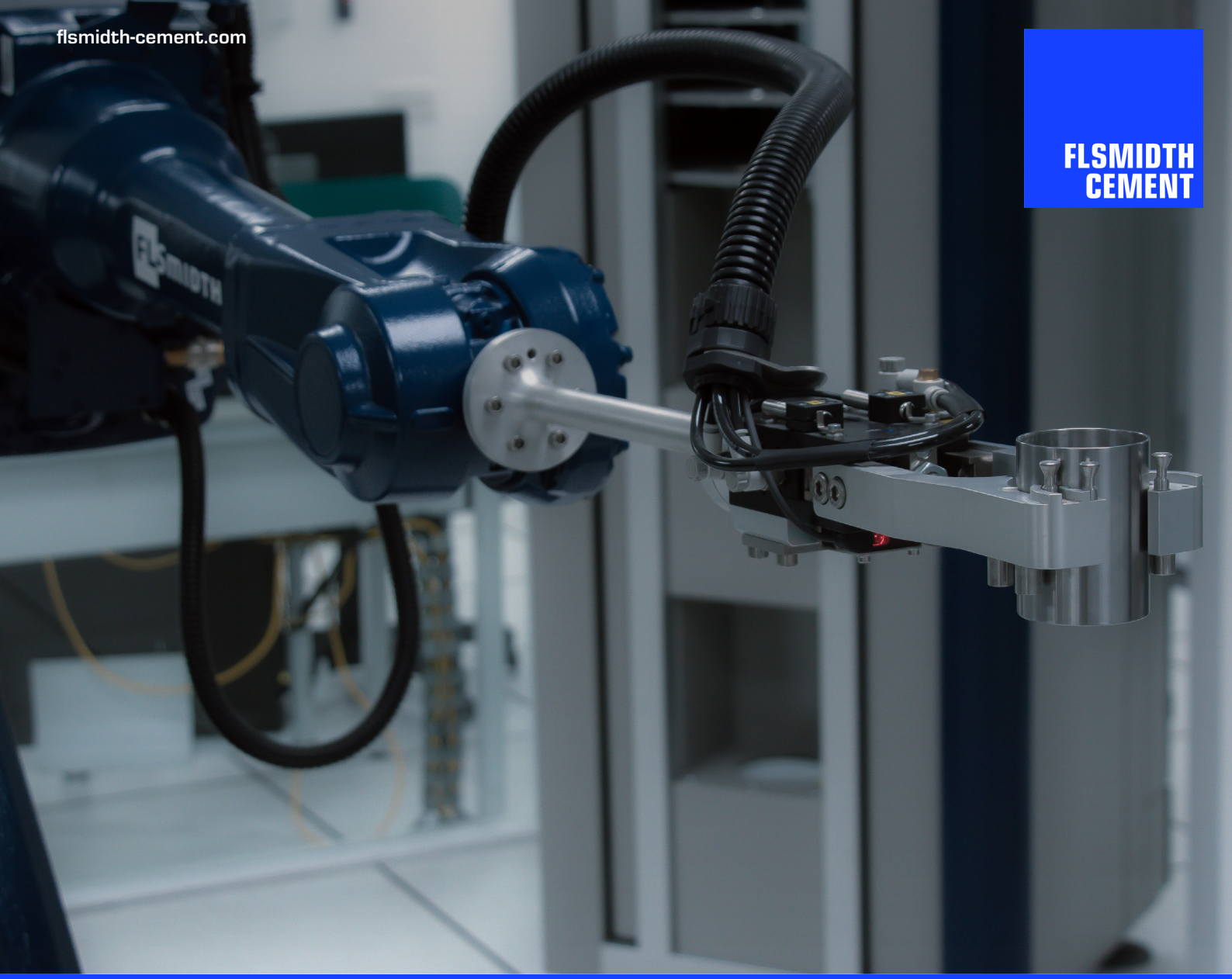
flsmidth-cement.com



FLSMIDTH CEMENT

LABORATORY AUTOMATION

QCX/RoboLab®

THE QUALITY CONTROL CHALLENGE

Cement plants are experiencing heightened demands for sample analysis quality and throughput due to stricter environmental regulations governing pollution and energy consumption in cement production. Additionally, the current economic climate necessitates continuous operation of cement plants 24/7/365 with minimal manpower.

Many new cement plants are located in areas where it is difficult to recruit skilled engineers, and people who are available often spend less time in the same job. Remote operation, support from distant locations, and online assistance are all vital for the smooth operation of quality control systems in modern cement plants.

The trend in cement plant quality control systems is to meet the following requirements:

- Operate a production laboratory with as few operators and engineering resources as possible
- Improve the speed and accuracy of sample results
- Meet the stricter controls required for specialised cement
- Support 24/7/365 operation
- Achieve zero health and safety incidents

Supporting product quality control at all stages

The QCX® system from FLSmidth Cement is designed to control cement quality in cement plants and it fully meets industry standards for reliability and robustness in an industrial environment. Automated sampling, sample preparation and analysis provide fast, reliable and consistent information for quality and process control.

The system supports quality control at all relevant stages of cement production in a single, integrated system. Combined with FLSmidth Cement's extensive experience in cement plant process control, the system incorporates in-depth understanding of production environments and the high requirements for speed and performance.

The modular system architecture allows for any degree of automation. It can be scaled from small, task-targeted automation units to large, fully automated laboratories. This modularity supports a phased approach to integrating automation.

Solving quality control challenges

Shortage of skilled lab-operators – Laboratory managers need to be less reliant on human resources, and still maintain high quality.

