



Figure 18.15 Schematic diagram of (a) a flat-plate electrode and; (b) a tubular-plate electrode

are primarily used in high-power applications like the ignition of motors. The first results show good cycle-life behaviour.

Lead acid batteries are used today in many different applications, therefore a large variety of application-specific batteries are in the market. They can be distinguished by their specific power, their cycle life and their float lifetime. Float lifetime is the relevant parameter for batteries in uninterruptible power supplies where the batteries are subjected to only very few cycles in case of failure of the mains, but they should have long operating lifetimes while always being 100% charged. The main battery types for different applications and their typical operating conditions are as follows:

SLI (starting, lighting, ignition) batteries: Used for starting of engines; very high power capabilities even at low temperatures; traditionally only very low capacity throughput; subject to high temperature fluctuations; the largest global market for lead acid batteries with respect to the capacity; production companies in almost all countries throughout the world; the operation profile is changing in modern cars as cars have a very high power demand beside starting owing to numerous electric applications in cars like seat heating, electric window lift or HiFi systems. The batteries are made from very thin flat-plate electrodes to achieve high power. SLI batteries are a mass product, highly automated and are therefore very cheap.