GEMÜ 3030 mFlow

Magnetically inductive flowmeter

Features

- Same measurement device can be used for different nominal sizes
- No moving parts in the medium
- Access rights via different user levels
- Integrated Web browser capability
- Simple commissioning and versatile operating facilities
  - Fascia keys
  - PC connection with Internet browser
  - Fieldbus interfaces e.g. Profibus-DP

Description

The GEMÜ 3030 mFlow flowmeter is based on the magnetically inductive measurement principle. It is suitable for electrically conductive media. Operation is carried out using a membrane keypad positioned on the front of the body with a backlit display.

Technical specifications

- **Media temperature :** 0 to 135 °C
- **Operating pressure :** 0 to 10 bar
- **Nominal sizes:** DN 25 to 300
- **Detection range:** 0.1 to 10 m/s
- **Connection types:** Flange l Spigot l Union end l Weld-in sleeve
- **Metering tube materials:** 1.4435
- **Supply voltages:** 24 V DC
- **Electrical connection type:** M12 plug l M12 socket
- **Conformities:** EAC

Technical data depends on the respective configuration

further information
webcode: GW-3030

Product description

Item	Name	Materials
1	Operating and display elements, membrane keypad	Polyester film with acrylic glass
2	Housing cover	PSU
3	Housing base	PP 30
4	Sensor rod	1.4435 / PEEK, 1.4435 / TFM1600
	Seal material	FPM, EPDM, Isolast J9505
5	Electrodes	1.4435

Display

Display	Keys	LED
2-line, alphanumeric with 16 digits and white background light	4 x membrane protected	Optical fibre, red colour only Profibus version
Parameterization At the device via 4 keys and display; menu selection with help texts or context sensitive At the PC via RS232 connection with PPP protocol: Internet Explorer		

GEMÜ CONEXO

The interaction of valve components that are equipped with RFID chips and an associated IT infrastructure actively increase process reliability.

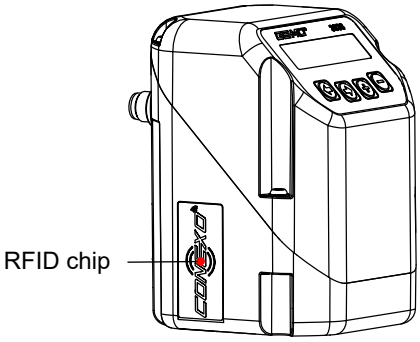
Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves the "installation qualification" process, but also makes the maintenance process much more transparent and easier to document. The app actively guides the maintenance technician through the maintenance schedule and directly provides him with all the information assigned to the valve, such as test reports, testing documentation and maintenance histories. The CONEXO portal acts as a central element, helping to collect, manage and process all data.

For further information on GEMÜ CONEXO please visit:
www.gemu-group.com/conexo

Ordering

GEMÜ Conexo must be ordered separately with the ordering option "CONEXO".

Installing the RFID chip



Availabilities

GEMÜ weldolet		
Complete measurement device 3030 ... DH ...	Separate measurement device 3030 ... ZH ...	Separate fitting 3030 ... KH ...
		
GEMÜ in-line housing		
Complete measurement device 3030 ... DD ...	Separate measurement device 3030 ... ZD ...	Separate fitting 3030 ... KD ...
		
GEMÜ wafer-type flange		
Complete measurement device 3030 ... DF ...	Separate measurement device 3030 ... ZF ...	Separate fitting 3030 ... KF ...
		
Tuchenhagen Varivent ® in-line housing		
Complete measurement device 3030 ... DU ...	Separate measurement device 3030 ... ZU ...	Separate fitting 3030 ... KU ...
		
Neumo BioControl ® in-line housing		
Complete measurement device 3030 ... DN ...	Separate measurement device 3030 ... ZN ...	Separate fitting 3030 ... KN ...
		

