OPERATING INSTRUCTIONS

EN

Translation of the original instructions

DE1 – DE2

External oil filter

PFEIFFER VACUUM

CONTENTS

DE1/DE2 EXTERNAL OIL FILTER

FIGURES

Obligation to inform

Any person responsible for installing, using or maintaining the product must first read the security instructions in this operating manual and comply with them.

It is the operating customer's responsibility to protect all operators against the dangers associated with the product, with the media pumped and with the entire installation.

NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in property damage.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in moderate or minor injury. It may also be used to alert against unsafe practices.
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or severe injury.
DANGER	Indicates an imminently hazardous situation that, if not avoided, will result in death or severe injury (extreme situations).

DE1 - DE2

DE1/DE2 EXTERNAL OIL FILTER

1. DESCRIPTION

DE1 and DE2 external oil filters are one solution for extending the life of both the pump and the oil.

They are used in some vacuum technology applications, using corrosive gases, or hazardous, or expensive fluids.

- Ion implantation source pumping.
- Plasma Etching.
- Reactive Ion Etching.
- Etching.
- Freezze-drying.

About the operation safeties of this accessory according to the pumped gases, refer to ***Rotary Vane Pumps Operating instructions***.

Proper use:

The DE filter traps solid particles and/or corrosive products contained in the oil, to prevent their return in the pump.

The DE filter is used only with Pfeiffer Vacuum Rotary Vane Pump:

- Pascal Series from 5 to 63 m^3/h for which it is compatible (see ***Rotary Vane Pumps Operating instructions***).
- Duo 35, Duo 65, Duo 125 and Duo 255.
- BA251 and BA501.

Improper use:

Improper use will cause all claims for liability and warranties to be forfeited. Improper use is defined as usage for purposes deviating from those mentioned above, especially:

- connection to pumps and devices for which it is not intended.
- connection to devices uninsulated electrically.
- use of accessories or spare parts, which are not named in this manual.
- pumping of flammable and explosive mixtures.

The product is not designed to carry loads and is not for use as a seat, stepladder or any other similar purpose.

1.1. Operating principle

DE external oil filter is a stand-alone unit consisting of a magnetically driven gear pump which makes circulate oil through filtration cartridges. According to filtration media and number of cartridge, DE filter retains solid particles (mechanical filtration) and/or neutralize corrosive products contained in the oil (chemical filtration) of the pump.

1.2. DE filters and cartridge models

In microelectronic or chemical applications, the oil in oil-sealed rotary vane pumps can be affected in several ways:

- It can become loaded with **acid**, either through oxidation tied to the mechanical action of the oil, or by trapping the products (gases) pumped. Within the pump, these acids strongly degrade the oil's mechanical and vacuum characteristics, and also damage the pump's internal components (especially in the presence of water vapour).
- Certain chemical reactions with the products pumped can lead to the creation of **frost**. Mixed with the oil, frost reduces the oil's mechanical characteristics by increasing its viscosity, and can damage the pump by blocking the oil circulation holes.
- The oil can also become loaded with **particles** (crystal decomposition). Mixed with the oil, these particles can form an abrasive, and damage pump components or block oil circulation holes.

There are 3 types of cartridges adapted to different applications:

Type	Application
Activated Alumina	Used to trap Lewis acids, mineral acids, organic acids, fluorides, SO2 and hydrochloric acid. Through its construction, the filter cartridge also provides mechanical filtration.
Cellulose	Made of pleated paper impregnated with acid-resistant phenolic resin. Provides mechanical filtration of particles and frost, with no chemical action on the oil.
Activated Charcoal	Filters out ammonia, water, SiO2 and nitrous vapours. This type of filter cartridge should be avoided when pumping oxygen, especially with a non-chemically inert oil.

The **DE1** filter is equipped with a cartridge ensuring mechanical filtration (retention of solid particles) and neutralization of the products contained by the oil.

But when pumping products which produce large quantities of particles or frost, this cartridge will become mechanically clogged before performing the chemical filtration.

In this case, the **DE2** filter equipped with 2 cartridges, is recommended. Standard version is equipped with one cartridge in cellulose ensuring mechanical filtration (retention of solid particles) and another in activated alumina which ensures the neutralization of the products contain in the oil.

1.3. Equipment

The DE filter is a compact portable frame including:

- a gear pump,
- the filter body and its cartridge (DE1) or the double filter body with 2 cartridges (DE2),
- Stainless steel braided hoses with quick-disconnect couplings,
- An electrical connector.

1.4. Interface

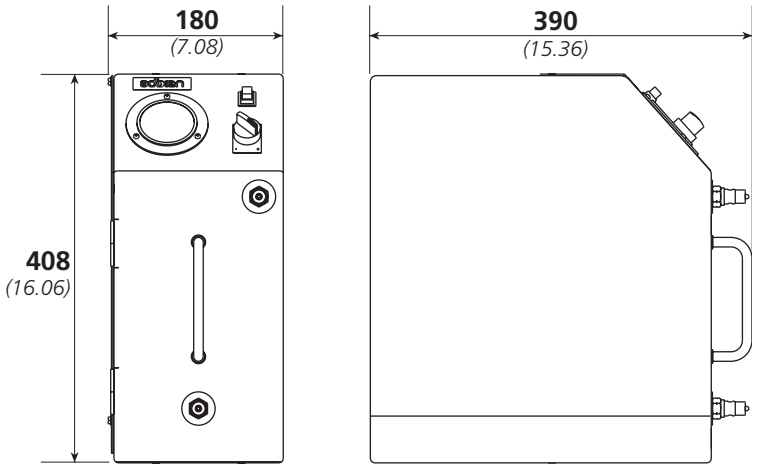
On the control panel:

- **O/I** switch with its light,
- A circuit breaker,
- A pressure gauge indicating the overpressure in filter caused by particulate or contaminant buildup.

Items delivered with DE filter (see picture):

- 2 stainless steel braided hoses,
- 2x3/8” NPT connectors (mounted on hoses)
- 1 assembly connecting accessories,
- 1 Operating instructions.

