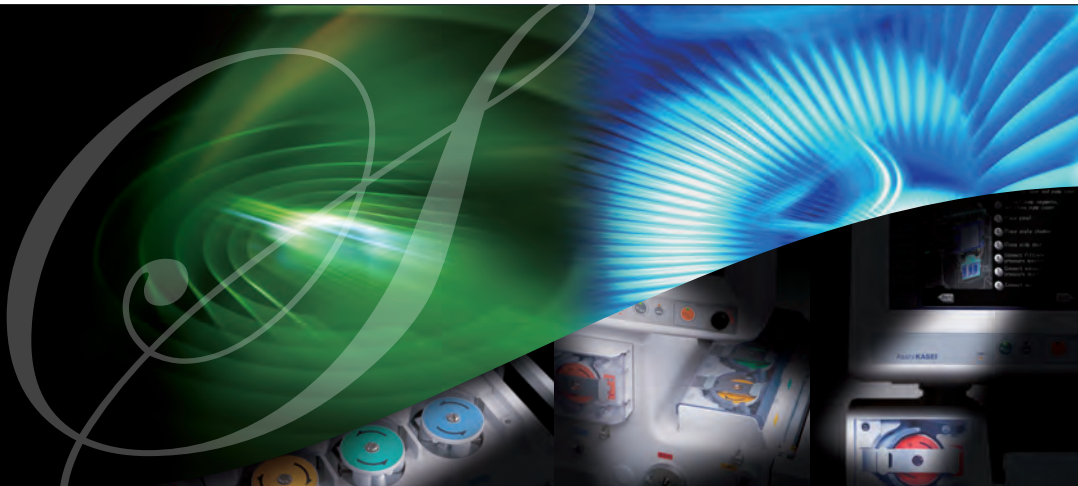


Blood Purification Equipment

PlasautoΣTM

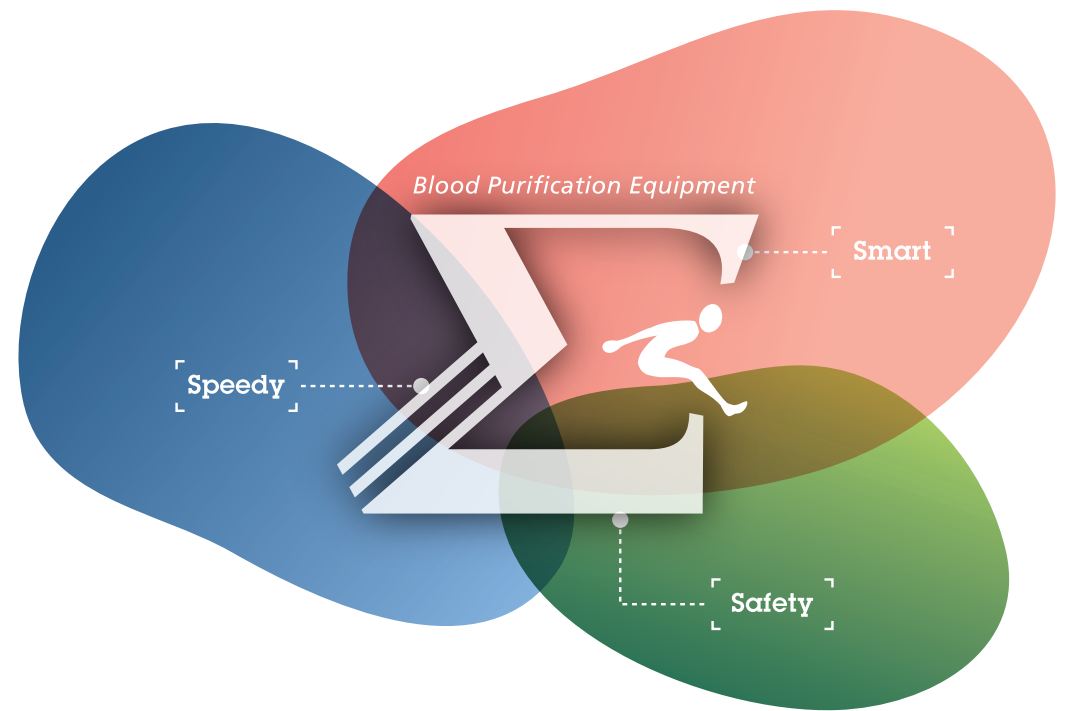
Blood Purification Equipment

PlasautoΣTM



Explore the new possibilities of blood purification.

PlasautoΣ is a multifunctional system for therapeutic apheresis and Continuous Renal Replacement Therapy (CRRT) ideal for clinical sites. It realizes the three S: speedy, safety and smart. With new developed cassette tubings and a multi-CPU system, the machine is fully equipped with advanced high specifications. Designed to meet future generation needs, PlasautoΣ leads the blood purification field with excellent reliability.



Speedy:

Preparation time of tubings are reduced by the use of cassette tubing system and slide stator pumps. With its auto-priming function, PlasautoΣ reduces priming time compared to conventional systems.

Safety:

