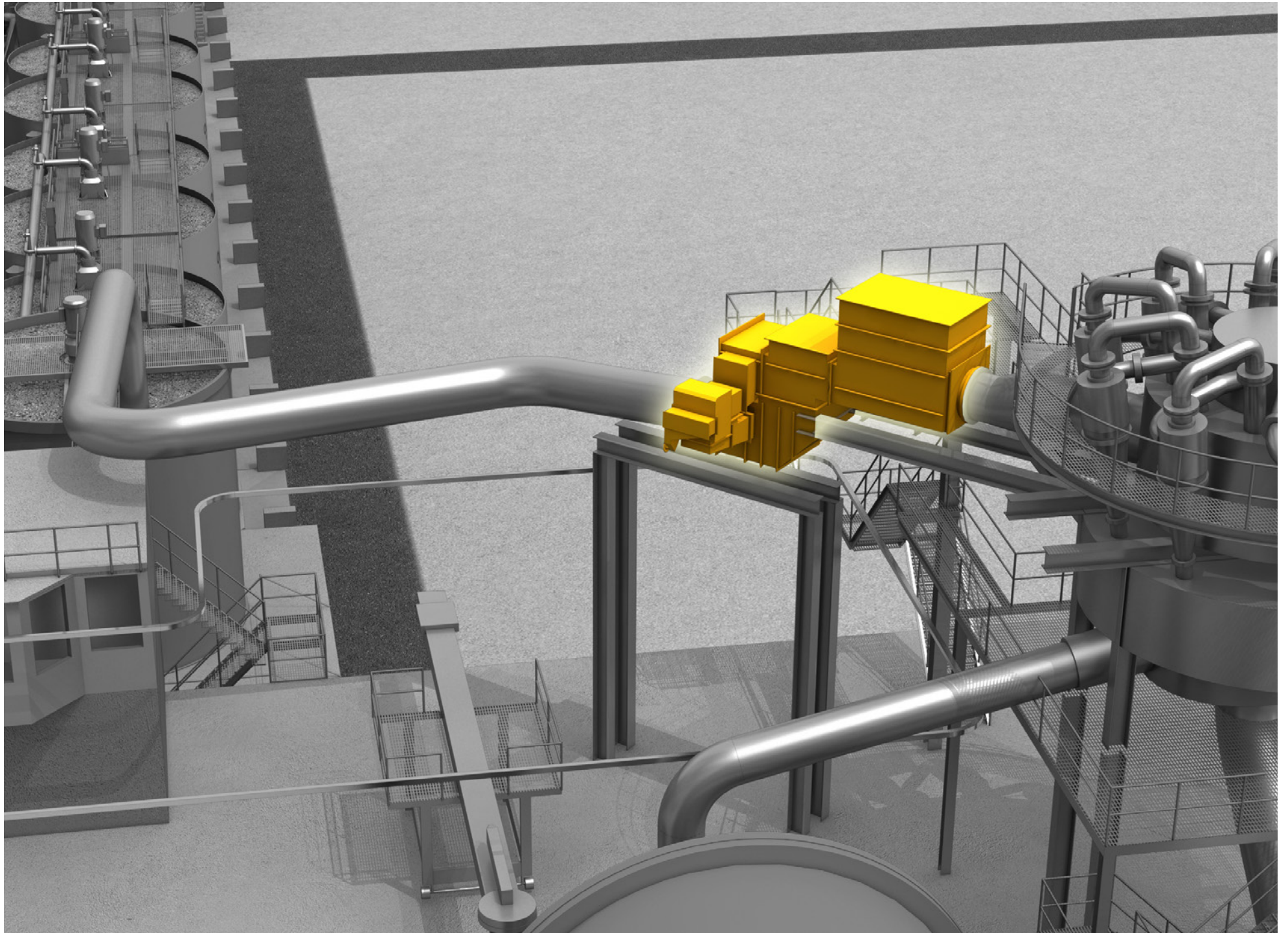


Metso

Slurry sampling solutions





Slurry sampling solutions

Metso's wide range of slurry sampling solutions includes turnkey solutions for on-line analysis and metallurgical accounting. Sampling is a crucial part of improving process control in order to enable better recovery while reducing costs. Based on our decades of experience, we combine consulting, design, engineering, and support services to develop reliable sampling solutions optimized for your specific needs.

