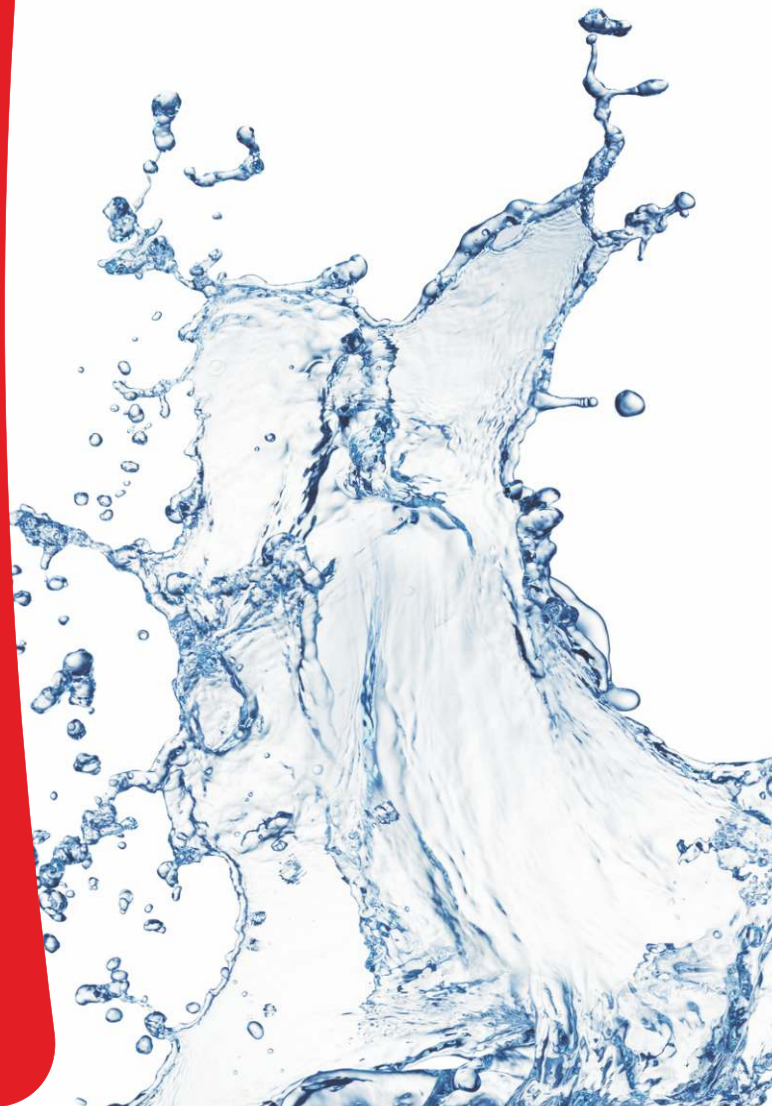
MAXX®

Mess- und Probenahmetechnik GmbH

Excellent Sampling for a Better Environment



Innovation Made in Germany –
from the First Draft to the Final Product …

top innovator 2016

UMWELT TECHNIKPREIS BADEN-WÜRTTEMBERG 2019
2. PLATZ
KATEGORIE 4
MESS-, STEUER- & REGELTECHNIK, INDUSTRIE 4.0

MAXX®

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Excellent sampling for a better environment – the more difficult the problem, the greater the challenge. MAXX develops and manufactures liquid sampling devices for standard applications, but also for sampling under the most difficult conditions.

Competence
We are competent in all fields: from sampling up to the networking of units, data acquisition, data transfer and further processing. We are certified according to ISO 9001:2015. Quality is our leading principle as only satisfied customers will recommend us. A big part of our succes is based on the reliability of our devices.

Flexibility and Innovation
Flexibility, speed and innovation are our strengths. Especially when sampling for industrial wastewater and product liquids each sampling point is different. Often with difficult ingredients, under high pressure, high temperatures and perhaps explosive danger. Such sophisticated solutions can be developed by MAXX quickly, creatively and economically

Teamwork and Motivation
This can only happen if the decision paths are short and direct. Both are guaranteed at MAXX. The company is financially independent and the two owners can take decisions without the involvement of third parties. There is an open information culture, involving all affected employees as early as possible in new developments. This creates a high potential for motivation.

