

# Attune™ Xenith™ Flow Cytometer

Pub. No. MAN1001200 Rev. A

This guide contains the information needed to prepare your site for the installation of the Attune™ Xenith™ Flow Cytometer (Cat. No. [A59358](#)).

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## Site preparation workflow

**IMPORTANT!** Thermo Fisher Scientific does not install, service, or repair products in area designated BioSafety Level 3 (BSL-3) or BioSafety Level 4 (BSL-4).

A Thermo Fisher Scientific service representative will contact you to schedule the installation. When the installation date is scheduled, perform the following tasks.

Review this guide.



Complete the site preparation checklist  
(see page 2).



Receive and inspect the shipment  
(see page 10).

**IMPORTANT!** Do not unpack shipping containers at this time. The Thermo Fisher Scientific service representatives (or a shipping/logistics partner, where available) will unpack the system and move it to the installation site.

## Installation time and training

After the shipment is unpacked, the installation takes approximately 2 business days.

During and/or after installation, the service representative calibrates the instrument, performs run verification, reviews data, and provides some basic operator training. For additional training and reference information, see the user documents that are provided with the product.


If you ordered the optional IQ/OQ/IPV service, the service representative also performs this service during installation.

## Site preparation checklist

**IMPORTANT!** Complete, date, and initial all items in the following checklist before the scheduled installation date. If the site preparation checklist is not complete when the service representative arrives, the scheduled installation may be postponed.

	Date	Initials	Site preparation requirement	See page
<input type="checkbox"/>			Customer responsibilities have been reviewed.	3
<input type="checkbox"/>			Personnel have been assigned tasks and responsibilities.	
<input type="checkbox"/>			The installation site is identified and meets the following requirements:	4
			<input type="checkbox"/> Space and clearance	6
			<input type="checkbox"/> Environmental	6
			<input type="checkbox"/> Electrical	7
			<input type="checkbox"/> Network	8
			<input type="checkbox"/> Safety	9
<input type="checkbox"/>			If required, antivirus software is available for installation on the computer provided with the product.	9
<input type="checkbox"/>			The shipment was received and inspected as follows:	10
			<input type="checkbox"/> The items shown on the shipping list are the items that were ordered at the time of purchase.	
			<input type="checkbox"/> Damage to shipping containers was reported to the shipping company that delivered the shipment and to your service representative.	
			<input type="checkbox"/> Damage or mishandling was recorded on the shipping documents.	
			<input type="checkbox"/> If provided with the shipment, all consumables are unpacked and stored as specified on package labels.	
<input type="checkbox"/>			The installation site is cleared and ready for the installation.	10
<input type="checkbox"/>			The packaged shipping containers are moved to the installation site.	
<input type="checkbox"/>			All materials for installation, qualification, and operation are available.	10
<input type="checkbox"/>			If provided, the <i>Attune™ Xenith™ Flow Cytometer IT Checklist</i> has been completed and returned according to the instructions in the checklist.	

## Customer responsibilities

Personnel	Responsibilities and tasks to perform before the installation date
Site preparation/ installation coordinator	<ul style="list-style-type: none"> <li>• Reviews the site preparation guide for site requirements.</li> <li>• Coordinates personnel and tasks.</li> <li>• Selects the installation site.</li> <li>• Reviews checklists with applicable personnel to verify that the site is properly prepared.</li> <li>• Reviews checklists with the service representative to verify that the site is properly prepared.<sup>[1]</sup></li> <li>• Receives and inspects the packaged shipment.</li> <li>• Unpacks and stores the reagents box according to the specifications indicated in the product information sheets.</li> <li>• Schedules the installation and informs personnel of the installation day.</li> <li>• Ensures that the site is clear of unnecessary material on the installation day.</li> <li>• Is available to assist the service representative throughout installation.</li> </ul>
Laboratory safety representative	<ul style="list-style-type: none"> <li>• Reviews the site preparation guide for safety information.</li> <li>• Ensures that the required safety practices and equipment are in place.</li> <li>• Is available at all times while the service representative is at the customer's facility.</li> </ul>
Laboratory personnel/ primary users	<ul style="list-style-type: none"> <li>• Reviews the safety requirements later in this guide.</li> <li>• Ensures that all customer-provided materials for installation are present at the site.</li> <li>• Ensures that primary users (responsible for training other users) are available for training during the installation.</li> </ul>
Facilities personnel	<ul style="list-style-type: none"> <li>• Ensures that the installation requirements are met for the installation site. <ul style="list-style-type: none"> <li>– Space at the installation site</li> <li>– Building clearances</li> <li>– Humidity and temperature</li> <li>– Waste collection</li> <li>– Electrical supply</li> <li>– Computer</li> <li>– Safety and installation materials</li> </ul> </li> <li>• Is available to assist service representative and laboratory personnel.</li> <li>• If applicable, ensures that at least two people are available to help the service representative move and position the cytometer and fluid cart.</li> </ul>
Network or IT specialist	<ul style="list-style-type: none"> <li>• Ensures that active, tested local area network (LAN) connections are in place.</li> <li>• Ensures that network hardware is compatible with an RJ45-type connector.</li> <li>• If necessary, supplies additional cables.</li> <li>• Is available during installation to connect the product to the network.</li> <li>• If applicable, provides and installs a network or dedicated printer.</li> </ul> <p> <b>CAUTION!</b> Do not connect the product components to the network before the service representative arrives.</p>

