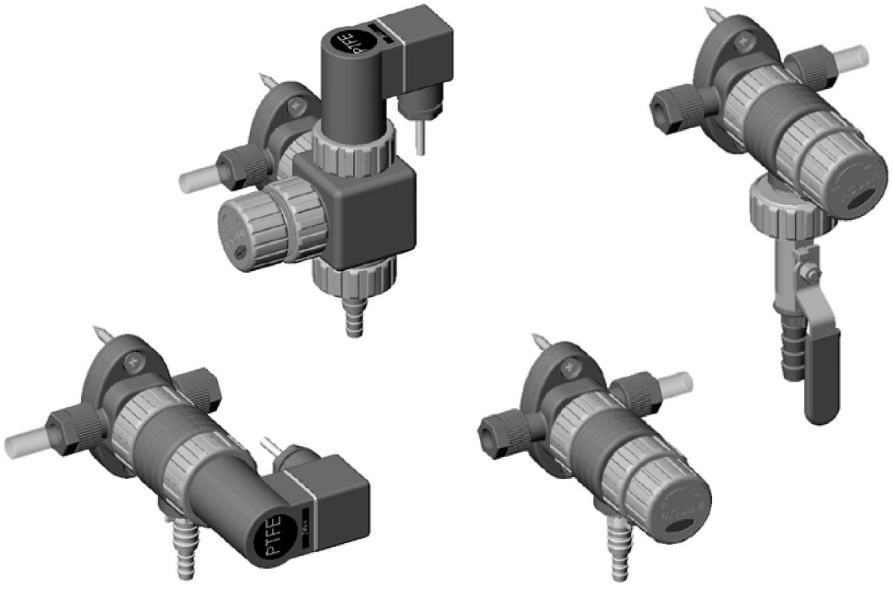
vacuubrand

Technology for Vacuum Systems

# Instructions for use - Instructions for installation




**VACUU•LAN®**

**Vacuum Local Area Network**

# Contents



**After sales service:**
**Contact your local dealer or call +49 9342 808-193.**

# Important information!

**This manual is an integral part of the equipment described therein. It describes the installation and the safe and proper use of the VACUU•LAN® Local Area Vacuum Network.**
**Keep this manual complete and accessible to personnel at all times!**

**Read this manual carefully before installing or operating the equipment. Follow the instructions contained in this manual.**
**VACUUBRAND disclaims any liability for inappropriate use of the equipment and for damage resulting from disregarding the instructions contained in this manual.**

**Do not modify the equipment without authorization.**

This manual is only to be used and distributed completely and unchanged. It is strictly the users' responsibility to check carefully the validity of this manual with respect to his product.
Manual-no.: 999087 / 02/22/2011

# VACUU•LAN® Local Area Vacuum Network

## *Notes on the installation of a VACUU•LAN® Local Area Vacuum Network*

Remove all packing material from the packing box. Remove the product from its shipping box and retain all packaging until the equipment is inspected and tested. Inspect the equipment promptly and carefully.
If the equipment is damaged, notify the supplier and the carrier in writing within three days. Retain all packing material for inspection. State the item number of the product together with the order number and the supplier's invoice number. Failure to check and give notice of damage will void any and all warranty claims for those deficiencies.
**Do not use the equipment if it is damaged.**

Comply with all **applicable and relevant safety requirements** (regulations and guidelines). **Implement the required actions and adopt suitable safety measures.**

**Attention**: The installation of a VACUU•LAN® vacuum network has to be done very thoroughly.

☞ Check that the system which you are going to evacuate is mechanically stable. Adopt suitable measures to prevent the release of dangerous, toxic, explosive, corrosive, noxious or polluting fluids, vapors and gases. Ensure that the materials of the system's wetted parts are compatible with the processed substances. See section "Technical data".

Solenoid operated in-line valves serve to control the vacuum and are operated via an electronic vacuum controller, e.g., CVC 2$^{II}$, VNC 2 or CVC 3000.

☞ Connect solenoid operated in-line valves only to suitable vacuum controllers (see "Technical data"). The vacuum controllers VNC 2 and CVC 3000 can only control valves featuring a VACUU•BUS™ connection.

The components are designed for the installation of a VACUU•LAN® vacuum network. **Use the components only for vacuum conditions. Do not use VACUU•LAN® components at overpressure. Do not use the VACUU•LAN® system to distribute fluids or solids!**

## *Notes on explosion protection in a vacuum local area network*

Before system start-up of any VACUU•LAN® vacuum network the user has to evaluate the **explosion risks** of the whole system and take adequate measures by applying the principle of risk assessment.

The interior (pumped media) and the outer environment of the VACUU•LAN® vacuum network as well as the connected vacuum pump have to be evaluated separately.

**VACUU•LAN® components are not approved for operation in potentially explosive atmospheres.** Using VACUU•LAN® components in such areas is only permitted at the users' own discretion and only if it is ensured that there are no ignition sources (i.e., where a certification to ATEX standards for explosion protection is not required).

For safety reasons, it is always best to limit the extent of a VACUU·LAN® network to a single laboratory, so that users have immediate access to the entire network, and can exercise responsibility for solvent vapor capture and appropriate disposal. Keep the network under vacuum at all times, if possible. Furthermore, check the whole system regularly for leak-tightness.