Correlation of nominal sizes/housing configuration

	Housing configuration code				
	DD / KD / ZD	DF / KF / ZF	DH / KH / ZH	DN / KN / ZH	DU / KU / ZU
DN 40 - 300	-	-	X	-	-
DN 25	X	X	-	X	X
DN 32	X	X	-	-	-
DN 40	X	X	-	-	-
DN 50	X	X	-	X	X
DN 65	X	X	-	-	-

Order data - Complete measurement device

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Order codes

1 Type	Code
Magnetically inductive flowmeter, complete measurement device	3030

2 DN	Code
DN 25 - DN 300, (for DH housing configuration)	000

3 Housing configuration	Code
Complete measurement device, with GEMÜ in-line housing	DD
Complete measurement device, with GEMÜ wafer-type flange	DF
Complete measurement device, with GEMÜ weldolet	DH
Complete measurement device, with NEUMO BioControl in-line housing	DN
Complete measurement device with TUCHENHAGEN Varivent in-line housing	DU

4 Connection type	Code
Union end with Rp threaded socket insert	7R
DIN wafer-type flange	8
Spigot EN 10357 series A (formerly DIN 11850 series 2)	17
GEMÜ weldolet for DH housing configuration	WS

5 Housing material	Code
1.4435	41

6 Seal material	Code
FPM	4
EPDM	14

6 Seal material	Code
FFKM (Isolast J9505)	F5

7 Sensor material	Code
1.4435/Peek	C
1.4435/TFM1600	E

8 Device version	Code
Measurement device with fieldbus interface	M02
Measurement device 4 - 20 mA, one pulse output, two relay outputs	M42
Temperature sensor measurement device, 4 - 20 mA, one pulse output, two relay outputs	MT2

9 Option	Code
Without	00
Profibus-DP	DP

10 Voltage/frequency	Code
24 V DC	C1

11 Type of design	Code
Without	
Ra ≤ 0.8 µm electropolished internal/external, surface finish data refers to media-wetted surfaces	1503

12 CONEXO	Code
Without	
Integrated RFID chip for electronic identification and traceability	C

Order example

Ordering option	Code	Description
1 Type	3030	Magnetically inductive flowmeter, complete measurement device
2 DN	000	DN 25 - DN 300, (for DH housing configuration)
3 Housing configuration	DH	Complete measurement device, with GEMÜ weldolet
4 Connection type	WS	GEMÜ weldolet for DH housing configuration
5 Housing material	41	1.4435
6 Seal material	4	FPM
7 Sensor material	E	1.4435/TFM1600
8 Device version	M42	Measurement device 4 - 20 mA, one pulse output, two relay outputs
9 Option	00	Without
10 Voltage/frequency	C1	24 V DC
11 Type of design		Without
12 CONEXO		Without

Order data - Separate measurement device

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Order codes

1 Type	Code
Magnetically inductive flowmeter, separate measurement device	3030

2 DN	Code
DN 25 - DN 300, (for housing configuration ZH)	000

3 Housing configuration	Code
Separate measurement device, for GEMÜ in-line housing	ZD
Separate measurement device, for GEMÜ wafer-type flange	ZF
Separate measurement device, for GEMÜ weldolet	ZH
Separate measurement device, for NEUMO BioControl in-line housing	ZN
Separate measurement device, for TUCHENHAGEN Varivent in-line housing	ZU

4 Housing material	Code
1.4435	41

5 Seal material	Code
FPM	4
EPDM	14
FFKM (Isolast J9505)	F5

6 Sensor material	Code
1.4435/Peek	C
1.4435/TFM1600	E

7 Device version	Code
Measurement device with fieldbus interface	M02
Measurement device 4 - 20 mA, one pulse output, two relay outputs	M42
Measurement device temperature sensor, 1 pulse output, 2 relay outputs	MT2

8 Option	Code
Without	00
Profibus-DP	DP

9 Voltage/Frequency	Code
24 V DC	C1

10 Type of design	Code
Without	
Ra ≤ 0.8 µm electropolished internal/external, surface finish data refers to media wetted surfaces	1503

11 CONEXO	Code
Without	
Integrated RFID chip for electronic identification and traceability	C

Order example

Ordering option	Code	Description
1 Type	3030	Magnetically inductive flowmeter, separate measurement device
2 DN	000	DN 25 - DN 300, (for housing configuration ZH)
3 Housing configuration	ZH	Separate measurement device, for GEMÜ weldolet
4 Housing material	41	1.4435
5 Seal material	4	FPM
6 Sensor material	E	1.4435/TFM1600
7 Device version	M42	Measurement device 4 - 20 mA, one pulse output, two relay outputs
8 Option	00	Without
9 Voltage/Frequency	C1	24 V DC
10 Type of design		Without
11 CONEXO		Without

