



# X-RAY Tube with photocathode



X-ray tube with cold cathode (PRT) uses built-in photomultiplier tube (PMT), as a source of electrons, instead of traditional cathodes. X-rays are adjusted by light hit the PMT photocathode. Light-emitting diode, lamp or any other source can be used as the light source. PRT can be applied in medicine (X-ray tomography), biology, x-ray space communications, in equipment for X-ray structure and X-ray spectral analyses.

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## Advantages:

- Operation in continuous and pulse modes;
- In pulse mode provides 100% modulation in range from 100 Hz to 1 MHz with a du-ty cycle of 2 (the fill factor of 0.5);
- Zero lag;
- X-ray intensity is adjusted by light-emitting diode current;
- Purity of spectrum due to photocathode (cold cathode), as a source of electrons;
- Variation of PMT photocathode material allows control of the light of different range from UV to near-IR;
- Provides anode current up to 1 mA at low anode voltages (is important with Be window);
- The same device could be used to produce soft X-ray (at low voltages) and X-ray of medium hardness (at voltages up to 100 kV).

## Construction design:

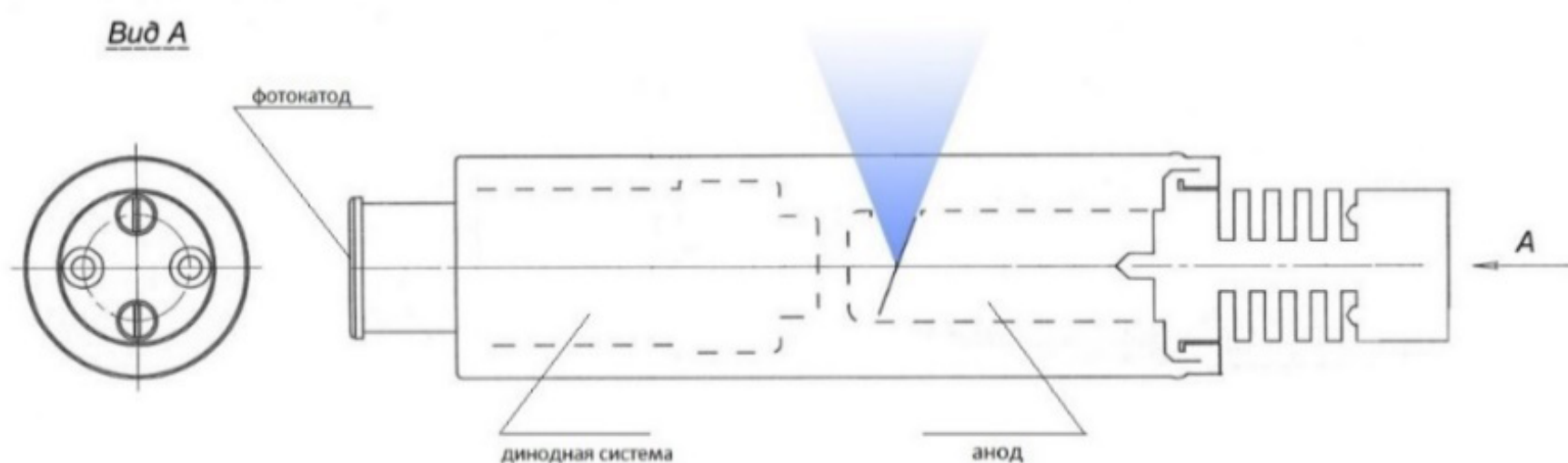
Samples of PRT of 44 mm diameter without Be window and 55 mm with Be window of 12 mm diameter. Anode materials: copper, silver, tungsten.

