Movetrics

The Insight in Motion

Movetrics F1 3D

3D Force Plate

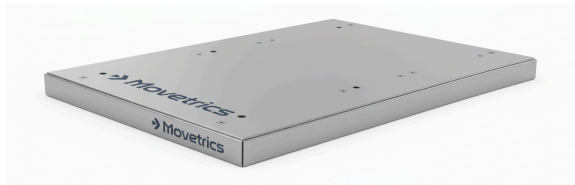# Movetrics F1 3D

3D Force Plates

The **Movetrics F1 3D** is the world's most accessible 3D force plate system – a compact, ultra-thin, and clinically intelligent platform that delivers lab-grade biomechanics without the complexity, size, or price of traditional systems.

Movetrics F1 3D (single)

Movetrics F1 3D Dual

Key Features

- **Modular Design:** Two independent 3D force pads (600x350x30mm each) can be used separately for individual foot analysis or unified into a single 600x700x30mm platform for bilateral studies.
- **High-Fidelity 3D Force Detection:** Measures vertical (Fz), anterior-posterior (Fx), and medio-lateral (Fy) forces with exceptional accuracy and minimal crosstalk.
- **Comprehensive Moment Analysis:** Captures moments about all three axes (Mx, My, Mz) for a complete understanding of rotational forces.
- **Superior Resolution and Linearity:** Delivers high-resolution data with excellent linearity, ensuring precise and reliable measurements.
- **Versatile Connectivity:** Offers multiple data transmission options including high-speed USB, analog outputs for integration with other systems, and Wi-Fi for wireless data acquisition.
- **Portable and Battery-Powered:** A > 3-hour battery autonomy with Wi-Fi and Bluetooth communication enables flexible use in various environments without the constraints of cables.

Measure What Matters

The F1 system is built around one core principle:

Measure what truly matters—clearly, precisely, and anywhere.

Each channel is sampled simultaneously at 1 000 Hz with 16-bit precision, ensuring no event is missed, whether you're monitoring force during a quiet stance or a sprint take-off. Data streams in real time via USB, Wi-Fi, Bluetooth, or ±10 V analog output, complete with Sync In/Out ports for integration with high-speed cameras or EMG systems. With an onboard battery providing at least 3 hours of untethered operation, you can move from the treatment room to the training field without chasing cables.

Use cases that matter

The F1 system opens up high-impact use cases across sports, physiotherapy, and rehabilitation – many of which were previously inaccessible due to the cost and complexity of traditional 3D force plates.

It enables precise assessment of footwear and surface interactions, return-to-play decisions, power profiling, and start and landing mechanics with minimal setup.

Beyond athletics, it supports critical applications in ACL rehab, neurological recovery, and prosthetics alignment, where force symmetry, CoP patterns, and loading rates provide objective markers of progress.

In elderly care, it aids in fall-risk screening, while in pediatric and neuromuscular contexts, it detects early movement instabilities.

The system's portability and affordability make it suitable for solo therapists, mobile rehab, clinic-based gait labs, and even in-store orthotic fittings – empowering professionals to measure what truly matters, wherever they work.

Modular & Scalable by Design

Standard Dual Setup

The Force Board Movetrics Nur is engineered as a modular dual-use system. In its unified configuration, two 600 × 350 × 30 mm units seamlessly lock into a single 600 × 700 mm square platform — ideal for bilateral assessments, loaded jumps, squats, or symmetrical stance analysis.
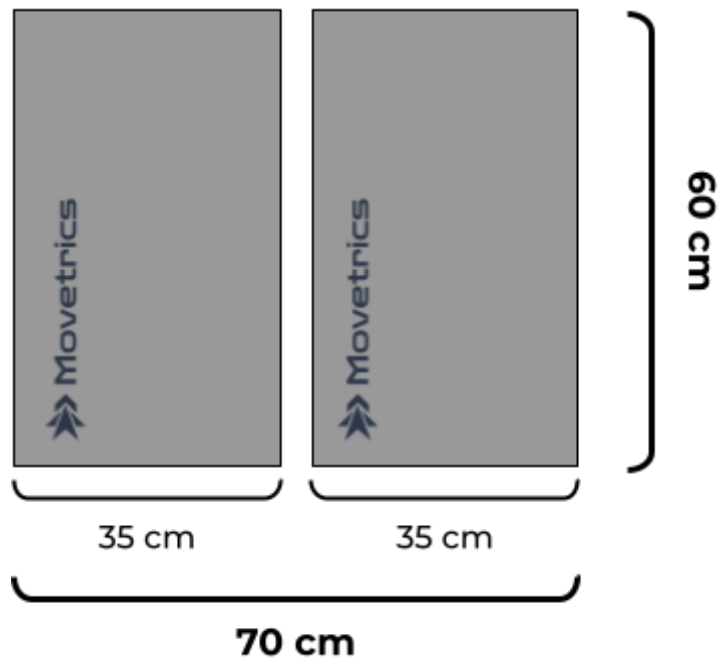
Dimensions in cm for a Dual Plate Application

