BBF8030

Inline Flowmeter for Continuous Flow Measurement-Brass

- **3-Wire Hall version to interface directly with PLCs (NPN and PNP)Sizes from DN15 – DN50-Standard Version**
- **Hall Low Power Version-NPN**
- **Brass Screwed Body**
- **Easy Quarter Turn Module Connection**

Description
This Brass paddle wheel flowmeter for continuous flow measurement is especially designed for use with neutral, solid free liquids. The flowmeter is made up of a compact sensor-fitting (S030) and a transmitter (SE30) that is quickly and easily connected together by a quarter-turn fitting. The Bürkert designed sensor-fitting system ensures simple installation of the devices into all pipes from DN06...DN65. The Hall sensor produces a frequency signal, proportional to the flow rate, which can easily be transmitted and processed by a transmitter/controller.

How it Works
The device indicates the presence of flow in the pipe. The Hall – Sensor produces a frequency signal proportional to the flow which can easily be transmitted and processed.

Can be combined with

eControl Type 8611

Flow Transmitter 8025

Multicell transmitter 8619

Element Control Valve 8802

Description
This unique bayonet style flow meter offers continuous flow measurement perfect for neutral, solid free liquids. A Hall effect sensor produces a square wave frequency proportional to the flow rate or a coil produces a sine wave output.

Beschreibung
Dieser einzigartige Durchflussmesser mit Bajonettverschluss bietet eine kontinuierliche Durchflussmessung, die perfekt für neutrale, feste Flüssigkeiten geeignet ist. Ein Hall-Effekt-Sensor erzeugt eine Rechteckwellenfrequenz, die proportional zur Durchflussrate ist, oder eine Spule erzeugt eine Sinuswellenausgabe.

Descripción
Este medidor de flujo de bayoneta único ofrece una medición de flujo continuo perfecta para líquidos neutros, sólidos y libres. Un sensor de efecto Hall produce una frecuencia de onda cuadrada proporcional al caudal o una bobina produce una salida de onda sinusoidal.

La description
Ce débitmètre à baïonnette unique offre une mesure de débit continue parfaite pour les liquides neutres et solides. Un capteur à effet Hall produit une fréquence d'onde carrée proportionnelle au débit ou une bobine produit une sortie sinusoïdale.

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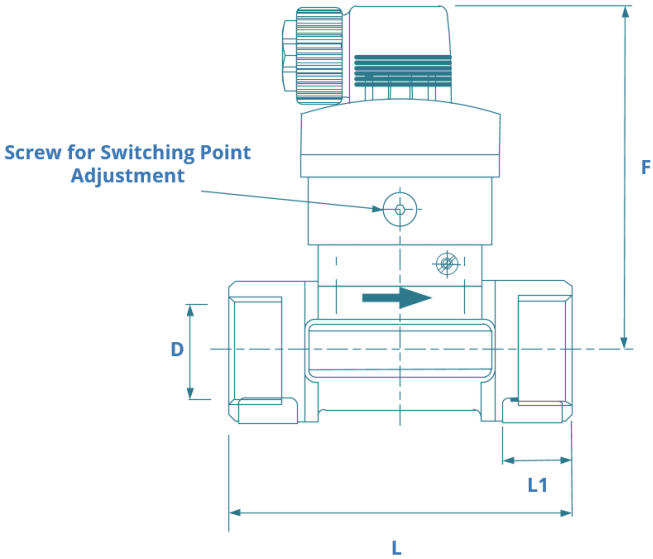
DIMENSIONS				
ORIFICE	Internal Screwed BSP			
	L	F	D	L1
15	84	100	1/2"	16
20	94	98	3/4"	17
25	104	98	1"	23.5
32	119	102	11/4"	23.5
40	129	105	11/2"	23.5
50	148.5	112	2"	27.5



