



eDART PROCESS CONTROL SAMPLERS



WHAT ARE PROCESS CONTROL SAMPLERS?

Process control samplers are essential components in industrial processes. They are designed to extract representative samples from a production or manufacturing process. These samples are then analysed to monitor and control the quality, consistency, and efficiency of the process. The primary functions of process control samplers include:

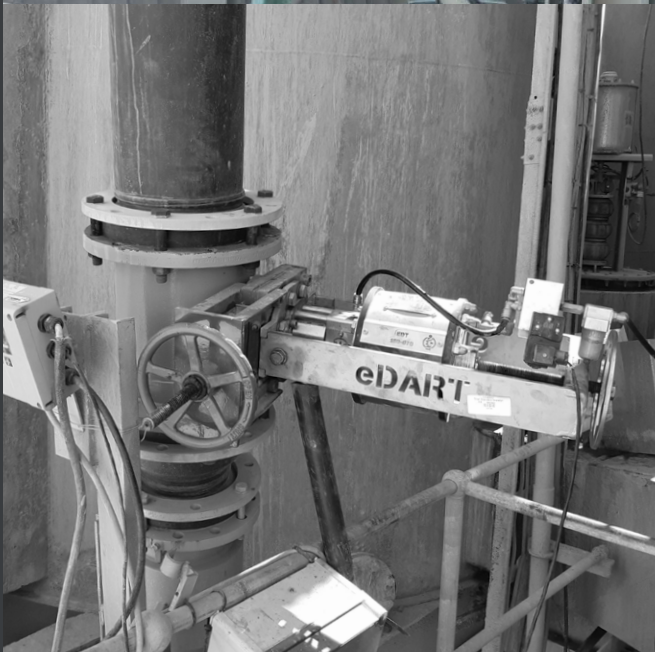
- **Quality Assurance:** By regularly collecting samples, these samplers help ensure that the final product meets specified quality standards.
- **Process Monitoring:** They enable real-time monitoring of the production process, allowing operators to detect deviations from set parameters. This enables timely adjustments and prevents defects or variations.
- **Data for Analysis:** Samples collected by these samplers are analysed in laboratories or through automated systems. The data obtained from these analyses can provide insights into process efficiency and help in optimizing operations.

eDART's Process Control Samplers are divided into two categories:

eDART PRIMARY SAMPLERS

and

eDART SECONDARY SAMPLERS



eDART

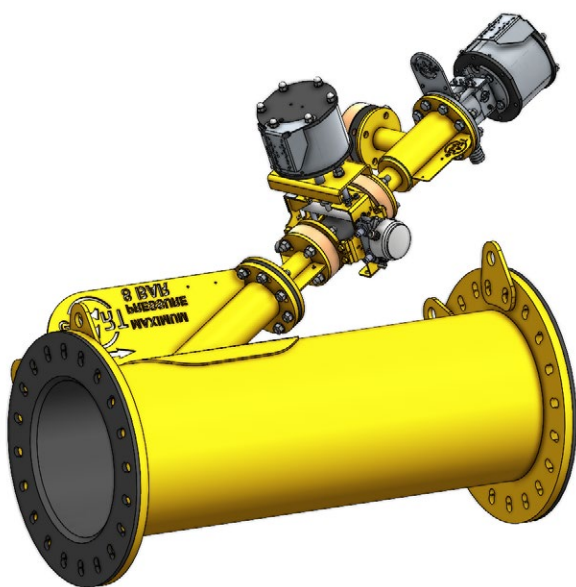
PRIMARY SAMPLERS

eDART's wet process control primary sampler offers versatile placement options, accommodating both pressurised and unpressurised lines.

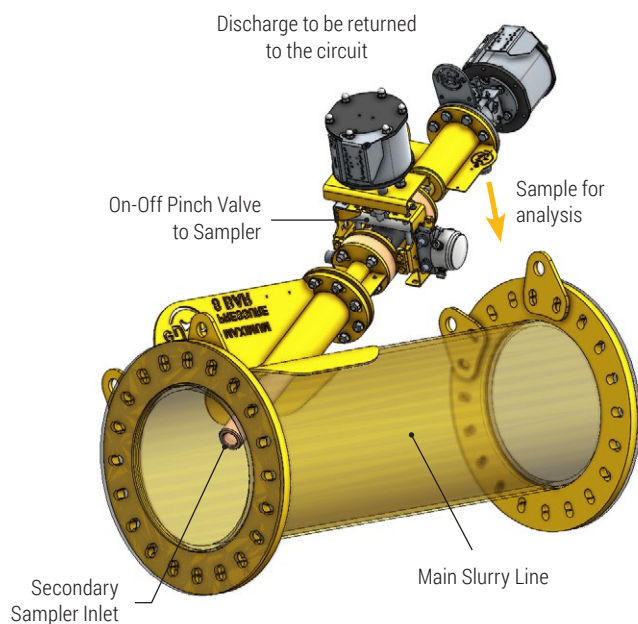
The collected sample can be directed to an On-Stream Analyser or an appropriate poppet sampler variation for secondary sampling, enabling precise lab analysis through fixed-volume samples.

The dependable outcomes delivered by eDART's sampler systems instil strong confidence in process control professionals, ensuring reliability and accuracy in their operations.

PRESSURISED HORIZONTAL SAMPLER



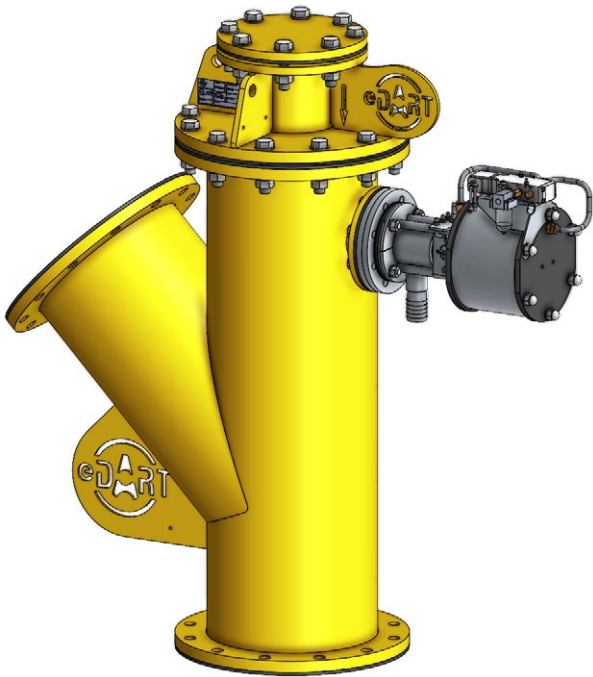
Horizontal Pipe Centre Sampler



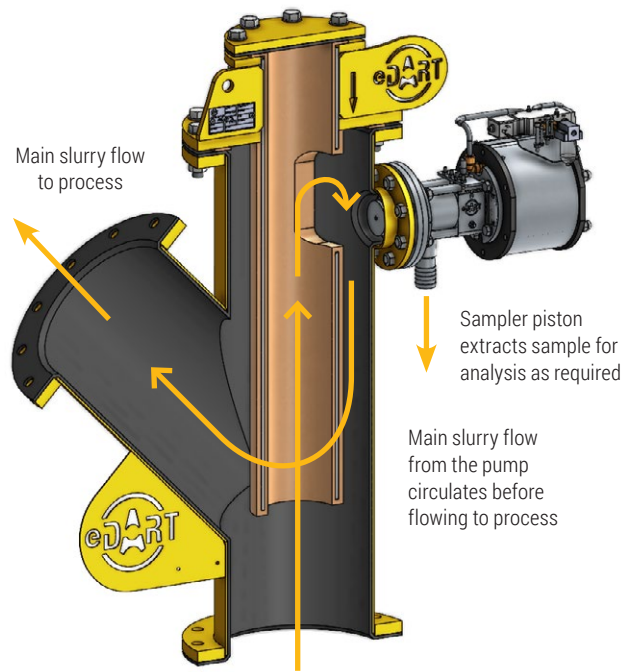
How it works

The pressurised horizontal primary sampler efficiently collects flow from the central region of the main line for sampling purposes.

