



## Insertion magnetic inductive flowmeter

- · Sensor without moving parts
- Indicates both flow rate and volume
- Simulation of all output signals
- Clean in place (CIP), FDA-compliant materials
- Version with Alloy C22 electrodes







Product variants described in the data sheet may differ from the product presentation and description.

#### Can be combined with



# Type 2030 • Pneumatically operat-

ed 2/2 way diaphragm valve CLASSIC with plastic body



#### Type 2301

Pneumatically operated 2 way Globe Control Valve



#### Type 8802

ELEMENT continuous control valve systems - overview



#### Type 8644

Remote Process Actuation Control System AirLINE

#### Type description

The electromagnetic flowmeter 8045 is made up of an electronic module including a backlit display, operating keys and a sensor consisting of PVDF or stainless steel material. It has been designed to measure a flow rate of neutral and slightly aggressive fluids with a conductivity of more than 20  $\mu$ S/cm in DN 06...DN 400 pipes.

It is equipped with a 4...20 mA output, a digital output (pulse output by default). Some versions are equipped with two relay outputs and one digital input. Two independent totalizers allow counting the flow rate.

This flowmeter is available either with a G 2" connection with a PVDF sensor or, a G 2" or clamp connection with a stainless steel sensor which are designed for use with Type S020 Insertion fitting.

The version with a stainless steel sensor can be used in applications with higher pressures (PN 16) and higher temperatures (110 °C). The version with Alloy C22 electrodes has been designed for applications with aggressive fluids (chemicals) and especially sea water applications.





#### **Table of contents**

1.	Ger	neral technical data	3
2.	App	provals	6
	2.1.	Certification UL	6
	2.2.	Pressure Equipment Directive	
		Device used on a pipe	
3.	Mat	terials	6
	3.1.	Chemical Resistance Chart – Bürkert resistApp	6
	3.2.	Material specifications	
4	Dim	nensions	8
٠.			
	4.1.	Insertion flowmeter with G 2" process connection	
	4.2.	Insertion flowmeter with G 2" process connection installed in a S020 fitting	
	4.3.	Insertion flowmeter with clamp process connection	
	4.4.	Insertion flowmeter with clamp process connection installed in a S020 fitting	10
5.	Per	formance specifications	11
	5.1.	Pressure temperature diagram	11
	J. 1.	Insertion flowmeter with a PVDF sensor	
		Insertion flowmeter with a stainless steel sensor	
_			
6.	Pro	duct installation	12
	6.1.	Installation notes	
	6.2.	Mounting options	12
7.	Pro	duct operation	13
	7.1.	Measuring principle	13
	7.2.	Functional overview	13
		Display and operating keys	13
		Operating levels	14
8.	Pro	duct design and assembly	15
	8.1.	Product assembly	
9.	Net	tworking and combination with other Bürkert products	16
•			
	9.1.	Networking and combination of the flowmeter with other Bürkert products	
	9.2.	Combination of the flowmeter with available S020 Insertion fittings DN	10
10	. Ord	dering information	17
	10.1.	. Bürkert eShop – Easy ordering and quick delivery	17
	10.2.	Recommendation regarding product selection	
		Insertion flowmeter with G 2" process connection	
		Insertion flowmeter with clamp process connection	
		Bürkert product filter	
	10.4.	Ordering chart	
		Insertion flowmeter with G 2" process connection	
	10.5	Insertion flowmeter with clamp process connection	
	10.5.	Ordoning order docessories	19







#### 1. General technical data

#### Note:

If the device is mounted in a humid environment or outside, then the maximum voltage allowed is 35 V DC instead of 36 V DC.

#### **Product properties**

Please make sure the device materials are compatible with the fluid you are using.

Detailed information can be found in chapter "3.1. Chemical Resistance Chart - Bürkert resistApp" on page 6.

Non	wetted	narte
IVUII	weiteu	บลเเจ

itoii itottoa parto	
Housing, cover, nut	<ul> <li>Version with flow sensor in PVDF: PC (glass fibre reinforced for housing)</li> </ul>
	<ul> <li>Version with flow sensor in stainless steel: back PPA (glass fibre reinforced)</li> </ul>
Seal	NBR
Lid	Version with flow sensor in PVDF: PC
	Version with flow sensor in stainless steel: PSU
Seal	Silicone
Front panel foil	Polyester
Holder	Stainless steel 1.4404/316L (for flowmeter with clamp process connection, over the clamp)
Screws	Stainless steel
Cable glands	PA with neoprene seal
Mounting ring	Polysulphone, glass fibre reinforced
Wetted parts	
Seals	For flowmeter with G 2" process connection:
	- FKM
	- FPDM (conform to FDA)

- EPDM (conform to FDA)
- For flowmeter with clamp process connection: (to be ordered separately, detailed information can be found in chapter "10.5. Ordering chart accessories" on page 19.)
  - EPDM
  - FEP

