BID NO.: 695	**PROJECT NAME & LOCATION:** New York City College of Technology 300 Jay Street, Brooklyn NY 11201
Description: Furnish, Deliver and Install a Dental Vacuum System **Bid Open Location**: DASNY 515 Broadway, Albany, NY 12207	
Bid Open Date: May 26, 2021 **Bid Open Time**: **2:30 p.m.**	**Contact**: Kristen Costello

NOTICE TO BIDDERS

MAIL BIDS EARLY

Sealed bids will be received by DASNY at the above address for the items listed in the attached Bid Breakdown and Schedule. When submitting your bid you must:

1. Prepare your bid on the attached Bid Breakdown and Schedule. Return one signed original of the Bid Breakdown and Schedule

2. If your bid deviates from Specifications, explain such deviations or qualifications on your letterhead, setting forth therein such explanations, and attach them to the Bid Breakdown and Schedule.

3. Submission of a bid constitutes full knowledge and acceptance of all provisions of the Notice to Bidders, all information referenced in the Purchasing General Conditions, Supplemental and Detailed Specifications, the Bid Submission and any Supplemental General Requirements contained herein, as well as any addenda issued in relation to the Invitation for Bids.

4. Each bid shall bear on the outside of the envelope the name of the bidder, address, telephone number and designated as a bid for the following:
   DASNY Bid No. 695
   Bid Opening Date: May 26, 2021 @ 2:30PM
   Return to:
   DASNY
   Attn: Purchasing Unit
   515 Broadway
   Albany, NY 12207-2964

When a sealed bid is placed inside another delivery jacket, the bid delivery jacket must be clearly marked on the outside **"BID ENCLOSED"** and **"ATTENTION: PURCHASING UNIT".** The Dormitory Authority will not be responsible for receipt of bids which do not comply with these instructions.

5. Mail bid responses early in order for them to be received before the time of the bid opening. **Late bids will be automatically rejected**. Individuals submitting bids in person or by private delivery services should allow sufficient time for processing through building security to assure that the bids are received prior to the deadline for submitting bids. All individuals who plan to attend bid openings will be required to present government-issued picture identification to building security officials and obtain a visitor's pass prior to attending the bid opening.

6. In accordance with State Finance Law § 139-j and 139-k, this solicitation includes and imposes certain restrictions on communications between Dormitory Authority personnel and an Offerer during this procurement process. Designated contact for this solicitation is: Kristen Costello, at Dormitory Authority – State of New York, 515 Broadway, Albany, NY 12207. Contacts made to other Dormitory Authority Personnel regarding this procurement may disqualify the Offerer and affect future procurements with governmental entities in the State of New York. Please refer to the Authority's website www.dasny.org for Authority policy and procedures regarding this law, or the NYS office of General Services website www.ogs.ny.gov/BU/PC/ for more information about this law.

Bid No.: 695

If you are not submitting a bid it is requested that you complete and return the lower portion of this form

(Please check all that apply and provide comments in the space provided, if necessary)

- ☐ We are not Submitting a bid.
- ☐ We Request removal of our name from the mailing list.
- ☐ Location of the job site.
- ☐ Commodity is not carried by our company.
- ☐ Scope is too large.

Other/Additional Explanation: _____

_____

NAME OF BIDDER: _____

ADDRESS: _____

Street City State Zip

Telephone

_____ _____

Signature of Bidder Official Title

NEW YORK STATE OF OPPORTUNITY. | DASNY

CLAUSES PURSUANT TO THE OMNIBUS PROCUREMENT ACT OF 1992

It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority and woman-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York subcontractors and supplies is available from:

Empire State Development
Small Business Division
30 South Pearl Street, 7th Floor
Albany, NY 12207
Phone: (800) 782-8369

A directory of minority and woman-owned business enterprises is available from:

Empire State Development
Division of Minority and Women Business Development
30 South Pearl Street
Albany, NY 12207
Phone: (518) 292-5250

Online Directory: https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp
DASNY maintains a directory of minority and women-owned business enterprises:
http://www.dasny.org/construc/mwsbereg/index.php

The contractor acknowledges notice that New York State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

DASNY encourages the use of recycled Materials in the manufacturing process. To that end, the recycled product must meet the same codes, specifications and standards the non-recycled materials do, including requirements for cost, installation, aesthetics, availability and maintenance.

The Omnibus Procurement Act of 1992 and § 2879 of the NYS Public Authorities Law require that by signing this bid, contractors certify that whenever the total bid amount is greater than $1 million:

1. The contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and Subcontractors on this project, and has retained the documentation of these efforts to be provided upon request to the State. If the contractor determines that NYS business enterprises are not available to participate on the contract as subcontractors or suppliers, the contractor shall provide a statement indicating the method by which such determination was made. If the contractor does not intend to use subcontractors, contractor shall provide a statement verifying such;

2. The contractor has complied with the Federal Equal Opportunity Act of 1972 (PL 92-261), as amended; and

3. The contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The contractor agrees to document these efforts and to provide said documentation to the State upon request.

DASNY is required by law to notify the NYS Department of Economic Development of any procurement contract for one million dollars or more that is to be awarded to an out-of-state vendor. This notice must be done simultaneous to the notification of award provided to the vendor. A purchase order or contract cannot be issued until fifteen (15) days after such notification is provided.

NEW YORK STATE OF OPPORTUNITY. | DASNY

GENERAL SPECIFICATIONS

(1) The enclosed Purchasing General Conditions are hereby incorporated by reference. Submission of a bid response shall constitute acceptance of such conditions. Any exceptions/clarifications/qualifications to these conditions or other specifications and/or requirements contained herein must be clearly stated in the bid response and, depending upon the nature of such, may be grounds for rejection of your bid.

(2) Bids must be submitted in the bidder's full legal name, or the bidder's full legal name plus a registered assumed name, if any.

(3) All NYS bidders are required to be registered to do business with the NYS Department of State or their local County Clerk, whichever is applicable.

(4) All out-of-state bidders will be required to provide proof of registration to do business in their state. All out-of-state bidders that "do business in New York State" MUST BE REGISTERED WITH THE NYS DEPARTMENT OF STATE. Please contact the NYS Department of State at (518) 473-2492. Information is available at the DOS website: www.dos.ny.gov

(5) DASNY is required by law to notify the Empire State Development of any procurement contract for one million dollars or more that is to be awarded to an out-of-state vendor. This notice must be done simultaneous to the notification of award provided to the vendor. A purchase order or contract cannot be issued until fifteen (15) days after such notification is provided.

(6) Empire State Development is required by law to identify states and other jurisdictions that impose preferences or other penalties against New York bidders. DASNY is precluded from soliciting bids or entering into procurement contracts with companies that have their principal place of business located in one of the listed jurisdictions, unless the procurement is for a product that is substantially manufactured in New York State or the services are to be performed in New York State. Currently, this list of jurisdictions includes the states of Alaska, Hawaii, Louisiana, South Carolina, West Virginia and Wyoming.

(7) Unless otherwise indicated, any reference to brands or model numbers is intended to establish a standard. Items of all manufacturers will be considered, provided the item is determined to meet or exceed the required specification. DASNY's decision as to whether a substitute item meets specification will be final. Your attention is directed to Article II-7, Page 5 of the General Conditions. In order to evaluate substitute items, detailed specifications must be submitted for any product that is other than the one(s) specified in the bid.

GENERAL SPECIFICATIONS CONTINUED

(8) Unless otherwise noted, guarantee on all items is to be one year as detailed in Article XVI of the General Conditions

(9) All upholstered furniture and drapery panels and lining must meet strict flammability requirements. Standards applicable to this bid, if any, will be delineated in the Detailed Specifications.

(10) LABOR/TRADES - Any labor, materials or means whose employment, or utilization during the course of this contract, shall not in any way cause or result in strike, work stoppages, delays, suspension of work; or similar troubles by workers employed by this contractor or his subcontractors, or by any of the trades working in or about the buildings and premises where work is being performed. Any violation by the contractor of this requirement may in the sole judgment of DASNY be considered as proper and sufficient cause for declaring the contractor to be in default, and for the owner to take action against him as set forth in the Purchasing General Conditions, Article VIII, “Termination", or such other action as DASNY may deem proper.

(11) Bid results are available on the DASNY website (www.DASNY.org). Bid results will not be given over the phone.

(12) If you are a NYS Certified Minority or Women Owned Business, please include a copy of your certification with the bid.

SUPPLEMENTAL SPECIFICATIONS

The following items are attached for informational purposes. Referenced documents need not be returned with the proposal. These documents are only applicable to the successful bidder and the ensuing procurement contract. Documents are only applicable to the successful bidder and the ensuing procurement contract. Documents applicable to the procurement that will result from this Invitation for Bids are designated by a check box (☒). Unless otherwise indicated, the referenced documents are located at the end of this Invitation for Bids.

☒ **Purchasing General Conditions** – The DASNY Purchasing General Conditions contains terms and conditions of purchases made by DASNY. It is recommended that this document be reviewed fully.

☐ **M/WBE Utilization Plan and Request for Waiver** - Minority and Women-Owned Business Enterprise (M/WBE) goals for this project are 0% and 0%, respectively. The successful bidder shall be required to complete a Utilization Plan or Request for Waiver, to be approved by DASNY's Opportunity Programs Group. Reference Purchasing General Conditions, Article XIX, Affirmative Action for Contracts Mr. Michael Clay, DASNY Opportunity Programs Group at (518) 257-3464, is available to assist all bidders in attaining these goals. *Reference the enclosed "Good Faith Efforts Guidelines".*

☐ **Supplemental General Requirements** – Attached (if applicable) are the Supplemental General Requirements (SGRs) which provide important logistical information and additional conditions which govern this procurement. Please read these SGRs carefully.

☐ **Form of DASNY Contract** – The procurement resulting from the Invitation for Bids will be executed through a DASNY purchase order and a related contract. The contract executed with the successful bidder will be in the same substantial form as the attached "Form of Contract". Note that this Invitation for Bids and any response to such will be annexed as binding terms of the purchase agreement.

☒ **Certificate of Insurance** *(sample enclosed)* – The successful bidder will be required to provide a Certificate of Insurance pursuant to Article XIV of the enclosed Purchasing General Conditions. The certificate shall name DASNY and other designated parties as additional insureds.

SUPPLEMENTAL SPECIFICATIONS CONTINUED

☒ **Worker's Compensation / Disability Insurance** – The successful proposer will be required to provide specific documentation with respect to Worker's Compensation and Disability Insurance pursuant to Article XIV of the enclosed Purchasing General Conditions. Requirements are detailed in the enclosed "Workers' Compensation and Disability Benefits Requirements" document.

☐ **Prevailing Wage Schedule** – NYS Labor Law requires all wages paid by contractors and subcontractors on public work projects be paid at the prevailing wage rates. Enclosed is the current rate schedule for the appropriate county. Contractors and Subcontractors are responsible for obtaining current rates throughout the course of the project. The NYS Department of Labor (NYS DOL) updates these rates on July1st of each year. Current rates can be obtained on the NYS DOL website (www.labor.state.ny.us) or by fax at (518) 485-1870. Note that an executed Contractor and Subcontractor Certification and certified payrolls, which include the hours and days worked by each workman, laborer or mechanic, the occupation at which he worked, the hourly wage rate paid and the supplements paid or provided, must be submitted with each and every payment requisition. **DASNY will not process an invoice without this information.** Forms are available on the DASNY website: http://www.dasny.org/construc/forms2/vendors.php

☐ **Labor and Material Payment Bond –** The successful bidder must be prepared to provide surety bonds prior to award in accordance with Article XIV of the DASNY Purchasing General Conditions. The costs of these bonds are to be separately stated in the total bid price as indicated on the Bid Breakdown and Schedule.

☐ **Performance Bond –** The Successful bidder must be prepared to provide surety bonds prior to award in accordance with Article XIV of DASNY Purchasing General Conditions. The costs of these bonds are to be separately stated in the total bid price as indicated on the Bid Breakdown and Schedule.

☒ **Standard Vendor Responsibility Questionaire (SVRQ) –** The successful proposer, in accordance with Article XXII of DASNY Purchasing General Conditions, will be required to complete the enclosed SVRQ. The award of a contract will be subject to a review of the information contained in these forms.

SUPPLEMENTAL SPECIFICATIONS CONTINUED

☐ **NYS Uniform Contracting Questionnaire (UCQ) –** The successful proposer will be required to complete the enclosed UCQ. The award of a contract will be subject to a review of the information contained in these forms.

☐ **DASNY Contractor and Consultant Questionnaire (CCQ)** – The successful proposer will be required to complete the enclosed CCQ. The award of a contract will be subject to a review of the information contained in these

ANDREW M. CUOMO
Governor

ALFONSO L. CARNEY, JR.
Chair

REUBEN R. MCDANIEL, III
President & CEO

Supplemental General Requirements

RFI's

All questions shall be submitted to kcostell@dasny.org by COB May 11, 2021. Responses will be posted to DASNY's website no later than May 17, 2020.

Site Visit

A site visit will be held at 10:00 a.m. on Wednesday, May 5, 2021. Bidders should meet in the lobby at 300 Jay Street in Brooklyn. The point of contact for the site visit is Juan Alvarez JMAlvarez@citytech.cuny.edu.

NEW YORK STATE OF OPPORTUNITY. | DASNY

SCOPE OF WORK and DETAILED SPECIFICATIONS

The Dormitory Authority of the State of New York is seeking authorized dealers and installers of the specified dental vacuum system for the New York City College of Technology's New Academic Building's Dental Suite. The successful bidder shall furnish, deliver and install the specified dental vacuum system and remove the existing dental vacuum system. The plumbing and final electrical connections will be handled by others and is not part of this Bid.

PART NUMBER	DESCRIPTION
VS60	Vacstar Dry Vac System 60 simultaneous users
E5129	CA4 Amalgam Separator (2x p/vacuum)
E5119	Display Clinical Systems (1x per/system)

COMPRESSED AIR / SUCTION / IMAGING / DENTAL CARE

The Technological Advantage for Dental Clinics and Universities

Dental compressed air and suction systems

AIR TECHNIQUES equipped for life®

Superior Technology Matched with Exceptional Service

Air Techniques sets the benchmark for both compressed air and suction systems. As one of the leading manufacturers, we provide equipment solutions for large practices, dental clinics and universities with several hundred treatment, simulation and phantom workstations.

Individual Project Planning

Clinics need a consistent supply of compressed air and suction. This is where high performance with reliable reserves is required. A customized system project plan is necessary to ensure that the solution is precisely tailored to the clinics needs. Our service covers everything from consultation, planning, on-site installation, training and maintenance.

Comprehensive and Customized Service

Our experienced project managers can take on the development of your entire project. The seamless integration of individual compressed air and suction systems in the clinic depends on several factors. We take all your specific needs into account and determine the optimal equipment necessary for your specific application. Our team is there every step of the way to coordinate with architects, contractors, project planners and installers to make sure that everything comes together.

Consulting / Planning

Good consultancy and planning are the basis for the most appropriate design of all suction and compressed air systems.

Selection Of Systems

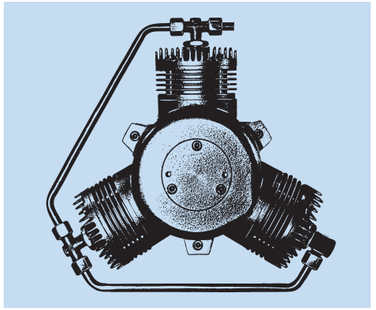
Consistent oil-free compressed air systems for extremely dry, high quality air. Powerful and energy-efficient dental suction systems.

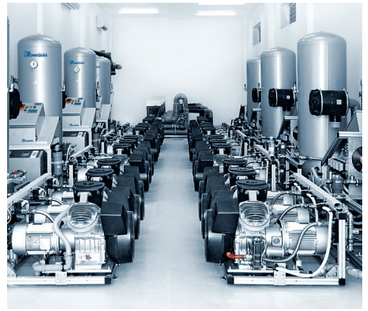
Installation/ Customization

Air Techniques technicians will assemble and install your systems in your practice while taking into account all safety regulations.

Training / After Sales

We won't leave you to fend for yourself after making your purchase – We offer training on a regular basis and provide a customer service, which will answer all your questions.





