

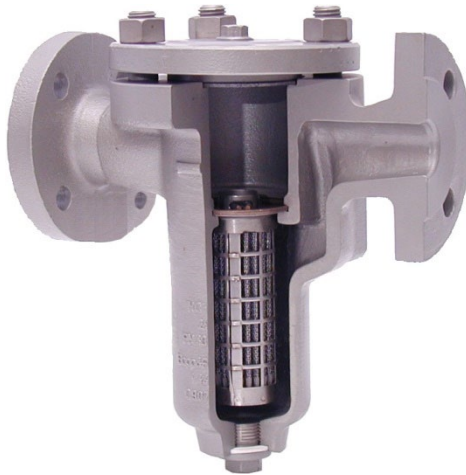
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# Strainer

N/F  
N/A  
NC

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## Operating Manual



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## Foreword

### I. Transport, delivery, storage

#### Storage and transportation:

Equipment shall be protected from moisture, humidity, contamination, shock and damage.

#### Check of delivery:

The shipment is to be checked for completeness upon receipt. The data of the device are to be compared with the data of the delivery note and the order documents.

Any transport damage must be reported immediately after delivery. Damage reported later cannot be accepted.

### II. Warranty

The scope and period of a warranty can be found in the contractual delivery conditions.

A warranty claim presupposes professional assembly and commissioning in accordance with the operating instructions valid for the device. The necessary assembly, commissioning and maintenance work may only be carried out by competent and authorized persons.



### III. General safety instructions

1. The filter may only be used in accordance with its field of application (chapter 2). The pressure and temperature limits indicated on the type plate, as well as the other technical data of the units and safety instructions must be observed during installation, commissioning and operation of the units.
2. National and international regulations for the operation of pressurized devices and systems must be observed.
3. Before installation, the operator must ensure that the pressurized parts have not been damaged during transport.

4. The equipment must be installed, operated and maintained by qualified personnel. The operator is responsible for ensuring that the personnel are adequately and appropriately qualified. In the case of doubts, the manufacturer must be consulted.
5. Only liquids to which the materials used for the pressure-bearing elements are resistant may be measured.
6. Flanges or connections for venting or draining shall only be loosened in a depressurised state.
7. When replacing components, only use the original spare parts specified by the manufacturer. Failure to comply will invalidate the warranty.
8. The seals or sealing elements must be selected with care in accordance with the specifications in the operating instructions (5.3).

## IV. Basic safety information

Description of symbols:

	<p><b>IMPORTANT NOTES!</b></p> <p>Please consider these notes carefully to achieve a reliable functional system. The accompanying text contains important information about the product, handling the product or about a section of the document that is of particular importance.</p>
	<p><b>WARNING!</b></p> <p>Failure to take the prescribed precautions could result in death, severe bodily injury, or substantial material / product damage.</p>

## V. Intended User

The intended user is not a general purpose user.



The intended user is not allowed to open, manipulate or dismantle the device.

The device may be maintained, serviced or opened only by dedicated and qualified service personnel.

## 1. Identification

Manufacturer: Bopp & Reuther Messtechnik  
Am Neuen Rheinhafen 4  
67346 Speyer, Germany  
Phone : +49 6232 657-0  
Fax: +49 6232 657-505

Product type: Strainer

Product name: Strainer Series N and NC

Versions-No.: A-EN-03551-00C

## 2. Range of Application

The strainer is used to prevent measurement errors and damage caused by foreign bodies carried in the medium.

## 3. Mode of operation and system design

Strainer consists of a cast (NC series) or a welded (N series) housing and a filter insert with a metal mesh insert. The liquid flows from above through the filter insert, where the impurities are retained by the fine-meshed metal mesh.

For cleaning the filter or filter insert can be removed after removing the cover.

In the filter series NC, all internal surfaces are conical and the edges are strongly rounded. These design features guarantee that the strainer and the connected pipeline are completely emptied after opening the screw plug located at the lowest point. After emptying, no residue remains in the filter. The filter can be vented via a screw plug located at the highest point.

