PROJECT MANUAL

3RD FLOOR BLOOD LAB GROSSING STATION, VAMC, PHILADELPHIA,
AT
CORPORAL MICHAEL J. CRESCENZ VA MEDICAL CENTER (CMCVAMC)
3900 WOODLAND AVENUE, PHILADELPHIA, PA 19104

PREPARED FOR
DEPARTMENT OF VETERANS AFFAIRS

1 August 2024
Project No. 642-22-135

PREPARED BY

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1.0 GENERAL INFORMATION

1.1 PROJECT DESCRIPTION

THINKFORM DESIGN ARCHITECT LLC and its consulting engineers are providing professional services and documentation for the site preparation for a new Grossing station at Blood Lab on the 3rd floor in Building 2.

The project requires renovating the existing space to accommodate the installation of a new Grossing station. The design service includes the investigative survey and verification of the as-built conditions required, including, but not limited to, the air handler's ability.

The A/E will also incorporate all replacements, repairs, and updates of all architectural, mechanical, electrical (including low voltage and communication), plumbing, and infection control design requirements into the CDs.
The project schedule and phasing plan will be provided by the A/E to maintain medical operations, minimize disruptions to patient care, and minimize or eliminate service outages. Pre-construction risk Assessment / Infection Control Risk Assessment (ICRA) to determine the requirements for Infection Control, Interim Life Safety Measures, occupational safety and health, patient safety, security controls for physical and logical access, environmental controls, and limitations on vibration noise and disruptions to operations and utilities.

1.2 EXISTING CONDITION SURVEY

The A/E Team completed the survey of existing conditions.
The architectural survey was completed on 12.17.2023. The measurement and photographic information, as well as the end-user needs information, have been collected.
The MEP Consultant survey was initiated on 12.28.2023, and engineers returned to the site to investigate the HVAC conditions further on 06.13.2024.
The environmental survey was completed on 06.17.2024.

1.3 CONSTRUCTION DOCUMENTATION

Construction documentation will be accomplished according to the VA Guidelines and specifications. A/E will review and pay attention to the NFPA, VA Handbook, VHA Directives, and PG18-1 Design and Construction Procedures.
This submission includes 100% of the Working Drawings.

2.0 BUILDING CODE & LIFE SAFETY REVIEW

2.1 PRIMARY APPLICABLE CODES AND STANDARDS – EXISTING BUILDING / RENOVATION

A. DEPARTMENT OF VETERANS AFFAIRS has adopted the latest edition of the following codes and standards as a minimum for all projects performed in the modernization, alteration, addition, or improvement of its real property and the construction of new structures. VA design Manuals and Master Specifications specify other codes and standards that VA follows on its projects:

1. VA Directives, Design Manuals, Master Specifications, VA National CAD Standard Application Guide, and other Guidance on the Technical Information Library (TIL) (http://www.cfm.va.gov/til/).

2. International Building Code (IBC) (Only when specifically referenced in VA Design Documents, see notes below).

3. NFPA 101 Life Safety Code (see notes below).

4. NFPA National Fire Codes with the exception of NFPA 5000 and NFPA 900.

5. NFPA 70 National Electrical Code (Nec)

6. NFPA 72 – Fire Alarm Code

7. NFPA 90A Standard For The Installation Of Air Conditioning And Ventilation Systems

8. Occupational, Safety and Health Administration (OSHA) Standards.

9. VA Seismic Design Requirements, H-18-8.

10. National Electrical Code (NEC).

11. International Plumbing Code (IPC).

12. Safety Code for Elevators and Escalators, American Society of Mechanical Engineers (ASME) A 17.1.

13. ASME Boiler and Pressure Vessel Code.

14. ASME Code for Pressure Piping.

15. Architectural Barriers Act Accessibility Standards (ABAAS) including VA supplement, Barrier Free Design Guide (PG-18-13).

16. Building Code Requirements for Reinforced Concrete, American Concrete Institute and Commentary (ACI 318).

17. Manual of Steel Construction, Load and Resistance Factor Design Specifications for Structural Steel Buildings, American Institute of Steel Construction (AISC).

18. Energy policy Act of 2005 (EPAct).

19. DOE Interim Final Rule: Energy Conservation Standards for New Federal, Commercial and Multi-Family High-Rise Residential Buildings and New Low-Rise Residential Buildings, 10 CFR Parts 433, 434 and 435.

20. Federal Leadership in High Performance and Sustainable Buildings: Memorandum of Understanding (MOU).

21. Executive Order 13423: Strengthening Federal Environmental, Energy, and Transportation Management.

22. The Provisions for Construction and Safety Signs. Stated in the General Requirements Section 01010 of the VA Master Construction Specification.

23. Ventilation for Acceptable Indoor Air Quality – ASHRAE Standard 62.1- 2004.

24. Safety Standard for Refrigeration Systems – ASHRAE Standard 15 – 2007.

25. • Philadelphia Building Code

26. • Philadelphia Mechanical Code

27. • Philadelphia Energy Conservation Code

28. • Philadelphia Fuel Gas Code

29. • Philadelphia Plumbing Code

30. • Ventilation For Acceptable Indoor Air Quality, Ashrae Standard 62.1

B. Local Codes: As an agency of the federal government, VA is not subject to local imposition of code enforcement procedures (drawing reviews, building permits, inspections, fees, etc.). VA must function as the Authority Having Jurisdiction (AHJ) and thus has the responsibility to guard public health and safety through enforcing its adopted codes. However, local authorities should be notified about planned projects and given opportunity to review drawings provided that VA does not pay for review or inspection fees.

C. Notes

1. NFPA 101 primarily addresses life safety and fire protection features while the IBC addresses a wide range of considerations, including, but not limited to, structural strength, seismic stability, sanitation, adequate light and ventilation, and energy conservation. VA buildings must meet the requirements of NFPA 101 and documents referenced by NFPA 101 in order to comply with the accreditation requirements of The Joint Commission. Therefore, designs shall comply with the requirements of the latest edition of NFPA 101 and documents referenced therein. Design features not addressed by NFPA 101 or documents referenced therein shall comply with the requirements of the latest edition of the IBC or as otherwise addressed in the VA Program Guide. For design features that are addressed by both the IBC as well as NFPA 101 or a document referenced by NFPA 101, the requirements of NFPA 101 or the document referenced by NFPA 101 shall be used exclusively (this applies even if the IBC requirements are different).

2. Conflicts between Nationally Recognized Codes and Standards and VA Requirements – Should a conflict exist between VA requirements and VA adopted nationally recognized codes and standards, the conflict shall be brought to the attention of VA. The resolution of the conflict shall be made by the authority having jurisdiction for VA to ensure a consistency system wide.

D. Construction Type Classification: Type II (222). The minimum fire rating for all load-bearing structural elements is 2 hrs.

2.2 NFPA 101 BUILDING CODE DESIGN CRITERIA

2.2 NFPA 101 BUILDING CODE DESIGN CRITERIA

A. BUSINESS:
   1. 6.1.11 Business
   2. Shall comply with Chapters 38/39, New Business Occupancies/Existing Business Occupancies"
      a. 38.1.4. Definitions
         1) Classification of Hazard of Contents (38.1.5): The contents of business occupancies shall be classified as ordinary hazard in accordance with Section 6.2.
            a) 6.2.2.3 Ordinary Hazard Contents: Ordinary Hazard contents shall be classified as those that are likely to burn with moderate rapidity or to give off considerable smoke volume.
         2) Minimum Construction Requirements (38.1.6): No requirements. (NOTE: the construction type permitted for this project is Type 2 (222) even though the building is fully sprinklered). The minimum fire rating for all load-bearing structural elements is two hours.

B. FIRE SUPPRESSION: The entire building is protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7.

C. OCCUPANT LOAD:
1. There is no change in the occupant load.

D. CONSTRUCTION, REPAIR AND IMPROVEMENT OPERATIONS:
1. Shall comply with Section 4.6.10, areas adjacent to Project area will be occupied during construction with all required means of egress and required fire protection features remaining in place and continuously maintained.

A. MEANS OF EGRESS (Sections 7 and 38)

1. Exit access corridors serving more than 30 shall be 1-hour rated (7.1.3.1).
Exception (1) Requirement shall not apply to existing buildings provided the occupancy classification does not change & Exception (38.3.6.1 (3)) Within buildings protected throughout by an automatic sprinkler system.

2. Doors (7.2.1.2.3.2): Door opening means of egress shall be not less than 32 inches in clear width.

3. Dead-end corridors (38.2.5.2.1): Dead-end corridors shall not exceed 50 feet.

4. Means of Egress (38.2.3.2): The clear width of any corridor or passageway serving an occupant load of 50 or more shall be not less than 44 inches.

B. ARRANGEMENT OF MEANS OF EGRESS (38.2.5)
1. 38.2.5.3.1 Common path of travel shall not exceed 100 ft. in a building protected throughout by an approved, supervised automatic sprinkler system.

C. TRAVEL DISTANCE TO EXITS (38.2.6)
1. 38.2.6.3 Travel distance shall not exceed 300 ft. in business occupancies protected throughout by an approved, supervised automatic sprinkler system.

D. INTERIOR FINISH (38.3.3)
1. Interior finishes shall be in accordance with section 10.2.

2. Walls and Ceilings (38.3.3.2.1): Interior wall and ceiling finish materials shall be Class A or Class B in exits and exit access corridors.

3. Walls and Ceilings (38.3.3.2.2): Interior wall and ceiling finishes shall be Class A, Class B or Class C in areas other than those specified in 39.3.3.2.1.

4. Interior Finishes have been reviewed in accordance with Room Finishes, Door, & Hardware Schedule Program Guide PG-18-14. Our findings for the respective spaces within the project areas are as follows:

3.0 SITE DEVELOPMENT

3.1 EXISTING SITE

The project's scope is limited to the interior of Building 2, 3rd floor Histology / Frozen Section Lab.

There are no proposed modifications to the building site.

4. ARCHITECTURAL

4.1 BUILDING INTERIOR EVALUATION

A. General Description:

The interior area to be renovated as part of this project is limited to the 3rd floor Histology / Frozen Section Blood Laboratory Room located at Compartment 3.5 at Building 2 at the Corporal Michael J. Crescenz VA Medical Center, Philadelphia, PA

1. The existing space is the Histology / Frozen Section Lab. The lab will be renovated to accommodate the new Grossing lab station. The renovation will include the removal of the adjacent closed sliding door and installing new cabinetry, new flooring, and wall finishes. The proposed work will be done in one phase. The lab operation will be relocated for the entire duration of the construction work. A plastic barrier will be added between the project area and the rest of the building to minimize the disturbance of operation in the adjacent regions. Any construction work in the areas accessible only from the corridor outside is done during one or two consecutive weekends.

1. The room's existing walls, finishes, doors, floors, fixtures, and ceilings shall remain. The adjacent existing closet will be removed, and this area will be incorporated into the lab. It will receive floor, ceiling, and wall finishes to match the existing. The contractor must ensure a seamless finish.
    a. Materials and building components chosen will follow guidance and safety requirements for lab and pathology services.

2. Room finishes, doors, and hardware shall be in accordance with VA Program Guide PG-18-14.

5.0 INTERIOR DESIGN

5.1 INTERIOR DESIGN CONCEPT

A. GENERAL DESCRIPTION:

1) The interior concept is to provide optimal space for the operation of the new Grossing station, minimize the construction work length, and provide a safe and efficient environment for staff.

   The interior architecture, finishes, and furnishings will provide a safe and secure environment. All finishes, materials, and installations will be approved for the lab environment and provide the appropriate level of cleanliness and resilience to ensure infection control.

6.0 FIRE PROTECTION

All new systems will be designed in accordance with the latest applicable Codes, Standards, and Authorities Having Jurisdiction and in accordance with current engineering practices. Applicable codes include those previously listed.

6.1 GENERAL OVERVIEW

The [3B131] Histology Frozen Section is removing an adjacent closet and fume hood to accommodate the installation of a new grossing station. There are three (3) existing sprinklers that serve the space and one (1) existing sprinkler located in the adjacent closet. The new work will not impact the existing fire protection coverage, and the existing sprinklers including the sprinkler in the closet will remain as-is.

7.0 STRUCTURAL

7.1 GENERAL OVERVIEW

No structural updated is required therefore the structural design is not in scope of this project .

8.0 PLUMBING

All new systems will be designed in accordance with the latest applicable Codes, Standards, and Authorities Having Jurisdiction and in accordance with current engineering practices. Applicable codes include those previously listed.

8.1 GENERAL OVERVIEW

The [3B131] Histology Frozen Section is removing an existing fume hood to accommodate the installation of a new grossing station.

8.2 DESIGN

Existing Conditions

[3B131] Histology Frozen Section currently contains a 4’ fume hood with a sink that has a waste line and cold water supply from plumbing services in the wall. The existing sink adjacent to the fume hood will be replaced.

Demolition

Disconnect and remove the plumbing waste & cold water services at the existing fume hood and cap at wall. Disconnect and remove the hot and cold water and sanitary services to the sink adjacent to the fume hood and cap at wall.

New Work

A new 6’ grossing station to be installed. Grossing station includes a waste grinder. Connect waste line at the grinder to existing waste located in the wall from the existing fume hood and / or adjacent sink. Provide vent in wall connected to existing adjacent sink vent system. Provide hot & cold water to grossing station as required by the manufacturer. A new sink adjacent to the grossing station will be installed. Connect hot & cold water and sanitary to services at wall.

Provide new counter mounted eyewash at existing accessible sink. Connect hot & cold water to existing sink hot & cold water supplies.

9.0 MECHANICAL/HVAC SYSTEMS

All new systems will be designed in accordance with the latest applicable Codes, Standards, and Authorities Having Jurisdiction and in accordance with current engineering practices. Applicable codes include those previously listed.

9.1 GENERAL OVERVIEW

The 4' fume hood in [3B131] Histology Frozen Section is being removed to accommodate the installation of a new grossing station. HVAC modifications will be provided to accommodate the installation of the grossing station. The HVAC demolition scope includes the removal of the exhaust ductwork from the fume hood up to the ceiling level and removal of the exhaust ductwork and ceiling grille serving the adjacent closet to be removed. The HVAC new work scope of work includes an exhaust ductwork reconnection from the ceiling level to the new grossing station, installation of a new supply air device, and airflow balancing at all room air inlets and outlets.

9.2 DESIGN

Existing Conditions

[3B131] Histology Frozen Section currently contains a 4' fume hood and an exhausted biosafety cabinet. Per the balancing report, the fume hood is balanced to 492 CFM and the biosafety cabinet is balanced to 705 CFM. A total of 1,197 CFM is being exhausted from the space. The fume hood and biosafety cabinet are each served by separate Phoenix venturi valves. Per discussions with the vendor, these valves were installed around 2019. A 14Ø exhaust duct is connected to the fume hood. This duct is routed from the fume hood up to the 4th floor interstitial space, through the floor outside room 4B103, and ties into the main exhaust line leading to the exhaust fans (EF-1, 2, & 3) on the 10th floor roof of Building #2.

Supply to the space is via two laminar flow diffusers. It should be confirmed if these diffusers also contain HEPA filters. Per the balancing report, one diffuser is balanced to 529 CFM and the other is balanced to 538 CFM. A total of 1,067 CFM is being supplied to the room. A VAV box outside of the space controls the supply airflow. This box was inaccessible at the time of survey.

Since the exhaust flow rate is greater than the supply flow rate, the room is negatively pressurized with respect to the adjacent corridor. According to the balancing report, there is a 130 CFM differential between the exhaust and supply air flows.

A single 12"x12" exhaust grille serves the adjacent closet.

Demolition

Disconnect and remove the existing 14Ø exhaust ductwork from the fume hood connection up to the ceiling. Prepare for connection to new grossing station.

Disconnect and remove the existing exhaust grille in the closet and associated ductwork back to the main and cap. Prior to this demolition, take airflow readings of any other exhaust grilles on

the same zone as the grille in the closet. After demolition, rebalance the exhaust grilles on that zone to the pre-construction airflows.

New Work

The existing 4' fume hood will be replaced with a new 6' grossing station. Provide new exhaust connections from the existing 14Ø exhaust duct branch to the grossing station. Per the manufacturer's O&M, there are two exhaust connections in the back of the grossing station. Utilize the flexible ducts included with the grossing station to facilitate the connection to each location. Provide Y-fitting to accommodate connection from existing 14Ø exhaust ductwork to the included flexible ducts. The Y-fitting will be fabricated by the mechanical contractor or provide the grossing station manufacturer optional conveyor kit accessory (Milestone Part Code 109254).

Per the manufacturer's recommendations, at least 710 CFM exhaust should be provided. The existing Phoenix valve has a maximum airflow of 875 CFM and can be reused for this application. It is recommended that the air valve be temporarily removed and cleaned prior to the installation of the grossing station. The existing biosafety cabinet will remain operating as is at its current airflow. The new total exhaust flow rate for the space will be 1,415 CFM.

Additional supply air will need to be provided due to the increase in exhaust air. A third laminar flow diffuser is likely required due to the increase in supply airflow. Match the make and model of the existing laminar diffusers. Balance each diffuser to 430 CFM. The new total supply flow rate for the space will be 1,285 CFM. At this flow rate, the existing room pressurization differential is maintained. The existing supply air valve is a 12" JCI TSS air valve. The maximum airflow capacity of this air valve is adequate for the new supply airflow rate.

Provide control logic for the existing supply air valve to maintain negative room pressurization, if control sequence is not already existing. If applicable, update control graphics in BAS for removed fume hood to now show and call out new grossing station.

10.0 ELECTRIC

All new systems will be designed in accordance with the latest applicable Codes, Standards and Authorities Having Jurisdiction and in accordance with current engineering practices. Applicable codes include those previously listed.

10.1 GENERAL OVERVIEW

The existing area, Room 3B131, currently provides power to histology related research equipment, such as cryostats, refrigerators, freezers and a fume hood. All equipment and convenience receptacles are circuited to existing 208/120V panels on the third floor.

Typical feeders in the existing area are wire-in-conduit, and typical branch circuiting includes wire-in-conduit at exposed locations.

Typical lighting is controlled by local, manual toggle switches in the room. Lighting fixtures are typically operational and in good condition. The emergency lighting in the area is provided via emergency fixtures.

The existing fire alarm system is an addressable system.

10.2 DESIGN

Existing fume hood is served via a receptacle identified as on circuit ECI#7, which was field verified at panel schedule.

New grossing station is rated 115V and requires NEMA 5-20R receptacle for its cord and plug power connection and GFCI-30mA circuit breaker protection. As GFFI circuit breaker requires dedicated phase and neutral conductors and existing circuiting connection details are unknown, new dedicated homerun circuiting will be provided. Internet conncection for grossing station reqiures LAN connection with standard RJ45 connector and cabling.

Scope of Electrical Work:

- Existing fume hood receptacle will be removed, and existing wiring will be disconnected from associated circuit breaker ECI#7 at exting panelboard ECI; existing circuit conductors will be capped and labled in the existing receptacle junction box and at panelboard ECI for possible future use; blank faceplate will be provided on the existing receptacle junction box.

- New NEMA 5-20R receptacle will be provided adjacent to the new grossing station at an accessible location; existing spare 1-pole, 20A circuit breaker at panelboard EC3K will be replaced with new 1-pole, 20A, GFCI-30mA circuit breaker to service new grossing station receptacle; 2#10 & #10 GRD homerun citcuiting will be provided to serve new receptacle from the new circuit breaker. Circuit homerun wiring will be in conduit from new receptacle and from panelboard EC3K to above nearby lay-in, accessible corridor ceilings and via MC-type cabling between junction boxes. Panelboard EC3K was chosen as source panel for new recpetacle in lieu of panelboard EC3I that serves the existing, removed receptacle to minimize the length of the new homerun circuiting.

- New telecom outlet will be provided adjacent to the new grossing station receptacle at an accessible location; installation will include empty outlet box and 1" empty conduit stub-up with bushing to above the existing existing accessible hung ceiling for telecom cabling provided by Vetran Affairs telecom vendor.

The impact of the outlined modifications on the electrical distribution system is minimal; no further calculations or analysis is required.

10.3 LIGHTING

Existing light fixture and associated switch in closet that is being demolished will be disconnected and removed. The lighting in Room 3B131 is existing to remain, unless directed otherwise by Veteran Affairs.

10.4 GROUNDING SYSTEM

Equipment grounding conductors will be provided for all branch circuits and feeders.

10.5 OTHER SYSTEMS

Fire alarm, telecom, security, and other auxiliary devices and systems that are existing will remain, unless directed otherwise by Veteran Affairs.

11.0 AUTOMATIC TRANSPORT

11.1 GENERAL OVERVIEW

Project scope does not include any improvements to existing elevators.

12.0 ENVIRONMENTAL SERVICES

12.1 GENERAL OVERVIEW

USA Environmental Management conducted the environmental survey on 06.17.2024. The lab analysis confirmed no asbestos or lead was found within the extent of this project, Hazardous material design and abatement monitoring will not be needed.

The Environmental Report, including results for asbestos and lead, can be found on the following pages.

LIMITED HAZARDOUS MATERIALS REPORT

For

3RD FLOOR BLOOD LAB GROSSING STATION SITE PREP

AT

DEPARTMENT OF VETERANS AFFAIRS CORPORAL MICHAEL J. CRESCENZ MEDICAL CENTER PHILADELPHIA, PENNSYLVANIA

PROJECT NUMBER: 642-22-135

Prepared for:

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USAEMI Project No.: 24-020610-02

Report Date: June 28, 2024

USA Environmental Management, Inc.
Environmental Engineering Construction

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1.0 INTRODUCTION

USA Environmental Management, Inc., (USAEMI) was contracted by ThinkForm Design Architect, LLC, to conduct a limited hazardous materials assessment for the 3rd Floor Blood Lab Grossing Station Site Prep Project (Project No. 642-22-135) at the Corporal Michael J. Crescenz Veterans Affairs – Medical Center, located at 3900 Woodland Avenue, Philadelphia, Pennsylvania. The blood lab to be renovated is labeled "3B131" and is located in the southwest corner of 3rd floor of Building 2. The objective of the inspection was to determine the presence or absence of asbestos and lead-containing paint which may be impacted during the 3rd Floor Blood Lab Grossing Station Site Prep Project. The assessment was limited to the blood lab and adjacent closet 3B131A which are expected to be impacted during the demolition and renovation activities.

The limited hazardous materials assessment was conducted on June 18, 2024, by Mathieu Chapuis and Nicholas Smith. Mr. Smith is certified as Pennsylvania Department of Labor and Industry Building Inspector and both are inspectors are State of Pennsylvania, Department of Labor and Industry, Lead Inspectors/Risk Assessors. The inspectors have significant experience in asbestos-containing material (ACM) surveys, lead-based/containing paint assessments, and hazardous materials assessments.

Copies of all applicable Certifications and Licensure are attached to this report.

2.0 SURVEY FOR ASBESTOS-CONTAINING MATERIALS

2.1 Asbestos History

During the last few decades the medical evidence has continued to mount regarding the importance of environmental factors as a source of carcinogenicity. Asbestos is regulated by the Occupational Safety and Health Administration, cited by the National Institute for Occupational Safety and Health, the International Agency for Research on Cancer, the National Toxicology Program, and the Carcinogens Assessment Group of the EPA.

As a result of the pervasive use of this material, asbestos has become a widespread environmental contaminant for large segments of our society and has been conclusively demonstrated to cause fibrosis and malignancies of the lung and other organs. The majority of the evidence comes from industrial exposure to this material, whereas exposures were more intense and for a greater period of time. However, there is also evidence that low exposures to asbestos fibers may also have carcinogenic potential.

Asbestos fibers resist degradation and persist in the environment because of the fibers particular structure. They possess aerodynamic capabilities for prolonged suspension and repeated cycles of re-entrainment. Asbestos fibers find entry into the body by inhalation and through ingestion. The retained fibers are found in tissues throughout the lifetime of the exposed person - long after cessation of exposure. It has been demonstrated that asbestos fibers can migrate to other organs. Malignancies related to inhalation and ingestion include cancer of the lungs, mesothelioma of the pleura and peritoneum (lining of the lung and abdominal region), and neoplasms of other sites.

The degree and duration of exposure to develop an asbestos related health disorder is unknown at

this time. However, a report to the U.S. Consumer Products Safety Commission by the Chronic Hazard Advisory Panel on Asbestos reports:

From a public health standpoint, and in the absence of final clarifications of the uncertainties, it is prudent to behave as if asbestos fibers may be carcinogenic at low level exposure and at small particle sizes.

As a result, the Asbestos Hazard Emergency Response Act (40 CFR Part 763) was enacted. An AHERA inspection requires an accredited inspector to visually inspect and assess the condition of all known or assumed friable asbestos-containing materials; to visually inspect non-friable ACM and touch it to determine friability; and to identify homogeneous areas of friable materials. The National Emission Standard for Hazardous Air Pollutants (NESHAPs) requires thorough inspections for ACM in structures before renovation or demolition.

NESHAPs ACM CATEGORIES		
Categories	**Typical Material Type**	**Guidance for RACM**
Friable ACM	Pipe insulation and pipe-fittings	Able to crush with hand pressure
Category I, Non-friable	Floor covering products, Gaskets, Roofing cements	Non-friable made friable due to sanding, grinding, cutting or abrading
Category II, Non-friable	Cement board products, floor tile, etc., that is significantly damaged.	Non-friable material becoming friable or is expected to become friable from the act of renovation or demolition

Any ACM that is Friable, or Category I and II Non-friable that meets the qualifications to be considered a Regulated Asbestos-Containing Material (RACM), must be removed prior to demolition that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. This includes gasket materials.

2.2 Asbestos Inspection

This inspection for ACM was limit in scope to include suspect materials which may be impacted during the renovations. Wherever possible, the attempt was made to determine the presence of hidden materials. No destructive sampling activities were performed during the course of the assessment.

USAEMI collected the necessary number of bulk samples to properly identify ACM. All samples collected were in accordance with 40 CFR, Part 763, the EPA's, AHERA protocol. Sampling was performed utilizing wet methods. Equipment used during the survey was decontaminated at the completion of extracting each sample, eliminating the potential for any cross contamination of samples. In addition, all samples were given a homogeneous area sampling identification number.

Samples of each homogenous material were delivered to Batta Environmental Associates, Inc., located at 6 Garfield Way, Newark, Delaware. Sample analysis was performed via Polarized Light Microscopy (PLM) and/or Transmission Electron Microscopy (TEM) in accordance with 40 CFR, Part 763.87(a). The results of each sample and corresponding Certificates of Analysis are appended to this report. Results include the type and percentage of asbestos, if found in the sampled material, and the method of analysis.

The sample identification system of this report consists of a three-unit sample identification number. The first set of text indicates the sample number, the next set indicates the inspector's initials and the last six (6) digits indicate the sampling date. These sample numbers match the chain-of-custody and lab reports of analysis.

Sample result summaries are provided in table format. The first column indicates the homogenous area identification number (ID No.); the second column is the material description; and the third column indicates the asbestos content, type of asbestos or if the material was none detected for asbestos. Sampled materials that contain asbestos and/or were assumed to contain asbestos are indicated in ***italic bold***.

2.3 Asbestos Summary

During the course of the assessment, USAEMI noted a total of ten (10) suspect materials associated with the blood lab grossing station. The suspect, identified materials were sampled in sufficient quantity as mandated by 40 CFR, Part 763.87(a). Of the materials analyzed, **none** tested positive for asbestos (greater than one percent (>1%) asbestos by weight). Materials sampled for asbestos content are listed below:

TABLE 1 - SUSPECT ASBESTOS MATERIALS

ID No.	Material Description	Asbestos
01	Gypsum Paper Drywall and Associated Joint Compound	None Detected
02	4" Light Grey Cove Base	None Detected
03	Adhesive Associated with ID No. 02	None Detected
04	2'x2' White Textured Ceiling Tile	None Detected
05	18"x18" Tan Floor Tile with Orange, White & Brown Dots	None Detected
06	Tan Adhesive Associated with ID No. 05	None Detected
07	Grey Expansion Joint Caulk at Seams of Drywall	None Detected
08	Brown Fireproofing	None Detected
09	Red Fire Caulk Around Exhaust	None Detected
10	Grey Composite Tabletops	None Detected

2.4 Asbestos Assessment Disclaimer

The Client should be aware that this survey incorporated limited exploratory sampling to access hidden or obscured asbestos-containing materials (ACM). However, non-observable asbestos-containing materials may exist in such areas as above solid ceilings, piping lines in wall cavities, piping lines buried in concrete slabs and other potential ACM which is inaccessible for sample extraction due to the physical coverage of the material. Due diligence was observed in performing sampling by generally recognized industry sampling practices.

2.5 Asbestos Recommendations

The following general recommendations are provided to assist in the renovation and localized renovation of the existing structures with ACM. Note that any building material that is not identified as homogenous with those addressed in this report must be considered as ACM unless additional testing indicates otherwise.

The following work practices should be followed whenever activities involving any ACM occur at this Facility.

- Ensure any ACM is managed in accordance with Federal, State and Local regulations.
- Remediate any ACM that maybe disturbed during renovations or ensure the materials will not be disturbed.
- Always keep any ACM adequately wet before, during, and after removal operations.
- Conduct activities in a manner which produces no visible emissions to the outside air.
- Handle and dispose of all ACM in accordance with Federal and Naval regulations.
- Maintain this report as a component of the historical record for the buildings.

2.6 Asbestos Certification

The American Industrial Hygiene Association (AIHA) and National Voluntary Laboratory Accreditation Program (NVLAP) accredited the selected laboratory to analyze the bulk samples for asbestos content by PLM method, equivalent to the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples' (Appendix A to Subpart F in 40 CFR Part 763):

BATTA ENVIRONMENTAL ASSOCIATES, INC.
6 GARFIELD WAY
NEWARK, DELAWARE 19173

The inspectors who physically surveyed for ACM at the facility and have received Pennsylvania / USEPA-approved training as asbestos inspectors are:

NICHOLAS SMITH
USA ENVIRONMENTAL MANAGEMENT, INC.
344 WEST STATE STREET
TRENTON, NEW JERSEY 08618

.

SIGNATURE OF INSPECTOR(S): 

Nicholas Smith

The above-signed inspector(s) certify information contained within this asbestos inspection report is true and correct concerning site conditions at the time of survey only.

3.0 SURVEY FOR LEAD CONTAINING PAINT

3.1 Lead Paint History

Since 1971, the construction industry has been required to protect workers from exposure to lead through engineering and work practice controls. The current United States Department of Labor, Occupational Safety and Health Administration, (OSHA) regulations under 29 CFR 1926.62 set the following limits for lead exposure including a lead permissible exposure limit (PEL) of 50 micrograms per cubic meter (µg/m^3), and an action level of 30 µg/m^3, as determined using an 8-hour time weighted average. Since lead paint has been determined to be a health threat, assessment of building for the presence of lead paint is recommended in order to prevent occupational exposure to personnel or the general public, and to enact appropriate control measures for lead hazards.

OSHA and EPA regulations must be followed when renovation or demolition work affects any lead-based paint or paints with detectable lead levels referred to as paint containing lead (PCL) or lead-containing paint (LCP). X-Ray Fluorescence (XRF) testing of components was used as the primary testing method for the site.

A preconstruction inspection is not to be confused with a U.S. Department of Housing and Urban Development (HUD) Title X lead inspection. The preconstruction inspection's primary purpose is to identify major building components containing lead or other lead hazards in order to properly address the lead during renovation/demolition that may be impacted by the proposed work for the purpose of OSHA compliance. The inspection was conducted using the EPA's work practice standards for conducting lead-based paint activities (40 CFR 745.27) as a guide.

As per OSHA, disturbance of paint containing lead requires special training and initial exposure monitoring at a minimum. OSHA standard 29 CFR 1926.62 (Lead in Construction Standard) is invoked if any lead is present in paint or other coatings, since there is no minimum concentration level, as opposed to the EPA and HUD definitions of lead-based paint in child occupied facilities and public/private housing. These standards set forth the regulations that apply with regards to construction or renovation of painted materials or structures that contain detectable amounts of lead and not necessarily lead pigment containing items that have been manufactured.

An X-ray tube source XRF instrument was used for this inspection. The unit was operated by a factory trained user in the standard lead paint test mode using the rules and procedures found in the Performance Characteristic Sheet (PCS) for the instrument. The XRF is not substrate dependent according to the PCS, so no substrate corrections were required.

The XRF is calibrated at the beginning of the testing, every four hours thereafter and/or at the end of the testing, whichever came first. Calibrations are noted on the XRF data sheets included in appendices. Quality control included calibrations to the NIST standard for XRF sampling and duplicate testing of the same component.

3.2 LBP Sampling

XRF sampling does not require collection of material and is considered non-destructive. This state-of-the-art method for determining the composition of painted surfaces can quickly determine if a surface contains lead-based/containing paint or not, and provides sufficient data concerning the amount of lead contained in paint. Data is provided as recorded by the XRF unit at the time of the survey using pre and post calibration, and by following the performance characteristic sheet of the equipment. Areas are immediately identified as coated with lead-based/containing paint using this method.

Most components tested are believed to contain several layers of paint film and are difficult to interpret. XRF and bulk paint analysis does not differentiate which layer of paint may contain lead. The results only indicate the amount of lead that is present in the sample/test location. Lead is likely to be present at a higher percentage in a particular layer than reported due to averaging the weight of other layers of paint into the calculation. For this reason, OSHA standards apply to any sample with detectable lead. Construction activities that impact these paints may result in exposure to lead, even though they are not technically considered lead-based paints.

3.3 XRF Result Ranges

An inspection was performed on painted and non-painted components to be suspect for the presence of lead found. Readings were then taken from a representative number of surfaces, dependent on the quantity of the particular material present. Although OSHA utilizes the term "any detectable lead", the amount of "detectable lead" is relevant in order to determine the potential for lead exposure. Information is presented in a lead range format to assist in determining protective measures and special procedures that may be required during renovation/demolition activities.

Using the aforementioned methods, USAEMI determined that no components had detectable levels of lead-containing paint (0.01 mg/cm^2 or greater).

XRF field survey documentation can be found in the attached appendices of this report inclusive of the Performance Characteristic Sheet of the XRF Unit.

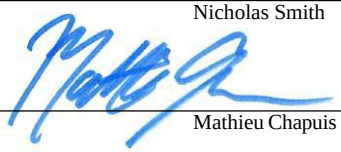
3.4 Lead Certification

The Pennsylvania DOL / USEPA-approved and trained lead inspector(s)/risk assessor(s) who surveyed the project site are:

MATHIEU CHAPUIS & NICHOLAS SMITH
USA ENVIRONMENTAL MANAGEMENT, INC.
344 WEST STATE STREET
TRENTON, NEW JERSEY 08618

SIGNATURE OF INSPECTOR(S):

Nicholas Smith



Mathieu Chapuis

The above-signed inspector(s) certify information contained within this inspection report is true and correct concerning site conditions at the time of survey only.

APPENDIX A

Asbestos Certificates of Analysis
Asbestos Chain of Custody Records

Dedicated to a Cleaner Environment Since 1982

NY ELAP LAB# 11993 for PCM, PLM, TEM & Lead

batta LABORATORIES

BATTA LABORATORIES, LLC

A Certified MBE Company

Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764

Web: http://www.battaenv.com E-mail: battaenv@battaenv.com

EPA Lab ID #DE004

NVLAP Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0
Batch#: N/A
COC#: N/A

CERTIFICATE OF PLM ANALYSIS

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 06/25/24

Sampling Data

BLI Project #: R107316
Project Name: USA Enviro Mgmt-24-020610-02 3rd Fl. Blood Lab GS- 642-22-135, Phila VAH Bldg 2

Date Sampled: 06/18/24
Sampled By: CLIENT
Date Analyzed: 06/25/24

Sample ID		Client-supplied Data			Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1499642	01NS061824	Closet	Gypsum Paper Drywall	n/a	Soft Homogeneous		Gray Brown	15% Cellulose 85% Non-fibrous Material	No Asbestos Found
1499643	01NS061824-LAYER1	Closet	Joint Compound	n/a	Soft Homogeneous		White	100% Non-fibrous Material	No Asbestos Found
1499644	02NS061824	Closet	Gypsum Paper Drywall	n/a	Soft Homogeneous		Gray Brown	15% Cellulose 85% Non-fibrous Material	No Asbestos Found
1499645	02NS061824-LAYER1	Closet	Joint Compound	n/a	Soft Homogeneous		White	100% Non-fibrous Material	No Asbestos Found
1499646	03NS061824	Closet	4" Covebase	n/a	Soft Homogeneous		Gray	100% Non-fibrous Material	No Asbestos Found

Note 1 *Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.*

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: JJF

REVIEWED BY: ARL

QA/QC Officer/Signatory

*This report does not constitute endorsement by NVLAP and/or any other US government agencies. PLM analyses do not fall under the purview of AIHA LAP.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, LLC assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

*Organically-bound, nonfriable material may interfere with the accurate and reproducible quantification of asbestos. In these cases, the EPA recommends further analysis by a matrix-reduction method. Batta recommends the NY ELAP Item 198.6/198.4 over the Chatfield method. When point count techniques are utilized on organically-bound, nonfriable materials without the EPA-recommended matrix reduction steps, Batta Laboratories assumes no responsibility regarding the accuracy or precision associated with these results. In these cases, Batta employs a modified version of the EPA point count method.

*WRTA refers to a group of fibrous Amphiboles typically associated with 'Libby Amphibole'. Within this classification are: winchite, richterite, tremolite, and actinolite.

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NY ELAP LAB# 11993 for PCM, PLM, TEM & Lead

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EPA Lab ID #DE004

NVLAP Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0
Batch#: N/A
COC#: N/A

CERTIFICATE OF PLM ANALYSIS

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 06/25/24

Sampling Data

BLI Project #: R107316
Project Name: USA Enviro Mgmt-24-020610-02 3rd Fl. Blood Lab GS- 642-22-135, Phila VAH Bldg 2

Date Sampled: 06/18/24
Sampled By: CLIENT
Date Analyzed: 06/25/24

Sample ID		Client-supplied Data			Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1499647	03A-NS061824	Closet	Adhesive	n/a	Soft Homogeneous		Yellow	100% Non-fibrous Material	No Asbestos Found
1499648	04NS061824	Grossing Station	4" Covebase	n/a	Soft Homogeneous		Gray	100% Non-fibrous Material	No Asbestos Found
1499649	04A-NS061824	Grossing Station	Adhesive	n/a	Soft Homogeneous		Yellow	100% Non-fibrous Material	No Asbestos Found
1499650	05-NS061824	Closet	2'x2' Ceilinbg Tile	n/a	Soft Homogeneous		Gray	90% Mineral Wool 10% Non-fibrous Material	No Asbestos Found
1499651	06-NS061824	Closet	2'x2' Ceilinbg Tile	n/a	Soft Homogeneous		Gray	90% Mineral Wool 10% Non-fibrous Material	No Asbestos Found

Note 1 *Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.*

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: JJF

REVIEWED BY: ARL

QA/QC Officer/Signatory

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CERTIFICATE OF PLM ANALYSIS

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 06/25/24

Sampling Data

Date Sampled: 06/18/24
BLI Project #: R107316
Sampled By: CLIENT
Project Name: USA Enviro Mgmt-24-020610-02 3rd Fl. Blood Lab GS- 642-22-135, Phila VAH Bldg 2
Date Analyzed: 06/25/24

Sample ID		Client-supplied Data			Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1499652	07-NS061824	Closet	18"x18" Floor Tile	n/a	Firm Homogeneous		Tan Orange	100% Non-fibrous Material	No Asbestos Found
1499653	07A-NS061824	Closet	Adhesive	n/a	Firm Homogeneous		Tan	100% Non-fibrous Material	No Asbestos Found
1499654	08-NS061824	Grossing Station	18"x18" Floor Tile	n/a	Firm Homogeneous		Tan Orange	100% Non-fibrous Material	No Asbestos Found
1499655	08A-NS061824	Grossing Station	Adhesive	n/a	Soft Homogeneous		Tan	100% Non-fibrous Material	No Asbestos Found
1499656	09-NS061824	Closet	Expansion Caulk	n/a	Soft Homogeneous		Gray	100% Non-fibrous Material	No Asbestos Found

Note 1 *Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.*

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: JJF

REVIEWED BY: ARL

QA/QC Officer/Signatory

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EPA Lab ID #DE004

NVLAP Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0
Batch#: N/A
COC#: N/A

CERTIFICATE OF PLM ANALYSIS

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Report Date: 06/25/24

Sampling Data

Date Sampled: 06/18/24
BLI Project #: R107316
Sampled By: CLIENT
Project Name: USA Enviro Mgmt-24-020610-02 3rd Fl. Blood Lab GS- 642-22-135, Phila VAH Bldg 2
Date Analyzed: 06/25/24

Sample ID		Client-supplied Data			Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1499657	10-NS061824	Closet	Expansion Caulk	n/a	Soft Homogeneous		Gray	100% Non-fibrous Material	No Asbestos Found
1499658	11-NS061824	Closet above Drop Ceiling	Fireproofing	n/a	Soft Homogeneous		Brown	20% Cellulose 80% Non-fibrous Material	No Asbestos Found
1499659	12-NS061824	Closet above Drop Ceiling	Fireproofing	n/a	Soft Homogeneous		Brown	20% Cellulose 80% Non-fibrous Material	No Asbestos Found
1499660	13-NS061824	Closet above Drop Ceiling	Fireproofing	n/a	Soft Homogeneous		Brown	20% Cellulose 80% Non-fibrous Material	No Asbestos Found
1499661	14-NS061824	Grossing Station	Fire Caulk	n/a	Soft Homogeneous		Red	100% Non-fibrous Material	No Asbestos Found

Note 1 *Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.*

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: JJF

REVIEWED BY: ARL

QA/QC Officer/Signatory

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EPA Lab ID #DE004

NVLAP Lab Code: 101032-D

Dept. Code: PLM

Rev. #: 0
Batch#: N/A
COC#: N/A

CERTIFICATE OF PLM ANALYSIS

Test Method: EPA/600/R-93/116 in conjunction with Batta SOP

Report Date: 06/25/24

Sampling Data

Date Sampled: 06/18/24
BLI Project #: R107316
Sampled By: CLIENT
Project Name: USA Enviro Mgmt-24-020610-02 3rd Fl. Blood Lab GS- 642-22-135, Phila VAH Bldg 2
Date Analyzed: 06/25/24

Sample ID		Client-supplied Data			Analytical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Description	Material Type	Friable?	Texture/	Gross	Color	Non-asbestiform Components	Asbestiform Components
1499662	15-NS061824	Grossing Station	Fire Caulk	n/a	Soft Homogeneous		Red	100% Non-fibrous Material	No Asbestos Found
1499663	16-NS061824	Grossing Station	Composite Table Tops	n/a	Firm Homogeneous		Gray	100% Non-fibrous Material	No Asbestos Found
1499664	17-NS061824	Grossing Station	Composite Table Tops	n/a	Firm Homogeneous		Gray	100% Non-fibrous Material	No Asbestos Found

Note 1 *Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. As such, the EPA recommends further analysis by electron microscopy. Batta recommends the NY 198.4 over the Chatfield method.*

Note 2 Unless otherwise specified, Tr=Trace and correlates to <0.25% (based on a 400-point EPA point count).

Note 3 Materials containing vermiculite are not good candidates for analysis using standard EPA 600 PLM protocol. Results may be low-biased due to inherent limitations caused by the material. The EPA recommends that vermiculite attic insulation (VAI) be prepped and analyzed using EPA 600/R-04/004, known as "The Cincinnati Method".

ANALYST: JJF

REVIEWED BY: ARL

QA/QC Officer/Signatory

*This report does not constitute endorsement by NVLAP and/or any other US government agencies. PLM analyses do not fall under the purview of AIHA LAP.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, LLC assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

*Organically-bound, nonfriable material may interfere with the accurate and reproducible quantification of asbestos. In these cases, the EPA recommends further analysis by a matrix-reduction method. Batta recommends the NY ELAP Item 198.6/198.4 over the Chatfield method. When point count techniques are utilized on organically-bound, nonfriable materials without the EPA-recommended matrix reduction steps, Batta Laboratories assumes no responsibility regarding the accuracy or precision associated with these results. In these cases, Batta employs a modified version of the EPA point count method.

*WRTA refers to a group of fibrous Amphiboles typically associated with 'Libby Amphibole'. Within this classification are: winchite, richterite, tremolite, and actinolite.

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Web: www.battaenv.com E-mail: battaenv@battaenv.com

EPA Lab ID #DE004
Lab ID #100448
NVLAP Lab Code: 101032-0

CERTIFICATE OF TEM ANALYSIS

TEM Test Method: EPA 600/R-93/116 (gravimetric reduction)

Revision #: 0

Report Date: 6/28/2024

Sampling Data

BLI Project #: R107316
Project Name: USA ENVIRO MGMT- 24-020610-02- Think Form, 3rd Fl Blood Lab GS- 642-22-135
Project Location: Phila VA Hospital- Bldg 2

Date Sampled: 6/18/2024
Sampled By: Client
Date Analyzed: 6/28/2024

Analytical Data

Sample ID			Sample Description			Gravimetric Data		PLM-NOB Analytical Results			TEM-NOB Analytical Results	
								Non-Asbestos Content			Non-Asbestos Content	
Lab Sample # PLM	Lab Sample # TEM	Client Sample # Homogenous Area .I.D.	Sample Location	Material Description	Sample Color	Ashed Residue (%)	Insoluble Residue (%)	Other Content (%)	Inorganic and Other Fibrous Content[1]	Asbestos Content By PLM[2]	Inorganic Fibrous Content[1]	Asbestos Content By TEM[2]
-	1500222	04 NS061824 n/a	Grossing Station	4" Covebase	Light Gray	67.46	2.57	N/A	N/A	Analysis Not Requested	100% Other, Particulate	None Detected
-	1500223	04A NS061824 n/a	Grossing Station	Adhesive	White/Yellow	55.46	20.29	N/A	N/A	Analysis Not Requested	100% Other, Particulate	None Detected
-	1500224	08 NS061824 n/a	Grossing Station	18x18 FT	Tan	55.20	1.16	N/A	N/A	Analysis Not Requested	100% Other, Particulate	None Detected
-	1500225	08A NS061824 n/a	Grossing Station	Adhesive	Tan	45.88	3.23	N/A	N/A	Analysis Not Requested	100% Other, Particulate	None Detected
-	1500226	10 NS061824 n/a	Closet	Expansion Caulk	Gray	55.72	5.32	N/A	N/A	Analysis Not Requested	100% Other, Particulate	None Detected
-	1500227	15 NS061824 n/a	Grossing Station	Fire Caulk	Red	64.84	15.22	N/A	N/A	Analysis Not Requested	100% Other, Particulate	None Detected
-	1500228	17 NS061824 n/a	Grossing Station	Composite Tabletops	Gray	77.34	64.90	N/A	N/A	Analysis Not Requested	100% Other, Particulate	None Detected

TEM

Analyst(s): Angela Lewis **Reviewed By:** _____

This method is not recommended for nonorganically bound or friable samples, as the granular nature of many of these samples can produce a false negative. PLM methods are sufficient.

[1] Unless otherwise specified in the report, contents of non-asbestos inorganic fibers are not given.

[2] Results reported are based on final residue through matrix reduction. Due to resolution differences, discrepancies between TEM results and PLM results are expected. Based on a possible analytical conditions within published methodology, method detection limits (MDL) of 0.05% (for TEM) and 0.20% (for PLM) have been determined.

This report does not constitute endorsement by NVLAP and/or any other U.S. government agencies. TEM analyses do not fall under the purview of AIHA LAP. The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment. Due to the general inhomogeneity of asbestos-containing materials (ACM), EPA and OSHA have recommended submission of at least three samples of each type of materials for analysis. Submission of fewer samples may compromise the accuracy of ACM determination.

USA Environmental Management, Inc.

344 West State Street
Trenton, New Jersey 08618

R10B16

CLIENT:	ThinkForm Architects	**DATE:**	06/18/24	**TYPE OF ANALYSIS**	
PROJECT:	3rd Fl. Blood Lab Grossing Station – 642-22-135	**TECHNICIAN:**	N. Smith, M. Chapun	☒ PLM, EPA/600/R-93/116	
SITE:	Phila. VA Hospital – Bldg 2	**PROJECT #:**	24-020610-02	☐ Stop @ 1st Positive ID No.	

BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

SAMPLE ID		MATERIAL / (ID No.)	SAMPLE LOCATION	ADDITIONAL ANALYSIS
* 01NS061824	642/643	Gypsum Paper Drywall & Associated Joint Compound (01)	Closet	☐ TEM EPA NOB (if ND or <1% by PLM)
* 02	644/645	↓ (01)	↓	☐ TEM EPA NOB (if ND or <1% by PLM)
03	646	4" Light Gray Covebase (02)	closet	☐ TEM EPA NOB (if ND or <1% by PLM)
03A	647	White/Yellow Adhesive associated with ID No. 02 (03)	↓	☐ TEM EPA NOB (if ND or <1% by PLM)
04	648	↓ (02)	Grossing station	☒ TEM EPA NOB (if ND or <1% by PLM)
04A	649	↓ (03)	↓	☒ TEM EPA NOB (if ND or <1% by PLM)
05	650	2'x2' White Ceiling Tile with Chips & Holes (04)	closet	☐ TEM EPA NOB (if ND or <1% by PLM)
06	651	↓ (04)	↓	☐ TEM EPA NOB (if ND or <1% by PLM)
07	652	18"x18" Tan Floor tile with orange, White & Brown dots (05)	Closet	☐ TEM EPA NOB (if ND or <1% by PLM)
07A	653	Tan adhesive associated with ID No. 05 (06)	↓	☐ TEM EPA NOB (if ND or <1% by PLM)
08	654	↓ (05)	grossing station	☒ TEM EPA NOB (if ND or <1% by PLM)
08A	655	↓ (06)	↓	☒ TEM EPA NOB (if ND or <1% by PLM)

TURN-AROUND-TIME	
☐ 6 Hours	☐ 3 Days
☐ 1 Day	☐ TEM, 2 Days
☒ 2 Days	☒ TEM, 3 Days

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
I.	6/18/24		I.	6/21/24	10:20
II.			II.		
III.			III.		

