



Translation of original instructions with installation instructions  
Double filter UG 54

Mat. No. of original instructions  
70580780



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## 2 General safety instructions

### 2.1 Safety instructions for installation and operating personnel

This Instruction Manual contains important safety instructions which must be heeded at all times during installation, normal operation and maintenance. Non-observance can result in the following risks to persons and the environment as well as in damage to the machine or plant:

- ⇒ Failure of critical functions of the machine or plant or of its component parts.
- ⇒ Danger to persons from electrical or mechanical effects as well as from chemical reactions.
- ⇒ Danger to the environment owing to the leakage of hazardous substances.

#### Before installation/start-up:

- Read the Instruction Manual carefully.
- Make sure that installation and operating personnel are adequately trained.
- Make sure the contents of the Instruction Manual are fully understood by the responsible persons.
- Define areas of responsibility and competence.
- Prepare a maintenance schedule.

#### During operation of the plant:

- Keep the Instruction Manual handy at the place of use.
- Heed the safety instructions. Always operate the machine/plant in accordance with its ratings.

#### If in doubt:




- Consult the manufacturer.

### 2.2 Warning structure








Where possible, warnings are structured according to the following system:

Signal word	
Possibly with symbol	<b>Nature and source of the danger</b> <ul style="list-style-type: none"><li>⇒ Potential consequences of non-observance</li><li>• Action to avert the danger.</li></ul>

### 2.3 Warning symbols used

 <b>DANGER!</b>
<b>Immediate danger!</b> ⇒ Non-observance will result in serious or fatal injury.
 <b>WARNING!</b>
<b>Potentially dangerous situation!</b> ⇒ Non-observance can result in serious or fatal injury.
 <b>CAUTION!</b>
<b>Potentially dangerous situation!</b> ⇒ Non-observance can result in minor or moderate injuries.
<b>CAUTION! (without a symbol)</b>
<b>Potentially dangerous situation!</b> ⇒ Non-observance can result in property damage.

## 2.4 Other symbols used

	Information about environmental protection
	Wear protective clothing!
	Wear goggles!
	Wear a respirator!
	Hand symbol: Indicates general information and recommendations
	Bullet: Indicates the order in which actions are to be carried out
	Arrow: Indicates responses to actions

## 3 Glossary

### Absolute filter rating:

The diameter of the largest spherical particle that will pass through the filter under defined laboratory conditions.

### Initial differential pressure:

Differential pressure at the start of the filtration process (when the filter insert is "clean").

### Differential pressure (delta p):

Pressure difference between the dirty side and the clean side.

### Filter cake:

Layer that is built up by the solids retained on the surface of the filter insert.

### Filtration operating mode:

The double filter is in normal operation with fluid flowing through one canister.

### Filtered fluid:

Substance that is filtered.

### Filter insert:

Cylindrical body consisting of one or more profiled bodies with the corresponding filtration fineness or fitted with wire cloth. The suspension to be filtered flows through this (these) profiled body ( bodies ). Solids are retained on the inner or outer surface of the filter insert.

### Nominal filter rating:

A nominated minimum percentage of the particles that are smaller than the specified rating are retained by the filter.

### Suspension (raw suspension):

System of substances that must be filtered, generally consisting of solids in a liquid.

## 4 General information



### 4.1 Manufacturer

Filtration Group GmbH  
Schleifbachweg 45  
D-74613 Öhringen  
Phone +49 7941 6466-0  
Fax +49 7941 6466-429  
fm.de.sales@filtrationgroup.com  
www.filtrationgroup.com

### 4.2 Information about the Instruction Manual

FG Mat.-Nr.: ..... 70580780  
Date: ..... 13.04.18  
Version: ..... 03

## 5 Intended application

 <b>DANGER!</b>
<b>PROHIBITED:</b> <ul style="list-style-type: none"><li>• Use for purposes other than that described below without prior consultation with the manufacturer.</li><li>• Use in potentially explosive atmospheres.</li><li>• Use with smouldering, burning or adhesive particles.</li><li>• Use with highly explosive dusts (e.g. aluminium dust, explosives, etc.).</li></ul>
 <b>CAUTION!</b>
This double filter is only allowed to be used in accordance with the operating conditions specified in the contract documentation and in the Instruction Manual. All forms of use which deviate from or exceed the limits of use described above are considered to be contrary to the intended purpose. The manufacturer shall not be liable for any damage resulting from such use.

## 6 Functional description

### 6.1 Main components

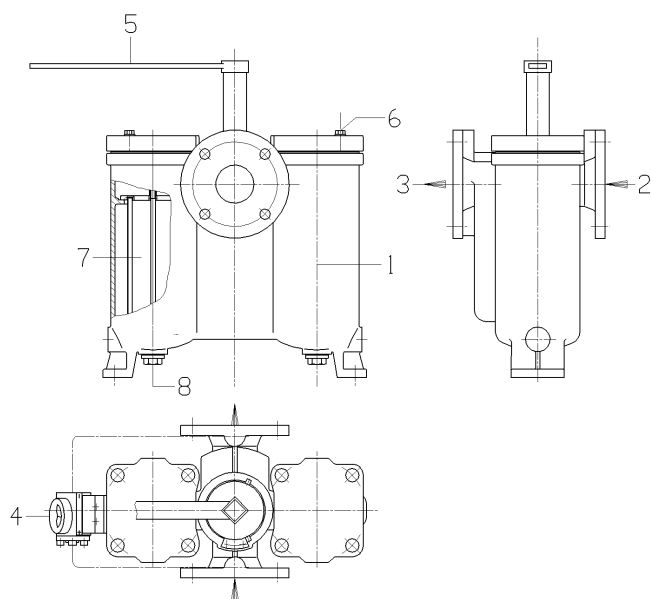


Fig. 1: Diagram of the main components

1	Filter canister
2	Filter inlet
3	Filter outlet
4	Differential pressure indicator/switch (optional)
5	Change over lever
6	Vent screw
7	Filter insert
8	Drain

