# LPS – Lab Productivity Systems

## Xsample 340

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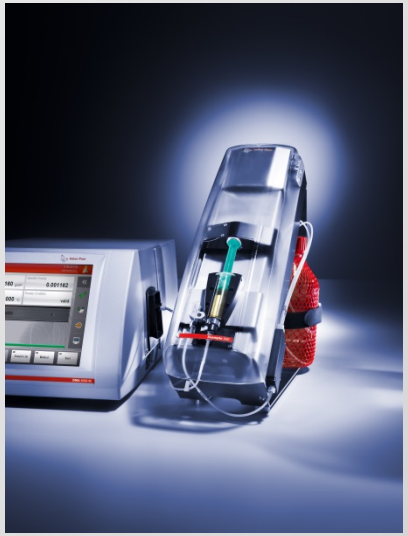
Automation… what for?

# QUALITY AND PRODUCTIVITY MATTERS

# Why do automation in labs?

- **Reduce costs per measurement…**
  - Lab staff can do more important things than sample handling
  - Automated measurement even of high-viscous samples


- **Reduce handling errors and increase uptime of instruments…**
  - User independent filling of master instrument
  - Automated cleaning with pre-defined workflows



A first look at the instrument

# ONE DEVICE – DIFFERENT SYRINGES

# Features…

- Automated filling with syringes
- Active cleaning with 2 rinsing agents
- Force sensor to adjust filling speed
- User-independent repeatability
- Time savings at high-viscous samples due to automation

**WELL DONE BUT …**

# USP…

- **Adapters for your favorite syringes**
  - 2 mL Braun syringes
  - 5 mL Braun syringes
  - 10 mL Braun syringes
  - 5 mL ILS glass syringes

  … by a simple exchange of an adapter

- **Outstanding robustness**

  … trouble free operation under harsh conditions

Where can these features be used.

# APPLICATIONS

# Application in which…

- Syringe is the preferred consumable
- Automatic rinsing and drying is needed (cleaning module)
- Less samples per day need to be measured
- High-viscous samples are filled into the measuring system

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What can the Xsample 340 be used for.

# PETROLEUM INDUSTRY
# FOOD INDUSTRY
# PHARMACEUTICAL INDUSTRY

# Special challenges for the sampler unit…

- High-viscous samples
- Easy to clean
- Volatile samples
- Harsh conditions
- Easy retrofit of systems

**Our solution…**

# High-viscous samples…

*Do I need to set the filling speed to a certain value to get high-viscous sample filled?*

## Force sensor controlled filling:

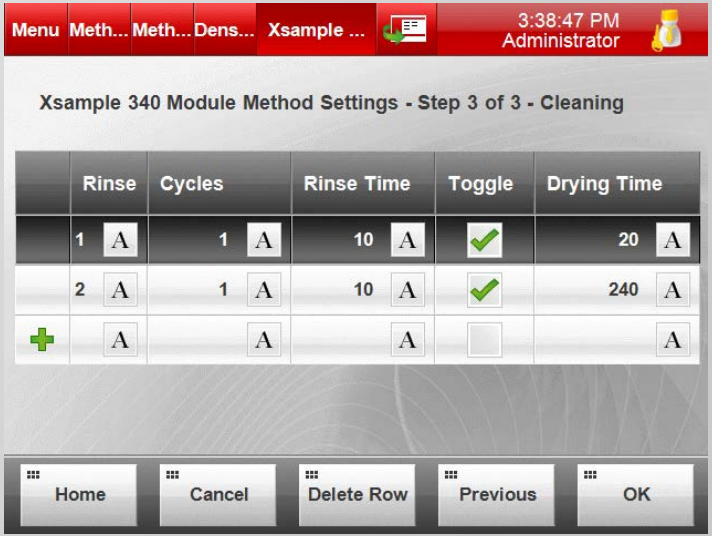
- No, because the system automatically adjusts the speed to the maximum allowed level.
  The force-controlled movement of the pusher prevents excess pressure in the system and ensures smooth filling.

