

DN 15 - DN 50; PN 16



Advantages / Benefits

- ▶ Easy System integration by Easy LINK provides low cost of ownership
- ▶ Can be upgraded to a low cost transmitter providing calibrated pulse output or 4...20 mA
- ▶ Easy mounting and demounting of sensor head by a quarterturn
- ▶ 3-wire Hall version to interface directly with PLC's (both NPN and PNP)
- ▶ Easy to connect: Directly powered from the 8025 panel or 8025 wall
- ▶ Fittings available for all standard hydraulic interfaces

Design

The paddle-wheel flow sensor for continuous flow measurement is specially designed for use in neutral and slightly aggressive, solid-free liquids.

The sensor is made of a compact fitting and an electronic-module quickly and easily connected together by a bayonet.

The Burkert designed stainless-steel-fitting system (all international threaded port connections) ensures simple installation of the sensors into all pipes from DN 15 to DN 50.

The sensor produces a frequency signal proportional to the flow which can easily be transmitted and processed.

- 4...20 mA output signal with transmitter module
- Adjustable frequency output signal with pulse divider module
- Direct connection to batch controller type 8600 mounted on valve
- Connection to separate versions of flow transmitter/indicator type 8025/SE34:
 - Panel version
 - Wall-mount version

Applications

Flow Measurement & Dosing Control

Liquids in food industry

Chemical industry (non hazardous applications)

Water treatment and process technology

Industrial waste water treatment

Auxiliary plants

Ideal system solutions for filling systems

bürkert
Easy Fluid Control Systems

Flow Sensor

for continuous flow measurement

Type 8030
Stainless-Steel-INLINE

Design

The flow sensor consists of a transducer (coil or Hall sensor) and an open-cell paddle wheel directly connected to a compact fitting.

In a 2 or 3-wire system, the signal can be displayed or processed directly. The output signal is provided via a 4-pole cable plug according to DIN 43650.

Principle of operation

When liquid flows through the pipe, the paddle-wheel is set in rotation producing a measuring signal in the transducer. The induced voltage is AC. The frequency and amplitude are proportional to the flow.

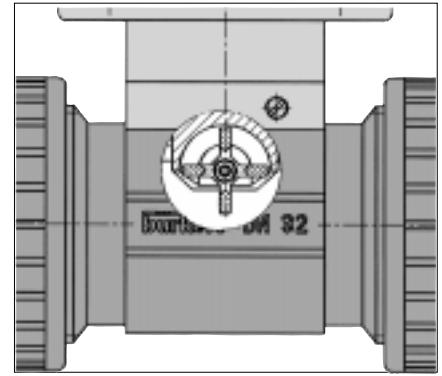
The flow sensor 8030 with Hall sensor requires an external power of 12...30 VDC.

The flow sensor 8030 with coil requires no external power supply.

The flow sensor 8030 with 4...20 mA output requires an external power of 12...24 VDC.

The flow sensor 8030 with adjustable frequency output requires an external power of 12...30 VDC.

The sensor measures a flow rate from 0.3 m/s (1 ft/s).



Installation

The flow sensor is made of a compact fitting and an electronic module which can be quickly and easily connected by means of a Quarter Turn.

The recommended In- and Outflow straight pipe length should respect 10xD in and 3xD out.

According to pipe's design, necessary distances can be bigger or use a flow conditioner to obtain the best accuracy.

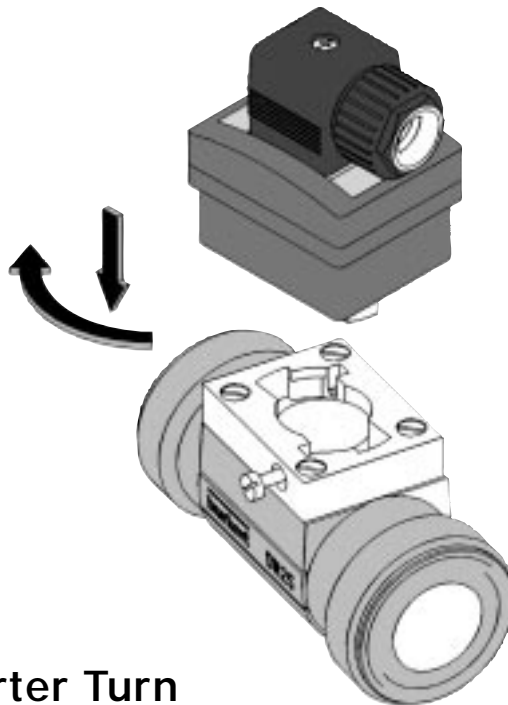
For more informations, please refer to EN ISO 5167-1.

