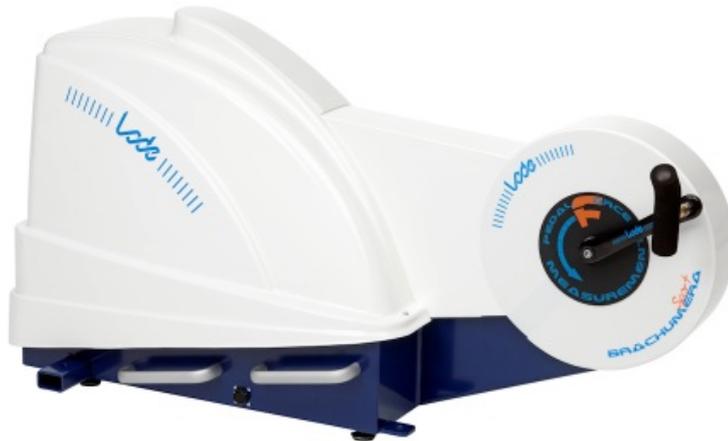


# Brachumera sport with Pedal Force Measurement

The worlds highest load accurate arm ergometer



## Highlights

### Extreme workload range of 8 - 2500 watt

The extraordinary workload range of 8-2500 watt is unique in the world! It makes this ergometer extremely suitable for sports medicine and testing the strongest athletes in the world on their anaerobic power or isokinetic capacity.

### Left & right independent measurements

The PFM is not only the summation of left and right, but real left and right independent measurements. Differences between the left and right pedal movement, before and after surgery or at different workload can be detected. A real diagnostic tool!

### Special Analysis and Polar Graphs

Analysis and Polar graphs are specifically designed for pedal force measurement

### LEM PFM included

The LEM software with PFM module is standard included

### Measurement every 2 degrees

The accuracy of the PFM during the total revolution is obtained by the placement of highly specific strain gauges in the crank axis making it possible to measure the pedal force every 2 degrees during each revolution during the exercise test.



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The Brachumera sport is a modern and reliable arm ergometer that can be controlled both manually and by external equipment. Brachumera sport is currently used in Olympic and professional sports where the muscles in the arms and shoulders play a mayor role, e.g. kayaking and swimming. Pedal Force Measurement allows for analysis of force balance and stroke efficiency. The arm ergometer for sports can deliver a load up till 2500 Watt. It can be connected to Lode Ergometry Software for data management, protocol creation and execution. This ergometer has built-in modified strain gauge technology that measures forces exerted on the pedals during exercise and is supplied with angle detection. Independent measurements of forces in both left and right crank are possible. Wireless transmission of the measured forces to the PC by blue tooth. Note: this setting comes standard with LEM and LEM PFM software, a computer (we recommend to use this PC only for the LEM software) and an interface cable ergometer - PC (part no. 930911). Various LEM extension modules are optional available.

## Features

**7  
watt**

### Extreme low start-up load

The extreme low start-up load of 7 watts and the adjustability in small steps of 1 watt make this ergometer perfectly suitable for many different applications. The standard control unit shows multiple ergometry parameters and you can determine your specific default setting and start-up menu.

**1  
watt**

### Small adjustment steps

The workload of the Lode ergometers is adjustable in steps of only 1 watt. Depending on your wishes, the test operator or the test subject can adjust the workload. The steps of 1 watt are possible in the manual mode as well as within protocols.



### Designed to be sweat-proof

The housing of the ergometer is designed in such way that sweat does not have the chance to drip into the mechanical parts. This ensures a long lifetime and makes the ergometer insensitive for malfunction.

**Custom  
View**

### Customer specific display setting

Display settings are adjustable according to your specific requirements: each individual has its specific wishes about the parameters to be displayed. This can easily be adjusted with the Lode ergometers.



### LEM compatible

This product can be used with Lode Ergometry Manager (LEM) software to manage data and to apply specific protocols when a Communication card or Network card is present



### Accurate over a long period of time

The Lode ergometers are supplied with an electro-magnetic braking mechanism of Lanooy (eddy current). The biggest advantage of this braking system compared to a friction braking system is the absolute accuracy and the accuracy over time. Moreover, friction braking systems have more wearing parts.



### RS232 connectivity

RS232 ports enable connectivity to most ECG and ergospirometry devices as well as PC's.

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## Lode Ergometry Manager - Pedal Force Measurement software module

Lode ergometers with Pedal Force Measurement come standard with the Lode Ergometry Manager - Pedal Force Measurement software module. The combination of software and ergometer results in a unique application for sport-medical stress testing, rehabilitation and research.

