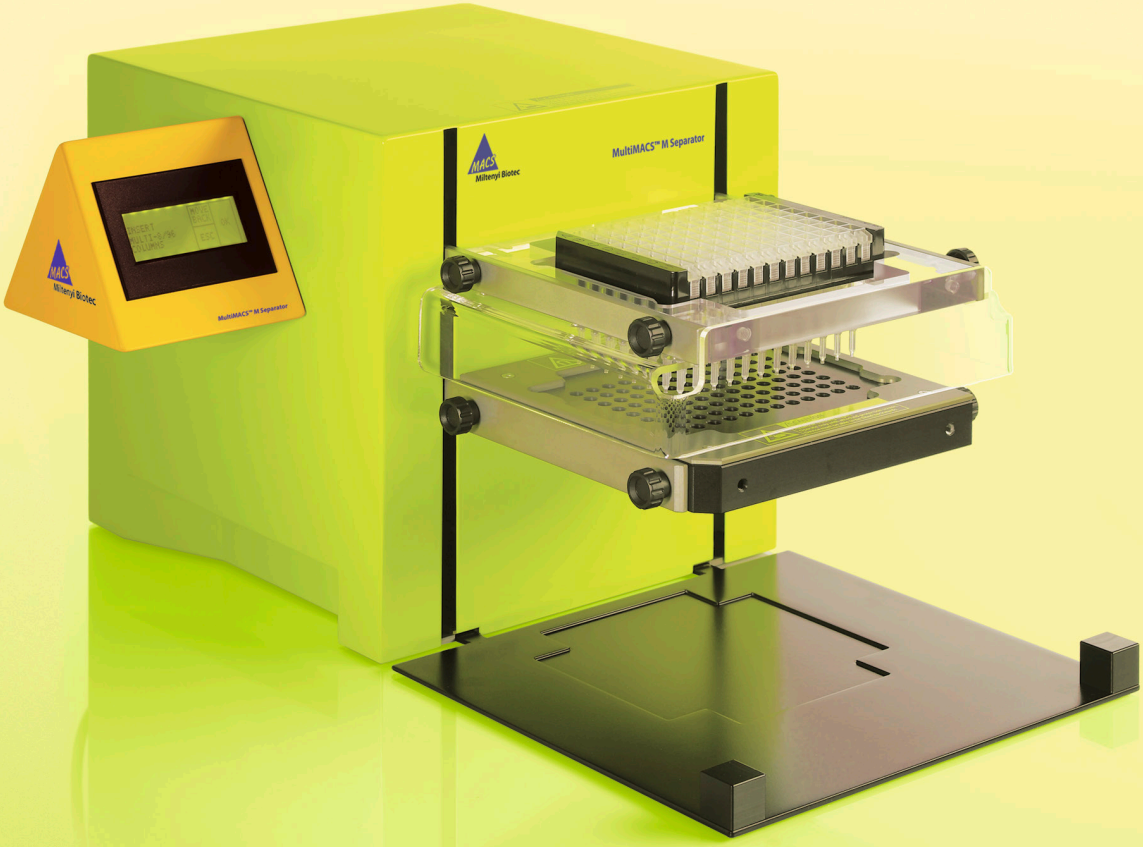
Miltenyi Biotec

MultiMACS™ M96 Separator

User manual



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MultiMACS™ M96 Separator

User manual

Original instructions

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Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Straße 68
51429 Bergisch Gladbach
Germany

Phone +49-2204-8306-0
Fax +49-2204-85197
macsde@miltenyi.com

www.miltenyibiotec.com

Read the chapter Important safety information and all other information in this user manual before using the instrument

⚠ WARNING

Before using the MultiMACS M96 Separator, read the chapter **Important safety information** and all other information contained in this user manual, including any safety and operating instructions.

Pay special attention to all warnings displayed on the instrument. Failure to read and follow these guidelines could lead to improper or incorrect usage and result in damage to the instrument. Improper usage could also cause severe personal injury, death, unpredictable results, instrument malfunction, and premature wear to components shortening the lifetime of the instrument. Such actions may void your warranty. Keep the user manual and any other safety and operating instructions provided with the instrument in a safe place accessible to all users for future reference.

If you have a serious concern regarding the safe use of your instrument, contact your authorized Miltenyi Biotec service provider or call Miltenyi Biotec Technical Support.
Documentation needs to be consulted before proceeding with installation and operation of the system.

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Important safety information

1

Please read all information contained in this user manual before use. Failure to read and follow these guidelines could lead to improper or incorrect use, handling or care of your instrument and could cause hazards to users, unpredictable results, device malfunction or damage, premature wear and reduced life time of the instrument, and may void your warranty.

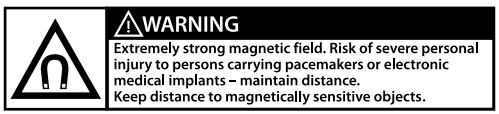
Keep this user manual in a safe place, accessible for anyone using the MultiMACS M96 Separator.

This chapter describes the safety instructions and site requirements for your MultiMACS M96 Separator. The following warnings and cautions are provided to help you prevent injury to yourself or damage to the device.

Symbols and hazard levels

Setup of safety notices

Example



The safety notices inform the user about potential risks if warnings and precautions outlined below are not followed. The icon on the left side specifies the risk. The hazard level at the top classifies the hazard, as mentioned below. The level, type, and source of the hazard as well as potential consequences, prohibitions, and measures are pointed as follows.

Symbols and hazard levels

The following chart is an illustrated glossary depicting the symbols that are used in this user manual and on the MultiMACS M96 Separator.

CAUTION Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

WARNING Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.


Safety warning: The documentation must be consulted in all cases where this safety symbol is used on the instrument.


Hazard of crushing and shearing.
Risk of crushing and shearing of bodily parts due to mechanical hazards.


Strong magnetic field.
The magnetic field can interfere with magnetizable objects and electronic devices or damage magnetic information carriers. Risk of severe personal injury to persons carrying pacemakers or electronic medical implants.


Risk of contamination if biohazardous material is used. Indicates the risk of death, severe injury to the instrument operator, or equipment damage due to potentially dangerous biological material.


Indicates the risk of death or severe injury to the instrument operator due to hazardous voltage.


On (power).

Off (power).


Documentation must be consulted before proceeding with installation and operation of the system.


WEEE (Waste of Electrical and Electronic Equipment).


Fuse.


Persons carrying pacemakers or electronic medical implants must maintain distance.


Manufacturer.

REF Order number.

TYP Type number.

SN Serial number.

NRTL certification mark: Product meets consensus-based standards of safety, required by the Occupational Safety/Health Administration (OSHA), determined by the Nationally Recognized Testing Laboratories (NRTL) TÜV SÜD.

CE European Conformity marking.

UK CA United Kingdom Conformity Assessed marking.



WARNING! Avoid serious injury. Read and understand operating instructions before installation or use. If manual is missing, obtain replacement from Miltenyi Biotec.

Warnings and precautions

The MultiMACS M96 Separator employs state-of-the-art technology. It is a computer-controlled device specifically developed for molecular biology applications in microtiter plate format. The MultiMACS M96 Separator is designed to operate safely after installation and when used by trained personnel according to general safety practices and the instructions set forth in this user manual. The guidelines in this section explain the potential risks associated with the operation of the instrument and provide important safety information in order to minimize these risks. By carefully following the instructions, you can protect yourself and the equipment from potential hazards and create a safe work environment. If this instrument is used in a manner not specified by the manufacturer, protection may be impaired.

Important: Please read and follow all operating instructions in this user manual and pay attention to all warnings displayed on the instrument. Retain this user manual and any other safety and operating instructions provided with the instrument in a place accessible to all users for future reference.

Important: The MultiMACS M96 Separator is intended for indoor use only. Do not use the instrument in areas classified as hazardous locations such as oxygen-laden environments.

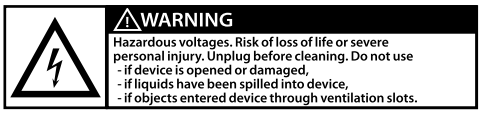
Contact your local authority governing electrical power supply, building constructions, maintenance, or safety for more information regarding the installation of the equipment.

If you have a serious concern regarding the safe use of your instrument, contact your authorized Miltenyi Biotec service provider or call Miltenyi Biotec Customer Service.

General precautions

To reduce potential risks associated with operating the MultiMACS M96 Separator, please observe the following general precautions. Failure to observe these precautions could result in fire, bodily harm, and/or damage to the instrument.

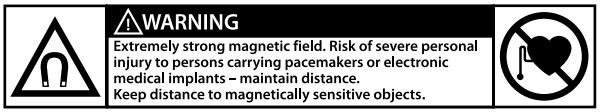
Hazard of electric shock and spread of fire



Warning: Electrical devices pose the risk of an electric shock. To reduce the risk of an electric shock, do not open any cover of the MultiMACS M96 Separator nor any other accessory hardware supplied by Miltenyi Biotec. All covers of the device and accessory hardware are to be removed by authorized personnel only. Special care must be taken while handling fluids. Clean up spillages immediately. Do not allow fluids to enter the interior of the device. Unplug the power cable before manually cleaning the device.

A potential risk exists if an opened, dropped, or damaged MultiMACS M96 Separator is used, if liquids are spilled into the instrument, if an object has entered the instrument through the ventilation slots, or if an object has been dropped into the instrument. If flames or smoke appear immediately switch off the MultiMACS M96 Separator, unplug the instrument from the electrical outlet, and contact an authorized Miltenyi Biotec service provider or the Miltenyi Biotec Customer Service. Use of a damaged instrument or an instrument with a damaged power cable is expressly prohibited.

Strong magnetic field



Warning: The MultiMACS M96 Separator is equipped with an extremely powerful magnet in microtiter plate-format, the MultiMACS 96 Magnet. Keep any magnetic information carriers (such as credit cards, magnetic tapes, and storage media), any electronic equipment (such as hearing aids, pacemakers, measuring and control instruments, computers, and watches), and magnetizable tools and objects at a distance of at least 80 cm from the magnet cover. These items may be affected or damaged by the magnetic field.

The prism-shaped MultiMACS Display contains less powerful magnets; therefore, maintain a distance of at least 30 cm from the above listed magnetically sensitive material. The force of attraction between two magnets or between a magnet and magnetizable material increases strongly the closer they get. Thus, keep any magnetic material – including any other MultiMACS Magnet and Display – at a safe distance.

Hazard of crushing and shearing



Warning: Keep fingers etc. away from all moving parts of the MultiMACS M96 Separator to avoid crushing and shearing injuries or damage to the instrument.
If an object has been accidentically placed under the down-moving magnet, the physical resistance of the object causes the instrument to tilt backward, similar to a hydraulic jack. Do not place objects on the MultiMACS M96 Separator. Leave a space of at least 20 cm distance above and behind the MultiMACS M96 Separator to ensure that the instrument is able to tilt backwards, thus avoiding potential crushing and shearing injuries and minimizing instrument damage. Do not circumvent any safety device or measurement. Keep the proper respective Protective Screen attached to the MultiMACS M96 Separator when operating it manually.

Caution: For usage in a liquid-handling robot, removal of the Protective Screen may be necessary. When using the MultiMACS M96 Separator integrated into a compatible automated liquid-handling system, assure that the combined system, i.e., MultiMACS M96 Separator, MultiMACS 96 Magnet, and liquid-handling robot, meets all requirements of safety and function before starting automated processes. Thereby, particularly take the protection of the operator into account.

Position of safety notices on the instrument

Please notice the positions of the safety notices on the MultiMACS M96 Separator, and keep them in a completely readable state.



Secure installation

This section describes the requirements your site must meet for safe installation and operation of your MultiMACS M96 Separator. Read the instructions in this section and ensure that your site is properly prepared before you connect the instrument to its power source.

When planning your site layout and equipment locations, keep in mind the precautions described in this section to help avoid instrument failures and reduce the possibility of environmentally caused shutdowns.

Important: At all times, local working area safety instructions, laboratory policies, and standards regarding laboratory health and safety and prevention of accidents must be adhered to.

Mounting accessories

Do not place the MultiMACS M96 Separator on an unstable table, cart, stand, tripod, or bracket. As a consequence, the instrument might fall down. This may cause serious bodily harm and/or serious damage to the instrument. Use only on a table, cart, stand, tripod, or bracket sold with the instrument or recommended by Miltenyi Biotec. Do not place the MultiMACS M96 Separator within a built-in apparatus or a confined space such as a shelf rack unless the apparatus has been specifically designed to accommodate the instrument, proper ventilation is provided, and the mounting instructions for the instrument have been followed.

Air circulation

The instrument should not be placed next to radiators, heat registers, stoves, or other pieces of equipment (including amplifiers) that produce heat. Allow sufficient air circulation around the MultiMACS M96 Separator —at least 15 cm on all sides—during operation to ensure adequate cooling of the instrument. Prevent direct exposure of the instrument to sunlight. Slots and openings of the instrument are provided for ventilation and should never be blocked or covered, as these ensure reliable operation of the MultiMACS M96 Separator and protect the device from overheating. Never push a foreign object through an opening into the instrument.

Water and moisture

Do not use the instrument in a wet or damp location. Avoid high humidity or condensation and protect the instrument against water splashes.

Grounded (earthed) product

The instrument is equipped with a three-wire electrical grounding-type plug that has a third pin for grounding. This plug only fits into a grounded power outlet. This is a safety feature. Do not try to insert the plug into a non-grounded power outlet. If you cannot insert the plug into the outlet, contact your local electrician to replace the outlet.

Power sources

The instrument should only be operated from a power source indicated on the product's electrical ratings label. If you have questions about the type of power source to use, contact your authorized Miltenyi Biotec service provider or local power company. Do not use extension cords or power strips. Do not overload an electrical outlet. The overall system load must not exceed 80% of the branch circuit rating.

Accessibility

Make sure that the power switch as well as the connector for the power cable are easily accessible and located as close to the operator of the instrument as possible. If it is necessary to disconnect the power supply, unplug the cable from the power outlet.

Peripheral devices

Only connect peripheral devices that comply to EN/IEC 60950 to the RS232 connector labeled with “com”. In addition, only connect original MultiMACS Equipment to the connectors labeled “module 1” and “module 2”, and the MultiMACS Display to the connector labeled with “display”.

Secure operation, maintenance, transport, and disposal

Observe the following instructions to ensure secure operation, maintenance, transport, and disposal of your MultiMACS M96 Separator.

Important: At all times, local working area safety instructions, laboratory policies, and standards regarding laboratory health and safety and prevention of accidents must be adhered to.

Safe operation

If the instrument is not working properly and instructions or messages on the display screen advise to contact technical service, secure operation is no longer possible. Immediately switch off the MultiMACS M96 Separator, unplug the instrument from the power outlet, and contact an authorized Miltenyi Biotec service provider or Miltenyi Biotec Technical Support.

Servicing

Important: Unless otherwise specifically noted in this user manual or other Miltenyi Biotec documentation, do not service the MultiMACS M96 Separator yourself. Servicing and repair must be performed by qualified service personnel. Improper or incorrect servicing or repair of your MultiMACS M96 Separator can cause hazards to users, lead to unpredictable results, device malfunction or damage, premature wear and reduced life time of the instrument, and may void your warranty.

Inquire with your local Miltenyi Biotec representative about Miltenyi Biotec’s extensive instrument service and support arrangements, or refer to www.miltenyibiotec.com/support.

Important: When replacement or spare parts are required, make sure that the service provider uses only genuine Miltenyi Biotec parts or third-party parts specified and recommended by Miltenyi Biotec. Using unauthorized replacement or spare parts can cause malfunction of the device and impair results. Miltenyi Biotec does not honor any warranty or accept any responsibility for device failure or damages resulting from the use of inappropriate replacement or spare parts. After completing any service or repair work, have your authorized Miltenyi Biotec service provider perform all safety checks required by the repair procedure to ensure that the instrument is in proper operational condition.

Only use options and upgrades recommended by Miltenyi Biotec.

Cleaning

Unplug the MultiMACS M96 Separator from the power outlet before cleaning. Do not use liquid or aerosol cleaning agents; always use a damp cloth.

Hazardous material



If biohazardous material is or has been used, the operator shall choose and wear personal safety equipment in accordance with warnings and precautions for the used substances. Wear protective gloves, protective clothing, and safety glasses to prevent contact with skin and eyes. Defective or inadequate safety equipment might endanger the operator. The MultiMACS M96 Separator shall be operated in a safety hood if hazardous or unknown materials are processed. If hazardous material has been used or spilled, care must been taken to thoroughly decontaminate the system.

Columns, plates, tubes, and any other consumables that were in contact with biohazardous material shall be autoclaved prior to disposal. Liquid waste shall be autoclaved or decontaminated using a disinfectant that is appropriate for the specific pathogen, e.g., 10% bleach, isopropyl alcohol, or 70% ethanol.

Waste disposal must be in accordance with any local regulations.

Transport

The MultiMACS M96 Separator should be transported with care in packaging specified by Miltenyi Biotec. Internal damage can occur if it is subjected to excessive vibration or if it is dropped. If the instrument needs to be shipped back to the manufacturer for service, decontaminate the instrument from any hazardous material prior to shipment. If you have questions regarding proper decontamination or shipment, contact Miltenyi Biotec Technical Support for assistance.

Disposal



Waste of Electrical and Electronic Equipment (WEEE) customer information

Dispose of your end-of-life Miltenyi Biotec products in accordance with the applicable WEEE and hazardous waste disposal legislation, which may differ by country or region.
Electrical equipment may contain hazardous substances that may have a serious detrimental effect on the environment and/or human health. All equipment must be specifically collected and treated by designated waste facilities and by qualified WEEE compliance schemas. By ensuring that you dispose of your unwanted electrical and electronic equipment according to the applicable WEEE and hazardous waste disposal legislation, you are helping to preserve our natural resources and protect human health.

Miltenyi Biotec is committed to protecting the environment. Miltenyi Biotec offers product end-of-life return programs in many countries, and partners with licensed WEEE compliance schemes throughout the world. Miltenyi Biotec takes back your end-of-life Miltenyi Biotec equipment for recycling free of charge. The terms and availability of this offer vary by geography because of differences in regulatory requirements. Note that, depending on the type and use of your equipment, additional requirements may apply. Before shipping the instrument back to the manufacturer for disposal, decontaminate the instrument to remove any hazardous material.

For more information, or if you wish to dispose of your end-of-life Miltenyi Biotec equipment, contact your local Miltenyi Biotec representative or Miltenyi Biotec Technical Support.

Electromagnetic compatibility

For US only. Changes or modifications of the equipment unless expressly approved by Miltenyi Biotec may void your authority to operate the equipment pursuant to 47 CFR §15.

Wichtige Sicherheitsinformationen 1

Bitte lesen Sie vor Inbetriebnahme sorgfältig alle in diesem Benutzerhandbuch enthaltenen Informationen. Werden die folgenden Anleitungen nicht gelesen und beachtet, so könnte dies zu unsachgemäßer oder unvorschriftsmäßiger Anwendung, Bedienung oder Wartung des Gerätes führen. Auf diese Weise könnten Anwender gefährdet, Ihr Gerät beschädigt oder dessen Betrieb beeinträchtigt werden. Auch könnte sich vorzeitiger Verschleiß einstellen und somit die Lebensdauer des Gerätes verkürzen. Hierdurch könnten Ihre Garantieansprüche verfallen.

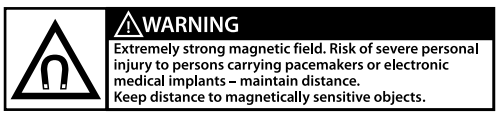
Bewahren Sie dieses Benutzerhandbuch an einem sicheren Ort auf, zugänglich für jeden Anwender des MultiMACS M96 Separators.

Dieses Kapitel beschreibt die Anforderungen an den Gerätestandort und die Sicherheitsvorschriften Ihres MultiMACS M96 Separators. Die folgenden Warnhinweise und Vorsichtsmaßregeln sollen Ihnen dabei behilflich sein, Verletzungen für sich oder Schäden am Gerät zu vermeiden.

Symbole und Gefahrenstufen

Warnhinweis

Beispiel



Die Sicherheitshinweise informieren den Anwender über mögliche Risiken und Gefahren, die entstehen könnten, falls die unten stehenden Warn- und Vorsichtsmaßnahmen nicht befolgt werden. Das Symbol auf der linken Seite spezifiziert die Risiken. Die oben stehende Gefahrenstufe klassifiziert die Gefahr, wie unten erläutert. Der Grad, die Art und Quelle der Gefährdung sowie mögliche Folgen, Verbote und Maßnahmen werden im darunterliegenden Bereich erläutert.

Symbole und Gefahrenebenen

Im folgenden tabellarischen Glossar werden alle in diesem Benutzerhandbuch oder auf dem MultiMACS M96 Separator befindlichen Symbole bildlich dargestellt und erklärt.

⚠ CAUTION — Bezeichnet eine Gefahrensituation, die, falls sie nicht vermieden wird, zu leichteren oder mittelschweren Verletzungen führen kann.

⚠ WARNING — Bezeichnet eine Gefahrensituation, die, falls sie nicht vermieden wird, zum Tode oder schwerwiegenden Verletzungen führen kann.



Sicherheitswarnung: Beachten Sie die Dokumentation immer wenn dieses Warnsymbol am Gerät verwendet wird.



Quetsch- und Schergefahr.
Durch mechanische Gefährdungen können Brüche oder Quetschungen von Körperteilen verursacht werden.



Starkes Magnetfeld.
Das Magnetfeld kann auf andere, magnetisch aufladbare Gegenstände und elektronische Geräte störend einwirken oder magnetische Datenträger beschädigen. Für die Träger eines Herzschrittmachers oder von eletronischen Implantaten besteht die Gefahr schwerer Verletzungen.



Gefahr der Kontaminierung bei Verwendung von biologischen Gefahrenstoffen. Dieses Symbol weist auf Lebensgefahr, das Risiko schwerer Verletzungen für den Bediener des Gerätes oder Schäden am Gerät selbst hin, die durch Arbeit mit möglicherweise gefährlichen biologischen Substanzen entstehen können.



Weist auf Lebensgefahr oder das Risiko schwerer Verletzungen für den Benutzer des Gerätes aufgrund gefährlicher Stromspannung hin.

Ein (Stromversorgung).



Aus (Stromversorgung).



Vor Inbetriebnahme und Betrieb des Geräts ist die Dokumentation zu beachten.



WEEE (Entsorgung von Elektro- und Elektronik-Altgeräten).



Sicherung.



Personen mit Herzschrittmacher oder elektronischen medizinischen Implantaten müssen Abstand halten.



Hersteller.

REF Bestellnummer.

TYP Modellnummer.

SN Seriennummer.

NRTL-Prüfzeichen: Das Produkt entspricht den im Konsensverfahren erarbeiteten Sicherheitsanforderungen, welche von der Behörde für Sicherheit und Gesundheitsschutz am Arbeitsplatz (OSHA) gefordert und von der staatlich anerkannten Prüfstelle (NRTL) TÜV SÜD festgelegt wurden.

CE Europäisches Konformitätskennzeichen.

UKCA Britische Produktkennzeichnung.



WARNUNG! Vermeiden Sie schwere Verletzungen. Vor der Installation oder Inbetriebnahme ist die Bedienungsanleitung zu lesen. Wenn die Anleitung fehlt, fordern Sie Ersatz bei Miltenyi Biotec an.

Warn- und Sicherheitshinweise

Der MultiMACS M96 Separator verwendet modernste Technik. Es ist ein computergesteuertes Gerät und wurde besonders für molekularbiologische Applikationen im Mikrotiterplatten-Format entwickelt. Der MultiMACS M96 Separator ist ausgelegt für störungsfreien Betrieb nach erfolgter Montage, wenn das Gerät von geschultem Personal entsprechend den allgemeinen Sicherheitsrichtlinien und den in diesem Benutzerhandbuch dargestellten Instruktionen bedient wird. Die in diesem Abschnitt enthaltenen Sicherheitsrichtlinien erläutern die mit dem Betrieb des Gerätes verbundenen möglichen Gefahren und bieten Ihnen wichtige Informationen zur Sicherheit, um diese Risiken zu minimieren. Werden diese Sicherheitshinweise sorgfältig befolgt, schützen Sie sich und das Gerät vor möglichen Gefährdungen und schaffen so ein sicheres Arbeitsumfeld. Sollte das Gerät entgegen den Vorgaben des Herstellers eingesetzt werden, so könnte dies den Garantieschutz beeinträchtigen.

Wichtig: Bitte lesen und befolgen Sie alle in diesem Benutzerhandbuch gegebenen Hinweise zum Betrieb des Gerätes. Beachten Sie auch alle auf dem Display erscheinenden Warnhinweise. Bewahren Sie dieses Benutzerhandbuch sowie alle weiteren, mit diesem Gerät erhaltenen Sicherheits- und Betriebsanleitungen an einem für alle Nutzer des Geräts zugänglichen Ort auf, so dass diese künftig jederzeit darauf zurückgreifen können.

Wichtig: Der MultiMACS M96 Separator ist ausschließlich ausgelegt für den Betrieb in Innenräumen. Bitte benutzen Sie das Gerät nicht in ausgewiesenen Gefahrenzonen wie etwa sauerstoffangereicherten Arbeitsumgebungen.

Wenden Sie sich an die örtlichen Behörden und Ihren Stromversorger für weitere Informationen zur Stromversorgung, Gebäudeinstallationen, Wartung und Sicherheit für die Installation dieses Gerätes.
Wenn Sie Sicherheitsbedenken in Bezug auf die Gerätenutzung haben, setzen Sie sich mit Ihrem autorisierten Miltenyi Biotec Service Provider in Verbindung oder kontaktieren den Miltenyi Biotec Customer Service.

Allgemeine Sicherheitshinweise

Um mögliche, mit dem Betrieb des MultiMACS M96 Separator verbundene Sicherheitsrisiken zu verringern, beachten Sie bitte die folgenden allgemeinen Sicherheitshinweise. Eine Nichteinhaltung dieser Vorsichtsmaßnahmen könnte Feuer, Gesundheitsschäden, und/oder Schäden am Gerät verursachen.

