

# DOSING, CLEANING AND FUSION QCX<sup>®</sup> DCF820

The DCF820 Dosing, Cleaning and Fusion device produces fused beads for X-ray fluorescence (XRF) analysis in robotics setups. It is suitable for use with all granular materials with particle size around 100 micron or less that can be dissolved by borate fusion. This includes geological samples and cementitious materials in particular.

DCF820 is a completely automated solution. Full automation of all required operational steps removes health and safety risks for your laboratory personnel by avoiding personal exposure to potential harmful materials.

Automation also eliminates human factors that place limitations on accuracy during sample and flux dosing, homogenisation of the material, and cleaning of the crucibles. Not only does this improve efficiency, it frees laboratory staff to be utilised for more demanding tasks and also reduces the consumption of chemicals, therefore reducing operational costs. Further, the fully bidirectional data transmission overcomes errors in the analytical recipes and therefore guarantees high quality analytical results.

## ADVANTAGES

- **Accuracy:** the DCF820 offers the most reliable heating and precise dosing. This in turn gives you absolutely optimal results for XRF analysis.
- **Efficiency:** with each stage automatically transitioning to the next, and all recipes mixed perfectly every time, your analytical processes will be substantially faster with no compromise on accuracy.
- **Automation:** the DCF820 is part of our QCX solutions. It is purposefully designed for seamless integration, so installation and future upgrades are effortlessly achieved with minimal disruption.

# A MULTI-STAGE SOLUTION FOR UNBEATABLE XRF ANALYSIS

## How it works

The DCF820 device is designed to operate in a robot automated laboratory.

Fused beads for XRF analysis are first prepared in a muffle furnace. Along with the robot, the DCF820 device is then able to proceed with gravimetric dosing and mixing of flux and sample, as well as cleaning of the crucibles.

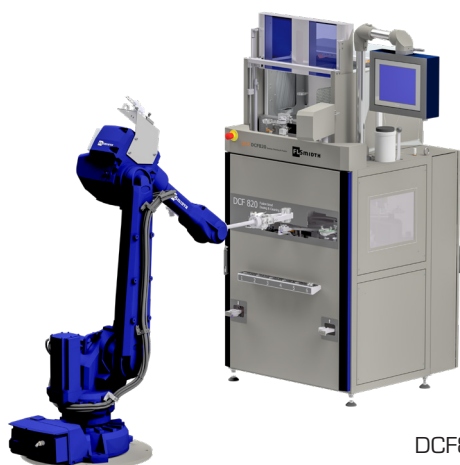
Compared to other methods, XRF analysis of fused beads is unaffected by analytical errors normally associated with mineralogy, segregation, or particle size effects. The precise, automated preparation technique ensures a homogenous matrix with an even distribution of analytes.

Automation of the dosing and weighing tasks ensures optimal reproducibility and analytical quality and increases the capacity of your laboratory. Automated fusion preparation is faster than the manual process and thus gives you faster access to data.

User-friendly setup means you can easily adjust dilution ratios and flux types from sample to sample according to tailored recipes. You can also adjust dosing accuracy in accordance with capacity requirements.

## Possible configuration

The DCF820 device is purposefully designed for integration in robotics labs. Robotic intervention is required to transition samples through each stage of dosing, mixing, fusion and cleaning. FLSmidth QCX provides ideal compatibility for the most seamless automation setup.



DCF820 with Robot

## Specification

<b>Type</b>	820
<b>Fusion instrument</b>	1 x Eagon 2 Claisse
<b>Sample material</b>	Dry, non-sticky, max. 5% residue on a 105 micron sieve
<b>Flux material</b>	Dry, crystalline, non-sticky
<b>Sample quantity</b>	36 - 44 cm <sup>3</sup>
<b>Sample frequency</b>	8 beads/hour
<b>Flux capacity</b>	
<b>Standard</b>	1 removable stainless steel container, 1,500 cm <sup>3</sup>
<b>Option</b>	2 independent containers, each 1,500 cm <sup>3</sup>
<b>Sample dosing accuracy</b>	< ±40 mg
<b>Dilution ratio accuracy (sample / [sample + flux])</b>	< ±0.15%
<b>Weight of dosed sample</b>	0.5 - 3.0 g
<b>Weight of dosed flux</b>	0 - 10.0 g
<b>Bead diameter</b>	32 or 40 mm
<b>Furnace temperature</b>	300C - 1,200C
<b>Crucible cleaning reagent</b>	'Tickopur R27' (5% solution), Citric acid (5-10% solution) or equivalent
<b>Crucible cleaning method</b>	Heated, ultrasonic bath with cleaning reagent with subsequent washing by tap or distilled water, hot air drying
<b>Washing water</b>	Tap or/ and Distilled water, 0.15 - 0.6 MPa
<b>Dedusting</b>	0.5 m <sup>3</sup> /min, -16 to -31 kPa
<b>Exhausting</b>	0.056 m <sup>3</sup> /s
<b>Power supply</b>	
<b>Line 1</b>	230 V; 50/60 Hz, max. 1.8 kW
<b>Line 2</b>	230 V; 50/60 Hz max. 4.6 kW
<b>Compressed air supply</b>	0.6 - 1.0 MPa (Quality 1.4.1 as per ISO 8573-1)
<b>Operating conditions</b>	Temperature: 15°C to 25°C Humidity: 20 - 80%
<b>Weight</b>	Approx. 565 kg
<b>Dimensions (W x D x H)</b>	930 x 1,010 x 2,000 mm