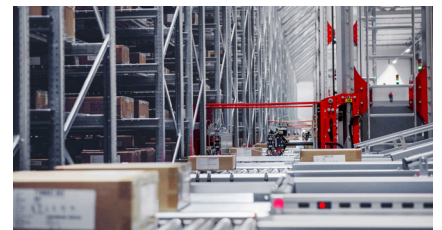
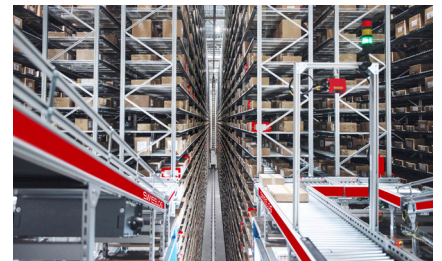


Dynamic & reliable – sustainable miniload crane for high performance



Automated light goods storage with Tornado miniload cranes

Swisslog's Tornado miniload cranes uniquely combine high throughput, energy-efficient operation, and unmatched reliability.

The patented mast and rail design allow a high storage density and considerable heights for a wide range of logistics applications.

Highest versatility for automated warehousing

Many customers worldwide have already implemented Tornado as part of their overall solution.

With the Tornado, we have tailor-made solutions for various applications, e.g. storage of dishwashers, tires and electric motors. These enrich our standard application portfolio and demonstrate the high flexibility and easy adaptability of the Tornado.

Benefits

High throughput

Fast and accurate positioning processes thanks to outstanding lightweight design and optimized drive trains.

Reliable operation

The connection method deployed for the aluminum structure eliminates the risk of fatigue.

Energy-efficient

Reduced energy consumption due to lightweight design.

Compact storage layouts

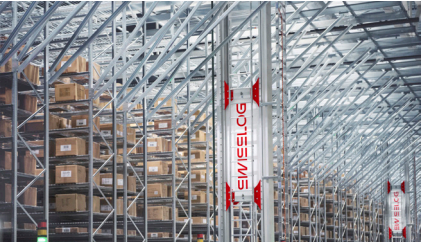
Attractive storage heights and maximized storage utilization thanks to distinctive mast stiffness and front traverse dimensions.

Robust lightweight construction and energy efficiency for high-performance miniloads of the future

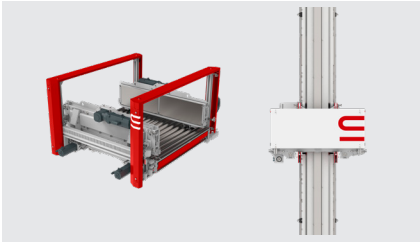
Design & range



Components – chassis & mast



Load handling units & software



General

Thanks to its scalable and modular concept, Tornado can be easily optimized for various load handling attachments and aisle heights. The crane consists of high-strength and lightweight components, increasing service life and reducing energy consumption. The travel and guide rails also offer easy on-site installation and precise alignment.

Electrical equipment & control technology

Busbars are used to transmit the power, ensuring that the crane always remains reliable and eliminating problems with cable wear due to dynamic movements. The state-of-the-art safety solution ensures straightforward and safe operation, including full online diagnostics. Control and operation systems are fully integrated into Swisslog's warehouse software concept, ensuring easy operation and diagnostics.

Chassis & drives

The patented wheel and rail arrangement saves space. This ensures optimum use of the available storage height. The optimized chassis/mast connection ensures high stiffness and reliability. The Omega timing belt drive guarantees dynamic and precise positioning without wear. Integrated absolute position measurement for reliable operation.

Mast & carriage

The patented single mast design consists of extruded profiles with bolted crossbeams. The Tornado thus offers high stiffness and enables high aisle heights without an extra top drive. The mast can be easily transported in standard containers. The upper frame features a long wheelbase for reduced rail and rack loads. An optional double lifting unit is available for increased throughput.

TelescopeLoader

The TelescopeLoader is the ideal solution for containers and trays in standard sizes of 400 x 300, 600 x 400 and 800 x 600 mm. Customized sizes with a total payload of 250 kg in single, double or multi-deep storage are also possible.

CartonLoader

The CartonLoader is the ideal solution for cartons, containers and trays in standard sizes of 200 x 200 up to 800 x 600 mm. Customized sizes are also available. The maximum payload is 70 kg in total for single or multi-depth storage. Separate conveyor areas on the load handling attachment ensure safe tracking and handling.

SynQ Warehouse Management System

Tornado comes with an application developed Swisslog software. The software application offers a number of general features including user management, bin location management, and interfaces to integrate Tornado with complementing subsystems.

Controls

All movements are controlled by CraneBox software. CraneBox ensures that transport tasks are executed properly and monitors processes to guarantee optimized interaction between subsystems.

Facts

Payload	up to 250 kg, standard, higher loads on request
Aisle height	3.5 to 24 m
Operating speed	up to 6 m/s
Vertical speed	up to 3 m/s
Acceleration	up to 4 m/s ²
Storage density	single, double and multiple deep
Temperature range	from -5 °C to 40 °C (23 °F to 104 °F)
Load types	standard or customized containers or trays (uniform or mixed sizes), cartons with variable sizes, or application-specific solutions

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