The unique technology of the fluid removal control enables treatment with high accuracy.
The air-free pressure chamber minimizes contact between blood and air.
The unique fluid measurement method enables a safe and simple fluid bag exchange.

Smart:

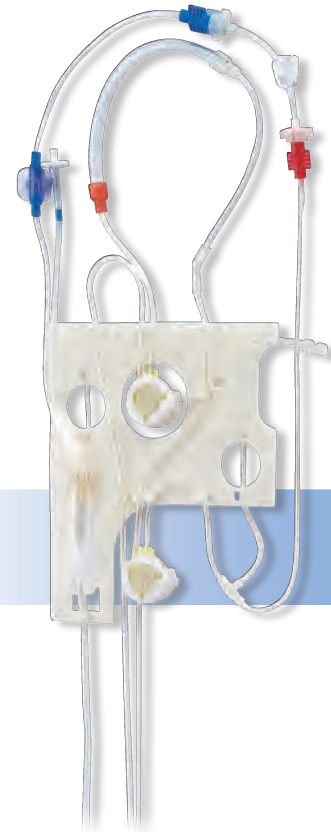
PlasautoΣ is a multifunctional system for all treatment modes in therapeutic apheresis and CRRT. The system features a variety of automatic control functions, including automated plasma recovery and pressure-driven automatic flow control.

About “Σ”
Σ is Greek letter for English “s” which stands for “sun” in mathematical notation.
PlasautoΣ is named after the process of summing (or maximizing each of) the three S (Speedy, Safety and Smart).



Speedy

Preparation time of tubings are reduced by the use of cassette tubing system and slide stator pumps. With its auto-priming function, Plasauto Σ reduces priming time compared to conventional systems.



