

### Power electronics drive many of today's and future products and systems

Siemens is positioned at the leading edge of technology and is with 80 billion revenues and around 400.000 employees one of the largest electric and electronic companies worldwide. Power electronics play an important role in all four sectors – many products include such devices in all



Magnetic resonance imaging scanner Magnetom Verio

voltage and power levels. Siemens has intensive research programs in the field of power electronic components itself but especially in the field of their application in products and systems. Internal research as well as close research cooperation with universities is the base for new technologies as part of new products and systems for demanding markets and applications.

### Improving public healthcare

Power electronics are an essential part of many medical equipment and systems of the sector Healthcare. For example by high speed dynamic controlling of the currents for generating high strength magnetic fields inside magnetic resonance imaging scanners (MRI).

### More, more efficient and more sustainable energy

For many years power electronics are used in high power and high voltage energy equipment – for instance thyristors and IGBTs for high voltage DC transmission (HVDC). The transformation of today's grid to handle an ever increasing amount of fluctuating renewable decentral energy generation requires an efficient transmission of electrical energy locally as well as over wide distances. All options and techniques to solve this have as a common base the need for power electronics to provide the necessary control of electrical energy transmission.



Thyristor blocks for HVDC transmission



Cyclo converter Sinamics SL150

### Modern cities and infrastructure

Reliability, safety, security and flexibility play an important role in medium and low voltage power distribution, in urban railway infrastructure as well as with innovative smart grid technologies. Urbanisation stands for a rapid growth of cities to mega cities and this drives the need for power electronic equipment to distribute and control electrical energy flows in a highly densified urban environment.

### Automation and drives technology

Automation and drive products were the main application of power electronics for many decades. More or less every factory and plant use such equipment. New applications with very dynamic growth emerge with small and big scale regenerative power generation such as photo voltaic and wind turbines and the electrical passenger car.