Clamp Stainless steel 1.4404/316L Electrodes Stainless steel 1.4404/316L

Alloy C22

Sensor holder **PVDF** 

Stainless steel 1.4404/316L

Earth ring Only with version with flow sensor in PVDF:

Stainless steel 1.4404/316L

Alloy C22

Electrode holder Only with version with flow sensor in stainless steel: PEEK (conform to FDA) Dimensions Detailed information can be found in chapter "4. Dimensions" on page 8. Surface quality For clamp process connection: Ra < 0.8 μm Measuring principle Electromagnetic Sensor element Electrodes Compatibility For flowmeter with G 2" process connection: Any pipe from DN 06...DN 400 which is fitted with Bürkert S020 Insertion fitting with G 2" sensor connection.

For flowmeter with clamp process connection: Any pipe from DN 32...DN 100 which is fitted with Bürkert S020 Insertion fitting with clamp sensor connection.

For the selection of the nominal diameter of the Insertion fittings, see data sheet Type S020 >.

Pipe diameter For flowmeter with G 2" process connection: DN 06...DN 400

For flowmeter with clamp process connection: DN 32...DN 100 Measuring range

Flow rate: 0.4...75000 I/min

Flow velocity: 0.2...10 m/s

Performance data Teach-In: ±0.5 % of the measured value<sup>1.)</sup> at Teach-In flow rate value Measurement deviation Standard K-factor: ±3.5% of the measured value<sup>1.)</sup>

±0.5% of full scale1.) Linearity





Repeatability	±0.25% of the measured value <sup>1.)</sup>
420 mA output uncertainty	±1% of range
Electrical data	
Operating voltage	1836 V DC ±0.5 %, filtered and regulated (3 wires)
Power source (not supplied)	Limited power source according to UL/EN 60950-1 standards or limited energy circuit according to UL/EN 61010-1 §9.4
DC reverse polarity protection	Yes
Current consumption	≤300 mA (at 18 V DC)
Input (DI1)	Supply voltage: 1836 V DC
	<ul> <li>Input impedance: 15 kΩ</li> </ul>
	min. pulse duration: 200 ms
	Galvanic insulation, protected against polarity reversals of DC and voltage spikes
Outputs	Current (analogue output AO1):
•	- 420 mA
	- Sink or source (by wiring)
	- 22 mA to indicate a fault
	– Max. loop impedance: 1300 $\Omega$ at 36 V DC; 1000 $\Omega$ at 30 V DC; 700 $\Omega$ at 24 V DC; 450 $\Omega$
	at 18 V DC
	Transistor (digital output DO1):
	<ul> <li>Type: NPN or PNP (wiring dependent), open collector</li> </ul>
	<ul> <li>Function: pulse output (by default), user configurable</li> </ul>
	– 0250 Hz, 536 V DC, 100 mA max.
	<ul> <li>Duty cycle (pulse duration/period) if frequency &gt; 2 Hz: ½</li> </ul>
	<ul> <li>Min. pulse duration if frequency &lt;2 Hz: 250 ms</li> </ul>
	<ul> <li>Galvanic insulation, protected against polarity reversals of DC and short-circuits</li> </ul>
	Relay (digital outputs DO2 and DO3):
	- 2 normally open, freely adjustable (hysteresis by default)
	Non UL recognized device: 250 V AC/3 A or 40 V DC/2 A (resistive load)
	- UL recognized device: 30 V AC/42 V <sub>peak</sub> /2 A or 60 V DC/1 A
	<ul> <li>Max. cutting power of 750 VA (resistive load)</li> </ul>
W. II.	- Life span of min. 100000 cycles
Voltage supply cable	Shielded
	<ul> <li>External diameter (cable): 612 mm (1 cable per cable gland) or 45 mm when using a multi-way seal (2 cables per cable gland)</li> </ul>
	Cross section of wires: 0.51.5 mm²
Me <mark>d</mark> ium data	
Flui <mark>d</mark> temperature	<ul> <li>Version with flow sensor in PVDF: 0+80 °C (+32+176 °F) (depends on fitting)</li> </ul>
	<ul> <li>Version with flow sensor in stainless steel: -15+110 °C (+5+232 °F) (depends on fitting)</li> <li>Detailed information can be found in chapter "5.1. Pressure temperature diagram" on page</li> <li>11 and in the data sheet of the fitting, see data sheet Type S020 &gt;.</li> </ul>
Fluid pres <mark>su</mark> re	Version with flow sensor in PVDF: max. PN 10 (145.1 PSI)
	Version with flow sensor in stainless steel:
	– Max. PN 10 (145.1 PSI) (with plastic fitting)
	– Max. PN 16 (232.16 PSI) (with metal fitting)
	Detailed information can be found in chapter "5.1. Pressure temperature diagram" on page 11 and in the data sheet of the fitting, see data sheet Type S020 .
Conductivity	Min. 20 µS/cm
Viscosity	<1000 mPa.s
Process/Port connection & co	
Process connection	G 2" for use with Type S020 Insertion fitting
	<ul> <li>Clamp for use with Type S020 Insertion fitting or any pipe equipped with our clamp sensor connection.</li> </ul>
	See data sheet Type S020 ▶ for more information.

