TUR
isoforce
power.
motion.
endurance.
www.tur-web.com

isoforce

Multi joint testing & rehabilitation system

isoforce is a sophisticated rehabilitation and evaluation system that accommodates different resistance modes.

It can be used for more than 20 joint movement patterns.

multiaxial progression

Test and Target

Neuromuscular testing with isoforce generates comprehensive reports that are easy to read and interpret.

With the wide variety of the available test modes many parameters such as power, endurance, work or the level of spasticity can be evaluated. isoforce helps to set specific and realistic rehabilitation or training goals and record the progress.

Treat

Restore range of motion, coordinate, stretch, strengthen, empower and build endurance.

The different exercise modes make the system suitable for every stage of the rehabilitation cycle.

No matter what type of muscle contraction (concentric/eccentric) or exercise mode (isometric, isotonic, isokinetic, cpm) you need - isoforce offers the possibility to implement them all.

Evaluate and Prevent

The progress achieved can be monitored during a training or rehabilitation program. Retesting your athele during the sport season provides training directions and decreases risk of injuries.

power. motion. endurance

Operation Modes

ECCENTRIC ISOKINETIC

It is believed that eccentric isokinetic can bring functional benefits superior to those of the concentric isokinetic. The eccentric contractions are the strongest contraction the human body can perform. Eccentric actions produce greater loading of the elastic musculoskeletal components and are used during many dynamic movements.

CONCENTRIC ISOKINETIC

Concentric Isokinetic is the mode used in the traditional isokinetic testing. This test is the most reliable and precise method for quantifying the strength. A big number of research from various countries have demonstrated strong correlation between isokinetic concentric testing and athletic performance.

Concentric isokinetic is a useful tool in strengthening through rehabilitation, as the resistance accommodates to muscle weakness or muscle pain, making this mode a safe training mode.

CONTINOUS PASSIVE MOTION

CPM is widely used in the first stages of rehabilitation of a wide variety of pathologies. It helps maintain flexibility, increase ROM, reduce stiffness and consequent pain, and maintain muscle tone. Apart from the traditional therapeutic applications, CPM can be used for evaluating the spasticity of neurological patients.

ISOMETRIC

Isometric contractions are the first active contractions used both for training and testing for minimizing atrophy and assessing the status of a muscle or a muscle group. It trains the muscle without straining the joint. Isometric test offers information about the neuromuscular activation, as well as the recovery of the involved muscle.

ISOTONIC

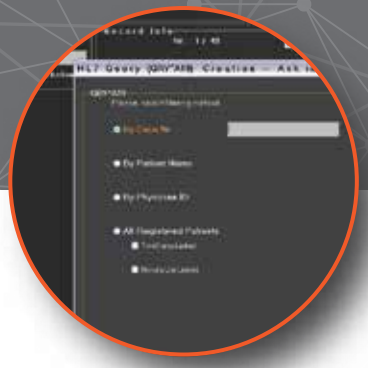
Isotonic muscle testing completes the isokinetic testing as it gives valuable information on functional muscle characteristics, such as fatigue and power. Comparison of the muscle performance under different loads is possible through the bilateral comparative report. The system allows to set different loads for the eccentric and the concentric contractions providing a way for plyometric and eccentric strength development.

The combination of concentric and eccentric allows the mixed ratio calculation (dynamic ratio), which investigates the injury risk. The use of the combined mode also simulates the natural contraction sequence of the muscles in the human body.

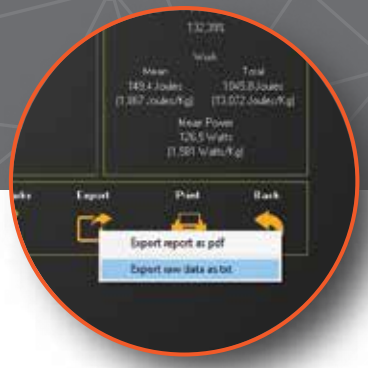
The isoforce software has been designed having the

most contemporary ergonomic principles in mind

Change of resistance modes and settings with one click



HL7 communication interface

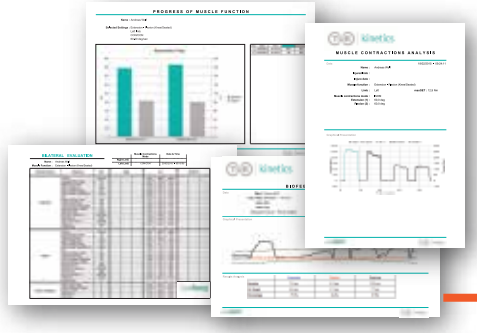


Export raw data in .xls, .pdf and .txt
Zoom and cursor tools for curve analysis

Torque limits (CON, ECC & CPM)
Torque threshold (ECC)
Contraction time (ISOM)
Soft stops (CON, ECC, ISOT & CPM)
Selection of frequency rate

