MAINTENANCE INSTRUCTIONS

EN

Translation of the original instructions

ASI 35

Modular leak detector

PFEIFFER VACUUM

Table of contents

1 About this manual

1.1 Validity

This maintenance manual is intended for the customers of the Pfeiffer Vacuum Company. It describes the product maintenance operations which can be performed by the user on the product concerned. **This documentation must be used with the operating manual of the product of the same name**.

The current maintenance manuals are also available on the Internet at www.pfeiffer-vacuum.com.

This manual covers products with the following part numbers:

Part number	Description
Sxxx0x0xMM9A	ASI 35 (all models)

1.1.1 Applicable documents

The document to be used in reference to this maintenance manual is:

ASI 35	Operating instructions
ASI 35 Leak Detector	P/n 123356*

*also available at www.pfeiffer-vacuum.com

1.2 Conventions

1.2.1 Safety instructions

Operating manual safety instructions Pfeiffer Vacuum are based on the UL, CSA, ANSI Z-535, SEMI S2, ISO 3864 and DIN 4844 certification standards. This document describes the following information and danger levels:

DANGER

Imminent danger

Indicates an imminent hazardous situation that will result in death or serious injury.

WARNING

Possibly imminent danger

Indicates an imminent hazardous situation that can result in death or serious injury.

CAUTION

Possibly imminent danger

Indicates an imminent hazardous situation that can result in minor or moderate injury.

NOTICE

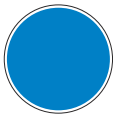
Command or note

Command to perform an action or information about properties, the disregarding of which may result in damage to the product.

1.2.2 Pictographs

Prohibition of an action to avoid any risk of accidents, the disregarding of which may result in serious accidents

Warning of a displayed source of danger in connection with operation of the unit or equipment



Command to perform an action or task associated with a source of danger, the disregarding of which may result in serious accidents

Important information about the product or this document

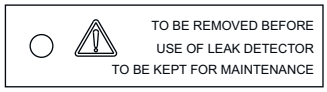
1.2.3 Instructions/Abbreviations used

⇨ or ➔	Work instruction: you must perform an operation here.
[XXXX]	You must press the **XXXX** key on the control panel.
I/O	Inputs/Outputs
^{4}He	Helium 4
^{3}He	Helium 3
H_2	Hydrogen

1.2.4 Labels

DISCONNECT BEFORE MAINTENANCE

Indicates an electrical shock hazard in case of contact:
⇨ disconnect the power supply (on the product and customer installation sides) before carrying out any work on the product.



Indicates that the blanking flange fitted with the valve must be removed before using the leak detector.
Retain for maintenance or storage

Locate a grounding point on the product.

DO NOT OPERATE WITH UNDERGROUNDED POWER CORD

Indicates an electrical shock hazard in case of contact:
⇨ do not use the product if the power cable is not earthed.

SplitFlow pump: Closure seal
The product is sealed at the factory. Damaging or removal of a closure seal leads to the loss of liability and warranty entitlements.
⇨ Do not open the product within its warranty period.
⇨ For process-related shorter maintenance intervals please contact the Service.

Other labels: see Operating Instructions.

2 Safety and maintenance information

2.1 Safety precautions

Duty to inform

Every person who is involved in maintenance and servicing work on the pump must read and follow the safety-relevant parts of all associated documents.

Availability obligation

Any person tasked with the installation, use or maintenance of the product must be able to consult the product's operating instructions and maintenance manual.

➔ It is the responsibility of the operator to provide these manuals at the point of use of the product.

NOTICE

Exclusion of liability

Pfeiffer Vacuum accepts no responsibility concerning equipment damage, disrupted service or physical injury resulting from maintenance carried out by technicians who have not been trained in safety rules (EMC, electrical hazards, chemical pollution). Liability and warranty claims shall be inadmissible in this case.

DANGER

Hazard linked to magnetic fields

Powerful magnetic fields may disturb or interfere with the operation of electronic products, e.g. cardiac pacemakers.

➔ Keep a safety distance of at least 10 cm between the pacemaker and the magnet or avoid any disturbance from powerful magnetic fields by installing suitable shielding.

WARNING

Electric shock in case of contact

When the product's circuit breaker is set at **O,** some internal components still have an electrical charge.

➔ Always ensure that the mains connection is visible and accessible so that it can be disconnected at any time.

➔ Disconnect the power cable at both ends from all power sources before starting any work on the product.

WARNING

Other localized hazardous energies

Electrical circuit and other pressurized circuits as nitrogen are potential hazards:

➔ Always lock out these energy sources before working on the product.

NOTICE

Work/Handling the detector

The operator must not work on the product to move it or carry out maintenance until it has come to a complete shutdown! When the circuit breaker is set at **O**, you must:

➔ Unplug the power cable.

➔ Wait for the control panel screen to turn off completely before working on the product and/or removing the covers.

WARNING

Risk linked to installation tightness

The products are factory tested to ensure they will not leak in normal operating conditions.

➔ Perform a tightness test after all maintenance operations.

- Wait 5 minutes after switch-off before working on the product.
- When you order spare parts, you must mention everything featured on the product nameplate.
- Comply with all safety and risk prevention instructions in accordance with local safety standards.
- Regularly check compliance with all precautionary measures.
- Do not switch on the product if the covers are not in place.
- To return the product to one of our Pfeiffer Vacuum service centers, read the after-sales Service procedure and complete the declaration of contamination available on our website.
- Use the original packaging to return the product to a Pfeiffer Vacuum service center: the manufacturer shall not be held liable for any damage resulting from transport in unsuitable packaging.

2.2 Protective equipment

In some situations, personal protective equipment must be worn when handling the detector and its components. Customers must provide operators with the necessary equipment. This equipment must be checked regularly and used in accordance with the supplier's recommendations.

WARNING

Risk of injury due to falling objects

When transporting parts/components and during maintenance there is a danger of loads slipping and falling down.

➔ Carry small and medium-size parts/components with both hands.

➔ Carry parts/components > 20 kg with a suitable lifting device.

➔ Wear safety shoes with a steel toe in accordance with directive EN 347.

WARNING

Risk of injury through hot surfaces

The products are designed so as not to present a thermal risk for the operator's safety. However, specific operating conditions may exist that require extra caution from users due to the high temperatures (surfaces > 70 °C for parts inside the covers).

➔ Leave the part to cool before working on the product.

➔ If necessary wear protective gloves according to directive EN 420.

2.3 Maintenance preparation

NOTICE

Work/Handling the detector

The operator must not work on the product to move it or carry out maintenance until it has come to a complete shutdown! When the circuit breaker is set at **O,** you must:

➔ Disconnect the mains cable at both ends.

➔ Wait 5 minutes starting to work on the product.

➔ Disconnect the detector from the part/installation to be tested: install the blanked-off flange on the detector's inlet (accessory supplied with the product or available upon request *(see **Accessories** chapter of the Operating instructions).*

➔ Handle the detector so it can be moved in the maintenance area (*see **Handling** chapter of the Operating instructions*).

- clean, dust-free and ventilated room,
- appropriate protective equipment.

2.4 Tools and spare parts

The tools necessary for the maintenance of the detector are available in the maintenance kit supplied with the product. Depending on the maintenance operation, other tools may be needed, at the customer’s expense.

Spare parts

Replacing defective components with parts that are not genuine jeopardizes the product's initial safety conditions.

➔ Use only spare parts available for order from Pfeiffer Vacuum Service.

➔ Parts numbers are available in the ***Spare Parts*** chapter.

➔ To identify the product and communicate with Pfeiffer Vacuum look at the product's nameplate.

3 Maintenance intervals and responsibilities

Maintenance work at levels 1 and 2 on the service frequency table are described in this manual.
Level 3 overhaul operations require the intervention of a technician from the Service network Pfeiffer Vacuum.

Component	Number of hours in use				Level [4]	Site [5]
Operation	**Routine maintenance [3]**	**8,600**	**17,000**	**Others**		
Primary pump						
Adhere to the maintenance intervals for the primary pump connected to the detector.						
SplitFlow 50 turbomolecular pump						
Oil reservoir replacement			x	or 4 years	II	OS
Bearings replacement			x	or 4 years	III	OS
Replacement of the TC 110 frequency converter				In case of failure	III	OS
Pump replacement				In case of failure	III	OS
Analyzer cell						
Filament replacement				In case of failure	I	OS
Replacement of the extraction electrode				In case of failure	III	OS
Valves						
Replace the valves on the internal calibration module [7]				Every 500,000 tests	III	OS
Replace the valves on the sniffer module [6]				Every 500,000 tests	III	OS
Air filter						
Cleaning and replacement of the inlet vent filter	x				I	OS
Flow reducer [6]						
Replacement of the flow reducer				In case of failure	I	OS
Smart Sniffer Probe [6]						
Capillary filter replacement	x			[2]	I	OS
Sintered filter replacement	x			[2]	I	OS
Standard Sniffer Probe [6]						
Sintered filter replacement	x			[2]	I	OS
Fan						
Replacement of electrical cabinet fan				In case of failure	I	OS
Replacement of the detection module fan				In case of failure	I	OS
Calibrated leak [7]						
Recalibration				Every 2 years	II	WS
Leak detector						
Service	x			Every 4 years (recommended)	III	OS/WS

(1) In case of harsh usage (with significant flow or potential contamination)

(2) 160 h in case of harsh usage (with significant flow or contamination)

(3) Routine maintenance: according to usage conditions

(4) Level:
I = Operator
II = Technical or trained operator
III = Service centre

(5) Site:
OS = On site
WS = In service centre Pfeiffer Vacuum.

(6) Sniffer option/accessory

(7) Internal calibration option/accessory

3.1 Maintenance time monitoring

The molecular pump counter alerts the operator that a maintenance operation must be performed *(see **Maintenance Menu** of the Operating instructions*).

4 Maintenance / replacement

4.1 Access to electrical cabinet components

For all maintenance operation on the electrical cabinet, you are advised to remove it from the customer's installation.

4.1.1 Tools set

- Torx® screwdriver supplied in the maintenance kit

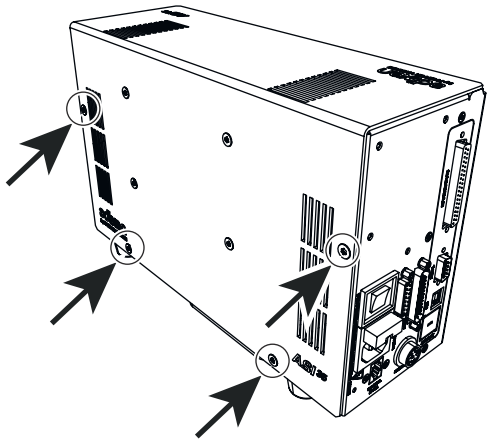
4.1.2 Procedure

➔ Shut down the detector (Position the circuit breaker MS on **O**, control panel switched off and mains power cable disconnected).

➔ Disconnect the cables which link the electrical cabinet to the control panel and the detection module.

➔ Remove the electrical cabinet from the customer's installation and place it on a flat surface (clean workbench in a dust-free location).

➔ Remove the 4 fastening screws from the cover and lay the cover flat.



