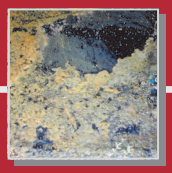
WaterSam®

Samplers, Monitoring Stations, Custom Sampling Solutions

The Sampling Specialists


Made in Germany

Our Company

WaterSam GmbH & Co. KG was founded in 1996 by former employees of Edmund Bühler GmbH, the one-time market leader in the sampler industry. We have since become one of the leading manufacturers of automated samplers and monitoring stations, with a worldwide presence and sales network. Our clients include wastewater treatment facilities, manufacturers, large corporations and many more.

Quality

Exclusively designed and manufactured in Germany, our samplers feature high-quality materials and components to provide long-term reliability, requiring minimal maintenance. Each sampler undergoes an extensive quality control check before leaving our premises.

Experience

As specialists with decades of experience in the sampling industry and a track record of success on a wide variety of demanding international projects, we offer you the benefit of our expertise to find the water sampling solution best-suited to your requirements.

Innovation

Our technicians' extensive knowledge and hands-on field experience enables them to continuously refine our product designs, incorporating the latest technology and creating innovative new solutions such as the industry's first multi-axis distributor system.

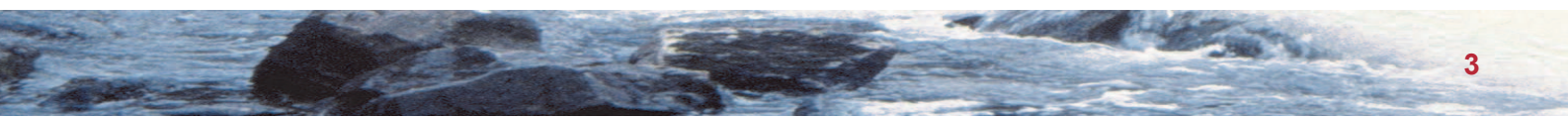
Flexibility

Our modular design approach allows us to offer samplers for a variety of highly specialized settings and applications. The versatile controller software and distributor system allow a vast array of modifications to suit your needs - even long after the initial purchase.

Customer Focus

Whether offering friendly professional advice or providing prompt and reliable after-sales service, we have built up an impressive reputation by putting our customers at the centre of our vision. Your long-term satisfaction will always be our highest priority.

You are always at the center of what we do.



Our Strengths

WaterSam offers a wide range of products and services.

Our first priority is to work with our clients in order to find the system which is best suited to the on-site conditions, one which meets your individual demands for the application.
The goal is always the same: obtaining a representative sample.

Samplers

Samplers for Water and Wastewater

- Portable Samplers for Field Use
  Sometimes samples must be taken in remote locations where there is no access to mains power. This is where battery-powered portable samplers are practical. They are available with passive or active cooling.

  More information on p. 10

- Stationary Samplers
  If samples are to be stored in a climate-controlled environment, a stationary sampler is advisable. The modular construction of our stationary samplers permits extensive customization to accommodate individual needs.

  More information on p. 12

- Freezing Samplers
  Depending on the type of analysis planned and when it takes place, it may be desirable to freeze samples. With a freezing sampler, samples can be stored at temperatures down to -18°C.

Portable sampler

Stationary sampler

Sample Advancing for Online Monitoring

Online analyzers often rely on small peristaltic pumps to advance the samples through the system. But when samples are drawn from large distances or depths greater than 2 - 3 m, or taken from pressurized lines, a peristaltic pump is pushed to its limits. In these circumstances, a proper sample advancing system can be put in place between the sampling point and the online analyzer.
WaterSam sampling systems are already utilized by numerous satisfied customers for such applications.

Samplers for Granular / Bulk Materials

During the loading or unloading of ships, silos, etc. with fertilizer, plastic granules or similar material, a sampling system can retrieve a sample from the loading/discharging pipe.

Contact WaterSam for more information

Custom Sampling Solutions

If a sampler suitable for your requirements cannot be found within our standard product range, WaterSam can develop a

- customer-specific sampling solution

just for you, in which both the system components and the software controlling them are customized.

More information on pp. 18-19

Software Modification

The standard software in WaterSam samplers is inherently versatile, and the vast majority of sampling demands can be met by it.
Even so, just as with mechanical equipment, exceptional demands or circumstances arise from time to time which require the adapting of the software.

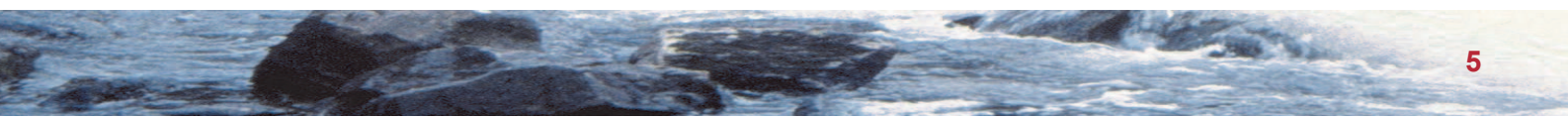
Having an in-house software division enables us to be highly flexible and quick in responding to custom enquiries and modify software.