FOR OVER 55 YEARS:

100% COMMITMENT

WE NOT ONLY DEVELOP
INNOVATIVE SYSTEM SOLUTIONS
BUT ALSO THINK HOW TO PROVIDE YOU
WITH TROUBLE FREE DAY TO DAY OPERATION OF YOUR CLINIC WHILE DOING SO

Superior Quality for Compressed Air Systems

This is what matters:

- Premium compressed air: oil free, 100 % dry and hygienic
- Multiple compressor motors switch on and off according to clinical demand
- Redundancy matters : If one compressor motor experiences a malfunction, other motors will keep the clinic running
- Just one central bacteria suction filter needed for the entire system.

AirStar® Clinical Air Compressor Systems

Part No.	AS60	AS90	AS120
Max Users @ 75%	55	80	105
Max Users @ 100%	40	60	80
Flow Rate @ 85 psi (CFM)	60	90	120
Flow Rate @ 100 psi (CFM)	56.6	84.8	113.1
Power Consumption (HP)	15.0	22.5	30.0
Panel Breaker (A)	40	50	60
Voltage (V)	3~ 480 VAC	3~ 480 VAC	3~ 480 VAC
Electrical Frequency (Hz)	60	60	60
Tank Volume (Gal)	120	120	120
Compressor Dimensions (W x H x D – inches)	51 x 38 x 41	51 x 71 x 41	51 x 71 x 41
Compressor Weight (Lbs)	505	835	1,055
Tank Module (W x H x D – inches)	39 x 82 x 51	39 x 82 x 51	39 x 82 x 51
Tank Module (Lbs)	700	700	700
Total Required Space (W x H x D – inches)	138 x 86 x 111	138 x 86 x 111	138 x 86 x 111

Clinic Suction Systems – Cutting Edge Technology

VacStar® Clinical Dry Vacuum Systems

Part No.	VS60	VS75	VS90
Max Users @ 75%	65	83	100
Max Users @ 100%	50	63	75
Flow Rate @ 0 inHg (SCFM)	400	500	600
Flow Rate @ 8 inHg (SCFM)	250	310	370
Flow Rate @ 10 inHg (SCFM)	210	260	310
Power Consumption (HP)	24.8	31.0	37.2
Panel Breaker (A)	50	60	80
Voltage (V)	3~ 480 VAC	3~ 480 VAC	3~ 480 VAC
Electrical Frequency (Hz)	60	60	60
Pump Dimensions (W x H x D – inches)	58 x 70 x 53	58 x 70 x 53	58 x 70 x 53
Pump Weight (Lbs)	1,075	1,200	1,325
Tank Dimensions inch (ø/H – inches)	26 / 61	26 / 61	26 / 61
Tank Weight (Lbs)	175	175	175

This is what matters:

- Central separation unit made of high grade stainless steel
- The Automatic tank washout cycle will maintain a clean odor free separation tank.
- Cost effective use of power thanks to automatic switch on and switch off of suction motors according to actual operational times and the required volume flow
- Redundancy matters : If one motor experiences a malfunction, other motors will keep the clinic running

The Technological Advantage for Medium Sized Dental Clinics and Universities

Dental compressed air and suction systems designed for up to 60 operatories

This is what matters:

- Continual, constant suction, regardless of the number of simultaneous users
- Virtually eliminate water consumption
- Dramatically reduce power consumption
- Provide for easy installation and even easier expansion of your Mojave system as you grow
- Conserves electricity and prolongs the life of your pumps

Central Controller System

Mojave's exclusive Master Controller (MMC) automatically adjusts the frequency of the pump(s) to maintain the required vacuum level depending on the needs of your dental facility.

Mojave® Clinical Dry Vacuum Systems

Part No.	V15	2V15	3V15	4V15
Voltage Range (Min/Max)	3~ 198-242	3~ 198-242	3~ 198-242	3~ 198-242
Horsepower	6.2	12.4	18.6	24.8
Max. Users @ 100%	15	30	45	60
Panel Breaker (A)	40	40 (x2)	40 (x3)	40 (x4)
Weight (Lbs)	Pump – 250 Tank – 175	Pumps – 250(x2) Tank – 175	Pumps – 250(x3) Tanks – 175(x2)	Pumps – 250(x4) Tanks – 175(x2)
Tank Dimensions (W x H x D inches)	25 x 42 x 23	25 x 42 x 23	50 x 42*** x 23	50 x 42*** x 23
Pump Dimensions (W x H x D inches)	32.5 x 23.5 x 26	32.5 x 47** x 26	32.5 x 47** x 26 + 32.5 x 23.5 x 26	32.5 x 47** x 26 (x2)

Note: 1 User = 1HVE or 2SEs / **Pumps Stacked / ***Tanks Side-by-Side

AirStar® Air Compressor System

Part No.	AS100
Max Users	14
Compressor Head	Twin 2.4 HP
Flow Rate @ 80 psi (CFM)	20.0
Tank Volume (Gal)	30
Voltage Rating (V)	220 - 3 Phase
Voltage (Min/Max)	198/242
Panel Breaker (A)	30
Wire Size (Gauge)	10
Weight (Lbs)	450
Compressor Dimensions (W x H x D – inches)	46 x 34.5 x 24.5

This is what matters:

- 100% oil-free, dry air performance
- Antimicrobial tank interior powder coating
- Quadruple filtered
- Membrane dryer technology
- Linear Teflon-bonded piston, long-stroke compression
- Can tandem 4 compressors into one system to serve up to 56 simultaneous users.

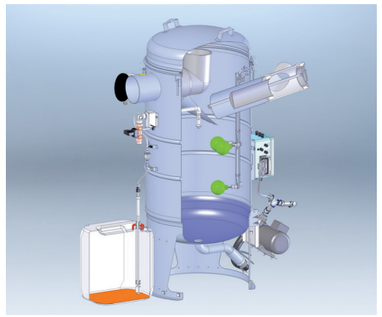
The Central Separation Tank – in stainless steel only from Air Techniques

The Central Separation Tank collects all the secretion discharged from treatment stations, separates the mixture and provides clean air into the suction unit. Amalgam separation occurs after the tank in the CA 4 Amalgam Separators. An automatic integrated flushing and disinfection cycle also reduces the spread of germs inside of the tank.

Central remote monitoring

Central remote monitoring offers clear and comfortable querying of fault messages, operating hours, filter replacement, handling, etc. of all Air Techniques clinical air and vacuum systems (AirStar & VacStar Clinical systems only). Even the connection to the existing central control center can be carried out via potential free contacts.

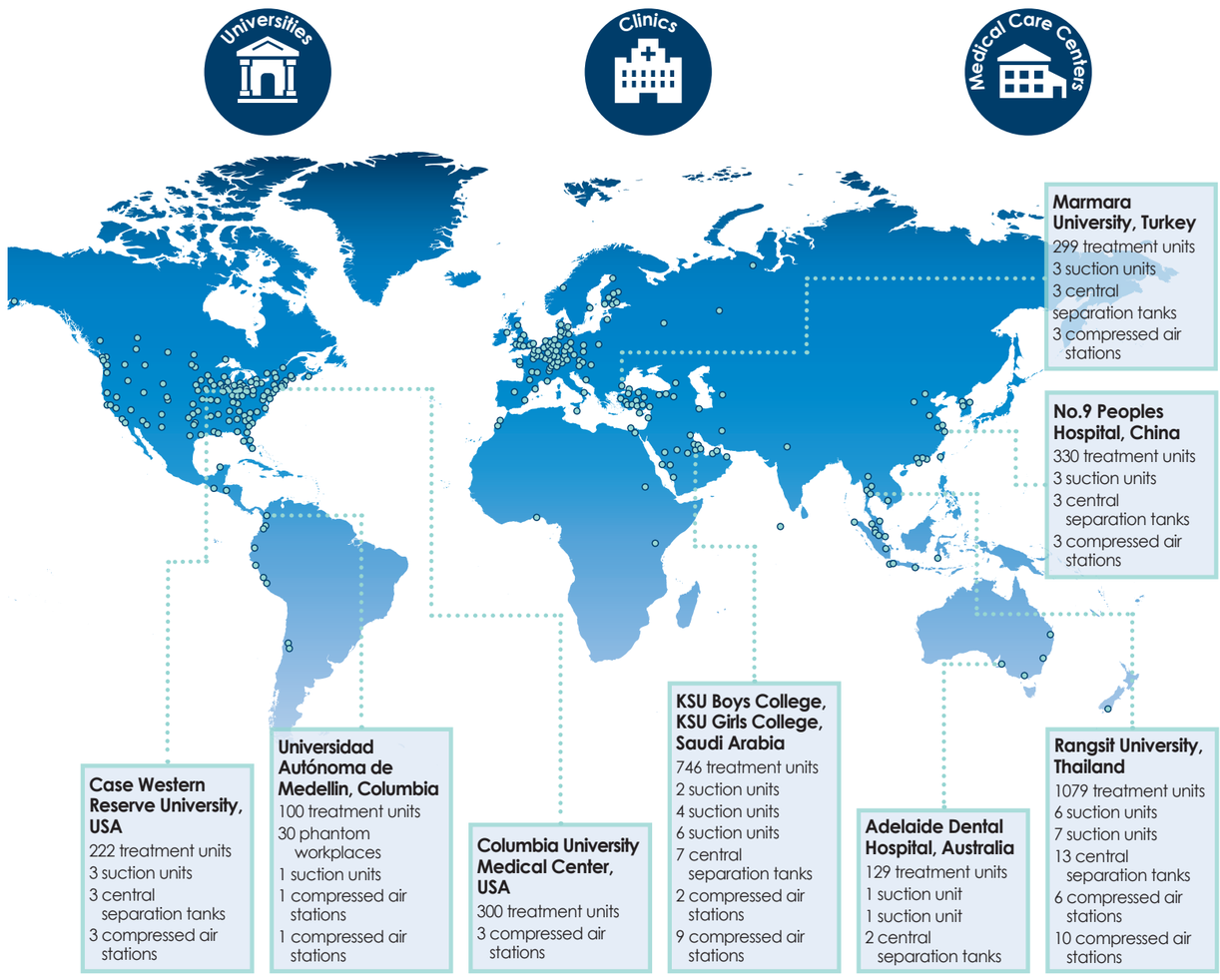
Optionally, a noise-reducing housing is available for AirStar Clinical series



Visual display for monitoring all functions from a central control station, e.g. in the technical room

WE ALWAYS STRIVE
TO PROVIDE THE BEST RESULTS
FOR OUR CUSTOMERS

Clinical Installations from Leading Dental Facilities around the World



PROJECTS IN THE UNITED STATES

Projects established in every major city in North America

PROJECTS WORLDWIDE

Austria	Czech Republic	India	Maldives	Saudi Arabia
Australia	Denmark	Indonesia	Malta	Singapore
Bahrain	Ecuador	Iran	Mexico	Switzerland
Belarus	Egypt	Ireland	Morocco	South Korea
Belgium	Finland	Italy	Netherlands	Spain
Bosnia-Herzegovina	France	Kenya	New Zealand	Syria
Cambodia	Georgia	Kuwait	Norway	Taiwan
Canada	Germany	Latvia	Oman	Thailand
Chile	Great Britain	Lebanon	Peru	Turkey
China	Guatemala	Lithuania	Poland	Turkmenistan
Columbia	Hungary	Malaysia	Russia	United Arab Emirates

For over 55 years, Air Techniques has been a leading innovator and manufacturer of dental products. Our priority is ensuring complete satisfaction by manufacturing reliable products and providing excellent customer and technical support. Whether the need is digital imaging, utility room equipment or merchandise, Air Techniques can provide the solution via our network of authorized professional dealers. Proudly designed, tested and manufactured in the United States, our products are helping dental professionals take their practices to the next level.

Air Techniques' products are distributed through authorized dealers only.

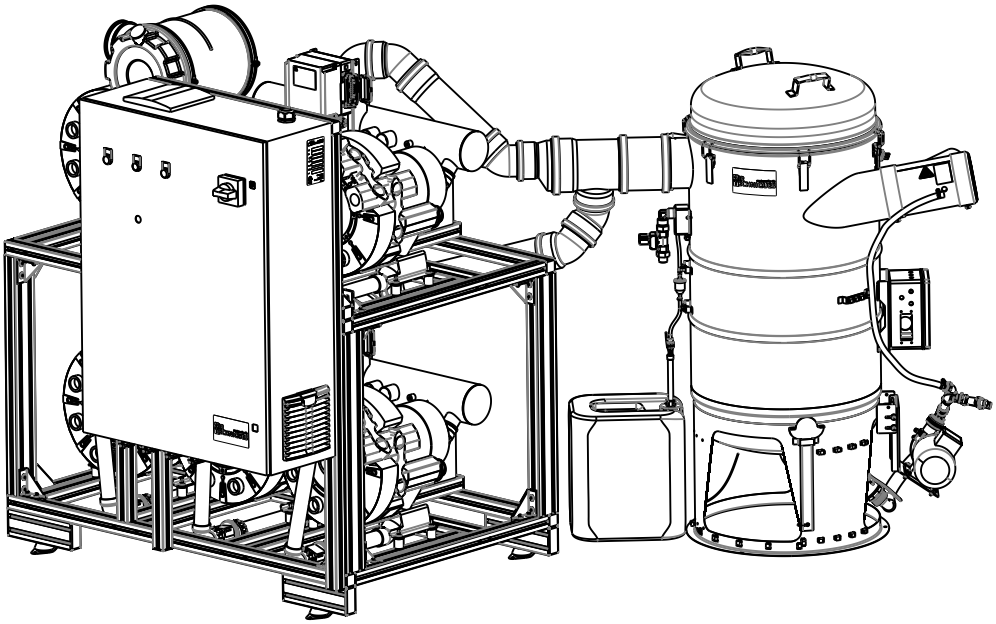
CORPORATE HEADQUARTERS
1295 Walt Whitman Road
Melville, New York 11747- 3062
800-247-8324

AIR TECHNIQUES equipped for life®

VacStar®

Clinical Dry Vacuum Systems
VS60, VS75 & VS90

Planning & Installation Instructions



AIR TECHNIQUES equipped for life®

ISO 13485 CERTIFICATION™
Intertek

Contents

Important information

System components

Planning information

Installation

Important information

1. General information

The planning information here is designed to provide information concerning the correct layout, installation and commissioning of the device manufactured by Air Techniques together with information regarding the correct usage of such appliances.

The examples of planning contained herein are purely recommendations. When installation layout differs from the one shown, contact Air Techniques.

Correct installation of the appliances is essential for safe operation.
Further information can be obtained from our Service Team or from one of our authorized dealers.
Therefore it is important:

- That you are familiar with the contents of this planning information and understand it completely.
- That you do not carry out any operation where you are not absolutely sure what the effect will be.
- That you pass on all safety and warning notices to all concerned, including on-site fitters.

Please note, suction performance of between 550 SCFM and 600 SCFM at the largest diameter must be ensured for all suction unit planning layouts.

1.1 Validity

The planning information contained here is valid for the following units manufactured by Air Techniques:

- Vacuum units VS60, VS75, VS90 in combination with accessories E5119 (Clinical Display) and E5129 (Amalgam Separator)

If you have questions regarding the selection of clinic suction systems, necessary components etc., please contact:

Air Techniques
1295 Walt Whitman Road
Melville, New York 11747- 3062
Phone: 800-247-8324
Fax: 888-247-8481
www.airtechniques.com

1.2 Copyright

2. About this document

These planning and installation instructions form part of the unit.

If the instructions and information in these Planning and Installation Instructions are not followed, Air Techniques will not be able to offer any warranty or assume any liability for the safe operation and the safe functioning of the unit.

2.1 Warnings and symbols

Warnings

The warnings in this document are intended to draw your attention to possible injury to persons or damage to machinery.
The following warning symbols are used:


General warning symbol


Warning – risk of dangerous electric voltages


Warning - automatic start-up of the unit


Biohazard warning


Warning – hot surfaces

The warnings are structured as follows:


SIGNAL WORD
Description of the type and source of danger
Here you will find the possible consequences of ignoring the warning
Follow these measures to avoid the danger.

The signal word differentiates between four levels of danger:

– **DANGER**
  Immediate danger of severe injury or death
– **WARNING**
  Possible danger of severe injury or death
– **CAUTION**
  Risk of minor injuries
– **NOTICE**
  Risk of extensive material/property damage

Other symbols

These symbols are used in the document and on or in the unit:


Note, e.g. specific instructions regarding efficient and cost-effective use of the unit.