Follow these steps in the reverse order to put the electrical cabinet back into the customer's installation.

4.2 Access to the components of the detection module

For all maintenance work on the detection module, you are advised to remove it from the customer's installation.

4.2.1 Tools set

- 4 mm Allen key supplied in the maintenance kit

4.2.2 Procedure

➔ Stop the detector (Position the circuit-breaker MS to **O**, switch off the control panel and disconnect the mains cable at both ends).

➔ Disconnect the cables connected the detection module to the electrical cabinet.

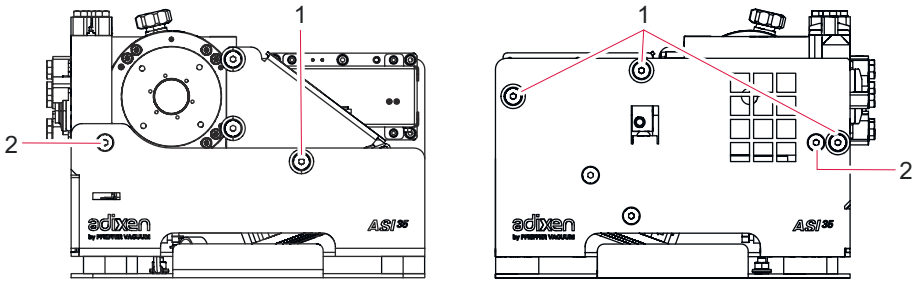
➔ Disconnect the detection module from the customer's installation.

➔ Remove the detection module from the customer's installation and place it on a flat surface (clean workbench in a dust-free location).

It is sometimes necessary, to be able to access the inside of the module, to put the module into the "maintenance" position (tip up the upper part of the module).

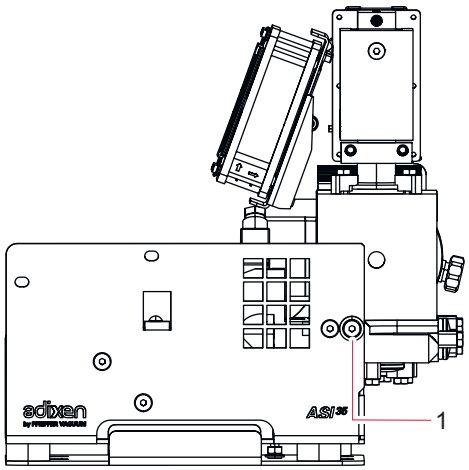
To put the module into the "maintenance" position, follow these steps.

➔ Remove the 4 fixing screws (1) and partially unscrews the 2 screws (2).



➔ Tip the upper part of the module to 90°.

➔ Hold the raised upper part in place with a fixing screw (1).



Follow these steps in the reverse order to put the electrical cabinet back into the customer's installation.

After any maintenance procedure which has required putting the module in the "maintenance" position, never leave the module in this position. The module must always be folded down when the detector is in use.

4.3 Maintenance of the internal calibrated leak

Calibration is offered as an option and as an accessory for this detector.

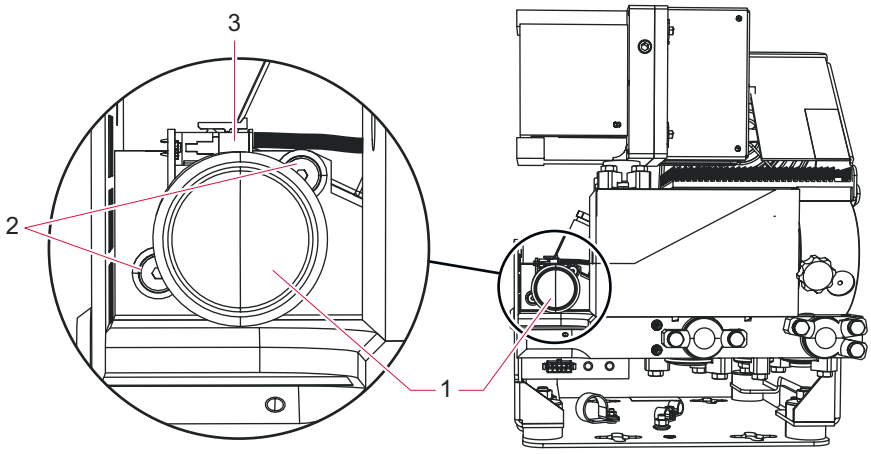
In the case of intensive use of the detector, a spare internal calibrated leak is recommended. If this is not possible, the detector can still be used and calibrated using an external calibrated leak *(see **Calibration** in the Operating Instructions)*.

4.3.1 Replacement

Tools/Spare parts

- 5 mm Allen key supplied in the maintenance kit
- Internal calibrated leak *(see 9)*

NOTICE
Change the internal calibrated leak if it has significant impact marks.



➔ Access the components of the detection module and put it into the "maintenance" position *(see 4.2)*.

➔ Disconnect the temperature sensor (3) from the calibrated leak. **Never separate the temperature sensor from the calibrated leak.**

➔ Unscrew the 2 fastening screws (2) without removing them.

➔ Rotate the internal calibrated leak by 90°.

➔ Replace the leak (1).

➔ Connect the temperature sensor (3).

➔ Update the settings of the internal calibrated leak *(see **Spectro Menu** in the Operating Instructions)*.

4.3.2 Recalibration

Most calibrated leaks can be used for many years (≈ 6 years) even though the tracer gas is permanently escaping (the leak rate is very low compared with the amount of tracer gas contained in the reservoir: annual loss is indicated on the calibrated leak identification label).

However, to guarantee the reliability of the test, we recommend that you regularly recalibrate (2 years maximum) every leak with reservoir to check its leak rate: this applies to both internal and external calibrated leaks.

Return the leak to your Pfeiffer Vacuum service center for recalibration purposes.

4.3.3 Setting

➔ The setting of the calibrated leak must be updated every time a calibrated leak (internal, external or machine) is replaced or after a recalibration *(see **Spectro Menu** of the Operating Instructions)*.

This operation can be carried out with the information featured on the calibrated leak identification label or the certificate supplied with the calibrated leak.

- If type = 'internal' is set for the calibrated leak, the internal calibrated leak parameters are displayed in the menu.
- If the type = 'external' is set for the calibrated leak, the external calibrated leak parameters (installed on the detection module or on the customer installation) are displayed in the menu.
- If the type = 'machine' is set for the calibrated leak, the external calibrated leak parameters (installed on the customer's installation, never on the detection module) are displayed in the menu.

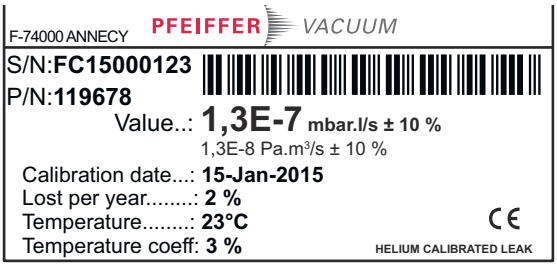


Fig. 1: Example of identification label

4.4 Analyzer cell maintenance

NOTICE

Cleanliness guarantee

During vacuum component maintenance operations, avoid any contamination which could subsequently result in the degassing of the parts. To avoid this:

➔ perform the maintenance in an appropriate area (clear, dust-free and ventilated)
➔ use non-woven materials
➔ dust the parts with filtered dry air
➔ wear unpowdered vinyl gloves (clean room gloves)

4.4.1 Dismantling

Tools

- 3 mm Allen key supplied in the maintenance kit

Procedure

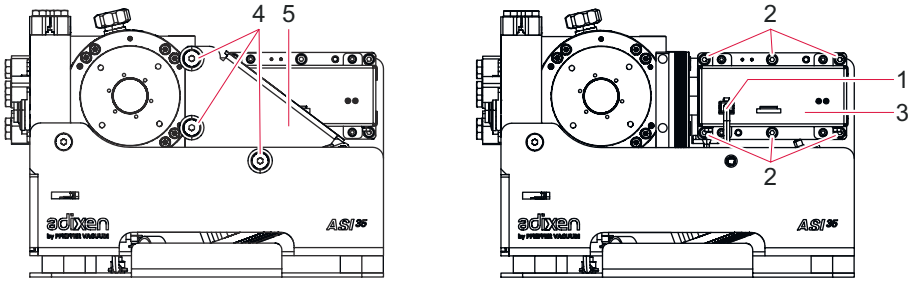
WARNING

Risk of burning associated with hot surfaces

When in operation, certain mechanical parts can reach high temperatures. If the detector was used recently:

➔ Let it cool down for at least 15 minutes before working on the analyzer cell.
➔ When relevant, use protective gloves in accordance with the EN 420 standard.

➔ Access the components of the detection module and put it into the "maintenance" position *(see 4.2)*.



➔ Unscrew the 3 fastening screws (4) from the deflector (5) and remove it.
➔ Disconnect the harness (1) from the cell.
➔ Loosen the cell's 6 fixing screws (2).
➔ Manually and horizontally release the analyzer cell (1).

4.4.2 Seals replacement

➔ Check the condition of the seals every time you work on the analyzer cell (filament replacement for example): change them if necessary.

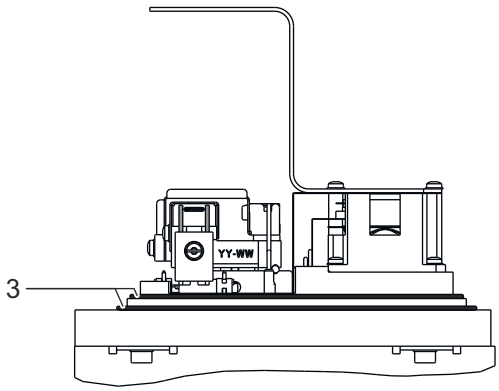


Fig. 2: Replacement of the seals

➔ Remove the analyzer cell from the detector *(see 4.4.1)*.

➔ Replace the 2 seals (3). **Never lubricate the seals.**

4.4.3 Filament replacement

The oxidation of the iridium filament is normal: do not touch the filament with your fingers.

➔ Remove the analyzer cell from the detector *(see 4.4.1)*.

➔ Remove the fixing screw (4) and the washer of the defective filament.

➔ Remove the 2 fastening clips (5) using flat pliers (2 new clips are supplied with the spare filament).

➔ Replace the filament.

➔ Reset the counter of the new filament *(see **Maintenance Menu** in the Operating instructions)*.

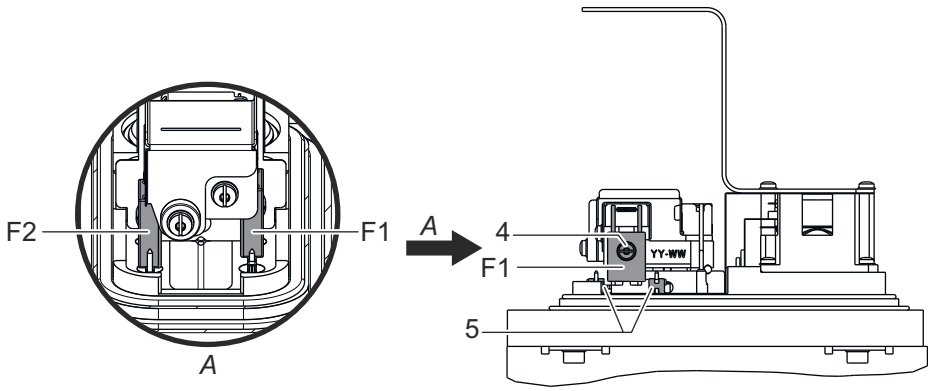


Fig. 3: Dismantling the filament

F1	Filament 1 in the menu
F2	Filament 2 in the menu

➔ Make sure that the filament connectors (6) are perpendicular to the supporting surface and parallel to each other.