Benefits

- Improved process control and faster reaction to process changes
- Reduced assaying and sampling costs compared to manual processes
- Proven technologies for turnkey and custom-engineered projects
- Easy to scale up to a more advanced solution as needs change
- Optimized life cycle performance through tailored services solution



Proven technologies for ensuring consistent and reliable sampling

Our complete solutions for slurry sampling support consistent, representative, and reliable sampling, providing the basis for improved process control and enabling faster reaction to process changes. As well as being faster and more cost-effective than manual sampling, an Metso sampling system is always optimized for your specific needs and can easily be scaled up as your requirements change.



Sample representativity

Good sample representativity is critically important for your sampling process. Sample line routing, sizing, sampler location, and correctly installed sampling equipment all have an influence on representativity and reliability. All particles in a process flow must have the same probability of entering the sample to ensure that the sample is representative of the process stream.

Primary sampling

With one of the industry's widest ranges of primary samplers, we can design and deliver precisely tailored solutions. Our proven samplers are designed for durability and high availability, and in the case of demanding process applications they can be manufactured from

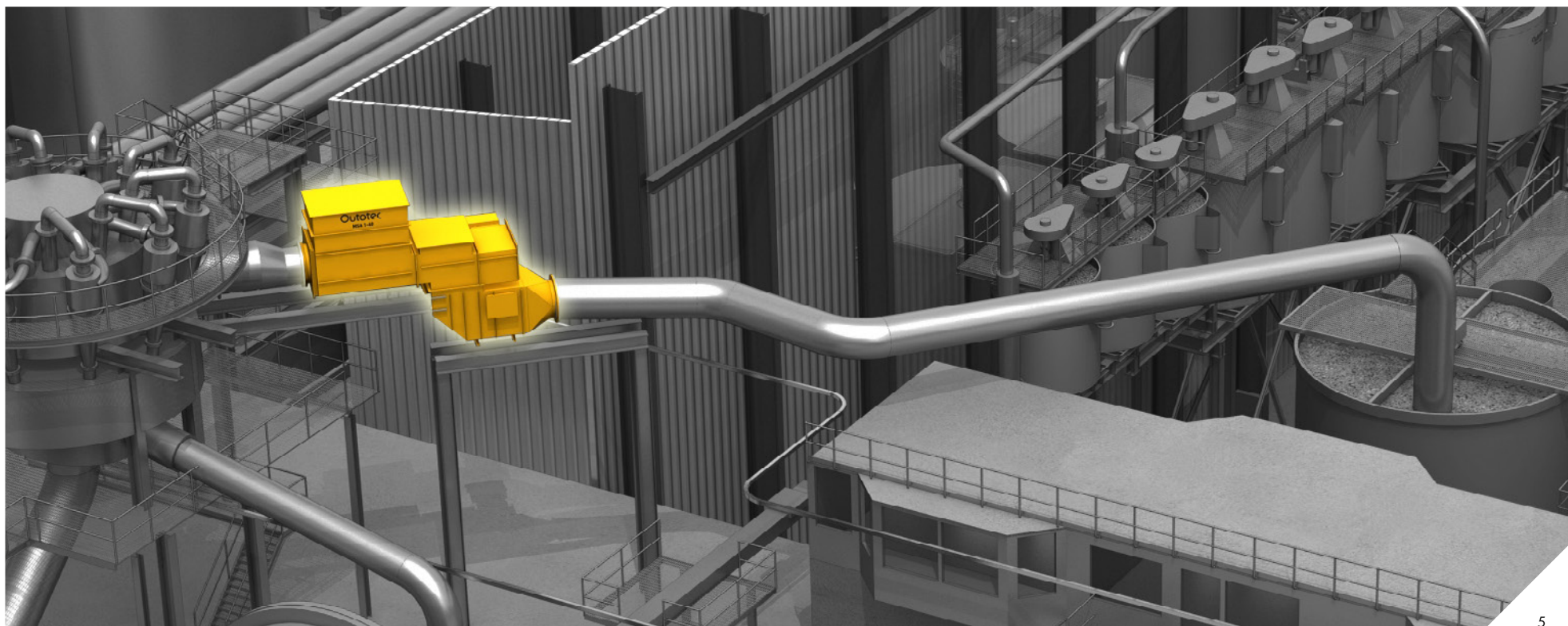
special materials such as duplex stainless steel. With a complete system design from Metso, you can ensure that sample lines and equipment are positioned in exactly the right place in your process. Depending on the process conditions, the primary sample flow can be continuous, with or without periodic automatic flushing.