The flow sensor can be installed in either horizontal or vertical pipes.

The suitable pipe size is selected using the diagram on the next page. Pressure and temperature ratings must be respected according to the selected fitting material (see next page).

The flow sensor is not designed for gas flow measurement.

Easy to install



Burkert Quarter Turn

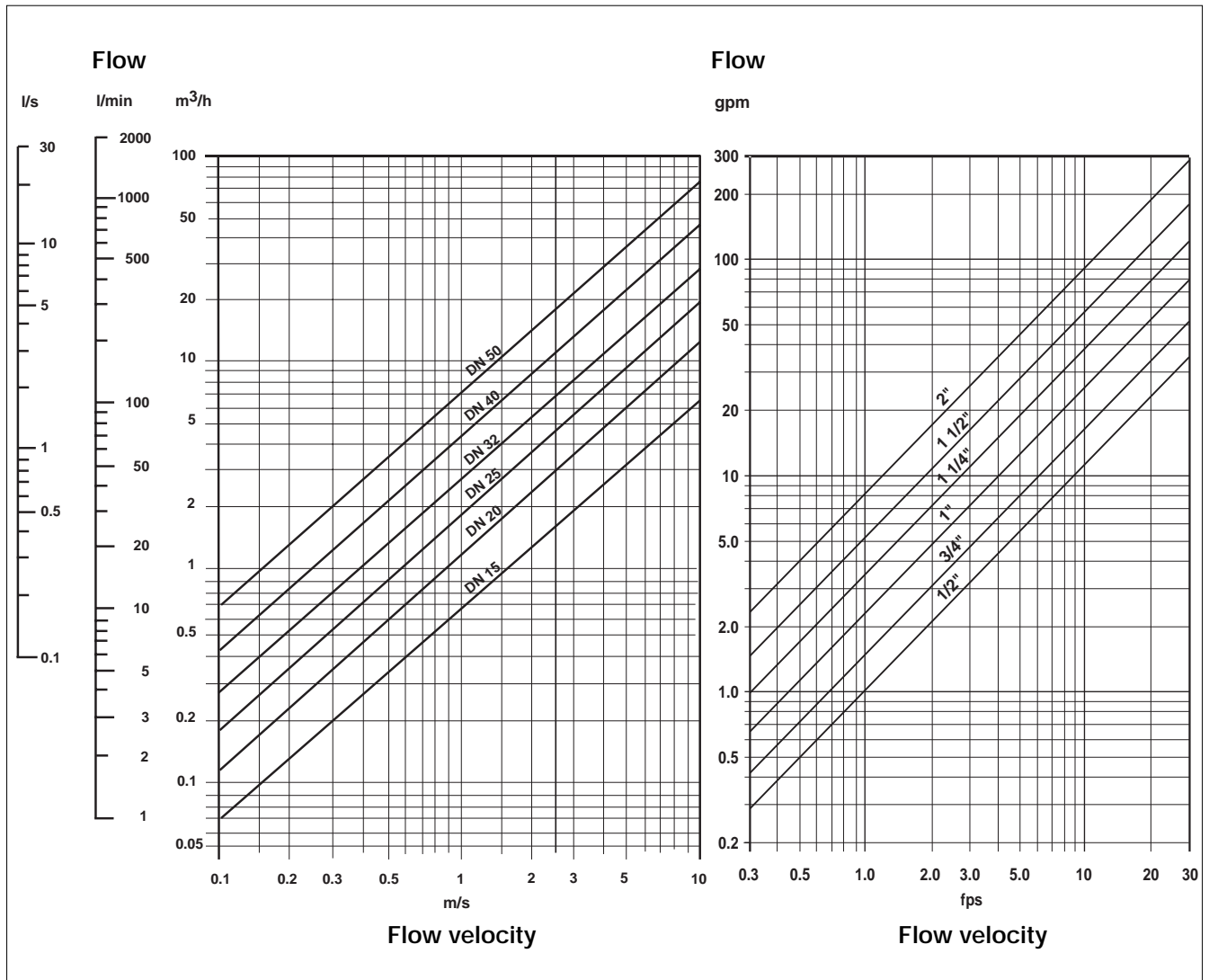
Examples of fitting selection

The suitable pipe size is selected using the diagram below.

Example 1 :
Specification of nominal flow: 10 m³/h
Ideal flow velocity: 2...3 m/s
For these specifications, the diagram indicates a pipe size of DN 40.

Example 2 :
Specification of nominal flow: 50 gpm
Ideal flow velocity: 8 fps
For these specifications, the diagram indicates a pipe size of 1 1/2".

Diagram Flow-Pipe Size-Velocity



Connection to other Burkert devices

8030 with Hall sensor



Batch Controller 8600



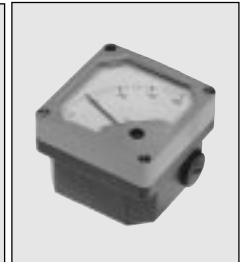
Calibrated frequency output module 8021



8030 with Hall sensor
"low power"



8025 / SE34 panel or wall-mount version



Calibrated frequency output module 8021



4...20 mA output module type 8023



8030 with coil



8025 / SE34 wall-mount with battery power supply



8025



SE34

Flow Sensor

for continuous flow measurement

Type 8030

Stainless-Steel-INLINE

Technical data