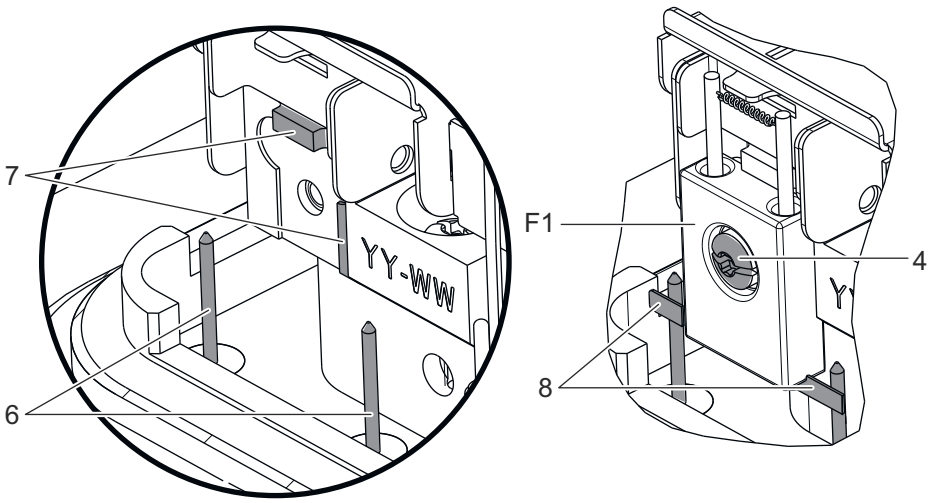


Fig. 4: Positioning the filament

➔ Fit the new filament in its housing against the 2 centring stops (7). Attach it with the screw (4) and washer supplied with the filament, using the Torx® screwdriver.

➔ Take a fastening clip (5) with the flat pliers: this clip will ensure electrical contact between the filament and the cell (see figure: Fitting the fastening clip, index A).

➔ Fit the clip on the connector (6) and the strip of the filament (8) (see figure: Fitting the fastening clip, index B).

➔ Push in the clip (5) with the pliers until it stops (see figure: Fitting the fastening clip, index C).

➔ Repeat the last 3 operations for the second connector.

➔ Reset the counter of the new filament *(see **Maintenance Menu** in the Operating instructions)*.

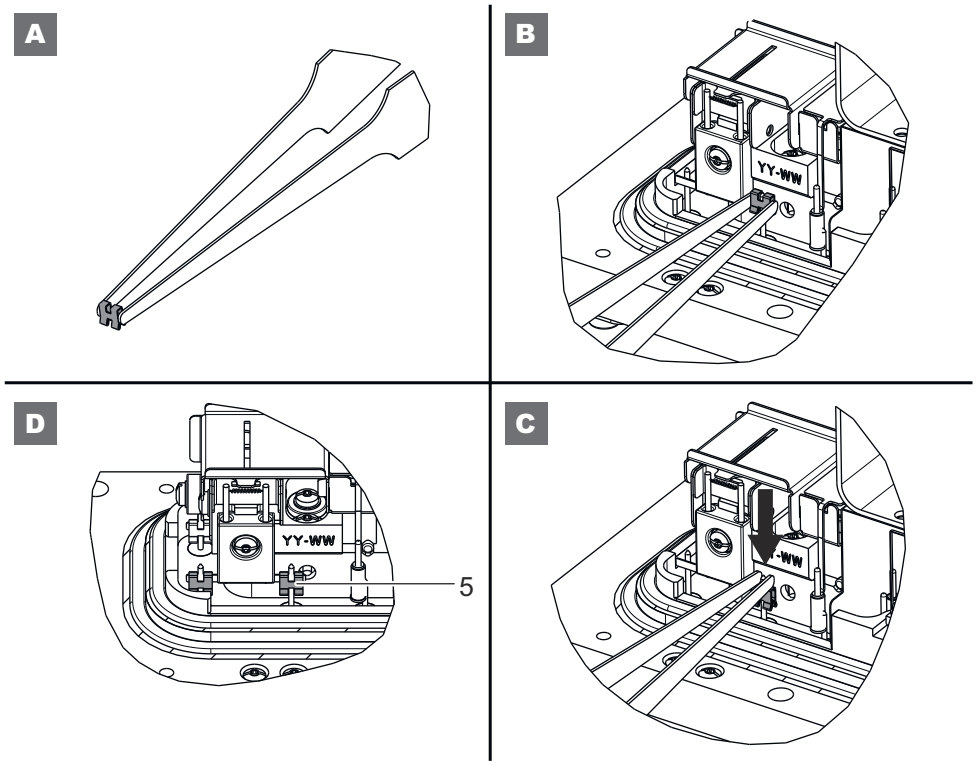


Fig. 5: Fitting of the fastening clip

4.5 Maintenance of the turbomolecular pump

WARNING

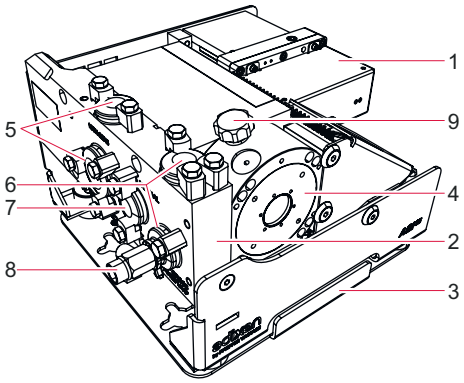
Risk of burning associated with hot surfaces

When in operation, certain mechanical parts can reach high temperatures. If the detector was used recently:

➔ Let it cool down for at least 10 minutes before working on the turbomolecular pump.
➔ If necessary wear protective gloves according to directive EN 420.

4.5.1 Wheel replacement

To protect the turbomolecular pump of any involuntary air inlet, the wheel (9) of the pump can be replaced by a special screw.



If necessary, an air inlet can be realized by unscrewing the special screw.

Do not use the wheel (or screw) regularly; only use it for maintenance purposes. Using it too frequently may cause leaks.

Tools

- 13 mm open end wrench
- Special screw (delivered with the product)

Procedure

➔ Access the components of the detection module *(see 4.2)*.
➔ Remove the wheel from the pump.
➔ Remove the o'ring from the wheel.
➔ Place the o'ring around the special screw.
➔ Put the special screw instead of the wheel.

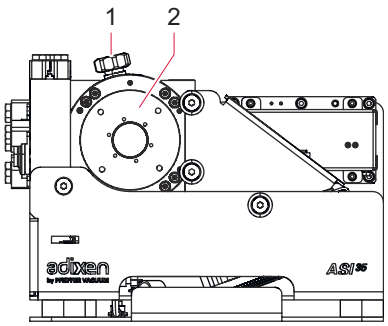
4.5.2 Access to the fluid reservoir

Tools/Spare parts

- Flat pliers
- 2 flat-head screwdrivers
- 13 mm open end wrench
- Special tool *(see 9)*
- Torque wrench (13 N.m)
- Clean, lint-free cloth
- Oil reservoir *(see 9)*

Procedure

➔ Access the components of the detection module *(see 4.2)*.
➔ To stop the pump more quickly, create an inlet vent by rotating the wheel (1) up to 1 full turn. Return the wheel to its starting position (port closed).
  – If the wheel has been replaced by the special screw, create an inlet vent by rotating the screw up to 1 full turn. Return the screw to its starting position (port closed).
  – Do not use the wheel (or screw) regularly; only use it for maintenance purposes. Using it too frequently may cause leaks.
➔ Leave the module to cool for 10 mn. if necessary.
➔ Position the module vertically with the access point to the pump (2) at the top.



4.5.3 Replacing the operating fluid reservoir

WARNING

Risk of intoxication in case of contact with substances hazardous to health.

Always take appropriate precautions when handling the operating fluid reservoir:

➔ Dispose of operating fluid reservoirs in accordance with the applicable legislation. Safety data sheet available upon request or at www.pfeiffer-vacuum.com

➔ Take the required safety precautions to avoid creating health risks or polluting the environment in case of contamination.

➔ Decontaminate the parts affected before performing maintenance work.

Operating fluid filling

The operating fluid reservoir is sufficiently filled with operating fluid.

➔ Do not add additional operating fluid.

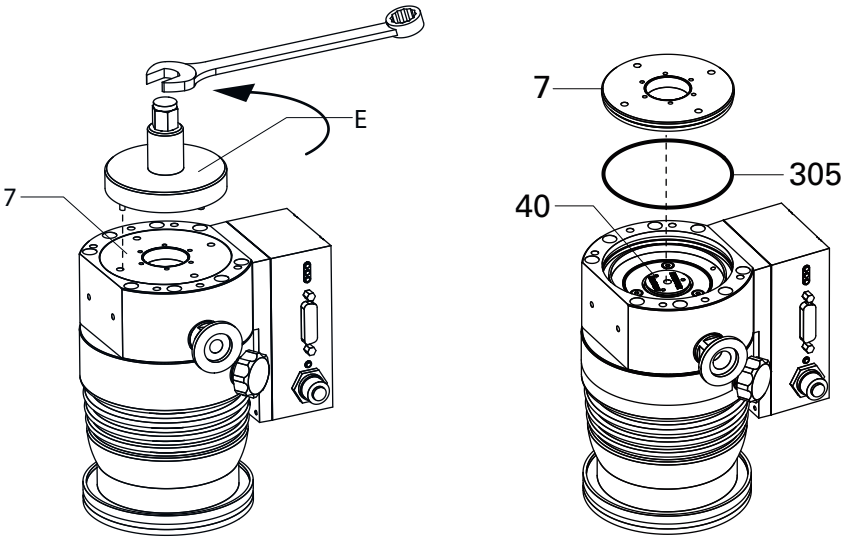
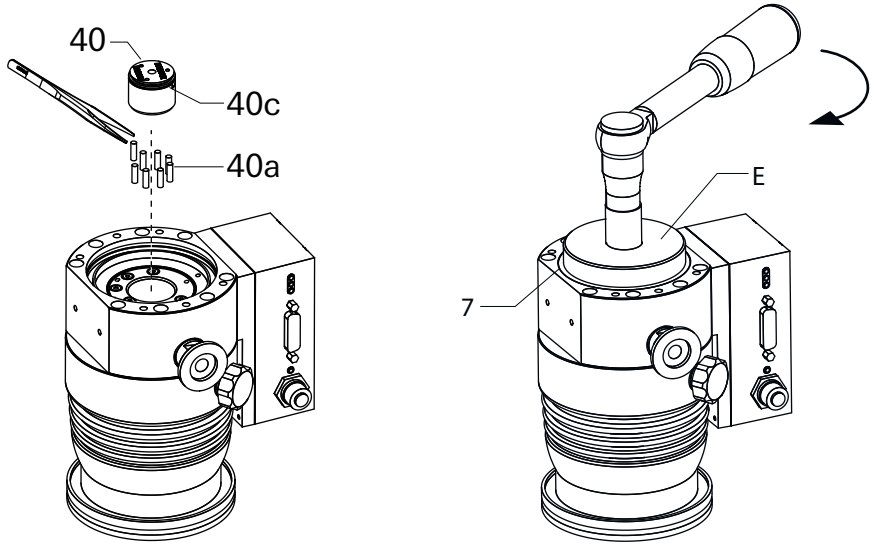


Fig. 6: Assembly / Disassembly of the operating fluid reservoir

7	End cover	40a	Porex rod	305	O-ring
40	Operating fluid reservoir	40c	O-ring	E	Key for end cover

➔ Screw out the end cover 7 on the bottom of the turbopump with special tool E. Pay attention to O-ring 305.



