WIRE MYOGRAPH SYSTEMS

Vascular research • Airway research • Intestine research • Urinary and bladder research • Gall bladder research • Gut research • Erectile dysfunction • And more...

WIRE MYOGRAPH SYSTEMS - GENERAL

The Wire Myograph allows examination of small vessels (internal diameter 30 µm - 10 mm) in terms of morphology and responsiveness to hormones and other agonists.

The small vessels are mounted as ring preparations by threading them onto two stainless steel or tungsten wires and securing the wires to two supports. One support is then attached to a micrometer, allowing control of vessel circumference. The other support is attached to a force transducer for measurement of tension development. The whole preparation is kept in a chamber with physiological salt solution at 37°C, bubbled with oxygen. Vessels maintained in wire myographs are viable for several hours

Following mounting and equilibration, the passive length-tension relationships of the vessels are determined; a normalization procedure. During the actual experiments, the circumference of the vessels are kept constant and vessels are examined under isometric conditions. Compounds are added directly to the chamber and vessel tension is monitored. Furthermore, it is possible to compare vessels from patients or test groups with those of control, not only in terms of vessel reactivity to various compounds, but also in terms of morphology.

Vessel mounted on pins

Vessel mounted on jaws

The following lists are a few of the established areas of investigation for wire myograph systems. Many more investigation possibilities for vascular and other smooth muscle may be added through the imagination of researchers such as yourself.

BASIC TISSUE STUDIES
- Vascular smooth muscle function
- Vascular endothelium function
- Length-tension relationships (also motorized)
- Wall tension and morphometric measurements
- Assessment of pharmacological reactivity

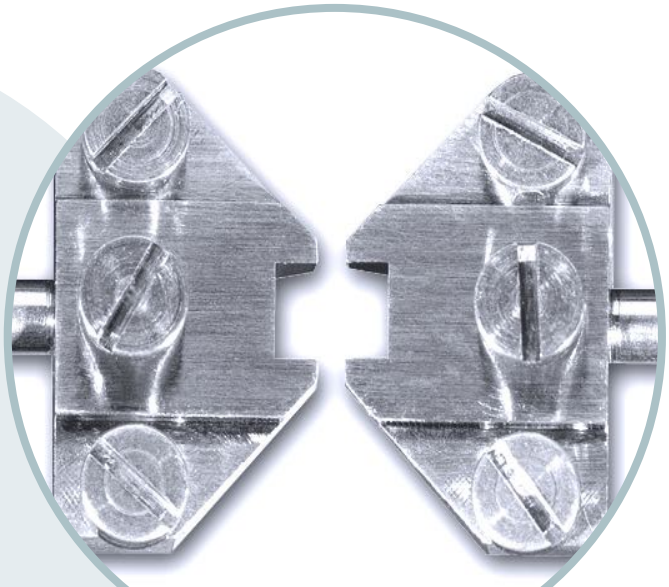
TISSUES USED
- Small and large arteries, veins and lymph vessels
- Lung, tracheal and bronchial smooth muscle
- Urogenital, corpus cavernosum, bladder
- Intestive, gut, colon, ileum

VASOACTIVE MECHANISMS
- Endothelium: role of endothelium-derived relaxing factor (NO), prostaglandins and endothelium-derived hyperpolarizing factor (EDHF)
- Smooth muscle: role of calcium and potassium and other ion channels
- Perivascular and intramural nerves: role of endogenously released transmitters

PHARMACOLOGY & PHARMACOTHERAPY
- Quantify the effect of treatment with contractile and relaxing agents
- Receptor studies, localization and characterization of receptors
- Affinity and efficacy studies of agonists and antagonists
- Drug studies, efficiency and efficacy, drug discovery and safety pharmacology

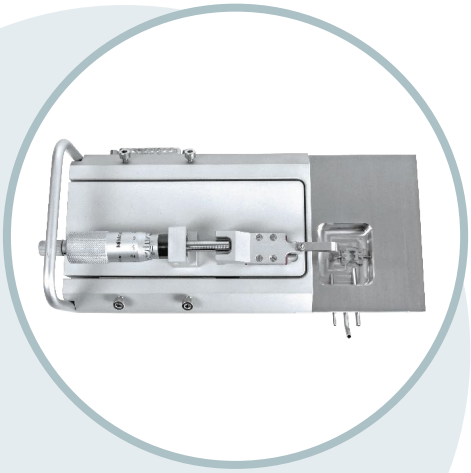
PHYSIOLOGICAL CHANGES & PATHOLOGY
- Hypertension, atherosclerosis
- Diabetes, aging
- Ischemic heart disease and heart failure
- Tumours and angiogenesis
- Heart and lung diseases
- Gastrointestinal and urogenital disease
- Pregnancy, preeclampsia
- Exercise physiology, degenerative muscular diseases
- Asthma and COPD

FURTHER POSSIBILITIES
- Electrophysiological experiments
- Fluorescence measurements of intracellular ions and other substances



WIRE MYOGRAPH SYSTEMS - PRODUCTS

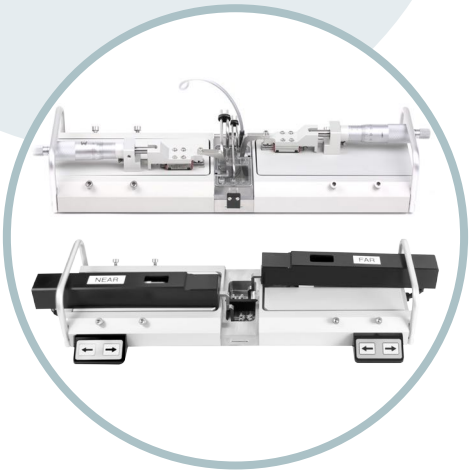
SINGLE WIRE MYOGRAPH SYSTEM - 320A



The Single Wire Myograph System - 320A is deal for contractile force measurement independently or parallel to imaging purposes.

