Automated Hematology Slide Preparation Unit

SP-50

General Information

This manual provides important safety information and specifications of the instrument.
Read this manual before using the instrument.

The following manuals are provided as Instructions for Use:

- General Information
- Basic Operation
- Troubleshooting

Sysmex Corporation

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01/2018

Software version: Ver.2

10/2018

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Software version: 2

Changes are listed below:

Revised section	Page
Cover	-
1.5 Symbols related to the products	11
5.2.1 Supported sample tubes	55
5.5.1 Staining pool and reagent configuration	66

Table of Contents

Chapter 1 Introduction

Thank you for purchasing the Automated Hematology Slide Preparation Unit SP-50.
Please read this manual carefully before operating this product.
Keep this manual in a safe place for future reference.

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Ordering of Supplies and Replacement Parts

If you need to order supplies or replacement parts, please contact your local Sysmex representative.

Service and Maintenance

Please contact the Service Department of your local Sysmex representative.

The system described in this manual is marked with a CE-mark which confirms the compliance with the essential requirements of the following European Directives:
98/79/EC on in vitro diagnostic medical devices
2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment

1.1 Intended use

This instrument automatically prepares smears used for hematologic analysis performed by clinical laboratories. The instrument automates the processes of aspirating a sample from a sample tube, creating a smear on a glass slide, and staining the smear.

⚠ Caution

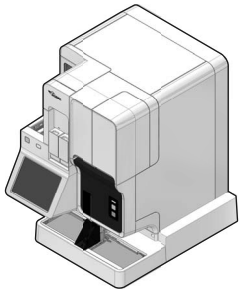
Do not diagnose patients solely by blood smear results.

1.2 Overview of the system

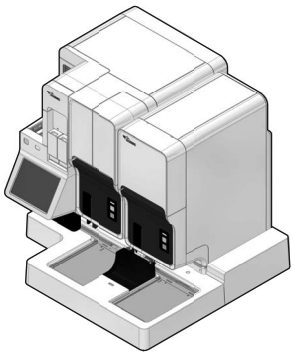
1.2.1 System configuration

The instrument can be used on a standalone basis or as part of XN-1500, XN-3100 and XN-9100. When used as part of an XN-1500, XN-3100, or XN-9100 system, the process from blood analysis to smear preparation can be completely automated.

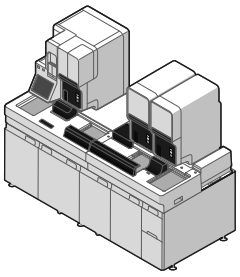
The explanations in this manual assume that the SP-50 is used on a standalone basis. If you are using the instrument as part of an XN-1500, XN-3100 or XN-9100 system, see the corresponding manual for the operation procedures.



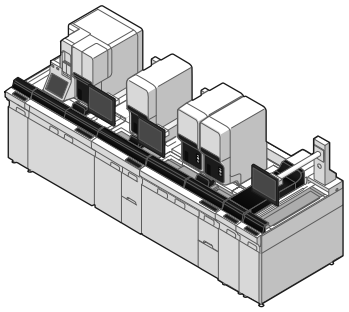
External view of SP-50 (standalone)



External view of XN-1500



External view of XN-3100



External view of XN-9100 (example configuration)

* IPUs, transportation controllers, and pneumatic units are omitted in the figures.

1.3 About the manuals

1.3.1 List of manuals

The following manuals are provided with this instrument.

Type		Description
Instructions for Use	**General Information (this manual)**	This manual provides important safety information and specifications of the instrument. Read this manual before using the instrument.
	Basic Operation	Read this manual to operate the instrument. The explanations in this manual assume that you have already read "General Information".
	Troubleshooting	Read this manual when you encounter a problem, and to perform instrument maintenance. The explanations in this manual assume that you have already read "General Information".

1.3.2 Points to note about the manuals

- You may not reprint the contents of the manuals in whole or in part without permission.
- Images in these instructions for use related to the product are for illustration purposes only and may not exactly match with what is found on the product itself.
- While we have taken all possible precautions to ensure quality in the content of this manual, please contact the Service Department of your authorized local Sysmex representative if you find any errors or omissions.

1.4 Symbols used in the manuals

Risk of infection

Indicates the presence of a biohazardous material or condition.

Warning

High risk. Ignoring this warning could result in personal injury to the operator.

Caution

Average risk. Ignoring this warning could result in property damage. Intended to prevent damage and smear preparation abnormalities.

Caution

Failure to observe this warning may result in instrument damage due to electrostatic discharge from your body.

Caution, Hot

Indicates risk of burns and other injuries if the warning is not observed.

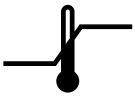
Information

Minor risk. Considerations that should be observed when operating this instrument.

Note:

Background information and practical tips.

1.5 Symbols related to the products

	In vitro diagnostic medical device		Keep away from sunlight
	Manufacturer		Use no hooks
	Authorised Representative in the European Community		This way up
	Consult instructions for use		Keep dry
	Temperature limitation		Total stacking limit by number
	Use by		Stacking limit by number
	Batch code		Fragile, handle with care
	Catalogue number		Corrugated recycles
	Concentrated reagent		Corrugated recycles* * Based on SJ/T 11364 national standard of China.
	Serial number	RxOnly	By prescription only* * In compliance with U.S. FDA requirements

1.6 Trademarks

- Sysmex is a trademark of SYSMEX CORPORATION, Japan.
- CELLPACK and CELLCLEAN are trademarks of SYSMEX CORPORATION, Japan.
- ISBT128 (International Society of Blood Transfusion) is copyrighted by and is used under License Agreement with ICCBBA, Inc.
- Windows is a trademark or registered trademark of Microsoft Corporation in the United States and other countries.
- Other company names and product names in the manuals are the registered trademarks or trademarks of their respective owners.

The fact that a trademark is not explicitly indicated in this manual does not authorize its use.
TM and ® are not explicitly indicated in the manuals.

Chapter 2 Safety Information

This chapter explains precautions for safe use of this instrument.

2.1 Specified conditions of use

This instrument is only designed for the purpose of preparing smears from human blood. The instrument cannot be used for any other purpose.
The specified conditions of use also include performing the cleaning and maintenance procedures at the specified intervals.

2.2 General information

⚠ Warning

- Keep your hair, fingers and your clothing away from the moving parts of the instrument while it is running. You may sustain injury should they become entangled in the instrument.
- Do not spill blood samples or reagents into the instrument, or get any metals such as staples or clips, inside the instrument.
  Doing so could cause a short-circuit and a smoke emission.
- The operator should not touch any electrical circuitry inside the cover.
  In particular, the risk of electrical shock is especially high when one's hands are wet.
- The instrument must not be connected to a power outlet other than that specified on the rating plate. Please note that the instrument must be grounded.
  Otherwise fire or electrical shock may result.
- Do not damage the power cable. Do not place any heavy objects on the power cable or forcibly pull on the power cable.
  Doing so may cause an electrical short or a break in the wiring, leading to fire and electrical shock.
- In the unlikely event that the instrument emits an unusual odor or smoke, immediately turn OFF the main switch and unplug the power cable. Then contact your authorized local Sysmex representative.
  Continued use of the instrument in such conditions could result in fire, electrical shock or personal injury.
- If the following cautions are not heeded, safety standards for toxicity or explosiveness may be exceeded.
  - Use the instrument in a temperature environment that is suitable for the instrument specifications.
  - If it is necessary to use non-specified reagents indoors that are toxic or explosive, exercise suitable concentration control.
  - Install in a room that is at least 5,120 (W) x 1,920 (D) x 2,160 (H) mm in size.
- This instrument uses methanol, which is a hazardous substance, reagents (stain solutions) that contain methanol, and organic solvents.
  Install and use in an environment that conforms to local laws and regulations.

cTÜVus mark indicates that the equipment is tested and certified to comply with the electrical and fire safety regulations controlled by the US and Canadian governments.
Those tests were conducted thoroughly by TÜV Rheinland that is accredited as a Nationally Recognized Testing Laboratory (NRTL) by OSHA (The Occupational Safety and Health Administration) in the United States, and by SCC (Standards Council of Canada) in Canada.

2.3 Installation

⚠ Warning

- Your Sysmex technical representative will unpack, install, and test initial operation of the instrument.
- This instrument must not be connected to a power outlet rated at anything other than specified on the rating plate. Please note that the instrument must be grounded.
  Otherwise fire or electrical shock may result.
- Always switch OFF the power of the instrument before connecting any optional equipment (host computer, etc.).
  Otherwise fire or electrical shock may result. In addition, connecting an option while the instrument is in operation may cause the instrument to stop abnormally.

⚠ Caution

- Install the instrument in a location where it will not be exposed to water.
- Install the instrument in a location where it will not be adversely affected by heat, humidity, dust, or direct sunlight.
- Do not install in a location that is subject to vibration.
- Make sure the instrument is not exposed to strong vibrations or impacts.
- Install the instrument in a well-ventilated area.
- Do not install the instrument near devices that emit electrical interference, such as a radio or centrifugal device.
- Do not install the instrument close to stores of chemical substances or other sources of gas emissions.
- Do not use this instrument in any operating environment which has electroconductive gases, flammable gases, oxygen, hydrogen, or anesthetics that include other flammable gases.
- Install the instrument in an indoor environment.
  This instrument is designed for indoor use only.
- Do not install the instrument in an unstable position.

2.4 Electromagnetic compatibility (EMC)

This instrument complies with the following IEC (EN) standards:

- IEC61326-2-6:2005 (EN61326-2-6:2006)
  Electrical equipment for measurement, control and laboratory use - EMC requirements
- EMI (Electromagnetic Interference) For this standard the requirements of class A are fulfilled.
- EMS (Electromagnetic Susceptibility) For this standard the minimum requirements with regards to susceptibility are fulfilled.
- This equipment has been designed and tested to CISPR11 Class A. In a domestic environment it may cause a radio interference, in which case, you may need to take measures to mitigate the interference. The electromagnetic environment should be evaluated prior to operation of the device. Do not use this device in close proximity to sources of strong electromagnetic radiation (e.g. unshielded intentional RF sources), as these may interfere with the proper operation.

2.5 Avoiding infection

Risk of infection

- When performing any task on the instrument, such as testing, maintenance, preparation, or post processing, be sure to wear adequate personal protective equipment, such as protective gloves, a protective mask, protective eyewear, and a lab coat. Wash your hands with antiseptic solution after completing the task.
  There is a risk of infection.
- Be sure to connect the instrument's drain tubing to a waste fluid tank at the facility or other dedicated waste fluid tank.
  If connecting the tubing to a waste fluid tank at the facility, use a tank with a nipple to which the drain tubing can be attached or a tank with other means of securing the tubing in place so as to avoid the risk of waste fluid spillage. In addition, exercise care so as to avoid such spillage, for example by regularly verifying that the tube remains properly secured in place.
- Never touch waste, or parts that have come in contact with waste, with your bare hands.
  If you inadvertently come in contact with potentially infectious materials or surfaces, immediately rinse the skin with large amounts of water, and then follow your laboratory's prescribed cleaning and decontamination procedures.
- Use appropriate care when handling samples.
  In the unlikely event that some infectious material gets in the eyes or an open wound, rinse with large amounts of water and seek immediate medical attention.
- Do not dispose of waste fluid while smear preparation is in progress.

2.6 Handling of reagents

Warning

- CELLPACK DCL and CELLPACK DST are good electrical conductors. If the reagent is spilled inadvertently near electrical cables or appliances, there is a risk of electrical shock. Switch OFF the instrument, unplug the power cable, and wipe off the reagent.
- For the detergent that is aspirated from the piercer during shutdown, use only CELLCLEAN AUTO; do not use any other detergents.
- CELLCLEAN AUTO contains sodium hypochlorite.
  If CELLCLEAN AUTO comes in contact with the instrument's surface, it may corrode its finish.
  Immediately wipe up the CELLCLEAN AUTO with a damp cloth.
- Methanol and reagent that contain methanol (stain solution) are flammable at normal temperatures.
  Read all warnings and any included documentation before using the reagent.
- When using methanol or ethanol, use only the provided bottles.
  (➤**P.67** "Chapter 6: 6.2 Accessories")

Caution

Follow all instructions on the reagent container.

For other cautionary points, see the following.
(➤**P.71** "Chapter 7 Reagents")

2.7 Maintenance

Warning

- Fragments of glass may occasionally fall into the instrument.
  When inserting your hand into the instrument, be alert for fragments of glass slide.
- Do not subject glass slides to intense shock.
  Otherwise the glass slides may break up and cause injury.

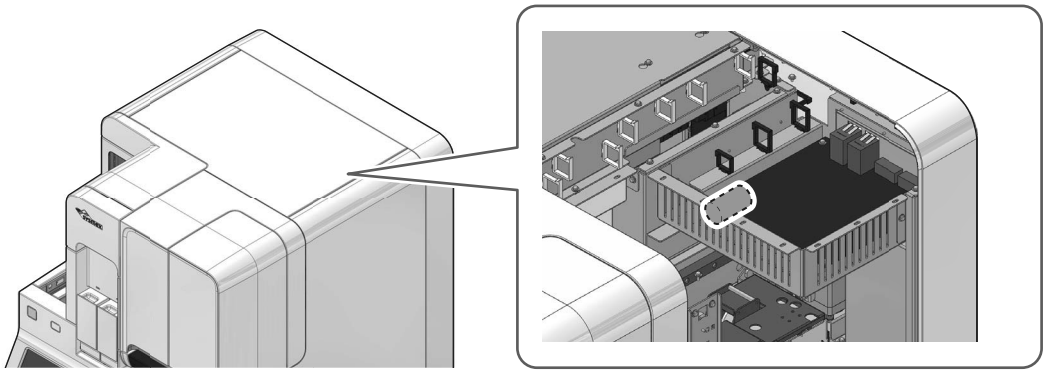
Information

When performing maintenance, use only the tools specially authorized by Sysmex.

2.8 Disposal of materials

⚠ Warning

- Dispose of waste fluids, reagents, supplies, and the instrument as medical waste, infectious waste, and/or industrial waste, in accordance with local laws and regulations.
- The instrument has a battery mounted on the control board. When disposing of the instrument, remove the battery. Recycle the battery at an appropriate recycling collection center.
  There is a risk of explosion if batteries are thrown into a fire.



This symbol is affixed by the requirement by Article 14. (4) of the WEEE Directive (2012/19/EU), and indicates the waste end-of-life equipment should not be disposed as unsorted municipal waste and to be collected such equipment separately.