➔ Lift out the operating fluid reservoir using two screwdrivers.

➔ Using tweezers, pull out the Poroplast rods (8x).

➔ Remove impurities from the turbopump and the end cover with a clean, lint-free cloth. **Do not use any cleaning fluids!**

➔ Using tweezers, insert the new Poroplast rods (8x).

➔ Push the new operating fluid reservoir up to the O-ring 40c into the pump.
– **Do not** perform any pressure upon the operating fluid reservoir!

➔ Screw in the end cover with the new O-ring 305. The operating fluid reservoir is brought into the correct axial position by the end cover.

➔ Observe the end cover's tightening torque **13 Nm ± 10 %** .

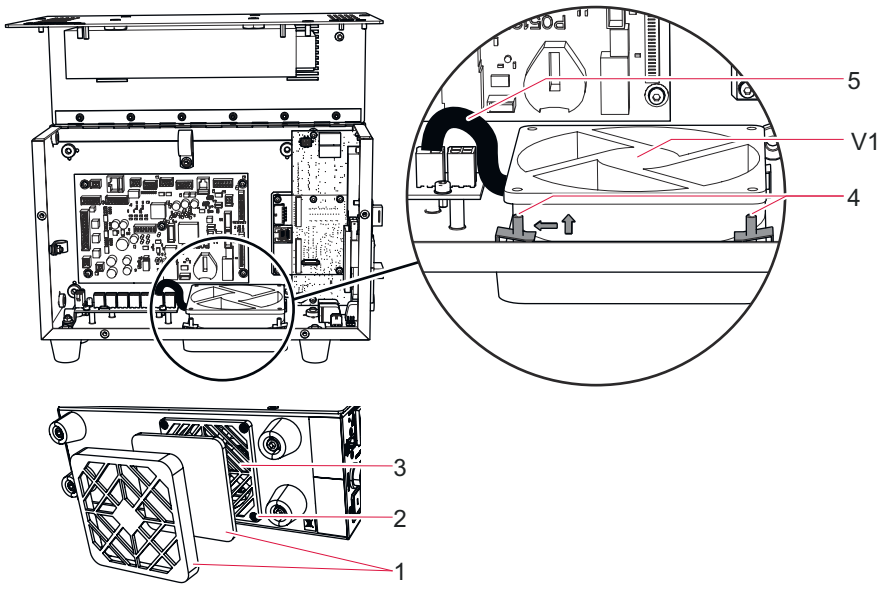
4.6 Maintenance fans

4.6.1 Replacement of electrical cabinet fan

Tools/Spare parts
- Philips screwdriver
- Fan *(see 9)*

Procedure

➔ Access to electrical cabinet components *(see 4.1)*.

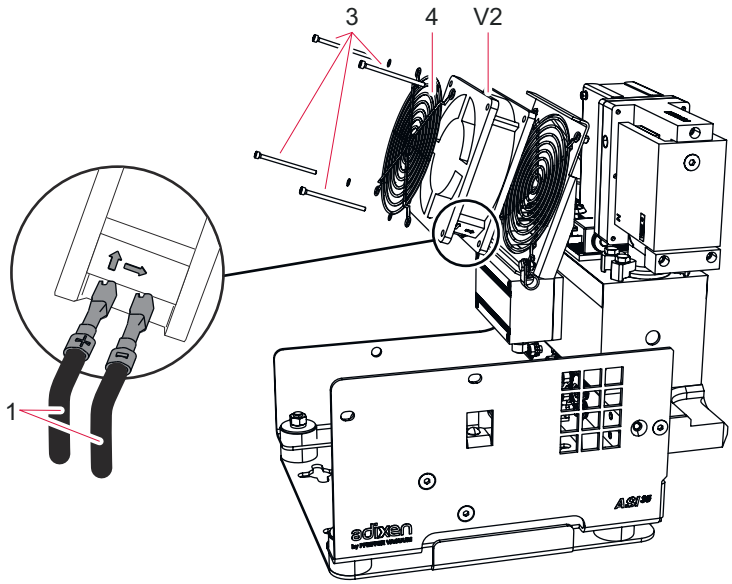


➔ Disconnect the harness (5) of the fan (V1)
➔ Remove the filter (1).
➔ Unscrew the 4 fastening screws (2) from the protective grill (3). Keep the metal hooks (4) of the old fan.
➔ Put a new fan, ensuring it is the correct way round (arrows).
➔ Fit the 4 metal hooks (4) onto each angle of the fan.
➔ Replace the protective grill (3).
➔ Fasten the assembly using the 4 fixing screws (2).
➔ Replace the filter (1).
➔ Connect the fan harness (5).

4.6.2 Replacement of detection module fan

Tools/Spare parts
- Philips screwdriver
- Fan *(see 9)*

Procedure
➔ Access to electrical cabinet components *(see 4.1)*.



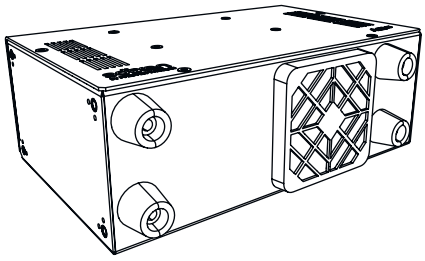
➔ Disconnect the harness (1) of the fan (V2).
➔ Loosen the 4 fixing screws (3).
➔ Retain the protective grill (4).
➔ Put a new fan, ensuring it is the correct way around.
➔ Replace the protective grill (4)
➔ Fasten the assembly using the 4 fixing screws (3).
➔ Connect the fan harness (1), respecting the (+) and (-) polarities.

4.7 Air filter maintenance

4.7.1 Air filter replacement

Tools/Spare parts
- Air filter *(see 9)*

Procedure
➔ Access to electrical cabinet components *(see 4.1)*. There is no need to open the electrical cabinet



➔ Unclipping the air filter.

➔ Replacing the used filter: follow the assembly order indicated below (1 + 2 + 3: **do not forget the grill**).

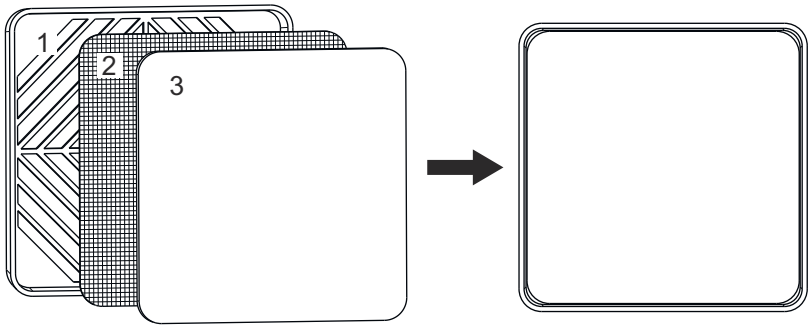


Fig. 7: Air filter assembly

➔ Snap together the entire air filter.

4.8 Maintenance of the sniffer module

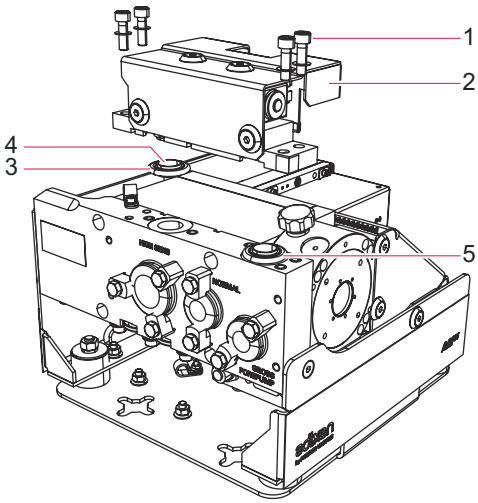
Sniffer module option/accessory

4.8.1 Replacement of flow reducer

Tools/Spare parts
- 5 mm Allen key supplied in the maintenance kit
- Flow reducer *(see 9)*

Procedure

➔ Access the components of the detection module *(see 4.2)*.



➔ Loosen the 4 fixing screws (1).

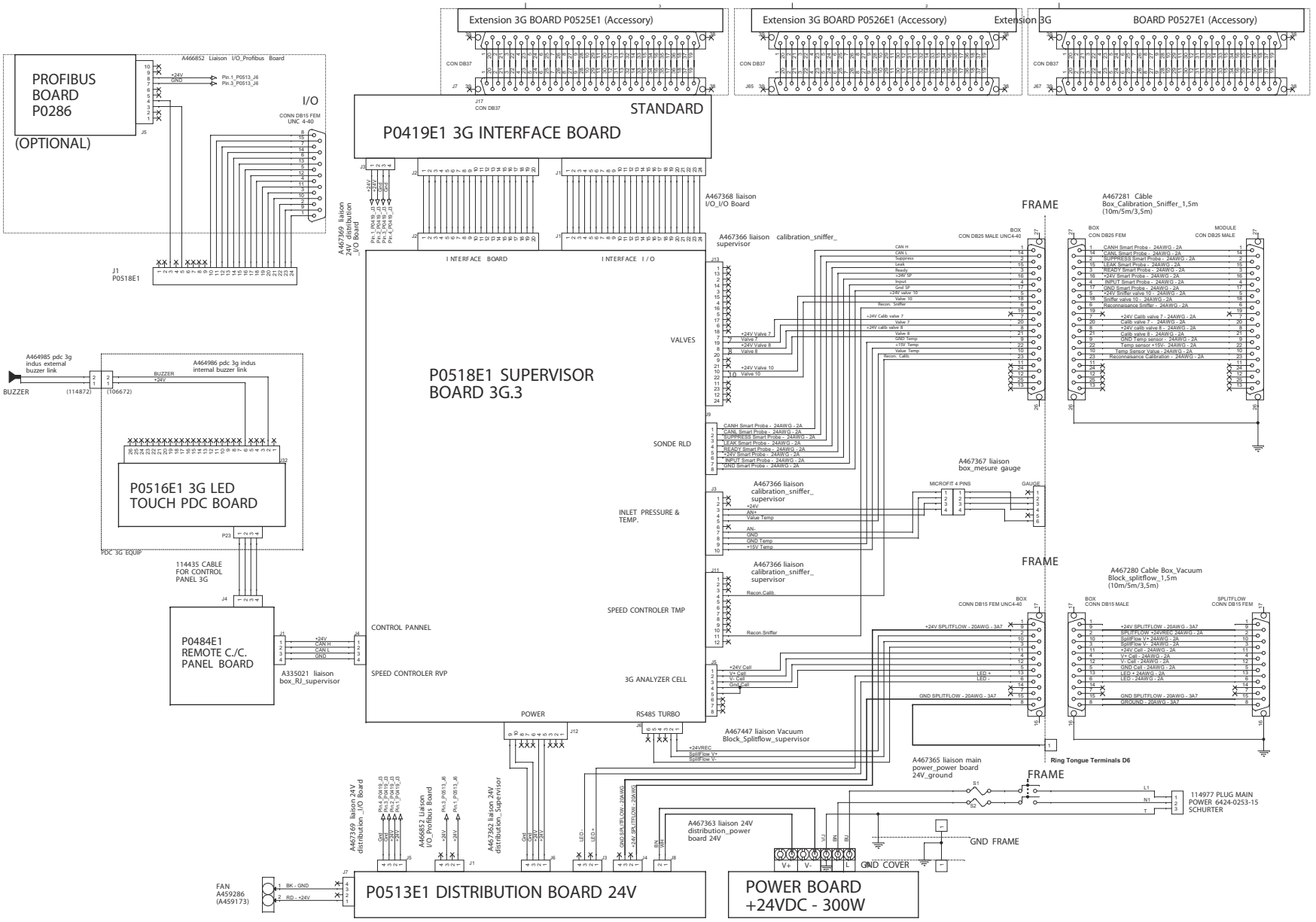
➔ Remove the sniffer module (2).

