



# VHP Resistant Milliflex<sup>®</sup> PLUS Pump MXPPLUVHP User Guide

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## Notice

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# Introduction

This document is an addendum to the Milliflex PLUS Pump User Guide, document number P36507. This document provides the additional information required for the Vapor Hydrogen Peroxide (VHP) Resistant Milliflex PLUS Pump.

## Application

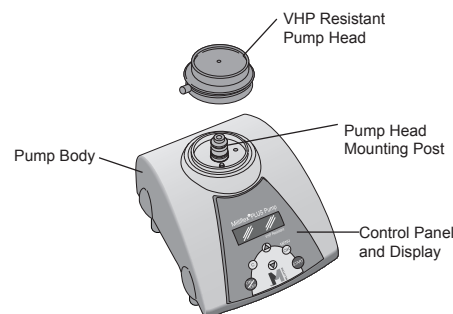
The VHP Resistant Milliflex PLUS Pump is designed to perform filtrations of samples inside an isolator. The pump is compatible with the isolator environment. The housing and the external parts are VHP resistant.

## System Description

### Components

#### Major Components

- Pump body
- VHP Resistant Pump head
- Protective cover for pump head mounting post, for use when pump head is not in place
- Milliflex PLUS Pump User Guide document number P36507
- VHP Resistant Milliflex PLUS Pump User Guide document number PF12640
- Certificates of Conformity for the pump – MXPPLUVHPCOQ and the pump head – MXPHEAVHPCOQ.



#### VHP Resistant Pump Head MXPHEAVHP

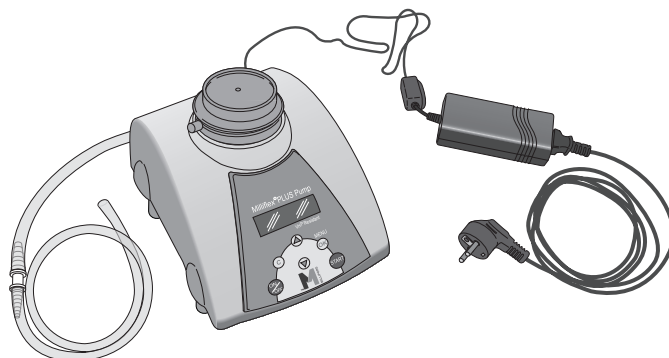
The VHP Resistant Milliflex PLUS Pump is designed to accept only Milliflex filtration devices and the VHP Resistant Pump Head.

#### Printer (optional)

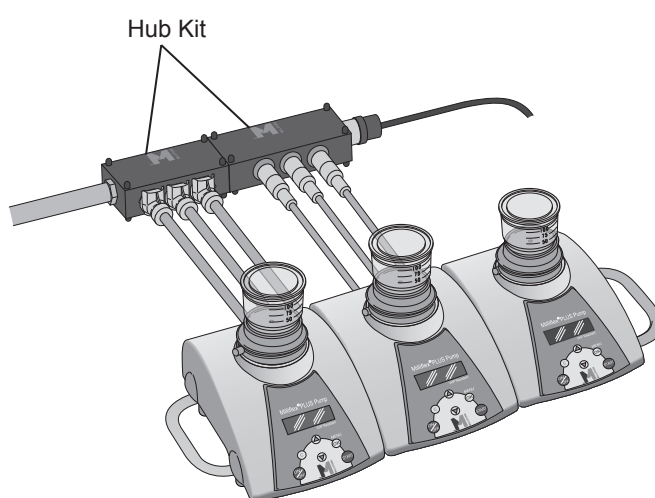
Not applicable for this pump.

### Additional User Supplied Components

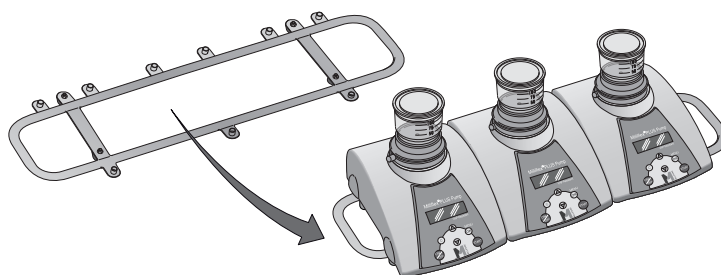
- MXPSPL001 Supply Set for one VHP Resistant Milliflex PLUS Pump



- MXPHUB001 Hubs Kit VHP Compatible for one to three VHP Resistant Milliflex PLUS Pump



- MXPTRAY03 (for 3 pumps) or MXPTRAY02 (for 2 pumps) Manifold Tray for Milliflex PLUS Pumps



### Testing Modes

The VHP Resistant Milliflex PLUS Pump can only be used in manual mode.