<sup>[1]</sup> Required for service representative installation of the instrument.

## Site requirements

### Dimensions and weights

To prepare for installation, provide space for receipt and configuration of the components listed in this section. This section provides dimensions and weights for the packages you will receive, and it describes the dimensions of the components after installation and configuration.

#### Components (packaged)

Ensure that the building clearances enable for transport of the packaged components. Installation site must have a shipping dock for large crates (see Note below). For instrument transport in the crate, doorways must be at least 88.5 cm (34.8 in.) wide and it must be possible to maneuver the crates through hallways, elevators, and passageways. The instrument can be removed from the crate, put on a cart and rolled into the laboratory, in which case the size of the cart should be taken into consideration.

**Note:** Concierge (where available) confirms with the customer whether the installation site has a shipping dock. If the installation site does not have a shipping dock, the concierge arranges the crate to be delivered in a truck that has an appropriately sized lift gate. If pallet jacks are not available at the installation site, the shipping company provides them.

Package	Height	Length (depth)	Width	Weight
Shipping crate 1 <sup>[1]</sup>	76 cm (29.9 in.)	106 cm (41.7 in.)	81 cm (31.8 in.)	86 kg (190 lb)
Shipping crate 2 <sup>[2]</sup>	88.5 cm (34.8 in.)	106 cm (41.7 in.)	81 cm (31.8 in.)	57 kg (126 lb)

<sup>[1]</sup> Includes the instrument. The computer and monitor are shipped separately in their own boxes.

<sup>[2]</sup> Includes the pallet that contains the Fluid Cart, custom caps for the 20 L containers, custom caps for the 1 L bottles and empty bottles for shutdown, wash, bleach and deionized water. Combo kit with fluids and regionally specific power cord is shipped separately.



**CAUTION! PHYSICAL INJURY HAZARD.** Do not attempt to lift or move the instrument without the assistance of others, the use of appropriate moving equipment, and proper lifting techniques. Improper lifting can cause painful and permanent back injury. Depending on the weight, moving or lifting an instrument may require two or more people.

#### Components (unpacked)

Ensure that the installation site bench space can accommodate the dimensions and support the weights of the components.