Order data - Separate fitting

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Order codes

1 Type	Code
Magnetically inductive flowmeter, separate fitting	3030

2 DN	Code
DN 25 - DN 300, (for housing configuration KH)	000

3 Housing configuration	Code
GEMÜ in-line housing	KD
GEMÜ wafer-type flange	KF
GEMÜ weldolet	KH
NEUMO BioControl in-line housing	kN
TUCHENHAGEN Varivent in-line housing	KU

4 Connection type	Code
Union end with Rp threaded socket insert	7R
DIN wafer-type flange	8

4 Connection type	Code
Spigot EN 10357 series A (formerly DIN 11850 series 2)	17
GEMÜ weldolet for housing configuration KH	WS

5 Housing material	Code
1.4435	41

6 Seal material	Code
Without	00
FPM	4
EPDM (for housing configuration KD, KF, KU, KN)	14

7 Type of design	Code
Without	
Ra ≤ 0.8 µm electropolished internal/external, surface finish data refers to media wetted surfaces	1503

Order example

Ordering option	Code	Description
1 Type	3030	Magnetically inductive flowmeter, separate fitting
2 DN	000	DN 25 - DN 300, (for housing configuration KH)
3 Housing configuration	KH	GEMÜ weldolet
4 Connection type	WS	GEMÜ weldolet for housing configuration KH
5 Housing material	41	1.4435
6 Seal material	00	Without
7 Type of design		Without

Order data - Connection kit

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Order codes

1 Type	Code
Connection kit for GEMÜ 3030	3030

2 Fieldbus	Code
Connection kit	S02

3 Accessory	Code
Accessory	Z

4 Connection type X1/X3, A-coded	Code
Without connector socket, with M12 protection cap	0000
M12 socket, A-coded, angle, without cable, screw terminal	00M0
M12 socket, B-coded, angle, can be shielded, M12 plug, B-coded, angle, can be shielded, for Profibus DP	DPM0
M12 socket, A-coded, angle, fitted with 5 m cable, 0.34 mm² PUR cable	05M0

4 Connection type X1/X3, A-coded	Code
M12 socket, A-coded, angle, fitted with 10 m cable, 0.34 mm² PUR cable	10M0

5 Connection type X2, B-coded	Code
Without connector socket, with M12 protection cap	0000
M12 socket, B-coded, angle, without cable, screw terminal	00M0
M12 socket, A-coded, angle, without cable, for Profibus DP	DPM0
Y cable + 1x M12 socket, B-coded, angle, fitted with 5 m cable, 00.34 mm² PUR cable, 5 m Sub-D connecting cable	05Y0
Y cable + 1x M12 socket, B-coded, angle, fitted with 10 m cable, 0.34 mm² PUR cable, 10 m Sub-D connecting cable	10Y0

Order example

Ordering option	Code	Description
1 Type	3030	Connection kit for GEMÜ 3030
2 Fieldbus	S02	Connection kit
3 Accessory	Z	Accessory
4 Connection type X1/X3, A-coded	00M0	M12 socket, A-coded, angle, without cable, screw terminal
5 Connection type X2, B-coded	00M0	M12 socket, B-coded, angle, without cable, screw terminal

Technical data

Medium

Working medium: Conductive liquid media which have no negative impact on the physical and chemical properties of the housing and sensor material.