COMMENTS: * Analyze Drywall & Joint Compound only

USA Environmental Management, Inc.
344 West State Street
Trenton, New Jersey 08618

R107316

CLIENT:	ThinkForm Architects	**DATE:**	06/18/2024	**TYPE OF ANALYSIS**	
PROJECT:	3rd Fl. Blood Lab Grossing Station – 642-22-135	**TECHNICIAN:**	N. Smith & M. Cooper	☒ PLM, EPA/600/R-93/116	
SITE:	Phila. VA Hospital – Bldg 2	**PROJECT #:**	24-020610-02	☐ Stop @ 1st Positive ID No.	

BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

SAMPLE ID		MATERIAL / (ID No.)	SAMPLE LOCATION	ADDITIONAL ANALYSIS
09 NSO06824	1499 656	Grey Expansion caulk at seams of drywall (07)	Closet	☐ TEM EPA NOB (if ND or <1% by PLM)
10	657	↓ (07)	↓	☒ TEM EPA NOB (if ND or <1% by PLM)
11	658	Brown Fireproofing (08)	Closet above drop ceiling	☐ TEM EPA NOB (if ND or <1% by PLM)
12	659	↓ (08)	↓	☐ TEM EPA NOB (if ND or <1% by PLM)
13	660	↓ (08)	↓	☐ TEM EPA NOB (if ND or <1% by PLM)
14	661	Red Fire caulk around exhaust (09)	Grossing Station	☐ TEM EPA NOB (if ND or <1% by PLM)
15	662	↓ (09)	↓	☒ TEM EPA NOB (if ND or <1% by PLM)
16	663	Grey composite table tops (10)	grossing station	☐ TEM EPA NOB (if ND or <1% by PLM)
17	664	↓ (16)	↓	☒ TEM EPA NOB (if ND or <1% by PLM)
		( )		☐ TEM EPA NOB (if ND or <1% by PLM)
		( )		☐ TEM EPA NOB (if ND or <1% by PLM)
		( )		☐ TEM EPA NOB (if ND or <1% by PLM)

TURN-AROUND-TIME	
☐ 6 Hours	☐ 3 Days
☐ 1 Day	☐ TEM, 2 Days
☒ 2 Days	☒ TEM, 3 Days

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
I.	6/19/24		I.	6/21/24	10:20
II.			II.		
III.			III.		

COMMENTS: _____

APPENDIX B

XRF Field Survey Data
XRF Performance Characteristic Sheet

USA Environmental Management, Inc.
344 West State Street
Trenton, NJ 08618

Client: ThinkForm Architects

Project #: 24-020610-02

Site: Corporal Michael J. Crescenz Veterans Affairs Medical Center

Bldg: 3rd Fl. Blood Lab Grossing Station / VA Project 642-22-135

Inspection Date: June 18, 2024

Inspector: M. Chapuis

Inspector ID #: 006780

XRF Serial #: 01394

Test No.	Room/Location	Wall	Substrate	Component	Condition	Lead (mg/cm^2)	EPA/HUD	OSHA
1	Calibration A	-	-	-	-	1.18	-	-
2	Calibration B	-	-	-	-	1.16	-	-
3	Calibration C	-	-	-	-	0.88	-	-
4	Grossing Station - 3B131	C	Drywall	Wall	-	0.00	Negative	Negative
5	Grossing Station - 3B131	D	Drywall	Wall	-	0.00	Negative	Negative
6	Grossing Station - 3B131	-	Drywall	Ceiling	-	0.00	Negative	Negative
7	Grossing Station - 3B131	-	Metal	Fume Hood	-	0.00	Negative	Negative
8	Grossing Station - 3B131	-	Metal	Cabinet	-	0.00	Negative	Negative
9	Closet	A	Drywall	Wall	-	0.00	Negative	Negative
10	Closet	B	Drywall	Wall	-	0.00	Negative	Negative
11	Closet	C	Drywall	Wall	-	0.00	Negative	Negative
12	Closet	D	Drywall	Wall	-	0.00	Negative	Negative
13	Calibration A	-	-	-	-	1.17	-	-
14	Calibration B	-	-	-	-	0.99	-	-
15	Calibration C	-	-	-	-	1.12	-	-

Note: Wall "A" Corresponds to the East wall parallel to University Avenue - Walls "B", "C", "D" continuing clockwise.

Performance Characteristic Sheet

EFFECTIVE DATE: February 1, 2022

MANUFACTURER AND MODEL:

Make: ***SciAps***
Models: ***Model X-550***
X-Ray Source: ***Rhodium (Rh) or Gold (Au) Anode***

FIELD OPERATION GUIDANCE

ACTION LEVEL SETTING:

1.0 mg/cm^2

OPERATING PARAMETERS:

Timed mode: fixed 10-second reading.

Quick mode: variable-time reading (approximately 2-6 seconds).

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive) on NIST SRM 2579 (1.02 mg/cm^2)/NIST SRM 2573, or equivalent

SUBSTRATE CORRECTION:

Not applicable

INCONCLUSIVE RANGE OR THRESHOLD:

Au Anode (quick) **READING DESCRIPTION**	**SUBSTRATE**	**THRESHOLD (mg/cm^2)**
Results not corrected for substrate bias on any substrate	Brick Concrete Drywall Metal Plaster Wood	1.0 1.0 1.0 1.0 1.0 1.0
Rh Anode (Timed or Quick), Au Anode (Timed) **READING DESCRIPTION**	**SUBSTRATE**	**THRESHOLD (mg/cm^2)**
Results not corrected for substrate bias on any substrate	Brick Concrete Drywall Metal Plaster Wood	0.9 0.9 0.9 0.9 0.9 0.9

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, 2012 Edition ("HUD Guidelines"). Performance parameters shown on this sheet are calculated using test results on building components in the HUD archive. Testing was conducted on 146 test samples in February 2022, with two separate instruments of each Anode type, operated in both Timed and Quick modes.

OPERATING PARAMETERS

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film; for NIST SRM 2579a, use film 2573 (1.04 mg/cm^2).

If the average (rounded to 1 decimal place) of three readings is outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instrument into control before XRF testing proceeds.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing.

Conduct XRF re-testing at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below. Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. In single-family and multi-family housing, a result is defined as a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and the retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF readings.

Compute the average of all ten re-test XRF readings.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this

procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

The reading time in Archive tests was 10 seconds in Timed mode and from 2-6 seconds in Quick mode, for both the Rh Anode and Au Anode.

CLASSIFICATION OF RESULTS:

XRF results for the Au Anode in Quick mode are classified as **positive** if they are **greater than or equal** to 1.0 mg/cm^2 and ***negative*** if they are ***less than*** *to* 1.0 mg/cm^2. XRF results for the Au Anode in Timed mode and for the Rh Anode in Timed or Quick mode are classified as **positive** if they are **greater than or equal** to 0.9 mg/cm^2 and ***negative*** if they are ***less than*** *to* 0.9 mg/cm^2

DOCUMENTATION:

A report titled *Methodology for XRF Performance Characteristic Sheets* (EPA 747-R-95-008) provides an explanation of the statistical methodology used to develop Performance Characteristic Sheets at the Federal standard (Action Level) of 1.0 mg/cm^2 and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. The report may be downloaded at http://www2.epa.gov/lead/methodology-xrf-performance-characteristic-sheets-epa-747-r-95-008-september-1997.

APPENDIX C

Laboratory Certifications
Inspector Licenses

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101032-0

Batta Laboratories, LLC

Newark, DE

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2023-07-01 through 2024-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Batta Laboratories, LLC
Delaware Industrial Park
6 Garfield Way
Newark, DE 19713-5817
Mr. Naresh C. Batta
Phone: 302-737-3376 Fax: 302-737-5764
Email: ncbatta@battaenv.com
http://www.battaenv.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 101032-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2025
Issued April 01, 2024

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. ANGELA R. YOHN
BATTA LABORATORIES, LLC.
DELAWARE INDUSTRIAL PARK 6 GARFIELD WAY
NEWARK, DE 19713

NY Lab Id No: 11993

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

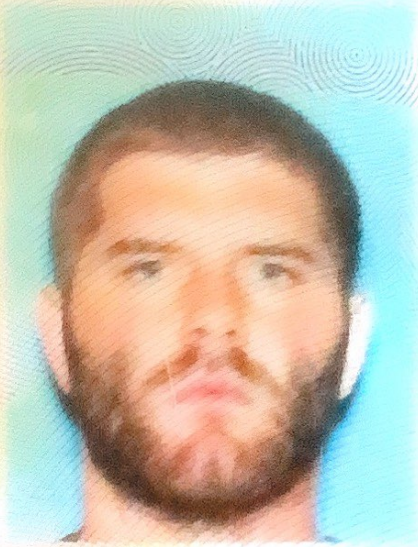
Asbestos in Friable Material	Item 198.1 of Manual
	EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual
Asbestos-Vermiculite-Containing Mate	Item 198.8 of Manual
Lead in Dust Wipes	EPA 7000B
Lead in Paint	EPA 7000B

Sample Preparation Methods

	EPA 3050B

Serial No.: 69030

PENNSYLVANIA ASBESTOS CERTIFICATION



063713

Birth Date
12/22/1993

NICHOLAS M SMITH
206 CLEMENT DR
SOMERDALE NJ 08083

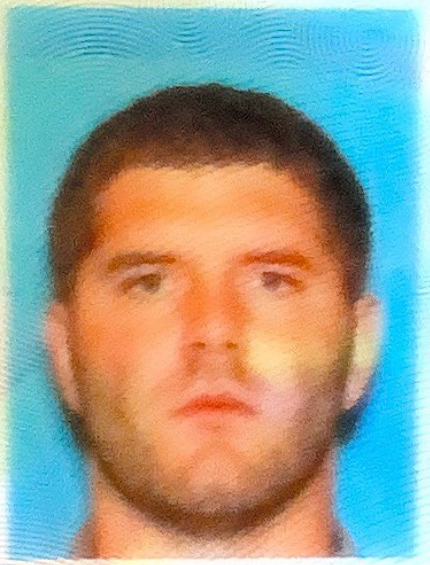
Expires
03/21/2025

Issue Date
04/30/2024

Sex	Height	Eyes
M	6' 01"	BLU

Class
INSPECTOR

PENNSYLVANIA LEAD CERTIFICATION



006869

Birth Date
12/22/1993

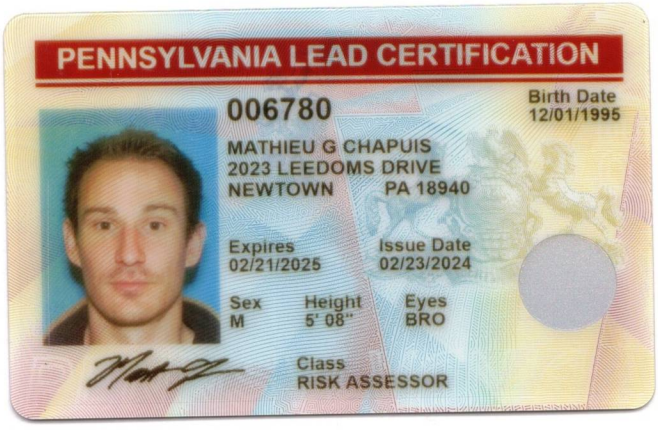
NICHOLAS SMITH
206 CLEMENT DRIVE
SOMERDALE NJ 08083

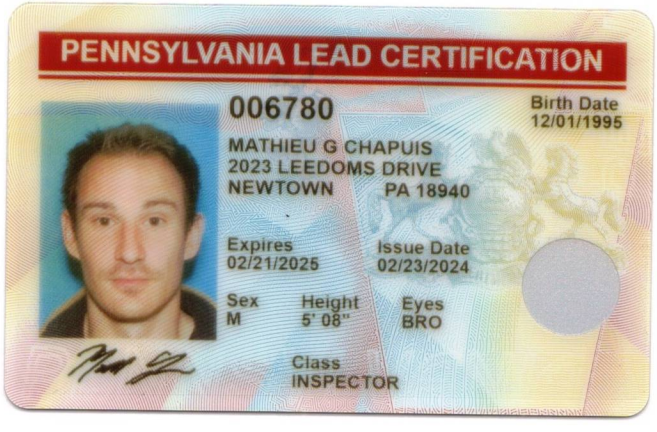
Expires
05/12/2025

Issue Date
06/03/2024

Sex	Height	Eyes
M	6' 01"	BLU

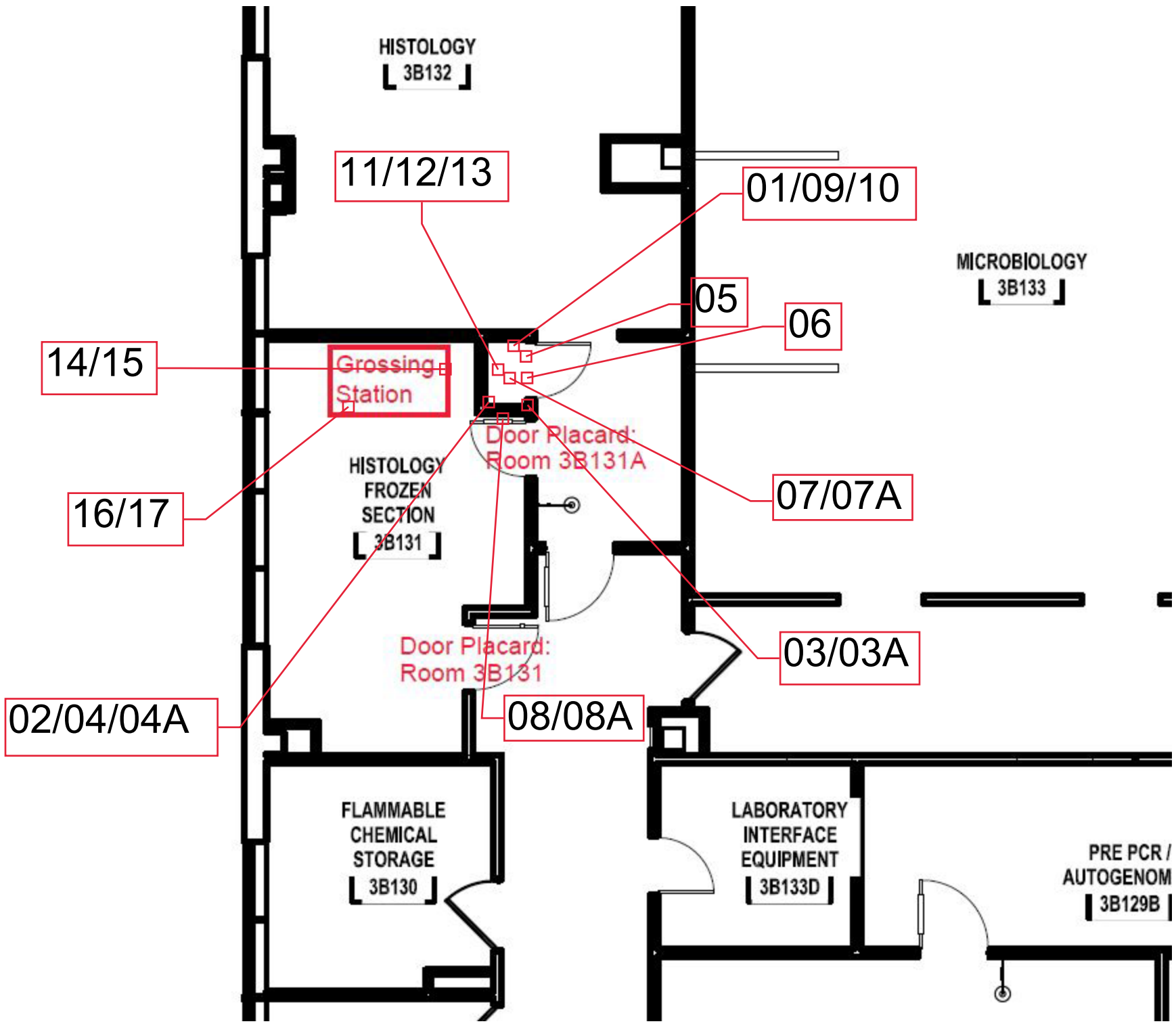
Class
RISK ASSESSOR


PENNSYLVANIA LEAD CERTIFICATION
006780
Birth Date
12/01/1995
MATHIEU G CHAPUIS
2023 LEEDOMS DRIVE
NEWTOWN PA 18940
Expires
02/21/2025
Issue Date
02/23/2024
Sex
M
Height
5' 08"
Eyes
BRO
Class
RISK ASSESSOR


PENNSYLVANIA LEAD CERTIFICATION
006780
Birth Date
12/01/1995
MATHIEU G CHAPUIS
2023 LEEDOMS DRIVE
NEWTOWN PA 18940
Expires
02/21/2025
Issue Date
02/23/2024
Sex
M
Height
5' 08"
Eyes
BRO
Class
INSPECTOR

APPENDIX D

Asbestos Sample Location Plans


HISTOLOGY
3B132
11/12/13
01/09/10
MICROBIOLOGY
3B133
05
06
14/15
Grossing Station
Door Placard: Room 3B131A
HISTOLOGY FROZEN SECTION
3B131
16/17
07/07A
Door Placard: Room 3B131
03/03A
02/04/04A
08/08A
FLAMMABLE CHEMICAL STORAGE
3B130
LABORATORY INTERFACE EQUIPMENT
3B133D
PRE PCR / AUTOGENOM
3B129B

13.0 SPACE PLANNING

13.1 PG-18-9 REQUIREMENTS

A. The project scope is limited to preparing the site for the new Grossing station at Blood Lab. The basis for the project program of spaces and the allocation of spaces would not change. The new stations and cabinets are to be installed in the same area, and there is no anticipated change in the lab's overall layout.
B. Space Planning Criteria will be rigorously reviewed and adhered to according to the details in Department of Veterans Affairs VHA PG 18-9: Space Planning Criteria, Pathology, and Lab Medicine Service, chapter 240.

14.0 CRITICAL PATH METHOD (CPM)

14.1 PHASING NARRATIVE

A. GENERAL DESCRIPTION:

1. The project would be executed in a single phase.
2. The operation in the lab room will be relocated by the VA before the construction work starts. All remaining fixed furniture and equipment will be carefully sealed with protective plastic foil during construction.
3. The lab room will be adequately sealed with a temporary plastic sheeting barrier around the wall perimeter to prevent dust and debris from entering the construction area and the corridor.
4. The entry to the room dedicated to work construction entry, as indicated on the drawing, will have an anteroom sealed adequately with a plastic sheeting barrier (zip wall) with self-closing magnetic doors.
5. Any existing return on the construction site of the room will be redirected to the building outside.
6. All construction work required for the areas outside the lab will be conducted on one or two weekends when the lab department is not operating. The following construction work will be executed during weekend works: the removal of doors and frames at the closet and lab, framing and finishing the abandoned opening (installing studs, sheetrock, caulking, and painting the wall on the corridor side.), and installing the new sliding door. As indicated in the drawings, the contractor should provide a sealed, adequately plastic vestibule with a self-closing magnetic door that will be maintained during the weekend's construction.
7. If the works that require access from the corridor are not completed in one weekend, the contractor must remove the plastic barrier in the hallway adjacent to room 3B131, no later than 5 AM of the date of lab operations.
8. The contractor must adequately seal this wall as shown on the drawings and provide all necessary cleaning to ensure smooth operation during the working week. After the work from the corridor site is terminated, the wall will be sealed until the end of the construction period.
9. To ensure that all on-site demolition and construction can be completed within the allotted time, the GC must coordinate to ensure all materials are in hand before any on-site renovations can occur. Materials must be stored off-site in the Contractor’s conditioned space.
10. Preferably, all work, besides the weekend work period, will be done after operating hours.
11. Due to the sensitivity of the locations, the GC and its subcontractors must complete all required training before commencing work. Copies of all completed certifications must be handed to the COR as proof of compliance.

APPENDICES

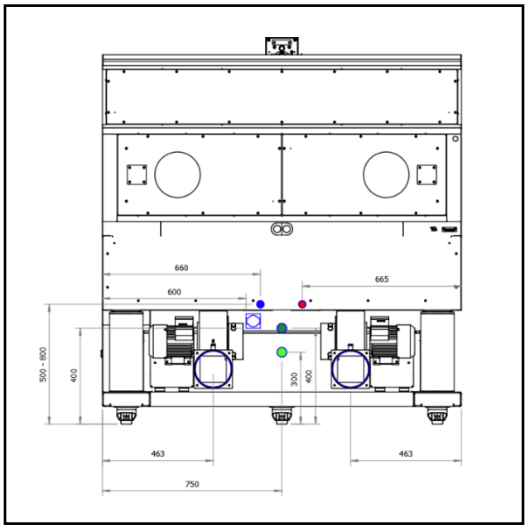
A1.0 CUT SHEETS

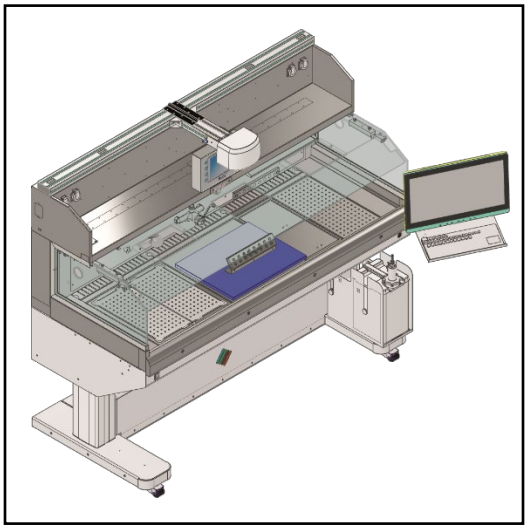
MILESTONE
HELPING PATIENTS

UltraGROSS - Rosai

Premium Grossing Station with Digital Imaging

UltraGROSS addresses the needs of the lab of the future. For the first time, the grossing station is treated as a scientific tool which can be tailored to each lab's specific needs. With UltraGROSS, the PA can generate reports that provide complete gross documentation and traceability of grossing from the time the specimen is grossed. Ergonomically designed with enhanced user safety features and fully customizable modular user configurations, UltraGROSS is a state of the art grossing station.





QUALITY SYSTEM

The Quality System Management of Milestone s.r.l. is ISO9001:2015 and we are ISO13485:2016 certified

MANUFACTURER

Milestone s.r.l.

LAUNCH DATE

2022

MODEL NUMBERS

150CTSDFRAE/R
150CTSDFRAK/R
150CTSDFRAU/R
150CTSDFRAJ/R

Technical Specifications	
Weight	772 lbs.
Unit Dimensions	WxHxD – 59.1" x 63.8"-75.6" (fully raised)" x 31.9"
Clearance Requirement	WxHxD – 63" x 76.8" x 39.8"
Base	On wheels with locking feature
Power Supply	115V ~60Hz
Operating Temperature	59°F – 86°F
Humidity (relative)	From 10% to 80%, non-condensation
Maximum Altitude	Up to 2000m
Plumbing	Required Connection: Min 1bar, Max 2bar
Sound Pressure	55dBA @ 0.5m/s frontal speed
Internet Connection	LAN connection with standard RJ45 Ethernet cable
Fume Extraction	External fume extraction hose provided
Ventilation Components	Minimum air flow of 1200m³/h recommended
Accessories	Inquire with us about customizable features
Special Considerations	The floor must be flat. Indoor use only. Avoid vibrations, direct sunlight, and heavy temp variation
Digital Imaging	Please refer to the MacroPATH spec sheet

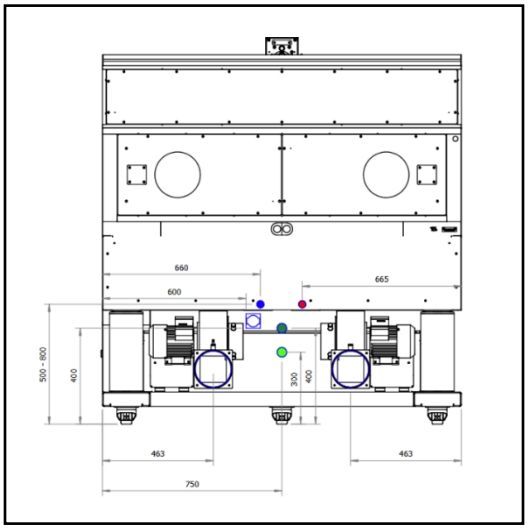
*** The information provided is for the base model. Please contact us for exact specifications of customized and additional features**

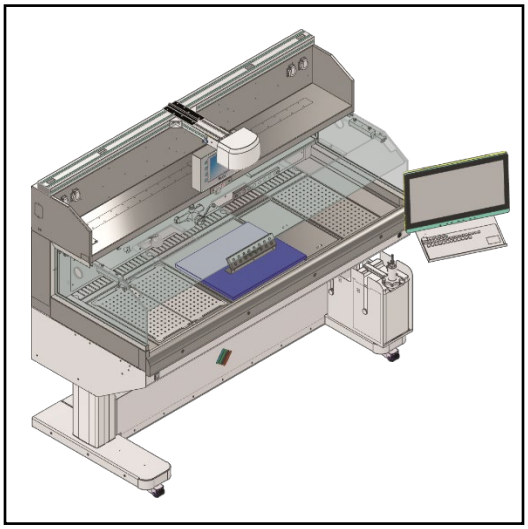
MILESTONE
HELPING PATIENTS

UltraGROSS - Rosai

Premium Grossing Station with Digital Imaging

UltraGROSS addresses the needs of the lab of the future. For the first time, the grossing station is treated as a scientific tool which can be tailored to each lab's specific needs. With UltraGROSS, the PA can generate reports that provide complete gross documentation and traceability of grossing from the time the specimen is grossed. Ergonomically designed with enhanced user safety features and fully customizable modular user configurations, UltraGROSS is a state of the art grossing station.





QUALITY SYSTEM

The Quality System Management of Milestone s.r.l. is ISO9001:2015 and we are ISO13485:2016 certified

MANUFACTURER

Milestone s.r.l.

LAUNCH DATE

2022

MODEL NUMBERS

150CTSDFRAE/R
150CTSDFRAK/R
150CTSDFRAU/R
150CTSDFRAJ/R

Technical Specifications	
Weight	772 lbs.
Unit Dimensions	WxHxD – 59.1" x 63.8"-75.6" (fully raised)" x 31.9"
Clearance Requirement	WxHxD – 63" x 76.8" x 39.8"
Base	On wheels with locking feature
Power Supply	115V ~60Hz
Operating Temperature	59°F – 86°F
Humidity (relative)	From 10% to 80%, non-condensation
Maximum Altitude	Up to 2000m
Plumbing	Required Connection: Min 1bar, Max 2bar
Sound Pressure	55dBA @ 0.5m/s frontal speed
Internet Connection	LAN connection with standard RJ45 Ethernet cable
Fume Extraction	External fume extraction hose provided
Ventilation Components	Minimum air flow of 1200m³/h recommended
Accessories	Inquire with us about customizable features
Special Considerations	The floor must be flat. Indoor use only. Avoid vibrations, direct sunlight, and heavy temp variation
Digital Imaging	Please refer to the MacroPATH spec sheet

*** The information provided is for the base model. Please contact us for exact specifications of customized and additional features**

MILESTONE
HELPING PATIENTS

UltraGROSS

Modular Grossing Station

Operator Manual - MM182

Thank you for choosing one of our systems and welcome to the growing club of users of Milestone laboratory instruments.
We feel confident that you will be fully satisfied with this new instrument in your laboratory.
We recommend that you read this operator manual carefully and that you always keep it within reach for quick and convenient reference.
For any clarification or request for support please contact our Representative in your country:

You can also contact us directly at:

Milestone s.r.l.
Via Fatebenefratelli, 1/5
24010 Sorisole (BG) Italy
Tel. +39.035.412 8264
Fax +39.035.575498
Website www.milestonemed.com
e-mail marketing@milestonemedsrl.com

Please read this user manual carefully before using the instrument.

MM182-005 - UltraGROSS - Operator Manual
2024-01

INDEX

The manufacturer reserves the right to change and/or improve specifications without notice and without incurring any obligation.

1. INTRODUCTION

1.1. Symbols used

The instructions marked by this symbol are important and must be read carefully.

An instruction marked by this WARNING symbol means caution is required. Failure to follow the instruction may endanger the user or cause damage to the instrument.

An instruction marked with this symbol means caution is required as there is an electric shock hazard. Carefully follow the instruction in order to prevent this kind of accident.

Biohazard: pay attention when performing a procedure marked with this symbol, as there is biological contamination hazard.

Attention, risk of hand crushing.

Attention, toxic substance.

CE Logo: this instrument complies with European Community directives.

Specifies the manufacturer's serial number.

Hot water (UNI EN 13792).

Cold water (UNI EN 13792).

Formaldehyde (UNI EN 13792).

Avoid sprays and direct jets.

WEEE European directive (2012/19/EC) symbol:
electric/electronic material, do not release into the environment.

Authorized and qualified customer support personnel only.

Fragile.

USB PORT.

Ethernet port.

ON.

OFF.

Do not push.

UK Conformity Assessed logo

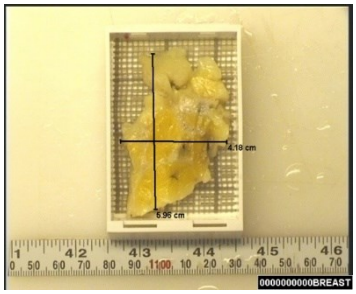
Date of manufacture

1.2. Intended use

UltraGROSS is an ergonomic histopathology workstation dedicated to the preparation and cutting of pieces. The table has a ventilation system and various optional parts that are defined in the following manual.
One or more cameras with MacroPATH software can be mounted on UltraGROSS (depending on the selected model).
MacroPATH has been designed to carry out complete, safe and reliable image handling of gross histological specimens.
The system has been designed for use in a laboratory and can therefore withstand the harshest laboratory conditions (indoor use only).
UltraGROSS is a system that must be operated by trained personnel, such as: laboratory technicians and pathologists.

MacroPATH's measurement function is strictly linked to the calibration performed by the operator and is not controlled by the instrument's software. That is why the measurements of the specimen obtained with MacroPATH CANNOT be taken into account for diagnostic purposes. These values are purely indicative.

Indeed, a ruler must be placed near the specimen (see image below) or a gauge must be used to obtain a diagnostic value for the growth of the tumor, the extent of the lesion, etc.



The system must be calibrated in order to perform measurements with MacroPATH (refer to MM201 operator manual supplied with the instrument).

1.3. Technical specifications

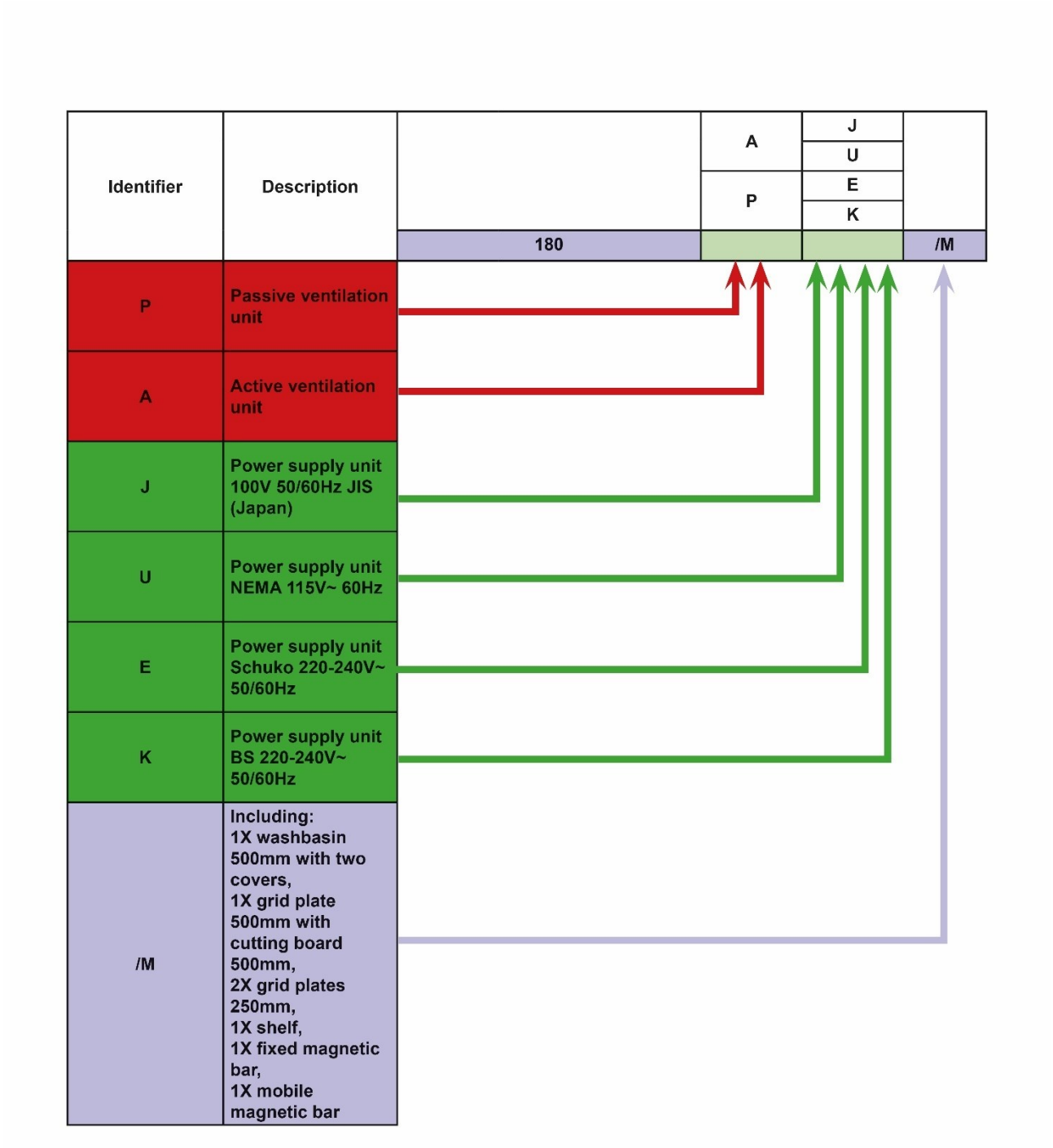
1.3.1. Default models

This chapter lists the different UltraGROSS default models with relative codes, explaining their structure.

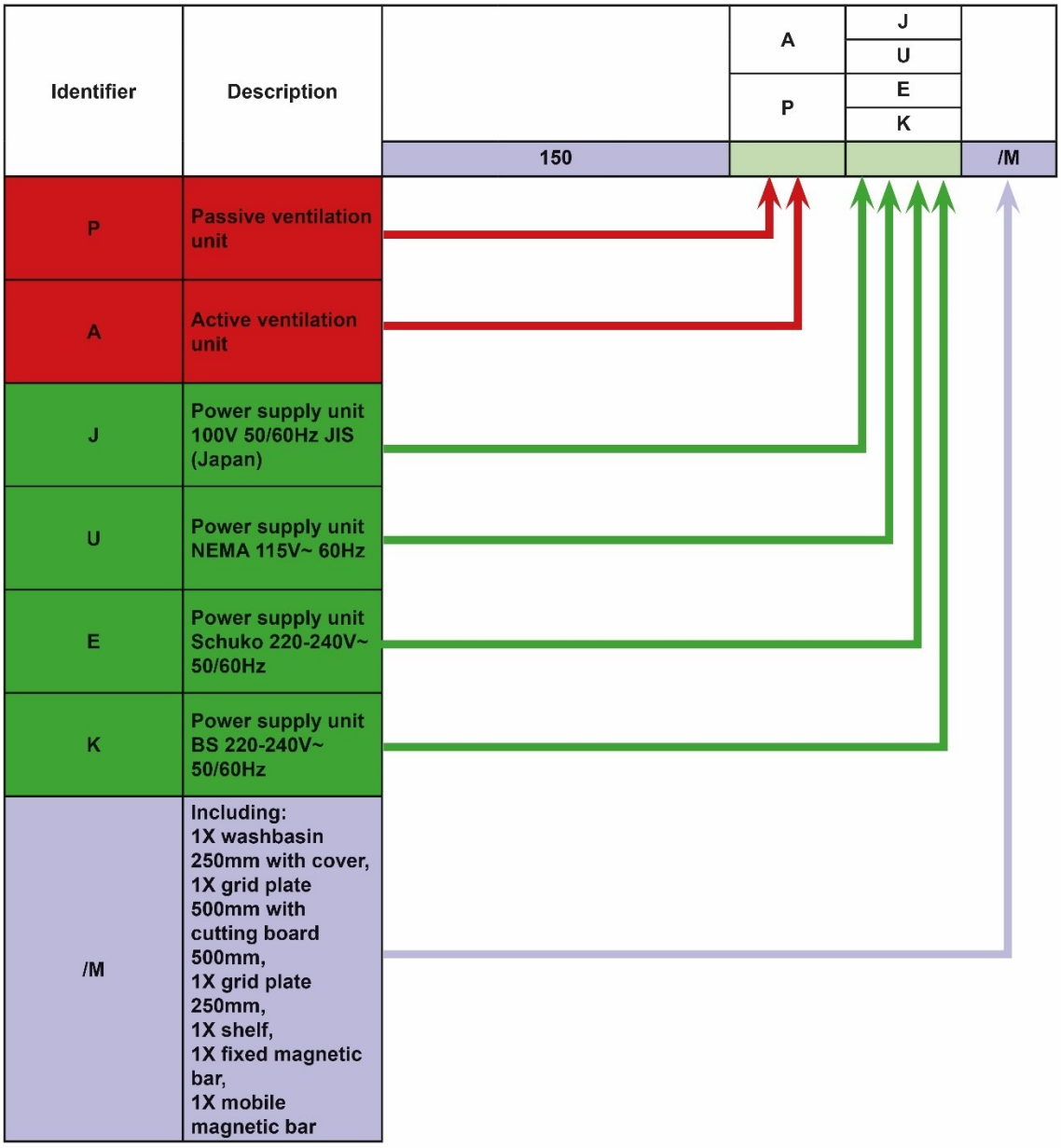
fixed field

selectable and mandatory field

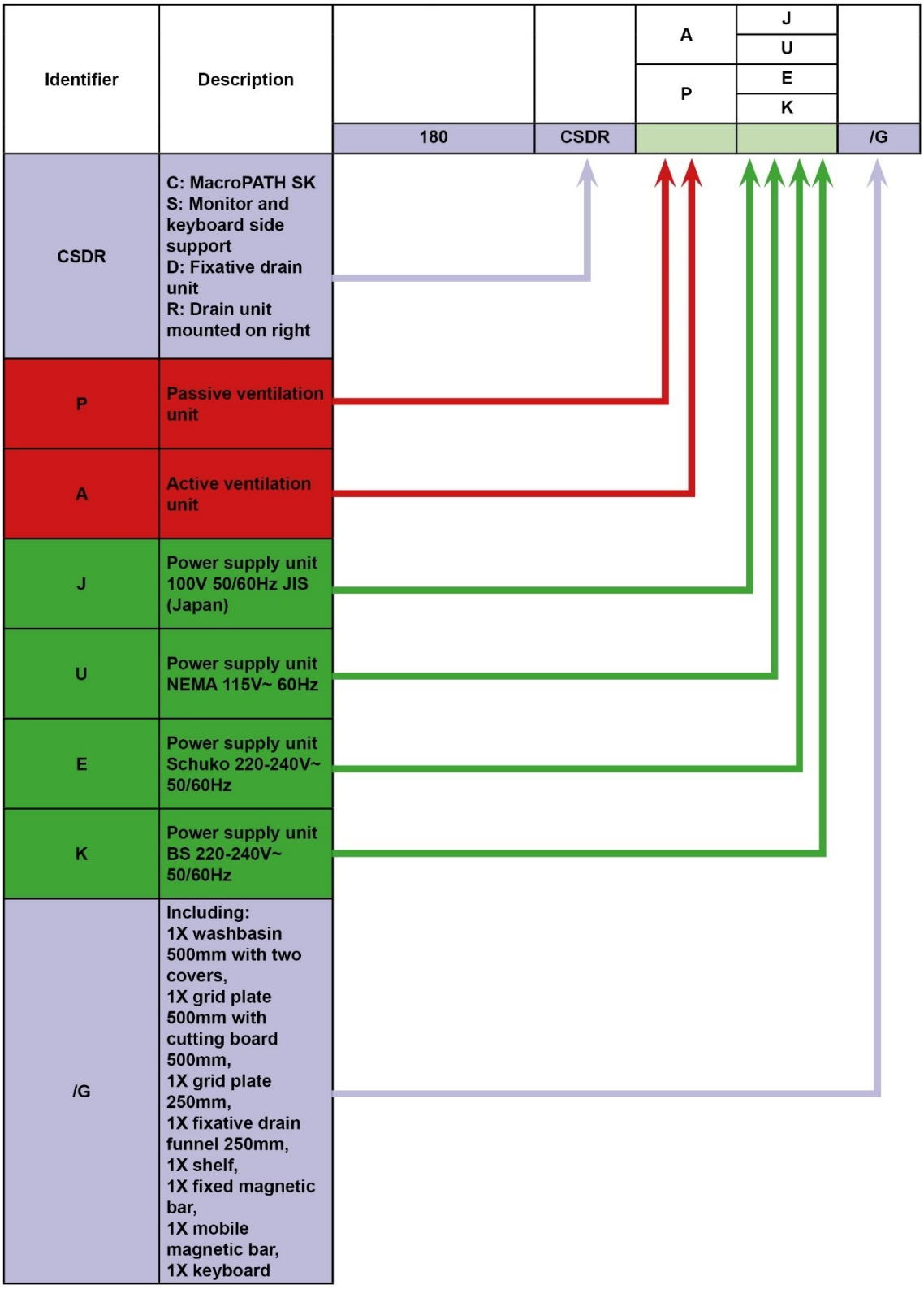
MALPIGHI Version 180



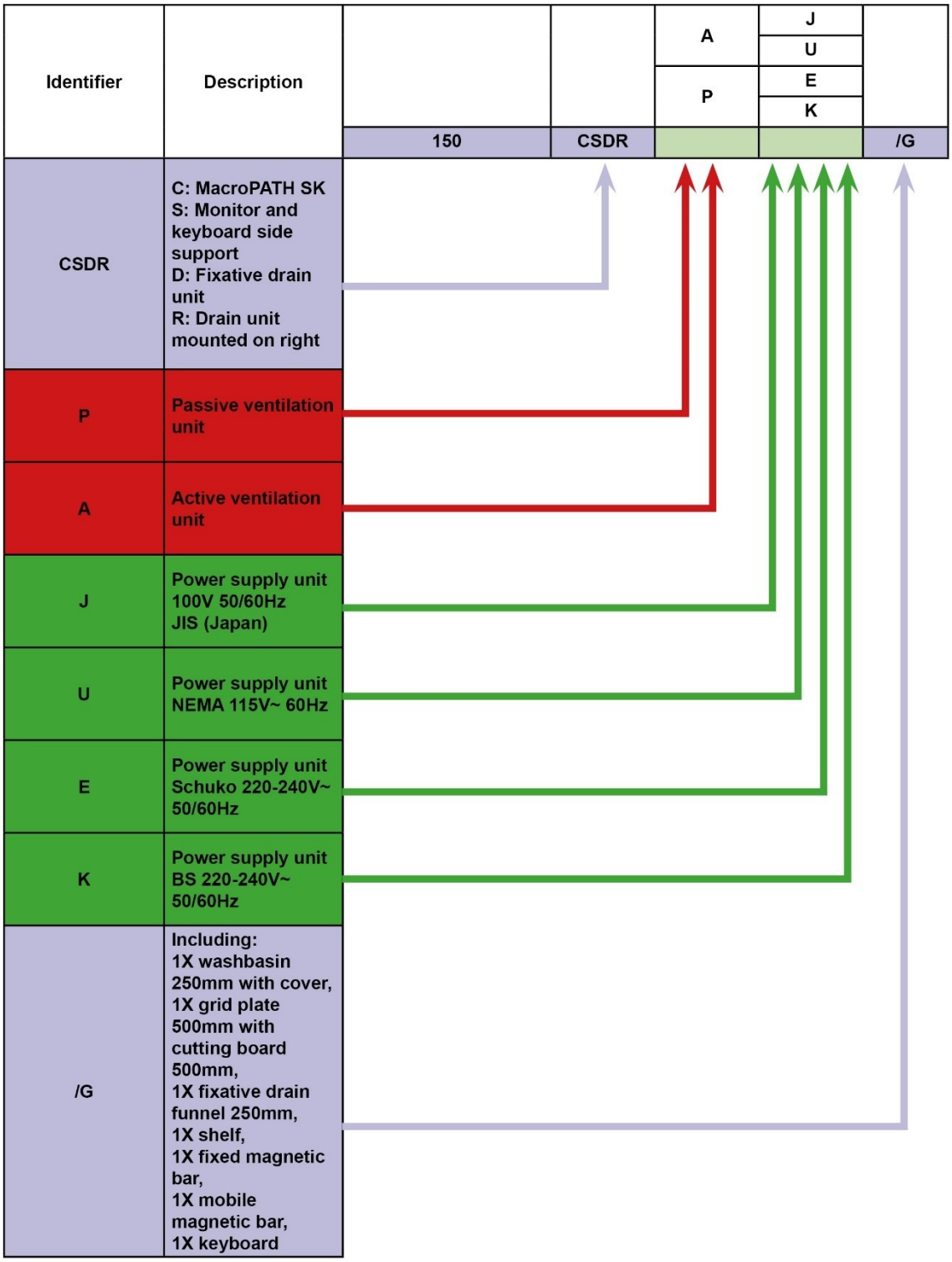
MALPIGHI Version 150



GOLGI Version 180

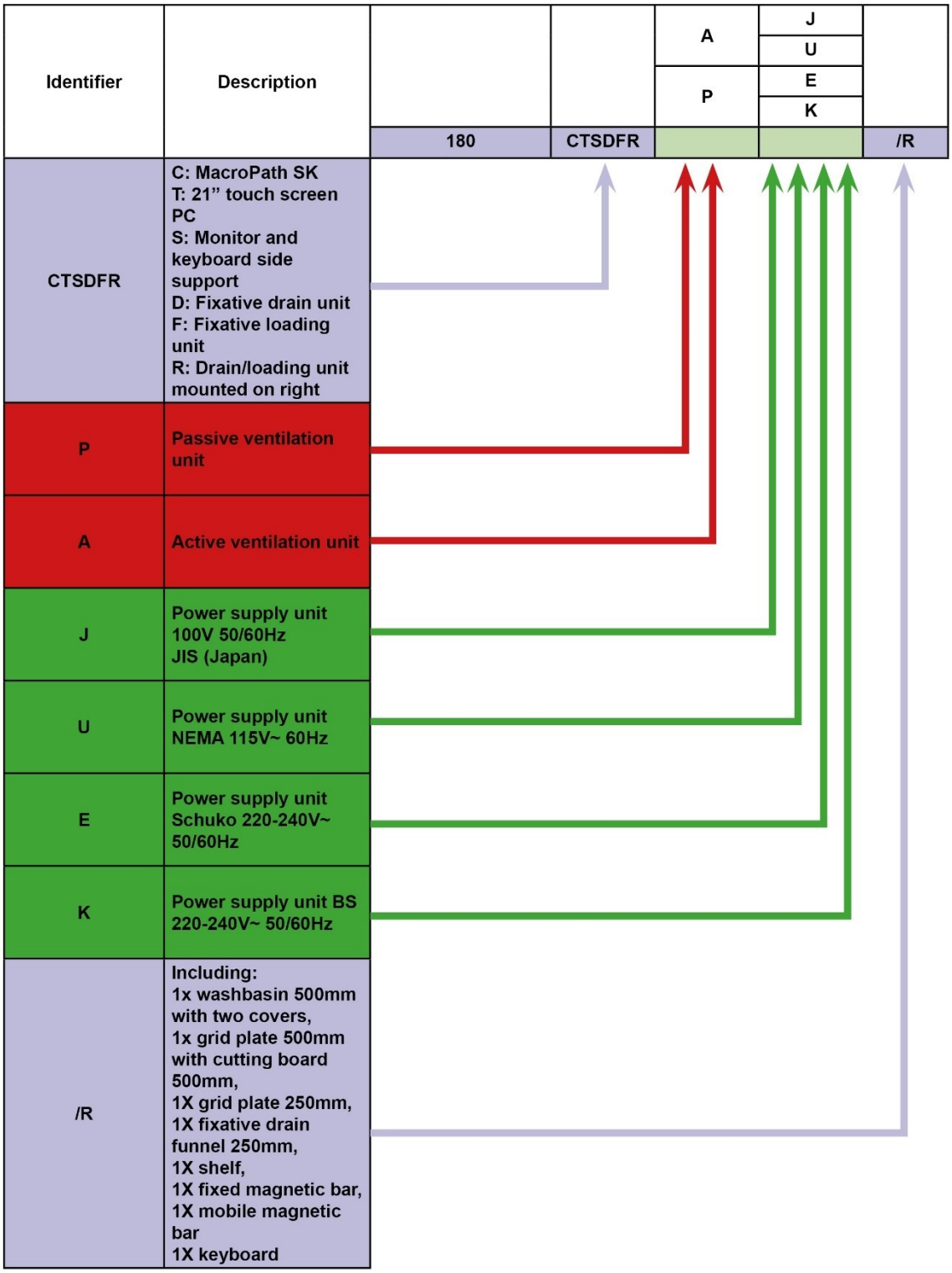


GOLGI Version 150



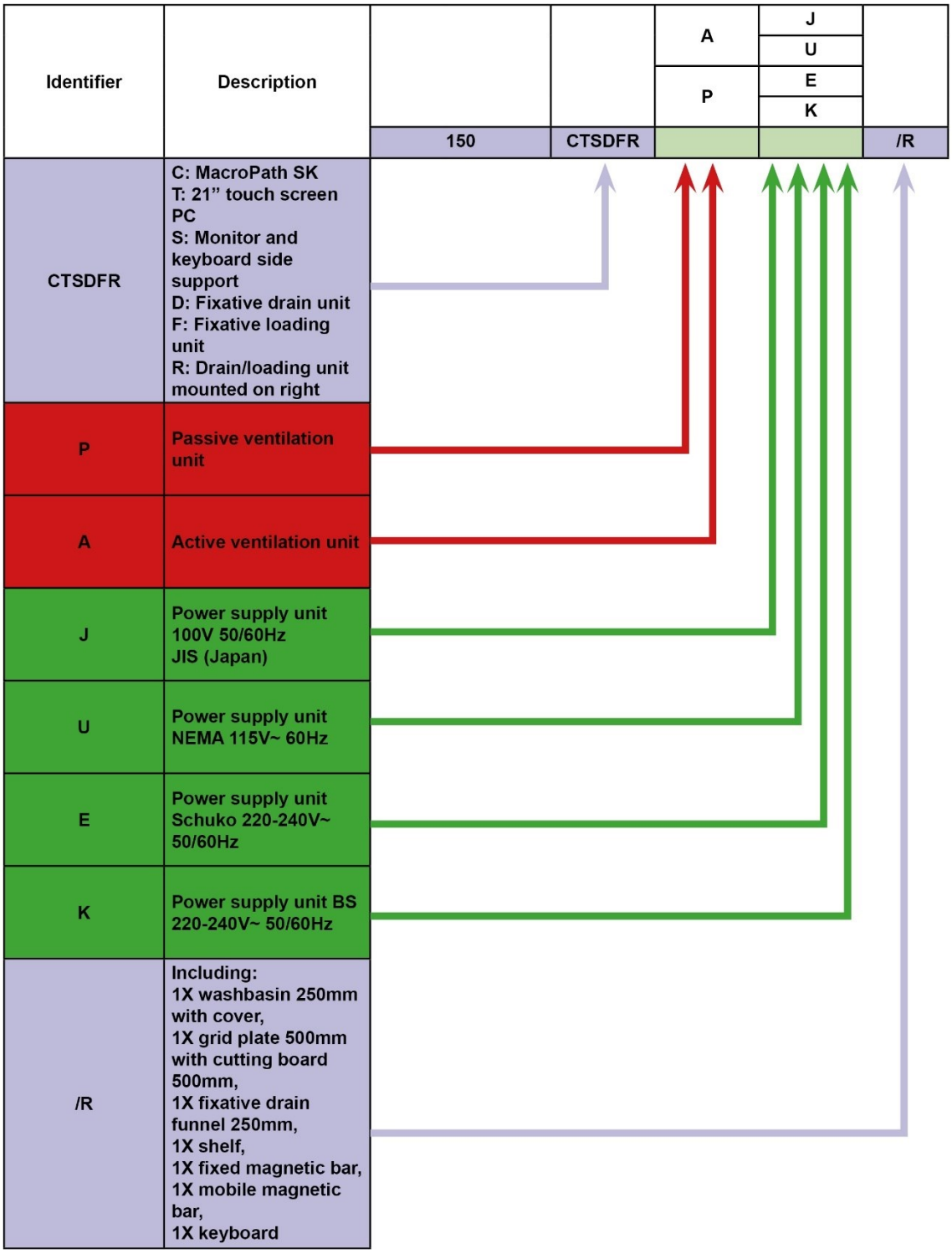
Identifier	Description	150	CSDR	A / P	J / U / E / K	/G
CSDR	C: MacroPATH SK S: Monitor and keyboard side support D: Fixative drain unit R: Drain unit mounted on right					
P	Passive ventilation unit					
A	Active ventilation unit					
J	Power supply unit 100V 50/60Hz JIS (Japan)					
U	Power supply unit NEMA 115V~ 60Hz					
E	Power supply unit Schuko 220-240V~ 50/60Hz					
K	Power supply unit BS 220-240V~ 50/60Hz					
/G	Including: 1X washbasin 250mm with cover, 1X grid plate 500mm with cutting board 500mm, 1X fixative drain funnel 250mm, 1X shelf, 1X fixed magnetic bar, 1X mobile magnetic bar, 1X keyboard					

