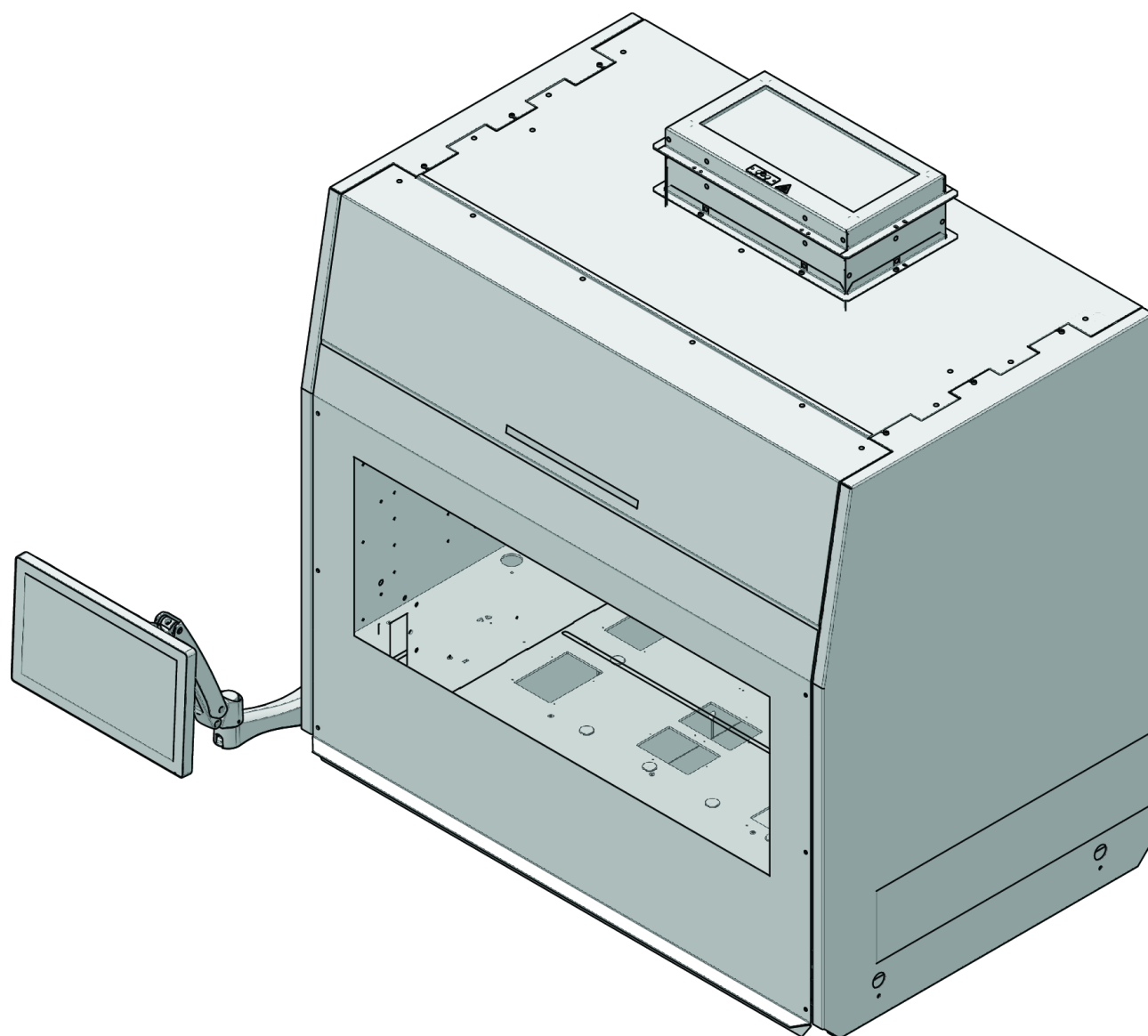


Operating Manual

Cavro® Magni Flex Enclosed Frame



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Table of Contents

1	About This Manual	7
1.1	Scope of This Manual	7
1.2	Manufacturer	8
1.3	Intended Use	8
1.4	Improper Use	8
1.5	Warranty	8
1.6	Trademarks	8
1.7	Reference Documents	9
1.7.1	Documentation	9
1.8	Document Conventions	9
2	Safety	11
2.1	Safety Message Conventions	11
2.1.1	Signal Words	11
2.1.2	Safety Symbols	11
2.2	General Safety Information	12
2.3	Operating Company	14
2.4	User Qualification	14
2.4.1	Operator	14
2.4.2	Key Operator	15
2.5	Decontamination Declaration	15
2.6	Product Safety Signs	16
3	Technical Data	17
3.1	Dimensions and Weights	17
3.2	Power Supply	21
3.3	Connectivity	21
3.4	Environmental Conditions	21
3.5	Emission and Immunity	21
3.6	IVD Label Requirements	22

3.7	Software Requirements	22
3.8	Specifications.....	22
4	Description of Function	24
4.1	Instrument.....	24
4.1.1	Cavro Magni Flex 44A00-6G-XE-XCG	25
4.2	Base Unit (XEBU).....	26
4.2.1	Carriers	26
4.3	Channel Arm (XCA).....	30
4.3.1	2-channel XCA.....	30
4.3.2	4-channel XCA.....	31
4.3.3	8-channel XCA.....	32
4.4	Air Restriction Pipettor (ARP)	33
4.4.1	Overview	33
4.5	Channel Gripper (XCG)	34
4.5.1	Channel Gripper DiTi (XCG-DT-1).....	34
4.5.2	Recommended Labware and Nests.....	35
4.6	DiTi Drop Station	36
5	Operation.....	37
5.1	Operating and Display Elements	37
5.1.1	Mains Power Input	37
5.1.2	Power Button	37
5.2	Operating the XEBU	38
5.2.1	Switching On and Off	38
5.2.2	Adjusting the Touch Screen.....	39
5.2.3	Status LED.....	40
5.2.4	Opening the Front Safety Panel.....	41
5.2.5	Operating the Waste Drawer	41
5.2.6	DiTi Drop Station.....	44
5.2.7	Placing a Carrier	45
5.2.8	Removing a Carrier.....	45

6 Preventive Maintenance and Repair	46
6.1 Decontamination.....	46
6.2 Cleaning Agents Specifications	46
6.3 Maintenance Schedule	47
6.3.1 Weekly Maintenance.....	47
6.3.2 Monthly Maintenance.....	47
6.3.3 Yearly Maintenance (ARP)	48
6.3.4 Biennial Maintenance (ARP).....	48
6.3.5 Quinquennial Maintenance	48
6.4 Maintenance Tasks.....	49
6.4.1 Cleaning the XCA	49
6.4.2 Cleaning the ARP	49
6.4.3 DiTi Cone	49
6.4.4 Dehumidifier.....	51
6.4.5 Cleaning the XCG	52
6.4.6 Replacing the Gripper.....	52
6.4.7 Cleaning the DiTi Drop Station and the Waste Drawer.....	52
7 Troubleshooting	53
7.1 Troubleshooting Tables	53
7.1.1 Base Unit Troubleshooting.....	53
7.1.2 Channel Arm Troubleshooting	53
7.1.3 Air Restriction Pipettor Troubleshooting	53
7.1.4 Channel Gripper Troubleshooting.....	54
8 Shutdown, Transport, Storage, and Disposal.....	56
8.1 Packaging Labels	56
8.2 Disposal.....	57
8.2.1 Local Requirements European Union	57
8.2.2 Local Requirements People's Republic of China.....	57
8.2.3 Other Requirements.....	58

9 Spare Parts and Accessories	59
9.1 Spare Parts	59
9.2 Accessories	59
9.3 Modules and Adapters.....	60
9.4 Tools	61
10 Customer Support	62
10.1 Contacts.....	62
Abbreviations.....	65

1 About This Manual

This Operating Manual describes the Cavro Magni Flex Enclosed Frame and provides all the information required for operating it safely and for maintaining it in good working order. This manual must be read carefully before performing any work on the Cavro Magni Flex Enclosed Frame and before using it. This chapter outlines the purpose of this manual and specifies the product referred to. Furthermore, it explains the use of symbols and conventions as well as further general information.



This Operating Manual contains no software description. For more information on the software please consult the corresponding software manual. Refer to section “Reference Documents” [▶ 9].

1.1 Scope of This Manual

This manual applies to:

Cavro Magni Flex Enclosed Frame 4-grid Model

Tab. 1: Configuration overview for 4-grid models

Configuration	Number of Channels	Pipetting System
Magni Flex 20A00-4G-XE	2	ARP
Magni Flex 40A00-4G-XE	4	ARP
Magni Flex 44A00-4G-XE	8	ARP

Cavro Magni Flex Enclosed Frame 6-grid Model

Tab. 2: Configuration overview for 6-grid models

Configuration	Number of Channels	Pipetting System
Magni Flex 20A00-6G-XE	2	ARP
Magni Flex 40A00-6G-XE	4	ARP
Magni Flex 44A00-6G-XE	8	ARP

Cavro Magni Flex Enclosed Frame 9-grid Model

Tab. 3: Configuration overview for 9-grid models

Configuration	Number of Channels	Pipetting System
Magni Flex 20A00-9G-XE	2	ARP
Magni Flex 40A00-9G-XE	4	ARP
Magni Flex 44A00-9G-XE	8	ARP



Not all configurations may be available in your region. Contact a Tecan representative for regional availability.

**Address of
Manufacturer**

1.2 Manufacturer

Tecan Schweiz AG

Seestrasse 103

CH-8708 Männedorf

Switzerland

1.3 Intended Use

The Cavro Magni Flex Enclosed Frame component is intended to be used in the development of automated liquid handling instruments. It is always a sub-component of a larger/ complete system. It is a modular component to be integrated by internal and external developers as a starting point for their development of an end product.

1.4 Improper Use

Improper use may prejudice the Cavro Magni Flex Enclosed Frame safety concept.

- The Cavro Magni Flex Enclosed Frame configurations and modules are CSA recognized components.
- The Cavro Magni Flex Enclosed Frame and its options and accessories as supplied are not finished equipment and are not an in vitro diagnostic (IVD) device.
- The Cavro Magni Flex Enclosed Frame is not explosion-proof and should not be installed in locations where there is a hazard of explosion.
- The Cavro Magni Flex Enclosed Frame should not be used in the absence of functional safety devices.
- The end user should evaluate based on their intended use if additional safety features are needed in order to meet their product safety requirements

1.5 Warranty

The use of unapproved components may impair the safety concept of the Cavro Magni Flex Enclosed Frame.

The use of unapproved components would invalidate any warranty of safety and compliance to national and international standards, as required for UL/CSA certification, by EC directives, etc.

EMC testing of the final system is always needed.

1.6 Trademarks

The product names, whether registered or unregistered trademarks, mentioned in this manual are reproduced solely for identification purposes and remain the exclusive property of their respective owners. For simplicity reasons, the trademark symbols such as ® and ™ are not repeated in the manual.

1.7 Reference Documents

This section provides a list of the documents that are needed or may be useful when using the Cavro Magni Flex Enclosed Frame.

The Doc IDs listed below are root numbers. Therefore, they do not contain information about the language, document version, or the medium (data storage medium, hard copy, downloadable file, etc.) of the document.



On the basis of your order configuration, the Operating Manuals for optional equipment apply as well.

Check the scope of the corresponding document to ensure that you are in possession of the correct version.

The Doc ID does not refer to ordering information. When placing orders, please refer to the number on the binder, CD casing, etc.

1.7.1 Documentation

- Quick Start Guide (DocID 401261)
- Cavro Magni Flex Enclosed Frame Base Unit XEBU Service Manual (DocID 401718)
- Cavro Magni Flex Integration Manual (DocID 401178)
- MAPlinx Setup Software Manual (DocID 400613)
- Loading ID Operating Manual (DocID 399901)

3rd Party Modules

- CPAC 2-TEC: INHECO CPAC devices (DocID 900650-001)
- Thermoshake AC: INHECO Shaker with clamping mechanism (DocID 901325-000)
- INHECO Multi TEC Control (DocID 900067-003)
- QInstruments BioShake (DocID 2016-0517)

1.8 Document Conventions

Cross-References

Cross-references appear as follows—e.g.:

Refer to section “[Safety](#)” [▶ 11]

- “Safety” refers to the corresponding section header
- The page number is given in square brackets

Prerequisites

Prerequisites appear as follows—e.g.:

- ✓ “General Safety Information” has been read.

Tips

Additional tips appear as follows—e.g.:



For safety conventions and symbols refer to chapter “[Safety](#)” [▶ 11].

Illustrations

The illustrations may show component versions which are not relevant to your Cavro Magni Flex Enclosed Frame.





2 Safety

This chapter describes the safety concept of Cavro Magni Flex Enclosed Frame, provides general rules of correct behavior, and warnings concerning hazards associated with the use of the Cavro Magni Flex Enclosed Frame.

2.1 Safety Message Conventions

2.1.1 Signal Words

Tab. 4: Signal Words

Signal Word	Meaning
 DANGER	Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
 WARNING	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
 NOTICE	Indicates a situation that is not hazard-related but, if not avoided, could result in damage to or malfunctioning of the equipment, or incorrect process results.

2.1.2 Safety Symbols



General warning



Biohazard

2.2 General Safety Information

WARNING

Cavro Magni Flex Enclosed Frame is designed and built in accordance with the present state-of-the-art technology and the recognized technical safety regulations. Nevertheless, risks to users, property and the environment can arise if the Cavro Magni Flex Enclosed Frame is used without due care and attention.

The safety of all users and personnel depends on the strict observation of these safety instructions and awareness of the safety-related warnings provided in this manual.