Visit product website ▶ 4 | 20





Standards           Degree of protection² according to IEC/EN 60529         IP65 under the following conditions: device wired, cover screwed tight and cable glands mounted and tightened or with blind plug if not used           Directives           CE directives         The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable).           Pressure Equipment Directive         Complying with Article 4, Paragraph 1 of 2014/68/EU directive Detailed information on the pressure equipment directive can be found in chapter "2.2. Pressure Equipment Directive" on page 6.           Certificate         • FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)           Certification         UL-Recognized for US and Canada           Environment and installation         UL-Recognized for US and Canada           Ambient temperature         • Operation: -10+60 °C (+14+140 °F)           • Storage: -20+60 °C (-4+140 °F) <t< th=""><th>Approvals and certificates</th><th></th></t<>	Approvals and certificates	
Directives         The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable).           Pressure Equipment Directive         Complying with Article 4, Paragraph 1 of 2014/68/EU directive Detailed information on the pressure equipment directive can be found in chapter "2.2. Pressure Equipment Directive" on page 6.           Certificate         • FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)           Certification         UL-Recognized for US and Canada           Environment and installation         • Operation: -10+60 °C (+14+140 °F)           Ambient temperature         • Operation: -10+60 °C (-4+140 °F)           • Storage: -20+60 °C (-4+140 °F)           Relative air humidity         ≤ 80 %, without condensation           Height above sea level         Max. 2000 m           Operating conditions         Continuous           Equipment mobility         Fixed           Application range         Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	Standards	
CE directives  The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable).  Pressure Equipment Directive  Complying with Article 4, Paragraph 1 of 2014/68/EU directive Detailed information on the pressure equipment directive can be found in chapter "2.2. Pressure Equipment Directive" on page 6.  Certificate  • FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)  • ECR1935/2004 declaration (only for stainless steel sensor with EPDM seal)  Certification  UL-Recognized for US and Canada  Environment and installation  Ambient temperature  • Operation: -10+60 °C (+14+140 °F) • Storage: -20+60 °C (-4+140 °F)  Relative air humidity  Height above sea level  Max. 2000 m  Operating conditions  Continuous  Equipment mobility  Fixed  Application range  Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	3 1	, , , , , , , , , , , , , , , , , , , ,
Type Examination Certificate and/or the EU Declaration of conformity (if applicable).  Complying with Article 4, Paragraph 1 of 2014/68/EU directive Detailed information on the pressure equipment directive can be found in chapter "2.2. Pressure Equipment Directive" on page 6.  Certificate  • FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)  • ECR1935/2004 declaration (only for stainless steel sensor with EPDM seal)  Certification  UL-Recognized for US and Canada  Environment and installation  Ambient temperature  • Operation: -10+60 °C (+14+140 °F) • Storage: -20+60 °C (-4+140 °F)  Relative air humidity  Selow, without condensation  Height above sea level  Max. 2000 m  Operating conditions  Continuous  Equipment mobility  Fixed  Application range  Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	Directives	
Detailed information on the pressure equipment directive can be found in chapter "2.2. Pressure Equipment Directive" on page 6.  Certificate  • FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)  • ECR1935/2004 declaration (only for stainless steel sensor with EPDM seal)  Certification  UL-Recognized for US and Canada  Environment and installation  Ambient temperature  • Operation: -10+60 °C (+14+140 °F)  • Storage: -20+60 °C (-4+140 °F)  Relative air humidity  Height above sea level  Max. 2000 m  Operating conditions  Continuous  Equipment mobility  Fixed  Application range  Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	CE directives	
• ECR1935/2004 declaration (only for stainless steel sensor with EPDM seal)  Certification UL-Recognized for US and Canada  Environment and installation  Ambient temperature • Operation: -10+60 °C (+14+140 °F) • Storage: -20+60 °C (-4+140 °F)  Relative air humidity ≤80 %, without condensation  Height above sea level Max. 2000 m  Operating conditions Continuous  Equipment mobility Fixed  Application range Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	Pressure Equipment Directive	Detailed information on the pressure equipment directive can be found in chapter "2.2. Pressure
Certification       UL-Recognized for US and Canada         Environment and installation       • Operation: -10+60 °C (+14+140 °F)         Ambient temperature       • Operation: -10+60 °C (-4+140 °F)         Relative air humidity       ≤80 %, without condensation         Height above sea level       Max. 2000 m         Operating conditions       Continuous         Equipment mobility       Fixed         Application range       Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	Certificate	FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)
Environment and installation  Ambient temperature  • Operation: -10+60 °C (+14+140 °F)  • Storage: -20+60 °C (-4+140 °F)  Relative air humidity  ≤80 %, without condensation  Height above sea level  Max. 2000 m  Operating conditions  Continuous  Equipment mobility  Fixed  Application range  Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,		<ul> <li>ECR1935/2004 declaration (only for stainless steel sensor with EPDM seal)</li> </ul>
Ambient temperature  • Operation: -10+60 °C (+14+140 °F)  • Storage: -20+60 °C (-4+140 °F)  Relative air humidity  ≤80 %, without condensation  Height above sea level  Max. 2000 m  Operating conditions  Continuous  Equipment mobility  Fixed  Application range  Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	Certification	UL-Recognized for US and Canada
• Storage: -20+60 °C (-4+140 °F)  Relative air humidity ≤80 %, without condensation  Height above sea level Max. 2000 m  Operating conditions Continuous  Equipment mobility Fixed  Application range Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	<b>Environment and installation</b>	
Relative air humidity       ≤80 %, without condensation         Height above sea level       Max. 2000 m         Operating conditions       Continuous         Equipment mobility       Fixed         Application range       Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	Ambient temperature	• Operation: -10+60 °C (+14+140 °F)
Relative air humidity       ≤80 %, without condensation         Height above sea level       Max. 2000 m         Operating conditions       Continuous         Equipment mobility       Fixed         Application range       Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,		• Storage: -20+60 °C (-4+140 °F)
Operating conditions Continuous  Equipment mobility Fixed  Application range Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	Relative air humidity	
Equipment mobility Fixed  Application range Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	Height above sea level	Max. 2000 m
Application range Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and,	Operating conditions	Continuous
	Equipment mobility	Fixed
,	Application range	Indoor and outdoor (protect the device against electromagnetic interference, ultraviolet rays and, when installed outdoors, against the effects of climatic conditions)
Installation category Category I according to UL/EN 61010-1	Installation category	Category I according to UL/EN 61010-1
Pollution degree Degree 2 according to UL/EN 61010-1	Pollution degree	Degree 2 according to UL/EN 61010-1

