Product sheet

GAS-60

Gas Analyzer

Optimum deaeration at minimum cost

FEATURES

- **Optimum dosage of chemical deaerator / defoamer**
- **Eliminates pinholes**
- **Reduces deposits**
- **Prevents foaming**
- **Improves drainage**
- **Creates a potential for increased production speeds**

BENEFITS

- **Measures free and dissolved gas**
- **Easy installation**
- **Two sample points**
- **Direct and accurate measurement**
- **No calibration**
- **Automatic cleaning**
- **Low maintenance**

GENERAL / BACKGROUND

The main application of the GAS-60 Gas Analyzer is closed loop control of deaerator/defoamer chemicals in pulp and paper production.
By measuring the gas content online, problems of paper machine runnability due to increased gas contents can be adjusted within a short time. In addition, online gas measurements optimize the performance of mechanical and/or chemical deaerator.

In pulp and paper suspensions two different types of gases can be found: free and dissolved gas. The washers in the brown-stock washing process are heavily influenced by foam. Air is introduced as a surfactant with the fiber and can result in several problems. The paper machine wire and leakages in piping, machine parts and pumps are the principal locations within the stock cycle where air is entrained during papermaking.

Dissolved gas originates from calcium carbonate that enters the process with the waste paper, freshwater (water hardness), as filler or coated coated broke. A process pH below 8, additions of aluminum sulphate, PAC or other acidic chemicals give rise to a decomposition of calcium carbonate so that dissolved carbon dioxide is produced. Owing to the drastic loss of system pressure between headbox and paper machine wire, dissolved carbon dioxide is released and may cause serious problems, such as pinholes and deposits in the press and drying section.

Use QR-code or link for more information
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MEASURING PRINCIPLE / MEASUREMENT

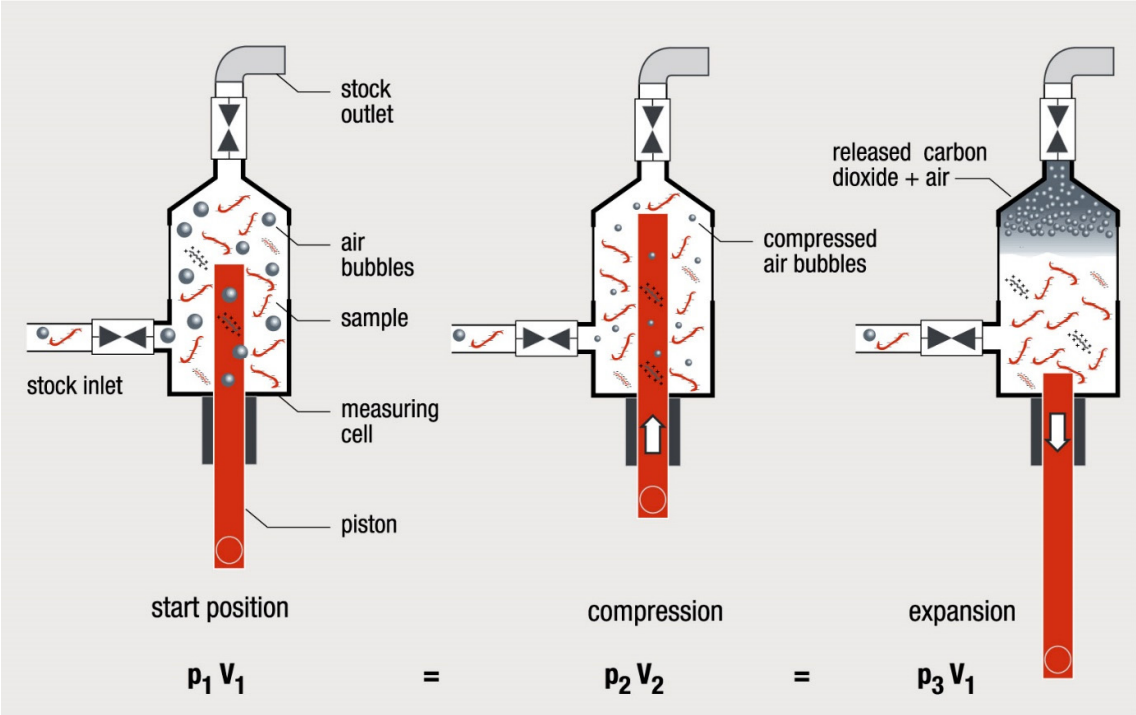


Figure 1: Working online, the GAS-60 Gas Analyzer measures the gas content of paper suspensions by compressing and expanding the samples

COMPRESSION MEASUREMENT

As liquids and solids themselves are incompressible, the content of free gas in the sample is directly determined by reducing its volume.

EXPANSION MEASUREMENT

The amount of releasable dissolved gas in the suspension is determined by expanding its volume. A partial vacuum is applied during a defined time period until a state of equilibrium is attained. The result mirrors the proportion of dissolved gas that is releasable at the preset expansion pressure.

The expansion pressure can be adjusted to the level at the suction pipes at the machine wire, i.e. the stock behavior at the wire is simulated.

INSTALLATION

Typical sampling points for a GAS-60 Gas Analyzer are the headbox recirculation line and the white water. Which signal is used to control deaerator chemicals, depends on the type of paper machine and application.

