

Heating element (1) powered by alternating current and heat generator (43) comprising the heating element (1) and control electronics (9). The heating element has a hollow body housing (3) which is closed or provided with one or more openings, and at least two electrodes (5) which are insulated from said housing (1) and from each other by means of an insulating element (4). The control electronics (9) comprises an AC mains supply unit (10), a central unit (11) and a heavy current switch unit (12). The output (15) of the heavy current switch unit (12) is connected to the heating element (1). The electrodes (5) have a polygonal or a three-dimensional curve cross-section and their longitudinal axes (8) or generating lines each form an exponential curve. A duty factor modulated AC voltage of at most 1000V amplitude, 1000-60 000 Hz is connected to said electrodes (5).