ROSAI Version 180



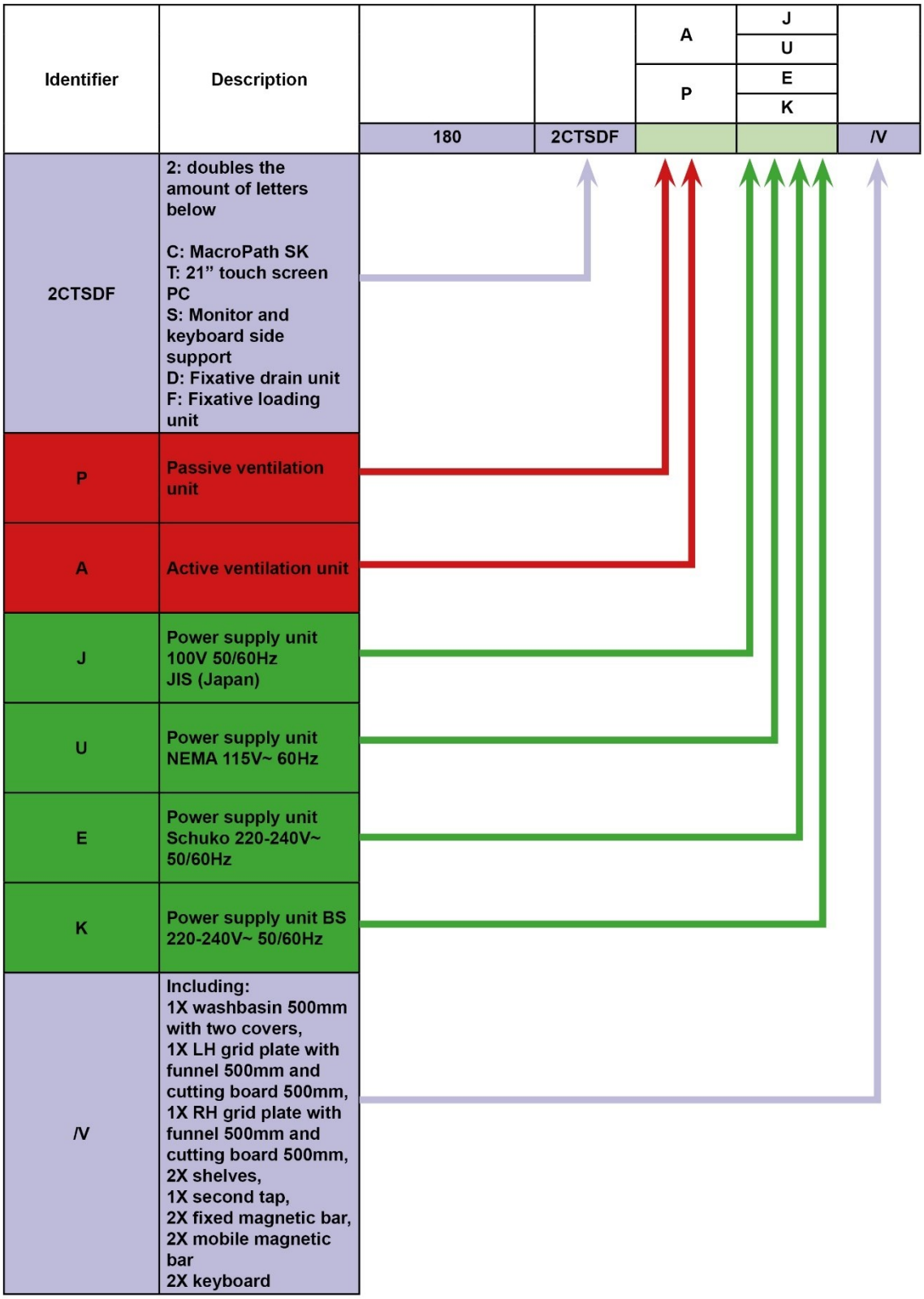
Identifier	Description	180	CTSDFR	A / P	J / U / E / K	/R
CTSDFR	C: MacroPath SK T: 21" touch screen PC S: Monitor and keyboard side support D: Fixative drain unit F: Fixative loading unit R: Drain/loading unit mounted on right					
P	Passive ventilation unit					
A	Active ventilation unit					
J	Power supply unit 100V 50/60Hz JIS (Japan)					
U	Power supply unit NEMA 115V~ 60Hz					
E	Power supply unit Schuko 220-240V~ 50/60Hz					
K	Power supply unit BS 220-240V~ 50/60Hz					
/R	Including: 1x washbasin 500mm with two covers, 1x grid plate 500mm with cutting board 500mm, 1X grid plate 250mm, 1X fixative drain funnel 250mm, 1X shelf, 1X fixed magnetic bar, 1X mobile magnetic bar 1X keyboard					

ROSAI Version 150



Identifier	Description	150	CTSDFR	A / P	J / U / E / K	/R
CTSDFR	C: MacroPath SK T: 21" touch screen PC S: Monitor and keyboard side support D: Fixative drain unit F: Fixative loading unit R: Drain/loading unit mounted on right					
P	Passive ventilation unit					
A	Active ventilation unit					
J	Power supply unit 100V 50/60Hz JIS (Japan)					
U	Power supply unit NEMA 115V~ 60Hz					
E	Power supply unit Schuko 220-240V~ 50/60Hz					
K	Power supply unit BS 220-240V~ 50/60Hz					
/R	Including: 1X washbasin 250mm with cover, 1X grid plate 500mm with cutting board 500mm, 1X fixative drain funnel 250mm, 1X shelf, 1X fixed magnetic bar, 1X mobile magnetic bar, 1X keyboard					

VIRCHOW Version 180 Version 150 does not exist.



Identifier	Description			A	J	
					U	
				P	E	
					K	
		180	2CTSDF			/V
2CTSDF	2: doubles the amount of letters below C: MacroPath SK T: 21" touch screen PC S: Monitor and keyboard side support D: Fixative drain unit F: Fixative loading unit					
P	Passive ventilation unit					
A	Active ventilation unit					
J	Power supply unit 100V 50/60Hz JIS (Japan)					
U	Power supply unit NEMA 115V~ 60Hz					
E	Power supply unit Schuko 220-240V~ 50/60Hz					
K	Power supply unit BS 220-240V~ 50/60Hz					
/V	Including: 1X washbasin 500mm with two covers, 1X LH grid plate with funnel 500mm and cutting board 500mm, 1X RH grid plate with funnel 500mm and cutting board 500mm, 2X shelves, 1X second tap, 2X fixed magnetic bar, 2X mobile magnetic bar 2X keyboard					

1.3.2. Custom models

This chapter lists the different UltraGROSS customized models with relative codes, explaining their structure.

fixed field

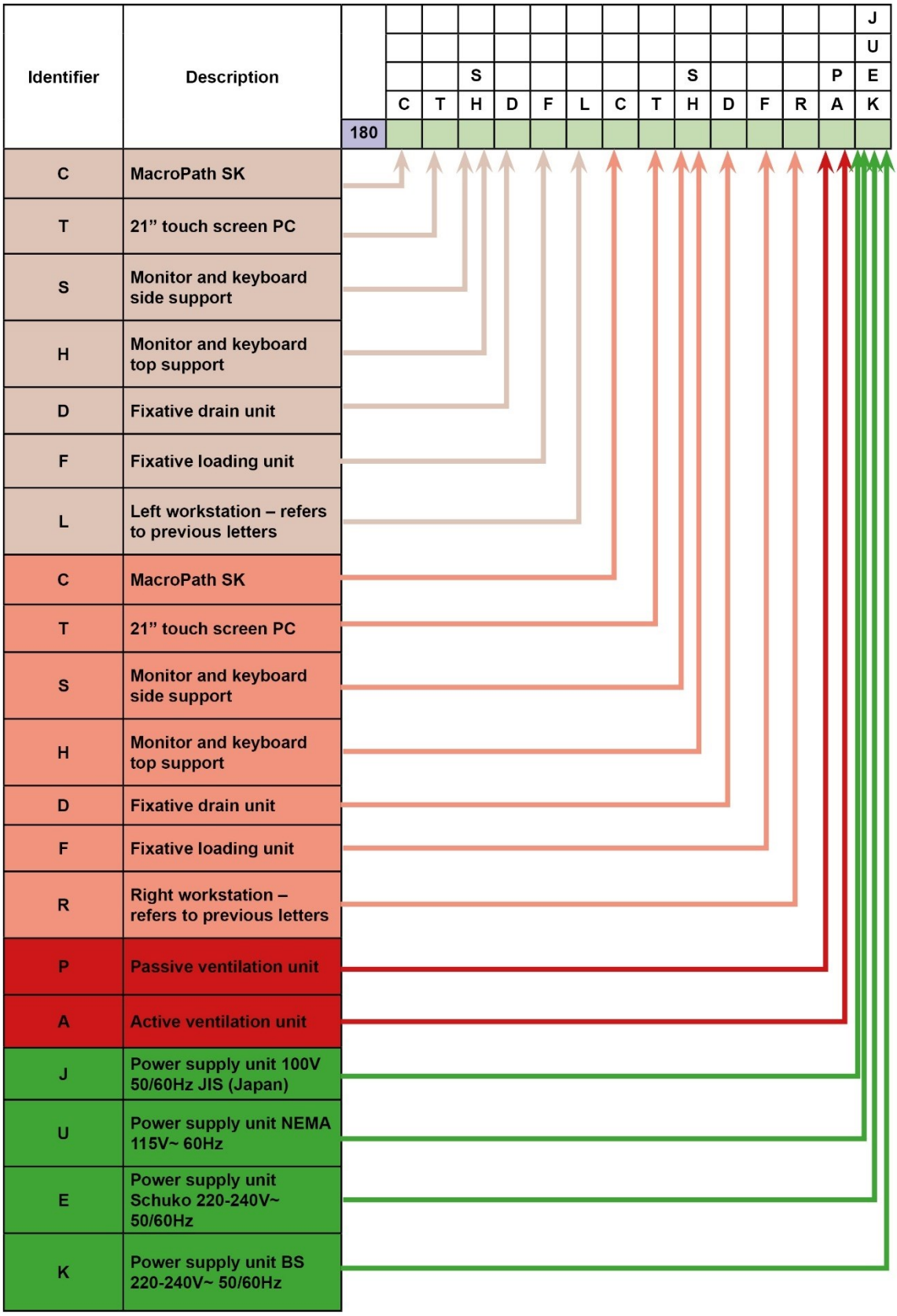
selectable and mandatory field

selectable and non-mandatory field

UltraGROSS 150

Identifier	Description	150	C	T	S H	D	F	L R	P A	J U E K
C	MacroPath SK									
T	21” touch screen PC									
S	Monitor and keyboard side support									
H	Monitor and keyboard top support									
D	Fixative drain unit									
F	Fixative loading unit									
L	Fixative drain/ unloading unit mounted on left									
R	Fixative drain/ unloading unit mounted on right									
P	Passive ventilation unit									
A	Active ventilation unit									
J	Power supply unit 100V 50/60Hz JIS (Japan)									
U	Power supply unit NEMA 115V~ 60Hz									
E	Power supply unit Schuko 220-240V~ 50/60Hz									
K	Power supply unit BS 220-240V~ 50/60Hz									

UltraGROSS 180



For the grid plates of both versions, refer to the optional parts (see chapter 5.1).
When required for 180cm models: the superior arm (and therefore the POC) cannot be positioned on the same side of the camera.

1.3.3. Technical specifications

UltraGROSS complies with the following directives: 2014/35/EC; 2014/30/EC; 2011/65/EC and standards CEI EN 61010-1/A1:2019; CEI EN 61326-1:2013; EN 14175-3:2019 - Par. 5.2, 5.3, 5.4; EN 12469:2000 - Annex C (requires installation of code 109234 or 109235, as appropriate); EN 12600:2004; EN ISO 14738:2008; UNI EN 13792:2003.

For letters that refer to instrument codes, see chapter 1.3.1.

For voltage and frequency in reference to letters E customizable like K (220-240V~ 50/60Hz) the power is:
- 2600W if letter (A) active 1819BTU/h,
- 1070W if letter (P) passive 512BTU/h.

For voltage and frequency in reference to letter U (115V~ 60Hz) the power is:
- 2160W if letter (A) active 1836BTU/h,
- 610W if letter (P) passive 512BTU/h.

For voltage and frequency in reference to letter J (100V~ 50/60Hz) the power is:
- 1500W if letter (A) active 1666BTU/h,
- 150W f letter (P) passive 512BTU/h.

For codes that start with 180:
- If letter A: Weight:350kg – 771.61lb,
- If letters A and C: weight 375kg – 826.73lb,
- If letter P: weight :325kg – 716.50lb,
- If letters P and C: weight 350kg – 771.61lb,
- For VIRCHOW model, if letter A, weight 400kg – 881.84lb,
- For VIRCHOW model, if letter P, weight 375kg – 826.73lb.

For codes that start with 150:
- If letter A: Weight:325kg – 716.50lb,
- If letters A and C: weight 350kg – 771.61lb,
- If letter P: weight :300kg – 661.38lb,
- If letters P and C: weight 325kg – 716.50lb.

For the sizes of all models, see chapters 2.2 and 2.3.

Lighting
- LED illumination of the work area
- Average work area illuminance 1600 lux*

* with environmental conditions of 400 Lux and instruments with all lights on
- Uniformity U=0,9
- Color rendering index Ra=70

Structure
- Work surfaces in AISI 316 stainless steel (listed in chapter 5.1).
- Structure in AISI 304 stainless steel
- Antibacterial paint

-Work surface height adjustable from 85cm to 115cm
- Telescopic columns (Protection rating IPx6)
- Safety shield in shatterproof glass
- Tap with clinical lever
- Shelf
- Magnetic holder bar
- The instrument has 6 casters
- Object shelf outside of work surface
- Degree of pollution: 2

Anthropometric requirements
Tested in accordance with standard EN 14738:2009.

Sound power
Instruments with letter A installed without internal filters with air speed of 0.5m/s, the sound level is 55dbA at a distance of 1metre with work surface 900mm high.

Electrical connections
The power supply line needs to be earthed (Class I device).
115V~60Hz: Power supply line protection: residual current circuit breaker curve C20, residual current: 30mA.
220-240V~50/60Hz: Power supply line protection: residual current circuit breaker curve C16, residual current: 30mA.
100V~50/60Hz: Power supply line protection: residual current circuit breaker curve C15, residual current: 30mA.

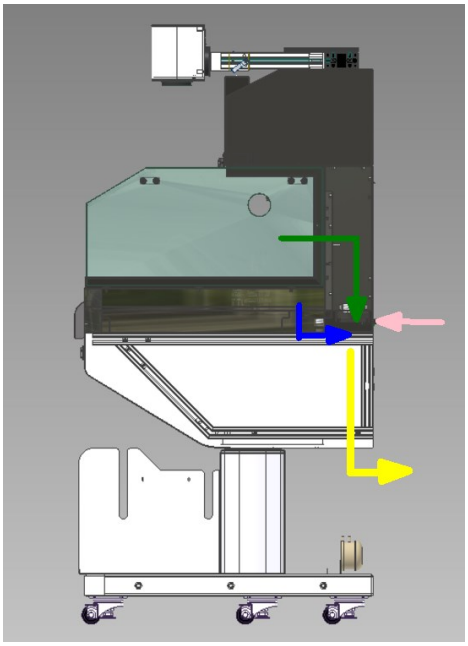
2m power cord.

Letter J: JIS plug (JIS 8303)
Letter K: BS plug (BS1363/A)
Letter U: NEMA plug (NEMA 5-20)
Letter E: Schuko plug (DIN/VDE 0620)

Hydraulic connections
-1X Hot water inlet: 1/2'' female
-1X Cold water inlet: 1/2'' female
-Maximum water inlet pressure: 0.6 bar
-Fluid temperature MIN: +2°C MAX 52°C
-Wastewater drain: 40mm pipe

Ventilation
The ventilation system is applied in 3 distinct parts that cannot be excluded:
-Work surface area (downdraft) in blue
-Area on the panel behind the work surface (backdraft) in green
-Area dedicated to the "waste" bin (optional part - see chapter 5.2) in pink

The fluxes of these 3 exhaust zones are ejected at the back by 2 pipes (inside diameter from 160mm length 4metres). The two pipes can be connected in a coupling with a 200mm outlet (optional, see chapter 5.18).



It is necessary to connect the instrument to a fume extraction system.

Maximum air flow rate for each outlet: 1100m³/h ± 100m³/h.
The system must allow for a flow rate of at least 1200m³/h.

For code 180 the flow rate at 0.5 m/s front is 450 ± 50m³/h.
For code 180 the flow rate at 0.7 m/s front is 600 ± 50m³/h.
For code 150 the flow rate at 0.5 m/s front is 400 ± 50m³/h.
For code 150 the flow rate at 0.7 m/s front is 550 ± 50m³/h.

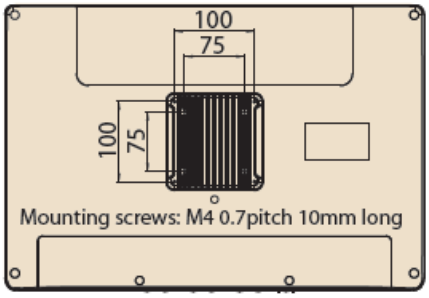
Instrument control terminal
Characteristics: TFT 8” color display
Resolution: 800x600 pixel
Resistive Touchscreen
Memory: 4GB
CPU dual core 1.33GHz
Windows 10 IoT Enterprise LTSB™
- I/O-Interface: 2 USB 2.0 ports
- Dedicated Milestone software with icon-based graphic interface

MacroPATH terminal
(only for models with letter T – see chapter 1.3.1)

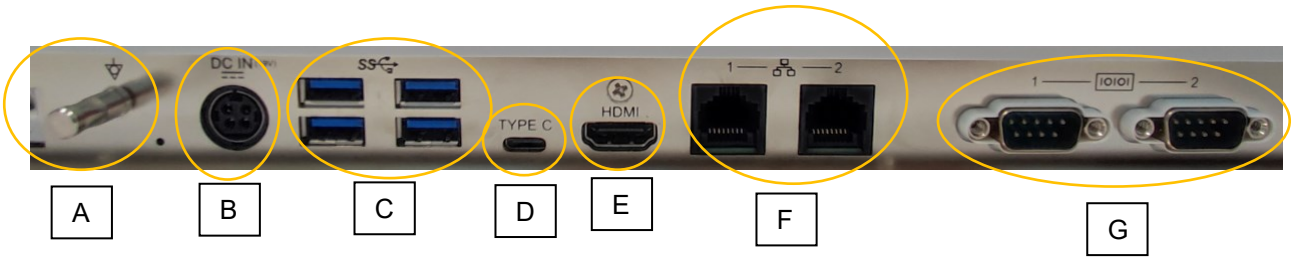
- CPU: Intel® Core™ i7-1185G7E @2.8GHz
- RAM: 16GB
- Hard disk: 500GB (SSD)
- Passive stylus
- Screen: 21.5” wide TFT color LCD (16:9)
  1920x1080
  IP 65 front panel
- Fanless
- Front frame color RAL 6027
- 2x reading lights

- Wi-Fi 802.11ax, band 2.4, 5.6GHz with Bluetooth v5.3 (*)
(*) subject to restrictions of use according to local radio frequency regulations to be checked before enabling this function.
- available I/O
  A. 4x USB 3.2 ports
  B. 2x USB 2.0 ports
  C. 1x USB Type C (with display function)
  D. 1x HDMI
  E. 2x Gigabit Ethernet LAN ports (RJ-45)
  F. 2x RS-232 Serial ports
  G. 2 X built-in 2W speakers
  H. Audio Mic-in 3.5mm jack input
  I. Audio 3.5mm jack output

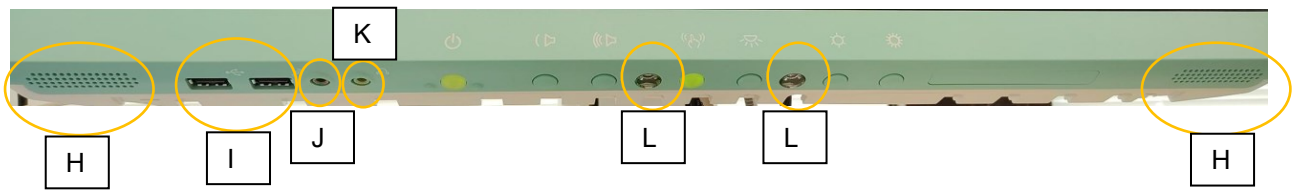
- Dimensions (WxHxD): 524 x 357 x 62mm; 20.63 x 14.06 x 2.44in
- VESA mount: 100x100; 75x75



- Weight: 6.29kg/13.86lb
- PC power supply: Input: 100-240V~ 50-60Hz 2.5-1A
  Output: 19V DC 7.89 A

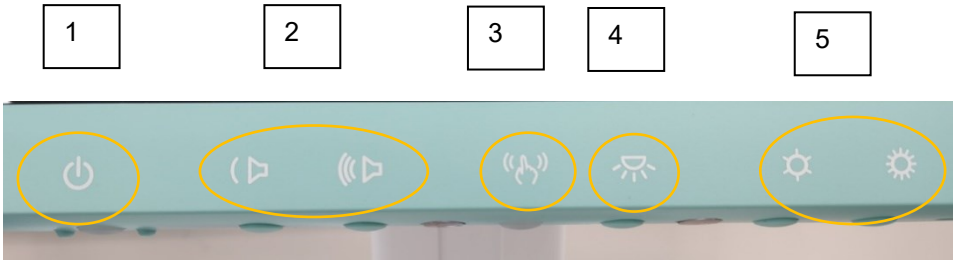


A. Equipotential pin terminal
B. Power supply inlet
C. 4x USB 3.2 ports
D. 1x USB Type C
E. 1x HDMI
F. 2x Gigabit Ethernet LAN ports (RJ-45)
G. 2x RS-232 Serial ports



H. 2 X built-in 2W speakers
I. 2x USB 2.0 ports
J. Audio Mic-in 3.5mm jack input
K. Audio 3.5mm jack output
L. Reading lights

The following figure shows the symbols indicating the function of the buttons below.
Description:
1) On/Off
2) Volume
3) Enable/disable touch-screen
4) Reading lights on/off
5) Brightness



For PC installation, carefully remove the film from the touch-screen to prevent damaging it.

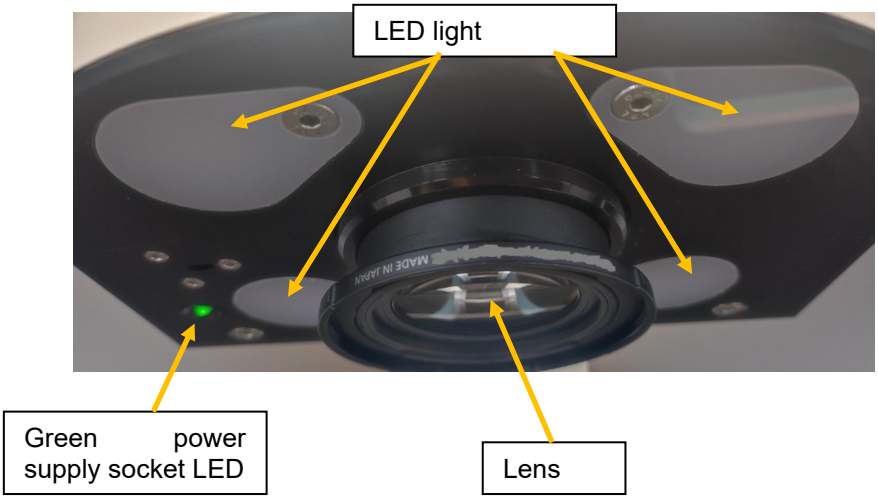
Before turning MacroPATH on (when coming from a storage room), the instrument must be allowed to reach the environmental conditions (at least half an hour).

It is advisable to turn the PC off completely at least once a week.

Front part of PC:

MacroPATH Camera

(only for models with letter C – see chapter 1.3.1)



- Permissible range of distances to install the camera: 60cm-100cm (referring to the distance between the base of the camera and the cutting board)
- CMOS sensor size: 21.1 Mpx approx.
- 7.82 mm (1/2.3 size) CMOS backlight sensor
- Image size: 20.3 Mpx approx.

- Lenses**:** 65x zoom lens, f/3.4 - f/6.5 (tele)

- Shooting options:

Image resolution:

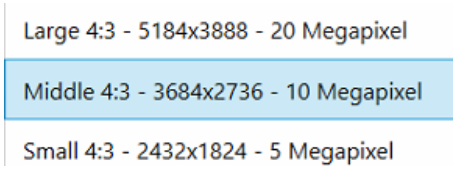
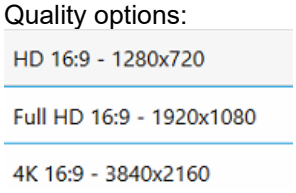


Image compression: High, Medium, Low, None

- Video resolution: 1024 x 768 (HD) – 15-16 FPS, audio 352Kbps, 22kHz
LIVE VIDEO:
Quality: 720p 4:3 - 720x960
Compression: 1, 2, 3, 4, 5-Default, 6, 7, 8- Slowest

VIDEO CAMERA:
Quality options:



Note: videos taken from the camera take time to download. During this time, it will not be possible to use MacroPATH X

- Audio rec.: 128 kbps
- Focus: Automatic
- White balance: Automatic
- Zoom: Optical 65X (If the distance between the camera base and the work surface is at least 80cm)
- Fitted with a lenses +1.5

- Weight: 2Kg (+250g camera power supply)

- Camera power supply: Input: 100-240V~ 50/60Hz 1.0-0.5A

-Output: 24V DC 1.6A 40W

- Included: Camera Support for photographic stand
- Built-in dimmable LED lighting
- Dimensions: W200 x H115 x D120
- USB data cable length: 4.5m

Foot pedal
(only for models with letter C – see chapter 1.3.1)
- USB foot pedal with 5 buttons
- IP X8

MacroPath software
(only for models with letter C – see chapter 1.3.1)

- MacroPath Sw: MacroPath including the pre-activated Milestone license
  - image capture in JPEG format
  - video capture in MP4 format
  - voice recording in MP3 format

Fixative loading system
(only for models with letter F – see chapter 1.3.1)

-Fixative dispenser with pedal switch.
- Tank housing base 380x200mm mounted on right side of the instrument, maximum loading tank dimensions (5 liters) equipped with containment compartment for any spillage (capacity approximately 1.9 liters) and 2 blocks for the tanks.
-Cap for "new fixative" tank (S55 threading). This tank is not supplied with the instrument.
- There is a new fixative dispenser on the vertical panel of the work area.
- Only for VIRCHOW model (see chapter 1.3.1) there are two fixative loading systems mounted on the right and left side of the instrument.

Fixative drain system
(only for models with letter D – see chapter 1.3.1)

- Tank housing base 380x200mm mounted on right side of the instrument, maximum waste tank dimensions (10 liters): WxDxH 190x220x300mm equipped with containment compartment for any spillage (capacity approximately 1.9 liters) and 2 blocks for the tanks.
- 1 waste tank of 10 liters supplied with the instrument.
-“Used fixative” tank cap equipped with “full tank” sensor (threading type S55).
- The work surface is equipped with a recessed funnel for draining the used fixative in the dedicated tank including the filter
- Only for VIRCHOW model (see chapter 1.3.1) there are two fixative drain systems mounted on the right and left side of the instrument.

Auxiliary sockets
- For connecting optional instruments/parts (such as printers, scales, etc.):
Letter J: no AUX socket
Letter K: 4X BS socket (BS1363) – 4A MAX
Letter U: 4X NEMA socket (UL498/NEMA 5-15 R) 4A MAX
Letter E: 4X Schuko socket (CEE 7/7) – 4A MAX

Environmental conditions:
-Operating temperature: 15°C–30°C (59°F – 86°C)
-Relative humidity: from 10% to <80% non-condensing
-Altitude: up to 2000m
-Maximum temperature of contact surfaces: less than 40°C

USE CONDITIONS OF THE HOOD:

The hood must not be considered a deposit for chemical substances because they interfere with air flows.

Do not use Bunsen or naked flames below the hood.

Do not use steaming reagents below the hood.

Place the specimen at least 15cm from the edge of the hood.

Do not perform sudden movements inside the hood.

Do not insert your head into the hood when there are hazardous substances inside.

Do not dispose of reagents by evaporating them into the hood.

1.4. Compatible reagents

Water, Formalin 10% v/v (4% w/v), zinc formalin (no chloride), FineFIX, alcohol-based fixatives, inks.

Do not use overly acid reagents (pH <4). Humidity: RH < 80%

DO NOT USE ANY REAGENTS OTHER THAN THOSE LISTED ABOVE.
In case of doubts, please contact: application@milestonemedsrl.com.

Do not use recycled reagents.

1.5. Transport and storage conditions

Temperature: –20°C to +60°C (-4°F to 140°F)
Humidity: up to 80% (up to 50% at 40°C – 104°F) non-condensing

1.6. Antivirus

Only for models with letter T – see chapter 1.3.1.

Milestone recommends installing antivirus software. As Milestone does not install antivirus software, the user can choose the preferred version according to their needs.
Pay attention when setting the Antivirus so that the data flow on the USB protocols and accesses to the hard disk are not limited.

1.7. Warnings

Any other use of the instrument is considered improper and voids the manufacturer's warranty and liability.

DO NOT open the camera box. If you do, this shall void the warranty.

The equipment must be connected to sockets that are clearly visible for the operator.
All equipment parts and all optional parts must only be supplied by the manufacturer.
The instrument is supplied with replaceable fuses, but their replacement must be effected by trained and authorized SERVICE personnel. If the system is still not properly working, contact your local representative or the manufacturer (always provide the serial number of the instrument, see label on the instrument).
The safety of any system that includes the instrument is the responsibility of the system installer.
Install the instrument where the power supply is easily detachable.

In the event of a malfunction:
1. Switch the PC off (if present).
2. Switch the instrument off.
3. Disconnect whatever is connected to the auxiliary sockets.
4. Unplug the power supply cable of the instrument from the main socket.
5. Disconnect all the optional parts, if any.
6. Disconnect the water, after having closed the delivery lines and other utilities.
7. Clean and decontaminate all parts of the instrument as described in chapter 4.
8. Put all parts of the equipment into the package supplied by the manufacturer (original package).
9. Send the instrument to the manufacturer for repair.

1.7.1. Personal data safety

The instrument is not designed to manage personal data processing of natural persons.
The personal data of natural persons must not be entered into the instrument while it is used.
The user operating the instrument must take appropriate measures to ensure that no personal data are entered.
All data referring to natural persons must therefore be entered by “pseudonymisation”.
“Pseudonymisation” refers to a manner of processing personal data so that said data cannot be associated to a specific data subject unless additional information is used, provided that the said additional information is stored separately and is subject to technical and organizational measures to ensure that such personal data are not associated to an identified or identifiable natural person.

1.8. MacroPATH data backup

Only for models with letter T and C – see chapter 1.3.1.

Milestone strongly recommends saving all the cases and the relative images on a server or another kind of support using an automated backup procedure.
Contact your network administrator.

The size of images with the recommended settings is 1.2MB/image (see chapter 3).

1.9. Instrument label

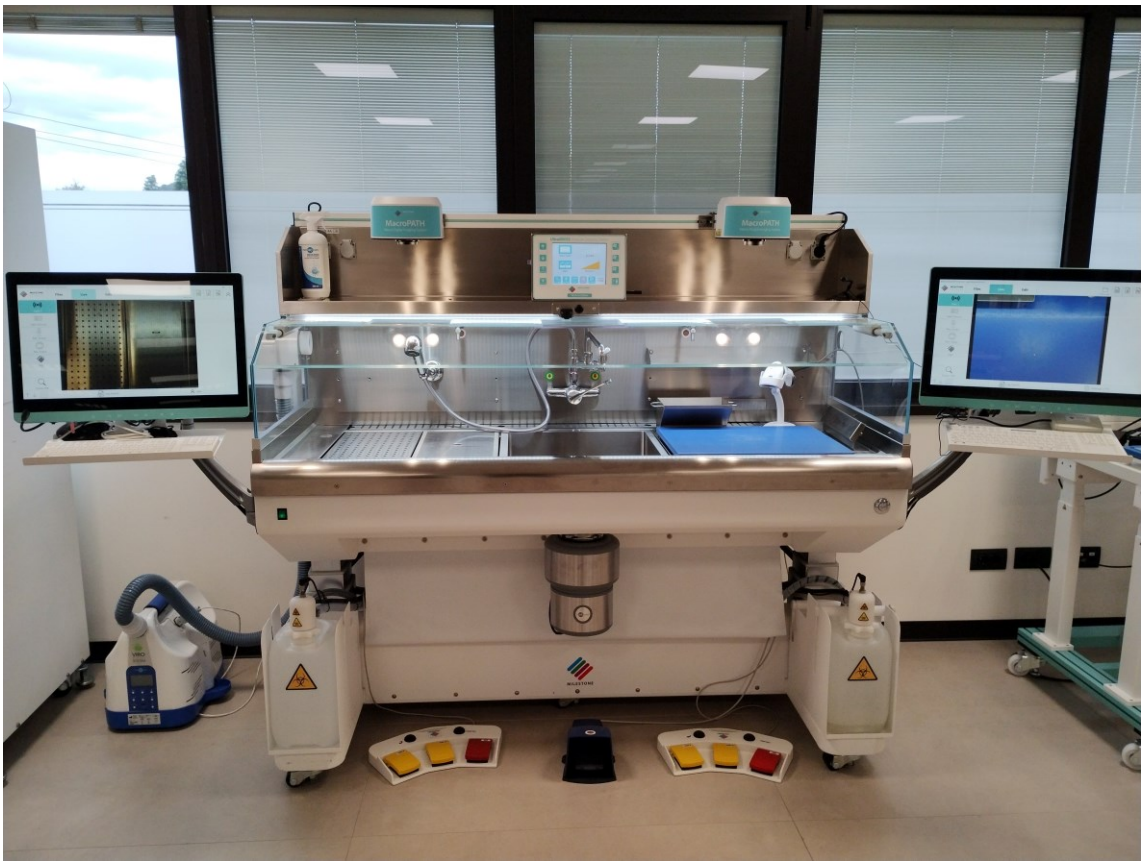
For the explanations of the symbols, refer to chapter 1.1.

2. INSTALLING UltraGROSS

Before switching on the instrument (when coming from a storage location), allow the instrument to reach operating environment conditions (at least 30 minutes).

This chapter and the next will illustrate all the features of UltraGROSS.

The VIRCHOW model is displayed below.



Milestone UltraGROSS is an instrument that must be unpacked and installed with the utmost care.

Do not push. Do not handle the instrument in areas marked with this symbol.

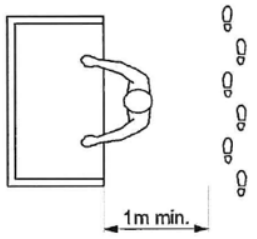
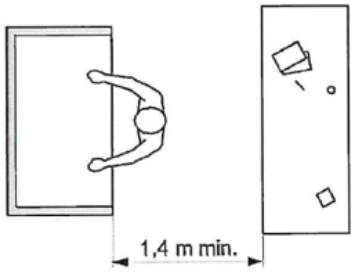
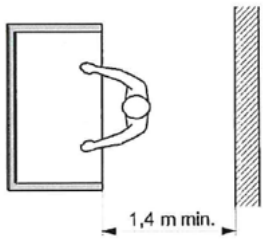
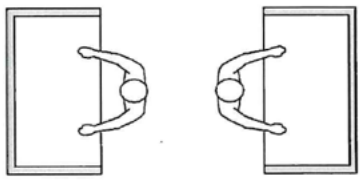
Make sure that the instrument is placed on a level floor that is free of vibrations and not in contact with flammable material. Use the levelling feet to position the instrument.

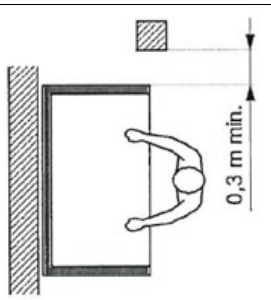
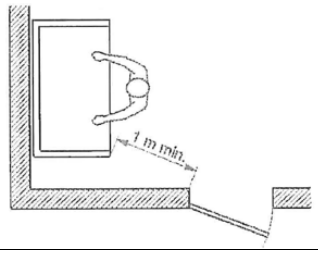
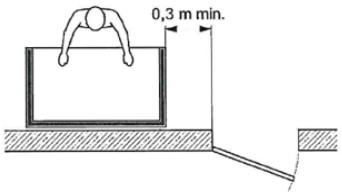
Make sure that the instrument is placed at a proper distance from walls as described in the following chapter.

2.1. Environmental requirements

Renewal of the air necessary to maintain the pressure difference between laboratory and surrounding environment ≤ 10 Pa.
Minimum hourly air exchanges (8 typically required for chemical laboratory).
Direction of the air thrust in the extraction ducts of the hoods, which must necessarily lead outside of the building.

Make sure the instrument is not exposed to direct air draughts on the work surface > 0.1m/s (e.g. air conditioners, fans, windows, etc.) that could alter the flow system. Keep a proper distance from doors, windows and passageways as shown in the images below.

Distance from passageways	
Distance from a workbench	
Distance from a wall	
Distance between two hoods: to be avoided	

Distance from a column	
Distance from a door	
Distance from a door	

2.2. Clearance requirements for initial code with 180

UltraGROSS is shipped in a wooden crate weighing 260kg (573.2lb). For the overall weight (instrument + crate) see chapter 1.3.3.

Dimensions:

Width: 207cm (81.49”)	Height: 190cm (74.80”)	Depth: 127cm (50”)

The crate is equipped with a ramp to unload the instrument which requires a clearance space of 6m (236”).to be used.

Front baffle (chapter 2.8.1)
Used to improve front ventilation and to limit turbulence.

Only remove the front baffle when moving the instrument, then reposition it on the instrument before using it.

Instrument dimensions for code 180 based on the letter in the code:

Dimensions if letter A:

WxDxH 180cm x 81cm x 159cm (maximum height 189cm)
WxDxH 70.86” x 31.88” x 62.6” (maximum height 74.4”)

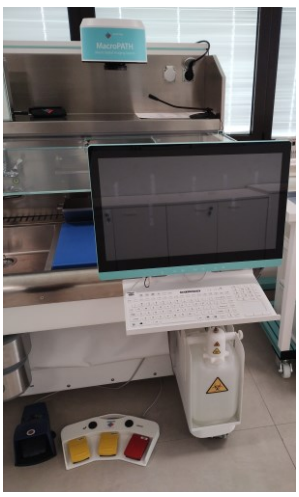
Dimensions if letter P:

WxDxH 180cm x 81cm (96cm with air ducts installed) x 174cm (maximum height 204cm)
WxDxH 70.86” x 31.88” (37.8” with air ducts installed) x 68.50” (maximum height 80.31”)

Dimensions if letters A and S:

WxDxH 188cm MIN x 81cm (107cm MIN after the instrument is installed *) x 159cm (maximum height 189cm)
WxDxH 74.01” MIN x 31.88” (42.1” MIN after the instrument is installed *) x 62.6” (maximum height 74.4”)

* The UltraGROSS size also depends on the side support of the monitor and keyboard. If a letter S is in the code, the minimum width dimension is taken with the side support placed as shown in the following images (the PC shown in the figure is not included in the code with the letter S):



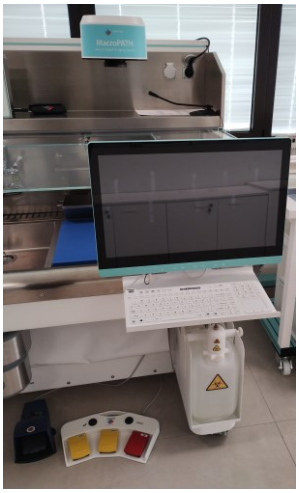
Dimensions if letters P and S

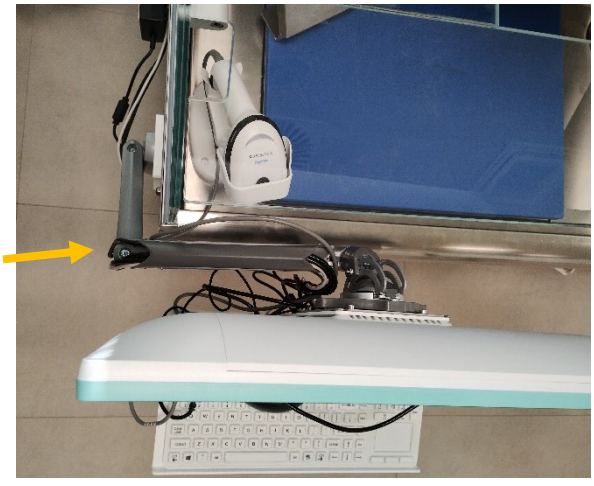
WxDxH 188cm MIN x 81cm (122cm MIN after the instrument is installed *) x 174cm (maximum height 204cm)
WxDxH 74.01” MIN x 31.88” (48” MIN after the instrument is installed *) x 68.50” (maximum height 80.31”)
* The UltraGROSS size also depends on the side support of the monitor and keyboard, as stated above.

Dimensions if there is a letter A and two letter S’s

WxDxH 196cm MIN x 81cm (107cm MIN after the instrument is installed *) x 159cm (maximum height 189cm)
WxDxH 77.16” MIN x 31.88” (42.1” MIN after the instrument is installed *) x 62.6” (maximum height 74.4”)

* The UltraGROSS size also depends on the side support of the monitor and keyboard. If two letters S are in the code, the minimum width dimension is taken with the side support placed as shown in the following images (the PC shown in the figure is not included in the code with the letter S):





Dimensions if there is a letter P and two letter S's

WxDxH 196cm MIN x 81cm (122cm MIN after the instrument is installed *) x 174cm (maximum height 204cm)
WxDxH 77.16" MIN x 31.88" (48" MIN after the instrument is installed *) x 68.50" (maximum height 80.31")
* The UltraGROSS size also depends on the side support of the monitor and keyboard, as stated above.

Dimensions if letters A and H:

WxDxH 180cm x 81cm x 182cm (maximum height 212cm)
WxDxH 70.86" x 31.88" x 71.65" (maximum height 83.46").

Dimensions if letters P and H:

WxDxH 180cm MIN x 81cm (96cm MIN after the instrument is installed *) x 182cm (maximum height 212cm)
WxDxH 70.86" x 31.88" (37.8" MIN after the instrument is installed *) x 71.65" (maximum height 83.46")

Space required to place UltraGROSS:

Dimensions if letter A:
WxDxH 190cm x 101cm x 195cm
WxDxH 74.8” x 39.76” x 76.77”

Dimensions if letter P:
WxDxH 190cm x 101cm x 210cm
WxDxH 74.8” x 39.76” x 82.67”

Dimensions if letters A and S*
WxDxH 205cm MIN / 225cm MAX x 127cm x 195cm
WxDxH 80.7” MIN / 88.6” MAX x 50” x 76.77”

Dimensions if letters P and S*
WxDxH 205cm MIN / 225cm MAX x 127cm x 210cm
WxDxH 80.7” MIN / 88.6” MAX x 50” x 82.6”

Dimensions if there is a letter A and two letter S’s*
WxDxH 220cm MIN / 260cm MAX x 127cm x 195cm
WxDxH 86.61” MIN / 102.4” MAX x 50” x 76.77”

Dimensions if there is a letter P and two letter S’s*
WxDxH 220cm MIN / 260cm MAX x 127cm x 210cm
WxDxH 86.61” MIN / 102.4” MAX x 50” x 82.67”

Dimensions if letters A and H:
WxDxH 190cm x 105cm x 215cm
WxDxH 74.8” x 41.33”x 84.64”

Dimensions if letters P and H:
WxDxH 190cm x 105cm x 215cm
WxDxH 74.8” x 41.33” x 84.64”

* The minimum size of the width also depends on the side support of the monitor and keyboard and was taken with the side support placed with medium extension as shown in the following images (the PC shown in the figure is not included in the code with the letter S).

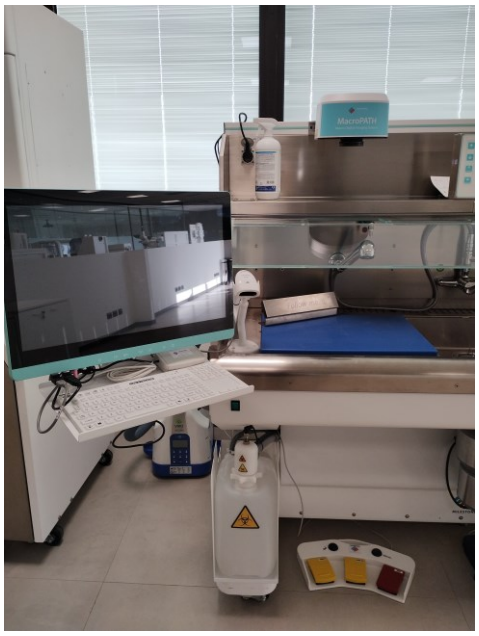
Minimum width, if a letter S is included in the code:

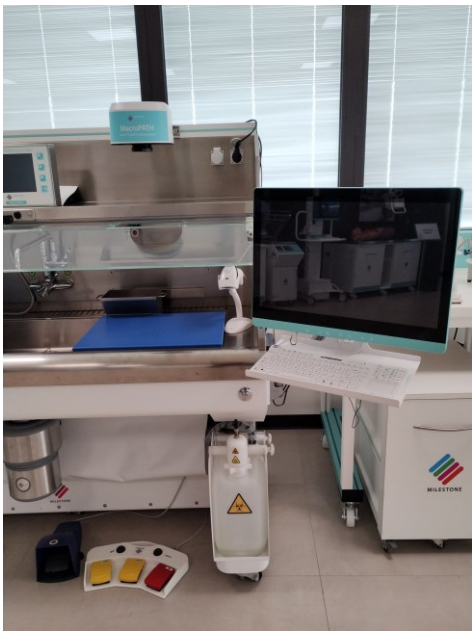
Minimum width, if two letters S are included in the code:

* The maximum size of the width also depends on the side support of the monitor and keyboard and was taken with the side support placed with maximum extension as shown in the following images (the PC shown in the figure is not included in the code with the letter S).