Secondary sampling

We can design a complete secondary sampling phase based on the unique requirements of your process to ensure reliable and representative samples for analysis in the laboratory or by automated analyzer equipment. Our samplers for secondary sampling can also be manufactured from special materials in the case of demanding process applications.

Controlled sampling

Metso Courier analyzers include controlled-sampling functionality, avoiding the recirculation of the sample flow back into the process, which can impact process efficiency and productivity. We can supply the required remotecontrolled sample valves and configure the sampling sequence according to the needs of your process. Continuous and controlled sample lines can be combined in the same analyzer system. For metallurgical sampling purposes we also offer the Metso Sample Control Unit to control primary and secondary sampler operation.



Primary samplers for pressurized process flows

Metso pressure-type samplers provide a continuous sample flow for online analysis to enable monitoring of changes in the properties of a process stream. The representative sample is taken from the well-mixed process flow, and in most cases, no extra pump is required to feed the sample to the analyzer or composite sampler.

PSA pressure pipe sampler

The vertically orientated PSA pressure pipe sampler, generally located immediately above a process pump, can be used in any process stream. It comes in sizes DN 100 (4") to DN 700 (28") for flow rates from 40 to 5,500 m³/hr.



PSA pressure pipe sampler

SPSA straight pressure pipe sampler

The Metso SPSA straight pressure pipe sampler can be used in locations where it is inconvenient to use a PSA pressure pipe sampler in the vertical position. It is generally located immediately above a process pump and is available in two configurations: DN 100-700 (4"-28") and DN 800-1200 (32"-48"), for flow rates from 40 to 13,200 m³/h.



SPSA straight pressure pipe sampler

ASA sector sampler

The Metso ASA sector sampler divides small pressure flows and is typically used in small concentrate flows. It is designed to take 25, 50, or 75% of the process flow and is available in sizes DN 50 (2") to DN 100 (4") for flow rates from 9 to 60 m³/hr.



