Knee Dynamometer

- Advanced and user-friendly solution for static joint torque measurements.
- Adjustable and rigid mechanical frame is suitable to measure children, tall elite athletes and elderly population.
- Bi-lateral design allows instant left and right comparisons.
- Strong mechanical design with top-level electronics provide the highest level of accuracy, which sets our dynamometers as a top solution for both practice and science.

Product Description

Knee dynamometer is ergonomically designed state-of-the-art measurement equipment that enables accurate, repeatable and reliable measurements of isometric torque production during knee flexion/extension. The dynamometer measures each leg independently and allows bilateral comparisons at different knee angles. Maximal voluntary torque, rate-of-torque development, endurance in sustained torque, the ability of visio-motor torque tracking and torque matching are the five key sub-abilities related to neuro-muscular performance. The dynamometer consists of an individually adjustable rigid mechanical frame, two high-quality electronic sensors and purpose-built computer software for data acquisition and analysis.

Basic Components of the Product

Provided by the manufacturer:
- Measurement device – Knee Dynamometer
- USB cable
- PC with licensed software (see ARS Dynamometry user guide)

List of Requirements

Personal Computer:
- Windows 7 (Home, Professional, Ultimate)
- 2 GHz processor
- 2 GB RAM
- 1 GB available on the hard disk
- Video resolution 1280x760 pix
- CD-ROM or DVD-ROM
- 3 USB ports

Note: The manufacturer usually provides a personal computer. If the client wants to provide their own personal computer, it needs to have the above-mentioned minimal requirements to run official software.

Note: Dynamometers comes in three versions: a) Knee Flexion Dynamometer, b) Knee Extension Dynamometer (see above) and c) Knee Flexion/Extension Dynamometer.

Dynamometer should be placed on a working area of at least 200 x 200 cm to ensure safe operation of the dynamometer.

Technical Specifications

Weight
Total weight of the Knee Dynamometer is 74.4 kg.

Maximum load
Maximum load per one leg lever arm is 500 Nm (800 N at the end of the lever arm). Maximum load on the seat (weight of the subject) is 1500 N.

Environmental conditions
The dynamometer should be stored in a dry space with a temperature range between 10 and 35 °C.

Dimensions

Table: Basic dimensions – Top View

	Max	Min
C	520 mm	/

Table: Basic dimensions – Side View

	Max	Min
A	1445 mm	1080 mm
B	1130 mm	750 mm
D	660 mm	520 mm
E	90°	0°
F	240 mm	80 mm
G	90°	0°

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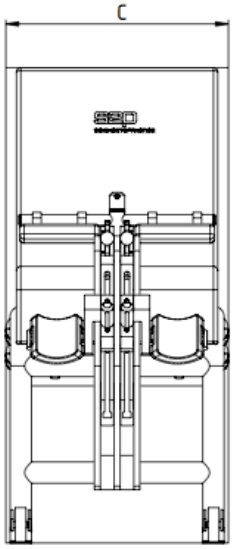
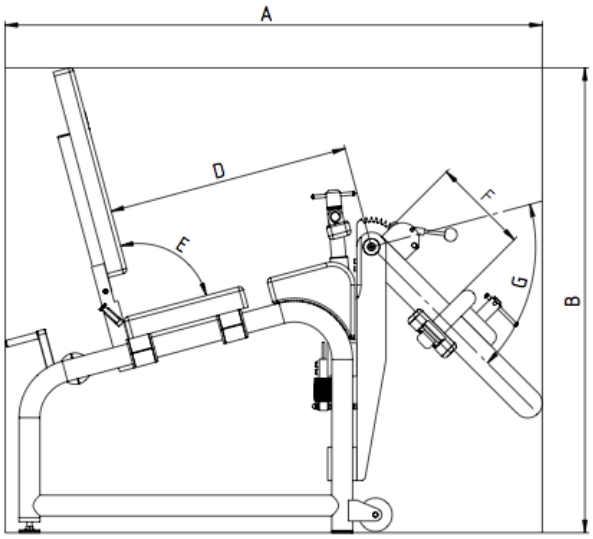
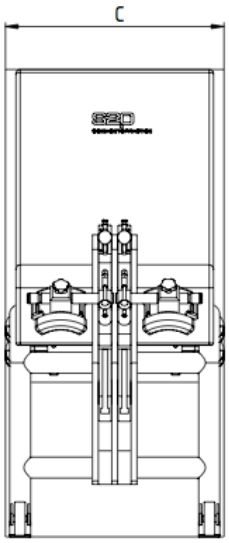


a)

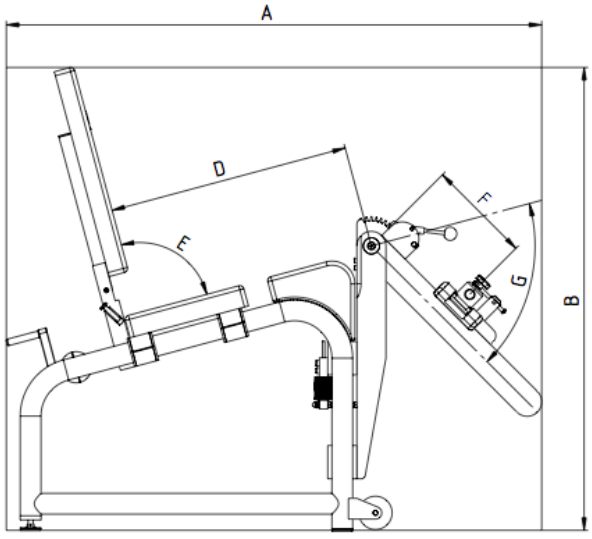


b)

Figure: Knee Flexion Dynamometer, a) Top view and b) Side view.



a)



b)

Figure: Knee Extension Dynamometer, a) Top view and b) Side view.

