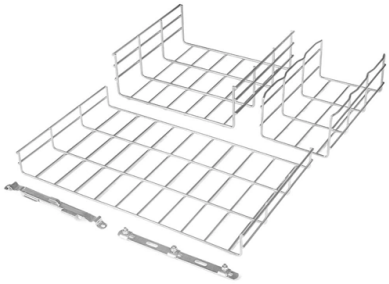
Capacity of multiple electrical distribution boxes on the construction site



Overview

Built for organized, high-capacity power distribution where multiple dedicated circuits and breaker protection are required.

Key Takeaways

Construction site electrical distribution boxes typically handle power from 17 kW (32A) up to 130 kW (250A), supporting both single-phase and three-phase loads depending on the site's requirements.Power Ratings and Voltage

Construction site distribution boxes, also known as temporary power boxes or spider boxes, are designed to safely distribute electricity across dynamic job sites. They can handle single-phase 120/240V loads for smaller tools and lighting, as well as three-phase 120/208V or 277/480V loads for heavy machinery and industrial equipment . Typical power levels for main supply boards range from 17 kW (32A) to 130 kW (250A), allowing them to accommodate both small and large construction projects .

Circuit Capacity and Configuration

These boxes often come with multiple circuit slots or interlocked socket-outlets. For example, some models can house up to 12 interlocked socket-outlets or 60 DIN modules, providing flexibility for various equipment needs . Each circuit is usually protected with miniature circuit breakers, fuses, or ground fault circuit interrupters (GFCI) to prevent overloads and ensure safety .

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Selection Considerations

When choosing a distribution box, it is important to:

• Calculate total power demand by listing all equipment and their wattage, including startup surges for motors and heavy machinery .

• Plan for future growth to avoid overloading the system as the project expands .

• Match voltage and current ratings to the equipment being used to maintain safe operation .

• Consider environmental conditions, ensuring the box has appropriate IP/NEMA ratings for outdoor use and resistance to moisture, dust, and impact .
Mobility and Safety Features

Construction site boxes are often mobile, with handles, wheeled carriages, or floor-mounting supports for easy relocation . They are built from durable materials like steel or thermoplastic to withstand harsh outdoor conditions, UV exposure, and mechanical stress . Safety features include overcurrent protection, emergency push-buttons, and lockable doors to protect personnel and equipment .

Summary

The capacity of a construction site electrical distribution box depends on the site size, equipment load, and voltage requirements. Standard ranges are 17 kW to 130 kW, with amperage from 32A to 250A, supporting both single-phase and three-phase systems. Proper selection involves calculating total load, planning for future expansion, and ensuring compliance with safety standards and environmental protection ratings .

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