

Unleash your body's full potential

How force plates from Kistler can help improve
physical performance



Subject: John Smith - 5. 10. 1986

Lower Extremities: Bilateral Upper Extremities: On Hips



Start interval relative P
4.919 W/kg

Relative maximal F
209.303 %BW

Relative maximal P
36.273 W/kg

General Parameters

Jump Height from Take Off V [m]	0.227
Jump Height from Flight T [m]	0.236
Start interval relative F [%BW]	202.1
Start interval relative P [W/kg]	5.129
Start Interval A [m/s ²]	10.02
Start Interval V [m/s]	0.262
Relative maximal F [%BW]	209.0
Relative maximal F during Counter Movement [%BW]	208.3
Relative maximal F in the 1st half of Push Off [%BW]	208.3
Relative maximal F in the 2nd half of Push Off [%BW]	182.1
Relative minimal F [%BW]	19.73
Relative maximal F [W/kg]	36.36
Relative E [J/kg]	6.845
A [m/s ²]	2.450
A in the 1st half of Push Off [m/s ²]	7.988
A in the 2nd half of Push Off [m/s ²]	4.201
Vertical Take Off V [m/s]	2.153

Left leg 51% Right leg 49%

Left leg 51% Right leg 49%

Left leg 52% Right leg 48%

Relative E 6.787 J/kg

Push Off F 199.469 Ns

Push Off T, Flight T, Counter Movement T [s] 0.351

Left leg 52% Right leg 48%

Left leg 50% Right leg 50%



Boost performance and reduce injuries

Force plates provide deep evidence-based insights into the musculoskeletal condition and highly dynamic movement patterns of the human body.

This knowledge is essential for competitive strength and conditioning coaches, physiotherapists and sports medicine professionals: it gives them the basis they need to optimize the sports performance of their athletes and clients.

Single and dual force plate systems from Kistler are based on piezoelectric sensor technology that can measure forces in all three orthogonal directions. Together with our advanced MARS software, they automatically calculate relevant biomechanical data which is then stored in a database and displayed instantly in graphic format. This immediate and efficient feedback allows comparisons with previously acquired data or other athletes.

Why choose force plates from Kistler?

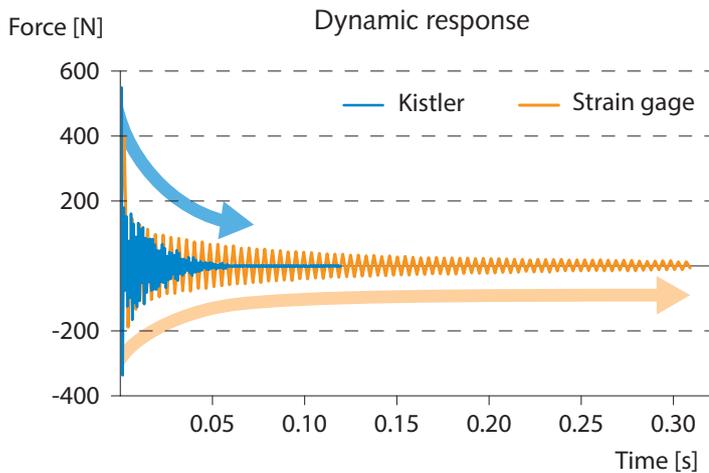
- Acquire fundamental key performance indicators for motion analysis
- Detect muscular fatigue at an early stage
- Reduce the risk of injuries
- Adjust and develop athletes' and clients' training and rehabilitation plans and strategies
- Develop efficient return-to-play protocols
- Help athletes to boost their performance capability