The N/A and N/F series also have a drain screw on the bottom and one on the lid. However, product residues must be expected during emptying.

## 4. Technical data

### 4.1 Operating temperature

Type NC	-10°C up to max. +300°C (up to -200°C on request)
Type N	-10°C up to max. +100°C

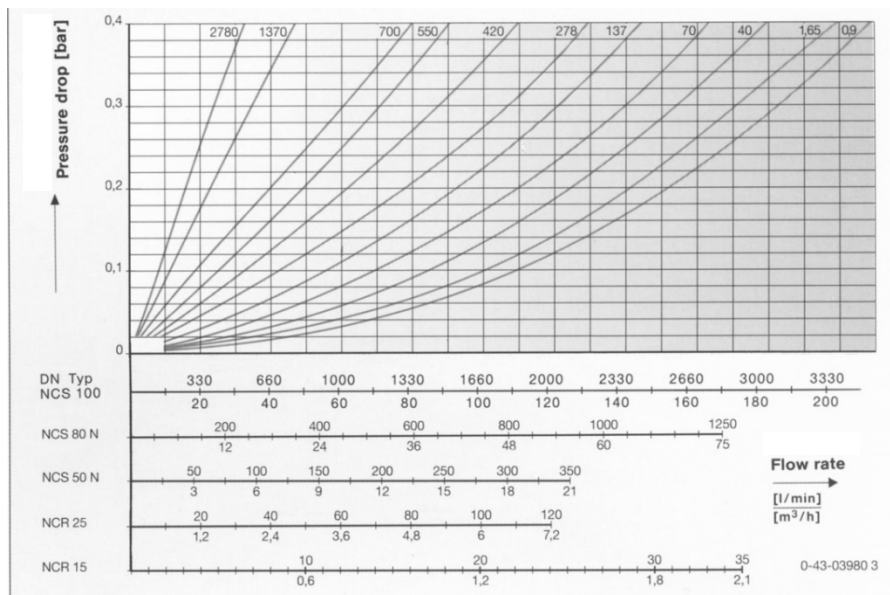
At temperatures above +100°C, the drop in the material yield point must be observed

### 4.2 Nominal pressure

Type NC	PN 40 (Class 150 RF and 300 RF)
Type N	PN 16, 40, 100 (Class 150 RF, 300 RF and 600 RF)