2.8.1 Waste Disposal

Risk of infection

After becoming waste at end-of-life, this instrument and its accessories are regarded as infectious. They are therefore exempted from EU directive 2012/19/EU (Waste Electrical and Electronic Equipment Directive) and may not be collected by public recycling to prevent possible risk of infection of personnel working at those recycling facilities.

Warning

- Do not dispose the instrument, accessories and consumables via public recycling!
- Incineration of contaminated parts is recommended!
- Contact your authorized local Sysmex service representative and receive further instructions for disposal!
  Follow local legal requirements at all times.

Caution

Waste effluents from the instrument may contain dangerous substances and decision about disposal only has to be made by local water authority.

2.8.2 Decontamination

⚠ Warning

Before decontaminating the instrument, be sure to turn off the power supply and unplug the power cable. This is necessary to avoid the risk of electric shock. When cleaning the instrument, always wear protective gloves and gown. Also, wash hands after decontamination carefully with antiseptic solution first and with soap afterwards. Do not open the instrument for decontamination inside. Internal decontamination should only be performed by a Service Technician.

Information

- To ensure decontamination of the instrument outer surfaces, clean the instrument surface at the end of the daily work. This has to be executed in the following three situations;
  - Regularly, at the end of day,
  - Immediately, during contamination with potentially infectious material, and
  - In advance of repair or maintenance by the field technical service representative.
- Wipe the instrument surfaces using a cloth soaked with a suitable disinfectant. Please use one-way cloths, e.g. made of paper or cellulose. The cloth may be moistened in a way only that no wetness may reach the inside of the instrument.
- Follow the disinfectant contact times as specified in the product instructions.
- If required, you may afterwards remove normal contaminations with commercial neutral detergent, in case these could not be removed by the disinfectant.
- As a last step the instrument shall be dried with a dry one-way cloth.

2.9 Operators

⚠ Caution

- The instrument must only be used by properly trained personnel.
- In the event that a malfunction of the instrument occurs, take the measures indicated in the Instructions for Use. Further resolution should be referred to your Sysmex technical representative.

2.10 Computer viruses

⚠ Warning

It has been verified that the instrument you have purchased is free of computer viruses. Antivirus software has been preinstalled in the instrument; however, before using an external memory device such as a USB memory stick, always verify that the device is free of viruses.

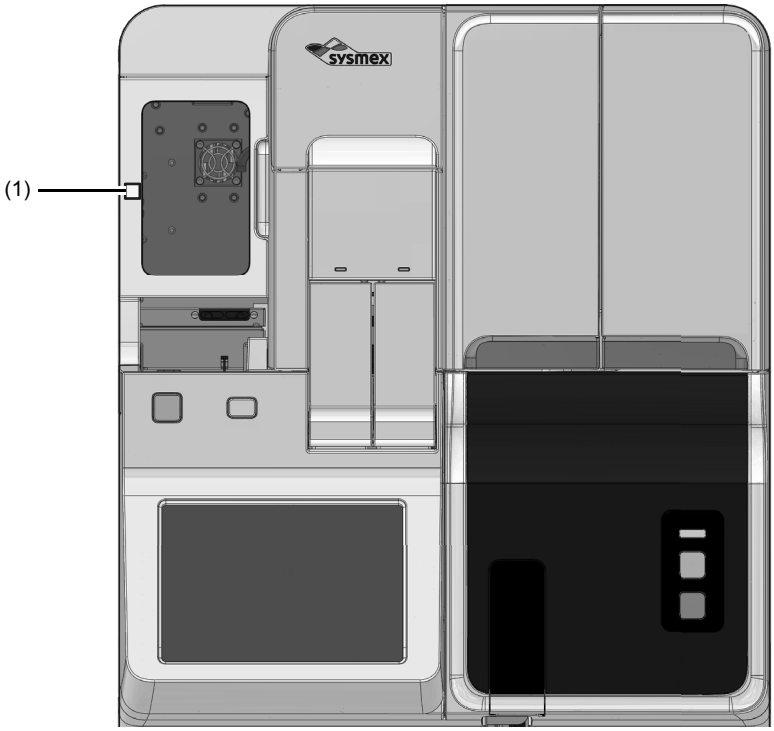
2.11 Use of other software

⚠ Warning

- Do not install any software other than the software that is preinstalled on the instrument.
- Note that we bear no liability whatsoever for any malfunctions arising from the use of other software.

2.12 Markings on the instrument

Main unit front

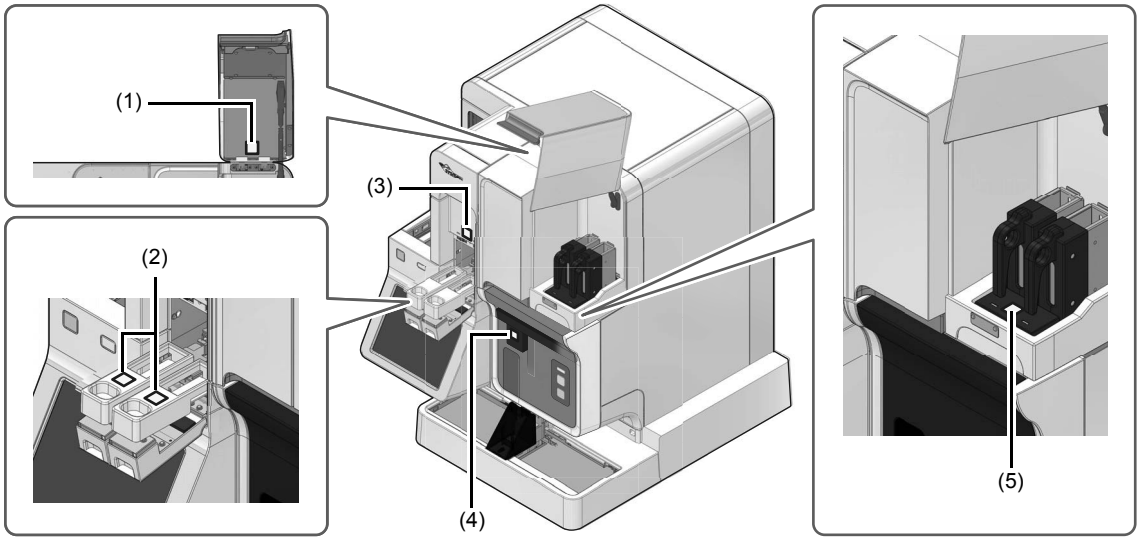


(1) Stain unit cover

⚠ Caution

The stain unit cover locks while the instrument is in operation. Do not attempt to force open.
There is a risk of instrument failure.

Main unit front interior



(1) Slide set unit cover

Warning

When opening the slide set unit cover to perform work, secure the cover in a stable position.
There is a risk of head and other injury if the cover falls.

(2) Manual magazine holder

Warning

Never insert your hand in the manual magazine holder.
There is a risk of injury.

Caution

- The manual magazine holder locks while the status display LED on the manual magazine holder is flashing. Do not attempt to force open.
  There is a risk of instrument failure.
- Pay attention to the orientation of the glass slide in the magazine when loading. See "Basic Operation" for more information.
  (➤Basic operation “Chapter 3: 3.5.2 Staining a prepared smear” step 1)
  When the CF-70 is used, there is a risk that glass slide to be analyzed on the DI-60 will not be identified.

(3) Manual magazine holder cover

Caution

The cover locks while the status display LED on the manual magazine holder is flashing. Do not attempt to force open.
There is a risk of instrument failure.

(4) Tube grabber

Risk of infection

Treat all parts and surfaces of the instrument as posing a risk of infection.

(5) Slide set unit

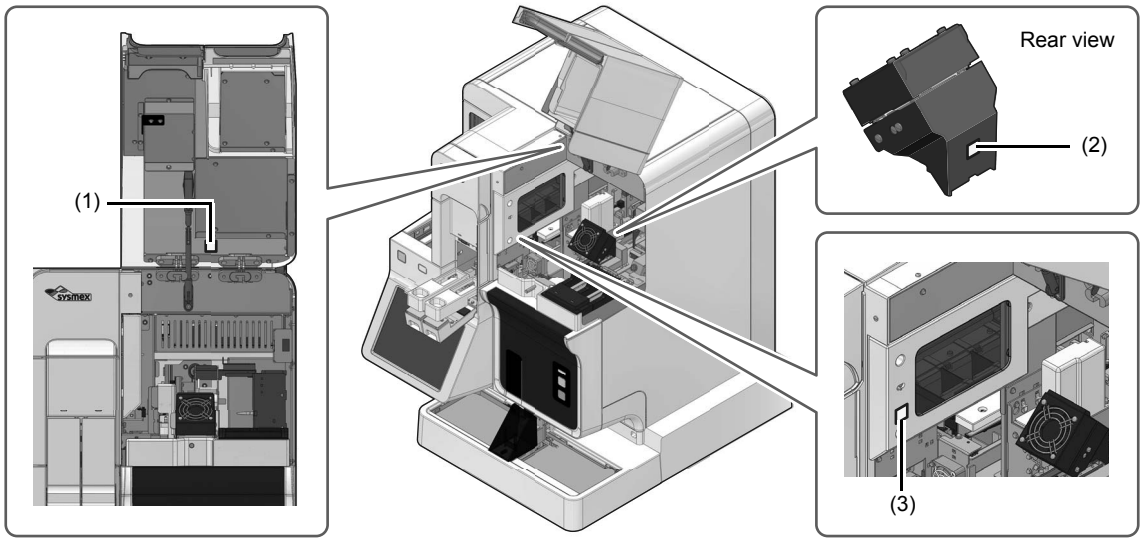
Warning

Never insert your hand in the slide set unit while the instrument is in operation.
There is a risk of injury.

Caution

- Do not load glass slides while the status display LED on the slide supply cassette is flashing. There is a risk of instrument failure.
- When setting the glass slide to the slide supply cassette, do not set in the incorrect orientation. This may affect instrument operation, and smear quality may not be suitable for microscopic examination.

Main unit front interior



(1) Smear unit cover

Warning

When opening the smear unit cover to perform work, secure the cover in a stable position.
There is a risk of head and other injury if the cover falls.

Caution

The smear unit cover locks while the instrument is in operation during the smear process. Do not attempt to force open.
There is a risk of instrument failure.

(2) Smear drying fan 1

Warning

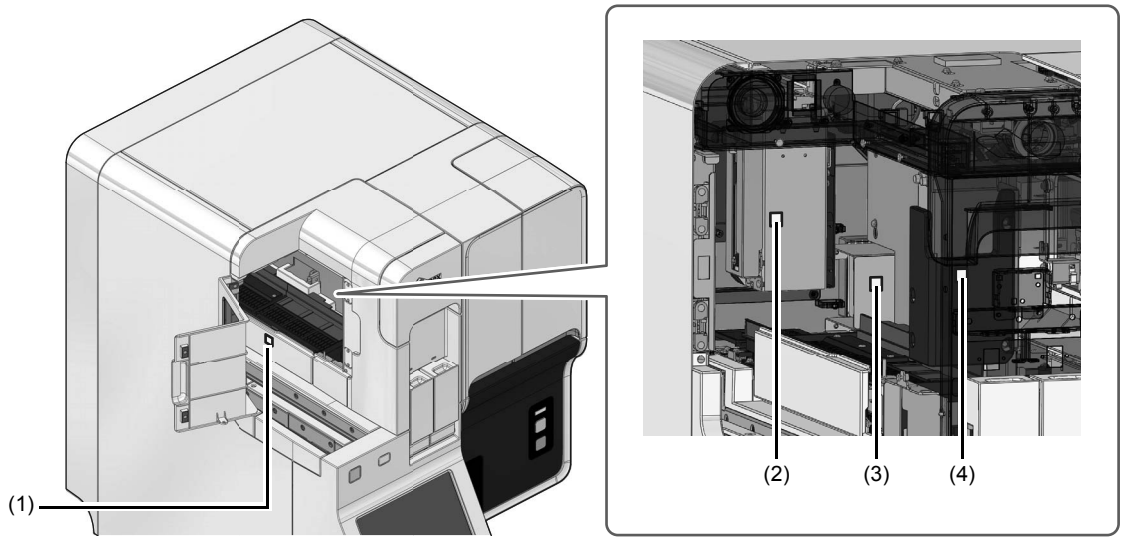
Never insert your hand in smear drying fan 1.
There is a risk of injury.

(3) Stain unit

⚠ Warning

Never insert your hand in the stain unit while the instrument is in operation.
There is a risk of injury.

Main unit front interior



(1) Staining pool cover

⚠ Warning

Never touch the reagents. They contain flammable and toxic substances.
If you inadvertently come in contact with the reagents, immediately rinse the skin with large amounts of water, and then follow your laboratory's prescribed cleaning and decontamination procedures.

⚠ Caution

The staining pool cover locks while the instrument is in operation. Do not attempt to force open.
There is a risk of instrument failure.

(2) Staining hand 2

⚠ Warning

Never touch the staining hand while the instrument is in operation.
There is a risk of injury.

(3) Dry heater

Caution, Hot

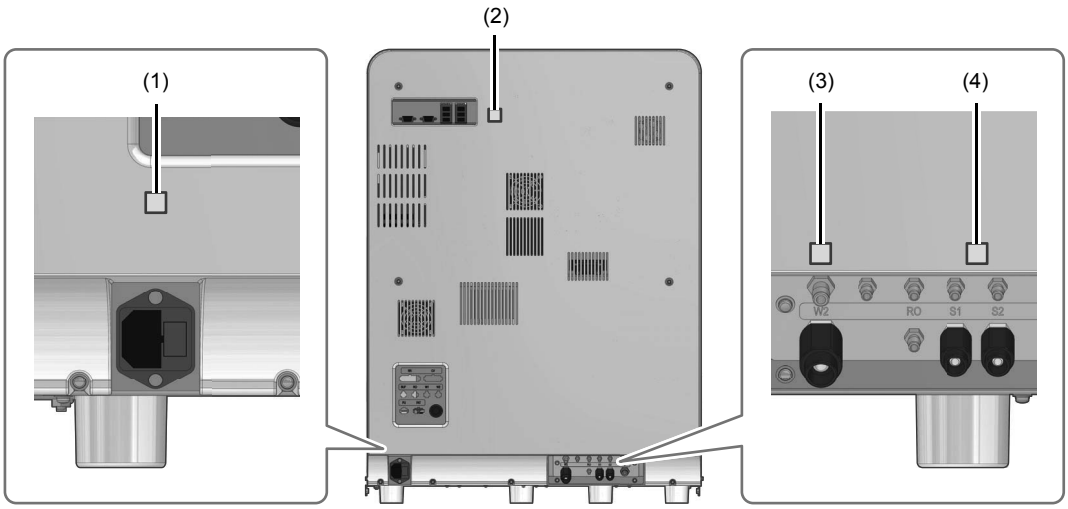
Never touch the dry heater while in operation, or immediately after operation.
There is a risk of burns.

