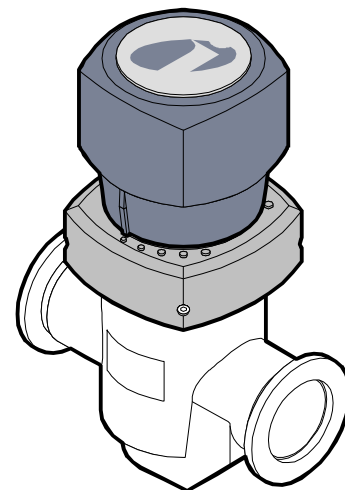


## Inline Valve

manually actuated  
bellows sealed  
with step drive

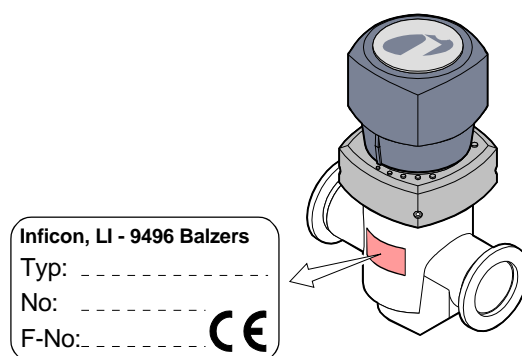
VIH016-040-X



CE

## Product Identification

In all communications with Inficon, please specify the information on the product nameplate. For convenient reference copy that information into the nameplate replica below.



## Validity

This document applies to products with the following part numbers:

250-365	(DN 16 ISO-KF)
250-375	(DN 25 ISO-KF)
250-385	(DN 40 ISO-KF)

The part number can be taken from the product nameplate.

If not indicated otherwise in the legends, the illustrations in this document correspond to the valve with the nominal diameter DN 25 ISO-KF. They apply to valves with other nominal diameters by analogy.

We reserve the right to make technical changes without prior notice.

All dimensions are indicated in mm.

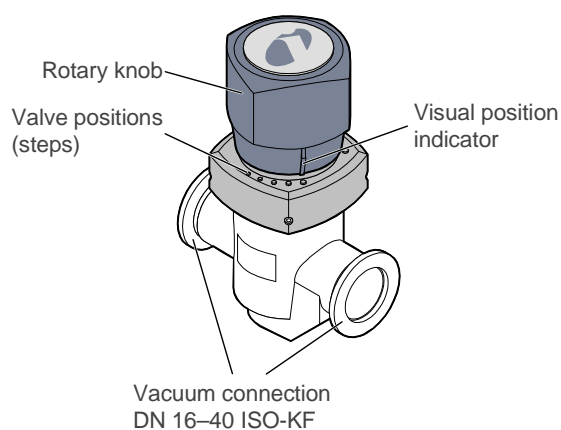
## Intended Use

The inline valves are used as shut-off, dosing, and venting devices in vacuum applications.

# Contents

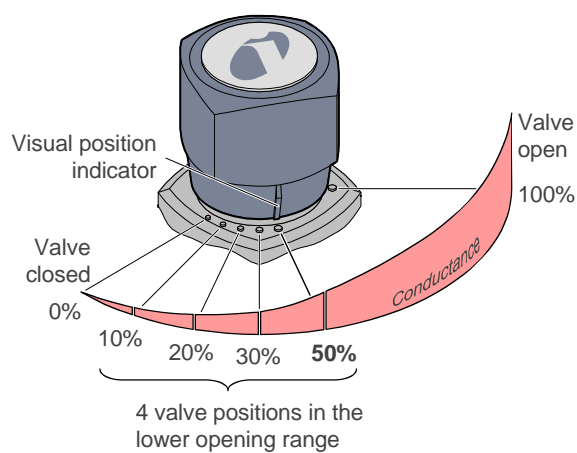
Product Identification	2
Validity	2
Intended Use	2
<b>1 Description</b>	<b>4</b>
<b>2 Safety</b>	<b>5</b>
2.1 Symbols Used	5
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# 1 Description



## Valve positions (steps)

The valve is manually opened or closed with  $\frac{3}{8}$  turns of the rotary knob. The four intermediate valve positions (steps) are used for dosing gas flows. The visual position indicator shows the current valve position.



## 2 Safety

### 2.1 Symbols Used



**DANGER**

Information on preventing any kind of physical injury.