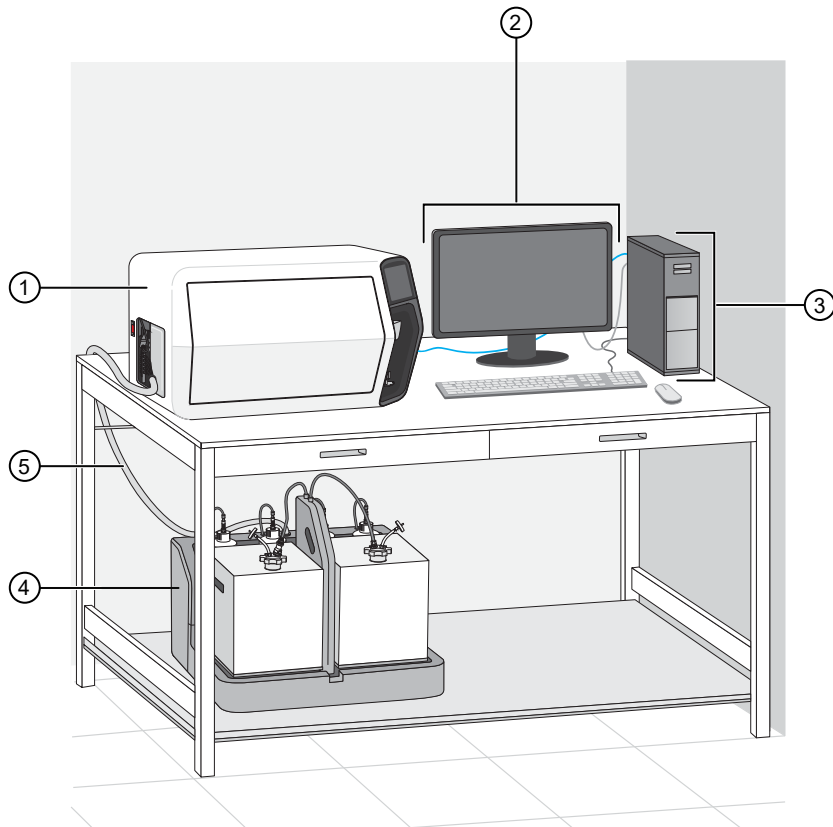
Component	Height	Length (depth)	Width	Weight
Instrument	49 cm (19.5 in.)	61 cm (24 in.)	86 cm (34 in.)	Approximately 65 kg (143 lbs)
Fluid Cart	65 cm (25.5 in.)	76.2 cm (30 in.)	60 cm (23.6 in.)	30 kg (66 lbs)
Computer	36.9 cm (14.52 in.)	42.0 cm (16.53 in.)	17.3 cm (6.81 in.)	~8.5 kg (18.74 lbs)
Monitor	61.87 cm (24.36 in.)	23.32 cm (9.18 in.)	71.24 cm (28.05 in.)	~9.9 kg (21.83 lbs)
Keyboard	5 cm (2 in.)	15.25 cm (6 in.)	44.7 cm (17.5 in.)	~0.09 kg (0.2 lbs)
(Optional) CytKick™ / CytKick™ Max Autosampler	Autosampler: 40.6 cm (16.0 in.)	Autosampler: 28.5 cm (11.25 in.)	Autosampler: 29.0 cm (11.5 in.)	16.9 kg (37.2 lbs) empty
	Side Car: 29.0 cm (11.5 in.)	Side Car: 28.0 cm (11.0 in.)	Side Car: 15.0 cm (5.9 in.)	20.9 kg (46 lbs) with focus and waste bottles at full capacity



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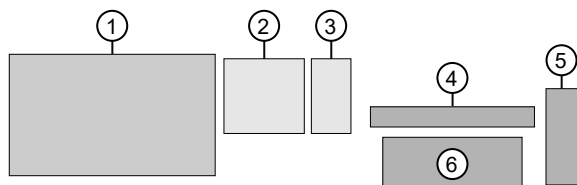
**IMPORTANT!** We do not install, service, or repair Thermo Fisher Scientific instruments in areas designated BioSafety Level 3 (BSL-3) or BioSafety Level 4 (BSL-4).

The standard system layout includes the Attune™ Xenith™ Flow Cytometer, a monitor, computer workstation and fluid cart.



**Figure 1** Attune™ Xenith™ Flow Cytometer standard system layout

- |  |   |
|--|---|
| ① Attune™ Xenith™ Flow Cytometer                         | ④ Fluid cart                                  |
| ② Monitor  | ⑤ Umbilical between fluid cart and instrument |
| ③ CPU tower (CPU can also be placed behind the monitor.) |   |



**Figure 2** Attune™ Xenith™ Flow Cytometer with CytKick™ / CytKick™ Max Autosampler

- |   |  |
|---|--|
| ① Attune™ Xenith™ Flow Cytometer  | ④ Monitor  |
| ② (Optional) CytKick™ / CytKick™ Max Autosampler  | ⑤ CPU tower (CPU can also be placed behind the monitor.) |
| ③ (Optional) CytKick™ / CytKick™ Max Autosampler Side Car bottle module (attached to the right side of the autosampler) | ⑥ Keyboard   |

**Note:** Figure 2 shows typical system component layout with the optional peripheral components included. This image is not drawn to scale.