Remote Operation

If desired, our samplers can be equipped to be operated remotely. There are two methods of remote operation:

- Complete control of a sampler with a PC or Laptop
- Starting a preset program via telephone or mobile device

Details in the Controllers section on p. 7



Your Advantages

Sampler Cabinets

The modular design of WaterSam stationary sampler cabinets allows for a variety of housing options:

- Stainless steel AISI 304
- Stainless steel AISI 316Ti
- Powder-coated stainless steel (all standard RAL colours)
- Plastic

If desired, cabinets can also be manufactured with non-standard dimensions.

Electrically-operated components such as pumps and the refrigeration unit are safely housed in dry compartments at the top of the sampler cabinet. In addition, the controller and other electronic components are further protected in a separate compartment with IP65 protection against moisture and dust. The lower portion of the cabinet is the insulated sample storage chamber which helps maintain the optimal temperature for preserving samples during operation. A double gasket prevents heat bridging at the door.

Stainless steel housing
AISI grade 304 or 316Ti

Plastic housing

Powder-coated
stainless steel housing

Stainless steel base for raising sampler cabinet

The clever sandwich-style construction of the cabinets means that after a lifetime of service, the housing materials are separable for environmentally-friendly recycling and disposal.

Sampling Systems

The metering vessel for vacuum sampling systems is protected from ambient temperature and sunlight in the climate-controlled sample storage chamber, thereby

- effectively preventing the unnecessary chilling or heating of the sample.

Other sampling systems such as water switches, WS INLINEvent or peristaltic pump are also safely located in this frost-protected site.

- Depending on sampling demands, sampling system metering vessels are available in non-standard sizes and materials.
- For the vacuum sampling systems, two types of pinch valves are offered: motorized or pneumatically-driven. The pinch valve most appropriate for the sampling conditions can be chosen.
- The intake hose can be led into the cabinet through the left or right side, or even through the rear wall or through the floor if desired.

More information about available sampling systems on pp. 20-24

FROST-PROTECTED
sample metering vessel
in the climate-controlled
sample storage chamber

Controllers

Standard controller

Advanced controller

The microprocessor controller uses a menu-based format for the user interface, and is available in two models:

Standard Controller

- 4 x 20-character LCD display, with 4 cursor keys.

Optional Advanced Controller

- 128 x 128-pixel backlit graphic display, with 24 buttons including numeric keypad and direct function keys for program start, pause, stop, grab sample as well as custom function keys.

9 sampling programs can be

- activated and run simultaneously.

With the advanced controller, up to 99 programs can run simultaneously.
Both controllers can run programs for either time-, volume- or event-proportional sampling, or a combination thereof. Flow-proportional sampling is also possible with an appropriate sampling system (*see p. 25*).

The controllers record system details such as pump and refrigeration unit run times.

Advanced Controller Communication and Data Storage:

- RS-232, RS-485, TCP/IP, USB Host, USB COM Port Slave
- Modbus
- optional Profibus-DP, optional modem

The internal data logger (SD card with 2 GB, opt. up to 32 GB) can store a variety of data from multiple sources such as:

- Sampling statistics
- Measurements from online sensors integrated with the sampler
- Measurements from external sensors

Data can be accessed, read and downloaded via a USB connection or web server.

Climate Control Systems

WaterSam stationary samplers are standard-equipped with an efficient climate control system which includes a refrigeration unit and a heating unit. This ensures samples are preserved by accurately maintaining the optimal storage temperature (adjustable, preset at 3°C) in ambient temperatures from -25°C to +42°C.

- An optional heavy-duty refrigeration unit is available to keep samples cool even when the ambient temperature climbs to +55°C.

Your Advantages

XY Distributor

Direct sample distribution with unmatched flexibility

The WaterSam XY Distributor is the original dual-axis sample distribution system, successfully in use for over 15 years.
Sample bottles are accurately located using factory or user-preset coordinates, offering the user numerous benefits.

XY Distributor in the far back right position

XY Distributor in the far front left position

Direct Bottle Filling

By positioning itself directly above the sample bottle to be filled, the XY Distributor ensures each sample is deposited directly into the appropriate container, so that:

- there is no distributor plate to clean and
- cross-contamination of samples is prevented.

Maximum Sample Storage Capacity

Free movement throughout the sample storage chamber ensures efficient use of the entire floor space available. This is in contrast to rotating distributors which are limited to their diameter, and often use wedge-shaped bottles which can be difficult to clean properly.

Bottle Combination Switching without Additional Parts
Ability to Use Customer-Specific Bottles and Bottle Combinations

With numerous sample bottle set combinations already pre-programmed, the WaterSam XY Distributor allows the user to easily switch from one sample bottle set to another.

- Purchasing a bottle set with a sampler does not limit future possibilities

because switching to a completely different combination of bottles merely requires selecting the desired bottle combination in the software menu.

- Switching bottle combinations and
- using customer-specific bottles

do not require the purchase of any additional parts.

Stability and Reliability with Minimal Follow-up Costs

Due to many years of successful use, the XY Distributor has become highly valued and praised by our clients not only for its unbeatable versatility, but also for its proven reliability and low follow-up costs.

XYZ Distributor

If pinpoint accuracy is required for sample bottle filling, or for applications where certain volatile sample medium contents are to be kept in the sample, the solution may be the:

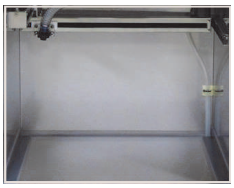
- optional XYZ Distributor with 3-axis travel

which has vertical axis movement in addition to the two horizontal axes.