### 6.2 Operating principle

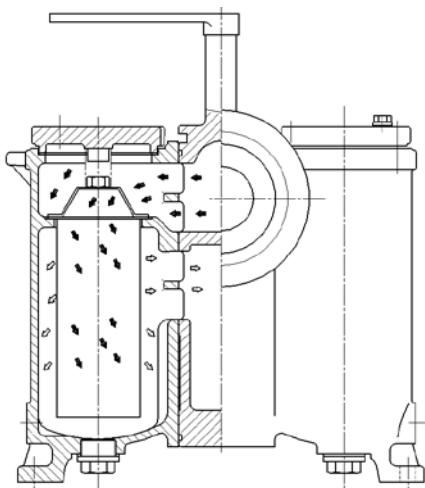


Fig. 2: Filtration principle of the double filter

The suspension flows through the filter inlet into the double filter.

#### 2

The suspension flows through the interior of the filter insert. The particles contained in the suspension settle on the inside of the insert. In the case of double inserts, also on the outside of the inner cylinder of the insert.

#### 3

The filtered fluid enters the clean side and exits the double filter via the filter outlet.

#### 4

On reaching a differential pressure of 0,7 bar (optional differential pressure indicator), the filter must be switched over and the insert cleaned manually. The filtration process is not interrupted when doing so. Refer to sections 11.1+14.4

## 7 Technical data

### 7.1 General data

Filter type ..... Double filter  
 Series ..... UG 54  
 Nominal diameter ..... For dimensions, refer to section 15  
 Weight ..... For dimensions, refer to section 15  
 Filter housing material ..... GGG40 (0.7040)  
 Change over plug material ..... 0.7040/ 1.4011 (optional)  
 Coating (outside) ..... RAL 5007  
 Seals ..... FPM / NBR / C4400

### 7.2 Mounting parts

Differential pressure indicator ..... optional

### 7.3 Filter insert

Number per canister ..... 1  
 Material Filter screen ..... 1.4401  
 Material body ..... Steel / 1.4571  
 Filter rating ..... Acc. to customer specification

### 7.4 Operating data

Capacity ..... unknow  
 Medium ..... unknow  
 Canister capacity ..... 2x0,8 Liter  
 Process temperature ..... Max. 80°C  
 Test overpressure ..... 15 bar  
 Process overpressure ..... Max. 10 bar  
 Pressure loss ..... Approx. 0.1 bar (clean)  
 ..... Max. 0.7 bar (dirty)  
 Acceptance Acc. to Pressure Equipment Directive, Art. 3.3

## 8 Transport and storage

### 8.1 Transport

- Always transport upright
- Avoid vibrations

### 8.2 Storage

- Always store upright in the original packaging
- Always store in a dry, frost-free room



Seaworthy packaging is specified in the contract documentation as an option.

## 9 Installation instructions

### **⚠ WARNING!**

**If the system is installed by unauthorised persons**

- ⇒ Risk of injury
- All warranty claims are rendered invalid
- The plant must be installed by a suitably trained person!

- Provide stress relief for all pipe connections.
- Make sure the filter does not run dry via the pipes when the plant is not operating.
- Pay attention to the direction of flow.

## 10 Start-up

### **⚠ DANGER!**

This double filter is not allowed to be put into operation until it has been established that the machine / plant in which it is to be installed complies with the classifications of the acceptance authority.

### **⚠ DANGER!**

**Danger due to high pressure in the double filter!**

- ⇒ Risk of injury to persons or damage to property
- Do not allow the concentrate to spatter into the atmosphere!

Make sure that:

- ⇒ All foreign particles are removed from the double filter.
- ⇒ All pipe connections are tightened securely.
- ⇒ All screws are tightened.

### 10.1 Functional test

#### Checking the functionality of the change-over unit

- Make sure the pressure compensation line (1) is open before initiating the change-over procedure. (DN80 only)
- The filter is switched over to the other filter canister by turning the change-over lever (2) by 180°.
- In its end position, the change-over lever is positioned above the canister which is operation.
- Close the pressure compensation line. (DN 80 only)

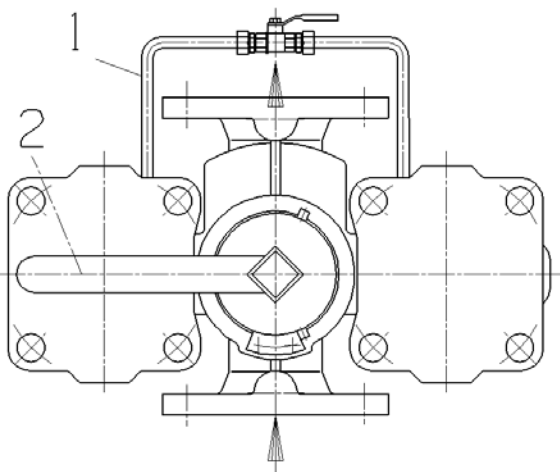


Fig. 3: Checking the functionality of the change-over unit

## 10.2 Start-up

### **CAUTION!**

**High viscosity**

- ⇒ Damage to property
- If high-viscosity media are used, the filter should not be start with full power of the pump until the filter reaches its normal service temperature

- Slowly open the inlet.
- Vent the double filter with the vent screw (1).