Gefahr eines Stromschlags und der Ausbreitung von Feuer

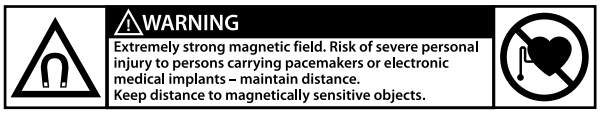


Warnung: Der Umgang mit elektrischen Geräten birgt das Risiko eines Stromschlags. Um diese Gefahr zu minimieren, öffnen Sie weder das Gehäuse des MultiMACS M96 Separator noch anderes Zubehör. Alle Abdeckungen sowie das Geräte-Zubehör dürfen nur von geschultem Personal entfernt werden. Besondere Vorsicht ist geboten beim Umgang mit Flüssigkeiten. Beseitigen Sie ausgetretene oder verschüttete Flüssigkeit sofort. Es darf unter keinen Umständen Flüssigkeit in das Innere des Gerätes eindringen. Ziehen Sie den Netzstecker vor manueller Reinigung des MultiMACS M96 Separator.

Eine potentielle Gefahrenquelle liegt auch im Betrieb eines geöffneten, zu Boden gefallenen oder beschädigten Gerätes. Ebenfalls sollte unbedingt vermieden werden, dass Flüssigkeit in das Gerät gelangt, Fremdkörper durch die Belüftungsöffnungen eindringen oder von außen in das Instrument hinein gelangen. Bei Auftreten von Flammen oder Rauchentwicklung schalten Sie das

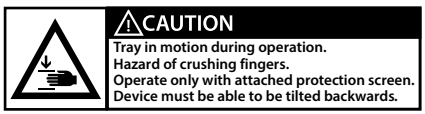
Gerät sofort aus, trennen es von der Stromzufuhr und kontaktieren einen autorisierten Miltenyi Biotec Service Provider oder den Miltenyi Biotec Customer Service. Der Betrieb eines beschädigten Gerätes oder eines Gerätes mit schadhaftem Stromkabel ist ausdrücklich verboten.

Starkes Magnetfeld



Warnung: Der MultiMACS M96 Separator ist mit einem extrem starken Magneten im Mikrotiterplatten-Format ausgestattet, dem MultiMACS 96 Magnet. Halten Sie jedwede magnetischen Datenträger (wie etwa Kreditkarten, Magnetbänder und Speichermedien) oder elektronischen Geräte (z.B. Hörgeräte, Herzschrittmacher, Mess- und Steuerungsinstrumente, Computer oder Uhren) sowie andere, magnetische Werkzeuge und Objekte in einem Abstand von mindestens 80 cm entfernt vom Magnetgehäuse. All diese Gegenstände könnten durch das Magnetfeld in ihrer Funktion beeinträchtigt oder beschädigt werden.
Das prismenförmige MultiMACS Display enthält weniger starke Magneten; halten Sie mit allen oben erwähnten Objekte einen Mindestabstand von 30 cm. Die Anziehungskraft zwischen zwei Magneten oder einem Magneten und magnetischem Material erhöht sich stark, je geringer der Abstand ist. Halten Sie deshalb jegliches magnetische Material, einschließlich anderer MultiMACS-Magneten und Displays in sicherem Abstand.

Quetsch- und Schergefahr



Warnung: Halten Sie die Finger fern von allen beweglichen Teilen des MultiMACS M96 Separator, um Quetschungen und Scherverletzungen oder Schäden am Gerät zu vermeiden.
Wird ein Gegenstand versehentlich unter den sich nach unten bewegenden Magneten platziert, so wird das Gerät durch den physikalischen Widerstand nach hinten gekippt, ähnlich einer hydraulischen Hebevorrichtung. Stellen Sie keine Gegenstände auf den MultiMACS M96 Separator. Belassen Sie einen Abstand von mindestens 20 cm über und hinter dem MultiMACS M96 Separator, damit das Gerät nach hinten kippen kann, um eventuelle Quetsch- und Scherverletzungen zu vermeiden sowie Schäden am Gerät zu minimieren. Schutzeinrichtungen oder -maßnahmen dürfen nicht umgangen werden. Bei manueller Bedienung muss der Schutzschirm

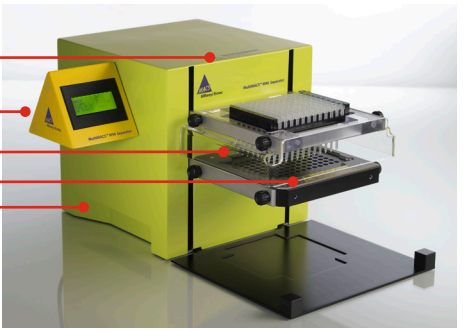
(Protective Screen) am Gerät befestigt sein.

Vorsicht: Wollen Sie das Gerät in einem Pipettier-Roboter einsetzen, könnte es erforderlich sein, den Schutzschirm zu entfernen. Für den Fall, dass der MultiMACS M96 Separator integriert in ein entsprechend kompatibles, automatisches Pipettiersystem eingesetzt werden soll, muss vor Inbetriebnahme sichergestellt werden, dass dieses System, also ein MultiMACS M96 Separator, MultiMACS 96 Magnet, kombiniert mit einem Pipettier-Roboter, allen Sicherheits- und Funktionsanforderungen entspricht. Der Schutz der Bediener der Anlage ist besonders zu beachten.

Positionen der Sicherheitshinweise am Gerät

Bitte achten Sie auf die Positionen der Sicherheitshinweise am Gerät und sorgen Sie dafür, dass diese stets vollständig lesbar bleiben.

Positionierung der Sicherheitshinweise am Gerät



Sichere Geräteinstallation

In diesem Abschnitt werden die Anforderungen an einen betriebssicheren Standort für Ihren MultiMACS M96 Separator beschrieben. Lesen Sie die Anleitungen in diesem Abschnitt und stellen Sie sicher, dass der Gerätestandort entsprechend vorbereitet ist, bevor Sie das Gerät in Betrieb nehmen.

Berücksichtigen Sie bei der Aufstellungsplanung die in diesem Abschnitt beschriebenen Vorkehrungen, um Gerätestörungen zu vermeiden und die Wahrscheinlichkeit umgebungsbedingter Geräteausfälle zu verringern.

Wichtig: Örtliche Arbeitsschutzbestimmungen, Laborrichtlinien, Sicherheitsnormen und Unfallverhütungsvorschriften müssen auf jeden Fall beachtet werden.

Montagezubehör

Stellen Sie den MultiMACS M96 Separator niemals auf einen instabilen Labortisch, Laborwagen, Untersatz, Laborstativ oder Laborkonsole. Als Folge davon könnte das Instrument zu Boden fallen, dadurch könnten schwere Verletzungen und/oder Schäden am Gerät verursacht werden. Benutzen Sie daher nur von Miltenyi Biotec empfohlenes oder direkt mit dem Gerät erhältliches Labormobiliar. Versuchen Sie nicht, den MultiMACS M96 Separator in eine Einbaukonstruktion zu integrieren oder auf begrenztem Raum, z.B. in einem Laborregal, unterzubringen, es sei denn, es wurde eine spezielle Vorrichtung dafür entwickelt, es ist für ausreichende Belüftung gesorgt und die Montageanleitung für das Gerät wurde befolgt.

Belüftung

Das Gerät sollte nicht in der Nähe von Radiatoren, Heißlüftern, Öfen, oder anderen, Wärme erzeugenden Geräten stehen (Verstärker eingeschlossen). Ermöglichen Sie im Betrieb eine ausreichende Luftzirkulation im Abstand von mindestens 15 cm in allen Richtungen um den MultiMACS M96 Separator, um eine ausreichende Kühlung zu gewährleisten. Vermeiden Sie, das Gerät direkter Sonneneinstrahlung auszusetzen. Öffnungen und Schlitze am Gerät sind zur Belüftung gedacht und sollten niemals bedeckt oder blockiert werden, da sie das Gerät vor Überhitzung schützen und sicheren Betrieb ermöglichen. Führen Sie niemals Fremdkörper durch Öffnungen in das Gerät ein.

Wassereintritt und Nässe

Setzen Sie das Instrument niemals in einer feuchten oder nasskalten Umgebung ein. Setzen Sie das Gerät nie hoher Feuchtigkeit oder Kondensation aus und schützen Sie es gegen Spritzwasser.

Geerdetes Produkt

Das Gerät ist ausgestattet mit einem Schutzkontaktstecker und einer dreiadrigen Anschlussleitung. Führen Sie den Stecker nicht in eine Steckdose ohne Schutzkontakt ein. Wenn Ihre Steckdose keinen Schutzkontakt aufweist, bitten Sie einen ortsansässigen Elektriker, diese zu ersetzen.

Stromquellen

Das Gerät sollte nur von einer Stromquelle aus betrieben werden, die den elektrischen Angaben auf dem Typschild entsprechen. Sollten Sie Fragen zur Art der Stromversorgung haben, wenden Sie sich an einen autorisierten Miltenyi Biotec Service Provider oder Ihren lokalen Stromversorger. Benutzen Sie keine Verlängerungskabel oder Steckdosenleiste. Überladen Sie eine Steckdose nicht. Die Gesamtlast darf 80% der Zweigstromkreisbemessung nicht überschreiten.

Zugänglichkeit der Stromverbindungen

Der Hauptstromschalter ebenso wie der Netzstecker für das Stromkabel sollten leicht zugänglich sein und sich in möglichst unmittelbarer Nähe zum Bediener des Gerätes befinden. Sollte es erforderlich sein, die Stromzufuhr zu unterbrechen, ziehen Sie den Netzstecker.

Peripheriegeräte

Schließen Sie an die mit „com“ bezeichnete RS232 Buchse nur Peripheriegeräte an, die der Norm EN/IEC 60950 entsprechen. Außerdem dürfen nur original MultiMACS Geräte an die mit „module 1” und „module 2” gekennzeichneten Buchsen angeschlossen werden. Das MultiMACS Display darf nur an die mit „display” gekennzeichnete Buchse angeschlossen werden.

Sicherer Betrieb, Wartung, Transport und Entsorgung

Beachten Sie die folgenden Hinweise bezüglich Betriebssicherheit, Wartung, Transport und Entsorgung Ihres MultiMACS M96 Separators.

Wichtig: Örtliche Arbeitsschutzbestimmungen, Laborrichtlinien, Sicherheitsnormen und Unfallverhütungsvorschriften müssen auf jeden Fall beachtet werden.

Sicherer Betrieb des Gerätes

Falls Ihr Gerät nicht einwandfrei arbeitet und Anzeigen auf dem Display Sie dazu auffordern, den technischen Kundendienst zu kontaktieren, ist die Betriebssicherheit nicht mehr länger gewährleistet. Schalten Sie das Gerät sofort aus, unterbrechen die Stromzufuhr und kontaktieren einen autorisierten Miltenyi Biotec Service Provider oder den Miltenyi Biotec Technical Support.

Wartung

Wichtig: Versuchen Sie nicht, den MultiMACS M96 Separator selbst zu warten oder zu reparieren – es sei denn, es ist in diesem Benutzerhandbuch oder anderen technischen Unterlagen von Miltenyi Biotec ausdrücklich vermerkt. Wartung und Reparaturen müssen durch geschulte Fachkräfte ausgeführt werden.
Falsche oder unsachgemäße Wartung oder Reparatur an Ihrem Gerät kann zur Gefährdung des Anwenders, unvorhersehbaren Resultaten, Fehlfunktionen, Geräteschäden, vorzeitigem Verschleiß und verringerter Lebensdauer führen und kann den Verlust Ihrer Garantieansprüche zur Folge haben.

Fragen Sie Ihren örtlichen Miltenyi Biotec Vertriebsmitarbeiter nach unseren weit reichenden Vereinbarungen zum Geräteservice und Kundendienst, oder besuchen unsere Website: www.miltenyibiotec.com/support.

Wichtig: Wenn Ersatzteile benötigt werden, stellen Sie sicher, dass Ihr Service Provider nur Originalteile von Miltenyi Biotec oder Teile von Drittanbietern verwendet, die von Miltenyi Biotec spezifiziert und empfohlen werden. Die Verwendung unautorisierter Ersatzteile kann Fehlfunktionen des Gerätes verursachen und die Ergebnisse von Zellseparationen beeinträchtigen. Miltenyi Biotec akzeptiert keinerlei Garantieansprüche und haftet nicht für Fehlfunktionen oder Schäden am Gerät, die auf Verwendung ungeeigneter Verschleiß- oder Ersatzteile zurückzuführen sind. Nach jedweder erfolgter Wartungs- oder Reparaturleistung lassen Sie Ihren autorisierten Miltenyi Biotec Service Provider alle notwendigen Sicherheitsprüfungen durchführen, um sicherzustellen, dass das Gerät sich in vorschriftsmäßigem Zustand befindet.

Nutzen Sie nur von Miltenyi Biotec empfohlenes Zusatzgerät und Upgrades zu Ihrem Gerät.

Reinigung

Ziehen Sie den Netzstecker vor Reinigung des Gerätes. Verwenden Sie keine Flüssig- oder Sprühreinigungsmittel, sondern nur ein feuchtes Tuch.

Gefährliches Material



Wird oder wurde mit biologischen Gefahrenstoffen gearbeitet, muss der Bediener des Gerätes entsprechend den für die verwendete Substanzen geltenden Warnhinweisen und Schutzbestimmungen eine persönliche Schutzausrüstung tragen. Tragen Sie Schutzhandschuhe, Schutzkleidung und Schutzbrille, um Berührung der Gefahrenstoffe mit Haut und Augen zu vermeiden. Mangelhafte oder unzureichende Schutzausrüstung kann den Bediener des Gerätes gefährden. Werden biologische Gefahrenstoffe oder unbekannte Substanzen eingesetzt, sollten Sie mit dem MultiMACS M96 Separator in einer Sterilbank arbeiten.
Falls Gefahrstoffe verwendet wurden oder ausgetreten sind, achten Sie auf eine sorgfältige Dekontaminierung des Gerätes.

Säulen, Auffanggefäße und alle weiteren Verbrauchsmaterialien, die in Kontakt mit biologischen Gefahrenstoffen gelangt sind, sollten vor Entsorgung autoklaviert werden. Flüssigabfall sollte autoklaviert oder unter Verwendung eines für das jeweilige spezifische Pathogen geeigneten Desinfektionsmittels dekontaminiert werden, z.B. 10% Bleichmittel, Isopropylalkohol oder 70% Ethanol.

Die Entsorgung der Verbrauchsmaterialien muss gemäß lokal geltender Bestimmungen erfolgen.

Transport

Der MultiMACS M96 Separator sollte vorsichtig gehandhabt in der von Miltenyi Biotec bereit gestellten Verpackung transportiert werden. Im Gerät können innere Schäden auftreten, falls es großer Erschütterung ausgesetzt oder fallengelassen wird. Sollte wegen Reparatur- oder Wartungsleistungen ein Rücktransport zum Hersteller notwendig werden, dekontaminieren Sie das Gerät vor Versand von jeglichen biologischen Gefahrenstoffen. Wenn Sie Fragen zur vorschriftsmäßigen Dekontaminierung oder zum Versand des Gerätes haben, wenden Sie sich bitte direkt an unseren Technical Support.

Entsorgung



Kundeninformation zur Entsorgung von Elektro- und Elektronik-Altgeräten (Waste of Electrical and Electronic Equipment, WEEE)

Entsorgen Sie Ihre Altgeräte von Miltenyi Biotec unter Einhaltung der jeweils geltenden Vorschriften für die Erfassung und Behandlung von Elektronik-Altgeräten und die Entsorgung von Gefahrstoffen, die je nach Land oder Region unterschiedlich sein können.
Elektrische Geräte können gefährliche Stoffe enthalten, welche die Umwelt erheblich belasten und/oder die Gesundheit gefährden. Sämtliche Altgeräte müssen gesondert gesammelt und von ausgewiesenen Abfallentsorgungseinrichtungen im Rahmen der hierfür vorgesehenen Entsorgungssysteme fachgerecht behandelt werden. Indem Sie sicherstellen, dass ihr Altgerät gemäß den geltenden Vorschriften zur Behandlung von Elektro- und Elektronik-Altgeräten sowie von Gefahrstoffen entsorgt wird, tragen Sie zum Erhalt unserer natürlichen Ressourcen und zum Schutz der menschlichen Gesundheit bei. Miltenyi Biotec hat sich dem Schutz der Umwelt verpflichtet. Miltenyi Biotec bietet in zahlreichen Ländern Rücknahmeprogramme

für Altgeräte an und arbeitet weltweit mit lizensierten Partnern zusammen, die an bestehende Recycling- und Entsorgungssysteme angeschlossen sind. Miltenyi Biotec ermöglicht Ihnen ein kostenloses Recycling Ihres Altgerätes. Die Bedingungen und die Verfügbarkeit dieses Angebots unterscheiden sich geographisch aufgrund unterschiedlicher regulatorischer Anforderungen. Bitte beachten Sie, dass je nach Art und Nutzung Ihres Gerätes zusätzliche Anforderungen gelten können. Bevor Sie das Altgerät an den Hersteller zur Entsorgung zurücksenden, dekontaminieren Sie es, um sämtliche gefährlichen Stoffe zu entfernen.
Für weitere Informationen oder wenn Sie Altgeräte von Miltenyi Biotec entsorgen möchten, wenden Sie sich an Ihren lokalen Vertreter von Miltenyi Biotec oder an den Miltenyi Biotec Technical Support.

Nur für die USA. Änderungen oder Modifikationen des Gerätes, soweit nicht ausdrücklich von Miltenyi Biotec genehmigt, können zum Erlöschen der Betriebserlaubnis für das Gerät gemäß 47 CFR §15 führen.

Informations de sécurité importantes 1

Veuillez impérativement lire toutes les informations fournies dans ce mode d'emploi avant d'utiliser l'appareil. Le non-respect de ces consignes peut donner lieu à une utilisation, une manipulation et une maintenance inappropriée ou incorrecte de votre appareil, ce qui pourrait mettre en danger les utilisateurs, fournir des résultats non attendus, entraîner le dysfonctionnement ou la détérioration de l'appareil, son usure prématurée et réduire la durée de vie de l'appareil, ainsi qu'annuler votre garantie.

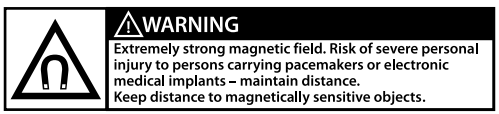
Conservez ce mode d'emploi dans un endroit sûr et accessible aux utilisateurs de MultiMACS M96 Separator.

Ce chapitre décrit les consignes de sécurité et les exigences d'installation s'appliquant à votre MultiMACS M96 Separator. Les avertissements et les mesures de précaution suivantes ont pour objectif de vous aider à éviter toute blessure corporelle ainsi que toute détérioration de l'appareil.

Symboles et niveaux de danger

Mise en place des consignes de sécurité

Example



Les consignes de sécurité informent l'utilisateur sur les risques potentiels pouvant survenir si les avertissements et les mesures de précaution décrits ci-dessous ne sont pas respectés. Le pictogramme visible à gauche définit le risque. En haut, le danger mentionné précédemment est affecté à un niveau de danger. Le niveau, le type et la source du danger ainsi que les éventuelles conséquences, les interdictions et les mesures à prendre sont mentionnés conformément au tableau ci-dessous.

Symboles et niveaux de danger

Le tableau suivant est un glossaire illustré expliquant les symboles utilisés dans ce mode d'emploi et sur le MultiMACS M96 Separator.

⚠ CAUTION	Indique une situation dangereuse qui, si elle n'est pas évitée, peut entraîner des blessures mineures ou modérées.
⚠ WARNING	Indique une situation dangereuse qui, si elle n'est pas évitée, peut entraîner la mort ou des blessures graves.
	Avertissement : La documentation doit être consultée dans tous les cas où ce symbole de sécurité est utilisé sur l'instrument.
	Risque d'écrasement et de cisaillement. Risque d'écrasement et de cisaillement des membres corporels dû à des dangers mécaniques.
	Champ magnétique puissant. Le champ magnétique interfère avec les objets magnétisables et les appareils électroniques ou endommage les supports d'information magnétiques. Risque de grave blessure corporelle pour les personnes portant un pacemaker ou des implants médicaux électroniques.
	Risque de contamination en cas d'utilisation de matières nocives pour l'organisme. Indique le danger de mort, le risque de blessure grave pour l'opérateur de l'appareil ou le risque de détérioration de l'équipement dû à des matières biologiques potentiellement dangereuses.
	Indique le danger de mort, le risque de blessure grave pour l'opérateur de l'appareil en raison de la tension dangereuse.
	Marche (alimentation). Arrêt (alimentation).
	La notice d'utilisation doit être consultée avant de procéder à l'installation et à l'utilisation du système.
	DEEE (Déchets d'Équipements Électriques et Électroniques).
	Fusible.
	Le personnes qui portent un stimulateur cardiaque ou un implant medical electronique doivent maintenir une distance de sécurité.
	Fabricant.

REF Numéro de commande.

TYP Numéro de modèle.

SN Numéro de série.

Marque de certification NRTL : Le produit répond aux normes de sécurité consensuelles imposées par l'administration de la santé et de la sécurité au travail (OSHA) et déterminées par le Laboratoire d'essais reconnu au niveau national (NRTL) TÜV SÜD.

Marquage de Conformité Européenne.

Marquage de produit du Royaume-Uni.



AVERTISSEMENT! Évitez les blessures graves. Lisez et comprenez les instructions d'utilisation avant d'installer ou d'utiliser l'appareil. Si le manuel est manquant, demandez à Miltenyi Biotec de le remplacer.

Avertissements et précautions

Le MultiMACS M96 Separator utilise une technologie de pointe. Il s'agit d'un appareil commandé par ordinateur spécialement conçu pour les applications de biologie moléculaire en format de plaque de microtitrage. Le MultiMACS M96 Separator est conçu pour fonctionner de manière sûre après son installation s'il est utilisé par des personnes qualifiées selon les pratiques de sécurité générales et les consignes mentionnées dans ce mode d'emploi. Les instructions de ce chapitre expliquent les risques potentiels liés à l'utilisation de l'appareil et fournissent des informations de sécurité importantes afin de réduire ces risques. En respectant précautionneusement ces consignes, vous pouvez protéger l'équipement et vous-même des risques potentiels et créer un environnement de travail sûr. La protection peut être altérée si cet appareil est utilisé d'une manière non précisée par le fabricant.

Important : Veuillez lire et respecter toutes les instructions d'utilisation fournies dans ce mode d'emploi et observez tous les avertissements affichés sur l'appareil. Conservez ce mode d'emploi et les autres consignes de sécurité et d'utilisation fournies avec l'appareil à un endroit accessible pour tous les utilisateurs en vue de les consulter ultérieurement.

Important : Le MultiMACS M96 Separator est destiné à une utilisation intérieure uniquement. N'utilisez pas l'appareil dans des zones classées dangereuses telles que des environnements à teneur élevée en oxygène.

Pour de plus amples d'informations concernant l'installation de l'équipement, veuillez vous adresser à votre organisme local responsable de l'approvisionnement en électricité, des travaux de bâtiment, de la maintenance et de la sécurité.

Si vous avez un doute sérieux quant à la sécurité d'utilisation de votre appareil, veuillez contacter votre prestataire de services Miltenyi Biotec agréé ou appelez le service après-vente de Miltenyi Biotec.

Précautions d'ordre général

Afin de réduire les risques potentiels liés à l'utilisation du MultiMACS M96 Separator, veuillez observer les précautions générales suivantes. La non-observation de ces précautions peut provoquer un incendie, des dommages corporels, et/ou détériorer l'appareil.

Risque d'électrocution et de propagation de feu



Avertissement: Les appareils électriques présentent un risque d'électrocution. Afin de réduire le risque d'électrocution, n'ouvrez aucun cache du MultiMACS M96 Separator, ni d'autres équipements accessoires fournis par Miltenyi Biotec. Tous les caches de l'appareil et des équipements accessoires doivent être démontés par le personnel agréé uniquement. Soyez particulièrement prudent pendant la manipulation de fluides. Nettoyez immédiatement si des liquides se sont déversés. Veillez à ce que les fluides ne s'infiltrent pas à l'intérieur de l'appareil. Débranchez le câble électrique avant de nettoyer manuellement le MultiMACS M96 Separator.

Un risque potentiel existe si le MultiMACS M96 Separator utilisé est ouvert, déformé ou endommagé, si des liquides se déversent dans l'appareil, si un objet est entré dans l'appareil par les fentes de ventilation ou si un objet a chuté dans l'appareil. En cas d'apparition de flammes ou de fumée, déconnectez immédiatement le MultiMACS M96 Separator, débranchez l'appareil et contactez un prestataire de services Miltenyi Biotec agréé ou l'équipe de support technique de Miltenyi Biotec. Il est formellement interdit d'utiliser un appareil endommagé ou un appareil dont le câble électrique est endommagé.

Champ magnétique puissant



Avertissement : Le MultiMACS M96 Separator est équipé d'un aimant extrêmement puissant en format de plaque de microtitrage, l'aimant MultiMACS 96. Veillez à laisser un espace d'au moins 80 cm entre le cache de l'aimant et les supports d'information magnétiques (cartes de crédit, bandes magnétiques et disquettes), l'équipement électronique (aides auditives, pacemakers, appareils de mesure et de contrôle, ordinateurs et montres) ainsi que les outils et les objets magnétisables. Ces éléments peuvent être affectés ou endommagés par le champ magnétique. L'écran MultiMACS en forme de prisme contient des aimants moins puissants ; maintenez cependant une distance d'au moins 30 cm par rapport au matériel magnétique mentionné ci-dessus. Plus ils sont proches l'un de l'autre, plus la force attractive entre les deux aimants ou entre un aimant et une matière magnétisable augmente. Par conséquent, n'approchez aucune matière magnétique – y compris tout autre aimant ou écran MultiMACS – au-delà d'une certaine distance de sécurité.

