

## West Control Solutions KS 94 enables precise spice extraction

### Application

Spice extraction.

### Challenge

To prevent alteration of the smell and taste of aromatic compounds during processing.

### Solution

Use the KS 94 to establish a plant-wide automation system ensuring precision temperature control.



West Control Solutions KS 94 industrial controllers have significantly improved production quality at a spice extraction plant in Hagen, Germany.

The easy-to-use controllers have enabled the workforce to process recipes with the utmost precision and made possible a highly efficient decentralized process control system to serve equipment that is widely distributed across the plant.

Extraction involves the separation of material blends into their constituent parts by means of suitable solvents. The key challenge that faces a spice extraction plant is to prevent alteration of the smell and taste of aromatic compounds during processing. One crucial aspect in achieving this is establishing precise temperature control.

The plant uses CO<sub>2</sub> gases to dissolve the spices and enable the complicated extraction process. CO<sub>2</sub> gas must be provided to a range of equipment across the site, at temperatures ranging between 30 and 80°C. The West Control Solutions' KS 94 was identified as the ideal controller for this application, since it offered exceptional precision control and the opportunity to create a decentralized automation system across the plant.

The capability was made available because the KS 94 has compatibility with the InterBus network and that was used to connect 15 stand-alone KS 94 process controllers to the central supervisory computer and associated units.

The controllers were connected by an InterBus network to various input/output modules and numerous field transmitters and actuators to



the central supervisory computer. All of the KS 94 controllers have a standardized interface, enabling users of all experience-levels to quickly and effectively harness the powerful functions within the controller.

The decentralized controllers run a powerful algorithm that handles the high workload resulting from real-time computation, relieving the central PC from handling this work alone. The InterBus network structure offers high quality communications between the controllers and the multiple input/output modules located around the plant.

The ability to control the temperature and pressure of the CO<sub>2</sub> with such precision improves capability for the plant, since high pressure extraction for both liquids and solids can be applied with equal success, and fewer production stages are required.

The spice-extraction facility in Hagen found that the KS 94 enabled the plant to achieve excellent levels of reliability and a high degree of availability. In addition, wiring costs were reduced and overall maintenance processes were simplified. The system proved extremely popular with the operating personnel, with the day and night display settings improving readability and simple on-site operation.

The success of this initial production plant has been demonstrated so conclusively that further plants have been planned and/or built in the USA and China, based on the German model. Ian Collins, Product Manager, West Control Solutions, commented, "We are delighted that the KS 94 process controller has had such a demonstrable effect on operations. The outstanding precision teamed with unrivalled functionality of the KS 94 has made it one of our most popular innovations to date."

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For more details on the complete product range from West Control Solutions please contact your local distributor or visit [www.west-cs.com](http://www.west-cs.com).

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