If a reduction of pinholes is the principal goal, the dissolved gas at the headbox sample must be kept below a certain level which has to be determined in each case.

However, when the primary objective is to reduce deaerator/defoamer costs, the signal indicating the level of free gas in the white water is conveniently used. The headbox signal serves to monitor the control loop.

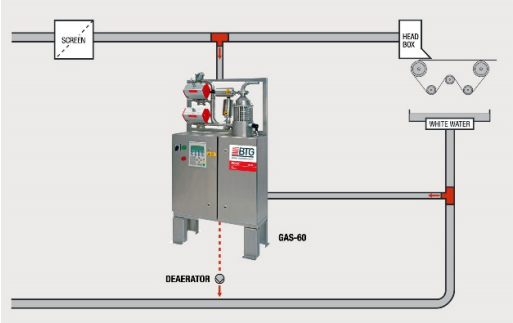


Figure 2: GAS-60 Gas Analyzer in the headbox recirculation line and in the white water

ADDITIONAL

Air or gas in stock suspensions is basically responsible for many production and quality problems, such as pinholes, specks, deposits or poor drainage in the processes of paper and paperboard making. In many process areas, the air contents may even exceed the volume of fibrous material as the principal component of a suspension.

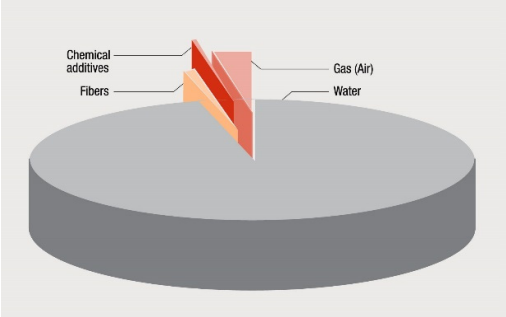


Figure 3: Volumetric composition of pulp suspensions at the headbox

The amount of dissolved carbon dioxide increases with decreasing pH-value. With machines operated at neutral conditions the level of dissolved carbon dioxide can be at 60 % – which is enough to cause pinholes and deposits when released at the machine wire.

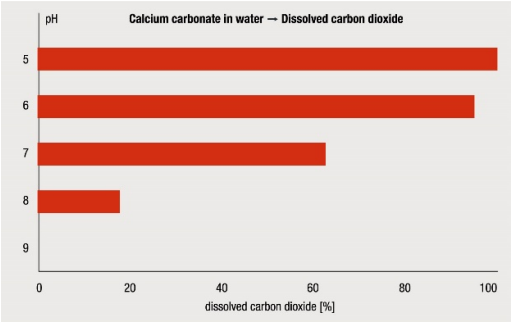


Figure 4: Amount of dissolved carbon dioxide dependent on the pH-value

TECHNICAL DATA / SPECIFICATIONS

GENERAL

System description	Measurement of free and dissolved gas
Measuring principle	Compression and expansion
Measuring range	0 – 8 % by volume
Accuracy	± 0.02 % by volume
Measuring interval	1 – 5 min
Ambient temperature	5 – 50 °C [50 – 113 °F]
Humidity	up to 95 %
Weight	80 kg [176.4 lbs]

Supplies

Sample	
Temperature	20 – 70 °C [68 – 158 °F]
pH	3 – 10
Consistency	up to 3 %
Pressure	8 bar [115 psi], relative
Consumption	5 – 10 liters/cycle [1.3 – 2.6 gal/cycle]
Water	
Temperature	10 – 50 °C [50 – 122 °F]
Pressure	4 – 8 bar [58 – 116 psi]
Consumption	5 – 10 liters/cycle [1.3 – 2.6 gal/cycle]
Power	
Input voltage	115 VAC / 230 VAC
Frequency	50 – 60 Hz
Consumption	up to 140 W
Air	
Pressure	6 – 10 bar [87 – 145 psi], filtered and cleaned
Consumption	10 liters/cycle [2.6 gal/cycle]

External connections

Analog outputs	4 x 4 –20 mA
Digital output	1 for alarm
Digital input	1 for remote control
Wetted material	Stainless steel (V2A / AISI304; V4A / AISI316) natural rubber, Viton, EPDM, Technopal, Duran glass, PTFE

SAFETY & DIRECTIVES

Safety and protection class

Protection class 1

IP65

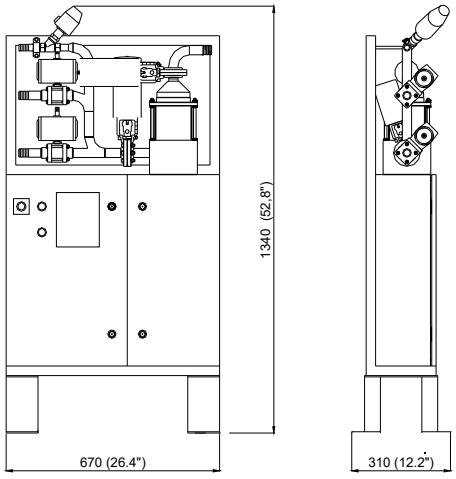
EU directives

Designed in accordance with relevant CE standards.

Quality Assurance

Quality-assured in accordance with ISO 9001.

DIMENSIONAL DRAWINGS



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