

# Kistler MARS

Type 2875A...

## Measurement, Analysis and Reporting Software

Kistler MARS is an innovative, comprehensive and user-friendly software for the complete analysis of force plate measurements. It supports routine diagnostics and research work in biomechanics, performance analysis, motor control behavior, rehabilitation medicine and other related fields.

- Very high data accuracy due to 25 different analysis modules with advanced automatic event detection and parameter calculation
- Motion execution control to reduce the risk of injury using force vectors integrated into the video image (supported by MARS 5 full version only)
- Quick measurement start and data collection due to integrated software guides and tips for test executions
- Uni- and bilateral analysis
- Comparison mode to compare athletes or different trials
- Efficient preparation of reports
- Numerous export functions
- Integrated software guide for setup and measurements

### Description

Kistler MARS is a routine diagnostics and research software for Kistler force plates. The 'Measurement, Analysis and Reporting Software' (MARS) supports Kistler data acquisition systems Type 5691A..., Type 5695B... and the systems KiJump Type 9229.... and Quattro Jump Type 9290... .

It analyzes the acquired force plate signals, calculates a large range of significant parameters, and provides graphical presentations of the measurements.

The software is based on a management unit that provides operational functions (add, edit, delete, assign, search, filter) to structure the data (projects, visits and subjects). The data is stored and managed in a database where it is accessible for comparison, dashboard view and reporting which also supports a team member ranking in charts and tables. In addition the data can be exported in different formats (raw signal, signal graph and parameter values).

In each of the 25 different measurement modules the data is analysed for relevant output parameters. The input parameters and acquisition setup can be edited for each test separately.



The individual software functions are arranged intuitively and easy-to-use. All functions are well supported with extensive help information including how-to examples and with online video trainings on the MARS website.

### Application

Kistler MARS can be used for the evaluation of human movement such as static balance (Body Sway), dynamic balance (Tracking Shapes, Limits of Stability, etc.) locomotion and body transfer (Step Analysis, Forward Lunge, etc.), fast alternating movements (Tapping, Stamping, etc.) and strength and power (all vertical jumps, etc.).

The software calculates the standard parameters and many more evidence-based parameters to provide the details immediately. Detailed conclusions about muscular imbalances are possible when using two force plates.

Kistler MARS includes 25 modules to evaluate physical performance in the fields of strength, power, anaerobic endurance, coordination and balance (see table page 2).

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Name of the Test Module	Short Description	Full Version	Power Version	Balance Version	Quattro Jump & KiJump Version
<b>Squat Jump</b>	Vertical jump test of concentric power for the lower extremities.	X	X		X
<b>Counter Movement Jump</b>	Vertical jump test of eccentric-concentric power for the lower extremities.	X	X		X
<b>Drop Jump</b>	Vertical drop jump test of eccentric-concentric power for lower legs. Testing is performed using progressively higher drop heights.	X	X		X
<b>Jumps with Additional Weights</b>	3 consecutive vertical concentric and eccentric-concentric jumps. The test is performed using progressive loading with weights.	X	X		X
<b>Repetitive Counter Movement Jumps</b>	Vertical jump test of endurance in eccentric-concentric conditions for lower extremities.	X	X		X
<b>Repetitive Hopping</b>	Vertical jump test of endurance in eccentric-concentric conditions for lower legs.	X	X		X
<b>Long Jump</b>	Situational horizontal jump test of eccentric-concentric power for lower extremities.	X	X		
<b>Lateral Jump</b>	Lateral jump test of eccentric-concentric power for lower extremities	X	X		
<b>Repetitive Lateral Jumps</b>	Repetitive lateral jump test of eccentric-concentric power for lower extremities	X	X		
<b>Squat</b>	Vertical movement test of concentric power for the lower extremities.	X	X		X
<b>Maximum Voluntary Contraction</b>	Maximum voluntary contraction (MVC) test of maximal strength and rate of force development (RFD).	X	X		X
<b>Fatigue</b>	Sustained isometric contraction test of endurance of the neuromuscular system.	X	X		X
<b>Tracking</b>	Dynamic force control test by adapting the force level to specific requirements.	X	X		X
<b>Stamping</b>	Test of maximal frequency and endurance of stamping for lower and upper extremities.	X	X		X
<b>Tapping</b>	Test of maximal frequency, endurance and accuracy of tapping for lower and upper extremities.	X		X	
<b>Forward Lunge</b>	Test for strength, good range of motion, balance and coordination.	X		X	
<b>Sit-To-Stand</b>	Clinical test where the subject needs to rise from a seated to a standing position.	X		X	
<b>Turn</b>	Clinical test, where the subject has to make two forward steps and then quickly turn for 180°.	X		X	
<b>Step Analysis</b>	Situational test of vertical, anterior-posterior and medio-lateral load of the lower extremity during locomotion.	X		X	
<b>Body Sway</b>	Test of body sway during sustaining static posture (quiet stance or any other). Typical applications: sport performance, lower extremity injuries, brain concussion, etc.	X		X	
<b>Tracking Shapes</b>	A set of tests which involve precise active tracking of the centre of pressure way defined by a matrix shape that is displayed on a screen as a feed back to the subject.	X		X	