WS 312
Bottle Combinations

Composite Container
(without distributor)
10.4 l PE
15.4 l PE
20 l PE
26 l PE

With XY Distributor
For multiple daily samples during the weekend:
2 x 10.4 l PE
4 x 6.4 / 12 l PE
For 2-hour samples:
12 x 2.9 l PE
12 x 2 l glass
16 x 2 l PE
24 x 1 l PE
24 x 0.9 l glass
For 2-hour & daily samples:
12 x 1 l + 1 x 10.4 l PE
12 x 2 l + 1 x 6.4 l PE
7 x 2 l + 14 x 1 l PE



The use of customer-specific bottles and combinations is possible

WS 316
Bottle Combinations

Composite Container
(without distributor)
15.4 l PE
20 l PE
26 l PE
60 l PE

With XY Distributor
For multiple daily samples during the weekend:
4 x 10.4 / 15.4 / 20 / 25 l PE
5 x 12 l PE
For 2-hour samples:
16 x 2.9 / 4 l
16 x 2 l glass
24 x 2 l
36 x 1 l
48 x 1 l
36 x 0.9 l glass
For 2-hour & daily samples:
12 x 2.9 l + 1 x 12 l
24 x 1 l + 1 x 12 l

The use of customer-specific bottles and combinations is possible

WS 316 SR
(with fresh water rinsing)
Bottle Combinations

15 x 2 l
15 x 2.9 l
23 x 2 l
35 x 1 l
35 x 0.9 l glass

The use of customer-specific bottles and combinations is possible

WS 98
Bottle Combinations

All bottle combinations for the WS 316 / WS 316 SR are also available for the WS 98 sampler with additional frame.

The use of customer-specific bottles and combinations is possible

Portable Samplers

WS Porti 1/12/24

Mobility and
Automated Sampling

The WS Porti is a portable water sampler which puts WaterSam quality, performance and reliability into a compact and mobile package.

Designed for both indoor and outdoor use, the WS Porti features robust stainless steel construction throughout and IP65 protection for the controller and electronics.

The vacuum sampling system standard in the WS Porti ensures maximum accuracy and can draw samples from depths of up to 7 metres, or up to 13 metres with optional equipment.
The borosilicate glass metering vessel *(more information on p. 20)* is safely located in the center of the sampler, while an optional lockable cover plate is available to provide further protection if needed.
With no wearing parts coming into contact with the sample medium, the vacuum sampling system offers consistency and reliability with minimal maintenance.

A peristaltic pump is also available as an optional sampling system for the WS Porti.

The WS Porti is compatible with a range of sample transport boxes and coolers which can be easily swapped. Having an extra cooler or transport box with bottles allows continuous sampling on location while the full set of bottles is brought to the laboratory.

The WS Porti is available for composite sampling or discrete sampling.

WS Porti 1
WS Porti 12

1 x 6.4 l / 1 x 10l

12 x 1 l

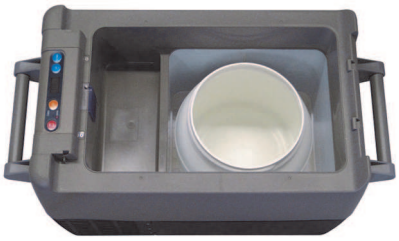
WS Porti 24

1 x 10.4 l

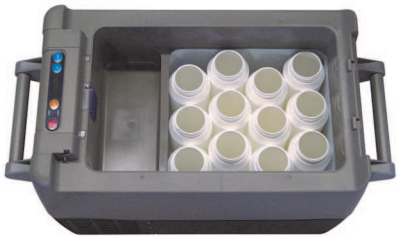
24 x 1 l

WS Porti 1T/12T/24T

WS Porti 1T
WS Porti 12T
with refrigeration



1 x 10.4 l



12 x 1 l

WS Porti 24T
with refrigeration

24 x 1 l

With Active Refrigeration

Compressor refrigeration with R134a refrigerant

Compatible with power from: 110 - 240 VAC or 12 - 24 VDC

For ambient temperatures from 0 to +55°C

The ability to power the cooler by plugging it in to a standard vehicle power socket (12 VDC) ensures that samples are continuously refrigerated without interruption from the sampling point to the laboratory.

Stationary Samplers

WS 98

Extraordinary Flexibility
In a Wall-Mounted Unit

The WS 98 is a sampler of uncompromising WaterSam quality and performance designed to be a compact and economical unit for simpler sampling applications.
It can also be very well equipped with a variety of available options if desired.

The WS 98 can be either mounted on an existing wall or on an optional support frame and XY Distributor which enables a large variety of sample bottle combinations. Just as with the largest WaterSam samplers, as many as 48 1-litre bottles can be accommodated.

Although designed for indoor applications, the WS 98 is standard-equipped with a high-grade stainless steel housing (AISI 316Ti) and IP65 protection for the controller and technical compartment, making it suitable for a variety of challenging environments.

The vacuum sampling system in the WS 98 ensures maximum accuracy and can draw samples from depths of up to 7 metres, or up to 30 metres with optional equipment. Several optional sampling systems designed for specific applications are available, and can even be operated in pairs to create a double sampler.

If an inexpensive solution for composite sample refrigeration is needed, the WS 98 can be combined with a common household refrigerator.

