ERS | 2

CARDIAC REHABILITATION

ergoline
MOVING TO HEALTH
Technology and design
As one of the leading providers of high-quality ergometers and cardiac rehabilitation systems, our company has stood for the highest quality and design standards for over 25 years.

Our products and system designs are always based on German technology and engineering. We exclusively process materials and components made in accordance with the most stringent German and European standards.

ergoline Academy
Our competency also encompasses the professional advancement of our national and international users.

Our experienced presenter team, comprising physicians, exercise scientists, physiotherapists, and institutes offers a wide range of top-quality practical seminars on a multitude of topics—always representing the current state of science.

ergoline standards
- Development and production in Germany
- High-quality components and processing
- Training by exercise scientists of the ergoline Academy
- Comprehensive service support
- Regular software updates
- Intensive collaboration with research institutes and universities (e.g. German Sports Academy, Cologne)
- Quality assurance in accordance with ISO 9001-2008 and EN ISO 13485-2012

Therapy by design
One of the major goals of cardiac rehabilitation is to systematically improve the performance of the cardiovascular system. The strict quality guidelines for rehabilitation practices complying with medical protocols place high demands on the utilized systems.
Training in the classical sense
A proven standard
Ergometer training with ECG recording via a vacuum or disposable-electrode system has been an established work method in cardiac rehabilitation for years.

Quick work
The comprehensive ergoline system philosophy lets physiotherapists and exercise scientists assist their patients with maximum convenience.
Even with large patient groups, the preparation, actual training, and subsequent evaluation of results can be performed efficiently, safely and easily.

Advantages of ECG acquisition
- Acquisition of a 1-channel ECG via leadwires (adhesive electrodes or vacuum system)
- Software-driven training equipment, central load control
- Proven and efficient—easy to disinfect for quick group changes
- Full data overview—including at the ergometer display (ECG waveform, blood pressure, SpO2, heart rate)
- Automatic, software-assisted seat adjustment
Telemetry Flexible safety

Wireless training with ECG radio transmitters means enhanced safety and convenience— for patients and physiotherapists alike.

A chest strap with transmitter replaces the vacuum system or disposable electrodes, offers patients a greater range of movement, and therefore has more flexible use options.

Limitless training

Whether used for endurance training on ellipticals, step machines, or other cardio equipment, the ergoline ERG-2 rehab system and the ergoline Bluetooth telemetry system guarantee seamless ECG recording. In addition, endurance training equipment by a number of manufacturers that support the widely used ergoline interface standard can be controlled via the ergoline ERG system.

Advantages of telemetry

- ECG telemetry (1 or 2 channels)
- Integration and software control of various endurance training equipment
- Software-driven training equipment, central load control
- No additional device displays required
- ergoline ergopad app for mobile remote ECG monitoring
MTT Monitoring
A new level of safety

The applicable guidelines recommend monitored and individually defined physical training for all patients.

Particularly in the area of free training (strength/aerobic exercise), the ergoline ERS-2 system now also offers monitoring and documentation of vital functions, especially ECG data.

Safety for critical patients

This allows for creating individual circuit training routines for every patient, with the number of repetitions and intensities visible to patients at uncontrolled equipment, including during training.

Once training at a station has been completed, the ECG recording continues without interruption. In addition to training data for the individual stations, the ERS-2 software also documents all important times (start, end, pause) and equipment parameters.

Advantages of MTT monitoring

• Seamless telemetric ECG monitoring—before, during and after MTT
• Documentation and monitoring of uncontrolled equipment as well as free group exercises and tests (strength, aerobic exercise, 6-minute walk test)
• Central documentation in the ERS-2 software
• Administration and organization of circuit training
• ergoline ergopad app for mobile remote ECG monitoring
## Monitoring Software ers.2

### Clear structure
The powerful and versatile ERS-2 software allows for diverse group training in physical therapy with up to 16 patients, which complies with the applicable medical protocols. Physicians or physiotherapists can view all current events with the click of a mouse at the central station terminal. The central configuration enables the individual adjustment of the software to the corresponding work routine.

### Safety
Thanks to the real-time display and storage of all ECG signals and relevant training data, physiotherapists can quickly assess their patients’ status at any time during the training. Any occurring alarms are readily identified on the display, based on criteria that are automatically and individually defined for each patient. Additional blood pressure measurements can be initiated for individual patients at all times.

### Configurable function menus
The available monitoring function menus of the ERS-2 software can be individually adapted to clinical workflows in consultation with the responsible physicians and physiotherapists.

### Monitoring display

<table>
<thead>
<tr>
<th>Category</th>
<th>Function</th>
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<tbody>
<tr>
<td>Administration</td>
<td>Patient administration</td>
</tr>
<tr>
<td></td>
<td>Patient analysis</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>Configurable pop-up function</td>
</tr>
<tr>
<td>Monitoring</td>
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<tr>
<td></td>
<td>Training heart rate</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
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<td>Training protocol type</td>
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<tr>
<td></td>
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<tr>
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<td></td>
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<td>Current load</td>
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### Training concept
Based on the training standards defined by the physician and physiotherapist, individual control parameters for patient training can be easily adjusted at any time. The digital training documentation provides a scientifically sound overview of the current training regimen and individual performance progress.

### Advantages for the physiotherapist
- Option to adjust and revise the training profile during ongoing training
- Safety based on continuous target/actual comparison
- Complete recording of all training measures
- Comprehensive management of MTT or cardiac rehabilitation
- Time savings based on transfer of all relevant data from the hospital information system (HIS)
- Software-driven adjustment of ergometer seat

### Advantages for the physician
- Training in compliance with applicable guidelines
- Seamless data recording during endurance training and MTT
- Transparent documentation of therapy progress
- Access to all saved training data and evaluations
- Convenient diagnostic reporting
- ergoline ergopad app for mobile remote ECG monitoring of patients in training

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Workflow ers.2

1 Basic configuration

- Configure default training protocols
- Define phase duration
- Define control type

Using the comprehensive setting options for warm-up, training, and recovery phases, the standard training protocols are defined once with the therapy management for the standardization of administrative procedures.