International and Diverse – our Project References

Germany / Pesticide Sampler – awarded with the Environmental Technology Award of Baden-Württemberg
The device was developed on behalf of the Federal Environment Agency and in cooperation with the Center for Environmental Research UFZ Helmholtz in Leipzig for event-triggered automatic water sampling in agriculture areas. The task is, to find out how much the runoff water of these areas is loaded by pesticides etc. after heavy rain events.

This sampler represents a new, unique combination of particle sampling, liquid sampling and large-volume-solid-phase extraction (LVSPE). Although the unit is battery driven, it can handle long stand-by-times of several months and even cool the liquid sample after collection. The device is activated by a height-dependent trigger unit. It is almost tamper proof and equipped with a GPS-tracker with a tilt switch, which notifies you, when the device is knocked over or taken away. A SMS unit informs automatically when a rain event happened and the sampling program has been started.

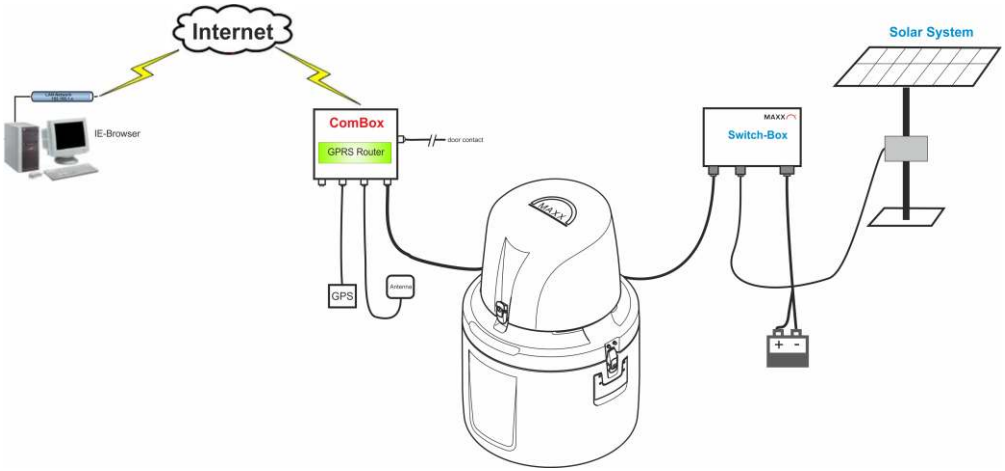
MINI MAXX

Denmark / Covid-Sampling
for a covid-early-warning-system in the city-area of Copenhagen 30 P6-MiniMAXX with vacuum system have been purchased. The samples from separate city-districts are collected on a daily basis, and analysed in the laboratory to be aware of possible new Covid-hotspots in advance and therefore gain the possibility to adopt protective measures.

Singapur / Covid-Sampling
for a COVID-early warning system the NEA (NatinalEnvironmentalAgency) supplied 100 portable samplers P6L with a vacuum system in a special version.

Special features: Double pump system für 8.5 metres suction height, solar-switch-box to use with a solar-panel in combination with a unit battery, ComBox with GPS-tracking and position data and GPRS remote function.

All units are connected to a central server with a customer-specified MQTT-protocol and can therefore be monitored centrally. All data are completely available at any time for analysis and evaluation.



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Germany / Monitoring-container
The visually neutral container can be used at any desired location for a longer period, it is equipped with a battery-driven emergency-power for monitoring-purposes.Inside of the container is a sampler with a special trigger-unit for a reliable water detection even with low water-levels. No further installations are needed in the sewer.

Power Booster System
Maxx is the only company worldwide able to take water samples with a vacuum-system from a suction depth of more than 20 metres with a patented system. Alternatively, this is only possible with pressure-pumps or pressure-systems.

These systems easily wear out and are therefore cost-intensive and have to be installed close to the sampling point. Furthermore, such pump-systems usually have to be maintained regularly. With the Maxx-system only a hose to the suction-point is needed.

São Paulo, Brazil

In Brazil we successfully contributed to the establishment of a water quality measuring net in the State of São Paulo – from the planningup to the putting into service of up to now 14 container stations. For this difficult project MAXX supplied the whole sampling technique as well as the complete systems for data collection, data storage, data transfer and data administration.