(4) Staining hand 1

Warning

Never touch the staining hand while the instrument is in operation.
There is a risk of injury.

Main unit rear



(1) Power connector

Warning

- To avoid electrical shock, unplug the power cable before servicing.
  There is a risk of electrical shock.
- Make sure to only use a fuse of the specified type and rating.
  There is a risk of smoke emission and fire.

(2) External connector

Caution

There is a risk that static electricity on the human body may cause failure of part of the instrument.

(3) Various drain nipples

Risk of infection

Never touch the waste fluid drain nipple or overflow drain nipple with your bare hands.
There is a risk of infection by pathogens if contaminated by a sample or otherwise.
If you inadvertently come in contact with a drain nipple, immediately rinse the skin with large amounts of water, and then follow your laboratory's prescribed cleaning and decontamination procedures.

Warning

Never touch the reagents. They contain flammable and toxic substances.
If you inadvertently come in contact with the reagents, immediately rinse the skin with large amounts of water, and then follow your laboratory's prescribed cleaning and decontamination procedures.

(4) Various nipples

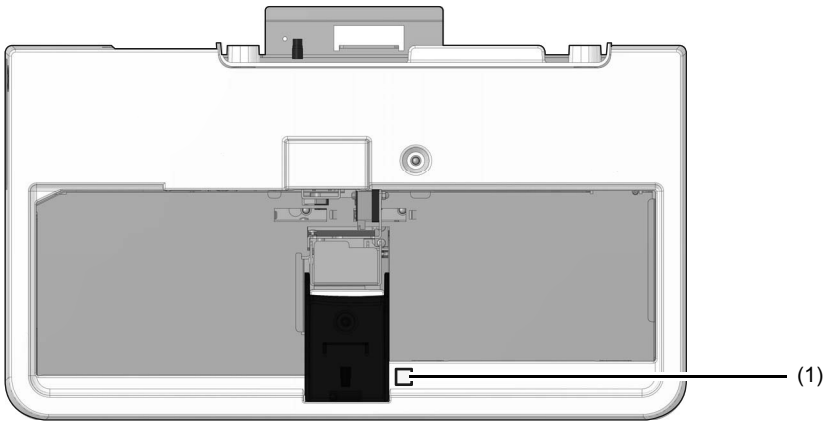
Warning

Never touch the reagents. They contain flammable and toxic substances.
If you inadvertently come in contact with the reagents, immediately rinse the skin with large amounts of water, and then follow your laboratory's prescribed cleaning and decontamination procedures.

Caution

Connect all tubes and cables to the correct connection locations.
There is a risk of instrument failure. For details on connection locations, see the following.
(➤**P.31** "Chapter 3: 3.1 Main unit")

Sampler (SA-02) (option)

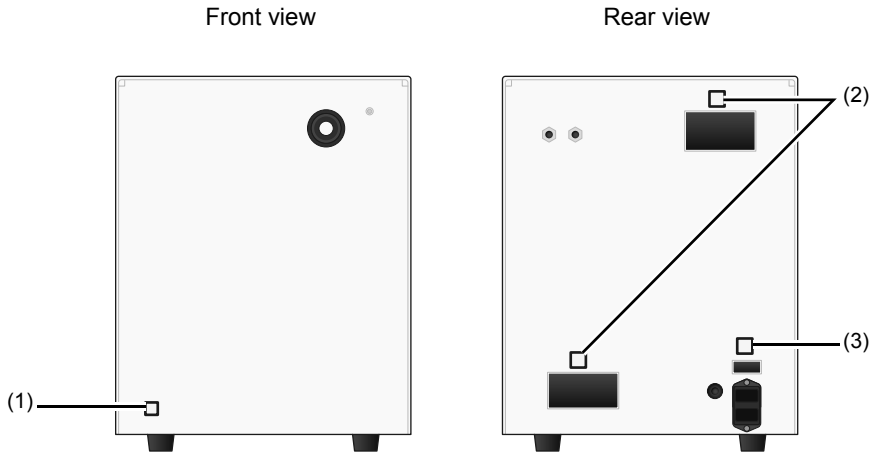


(1) Sampler

Risk of infection

Treat all parts and surfaces of the instrument as posing a risk of infection.

Pneumatic unit (PU-17)



(1) Pneumatic unit

Risk of infection

Treat all parts and surfaces of the instrument as posing a risk of infection.

(2) Pneumatic unit rear

Caution

Do not obstruct the exhaust vent on the rear of the pneumatic unit.

(3) Power connector

Warning

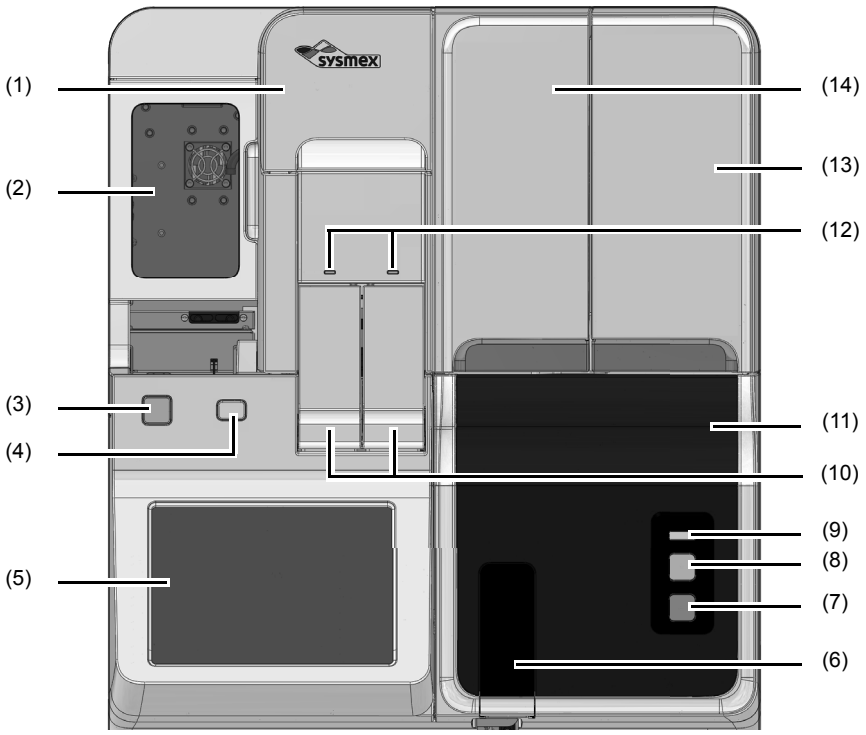
- To avoid electrical shock, unplug the power cable before servicing.
  There is a risk of electrical shock.
- Make sure to only use a fuse of the specified type and rating.
  There is a risk of smoke emission and fire.

Chapter 3 Part Names and Functions

This chapter explains an external view and a summary of this instrument.

3.1 Main unit

Front view



(1) Main power switch cover

Opens upward. Open this cover to turn the main power switch ON/OFF, and to regulates the pressure.

(2) Stain unit cover

Opens to the left. Open this cover to inspect the interior of the main unit, or to perform cleaning or maintenance tasks.

(3) Power switch

Press to turn ON the instrument power.

(4) Eject switch

Press to forcibly feed out a magazine.

(5) Touchscreen

Used to check the instrument status and perform operations.

(6) Sample holder

Used to set sample tubes for manual preparation.

(7) Mode switch

Press to switch between manual preparation and sampler preparation. Pressing it opens and closes the sample holder.

- When the sample holder is open: Manual preparation
- When the sample holder is closed: Sampler preparation

(8) Start switch

Press to start manual preparation.

(9) Status display LED (main unit front)

Instrument status is represented by the LED on/flashing pattern.

Color	Status
Green	Ready (for blood smear preparation) status/Waiting to execute maintenance
Flashing green	Starting up/Preparing a slide (sampler preparation)/ Aspirating sample (manual preparation)/Switching the slide preparation mode/ Shutting down/Sleeping/Maintenance in progress
Orange*	Ready (for blood smear preparation) status
Flashing orange*	Starting up/Preparing a slide/Switching the slide preparation mode/ Shutting down/Sleeping
Red	Error (without alarm)/Initializing system/Error stop/Stopped
Flashing red	Error (with alarm)
Not lit	Powered OFF

* An error has occurred, but the instrument is still operational.

(10) Manual magazine holder (right/left)

This is used for the following purposes in each slide preparation mode.

- [Smearing]/[Print] mode:
  The prepared glass slide is loaded into the magazine in the manual magazine holder.
- [Staining] mode:
  Load the magazine that holds the glass slide to be stained in this holder.

(11) Front-lower cover

This is a protective cover. Open this cover to inspect the interior of the main unit, or to perform cleaning or maintenance tasks.

(12) Status display LED (manual magazine holder)

The status of the manual magazine holder is indicated by the LED on/flashing pattern. The magazine cannot be loaded or removed while the LED is flashing.

Color	Status
Green	With a magazine
Red	Error
Not lit	Powered OFF/Without a magazine

(13) Slide set unit cover

Opens upward. Open to load a glass slide.

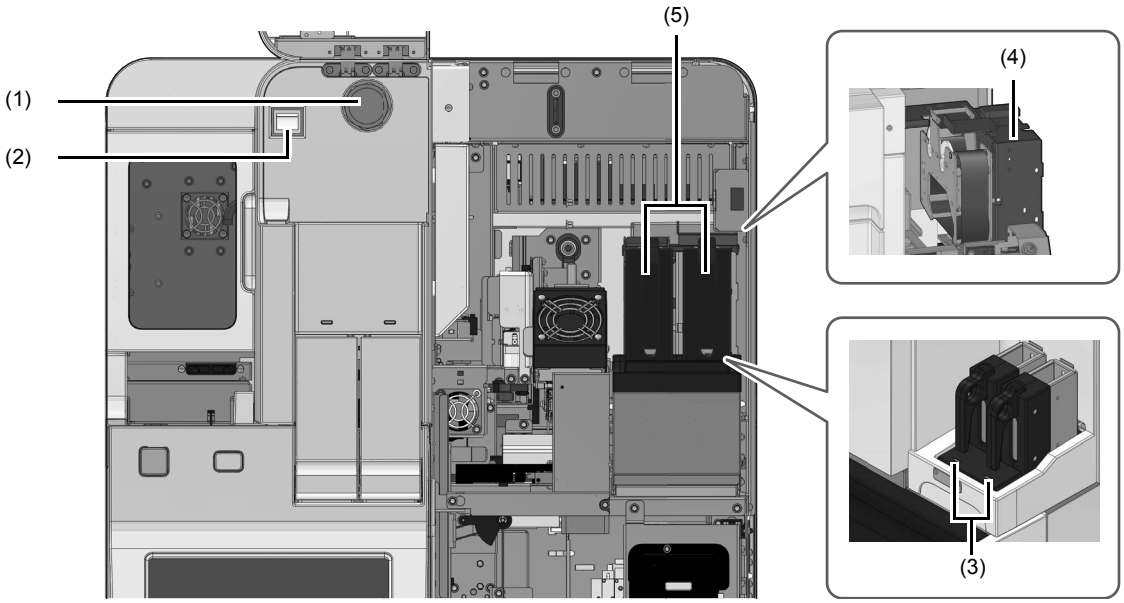
(14) Smear unit cover

Opens upward. Open this cover to inspect the interior of the main unit, or to perform cleaning or maintenance tasks. The smear unit cover and the slide set cover are one piece. To open the smear unit cover, remove the slide supply cassette first.

⚠ Warning

Be sure to open the smear unit cover until it locks in place.
Otherwise the cover may fall and cause injury.

Front interior



(1) 0.07 MPa regulator

Regulates the source pressure to 0.07 MPa.

(2) Main power switch

Press to turn the main power of the main unit ON/OFF.

⚠ Caution

Do not turn the main power switch on and off repeatedly within a short period of time.
This will overload the fuse and may cause it to blow.

(3) Status display LED (slide supply cassettes)

The LED on/flashing pattern indicates the status of the slide supply cassettes. The glass slide cannot be loaded/removed while the LED is flashing.

Color	Status
Green	Glass slide loaded
Red	No glass slide/Error
Not lit	Powered OFF

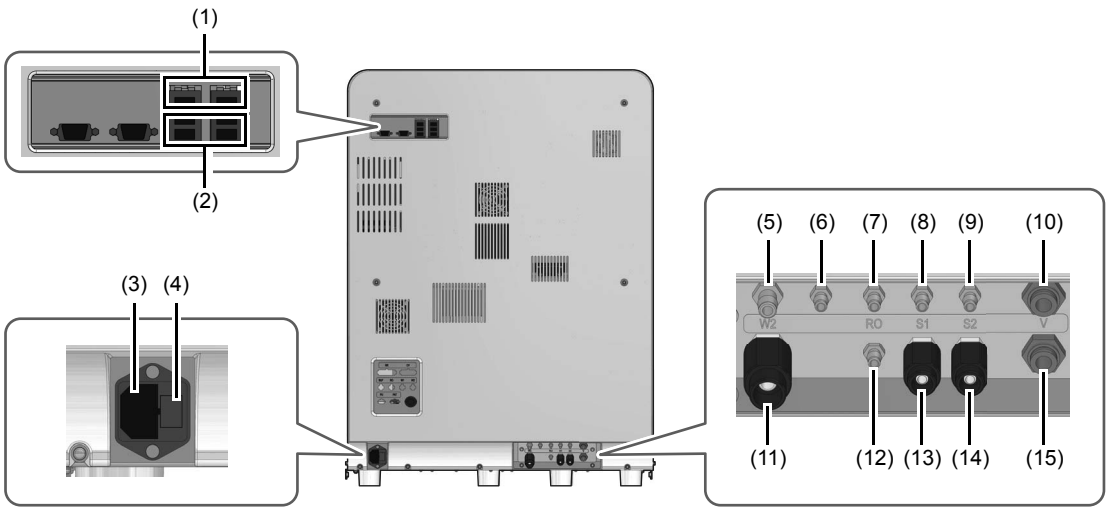
(4) Printer

Prints sample information on the frosted end of the glass slide.

