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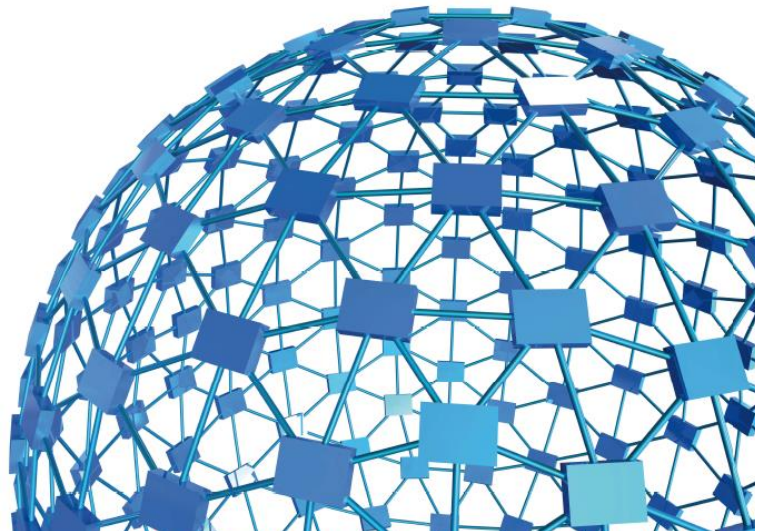
TRANSFORMING IDEAS
INTO INSTRUMENTS

instruction manual

VonFrey Hairs Aesthesio[®]

Cat. No. 37450-275

Cat. No. 37450-277



UGO BASILE S.R.L.

sales@ugobasile.com / service@ugobasile.com www.ugobasile.com

Von Frey Hairs

Cat. No. 37450-275

General

Von Frey hairs (named after the German physiologist Max von Frey, 1852–1932) were been originally produced from animal and human hairs of different diameter; nowadays they are nylon monofilaments; the diameter determines the resistance of the monofilament to bending. A filament is placed perpendicularly to the skin with slowly increasing force until it bends, thereby determining the amount of force applied.

The **Aesthesio®** set of 20 monofilaments is based on the Semmes Weinstein monofilament set, **but now features retractable filaments** to protect the filament and allow the evaluator to carry a few around in a pocket.

The set of monofilaments provides an approximately logarithmic scale of actual force, and a linear scale of perceived intensity.

They have a long history of effective use in clinical settings, and can be used to diagnose pathologies of hyper- or hypo-aesthesia.

Subsets within the set of 20 probes distinguish pathologies on different parts of the body (foot, hand, lip, cheek, etc.).

Individual filaments are also sold separately individually.

Hypersensitivity

Touch Threshold

Semmes Weinstein
Von Frey Filaments
for Touch
Assessment



Main Features

- 20 Filament Kit
- Graded Series of Nylon Monofilament, color-coded
- Rotating sleeve protects precision filament while in closed position

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1 OVERVIEW

Von Frey hairs (named after the German physiologist Max von Frey, 1852–1932) were originally produced from animal and human hairs of different diameter; nowadays they are nylon monofilaments of different diameters, each of them mounted at right angles to the end of a plastic handle.

The diameter determines the resistance of the monofilament to bending; a filament is placed perpendicularly to the skin with slowly increasing force until it bends, thereby determining the amount of force applied.

The **Aesthesio**® set of 20 graded Nylon monofilaments is based on the Semmes Weinstein monofilament set, but now features retractable filaments to protect the filament and allow the evaluator to carry a few around in a pocket.

The new design of the **Aesthesio** filaments features:

- Color-coded sleeves and numbered filament heads
- Rotating sleeve which protects precision filament while in closed position; closed position locks and prevents head from accidentally opening or damaging filament.
- Rotated sleeve provides mechanical stability to the pivoting filament head.



The Semmes Weinstein set of monofilaments provides an approximately logarithmic scale of actual force, and a linear scale of perceived intensity, thus providing a non-invasive evaluation of cutaneous sensation levels; results are repeatable and objective.

Each filament is calibrated such that, when properly applied, the filament delivers the target force within 5% standard deviation.

They have a long history of effective use in clinical settings, and can be used to diagnose pathologies of hyper- or hypo-aesthesia.

Subsets within the set of 20 probes distinguish pathologies on different parts of the body (foot, hand, lip, cheek, etc.), see paragraph 5-ORDERING INFORMATION.

2 OPERATING PRINCIPLE

One of the most popular non-invasive techniques used.

The operating principle remains the same: when the tip of a fiber of given length and diameter is pressed against the skin at right angles, the force of application increases as long as the researcher continues to advance the probe, until the fiber bends.