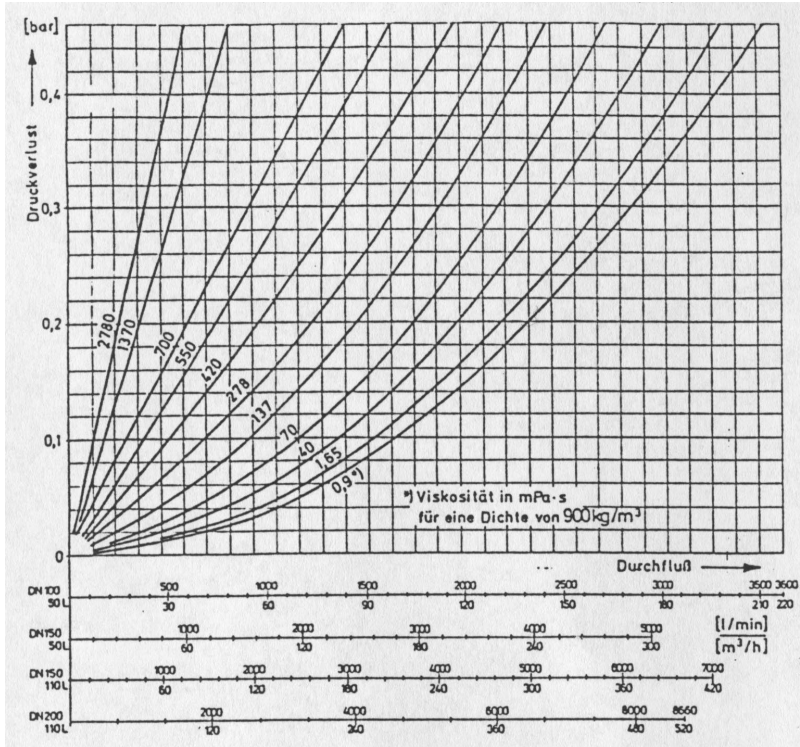
### 4.3 Pressure loss

Strainer type NC



Strainer pressure drops depending on the flow rate and on the liquid viscosity with unsoiled filter elements.  
The highest permissible differential pressure with soiling is 3 bar.

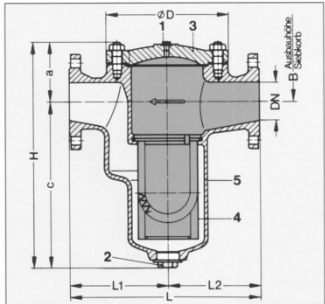
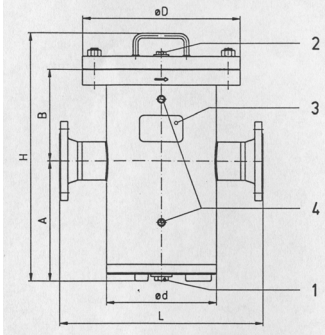
### Strainer Type N





## 5. Constructive desing

### 5.1 Model / Dimensions

Strainer Type NC	Strainer Type N
<p>1 Verschlusschraube Be- und Entlüftung</p> <p>2 Verschlusschraube Entleerung</p> <p>3 Gehäuse-Deckel</p> <p>4 Siebkorb Typ R (rund) bzw. Typ S (Sternförmig)</p> <p>5 Gehäuse</p> <p>1 vent plug</p> <p>2 drain plug</p> <p>3 cover</p> <p>4 basket type R (round) resp. type S (starlike)</p> <p>5 housing</p> 	 <p>1. Entleer-Schraube G 1 1/2</p> <p>2. Entlüftungs-Schraube G 1</p> <p>3. Herstellerschild</p> <p>4. Anschluß für Differenzdruck-Anzeiger G 1/4 AusII : links der Durchflußrichtung AusII : rechts der Durchflußrichtung</p>

### Strainer Type NC

					Dimensions for housing in mm with DIN and ANSI - flanges							
DN	Type	PN	Q <sub>max</sub> [l/min]	Capacity [Litre]	L	H	D	a	c	L1	L2	B
15	NCR	40	35	0.5	210	236	132	70	166	105	105	180
25	NCR	40	120	0.6	220	246	132	70	176	110	110	180
50	NCS	40	350	3	300	363	190	101	262	154	146	260
80	NCS	40	1250	8.5	400	496	255	125	371	207	193	370
100	NCS	40	3330	23	470	721	320	150	571	240	230	600

## Strainer Type N, material A and F

DN	PN	Q <sub>max</sub> [m <sup>3</sup> /h]	Capacity [Litre]	L	D	A	B	H	d	
100 4"	16 / Class 150	220	50	550	465	370	270	740	324	
	40 / Class 300			600				750		
	100 / Class 600			700	480	390		800	368	
150 6"	16 / Class 150	300		600	420	372		740	324	
	40 / Class 300			650	465			750		
	100 / Class 600			750	480	390		800	368	
150 6"	16 / Class 150	420	110	700	530	485	395	1010	420	
	40 / Class 300			750	550	500		1025		
	100 / Class 600			800		520		1060		
200 8"	10	520		750	530	485		1010		1025
	16 / Class 150							550		
	25					500				
40 / Class 300	520				1060					
100 / Class 600		850			520	1060				

