ESSENTRA COMPONENTS

Quick guide

COMPONENTS FOR **LABORATORY EQUIPMENT**

The demands on in vitro diagnostics and laboratory processes have inspired an array of increasingly automated equipment. This equipment is used to heat, cool, stir, shake, process and analyse medical samples, along with cleaning and sterilising instruments. Yet despite the introduction of new techniques and diagnostic medical devices, a range of standard equipment can be found in almost all laboratories.

Designing and engineering laboratory equipment must take into account precision, safety, speed and capacity. Equipment can be grouped into three main areas:

- Heating & refrigeration
- Preparation & analysis
- Sterilisation & cleaning

Laboratory equipment manufacturers around the world rely on Essentra Components to supply the critical items that make their medical devices and equipment work, from ultra-low temperature freezers to spectrophotometers.

We've designed this guide to help you select the components you'll need for your:

- Cold storage
- Hotplates & incubators
- Clinical analyzers
- Centrifuges
- Sterilisers & washers
- Other laboratory equipment

Most of the components we've recommended can be used across different devices and equipment. If you're not sure which solutions will work best for your application, let us know. We're happy to provide guidance and expert advice.

FREE SAMPLES AND CAD DOWNLOADS

To make your job easier, we've also made available free samples on most of our solutions, so you can try before you buy. You can also download free CADs of our solutions to help with your laboratory equipment development.

HEATING AND REFRIGERATION

Many laboratory processes and experiments involve heating or cooling samples to a specific temperature by boiling, cooling or freezing.

Incubators
Laboratory incubators control climate, contamination and temperature. Examples include: dry block, hatching, refrigerated, and direct-heat or water-jacketed CO2 incubators, just to name a few.

Water baths
A laboratory water bath is used to maintain a constant temperature for a wide range of lab procedures. This is done by applying a gentle heat to test tubes, beakers, and other vessels.

Ovens
Electrically heated laboratory ovens are commonly used to remove water or other solvents from samples and even to dry glassware. Applications include drying, baking, aging and sterilisation.

Hotplates and stirrers
When steam or water baths are not appropriate, these benchtop tools are used to heat liquids. Hotplates are for heating only, while combination hotplate stirrers are able to heat and mix simultaneously. Infrared hotplates are an energy-efficient alternative. Laboratory hotplate accessories include temperature probes, external digital displays, and heating blocks.

Heaters and heating mantles
Used as an alternative to lab hotplate stirrers and Bunsen burners, heating mantles provide safety and flexibility. The heating element is typically insulated from the container and can be used with various shapes and sizes. The temperature is usually controlled by a rheostat, which makes maintaining temperature simpler.

Microwave ovens
Microwave ovens designed for the laboratory have built-in safety features and operation procedures in order to mitigate hazards not commonly encountered with other heating methods. Examples include rapid temperature and pressure rise, superheating, arcing, and microwave leakage.

Circulators and chillers
Used to heat or cool liquids which can then be transferred via tubing to another location or device. A laboratory chiller can meet temperature ranges of –25°C to 130°C, allowing them to heat as well as cool.

Refrigerators
General-purpose laboratory refrigerators are used for cold storage of materials within a specific temperature range, usually between 2°C to 8°C. Features can range from access ports and interior lighting to alarms for temperature change and door ajar.

Freezers
Used for short or long-term, laboratory freezers store biological, pharmaceutical, and other laboratory samples typically down to to -20°C. Ultra-low laboratory freezers operate between -80°C and -50°C. Your design will need integrated temperature recording capabilities to comply with regulations from the FDA and other agencies. Styles vary, as do structural options. Think about shelving or drawers, and solid or clear doors, for example.

The components you'll need for heating and refrigeration equipment include:

L-HANDLE LATCH

View online

Ideal for laboratory cold-storage equipment. Standard key cylinder locking to prevent tampering. Made from zinc alloy with chrome plated or black power coated finish. Also available: recessed handles

Typically used: doors on freezers and refrigerators

CABLE TIE MOUNTS

View online

Reverse mount. The dome cover offers more protection from heat, allowing it to cope more easily with high temperatures. Space saving with aesthetic qualities and excellent grip. Nylon 6/6. UL94 V-2.

Typically used: oven power cables

ROTARY DAMPER – WITH GEAR

View online

Simple to install, our rotary damper controls the speed and acceleration of movement in parts such as doors or buttons. Self-contained or can be fitted as part of an assembly. Operating temperature range: -40°C to 100°C. Made of polycarbonate and acetal.