After the fiber bends, continued advance creates more bend, but not more force of application.

This principle makes it possible for the researcher using a hand held probe to apply a reproducible force, within a wide tolerance, to the skin surface.

2.1 Method of Operation with Rodents

Rodents exhibit a paw withdrawal reflex when the paw is unexpectedly touched. The glabrous skin of the hind paw of the rodent is the most common target site for tests using rodents as the model organism for experimentation with Semmes Weinstein VonFrey filaments.

The **Aesthesio** Monofilaments can be used on the Plantar surfaces of the foot of a rat or mouse, and the animal will indicate sensation by pulling back its paw.

Robust, repeatable data regarding paw withdrawal can be achieved using several experimental paradigms. Often, the test subject is cradled or held by the scruff of the neck.

The test subject may be placed within a small cubicle atop a perforated platform or shelf, see paragraph 3-AVAILABLE ACCESSORIES.

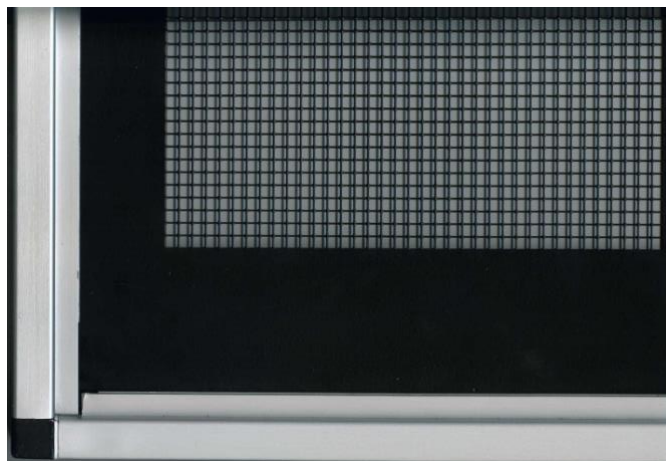
The target area is visualized and the filament is pressed against the target site until the filament bows. The filament is held in place for 1-1.5 seconds, and then removed repeat three times per target area.

A flinch or flick of the paw constitutes a positive withdrawal and should be scored as such.

3 AVAILABLE ACCESSORIES

An optional testing **perforated platform 37450-005**, a 90 x 38 cm shelf, is available as optional for testing with Von Frey filaments. Laser-cut perforations form a mesh-like open grid of square holes ~5X5 mm.

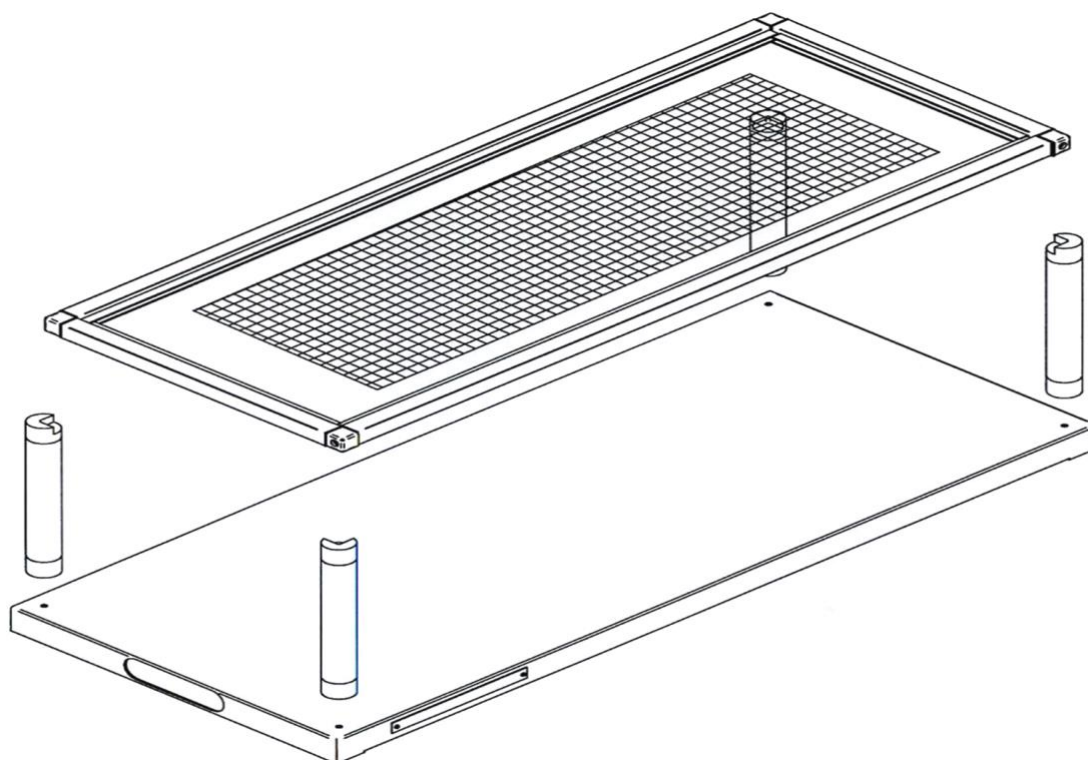
Perforated metal shelf, Intervening metal grid is ~1mm wide, comfortable to the animal and easy to view the target area of the paw.