Simultaneous set up of the blood tubing

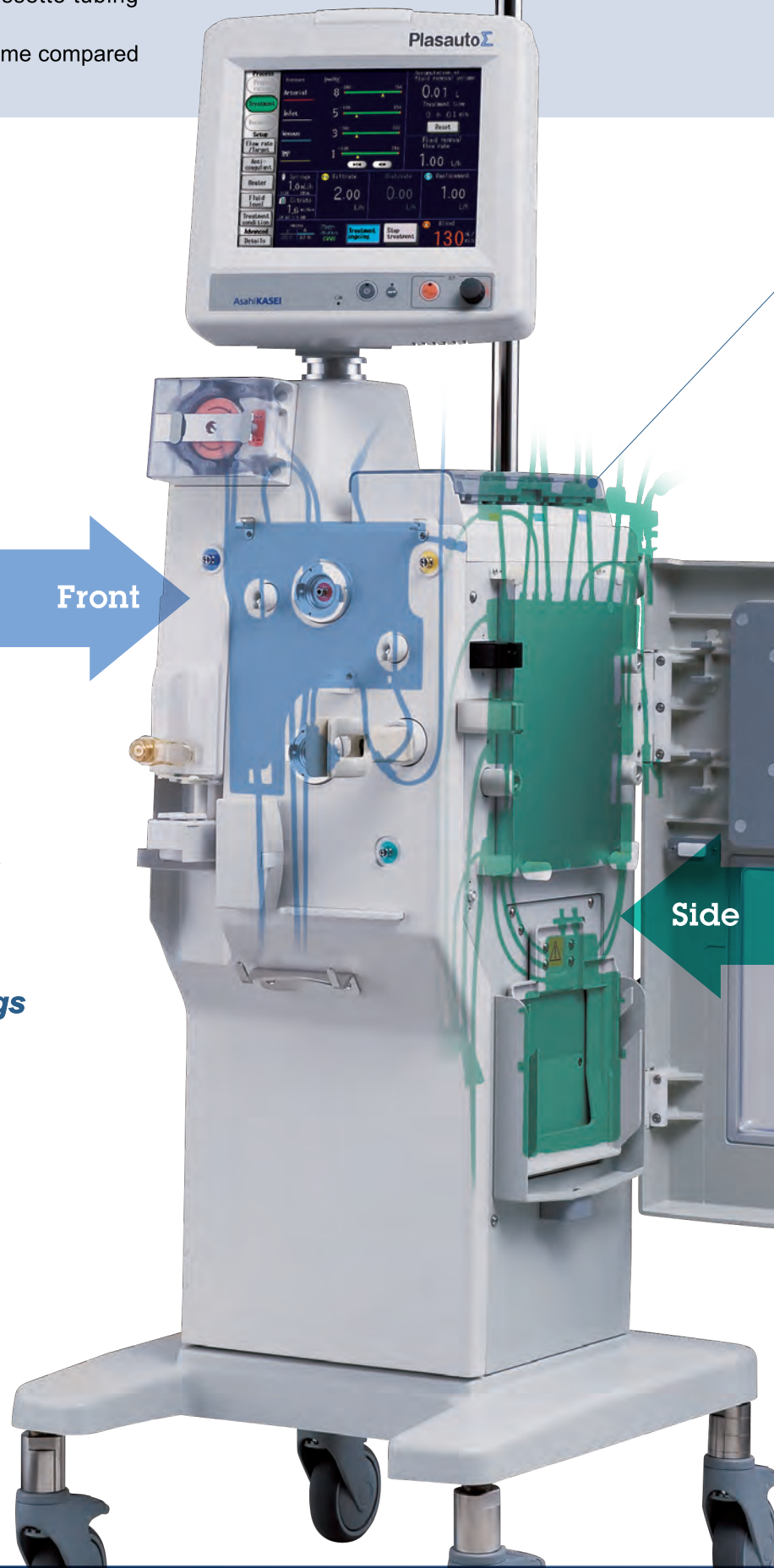
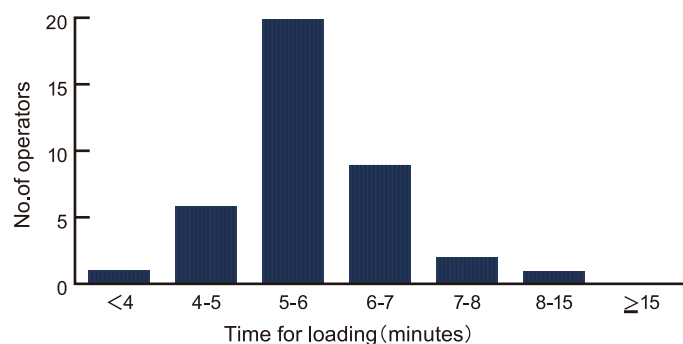
Both the arterial and venous tubings are loaded simultaneously. There is no concern about mistakes, since the use of the cassette tubing ensures correct positioning of the air detectors.