The VACUU•LAN® vacuum network must not be operated until operation without danger is ensured. **Provide suitable control, protective measures and warning systems to allow for the possibility of failure and malfunction.**

# Technical data

| **VACUU•LAN® vacuum network** | |
|---|---|
| Leak rate | < $1*10^{-2}$ mbar*l/s per component |
| Maximum gas temperature | 176°F (80°C) |
| Maximum ambient temperature | 104°F (40°C) |
| **Solenoid operated in-line valve** | |
| Operating cycles per minute | max. 50 |
| Power draw | 6 W |
| Maximum permissible range of supply voltage | 24V DC ±10% |
| Current draw | approx. 0.22 A |
| Degree of protection IEC 529 | IP 65 |
| Max. permissible differential pressure, pressure gradient in direction of flow-through | 1.5 bar |

## *Wetted parts*

| Components | Wetted materials |
|---|---|
| Module body | PE or PPS or PP or<br>PP 30% glass fiber |
| Threaded connection | PE or PPS or PP or stainless steel |
| O-ring | FPM |
| Non-return valve seal | FFKM |
| Sealing ring | PTFE or PVC |
| Hose nozzle | PPS glass fiber reinforced or PE |
| Fittings (see accessories) | PVDF |
| Tubing | PTFE |
| Blind plug | PP |
| Hose nozzle adapter | PP |
| Diaphragm | PTFE |
| Solenoid operated valve | PVDF / PTFE / fluorine elastomer |
| Ball valve | stainless steel / PTFE |
| Elbow fitting at module bodies B6/B7 | ETFE |
| Screw-in fitting at module body B8 | ETFE |
| Transition piece / adapter C7/D1/D2 | stainless steel |

## *Abbreviations*

**ETFE**: Ethylene/Tetrafluoroethylene
**FFKM**: Perfluoro elastomer
**FPM**: Fluoroelastomer
**PE**: Polyethylene
**PP**: Polypropylene
**PPS**: Polyphenylene sulfide
**PTFE**: Polytetrafluoroethylene
**PVC**: Polyvinyl chloride
**PVDF**: Polyvinylidene fluoride

**We reserve the right for technical modification without prior notice!**

# Assembly

Before the initial operation of a VACUU•LAN® Local Area Vacuum Network, and especially when installed in laboratory furniture or equipment,

- check by hand that all screw connections are seated tightly (tighten if necessary) preferably before installing potential covers or before access is restricted by potential lab furniture or equipment and
- check the whole network for vacuum tightness (see ”Leak test of a VACUU•LAN® Local Area Vacuum Network” ).

Tighten the **union nuts at the mounting bases and at the functional elements** hand-tight; retighten after some days if necessary.
To tighten **compression fittings at tubing connections**, first make finger-tight connections, and then tighten one turn with an open-end, 17 mm wrench.

**Sealing of threads in vacuum lines**
To meet the extremely high tightness requirements in vacuum technology, the clearance between male and female screw threads of threads to be sealed should be filled completely with seal material. These requirements can be met by using PTFE tape, but PTFE tape does not provide a safeguard against twisting that can loosen fittings.

The best results are obtained by **bonding the threads**. We recommend to use DELO high-performance adhesive type **DELO-PUR® 9691.**
Use recommended genuine accessories of the manufacturer (manual dosing tool DELO-AUTOMIX-System 902 and mixing tube 050, short with hose nozzle) to mix and efficiently apply the adhesive.
Manufacturer: DELO Industrieklebstoffe GmbH & Co. KG, P. O. Box 1231, D-86882 Landsberg, Germany, tel. +49 8191 3204-0, fax +49 8191 3204-144, E-mail: info@delo.us.

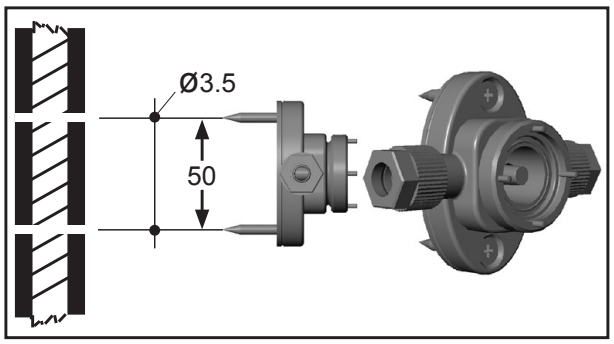
For an excellent seal, make sure that the surfaces to be bonded are free of oil, grease and other contamination. If necessary, use cleaners recommended by the manufacturer of the adhesive.

**At room temperature, curing DELO-PUR® 9691 is complete after 24 hours.**
Comply with the use and safety instructions of the adhesive’s manufacturer as well as with all applicable standards and requirements when using and disposing of adhesive**.**

# *Attaching the mounting bases*

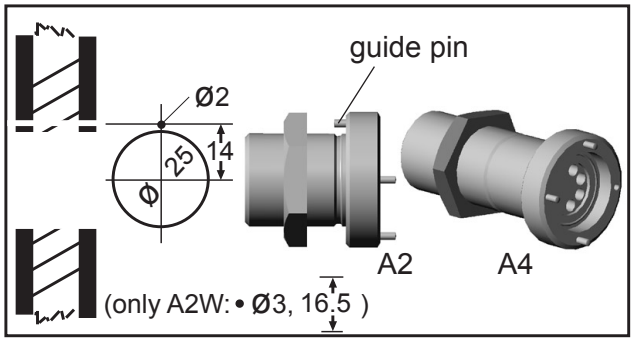
**All dimensions in the drilling templates are in millimeters.**
**Always pay attention to the installation position of the mounting bases (see drilling templates)!**

Each VACUU-LAN® module is composed of three components: a mounting base with connections for tubing, a module body, and one or more functional elements (See chart, p. 17.). The following section describes how to attach the various mounting bases to walls or casework, and to make tubing connections to each mounting base.



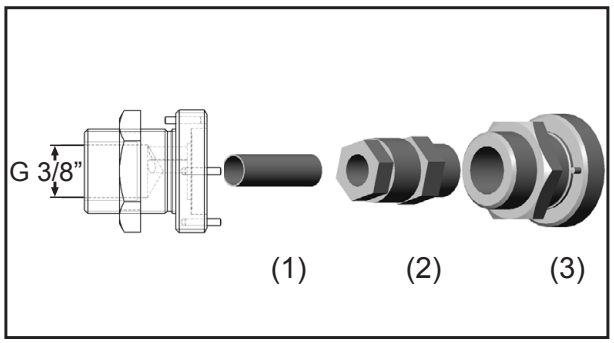

## Mounting base A1:

- ➨ Use countersunk head screws to attach the mounting base to the wall (Phillips screwdriver size 2). Use wall anchors if needed to secure mounting bases to the wall.
- ➨ Use the compression fittings on the mounting base to connect the unit to the pump or adjacent mounting bases in the vacuum network with VACUU-LAN® PTFE tubing (O.D./ I.D. 10/8 mm).