Maximum width, if a letter S is included in the code:

Maximum width, if two letters S are included in the code:





If the optional VIRO CLEAN EASY device is installed (chapter 5.31), it is necessary to add 25cm in width.

At this point the UltraGROSS instrument can be placed in its final position for use.

2.3. Clearance requirements for initial code with 150

UltraGROSS is shipped in a wooden crate weighing 260kg (573.2lb). For the overall weight (instrument + crate) see chapter 1.3.3.

Dimensions:

Width: 207cm (81.49”)	Height: 190cm (74.80”)	Depth: 127cm (50”)

The crate is equipped with a ramp to unload the instrument which requires a clearance space of 6m (236”) to be used.

Front baffle (chapter 2.8.1)
Used to improve front ventilation and to limit turbulence.

Only remove the front baffle when moving the instrument, then reposition it on the instrument before using it.

Instrument dimensions for code 150 based on the letter in the code:

Dimensions if letter A:

WxDxH 150cm x 81cm x 159cm (maximum height 189cm).
WxDxH 59.05” x 31.88” x 62.6” (maximum height 74.4”).

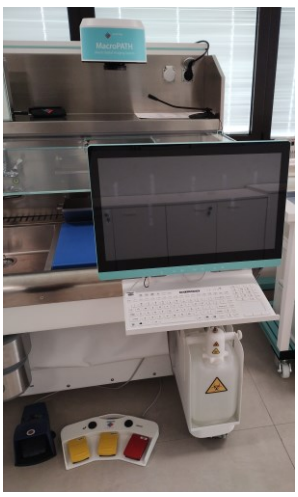
Dimensions if letter P:

WxDxH 150cm x 81cm (96cm MIN with air ducts installed) x 174cm (maximum height 204cm).
WxDxH 59.05” x 31.88” (37.8” MIN with air ducts installed) x 68.50” (maximum height 80.31”).

Dimensions if letters A and S

WxDxH 158cm MIN x 81cm (107cm MIN after the instrument is installed *) x 159cm (maximum height 189cm)
WxDxH 62.2” MIN x 31.88” (42.1” MIN after the instrument is installed *) x 62.6” (maximum height 74.4”)

* The UltraGROSS size also depends on the side support of the monitor and keyboard. If a letter S is in the code, the minimum width dimension is taken with the side support placed as shown in the following images (the PC shown in the figure is not included in the letter S):



Dimensions if letters P and S

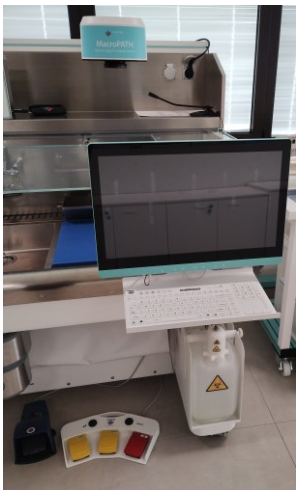
WxDxH 158cm MIN x 81cm (122cm MIN after the instrument is installed *) x 174cm (maximum height 204cm)
WxDxH 62.2” MIN x 31.88” (48” MIN after the instrument is installed *) x 68.50” (maximum height 80.31”)

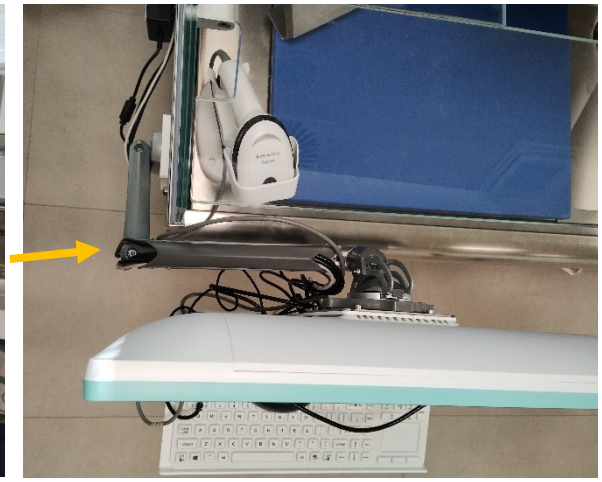
* The UltraGROSS size also depends on the side support of the monitor and keyboard, as stated above.

Dimensions if there is a letter A and two letter S’s

WxDxH 166cm MIN x 81cm (107cm MIN after the instrument is installed *) x 159cm (maximum height 189cm)
WxDxH 66.35” MIN x 31.88” (42.1” MIN after the instrument is installed *) x 62.6” (maximum height 74.4”)

* The UltraGROSS size also depends on the side support of the monitor and keyboard. If two letters S are in the code, the minimum width dimension is taken with the side support placed as shown in the following images (the PC shown in the figure is not included in the code with the letter S):





Dimensions if there is a letter P and two letter S's

WxDxH 166cm MIN x 81cm (122cm MIN after the instrument is installed *) x 174cm (maximum height 204cm)
WxDxH 66.35" MIN x 31.88" (48" MIN after the instrument is installed *) x 68.50" (maximum height 80.31")

* The UltraGROSS size also depends on the side support of the monitor and keyboard, as stated above.

Dimensions if letters A and H:

WxDxH 150cm x 81cm x 182cm (maximum height 212cm)
WxDxH 59.05" x 31.88" x 71.65" (maximum height 83.46")

Dimensions if letters P and H:

WxDxH 150cm MIN x 81cm (96cm MIN after the instrument is installed *) x 182cm (maximum height 212cm)
WxDxH 59.05" x 31.88" (37.8" MIN after the instrument is installed *) x 71.65" (maximum height 83.46")

Space required to place the instrument:

Dimensions if letter A:
WxDxH 160cm x 101cm x 195cm
WxDxH 63” x 39.76” x 76.77”

Dimensions if letter P:
WxDxH 160cm x 101cm x 210cm
WxDxH 63” x 39.76” x 82.67”

Dimensions if letters A and S*
WxDxH 175cm MIN / 195cm MAX x 127cm x 195cm
WxDxH 74.01” MIN / 76.8” MAX x 50” x 76.77”

Dimensions if letters P and S*
WxDxH 175cm MIN / 195cm MAX x 127cm x 210cm
WxDxH 74.01” MIN / 76.8” MAX x 50” x 82.67”

Dimensions if there is a letter A and two letter S’s*
WxDxH 190cm MIN / 230cm MAX x 127cm x 195cm
WxDxH 77.16” MIN / 90.6” MAX x 50” x 76.77”

Dimensions if there is a letter P and two letter S’s*
WxDxH 190cm MIN / 230cm MAX x 127cm x 210cm
WxDxH 77.16” MIN / 90.6” MAX x 50” x 82.67”

Dimensions if letters A and H:
WxDxH 160cm x 105cm x 215cm
WxDxH 63” x 41.33” x 84.64”

Dimensions if letters P and H:
WxDxH 160cm x 105cm x 215cm
WxDxH 63” x 41.33” x 84.64”

* The minimum size of the width also depends on the side support of the monitor and keyboard and was taken with the side support placed with medium extension as shown in the following images (the PC shown in the figure is not included in the code with the letter S).

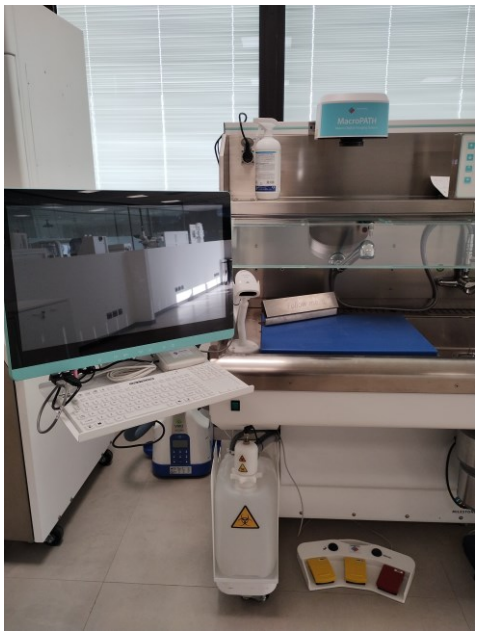
Minimum width, if a letter S is included in the code:

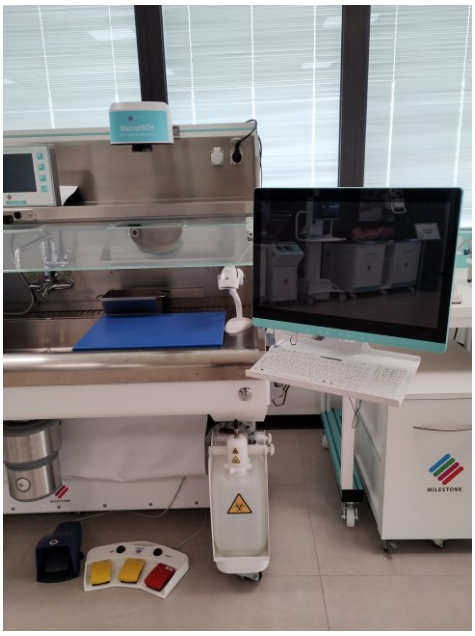
Minimum width, if two letters S are included in the code:

* The maximum size of the width also depends on the side support of the monitor and keyboard and was taken with the side support placed with maximum extension as shown in the following images (the PC shown in the figure is not included in the code with the letter S).

Maximum width, if a letter S is included in the code:

Maximum width, if two letters S are included in the code:





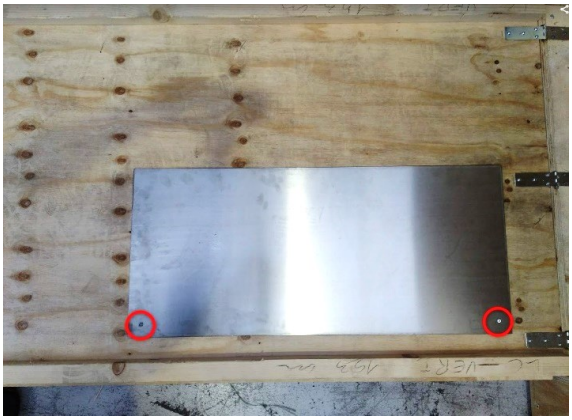
If the optional VIRO CLEAN EASY device is installed (chapter 5.31), it is necessary to add 25cm in width.

At this point the UltraGROSS instrument can be placed in its final position for use.

2.4. Unpacking and check list

For safety reasons, the crate can only be moved from the long side as shown in the following image:

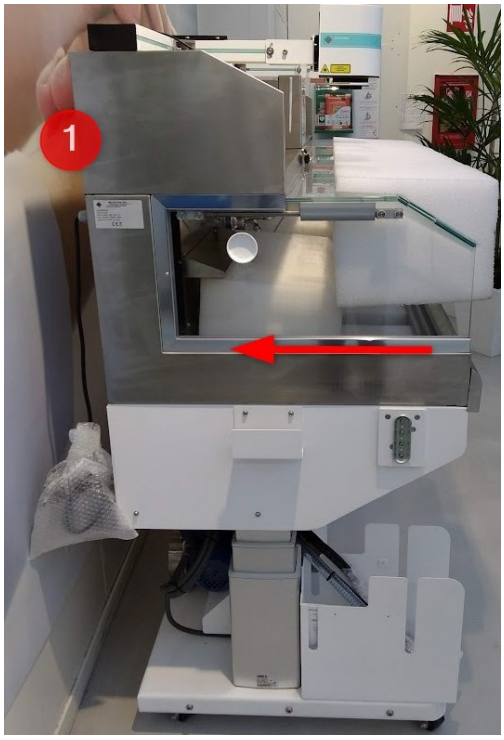
At the opening of the crate, remove the steel plate fixed on the side door by unscrewing the two screws:



Screw the plate with the two screws and use it as a slide to facilitate the extraction of UltraGROSS:

To properly unpack the instrument frame the QR code located on the polystyrene and follow the instructions.

Push the bottom polystyrene so that it fits into the rear of the instrument as indicated by the arrow:



Pull the upper polystyrene obliquely as indicated by the arrows and remove the front glass protection

Scrupulously follow the procedures described above otherwise the glass could break.

Upon opening the crate, check to make sure that all the parts are present.

- 1X Wastewater pipe, internal Ø 40mm with 2 metal straps 5m long.

- 2X Fume discharge pipes internal Ø 160mm length 4m with 2 metal straps.

- 2X Ducts for passive hood – only for letter P.

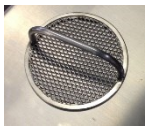
- 1X Anemometer – only for letter P.

- 1X Pressure switch – only for letter P.

- 1X Fixative loading pedal. Only for letter F- 2X if double letter F in code.

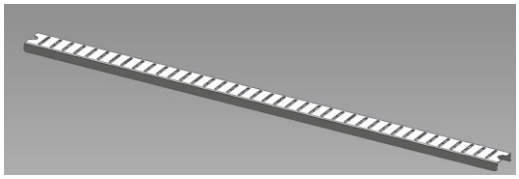
- 1X 10L used fixative tank. Only for letter D- 2X if double letter D in code.

- 1X Drain filter. In addition, a filter for each washbasin.



- 1X Ventilated surface filter. In addition, a filter for each fixative drain funnel.

- Ventilated surface grille. 1X if initial code 150 and 3X if initial code 180.



- 1X Set of Allen screws.

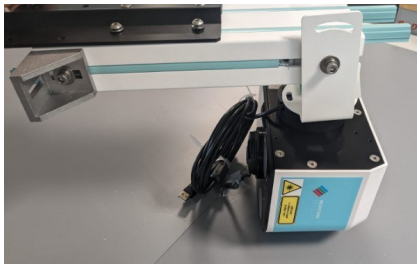
- 1X Wrench 8-10mm.

- 1X Foot pedal (only with letter C) – 2X if double letter C in code.

- 1X Keyboard water and contamination proof (except in MALPIGHI) – 2X in VIRCHOW.

- 1X Ruler for measurement (only with letter C) – 2X if double letter C in code.

- 1X Camera with cable, only with letter C – 2X if double letter C in code.



- 1X lens +1.5 only for letter C (already fitted on camera) – 2X if double letter C in code.

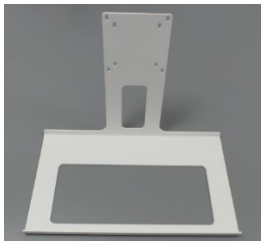
- 1X 21” touch screen PC only for letter T – 2X if double letter T in code + 2 USB adapters
.

- 1X 21” touch screen PC power supply support 2X if double letter T in code .

- 1X Monitor side support, only with letter S – 2X if double letter S in code.

- 1X Monitor top support, only with letter H – 2X if double letter H in code.

- 1X Keyboard holder for monitor supports indicated above, only with letter S or H – 2X if double letter S or H in code.

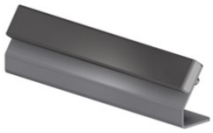


- 1X Microphone with extension cord, only for letter C – 2X if double letter C in code.

- 1X Loading tank safety steel cable only for letter F – 2X if double letter F in code.

- 1X Glass disassembly spanner.

- 1X “Follow me” mobile magnetic bar. 2X in VIRCHOW.



- 1X Cap in chrome plated brass 1/2".

- 1X key to Lock/Unlock glass

- -Instrument QC
  -Warranty
  -Presentation letter
  -Instrument SecuTest

- Only for letter C: BOX license FULL. 2X in VIRCHOW.

- Bootable USB key in all models (MAN-ULTRAGROSS CODE) containing:

- Operator manuals in electronic format:
MM182-UltraGROSS
MM201- MacroPATH
MM130- MileWATCH
MM186-MileLICENSER
MM105 – Monitoring system
- VIRO CLEAN EASY operator manual in electronic format
- SUPRASPOR technical data sheet in electronic format
- SUPRASPOR safety data sheet in electronic format
- Recovery software (to use it refer to the MM201-MacroPATH manual)
(Clonezilla cannot be seen on the key because it is transparent).

- USB key only for letter C containing:

- MileWATCH Server software
- Camera Director software
- MacroPATH X software
- MileWATCH Search software
- MileWATCH Viewer software
- MileWATCH Batch software
- MacroPATH TWAIN
- MP5 MPX Inport

- USB key only for letter T (WIN10 OS image) containing: Operating system image

In addition to the software in digital format, Milestone provides two USB keys for every instrument, containing the operating system and the relevant drivers. We strongly recommend storing the USB keys and the license card in a safe place, as Milestone is not in a position to supply copies.

- For the grid plates included in the different models, refer to chapter 2.5.8.

The images shown are for illustrative purposes only.

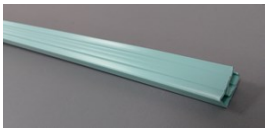
For the optional parts, refer to chapter 5.

2.5. UltraGROSS installation

Before switching on UltraGROSS (when coming from a storage room), allow the instrument to reach operating environment conditions (at least half an hour).

For letters that refer to instrument codes, see chapter 1.3.1.

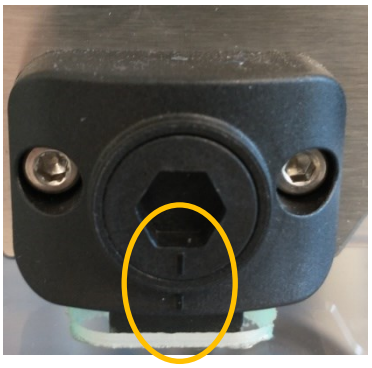
Before following these instructions, pull out the green profile from the crosspiece of the instrument.



Once all the parts have been installed on the crosspiece, cut the green profile to measure and put it back into the crosspiece.

2.5.1. Safety shield block

The shield block is placed in the middle, below the control terminal of the instrument. The instrument is shipped with the shield blocked, as indicated in the figure below. When blocked, you will see two black overlapping bars.



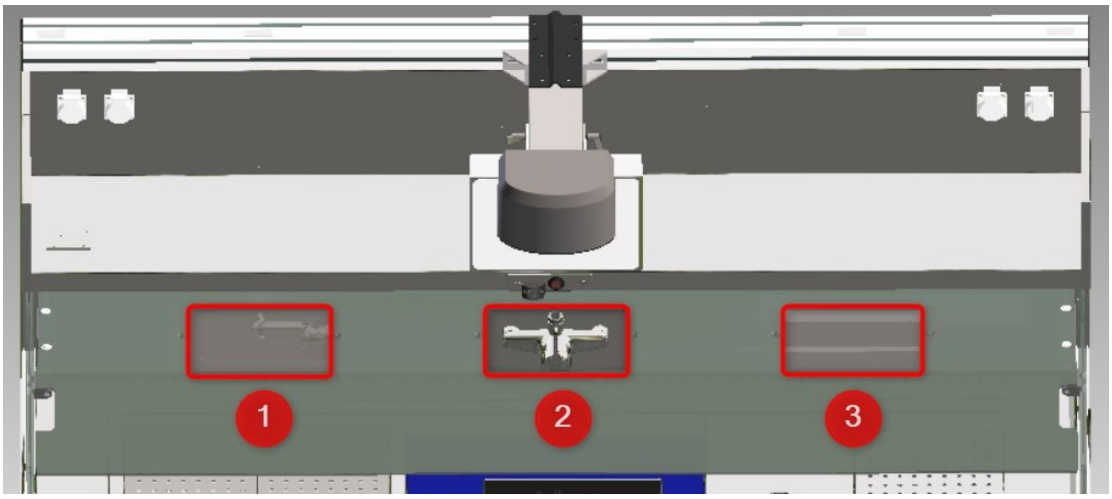
Use the dedicated key supplied with the instrument in order to unlock the screen.

This key can be magnetically hung at the top left on the back of the terminal.

Work with UltraGROSS with the shield closed. Operator protection is only guaranteed with the shield closed.

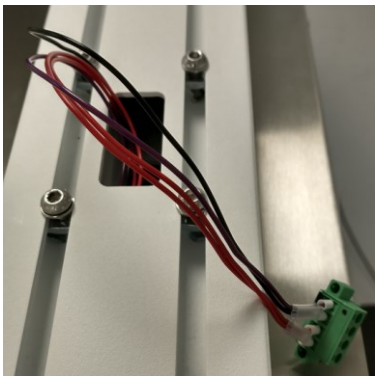
2.5.2. Camera installation (only letter C)

The figure shows the three positions available for the camera (only for initial code 180), at the openings on the safety shield. The openings are closed by a polycarbonate panel that must be removed in presence of the camera. With initial code 150 the camera will only be in the middle.



Only install the camera near the cutting board.

After having decided the position of the camera, if necessary, reposition the relative green connector in the crosspiece, pulling it out of the specific opening.



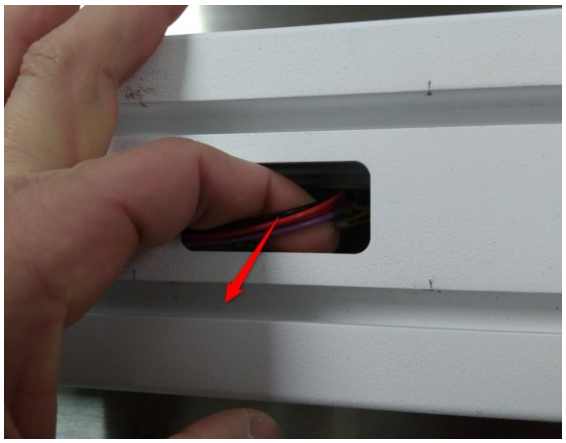
The figure shows the three different exit positions of the connector.

If the camera is positioned on the right and it is necessary to move it to a central position, follow the steps below (mirror the same procedure for moving from the left).

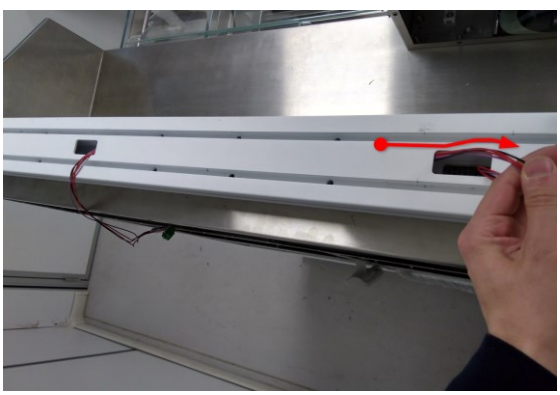
1. Lower the instrument to the minimum height.

2. Locate the central knockout on the crossbar

3. Locate the wires (purple-black, red-red) inside the crossbar.

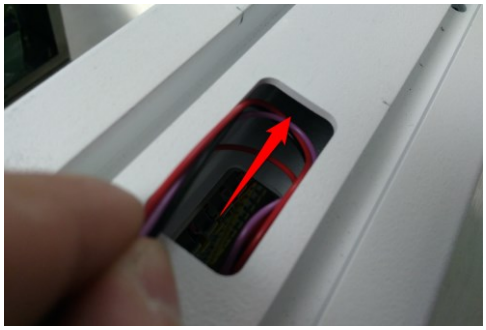


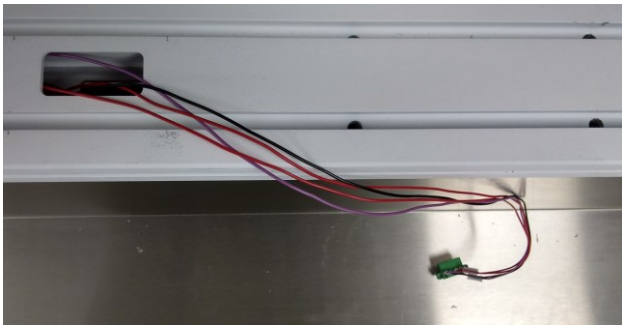
4. Pull the wires out of the knockout



5. Pull out the entire length of the wires from the center.

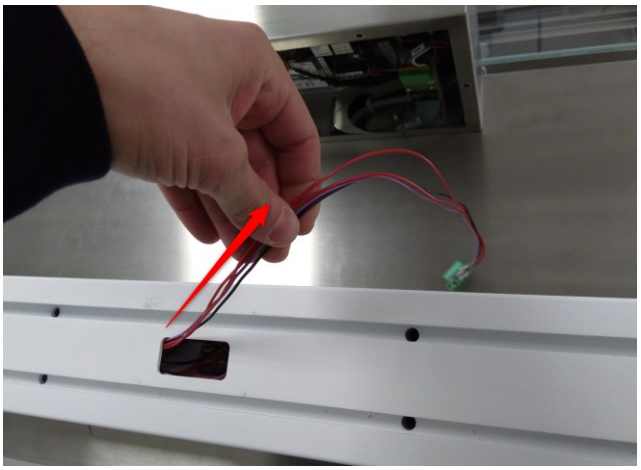
6. At this point the cables will be very long compared to the required length. Insert the cables inside the crossbar until the correct length is achieved.



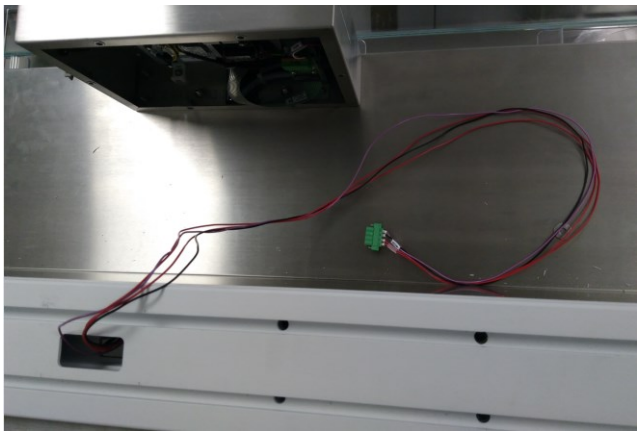


If the camera is positioned centrally and it is necessary to move it to the left position, follow the steps below (mirror the procedure for moving to the right).

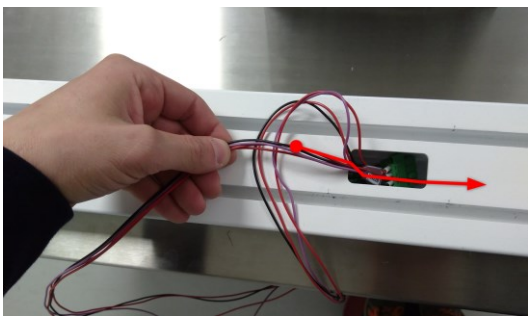
1. Locate the central knockout along the crossbar that the wires come out of.

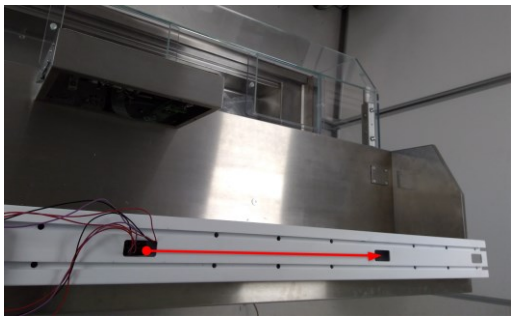


2. Pull the wires outwards, thus extracting all the extra length from inside the crossbar.



3. Take the connector and insert it inside the crossbar in the direction of the left knockout.

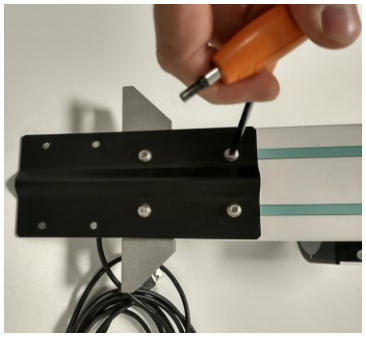




4. Locate the connector inside the knockout.

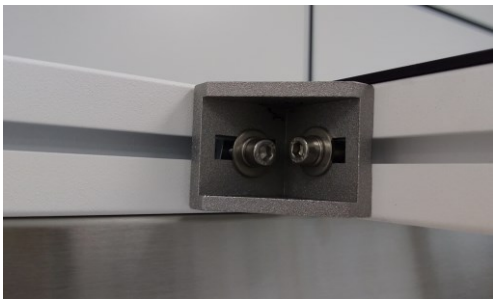
5. Take and pull out the wires completely.

Take the camera and remove the black casing.

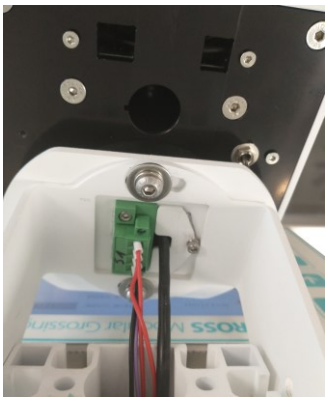


Fasten the camera at the spot required (check for the 6 nuts with feather key, otherwise move them to the required position).

Fix the camera pole to the crosspiece as in image by means of the specific angle supports.

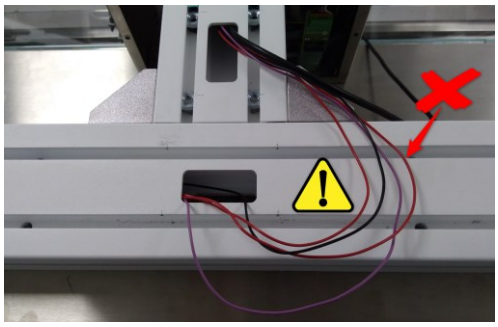


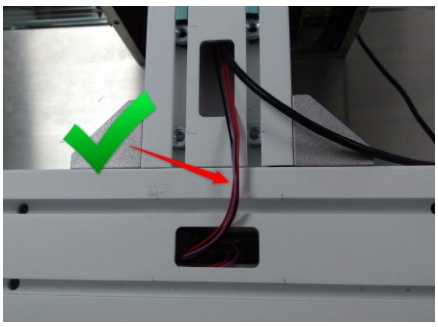
Connect the green Phoenix connector on the camera.



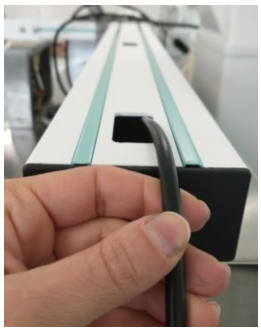
Cable crushing

Once the camera has been fixed to the front of the crossbar and the connector has been connected to the camera, the wires may remain long, so to avoid crushing when attaching the bracket, insert the extra length inside the crossbar.

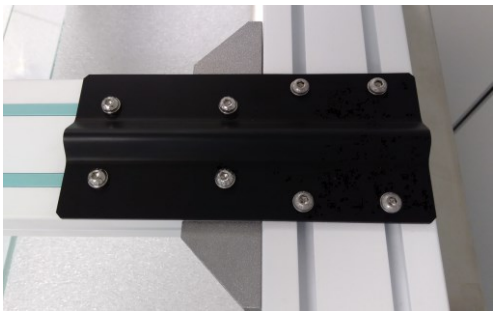




Insert the USB cable of the camera in the crosspiece, having it exit on the side of the relative PC.

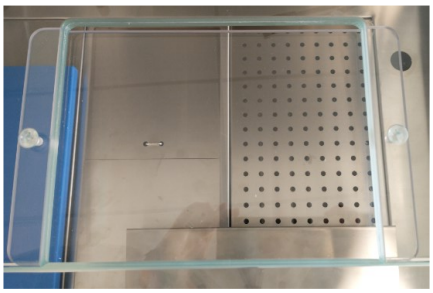


Mount the black casing paying ATTENTION not to crush the camera cable and relative cables going to the camera.



Remove the polycarbonate panel only where the camera is.

To remove the panel, unscrew the two corresponding screws shown in the figure below.



Insert the camera USB cable into the USB port of the terminal after having mounted it. If letter T, refer to chapter 2.5.6.

The camera is provided with a 67mm lens with +1.5 magnification, already assembled.

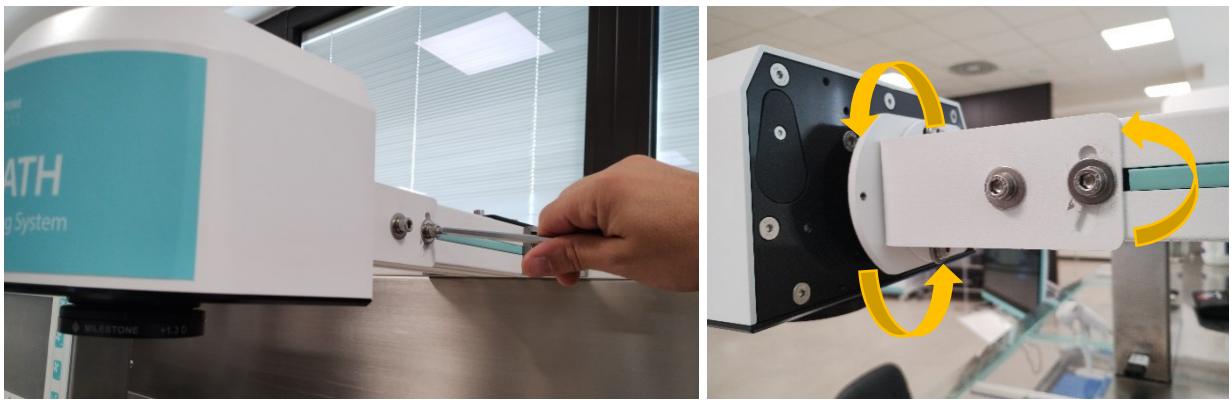
If the polarized lens is also provided as optional part (refer to chapter 5.11) first install the polarized lens then also screw in the +1.5 lens, ensuring it is the outermost one.

The automatic autofocus of the camera depends on environmental conditions.

If there are two letters C in the code, the instrument will have two cameras.

Camera orientation

The camera's orientation can be modified according to the following image on the left. The image on the right shows the possible movements for orientation of the camera.
Adjust the orientation of the camera so that the blue cutting board is centered when the maximum zoom level (100%) is applied.



The figures only show one side of the camera. Repeat the same operation on the other side to achieve the required orientation.

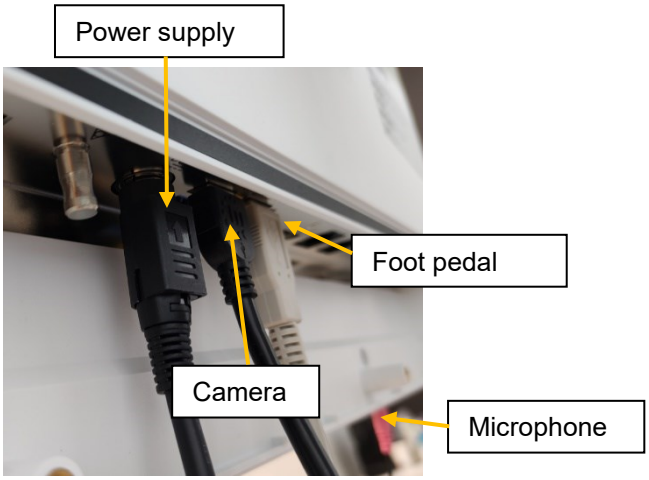
Install MacroPath using the supplied USB key and license code. Please refer to chapter 3.

2.5.3. Installing the barcode reader, foot pedal and microphone

If letter T, refer to the next chapter for their installation.

Bar code reader
When present (this is an optional part, refer to chapter 5) connect the barcode reader to one of the USB ports available on the PC.

Microphone
Only for letter C. Connect it to the PC.



Before attempting to use the microphone, turn it on using its appropriate ON/OFF button (if present).

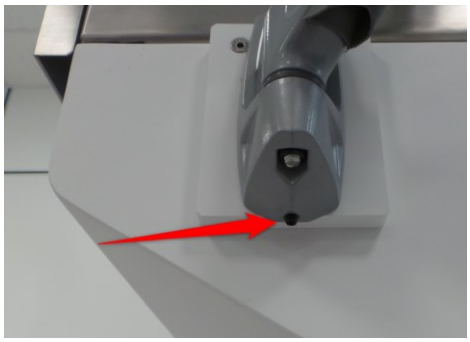
Foot pedal
Only for letter C. When present, connect it to an available USB port on the PC.
For its use, refer to chapter 3.

2.5.4. Installation of keyboard support arm (only for letter S)

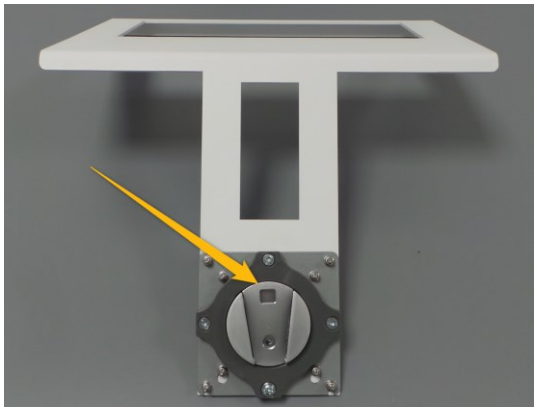
Present on all models except MALPIGHI.
If letter H, refer to the next chapter.
If there are one or two letters T, refer to chapter 2.5.6.

To assemble the components, follow the procedure below.

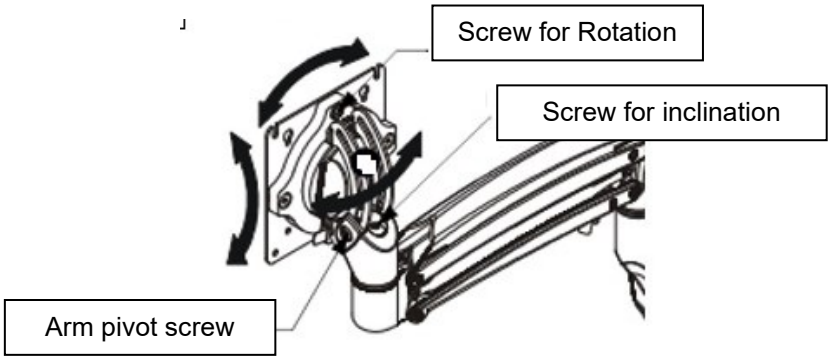
A monitor weighing up to 9kg can be connected with the VESA 75/100 bracket.
Fit the keyboard support arm in one of the two positions (right or left) securing it with the supplied screw.



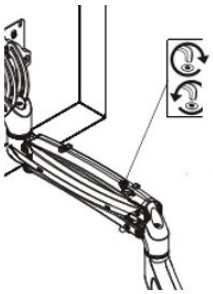
Join the VESA plate to the keyboard support, as per photo, with the supplied screws, making sure to direct it as shown by the arrow in the following figure.



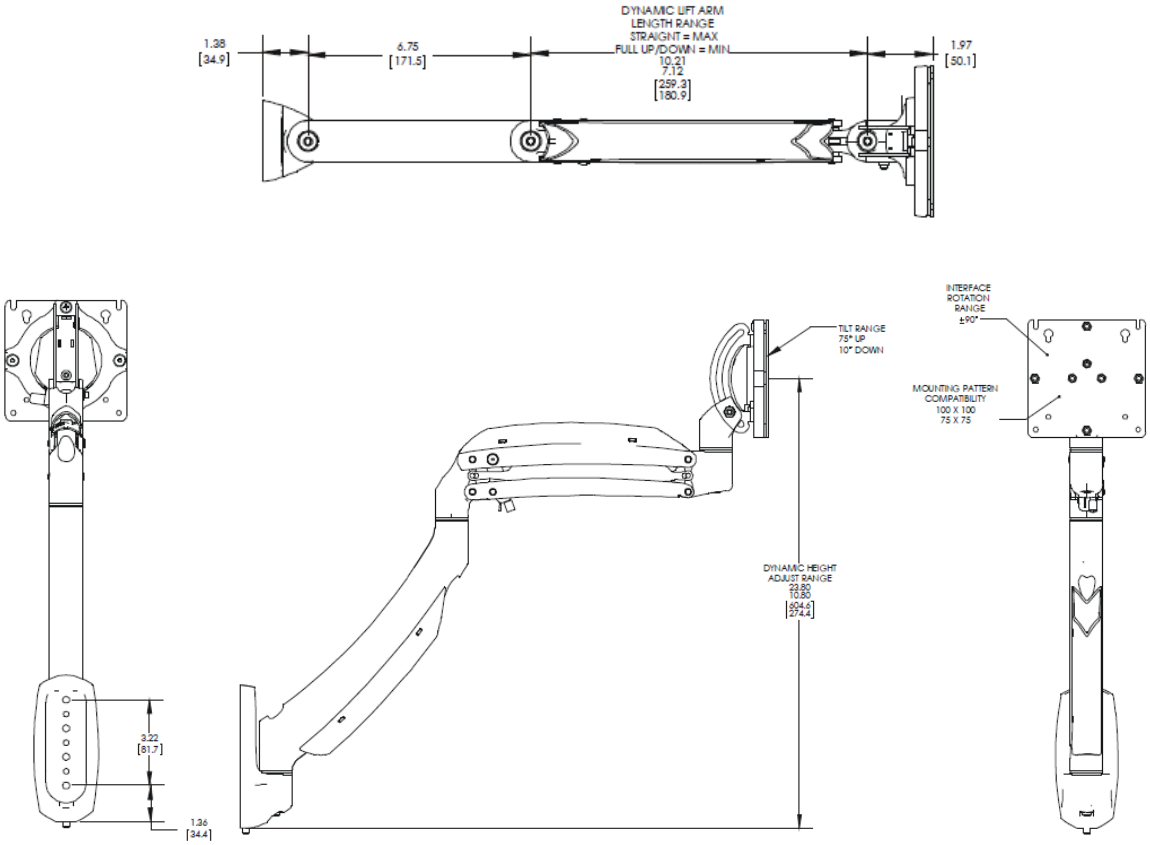
Adjust the arm frictions according to the instructions below. Act on the screws indicated in the following figure to modify the frictions.



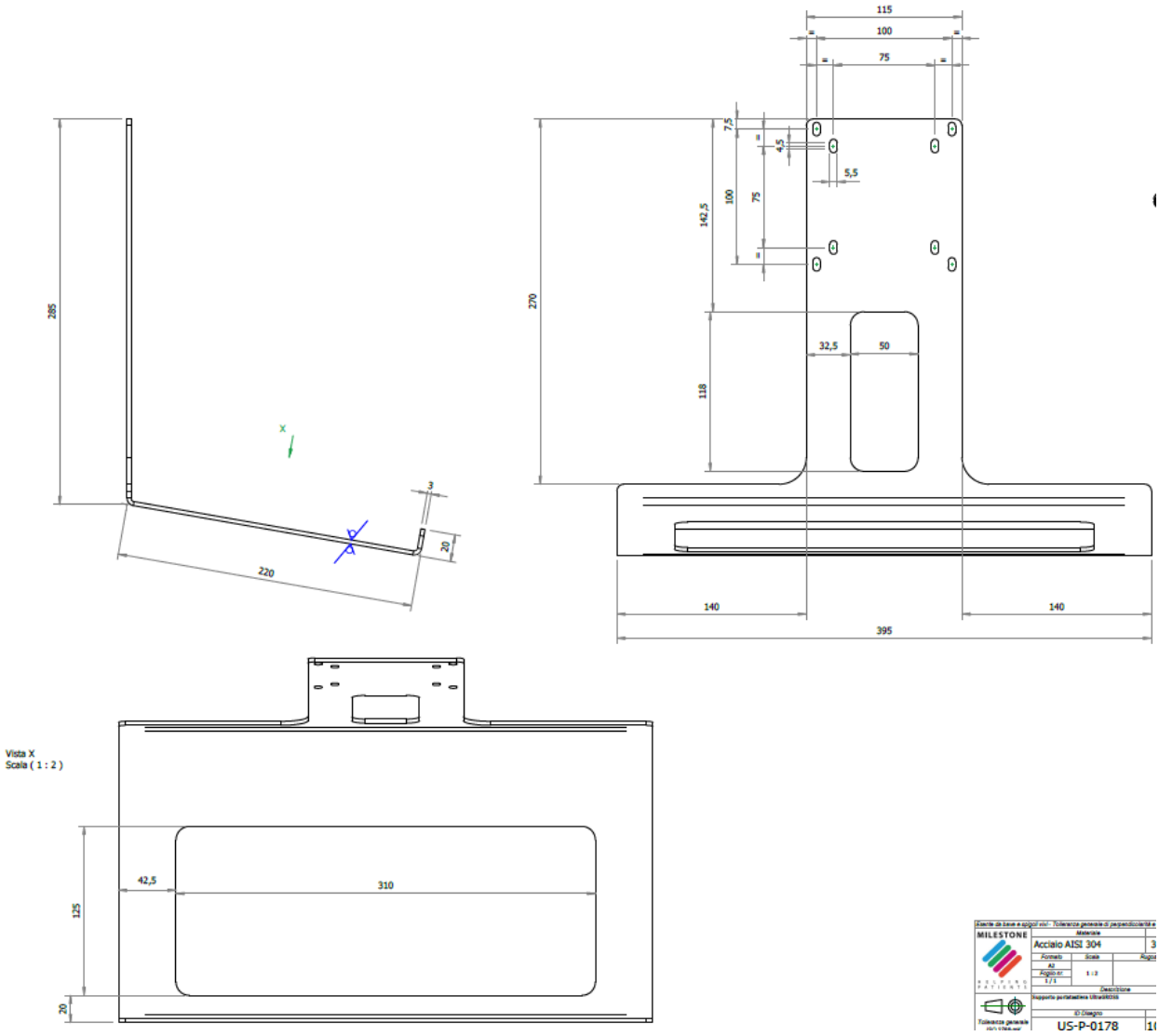
Use a 3mm Allen wrench. Rotate clockwise to reduce the force. Rotate anti-clockwise to increase the force.



Features of PC arm:



Dimensions of keyboard holder:

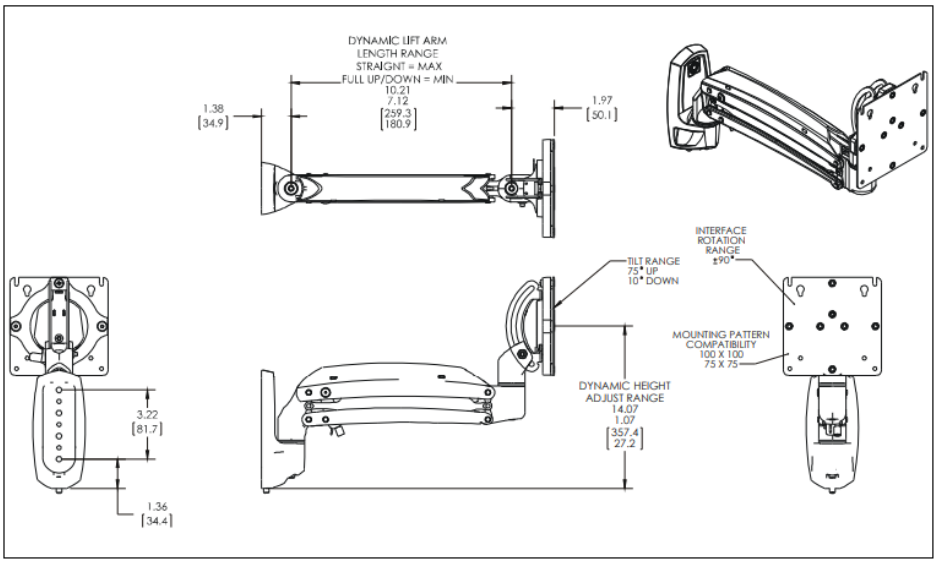


2.5.5. Installation of keyboard support arm (only for letter H)

Present on all models except MALPIGHI.
If letter S, refer to the previous chapter.
If there are one or two letters T, refer to chapter 2.5.6.

To assemble the components, follow the procedure below.

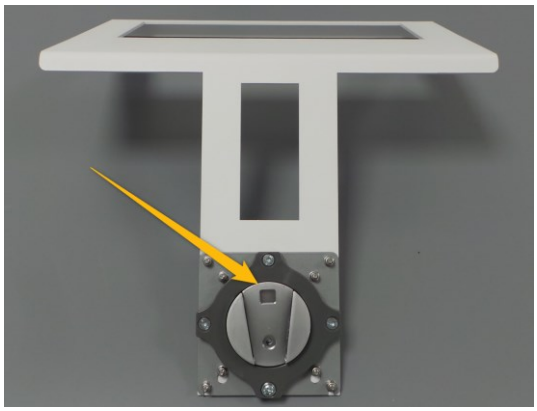
A monitor weighing up to 9kg can be connected with the VESA 75/100 bracket along the entire crosspiece bar of the instrument in the required position.