PRESSURISED VERTICAL SAMPLER



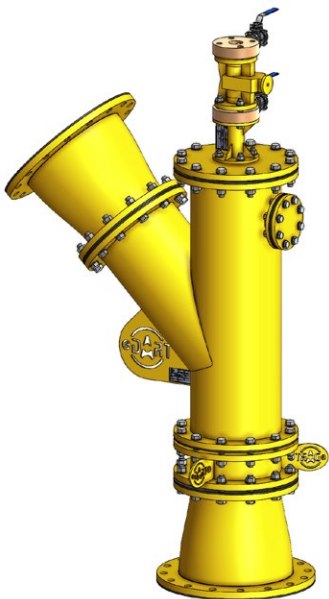
Pressurised Recirculating Nozzle Sampler



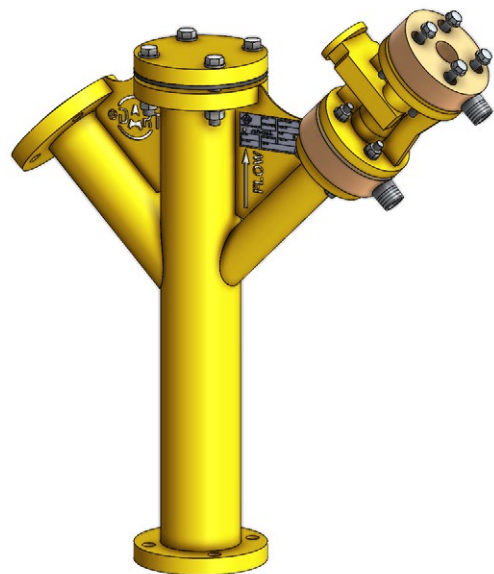
How it works

The pressurised vertical primary sampler acquires a sample from the centre of the pressurised line. The first option employs a “continuous sampling nozzle” to extract a sample stream. Following secondary sampling, the remaining flow is directed back to the sump. The second option facilitates effective stream sampling through recirculation within the primary sampler, allowing the secondary sampler to operate efficiently.

OTHER PRESSURISED VARIANTS



Pressurised Continuous Nozzle Sampler



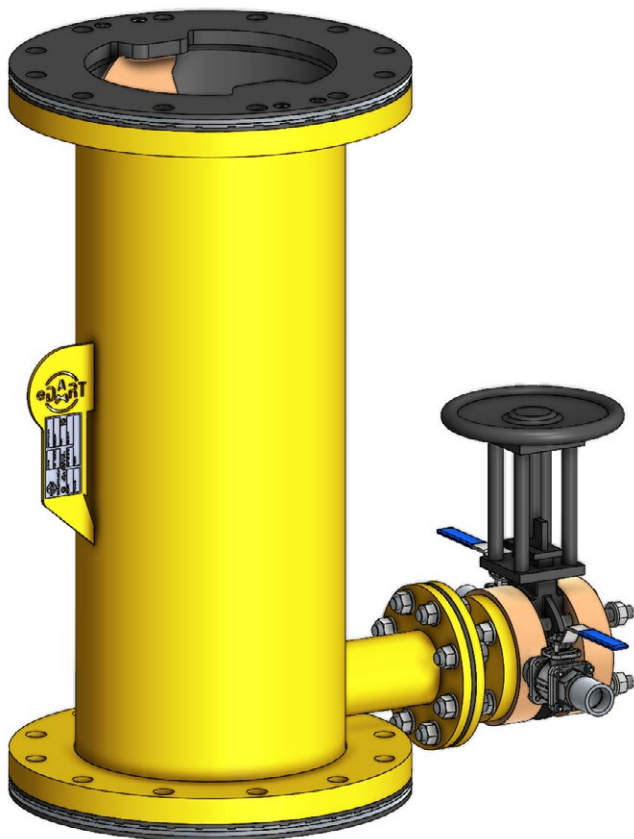
Pressurised Sample Splitter

NON-PRESSURISED GRAVITY SAMPLERS

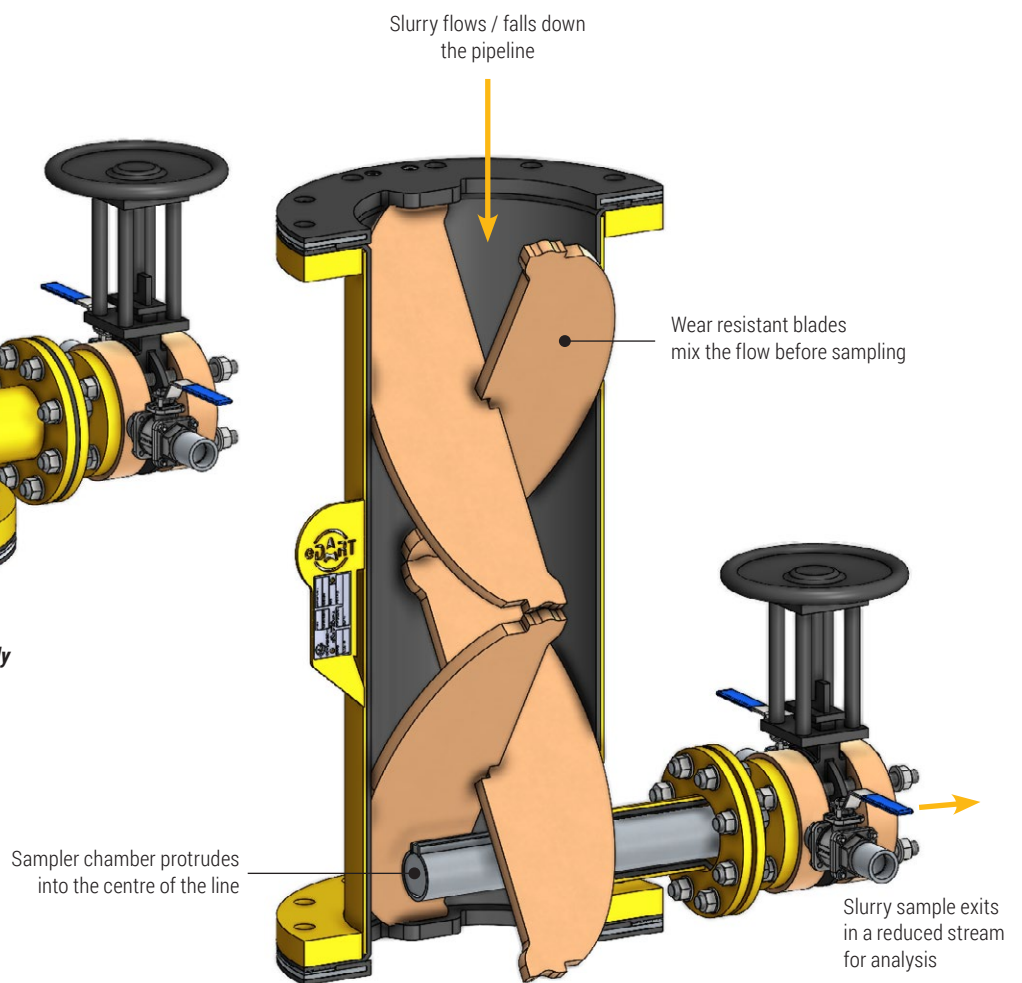
Non-pressurised lines have their flow cut across the height of the stream. The primary sampler may be reduced by bypassing the cutter with ports that pass straight through. These have been developed to minimise turbulence in the vicinity of the cutter.