General data

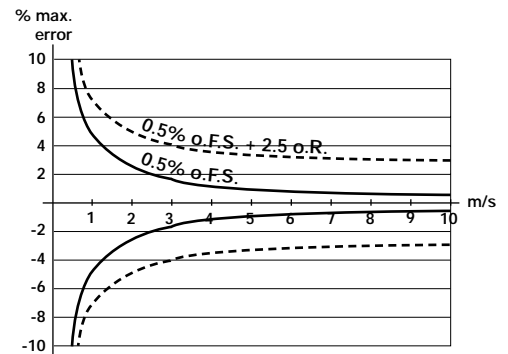
Pipe diameter from DN 15 to DN 50 (1/2" to 2")
 Measuring range 0.3 m/s to 10 m/s (1.0 fps to 33 fps)
 as from 3 l/min (DN15 pipe, 0,3 m/s flow velocity)
 as from 0.9 gpm (1/2" pipe, 1.0 fps flow velocity)

Measuring error 1. With individual works calibration (on request):
 $\leq \pm 0.5\%$ o.F.S. (at 10 m/s) *
 2. With standard mean K-factor:
 $\leq \pm (0.5\%$ o.F.S. + 2.5% o.R.) *

Linearity $\leq \pm 0.5\%$ o.F.S. (at 10 m/s) *
 Repeatability 0.4% o.R. *

Fluid temperature max. 0 to 100°C (32 to 212°F)
 Ambient temperature 0 to 60°C (32 to 140°F)
 Storage temperature 0 to 60°C (32 to 140°F)
 Pressure class PN 16
 Enclosure IP 65

Fitting Stainless Steel (1.4404 / 316L), amagnetic
 Sensor holder Stainless Steel (1.4404 / 316L), amagnetic
 Paddle-wheel PVDF
 Axis and bearing Ceramic
 O-rings FPM standard
 Housing PC



Specific data 8030 with Coil

Cable length 10 m (use shielded cable of max, 1.5 mm² wire cross section)
 (Can only be connected to flow transmitter 8025 / indicator SE34 with battery power supply in wall-mount version)

Specific data 8030 with Hall Sensor

Supply voltage 12...30 VDC
 Output signal transistor PNP and NPN open collector max. 100 mA
 frequency: 0...200 Hz
 Cable length 50 m (use shielded cable of max, 1.5 mm² wire cross section)