## Mounting base A2 or A4:

- ☞ It is essential to drill a hole for the guide pin to prevent the mounting base from rotating in the mounting hole.
- ➨ Remove securing nut.
- ➨ Attach the mounting base to the wall.
- ☞ Attention: Insert guide pin correctly into 2mm diam. guide hole (A2W only: 3 mm diam.). Be careful to mount perpendicular to surface.
- ➨ Tighten securing nut (using 30mm open end wrench).




☞ A G 3/8” internal thread is provided for the connection at the vacuum side of the mounting bases A2 and A4.

➨ To connect VACUU-LAN® PTFE tubing, a thread-to-compression adapter (2) must be installed between the mounting base (3) and the tubing (1).

☞ A straight or elbow (90 deg.) adapter fitting may be used.

➨ Use adhesive to secure fitting. (See recommended adhesive, p. 7.)

| Elbow fitting (90°) G 3/8” to PTFE-hose (O.D./I.D. 10/8mm) | Straight fitting G 3/8” to PTFE-hose (O.D./I.D. 10/8mm) |
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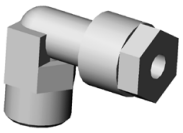
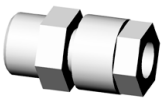
| see accessories | |
|  |  |
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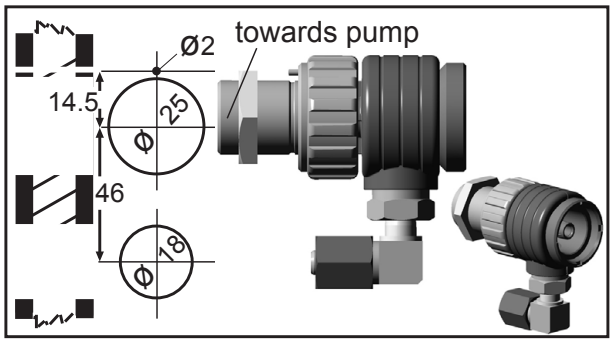



**Mounting base A2 with elbow fitting:**

☞ It is essential to drill a hole for the guide pin to prevent the mounting base from rotating in the mounting hole.

➨ Remove securing nut.

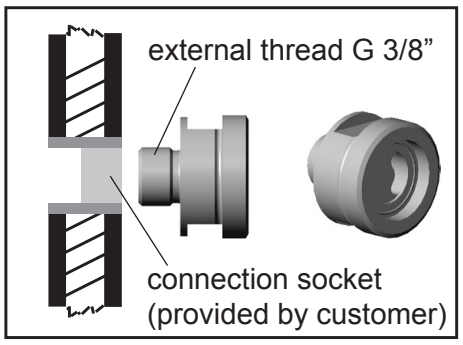
➨ Attach the mounting base with elbow fitting and transition piece to the wall.

☞ Attention: Insert guide pin correctly into 2mm diam. guide hole. Be careful to mount perpendicular to surface.

➨ Tighten securing nut.

➨ Use the compression fitting on the elbow fitting of the mounting base to connect the unit to adjacent mounting bases in the vacuum network with VACUU-LAN® PTFE tubing (O.D./I.D. 10/8 mm).

➨ An adapter is needed at the A2 mounting base to connect the unit to the vacuum pump with VACUU-LAN® PTFE tubing (O.D./I.D. 10/8 mm). See previous description of thread-to-compression adapter.

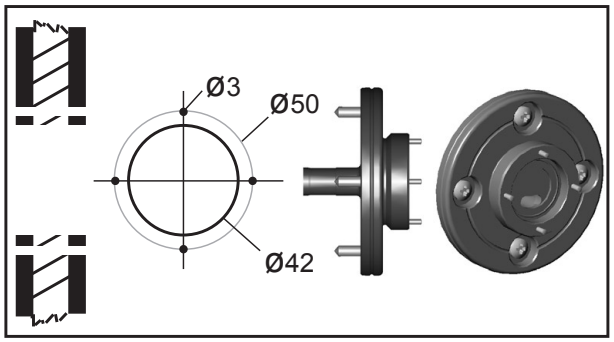



## Mounting base A3:

➨ Screw the mounting base into a provided connection socket in the wall or the lab furniture (G 3/8” external thread). Use a 27mm open end wrench to tighten.

➨ Use adhesive on thread to secure the fitting and prevent rotation during operation. (See recommended adhesive, p. 7.)

☞ The tubing to connect the unit to the pump or adjacent mounting bases in the vacuum network is provided by the customer.

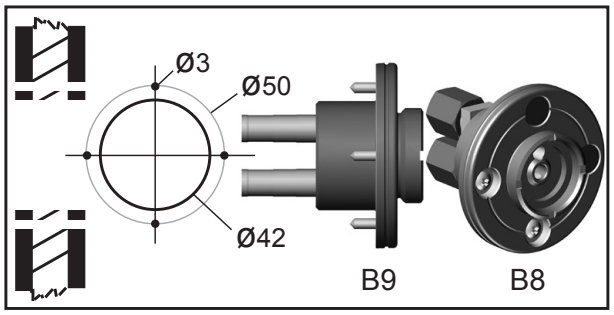



## Mounting base A5:

➨ Use the four supplied screws to attach the mounting base to the wall or bench surface. (Size 2 Phillips screwdriver). Screw or toggle-type wall anchors are recommended for drywall installations.

☞ Affix screw covers.

➨ Use PTFE tubing (O.D./I.D. 10/8mm) and compression fittings to connect this mounting base to the inlet of the pump or to adjacent units of the vacuum network. See connection details below.

