

Electromechanics vs. Hydraulics

Why ZIMM Electromechanics is the stronger choice

As the European market leader for screw jacks, ZIMM Group GmbH from Lustenau provides electromechanical drive solutions that increasingly replace hydraulic systems across various applications – delivering measurable advantages in efficiency, precision, maintenance effort, and sustainability.

This document gives you a structured overview of why switching to electromechanics is a strategically smart decision for your company.



Direct comparison at a glance

Criterion	ZIMM Electromechanics	Hydraulics
Energy efficiency	✓ High – energy only consumed when needed	✗ Continuous pump operation
Positioning accuracy	✓ Precise and repeatable	✗ Leaks reduce precision
Maintenance effort	✓ Minimal, no fluid management	✗ High – oil, filters, seals
Environmental compatibility	✓ Leak-free – no leakage damage	✗ Possible oil contamination
Installation effort	✓ Compact, easy integration	✗ Complex piping & seals
Operational safety	✓ No fire hazard from oil	✗ Fire hazard in case of leaks
Synchronization	✓ Multiple axes precisely synchronizable	✗ Complex control, prone to errors
Operating noise	✓ Quiet, no hydraulic pump	✗ Loud due to pump units
Control / Digitalization	✓ Easy PLC integration, Industry 4.0	✗ Complex, analog in nature
Cleanliness / Hygiene	✓ Ideal for cleanroom & food	✗ Oil residues problematic

Key advantages in detail

**Replace
hydraulics
Electrify
motion**

Maximum energy efficiency

Hydraulic systems operate continuously with the pump running – even when no motion is required. ZIMM electromechanics consumes energy exclusively during active lifting motion. This saves up to 70% operating energy depending on the application and sustainably reduces your CO₂ footprint.

Drastically reduced maintenance effort

No hydraulic oil, no filters, no seals – ZIMM drives are maintenance-friendly by design. Less downtime means higher productivity. Your maintenance costs decrease noticeably, and unplanned failures due to leakage are eliminated.

Easy synchronization of multiple axes

Multiple ZIMM screw jacks can be mechanically synchronized via simple drive shafts. Hydraulic systems require complex control valves for synchronous operation and remain prone to errors. The ZIMM modular system offers an elegant, proven solution.

Compact installation, reduced infrastructure

Hydraulic systems need piping, tanks, pump units, and safety valves. ZIMM electromechanics is compact, modular, and only requires a power connection – simplifying engineering, assembly, and future modifications.

High positioning accuracy

ZIMM screw jacks position loads from 250 kg to 100 t with maximum repeatability. Hydraulic systems suffer from leaks, temperature influences, and pressure fluctuations, resulting in position deviations that are unacceptable in precision applications.

Clean, safe, environmentally friendly

Hydraulic oil is classified as a hazardous substance and requires complex disposal. ZIMM electromechanics operates leak-free, making it ideal for cleanrooms, food production, pharmaceuticals, and all areas with strict hygiene requirements.

Industry 4.0 ready

ZIMM drives can be easily integrated into modern PLCs, fieldbus systems, and monitoring systems. Position data is always digitally available. Hydraulics requires complex sensors and is less flexible in digital environments by design.

Quiet operation

Hydraulic pumps generate continuous noise and often require soundproofing measures. ZIMM electromechanics operates significantly quieter, improving workplace conditions and simplifying compliance with occupational noise regulations.

ZIMM product solutions for your application

Product	Load capacity	Typical applications
ZA-series actuators	25 - 200 kN (2.5 - 20 t)	Industrial automation, presses, positioning tables
ZE-series screw jacks	2.5 - 1,000 kN (250 kg - 100 t)	Mechanical engineering, stages, shipbuilding, energy
ZE-H high-performance screw jacks	35 - 200 kN (3.5 - 20 t)	Automation technology, test & measurement, conveyor technology, packaging & process systems, heavy-duty special machinery
GSZ-series	2 - 150 kN (200 kg - 15 t)	Compact installation situations, special machinery

Proven in your industry

ZIMM electromechanics is in use in over 35 countries worldwide – in the most demanding environments and industries. From stage and event technology to maritime logistics and wind energy, as well as aerospace, automation, and ropeway industries: ZIMM electromechanics replaces hydraulic solutions daily with superior reliability.

Industrial automation	Ropeway technology	Maritime logistics	Wind energy
Stage technology	Aerospace	Steel industry	Wood processing
Antenna systems	Food & pharmaceuticals	Architecture & facades	AGV / driverless transport

Switch to electromechanics now

We provide personal consultation, analyze your current hydraulic solution, and show how ZIMM electromechanics can make your processes more efficient, safer, and future-ready.