- Please pay great attention to the following general safety information.
 - This manual must always be available to all persons performing the tasks described herein.
-
- Legal regulations, such as local, state and federal laws concerning the use or application, as well as the handling, of dangerous materials in connection with the Cavro Magni Flex Enclosed Frame must be strictly followed.
 - The operating company is responsible for defining instructions in accordance with company procedures and local legal requirements. The instructions provided by the operating company must be strictly observed.
 - Observe the correct environmental conditions for storage and operation.
 - Structural changes to the safety devices are forbidden.
 - Damaged safety devices must be replaced immediately as described in this manual.
 - Fire hazard caused by the improper use of the Cavro Magni Flex Enclosed Frame. The Cavro Magni Flex Enclosed Frame should not be installed in locations where there is a hazard of explosion.
 - Chemical, biological, and radioactive hazards can be associated with the substances used or the samples and reagents processed with the Cavro Magni Flex Enclosed Frame (e.g., during loading and unloading). The same applies to waste disposal.
 - Always be aware of possible hazards associated with these substances.
 - Use appropriate protective clothing, safety goggles and gloves.
 - The handling of substances and the disposal of waste may be subject to local, state, or federal law, or to regulations with regard to health, environment, or safety. Strictly observe the corresponding provisions.
 - Any contamination must be dealt with immediately as described in this manual.
 - The user is responsible for ensuring that the Cavro Magni Flex Enclosed Frame is always operated under proper conditions, and that maintenance, service, and repair tasks are performed with care, on schedule, and only by authorized personnel.
 - Risk of incorrect measuring results. After system care or maintenance has been performed, operation must only be resumed after the correct system operating conditions have been verified.
 - Always use recommended consumables and original spare parts for maintenance and repair to assure good system performance and reliability.

- In case of an emergency situation the mains plug of the power supply unit must be disconnected immediately.
- Free access to the power plug of the power supply unit must be ensured.
- The operator is responsible to ensure that the necessary waste bin(s) are in place whenever the instrument is operating.
- Be aware of the total height of the instrument whenever the front safety panel is fully opened. It may be colliding with the ceiling causing some damage (refer to [“Dimensions and Weights” \[p. 17\]](#)).
- Be careful when closing the front safety panel. Keep your fingers off the lower rail of the panel to prevent jammed fingers.
- The HEFU option is not replacing a laminar flow cabin or fume hood in case of critical particle or processes.
- The air flow of the HEFU may influence the assay which can result in a wrong diagnostic.
- Infectious material used inside the system can bypass the HEPA filter (H13) due to inadequate tightness of the system. There is the possibility of biohazard.
- Due to the limitation of the filter class (H13) used in the HEFU the risk of a chemical contamination of the user cannot be completely excluded.
- Do not lubricate the Z-rod.
- To ensure proper capacitive level detection performance, pretreat sample to eliminate foam and bubbles.
- Do not apply force on the channel arm. The arm is designed for automated operation and should not be operated manually or used as handle.
- Risk of a wrong sample treating (magnetic bead processing) due to influence of magnets present in the gripper body.
- Risk of gripper finger damage due to the use of inappropriate cleaning agent.
- Risk of collision with labware or nest during transport due to inappropriate labware or nest type.
- Risk of loss of the labware during transport due to inappropriate labware type.
- The user is responsible for ensuring that the correct DiTi size is picked up. Due to incorrect DiTi size a wrong volume may be pipetted.
- Access restriction to the ARP pump must be ensured to mitigate the risk of burn, in case the pump heats up in error conditions.
- Appropriate heat enclosure for the ARP pump needs to be considered in the end-use product.
- There is the possibility of sample contamination when using the Thermoshake AC option: The adequate set of shaking speed, plate type and sample volume must be selected for the application.
- When using UVC light option, decontamination efficiency depends on the deck layout and the usage. Decontamination efficiency needs to be validated for individual applications. Decontamination efficiency must be checked with only 60% of irradiation duration (for a new lamp) in order to emulate the end-of-life of the UV lamp.
- Assays may be degraded by the use of the UVC light. Evaluate the impact of the UVC light on chemicals and labware intended to use.
- When using the integrated computer option, be aware of the risk of data loss due to a hard drive failure. Back up important data regularly.

- For California residents only: This product can expose you to chemicals such as lead which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov/product.

2.3 Operating Company

The operating company must ensure that the Cavro Magni Flex Enclosed Frame and in particular the safety features, function properly and that all the personnel in contact with the instrument are adequately trained.

Responsibilities

- Method and process validation.
- Defining the processes in compliance with the Standard Operating Procedures.
- Ensuring that installation and operational qualifications (IQ OQs) have been completed.
- Ensuring that all personnel in contact with the Cavro Magni Flex Enclosed Frame are adequately trained.
- Ensuring the availability of appropriate protective clothing and equipment.
- Ensuring the maintenance and safe operation of the Cavro Magni Flex Enclosed Frame.
- Requiring adherence to laboratory safety regulations and directives.

2.4 User Qualification

The laboratory personnel must be fully qualified and trained to operate the Cavro Magni Flex Enclosed Frame. The work described in this Operating Manual must only be performed by authorized personnel with the qualifications prescribed below.

Laboratory personnel must:

- have suitable technical training,
- be familiar with the laboratory safety regulations and directives,
- be familiar with the instructions for the safety elements of the instrument,
- use protective clothing and equipment,
- be familiar with and adhere to good laboratory practices,
- and have read and understood the instructions in the Operating Manual.

Tecan recommends that the operator attends an operator training course. Please ask the Tecan Customer Service about available courses. Refer to section [“Customer Support” \[▶ 62\]](#).

2.4.1 Operator

Required Skills

The operator (lab technician) works for the operating company.

- No specific application or system knowledge
- Command of local languages
- Command of English is preferable

The operator has application software access rights allowing him to run methods and perform system care.

2.4.2 Key Operator

The key operator (application specialist) supports the operating company or works for the same company.

Required Skills

- Extensive application knowledge
- Limited system knowledge
- Command of local languages
- Command of English
- In-depth knowledge of the corresponding software manual

Responsibilities

- Instructing the operator
- Writing, running and validating methods
- Helping the operator to solve problems with the instrument

2.5 Decontamination Declaration

In addition to regular system care, and in accordance with standard laboratory regulations, the Cavro Magni Flex Enclosed Frame and its parts and accessories must be thoroughly decontaminated in the following circumstances:

- Before any maintenance or service work is performed on the Cavro Magni Flex Enclosed Frame and, in particular, before an FSE intervention on the Cavro Magni Flex Enclosed Frame
- In the event of accidents (e.g., crash, spillage, etc.)
- Before returning the Cavro Magni Flex Enclosed Frame or its parts or accessories, to Tecan (e.g., for repair)
- Prior to storage
- Prior to disposal
- In general, before moving the Cavro Magni Flex Enclosed Frame or its parts from its location

The owner of the instrument has full responsibility for the effective decontamination of all the equipment.

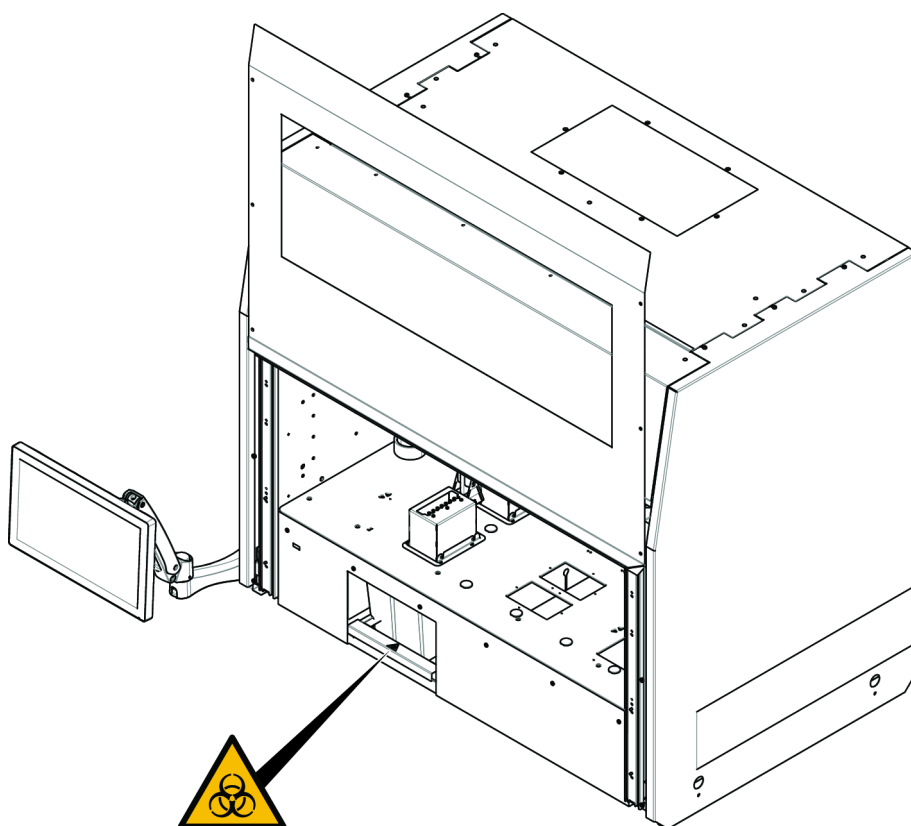
Before any intervention on the Cavro Magni Flex Enclosed Frame by an FSE, and before returning the Cavro Magni Flex Enclosed Frame or its parts or accessories to Tecan, the owner of the instrument must complete and sign the Decontamination Declaration form, confirming that the decontamination has been performed in accordance with good laboratory practice guidelines. Contact your local service organization to obtain this form and refer to section [“Decontamination” \[▶ 46\]](#).



Tecan reserves the right to refuse to deal with any Cavro Magni Flex Enclosed Frame or its parts or accessories that is not accompanied by the Decontamination Declaration form.

2.6 Product Safety Signs

Safety signs are affixed to the Cavro Magni Flex Enclosed Frame for safety purposes. Damaged, lost or illegible safety signs must be replaced immediately as illustrated. For the meaning of safety symbols refer to section “[Safety Message Conventions](#)” [▶ 11].



3 Technical Data

3.1 Dimensions and Weights

Instruments with Air Restriction Pipettor (ARP)

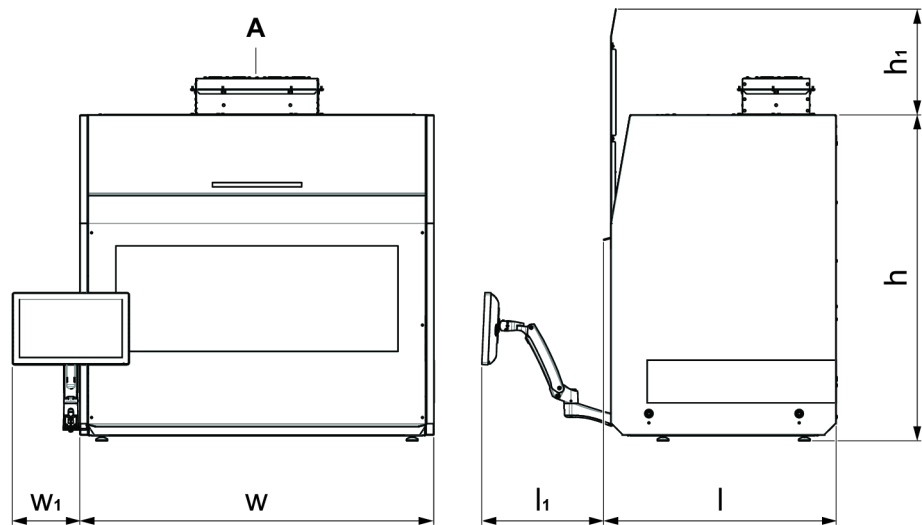


Fig. 1: Dimensions, e.g. Magni Flex Enclosed Frame 44A00-6G-XE

Note: The width increases by 332 mm (13.1 in.) with mounted carrying handles. The height increases by 166 mm (6.5 in.) with the HEFU option (A).

Note: The total height increases by 360 mm (14.2 in.) with the front safety panel opened (h_1). The total width increases by at least 205 mm (8.0 in.) by the touch screen (w_1). The total length increases by at least 224 mm (8.8 in.) by the touch screen (l_1).

Component	Dimension Length (l) x Width (w) x Height (h)
Magni Flex 20A00-4G-XE Magni Flex 40A00-4G-XE Magni Flex 44A00-4G-XE	782 x 914 x 1094 mm (30.8 x 36.0 x 43.1 in.)
Magni Flex 20A00-6G-XE Magni Flex 40A00-6G-XE Magni Flex 44A00-6G-XE	782 x 1190 x 1094 mm (30.8 x 46.9 x 43.1 in.)
Magni Flex 20A00-9G-XE Magni Flex 40A00-9G-XE Magni Flex 44A00-9G-XE	782 x 1604 x 1094 mm (30.8 x 63.2 x 43.1 in.)

Note: The weight below excludes the weight of the carrying handles; four handles weigh 2052 g (4.52 lb.).

Note: The weight below excludes the weight of the touch screen; the touch screen weighs 5.4 kg (11.90 lb.).

Note: The weight below excludes the weight of the internal computer; the computer weighs 2.9 kg (6.39 lb.).

Note: The weight below excludes the weight of optional modules, e.g. HEFU, UVC light.

Note: The weight increases if the instrument is equipped with the XCG option (refer to Channel Grippers below).

Component	Weight
Magni Flex 20A00-4G-XE	117.0 kg (257.9 lb.)
Magni Flex 40A00-4G-XE	118.0 kg (260.1 lb.)
Magni Flex 44A00-4G-XE	124 kg (273.4 lb.)
Magni Flex 20A00-6G-XE	134.0 kg (295.4 lb.)
Magni Flex 40A00-6G-XE	135.0 kg (297.6 lb.)
Magni Flex 44A00-6G-XE	141.0 kg (310.8 lb.)
Magni Flex 20A00-9G-XE	159.0 kg (350.5 lb.)
Magni Flex 40A00-9G-XE	160.0 kg (352.7 lb.)
Magni Flex 44A00-9G-XE	166.0 kg (365.9 lb.)