Piezo sensor technology makes all the difference

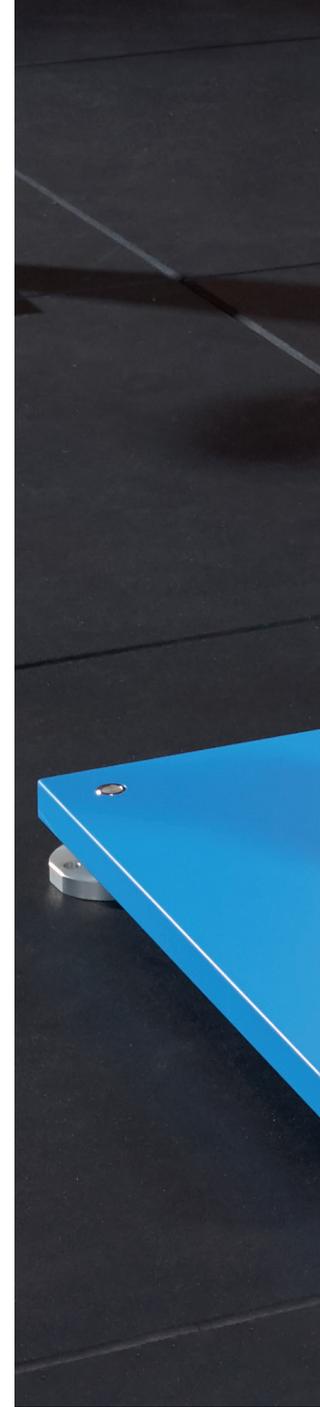
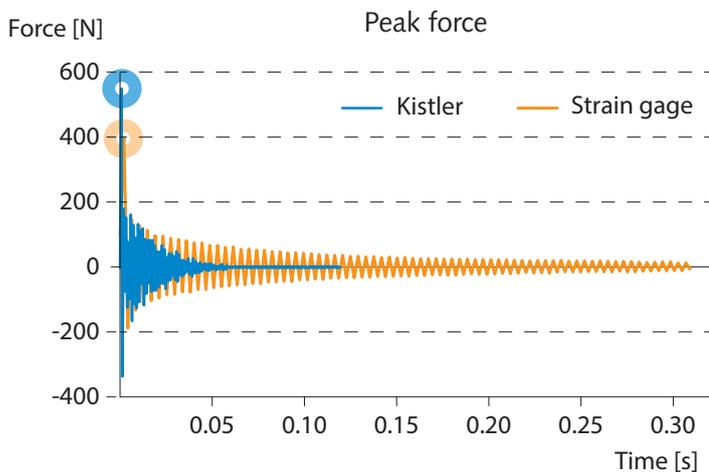
The key advantage of force plates from Kistler: rigid piezoelectric quartz crystal sensor elements that make them ideal for measuring dynamic forces.

Piezoelectric sensors feature very high natural frequencies in the vertical and shear dimensions, excellent dynamic response and a wide measurement range with high resolution – benefits that add up to precise measurement results even under the toughest conditions.

Piezoelectric sensors measure rapidly changing forces more accurately than strain gage sensors:



– and they also deliver more reliable data on peak forces thanks to their higher natural frequency:





Key benefits of piezoelectric technology:

- Very precise measurement of highly dynamic forces thanks to high natural frequency
- Extremely wide measuring range for small or large forces; equally suitable for measuring constant forces and force peaks
- Vast range of possible applications including fixed installation



"The force plate from Kistler was rated as the best on the market. It is backed by 50 years of research and it can measure in all three orthogonal directions."

