



## **BATCHFLUX 3100 C** Handbook

Electromagnetic flowmeter for volumetric filling machines

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## 1.1 Intended use

**CAUTION!**

*Responsibility for the use of the measuring devices with regard to suitability, intended use and corrosion resistance of the used materials against the measured fluid lies solely with the operator.*

This also applies to the chemical and physical compatibility of the housing parts with the environment including cleaning process.

**INFORMATION!**

*The manufacturer is not liable for any damage resulting from improper use or use for other than the intended purpose.*

The electromagnetic flowmeter is designed exclusively for measuring the volumetric flowrate of electrically conductive, liquid process products.

## 1.2 Certification

CE marking



The manufacturer certifies successful testing of the product by applying the CE marking.

**This device fulfils the statutory requirements of the relevant EU directives.**

For full information of the EU directives and standards and the approved certifications, please refer to the EU Declaration of Conformity or the website of the manufacturer.

## 1.3 Safety instructions from the manufacturer

### 1.3.1 Copyright and data protection

The contents of this document have been created with great care. Nevertheless, we provide no guarantee that the contents are correct, complete or up-to-date.

The contents and works in this document are subject to copyright. Contributions from third parties are identified as such. Reproduction, processing, dissemination and any type of use beyond what is permitted under copyright requires written authorisation from the respective author and/or the manufacturer.

The manufacturer tries always to observe the copyrights of others, and to draw on works created in-house or works in the public domain.

The collection of personal data (such as names, street addresses or e-mail addresses) in the manufacturer's documents is always on a voluntary basis whenever possible. Whenever feasible, it is always possible to make use of the offerings and services without providing any personal data.

We draw your attention to the fact that data transmission over the Internet (e.g. when communicating by e-mail) may involve gaps in security. It is not possible to protect such data completely against access by third parties.

We hereby expressly prohibit the use of the contact data published as part of our duty to publish an imprint for the purpose of sending us any advertising or informational materials that we have not expressly requested.

### 1.3.2 Disclaimer

The manufacturer will not be liable for any damage of any kind by using its product, including, but not limited to direct, indirect or incidental and consequential damages.

This disclaimer does not apply in case the manufacturer has acted on purpose or with gross negligence. In the event any applicable law does not allow such limitations on implied warranties or the exclusion of limitation of certain damages, you may, if such law applies to you, not be subject to some or all of the above disclaimer, exclusions or limitations.

Any product purchased from the manufacturer is warranted in accordance with the relevant product documentation and our Terms and Conditions of Sale.

The manufacturer reserves the right to alter the content of its documents, including this disclaimer in any way, at any time, for any reason, without prior notification, and will not be liable in any way for possible consequences of such changes.

### 1.3.3 Product liability and warranty

The operator shall bear responsibility for the suitability of the device for the specific purpose. The manufacturer accepts no liability for the consequences of misuse by the operator. Improper installation or operation of the devices (systems) will cause the warranty to be void. The respective "Standard Terms and Conditions" which form the basis for the sales contract shall also apply.

### 1.3.4 Information concerning the documentation

To prevent any injury to the user or damage to the device it is essential that you read the information in this document and observe applicable national standards, safety requirements and accident prevention regulations.

If this document is not in your native language and if you have any problems understanding the text, we advise you to contact your local office for assistance. The manufacturer can not accept responsibility for any damage or injury caused by misunderstanding of the information in this document.

This document is provided to help you establish operating conditions, which will permit safe and efficient use of this device. Special considerations and precautions are also described in the document, which appear in the form of icons as shown below.

### 1.3.5 Warnings and symbols used

Safety warnings are indicated by the following symbols.



**DANGER!**

*This warning refers to the immediate danger when working with electricity.*



**DANGER!**

*This warning refers to the immediate danger of burns caused by heat or hot surfaces.*



**DANGER!**

*This warning refers to the immediate danger when using this device in a hazardous atmosphere.*



**DANGER!**

*These warnings must be observed without fail. Even partial disregard of this warning can lead to serious health problems and even death. There is also the risk of seriously damaging the device or parts of the operator's plant.*



**WARNING!**

*Disregarding this safety warning, even if only in part, poses the risk of serious health problems. There is also the risk of damaging the device or parts of the operator's plant.*



**CAUTION!**

*Disregarding these instructions can result in damage to the device or to parts of the operator's plant.*



**INFORMATION!**

*These instructions contain important information for the handling of the device.*



**LEGAL NOTICE!**

*This note contains information on statutory directives and standards.*



• **HANDLING**

This symbol designates all instructions for actions to be carried out by the operator in the specified sequence.

➔ **RESULT**

This symbol refers to all important consequences of the previous actions.

## 1.4 Safety instructions for the operator



**WARNING!**

*In general, devices from the manufacturer may only be installed, commissioned, operated and maintained by properly trained and authorized personnel.*

*This document is provided to help you establish operating conditions, which will permit safe and efficient use of this device.*



## 2.1 Scope of delivery

**INFORMATION!**

Inspect the packaging carefully for damages or signs of rough handling. Report damage to the carrier and to the local office of the manufacturer.

**INFORMATION!**

Do a check of the packing list to make sure that you have all the elements given in the order.

**INFORMATION!**

Look at the device nameplate to ensure that the device is delivered according to your order. Check for the correct supply voltage printed on the nameplate.

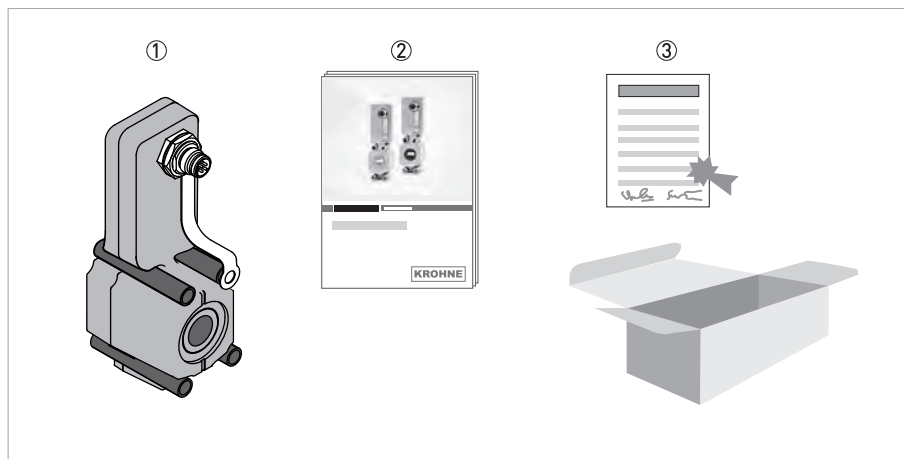


Figure 2-1: Scope of delivery

- ① Flowmeter in ordered size
- ② Product documentation (on request)
- ③ Calibration report (on request)

**INFORMATION!**

Assembly materials and tools are not part of the delivery. Use the assembly materials and tools in compliance with the applicable occupational health and safety directives.

