

Technical data sheet - ALEX RS



GENERAL INFORMATION:

Full name: Arm Light Exoskeleton Rehab Station rev. 3.1

Classification: Class IIa Medical Device (Annex 9, Rule 9 Dir. 93/42/EEC - MDD)

Intended use: Motor rehabilitation of upper limbs in neurological or orthopedic field

FEATURES:

Used technologies: Exoskeletal Robotics, *Serious Games*

Device dimensions: 2124 mm x 3290 mm x 2120 mm

Weight: ~160 kg

Power supply: 100-230 VAC, 50/60 Hz, 1000 VA

Robotic exoskeletons number: 2

Moving parts weight of the exoskeletons: 5,6 kg

Exoskeletons Degrees of Freedom: 6 (4 actuated and sensorized + 2 sensorized)

Sensorized exoskeletons handles: Yes

Integrated application display Unit: Yes

Application display Unit dimensions: 43"

Operator Monitor dimensions: 23,8 "

Adjustable seat height: Yes

Adjustable exoskeleton distance: Yes

Possibility to use the exoskeletons individually or simultaneously: Yes

Permitted patient characteristics: min. height 1.50 m, max. height 1.90 m, weight ≤ 130 kg

Direct use of exoskeletons from own wheelchair: No

Openable and adjustable footrest: Yes

Wheels for moving the device: Yes

Database for patient management: Yes

Patient capacity evaluation functions: Yes

Automatic reports to monitor therapy progress: Yes

TECHNICAL SPECIFICATIONS:

Mobility fields for each DoF: Shoulder Adduction/Abduction [0° ; +110°]

External/Internal Shoulder Rotation [-60° ; +40°]

Shoulder Flexion/Extension [-10° ; +155°]

Elbow Flexion/Extension [-90° ; +70°]

Forearm Prono-Supination [-80° ; +80°]

Wrist Flexion/Extension [-50° ; +50°]

3 spalla

2 gomiti

1 polso

MAX. peak force at End Effector (each direction with extended arm): 70 N

MAX. continuous force at the End Effector (each direction with extended arm): 50 N

MAX. peak single torque for each articular joint: Shoulder Adduction/Abduction: 45 Nm

Shoulder Rotation: 45 Nm

Shoulder Flexion/Extension: 35 Nm

Elbow Flexion/Extension: 30 Nm

MAX. continuous single torque for each articular joint: Shoulder Adduction/Abduction: 35 Nm

Shoulder Rotation: 35 Nm

Shoulder Flexion/Extension: 25 Nm

Elbow Flexion/Extension: 20 Nm

MAX. joint speed (single movements, nil torques): 200 °/s (all joints)

End Effector position accuracy: 20 mm

End Effector position resolution: 0.05 mm

Joint position accuracy: 2°

Joint position resolution: 0.005°

End Effector force accuracy: 8 N

End Effector force Resolution: 0.2 N

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