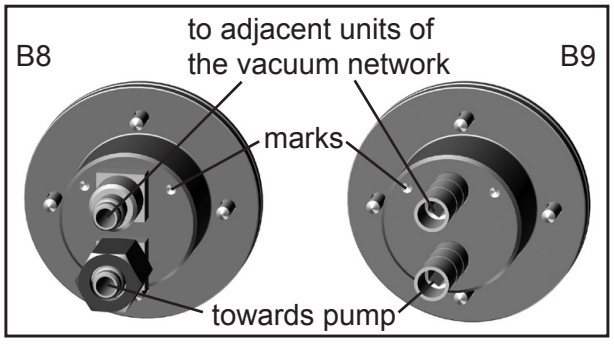



## Assembly with module body B8/B9:

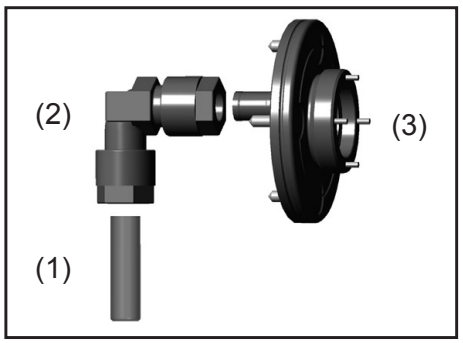
➨ Use the four supplied screws to attach the mounting base to the wall or lab furniture.

☞ Affix screw covers.

➨ Use PTFE tubing (O.D./I.D. 10/8mm) and compression fittings to connect these mounting bases to the inlet of the pump and to adjacent units of the vacuum network. See connection details below.



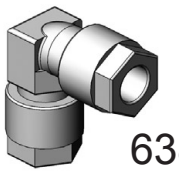
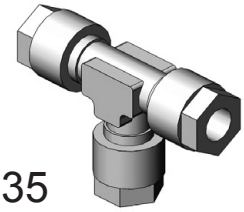
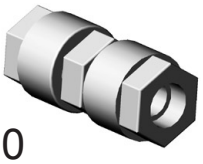

☞ The two marks at the backside of the module bodies B8 and B9 denote the connection to adjacent units of the vacuum network.

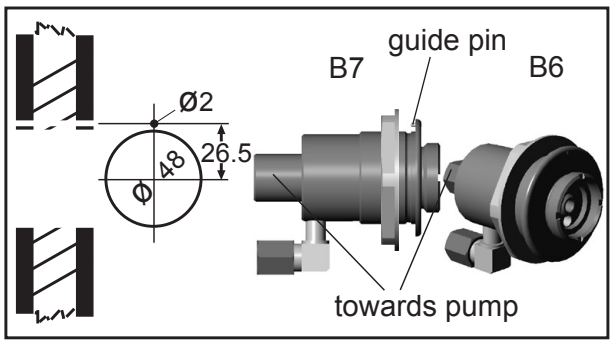



➨ To connect to VACUU-LAN® PTFE tubing, a straight or elbow compression fitting (2) must be installed between the mounting base (A5 or B9, indicated by ”3”) and the tubing (1).

☞ The connection can be established either via a straight connecting piece or via an elbow connecting piece (90°).

☞ To join the compression fitting with the mounting base, loosen the union nut, insert the tubing connector into the fitting, ensuring that the ferrule transfers to the connector. Then tighten the union nut.

| Elbow connecting piece (90°) for PTFE tubing (O.D./I.D. 10/8mm) | T-piece for PTFE tubing (O.D./I.D. 10/8mm) | Connecting piece for PTFE tubing (O.D./I.D. 10/8mm) |
|---|---|---|
|  638434 |  638435 |  639990 |




**Assembly with module body B6 or B7:**

☞ It is essential to drill a hole for the guide pin to prevent the mounting base from rotating in the mounting hole.

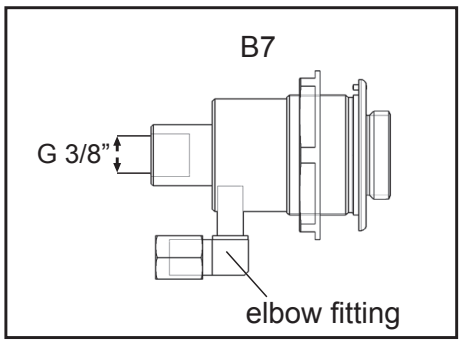
➨ Unscrew lock nut from module body.

➨ Attach module body to the wall or lab furniture, and secure in place with the lock nut (60 mm, provided).

☞ Attention: Insert guide pin correctly into 2mm diam. guide hole. Be careful to mount perpendicular to surface.

➨ After attaching the B6 or B7 module bodies to the mounting base, screw the elbow fitting into the thread of the module body, using adhesive (See p. 7.) to ensure a tight connection. Screw the elbow into the module body **only** to the point at which 2 - 3 courses of the thread remain visible. *Do not screw in any further.*

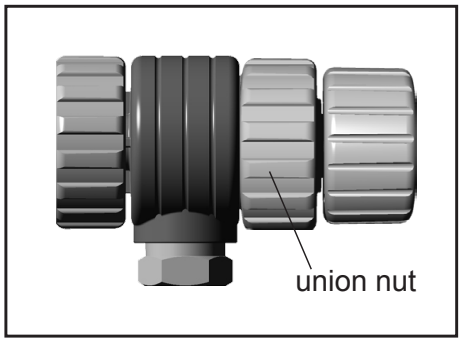
➨ Use PTFE tubing (O.D./I.D. 10/8mm) and compression fittings to connect these module bodies to the inlet of the pump or to adjacent units of the vacuum network.



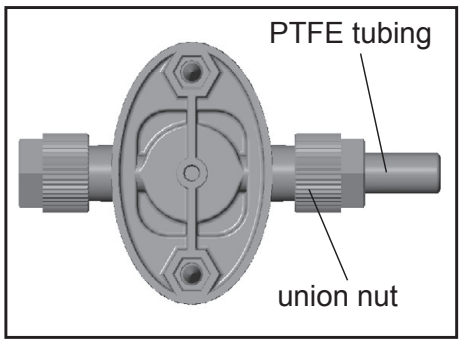

☞ The tubing connection at the B6 module body and at the elbow fitting of the B7 module body can be made directly with PTFE-tubing (O.D./I.D. 10/8mm).

