



Circular Economy, KRÖGER Grab Technology

## Maximum Tightness and Reliability in Hazardous Waste Handling

A leading hazardous waste disposal company in Hamburg faced the challenge of safely handling solid and liquid waste in a fully sealed bunker. The aggressive environment, changing material states, and the immersion of the grabbers into liquids imposed the highest demands on technology and sealing.

In collaboration with drive system specialists, METZEN developed a customised solution: robust, highly sealed grabbers that not only reliably convey and pre-mix the waste but also withstand the extreme conditions of high-temperature incineration – ensuring maximum operational safety and efficiency in daily use.

## Challenge

Hazardous waste handling places special demands on grabber technology: the sealed bunker is partially filled with liquids generated from the mixed materials. Grabbers must operate immersed in this liquid while pre-mixing and conveying the material. Additionally, the electrical equipment, including the motor drive and connections, requires exceptional sealing.

- **Immersion Operation:** Continuous contact with liquids during operation.
- **Sealing Requirements:** Prevent liquid ingress into all mechanical and electrical components.
- **Design Adaptations:** Direct cable integration into the electric motor to increase operational safety.

## Solution

METZEN developed an innovative grabber solution fully meeting the requirements of hazardous waste handling. The electric motor was modified in close cooperation with the manufacturer so that the connection cable was directly integrated into the motor, eliminating potential weak points.

Furthermore, the cable was routed above the grabber to keep the plug connection permanently outside the liquid. The sealing components were sourced from renowned manufacturers and specially adapted to the extreme conditions.

- **Innovative Construction:** Direct cable integration and routing above the grab.
- **High-Quality Components:** Use of especially tight plugs and protective covers for maximum safety.
- **Practical Adaptation:** Optimisations for long-term operation in mixing bunkers.

## Result

- **Maximum Operational Safety:** Innovative cable and sealing technology ensures trouble-free operation under extreme conditions.
- **Efficiency Gains:** Optimised grabber solutions minimise downtime and increase overall plant performance.
- **Sustainable Technology:** Durable components reduce maintenance requirements and costs.
- **Outstanding Quality:** METZEN sets new standards in grabber technology for hazardous waste processing.

## Circular Economy, KRÖGER Grab Technology

### Highlights

- **Outstanding Sealing:** Grabs with fully sealed hydraulic and electrical components ensure safe operation under extreme conditions.
- **Customised Solutions:** Direct cable integration into the electric motor for maximum safety and tightness.
- **High-Performance Technology:** Adapted for handling both liquid and solid hazardous waste.
- **Collaboration with Experts:** Partnership in developing an innovative plug design with proven sealing systems.

### Contact

#### **Ralf Haupold**

Senior Engineer Materials

[ralf.haupold@metzen.org](mailto:ralf.haupold@metzen.org)

M +49 172 279 33 52

T +49 2838 3771

KRÖGER

a METZEN brand

Steinheide 1-9

47665 Sonsbeck