Conductivity: ≥ 20 µS/cm

Temperature

Ambient temperature: 0 — 60 °C

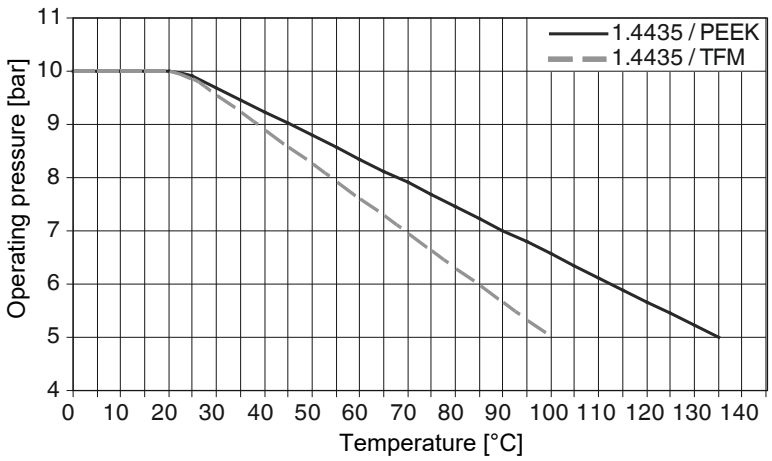
Media temperature: 0 — 135 °C

Storage temperature: 0 — 40 °C

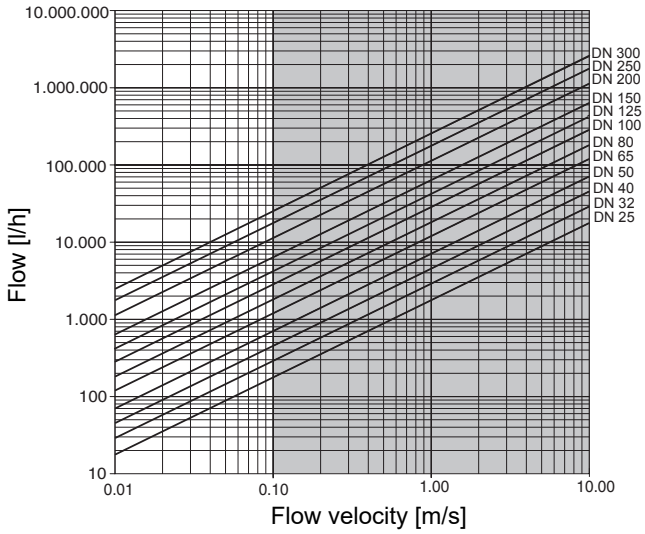
Pressure

Operating pressure: max. 10 bar

Pressure/temperature diagram:



Flow characteristics:



Product compliance

Low Voltage Directive:	73/23/EEC
EMC Directive:	2014/30/EU Interference resistance: EN 61000-6-2 Interference emission: EN 61000-6-4

Mechanical data

Protection class:	IP 65 acc. to EN 60529
Electrical protection class:	II
Installation position:	Vertical rising pipeline recommended. Angular section with horizontal installation position horizontal ± 45° Inlet/outlet distance min. 10x / 5x DN Earth fitting and pipeline before and after the flowmeter. Filled pipeline required (preferably rising pipeline). The sensor must already have been in the medium to be measured for 24 hrs (with supply voltage applied). Deposits in the measuring fitting have to be reduced to a minimum in order to avoid additional measurement errors.

Electrical data

Power supply

Supply voltage:	24 V DC ± 10%	
Power consumption:	Analogue version:	typically 2.4 W (at 24 V DC)
	Profibus version:	typically 3.6 W (at 24 V DC)
Current consumption:	Analogue version:	typically 100mA (at 24 V DC), max. 1.65 A incl. relay load (with closed K1, K2 and K3 with 0.5 A load each)
	Profibus version:	typically 150 mA (at 24 V DC)
Reverse battery protection:	Yes	
Duty cycle:	Continuous duty	

Analogue output

Current output:	4 - 20 mA (adjustable in the event of error or failure 2 or 22 mA)
Output type:	active
Load resistor:	max. 400 Ω
Accuracy:	1 %

Digital output

Delay time:	0 to 100 s (adjustable)
Functions:	Min., Max., Min./Max., TQ1, TQ2, T, direction, warning or pulse (only K3)

Relay output K1 and K2

Type of contact:	Make contact
Switching voltage:	24 V DC ± 10%
Switching current:	Max. 500 mA
Current limitation:	no (not short-circuit proof)

Pulse output

Type of contact:	PNP
Switching voltage:	24 V DC ± 10%
Drop voltage:	Max. 2 V DC at 500 mA
Switching current:	Max. 500 mA
Switching frequency:	Max. 500 Hz
Current limitation:	Yes
Special feature:	Pulse pause ratio 1:1