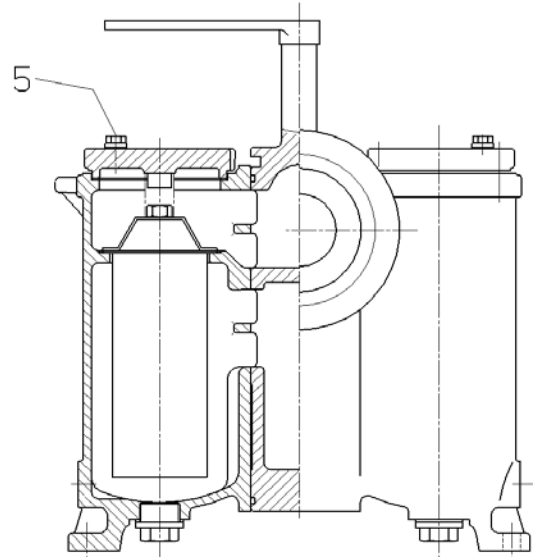


Fig. 4: Venting the filter

#### Initial differential pressure

- The initial differential pressure varies according to the application.
- General guide:  
Installation on discharge side:  $\Delta p \leq 0.1$  bar

## 11 Normal operation

### **⚠ DANGER!**

**Danger due to high pressure in the double filter!**

- ⇒ Risk of injury to persons or damage to property
- Do not allow concentrate to spatter into the atmosphere!



- Always dispose of the flush concentrate in a manner which does not pollute the environment or process it professionally!
- Consult the responsible authorities before deciding upon the most suitable disposal method.

- The following must be monitored daily during normal operation:
  - ⇒ Differential pressure
  - ⇒ Functionality of the change-over unit

## 11.1 Change-over procedure

- Change over to the clean filter canister at a differential pressure 0.7 bar.
- Refer to section 10.1
- Upon completion of the change-over procedure, vent the canister which is operation.

## 12 Shutting down the double filter

### 12.1 Temporary shut-down

- Switch off pumps.
- Filter must not run dry via the pipelines.

### 12.2 Prolonged shut-down (>48 h)

- Make sure the inlet and outlet are closed.
- Remove the filter insert (refer to section 14.3).
- Clean the filter insert (refer to section 14.4).
- Reinstall the filter insert.
- Change-over lever in central position.
- Fill the double filter completely with liquid.

### 12.3 Emergency shut-down

- No special steps required.

## 13 Troubleshooting

Fault	Possible cause	Remedy
Change-over procedure not possible	Pressure compensation line not open	Open pressure compensation line
Initial differential pressure no longer attained	Filter insert dirty Solids content too high	Clean filter insert manually Suitable pre-filtration
Increased concentration of dirt on the clean side	Filter insert defective	Check filter insert; replace if necessary
Leakage at the plug	Defective O-rings on plug	Replace O-rings

## 14 Maintenance

### WARNING!

**If the system is maintained by unauthorised persons**

⇒ Risk of injury

- All warranty claims are rendered invalid
- The system must be maintained by a suitably trained person!

**Before all maintenance work:**

- Shut down the double filter (refer to section 12).
- Take steps to prevent contaminated medium from entering the clean side; discharge the filter via the discharge screw if necessary.
- Take steps to prevent the double filter from being operated again by unauthorised persons.




- Wear protective clothing and equipment appropriate to the hazard potential of the medium (e.g. goggles, respirator, protective clothing, etc.).
- Carry out the maintenance work.
- Start up the double filter again (refer to section 10).

### 14.1 Inspection and maintenance schedule

- Refer also to the contract documentation.

Interval	Component	Activity
Daily	Change over unit	Check functionality
Weekly	Double filter	Check for leakage and if necessary replace the seals
Monthly	Filter insert	Check for damage and if necessary replace

	The necessary inspection and maintenance work is dependent on the particular application. Please consult the manufacturer if necessary.
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## 14.2 Preliminary maintenance steps

### **⚠ DANGER!**

#### **The double filter is pressurised!**

- ⇒ Risk of injury to persons or damage to property
- Make sure the pipe is depressurised prior to opening the double filter.



- Always dispose of the flush concentrate in a manner which does not pollute the environment!
- Consult the responsible authorities before deciding upon the most suitable disposal method.

1

- Pump off.

2

- Make sure the pipe is depressurised prior to opening the double filter.
- Close the filter inlet and outlet.

3

- Open the drain plug.
  - Open the vent screw.
- ⇒ The double filter is discharged.

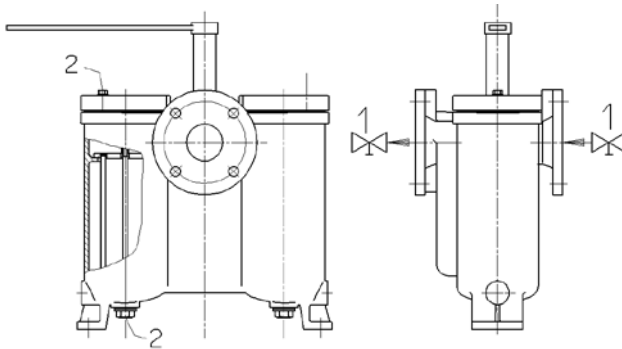


Fig. 5: Preliminary maintenance steps

## 14.3 Removing the filter insert

### **⚠ DANGER!**

#### **The double filter is pressurised!**

- ⇒ Risk of injury to persons or damage to property
- Make sure the pipe is depressurised prior to opening the double filter.

- Carry out the preliminary maintenance steps (refer to section 14.2).

1

- Loosen and remove the hexagon nuts on the filter cover.

2

- Remove the filter cover.
- Lift the filter insert vertically out of the filter housing without tilting it.