Tom Myslinski
Strength and Conditioning Coach, Jacksonville Jaguars NFL

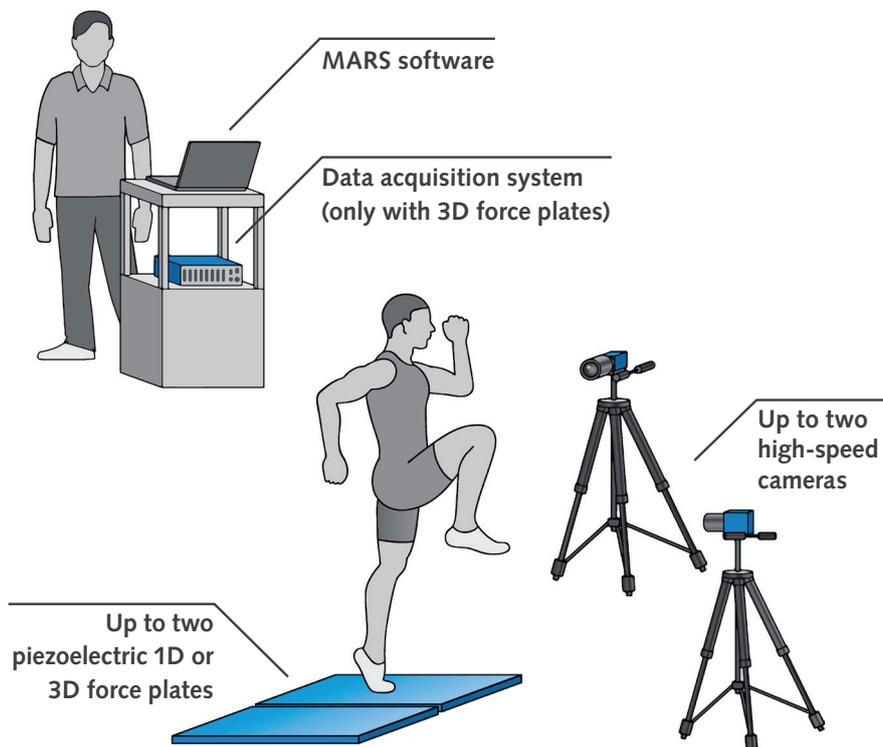
Ready to start

Kistler's force plate systems operate in combination with our MARS software to deliver highly effective solutions for capturing rapid movements and minimal changes in athletes' performance.

Integrated performance tests such as maximum force, squat jump, drop jump or functional isometric testing provide evidence about an athlete's neuromuscular system and performance condition. Thanks to reliable, objective data, force and conditioning training can be tailored to bring athletes to the top of their potential.

Choose from a comprehensive portfolio of force plates and ready-to-start systems for use in research, sports or clinics: options include permanently installed or portable force plates, special waterproof solutions and force plates with a glass top.

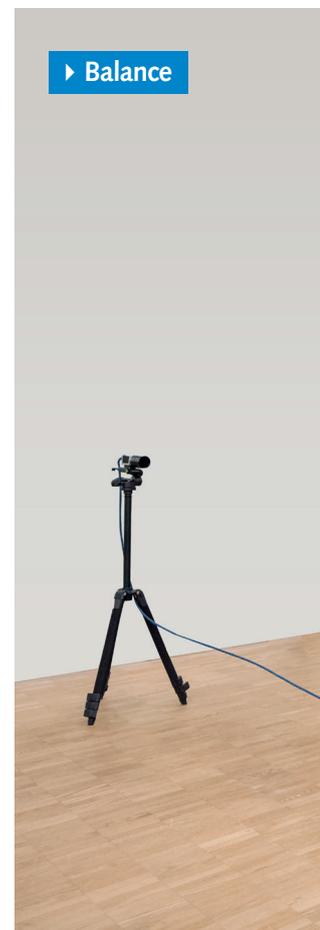
The force plate system from Kistler and its main components



▶ Maximum force



▶ Balance





Modular setup with user-friendly installation and evaluation:

1.

Select athlete

With MARS software, standard performance testing of an entire team takes very little time

2.

Run test

All relevant performance parameters are calculated on the basis of automatic event detection, with output as a graphic display

3.

Analyze

Immediate feedback is the basis for corrections when the athlete continues training

4.