## 2.2 Device description

Your measuring device is supplied ready for operation. The factory settings for the operating data have been made in accordance with your order specifications.



### **INFORMATION!**

Product specific information and extensive product specification is available using PICK, the Product Information Center KROHNE web-tool.

PICK can be found via the service menu button on the KROHNE.com website.



The following compact versions are available:

- Only available in size DN 15/1/2 "

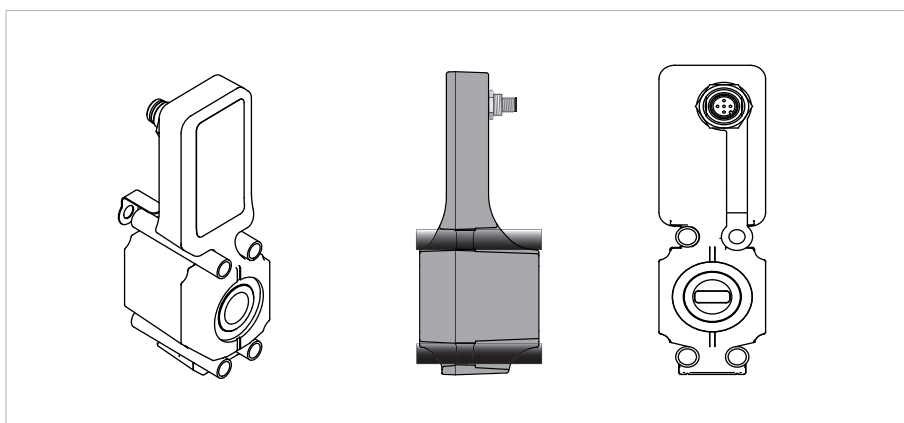
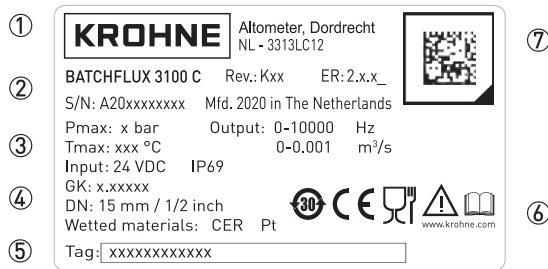


Figure 2-2: Device version

## 2.3 Nameplate (example)



**Figure 2-3: Example of nameplate**

- ① Name and address of the manufacturer
- ② Type designation, S/N number, software revision number and year of manufacturing
- ③ Device data, temperature and pressure limits, electrical values and protection category
- ④ Calibration data, size and wetted materials
- ⑤ Tag number
- ⑥ Manufacturer website, marking (e.g. CE and environmental marking)
- ⑦ Data matrix

### 3.1 General notes on installation

**INFORMATION!**

*Inspect the packaging carefully for damages or signs of rough handling. Report damage to the carrier and to the local office of the manufacturer.*

**INFORMATION!**

*Do a check of the packing list to make sure that you have all the elements given in the order.*

**INFORMATION!**

*Look at the device nameplate to ensure that the device is delivered according to your order. Check for the correct supply voltage printed on the nameplate.*

#### 3.1.1 Storage

- Store the device in a dry and dust-free location
- Avoid lasting direct exposure to the sun
- Store the device in its original packaging
- Storage temperature: -20 ...+70°C / -4...+158°F

#### 3.1.2 Transport

- No special requirements

**INFORMATION!**

*Use the original packing of the device(s) when transporting to the installation location.*

#### 3.1.3 Pre-installation requirements

**Make sure that you have all necessary tools available:**

- Torque wrench for installing flowmeter in pipeline.

Always tighten the bolts uniformly and in diagonally opposite sequence!

Accessories necessary for the correct installation are available on request at the manufacturer.

**Make sure that these accessories are available before starting installation:**

- O-rings
- Special pipe flanges
- Stud bolts with lockwasher, plain washer and nut

**INFORMATION!**

*To facilitate servicing and/or exchanging of the device, please note that:*

- *it must be possible to shut off the flow through the pipeline (control valve upstream in pipeline).*
- *Drain the pipeline before removing device (provide drain valve).*

### 3.1.4 General requirements

**INFORMATION!**

The following precautions must be taken to ensure a reliable installation.

- Make sure that there is adequate space to the sides.
- Protect the signal converter from direct sunlight and install a sun shade if necessary.
- Support the pipeline on both side of the flowmeter.
- Do not expose the flowmeter to intense vibration. The flowmeters are tested for a vibration level in accordance with IEC 61298-3

### 3.1.5 Vibration

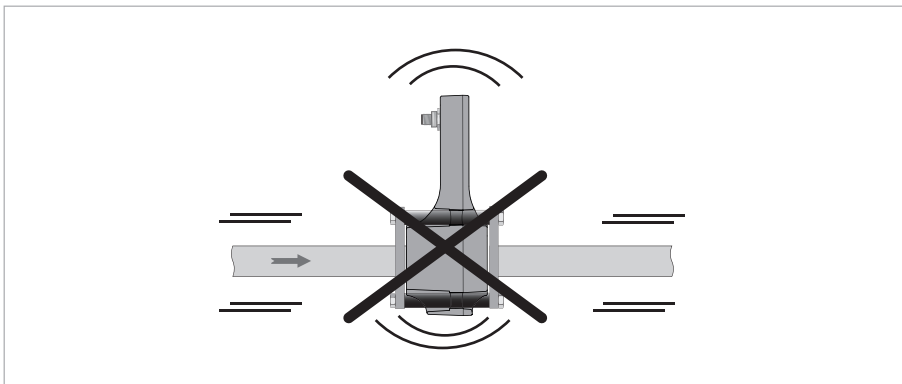


Figure 3-1: Avoid vibrations

### 3.1.6 Magnetic field

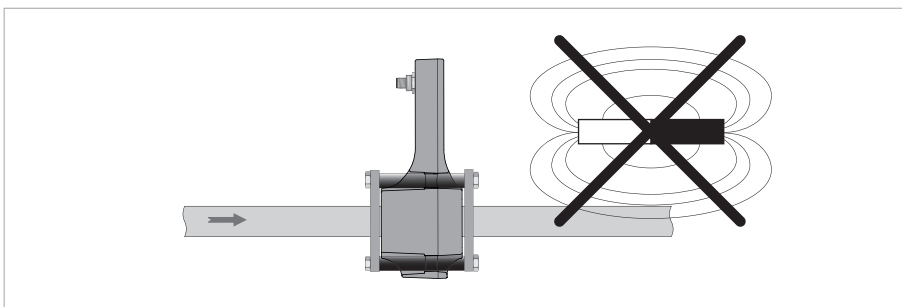


Figure 3-2: Avoid strong magnetic fields

## 3.1.7 Installation conditions

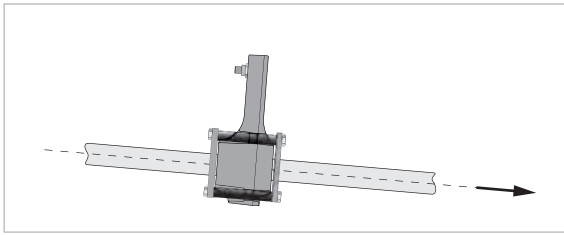


Figure 3-3: Horizontal pipe run

**CAUTION!**

*Install in a slightly descending pipe section, to prevent air from collecting and to avoid faulty measurements (meter can drain).*

