

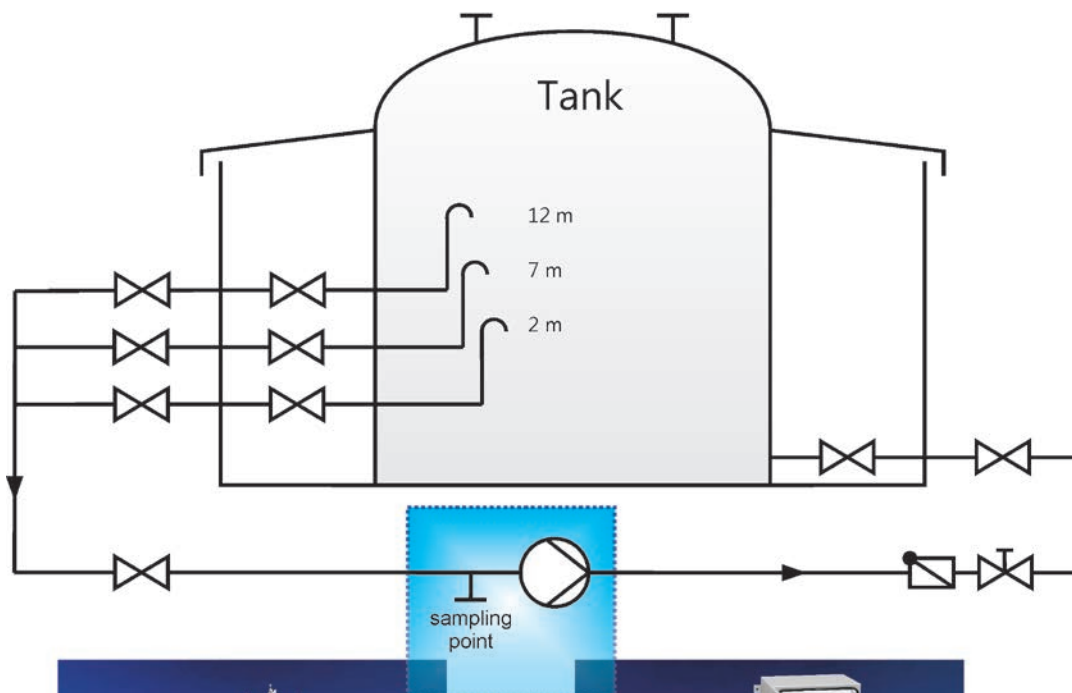


**Barthel**  
SAMPLING SYSTEMS

## Sampling Systems for Tank Storage Applications

It is necessary to take swipe samples or appropriately representative samples proportionate to the volume when sampling from tanks and storage containers. Additional safety requirements and various statutory regulations relating to environmental protection and occupational safety, amongst others, must be observed during the technical implementation. Taking this into account, it is state of the art to separate subsamples from different filling levels.

Circulating pump technology is mainly used to ensure representative sampling. For example, fresh product is flushed through the respective ring lines from various fill levels before taking subsamples at the sampling point. Different sampling systems can be used for the design of the actual sampling point, e.g. Fixed-Volume-Samplers (FVS) or systems based on the Series 2000. The pump can be selected individually in each case and integrated on request.



**Series 2000 sampling system with an integrated hand-operated pump**



**Fixed-Volume-Sampler (FVS) with an external pump**

## Series 2000

The Series 2000 sampling system with its compact design fulfils all the demands required from a safe sampler within a wide range of applications. All samples extracted are representative and free of dead space. The needle valve enables the accurate metering of unit dose samples. The protection cabinet isolates the sampling valve process contact parts from the operator. The modular construction of the Series 2000 guarantees that all parts are 100% interchangeable. The sampling bottle is mounted on a spring-loaded anti-splash table that is manually adjustable. Any overflowing liquid is directed from the neck of the bottle through a drainage line that is linked to the drain at the bottom of the cabinet. The cabinet is also fitted with a separate vent connection.

Existing basic constructions for sampling from storage tanks and containers, as well as for truck loading stations, can quickly be adapted to the local conditions. The sampling process is usually manual or semi-automated.

Customised solutions are designed and constructed in order to meet all the high safety standards in the chemical and petrochemical industry as well as the current statutory requirements.



## Fixed-Volume-Sampler (FVS)

Fixed-Volume-Samplers (FVS) can be used for extracting fixed volume from process lines in tank storage applications. The fixed volume is isolated by turning the operating lever approx. 90°. The fixed sample volume runs out into the bottle at the end position of 90° operating movement. The product flows through the pre-chamber of the FVS in the base position. The sample is extracted in a single operation.

The product inlet and outlet are initially closed during the sampling process in order to hold the sample volume in the pre-chamber. Now the outlet and purge can be opened by turning the lever to the end position. The sample volume is filled into the sampling bottle and is ready for further handling. All operations are mutually exclusive, making it impossible to turn the lever to an incorrect position.

It is necessary to keep in mind that the circulating line is blocked in the "sampling" position in order to implement the pump. It may be necessary to switch it off for this stage of the sampling process depending on the type of pump selected.