Specific data 8030 with Hall Sensor "low power" (8023)

Cable length 50 m (use shielded cable of max, 1.5 mm² wire cross section)
 (Can only be connected to separate versions of flow transmitter 8025 / indicator SE34 and to 4...20 mA or calibrated frequency output modules)

Specific data 8030 with 4...20 mA Output (8023)

Associated flow sensor Hall sensor "low power"
 Supply voltage 12...24 VDC
 Output signal 4...20 mA
 Load max. 500Ω at 12 V
 max. 1000Ω at 24 V
 Accuracy $\leq 2\%$
 Material of additional housing PA

Specific data 8030 with Calibrated Frequency Output (8021)

Associated flow sensor Hall sensors
 Supply voltage 12...30 VDC
 Output signal transistor PNP and NPN open collector max. 100 mA
 Accuracy 0,1%
 Material of additional housing PA

* Under reference conditions, i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions
 o.R. = of reading
 o.F.S. = of full scale (10 m/s)

Operation and display

Type 8023 with 4...20 mA output module

The operation is specified according to two levels:

- ▶ **Indication in operating mode**
 - Flow (digits and bargraph)
- ▶ **Parameter definition**
 - K-factor
 - Time unit
 - 4...20 mA measuring range

The device works without the control unit. The control unit enables only to perform parameter definition.

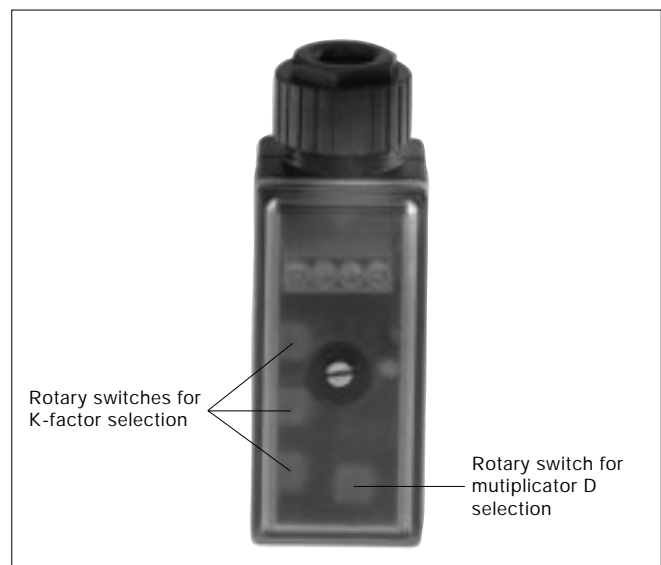
4 ... 20 mA module with control unit (1077)



Type 8021 with calibrated frequency output module

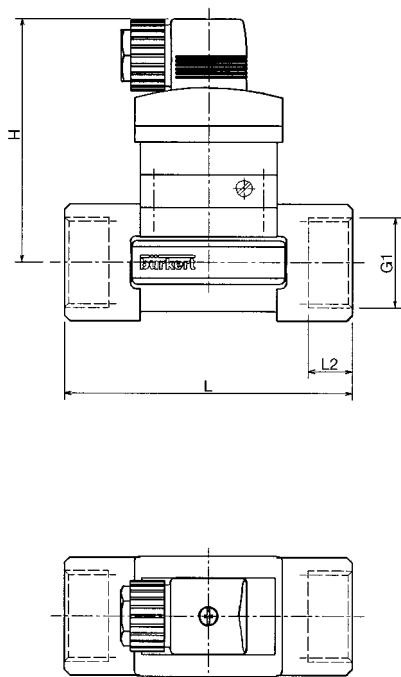
The operation is specified according to the following level:

- ▶ **Parameter definition**
 - K-factor
 - Multiplier D



Dimensions [mm (inch)]

Internal threaded port connection



Body Material: DIN 1.4404; BS 316 L

Dimensions G-Port connection

Port connection (Dimension G1)	DN	Variable dimensions [mm]		
		L	L2	H
G 1/2	15	85	16.0	92
G 3/4	20	95	17.0	89
G 1	25	105	23.5	89.5
G 1 1/4	32	120	23.5	93
G 1 1/2	40	130	23.5	97
G 2	50	150	27.5	104