(5) Slide supply cassettes (right/left)

Loads glass slides.

Rear view



(1) LAN port

Used to connect a host computer or SNCS (option).

(2) USB port

Used to connect with a hand-held barcode reader (option).
A USB memory stick can also be inserted to back up or restore files.

(3) AC power inlet

Supplies power using the provided power cable.

(4) Fuse holder

Use a 250 V 10 A (Time Lag) fuse.

⚠ Warning

- Be sure to unplug the power cable before replacing a fuse.
  This is to avoid the risk of electrical shock.
- Make sure to only use a fuse of the specified type and rating.
  This is to avoid the risk of fire.

(5) Waste fluid drain nipple 1

Waste fluid (mostly CELLPACK DCL and blood) is discharged through this nipple. Connect to a waste fluid drain or waste fluid tank.

(6) Overflow waste line nipple

Connect to a waste fluid drain or waste fluid tank.

(7) DCL aspiration nipple

Connect to a CELLPACK DCL container.

(8) Phosphate buffer aspiration nipple

Connect to a phosphate buffer container.

(9) Methanol/ethanol aspiration nipple

Connect to a methanol/ethanol container.

When set to use methanol for fixing, be sure to connect methanol. Methanol is used for fixing and cleaning.

When not set to use methanol for fixing, connect either methanol or ethanol. The connected reagent is used only for cleaning.

(10) Pressure supply nipple

Connect to the pressure output nipple of the pneumatic unit.

(11) Waste fluid drain nipple 2

Waste fluid (mostly stain solution 1, stain solution 2, phosphate buffer, methanol, and ethanol) is discharged through this nipple. Connect to a waste fluid drain or waste fluid tank.

(12) Rinse water aspiration nipple

Connect to a rinse water container or RR-20.

(13) Stain solution 1 aspiration nipple

Connect to a stain solution 1 container.

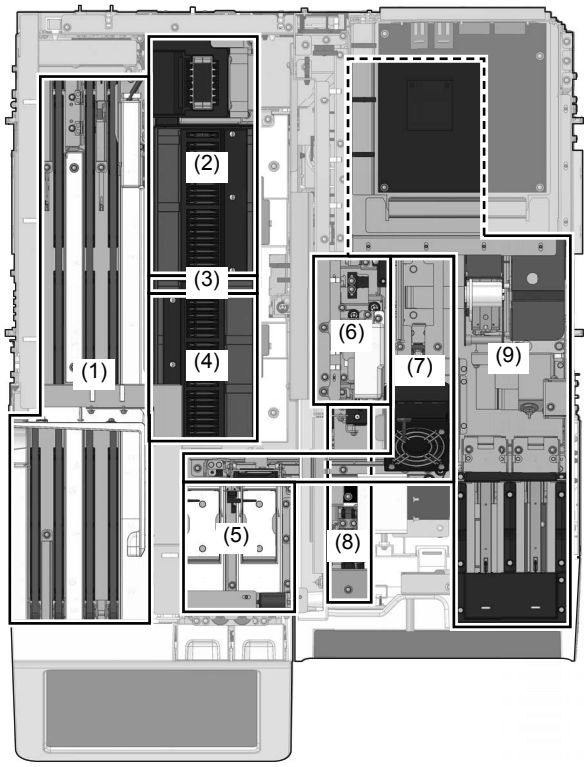
(14) Stain solution 2 aspiration nipple

Connect to a stain solution 2 container.

(15) Vacuum supply nipple

Connect to the vacuum output nipple of the pneumatic unit.

Top interior



(1) Feed-out block

Loads empty magazines in this unit. The magazine that stores prepared samples is fed out.

(2) Staining hand 2 block

Stains, cleans, and dries the sample. For details on each staining pool, see the following.
(➤**P.66** "Chapter 5: 5.5.1 Staining pool and reagent configuration")

(3) Staining hand 1 (duplicate) block

Cleans the sample. For details on each staining pool, see the following.
(➤**P.66** "Chapter 5: 5.5.1 Staining pool and reagent configuration")

(4) Staining hand 1 block

Stains the smeared sample. For details on each staining pool, see the following.
(➤**P.66** "Chapter 5: 5.5.1 Staining pool and reagent configuration")

(5) Manual magazine holder block

Stores the prepared sample into the magazine.

(6) Sample aspiration block

Aspirates the sample from the sample tube.

(7) Smear conveyance block

Dries the smeared glass slide, and conveys the smear.

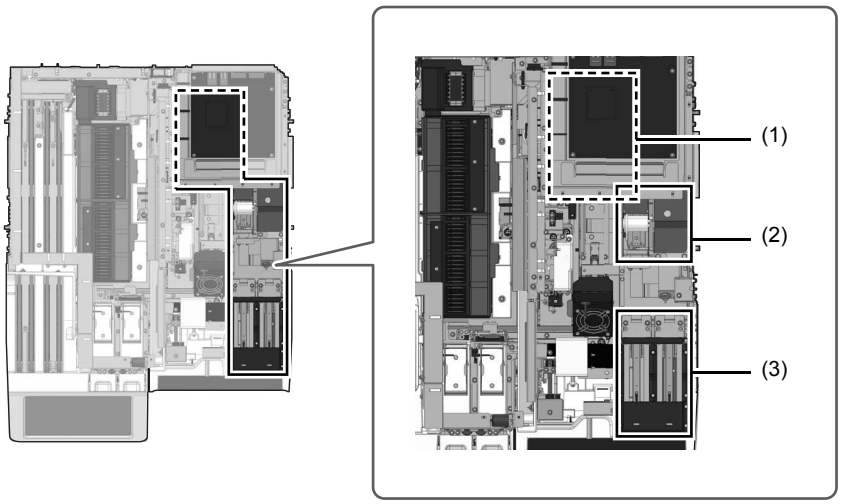
(8) Sample conveyance block

Removes the sample tube from the sample rack and mixes the sample tube.

(9) Smear/print block

Smears and prints the glass slide.

Smearing/printing block



(1) Smear unit

Spreads the dispensed sample on a glass slide.

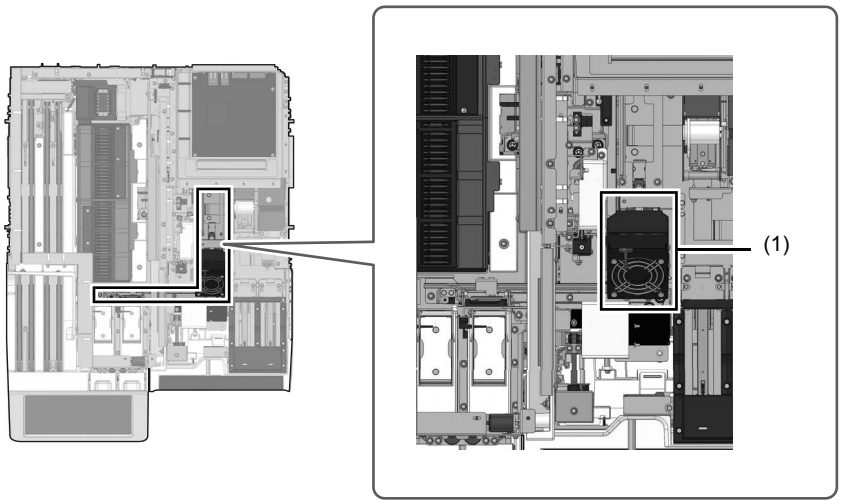
(2) Print unit

Prints sample information on the glass slide.

(3) Glass slide supply unit

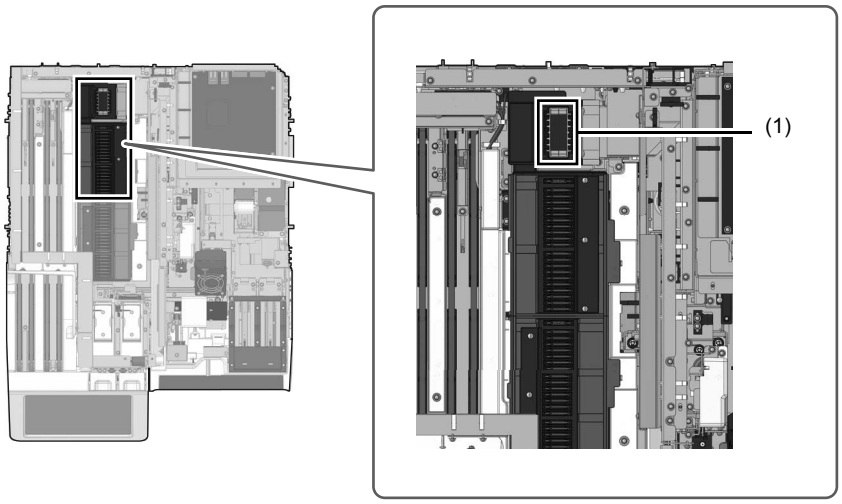
Takes out glass slides from the slide supply cassette.

Smear conveyance block



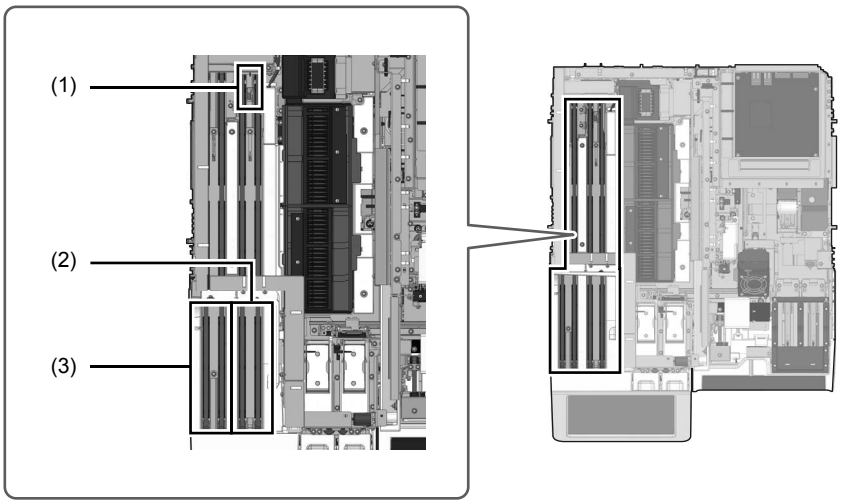
(1) Smear drier unit
Dries the smeared sample.

Staining hand 2 block



(1) Stain dryer
Dries the stained sample.

Feed-out block



(1) Magazine feeder unit

Loads the prepared glass slide into an empty magazine, and feeds out to the magazine storage unit.

(2) Magazine holder unit

A maximum of 8 empty magazines can be loaded at a time. The magazine is the same on both sides, and can be loaded without concern for the orientation.

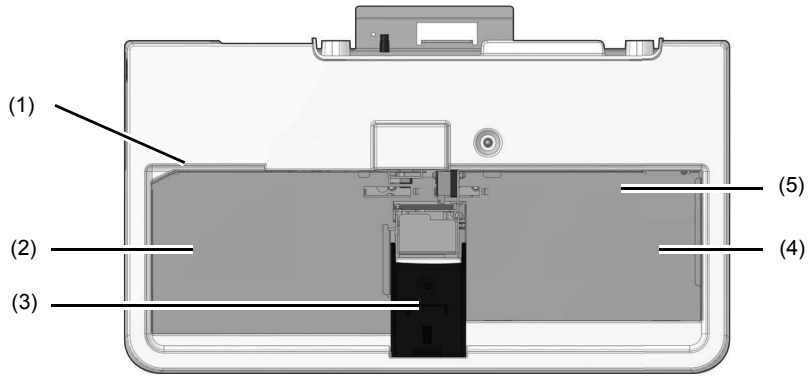
(3) Magazine storage unit

Stores the magazine that holds prepared samples.

3.2 Sampler (SA-02) (option)

Automatically supplies samples to the main unit.

Top view



(1) Rack feed-out lever
Feeds the finished sample racks from the measurement line to the left sampler pool.

(2) Left sampler pool
Sample racks are fed from the measurement line to this pool. Up to 5 finished racks can be pooled.

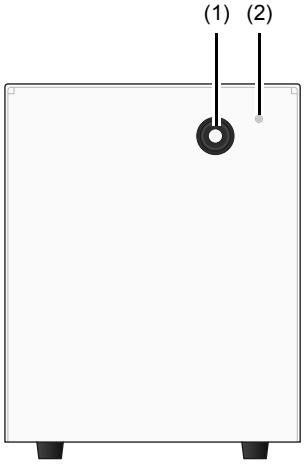
(3) Protective cover

(4) Right sampler pool
Place sample racks in this pool. A maximum of 5 racks can be placed at a time.

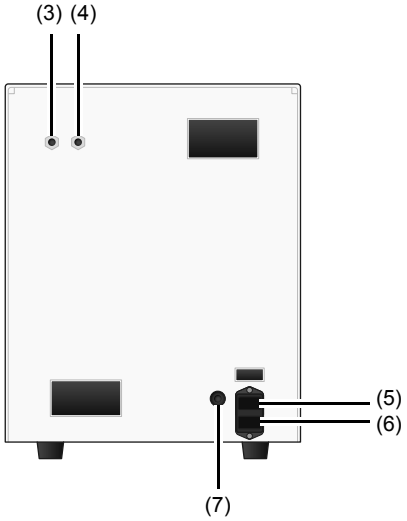
(5) Measurement line
Sample racks are automatically transported laterally. In this line, the samples are mixed and aspirated.

3.3 Pneumatic unit (PU-17)

Front view



Rear view



(1) 0.25 MPa regulator

Regulates the pressure supplied to the main unit at 0.25 MPa.

(2) Pilot lamp

Lights up when the pneumatic unit's power is ON.

(3) Pressure outlet nipple

Pressure is supplied to the main unit through this nipple. Connect this nipple with the pressure supply nipple on the main unit.

(4) Vacuum outlet nipple

Vacuum is supplied to the main unit through this nipple. Connect this nipple to the vacuum supply nipple on the main unit.

(5) Fuse

Use only with fuses of the specified type and current rating.
100 to 117 V AC: Fuse 250 V 4 A (Time Lag)
220 to 240 V AC: Fuse 250 V 3.15 A (Time Lag)

(6) Power connector

Supplies power using the provided power cable.

(7) Pneumatic control input connector

An input connector for turning the pneumatic unit ON/OFF. Connect this to the pneumatic control output connector on the main unit.

Chapter 4 Installation

This chapter explains information regarding installation of the instrument.