The shelf is coated with a polymer resin that is easy to clean and which will not be spoiled by fluids or waste materials.

Mount the shelf on the wall, or use the optional base & columns **37450-278** to hold the testing platform.

The 37450-278 kit also includes a multiple-configuration animal-enclosure, from 3 to 12 spaces.



The platform is also available as a self-supporting model, available in two different heights:

37450-045, 40cm tall

37450-085, 80cm tall

The animal enclosure is not included and should be ordered separately

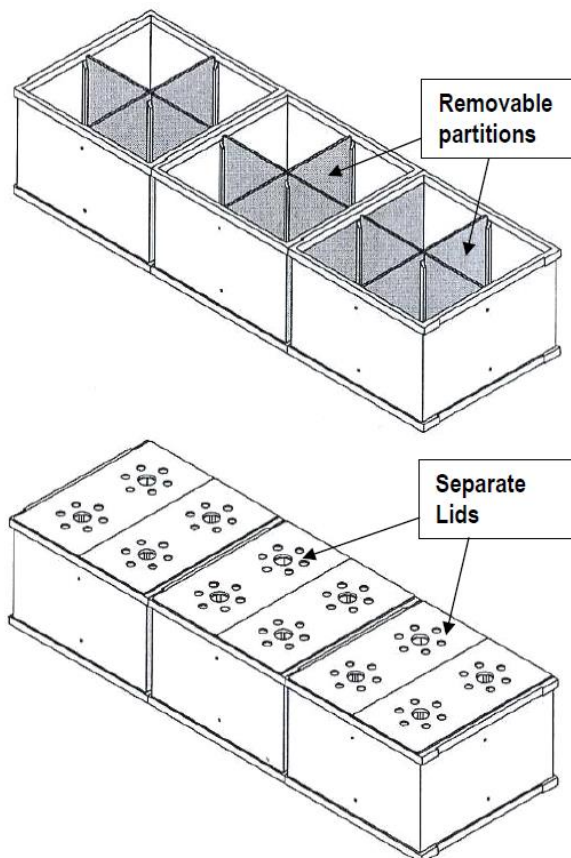


The **37000-006** is a modular enclosure 37000-006 of original design, combining 3 animal cages: removable partitions enable the dividing each of the 3 cages into 2 or 4 spaces, thus obtaining up to 12 spaces.

The enclosure is duly held in position on the framed glass pane by the spacers provided. Six separate lids make it easier to deposit/remove the rodents individually.

The cage dimensions are approx. 20(d)x62(w)x14(h)cm.

Each of the 3 compartment is hence dimensioned 20x20x14(h)cm.



4 Aesthesio® Tactile Sensory Evaluator Data Chart

Color	Evaluator Size	Catalogue item Number	Target Force (grams)	Target Force* (milliNewtons)	Theoretical Pressure Grams/Sq. mm	Hand & Dorsal Foot Thresholds	Plantar Threshold
Green	1.65	514001	0.008	0.08	2.53	normal	normal
	2.36	514002	0.02	0.20	4.39	normal	normal
	2.44	514003	0.04	0.40	4.93	normal	normal
	2.83	514004	0.07	0.70	5.53	normal	normal
Blue	3.22	514005	0.16	1.6	8.77	Diminished Light Touch	normal
	3.61	514006	0.40	3.9	16.1	Diminished Light Touch	Diminished Light Touch
Purple	3.84	514007	0.60	5.9	18.4	Diminished Light Touch	Diminished Light Touch
	4.08	514008	1.0	9.8	24.4	Diminished Light Touch	Diminished Light Touch
	4.17	514009	1.4	13.7	27.9	Diminished Light Touch	Diminished Light Touch
	4.31	514010	2.0	19.6	27.4	Diminished Light Touch	Diminished Light Touch
Red	4.56	514011	4.0	39.2	40.3	Loss of Protective Sensation	Diminished Light Touch
	4.74	514012	6.0	58.8	52.6	Loss of Protective Sensation	Diminished Light Touch
	4.93	514013	8.0	78.4	61.7	Loss of Protective Sensation	Diminished Light Touch
	5.07	514014	10	98.0	68.3	Loss of Protective Sensation	Loss of Protective Sensation
	5.18	514015	15	147	82.0	Loss of Protective Sensation	Loss of Protective Sensation
	5.46	514016	26	255	106	Loss of Protective Sensation	Loss of Protective Sensation
	5.88	514017	60	588	141	Loss of Protective Sensation	Loss of Protective Sensation
	6.10	514018	100	980	193	Loss of Protective Sensation	Loss of Protective Sensation
	6.45	514019	180	1760	222	Loss of Protective Sensation	Loss of Protective Sensation
	Or	6.65	514020	300	2940	292	Deep Protective Sensation