# Easy to clean…

*Do I need to get in contact with cleaning agents after each measurement?*

## Easy automated cleaning:

- The whole system is cleaned with up to two different cleaning agents, then dried automatically. Once the cleaning agents are filled and in place the cleaning procedure can be started. No further contact to the agent is needed.

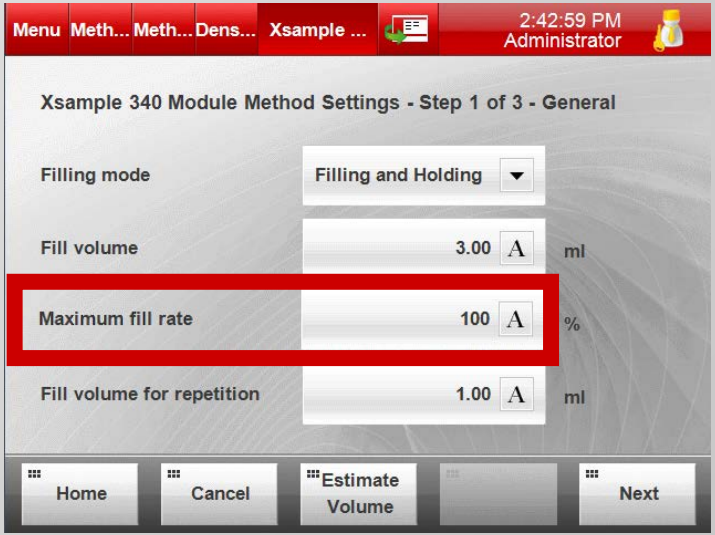


# Volatile samples…

*What if a sample is low-viscous and highly volatile?*

## Freely adjustable filling speed:

- For certain applications it is necessary to inject the sample slowly in the measuring system. By decreasing the fill rate filling errors can be prevented. The filling speed can be set easily.



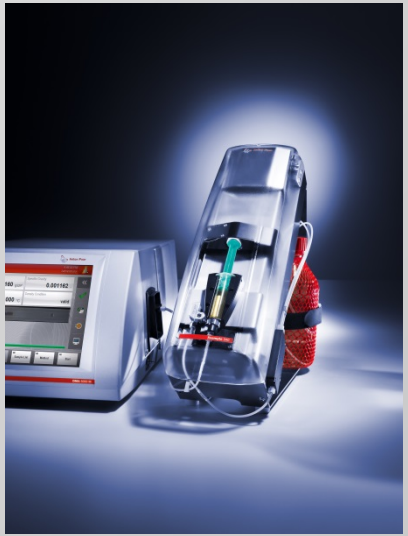
# Harsh conditions…

*Are there any special requirements to environmental conditions?*

## Developed for robustness:

- trouble-free operation are guaranteed due to the robust and streamlined design
- Wetted parts made of high performance materials to ensure reliable operation
- Valves proven in life science and chemical industry with highest chemical compatibility

… it can deal with almost everything.



# Easy to retrofit…

*Do I need to buy a new instrument when I want to automate my workflow?*

## Plug and play design:

- Connection to the master instrument via CAN cable is needed
- No additional housing for a module e.g. Lovis is needed any longer
- Small footprint as the unit can be placed beside or above the master instrument

... easy installation is garanted.

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More about specifications.

# FACTS & FIGURES

# Specifications

| | |
|---|---|
| **Viscosity range** | 36.000 mPa.s at ambient and measuring temperature |
| **Supported syringes** | 2 mL Luer plastic for sample viscosity up to 36,000 mPa.s<br>5 mL Luer plastic for sample viscosity up to 10,000 mPa.s<br>10 mL Luer plastic for sample viscosity up to 9,000 mPa.s<br>5 mL glass for sample viscosity up to 10,000 mPa.s |
| **Filling mode** | Pressure applied by syringe |
| **Minimum sample volume per measurement** | approx. 3 mL (with master instrument DMA M) |
| **Sample recovery** | not supported |
| **Rinse consumption per cycle** | approx. 7 mL (if rinse time: 10 s) |
| **Compressed air supply (optional)** | 1.80–2.20 bar (26–32 psi) relative external compressed air<br>typically: 2.0 bar (29 psi) relative |

