

ZIMM drive technology for STS and container cranes

A use case from maritime logistics by ZIMM

ZIMM – reliable motion tasks in port operations

Ship-to-shore and container cranes must perform locking, positioning, adjusting and tensioning functions reliably during terminal operation. Robust mechanics, clearly defined interfaces and repeatable movements are essential so that gantry travel modes, spreader functions and rope-guided systems operate without disruption and can be integrated cleanly into the crane logic.

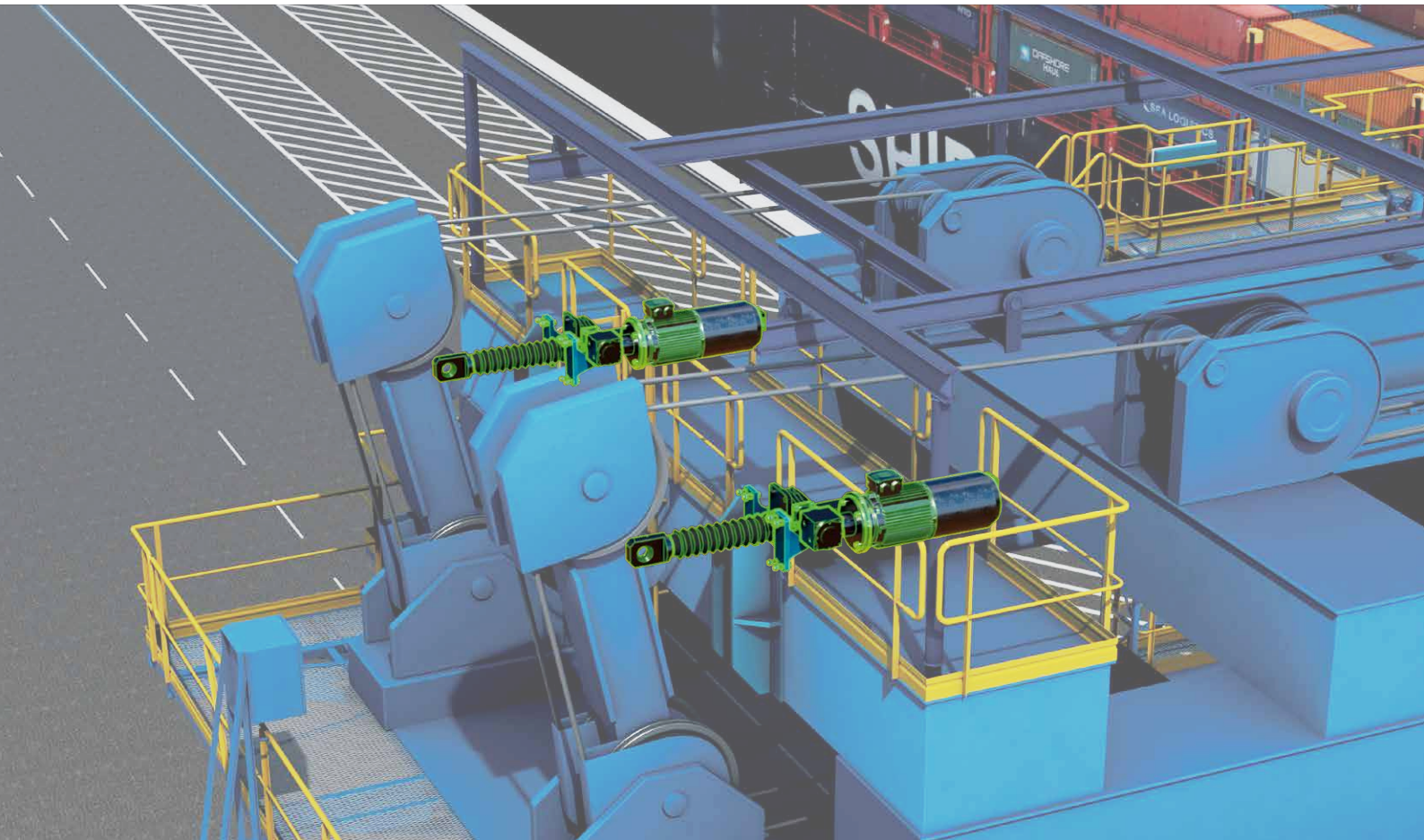
ZIMM provides a modular solution kit for this: ZA-I and ZA series electromechanical actuators as well as screw jacks perform linear motions for locking, positioning, adjusting and tensioning. This creates robust solutions for STS/container cranes, port equipment and retrofit tasks where function, integrability and continuous operation are the priority.



