

GRIP STRENGTH METER

*Accurate Peak Force Detection for
Forelimbs, Hindlimbs and All Limbs*



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Grip Strength Meter (GSM) for Mice and Rats

Accurate, repeatable force measurements for assessing neuromuscular function in rodents. Non-invasive grip strength testing with peak-force detection and smart data export. Full optional including software, grasping tools and grasping grids.



Background

The grip strength meter determines the **maximum force (skeletal muscle function) displayed by an animal** thanks to the instinctive resistance of rodents to backward movements and their consequence tendency to grasp (grip) against the pull-back movement that the operator applies. Thanks to its simplicity and economy, the grip strength meter is the **most commonly used in vivo test for monitoring impaired limb strength** (fore and/or hind limb)

caused by pathology progression and/or chronic exercise in rodents.

Because this test is **non-invasive** and does not damage the muscle, it can be performed over time, being a useful tool to assess the effect of either a short or long-term treatment.

When the test is performed in a fashion that maintains rigorous timing, the animals do not lose interest in the test over time.

Typical device applications

The test measures **grasping force** and **hence skeletal muscle performance**, however it is a flexible tool for many other purposes, for example for determination of fatigue.

The classic use of the grip strength meter is **hind or whole limb strength measurement**.

The hind limb strength is generally measured with a grid and the animal grasps with the four limbs, but it is pulled until the hind limb are released, which happens after the

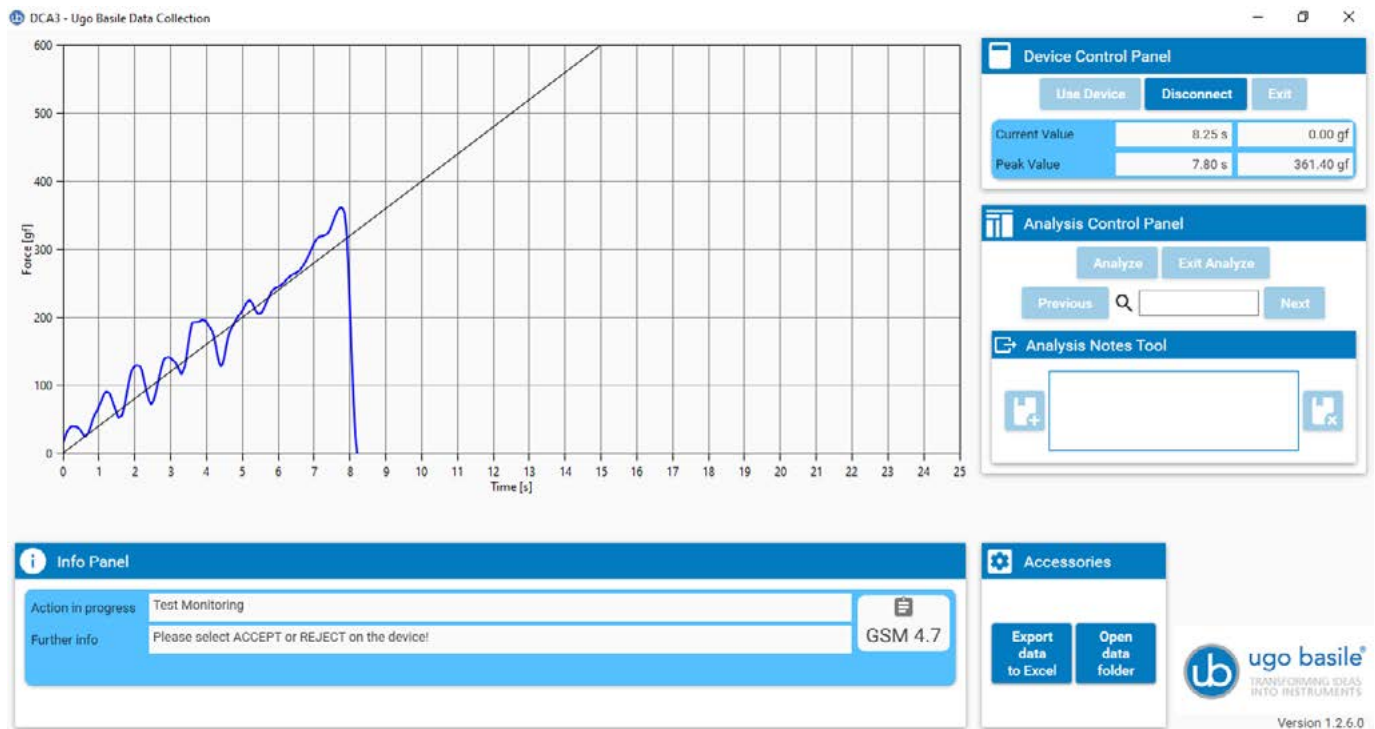
fore-limbs.

To measure the four limbs, generally it is important to apply a stronger and faster rate so that all the limbs are released at the same time.