Modular & Scalable by Design

The Movetrics F1 system is fully modular – designed to grow and adapt with your testing environment.It is not limited to a dual configuration. Each plate (600 × 350 × 30 mm) can be used independently or seamlessly connected with others to form larger synchronized surfaces tailored to your specific use case.

Examples of scalable configurations:

- **2 plates:** 600 × 700 mm square (bilateral stance, squats, jumps, CMJ)
- **3 plates:** 1050 × 600 mm platform (multi-phase movement or gait)
- **4 plates:** 1200 × 700 mm or 600 x 1400 mm (gait runways, sprint starts, prosthetic testing, etc.)
- **6 plates:** 1200 x 1050 mm (sprint starts, gait runways, use with assistive technology such as wheelchairs)

Examples of possible layouts in cm

Plates can be arranged side-by-side, front-to-back, or in offset patterns – giving you full flexibility for assessing real-world movement patterns. Up to ten units can be used in perfect sync, with all data streamed and timestamp-aligned for unified analysis.

Specifications

The Movetrics F1 3D Force Plate system is available as a single or a dual system consisting of two 3D force boards designed to be positioned either adjacent to each other or according to the requirements of a particular sport gesture.

Movetrics F1 3D		
Model Name	**F1 3D**	**F1 Dual 3D**
Quantity	1 board	2 boards per system
Dimensions (per plate)	600 mm (23.6 in) L x 350 mm (13.7 in) W x 30 mm (1.18 in) H	600 mm (23.6 in) L x 700 mm (27.6 in) W x 30 mm (1.18 in) H
Weight	19 kg (41.9 lb)	19 kg (41.9 lb) each / 38 kg (83.8 lb) per pair
Max. nom Load Fz	10.000 N	20.000 N
Max Safe load Fz	12.000 N	24.000 N
Max. Load Mz	2.000 N	4.000 N
Max nom. Load Fx, Fy	±1.200 N	±2.400 N
Max safe load Fx,Fy,N	1.500 N	1.500 N each
Max moment Mx	±720 N.m	±720 N.m each
Max. moment My	±280 N.m	±280 N.m each
Max. Load My, Mx	6.000 N	6.000 N each
Static Resolution Fz, N	± <0.2	± <0.2
Resolution Fz, N/LSB**	<0.05	<0.05
Linearity, %FSO	± 0.05	± 0.05

3D Force Accuracy, %FS	± 0.05	± 0.05
COP Accuracy Error, mm	5 mm	5 mm
Shear Force Accuracy Error	1% FS	1% FS

Electrical & Software

Connection	Wireless (Wi-Fi, Bluetooth), USB-C
Analog Interface	±10V outputs per measured parameter
A/D Converters	16 Bit
Acquisition Rate	same time 1,000 sample / second
Battery	>3 hours autonomy, rechargeable via USB-C
Conversion Resolution	24 Bits
Storage	SD Card

All raw data remain fully accessible – ideal for those who want to develop custom algorithms or run Python/R-based analyses beyond the standard interface.

On request, the F1 3D system can be offered with Fz up to 20.000 N per single one foot platform and 40.000 N for the double unified platform. Max Moments Mx and My will increase accordingly.