Typically used: refrigerator doors

P-CLIPS WITH RUBBER CUSHION

View online

Perfect for holding larger diameter cables, tubes and pipes. Simply bend the P-clip open, place tubing in and refasten. Operating temperature range: -60°C to 95°C. Cold-rolled steel, neoprene cushioning.

Typically used: water lines on refrigerators

MEMBRANE ENTRY GROMMETS

View online

Flexible cable grommets solve the problem of awkward spaces, without the need to feed wires through. Dust tight, easy to install and is suitable for non-threaded holes. Operating temperature range: -20°C to 125°C. TPE.

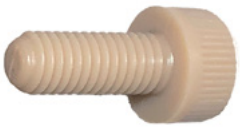
Typically used: to protect cables entering equipment panels

PEEK® SOCKET HEAD CAP SCREW

View online

Perfect for demanding applications. Torx head. Made from PEEK® with outstanding mechanical properties and high-temperature stability. Resists heat up to 176.6°C. Ideal for electronics used in different environments.

Typically used: within extreme heating equipment



HEAT STABILISED LOCKING CABLE TIES

View online

Keeping cables orderly and easily accessible. Our heat-stabilised cable ties are flame-retardant, cost-effective and strong. Heat-stabilised nylon 6/6. UL94 V-2.

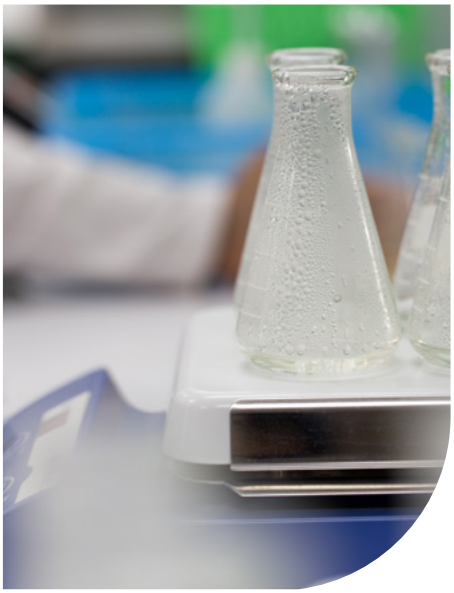
Typically used: within enclosed equipment

HEAT-RESISTANT PUSH RIVETS – SNAP

View online

The heat generated by laboratory equipment makes this a must-have, withstanding temperatures up to 130°C. These snap rivets are quicker to install than screws, and are also ideal for awkward spaces. Aesthetically pleasing from the outside, helping the finished product look stylish. Nylon 6/6.

Typically used: external equipment panels



PREPARATION & ANALYSIS

CLINICAL ANALYSERS

Used to test various properties of clinical samples such as blood, plasma, and bodily fluids to aid in patient diagnosis. A broad range of analysers can be found in a variety of settings, from clinics to research labs and high-throughput hospital labs. They are also used at the point-of-care, such as in physicians' offices and patient bedsides.

Analysers are highly automated for speed, consistency, avoidance of contamination, protection of operators from hazardous materials, and walkaway capability. Most analysers are designed for benchtop use but smaller models are designed for use at the bedside therefore need to be light-weight, compact and portable.

Centrifuges

Used to separate liquids or gases through the use of centrifugal force. They can be ventilated, refrigerated, or heated and include ultracentrifuges, refrigerated centrifuges, microcentrifuges and high-speed refrigerated centrifuges.

Shakers, rockers and rotators

Designed for gentle rocking for precise sample preparation. Also includes incubator shakers for temperature-sensitive samples. With variable speeds and tilt angles, add-on platforms, damping mounts, and more.

Pumps and tubing

Laboratory pump systems incorporate tubing and connectors to transfer fluids or gases.

Spectrophotometers

Instruments that measure a sample's ultraviolet and light absorbance. These are designed for benchtop and portable configurations.

Balances

Used to find the precise mass or weight of substances.

Microscopes

USB microscopes are increasingly popular. These are essentially a webcam with a high-powered macro lens using inbuilt LED light sources.

Bioreactor

A bioreactor is a vessel – often stainless steel – that provides the optimum growth conditions for raw materials and incorporates mixing, and control systems with sampling ports for periodic testing.

The components you'll need for preparation and analysis are:

GAS SPRINGS – ADJUSTABLE FORCE

View online

Ideal for medical and laboratory equipment for opening, closing, tilting and damping. These springs can be adjusted to the exact need without extra calculations, just de-gas on application to the required specification.