The system automatically reflects and defines all profile types within these protocols:
- Duration method (load / HR control / SpO2 control)
- Interval method (load / HR control)
- Custom profiles

If a protocol is automatically allocated to a patient, it is saved in the corresponding file and load limits will automatically be customized.

2 Add patient (HIS or manual)

- Personal data
- Diagnoses
- Medications
- ECG results of the exercise stress test / ergospirometry test, etc.

The patient’s personal data, medications, diagnoses, diagnostic reports (e.g. stress test) can be imported from the electronic medical record of the hospital information system (HIS) or entered manually.

Ideally, the patient profile will contain all necessary data for individual training management when it is added to the ERS-2 system. This relieves the physiotherapist of clerical data entry tasks.

3 Training organization

- Group management
- Training control
- ECG monitoring

Allocating patients to groups simplifies the organization of the tightly scheduled rehab process. The various training profiles can be changed or adjusted during training at all times. Clicking on a patient’s current training data displays an enlarged view.

All ECG data recorded up to this point can be assessed on the screen, including retroactively. The direct comparison with previous training sessions provides important information to evaluate current physical performance.

The display of all ECG data of the remaining training stations continues during this individual check. The system quickly switches back to other data.

4 Documentation and evaluation

- Overview
- Analysis
- Documentation

All of a patient’s recorded training sessions can be reviewed at any workstation in the network. This information includes the full-disclosure ECG data as well as all other training data.

Events earmarked during the training can be accessed directly and printed.

The diagram illustrating all training units that a particular patient has completed provides important information for evaluating the therapy outcome.

As an alternative to diagram, all relevant parameters can also be displayed in table format for further data processing, e.g. for exporting to the HIS.
**Mobile: Training control with ergopad**

Mobility is indispensable for physiotherapists during ongoing training, for example when an individual patient needs help with training equipment. However, this should never interrupt the control of the remaining patients (ECG, heart rate).

The mobile ergopad allows physiotherapists to access these data at all times, guaranteeing a high level of patient safety.

**Consultation via WLAN**

If necessary, physiotherapists can immediately consult a physician. Current patient information can be transmitted, e.g. to the physician’s office or even during hospital rounds.

**Reliable ECG control**

The ERS-2 software transfers the current ECG with the most important data of all patients to the ergoline app on the mobile devices of the physiotherapist or physician.

**Benefits**

- Real-time ECG data transmission
- All essential patient parameters available everywhere
- Mobile use with ergopad tablet or smartphone
- Increased patient safety

**Accessory system: Components and sensors**

From ergometers to electrodes and software, the ergoline ERS rehab system offers all components for successful therapy.

**Chest strap transmitter for 1-channel ECG**

- Chest strap system
- Wide-range transmission via Bluetooth (up to 100 m)
- Flexible, adjustable chest strap
- Adapter for disposable electrodes available

**1-channel ECG vacuum system (integrated in ergometer)**

- Adjustable vacuum strength
- Easy cleaning
- Direct ECG display at ergometer screen
- Cable for disposable electrodes available as an alternative

**Blood pressure measurement (integrated in ergometer)**

- Different cuff sizes available

**Digital chest strap for wireless heart rate transmission**

- Reliable acquisition of the heart rate
- Clear allocation to patient
- Flexible, adjustable chest strap
- Central reception by ERS-2 or directly at the ergometer

**Transmitter for 2-channel ECG**

- 2 independent ECG channels for any electrode placement
- Highly flexible ECG cable for disposable electrodes
- Wide-range transmission via Bluetooth (up to 100 m)

**SpO2 measurement (integrated in ergometer)**

- Different sensors available
Bicycle ergometer
**ergoselect 100 P/K/Reha**
- 6 - 1000 W, speed-independent
- Patient weight up to 160 kg
- ECG, vacuum system, blood pressure, add-on option for SpO2
- Wide range of expansion options

**ergoselect 200 P/K/Reha**
- 6 - 1000 W, speed-independent
- Patient weight up to 200 kg
- Adjustable handlebar
- Electric seat adjustment (via ERS-2 system)
- ECG, vacuum system, blood pressure, add-on option for SpO2
- Wide range of expansion options

Recumbent ergometer
**ergoselect 600 P/K/Reha**
- 6 -1000 W, speed-independent
- Patient weight up to 200 kg
- Adjustable seat spacing and back rest
- ECG, vacuum system, blood pressure
- Add-on option for SpO2

Treadmill
**ergosprint**
- Speed 0.1 - 24 km/h
- Grade 0 - 25%
- Large walking surface
- Patient weight up to 220 kg
- Control unit, long hand rails, optional safety arch available

Arm ergometer
**ergoselect 400 P/K/Reha**
- 6 - 1000 W, speed-independent
- Electrically adjustable working height
- ECG, vacuum system, blood pressure, add-on option for SpO2
- Optional wheelchair mount
The motto “State-of-the-art technology and custom design” is both a challenge and an obligation for all ergoline products. It represents our standard to always offer our customers complete, high-quality solutions. On the other hand, it also refers to the obligation to act with commitment, fairness and dedication.
Quality you can count on:

All ergoline products are subject to a certified quality assurance system according to ISO 9001:2008 and EN ISO 13485:2012 from development to production. They all bear the CE mark and fulfill the requirements of the Medical Device Directive 93/42/EEC.