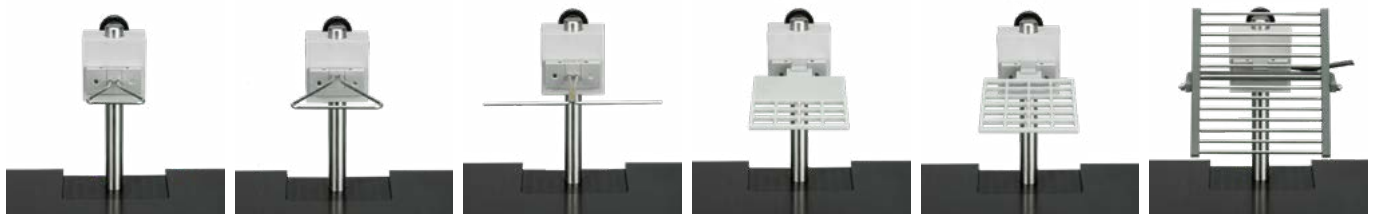
Applications range from **drug testing to toxicology, ageing, and phenotyping**, especially on models of Parkinson's, inflammation, amyotrophic lateral sclerosis (ALS) on both rats and mice.

Product Description

- The Ugo Basile grip strength meter can measure the 2 forelimbs, the 2 hindlimbs and all 4 limbs in rats and mice, thanks to the included **stainless-steel T-shaped bar, 2 stainless-steel trapeze bars, the plastic grasping grid, the plastic grasping grid partly blind (for 2 limbs) and a stainless-steel orientable grid**.
- The device **automatically stores and displays the peak pull-force** (peak tension) achieved by the limbs before the animal loses grip, thanks to its **peak detector algorithm**.
- The **PC slope feature** is useful to verify if the desired force has been applied with consistent rate, serving as a quality control tool, showing the applied pulling force, the desired target force rate and the peak detection in real time.
- A force sensor and a peak amplifier have been integrated for high-precision measurements with a grip strength meter. The **maximum applicable force is 1.500g** with a **resolution of 0.1g**.
- The device **can be used stand-alone or can be connected to a PC** via the USB port to monitor the experiment and record the data.
- Control unit with **internal memory** to view and save data. Quick data transfer in .csv or .txt format for data analysis.
- There is no need of manual calibration since the instrument has an **auto-calibration feature** before running any trial.



Test-monitoring window. The main box on the left will continuously plot the pulling-force intensity along time. The pulling force appears as a blue line, overlapping a straight black line: the latter indicates the desired target force rate, as set via in the instrument configuration menu (slope feature).



Included stainless-steel trapeze bars 2 different dimensions, stainless-steel T-shaped bar, Included plastic grasping grid partly blind (for 2 limbs), plastic grasping grid and stainless-steel orientable grid.

Features	Benefits
Multiple grasping tools	Allows measurement of forelimbs, hindlimbs and all limbs in rats and mice, according to the animal model and experimenter preference (T-shape, trapeze, grids)
Battery powered compact control unit with intuitive setting and result view	Does not take much space on the bench and is feature rich, while still easy to use
Sturdy base with attached and height-adjustable height	Decreases the experimenter bias of hand-held devices and provides flexibility in the pulling procedure
PC-software with slope for force rate control	Allows the experimenter to apply the force in a pre-determined and consistent manner, live, during the test

Main References

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Specifications - Operation

Commands	Via soft buttons on the electronic unit
Read-out	Multifunction graphic display, PC
Start	Automatic when force applies to the instrument
Stop	Automatic or by pedal
Force ranges	0-100gf, 0-500gf, 0-1500gf
Force increasing	Monitored via GSM Electronic Unit or via the DCA Software on the PC
Force response	0.1gf steps
Latency time	0.1s steps
Connection to PC	Via USB cable (A to mini-B) and GSM Software (DCA)
Power requirement	Either rechargeable battery operated, via USB cable connected to PC; includes power supply (100-240 VAC, 50-60Hz)

Physical

Base dimension	26 x 22 x 2,5(h) cm
Electric Unit Dimension	12 x 15 x 4,5(h) cm
Pole height	13 cm
Pole diameter	1.3 cm
Total weight	3.8 Kg

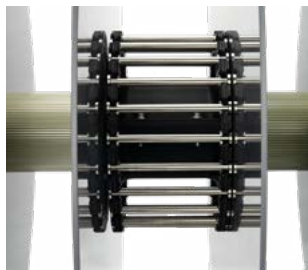
Extra warranty (standard 12 months + 12 months with product registration)

47200-UBC12	UB Care 12 Additional hardware warranty extension 12 months for TGR (valid for SKU 47200)
47200-UBC24	UB Care 24 Additional hardware warranty extension 24 months for TGR (valid for SKU 47200)

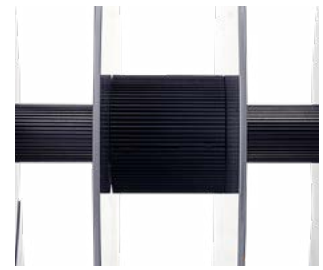
Related Products



RotaRod for Mice and Rats
Product Code: 47650/47750



Complex Wheels for Mice, Rats and Large Rats RotaRod
Product Code: 47650-327/47750-327
47750-D01-327



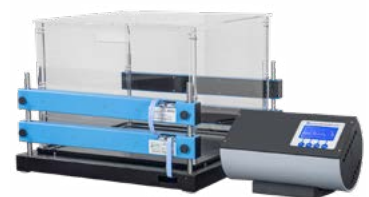
Enlargers for Mice and Rats RotaRod
Product Code: 47650-325, 47650-326, 47750-325, 47750-326



Treadmill for Mice and Rats
Product Code: 47300



Running Wheel
Product Code: 1800/1850



Activity Cage
Product Code: 47420/47420-NC

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