

# DYNAMICS

VIDEO



# OUR DYNAMICS SOLUTIONS

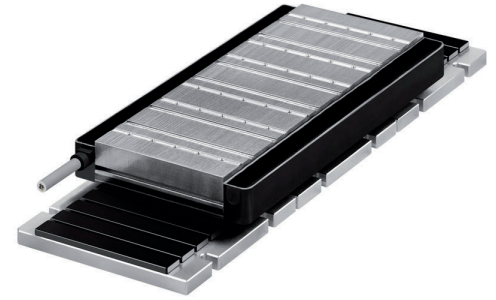
## CLASSIC SOLUTIONS

- **PNEUMATIC CYLINDER:**  $F_{max} < 1.000\text{ N}$
- **HYDRAULIC CYLINDER WITH SERVO-VALVE:**  
 $F_{max} < 500.000\text{ N}$



## NEW ELECTROMECHANICAL SOLUTION (DIRECT DRIVE)

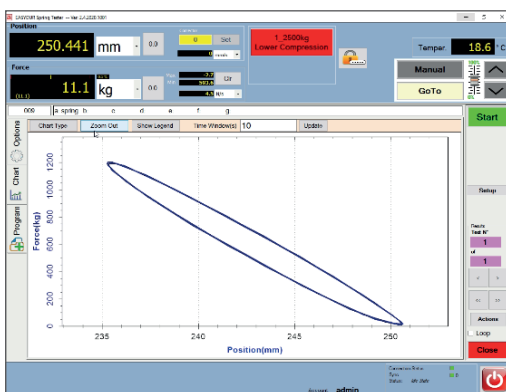
- **DIRECT-DRIVE LINEAR MOTOR:**  $F_{max} < 10.000\text{ N}$
- **DIREC-DRIVE WITH TORQUE MOTOR & BALL SCREW:**  
 $F_{max} < 500.000\text{ N}$



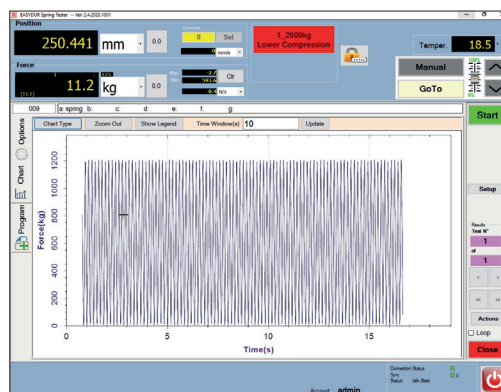
## MAIN PLUSES of our DIRECT-DRIVE Solution (Green)



- High Efficiency and Energy Savings due to Direct-Drive (No Crank System)
- High Accuracy/No Backlash thanks to Ball Screws - based on Ball Guide Line Systems
- Energy Recovery System through Condensers + Brake Energy Regeneration, reducing Energy Consumption by 90%
- Noise Abatement: No Moving Part Vibrations
- "EASY-DYNAMICS Software" for Automatic Stroke Adjustment Setup



FORCE-POSITION CHART



FORCE-TIME CHART

## CASE STUDY



# SOFTWARE & CONTROL SYSTEM

**EasyTester** Software by Easydur is based on Windows 10 on a Beckhoff Hardware Platform, a PLC-typical Real-Time System (TwinCAT) combined with Windows versatility

**TwinCAT® 3**  
**BECKHOFF**  
New Automation Technology

## SOFTWARE STEPS

• **Pre-processing:** Operator creates the Test Programme (fully customisable)

Including:

- All operations to be performed during the test run
- All Testing & Result Conditions via selection of Force, Movement, Speed & Frequency Parameters and Acquisition Time

• **Processing:** Test Run

• **Post-processing:** Once the test is complete, all charts and desired values are shown on the PC screen. All results may be exported to XML format or PDF template