GRAVITY VERTICAL DOWN SAMPLER

The gravity vertical down primary sampler ensures thorough mixing of flow, guaranteeing representative sampling in vertically down pipelines.

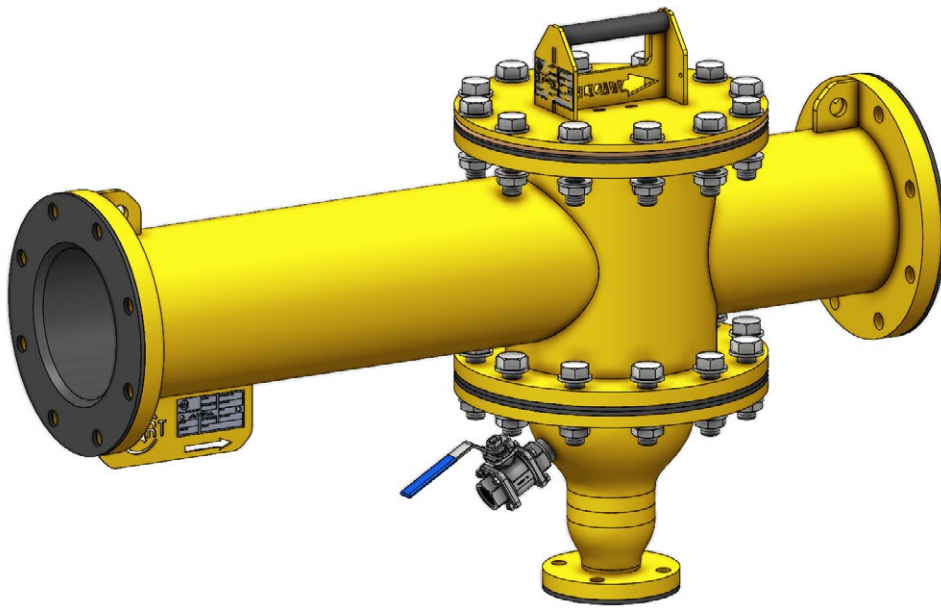


Vertical Gravity Sampler Assembly

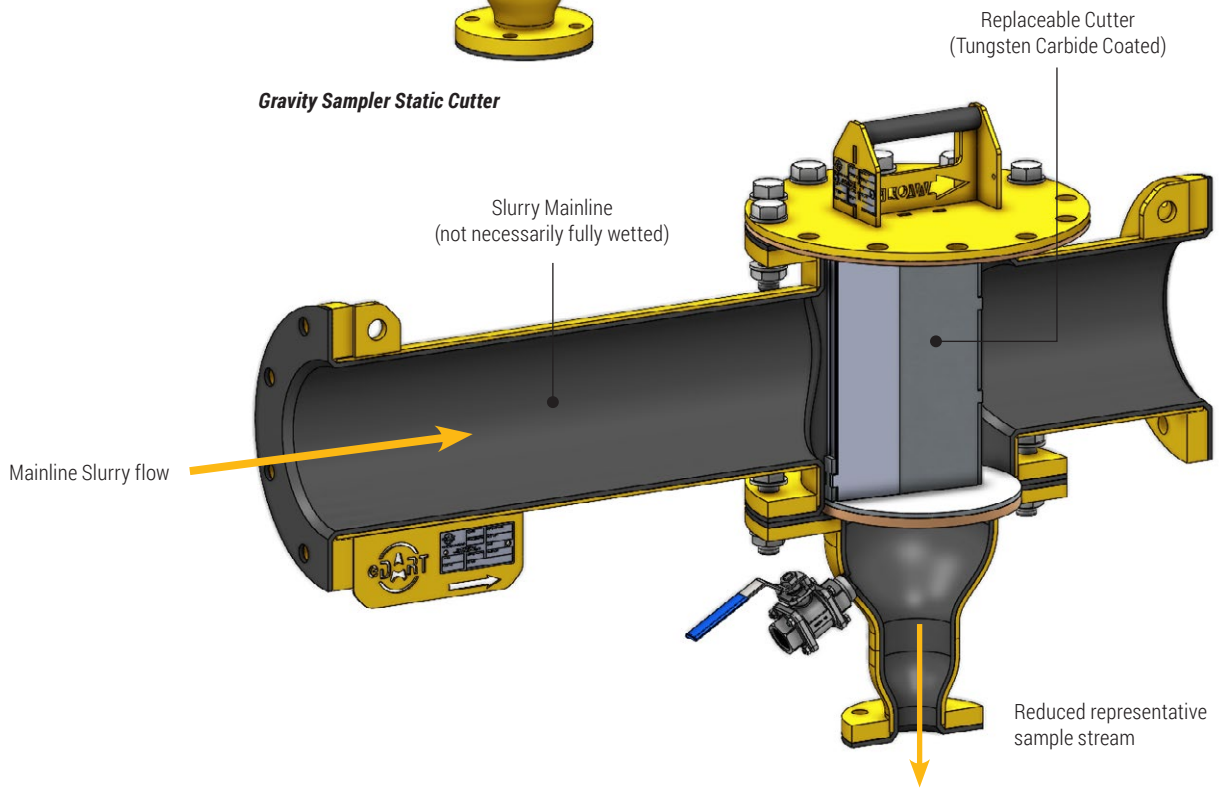


How it works

GRAVITY HORIZONTAL SAMPLER



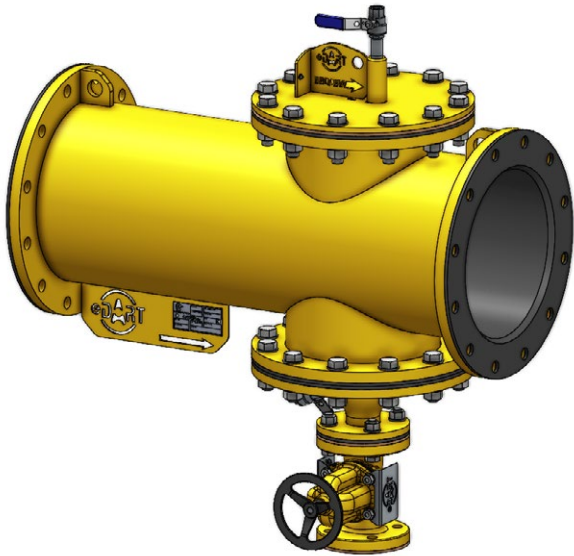
Gravity Sampler Static Cutter



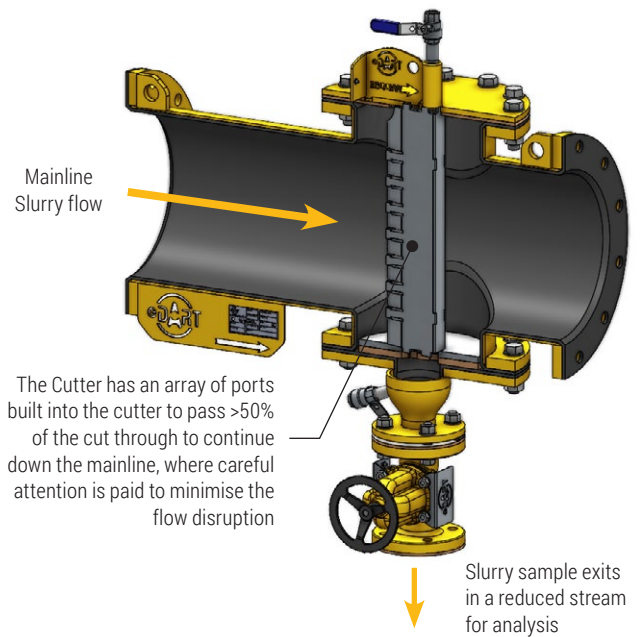
How it works

The gravity horizontal primary sampler is designed for application in non-pressurized lines. It achieves this by intersecting the flow across the height of the stream. To enhance the sampler's size efficiency, the cutter can be bypassed using ports that pass directly through. These ports are designed to minimize turbulence around the cutter, optimizing sampler performance.

GRAVITY SAMPLER REDUCING CUTTER

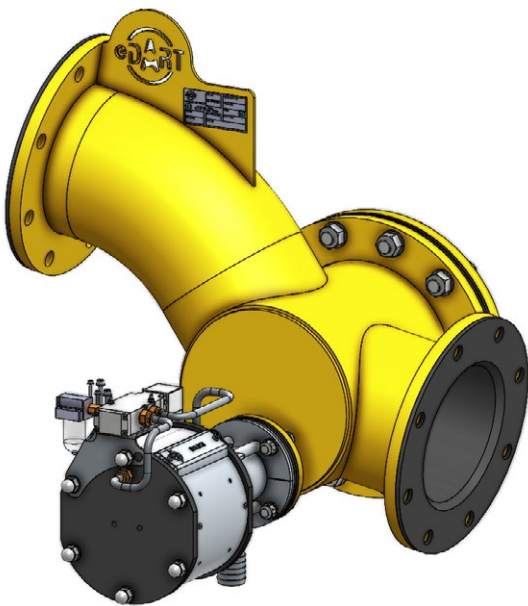


Gravity Sampler Reducing Cutter

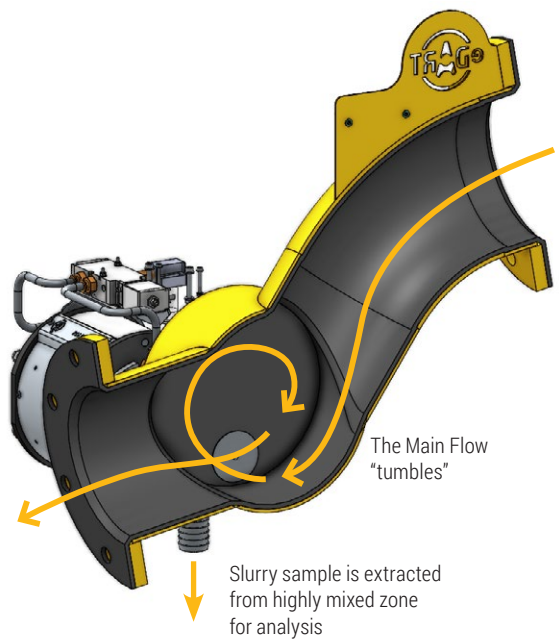


How it works

GRAVITY SAMPLER CHAMBER



Gravity Sampler Chamber



How it works

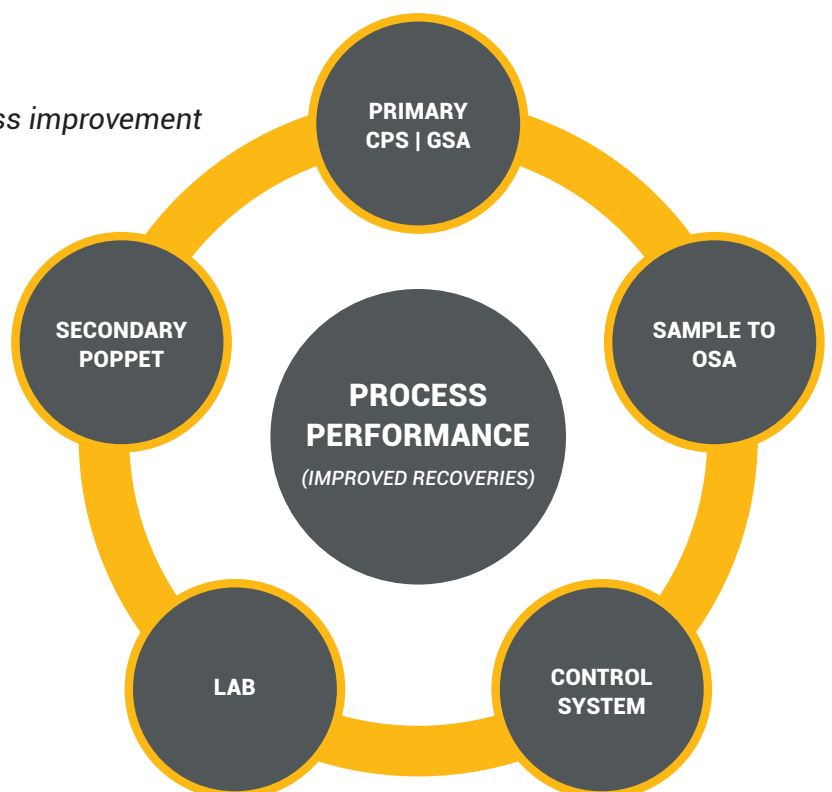
DO YOU HAVE THESE ISSUES?

- Losing metal to tails
- Unreliable manual sampling
- Densitometers that need calibration checks
- Not enough head to install a cross-cut metallurgical sampler
- Inability to trend the process over time
- Not enough plant data and running the plant without knowing:
 - how concentrated the concentrate is
 - how the roughers are roughing