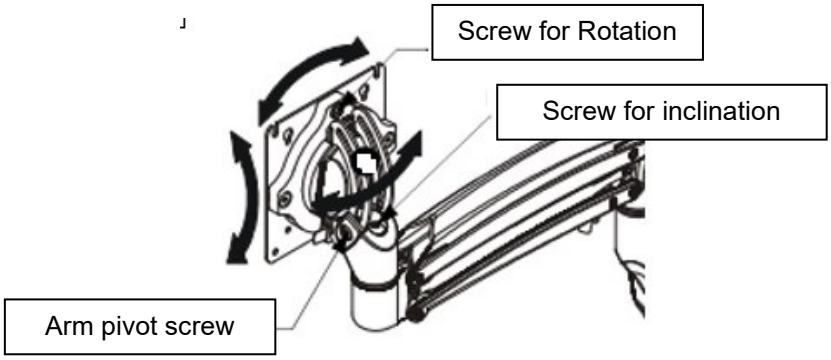
Fix the arm on the specific bracket, tightening the underlying grub screw.

The arm spring can be adjusted as explained in the previous chapter.

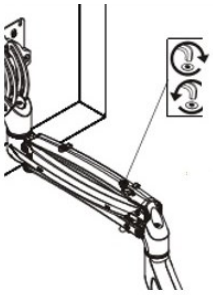
Join the VESA plate to the keyboard support, as per photo, with the supplied screws, making sure to direct it as shown by the arrow in the following figure.



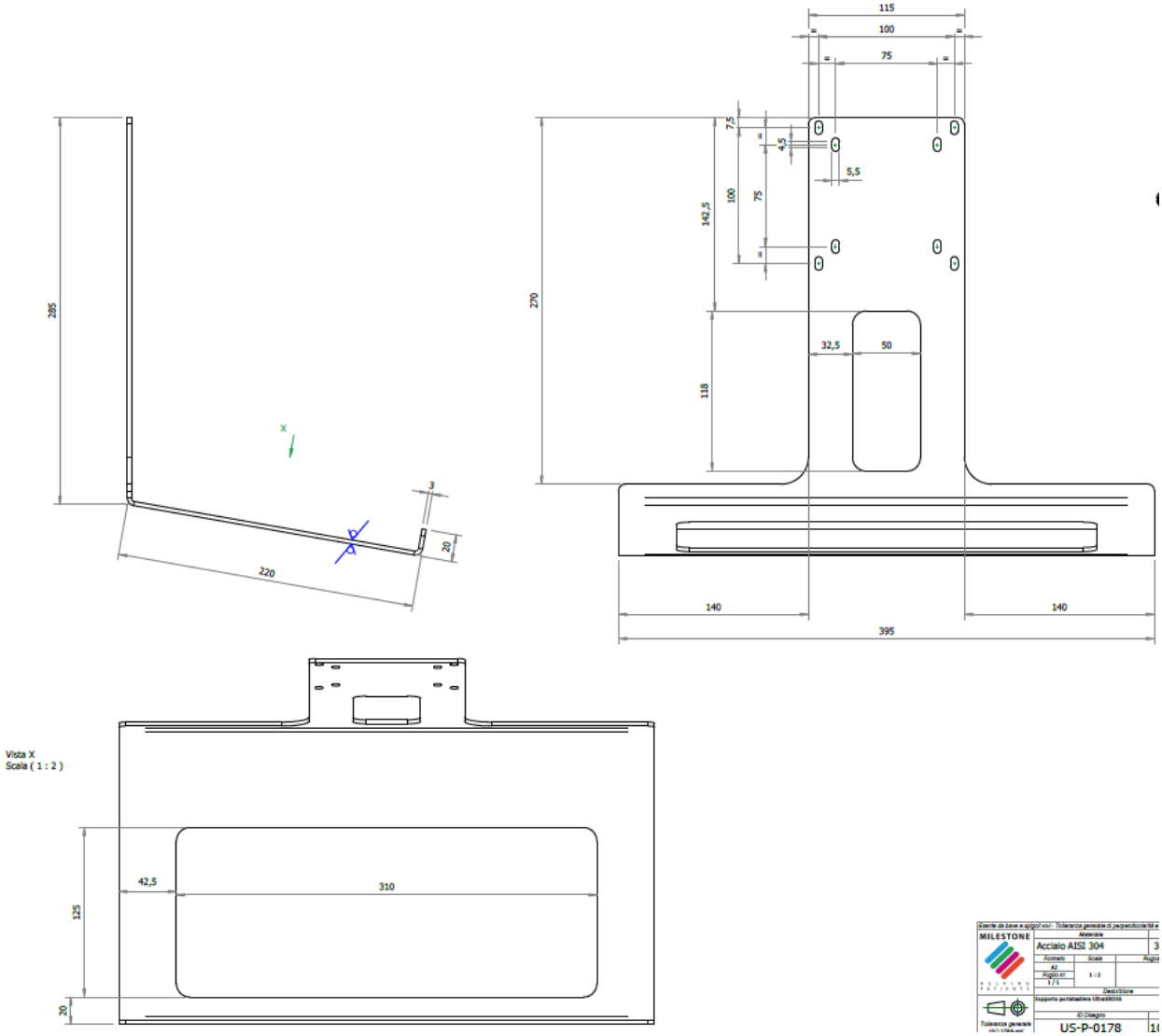
Adjust the arm frictions according to the instructions below. Act on the screws indicated in the following figure to modify the frictions.



Use a 3mm Allen wrench. Rotate clockwise to reduce the force. Rotate anti-clockwise to increase the force.

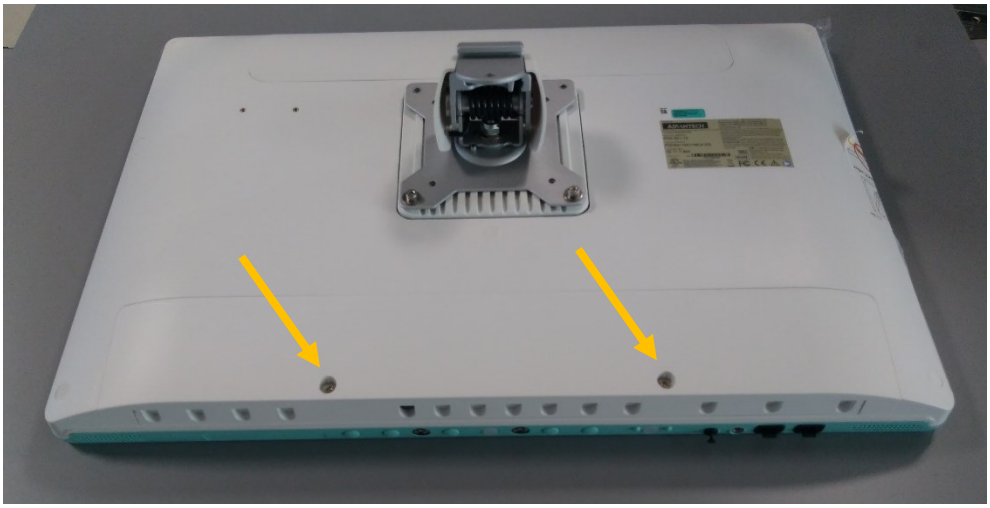


Dimensions of keyboard holder:

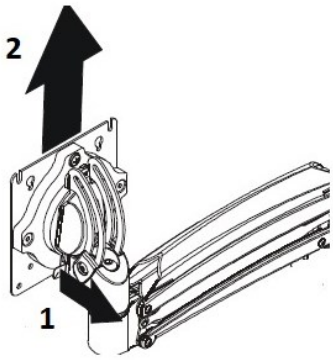


2.5.6. Installation of touch screen PC (only for letter T in code)

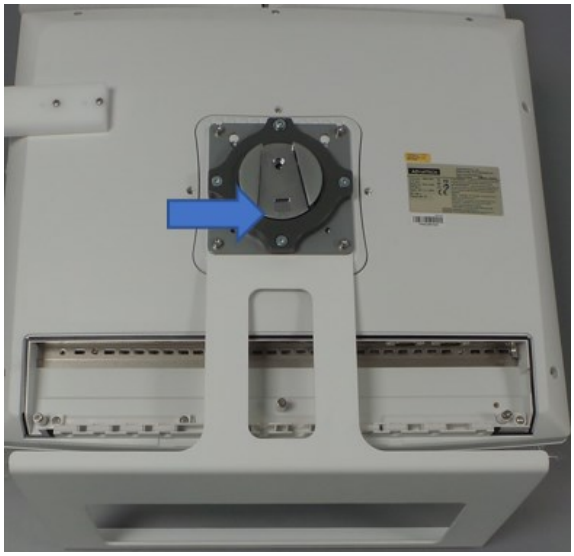
If there are two letters T in the code, the instrument will have two 21” touchscreen PCs.
To assemble the components, follow the procedure below:
Unscrew the rear panel fixing screws and then remove the rear panel.



Mount the arm according to the instructions in chapter 2.5.4 if letter S or in chapter 2.5.5 if letter H in code.
Detach the VESA plate from the arm, as per following image.

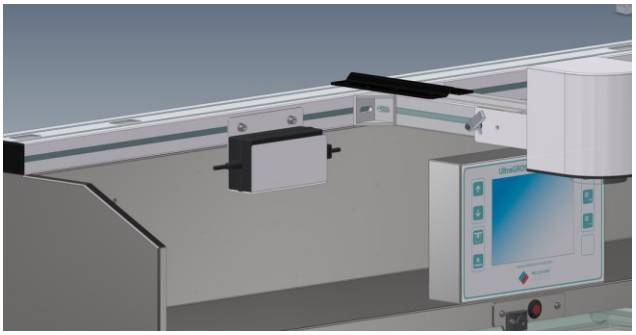


Join the VESA plate to the keyboard and PC support, as per photo, with the supplied screws, making sure to direct it as shown by the arrow in the following figure.



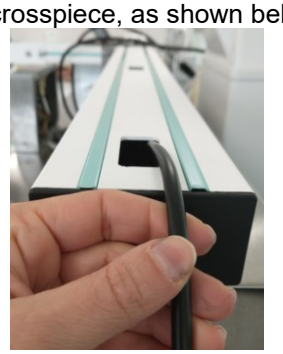
Apply the instrument on the support arm.

Fix the 21” touch screen PC power supply by means of the specific bracket as shown in the following figures (figure to the left only for letter S, figure to the right only for letter H).



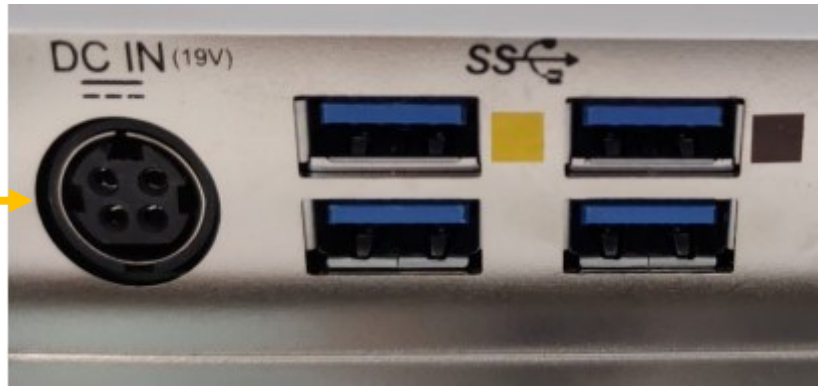
Plug the power cable into the PC and into the power socket of the laboratory.

The USB cable of the camera will exit the crosspiece, as shown below.



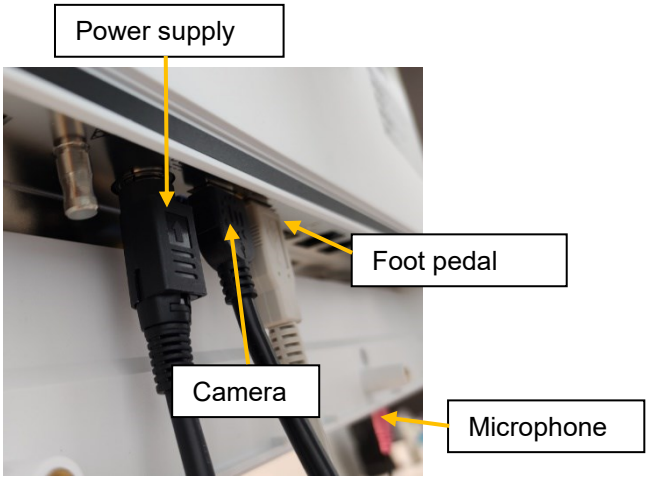
Connect the cables to the control terminal (as shown in the following photo).

PC power supply socket



USB CAMERA connection marked yellow
USB KEYBOARD free connection
USB FOOT PEDAL connection marked brown
USB TOUCH PEN free connection
USB BAR CODE READER free connection

Microphone
The following figure shows the lower side of the PC and the microphone connector.



Before attempting to use the microphone, turn it on using its appropriate ON/OFF button (if present).

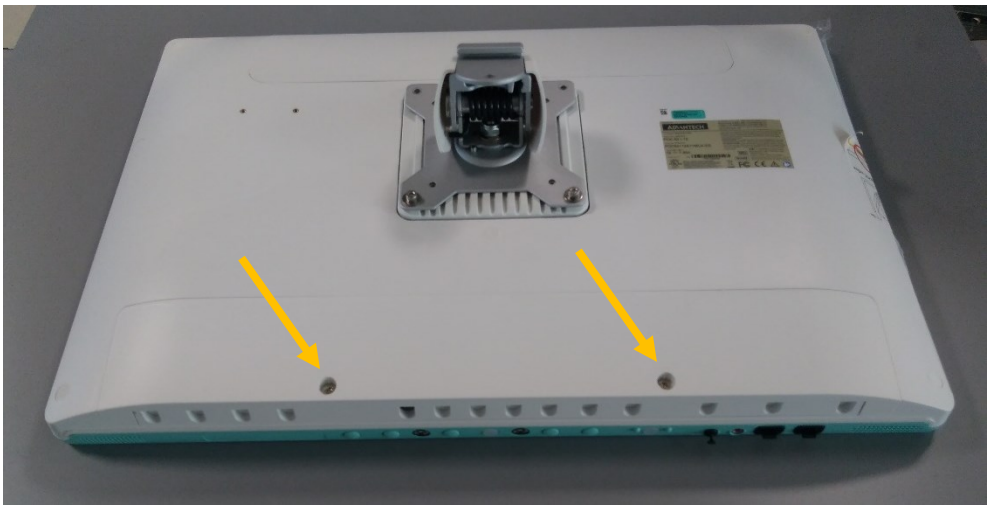
For PC installation, carefully peel off the film from the screen to prevent damaging it.

It is advisable to turn the PC off completely at least once a week.

A passive stylus is supplied with the PC.

Bar code reader (this is an optional part, refer to chapter 5)
When present, connect the bar code reader to one of the USB ports available on the PC. For the USB ports present, refer to chapter 2.5.8.

Close the cables protective panel of the PC.



Next, press the PC's ON button to turn on the computer.
Refer to chapter 3 to use the MacroPath software.

2.5.7. Installation only for customizable models

For customizable models, the following parts will be shipped disassembled. Upon installation, the customer can choose where to mount them, following the colors below.
On the instruments the possible attachment points for the various accessories will be indicated (with arrows):

- Pink: shower tap support
- Blue: fixed magnetic bar
- Green: shelf

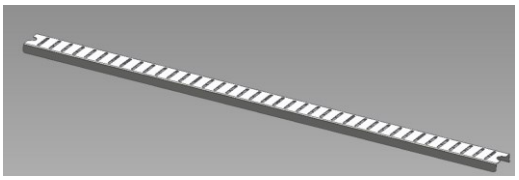
An example is shown below.

2.5.8. Parts to be assembled

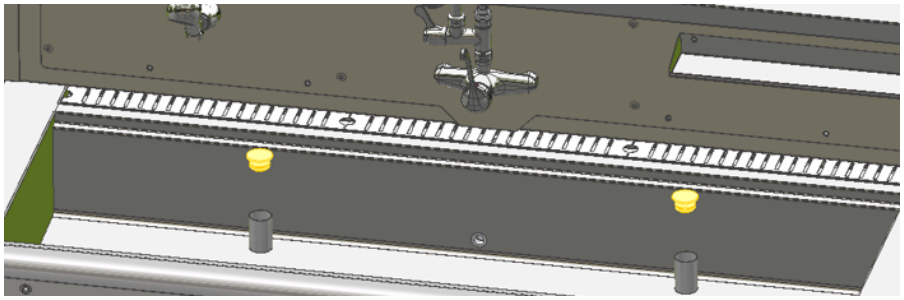
For letters that refer to instrument codes, see chapter 1.3.1.

Drain filters
Place one drain filter in the washbasin of the instrument and the second one in the large basin.

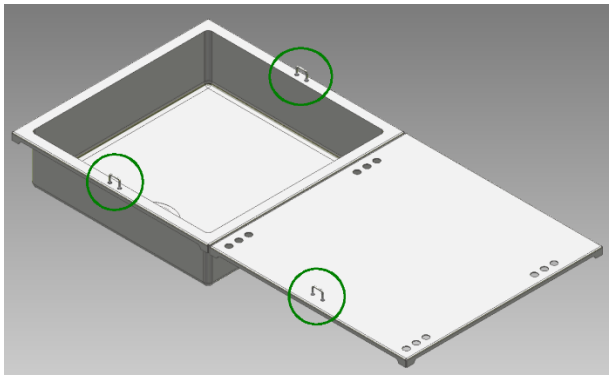
Ventilated surface filter
Position the ventilated surface filter and then the grille (1X if initial code 150 and 3X if initial code 180), as shown in the following pictures.



Work surface
Position the supplied work surfaces in the specific housing, referring to the pictures below. Insert the grid plate with cutting board near the camera and, for instruments with a letter D in code, check that the position of the fixative drain funnel is near the relative tank. Remove the cap indicated below only at the position of the funnel.



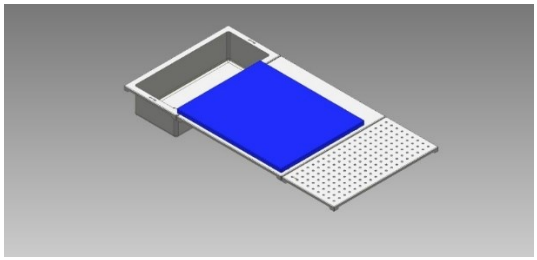
This is followed by configurations of the grid plates in the default models, refer to chapter 1.3.1.
Each grid plate is fitted with the hooks shown in the following figure to allow them to be extracted.



The previous figure displays 3 holes corresponding to three different positions of the cutting board.

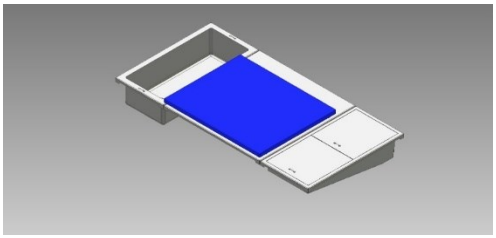
Grid plate configurations by model:

MALPIGHI 150
From left to right:
- washbasin 250mm with cover, CODE 109202,
-grid plate 500mm with cutting board 500mm, TOTAL CODE 109198,
-grid plate 250mm. CODE 109185.



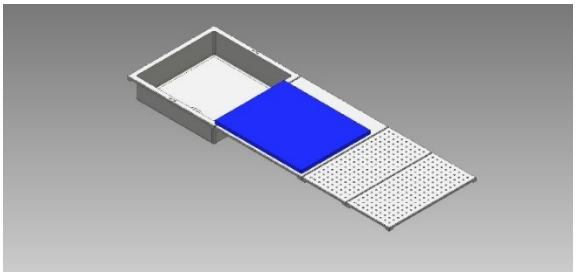
The figure below shows the washbasin cover.

GOLGI 150 and ROSAI 150
From left to right:
- washbasin 250mm with cover, CODE 109202,
-grid plate 500mm with cutting board 500mm, TOTAL CODE 109198,
-fixative drain funnel 250mm with covers. CODE 109216.

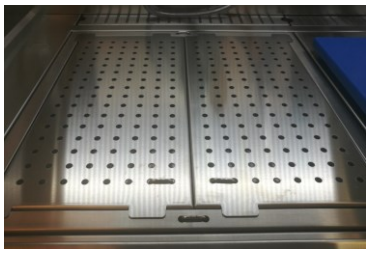


The figure below shows the washbasin cover.

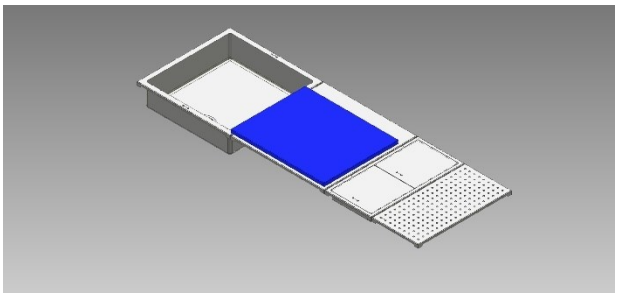
MALPIGHI 180
From left to right:
-washbasin 500mm with two covers, CODE 109206,
-grid plate 500mm with cutting board 500mm, TOTAL CODE 109198,
-2X grid plates 250mm. CODE 109185.



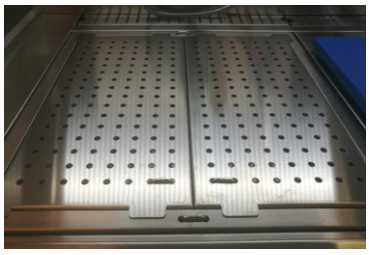
The following figure shows the two covers of the washbasin.



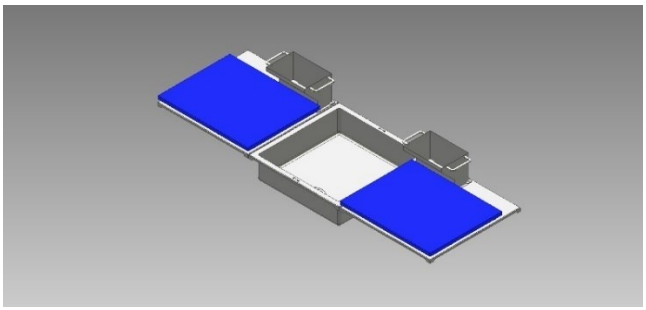
GOLGI 180 and ROSAI 180
From left to right:
-washbasin 500mm with two covers, CODE 109206,
-grid plate 500mm with cutting board 500mm, TOTAL CODE 109198,
-fixative drain funnel 250mm with covers, CODE 109216.
-grid plate 250mm. CODE 109185.



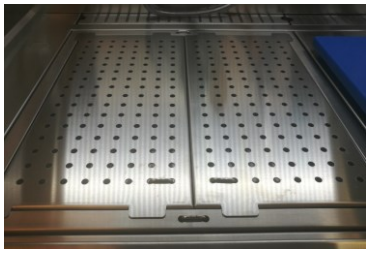
The following figure shows the two covers of the washbasin.



VIRCHOW
From left to right:
-left grid plate 500mm and cutting board 500mm and funnel, and funnel including caps (for funnel or for surface if no funnel is used) TOTAL CODE 109213
-washbasin with two covers, CODE 109206,
-right grid plate 500mm and cutting board 500mm and funnel, and funnel including caps (for funnel or for surface if no funnel is used) TOTAL CODE 109211

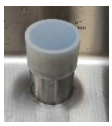


The following figure shows the two covers of the washbasin.



The following image shows the funnel.

FUNNEL CODE: 109659

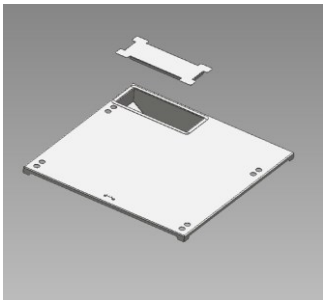
If the funnel is used, the fixative drain closing cap (CODE 109108)  must be replaced with the perforated fixative drain cap (CODE 109354)  (2 of them for letter D) which must be pushed all the way on.

If the funnel for the fixative drain is used, then the perforated caps shown above must also be used.

When the funnel is not in use, it is recommended to keep it closed with its lid shown under CODE 109660.

If you do not wish to use the funnel, you may apply the supplied funnel cap as shown in the following image.

CODE: 109661



2.5.9. Connection to the hydraulic system – Water inlet

Connect a suitable pipe to each of the two 1/2'' female fittings at the pressures indicated in this manual. Connect the hot water to the inlet marked red and connect the cold water to the inlet marked blue. If you only want to use one of the two inlets, plug the unused inlet with the supplied cap.

Maximum pressure 0.6 bar. The water connection points move with the work surface, therefore use pipes suitable for movement.

Milestone suggests mounting a tap upstream of the water inlet if the hood needs to be accessed for maintenance.

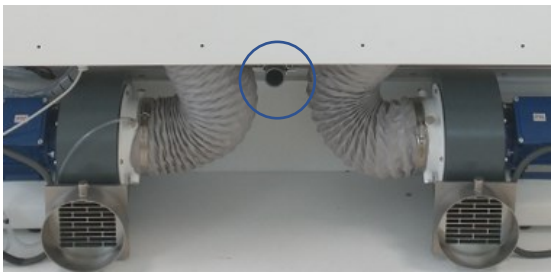
If pressure exceeds the data indicated in this chapter, use a pressure regulator, like the one indicated in the optional parts in chapter 5.20.
Fluid temperature MIN: +2°C MAX 52°C.

Check that there are no water leaks owing to vibrations during transport, in the final section of the tap.

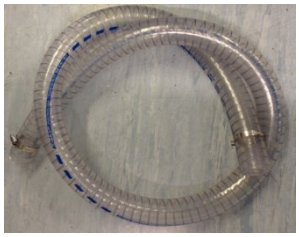
Milestone suggest using a water softener to avoid scale deposits and mounting a tap upstream of the water inlet.

2.5.10. Connection to the hydraulic system – Water drain

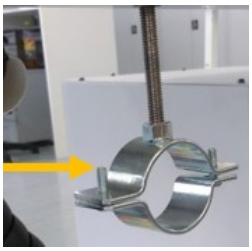
Wastewater connection (back of the instrument):



Connect the 5m long flexible pipe Ø40mm to the instrument drain, adjusting its length and tighten the strap.



After mounting the pipe, insert it into the relevant support hook.



Connect the opposite end to the laboratory's drain.

The basin underneath the work surfaces is connected to the drain.

The drain system is not equipped with siphon.

The laboratory's wastewater drain must be lower than 40cm to ensure optimal drainage. If a Waste disposal instrument is used, see chapter 5.10.

Make sure that the drain pipe has a slope of approximately 10cm per meter (instrument at minimum height).

Do not plug the basin drain.

Do not use the taps if the drain is clogged. Contact Customer support.

2.5.11. Connection to the fume extraction system – Active hood (letter A)

For letters that refer to instrument codes, see chapter 1.3.1.

This chapter describes the connection of UltraGROSS with active hood (letter A) to the fume extraction system. The figure illustrates where to connect the supplied Ø160mm pipes. Then carefully tighten the strap so that fumes do not escape (pressurized zone). The figure refers to the rear side of the instrument. Connect the opposite ends to the laboratory's fume extraction system.

If the laboratory fume extraction system has not two 160mm inlets, the coupling to connect the two pipes to a 200mm outlet can be used (refer to the optional parts chapter 5.18). Shorten the pipes to keep the exhaust duct as linear as possible. Avoid bending the pipe at excessive angles.

The instrument is not equipped with a "blowback" system. Supply it with suitable systems should the extraction system have back pressure situations.

It is necessary to connect the instrument to a fume extraction system.
The following are connected to the ventilation system: the work surface and the work surface rear grille.

2.5.12. Connection to the fume extraction system – Passive hood (letter P)

For letters that refer to instrument codes, see chapter 1.3.1.

This chapter describes the connection of UltraGROSS with passive hood (letter P) to the fume extraction system.

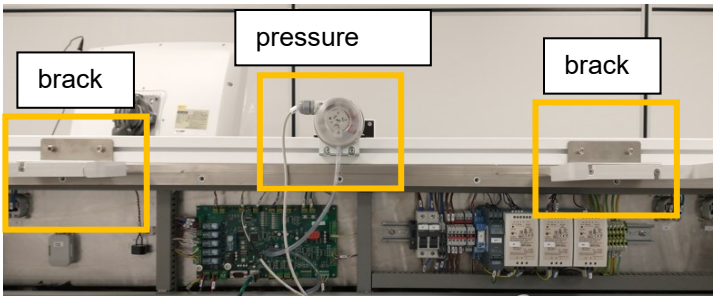
The passive hood has no motors, cover or lower casings.

If internal charcoal filters have been purchased (chapter 5.6 or 5.5) refer to their assembly before continuing with these instructions.

The figures refer to the rear part of the instrument.

Remove the rear casings of the ventilation instrument and of the electric panel.
Connect the pressure switch using the two supplied screws as shown below.

Mount the two brackets for the ducts using the supplied screws as shown below.



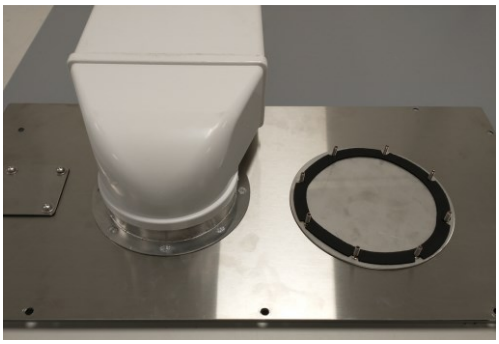
Set the anemometer on the instrument's work surface, as shown in the figure.

Insert the pressure switch and anemometer cables into the opening on the crosspiece shown in the following figure and connect them respectively to the circuit board. If supplied with camera, disassemble the black casing and put it back on after having connected the following connectors.
Pressure switch inlet: X14
Anemometer inlet: X11

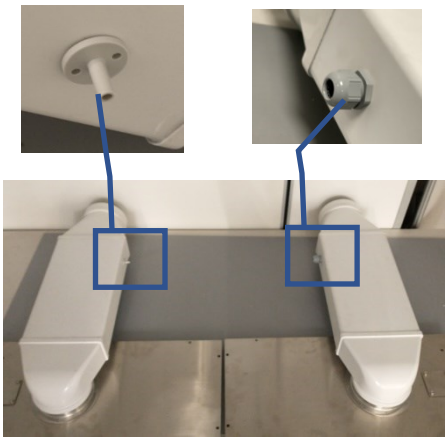
Mount the black casing paying ATTENTION not to crush the camera cable and relative cables going to the camera.

Close the rear panel of the electric panel.

At the workbench, remove the two rear casings using the supplied 8-10mm wrench and mount the exhaust ducts using the specific screws and supplied spanner. The figure shows a single cap just removed from the casing and a mounted duct; repeat the same operation for the second cap.

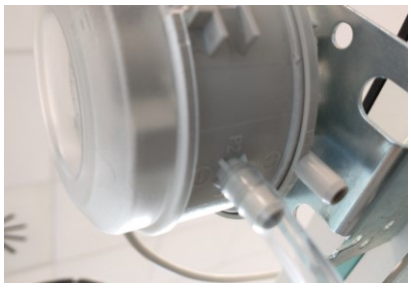
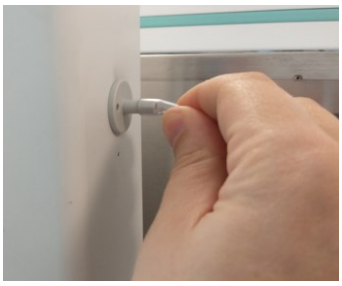


The ducts must be mounted according to the position indicated in the image below.



Fix the panels with exhaust ducts to the instrument, maintaining the position shown in the previous image.

Connect the supplied tube to the pressure switch on one side (inlet “-“) and on the other side to the duct mounted on the left.
Avoid crushing the tube.

Insert the anemometer with the arrow pointing upwards as shown below into the duct mounted on the right, pushing it all the way in. Tighten the nut so that air does not escape.

Connect the supplied Ø160mm pipes. Then carefully tighten the strap so that fumes do not escape. The figure refers to the rear side of the instrument. Connect the opposite ends to the laboratory's fume extraction system.

If the laboratory fume extraction system has two 160mm inlets, use the coupling supplied as an optional part to connect the two pipes to a 200mm outlet (refer to chapter 5.18).

Shorten the pipes to keep the exhaust duct as linear as possible. Avoid bending the pipe at excessive angles.

The instrument is not equipped with a “blowback” system. Supply it with suitable systems should the extraction system have back pressure situations.

It is necessary to connect the instrument to a fume extraction system.
The following are connected to the ventilation system: the work surface and the work surface rear grille.

2.5.13. Connection to the fixative loading system

For letters that refer to instrument codes, see chapter 1.3.1.
Only for letter F.

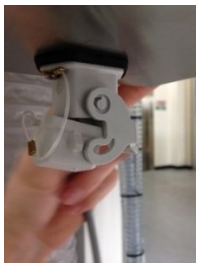
In UltraGROSS, you may load new fixative into the containers in which the baskets are positioned with the cassettes of the specimens just cut, in order to initiate the fixation process at room temperature.

Fixative loading is controlled by the supplied pedal, as explained below.

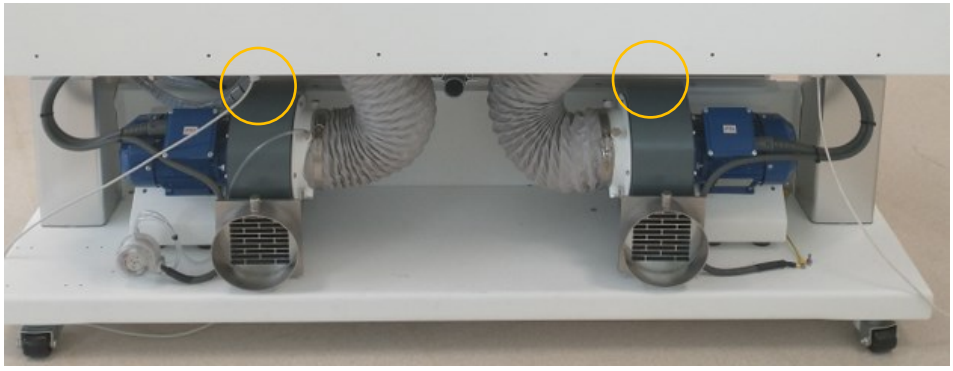
This connector is used for attaching only the fixative loading pedal.

The connector can be either on the right or left of the instrument (double letter F in code).

Take the connector on the "fixative loading" pedal (picture below left) and connect it to the connector shown above after removing the cap (figure below right).

The connector is located at the bottom right and left as shown below.



NEW FIXATIVE TANK

The tank is not supplied by Milestone.

The maximum dimensions of the new fixative tank are: WxDxH 148x195x235mm .

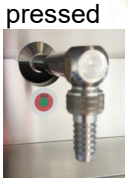
The supplied cap has S55 type threading. If it is not correct for the type of tank used, buy an appropriate adapter (not supplied by Milestone).
Insert the tank as shown in the figure.
Adjust the length of the tank's white dip tube based on the dimensions of the tank itself. The figure has a connection example.
Refer to chapter 5.51 for Politainer Adapters kit for fixative loading system GL38 (f) – S55 (m) CODE 109020.

As shown in the figure, two pipes are channeled to the cap.
Screw the cap of the new tank.

Only load the reagents shown in chapter 1.4.

Unscrew the cap to replace the tank when empty, then reposition the cap properly.

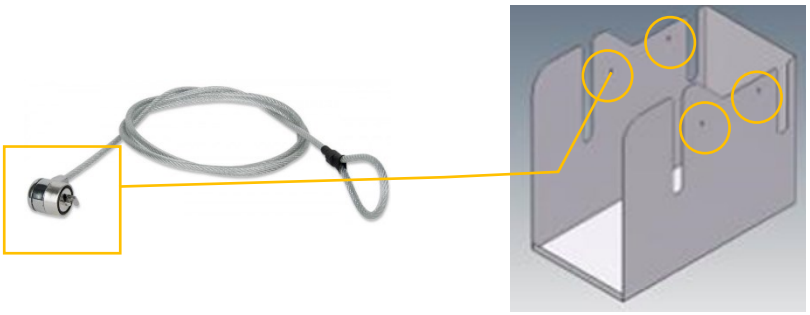
Avoid crushing the pipes.

When the pedal is pressed  , the fixative passes through one of the two pipes to then come out of the specific dispenser  on the front panel of the instrument, marked with the supplied symbol 

(only for Formaldehyde).
The second pipe is connected to the ventilation system.

The figure shows how to plug the tank with a specific stop by using the knob.

You may use the metal tank protection cable supplied with the instrument.
Pass the cable through the handle of the tank and then into the slot of the cable to form a noose. Insert the pin into one of the four specific slots of the tank holder, as shown below.
Turn the key to lock/unlock it (store the key in a safe place).



2.5.14. Connection to the fixative drain system

For letters that refer to instrument codes, see chapter 1.3.1.
Only for letter D.

In UltraGROSS you may empty the fixative from the containers before specimens grossing.

10L TANK FOR USED FIXATIVE
Position the supplied empty 10L waste tank on the tank support, leaving the drain plug in the front as shown in the photo.

Positions different than those mentioned above could damage the used fixative level sensor.

Maximum dimensions of waste tank: WxDxH 200x210x325mm.

Position the fixative waste tank on the tank support in front of the new fixative tank.

Screw the fixative drain plug to the supplied 10L empty tank.
The cap thread on the tank is S55.

Check that the funnel is positioned below the fixative dispenser on the work surface.
The figure shows how to plug the tank with a specific stop by using the knob.

There is a filling sensor on the cap of the waste tank. When the maximum level is reached, a beeper and visual indication are triggered both on the sensor and on the terminal of the instrument, as explained in chapter 2.6.

When the software on the terminal communicates it, empty the tank in an appropriate container according to current regulations. NEVER drain into the tank when the software indicates that it is full, as this might lead to fluid leakage.
When replacing the used fixative tank, pay attention not to wet the UltraGROSS lifting columns.

Only drain the reagents shown in chapter 1.4.

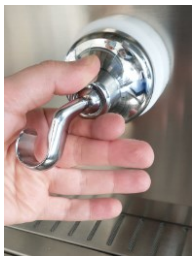
Unscrew the lid to empty the tank and reposition it properly.

Before replacing the used fixative tank, raise the work surface all the way to allow residual fixative in the pipe to flow out into the tank.

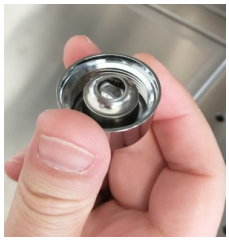
2.5.15. Shower tap installation

The instrument will be supplied with the support for the shower tap mounted on the left. You may fasten the shower tap support in the preferred position (left, right or middle) near the washbasin.
Follow the steps below:

- Turn the shower tap support anti-clockwise.

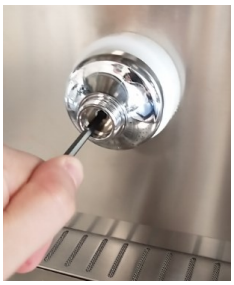


- Disconnect the part shown below.



- Disassemble the spring.

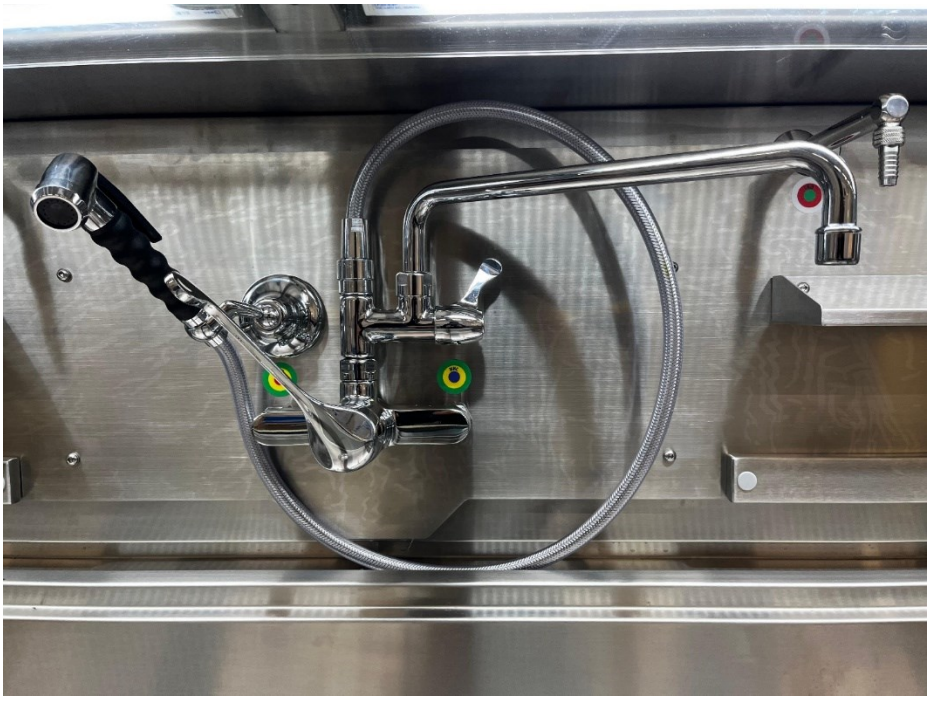
- Unscrew the shower tap support and the shim with the supplied Allen wrench.



- Mount the instrument in the desired position, repeating the above procedure in reverse order.

2.5.16. Installing second tap

The second tap CODE 109266 is included in the VIRCHOW version, while it is optional in other instruments. Refer to chapter 5.28 for the installation procedure.



2.5.17. Switching on the UltraGROSS instrument

You may now connect UltraGROSS to the power supply by means of the specific cable at the back left side of the instrument (front view).

Press the luminous button to switch on the instrument, located on the front left panel, by moving it to ”I”. This button must also be used to turn off the UltraGROSS (“O”).

2.5.18. Installation checks

Refer to the installation documents. If not available, please contact our Customer support at: customersupport@milestonemedsrl.com.

Before switching on instrument ventilation with active hood (letter A):

- Check that all the alarms, reported in chapter 2.6, work properly.
- Check that the safety shield is intact.
- Check that the coupling of the safety shield is in the “lock” position.
- Check that the Ø 160mm air outlet pipes are intact.
- Check that the plastic ducts are intact.
- Check the position of the anemometer.
- Check the correct fixing of the front baffle and of the extraction panel.
- Check tightening of the screws on the rear panels.
- Check that the pressure switch pipe is not crushed and is connected.
- Check that there are no air leaks along the ducts.
- Check that both motors work properly.

Switch on ventilation using the membrane keyboard (see chapter 2.6), remove whatever is not strictly necessary on the work surface and using the anemometer/barometer, check that:

- Speed is constant along the entire length of the front opening (with the maximum deviation of 0.1m/s).
- The average speed reaches at least 0.5 m/s and does not exceed 1m/s (thresholds set in General settings - see chapter 2.6).

Before switching on instrument ventilation with passive hood (letter P):

- Check that all the alarms work properly.
- Check that the safety shield is intact.
- Check that the coupling of the safety shield is in the “lock” position.
- Check that the Ø 160mm air outlet pipes are intact.
- Check that the two “passive hood” plastic ducts are intact.
- Check the position of the anemometer.
- Check the correct fixing of the front baffle and of the extraction panel.
- Check tightening of the screws on the rear panels.
- Check that the pressure switch pipe is not crushed and is connected.
- Check that there are no air leaks along the ducts.

Switch on ventilation of the external motor, remove whatever is not strictly necessary on the work surface and using the anemometer/barometer, check that:

- Speed is constant along the entire length of the front opening (with the maximum deviation of 0.1m/s).
- The average speed reaches at least 0.5m/s and does not exceed 1.1m/s (thresholds set in Factory settings - see chapter 2.6)

If one of the above indicated points is not confirmed, check the fume extraction system outside of the instrument.

Lastly, UltraGROSS must be placed in the final position for use.

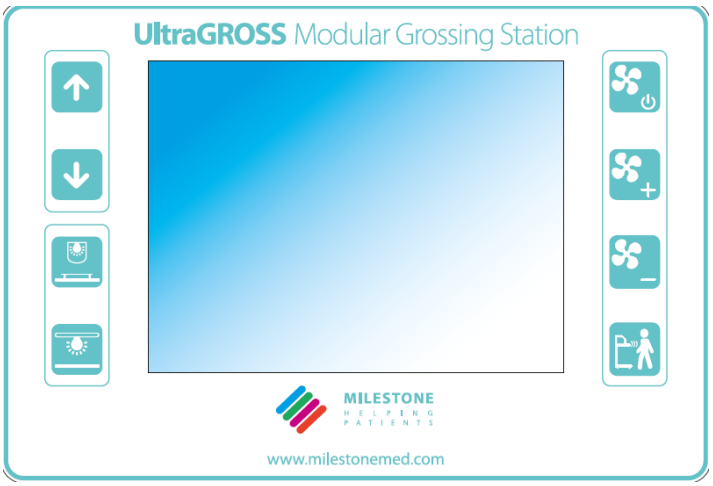
Unscrew the levelling feet to lift the five casters off the ground. Then make sure that the instrument is level on a horizontal surface.

The installation part has finished successfully.

2.6. Description of the instrument's software

Work with UltraGROSS ONLY with software running.

The following figure shows the membrane keyboard that allows you to control the main functions of the instrument, together with the software installed on the terminal placed in the middle, as explained below.



The membrane keyboard buttons are described below.

These buttons allow you to raise/lower the height of the work surface.

When the work surface is in movement, an up/down arrow 

on the terminal flashes with a beeper; these indications may be removed if not required.

The system blocks for 3 seconds at 10cm from the lower stroke end position to then resume at reduced speed (downward movement).

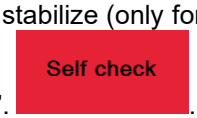
Press the up and down keys simultaneously to realign the columns. Keep the keys pressed until the lower stroke end.

The work cycle of the lifting system is 10% (10%ON and 90%OFF).

Pay attention to crushing during the up/down movement of the instrument, especially in the zones below the table. Make sure that no one can be struck.

This button allows you to switch the camera light on/off. If there are several cameras, the button switches them all on.

This button allows you to switch the light on the work surface on/off.
The camera lights can be turned on only if the PC is on.

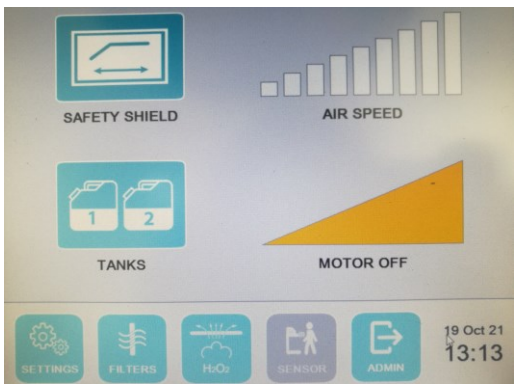
This button switches ventilation on/off (if the operator presence sensor is not used). When ventilation is on, the instrument cannot be used for 10 seconds because a ventilation control is carried out to check that everything works properly and to allow the air flows to stabilize (only for letter A). During these seconds, the screen displays in red “Self check, please wait”. 

. When ventilation is on, the main page displays the ventilation speed and the power level used (power is only shown for letter A), as explained below.

These buttons respectively increase/decrease the ventilation level. The main screen displays the ventilation speed variations and the power output when these buttons are pressed (only for letter A). It is possible to increase or decrease power more rapidly by keeping the button pressed for over two seconds.

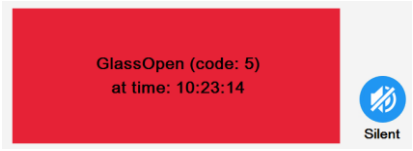
This button activates/deactivates the operator presence sensor, if enabled in the software (only for letter A). If activated, when it perceives the presence of the user, it automatically switches on ventilation. When the operator is absent for 15 minutes (value editable in the software), the utilities automatically switch off.
The software settings also allow you to associate switching on/off of the lights to the operator presence sensor. The status bar has an icon of the Operator presence sensor that can be: Active (green – with function enabled and sensor on), Inactive (grey – with function enabled and sensor off) or Hidden (with function disabled).
The following photo shows the operator presence sensor. This sensor detects operator presence up to a distance of approximately 130cm away.

The following is a description of the software HOME PAGE (only for letter A) shown in the following photo. For letter P, the power triangle will not be present.



SAFETY SHIELD

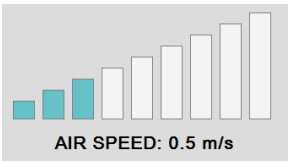
Indicates the position of the safety shield on the work surface, which must be kept closed. If its position is correct (glass closed), the color is green, otherwise it turns red to warn the operator and the following pop-up with beeper appears. During the first minute the beeper rings slowly, then it becomes more frequent.



If the safety shield is closed, the message closes on its own and turns green again. Pressing “Silent” stops the beeper and the following warning button remains on the status bar for the operator  which will only disappear when the shield is closed.

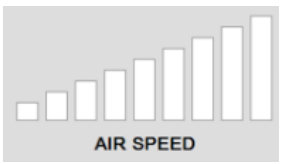
The following figure shows that, when the safety shield is open, the air speed indication also turns red (as explained below), as it could be different than that indicated.

AIR SPEED



Indicates the instantaneous front air speed. The numerical value in the figure is only an example.

If the motor is off, the columns are not colored and no speed is displayed.



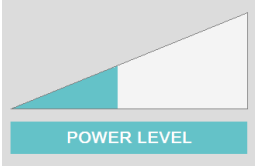
If the speed malfunctions, an alarm appears with a beeper that can be silenced. The columns turn red to warn the operator, as in the example below.

If the speed returns within the normal operating range, the message closes automatically and returns green. Pressing “Silent” stops the beeper and the following warning button remains on the status bar for the operator  which will only disappear when the error has been cleared.

In this condition, the speed value displayed in red is not real due to the triggered alarm. The numerical value in the figure is only an example.

In some cases, the power can be 100% but the ventilation columns might not all be colored due to pressure drops of the fume exhaust system.