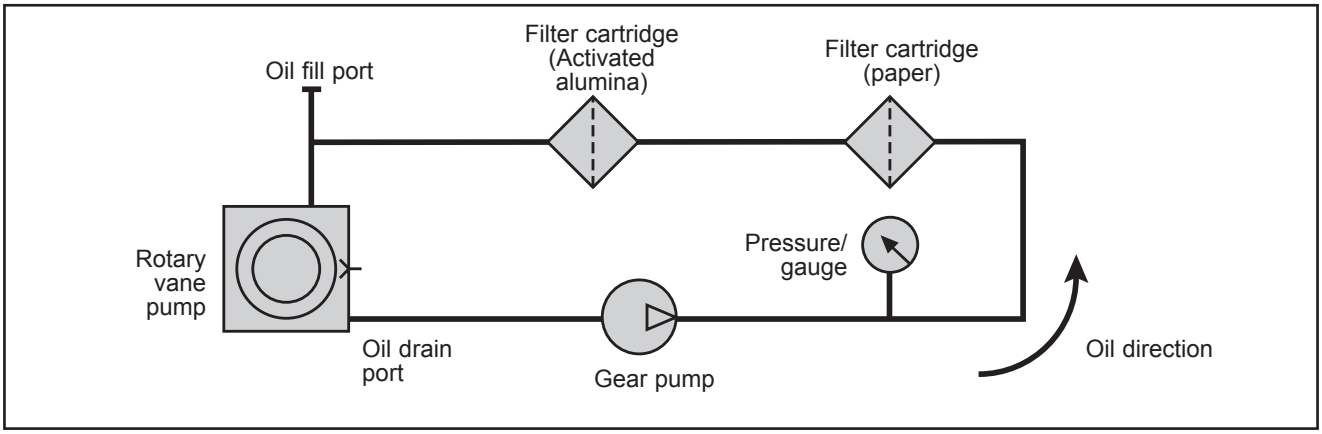
2. TECHNICAL CHARACTERISTICS

Characteristics	DE1 filter		DE2 filter	
Part number	**068991**	**068990**	**104375**	**104374**
Power supply	100-120 V	200-220 V	100-120 V	200-220 V
Frequency	60 Hz	50 Hz	60 Hz	50 Hz
Power	66-88 VA	64-83 VA	69-95 VA	63-78 VA
Intensity	0.6-0.8 A	0.3-0.4 A	0.7-0.8 A	0.3-0.4 A
Weight	12 kg		17 kg	
Cartridge (standard configuration)	Activated Alumina		Cellulose and Activated Alumina	
Oil volume	1.2 l		1.8 l	
Oil flow (mineral oil A120)	1000 - 1500 cm^3/mn at 65 °C (oil temperature)			
Oil flow (synthetic oil A113)	1000 cm^3/mn at 65 °C (oil temperature)			
Leak rate	< 10^{-6} hPa·l/s			
Storage condition	up to 3 months in its delivery packaging			
Storage temperature	min 5 / max 65 °C			
Environmental conditions:				
Ingress Protection	IP 21			
Use of the product	indoor use			
Ambient operating temperature	12 to 40 °C (53.6 to 104 °F)			
Maximum relative humidity	max. 80% at T ≤ 31 °C (87 °F), up to max. 50% at T ≤ 40 ° (104 °F)			
Dimensions (mm/*inches*)				

Materials in contact with oil

Part	Material
Filter body	Stainless steel
O-rings	FPM
Connecting accessories	Stainless steel
Frame	Steel
Screws, washers, quick connect	Stainless steel
Cartridge (depending on model)	Cellulose, actived alumina, actived charcoal
Braided hose	Stainless steel / PTFE / FPM
Oil pump	Stainless steel / PTFE
Manometer	Stainless steel

3. OPERATING PRINCIPLE



Contamined oil is pumped from the oil drain port of the pump casing by the gear pump and filtered through the cartridge. The DE1 / DE2 filters system contain a magnetically coupled stainless steel gear pump (gear pump), powered by a single phase motor. The gear pump transfers oil through the filters.

DE filter contains a pressure gauge 0-4 bars which displays the filter operating pressure. In normal operation, when the oil is warm, the operating pressure may change : this variation of pressure depends on the type of oil and its temperature.

Operating pressure table:

Oil type	Pressure at start-up	Operating pressure new oil, hot oil	Operating pressure contaminated oil, hot oil
Mineral oil (A120)	1 to 1.5 bar absolute.	0.5 bar absolute.	1.5 to 2 bar
Synthetic oil (A113)	1.5 to 2 bar absolut	1.5 bar absolute	2.5 bar

At the first DE filter start up, we advise you to note down the stabilized operating pressure. When the pressure increases, the filter is clogged.

The system does not indicate the pH of the lubricant or if the neutralising agent has lost effectiveness.

The best indication of oil contamination by acid is the performance and ultimate vacuum which the mechanical pump can achieve, as well as the condition of the oil itself.

4. UNPACKING

Upon delivery, check that the product has not been damaged during transport. If the product is damaged, take the necessary measures with the carrier and notify the manufacturer. In all situations we recommend:

➔ Keeping the product in its original packaging so it stays as clean as it was when dispatched by us. Only unpack the product once it has arrived at the location where it will be used.

➔ Keeping the packaging (recyclable materials) in case the product needs to be transported, stored or returned.

5. FILTER INSTALLATION ON ROTARY VANE PUMP

WARNING

Risk of tilting

Even though compliance with EEC safety rules is guaranteed, all necessary precautions should be taken when moving, installing and operating the product.

➔ Do not place the product on an inclined plane.

➔ Place it on a flat, hard floor.

➔ Do not push the product sideways.

CAUTION

For all handling of the equipment, it is highly recommended to use the handle provided for this purpose.

When the equipment is handled with a lift truck, accurately attach it to avoid any slidding.

The maker can not be held liable for the consequences of not following appropriate safety recommentations.

5.1. Rotary vane pump preparation

The DE filters should be installed on a pump which is new or recently repaired (see ***Rotary Vane Pumps Maintenance instructions***).

Stop the rotary vane pump and disconnect it from power line.

Drain an oil sample.

Compare with a fresh oil sample. If oil is brown, blackish or smells ”burnt”, it has deteriorated: drain pump and flush if necessary (see ***Rotary Vane Pumps Maintenance instructions***).

5.2. Connecting the filter to the pump

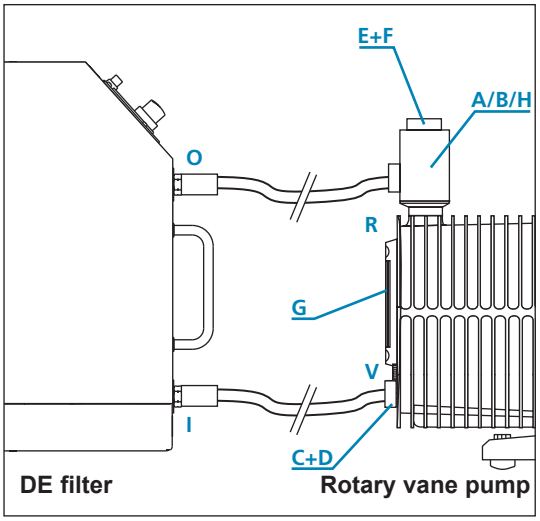
NOTICE

Don’t use vacuum grease to grease the connectors in contact with oil: it can damage the oil characteristics. We recommend to grease the connector with the same oil as thus used into the pump.

On rotary vane pump:

- Remove drain plug and its O-ring.
- Attach drain adapter **C** with new O-ring **D** to drain port **V**.
- Install 3/8” threaded fitting of one braided hose on drain adapter **C** using threadlock glue.
- Remove fill plug of the rotary vane pump and its O-ring.
- Install adapter tee **A/B/H** (depending on pump model) in fill port **R**.
- Then attach other 3/8” braided hose to adapter tee **A/B/H** (using threadlock glue).
- Close filling port using plug **F** of the rotary vane pump, and install new O-ring **E**.

Nota: O-rings must alway be replaced by new ones (delivered with connecting accessories).



On DE filters:

– The pump filling port is connected to the filter output **O** using the hose.
– The pump draining port is connected to the filter inlet **I** using the other hose.

These connections are made with quick-connect connectors.

Nota: Do not strain braided hoses.