Typically used: top opening lids of large analysers

DRAWER SLIDES

View online

Our range offers a partial extension, such as 3/4 and full extension. The ball bearing drawer slides come in a choice of material to accommodate various industry environments. Ideal for medical and laboratory equipment.

Typically used: drawers within large floor standing analysers

90° OFFSET CORNER HINGE

View online

Compact, fixed, and simple to install with 180°rotation angle. Clean look with no protruding fastening hardware and a bearing style pin. Black powder-coated zinc alloy and stainless steel.

Typically used: fume cupboards and chemical storage

PLASTIC HOSE CLAMPS

View online

Hose clamps are vital for preventing fluid and gas from leaking at the connection. Adjustable locking range. Available in black, white or natural. Nylon 6/6.

Typically used: to secure fittings over hoses

PUSH-FIT FEET

View online

Fir-tree mount easily pushes into equipment's chassis. Also protects from vibration and shock. Perfect for smaller applications, where space is limited. Made of nylon and elastomer, which are very similar to push-fit rubber feet.

Typically used: to securely mount benchtop equipment

SELF-ADHESIVE RUBBER BUMPER FEET

View online

Peel and stick square bumpers will not tarnish, scratch, or discolor any surface. Available in clear or black. Choice of polyurethane or felt. Also available round, hemisphere and cylindrical.

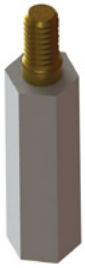
Typically used: on the base of bench-mounted equipment

PCB STANDOFFS – HEXAGONAL/INSULATOR

View online

These male-to-female hexagonal standoffs ensure high performance and can be installed by hand. Ideal for use when high mechanical strength is required and provide sturdy, insulated spacing for high-power electronic applications. Operating temperature range: -40°C to 85°C. Nylon and brass. UL94 V-2.

Typically used: printed circuit board designs



CATCH PLATE

View online

Door latch/striker is perfect for applications with a push-open and close feature, providing a lifecycle of 50,000 operations. Operating temperature range: -50°C to 95°C. Glass-filled nylon 6/6.

Typically used: centrifuge lids and doors

DUAL LOCKING SUPPORT PILLARS

View online

Locking PCB support with teardrop design, ideal for circuit boards in electronic laboratory systems. These snap into very small holes and leave a very low protrusion over the panel. Mounted on both sides with a low profile two-prong fastener. Operating temperature range: -40°C to 110°C. Nylon 6/6.

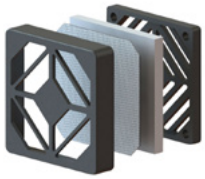
Typically used: touchscreens and peripheral electronic devices

FAN FILTER SETS

View online

Keep your PCBs cool by preventing obstruction to your fan. This set includes one fan guard, fan filter cover, fan filter mesh sheet, and felt filter. Rated IP30 to protect against small objects from falling in. Fan guard and fan filter cover, 40% GF nylon 6/6. Filter, polyester. Mesh sheet, 304 stainless steel.

Typically used: internal circuit boards



CABLE WRAP – SPIRAL

View online

Organise wires in a single bundle with a more permanent solution than standard cable ties. Our rapid spiral cable wraps give you durable protection from wear and tear. Easy to install, enabling you to route cables through the wrap's slits at any point. Spiral wrap is available in heat-stabilised nylon or PE.

Typically used: to bundle and protect cables within an enclosure

VIBRATION MOUNTS

View online

Screw-on feet absorb vibrations between panels and equipment generated by your battery power storage systems. Also helps reduce noise. Rubber and steel.

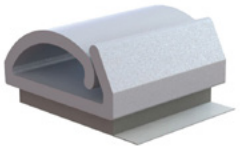
Typically used: as equipment feet

CABLE CLAMP – ADHESIVE BASE, D STYLE, LOCKING

View online

Holds cables in place by clamping and affixing with an adhesive. Ideal if you're unable to perforate the mounting panel. Operating temperature range: 0°C to 50°C. PVC, UL 94 V-0.

Typically used: inside clinical analysers

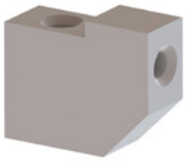


PCB MOUNTING BLOCKS

View online

Mount printed circuit boards and small panels at right angles within equipment. These blocks are a quick and easy replacement for aluminium brackets for secure mounting.