 - the metal composition after each flotation machine in a bank
 - how the ore grade and grind have changed over time
- Hectic shut-downs – the thief sampler may be serviced while the process is online

Then the eDART Secondary Range of Poppet Samplers will benefit you by providing:

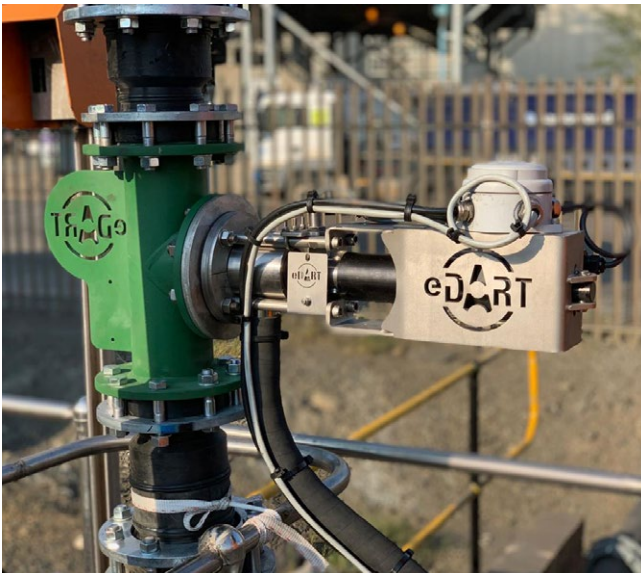
- Periodic process performance checks - mineral composition, slurry density and particle size
- Plant calibration for continuous process improvement
- Sample campaigns for mass balance

The highly reliable results of the eDART sampler systems yields high confidence that process control people can rely on.



eDART SECONDARY SAMPLERS

eDART's wet secondary process control samplers are innovative adaptations of the well-established poppet sampler design. A piston with durable seals is employed in a poppet sampler to enter the pressurised mainline. The piston pauses in its extended position to facilitate chamber filling before retracting to release the sample into a collection device at atmospheric pressure.



eDART Process Control Sampler Poppet (Electric)

The poppet sampler and its variants have been available for decades and are popular as an economic process control sampler. They are useful for automatic periodic sampling to get composite or shift samples in order to track the plant performance; and for sampling campaigns to establish the metallurgical performance of a piece of equipment, or flotation bank.

