### Technical data of the sana cardio 250 SE

#### Power supply
- 230-249V, 50 Hz and 115V, 60 Hz

#### Interfaces
- RS-232, USB (galvanically isolated)

#### Dimensions/basis
- 160 x 60 cm

#### Weight
- 96 kg

#### European safety norms
- DIN 13405 and E DIN VDE 0750-238

#### Braking principle
- Computer-controlled eddy current brakes with torque measurement, independent of revolutions per minute.

#### Load range
- 20 to 800 Watt

#### Range of revolutions
- 30 to 130 n/min

#### Load precision
- 3%, not less than 3 Watt

#### Set load
- According to configured internal load program;
  - Settings of external master device via interface;

#### Load programs
- 5 freely programmable ergometry programs
  - 1 automatic controlling pulse-steady-state program

#### Time intervals
- 1 min to 99 min

#### Displays
- Graphic LCD with 320 x 240 pixels, CCFT backlit for alphanumerical and graphical display of the ergometry parameters and of the user instructions as well as programming and service information.

#### Pulse measurement
- Priority principle: 1. ECG, 2. opto, 3. R-R.
  - Measuring range 35 to 240 heartbeats

#### Blood-pressure measurement
- Indirect with special modified R-R measurement system.
  - Computer analysis with distortion-free suppression of interferences during ergometry.
  - Automatic pressure release with 3 mmHg/pulse. Quick pressure release at the average of high amplitudes.

#### Variable couch
- Couch size 90 cm x 55 cm for heights from 140 cm to 205 cm; weights up to 160 kg. The seat and the headrest are adjustable to the patient's correct reclining position via remote control. A 50 cm wide paper-roll carrier is situated under the headrest.
  - The couch can be continuously altered from a slope of about 45° (exercise position) to a flat position. The slope is also adjusted via remote control. To optimise the patient’s examination position, the couch can also be turned to the right by up to 45°. A hip belt and a stable shoulder support grant the patient’s safety while the couch is being turned to the side.
  - An arm rest for blood-pressure measurement and a handle can be flexibly mounted on the guide rails, located on both sides of the couch.

#### Handle as mounting aid
- A stable, adjustable handle serving as a mounting aid is located near the head.

#### Long-term accuracy
- Torque line-up using a weight is possible at any time.
sana cardio 250 SE
The special ergometer for stress and echocardiography

Application areas
The sana cardio 250 SE is based on the technology of the couch/semi-couch safety ergometer sana cardio 250 SE. An additional rotation axis of the couch to the right allows the patient being turned by up to 45°. This position is especially suited for high-quality ultrasound images during a stress echo examination. A hip belt and a stable shoulder support grant the patient's safety and comfortable position while the couch is turned to its side.

Besides this special application, the ergometer can of course also be used as a normal couch/semi-couch safety ergometer. Special safety aspects, e.g. in cases of suspected cardiovascular disorders, stress tests after a cardiac infarction or after bypass operations, and special exercise ergometry applications, such as heart catheter examinations, require the use of this ergometer. The use of a stress echo couch is also recommended for the examination of elderly and disabled patients.

Infinite movability and adjustability via remote control
Thanks to the couch’s infinite movability (0-45°), it is possible to find the ideal lying position for every patient and examination method. In case of an incident, the patient can immediately be moved into a suitable treatment position. The patient's calm position enables high-quality ECG presentation and blood-pressure measurement. This control, together with the ideal centrifugal mass dimensioning, results in a very pleasant pedalling feeling, allowing the patient to fully exploit his or her reserves. The mechanism, which consists of state-of-the-art components, runs almost noiseless, even at high speed.

User-friendly control centre
The computer-controlled electronic high-end control centre is situated in the measuring head of the sana cardio 250 SE. The measuring head's front features the control elements and a backlit graphic high-resolution LCD display. Its side, containing the display, is usually oriented towards the person operating the device. This is why an LED speed display is mounted on the head’s upper side, clearly visible for the patient. If the device is used in the rehabilitation or training sector, the measuring head can easily be turned around to allow view of the display and control unit.

Comprehensive ergometry for cardiopulmonary diagnostics
The modern, processor-based electronic control of the sana cardio 250 SE is designed to allow all common operational modes of the stress test load control. Frequent or regular ergometry measurements can be automated by means of easy programming functions. The user is guided through all operational steps on the display. The sana cardio 250 SE can also be accessed and controlled from an external PC program or ECG/ergospiro unit via the RS-232 or USB interface.

In this case, the couch ergometer does not have to be operated separately, as it is fully controlled by the master device’s program. In every mode, the LCD display shows the current load and, if set, the heart rate in an alphanumeric field as well as a graph showing the ergometry status.

The sana cardio 250 SE is equipped with a precise, interference-free blood-pressure measurement unit. This unit measures the systolic and diastolic blood pressures and the heart rate in user-defined time intervals during exercise. The measurement algorithm is based on the latest trends of blood-pressure measurement technology. Alarm limits can be set for the load, heart rate and blood pressure. If these limits are exceeded, an alarm is issued. For heart-catheter examinations, any required load can be set manually.