Leather industry in the North of Italy

MAXX supplied devices for a very special requirement on the sampling technique: the sample extraction under changing pressure/vacuum conditions, a very problematic waste water and extensive demands on the software.

Federal Agency for Hydrology in Coblenz

The Federal Agency for Hydrology (BfG) decided to buy special units from MAXX in order to renew the measuring and sampling network all over Germany. Devices with high technical demands, 36 bottles (each with a volume of 2,5 l), XY-distributor, remote control by means of a modem, automatic data collection etc.

Chemical Industry

One of the biggest chemical companies in Europe decided to use the MAXX sampling technique. Samplers with ceramic slides which almost withstand everything: pressure, high temperatures, abrasive material, acids ...

Water Quality Agency in Worms

For monitoring of the river Rhine we supplied MAXX self-emptying samplers to the state office to replace Bühler stations which were placed out of service.

Food Industry in the South of Italy

We have designed and supplied devices for the governmental monitoring of industrial companies in the region of Naples which enabled the Federal Authorities to control the factories round the clock with only a minimal need of personnel.

Petrochemical Industry

To meet the severe safety requirements for devices installed in the petrochemical industry, we designed automatic samplers without any electric components.

One of our Strengths – Project Business

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Since the foundation of the company we intensively have taken care of the special wishes of our customers. The more difficult the task, the bigger the challenge to find the best solution. Some examples:

Technical requirements
Devices for river monitoring with 36 bottles. With additional function keys for special functions and XY-Distributor. Data fetch and parameterization is effected via remote function with modem. With a Special software for easy data management.

Technical requirements
The sampler had to have 4 x 60 l containers. There had to be two telescopic drawers, each with two containers. To empty the containers, they had to have a discharge valve. The samples should be extracted from two different sewers by means of separate sampling systems and a parallel dosing into the containers

Technical requirements
For a hydrocyclone test facility the control unit with the respective software should be built according to the customer´s specifications. In the framework of a research series this unit was needed to find out which substances can be separated under which conditions

Technical requirements
Sample extraction from a pressurised line. As the extraction point is in explosive atmosphere every component on site has to be explosion-proof. The control unit can be installed at a distance of 20 m in the non-hazardous area. The sample has to be filled in two bottles.

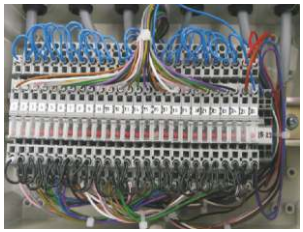
Technical requirements
Sampling from a pressurised line filled with rape oil, pressure 4 bar, temp. 60° C. Air must not enter the pressurised line. Sampling system and distributor are in the hazardous area.

One of our Strengths – Project Business

> Chlorine/hydrochloric acid sampler

> CHC sampler

Technical requirements



> Sampling with gentle sample extraction and hermetically sealed sample storage in order to identify solvent residues (volatile substances) in water
> Sampling by means of a peristaltic pump
> Only inert materials are used (glass, PTFE (Teflon), PVDF)
> Thanks to fast plug-in couplings the sample containers can be easily removed for further analysis

Technical requirements

> Sampler with self-emptying function and 7 x 5 l bottles
> The sampler is installed in a chlorine plant and thus only special materials like PTFE (Teflon) PVDF and silicone can be used
> The device has two separate GRP cabinets. The top part as well as the distributor drive were supplied with compressed air so that the components are protected against an aggressive atmosphere

Technical requirements

> Sampling device with 6 x 20 l bottles, XY-distributor
> Glass metering vessel, housing made of V4A stainless steel, coated refrigerating machine and sample bottles placed on a telescopic drawer
> To monitor and record the interior temperature there is an additional temperature measurement inside the bottle compartment

Technical requirements

> Sampler with self-emptying function, rinsing and 7 x 5 l bottles
> Samples have to be extracted from a circular pipeline and under exclusion of air
> Permitted materials are only PTFE (Teflon) and PVDF
> Sample dosing is effected per bottle by means of a little metering vessel with overflow
> Via a valve the sample medium flows from the circular pipeline into one of the metering vessels until the water level reaches the overflow and thus defines the sample volume. The sample is drained into the assigned bottle by means of a further valve.