## Component clearances required for installation and maintenance

During installation and maintenance, it is necessary to access the back and sides of the product. If the back of the product faces a wall, ensure that there is sufficient clearance on the bench to rotate the product.

**IMPORTANT!** For safety reasons, the power outlet into which the instrument is plugged and the power receptacle on the rear of the instrument must be accessible at all times.

Bench	Minimum clearance
Length (depth)	<ul style="list-style-type: none"><li>• &gt;100 cm (39.37 in.) for a bench against a solid vertical surface</li><li>• &gt;25.4 cm (10 in.) of clearance at the back of the instrument for air flow, service access, and cable routing.</li><li>• If the bench is at least 25.4 cm. (10 in.) from a wall, the bench can be 76.2 cm. (30 in.) deep.</li><li>• If the bench has wheels, it can facilitate access to the back of the instrument.</li></ul>
Width	>223 cm (87.8 in.) for the instrument, computer, and computer monitor. <b>IMPORTANT!</b> If the system includes the optional CytKick™ / CytKick™ Max Autosampler, then add 55 cm (21.7 in.) to the width of the bench, for a total bench width of ~ 278 cm (109.5 in.)

## Environmental requirements

Condition	Acceptable range
Installation site	Indoor use only
Electromagnetic interference	Do not use this device in close proximity to sources of strong electromagnetic radiation (for example, unshielded intentional RF sources). Strong electromagnetic radiation may interfere with the proper operation of the device.  This equipment has been designed and tested to CISPR 11 Class A. In a domestic environment, it may cause radio interference. You may need to take measures to mitigate the interference.
Altitude	Located between sea level and 2000 m (6500 ft.) above sea level
Humidity (instrument and computer)	Operation: 15%–80% (noncondensing)
Temperature (instrument and computer)	15°C to 30°C (60°F to 85°F) <b>Note:</b> The room temperature must not fluctuate more than 5°C over a 2-hour period.
Transient category	Installation categories II
Overvoltage category	Installation categories II
Vibration	Do not place the instrument next to strong vibration sources, such as a centrifuge, pump, or compressor. Excessive vibration will affect instrument performance.
Pollution degree	II  Install the instrument in an environment that is free of pollutants other than non-conductive pollutants such as dust particles or wood chips. Typical environments with a Pollution Degree II rating are laboratories and sales and commercial areas.
Liquid waste collection	Dispose of any liquid waste as hazardous waste in compliance with local and national regulations.
Other conditions	Ensure the room is away from any vents that could expel particulate material on the components.  Avoid placing the instrument and computer next to heaters, cooling ducts, or in direct sunlight.

## Electrical requirements



**CAUTION!** Do not unpack or plug in any components until they are configured for the proper operating voltage by the service representative.



**WARNING!** For safety, the power outlet for the instrument must be accessible at all times. See page 6 for information about the space needed between the wall and the instrument. In case of emergency, you must be able to immediately disconnect the main power supply to all the equipment. Allow adequate space between the wall and the equipment so that the power cords can be disconnected in case of emergency.

- Dedicated line and ground between the instrument and the main electrical service
- Maximum power dissipation: ~700 W (not including computer, monitor, and the optional autosampler)
- Mains AC line voltage tolerances must be up to  $\pm 10$  percent of nominal voltage

Device	Rated voltage	Circuit required	Rated frequency	Rated power	Maximum power
Instrument	100–240 $\pm 10\%$ VAC <sup>[1]</sup>	15 A	50/60 Hz	400 W	700 W
Computer	100–240 $\pm 10\%$ VAC	15 A	50/60 Hz	NA	1000 W
Monitor				30.6 W	180 W
CytKick™ / CytKick™ Max Autosampler	100–240 $\pm 10\%$ VAC	15 A	50/60 Hz	25 W	30 W

<sup>[1]</sup> If the supplied power fluctuates beyond the rated voltage, a power line regulator may be required. High or low voltages can adversely affect the electronic components of the instrument.

The Attune™ Xenith™ Flow Cytometer can be configured for operating voltages between 100 and 240 VAC at 50 or 60 Hz. The instrument is equipped with a universal power supply. The instrument requires a 15 A circuit for all indicated input voltages.

