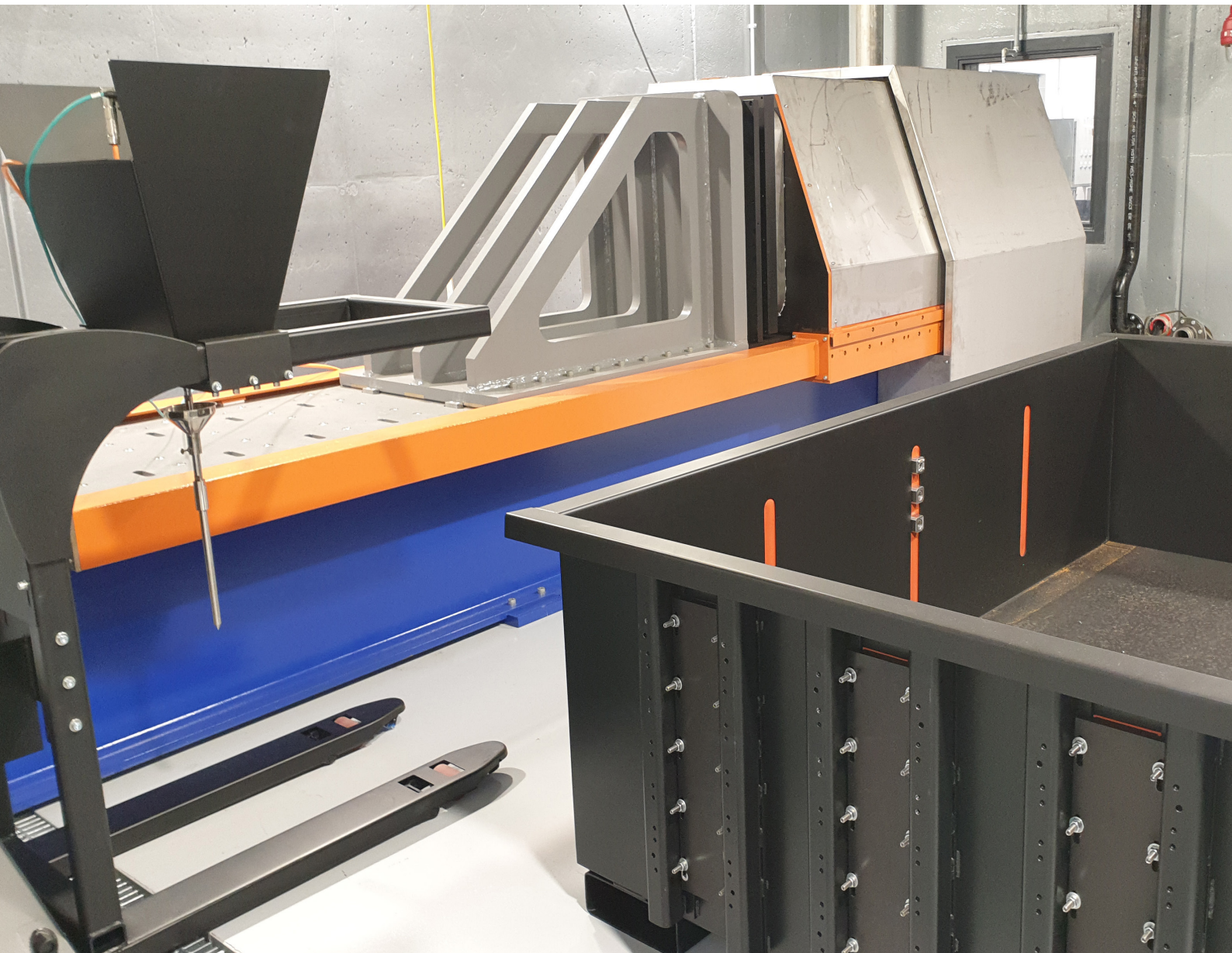


SMARTER.
SUSTAINABLE.
SERVOELECTRIC.

sea Battery Crusher and Nail Penetration



Rev: 1.0 DEC2023



SMARTER.
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SERVOELECTRIC.