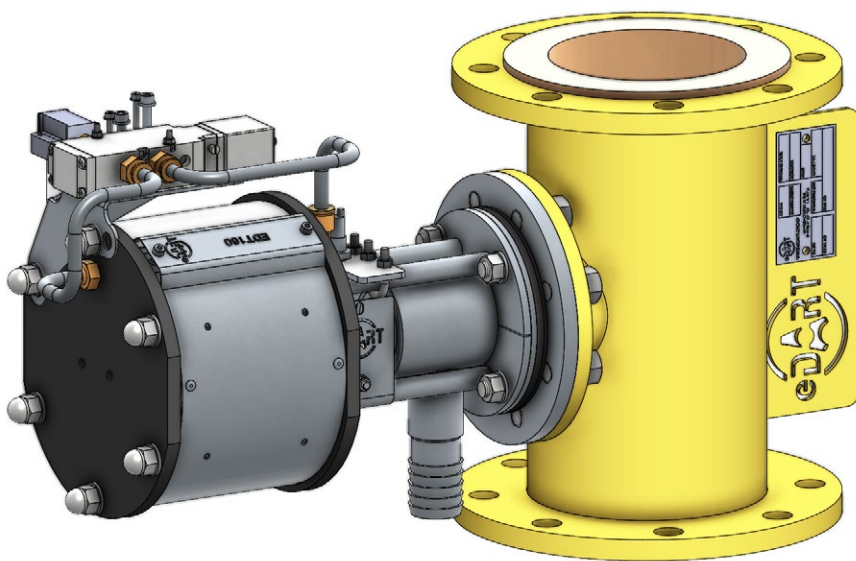
The dependable outcomes delivered by eDART's sampler systems instil strong confidence in process control professionals, ensuring reliability and accuracy in their operations.

APPLICATIONS:

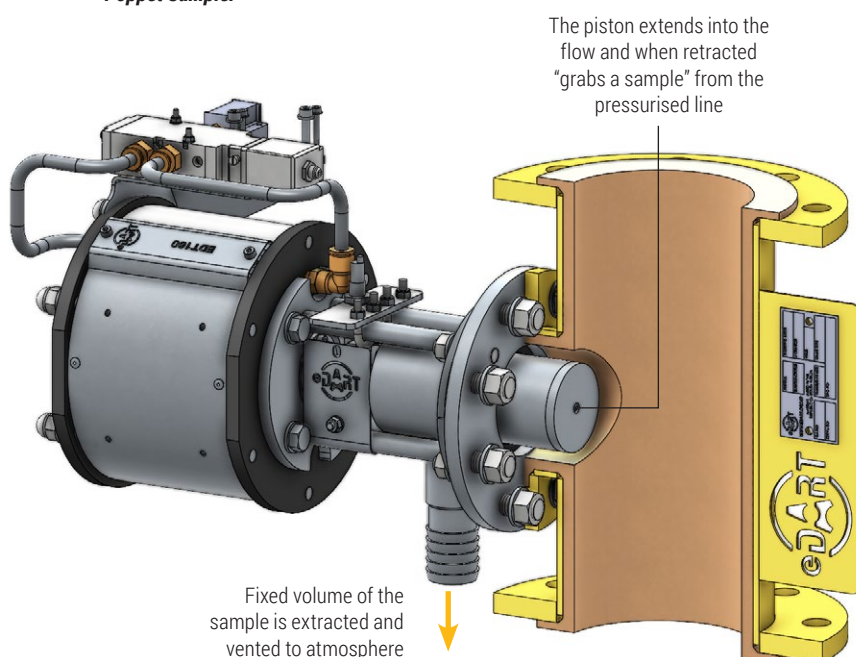
- **Grab samplers**
- **Sampling campaigns**
- **Plant commissioning**
- **Composite/shift sampling**
- **Equipment calibration**
- **Calibration of densitometers**
- **Monitoring of grind PSD**
- **Plant feed density**

POPPET SAMPLER

The original poppet sampler was introduced over three decades ago and has remained consistent in mineral processing applications ever since. Recently, its design has been updated to enhance safety measures. This compact and cost-effective sampler is designed to extract a predetermined volume of slurry sample from the process line. Notably, the sample is delivered at atmospheric pressure, streamlining sample handling for added convenience.



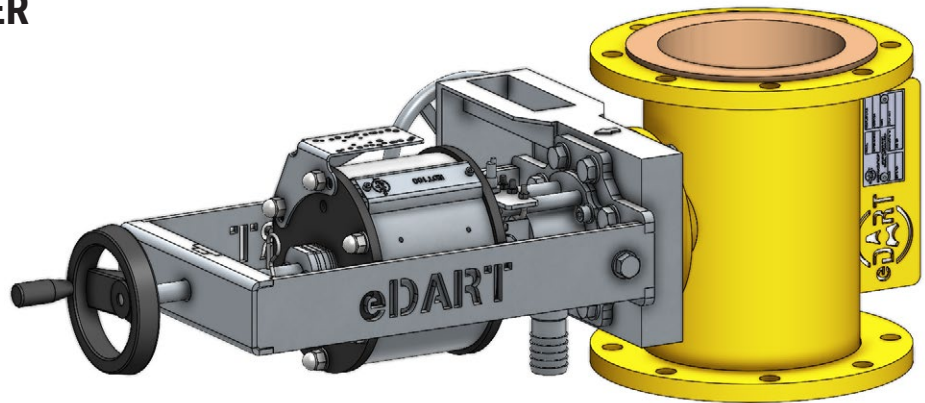
Poppet Sampler



How it works

EDART SECONDARY SAMPLERS (CONT.)