4.1 Preparing for installation

4.1.1 Cautions on installation

The instrument and associated equipment are installed by your Sysmex technical representative. In case relocation becomes necessary after installation, contact your Sysmex technical representative.
Problems resulting from moving of the instrument by anyone other than a Sysmex technical representative are not covered by the Warranty even within the warranty period.

- Once this instrument is delivered, check the condition of its packaging as soon as possible.

Information

If the packaging has been damaged in any way, contact your Sysmex representative as soon as possible.

- Keep the instrument in its packaging in a dry place until it is time for installation. Store upright.

4.1.2 Installation space

⚠ Warning

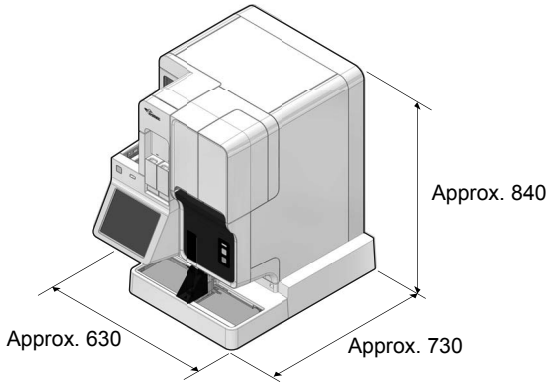
Install the instrument in a location that will allow you to immediately turn off the power and unplug the power cable in the event that the instrument emits an unusual odor or smoke.
There is a risk of fire, electrical shock, and injury.

Install the instrument in a suitable location to obtain optimum performance.

- Note the weight of this instrument. Make sure that the floor and/or the equipment on which the instrument is to be installed can withstand the weight.
- To allow for maintenance, service, and heat dissipation from the instrument, install the instrument with a clearance of at least 30 cm from the back of the instrument to the wall.

The dimensions of the instrument are shown below.

Component	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
Main unit	Approx. 578	Approx. 753	Approx. 786	Approx. 99
Sampler (SA-02)	Approx. 520	Approx. 310	Approx. 200	Approx. 25
Pneumatic unit	Approx. 280	Approx. 355	Approx. 400	Approx. 17



4.2 Installing the instrument

4.2.1 Grounding

The safety plug of the power cord of the device must be connected to a properly grounded power outlet. An appropriate adaptor and plug type should be used in your region.
For details, please contact your authorized local Sysmex representative.

⚠ Warning

- Be sure to ground this instrument.
  Improper grounding may cause electrical shock.
- Never exceed socket capacity.
  Failure to do so may cause a fire.

⚠ Caution

Use the Sysmex-specified power cable. Do not use the Sysmex-specified power cable for any equipment other than the instrument.

4.2.2 Installation environment

- Use the instrument in an ambient temperature within the range of 15 to 30 °C.
- Relative humidity should be within the range of 20 to 85 %.
- If ambient temperature and relative humidity are not within the suggested range, air-condition the environment.

For other conditions, see the following.
(➤**P.14** "Chapter 2: 2.3 Installation")

⚠ Caution

Smears prepared at a temperature or humidity outside the specified range may not be suitable for microscopic examination.

Chapter 5 Instrument Specifications

This chapter explains technical information such as specifications and principles.

5.1 Specifications

Physical specifications

Dimensions/ Weight	Main unit:	Approx. 578 (W) x 753 (D) x 786 (H) mm, approx. 99 kg
	Sampler:	Approx. 520 (W) x 310 (D) x 200 (H) mm, approx. 25 kg
	Pneumatic unit:	Approx. 280 (W) x 355 (D) x 400 (H) mm, approx. 17 kg
Electrical rating	Voltage:	
	Main unit:	AC 100 to 240 V
	Sampler:	DC24 V
	Pneumatic unit:	AC 100 to 117 V (50/60 Hz)
		AC 220 to 240 V (50/60 Hz)
	Reservoir tank:	DC12 V
	Frequency:	50/60 Hz
	Power consumption:	
	Main unit:	500 VA or less
	Sampler:	30 VA or less
	Pneumatic unit:	50 Hz: 230 VA or less (100 to 117 V), 220 VA or less (220 to 240 V)
		60 Hz: 280 VA or less (100 to 117 V), 250 VA or less (220 to 240 V)
	Reservoir tank:	20 VA or less
Operating environment	Ambient temperature:	15 to 30 °C
	Relative humidity:	20 to 85 %
	Air pressure:	70 to 106 kPa
	Room size:	At least 5,120 (W) x 1,920 (D) x 2,160 (H) mm
Noise level	60 dB or less Excludes rinse cup discharge sounds and alarm sounds.	
Storage conditions	Ambient temperature:	-10 to 60 °C
	Relative humidity:	20 to 95 % (no condensation)
	Air pressure:	70 to 106 kPa
Safety standard	IEC61010-1:2001, IEC61010-2-081:2001/A1:2003, IEC61010-2-101:2002	

Throughput

The throughput of this instrument depends on time required for preceding process and the order rate.
When a Raised Bottom Tube is used, the throughput decreases.

Number of preparable slides	Number when 1 smear is prepared from 1 sample. Standard specifications: 30 smears/hour (maximum) High-speed specifications*: 75 smears/hour (maximum)
Slide preparing time	Preparation time using default settings. Includes drying time. Double staining: About 25 minutes Single staining: About 20 minutes

* To use the high-speed specifications, the optional SP-50 SPEED UP KIT COMPLETE must be separately purchased.

Explosiveness

Maximum instantaneous concentration of methanol near inner bottom of instrument: 4,125 ppm or less

Toxicity

8-hour weighted average concentration of methanol at location 40 cm away from magazine holder: Less than 97 ppm

Sample aspiration volume

Sample tube	Cap	Sample aspiration volume
Regular sample tube	With a cap	70 µL
Regular sample tube (preparation of 1 slide)	Without a cap	38 µL
Regular sample tube (preparation of 2 slides)		70 µL
Raised Bottom Tube	With a cap	70 µL
Micro collection sample tube (preparation of 1 slide)	Without a cap	38 µL
Micro collection sample tube (preparation of 2 slides)		70 µL

Reagent consumption

Typical volumes consumed are as follows. Reagent consumption volumes may vary depending on instrument operation conditions.

Slide preparation*1			
Staining method	Reagent name	Standard specifications	High-speed specifications
Double staining	CELLPACK DCL	Approx. 21 mL	Approx. 21 mL
	Stain solution 1	Approx. 2.15 mL	Approx. 0.54 mL
	Stain solution 2	Approx. 0.90 mL	Approx. 0.45 mL
	Concentrated phosphate buffer	Approx. 1.15 mL	Approx. 0.57 mL
	Rinse water*2	Approx. 107 mL	Approx. 77 mL
	Methanol*3	Approx. 1.30 mL	Approx. 0.45 mL
Single staining	CELLPACK DCL	Approx. 21 mL	Approx. 21 mL
	Stain solution 1	Approx. 3.45 mL	Approx. 1.45 mL
	Concentrated phosphate buffer	Approx. 0.65 mL	Approx. 0.47 mL
	Rinse water*2	Approx. 82 mL	Approx. 70 mL
	Methanol*3	Approx. 1.30 mL	Approx. 0.45 mL

*1 Volume consumed per slide when prepared using the conditions below.
Standard specifications: 30 slides prepared per day
High-speed specifications: 120 slides prepared per day

*2 Rinse water consumption volume includes the volume used for dilution of concentrated phosphate buffer.

*3 Methanol is not required when methanol prefixing is not used.

Startup			
Staining method	Reagent name	Standard specifications	High-speed specifications
Double staining	CELLPACK DCL	Approx. 48 mL	Approx. 48 mL
	Stain solution 1	Approx. 73 mL	Approx. 117 mL
	Stain solution 2	Approx. 26 mL	Approx. 32 mL
	Concentrated phosphate buffer	Approx. 7.5 mL	Approx. 9.9 mL
	Rinse water*1	Approx. 439 mL	Approx. 581 mL
	Methanol*2	Approx. 70 mL	Approx. 95 mL
Single staining	CELLPACK DCL	Approx. 70 mL	Approx. 48 mL
	Stain solution 1	Approx. 99 mL	Approx. 138 mL
	Concentrated phosphate buffer	Approx. 4.5 mL	Approx. 6.8 mL
	Rinse water*1	Approx. 266 mL	Approx. 399 mL
	Methanol*2	Approx. 70 mL	Approx. 95 mL
Startup after [Shutdown 2] is performed			
Staining method	Reagent name	Standard specifications	High-speed specifications
Double staining	CELLPACK DCL	Approx. 48 mL	Approx. 48 mL
	Stain solution 1	Approx. 226 mL	Approx. 274 mL
	Stain solution 2	Approx. 158 mL	Approx. 166 mL
	Concentrated phosphate buffer	Approx. 7.5 mL	Approx. 9.4 mL
	Rinse water*1	Approx. 439 mL	Approx. 439 mL
	Methanol*2	Approx. 70 mL	Approx. 110 mL
Single staining	CELLPACK DCL	Approx. 70 mL	Approx. 70 mL
	Stain solution 1	Approx. 378 mL	Approx. 400 mL
	Concentrated phosphate buffer	Approx. 4.5 mL	Approx. 7.1 mL
	Rinse water*1	Approx. 266 mL	Approx. 414 mL
	Methanol*2	Approx. 70 mL	Approx. 110 mL

*1 Rinse water consumption volume includes the volume used for dilution of concentrated phosphate buffer.

*2 Methanol is not required when methanol prefixing is not used.

[Shutdown 1]			
Staining method	Reagent name	Standard specifications	High-speed specifications
Double staining	CELLPACK DCL	Approx. 149 mL	Approx. 149 mL
	Concentrated phosphate buffer	Approx. 3.5 mL	Approx. 4.6 mL
	Rinse water*1	Approx. 180 mL	Approx. 268 mL
	CELLCLEAN AUTO	Approx. 4 mL (1 vial)	Approx. 4 mL (1 vial)
	Methanol*2	Approx. 420 mL	Approx. 475 mL
	Ethanol*2	Approx. 420 mL	Approx. 475 mL
Single staining	CELLPACK DCL	Approx. 149 mL	Approx. 149 mL
	Concentrated phosphate buffer	Approx. 3.5 mL	Approx. 3.5 mL
	Rinse water*1	Approx. 180 mL	Approx. 207 mL
	CELLCLEAN AUTO	Approx. 4 mL (1 vial)	Approx. 4 mL (1 vial)
	Methanol*2	Approx. 420 mL	Approx. 475 mL
	Ethanol*2	Approx. 420 mL	Approx. 475 mL
[Shutdown 2]			
Staining method	Reagent name	Standard specifications	High-speed specifications
Double staining	CELLPACK DCL	Approx. 149 mL	Approx. 149 mL
	Concentrated phosphate buffer	Approx. 3.5 mL	Approx. 4.3 mL
	Rinse water*1	Approx. 180 mL	Approx. 250 mL
	CELLCLEAN AUTO	Approx. 4 mL (1 vial)	Approx. 4 mL (1 vial)
	Methanol*2	Approx. 694 mL	Approx. 848 mL
	Ethanol*2	Approx. 694 mL	Approx. 848 mL
Single staining	CELLPACK DCL	Approx. 149 mL	Approx. 149 mL
	Concentrated phosphate buffer	Approx. 3.5 mL	Approx. 3.5 mL
	Rinse water*1	Approx. 180 mL	Approx. 180 mL
	CELLCLEAN AUTO	Approx. 4 mL (1 vial)	Approx. 4 mL (1 vial)
	Methanol*2	Approx. 588 mL	Approx. 743 mL
	Ethanol*2	Approx. 588 mL	Approx. 743 mL

*1 Rinse water consumption volume includes the volume used for dilution of concentrated phosphate buffer.

*2 If methanol is used for prefixing, refer to the methanol consumption volume. If methanol is not used for prefixing, you can select whether methanol or ethanol is used as the rinsing reagent.

Carryover

Carryover is assessed by preparing smears 3 times from peripheral blood or control blood to obtain high-value samples, and then preparing smears from diluent 3 times in the same way to obtain low-value samples. The white blood cell count of the samples is then evaluated.
High to Low Carryover is calculated as follows:

$$\text{Carryover} = \left[\frac{(\text{1st Low} - \text{3rd Low})}{(\text{3rd High} - \text{3rd Low})}\right] \times 100$$

WBC: 0.01 % or less (regular rinsing)
WBC: 0.001 % or less (when additional rinse is performed)

Note:

If a smear is prepared from a low-value sample after a high-value sample, the smear may be affected by carryover within the carryover range indicated above.

Software specifications

Data storage	Samples stored:	10,000 samples
	Audit log:	5,000 entries
	Error log:	5,000 entries
	Reagent replacement log:	5,000 entries
	Maintenance log:	5,000 entries

Specifications of pure water (rinse water)

- Specification of pure water supplied to the instrument when using concentrated phosphate buffer.
  Using pure water satisfying the following conditions is recommended.
  Electric conductivity: 1.0 µS/cm or less (solution temperature 25 °C converted value)
  TOC: 500 ppb or less
  Water temperature: 15 to 30 °C

- Supply capability specifications of water purification system connected to reserve tank
  Supply pressure: 0.2 to 0.4 MPa
  Supply volume: 4.5 to 50 L/hour

Caution

If using the pure water which does not meet the specification above, smear quality may not be suitable for microscopic examination.

Note:

The pure water which meets the specification above is indicated as rinse water in this manual.

Specification of methanol

Methanol of purity 99.5 % or higher is recommended.

⚠ Caution

Smear stainability may be affected by the type of reagent used (purity, types of impurities)
If anything is unclear, contact your authorized local Sysmex representative.

Specification of ethanol

Ethanol of purity 85 % or higher is recommended.

⚠ Caution

Some reagent types (purity, types of impurities) may damage the hydraulic unit of the instrument or affect smear stainability.
If anything is unclear, contact your authorized local Sysmex representative.

5.2 Usable sample tubes, sample racks, glass slides, and magazines

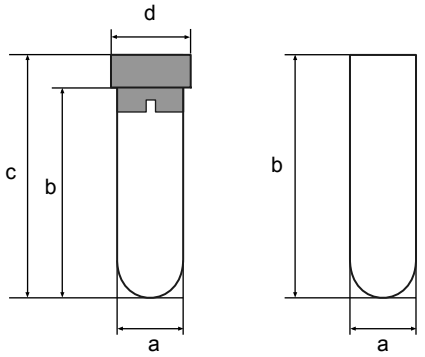
5.2.1 Supported sample tubes

Caution

Use only the sample tubes specially authorized by Sysmex.
For information on using sample tubes not described here, consult your authorized local Sysmex representative.

