

APAC Mineral Processing Technical Support Services

From the industry leaders in separation and
sedimentation technologies testing



FLS

Trust the mineral processing experts

Are you looking to optimize your mineral processing operation? Or perhaps you need to determine design criteria for the selection of new equipment? Our technical support team is here to help. Our experienced engineers are available to assist in the evaluation of new or existing processes, supporting you to choose the best available solution for your specific application.

Services include:

- Bench and contract testing.
- Pilot plant testing.
- Plant audits, optimization, and training.

A world-class team equipped with the latest facilities

The world-class FLS Mineral Process Laboratories in Queensland and Western Australia offer extensive facilities for bench-scale testing. When you choose us, you will also benefit from a testing methodology refined over the course of thousands of studies and backed by a database reflecting over five decades of solid-liquid separation experience.

Outside the laboratory, we can draw on a wide range of facilities for pilot testing, including thickeners for sedimentation testing, a filter press and Pneumapress® for filtration testing, nextSTEP® cells for flotation testing, and REFLUX™ classifiers

for separation testing. Our engineers are also able to certify and optimize full-scale FLS equipment in the field.

All bench and pilot-scale testing services are provided by our team of highly-trained engineers and support staff. In addition, we have access to colleagues in our research and development department, which employs some of the most experienced and knowledgeable people in the industry. These employees provide valuable additional support for our technical support engineers.

First built				
Test type	Technology	Bench scale	Pilot scale	
Thickening	E-CAT™	✓		
	High rate	✓		✓
	High density	✓		✓
	Deep Cone™	✓		✓
Clarification	Standard	✓		
	Delta-Stak™	✓		
Vacuum filtration	Rotary drum	✓		
	Vertical disc	✓		
	Horizontal belt	✓		
Press filtration	Belt press	✓		
Pressure filtration	Automatic (Horizontal) Filter press	✓		✓
	Pneumapress	✓		✓
Flotation	Dorr-Oliver® / Wemco®			✓
Classification	REFLUX™ classifier	✓		✓

What we offer: bench-scale testing

Bench-scale testing helps determine the optimal conditions for delivering the most efficient results as cost-effectively as possible. Our bench-scale testing capabilities cover the full range of mineral separation processes including:

- Sedimentation
- Vacuum and pressure filtration
- Classification

All testing services include advanced data evaluation and comprehensive reporting.

Thickener testing (sedimentation)

Typical sedimentation testing includes:

- Sample preparation.
- Particle size analysis.
- Flocculant screening.
- Static settling tests.
- Dynamic settling tests.
- Slurry rheology.
- Hydro-separation.

Typical thickener applications include:

- Clarification.
- High rate.
- High density.
- Deep Cone® (paste).
- Counter current decantation (CCD).



Filtration testing

Typical filtration testing includes:

- Sample preparation.
- Particle size analysis.
- Flocculant and filter aid screening.

Filter applications include:

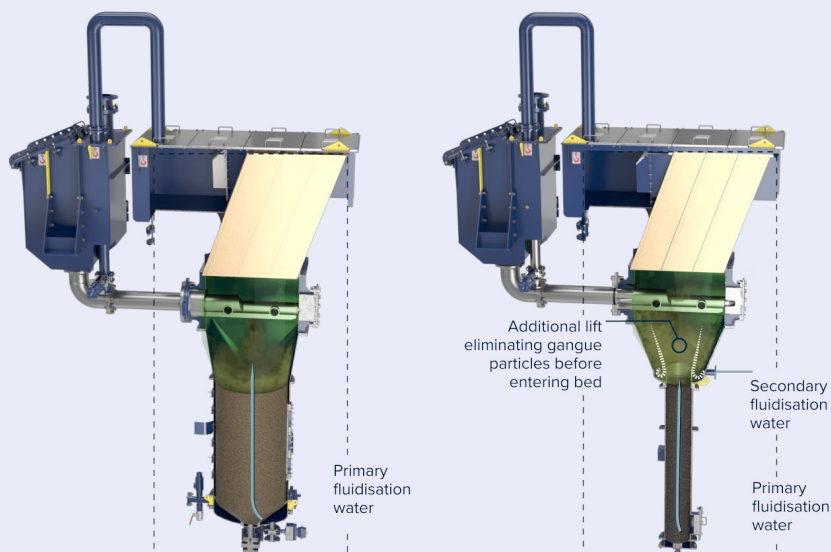
- Horizontal belt filters (HBF).
- Horizontal pan filters.
- Belt press filters.
- Drum filters.
- Disc filters.
- Automated filter press (AFP).
- Pneumapress.