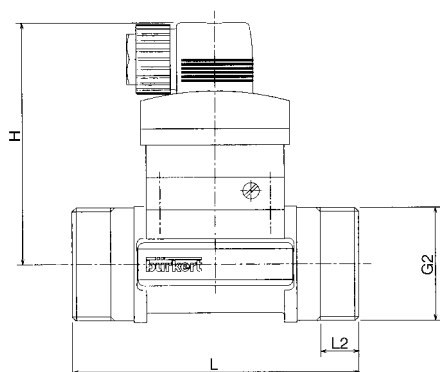
Dimensions Rc-Port connection

Port connection (Dimension G1)	DN	Variable dimensions [mm]		
		L	L2	H
Rc 1/2	15	85	15.0	92
Rc 3/4	20	95	16.3	89
Rc 1	25	105	18.0	89.5
Rc 1 1/4	32	120	21.0	93
Rc 1 1/2	40	130	19.0	97
Rc 2	50	150	24.0	104

Dimensions NPT-Port connection

Port connection (Dimension G1)	DN	Variable dimensions [inch]		
		L	L2	H
NPT 9/16	15	3.35	0.67	3.62
NPT 3/4	20	3.74	0.72	3.51
NPT 1	25	4.14	0.71	3.52
NPT 1 1/4	32	4.73	0.83	3.66
NPT 1 1/2	40	5.12	0.79	3.82
NPT 2	50	5.91	0.95	4.10

External threaded port connection



Body Material: DIN 1.4404; BS 316 L

Dimensions [mm]

Port connection (Dimension G2)	DN	Variable dimensions [mm]		
		L	L2	H
G 3/4	15	84	11,5	92
G 1	20	94	13,5	89
G 1 1/4	25	104	14	89.5
G 1 1/2	32	119	18	93
M 55x2	40	129	19	97
M 64x2	50	149	20	104

Dimensions [inch]

Port connection (Dimension G2)	DN	Variable dimensions [inch]		
		L	L2	H
G 3/4	15	3.31	0.45	3.62
G 1	20	3.70	0.53	3.51
G 1 1/4	25	4.09	0.55	3.52
G 1 1/2	32	4.69	0.71	3.66
M 55x2	40	5.08	0.75	3.82
M 64x2	50	5.87	0.78	4.10

Flow Sensor

for continuous flow measurement

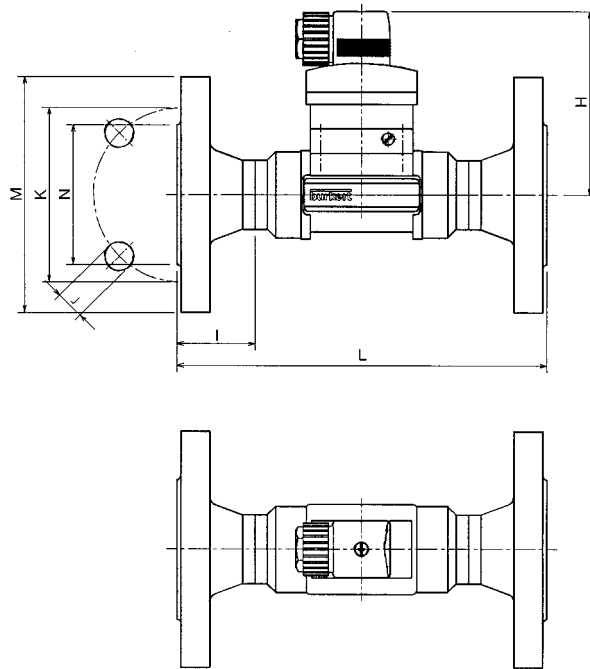
Type 8030

Stainless Steel-INLINE

Dimensions [mm (inch)]