The QCX system:

- Automates sample taking, preparation and analysis – reducing the need for manual labour
- Ensures consistent high-quality sample taking, preparation and analysis, by programming desired recipes
- Is part of FLSmidth Cement's global support organisation for fast and easy remote troubleshooting.

Consistency in sampling

Sampling inconsistency and inaccurate analysis results contribute to laboratory errors, creating process fluctuations and disrupting productivity, equipment lifetime and especially product quality. To dramatically improve sampling quality, the QCX system:

- Automates sampling, ensuring accuracy and reliability
- Automates sample transport, ensuring correct sample place and timestamp on sample
- Offers full traceability, from sampling to analysis

Tighter controls for special cement or alternative fuel

Competitive production methods using alternative fuels and additives put very tight requirements on quality control. Likewise special cements require stricter controls and special analysis. To meet strict controls, the QCX system:

- Delivers advanced sample preparation, such as automated sample fusion
- Ensures that frequent and consistent results are fully available

Strict documentation requirements

Stricter QC and audit trail requirements are part of the daily operation of cement plants.

The QCX system supports:

- Unmanned documented handling of material from process to analysis, avoiding introducing human bias.

Cost-effective production

Fast and accurate results – Cement production requires fast and correct results to improve quality and reduce operational costs.

For cost-effectiveness, the QCX system:

- Delivers fast and accurate automated sample taking, preparation, analysis and control.

Continuous plant operation

For 24/7 plant operation, the process laboratory must operate constantly with only very few, short stops. This means that efficient maintenance and service of all equipment is crucial. To support 24/7 plant operation, the QCX system:

- Offers a wide selection of performance viewers for tracking lab performance both on equipment level and system level, this pinpointing potential bottlenecks at an early stage.
- Is part of FLSmidth Cement's global support organisation for fast and easy remote troubleshooting

Prioritising safety

Cement plants are striving to improve safety. Supporting an improved working environment, the QCX system:

- Eliminates hazardous manual operation and operator injuries by automating sampling and sample preparation.

THE QCX SYSTEM

FLSmidth Cement's comprehensive equipment portfolio, designed specifically for cement production laboratories, ranges from manual machines and automated units to fully automated, high-capacity laboratories.

By design, most of FLSmidth Cement's laboratory equipment can be operated both automatically and manually. This means you have the advantage of implementing stepwise automation and of ensuring operation, even when part of the automated laboratory is being serviced.

A solution for every need

The QCX system ensures that your process laboratory delivers safe, efficient and accurate analysis – quickly and with as few operators as possible. The advanced, user-friendly system can be tailored according to your specific cement production needs, including special cement and fuels, and supports 24/7/365 operation.

More than 50 years of development across multiple hardware platforms and a comprehensive base of installed systems has made the QCX system the frontrunner in the cement industry. Automated laboratory solutions from FLSmidth Cement are setting new industrial standards in terms of ease of use, flexibility, reliability and scalability.

For exceptional quality and process control at all stages of cement production, the FLSmidth Cement QCX system:

- Automates sampling, sample preparation and analysis
- Provides safe, fast and reliable information
- Integrates all cement quality-control activities in a single system
- Incorporates in-depth understanding of the production process

THE QCX SYSTEM OVERVIEW

This brochure provides you with an overview of the 4 essential elements that make up the FLSmidth Cement QCX quality control system.

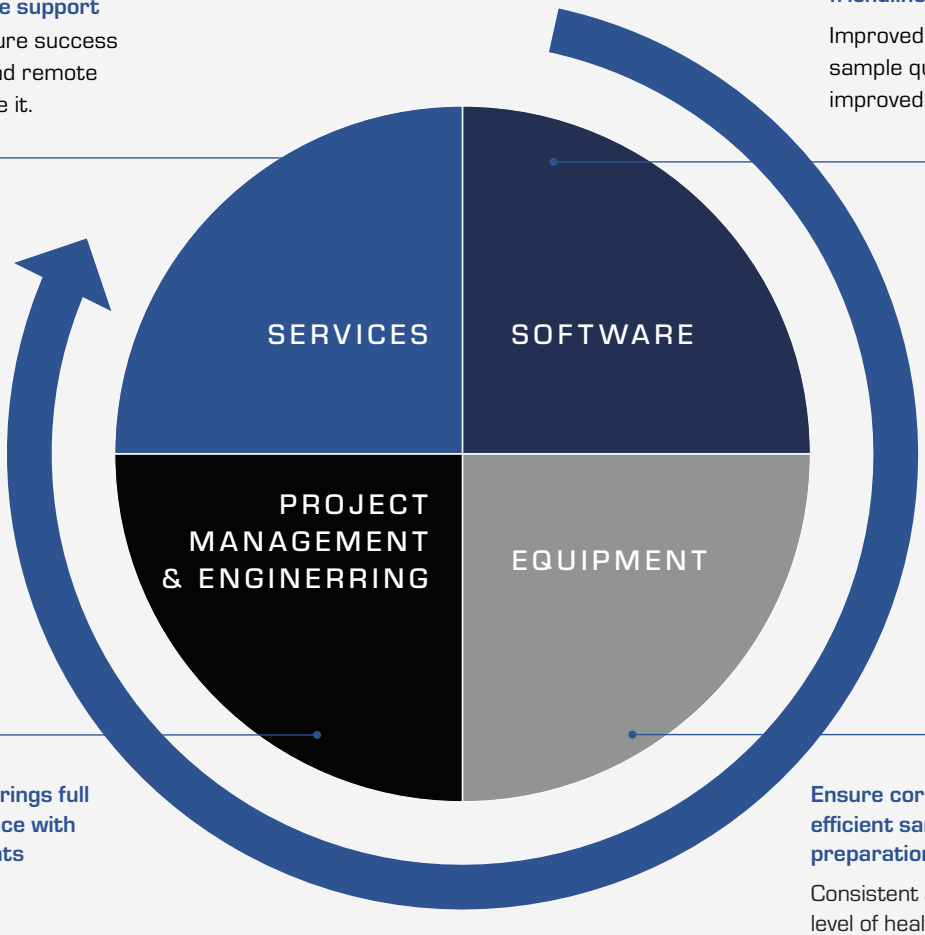
FLSmidth Cement offers a fully integrated quality control system for your plant – from state-of-the-art software and equipment to expert engineering, project management and support.