Interfaces

PC interface

Interface: RS232

Protocol: PPP protocol

Operating software: Internet Explorer

Fieldbus

Fieldbus: Profibus DP

Version: DPV0

Baudrate: Max. 12 Mbit/s

Profibus address: 27 (default setting)

Measured data

Display of measured data: v, Q, TQ1, TQ2, T selectable

Measurement unit (Q): l/h, m³/h, l/min, m³/min, GAL/h, BBL/h, GAL/min, BBL/min, gal/h, bbl/h, gal/min, bbl/min selectable

Accuracy / repeatability:

Reference conditions GEMÜ 3030
Factory calibration with water at 25 °C, 0.1 m/s < v < 10 m/s

with GEMÜ in-line housing	1%* of active end value of measuring range (under reference conditions)
with GEMÜ wafer-type flange	1%* of active end value of measuring range (under reference conditions)
with Tuchenhagen in-line housing	1%* of active end value of measuring range (under reference conditions)
with Neumo in-line housing	1%* of active end value of measuring range (under reference conditions)
with GEMÜ weldolet	2 %* of active end value of measuring range with on-site adjustment 5 % of active end value of measuring range without on-site adjustment

* Sterilizing cycles (RT/135 °C) for sensor material 1.4435/PEEK or temperature changes (0/100 °C) for sensor material 1.4435/TFM, as well as gauge pressure (40 bar) and vacuum load (~0 mbar) of the sensor may cause up to 2.5%.

Flow measurement

Measuring range: 0.1 to 4 m/s, 0.1 to 10 m/s selectable

Measuring range switchover: automatic, manual

Measuring span: 0.1 m/s – end value of measuring range

Temperature measurement (optional)