Risque d'écrasement et de cisaillement



Avertissement : N'approchez pas vos doigts, etc. de toutes les pièces mobiles du MultiMACS M96 Separator afin d'éviter toute blessure ainsi que toute détérioration de l'appareil due à l'écrasement et au cisaillement.

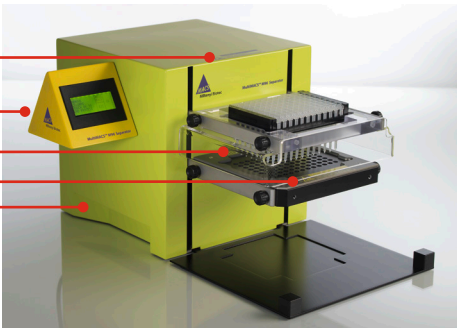
Si un objet a été placé par inadvertance sous l'aimant se déplaçant en bas, la résistance physique de l'objet peut faire basculer l'appareil vers l'arrière, de la même façon qu'un vérin hydraulique. Ne placez pas d'objets sur le MultiMACS M96 Separator. Laissez un espace libre d'au moins 20 cm au-dessus et derrière le MultiMACS M96 Separator afin de permettre à l'instrument de basculer vers l'arrière, évitant ainsi les blessures potentiélles par écrasement et par cisaillement et minimisant les dommages à l'instrument. Ne bloquez pas les dispositifs de sécurité ou les mesures de sécurité. Laissez l'écran de protection approprié fixé au MultiMACS M96 Separator pendant l'utilisation manuelle.

Attention: En cas d'utilisation dans un robot de manipulation de liquides, il est nécessaire de retirer l'écran de protection. Pour utiliser le MultiMACS M96 Separator intégré dans un système automatisé de manipulation de liquides compatible, veillez à ce que le système combiné, c'est-à-dire le MultiMACS M96 Separator, l'aimant MultiMACS 96 et le robot de manipulation de liquides, réponde à toutes les exigences de sécurité et d'utilisation avant de commencer les processus automatisés. Veillez tout particulièrement à garantir la sécurité de l'opérateur.

Emplacement des consignes de sécurité sur l'appareil

Veuillez noter les emplacements des consignes de sécurité sur le MultiMACS M96 Separator et veillez à ce que les consignes soient parfaitement lisibles.

Positions des avis de sécurité



Sécurité de l'installation

Ce paragraphe décrit les exigences auxquelles votre site doit répondre pour garantir l'installation et la sécurité d'utilisation de votre MultiMACS M96 Separator. Lisez les consignes de ce paragraphe et assurez-vous que votre site a été aménagé en conséquence avant de brancher l'appareil à sa source électrique.

Lors de la planification de l'aménagement de votre site et de l'emplacement de l'équipement, tenez compte des précautions décrites dans ce paragraphe afin d'éviter que l'appareil ne tombe en panne et de réduire le nombre d'arrêts pouvant être causés par l'environnement de l'appareil.

Important : Les consignes de sécurité concernant la zone de travail locale, les bonnes pratiques de laboratoire, ainsi que les directives relatives à la santé, à la sécurité et à la prévention des accidents en laboratoire doivent être observées en permanence.

Accessoires de montage

Ne placez pas le MultiMACS M96 Separator sur une table, un chariot, un pied, un trépied ou un support. L'appareil pourrait sinon chuter, provoquant des blessures corporelles graves et/ou la détérioration considérable l'appareil. Utilisez le séparateur uniquement sur une table, un chariot, un pied, un trépied ou un support recommandé par Miltenyi Biotec ou vendu avec l'appareil. Ne placez pas le MultiMACS M96 Separator dans un appareil intégré ou un espace restreint comme un casier, sauf si le dispositif a été spécialement conçu pour accueillir l'appareil, qu'une ventilation appropriée est garantie et que les instructions de montage relatives à l'appareil ont été respectées.

Circulation de l'air

Ne placez pas l'appareil à proximité de radiateurs, de registres de chaleur, de fours ou d'autres pièces d'équipement (amplificateurs) qui produisent de la chaleur. Veillez à ce que suffisamment d'air puisse circuler autour du MultiMACS M96 Separator — au moins 15 cm de chaque côté — pendant le fonctionnement afin de garantir le refroidissement adéquat de l'appareil. Évitez d'exposer l'appareil à un ensoleillement direct. Les encoches et les fentes de l'appareil sont prévues pour la ventilation et ne doivent jamais être bloquées ou recouvertes, car elles assurent le fonctionnement fiable du MultiMACS M96 Separator et protègent l'appareil de la surchauffe. N'introduisez jamais d'objet étranger dans l'appareil par l'une des fentes.

Eau et humidité

N'utilisez pas l'appareil dans un endroit humide ou mouillé. Évitez l'humidité et la condensation et protégez la machine des éclaboussures.

Produit relié à la terre

L'appareil est équipé d'une fiche électrique trifilaire avec mise à la terre dont la troisième borne est prévue pour relier l'appareil à la terre. Cette fiche fonctionne uniquement dans une prise de courant avec contact de mise à la terre. Il s'agit d'un dispositif de sécurité. N'essayez pas d'insérer la fiche dans une prise de courant sans contact de mise à la terre. Si vous ne pouvez pas insérer la fiche dans la prise de courant, veuillez vous adresser à votre électricien local qui remplacera la prise de courant.

Sources électriques

Ne faites fonctionner l'appareil qu'à partir d'une source électrique indiquée sur la plaque signalétique du produit. Si vous avez des questions sur le type de courant électrique que vous pouvez utiliser, contactez votre prestataire de services Miltenyi Biotec agréé ou votre fournisseur d'électricité local. N'utilisez pas de rallonges ni de barrettes de connexion. Ne surchargez pas la prise électrique. La charge totale du système ne doit pas dépasser 80 % de la valeur nominale du circuit de dérivation.

Accessibilité

Assurez-vous que l'interrupteur principal et le connecteur du câble électrique soient facilement accessibles et placés aussi près que possible de l'opérateur de l'appareil. S'il s'avère nécessaire de déconnecter l'alimentation électrique, débranchez le câble.

Appareils périphériques

Branchez uniquement des appareils périphériques conformes à la norme EN/IEC 60950 au connecteur RS232 étiqueté « com ». De plus, branchez uniquement l'équipement MultiMACS d'origine aux connecteurs étiquetés « module 1 » et « module 2 », ainsi que l'écran MultiMACS au connecteur étiqueté « display ».

Sécurité d'utilisation, maintenance, transport et élimination

Respectez les consignes suivantes afin de garantir la sécurité d'utilisation, la maintenance, le transport et l'élimination de votre MultiMACS M96 Separator.

Important : Les consignes de sécurité concernant la zone de travail locale, les bonnes pratiques de laboratoire, ainsi que les directives relatives à la santé, à la sécurité et à la prévention des accidents en laboratoire doivent être observées en permanence.

Sécurité d'utilisation

Si l'appareil ne fonctionne pas correctement et que les instructions ou les messages sur l'écran d'affichage conseillent de contacter le service technique, la sécurité d'utilisation de l'appareil n'est plus garantie. Déconnectez immédiatement le MultiMACS M96 Separator, débranchez l'appareil et contactez un prestataire de services Miltenyi Biotec agréé ou l'équipe du Miltenyi Biotec Technical Support.

Entretien et réparation

Important : N'effectuez pas vous-même l'entretien du MultiMACS M96 Separator, sauf autre consigne spécifique donnée dans ce mode d'emploi ou dans un autre document de Miltenyi Biotec. L'entretien et la réparation doivent être effectués par des réparateurs qualifiés. Tout entretien ou toute réparation inappropriée ou incorrecte de votre MultiMACS M96 Separator peut mettre en danger les utilisateurs, fournir des résultats imprévisibles, entraîner le dysfonctionnement ou la détérioration de l'appareil, son usure prématurée et réduire la durée de vie de l'appareil, ainsi qu'annuler votre garantie.

Renseignez-vous auprès de votre représentant Miltenyi Biotec local sur les conditions d'entretien et de support complémentaires proposées par Miltenyi Biotec ou consultez le site www.miltenyibiotec.com/support.

Important : Si des pièces de remplacement ou de rechange sont requises, assurez-vous que le prestataire de services utilise exclusivement des pièces Miltenyi Biotec d'origine ou des pièces de fabricants tiers spécifiées et recommandées par Miltenyi Biotec. L'utilisation de pièces de remplacement ou de rechange non autorisées peut entraîner le dysfonctionnement de l'appareil et fausser les résultats de la séparation des cellules.

Miltenyi Biotec n'accorde pas de prestation de garantie ou décline toute responsabilité pour les pannes et les dommages de l'appareil résultant de l'utilisation de pièces de remplacement ou de rechange inappropriées. Une fois les travaux d'entretien ou de réparation achevés, demandez à votre prestataire de services Miltenyi Biotec agréé d'effectuer tous les contrôles de sécurité requis par la procédure de réparation afin de garantir que l'appareil est parfaitement opérationnel.

Utilisez uniquement les options et les mises à jour recommandées par Miltenyi Biotec.

Nettoyage

Débranchez le MultiMACS M96 Separator avant le nettoyage. N'utilisez pas d'agents nettoyants liquides ou en aérosol ; utilisez toujours un chiffon humide.

Matières dangereuses



Si une matière nocive pour l'organisme est ou a été utilisée, l'opérateur doit choisir et porter un équipement de protection individuelle conforme aux avertissements et aux précautions pour les substances utilisées. Portez des gants de protection, des vêtements de protection et des lunettes de sécurité afin d'éviter tout contact avec la peau et les yeux. Un équipement de sécurité défectueux ou inadéquat peut mettre l'opérateur en danger. Le MultiMACS M96 Separator doit être manipulé dans un couvercle de protection si des matières dangereuses ou inconnues sont traitées. Si une matière dangereuse a été utilisée ou s'est déversée, prenez les précautions appropriées pour décontaminer soigneusement le système.

Les colonnes, les plaques, les tubes et tous les autres consommables qui ont été en contact avec des échantillons nocifs pour l'organisme doivent être traités à l'autoclave avant l'élimination. Les déchets liquides doivent être traités à l'autoclave ou décontaminés à l'aide d'un désinfectant adapté à l'agent pathogène spécifique, par ex. 10% eau de Javel, alcool isopropylique ou 70% d'éthanol.

L'élimination des déchets doit être effectuée conformément aux réglementations locales.

Transport

Le MultiMACS M96 Separator doit être transporté avec soin dans un emballage spécifié par Miltenyi Biotec. Un dommage interne peut survenir si l'appareil est soumis à des vibrations excessives ou s'il chute. Si l'appareil doit être réexpédié pour être remis en état, décontaminez l'appareil afin d'éliminer toute matière dangereuse avant le transport. Si vous avez des questions concernant la propre décontamination ou l'expédition, n'hésitez pas à contacter notre service technique assistance.

Élimination



Information client sur les Déchets d'Équipements Électriques et Électroniques (DEEE)

Éliminez vos produits Miltenyi Biotec en fin de vie conformément à la directive DEEE et à la législation applicable relative à l'élimination des déchets dangereux, qui peut varier en fonction du pays ou de la région. Les équipements électriques peuvent contenir des substances dangereuses susceptibles d'avoir un effet nocif grave sur l'environnement et/ou la santé humaine. Tous les équipements doivent être spécifiquement collectés et traités par des établissements désignés de gestion des déchets et des systèmes qualifiés de conformité à la directive DEEE. En veillant à éliminer vos déchets d'équipements électriques et électroniques en accord avec la directive DEEE et la législation applicable relative à l'élimination des déchets dangereux, vous contribuez à la préservation des ressources naturelles et à la protection de la santé humaine. Miltenyi Biotec s'engage à protéger l'environnement. Miltenyi Biotec propose des programmes de retour des produits en fin de vie dans de nombreux pays, et conclut des partenariats avec des établissements conduisant des systèmes de conformité DEEE agréés dans le monde entier. Miltenyi Biotec reprend et recycle gratuitement vos équipements Miltenyi Biotec en fin de vie. Les conditions et la disponibilité de cette offre varient selon les pays et les différentes exigences réglementaires. Selon le type et l'utilisation de votre équipement, des exigences supplémentaires peuvent s'appliquer. Avant d'expédier l'instrument au fabricant pour élimination, décontaminez-le pour éliminer tout matériel dangereux. Pour de plus amples informations, ou si vous souhaitez éliminer votre équipement Miltenyi Biotec arrivé en fin de vie, veuillez contacter votre représentant Miltenyi Biotec local ou le Support Technique (Miltenyi Biotec).

Compatibilité électromagnétique

Pour les États-Unis uniquement. Toute modification et toute transformation de l'équipement, sauf si elle a été formellement autorisée par Miltenyi Biotec, peut annuler votre droit d'utilisation de l'équipement conformément à la norme 47 CFR, art. 15.

Información importante de seguridad 1

Por favor, lea íntegramente la información contenida en este manual de usuario antes de utilizar el instrumento/equipo. La lectura y/o seguimiento incorrectos de estas directrices pueden llevar a un uso, manejo o mantenimiento incorrectos del equipo, lo cual puede poner en peligro a sus usuarios, producir resultados impredecibles, derivar en un mal funcionamiento del aparato o que éste sufra daños así como causar un desgaste prematuro y reducir el tiempo de vida del instrumento, pudiendo anular su garantía.

Mantenga este manual de usuario en un lugar seguro, al alcance de todo aquel que esté usando el MultiMACS M96 Separator.

El presente capítulo describe las instrucciones de seguridad y los requisitos de emplazamiento de su MultiMACS M96 Separator. Las siguientes advertencias y precauciones tienen como objetivo evitar daños personales o materiales.

Símbolos y niveles de peligro

Disposición de advertencias de seguridad

Ejemplo



Las advertencias de seguridad informan al usuario sobre riesgos potenciales en caso de que no se sigan las advertencias y precauciones resumidas a continuación. El símbolo que aparece a la izquierda especifica el riesgo de que se trata. El nivel de peligro que encabeza la advertencia clasifica el tipo de peligro, tal y como se mencionó más arriba. El nivel, tipo y fuente del peligro así como las posibles consecuencias, prohibiciones y medidas correctivas se indican tal y como aparece a continuación.

Símbolos y niveles de peligro

El siguiente recuadro recoge un glosario ilustrado que describe los símbolos usados en el presente manual de usuario y en el separador MultiMACS M96 Separator.

⚠ CAUTION Indica una situación de peligro que si no se impide puede producir lesiones leves o moderadas.

⚠ WARNING Indica una situación de peligro que si no se impide puede producir la muerte o lesiones graves.


Advertencia de seguridad: Se debe consultar la documentación en todos los casos en que se utilice este símbolo de seguridad en el instrumento.


Peligro de aplastamiento o corte.
Riesgo de que se aplaste o corte alguna parte del cuerpo debido a peligros mecánicos.


Campo magnético intenso.
El campo magnético puede interferir en objetos magnetizables e instrumentos electrónicos o dañar portadores magnéticos de información. Riesgo de producir lesiones personales graves a personas que lleven un marcapasos o implantes médicos electrónicos.


Riesgo de contaminación si se usan sustancias peligrosas biológicamente. Indica el riesgo de muerte, lesiones graves al operario del aparato o daños al equipo debido a sustancias biológicas potencialmente peligrosas.


Indica el riesgo de muerte o lesiones graves al operario del aparato debido a un voltaje peligroso.

Encendido (alimentación).

Apagado (alimentación).


La documentación del equipo debe ser consultada antes de proceder con la instalación y operación del sistema.


RAEE (Residuos de Aparatos Elécricos y Electrónicos).


Fusible.


Personas con marcapasos o implantes médicos electrónicos deben mantenerse alejadas.


Fabricante.

REF Número de pedito.

TYP Número de modelo.

SN Número de serie.

Marca de certificación NRTL: El producto cumple los estándares de seguridad consensuados, requeridos por la Administración de Seguridad y Salud Ocupacional (OSHA), determinados por el laboratorio de ensayo reconocido nacionalmente (NRTL) TÜV Süd.

CE Marcado de Conformidad Europea.

UKCA Conformidad evaluada del Reino Unido.



ADVERTENCIA! Evita las lesiones graves. Lea y comprenda las instrucciones de funcionamiento antes de la instalación o el uso. Si falta el manual, solicite su sustitución a Miltenyi Biotec.

Advertencias y precauciones

El MultiMACS M96 Separator emplea tecnología punta. Es un instrumento controlado por ordenador especialmente desarrollado para su uso en el campo de la biología molecular en formato de placas de microtitulación. El MultiMACS M96 Separator está diseñado para funcionar con seguridad una vez instalado y siempre que sea manejado por personal cualificado de conformidad con las normas generales de seguridad y las instrucciones contenidas en este manual del usuario. Las directrices del presente capítulo explican los riesgos potenciales asociados al manejo del instrumento y suministran información importante a fin de reducir dichos riesgos al mínimo. Si sigue cuidadosamente las instrucciones, se protegerá a sí mismo y al equipo de posibles peligros y creará un ambiente de trabajo seguro. Si este instrumento es manejado de un modo no previsto por su fabricante la seguridad se verá mermada.

Importante: Por favor, lea y siga todas las instrucciones de uso recogidas en el presente manual de usuario y preste atención a todas las advertencias que aparecen en el instrumento. Guarde para futuras consultas este manual y todas las demás instrucciones de seguridad o de funcionamiento recibidas junto con el instrumento en un lugar accesible para todos sus usuarios.

Importante: El MultiMACS M96 Separator está diseñado para ser usado exclusivamente en interior. No utilice el equipo en áreas clasificadas como peligrosas como ambientes con alta concentración de oxígeno.

Póngase en contacto con la autoridad local competente para el suministro de electricidad, construcción de edificios, mantenimiento o seguridad para obtener más información sobre la instalación del equipo.
Si tiene serias dudas sobre el manejo seguro del equipo, póngase en contacto con su proveedor de servicios de Miltenyi Biotec autorizado o llame al servicio de atención al cliente de Miltenyi Biotec.

Precauciones generales

Para reducir los potenciales riesgos asociados al manejo del MultiMACS M96 Separator, por favor observe las siguientes precauciones generales. En caso de no seguir estas precauciones, puede producirse un incendio o causar daños corporales o al equipo.

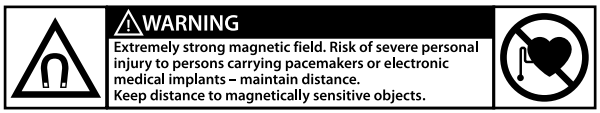
Peligro de descarga eléctrica y propagación de fuego



Advertencia: Los aparatos eléctricos pueden producir una descarga eléctrica. Para reducir este riesgo, no abra ninguna cubierta ni abra tampoco ningún otro accesorio de harware suministrado por Miltenyi Biotec. Cualquier cubierta asi como hardware accesorios deberán ser retirados únicamente por personal autorizado. Se debe tener especial cuidado cuando se manejen líquidos. Limpie inmediatamente los líquidos vertidos. Impida que éstos accedan al interior del aparato. Desenchufe el cable de electricidad antes de proceder a limpiar manualmente el MultiMACS M96 Separator.

Existe un riesgo potencial en caso de usar MultiMACS M96 Separator abierto, que se haya caído o que esté averiado, si se han derramado líquidos en el equipo, si se ha colado algún objeto por las ranuras de ventilación o si ha caído algo dentro del equipo. Si salen llamas o humo, apague inmediatamente el MultiMACS M96 Separator, desenchúfelo y póngase en contacto con un proveedor de servicios de Miltenyi Biotec autorizado o con el servicio técnico de Miltenyi Biotec. Está expresamente prohibido utilizar un instrumento estropeado o cuyo cable de corriente esté dañado.

Campo magnético intenso



Advertencia: El MultiMACS M96 Separator está equipado con un imán extremadamente potente en formato de placa de microtitulación, el imán MultiMACS 96. Mantenga todos los portadores de información magnética (tarjetas de crédito, cintas magnéticas y disquetes), todos los equipos electrónicos (audífonos, marcapasos, instrumentos de medición y control, ordenadores y relojes) y las herramientas y objetos magnetizables a una distancia mínima de 80 cm de la cubierta magnética. El campo magnético puede alterar o dañar dichos objetos. La pantalla MultiMACS en forma de prisma contiene imanes menos potentes; de todos modos, mantenga una distancia mínima de 30 cm del material sensible a los imanes descrito más arriba. La fuerza de atracción entre dos imanes o entre un imán y un objeto magnetizable aumenta con la proximidad. Por ello, mantenga el material magnético -incluidos cualquier otro imán y pantalla MultiMACS- a una distancia segura.

Peligro de aplastamiento y corte



Advertencia: Mantenga los dedos y otras partes del cuerpo alejados de las partes móviles del MultiMACS M96 Separator para evitar que sufran aplastamientos y/o cortaduras, o que el instrumento sufra daños.

Si algún objeto ha sido colocado por accidente bajo el imán descendente, la resistencia física del mismo provoca que el instrumento se incline para atrás, de modo similar a un gato hidráulico. No coloque ningun objeto encima del MultiMACS M96 Separator. Deje un espacio de 20 cm por encima y detrás el MultiMACS M96 Separator para permitir que el instrumento pueda

inclinarse hacia atrás, evitando así posibles lesiones por aplastamiento y cizallamiento y minimizando daños al instrumento. No olvide ninguna de las medidas ni equipos de seguridad. Mantenga la correspondiente pantalla de seguridad colocada junto al MultiMACS M96 Separator mientras lo esté manejando manualmente.

Precaución: Para usarlo en combinación con un robot para el manejo de líquidos puede ser necesario retirar la pantalla de seguridad. Cuando se use el MultiMACS M96 Separator integrado en en un sistema automático compatible con el manejo de líquidos, asegúrese de que el sistema combinado, por ejemplo, MultiMACS M96 Separator, imán MultiMACS 96 y el robot para el manejo de líquidos cumplen todos los requisitos de seguridad y funcionamiento antes de iniciar procesos automatizados. Tenga especial consideración con la seguridad del operario.

Situación de los avisos de seguridad en el instrumento/equipo

Por favor, fíjese en dónde están colocados los avisos de seguridad en el MultiMACS M96 Separator, y vele porque se mantengan en un estado perfectamente legible.

Colocación de los avisos de seguridad



Instalación segura

El presente capítulo describe los requisitos que debe reunir el lugar donde desea instalar y operar el MultiMACS M96 Separator. Lea las instrucciones de este capítulo y asegúrese de que el emplazamiento está correctamente preparado antes de conectar el instrumento a la corriente eléctrica.

Cuando planee la distribución del emplazamiento y la ubicación del equipo tenga en cuenta las precauciones recogidas en este capítulo para evitar averías del instrumento y reducir la posibilidad del cierre de la empresa por razones medioambientales.

Importante: En todo momento se debe observar la normativa nacional de seguridad en el trabajo, las normas del laboratorio, y los estándares de salud y seguridad en el laboratorio y de prevención de accidentes.

Accesorios de montaje

No coloque el MultiMACS M96 Separator sobre una mesa, carrito, estante, trípode o soporte inestable puesto que podría caerse, causando lesiones corporales graves y/o daños graves al equipo. Utilice exclusivamente una mesa, carrito, estante, trípode o soporte recomendado por Miltenyi Biotec o vendido junto con el instrumento. No coloque el MultiMACS M96 Separator en un mueble empotrado o un espacio reducido como por ejemplo una estantería, a menos que el mismo haya sido diseñado específicamente para dar cabida al instrumento, que provea una ventilación adecuada y que se hayan seguido las instrucciones de montaje del equipo.

Circulación de aire

El instrumento no debería ser colocado cerca de radiadores, rejillas de calor, estufas o cualquier otra pieza de equipamiento (incluidos los amplificadores) que produzca calor. Permita que circule suficiente aire alrededor del MultiMACS M96 Separator -deje al menos 15 cm de separación en todas direcciones- mientras está en funcionamiento para garantizar que el instrumento se enfríe adecuadamente. Evite la exposición directa a la luz solar. Las ranuras y aberturas del instrumento sirven para que se ventile y no deben ser bloqueadas o cubiertas, puesto que contribuyen a un funcionamiento seguro del MultiMACS M96 Separator, evitando que se recaliente. No introduzca ningún cuerpo extraño por las aberturas del instrumento.

Agua y humedad

No use el instrumento en un lugar húmedo. Evite la elevada humedad o la condensación y proteja a la máquina de salpicaduras.

Producto conectado a tierra

El instrumento está equipado con un tipo de enchufe de tres varillas que tiene un tercer contacto para toma de tierra. Este enchufe sólo encaja en una toma conectada a tierra. Se trata de una medida de seguridad. No intente enchufarlo en una toma de electricidad no conectada a tierra. Si el enchufe no encaja, póngase en contacto con un electricista para que reemplace la toma de corriente.

Fuentes eléctricas

Sólo se debería maniobrar el instrumento utilizando la fuente eléctrica indicada en la etiqueta con los valores eléctricos del producto. Si tiene alguna pregunta sobre qué tipo de fuente eléctrica utilizar, póngase en contacto con su proveedor de servicios de Miltenyi Biotec autorizado o con su compañía eléctrica. No utilice alargadores o regletas. No sobrecargue la toma de corriente. La carga total del sistema no debe sobrepasar el 80% de la rama del circuito.

Accesibilidad

Asegúrese de poder acceder fácilmente tanto al interruptor principal como al conector para el cable de corriente eléctrica y de que éstos estén situados tan cerca del operario como sea posible. Si es necesario desconectar el suministro eléctrico, desenchufe el cable de la toma de corriente.

Aparatos periféricos

Sólo conecte aparatos periféricos que cumplan la normativa EN/IEC 60950 para el conector RS232 etiquetado con “com”. Además, conecte sólo equipo original MultiMACS a los conectores con la etiqueta “module 1” y “module 2”, y la pantalla MultiMACS al conector con la etiqueta “display”.

Manejo, mantenimiento, transporte y eliminación seguros

Observe las siguientes instrucciones para asegurar un manejo, mantenimiento, transporte y eliminación de su MultiMACS M96 Separator seguros.

