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QIAcuity® Nanoplate Priming Plugs (24 × 96) Kit Handbook

QIAcuity Nanoplate filling for automated workflow with Hamilton® STARline™ instrument

Sample to Insight

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Kit Contents

QIAcuity Nanoplate Priming Plugs **Catalog no.** **Number of reactions**	**(24 × 96)** **250088** **24 × 96**
QIAcuity Nanoplate Priming Plugs rack (each rack containing 96 plugs)*	24

* Plugs are designed for single-time use.

Shipping and Storage

The QIAcuity Nanoplate Priming Plugs Kit should be stored at room temperature (15–25°C) upon arrival.

Intended Use

The QIAcuity Nanoplate Priming Plugs Kit is intended to be used only in combination with QIAGEN® kits indicated for use with the QIAcuity system such as QIAcuity Nanoplates and QIAcuity PCR Reagents for the applications described in the respective kit handbooks. The QIAcuity system is developed for use by professional users trained in molecular biological techniques and the operation of the QIAcuity system as well as the Hamilton STARline instrument. The QIAcuity system is intended for molecular biology applications. This product is not intended for the diagnosis, prevention, or treatment of a disease.

All due care and attention should be exercised in the handling of the products. We recommend all users of QIAGEN products to adhere to the NIH guidelines that have been developed for recombinant DNA experiments, or to other applicable guidelines.

Safety Information

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate safety data sheets (SDSs). These are available online in convenient and compact PDF format at **www.qiagen.com/safety**, where you can find, view, and print the SDS for each QIAGEN kit and kit component.

Quality Control

In accordance with QIAGEN's ISO-certified Quality Management System, each lot of QIAcuity Nanoplate Priming Plugs Kit is tested against predetermined specifications to ensure consistent product quality.

Introduction

The QIAcuity is designed as a walk-away instrument that integrates and automates all plate processing steps after the target reagents and master mix have been pipetted into the wells of the QIAcuity Nanoplates and the wells have been closed manually with the QIAcuity Nanoplate Seal. To automate the entire workflow from pipetting into the wells and sealing the plate, the previously described manual workflow described can be modified by integrating a Hamilton STARline instrument. In this automated workflow, the pipetting (optional) and filling of the QIAcuity Nanoplate is done on the Hamilton STARline instrument, followed by an automated sealing of the nanoplate with a seal intended for PCR plate sealing before the nanoplate is transferred to a QIAcuity instrument. Hence, only the rolling of the nanoplates is performed before PCR cycling, imaging, and dPCR analysis on the QIAcuity instrument.

Principle and procedure

The QIAcuity Nanoplate Priming Plugs Kit is used on the Hamilton STARline instrument to allow an off board filling of the QIAcuity Nanoplate microstructure by applying a positive air pressure to the sample input wells carried out by a dispense drive of the Hamilton pipetting head. After filling the microstructures of the nanoplate, the process is finished by applying a standard PCR seal to the QIAcuity Nanoplate. Most plate sealers are suited to seal a QIAcuity Nanoplate. However, it is recommended to test the sealing of a Nanoplate before starting.

Equipment and Reagents to Be Supplied by User

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, consult the appropriate safety data sheets (SDSs), available from the product supplier.

The following items are required for the QIAcuity Nanoplate microstructure filling using the Hamilton STARline instrument work deck. The work deck items must be used if the QIAcuity Nanoplate sealing should be done on Hamilton instrument itself. If a different plate sealer is used for sealing the QIAcuity Nanoplate, it is recommended to test the sealing of the Nanoplate before starting.

Note: Any other operation on the Hamilton STARline instrument like pipetting into the input well of the QIAcuity Nanoplate will require additional dedicated modules:

Table 1. Hamilton work deck items required

Item no.	Item description	Use for	Quantity
180080	Orbit Barcode Scanner	Plug priming rack scanning	1
182085/03	Framed Tip Rack (FTR) Landscape Carrier	50 µL Tips Holder	2*
188307/00	MFX Reagent Tube Block	2 mL tube block holder for Master Mix	1 or 2
188044/00	MFX Stacker	Stacked holder for Nanoplate or sample plates	4*
188039/00	MFX Base 6T	MFX module fixation	4*
191425/00	MFX NTR4 Module	Holder for stacked Priming plug rack	3*
6601987-01	Module, MFX, MTP, Prec-Tab, STD	Holder for sample plates and Nanoplates	10*
93005-01	Hamilton plate sealer†	Nanoplate sealing	1†
10112459	Hamilton plate sealer base plate†	Plate sealer Fixation	1†
10198452	Waste Chute	Plug priming and tips waste chute	1

* The amount of adapters depends on the amount of QIAcuity Nanoplates to be run without human interaction. The method might be adjusted for a lower throughput, to Hamilton STARline instruments with different deck layouts. Contact Hamilton for a detailed discussion.