Measurement unit: °C

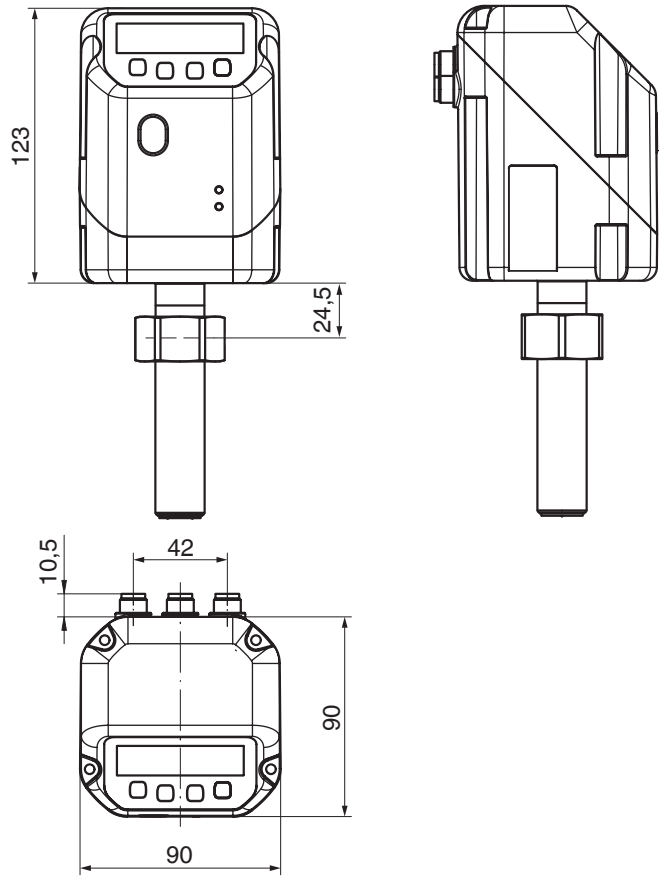
Temperature range: 0 to 100 °C

Resolution: 0.1 °C

Accuracy / repeatability: ± 2 °C

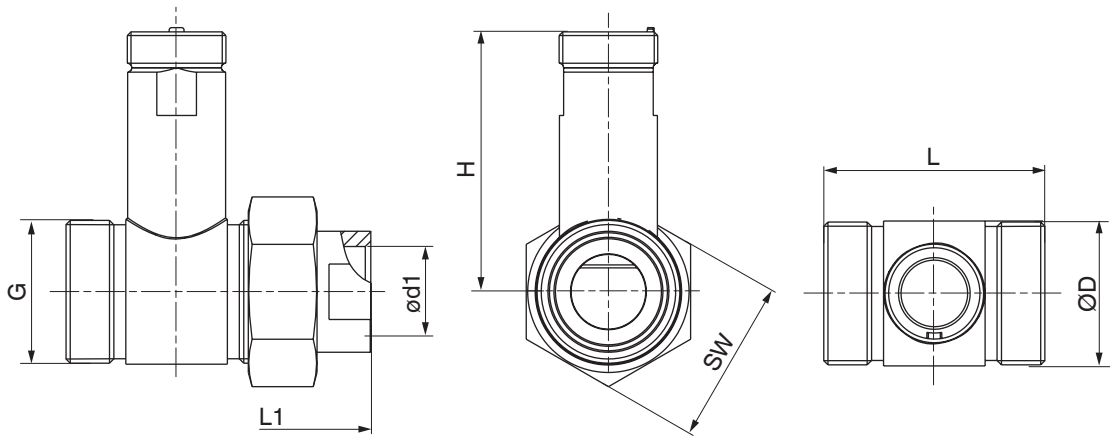
Dimensions

Housing of measurement device



Dimensions in mm

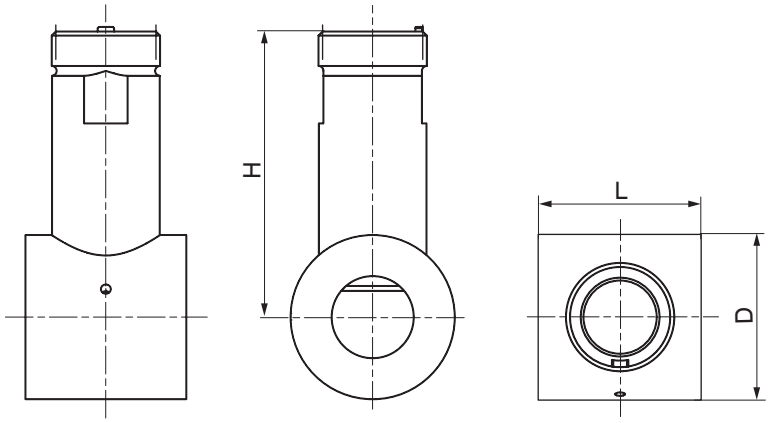
In-line housing code DD, KD, ZD



DN	G	ød1	ØD	L	L1	H	SW
25	G 1 1/2	Rp 1	48.5	74	130	87.0	55
32	G 2	Rp 1 1/4	60.0	74	140	89.0	65
40	G 2 1/4	Rp 1 1/2	66.0	74	142	91.8	75
50	G 2 3/4	Rp 2	81.5	106	186	95.8	90
65	G 3 1/2	Rp 2 1/2	101.0	106	192	101.5	110