POWER LEVEL



Indicates the power level of the motor (only for letter A). Depending on the color of the triangle, you know whether it is possible to increase or decrease it.
If the motor is off, “Motor OFF” will be displayed in place of Power level and the triangle will be yellow.

To increase or decrease power, the respective buttons on the membrane key  shown above must be pressed.
Increasing or decreasing motor power, will increase or decrease the surface air speed displayed above.

There is a brief wait between the power increase and the speed displayed as the fluxes must stabilize.

When power is set at minimum, the relative power level triangle will nonetheless remain colored as the motors never go to zero.

TANKS

The TANKS button indicates the status of the used fixative drain tanks (if present, see chapter 2.5.14 for their installation).

When one or both tanks are full, the following pop-up with beeper appears and the button turns red 

. An example is shown in the figure.

Pressing “Silent” without emptying the tank stops the beeper and the following warning button remains on the status bar for the operator  .

Pressing TANKS opens a new page that shows the status of the used fixative tanks. A tank is full when the color is red. The message resets automatically when the tank is emptied and the color returns to green. In the following example, the right tank is full.

Do not empty fixative into a full tank.

There is the following status bar at the bottom of the home page.

Here is a description of the individual buttons.

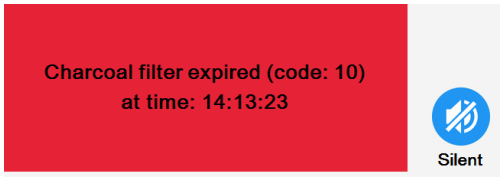
This button grants access to the software settings, explained below.

This button manages the expiration of the filters, if present: Charcoal, HEPA and Internal Charcoal.

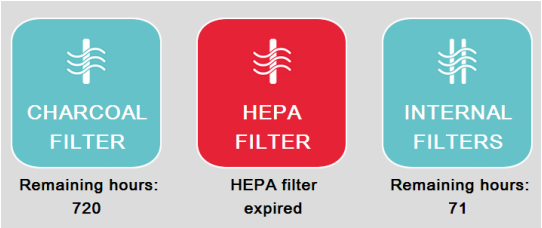
The filter control is disabled by default. When installed, enable the filters present in the general settings of the software (chapter 2.6.5).

When a filter has expired, the following pop-up appears and the button turns red 

. An example is shown in the figure.



Pressing the red FILTERS button opens another page where you can see which filter has expired; in the following example, the HEPA filter has expired.



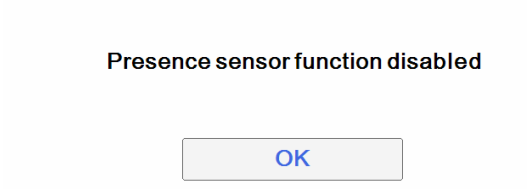
Disabled filter icons will be grey.

In the General software settings, as explained further on in chapter 2.6.5, you may manage the filter expiration date and reset the counters after having replaced them. If there is no filter, the Filters button will be grey.

This button, if present, allows you to start the decontamination cycle. Please refer to chapter 5.31. If the VIRO CLEAN EASY device is not available (as it is an optional part), the button is not enabled.

Operator presence sensor. This icon can be:
- Green: function enabled, operator presence sensor on.
- Grey: function enabled, operator presence sensor off. DEFAULT setting.
- Hidden: function disabled.

To enable/disable this function, you must enter the General software settings as explained further on in chapter 2.6.5.
When the function is enabled, you may switch the sensor on/off for pressing the dedicated button on the membrane keyboard, as described above  .
When the sensor is on and it perceives the presence of an operator, ventilation switches on automatically. In the General software settings you may also associate automatic switching on of the lights to that of ventilation by means of this sensor.
If the sensor is active with ventilation and lights on, pressing the key on the membrane keyboard to switch off ventilation or the lights will automatically switch off the sensor and return to working in manual mode. The following pop-up will appear on the screen as a warning:

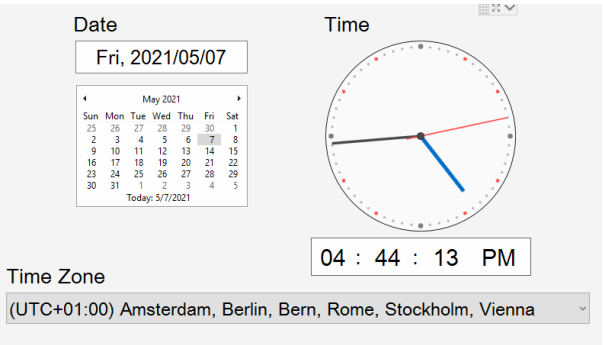


When the sensor is active, ventilation and the lights will switch off after 15 minutes without operator presence recorded. This time can be modified in the General software settings, as shown below. The counter resets every time an operator's presence is detected.

This button shows the user logged into the software (in this example the SERVICE user). Pressing this button runs the logout, necessary to enter with one's credentials, as explained below. Refer to chapter 2.6.4 for management of the users.

16 Nov 20
16:00

Current Date and Time (the figure shows an example). Pressing this area opens a dedicated screen to edit date, time and time zone. There is an example below.



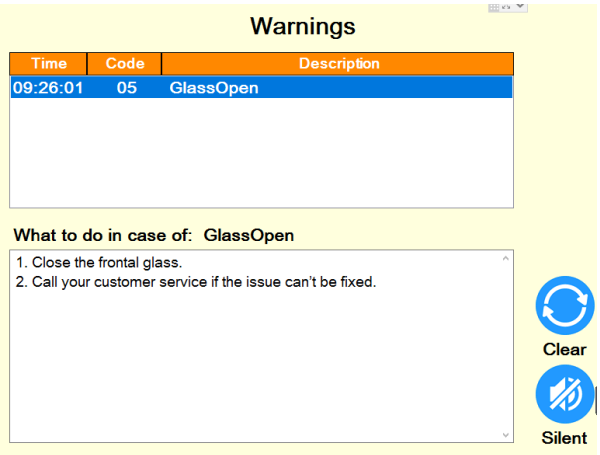
The Milestone instruments connected to MileWATCH Server automatically update the date and time, i.e. they show the date and time of the device on which the MileWATCH Server is installed. In this case, it will not be possible to press Date and Time to edit them.

2.6.1. Alarms/Warnings for the operator

The following is a description of the alarms/warnings that can appear when working with UltraGROSS and the relative instructions for the operator. Only enabled users can Reset the alarms as explained in chapter 2.6.4. When an alarm is triggered, a red pop-up appears that shows the alarm name, relative number and time with “Silent” button. The picture below shows an example:

You may remove the option of muting the alarms in the general software settings for all users or you may eliminate the beeper from all alarms (chapter 2.6.5).

Pressing “Silent” stops the beeper and the following warning button remains on the status bar for the operator  . Pressing this button opens a dedicated page with the description of the alarms and what the operator needs to do to solve them. If the user is enabled, this page also has the “Clear” button to reset the alarm/warning. The picture below shows an example.
Some are reset automatically when the cause is eliminated.



The following is a list of all the alarms/warnings that can be triggered followed by instructions on the previous screen given to the user to try to solve them.

- **Communication error fault – CODE 1**

  1. Press 'Clear' to reset the alarm.
  2. Restart the system.
  3. Contact customer support if the problem cannot be solved.

- **Faulty left exhaust – CODE 2**
  (this appears for example when outside of the in Factory settings thresholds)

  1. Press ‘Silent’.
  2. Check the air speed thresholds in General settings.
  3. Press + and – to set the correct air speed (only if there is a motor).
  4. Press 'Clear' to cancel the alarm.
  5. Contact customer support if the problem cannot be solved.

- **Faulty right exhaust – CODE 3**
  (this appears for example when the pressure switch does not work properly)

  1. Press ‘Silent’.
  2. Check the air speed thresholds in General settings.
  3. Press + and – to set the correct air speed (only if there is a motor).
  4. Press 'Clear' to cancel the alarm.
  5. Contact customer support if the problem cannot be solved.

- **Motors thermal overload – CODE 4**

  1. Press 'Clear' to reset the alarm.
  2. Contact customer support if the problem cannot be solved.

- **Glass Open – CODE 5**

  1. Close the front shield.
  2. Contact customer support if the problem cannot be solved.

- **Air speed out of range – CODE 6**
  (this appears for example when outside of the in General settings thresholds)

  1. Press ‘Silent’.
  2. Check the Speed thresholds in the General software settings.
  3. Press + and – to set the correct air speed (only if there is a motor).
  4. Press 'Clear' to reset the alarm.
  5. Contact customer support if the problem cannot be solved.

- **Exhaust fault– CODE 7**

  1. Press 'Clear' to reset the alarm.
  2. Contact customer support if the problem cannot be solved.

- **Charcoal filter expired – CODE 10**

  1. Press ‘Silent’.
  2. Call customer support to replace the filter.

- **HEPA filter expired - CODE 11**

  1. Press ‘Silent’.
  2. Call customer support to replace the filter.

- **Internal filters expired - CODE 12**

  1. Press ‘Silent’.
  2. Call customer support to replace the filter.

- **Tank left full – CODE 13**

  1. Wear the dedicated PPE.
  2. Lift the instrument to the maximum height.
  3. Empty the full tank.
  4. Contact customer support if the problem cannot be solved.

- **Tank right full – CODE 14**

  1. Wear the dedicated PPE.
  2. Lift the instrument to the maximum height.
  3. Empty the full tank.
  4. Contact customer support if the problem cannot be solved.

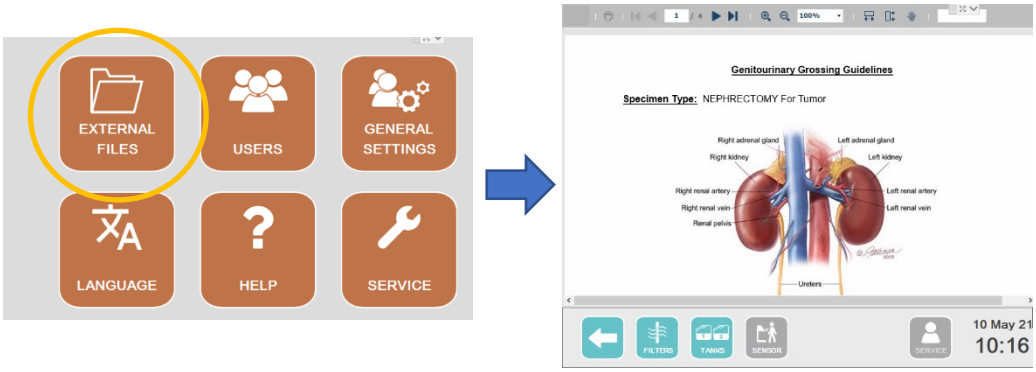
- **Maintenance required – CODE 15**

  1. Press ‘Silent’.
  2. Call customer support for the required maintenance.

2.6.2. External files

This function allows you to view PDF files with a maximum of 10 pages or videos (mp4, 12 fps) on the screen. For example, during sampling, it will be possible to view the SOPs (standard operative procedures).

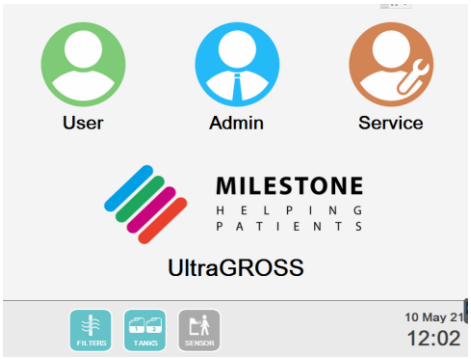
To have access, press “Settings” on the status bar of the main screen. Insert a pen drive containing the required file in one of the USB ports of the terminal: the External files button will be enabled. Press it to access the contents of the pen drive and open the desired file. An example is shown below.



At the top of the page, you may zoom in and out and use the “hand” to move within the document.

2.6.3. Log in and log out

The LOG IN screen appears by default when the system is switched on. Press the “Admin” button, enter the password (issued as a separate document provided with the Manual) and press “Enter”.



The home page is open.

Press the arrow  on the status bar to go back to the previous page from any screen.

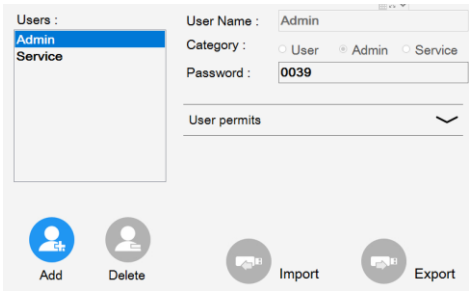
SERVICE log-in is allowed for authorized personnel only.
The **ADMINISTRATOR can access restricted SERVICE functions.**
SERVICE has complete access to all functions.

Refer to the next chapter for management of the users.

2.6.4. Users

To have access, press “Settings” on the status bar of the main screen, and then “Users”.

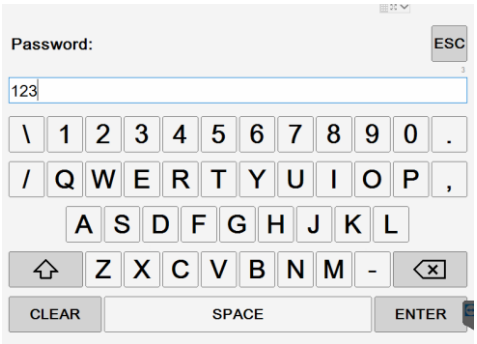
The following page opens displaying the two default users, Administrator and Service.



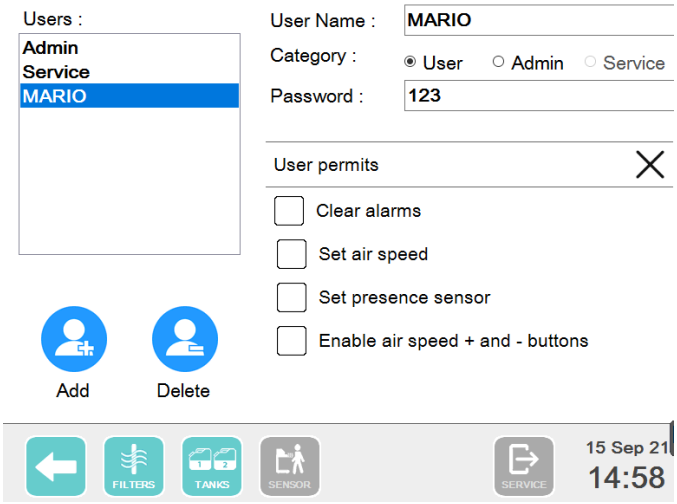
Click on “Add”, a keyboard appears. Enter the new user name and press “Enter”.

Now select and set up the new user choosing:

- “Category”: “User” or “Admin”.
- “Password”: the password of the new user. Click the Password checkbox, a keyboard is displayed as shown below, enter the alphanumerical password then click “Enter”.



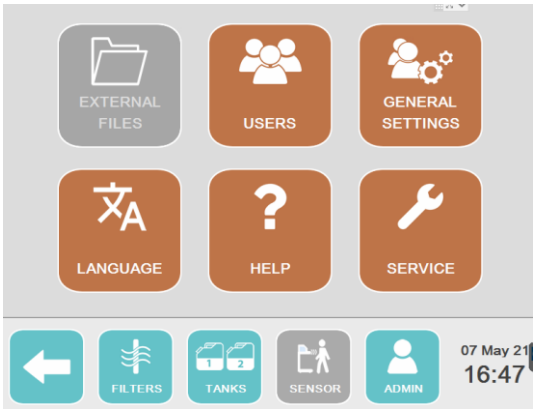
Now enable the permissions to give to the new user by enabling the concerned checkboxes shown in the following figure:



- “Clear alarms”: allows to reset the alarms/warnings by pressing the “Clear” button that appears together with their description.
- “Set air speed”: allows you to access the General software settings (next chapter) and to edit the air speed thresholds, when necessary.
- “Set presence sensor” (only for letter A): allows you to enable/disable the operator presence sensor in the General software settings explained in the next chapter and to switch the sensor on/off during use of the instrument by means of the relative button on the membrane keyboard  .
- “Enable air speed + and – buttons” (only for letter A): allows you to enable use of the + and – buttons on the membrane keyboard explained above, to edit the ventilation power when this is on.

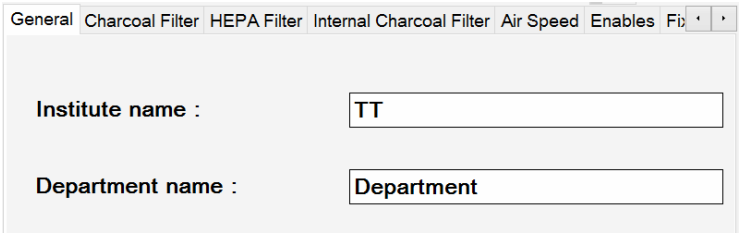
2.6.5. General settings

To have access, press “Settings” on the status bar of the main screen, and then “General settings”.



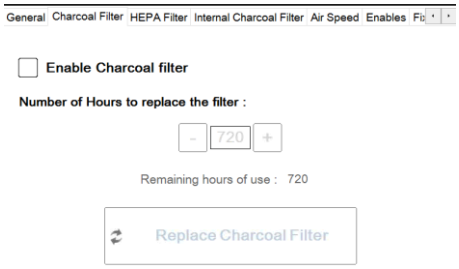
You may open several screens in this section from the tabs at the top of the page:

General



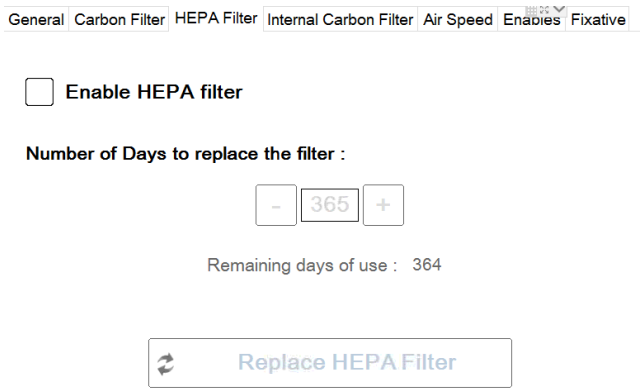
You may enter in the dedicated fields the name of the Institute and the name of the Department where the instrument is installed.

Charcoal filter



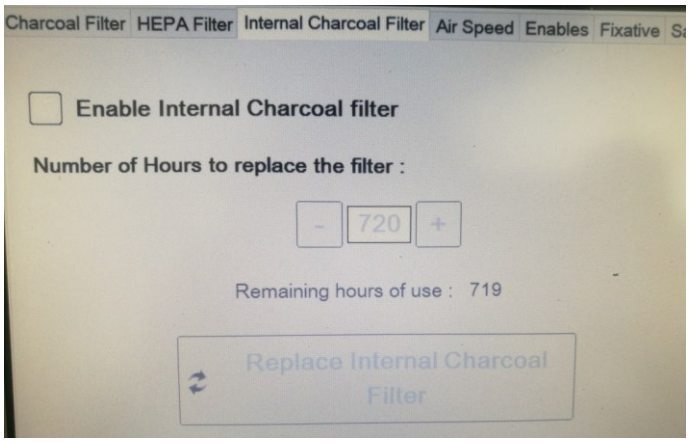
This allows you to enable management of the external Charcoal filter, when included with the instrument. By default, the dedicated checkbox is not ticked.
When enabled, the hours of use of the filter will be controlled. After 720 hours (default value) a warning will be displayed to call customer support and to replace the filter (chapter 2.6.1).

HEPA filter



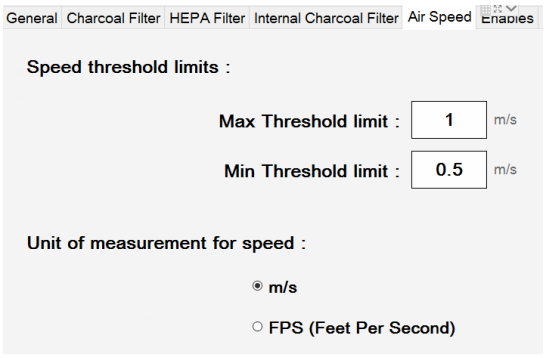
This allows you to enable management of the HEPA filter, when included with the instrument. By default, the dedicated checkbox is not ticked.
When enabled, the days of use of the filter will be controlled. After 365 days (default value) a warning will be displayed to call customer support and to replace the filter (chapter 2.6.1).

Internal Charcoal filter



This allows you to enable management of the Internal Charcoal filter, when included with the instrument (chapter 5.5 or chapter 5.6). By default, the dedicated checkbox is not ticked.
When enabled, the hours of use of the filters will be controlled. After 360 hours (default value) a warning will be displayed to call customer support and to replace the filters (chapter 2.6.1).

Air speed

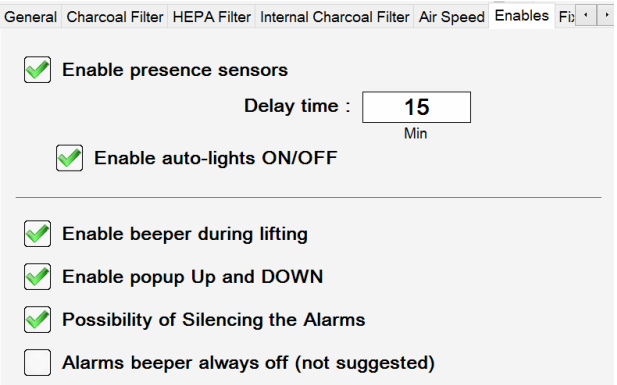


In this section, you may set the maximum and minimum air speed pursuant to current standards. By default, the maximum value is 1m/s, and the minimum 0.5m/s. These values can be edited by the Service, Admin and basic users enabled to do so.
You may not set values lower than 0.3m/s or higher than 1m/s.

If the air speed is out of range during use of the instrument, the following alarm will appear to warn the operator. When it returns within range, the alarm is reset automatically without needing to press any button.

You may change the instrument of measurement from m/s to FPS.

Enables



In this section, you may enable use of the operator presence sensor, which is enabled by default.
If enabled, you may also associate light switch on, enabled by default. You may choose how much time air speed and lights remain on after the operator has left the instrument (default 15 minutes).

Also, by default you may enable/disable an audible (beeper) and visual warning for movement of the surface by using the keys on the membrane keyboard, as shown in the following figure. They are enabled by default.

You may remove the option of muting the alarms for all users (by default the “Silent” button is enabled).

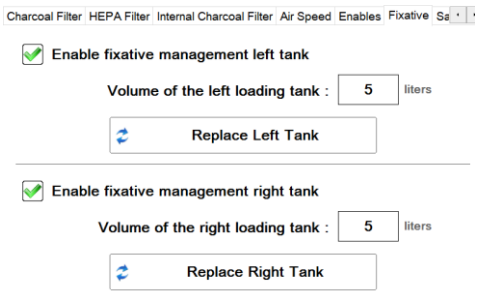
Lastly you may enable a checkbox that allows you to eliminate the beeper associated to each alarm/warning that will only therefore give a visual indication (NOT SUGGESTED).

Fixative

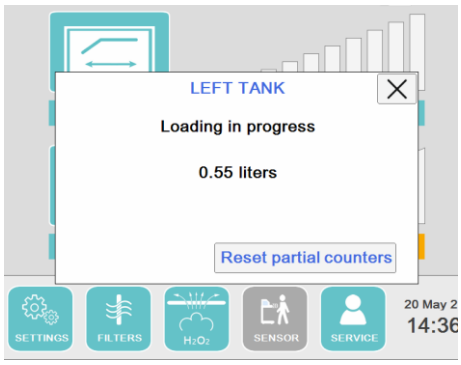
For letters that refer to instrument codes, see chapter 1.3.1.
For letters F and R, the right loading tank is enabled by default.
For letters F and L, the left loading tank is enabled by default.
For double letters F, both loading tanks are enabled by default.

On this page it is possible to:

- enable management of the right loading tank, insert the volume of the new fixative tank (maximum 5 liters, default value) and reset its counters.
- enable management of the left loading tank, insert the volume of the new fixative tank (maximum 5 liters, default value) and reset its counters.



If one or both of the new fixative tanks are enabled, whenever you press the pedal to load the fixative, the indication of the amount of liters dispensed appears on the home page. An example is shown below.

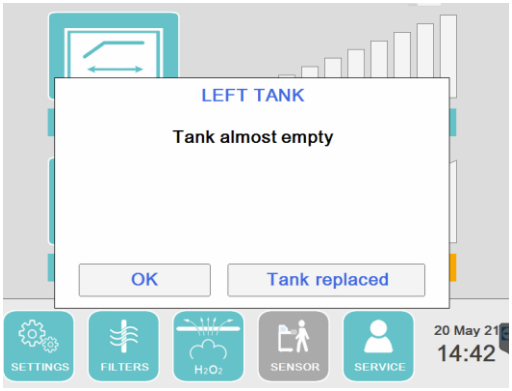


When you release the pedal, you may reset the partial counter by means of the “Reset partial counters” button shown in the previous figure.
This message can be closed by resetting the counter, by pressing X at the top right (without resetting the counter), or it will close automatically after 10 minutes (without resetting the counter).

If the counter is not reset, when the pedal is pressed, the software will resume the count from the previous value.
As can be seen in the figure above, the position of the right or left loading tank is also displayed.

Due to the high volumes dispensed, the maximum error is 150 ml.

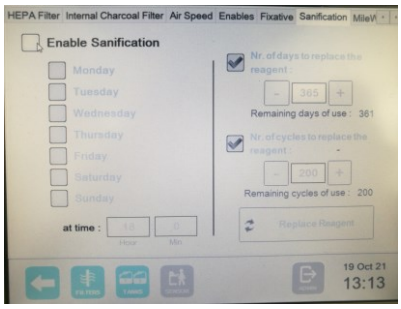
When the tank is about to finish (Reserve value set at 200 ml by default), the following message appears on the home page: Tank almost empty.



You may close the message by pressing OK or else by pressing “Tank replaced” after having replaced the tank. It is also possible to replace the tank by pressing the “Replace tank” button indicated on the “Fixative” page of the General settings.

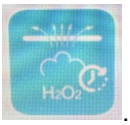
Decontamination

Use this page only if the optional VIRO CLEAN EASY is present, as shown in chapter 5.31.
On this page, you may enable the automatic decontamination program by means of the “Enable Decontamination” checkbox (disabled by default).

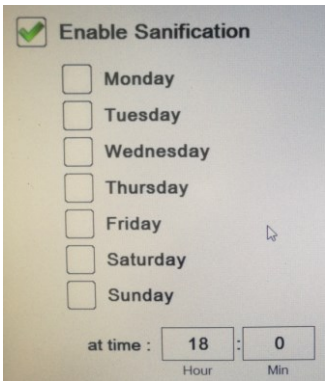


If enabled, the relative button will be active and visible on the status bar, which will start the program when pressed.

Pressing this button only starts the program. If it needs to be interrupted before the end of the cycle (lasting 80 seconds), switch off the VIRO CLEAN EASY device (shown in chapter 5.31) or press the “Cancel” button on the instrument (following image).

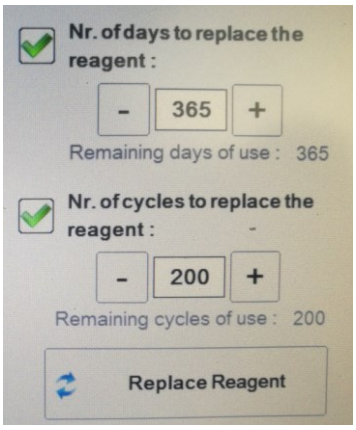
On this page you may program the automatic start of the instrument by choosing the preferred day/days and time; in this case, a small clock will be added to the button on the membrane keyboard 

.



On this page there are settings to control the expiration date of the liquid used with the VIRO CLEAN EASY device (default 12 months from opening) and to control the liquid level in the bottle (default 200 cycles). Refer to chapter 5.32 for details on the SUPRASPOR reagent.
Below these checkboxes there is a “Replace reagent” button to reset the counters after having replaced the expired bottle.

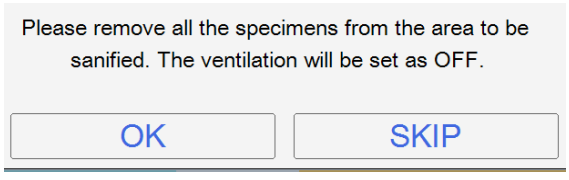
Always work with these controls enabled and never modify the default values.



DESCRIPTION OF DECONTAMINATION CYCLE:

Before the start of the cycle, the instrument will beep.

When the program starts (manual or automatic), the following message appears reminding you to remove whatever is not absolutely necessary from the area and that ventilation must be off.



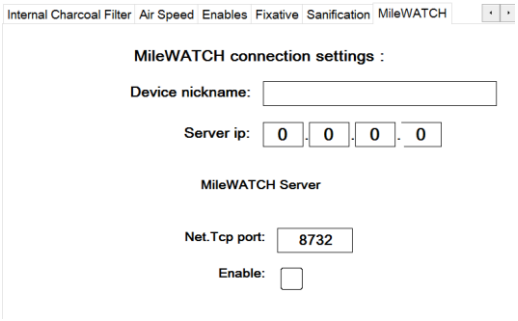
Pressing OK starts the program immediately, whereas if you do not press OK, the cycle will start after 10min. While the program is running, the following message will remain on the screen reminding the user not to use the instrument during this brief period (80 seconds).

If the reagent is expired by date, when the program starts, manual or automatic, the following message appears: “Reagent expired, please replace it. Decontamination might not be effective”.

If the reagent is expired by cycles, when the program starts, manual or automatic, the following message appears: “The tank is empty, please replace it”.
The new program cannot be started until the tank has been replaced.

In both of these cases, the button on the status bar will change from green to red.

MileWATCH
Allows you to remotely manage the log files of the instrument.
To use MileWATCH, refer to chapter 2.6.9 for the settings of the instrument’s IP address (network connection by means of RJ45 connector at the back of the instrument) and to the MM130 operator manual.

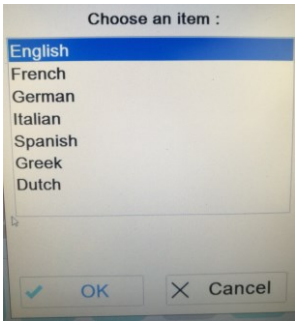


If enabled, the following button will appear  on the top left of the home page showing the MileWATCH connection status by its color.

The Ethernet infrastructure to which the Milestone instruments are connected must be managed so as to prevent any network problem which might jeopardize the integrity of the Milestone instruments. Typical network problems to be avoided include: MAC flooding, broadcast storm, bridge loop or switching loop, denial-of-service attack, electrical discharges, etc. Milestone does not supply any protection against the network events described above. Appropriate management of the data network must be guaranteed to prevent these risks.
A typical solution to these issues is appropriately setting the network to manage MAC-filtering, Shortest Path Bridging (SPB) protocol, Spanning Tree Protocol (STP), Firewall, etc.
The MileWATCH system is not intended to be used directly on the Internet and does not implement any specific protection against dangerous actions which might occur via an Internet connection. Furthermore, it is assumed that the LAN to which the MileWATCH system is connected has appropriate protection against harmful activities that may be carried out via the internet, such as a firewall, antivirus or independent network domains.
MileWATCH cannot operate correctly if a non-IFS Winsock interface is installed and configured as the default Winsock interface instead of the standard Winsock interface provided with Microsoft Windows operating systems.
Do not disable the Ethernet port when the MileWATCH software is active.

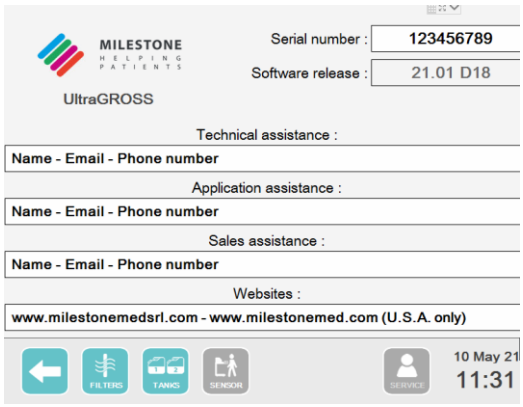
2.6.6. Language

To have access, press “Settings” on the status bar of the main screen, and then “Language”.
The following menu opens with the available languages.



2.6.7. Help

To have access, press “Settings” on the status bar of the main screen, and then “Help” to view the Application and Technical assistance contacts.
The following screen appears.



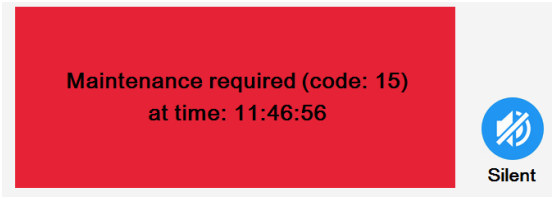
Useful Customer support information is shown at the top right:
- “Serial number” (the instrument’s Serial Number)
- “Software release”

Information, such as name, email and telephone number to contact Support can be viewed in the central section of the page, according to the following categories:
- “Technical assistance”
- “Application assistance”
- “Sales assistance”

This information can only be entered and/or edited by authorized personnel.
There is also a link to access the Milestone website.

2.6.8. Maintenance

The default software controls preventive maintenance which must be carried out by customer support, default 365 days. When UltraGROSS is installed, this counter must be reset by personnel with SERVICE access. When expired, the following warning appears for the operator who must contact customer support.

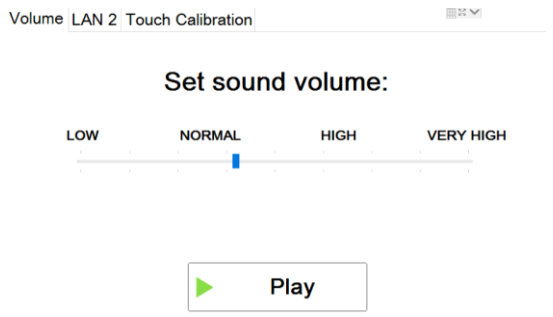


Pressing “Silent” stops the beeper and the following warning button remains on the status bar for the operator  .

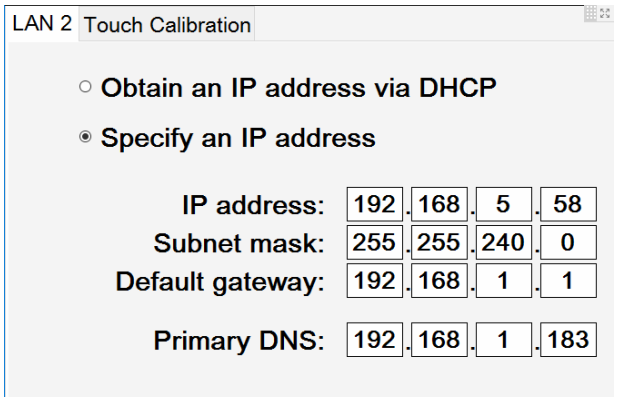
2.6.9. System settings

For system settings, go to the "Service" screen and select "System settings", where it is possible to set: the values for connecting the instrument to the Internet, adjust the volume and calibrate the screen.

Select “Volume” to manage the volume of the speakers outside of the terminal, if present.



Select “LAN2” to enter the network connection data, as in the example below.

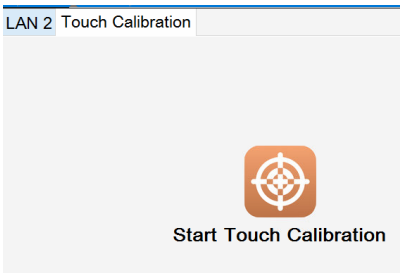


For example:

IP Address	192.168.1.235
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.6
DNS server address	192.168.1.7

Each time you click on a white checkbox, a numpad appears; enter the number required and press “Enter”. Fill all the white boxes with the network data.

Select “Touch Calibration” to open the procedure to recalibrate the screen.



Press the “Configure” button, then select standard or advanced calibration and follow the wizard.
If it is not possible to perform this procedure with the touch-screen, connect a mouse to the USB port of the terminal.
Once completed, press the arrow on the status bar to save the data.

2.6.10. Remote assistance

This procedure explains how to activate Remote Assistance in case of request by the Service Department.
Enter the system as Administrator or Service user.

UltraGROSS must be connected to the Internet to enable Remote Assistance services.

IT IS NOT ALLOWED TO USE ULTRAGROSS WHILE USING THE REMOTE ASSISTANCE CONNECTION.

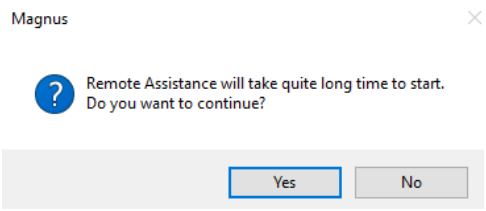
In order to access the remote assistance, the following data must be obtained from the IT Department/Network Administrator:

- a LAN connection with standard RJ45 Ethernet cable and connector with a LAN connection with standard Ethernet RJ45 Ethernet cable (not supplied by Milestone),
- a dedicated IP address and Subnet Mask (strongly preferable to DHCP service); only port 80 must be enabled without limitations,
- LAN gateway and DNS server address,
- at least 150kb/s real transfer rate (uploading and downloading).

When connecting UltraGROSS to remote assistance, the Firewall, traffic data filters and all software must be disabled. Milestone s.r.l. strongly recommends using a static IP address in order to properly set up the LAN protection.

Connect UltraGROSS to the Internet following the instructions in the previous chapter. Only Administrator and Service users are enabled to do so.
Then go to the "Service" screen and select "Remote assistance".

The following message will appear, click "Yes" and wait.



A box appears with an ID and a password to be provided to the remote assistance technician to allow them to connect to the instrument.
At this point remote service works on the instrument.
The Remote Assistance will be disabled by the remote service.

Do not disconnect or restart the instrument during the remote connection.

2.6.11. Events log

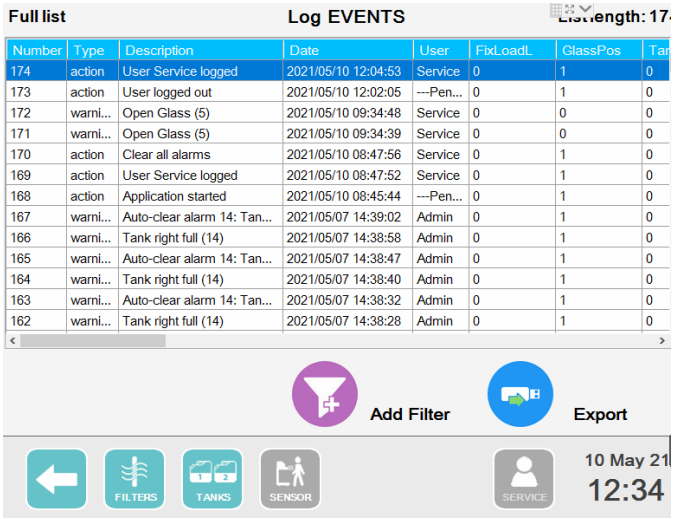
The software has an Events log with useful information for customer support such as alarms, status changes and logged in username.

This function is available only for CUSTOMER SUPPORT personnel and ADMINISTRATOR.

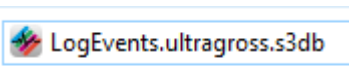
It is possible to export the Events log to a USB key and then to view it with the LogVIEWER program that comes with the instrument.

Insert a USB key into one of the two slots on the right side of the terminal.
Access the "Service" screen and select “Events log”.

The following screen appears where it is possible to export the List of logged Events: press Export to copy it onto the USB key you have just inserted.

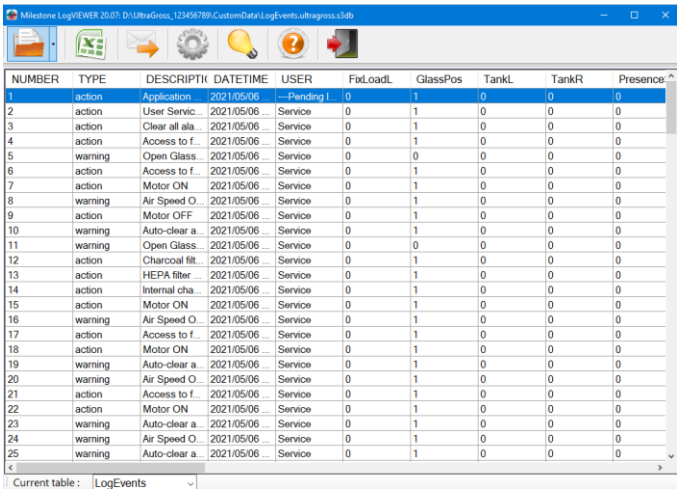


After exporting, insert the USB key in a PC: there is a folder called “UltraGROSS_unit serial number” which contains folder “CustomData” containing the file “LogEvents.ultragross.s3db”.



To open the events log, install the LogVIEWER program on a PC as explained previously.

Now simply double-click the file without needing to open the program. The following is an example of an Events log open on the PC.

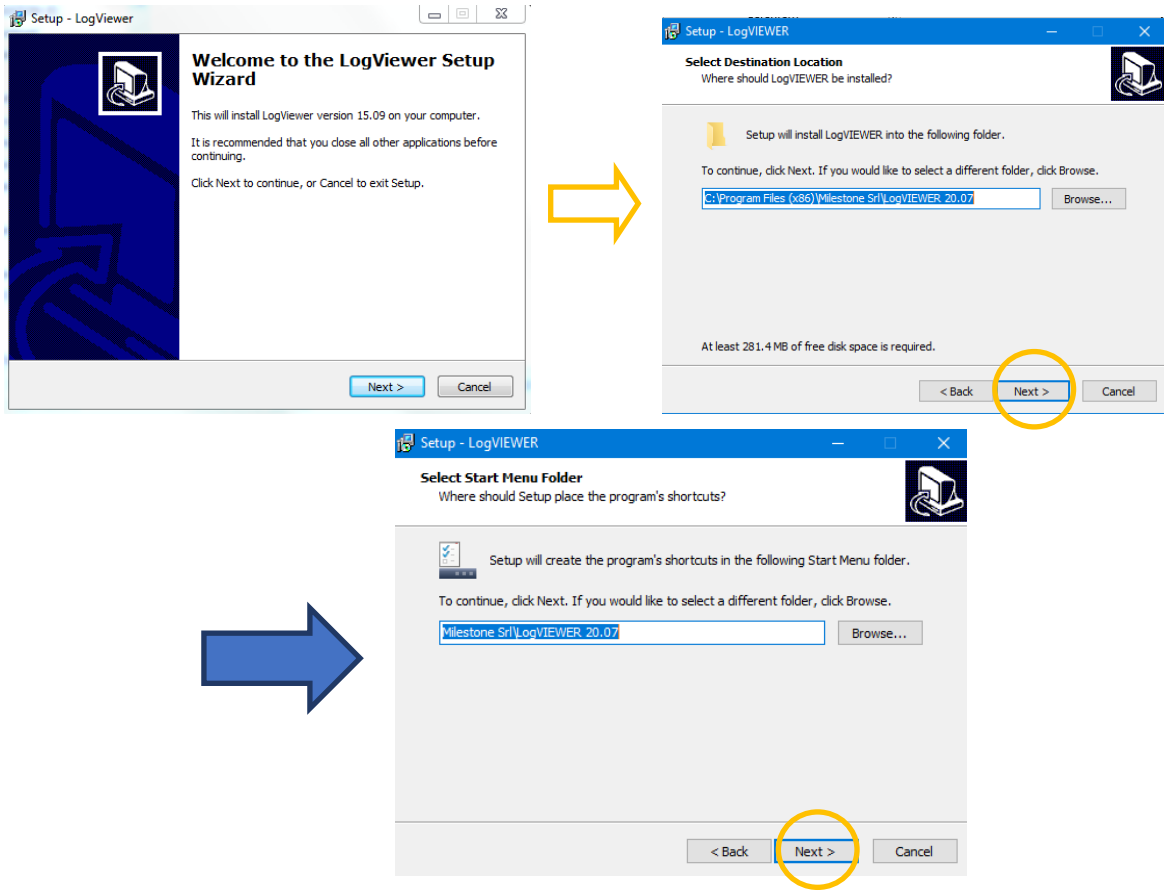


Refer to the following chapter for further information on the LogVIEWER.

2.7. Installing and using the LogVIEWER

The USB key provided with the instrument contains the LogVIEWER folder. Double click the "SetupLogViewer.exe" icon to install the program.

Press "Next" in the following screens.

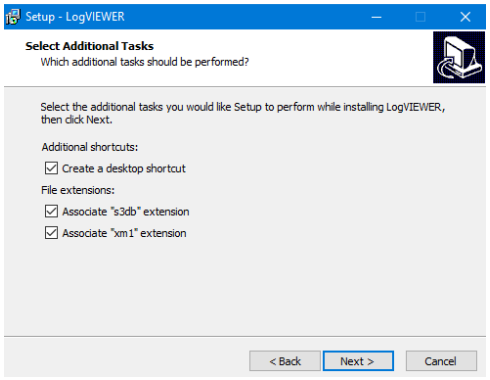


The "Create a desktop shortcut" checkbox is ticked by default so as to create a button on the desktop to launch the program 

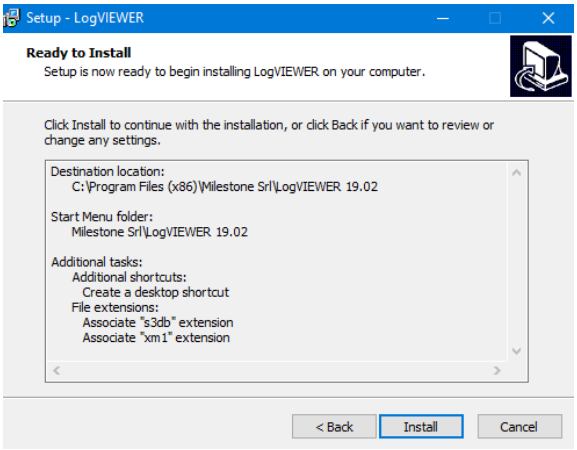
.

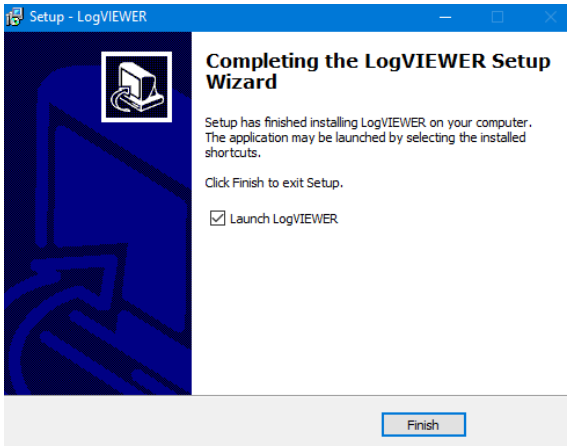
The "Associate s3db and xm1 extension" checkboxes are ticked by default, and it is recommended not to change this setting. In this way, it is possible to open directly by double clicking the events log (file s3db) without going through the LogVIEWER program.

Then press "Next".



Finally press “Install” and “Finish” to complete the installation.



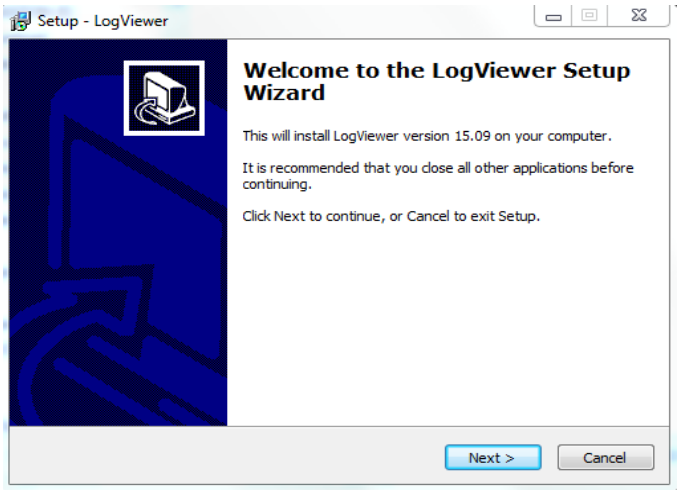


Microsoft.NET Framework 4.6 is a prerequisite for this application, and it will be installed if not present on the PC.
Crystal Report Runtime is a prerequisite for this application and it will be installed during setup if not present on your PC.

The LogVIEWER software is now ready for use.
Follow the instructions in the next chapters.

2.7.1. How to use LogVIEWER

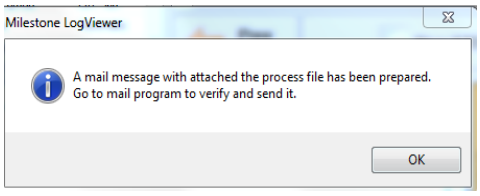
Open the Events log File by following the instructions below.
The following page appears.



The LogVIEWER functions useful for the Events log are explained below. There are further settings to be used with Milestone instruments other than UltraGROSS.

Press  on the top bar to convert the file into Excel.

Press  to send the file to customer support.

The following message opens: 

Press OK and check your email, a preset message appears with the Events log attached and the following information:

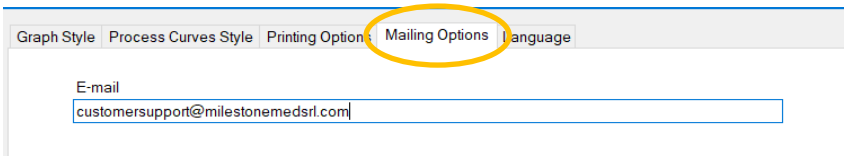
- EMAIL RECIPIENT: the email address that the messages are sent to is set by default customersupport@milestonemedsrl.com; it can be changed in the Settings, as explained below.
- SUBJECT: Milestone INSTRUMENT NAME (Serial number)
- TEXT: To Customer Support…

The email can now be sent.