Importante: En todo momento se debe observar la normativa nacional de seguridad en el trabajo, las normas del laboratorio, y los estándares de salud y seguridad en el laboratorio y de prevención de accidentes.

Manejo seguro

Si el instrumento no funciona correctamente y las instrucciones o mensajes que aparecen en la pantalla aconsejan ponerse en contacto con el servicio técnico, el uso del instrumento ya no es seguro. Apague inmediatamente el MultiMACS M96 Separator, desenchúfelo y póngase en contacto con el proveedor de servicios de Miltenyi Biotec autorizado o con el Miltenyi Biotec Technical Support.

Revisión técnica

Importante: Salvo que el presente manual de usuario u otra documentación de Miltenyi Biotec especifique lo contrario, no revise usted mismo el MultiMACS M96 Separator. Las revisiones y reparaciones deben ser llevadas a cabo por personal cualificado. Las revisiones y reparaciones del MultiMACS M96 Separator incorrectamente realizadas pueden poner en peligro a sus usuarios, producir resultados impredecibles, derivar en un mal funcionamiento del aparato o que éste sufra daños así como causar un desgaste prematuro y reducir el tiempo de vida del instrumento pudiendo anular su garantía.

Pregunte a su representante de Miltenyi Biotec por los contratos de servicios de asistencia técnica de Miltenyi Biotec o consulte www.miltenyibiotec.com/support.

Importante: Cuando se necesiten piezas de recambio o de repuesto, asegúrese de que el proveedor de servicios utiliza exclusivamente piezas originales de Miltenyi Biotec o de otros fabricantes especificados y recomendados por Miltenyi Biotec. El uso de piezas de recambio o de repuesto no autorizadas puede producir un mal funcionamiento del aparato y alterar los resultados de la separación celular. Miltenyi Biotec no cubrirá la garantía ni aceptará ninguna responsabilidad por la avería de aparatos o por los daños resultantes del uso de piezas de recambio o de repuesto inapropiadas. Una vez completado el servicio o la reparación, haga que su proveedor de

servicios autorizado por Miltenyi Biotec realice todos los controles de seguridad requeridos por el proceso de reparación para asegurarse de que el instrumento está en buenas condiciones de funcionamiento.

Utilice exclusivamente las opciones y actualizaciones recomendadas por Miltenyi Biotec.

Limpieza

Desenchufe el MultiMACS M96 Separator de la toma de corriente antes de proceder a su limpieza. No emplee productos de limpieza líquidos ni aerosoles y use siempre un trapo húmedo.

Sustancias peligrosas



Si se utilizan o se han utilizado sustancias biológicamente peligrosas, el operario debería utilizar el equipo de seguridad que aparece en las señales de aviso de las sustancias empleadas. Póngase guantes, ropa y gafas de seguridad para evitar el contacto con la piel y con los ojos. Un equipo de seguridad defectuoso o inadecuado puede poner en peligro al operario. El MultiMACS M96 Separator deberá ser manejado dentro de una campana de seguridad si se procesan sustancias peligrosas o desconocidas. Si se han utilizado sustancias peligrosas o éstas se han derramado, se debe velar por una desinfección meticulosa del sistema.

Las columnas, placas, tubos de ensayo y cualquier otro objeto que haya estado en contacto con las muestras peligrosas deberán ser autoclavados antes de poder volver a ser utilizados. Los residuos líquidos deberán ser autoclavados o descontaminados usando un desinfectante industrial apropiado para el patógeno específico, por ejemplo, hipoclorito de sodio al 10%, alcohol isopropílico o etanol al 70%.

La eliminación de los residuos debe cumplir la normativa nacional.

Transporte

El MultiMACS M96 Separator debe ser transportado con cuidado en el embalaje especificado por Miltenyi Biotec. Se pueden producir daños internos si es expuesto a vibraciones excesivas o si se cae. En caso de que sea necesario devolver el instrumento a su fabricante

para su revisión, límpielo y desinféctelo de cualquier sustancia peligrosa antes de realizar el envío. Si tiene preguntas relativas a la descontaminación o el envío, póngase en contacto con el servicio de asistencia técnica.

Eliminación



Información al cliente sobre la directiva de Residuos de Aparatos Eléctricos y Electrónicos (RAEE)

Deseche sus productos Miltenyi Biotec al final de su vida útil de acuerdo con la legislación aplicable sobre eliminación de desechos peligrosos y residuos de aparatos eléctricos y electrónicos (RAEE), que puede diferir según el país o la región.
El equipo eléctrico puede contener sustancias peligrosas que pueden tener un efecto perjudicial grave en el medio ambiente y/o la salud humana. Todo el equipo debe ser recogido y tratado específicamente en instalaciones de desechos designadas y en sistemas conformes a la legislación sobre RAEE. Al asegurarse de desechar sus aparatos eléctricos y electrónicos no deseados de acuerdo con la legislación aplicable sobre eliminación de desechos peligrosos y RAEE, está ayudando a preservar nuestros recursos naturales y proteger la salud humana.

Miltenyi Biotec se compromete a proteger el medio ambiente. Miltenyi Biotec ofrece programas de devolución de productos al final de su vida útil en muchos países y socios con licencia que disponen de sistemas conformes a la legislación sobre RAEE en todo el mundo. Miltenyi Biotec recoge su equipo Miltenyi Biotec al final de su vida útil para reciclarlo de forma gratuita. Los términos y la disponibilidad de esta oferta pueden variar según la región geográfica, debido a las diferencias en los requisitos reglementarios. Tenga en cuenta que, dependiendo del tipo y uso del equipo, pueden aplicarse requisitos adicionales. Antes de devolver el instrumento al fabricante para que lo deseche, descontamine el instrumento para eliminar cualquier material peligroso.
Para obtener más información, o si desea desechar su equipo Miltenyi Biotec al final de su vida útil, póngase en contacto con su representante local de Miltenyi Biotec o con el Soporte Técnico de Miltenyi Biotec.

Compatibilidad electromagnética

Sólo para EE°UU. Los cambios y modificaciones del equipo que no estén expresamente aprobados por Miltenyi Biotec pueden invalidar su autorización para operarlo conforme a la parte 15 del título 47 del Código de Regulaciones Federales (CFR).

Importanti istruzioni di sicurezza

1

Si prega di leggere tutte le informazioni riportate nel presente manuale d'uso prima dell'utilizzo. La mancata lettura e l'inosservanza delle istruzioni possono condurre ad un impiego improprio o scorretto dello strumento, a manipolazione e manutenzione inadeguate o errate e potrebbero rappresentare un pericolo per l'operatore, avere conseguenze imprevedibili, causare il malfunzionamento o danni allo strumento, condurre ad un'usura prematura e ad una minore durata di esercizio dello strumento, nonché invalidarne la garanzia.

Conservare il presente manuale in un luogo sicuro, accessibile a tutti gi addetti che utilizzano l'unità di il MultiMACS M96 Separator.

Il presente capitolo illustra le istruzioni di sicurezza e i requisiti ambientali per l'installazione dello strumento MultiMACS M96 Separator. I seguenti simboli di avvertenza e attenzione servono quale ausilio alla prevenzione di lesioni personali e danni al dispositivo.

Simboli e livelli di pericolo

Indicazioni di sicurezza

Esempio



Le indicazioni di sicurezza informano l'operatore dei rischi potenziali derivanti dal mancato rispetto delle avvertenze e precauzioni descritte di seguito. L'icona sul lato sinistro specifica il tipo di rischio. Il livello di rischio in alto classifica il tipo di pericolo, come indicato in precedenza. Il livello, il tipo e la fonte del pericolo, nonché le possibili conseguenze, i divieti e le misure da adottare vengono indicati come segue.

Simboli e livelli di pericolo

Di seguito viene presentato un glossario illustrato che descrive i simboli utilizzati nel presente manuale d'uso e sul MultiMACS M96 Separator.

⚠ CAUTION Indica una situazione pericolosa che potrebbe comportare lesioni di grado lieve o moderato, qualora non venga evitata.

⚠ WARNING Indica una situazione pericolosa che potrebbe comportare lesioni gravi o morte, qualora non venga evitata.


Avvertenza di sicurezza: È necessario consultare la documentazione in tutti casi in cui questo simbolo di sicurezza è utilizzato sullo strumento.


Pericolo di schiacciamento o di taglio.
Rischio di schiacciamento o di taglio di parti del corpo a causa di componenti meccanici.


Forte campo magnetico.
Il campo magnetico può interferire con oggetti magnetizzati e dispositivi elettronici o danneggiare i supporti magnetici per le informazioni. Rischio di lesioni personali gravi per soggetti portatori di pacemaker o impianti medici elettronici.


Rischio di contaminazione in caso di utilizzo di materiale a rischio biologico. Indica il rischio di morte, lesioni gravi a danno dell'operatore o danni alle attrezzature a causa di materiale biologico potenzialmente pericoloso.


Indica il rischio di morte o di lesioni gravi a danno dell'operatore a causa di un livello pericoloso di tensione.

On - acceso (alimentazione).

Off - spento (alimentazione).


E' necessario consultare la documentazione prima di procedere con l'installazione e l'utilizzo dell'apparecchio.


RAEE (Rifiuti di apparecchiature elettriche ed elettroniche).


Fusible.


Portatori di pacemaker o dispositive medici elettronici devono mantenere una adeguata distanza di sicurezza.


Fabbricante.

REF Numero d'ordinazione.

TYP Numero di modello.

SN Numero die serie.

Marchi di certificazione NRTL: Il prodotto è conforme alle norme di sicurezza, basate sul consenso, imposte dall'amministrazione della sicurezza e della salute sul lavoro (OSHA), determinate dal laboratorio di prova riconosciuto a livello nazionale (NRTL) TÜV SÜD.

Marcatura di Conformità Europea.

Conformità valutata del Regno Unito.



AVVERTENZA! Evitare lesioni gravi. Leggere e comprendere le istruzioni per l'uso prima dell'installazione o dell'uso. In caso di mancanza del manuale, richiedere la sostituzione a Miltenyi Biotec.

Avvertenze e precauzioni

I separatori MultiMACS M96 Separator utilizzano tecnologie all'avanguardia. Si tratta di strumenti gestiti mediante computer studiati in modo specifico per le applicazioni di biologia molecolare su piastre per microtitolazione. I separatori MultiMACS M96 Separator sono concepiti in modo da garantire un funzionamento sicuro dopo l'installazione, se utilizzati da personale addestrato secondo le norme generali di sicurezza e le istruzioni fornite nel presente manuale d'uso. Le linee guida riportate nella presente sezione illustrano i potenziali rischi associati al funzionamento dello strumento e forniscono importanti informazioni in materia di sicurezza atte a ridurre al minimo detti rischi. Seguendo scrupolosamente le istruzioni, è possibile proteggere se stessi e le attrezzature dai possibili pericoli e garantire un ambiente di lavoro sicuro. Qualora lo strumento venga impiegato in modo non conforme alle istruzioni fornite dal fabbricante, la sicurezza potrebbe risultare compromessa.

Importante: Leggere e seguire tutte le istruzioni operative contenute nel presente manuale e prestare particolare attenzione alle avvertenze indicate sullo strumento. Conservare il presente manuale d'uso e tutte le altre istruzioni operative e di sicurezza fornite insieme alla strumento in un luogo accessibile a tutti gli operatori, per future consultazioni.

Importante: MultiMACS M96 Separator sono destinati unicamente all'impiego interno. Non utilizzare lo strumento in ambienti classificati come luoghi pericolosi, quali gli ambienti con forte concentrazione di ossigeno.

Per ulteriori informazioni relative all'installazione della strumentazione, contattare le autorità locali competenti per la fornitura di energia elettrica, in materia di edilizia, manutenzione o sicurezza.

Qualora abbiate serie preoccupazioni in merito all'impiego sicuro dello strumento, contattare il rivenditore Miltenyi Biotec autorizzato o chiamare il servizio di assistenza clienti Miltenyi Biotec.

Precauzioni generali

Per ridurre i potenziali rischi associati all'utilizzo di MultiMACS M96 Separator, osservare le precauzioni generali di seguito elencate. Il mancato rispetto di tali precauzioni può comportare il rischio di incendi, lesioni personali e/o danni allo strumento.

Pericolo di scossa elettrica e di incendio



Avvertenza: I dispositivi elettrici presentano il rischio di scosse elettriche. Per ridurre i rischi di scossa elettrica, non aprire alcun coperchio, tranne i coperchi di accesso anteriore di MultiMACS M96 Separator, né altri accessori hardware forniti da Miltenyi Biotec. Tutti gli altri coperchi dello strumento e gli accessori hardware possono essere rimossi esclusivamente da personale autorizzato. Prestare particolare attenzione quando si manipolano liquidi. Pulire immediatamente eventuali schizzi. Non lasciare che i liquidi penetrino all'interno del dispositivo. Staccare il cavo dell'alimentazione prima di pulire manualmente lo strumento MultiMACS M96 Separator.

Esistono potenziali rischi in caso di utilizzo di uno strumento MultiMACS M96 Separator aperto, caduto o danneggiato, in caso di infiltrazione di liquidi all'interno dello strumento, in caso di penetrazione di oggetti nello strumento attraverso le fessure di ventilazione o in caso di inserimento accidentale di oggetti nello strumento. In caso di presenza di fiamme o fumo, spegnere immediatamente il MultiMACS M96 Separator, staccare lo strumento

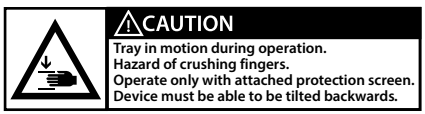
dalla presa di corrente e contattare un rivenditore Miltenyi Biotec autorizzato o il servizio di assistenza clienti Miltenyi Biotec. È severamente vietato utilizzare uno strumento danneggiato o provvisto di cavo dell'alimentazione danneggiato.

Forte campo magnetico



Avvertenza: MultiMACS M96 Separator sono provvisti di un magnete estremamente potente sotto forma di piastre per microtitolazione, il MultiMACS 96 Magnet. Tenere i supporti magnetici (come carte di credito, nastri magnetici e floppy disk), i dispositivi elettronici (come apparecchi acustici, pacemaker, strumenti di misurazione e controllo, computer e orologi) e strumenti e oggetti magnetizzati ad una distanza minima di 80 cm dal coperchio del magnete. Questi oggetti potrebbero essere danneggiati o il loro funzionamento essere compromesso dal campo magnetico. Il display MultiMACS a forma di prisma contiene dei magneti meno potenti, pertanto si raccomanda di tenerlo ad una distanza di almeno 30 cm dal materiale sensibile ai campi magnetici elencato in precedenza. La forza di attrazione tra due magneti o tra un magnete e il materiale magnetizzabile aumenta sensibilmente se la distanza tra essi diminuisce. Si raccomanda pertanto di tenere gli oggetti magnetici, inclusi altri magneti e display MultiMACS, ad una distanza di sicurezza.

Pericolo di schiacciamento e di taglio



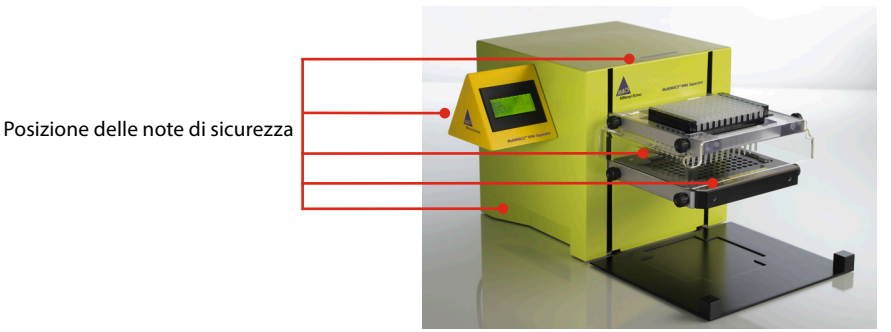
Avvertenza: Tenere le dita, ecc., lontano da tutte le parti in movimento dello strumento MultiMACS M96 Separator per evitare lesioni da schiacciamento e ferite da taglio o danni allo strumento.
Qualora un oggetto venga posto accidentalmente sotto al magnete che si abbassa, la resistenza fisica dell'oggetto fa ribaltare lo strumento all'indietro, in modo analogo ad un sollevatore idraulico. Non collocare alcun oggetto sopra al MultiMACS M96 Separator. Lasciare uno spazio di almeno 20 cm sopra e dietro il MultiMACS M96 Separator onde consentire allo strumento di inclinarsi all'indietro, evitando così potenziali lesioni da schiacciamento e taglio e riducendo al minimo i danno allo strumento. Non bypassare alcun dispositivo o misura di sicurezza. Mantenere l'idoneo schermo protettivo fissato al MultiMACS M96 Separator quando si opera in modalità manuale.

Attenzione: per l'impiego con un sistema automatizzato di manipolazione dei liquidi può essere necessario rimuovere lo schermo protettivo. Qualora si utilizzi il MultiMACS M96 Separator integrato su un sistema automatizzato di manipolazione dei liquidi compatibile, accertarsi che il sistema combinato, vale a dire il MultiMACS M96 Separator, MultiMACS 96 Magnet e il dispositivo automatizzato di manipolazione dei liquidi, soddisfi tutti i criteri di sicurezza e di funzionamento, prima di avviare le procedure automatizzate. Tenere in particolare considerazione la sicurezza dell'operatore.

Posizione delle indicazioni di sicurezza sullo strumento

Osservare la posizione delle indicazioni di sicurezza sul MultiMACS M96 Separator e accertarsi che siano sempre perfettamente leggibili.

Installazione sicura



Questa sezione descrive i requisiti che deve soddisfare il luogo in cui viene collocato il MultiMACS M96 Separator onde garantirne un'installazione sicura e il funzionamento corretto. Leggere le istruzioni fornite nella presente sezione e accertarsi che il luogo prescelto sia adeguatamente predisposto, prima di collegare lo strumento alla presa di alimentazione.

Nel predisporre l'ambiente di installazione e nell'organizzare la disposizione delle attrezzature, tenere in considerazione le precauzioni descritte nella presente sezione, in modo da evitare guasti allo strumento e ridurre la possibilità di spegnimenti causati dall'ambiente.

Importante: vanno sempre osservate le istruzioni di sicurezza sul luogo di lavoro, le procedure di laboratorio e le norme relative alla salute e alla sicurezza del laboratorio, nonché alla prevenzione degli infortuni.

Accessori di montaggio

Non collocare il MultiMACS M96 Separator su un piano, un carrello, un supporto, un treppiede o una staffa poco stabile, che potrebbe provocare la caduta dello strumento, con la possibile conseguenza di lesioni personali gravi o di gravi danni allo strumento. Utilizzare unicamente piani, carrelli, supporti, treppiedi o staffe raccomandati da Miltenyi Biotec o venduti insieme allo strumento. Non collocare il MultiMACS M96 Separator su sistemi incassati o in spazi angusti, come uno scaffale, a meno che non siano stati concepiti specificamente per accogliere lo strumento e a condizione che vi sia una ventilazione adeguata e che siano state seguite le istruzioni di montaggio dello strumento.

Circolazione dell'aria

Lo strumento non deve essere collocato in prossimità di radiatori, stufe o altri dispositivi (inclusi gli amplificatori) che producono calore. Accertarsi che via sia un'adeguata circolazione d'aria attorno al MultiMACS M96 Separator, mantenendo uno spazio libero di almeno 15 cm su ogni lato durante il funzionamento, onde assicurare un adeguato raffreddamento dello strumento. Evitare l'esposizione diretta ai raggi solari. Le fessure e le aperture dello strumento sono necessarie per la ventilazione e non devono essere in alcun caso ostruite o coperte, poiché garantiscono il funzionamento corretto del MultiMACS M96 Separator e proteggono il dispositivo dal surriscaldamento. Non inserire mai corpi estranei nelle aperture dello strumento.

Acqua e umidità

Non utilizzare lo strumento in ambienti bagnati o umidi. Evitare ambienti ad elevata umidità o condizioni di condensa e proteggere lo strumento dagli schizzi d'acqua.

Prodotto con messa terra

Lo strumento è dotato di un sistema di alimentazione a tre fili ed è provvisto di spina con un terzo polo per la messa a terra. La spina può essere inserita unicamente in una presa di corrente con messa a terra, per ragioni di sicurezza. Non cercare di inserire la spina in una

presa sprovvista di messa a terra. Qualora non riusciate ad inserire la spina nella presa, vi consigliamo di contattare il vostro elettricista di fiducia per sostituire la presa.

Fonti di alimentazione

Lo strumento deve essere alimentato unicamente dalla fonte indicata sulla targa relativa alle caratteristiche di alimentazione del prodotto. In caso di domande sul tipo di alimentazione da usare, contattare il rivenditore Miltenyi Biotec autorizzato o la società elettrica locale. Non utilizzare prolunghe o ciabatte multi-presa. Non sovraccaricare la presa di corrente. Il carico complessivo del sistema non deve superare l'80% della potenza del circuito.

Accessibilità

Accertarsi che l'interruttore principale e l'attacco del cavo dell'alimentazione siano facilmente accessibili e posti quanto più vicino possibile all'operatore dello strumento. Qualora si renda necessario interrompere l'alimentazione, staccare il cavo dalla presa di corrente.

Periferiche

Collegare unicamente periferiche conformi a EN/IEC 60950 al connettore RS232 contrassegnato con "com". Collegare unicamente apparecchi MultiMACS originali ai connettori contrassegnati con "module 1" e "module 2", e il display MultiMACS al connettore contrassegnato con "display".

Funzionamento, manutenzione, trasporto e smaltimento sicuri

Seguire le istruzioni di seguito riportate onde assicurare che il funzionamento, la manutenzione, il trasporto e lo smaltimento del vostro MultiMACS M96 Separator avvengano in modo corretto e sicuro.

Importante: vanno sempre osservate le istruzioni di sicurezza sul luogo di lavoro, le procedure di laboratorio e le norme relative alla salute e alla sicurezza del laboratorio, nonché alla prevenzione degli infortuni.

Funzionamento sicuro

Qualora lo strumento non funzioni correttamente e le istruzioni o i messaggi visualizzati sullo schermo invitino a contattare l'assistenza tecnica, la sicurezza di impiego non è più garantita. Spegnere immediatamente il MultiMACS M96 Separator, staccare lo strumento dalla presa dell'alimentazione e contattare un rivenditore Miltenyi Biotec autorizzato o il Miltenyi Biotec Technical Support.

Manutenzione

Importante: se non diversamente indicato nel presente manuale d'uso o in altri documenti forniti da Miltenyi Biotec, non eseguire autonomamente la manutenzione del vostro MultiMACS M96 Separator. Gli interventi di manutenzione e riparazione devono essere eseguiti da personale qualificato. Interventi di manutenzione e riparazione scorretti o impropri del MultiMACS M96 Separator possono rappresentare un pericolo per l'incolumità degli operatori, avere conseguenze imprevedibili, causare malfunzionamenti o danni, provocare l'usura prematura e una minore durata di esercizio dello strumento, nonché invalidare la garanzia.

Per i contratti di assistenza e manutenzione offerti da Miltenyi Biotec contattare il rappresentante Miltenyi Biotec locale o consultare il sito www.miltenyibiotec.com/support.

Importante: qualora si rendano necessari la sostituzione o l'impiego di pezzi di ricambio, accertarsi che il tecnico utilizzi unicamente pezzi di ricambio originali Miltenyi Biotec o ricambi di altri fabbricanti specificati e raccomandati da Miltenyi Biotec. L'impiego di pezzi di ricambio non autorizzati può causare il malfunzionamento del dispositivo e compromettere il risultato della separazione cellulare. Miltenyi Biotec non fornisce alcuna garanzia né si assume la responsabilità per eventuali guasti o danni derivanti dall'impiego di pezzi di ricambio inappropriati. Al termine dell'intervento di assistenza o di riparazione, chiedere al tecnico Miltenyi Biotec autorizzato di eseguire tutti i controlli di sicurezza previsti dalla procedura di riparazione, onde assicurarsi che lo strumento funzioni correttamente.

Utilizzare esclusivamente le funzioni opzionali e gli aggiornamenti raccomandati da Miltenyi Biotec.

Pulizia

Staccare il MultiMACS M96 Separator dalla presa di corrente prima di eseguire la pulizia. Non utilizzare detergenti liquidi o aerosol; utilizzare sempre un panno umido.

Materiale pericoloso



Qualora si utilizzi o sia stato usato del materiale a rischio biologico, l'operatore deve indossare dispositivi di protezione personale conformi alle avvertenze e alle precauzioni relative alle sostanze impiegate. Indossare guanti protettivi, indumenti e occhiali di protezione per prevenire il contatto con la pelle e gli occhi. L'impiego di dispositivi di protezione difettosi o inadeguati rappresenta un rischio per l'incolumità dell'operatore. Lo strumento MultiMACS M96 Separator va utilizzato con uno schermo protettivo in caso di trattamento di materiali sconosciuti o pericolosi. Qualora sia stato usato o versato del materiale pericoloso, il sistema deve essere accuratamente decontaminato.

Le colonne, le piastre, le provette e tutti gli altri materiali di consumo entrati in contatto con campioni a rischio biologico vanno sterilizzati in autoclave prima di essere smaltiti. I rifiuti liquidi vanno autoclavati o decontaminati utilizzando un disinfettante idoneo per il patogeno specifico, ed es. candeggina al 10%, alcol isopropilico o etanolo al 70%.

Lo smaltimento dei rifiuti deve avvenire in conformità alle disposizioni locali vigenti.

Trasporto

Lo strumento MultiMACS M96 Separator va trasportato con cautela in imballaggi specificati da Miltenyi Biotec. In caso di cadute o di vibrazioni eccessive, lo strumento può subire dei danni interni. Qualora si renda necessario rispedire lo strumento al produttore per interventi di manutenzione, decontaminare lo strumento da eventuali materiali pericolosi prima della spedizione.
In caso di domande circa la decontaminazione o il trasporto adeguati, contattare l'assistenza tecnica.