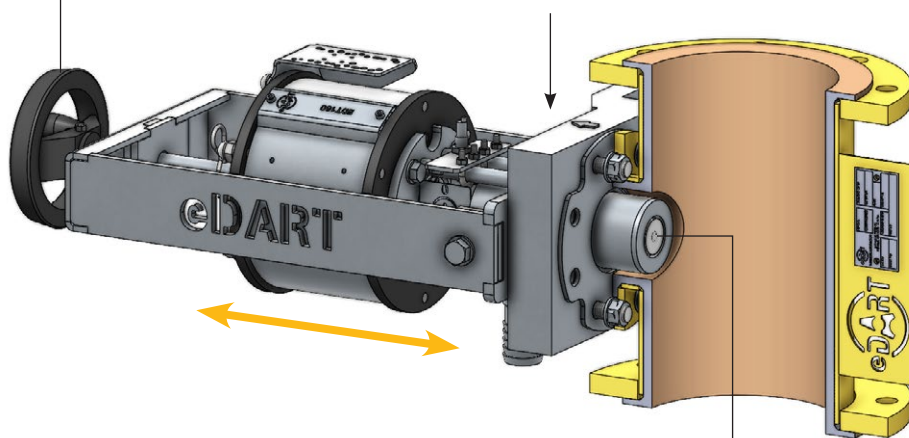
THIEF POPPET SAMPLER



Thief Poppet Sampler

Screw-handle to pull the sampler from the pressurised line

Knife Gate Valve placed here to close the port to the mainline once the sampler unit has been withdrawn

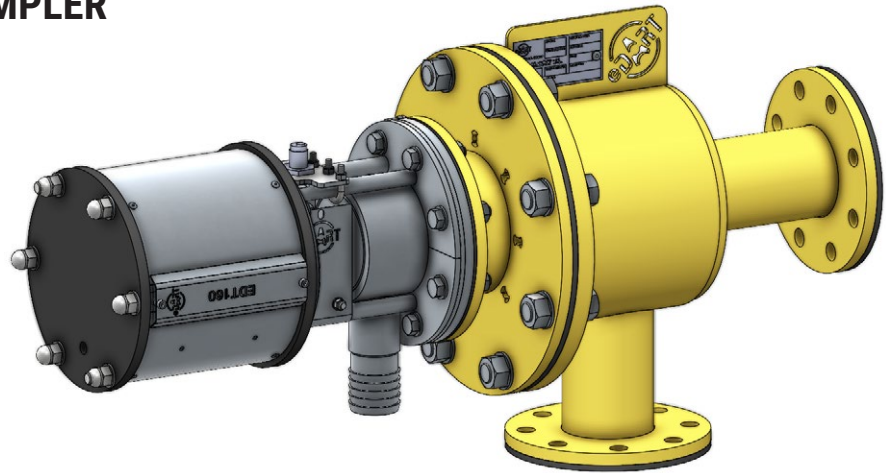


The piston extends into the flow and when retracted "grabs a sample" from the pressurised line

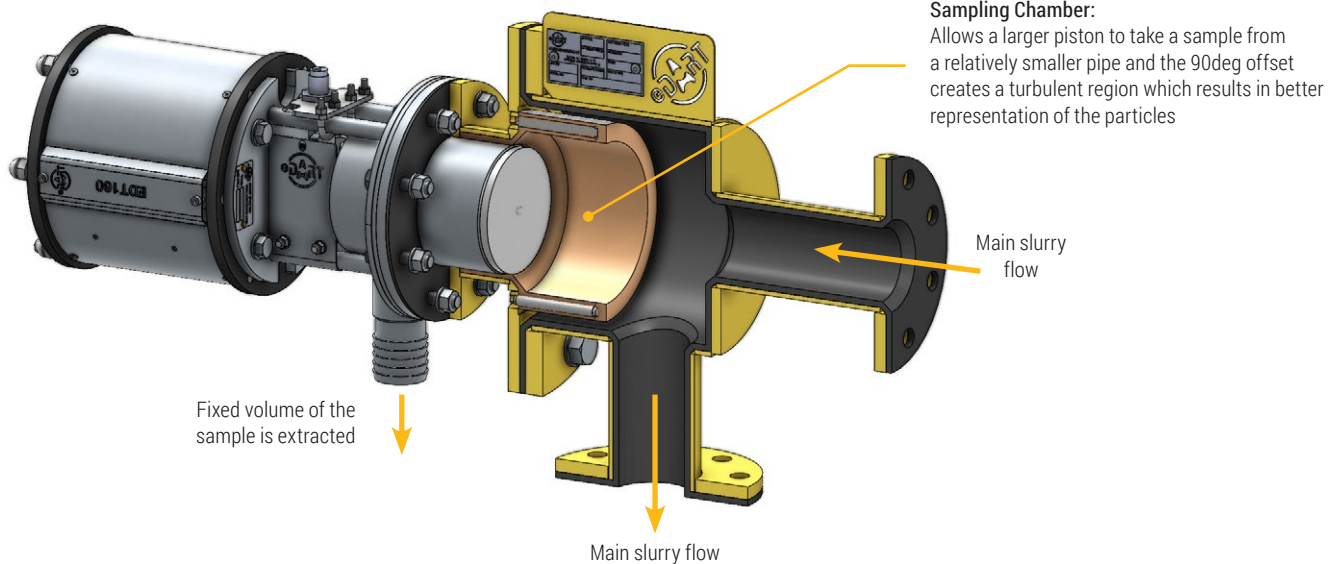
How it works

The thief poppet sampler is a specialized version of the poppet sampler that can be easily removed from the process line without requiring the shutdown of the line itself. This unique feature enables maintenance of the sampler outside of scheduled shutdown periods, contributing to operational efficiency. These samplers are widely utilized by eDART as primary process control tools, serving purposes such as control and calibration of densitometers, among other applications.