➨ A G 3/8” internal thread is provided for connection at the vacuum side of the B7 module body. To connect PTFE tubing, a straight or elbow (90 deg.) adapter must be installed between the module body and the tubing. (See adapters at A2 mounting base description.)

## *Union nuts*

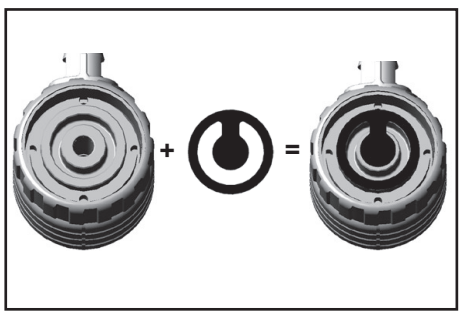



➨ When assembling a VACUU-LAN® local vacuum network, ensure that the union nuts on the mounting bases, module bodies and functional elements are hand tight. Once the network is in operation, retighten these nuts as needed.




➨ To ensure that PTFE tube connections at mounting bases are secure, make these connections hand tight initially. Then tighten an additional turn with a 17 mm open-end wrench.

## *Assembly of non-return (check) valve*

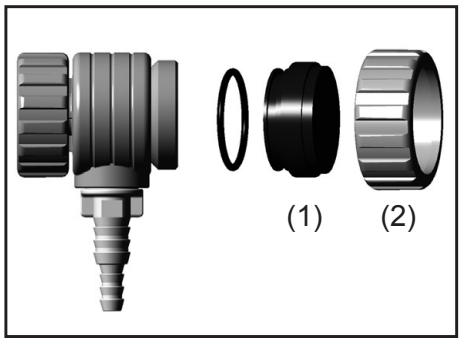



☞ When assembling, be careful to correctly position the valves and seals, as well as carefully aligning components and threads.

➨ Position the non-return (check) valve in the valve seat as shown in the figure.

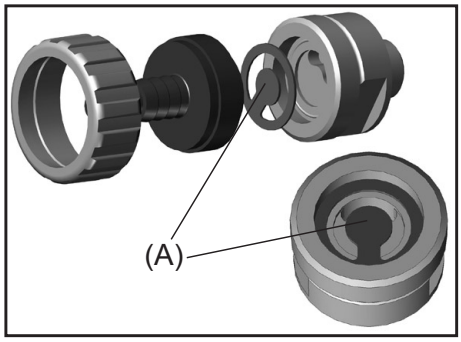
☞ Align components carefully before assembling.

## *Assembly of blind plug*



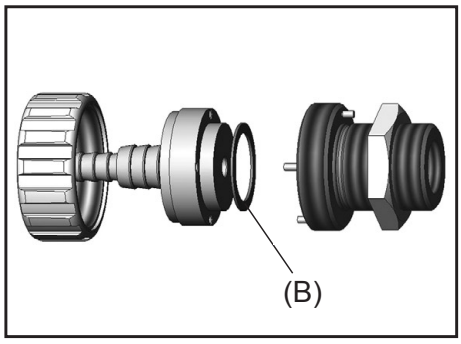

- ➨ Position the O-ring around the interior part (1) on the inlet side.
- ➨ When assembling, carefully align the interior part and module body and press the interior part straight into the module body. Secure with union nut (2).

## *Assembly of hose nozzle adapter*




When operated by manual control:

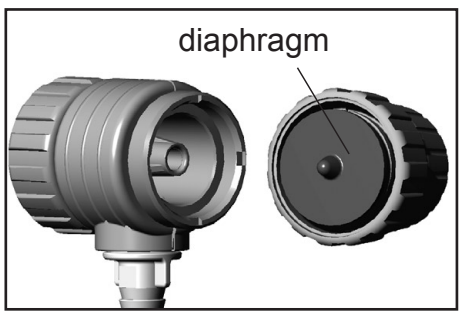
- ➨ Insert the non-return (check) valve (A) as shown in figure.
- ➨ Position hose nozzle adapter on mounting base, and secure by tightening the union nut.




When operated with electronic vacuum controller:

- ➨ Position sealing ring (B) on the hose nozzle adapter, as shown in figure.
- ➨ Position hose nozzle adapter on the mounting base, and secure by tightening the union nut.

## *Assembly of flow control diaphragm*




- ➨ Hold the diaphragm by hand and turn the control knob in direction indicated by + (open). Open flow control diaphragm completely.
- ☞ To avoid damage to the diaphragm, do not use tools to hold the diaphragm.
- ➨ Carefully align the marks on the functional element with the four notches of the module body before assembling the two pieces to prevent leakage after assembly.
- ➨ Tighten union nut.

**Operating the manual flow control valve**:

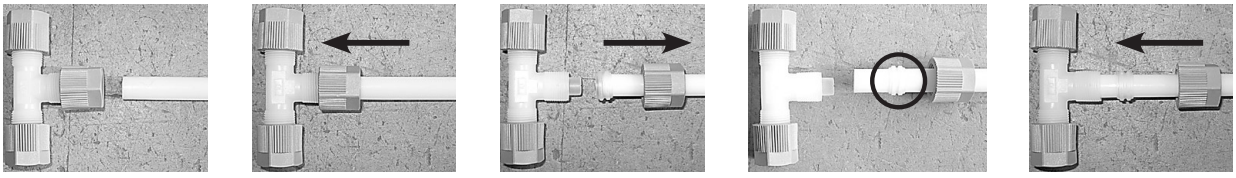
➨ To open the flow-control diaphragm: Turn counter-clockwise only until sensing resistance to turning.

➨ To close: Turn the knob clockwise until initial resistance indicates valve is hand-tight.

☞ **Attention:** Excessive rotation of the flow-control knob may cause damage to the knob or the flow-control diaphragm may no longer seal properly.

➨ Replace diaphragm in the event leakage is detected.