Outputs

Comparison



Team monitoring



Trend



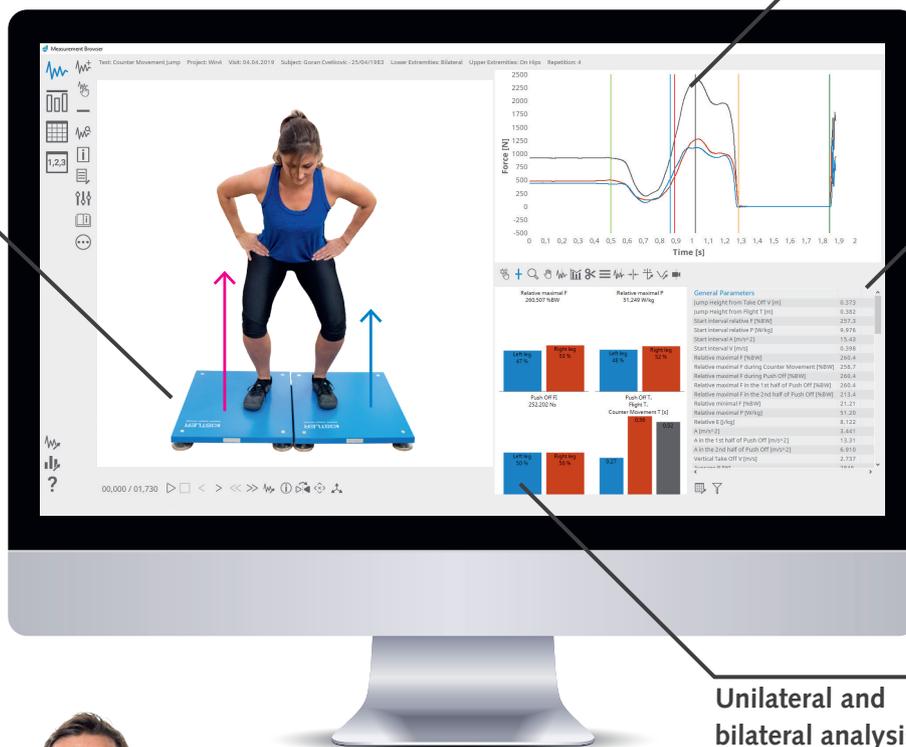
Fast and targeted analysis of complex human movements

Kistler's seamlessly integrated MARS software features 25 predefined test modules. A clear overview of the performance parameters that matter most will help you develop your athletes to the optimum level.

Force curve analysis for:

- total force
- each leg separately
- and/or each force direction separately

Visual feedback with synchronized video and force vector overlay



Up to 80 calculated parameters per test module can be filtered according to your needs

Unilateral and bilateral analysis



“MARS is one of the most important tools in performance diagnostics for us. It also serves as an objective basis for decision making in the rehabilitation process.”

Thomas Bernhard
Junior Team Coach, FC Basel 1893

Learn more about MARS and watch our how-to videos



Optimize swim and sprint starts

In competition, it's the critical hundredths of a second that count. To achieve top sporting performances, athletes require tailored training methods that are continually optimized in line with their needs.

Kistler has developed smart solutions especially for swimmers and sprinters. Easy to operate, these devices generate immediate feedback to build up knowledge based on objective performance data.

KiSwim and KiSprint are complete portable performance analysis systems designed for force measurement and high-speed video capture.

KiSwim

KiSwim helps elite swimmers to analyze and improve their starts and turns, enabling them to gain crucial hundredths of a second for their next competition.

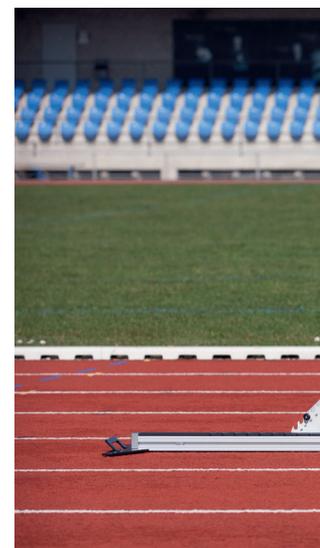
KiSprint

The KiSprint instrumented starting block helps runners to develop an effective starting technique so they can unleash their maximum power in the first meters.



“The data generated by KiSwim can't be captured by the human eye because everything happens far too quickly and at the same time.”

Dave Burkhardt
Head of Junior and Youth National Team,
Swiss Swimming





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