#### Auto Sampling

Not applicable for the VHP Resistant pump.

### Dilution

Not applicable for the VHP Resistant pump.

### Manual mode

The operator has control of every aspect of the filtration cycle, choosing how much sample to add, when to start and stop filtration (which may be repeated) and when to start the drying cycle.

### NOTE

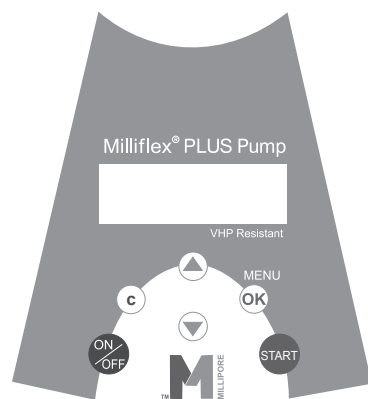
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The display will not request the density of the liquid to be filtered as noted in the Milliflex Pump User Guide.

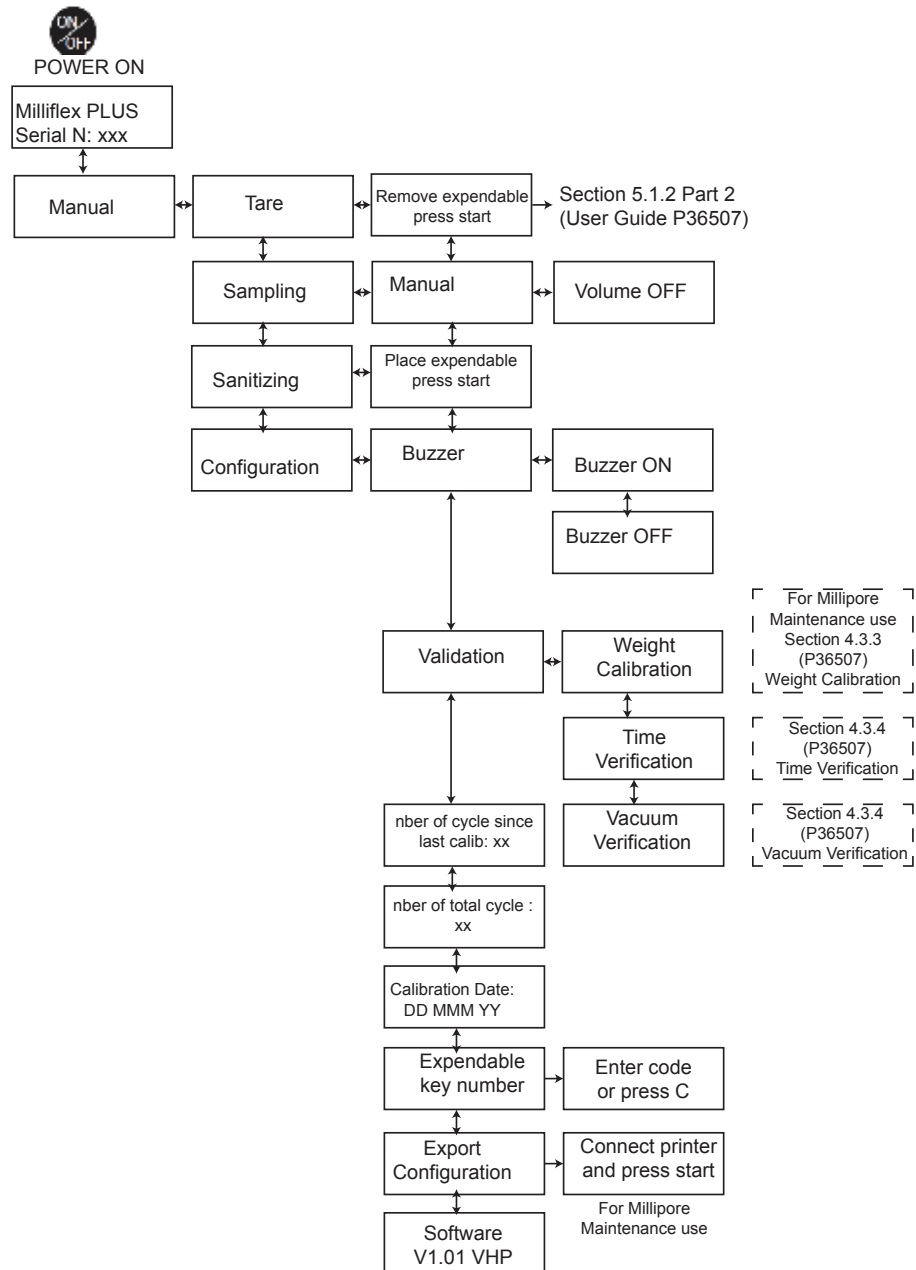
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## Controls and Display

The control panel and display, with easy-to-follow Milliflex PLUS software, makes processing samples consistent and straightforward.