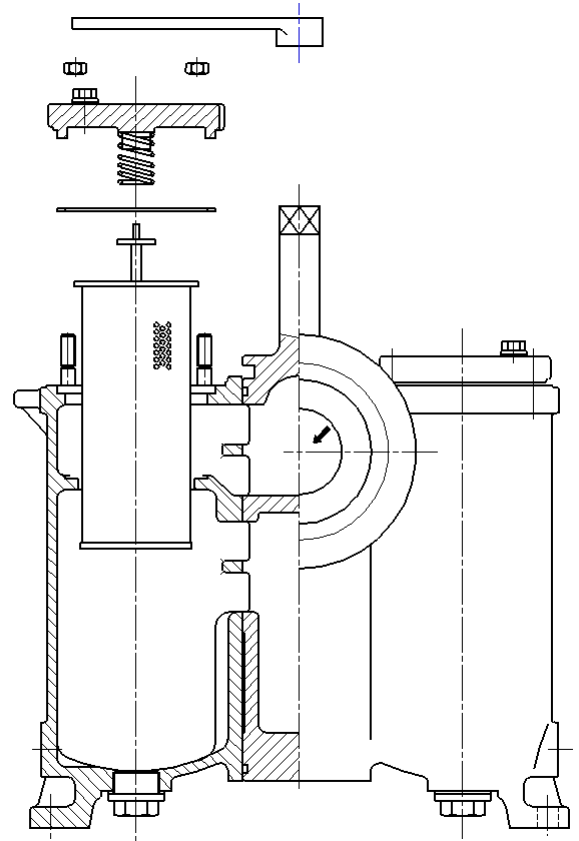


Fig. 6: Removing the filter cover and filter insert

3

- Mount in reverse order

## 14.4 Cleaning double filter and filter insert

- Remove the filter insert. ( Refer to section 14.3)
- Clean the filter insert ( refer to N2552 )

### **⚠ WARNING!**

#### **Danger of aerosol formation!**

- All work must be carried out in a room with a suitable extraction system!

### 14.4.1 Cleaning the filter housing



- Wear protective clothing and equipment appropriate to the hazard potential of the medium (e.g. goggles, respirator, protective clothing, etc.).
- Remove any coarse impurities by mechanical means.
- Wash out the filter housing in a suitable cleaning solution.

## 14.5 Replacing the cover seal

- Remove the filter cover (refer to section 14.3).
- ⇒ The cover seals can now be replaced



## 14.6 Replacing the O-rings on the plug

### **WARNING!**

**If the system is maintained by unauthorised persons:**

- ⇒ Risk of injury
- ⇒ All warranty claims are rendered invalid
- The system must be maintained by a suitably trained person!

- Preliminary maintenance steps  
(refer to section 14.2)
  1. Remove the stop plate.
  2. Pull the plug upwards just a bit until the O-ring is visible.
  3. Remove the O-ring.
  4. Press the plug ( without the O-ring downwards until the lower O-ring is visible.
  5. Remove the lower O-ring and insert the new, greased O-ring.
  6. Press/pull the plug upwards until the O-ring groove is visible.
  7. Insert the new, greased O-ring.
  8. Press the plug back into the operating position.
  9. Fix the stop plate.