Our Dosing Systems

Vacuum system

a) Plastic dosing vessel
b) Glass dosing vessel

Probably the most common system in Europe, The sample is extracted by means of a vacuum, that means the liquid is sucked up through the sample hose and led into a metering vessel in which the sample volume is adjusted.

Advantages:

> Very reliable
> Well–proven system since thousand systems in use
> With purge cycle
> Gentle samle extraction
> Almost no wear
> Low operation expenses

Disadvantages:

> Stripping effect
> Max. 8,5 m suction height

Var vacuum system with automatic volume adjustment

Like the standard vacuum system, however, with automatic adjustment of the sample volume. This system is of interest if samples shall be taken flow-proportional with a fixed interval.

With this system it is possible to monitor changes in water quality even at low flow rates as in standard flow-proportional sampling the sampling intervals are very long. With the new developed measuring tube system (registered design) a high, reproducible dosing accuracy is possible.

Our Dosing Systems

Flow-through-system

This is a sampling system similar to the water switch. The advantage is, high volume accuracy, as the sample volume is metered before releasing to the sample bottle (range = 3–20l/min).

Advantages:

> Suitabable for variable inflow
> Also applicable with pressurised lines
> High dosing accuracy
> Low maintenance

Disadvantages:

> Only applicable at free inflow
> Limited flow (max. 3-20 l/min)

Peristaltic pump

Probably worldwide the most common system. The use of a peristaltic pump is technically the easiest way to pump sample liquid. Just by changing the rotating direction of the pump there is a purge and a suction cycle without the need of any additional parts like valves etc.

Advantages:

> Simple construction
> Well-proven since thousands of units in use
> Almost no wear parts
> Flow-dependent sampling is possible

Disadvantages:

> Increased wear if solids are in pump
> Higher operation expenses
> Pump capacity is influenced by hose again and temperature variations

Our Dosing Systems

Double valve system for pressurised lines

System for sampling from pressurised lines for sample medium with high solids content (sludge). Both ball valves are normally closed. For taking a sample the valve which is next to the pressure line opens and the tube between the valves is being filled with water. After that the valve closes again and the other opens and the sample can flow out into the sampling bottle.

Advantages:

> Working like a standard Vacuum-Sampler. Because of pre- and post-purge of the connection-line between pressurized line and sampling-device the »dead-volume« is almost zero.
> No Level Electrodes, thus the system can work even with oil or other liquids with low conductivity.
> Available either as a wall mounted version or even with stainlessd steel housing with cooling and distributor for multiple bottles.
> Working pressure up to 25 bar

Disadvantages

> Only fix sampling volume

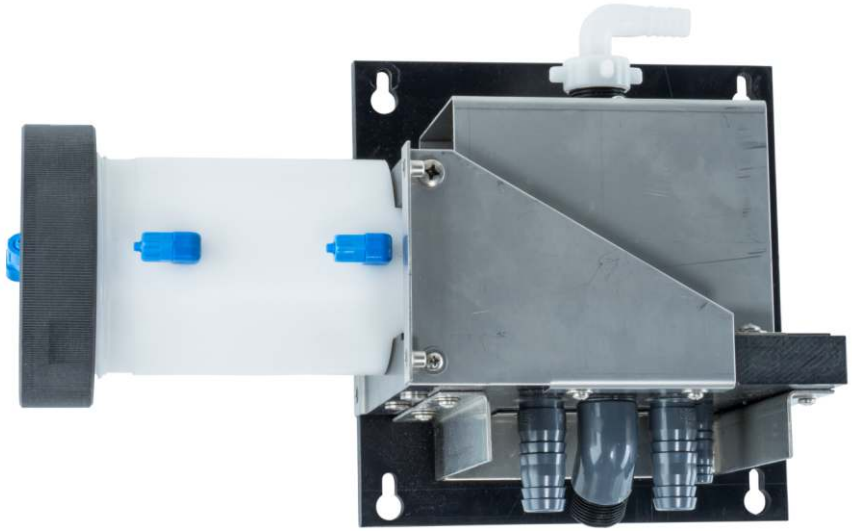
Ceramic slide

A special system for problematic liquids (liquids with abrasive content, acids or harmful liquids).

This is a closed flow-through system.

To extract a sample, the ceramic slide cuts a certain volume – e.g. 20 ml – out of the flow and fills it into the sample bottle.

Even for pressure-lines up to 3 bar.



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