Ventilation Requirements

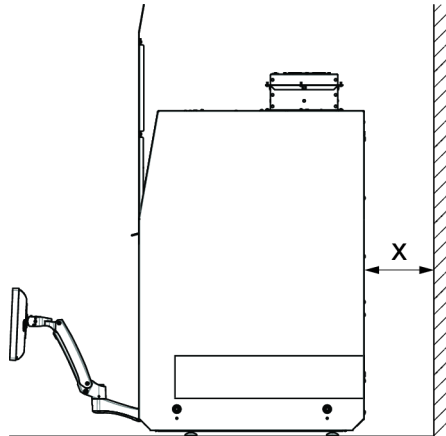


Fig. 2: Ventilation Requirements

Minimum clearance (x) between instrument back and wall: ≥ 100 mm.

XCG-DT-1

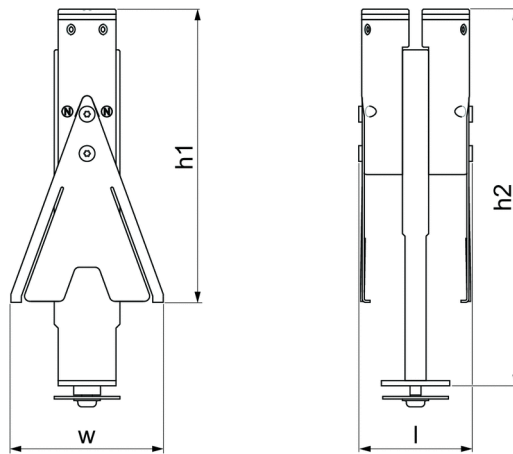


Fig. 3: XCG-DT-1 dimensions

Component	Dimension Length (l) x Width (w) x Height (h1)
XCG-DT-1	43 x 58 x 112 mm (1.7 x 2.3 x 4.4 in.)

Component	Dimension Length (l) x Width (w) x Height (h1)
	h2 correlates with the height above the worktable. 144 mm (5.6 in.)

Component	Weight
XCG-DT-1	312 g (0.69 lb.)

DiTi Drop Station OnDeck

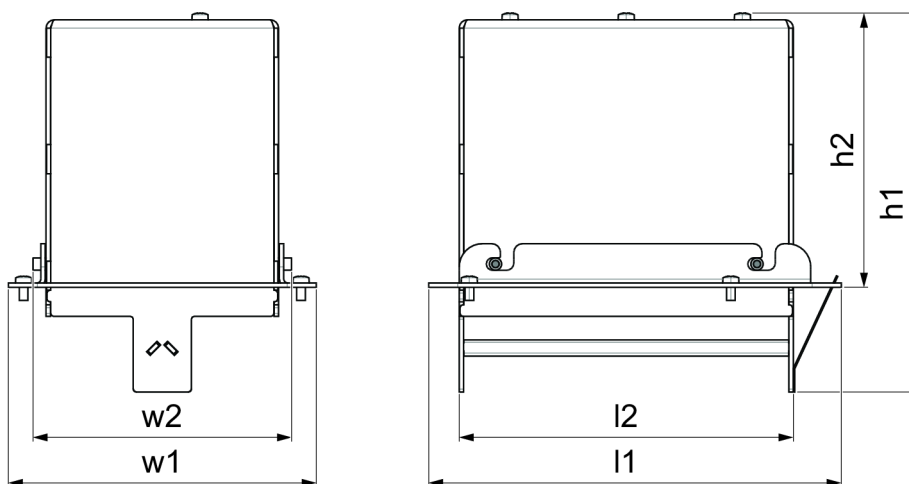


Fig. 4: DiTi Drop Station OnDeck dimensions

Component	Dimension Length (l1) x Width (w1) x Height (h1)
DiTi Drop Station OnDeck (incl. mounting frame)	142 x 106 x 130 mm (5.6 x 4.2 x 5.1 in.)

Component	Dimension Length (l2) x Width (w2) x Height (h2)
DiTi Drop Station OnDeck	115 x 89 x 94.5 mm (4.5 x 3.5 x 3.7 in.)

Component	Weight
DiTi Drop Station OnDeck	575 g (1.26 lb.)
DiTi Drop Station OnDeck (incl. mounting frame)	670 g (1.47 lb.)

3.2 Power Supply

Tab. 5: Power supply data

Parameter	Rating
Line voltage (single phase)	100–240 VAC ($\pm 10\%$)
Input power	3840 VA
Frequency	50/60 Hz
Fuse	F16AH500V

3.3 Connectivity

- USB-C (USB cable must be rated 0.5 A or higher)
- RJ45 (Ethernet, must not be powered)

3.4 Environmental Conditions

Operating Conditions *)

Operating temperature	15–32°C (59–90°F)
Operating humidity	30–80% relative (non-condensing)
Operating altitude	0–2000 m above sea level
*) indoor only	

Transport Conditions

Transport temperature	-20 to 60°C (-4 to 140°F)
Transport humidity	20–80% relative (non-condensing)

Storage Conditions *)

Storage temperature	1–60°C (34–140°F)
Storage humidity	5–80% relative (non-condensing) at 30°C or below
*) indoor only	

Other

Overvoltage category	II
Pollution degree	2

3.5 Emission and Immunity

Noise Emission

≤ 65 dBA (sound pressure), measured at a distance of 1 m from instrument

EMC

The Cavro Magni Flex Enclosed Frame complies with the emission and immunity requirements described in IEC 61326-1 and IEC 61326-2-6. However, the electromagnetic environment should be evaluated prior to the operation of the Cavro Magni Flex Enclosed Frame. It is the operator's responsibility to ensure that

a compatible electromagnetic environment for the Cavro Magni Flex Enclosed Frame can be maintained in order that the Cavro Magni Flex Enclosed Frame will perform as intended.

This equipment is designed for use in a professional healthcare facility environment. It is likely to perform incorrectly if used in a home healthcare facility environment. If it is suspected that performance is affected by electromagnetic interference, correct operation may be restored by increasing the distance between the equipment and the source of the interference.

Do not operate the Cavro Magni Flex Enclosed Frame in close proximity to sources of strong electromagnetic radiation (e.g., unshielded intentional RF sources), as these can interfere with the proper operation.

3.6 IVD Label Requirements

In case the Cavro Magni Flex Enclosed Frame is integrated in a IVD end-product, a clear indication that the equipment is IVD medical equipment shall be marked on the equipment or packaging or in the instruction for use.

3.7 Software Requirements

The Cavro Magni Flex Enclosed Frame is compatible with following SW packages:

- MAPlinx Development Kit
- MAPlinx Setup Software
- Other Tecan software packages supporting Cavro Magni Flex Enclosed Frame



It is strongly recommended to use the latest software version. For further information please consult the “Customer Support” [▶ 62].

3.8 Specifications

Tab. 6: Communication

To other Tecan devices	CAN2 * 500 kb/s CAN1 * 100 kb/s
To host	USB
To 3 rd party devices	USB, COM, Ethernet

* Tecan specific protocol

Tab. 7: ARP Pipetting Precision

Volume	Coefficient of Variation (CV)
1 µl	≤ 5%
200 µl	≤ 2%
1000 µl	≤ 2%

Tab. 8: Options

Module	Description
HEPA filter unit (HEFU)	Filter module with HEPA grade filter. Air flow can be adjusted to blow filtered air in the enclosure or extract air by passing the filter.
UVC light	UVC emitting lamp for decontamination of the inside of the instrument housing and work deck.
Loading ID	The Loading ID is an optional module that can be incorporated to scan tube barcode labels as tube carriers are loaded onto the deck. Each Loading ID module includes up to six dedicated grid positions for loading and scanning the barcode labels of up to six carriers. The reflector is used to detect empty tube positions in a carrier.
Integrated computer	The integrated computer option enables connectivity of the Cavro Magni Flex Enclosed Frame. Including an MS Windows Operating System, network port and USB ports, this option can be equipped with the application software to operate the instrument component.
Touch screen	The optional touch screen is an extension of the integrated computer and enables user interaction over the height adjustable touch screen display.
Inheco Thermoshake AC	Compact "all-in-one" Heating/Cooling/Shaking unique heating and cooling shaking solution with automated clamping for robotic integration.
Inheco CPAC 2-TEC	Inheco CPAC (Cold Plate Air Cooled) devices are compact "all-in-one" heating and cooling blocks for microplates, tubes or reservoirs for the integration into robotic workstations.
QInstruments BioShake 3000-T elm	The QInstruments BioShake is an optional shaking solution with automated clamping for robotic integration.
Interim Position Door Lock	Option for 2 nd door lock preventing access to the worktable whilst still providing access to the solid waste drawer.

Tab. 9: Maximum Load Weight

DiTi XCG-1	400 g (0.88 lb.)
------------	------------------

Tab. 10: Software and Programming

Required OS	Windows 10
Offered	MAPlinx Development Kit C# Development Infrastructure

4 Description of Function

This chapter explains the basic principle of the Cavro Magni Flex Enclosed Frame, shows how it is structured and gives a functional description of the assemblies.

4.1 Instrument

The Cavro Magni Flex Enclosed Frame represents a comprehensive, modular liquid handling framework that is designed to easily integrate into almost any system, in a wide range of laboratory processes – from immunoassay processing to molecular diagnostics – allowing instrument designers to concentrate on their applications instead of individual pipetting tasks.

Key Benefits

Adaptable and versatile – two, four or eight independent Y- and Z-channels provides variable spacing capabilities, enabling the use of different labware formats to match the needs for your specific application.

Flexible Air dispensing that is ideal for your application requirement

Channel Grippers – using the existing channels as gripper extensions eliminates the need for an additional arm for labware handling.

Wide volume pipetting capability – broad range for application flexibility.

4.1.1 Cavro Magni Flex 44A00-6G-XE-XCG

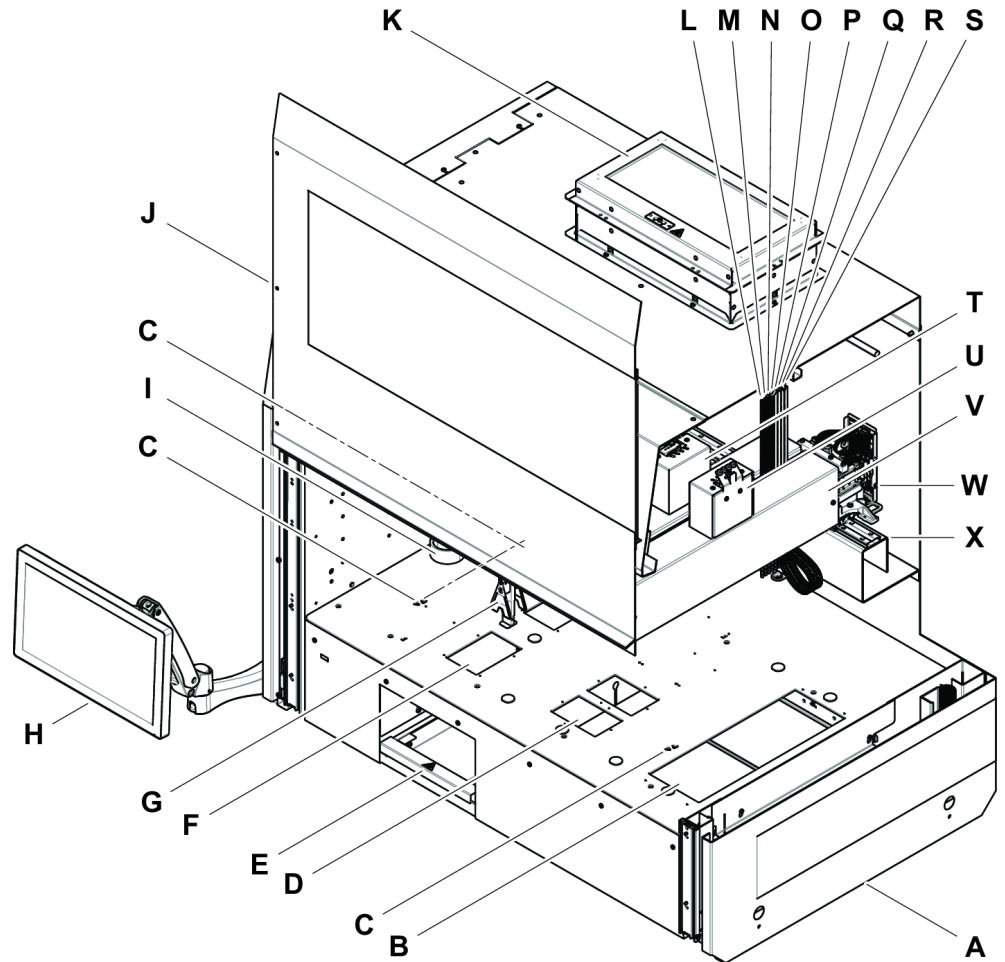


Fig. 5: Magni Flex Enclosed Frame 44A00-6G-XE-XCG

A	Base Unit (XEBU)	B	Position for lower deck	C	Reference position
D	Position for Inheco CPAC 2-TEC	E	Waste drawer	F	Positions for DiTi Drop Station OnDeck
G	Channel Gripper DiTi (XCG-DT-1) *	H	Touch screen *	I	Dehumidifier
J	Front safety panel	K	HEPA Filter Unit (HEFU) *	L	Channel 8
M	Channel 7	N	Channel 6	O	Channel 5
P	Channel 4	Q	Channel 3	R	Channel 2
S	Channel 1	T	Pipetting unit CH 1-4	U	Pipetting unit CH 5-8
V	Channel Arm (XCA) CH 1-8	W	X-drive	X	X-rail

* optional

4.2 Base Unit (XEBU)

4.2.1 Carriers

Carriers are removable supports that can be placed on the worktable.
The following carriers are available.