**IMPORTANT!** The Attune™ Xenith™ Flow Cytometer and the optional autosampler are shipped with up to four power connectors. These connectors require standard 15 A wall receptacles with proper grounding. Do not use extension cords.

## Electrical protective devices

We recommend several protective devices in environments with large voltage and power fluctuations.

Recommended devices
<b>Power line regulator</b>
<ul style="list-style-type: none"><li>• 1.5-kVA power line regulator</li><li>• Use in areas where the supplied power fluctuates in excess of <math>\pm 10\%</math> of the normal voltage.</li><li>• Power fluctuations can adversely affect the function of the instrument and computer.</li></ul> <p><b>Note:</b> A power line regulator monitors the input current and adjusts the power supplied to the instrument or computer. It does not protect against a power surge or failure.</p>
<b>Surge protector</b>
<ul style="list-style-type: none"><li>• 10-kVA surge protector (line conditioner)</li><li>• Use in areas with frequent electrical storms or near devices that are electrically noisy, such as refrigerators, air conditioners, or centrifuges.</li><li>• Short-duration, high-voltage power fluctuations can abruptly terminate the function of, and thereby damage the components of, the computer and the instrument.</li></ul> <p><b>Note:</b> A dedicated line and ground between the instrument, computer, and the building's main electrical service can also prevent problems caused by power fluctuations.</p>

**Uninterruptible power supply (UPS)**

- 1.5-kVA uninterruptible power supply (UPS)
- Use in areas prone to power failure.
- Power failures and other events that abruptly terminate the function of the instrument and computer can corrupt data and possibly damage the system.



**CAUTION! PHYSICAL INJURY HAZARD.** Do not attempt to lift or move the UPS unit without the assistance of at least two people. Improper lifting can cause painful and permanent back injury. See the UPS manufacturer user guide for more information.

**IMPORTANT!** A UPS provides power for a limited time. It is meant to delay the effects of a power outage, not to serve as a replacement power source. In the event of a power loss, power off the instrument and computer unless you expect to regain power within the battery life of the UPS.

**Network requirements**

The instrument is factory-configured for IPv6 TCP/IP communication and uses an Ethernet adapter (100/1,000 Mbps) with RJ45-type connectors for local area network (LAN) connection. The network connection is needed to export results files to a network location, to send system notifications to users, and for support access.

The customer site is responsible for the following items.

- An active, tested network port with an available jack within 6 m (20 ft.) must be in place before the scheduled installation date.
- The assigned IT or network specialist from your organization must be available during the installation to:
  - Help connect the instrument to your network.
  - Allow the installation of LogMeIn<sup>®</sup> Rescue software, which is critical for remote troubleshooting and support.
  - Provide description of the subnet and subnet mask used for the Ethernet port.
  - Provide email account (user name, password) and email server (IP address or URL) location and type for error notifications.



## Safety requirements

### Safety practices

A safety representative from your facility must ensure that:

- Personnel establish and follow all applicable safety practices and policies to protect laboratory personnel from potential hazards.
- All applicable safety devices and equipment are available at all times.

### Required safety equipment

Your laboratory has specific safety practices and policies designed to protect laboratory personnel from potential hazards that are present. Follow all applicable safety-related procedures at all times.

The following safety equipment and protection from hazards must be available at the installation site:

- Protection from any sources of hazardous chemicals, radiation (for example, lasers, radioisotopes, radioactive wastes, and contaminated equipment), and potentially infectious biological material that may be present in the area where the service representative will work.
- Appropriate fire extinguisher:
  - You are responsible for providing an appropriate fire extinguisher for use on or near the equipment.
  - The types and sizes of fire extinguishers shall be suitable for use on electrical and chemical fires as specified in current codes, regulations, and/or standards, and with approval of the Fire Marshall or other authority having jurisdiction.
  - The installation of appropriate fire extinguishers shall be in addition to other fire-protection systems and not as a substitute or alternative to them.
- Eyewash
- Safety shower
- Eye and hand protection
- Adequate ventilation, including vent line/fume hood, if applicable
- Biohazard waste container, if applicable
- First-aid equipment
- Spill cleanup equipment
- Applicable Safety Data Sheets (SDSs)

### Third-party software

Before installing third-party software on the computer running the product software, confirm that the third-party software will not have either/or of the following effects on the computer:

- Restrict Ethernet communication.
- Interfere with instrument or computer operation.

