kV
Maximum anode power	320 Wt	640 Wt	1000 Wt	
Anode current	0,5 - 3,0 mA	0,5 - 10,0 mA	0,5 - 20,0 mA	0,5 - 12,0 mA
Angle of X-ray beam	40° x 30°			40° x 360°
Focal spot ¹	0,2 / 0,5 mm	0,4 / 1,0 mm		0,4 / 4 mm
Operating temperature range	-10 ÷ +45 ° C			
Dimensions of High-voltage generator	Ø132 x 570 mm	Ø132 x 590 mm	Ø135 x 650 mm	
Type of metal-ceramic X-ray insert	COMET MXR-160/01	COMET MXR-160/20	COMET MXR-160 HP/20	COMET MXRP-160 C
Technical parameter BASTION 225 kV	225/320	225/640	225/1000	
Anode voltage	30 ± 225 kV			
Maximum anode power	320 Wt	640 Wt	1000 Wt	
Anode current	0,5 - 3,0 mA	0,5 - 10,0 mA	0,5 - 20,0 mA	
Angle of X-ray beam	30° x 30°	40° x 40°		
Focal spot	0,2 / 0,5 mm	0,4 / 1,0 mm	1,5 / 3,0 mm	
Operating temperature range	-10 ÷ +45 ° C			
Dimensions of High-voltage generator	Ø168 x 750 mm			
Type of metal-ceramic X-ray insert	COMET MXR-225/ 01	COMET MXR-225/21	COMET MXR-225/21	
Technical parameter BASTION 320 & 450 kV	320/640/1600		450/900	
Anode voltage	320 kV		450 kV	
Maximum anode power	640/1600 Wt		900 Wt	
Anode current	0,5 - 20,0 mA		0,5 - 10,0 mA	
Angle of X-ray beam	40° x 40°			
Focal spot	0,8 & 1,8 / 1,9 & 3,6		1,2 / 2,5	
Operating temperature range	-10 ÷ +45 ° C			
Dimensions of High-voltage generator	2 x (Ø132 x 570) mm		2 x (Ø168 x 750) mm	
Type of metal-ceramic X-ray insert	COMET MXR-320/23		COMET MXR-451	

¹ under Standard EN 336 / under Standard EN 12543

Stationary X-ray units with liquid cooling “BASTION” model “M” series

The BASTION model “M” series, with AC main supply and microprocessor control, are designed for radiography in stationary conditions. Due to the small focal spot of BASTION 160-320 M it can be used in X-ray TV systems as well.

The monoblock consists of the X-ray glass insert with grounded anode and high-voltage power supply located in a metal cylindrical body. The monoblock is filled with transformer oil under vacuum and has oil compensator and tips for connecting liquid cooling.

The flexible low-voltage cable connects the monoblock and the power and control block. The Power and Control block (PCB) consists of different functional devices both with power electronics and microprocessor control. They are mounted on PCB and collected in a plastic rectangular box with forced ventilation of power components. At the standard configuration the design of the block provides its wall mounted installation.

Operation of the device is carried out with a remote PC according to the standard interface (RS-232 or RS-485). However, it can be replaced by the portable Remote control unit (RCU) with liquid-crystal display delivered at customer’s request.

The unit has automated self-diagnostics and X-ray tube training routines as well as all necessary electronic protection circuits ensuring its reliable operation.



Standard delivery set:

- Monoblock;
- Power and Control block (PCB);
- Portable Remote control unit with cable (RCU);
- Signal lamp with cable;
- Set of cables;
- Set of hoses;
- Operation manuals;
- Shipping cases.

Extras:

- Autonomic liquid cooling system.



Technical parameter	BASTION 160-320 M	BASTION 200-1000 M	BASTION 250-1000 M
Maximum anode power	300 Wt	1000 Wt	
Anode voltage (step length 1 kV)	10 – 160 kV	10 – 200 kV	10 – 250 kV
Anode current (step length 0,1 mA)	0,5 – 2 mA	0,5–7,5 mA	
Focal spot	0,8 x 0,8 mm	2 x 2 mm	2,8 x 3 mm
Operating temperature range	-10 – +45° C		
Angle of X-ray beam	40° x 60°		
Maximum current and voltage instability	0,1 %	0,2 %	0,25 %
Weight of Monoblock	16 kg	18 kg	24 kg
Dimensions of Monoblock	140 x 620 mm	140 x 640 mm	180 x 805 mm
Dimensions of Power and Control block	415 × 250 × 200 mm		
Weight of Power and Control block	9,5 kg		
Type of X-ray insert	0,32BDI22-160 (glass)	1,2BPE21-200 (glass)	1,8BPE11-300 (glass)