Carrier 3 MTP

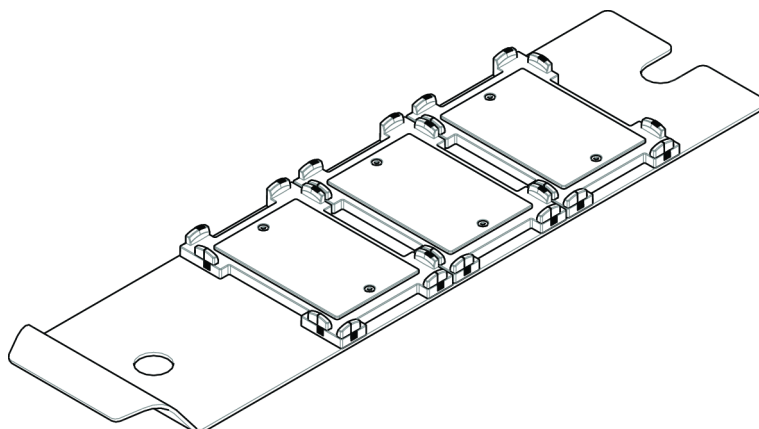


Fig. 6: Carrier 3 MTP

Carrier 4 MTP

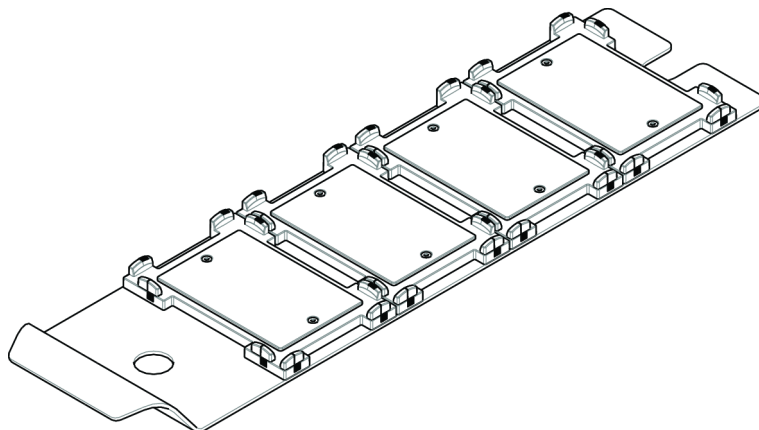


Fig. 7: Carrier 4 MTP

Carrier 5 MTP

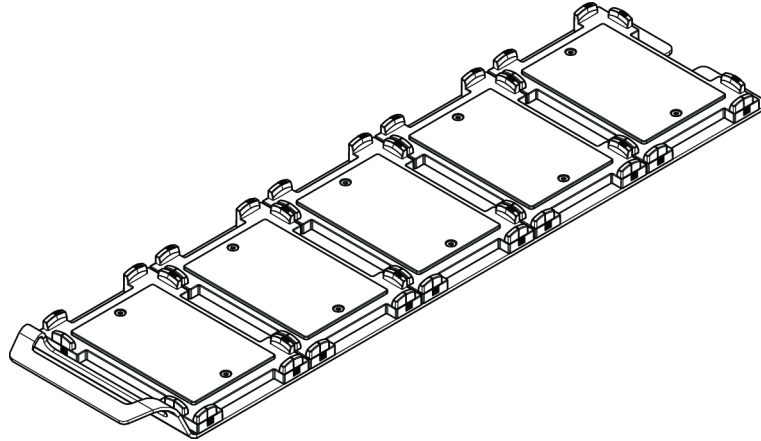


Fig. 8: Carrier 5 MTP

**Carrier 3 MTP
Elevated**

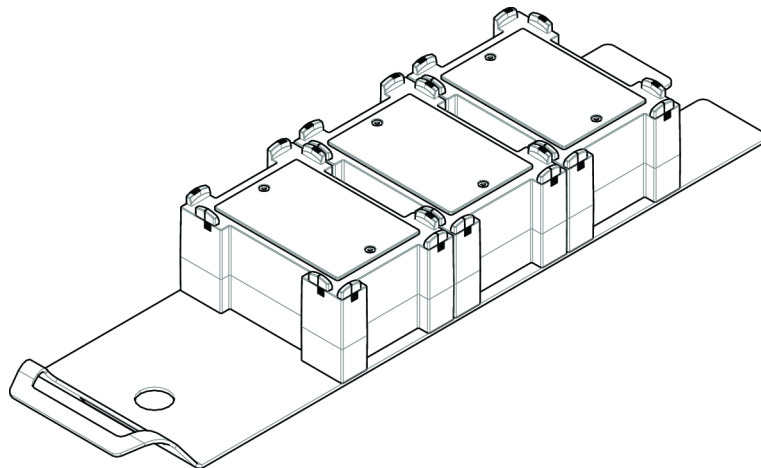


Fig. 9: Carrier 3 MTP Elevated

**Carrier 4 MTP
Elevated**

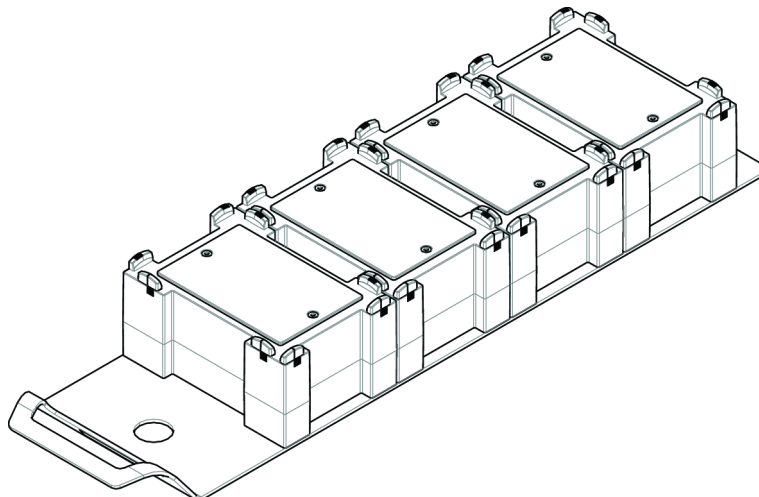


Fig. 10: Carrier 4 MTP Elevated

**Carrier 5 MTP
Elevated**

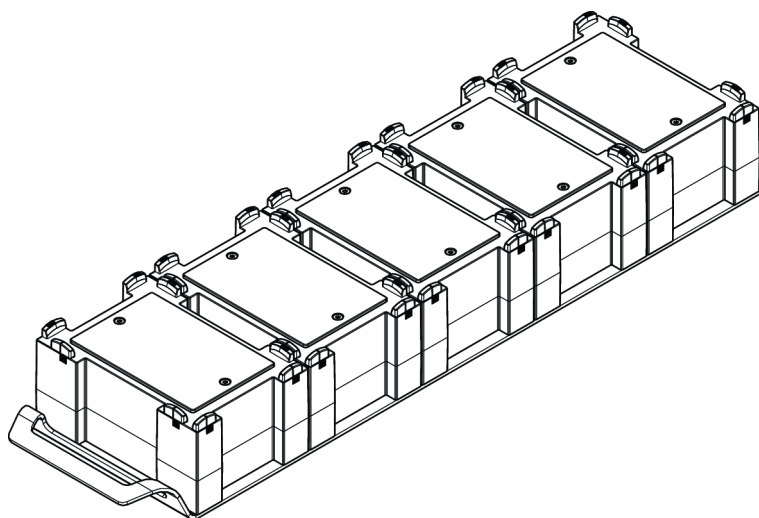


Fig. 11: Carrier 5 MTP Elevated

**Carrier XCG 3
MTP**

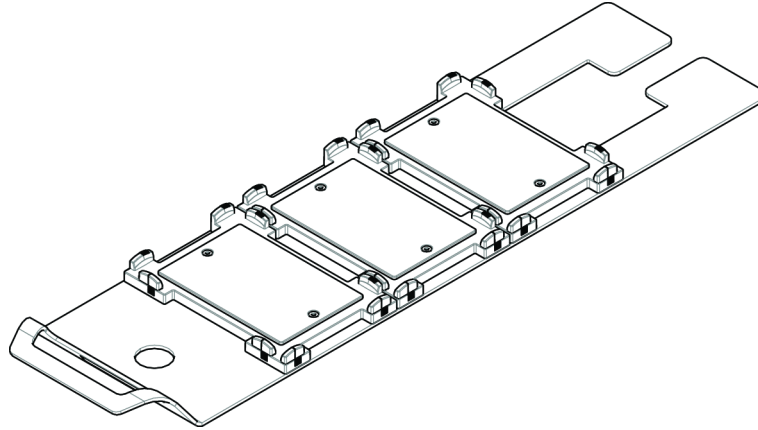


Fig. 12: Carrier XCG 3 MTP

**Adapter Plate
Carrier 5
Positions**

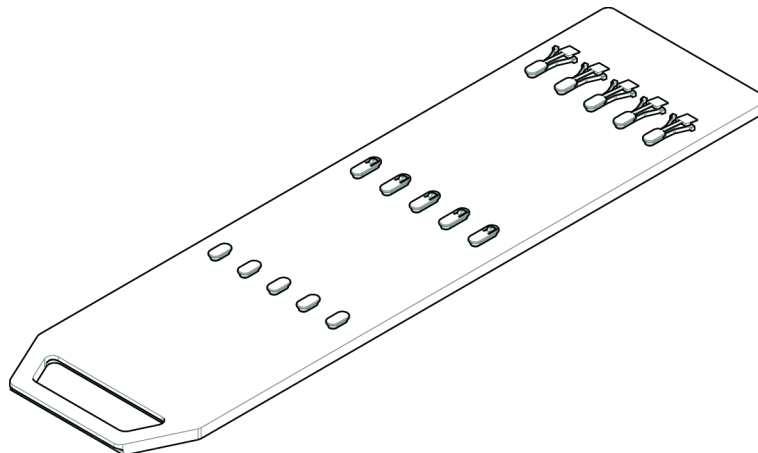


Fig. 13: Adapter Plate Carrier 5 Positions

**Adapter Plate
Twin Carrier 11
Positions**

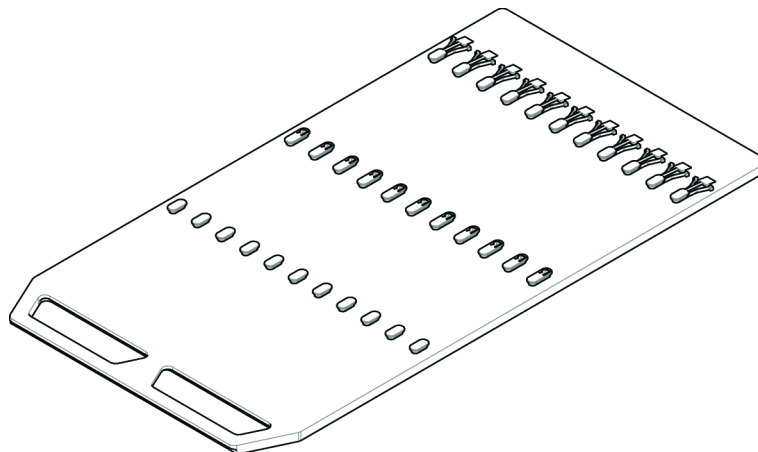


Fig. 14: Adapter Plate Twin Carrier 11 Positions

4.3 Channel Arm (XCA)

XCA is a component intended to position the pipetting channels for liquid handling and to move labware.

4.3.1 2-channel XCA

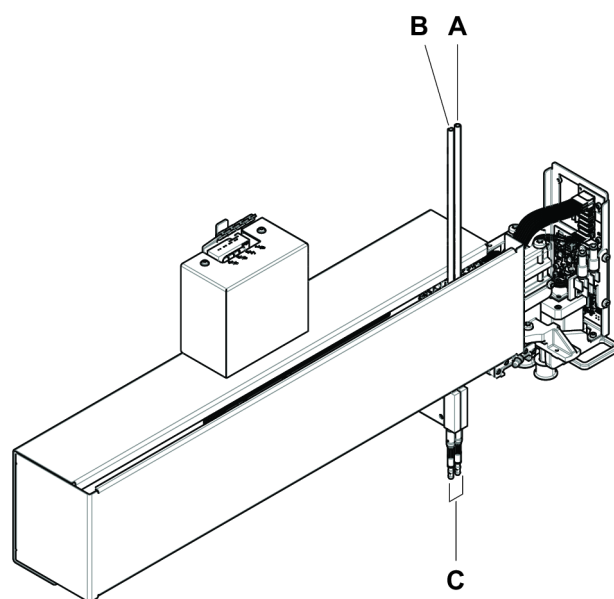


Fig. 15: 2-channel XCA ARP

A Channel 1

B Channel 2

C Tip interfaces

4.3.2 4-channel XCA

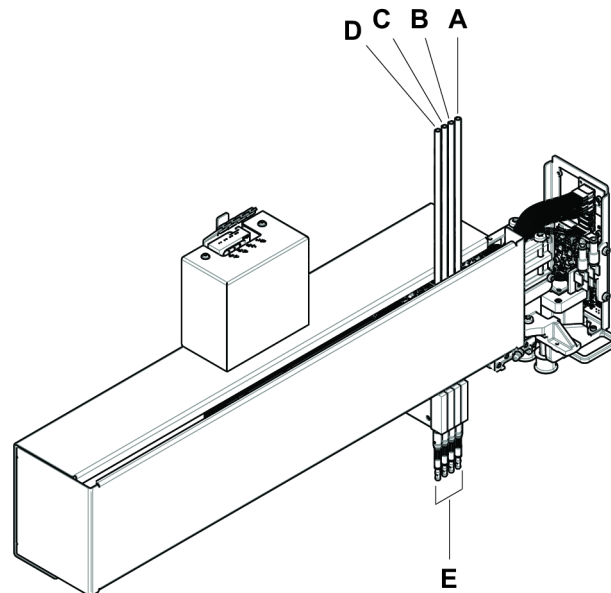


Fig. 16: 4-channel XCA ARP

- | | | |
|--------------------|-------------------------|--------------------|
| A Channel 1 | B Channel 2 | C Channel 3 |
| D Channel 4 | E Tip interfaces | |

4.3.3 8-channel XCA

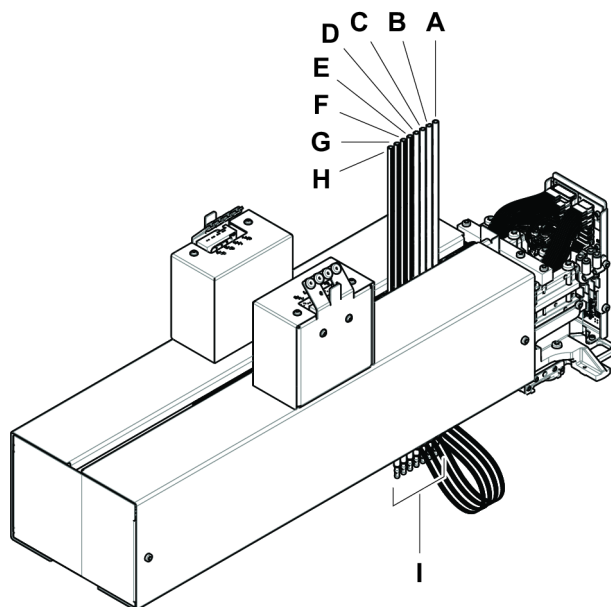


Fig. 17: 8-channel XCA ARP

- | | | | | | |
|----------|-----------|----------|-----------|----------|----------------|
| A | Channel 1 | B | Channel 2 | C | Channel 3 |
| D | Channel 4 | E | Channel 5 | F | Channel 6 |
| G | Channel 7 | H | Channel 8 | I | Tip interfaces |

4.4 Air Restriction Pipettor (ARP)

4.4.1 Overview

Air Restriction Pipettor (ARP) is a pressure controlled pipetting system.

