
T&B Cable tray

Introduction

Cable tray wiring systems offer significant advantages over conduit pipe and other wiring systems. Cable tray is more cost efficient, more reliable, more adaptable to changing needs and easier to maintain. In addition, its design does not contribute to potential safety problems associated with other wiring systems.

The benefits of cable tray

An evaluation of the costs and benefits of various wiring systems should be done in the design phase. Avoiding the system selection process or deferring it until construction, often results in higher costs, scheduling delays and a system that will not meet future needs.

Selection of a wiring system that is not the most suitable for a particular application in terms of cost, potential corrosion and electrical considerations can lead to numerous problems, including excessive initial cost, poor design, faulty installation, extra maintenance, future power outages and unnecessary safety concerns.

Cost efficiency

Extensive experience has shown that the overall cost of a cable tray installation (including conductor, material and installation labor costs) may be as much as 60% less than a comparable conduit wiring system.

Cable tray systems, including trays, supports, fittings and other materials, are generally much less expensive than conduit wiring systems. In addition, major cost savings are generated by the relative ease of installation. Labor costs of installing a cable tray system can run up to 50% less. Total cost savings will vary with the complexity and size of the installation.

Direct cost savings are easy to calculate during the design phase of an installation, but the enormous advantages of cable tray may accrue only over time. The system's reliability, adaptability, ease of maintenance and inherent safety features result in many other types of cost savings, including:

- Lower engineering and maintenance costs
- Less need to reconfigure system as needs change
- Less down time for electrical and data handling systems
- Fewer environmental problems resulting from loss of power to essential equipment

Reliability

Cable tray systems offer unsurpassed reliability, resulting in less maintenance and down time – important considerations for all installations and especially for industries such as data communications and financial services.

In addition, since cable tray is an open system, moisture build-up problems are eliminated and damage to cable insulation during installation is also greatly reduced.

Adaptability

A major advantage of cable tray systems derives from their adaptability to new needs and technology. The pace of change in the economy, constantly shifting competitive pressures and rapid introduction of innovative technologies are all accelerating. More than ever before, businesses must be prepared to quickly expand facilities, change products or introduce new processes. The flexibility of the wiring system is a key consideration.

Modifying a cable tray system or adding cables to meet new needs is relatively easy because cables can enter or exit a tray at any point, and initial design considerations can build in extra capacity as part of the planning process. Cable tray's inherent adaptability allows rewiring for future expansion, building redesign or new technologies without disruption or need to replace the entire wiring system.

Maintenance

Cable tray wiring systems require less maintenance than conduit systems. When maintenance is necessary, it is easier, less time-consuming and less labor intensive.

The physical condition and status of both the cable tray and cables can be inspected visually, something that is not possible with conduit systems. In addition, it is also easy to see if there is sufficient capacity in the trays for additional cables. As was noted above, changing or adding cables can also be accomplished easily.

Another comparative benefit of cable tray systems is that they do not act as channels of moisture paths, as conduit wiring systems do. Conduit systems tend to collect condensation resulting from changes in temperature and then channel the moisture to electrical equipment, where it can lead to corrosion and failure.

Cable tray and tray cable are also less susceptible to fire loss than conduit. An external fire usually results in damage to only a few feet of a cable tray system, while wire insulation inside a conduit suffers significant damage and thermoplastic insulation may actually fuse to the conduit.

Safety

Cable wiring systems lack the inherent safety concerns of conduit systems.

By its nature, a conduit wiring system can serve as a flow-through for corrosive, explosive and toxic gases in the same way that it channels moisture.

The conduit installation process can also present a safety issue for electricians. The process requires that a conduit system be installed from one enclosure to another before pulling in the conductors, leaving the electricians exposed to any live, energized equipment that may be in the enclosures. In contrast, installers can pull tray cables from near one termination enclosure to the next before they are inserted into the enclosures and then terminated.

Finally, in installations where cable tray can be used as the equipment grounding conductor (per NEC standards), it is easy to visually check the system components as well as conduct checks for electrical continuity.