Training of all staff levels, after-sales support, remote support

Capable staff will ensure success after we leave site, and remote support will guarantee it.

Operate and maintain the system withfew people due to ease of use and user friendliness

Improved and consistent sample quality results in improved production quality.



Process knowledge brings full traceability, compliance with rules and requirements

Ensure correct, safe and efficient sample taking and preparation

Consistent and high level of health and safety compliance, high availability, complex preparation made possible.

QCX SOFTWARE

Benefit from the latest software and equipment design

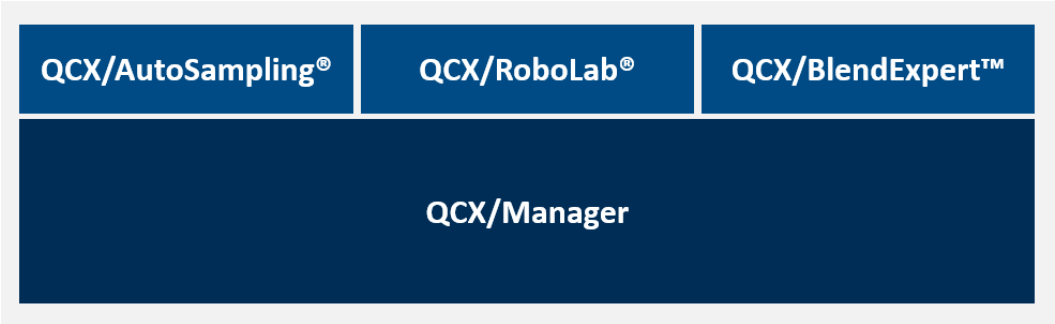
With state-of-the-art software standards, equipment design and system architecture, you don't need PLC programming skills to manage, maintain or troubleshoot the QCX system and it will continue to provide efficient operation long after system commissioning.

The QCX software includes the following components:

- QCX/Manager – the backbone for all QCX systems, offering powerful Production LIMS features
- QCX/AutoSampling – add-on for fully automated sampling and sample transport
- QCX/RoboLab – add-on for fully automated sample preparation and analysis
- QCX/BlendExpert – add-on for chemical process optimisation

Unique equipment integration

The QCX system is designed and engineered to get full transparency from the software in the laboratory and down to the devices in the samplers and sample preparation equipment. This transparency is possible because the equipment and the software development go hand in hand in the QCX system. The seamless integration of sub-components and the control system saves time during commissioning and later during maintenance.



EQUIPMENT INTEGRATION

Unique equipment integration

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Faceplates

Easy-to-understand and pre-configured QCX faceplates allow operators and maintenance personnel to monitor equipment status. These faceplates give an overview, save time and eliminate the need for operators or engineers to dig into PLC programs. All relevant information is readily available in all formats.

Performance metrics

The QCX equipment is delivered with integrated performance metrics, providing valuable usage and performance information for managers, operators and maintenance staff.

Key Performance Indicators, such as Availability and No of produced samples, provide a quick overview of equipment performance, while more detailed information, such as Motor runtime and No of cylinder operations, is targeted for maintenance staff.

Remote assistance

Automated laboratories can rely on remote assistance either from FLSmidth Cement or from the user's own service organisation.
This saves manpower and minimises downtime.

The system's performance metrics and conditioning programs enable:

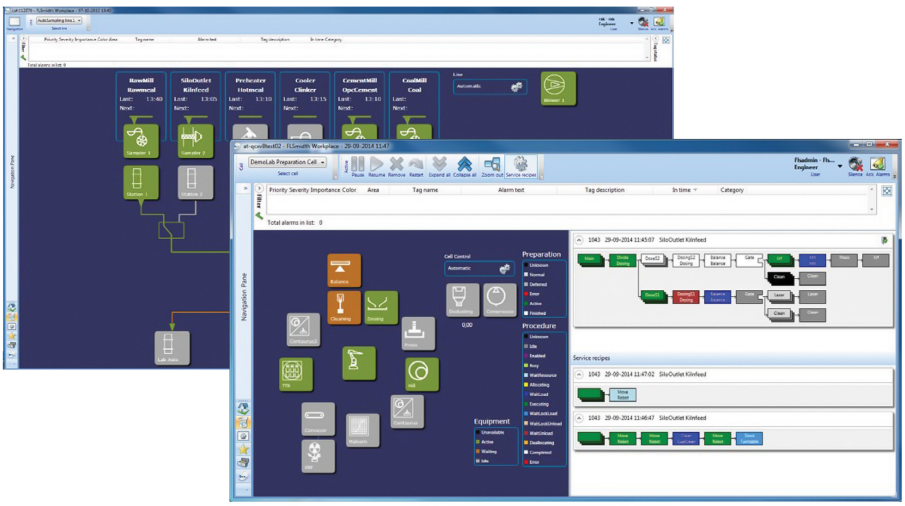
- Remote troubleshooting
- Preventive maintenance planning
- In-time purchase of spare parts and wear parts

'Click-Once' client

With the web-based 'Click-Once' software installation, where a QCX operator interface can be installed on any PC within minutes, the laboratory is no longer dependent on specific PC brands and won't suffer if, for example, a cup of coffee is spilled in the PC.