**WARNING**

Information on preventing extensive equipment and environmental damage.




**Caution**

Information on correct handling or use. Disregard can lead to malfunctions or minor equipment damage.

→  See page ...

### 2.2 General Safety Instructions

- Adhere to the applicable regulations and take the necessary precautions for the process media used.  
Consider possible reactions between the materials (→  6 ) and the process media.
- Adhere to the applicable regulations and take the necessary precautions for all work you are going to do and consider the safety instructions in this document.
- Before beginning to work, find out whether any vacuum components are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Communicate the safety instructions to all other users.

### 2.3 Liability and Warranty

Inficon assumes no liability and the warranty becomes null and void if end-user or third parties

- disregard the information in this document
- use the product in a non-conforming manner
- make any kind of interventions (modifications, alterations etc.) on the product
- use the product with accessories and options not listed in the corresponding product documentation.

The end-user assumes the responsibility in conjunction with the process media used.

## Technical Data

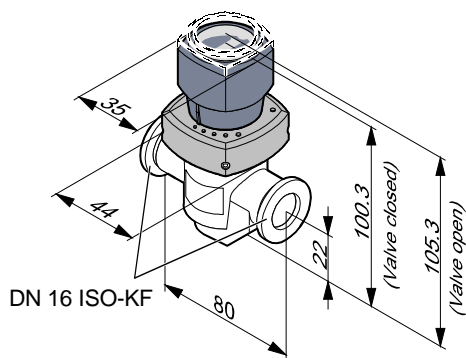
Connection flange	DN 16 ISO-KF	DN 25 ISO-KF	DN 40 ISO-KF
Actuation	manual with 6 valve positions (steps)		
Stroke of the valve plate	5.5 mm	10 mm	12 mm
Conductance <sup>1)</sup>	2.5 l/s	8 l/s	20 l/s
Valve positions			
1	Valve closed		
2	10% open		
3	20% open		
4	30% open		
5	50% open		
6	100% open		
Service life <sup>2)</sup>	10,000 cycles		
Tightness	$1 \times 10^{-9}$ mbar l/s		
Pressure range	$1 \times 10^{-8}$ mbar ... 6 bar (absolute)		
Pressure difference $\Delta p$ in closing direction	2 bar		
Pressure difference $\Delta p$ in opening direction	2 bar		1.5 bar
Opens to a pressure difference $\Delta p$	2 bar	3 bar	4 bar
Temperatures			
ambiance	0 °C ... 50 °C		
bakeout			
housing	150 °C		
actuator	50 °C		
Installation angle	any; ensure swift access		
Flow direction	any; preferably in closing direction		
Materials			
housing	1.4301		
bellows / valve plate	1.4541 / 1.4301		
pressure spring			
DN 16+25 ISO-KF	1.4301		
DN 40 ISO-KF	1.1200		
seals	FPM		
actuator	PBT with glass fiber		
rotary knob	PBT with glass fiber		
protective lids	PE		
packing material	carton box, PE, PU		
Weight	0.48 kg	0.7 kg	1.4 kg

<sup>1)</sup> For air with molecular flow

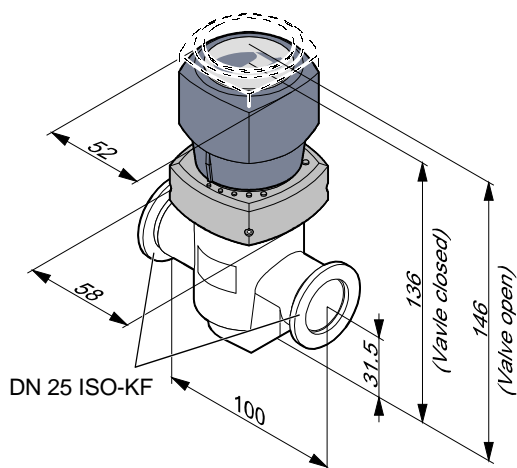
<sup>2)</sup> Cycles without expendable parts (seals) and under clean operating conditions

