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Effect of cathode design on dc gas breakdown VALERIY LISOVSKIY[1], RUSLAN OSMAYEV, VLADIMIR YEGORENKOV, Kharkov National University, Svobody Sq.4, Kharkov 61022 — This paper reports dc breakdown curves we registered between a flat anode and cathodes of various design (a flat one, two types of steps with different height, a cathode possessing a bump or an indentation at its center, cones of different height), the least inter-electrode distance was kept constant. We observed that the minima and the right-hand branches of breakdown curves coincided practically whereas the left-hand ones did not. At lower pressure a divergence of left-hand branches of breakdown curves was registered for cathodes of different design. For the step-wise cathodes near to or to the right of the breakdown curve minimum the gas breakdown occurs within the smallest gap between the upper part of the cathode and the flat anode. With the gas pressure lowering the breakdown occurs between the flat anode and the lateral surface of the step-wise cathode, and then its lower flat part. For conical cathodes the breakdown occurs either near its sharp edge or at the lateral surface of the cone at some distance from its edge.

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