5.3. Leak test

WARNING

Leak-tightness of the equipment

It is the user's responsibility to ensure this level of leak tightness is maintained, especially when dangerous gases are pumped. The operator must maintain this level of tightness, particularly when pumping dangerous gases. Proceed as follows:

➔ Perform a leak test on the entire pumping line after installation.

➔ Carry out regular checks to ensure that there are no traces of the gases pumped in the surrounding environment and that no air is entering the pumping line while the pump is running.

The leak rate must be lower than: $Q < 10^{-6}$ hPa·l/s.

5.4. Electrical connection

WARNING

Ensure that the product is connected to an electrical installation:
– in compliance with the local and national safety requirements,
– equipped with electrical protection (fuses, circuit breaker, …) which has a suitable earth (ground) point, properly connected.

Our products are designed to comply with the current EEC regulations. Users making their own modifications to the product are liable to break its compliance with these regulations, degrade its EMC (electromagnetic compatibility) rating, and make it unsafe to use. The manufacturer declines all liability for the consequences of such operations.

Electric shock hazard.

The voltages and currents in use can induce an electric shock.

➔ Isolate and lock out power line to the product before maintaining it /or removing the cover.

➔ Only skilled, authorized operator may carry out maintenance work.

➔ If a main isolator is installed by the customer, it must be in compliance with local regulations, with at least a 10 kA short circuit cut-off capacity.

Check that the electrical wiring and the voltage selector position of the motor corresponds to the line voltage, before starting up the pump.

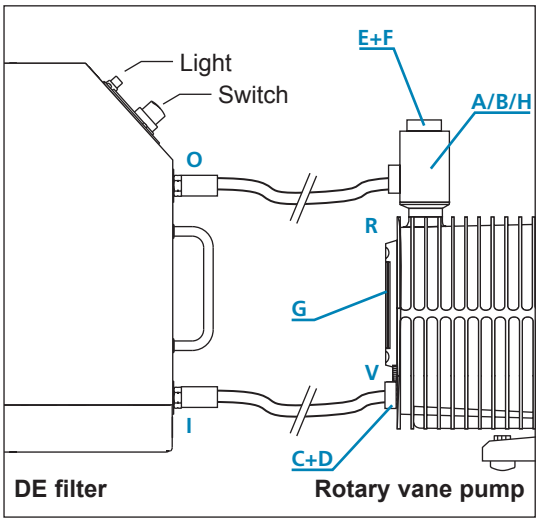
Customer electrical installation protection

Differential circuit breaker

In case of insulation defect, for personnel protection you must install on the main power supply a type B differential circuit breaker GFI (or RCD) of 30 mA minimum. This equipment protection device is compatible with type T.T electrical network. For other network type T.N or I.T, apply the right protection device. Contact the product manufacturer for advice. In all cases, comply with current local regulations.

6. OPERATION

6.1. Start-up – General case



a) Fill rotary vane pump with oil through top opening in tee adapter **A/B/H**. Oil must come up to the middle of sight glass **G**.
b) Plug rotary vane pump power cord to the line socket.
c) Start the rotary vane pump (see ***Rotary Vane Pumps Operating instructions***).
d) Wait that the pump reaches its stabilized temperature at the front of the oil casing (60°C< t < 70°C with A120 oil, or light more with A113).
e) Plug filter power cord to the line socket.
f) Set filter switch to "**I**". Green light comes on. Filter gear pump pumps oil from oil casing and exhausts it through cartridge: oil level drops in casing.
g) Swith off the Rotary Vane Pump and the filter, top up oil until it reaches the middle of sight glass of the rotary vane pump; **do not exceed max. level**. Swith on the Rotary Vane Pump and the filter.
h) After operating pump for 10 minutes, check oil level again and adjust it if necessary.
i) Replace filling plug **F** of the rotary vane pump and its O-ring **E**. **Wait for 30 minutes that the pump/filter assembly reaches the stabilized temperature before opening the isolation valve at pump inlet.**
j) Starting the pump with corrosive products. (see ***§ 6.3)***

6.2. Safety measure: Inert oils

These oils are much more viscous when cold than mineral oils. The viscosity decreases as the mechanical pump warms up to operating temperature.

Proceed to the start-up, steps "**a**" to "**d**" from ***§ 6.1.***

When starting up the filter, there is a risk of the electromagnetic clutch on the filter's pump motor slipping if the oil temperature is too low or its viscosity is too high.

It is necessary to wait until the oil warms up and/or conduct several "start/stop" sequences in order to obtain normal operation.

Then, continue the start-up with steps "**e**" to "**i**" from ***§ 6.1.***

6.3. During operation

Before process pumping of corrosive or polluting gases, make sure that the pump and the DE filter are at their operating temperature, and that gas purges are adjusted (see ***Rotary Vane Pumps Operating instructions***). Note the pressure on the gauge.

During operation, pay attention to:

- Increased pressure in the filter cartridge (compared to its new oil pressure, refer to the oparating pressure table, § 3), which will give an indication on cartridge clogging,
- Oil pH, which will give an indication on the remaining effectiveness of the filter cartridge.
- Pump oil level.
- Check that there is no oil in the retention container (bottom of the frame).

WARNING

Risk of injury due to hot surfaces
➔ Avoid touching the braided hosets and the body filter.

When pumping stops, close the isolation valve before the pump, let the drains operate (as indicated in the ***Rotary Vane Pumps Operating instructions***).

Do not stop the DE filter: the oil-neutralisation chemical reactions are slow, so let it run for 1/2 hour, pump at reduced pressure, with purges operating.

Insofar as possible, let the filter and pump operate (at reduced pressure) so as to prevent the condensation of residual process gases and thus protect the pump against corrosion. If it is necessary to stop the pump, follow the instructions in the Pump User Manual, and stop the filter at the same time as the purges.

7. MAINTENANCE

WARNING

Electric shock hazard

Voltage and current can cause electric shock. Only skilled, authorized operator trained in the relevant health and safety aspects (EMC, electrical hazards, chemical pollution, etc.) may carry out maintenance work.

➔ Isolate and lock out power line to the product by positioning the main switch on **O**.

➔ Disconnect the power line cable from all power sources before doing any work on the product and/or removing the covers.

7.1. Maintenance safety

RESIDUE: The process gas composition and by-products may cause the contaminated oil and DE filters elements to contain liquid particulate material that is potentially hazardous. Proper handling and disposal of contaminated material is the responsability of the user.

The manufacturer recommends that proper internal procedures be instituted under the supervision of the plant safety or material control departments.

DANGER

Risk to the health in the event of contact with toxic substances

The vacuum pump, pumping line components, and operating media may be contaminated with toxic, corrosive, reactive, or radioactive materials, depending on the process.

➔ Wear appropriate safety equipment when pump is disconnected for maintenance, or reinstalled, and also for oil filling and draining.

➔ Ventilate the premises well.

➔ Do not eliminate maintenance waste via standard disposal channels. Have it destroyed by a qualified company if necessary.

➔ Install the inlet and exhaust blanking plates, accessories delivered with the pump or available as accessories.

Disposal

According to the regulations 2012/19/EC about Waste of electrical and electronic equipment, and 2011/65/EC about Restriction of Hazardous substances, the manufacturer provides a paid recycling service for the end of life of the equipment.