● Regular sample tube

	Sampler preparation	Manual preparation	
		With a cap	Without a cap
Diameter (a)	11 to 15 mm	11 to 16 mm	
Length (b)	At least 57 mm	At least 57 mm	57 to 85 mm
Length including the cap (c)	70 to 85 mm	70 to 85 mm	—
Cap diameter (d)	18 mm or less	18 mm or less	—



e.g. Tubes verified for proper operation
- VENOJECT II (Terumo)*
- Hemogard (BD)
- VACUETTE (greiner)
- Monovette (SARSTEDT)

* Reusable caps cannot be used

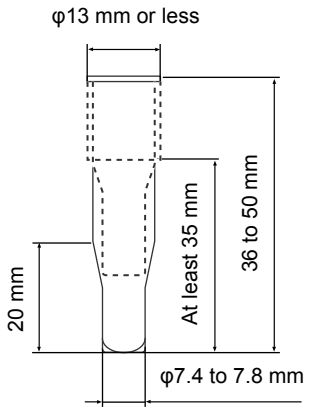
Information

- If you are preparing a smear using a micro sample, or if [Cap open] is ON, keep the sample tube uncapped during use.
- Verification of tubes does not guarantee the durability (abrasion proofness) of piercers.
- When performing sampler preparation using the VENOJECT II (Terumo), fold the film seal so that it does not protrude horizontally and then place in the rack.
  Otherwise, there is a risk that the seal will interfere with an adjacent sample tube and cause it to fall from the rack.

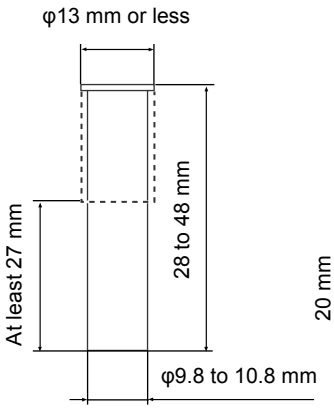
● Micro collection sample tube

Typical shapes of micro collection sample tubes are shown below.
Acceptable dimensions vary depending on the shape of the micro collection sample tube. The following are guidelines. Verification using the actual micro collection sample tube is necessary.

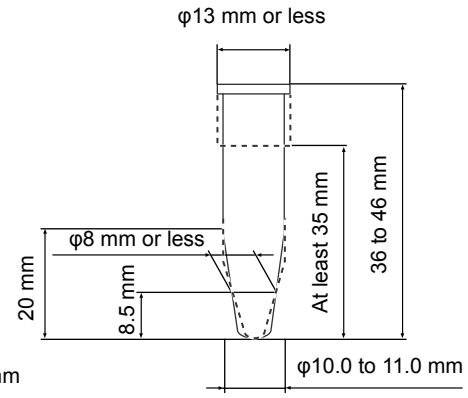
Type A



Type B



Type C



* Caps are not included in dimensions. Open the cap during smear preparation.

e.g. Tubes verified for proper operation

- CAPIJECT CJ-NA (Terumo)
- BD Microtainer Tube with BD Microgard Closure 365974 (BD)
- CAPIJECT II CJ-2DK (Terumo)*
- MiniCollect 450532 (Greiner)*

  * The analyzer needs an adjustment if using the CAPIJECT II and MiniCollect. Please consult your authorized local Sysmex representative.

● Raised Bottom Tube (RBT)

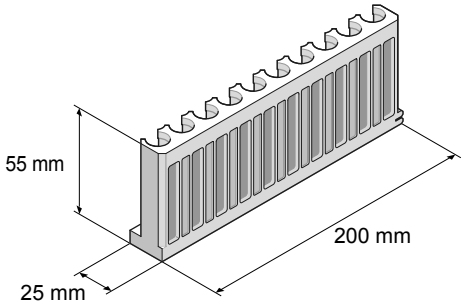
A micro collection sample tube that can be used in sampler preparation. Compatible dimensions are the same as regular sample tubes.
Close the cap for sampler preparation.

e.g. Tube verified for proper operation

- Microtainer MAP 363706 (BD)

5.2.2 Supported sample racks

Only Sysmex 10-tube sample racks can be used with regular sample tubes.
If the diameter of the sample tube is 14 mm or less, attach a dedicated adapter onto the sample rack. A dedicated adapter is included with the instrument.



Caution

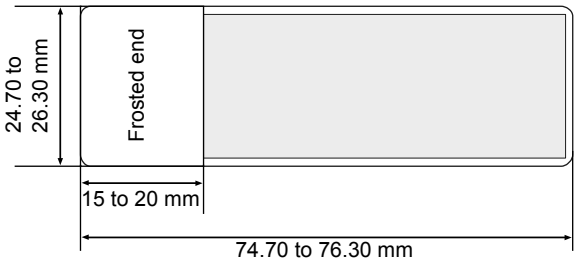
- To use Raised Bottom Tubes, place the tubes in a dedicated Raised Bottom Tube rack (RBT rack). Please note the following.
  - Do not insert a Raised Bottom Tube in anything other than an RBT rack.
  - Do not insert a sample tube other than a Raised Bottom Tube in an RBT rack.

  Otherwise, the tip of the needle could hit the bottom of the sample tube, which may lead to damages of the piercer or other instrument failures.
- Raised Bottom Tube and RBT rack can be used only when the instrument is connected to XN series. These cannot be used for SP-50 standalone sampler preparation. There is a risk of instrument failure if used.

5.2.3 Usable glass slides

The glass slide that can be used in this instrument is as follows.
Use slides with cut and rounded edges.
Size: 24.70 to 26.30 mm x 74.70 to 76.30 mm
Thickness: 0.9 to 1.2 mm
Frosted end: 15 to 20 mm

Use of Sysmex recommended slides will provide optimal performance.
For more information, please contact your authorized local Sysmex representative.



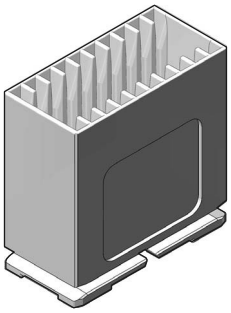
Information

Use a glass slide whose operation has been confirmed.
Operation errors, ink transfer problems or ink ribbon damage may occur with some glass slides.

5.2.4 Usable magazines

Only magazines especially designed for the instrument can be used.

Product code	Item name
AU330215	Rack No. 258

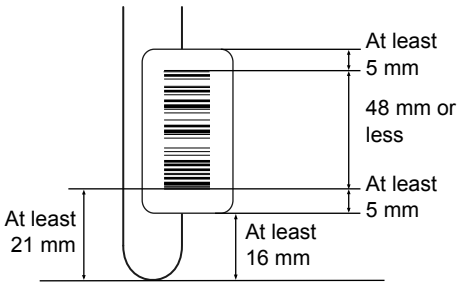


5.3 Preparing barcode labels

In order for barcodes to be read accurately, barcode labels must be affixed in the correct position.

5.3.1 Affixing barcode labels to sample tubes

Attach the barcode label to the sample tube so that the barcode is within the area shown on the right.



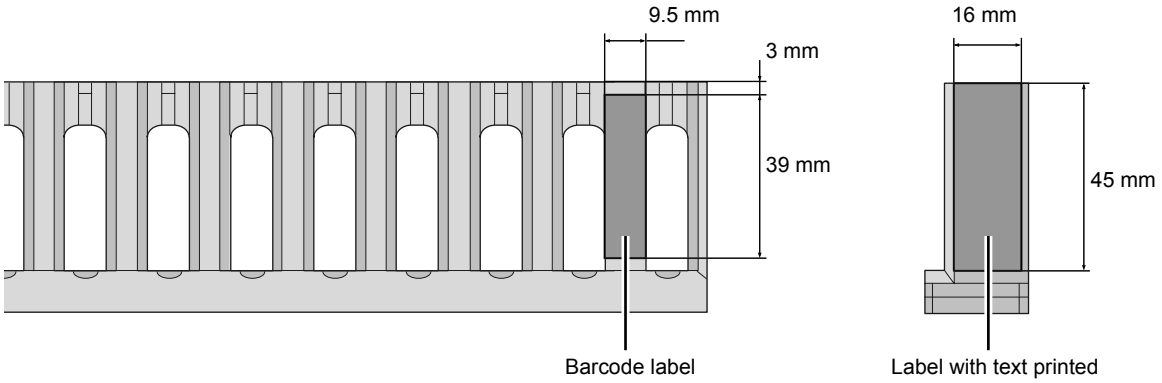
Caution

Observe the following precautions when applying barcode labels.
There is a risk of misreading the barcode and mixing up samples.

- Apply the barcodes so that they are arranged horizontally when sample tubes are placed in the sample rack.
- Apply the barcodes correctly in the prescribed position.
- Do not apply multiple barcodes.
- Apply the barcodes so that they are free of surface wrinkles.
- Firmly apply the barcodes so they do not peel off from the sample tubes. (Do not use barcode labels that peel off easily.)
- Check that the sample tubes with barcode labels slide smoothly in and out of the sample rack.
- Make sure that the label does not extend past the bottom of the sample tube.
- Do not write any text in the margins of a barcode label.

5.3.2 Affixing barcode labels to sample racks

2 labels with same barcode number will accompany your system. Affix the label with printed text to the side of the sample rack for verification purposes.



5.4 ID barcode specifications

This section explains the specifications of barcode labels that can be read by the barcode reader.

5.4.1 Acceptable barcodes

The types of barcodes that can be used and check digit support are listed below.

Caution

Use a check digit as much as possible.
If no check digit is used, it may result in incorrect barcode reading.
To set a check digit, see "Basic Operation".
(➤Basic Operation "Chapter 5: 5.6.3 Barcode reader setting")

● Sample number

Barcode types	Check digits	Number of digits
ITF	Without a cap	Max. 22 digits (sample number)
	Modulus 10	Max. 21 digits (sample number) + 1 digit (check digit) = Max. 22 digits
CODABAR/NW7	Without a cap	Max. 22 digits (sample number)
	Modulus 11	Max. 22 digits (sample number) + 1 digit (check digit) = Max. 23 digits
	Weighted modulus 11	
	Modulus 16	
CODE39	Without a cap	Max. 22 digits (sample number)
	Modulus 43	Max. 22 digits (sample number) + 1 digit (check digit) = Max. 23 digits
JAN/EAN/UPC	Modulus 10	12 digits (sample number) + 1 digit (check digit) = 13 digits
ISBT128	Modulus 103	Max. 22 digits (sample number) + 1 digit (check digit) = Max. 23 digits
CODE128	Modulus 103	Max. 22 digits (sample number) + 1 digit (check digit) = Max. 23 digits

Information

- Do not use a rack ID barcode as a barcode for a sample ID.
- When using CODE128, do not use function characters.

Note:

In CODE128, any one of the characters "A", "B", "C", "a", "b" or "c" can be used for the start/stop code.

● Rack number

Barcode types	Check digits	Number of digits
CODABAR/NW7	Modulus 16	6 digits (rack number) + 1 digit (check digit) = 7 digits
	Modulus 43	6 digits (rack number) + 1 digit (check digit) = 7 digits

Information

- Use either "D" or "d" for the start/stop code.
- Depending on the system configuration, the rack barcodes cannot be used.

5.4.2 Check digits

To improve the reliability of ID reading, a check digit can be added.
Using the sample ID "258416" as an example, the procedures for calculating the check digits for modulus 11 and weighted modulus 11 are explained below.

Modulus 11

1 Weight the value of each digit of "258416".

Digits and weightings are as follows.

Digit	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Weighting	3	2	1	10	9	8	7	6	5	4	3	2	1	10	9	8	7	6	5	4	3	2

Calculate as follows.

Value of each digit	2	5	8	4	1	6
	x	x	x	x	x	x
Weighting	7	6	5	4	3	2
	14	30	40	16	3	12

e.g. The 1st digit of "258416" is "6", and thus "6" is multiplied by "2", the weighting of the 1st digit.

2 Add all the values that result from the multiplications.

Let the result be S.

S = 14 + 30 + 40 + 16 + 3 + 12 = 115

3 Calculate the remainder when S is divided by 11.

Calculate the complement of the remainder.
The complement of 11 will be the check digit.

115/11 = 10, remainder 5
11 - 5 = 6

The check digit is 6.

> **Note:**
> Symbols and characters other than the numeric characters "0" to "9" are treated as "0". When division of S by 11 results in a remainder of 0, or when calculation of the check digit results in 10, 0 is used for the check digit.

Weighted modulus 11

Weighted modulus 11 has 2 sets of weightings for each digit. The check digit is first calculated with the 1st set of weightings. If the resulting check digit is 10, the check digit is calculated again using the 2nd set of weightings. The result will always be a value from 0 to 9. Aside from the different weightings, the calculation procedure is the same as for modulus 11.

1 Weight the value of each digit of "258416".

Digits and weightings are as follows.

Weighting	W12	W11	W10	W9	W8	W7	W6	W5	W4	W3	W2	W1
1st set	6	3	5	9	10	7	8	4	5	3	6	2
2nd set	5	8	6	2	10	4	3	7	6	8	5	9

Calculate as follows.

Value of each digit	2	5	8	4	1	6
	x	x	x	x	x	x
Weighting	8	4	5	3	6	2
	16	20	40	12	6	12

2 Add all the values that result from the multiplications.

Let the result be S.

S = 16 + 20 + 40 + 12 + 6 + 12 = 106

3 Calculate the remainder when S is divided by 11.

Calculate the complement of the remainder.
The complement of 11 will be the check digit.

106/11 = 9, remainder 7
11 - 7 = 4

The check digit is 4.

Note:

- Symbols and characters other than the numeric characters "0" to "9" are treated as "0". When division of S by 11 results in a remainder of 0, or when calculation of the check digit results in 10, 0 is used for the check digit.
- In weighted modulus 11, weightings for digits after the 12th digit (13th and higher digits) are 0. These are not included in the check digit calculation.

5.4.3 Automatic assignment of sample numbers

Sample numbers are automatically assigned when a barcode label read error occurs, or when a slide preparation is started while the slide preparation order is still downloading.
A symbol is appended to the beginning of automatically assigned sample number to distinguish them from other sample numbers.

Number starting with [ERR]	This type of sample number is assigned when a barcode label read error occurs. A barcode label read error can also occur when improper characters are used in the barcode number. Assigned numbers are reset to [00....01] when the limit is reached while assigning numbers consecutively.