The WS 98 can also be used to retrofit an old or defective sampler cabinet from another manufacturer by utilizing the WS 98 as a replacement controller and sampling system.

The WS 98 provides you with a compact, flexible and high-value sampler with capabilities which can be expanded at any time in the future.

WS 98 VAC

WS 98 FMMW double sampler

WS 98 VAC with advanced controller, support frame with XY Distributor and automatic self rinsing

WS 312 VAC with 24 x 1 l bottles

WS 312 with advanced controller, main switch and powder-coated housing

Size comparison: WS 316 vs. WS 312

WS 312

The Most Compact All-Weather Sampler

The WS 312 stationary sampler is the most compact all-weather sampler featuring WaterSam quality and offering nearly all the benefits of the larger WS 316 model.

Designed for both indoor and outdoor use, the WS 312 features robust stainless steel construction throughout *(for other housing options, see p. 6)*. With an insulated sample storage compartment and climate control system, the stored samples are preserved at the desired temperature (adjustable, preset at 3°C) with a high degree of accuracy, even in ambient temperatures down to -25°C and up to +42°C.

The WS 312 is suitable for both indoor and outdoor applications.

The vacuum sampling system standard in the WS 312 ensures maximum accuracy and can draw samples from depths of up to 8 metres, or up to 30 metres with optional equipment. Several optional sampling systems are available which are designed for specific applications. The borosilicate glass metering vessel *(more information on p. 20)* is located within the climate-controlled storage chamber to protect the contents from being affected by outside temperatures and light. With no wearing parts coming into contact with the sample medium, the vacuum sampling system offers consistency and reliability with minimal maintenance.

Despite the diminutive size of the WS 312, numerous different sample bottle combinations can be used with the XY Distributor, including a set of 24 1-liter bottles. Without a distributor system, a composite sample container with a capacity of up to 26.4 litres can be used.

If desired, the WS 312 can be custom-equipped to meet specialized demands, all the while maintaining a small footprint.

Stationary Samplers

WS 316

Impressive Versatility and Huge Capacity

The WS 316 is the comprehensive stationary water sampler from WaterSam, which offers the largest sample storage capacity and the widest array of options and equipment for specialized applications.

The WS 316 is also manufactured with a robust, insulated stainless steel cabinet *(for other housing options, see p. 6)*.
The controller-monitored climate control system ensures that samples are stored at the desired temperature (adjustable, preset to 3°C) with a high degree of accuracy, in temperatures from -25° C to +42°C.
With the optional heavy-duty refrigeration unit, samples are safe even when ambient temperatures reach +55°C.
The WS 316 is suitable for both indoor and outdoor applications.

WS 316 VAC with 36 x 0.9 l glass bottles and 3-piece tray

The standard vacuum sampling system in the WS 316 ensures maximum accuracy and can draw samples from depths of up to 8 metres, or up to 30 metres with optional equipment.
If a vacuum sampling system is not appropriate, any of our other sampling systems can be selected and incorporated with this model.
The sampling system is located inside the sample storage chamber, thereby preventing the sampled medium from being heated in the summer, over-chilled in the winter, or affected by light.
The WS 316 can also be equipped as a double sampler with a second sampling system.
More information on p. 23

WS 316 VAC with 36 x 1 l bottles, powder-coated housing and base

With the XY Distributor, a large variety of different bottle combinations can be filled, including

- A set of 48 x 1-litre bottles.

Without a distributor a composite sample container with a capacity of up to 60 litres can be used.

The WS 316 can be custom-equipped to match your individual sampling requirements. The range of options available consists of sampling system upgrades, software and communication add-ons as well as features to increase user comfort and convenience.
No other sampler is as flexible as the WS 316.

WS 316 double sampler with WS INLINEvent & VAC sampling systems, advanced controller, 16 x 2.9 l bottles, carriage and side handles

WS 316 SR,
35 x 1 l bottles

WS 316 SR

Automatic Rinsing with Clean Tap Water

The WS 316 SR is an automatic self-rinsing sampler which uses clean water to rinse the intake hose, metering vessel and XY Distributor hose after taking a sample or a set number of samples (adjustable).
This is not to be mistaken with the common rinsing of sampling systems with process water or the sample medium.

The XY Distributor nozzle travels to the built-in drain position in the sample storage chamber, and clean water is flushed through the entire sampling and distribution system, and finally out through the drain position and into an on-site wastewater drain.

The self-rinsing option is intended for use when the sample medium is very dirty or oily. If desired, a warm water self-rinsing function is also available.

WS 316 Ex 2 Interior

Protection for Explosive Substances

Especially in the chemical industry, sample media can contain components which present an explosion hazard. It is often sufficient however to minimize the risk of ignition at the sampling point itself and around the stored samples.

A WS 316 variant was developed for this application, in which the sample storage chamber is classified according to standards for ATEX Ex-Zone 2. As with other samplers, the samples can be safely stored at a preset temperature. The huge cost savings and advantages in quality relative to a fully Ex-certified sampler have made the WS 316 Ex 2 Interior the choice of market-leading international companies.

Stationary Samplers

WS 316 SE

Automatic Emptying and Rinsing

The special feature of the WS 316 SE is the fully-automated sample bottle emptying and rinsing with clean water.
For sampling operations in remote locations, or for applications where samples are not usually needed or desired (e.g.: monitoring by a water quality authority), a self-emptying sampler offers the solution. The most recent samples — up to 24 — are always available.
For surveillance applications where the sampler is locked in order to restrict access, an optional window in the door is available. This permits observing of the sampling operation without needing to open the door. Monitoring of the bottle fill levels is also possible.