Dimensions

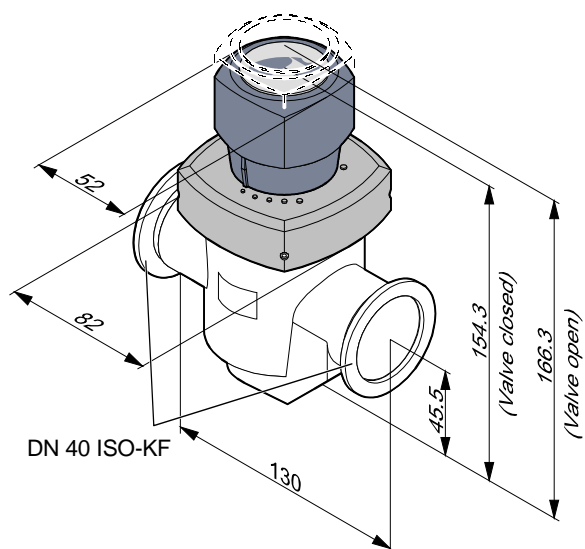
DN 16 ISO-KF



DN 25 ISO-KF



DN 40 ISO-KF



### 3 Installation

Personnel qualifications



**Skilled personnel**

The vacuum connection may only be established by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

Overpressure



**DANGER**

Caution: overpressure in the vacuum system >1 bar  
Injury caused by released parts and harm caused by escaping process gases can result if clamps are opened while the vacuum system is pressurized.

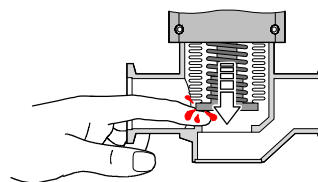
Do not open any clamps while the vacuum system is pressurized. Use the type clamps which are suited to overpressure.

Movement of the valve plate



**DANGER**

Caution: movement of the valve plate  
When the valve is in operation, the valve plate can catch parts of the body and thus cause injuries.



Take appropriate measures (e.g. protective grid) to prevent access to the inside of the installed valve.

Dirt sensitive area

**Caution**



Caution: dirt sensitive area  
Touching the product or parts thereof with one's bare hands increases the desorption rate.

Always wear clean, lint-free gloves and use clean tools when working in this area.

Handling of vacuum components

**Caution**



Caution: vacuum component  
Dirt and damages impair the function of the vacuum component.  
When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

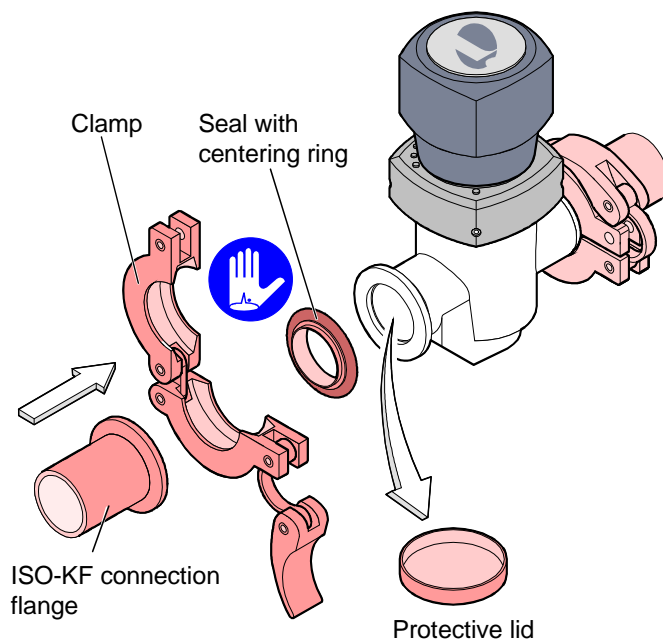
Protective lids



Keep the protective lids.

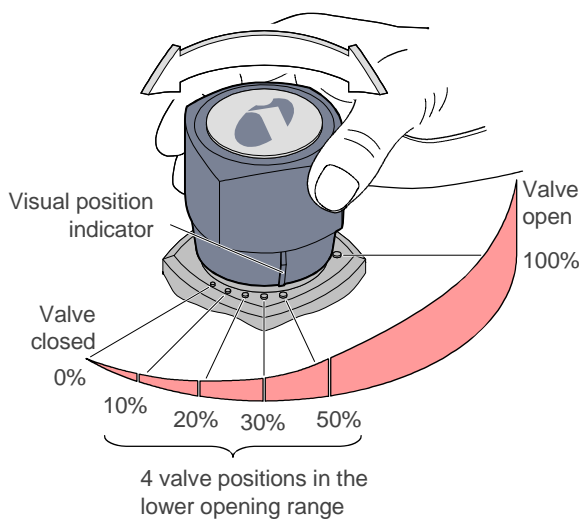
Remove the protective lids and install the valve to the vacuum system by means of the small flange fittings.

