

 UniDry 50™  
Exhaust silencer

# Operating Instructions

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**Please note:**  
Current operating instructions are also available via [www.pfeiffer-vacuum.net](http://www.pfeiffer-vacuum.net).

## 1. Safety Precautions

- ☞ Read and follow all the instructions in this manual.
- ☞ Inform yourself regarding:
  - Hazards which can be caused by the accessories;
  - Hazards which can be caused by the pump;
  - Hazards which can arise in your system;
- ☞ Observe all safety and accident prevention regulations.
- ☞ Check regularly that all safety requirements are being complied with.
- ☞ Do not carry out any unauthorised conversions or modifications on the unit.
- ☞ When returning the silencer to us please note the shipping instructions in the section on “Service”.

### 1.1. For Your Orientation

#### Instruction in the text

➔ Operating instruction: Here, you have to do something.

#### Symbols Used

The following symbols are used throughout in the illustrations:

- Ⓧ Vacuum flange
- Ⓛ Exhaust flange

#### Position numbers

The same position numbers are used for the same units and accessory parts throughout in all diagrams.

### 1.2. Pictogram Definitions



Danger of damage to the silencer, the pump or the system.



Danger of burns from touching hot parts.

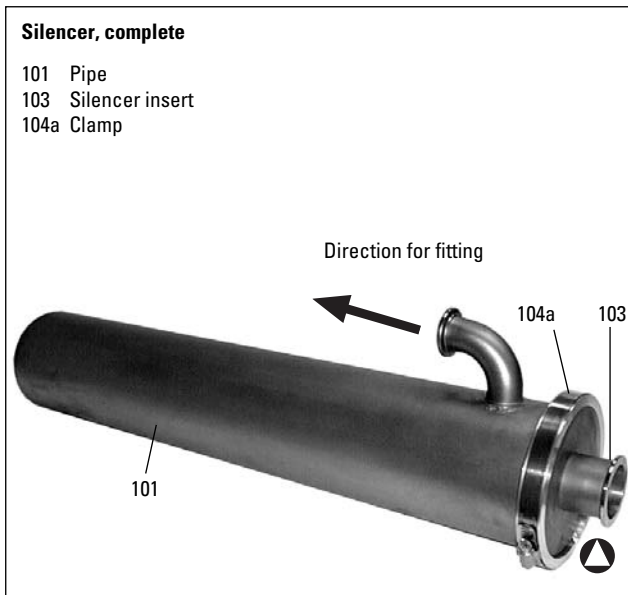


Danger of personal injury.

Modifications reserved.

## 2. Understanding The Silencer

### 2.1. Main Features



The silencer has been designed as a three chamber silencer in accordance with the pipe resonator principle. The cylindrical pipe 101 encases the fully retractable silencer insert 103. The silencer can be used in conjunction with the UniDry™ 50 P/PM/S/SM pumps where the pumping of all conventional corrosive gases and also gases enriched with corrosive particles is involved. The two part construction of corrosion resistant steel (Material Nr.: 1.4571-H) is service-friendly and easy to retro-fit.

### 2.2. Application And Use

The silencer is fitted from underneath on the exhaust port of the pump using various small flange components (please see section 3.1.). It deadens the sonic impulses generated by the compression of gases in the pump chamber.