Flange port connection

Body Material: DIN 1.4404; BS 316 L



Dimensions flange port connection in stainless steel

Port connection (Norm)	DN	Variable dimensions [mm]						
		I	J (number x ø)	K	M	N	L	H
DIN [mm]	15	23.5	4 x 14.0	65.0	95.0	45.0	130	92.0
ANSI [inch]	15 (9/16)	0.93	4 x .62	2.38	3.51	1.38	5.12	3.62
JIS [mm]	15	23.5	4 x 15.0	70.0	95.0	51.0	140	92.0
DIN [mm]	20	28.5	4 x 14.0	75.0	105.0	58.0	150	89.0
ANSI [inch]	20 (3/4)	1.12	4 x .62	2.75	3.90	1.69	5.91	3.50
JIS [mm]	20	28.5	4 x 15.0	75.0	100.0	56.0	152	89.0
DIN [mm]	25	28.5	4 x 14.0	85.0	115.0	68.0	160	89.5
ANSI [inch]	25 (1)	1.12	4 x .62	3.13	4.26	2.00	6.30	3.53
JIS [mm]	25	28.5	4 x 19.0	90.0	125.0	67.0	165	89.5
DIN [mm]	32	31.0	4 x 18.0	100.0	140.0	78.0	180	93.0
ANSI [inch]	32 (1 1/4)	1.22	4 x .75	3.50	4.61	2.50	7.09	3.66
JIS [mm]	32	31.0	4 x 19.0	100.0	135.0	76.0	178	93.0
DIN [mm]	40	36.0	4 x 18.0	110.0	150.0	88.0	200	97.0
ANSI [inch]	40 (1 1/2)	1.42	4 x .75	3.88	5.00	2.88	7.88	3.82
JIS [mm]	40	36.0	4 x 19.0	105.0	140.0	81.0	190	97.0
DIN [mm]	50	41.0	4 x 18.0	125.0	165.0	102.0	230	104.0
ANSI [inch]	50 (2)	1.62	4 x .75	4.75	5.99	4.02	9.06	4.10
JIS [mm]	50	41.0	4 x 19.0	120.0	155.0	96.0	216	104.0

* DIN 2501, length according to DIN 3202-F1;

* ANSI B16-5-1988, length according to DIN 3202-F1;

* JIS 10K, length according to ANSI B16-10

Flow Sensor

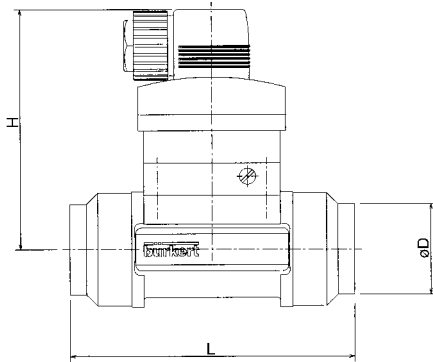
for continuous flow measurement

Type 8030

Stainless Steel-INLINE

Dimensions [mm (inch)]

Weld-end port connection



Body Material: DIN 1.4404; BS 316 L
 Connection: according to ISO 4200

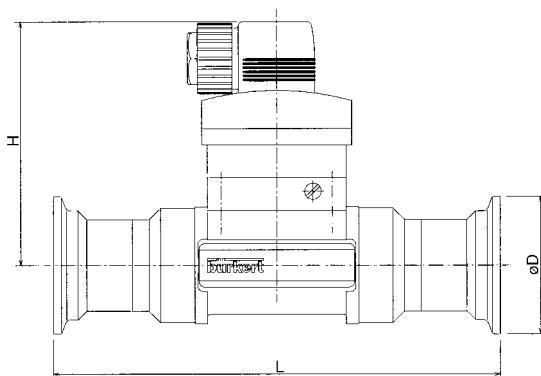
Dimensions [mm]

Port connection	DN	Variable dimensions [mm]		
		L	øD	H
Weld-end port connection	15	84	21,3	92
	20	94	26,9	89
	25	104	33,7	89.5
	32	119	42,4	93
	40	129	48,3	97
	50	149	60,3	104

Dimensions [inch]

Port connection	DN	Variable dimensions [inch]		
		L	øD	H
Weld-end port connection	15	3.31	0.84	3.62
	20	3.70	1.06	3.51
	25	4.09	1.33	3.52
	32	4.69	1.67	3.66
	40	5.08	1.90	3.82
	50	5.87	2.37	4.10