## 5.2 Weights

DN	PN	Capacity [Litre]	Strainer NC [kg]	Strainer N/A [kg]	Strainer N/F [kg]
15	40	0.5	8	---	---
25	40	0.6	9.5	---	---
50	40	3	25	---	---
80	40	8.5	52	---	---
100	40	23	130	---	---
100 4"	16 / Class 150	50	---	130	130
	40 / Class 300	50	---	220	220
	100 / Class 600	50	---	390	390
150 6"	16 / Class 150	50	---	140	140
	40 / Class 300	50	---	230	230
	100 / Class 600	50	---	400	400
150 6"	16 / Class 150	110	---	230	230
	40 / Class 300	110	---	360	360
	100 / Class 600	110	---	630	630
200 8"	10	110	---	240	240
	16 / Class 150	110	---	250	250
	25	110	---	300	300
	40 / Class 300	110	---	380	380
	100 / Class 600	110	---	640	640

### 5.3 Materials

Version	NC / A2 Cast steel	NC / F Cast stainless steel	N/A Steel plate (welded)	N/F Stainless steel plate (welded)
Housing	G2-C25N 1.0619.01	1.4405	P265GH (HII)	1.4571
Cover	P265GH (HII) (HII)	1.4408	P265GH (HII)	1.4571
Flange	GS-C25N 1.0619.01	1.4405	P265GH (HII) (welding flange)	1.4571
			C22.8 (connection flange DIN)	
			C21 (connection flange ANSI)	
Basket	1.4571	1.4571	1.4571	1.4571
Bolts / Nuts	CK35 / C35	A4-70	C35E	A4-70
Gasket	Centellen C WS3844	Sigraflex (cover) Teflon with 25 % glas fibre (deaeration) PTFE (draining)	Novapress Multi and Centellen C WS3844	PTFE

### 5.4 Mesh size strainer basket insert

NC: Standard 0.25 mm  
optional 0.025 / 0.04 / 0.063 / 0.1 / 0.5 / 0.8 / 1.0 / 2.0

N: Standard 0.25 mm  
optional 0.1 / 0.5 / 0.8 / 1.0 / 2.0  
(all sizes in mm)

## 6. Order information

Please state the following when ordering:

- Product data
- Especially weight
- Temperature
- Pressure
- Viscosity
- Material
- Connection sizes
- Measuring range
- Desired accessories
- Required approvals

- Certificates and material certificates

## 7. Standards and Directives

### **Ex-protection-directive 2014/34/EU**

The unit does not contain any potential ignition sources and therefore does not fall under the ATEX directive. The following standards were taken as a basis EN1127-1 and EN ISO80079-36. The operator must observe the relevant regulations when installing and connecting the unit in the Ex area.

### **Pressure Equipment Directive 2014/68/EU**

Strainers of the series NC are suitable for liquids group 1

9. Classification according to pressure stage and pressure content (product acc. to article 4 paragraph 3 (designed and manufactured according to good engineering practice)) or acc. to category III, module G

Strainers of the series N/A or N/F are suitable for liquids group 1.

10. Classification generally within category IV with individual approval according to module G of the Pressure Equipment Directive for strainers in welded design of the series N/A resp. N/F.

## 8. Commissioning and operation

The strainer should be connected to the process via the flanges. (Please observe the direction of flow!!).


The operator has to ensure that the strainer cannot be electrostatically charged. For this purpose, an earthing strap has to be fixed to a screw on the cover and connected to earth. This ensures that the strainer is included in the system's equipotential bonding.