**INFORMATION!**

*Support the pipeline on both side of the flowmeter. Make sure the M12 connector is on the flow inlet side.*

## 3.1.8 Inlet and outlet

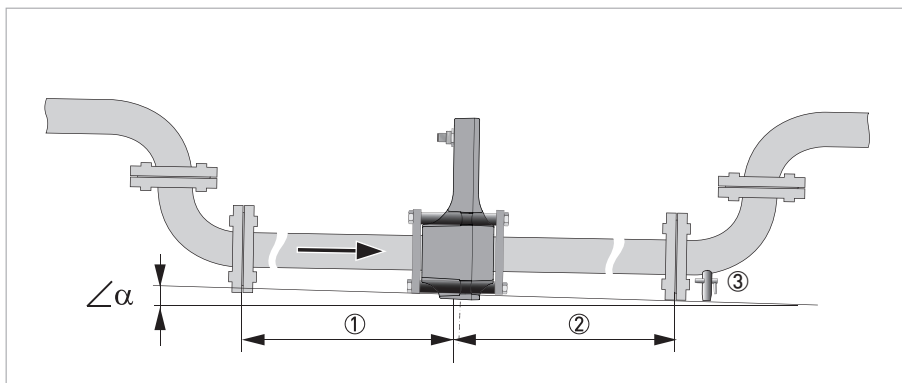


Figure 3-4: Inlet and outlet section

- ① Refer to chapter "Bends in 2 or 3 dimensions"
- ②  $\geq 2$  DN
- ③ Drain valve (to empty pipeline)

$$\angle \alpha > 25^\circ$$

### 3.1.9 Bends in 2 or 3 dimensions

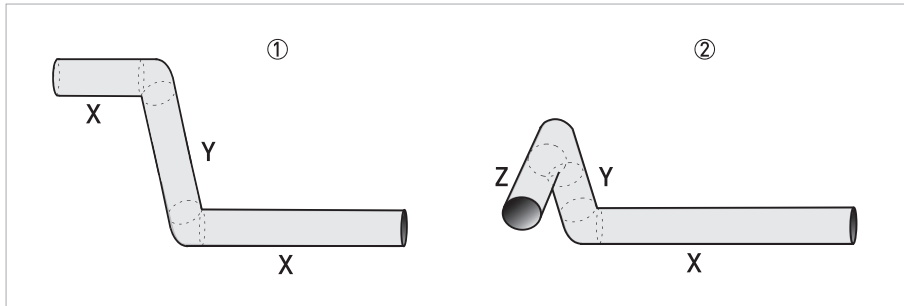


Figure 3-5: 2 and/or 3 dimensional bends upstream of the flowmeter

① 2 dimensions = X/Y

② 3 dimensions = X/Y/Z

Inlet length: using bends in 2 dimensions:  $\geq 5$  DN; when having bends in 3 dimensions:  $\geq 10$  DN



**INFORMATION!**

2 dimensional bends occur in a vertical **or** horizontal plane (X/Y) only, while 3 dimensional bends occur in both vertical **and** horizontal plane (X/Y/Z).

### 3.1.10 T-section

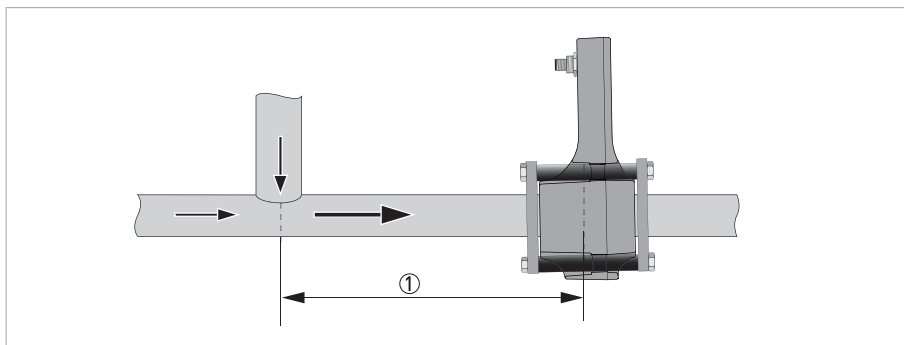


Figure 3-6: Distance behind a T-section

①  $\geq 10$  DN

3.1.11 Open feed or discharge

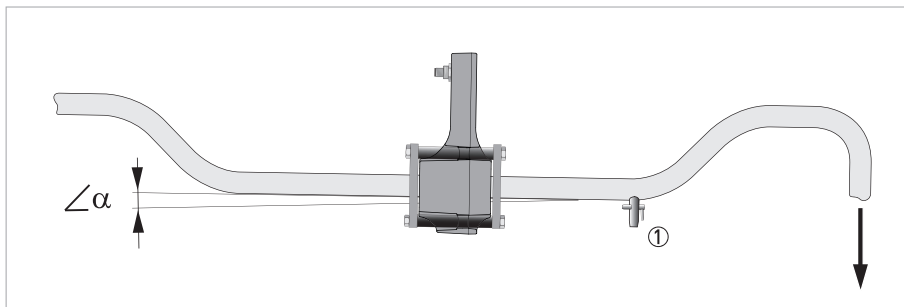


Figure 3-7: Installation in front of an open discharge

$\angle\alpha > 25^\circ$   
 ① Drain valve (to empty pipeline)

3.1.12 Pump

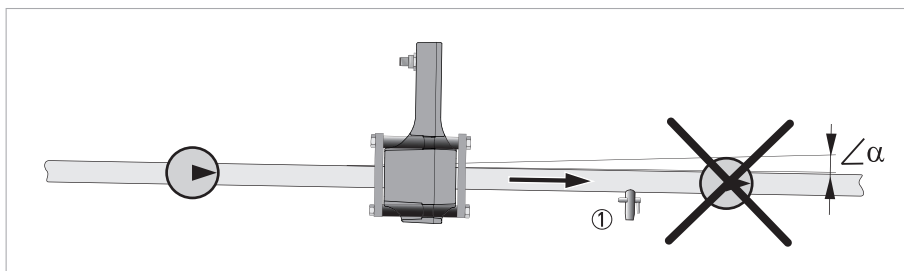


Figure 3-8: Installation behind a pump

$\angle\alpha > 25^\circ$   
 ① Drain valve (to empty pipeline)