## Organization of Control Function Menus



### Navigation through Menus, Using Keypad Buttons

Refer to the general Milliflex PLUS Pump User Guide.

# Installation

## CAUTION

The pump will not be VHP resistant if the O-ring or any screws are removed. The pump head must remain in place on the pump during the VHP cycle to maintain VHP resistance. The white pump head cover does not ensure VHP resistance of the pump.

## Unpacking

Refer to the Milliflex PLUS Pump User Guide for unpacking instructions.

## NOTE

The VHP Resistant Pump body is not supplied with a sleeve.

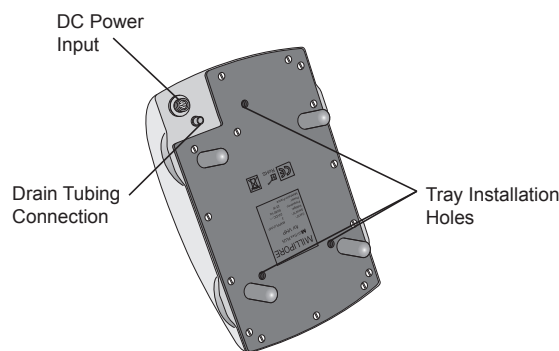
## Hardware Installation

### Installation of the Printer (optional)

Not applicable for this pump.

### Connection to Electrical Power

The electrical power supply is part of the Supply Set for one VHP Resistant Milliflex PLUS Pump (MXPSPL001) or the VHP Compatible Hub Kit (MXPHUB001). Refer to the VHP Compatible Hub Kit User Guide for installation instructions.



### Installation of the PC Connection (optional)

Not applicable for this pump.

### Installation of the Drain Tubing

The drain tubing is part of the Supply Set for one VHP Resistant Milliflex PLUS Pump (MXPSPL001) or the VHP Compatible Hub Kit (MXPHUB001). Refer to the VHP Compatible Hub Kit User Guide for installation instructions.

### Installation of the Milliflex Pump Head

Refer to the Milliflex PLUS Pump User Guide for installation instructions.

### Installation of the Manifold Tray

Refer to the Milliflex Manifold Tray User Guide for installation instructions.

## Configuration, Calibration and Verification

At installation, the steps described above in the Hardware Installation section should have been performed, as applicable, before configuration.

### Initial Power-up

1. Switch the pump on by pressing the ON/OFF button on the keypad. The display shows the following, for a few seconds:

**Milliflex PLUS**

**SERIAL N:**

2. The following display appears:

**Manual**

3. Press OK. The display will show:

**Tare**

4. Press OK. The display shows:

**remove expendable**

**press start**

5. Remove anything on the pump head (e.g., cover or disposable) and press START. The display shows:

**measuring.....**

**please wait.....**

6. After a few seconds, the display will revert to the display manual testing. (Additional information on the Tare procedure may be found in the Preparation for Testing section.)

**Manual**

### Configuration

1. After initial power-up, press OK. The display shows:

**Tare**

2. Use the down arrow to scroll down to the display Configuration:

**Configuration**

3. Press OK, the display shows:

**Buzzer**

4. Press OK. Use the arrows to select Buzzer ON or Buzzer OFF and then press OK. The display shows:

**Buzzer**

5. Press the down arrow. The display shows:

**Validation**

### NOTE

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For more information on the Validation menu, see the following two sections.

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6. To complete configuration, press the down arrow. The display shows:

**nber of cycle since**

**last calib: xx**

7. Press the down arrow again. The display shows:

**nber total of cycle:**

**xx**



8. Press the down arrow again. The display shows: (after the first calibration, the system shows the most recent calibration date.)

**Calibration Date**

**DD MMM YY**

9. Press the down arrow again. The display shows: (this information is for future use – please disregard.)

**Expendable**

**key number**

10. Press the down arrow again. The display shows:

**Export**

**Configuration**

(for authorized Millipore Technician use only)

11. Press the down arrow again. The display shows the current software version.

12. Press the down arrow again. The display shows:

**Buzzer**

The configuration of the pump is now complete.