## *Assembly of PTFE tubing at compression connections*



1 2 3 4 5

1. Loosen union nut. - 2. Slip PTFE-tubing into compression fitting. - 3. Loosen union nut completely, and remove tubing from fitting. Ferrule should have transferred to PTFE tubing. - 4. Position ferrule (circled) 1/4" (5-6mm) from end of tubing. - 5. Slip PTFE-tubing firmly into the fitting, engage threads on union nut and tighten finger-tight. Use a 17mm open end wrench to tighten one turn beyond finger-tight.

## *Leak test of a VACUU•LAN® Local Area Vacuum Network*

Equipment required:

- vacuum pump (e.g., pump of VACUU•LAN® network)
- vacuum gauge, e.g., network controller or a cordless, portable vacuum gauge, like the DVR 2 (Cat.-No. 682902)

➨ Connect VACUU•LAN® line to vacuum pump.

➨ Open all VACUU•LAN® valves and close connections with blind plugs.

➨ Evacuate the system. The ultimate vacuum of the connected pump, ±1 mbar, should be reached.

☞ This denotes that the whole vacuum system is leakproof.

☞ The evacuation time needed to achieve the rated vacuum level should be just a few minutes, but will vary with the size of the network, and especially if volatile substances such as water (e.g., from condensation) are present in the lines. If water is present, the lines can be dried by keeping the system under vacuum for as much as 24 hours or more.

➡ Once the ultimate vacuum is reached, close one VACUU•LAN® component after another and remove the blind plug. If the pressure remains constant, the respective valve seats are tight as well.
☞ If the first check (connections closed with blind plugs) reveals pressures above design vacuum conditions, check elbow fittings and connecting pieces.
☞ If the second check shows a pressure increase (partial loss of vacuum), the valve seats have to be checked.

☞ A difficult leak can often be confirmed by applying ethyl alcohol to the connecting parts. Penetration of the ethyl alcohol into the vacuum system causes a temporary rise in pressure that can be detected by the gauge.
➡ If a small leak has been detected, isolate the system step by step from the pump and check the individual parts. An alternative approach is to place the network under vacuum with the network pump after each module is added. Any leaks that show up can be immediately associated with the last components added.

# Combination of VACUU•LAN® components

The components of VACUU-LAN® local area networks can be combined into new modules that best suit the needs of individual laboratories. Each VACUU-LAN® module is composed of a mounting base (to attach the module to the wall or casework and connect it to adjacent modules); the module body (which serves as the core for each module); and the functional element (which provides the control element for the module, from a simple diaphragm valve to a solenoid that can be operated with a programmable controller.)

The overview on the following pages shows the complete spectrum of VACUU•LAN® components.
When combining the different components, ensure that the connections are leak-tight. See the section of this manual, ”Assembly - Sealing of threads in vacuum lines”.

**Installing sealing rings and non-return valves:**

When connecting VACUU•LAN® components be careful not to overlook the following:

☞ When connecting **module body B1** to mounting bases A1-A5:
➨ Install non-return valve.

☞ When connecting the **module bodies B2/B3** to mounting bases A1-A5:
➨ Install sealing ring. Install non-return valve between module body and connector (hose nozzle).

☞ When connecting **functional elements C1-C6** to a module body:
➨ No sealing ring or non-return valve necessary.

☞ When connecting **functional elements C7/C8** to mounting bases A1-A5 or to the inlet side of module bodies B2/B3:
➨ Install sealing ring.

☞ When connecting **functional element C9** to mounting bases A1-A5:
➨ For manual control, install a non-return (check) valve. For control with an electronic controller, install the sealing ring.

☞ When connecting the **functional element D1** to module body B1:
➨ Install O-ring.

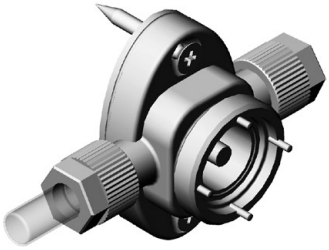
☞ When connecting the **functional element D2** to module bodies B2/B3:
➨ Install non-return valve.

## VACUU•LAN® components:

| Mounting bases | | Module bodies | | Functional elements | |
|---|---|---|---|---|---|
| | **Cat.No.** | | **Cat.No.** | | **Cat.No.** |
| A1 | 677131 | B1 | 677134 | C1 | 677136 |
| A2 | 677132 | B2 | 677140 | C2 | 677137 |
| A3 | 677133 | B3 | 677141 | C3 | 637659 |
| A4 | 677145 | B6 | 677120 | C3-B* | 636668 |
| A5 | 677135 | B7 | 677121 | C4 | 677138 |
| | | B8 | 677122 | C5 | 677100 |
| | | B9 | 677123 | C6 | 677150 |
| | | | | C7 | 677151 |
| | | | | C8 | 677152 |
| | | | | D1 | 677139 |
| | | | | D2 | 677154 |