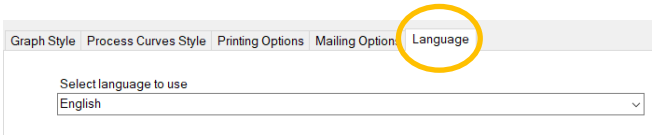
Select the “Settings” icon to change some settings.

The following windows can be opened in the top part of the page:

- “Mailing Options”: the email address that the messages are sent to is set by default customersupport@milestonemedsrl.com; it can be changed in the box shown in the following picture.



- Language: the language can be chosen in the dropdown menu.
  The software must be shut down and launched again to completely update the new language.



Other functions:

1. About Milestone LogVIEWER (software version)
2. View help (HOW TO use the program)
3. Exit Application

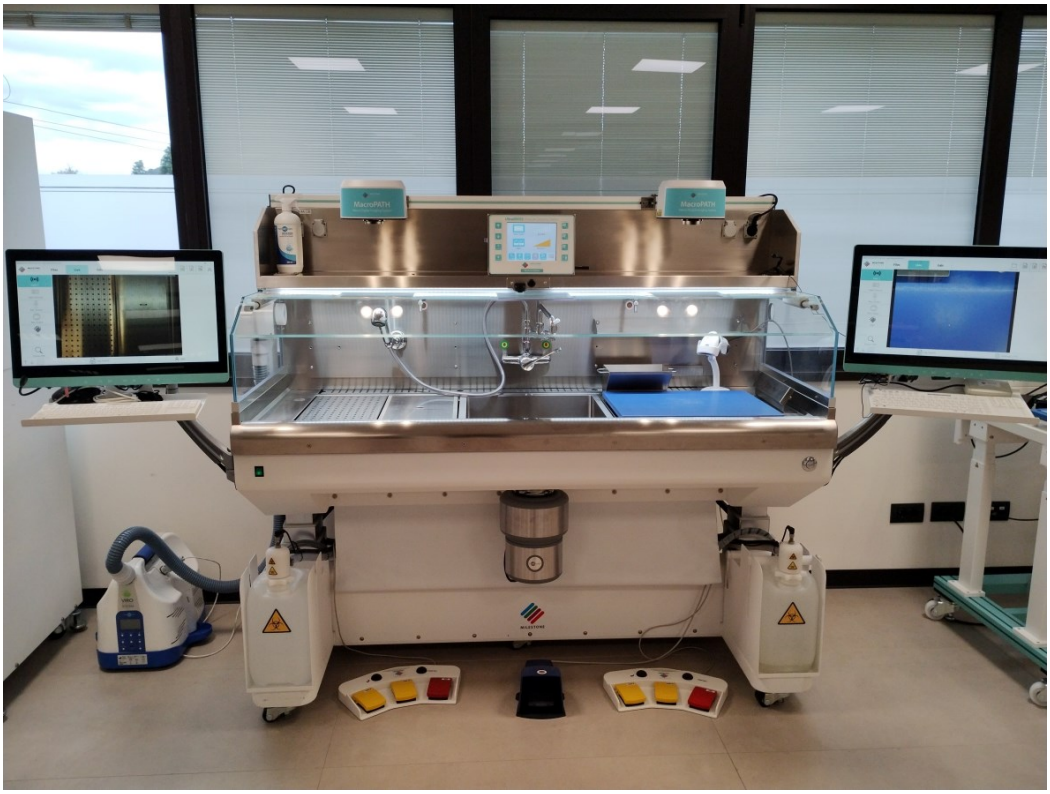
2.8. Description of UltraGROSS

This chapter shows the main parts making up the instrument.

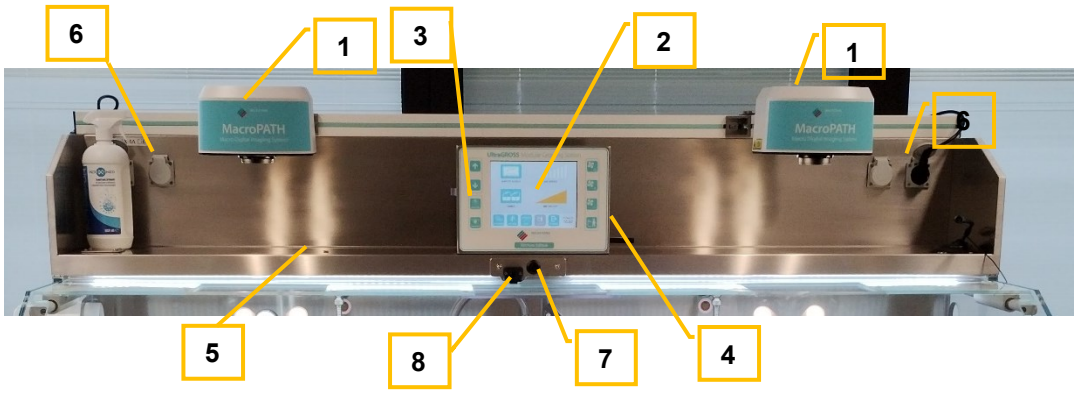
2.8.1. Front view

For letters that refer to instrument codes, see chapter 1.3.1.

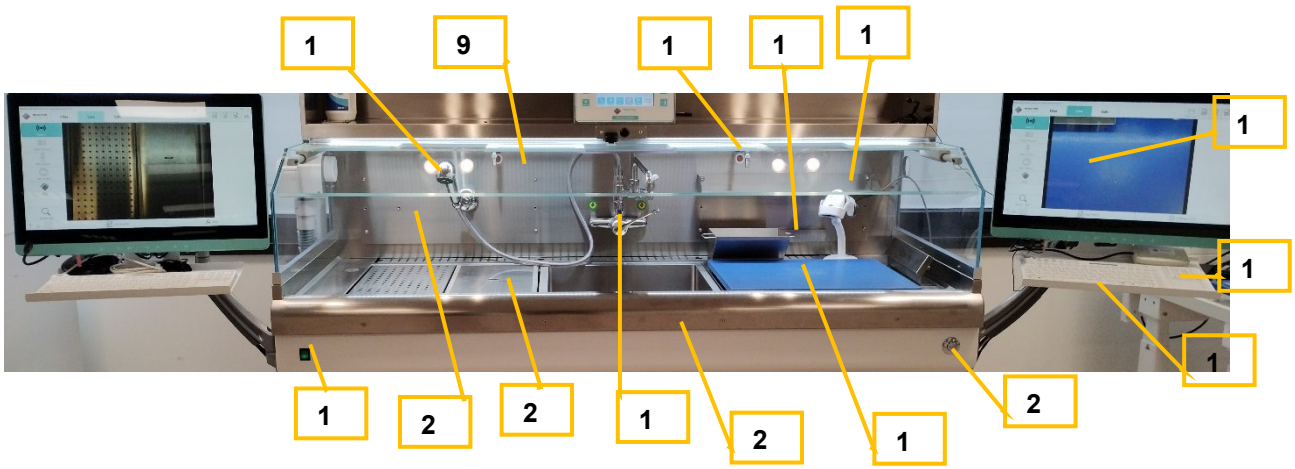
The following is the front view of the instrument with a description of its parts. The following example shows the VIRCHOW model.



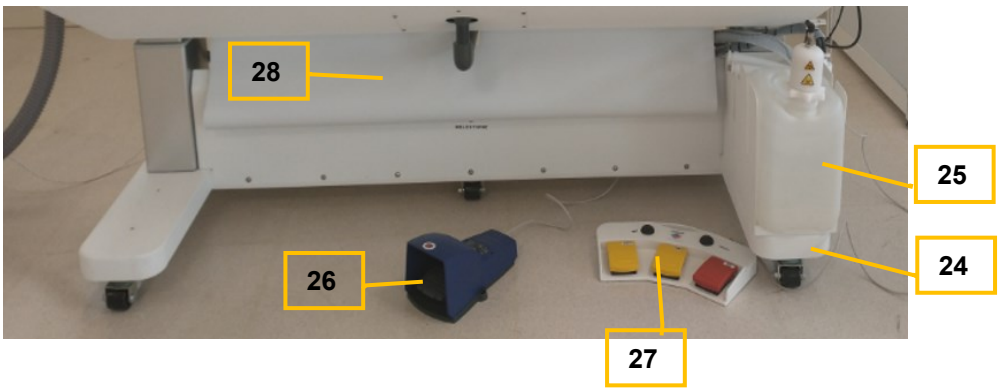
1. Camera (only with letter C)
2. Instrument terminal
3. Waterproof button panel
4. Instrument terminal USB ports
5. Objects holder surface
6. 4X Auxiliary sockets (except letter J)
7. Operator presence sensor
8. Safety shield block



9. Safety shield with camera openings
10. Instrument On/Off key
11. Work surface
12. Magnetic holder bar (2X in VIRCHOW)
13. Shelf
14. Tap with clinical lever
15. Shower tap with button control
16. 21” touch screen PC (only for letter T)
17. Monitor and keyboard support with side arm (only for letter S, except in MALPIGHI)
18. Keyboard (only with letter C)
19. Fixative dispenser (only for letter F)
20. Used fixative drain funnel (only with letter D)
21. Front baffle
22. Rear baffle
23. Set up for grinder button



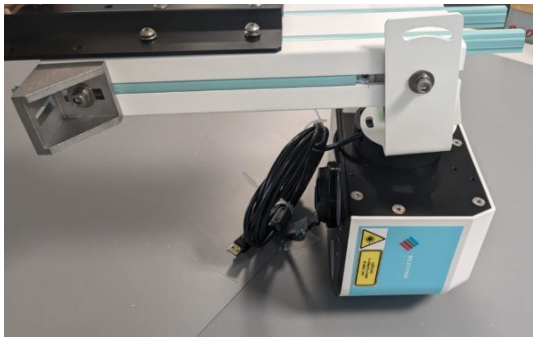
24. Tanks support (only for letter D and/or F)
25. Loading tank (only for letter F) and unloading tank (only for letter D)
26. Fixative dispensing pedal (only for letter F)
27. MacroPath Foot Pedal (only present for letter C)
28. Motor cover and crankcase (only in letter A)



A description of all the elements listed above, where present, can be found hereafter.

1. Camera (only with letter C - 2X if double letter C in code)

The camera specifications are provided in chapter 1.3.3.; camera installation is provided in chapter 2.5.2.



2. Instrument terminal
The terminal specifications are provided in chapter 1.3.3.; the description of the terminal software is provided in chapter 2.6.
On the left side of the terminal there is a stylus with a special stylus holder that can be used for the terminal.

3. Waterproof button panel
The photo and description of the membrane keyboard are provided in chapter 2.6.

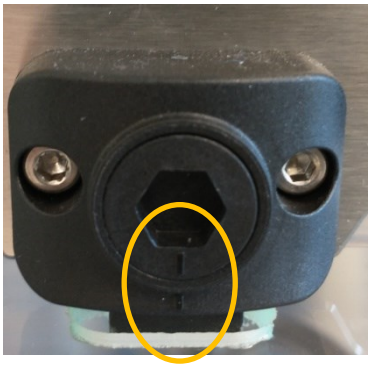
4. Instrument terminal USB ports
There are two USB ports on the right side of the instrument's terminal.

5. Objects holder surface
The objects holder surface can be used to set the work material. This surface is not ventilated. Examples of objects that can be placed: cassettes, dry sponges, printer for cassettes. The surface is 27cm deep.
Maximum capacity of the surface: 15kg distributed in VIRCHOW model, for all other models 20kg distributed.

6. 4X Auxiliary sockets (except letter J)
Refer to chapter 1.3.3 – Auxiliary sockets.

7. Operator presence sensor
The operator presence sensor is located in the middle underneath the instrument's control terminal. It is controlled by the membrane keyboard and by the software, as described in chapter 2.6.

8. Safety shield block
The shield block is placed in the middle, below the control terminal of the instrument. The instrument is shipped with the safety shield blocked, as indicated in the figure below. When the shield is blocked, you will see two black overlapping bars.



Use the dedicated key supplied with the instrument in order to unlock the screen.

This key can be magnetically hung at the top left on the back of the terminal.

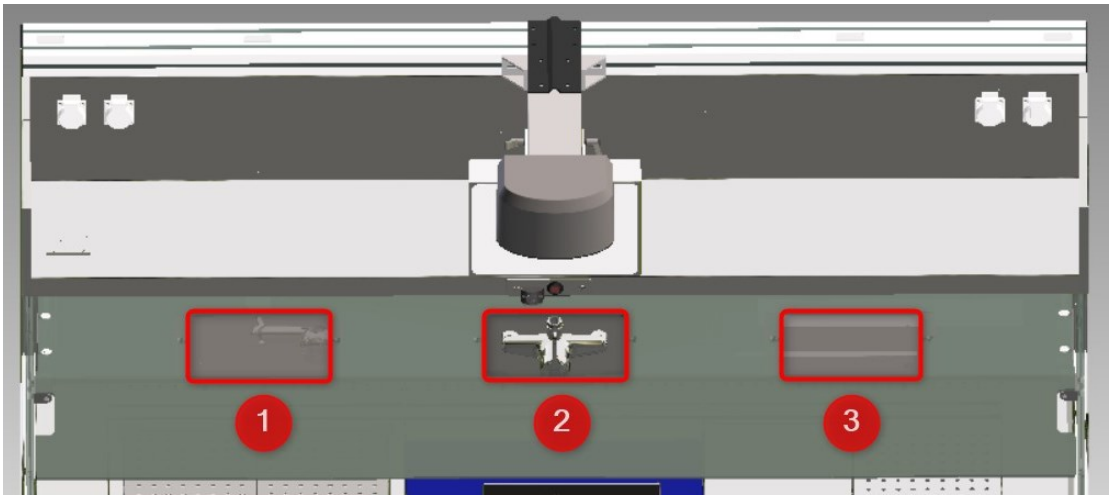
The software of the control terminal of the instrument triggers an alarm when working with the shield open, as explained in chapter 2.6.

Work with UltraGROSS with the safety shield closed. Operator protection is only guaranteed with the shield closed.

There is a compartment for the safety shield sensor, shown in the figure below, on the objects holder surface (**5**) on the left.

9. Safety shield with camera openings
The figure shows the safety shield in shatterproof glass.

The following figure shows the three positions available for the camera (only for initial code 180), at the openings on the safety shield. The openings are closed by a polycarbonate panel that must be removed in presence of the camera.
For initial code 150, only the opening in position 2 is present.



Do not place anything on the safety shield. Do not use it as a support surface.

10. Instrument On/Off key

This key allows you to switch the instrument on/off.

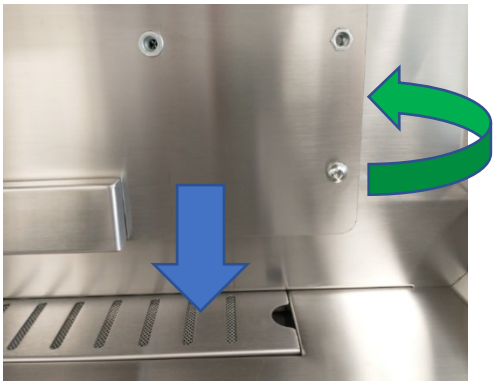
The auxiliary sockets remain powered when the instrument is off.

11. Work surface

See chapter 5.1 for the available grid plates.
Maximum capacity of the work surface: 40kg distributed.

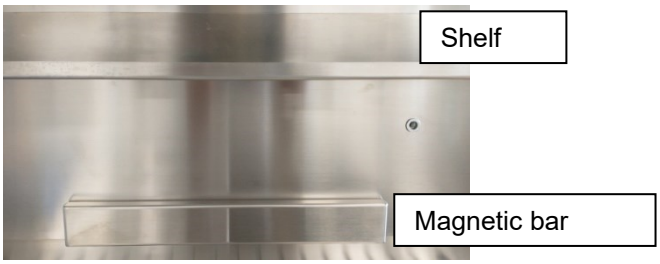
Refer to chapter 1.3.3 – Ventilation.

Ventilation is applied on the work surface in 2 distinct parts that cannot be excluded:
-Work surface area (downdraft) in blue.
-Area on the panel behind the work surface (backdraft) in green.



Keep the jars containing fixative open only for the time necessary to handle the specimen.

12. Magnetic holder bar
Metal objects, such as tweezers and blades, can be attached on the bar.



13. Shelf
It can be mounted on the right or on the left, depending on the position of the shower tap.
It is shown in the previous photo.
Measurements: WxD 45x9cm
Maximum capacity: 1kg

14. Tap with clinical lever
It is always mounted in a central position.
If turned to the left it dispenses cold water, to the right it dispenses hot water.

15. Shower tap with button control
It can be mounted on the right, left or middle, as explained in chapter 2.5.15.
The shower tap has two buttons for two different types of spray.

Adjust the support so that the water sprays in the middle of the washbasin.

Do not use the dispenser if the washbasin is covered.

The shower tap can be detached from its housing to wash the entire work surface, but NOT the vertical walls.

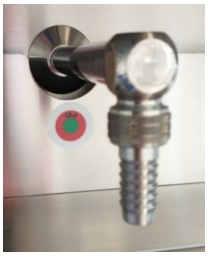
16. 21" touch screen PC (only for letter T - 2X if double letter T in code.
The PC specifications are provided in chapter 1.3.3.

17. Monitor and keyboard support with side arm
Only for letter S.
It can be mounted on the right or left of the instrument. Please refer to chapter 2.5.4.

18. Keyboard (only with letter C - 2X if double letter C in code)
The keyboard has a built-in touchpad and numerical keypad.
IP68
LATEX free.
Dimensions: 38x15x1.5cm
Weight: 840g
USB cable length: 180cm
Consumption: 26mA

19. Fixative dispenser (only for letter F- 2X if double letter F in code)
It is mounted on the right by default.

It is not possible to adjust the fixative flow rate from the pedal.



The dispenser can be connected to a hose with an inside diameter of 10-12mm (not supplied by Milestone) to approach the dispensing point to the work surface.

The dispensing system has a bypass valve to avoid overpressure.

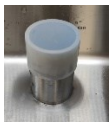
Never plug the dispenser.

20. Used fixative drain (only for letter D- 2X if double letter D in code)
By default, it can be mounted on the right under the fixative dispenser described above.
The following figures show the funnel that can be kept covered when not used.

The drain hole is covered by a removable filter to protect the specimens  .



When only one cover is applied (figure 2), it can slide back and forth.
Milestone recommends keeping it closed when not used.

If the funnel is used, the fixative drain closing cap (CODE 109108)  must be replaced with the perforated fixative drain cap (CODE 109354)  (2 of them for letter D) which must be pushed all the way on.

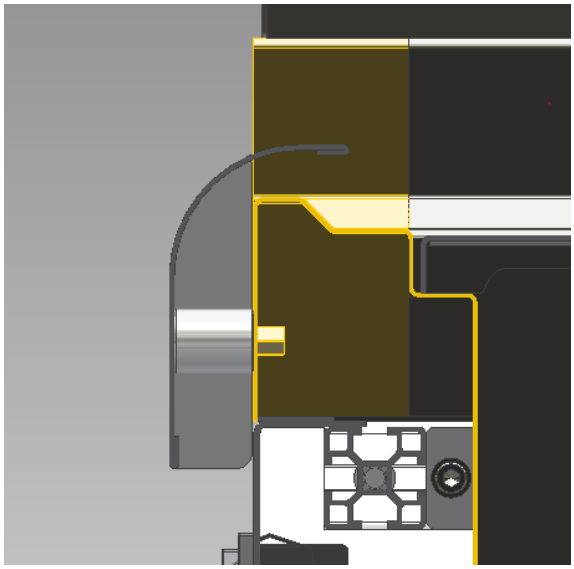
If the funnel for the fixative drain is used, then the perforated caps shown above must also be used.

For the VIRCHOW model, refer to chapter 2.5.8.

21. Front baffle
Used to improve the front ventilation flux and to limit turbulence.

Remove only when moving the instrument, then putting it back on before using the hood.

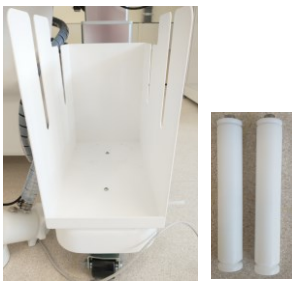
Do not spray water towards the front of the instrument. The following image shows the border for liquids.



22. Rear baffle
Used to improve the ventilation flux and to limit turbulence.

23. Set up for grinder button
Please refer to chapter 5.10.

24. Tanks support (only for letter D and/or F - 2X if double letter D and/or F in code)
Used to house the new fixative tank with a maximum of 5 liters and a waste tank of up to 10 liters.
Supplied with two blocks per tank.
Equipped with containment compartment for any spillage (capacity approximately 1,9 liters).
It is mounted on the right by default.



Refer to chapters 2.5.13 and 2.5.14.

25. Loading tank (only for letter F - 2X if double letter F in code) and waste tank (only for letter D - 2X if double letter D in code)
See chapter 1.3.3 for the specifications of the fixative loading and drain system.
See chapters 2.5.13 and 2.5.14 for installation of the tanks.

26. Fixative dispenser pedal (only for letter F- 2X if double letter F in code)
See chapter 2.5.13 for its installation.
Cable length: 2 m.

The pedal has a protective cover to avoid being pressed accidentally.

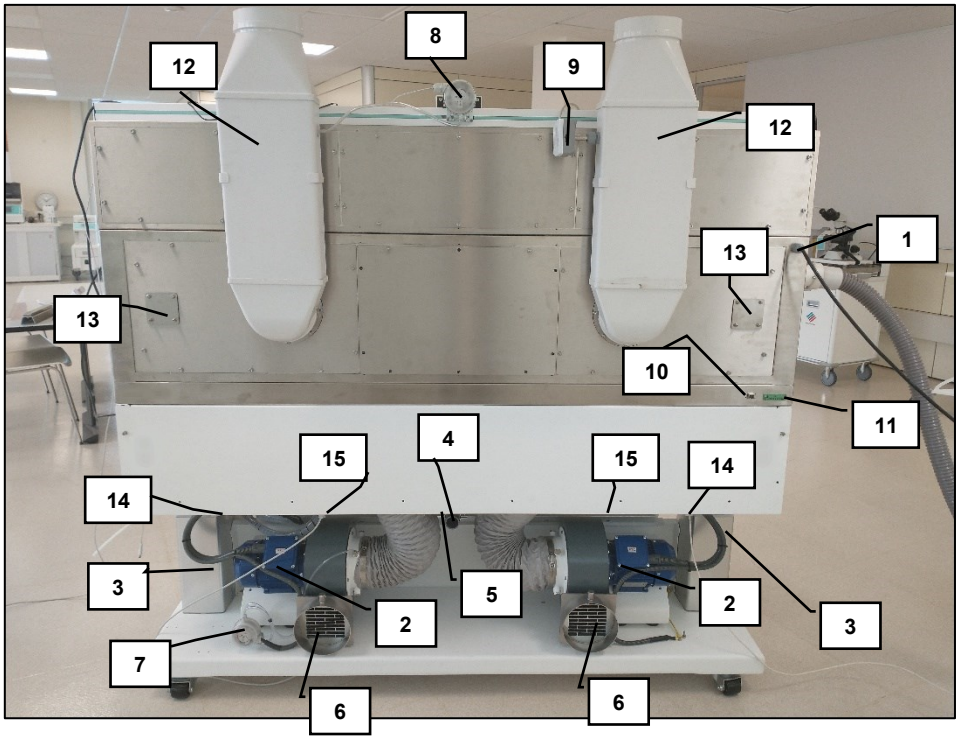
27. Foot Pedal for MacroPATH (only with letter C - 2X if double letter C in code).
Refer to chapter 2.5.6 for its installation.

Cable length: 4.7m approx.
The foot pedal is used via the MacroPath software, as illustrated in chapter 3.

28. Motor cover and lower crankcase (only in letter A)
PVC cover and stainless steel crankcase.

2.8.2. Rear view

The following is the rear view of the instrument.



1. Power cord
2. Motors (only for letter A)
3. Telescopic columns
4. Wastewater drain
5. Hot/cold water inlet
6. Ventilation air outlet (only for letter A)
7. Pressure switch (position only for letter A)
8. Pressure switch (position only for letter P)
9. Anemometer (position only for letter P)
10. Instrument terminal network socket
11. Auxiliary signals alarms connector
12. Passive hood ducts (only for letter P)
13. Ventilated waste paper bin connection
14. VIRO CLEAN EASY device connection
15. Fixative loading pedal connection

A description of all the elements listed above, where present, can be found hereafter.

1. Power cord
Please refer to chapter 1.3.3.
Cable length: 2 m approx.

2. Motors (only for letter A)
Please refer to chapter 2.5.11.

3. Telescopic columns
IPx6 protection rating.

4. Wastewater drain
Please refer to chapter 2.5.9.

5. Hot/cold water inlet
Refer to chapters 2.5.9 and 2.5.15.

6. Ventilation air outlet (only for letter A)
Please refer to chapter 2.5.11.

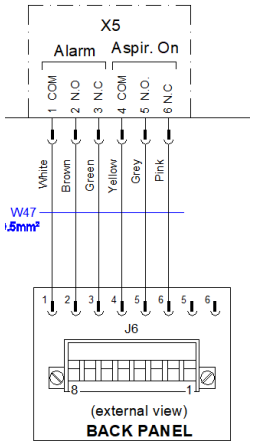
7. Pressure switch (position only for letter A)

8. Pressure switch (position only for letter P)
Refer to chapter 2.5.12 for its installation.

9. Anemometer (position only for letter P)
Refer to chapter 2.5.12 for its installation.

10. Instrument terminal network socket (RJ45)
Please refer to chapter 1.3.3.

11. Auxiliary signals alarms connector
All models are supplied with a connector for the external alarm/ventilation switch on signal of the instrument which external devices can be connected to.
For safety purposes and so as not to damage the internal relays, any external device that must be connected to UltraGROSS must have a maximum voltage of 40V – 1A.



PIN 1 common	Alarm
PIN 2 normally open contact	Alarm
PIN 3 normally closed contact	Alarm
PIN 4 common	Ventilation ON (only for letter A)
PIN 5 normally open contact	Ventilation ON (only for letter A)
PIN 6 normally closed contact	Ventilation ON (only for letter A)

12. Passive hood ducts (only for letter P)
Refer to chapter 2.5.12 for their installation.

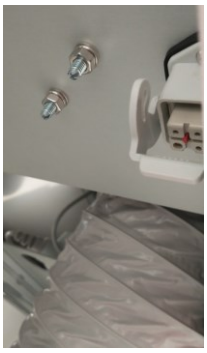
13. Ventilated waste paper bin connection
Please refer to chapter 5.2.

14. VIRO CLEAN EASY device connection

Insert the supplied cable and block the connector on the right or left of the instrument depending on where you want to position the instrument. For the instrument, refer to chapter 5.31.

15. Fixative loading pedal connection

Depending on the position of the tank housing, insert the supplied pedal cable and block the connector. Please refer to chapter 2.5.13.

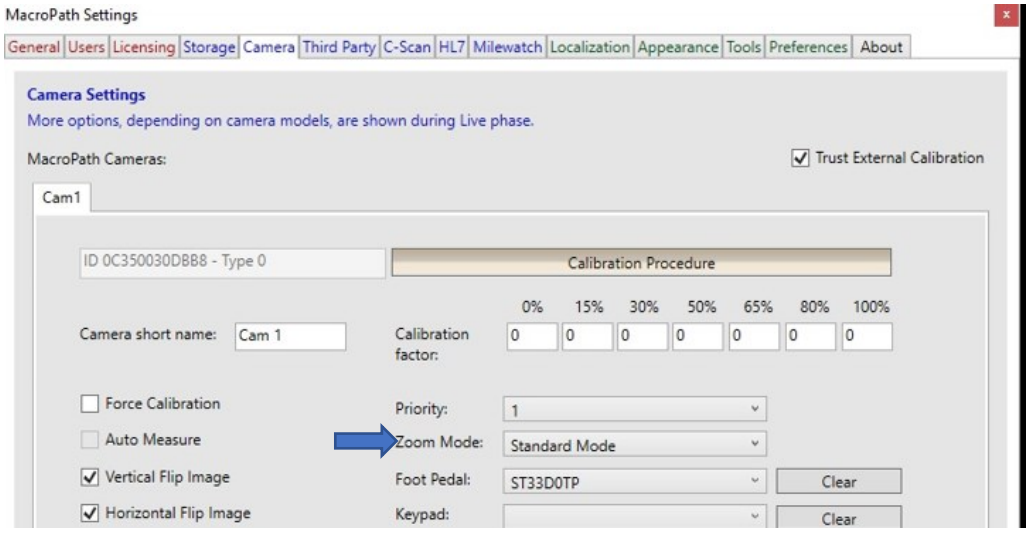


3. OPERATING WITH MacroPath SOFTWARE

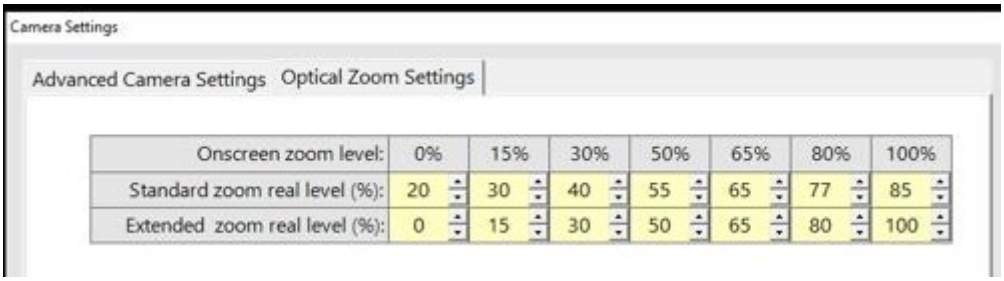
For the letters referring to the codes, see chapter 1.3.1.

Refer to the MM201 Operator Manual supplied with the instrument to operate with the MacroPath software.

The MM201 manual explains how to set the zooms during installation if you want to change the framed area.
With UltraGROSS (letter T), the default settings are shown below.
In Camera settings, the zoom is set at “Standard mode” as shown in the following figure.



The zooms in the camera settings (which open by keeping the CAM in live button pressed) are the following.



For letter C, it is recommended to set as indicated above.

4. MAINTENANCE, CLEANING AND DECONTAMINATION

The procedure described in this chapter must be performed on a daily basis or according to laboratory regulations.

The personnel involved in the cleaning and decontamination of UltraGROSS and its optional parts (if any) must wear suitable personal protective equipment (gloves, goggles, facemask) according to standards in force.

Decontamination of the instrument is mandatory due to the biohazard arising from the use of fresh or semi-fixated specimens.

Make sure the contaminated material is packed and disposed of in an approved incinerator in compliance with all federal, provincial and local government regulations.

4.1. UltraGROSS cleaning precautions

Cleaning must be performed on a daily basis or according to laboratory regulations.

Do not soak or rinse the PC, its peripheral devices or the camera.
Do not use abrasive cloths to clean the camera lenses.
If there is an accidental leakage of liquid from the auxiliary sockets, contact your clinical engineering service in relation to the safety of the instrument before operating it again.
Do not place in autoclave or clean the PC or its peripheral devices or the camera with strong aromatic, chlorinated, ketone, ether or ether solvents (like ethyl acetate or methyl palmitate), sharp tools or abrasives.
Never immerse electrical connectors in water or other liquids.

Despite the columns being protected against direct sprays or water jets (IPX6), nonetheless avoid this type of operation.

The anti-corrosion properties of steel decrease under the effect of acids and halogenated compounds (chlorine, bromide, iodide).

When working on a stainless steel surface or during cleaning procedures:
- Never use chlorine-based solutions at any concentration and temperature,
- Never use corrosive substances at any concentration or temperature (acids in general),
- Do not use the following fixatives: B5, AFA, zinc chloride formalin, mercury based formalin,
- Do not clean the surface with abrasive objects,
- Do not leave containers with a temperature higher than 100°C (212°F) on the surface.

Do not clean the areas surrounding the instrument (walls, windows, flooring) with solutions indicated in the list above.

Clean all the filters on a daily basis, removing any pieces that may obstruct the passage. Use running water and, if necessary, also a brush with nylon bristles.

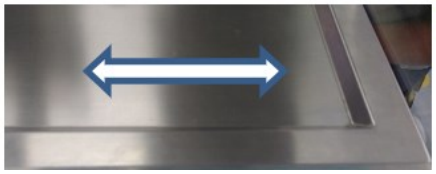
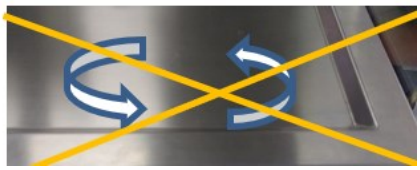
Avoid rust deposits caused by foreign objects, like particles of rust from other objects and not coming directly from the stainless steel product. For example, tweezers, paper clips, scissors, scalpels, or inadequate cleaning tools.

Do not leave any parts that could rust on the Milestone stations. In case of contact, wash with water and dry immediately.





Always dry the stainless steel surface and do not let it remain in contact with water for long periods of time.
Rust can be caused by the incorrect storage of the product prior to assembly.
During cleaning operations, rub in the same direction as the satin finish on the steel surface, as indicated in the following tables.

In case of contact with any of the reagents listed above, wash with water and dry immediately.
In case of contact with blood, biological fluids, and/or specimens, wash with water and dry immediately.
If the above indications are not followed, the quality of the stainless steel could be permanently lost and the warranty offered by the manufacturer could be regarded as null and void.

Milestone recommends the following products for cleaning and decontamination of UltraGROSS:
- SUPRASPOR (refer to chapter 5.32)
- 70% alcohol-based reagent

Milestone has tested the reagents listed above and will not be held liable if other types of reagents are used on a long term.

4.2. Operating procedure with SUPRASPOR

This general procedure applies to all instruments.

Perform this procedure at least once a day or according to laboratory regulations.

Always refer to the SUPRASPOR safety data sheet and technical data sheet supplied with the instrument.

SUPRASPOR'S BIOACID ACTIVITY

The balanced association of the hydrogen peroxide active principle with ethyl alcohol and non-ionic surfactant makes SUPRASPOR a disinfectant product with a broad action spectrum, including negative gram bacteria (Escherichia, Pseudomonas) and positive gram bacteria (Staphylococcus sp., methicilin resistant Staphylococcus aureus - MRSA, Enterococci), yeasts (Candida), fungi, viruses (HIV, HBV, HCV), mycobacteria and spores. Hydrogen peroxide is activated against a broad range of microorganisms, including bacteria, yeasts, fungi, viruses and spores. Hydrogen peroxide accelerated at 0.5% has demonstrated bactericidal and virucidal activity in 1 minute and mycobactericidal and fungicidal activity in 5 minutes. Bactericidal effectiveness and stability of hydrogen peroxide in urines has been demonstrated against a variety of pathogens associated with the healthcare area; organisms with a high catalysis activity (e.g. S. aureus, S. marcescens and Proteus mirabilis) have required from 30 to 60 minutes of exposure to hydrogen peroxide at 0.6% for a reduction of the cellular count of 108, while organisms with a lower catalysis activity (e.g. E. coli, Streptococci species and Pseudomonas species) have required only 15 minutes of exposure. In a study of 3%, 10% and 15% of HP, to reduce the bacterial population in a spacecraft, a complete killing of 106 spores (e.g. Bacillus species) 10% of HP and 60 minutes of contact were necessary. A 3% concentration for 150 minutes killed 106 spores in 6 of the 7 studies made. A hydrogen peroxide solution at 10% resulted in a decrease of 103 Bacillus atrophaeus spores, and a reduction > 105 when tested against 13 other pathogens in 30 minutes at 20°C.

A hydrogen peroxide solution at 3% was ineffective against VRE after 3 and 10 minutes of exposure, and only caused a reduction of 2 logs of the number of Acanthamoeba cysts in approximately 2 hours. A stabilised solution at 7% proved sporicidal after 6 hours of exposure, mycobactericidal (20 minutes), fungicidal (5 minutes) at complete concentration, virucidal (5 minutes) and bactericidal (3 minutes) diluted 1:16 when the carrier test was used. The HP solution at 7% was tested after 14 days of stress (in the form of carriers loaded with germs and respiratory therapy equipment) and proved sporicidal (> 7 log10 of reduction in 6 hours), mycobactericidal (> 6.5 log10 of reduction in 25 minutes), fungicidal (> 5 log10 of reduction in 20 minutes), bactericidal (> 6 log10 of reduction in 5 minutes) and virucidal (> 5 log10 of reduction in 5 minutes). Synergic sporicidal effects were observed when the spores were exposed to a combination of HP (5.9% - 23.6%) and peracetic acid. Other studies demonstrated the antiviral activity of HP against rhinoviruses. The time required for the inactivation of 3 serotytpes or rhinoviruses using 3% of hydrogen peroxide was 6-8 minutes.

The bioacid activity tests, according to European standards in force (published by CEN/TC 216), were conducted by a certified Test Facility operating according to GLP (Good Laboratory Practice), on the solution as is. The following table shows references to the standards, the operating conditions (clean or dirty conditions) and the results of these tests.

Activity	Strains test	Regulatory	Conditions	Reduction	Time
Bactericidal	E. hirae ATCC 10541 P. aeruginosaATCC 15442 S. aureus ATCC 6538	EN 13727 (Phase 2, Step 1)	Clean	UFC/ml = 0	5 min.
Fungicide (Yeasticide)	C. albicans ATCC 10231	EN 13624 (Phase 2, Step 1)	Clean	UFC/ml = 0	5 min.
Mycobactericide	Mycobacterium terrae ATCC 15755 Mycobacterium avium ATCC 15769	EN 14348 (Phase 2, Step 1)	Clean	UFC/ml = 0	15 min.
Sporicidal	Clostridium sporogenes 51 CIP 7 939	AFNOR NF T 72-190 (Phase 2, Step 2)	Clean	UFC/ml = 0	30 min.
Virucidal	Adenovirus Type 5 strain Adenoid75, ATCC VR-5 Poliovirus type 1, LSc-2ab Murine Norovirus, strain S99 Berlin	EN 14476 (Phase 2, Step 1)	Clean	UFC/ml = 0	30 min.

SUPRASPOR can be used for all MacroPATH parts except for the black frame around the lens, shown in the image below. To clean up this part, please refer to the next chapter.

4.2.1. MANUAL operating procedure

The product is ready for use and therefore requires no dilution.

Switch off UltraGROSS and disconnect the power cable.

1. Insert the supplied dispenser.

2. Clean by spraying the concerned surface and pass with a cloth.
3. For decontamination, spray the concerned surface.
4. Allow it to act for at least 5 to 30 minutes (refer to the previous table for the contact times) depending on the level you wish to reach according to the criticality of the treated instrument:
   a. bactericidal and yeasticidal: 5 minutes;
   b. fungicidal and virus inactivating: 15 minutes;
   c. tuberculocidal and sporicidal: 30 minutes;
5. Dry if necessary.

4.2.2. AUTOMATIC operating procedure

The product is ready for use and therefore requires no dilution.

Cleaning must always be done in manual mode. Decontamination can be done in automatic mode with the VIRO CLEAN EASY device present (chapter 5.31).

Automatic decontamination is limited solely to the area enclosed by the protective shield, as shown in the following image.

1. Insert the supplied dispenser.

2. Clean by spraying the concerned surface and pass with a cloth.
3. For decontamination, start the automatic procedure with VIRO CLEAN EASY.
4. Allow it to act for at least 5 to 30 minutes (refer to the previous table for the contact times) depending on the level you wish to reach according to the criticality of the treated instrument:
   a. bactericidal and yeasticidal: 5 minutes;
   b. fungicidal and virus inactivating: 15 minutes;
   c. tuberculocidal and sporicidal: 30 minutes;

4.3. Operating procedure with 70% alcohol-based reagent

This general procedure applies to all instruments.

Perform this procedure at least once a day or according to laboratory regulations.

Always refer to the reagent's safety data sheet and technical data sheet.

Switch off UltraGROSS and disconnect the power cable.

1. Clean by spraying the concerned surface and pass with a cloth.
2. For decontamination, spray the concerned surface.
3. Leave the reagent to act according to that set forth in the technical data sheet.
4. If necessary, rinse and dry according to that set forth in the reagent technical data sheet.

4.4. Preventive maintenance

Annually contact your local dealer or Milestone offices directly: customersupport@milestonemedsrl.com for how to perform maintenance and regular inspections in order to maintain UltraGROSS within safe operative standards.

The software on the UltraGROSS terminal notifies the operator when maintenance needs to be done (default 1 year) and when the filters (if any) need to be changed, as explained in chapter 2.6.

Switch off the instrument if it not used for a long period of time.

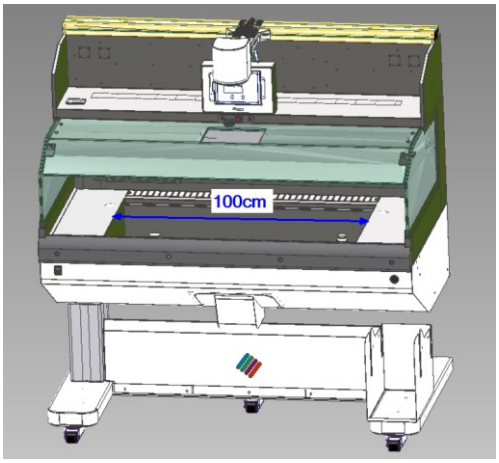
5. OPTIONAL PARTS AND SPARE PARTS

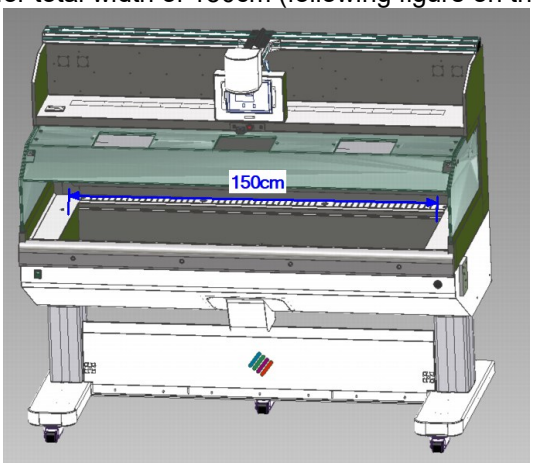
It is forbidden to use spare parts that are not supplied by Milestone.

The images shown are for illustrative purposes only.

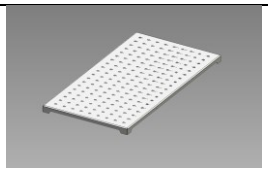
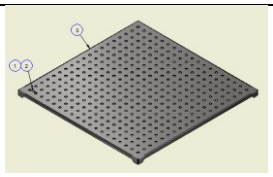
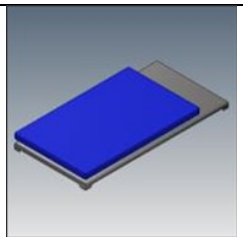
5.1. Shelves

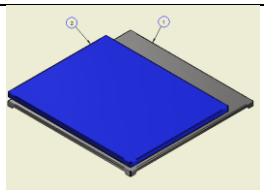
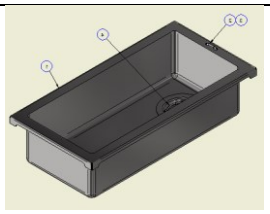
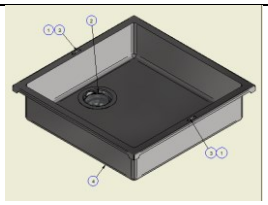
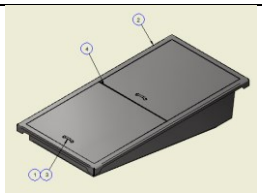
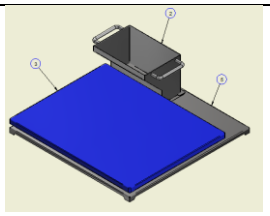
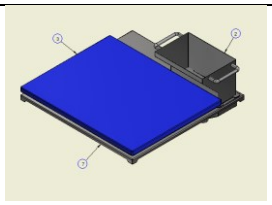
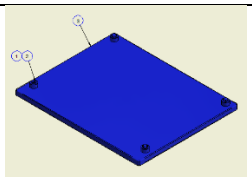
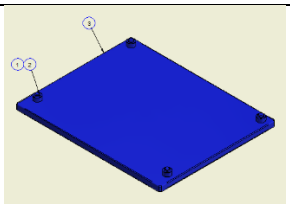
Before listing the available shelves as optional parts, consider that:
- UltraGROSS 150 models accommodate modules for total width of 100cm (following figure on the left),
- UltraGROSS 180 models accommodate modules for total width of 150cm (following figure on the right).





The following table indicates the grid plates available.

Code	Description	Image	150 models	180 models
109185	Perforated shelf 250mm wide and 500mm deep.		X	X
109187	Perforated shelf 500mm wide and 500mm deep.		X	X
109195	Blue cutting board in PE 250mm wide and 400mm deep with shelf 250mm wide and 500mm deep.		X	X

109198	Blue cutting board in PE 500mm wide and 400mm deep with shelf 500mm wide and 500mm deep.		X	X
109202	Sink with cover 250mm wide, 500mm deep and 120mm high. The useful width and depth dimensions are 25mm less.		X	X
109206	Sink with two covers 500mm wide, 500mm deep and 120mm high. The useful width and depth dimensions are 25mm less.		X	X
109216	Fixative drain funnel with two covers 250mm and 500mm deep.		X	X
109211	Right blue cutting board in PE 500mm wide and 400mm deep with shelf 500mm wide and 500mm deep with built-in fixative drain funnel. PLEASE NOTE: it can only be installed on the right side of the work surface.			X
109213	Left blue cutting board in PE 500mm wide and 400mm deep with shelf 500mm wide and 500mm deep with built-in fixative drain funnel. PLEASE NOTE: it can only be installed on the left side of the work surface.			X
109194	Blue cutting board in PE 250mm x 400mm.		X	X
109197	Blue cutting board in PE 500mm x 400mm.		X	X

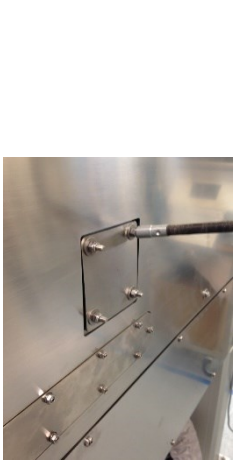
5.2. Ventilated waste paper bin

Two sizes of ventilated waste paper bins are available:
- Ventilated waste paper bin 60L with trolley (CODE 102593)
  External dimensions: WxDxH 350x570x850mm
  Internal dimensions: WxDxH 310x490x575mm

- Ventilated waste paper bin 80L with trolley (CODE 106742)
  External dimensions: WxDxH 420x570x935mm
  Internal dimensions: WxDxH 380x490x680mm

It is an optional part for collecting waste (e.g. paper soiled with fixative). The bin is connected to the instrument's ventilation system. The assembly instructions are provided below.
The system comes complete with wheels with brake, a ventilated pipe and a ventilated attachment.

Remove the rear panel by unscrewing it with an 8mm spanner or socket wrench.
Fasten the ventilated attachment using an 8mm spanner or socket wrench.
Afterwards, connect the exhaust tube and secure it using the supplied strap.



The rear panel serves only the connection of the ventilated bin's system.

Connect the other end of the exhaust tube to the bin and secure it with the supplied strap.

Remove the cover every time the waste material is thrown out, then close the cover again.
The container for infective organic waste shown in the figure is not included in the supply.
The bin can be installed on either left or right side of the instrument.

To use the bin with the cover open during sampling, keep it close to the front of the instrument.

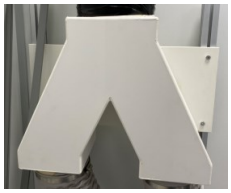
5.3. Filterbox Kit with HEPA filter

The Filterbox Kit with HEPA filter (CODE 109232) consists of the following parts:

- Fumes filter.
  Dimensions: 618mm x 780mm x 1450mm
  Weight: 72kg

- Flexible Pipe Kit (200mm diameter), which includes: 3m pipe and 4 straps.

- Coupling.



It must be fixed to the wall with the 4 dedicated holes.
Use specific fixing systems based on the type of wall used.

The box of the fumes filter in PVC is resistant to acids and consists of: a pre-filter G4 (CODE 102922), 10 sheets of activated charcoal filter (CODE 102923) and a HEPA H14 filter (CODE 102924).

Weights:
Charcoal cartridge (LSTBCN): 1kg
HEPA14 (LSTH14/K5): 11.4kg

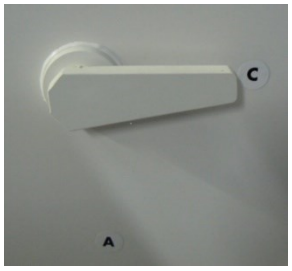
HEPA14 efficiency: 99.995%
Active charcoal filter efficiency: 70%

There are 3 ways of installing the filter:
- on the wall, via the designated slots (the wall must be able to support a weight of 72kg),
- placed on the floor,
- placed on the floor via the set of feet supplied.

The filter can be installed in any position: horizontal, vertical, oblique.

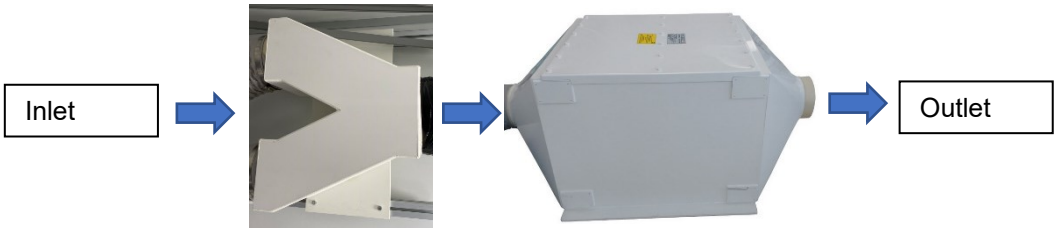
Do not place anything on the filter.

