

Power Conversion Systems

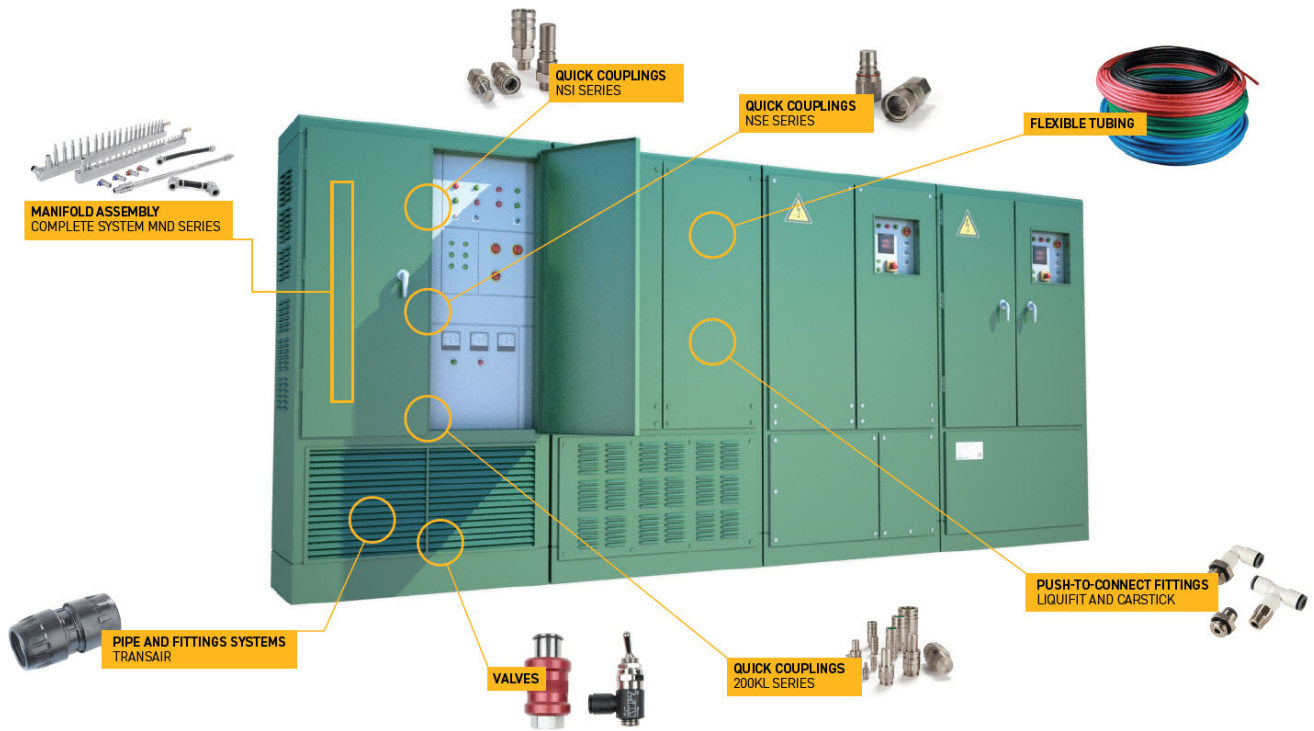
Power Generation

Application Overview

There is no doubt that the operating environment has a major effect on the life and reliability of electronic assemblies. Power conversion systems in particular are susceptible to life and reliability degradation, as there are usually several components within the system whose losses all combine to raise the operating temperature. This includes switching and conduction losses in semiconductor devices as well as losses in passive components such as magnetics, filter damping resistors, and bus bars.



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Innovative Products for Power Conversion Systems

Power conversion systems can be air-cooled or water-cooled. The water-cooled technology is especially used when the power rating is over 3000 kW, for space saving, in dusty environment or in case of noise limitation.

Among the numerous end-markets, the water-cooled converters are mainly used in following industries:

- Industrial (industrial devices, stationary applications)
- Automotive & Mobile (electric vehicles, plug-in hybrid vehicles, hybrid vehicles)
- Marine (electric and hybrid propulsion systems for ships and vessels)
- Power Generation (electrical grid, renewable energy sources)



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Customer Challenges

The energy transition is leading three major challenges for power conversion sector:

- Energy storage - deferring an amount of the electricity that was produced until the moment it is required for use
- Power conversion - to alter the voltage and frequency of incoming alternating current in the grid
- Energy saving at each point of use

A massive increase in renewable energy generation, the electrification of the heating sector, the hybridization of the marine propulsion systems and expanding electric vehicle networks are accelerating the need for efficient, reliable, and economical energy storage and conversion systems.



Application Differentiators

Parker offers a variety of thermal management solutions for the power conversion industry, including:

- Thermal efficiency - full flow solutions and sealing expertise
- Easy maintenance - modular solutions that are easy to use
- Productivity - quick connection solutions to reduce down time
- Complexity reduction - full range of products available