<sup>1.)</sup> Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C (68 °F), while maintaining the minimum inlet and outlet distances and the appropriate internal diameters of the pipes.

<sup>2.)</sup> Not evaluated by UL







#### 2. Approvals

#### 2.1. Certification UL

# Certificate C SUS

## Description

**UL-Recognized for USA and Canada** 

Products are UL-certified products and comply also with the following standards:

- UL 61010-1
- CAN/CSA-C22.2 No.61010-1

#### 2.2. Pressure Equipment Directive

The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions:

#### Device used on a pipe

#### Note:

- The data in the table is independent of the chemical compatibility of the material and the fluid.
- PS = maximum admissible pressure, DN = nominal diameter of the pipe

Type of fluid	Conditions
Fluid group 1, Article 4, Paragraph 1.c.i	DN ≤25
Fluid group 2, Article 4, Paragraph 1.c.i	DN ≤32 or PS*DN ≤1000
Fluid group 1, Article 4, Paragraph 1.c.ii	DN ≤25 or PS*DN ≤2000
Fluid group 2, Article 4, Paragraph 1.c.ii	DN ≤200 or PS ≤10 or PS*DN ≤5000

#### 3. Materials

#### 3.1. Chemical Resistance Chart - Bürkert resistApp



#### Bürkert resistApp - Chemical Resistance Chart

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

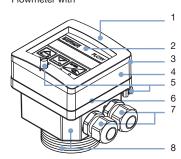
**Start Chemical Resistance Check** 



## burkert

#### 3.2. Material specifications

Flowmeter with





- G 2" process connection and sensor holder in stainless steel or



- Clamp process connection and with sensor holder in stainless steel



	-	1		
No.	Element	Material		
1	Lid	<ul> <li>PC for version with flow sensor in PVDF</li> </ul>		
		PSU for version with flow sensor in stainless steel		
2	Front panel foil	Polyester		
3	Seal	Silicone		
4	Cover	<ul> <li>PC for version with flow sensor in PVDF</li> </ul>		
		<ul> <li>Black PPA, glass fibre reinforced for version with flow sensor in stainless steel</li> </ul>		
5	Screws	Stainless steel		
6	Seal	NBR		
7	Cable glands	PA with neoprene seal		
8	Housing	<ul> <li>PC, glass fibre reinforced for version with flow sensor in PVDF</li> </ul>		
		<ul> <li>Black PPA, glass fibre reinforced for version with flow sensor in stainless steel</li> </ul>		
9	Nut	<ul> <li>PC for version with flow sensor in PVDF</li> </ul>		
		<ul> <li>PPA glass fibre reinforced for version with flow sensor in stainless steel</li> </ul>		
10	Mounting ring (open)	Polysulphone, glass fibre reinforced		
11	Seal	FKM (approved FDA)		
		EPDM included, but not mounted (conform to FDA)		
12	Sensor holder	PVDF		
13	Earth ring	Stainless steel 1.4404/316L or		
		Alloy C22		
14	Sensor holder	Stainless steel 1.4404/316L		
15	Holder	Stainless steel 1.4404/316L		
16	Clamp	Stainless steel 1.4404/316L		
17	Sensor holder	Stainless steel 1.4404/316L		
18	Electrode holder	PEEK (conform to FDA)		
19	Electrodes	<ul><li>Stainless steel 1.4404/316L or</li><li>Alloy C22</li></ul>		