CE compliance

Health and safety considerations are an integrated part of the design and production processes of the QCX system, and all the equipment and systems comply with CE marking requirements. These requirements are based on internationally recognised standards, such as ISO and IEC, meaning that you automatically fulfil the requirements of many relevant health- and safety related standards when choosing the QCX system. Additional certification – or compliance with additional standards – is in many cases available on request.

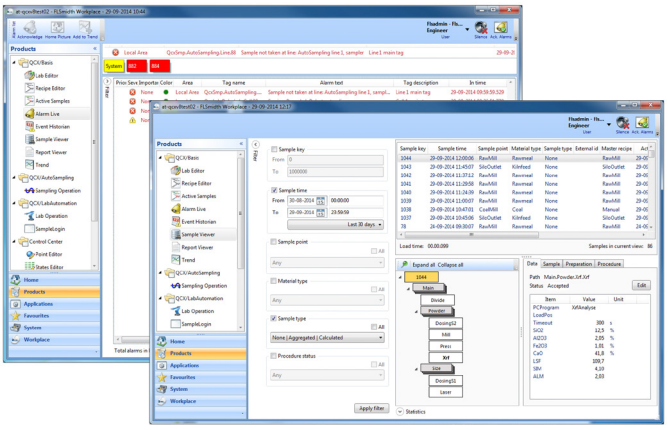


QCX/MANAGER

QCX/Manager is the backbone of a QCX system. It is a powerful *Production Laboratory Management Information System (Production LIMS)*, which offers LIMS features specifically targeted a production laboratory. It includes a strong hierarchical sample database, recipe management, equipment control, sample data import/export, sample browsing, reporting, and trending.

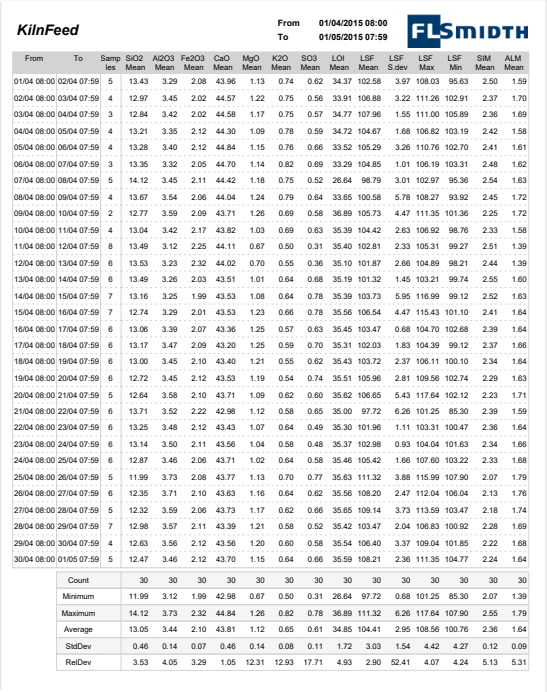
The QCX/Manager software is prepared for any degree of sample automation: Data acquisition from manually tended analysis equipment is supported as standard, and this can easily be extended to fully automated sample preparation and analysis by adding the QCX/RoboLab software module.

Dedicated configurators save time and ensure consistency when designing and updating sample preparation recipes, ultimately reducing errors.



The Reporting feature is your documentation tool. You can generate daily, weekly and monthly reports based on your specific plant requirements, including both analysis data and calculated values, such as LSF, SIM and ALM.

Furthermore, if your plant has an FLSmidth Cement process control system, then process parameters, such as tons produced or fuel consumed, can be trended together with quality parameters to optimise operation.