ZIMM solutions for STS and container cranes:
ZA-I and ZA series electromechanical actuators
as well as screw jacks for locking, positioning,
adjusting and tensioning in OEM and
retrofit applications.

Backreach | Maintain rope tension on the container crane

In the landside area of the container crane, rope tension must be kept constant so that no slack rope occurs and the catenary trolley can be guided stably and precisely. At the same time, vibrations should be reduced and smoother rope running with lower wear should be achieved. The tensioning function therefore supports operational safety, guiding quality and ease of maintenance.



Benefits

- Constant rope tension
- Reduction of slack rope and vibration-related effects
- More precise guidance and positioning of the catenary trolley
- Lower wear due to smoother rope running and fewer bending cycles

Operating principle

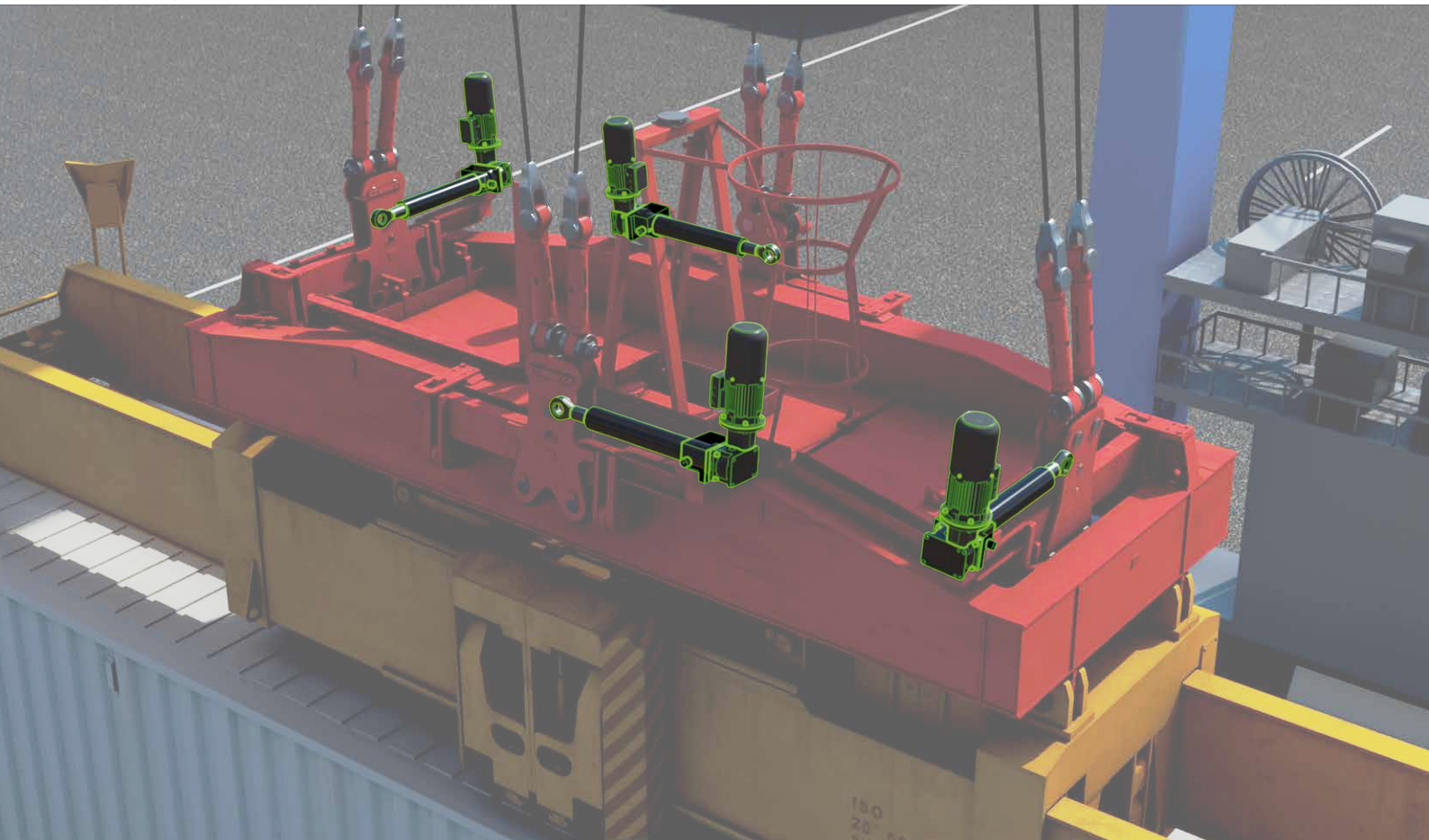
- Screw jacks generate the linear tensioning motion
- The rope tensioning system at backreach keeps the ropes under controlled preload
- This allows rope guidance and tension level to be adjusted repeatedly
- Fewer bending cycles support longer rope service life and more stable rope running