➔ Remove the seal (3) of the flow reducer (4): retain the seal.

➔ Put the seal (3) onto the new flow reducer (4).

➔ Put the new reducer and its seal in place.
➔ Check that the seal (5) is still in position on the detection module.
➔ Replace the sniffer module (2).
➔ Tighten the 4 fixing screws (1).

5 Wiring diagram



6 Decommissioning

6.1 Shutting down for longer periods

If the detector must be shut down for an extended period of time, after use it is recommended that you:

➔ apply the prolonged downtime procedure described *in the **Prolonged storage** chapter of the Operating Instructions.*

➔ keep the detector in its original packaging or under its protective cover in a dust-free environment.

➔ for the start-up procedure, *see **Operation** of the Operating Instructions.* If a problem occurs, contact your Pfeiffer Vacuum service center.

6.2 Disposal

WARNING

Environmental protection

The product or its components must be disposed of in accordance with the applicable regulations relating to environmental protection and human health, with a view to reducing natural resource waste and preventing pollution.

Directive 2011/65/EC establishes the regulations on the restriction of the use of hazardous substances in electrical and electronic equipment (EEE) to contribute to the protection of human health and the environment, including the environmentally sound recovery and disposal of EEE waste.

The manufacturer shall ensure that the EEE placed on the market (including cables and spare parts intended for repair, reuse, updating or capacity enhancement) that contain hazardous substances are subject to restriction within the authorised limits.

Our products contain different materials which must be recycled: iron, steel, stainless steel, cast iron, brass, aluminium, nickel, copper, PTFE, FEP.
Special precautions must be taken for components in contact with the products resulting from potentially contaminated processes.

Before you return a product, please familiarise yourself with the after-sales service procedure, and complete the declaration of contamination available on our website.

For any question, contact the Support Customer service: support.service@pfeiffer-vacuum.fr.

6.2.1 Restriction of Hazardous Substances (R.O.H.S.)

Directive 2011/65/EC establishes the regulations on the restriction of the use of hazardous substances in electrical and electronic equipment (EEE) to contribute to the protection of human health and the environment, including the environmentally sound recovery and disposal of EEE waste.

The manufacturer shall ensure that the EEE placed on the market (including cables and spare parts intended for repair, reuse, updating or capacity enhancement) that contain hazardous substances are subject to restriction within the authorised limits.

6.2.2 Electric and electronic equipments (EEE)

Decontamination and recycling of Electrical and Electronic Equipment (EEE) containing polluting materials (electronic cards, battery cells, batteries, screens, capacitors, mercury, etc.) enables the preservation of natural resources, particularly strategic raw materials.

This product carries the identification logo, as it is subject to regulations regarding the management of waste from EEE.

The manufacturer's obligation to recover EEE applies only to "Adixen" or "Pfeiffer Vacuum" branded products sold by Pfeiffer Vacuum:

– EEE is subject to the regulations in force as regards the recycling of end-of-life products
– complete EEE that has been neither modified nor retrofitted, and has used only spare parts from Pfeiffer Vacuum, including their assemblies and sub-assemblies, but excluding the batteries.

Product sold outside French territory

In the absence of any specific contract, and according to the Directive 2012/19/UE concerning the waste treatment stemming from EEE, in the case of a sale by Pfeiffer Vacuum outside France (European Union and third country) of EEE subject to applicable regulations, the owner of EEE will undertake full responsibility of organizing and financing the pickup and treatment of waste of EEE sold by Pfeiffer Vacuum.

The owner will undertake full responsibility namely the collection (gathering, sorting and storage of wastes for the purpose of transportation to a processing installation), recycling, recovery and/or disposal, except in the case of contrary overriding legislative provisions in the country where the owner is located, which must be brought to the attention of Pfeiffer Vacuum by the owner.

7 Malfunctions

7.1 What happens in the event of a defect

The leak detector can display warnings or faults on screen at any time

Fig. 8: Ecran standard avec avertissement [i Next]

7.1.1 Warning fault display

Press the key to display the fault.

1	Level 1: Warning Press the **[i Next]** key to display the maintenance information	Next	
2	Level 2: Major fault: erroneous measurement Press the **[i Next]** or **[!]** key to display the fault.	Next	!
3	Level 3: Critical fault: test impossible Press the **[i Next]** or **[!]** key to display the fault.	Next	!
4	Level 4: Service fault: temporary fault Fault only registered in the fault history: no display on the screen		
5	Level 5: Warning The detector is not in normal operating condition. Press the **[i Next]** or **[i]** key to display the fault.	Next	i

7.1.2 Warning / fault window

Description

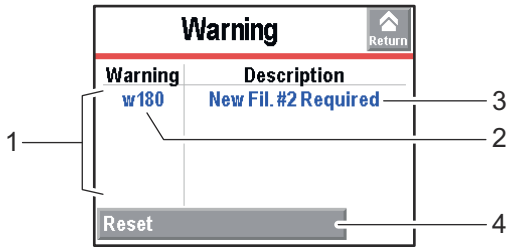


Fig. 9: Warning window

1	Fault list: 5 maxi.
2	RS-232 fault code.
3	Fault description.
4	Warning and faults deletion: faults requiring the operator's intervention remain displayed as long as the cause of the fault has not been corrected.

7.1.3 List of warnings / faults

Description of the levels 1 to 5 *(see 7.1.1)*

Level	RS-232 Code	Information
1	e40	Rough. Pump Failure
	e59	loss of cal test mode
	e93	Dynamic calib. failure
	w60	Sensor Type/Connector
	w145	maintenance requested
	w150	primary pump service
	w155	Roughing Pump Maint.
	w160	secondary pump service
	w180	2A wire change
	w181	1A wire change
	w182	No output on wire 2
	w183	No output on wire 1
	w202	Press Zero& Spray He
	w211	Select manual calib.
	w235	Autocal request
	w240	Autocal Request
	w242	Internal Pirani to set
	w245	Temp. too high
	w249	Check Lithium batt.
	w250	Adjust Date and Time
2	e50	zero cell. unstable
	e56	residual problem
	e57	sensitivity low
	e58	sensitivity too high
	e65	residual too high
	e70	poor PIC
	e80	calibrated leak year Er.
	e85	Temp. too high
	e89	loss of power
	e95	cell zero limits
	e96	Fault in Autocal +2nd code
	e97	temperature too high
	e98	temperature too low
	e160	LDS probe clogged
	w220	Filament not active
3	w215	Background too high for test
	w241	Autocal requested
	w244	Adjust cell's param.
	e188	speed cell pump
	e192	power fault wire
	e194	short-circuit wire 2
	e195	short-circuit wire 1
	e205	fault primary pump
	e206	ACP temp. too high
	e210	primary pump fault
	e220	no V AC power
	e224	- 15V cell problems
	e230	HS filaments
	e231	No output on wire 1 and 2
	e235	cell pressure > 1e-03 Mbar
	e238	No cell com.
	e239	no pump cell com.
	e241	cell own speed
	e243	EEPROM fault
	e244	Sec. pump #2 Fail.
	e245	cell pump fault
	e247	Check ATH connection
	e251	+15V cell problems
	e252	24V cell problems
	e253	ram timekeeper hs
	e255	Critical fault +2nd code
4	e180	no electrical current;
	e185	triode SECU active
	e75	PIC not found
	e99	24 V DC problems
	w203	calibrated leak External
	w205	shutdown of Autocal

Level	RS-232 Code	Information
5	W97	temperature too high
	W98	temperature too low
	W230	Autocal request
	W255	Outside start-up conditions

7.2 Troubleshooting guide

The troubleshooting guide helps correct the malfunctions reported on the detector's control panel or affecting the detector.
It can be consulted from an interactive application specifically developed for the technical documentation.

7.2.1 Installation of the application

➔ Insert the Operating manual CDRom (oder USB key) into the computer.
➔ CDRom: launch the "ASMxxx" or "ASIxx" application.
➔ USB key: double click on the file "ASMxxx.html".
➔ Select the language.
➔ Select the interactive application **"Troubleshooting"**.
➔ Install the application on your computer.