Smaltimento



Informazioni per i clienti riguardi lo smaltimento delle apparecchiature elettriche ed elettroniche secondo le normative RAEE

Si pregna di smaltire i prodotti Miltenyi Biotec in disuso secondo le disposizioni di legge riguardanti lo smaltimento di apparecchiature

elettriche ed elettroniche (RAEE) e dei rifuti pericolosi, che possono differire da paese a paese.
Le apparecchiature elettriche ed elettroniche possono contenere sostanze pericolose, che possono avere un grave effetto dannoso per l' ambiente e / o la salute umana. È per questo che tutte le attrezzature devono essere specificamente raccolte e trattati da centri di smaltimento abilitati e qualificati in conformità con la normativa RAEE. Il corretto smaltimento delle apparecchiatura elettriche ed elettroniche secondo le disposizioni di legge RAEE e dei rifiuti pericolosi, possono aiutare preservare le risorse naturali e a tutelare la salute umana.
Miltenyi Biotec si impegna a proteggere l'ambiente. Miltenyi Biotec offre programmi per lo smaltimento dei prodotti dismessi in molti paesi e partner accreditati per lo smaltimento secondo le normative RAEE in tutto il mondo. Miltenyi Biotec consente di riciclare le apparecchiature Miltenyi Biotec gratuitamente. Le condizioni e la disponibilità di questa offerta variano da zona a zona a causa di differenze legislative. Si prega, di notare che, a seconda del tipo e dell' utilizzo delle apparecchiature, possono essere necessari requisiti aggiuntivi. Prima di rispedire lo strumento al produttore per lo smaltimento, decontaminare lo strumento per rimuovere qualsiasi materiale pericoloso.
Per ulteriori informazioni, o se si desiderassero smaltire le apparecchiature Miltenyi Biotec in disuso, si prega di contattare il Responsabile di Zona o il Miltenyi Biotec Technical Support.

Compatibilità elettromagnetica

Soltanto per gli USA. Eventuali cambiamenti o modifiche dello strumento non approvati espressamente da Miltenyi Biotec possono inficiare il diritto all'uso dello strumento in conformità all' art. 15 47 CFR.

Introduction

2

MultiMACS M96 Separator

The MultiMACS M96 Separator is a magnetic separator specifically developed for molecular biology applications, like nucleic acid purification or protein isolation, in microtiter plate format. Thus, Miltenyi Biotec's magnetic bead technology is easily applicable for automated high-throughput procedures.
The MultiMACS M96 Separator can be employed as a semiautomated bench-top instrument or integrated into fully automated liquid-handling platforms. A strong 96-well magnet is used to bind and purify magnetically labeled biomolecules with Multi-96 Columns or Multi-8 Columns. Then, target molecules are eluted.

The key components of the MultiMACS M96 Separator are shown in figure 1.

The MultiMACS 96 Magnet generates a high-gradient magnetic field to bind magnetically labeled molecules in the columns. The MultiMACS Column Holder does hold a MultiColumn frame with up to twelve Multi-8 Columns (up to 96 columns).

The MultiMACS 96 Magnet can be moved vertically (up and down) together with or independent from the MultiMACS Column Holder. Thereby, either lowering of the columns into the wells of the magnet or the lifting of the columns out of the magnet is performed. The vertical movements of the Magnet and the Column Holder are driven by a motor, which is placed inside of the MultiMACS M96 Separator. The motor is controlled either manually by utilizing the touchscreen or fully automated using the RS232-Interface. Note that the orientation of the MultiMACS 96 Magnet and the MultiMACS Column Holder can be changed from landscape to portrait and vice versa.

During a separation or purification process with the MultiMACS M96 Separator, liquids such as samples, wash and elution buffers are dispensed onto the columns either manually, e.g., by an 8-channel pipette or automated by the liquid-dispensing device of a robot. For manual processes, the plates are placed onto the Tip-Touch Plate, which can be moved horizontally back and forth to effectively deposit the last drop into the wells (tip-touch). In automated processes, the plates are moved by a gripper to accomplish this. The Protective Screen is used to prevent injuries to fingers that can

otherwise become trapped between MultiMACS 96 Magnet and MultiMACS Column Holder when the MultiMACS M96 Separator is operated manually.

The flow-through is collected in 96-well plates. The fraction containing the biomolecules of interest is collected in 96-well plates. For this purpose, the tips of the columns are inserted about 1 mm deep into the wells of the plates. Before removal of a plate, or separation of magnet and columns, any drop on the column tips has to be taken off. This avoids contamination of the magnet, cross-contamination between samples, and allows reproducible small elution volumes.



Figure 1: The MultiMACS M96 Separator.

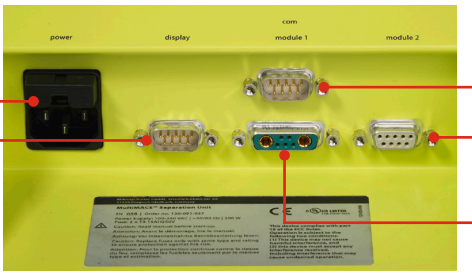


Figure 2: Electrical connectors on the rear side of the MultiMACS M96 Separator.

Applications

The MultiMACS M96 Separator can be used with MACS MicroBeads for the parallel isolation of a wide variety of different biomolecules including:

- mRNA from cells, tissue, whole blood, and total RNA
- Biotinylated biomolecules
- Biomolecules interacting with biotinylated probes
- Proteins using specific antibodies (immunopurification)

Principle of MACS Technology

By labeling with target-specific MicroBeads, molecules such as DNA, RNA, cDNA, or proteins are magnetically purified. MACS MicroBeads are conjugated to Oligo(dT) or antibodies specific either to proteins such as Protein A, Protein G, Streptavidin, epitope tag, or to single-stranded oligonucleotides; therefore, allowing fast, high-purity isolation of biomolecules.

The small size of the magnetizable MicroBeads, about 50 nm in diameter, facilitates their binding to target molecules. First, the colloidal MicroBead suspension is added to the sample, then the MicroBead-labeled sample is applied to the Multi-8/96 Column. Placed in the strong magnetic field of the MultiMACS 96 Magnet, the labeled molecules are retained in the magnetized column matrix, and the non-target molecules are efficiently rinsed out of the column. As the column flow relies on gravity, tedious centrifugation steps as well as removal of wash buffers after bead separation are eliminated.

For elution of the target molecules an appropriate elution buffer, which disrupts the binding between the target molecule and its immobilized ligand, is applied onto the column. Thus, the target molecule is collected in the eluate, and the MicroBeads remain in the column. A second option is the release of the target molecule–MicroBead complex by removing the column from the magnetic field. In this case, the complete complex can be eluted outside of the MultiMACS M96 Separator using a buffer of choice.

The elution volume can be as low as 30 µL and allows a highly concentrated target fraction to be collected – convenient for further, small-volume downstream applications.

Technical data and specifications 3

Technical data

Technical data	Specification
Model	MultiMACS M96 Separator
Order number	130-091-937
Dimensions (w × d × h)	230 mm × 435 mm × 230 mm
Weight	11 kg
Input voltage	100–240 V ~, 50/60 Hz
Power consumption	500 W
Electric current	3.5 A max.
Fuses	2 x T3.15AH/250 V, 5 × 20 mm
RS232-Interface (labeled “com”)	Pin 1, 4, 6, 7, 8, 9 NC Pin 2 RXD Pin 3 TXD Pin 5 GND
DC-Output	Module 1 24 V DC / 8 A Module 2 24 V DC / 0.315 A
Working temperature	15–30 °C
Humidity	0–85%
Altitude	max. 2,000 m
Emission sound pressure level at workstation	<70 dB(A)

Table 3.1: Technical data of the MultiMACS M96 Separator.

The MultiMACS M96 Separator is labeled as a protection class I device and must be plugged into a grounded power outlet, refer to **General precautions on page 8**.

The MultiMACS M96 Separator is not specified for use in the cold room. The MultiMACS M96 Separator can process up to 96 samples in parallel. The MultiMACS M96 Separator has been investigated in accordance with the standards UL 61010-1 and CAN/CSA C22.2 No. 61010.1.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna,
- Increase the distance between the equipment and the receiver,
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected,
- Consult the dealer or an experienced radio/TV technician for help.

For other safety considerations, refer to the product label or visit **www.miltenyibiotec.com**.

Design and specifications are subject to change without notice.

EC/EU Declaration of Conformity

This declaration of conformity is issued under the sole responsibility of the manufacturer:

Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Str. 68
51429 Bergisch Gladbach
Germany

This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user.

The declaration of conformity refers to the machinery identified as follows:

Description:	Laboratory equipment
Model:	MultiMACS M96 Separator

The machinery complies with all essential requirements of the following directives.

2006/42/EC Machinery
2011/65/EU Restriction of the use of certain hazardous substances in electrical & electronic equipment
2014/30/EU Electromagnetic compatibility

The machinery is in conformity with the following harmonized standards.

EN 61010-1:2010
EN 61326-1:2013

Person authorized to compile the relevant technical documentation:

Dr. Bernd Schröder
Global Head Regulatory Affairs
Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Str. 68
51429 Bergisch Gladbach
Germany

UK Declaration of Conformity

This declaration of conformity is issued under the sole responsibility of the manufacturer:

Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Str. 68
51429 Bergisch Gladbach
Germany

This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user.

The declaration of conformity refers to the machinery identified as follows:

Description:	Laboratory equipment
Model:	MultiMACS M96 Separator

The machinery complies with all essential requirements of the following legislations:

Supply of Machinery (Safety) Regulations 2008
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
Electromagnetic Compatibility Regulations 2016

The machinery is in conformity with the following UK designated standards:

EN 61010-1:2010
EN 61326-1:2013

Person authorized to compile the relevant technical documentation:

Dr. Bernd Schröder
Global Head Regulatory Affairs
Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Str. 68
51429 Bergisch Gladbach
Germany

Installation

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Caution: Carefully read **Important safety information on page 5** before installation and strictly follow the guidelines listed in this chapter!

Safety functions

Protective Screen

The Protective Screen is used to prevent injuries to fingers that can otherwise become trapped between MultiMACS 96 Magnet and MultiMACS Column Holder. Do not remove the Protective Screen if the MultiMACS M96 Separator is operated manually in a semiautomated mode. Remove the Protective Screen only if used in liquid-handling platforms as it can interfere with gripping plates.

In case the Protective Screen is tilted while moving upwards, a light barrier detects the tilted position and the movement is stopped. An error message will appear on the screen.

Caution: Before starting automated processes with the MultiMACS M96 Separator integrated into a compatible automated liquid-handling system, assure that the combined system, i.e., MultiMACS M96 Separator and liquid-handling robot, meets all requirements of safety and function before starting automated processes. Thereby, particularly take the protection of the operator into account.

Emergency break

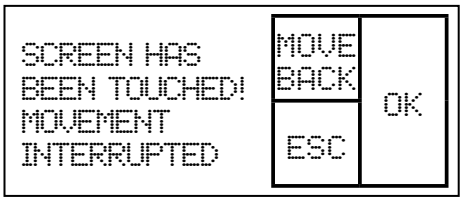
The MultiMACS M96 Separator contains a motor-driven magnet. If the magnet is moving, the following message appears on the display screen.





Caution: The MultiMACS 96 Magnet is motor-driven. Keep away from all moving parts! Do not reach for plates, columns, or any item between the Tip-Touch Plate and the magnet! Do not reach between the magnet and the Column Holder, while the magnet is moving!

To stop the movement and halt the process in case of danger, accident, or malfunction, tap anywhere on the Touch Display. Then the following screen appears.



Tap `OK` to continue the move. Choose `MOVE BACK` to move the magnet to the last position. Select `ESC` to abort the process.

Unpacking

Unpack the following equipment supplied with the MultiMACS M96 Separator:

- MultiMACS M96 Separator including MultiMACS Display, Column Holder, and MultiMACS 96 Magnet
- Tip-Touch Plate
- User manual
- Declaration of Conformity
- Null modem cable
- Country-specific power cable

Note: Ensure that air can circulate freely behind the rear side of the MultiMACS M96 Separator, and that the instrument is not exposed to heat source, e.g., a radiator or direct sunlight. Failure to do so may results in reduced performance.

Semiautomated bench-top use

1. Place the MultiMACS M96 Separator on a clean, stable, and planar laboratory bench. Tilt the MultiMACS M96 Separator by lifting the device slightly and attach the Tip-Touch Plate into the holes beneath the instrument as shown in figure 3.

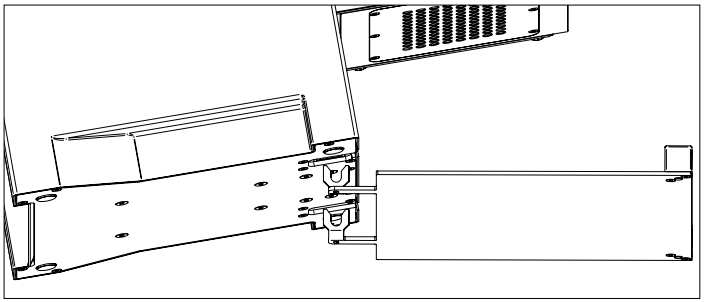


Figure 3: Tip-Touch Plate has to be attached in the corresponding slots.

2. Connect the MultiMACS Touch Display via its cable to the RS232 connector on the rear side of the MultiMACS M96 Separator labeled with “display” (refer to figure 2).

3. Connect the power cable to the outlet on the rear side of the MultiMACS M96 Separator and to an appropriate electrical socket.

Automated use in liquid-handling platforms

The MultiMACS M96 Separator can be integrated into liquid-handling platforms for automated use. For further information, contact Miltenyi Biotec Technical Support.

Materials required

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Reagents, columns, and plates

MultiMACS Isolation Kits are specifically designed for the large-scale parallel isolation of molecules using MACS MicroBeads. MultiMACS Isolation Kits consist of a reagent box and a column box for usage with the MultiMACS M96 Separator.

MultiMACS Products	Isolations	Order no.
MultiMACS mRNA Isolation Kit	12×8 4×96	130-092-520 130-092-519
MultiMACS Streptavidin Kit	12×8 4×96	130-092-948 130-092-949
MultiMACS Protein A Kit	24×8 4×96	130-092-944 130-092-945
MultiMACS Protein G Kit	24×8 4×96	130-092-946 130-092-947
MultiMACS VitalVirus HIV Isolation Kit	12×8 4×96	130-092-806 130-092-807

µMACS Isolation Kits for manual processing can also be used on the MultiMACS M96 Separator when a column box is purchased separately.

µMACS Products	Isolations	Order no.
µMACS Epitope Tag Protein Isolation Kits		
Anti-HA MicroBeads	40	130-091-122
Anti-c-myc MicroBeads	40	130-091-123
Anti-GFP MicroBeads	40	130-091-125
Anti-GST MicroBeads	40	130-091-370
Anti-His MicroBeads	40	130-091-124

Column box product	Isolations	Order no.
Multi-8 Column, molecular	12×8	130-092-444
Multi-96 Column, molecular	4×96	130-092-445

Multi-8 Column, molecular (12×8) contains one waste plate (Deep Well Block, 2.5 mL, with sealing foil), one MultiColumn Frame, twelve sterile, single-packed Multi-8 Columns, and one Microtiter Plate with sealing foil. Multi-96 Column, molecular (4×96) contains four Deep Well Blocks, 2.5 mL, in a sterile package with Multi-96 Columns for collection of fractions, and four Microtiter Plates with sealing foil.

Additional Deep Well Blocks (2.5 mL) can be purchased separately.

Product	Quantity	Order no.
Deep Well Block, with sealing foil (2.5 mL)	6	130-092-549

Use microtiter plates with appropriate height dimensions and footprints (width × length). The height is 14 mm for the Microtiter Plate, and for the Deep Well Block, 2.5 mL, it is 44 mm.
The Tip-Touch Plate of the MultiMACS M96 Separator is designed for the footprints of microtiter plates that comply to ANSI/SBS standards (length 127.76 mm ±0.5 mm, width 85.48 mm ±0.5 mm).

Attention: Set the plate height correctly if using a different plate height than that specified in the process, refer to **Editing a process on page 105**.

When using MultiMACS mRNA Isolation Kits and filtration of lysate is necessary, gravity flow filter columns can be purchased separately, refer to list below.

MultiMACS Filter product	Isolations	Order no.
Multi-8 Filter	12×8	130- 092-546
Multi-96 Filter	4×96	130- 092-547
Multi-8 Filter + Frame	12×8	130- 092-548

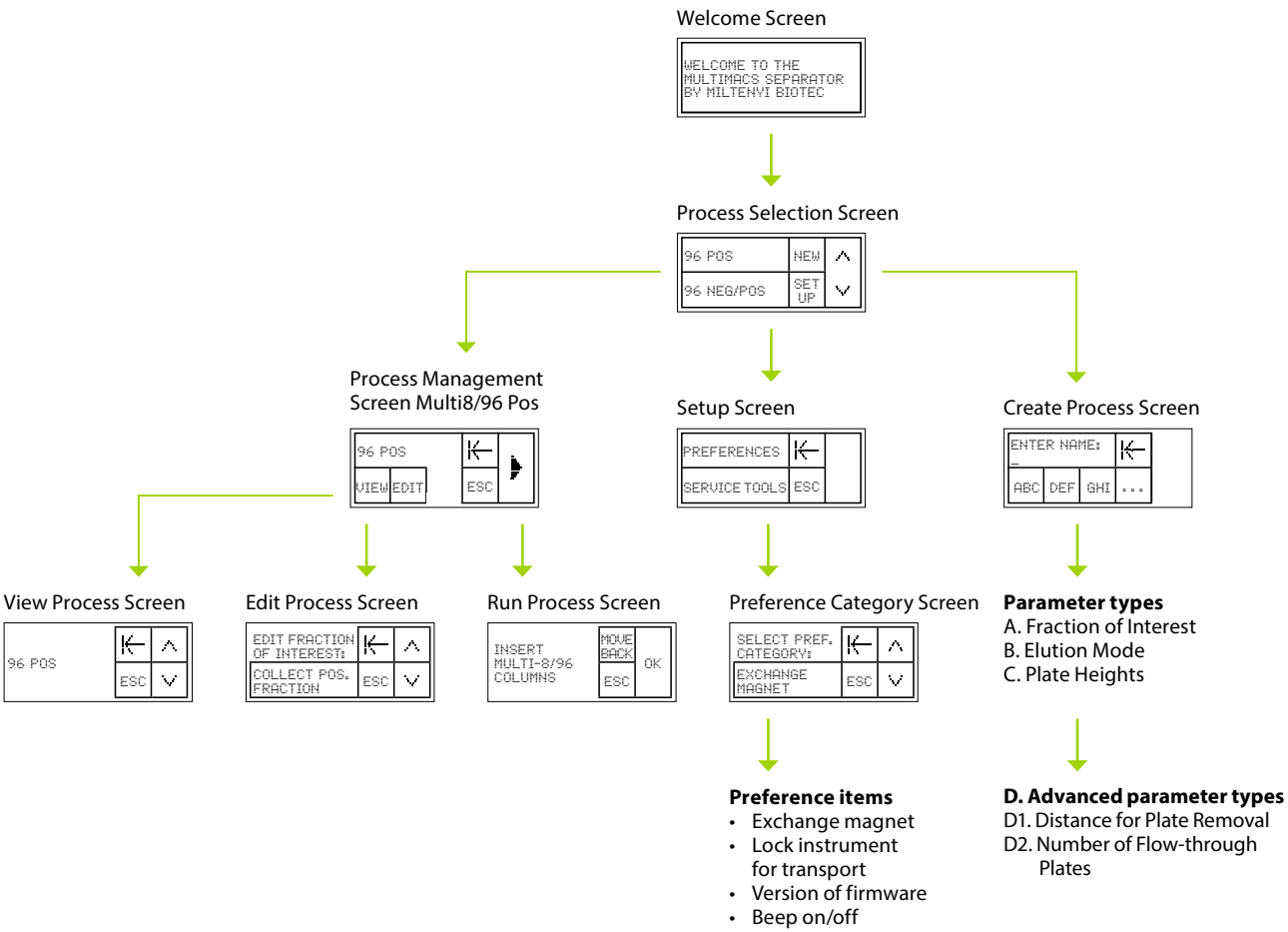
A complete list of MACSmolecular products and protocols is available at **www.miltenyibiotec.com**.

Special equipment

- 8-channel pipette and tips (electronic 8-channel pipette volume: 15–1250 µL, Matrix Technologies Corporation, is recommended for transferring liquids without foaming)
- Appropriate reagent reservoirs
- If the target is eluted from MicroBeads with hot elution buffer:
  - Heatable reagent reservoir, e.g., heating block or a thermocycler in a corresponding format, e.g., 96-well.
  - Electronic 8-channel pipette programmable in 1 µL steps, with a maximum pipetting volume <300 µL, is recommended

Semiautomated bench-top use with the Touch Display

In this chapter; all functions of the Touch Display are explained which are necessary to carry out a manual separation process. The following scheme presents an overview of all process levels.



Buttons and symbols

Scroll up
The scroll function is only visible if there are more items to choose, which are not displayed. The button is used to scroll up the list.

Scroll down
The scroll function is only visible if there are more items to choose, which are not displayed. The button is used to scroll down the list.

Back
The button is used to go to the last screen without execution of the indicated step. The magnet will not move during this step.

MOVE BACK
The button is used to go to the last screen without execution of the step indicated on the display.



Caution: The magnet will move during this step.

OK
The button is used to perform the indicated step and to go to the next screen.

ESC (escape)
The button is used to leave the current process or program without execution of the indicated step.

Caution: If ESC is touched during a process, the magnet will move and instructions will be given to remove any plates and columns.

YES
The button is used to confirm a change.

NO
The button is used to abort a change.

DEL (delete)
The button is used to delete a customized process.

Pre-defined processes to isolate mRNA, Protein A/G, and for streptavidin-based applications: 96 POS

Running 96 POS

Caution: Read the chapter **Safety functions** carefully before running a process. Then follow the instructions in chapter **Semiautomated bench-top use**. Always be sure to use MultiMACS 96 Magnet, MultiMACS Column Holder, and the plates in the same orientation as described in **Rotating MultiMACS 96 Magnet and Column Holder on page 122**.

Note: If using a MultiMACS isolation kit, select a pre-defined process according to the kit protocol and follow its instructions. Visit **www.miltenyibiotec.com** for available firmware-updates of pre-defined processes.

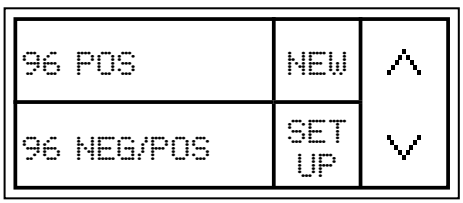
The scroll function (^/v) is only visible if there are more items to choose, which are not displayed.

The MultiMACS M96 Separator contains a list of pre-defined separation programs to choose from, visit **www.miltenyibiotec.com** for updates. 96 POS is the standard process used for applications where the target is eluted from the beads during the elution step, for example MultiMACS mRNA Isolation Kit, MultiMACS Protein A/G kits, and several MultiMACS Streptavidin Kit applications.

If a process with different process parameters must be run, either create a new process, as described in **Creating a new user-defined process on page 95**. Or, if only a few parameters have to be changed, edit the parameters, as described in chapter **Editing a process on page 105**. For information on user-defined processes, refer to **Running a user-defined process on page 103**.

1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds for the Process Selection Screen.

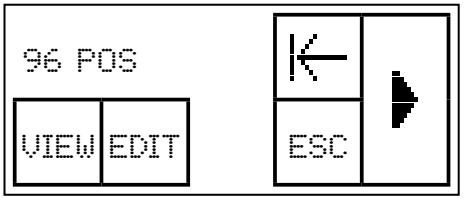




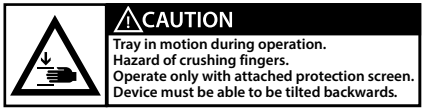
The last process performed on the MultiMACS Instrument is displayed on the upper left (default: 96 POS). The one but last process is listed below.

If necessary scroll through the list of available processes by touching the symbol ^ or v until 96 POS is displayed.

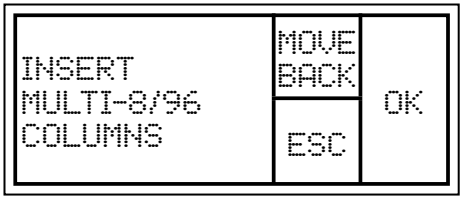
2. Tap 96 POS to go to the Process Management Screen.



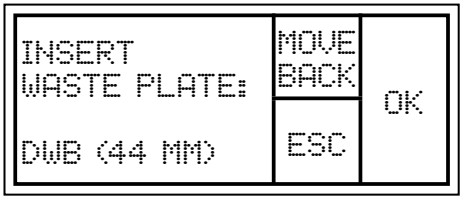
It is possible to check the process parameters: Refer to **Viewing process parameters on page 104**.



3. Tap ▶ to run the process and the magnet will move to the start position. Follow the instructions given on the Touch Display.



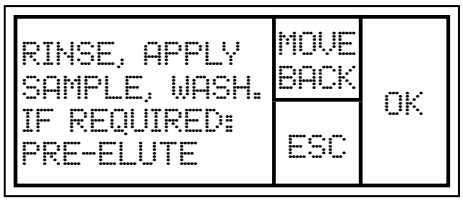
4. Insert a MultiColumn Frame with up to twelve Multi-8 Columns or a pre-packed Multi-96 Column into the MultiMACS Column Holder. Tap OK and the magnet will move upwards and unlock the MultiMACS Column Holder. The following screen emerges.



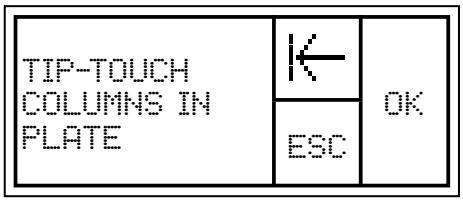
Note: The instrument produces an acoustic signal when the framed fields are activated. Occasional clacking sounds belong to normal function of the MultiMACS M96 Separator.