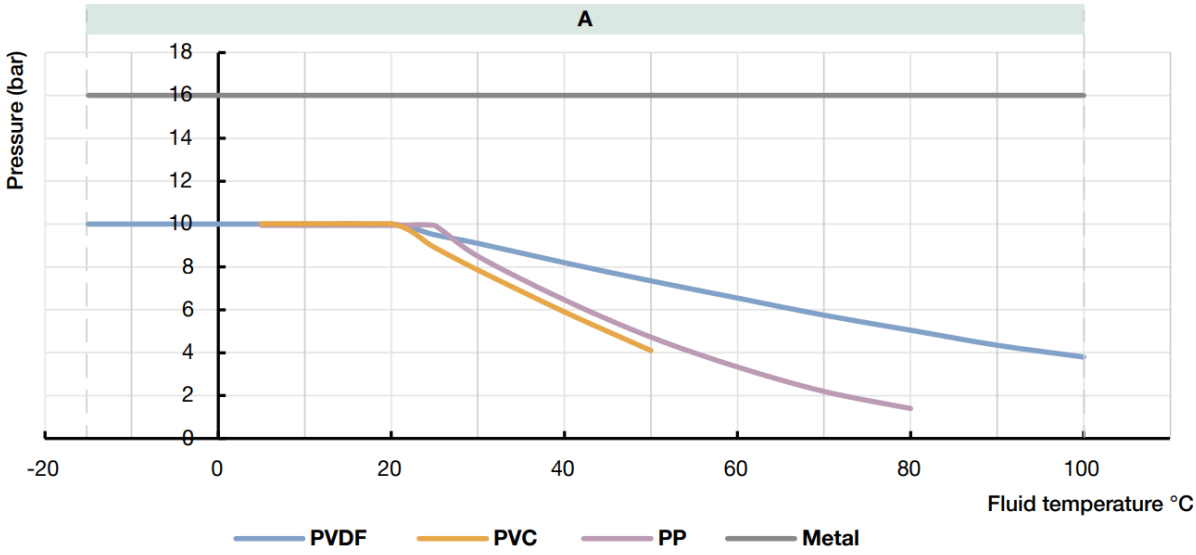
General technical data	
Compatibility	With Bürkert S030 INLINE sensor-fittings (see corresponding datasheet)
Materials	
Housing, cover, male connector	PC
Cable plug / seal / screws	PA / NBR / Stainless steel
Wetted parts materials	
Sensor-fitting, sensor armature	Brass, stainless steel 1.4404/316L, PVC, PP, PVDF
Paddle wheel	PVDF
Axis, bearing / Seal	Ceramics / FKM or EPDM (depending on sensor-fitting version)
Electrical connection	Cable plug EN 175301-803 (Type 2508)
Connection cable	max. 1.5 mm² cross section; max. 50 m length, shielded
Complete device data (sensor-fitting S030 + transmitter SE30)	
Pipe diameter	DN06...DN65
Measuring range	0.3...10 m/s
Fluid temperature with sensor-fitting in	
PVC / PP	0...+50 °C *(+32...+122 °F)* / 0...+80 °C *(+32...+176 °F)*
Stainless steel, brass, PVDF	-15...+100 °C *(+5...+212 °F)*
Fluid pressure max.	PN10 (with plastic sensor-fitting), PN16 (with metal sensor-fitting); (PN40 on request, see S030 datasheet) - see pressure/temperature chart
Viscosity / Pollution	300 cSt. max. / max. 1 % (Size of particles 0.5 mm max.)
Measurement deviation[2]	
Teach-In	±1 % of Reading[1] (at the teach flow rate value)
Standard K-factor	±2.5 % of Reading[1]
Linearity	±0.5 % of F.S.*[1]
Repeatability	±0.4 % of Reading[1]
Environment	
Ambient temperature	-15...+60 °C *(+5...+140 °F)* (operating and storage)
Relative humidity	≤80 %, without condensation

* F.S. = Full scale (10 m/s)

[1] 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 diameter of the pipes.

[2] = "measurement bias" as defined in the standard JCGM 200:2012

Pressure/temperature chart



A: Application range for complete device (sensor-fitting + transmitter)

Electrical data	
Operating voltage	12…36 V DC filtered and regulated (via Bürkert transmitter the device is connected for "Low Power" version)
Current consumption Hall version Hall "Low power" version	with sensor ≤30 mA ≤0.8 mA
Output: Frequency Hall version Hall "Low Power" version	 2 transistors NPN and PNP, open collector, max. 100 mA, frequency: 0…300 Hz; duty cycle ½ ±10 % NPN output: 0.2…36 V DC PNP output: supply voltage 1 transistor NPN, open collector, max. 10 mA, frequency: 0…300 Hz; duty cycle ½ ±10 %
Reversed polarity of DC	Protected
Standards, directives and certifications	
Protection class	IP65 with connector plugged-in and tightened
Standards and directives CE Pressure (S030 sensor-fitting, DN06… DN65, in PVC, PP, PVDF, stainless steel or brass	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) Complying with article 4, §1 of 2014/68/EU directive*

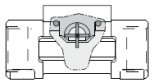
If the device is mounted in a humid environment or outside, then the maximum voltage allowed is 35 V DC instead of 36 V DC.