Reduction of priming volume in the tubings

Reduced priming volume simplifies operation, and improves safety.

Quick set up of the tubings

Using the cassette type tubing system, the average time for loading the tubing is approximately 5 minutes. (In-house data, average loading time: 5 minutes and 38 seconds, number of operators: 39, under Asahi's supervision).



Set up of the slide stator pump tubings

The use of slide stator pumps enables the tubings set up without winding. In addition, triple pump tubings are simultaneously loaded.

Simultaneous set up of the fluid panel tubing

With the new developed dual warming panel and triple weighing reservoir as the core components, the filtrate, dialysate and replacement fluid tubings are loaded at the same time.

• Blood leak detectors and valves

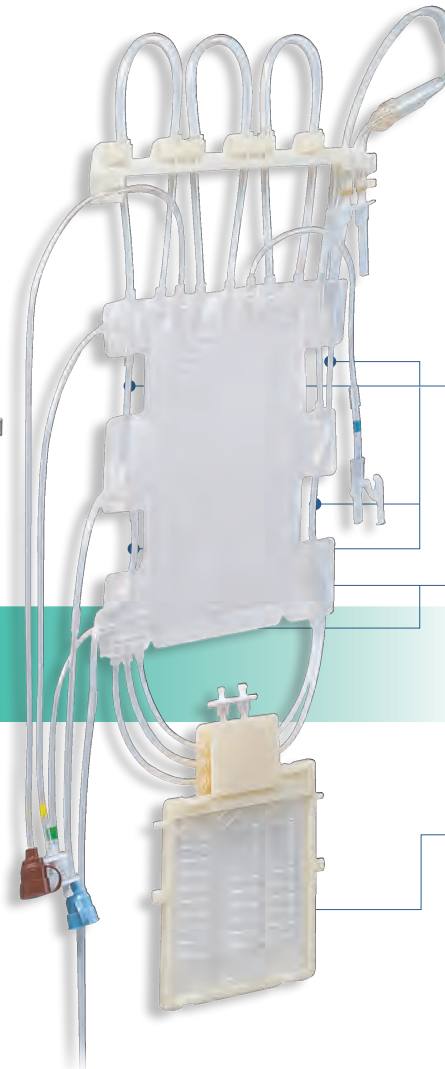
When the heater panel is installed, the blood leak detector and valve tubes are also loaded simultaneously.

• Dual warming panel

In DFPP and PA modes, both the inlet and outlet of the 2nd filter or column can be heated. In CRRT mode, dialysate and replacement fluid can be heated.

• Triple weighing reservoir

The chamber of filtrate, dialysate, replacement are in one unit.



Triple weighing reservoir holder

Due to the integrated design, the weighing chamber can be set more easily.



Safety

The unique technology of the fluid removal control enables treatment with high accuracy. The air-free pressure chamber minimizes contact between blood and air. The unique fluid measurement method enables a safe and simple fluid bag exchange.

Stable driving of the blood pump

The belt-driven pump provides excellent stability from low to high speeds. A wide range flow rate can be achieved from 1 to 400mL/min. by using a pump tubing with low priming volume.

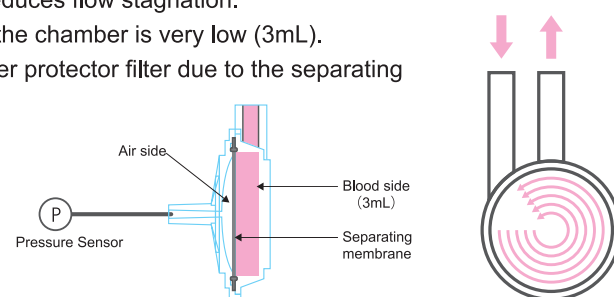


Air-free pressure chamber

The chamber design minimizes contact between blood and air.