6

Mounting

The F1 force plate system is equipped with advanced, industry-leading non-slip rubberized grippers that ensure stability on a wide range of surfaces—from clinic floors to training turf—without the need for additional mounting.

For more permanent or high-impact applications, each plate also includes pre-drilled mounting points, allowing it to be securely screwed into the ground or attached to rail systems.

Software

Base Cloud Software Overview

The F1 3D force plate system includes an integrated, browser-based cloud software that delivers all essential biomechanical calculations—no external tools or complex setup required.

The browser-based app automatically computes and provides real-time visualization and analysis of all key metrics that matter.

Metric	Why it matters
Center of Pressure (CoP)	Shows where weight shifts under each foot—highlights balance issues or asymmetries.
Resultant force magnitude	Tells you "how hard" the ground is hit—key for monitoring overall load on joints.
Resultant shear force	Reveals sideways slip that stresses knees, ankles, or prosthetic sockets.
Resultant moment	Captures twisting torque—useful for spotting risky pivot or landing mechanics.
Force direction angle (3-D)	Indicates whether force is driven straight down or leaks sideways—guides technique fixes.
Force direction angle (shear-only)	Isolates horizontal push/pull to fine-tune stride or cut movements.

Loading rate (first-peak slope)	Flags rapid impact spikes linked to stress-fracture and overuse injuries.
Impulse	Measures total "push" over time—great for judging explosive power and propulsion.
Maximum force	Simple top number to track overall peak load and progress.
First peak force	Identifies initial shock on landing—crucial for return-to-play decisions.
Time to first peak	Shows how quickly impact hits; slower times often mean softer, safer landings.
Minimum force	Marks mid-stance unloading—helps verify smooth weight transfer.
Time to minimum force	Highlights timing of support phase; useful for gait retraining.
Time between first and second peak	Maps full stance cycle—helps coaches and physios spot stride or jump-landing rhythm issues.

Each metric is clearly visualized and explained within the software, allowing physiotherapists, rehab specialists, and coaches to immediately understand and act on the data – without requiring deep biomechanical expertise.

All standard force and motion calculations will remain free forever as part of the base system.

Movetrics 3D Force Intelligence

Starting 2026, an optional AI software module will assist users in interpreting force plate data. This system will evolve from basic on-screen explanations to fully personalized biomechanical reports, including:

- Pattern recognition (e.g. gait deviations, fatigue markers)
- Treatment or coaching suggestions
- Progress tracking and milestone flagging

Designed for professionals without a deep biomechanics background, the AI layer reduces interpretation time while preserving clinical control. All base calculations remain free; AI features will be available via subscription.

Motion Capture Software

F1 integrates into professional motion capture workflows via ±10 V analog output and Sync In/Out ports.

It has been tested and verified with **Noraxon** systems, supporting synchronized EMG and high-speed video capture. Compatibility with **Vicon** and **Qualisys** is under validation for **Q4 2025**.

Set-up in Minutes, Not Hours

1. **Place** the plates or snap them together. — < 1 minute
2. **Connect** via USB or launch the built-in Wi-Fi — 1 minute
3. **Calibrate** with the guided wizard – 1 minute
4. **Test** – Whether it's sprint starts, balance drills, or Olympic lifts, data streams live to your laptop or tablet, and syncs instantly with our cloud platform.

Pricing and Order

Pricing

F1 is engineered to deliver precision 3D force analysis at a fraction of traditional costs. To support early adoption, we offer a special introductory price for the first 100 customers.

Pricing is available upon request for clinics, coaches, distributors, and OEM partners. Custom agreements available for volume orders.

Ordering & Availability

Systems are custom-built to order with a typical lead time of 4–8 weeks, depending on configuration and volume.

Production begins upon upfront payment via bank transfer.

ODM-Manufacturing

F1 is available as an ODM solution for companies seeking to launch their own branded biomechanics platform. With a minimum order of 200 units (single) or 100 units (dual), we support custom hardware branding, UI theming, and packaging integration.

Inquiries & Contact

For pricing, custom offers, or to place an order, please contact us at info@movetrics.com

We're also open to discussions about distribution partnerships, OEM/ODM licensing, and joint development collaborations.