Any obligation of the manufacturer to take back such equipment shall apply only to complete not amended or modified equipment, using Pfeiffer Vacuum SAS original spare parts, delivered byPfeiffer Vacuum, containing e.g. all its components and subassemblies.

This obligation will not cover the shipping cost to a Pfeiffer Vacuum reclamation facility. Before returning the product, please consult the Service procedure (see ***chapter 9***). Fill in the declaration of contamination form available on our website. Attach it to the product before shipping to the closest service-repair office.

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.

7.2. Maintenance frequency

It is necessary to change the filter cartridges when the pressure increases compared to the initial pressure level, see oil pressure table ***§ 3.***

Nevertheless, some polluting elements (gas, liquid or solid) are the result of physico-chemical reaction between pumped gases and oil. These reactions depend on each application, so the maintenance periodicity of oil and filter cartridges can't be exactly determined.

The time taken to reach saturation point depends on the number of pumping operations, their frequency, the process, the gases pumped and their concentration of corrosive products, as well as the condition of the oil used.

7.3. Maintenance sheet

DANGER

When stopping the system for maintenance, it is recommended to remove the filter body as quickly as possible, open it under an extractor hood, remove the cartridge and allow the body to drip dry.

This prevents gas accumulation, and corrosion of the body and its hoses from contaminated oil.

WARNING

Electric shock hazard in case of contact

When the product's mains switch is set at O, some internal components still have an electrical charge.

➔ Disconnect the rotary vane pump and filter mains cables from all power sources before commencing any maintenance work on the product.

Cartridge replacement = preventive maintenance for normal operation

Proceed as follows:

- filter draining, ⇨ see ***§ B***
- cartridge dismantling, ⇨ see ***§ C***
- cleaning, ⇨ see ***§ D***
- installing a new cartridge in the filter body, ⇨ see ***§ E***
- reassembling the filter body in the frame. ⇨ see ***§ F***

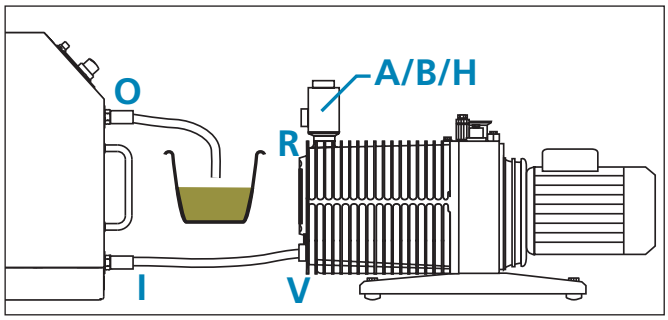
In the event of pollution and degradation of the oil of the pump=oil significantly degraded or corroded

Proceed as follows:

- Oil circuit draining, ⇨ see ***§ A***
- filter draining, ⇨ see ***§ B***
- cartridge dismantling, ⇨ see ***§ C***
- cleaning, ⇨ see ***§ D***
- installing a new cartridge in the filter body, ⇨ see ***§ E***
- reassembling the filter body in the frame. ⇨ see ***§ F***

7.4. Maintenance steps

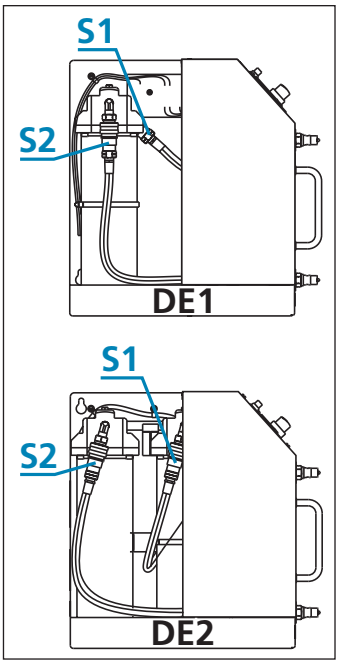
A. Oil circuit draining



Use appropriate vessel*.

- Disconnect braided hose connected to adapter tee **A/B/H** and place it in a wessel.
- Start-up DE filter (switch on "**I**") until rotary vane pump and DE filter are completely empty.
- When oil stops flowing, switch off DE filter.

B. Filter draining

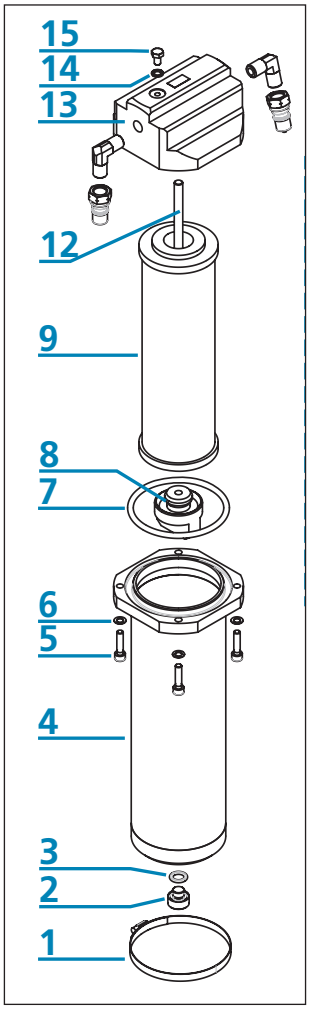


- Stop the DE filter: set switch on "**O**".
- Disconnect both quick connectors (**S1**) and (**S2**).
- Unscrew collar(s) **(1)** holding filter body in frame.
- Remove the body (ies) consisting the filtration system.

Beneath a fume hood, wearing safety equipment:

- Unscrew drain plug **(2)** in bottom of filter body(s) **(4)**.
- Recover waste oil in appropriate wessel*.

C. Cartridge dismantling



Beneath fume hood:

- Open the filter body by removing the 4 screws **(5)**.
- Remove the cover **(13)** equipped with the cartridge **(9)**.
- Unscrew the cartridge fastening nut **(8)**.
- Remove contaminated cartridge. Never reuse an used cartridge.

* Refer to pump operating instructions to choose a oil chargesuitable wessel.

D. Cleaning

CAUTION

Never clean the filter cartridge : always install new one.

O-rings must alway be replaced by new ones.

Cold cleaning

Clean parts using brushes (do not use rags).

Hot cleaning (max. 45°C)

Use appropriate equipment and take necessary precautions (baskets, fume hood, etc...)