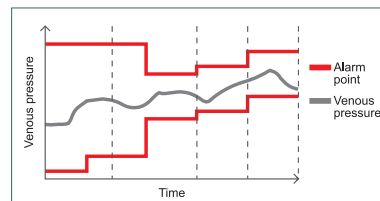
■ Features

1. Its separating membrane blocks contact between blood and air.
2. Whirling blood flow reduces flow stagnation.
3. The blood volume in the chamber is very low (3mL).
4. No need for transducer protector filter due to the separating membrane.



Automatic pressure tracking

Alarm limits are automatically updated as the pressure changes. An alarm is generated when abnormal pressure is detected in the tubing set.

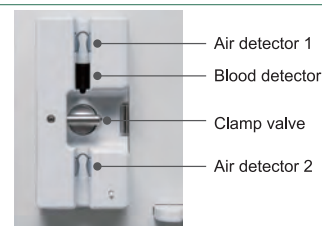


Safety features for the syringe pump

The machine contains comprehensive safety functions including detection of syringe size and plunger setting.

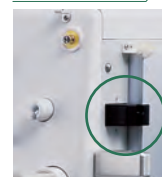
Dual monitoring of air detection

Using a dual monitoring system, the air detector provides a higher degree of safety.



Precise detection of blood leak and hemolysis

Not only does the PlasautoΣ have infrared (IR) for detecting blood leak in all treatment modes it also has green light for detecting hemolysis in the filtrate line in PE, DFPP and PA treatment modes.

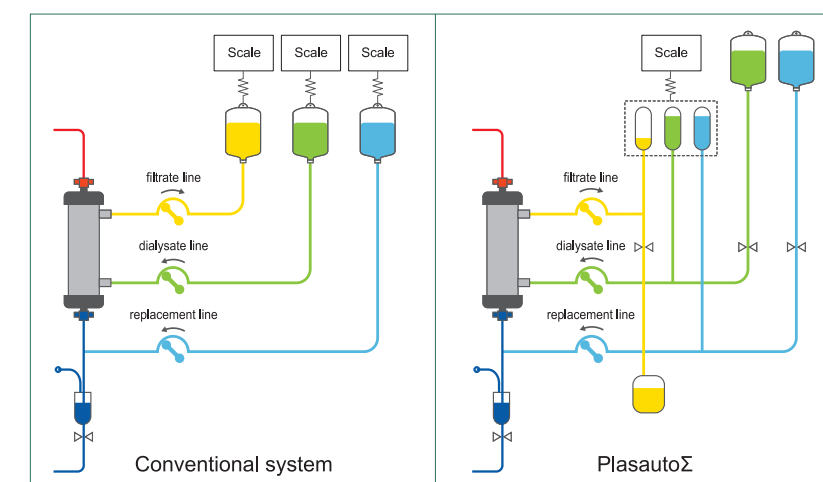


Battery equipped as standard

In the case of unexpected power failure or disconnection of the power plug, blood recovery can be performed by internal battery.

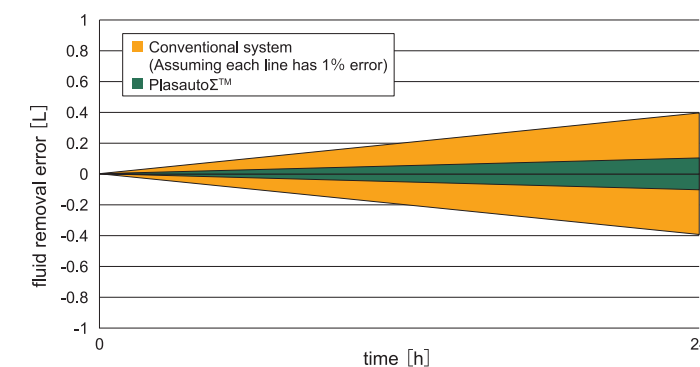
High accuracy fluid removal control

To assure accurate fluid removal, the “segmented” and “balanced” measurement method is used for filtrate, dialysate and replacement fluid. Compared to the conventional “fluid bag weight” and “individual” measurement method, this accuracy has improved fluid removal accuracy remarkably. The high accuracy will help ensure safety in all situations including high volume CRRT and pediatric CRRT.