Any installation angle and flow direction may be chosen



## 4 Operation

The product is ready for operation as soon as it has been installed.



Pressure range

$1 \times 10^{-8}$  mbar ... 6 bar (absolute)

Pressure difference  $\Delta p$  in closing direction

**Caution**

Caution: pressure difference  $\Delta p$

Closing direction

AT  $\Delta p > 2$  bar the seal of the valve plate can get damaged.  
Avoid pressure differences  $\Delta p > 2$  bar.

Pressure difference  $\Delta p$  in opening direction

**Caution**

Caution: pressure difference  $\Delta p$

Opening direction

At	$\Delta p > 2$ bar	DN 16+25 ISO-KF
	$\Delta p > 1.5$ bar	DN 40 ISO-KF

the valve is opened.

Avoid pressure differences

	$\Delta p > 2$ bar	DN 16+25 ISO-KF
	$\Delta p > 1.5$ bar	DN 40 ISO-KF

Opening against a pressure difference  $\Delta p$

**Caution**

Caution: pressure difference  $\Delta p$

If actuated at	$\Delta p > 2$ bar	DN 16 ISO-KF
	$\Delta p > 3$ bar	DN 25 ISO-KF
	$\Delta p > 4$ bar	DN 40 ISO-KF

the valve can get damaged.

Avoid pressure differences	$\Delta p > 2$ bar	DN 16 ISO-KF
	$\Delta p > 3$ bar	DN 25 ISO-KF
	$\Delta p > 4$ bar	DN 40 ISO-KF.

## 5 Deinstallation

Personnel qualifications



### Skilled personnel

The vacuum connection may only be disassembled by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

Possible contamination



### DANGER

**Caution: contaminated parts**  
Contaminated parts can be detrimental to health and environment. Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Handling of vacuum components



### Caution

**Caution: vacuum component**  
Dirt and damages impair the function of the vacuum component. When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

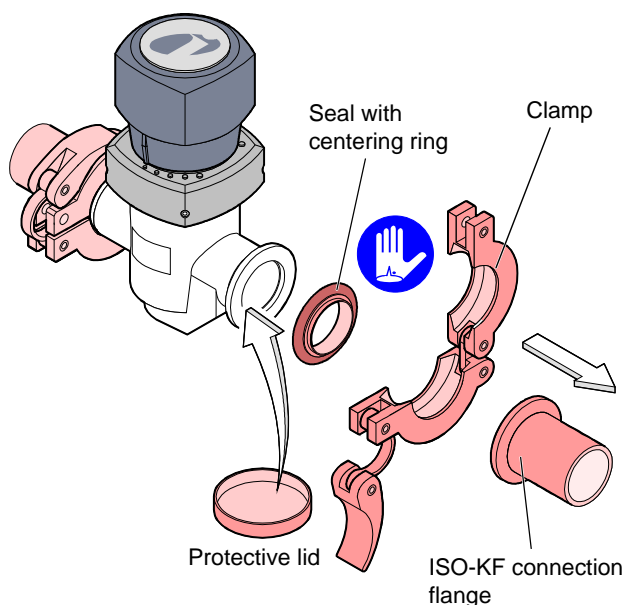
Dirt sensitive area



### Caution

**Caution: dirt sensitive area**  
Touching the product or parts thereof with one's bare hands increases the desorption rate. Always wear clean, lint-free gloves and use clean tools when working in this area.

Vent the vacuum system and disassemble the small flange connection. Place the protective lids.



## 6 Maintenance / Repair

Personnel qualifications

**Skilled personnel**

All work described in this document may only be carried out by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

Possible contamination

**DANGER**

Caution: contaminated parts  
Contaminated parts can be detrimental to health and environment. Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Handling of vacuum components

**Caution**

Caution: vacuum component  
Dirt and damages impair the function of the vacuum component. When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

Dirt sensitive area

**Caution**

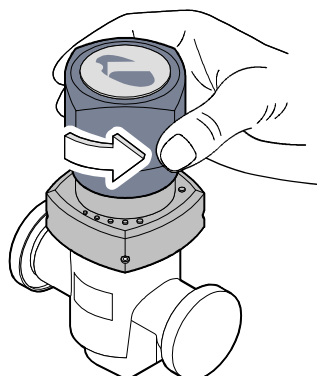
Caution: dirt sensitive area  
Touching the product or parts thereof with one's bare hands increases the desorption rate. Always wear clean, lint-free gloves and use clean tools when working in this area.