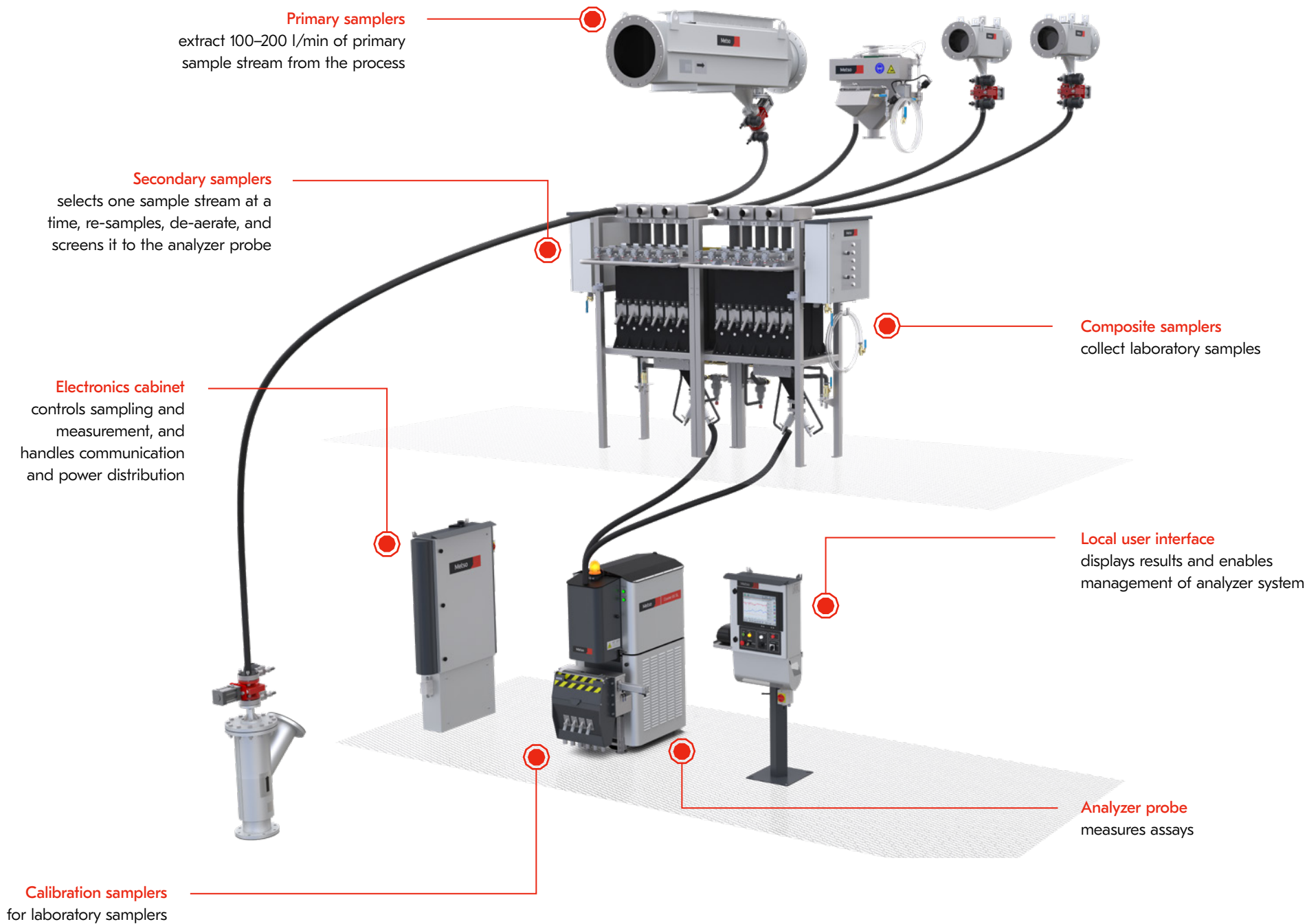
ASA sector sampler

SPA suction pipe sampler

The Metso SPA DN 50 suction pipe sampler is used in the intermediate boxes of flotation cells or mixing tanks. The sampler is supplied with an installation flange in size DN 100 (4").



SPA suction pipe sampler



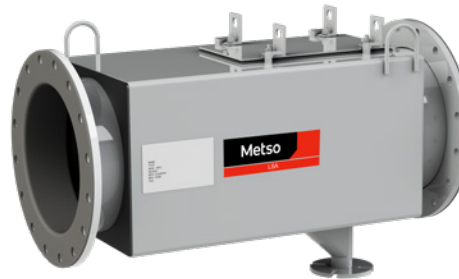
Primary samplers for gravity flow

Metso gravity-type samplers can provide a continuous sample flow for online analysis that is proportional to changes in the properties of the process stream. The Metso sampler box design improves process flow mixing prior to sample cutting. With representative isokinetic sampling, high process flows produce large primary sample flows that require either many sampling steps or innovative sampling system designs.

A gravity flow sampler takes the representative sample from a vertically segregated process flow. The sample flow rate of single-stage samplers is directly proportional to the process flow for composite and accounting sampling. In the case of on-line analysis, singlestage samplers produce too high a sample flow-rate from a large process flow, so two-stage samplers are recommended.

LSA launder box cutter sampler

The Metso LSA launder box cutter sampler is typically used in cyclone overflow sampling points. It has an automatic flushing valve set for cutter and sample pipe cleaning and comes in sizes DN 100 - 600, flowrate 20 - 1050 m³/h (see other products).