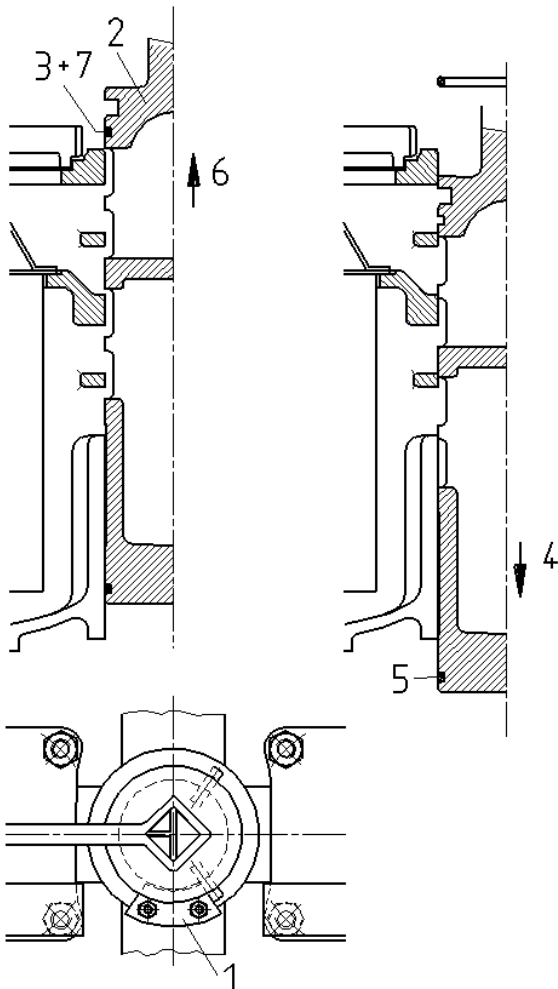


Fig. 7: Replacing the O-rings on the plug



## 15.1 Dimension drawings of the UG 54

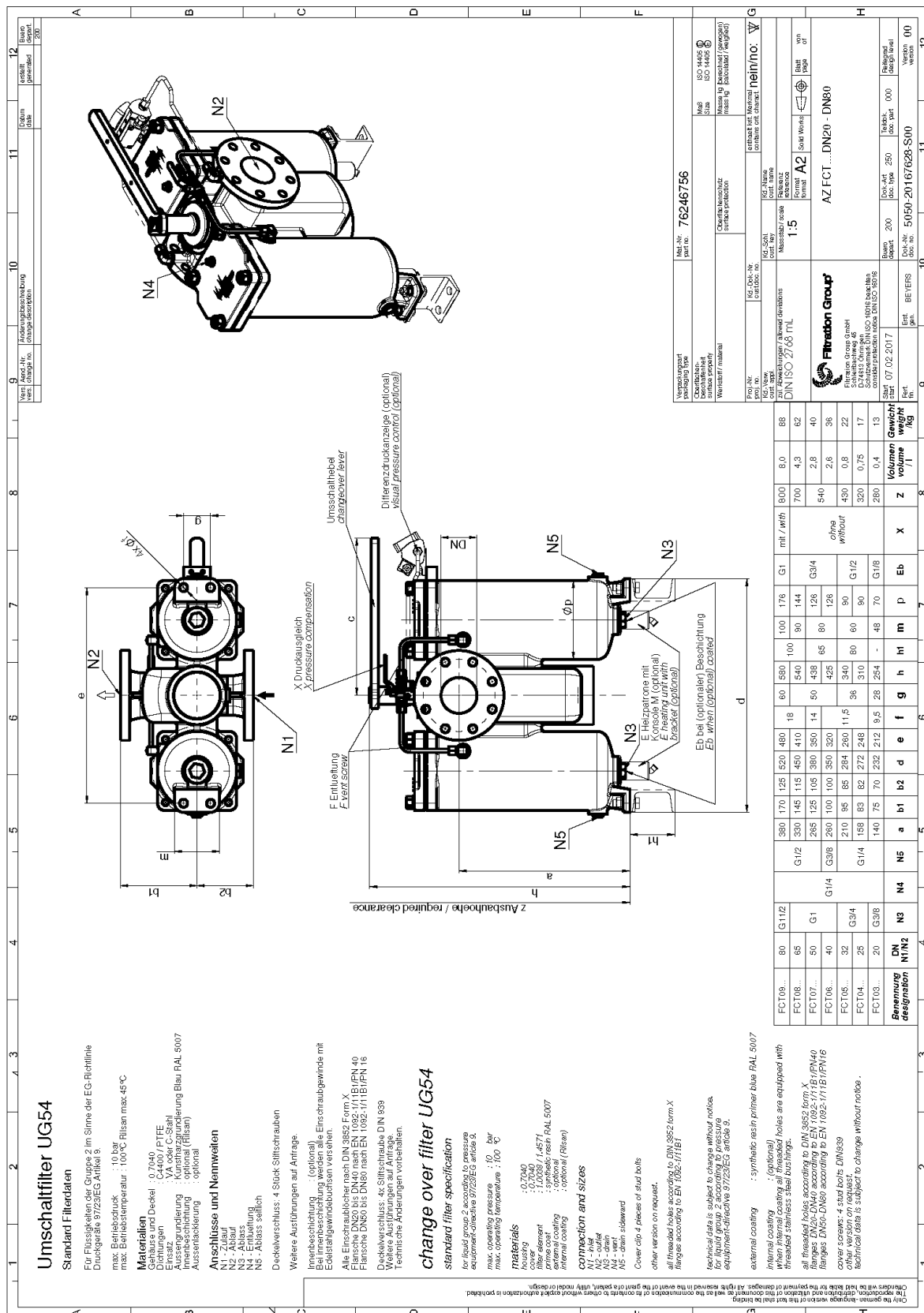


Fig. 8: Dimension drawing of the UG54

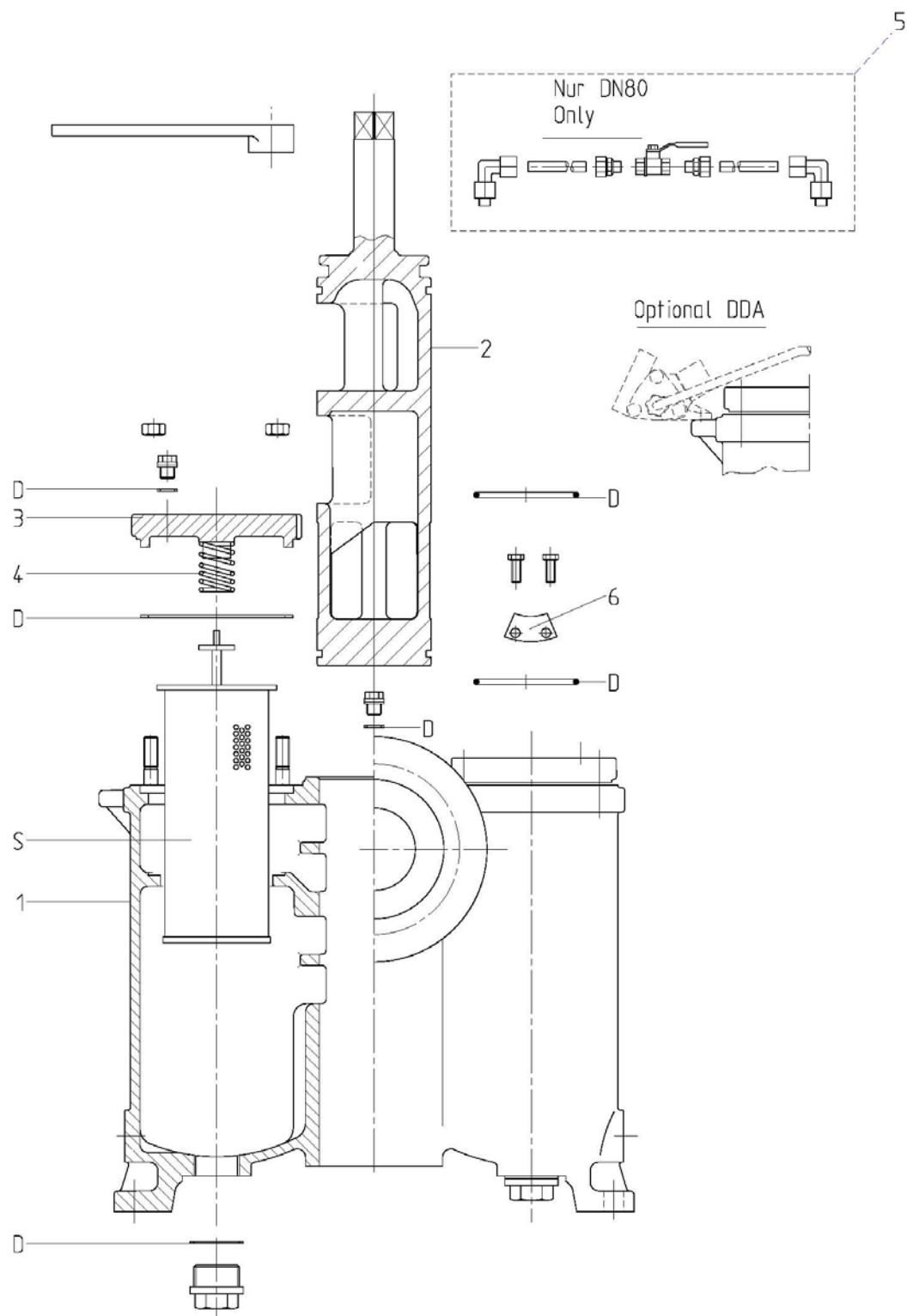


Fig. 9: Part drawing UG 54

## 17 Part list UG54 0.7040

Pos.	Part name	Qty.	Order No.	Order No.	Order No.	Order No.
			FCT033210A022200	FCT043210A032200	FCT053210A042200	FCT063210A052200
1	Housing	1	76227350	76227292	76227295	76227302
2	Plug	1	76228364	76221253	76228370	76228373
3	Cover	2	76236891	76236892	76236892	76236893
4	Spring	2	76233217	76233217	76233217	76233218
5	Press. compensation line	1	Without	Without	Without	Without
6	Stop plate	1	76236565	76236567	76236567	76245808
D	Sealing set	1	72372805	72340374	72340374	72351310
S	Insert	2	See data sheet			
DDA	Diff. press. indicator	1	Option			

Pos.	Part name	Qty.	Order No.	Order No.	Order No.	
			FCT073210A052200	FCT083210A072200	FCT093210A082200	
1	Housing	1	76227310	76227316	76227364	
2	Plug	1	76228375	76228379	76228381	
3	Cover	2	76236893	76236896	76236898	
4	Spring	2	76233218	76233218	76233355	
5	Press. compensation line	1	Without	Without	76230232	
6	Stop plate	1	76236445	76245565	76245565	
D	Sealing set	1	72378684	72342893	72342896	
S	Insert	2	See data sheet			
DDA	Diff. press. indicator	1	Option			

## 18 Part list UG54 0.7040/Rilsan

Pos.	Part name	Qty.	Order No.	Order No.	Order No.	Order No.
			FCT03321RA022E00	FCT04321RA032E00	FCT05321RA042E00	FCT06321RA052E00