† Using Hamilton plate sealer unit depends if plate sealing should be automated on the Hamilton STARline instrument itself or if plate sealing is done outside the Hamilton STARline instrument.

Important Notes

- Refer to the *QIAcuity User Manual* for experimental setup for the QIAcuity system.
- QIAcuity Nanoplate Priming Plugs Kit can only be used on a Hamilton STARline instrument.
- To run the QIAcuity Priming Plug method with the QIAcuity Nanoplate 26k 24-well, the Hamilton STARline instrument needs to be taught per plate lot. This is not required for the QIAcuity Nanoplate 8.5k 24-well and QIAcuity Nanoplate 8.5k 96-well.

Experiment Set Up on the QIAcuity Software Suite

Before starting a Nanoplate run, dPCR parameters need to be set up on QIAcuity Software Suite.

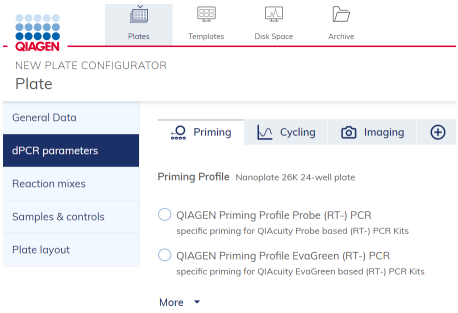
Important points before starting

- Refer to the *QIAcuity User Manual* for experimental setup for the QIAcuity system.
- Set-up experiment on the QIAcuity Software Suite as described in the "Experiment Set Up on the QIAcuity Software Suite" section. Make sure that "No priming" is selected from the Priming Profile options.

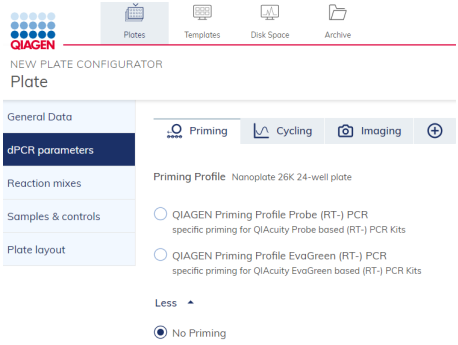
Procedure

1. Open the QIAcuity Software Suite (version 3.1 or higher).
2. From the Plate Overview, click the **New Plate** icon to create a new plate experiment.
3. Enter all required information in the **General Data** tab.

4. Go to **dPCR parameters**:



5. Click the **More** icon.
6. Select “No priming” profile:



7. Enter the desired Cycling and Imaging condition as described in the latest *QIAcuity User Manual*.
8. If required, fill in the **Reaction mixes**, **Samples & controls**, and **Plate layout** tabs as described in the *QIAcuity User Manual*.

Nanoplate Priming and Sealing with Hamilton STAR Instrument

The QIAcuity Digital PCR (dPCR) Priming Plugs enable an off-board filling of the QIAcuity Nanoplate using a Hamilton STARline instrument.

Important points before starting

- The QIAcuity Nanoplate Priming Plugs can only be used on a Hamilton STARline instrument.
- The Hamilton STARline instrument should run with Venus Software 6.3 or higher.
- The Hamilton STARline instrument must have CO-RE II Tip adapters.

Things to do before starting

- Set up the Hamilton STARline instrument work deck according to Table 1.
- Install the respective labware and method files to the Hamilton STARline instrument.

  Note: For setting up the Hamilton STARline instrument as mentioned above, contact Hamilton for further information and support.
- Load the Priming Plug rack onto MFX NTR4 Module with the barcode facing the direction of the Orbit barcode scanner.

  Note: It is recommended to load more racks than actually required because, in case of handling issue with the Priming Plug rack, the instrument can proceed using an additional rack.