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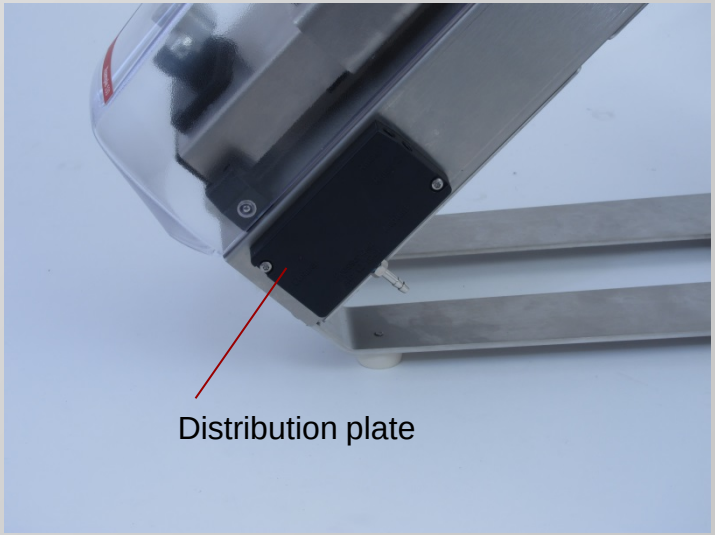
With or without cleaning?

# XSAMPLE 340 – DIFFERENT MODELS

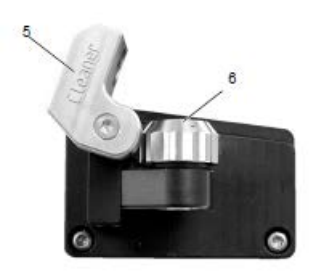
# Two different models

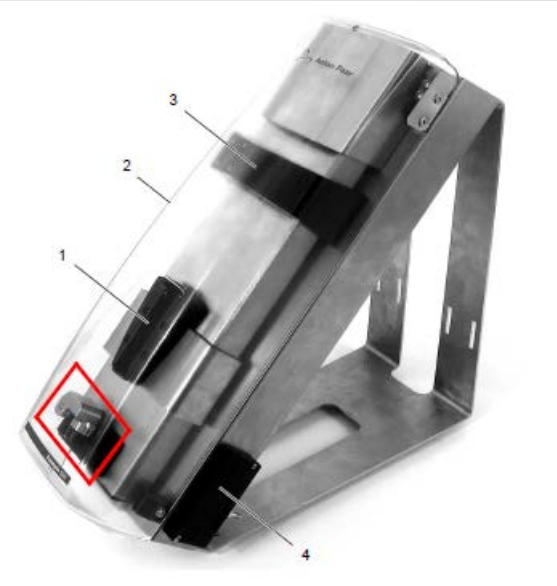
- **Xsample 340**
  → no automated cleaning available

