

# Plantar Test (Hargreaves Apparatus)

Cat. No. 37370

For Rats

For Mice

AUTOMATIC  
MEASUREMENT OF THE  
ANIMAL RESPONSE

## General

Determination of acute nociceptive thermal threshold in laboratory animals has primarily relied upon the tail flick and hot plate methods.

Although both methods are used frequently in pharmacological studies, they are not without limitation. In addition, neither method has been extended to investigating behavioural responses to hyperalgesia.

The Plantar Test represents a remarkable advance in methodology, as it combines the best features of all other methods of measuring pain sensitivity. Unique to the Plantar Test, **the animal is unrestrained and unhandled during experiments.**



## Main Features

- Automatic detection of paw withdrawal (no visual score needed!)
- I.R. intensity adjustable in the interval 01-99 (in one digit steps)
- Software included
- Modular animal enclosure, from 3 to 12 spaces, conveniently designed to restrain mice or rats
- Optional 37300 Radiometer for calibration
- Data portability via the included memory key
- NEW: orofacial stimulation by optional holders

## Instrument Description

The Instrument basically consists of:-

- a Movable I.R. (infra-red) Source
- a Controller (the picture shows the optional printer 37000-145 mounted on the top panel)



- a framed Glass Pane (86x35cm) supported by columns on a base latform onto which the movable source glides
- a modular enclosure of new design, in which the 3 spaces can be further divided into 2 or 4 by removable partitions, obtaining up to 12 spaces

After the acclimation period, the I.R. source placed under the glass floor (see the picture) is positioned by the operator directly beneath the hind paw. A trial is started by depressing a key on the I.R. source.

When the animal feels pain and withdraws its paw, the I.R. source switches off and the reaction time counter stops. The withdrawal latency to the nearest 0.1s is automatically determined and recorded.

## Data Acquisition

The 37370 is a microprocessor controlled unit. The experimental data, stored in its internal memory can be directly exported to the PC USB or serial ports.

Communication is managed by the dedicated CUB Data Acquisition Windows®-based Software Package **52050-10**, included as standard, which enables the user to route the experimental data to the PC and store them into individual files, to be managed by most statistical analysis packages available on the market.

The 37370 is provided with a **memory key**, to record all the experimental data of one or more sessions and to program the experiment parameters from a remote PC.

## Calibration Radiometer

Each Plantar Test Unit is accurately calibrated via an **Heat-Flux I.R. Radiometer Cat. 37300**.

The end user should consider this extremely useful optional accessory, which enables the experimenter to:

- Make sure that two or more units deliver thermal nociceptive stimuli (expressed in mW per square cm) of **exactly the same intensity**.
- Measure the I.R. energy (1mW for the duration of 1s corresponds to 1mJ) **in absolute terms**

## Ordering Information

<b>37370</b>	<b>Plantar Test (Hargreaves' test)</b> , complete with following standard accessories:
<b>37370-001</b>	Plantar Test Controller
<b>37370-002</b>	Emitter/Detector Vessel, with cable
<b>37000-003</b>	Platform
<b>37370-327</b>	Supporting columns
<b>37000-006</b>	Modular Animal Enclosure
<b>37370-005</b>	Framed Glass Pane
<b>37370-302</b>	Instruction manual (on the USB key)
<b>52050-10</b>	CUB Software (USB key) with USB cable
<b>E-WP 008</b>	Mains Cord

## Optional Spares & Accessories

<b>37000-145</b>	Panel-Mount Printer
<b>37300</b>	Heat-Flux I.R. Radiometer
<b>E-HR 002</b>	Replacement Bulb
<b>37370-278</b>	Additional stimulation base, complete with glass pane and animal enclosure
<b>37100</b>	Set of two <b>Durham Holders</b> for <b>orofacial</b> stimulation (see separate datasheet)



## Physical

Universal Mains	85-264 VAC - 50-60Hz - 20 W max.
Dimensions	86 x 40 x 35 cm (assembled)
Weight	13.00 Kg
Packing	98 x 49 x 47 cm
Shipping Weight	27.50 Kg approx

## Bibliography

### Method Paper:

- K.M.Hargreaves, R.Dubner, F.Brown, C.Flores & J.Joris: "A New and Sensitive Method for Measuring Thermal Nociception in Cutaneous Hyperalgesia" *Pain* 32: 77-88, 1988.
- D.C. Yeomans & H.K. Proudfit: "Characterization of the Foot Withdrawal Response to Noxious Radiant Heat in the Rat" *Pain* 59: 85-97, 1994.

### Papers mentioning UB model:

- D. Piomelli et alia: "Anandamide suppresses pain initiation through a peripheral endocannabinoid mechanism" *Nature NSC*, 2010
- L. Mannelli et alia: "Effects of the Neutrophil Elastase Inhibitor EL-17 in Rat Adjuvant-Induced Arthritis" *Rheumatology* 10:1093, 2016
- S. Castany et alia: "The Antinociceptive Effects of a  $\delta$ -Opioid Receptor Agonist In mice with Painful Diabetic Neuropathy: Involvement of Heme Oxygenase 1" *Neurosci.Letters* 614: 49-54, 2016
- Z.Z. Huang et alia "Mir-500-Mediated GAD67 Downregulation Contributes to Neuropathic Pain" *J. Neurosci* 36(23): 6321-6331, 2016
- T.A. Nees et alia: "Early-Onset Treadmill Training Reduces Mechanical Allodynia and Modulates Calcitonin Gene-Related Peptide Fiber Density in Lamina III/IV in a Mouse Model of Spinal Cord Contusion injury" *Pain* 157(3): 687-697, 2016
- V. Carozzi et alia: "Chemotherapy-Induced Peripheral Neurotoxicity in Immune-Deficient Mice: New Useful Ready-to-Use Animal Models" *Exp. Neurology* 264: 92-102, 2015