Intuitive, self-explanatory software architecture that guides the user

Biofeedback in real time with different exercise modes and report of the training results



5 printable report types: Analytical for each side on each resistance, bilateral both numerical and graphical, progress report, exercise overview report, and biofeed-back training report

Features

that make you stand out

Reliable

Self sensor calibration during power on

Real time online position, sensor and status monitoring

Tailored to your needs

Selection of frequency among 200, 1000 and 2000Hz of real samples

Customized ranges of speeds, max. torque, ROM and modes (code protected)

Multi-parameter patient database with filtering

Easy synchronization with EMGs without any need of expensive toolkits

Technically robust

Maintenance free locking mechanisms

No chance of motor break down due to linear design and shaft coupling mechanism

Interchangable electronic parts

Safe

Automatic release of the dynamometer in case of loss of power

Three levels of ROM limitations, system imposed depending on the performed pattern, software set by the user, mechanical

Torque limits on con, ecc, and cpm leading to doubling the speed, instantly stop the motion, and return to initial position respectively. No need to restart the system after

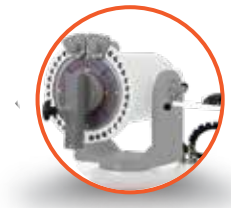
Inconvenience button for patient or operator to immedia-tly power-off system

Stabilization

Flexible Velcro bands:

- Inexpensive to replace
- Can be combined for all sizes

Extra ancoring points



Position and Alignment

Stepless setting of dynamometer rotation and height, seat rotation, horizontal position, bottom seat settings

Laser point for quick alignement

Adapters | Patterns

ADL5

ADK2
optional

ADL1

ADA1

ADL2

ADL3

ADL4

ADS3

ADS1

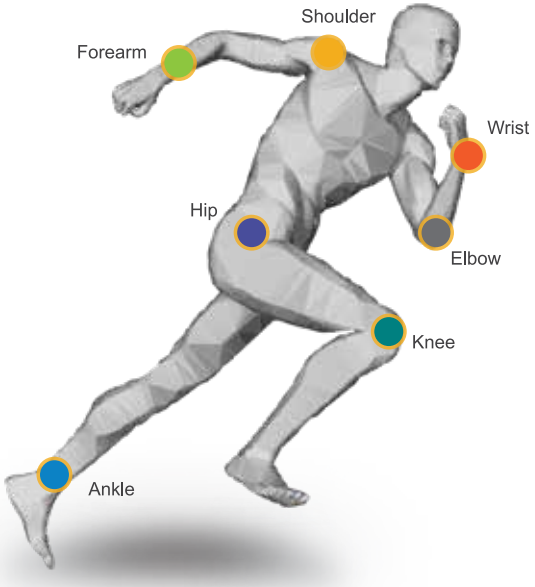
ADS2

ADT1

ADK1

ADS4

ADW1



plantar | dorsiflexion
prone
(ADA1+ ADL3)

inversion | eversion
(ADA1, ADS1 + ADS4)

internal | external
rotation seated
(ADA1)

plantarflexion | dorsiflexion
(ADA1 + ADL3, ADS1 + ADS4)

extension | flexion
(ADL3)

extension | flexion
seated
(ADL3, ADS1 + ADS2)

adduction | abduction
(ADL3)

extension | flexion
supine
(ADL3)

internal | external
rotation
(ADA1)

knee internal | external
rotation
(ADA1, ADS1 + ADS4)

internal | external
rotation (seated)
(ADS1 + ADS3)

radial | ulnar deviation
(ADL2 + ADW1, ADL1 + ADS4)

internal | external
rotation in 90°
(ADL1 + ADW1 + ADS3)

adduction | abduction
horizontal
(ADL4 + ADW1, ADT1)

