

TIDYNE Product Specification

Marine Lift, Lower & Rescue Appliance · Revision 4

Overview

TIDYNE is a marine-grade electromechanical lift system engineered for safe transfer of personnel and cargo between vessels and fixed platforms — in all sea states. Patent-protected and certified by Lloyd's Register for human lifting and lowering operations. Engineered, manufactured, and supported by TIDYNE Inc.

Technical Specifications

Working Load Limit	400 lb / 180 kg (personnel and cargo)
Descent Distance	45 ft / 13.7 m
Descent Time	14 seconds (~3.2 ft/sec controlled)
Power Supply	48V DC battery with onboard backup; secondary 110V charger included
Charging	Regenerative braking supports up to 10 lift/descent cycles per charge. The 110V secondary charger tops up from shore or vessel auxiliary power for higher cycle counts.
Drive System	1 kW servo motor with low-ratio worm gear reducer
Braking Architecture	Triple-redundant: B1 Motor brake, B2 Mechanical band brake, B3 Gravity-actuated emergency brake
Mounting	Clamp-mount to booms, jib arms, king posts, or pad eyes — no permanent structural modification required
Enclosure	Marine-grade IP-rated housing, corrosion-resistant
Certifications	Lloyd's Register code-compliant for lifting appliances in marine environments
Monitoring	Built-in real-time analytics and anomaly detection
Roadmap Variants	Solar or wind powered (in development — single renewable source per unit)

Approved Use Cases

- Personnel transfer between vessels and fixed platforms
- Pilot boarding and disembarking
- Emergency crew evacuation
- Cargo hold access and personnel retrieval
- Pilot ladder deck operations
- General emergency rescue operations
- Cargo lifting up to working load limit

Safety Architecture

TIDYNE's triple-redundant braking ensures any single brake can hold the full rated load. The system is designed so that a failure in any one subsystem does not compromise the safety of personnel or cargo in transit. Real-time telemetry continuously monitors brake torque, drum tension, and motor performance — any anomaly triggers immediate alerting and, if necessary, automatic safe descent.

Power & Charging Detail

TIDYNE is fully self-contained on a 48V DC battery with onboard backup — no vessel power tie-in is required for normal operation. The system uses regenerative braking on every descent cycle to recover energy back into the battery, which typically supports up to 10 full lift-and-descent cycles per charge. For higher-cycle operations, a secondary 110V charger (included with every unit) tops up the battery from shore power or vessel auxiliary power.