3.1.13 Control valve

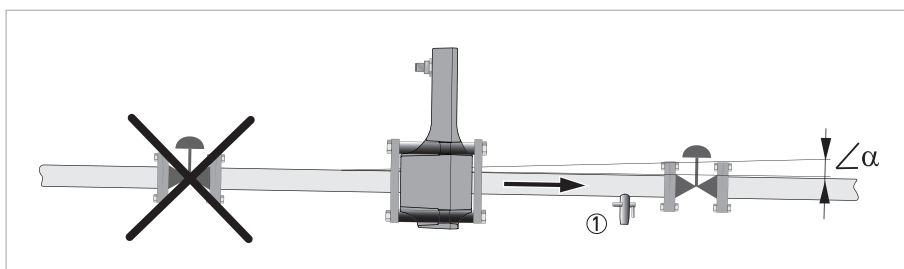


Figure 3-9: Installation in front of a control valve

$\angle\alpha > 25^\circ$   
 ① Drain valve (to empty pipeline)



### 3.1.14 Flange deviation

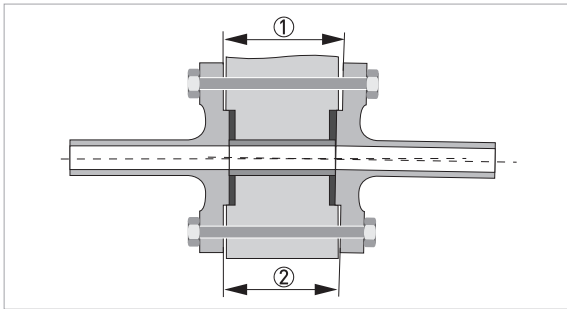


Figure 3-10: Mounting position and flange deviation

- ①  $L_{max}$
- ②  $L_{min}$



**CAUTION!**

Max. permissible deviation of pipe flange faces:  
 $L_{max} - L_{min} \leq 0.5 \text{ mm} / 0.02''$



**CAUTION!**

Install the device always with the 4 rods or bushes supplied. Non compliance will lead to damaging of the tube or leaking.

### 3.1.15 Mounting

### 3.1.16 Installation location

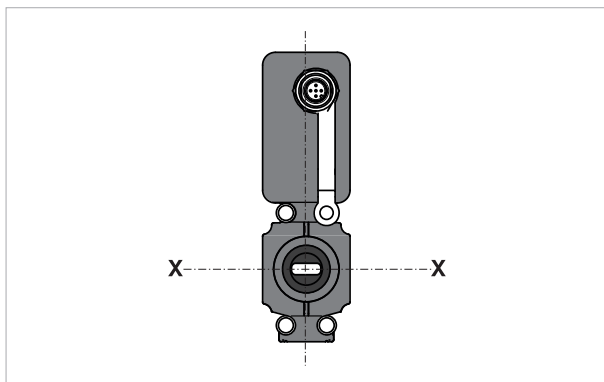


Figure 3-11: Horizontal installation



**CAUTION!**

Mount the flow sensor in such a way that the electrode axis (X-----X) is approximately in a horizontal pipe run.

### 3.1.17 Mounting position

The BATCHFLUX 3100 C flowmeter can be installed in every position.

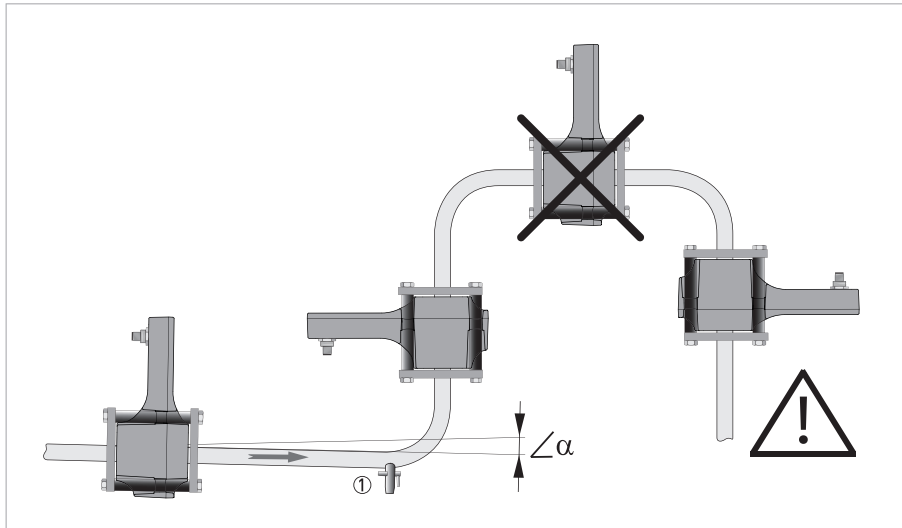


Figure 3-12: Installation in bending pipes

$\angle \alpha > 25^\circ$

① Drain valve (to empty pipeline)



**CAUTION!**

*Install in a slightly descending pipe section (of 25 degrees or larger), to prevent air from collecting and to avoid faulty measurements (meter can drain).*



**CAUTION!**

*To ensure a correct measurement, avoid draining or partial filling of the flow sensor during operation.*



**INFORMATION!**

*Vertical down position only in conjunction with a control valve.*

### 3.1.18 Adjustment after installation

It is not allowed to use any force (turning or rotating) on the device after installation between flanges and with the bolts already tightened.

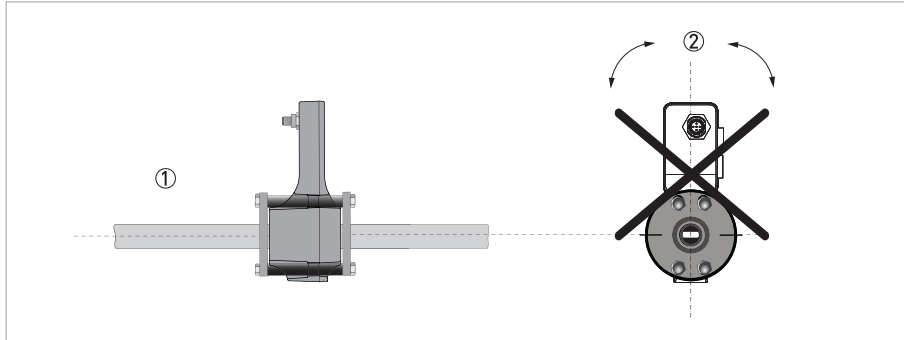


Figure 3-13: No force on device after installing

- ① After installation between flanges
- ② No turning or twisting of device



**CAUTION!**

*Do not use a rotation force on the device once mounted between flanges. The device will be damaged!*



**CAUTION!**

*The (counter) flanges are installed with M6 studs and nuts, positioned and fastened through the four bushing rods. Do not exceed the specified torque!*

### 3.1.19 Torques and pressures

The maximum pressure and torques values for the flowmeter are theoretical and calculated for optimum conditions and use with steel counter flanges.