## 9. Type plates

The used abbreviations have the following meaning:


Serial number:	Clear identification number
Year:	Year of manufacture
PT:	Achieved test pressure and test date
DN:	Nominal size
Capacity:	Strainer capacity in litres
TS:	permissible operating temperature
PS	Permissible operating pressure
Mesh size:	Mesh size of the inserted strainer basket


Type plate for strainer type N/A, N/F and NC DN80 to DN100



**CE** 0036

**Bopp & Reuther**  
**Messtechnik**  
 D-67346 Speyer







## Siebkorbfilter

Fabrik-Nr. <input style="width: 100%;" type="text"/>	DN <input style="width: 100%;" type="text"/>
Baujahr <input style="width: 100%;" type="text"/>	Inhalt <input style="width: 100%;" type="text"/> l
Typ <input style="width: 100%;" type="text"/>	Maschenweite <input style="width: 100%;" type="text"/> mm
PS zul. Betr.- Oberdruck <input style="width: 100%;" type="text"/> bar	TS zul. Betr.- Temp. <input style="width: 100%;" type="text"/> °C
PT guigebr. Prüfdruck <input style="width: 100%;" type="text"/> bar	PT Prüf- Datum <input style="width: 100%;" type="text"/>

1-43-89214-550/-





Type plate for strainer type NC DN15 to DN50

1-43-67336-550/c

⊕ Siebkorbfilter ⊕

Fabrik Nr.	<input type="text"/>	DN	<input type="text"/>
Baujahr	<input type="text"/>	Inhalt	<input type="text"/> l
Typ	<input type="text"/>	zul. Betr. - Überdruck	<input type="text"/> bar
Maschenweite	<input type="text"/> mm	zul. Betr. - Temp.	<input type="text"/> °C


⊕ Bopp & Reuther Messtechnik  ⊕

Additional plate for strainer type ND DN50

⊕ PT  bar

CE 0036

1-40-70288-550/a

Bopp & Reuther Messtechnik  ⊕

D - 67346 Speyer

## Appendix

### A. Maintenance

The filter must be changed at regular intervals depending on the degree of contamination of the medium. To do this, the medium is drained by opening the drain screw. Then open the screws on the cover and the strainer basket can be removed. Tighten the drain plug again with a new seal. The new strainer basket is to be inserted. The cover is fitted with a new seal and screwed tight again.

### B. Repairs

This device has been designed, produced and tested with the utmost care. In the unlikely event that a fault should occur, please contact our service department.

:

Bopp & Reuther Messtechnik GmbH Service Am Neuen Rheinhafen 4 67346 Speyer, Germany Tel.: +49 6232 657-420 Mobil-No.: +49 15115233023 Fax: +49 6232 657 561 Email: <a href="mailto:service@bopp-reuther.com">service@bopp-reuther.com</a>
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### C. Disposal and decommissioning

Disposal or decommissioning must only be carried out by specialists. Product residues must be disposed of in accordance with legal regulations.



## D. Declaration on decontamination

**Bopp & Reuther Messtechnik GmbH**  
 Am Neuen Rheinhafen 4  
 67346 Speyer  
 Germany

**BOPP & REUTHER  
 MESSTECHNIK** 

ERA number:

Telephone: +49 (0) 6232 / 657 420  
 Fax: +49 (0) 6232 / 657 561  
 Mail: [service@bopp-reuther.com](mailto:service@bopp-reuther.com)  
 Web: [www.bopp-reuther.com](http://www.bopp-reuther.com)

### DECLARATION ON DECONTAMINATION OF METERS AND COMPONENTS

Please complete this form and return in advance by email or by Fax to +49(0)6232 / 657 561 in order to receive an Equipment Return Authorisation (ERA) number (not necessarily required). No action to repair or examine the meter will be done, until a valid declaration of decontamination has been received.

#### Contact information

Company Name:	<input type="text"/>	Contact Person:	<input type="text"/>
Company Address:	<input type="text"/>	Name:	<input type="text"/>
		Phone:	<input type="text"/>
		Email:	<input type="text"/>

#### Meter information

Type:	<input type="text"/>	Serial no.:	<input type="text"/>
Id. no.:	<input type="text"/>		

Reason for return (e.g. calibration, repair). Please describe in detail.