## 3. Installation

### 3.1. Fitting And Dismantling The Silencer

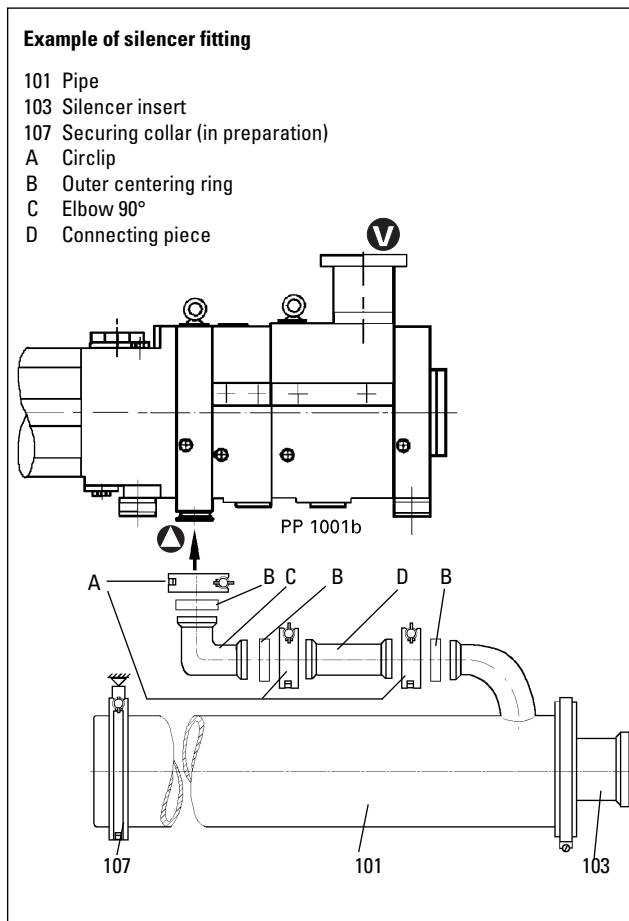


Do not carry out any unauthorized conversions or modifications to the silencer. During operations the maximum internal pressure of 1.5 bar absolute must not be exceeded.



Exhausted gases and vapours can be hazardous to health and/or environmentally harmful. If gases which should not escape into the atmosphere are being pumped, the operator is responsible for ensuring that the local regulations with regard to the handling of such gases are observed.

Before starting work on installation it is essential to switch off, ventilate and flush the pump with inert gas. To connect the silencer to the exhaust side of the pump a 90° elbow should be fitted to the input side of the silencer and, depending on the situation, a connecting piece D; 100 mm (see Section 7. "Accessories").

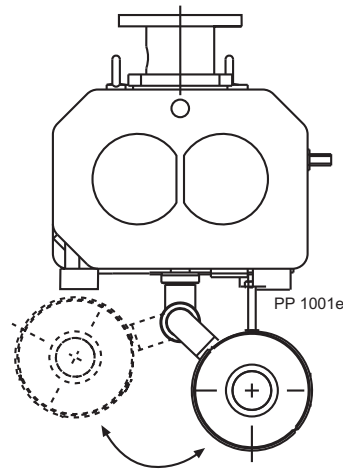


Outer centering rings should be used for all small flange connections in the vicinity of the exhaust.

#### Fitting

- ➔ Fit small flange components as shown in the diagram to the connecting flange DN 25 ISO-KF of the pump.
- ➔ Screw on 90° elbow with outer centering ring and circlip onto the connecting flange.
- ➔ Ensure that the O-ring and the sealed surfaces are clean and undamaged; if necessary, use a new O-ring and polish the sealed surfaces.
- ➔ Fit the connecting piece with circlips between the 90° elbow C and the silencer elbow; take care with the two outer centering rings.
- ➔ Depending on the fitting position, swivel the silencer into the required position and tighten all circlips.
- ➔ Fit the securing collar 107, taking care not to subject the silencer to stress.

#### Fitting variants



#### Dismantling

- ➔ Dismantle in reverse order.

## 4. Service

### 4.1. Cleaning The Silencer



The particles which are deposited in the silencer can be enriched with substances which represent a health hazard (radioactive, chemical etc.). Such deposits must be disposed of in accordance with the local regulations.



Where the pumping of dangerous gases is involved the silencer should be checked for leaks after any installation work.



During operations the surface of the silencer becomes very hot ( $T > 100\text{ °C}$ ). There is a danger of personal injury from touching parts of the exhaust even after the pump has been switched off.

#### Dismantling

- ➔ Loosen the circlip on the silencer elbow, taking care with the outer centering ring.
- ➔ Detach the silencer in an axial direction from the pump.
- ➔ Loosen and detach the clamp 104a.
- ➔ Extract the silencer insert from the pipe, taking care with O-ring 106.
- ➔ Clean all parts and replace O-ring 106 if necessary. (Cleaning agent: pure alcohol).

If the fitting position allows, the silencer can be cleaned without detaching the pipe from the exhaust flange of the pump.