1	Housing	1	70586241	70585772	70585331	70586181
2	Plug	1	76238607	76238612	76238625	76239001
3	Cover	2	70586235	70585325	70585325	76245805
4	Spring	2	76233217	76233217	76233217	72437342
5	Press. compensation line	1	Without	Without	Without	Without
6	Stop plate	1	76246295	76236567	76236567	76245808
D	Sealing set	1	72351318	72361425	72361425	72351308
S	Insert	2	See data sheet			
DDA	Diff. press. indicator	1	Option			

Pos.	Part name	Qty.	Order No.	Order No.	Order No.	
			FCT07321RA052E00	FCT08321RA072E00	FCT09321RA082E00	
1	Housing	1	76245864	70585905	76245122	
2	Plug	1	72427339	76234772	76234482	
3	Cover	2	76245805	70585904	76245123	
4	Spring	2	72437342	76233218	76233355	
5	Press. compensation line	1	Without	Without	76230231	
6	Stop plate	1	76236446	76245565	76245565	
D	Sealing set	1	72338119	72378686	72368670	
S	Insert	2	See data sheet			
DDA	Diff. press. indicator	1	Option			

## 19 Recommended spare parts UG54 0.7040


Pos.	Part name	Qty.	Order No.	Order No.	Order No.	Order No.
			FCT033210A022200	FCT043210A032200	FCT053210A042200	FCT063210A052200
4	Spring	2	76233217	76233217	76233217	76233218
D	Sealing set	1	72372805	72340374	72340374	72351310
S	Insert	2	See data sheet			
DDA	Diff. press. indicator	1	Option			

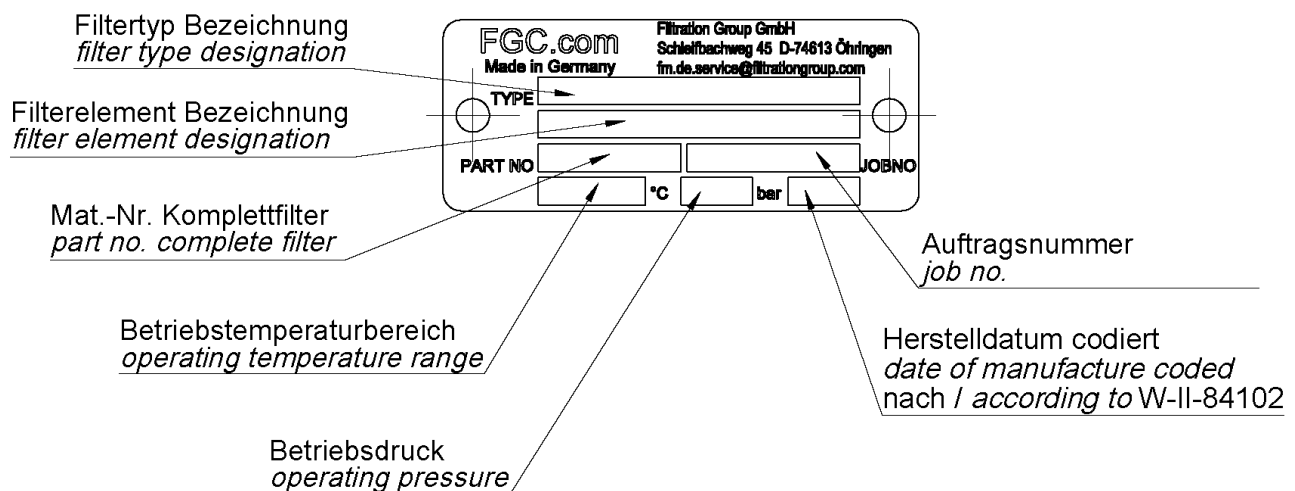
Pos.	Part name	Qty.	Order No.	Order No.	Order No.	
			FCT073210A052200	FCT083210A072200	FCT093210A082200	
4	Spring	2	76233218	76233218	76233355	
D	Sealing set	1	72378684	72342893	72342896	
S	Insert	2	See data sheet			
DDA	Diff. press. indicator	1	Option			