After use in (non-perfluorinate) synthetic or minetal oil

Clean the metal components, the stainless steel braided hoses with a mineral products based solvent such a AXAREL(1), CARECLEAN(2), PREMACLEAN(3), NAPHTESOL(4) and proceed as follows:

- Clean when cold or hot (max. 45°C) by dipping or using a brush,
- Vacuum dry in a ventilated oven and,
- ***The component must be cleaned a second time with alcohol.***

After use in (perfluorinate) synthetic oil

Clean the metal components in a solvent such as GALDEN S 90TM(5) and proceed as follows:

- Clean when cold by dipping or using a brush,
- Dry the components in the air or with compressed air.
- ***The component must be cleaned a second time with alcohol.***

(1) DUPONT DE NEMOURS registered trademark
(2) CASTROL registered trademark
(3) DOW registered trademark
(4) NIPPON CHEMICAL registered trademark
(5) MONTEDISON registered trademark

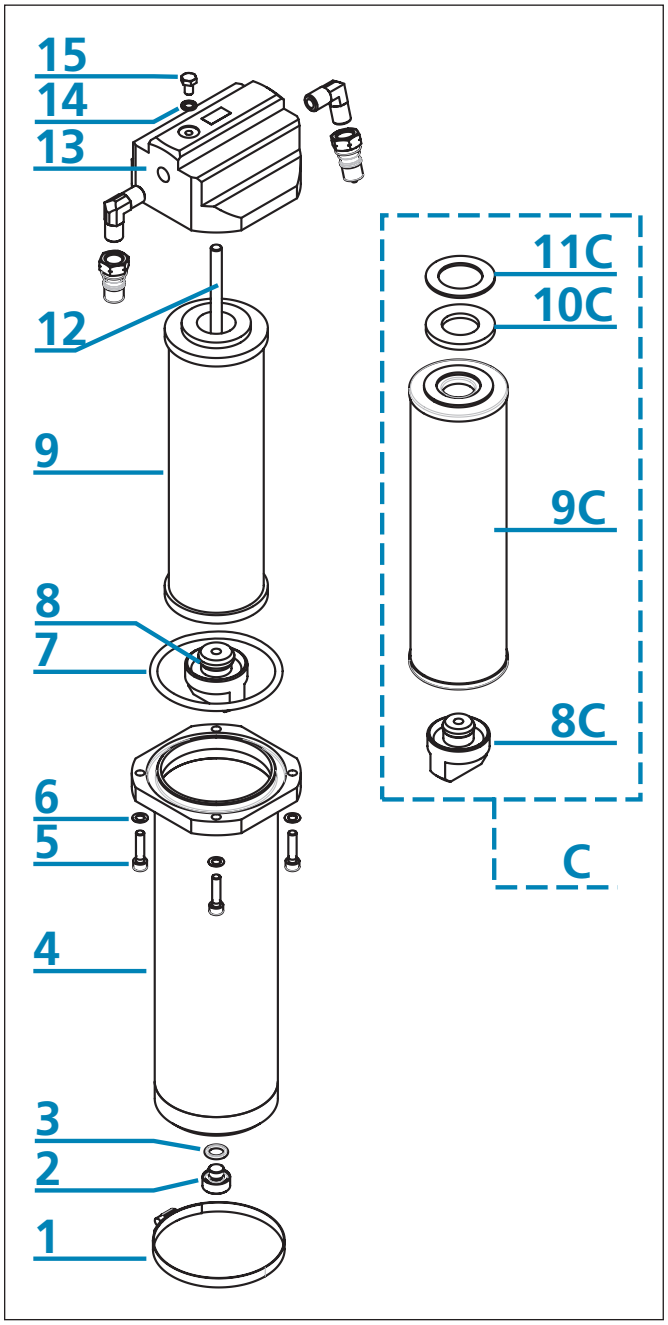
E. Installing a new cartridge

1. Installing an activated alumina or a cellulose cartridge in filter body

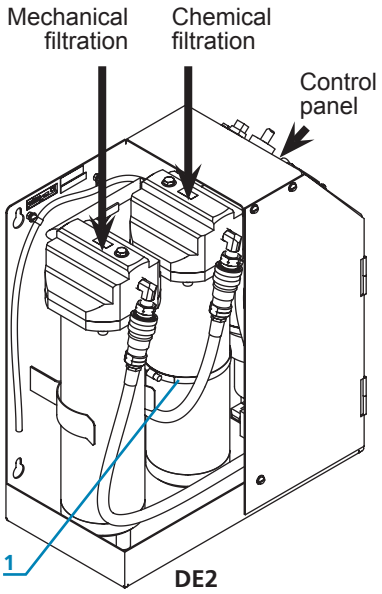
- Slide the new cartridge **(9)** on the fastening rod **(12)**.
- Screw the fastening nut **(8)**.
- Secure the lower body **(4)** using washers **(6)** and screws **(5)**.
- Replace BS ring **(14)**.
- Install the drain plug **(2)** with a new o-ring **(3)**.

2. Installing an activated charcoal cartridge in filter body

- Install a flat ring **(11C)** and the spacer **(10C)** on the fastening rod **(12)**.
- Position the new cartridge **(9C)** on the fastening rod **(12)**.
- Screw the fastening nut **(8C)**.
- Secure the lower body **(4)** using waschers **(6)** and screws **(5)**.
- Replace BS ring **(14)**.
- Install the drain plug **(2)** with a new o-ring **(3)**.

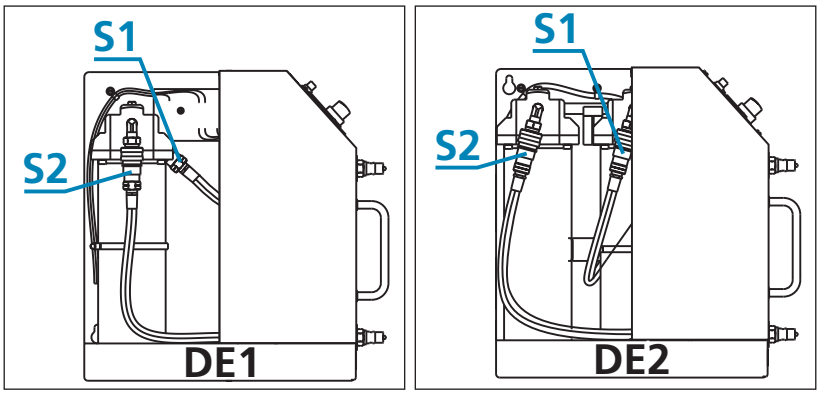


F. Reassembling the filter body in the frame



- **DE2 filter:** Position the filter body in the frame according to the type of filtration:
  - activated alumina cartridge (chemical filtration) near the control panel
  - cellulose cartridge (mechanical filtration) at the opposite side of the control panel
- Install filter body on frame with arrow on cover in correct direction: **arrow pointing in direction of oil circulation**. Fasten body in place with clamp collar **(1)**.
- Connect hoses to filter body using quick-connect **(S1)** and **(S2)**.

  DE2 filter:
  - (S1) connected on the chemical filter body.
  - (S2) connected on the mechanical filter body.
- Perform a leak test on the DE1/DE2 filter, see ***§ 5.3***.
- Refill DE filter as described in ***§ 5.1***.



- Perform a leak test on the entire pumping line, see ***§ 5.3***.

7.5. Replacement of a former filter body by a new one.

Proceed as follows:

- Removing the filter body from the frame, draining, removing the filter cartridge ⇨ see § C
- Installing a new cartridge in the new filter body, ⇨ see ***§ E***
- Reassembling the new filter body in the frame. ⇨ see ***§ F***
- Treatment of the former filter body ⇨ see ***§ 7.1***
- Perform a leak test on the DE1/DE2 filter, then on the entire pumping line, see ***§ 5.3***.

NOTE

Necessary spare parts

Replacement of defective components with parts that are not genuine, jeopardizes the initial safety conditions of the equipment.

➔ Use only spare parts available by asking Pfeiffer Vacuum Service.

➔ Ordering information is available in Spare parts chapter ***§ 10***.

