MR Ergometer Push/Pull
Unique imaging possibilities with patient in stress

Highlights

Unique ergometer for MRI
With this unique ergometer it is possible to perform an exercise test in an MRI. An ergometer on the tabletop of an MRI ensures minimal time stress induction and imaging without coursing artifacts on the imaging.

High standards
Lode is a socially and environmentally responsible company. All Lode products are RoHS/WEEE compliant and Lode is ISO 9001:2015, and ISO 13485:2016 certified. All medical products comply to MDD 93/42/EEC, incl. IEC 60601-1.

Tesla independent
The choice of materials and the special design makes that the Lode MRI ergometer is useable for various Tesla MRIs without giving artifacts on the imaging.

Exercise instead of medicine
When a test subject is able to do exercise, it is always recommended above pharmacologic stress. It allows objective measurement in either level of cardiac conditioning and/or level of cardiac work. It is safe and perfectly reproducible.

Compatible with various MRIs at 1.5 and 3 Tesla
Compatible with
- Philips
- Siemens
- GE
MR Ergometer Push/Pull

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This MR ergometer is suitable for cardiology in scanners where it is impossible to make a real pedal movement. The workload is adjustable up to 100 watt. The zero load is <5 watt at 25 rpm. The MR ergometer is an ergometer for use during MR studies. The MR ergometers workload is controlled with an electronical braking principle especially designed for use in an MR environment. The moment of inertia is 8.4 kgm². The MR ergometer is standard supplied with a control unit and power unit. The standard control unit offers the possibility to read out various parameters like workload, rpm, torque, timer and distance. The power unit is completed with a safety cable for wall fixation. The MR ergometer can be used for MR scanners up to 3 Tesla.
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Features

- **GE MRI compatible**
  The Lode MR Ergometer is compatible with GE Signa and Discovery scanners.

- **Siemens MRI compatibility**
  The MRI Ergometer can be used in combination with many Siemens Magnetom MRI scanners, like Skyra, Aera, Verio, Essenza, Prisma, Avanto Fit, Vida, Sola, Altea, Lumina and Spectra.

- **Philips MRI compatible**
  The ergometer is compatible with various Philips MRI devices like Philips Achieva and Ingenia.

- **Additional features with PCU**
  Besides the possibility to program 24 protocols easily, this control unit offers the following features:
  - better monitoring because of the additional and larger display
  - a perfect combination with BPM
  - possibility to measure SpO2

**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.

**Low noise**

Due to accurate manufacturing and the careful choice of materials the product has an extremely low noise level.

**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.

**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.

**Service friendly ergometer**

Lode ergometers are very service friendly. In general, total costs for spare parts are so low that they are negligible. Furthermore, most options are so easy to install and firmware is so easy to update that labor costs are minimal. Moreover, the ergometer can be cleaned easily.

**Up till 3 Tesla**

Virtually no interferentie up till 3 Tesla through smart constructions and material use.
A unique ergometer

The Lode MRI ergometers are designed to produce physical stress within an MRI device. The MRI ergometer can be used for cardiac examinations, cardiac research, spectroscopy and other examinations and research.

For cardiac MRI examinations, the MRI ergometer can be produced with a pedal (circular) or push/pull exercise movement.

For spectroscopy MR examinations there is an ergometer available with up/down movement for the upper leg and an ankle MRI ergometer for the calf muscles.

The MRI ergometers are compatible for the most types of MRI scanners of Siemens, Philips and GE. The choice of materials and the special design makes that the Lode MRI ergometer can be used for 1,5 and a 3 Tesla MRI without giving artifacts on the imaging.

Our MRI ergometer with its low start-up load enables exercise. When a test subject is able to do exercise, this is always recommended above pharmacologic stress. It allows objective measurement of improvement in either level of cardiac conditioning and/or level of cardiac work. It is safe and what is very important is perfectly reproducible.
MR Ergometer Push/Pull can a.o be extended with the following options:

<table>
<thead>
<tr>
<th>Option</th>
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<tbody>
<tr>
<td>Optical Interface Cable</td>
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<tr>
<td>Connection with a PC</td>
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<td>outside the MRI room</td>
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Partnumber: 918825
Specifications

Workload

- Minimum load: 5 W
- Maximum peak load: 100 W
- Minimum load increments: 1 W
- Hyperbolic workload control
- Linear workload control
- Fixed torque workload control
- Maximum rpm independent constant load: 60 rpm
- Minimum rpm independent constant load: 5 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 500 W: 3 %

User Interface

- Manual operation mode
- Preset protocol operation mode
- Analog operation mode
- Terminal operation mode
- External control unit
- Selfdesigned protocol operation mode

Connectivity

- Analog connector

Dimensions

- Product length (cm): 135 cm (53.1 inch)
- Product width (cm): 50 cm (19.7 inch)
- Product height: 50 cm (19.7 inch)
- Product weight: 47 kg (103.6 lbs)

Power requirements

- 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
- CB according to IECEE CB

Order info

- Partnumber: 937902

*Specifications are subject to change without notice.