## 20 Recommended spare parts UG54 0.7040/Rilsan

Pos.	Part name	Qty.	Order No.	Order No.	Order No.	Order No.
			FCT03321RA022E00	FCT04321RA032E00	FCT05321RA042E00	FCT06321RA052E00
4	Spring	2	76233217	76233217	76233217	72437342
D	Sealing set	1	72351318	72361425	72361425	72351308
S	Insert	2	See data sheet			
DDA	Diff. press. indicator	1	Option			

Pos.	Part name	Qty.	Order No.	Order No.	Order No.	
			FCT07321RA052E00	FCT08321RA072E00	FCT09321RA082E00	
4	Spring	2	72437342	76233218	76233355	
D	Sealing set	1	72338119	72378686	72368670	
S	Insert	2	See data sheet			
DDA	Diff. press. indicator	1	Option			

	Please request a separate spare parts drawing and list of spare parts for special versions.
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## 21 Declaration of incorporation

EU – Einbauerklärung  
EU Declaration of incorporation  
Déclaration relative au montage UE



Der Hersteller  
The manufacturer  
Le producteur

Filtration Group GmbH  
Schleifbachweg 45  
D-74613 Öhringen  
Phone +49 7941 6466-0  
Fax +49 7941 6466-429

erklärt hiermit, dass das folgende Produkt  
hereby declares that the following product  
déclare par la présente que le produit suivant

Produktbezeichnung:  
Product designation:  
Désignation du produit :

Umschaltfilter  
Duplex filter  
Filtre double commutable

Typenbezeichnung:  
Type designation:  
Désignation du type :

UG54

Funktionsbeschreibung:  
Machine description:  
Description du fonctionnement :

Filtration von Feststoffen  
Filtration of solids  
Filtration de solides

den in der Anlage dargestellten grundlegenden Anforderungen der Richtlinie 2006/42/EU entspricht.  
conforms to the essential requirements of the Machinery Directive 2006/42/EU pursuant to the Annex.  
répond aux exigences fondamentales de la directive 2006/42/UE, décrites en annexe.

Die unvollständige Maschine darf erst dann in Betrieb genommen werden, wenn festgestellt wurde, dass die Maschine, in die die unvollständige Maschine eingebaut werden soll, den Bestimmungen der Richtlinie 2006/42/EU über Maschinen entspricht.  
The partly completed machinery must not be put into service until the relevant machinery into which this partly completed machinery is to be incorporated has been declared in conformity with the Machinery Directive 2006/42/EU.  
La machine incomplète ne doit être mise en service qu'après avoir déterminé que la machine, dans laquelle la machine incomplète doit être montée, correspond aux dispositions de la directive machines 2006/42/UE.

Folgende harmonisierten Normen wurden angewandt:

The following harmonised standards have been used:  
Les normes harmonisées ci-dessous ont été appliquées :

DIN EN ISO 12100:2011-03, DIN EN ISO 4414:2011-04

Der Hersteller verpflichtet sich, die speziellen Unterlagen zur unvollständigen Maschine, einzelstaatlichen Stellen auf Verlangen schriftlich zu übermitteln. Die zur Maschine gehörenden speziellen technischen Unterlagen nach Anhang VII Teil B wurden erstellt.  
The manufacturer undertakes to transmit any specific documentation on the partly completed machinery to the appropriate national authorities in writing on request. All specific technical documentation belonging to the machinery has been compiled pursuant to Annex VII Section B.

Le fabricant s'engage à transmettre les documents spécifiques à la machine incomplète par écrit aux administrations nationales respectives sur leur demande. Les documents techniques spécifiques selon Annexe VII partie B faisant partie de la machine ont été établis.

Dokumentationsverantwortlicher/Abteilung:  
Responsible for documentation/department:  
Responsable de la documentation/Service :

Filtration Group GmbH  
Schleifbachweg 45  
74613 Öhringen

Unterzeichner:  
Signatory:  
Signataire :

Wolfram Zuck  
Dipl.-Ing. (FH) Industrial Engineering  
Managing Director, Plant Manager Öhringen

Öhringen,

17.05.12  
Datum/Date/Date

  
Unterschrift/Signature/Signature

Anlage/Annex/Annexe

3 Seiten/pages/pages

## 22 Declaration of conformity

EU – Konformitätserklärung  
EU declaration of conformity  
Déclaration de conformité UE



Der Hersteller  
The manufacturer  
Le producteur

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erklärt hiermit, dass das folgende Produkt  
hereby declares that the following product  
déclare par la présente que le produit suivant

Produktbezeichnung:  
Product designation:  
Désignation du produit :

Umschaltfilter  
Duplex filter  
Filtre double commutable

Typenbezeichnung:  
Type designation:  
Désignation du type :

UG54

Funktionsbeschreibung:  
Machine description:  
Description du fonctionnement :

Filtration von Feststoffen  
Filtration of solids  
Filtration de solides

allen einschlägigen Bestimmungen der Druckgeräterichtlinie 2014/68/EU, Anhang 1 entspricht.  
conforms to all relevant provisions of the pressure equipment directive 2014/68/EU, annex I.  
répond à toutes les dispositions applicables de la directive équipements sous pression 2014/68/UE , annexe I .

Angewendete Konformitätsbewertungsverfahren:

Applied conformity evaluation procedures:

Procédures d'évaluation de la conformité appliquées :

Module D1

Angewendete harmonisierte Normen, insbesondere

Applied harmonized standards in particular

Normes harmonisées utilisées, notamment

AD 2000

Angewendete nationale Normen und technische Spezifikationen, insbesondere

Applied national norms and techn. specifications, especially

Normes et spécifications nationales utilisées, notamment

HP0, TRD/TRB

Und allen wesentlichen Schutzanforderungen der Ex-Richtlinie 2014/34/EU entspricht.

Conforms to all the basic requirements of the Ex-directive 2014/34/EU.

Répond à toutes les exigences essentielles de la Ex-directive 2014/34/UE .