8. TROUBLESHOOTING

Incident	Cause	Remedy
Light does not come on	Bulb burned out	Replace the switch with its light
	Circuit breaker open	Resset it
	Incorrect wiring	Check it
No oil circulation	Incorrect wiring	Check it
	Hoses not correctly installed	Check them
	Gear pump failed	Replace it
Pressure is around zero	No oil circulation	See chapters 4 and 5
	Faulty gauge	Replace it
Pressure increases but returns to zero; the motor coupling is no more driven	Oil too viscous because too cold	Warm the oil: let the vacuum pump run without the filter, then start-up the filter
	Oil too viscous because contaminated	Change oil
	Cartridge clogged	Replace cartridge
	Oil circuit clogged	Check it and clean it if necessary

9. 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.

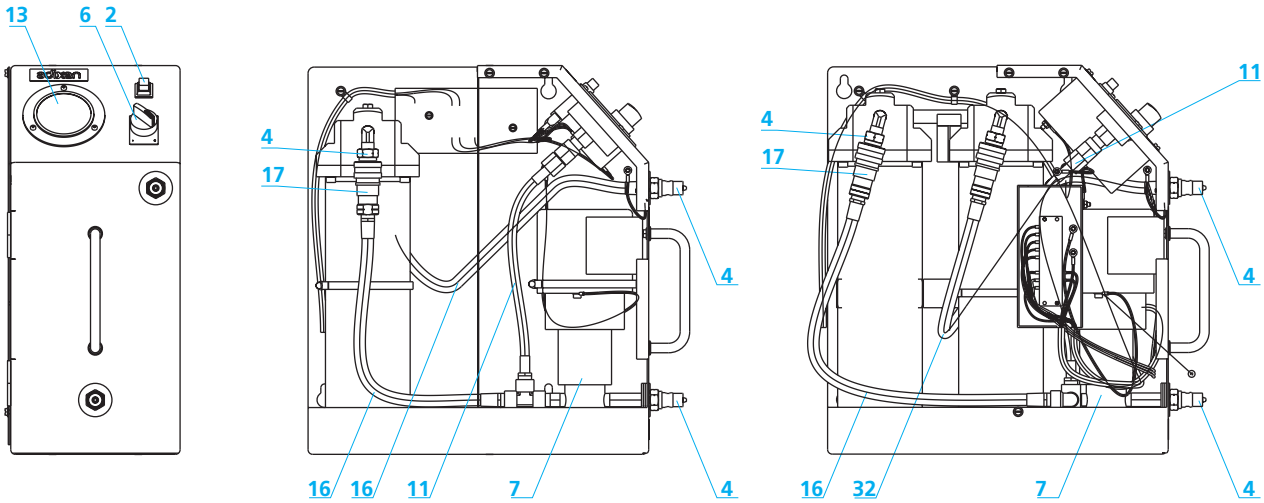
Exchange or repair

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.

10. SPARE PARTS



Item	Qty	Description	P/N
2	1	Circuit breaker 115V - 2A	060869
	1	Circuit breaker 220V - 1A	060868
4	4	Male quick connect coupling	076720
6	1	Switch with light 115V	118845
	1	Switch with light 220V	118844
7	1	Gear pump	068970
11	1	Braided hose 1/4 NPT	068906
13	1	Pressure gauge D63 (DE1)	068972
	1	Pressure gauge D40 (DE2)	062588
16	2 (DE1)	Braided hose M/M 1/4 NPT length 400 mm	062560
	1 (DE2)		
17	4	Female body quick connect coupling	076721
32	1	Male braided hose 1/4 NPT length 600 mm (DE2)	062567

Description		P/N
Seals kit for one filter body	○	068989
Activated alumina cartridge		068880
Cellulose cartridge		078212
Charcoal cartridge kit (Item **C,** *see page 13* or *C-3*)		112953
– Activated charcoal cartridge (Item **9C**, *see page 13* or *C-3*). **Warning!** It is mandatory to get the kit before ordering the cartridge only (kit spare part).		068881
Equipped filter body kit	□	200025
Oil waterproof glue Loctite 577®		064689

□ Equipped filter body kit ○ Seals kit

Declaration of conformity

We hereby declare that the products cited below satisfies all relevant provisions according to the following **EC directives :**

- **Low-voltage 2014/35/EU**
- **Machinery 2006/42/EC (Annex II, No. 1 A)**
- **Electromagnetic Compatibility 2014/30/EU**
- **Restriction of Hazardous Substances 2011/65/EU**

The technical file is drawn up by Mr Frédéric Rouveyre, Pfeiffer Vacuum, Société par Actions Simplifiées [simplified joint stock compagny], 98, avenue de Brogny, B.P. 2069, 74009 Annecy cedex, France.

DE 1, DE 2,

Signatures :

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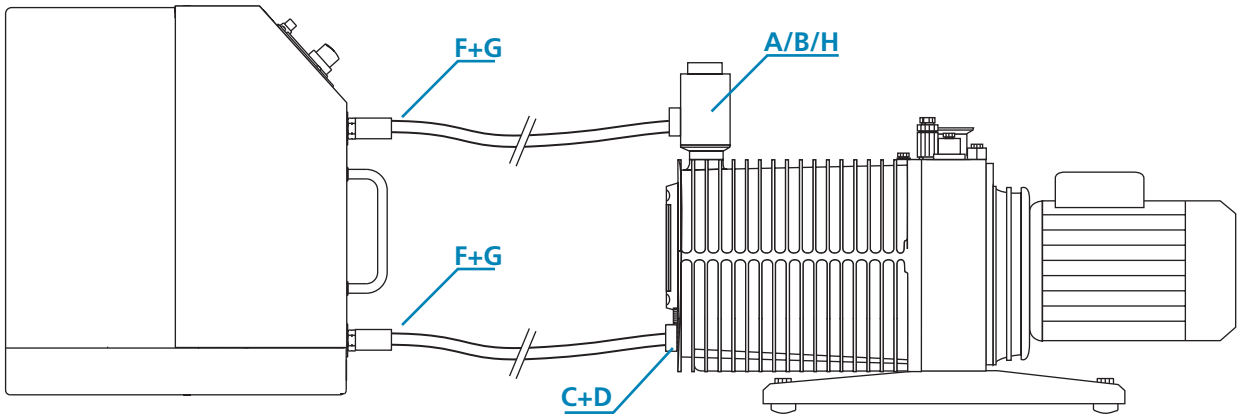
98, avenue de Brogny
B.P. 2069
74009 Annecy
France

