

Unattended, Representative Sampling For a Wide Range of Chemical Reactions



Sampling chemical reactions for offline analysis to determine reaction progress or impurity profiles is standard practice. However, the manual process is challenging when sampling air-sensitive reactions, reactions at elevated pressure, or from heterogeneous mixtures.

What Is Automated Sampling?

Automated sampling enables increased productivity by addressing challenges associated with manual sampling tools such as pipettes and syringes. Automated sampling with EasySampler is the intuitive and seamless extension that streamlines the experimental workflow for every chemist while liberating personnel from the tedium of manual sampling.

EasySampler is an automated and unattended sampling solution – delivering high-quality samples day and night for standard offline analysis, such as HPLC. This unique, patented probe-based technology has a micro-pocket, which:

- Samples and quenches in-situ and at reaction conditions
- Takes samples at scheduled intervals
- Dilutes the sample in preparation for offline analysis

Why Automate Sampling For Chemical Reactions?



HPLC-Ready Samples Around the Clock – Increased Productivity and Understanding

The obligations of the workday (or night) often do not allow sampling of reactions as often as required. This leads to lost or missing data. Frequently, these missing data points omit optimum end-point and important understanding of impurity formation. EasySampler executes representative and reproducible sampling including in-situ quench and dilution – providing HPLC-ready samples at any time.

Automated sampling with EasySampler enables scientists to optimize their workflow and productivity by enabling increased reaction understanding while eliminating tedious manual sample practices.



Truly Representative Reaction Progression – Eliminate Critical Data Gaps

EasySampler's intuitive touchscreen allows scientists to preprogram sampling and dilution sequences to track reaction progression over time – without manual intervention. This allows every scientist to reproducibly capture a representative sample for offline analysis such as HPLC or NMR to understand reaction pathways, kinetics, intermediates and impurity profiles.

Automated sampling with EasySampler can be used in round bottom flasks, jacketed lab reactors or seamlessly integrated with automated chemical reactors, such as EasyMax and OptiMax. This allows straightforward identification of the impact of varying process conditions on reaction performance.



Sample Challenging Reactions – From Slurries to Elevated Temperature

Manual sampling does not always provide precise and reproducible samples, especially in heterogeneous and multiphase reactions or reactions at sub-ambient or elevated temperatures and pressures. Delays in quenching typically lead to variable results and inaccurate analytical information. EasySampler provides an automated and robust inline method of capturing and quenching samples from reactions – even under difficult conditions.

The flexible nature of EasySampler allows scientists to obtain high-quality samples from a variety of processes from vial- to kilo-scale equipment including pressure vessels.



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EasySampler Filter Kit – EasyFrit

EasyFrit turns EasySampler into a selective solution phase sampling tool for data-rich collection throughout a controlled crystallization. A unique self-flushing mechanism prevents surface fouling and allows unattended sampling over an elongated period under reaction conditions at scale.



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EasySampler Connectivity Kit

The EasySampler Connectivity Kit integrates EasySampler with EasyMax™ Advanced, OptiMax™, and RX-10™. Sampling information is automatically combined and reported with the reactor experiment conditions via the touchscreen or iControl™ software.



Recommended Accessories and Consumables

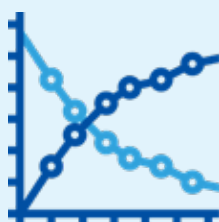
30100528	Sleeve complete, PTFE, Alloy C-22
30629521	10 mL vial including screw cap, 100/pk
30629522	10 mL vial including screw cap, 1000/pk
30040993	EasySampler 10 mL rack, PP
30312353	EasySampler 12 x 10 mL vial plate
30306036	Tube set probe 450, PEEK fittings
30246342	Tube set probe 330, PEEK fittings
30247094	Tube set probe 210, PEEK fittings
30246341	PTFE tube set to solvents, PEEK fittings
30246340	PTFE tube set for EasySampler 1210, PEEK fittings
30041011	Needle, stainless steel

Increase Productivity



Pre-program the unattended collection of precision samples, day or night. EasySampler ensures that high-quality samples are captured even if you are too busy to be in the lab.

Never Miss a Reaction Event



Automated and unattended sampling helps you thoroughly understand and define reaction pathways, kinetics, impurity profiles, and endpoints.

Representative and Reproducible



Sample and quench at reaction conditions – even when manual sampling is impossible or very difficult due to challenging conditions.