Folgende harmonisierten Normen wurden angewandt:

The following harmonised standards have been used:

Les normes harmonisées ci-dessous ont été appliquées :

EN 1127-1 und EN 13463-1

Unterzeichner:

Signatory:

Signataire :

Wolfram Zuck

Dipl.-Ing. (FH) Industrial Engineering

Managing Director, Plant Manager Öhringen

Öhringen,

Datum/Date/Date

Unterschrift/Signature/Signataire



Anlage zur Einbauerklärung gemäß Richtlinie  
2006/42/EU für Umschaltfilter

Annex to the Declaration of Incorporation pursuant to  
the Machinery Directive 2006/42/EU for duplex filter  
Annexe à la déclaration de montage selon la directive  
2006/42/UE pour filtre double commutable

Beschreibung der grundlegenden Sicherheits- und Gesundheits-  
schutzanforderungen (soweit zutreffend) gemäß 2006/42/EU, An-  
hang 1, die zur Anwendung kommen und eingehalten wurden.  
List of the essential health and safety requirements (where applicable)  
pursuant to 2006/42/EU, Annex 1, applied and fulfilled.  
Description des exigences fondamentales relatives à la sécurité et à  
la protection de la santé (si applicables) selon 2006/42/UE, annexe 1,  
appliquées et respectées.



Grundlegende Anforderung Essential requirements Exigence fondamentale	Erfüllt Fulfilled Remplie
Grundsätze für die Integration der Sicherheit Principles of safety integration Principes d'intégration de la sécurité	ja yes oui
Materialien und Produkte Materials and products Matériaux et produits	ja yes oui
Konstruktion der Maschine im Hinblick auf die Handhabung Design of machinery to facilitate its handling Construction de la machine au regard de sa manipulation	ja yes oui
Steuerungen und Befehlseinrichtungen Control systems Commandes et dispositifs de commande	nein no non
Risiko des Verlusts der Standsicherheit Risk of loss of stability Risque de perte de la stabilité statique	ja yes oui
Bruchrisiko beim Betrieb Risk of break-up during operation Risque de rupture en fonctionnement	ja yes oui
Risiken durch herabfallende oder herausgeschleuderte Gegenstände Risks due to falling or ejected objects Risques dus à la chute ou à l'éjection d'objets	ja yes oui
Risiken durch Oberflächen, Kanten und Ecken Risks due to surfaces, edges or angles Risques dus aux surfaces, arêtes et angles	ja yes oui
Risiken durch Änderung der Verwendungsbedingungen Risks related to variations in operating conditions Risques dus à la modification des conditions d'utilisation	ja yes oui
Risiken durch bewegliche Teile Risks related to moving parts Risques dus à des parties mobiles	ja yes oui
Wahl der Schutzeinrichtung gegen Risiken durch bewegliche Teile Choice of protection against risks arising from moving parts Choix du dispositif de protection contre les risques dus à des parties mobiles	ja yes oui
Risiko unkontrollierter Bewegungen Risks of uncontrolled movements Risque de mouvements incontrôlés	ja yes oui
Anforderungen an Schutzeinrichtungen Required characteristics of guards and protective devices Exigences relatives aux dispositifs de protection	nein no non
Elektrische Energieversorgung Electricity supply Alimentation électrique	ja yes oui
Statische Elektrizität Static electricity Électricité statique	ja yes oui



Nichtelektrische Energieversorgung Energy supply other than electricity Alimentation en énergie non-électrique	ja yes oui
Montagefehler Errors of fitting Erreurs de montage	ja yes oui
Extreme Temperaturen Extreme temperatures Températures extrêmes	ja yes oui
Brand Fire Incendie	ja yes oui
Explosion Explosion Explosion	ja yes oui
Lärm Noise Bruit	ja yes oui
Vibrationen Vibrations Vibrations	ja yes oui
Strahlung Radiation Rayonnement	ja yes oui
Strahlung von außen External radiation Rayonnement depuis l'extérieur	ja yes oui
Emission gefährlicher Werkstoffe und Substanzen Emissions of hazardous materials and substances Emission de substances et matériaux dangereux	ja yes oui
Risiko, in eine Maschine eingeschlossen zu werden Risk of being trapped in a machine Risque de se faire enfermer dans une machine	nein no non
Ausrutsch-, Stolper- und Sturzsrisiko Risk of slipping, tripping or falling Risque de dérapage, de trébuchement et de chute	nein no non
Blitzschlag Lightning Foudre	nein no non
Wartung der Maschine Machinery maintenance Entretien de la machine	nein no non
Zugang zu den Bedienungsständen und den Eingriffspunkten für die Instandhaltung Access to operating positions and servicing points Accès aux postes de commande et aux points d'intervention pour la maintenance	nein no non
Trennung von den Energiequellen Isolation of energy sources Séparation des sources d'énergie	nein no non
Eingriffe des Bedienungspersonals Operator intervention Interventions des opérateurs	ja yes oui
Reinigung innen liegender Maschinenteile Cleaning of internal parts Nettoyage de parties internes de la machine	nein no non
Informationen und Warnhinweise an der Maschine Information and warnings on the machinery Informations et avertissements sur la machine	ja yes oui
Warnung vor Restrisiken Warning of residual risks Avertissement quant aux risques résiduels	ja yes oui
Kennzeichnung der Maschinen Marking of machinery Marquage des machines	nein no non

Betriebsanleitung Instructions Mode d'emploi	ja yes oui
Nahrungsmittelmaschinen und Maschinen für kosmetische oder pharmazeutische Erzeugnisse Foodstuffs machinery and machinery for cosmetics or pharmaceutical products Machines pour denrées alimentaires et machines pour produits cosmétiques ou pharmaceutiques	nein no non
Handgehaltene und/oder handgeführte tragbare Maschinen Portable hand-held and/or hand-guided machinery Machines tenues à la main et/ou portables guidées à la main	ja yes oui

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