### Antivirus software requirements

The computer provided with the instrument includes the Microsoft™ Defender Antivirus software.

You are responsible for installing any other antivirus software of your choice to protect the computer against viruses. However, we cannot guarantee performance and/or functionality compatibility with other third party software packages. Please discuss specific antivirus software requirements with the service representative when you schedule the installation.

## Materials for installation and operation

### Installation materials

Ensure that the following materials are available before installation of the product:

- Safety glasses, laboratory coats, and chemical-resistant, disposable gloves (powder-free)
- Easily accessible specified power outlet
- (Optional) Electrical protective devices (surge protector and/or power line regulator)
- External network connection
- Lint-free tissues
- Methanol or isopropanol, HPLC-grade or better (1 L of 70% or greater; required for cleaning)
- Water, Milli-Q™ -grade

### Operation materials

Additional supplies and consumables are necessary for routine operation. Contact a sales representative to order these additional supplies. Use only supplies as specified by Thermo Fisher Scientific.

## Receive and inspect the shipment

1. Verify that the items shown on the shipping list are the items that were ordered at the time of purchase.
2. Carefully inspect the shipping containers. Report any damage to the shipping company and to your service representative. Record any damage or mishandling on the shipping documents.
3. Immediately unpack the starter kit (boxed separately from the instrument components). Store the reagents at the temperatures specified on the product packaging or labels.

**IMPORTANT!** Other than the starter kit, which contains reagents that require storage at specific conditions, do not unpack shipping containers. To protect yourself from liability for damage that may have occurred during shipping, inspect the shipping containers and report damage as described above.

The Attune™ Xenith™ Flow Cytometer Combo Kit (Cat. No. [A59358](#)) includes the instrument, computer, monitor, keyboard, and the consumable items listed in the following table.

**Table 1 Combo kit contents**

Reagent	Cat. No.	Storage conditions	Usage conditions	Stability
Attune™ Focusing Fluid (1X),	<a href="#">J106627</a>	15°C to 30°C	15°C to 30°C [1]	The focusing fluid is stable on the instrument for 30 days after the bottle has been opened.
Attune™ Wash Solution	<a href="#">J24974</a>	15°C to 30°C		The wash solution is stable on the instrument for 30 days after the bottle has been opened.
Attune™ Shutdown Solution	<a href="#">J106628</a>	15°C to 30°C		The shutdown solution is stable on the instrument for 30 days after the bottle has been opened.
Attune™ Flow Cell Cleaning Solution	<a href="#">A43635</a>	15°C to 30°C		
Attune™ Xenith™ Quality Control Beads	<a href="#">X20000</a>	2°C to 8°C [2]		The beads are stable for 1 year, when stored as directed.

[1] Reagents can be stored at colder temperatures, but ensure that all reagents are at 15°C to 30°C before running the instrument.

[2] Do not freeze.



**WARNING! CHEMICAL HAZARD** Some chemicals used with Thermo Fisher Scientific instruments are potentially hazardous and can cause injury, illness, or death. Read and understand the Safety Data Sheets (SDSs) provided by the chemical manufacturer before you store, handle, work with, or dispose of any chemicals or hazardous materials.

## Instrument installation

Clear the installation site of all unnecessary materials.

**Note:** The shipping company or logistics partner will typically move the packaged shipment to the installation site, uncrate the instrument and lift it onto the benchtop before installation. After installation, keep the packaging in case you need to relocate the components.



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**CAUTION!** Do not tip the package on end. Tipping can damage the hardware and electronics.

## Related documentation

Document	Publication number
<i>Attune™ Xenith™ Flow Cytometer IT Checklist</i>	MAN1000862
<i>Attune™ Xenith™ Flow Cytometer User Guide</i>	<a href="#">MAN1001199</a>



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Products manufactured at this site:

- Attune™ Xenith™ Flow Cytometer
- Invitrogen™ Attune™ Xenith™ Flow Cytometer Fluid Cart
- CytKick™ / CytKick™ Max Autosampler

For descriptions of symbols on product labels or product documents, go to [thermofisher.com/symbols-definition](https://www.thermofisher.com/symbols-definition).

**Revision history:** Pub. No. MAN1001200 A

Revision	Date	Description
A	28 March 2025	New document.

The information in this guide is subject to change without notice.

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