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10 REASONS SOUTHWIRE'S MACHINE FLEX® IS THE MOST EFFICIENT CABLE TRAY WIRING FOR DATA CENTERS

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1. VERSATILE INSTALLATIONS

A cable tray is a type of raceway designed to hold feeders, branch circuits, control, and signaling wiring. In data centers, tray cables are among the most widely used wiring solutions along structured pathways to support high-density power distribution. Southwire's Machine FLEX® tray cable provides robust performance and installation versatility, meeting NEC® Articles 336 and 392 for permanent installations. These products can also be used in Class I and II, Division 2 hazardous locations under NEC® Articles 501 and 502, making them suitable for harsh environments. These cables also pass the UL® 1685/ IEEE 1202 vertical-tray flame test and are marked CSA® FT4, ensuring reliable fire performance.



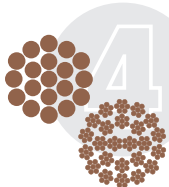
2. SUPERIOR ER RATING

Machine FLEX® tray cable features an Exposed Run (-ER) rating, allowing it to be installed without conduit and connected directly from the tray to the equipment. This capability streamlines installation, reducing both labor time and material costs while maintaining full code compliance. Without the need for conduit, installers gain greater flexibility when routing cable through equipment-dense layouts that are common in modern data centers. Overall, the -ER rating enhances job-site productivity and supports efficient project execution.



3. ESSENTIAL DP-1 MARKING

Machine FLEX® tray cables are certified to UL® 1690 – Data Processing Cable with a DP-1 rating, which is required for routing power and control wiring through under-floor channels in raised-floor environments. This designation provides greater flexibility in powering equipment and server racks while enabling clean, well-organized cabling beneath the IT infrastructure. By keeping wiring concealed, cables marked DP-1 help maintain a neat environment with proper airflow, improving overall system reliability. They are also compliant with NEC® Article 645, which establishes electrical installation requirements for information technology equipment rooms and data processing facilities.



4. UNMATCHED FLEXIBILITY

Machine FLEX® tray cables incorporate fine Class K stranding and Class I stranding in larger sizes, making them well-suited for equipment-dense data centers. These flexible rope-lay conductors meet ASTM® B3, B172, and B174. Compared to a 19-strand design, an 8 AWG conductor made with 168 fine strands offers greater flexibility, enabling faster pulls, easier routing, and quicker terminations, reducing overall installation labor. This superior design also enables cleaner, more secure terminations within high-density panels and switchgear, reducing the risk of strand damage during cable preparation. Ultimately, this flexibility accelerates installation and enhances reliability in environments where space is limited and uptime is critical.



Southwire

**CABLETECH
SUPPORT™**

Services

**CABLETECHSUPPORT™ SERVICES
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Southwire's CableTechSupport™ Services team is composed of experts with advanced degrees and certifications in electrical engineering. Each year, the team fulfills over 20,000 technical requests, supporting utility, industrial, residential, and commercial customers. Our whitepapers and patent-pending calculators empower users to



independently select appropriate solutions. Scan the QR code to access our new Re3™ AI Chatbot and the electrical industry's most comprehensive technical library.



DATA CENTER SPECIFICATION LIBRARY

Southwire's CableTechSupport™ Services team is actively engaged in codes and standards committees, including NEMA. We have made significant contributions to the NEMA WC 23008-2025 standard – Design Considerations for Wire and Cables/Conductors in Data Center Applications. Our engineering specification library serves as a comprehensive resource for more than 130 products aligned with this NEMA reference.

Scan the QR code to access our reinforced, resilient, and reliable designs, and use the dropdown menu to locate common products tailored to specific data center functions such as low voltage power distribution.

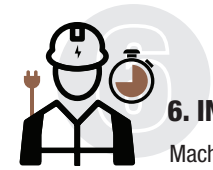


Southwire®



5. COMPACT DESIGN

Type W stranding is commonly used in mining and portable power applications; however, although it is not permitted for cable tray installations, it is still often found in data centers. Machine FLEX® tray cables are 25% more compact than Type W, giving it the flexibility to bend around tighter corners and pull smoothly through narrower raceways, including metal cable trays. Its lighter weight not only improves installation efficiency but also reduces pulling tension, helping to minimize strain on both equipment and labor. Additionally, by using less raw materials, the cable lowers its environmental footprint, supporting sustainability goals without compromising performance or long-term reliability.



6. INSTALLERS' PREFERENCE

Machine FLEX® tray cable features a PVC/nylon insulation that is 42% thinner and an overall TPE jacket that is 53% thinner than its Type W counterpart, making it 28% lighter, allowing for effortless handling and more efficient installation. Additional labor savings come from the quick strippability of both the insulation and the jacket during cable terminations. Together, these characteristics reduce installation effort and time, which is why Machine FLEX® cables are widely preferred by electrical contractors and frequently specified by hyperscale data center owners and designers.



7. HEAT DISSIPATION

Machine FLEX® has a smaller overall diameter, reducing cable tray fill ratios and creating more open space for heat to dissipate. This improved airflow helps maintain stable conductor temperatures and often eliminates the need for ampacity-derating when spaced according to NEC® Article 392. Larger cables, by contrast, increase fill ratios and restrict airflow, raising the likelihood of ampacity derating. By minimizing trapped heat, smaller Machine FLEX® cables help prevent overheating and thermal-runaway risks, supporting safer and more reliable power distribution in demanding infrastructure projects, including heavy industrial plants and data centers.



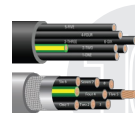
8. REGULATORY COMPLIANCE

In addition to meeting NEC® requirements for cable tray installations, Machine FLEX® is UL® and CSA® listed, NOM-certified through ANCE, and CE-marked, allowing its use in the United States, Canada, Mexico, and European countries. The product meets five UL® standards UL 1277, 1063, 2277, 1690, and 758 as well as three CSA® standards, including CSA 210 and 239/230. These certifications support multiple product designations, such as UL Type TC-ER (Tray Cable–Exposed Run), MTW (Machine Tool Wire), WTTC (Wind Turbine Tray Cable), AWM Style 2587 (Appliance Wiring Material), DP-1 (Data Processing Cable), and CSA CIC/TC (Control and Instrumentation Cable/Tray Cable).



9. RISK PREVENTION

Machine FLEX® offers the most efficient labor-saving alternative to multi-conductor Type W cable, which is only permitted for temporary power or portable equipment uses. Its tray-rated design reduces the risk of rejection by inspectors due to NEC® non-compliance in cable tray applications. The smaller cross-sectional area minimizes the likelihood of excess heat buildup or thermal runaway associated with tray overfill conditions. Additionally, its lower minimum bending radius helps mitigate damage to the conductor or insulation caused by excessive mechanical strain during installation.



10. 800VDC DATA CENTERS

DC systems and microgrids are increasingly being viewed as essential components of the grid of the future, offering greater efficiency and flexibility by reducing conversion losses. Power and control cables ranging from 18 AWG to 1,000 kcmil copper can be designed to the UL® 1277 tray-cable standard, with no limitations on conductor size or count. These products support voltages up to 1,000 volts AC or DC and can operate continuously at temperatures up to 90°C in dry locations. They are frequently used to interconnect fixed equipment, motor leads, control wiring, and power distribution in renewable energy systems, battery energy storage installations, and AI-driven data center facilities.