Please read all of the accompanying documents.


Wear protective gloves


Wear ear protectors


Dispose of properly in accordance with all applicable local code and regulations.

CE xxxx CE labeling with the number of the notified body


Off

On


Manufacturer

REF Order number/model type

SN Serial number

2.2 Copyright information

All names of circuits, processes, names, software programs and units used in this document are protected by copyright.
Any reprinting of the planning and installation documentation, in whole or in part, is subject to prior approval in writing from Air Techniques.

3. Safety

Air Techniques has designed and constructed this unit so that when used properly and for the intended purpose it does not pose any danger to people or property. Nevertheless, residual risks can remain. You should therefore observe the following notes.

3.1 Intended purpose

The VacStar Clinical (VSC) Dry Vacuum systems are designed to generate a vacuum in order to aspirate saliva, rinsing water and other fluids that are present during dental treatment and need to be transported into the waste water system.

3.2 Proper intended usage

VSC suction units are to be used with a central separation tank in dry suction systems in dental or dental-medical clinics. They are arranged at the end of the aspiration chain, downstream of the central separation tank. It is absolutely necessary that separation of secretions and air takes place upstream of the VSC suction unit.
The surfaces of the suction units should be cleaned off periodically to avoid buildup of dust and other debris, which may lead to overheating and failure of the units.
In the devices upstream of the suction unit, only use cleaning agents and disinfectants that will not damage the materials, e.g. CleanStream or equivalent.
Correct usage of the device also involves following the Planning and Installation Instructions and adhering to the conditions concerning set-up, operation and maintenance.

NOTE
Machine damage can be caused by fluids and particles entering the vacuum pumps (e.g. prophylaxis powder, filling residue)

This unit may be suitable for the aspiration of nitrous oxide (laughing gas). However, when assembling a system for aspiration of nitrous oxide, it is important to ensure that the other components in the system are also suitable for this purpose. Those responsible for setting up the system must assess this and approve and release the system for the aspiration of nitrous oxide.

Operation with nitrous oxide is only permitted if the exhaust air is transported from the unit to the outside of the building.

3.3 Improper usage

Any other usage or usage beyond this scope is deemed to be improper. The manufacturer accepts no liability for damages resulting from this. In these cases the user/operator will bear the sole risk.

- The unit must not be used to aspirate any other substances, such as dust, sludge, plaster or similar in the practice.
- Do not use non-approved cleaning agents and disinfectants that could damage the materials.
- Never use foaming chemicals like instrument disinfectant baths or agents that contain tensides.
- Do not use chemicals that contain chlorine (such as sodium hypochloride).
- A separation vessel (separation of air and water) must always be installed immediately upstream of the Pump Module.
- Make sure that the water connection for the chemicals adding unit has a pipe interrupter in accordance with local codes.
- Do not install the system in a room that does not have ventilation. The temperature near the motor must not exceed 104°F (40°C).
- Not suitable for wet rooms.
- Do not use the unit to aspirate flammable liquids, gases or solvents, e.g. acetone or milking machine cleaner.
- Do not use the unit to aspirate potentially explosive gases – the machine does not have explosion protection. Do not use the unit in a potentially explosive environment.
- Do not operate the unit without a condensation separator or tank particularly in tropical climates.

3.4 General safety notes

- Always comply with the specifications of all guidelines, laws, and other rules and regulations applicable at the site of operation for the operation of this unit.
- Check the function and condition of the unit prior to every use.
- Do not convert or modify the unit.
- Observe the operating instructions.
- Make the Planning and Installation Instructions available to the person operating the device at all times.

3.5 Combining devices safely

Take care when connecting units together or to parts of other systems as there is always an element of risk (e.g. due to leakage currents).

- Only connect units when there can be no question of danger to operator or to patient.
- Only connect units when it is safe to do so and there is no risk of damage or harm to the surroundings.
- If it is not 100% clear from the unit specification sheet that such connections can be safely made or if you are in any doubt, always get a suitably qualified person (e.g. the manufacturer) to verify that the setup is safe.

Where applicable, the requirements for medical products have been taken into account in the development and construction of the device. As a result, this device is suitable for installation within medical supply equipment.

- Where this device is installed within other medical supply equipment, the requirements set out in FDA 21 CFR 820 and/or Canadian Medical Device Regulation (SOP/98-282) and the relevant standards must be complied with.

3.6 Specialist personnel

Operation

Unit operating personnel must ensure safe and correct handling based on their training and knowledge.

- Instruct or have every user instructed in handling the unit.

Installation and repairs

- Installation, readjustments, alterations, upgrades and repairs must be carried out by Air Techniques or by qualified personnel specifically approved and authorized by Air Techniques.

3.7 Protection from electric shock

- Before connecting the device, always check that the values stated on the device for the supply voltage and mains frequency match those of the mains power supply.
- Comply with all the relevant electrical safety regulations when working on the unit.
- Replace any damaged cables or plugs immediately.

3.8 Only use original parts

- Only use Air Techniques parts or accessories and special accessories specifically approved by Air Techniques.
- Only use only original wear parts and replacement parts.

Air Techniques accepts no liability for damages or injury resulting from the use of non-approved accessories or optional accessories, or from the use of non-original wear parts or replacement parts.

3.9 Transport

WARNING
Infection due to contaminated unit

- Disinfect the unit before transport.
- Close all media connections.

The original packaging provides optimum protection for the device during transport.
If required, original packaging for the unit can be ordered from Air Techniques.

Air Techniques will not accept any responsibility or liability for damage occurring during transport due to the use of incorrect packaging, even where the unit is still under guarantee.

Only transport the device in its original packaging.

- Keep the packing materials out of the reach of children.

3.10 Disposal

The unit must be disposed of properly. In accordance with all applicable local laws.

The unit may be contaminated. Instruct the company disposing of the waste to take the relevant safety precautions in this case.

- Decontaminate potentially contaminated parts before disposing of them.
- Uncontaminated parts (e.g. electronics, plastic and metal parts etc.) should be disposed of in accordance with the local waste disposal regulations.
- If you have any questions concerning correct disposal, please contact Air Techniques or your usual dental supplier.

4. Ambient conditions

Ambient conditions during storage and transport

Temperature	°F	14 to 140
	°C	-10 to +60
Relative humidity	%	< 95

Ambient conditions during operation

Temperature	°F	50 to 104
	°C	+10 to +40
Relative humidity	%	< 70

This device is not suitable for use in areas with potentially explosive atmospheres. Areas where explosions could occur are those where flammable anesthetic agents, skin cleansers, oxygen or skin disinfectants are present.
Furthermore, the devices are also not suitable for use in areas with a combustible atmosphere.

General notes on installation and set-up

Set-up alternatives will vary according to model type and/or the particular building restrictions.
Installation in a purpose-built room, e.g. in a boiler room, must be checked with local building regulations.

- The devices should be set up in such a way that the serial plate can be read at all times.

4.1 Ventilation and air extraction

- For room temperatures above 95°F (35°C), additional ventilation must be provided in the room in which the unit is set up. The delivery depends on the performance of the individual unit in operation.

Please note that suction units radiate approx. 30% and compressor units approx. 70% of their stated input power (P_{el}) into the room as heat (P_w), which can lead to a considerable increase in the ambient temperature and thus the temperature of the room (depending on size of the room and the installation conditions).

- The **exhaust air** from the suction unit contains **germs and bacteria**, therefore it is important that the **exhaust air is always routed outside of the building**.
- The air circulation slots for the room should be designed so that the device stands directly in the path of the flow of air.

Ensure that there is adequate ventilation, otherwise there is a risk of overheating (refer to the accompanying rough calculation).

Example:

What amount of fresh air is required in the installation room when using a AS120 (60 Hz) compressor and a VS90 (60 Hz) vacuum system?

Rough calculation:

Electric power rating of compressor 22 kW x 70% =	N approx.15.4 kW
Electric power rating of suction unit 26 kW x 30% =	N approx. 7.8 kW
Heat output	N_{tot} approx.23.2 kW

N_{tot}	approx.23.2 kW
Safety	1.0 kW
N_{tot}	24.2 kW

Permitted room temperature increase
$\Delta\delta$ = 15 °C (assumed)
P_L = Room air density 1.29 kg/m³
Cp = Specific heat capacity of room air
= $1.005 \times 10^3 \frac{Wsec}{kg\ °C}$

Approx. amount of fresh air required

$$V° = \frac{N_{tot}}{P_L \times Cp \times \Delta\delta}$$

$$V° = \frac{(24.2 \times 10^3)}{(1.29 \times 1.005 \times 10^3 \times 15)} = 1.24\ m^3/sec$$

V° ~ 74.4 m³/min = 4464 m³/h = 2627 CFM

5. Plumbing and pipe dimensions

The connection options on the suction unit will vary according to model type and/or the particular building restrictions.

- Waste water pipes must be carried out in strict accordance with local and national regulations.
- The connection between the pipe line and suction unit itself should be executed using a rubber sleeve.

5.1 Pipe materials

Pipes on the suction side and for connection to the waste water system must only be made of the following pipe materials:

- Internally smooth pipes made of polypropylene (PP) (e.g. DN-compliant HT-pipe, marked red, low combustible, airtight).
- Chlorinated polyvinyl chloride (PVC-C), unplasticized polyvinyl chloride (PVC-U) and polyethylene (PEh).
- National and local fire safety regulations and building regulations must be observed at all times.
- The pipes must be designed for a vacuum of at least 15 inHg.

The following materials must not be used:

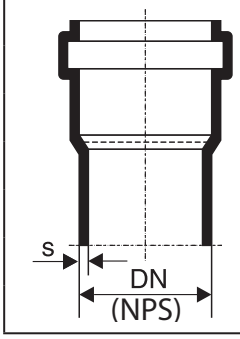
- HT-pipes with O-ring seals.
- Pipes made of acrylonitrile-butadiene-styrene (ABS) and styrene-copolymer blends (SAN+PVC)

For thermal reasons the **wall thickness** for pipes positioned on the suction side **in the room of installation** should be **1/8 inch (3 mm)**.

5.2 Pipe dimensions

Diameters

The diameters of the pipes in the planning examples are marked DN.
The following is a table with the relevant mm values and NPS equivalent:



DN [mm]	s [mm]	NPS (inch)	s [inch]
40	1.8	1.5	0.071
50	1.8	2	0.071
75	1.9	~3	0.075
90	2.2	~3.5	0.087
110	2.7	~4.5	0.107
125	3.1	~5	0.122
160	3.9	~6	0.154

Vacuum and exhaust pipes

Differing pipe cross sections will be used depending on the suction system used and the corresponding suction power of the suction unit.
Relevant information can be found in the planning examples for the various suction systems.

The rate of flow should reach approximately 7 to 10.5 SCFM (200-300 l/min) with the large cannula.

Rates of flow above 14 SCFM (400 l/min) can cause the mucous membranes of the patient to dry out and lead to pain or discomfort at the neck of the tooth.
In addition, the cooling flow to the turbine will be redirected leading to the danger of overheating of the dentine and of the pulp.

The actual magnitude of the rate of flow will also depend to a large extent on the internal features of the treatment unit being used. Hoses with a smaller cross-section (e.g. <½ inch) reduce the suction power (rate of flow), and this can only partly be compensated by using a greater pipe cross section.

Waste water drain pipe

- **NPS 2 inch** min. 2% gradient
- or choose a pipe diameter in line with national and local regulations

6. Electrical installation

6.1 Notes on installation

- Suction units must only be connected to a suitable and correctly installed Air Techniques control unit.
- Before initial start up, all equipment and supply lines must be checked for signs of damage. Damaged supply lines and connections must be replaced immediately.
- Installation must be carried out by a qualified expert.

Electrical installations must be performed in accordance with the requirements set out in EN 60364, EN 60601, UVV-BGV 1,4,5,103, and in other countries in accordance with applicable national regulations, e.g. CEE.
When connecting to the mains electricity supply, ensure that the circuit is fitted with an all-pole disconnect switch (all-pole switch) with contact opening width >3 mm.

6.2 Conductor cross-sections

The required **conductor cross-sections** depend on the current consumption, length of line and the ambient temperature of the suction unit. Information about the current consumption can be found in the technical data sheet of the suction unit.

The minimum required conductor cross-sections are shown in the table below.

Current consumption of unit A	AWGmm²
> 10 and ≤ 16	16
> 16 and ≤ 25	14
> 25 and ≤ 32	12
> 32 and ≤ 40	10
> 40 and ≤ 63	8

6.3 Notes on connecting cables

The following information on connecting cables is in accordance standards. Relevant national standards and rules and regulations must also be observed.

480V mains power supply, fixed line

- NYM-J (5-wire) in accordance with DN VDE 0250 Part 204

480V mains power supply, flexible

The connection between the "fixed connecting cable" and the "suction unit" itself should be executed using an unit socket and PVC-sheathed cable
H05VV-F 5G (5-wire) (IEC 60227 Code 53)
or
H05 RN-F 5G (5-wire),
H05 RR-F 5G (5-wire)

230V mains power supply, fixed

- NYM-J 3 x 16 AWG

230V mains power supply, flexible

PVC hose connection H05VV-F 3G 16 AWG
or rubber tubes
H05 RN-F 3G 14 AWG,
H05 RR-F 3G 14 AWG

Protective earth connection

The control unit and the suction unit frame must be directly connected to each other using a protective ground cable. This applies both to installation on the suction unit frame and to wall mounting of the control unit.
On a dry suction system with a separation vessel, t must additionally be connected to the separation vessel via a protective ground cable.
The cross-section of the connecting cable should be at least 10 mm².

24V control line, protective low voltage

- Suction unit relay (manifold signal) or hose manifold
- 3 x 14 AWG

Fixed routing

- (N)YM (St)-J, shielded sheathed cable in accordance with DN VDE 0250 part 204/209.

Flexible routing

- LiYCY with sheathed and shielded cable as used for telecommunications or IT applications, or lightweight PVC control cable, sheathed and shielded.

Data cable for display panel for clinic systems, visualisation or amalgam separator display panel.

Fixed routeing

- CAT 5.e network cable or higher.

Flexible routeing

- Cat 5.e network patch cable or higher (from the amalgam separator to the network socket)
- ISDN standard line with connectors (from the network socket to the display panel, included in the scope of delivery of the unit)

6.4 Control unit

The control unit is designed only to control clinic suction units provided by Air Techniques where the motor current is monitored using a motor protection switch.
The control unit for the clinic suction unit includes one contactor each for switching the motor on and off and a transformer for generating the 24 V AC control voltage.
In the treatment room, a relay or micro switch situated in the hose manifold of the treatment unit (chair) controls the contactor so that one of the suction units starts up.

7. Functional description

Clinical Dry Vacuum systems (1) are designed for use as dry suction systems. This means that **a separation stage** must be provided **before the air enters** the pumps. During this separation, the aspirated fluids are separated from the air content.

Clinical Dry Vacuum systems in combination with a central separation tank as a dry suction system.

The central separation tank (6) has up to 2 inlets and a connection to the clinic suction unit. The tangential inlet openings allow a rate of flow of up to 600 CFM (18000 l/min). Up to 90 treatment units can be connected to a central separation tank, while maintaining a useful simultaneous factor of 60%.

Up to **45 treatment units** can be connected to **each inlet** (at 60% SF) of the central separation tank. If there are more than 45 treatment units we recommend distributing them between both inlets in order to provide an even rate of flow.

3 float switches are distributed at different heights in the central separation tank. A float switch will activate the waste water pump (10) if the fluid level reaches approx. 50%. The pump transports the fluid out of the central separation tank to the waste water drain or to the amalgam separator (11).

A safety switch-off is activated at a level of approx. 75% when the 2nd float switch engages, i.e. the suction units remain switched off until the fluid level has fallen. Pressing the yellow button on the control unit cancels the safety switch-off.

The 3rd float switch is used when the control unit is defective and the Clinical Dry Vacuum needs to be operated in **emergency mode**.

When the level of fluid in the central separation tank reaches 75% in emergency mode, the unit is immediately switched off to prevent the risk of excessive suction of fluids.