The WS 316 SE is manufactured with a robust stainless steel housing *(for other housing options, see p. 6)*. As with the standard WS 316, the temperature in the sample storage chamber is freely adjustable (preset at 3°C), and samples are reliably kept at the optimal temperature in ambient conditions from -25°C to +42°C.
With the optional heavy-duty refrigeration system, the optimal temperature can be maintained even when the ambient temperature rises to +55°C.
The WS 316 SE is suitable for both indoor and outdoor applications.

The standard VAC vacuum sampling system or other sampling system is positioned in the climate-controlled sample storage chamber, protecting it from heating up in the summer, freezing in the winter, and being affected by light.

The WS 316 SE can be equipped with a sample container in the middle of the bottle carousel for additional samples, such as a large composite sample for a water quality authority or for multiple inspections. It may also be used for event-proportional samples. This way, regular samples as well as samples documenting events are always on hand. A signal indicating such an event can also be sent.

There are a variety of bottle carousel distributor systems to choose from, from 4 to 24 bottles, and a simple system for 2 PE bottles is also available. Samples can be manually retrieved for analysis with the push of a button. The samples then flow directly from their respective bottles into a container. The samples do not flow through any additional components, thereby eliminating cross-contamination.
If samples are not retrieved, the bottles are automatically emptied and rinsed before being filled again at the appropriate time.

WS 316 SE with
24 x 1.8 l glass bottles

WS 316 SE with
2 x 10 l PE bottles

WS 316 SE
with glass window
in door and large
extra container in
middle of carousel

Monitoring Stations

WS 316 Monitoring Station with measuring probes in channel

WS 316 Monitoring Station with internally-installed probes

WS 316 Monitoring Station double-cabinet with internally-installed probes

WS 316 Monitoring Station

Water Quality
Monitoring and Sampling

With a WS 316 Monitoring Station, a quality WaterSam sampler is combined with monitoring equipment. The monitoring instrumentation can be either:

- selected and installed by WaterSam
- selected by the customer and installed by WaterSam
- provided by the customer and installed by WaterSam / customer
- connected to on-site instrumentation

Monitoring stations feature robust, insulated housings built from one of two available grades of stainless steel. The instrument transmitters are installed in the front panel or in a dedicated cabinet extension on top.
The monitoring sensors can, as desired, be installed in either:

- the sample source stream
- a monitoring vessel in the sampler cabinet

Sampling and measuring data are stored in the internal data logger (SD card with 2 GB, opt. up to 32 GB), and can be accessed, viewed and transferred via a USB port or web server.
For more information, see the Controller section on p. 7

Just as with a standard WS 316 sampler, samples are stored at the desired temperature, and the heavy-duty refrigeration system for ambient temperatures of up to +55°C is also available.

WaterSam monitoring stations are suitable for both indoor and outdoor applications.

Depending on sampling conditions and requirements, various sampling systems can be employed in a monitoring station. The sampling portion of the unit can also be equipped as a self-emptying sampler.

The large monitoring station with dual cabinets offers a monitoring vessel which is continuously provided with fresh sample medium. This ensures precise measurement values, and the sensors are easily accessible for cleaning and calibration.

Custom Sampling Solutions

Clients often approach us with unconventional sampling requirements which cannot adequately be met with standard sampler models.

This is where the sampling expertise and technical know-how of WaterSam are called for.
We work with the client to create an individual profile of the requirements and conditions, and develop a specialized solution which is best-suited to the on-site conditions.

Here are just a few examples...

Sampler for Marine Applications

Customized for Conditions on a Scientific Exploration Ship

This sampler draws large-volume samples from a pipe in a monitoring line.

The custom sample bottle equipment minimizes evaporation, and prevents spillage and cross-contamination on rough seas.

Sampler for Volatile Substances

Special Requirements for Sampling Volatile Substances

By utilizing specially-developed sample containers and sophisticated technology, samples are drawn and stored in sealed containers while virtually eliminating any contact with air.

In order to be able to analyze volatile substances such as chlorinated and halogenated hydrocarbons, this system prevents the evaporation of such substances and any contact with the surrounding air.

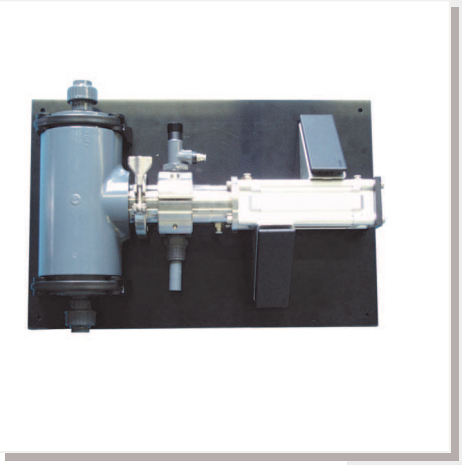
The sample storage bottles are easily removed, and the contents emptied through the use of a specially-made fixture.
Sample containers can also be placed directly in a stream of the sample medium, for example for river water surveillance.

