FlowJam

Bulk Flow Detection

PROCESS MONITORING SYSTEMS FOR SOLIDS

Product Information

FEATURES:

- absolutely insensitive against material deposits
- for any line diameter
- with adapter, usable up to 220 °C and 20 bar
- with ceramic mounting, usable up to 1.000 °C
- compact (no separate electronics)
- signalling through relay switching
- different sensitivity levels
- Detection through all non-conductive walls
- can also be supplied with short housing and separate electronics
- Detection of material clogging and material standstill

TECHNOLOGY

USING / FUNCTION

The FlowJam detects solid streams of all kinds for material movement. The FlowJam distinguishes between the following switching conditions:

- material flow
- material jam/standstill resp. empty pipe

The system works contactless by using microwaves, whereby the material movement is detected by means of the Doppler's principle.

By means of appropriate windows of non-metallic material, the metering thus can be completely decoupled from the process. That's particularly interesting for the measurement of aggressive, abrasive or bulky material or at extreme pressures and temperatures. The FlowJam can also be applied in difficult application like high temperatures and pressures by means of a process adapter (see page 4).

By using microwaves there is a high insensitivity to built-up on the sensor window.

APPLICATION EXAMPLES

- **Monitoring of raw meal cyclones in cement plants**

  The FlowJam monitors the cyclone through special ceramic fittings, used for high temperature isolation, in order to prevent jams inside the cyclone.

  - Temperature inside the cyclone: 600 °C
  - Mass flow rate: approx. 50 t/h

- **Monitoring of screw-conveyors in gypsum plants**

  The FlowJam is installed in the discharge part of the screw to monitor the continuity of the material flow. As soon as the material flow gets interrupted, the FlowJam signals it by switching the relays, so that the operator can react appropriately.

- **Monitoring of coal injection in steel plants**

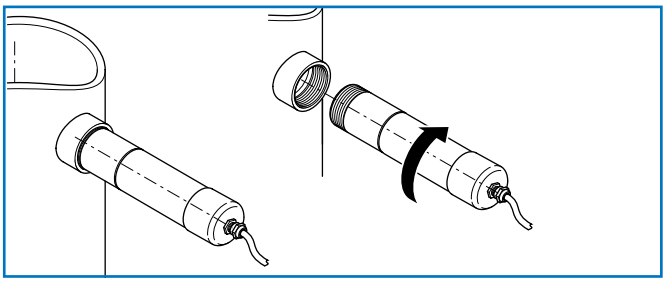
  Coal as fuel is injected via several lances in the blast furnace. It's very important for a constant quality of the burning process that the even fuel distribution around the blast furnace is guaranteed. It is for this reason that every lance is monitored by the FlowJam, so that every jam can be detected instantly, by which the process can be stopped automatically and the concerned lances freed by injecting of nitrogen.

TECHNOLOGY

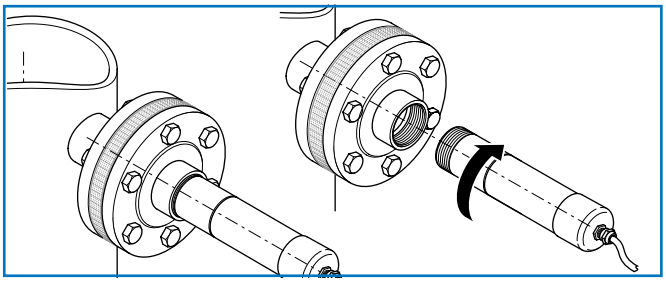
INSTALLATION

The installation of the FlowJam is easily made by the following ways:

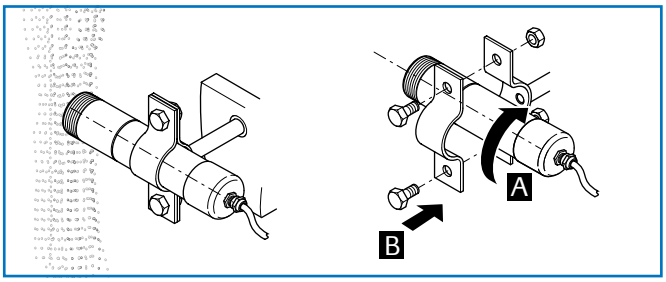
- screwing it into a G 1½-inch-srew neck
- by means of a DN 40 flange
- by means of a pipe clip or an other mounting



Thread mounting



Mounting with separating flange



Mounting with pipe clamp

Commissioning

Operating elements for the commissioning are located in the accessible FlowJam casing. It's possible to adjust both the switch sensibility and the response delay.

As a consequence there is no need for an extra evaluation unit.

TECHNICAL DATA

Housing material	Stainless steel 1.4571
Protection type	IP 65
Process temperature	-20 ... +80 °C -20 ... +220 °C (with process adapter) Max. 1000 °C (with ceramic flange)
Ambient temperature	-20 ... +60 °C
Working pressure	Max. 1 bar Max. 20 bar (with process adapter)
Power supply	24 V DC/AC ± 10 %
Relay contact	Max. rated load: 250 V AC Max. peak current: 6 A Max. rated load 230 V AC: 250 VA Max. breaking capacity DC1: 3/110/220 V: 3/0.35/0.2 A Min. switching load: 500 mW (10 V/5 mA)
Response time	250 ms ... 15 s (continuously adjustable)
Measuring frequency	24.125 GHz; ±100 MHz
Transmitting power	Max. 5 mW
Weight	1.0 kg
Dimensions	Housing: length of 216 mm / diameter of 52 mm Thread: length of 30 mm / diameter of G 1½"

SPECIFICATIONS

USE AS PRESSURE ADAPTER / TEMPERATURE ADAPTER

The FlowJam sensor itself can be used at pressures of up to 1 bar and process temperature of up to 80 °C.

For higher pressure an adapter from POM (20 bar); for higher temperature there is an adapter from Tecapeek (to 220 °C) and a ceramic adapter (+1000 °C). A process adapter for applications in the food industry is also available.

MOUNTING OF PRESSURE ADAPTER / TEMPERATURE ADAPTER

The mounting of the pressure adapter/ temperature adapter is identical. It is screwed into a welded G 1½ inch thread neck, provided by the customer.

Only the ceramic adapter is supplied as a flange and must be mounted separately. The housing of the FlowJam is screwed into the internal thread of the adapter.

TECHNICAL DATA

	Pressure adapter	Temperature adapter	Food adapter	High temperature adapter
Material	Stainless steel 1.4571 POM diaphragm	Stainless steel 1.4571 Tecapeek diaphragm	Stainless steel 1.4571 Tecapeek GF30 diaphragm	Steel Ceramic diaphragm
Temperature	-20 ... +80 °C	Max. +220 °C	Max. +220 °C	Max. 1000 °C
Pressure	Max. 20 bar	Max. 20 bar	Max. 20 bar	Max. 40 bar
Thread	G 1½" on both sides	G 1½" on both sides	G 1½" on both sides	G 1½" on sensor side
Wrench width	55 mm	55 mm	55 mm	17 mm

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