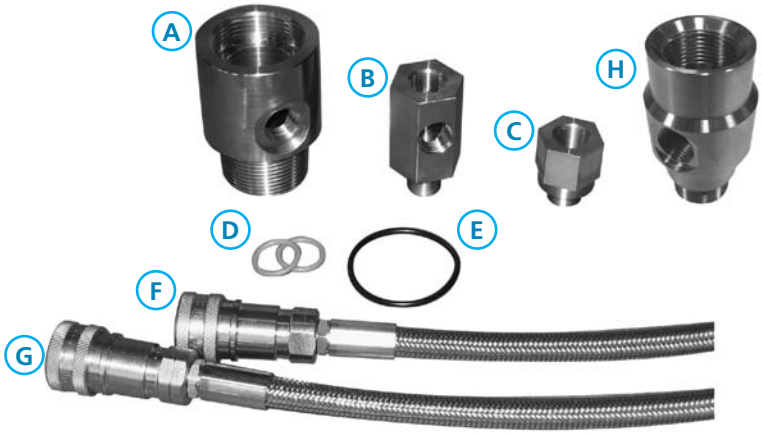
(M.Taberlet)
Président

(M.Rouveyre)
Responsable R&D des Pompes

Date : 28/06/2016

ACCESSOIRES DE RACCORDEMENT / CONNECTING ACCESSORIES





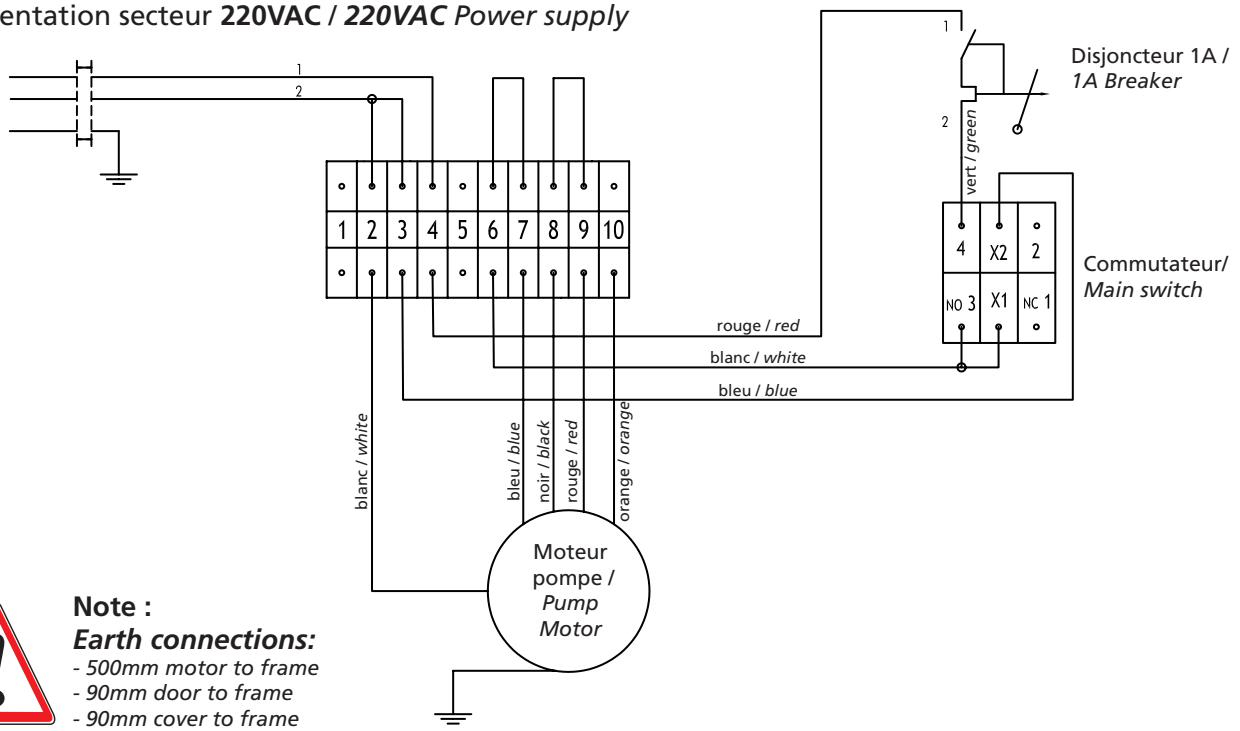
Rep./ ITEM	Qté/ Qty	Désignation	Description	Référence P/N
		Kit accessoires de raccordement pour Pompes Pascal et Duo comprenant :	**Connecting Accessories kit for Pumps Pascal and Duo including :**	**068873**
A	1	Té adaptateur 1 1/4F-NPT3/8F-1 1/4M pour pompes Series Pascal 33-63 m^3/h	Adapter tee 1 1/4F-NPT3/8F-1 1/4M for 33-63 m^3/h Pascal Series pumps	043008
B	1	Té adaptateur G3/8F-NPT3/8F-G3/8M pour pompes Series Pascal 5-21 m^3/h	Adapter tee G3/8F-NPT3/8F-G3/8M for 5-21 m^3/h Pascal Series pumps	068739
H	1	Té adaptateur G3/4F-NPT3/8F-G3/4M pour pompes DUO	Adapter tee G3/4F-NPT3/8F-G3/4M for DUO pumps	125666
C	1	Adaptateur vidange	Drain adapter	068876
D	2	Joint torique c,7 x d16,9	O-ring c2.7 x d16.9	082022
E	1	Joint torique c3 x d44	O-ring c3 x d44	087926
F	2	Tuyau flexible en téflon gainé par une tresse d'acier inoxydable L = 912,5 mm	Stainless steel braided hose L = 912.5 mm	068909
G	2	Raccord 1/4" NPT (montés sur tuyaux)	1/4" NPT connector (mounted on hoses)	076721

	Kit accessoires de raccordement pour Pompes BA 251 et BA 501	**Connecting Accessories kit for Pumps BA 251 and BA 501**	**PK 007 305-T**

