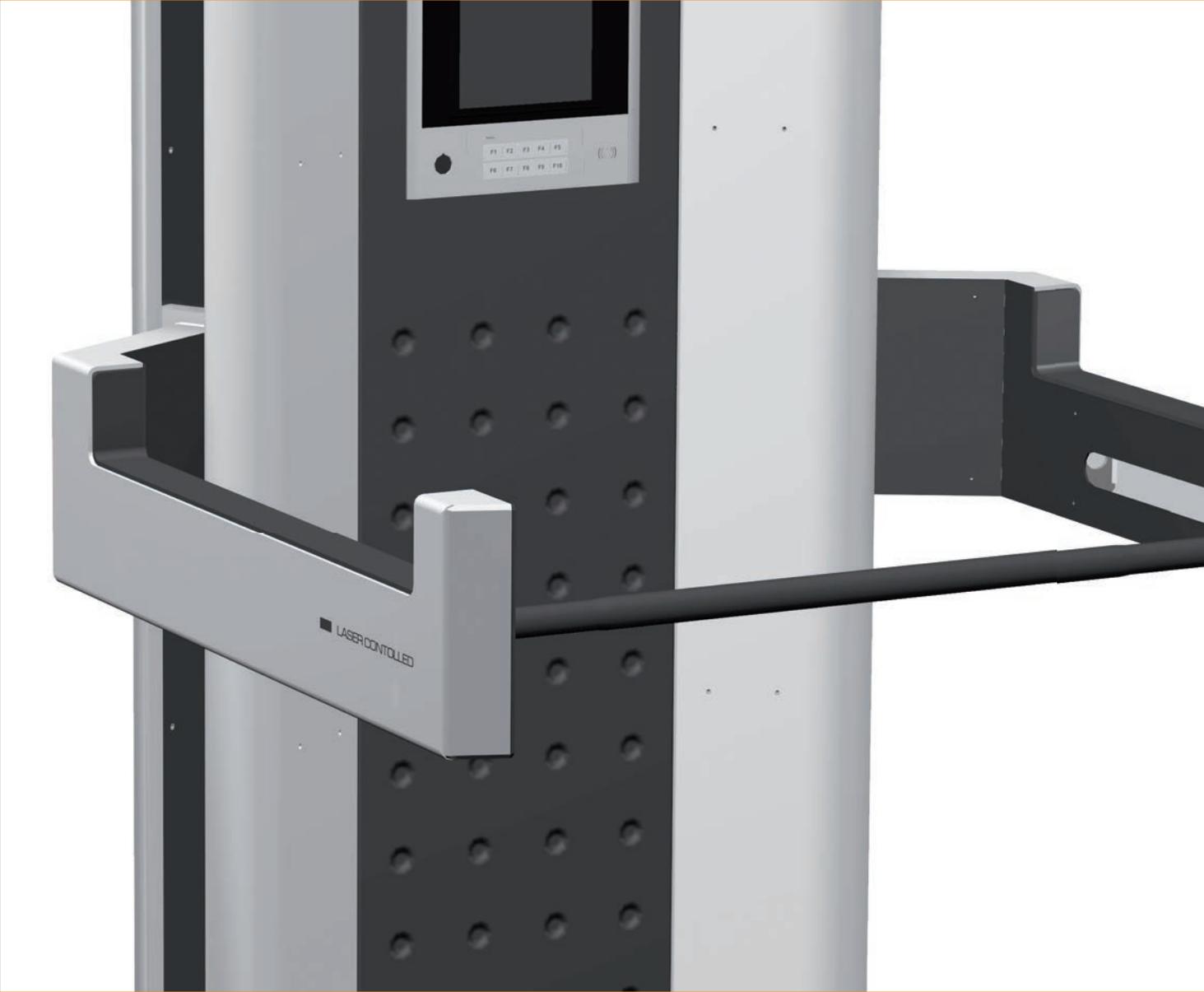


safe | multifunctional | efficient



lifter

safe

Optical sensors along the sides of the device permit an exact, contact-free tracking of the barbell movement in the training procedure on both sides. In emergency situations or at freely definable movement limits, the lifter „catches“ the barbell in a safe and reliable way, thereby providing optimum protection from injuries during the application of heavy loads (up to 400 kg) as well as the training of movements.

lifter combines force imposition, freedom and safety.

The combination of the freely adjustable barbell weight bar with our perfected virtual force simulation offers the possibility of a safe training procedure without the need to abandon the functional advantages of a „free barbell“. Movement space and forces are infinitely adjustable, thereby preventing injuries.

multifunctional

The patented virtual load simulation enables training with simulated loads of up to 250 kg. The loads can be simulated in lifting or lowering direction, thereby permitting a wide range of exercises.

- knee bend
- bench press
- bench pulls
- rowing forward
- shoulder presses
- front pulls
- neck pulls
- deadlifts
- lat-pulls
- pull-ups (horizontal)
- biceps curls
- triceps curls

The technology not only permits the lifter to be used as a training device, but also as a force diagnosis device.

Through the virtual simulation of loads, the device never needs to be loaded or unloaded.

efficient

Due to the high degree of automation, the lifter fulfils its purpose by enabling angle- and movement-specific training. Loads can be infinitely adjusted and various types of resistance (friction, spring...) can be simulated in the process.