5.5 Principle

This instrument automatically prepares smears from human blood with anticoagulant added (anticoagulent types are EDTA-2K, EDTA-3K, EDTA-2Na).
After preparing the smear, the instrument can also automatically apply one of the general staining methods to the smear.

Staining method

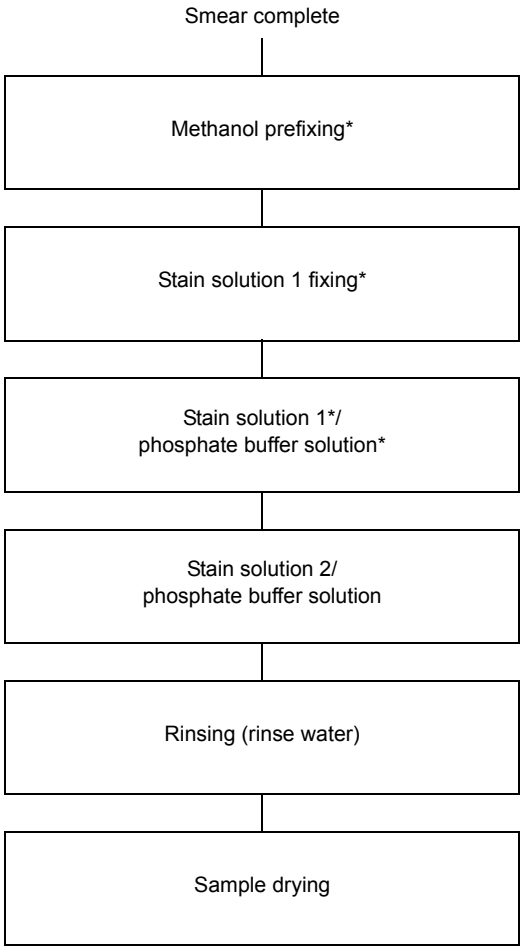
One of the following general staining methods can be used to stain smears. Stain solutions used for each staining method are indicated below.
Contact your authorized local Sysmex representative to change the staining method.

Staining method		Stain solution 1	Stain solution 2
Double staining	May-Grünwald/Giemsa double staining	May-Grünwald stain	Giemsa stain
	Wright Giemsa double staining	Wright stain	Giemsa stain
Single staining	Wright single staining	Wright stain	—

Staining method (double staining)

Advanced settings for conditions and operations of each process can be configured. See "Basic Operation" for more information.

(➤ Basic Operation "Chapter 5: 5.1 Setting list by purpose")



The methanol prefixing time can be configured.

The sample fixing time using stain solution 1 can be configured.

- The sample staining time using diluted stain solution 1 can be configured.
- The dilution ratio for stain solution 1 can be configured.

- The sample fixing time using diluted stain solution 2 can be configured.
- The dilution ratio for stain solution 2 can be configured.

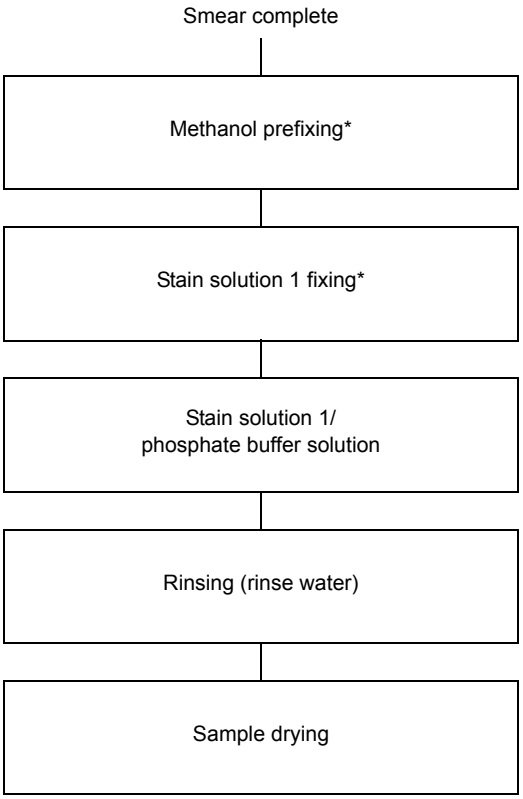
The rinse count can be configured.

- The post-staining drying time can be configured.
- Use of the dry heater after staining can be enabled/disabled.

* Whether performing or not performing a particular step can be selected by settings. Contact your authorized local Sysmex representative to change these settings.

Staining method (single staining)

Advanced settings for conditions and operations of each process can be configured. See "Basic Operation" for more information.
(➤ Basic Operation "Chapter 5: 5.1 Setting list by purpose")



The methanol prefixing time can be configured.

The sample fixing time using stain solution 1 can be configured.

- The sample fixing time using diluted stain solution 2 can be configured.
- The dilution ratio for stain solution 2 can be configured.

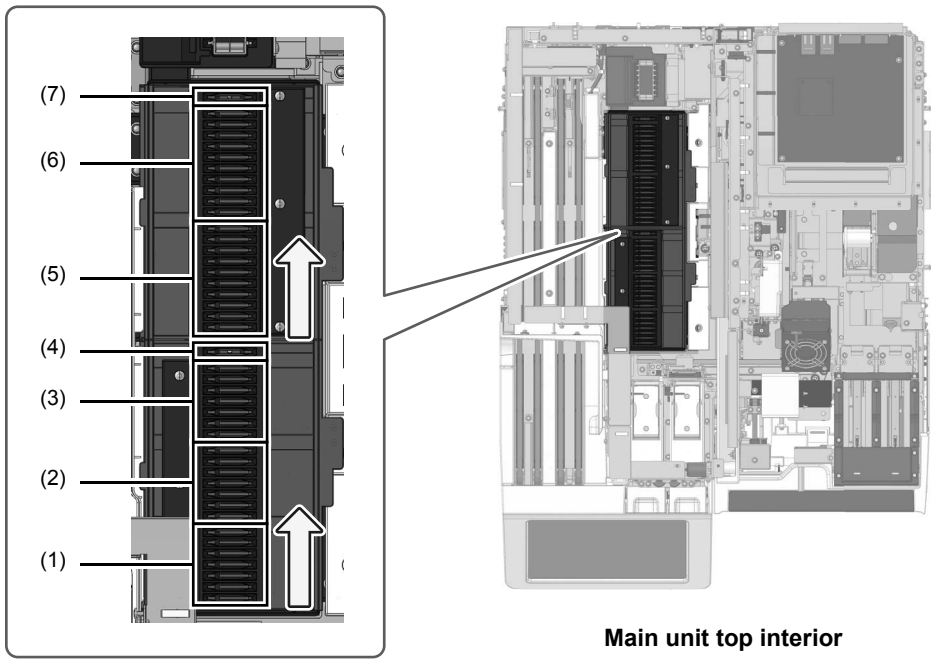
The rinse count can be configured.

- The post-staining drying time can be configured.
- Use of the dry heater after staining can be enabled/disabled.

* Whether performing or not performing a particular step can be selected by settings. Contact your authorized local Sysmex representative to change these settings.

5.5.1 Staining pool and reagent configuration

There are 7 staining pools which are filled up with the following reagents. The types of stored reagent varies depending on the staining method. Samples move through the staining pool in the direction of the arrow as illustrated in the figure.



Main unit top interior

Staining pool number	Role	Filled reagent	
		Double staining	Single staining
(1)*1	Fixing	Methanol	
(2)*2	Fixing	Stain solution 1	
(3)	Staining	Stain solution 1/phosphate buffer solution	
(4)	Rinsing	—	
(5)	Staining	Stain solution 2/ phosphate buffer solution	Stain solution 1/ phosphate buffer solution
(6)*3,4			
(7)	Rinsing	Rinse water	

*1 This is used only when the methanol prefixing process is enabled.
*2 This is used only when the stain solution 1 prefixing process is enabled.
*3 This is used only for high-speed specifications.
*4 Whether or not to use this staining pool can be selected by changing the setting. Contact your authorized local Sysmex representative to change the setting.

Chapter 6 Consumables, Accessories, and Options

This chapter describes the consumables, accessories, and options.

6.1 Consumables

Periodic replacement parts

The parts below require replacement after a specific operation count or after a specific period of time.
When it is time to replace the component, please contact your authorized local Sysmex representative.

Item name	Operation count guideline for replacement
Printer head	100,000 times
Piercer	120,000 times
Whole blood syringe	120,000 times

6.2 Accessories

SP-50 accessories

Product code	Item name	Quantity
CB841384	Intake tube_Assy No. 12 (SP-50)	1
CR937524	Intake tube_Assy No. 92	1
BD797624	Intake tube_Assy No. 93	1
BK472498	Intake tube_Assy No. 94	1
BU386018	Intake tube_Assy No. 95	1
CJ302823	Bottle No. 16 (SP-50)	1
05321623	Float switch assembly No. 28 pack (SP-50)	1
96308015	Wiring cable No. 2188 (static electricity prevention connector for waste liquid full sensor)	3
04315817	Wiring cable No. 3497 (static electricity prevention connector for RU-20 connection port)	1
04324416	Wiring cable No. 3499 (wiring cable for waste liquid full sensor)	1
CH472488	Wiring cable_Assy No. 9513	2
26677681	Fuse 50T100H	2
CJ425708	Basic Operation	1
BJ764706	Troubleshooting	1
BJ816285	General Information	1
CM205653	Holder_Assy No. 318	1
CF222015	Holder_Assy No. 361	1
AU330215	Rack No. 258 (Magazine)	20
42433321	Sample rack No. 5-1 (White)	6
BR650149	Adapter No. 208	60

Product code	Item name	Quantity
BG807462	Plug No. 110	10
AL186865	Nut No. 146	2
BK034721	Nut No. 147	1
CJ102698	Casette_Assy No. 38	2
36951239	Indication mark No. 1103	1
BK659140	Label No. 1689	1
BL883097	Label No. 5126	2
BK878324	Label No. 5127	1
AK724531	IR-STSP10 (Ink ribbon)	2
42180286	Plate Glass No. 4 (Spreader glass)	3
46223946	Screwdriver (+) DS-64	1
46231221	Cap opener No. 2	1
44216570	Pipe No. 27	1
26644618	Tie wrap Convex CV-100	10
26644621	Tie wrap CV-250	5
BF966029	6X10_#9E55 (Silicon tube) 5 m	1
44253405	Tube 9 x 6 (Urethan tube) 5 m	1
BK603598	3X6.5_#9E55 (Silicon tube) 5 m	1
44253387	Tube 6 x 4 (Urethan tube) 10 m	1
BW964100	UP1-0640 (Junron UP1 tube)	1
44237812	Joint No. 41	2

Pneumatic unit (PU-17)

Part No.	Item name	Quantity	
		100 to 117 V	220 to 240 V
01330154	PU-17 Main Complete (100 to 117 V) (White)	1	—
01330168	PU-17 Main Complete (220 to 240 V) (White)	—	1
92380928	Power cable No. 15	1	—
26571535	Power cable TA-6P(A)+TA(A) H05VV-F	—	1
26650113	Fuse ST4-4A-N1 (250 V 4 A, Time Lag)	2	—
AY579418	Fuse 02183.15MXP (250 V 3.15 A)	—	2

6.3 Options

The options below are available for the instrument.

Item name	Description
Connection Unit for DI-60 (CF-70)	Convey smears to the DI-60.
Sampler (SA-02)	During sampler preparation a sample rack is conveyed.
Reagent unit (RU-20)	Dilutes concentrated reagent (CELLPACK DST) and feeds it to the instrument.
Pure water generator	Generates pure water.
Reservoir tank (RR-20)	Holds pure water generated by a pure water generator and supplies the pure water to the instrument.
1D hand-held barcode reader	Used to read 1D barcodes.
Waste fluid tank 1 (includes waste fluid tank float switch) 20 L	Waste fluid (which does not contain organic solvent such as stain solution) discharged from the instrument is stored in this container.
Waste fluid tank 2 (includes waste fluid tank float switch) 20 L	Waste fluid (which contains organic solvent such as stain solution) discharged from the instrument is stored in this container.
SP-50 SPEED UP KIT COMPLETE	By applying this option to the instrument, you can upgrade from the standard specification to the high-speed specification.

Chapter 7 Reagents

This chapter explains the reagents that are used with the instrument.

7.1 General information

Before using, read the indication of the reagent container or package box, package insert, Safety Data Sheet, and this manual.
Please follow the warnings for handling and using each of the reagents correctly.

7.2 List of specified reagents

Product name	Storage temperature	Usage temperature	Shelf life after first opening
CELLPACK DCL	2 to 35 °C	15 to 30 °C	60 days
CELLPACK DST			
May-Grünwald stain (procured locally)	10 to 30 °C	15 to 30 °C	—
Wright stain (procured locally)	10 to 30 °C	15 to 30 °C	—
Giemsa stain (procured locally)	10 to 30 °C	15 to 30 °C	—
Phosphate buffer (procured locally)	1 to 30 °C	15 to 30 °C	—
Concentrated phosphate buffer for SP (pH6.6/pH6.8/pH7.0/pH7.2)	2 to 35 °C	15 to 30 °C	90 days
CELLCLEAN AUTO	1 to 30 °C	15 to 30 °C	—

Information

Methanol and ethanol are to be obtained by the customer.

7.3 CELLPACK DCL

CELLPACK DCL is used as a diluent in Sysmex automated hematology analyzers, and is used as a cleaning solution for the blood lines in the SP-50 automated hematology slide preparation unit.

Warnings and precautions

⚠ Caution

1. Do not use the reagent outside of the written intended use, or not according to the written directions for use.
2. When replacing the reagent, do not refill and use the same container.
3. Handle the reagent with care to prevent air bubbles from forming.
4. Do not use expired reagents.
5. If the reagent is removed after it has been connected (i.e. opened), it may become contaminated with bacteria and other particles, causing its performance to deteriorate. Therefore, reconnecting an open reagent is not recommended.
6. NEVER allow contact of this reagent with the human body. Avoid contact with skin and eyes, and avoid ingestion. If it comes in contact with the skin, rinse skin thoroughly. If it gets in the eye, rinse with large amounts of water, and seek immediate medical attention. If swallowed, seek medical advice immediately.
7. Before use, please read the safety data sheet carefully.