#### Contamination information

The meter was contaminated with:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> poisonous    | <input type="checkbox"/> corrosive, irritant        | <input type="checkbox"/> flammable                 |
| <input type="checkbox"/> hazardous   | <input type="checkbox"/> oxidizing                 | <input type="checkbox"/> cancer-causing, harmful  |
| <input type="checkbox"/> explosive  | <input type="checkbox"/> environmental hazardous  | <input type="checkbox"/> other: <input type="text"/>  |

The meter was cleaned with:

#### Packaging and shipping Instructions

- Remove all cables, connectors, separate filters and mounting materials
- Please pack each item in two suitable sealed protective foil bags
- Transport in suitable shipping package (e.g. original Bopp & Reuther Messtechnik shipping package)
- Include a copy of this declaration form along with the shipping documents on the outside

By signing this form, you are accepting the full responsibility for its contents and confirming that appropriate decontamination has taken place in accordance with legal regulations.

Print name:  Date:

Legally valid signature:

## E. Certificates

### E.1. EU-Declaration of conformity

BOPP & REUTHER  
MESSTECHNIK 

#### EU - Konformitätserklärung EU - Declaration of conformity UE - Déclaration de conformité

Hiermit erklärt der Hersteller in alleiniger Verantwortung, dass die nachfolgend bezeichnete Baueinheit den Anforderungen der zutreffenden EU-Richtlinien entspricht. Bei nicht mit uns abgestimmten Änderungen verliert diese Erklärung ihre Gültigkeit.

*The manufacturer herewith declares under sole responsibility that the unit mentioned below complies with the requirements of the relevant EU directives. This declaration is no longer valid if the unit is modified without our agreement.*

Par la présente, le fabricant déclare sous sa seule responsabilité que les appareils décrits ci-dessous, correspondent aux exigences de la réglementation UE qui les concerne. Toute modification des appareils sans notre accord entraîne la perte de validité de cette déclaration de conformité

<b>Hersteller</b> <i>Manufacturer</i> Fabricant	Bopp & Reuther Messtechnik GmbH Am Neuen Rheinhafen 4 D-67346 Speyer
<b>Bezeichnung</b> <i>Description</i> Description	Filter <i>Strainer</i> Filtre
<b>Typ, Modell</b> <i>Type, model</i> Type, modèle	Na / NC / N / NU

<b>Richtlinie</b> <i>Directive</i> Directive	2011/65/EU /UE L 174/88 Beschränkung gefährlicher Stoffe <i>Restriction of hazardous substances</i> Limitation de substances dangereuses
<b>Delegierte Richtlinie</b> <i>Delegated Directive</i> Directive Déléguée	(EU /UE) 2015/863 L 137/10 Änderung Anhang II der Richtlinie 2011/65/EU <i>Amending Annex II to Directive 2011/65/EU</i> Modifiant l'annexe II de la directive 2011/65/EU
<b>Normen und normative Dokumente</b> <i>Standards and normative documents</i> Normes et documents normatifs	EN IEC 63000:2018

Ort, Datum / Place, Date / Lieu, Date:

Speyer, 2023-01-30

  
**Dr. J. Ph. Herzog**  
Geschäftsführer  
*Managing director / Gérant*

  
**i. V. J. Riedl**  
stv. QM Beauftragter  
*Deputy QM Officer / Adjoint chargé de la qualité*

Bopp & Reuther Messtechnik GmbH, Am Neuen Rheinhafen 4, 67346 Speyer / Germany  
Telefon: +49(0)6232 657-0, Telefax: +49(0)6232 657-505, Email: [info@bopp-reuther.com](mailto:info@bopp-reuther.com), Internet: [www.bopp-reuther.com](http://www.bopp-reuther.com)

Z-ML-KE Filter-V6 2023-01-30

## E.2. Declaration of the manufacturer regarding Ex-protection

BOPP & REUTHER  
MESSTECHNIK 

### Herstellereklärung zum Explosionsschutz *Declaration of the manufacturer regarding Ex-protection* Déclaration du fabricant concernant la protection Ex

Hiermit erklärt der Hersteller in alleiniger Verantwortung, dass die nachfolgend bezeichnete Baueinheit keine potentielle Zündquelle enthält und daher nicht in den Anwendungsbereich der ATEX-Richtlinie 2014/34/EU fällt. Bei nicht mit uns abgestimmten Änderungen verliert diese Erklärung ihre Gültigkeit.