The aspirated air and fluid mixture is directed over a coarse filter at the inlet connection of the central separation tank and then tangentially fed to the collector. Solid particles greater than 1/8 inch (3 mm) in size are held back by the coarse filter. The aspirated air and fluid mixture is separated in the central separation tank. The air (on vacuum side) will pass through the turbine of the suction units and then escape as exhaust air through the exhaust air filter to the outside.

The fluids (blood, saliva, amalgam etc.) are propelled by the waste water pump out of the system vacuum through a non-return valve and the flow control valve to the waste water drainage system or to an amalgam separator.

The non-return valve serves to ensure that no vacuum can be built up to the amalgam separators.

The flow reducers restrict the waste water flow to max. 0.5 CFM (16 l/min) per amalgam separator. This is the maximum amount that the amalgam separator operating at a separation efficiency of ≥ 95% can cope with. The amalgam separator switches on or off automatically depending on the level of fluids being transported.

A collector rinse (8) using either water or water plus CleanStream is integrated in the central separation tank. The water inflow valve is opened every 24 hours for a period of 3 minutes by the control unit of the clinic suction unit. After 2 minutes the CleanStream valve (7) also opens so that CleanStream is added to the water for approx. 1 minute. This keeps the central separation collector and the connected amalgam separator as hygienically clean as possible.

When connecting a water rinse the local rules and regulations on water supplies must be observed (e.g. free incline, pipe separation).

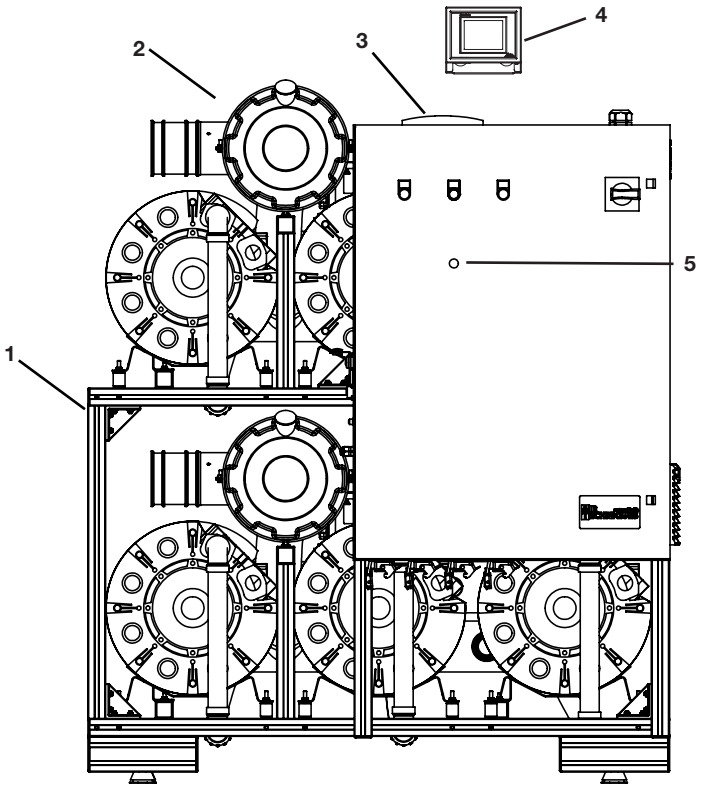
The 30 l CleanStream vessel (9) is equipped with a suction tube with a float sensor that sends a signal to the PLC controller when the CleanStream vessel is empty and needs to be changed.

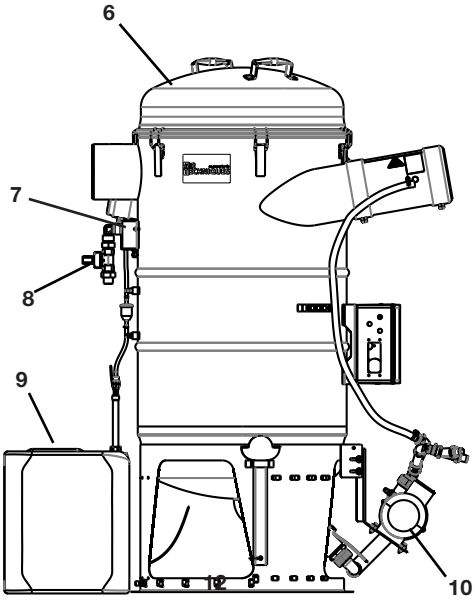
If the control unit fails, it is possible to switch to **emergency mode** using the key-operated switch (5). Two positions can be chosen using the key-operated switch:

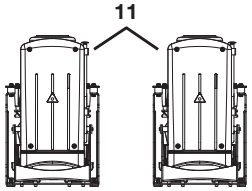
0 - Normal operation
I - Emergency mode
In emergency mode, only one suction unit and the auxiliary air valve are activated. This means the number of treatment units that can be used simultaneously is limited. In this operating mode the vacuum is only limited mechanically via the auxiliary air valve, which can lead to an excessive build-up of vacuum.

Key:

1	Pump module
2	Exhaust air filter
3	Control unit
4	Display panel
5	Key-operated switch
6	Central separation tank
7	CleanStream valve
8	Collector rinse
9	CleanStream vessel
10	Waste water pump
11	Amalgam separator


1
2
3
4
5


6
7
8
9
10


11

8. Model overview / scope of delivery

8.1 Clinical Dry Vacuum systems

VS60, 480 V, 60 Hz VS60
- Clinic suction unit with 4 suction pumps
- Control unit
- Central separation tank
- Installation materials

VS75, 480 V, 60 Hz VS75
- Clinic suction unit with 5 suction pumps
- Control unit
- Central separation tank
- Installation materials

VS90, 480 V, 60 Hz VS90
-Clinic suction unit with 6 suction pumps
- Control unit
- Central separation tank
- Installation materials

8.2 Accessories

The parts listed as special accessories are **not** part of the standard scope of delivery but can be ordered separately.

Display panel for clinic systems E5119
Visualization gateway E5188
Network switch E5186

8.3 Special accessories

The following optional item can be used with the unit:
Amalgam Separator CA 4 . . . . . E5129

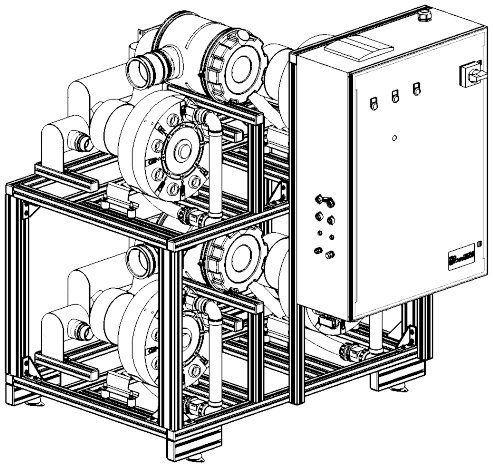
8.4 Consumables

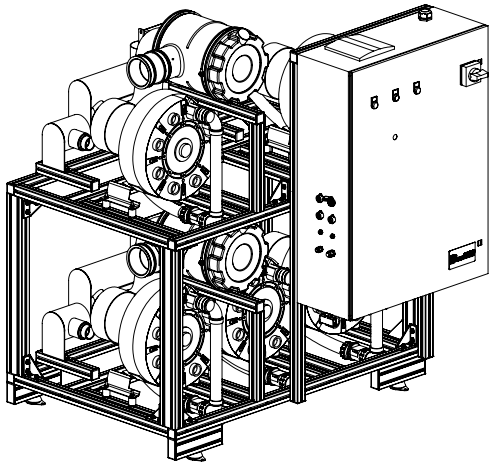
Filter insert for exhaust air bacterial filter E5131
CleanStream Evacuation System Cleaner (30L) . 57630

9. Technical data

9.1 VS60 (Pump Module)

Nominal Voltage (rated voltage)	480 VAC ± 10%		
Wiring Configuration	3/N/PE		
Rated Current or Rated Power (current or power consumption)	38 A		
Duty Cycle	100%		
Frequency	60 Hz		
Site Circuit Breaker	50 A		
Protection class	1		
IP protection	20		
Sound Pressure Sum Levels	77 dB(A)		
Pump Module	L	W	H
inches	53	58	70
cm	135	147	178
Tank Module	Ø26 x 61 H (in)		
	Ø66 x 155 H (cm)		
Weight			
Pump Module	1,250 lbs		
	566 kg		
Tank Module	180 lbs		
	82 kg		
Environmental Conditions Transport/Storage:			
Temperature range:			
minimum	14°F (-10°C)		
maximum	140°F (+60°C)		
Relative humidity:	95%		
Air Pressure:	N/A		
Environmental Conditions for Operation:			
Temperature range:			
minimum	50°F (+10°C)		
maximum	104°F (+40°C)		
Relative humidity:	70%		
Air Pressure:			
maximum	14.1 psia		
minimum	14.9 psia		



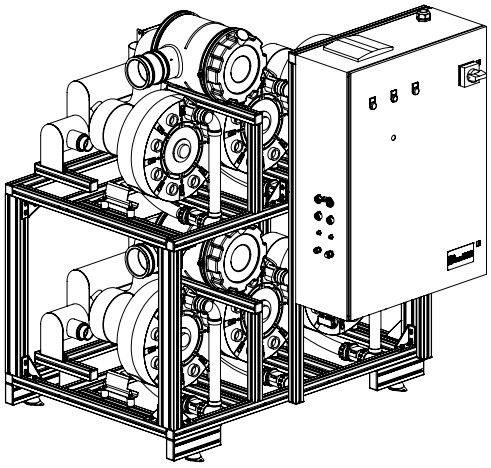


9.2 VS75

Nominal Voltage (rated voltage)	480 VAC ± 10%		
Wiring Configuration	3/N/PE		
Rated Current or Rated Power (current or power consumption)	47.5 A		
Duty Cycle	100%		
Frequency	60 Hz		
Site Circuit Breaker	60 A		
Protection class	1		
IP protection	20		
Sound Pressure Sum Levels	78 dB(A)		
Pump Module	L	W	H
inches	53	58	70
cm	135	147	178
Tank Module	Ø26 x 61 H (in)		
	Ø66 x 155 H (cm)		
Weight			
Pump Module	1,375 lbs		
	624 kg		
Tank Module	180 lbs		
	82 kg		
Environmental Conditions Transport/Storage:			
Temperature range:			
minimum	14°F (-10°C)		
maximum	140°F (+60°C)		
Relative humidity:	95%		
Air Pressure:	N/A		
Environmental Conditions for Operation:			
Temperature range:			
minimum	50°F (+10°C)		
maximum	104°F (+40°C)		
Relative humidity:	70%		
Air Pressure:			
maximum	14.1 psia		
minimum	14.9 psia		

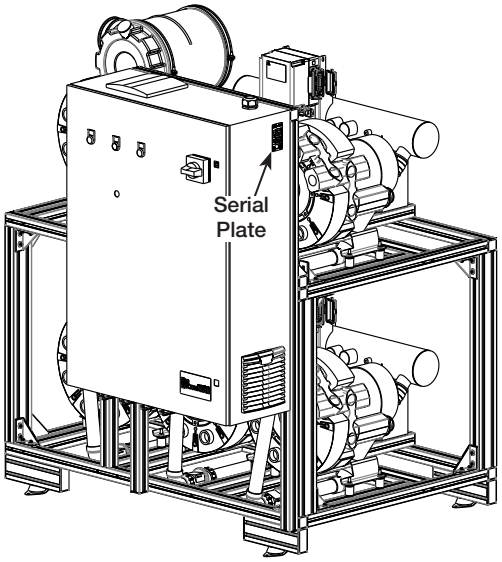
9.3 VS90

Nominal Voltage (rated voltage)	480 VAC ± 10%		
Wiring Configuration	3/N/PE		
Rated Current or Rated Power (current or power consumption)	57 A		
Duty Cycle	100%		
Frequency	60 Hz		
Site Circuit Breaker	80 A		
Protection class	1		
IP protection	20		
Sound Pressure Sum Levels	79 dB(A)		
Pump Module	L	W	H
inches	53	58	70
cm	135	147	178
Tank Module	Ø26 x 61 H (in)		
	Ø66 x 155 H (cm)		
Weight			
Pump Module	1,500 lbs		
	624 (kg)		
Tank Module	180 lbs		
	82 kg		
Environmental Conditions Transport/Storage:			
Temperature range:			
minimum	14°F (-10°C)		
maximum	140°F (+60°C)		
Relative humidity:	95%		
Air Pressure:	N/A		
Environmental Conditions for Operation:			
Temperature range:			
minimum	50°F (+10°C)		
maximum	104°F (+40°C)		
Relative humidity:	70%		
Air Pressure:			
maximum	14.1 psia		
minimum	14.9 psia		



9.4 Serial plate

The serial plate of the unit is located on the side on the Control Panel.

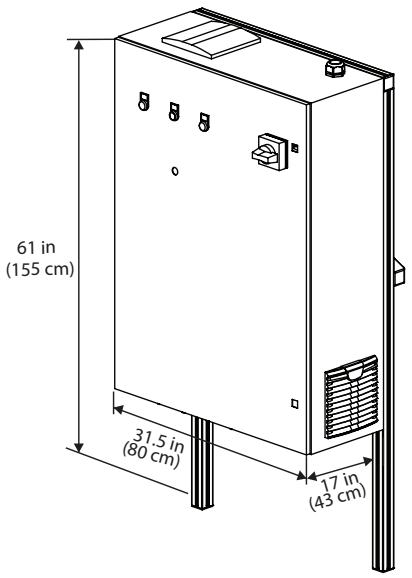


10. Control panel

480 V model type, 3~, 60 Hz
for suction units VS60 / VS75 / VS90

10.1 Technical data

Control unit for VS60 / VS75 / VS90



Voltage	V	480, 3-phase
Frequency	Hz	60
Connected load, max. *	A	57
Motor protection switch setting range	A	6.3 - 10
External error messages Switch contact X4, max.	V A kW	230 10 1
Weight	Lbs (kg)	270 (123)

* Current consumption depends on the units connected.

10.2 General information

Protection class (with protective ground conductor)	I
Type of protection	IP 21

10.3 Special accessories

Connecting cable between control unit and suction motor:
16 feet (5 m) E5281
33 feet (10 m) E5282

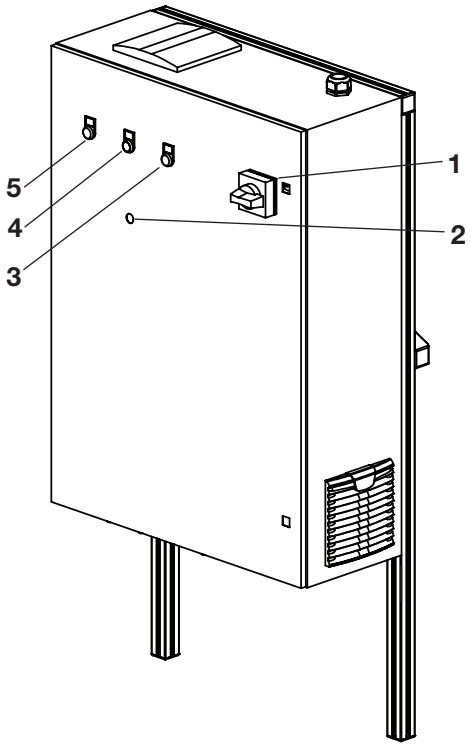
10.4 Functional description of control unit

The control unit is adapted to the VS60 / VS75 / VS90 clinic suction unit used. Before commissioning and first start-up, check the mains voltage against the voltage indicated on the model identification plate.
Electrical connection to the mains power supply must be executed using an all pole disconnect switch (all-pole switch or circuit breaker) with a contact opening width > 1/8 in. (3mm).

1 Main power switch

2 Key-operated switch with 2 possible positions:

0 - Normal operation
When a suction hose is lifted off the treatment unit the 1st suction unit starts to run. The remaining suction units switch on or off depending on the supply of vacuum. The vacuum is monitored by a sensor integrated in the system.



I - Emergency mode

If the control unit fails, it is possible to switch to emergency mode using a key-operated switch. In emergency mode, **only one suction unit** is activated. This means the number of treatment units that can be used simultaneously is limited. In this operating mode the vacuum is not regulated, which can lead to an excessive build-up of vacuum. If the level of fluid in the central separation tank reaches 75% in emergency mode then the unit will immediately switch off.