13. Press the C button twice to display manual testing mode.

**Manual**

### **Calibration of Weight-Measurement Function**

This must be performed by an authorized Millipore Technician.

### **Verification of Pump Functions**

*Verifying the Volume-Measurement Function*

Not applicable for this pump.

*Verifying the Time-Measurement Function*

Refer to the Milliflex PLUS Pump User Guide.

*Verifying the Flow Rate*

Not applicable for this pump.

*Verifying the Vacuum*

Refer to the Milliflex PLUS Pump User Guide .

# Operation

## Preparation for Testing

The pump head should be autoclaved before the first use and after the last use each day.

Whenever the pump head is removed the Tare cycle must be run.

The pump interior should be sanitized before the first use and after the last use each day.

If the pump will be used in a laminar flow hood or clean area, the exterior surfaces should be wiped with alcohol.

1. Install the pump head, as described in the Installation section. Run the Tare cycle, as described below.
2. To prepare for testing, switch on the pump, by pressing the ON/OFF button on the keypad.  
For a few seconds, the display shows:

**Milliflex PLUS**

**SERIAL N:**

3. After the power-up display, display indicating Manual mode appears:

**Manual**

4. Processing of samples can begin immediately. See Sample Processing below, for details.

### NOTE

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To start filtration immediately (even if the specified volume has not been reached), press the **START** button for a few seconds. To stop filtration at any time, press **C**. During filtration, to start drying, press **START** for a few seconds.

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### Main Menu

Refer to the Milliflex PLUS Pump User Guide except for the "Export data" function which is not applicable for this pump.

### Tare

Refer to the Milliflex PLUS Pump User Guide

### Sampling Setup

Not applicable for this pump.

### Sanitizing

The pump interior should be sanitized before its first use, after each workday and if unused for more than a day. The Sanitizing cycle enables the user to sanitize the interior surfaces of the pump, according to a fixed regimen. See the Specifications section for information on acceptable sanitizing agents.

The pump head should be autoclaved before its first use and after each workday. See the Maintenance section for autoclaving specifications and for recommendations on cleaning the pump exterior.

In the Sanitizing cycle, the pump automatically circulates a quantity of sanitizing agent through the interior of the fluid-handling mechanism; pauses for ten minutes, while the interior surfaces are still wetted with the agent; circulates the rest of the agent through the pump; and then circulates multiple rinses. The user is prompted to add the appropriate liquid when required, at each stage. A drying cycle completes the process.

The Milliflex HA (mixed cellulose esters membrane) funnel should be used for sanitization with any recommended agent except for solutions containing alcohol, where the Milliflex HV (PVDF membrane) is required. If the agent and the membrane used are not compatible, remove the membrane from the funnel before sanitizing.

### CAUTION

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Install the exhaust tubing and waste receptacle higher than the pump, to prevent sanitizing agent being siphoned out of the pump during the ten minutes of contact time.

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1. At the Main Program Screen, press OK, to enter the Main Menu. The display shows:  
**Tare**
2. Press the down arrow until the display shows:  
**Sanitizing**
3. Press OK. The display shows:  
**Put expendable  
press start**
4. Place an aseptic spacer and a Milliflex 100 funnel, without its cover, on the pump head and press START. The display shows:  
**Fill 100 ml of Agent  
press start**
5. Fill the funnel with 100 ml of sanitizing agent and press START. The pump starts and the display shows:  
**Sanitizing**  
The pump should pull 25 to 75 mL of agent through (filtration during five seconds); pause for ten minutes, and then pull the remaining liquid through. A bar graph at the bottom of the display shows the progress of this operation.

#### NOTE

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After the first filtration before the pump pauses, if the remaining liquid in the Milliflex funnel is higher than 75 ml or lower than 25 ml, the pump needs to be verified by Millipore technical people.

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- After the pump has emptied the funnel, it runs a drying cycle and then the display shows:  
**Fill 100 ml of Water  
press start**
6. Fill the funnel with 100 ml of sterile water and press START. The display shows:  
**Rinsing**  
The pump empties the funnel and runs a drying cycle. Then the display shows:  
**Fill 100 ml of Water  
press start**
  7. Fill the funnel with 100 ml of sterile water and press START. The rinsing cycle is performed as before. Then the display prompts for the funnel to be filled again, for each rinse, for a total of four rinses. When the fourth rinse has been completed, the display shows:  
**Sanitizing finished**
  8. Press START. Remove the funnel and discard it. The display shows:  
**Sanitizing**
  9. Press C button to go back to the display manual testing. Remove the head and autoclave it. Sanitize the protective mounting post cover with alcohol and put it on the mounting post. The pump is now sanitized.