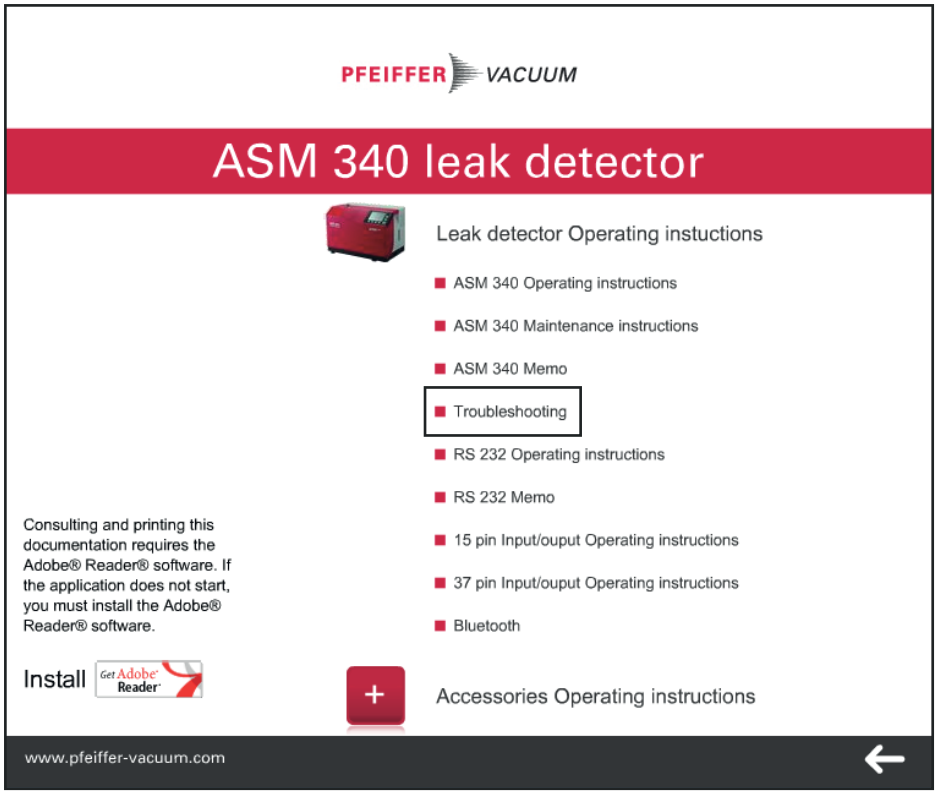


Fig. 10: Example: ASM 340 - Selection of the interactive application

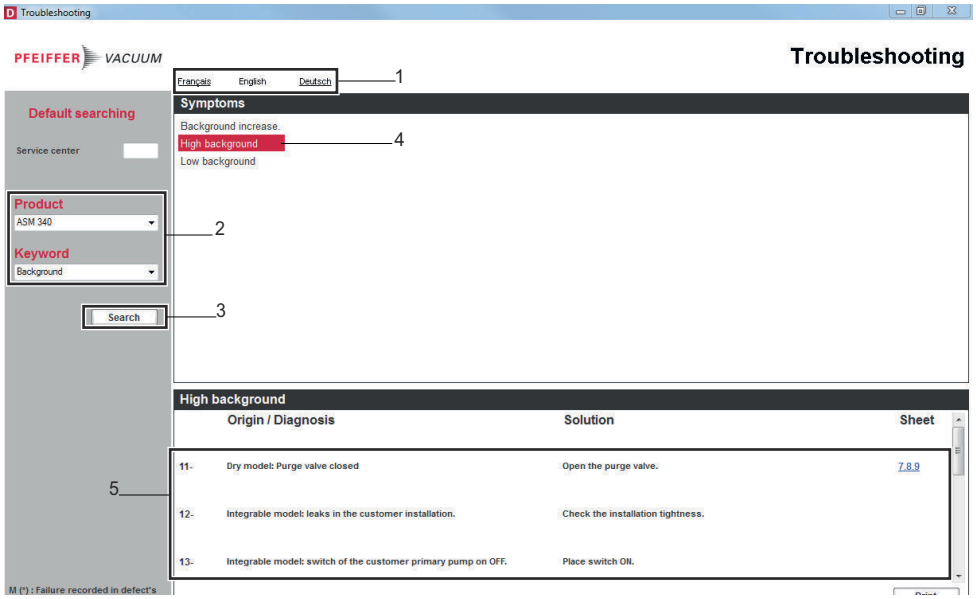
7.2.2 Consultation of the application

Create a shortcut on the computer desktop for direct access to the "Troubleshooting" application.

➔ Launch the **"Troubleshooting"** application.
➔ Select the navigation language (1).
➔ Select the product and the appropriate key word (2).

➔ Launch the search (3).

➔ Select a symptom (4): the origin and diagnosis of this symptom are displayed (5).



8 Service

Pfeiffer Vacuum offers first-class customer service!

- On-Site maintenance for many products
- Overhaul/repair at the nearby Service Location
- Fast replacement with refurbished exchange products in mint condition
- Advice on the most cost-efficient and quickest solution

Detailed information, addresses and forms at: **www.pfeiffer-vacuum.com (Service)**.

Overhaul and repair at the Pfeiffer Vacuum Service Center

The following general recommendations will ensure a fast, smooth servicing process:

➔ Fill out the "Service Request/Product Return" form and send it to your local Pfeiffer Vacuum Service contact.

➔ Include the confirmation on the service request from Pfeiffer Vacuum with your shipment.

➔ Fill out the declaration of contamination and include it in the shipment (mandatory!). The Declaration of contamination is valid for any product/device including a part exposed to vacuum.

➔ Dismantle all accessories and keep them.

➔ Close all the flange opening ports by using the original protective covers or metallic airtight blank flanges for contaminated devices.

➔ If possible, send the pump or unit in its original packaging.

Sending contaminated pumps or devices

No devices will be accepted if they are contaminated with micro-biological, explosive, or radioactive substances. "Hazardous substances" are substances and compounds in accordance with the hazardous goods regulations (current version).

➔ Neutralize the pump by flushing it with nitrogen or dry air.

➔ Close all openings airtight.

➔ Seal the pump or device in suitable protective film.

➔ Return the pump/device only in a suitable and sturdy transport container and send it in while following applicable transport conditions.

Pump or device returned without declaration of contamination form fully completed and/or not secured in suitable packaging will be decontaminated and/or returned at the shipper’s expense.

Exchange or repair

The factory operating parameters are always pre-set with exchange or repaired devices. If you use specific parameters for your application, you have to set these again.

Service orders

All service orders are carried out exclusively according to our general terms and conditions for the repair and maintenance, available on our website.

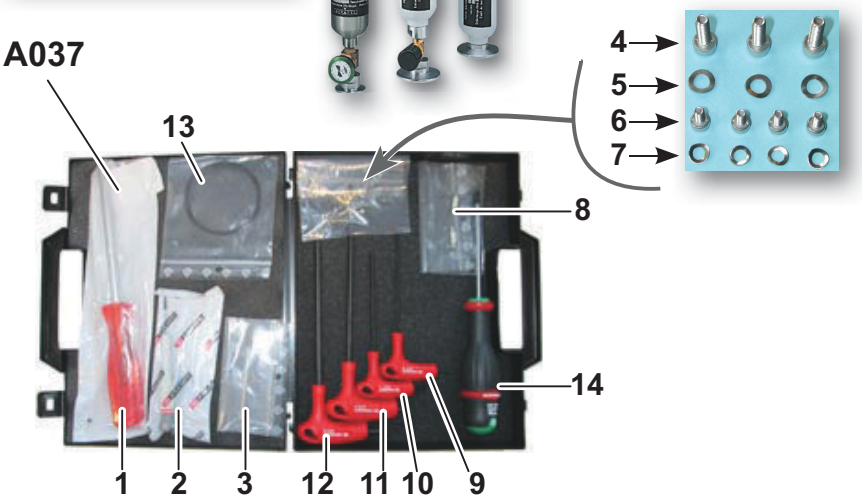
9 Spare parts

Spare parts available for sales, classified by functions, are listed in this chapter.

9.1 Tool

Accessoires de raccordement
Connection accessories
Verbindungzubehör

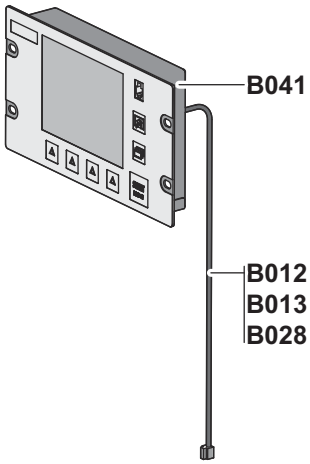
Fuites calibrées Helium
Helium calibrated leaks
Helium Testleck



Rep. Ref. *Teil*	Qté Qty *Menge*	Désignation Designation *Beschreibung*
1	1	**Clé emmanchée** Box-shank nut spinner *Rohrsteckschlüssel mit Heft*
2	1	**Tournevis pour vis TORX® 6X35** Screwdriver for TORX® screw 6x35 *Handschrauben für TORX® Schrauben 6x35*
3	1	**Vis CHc M 4x80** Screw CHc M 4x80 *Edelstahlschraube CHc M 4x80*
4	3	**Vis CHc M 4x12** Screw CHc M 4x12 *Edelstahlschraube CHc M 4x12*
5	3	**Rondelle** Washer *Unterlegscheibe*
6	4	**Vis CHc M 3x6** Screw CHc M 3x6 *Edelstahlschraube CHc M 3x6*
7	4	**Rondelle** Washer *Unterlegscheibe*
8	2	**Fusible 5 x 20 F1 6,3 A** Fuse 5 x 20 F1 6.3 A *Sicherung 5 x 20 F1 6,3 A*
9	1	**Clé six pans mâle de 2,5 mm** ø 2.5 Allen wrench *Innensechskantschlüssel 2,5 mm*
10	1	**Clé six pans mâle de 3 mm** ø 3 Allen wrench *Innensechskantschlüssel 3 mm*
11	1	**Clé six pans mâle de 4 mm** ø 4 Allen wrench *Innensechskantschlüssel 4 mm*
12	1	**Clé six pans mâle de 5 mm** ø 5 Allen wrench *Innensechskantschlüssel 5 mm*
13	2	**Joint cellule d'analyse 3G** 3G Analyser cell O'ring *3G Zelle Dichtung*
14	1	**Tournevis ANXR 20X100** Screwdriver ANXR 20x100 *Handschrauben ANXR 20x100*

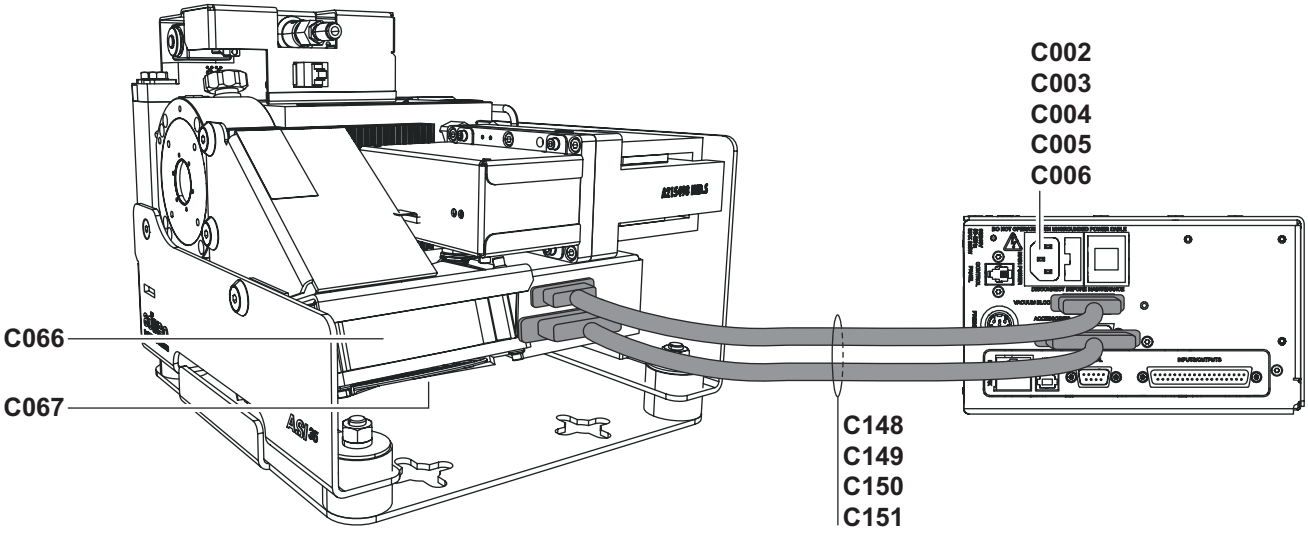
Ref	Description	P/N	Qty	Remarks
A006	DN16KF Calibrated Leak Adaptator Kit	110715	1	
A007	DN25KF Calibrated Leak Adaptator Kit	110716	1	
A013	Tee, Reducing - DN25/25/16KF	068269	1	
A016	Calib. Leak With Valve 1-3.10-6 DN25KF	FV4610	1	
A020	Clamp DN20/25KF	083264	1	
A024	Centering Ring SS/Per DN25KF	068189	1	
A027	Vacuum Silicon Grease (100 g Box)	064600	1	
A037	3G Detection maintenance Kit	114718	1	
A040	"Brucelles" Tweezers	115396	1	
A049	Detector Packaging - ASI35	123526	1	