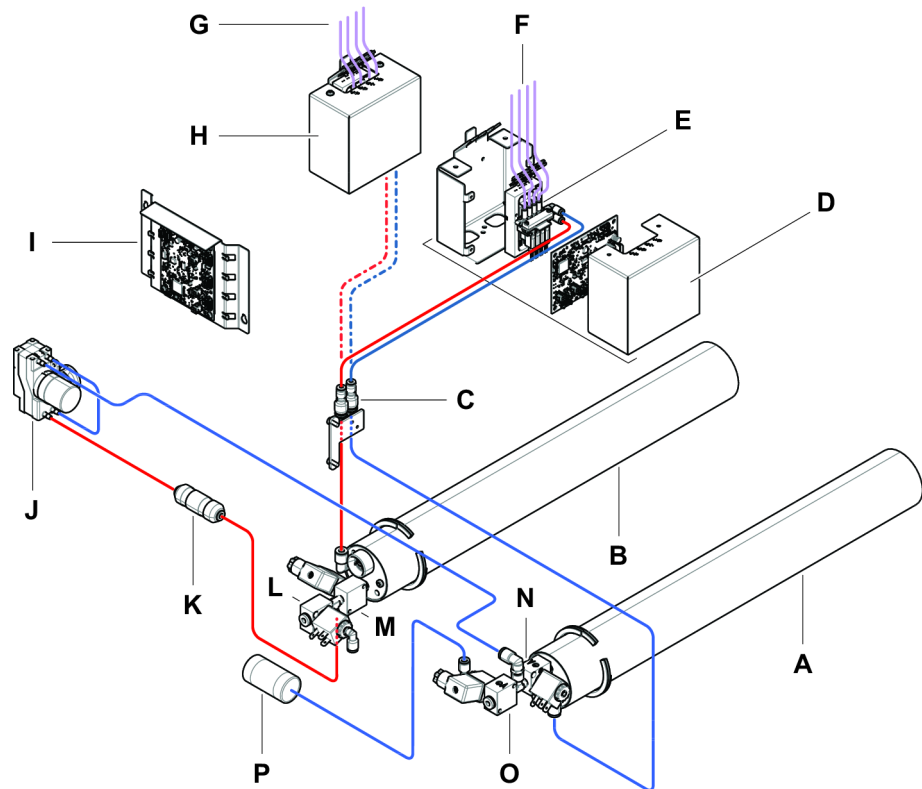


Fig. 18: Air Restriction Pipettor

A	Negative pressure tank	B	Positive pressure tank
C	Tube reduction	D	Pipetting unit (channel 1–4)
E	Valve block assembly	F	Pipetting tubing (channel 1–4)
G	Pipetting tubing (channel 5–8)	H	Pipetting unit (channel 5–8)
I	ARP main board	J	Pump
K	Particle filter	L	Positive vent. valve
M	Positive tank valve	N	Negative tank valve
O	Negative vent. valve	P	Dehumidifier

4.5 Channel Gripper (XCG)

The XCG is a module to transport labware on the worktable. The grippers are placed on the station and can be picked up when needed. XCG can be used with fixed tips or DiTis, however requires dedicated adapters.

4.5.1 Channel Gripper DiTi (XCG-DT-1)

The XCG-DT-1 is used when disposable tips are mounted. The lowest position in the Z-direction which can be reached is the worktable surface.

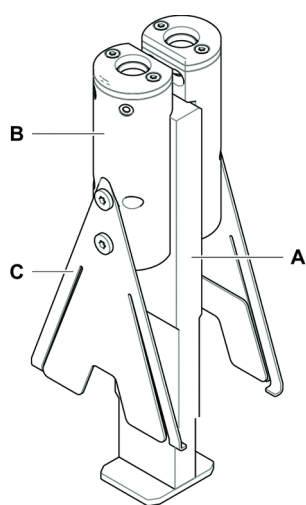


Fig. 19: XCG-DT-1

A XCG station
B Gripper body

C DiTi gripper finger

4.5.2 Recommended Labware and Nests

Tab. 11: Labware and Nests

Component	Type
Microplate	SBS Format, 96 well MTP, e.g. Greiner Bio-One flat-bottom, 655101 Remark: Plate movement reliability validation
Deepwell plate	SBS Format, 96 well DWP, e.g. Greiner Bio-One, V-bottom, 2ml, 780270 Remark: Plate movement reliability validation
Nest	Nest MP/DiTi 7 mm, Part no. 30042780 Nest MP/DiTi 61 mm, Part no. 30042781

4.6 DiTi Drop Station

A Cavro Magni Flex Enclosed Frame equipped with an ARP option requires the installation of a DiTi drop station on the worktable. Depending on grid size and DiTi throughput, a rear and a front position or just a rear position is installed by default. For each DiTi drop station a mounting frame is fixed on the worktable. The DiTi drop station itself can be removed for maintenance purpose by pushing it to the back and lifting it out of the frame. For each DiTi drop station a waste bin must be placed in the waste drawer at sub worktable level to collect the used DiTi.

Note: Do not unscrew the mounting frame of the DiTi drop station.

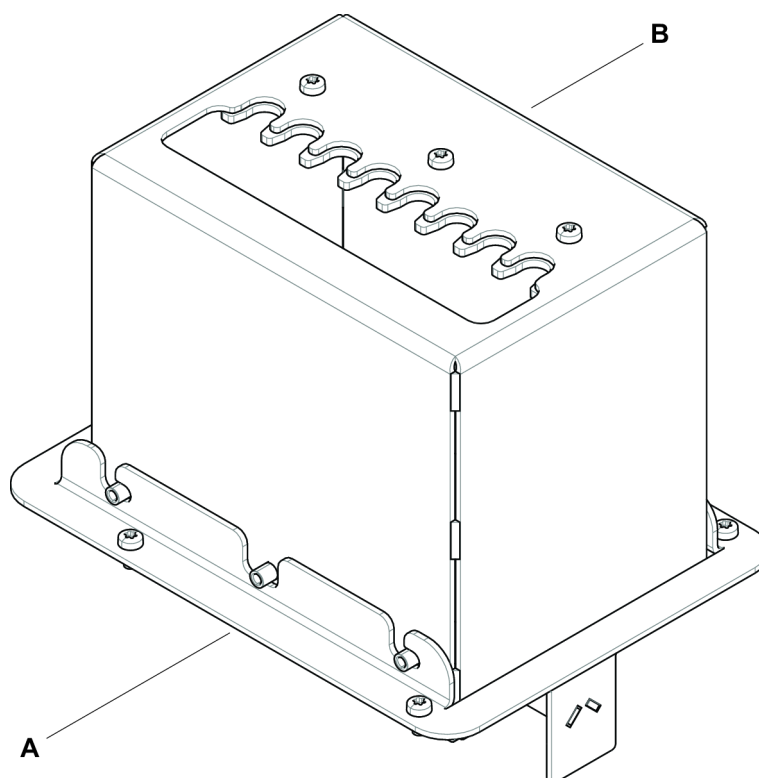


Fig. 20: DiTi Drop Station

A Frame

B Drop station

5 Operation

5.1 Operating and Display Elements

5.1.1 Mains Power Input

The mains power input of the Cavro Magni Flex Enclosed Frame is protected by two 16 A fuses. Always use a power cord which is rated 16 A or higher.

Note: The operator must not exchange fuses! Refer to the Service Manual.

The Cavro Magni Flex Enclosed Frame must be connected to a grounded power source using an approved power cord with grounding conductor.

5.1.2 Power Button

Location The power button (A) of the Cavro Magni Flex Enclosed Frame is located on the left-hand side of the instrument.

Note: In case of emergency the disconnection of the power must be done by unplugging the power cord. Ensure that the power cord is reachable at any time!

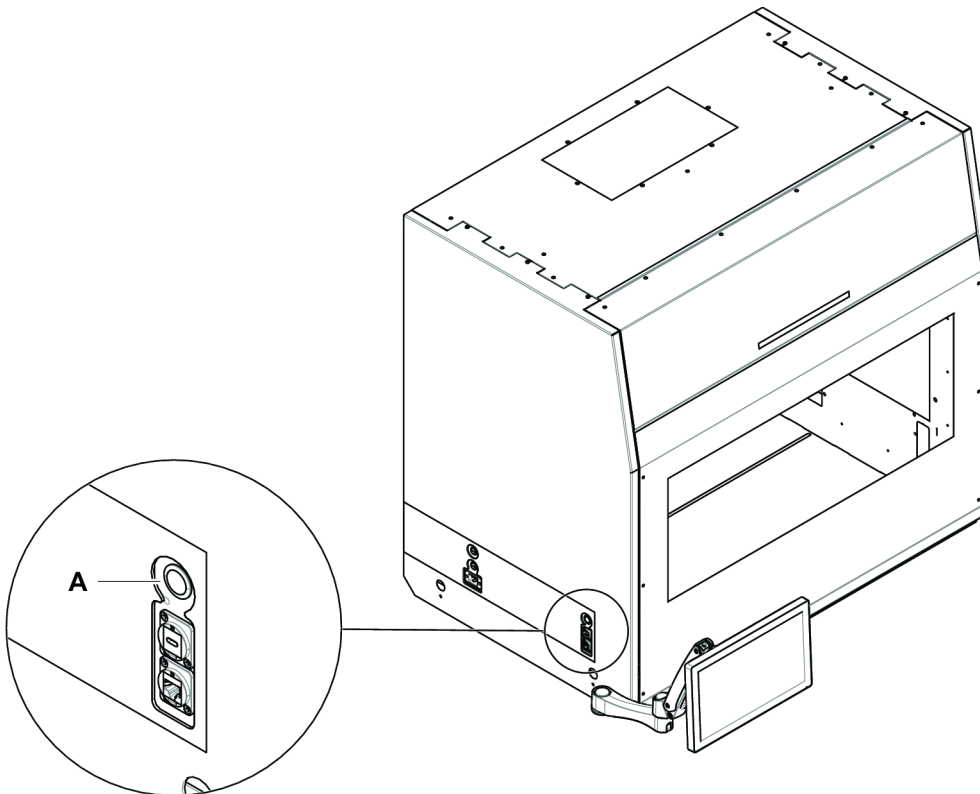


Fig. 21: Power button location

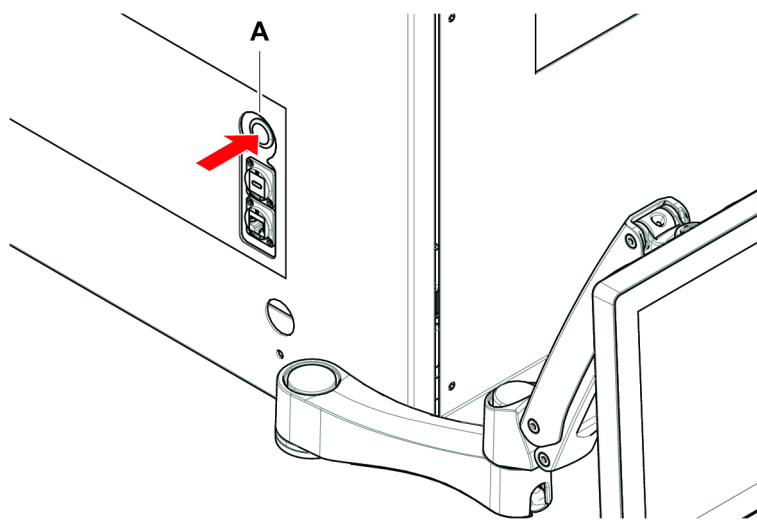
5.2 Operating the XEBU

5.2.1 Switching On and Off

Switching on

To switch on the Cavro Magni Flex Enclosed Frame, proceed as follows:

1. Switch on the power by pressing the power button (A).



Switching off

The Cavro Magni Flex Enclosed Frame is switched off by exiting application/ shutting down windows.

For a forced shut down, press the button for 5 seconds to shut down the instrument and optional computer.

5.2.2 Adjusting the Touch Screen

For your comfort the touch screen can be swivelled in any direction.

