



## RESPIRATORY FLOWHEADS

Pneumotachographs



**A range of respiratory flowheads, covering baby mice up to adult exercise. For use in fields as diverse as Physiology and Pharmacology.**

Innovative and accurate equipment for respiratory investigation.

- **Sensitive and robust**
- **Can be washed and sterilised**
- **Suitable for use in all respiratory studies**
- **Linear and direction sensitive**

**GM INSTRUMENTS**

# RESPIRATORY FLOWHEADS

## Pneumotachographs



**If a fine wire gauze is introduced into a stream of air, the passage of air through the gauze results in a back pressure being developed which is related to the velocity of air, and to its viscosity. If the flow is laminar, the relationship is linear.**

This velocity-dependant pressure (typically a few millimeters of water) applied to a suitable differential pressure transducer yields a velocity dependant voltage.

Expired air can create condensation within a flowhead but this can be prevented by fitting a non-return valve and measuring only inspiration, or alternatively by heating the flowhead, but when heating a head viscosity errors may arise.

In this range of heads the problem is approached from a fresh angle. By mounting a fine stainless steel gauze in plastic rings the thermal inertia is greatly reduced. The gauze therefore rapidly equilibrates in temperature with passing air and condensation is minimal.

Each of the heads described below produces a similar pressure drop at their rated flows. This enables each head to be rapidly and accurately calibrated allowing flows from 1000 to 0.05 litres/minute to be measured.

Heads may be sterilised by gas or vapour sterilisers, by wiping with alcohol or by wet or dry heat not exceeding 75°C. If liquids are used, care must be taken to allow the head to dry out thoroughly, as beads of moisture trapped in the airways will cause inaccurate results.

## Demountable Flowhead

Type F1000L

Although large in size it is light in weight as the casings are formed entirely in injection moulded ABS plastic. The construction is such that it can be dismantled with ease to give good access to the interchangeable gauze assembly. The F1000L is suitable for adults during exercise and for certain types of lung function test.

## Semi-disposable Flowheads

Type F300L

This head is injection moulded in ABS and comes as a complete single unit. Although it will stand frequent washing, if the head does become excessively fouled (or infected) it can be discarded altogether and replaced for little cost. It is intended to cater for most adult applications with the exception of hard exercise and certain lung function tests.

## Demountable Flowheads

Type F100L, F10L and F1L

These heads are machined from acetal to give good stability with low weight and have found application in paediatrics and in the respiration measurement of animals such as dogs, cats, rats and mice. As with head type F1000L interchangeable gauze assemblies are available.

Flowhead	Linear Range L/min	Flow for 10mm H <sub>2</sub> O (approximate)	Tube Diameter (outside)	Length (mm)	Weight (grammes)
F1L	±1	1.2 L/min	5mm	40	13.8
F10L	±10	12 L/min	8mm	54	21.8
F100L	±100	90 L/min	16mm	54	37.7
F300L	±300	130 L/min	29.5mm	91	36.8
F1000L	±1000	530 L/min	29.5mm	198	260



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