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Name of the Test Module	Short Description	Full Version	Power Version	Balance Version	Quattro Jump & KiJump Version
<b>Tracking Curves</b>	A set of tests which involve precise active tracking of the centre of pressure way defined by a matrix curve that is displayed on a screen as a feed back to the subject.	X		X	
<b>Limits of Stability</b>	A test of maximal range of voluntary body leaning in different directions.	X		X	
<b>Landing</b>	Dynamic balance test of postural stability for different types of landing.	X		X	
<b>Symmetry</b>	Test of postural symmetry in weight bearing function of the lower extremities during upright stance and (semi)squat.	X		X	

**Application Examples and Screenshots**

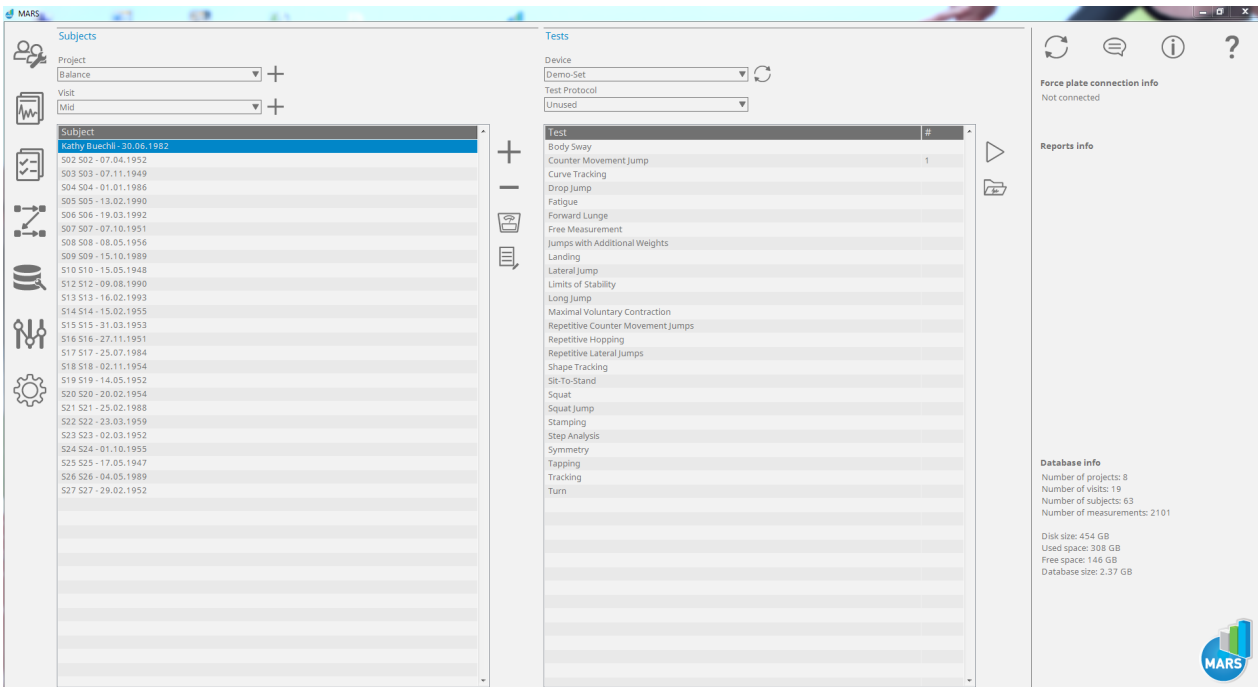


Fig. 1: Main window with management tools on the left side and module selection on the right

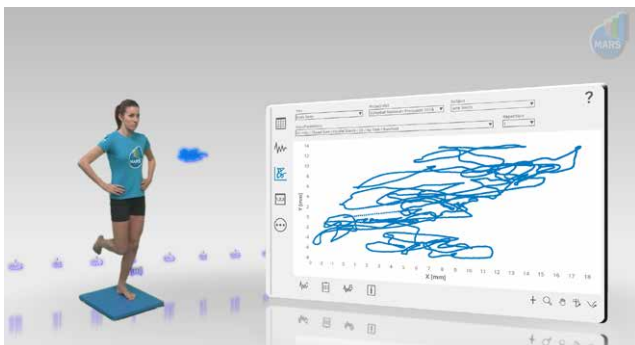


Fig. 2: The Balance Version provides all modules related to locomotion, movement control and balance