3 Green LED: System running

4 Blue button: Delete (RESET)

5 Red LED: Fault

10.5 Sensor monitoring

If one or more suction units are running and the vacuum falls below 0.295 inHg for longer than 35 seconds, the unit will automatically switch to "Sensor Defect Mode".
In "Sensor Defect Mode" only one suction unit is activated. As soon as the vacuum rises above 0.295 inHg again, the yellow RESET button S1 should be pressed in order to return to normal operating mode.

10.6 External error messages

Switching elements have been integrated into the control unit that allow remote monitoring of the operating status of the suction units via a control LED, e.g. in the technical equipment room.

10.7 Connection overview VS60 / VS75 / VS90

Depending on the design of the suction system and the number of suction units, not all connections may be required.

The original circuit diagrams can be found in the control box and should always be kept there.

Connections on the right hand side

X4 External fault message
Maximum permitted connected loads:
230 V, 10 A, 1 kW

X13 Display panel voltage supply

X13.1 Display panel signal line (network cable)

X14 Control line (manifold signal 1)

X15 Control line (manifold signal 2)

X16 Pressure sensor 1, B11

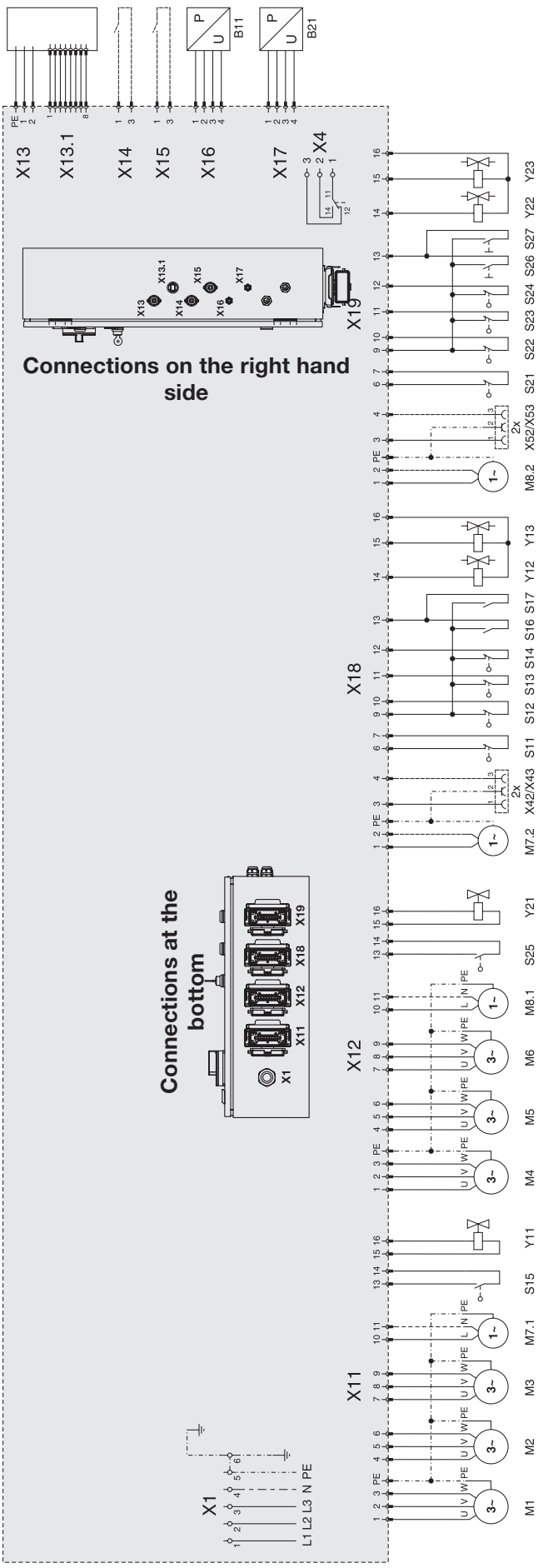
Connections at the bottom

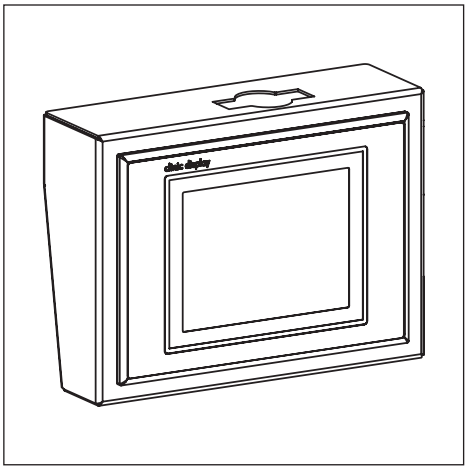
X1 Power supply to suction system

X11 Suction unit group 1 (16-pole)
Suction unit M1-M3

X12 Suction unit group 2 (16-pole)
Suction unit M4-M6

X18 Separation tank 1 connection (16-pin):
Waste water pump M7.2
Power outlets for amalgam separator X42/X43
Float sensor 75%, tank, emergency operation S11
Float sensor 50%, tank S12
Float sensor 75%, tank S13
Float sensor for disinfectant S14
Amalgam separator 1 (CA 4, X6), tank S16
Amalgam separator 2 (CA 4, X6), tank S17
Water rinse valve Y12
Disinfection valve Y13


X13
X13.1
X14
X15
X16
X17
X4
B11
B21
X19
Connections on the right hand side
X18
X12
X11
Connections at the bottom
X1
L1 L2 L3 N PE
M1
M2
M3
M4
M5
M6
M7.1
M7.2
M8.1
M8.2
S11
S12
S13
S14
S15
S16
S17
S21
S22
S23
S24
S25
S26
S27
Y11
Y12
Y13
Y21
Y22
Y23
X42/X43
X52/X53
2x



11. Display panel for clinic systems

11.1 Model overview

Display panel for clinic systems E5119

11.2 Special accessories:

Network Switch (8-fold) E5186

Power unit for the display panel G8116
(Only used when Display Panel is placed away from Control Unit.)

11.3 Functional description

When the suction unit is set up the display panel must be used to configure various adjustments.
In addition, the display panel is used to display or query various operating states for both operators and maintenance personnel.
Several suction units, pressure stations or central disinfection stations can be connected to a single display panel. However, in this case a switch must be inserted between the suction units and the display panel.
Up to 18 control units and up to 8 display panels can be connected together in a network of clinic devices and display panels.

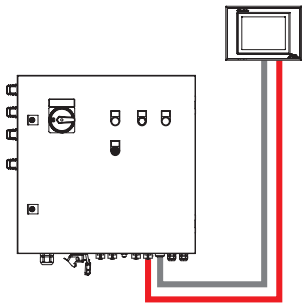
Information on settings, use of the display and maintenance can be found in the Installation and Operating Instructions supplied with the display panel.

11.4 Display panel installation options

- Installation on the frame of the control unit
- Installation on the suction unit frame either from the top or from the front
- Wall installation, e.g. in a monitoring room.
- Fixing to a tabletop (using screws or double-sided adhesive tape), e.g. in a monitoring room.

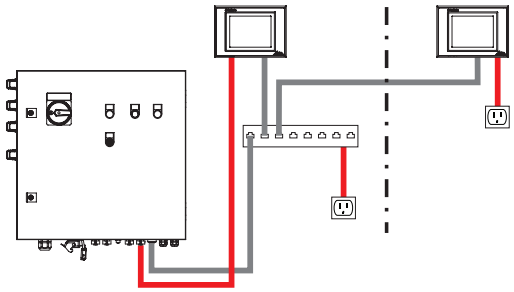
11.5 Connection variants

Variant 1:



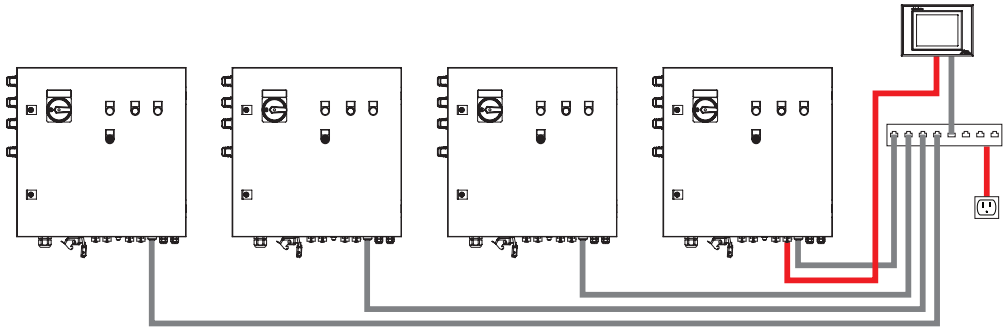
Suction module with control unit and **one** display panel either on the suction module or in the vicinity of the control unit. Power supply (24 V) for the display panel from the control unit.

Variant 2:



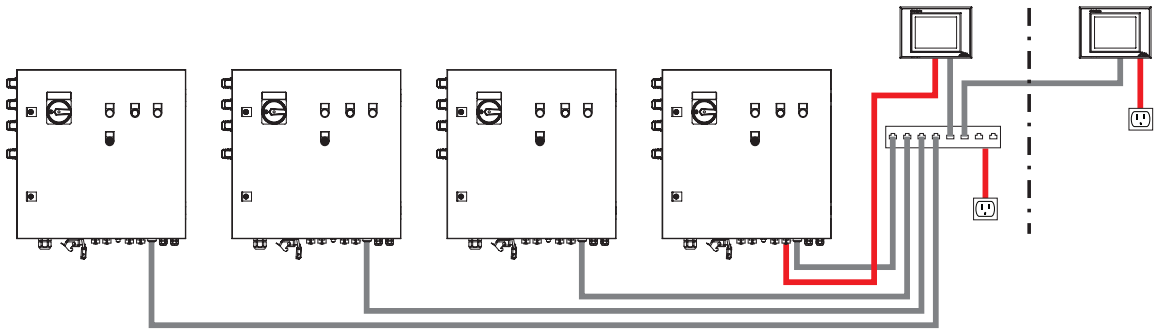
Suction module with two display panels and the necessary switch with power supply 120 V (220 V). One display panel set up at the suction module or in the vicinity of the control unit. Power supply (24V) from the control unit. A further display panel, e.g. in a monitoring room, with individual power supply 120 V (220 V) to supply power.

Variant 3:



Several suction units with one display panel and a switch with power supply 120 V (220 V). Display panel set up at the suction module or in the vicinity of the control unit. Power supply (24V) from the control unit.

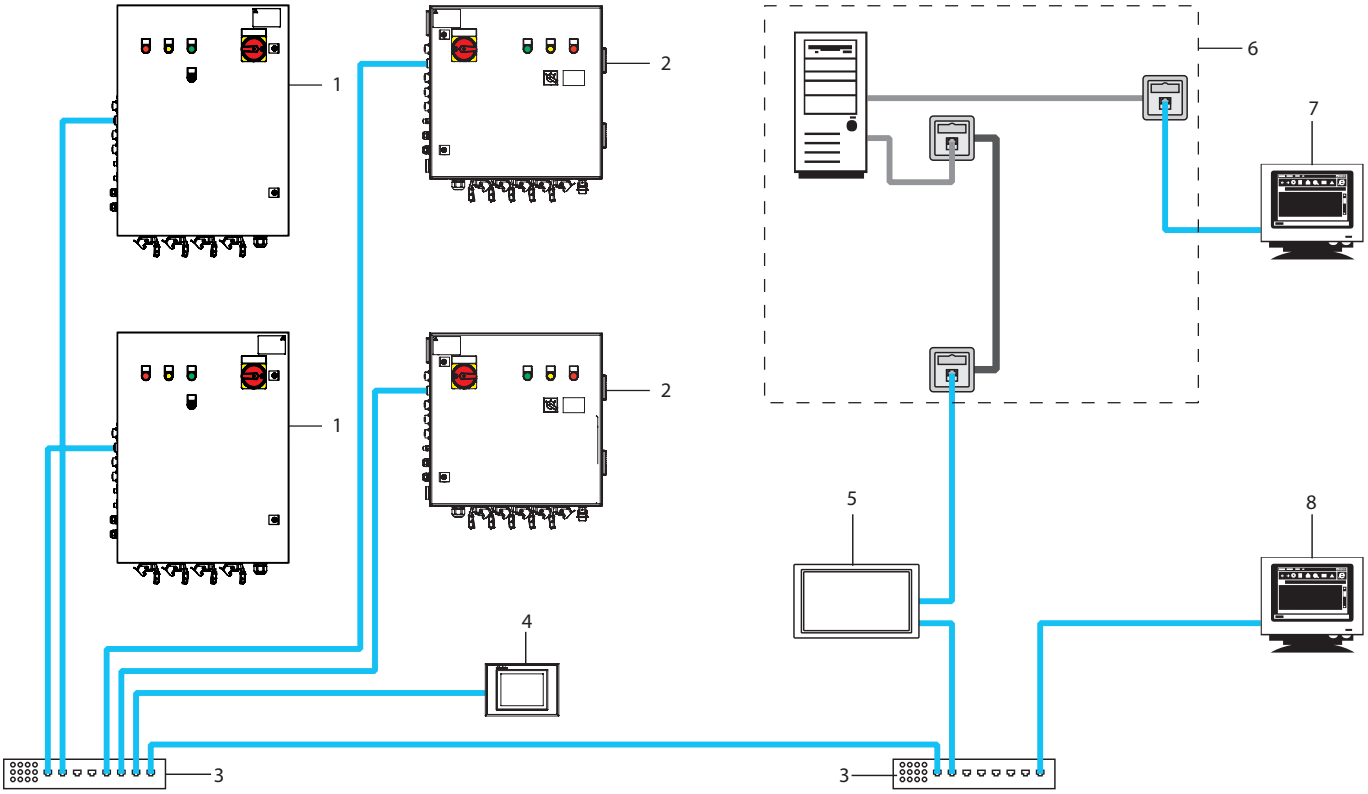
Variant 4:



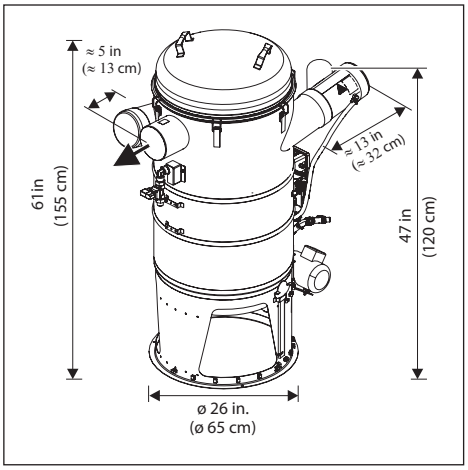
Several suction units with two display panels and a switch with power supply 120 V (220 V). One display panel set up at the suction module or in the vicinity of the control unit. Power supply (24V) from the control unit. A further display panel, e.g. in a monitoring room, with individual power supply 120 V (220 V) to supply power.

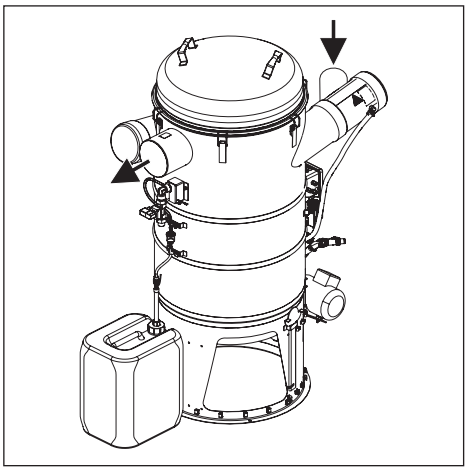
12. Clinic visualization

In addition to the normal display it is also possible to incorporate a complete clinic visualization system for the Air Techniques units. Here, the clinic devices are networked together and can be visualized or operated on different devices (clinic display panel only).