*** For the 2014/68/EU pressure directive, the device can only be used under the following conditions (depends on max. pressure, pipe diameter and fluid).**

Type of Fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤25
Fluid group 2, article 4, §1.c.i	DN ≤32 or PN*DN ≤1000
Fluid group 1, article 4, §1.c.ii	DN ≤25 or PN*DN ≤2000
Fluid group 2, article 4, §1.c.ii	DN ≤200 or PN ≤10 or PN*DN ≤5000

Design and operating principle

The 8030 device is made up of a compact INLINE sensor-fitting (S030) equipped with a sensor with paddle wheel and a transmitter (SE30). In a 3-wire system, the signal can be displayed or processed directly. The output signal is provided via cable plug according to EN 175301-803.



When liquid flows through the pipe, the paddle wheel with 4 inserted magnets is set in rotation, producing a measuring signal in the sensor (Hall sensor). The frequency modulated induced voltage is proportional to the flow velocity of the fluid. A conversion coefficient (K-factor in Pulse/l available in the instruction manual of the sensor-fitting), specific to each pipe (size and material) enables the conversion of this frequency into flow rate

Two transmitter versions with frequency output are available:

- with two transistor outputs NPN and PNP.
  An external power supply of 12…36 V DC is required. It is designed for connection to any system with open collector NPN or PNP frequency input.
- with one NPN transistor “Low Power” output.
  An external power supply of 12…36 V DC is required. Can only be connected to remote versions of flow transmitters Type 8025/8032.

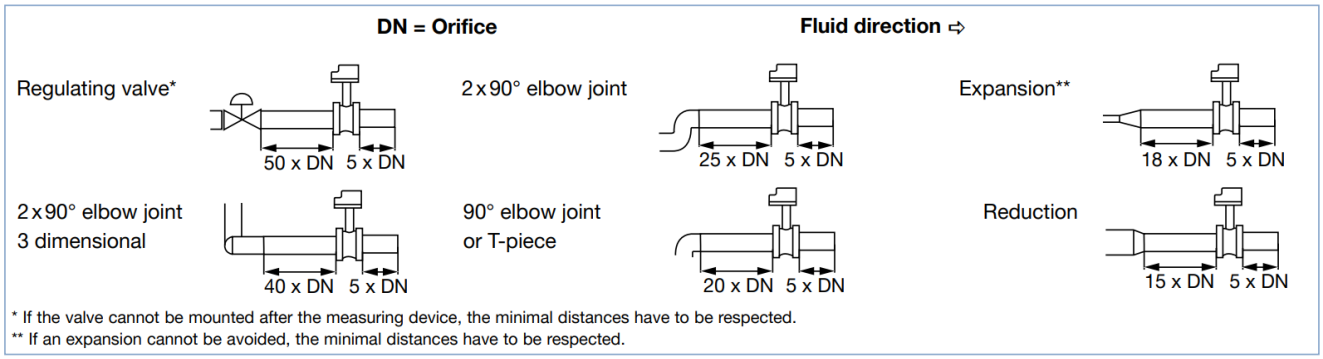
Installation

The sensor-fitting (S030) ensures simple installation into pipes from DN06…DN65. The transmitter SE30 can easily be installed into any Bürkert INLINE sensor-fitting system (S030), by means of a quarter-turn.

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.

