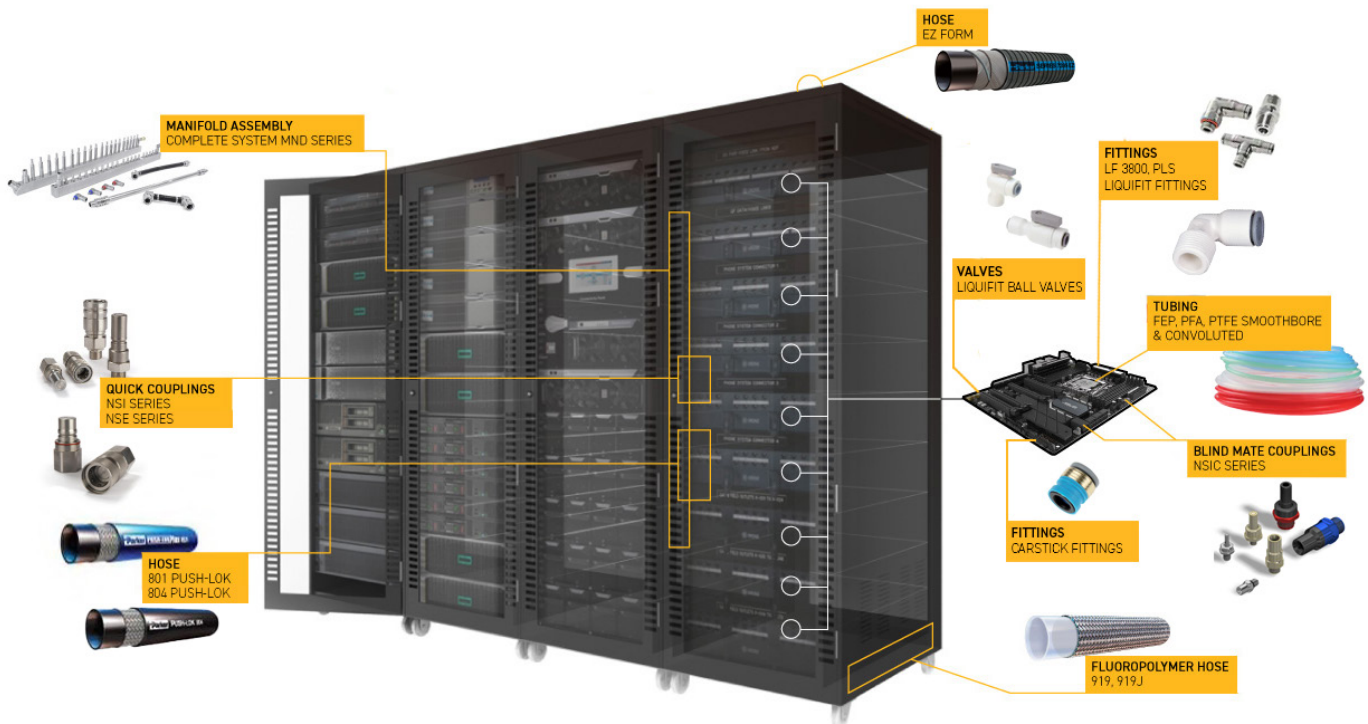# Data Centers
Electronics

Application Overview

Data centers are vital to organizations as they store, communicate and transport the information we generate each and every day. However, most data centers today use outdated infrastructures with inefficient systems, having failed to adapt to emerging technologies. This notion, as a result, limits the capacity to produce meaningful information. Parker's fluid conveyance solutions are here to help.

Click the images below for additional information.

HOSE
EZ FORM

MANIFOLD ASSEMBLY
COMPLETE SYSTEM MND SERIES

FITTINGS
LF 3800, PLS
LIQUIFIT FITTINGS

VALVES
LIQUIFIT BALL VALVES

TUBING
FEP, PFA, PTFE SMOOTHBORE
& CONVOLUTED

QUICK COUPLINGS
NSI SERIES
NSE SERIES

BLIND MATE COUPLINGS
NSIC SERIES

FITTINGS
CARSTICK FITTINGS

HOSE
801 PUSH-LOK
804 PUSH-LOK

FLUOROPOLYMER HOSE
919, 919J

Innovative Products for Data Centers

Chip manufacturers developed chips with extremely high computing power, that generate heat to levels that cannot be cooled by the average air systems. This forced the Electronics industry to develop and deploy liquid cooling systems that support the use of chips in data centers.

Liquid cooling systems come in a few different variations, but in its most general form, it begins with the Central Distribution Units or CDU's pump warm fluid. The flow is then directed to rack manifolds, which are aligned vertically with the server rack. From these manifolds, hoses connect to the back of each server chassis or IT gear. Inside each chassis, there are fluid lines that connect to cold plates, which cover the processing chips and absorb the heat as the fluid passes. After the fluid has absorbed heat across the chips, it flows out of the IT gear and to a chiller that lowers the fluid temperature to the optimal level before flowing back through the CDU a closed loop system.

Parker

ENGINEERING YOUR SUCCESS.

Customer Challenges

Customers face many challenges in Data Centers. Here are a few common challenges that we Parker is here to help solve;

Couplers are most commonly installed on rack manifolds, both chilled and hot water lines. Couplers can also be located in various areas depending on the system architecture or located directly on the back of the IT or a Gear server. Larger quick disconnects are found on the CDUs and at the inlet of the rack manifolds.

Hoses transfer fluid from the CDUs to the rack manifolds and from the rack manifolds to the IT gears. Both tubing or hose can be used inside IT gear to connect the fluid from the back of the IT gear to the cold plates.

There is accessible push-in fittings that are attached to the cold plates and other hardware that may be on the loop.
Here are a few challenges for this application:
  - Energy efficiency
  - Maintaining system pressure
  - Leak prevention around critical electronics
  - Space constraints – customers would like
to fit more chips (performance) in IT gear / server racks.

Application Differentiators

Parker has the capacity to design products that maximize flow and decrease pressure drop. This allows the cooling system to run as efficiently as possible or otherwise allow system architects to optimize their system design. Parker's technical knowledge and experience puts us ahead of others with leak prevention product design - giving data center operators the peace of mind that their fluid connections will perform in this environment. Servers & data centers are expected to have the second largest market growth during the forecast period, by end-user application. Data centers consist of thousands of data processing equipment such as servers, switches, and routers, which radiate large quantities of energy and heat. The heat generated in these data centers must be properly dissipated to prevent rise in temperature and consequent degradation of their reliability, which leads to additional maintenance costs. In data centers, thermal management is necessary to carry out smooth operations such as data placement, data migration, data replication, and data access task distribution as well as scheduling and controlling disk speeds.

" Since 2007, Strong Distribution, Powerful Partnerships"