5. Insert the waste plate, e.g., the Deep Well Block, 2.5 mL, included in the kit, onto the Tip-Touch Plate. If using a plate with a different height, adjust the height of the waste plate, as described in **Editing a process on page 105**.

Tap OK and the MultiMACS 96 Magnet will move downwards until column tips slightly immerse in the waste plate. The next screen appears.

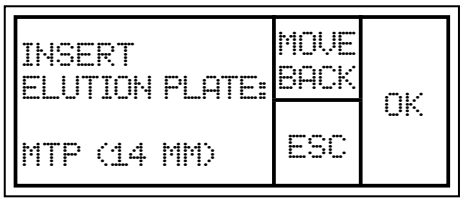


6. Rinse columns with equilibration buffer, apply sample, and wash. A pre-elution might be required to exchange the void volume of the column, refer to the respective kit data sheet for detailed instructions. Tap OK for the following screen.

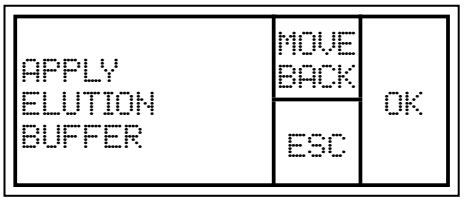


7. Move the Tip-Touch Plate firmly back and forth once so that the inner walls of the wells of the Deep Well Block touch the tips of the Multi-8 Columns; thereby, any drop on the column tips that did not fall by gravity is removed.

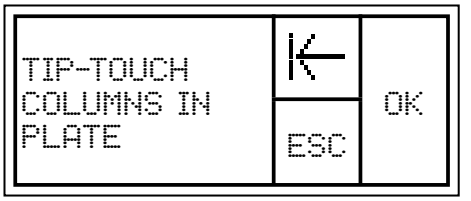
Tap OK and the MultiMACS 96 Magnet will move upwards to allow removal of the waste plate.



8. Remove the Deep Well Block. If some wells were not used, aspirate waste and store plate. Insert the elution plate (Microtiter Plate), included in the MultiMACS Kit. If using a plate with a different height, adjust the height of the elution plate (refer to **Editing a process on page 105**). Tap OK and the MultiMACS 96 Magnet will move downwards until column tips slightly immerse in the elution plate. The subsequent screen appears.



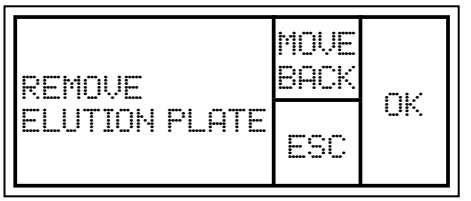
9. Immerse the pipette tips slightly (1 mm) into the reservoirs of the columns without touching the rims and apply elution buffer directly onto the Multi-8/96 Column matrix. Tap OK for the next screen.



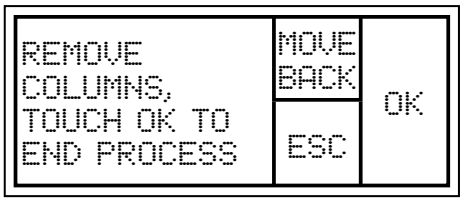
10. Wait approximately one minute until buffer has passed through. Move the Tip-Touch Plate firmly back and forth once so that the inner walls of the wells of the elution plate touch the tips of the Multi-8 Columns; thereby, any drop on the column tips that did not fall by gravity is removed.



Tap OK and the MultiMACS 96 Magnet moves upwards to allow removal of the elution plate.



11. Remove elution plate and use samples for downstream application. Alternatively, seal the plate with adhesive foil and store it according to protocol. Tap OK and the MultiMACS 96 Magnet moves apart from the Column Holder.



12. Remove MultiColumn Frame with Multi-8/96 Columns. If less than twelve Multi-8 Columns were utilized, remove the used Multi-8 Columns and store the MultiColumn Frame. Tap OK to finish the process.

Keeping flow-through and wash fractions: 96 NEG/POS

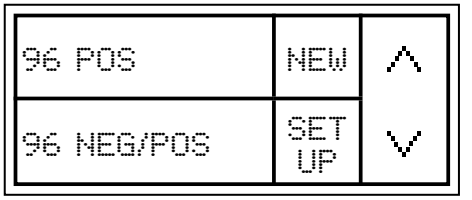
Caution: Read the chapter **Safety functions** carefully before running a process. Then follow the instructions in chapter **Semiautomated bench-top use**. Always be sure to use MultiMACS 96 Magnet, MultiMACS Column Holder, and the plates in the same orientation as described in **Rotating MultiMACS 96 Magnet and Column Holder on page 122**.

The MultiMACS M96 Separator contains a list of pre-defined separation programs to choose from (visit **www.miltenyibiotec.com** for updates). 96 NEG/POS is used when flow-through and wash fractions should be captured separately. It is not the standard process for MultiMACS mRNA Isolation Kit, MultiMACS Protein A/G Kits, etc., where the target is eluted from the beads during the elution step. Deep Well Blocks are included in the MultiMACS Kits, which can be used as waste plate or flow-through plate. For purchase of additional Deep Well Blocks, refer to **Reagents, columns, and plates on page 75**.

If a process with different process parameters has to be run, either create a new process, as described in **Creating a new user-defined process on page 95**, or, if only a few parameters have to be changed, edit the parameters as described in **Editing a process on page 105**. For further details on user-defined processes, refer to **Running a user-defined process on page 103**.

1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds for the Process Selection Screen.



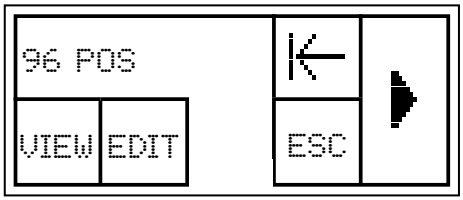


Note: The scroll funktion is only visible if there are more items to choose, which are not displayed.

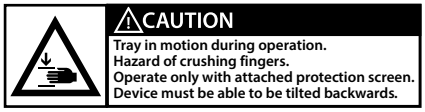
The last process performed on the MultiMACS M96 Separator is displayed on the upper left (default: 96 POS). The one but last process is listed below.
If necessary scroll through the list of available process names by

touching the symbol ^ or v until 96 NEG/POS is displayed.

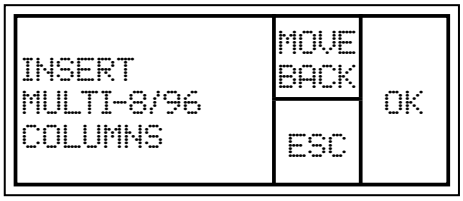
2. Tap 96 NEG/POS to go to the Process Management Screen.



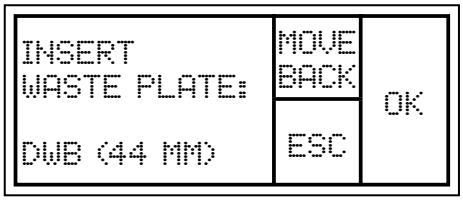
If necessary, check the process parameters, as described in **Viewing process parameters on page 104**.



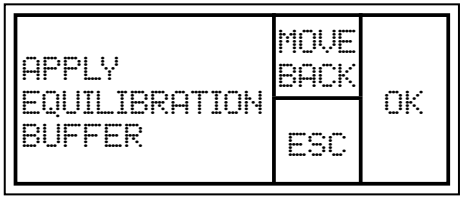
3. Tap ▶ to run the process and the magnet will move to the start position. Follow the instructions given on the Touch Display.



4. Insert a MultiColumn Frame with up to twelve Multi-8 Columns or a pre-packed Multi-96 Column into the MultiMACS Column Holder. Tap OK and the magnet will move upwards and unlock the MultiMACS Column Holder. The following screen appears.



5. Insert the waste plate (one Deep Well Block, 2.5 ml, included in the kits) onto the Tip-Touch Plate. If using a plate with a different height, adjust the height of the waste plate, as described in **Editing a process on page 105**.

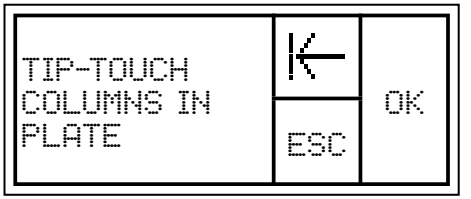


Note: If using a MultiMACS Isolation Kit, select a pre-defined process according to the respective kit data sheet and follow its instructions.

Visit **www.miltenyibiotec.com** for available firmware updates of pre-defined processes.

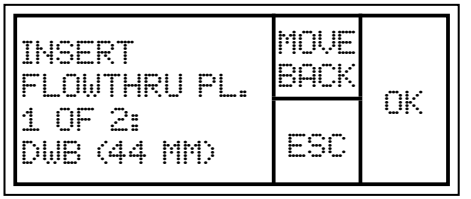
Tap OK and the MultiMACS 96 Magnet will move downwards until column tips slightly immerse in the waste plate.

6. Rinse columns. Tap OK for the next screen.



Move the Tip-Touch Plate firmly back and forth once so that the inner walls of the wells of the waste plate touch the tips of the Multi-8 Columns; thereby, removing any drop on the column tips that did not fall off by gravity.

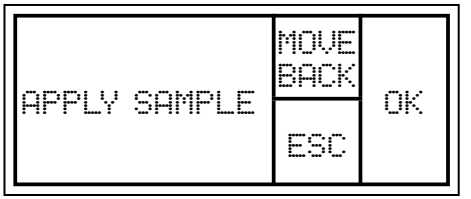
7. Tap OK and the MultiMACS 96 Magnet will move upwards to allow insertion of the flow-through plate.



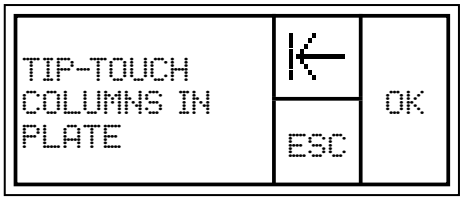
Insert flow-through plate. If using a plate with a different height adjust the height of the flow-through plate, as described in **Editing a process on page 105**.



8. Tap OK and the MultiMACS 96 Magnet will move downwards until column tips slightly immerse in the waste plate.

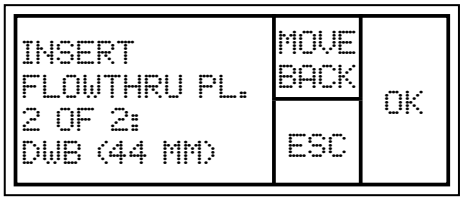


9. Apply sample and let buffer run through the column. Tap OK for the next screen.



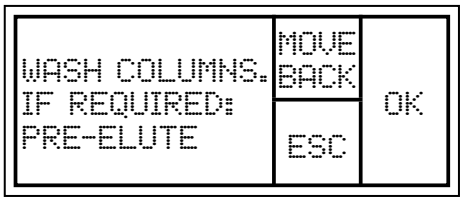
10. Move the Tip-Touch Plate firmly back and forth once so that the inner walls of the wells of the flow-through plate touch the tips of the Multi-8 Columns, and any drop on the column tips that did not fall off by gravity will be removed.

Tap OK and the MultiMACS 96 Magnet will move upwards to allow removal of the flow-through plate.

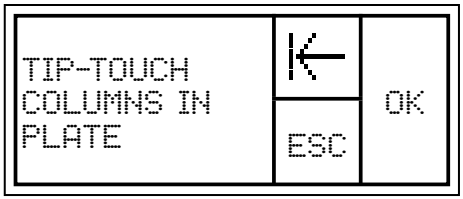


11. Insert flow-through plate. If using a plate with a different height, adjust the height of the flow-through plate, as described in **Editing a process on page 105**.

Tap OK and the MultiMACS 96 Magnet will move downwards until column tips slightly immerse in the waste plate.

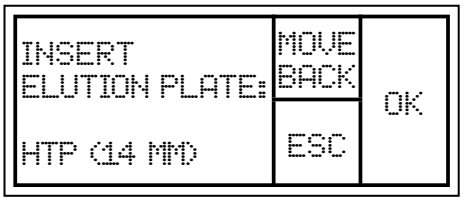


12. Wash columns and let buffer run through. A pre-elution might be required to exchange the void volume of the column. Refer to the respective kit data sheet for detailed instructions. Tap OK for the following screen.



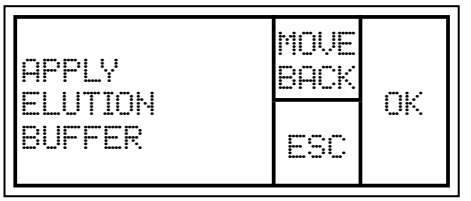
13. Move the Tip-Touch Plate firmly back and forth once so that the inner walls of the wells of the flow-through plate touch the tips of the Multi-8 Columns, and any drop on the column tips that did not fall off by gravity will be removed.

Tap OK and the MultiMACS 96 Magnet will move upwards to allow removal of the flow-through plate.

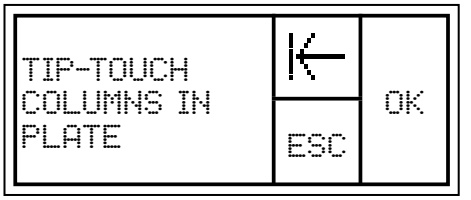


14. Remove Deep Well Block. If some wells were not used pour off waste liquid and store plate. Insert an elution plate (Microtiter Plate, included in MultiMACS Kits). If using a plate with a different height, adjust the height of the elution plate, as described in **Editing a process on page 105**.

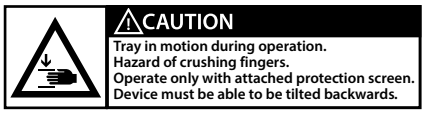
Tap OK and the MultiMACS 96 Magnet will move downwards until column tips slightly immerse in the elution plate.



15. Immerse the pipette tips slightly (1 mm) into the reservoirs of the columns without touching the rims and apply elution buffer directly onto the Multi-8/96 Column matrix. Tap OK for the next screen.

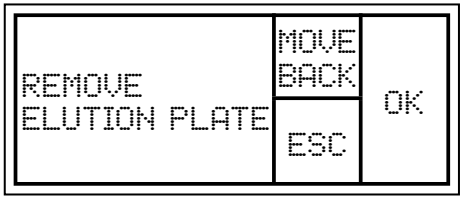


16. Wait approximately one minute until buffer has passed through. Move the Tip-Touch Plate firmly back and forth once so that the inner walls of the wells of the elution plate touch the tips of the Multi-8 Columns, and any drop on the column tips that did not fall off by gravity will be removed.





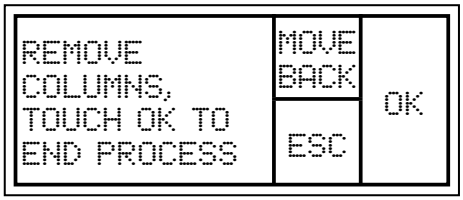
Tap OK and the MultiMACS 96 Magnet moves upwards to allow removal of the elution plate (Microtiter Plate).



17. Remove elution plate and use samples for downstream application. Alternatively, seal the plate with adhesive foil (included in the kit) and store it according to the kit's protocol.



Tap OK and the MultiMACS 96 Magnet moves apart from the Column Holder.



18. Take away the MultiColumn Frame with Multi-8/96 Columns. If less than twelve Multi-8 Columns were used, detach the used Multi-8 Columns and store the MultiColumn Frame. Tap OK to finish the process.

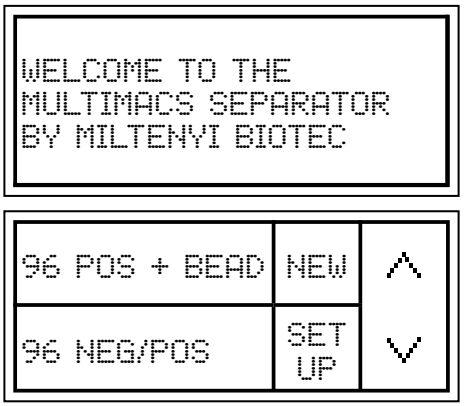
96 POS + BEAD

Caution: Read the chapter **Safety functions** carefully before running a process. Then follow the instructions in chapter **Semiautomated bench-top use**. Always be sure to use MultiMACS 96 Magnet, MultiMACS Column Holder, and the plates in the same orientation as described in **Rotating MultiMACS 96 Magnet and Column Holder on page 122**.

The MultiMACS M96 Separator contains a list of pre-defined separation programs to choose from, visit **www.miltenyibiotec.com** for updates. 96 POS + BEAD is used for applications where the target fraction is the molecule-MicroBead complex. The target is eluted outside the magnet.

If a process with different process parameters has to be run, either create a new process, as described in **Creating a new user-defined process on page 95**, or, if only a few parameters have to be changed, edit the parameters as described in **Editing a process on page 105**. For further details on user-defined processes, refer to **Running a user-defined process on page 103**.

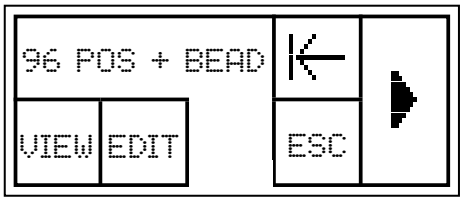
1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds for the Process Selection Screen.



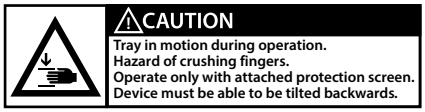
The last process performed on the MultiMACS M96 Separator is displayed on the upper left (default: 96 POS). The one but last process is listed below.

If necessary scroll through the list of available process names by touching the symbol ^ or v until 96 POS+BEAD is displayed.

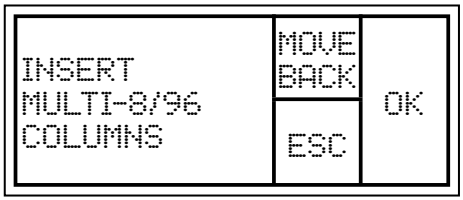
2. Tap 96 POS+BEAD to go to the Process Management Screen.



If necessary check the process parameters, as described in **Viewing process parameters on page 104**.

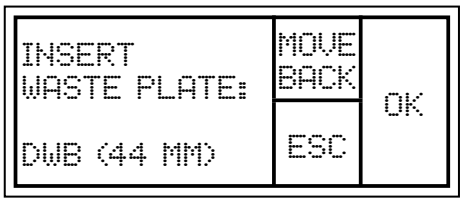


3. Tap ▶ to run the process and the magnet will move to the start position. Follow the instructions given on the Touch Display.



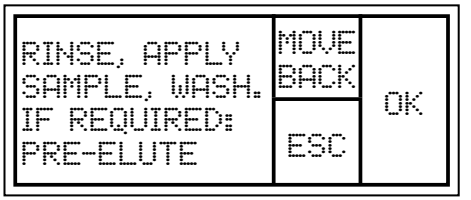
4. Insert a MultiColumn Frame with up to twelve Multi-8 Columns or a pre-packed Multi-96 Column into the MultiMACS Column Holder.

Tap OK to move the magnet upwards and for the next screen.



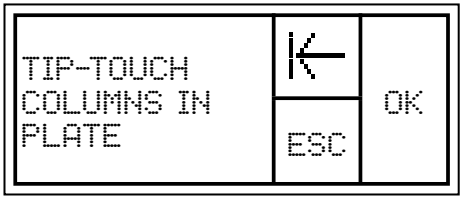
5. Insert the waste plate, e.g., a Deep Well Block, onto the Tip-Touch Plate. If using a plate with a different height, adjust the height of the waste plate, as described in **Editing a process on page 105**.

Tap OK and the MultiMACS 96 Magnet will move downwards until column tips slightly immerse in the waste plate. The next screen appears.



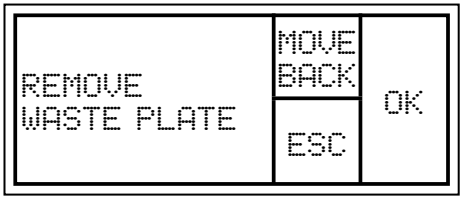
6. Rinse the columns with equilibration buffer, apply sample, and wash.

Tap OK for the following screen.



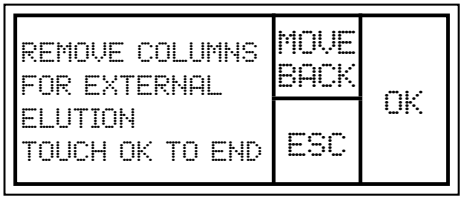
7. Move the Tip-Touch Plate firmly back and forth once so that the inner walls of the wells of the Deep Well Block touch the tips of the Multi-8 Columns. This process removes any drop on the column tips that did not fall by gravity.

Tap OK to move the MultiMACS 96 Magnet upwards and to allow removal of the waste plate.



8. Remove the Deep Well Block.

Tap OK to move the MultiMACS 96 Magnet away from the Column Holder. The following screen appears.



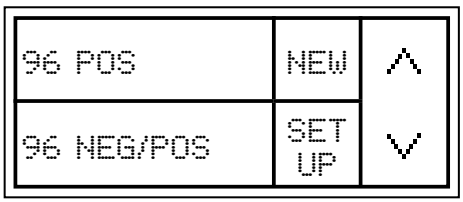
Tap OK to finish the MultiMACS process. Remove the columns and proceed with the target elution as described in the respective datasheet.

Creating a new user-defined process

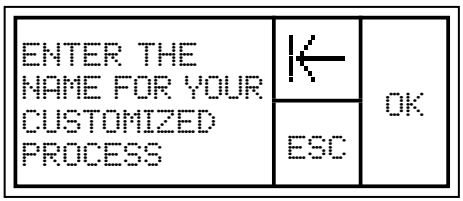
Caution: Read the chapter **Safety functions** carefully before running a process. Then follow the instructions in chapter **Semiautomated bench-top use**. Always be sure to use MultiMACS 96 Magnet, MultiMACS Column Holder, and the plates in the same orientation as described in **Rotating MultiMACS 96 Magnet and Column Holder on page 122**.

1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds for the Process Selection Screen.





2. Tap NEW and the following screen appears.



Wait for a few seconds or tap OK to go to the next screen where a new process name has to be entered.



3. Tap the ABC box once to enter an A, twice to enter a B, and three times for a C.
Tap the ... box — multiple times if necessary — to switch to the triplets of the letters J to Z, symbols, and numerals.

Tap DEL to delete letters and OK to confirm the entered name.
If the process name already exists, a message will appear on the Touch Display that another name has to be chosen.

Selection of parameter types

After entering a name, the following parameter types for the new process have to be selected:

A. Selecting **Fraction of Interest**
B. Selecting **Elution Mode** (depends on parameter A)
C. Selecting **Plate Heights** (for waste, flow-through, and elution plate height; also depending on parameter A)

At this stage, save the process or, if needed, enter advanced parameter types.

D1. **Distance for Plate Removal**
D2. **Number of Flow-through Plates**

Note: The scroll function is only visible if there are more items to choose, which are not displayed.

A. Selecting Fraction of Interest
First you have to select the desired fraction after magnetic labeling of samples. The positive labeled fraction, the negative labeled fraction (flow-through), or both fractions can be chosen.



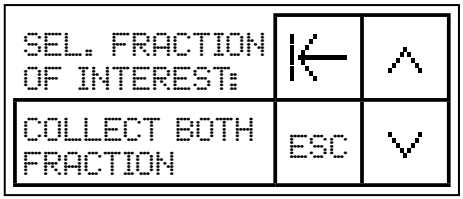
- If only the labeled fraction is to be captured, tap COLLECT POS. FRACTION and proceed with section B. Selecting Elution Mode.
- To collect only the unlabeled flow-through, scroll through the list by touching the symbol ^ or v until COLLECT NEG. FRACTION appears.

Note: An elution with or without MicroBeads is not distinguished in this step.



Tap COLLECT NEG. FRACTION and proceed with section C. Selecting Plate Heights.

- In order to collect the labeled fraction as well as the unlabeled flow-through, scroll through the list by touching the symbol ^ or v until COLLECT BOTH FRACTIONS appears.



Tap COLLECT BOTH FRACTIONS and proceed with section B. Selecting Elution Mode.

B. Selecting Elution Mode

If COLLECT POS. FRACTION or COLLECT BOTH FRACTIONS were chosen for the fraction of interest, two options for the elution of target molecules are possible.



- To retain the MicroBeads within the column while the target molecule is eluted, tap INSIDE MAGNET and proceed with section C. Selecting Plate Heights.
- To elute the target molecule-MicroBead complex by removing the column from the magnetic field, scroll through the list by touching the symbol ^ or v until ELUTION OUTSIDE MAGNET appears.



Tap ELUTION OUTSIDE MAGNET and proceed with section C. Selecting Plate Heights.

C. Selecting Plate Heights

The Tip-Touch Plate of the MultiMACS M96 Separator is designed for microtiter plates that comply to the footprint as described in the ANSI/SBS standard, refer to **Reagents, columns, and plates on page 75**.

The plate heights for waste, flow-through, and eluate depend on the selected process parameters, e.g., **Fraction of Interest**, and have to be determined individually.

Fraction of interest	WASTE PLATE to collect	FLOWTHRU PLATE to collect	ELUTION PLATE to collect
COLLECT POS FRACTION	Equilibration buffer, flow-through, and wash buffer	–	Eluate**
COLLECT NEG FRACTION	Equilibration buffer	Flow-through + wash buffer*	–
COLLECT BOTH	Equilibration buffer	Flow-through + wash buffer*	Eluate**

* Flow-through and wash buffer can be separately collected in flow-through plates by increasing the number of flow-through loops.