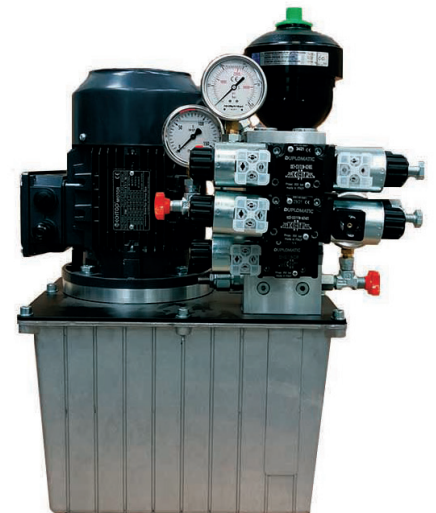
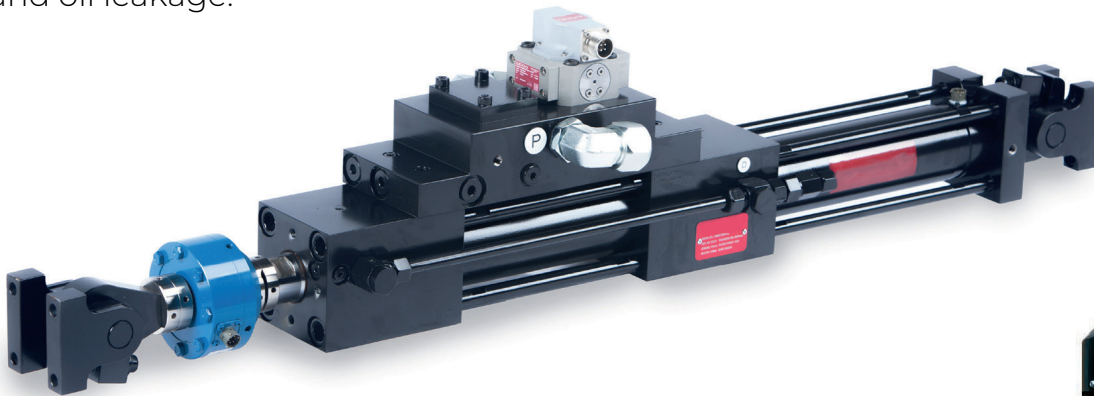
## TECHNOLOGIES

### Pneumatic Cylinder

The pneumatic cylinder solution is ideal for low-load tests, in clean environments with little space, when pneumatic air supply is enough. The cylinder is a low-friction cylinder (metal seal type) with an extra-compact positioning system directly integrated into the cylinder rod.

### Hydraulic Cylinder

The servo valve controlled hydraulic cylinder solution is a standard in dynamic testing. However, high performance is guaranteed at the expense of high costs and high energy consumption and requires the installation of a hydraulic pack involving problems of space and oil leakage.

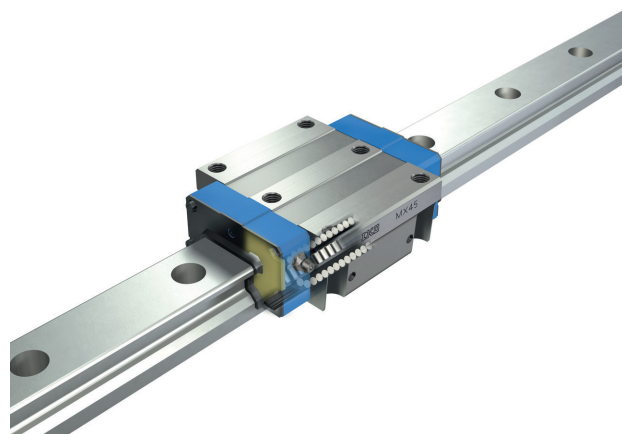
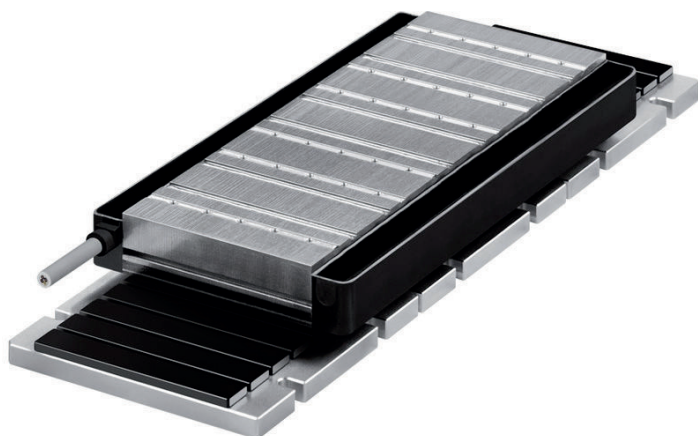


# DIRECT-DRIVE LINEAR MOTOR

Our Direct-Drive linear motor allows high speeds and accelerations to be achieved with low loads:

- **F max** < 10.000 N
- **V max** = 2,5 m/s
- **A max** = 80 m/s<sup>2</sup> (8G)

**Note:** With increasing force and consequently decreasing speed/acceleration, an accurate technical evaluation is required at all times.



# DIRECT-DRIVE BALL SCREW

Our system is based on Direct-Drive Ball Screws, and enables to reach high testing loads with great dynamic performance in terms of acceleration/speed and cost saving in comparison to standard hydraulic solutions.

- **F max** < 500.000 N
- **V max** = 0.5 m/s
- **A max** = 20 m/s<sup>2</sup> (2G)

**Note:** With increasing force and consequently decreasing speed/acceleration, an accurate technical evaluation is required at all times.