- Manually operated micropositioner for accurate tension control
- Can be easily combined with microelectrodes for membrane potential measurements
- Easily integrated into an imaging system for simultaneous force measurements and vessel wall fluorescence
- Automated normalization procedure to estimate and set the preload tension

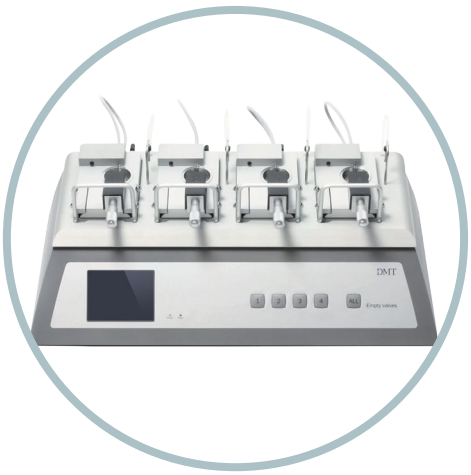
DUAL WIRE MYOGRAPH SYSTEMS - 420A & 520A



The Dual Wire Myograph System - 420A & 520A is designed for simultaneous testing of two vessels with diameters of 30 µm - 3 mm, independently.

- Manually (420A) or automatically (520A) operated micropositioners for precise tension control
- Chamber can be easily divided to keep 2 mounted samples separate
- Glass windows in chamber base facilitates morphological or fluorescence measurements

MULTI WIRE MYOGRAPH SYSTEM - 620M



This 4-channel Multi Myograph System is a highly sophisticated yet robust research instrument. It is an easy-to-use system for in vitro studies of small and large blood vessels, trachea or gut mounted as larger ring preparations up to 10 mm using standard L-shaped mounting pins and up to 15 mm using customized L-shaped mounting pins.

- Wire Myograph with four chambers allows the study of four vessels or tissue rings simultaneously
- Ideal for work requiring a higher throughput such as repetitive concentration-response curves
- Jaw and pin mounts facilitate the use of a mix of small or larger ring segments from 30 µm to 450 µm (up to 15 mm using customized pins)
- The segments remain viable for >12 hours
- Built-in electrical heating, electronic valves for simultaneous rapid removal of buffer, analog output of force

AUTOMATED MULTI WIRE MYOGRAPH SYSTEM - 630MA

Making it easier... this 4-channel system adds the ease of automating the normalization procedures so that calculations and preload tension is easily set. Following mounting and equilibration, passive length-tension relationships are determined by a standardized procedure.

This allows the standardization of initial experimental conditions, an important consideration when examining pharmacological differences between vessels.

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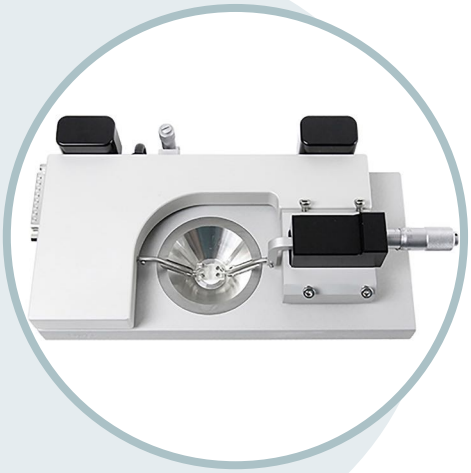
- Automatic nomalization procedure

CONFOCAL WIRE MYOGRAPH - 360CW



The Confocal Wire Myograph System - 360CW is specifically designed to provide very close optical access to the mounted artery or tissue segment, thereby allowing high resolution images of fluorescent dyes or markers by laser scanning confocal microscopy (LSCM).

- For use with small vessels or ring shaped tissues from 30 µm - 3 mm, inverse mounted on special jaws
- For fluorescence or high-end morphological imaging
- Sandwich bath design enables use of very low working distance objectives
- Conical chamber to facilitate very low media volume. Hinged top facilitates easy access
- Built-in electrical heating - reliable and easy to control

WIRE MYOGRAPH SYSTEMS - ACCESSORIES

AUTOMATIC BUFFER FILLER SYSTEM - 625FS

The Automatic Buffer Filler System is easily 'clicked' onto your 4-channel Myograph System. The Automatic Buffer Filler System can fill one chamber of choice separately or all 4 baths simultaneously with buffer by a single touch of a button. The Automatic Buffer Filler System can apply two different volumes of buffer. The standard setting is 6 ml and 8 ml buffer. Other volumes, however, can be requested before time of delivery if the standard settings do not meet your needs.

STIMULATOR CS4/CS8

The CS4/CS8 stimulators combines a user-friendly interface with advanced electrical stimulation features required in electrophysiological experiments. The CS4/CS8 is a modular, highly versatile voltage stimulator suitable for use with all DMT Myograph Systems.

The CS4/CS8 stimulator is controlled by the MyoPULSE software which is a flexible software solution. In MyoPULSE one can program simple voltage single pulses and very complicated voltage trains stimulation protocols.

Danish Myo Technology A/S

E-mail: sales@dmt.dk
Tel.: +45 87 41 11 00
Fax: +45 87 41 11 01

DMT-USA,Inc.

E-mail: sales@dmt-usa.com
Tel.: +1 734 707 0250
Fax: +1 678 302 7013