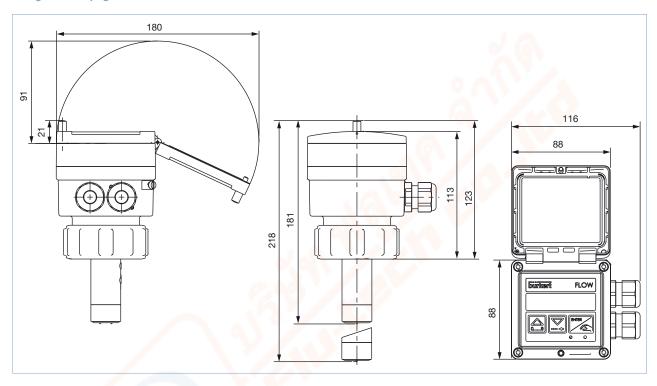
#### 4. Dimensions

#### 4.1. Insertion flowmeter with G 2" process connection

#### Note:

- Dimensions in mm
- The length of the sensor finger depends on the fitting used.

See data sheet Type S020 ▶ for more information or chapter "9.2. Combination of the flowmeter with available S020 Insertion fittings DN" on page 16.





Visit product website ▶

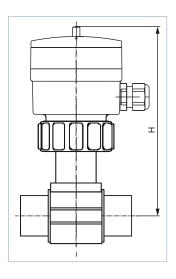
Tel. 0 2384 6060, Fax 0 2384 5701, Email: sales@flutech.co.th, www.flutech.co.th



#### 4.2. Insertion flowmeter with G 2" process connection installed in a S020 fitting

#### Note:

Dimensions in mm

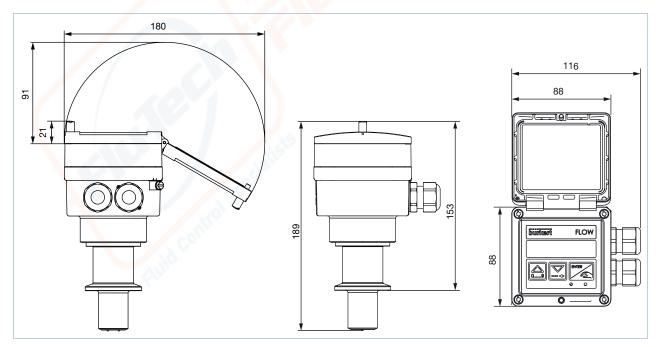


DN	Н	Н						
	T-Fitting	Saddle	Plastic spigot	Metal spigot				
06	182	_	-	-				
08	182	_	-	-				
15	187	_	-	_				
20	185	_	-	_				
25	185	_		-				
32	188	_	- 0/6	-				
40	192	_	-	188				
50	198	223	- A 3 7	193				
65	198	222	206	199				
80	_	226	212	204				
100	_	231	219	214				
110	_	227	-	_				
125	_	234	254	225				
150	_	244	261	236				
180	_	268		-				
200	_	280	282	257				
250	_	- ( ) A	300	317				
300	_	- Ya> Ya	312	336				
350	-	-	325	348				
400	- 0/.01	-	340	-				

#### 4.3. Insertion flowmeter with clamp process connection

## Note:

Dimensions in mm



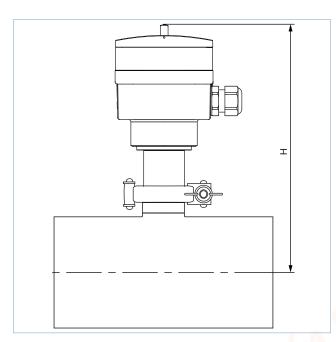




#### 4.4. Insertion flowmeter with clamp process connection installed in a S020 fitting

#### Note:

Dimensions in mm



DN	Н
	T-Fitting
32	200
40	205
50	210
65	218
80	224
100	230







#### 5. Performance specifications

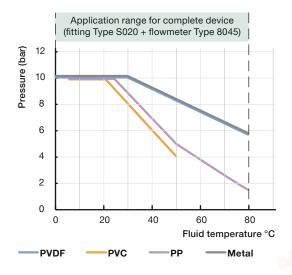
#### 5.1. Pressure temperature diagram

#### Insertion flowmeter with a PVDF sensor

#### Note

Please be aware of the fluid pressure/temperature dependence according to the respective fitting + flowmeter material as shown in the diagrams.