KilnFeed

From 01/04/2015 08:00
To 01/05/2015 07:59

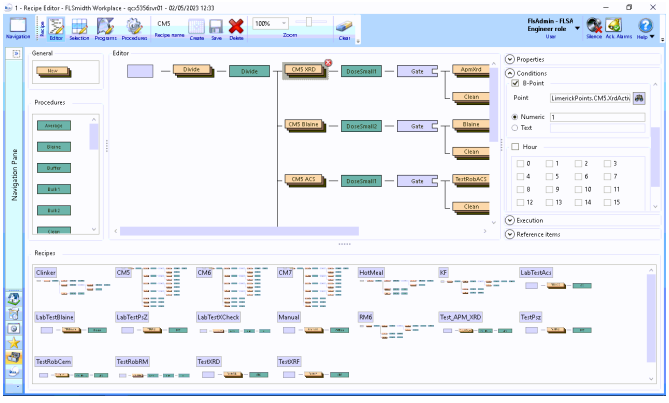
From	To	Samples	SiO2 Mean	Al2O3 Mean	Fe2O3 Mean	CaO Mean	MgO Mean	K2O Mean	SO3 Mean	LOI Mean	LSF Mean	LSF S.dev	LSF Max	LSF Min	SIM Mean	ALM Mean
01/04 08:00	02/04 07:59	5	13.43	3.29	2.08	43.96	1.13	0.74	0.62	34.37	102.58	3.97	108.03	95.63	2.50	1.59
02/04 08:00	03/04 07:59	4	12.97	3.45	2.02	44.57	1.22	0.75	0.56	33.91	106.88	3.22	111.26	102.91	2.37	1.70
03/04 08:00	04/04 07:59	3	12.84	3.42	2.02	44.58	1.17	0.75	0.57	34.77	107.96	1.55	111.00	105.89	2.36	1.69
04/04 08:00	05/04 07:59	4	13.21	3.35	2.12	44.30	1.09	0.78	0.59	34.72	104.67	1.68	106.82	103.19	2.42	1.58
05/04 08:00	06/04 07:59	4	13.28	3.40	2.12	44.84	1.15	0.76	0.66	33.52	105.29	3.26	110.76	102.70	2.41	1.61
06/04 08:00	07/04 07:59	3	13.35	3.32	2.05	44.70	1.14	0.82	0.69	33.29	104.85	1.01	106.19	103.31	2.48	1.62
07/04 08:00	08/04 07:59	5	14.12	3.45	2.11	44.42	1.18	0.75	0.52	26.64	98.79	3.01	102.97	95.36	2.54	1.63
08/04 08:00	09/04 07:59	4	13.67	3.54	2.06	44.04	1.24	0.79	0.64	33.65	100.58	5.78	108.27	93.92	2.45	1.72
09/04 08:00	10/04 07:59	2	12.77	3.59	2.09	43.71	1.26	0.69	0.58	36.89	105.73	4.47	111.35	101.36	2.25	1.72
10/04 08:00	11/04 07:59	4	13.04	3.42	2.17	43.82	1.03	0.69	0.63	35.39	104.42	2.63	106.92	98.76	2.33	1.58
11/04 08:00	12/04 07:59	8	13.49	3.12	2.25	44.11	0.67	0.50	0.31	35.40	102.81	2.33	105.31	99.27	2.51	1.39
12/04 08:00	13/04 07:59	6	13.53	3.23	2.32	44.02	0.70	0.55	0.36	35.10	101.87	2.66	104.89	98.21	2.44	1.39
13/04 08:00	14/04 07:59	6	13.49	3.26	2.03	43.51	1.01	0.64	0.68	35.19	101.32	1.45	103.21	99.74	2.55	1.60
14/04 08:00	15/04 07:59	7	13.16	3.25	1.99	43.53	1.08	0.64	0.78	35.39	103.73	5.95	116.99	99.12	2.52	1.63
15/04 08:00	16/04 07:59	7	12.74	3.29	2.01	43.53	1.23	0.66	0.78	35.56	106.54	4.47	115.43	101.10	2.41	1.64
16/04 08:00	17/04 07:59	6	13.06	3.39	2.07	43.36	1.25	0.57	0.63	35.45	103.47	0.68	104.70	102.68	2.39	1.64
17/04 08:00	18/04 07:59	6	13.17	3.47	2.09	43.20	1.25	0.59	0.70	35.31	102.03	1.83	104.39	99.12	2.37	1.66
18/04 08:00	19/04 07:59	6	13.00	3.45	2.10	43.40	1.21	0.55	0.62	35.43	103.72	2.37	106.11	100.10	2.34	1.64
19/04 08:00	20/04 07:59	6	12.72	3.45	2.12	43.53	1.19	0.54	0.74	35.51	105.96	2.81	109.56	102.74	2.29	1.63
20/04 08:00	21/04 07:59	5	12.64	3.58	2.10	43.71	1.09	0.62	0.60	35.62	106.65	5.43	117.64	102.12	2.23	1.71
21/04 08:00	22/04 07:59	6	13.71	3.52	2.22	42.98	1.12	0.58	0.65	35.00	97.72	6.26	101.25	85.30	2.39	1.59
22/04 08:00	23/04 07:59	6	13.25	3.48	2.12	43.43	1.07	0.64	0.49	35.30	101.96	1.11	103.31	100.47	2.36	1.64
23/04 08:00	24/04 07:59	6	13.14	3.50	2.11	43.56	1.04	0.58	0.48	35.37	102.98	0.93	104.04	101.63	2.34	1.66
24/04 08:00	25/04 07:59	6	12.87	3.46	2.06	43.71	1.02	0.64	0.58	35.46	105.42	1.66	107.60	103.22	2.33	1.68
25/04 08:00	26/04 07:59	5	11.99	3.73	2.08	43.77	1.13	0.70	0.77	35.63	111.32	3.88	115.99	107.90	2.07	1.79
26/04 08:00	27/04 07:59	6	12.35	3.71	2.10	43.63	1.16	0.64	0.62	35.56	108.20	2.47	112.04	106.04	2.13	1.76
27/04 08:00	28/04 07:59	5	12.32	3.59	2.06	43.73	1.17	0.62	0.66	35.65	109.14	3.73	113.59	103.47	2.18	1.74
28/04 08:00	29/04 07:59	7	12.98	3.57	2.11	43.39	1.21	0.58	0.52	35.42	103.47	2.04	106.83	100.92	2.28	1.69
29/04 08:00	30/04 07:59	4	12.63	3.56	2.12	43.56	1.20	0.60	0.58	35.54	106.40	3.37	109.04	101.85	2.22	1.68
30/04 08:00	01/05 07:59	5	12.47	3.46	2.12	43.70	1.15	0.64	0.66	35.59	108.21	2.36	111.35	104.77	2.24	1.64