Sampler with Automatic Chemical Stabilization

Custom Sample Handling for the Petro-Chemical Industry

This sampler was developed for a client in the petro-chemical industry, and features automatic stabilization of the samplings through the use of various acids and nitrogen.
In order to ensure the optimal dosage, there is no preset-amount, but rather each sample is given the exact volume of acid required by high-precision dosing pumps.

Further, evaporation from the sample containers is minimized.



Sampling of Abrasive Cleaning Agent

Specialized Quartz-Kaolinite Sampling Unit

Utilizing a regular INLINEcut, this sampling unit is used to sample a cleaning agent containing abrasive particles.
With cleaning agent specimens provided by the client, WaterSam was able to test the system for weeks prior to its commissioning, during which it functioned flawlessly.

A sample can be extracted from the pipe with the WS INLINEcut without any excess sample medium to dispose of.

Sampler with Three External Water Switch Systems

Special Requirements for River Surveillance

A pumping station for river surveillance features this sampler.

Thanks to the special water switch design, samples can be drawn from three separate pressurized water pipes.

Sampling Systems

Sampling from Open Channels

VAC Vacuum System for Fixed Sample Volume

Suitable for clean to very dirty water/wastewater,
optionally pure/ultrapure water;
for time-, volume- and event-proportional sampling.

Fixed sample volume adjustable from:
12 - 200 ml (WS Porti, WS 312, WS 316 SE)
15 - 350 ml (WS 98, WS 316, larger sample volumes optional)

Metering vessel made of borosilicate glass
(dishwasher-safe; acid-, alkali- and temperature-resistant)

- Highest repeatability
- No recalibration of sample volume necessary, even after cleaning
- No parts to regularly replace, such as with peristaltic pump hoses

VAR Vacuum System for Variable Sample Volume

VAR-B:

Suitable for pure/ultrapure to very dirty water/wastewater;
for time-, volume-, event- and flow-proportional sampling.

Variable sample volume adjustable from:
20 - 250 ml (larger sample volumes optional)

Metering vessel made of borosilicate glass
(dishwasher-safe; acid-, alkali- and temperature-resistant)

- Quick sample volume metering
- Minimizes particle sedimentation
- Restricts the maximum volume drawn
- No cleaning of electrodes
- Simple switchover to fixed sample volume

VAR-E:

Suitable for clean water/wastewater;
for time-, volume-, event- and flow-proportional sampling.

Variable sample volume adjustable from:
20 - 200 ml (larger sampler volumes optional)

Metering vessel made of borosilicate glass
(dishwasher-safe; acid-, alkali- and temperature-resistant)

- Inexpensive and robust
- Simple switchover to fixed sample volume

Sampling with Peristaltic Pump

Suitable for water/wastewater without abrasive contents;
for time-, volume-, event- and flow-proportional sampling.
Variable sample volume adjustable from:
10 - 10000 ml

- Long-lasting pump hose
- Easy replacement of pump hose

Sampling with Continuous Flow Through System

Water Switch Systems

FMWW

Suitable for clean to very dirty water/wastewater,
optionally pure/ultrapure water;
for time-, volume- and event-proportional sampling.
Fixed sample volume adjustable from:
20 - 350 ml

Metering vessel made of borosilicate glass
(dishwasher-safe; acid-, alkali- and temperature-resistant)

- Precise sample volume metering

PRF

Suitable for pure/ultrapure to very dirty water/wastewater;
for time-, volume- and event-proportional sampling.
This system does not use electrodes, and is therefore suitable for sample media with little to no conductivity, as well as very corrosive sample media.
Fixed sample volume adjustable from:
20 - 250 ml
Alternatively for variable volume

Metering vessel made of borosilicate glass
(dishwasher-safe; acid-, alkali- and temperature-resistant)

Sampling Systems

Sampling from Pressurized Lines

Vacuum System with Safety Valve

Suitable for clean to very dirty water/wastewater,
optionally pure/ultrapure water;
for time-, volume- and event-proportional sampling.

Standard VAC system supplemented by an additional safety valve for lines with up to 2 bar pressure;
Fixed sample volume adjustable from:
12 - 200 ml (WS Porti, WS 312, WS 316 SE)
15 - 350 ml (WS 98, WS 316, larger sample volumes optional)

Metering vessel made of borosilicate glass
(dishwasher-safe; acid-, alkali- and temperature-resistant)

- No recalibration of sample volume necessary, even after cleaning

WS INLINEcut®

Suitable for pure/ultrapure to very dirty water/wastewater,
sludge and oily substances;
for time-, volume- and event-proportional sampling.

Purely pneumatically-operated plunger system with fixed sample volume for lines with up to 10 bar pressure;
Fixed sample volume:
20 / 36 / 54 ml

The WS INLINEcut can be operated either by a WaterSam controller or by an existing PLC or other control system on site.
Simple manual operation by means of a pneumatic switch or button eliminates the need for an automatic controller.

- NO excess sample medium to drain
- Optionally with ATEX Certification:
  II2GcT4 -20°C ≤ Ta ≤ +60°C

WS INLINEvent

Suitable for pure/ultrapure and mechanically-cleaned water/wastewater without abrasive contents;
for time-, volume- and event-proportional sampling.

Extracts samples from lines with up to 6 bar pressure,
optional special design allows sampling from lines with up to 100 bar pressure;
Fixed sample volume adjustable from:
20 - 100 ml (larger sample volumes optional)

Sampling from Large Depths

WS VacuPress

Suitable for pure/ultrapure to very dirty water/wastewater;
for time-, volume- and event-proportional sampling.