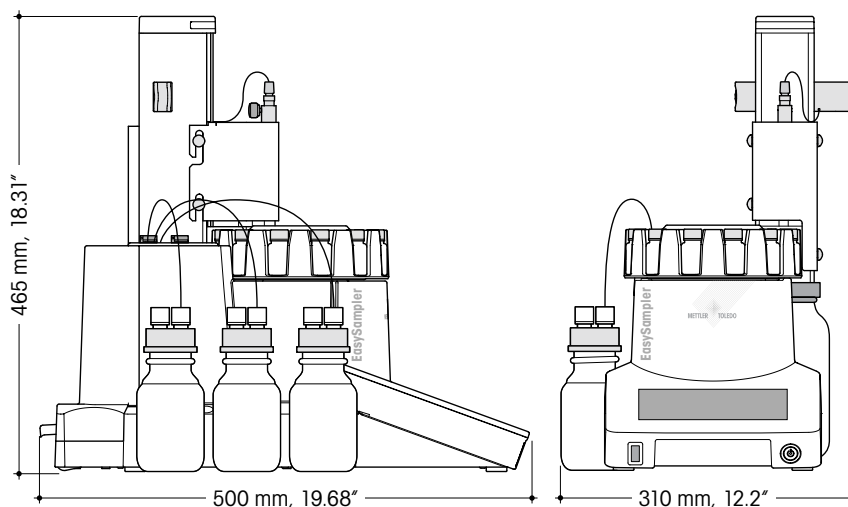
Unattended, Representative Sampling

For a Wide Range of Chemical Reactions

Technical Data

EasySampler 1210 System

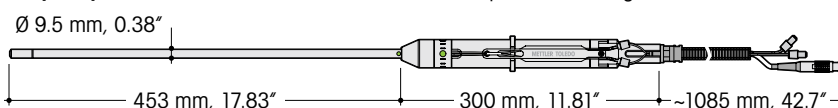
Materials	Housing: Polypropylene PP 30% Talcum Tubing: PTFE Needle: Stainless steel Valve: Ceramic Pump: Ceramic, PTFE
Power Connection	100 V – 240 V 50 Hz/60 Hz
User Interface	METTLER TOLEDO touchscreen
Weight	9 kg, 20 lbs
Vials	10 mL, borosilicate glass
Rack	12 x 10 mL vials



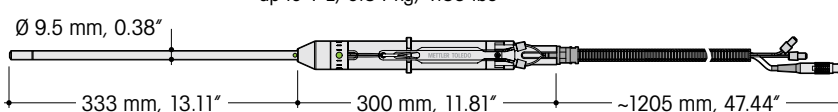
EasySampler Probes

Materials	Wetted parts: Alloy C-22, PTFE Non-wetted parts: Anodized aluminum, stainless steel
Pocket Size	20 µL ± 10%
Temperature Range	-20 °C to 140 °C at ambient pressure, up to 100 samples per sleeve
Pressure Range and Conditions	1.013 bar to 10 bar, 14.7 psi to 145 psi Temperature range: 20 °C to 100 °C Maximum reactor volume: 2.5 L 1 sleeve per reaction (maximum 24 samples per reaction)
pH	1 to 14
Minimum Sampling Interval	2 min 52 sec

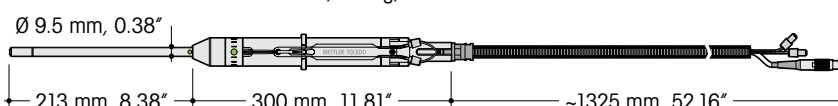
EasySampler Probe 450 – for RC1 and other reactors up to 6 L, 0.88 kg, 1.94 lbs



EasySampler Probe 330 – for EasyMax 102 and 402, OptiMax, RC1, and other reactors up to 1 L, 0.84 kg, 1.85 lbs



EasySampler Probe 210 – for EasyMax 102 and 402 using reactors from 10 mL up to 400 mL, 0.8 kg, 1.76 lbs



EasySampler Filter – EasyFrit

Materials	Alloy C-22/276, FEP
Dimensions	Length 47 mm, Ø 14.2 mm
Filter Pore Size	10 µm
Temperature Range	-20 °C to 140 °C at ambient pressure
pH	1 to 14

www.mt.com/EasySampler

For more information

METTLER TOLEDO Group

Automated Reactors and In-situ Analysis
Local contact: www.mt.com/contacts

Subject to technical changes
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