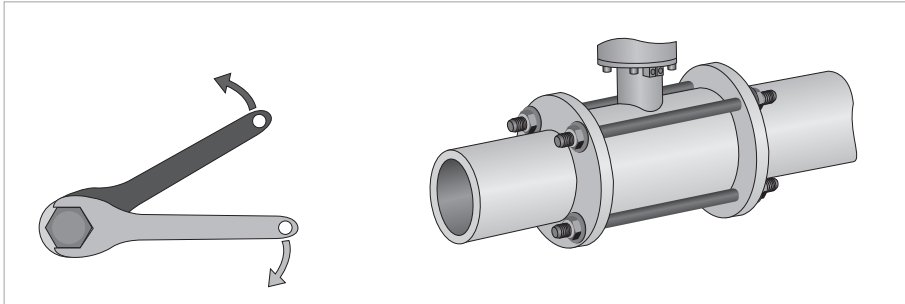


Figure 3-14: Tightening of bolts



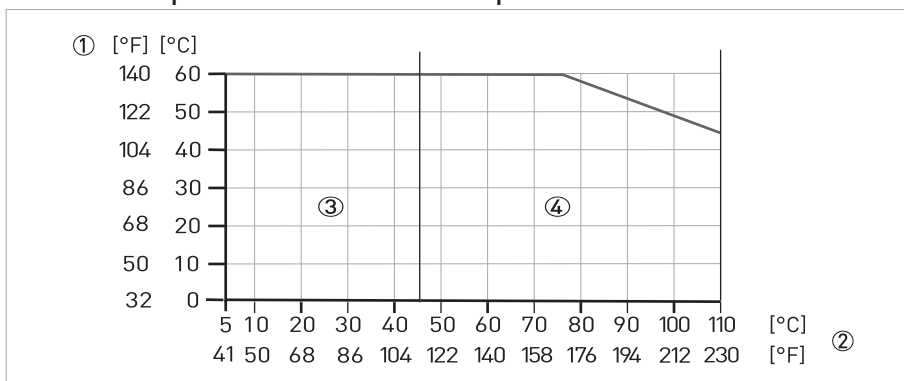
#### Tightening of bolts

- Always tighten the bolts uniformly and in diagonally opposite sequence.
- Do not exceed the maximum torque value.
- Step 1: Apply approx. 50% of max. torque given in table.
- Step 2: Apply approx. 80% of max. torque given in table.
- Step 3: Apply 100% of max. torque given in table.

Nominal size	Counter flanges		Max. operating pressure	Bolts	Bush / spacer	Max. torque [Nm]
	Flange size	Flange class				
DN15	15 [mm]	PN16	≤ 8 [bar]	4 x M8	solid spacer	22
				4 x M6	open bush	9
½"	½ [inch]	150 [lb]	≤ 116 [psi]	4 x M8	solid spacer	22
				4 x M6	open bush	9

### 3.1.20 Temperatures

Process temperature vs ambient temperature



- ① Ambient temperature
- ② Process temperature
- ③ Temperature area for continuous process
- ④ Temperature area for cleaning, up to 1 hour



**INFORMATION!**

For more information on temperatures refer to Technical data on page 28

## 4.1 Safety instructions

**DANGER!**

*All work on the electrical connections may only be carried out with the power disconnected.  
Take note of the voltage data on the nameplate!*

**DANGER!**

*Observe the national regulations for electrical installations!*

**WARNING!**

*Observe without fail the local occupational health and safety regulations.  
Any work done on the electrical components of the measuring device may only be carried out by properly trained specialists.*

**INFORMATION!**

*Look at the device nameplate to ensure that the device is delivered according to your order.  
Check for the correct supply voltage printed on the nameplate.*

## 4.2 EMC regulation

EMC radiation limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment

**CAUTION!**

*This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.*

**CAUTION!**

*The device shall not be used with long-distance lines longer than 30 meters, or which leave the building (including lines of outdoor installations).*

**CAUTION!**

*This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.*

## 4.3 Grounding

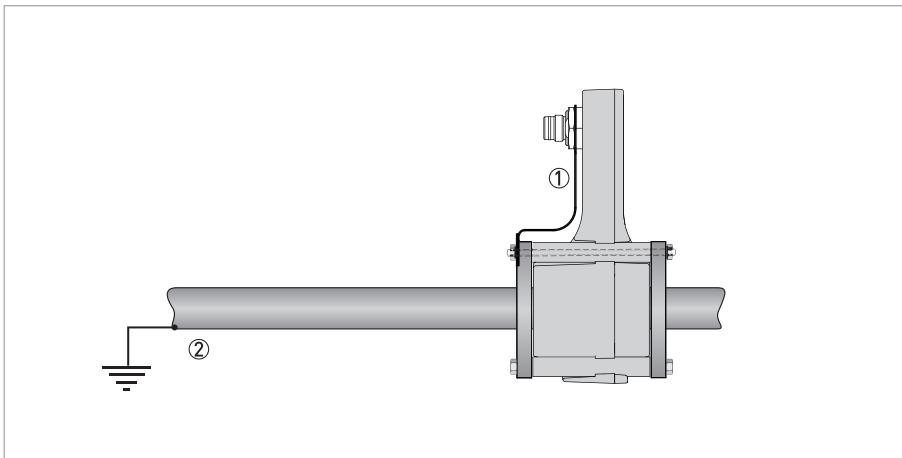


Figure 4-1: Grounding

- ① Metal grounding strip
- ② Grounding of the installation



**CAUTION!**

*The grounding strip should not transmit any interference voltage. Therefore do not ground any other electrical device at the same conductor.*



**CAUTION!**

*When connecting to functional extra-low voltages (24VDC), ensure that you use protective separation (PELV) according to IEC 60364/IEC 61140 or VDE 0100/VDE 0106.*



**CAUTION!**

*The installation requires metal piping and flanges on both sides of the process connections to ensure galvanic connection to the liquid.*



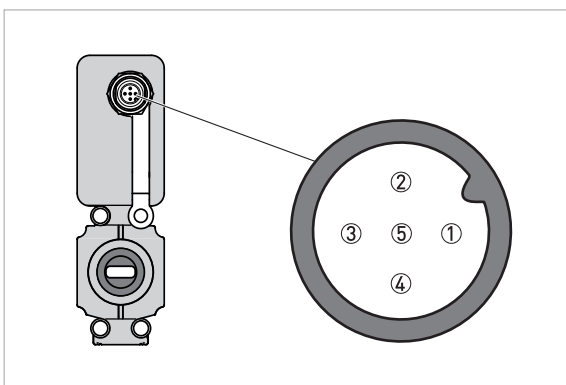
**CAUTION!**

*Do not use excessive force to tighten the M12 nut, when connecting the metal ground strip (maximum torque allowed  $\leq 4$  Nm).*

## 4.4 Electrical connection

### 4.4.1 Cable connector M12 - 5 pin

All the operating data are preset at the factory. For changing the parameters and diagnostic purposes BATCHMon plus operation software can be used.