DE1 - DE2

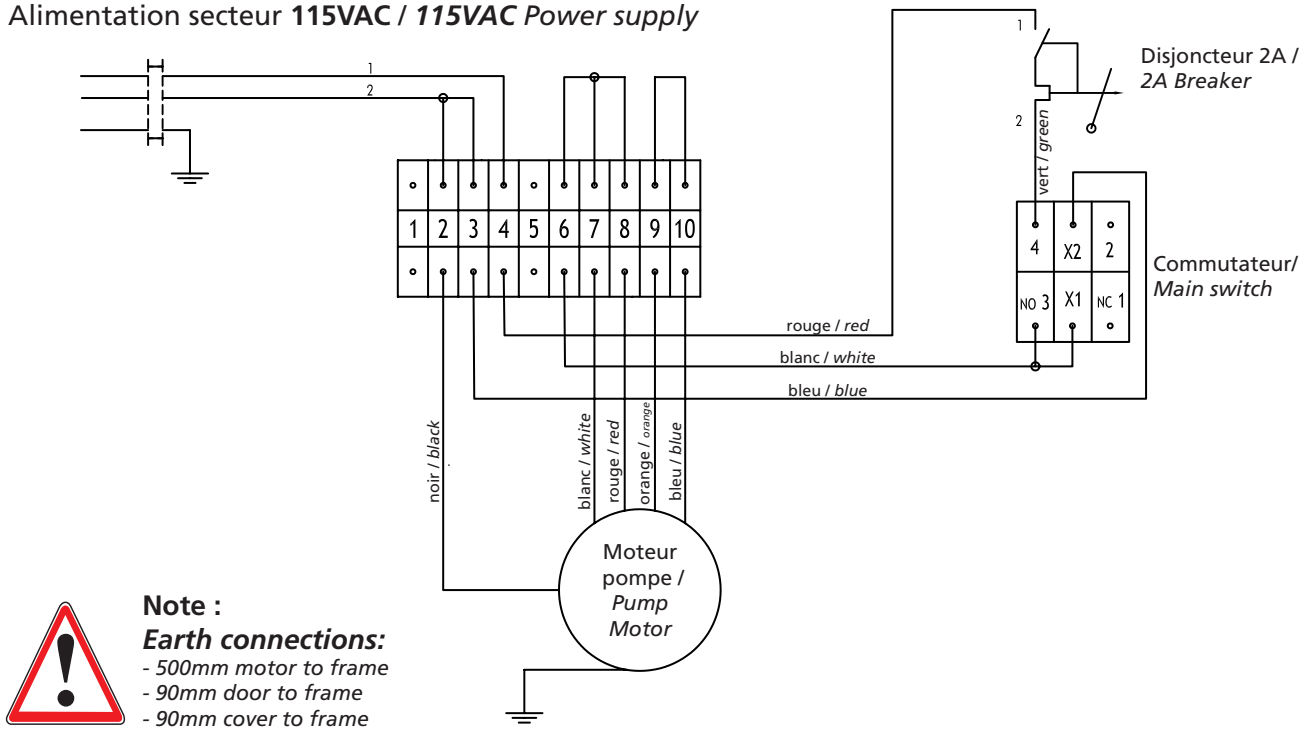
RACCORDEMENTS ÉLECTRIQUES / ELECTRICAL CONNECTIONS

Alimentation secteur **220VAC** / ***220VAC*** *Power supply*



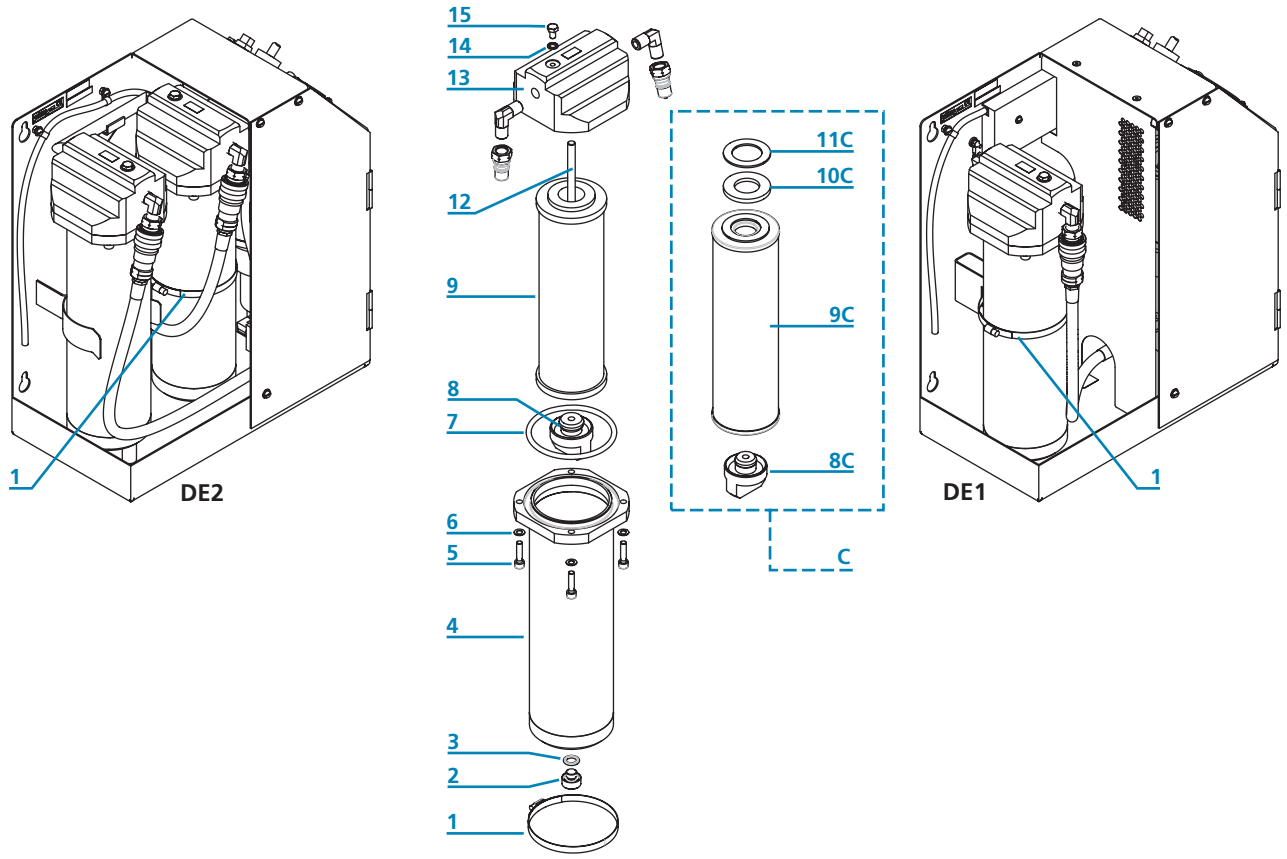
Note :
Earth connections:
- 500mm motor to frame
- 90mm door to frame
- 90mm cover to frame

Alimentation secteur **115VAC** / ***115VAC*** *Power supply*



Note :
Earth connections:
- 500mm motor to frame
- 90mm door to frame
- 90mm cover to frame

PLAN DE MONTAGE / ASSEMBLY DRAWING



REP./ ITEM	DÉSIGNATION	DESCRIPTION	RÉFÉRENCE P/N
1	Collier de maintien	Collar holding	—
2	Bouchon de vidange	Drain plug	065078 ◘
3	Joint torique c2.7 x d10.5	O-ring c2.7 x d10.5	o ◘
4	Corps inférieur	Lower body	◘
5	Vis CHC M6-25	Screw CHC M6-25	◘
6	Rondelle onduflex D6	Wavy washer D6	—
7	Joint torique c5.33 x d85.09	O-ring c5.33 x d85.09	o ◘
8	Ecrou de serrage cartouche	Filter fastening nut	◘
9	Cartouche en alumine activée	Activated alumina cartridge	068880
	Cartouche en cellulose	Cellulose cartridge	078212
12	Tige de serrage	Fastening rod	◘
13	Couvercle filtre	Filter cover	◘
14	Bague BS	BS ring	◘
15	Vis H M6-10	Screw H M6-10	◘

C	**Kit filtre charbon comprenant :**	**Charcoal cartridge kit including:**	**112953**
8C	Ecrou de serrage cartouche	Cartridge fastening nut	—
9C	Cartouche en charbon actif	Activated charcoal cartridge	068881
10C	Réhausse filtre	Filter extension	—
11C	Joint plat	Flat seal	—

◘ Kit corps de filtre équipé/ Equipped filter body kit

o Pochette de joints/Seals kit

VACUUM SOLUTIONS FROM A SINGLE SOURCE

Pfeiffer Vacuum stands for innovative and custom vacuum solutions worldwide, technological perfection, competent advice and reliable service.

COMPLETE RANGE OF PRODUCTS

From a single component to complex systems:
We are the only supplier of vacuum technology that provides a complete product portfolio.

COMPETENCE IN THEORY AND PRACTICE

Benefit from our know-how and our portfolio of training opportunities!
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Ed 04 - Date 2017/03 - P/N:105810

Are you looking for a perfect vacuum solution? Please contact us:

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