#### Fitting

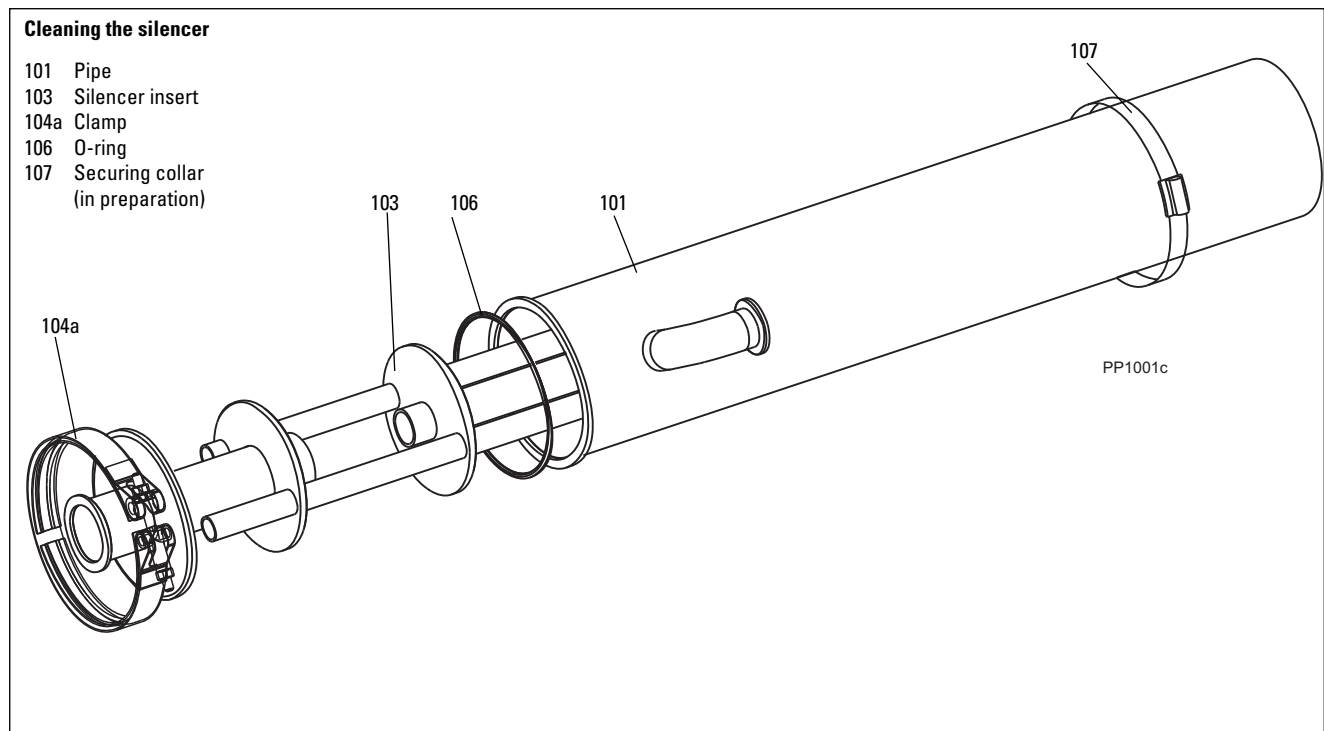
Please see section 3.1.

- ➔ Ensure that the O-ring and sealed surfaces are clean and undamaged; if necessary, use a new O-ring and polish the sealed surfaces.

To prevent the pump being ventilated when the silencer is dismantled a shut-off valve can be fitted in place of the connecting piece D (see "Accessories").



Before re-starting the pump, re-open the shut-off valve to avoid damage to the pump.



## 5. Service

### Do Make Use Of Our Service Facilities

In the event that repairs are necessary to your pumping station, a number of options are available to you to ensure any system down time is kept to a minimum:

- Have the unit repaired on the spot by our Pfeiffer Vacuum Service Engineers;
- Return the individual components to the manufacturer for repairs;
- Replace individual components with a new value exchange units.

Local Pfeiffer Vacuum representatives can provide full details.

### Before Returning:

- ➔ When returning the unit please use original factory packing.
- ➔ Dismantle all accessories.
- ➔ If the unit is free of harmful substances, please attach a clearly visible notice: "Free of contamination" (to the unit being returned, the delivery note and accompanying paperwork).

Harmful substances" are substances and preparations as defined in current legislation. Pfeiffer Vacuum will carry out the decontamination and invoice this work to you if you have not attached this note. This also applies where the operator does not have the facilities to carry out the decontamination work. Units which are contaminated microbiologically, explosively or radioactively cannot be accepted as a matter of principle.