The two handles on the side walls must be closed (position C) during normal use of the filter.

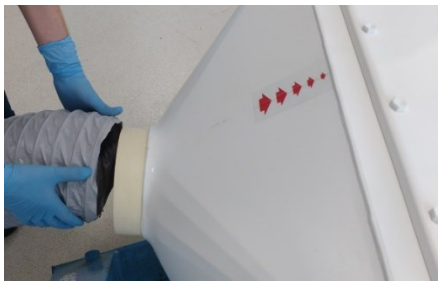


The following figure shows the feet that can be secured on their supports (see yellow circles) with the supplied screws.

Connect the two outlets of the instrument to the coupling with 160mm diameter pipes and the outlet of the coupling to the inlet of the filter.



Pay attention to the direction of travel of the air shown by the red arrows (the figure reports the filter inlet connection).



Connect the filter outlet to the laboratory exhaust.
The exhaust system connected to the instrument must compensate for the 550Pa pressure drop of the filter.

Even if the filter is used, the instrument must be connected to the fume extraction system.

Dispose of the pre-filter, the Hepa filter and active charcoal sheets according to current regulations.

The maximum duration of the pre-filter and of the HEPA H14 filter is one year.
The maximum estimated duration of the cartridges of the active charcoal filter is 720 hours (default value of the software) which corresponds to about 6 months, considering an average use of the instrument of 6 hours a day and 5 days a week.

The presence of pollutant agents in the environment outside of the work area requires changing filters more frequently.

The use of the fumes filter as specified does not replace the requirement of authorized personnel to carry out environmental monitoring, nor can it guarantee the absence of staff exposure to chemicals or the elimination of personal protective equipment, as required by government regulations of the final country where the instrument is installed.

Refer to chapter 2.6.5 to enable management of the filters.

5.4. Filterbox Kit

This Filterbox Kit (CODE 109233) is the same as the previous one but does not contain the HEPA filter.
The exhaust system connected to the instrument must compensate for the 300Pa pressure drop of the filter.
Please refer to chapter 5.3.

Refer to chapter 2.6.5 to enable management of the filters.

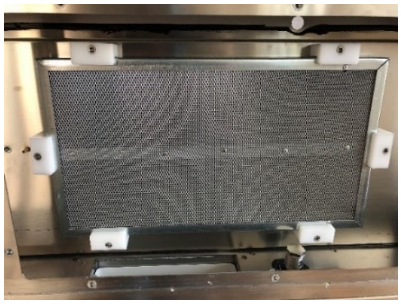
5.5. Kit 3 Internal Activated Charcoal Filters

Suitable for UltraGROSS 180cm.
The Kit 3 Internal Activated Charcoal Filters CODE 109224 consists of 3 active charcoal sheets specific for formaldehyde fumes.
Sheet dimensions: 450x250x26mm.
Sheet weight: 2.4kg.

It is installed as follows.
Open the three rear panels.

Remove the blocks of the filter with the supplied Allen wrench.

Insert the cartridge by screwing it as in the photo and close the panel, making sure to position the part with the EPDM seal towards the work surface.
Repeat this operation for the other filters.



Even if the filter is used, the instrument must be connected to the fume extraction system.

Dispose of the active charcoal sheets according to current regulations.

The maximum estimated duration of the cartridges of the active charcoal filter is 360 hours (default value of the software) which corresponds to about 3 months, considering an average use of the instrument of 6 hours a day and 5 days a week.

The presence of pollutant agents in the environment outside of the work area requires changing filters more frequently.

The use of the fumes filter as specified does not replace the requirement of authorized personnel to carry out environmental monitoring, nor can it guarantee the absence of staff exposure to chemicals or the elimination of personal protective equipment, as required by government regulations of the final country where the instrument is installed.

Installing the active Charcoal Internal Filters Kit means that the HEPA internal Filters Kit cannot be installed.

Refer to chapter 2.6.5 to enable management of the filters.

The figure displays a sheet.

5.6. Kit 2 Internal Activated Charcoal Filters

Suitable for UltraGROSS 150cm

The Kit 2 Internal Activated Charcoal Filters CODE 109225 consists of 2 active charcoal sheets specific for formaldehyde fumes.
Sheet dimensions: 450x250x26mm.
Sheet weight: 2.4kg.

Refer to the previous for the installation procedure.

The figure displays a sheet.

Even if the filter is used, the instrument must be connected to the fume extraction system.

Dispose of the active charcoal sheets according to current regulations.

The maximum estimated duration of the cartridges of the active charcoal filter is 360 hours (default value of the software) which corresponds to about 3 months, considering an average use of the instrument of 6 hours a day and 5 days a week.

The presence of pollutant agents in the environment outside of the work area requires changing filters more frequently.

The use of the fumes filter as specified does not replace the requirement of authorized personnel to carry out environmental monitoring, nor can it guarantee the absence of staff exposure to chemicals or the elimination of personal protective equipment, as required by government regulations of the final country where the instrument is installed.

Installing the active Charcoal Internal Filters Kit means that the HEPA internal Filters Kit cannot be installed.

Refer to chapter 2.6.5 to enable management of the filters.

5.7. Kit 3 Internal HEPA H14 Filters

Suitable for UltraGROSS 180cm

The Kit 3 Internal HEPA H14 Filters CODE 109234 consists of 3 HEPA H14 cartridges.
Cartridge dimensions: 450x250x30mm
Cartridge weight: 1.1kg.

Refer to chapter 5.5 for the installation procedure.

Installing the active Charcoal Internal Filters Kit means that the HEPA internal Filters Kit cannot be installed.

The figure displays a cartridge.

Even if the filter is used, the instrument must be connected to the fume extraction system.

Dispose of the HEPA filter pursuant to current regulations.

The maximum duration of the HEPA H14 filter is one year.

Refer to chapter 2.6.5 to enable management of the filters.

5.8. Kit 2 Internal HEPA H14 Filters

Suitable for UltraGROSS 150cm

The Kit 2 Internal HEPA H14 Filters CODE 109235 consists of 2 HEPA H14 cartridges.
Cartridge dimensions: 450x250x30mm.
Cartridge weight: 1.1kg.
Refer to chapter 5.5 for the installation procedure.

Installing the active Charcoal Internal Filters Kit means that the HEPA internal Filters Kit cannot be installed.

The figure displays a cartridge.

Even if the filter is used, the instrument must be connected to the fume extraction system.

Dispose of the HEPA filter pursuant to current regulations.

The maximum duration of the HEPA H14 filter is one year.

Refer to chapter 2.6.5 to enable management of the filters.

5.9. USB Bar code reader 2D (includes holder)

The barcode reader CODE 102011A is useful to automatically enter the patient/specimen number to open a new file or retrieve an existing file. This model can also read 2D barcodes.

The bar code reader is set by default with country mode U.S. To change the setting, follow the procedure indicated in the manual supplied with the reader.

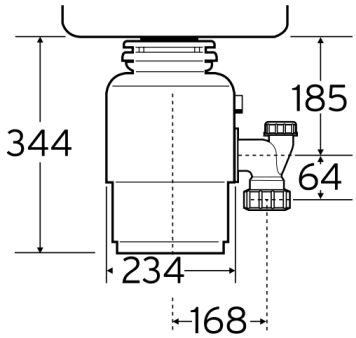
Connect the barcode reader to one of the PC's free USB ports.

5.10. Waste Grinder

CODE 109249
Suitable only for UltraGROSS systems at 220-240V~ 50/60Hz

Power supply 220-240V ~ 50/60 Hz
Single stage grinding technology
0.75 hp induction motor
Average absorption 380 W
1425 RPM
Pneumatic switch
Shipping weight 11.6kg
Grind chamber capacity: 1180ml
Drain connection 1 ½ ‘’

The following figure indicates the overall dimensions (in millimeters):



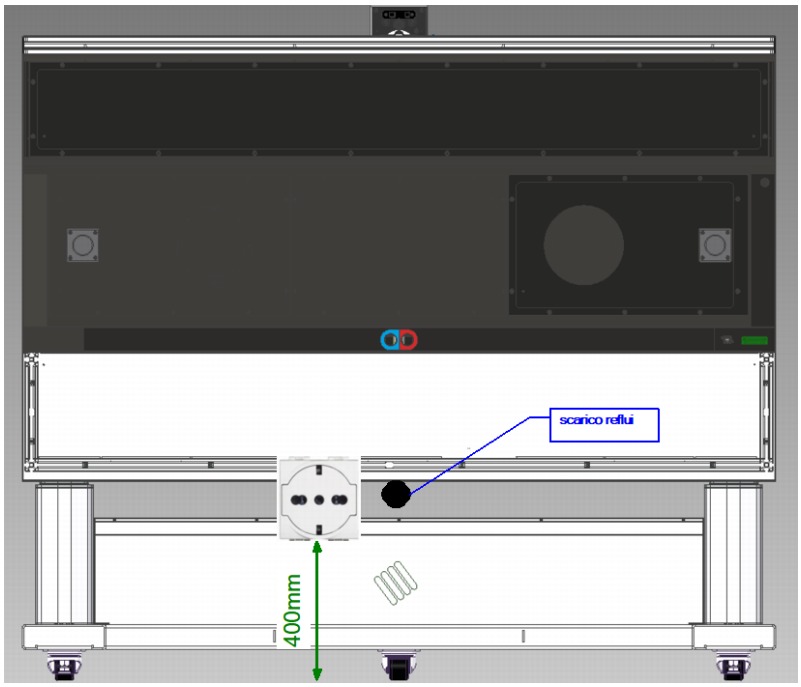
Environmental conditions:
Altitude: up to 2000m
Operating temperature: from 15°C (59°F) to 30°C (86°F)
Relative humidity: 10°C - 80%, non-condensing

5.10.1. Installation specifications

This chapter indicates the maximum possible sizes for correct assembly with the supplied cables.

A Schuko power socket 40cm above the ground is required to install the Waste disposal instrument, in the position indicated in the following figures, between the washbasin and the left leg of UltraGROSS.

The power cable of the Waste disposal instrument is approximately 90cm long.



The laboratory's wastewater drain must be lower than 30cm to ensure optimal drainage.

Hot water does not damage the Waste disposal instrument, but dissolves fats which, depositing in the pipes, cause future clogging. It is therefore recommended to use cold water.

Connect the Waste disposal instrument to a 16 A power socket with earth contact.
Do not use adapters or power strips.
All wiring must be carried out in compliance with current regulations.
Do not store flammable objects such as flammable liquids or spray cans near the Waste disposal instrument: the electric induction motor generates a spark every time it is switched on.

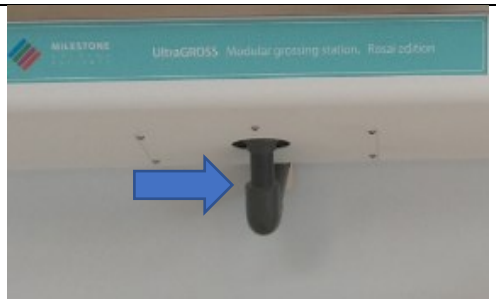
5.10.2. How to install the Waste disposal instrument on UltraGROSS

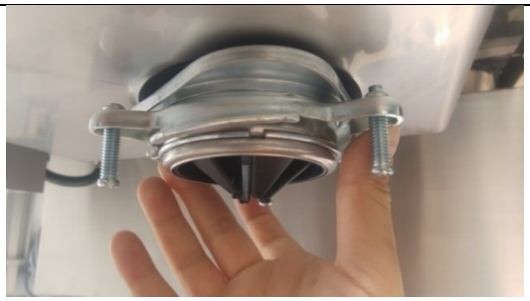
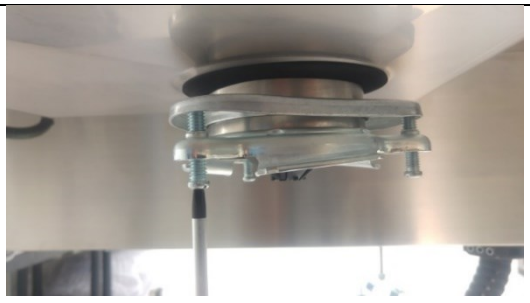
Before proceeding with installation, make sure that there are all the parts:

Waste disposal instrument	
Spring strap	

Drain	
Dedicated key	
Pneumatic ON/OFF button including tube	
Drain pipe Ø40mm length 46cm	
Seals for drain	

Follow the instructions below:

Remove the folder with the specific screws and drain unit mounted on UltraGROSS.	
Remove the washbasin drain. Remove the screw as per photo.	
Remove the spring from the drain on the Waste disposal unit.	

Now check that the following pieces shown in the photo are present.	
Insert the drain with seal into the washbasin.	
Apply the seal on the other side of the drain.	
Insert the two plates as per photo. Then push the spring into its slot.	
Screw on the three screws so that the upper triangular plate is flush with the seal.	
Position the Waste disposal unit on the drain and secure it by turning the ring nut all the way using the supplied key. Move the outlet of the waste disposal unit towards the back of the unit.	

Connect the Ø40mm pipe to the waste disposal unit drain and block it with the strap.	
Fix the pipe to the collar on the unit.	
Connect the flexible drain pipe as shown in chapter 2.5.10. Do not connect it to the sewer system and in any case follow current regulations. The laboratory's drain system must be suitable for use of a waste disposal unit.	
Secure the pneumatic ON/OFF button in the position indicated in the photo and connect it to one end of the pipe.	
Connect the other end of the black pipe to the waste disposal unit. Be careful not to crush the pipe.	
Connect the power cable as explained in chapter 5.10.1.	

Installation is finished.
Before using the waste disposal unit, read the following notes carefully.

5.10.3. Warnings

What must never be inserted in the waste disposal unit:

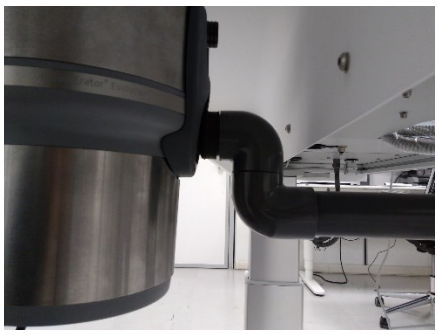
- Bones
- Glass
- Metal
- Plastic
- Wood
- Oil and grease
- Paper
- Gauze
- Metal clips
- Suture thread
- Metal items
- Reagents not compatible with the instrument (refer to chapter 1.4).

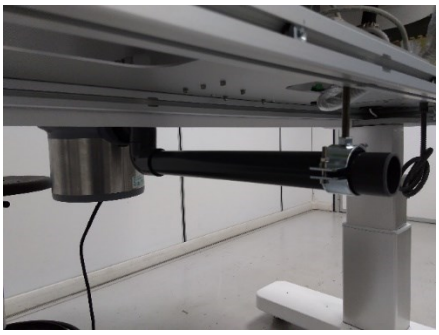
Maximum dimensions of the objects that can be dissipated in the Waste disposal unit: 20mm x 15mm x 10mm.

5.10.4. UltraGROSS waste disposal hose kit (CODE 102896A). Waste disposal unit not included

The kit includes:

- Tubes for connection:





5.10.5. How to use the Waste disposal unit correctly

Normal and correct usage procedure of the Waste disposal unit.

- Open the water tap.
- Switch on the Waste disposal unit with the specific button.
- Slowly introduce waste tissue in a gradual manner, without overloading, making sure there are none of the items listed above.
- When dissipating the waste, when noise stops it means that the cycle is finished.
- Switch off the Waste disposal unit with the specific button.
- Leave water running for 2-3 minutes.

If the above provided procedure is not strictly followed, malfunctions could arise making technical interventions necessary.

While using the waste disposal unit, remain close to the sink to be able to immediately stop operation should there be any strange noises so as to avoid any damage.

5.10.6. Maintenance

Periodically check the fittings and connections to avoid any water leaks.

Clean the waste disposal unit weekly with a dedicated biological product.

These products must be used with caution. Any mistakes could cause flooding or damage to the unit.

Do not clean with pipe unblocking products (chlorine or orthophosphoric acid).

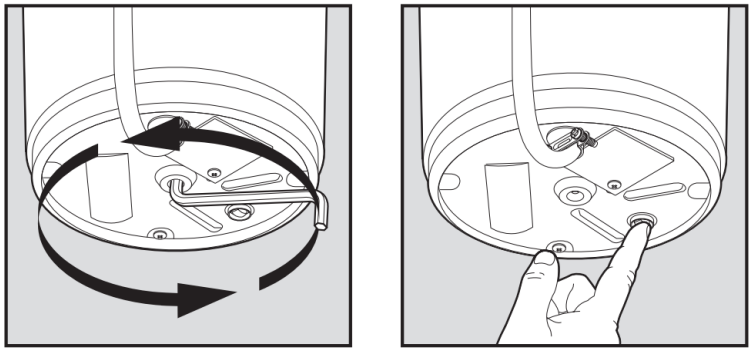
For decontamination refer to chapter 4.

5.10.7. Troubleshooting

Should the waste disposal unit block, do not try to unblock it by inserting your hands or tools but rather use the supplied Allen wrench. Follow the instructions below.

What to do if the Waste disposal unit blocks or switches off automatically

- Disconnect power.
- Using the supplied Allen wrench, unblock the disk of the waste disposal unit by turning it completely three times clockwise and anti-clockwise.
- Extract the foreign body that caused the blockage.
- Reconnect power.
- Turn the automatic switch back on.



What to do if unallowed items drop accidentally

- Disconnect power.
- Extract the foreign body that caused the blockage.
- Reconnect power.

What to do in case of a reduced water outflow

- Disconnect power.
- Call customer support.

Caution: the heat sink considerably reduces grinding capacity.

What to do if water leaks from the Waste disposal unit body or it makes strange noises

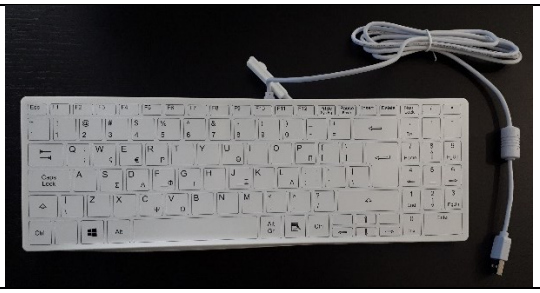
- Disconnect power.
- Call customer support.

5.11. Polarised Lens for Camera MX (only for letter C)

CODE	DESCRIPTION	IMAGE
370731	Ø67mm circular polariser filter to reduce reflection	

First fit in the polarized lens and then also screw in the lens in use.

5.12. USB Water proof (sealed) keyboard

CODE	DESCRIPTION	IMAGE
372352 (US)	USB Water proof (sealed) keyboard with Touchpad with IP68 protection against water and dust. Available in the following languages: CODE: 372352BE Belgian 372352DE German 372352ES Spanish 372352FR French 372352IT Italian 372352RU Russian 372352UK English Portuguese keyboard available without touchpad code 372352PT	
372402GR	IP65 rating Greek keyboard with silicone USB cover, without touch pad.	

5.13. License

MacroPATH and MacroPATH SK are always supplied with a FULL license valid for a single PC.
If required, extra licenses may be bought for additional PCs that MacroPATH can be installed on (for example on office PCs), which are not required to access Viewer mode only (refer to operator manual MM201-MacroPATH).

CODE 370751	EXTRA LICENSE MacroPATH MacroPATH extra license on USB key which includes: - digital image acquisition in JPG format (only with Milestone camera connected) - video acquisition in MP4 format (only with Milestone camera connected) - annotation capabilities (sizing, blocks sampling, free hand drawing etc) - voice recording in MP3 format - possibility of zooming in images already saved for detailed examination - case report generation suitable for Microsoft Word Office.	

5.14. LOOX Eye-Control for MacroPATH (only for letter C)

This optional part CODE 370635 allows you to visually check some MacroPath functions.
For its use, refer to the MM171 LOOX Eye-Control for MacroPATH operator manual supplied with the instrument.

5.15. C-Scan – Automatic Cassette Detecting System

CODE 370640.

C-Scan is used to speed up the procedures for: reading codes on the cassette, opening a case and acquiring an image.
To use it, you need to purchase a licence.
The box includes two USB keys:

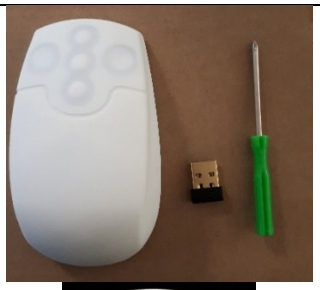
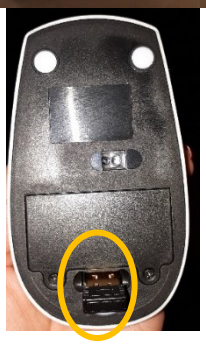
- the Halcon key that must be kept connected to the PC on which you want to run C-Scan, otherwise the licence cannot be seen.
- a Milestone key with the licence file to be used during installation.

The MacroPath camera includes a laser pointer indicating where the centre of the cassette to be read should be placed. Once the cassette has been positioned, the code is automatically read, the case is opened and a photograph is taken. This procedure will be explained in detail in this chapter.

With C-Scan, 1 cassette can be managed at a time (1 code only).

Refer to MM201-MacroPATH and MacroPATH SK-Operator Manual for information about how to install and use it.

5.16. Mouse wireless optical in silicone

CODE	DESCRIPTION	IMAGE
372363	Mouse wireless optical in silicone	  USB

2 AAA batteries are required (not included): use the screwdriver supplied to unscrew and close up again as shown below.

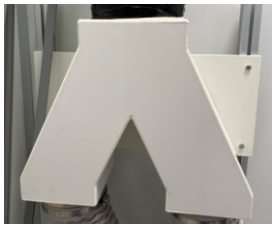

5.17. Double Arm Led Lamp

CODE: 109219

Characteristics:
Dual arm.
Two flexible 60cm arms.
Lighting: two high-efficiency 3.5 W LEDs.
External power supply, input 110-240V~50/60Hz, output 12Vdc 1500 mA.
Brightness control potentiometer.

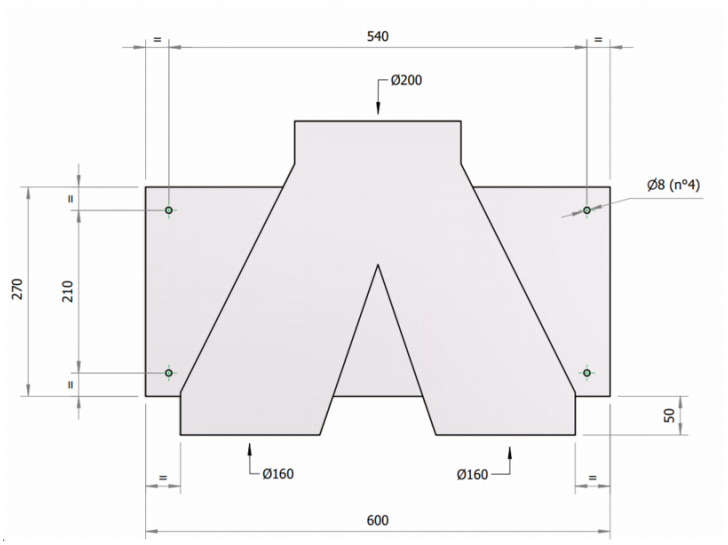
5.18. Conveyor Kit

It is possible to connect the two air outlets of the instrument to a single outlet using this optional part CODE 109254.
It includes: conveyor kit, 2 m flexible pipe Ø 200mm with two metal straps.
Inlet 2x Ø160mm.
Outlet 1x Ø200mm.



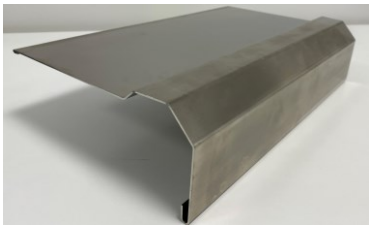
Coupling material: PVC.
Dimensions: 600x530x230mm.
Weight: 5.8kg.

It must be fixed to the wall with the 4 dedicated holes.
Use specific fixing systems based on the type of wall used.



5.19. Keyboard support

CODE 109170
You may couple this optional part along the entire front baffle.
Material: AISI 304 stainless steel.
Surface dimensions where the keyboard is placed:
390mm x160mm.



5.20. Inlet water pressure regulator

This optional part CODE 102726U must be installed on the water inlet if the pressure of the laboratory's water system is higher than the parameters indicated in chapter 2.5.9.
It must be installed on both water inlets.

Inlet: 1/2'' female.
0-6 bar pressure gauge included.

Maximum pressure 6 bar.
Fluid temperature MIN: +2°C MAX 52°C.

The pressure switch must be assembled in two operations: first the part with a 90° bend and then the part with the pressure switch.

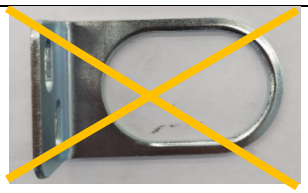
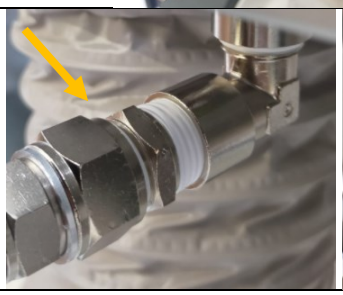
Should you wish to fix the pressure switch downwards and not towards the back of the instrument, the 90° bend must be removed.

During assembly operations, pay attention not to move the two fittings on the pressure switch as they are fixed with the sealant.

The bracket for wall fixing and a 1/2 washer are also supplied.

The assembly instructions are provided below.

The parts included are shown below:

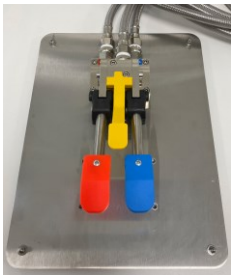
	Throw away the following part:
 	Go to the instrument
	Mount the part with 90° bend
	Secure the pressure regulator
 	Be careful to insert the washers included in the kit as shown by the arrows in the images.

5.21. Foot Tap with hoses and support

This optional part CODE 102958 allows you to dispense hot or cold water with your feet.
It includes: three 3 m flexible pipes, ½'' female inlets, ½'' male outlets.

The pedal inlets are connected to the hot and cold water of the laboratory, the pedal outlet must be connected to the instrument (cold water inlet). Plug the hot water inlet of the instrument.

When present, the clinical lever of the tap on the work surface must remain open and turned to the cold water position.
Pressing the blue pedal: continuous dispensing of cold water.
Pressing the red pedal: continuous dispensing of hot water.
Simultaneously pressing red and blue pedals: continuous dispensing of mixed water.
Pressing yellow pedal: release water closure.

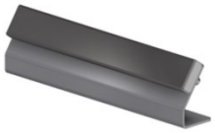


Fluid temperature MIN: +2°C MAX 52°C.

5.22. Follow Me, Movable magnetic Bar

CODE 109218
It is recommended to use this for small objects; for all the rest, use the fixed bar included in the instrument.
It can be placed wherever you want on the work surface.

Dimensions: 300 x 50 x 75mm.
Weight: 1.3kg.
Material: AISI 304 stainless steel.



5.23. Superior Monitor and Keyboard Arm

CODE 109585
A monitor weighing up to 9kg can be connected with the VESA 75/100 bracket along the entire crosspiece bar of the instrument in the required position. To install the keyboard support arm, refer to chapter 2.5.5.

If the PC supplied by Milestone is installed (PC with 21” touch screen), the minimum and maximum heights of the top of the PC will be:

- Maximum height: 2290cm (901.6 inch)
- Minimum height: 186cm (73.2 inch)

5.24. Lateral Monitor and Keyboard Arm

CODE 109584
A monitor weighing up to 9kg can be connected with the VESA 75/100 bracket on the right or left of the instrument. To install the keyboard support arm, refer to chapter 2.5.4.

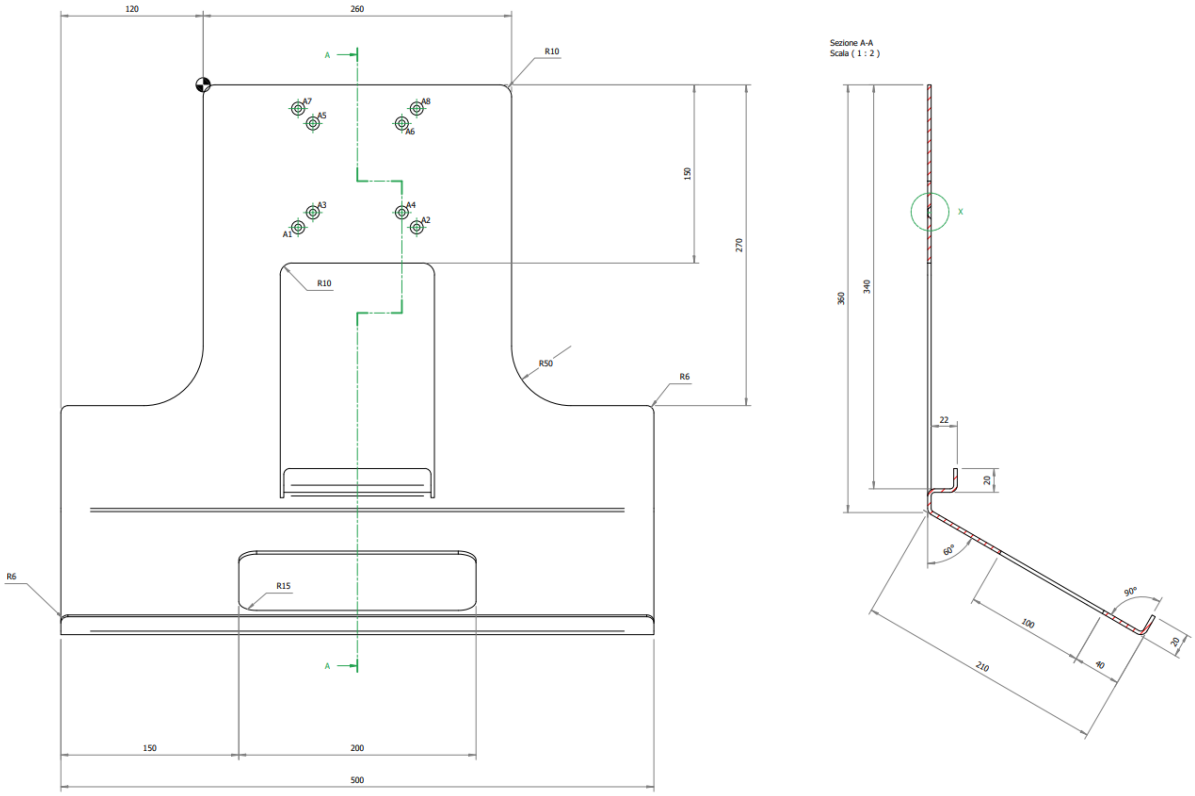
If the PC supplied by Milestone is installed (PC with 21” touch screen), the minimum and maximum heights of the top of the PC will be:
- Maximum height: 185cm (inch)
- Minimum height: 125cm (inch)

5.25. Keyboard Arm with Block notes support

CODE 109290
An extra side keyboard support with clipboard holder can be connected.
The system includes: articulated arm, keyboard support, fixing plate and clipboard holder.

To install the arm and the keyboard support, refer to chapter 2.5.4.
Maximum capacity: 9kg.

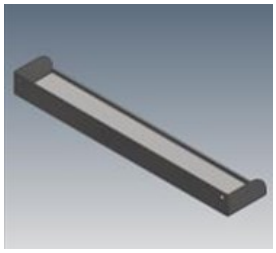
Adjustable keyboard surface dimensions:



Support for clipboard with A4 sheets, to be placed in the specific housing on the keyboard support.
Dimensions: 230 x 315mm.
Material: aluminum.

5.26. Stainless steel Shelf

CODE 109046.
Dimensions: WxD 450 x 90mm.
Weight: 650 g.
Material: AISI 304 stainless steel.



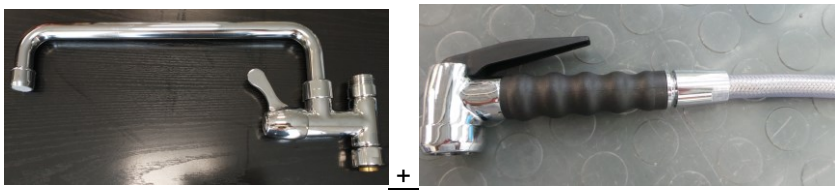
5.27. Fixed Magnetic Bar

CODE 109331.
Metal objects, such as tweezers and blades, can be attached on the bar.

Dimensions: WxD 300 x 40mm.
Material: AISI 304 stainless steel.
Install it using the two supplied screws.

5.28. Second tap unit

CODE 109266
It is already included in the version /VIRCHOW.
This optional part is used to add a second water dispenser only if the washbasin is installed in the middle.
consisting of: dispenser with 300mm spout and diverter shower tap and special hose.



Follow the installation instructions below.
Remove the flexible pipe with shower tap from the unit and remove the chrome reducer (see photo).

Install the entire block on the unit (dispenser with rigid spout, diverter, shower tap and special pipe).

5.29. Shower tap

CODE 102963
Shower tap with double spray.

5.30. Shower tap pipe

CODE 109259
Pipe for shower tap.

5.31. VIRO CLEAN EASY

CODE 109351B

The device works with a dry hydrogen peroxide mist. Use a heating and ionizing turbine that sprays the disinfectant liquid after it is transformed into an extremely dry mist. This mist is non-wetting and without moisture, with an average particle size smaller than 5µm. It guarantees a quick and even saturation on the treated surfaces.

The device is supplied without liquid; refer to the next chapter.

Before starting the process, the surfaces must be cleaned.

Device size: WxDxH 32 x 43 x 37cm.
Weight: 8kg.
Absorption: 1000W.
Operating voltage: 230V~50Hz.
The power cable must be connected to a socket outside of the device.

For further information on the device, see the manual supplied with UltraGROSS.

PACKAGING: 59 x 45 x 42cm cardboard box.
The included parts are shown in the figure:

VIRO CLEAN EASY device

2.5m connection tube.

Connecting cable between VIRO CLEAN EASY and UltraGROSS.

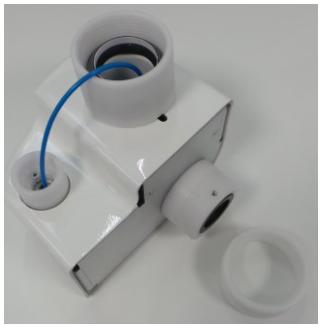
VIRO CLEAN EASY power supply cable.

- Install the device as explained below.

Place the device on the ground. The device can be placed either on the right or left of the instrument (in the picture it was placed on the left).

Remove the closing cap on the glass.

Unscrew the ring nut from the dispenser, as shown in the picture.



Insert the dispenser into the hole on the glass and block it with the specific ring nut on the opposite side of the glass.

Insert and screw the tube into the device and the dispenser.

Connect the reagent bottle to the dispenser without crushing the dip tube.

Connect the 2.5 m control cable to UltraGROSS (left image below, rear right or left side) and to VIRO CLEAN EASY, as explained in chapter 2.8.2.


Connect the supplied power cable to a socket outside of the device and switch on the device with the relative ON/OFF button.

The figure shows the result.

Before each use:

- Check the general cleanliness of the device.
- Upon switch-on, check for any error messages.

If all the aforementioned conditions are met, the device can be considered ready for use.

- See chapter 2.6.5 for starting the program.
- In case of errors, the appliance will trigger an alarm on its terminal.

Only use the reagent shown in the next chapter.

Do not stand within 2 meters around the device for at least 30 minutes from the end of the decontamination cycle.

Do not carry out more than 8 sanitizing operations in 8 working hours. During the sanitation cycle, the device emits 90 decibels for 30 seconds, check local regulations in force.

CYCLE DETAILS:
-Consumption: 5ml/cycle
-Cycle time: 80 seconds

To manage liquid expiration, see chapter 2.6.5.

The following figure shows the space of the two extra bottles.

MAINTENANCE
If necessary, you may clean the external body with a moist cloth and non-corrosive substances.
Make sure that the air vents located on the sides of the device are always clear and clean them regularly by removing any foreign material.
Before replacing with new decontaminant, it is recommended to run three device cycles adding demineralized water to the rinsed and clean tanks after having removed any possible residue of hydrogen peroxide from them.
When changing the liquids, delicately probe the hole between the two golden pins at the end of the liquid exhaust tube of the tank with an insulin needle (25 G), injecting at least 1 ml of distilled water inside. Do not use needles thicker than 0.5mm, to avoid damaging or enlarging the external hole.

5.32. Supraspor

CODE 109350
Peroxide-based disinfectant liquid.
Box including N. 6 x 1 Liter bottle and N. 6 Spray triggers.

For information on safety and waste disposal, see the safety data sheet and the technical data sheet supplied with the instrument.

The disinfectant can be used with the VIRO CLEAN EASY device described in the previous paragraph, or else to directly clean and decontaminate the instrument, referring to chapter 4.

Composition: 5% hydrogen peroxide, 10% ethyl alcohol.
Expiration: 2 years.
Shelf life: 12 months from when opened.

5.33. Ink holder plate

CODE 102725
Dimensions: 420 x 95mm.
Material: AISI 304 stainless steel.

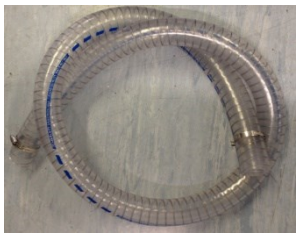
5.34. Tank 10 liters for exhaust Formalin

CODE 109343
It is used for the drain fixative. Complete with cap.

Material: HDPE
Capacity: 11 liters
Approximate weight: 410 g
Stackable tank
Dimensions: WxDxH 200x210x325mm
Neutral color
Refer to chapter 2.5.14 for its installation.

5.35. Wastewater pipe

CODE 102877
internal Ø 40mm with 2 metal straps 5m long.



5.36. Exhaust fumes pipe

CODE 102430 – ordered by meter.
Ø internal 160mm length.
Metal strap (CODE 105037).

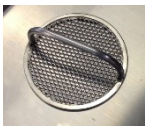
5.37. Fixative loading pedal

CODE 109325
Only for letter F.

5.38. Drain filter

CODE 102558
Material: AISI 304 stainless steel.

Refer to chapter 2.5.8 for the installation procedure.



5.39. Ventilated surface filter

CODE 109338
Material: AISI 304 stainless steel.

Refer to chapter 2.5.8 for the installation procedure.

5.40. Set of Allen screws

CODE 102138

5.41. Foot Pedal (only for letter C)

CODE 370033

5.42. Wrench 8-10mm

CODE 109617

5.43. Sizing ruler

CODE 40219

5.44. Spare Lens +1,5 with case for camera MX (only for letter C)

CODE 370735A
To be used with MacroPATH.

5.45. Microphone

CODE 370039

5.46. Loading tank steel safety cable

CODE 109256

5.47. Glass disassembly spanner

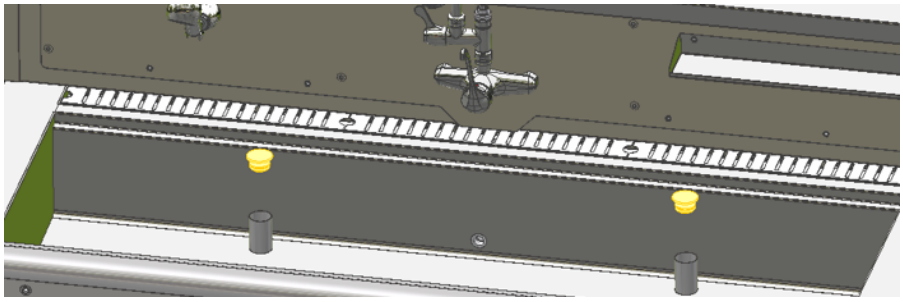
CODE 109345

5.48. Touch-Pen (only for letter T)

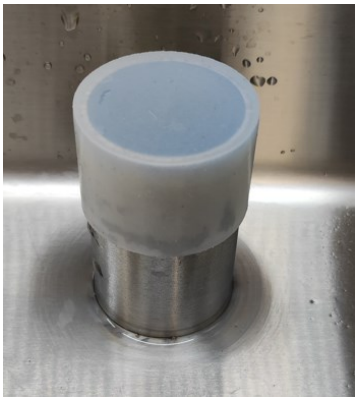
CODE 370756

5.49. Fixative drain closing cap

CODE 109108 4 of them.
Caps for closing fixative drain (when not used).

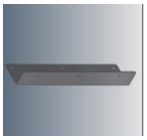


A fitted and non-fitted cap are shown in the figure.

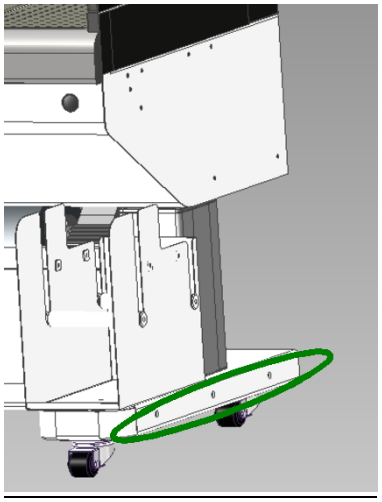


5.50. Anti-seismic bracket

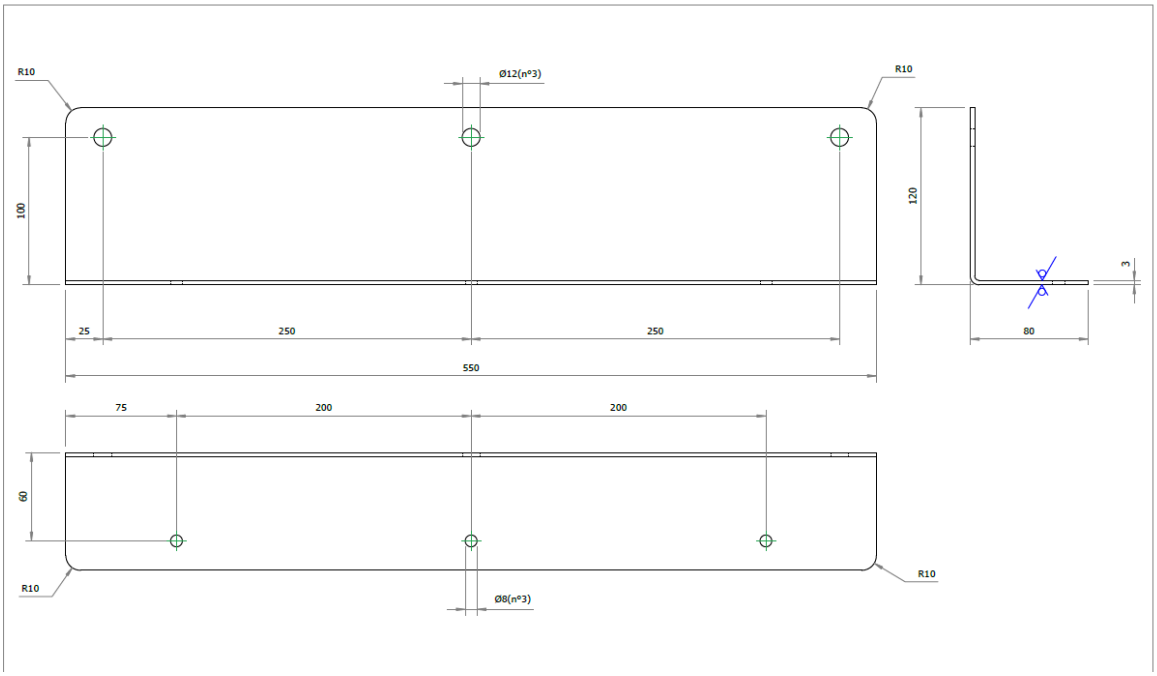
CODE 109035
2 must be ordered.



Secure it to the instrument with the 3 supplied screws in the point indicated in the following image.



Bracket dimensions:



5.51. Politainer Adapters kit for fixative loading system GL38 (f) – S55 (m)

CODE 109020

The kit is used to adapt the thread of pre-filled cubitainers GL38 (f) to Milestone loading system S55 (m).

6. TROUBLESHOOTING

6.1. Milestone remote connection

A remote connection can be made between the PC on which the MacroPath program is installed and customer support; for details refer to the MM201 operator manual supplied with the instrument.

A remote connection can be made between the terminal of the UltraGROSS instrument and customer support; for details see chapter 2.6.10.

6.2. Return for repair to the manufacturer

This instrument is usually installed in laboratories where there are specimens and other biological tissues. For your safety, therefore, you must clean it and decontaminate it before coming into contact with it, and wear gloves when using this instrument.
You must wear gloves when operating the system.
If the instrument needs to be returned to MILESTONE SRL for repairs, the instrument must be cleaned and decontaminated prior to shipment to Milestone s.r.l. Please refer to chapter 4. Any instruments that have not been decontaminated will not be accepted and you will be contacted with regard to the decontamination cost. In accordance with international health standards, biohazard materials must be shipped in appropriate packages (risk of fines).

Refer to chapter 4.

7. WASTE DISPOSAL

Personnel involved must wear suitable personal protective equipment.

7.1. Waste disposal of SUPRASPOR bottles

Vapors may remain in empty containers. Treat empty containers as hazardous.

Waste material should be disposed in an approved incinerator in compliance with all applicable national and local regulations.

7.2. Waste disposal of SUPRASPOR

See the safety data sheet and technical data sheet of the reagent supplied with the instrument.

7.3. Disposal of used fixative

Vapors may remain in empty containers. Treat empty containers as hazardous.
Waste material should be disposed of in an approved incinerator or in a designated landfill site, in compliance with all federal, provincial and local government regulation.
Some reagents may have potential health effects and cause environmental pollution if not correctly disposed of.

Please refer to the MSDS (Material Safety Data Sheet) provided by your reagents supplier.

7.4. Waste disposal of filters (if present)

Refer to the technical assistance manual.

8. DISPOSING OF THE INSTRUMENT

This instrument is usually installed in a laboratory where specimens and other biological tissues are present. For your safety, you must therefore clean and decontaminate it before coming into contact with it. You must wear gloves when operating the system.
In case of return, the instrument must be cleaned and decontaminated before sending it back to Milestone. Non-decontaminated instruments will not be accepted and you will be required to pay the relative decontamination cost.
International health rules require that shipments of biohazard materials are not done in standard packages (risk of sanctions).

For cleaning up and decontamination of the instrument refer to chapter 4.

For further information, please contact the manufacturer: **application@milestonemedsrl.com.**

Removal of the equipment for disposal:

1) Switch off the appliance. Disconnect the socket.
2) Disconnect all optional parts connected to the instrument, if any.
3) Clean and decontaminate all parts of the equipment according to the manufacturer's specifications.
4) Remove all electric and electronic parts of the equipment.

In compliance with directive 2012/19/EC of the European Parliament of 4 July 2012 on waste electrical and electronic equipment (WEEE), the separate collection of equipment is mandatory.
It is required to return the used equipment to the distributor or to inquire about the presence of a local system for collection and disposal of electrical and electronic equipment.
Failure to comply with Directive 2012/19/EC may have a potential impact on the environment and human health.

This symbol indicates separate collection for electrical and electronic equipment.

If additional requirements on accident prevention and environmental protection exist in the country of operation, this instruction manual must be supplemented by appropriate instructions to ensure compliance with such requirements.

CE

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PATIENTS

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TAM:	**Tom Isbell**	Address:	**3900 Woodland Avenue**
Quote No.:	**M14351**		**Philadelphia, PA 19104**
Date:	**2/14/2024**		
Contact:	**David Santiago**	Ship to:	
E-mail:	david.santiago2@va.gov	Address:	
Phone:	**412-822-3746**		

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Please submit all orders to: orders@milestonemed.com

P/N	Description	Qty.	Unit Price	Total Price	ECAT Price	Branch Medical Price
180CTSDFRAU/R	**UltraGROSS, Rosai edition 180cm Active (115V~ 60Hz) 1Ph**	1	$ 171,675.00	**$ 171,675.00**	**$ 116,220.00**	**$ 105,760.20**
	Active air exhaust					
	Working Area: Sink 500mm width ; Blue cutting board 500mm width; Funnel 500mm width					
	Exhaust fixative draining system					
	Fresh Fixative loading system					
	Backwall shelf x1					
	Magnetic bars for knive holding: Mobile x1 and wall mounted x1					
	MacroPATH with POC (all-in-one touchscreen PC) with keyboard					
	Lateral monitor & keyboard support x1					
109225	**Kit with 2 internal active charcoal filters for 150 models**	1	$ 1,165.50	**$ 1,165.50**	**$ 851.69**	**$ 775.04**
102896	**PVC Tube diameter 40mm**	1	$ 21.00	**$ 21.00**	**$ 15.53**	**$ 14.13**
102907Z	**In-Sink Garbage Disposal**	1	$ 1,187.69	**$ 1,187.69**	**$ 682.93**	**$ 621.47**
INSTALL	**Operator Training**	1	$ 2,500.00	**$ 2,500.00**	**$ 1,500.00**	**$ 1,500.00**
			Package Price:	**$ 176,549.19**	**$ 119,270.15**	**$ 108,670.84**
				Shipping:		**$ 5,000.00**
				Grand Total:		**$ 113,670.84**

Terms & Conditions

Prices FOB Kalamazoo, MI. Freight prepaid and added to the invoice.
If a 3rd party carrier is preferred, please detail this on the Purchase Order and indicate freight collect terms. Handling charges apply.
Warranty: 12 months from date of installation but no longer than 13 months after delivery.
Shipment: 12-14 weeks from receipt of order.
Payment: Net 30 (based on credit approval)
Validity of the offer: 30 days.

A2.0 SUBMITTAL REGISTER