LSA launder box cutter sampler

LSA-NC launder box cutter sampler

The LSA-NC two-stage launder box sampler with nested cutter is used in large process flows under atmospheric pressure. The sampler is available in sizes DN 500 (20") to 1200 (48"), for flow rates from 800 to 11,400 m³/h. Metso has international patent application PCT/FI2013/050894 for the LSA-NC launder box cutter sampler.



LSA-NC launder box cutter sampler

CPS two-stage sampler

The CPS two-stage sampler is designed for wellmixed process flow in a launder or pipe at atmospheric pressure. The automatic flushing valve set is used to start the sample flow by siphon effect. The sampler is available in size 160 mm and holds a minimum flow rate of 500 m³/h.



CPS two-stage sampler

SKA vertical cutter sampler

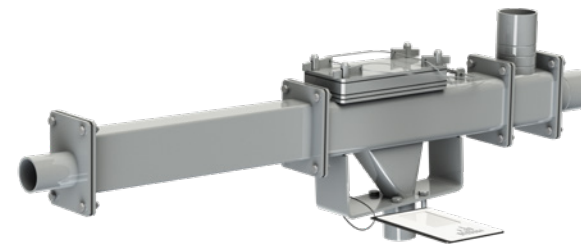
SKA vertical cutter sampler is for process flows under atmospheric pressure in a launder. If used in a rectangular launder, only a cutter needs to be inserted. The sampler is supplied with an installation flange in size DN 200 (8").



SKA vertical cutter sampler

ASD adjustable sample divider

The ASD DN 50 and DN80 adjustable sample divider is located on top of an Metso PSI® 300/500 particle size analyzer or Metso Courier® multiplexer, allowing a large primary sample flow to be used for slurry that settles easily.



ASD adjustable sample divider



Equipment for metallurgical account sampling

Metallurgical accounting samples must represent the variations that occur in both process flow and solids content as well as meet the requirements for on-line analysis. We offer a range of specialist samplers designed specifically for metallurgical accounting purposes and elemental concentrations.

MSA multi-stage metallurgical accounting sampler

The Metso MSA multi-stage metallurgical primary sampler uses a combination of static multiple cutter stages – with the number of stages depending on the process flow – followed by a moving crosscut sampler stage, which produces the sample for the next stage. The MSA sampler can be configured to deliver a composite sample to a secondary sampler or a continuous flow for Metso Courier and Metso PSI analyzers. The MSA can also be used to perform analyzer-controlled sampling. The sampler is available in two models in each of the six sizes. The models hold a flow rate from 60 to 27,000 m³/h.

The final composite sample is taken from the primary sample flow by the secondary sampler in the Metso Courier on-stream analyzer or an LMC (linear moving cutter) composite sampler. The composite sample can be filtered using an optional Metso vacuum sample filter unit (VFU).



MSA multi-stage metallurgical account sampler

LMC linear moving cutter

The LMC linear moving cutter sampler is used in combination with the MSA and the LMS multi-stage metallurgical accounting sampler for taking a composite sample or primary sample from small process streams; it can also be used as a secondary sampler with other samplers. The sampler is based on a moving cutter traveling across the stream, cutting a representative composite sample from the process flow. The LMC sampler is available in three models: LMC 80, LMC 100, and LMC 150, for process flow rates from 45 to 140 m³/h.



LMC linear moving cutter

SSA stand-alone composite sampler

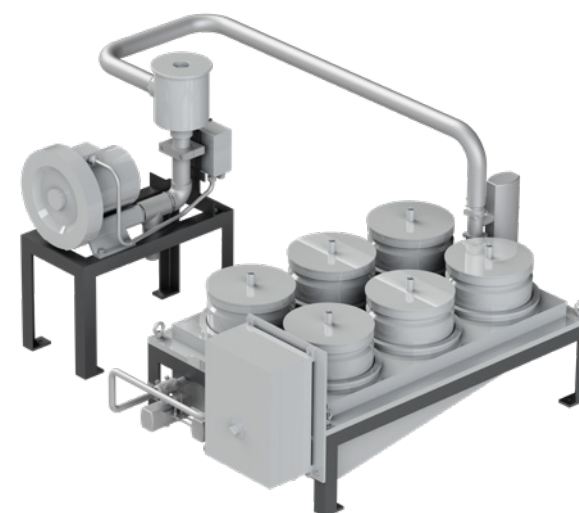
The SSA 50 stand-alone composite sampler is used for taking a composite sample from the primary sample flow or from small process flows. The sampler can be used as a composite sampler for pressure and gravity flow samplers, and is available in single-stream and three-stream versions. The sampler has a process connection inlet size DN 50 and outlet size DN 65. It holds a process flow rate from 6 to 18 m³/h.