Typically used: electronic devices, such as laboratory spectrophotometers



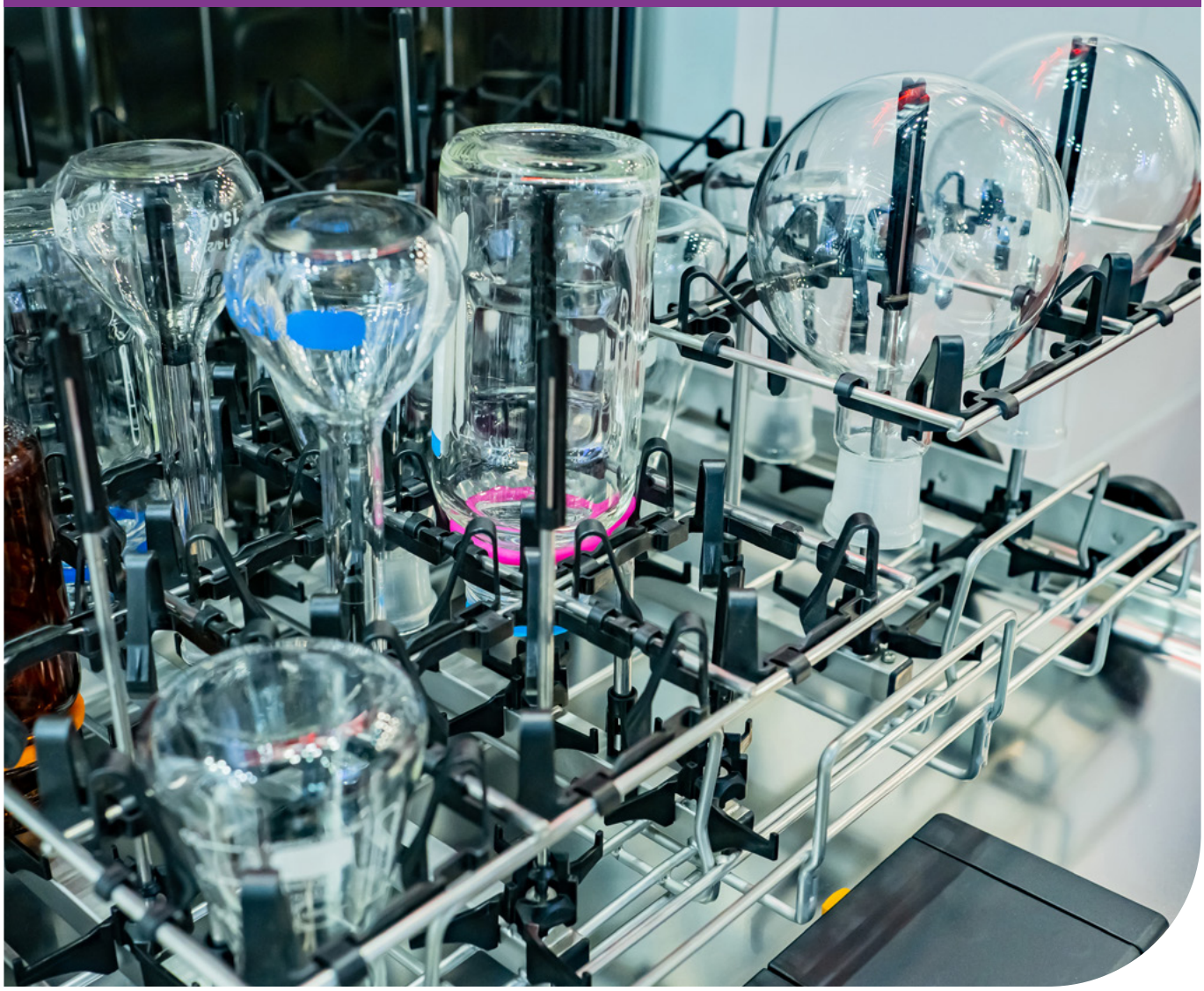
FERRITE SLEEVES

View online

Used as suppression cores for round cable. These A5 material cores attenuate any form of EMI emission. The nylon case makes the assembly of the core halves a snap. Cores are easily installed in equipment where retrofit and test are a necessity.

Typically used: where electronic emissions may interfere with sensitive instruments

STERILISING & CLEANING



It's critical to disinfect laboratory equipment to ensure contamination is at a safe level. Laboratory sterilisers and autoclaves are used in controlled environments almost universally for this purpose.

