EN

Competence in Solids

SWR engineering

FlowJam

Bulk Flow Detection

Product Information

SWR engineering Messtechnik GmbH

Using / Function

The FlowJam detects all kinds of bulk solid flows with regard to 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.

The FlowJam is definitely a very reliable device because the use of its microwaves guarantees a penetration of material build-up on the sensor, and therewith a proof detection of material flow behind it. Hence it's also possible to detect through non-metallic box walls, casings or conduits.

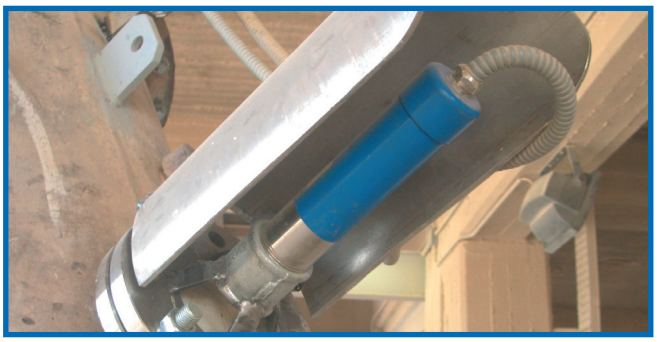
Even at difficult conditions like high process temperatures or pressures the FlowJam can be used by means of a process-adapter (see page 4).

Applications – practical examples

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

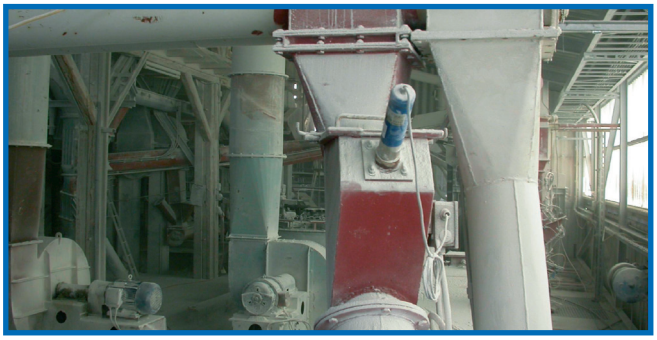
The FlowJam monitors the cyclone through special ceramic fittings, used for high temperature isolation, in order to prevent jams inside the cyclone.

- 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.



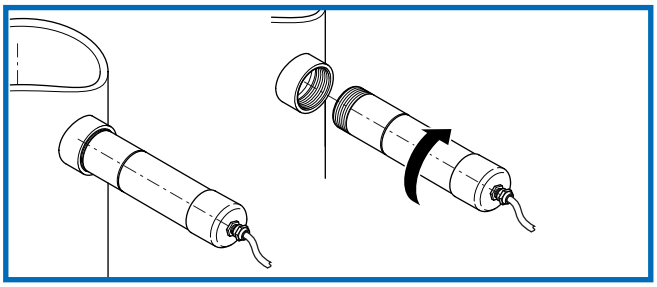
- **Monitoring of coal injection in steel plants**

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.

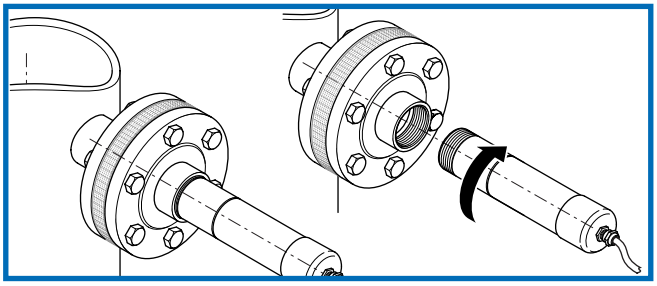
Installation

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

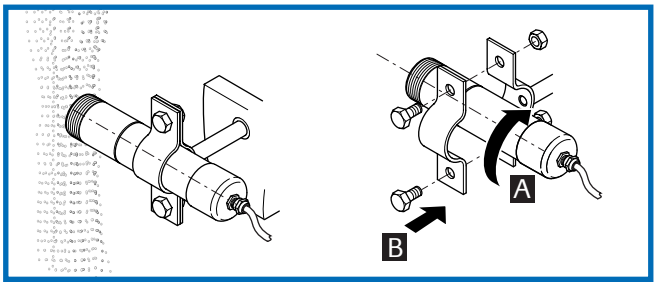
- screwing it into a G 1½-inch-srew neck
- by means of a DN 40 flange
- by means of a pipe clip or an other mounting



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
Protective system	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	18…24 V DC / AC
Relay output max. ▪ Voltage ▪ Current ▪ Capacity	 250 V AC 1 A AC 60 W
Response time	1…15 s (continuously adjustable)
Measuring frequency	24.125 GHz; ± 100 MHz
Transmitting Power	Max. 5 mW
Weight	1.0 kg
Dimensions	Casing: length of 216 mm / diameter of 52 mm Thread: length of 30 mm / diameter of G 1½"

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Ex certificated according to ATEX

* The FlowJam S (remote) is certified to ATEX 21, 22 for use in dust applications.

Use as Pressure Adapter / Temperature Adapter

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

A pressure adapter from POM, for higher temperatures a temperature adapter from tecapeek (to 220 °C) is available to you for higher pressure (to 20 bar).

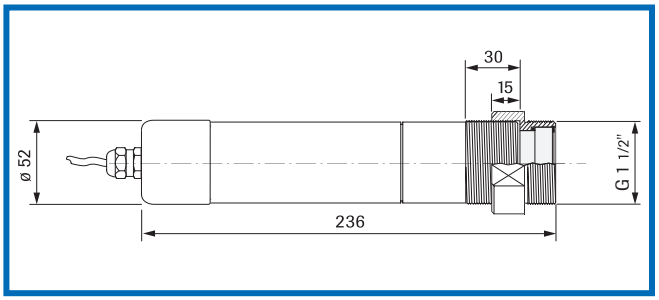
Mounting of Pressure Adapter / Temperature Adapter

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

The housing of the FlowJam is screwed into the G 1½ inch female thread of the adapter.

Technical Data

Material	Stainless steel 1.4301, POM diaphragm	Stainless steel 1.4301, Tecapeek diaphragm
Temperature	-20…+80 °C	Max. +220 °C
Pressure	Max. 20 bar	Max. 20 bar
Thread	G 1½-Zoll on both sides	G 1½-Zoll on both sides
Wrench width	55 mm	55 mm



SWR engineering Messtechnik GmbH
Gutedelstraße 31 · 79418 Schliengen (Germany)
Fon +49 7635 82 72 48-0 · Fax +49 7635 82 72 48-48 · www.swr-engineering.com