LABA7

ElectroMagnetic Actuator

Linear motor

30 kW
60 kW
90 kW
120 kW

What is LABA7?

We manufacture and distribute quality equipment to test, diagnose, and service shock absorbers. The products are developed with a focus on you - the user.

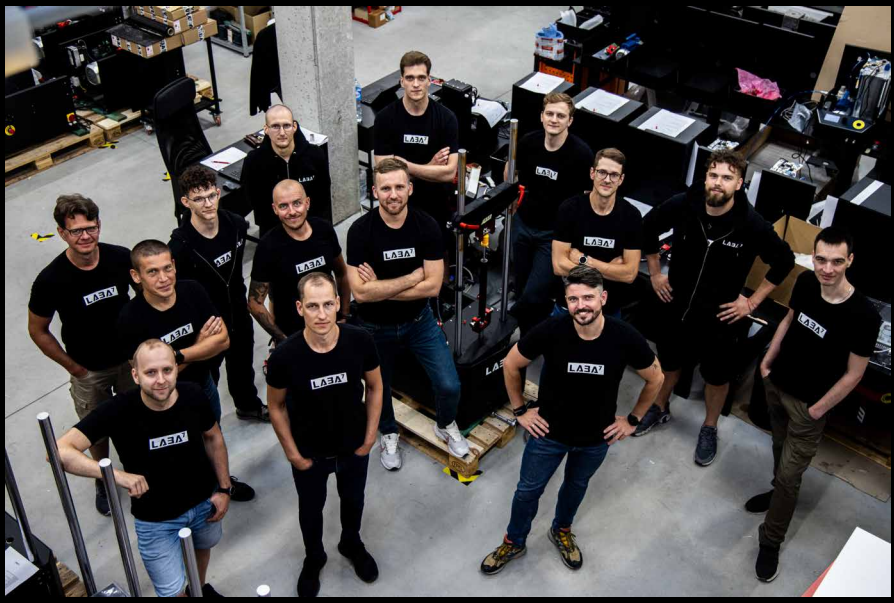
We designed our machines to be:

simple to work with | accurate | durable

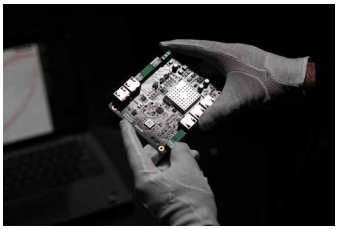
innovative | secure | future-proofed

We are committed to delivering exceptional service to our clients. From the initial consultation to support after purchase, we strive to help you achieve your goals.

We are building the future of shock absorber testing, one piece of equipment at a time.



Pioneering cutting-edge solutions for automotive testing



Accurate movement control

LABA7's in-house controller and advanced algorithms allow precise replication of the smallest movements. While most of the market uses a ~10 kHz control loop, LABA7's solution operates at 21 kHz with a 1500 rad/s resolution bandwidth.

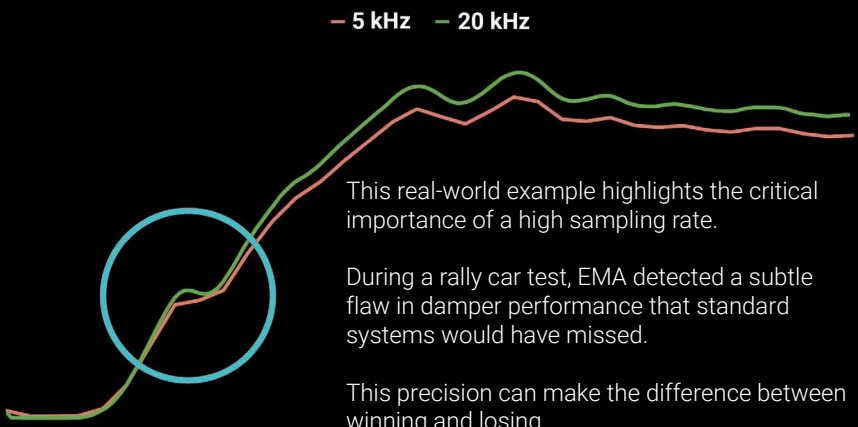
Precision data logging

While the industry standard is a 5kHz sampling rate with 100-micron accuracy, LABA7 samples at 20 kHz with 0.05-micron accuracy, providing superior precision in logged sensor data.

Reimagined power supply

The smart power supply, the first of its kind on the market, uses supercapacitor packs for high-voltage delivery, eliminating reliance on high voltage/amperage input and enabling precise movement control and data logging.