Dimensions in mm

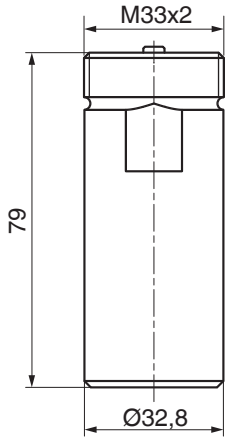
Wafer-type flange code DF, KF, ZF



DN	D	H	L
25	50	87.0	49
32	60	89.0	49
40	70	91.8	49
50	107	95.7	49
65	100	101.5	49

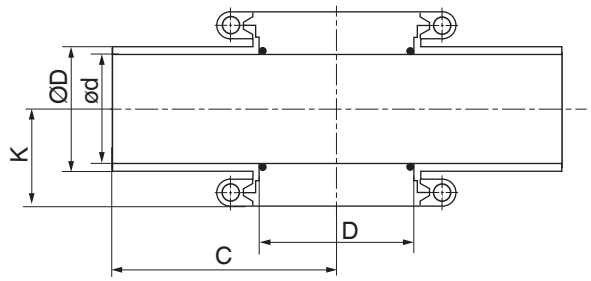
Dimensions in mm

Weldolet code DH, KH, ZH



Dimensions in mm

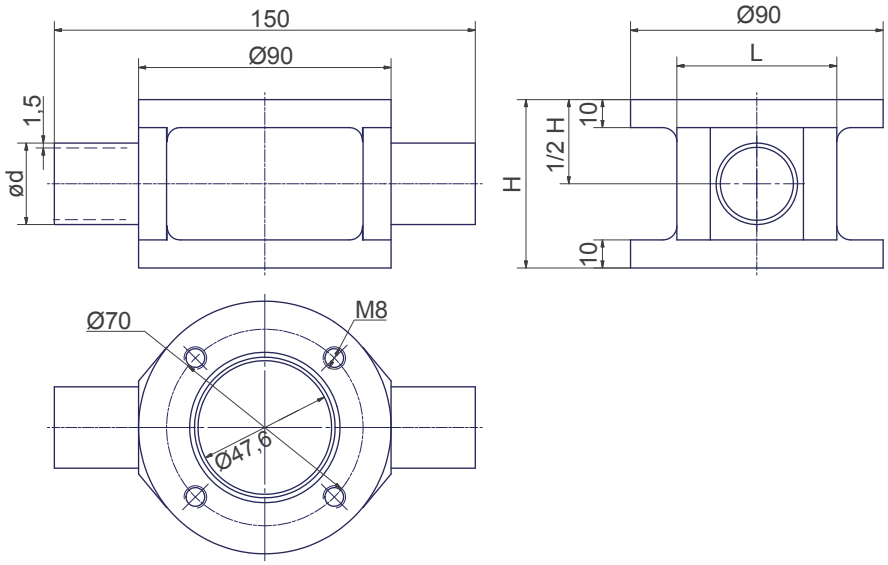
Tuchenhagen Varivent in-line housing code DU, KU, ZU



DN	ød	ØD	C	D	K
25	26	29	90	50	31
50	50	53	90	68	44

Dimensions in mm

Neumo BioControl in-line housing code DN, KN, ZN



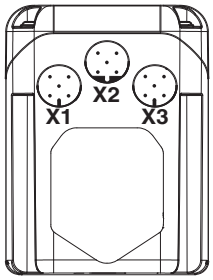
DN	ød	ØD	H	L
25	29	29	60	57
50	53	53	84	69

Dimensions in mm

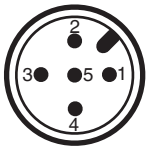
Electrical connection

Standard

Position of the connectors

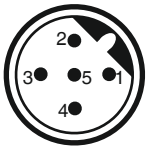


Connection X1



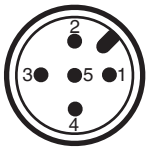
Pin	Signal name
1	Uv, 24 V DC supply voltage
2	Make contact, output K1, 24 V DC
3	Uv, GND
4	Make contact, output K2, 24 V DC
5	n.c.

Connection X2



Pin	Signal name
1	n.c.
2	n.c.
3	RxD, RS 232
4	TxD, Transmit Data, RS 232
5	GND, RS 232

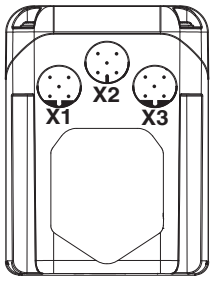
Connection X3



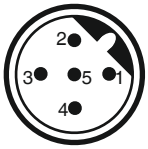
Pin	Signal name
1	I+, current output
2	I-, current output
3	Functional earth
4	24 V DC, pulse output
5	GND, pulse output

Profibus, ordering option Connection type (code DPM0)

Position of the connectors

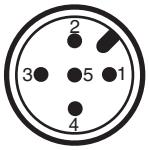


Connection X1



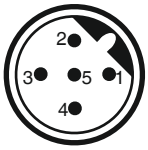
Pin	Signal name
1	n.c.
3	RxD, TxD-N
3	n.c.
4	RxD, Receive Data, TxD-P
5	Shield

Connection X2



Pin	Signal name
1	Uv, 24 V DC supply voltage
2	n.c.
3	Uv, GND
4	n.c.
5	n.c.

Connection X3



Pin	Signal name
1	BUS-V DC, +5 V DC
2	RxD, TxD-N
3	D_{GND}
4	RxD, Receive Data, TxD-P
5	Shield

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