#### See data sheet Type S020 ▶.

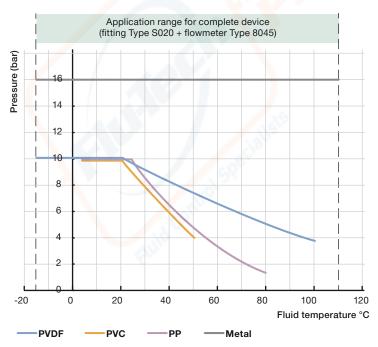


#### Insertion flowmeter with a stainless steel sensor

#### Note:

Please be aware of the fluid pressure/temperature dependence according to the respective fitting + flowmeter material as shown in the diagrams.

#### See data sheet Type S020 ▶.



Visit product website ▶ 11 | 20





Fluid direction ⇒

#### **Product installation**

#### 6.1. Installation notes

#### Note:

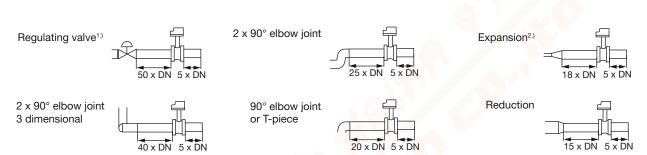
The flowmeter is not designed for gas and steam flow measurement.

Minimum straight upstream and downstream distances must be observed. According to the pipe's design, necessary distances can be bigger or use a flow conditioner to obtain the best accuracy.

Fore more information, please refer to EN ISO 5167-1.

EN ISO 5167-1 specifies the straight inlet and outlet distances that must be complied with when installing fittings in pipe lines in order to achieve calm flow conditions. The most important layouts that could lead to turbulence in the flow are shown below, together with the associated specified minimum inlet and outlet distances.

Make sure that the measuring conditions at the point of measurement are calm and problem-free.



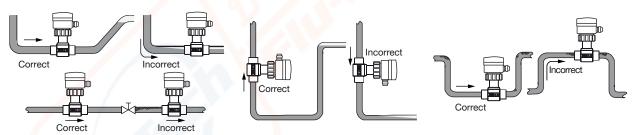
1.) If the valve cannot be mounted after the measuring device, the minimal distances have to be respected.
2.) If an expansion cannot be avoided, the minimal distances have to be respected.

DN = Orifice

Please note minimum flow velocity

The flowmeter can be installed into either horizontal or vertical pipes.

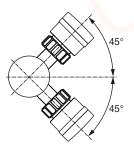
Important criteria for this are; ensure that the measurement pipe is fully filled and that the measurement pipe is free of bubbles.



Pressure and temperature ratings must be respected according to the selected fitting material. The suitable pipe size is selected using the diagram for selecting the nominal diameter of the fitting, see data sheet Type S020 ▶ for more information.

#### 6.2. Mounting options

It is advisable to mount the flowmeter at a 45° angle to the horizontal centre of the pipe to avoid having deposits on the electrodes and false measurements due to air bubbles



12 | 20 Visit product website





#### 7. Product operation

#### 7.1. Measuring principle

The E-shaped magnetic system inside the sensor induces a magnetic field into the fluid, which is perpendicular to the direction of flow. Two electrodes are in galvanic contact with the liquid.

Based on the Faraday law a voltage can be measured between these electrodes once a liquid (min. conductivity of 20  $\mu$ S/cm) flows along the pipe. This voltage is proportional to the flow velocity.

Using the K-factor for the individual pipe diameter the speed of flow is converted into volume per time.

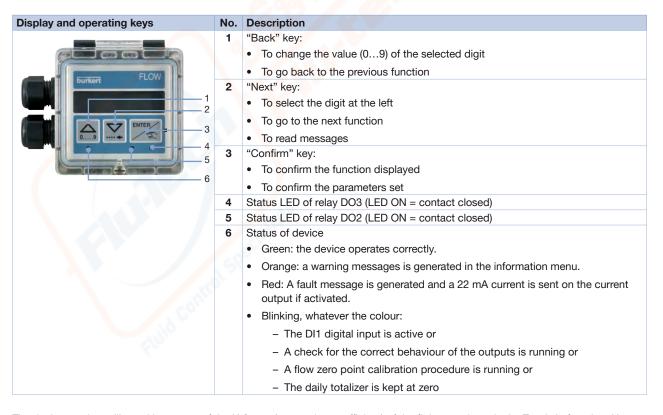


#### 7.2. Functional overview

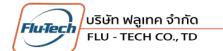
#### Display and operating keys

The display is used to:

- · Read the value of certain parameters e.g. the measured flow rate, the main totalizer
- · Set parameters of the device by means of 3 keys
- · Read the configuration of the device
- Get notification of some events.



The device can be calibrated by means of the K-factor (conversion coefficient) of the fitting used, or via the Teach-In function. User adjustments, such as engineering units, output and filter are carried out on site.