Importance of Sampling Rate

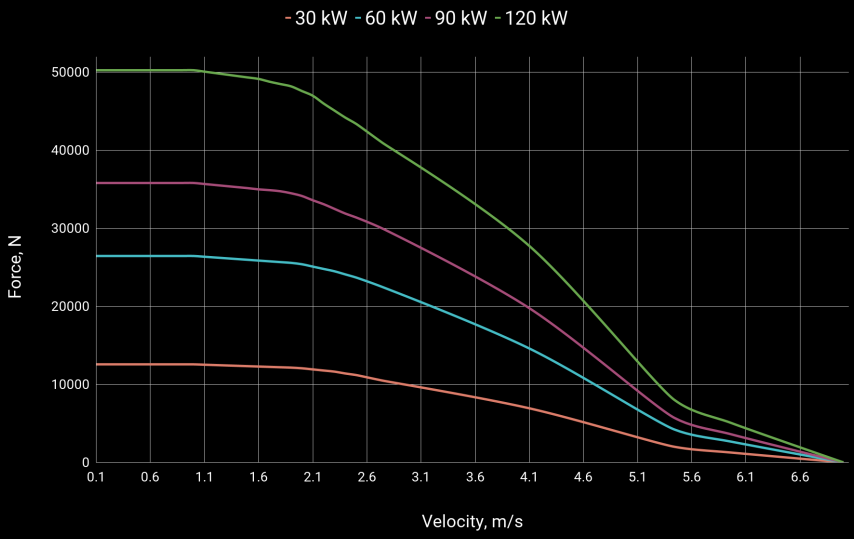


This real-world example highlights the critical importance of a high sampling rate.

During a rally car test, EMA detected a subtle flaw in damper performance that standard systems would have missed.

This precision can make the difference between winning and losing.

Force vs Velocity Graph of EMA



Force measured at 100 mm stroke tests.
Force measured in impulse testing method.
Maximum force can vary according to damper characteristics.

EMA by LABA7 comes feature-rich and brings jaw-dropping specs. We developed our electromagnetic shock dyno to deliver remarkably accurate results at an affordable price. To provide the best damper testing experience and results, we designed next-gen components in-house from the ground up.

Control Unit

The control unit seamlessly interfaces with the data logger, facilitating real-time feedback on damping forces generated by the shock absorber.

Incorporating state-of-the-art technologies such as silicon carbide (SiC) MOSFETs has empowered us to generate significantly more power at a fraction of the cost.

Power Unit

The EMA smart power supply unit is a game-changer in how we approach power needs.

While the larger EMA versions require a 380V 16A input, the smallest model can operate from a standard 220/240V outlet.

Price, EUR (ex VAT)	from **65,000**	**87,000**	**128,000**	**176,000**
Actuator power	30 kW	60 kW	90 kW	120 kW
Peak force @ 2 m/s	10 kN (2248 lbf)*	20 kN (4498 lbf)*	30 kN (6744 lbf)*	40 kN (8992 lbf)*
Max velocity	7,000 mm/s (276 in/s)			
Min velocity	0.1 mm/s (0.04 in/s)			
Max test frequency	150 Hz			
Max acceleration	100 G			
Data sampling frequency	Digital position sampling 20 kHz. Synchronized analog load cell sampling 20 kHz, 20-bit resolution.			
Additional ADC channels	8 synchronized channels. Up to 10 kHz sampling rate.			
Position resolution	50 nanometers			
Stroke (mm)	250 mm (9.85 in)			
Power requirements	1-phase 220/240 VAC	3-phase 380/400 VAC		
	Other configurations are available.			
Cooling	Compressed air			
Supported waveforms	Sine, Triangle, Square, Pulse, Pink noise, Sweep, Chirp, Direct track data import.			
Temperature sensor	Infrared, from -40°C to +150°C NTC, from -40°C to +150°C			
Free mounting length	0 – 955 mm (0 – 37.6 in)			
Operating temperature	From +5°C to +30°C			
Dimensions (mm)	Test bench: 630 x 710 x 2393. Power supply unit: 600 x 800 x 1070.			
Weight with power supply	695 kg	730 kg	765 kg	800 kg
Anchor pad	Standard feature, no extra cost			
Safety enclosure	Standard feature, no extra cost			
Software	Shock dyno software v2, no extra cost			

* Depends on the damper. Depends on the stroke.

MOTOR CONTROL AND MEASUREMENT UNIT

- Position resolution and sampling rate: 50 nanometers / 20 kHz (digital)
- Load cell resolution and sampling rate: 20 bit / 20 kHz
- Temperature sampling rate and resolution: 12 bit,
- 1 analog output channel: 0... 10 V 12 bit, up to 20 kHz
- 2 analog input channel: 0...10 V/4...20 mA 12 bit up to 20 kHz
- 1 isolated CAN interface for extension add-on communication
- 5 open drain outputs, 8 A
- 2 open drain outputs, 1 A
- 2 digital input channel: 0...24 V
- RS485 interface for extension add-on
- 1 isolated USB interface
- HDMI interface
- 2 USB non-isolated interfaces.

Features

- Rod force calibration
- Warmup and interval testing
- Unlimited graph comparison
- Force vs Displacement
- Force vs Velocity, PVP graphs available for sine wave tests
- Force, Displacement and Velocity over time graphs
- Pass/Fail feature, manufacturing mode
- Live dyno data preview
- Testing preset

Configuration

- Velocity
- Acceleration
- Force
- Temperature and stroke limits

Patterns

- Single pulse with adjustable rise/fall time
- Sine
- Triangle
- Square
- Custom wave - track data imported from telemetry devices

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