* Control via VACUU•BUS™

## Mounting bases + Module bodies + Functional elements



A1

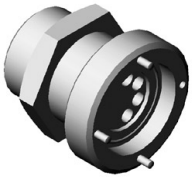
B1

C1

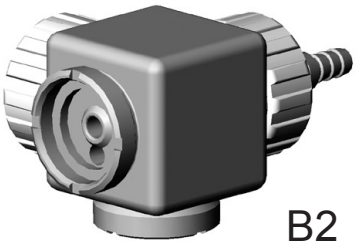
blind plug

D1

ball valve only for B1



A2



B2

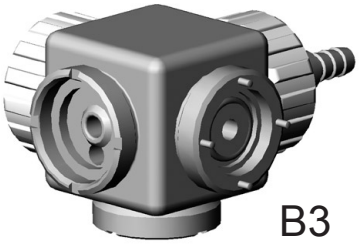
C2

manual flow control diaphragm

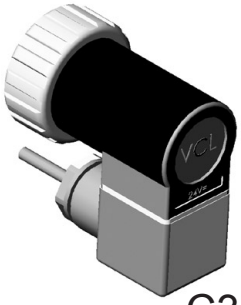
D2

ball valve only for B2/B3

A3



B3

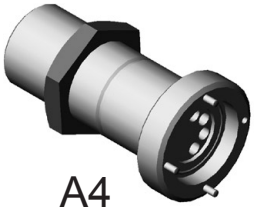


C3/C3-B

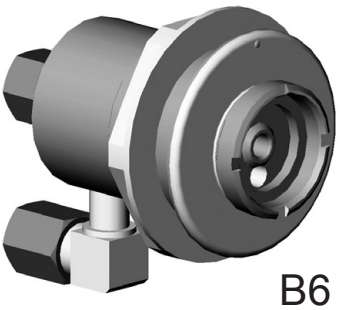
solenoid operated valve

C6

blind plug only for mounting bases



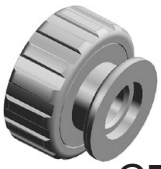
A4



B6

C4

manometer

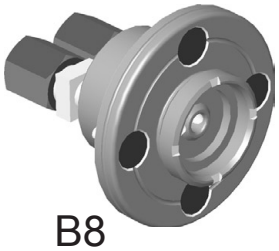


C7

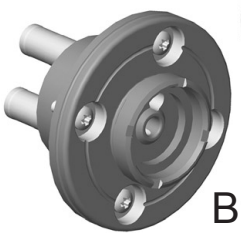
small flange connection only for A-parts and B2/B3

B7

A5



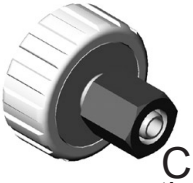
B8



B9

C5

manometer



C8

hose connection only for A-parts and B2/B3

# *Notes regarding the assembly of older VACUU•LAN® components*

The connection and continuation flanges of VCL components of former lines of products do not possess anti-twist pins (see figure below).
If a component without anti-twist pins is replaced by a newer one, the pins of that component have to be removed using pliers, unless the entire assembly is replaced. Then assemble as usual.

**Attention:** Do not remove the guide pin which points towards the wall, if the component features one!

# Accessories

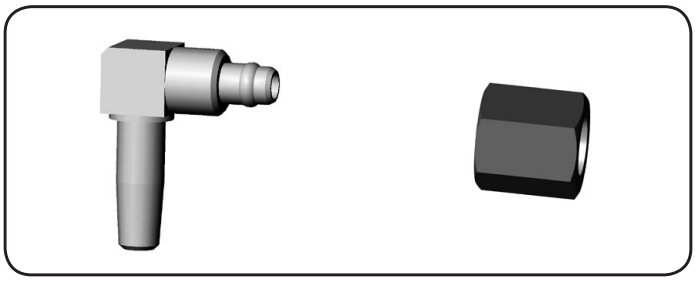
## Tubing and connectors:

**PTFE VACUU•LAN® tubing** (O.D./I.D. 10/8mm),
1m (sold by meter).....**638644**
**Straight compression fitting for PTFE tubing O.D./I.D. 10/8mm**
(for part A5/B9 as well).....**639990**
**Elbow** (90 deg.) **compression fitting for PTFE tubing O.D./I.D. 10/8mm**
(for part A5/B9 as well).....**638434**
**T-compression fitting for PTFE tubing O.D./I.D. 10/8mm**
(for part A5/B9 as well).....**638435**

## Adapters for G 3/8” thread to compression connector for PTFE tubing O.D./I.D. 10/8mm (for parts A2, A4 and B7):

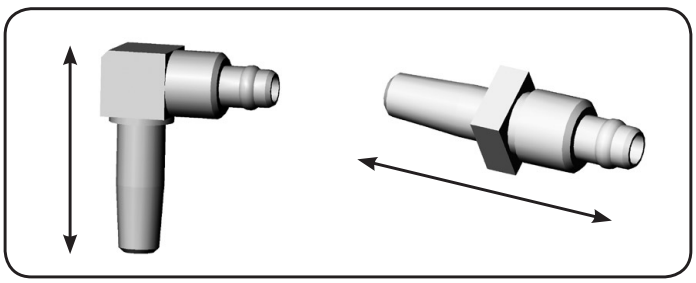
**Elbow** (90 deg.) **adapter**.....**639855**
**Straight adapter**.....**639854**

## Adapters for 1/8” NPT threads to PTFE tubing O.D./I.D. 10/8mm compression fittings (for module bodies B6 and B7):



**Elbow** (90 deg.) **adapter**(43.0 mm).....**639795**
**Union nut for adapters**.....**639796**

## Further adapters for 1/8” NPT threads to PTFE tubing O.D./I.D. 10/8mm compression fittings (to replace original compression fittings at module bodies B6 and B7):



**Straight adapter** (51.5 mm).....**639919**
**Straight adapter** (45.0 mm).....**638778**
**Elbow** (90 deg.) **adapter** (28.0 mm).....**639853**
**Elbow** (90 deg.) **adapter** (43.0 mm).....**639795**
**Elbow** (90 deg.) **adapter** (63.0 mm).....**638731**
**Elbow** (90 deg.) **adapter** (73.0 mm).....**638732**

## Note on assembling NPT fittings:

Screw in fitting until 2-3 courses of the thread are still visible. Do not over-tighten. Avoid cross-threading.

## VACUU•LAN® adapters

**Straight adapte**r (stainless steel)
**G 1/4" thread to PTFE tubing O.D./I.D. 10/8mm** ..... **677060**
**Straight adapter** (compression connection)
**G 1/4" thread to PTFE tubing O.D./I.D. 10/8mm** ..... **637221**

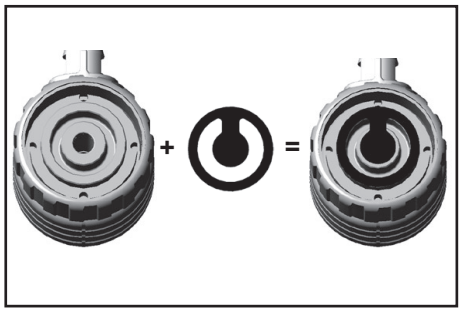
**Adapter small flange KF DN 25**
**to PTFE tubing O.D./I.D. 10/8mm** ..... **677061**
**Adapter small flange KF DN 16**
**to PTFE tubing O.D./I.D. 10/8mm** ..... **637043**
**Adapter** VACUU•LAN® mounting base or module body part
**to hose nozzle DN 6/10mm** ..... **638428**
**Adapter** VACUU•LAN® mounting base or module body part
**to hose nozzle DN 10mm** ..... **637258**
**Adapter** VACUU•LAN® mounting base or module body part
**to external thread G 1/4"** ..... **637462**