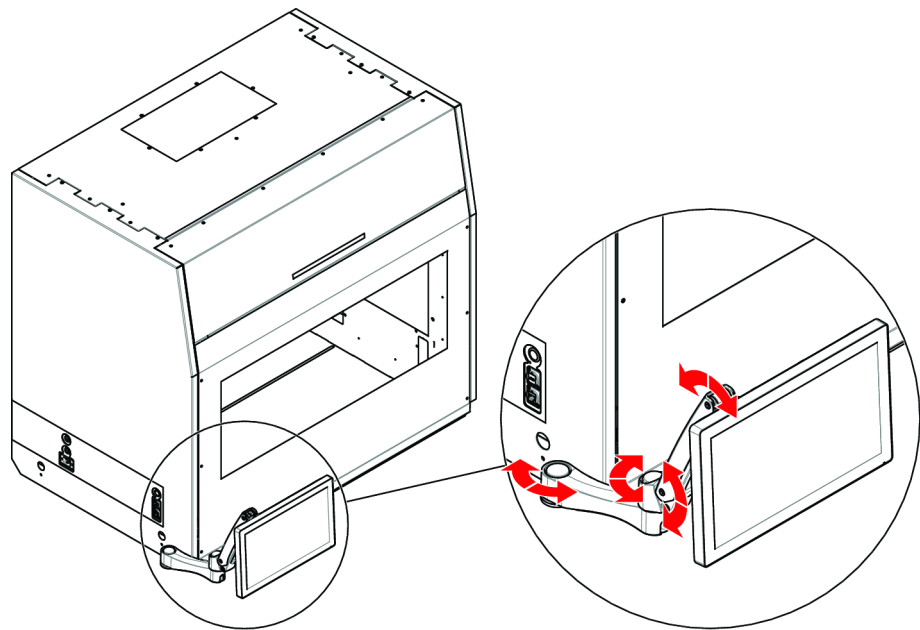


Fig. 22: Adjusting the touch screen

5.2.3 Status LED

Above the housing opening there is an LED bar (A) showing the current status of instrument and the application software.

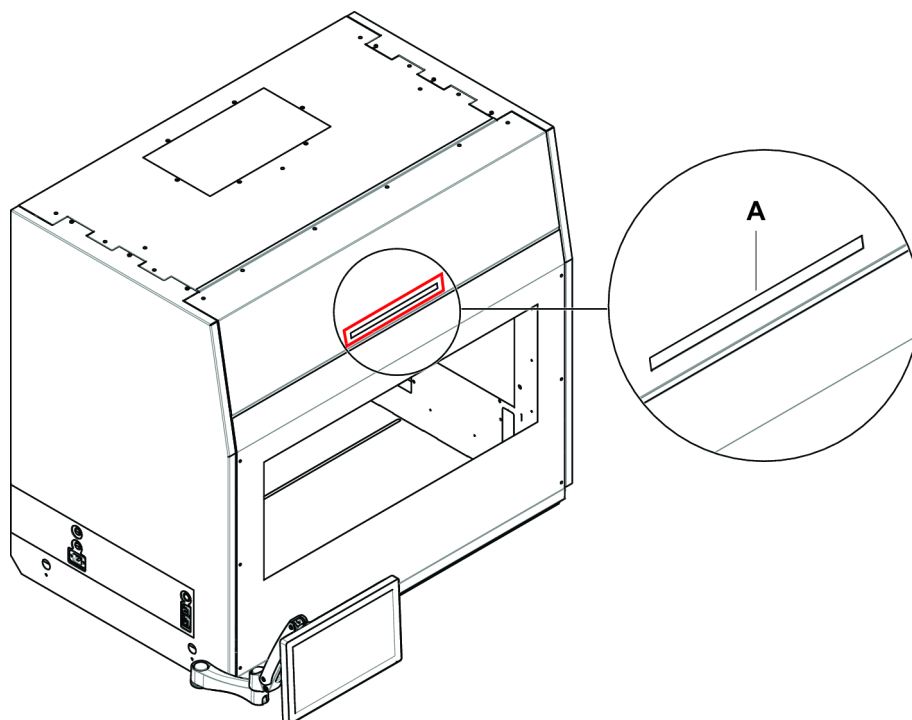


Fig. 23: Status LED

Note: Refer to the application software for the LED status.

5.2.4 Opening the Front Safety Panel

To open the front safety panel the door lock is disengaged either by the application (e.g. at the end of a run) or after the instrument has been switched off. Then the front safety panel can be elevated holding the rail at its bottom end. Mind your fingers when lowering the front safety panel. Keep them off the lower rail to prevent jammed fingers.

The front safety panel is monitored by a door sensor.

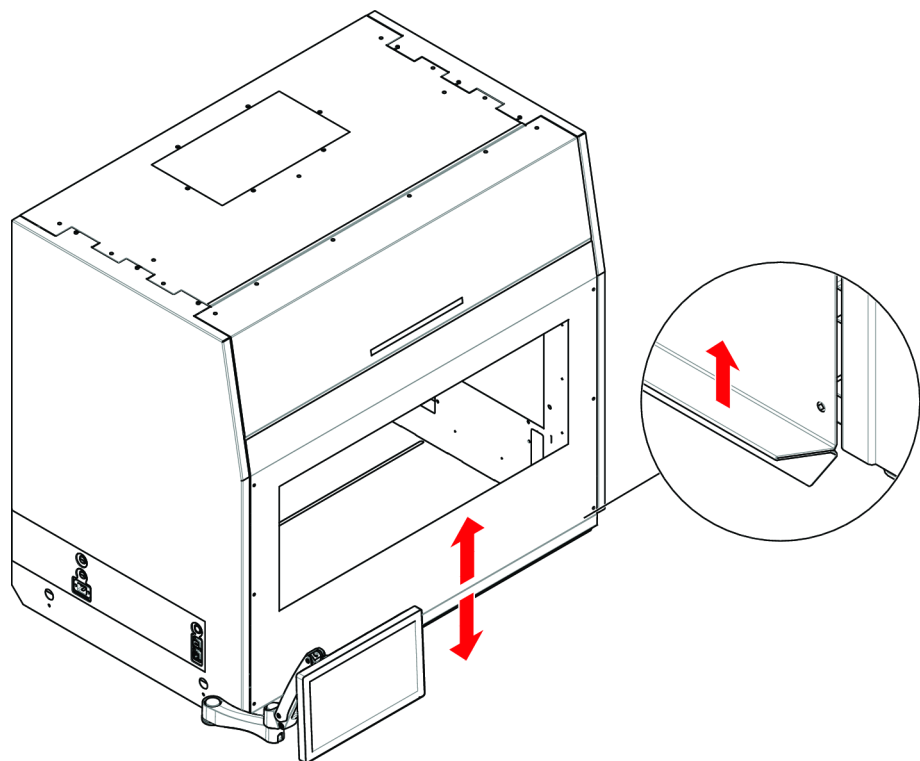


Fig. 24: Opening the front safety panel

5.2.5 Operating the Waste Drawer

The waste drawer can host up to two waste bins in order to collect used DiTis. The waste bin is for one way usage and can be disposed together with the DiTis. For the disposal refer to the local regulation. Autoclaving before disposal reduces the risk of biohazard.

The waste bin must be exchanged according to the instruction of the application software.

NOTICE

Do not operate the instrument without waste bins inserted!

Used DiTis might contaminate the waste drawer.

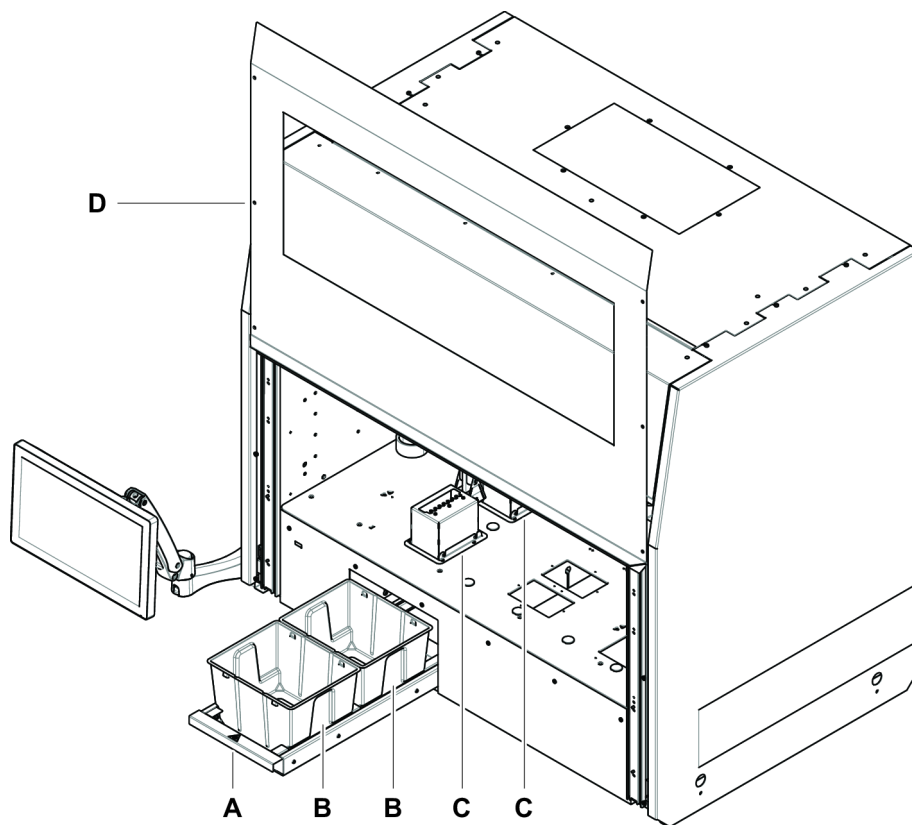


Fig. 25: Waste drawer

A	Waste drawer	B	Waste bin
C	DiTi drop station	D	Front safety panel

Exchanging the Waste Bin

Ensure the application has released the door lock or the instrument is switched off.

1. Elevate the front safety panel.
2. Pull out the waste drawer.
3. Remove the waste bin(s).
4. Insert new waste bin(s).
5. Push the waste drawer back.
Note: Ensure the waste drawer is fully pushed back.
6. Lower the front safety panel.

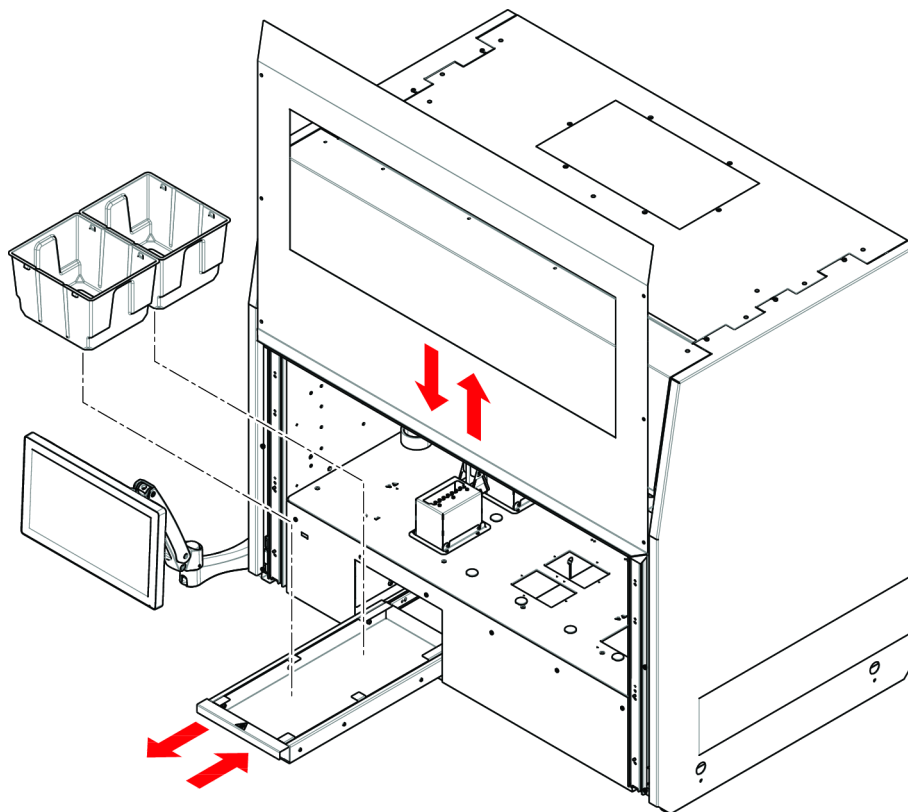


Fig. 26: Exchanging the waste bin(s)

5.2.6 DiTi Drop Station

Removal

1. Push the DiTi drop station slightly towards the rear of the instrument.
2. Lift the DiTi drop station and remove it.

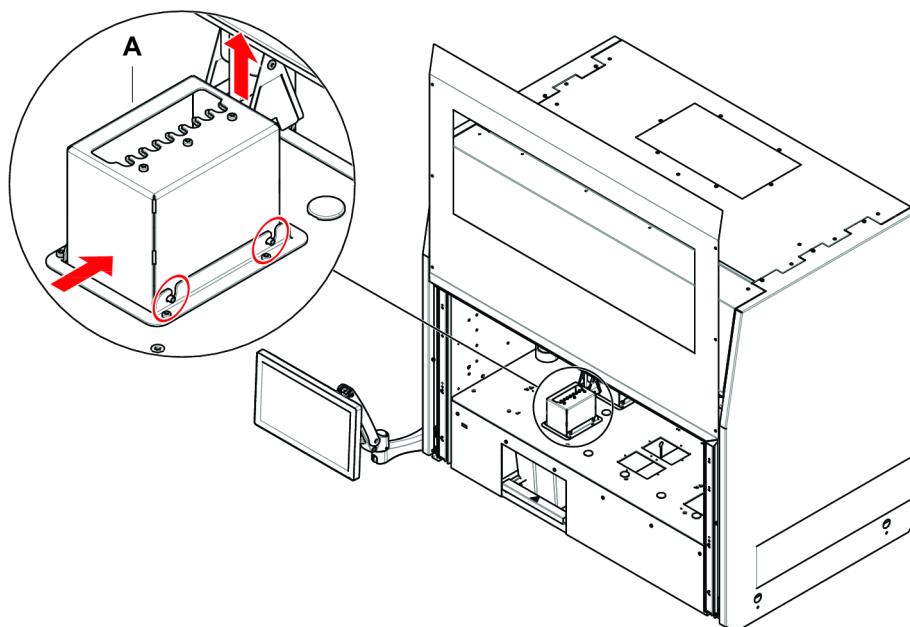


Fig. 27: Removing the DiTi drop station

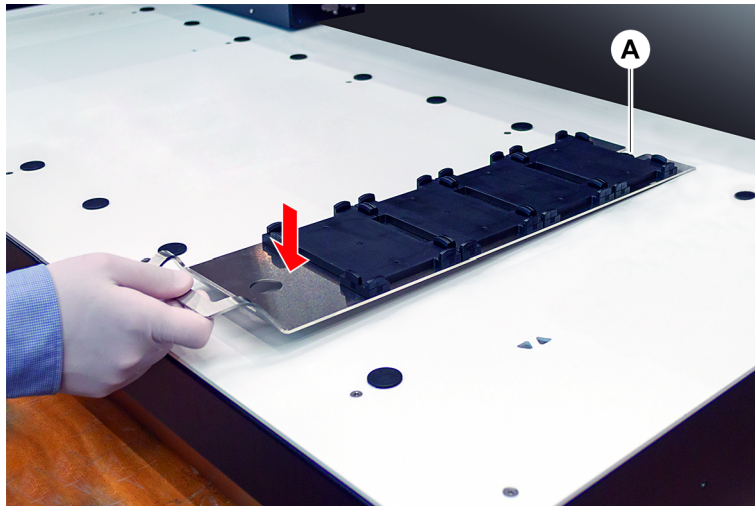
Installation

1. Lower the DiTi drop station into its base frame. Ensure that the four pins are fully inserted in the corresponding recesses.
2. Pull the DiTi drop station towards the front of the instrument until the pins are fully engaged.

