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 and 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.
With proven accuracy and reliability, the Excalibur sport is renowned worldwide as “the gold standard in ergometry”. The newly designed and improved Excalibur sport ergometer meets the latest requirements of modern sports medicine and research. Since athletes are becoming more and more powerful and testing more advanced than ever, this ergometer has been developed for extreme workloads up to 2500 watt! The new design ensures maximum stability at these high workloads. Thanks to the increased adjustability, versatile positioning of the test subject has never been better! This Excalibur sport 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 is supplied with LEM and LEM PFM software (various other modules are available), a computer (we recommend to use this PC only for the LEM software) and an interface cable.

**Features**

- **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.

- **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.

- **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 and cables are protected. This ensures a long lifetime and makes the ergometer insensitive for malfunction.

- **Compatible with click pedals**
  The bicycle ergometer is compatible with most available clickpedals to allow for maximum user flexibility

- **Adjustable handlebar Excalibur Sport**
  The position of the handlebar of Excalibur Sport is completely adjustable in height and length

- **Adjustable saddle Excalibur Sport**
  The position of the saddle of the excalibur sport can be adjusted in height, length and angle to suit all users

- **Instant maximum load**
  By selecting P-slope max the ergometer immediately reaches maximum power

- **Compatible with ECG and pulmonary devices**
  The Lode ergometers have digital interfaces and can be controlled easily by all known stress ECG and pulmonary devices available in the world. This is one of the reasons why the Lode ergometers are very popular worldwide.

- **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 is present

**Excalibur sport with Pedal Force Measurement**

Phased out - support up till 2029
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.

Excalibur sport with Pedal Force Measurement
Phased out - support up till 2029
Excalibur sport with Pedal Force Measurement can a.o be extended with the following options:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Partnumber</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB to Serial converter</td>
<td>Easy connection</td>
<td>226012</td>
</tr>
<tr>
<td>Programmable Control Unit with SpO2 &amp; Heart rate</td>
<td>Measurement of oxygen saturation</td>
<td>928841</td>
</tr>
<tr>
<td>Blood Pressure Module</td>
<td>Accurate measurement without trigger</td>
<td>928818</td>
</tr>
<tr>
<td>Heart rate</td>
<td>Heart rate controlled cycling</td>
<td>928826</td>
</tr>
<tr>
<td>0-Watt start-up system</td>
<td>Lowest possible startup power</td>
<td>925805</td>
</tr>
<tr>
<td>Adjustable sports cranks incl. pediatric range</td>
<td>Optimal force application</td>
<td>925808</td>
</tr>
<tr>
<td>Easy saddle exchange option</td>
<td>Fast change of saddle to suit all users</td>
<td>925807</td>
</tr>
<tr>
<td>Mounting Bracket Control Unit &amp; RPM meter</td>
<td>All controls at hand</td>
<td>928848</td>
</tr>
<tr>
<td>Mounting Bracket Control Unit</td>
<td>More controls at hand</td>
<td>928849</td>
</tr>
<tr>
<td>Programmable Control Unit</td>
<td>Programming protocols in advance</td>
<td>928811</td>
</tr>
<tr>
<td>RS232 cable</td>
<td>Easy connection</td>
<td>930911</td>
</tr>
<tr>
<td>Saddle for children</td>
<td>Versatile ergometry</td>
<td>401066</td>
</tr>
<tr>
<td>Saddle for children - ordered additionally</td>
<td>Versatile ergometry</td>
<td>P401066</td>
</tr>
<tr>
<td>Bluetooth Smart heart rate</td>
<td>Heartrate available within an extreme wide</td>
<td>945833</td>
</tr>
</tbody>
</table>

Excalibur sport with Pedal Force Measurement Phased out - support up till 2029
Specifications

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
External control unit
Selfdesigned protocol operation mode

Connectivity

Analog connector
RS232 in connector
RS232 out connector

Dimensions

Product length (cm) 130 cm 51.2 inch
Product width (cm) 70 cm 27.6 inch
Product height 89 cm 35 inch
Product weight 101 kg 222.7 lbs

Power requirements

Power cord IEC 60320 C13 with CEE 7/7 plug
Power cord NEMA

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 IIa
CE class of product with optional BPM IIa
CB according to IECEE CB

Pedal Force Measurement

Rotational measurement resolution 2 °
Pedal Force accuracy 0.5 N

Workload

Minimum load 8 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 180 rpm
Minimum rpm independent constant load 25 rpm
Optional heart rate controlled workload ✔
Electromagnetic “eddy current” braking system ✔
Dynamic calibration ✔

Accuracy

Workload accuracy below 100 W 2 W
Workload accuracy from 100 to 1500 W 2 %
Workload accuracy over 1500 W 5 %

Comfort

Toeclips on pedals ✔
Q-factor 147 mm
Minimum leg length user 725 mm 28.5 inch
Minimum leg length user (incl. adjustable pedals) 650 mm 25.6 inch
Vertical seat adjustment maximum 938 mm 36.9 inch
Vertical seat adjustment minimum 550 mm 21.7 inch
Horizontal seat adjustment minimum 72 mm 2.8 inch
Horizontal seat adjustment maximum 324 mm 12.8 inch
Seat angle adjustment maximum 10 °
Allowed user weight 180 kg 396.8 lbs
Horizontal handlebar adjustment minimum 229 mm 9 inch
Horizontal handlebar adjustment maximum 600 mm 23.6 inch
Vertical handlebar adjustment minimum 465 mm 18.3 inch
Vertical handlebar adjustment maximum 855 mm 33.7 inch
Handlebar adjustment angle 360 °

Order info

Excalibur sport with Pedal Force Measurement
Phased out - support up till 2029
Excalibur sport with Pedal Force Measurement

Phased out - support up till 2029

Partnumber: 925909

*Specifications are subject to change without notice.*