

DuPont™ Nomex® & PDI Data Center Study

Power Distribution, Inc. or better known for data center equipment as PDI, is a leading supplier of power distribution and monitoring solutions that have been designed specifically to address the critical needs of data centers. For this application, transformer reliability is of the utmost importance and PDI relies on DuPont Nomex® insulation systems to achieve the reliability that their customers have come to expect. Information technology (IT) remains a critical aspect of organizational operations. Planned on a small scale in data rooms and on a commercial scale in data centers of server farms, companies rely on these data network systems to run their operations. PDI provides mission critical power transformation, distribution and monitoring solutions for:

- Enterprise Data Centers
- Colocation or Colo Data Centers
- Edge Data Centers
- Hyperscale Data Centers
- Web scale Data Centers
- Cloud Data Centers
- IOT Data Centers

So, what is a data center? Milestone Technologies, Inc. defines a datacenter as a “facility that houses a group of networked servers organized to store, process or distribute data. They go on to say “Humans have generated more data in the last two years than in the entire history of the human race, and we’re projected to reach 40 zettabytes within the next four years. To put that into perspective, 1 zettabyte is approximately 1,099,511,627,776 gigabytes”.

Today, we are voluntarily sharing an ever-increasing amount of personal data in electronic format. This data processing and storage system is fueling the industry



growth in the data center market. The transformers feeding the servers are a combination of MV and LV with a focus on safety and reliability. The MV dry-type transformers are commonly installed indoors to reduce losses and are used to transform the utility distribution voltage of 36.5kV down to 600 volts for distribution inside the server rooms. From there, the network then connects to a Power Distribution Unit (PDU) that contains a low voltage isolation transformer, distribution breakers, metering circuits, and / or static transfer switches. These low voltage transformers typically incorporate electrostatic shielding (ESS) to limit the noise transmission from winding to winding and are very compact as floor space is at a premium. Many installations also require very low inrush requirements for energizing the transformer's core since the transfer switches are protected by instantaneous overcurrent breakers and nuisance tripping of the critical data center loads are to be avoided. Meanwhile, the LV transformers in the PDUs must be designed to require minimal maintenance and for optimal reliability in the interconnections and the major insulation system. The insulation system of choice used by PDI is rated at 240°C using DuPont Nomex® 410 materials, which offer extended life and reliability.



Visit ei.nomex.com to learn more.

Product safety information is available upon request.

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