sea Battery Crusher
sea Nail Penetration



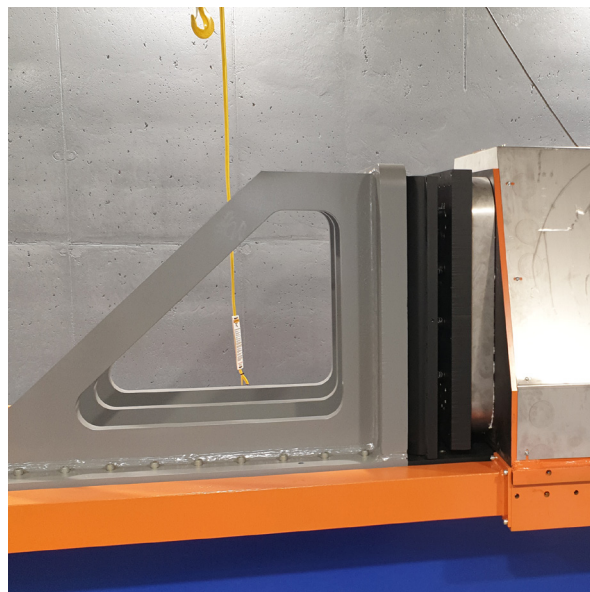
Rev: 1.0 DEC2023

SMARTER. SUSTAINABLE. SERVOELECTRIC.

Explore the pinnacle of battery testing technology with our advanced Nail Penetration and Battery Crush Testers, both engineered to meet the rigorous SAE J2464 standards. These state-of-the-art devices are essential for ensuring the highest levels of safety and performance in Automotive EV batteries, providing comprehensive and reliable testing solutions for the evolving electric vehicle industry.

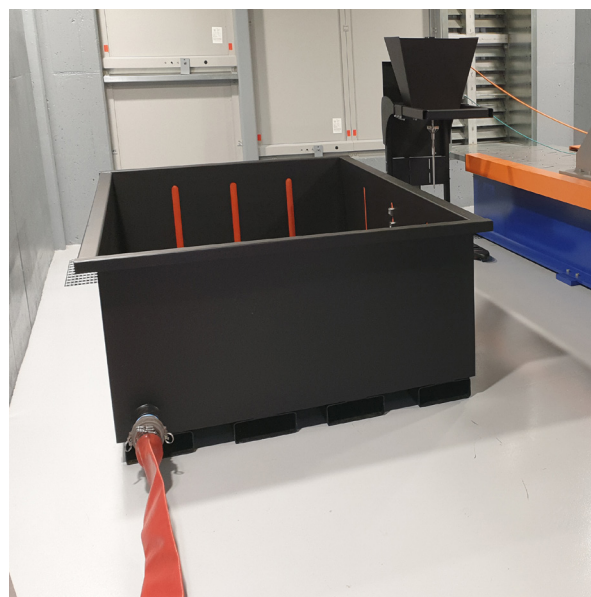
sea BATTERY CRUSHER

Setup in a horizontal configuration with triple reinforced I-Beam rigid base frame. Accommodates testing of batteries of 1.5m width and 2.75m length. Designed to provide precise position and speed control and accuracy.



sea NAIL PENETRATION

Provides long, robust actuator life due to inverted roller screw technology. Compact, power-dense integrated motor actuator improve motion control compared to fluid actuation systems.



KEY BENEFITS OF **sea** BATTERY CRUSHER AND NAIL PENETRATION

Servoelectric battery crushers and nail penetration systems are a more efficient and precise option compared to hydraulic systems. The key benefits of these systems include:

Comprehensive Data: Data from electric servoelectric systems provides comprehensive insights into operations. This information enables real-time monitoring, predictive maintenance, and overall optimization, offering a cleaner and more efficient alternative to hydraulic systems.

SAE J2646 Compliance: Compliant with 4.3.3 Penetration Test (Cell Level or Above) and compliant with section 4.3.6 Crush Test (Cell, Module, or Pack Level).

Enhanced Safety: Prioritize safety with advanced features, including real-time monitoring, automatic operation halts for detected risks, and adjustable depth controls. These measures not only protect operators but also create a safer working environment.

Repeatability and Precision Controls:

Nail Penetration: Precise control ensures repeatable performance, consistently penetrating cells with a 3 mm tapered point at 8 cm/s or faster, and modules/packs with a 20 mm point at the same speed, achieving thorough testing depth. This repeatability is key for reliable assessment of battery resilience, uniformly testing through individual cells or across 100 mm in larger modules/packs, providing dependable safety evaluations.

Battery Crusher: Unmatched precision in safety testing, maintaining strict crush dimensions and force limits for consistent, accurate results. Its calibrated crush speeds allow for detailed analysis of shorting risks and heat propagation, ensuring top-tier safety and reliability in battery technology.



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Repeatability and Precision Controls:

Option 1: The Nail Penetration and Battery Crusher systems offer precise control and unmatched reliability in battery safety testing. Nail Penetration ensures consistent, repeatable performance with 3 mm and 20 mm tapered points, while the Battery Crusher maintains strict crush dimensions for accurate results. Both systems guarantee top-tier safety assessment with precise controls and unwavering reliability.