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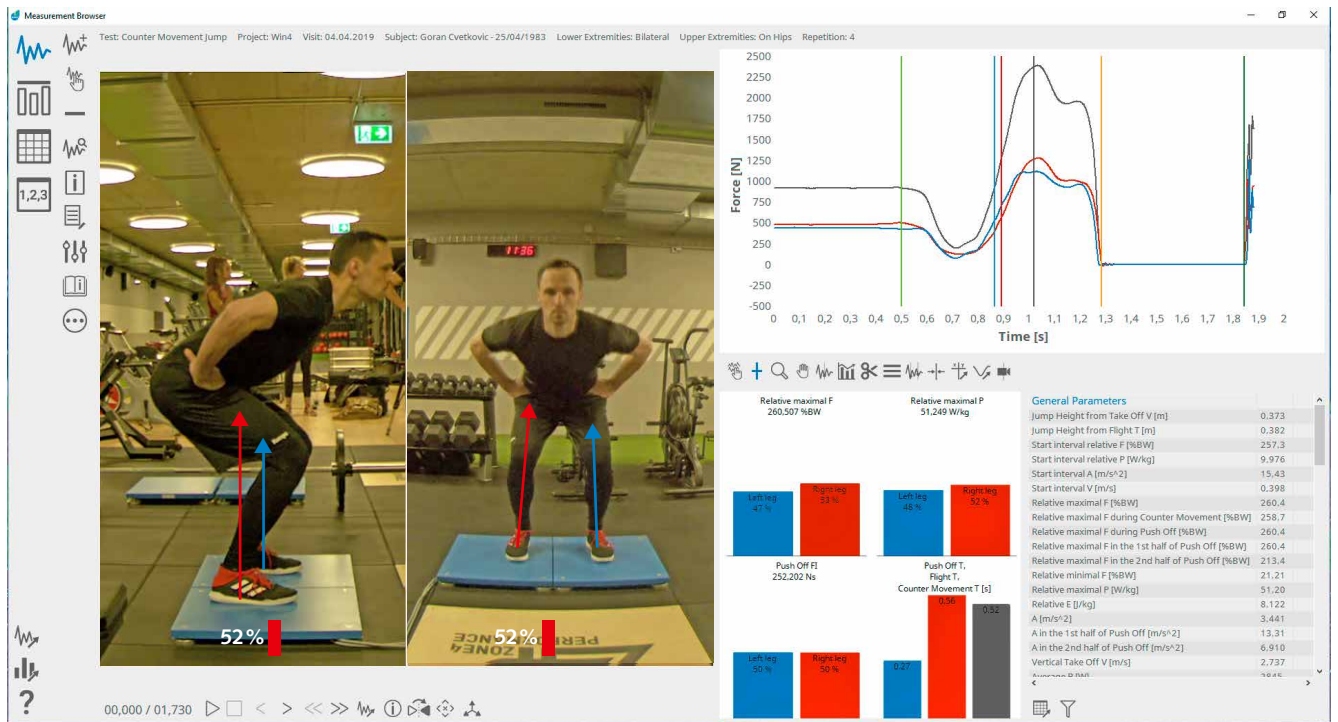


Fig. 3: Analysis view of a Counter Movement Jump with video, force-time curve, graphic display of left/right parameters and force vector overlay