- ① +24 VDC
- ② Frequency output
- ③ Frequency output (ground)
- ④ Ground
- ⑤ To be connected for servicing only

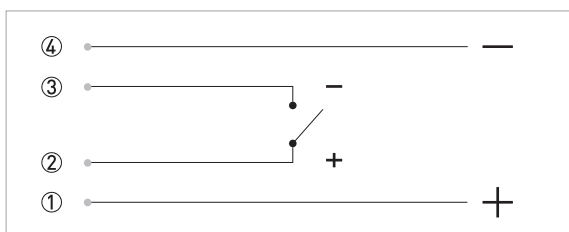


Figure 4-2: Connection diagram

Note; the switch circuits are polarity sensitive and have a resistance of approximately 76 Ohm.

**Use one of the following attachment plug types to connect the flowmeter to a third party system:**

- moulded plug, straight or angle-entry form
- integrally extruded plug with cable in various lengths
- moulded plug, straight form, especially suitable for high-interference environments



**INFORMATION!**

*Cables for electrical installation are available at request, please contact the supplier. When purchasing cables, make sure the material and protection class are suitable for the installation conditions. Contact the manufacturer support office, for suitable cables options.*



## 5.1 Spare parts availability

The manufacturer adheres to the basic principle that functionally adequate spare parts for each device or each important accessory part will be kept available for a period of 3 years after delivery of the last production run for the device.

This regulation only applies to spare parts which are subject to wear and tear under normal operating conditions.

## 5.2 Availability of services

The manufacturer offers a range of services to support the customer after expiration of the warranty. These include repair, maintenance, technical support and training.



### **INFORMATION!**

*For more precise information, please contact your local sales office.*

## 5.3 Returning the device to the manufacturer

### 5.3.1 General information

This device has been carefully manufactured and tested. If installed and operated in accordance with these operating instructions, it will rarely present any problems.



### **WARNING!**

*Should you nevertheless need to return a device for inspection or repair, please pay strict attention to the following points:*

- *Due to statutory regulations on environmental protection and safeguarding the health and safety of the personnel, the manufacturer may only handle, test and repair returned devices that have been in contact with products without risk to personnel and environment.*
- *This means that the manufacturer can only service this device if it is accompanied by the following certificate (see next section) confirming that the device is safe to handle.*



### **WARNING!**

*If the device has been operated with toxic, caustic, radioactive, flammable or water-endangering products, you are kindly requested:*

- *to check and ensure, if necessary by rinsing or neutralising, that all cavities are free from such dangerous substances,*
- *to enclose a certificate with the device confirming that it is safe to handle and stating the product used.*

### 5.3.2 Form (for copying) to accompany a returned device



**CAUTION!**

*To avoid any risk for our service personnel, this form has to be accessible from outside of the packaging with the returned device.*

Company:		Address:	
Department:		Name:	
Telephone number:		Email address:	
Fax number:			
Manufacturer order number or serial number:			
The device has been operated with the following medium:			
This medium is:	<input type="checkbox"/>	radioactive	
	<input type="checkbox"/>	water-hazardous	
	<input type="checkbox"/>	toxic	
	<input type="checkbox"/>	caustic	
	<input type="checkbox"/>	flammable	
	<input type="checkbox"/>	We checked that all cavities in the device are free from such substances.	
	<input type="checkbox"/>	We have flushed out and neutralized all cavities in the device.	
We hereby confirm that there is no risk to persons or the environment caused by any residual media contained in this device when it is returned.			
Date:		Signature:	
Stamp:			

### 5.4 Disposal



**LEGAL NOTICE!**

*Disposal must be carried out in accordance with legislation applicable in your country. This instrument is specially designed for installation as part of another equipment [LSFI - Large-Scale Fixed Installation] and not in the scope of WEEE directive. The instrument contains Printed Circuit Boards that needs to be separated during recycling. It is the End-User's responsibility to dispose of these electronic parts in accordance with legislation applicable in the country.*



**INFORMATION!**

*This device cannot be opened and disassembled, only the external cable can be disconnected and recycled. Contact the local support office if you need related recycling information regarding the materials used.*

## 6.1 Measuring principle

An electrically conductive fluid flows inside an electrically insulated pipe through a magnetic field. This magnetic field is generated by a current, flowing through a pair of field coils.

Inside of the fluid, a voltage  $U$  is generated:

$$U = v * k * B * D$$

in which:

$v$  = mean flow velocity

$k$  = factor correcting for geometry

$B$  = magnetic field strength

$D$  = inner diameter of flowmeter

The signal voltage  $U$  is picked off by electrodes and is proportional to the mean flow velocity  $v$  and thus the flow rate  $Q$ . A signal converter is used to amplify the signal voltage, filter it and convert it into signals for totalizing, recording and output processing.

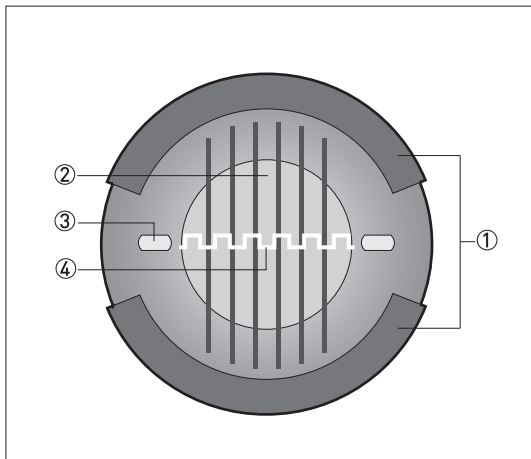


Figure 6-1: Measuring principle

- ① Field coils
- ② Magnetic field
- ③ Electrodes
- ④ Induced voltage (proportional to flow velocity)

## 6.2 Technical data



### INFORMATION!

- The following data is provided for general applications. If you require data that is more relevant to your specific application, please contact us or your local sales office.
- Additional information (certificates, special tools, software,...) and complete product documentation can be downloaded free of charge from the website (Downloadcenter).

