

Technical Data Armeo®Spring with module Manovo®Spring

Device description:	<p>ArmeoSpring is an instrumented arm orthosis with a spring mechanism for adjustable Arm Weight Support in a large 3D workspace that can be used as real time input device to the associated therapy software Armeocontrol. The purpose of ArmeoSpring is to support functional therapy for patients who have lost the function of or have restricted function in their upper extremities caused by cerebral, neurogenic, spinal, muscular or bone-related disorders.</p> <p>ManovoSpring is an instrumented hand orthosis to be used as a module in combination with ArmeoSpring for patients with therapy goals focusing on hand rehabilitation. ManovoSpring features a spring mechanism for adjustable hand opening support that can be used as real time input device to the same software as the ArmeoSpring.</p>
Key Features:	<ul style="list-style-type: none"> • Arm orthosis with integrated weight compensation mechanism • Hand orthosis with integrated hand opening support • 3D position detection of arm segments and grip strength sensing • Augmented Performance Feedback with functional exercises and entertaining games for patient motivation • Assessment Tools to record patient performance
Mobility:	<ul style="list-style-type: none"> • System mounted on a mobile platform for easy transfer of ArmeoSpring • Casters' diameter: 10 cm • Device's dimensions: 81 cm (l) x 75 cm (w) x 85-125 cm (h) • Weight: max. 82 kg
Room requirements:	<ul style="list-style-type: none"> • Space: 3 x 3 x 2 m (l x w x h) • Temperature: 10 °C - 30 °C • Humidity: 30 % - 75 % relative air humidity
Electronic connection:	<ul style="list-style-type: none"> • Mains connection through isolating transformer (included in scope of delivery) with variable input and invariable output (accepts 230V / 50Hz or 120V / 60Hz) • USB interface to orthosis • SELV-powered orthosis • Plug-and-play connection between ArmeoSpring and module ManovoSpring
Display:	<ul style="list-style-type: none"> • 24 inch flat screen monitor with integrated speakers
Adaptability to patient:	<ul style="list-style-type: none"> • Electric lifting column for comfortable height adjustment (range: 400 mm) • Continuous adaptation to subject's dimensions <ul style="list-style-type: none"> - Forearm lengths (elbow to handgrip): 290 - 390 mm - Upper arm lengths (shoulder to elbow): 220 - 310 mm - Two options to adapt to the patient's hand dimensions (range fingers: 25 mm; range thumb: 15 mm) if module ManovoSpring is connected • Continuous adaptation of weight compensation force to subject's needs. Example values in horizontal position and middle length settings are: <ul style="list-style-type: none"> - Forearm weight compensation: 0.7 - 2.4 kg

- Upper arm weight compensation: 0.5 - 3.8 kg
- Continuous adaptation of hand opening support (0.3 - 0.9 Nm) if ManovoSpring is connected
 - Adapted by support setting
 - Adapts to physiological needs during movement automatically
- System platform compatible with commonly used wheelchairs
- Interface between ArmeoSpring and module ManovoSpring for connection and disconnection during ArmeoSpring therapy session, depending on patient's needs

Instrumented DOF:	<ul style="list-style-type: none"> • Degrees of freedom: <ul style="list-style-type: none"> - ArmeoSpring: Total of 7 angle sensors and 1 pressure sensor - ManovoSpring: 1 angle sensor, coupling of 2 anatomical degrees of freedom (fingers and thumb) • Instrumented physiological movements: shoulder abduction, shoulder flexion, horizontal shoulder abduction, shoulder rotation, elbow flexion, forearm pronation, wrist flexion, hand grasp, hand extension • Resolution of the angle sensors < 0.2°
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Armeocontrol Software:	<ul style="list-style-type: none"> • User database with an individual account for every patient (allows for managing individual therapy schedule, storing patient settings, logging activity and results) • Parameters individually adjustable to the patient's needs and abilities: <ul style="list-style-type: none"> - Exercise workspace - Difficulty level of every exercise • > 20 motivating games and exercises • Assessment Tools for relevant parameters of the patient's performance (coordination, reaction time) • Documentation of the patient's performance: <ul style="list-style-type: none"> - Easily understandable summary of the patient's progress - Detailed, Excel readable exercise report
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All information is subject to change without notice.

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