

Engineered Pit Covers Provide Novel Solution for Energy Queensland

BACKGROUND

The Energy Queensland Group (including Energex Ltd. & Ergon Energy Corp. Ltd.) is the owner and operator of electrical infrastructure across the state, and provides both above ground and underground power supply needs for commercial and domestic customers.

As part of its ongoing commitment to safety and operational excellence, the organisation sought an engineered pit lid solution that could vent gases and release pressure from its underground utility pits.

Traditional cast iron pit covers, while durable, are typically not secure. The pressure released under cable failure cannot vent or expel in a controlled manner, causing the pit lids to become unsecured or dislodged.

A safer, more innovative approach was preferred, so in partnership with Energy Queensland's Engineering and Operational Teams, Johnson Screens® developed and tested a new class of engineered pit covers resulting in its EMC Solution, Explosion Mitigation Covers (EMC).



CHALLENGE

Energy Queensland sought a solution that could:

- Vent the gas in a controlled manner
- Meet their strict design and installation standards
- Remain compliant with Australian Standard AS3996
- Provide compatibility with current maintenance tools/workflows

The solution had to deliver high-performance safety results without compromising installation efficiency or long-term durability.

SOLUTION

From 2019 to 2021, trial units were deployed across various Queensland sites to validate functionality, compliance, and field performance.

These covers feature Johnson Screens' signature Vee-Wire® technology, offering narrow slot openings for enhanced ventilation, safety (HeelSafe design), and foreign object exclusion—culminating in a secure and vented solution to keep pit lids in place in the event of high voltage cable failure.

RESULTS

In 2022, after successful testing and refinements, the EMC solution was formally adopted. Johnson Screens now supplies both single and dual cover assemblies for ongoing installations and retrofit applications.

The collaboration demonstrates Johnson Screens' ability to engineer product solutions tailored to the unique safety and regulatory needs of major utility providers—while safeguarding communities in the process.

ABOUT THE EMC SOLUTION

The Johnson Screens EMC Solution is a purpose-built product designed to minimize the possibility of pit lids becoming unsecure in the event of a variation in pressure in underground utility pits. Utilizing the renowned Vee-Wire construction, this product offers a unique balance of ventilation, durability, and safety that outperforms traditional cast iron alternatives. Key product benefits include:

- **Venting Capability:** Engineered slot widths allow gases to escape before pressure builds, reducing the risk of pit lids dislodging.
- **HeelSafe Design:** Vee-Wire slot openings are narrow enough to prevent trip hazards and foreign object ingress while maintaining effective airflow.
- **ADA-Compliant Surface:** A slip-resistant outer texture improves pedestrian safety, even in wet conditions.
- **Anti-Theft & Easy Access:** Dual locking mechanisms (locking pin or patented foot design) provide security without requiring specialty tools for authorised crews.
- **Lightweight Construction:** Approximately 10–15 kg lighter than traditional covers, enabling safer, faster installations with smaller teams.
- **Versatile Aesthetics:** Optional custom graphics and flexible sizing tools make the EMC a fit for both utility and architectural environments.

Available for residential, municipal, and commercial settings, Johnson Screens' EMC solution has been thoughtfully engineered not only to mitigate risk—but to elevate the safety standard for modern infrastructure.



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25-IAS-0021-v1-5-Eng