### Measuring system

Measuring principle	Faraday's law
Application range	Electrically conductive fluids
<b>Measured value</b>	
Primary measured value	Flow velocity
Secondary measured value	Volume flow

### Design

Features	Standard wet calibration
Modular construction	The measurement system consists of a flow sensor and a signal converter and is only available as a compact version.
Compact version	BATCHFLUX 3100 C
Nominal diameter	DN15 / ½"
Measurement range	Standard: -6...+6 m/s / 20...+20 ft/s
Factory settings	Pulse value: 0.1 ml; max. flow 1 l/s
	Low flow cut off: 22.5 ml/s
	Low flow hysteresis: 2.25 ml/s
<b>User interface</b>	
Operating data	Factory set to customer specification
Human Machine Interface (HMI)	Option: BATCHMon Plus software and hardware
Cable connections	Standard: 1 x M12; 5-pin connector

### Measuring accuracy

Reference conditions	Medium: water	
	Inlet/outlet section: 10 DN/5 DN	
	Valve closing time variation: < 1 ms	
	Flow velocity: 1 m/s, flow conditions similar to EN 29104	
	Operating pressure: 1 bar / 14.5 psi	
<b>Error limits at reference conditions for tap water, 400 µS/cm, 20°C/68°F:</b>		
Maximum measuring error	<b>DN15:</b>	
	± 0.3% of measured value + 2 mm/s	
Repeatability	Filling time [s]:	Standard deviation:
	1.5...3 s:	≤ 0.3%
	3...5 s:	≤ 0.15%
	> 5 s:	≤ 0.08%

### Operating conditions

<b>Temperature</b>	
Process temperature	Depending on ambient temperature; refer to <i>Temperatures</i> on page 21.
Cleaning temperature	CIP: maximum 1 hour, 110°C / +230°F
Shock	≤ 3 K/s
Ambient temperature	-20...+60°C / -4...+140°F
Storage temperature	-20...+70°C / -4...+158°F
<b>Pressure</b>	
Ambient	Atmospheric (maximum height 3000 meter/9840 ft)
Process pressure	8 bar/116 psi
Vacuum load	0 mbara/ 0 psig
<b>Chemical properties</b>	
Physical condition	Liquids
Electrical conductivity	≥ 20 μS/cm

### Installation conditions

Installation	For detailed information: refer to <i>Installation conditions</i> on page 14
Inlet run	For detailed information: refer to <i>Installation conditions</i> on page 14
Outlet run	≥ 2 DN
Dimensions and weights	For detailed information: refer to <i>Dimensions and weights</i> on page 31

### Materials

Sensor- and converter	Housing: PPSU
Rods & grounding strip	Stainless steel
M12 connection	Nickel plated brass
Measuring tube (wetted)	Ceramic (rectangular)
Measuring electrodes (wetted)	Platinum

### Process connections

Connection	Sandwich design
	Construction drawings of recommended counter flanges are available on the manufacturer website.
	DIN EN 10357 adapters are available.

**Electrical connections**

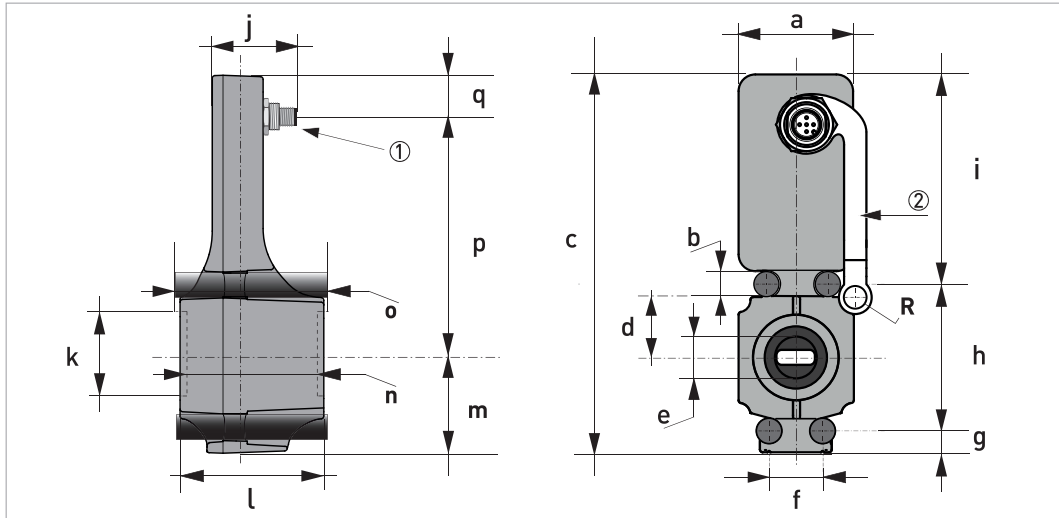
Power supply	24 VDC $\pm$ 25%
Power consumption	1.5 W
Switch on current	$\leq$ 2.5 A (< 100 $\mu$ s) at 24 VDC
Voltage loss	Possible for a maximum of 2 ms.
BATCHMON Plus	For parameter setting and diagnostic purposes, communication via PC with a single device (optional).
Status output	NA
<b>Frequency output</b>	
Type	Frequency (passive)
Function	All operating data preset at factory
Frequency output	$\leq$ 10 kHz
Pulse width at full scale value	> 10 Hz: automatic, pulse width = $1 / (2 \times f_{100\%})$ or symmetrical, 1:1
	Connection of electronic counters.
	External voltage: $\geq 5 \leq 30$ VDC
	Load: $I_{\max} \leq 25$ mA
Low flow cut-off	Threshold: 0...6 m/s
	Hysteresis: 0...6 m/s
	Hysteresis $\leq$ threshold
	Depending on customers specifications.

**Approvals and certifications**

<b>CE</b>	
This device fulfils the statutory requirements of the EU directives. The manufacturer certifies successful testing of the product by applying the CE mark.	
	For full information of the EU directives & standards and the approved certifications, please refer to the EU Declaration of Conformity or the website of the manufacturer.
<b>Other approvals and standards</b>	
Non-Ex	Standard
Protection category according to IEC 60529	IP69
Shock test	60721-4-3 class 3M7 (vibration & shock)
Vibration test	61298-3 "High vibration" (extended to 2 kHz)
<b>Compliances</b>	
Compliant with:	FDA, EC 1935/2004, EC 2023/2006, GB4806

