

# FlowJam

Bulk flow detection



SWR engineering Messtechnik  
FlowJam  
Standard  
12...30...60°C  
IP 55 / VDC/12...24V  
10433890  
Made in Germany



## 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).

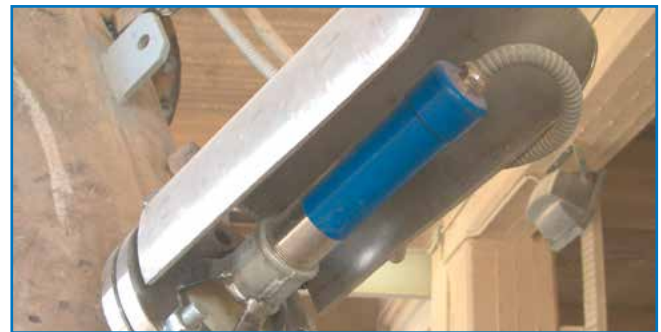
By using microwaves there is a high insensitivity to built-up on the sensor window.

## 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.

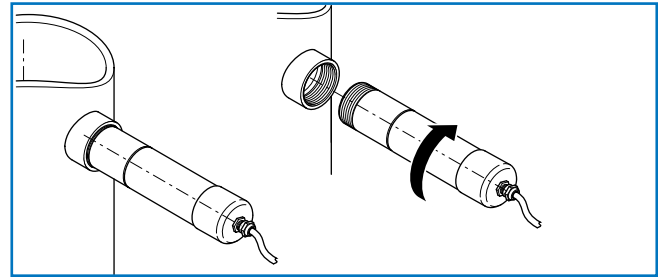
It is for this reason that every lance is monitored by the FlowJam, so that every jam can be detected instantly, by which the process can be stopped automatically and the concerned lances freed by injecting of nitrogen.



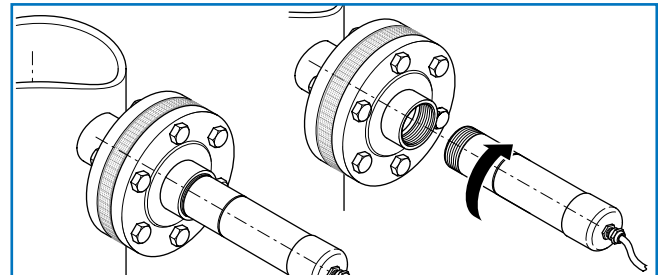
## Installation

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

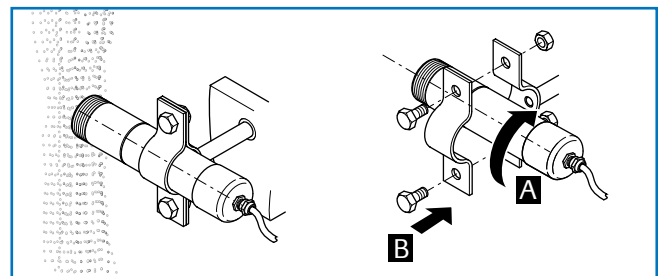
- screwing it into a G 1½-inch-screw neck
- by means of a DN 40 flange
- by means of a pipe clip or an other mounting



Thread mounting



Mounting with separating flange



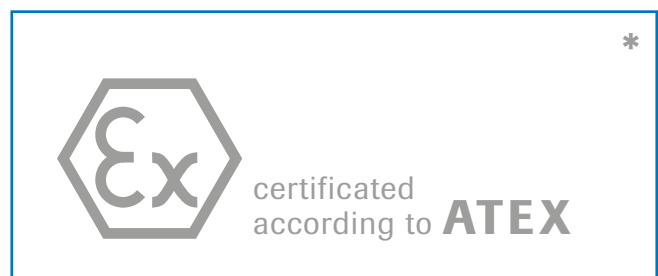
Mounting with pipe clamp

## 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<br>-20 ... +220 °C (with process adapter)<br>Max. 1000 °C (with ceramic flange)   |
| Ambient temperature | -20 ... +60 °C   |
| Working pressure    | Max. 1 bar<br>Max. 20 bar (with process adapter)   |
| Power supply        | 24 V DC/AC ± 10 %  |
| Relay contact       | Max. rated load: 250 V AC<br>Max. peak current: 6 A<br>Max. rated load 230 V AC: 250 VA<br>Max. breaking capacity DC1: 3/110/220 V:<br>3/0.35/0.2 A<br>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 /<br>diameter of 52 mm<br>Thread: length of 30 mm /<br>diameter of G 1½"   |



\* 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 process temperature of up to 80 °C.

For higher pressure an adapter from POM; 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 ProGap 2.0 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<br>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 inch on both sides               | G 1½ inch on both sides                    | G 1½ inch on both sides                         | G 1½ inch on sensor side   |
| Wrench width | 55 mm                                 | 55 mm                                      | 55 mm   | 17 mm                      |