Count		30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Minimum		11.99	3.12	1.99	42.98	0.67	0.50	0.31	26.64	97.72	0.68	101.25	85.30	2.07	1.39
Maximum		14.12	3.73	2.32	44.84	1.26	0.82	0.78	36.89	111.32	6.26	117.64	107.90	2.55	1.79
Average		13.05	3.44	2.10	43.81	1.12	0.65	0.61	34.85	104.41	2.95	108.56	100.76	2.36	1.64
StdDev		0.46	0.14	0.07	0.46	0.14	0.08	0.11	1.72	3.03	1.54	4.42	4.27	0.12	0.09
RelDev		3.53	4.05	3.29	1.05	12.31	12.93	17.71	4.93	2.90	52.41	4.07	4.24	5.13	5.31

Benefits of the QCX/Manager software:

- Full transparency from sample processing to analysis
- Complete overview of sample status, sample analysis and statistics
- Full traceability of sample taken time, sample point and material type, as well as support for other relevant metadata
- Efficient creation and updating of sample preparation recipes by means of intuitive visual recipe editor
- Direct access to trends to investigate quality parameters, for example, a combined trend view for blaine results in the last 3 months for all cement samples.

Drag-and-drop your recipes using the intuitive visual recipe editor



QCX/AutoSampling

QCX/AutoSampling is the software module, which is designed for controlling a fully automated sampling and sample transport system.

It provides configurable and flexible sample scheduling and transport control with automatic prioritisation prior to sample dispatch.

Possibility to set up plant-wide sample schedules with different sampling intervals, depending on plant operating conditions.

Seamless downstream integration with QCX/RoboLab for fully automated sample preparation and analysis.

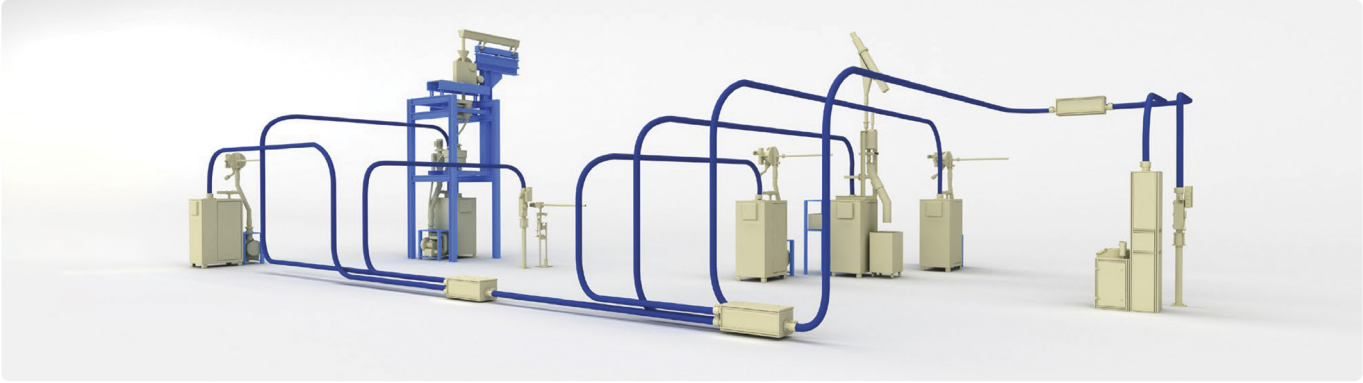
QCX/BlendExpert™

QCX/BlendExpert is an advanced software solution, which, through chemical analysis results, controls:

- Blending of raw material feed to stockpiles: QCX/BlendExpert™-Pile
- Blending of raw materials and additives to raw mills and cement mills: QCX/BlendExpert™-Mill

The QCX/BlendExpert suite of applications support quality optimization from quarry to delivered cement.

Please refer to the brochure „Superior chemical control for the cement industry" for a detailed description of QCX/BlendExpert and its capabilities.



QCX/RoboLab

The market leader of cement plant automation, the flexible QCX/RoboLab solution includes a comprehensive software package for automatic sample preparation and sample analysis.

Managing the route that your samples take through dedicated sample preparation equipment and controlling analysers in the automated system, the QCX/RoboLab solution provides you with practically unmanned sample preparation and contains all the relevant equipment drivers, diagnostics tools and informative uniform equipment faceplates.

QCX/RoboLab automated tasks include:

- Sample coordination and reception from the QCX/AutoSampling system
- Sample dosing into sub-samples
- Particle characterisation
- Sample preparation – pressed pellets or fused beads
- Combustion analysis
- XRF and XRD analysis

Benefits of the QCX/RoboLab

- Minimal cross-sample contamination through integrated cleaning
- Dedicated preparation equipment for special samples
- Automated QA/QC procedures
- Simple and easy-to-use UI
- Intuitive faceplates
- Uniform equipment KPIs, resulting in efficient preventive maintenance
- Seamless integration to the QCX/AutoSampling system and the FLSmidth Cement plant control system
- QCX/RoboLab is fully configurable and can be used for robot automation systems as well as belt automation systems.

QCX EQUIPMENT

SAMPLE PREPARATION

X-ray sample preparation

X-ray analysis plays an important role in the quality and process control of cement production. The analysis rapidly and accurately measures the chemical composition of raw materials and process samples. But your analysis is only going to be as good as your sample preparation, which is crucial. Truly accurate analysis relies on good sample preparation.

Automated powder sample preparation

FLSmidth Cement's Innovative Centaurus sample preparation machine consists of a fine grinding mill and a pelletizing press, integrated with dosing and cleaning components in a space-saving and ergonomically designed housing. The total footprint is only 1 m^2.

The fully automatic Centaurus produces pressed powder test tablets from granular materials, such as such as raw meal, clinker, cement, ore, and slag samples for XRF and XRD analysis.