COARSE POPPET SAMPLER



Coarse Poppet Sampler

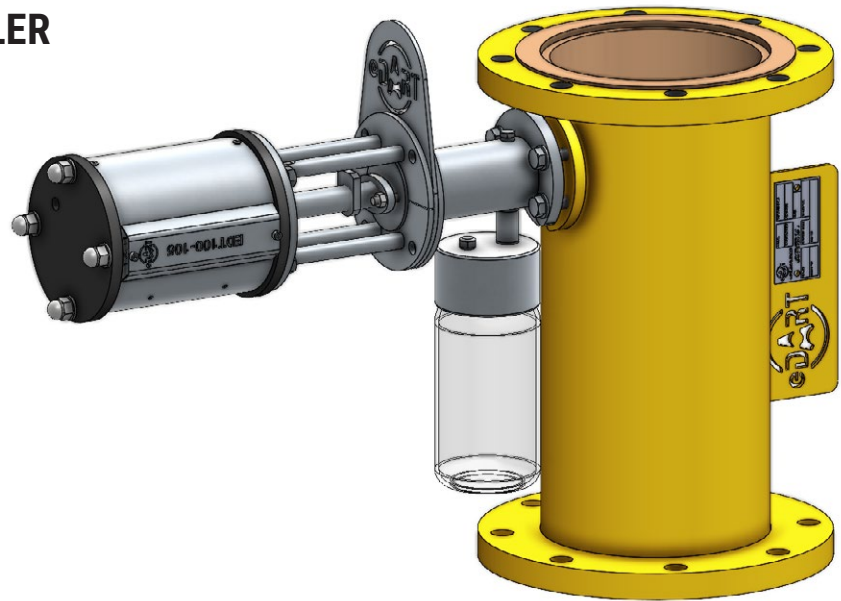


How it works

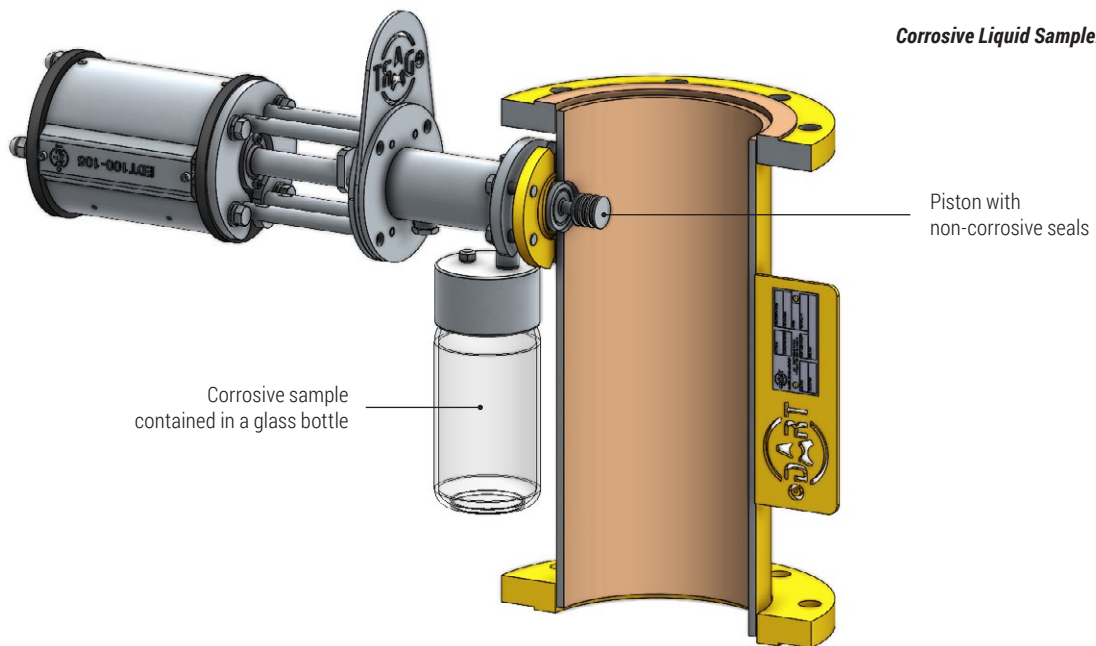
The coarse poppet sampler is a specialized solution tailored for sampling coarse slurries, particularly in cyclone feed lines where particles of up to 15 mm in diameter are prevalent. Distinguished by a tungsten carbide piston plate and a wear-resistant polyurethane sampling chamber, this sampler prioritizes durability. Its primary applications include densitometer calibration and control purposes. Notably, the sampler is fully withdrawn from the process stream in the retracted position, a feature that contributes to prolonging its operational lifespan.

EDART SECONDARY SAMPLERS (CONT.)

CORROSIVE LIQUID SAMPLER



Corrosive Liquid Sampler

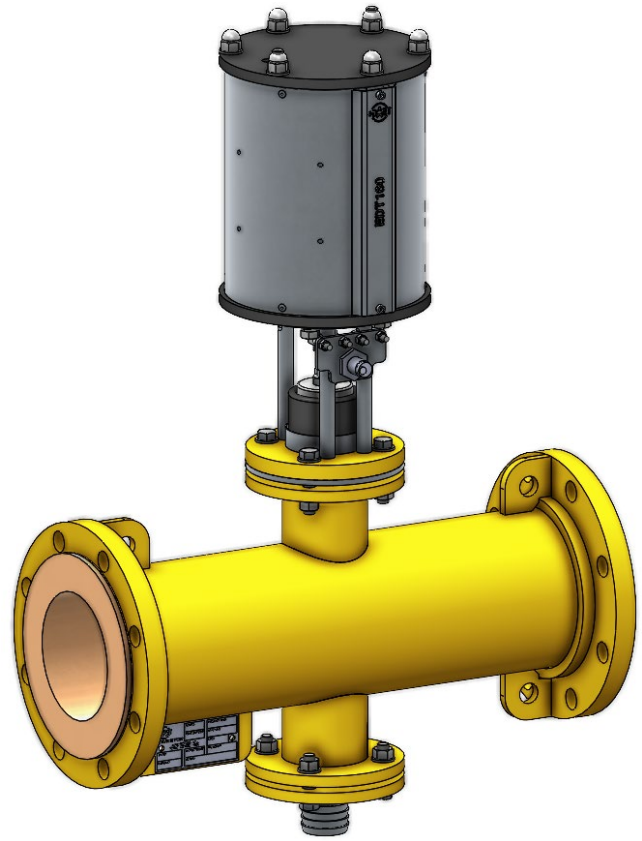


How it works

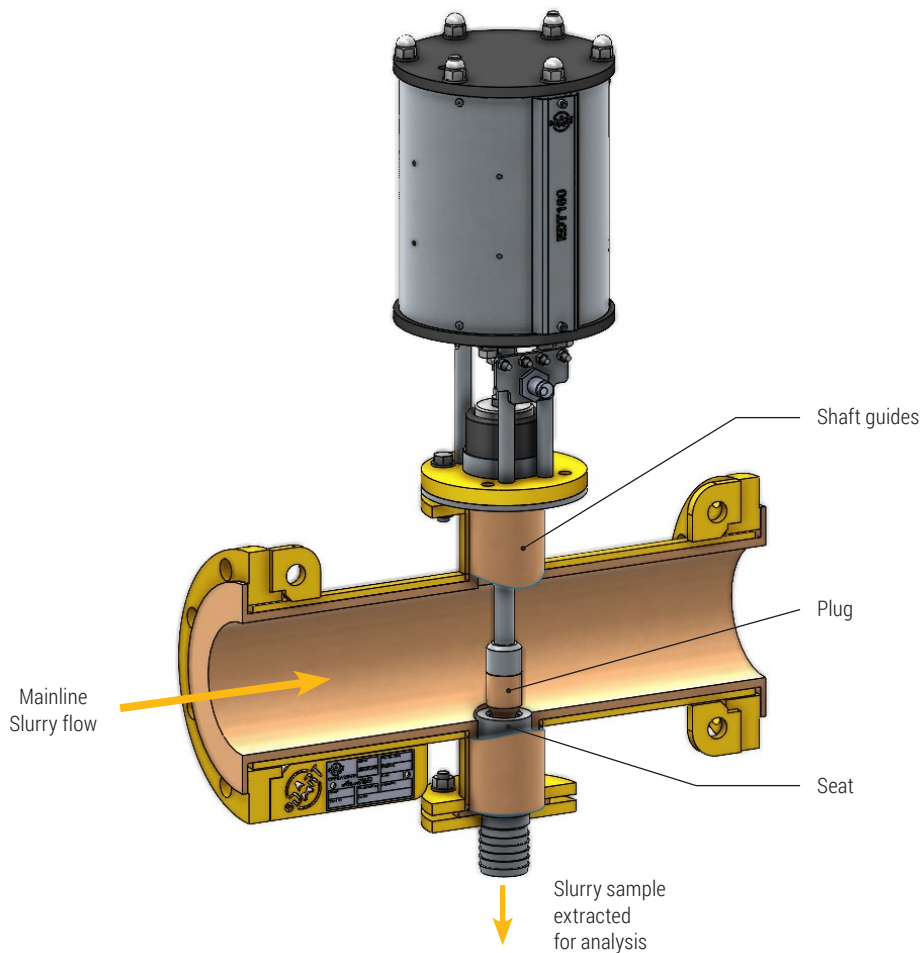
The corrosive liquid sampler is a purpose-built solution designed to effectively sample corrosive liquids. This sampler is engineered to withstand the challenges posed by aggressive chemical environments, ensuring reliable performance even in the presence of corrosive substances. With a focus on durability and accurate representation, the corrosive liquid sampler provides a valuable tool for industries where handling corrosive liquids is a critical aspect of quality control and process monitoring.

VISCOUS LIQUID SAMPLER

The viscous liquid sampler is specifically crafted to tackle the unique demands of sampling high-viscosity liquids. Engineered to navigate the challenges posed by thick and sticky substances, this sampler ensures reliable and accurate sample collection even in the presence of viscous materials. Designed with a focus on precision and efficiency, the viscous liquid sampler is an indispensable tool for industries where dealing with thick liquids is essential for maintaining product quality and process control.