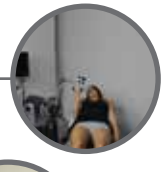
flexion-adduction |
extension-abduction
(ADL4 + ADW1)

extension | flexion
(ADL4 + ADW1, ADT1)

pronation | supination
(ADL2, ADW1)

external | internal
rotation
(ADL1 + ADW1 + ADS3)

extension | flexion
(ADL2, ADW1)



adduction | abduction
seated
(ADL4 + ADW1, ADT1)

pronation | supination
(ADL2, ADW1)

int. | ext. rotation
in 90° abduction
(ADL1 + ADW1 + ADS3)

extension | flexion
(ADL2 + ADW1,
ADL1 + ADS4)

int. | ext. rotation
standing
(ADL1 + ADW1 + ADS3)

The wide variety of optional add-ons

broadens the therapeutic and rehabilitation possibilities of isoforce

- Occupational therapy adapters
- Trunk adapter
- Closed kinetic chain adapter for upper and lower limbs
- Pulley adapter
- Pediatric adapters

Trunk adapter

Leg press

Work simulation / Occupational therapy

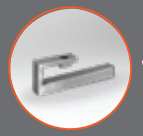
WSA27

WSA40

WSA29

WSA22

WSA23



WSA20

WSA24

WSA26

WSA28

Pulley adapter

Technical specifications

Resistance modes	isokinetic: concentric/concentric eccentric/eccentric combination of eccentric & concentric continuous passive motion (cpm) cpm/concentric, cpm/eccentric isometric isotonic biofeedback in real time

Technical Specifications

ROM:	up to 360°
Max. peak torque:	700 Nm
Angular velocity:	0,25°/s - 540°/s
Dynamometer type:	servo motor

Functional Features

Dynamometer:	electrical lifting, tilting, rotation
Chair:	electrical movements for horizontal translation, bottom seat for / afth, back seat inclination, bottom seat tilt, rotation

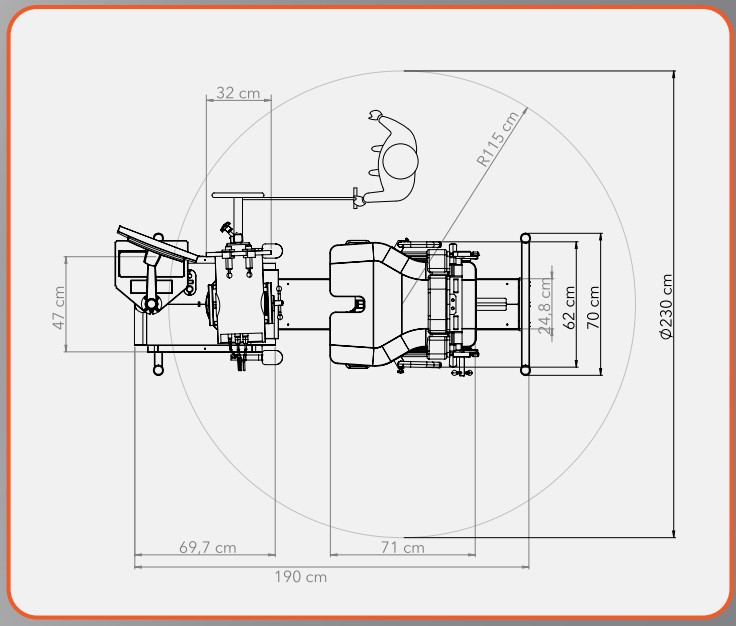
Computer

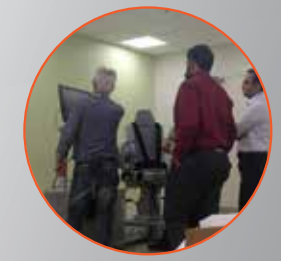
Operation Syster:	windows 10 or later
CPU:	Intel®
Monitor:	LCD19” (touch screen optional)
UPS:	optional
Dimensions:	2000 / 700 / 1700 mm (l / b / h)
Dimensions (seat horizontal):	2600 / 700 / 800 mm (l / b / h)

Optional Accessories

Trunk Flexion / Extension
Lower / Upper limb closed kinetic chain
Work Simulation
Pulley adapter

CE 0482





isoforce academy

In 2011 the isoforce academy has been officially started.

In close connection to academia seminars and workshops are held on a regular basis.

Application trainings are scheduled in Athens, Greece and Berlin, Germany.

Upon request seminars are organized by our scientific team to be held around the world and at the place of your convenience.

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