#### **Operating levels**

The device has 2 operating levels:

- The process level
- The configuration level, which comprises the parameters, the test and the information menus

Operating level	Functions
Process	Indication of
	<ul> <li>The value of the measured flow</li> </ul>
	<ul> <li>The value of the 420 mA output</li> </ul>
	The value of the main totalizer
	The value of the daily totalizer
	Reset the daily totalizer
	Access to the Parameters, Test and Information menus of the Configuration level
Configuration -	To make the settings needed for operation:
parameters menu	• Language
	Engineering units (International measuring units)
	K-factor/Teach-In function
	420-mA-current output (AO1)
	Detection of flow direction possible
	Transistor output (DO1)
	2 relays (DO2 and DO3 - if equipped)
	ON/OFF digital input (DI1 - if equipped)
	Filter (damping)
	Reset both totalizers
	Electric network frequency
	Low flow "Cut Off"
	Brightness of the display (backlight)
Configuration - test	To adjust the Offset and Span of the 420 mA current output
menu	To calibrate the flow zero point of the device
	To check the correct operating of the outputs
	<ul> <li>To set the coefficient Kw of the flow sensor to adjust the device accuracy</li> </ul>
	To set the flow rate range outside which a warning message is generated
Configuration - Information menu	To read the fault and warning messages generated







#### 8. Product design and assembly

#### 8.1. Product assembly

#### Note:

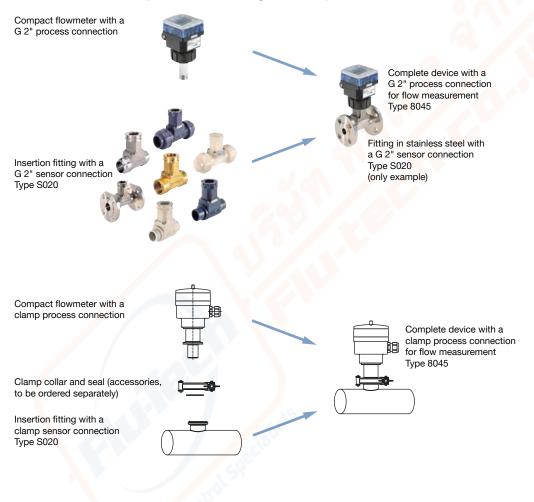
- The 8045 flowmeter can easily be installed into any Bürkert Insertion fitting system (S020) by just fixing the main nut.
- The S020 Insertion fitting ensures simple installation into pipes from DN 06...DN 400.

See data sheet Type S020 ▶ for more information.

The device is equipped with a PVDF or stainless steel measurement sensor which comprises two electrodes and a magnetic system and is available in long or short version (dependent on the size of the used fitting). The sensor holder is plugged-in to the housing, which contains containing the electronic module.

The connection of the device to the process is made depending on the version, either by a G 2" nut or a clamp.

The electrical connection is provided via two cable glands on a 6 pin terminal block.







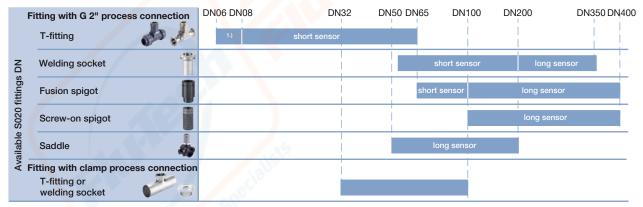
#### 9. Networking and combination with other Bürkert products

# 9.1. Networking and combination of the flowmeter with other Bürkert products Example:





#### 9.2. Combination of the flowmeter with available S020 Insertion fittings DN



1.) DN06 and DN08: S020 in stainless steel only and 8045 with stainless steel sensor recommended





#### 10. Ordering information

#### 10.1. Bürkert eShop - Easy ordering and quick delivery



#### Bürkert eShop - Easy ordering and fast delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

Order online now

#### 10.2. Recommendation regarding product selection

#### Insertion flowmeter with G 2" process connection

A complete 8045 flowmeter consists of a 8045 flowmeter with G 2" process connection and a Bürkert S020 Insertion fitting with G 2" sensor connection.

See data sheet Type S020 ▶ for more information.

Two different components must be ordered in order to select a complete device. The following information is required:

- Article no. of the desired compact flowmeter with G 2" process connection Type 8045 (see chapter "Insertion flowmeter with G 2" process connection" on page 18
- Article no. of the selected S020 Insertion fitting with G 2" sensor connection (see data sheet Type S020 )

#### Insertion flowmeter with clamp process connection

A complete 8045 flowmeter consists of a 8045 flowmeter with clamp process connection and a Bürkert S020 Insertion fitting with clamp sensor connection .

See data sheet Type S020 ▶ for more information.