### 6.3 Dimensions and weights

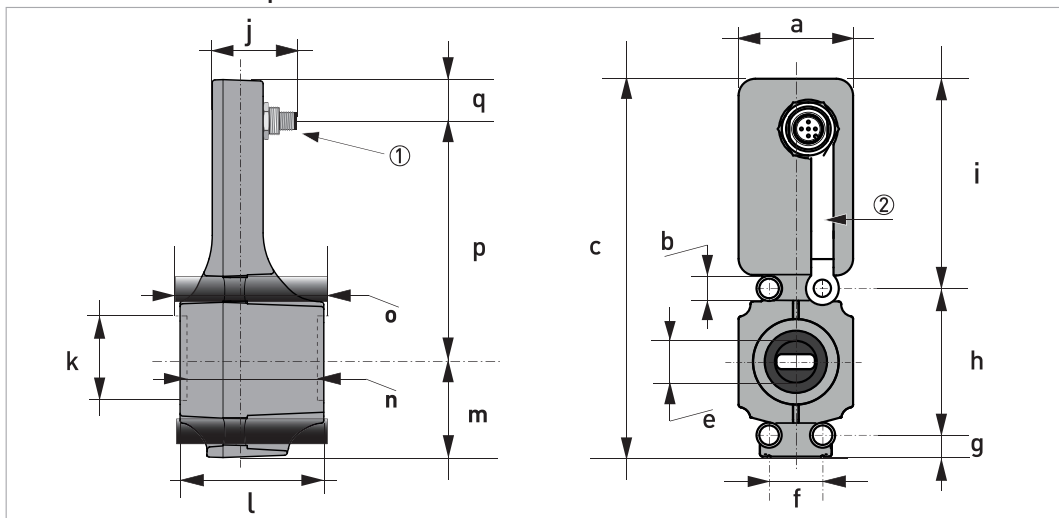
#### DN15 version with solid spacer



- ① M12; 5 pins connector (Grounding)
- ② Grounding strip - R (radius mounting hole) = 4.3 mm / 0.17 inch

Weight: 0.24 kg - 0.53 lbs

#### DN15 version with spacer bush



- ① M12; 5 pins connector (Grounding)
- ② Grounding strip - R (radius mounting hole) = 3.1 mm / 0.1 inch

Weight: 0.18 kg - 0.39 lbs

	Dimensions [mm - inches] ± ½ mm - 0.1																
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
DN15	41	7	136	22	15	20	8	53	75	36	31	53	34	50	54	83	18
1/2"	1.6	0.3	5.5	0.9	0.6	0.8	0.3	2.1	3.0	1.4	1.2	2.1	1.3	2.0	2.1	3.3	0.7

## 6.4 Counter flanges

The BATCHFLUX 3100 C must be mounted between counter flanges (as shown in the following drawing), to ensure that the device works correctly.

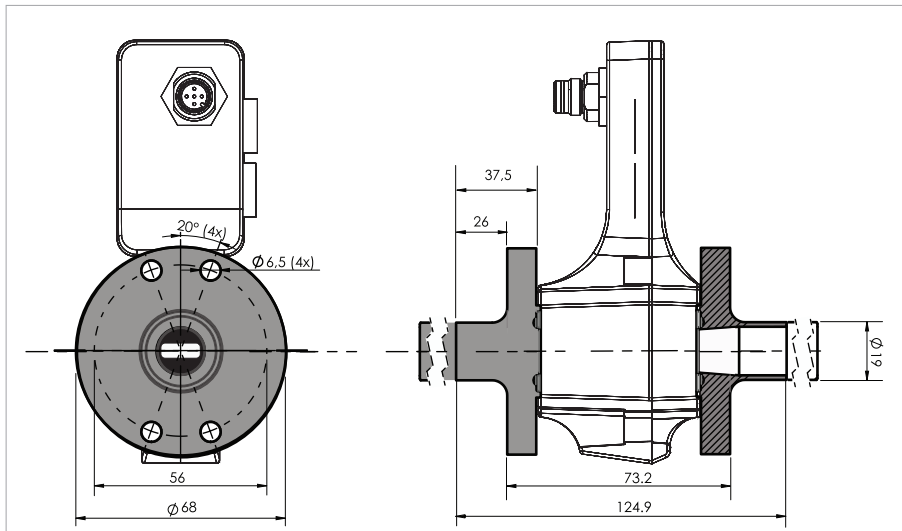


Figure 6-2: Flange according DIN 11850 row 2 / DIN 11866 row / EN 10357 Serie A

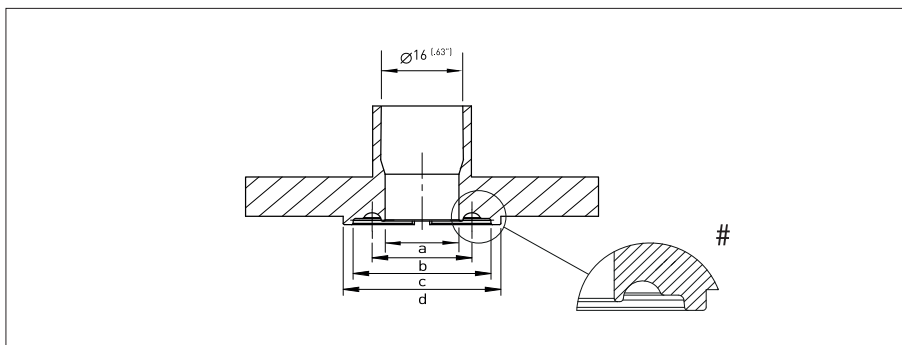


Figure 6-3: Flange according DIN 11850 row 2 / DIN 11866 row / EN 10357 Serie A

### Dimensions:

∅	a	b	c	d	O-ring
[mm]	14	19	26.2	30.4	15.5 x 3.5
inch	0.5	0.75	1.03	1.2	0.61 x 0.14



### INFORMATION!

Detailed construction drawings of the above sketches are available from the manufacturer website.



## 6.5 Pressure loss

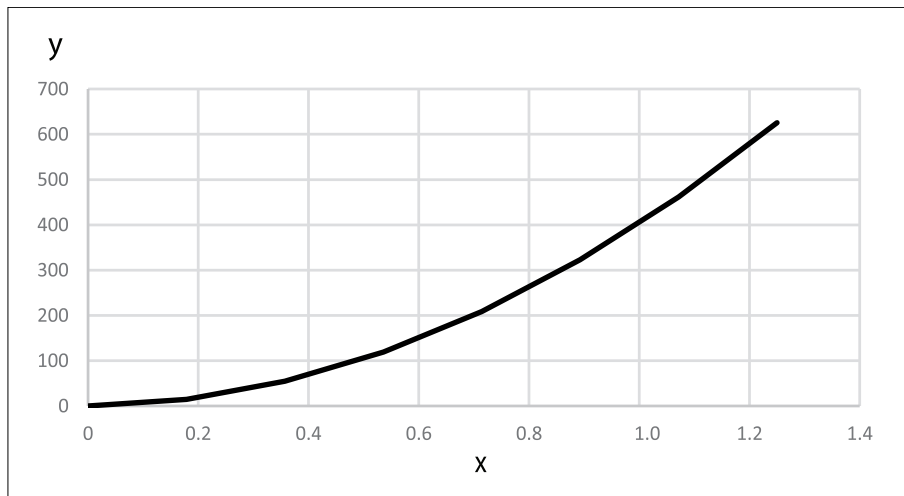


Figure 6-4: Pressure loss

x = flow volume [l/s]

y = pressure loss [mbar]





## **KROHNE – Products, Solutions and Services**

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