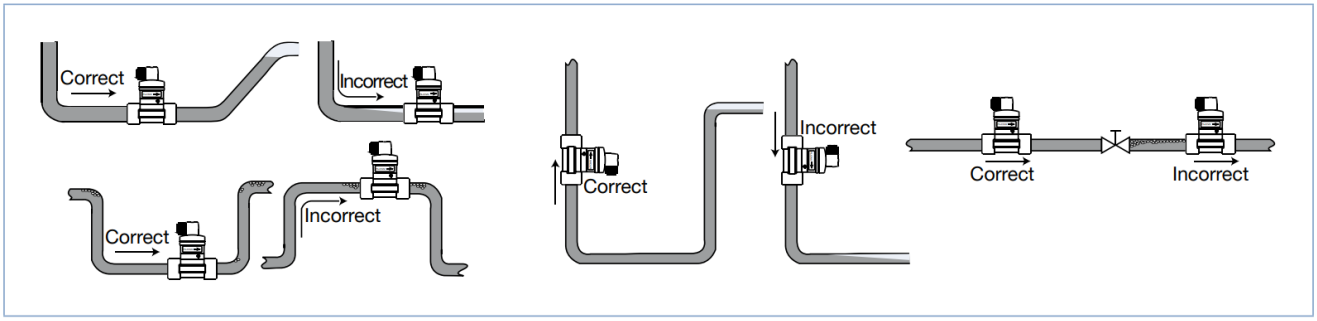
EN ISO 5167-1 prescribes the straight inlet and outlet distances that must be complied with when installing sensor-fittings in pipe lines in order to achieve calm flow conditions. The most important layouts that could lead to turbulence in the flow are shown below, together with the associated prescribed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

These ensure calm, problem-free measurement conditions at the measurement point.



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

The device 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 air bubble free.



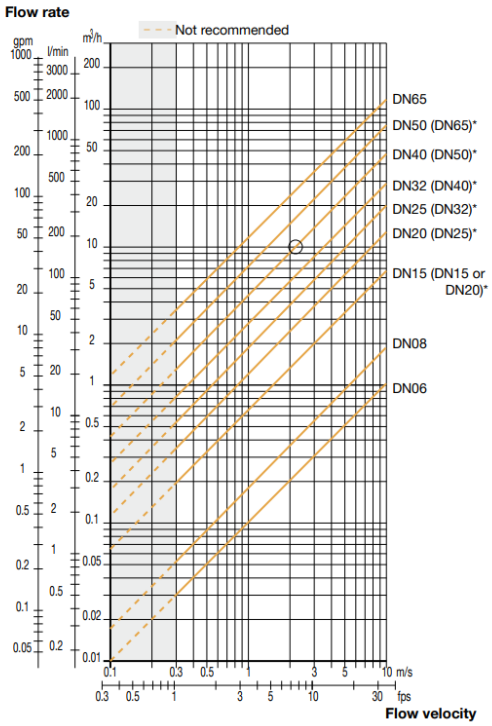
Pressure and temperature ratings must be respected according to the selected sensor-fitting material. The suitable pipe size is selected using the diagram flow rate/velocity/DN. The flowmeter is not designed for gas and steam flow measurement.

Diagram flow rate/velocity/DN

Example:

– Specification of nominal flow: 10 m³/h
– Ideal flow velocity: 2…3 m/s

For these specifications, the diagram indicates a pipe size of DN40 (or DN50 for (*) mentioned sensor-fittings)



*** for following sensor-fittings with:**
– external threads acc. to SMS 1145
– weld ends acc. to SMS 3008, BS4825-1/ASME BPE/DIN 11866 series C or DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A
– Clamp acc. to SMS 3017, BS 4825-3/ASME BPE or DIN 32676 series A

Ordering chart for flowmeter Type 8030

A complete 8030 flowmeter consists of an SE30 flow transmitter and a Bürkert S030 INLINE sensor-fitting.

The following information is necessary for the selection of a complete device:
- **Article no.** of the desired **SE30** flow transmitter (see ordering chart, below)
- **Article no.** of the selected **S030** INLINE sensor-fitting (DN06…DN65, see separate datasheet)

You have to order the two components separately.

SE30 flow transmitter

Description	Voltage supply	Output	Electrical connection	Article no.
Hall version flowmeter (connectable to Type 8025 universal transmitter, batch controller or konti-Dos; 8032; 8619; PLC)	12…36 V DC	Frequency, 2 transistors NPN and PNP	Cable plug EN 175301-803	423913
Hall "Low Power" version flowmeter (connectable to Types 8025, 8032 transmitter)	from associated transmitter	Frequency, 1 transistor NPN	Cable plug EN 175301-803	423914

Ordering chart for accessories (has to be ordered separately)

Specifications	Article no.
Cable plug EN 175301-803 with cable gland (Type 2508)	438811
Cable plug EN 175301-803 with NPT ½" reduction without cable gland (Type 2509)	162673