SSA stand-alone composite sampler

VFU vacuum sample filter unit

The VFU (vacuum filter unit) is for dewatering slurry composite samples, usually fed from a sampler, multiplexer, or analyzer. It is automatic and operates independently of the connected sampling equipment. The filtering system is available in 1, 3, 6, or 12 table pots.



VFU vacuum sample filter unit

Your #1 service partner from pit to port

As miners around the world are working hard to meet the growing demand for minerals while facing diminishing ore grades and ambitious sustainability goals, we at Metso are committed to helping. For you every minute of production counts. By partnering with us, you can find better ways to provide the critical minerals the world depends on.

Benefits

- Improved safety
- Lower cost of operation
- Increased uptime
- More sustainable operations
- Higher performance and more profit

Full service portfolio

- Spare and wear parts
- Life Cycle Services
- Maintenance and repairs
- Modernizations and upgrades
- Process optimization
- Training

A service partner with exactly the right scope for your business needs

Our aftermarket offering includes everything you need when producing minerals and metals for modern life - cost efficiently, safely and sustainably. We offer spare and wear parts, field services, process upgrades and optimization for every stage of the the life cycle of your mine site. As an industry-leading OEM, we know your equipment inside and out, and we are constantly innovating new parts, upgrades, services and digital tools that empower you to produce more with less.



Are you looking to increase production, reduce risks, lower operating costs and enhance environmental performance?





You can count on us to deliver service, reliability, innovation and results - sustainably

We have the solutions to help drive operational efficiency, reduce energy consumption and save on maintenance costs - whether your equipment is brand new, trusted classics or even built by another manufacturer. Our experts are one of your best assets, working hard to bring you performance and peace of mind, both onsite and remotely. With Metso, the parts and services you need are close to you and have quick access to global expertise. All this backed by our worldwide manufacturing, 140+ service centers, 19 warehouses and three performance centers.

End-to-end solutions

We carry the industry's most comprehensive aftermarket offering, and it's not limited to Metso equipment. You set the target. We provide the solution.

Optimized performance

Our expertise covers every stage of the minerals process. We connect the dots and solve bottlenecks in a holistic way, elevating your process performance to a whole new level.

- Unmatched know-how of equipment, parts and services
- The market's most advanced simulation tools
- Widest offering to choose from
- Pioneering innovations, patented technologies

Trusted partner

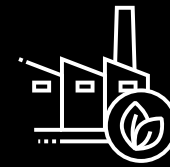
Our dedicated team of experts bring you the unique advantage of local presence backed up by a solid global network of first-class engineering, manufacturing and service.

- Support, sustainable manufacturing and parts stock close by
- Reliable, high-performing parts and services
- High safety, ethical and environmental standards
- Training and expertise to help bridge knowledge gaps

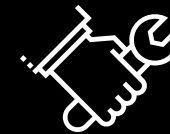
Digital mine

Our 45+ digital solutions help add an extra boost to your performance, identifying hidden improvement areas and modeling the solutions with sophisticated simulations.

- Intelligent instruments
- Remote monitoring and support
- Parts optimization
- Digital twins



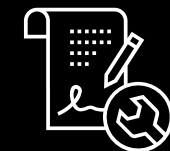
15
own factories
and 15+ external



140+
service
locations



19
distribution
centers



530+
long-term service
contracts



16,700+
experts



Metso is a frontrunner in sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. We improve our customers' energy and water efficiency, increase their productivity, and reduce environmental risks with our product and service expertise. We are the **partner for positive change**.

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