The Pedal Force Measurement module adds the following features to the Lode Ergometry Manager:

- Continuous registration of the forces exerted on the left and right crank;
- Specific Pedal Force Measurement visualisations;
- Specific Pedal Force Measurement reports and analysis: numeric data such as peak values, averages, absolute maximum, angle, total efficiency, rpm and left/right ratio are registered and saved. Export to statistical programs is possible with the optional LEM Expansion Module Export;
- Protocols for pedal force measurement can be programmed based on time intervals (with a maximum of 60 minutes), enabling a continuous registration of the pedal force;
- On-line visualizations of the forces and Torque on the left and/or right crank during the test;

The software offers the possibility to define "area's of interest" (AOI) and to analyze these separately.

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Brachumera sport with Pedal Force Measurement can a.o be extended with the following options:

<p><b>USB to Serial converter</b></p> <p>Easy connection</p>  <p>Partnumber: 226012</p>	<p><b>Electric adjustable chair for arm ergometer</b></p> <p>Comfortable seating position in front of the</p>  <p>Partnumber: 917813</p>	<p><b>Programmable Control Unit with SpO2 &amp; Heart rate</b></p> <p>Measurement of oxygen saturation</p>  <p>Partnumber: 928841</p>	<p><b>Heart rate</b></p> <p>Heart rate controlled cycling</p>  <p>Partnumber: 928826</p>	<p><b>0-Watt start-up system</b></p> <p>Lowest possible startup power</p>  <p>Partnumber: 925805</p>
<p><b>Adjustable sports cranks incl. pediatric range</b></p> <p>Optimal force application</p>  <p>Partnumber: 925808</p>	<p><b>Programmable Control Unit</b></p> <p>Programming protocols in advance</p>  <p>Partnumber: 928811</p>	<p><b>Adjustable wall fixation for Brachumera sport</b></p> <p>Versatile application of Brachumera Sport</p>  <p>Partnumber: 925830</p>	<p><b>Stand for adjustable wall fixation Brachumera sport</b></p> <p>Versatile application of Brachumera sport</p>  <p>Partnumber: 925840</p>	<p><b>RS232 cable</b></p> <p>Easy connection</p>  <p>Partnumber: 930911</p>

# Brachumera sport with Pedal Force Measurement



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## Specifications

### Workload

Minimum load	7 W
Maximum peak load	2500 W
Isokinetic workload control	✓
Minimum load increments	1 W
Maximum continuous load	1500 W
Hyperbolic workload control	✓
Linear workload control	✓
Fixed torque workload control	✓
Maximum rpm independent constant load	150 rpm
Minimum rpm independent constant load	30 rpm
Optional heart rate controlled workload	✓
Electromagnetic "eddy current" braking system	✓
Dynamic calibration	✓

### Accuracy

Workload accuracy below 100 W	3 W
Workload accuracy from 100 to 1500 W	3 %
Workload accuracy over 1500 W	5 %

### User Interface

Readout Distance	✓
Readout RPM	✓
Readout Heartrate	✓
Readout target HR	✓
Readout Energy	✓
Readout Torque	✓
Readout Time	✓
Readout Power	✓
Set Display	✓
Set Resistance	✓
Set P-Slope	✓
Set Mode	✓
Manual operation mode	✓
Preset protocol operation mode	✓
Analog operation mode	✓
Terminal operation mode	✓
Selfdesigned protocol operation mode	✓

### Connectivity

Analog connector	✓
RS232 in connector	✓

### Order info

Partnumber: 925910

\*Specifications are subject to change without notice.

### Dimensions

Product length (cm)	114 cm	44.9 inch
Product width (cm)	59 cm	23.2 inch
Product height	51 cm	20.1 inch
Product weight	65 kg	143.3 lbs

### Power requirements

Power cord length	250 cm	98.4 inch
Power cord IEC 60320 C13 with CEE 7/7 plug	✓	
Power cord NEMA	✗	
115 V AC 50/60 Hz (130 VA)	✓	
230 V AC 50/60 Hz (130 VA)	✓	

### Standards & Safety

IEC 60601-1:2005	✓
ISO 13485:2016 compliant	✓
ISO 9001:2015 compliant	✓

### Certification

CE class Im according to MDD93/42/EEC	✓
CE class of product with optional SpO2	Ila
CE class of product with optional BPM	Ila
CB according to IECEE CB	✓

### Included parts

PC included for PFM	✓
PC software included	✓

### Pedal Force Measurement

Rotational measurement resolution	2 °
Pedal Force accuracy	0.5 N