Autoclaves

These are a specific type of laboratory steriliser, using high-temperature steam within a sealed chamber to treat glassware, plasticware, and equipment. Most of today's autoclaves are controlled by microprocessors, which enable programmable sterilisation cycles. They're designed as benchtop or floor standing models.

Glassware washers and dryers

Lab washers are similar to domestic dishwashers. They're designed mainly to clean flasks, bottles, test tubes, containers and instruments. They do not fully sterilise items and are not typically pressurised, but they do use hot water and special cleaning liquids.

X-ray, gamma-ray and UV sterilisers

X-rays and gamma-rays are considered cost-effective, efficient, chemical-free, and environmentally friendly ways to ensure sterilisation. UV has limited penetration but is relatively safe so is primarily used to sterilise small areas. X-rays and gamma rays are more penetrating, which makes them more dangerous but very effective for large-scale sterilisation of plastic items. Lights, lamps, handheld wands, and boxes or chambers are common applications for these methods.

The components you'll need for sterilising and cleaning are:

STUD-MOUNT LEVELLING FEET

View online

This stud mount levelling foot adjusts to uneven surfaces. The rigid base is ideal for securely and safely mounting your medical and laboratory equipment. Available in a wide range of materials.

Typically used: to support floor standing machines

SEALING GASKET

View online

Edge and trim seal is ideal for EMI shielding and protection. Environmental sealing, vibration isolation, sound dampening and shock-resistant solutions also available. Solid EPDM or EPDM sponge.

Typically used: perfect for diverting fluids to avoid contact with critical areas

PUSH RIVETS – BARBED

View online

Fast, tool-free assembly. Ribbed design for easy installation. When pushed into a hole, the flexible ribs deflect then spring back to lock securely in place.

Typically used: connecting panels with blind holes with or without screw threads

METAL FAN GUARDS, SCREW MOUNT

View online

Fan guards prevent debris from falling into the fan blades, helping to keep air circulating and cool the equipment. Simple screw-mount application. Steel.

Typically used: small DC and AC fans for computing applications, such as benchtop autoclave lab equipment

VINYL-COATED SPRING CLIPS

View online

Lab glassware washers can also include this vinyl-coated stainless-steel spring clamp. It secures round cable, ribbon cable and tubing, while providing protection and insulation. It mounts with a screw and is flexible enough that the cable can be inserted and removed without taking out the clip.

Typically used: glassware washers and laboratory steam sterilisers

CABLE CLAMPS – SIDE ENTRY

View online

With the heat involved in sterilisation you may need to give extra protection to your cables. These are ideal for when space is limited. Cupped base adds stability. Available with arrowhead or fir-tree mount. Operating temperature range: -40°C to 110°C. Nylon 6/6

Typically used: where heat and high temperatures need to be avoided

HINGED LOCKING CABLE CLAMP

View online

Black hinged locking clamp opens and closes while securely mounting cables or wires with the added benefit of providing strain relief, protecting wires and cables, and ultimately your laboratory equipment products. Operating temperature range: : -40°C to 125°C. Nylon 6/6, UL94 V-2.

Typically used: to keep cables tidy in steriliser parts

GROMMETS IP67

View online

Made of EPDM, IP67 sealing grommets are essential when a watertight seal is needed. Withstand vibration and quick and easy to install.

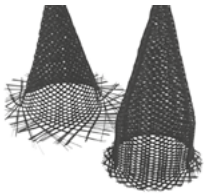
Typically used: in wet environments – can act as a blanking plug until cable is installed

BRAIDED CABLE SLEEVES

View online

Typically used to enclose and protect high temperature cable assembly and wire harness applications. The open weave construction allows for easy installation reducing assembly cost. For flame-retardancy and high-temperature resistance, choose Nomex® Fibre material. Our wide range of cable management sleeves include cut- and abrasion-resistant versions with high-thermal properties. Also available in polyester.

Typically used: wire-harnessing applications where durability and low cost are essential



ESSENTRA COMPONENTS

DOWNLOAD **FREE CADS** AND **TRY BEFORE YOU BUY**

Download free CADs and request free samples, which are available for most of our solutions. It's a great way to ensure you've chosen exactly what you need. If you're not quite sure which product will work best for your bacteriology laboratory equipment, medical diagnostic laboratory equipment – or any other lab equipment – don't worry. Our experts are always happy to advise you. Whatever your requirements, you can depend on fast despatch.

Request your free samples or download free CADs now.

QUESTIONS?

Email us at **sales@essentracomponents.co.uk** or speak to one of our experts for further information on the ideal solution for your application **0345 528 0474.**