



STAKKAbox™ ULTIMA
Passes Amtrak
Cabling Test

AX-S™ Composite

STAKKAbox™ ULTIMA

Amtrak Test Yard STAKKAbox™ ULTIMA with Composite Covers



Amtrak put the Cubis STAKKAbox™ ULTIMA to the test, and found it to be an extremely durable, customizable, and easy-to-install solution for protecting railway wiring components.

Project Challenges

Transit signal and communications functions are key to the effectiveness and safety of mass transportation systems, particularly commuter rail. The reliability of the infrastructure that protects these critical components is therefore of utmost importance.

The Amtrak Wilmington test yard conducted a test of an innovative Cubis wiring chamber for application to a commuter rail line. Typically, heavy polymer concrete boxes are used along with cable trench and ducting to provide a protective system to coordinate transit signal and communication wiring. These polymer concrete boxes have traditionally been difficult to modify without compromising their strength. In addition, the covers are heavy to remove, and the concrete is susceptible to cracking.

Cubis Solution

For the test, Oldcastle Infrastructure provided Amtrak with a 1000mm x 1000mm x 1200mm STAKKAbox™ ULTIMA access chamber with composite covers.

The opening was designed to allow easy interface with the Plastibeton Cable Trench System.

Installation was simple and straightforward:

- An excavator was used to dig a hole in the ground for installation.
- The excavator then lifted and set the completely assembled chamber into the hole. (Note: Due to the layered design of the STAKKAbox™ ULTIMA, the chamber could also be assembled directly in the hole, if necessary.)
- The area around the chamber was backfilled.
- The frame was placed and screws were used to secure composite covers to the frame.

The total time for the installation was approximately 3 hours.



The Amtrak crew was extremely impressed with the strength and durability of the chamber, along with how simple it is to install.”

- Chris Schultz, Product Manager



The ULTIMA chamber proved a durable and easy-to-configure solution due to the following outstanding characteristics:

- The components and covers are lightweight, which assists with installation and provides easy access to cables in the future.
- Openings for cable trench or ducting can be provided in advance or even cut onsite, without compromising strength and performance.
- The layered design of ULTIMA means that rings can be added or removed to reach a customized final depth as required.
- The Glass Reinforced Polyester Resin (GRP) components will not crack when placed close to vibrating rails.

Gold Standard Durability: The “Track Test”

To assess its reliability, the STAKKAbOX™ ULTIMA chamber was subjected to the “track test.” The maintenance crew made their best attempt to destroy the box, to ensure that it would perform under extreme encounters during normal use.

The evaluation included the following rigorous measures:

- Driving a fully loaded excavator over the chamber
- Placing the excavator stabilizer directly on the chamber and moving the arm up and down so the entire excavator was “bouncing” on the chamber
- Igniting CADWeld directly on the cover and chamber sides, producing temperatures that exceeded 1400° C
- Lifting and dropping an 380kg concrete rail tie directly on the chamber from approximately 3m high

After testing was complete, the chamber still met all form and function requirements and was left in a main maintenance way next to the rail. The Amtrak crew was extremely impressed with the strength and durability of the chamber, which was even more notable given the simplicity of its installation.

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Driven by Innovation

Innovation is the engine that has driven Cubis Systems to its position as global leader in the design and manufacture of access chambers and cable ducting systems.

Inspired by innovation, we have developed quality products that replace traditional construction materials like bricks and concrete. Our lightweight plastics, incorporating intelligent design features, are used in the construction of infrastructure networks for the rail, telecoms, water, construction and power markets worldwide. Cubis products can be installed much faster than traditional methods and therefore save our customers both time and money.

Cubis manufactures the preformed STAKKAbOX™ network access chamber systems, the AX-S™ access covers range, a MULTIduct™ multiple duct system and the PROtrough cable troughing system at sites throughout the UK and Ireland. These innovative products are exported to more than 25 countries throughout the world.

At Cubis we are committed to ongoing innovation and dedicated to delivering absolute product quality, detailed technical customer support and the highest levels of customer satisfaction.