5.2.7 Placing a Carrier

To place a carrier, proceed as follows:

1. Engage the carrier's notch (A) to the desired rear positioning pin.
2. Lower the carrier's front and engage it to the front positioning pin.



5.2.8 Removing a Carrier

To remove a carrier, proceed as follows:

1. Pull the carrier upwards to detach it from the positioning pins.

6 Preventive Maintenance and Repair

6.1 Decontamination

Decontamination, according to standard laboratory regulations, is required under the circumstances listed in section “[Decontamination Declaration](#)” [▶ 15].

WARNING

Contamination!

Substance residues on the Cavro Magni Flex Enclosed Frame can cause personal injury and affect the integrity of the process.

- Decontaminate the Cavro Magni Flex Enclosed Frame and its parts and accessories before any interaction.

The decontamination method must be defined by the key operator based on the type of contaminant and degree of contamination. Guidance on the selection of decontamination agents and application modes is provided in this chapter.

6.2 Cleaning Agents Specifications

Special cleaning agents are required for system care. All the recommended cleaning agents have been carefully selected and tested.

NOTICE

Reduced effectiveness and chemical compatibility!

There is no guarantee for the effectiveness of cleaning agents and chemical compatibility if other cleaning agents than those recommended by Tecan are used.

- Only use cleaning agents recommended by Tecan.
- Cleaning agents are defined for each specific use in the system care tables. Do not use cleaning agents if not specified for use for a specific task.

The following table specifies the cleaning agents referred to in this manual:

Tab. 12: Cleaning agents

Agent	Specification
DI water	Distilled or deionized water
Alcohol	70% ethanol or 100% isopropanol (2-propanol)
Weak detergent	Liqui-Nox
Disinfectant	Bacillol plus, Bomix, Lysetol FF
System liquid	Distilled or deionized water
Base	0.025–0.25 mol/l NaOH
Bleach	6% sodium hypochlorite

6.3 Maintenance Schedule

To ensure optimum performance and reliability, perform the maintenance and cleaning tasks as recommended.

6.3.1 Weekly Maintenance

Tab. 13: Weekly maintenance

Component	Task	Reference
XEBU	Clean the waste drawer	Refer to section “Cleaning Agents Specifications” [▶ 46] .
	Rinse the DiTi drop station with 70% ethanol	Refer to section Cleaning the DiTi Drop Station
	Clean the touch screen with <70% ethanol	Refer to section “Cleaning Agents Specifications” [▶ 46] .

6.3.2 Monthly Maintenance

The following preventive maintenance tasks must be performed at the end of each month:

Tab. 14: Monthly maintenance

Component	Task	Reference
XEBU	Clean all surfaces except the X-rail and the HEPA filter (if present).	Refer to section “Cleaning Agents Specifications” [▶ 46] .
	Clean the front safety panel with 70% ethanol using a lint-free, non abrasive tissue.	Cleaning agents for work-table: DI water, alcohol, weak detergent, disinfectant, base or bleach
	Clean the UVC light with <70% ethanol using a lint-free, non abrasive tissue.	Cleaning agents for remaining surfaces: DI water, alcohol, weak detergent or disinfectant

Component	Task	Reference
XCA	Clean the arm housing with 70% ethanol	Refer to section “Cleaning the XCA” [▶ 49]

Component	Task	Reference
ARP	Clean the pipetting unit housing with 70% ethanol	Refer to section “Cleaning the ARP” [▶ 49]

Component	Task	Reference
DiTi adapter	Check that the adapter is firmly screwed into the cLLD isolation block.	Refer to “Installing the DiTi Cone” [▶ 50]

Component	Task	Reference
XCG	Clean with 70% ethanol	Refer to section “Cleaning the XCG” [▶ 52]

6.3.3 Yearly Maintenance (ARP)

The following preventive maintenance tasks must be performed every year or whenever an appropriate software prompt occurs:

Component	Task	Reference
Dehumidifier	Exchange	Refer to section “Dehumidifier” [▶ 51]

6.3.4 Biennial Maintenance (ARP)

The following preventive maintenance tasks must be performed every two years or whenever an appropriate software prompt occurs:

Component	Task	Reference
DiTi cone (including cone inlet filter and O-ring)	Exchange	Refer to section “DiTi Cone” [▶ 49]

6.3.5 Quinquennial Maintenance

The following preventive maintenance tasks must be performed every 5 years or after 20'000 gripper pick-ups, whichever comes first:

Component	Task	Reference
XCG	Exchange the gripper	Refer to section “Replacing the Gripper” [▶ 52]

6.4 Maintenance Tasks

6.4.1 Cleaning the XCA

Gently wipe the XCA with a lint-free tissue impregnated with the appropriate cleaning agent.

6.4.2 Cleaning the ARP

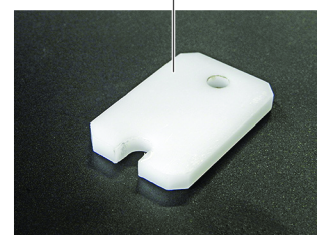
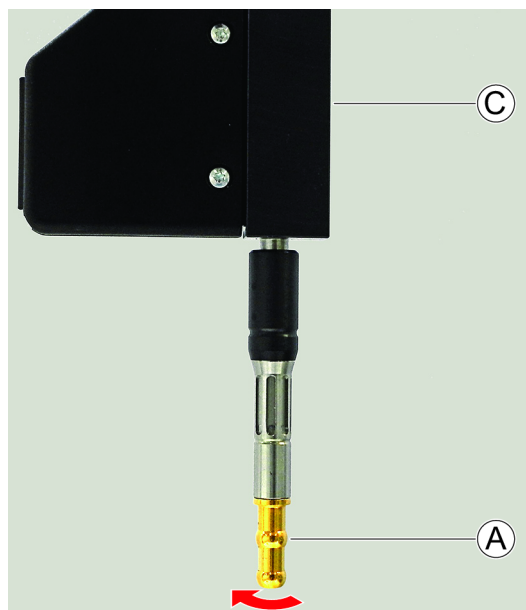
Gently wipe the pipetting unit housing of the ARP with a lint-free tissue impregnated with the appropriate cleaning agent.

6.4.3 DiTi Cone

Note: The DiTi cone has to be handled with great care. Avoid any contact between cones and metal parts.

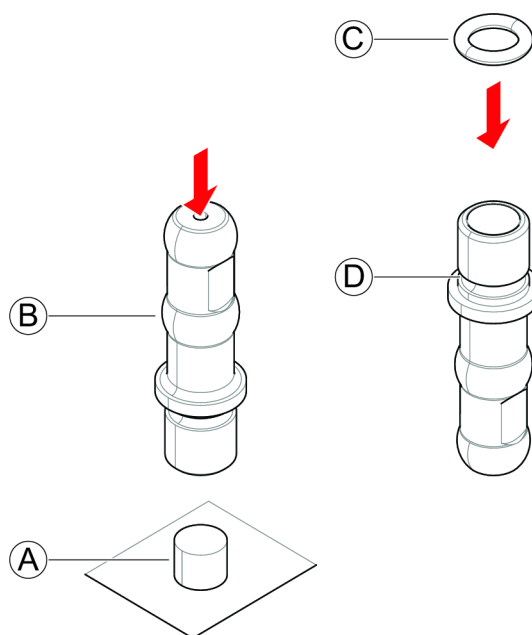
6.4.3.1 Removing the DiTi Cone

1. Loosen the DiTi cone (A) with the wrench (B) while holding the cLLD insulation block (C).

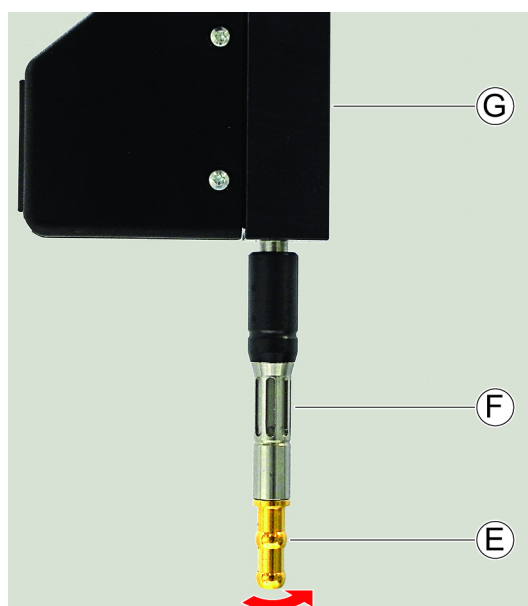


6.4.3.2 Installing the DiTi Cone

1. Place the inline filter (A) on a clean and even surface.
2. Press the DiTi cone (B) onto the inline filter.
Note: The inline filter must not stick out from the DiTi cone.
3. Push the O-ring (C) onto the DiTi cone.
Note: Ensure the O-ring is properly positioned in the groove (D).



4. Screw the DiTi cone (E) on the adapter (F) while holding the cLLD insulation block (G).
5. Tighten the DiTi cone with the wrench.
Note: There must be no visible gap between the cone and the adapter.



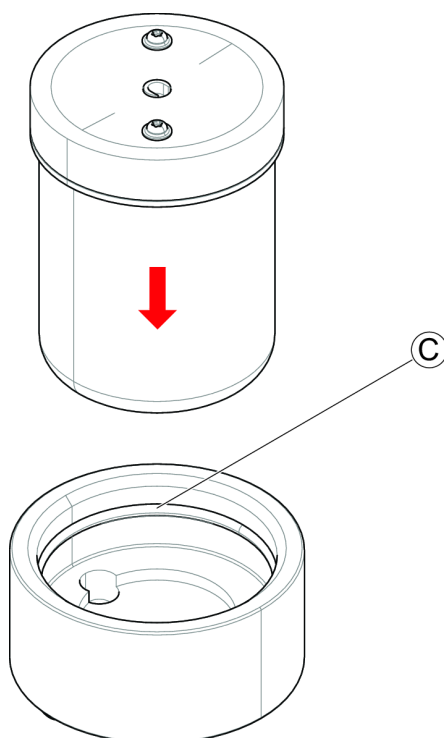
6.4.4 Dehumidifier

6.4.4.1 Exchanging Dehumidifier

1. Pull the dehumidifier (A) straight out of its support (B).



2. Remove any dirt present in the support and ensure that the cap of the new dehumidifier cartridge is closed tightly.
3. Ensure that the O-ring (C) is correctly placed in the support groove, then insert the new dehumidifier into its support.



6.4.5 Cleaning the XCG

Gently wipe the XCG with a lint-free tissue impregnated with the appropriate cleaning agent.

Note: Do not soak!

6.4.6 Replacing the Gripper

1. Remove the grippers from the XCG station.
2. Dock the grippers on the XCG station.
3. Verify the gripper function with the MAPlinx Setup SW.

6.4.7 Cleaning the DiTi Drop Station and the Waste Drawer

- Pull out the waste drawer and remove the waste bin(s) with the used DiTis. Contaminate bin(s) and DiTis and – if required – autoclave them before disposal.
- Remove the drop station(s) and clean the surface with suitable cleaning solution (e.g. 70% ethanol).
- If necessary autoclave the drop station(s).
- Clean the drop comb(s) with a lint free tissue impregnated with rubbing alcohol or 70% ethanol.
- Clean the golden DiTi cones with a lint free tissue impregnated by rubbing alcohol.
- Fully reinsert the drop station(s).
- Place empty waste bin(s) in the waste drawer.
- Push the waste drawer back.
Note: Ensure the waste drawer is fully pushed back.

7 Troubleshooting

Consult this chapter for help on resuming operation after a problem has occurred with the Cavro Magni Flex Enclosed Frame. For further information or, in the event of problems not covered in this manual, or in insufficient detail, please consult section [“Customer Support”](#) [▶ 62].

7.1 Troubleshooting Tables

7.1.1 Base Unit Troubleshooting

Tab. 15: XEBU Troubleshooting Table

Symptom	Possible Cause	Corrective Measures
No reaction on Cavro Magni Flex Enclosed Frame	Communication error.	Switch off the Cavro Magni Flex Enclosed Frame for 30 seconds, then switch it back on.

7.1.2 Channel Arm Troubleshooting

Tab. 16: XCA Troubleshooting Table

Symptom	Possible Cause	Corrective Measures
Communication error	Power is not ON Power or communication is interrupted	Switch off the instrument Switch off the PC (external PC only) Check cable and plugs Switch on the instrument and the PC
X-, Y- or Z-drive is blocked		Move the XCA manually out of the crash position and remove obstacle
Initialization error (arm cannot be initialized)		Check for obstacles Ensure that the arm can move freely

7.1.3 Air Restriction Pipettor Troubleshooting

After each troubleshooting run the ARP functional test from the MAPlinx Setup SW.