Preparation procedure

Use CELLPACK DCL at 15 to 30 °C. Connect the CELLPACK DCL container to the designated place on the instrument. For details, see "Troubleshooting". (➤Troubleshooting "Chapter 2: 2.6 Replacing the reagent")

Storage and shelf life

- Store CELLPACK DCL at 2 to 35 °C, away from direct sunlight.
- If the reagent has not been opened, it can be kept until the use-by date printed on the reagent container. For shelf life after first opening (connecting to the instrument), refer to the reagent specifications. (➤**P.71** "7.2 List of specified reagents")
- Replace the reagent if it is showing signs of contamination or instability, such as cloudiness or discoloration.
- If frozen, thaw and mix thoroughly before use.

Disposal procedures

- If crushing the container when disposing of fluid, make sure that any remaining fluid has been completely removed from the container before crushing.
- Disposal procedures should meet requirements of applicable local regulations.

7.4 CELLPACK DST

CELLPACK DST is diluted by x25 in a Sysmex-specified reagent preparation device, and the resulting solution is used as a diluent in Sysmex automated hematology analyzers, and as a cleaning solution for the blood lines in the SP-50 automated hematology slide preparation unit.

Warnings and precautions

⚠ Caution

1. This reagent is a concentrated reagent. Use this reagent only with a specified Reagent Preparation Unit connected to a Sysmex Automated Hematology Analyzer.
2. Follow the warnings and precautions for handling described on the reagent container, package box, package insert or the analyzer's Instructions for Use, and use the reagent correctly. The reliability of the analysis values cannot be guaranteed if the reagent is used outside of the written intended use.
3. When replacing the reagent, do not refill and use the same container.
4. Handle the reagent with care to prevent air bubbles from forming. If air bubbles form, the analysis may not be performed correctly.
5. Do not use expired reagents, as the reliability of the analysis values cannot be guaranteed.
6. If the reagent is removed after it has been connected (i.e. opened), it may become contaminated with bacteria and other particles, causing its performance to deteriorate. Therefore, reconnecting an open reagent is not recommended.
7. Avoid contact with skin and eyes, and avoid ingestion. If it comes in contact with the skin, rinse skin thoroughly. If it gets in the eye, rinse with large amounts of water and seek immediate medical attention. In the unlikely event that it is ingested, seek immediate medical attention.

Preparation procedure

Use CELLPACK DST at 15 to 30 °C. Connect the CELLPACK DST container to the designated place on the reagent preparation device. For details, see "Troubleshooting". (➤Troubleshooting "Chapter 2: 2.6 Replacing the reagent")

Storage and shelf life of unopened product

Store CELLPACK DST at 2 to 35 °C, away from direct sunlight. If the reagent has not been opened, it can be kept until the expiration date printed on the reagent container. Do not use a reagent that is suspected to have been frozen.

Storage and shelf life after first opening

- Once opened and installed in the instrument, CELLPACK DST is stable for 60 days.
- Replace the reagent if it is showing signs of contamination or instability, such as cloudiness or discoloration.

Disposal procedures

- If compressing the container when disposing of fluid, make sure that any remaining fluid has been completely removed from the container before compressing.
- Disposal procedures should meet requirements of applicable local regulations.

7.5 May-Grünwald stain (procured locally)

May-Grünwald stain is used as a reagent for preparation of blood smears using the Automated Hematology Slide Preparation Unit SP-50.

Warnings and precautions

⚠ Warning

- May-Grünwald stain (procured locally) contains methanol and is classified as a flammable and toxic substance. Store it in a safety container in accordance with your local laws and regulations.
- It is flammable at normal temperatures.
  Handle with caution.

⚠ Caution

1. Follow the warnings and precautions indicated in the package insert.
2. Store the stain solution away from direct sunlight.
3. If the stain is stored at 0 °C or less, pigment sediment may form. (This may cause tube clogging and decreased stainability when using the slide preparation unit.) If sediment forms, filter the stain solution and adjust the staining time.
4. Do not use expired reagents, as proper staining cannot be guaranteed.
5. After opening a reagent, immediately cap it to prevent bacteria and other contamination, and evaporation of the alcohol.
6. Stain is a dangerous substance (Type 4). Keep away from flame. Stain contains methanol. Take care not to inhale the vapor from the stain.
7. If reagent accidentally enters the eyes or mouth, rinse with copious amounts of water, and seek immediate medical attention if needed.
8. If it comes in contact with the skin, rinse with large amounts of water immediately.
9. Dispose of used reagent containers as medical waste, industrial waste, or otherwise in accordance with local laws and regulations.
10. Never use reagent containers or accessories for other than their intended purpose.
11. If the instrument will not be used for a long period of time, replace the stain with alcohol and rinse.
12. Before use, please read the safety data sheet carefully.

Preparation procedure

Use May-Grünwald stain 15 to 30 °C. The stain result may become fainter if the stain is used at 15 °C or lower, or denser if used at 30 °C or higher.

Connect the May-Grünwald stain container to the designated area of the instrument. For details, see "Troubleshooting". (➤Troubleshooting "Chapter 2: 2.6 Replacing the reagent")

Storage and shelf life

- Store May-Grünwald stain away from direct sunlight.
- The reagent can be kept until the use-by date printed on the reagent container.
- Replace the reagent if it is showing signs of contamination or instability, such as cloudiness or discoloration.

Disposal procedures

Disposal procedures should meet requirements of applicable local regulations.

7.6 Wright stain (procured locally)

Wright stain is used as a reagent for preparation of blood smears using the Automated Hematology Slide Preparation Unit SP-50.

Warnings and precautions

⚠ Warning

- Wright stain (procured locally) contains methanol and is classified as a flammable and toxic substance. Store it in a safety container in accordance with your local laws and regulations.
- It is flammable at normal temperatures. Handle with caution.

⚠ Caution

1. Follow the warnings and precautions indicated in the package insert.
2. Store the stain solution away from direct sunlight.
3. If the stain is stored at 0 °C or less, pigment sediment may form. (This may cause tube clogging and decreased stainability when using the slide preparation unit.) If sediment forms, filter the stain solution and adjust the staining time.
4. Do not use expired reagents, as proper staining cannot be guaranteed.
5. After opening a reagent, immediately cap it to prevent bacteria and other contamination, and evaporation of the alcohol.
6. Stain is a dangerous substance (Type 4). Keep away from flame. Stain contains methanol. Take care not to inhale the vapor from the stain.
7. If reagent accidentally enters the eyes or mouth, rinse with copious amounts of water, and seek immediate medical attention if needed.
8. If it comes in contact with the skin, rinse with large amounts of water immediately.
9. Dispose of used reagent containers as medical waste, industrial waste, or otherwise in accordance with local laws and regulations.
10. Never use reagent containers or accessories for other than their intended purpose.
11. If the instrument will not be used for a long period of time, replace the stain with alcohol and rinse.
12. Before use, please read the safety data sheet carefully.

Preparation procedure

Use Wright stain 15 to 30 °C. The stain result may become fainter if the stain is used at 15 °C or lower, or denser if used at 30 °C or higher.

Connect the Wright stain container to the designated area of the instrument. For details, see "Troubleshooting". (➤Troubleshooting "Chapter 2: 2.6 Replacing the reagent")

Storage and shelf life

The reagent can be kept until the use-by date printed on the reagent container.

Disposal procedures

Disposal procedures should meet requirements of applicable local regulations.

7.7 Giemsa stain (procured locally)

Giemsa stain is used as a reagent for preparation of blood smears using the Automated Hematology Slide Preparation Unit SP-50.

Warnings and precautions

⚠ Warning

- Giemsa stain (procured locally) contains methanol and is classified as a flammable and toxic substance. Store it in a safety container in accordance with your local laws and regulations.
- It is flammable at normal temperatures. Handle with caution.

⚠ Caution

1. Follow the warnings and precautions indicated in the package insert.
2. Store the stain solution away from direct sunlight.
3. If the stain is stored at 0 °C or less, pigment sediment may form. (This may cause tube clogging and decreased stainability when using the slide preparation unit.) If sediment forms, filter the stain solution and adjust the staining time.
4. Do not use expired reagents, as proper staining cannot be guaranteed.
5. After opening a reagent, immediately cap it to prevent bacteria and other contamination, and evaporation of the alcohol.
6. Stain is a dangerous substance (Type 4). Keep away from flame. Stain contains methanol. Take care not to inhale the vapor from the stain.
7. If reagent accidentally enters the eyes or mouth, rinse with copious amounts of water, and seek immediate medical attention as needed.
8. If it comes in contact with the skin, rinse with large amounts of water immediately.
9. Dispose of used reagent containers as medical waste, industrial waste, or otherwise in accordance with local laws and regulations.
10. Never use reagent containers or accessories for other than their intended purpose.
11. If the instrument will not be used for a long period of time, replace the stain with alcohol and rinse.
12. Before use, please read the safety data sheet carefully.

Preparation procedure

Use Giemsa stain 15 to 30 °C. The stain result may become fainter if the stain is used at 15 °C or lower, or denser if used at 30 °C or higher.

Connect the Giemsa stain container to the designated area of the instrument. For details, see "Troubleshooting". (➤Troubleshooting "Chapter 2: 2.6 Replacing the reagent")

Storage and shelf life

- Store Giemsa stain away from direct sunlight.
- The reagent can be kept until the use-by date printed on the reagent container.
- Replace the reagent if it is showing signs of contamination or instability, such as cloudiness or discoloration.

Disposal procedures

Disposal procedures should meet requirements of applicable local regulations.

7.8 Phosphate buffer (procured locally)

The phosphate buffer is used as a reagent for preparation of blood smears using the Automated Hematology Slide Preparation Unit SP-50.

Warnings and precautions

> **⚠ Caution**
>
> 1. Do not use expired reagents, as the staining properties of a hematology blood smear will change.
> 2. When replacing this reagent, do not refill and use the same container.
> 3. If the reagent is removed after it has been connected (i.e. opened), it may become contaminated with bacteria and other particles, causing its performance to deteriorate. Therefore, reconnecting an open reagent is not recommended.
> 4. Always wear protective coat and gloves when carrying out work on or with the reagent.
> 5. NEVER allow contact of this reagent with the human body. Avoid contact with skin and eyes, and avoid ingestion. In case of skin contact, rinse immediately with plenty of water. In case of contact with eyes, rinse immediately with water or normal saline, occasionally lifting upper and lower eyelids until no evidence remains. Obtain medical attention. If swallowed, seek medical advice immediately.
> 6. Before use, please read the safety data sheet carefully.

Preparation procedure

Use the phosphate buffer at 15 to 30 °C. The stain result may become fainter if the stain is used at 15 °C or lower, or denser if used at 30 °C or higher.

Connect the SP phosphate buffer container to the designated area of the instrument. For details, see "Troubleshooting". (➤Troubleshooting "Chapter 2: 2.6 Replacing the reagent")

Storage and shelf life

- Store the phosphate buffer away from direct sunlight.
- The reagent can be kept until the use-by date printed on the reagent container.
- Replace the reagent if it is showing signs of contamination or instability, such as cloudiness or discoloration.

Disposal procedures

Disposal procedures should meet requirements of applicable local regulations.

7.9 Concentrated phosphate buffer for SP (pH6.6/pH6.8/ pH7.0/pH7.2)

Concentrated phosphate buffer for SP is diluted appropriately in the SP-50 automated hematology slide preparation unit and then used as a reagent for preparation of smears.

Warnings and precautions

⚠ Caution

1. Follow the warnings and precautions for handling described on the reagent container, package box or the instrument's Instructions for Use and use the reagent correctly. The staining properties of a hematology blood smear will change if the reagent is used outside of the written intended use.
2. Do not use expired reagents, as the staining properties of a hematology blood smear will change.
3. Do not use this reagent if it has been frozen.
4. When replacing this reagent, do not refill and use the same container.
5. Do not dilute this reagent using manual methods.
6. If the reagent is removed after it has been connected (i.e. opened), it may become contaminated with bacteria, causing its performance to deteriorate. Therefore, reconnecting an open reagent is not recommended.
7. Always wear protective coat and gloves when carrying out work on or with the reagent.
8. NEVER allow contact of this reagent with the human body. Avoid contact with skin and eyes, and avoid ingestion. In case of skin contact, rinse immediately with plenty of water. In case of contact with eyes, rinse immediately with water or normal saline, occasionally lifting upper and lower eyelids until no evidence remains. Obtain medical attention. If swallowed, seek medical advice immediately.
9. The hazard and toxic information written on the label is classified by Regulation (EC) No 1272/2008. Please see the Safety Data Sheet for the country-specific classification.

Preparation procedure

Use Concentrated phosphate buffer for SP at 15 to 30 °C. If an analysis is performed at a temperature over 30 °C or under 15 °C, the staining properties of a hematology blood smear will change.

Connect the containers for Concentrated phosphate buffer for SP to the designated area of the instrument. For details, see "Troubleshooting". (➤Troubleshooting "Chapter 2: 2.6 Replacing the reagent")

Storage and shelf life

- Store Concentrated phosphate buffer for SP at 2 to 35 °C, away from direct sunlight. Do not use a reagent that is suspected to have been frozen.
- The use-by date appears on the label of unopened containers for Concentrated phosphate buffer for SP.
- Once opened and connected to the instrument Concentrated phosphate buffer for SP is stable for 90 days.
- Replace the reagent if it is showing signs of contamination or instability, such as cloudiness or discoloration.

Disposal procedures

- Make sure that any remaining fluid has been removed from the container before disposing of the container.
- Disposal procedures of cartridge, reagent solution and waste fluid from the instrument should meet requirements of applicable local regulations.

7.10 CELLCLEAN AUTO

CELLCLEAN AUTO is a strong alkaline detergent. This reagent is used to remove Sysmex lysing reagent, cellular residuals, and blood proteins remaining in the hydraulics of XN series automated hematology analyzer, XN-L series automated hematology analyzer, SP-10 automated hematology slide preparation unit, and SP-50 automated hematology slide preparation unit.

Warnings and precautions

⚠ Caution

1. Avoid contact with skin and eyes. In case of skin contact, flush the area with water. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice immediately.
2. Small white dots may be visible in the seal. This is normal and does not affect the quality of the product or integrity of the seal.

Storage and shelf life after first opening

- Store at 1 to 30 °C. Do not freeze.
- CELLCLEAN AUTO should be stored in a dark place. Avoid exposing to direct sunlight, or chlorine component will deteriorate and the effectiveness of this detergent will be lost depending upon the time period of exposure.

Disposal procedures

- After use, there will be a hole in the film that seals the top of the tube. Exercise caution, as residual fluid may leak from the hole.
- Disposal procedures should meet requirements of applicable local regulations.

Index

S

T

W