Option 2: The Nail Penetration and Battery Crusher systems provide precise control and unmatched reliability in battery safety testing. The Nail Penetration system ensures consistent penetration with a 3 mm tapered point at 8 cm/s or faster for cells and a 20 mm point for modules/packs, ensuring repeatable and reliable performance. The Battery Crusher system maintains strict crush dimensions and force limits, delivering accurate results and detailed analysis of shorting risks and heat propagation. These separate yet integrated systems collectively guarantee the highest standards in safety assessment, highlighting precise controls and unwavering reliability.

Option 3: The Nail Penetration system provides precise control and unmatched reliability in battery safety testing. It ensures consistent penetration with a 3 mm tapered point at 8 cm/s or faster for cells and a 20 mm point at the same speed for modules/packs, guaranteeing repeatable and reliable performance.

The Battery Crusher system excels in safety testing, maintaining strict crush dimensions and force limits for accurate results. This system enables detailed analysis of shorting risks and heat propagation, ensuring top-tier safety and reliability in battery technology. These separate systems collectively deliver high standards in safety assessment, emphasizing precise controls and unwavering reliability.

I prefer option 2 or 3.



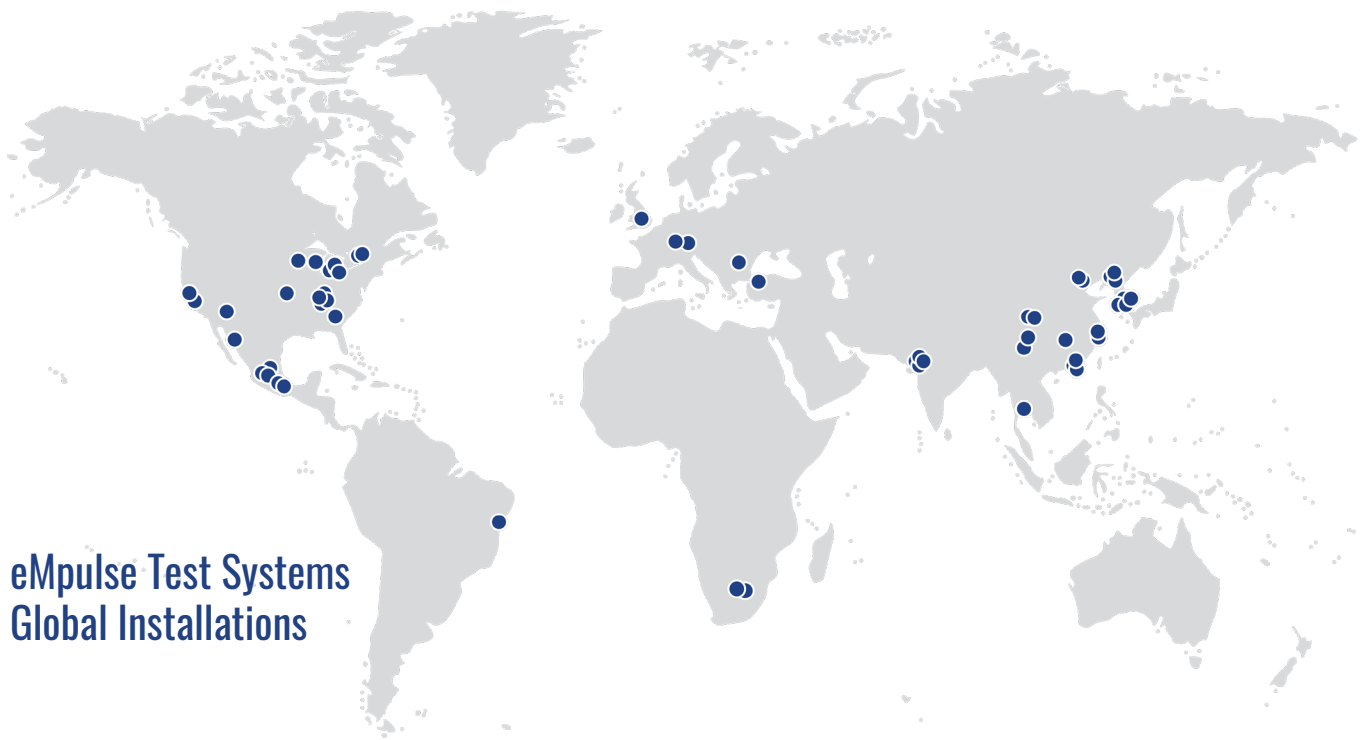
APPLICATIONS

We offer standard and custom configurations for various applications, such as:

- ▶ EV Battery Testing
- ▶ Durability
- ▶ Quality Control
- ▶ Regulatory Control
- ▶ R&D
- ▶ Cell, Module, and Pack Level



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eMpulse Test Systems
Global Installations



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