

Application Spotlight

# Production of pharmaceutical vials



## Uniformity & consistency for high quality

### Flame control in glass bottle production

How do you ensure quality in glass vial production? By generating a uniform and consistent flame. This requires accurate and precise gas dosing, regardless of temperature and pressure fluctuations in the gas supply or the environment.

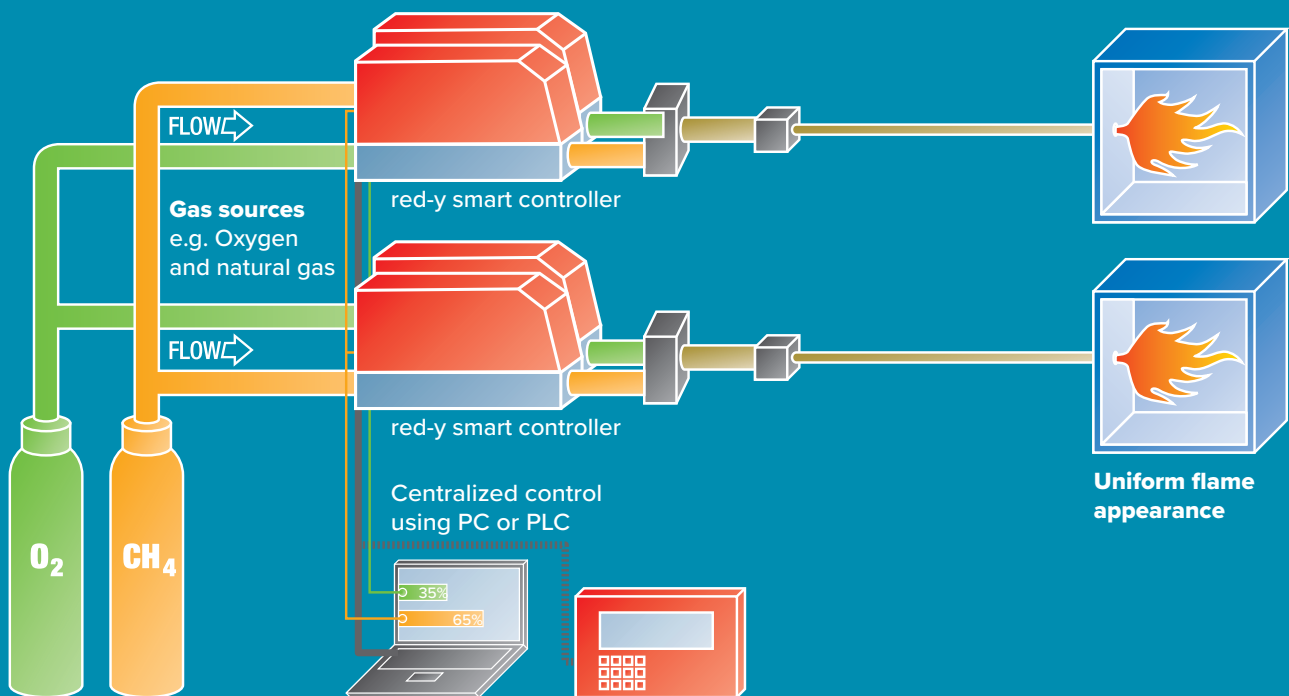


Fig. 1 Functional diagram flame control



Fig. 2 In order to produce high-quality glass vials, measurement accuracy and pressure and temperature independence is required. The MEMS technology of the red-y smart series ensures long-term stability without deviations under the condition of a clean and dry gas supply.

#### Application

The pharmaceutical glass product is made from glass tubes about 2 meters long, which are fed into a machine. These tubes are heated, deformed and cut into individual vials.

The flames that heat the glass are produced by mixing a fuel gas with oxygen. Fuel gases can be methane, propane or hydrogen for example. Sometimes air is added to lower the temperature.

A flame is a chemical reaction in which the number of molecules determine the process. Therefore, the number of molecules or the mass of gases must be precisely controlled. In this way, the flame is no longer affected by pressure and temperature fluctuations.

## Challenge

Too much or too little oxygen or fuel gas can significantly reduce the quality of the flame. In the production process, the gases must therefore be mixed in a constant ratio to produce a uniform flame pattern. All this depending on wall thickness, size and type of glass product.

## Solution

MEMS technology of the mass flow controllers offers fast response times of 450 ms. Plug & play functionality without warm-up phases improves user productivity.

*Vögtlin mass flow controllers* compensate for changes in ambient or gas temperature through automatic temperature compensation. This significantly improves repeatability. MEMS technology ensures long-term stability without deviations under the condition of a clean and dry gas supply. Flame recipes, depending on the glass product, as well as the specific process step can be defined and called up as desired.



Fig. 3 **Vögtlin offers modular MFC systems based on your demands and requirements.**

For the user, this results in perfect results immediately without the need for constant manual readjustment of the flame patterns and thus in direct gas savings as well as a considerable reduction in rejects.



## Main Features

- ★ High repeatability & reliability
- ★ No zero offset
- ★ High long term stability
- ★ Short response time
- ★ Safe & fast control
- ★ Compact unit with high quality components
- ★ Efficiency - no rejects and higher yields
- ★ Savings in gas consumption

## Available interfaces

- ★ Analog
- ★ Modbus RTU
- ★ Profibus DP-V0/DP-V1
- ★ Profinet
- ★ EtherCAT
- ★ EtherNet/IP



## About Vögtlin Instruments GmbH

Since 2011 Vögtlin is a member of the TASI Flow Network which delivers flow meter, flow control and dispensing solutions. TASI Flow products are developed, customized and serviced through technical centers in the US, Switzerland, Germany and UK. Strategically located calibration centers in Europe, Asia and the US allow us to provide full service and application expertise next to the customers door.

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