With this sample lift system, samples can be drawn from depths of up to 30 metres. It is typically used in combination with a standard vacuum sampling system.

Choice of housing material:

- Stainless steel
- PVC
- PPs-el conductive polymer
- Optionally with ATEX Certification:
  II2GcT4 0°C ≤ Ta ≤ +50°C

Double Sampling System

Two Samplers in One!

All sampling systems can also be doubled, which means that if the distance between sampling points is not too great, samples can be taken from **TWO sources with ONE sampler**.
Even two entirely different kinds of sampling systems can be used.

Sampling lines are kept completely separate, thereby eliminating the possibility of cross-contamination or falsification of samples.

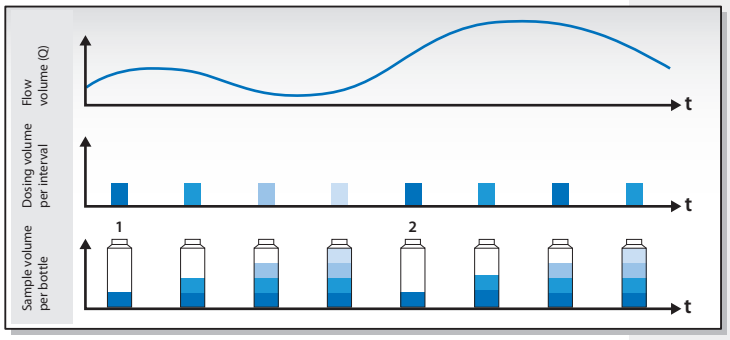
Sampling Systems

Overview

	Stationary				Portable	
	WS 98	**WS 312**	**WS 316**	**WS 316 SE**	**WS Porti 1/12/24**	**WS Porti 1T/12T/24T**
Sampling from open channels						
VAC Vacuum System	■	■	■	■	■	■
VAR-B Vacuum System	■	■*	■	■	—	—
VAR-E Vacuum System	■	■*	■	■	■	■
Peristaltic Pump	■	■	■	■	■	■
Sampling with continuous flow through sampling system						
FMWW Water Switch System	■	■*	■	■*	—	—
PRF Water Switch System	■	■*	■	■*	—	—
Sampling from pressurized lines						
VAC Vacuum System **with Safety Valve**	■	■	■	■	■	■
WS INLINEcut®	■	■	■	■	—	—
WS INLINEvent	■	■*	■	■*	—	—
Sampling from large depths						
WS VacuPress Sample Lift System	■	■	■	■	■	■

■ *Sampler can be equipped with this sampling system*
— *Sampler cannot be equipped with this sampling system*
* *Requires a special housing or external mounting of the sampling system*

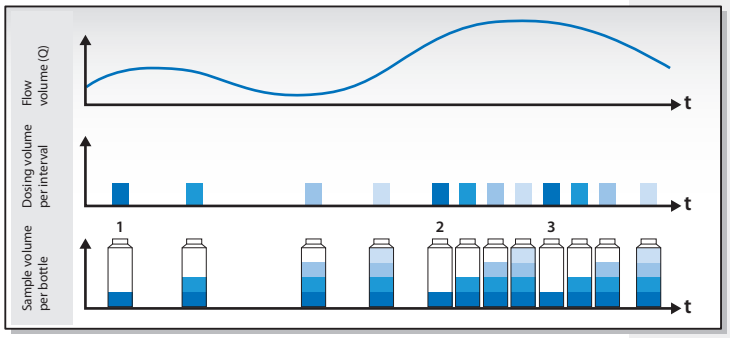
Sampling Modes



Time-Proportional Sampling

- Fixed sample volume at fixed time intervals

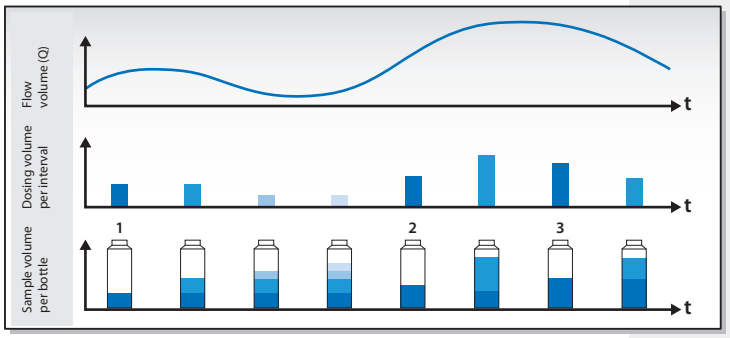
Simple sampling at regular time intervals.