Precondition

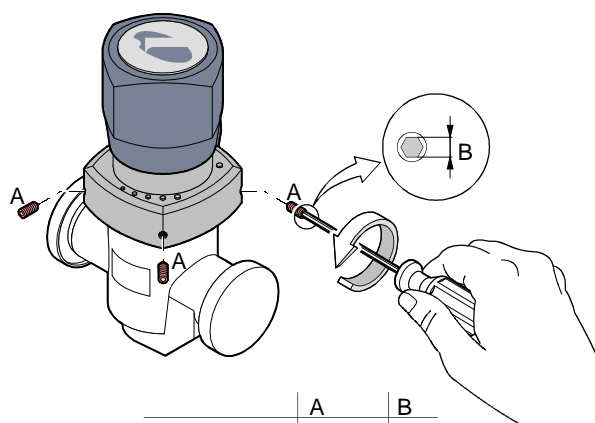
The valve has been removed from the vacuum system (→ 12).

Procedure

- 1 Open the valve.

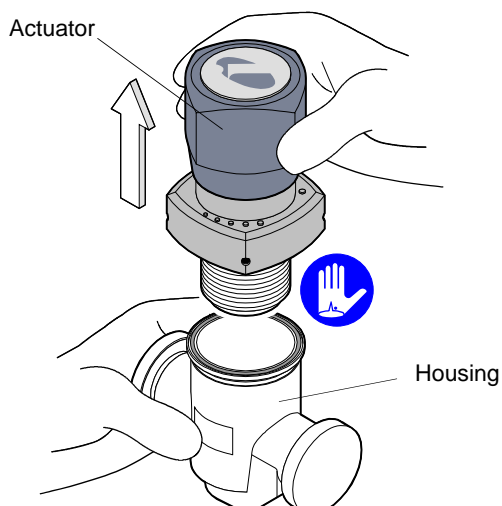


- 2 Remove the grub screws.

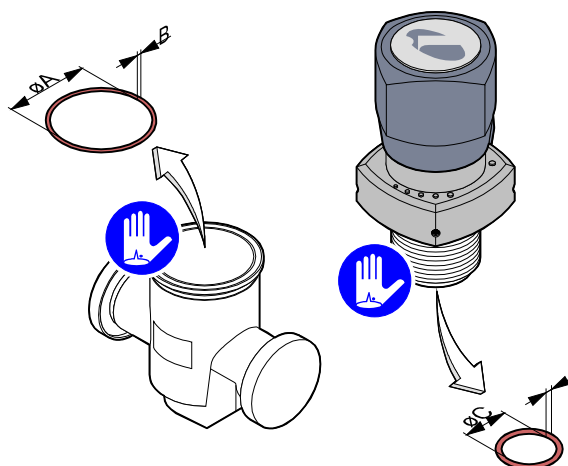


	A	B
DN 16 ISO-KF	M4x8	2.5
DN 25 ISO-KF	M4x8	2.5
DN 40 ISO-KF	M5x10	3.0

- 3 Remove the actuator from the housing.



**4** Remove the O-rings.



O-ring, FPM	øA x B	øC x D
DN 16 ISO-KF	ø31.47x1.78	ø15.88x2.62
DN 25 ISO-KF	ø44.17x1.78	ø25.07x2.62
DN 40 ISO-KF	ø66.34x2.62	ø39.69x3.53

**5** Remove the protective lids and clean the parts.

**DANGER**

Caution: cleaning agents  
 Cleaning agents can be detrimental to health and environment. Adhere to the relevant regulations and take the necessary precautions when handling and disposing of cleaning agents. Consider possible reactions with the product materials (→ 6).

- Carefully clean the parts with a grease solving, non-scouring cleaner.
- After cleaning the parts should preferably be rinsed with alcohol and subsequently heated to ≈50° C in an oven or with an industrial blower.
- Carefully clean the sealing surfaces with a lint-free cloth soaked with alcohol. Allow them to dry.