REFLUX™ classifier testing

Typical REFLUX™ classifier testing includes:

- Sample preparation.
- Particle size analysis.
- RC40 testing (batch flow fractionation tests).

Our REFLUX classifier testing requires only a 5kg sample size: convenient for shipping, wherever you are in the world. The method enables us to assess viability through controlled batch operations, providing insight into separation patterns that may be expected in continuous commercial-scale operations, with sufficient data to estimate grade and recovery curves. It is thus a useful tool to substantiate pilot trial investment.



What we offer: pilot testing

Our pilot testing bridges the gap between bench-scale testing and full-scale operations, combining multiple disciplines and the full range of FLS mineral separation products. We not only provide the equipment but the complete pilot testing process – from designing and installation of the pilot plant to operation and decommissioning. This approach allows us unique insight into your mineral separation requirements and ensures the results deliver answers relevant to future commercial operations.

Your complete pilot testing partner

We see projects through: from start to finish. Comprising engineers, technicians, and logistics specialists, our team possesses extensive experience across a range of disciplines including mineral processing, metallurgy, chemical engineering, mechanical engineering, and mine and plant operations. We can also draw on additional expertise when required, including process engineering, piping and instrumentation, plant and equipment control, layout, and electrical.

These industry experts utilize the best industry practices to deliver turnkey pilot testing systems, safely and in adherence to strict environmental protocols. We can supply pilot plant anywhere in the world and for applications from base and precious metals to coal. For simple and fast implementation, our plants are based on plug-and-play modules that include all major equipment, control panels, and ancillary equipment.

The pilot operations group functions as an independent operation within FLS and maintains accountability through a dedicated project manager, who serves as your point of contact through all project stages. The team can work at your site or at an external metallurgical testing facility, as required.



Pilot testing services

Typical sedimentation testing includes:

- Developing action and test plans.
- Complete engineering.
- Managing resources and utilities.
- Developing the project schedule.
- Procuring materials and equipment.
- Constructing the system or process island.
- Developing operating and safety procedures.
- Operating equipment.
- Supervising pilot plants.
- Providing on-call technical support.
- Managing laboratory support.
- Generating reports.

Areas of expertise

- Flotation: WEMCO® (self-induced air) and nextSTEP™ (forced air).
- Classification: REFLUX™ classifiers and REFLUX™ flotation classifiers.
- Thickening: Dorr-Oliver and EIMCO® (clarifier, high rate, high density, and Deep Cone), and CCD.
- Pressure filtration: automatic filter press (plate press) and Pneumapress (tower press).

What we offer: process audits, optimization, and training

The APAC regional technical support team have over 75 years of combined product expertise in thickener and filter design, operation, and support. This technical expertise lies at the heart of our process audit, optimization, and training services. It ensures you receive state-of-the-art lifecycle solutions, performance optimization, and maintenance solutions that advance your site and operational efficiencies.

Most of our services can be provided in the field. In many cases, an onsite assessment of existing systems and process conditions is advantageous for achieving maximum operating efficiency. Services include both testing and equipment evaluation.

Audits

- Troubleshooting.
- Reliability.
- Preventative maintenance.
- Optimization.
- Full flowsheet audits.
- Up-skilling of operations personnel.

Flotation, Thickening and Flotation rebuilds & upgrades

We have significant experience when it comes to improving thickener and flotation performance – from simple rebuilds to full modernization and design. In fact, we have a team specifically dedicated to thickener and flotation improvement projects of this nature. Modernization projects are customized to your requirements and are typically designed to:

- Increase throughput.
- Improve performance.
- Lower the cost of operation.

As an example: we designed and constructed a new Evolute™ feedwell to replace an older design at Carpentaria Gold. The improvements in settling rate and overflow clarity cut operating expenditure on chemicals, electricity, water, and maintenance, while improving the efficiency and availability of the gravity concentrator. A full reference is available upon request.


Training and seminars

Training is conducted locally at our Perth Supercentre and Brisbane Training Centre by qualified instructors and technical specialists, as well as onsite anywhere in the APAC region. A training needs analysis and tailored course design ensures our seminars address identified gaps and specific site needs with the aim of:

- Increasing knowledge and implementation of best operating and maintenance procedures.
- Understanding problems with equipment maintenance and design, as well as the operating parameters.



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Contact us

FLSmidth A/S
2500 Valby
Denmark
Tel. +45 36 18 10 00
info@flsmidth.com

FLSmidth Inc
Salt Lake City Operations
Midvale, UT 84047-5559
USA
Tel. +1 801 871 7000
info.sl.c@flsmidth.com



flsmidth.eco/contact

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