Procedure

1. Open the Hamilton STARline Venus software and start the appropriate method. In case the method is not yet available, please contact Hamilton Technical Services. Follow the instructions given during the method execution.
2. Once the QIAcuity Nanoplate is filled, it may be sealed by the integrated Hamilton plate sealer using the standard Hamilton PCR seal (product number 67765-01) or off-board using another plate sealer. If no plate sealer is available, apply the QIAcuity Nanoplate Seal manually. QIAcuity Nanoplate should be sealed within 30 min after priming.

   Note: For a fully automated workflow, reaction mix and template can be pipetted into the QIAcuity Nanoplate by the Hamilton STARline instrument (contact Hamilton Technical Services for further information). If the reaction mix and template are pipetted by a robot into the Nanoplate, the Nanoplate should be primed with the QIAcuity Priming Plug within 2 h.

QIAcuity Digital PCR Run

The last step of the method consists of starting a dPCR run using the pre-filled Nanoplate on QIAcuity instrument.

Important points before starting

- Refer to the *QIAcuity User Manual* for experimental setup for the QIAcuity system.

Procedure

1. Place the Nanoplate in the QIAcuity instrument optionally supported by the Lab Automation API of QIAcuity Software Suite (version 3.1 or higher) and a robotic arm. The primed and sealed Nanoplate should be stored at room temperature for maximum of 4 h until it is placed in QIAcuity instrument and run is started without major delay.
2. Link the plate to the correct QIAcuity Software Suite experiment and press **RUN**.

Troubleshooting Guide

This troubleshooting guide may be helpful in solving any problems that may arise. For more information, see also the Frequently Asked Questions page at our Technical Support Center: **www.qiagen.com/FAQ/FAQList.aspx** (for contact information, visit **www.qiagen.com**).

	Comments and suggestions
The QIAcuity Nanoplate priming plugs rack does not fit into the Hamilton work deck.	Check Table 1 if the work deck item is the one required.
The Hamilton STARline instrument does not detect the barcode of the QIAcuity Nanoplate priming plugs barcode.	Check if the rack barcode label is damaged or dirty. If yes, please contact QIAGEN Technical Support. If no, please contact HAMILTON Technical Services.
The Hamilton STARline instrument does not pick-up one or more QIAcuity Nanoplate priming plug(s).	Contact HAMILTON Technical Services.
The Hamilton STARline instrument retries to pick up one QIAcuity Nanoplate priming plug.	If the QIAcuity Nanoplate priming plug could be picked up after retry, no need to contact any Technical Service; otherwise, contact HAMILTON Technical Services.
The HAMILTON STARline instrument retries to pick up more than one QIAcuity Nanoplate priming plug.	Contact HAMILTON Technical Services.
The QIAcuity instrument does not detect the Nanoplate correctly when placed in the drawer.	Check if the barcode is damaged. If the barcode is not damaged, apply a blue top seal on the transparent one and place the Nanoplate in the drawer.

	Comments and suggestions
The QIAcuity Software Suite shows a systematic filling issue of the QIAcuity Nanoplate in the reference channel.	Check if the correct priming profile was selected on the QIAcuity Software Suite. "No priming" should be selected. If the QIAcuity Nanoplate was pipetted by a Hamilton instrument, please check if the correct volumes have been prepared and transferred to the Nanoplate. Smaller volumes than recommended (see the *QIAcuity User Manual*) will lead to filling issues. Contact Hamilton Technical Services.

Ordering Information

Product	Contents	Cat. no.
QIAcuity Nanoplate Priming Plugs (24 × 96)	QIAcuity Nanoplate Priming Plugs rack (each rack containing 96 plugs)	250088
Related products		
QIAcuity Nanoplate 26k 24-well (10)	24-well dPCR Nanoplate with 26K partitions and 40 µL reaction volume per well, including Nanoplate seals	250001
QIAcuity Nanoplate 8.5k 24-well (10)	24-well dPCR Nanoplate with 8.5K partitions and 12 µL reaction volume per well, including Nanoplate seals	250011
QIAcuity Nanoplate 8.5k 96-well (10)	96-well dPCR Nanoplate with 8.5K partitions and 12 µL reaction volume per well, including Nanoplate seals	250021

Document Revision History

Revision	Description
April 2026	Updated product name to "STARline" and added Waste Chute in Table 1.
July 2025	Initial release

Limited License Agreement for QIAcuity Nanoplate Priming Plugs (24 × 96) Kit

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