**Parameter Elution Plate does not appear if Elution Mode is OUTSIDE MAGNET.

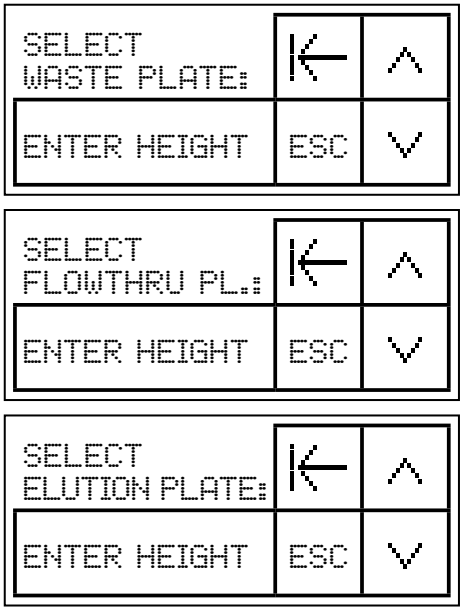
1. Depending on the chosen fraction of interest, the heights of the required plates can be adjusted. For example, when the positive fraction was chosen, screens will be presented to specify the height of the waste plate and elution plate. Below all three screens are shown.







2. Tap the displayed plate type at the lower left of the Touch Display to select the default value. If a height different to the default value should be selected, scroll through the list by touching the symbol ^ or v until the following screens appear.



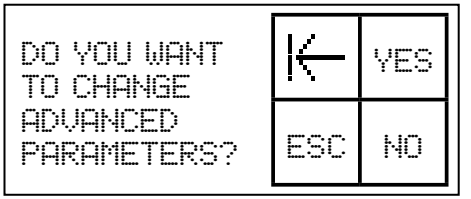
3. Tap ENTER HEIGHT for the next screen.



Tap +0.5 MM or +5 MM to increase the displayed plate height by this amount (in mm) and -0.5 MM or -5 MM to decrease it. The minimum plate height is 8.0 mm, and the maximum plate height is 80.0 mm. For further details, refer to **Testing Plate Height or Distance for Plate Removal on page 115**.

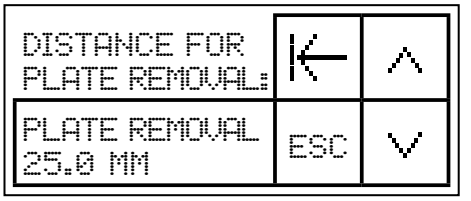
Tap OK to select the displayed plate height.

D. Advanced parameter types
For special applications, it may be necessary to change advanced process parameters, these include **Distance for Plate Removal** and **Number of Flow-through Plates**.

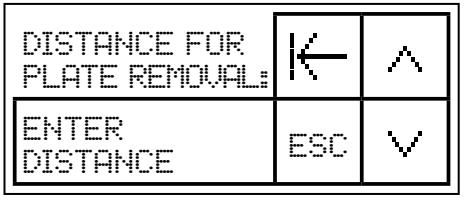


If you press YES, the parameter **Distance for Plate Removal** and the **Number of Flow-through Plates** have to be selected. Alternatively, tap NO and go to **Saving the edited process on page 114**.

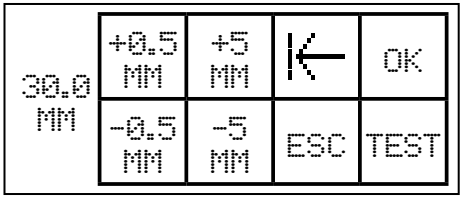
D1. Selecting Distance for Plate Removal
The Distance for Plate Removal is the distance the magnet moves up to create space to remove a plate and to insert a new one.



Press PLATE REMOVAL 25.0 MM to select the default value. To change this parameter, scroll through the list by touching the symbol ^ or v until ENTER DISTANCE appears.



Tap ENTER DISTANCE for the following screen.



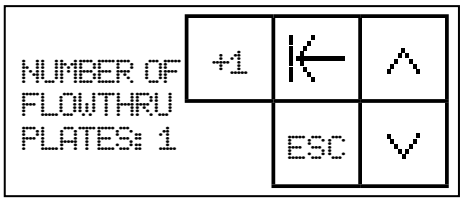
Note: The Tip-Touch Insertion Distance is calculated by the MultiMACS M96 Separator automatically. Therefore, enter the actual height of the preferred plate.

Press +0.5 MM or +5 MM to increase the displayed distance for plate removal by this amount (in mm) and -0.5 MM or -5 MM to decrease it. The minimum height is 1.0 mm, maximum height is 45.0 mm. For details, refer to **Testing Plate Height or Distance for Plate Removal on page 115**.

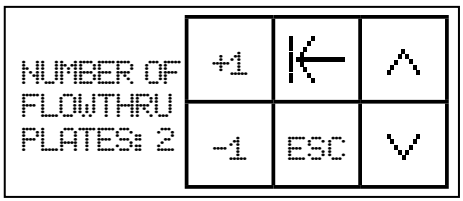
Tap OK to select the displayed plate removal distance.

D2. Selecting Number of Flow-through Plates

1. If COLLECT NEG FRACTION or COLLECT BOTH FRACTIONS was chosen as the fraction of interest, the flow-through and each wash buffer fractions can be collected separately by increasing the number of flow-through plates.



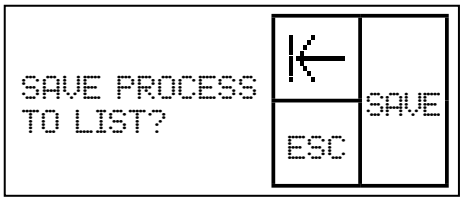
2. The default value is one plate to keep flow-through and all wash fractions in a single plate. Optionally, tap +1 to increase the number of plates, which enables collection of wash fractions separately.



3. Optionally, tap -1 to decrease the number of plates. Confirm by touching OK.

Saving the created process

1. Tap SAVE to confirm the addition of the process to the list. If there are already ten user-defined processes stored in the list, an obsolete process has to be replaced, refer to **Replacing a user-defined process on page 116**. After saving, the following screen appears.



2. Tap YES to start the process or NO to go back to the Welcome Screen.



Note: The scroll function is only visible if there are more items to choose, which are not displayed.

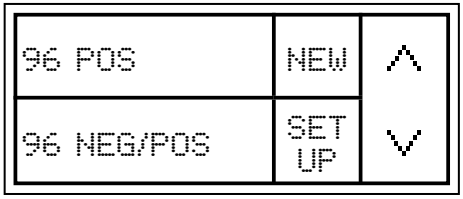
Note: If using a MultiMACS Isolation Kit, select a pre-defined process according to the kit protocol and follow the protocol instructions.

Running a user-defined process

Caution: Read the chapter **Safety functions** carefully before running a process. Then follow the instructions in chapter **Semiautomated bench-top use**. Always be sure to use MultiMACS 96 Magnet, MultiMACS Column Holder, and the plates in the same orientation as described in **Rotating MultiMACS 96 Magnet and Column Holder on page 122**.

1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds for the Process Selection Screen.





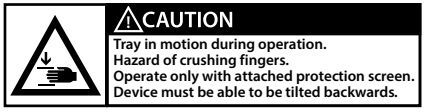
Note: The scroll function is only visible if there are more items to choose, which are not displayed.

The last process performed on the MultiMACS is displayed in the upper left (default: `96 POS`).

2. If necessary, scroll through the list of available process names by touching the symbol ^ or v until the desired process is displayed. Tap the process name to select it, e.g., `MY_OWN_PROG`, and the Process Management Screen appears.



Note: When viewing process parameters, the name of the program will be shortened from two lines to one line.

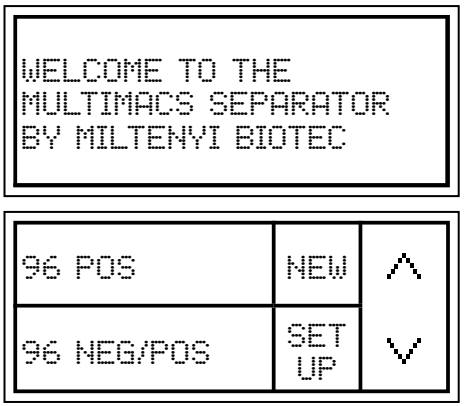


3. Tap ▶ to run the process and the MultiMACS 96 Magnet will move to the start position. Follow the instructions given on the Touch Display.

Viewing process parameters

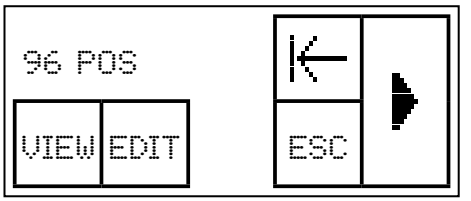
It is possible to control the parameters before running an already saved process. Changing process parameters is not possible in the view mode, this can only be done in the edit function.

1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds for the Process Selection Screen.

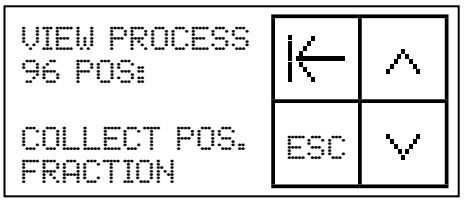


The last process performed on the MultiMACS is displayed in the upper left (default: 96 POS). The one but last process is listed below.

2. If necessary, scroll through the list of available process names by touching the symbol ^ or v until the desired process is displayed. Tap the process name to select it, e.g., 96 POS.



3. Tap VIEW for the View Process Screen.



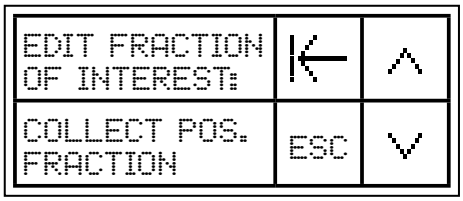
4. The chosen parameter is displayed in the lower left of the Touch Display beginning with the parameter type fraction of interest. Scroll through the list with the symbol ^ or v to see the other process parameters. For a description of process parameters, refer to **Creating a new user-defined process on page 95**.

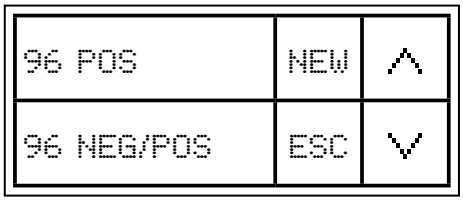
5. Tap the arrow |← to go back to the Process Management Screen.

Editing a process

Changing of process parameters of an existing process should be done in the edit mode. If several process parameters have to be changed, refer to **Creating a new user-defined process on page 95**.

1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds for the Process Selection Screen.



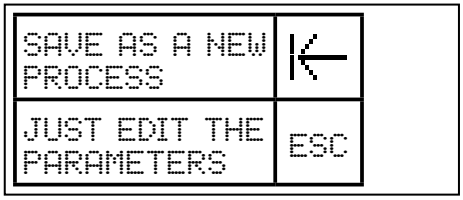


The last process performed on the MultiMACS M96 Separator is displayed in the upper left (default: 96 POS).

2. If necessary, scroll through the list of available process names by touching the symbol ^ or v until the desired process is displayed. Press the process name to select it and to go to the Process Management Screen.



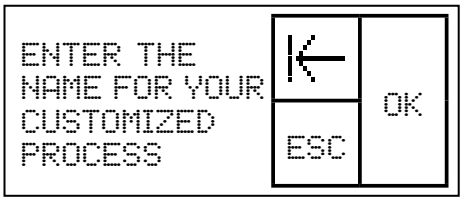
3. Tap EDIT to edit process parameters. If a user-defined process is edited, the following screen appears.



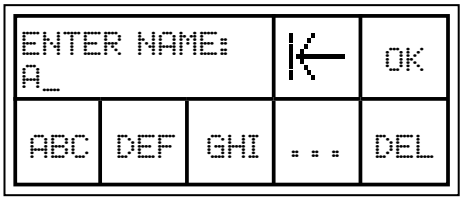
Note: If the process name already exists, a message will appear on the Touch Display that another name has to be chosen.

4. Press SAVE AS A NEW PROCESS to change process parameters and to save the new process. Thereby, the old process name remains with unchanged process parameters. Alternatively, tap JUST EDIT THE PARAMETERS to preserve the process name while changing process parameters.

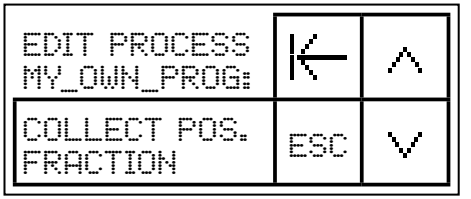
If saving as a new process the following screen appears.



5. Wait for a few seconds or tap OK to go to the next screen where a new process name has to be entered.



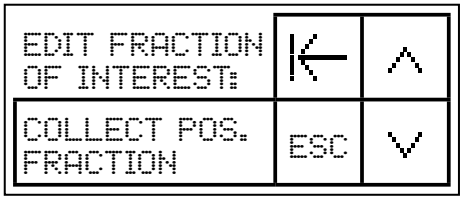
6. Tap the ABC box once to enter an A, twice to enter a B, and three times for a C.
Tap the **...** box — multiple times if necessary — to switch to the triplets of the letters from J to Z, symbols, and numerals. Tap DEL to delete letters and OK to confirm the entered name.



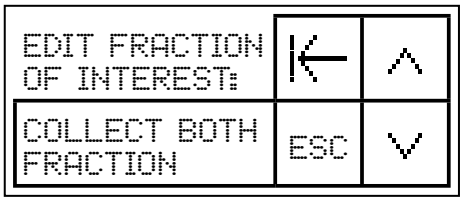
The current process parameter name is displayed on the upper left of the Touch Display and the parameter is on the lower left, beginning with the parameter type **Fraction of Interest**. Depending on the parameter of the chosen process, several process parameters can be edited.

A. Editing Fraction of Interest

1. To change the parameter type **Fraction of Interest**, tap the displayed parameter, e.g., COLLECT POS FRACTION, and the next screen appears.

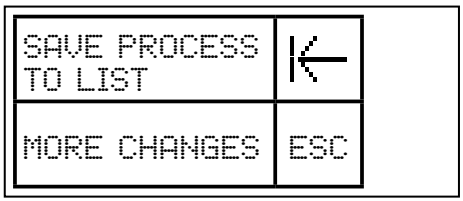


2. The parameter type now appears in the upper left of the screen. To change the parameter, scroll through the list of options by touching the symbol ^ or v until the desired parameter is displayed.



3. Tap the parameter to select it, e.g., COLLECT BOTH FRACTIONS.

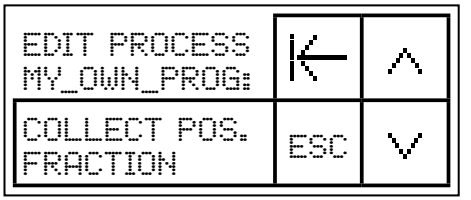
If COLLECT POS FRACTION is changed to COLLECT BOTH FRACTIONS or COLLECT NEG FRACTION, additional parameter types have to be selected. For details, refer to **C. Selecting Plate Heights on page 98**.



4. If no further parameter should be edited, tap SAVE PROCESS TO LIST and go to **Saving the created process on page 102**. Alternatively, edit other parameters types by touching MORE CHANGES.

B. Editing Elution Mode

1. This parameter type only appears if COLLECT POS FRACTION or BOTH FRACTIONS were chosen as the fraction of interest.



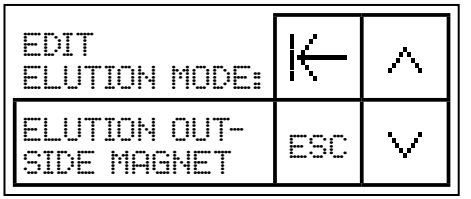
2. Scroll through the list by touching the symbol ^ or v until the process parameter of the elution mode, ELUTION INSIDE MAGNET or ELUTION OUTSIDE MAGNET, is displayed. The current process parameter is displayed on the lower left of the Touch Display.



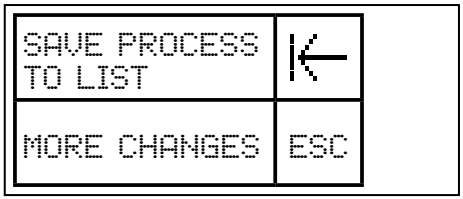
3. To change the parameter of the parameter, type **Elution Mode**, tap the displayed parameter, e.g., ELUTION INSIDE MAGNET.



4. The parameter type now appears in the upper left screen. To change the parameter, scroll through the list of options by touching the symbol ^ or v until the desired parameter is displayed.



5. Tap the changed parameter to select it, e.g., ELUTION OUTSIDE MAGNET, and the next screen appears.



If no further parameter should be edited, tap SAVE PROCESS TO LIST and go to page 114, Saving the edited process. Alternatively, edit other parameters types by touching MORE CHANGES.

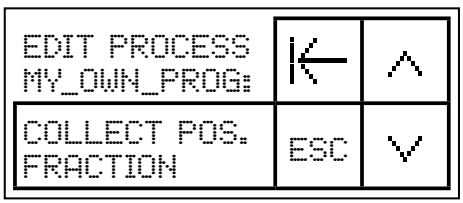
C. Editing Plate Height

The Tip-Touch Plate of the MultiMACS M96 Separator is designed for microtiter plates that comply to the footprint as described in the ANSI/SBS standard, refer to **Reagents, columns, and plates on page 75**.

Fraction of interest	WASTE PLATE to collect	FLOWTHRU PLATE to collect	ELUTION PLATE to collect
COLLECT POS FRACTION	Equilibration buffer, flow-through and wash buffer	–	Eluate**
COLLECT NEG FRACTION	Equilibration buffer	Flow-through + wash buffer*	–
COLLECT BOTH	Equilibration buffer	Flow-through + wash buffer*	Eluate**

* Flow-through and wash buffer can be separately collected in plates by increasing number of flow-through loops.
** Parameter ELUTION PLATE does not appear if Elution Mode is OUTSIDE MAGNET.

Depending on selected process parameters (refer to table above) several plate heights for collecting waste, flow-through, and / or elution can be edited. For example, when COLLECT POS FRACTION was selected the heights of the plates for waste and elutate can be specified.



1. Scroll through the list by touching the symbol ^ or v until the process parameter of waste, flow-through, or elution plate is displayed. The current process parameter is displayed on the lower left of the Touch Display. Below all three screens are listed.







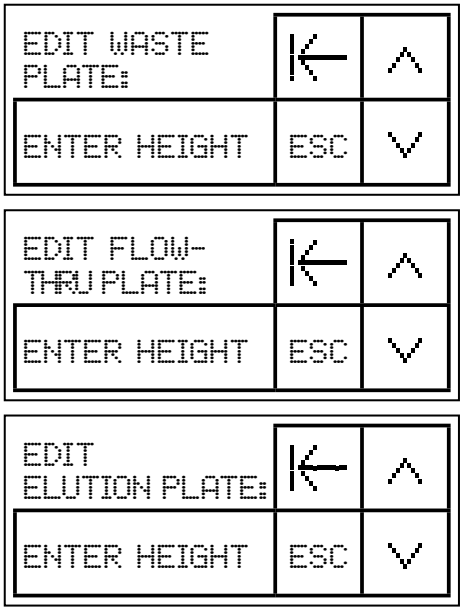
2. Press the displayed plate height to change it. The corresponding screen appears. Again, all three screens are shown.







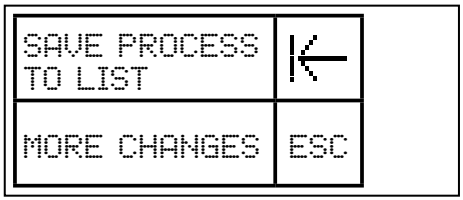
3. Tap the displayed plate type at the lower left side of the Touch Display to select the default value. If a height different to the default value should be selected, scroll through the list by touching the symbol ^ or v until the corresponding screen is presented.



4. Tap ENTER HEIGHT.



5. Tap +0.5 MM or +5 MM to increase the displayed plate height by this amount (mm) and -0.5 MM or -5 MM to decrease it.
The minimum plate height is 8.0 mm. The maximum plate height is 80.0 mm. Tap OK to select the displayed height.

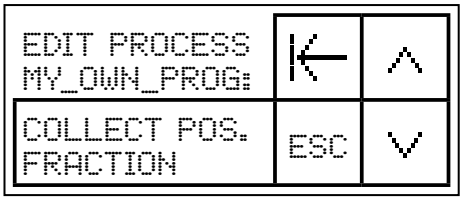


If no further parameter should be edited, go to **Saving the created process on page 102**. Alternatively, edit further parameters by touching MORE CHANGES.

D. Advanced parameter types

D1. Editing Distance for Plate Removal

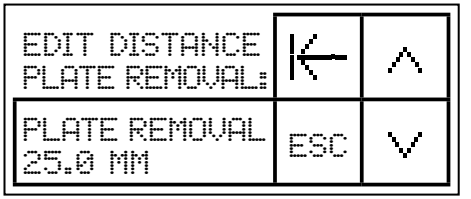
The **Distance for Plate Removal** is the user-defined distance (default 25 mm) the magnet moves up to create space for plate removal and insertion.



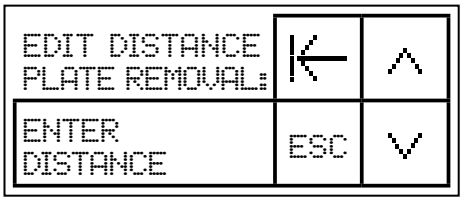
1. Starting from the screen above, scroll through the list by touching the symbol ^ or v until the process parameter PLATE REMOVAL 25.0 MM is displayed (displayed values may vary). The current process parameter is shown on the lower left of the Touch Display.



2. To change the parameter, tap PLATE REMOVAL 25.0 MM (displayed value may vary). The next screen appears.



3. The parameter type now appears in the upper left screen. Press PLATE REMOVAL 25.0 MM to select default value, or, to change the parameter, scroll through the list by touching the symbol ^ or v until ENTER DISTANCE is displayed.

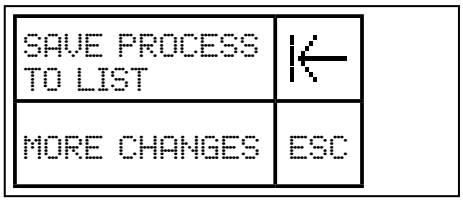


4. Tap ENTER DISTANCE for the next screen.



Adjust the desired distance by touching the corresponding buttons, e.g., +0.5 MM and +5 MM to increase and -0.5 MM and +5 MM to decrease distance.

5. Tap OK for the next screen.



If no further parameter should be edited, go to SAVE PROCESS TO LIST, refer to **Saving the edited process on page 114**.
Alternatively, edit other parameters types by touching MORE CHANGES.

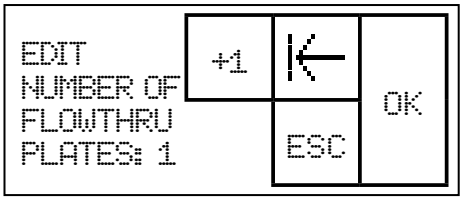
D2. Editing Number of Flow-through Plates
If COLLECT BOTH FRACTIONS or COLLECT NEG FRACTIONS was chosen as fraction of interest, the flow-through fraction and different wash buffer fractions can be collected separately by increasing the number of flow-through plates.



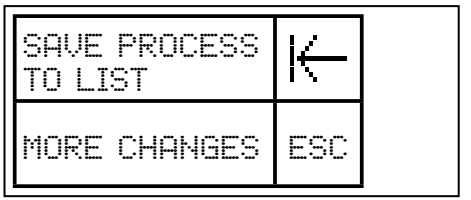
1. Starting from the previous screen above, scroll through the list by touching the symbol ^ or v until the process parameter NUMBER OF FLOWTHRU PL (plates) is displayed. The current process parameter is shown on the lower left of the Touch Display.



2. To change the number of flow-through plates, tap the displayed parameter. The next screen appears.



3. The default value 1 keeps flow-through and all wash fractions in one plate. Tap `+1` to increase the number of plates; thereby, collecting wash fractions separately. Confirm by touching `OK` and to switch to the next screen.



4. If no further parameter should be edited, go to `SAVE PROCESS TO LIST` described below. Alternatively, edit other parameters by touching `MORE CHANGES`.

Saving the edited process

1. Save the process with the changed parameters by touching `SAVE PROCESS TO LIST`, thus leaving the edit mode. In case ten user-defined processes have already been saved in the list, an obsolete process has to be replaced, refer to **Replacing a user-defined process on page 116**. The following screen appears.



2. Tap `YES` to start the process immediately after saving; alternatively, tap `NO` or `ESC` to get to the Welcome Screen.

Testing Plate Height or Distance for Plate Removal

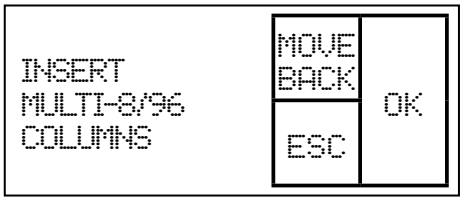
For your convenience, plate heights or distance for plate removal can be tested before saving.

Note: The Tip-Touch insertion distance is calculated by the MultiMACS M96 Separator automatically. Therefore, enter the actual height of the preferred plate.

1. After touching ENTER HEIGHT or ENTER DISTANCE, the following screen appears.

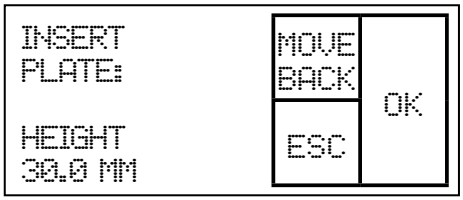


2. Tap TEST and follow the instructions to check the selected values.

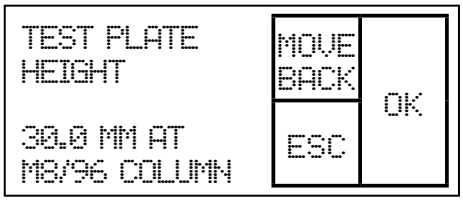




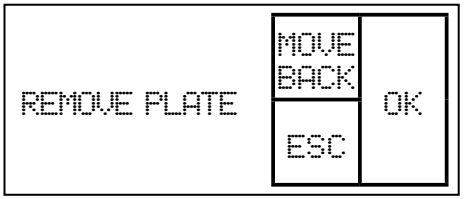
3. Insert the MultiColumn Frame with up to twelve Multi-8 Columns. Tap OK and the MultiMACS 96 Magnet moves up to the next position.