## SPECIFICATIONS

	Without Be window	With Be window
Tube diameter, mm	44	55
Tube length, mm (without divider)	220	290
Focus size, mm (is specified)	0,8×1,2	1,0×2,0

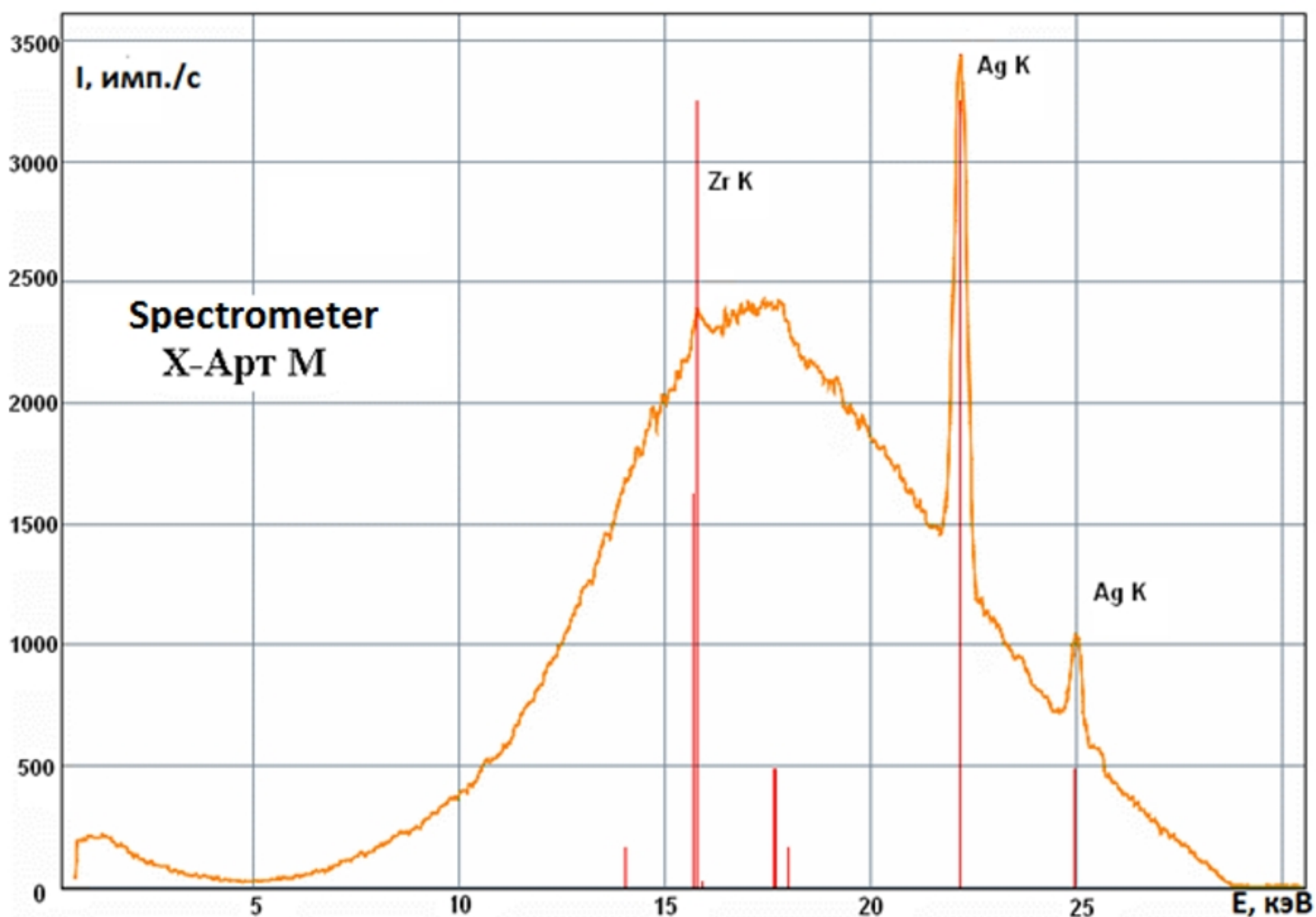
Voltage, kV	3, 40	3, 100
Anode current, mA	0,01 ÷ 1,0	0,01 ÷ 1,0
Operation speed, s	$<1 \cdot 10^{-7}$	$<1 \cdot 10^{-7}$
Power, W	$\leq 40$	$\leq 100$
Frequency range (in pulse mode), kHz	0 ÷ 1000	0 ÷ 1000

## DIMENSIONAL OUTLINE



## SPECTRAL RESPONSE CHARACTERISTICS

(anode voltage of 29 kV, current of 250  $\mu$ A). Zr K line corresponds to glass material. Anode is made of silver.



A list of the most complete specifications can be submitted under additional request.