Tab. 17: ARP Troubleshooting

Symptom	Possible Cause	Corrective Measures
Disposable tip not fetched	Insufficiently tightened DiTi cone	Tighten the DiTi cone (Refer to “Installing the DiTi Cone” [▶ 50])

Symptom	Possible Cause	Corrective Measures
Disposable tip not discarded	Insufficiently tightened DiTi cone	Tighten the DiTi cone (Refer to “Installing the DiTi Cone” [▶ 50])
Disposable tip drips	Dirty DiTi cone causes leakage	Clean the DiTi cone Exchange DiTi cone (Refer to “DiTi Cone” [▶ 49])
High humidity in the dehumidifier (SW Error message)	Humidity level in the dehumidifier is too high	Exchange dehumidifier (Refer to “Dehumidifier” [▶ 51])
Inline filter blockage (SW Error message)	Liquid in the inline filter causes blockage	Exchange the inline filter (refer to “Installing the DiTi Cone” [▶ 50]). If still failing, please consult the Customer Support.

7.1.4 Channel Gripper Troubleshooting

After each troubleshooting run the XCG functional test from the MAPlinx Setup SW using a reference plate (Refer to section [“Recommended Labware and Nests”](#) [▶ 35]). In case the test has passed repeat the test with the assay plate.

Tab. 18: XCG Troubleshooting Table

Symptom	Possible Cause	Corrective Measures
Labware or nest handling fails	Misplaced labware or nest	Check position of the labware or nest to be transported
	Wrong labware or nest	Check labware or nest type (Refer to “Recommended Labware and Nests” [▶ 35])
	Gripper sits loose on the fixed-tip adapter or XLS DiTi adapter (not fully inserted)	Check the tightness between gripper and adapter. Replace gripper if no remedy can be achieved.
Deepwell plate handling fails	Deepwell plate is too heavy	Check the weight of the deepwell plate (Refer to Specifications) Replace the gripper (Refer to “Replacing the Gripper” [▶ 52])
Gripper(s) cannot be picked up	Retention force is too low	Replace the gripper (Refer to “Replacing the Gripper” [▶ 52])

Symptom	Possible Cause	Corrective Measures
Gripper(s) cannot be docked	Retention force is too high Gripper finger is misaligned with the gripper body	Replace the gripper (Refer to “Replacing the Gripper” [▶ 52])

8 Shutdown, Transport, Storage, and Disposal



Refer to chapter “[Technical Data](#)” [▶ 17] for information on environmental conditions.

NOTICE

Prevent damage by unqualified and unauthorized personnel!

Packing, unpacking, transport and storage may only be performed by Tecan personnel or personnel authorized by Tecan!

- Please consult the “[Customer Support](#)” [▶ 62].

8.1 Packaging Labels

Correct and complete marking of packaging helps to prevent incorrect handling, accidents, incorrect delivery, loss of weight and damage during storage.

Tab. 19: Packaging symbols

Symbol	Meaning	Description
	Recycle	The packaging material can be recycled. Do not dispose of as domestic waste. Information on the material used for this packaging is provided beneath the symbol.
	This side up	Ensure that the package is transported and stored with the top side, indicated by the arrows, uppermost. Do not topple over.
	Keep dry	Ensure that the package does not get wet during transport and storage.
	Fragile	Handle the package with care. There are fragile goods inside.
	Keep away from sunlight	Ensure that the package will not be exposed to heat during transport and storage. Protect against strong sunlight.
	Do not stack	Do not stack packages. The package is not designed to carry extra weight.

8.2 Disposal

This section includes regulatory information about recycling that must be followed.

NOTICE

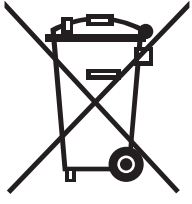
Recycling in accordance with applicable legal regulations!

Observe the laws applicable in your country for recycling.

8.2.1 Local Requirements European Union

The European Commission has released the Directive on Waste Electrical and Electronic Equipment (WEEE; 2012/19/EU).

Since August 2005, producers have been responsible for taking back and recycling electrical and electronic equipment.


Marking	Explanation
	<p>Negative environmental impacts associated with the treatment of waste.</p> <ul style="list-style-type: none"> Do not treat electrical and electronic equipment as unsorted municipal waste. Collect waste electrical and electronic equipment separately.

8.2.2 Local Requirements People's Republic of China


Marking for the Restriction of the Use of Hazardous Substances in Electronic and Electrical Products

The People's Republic of China Electronic Industry Standard SJ/T11364-2014 **Marking for the Restriction of the Use of Hazardous Substances in Electronic and Electrical Products** requires the marking for the restriction of the use of hazardous substances in electronic and electrical products.

In accordance with the requirements specified in SJ/T11364-2014, all electronic and electrical Tecan products sold in the People's Republic of China are labeled with a marking for the restriction of the use of hazardous substances.

Marking	Explanation
	<p>This marking indicates that this electronic product contains certain hazardous substances and can be safely used during the environment-friendly use period, but it shall enter the recycling system after the environment-friendly use period.</p>

8.2.3 Other Requirements

Marking	Explanation
	This lamp contains mercury <ul style="list-style-type: none">• Recycle or dispose of as required by applicable local laws.

9 Spare Parts and Accessories

This chapter lists spare parts and accessories that are needed for maintenance and repair of the Cavro Magni Flex Enclosed Frame including their corresponding ordering information.

How to Order Spare Parts

- Look up the ordering information in the tables.
- Order the parts from Tecan. Refer to [“Customer Support” \[▶ 62\]](#).

Always state the designation and the part number when ordering spare parts.



This chapter only contains spare parts that can be replaced by the operator. To order spare parts other than listed here please consult the [“Customer Support” \[▶ 62\]](#).

9.1 Spare Parts

Tab. 20: Spare Parts

No.	Plain-Text Designation	Part No.	Label Designation
1	Channel Gripper DiTi (XCG-DT-1)	30143387	SET GRIPPER DITI XCG-1 SP
2	Set of 4 DiTi cones	30172595	SET DITI CONE ARP 4PCS SP
3	Inlet filter	30066883	INLINE FILTER AIR LIHA
4	Dehumidifier	30164606	DEHUMIDIFICATION UNIT ASSY ARP SP
5	Waste bin	30185747	WASTE BIN 36 PCE

9.2 Accessories

Tab. 21: Accessories

No.	Plain-Text Designation	Part No.	Label Designation
1	Carrier 3 MTP	30159434	POSITIONER CARRIER 3 MP 7MM ASSY XWT
2	Carrier 4 MTP	30159436	POSITIONER CARRIER 4 MP 7MM ASSY XWT
3	Carrier 5 MTP	30198572	POSITIONER CARRIER 5 MP 7MM ASSY XWT
4	Carrier 3 MTP Elevated	30162891	POSITIONER CARRIER 3 MP 61MM ASSY XWT
5	Carrier 4 MTP Elevated	30162892	POSITIONER CARRIER 4 MP 61 MM ASSY XWT
6	Carrier 5 MTP Elevated	30198573	POSITIONER CARRIER 5 MP 61MM ASSY XWT

No.	Plain-Text Designation	Part No.	Label Designation
7	Carrier XCG 3 MTP	30162890	POSITIONER CARRIER XCG 3 MP 7MM ASSY XWT
8	Adapter Plate Carrier 5 Positions	30164561	ADAPTER PLATE CARRIER 5 POS ASSY
9	Adapter Plate Twin Carrier 11 Positions	30164562	ADAPTER PLATE TWIN CARRIER 11 POS ASSY
10	Tube rack	30173647	TUBERACK ASSY 24X13MM

9.3 Modules and Adapters

Tab. 22: Loading ID

No.	Plain-Text Designation	Part No.	Label Designation
1	Loading ID Magni Flex 6 Grid	30188016	MODULE MAGNI FLEX ID 1D LEFT 6 GRID
2	Carrier Loading ID 10 mm	30115859	CARRIER LOADING ID 10MM EVO
3	Carrier Loading ID 13 mm	30115860	CARRIER LOADING ID 13MM EVO
4	Carrier Loading ID 16 mm	30115861	CARRIER LOADING ID 16MM EVO

Tab. 23: Inheco CPAC Ultraflat HT 2-TEC

No.	Plain-Text Designation	Part No.	Label Designation
1	Inheco CPAC Ultraflat HT 2-TEC	30053221	POSITION CPAC ULTRAFLAT COOLING/HEATING
2	Module Inheco Black Slot	30189718	MODULE BLACK SLOT
3	Adapter C 96 PCR Static Unit	30053222	BLOCK ADAPTER 96PCR PLATE INHECO
4	Adapter C Eppendorf Tubes, CPAC	30117360	BLOCK ADAPTER PLATE INHECO 1.5ML TUBES
5	Adapter Plate CPAC Ultraflat	30198568	ADAPTER PLATE CPAC ULTRAFLAT

Tab. 24: Thermoshake AC

No.	Plain-Text Designation	Part No.	Label Designation
1	Thermoshake AC	30188024	SHAKER THERMOSHAKE AC
2	Module Inheco Yellow Slot	30189717	MODULE YELLOW SLOT
3	Adapter S Eppendorf Tubes, Shaker	30053227	BLOCK ADAPTER TUBE INHECO 24POS 1.5ML

No.	Plain-Text Designation	Part No.	Label Designation
4	Adapter Abgene 2.2ml V DWP	30188026	BLOCK ADAPTER PLATE INHECO A 2.2ML V DWP
5	Adapter S 96 PCR Shaker	30053224	BLOCK ADAPTER PLATE INHECO MICRO 96PCR
6	Adapter Plate Thermoshake AC	30198570	ADAPTER PLATE THERMOSHAKE AC

Tab. 25: BioShake 3000-T elm

No.	Plain-Text Designation	Part No.	Label Designation
1	BioShake 3000-T elm	30127732	SHAKER QINSTR BIOSHAKE3000-T ELM 2016
2	Adapter Plate BioShake	30198571	ADAPTER PLATE BIOSHAKE
3	Controller Multi TEC Compact	30188025	CONTROLLER MULTI TEC COMP CH

9.4 Tools

Tab. 26: Tools

No.	Plain-Text Designation	Part No.	Label Designation
1	DiTi cone wrench	10619517	WRENCH CONE DITI OPTION 5 PCE.

10 Customer Support

This chapter informs you how to contact us in case help is needed. It lists addresses and telephone numbers of the manufacturer’s representatives.

Tecan and its representatives maintain a fully trained staff of technical specialists around the world. For any technical question, contact the nearest Tecan representative.

If you have any comments on this Operating Manual or suggestions for improvement, please send them by e-mail to docfeedback@tecan.com. In your e-mail, please specify the manual name, the document ID and the manual version. This information is shown at the bottom of each printed page and on the first page of the help file (context-sensitive help of software products).

10.1 Contacts

Please contact your local distributor or one of the addresses below.

Also see our homepage on the web: www.tecan.com

Tab. 27: Customer Support contacts

Country/Region	Address	Telephone/Telefax/E-mail	
Asia	Tecan Asia Pte Ltd. 18 Boon Lay Way, #10-106 TradeHub 21 Singapore 609966 Singapore	Phone Fax E-mail	+65 6444 1886 +65 6444 1836 tecan@tecan.com.sg
Australia New Zealand Pacific Islands	Tecan Australia Pty Ltd 21 / 3 Westside Avenue Port Melbourne Vic 3207 Australia	Phone Phone Fax E-mail	Toll Free: 1300 808 403 +61 3 9647 4100 +61 3 9647 4199 helpdesk-aus@tecan.com
Austria	Tecan Austria GmbH Untersbergstrasse 1a 5082 Grödig Austria	Phone Fax E-mail	+43 6246 8933 256 +43 6246 72770 helpdesk-at@tecan.com
Belgium	Tecan Benelux B.V.B.A. Mechelen Campus Schaliënhoevedreef 20A 2800 Mechelen Belgium	Phone Fax E-mail	+32 15 42 13 19 +32 15 42 16 12 tecan-be@tecan.com

Country/Region	Address	Telephone/Telefax/E-mail	
China	Tecan (Shanghai) Trading Co., Ltd. Room 1802, 1803, 1804 and Room 205, HongJia Tower, 388 Fushan Road, Pudong New Area, Shanghai, P.R.China	Phone Fax E-mail	+86 21 2206 32 06 +86 40 0821 38 88 +86 21 2206 52 60 helpdesk-cn@tecan.com
France	Tecan France S.A.S.U Tour Swiss Life 1 bd Marius Vivier Merle F- 69 003 Lyon France	Phone Fax E-mail	+33 4 72 76 04 80 +33 4 72 76 04 99 helpdesk-fr@tecan.com
Germany	Tecan Deutschland GmbH Werner-von-Siemens-Straße 23 74564 Crailsheim Germany	Phone Fax E-mail	+49 1805 8322 633 or +49 1805 TECAN DE +49 7951 9417 92 helpdesk-de@tecan.com
Italy	Tecan Italia, S.r.l. Via Brescia, 39 20063 Cernusco Sul Naviglio (MI) Italy	Phone Fax E-mail	+39 800 11 22 91 +39 (02) 92 72 90 47 helpdesk-it@tecan.com
Japan	Tecan Japan Co., Ltd. Kawasaki Tech Center 580-16, Horikawa-cho, Saiwai-ku Kawasaki, Kanagawa 212-0013 Japan	Phone Fax Phone E-mail	+81 44 556 7311 (Kawasaki) +81 44 556 7312 (Kawasaki) +81(0) 6305 8511 (Osaka) helpdesk-jp@tecan.com
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USA (Tecan Systems)	Tecan Systems, Inc. 2450 Zanker Road San Jose, CA 95131 USA	Phone Fax E-mail	+1 408 953 3100 Toll Free: +1 800 231 0711 +1 408 953 3101 helpdesk-sy@tecan.com

Abbreviations

FSE

Field Service Engineer

RF

Radio Frequency