Volume-Proportional Sampling

- Fixed sample volume at variable time intervals

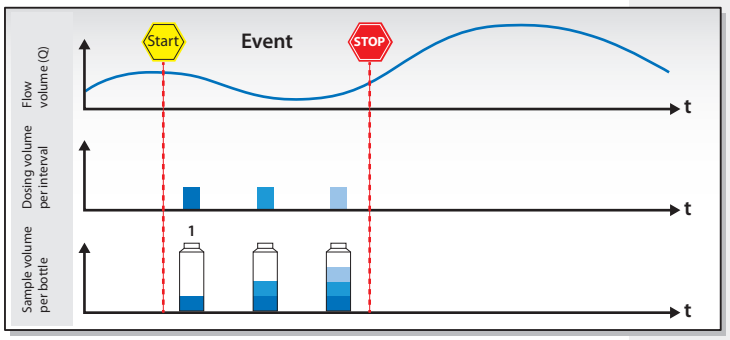
Sampling based on input from a flow meter, with sample volumes remaining constant but time intervals between samples varying according to flow.
It is also possible to combine volume- and time-proportional sampling to moderate extreme fluctuations and prevent samples from being taken too close together (very high flow) or too far apart (very low flow).



Flow-Proportional Sampling

- Variable sample volumes at fixed time intervals

Sampling based on input from a flow meter, with time intervals between samples remaining constant but sample volumes varying according to flow.
Offers representative samples if amount of flow and dirt content fluctuate widely.
In some regions, this sampling mode is mandatory.



Event-Proportional Sampling

Sampling based on input from an on-line measuring device, e.g.: pH sensor.
As long as a pre-defined event is taking place, samples are drawn and handled according to program settings.

Options

High-Performance Pump & Pneumatic Pinch Valve Package

- Even more robust and durable
- Available as option for new sampler, or for retrofitting

With this optional package, a sampler is equipped with two highly durable components:
A high-performance pump with more power for longer suction hose lengths and shorter sampling intervals, with a typical lifespan of approx. 9000 hours or more.
A pneumatically-operated pinch valve which is a complete, robust unit installed in the sampler. It contains a single moving part: a pneumatic piston which closes the silicone hose under the metering glass during sampling operations.

Should it eventually become necessary to replace the pneumatic pinch valve, replacing it is easily done.

Easy Handling Package

- Reduces the time needed to retrieve samples
- Makes the sampler even more service-friendly
- Ideal for operations with alternating personnel
- Available as an option for a new sampler, or for retrofitting

This option is especially well-suited for situations where sampler operation is done by alternating personnel, as no in-depth training is required. Not a single button needs to be pressed because everything occurs automatically; this also reduces the risk of improper operation.

Retrieval of samples as well as performance of maintenance are made significantly easier by the automatic pausing of all running programs when the sample chamber door is opened. The distributor then travels to a preset park position which is freely programmable. The sample bottles can now easily be removed, and any cleaning or maintenance operations can be performed.
When the door is closed, the program is restarted and continues from the current point in time.
If a sampling operation is missed during the pause, it can be taken immediately upon restarting (programmable).
If a program is set to repeat, the sampler monitors whether the samples have actually been retrieved before beginning to refill the bottles. The sampler recognizes when the bottles are full and not to be refilled, thereby preventing the over-filling and cross-contamination of sample bottles.

Selection of Available Options

Cabinet Equipment

- Carriage with castors
- 300 mm tall base (other heights by request)
- Controller panel door, with or without window
- Pull-out drawer for sample containers
- Intake hose through floor or rear wall of sampler
- Expansion for monitoring station
- Interior lighting with door switch
- Door switch for access surveillance
- Installed power socket
- Cylinder locks for doors
- Protection hoods for ventilation slits
- Connection flange for external air supply hose for refrigeration unit

Technical Equipment

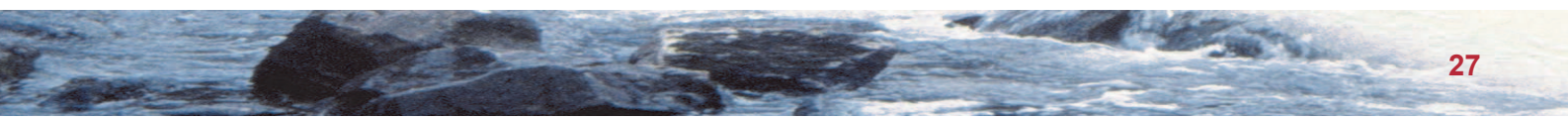
- Main power switch
- Connection sockets
- Residual-current circuit breaker
- Various vacuum pumps
- Peristaltic pump
- Rotating distributor
- Data logger
  (For saving sampling data, and monitoring data from internal measuring instruments and/or external on-line sensors)
- “High-Performance Pump and Pneumatic Pinch Valve” package
- “Easy Handling” package
- “B-Package” for corrosive media / environment
- Heavy-duty refrigeration unit for ambient temperatures up to +55°C
- Inlet hose heating

Communication

- GSM modem, remote operation, SMS and program start via mobile telephone, complete access to sampler software via PC / laptop
- RS-232, RS-485, TCP/IP, USB Host, Mini USB Port Slave
- Modbus, optional Profibus DP
- Signal relays:
  - ⇒ General error alarm
  - ⇒ Bottle changed
  - ⇒ Sample taken (signal for every sampling)
  - ⇒ Program started
  - ⇒ Program stopped
  - ⇒ Return of voltage after power failure

Sampling System Components

- Conforming of materials for the sampling line (intake hose, sampling system, distributor hose, sample bottles)
  Possible alternative materials include for e.g.: PTFE, PVDF, FPM.
- Metering vessels with various volumes (200, 350, 500, 750, 1000 ml)
- Numerous sample containers with a variety of capacities and materials.
- Drain position and rinsing with clean water
- Positioning jig for intake hose
- Sieve nozzle





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