Application scenarios

- Rope tensioning systems at backreach on container cranes
- Retrofit of existing tensioning solutions
- Crane applications focused on rope service life and smooth rope running
- Systems where vibration reduction and precise guidance of the catenary trolley are relevant

Spreader | Actuate locking and adjustment functions

Locking and adjustment functions in the spreader must be actuated precisely and controlled in a mechanically traceable manner. Especially in intermodal operation, repeatable motion sequences and full integration into the crane solution are essential. Continuous access by the crane management system to the respective function must remain possible at all times.



Benefits

Precise electromechanical adjustment motion for locking and adjustment functions

Full integrability into crane management and control systems

High functional traceability due to direct mechanical coupling

Suitable for clearly structured motion sequences with increased integration requirements

Operating principle

ZA series electromechanical actuators perform the adjustment motion

Opposing functional elements can be mechanically coupled via a direct shaft

This allows motions to be transmitted and synchronized in a controlled manner

The mechanical design of the overall system supports a traceable functional logic

Application scenarios

Spreader functions in container handling

Intermodal operating modes with high requirements for motion control

Fully electrically and mechanically integrated crane solutions

Retrofit or new design of locking and adjustment functions

Safe-Lock | Locking the gantry bogies on gantry cranes

Depending on the operating mode, gantry cranes must be able to switch between normal travel, cross-travel, rotate mode and parking mode. For this purpose, the bogies are swivelled into alternative positions and then locked reliably. The locking function must release the selected position and hold it stably under load. At the same time, the upward and downward movement of the locking pin must be clearly controlled.



Benefits

Clear locking motion for controllable gantry travel modes

Repeatable pin positions for reliable locking of the selected bogie position

Robust electromechanical solution with clear end-position logic

Easy integration into crane control and gantry travel logic

Operating principle

A ZA-I series electromechanical actuator actuates the locking pin device

The motor-driven mechanism releases or locks the pin depending on the selected bogie position

End-position monitoring controls the lifting motion of the pin

After swivelling, the pin engages in the new position in a controlled manner

Application scenarios

Switching between normal travel and cross-travel mode

Locking function in rotate mode

Locking of defined parking positions

Gantry travel logic on gantry cranes in OEM or retrofit environments

Submit an inquiry for your application now

Are you planning a locking, positioning, adjustment or tensioning function in the STS and container crane environment? Then send us a brief description of the technical task together with the key boundary conditions such as load, stroke, installation situation, motion sequence and control requirements.



ZA-Series | Actuator

Excellent energy efficiency and low maintenance compared to hydraulic solutions: ZA series electro-mechanical actuators operate dynamically, precisely and repeatably. They perform motions for locking, positioning and adjusting. The spindle located inside the housing is protected against dirt, dust and water; high IP protection classes are possible. The ZIMM modular system offers perfectly matching parts.

ZE-Series | Screw jack

Proven technology for reliable positioning, adjusting and tensioning tasks: ZE series screw jacks operate precisely, robustly and repeatably. Depending on the version and system design, they perform linear motions per gearbox or within the system. The ZIMM modular system offers perfectly matching parts.

ZA-I-Series | Actuator

High precision and flexible drive configuration for reliable locking, positioning and adjustment movements: ZA-I series actuators operate as a coaxial drive in a compact, powerful and repeatable manner. With single-stage or two-stage planetary gearbox as well as direct drive, they can be adapted to duty cycle and system design. The ZIMM modular system offers perfectly matching parts.



ZIMM supports you in selecting ZA-I and ZA series electromechanical actuators as well as screw jacks for motion tasks in OEM and retrofit environments.

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