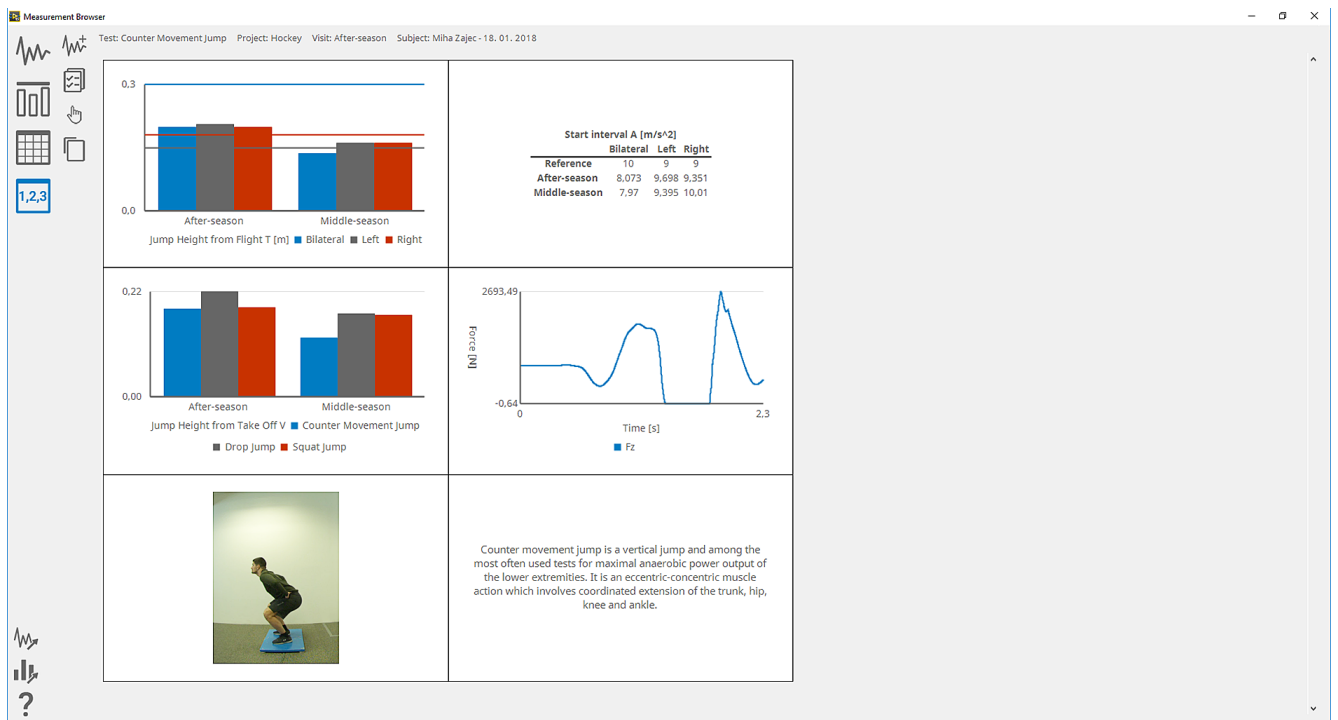


Fig. 4: Dashboard view. Templates can be individually defined

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**MARS accessories for multicomponent force plates**

**Included accessories**

- License on USB key

**Optional accessories**

- Kistler force plates
- Kistler DAQ systems
- 1-2 cameras (incl. cables)
- Tripod

**Type/Art. No.**

- 9260...
- 9286...
- 9281...
- 9287...
- 9290...
- 9229...
- 5691A...
- 5695B...
- 55174650\*
- 55163669\*

**MARS accessories for KiJump Type 9229... & Quattro Jump Type 9290...**

**Included accessories**

- License on USB key

**Optional accessories**

- Kistler force plates
- 1-2 cameras (incl. cables)
- Tripod

**Type/Art. No.**

- 9290...
- 9229...
- 55174650\*
- 55163669\*

\* only compatible from MARS 4.0 with camera feature and DAQ 5695BQ2

**PC requirements for camera feature\***

- OS: Windows 10 (for desktop)
- CPU: Intel core i7with at least 2 GHz
- Memory: 16 GB RAM
- Hard drive: SSD with at least 10GB free space
- Screen resolution: 1920 x 1080 pixels
- 2 USB ports
- Gigabit ethernet port with jumbo packets support

\* only when used MARS with cameras

**Ordering key**

**Kistler MARS**

Full Version <sup>1</sup> Measurement, Analysis and Reporting Software	<b>1</b>
Power & Strength Version <sup>1</sup> Measurement, Analysis and Reporting Software	<b>3</b>
Power modules only	
Balance & Stability Version <sup>1</sup> Measurement, Analysis and Reporting Software	<b>4</b>
Balance modules only	
KiJump & Quattro Jump Version <sup>2</sup> Measurement, Analysis and Reporting Software	<b>5</b>
Support only Type 9290... and Type 9229...	
Video Feature	<b>1</b>

Type 2875A



<sup>1</sup> supports only DAQ Types 5691/5695

<sup>2</sup> supports only Quattro Jump Type 9290... and KiJump Type 9229...

**Ordering key video feature upgrade**

- Upgrade 2875A1 → 2875A11
- Upgrade 2875A3 → 2875A31
- Upgrade 2875A4 → 2875A41
- Upgrade 2875A5 → 2875A41

**Type No.**

- 2875AA
- 2875AA
- 2875AA
- 2875AA

**Ordering MARS version upgrade**

- MARS 4.0 Full/Part → MARS 5.0 Full/Part Version
- MARS 3.0 Full/Part → MARS 5.0 Full/Part Version

**Type No.**

- 44002132
- 2 x 44002132

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