9.2 Monitoring and display

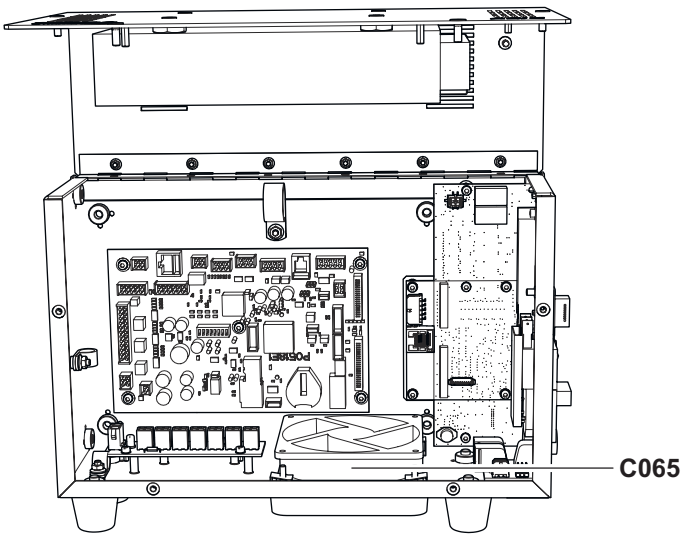


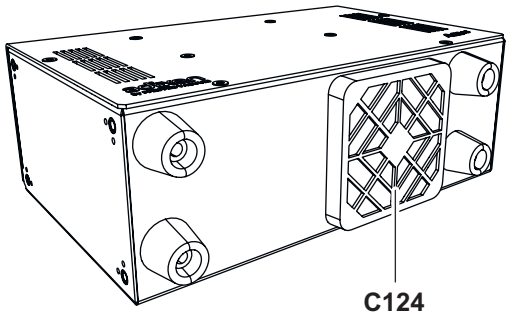
Ref	Description	P/N	Qty	Remarks
B012	Cable for Remote Control 2G, 5 m	A458735	1	Option/Accessory
B013	Cable for Remote Control 2G, 10 m	110881	1	Option/Accessory
B028	Cable for Control Panel 3G	114435	1	Option/Accessory
B041	Control Panel 3G - ASI30/35	122447S	1	Option/Accessory

9.3 Power and electrical supply



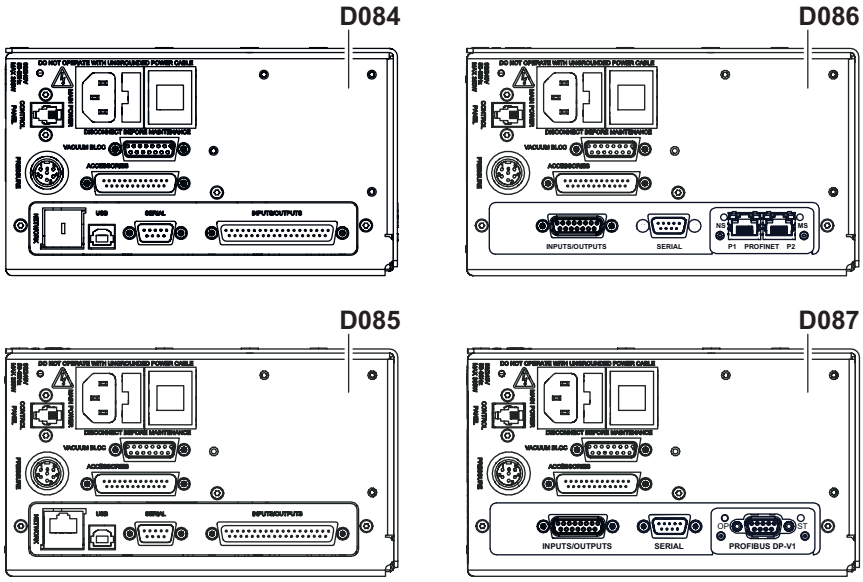
Ref	Description	P/N	Qty	Remarks
C002	Cable, Main Power; 2 m - Italy	104758	1	
C003	Cable, Main Power; 2 m - Switzerland	103718	1	
C004	Cable, Main Power; 2 m - UK	104411	1	
C005	Cable, Main Power; 2 m - USA	103567	1	
C006	Cable, Main Power; 2 m - France/Germany	103566	1	
C066	Fan - 20MD/182/192/340/35	101094	1	
C067	Fan Grill 120x120 mm (101094)	056067	1	
C148	1.5 m Rack/Vacuum module Cable - ASI35	123287	1	
C149	3.5 m Rack/Vacuum module Cable - ASI35	123288	1	
C150	5 m Rack/Vacuum module Cable - ASI35	123289	1	
C151	10 m Rack/Vacuum module Cable - ASI35	123290	1	





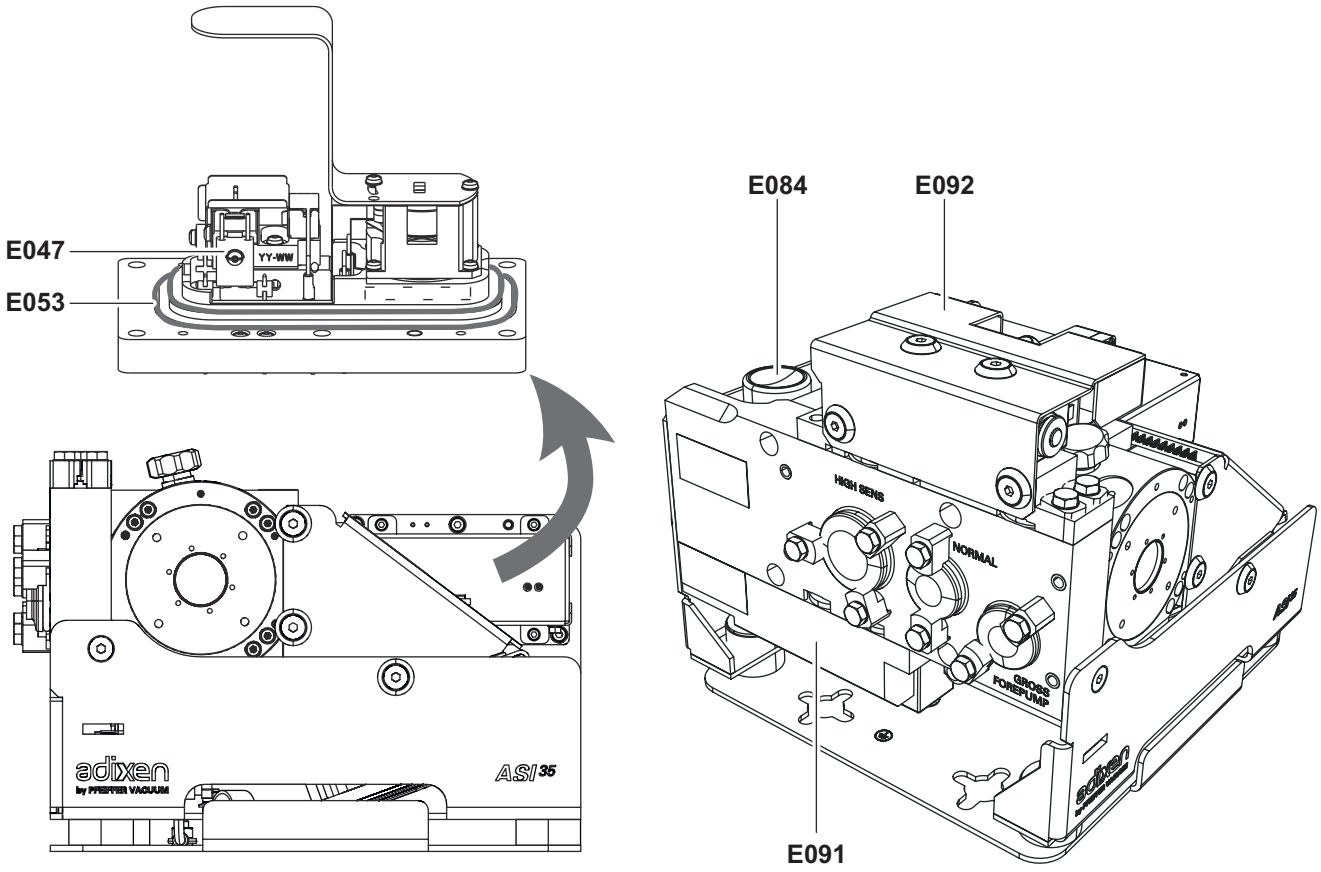
Ref	Description	P/N	Qty	Remarks
C065	Fan - 142/102S/122D/310/35	A459291	1	
C124	Electronic Rack External Fan - ASI30/35	118699	1	
C152	Gauge cable 3 m (D-Sub 37 pin) - ASI35	A333746	1	
C153	Gauge cable 10 m (D-Sub 37 pin) - ASI35	A333747	1	