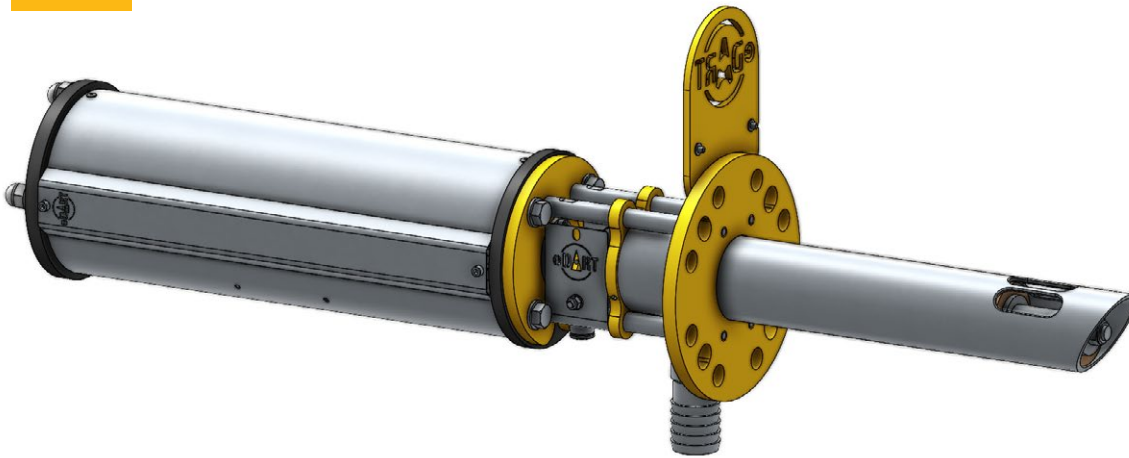
Viscous Liquid Sampler



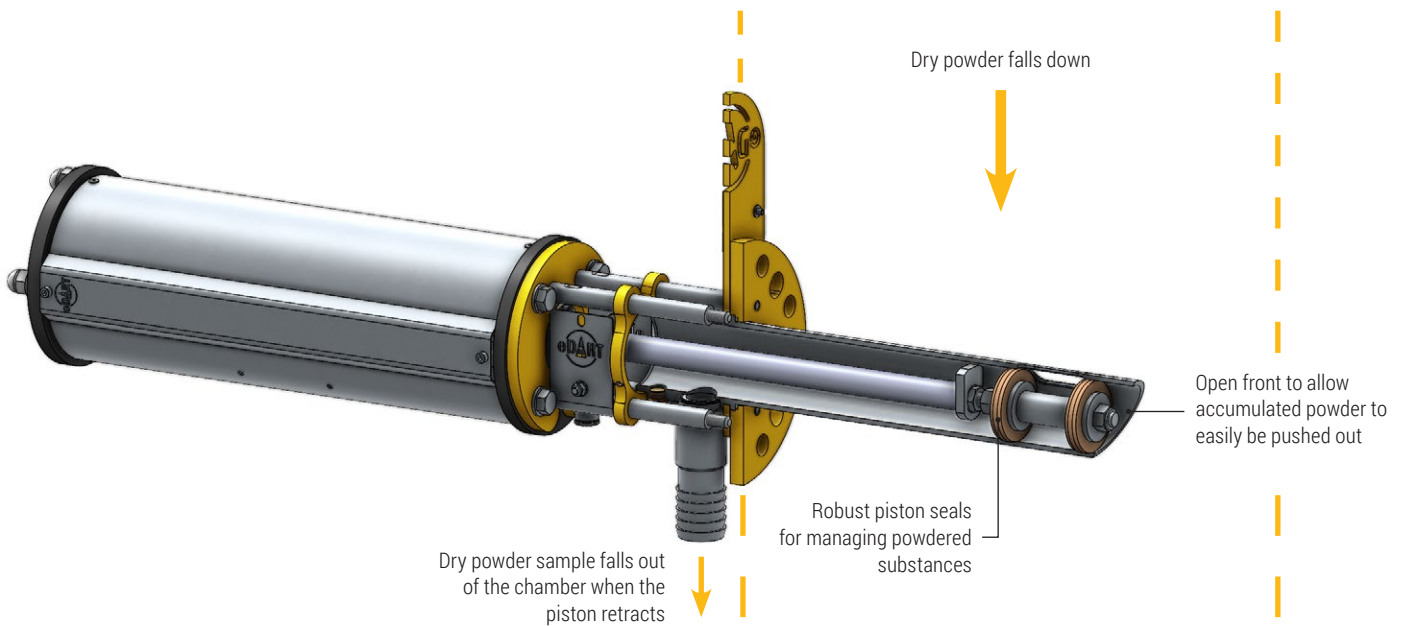
How it works

EDART SECONDARY SAMPLERS (CONT.)

DRY POWDER SAMPLER



Dry Powder Sampler


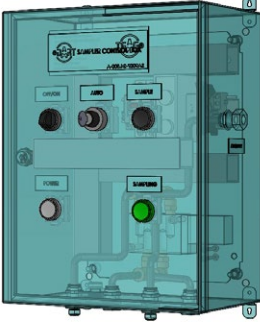
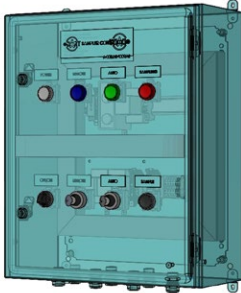
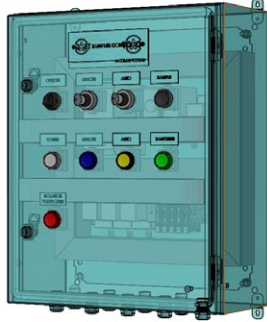


How it works

The Dry Powder Sampler is purposefully designed to effectively sample dry bulk materials. Engineered with precision, this sampler excels in capturing representative samples of solid materials such as powders and granules. Its specialized mechanism ensures reliable and accurate sample collection, making it a valuable asset for industries where obtaining consistent and representative samples of dry materials is crucial for quality assurance and process optimization.

EDART CONTROL PANELS

Integrating Sampler Control Panels into our eDART product offering addresses practical challenges, particularly in brown fields projects with PLC capacity constraints. These panels enhance operational safety by simplifying control processes, while also offering a reliable, standard method for sampler control alongside PLC inputs.

BASIC SA9101	BASIC WITH SOLENOID SA9102	STANDARD SA9103	PRIMARY SA9104
			
<p>These Control Panels the functionality to take a manual sample at any required time. They also offer a safe way to isolate the electrical power via the on/off switch.</p>		<p>In addition to the functionality of the Basic Control Panel the control of this panel can be done remotely from a PLC.</p>	<p>The Primary Control Panel has the same functionality as the standard panel - but it also controls the isolation valve (if fitted) on the primary sampler.</p>
<p>The solenoid is on the sampler. Electrical cables run between the sampler and the box and pneumatics to the sampler.</p>	<p>The solenoid is in the box and only pneumatics to the sampler.</p>	<p>This control panel is usually offered to customers as the standard.</p>	<p>This panel is used with a primary and secondary sampler and where one wants to control both the actuator on the isolation valve and the poppet sampler using a single panel.</p>



TALK TO US ABOUT SOLVING YOUR SLURRY RELATED PROBLEMS

eDART designs and manufactures slurry equipment to improve recovery rates for metallurgical plants. We combine our Computational Fluid Dynamics (CFD) expertise with extensive site experience to reliably solve your complex slurry challenges.

How can we help you?

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