*The manufacturer herewith declares under sole responsibility that the unit mentioned below doesn't have potential ignition sources and therefore doesn't fall under the scope of the ATEX Directive 2014/34/EU. This declaration is no longer valid if the unit is modified without our agreement.*

Par la présente, le fabricant déclare que les appareils décrits ci-dessous ne présentent pas de source d'inflammation et ne sont donc pas soumis au cadre d'application de la directive ATEX 2014/34/UE. Toute modification des appareils sans notre accord entraîne la perte de validité de cette déclaration de conformité

<b>Hersteller</b> Manufacture Fabricant	Bopp & Reuther Messtechnik GmbH Am Neuen Rheinhafen 4 D-67346 Speyer
<b>Bezeichnung</b> Description Description	Filter Strainer Dégazeur à action centrifuge
<b>Typ, Modell</b> Type, model Type, modèle	Na / NC / N / NU
<b>Normen und normative Dokumente</b> Standards and normative documents Normes et documents normatifs	EN 1127-1 EN ISO 80079-36

Da bei der Bewertung der Zündgefahr keine potenzielle Zündquelle identifiziert wurde, ist die Verwendung in explosionsgefährdeten Bereichen möglich, die Betriebsmittel der Kategorie 2 oder 3 erfordern. Die Baueinheit enthält keine eigene Energiequelle. Somit ist für die Oberflächentemperatur die Mediumtemperatur maßgebend.

*As no ignition sources were identified by the ignition risk assessment, the use in hazardous environments requiring equipment of category 2 or 3 is possible. The unit doesn't have own energy sources. Therefore the surface temperature is mainly the medium temperature.*

L'évaluation des risques n'ayant pas identifié de source d'inflammation, l'emploi dans des zones dangereuses requérant des équipements de catégorie 2 ou 3 est possible. L'appareil ne contient pas de propre source d'énergie. La température de surface est donc essentiellement celle du liquide.

Ort, Datum / Place, Date / Lieu, Date:

Speyer, 2020-03-30



Dr. J. P. Herzog  
Geschäftsführer / Managing director / Gérant



I. A. B. Bähr  
QS Leiter / QA Manager / Responsable qualité

Bopp & Reuther Messtechnik GmbH, Am Neuen Rheinhafen 4, D-67346 Speyer  
Telefon: +49(0)6232 657-0, Telefax: +49(0)6232 657-505, Email: [info@bopp-reuther.de](mailto:info@bopp-reuther.de), Internet: [www.bopp-reuther.de](http://www.bopp-reuther.de)

Z-ML-HE Filter-mech-Ex-V3 2020-03-30

**Our product portfolio:****Volume flowmeter:**

- Oval wheel meter
- Turbine meter
- Electromagnetic flowmeter

**Mass flowmeter:**

- Vortex meter
- Compact orifice
- Coriolis mass flowmeter

**Density and concentration meter (Measuring and testing equipment)****Dosing measurement technology**

- Electromagnetic flowmeter
- Coriolis mass flowmeter
- Oval wheel meter
- Dosing control system

**Measurement Accessories**

- Processing electronics
- Mechanical indicator
- Pulse pick-ups
- Components

**Measuring and testing equipment****Conformity assessment according to MID Directive 2014/32/EU****After Sales Service**

Bopp & Reuther Messtechnik GmbH  
Am Neuen Rheinhafen 4  
67346 Speyer, Deutschland  
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<https://www.bopp-reuther.com>

**BOPP & REUTHER**  
**MESSTECHNIK**