### Fill out the service request and the declaration on contamination

- ➔ Download the forms "Service Request" and "Declaration on Contamination".<sup>1)</sup>
- ➔ Fill out the "Service Request" form and send it by fax or e-mail to your Pfeiffer Vacuum service address.
- ➔ Include the confirmation on the service request from Pfeif-

fer Vacuum with your shipment.

- ➔ Fill out the contamination declaration and enclose it in the shipment (required!).

Please get in touch with your local Pfeiffer Vacuum representatives if there are any questions regarding contamination.



Decontaminate units before returning or possible disposal. Do not return any units which are microbiologically, explosively or radioactively contaminated.

### Returning Contaminated Units

If contaminated units have to be returned for maintenance/repair, the following instructions concerning shipping must be followed without fail:

- ➔ Neutralise the unit by flushing with nitrogen or dry air.
- ➔ Seal all openings to the air.
- ➔ Seal unit in suitable protective foil.
- ➔ Ship units only in appropriate transport containers.



Repair orders are carried out according to our general conditions of sale and supply.

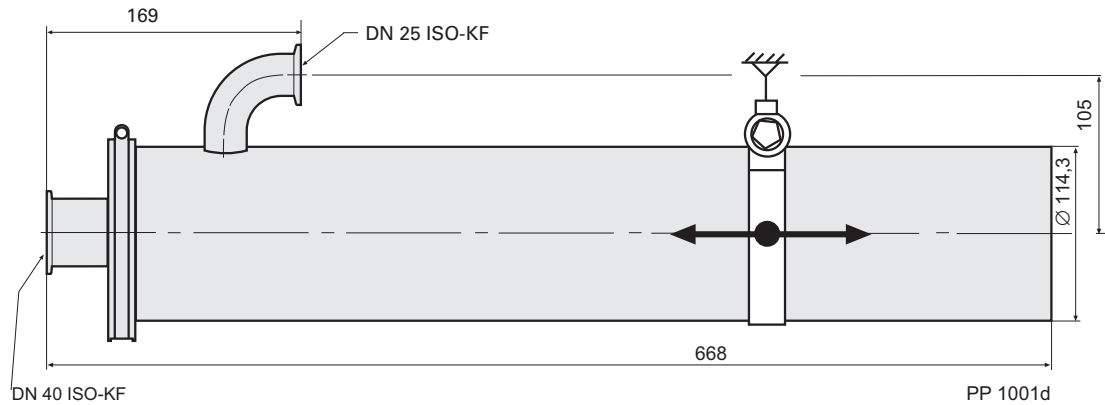
- ➔ If repairs are necessary, please send the unit together with a short damage description to your nearest Pfeiffer Vacuum Service Center.

<sup>1)</sup> Forms under [www.pfeiffer-vacuum.net](http://www.pfeiffer-vacuum.net)

## 6. Technical Data

Item	Unit	
Connection nominal width		
Input	DN 25 ISO-KF	
Output	DN 40 ISO-KF	
Throughput, maximum	m <sup>3</sup> /h	50
Backfire pressure, maximum	mbar abs.	1500
Temperature range of the exhaust gases	°C	+5...+150
Exhaust noise level, without silencer		
Exhaust noise level, with silencer	dB(A)	30
Leakrate	mbar l/s	
Operating temperature range	°C	max. + 120°C
Storage temperature	°C	-10 ... +120°C
Humidity (operations), maximum	%	90
Humidity (storage), maximum	%	97 (not condensing)
Weight kg		
Material	1.4571-H (stainless steel)	

Dimensions diagram, silencer



## 7. Accessories

Pos.	Description	Piece	Size	Number	Comments/	Order Quantity
	Insulation cladding					
A	Circlip		DN 20-25 ISO-KF	BP 217 427-T		
B	Outer centering ring		DN 20-25 ISO-KF	BP 213 596-T		
C	Elbow, 90°		DN 25 ISO-KF	BP 217 003-R		
D	Connecting piece Heating		DN 25 ISO-KF	BP 213 270-T	Heating sleeve with glass fiber insulation	

## 8. Spare Parts

### 8.1. Silencer PK 055 190-U

Pos.	Description	Piece	Size	Number	Comments	Order Quantity
104a	Clamp	1		P 0992 905		
106	O-ring	1	115 x 3	P 4071 323 PV		
107	Securing collar	1	118 x 9	P 4196 768 FY	in preparation	

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Ever since the invention of the turbopump, we've been setting standards in our industry. And this claim to leadership will continue to drive us in the future.

**You are looking for a  
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