Triclamp port connection



Body Material: DIN 1.4404; BS 316 L
 Connection: according to ISO 2852

Dimensions [mm]

Port connection	DN	Variable dimensions [mm]		
		L	øD	H
Triclamp port connection	15	130	34	92
	20	150	50,5	89
	25	160	50,5	89.5
	32	180	50,5	93
	40	200	64	97
	50	230	77.5	104

Dimensions [inch]

Port connection	DN	Variable dimensions [inch]		
		L	øD	H
Triclamp port connection	15	5.12	1.34	3.62
	20	5.91	1.99	3.51
	25	6.30	1.99	3.52
	32	7.09	1.99	3.66
	40	7.87	2.52	3.82
	50	9.06	3.05	4.10

Flow Sensor

for continuous flow measurement

Type 8030

Stainless Steel-INLINE

Ordering Chart

A Flow Sensor System type 8030 is consisting of two or three basic units as to know.

- Fitting type S030 which houses the paddle-wheel,
- Sensor Electronic type SE30,
- Upgradable to a low-cost transmitter with calibrated pulse output (8021/1077) or 4...20 mA output (8023)

This Flow Sensor can also be connected to a transmitter type 8025 in panel- or wall-mount version (see data sheet of type 8025 flow transmitter).

Selection example: A Flow Sensor System with 4...20 mA output for stainless-steel pipe DN25 consists of:

-Fitting type S030 (G-port connection internal thread)	424 006 M
-Sensor Electronic type SE30 (Hall sensor "low power")	423 914 E
-4...20 mA output module type 8023	130 428 V
-Control unit for 4...20 mA output module type 1077-3	130 446 X

Ordering Chart Fittings Type S030

Stainless-Steel body

Specifications	ITEM - NO.					
	DN 15	DN 20	DN 25	DN 32	DN40	DN 50
G-port connection (internal thread)	424 004 K	424 005 L	424 006 M	424 007 N	424 008 X	424 009 Y
JIS (ISO 7)-port connection (internal thread)	424 016 E	424 017 F	424 018 Q	424 019 R	424 020 N	424 021 B
NPT-port connection (internal thread)	424 010 L	424 011 H	424 012 A	424 013 B	424 014 C	424 015 D
G-port connection (external thread)	424 022 C	424 023 D	424 024 E	424 025 F	424 026 G ¹⁾	424 027 H ¹⁾
Weld-end port connection	424 028 J	424 029 K	424 030 Q	424 031 D	424 032 E	424 033 F
Flange-port connection (DIN 3202-F1, DIN 2501/2633, ISO 5752-1)	424 040 S	424 041 P	424 042 Q	424 043 R	424 044 J	424 045 K
Flange-port connection (ANSI B16-5-1988)	424 046 L	424 047 M	424 048 W	424 049 X	424 050 U	424 051 R
Triclamp-port connection (ISO 2852)	424 034 G	424 035 H	424 036 A	424 037 B	424 038 L	424 039 M

¹⁾Metric thread

Ordering Chart Sensor Electronics Type SE30

Specifications	Power Supply	Cable Entry	ITEM - NO.
Coil Sensor (Only connectable to type 8025 wall-mount version with batteries)	None	DIN 43650 PG9	423 912 C
Hall Sensor	12-30 VDC	DIN 43650 PG9	423 913 D
Hall Sensor "low power", only connectable to types 8025, 8021, 8023 and SE34	from 8025/8023	DIN 43650 PG9	423 914 E

Ordering Chart for Standard Output Signals

Specifications	Power Supply	Cable Entry	ITEM - NO.
Calibrated pulse output module type 8021	12-30 VDC	1x PG9	418 895 P
4...20 mA output module type 8023	12-24 VDC	1x PG9	130 428 V
Control unit for 4...20 mA output module type 1077-3	12-24 VDC	None	130 446 X

EASY Continuous Solenoid Control

up to -75 %

Flow Sensor
for continuous flow measurement

Type 8030
Stainless Steel-INLINE