9.4 Automatic control system and electronic circuits

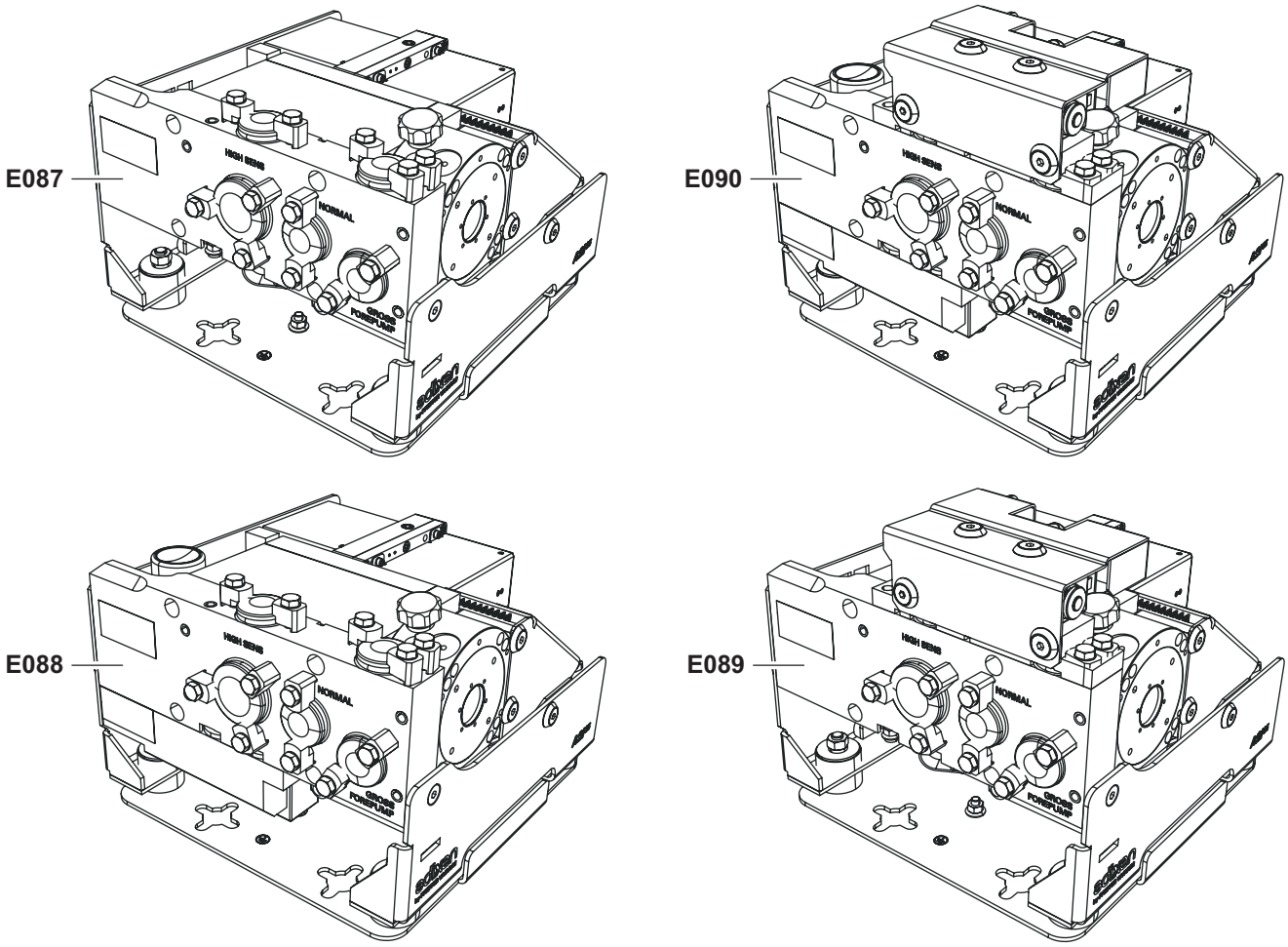


Ref	Description	P/N	Qty	Remarks
D084	I/O Electronic Rack 37 pins - ASI35	123057S	1	Option
D085	I/O Elect. Rack 37 pins + Ethernet - ASI35	123058S	1	Option
D086	Electronic Rack Profinet - ASI35	126914S	1	Option
D087	Electronic Rack Profibus - ASI35	126915S	1	Option

9.5 Measurement

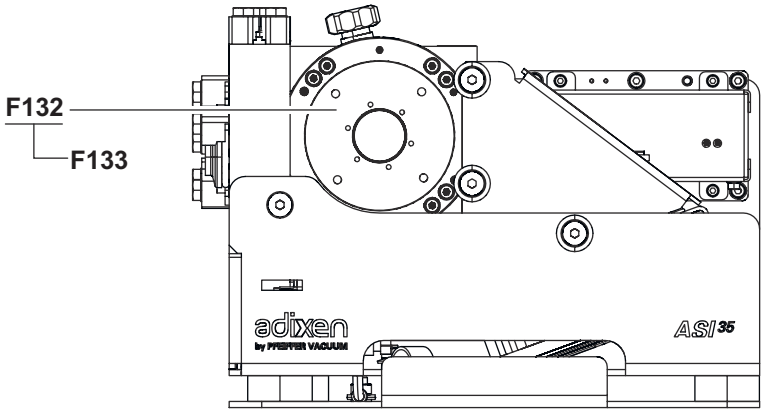


Ref	Description	P/N	Qty	Remarks
E047	Filament for 3G Analyzer Cell	114864S	1	
E053	NBR Seal - 3G Cell	114346	1	Sold individually
E084	Calibrated Leak, Internal - 340/ASI35	121528S	1	Option/Accessory
E091	Internal calibration kit - ASI35	123530	1	Option/Accessory
E092	Sniffing kit - ASI35	123529	1	Option/Accessory



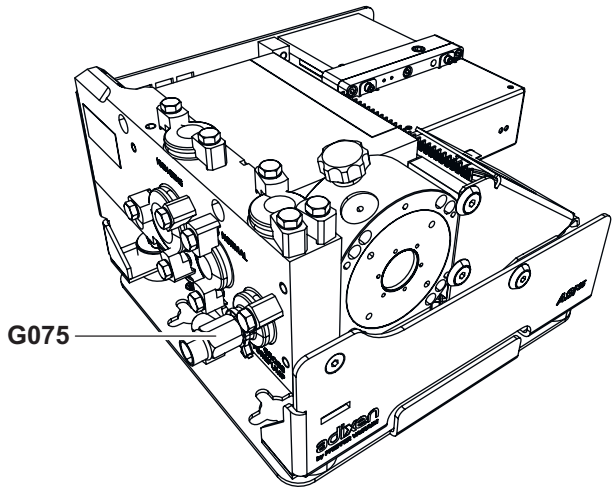
Ref	Description	P/N	Qty	Remarks
E087	Detection module - Standard - ASI35	124010	1	
E088	Detection module + Internal calibration - ASI35	124011	1	
E089	Detection module + Sniffing - ASI35	124012	1	
E090	Detection module + Internal cal./Sniffing - ASI35	124013	1	

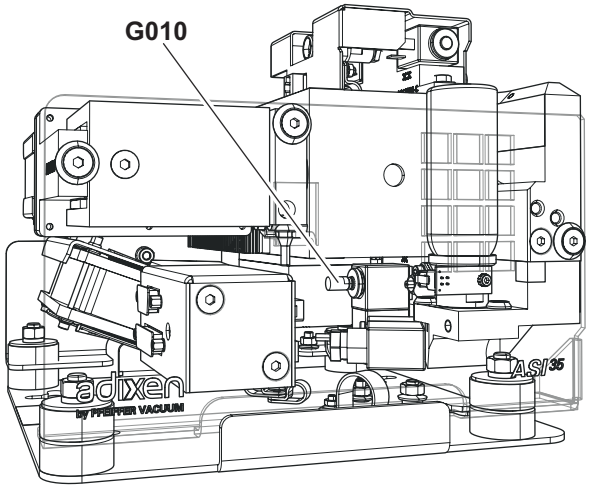
9.6 Pumping



Ref	Description	P/N	Qty	Remarks
F132	Oil reservoir for Splitflow 50 - 340/35	PM 143 740 –T	1	
F133	Special wrench for oil reservoir - 340/35	PV M40 813	1	

9.7 Vacuum block



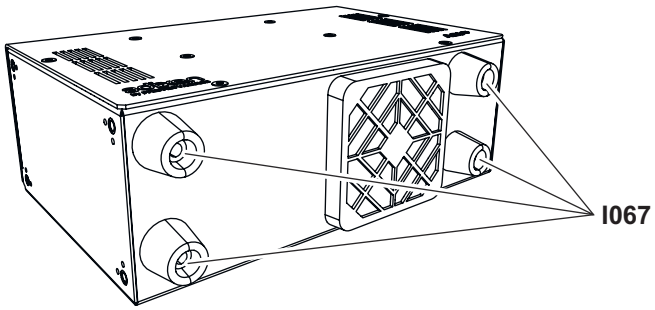


Ref	Description	P/N	Qty	Remarks
G010	Silencer, Bronze; M5	108449	1	
G075	Flange blank with storage valve - ASI35	123861	1	

9.8 Pipes - Connections - Seals

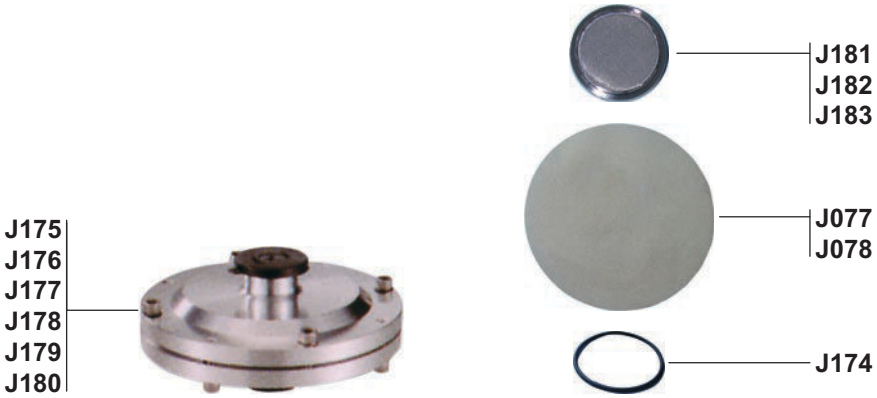
Ref	Description	P/N	Qty	Remarks
H037	O'Ring DN25KF HNBR	106022	1	
H040	O'Ring DN16KF HNBR	106021	1	
H047	Centering Ring DN25KF	068224	1	
H050	SS mesh filter 70 µm DN25 KF	072857	1	
H051	SS mesh filter 70 µm DN40 KF	067636	1	
H117	Centering Ring DN16KF	068222	1	
H144	NBR Seal - 3G Cell	114346	1	
H172	Flow reducer - ASI35	123525	1	Option/Accessory (Sniffing)
H173	Connector for Smart probe - ASI35	123180	1	Option/Accessory (Sniffing)
H174	Flange blank with storage valve - ASI35	123861	1	
H175	SS mesh filter 70 µm DN16 KF	072721	1	

9.9 Cover



Ref	Description	P/N	Qty	Remarks
I067	Foot - ASI20/22/30/35	104746	1	

9.10 Accessories



Ref	Description	P/N	Qty	Remarks
J077	20 µm Poral Filter D 114 mm	105847	1	
J078	5 µm Poral Filter D 114 mm	105848	1	
J174	O'ring Ø 5 mm - D 114 mm	082152	1	
J175	20 µm Poral Filter DN25/25 KF	105841	1	
J176	20 µm Poral Filter DN40/40 KF	105842	1	
J177	20 µm Poral Filter DN40/25 KF	105843	1	
J178	5 µm Poral Filter DN25/25 KF	105844	1	
J179	5 µm Poral Filter DN40/40 KF	105845	1	
J180	5 µm Poral Filter DN40/25 KF	105846	1	
J181	SS mesh filter 70 µm DN16 KF	072721	1	
J182	SS mesh filter 70 µm DN25 KF	072857	1	
J183	SS mesh filter 70 µm DN40 KF	067636	1	

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