*calculated rounded numbers (conversion factor 9.80665)

5 ORDERING INFORMATION

37450-275	Aesthesio® Von Frey Kit, Touch Test Sensory Evaluator , kit of 20 filaments
37450-275-5	Aesthesio, Precise Tactile Sensory Evaluator Kit: Five Piece Kit (sizes: 2.83, 3.61, 4.31, 4.56 and 6.65) with Carrying case
37450-275-6	Aesthesio, Precise Tactile Sensory Evaluator Kit: Six Piece Kit (sizes: 2.83, 3.61, 4.31, 4.56, 5.07 and 6.65) with Carrying case
37450-277	Set of 20 VonFrey Filaments (37450-275), with Base assembly for plantar stimulation 37450-278
37450-278	Base assembly for plantar stimulation, including support with columns, perforated metal sheet and multiple-configuration animal-enclosure, from 3 to 12 spaces.
37450-005	Large Perforated Metal Sheet for Dynamic Plantar Aesthesiometer and VonFrey test
37450-045	Large Perforated Metal Sheet, with 4 legs, 40cm height (animal enclosure 37000-006 is not included and should be ordered separately)
37450-085	Large Perforated Metal Sheet, with 4 legs, 80cm height (animal enclosure 37000-006 is not included and should be ordered separately)
37450-045-277	Combination of Large Perforated Metal Sheet 37450-045, VonFrey Filaments (Aesthesio 37450-275), and animal enclosure 37000-006
37450-085-277	Combination of Large Perforated Metal Sheet 37450-085, VonFrey Filaments (Aesthesio 37450-275), and animal enclosure 37000-006

For mechanical stimulation tests, see also the other products from Ugo Basile

- 37450 Dynamic Plantar Aesthesiometer:** the quickest and most accurate way of delivering a mechanical stimulation and measuring a response, all automatically. In fact, with this device the operator does not personally apply the force, which is automatically applied by the instrument, at the rate and intensity the operator sets.
- 38450 Electronic VonFrey:** a new device, whose advantage over the classic manual VonFrey filaments is the user-controlled application of force rate, quicker and more consistent, thanks to the new Ratemeter and Slope features.

6 PROPER STORAGE AND HANDLING

Aesthesio® Precision Tactile Sensory Evaluators are precision instruments. Care should be taken at all times to protect the integrity of the nylon filament.

A flip-cap protects tips; take care when opening and returning the cap to expose and retract the filament; there is a groove in the handle to accommodate the filament comfortably. When properly handled, the filaments can last quite a long time.

The filament may be cleaned with a mild instrument disinfectant (e.g. Isopropyl Alcohol or similar. Avoid chlorine-based disinfectants.) Make sure the monofilaments are thoroughly dry before reusing.

Substantially bent or kinked monofilaments must not be used for testing and should be discarded and replaced.

Store the evaluators at room temperature and humidity. Do not store in or expose to direct sunlight.

6.1 Customer Support

For any further information you may desire concerning the use and/or maintenance of the Von-Frey Filaments and accessories, please do not hesitate to contact our **service department** (or our local distributor) either directly or via our support page <http://www.ugobasile.com/support.html> :



UGO BASILE s.r.l.

Via G. Di Vittorio 2
21036 GEMONIO – Varese, ITALY



Phone : +39 0332 744574



service@ugobasile.com
logistics@ugobasile.com
sales@ugobasile.com

Before sending any instrument to our factory for repair, please contact our logistics department to obtain a return authorization number (RMA) and shipping/packing instructions.

We may not be held responsible for damages during transport due to poor packing; whenever possible, please use the original packing.