1 Clinic suction system VS60, VS75 or VS90
2 Clinic pressure station AS60, AS90 or AS120
3 Network switch (8-fold)
4 Display panel for clinic systems
5 Air Techniques VNC server (gateway)
6 Clinic network (clinic server)
7 Computer with VNC Viewer in the clinic network
8 Computer with VNC Viewer in the network of the Air Techniques clinic devices





13. Central separation tank (CST)

13.1 Model overview

Central separation tank with waste water pump and vessel rinse set

13.2 Technical data

Pressure	in Hg (mbar/hPa)	-15 (-508)
Volume capacity, approx.	gal / (L)	79 / (300)
Vessel material		
Steel designation		X2CrNiMo17-12-2
Material number		1.4404
Material designation		AISI 316L
Dimensions		
Diameter	in / (cm)	26 / (65)
Height	in / (cm)	61 / (155)
Weight, approx.	lb / (kg)	180 / (82)
Connections:		
2x inlet	in / (DN)	NPS 4½ / (DN 110)
1x outlet to suction unit	in / (DN)	NPS 6 / (DN 160)
Waste water / drain	in / (DN)	NPS 1½ / (DN 40)
Fresh water		GU 3/4"
Water pressure	psi / (bar)	44 to 73 / (3 - 5)
Float sensor:		
Protective low voltage	V AC	24
Switching current	A	6
Waste water pump:		
Voltage	V	230
Current consumption	A	2.8
Output	W	370
Type of protection		IP 54

13.3 Scope of delivery

The following items are included in the scope of delivery:

Central separation tank (CST) with waste water pump and vessel rinse set

Includes pipes for connection between the suction module and the central separation tank

13.4 Special accessories

The parts listed as special accessories are **not** part of the standard scope of delivery but can be ordered separately.

Connection expansion set for connection of a second tank E5283

Amalgam separator CA 4, 60 Hz. E5129

13.5 Consumables

CleanStream Evacuation System Cleaner (30L) . 57630

Coarse filter for tank connection. E5136

13.6 Fresh water separation

Depending on the national legal requirements, a safety fitting may need to be installed on the building side in the supply line for container rinsing. Its task is to prevent any back pressure or backflow of non-potable water into the public supply.

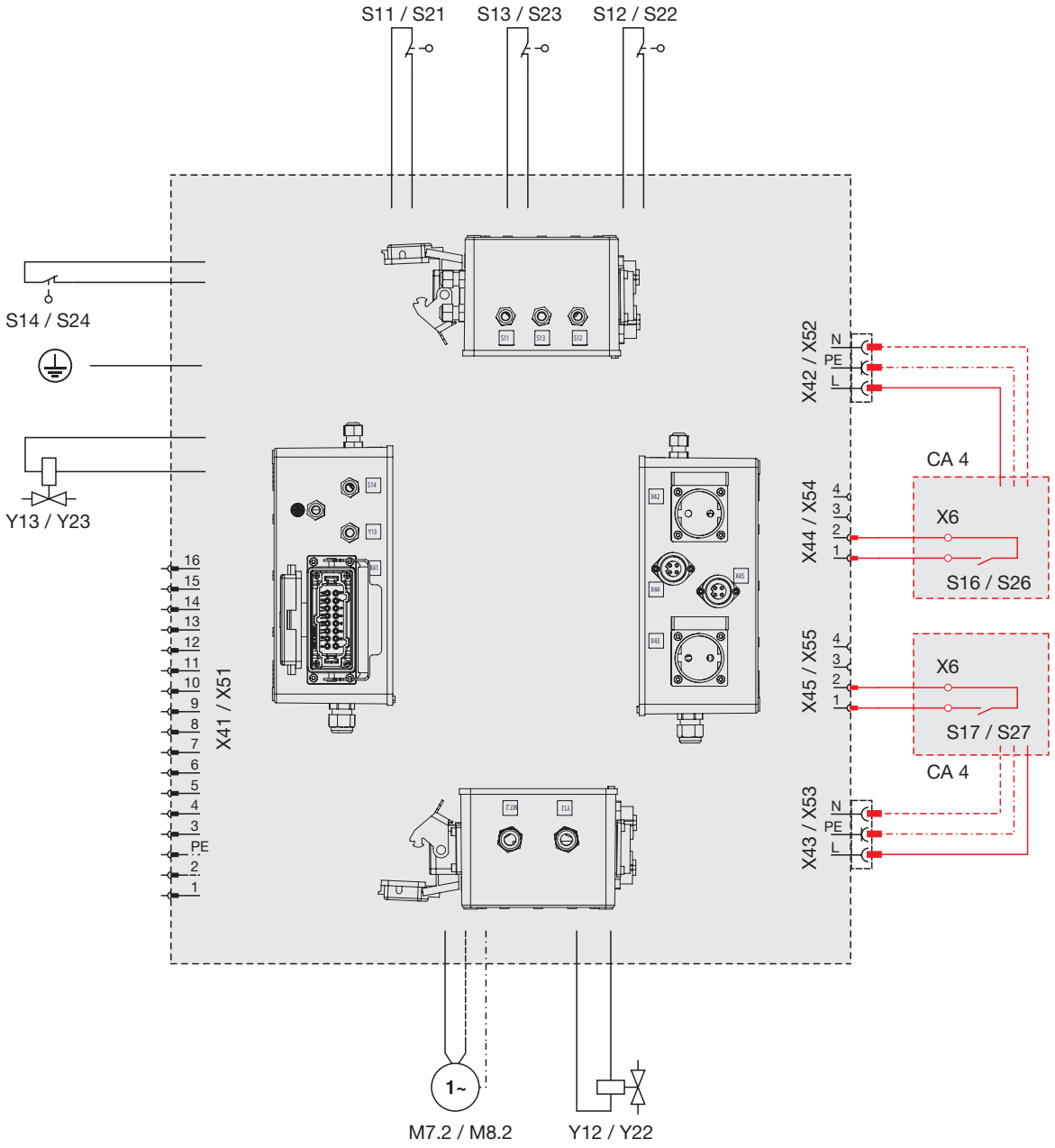
The secretion accumulated in the central separation tank is classified in drinking water hazard category 5.

13.7 Pre-filter

A fine filter should be installed immediately upstream of the water valve on the CST. This should prevent particles that may be present in the water from causing malfunctions at the water intake valve.

13.8 Overview of the electrical connections of the central separation tank (CST)

On the central separation tank there is a distribution box to which all sensors, valves, etc. on the CST are connected or will be connected. The CST is connected to the control unit with a cable with 16-pin plugs. An overview of the connections is shown below. Detailed circuit diagrams can be found in the control unit of the suction units.



The following designations are used in the circuit diagrams for one or two CST(s)

X41 / X51 Connection to the control unit

X42 / X52 Power outlet for amalgam separator ONLY; no other devices must be connected here.

X43 / X53 Power outlet for amalgam separator ONLY; no other devices must be connected here.

X44 / X54 Connection for fault signal from amalgam separator 1

X45 / X55 Connection for fault signal from amalgam separator 2

S11 / S21 Float sensor 75%, emergency operation

S12 / S22 Float sensor 50%

S13 / S23 Float sensor 75%

S14 / S24 Float sensor, disinfection

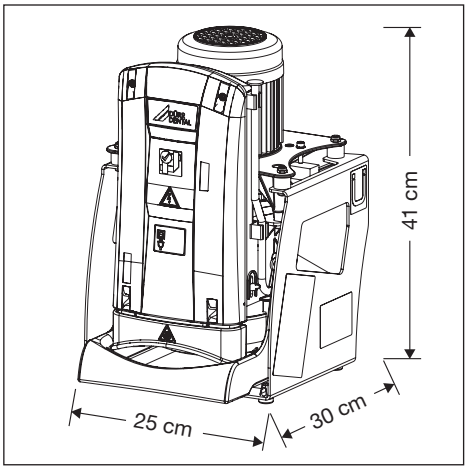
S16 / S26 Switch for fault signal from amalgam separator 1

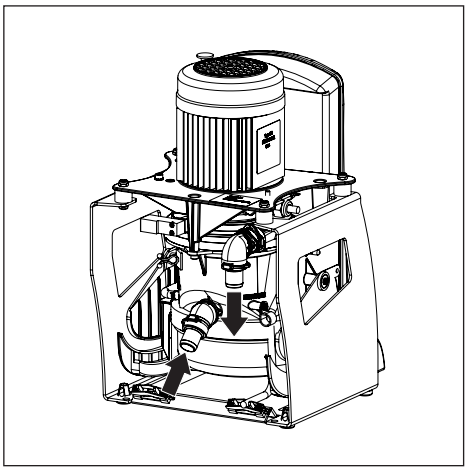
S17 / S27 Switch for fault signal from amalgam separator 2

M7.2 / M8.2 Waste water pump

Y12 / Y22 Water rinse valve

Y13 / Y23 Disinfection valve





14. Amalgam separator CA 4

14.1 Model overview

• 230V~ 60Hz

14.2 Technical data

Voltage	V	230 / 1~
Frequency	Hz	60
Nominal current	A	1.2
Starting current, approx.	A	5
Type of protection		IP 21
Protection class		I
Over-voltage category		II
Max. volume of fluid	l/min	16
Usable volume of collector vessel, approx.	ccm	600
Separation rate	%	97.4
Weight		
without housing, approx.	lb (kg)	22 (10)
with housing; approx.	lb (kg)	39 (18)
Noise level		
approximately.	dB(A)	56

* Compliant with ISO 11143

15. Installation notes for the suction system

In order to avoid unnecessary loss of vacuum and the resulting drop in suction performance, it is important to ensure that the pipe system is correctly dimensioned. The following values should be observed as a general guideline for clinic suction units with pipe lengths of up to 262 feet (80 m) and a simultaneity factor of 100%.

Supply lines for:

1 - 2 workplaces: NPS 1½" (DN 40)

3 - 5 workplaces: NPS 2" (DN 50)

Collecting pipes/downpipes:

8 - 15 workplaces: NPS 2" (DN 75)

16 - 30 workplaces: NPS 4½" (DN 110)

(The exact connection sizes and their positions must be taken from the installation instructions of the appropriate unit manufacturer.)

Maximum pipe lengths:

NPS 1½" (DN 40) : 33 feet (10 m)
NPS 2" (DN 50): 100 feet (30 m)
On reaching the specified lengths, the next larger diameter must be used to minimise loss of vacuum. Thus, for example, a NPS 2" (DN 50) line with a length of 131 feet (40 m) must be executed as follows:

- NPS 1½" (DN 40) lines must be used from up to 5 floor sockets up to the NPS 2" (DN 50) collector line. These stub lines should not exceed a length of 33 feet (10 m).
- The NPS 2" (DN 50) line must be executed in NPS 2" (DN 50) from this collection point for the next 100 feet (30 m). The last 33 feet (10 m), between the treatment units and the main line, must be executed in NPS 3" (DN 75).
- The NPS 3" (DN 75) ends in the NPS 4½" (DN 110) main line or downpipe.

Excessive temperature differences will lead to an increased build-up of condensation water. In order to prevent excessive build-up of condensation, suction pipes should not be installed close to external walls. The following criteria should be met when installing a condensation separator:

- At the lowest position in the main vacuum supply line
- As near to the suction units as possible
- In an accessible position

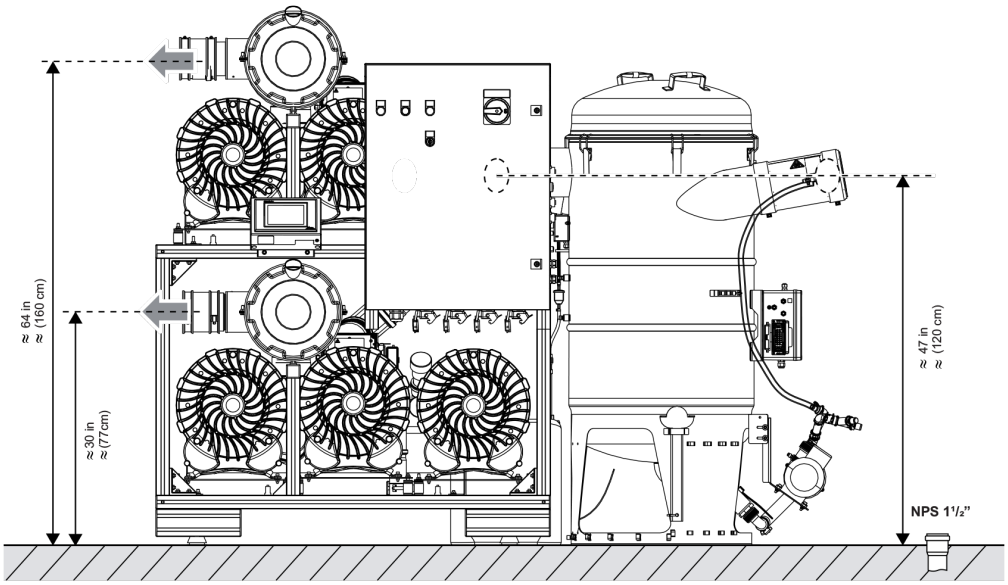
The exhaust air line from the suction unit must lead out into the outside, via the roof if possible. The following values are a general guideline.
Exhaust air line for:

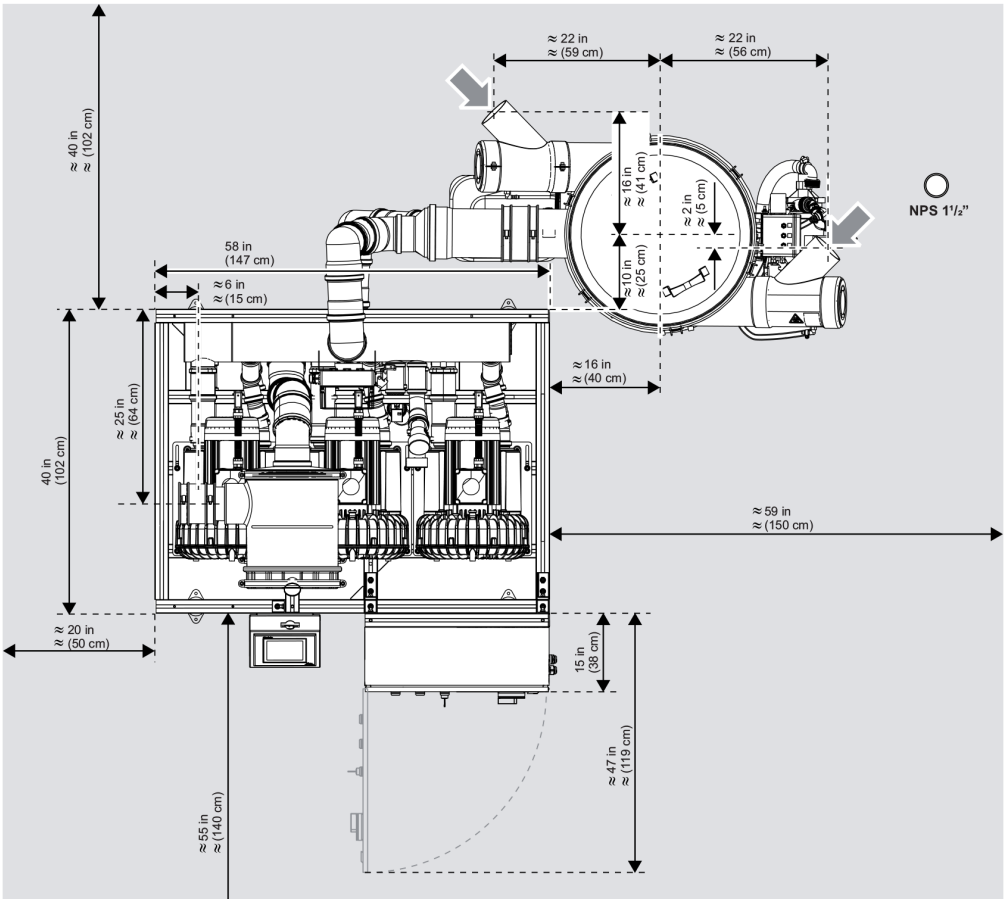
VS60 / VS75/ VS90 NPS 6" (DN 160) or
2x NPS 4½" (DN 110)

For long air extraction lines more than 65 feet (20 m) the cross section should be increased by one size.
Example: NPS 4½" (DN 110) to NPS 6" (DN 160)

16. Installation example with space requirements and connection positions

16.1 VS60 / VS75/ VS90





17. Planning examples VS60 / VS75 / VS90

17.1 Key to planning examples and sample pipe dimensions below

Electrical connections

1 Control panel with PLC

1a 480 V mains power supply

1b Control line (24 V control voltage, internal)