- **Xsample 340 with Cleaning**
  → Distribution plate
  → Cleaner unit



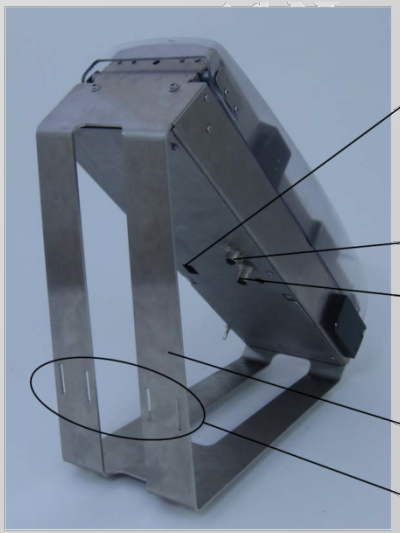
# Xsample 340




1 Syringe adapter
2 Safety cover
3 Pusher drive

4 Distribution plate
5 Cleaner unit
6 Luer adapter



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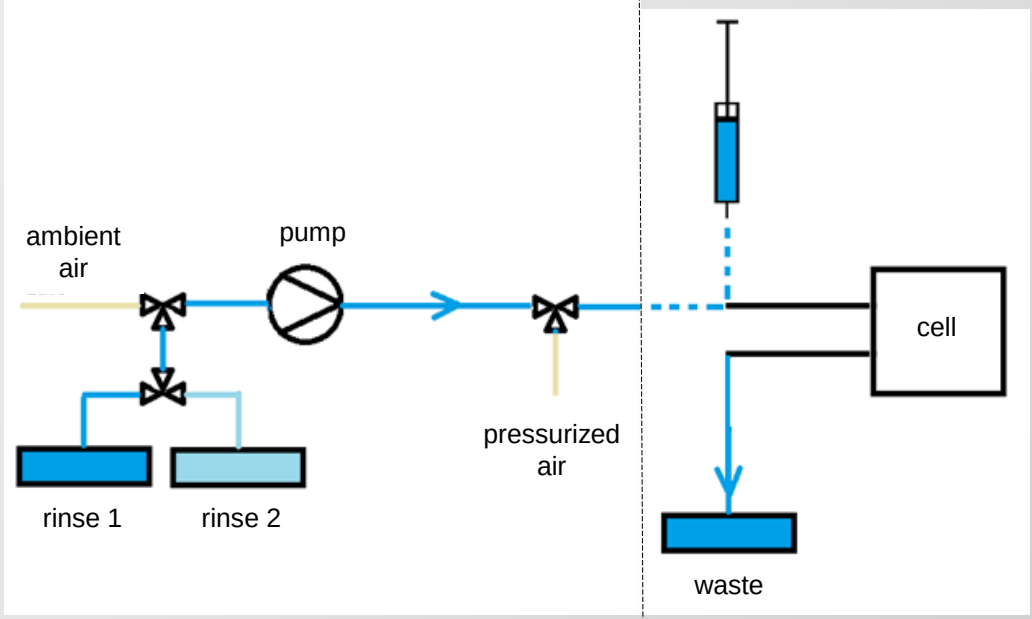
A look into the instrument‘s heart.

# FILLING AND CLEANING PRINCIPLE

# Working principle Xsample 340

… with Cleaning




- Force controlled filling to ensure safe operatio
- Connector for 2 bar external pressurized air
- Diaphragm pump for ambient air and cleaning agents
- Two cleaning agents

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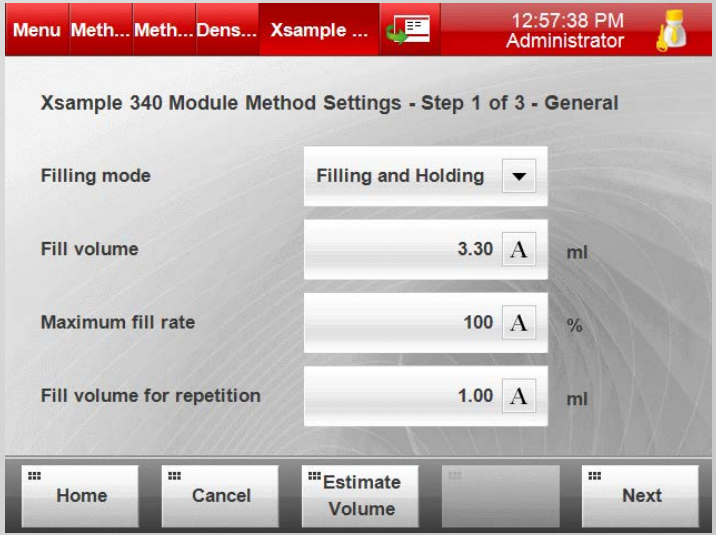
Xsample 340

# SETTINGS

# Xsample settings

## Methode settings:

- Filling mode
  → Filling and holding
  → Filling and releasing
- Fill volume
  → Estimate volume
- Maximum fill rate
- Fill volume for repetition