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Components

(Knee Flexion Dynamometer)

Part	Description
Seat adjustment mechanism	To adjust the rear seat forward and backward for 60 mm.
Knee angle release mechanism	To adjust the position of the leg lever arms between 0° and 90°.
Upper leg support release mechanism	To adjust the position of the upper leg support.
Leg pads release mechanism for longitudinal adjustment	To adjust the longitudinal position of the leg pads in a range of 160 mm.
Leg lever arms	Leg lever arms can be moved up and down to reach knee angles between 0° and 90°.
Front seat	Fixed.
Back support	Back support can be folded downwards for transport.
Rear seat	The rear seat can be moved forward and backward for 60 mm in order to adapt the seat to the length of user's legs.
Upper leg support	Upper leg support can be moved to fixate the subject's leg just above his/her knee.
Leg pads	The leg pads can be moved longitudinally and laterally in order to adjust the seat to the length of the user's legs.
Frame	Fixed.
Wheels	Fixed.

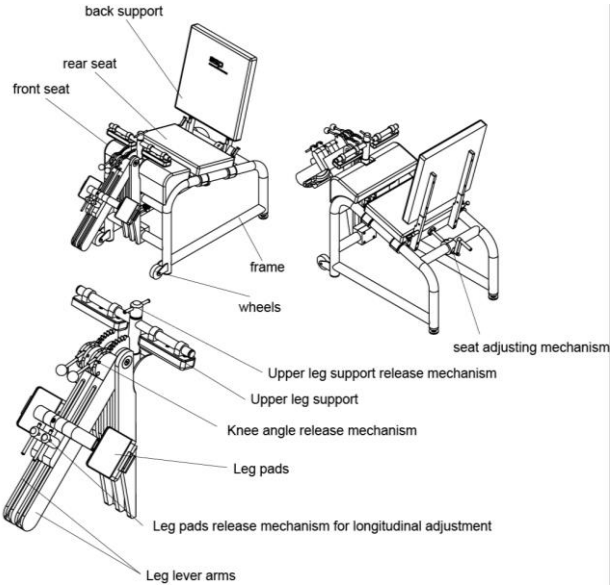

Figure: Components

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Components

(Knee Extension Dynamometer)

Part	Description
Seat adjustment mechanism	To adjust the rear seat forward and backward for 60 mm.
Knee angle release mechanism	To adjust the position of the leg lever arms between 0° and 90°.
Leg pads release mechanism for lateral adjustment	To adjust the lateral position of the leg pads in a range of 240 mm.
Leg pads release mechanism for longitudinal adjustment	To adjust the longitudinal position of the leg pads in a range of 160 mm.
Leg lever arms	Leg lever arms can be moved up and down to reach knee angles between 0° and 90°.
Front seat	Fixed.
Back support	Back support can be folded downwards for transport.
Rear seat	The rear seat can be moved forward and backward for 60 mm in order to adapt the seat to the length of user's legs.
Leg pads	The leg pads can be moved longitudinally and laterally in order to adjust the seat to the length of the user's legs.
Frame	Fixed.
Wheels	Fixed.

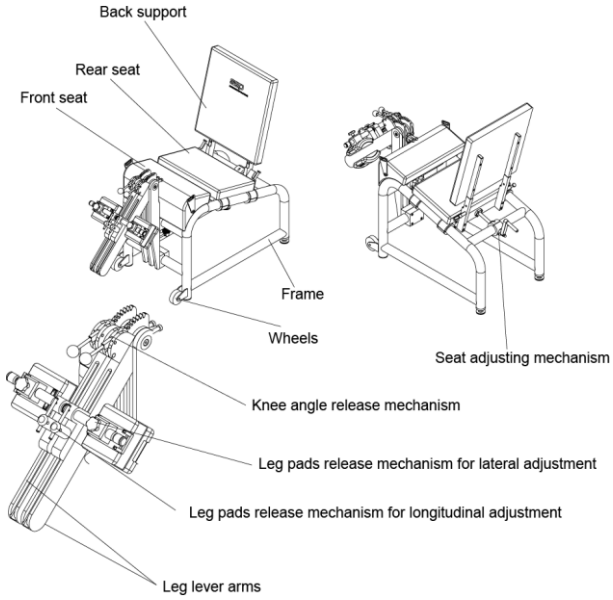

Figure: Components

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