The starting point of every training procedure is the ascertainment of the actual condition of the athlete and the continuous review of his performance development. The lifter offers the possibility to carry out a performance diagnosis and permits an immediate analysis of the training process by means of the automatic logging of each training or the utilisation of data for subsequent analyses for the purpose of training control.

The training loads can be set from series to series as well as from repetition to repetition, which allows for the application of highly efficient training procedures (forced reps,...) without the need for a second person.

All settings (movement space,...) of an athlete for his training are stored and managed in a personalised way. When the athlete logs in to the device, this data is retrieved and the training can start without delay.

Apart from an intuitive user interface with touchscreen, the lifter also offers a large graphic display. This permits a direct feedback for the athlete and trainer as well as the display of training data, break times and other important information.

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lifter



Sensor-based movement



Optical sensors in the arms of the device detect the current position of the barbell. On the basis of this measured data, the arms react individually in order to keep the distance between the barbells and the arms constant.

In case of emergency, the device can be stopped by pressing an e-stop button. By using a mobile trainer terminal, e-stop button and enabling switches are available on the terminal.

Depending on the device's configuration, movement can also be stopped if a maximum velocity of descent is exceeded.

Integrated force measurement



Apart from logging training data, the device also has the capability to perform force measurement in a lifting and lowering direction. The measurements can be carried out isometrically with freely selectable positions as well as isokinetically with freely selectable rates of velocity and acceleration.

The force values are recorded in the training log file every 50 ms and can be used for analysis purposes immediately.

Current force values as well as attained maximum and minimum force values are indicated during measurement via the integrated display.

Load simulation



A special barbell weight bar can also be inserted between the arms of the device. The virtual mathematical-physical load model enables a weight simulation of up to 250 kg.

The special mounting enables the horizontal adjustment of the barbell along the arms as well as a vertical adjustment. Similar to training with a free weight, the athlete will, therefore, need to actively stabilise the bar during the load simulation.

Furthermore, the load simulation offers the possibility to adjust the simulated loads in dependence upon the current position of the load arms.

Automatic movement



The device can move automatically in a lifting or lowering direction within the set movement parameters. This function enables concentric and eccentric training exercises.

The automatic movement functions can also be combined with other movement functions. This open configurability, permits, for example combinations of eccentric-free and concentric-isokinetic training sequences.

All dynamic parameters are adjustable and can, therefore, be selected in accordance with the respective training goal.

Training log file function



In order to ensure the complete logging of the individual training sessions, a so-called training log file is created of each training unit, in which the respective training data (movement and performance data) is recorded cyclically every 50 ms for the entire duration of the session.

The personal information about the athlete stored in the database and the notes recorded for the respective exercise are saved to the training log file in addition to the training data.

The individual training log files can easily be exported from the device via a USB port.

Intelligent information system



The integrated touch-display in combination with an intuitive user interface enables quick and simple adjustments to the device.

On the one hand, predefined standard exercises offer the athlete the possibility to set up the device within a short amount of time, on the other hand, the trainer can configure individualised training procedures for the athlete simply by adapting a few parameters.

Furthermore, the information system also graphically displays the most important information to the athlete.

Athlete database



The individual movement limits for an athlete can be saved to the device's own database.

Apart from the movement limits, the athlete's personal data such as name, club or date of birth can also be saved.

Up to 50 athletes can be recorded in the database. After login with user name and password, the stored data is called up automatically and the system switches into the language of the athlete which had been saved to the database.

Body scan function



A maximum and minimum movement threshold can be set in order to limit the overall movement space of the device. The body scan function simplifies the setting of these limits. The arms of the device and barbell are moved into the desired position, then a button is pressed to set this position as limit and save the setting.

In order to enable quick adjustments of saved limits, the position values can also be entered or changed manually.

Electronic exercise manual



The electronic exercise manual offers descriptions and recommendations for proper exercising as well as a standardised exercise procedure for the athlete.

The respective instructions are displayed after an exercise has been selected and updated during the training sequence.

If threshold values of certain parameters, for example the velocity, are exceeded, a visual warning is issued on the display to assist improvement in training.

Mobile trainer terminal



Just like the intelligent information system, the mobile trainer terminal is also equipped with a touch-display and places its entire functionality into the hands of the trainer or supervisor.

Apart from the integrated confirmation button, the mobile trainer terminal also offers additional input elements such as a balance wheel or membrane keys, which allow for even more convenient device operation and control.

The low weight as well as the ergonomic shape of the trainer terminal ensures easy handling.

Product configuration and options

	lifter basic	lifter advanced
Sensor-based movement	✓	✓
Integrated force measurement	-	✓
Load simulation	-	✓
Automatic movement	✓	✓
Training log file function	○	✓
Intelligent information system	✓	✓
Athlete database	○	✓
Body scan function	✓	✓
Electronic exercise manual	-	✓
Mobile trainer terminal	○	✓

✓ ... standard function

○ ... optional extras

- ... not available



Strong partnership



High performance athletes can maximize their strength gains with excentric training. The combination of theory and practical experience with athletes has enabled us to explore alternative methods of training.

The lifter's robotic technology raises the quality of strength training as athletes can utilize high intensity excentric training with a free barbell. The lifter also ensures the safety of the athlete, the utmost priority in training.

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