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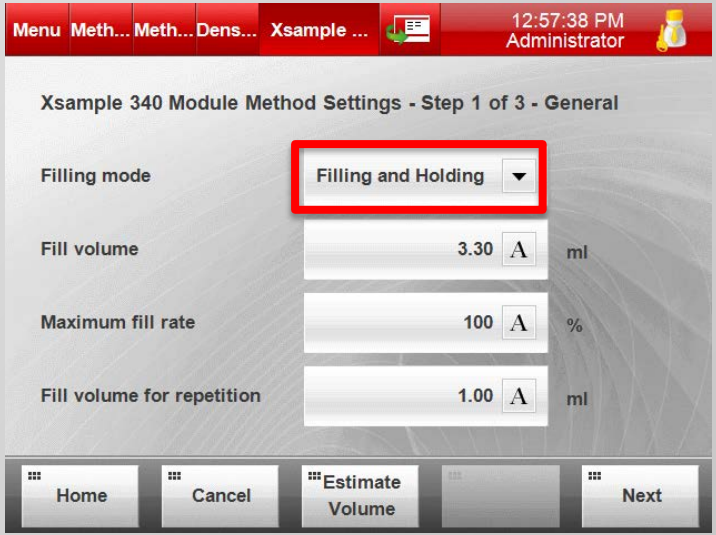
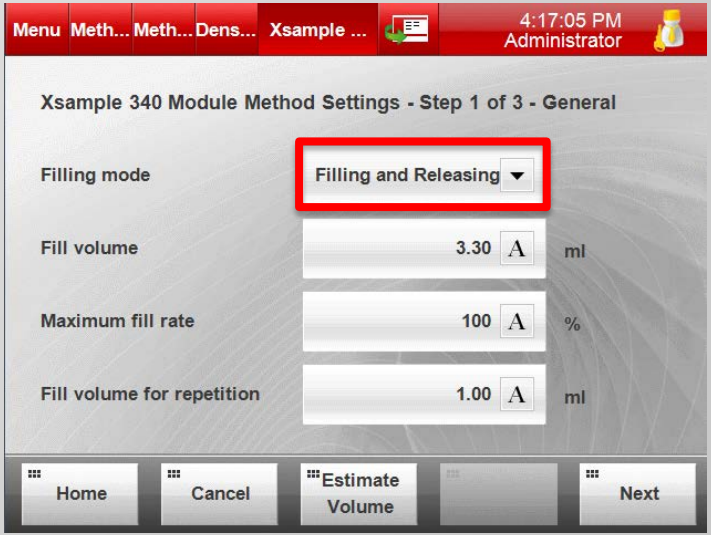
# Filling mode – Filling and Holding:

- This mode keeps force on the plunger during measurement after sample has been filled.



# Filling mode – Filling and Releasing:

- This filling mode releases the force on the plunger after sample has been filled.
  This mode is recommended for high-viscous samples.



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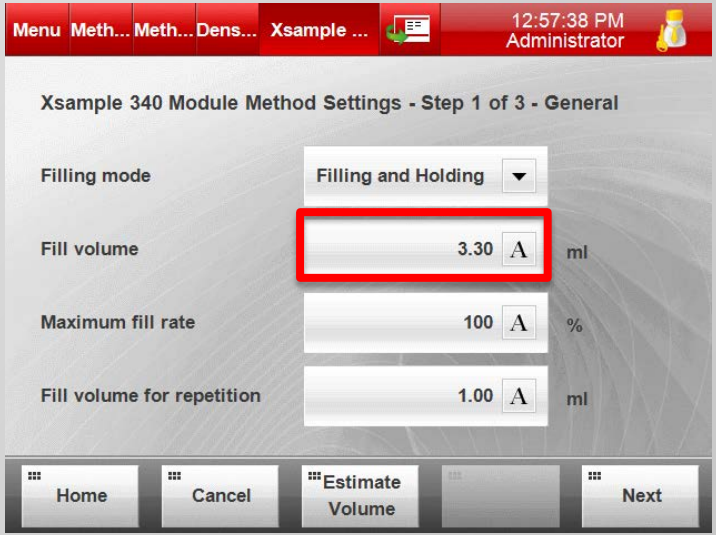
# Fill volume:

- Enter the volume of sample to be filled into your measuring system. The volume will be measured from the first contact of the pressure sensor to the syringe.