#### Enabling or Disabling Data Export

Not applicable for this pump.

## Sample Processing

#### Sample Processing: Manual

Refer to the Milliflex PLUS Pump User Guide. The Auto Sampling function is not applicable for this pump.

#### Sample Processing: Dilution

Not applicable for this pump.

# Maintenance

## Autoclaving

Autoclave the pump head before the first use and after the last use each day. Autoclave at 121 °C for 30 minutes, or at 134 °C for 10 minutes.

## Sanitizing

After each workday, or when the pump is unused for more than a day, sanitize the pump interior, using the automated procedure provided in Sanitizing.

### **Sanitizing agents:**

- Bleach 250 ppm
- Peracetic acid 0.125%
- Quaternary ammonium

## Exterior Cleaning

The exterior surface can be cleaned with a soft cloth, moistened with alcoholic solution or a standard laboratory surface alcohol decontamination solution

## Calibration

Must be performed by an authorized Merck Millipore Technician.

# System Specifications

<b>Materials of Construction</b>	Housing	Polyester with 30% glass fiber with coating including PTFE principle
	Pump head	Stainless steel 316L with local Teflon® coating
	Seal (O-ring between pump and pump head)	EPDM
<b>Dimensions</b>	Width	170 mm (6.69 in.)
	Depth	270 mm (10.62 in.)
	Height without head	160 mm (6.30 in.)
	Height with head	170 mm (6.69 in.)
	Weight without head	3.30 kg (7.28 lb)
	Weight with head	4.19 kg (9.24 lb)
<b>Electrical</b>	Supply Voltage Input	100 V – 240 V 50 Hz – 60 Hz
	Supply Voltage Output	24V Direct current
	Power	25 Watts
<b>Vacuum</b>	≥ 0.4 bar (11.8 inches of Hg)	
<b>Flow rate</b>	7 to 16 seconds for 100 mL of Milli-Q® grade sterile water filtered through a Milliflex MXHAWG124 funnel	
<b>Time Accuracy</b>	± 2 seconds in 5 minutes	
<b>Operational Requirements</b>	Refer to the Milliflex PLUS Pump User Guide.	
<b>Regulatory Information</b>	The VHP Resistant Milliflex PLUS Pump is compliant with the following European Council directives:	
	2004/108/CE Electromagnetic Compatibility (EMC).	
	2002/95/CE Restriction Of The Use Of Certain Hazardous Substances In Electrical Equipment (RoHS).	
	2006/95/CE Electrical equipment Designed For Use Within Certain Voltage Limits (for power supply only).	

# Ordering Information

Catalogue No.	Description	Qty./Pk
MXPPUVHP	VHP Resistant Milliflex PLUS Pump	1
MXPHEAVHP	Milliflex PLUS Pump Head VHP Resistant	1
MXPHUBKIT	Milliflex Plus Pump VHP Hub kit	1
MXPFHUVHP	Milliflex Fluidic Hub VHP Compatible	1
MXPELEHUB	Milliflex Electrical Hub VHP compatible	1
MXPTUBVHP	VHP tubes set for Milliflex Fluidic Hub	3
MXPELCVHP	VHP Cables set for Milliflex Electrical Hub	3
MXPP0WVHP	Electrical Hub Power Supply	1
MXPTRAY02	Manifold Tray for 2 Milliflex PLUS Pump	1
MXPTRAY03	Manifold Tray for 3 Milliflex PLUS Pump	1
MXPSPL001	Supply set for one VHP Resistant Milliflex PLUS Pump	1

## Standard Warranty

Merck Millipore declares its instruments to be free from defects of materials and workmanship. The period of warranty is one (1) year commencing on the date of commissioning of the instrument as evidenced by means of an invoice or other document.

The warranty covers the rectification of all faults which occur as a proven direct result of faulty materials or workmanship during the warranty period. The following items are not covered by the warranty:

1. Parts subject to normal wear and tear.
2. Malfunction caused by accidental or intentional damage, or the use of parts from other manufacturers, or through repairs or modifications carried out by persons not authorized by to carry out such work.
3. Defects which occur as a result of normal wear and tear or from using the equipment under conditions not specified in the instructions for use. The user is not entitled to any remedy in law towards Merck Millipore, howsoever arising, apart from those remedies mentioned here. Merck Millipore accepts no other liability or warranty towards the user. The legal rights of the purchaser towards the seller remain unaffected by this.



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**For more information:**

Visit <http://www.millipore.com/techservice> or, in the U.S., call 1-800-MILLIPORE (1-800-645-5476).



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