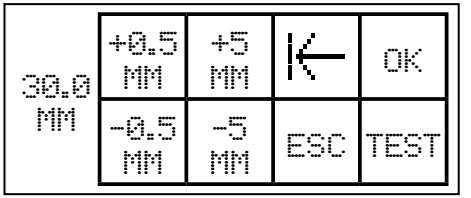
4. Insert the plate type to be tested. Tap OK and the MultiMACS 96 Magnet moves down to the next position.



5. Check whether the height is acceptable by moving the Tip-Touch Plate back and forth. The column tips should be inserted slightly in the well (1 mm). Tap OK and the MultiMACS 96 Magnet moves up.



6. Remove the plate. Tap OK, the MultiMACS 96 Magnet moves down, and the first screen reappears.

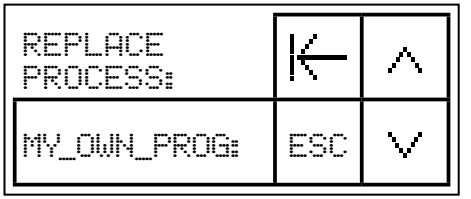


7. Tap OK if the height was acceptable, otherwise adapt plate height and retry the test.

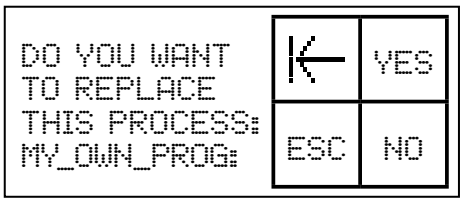
Return to the previous sections, such as **C. Selecting Plate Heights on page 98** or **D1. Selecting Distance for Plate Removal on page 100**.

Replacing a user-defined process

In case ten user-defined processes were already saved and another user-defined process should be created, or a process should be edited and saved as a new process, an obsolete process has to be removed from the list of user-defined processes.



1. If necessary, scroll through the list by touching the symbol ^ or v until the desired process name to be replaced is displayed. Touch the process name, e.g., MY_OWN_PROG, to replace it. The following screen emerges.



2. Confirm the replacement by touching YES or go back by touching NO or |←. The new process has now been saved and with the following screen you can choose to start this process immediately.



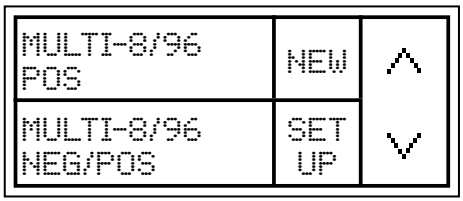
3. Tap YES to start the process. Alternatively, tap NO or ESC to go to the Welcome Screen.

Note: Only user-defined processes can be deleted.

Deleting a user-defined process

1. To delete a process from the list of available processes, switch on the instrument and then touch the Welcome Screen or wait for a few seconds until the Process Selection Screen appears.





The last process performed on the MultiMACS M96 Separator is displayed in the upper left (default: 96 POS). The one but last process is listed in the lower left.

2. If necessary, scroll through the list of available process names by touching the symbol ^ or v until the desired process is displayed. Touch the desired process name to select it. The Process Management Screen appears.



3. Tap DEL to proceed and confirm.



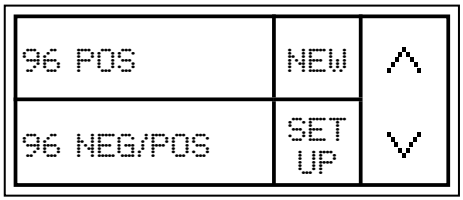
4. Confirm the deletion of the process by touching YES.
Tap NO to stop the deletion.

Firmware version

Before contacting the Miltenyi Biotec Technical Support, determine the firmware version on the MultiMACS M96 Separator.

1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds until the Process Selection Screen appears.





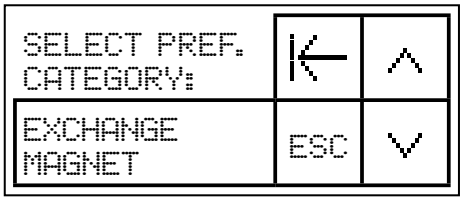
Note: SERVICE TOOLS are for service purposes and are only to be used by an authorized Miltenyi Biotec service provider.

The scroll function is only visible if there are more items to choose, which are not displayed.

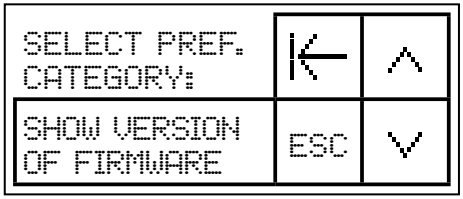
2. Tap SET UP for the Setup Screen.



3. Tap PREFERENCES to display the Preference Category Screen.



4. Scroll down until SHOW VERSION OF FIRMWARE appears.

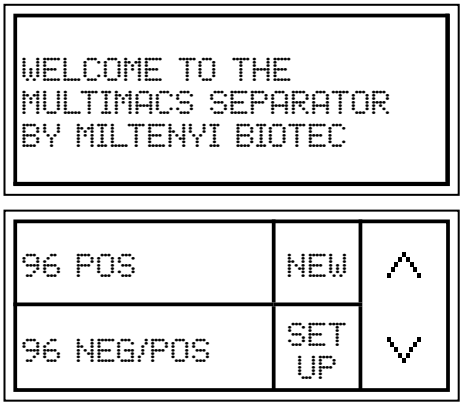


5. Tap this button and the current version of the firmware is presented in the next screen.

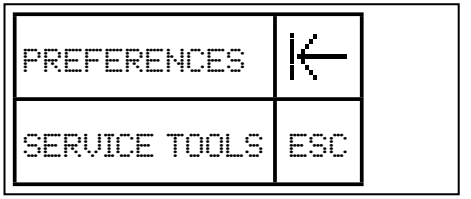
Preparing the MultiMACS M96 Separator for transport

The MultiMACS M96 Separator has to be locked before shipping. Contact Miltenyi Biotec before sending the MultiMACS M96 Separator back.

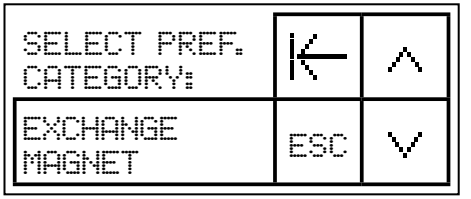
1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds until the Process Selection Screen appears.



2. Tap SET UP for the Setup Screen.



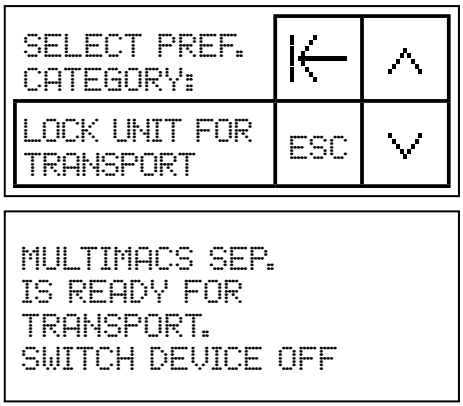
3. Tap PREFERENCES to display the Preference Category Screen.



4. Scroll down to LOCK UNIT FOR TRANSPORT.



5. Tap LOCK UNIT FOR TRANSPORT for the MultiMACS 96 Magnet and MultiMACS Column Holder to move to the lock position.



6. As soon as the text above appears, the instrument can be switched off. The MultiMACS M96 Separator is now ready for shipping.

Note: SERVICE TOOLS are for service purposes and are only to be used by an authorized Miltenyi Biotec service provider.

The scroll function is only visible if there are more items to choose, which are not displayed.

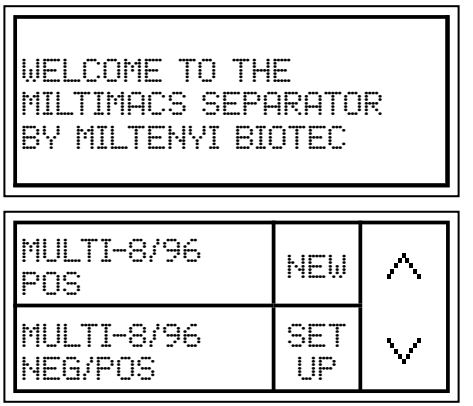
Rotating MultiMACS 96 Magnet and Column Holder

The MultiMACS 96 Magnet and Column Holder are delivered in landscape orientation, but they can also be used in portrait orientation. In rare cases, if 96-well magnets needs to be exchanged, follow the instructions outlined below.

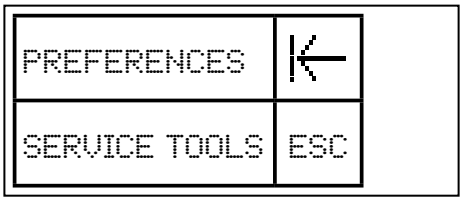
Warning: The MultiMACS M96 Separator is equipped with an extremely powerful magnet, the MultiMACS 96 Magnet. Keep this magnet at a distance of at least 80 cm from any magnetic information carriers such as credit cards, magnetic tapes, and storage media, and from any electronic equipment, such as hearing aids, pacemakers, measuring and control instruments, computers, and watches. These items may be affected or damaged by the extremely powerful magnetic field. The force of attraction between two magnets or between a magnet and magnetically attractable material increases strongly the closer they get. Thus, keep any magnetic material – including any other MultiMACS 96 Magnet and Display – at a safe distance.

Note: The scroll function is only visible if there are more items to choose, which are not displayed.

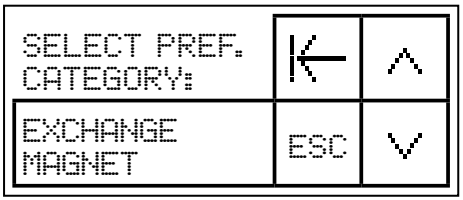
1. Switch on the instrument and touch the Welcome Screen or wait for a few seconds for the Process Selection Screen.



2. Tap SET UP for the Setup Screen.

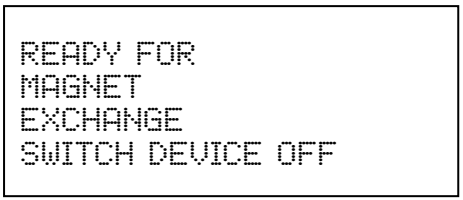


3. Tap PREFERENCES to go to the Preference Category Screen.



4. Tap EXCHANGE MAGNET and the MultiMACS 96 Magnet will move to the middle exchange position while the Column Holder is locked in the top position.

5. Wait until the following text appears.



6. Switch-off and unplug the MultiMACS M96 Separator.

Note: In landscape orientation, the safety notices on the MultiMACS 96 Magnet have to face the front. The notched corner is at the lower left.

Rotation of the MultiMACS 96 Magnet

1. Unscrew all four knurled screws of the MultiMACS 96 Magnet. For rotation of magnet from **landscape to portrait** orientation, turn magnet counterclockwise by 90°. Note that the 'notched' corner, marked red in figure 4 a + b, is now at the lower right.
For rotation of the magnet from **portrait to landscape** orientation, turn the magnet clockwise by 90° (refer to figure 4 a + b).

2. Align the MultiMACS 96 Magnet with the metal brackets. The holes in the metal brackets must be aligned with the screw threads in the MultiMACS 96 Magnet. The holes can only be aligned with the screw threads if the notched corner of the magnet is to the left (landscape orientation, refer to figure 5a) or lower right (portrait orientation, refer to figure 5b).

3. Now fasten all four knurled screws.

4. Connect the power cable to the outlet on the rear side of the MultiMACS M96 Separator and to an appropriate electrical socket.

Note: Magnet and Column Holder must be always aligned in the same orientation (portrait or landscape).

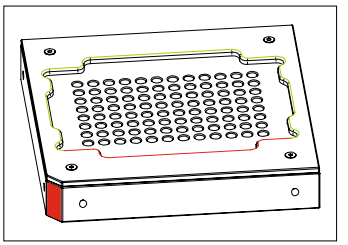


Figure 4a: Landscape orientation.

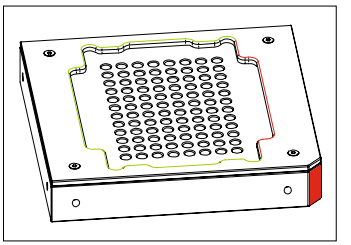


Figure 4b: Portrait orientation.

Rotation of the Column Holder

1. Unscrew all four knurled screws of the MultiMACS Column Holder. For rotation of Column Holder from landscape to portrait orientation, rotate Column Holder counter clockwise by 90° (the same way as the MultiMACS 96 Magnet).

2. For rotation of Column Holder from portrait to landscape orientation, rotate Column Holder clockwise by 90° in the same way as the MultiMACS 96 Magnet.

3. Align the MultiMACS Column Holder with the metal brackets as shown in figure 5 a + b. The holes in the metal brackets have to be aligned with the screw threads in the MultiMACS Column Holder.

4. Now fasten all four knurled screws.

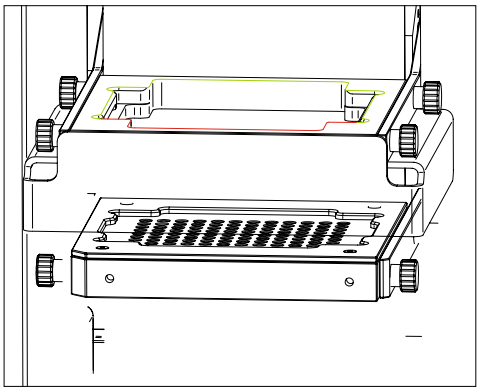


Figure 5a: Landscape orientation.

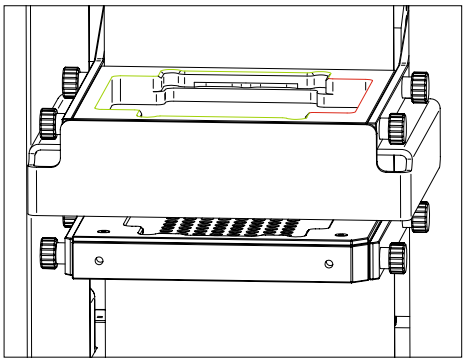


Figure 5b: Portrait orientation.

Maintenance

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Caution: Unplug the power cable before cleaning the MultiMACS M96 Separator. The MultiMACS M96 Separator and the MultiMACS 96 Magnet must not be submerged in water or cleaned in a dish washer, ultrasonic cleaner, autoclave, or similar appliances.

Clean up spills immediately. Use a wash solution containing detergent, e.g., 1% SDS solution, and/or 70% ethanol solution for disinfection and cleaning.

The MultiMACS M96 Separator should not move while performing Tip-Touch. If this happens accidentally, clean the instrument feet with alcohol.

Cross-contamination by drops at the column tips

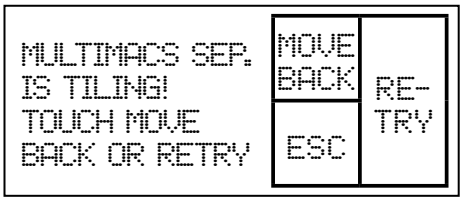
Always make a Tip-Touch before changing plates or allowing separation of the MultiMACS 96 Magnet and the MultiMACS Column Holder. To take off drops at the column tips, move Tip-Touch Plate so that the Multi-8/96 Columns move slightly in the MultiMACS Column Holder. Control whether all drops at the column tips have been removed. If drops are still present, tap MOVE BACK, repeat the Tip-Touch. Tap OK to return to the screen.

The MultiMACS M96 Separator should not move while performing Tip-Touch. If this happens, clean the instrument feet, refer to **Maintenance on page 127**.

Collision detection

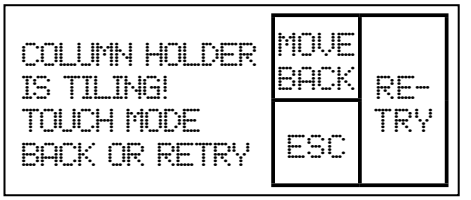


If a tilting of the MultiMACS M96 Separator is registered while the magnet is moving, the movement stops and the following screen appears.



If a blocking object is visible, tap MOVE BACK to set back the magnet to its former position. Take out any objects causing the stop of the movement. Subsequently, tap OK to restart the move. In case there are no blocking objects visible, tap RETRY.

If a tilting of the MultiMACS Column Holder is registered while the magnet is moving, the movement stops and the following screen appears.



If a blocking object is visible, touch MOVE BACK to set back the magnet to its former position. Take out any objects causing the stop of the movement. Subsequently, tap OK to restart the move. In case there are no blocking objects visible, touch RETRY.

Buffer temperature

The use of cold buffer on a tempered column is not recommended due to the possibility of air bubble formation in the column matrix.

Malfunctions and possible remedies

Symptom	Cause	Possible remedy
No light on the display when power is turned on.	Power cord or display cord is not plugged in. Fuse is blown or missing.	Make sure power source matches power rating stamped on rear label. Check fuse holder in rear, refer to **Fuse exchange on page 133**.
No message appears on the display or display is frozen.	Microprocessor is temporarily out of normal sequence.	Turn power off, wait 5 seconds, and then turn on again.

Table 8.1: Malfunctions, causes, and suggestions for fixing.

Error codes

All errors are coded. Refer to the following table for explanations.

Displayed error message	Explanation and remedy
STEPPING LOSS ERROR -101 INITIALIZING SYSTEM	Motor out of sequence. Tap OK for intermediate reinitialization of the system.
WRONG MAG POS ERROR -102 INITIALIZING SYSTEM	Incorrect positioning of the magnet. Tap OK for intermediate reinitialization of the system.
WRONG COL POS ERROR -106 INITIALIZING SYSTEM	Column Holder is locked in wrong position. Tap OK for intermediate reinitialization of the system. Column holder will be repositioned.
POSITION FAILED ERROR -111 INITIALIZING SYSTEM	Incorrect positioning of the magnet. Make sure device is not exposed to direct sunlight. Tap OK for intermediate reinitialization of the system.
CANNOT PICKUP ERROR -117 INITIALIZING SYSTEM	Locking of Column Holder did not work. Tap OK for intermediate reinitialization of the system.
WRONG SIGNAL ERROR -118 CALL TECHNICAL SERVICE	Electronic hardware problem. Call Miltenyi Biotec Technical Support.
LOCK FAILURE ERROR -123 CALL TECHNICAL SERVICE	Electronic or mechanical hardware problem. Call Miltenyi Biotec Technical Support.
MAGN. SENSOR ERROR -205	Electronic hardware problem. Call Miltenyi Biotec Technical Support.

Table 8.2: Explanation of error code and suggestion for fixing.

Fuse exchange

First disconnect both the power and the communication cable. The fuse holder is located on the rear side of MultiMACS M96 Separator at the power connector (refer to figure 6). Detach the fuse holder with a sharp tool, e.g., a screwdriver. Remove the defect fuse and insert a new fuse with the type and rating 5×20 mm, T2.5AH250V. Reinsert the fuse holder.

Caution: Replace fuses only with same type and rating to ensure protection against fire risk.

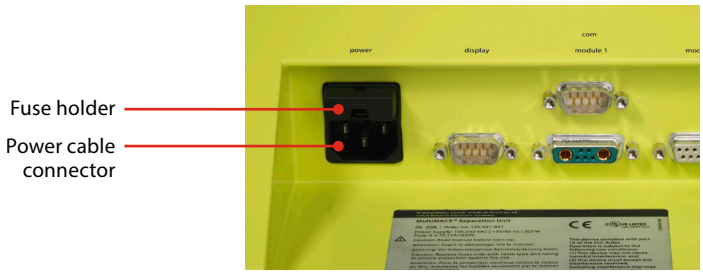


Figure 6: Fuse holder on the rear side of the MultiMACS M96 Separator.

Technical support

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For technical support, contact your local Miltenyi Biotec representative or Miltenyi Biotec Technical Support at Miltenyi Biotec headquarters:

Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Straße 68
51429 Bergisch Gladbach
Germany
Phone +49 2204 8306-3803
technicalsupport@miltenyi.com

Visit **www.miltenyibiotec.com** for local Miltenyi Biotec Technical Support contact information.

Legal notes

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Limited warranty

Except as stated in a specific warranty statement which may accompany this product or as otherwise agreed in writing by an authorized representative of Miltenyi Biotec, Miltenyi Biotec's warranty to you, the original purchaser and end user ("you" or "your"), with respect to the product accompanied by this limited warranty shall be subject to the following provisions and the general terms and conditions of sale of the company within the Miltenyi Biotec group which supplied the product in effect at the date of purchase. Those terms and conditions of sale may vary by country and region. Nothing in this document should be construed as constituting an additional warranty.

Miltenyi Biotec warrants that this product will operate or perform substantially in conformance with Miltenyi Biotec's published specifications and be free from material defects in material and workmanship, when subjected to normal, proper and intended usage by properly trained personnel, for the period of time set forth in the product documentation or package inserts accompanying the product (the "Warranty Period").

Miltenyi Biotec agrees, during the Warranty Period, to repair or replace, at Miltenyi Biotec's option, the defective product so as to cause the same to operate in substantial conformance with said published specifications; provided that you shall (a) promptly notify Miltenyi Biotec in writing upon the discovery of any nonconformity or defect, which notice shall include the product model and serial number (if applicable) and details of the warranty claim; and (b) return the nonconforming or defective product to Miltenyi Biotec, freight prepaid, only after receipt of a Return Material Authorization ("RMA") from Miltenyi Biotec, which may include biohazard decontamination procedures and other product-specific handling instructions, if applicable.

Miltenyi Biotec shall have no obligation to make repairs, replacements or corrections to the product or any component thereof required, in whole or in part, as the result of (i) normal wear and tear, (ii) improper handling, installation, operation, storage, service, maintenance or repair, (iii) failure to follow the instructions, cautions, warnings, and notes set forth in the product documentation provided with the product or provided by Miltenyi Biotec from time to time, (iv) abnormal use, misuse, neglect, abuse, mishandling, misapplication, modification or alteration of the

product, (v) use of the product in a manner for which it was not designed, (vi) causes external to the product such as, but not limited to, power failure or electrical power surges, (vii) use of the product in combination with equipment, accessories, consumables or software not supplied or approved by Miltenyi Biotec, or (viii) accident, disaster or acts of God. ANY INSTALLATION, MAINTENANCE, REPAIR, SERVICE OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCT PERFORMED BY ANY PERSON OR ENTITY OTHER THAN MILTENYI BIOTEC AUTHORIZED PERSONNEL WITHOUT MILTENYI BIOTEC'S PRIOR WRITTEN APPROVAL, OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY MILTENYI BIOTEC, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCT.

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Miltenyi Biotec must be informed promptly if a claim is made under this limited warranty. If a material or manufacturing defect occurs within the Warranty Period, Miltenyi Biotec will take the appropriate steps, at Miltenyi Biotec's option, to make repairs, replacements or corrections to the product or any component thereof as may be required to restore the full usability of your product. If Miltenyi Biotec determines that a product for which you have requested warranty services is not covered by the warranty hereunder, you shall pay or reimburse Miltenyi Biotec for all costs of investigating and responding to such request at Miltenyi Biotec's then prevailing time and materials rates. If Miltenyi Biotec provides repair services or replacement parts that are not covered by this warranty, you shall pay Miltenyi Biotec therefor at Miltenyi Biotec's then prevailing time and materials rates.

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Miltenyi Biotec

Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Straße 68
51429 Bergisch Gladbach
Germany
Phone +49 2204 8306-0
Fax +49 2204 85197
macsde@miltenyi.com

Miltenyi Biotec, Inc.
1201 Clopper Road
Gaithersburg, MD 20878
USA
Phone 800 FOR MACS
Phone +1 866 811 4466
Fax +1 877 591 1060
macsus@miltenyi.com

Miltenyi Biotec Australia Pty. Ltd.
Phone +61 2 8877 7400
macsau@miltenyi.com

Miltenyi Biotec B.V. (Benelux)
macsnl@miltenyi.com
Customer service for:
The Netherlands
Phone 0800 4020120
Belgium
Phone 0800 94016
Luxembourg
Phone 800 24971

Miltenyi Biotec Technology & Trading (Shanghai) Co., Ltd. (P.R. China)
Phone +86 21 6084 0210
macscn@miltenyi.com.cn

Miltenyi Biotec SAS (France)
Phone +33 1 56 98 16 16
macsfr@miltenyi.com

Miltenyi Biotec Hong Kong Ltd.
Phone +852 3751 6698
macshk@miltenyi.com.hk

Miltenyi Biotec India Pvt. Ltd.
Phone +91 040 45175910
macsin@miltenyi.com

Miltenyi Biotec S.r.l. (Italy)
Phone +39 051 6 460 411
macsit@miltenyi.com

Miltenyi Biotec K.K. (Japan)
Phone +81 3 5646 8910
macsjp@miltenyi.com

Miltenyi Biotec Norden AB (Nordics and Baltics)
macsse@miltenyi.com
Customer service for:
Sweden
Phone 0200 111 800
Denmark
Phone 80 20 30 10
Norway, Finland, Iceland, and Baltic countries
Phone +46 46 280 72 80

Miltenyi Biotec Asia Pacific Pte Ltd (Singapore)
Phone +65 6238 8183
macssg@miltenyi.com

Miltenyi Biotec Korea Co., Ltd. (South Korea)
Phone +82 2 555 1988
macskr@miltenyi.com

Miltenyi Biotec S.L. (Spain)
Phone +34 91 512 12 90
macses@miltenyi.com

Miltenyi Biotec Swiss AG (Switzerland)
Phone +41 32 623 08 47
macsch@miltenyi.com

Miltenyi Biotec Ltd. (UK)
Phone +44 1483 799 800
macsuk@miltenyi.com

www.miltenyibiotec.com

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