Automatic powder sample preparation for X-ray analysis has been undertaken by QCX systems since 1978. The Centaurus gives on quality, capacity, ease of use and reliability in sample preparation.

Features include:

- Very low sample to sample contamination
- Pressing only function
- Air cooled mill
- Pressed pellet consistency check
- Input sample magazine

Automated fused bead sample preparation

Since 1989, FLSmidth Cement has supplied reliable, fully automated solutions providing fused beads for X-ray analysis with precisely weighed sample and fluxes.

The FLSmidth Cement DCF820 units automati-cally prepare fused beads for analysis, including the dosing, weighing, and mixing of flux and sample, cleaning of the crucibles as well as fusion.

Developing a robust and reliable fusion technology requires ultrafine mechanics for automatic dosing with 1/10th of a milligram weighing precision, as well as handling objects with temperatures higher than 1000°C. The fact that, for more than 15 years, many cement plants have had automated fusion in a QCX/RoboLab system as the sole preparation technique for XRF analysis, is evidence of the robustness and reliability of the FLSmidth Cement fusion technology.

With the DCF820, you can make up to 10 beads per hour.

Benefits of DCF units:

- Cost-effective automated preparation of fused beads
- Accurate XRF analysis
- Optimal reproducibility
- Increased laboratory capacity
- Faster access to data
- Reduction of manual tasks
- Easy maintenance of all sections of the equipment

The DCF820 machine has 3 functionally separated sections:

- Top section – integrated muffle furnace
- Middle section – a high-precision flux and sample dosing, weighing station operating at 0.0001 g precision levels
- Lower section – a cleaning section for 'dirty' crucibles returned from the fusion section.

QCX EQUIPMENT

QCX® ABA100 Automatic Blaine Analyser

The ABA100 Automatic Blaine Analyser applies the Blaine method to analyse the grinding fineness of powdered materials in plants and laboratories. It is well known for efficient and accurate analysis, as well as reliable operator safety.

As the only direct method for determining the active surface and reaction behavior of cement, the Blaine method is preferred by the cement industry. The key advantage of our analyser is that it is the only automatic Blaine analyser for robotic labs. Another advantage is that it requires less material. Measured samples can be re-used for further processes, including calibration, meaning you can continue performing accurate analysis even when material availability is low. As a fully automated Blaine analyser, our process requires no hazardous materials, such as mercury, making it compliant with health and safety regulations. It is also user-friendly, featuring a simple touch panel or remote-control supervisory system.

QCX® ACS820 Automatic Carbon-Sulfur Analyser

The ACS820L Automatic Carbon-Sulphur Analyser accurately analyses carbon and sulphur in powder samples. Typically used for cement, it can also handle and analyse clinker, ores and mineral processing products, ceramics, and other inorganic materials. It also applies to the optimisation of pyro processing. This opens it up to performing a huge range of applications.

The Automatic Carbon-Sulphur Analyser helps you determine cement quality with exceptional accuracy by eliminating the risk of wrong recipes or sample mixes. At the same time, automation means improved safety for your operators by reducing their exposure to hot components, dust and other chemicals.

You also get increased capacity. Seamless integration of the Automatic Carbon-Sulphur Analyser into automated labs allows for 24/7 operation requiring minimal labour capacity. For good laboratory practice, the analyser comes with optional automated revalidation to measure certified reference material for the most high-quality analytical results.

QCX EQUIPMENT

QCX® TTR100 Turntable Rack

The TTR100 Turntable Rack allows for efficient and safe handling of samples by providing an interface between operators and the automation environment.

The TTR has the functionality to buffer a large variety of samples and sample containers. It can also collect average samples that are used for physical tests, which reduces the complexity of quality control while improving confidence. Samples can be stored in a registered, traced place which avoids mixing of samples.

QCX® APS150 Automatic Particle Size Analyser

QCX® APS150 is a fully automated laser particle analysis solution, including analyser, sample feeding system, support stand and connection to central dedusting system for easy removal of excess sample material.

Laser particle sizing provides detailed information about the entire particle size distribution of products sampled throughout a cement plant. In particular, for samples taken in the cement grinding circuits, the data collected provides important information for optimising grinding efficiency, with power consumption in focus.

QCX® ACM150 Automatic Colour Meter

QCX® ACM150 is a fully automated colour measurement solution, including analyser, sample lifter and support stand.

Colour measurement of pressed pellets is used in cement plants to verify the colour of finished cements as well as intermediate products.

ON COST, ON TIME, ON SPEC

FLSmidth Cement ensures every aspect of your project stays on track. In a challenging project, outstanding project execution capabilities can make all the difference. FLSmidth Cement's comprehensive capabilities for successful project execution include having the right people, skills, experience, processes, technology and support to ensure that projects are delivered to consistently high standards.

EXPERT MANAGEMENT

Project management

A dedicated project manager is assigned to coordinate all internal and external activities through the entire lifecycle of the project. This person is your main contact. At an early stage in the project, the project manager provides a detailed project plan, indicating the individual phases and all key deadlines, milestones and project meetings.

Site management

In more complex projects, a site manager is appointed to assist the project manager. This role prioritises daily work to optimise overall progress, organises on-site tasks and holds project meetings to coordinate joint activities.

Highly experienced project execution teams reduce risk, control scope and meet your schedule, budget and project parameters, so you can trust that your project will be delivered on spec and on time. The worldwide network of offices also ensures local support.