Four different components must be ordered in order to select a complete device. The following information is required:

- Article no. of the desired flowmeter with clamp process connection Type 8045 (see chapter "Insertion flowmeter with clamp process connection" on page 18)
- Article no. of the selected S020 Insertion fitting with clamp sensor connection (see data sheet Type S020 )
- Article no. of the selected fitting/flowmeter seal, in EPDM or FEP (see chapter "10.5. Ordering chart accessories" on page 19)
- Article no. of the clamp collar (see chapter "10.5. Ordering chart accessories" on page 19)

#### 10.3. Bürkert product filter



#### Bürkert product filter - Get quickly to the right product

You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

Try out our product filter



#### 10.4. Ordering chart

#### Insertion flowmeter with G 2" process connection

#### Note:

All these following versions have

- A FKM process seal (but one EPDM seal is contained in the kit 551775 which is supplied with each flowmeter.)
- An 18...36 V DC operating voltage
- As minimum
  - A 4...20 mA current output (AO1) and
  - A digital output (DO1)

Digital	Relay	Materials	;	Sensor	Certi	ficates	UL	Electrical	Article no.
input	output	Housing Sensor / Earth ring / Electrode		version	FDA	ECR1935/ 2004 <sup>1.)</sup>	certification	connection	
_	_	PC	PVDF / Stainless steel	Short	Yes	_	- %	2 cable glands	426498 ≒
			/ Stainless steel				UL-Recognized	M20 x 1.5	570470 ≒
				Long			_		426499 ≒
							UL-Recognized		570471 🛒
			PVDF / Alloy C22	Short	-		-		558675 🛱
							UL-Recognized		570484 ≒
				Long			_		558676 ≒
							UL-Recognized		570485 🛱
1	2		PVDF / Stainless steel	Short	UL-Recognized		426506 ≒		
(DI1)	(DO2, DO3)		/ Stainless steel				UL-Recognized		570472 📜
				Long			_		426507 ≒
							UL-Recognized		570473 📜
_	_	PPA	Stainless steel / - /	Short		Yes			449670 ≒
			Stainless steel			– UL-Recogn –	UL-Recognized		570478 🛱
				Long			_		449672 📜
							<b>UL-Recognized</b>		570480 🛱
1	2 (DO2, DO3)		/ \9	Short			_		449671 ≒
(DI1)							UL-Recognized		570479 📜
				Long			_		449673 ≒
							UL-Recognized		570481 📜

<sup>1.)</sup> Only if the FKM seal mounted as standard at factory is replaced with the EPDM seal included in the delivery.

#### Insertion flowmeter with clamp process connection

#### Note:

All these following versions

- Have as minimum
  - a 18...36 V DC operating voltage
  - a 4...20 mA current output (AO1) and
  - a digital output (DO1)
- Are supplied with one kit 565384

Digital	Relay	Materials			Certif	ficates	Electrical connection	Article no.
input	output	Housing	Sensor /electrode	Fitting/flowmeter seals <sup>1.)</sup>	FDA	ECR1935/ 2004 <sup>2.)</sup>		
No	No	PPA	Stainless steel /	EPDM or FEP	Yes	Yes	es 2 cable glands M20 x 1.5	564797 ≒
1 (DI1)	2 (DO2, DO3)		stainless steel					564798 ≒

- 1.) Has to be ordered separately.
- 2.) Only if mounted with EPDM seal.





#### 10.5. Ordering chart accessories

Description	Article no.
For flowmeter with G 2" or clamp process connection	
Set with 2 cable glands $M20 \times 1.5 + 2$ neoprene flat seals for cable gland or plug + 2 screw plugs $M20 \times 1.5 + 2$ multi-way seals $2 \times 6$ mm	449755 ≒
Set with 2 reductions M20 $\times$ 1.5 /NPT $\frac{1}{2}$ " + 2 neoprene flat seals for cable gland or plug + 2 screw plugs M20 $\times$ 1.5	551782 ≒
3 points calibration certificate (device combined with a S020 fitting, only for DN ≤200)	550676 ≒
FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)	803724 📜
For flowmeter with G 2" process connection	
Set with 1 stopper for unused cable gland M20×1.5 + 1 multiway seal 2×6 mm for cable gland + 1 green FKM seal for the sensor + 1 mounting instruction sheet	558102 ≒
Mounting ring (open) for S020 fitting	619205 ≒
PC nut for S020 fitting	619204 ≒
PPA nut for S020 fitting	440229 ≒
Set with 1 green FKM and 1 black EPDM seal	552111 ≒
For flowmeter with clamp process connection	
Set with 1 stopper for unused cable gland M20×1.5 + 1 multiway seal 2×6 mm for cable gland	565384 ≒
1 EPDM fitting/flowmeter seal	730837 🖼
1 FEP fitting/flowmeter seal	730839 🖼
Clamp collar	731164 🛱





Visit product website ▶

Tel. 0 2384 6060, Fax 0 2384 5701, Email : sales@flutech.co.th, www.flutech.co.th