

# APPLICATION NOTE A030-FP04 - FLAVOURING DOSING

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## FLAVOURING DOSING

**The use of expensive and often volatile additives is critical for many industries, especially food and beverage where the precise dosing of flavourings is key to product quality and the reduction of waste.**

Bronkhorst understands the market needs and can provide customized solutions to control the precise addition of flavours, fragrances or other additives.



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### Application requirements

The dosing of additives needs a high accuracy and stability of the flow to prevent product wastage. This can be achieved by the use of a Bronkhorst Coriolis mass flow meter directly linked to a liquid dosing pump to provide closed loop control. This gives both flow verification and also precise control on pump operation, often much beyond normal pump design limits. Where master - slave operation is desired in conjunction with the main flow line, this can also be incorporated into the system.

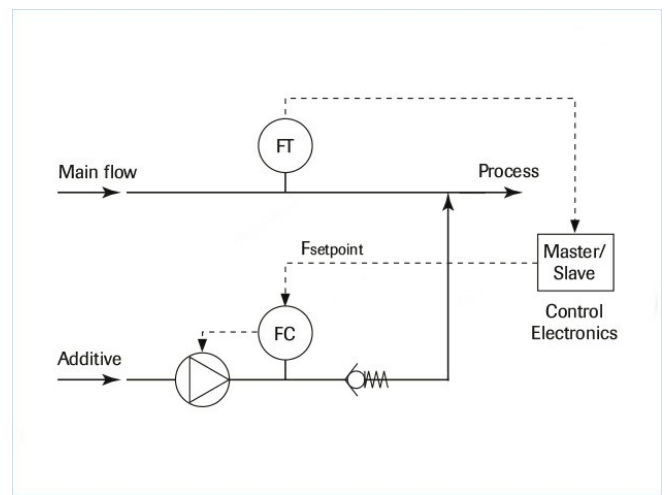
### Important topics

- High accuracy
  - Stable control
  - Direct pump control
  - Complete compact system
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## Process solution

The main flow is often much larger than required for the additive and can be measured by a conventional flow meter, such as a Coriolis instrument, or even an electromagnetic flow meter. The output from this master flow meter is connected into the Bronkhorst FLOW-BUS via the use of our E-8000 readout and interface module. A user configurable slave factor can be entered into these electronics for each “recipe” that is required for that production run. The Bronkhorst mini CORI-FLOW mass flow controller acts as the slave instrument and receives its setpoint from the E-8000 electronics. When the master flow rate varies, the setpoint to the slave instrument is automatically adjusted by a customer configurable slave factor. The integrated PID-controller within the CORI-FLOW mass flow controller recalculates the control signal to the pump via an inverter which converts the drive voltage into pump rotation, to swiftly reach the desired flow rate. Additional functionality is also possible as standard including pump protection via the programmable response alarm or density measurement to monitor entrained gas. Bronkhorst can also supply an optional pressure sensor as part of the system to prevent an overpressure situation.

This provides a compact and precise system for the repeatable, accurate measurement and control of additives and is especially suitable for multi-product applications, due to the use of Coriolis mass flow technology.



Flow scheme

## Recommended Products



### MINI CORI-FLOW™ M14V14I

Min. flow 0,03...1 kg/h  
Max. flow 0,3...30 kg/h  
Pressure rating 100 bar  
Independent of fluid properties  
High accuracy, fast control



### E-8000 - DIGITAL READOUT / CONTROL SYSTEMS

Bright, wide angle, 1.8" display (TFT technology)  
User friendly operation, menu driven with 4 push buttons



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