**Union nut M35 x 1.5mm**
(to assemble adapters and mounting bases) ..... **637749**
**Sealing ring (PTFE)**
for VACUU•LAN® mounting base or module body parts ..... **637259**
**Non-return (check) valve (FFKM)**
for VACUU•LAN® mounting base or module body parts ..... **638836**
**Closing cap** for open connections O.D./I.D. 10/8mm ..... **638501**
**Cutter for PTFE tubing** ..... **637257**

# Maintenance

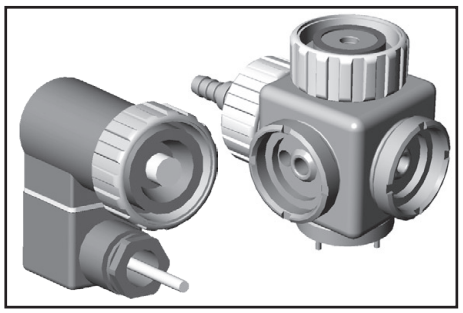
**Attention:** Before starting maintenance, isolate the network components from the individual ports. Isolate the vacuum pump from the electrical supply to avoid accidental operation, and vent the vacuum local area network.

The network components are easy to disassemble and clean if reagent deposits need to be removed, using industrial cleaning agents, if necessary. Ensure that any cleaning agent used is compatible with materials being cleaned (see ”Wetted parts.”). Dispose of chemicals in accordance with regulations, taking appropriate precautions to avoid exposure to any residual contaminants.



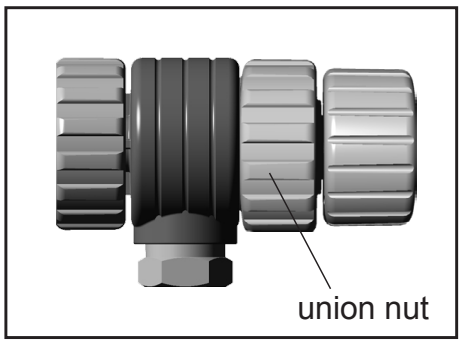
**Cleaning and inspecting the non-return valve:**

- ➨ Unscrew union nut from mounting base.
- ☞ Note exact position of the valve.
- ➨ Remove visible deposits. (Use petroleum distillate or cleansing agent, if needed.) Do not inhale vapors.
- ➨ Check non-return valve for damage and replace it if necessary.
- ➨ Position non-return valve in valve seat.
- ☞ Be careful to restore the non-return valve to the correct position. (See figure.)
- ➨ Secure to the mounting base with the union nut without changing the relative positions of the valve and mounting base. Avoid cross-threading components.



**Cleaning the valve seat:**

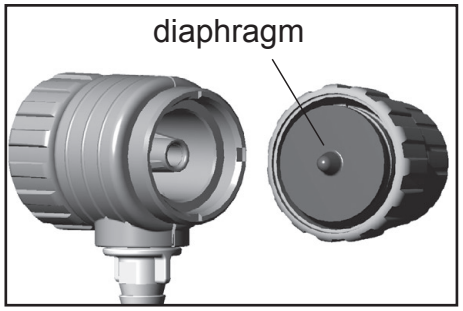
- ➨ Unscrew union nut from solenoid-operated valve.
- ➨ If deposits are found, clean the valve seat, using appropriate cleaning agents if necessary.
- ➨ Position the solenoid-operated valve with the module body, rotating slightly to find the right position. Be careful to mount the solenoid-operated valve perpendicular to the module body. Affix the solenoid-operated valve to the module body with the union nut.




**Cleaning and inspecting the manual flow control diaphragm:**

➨ Unscrew union nut from mounting base.

➨ Remove visible deposits. (Use petroleum distillate or cleansing agent, if needed.) Do not inhale vapors.




☞ If the diaphragm is damaged or severely soiled, it has to be replaced:

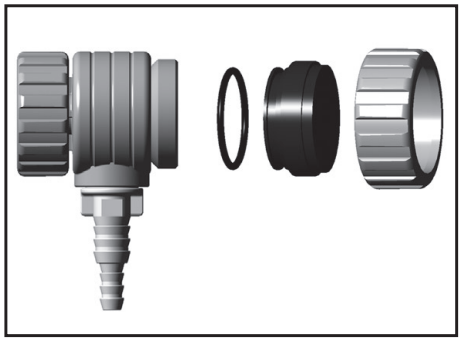
➨ Hold the diaphragm by hand and turn the control knob in direction indicated by + (open). Open flow control diaphragm completely.

➨ Pull off the old diaphragm (e.g., using pliers); do not damage the seal face under the diaphragm.

☞ To avoid damage to the new diaphragm, do not use tools to attach the new diaphragm. Press the new diaphragm in place; do not bend it.

➨ Assemble the flow control diaphragm with the four marks of the functional element fitting in the four dents of the module body. Otherwise leakage will result. Avoid any canting of the components.

➨ Tighten union nut.



**Cleaning and inspecting the blind plug:**

➨ Unscrew union nut from mounting base.

➨ Remove existing deposits, using a cleaning agent, if necessary.

# Spare parts

**Attention:** When ordering spare parts, it is critical to include the catalog number of the VACUU•LAN® module as well to ensure that you obtain exactly the right part.

| Component | Cat- No. |
|---|---|
| Non-return valve seal | 638836 |
| Sealing ring PTFE | 637259 |
| Sealing ring 13.2 x 18.3 x 1.5 | 638552 |
| Valve Seal VV 6C only for Cat.No. 638424 | 638212 |
| Manual flow control diaphragm (complete) | 677137 |
| Diaphragm for manual flow control diaphragm | 638160 |

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- Technology for Vacuum Systems -



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