**6** Reassemble the product by performing the above steps in reverse order.

**Caution**

Be careful to insert the O-rings level into the grooves without twisting them.  
 After reassembly, a few switching cycles should be performed in order for the O-rings to perfectly adapt to the sealing surfaces

## 7 Spare Parts

When ordering spare parts, always indicate:

- all information on the product nameplate
- description and ordering number according to the spare parts list

### Installation of spare parts

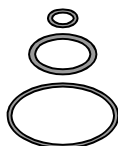


#### Caution



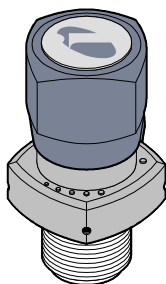
When installing spare parts, adhere to the safety information of the Maintenance section (→ 13).

### Seals kit



Connection flange	Quantity	Description	Dimensions	Ordering number
DN 16 ISO-KF	5	O-rings	Ø 15.88 x 2.62	215-025
	5	O-rings	Ø 6.07 x 1.78	
	5	O-rings	Ø 31.47 x 1.78	
DN 25 ISO-KF	5	O-rings	Ø 9.25 x 1.78	215-075
	5	O-rings	Ø 25.07 x 2.62	
	5	O-rings	Ø 44.17 x 1.78	
DN 40 ISO-KF	5	O-rings	Ø 9.92 x 2.62	215-125
	5	O-rings	Ø 39.69 x 3.53	
	5	O-rings	Ø 66.34 x 2.62	

### Actuator



Connection flange	Quantity	Description	Ordering number
DN 16 ISO-KF	1	Actuator	215-042
DN 25 ISO-KF	1	Actuator	215-092
DN 40 ISO-KF	1	Actuator	215-142

## 8 Returning the Product

Forwarding contaminated products



### WARNING

Caution: forwarding contaminated products

Contaminated products (e.g. radioactive, toxic, caustic or micro-biological hazard) can be detrimental to health and environment.

Products returned to INFICON should preferably be free of harmful substances. Adhere to the forwarding regulations of all involved countries and forwarding companies and enclose a duly completed declaration of contamination.

Products that are not clearly declared as "free of harmful substances" are decontaminated at the expense of the customer.

Products not accompanied by a duly completed declaration of contamination are returned to the sender at his own expense.

## 9 Disposal

Contaminated parts



### DANGER

Caution: contaminated parts

Contaminated parts can be detrimental to health and environment.

Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Separating the components

After disassembling the product, separate its components according to the following criteria:

Contaminated components

Contaminated components (radioactive, toxic, caustic, or biological hazard etc.) must be decontaminated in accordance with the relevant national regulations, separated according to their materials, and disposed of.

Other components

Such components must be separated according to their materials and recycled.

# Declaration of Contamination

The service, repair, and/or disposal of vacuum equipment and components will only be carried out if a correctly completed declaration has been submitted. Non-completion will result in delay.  
 This declaration may only be completed (in block letters) and signed by authorized and qualified staff.

**1 Description of product**

Type \_\_\_\_\_

Article Number \_\_\_\_\_

Serial Number \_\_\_\_\_

**2 Reason for return**

\_\_\_\_\_

\_\_\_\_\_

**3 Operating fluid(s) used (Must be drained before shipping.)**

\_\_\_\_\_

\_\_\_\_\_

**4 Process related contamination of product:**

toxic	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	<p>2) Products thus contaminated will not be accepted without written evidence of decontamination!</p>
caustic	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	
biological hazard	no <input type="checkbox"/>	yes <input type="checkbox"/> 2)	
explosive	no <input type="checkbox"/>	yes <input type="checkbox"/> 2)	
radioactive	no <input type="checkbox"/>	yes <input type="checkbox"/> 2)	
other harmful substances	no <input type="checkbox"/> 1)	yes <input type="checkbox"/>	

The product is free of any substances which are damaging to health  yes

1) or not containing any amount of hazardous residues that exceed the permissible exposure limits

**5 Harmful substances, gases and/or by-products**

Please list all substances, gases, and by-products which the product may have come into contact with:

Trade/product name	Chemical name (or symbol)	Precautions associated with substance	Action if human contact

**6 Legally binding declaration:**

I/we hereby declare that the information on this form is complete and accurate and that I/we will assume any further costs that may arise. The contaminated product will be dispatched in accordance with the applicable regulations.

Organization/company \_\_\_\_\_

Address \_\_\_\_\_ Post code, place \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

Name \_\_\_\_\_

Date and legally binding signature \_\_\_\_\_ Company stamp \_\_\_\_\_