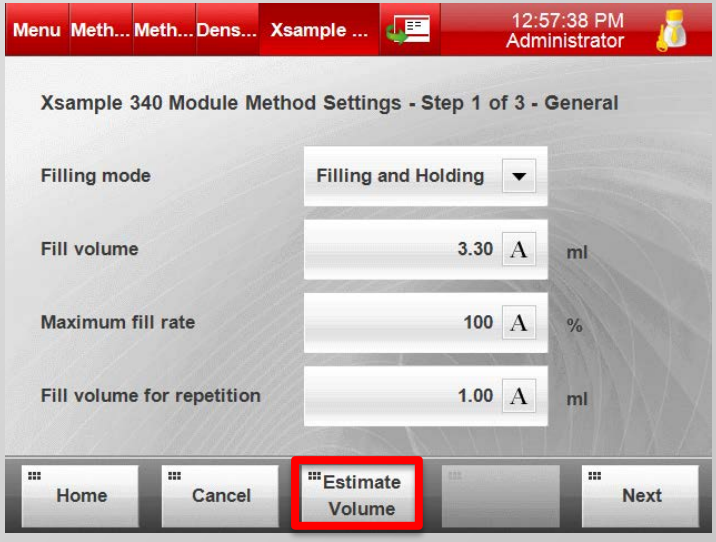
**IMPORTANT:** *Ensure that the entered filling volume corresponds with the volume of the connected measuring system. Otherwise the measuring system is not completely filled.*



# Estimate Volume

- By tapping <Estimate Volume> the master instrument calculates automatically the minimum required sample volume for filling.
  This volume consists of the hose volume leading from Xsample 340 to the inlet of the master instrument and the volume of the measuring cell(s).

**IMPORTANT:** *The hose volume needs to be set to the correct value in the hardware configuration.*



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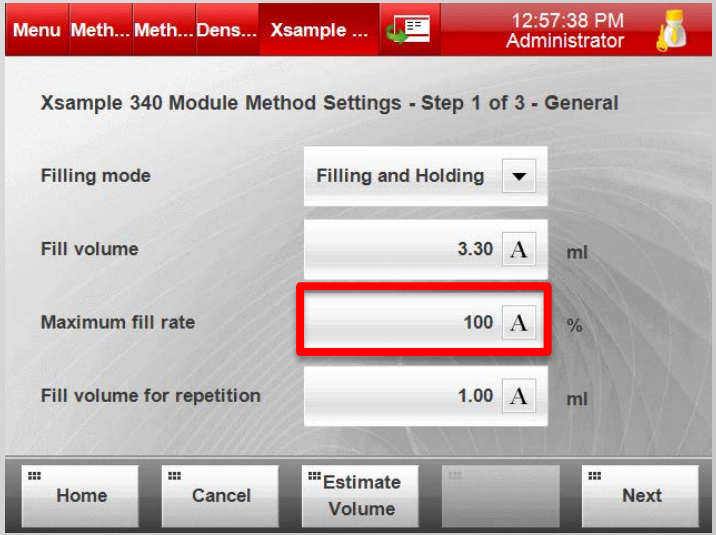
# Maximum fill rate:

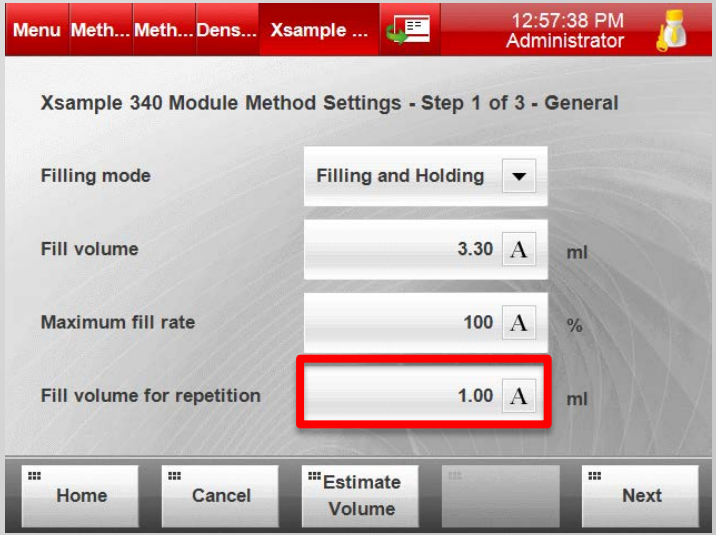
- With this parameter you can set the rate filling volume per time. For certain applications it is necessary to inject the sample slowly in the measuring system. In this case decrease the fill rate.