Suction pipe for secretions

Dry suction pipe / exhaust air line to the outside

Drainage pipe for condensation separator NPS 1½" (DN 40), minimum gradient of 2%

2 Exhaust air bacteria filter

3 Central separation tank

3a Vessel rinse water valve 24 V

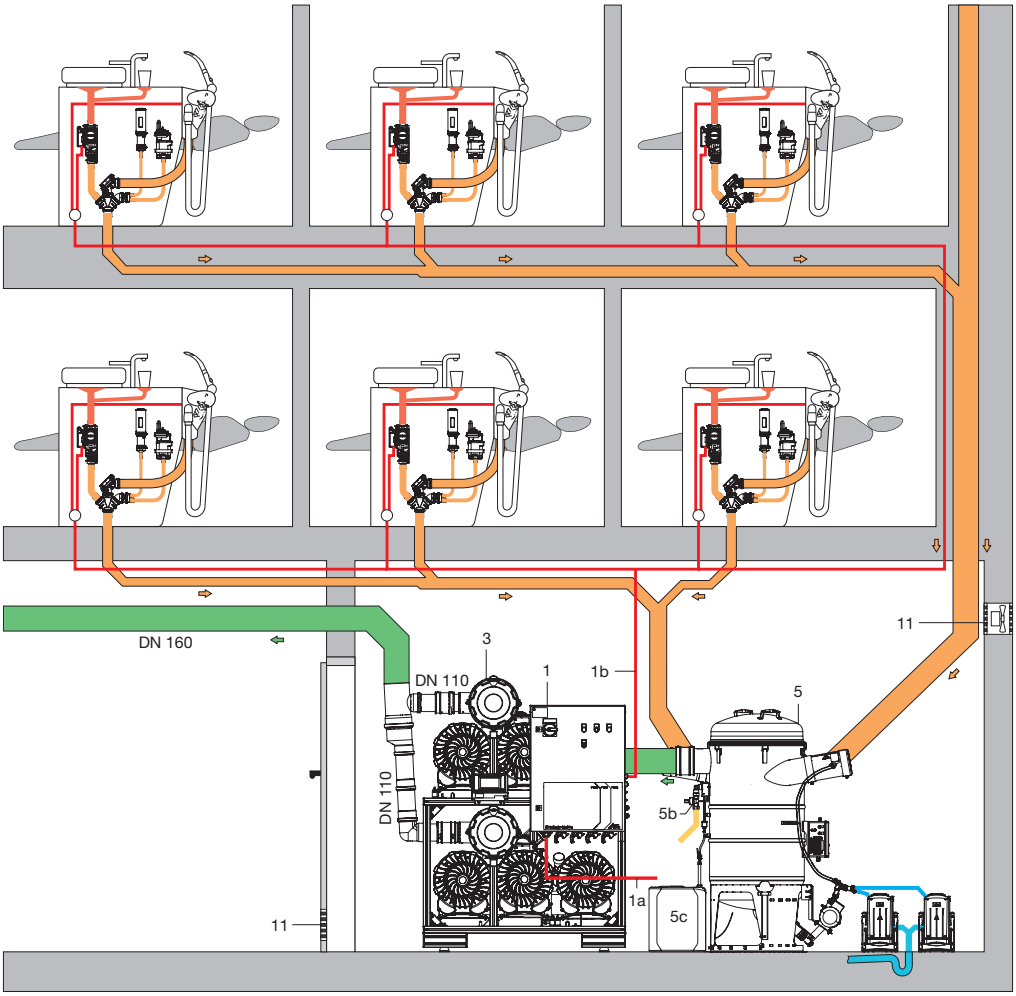
3b CleanStream vessel 30 L

Fresh water for rinsing 48 to 58 PSI (3-4 bar), GU 3/4"

Waste water drainage NPS 1½" (DN 40), minimum gradient of 2%

4 Ventilation

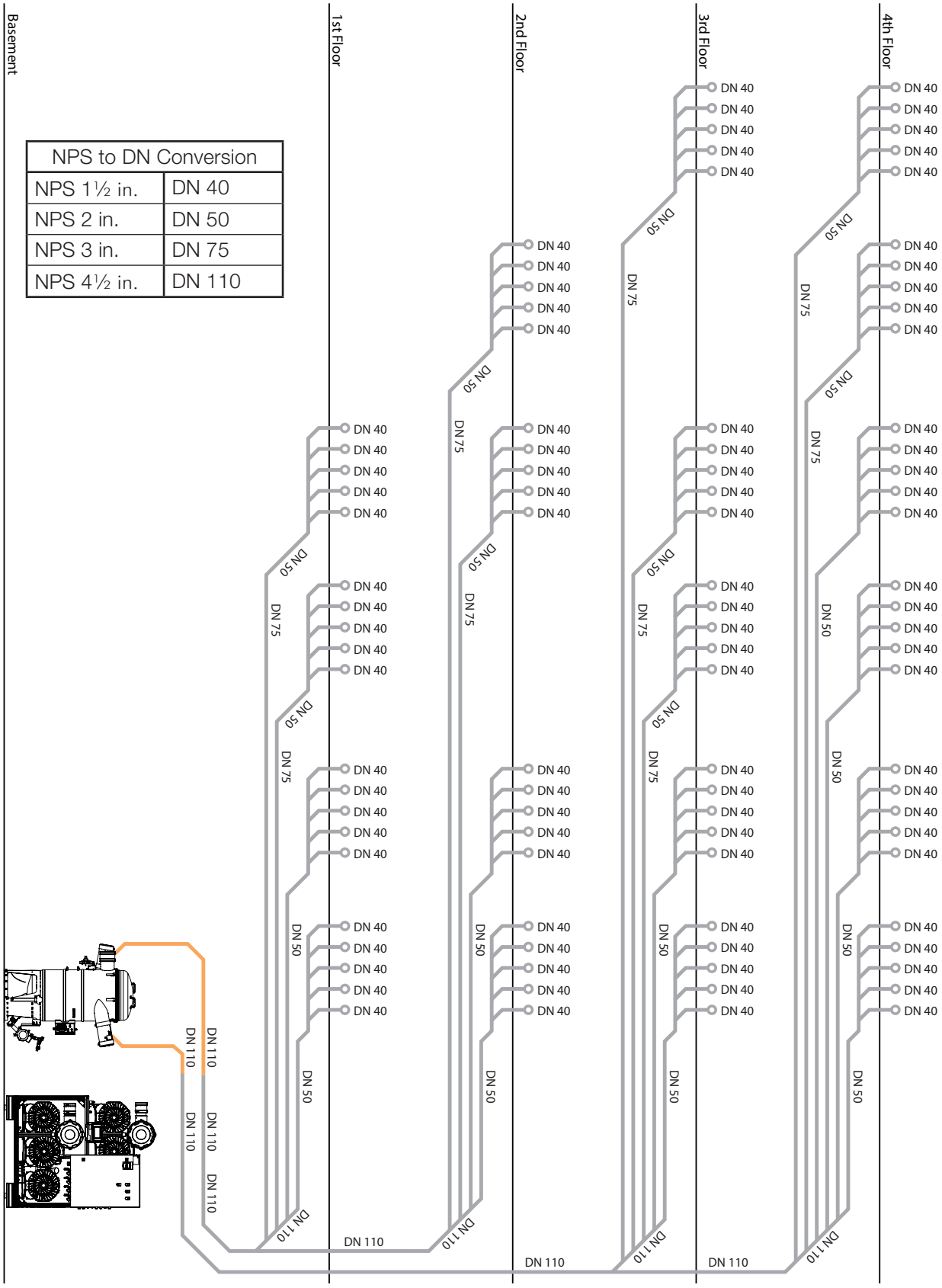
17.2 Planning example – VS90 with amalgam separators

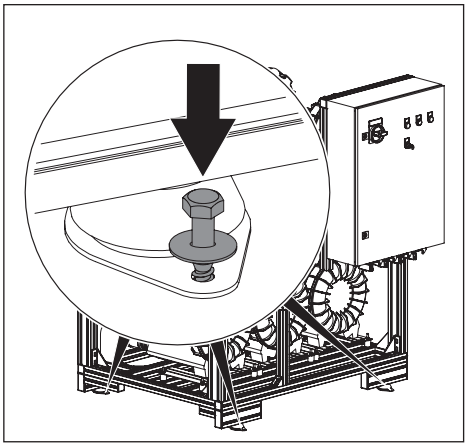


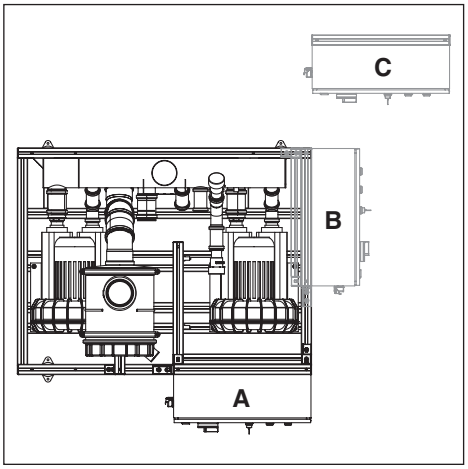
17.3 Pipe dimensions – VS90 for up to 90 treatment units

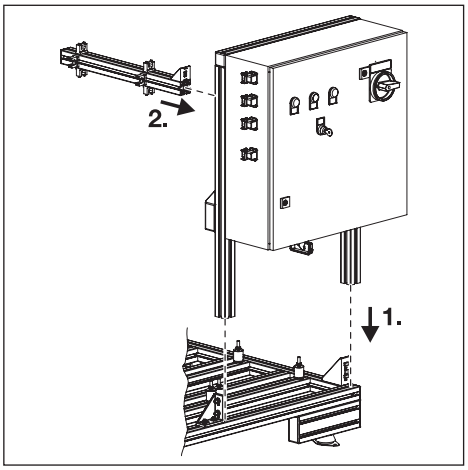
Refer also to point 15. Installation notes for the suction system

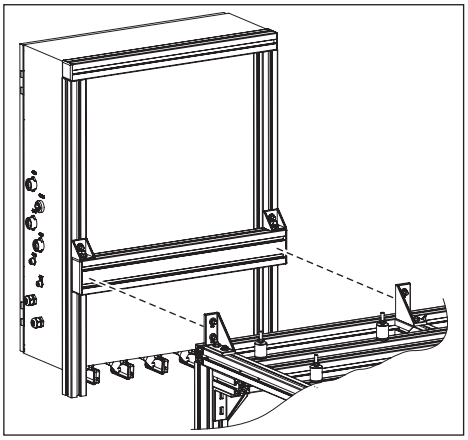
NPS to DN Conversion	
NPS 1½ in.	DN 40
NPS 2 in.	DN 50
NPS 3 in.	DN 75
NPS 4½ in.	DN 110











18. Set-up and installation

18.1 Transport

The clinic suction unit is delivered on a pallet.

- Unload the clinic suction unit with a forklift truck, lift it off the pallet and move to its set-up location.
- Remove all transport locks and protection.

18.2 Setting up and securing the modules

Wait until the different devices in the suction system have been commissioned before bolting them with the supplied fixtures to the floor, as this will allow you to adjust any positions as required.

The fixtures and fittings are supplied in the scope of delivery.

- Detach the modules from the pallets (transport locks).
- Use a forklift truck or pallet truck to move the modules to the location chosen for installation.
- Drill the required holes into the floor for the fixtures.
- Insert the mounting anchors.
- Securely bolt the modules to the floor.

18.3 Installation of the control unit

Options for installation of the control unit

- Standard installation (A) at the front of the suction unit frame
- On the right (B) of the suction unit frame
- Wall mounting (C).

Depending on the installation, make sure that there is sufficient space to open the door.

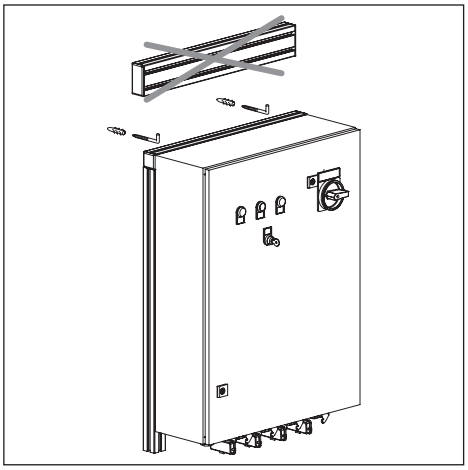
Securing the control unit to the VS60 / VS75 / VS90 suction unit frame

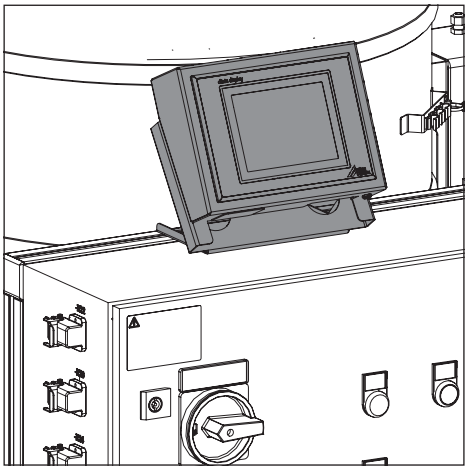
- Place the control unit with the cross strut onto the frame of the suction unit.
- Position the nuts for the angle bracket through the slots of the aluminium profiles and tighten them with the nuts.

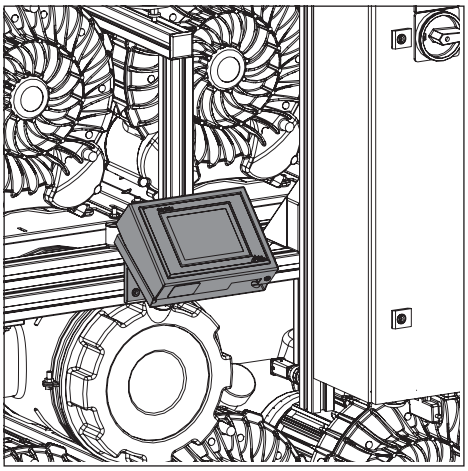
Securing the control unit to the wall

- Remove the cross strut from the control unit so it can lie flush against the wall.
- Screw the fixtures to the wall.
- Hang the controller unit into the aluminium profiles on the wall fixtures.

For installation on the wall, longer connection cables may be required. See "Special accessories – Control unit".







18.4 Installation of the central separation tank (CST) with amalgam separator CA 4

- Position the CST as shown by Section 16, Installation example with space requirements and connection position".
- Establish the pipe connections between the CST and the clinic suction unit.

If a different set-up variant is selected, additional pipes may have to be provided.

- Set up the amalgam separators in an easily accessible location next to the central separation tank so that a waste water sample can be taken at the outflow side at any time.
- Connect the amalgam separator to the 230 V connection of the central separation tank.

18.5 Exhaust air connection

Establish a pipe connection between the outlet of the bacteria filter and the on-site exhaust air line. In the case of suction units with two bacteria filters, either route two pipes to the on-site exhaust air connection or combine the two outlets from the bacterial filters together and use a single pipe with a larger cross section to route the emissions to the exhaust air connection.

18.6 Connection of the pipes

Please check whether the pipes are securely fixed to the wall/ceiling with the necessary pipe mounting clamps.

Vibrations are generated during operation of the clinic suction unit. To prevent these vibrations from being transmitted to the pipe system, use the supplied rubber fitting to connect the vacuum/exhaust air pipe.

18.7 Mounting the display panel

Installation options

- Installation on the frame of the control unit
- Installation on the suction unit frame either from the top or from the front
- Wall installation, e.g. in a monitoring room.
- Fixing to a tabletop (using screws or double-sided adhesive tape), e.g. in a monitoring room.

Mounting the display panel

- Mount the fastening screws for the aluminium profile in the mounting bracket.
- Position the mounting bracket on the aluminium profile tighten the nuts.
- Route the power supply cable and the data line through the aperture in the mounting bracket and connect them to the display panel.
- Use strain relief to secure the cables in place.
- Place the display panel onto the metal bracket.
- Route the power supply line and data cable to the control unit and connect them to the corresponding labelled slots.

18.8 Connecting the display panel and connecting it to the network

Multiple clinical systems can be connected to one or more display panels. The clinical systems and display panels are networked using a switch. The clinical systems and the display panels must all be assigned sequential numbers (node numbers). These numbers are used to identify the different devices in a network. A number must not be used more than once for the same type of device in a network. On delivery, all clinical systems and display panels are set to 1.

- Connect the power supply from the display panel to X13 on the control panel of the system.
- Connect the signal cable (network cable) to X13.1 on the control panel.