Typically, project execution is divided into four phases:

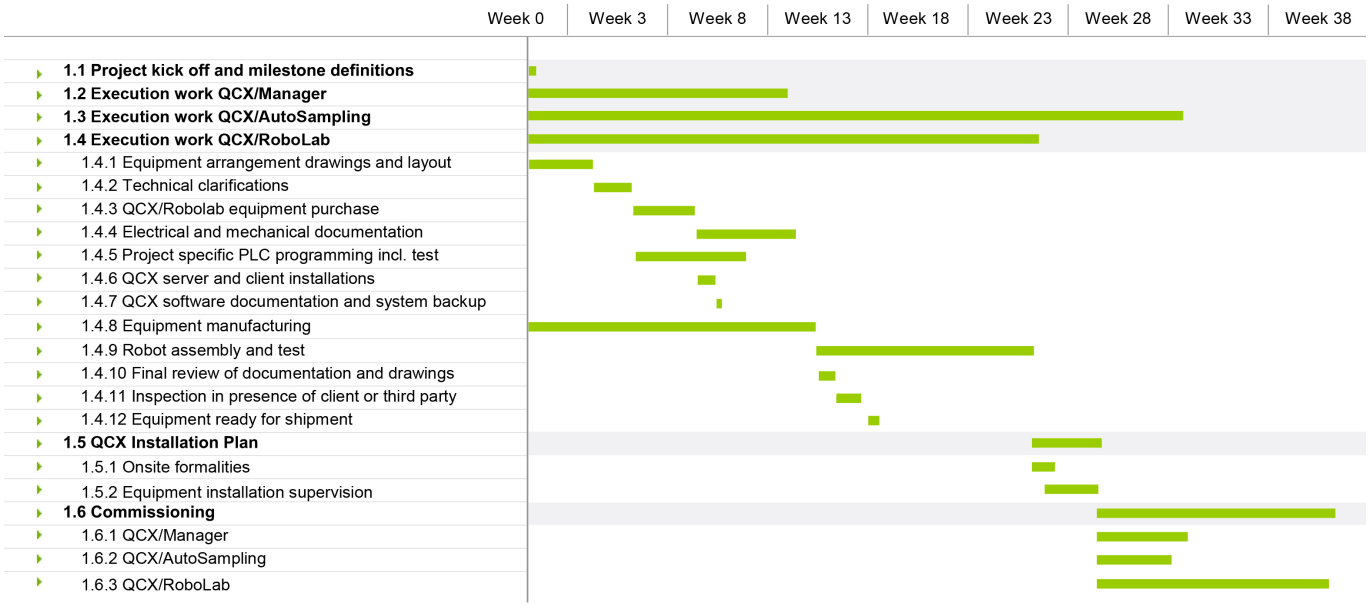
- System engineering
- Shipment and installation
- Commissioning and optimisation
- After-sales service

System engineering includes developing project-specific drawings and diagrams, configuring the QCX software, robot and PLC programming, and producing equipment. The engineering is verified by an equipment acceptance test.

This phase also includes programming or configuration to integrate with your existing system.

Installation is often undertaken by customers themselves, as they have prior experience dealing with local contractors. FLSmidth Cement provides detailed pre-installation services to train and support installation personnel.

Commissioning and optimisation involves on-site services provided by FLSmidth Cement to bring the delivered equipment and software into correct operation. Installation and commissioning are typically joint activities, with the aim of achieving a smooth and rapid start-up. It is essential that dedicated end-user personnel are appointed to follow these activities as they will support the system in the future. Depending on the magnitude of the project, commissioning can last a few days to several months.



Supply chain management

A team of dedicated logistics coordinators manage all logistics processes in the supply chain, once an order has been placed. These processes involve purchasing, expediting, packing/ warehouse and shipping to our customers worldwide.

With broad experience in all aspects of logistics and supply chain, we ensure the necessary handling of all order types on complex logistics processes. In close co-operation with Project Management, we arrange for detailed milestone planning throughout the project, securing that we stay on track and are focused on timely delivery and customer satisfaction.

CUSTOMER SUPPORT AND SERVICES

FLSmidth Cement offers a wide range of services to help you secure your investment in the QCX system, providing maximum satisfaction and product efficiency by ensuring performance, utilisation and productivity.

Together with FLSmidth Cement, you can define the best possible combination of training and service to fulfil your needs

Our PlantLine™ Agreement has been modernized to fit your needs in an ever evolving complex and increasingly digitialised world. Through a range of flexible service offerings, it ensures your Automation equipment and software remain protected and performing well. We ensure that your asset delivers today, tomorrow, and throughout its lifetime, giving you the time to focus on other important matters.

PlantLine Essential the cornerstone of our PlantLine™ Agreement is delivered by our large global team of experienced automation specialists, who provide 24/7 global support, 365 days a year, to keep downtime to a minimum and reduce the need for internal on-call support

Advanced Troubleshooting service covers:

- problem analysis.
- solution proposal.
- minor corrective reconfiguration.
- managed Antivirus

Proactive maintenance services to reduce downtime

Our preventive maintenance visits aim to optimise operation of your FLSmidth Cement automation systems. We can deliver visits onsite or remotely for a faster and more cost-effective response.

Performance monitoring and remote optimisation

Our performance monitoring and remote optimisation service aims to empower your plant personnel to get the most from our ECS QCX/BlendExpert™ (QCX) advanced quality control system. Benefits include regular performance monitoring, close cooperation between your plant specialists and our experts, professional tuning of your expert systems, and advice on relevant upgrades and migration.

This service is highly recommended when bundled with PlantLine™ Essential and preventive maintenance visits.

FLSMIDTH CEMENT

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