# Fill volume for repetition

- Xsample 340 performs the requested number of filling procedures by re-squeezing a specified sample volume through the measuring system without cleaning and drying in between.

**IMPORTANT:** *To avoid the syringe being emptied completely (which may lead to erroneous measurements), perform a test measurement .*



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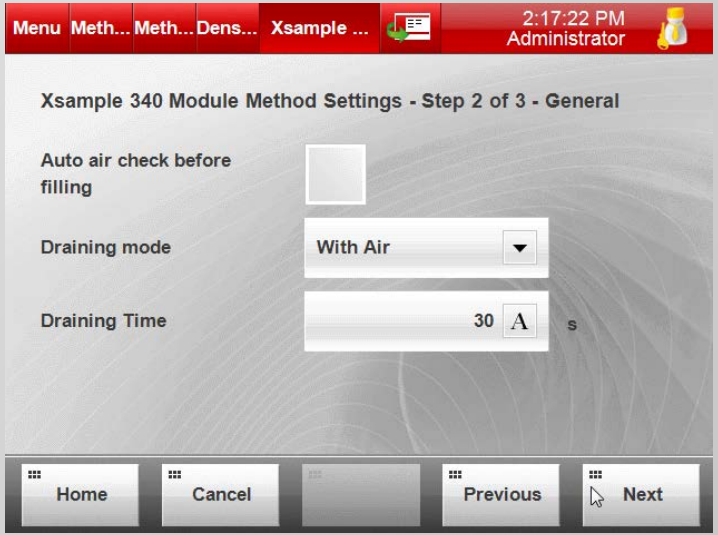
# Methode settings:

- Draining mode
  → With Air
  → With External Compressed Air

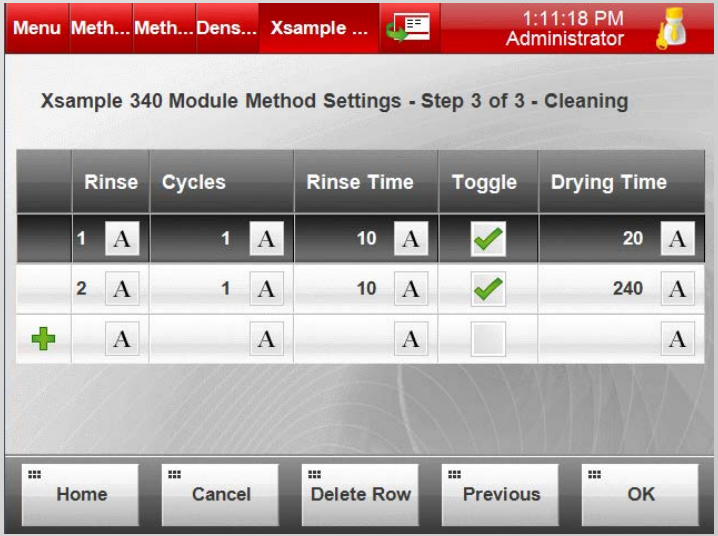
- Draining Time
  It is essential that the sample is drained out completely, before the cleaning procedure with rinsing agent is started.



# Cleaning settings:

- Toggle:
  - Check box is activated:
  During the rinsing procedure small air-liquid sections (air gaps) will be generated in the hose to ensure better cleaning performance.

  - Check box is deactivated:
  Xsample 340 is rinsing the connected measuring system without air-liquid sections.




**Ensure that before cleaning procedure is started, the measuring system is free of sample!**

# THANKS FOR YOUR ATTENTION