If multiple clinical systems are connected to a display panel, a separate power supply unit can also be used to power the display panel.

18.9 Hose manifold – signal

The control signal from the suction unit relay in the treatment unit is connected to the plugs X14 and X15 at terminals 1 and 3.
The connections can also be seen in the circuit diagram.

18.10 External error messages

Switching elements have been integrated into the control unit that allow remote monitoring of the operating status of the suction units. If required a cable can also be set up for a control LED from the control unit, terminal strip X4 and terminals 1, 2, 3 using 5 x 1.5^2 wire, to a suitable room (e.g. clinic technical equipment room).

18.11 Supply voltage

The connection to the mains supply voltage of 480 V 3/N/PE AC 60 Hz is made at terminal strip X1 via the terminals L1, L2, L3, N, PE. The fuses and the cross-section of the supply lines to the control box must be appropriate for the actual current consumption of the clinic suction unit, the line length and any local regulations in force.
If multiple suction unit groups are being operated then each unit must be individually protected with fuses as described above.

19. Commissioning

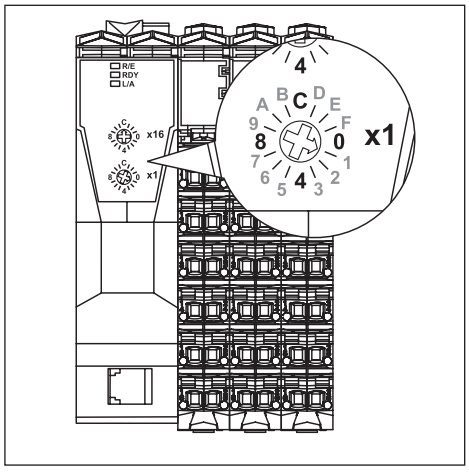
19.1 Prior to commissioning and initial start-up

Clean the pipes of any debris, dust or other deposits; otherwise the clinic suction unit may be damaged. During the first test run leave the gauze sieve/coarse filter in the pipe line and remove it after commissioning is finished together with any dirt or dust that has been drawn in.

The operator controls on the control unit such as the main power switch, fault acknowledgement, error messages and display panel can be operated or viewed by the user externally.
Error messages are indicated with a red LED. A further control LED can be connected using a potential-free normally closed/normally open contact.

19.2 Commissioning

- Connect the dummy plug at the control box (on dry air suction systems with condensation separator).
- Adjust the numbers of the unit in the control box and on the display panel.
- Check the electrical connections.
- Configure the system.
- Check all functions of the system.
- Check the direction of rotation of the motor.
- Adjust the motor protection switch.
- Perform an electrical safety check and document the results accordingly.
- After the test run remove the gauze filter.



19.3 Adjusting the numbers in the control unit

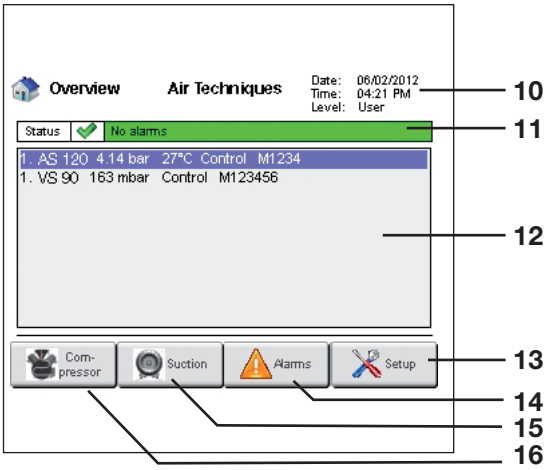
On the front of the PLC in the control unit there are two small rotary switches for setting up the sequential numbering. Up to 15 control units can be installed in the network.
Only the rotary switch marked **x1** is used.

The rotary switch marked **x16** should be left in the position **0**.

Rotary switch position	**1**	**2**	**..**	**9**	**A**	**B**	**C**	**D**	**E**	**F**
Number	1	2	..	9	10	11	12	13	14	15

Example:

No.	**Device**	**Description**
1	PLC in control unit 1	VS90
2	PLC in control unit 2	VS60
3	PLC in control unit 3	VS60
1	Display panel 1	Machine room
2	Display panel 2	Monitoring room



19.4 Adjusting the PLC of the control unit to the connected system

Before start-up and first use of the unit, the PLC controller must be told which suction system is connected to the control unit. This calibration is performed via the **display panel**.

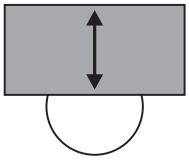
Once you switch on the display panel – and after a short wait – the **Overview** menu appears. From the various submenus you can return to the main menu via the **Home** button.

10 Display of the date, time and logged-on user status.
11 Status LED for all connected systems.
12 Display window with list of connected systems and display of operating states.
13 **Setup** button for opening the setup menu.
14 **Alarms** button for viewing active alarm messages.
15 **Aspiration** button for querying the status of the connected suction systems.
16 **Compressor** button for querying the status of the connected compressor systems

Further information about admin and operation of the system via the display panel can be found in the instructions enclosed with the display panel.

20. Testing the suction systems

- Switch on the main power switch at the control unit (red switch)
- Bridge connectors X14 or X15 (depending on the system, 1 + 3), which will cause the suction unit to start up.



Slowly slide a plate (e.g. plastic board measuring approximately 7.9 x 5.9" (20 x 15 cm) with a thickness of 0.12" (0.3 cm) over the vacuum pipe on the suction units or at the central separation tank. Diameter 4.33" (110 mm).

The vacuum increases. The suction units switch off depending on the amount of vacuum present until only one suction unit is switched on. Closing off the vacuum pipe any further will cause the auxiliary air valve to open.

- Once the vacuum pipe is completely closed, slowly slide the plastic board or plate away (takes approx. 2 mins) to open the vacuum pipe. The flow rate increases and the vacuum is reduced.
- When the vacuum in the suction system drops due to the opening of the pipe, the suction units switch on again depending on the pressure.
- Activate one of the three motor protection switches in the control unit (set the switch to 0). The red remote display lights up on the cover of the control unit.
- Switch the motor protection switch back on again and acknowledge the error message by pressing the yellow reset button. The red light goes out.
- Measure the rate of flow at the treatment unit and in the connection box at the vacuum pipe NPS 1½" (DN 40).

WARNING
Risk of infection due to bacteria present in the central separation tank

- Always wear protective gloves and a face mask when working on the unit.

- Check the float sensors in the central separation tank: remove the cover from the central separation tank and briefly lift the float switch for the 50% level. The waste water pump switches "ON".

Only lift the float switch very briefly. As there is no water in the central separation tank, the waste water pump could get too hot and be damaged in the process.

- Test the float switch for the 75% level: briefly lift the float monitor for the 75% level. The suction units are switched off.
- Check the float sensors for emergency mode: activate emergency mode at the control unit. Lift the float monitor for emergency mode, which will cause the suction unit to switch off.

21. Maintenance for Service Technicians

All maintenance work must be performed by a qualified expert or by one of our Service Technicians.

To prevent any risk of infection, always wear protective equipment (e.g. liquid-tight protective gloves, protective goggles, face mask).

To prevent the risk of hearing damage, always wear ear protection when working on noisy units.

Maintenance work	Maintenance interval	Order number
1. Check noise reducer, change if necessary	12 months	E5135
2. Check non-return valves on exhaust air side of the clinic suction units, change if necessary	12 months	E5134
3. Measurement of rate of flow at system air exhaust: 45 SCFM minimum w/ one pump running.	12 months	N/A
4. Change filter cartridge of exhaust air filter (number of hours on control unit display panel)	3,500 hours	E5131
 **WARNING** **Risk of infection due to bacteria present in the exhaust air filter** • Wear protective gloves and a face mask when changing the filter.		
5. Function check of vacuum control Activation of units	12 months	N/A
6. Check operating hours on display panel	12 months	N/A
7. Check mechanical operation of auxiliary air valve	12 months	E5138
8. Clean float switch in central separation tank (50%/75%), replace if necessary	12 months	E5142
 **WARNING** **Risk of infection due to bacteria present in the central separation tank** • Always wear protective gloves and a face mask when working on the unit.		
9. Check float switch in CleanStream vessel	12 months	E5286
 **WARNING** **Risk of infection due to bacteria present in the central separation tank** • Always wear protective gloves and a face mask when working on the unit.		
10. Check water valve on the central separation tank	12 months	E5143
11. Check CleanStream valve on the central separation tank	12 months	E5285
12. Replace sewage check valve	12 months	E5133

22. Order overview

	Designation	Order no.	Quantity	
Suction units				
	VS60 with control unit and central separation tank *	VS60		
	VS75 with control unit and central separation tank *	VS75		
	VS90 with control unit and central separation tank *	VS90		
	* Order display panel separately for each installation room			
Suction unit accessories				
	Display panel for each installation room	E5119		
	Power unit for display panel	G8116		
	Switch (8-way) for networking clinic devices and display panels	E5186		
	Connection expansion set for a second suction connection on the separation vessel	E5283		
	Amalgam separator CA 4 60 Hz	E5129		
Consumables				
	Filter cartridge for exhaust air filter	E5131		
	CleanStream refill	57630		

Final Testing/Handover Examination Documentation for Clinical Dry Vacuum Systems

Models VS60, VS75, VS90

Order Number: _____

Address of set-up location (clinic):

_____

_____

_____

_____

Name and address of customer:

_____

_____

_____

_____

Inspect delivery for:

☐ Possible damaging to packaging

☐ Possible damage to units/delivery

☐ Completeness of the delivery

Name and address of installation company/service technician:

_____

_____

_____

This document confirms the qualified handover and instructions in use pertaining to the following unit(s):

Vacuum System(s)	Model: _____	Serial Number(s):_____
Amalgam Separator(s)	Model: _____	Serial Number(s):_____
	Model: _____	Serial Number(s):_____
Display Panel(s)	Model: _____	Serial Number(s):_____
Tank Expansion Kit	Model: _____	Quantity: _____
Cleaner Container(s)	Model: _____	Quantity: _____

Additional unit(s):

Type:_____	Model: _____	Serial Number(s):_____
Type:_____	Model: _____	Serial Number(s):_____
Type:_____	Model: _____	Serial Number(s):_____

☐ Installation arrangement of units (photo documentation) is appended.

Date of installation: _____

Setup Location: _____

- ☐ Vacuum level was set to _____ inHg (± 0.5) during installation and verified on site.
- ☐ A check that the connection to ground is not interrupted has been carried out.
- ☐ The electrical safety of the system according to current national and local code has been carried out.
- ☐ The system was checked for signs of leakages.
- ☐ All connections were laid correctly, made secure, and checked according to the necessary requirements.
- ☐ The system was handed over according to the components listed.
- ☐ Acceptance was successful without any restrictions or annotations
- ☐ Acceptance was not successful or only partially successful due to the following reasons:

_____

_____

Additional Comments:

_____

_____

_____

_____

_____

Personnel Trained to Maintain the System(s):

Printed Name	Title
Signature	Date
Printed Name	Title
Signature	Date
Printed Name	Title
Signature	Date

I hereby confirm handover and acceptance according to the information above:

Signature of Service Technician	Date
Signature on Behalf of Customer	Date

WARRANTY

VacStar Clinical Dry Vacuum System is warranted to be free from defects in material and workmanship from the date of installation for a period of 2 years (24 months) on complete unit.

All part and component returns and replacement equipment under warranty require a Return Materials Authorization (RMA). Warranty returns must be received within three months of the RMA issue date. Items returned without an RMA, or included with other products for which an RMA has been issued, may be returned to the customer at the discretion of Air Techniques, Inc.

Any item returned under warranty, will be repaired or replaced at our option at no charge provided that our inspection shall indicate it to have been defective. Air Techniques, Inc. is not liable for indirect or consequential damages or loss of any nature in connection with this equipment. Dealer labor, shipping and handling charges are not covered by this warranty.

Warranty credit will not be applied to product returns that exhibit damage due to shipping, misuse, careless handling or repairs by unauthorized personnel. Credit, or partial credit, will not be issued until products/parts have been received and assessed. Warranty is void if product is installed or serviced by anyone other than an authorized Air Techniques' dealer or service personnel.

This warranty is in lieu of all other warranties expressed or implied. No representative or person is authorized to assume for us any liability in connection with the sale of our equipment.

WARRANTY REGISTRATION

Please complete the warranty registration form below. This registration ensures a record for the warranty period and helps Air Techniques keep you informed of product updates and other valuable information.

Practice Information * Required

First Name*

Last Name*

Practice Name*

Role*

Address*

Work Phone*

City*

Mobile Phone

State*

Zip*

Work Email*

Country

Dental Specialty*

Product Information

Product Name*

Part Number*

Serial Number*

Installation Date*

Dealer Name*

❑ I agree to the Warranty Terms & Conditions

❑ I would like to receive email notifications of news and promotions from Air Techniques.

NOTES

For over 50 years, Air Techniques has been a leading innovator and manufacturer of dental products. Our priority is ensuring complete satisfaction by manufacturing reliable products and providing excellent customer and technical support. Whether the need is digital imaging, utility room equipment or merchandise, Air Techniques can provide the solution via our network of authorized professional dealers. Proudly designed, tested and manufactured in the U.S., our products are helping dental professionals take their practices to the next level.

Air Techniques' family of quality products for the dental professional include:

❑ Digital Imaging

- Digital Radiography
- Intraoral Camera
- Caries Detection Aid
- Intraoral X-ray
- Film Processors

❑ Utility Room

- Dry Vacuums
- Wet Vacuums
- Air Compressors
- Amalgam Separator
- Utility Accessories
- Utility Packages

❑ Merchandise

- Surface Disinfectant
- Enzymatic Cleaner
- Hand Sanitizer and Lotion
- Waterline Cleaner
- Evacuation System Cleaner
- Imaging Accessories
- Chemistry
- Processor Accessories

www.airtechniques.com

Platinum Green Business Certified

You Tube

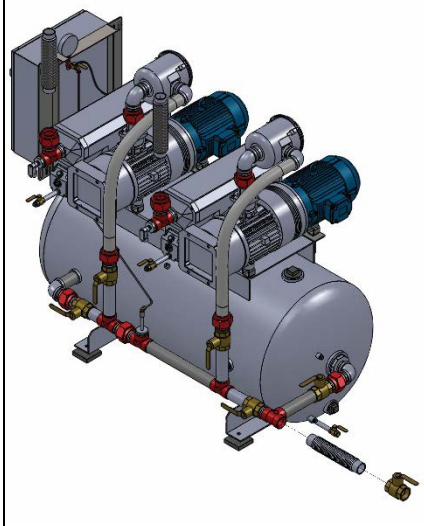
AIR TECHNIQUES equipped for life®

Corporate Headquarters
1295 Walt Whitman Road
Melville, New York 11747- 3062
Phone: 800-247-8324
Fax: 888-247-8481

REMOVAL OF EXISTING SYTEM

Ohio® Medical
always there | for life

S1000B-T2-H200 Rotary Vane Vacuum System



Configuration:	DuplexHorizontal Tank Mount
System Capacity:	71 SCFM @ 19” Hg. 32.3 SCFM @ 25” Hg.
Capacity per Pump:	71 SCFM @ 19” Hg.
Motor Horsepower:	10 HP
Total System Horsepower:	20 HP
Receiver Size:	200 Gallons
Available Voltage:	208/230/460 3 phase Contact Factory for Other Voltages
Note: System capacity is stated with one pump in reserve	

Vacuum Pump Module:

- Oil sealed, air cooled rotary vane vacuum pumps
- Sealed with synthetic oil for heat resistance and long life
- Each pump has: integral anti-suck back valve, vacuum filter, inlet check valve and exhaust temperature switch
- Pump isolation valve for ease of service

Air Receiver:

- Constructed to ASME standards
- Rated for full vacuum
- Equipped with 3 valve bypass
- High visibility vacuum gauge
- Source isolation valve included
- Mounting pads and flex connectors included

System Controls:

- Underwriters Laboratories listed
- Nema 12 enclosure
- Safety disconnect handle
- Fuseless design
- HMI (human machine interface system)
- NFPA required local alarms/ remote monitoring

Options:

- Inlet liquid separator
- Liquid cooling system

1111 Lakeside Drive | Gurnee, IL 60031-4099
Phone: 1-800-448-0700 | Fax: 1-847-855-6300 | www.ohiomedical.com