Accuracy of fluid balance control system

condition : Fluid removal rate 0.05L/h, replacement fluid 0.4L/h, dialysate 0.4L/h



Safe and user friendly bag exchange

■ Simple exchange of fluid bag:

The “segmented” measurement method enables fluid bag exchange without interrupting treatment.

■ Resistant to external shock:

The measurement unit is protected against vibrations and contact, thus minimizing interruption of treatment.

PlasautoΣ is a multifunctional system for all treatment modes in therapeutic apheresis and CRRT. The system features a variety of automatic control functions, including automathed plasma recovery and pressure-driven automatic flow control.

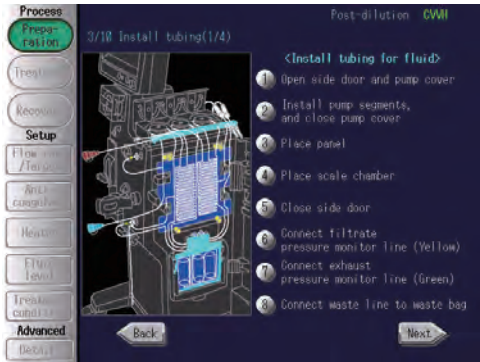
Multifunctional System

PlasautoΣ is a multifunctional system for all treatment modes in therapeutic apheresis and CRRT.

Therapeutic Apheresis	PE	DFPP	PA	LCAP	HA
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRRT	CVVH	CVVHD	CVVHDF	SCUF	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Guidance functions

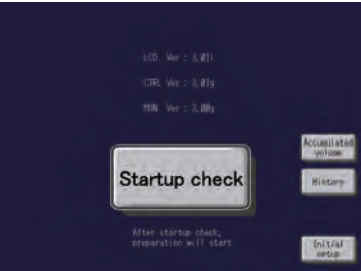
The LED touch screen provides visual guidance for various procedures from tubing set up to blood recovery. When an error occurs, the system displays the location of the error and actons to take in response to alarms.



Tubing set guidance



Response-to-alarm guidance



Self check screen

Startup check

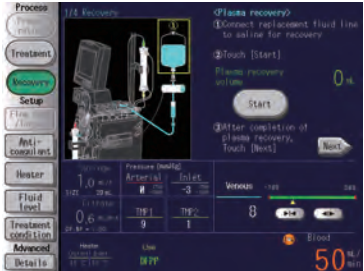
The machine automatically performs a self-check in just one minute to assure system integrity including pump rotation, valve status and scale offset.



Priming screen

Auto-priming

The auto-priming function is applicable to even wet columns. The auto-priming function provides a self-check of the tubing connection, scale and pressure monitor. This helps ensure proper operation with high safety.



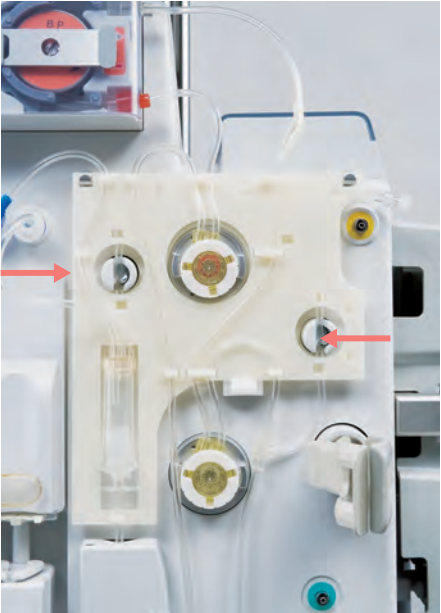
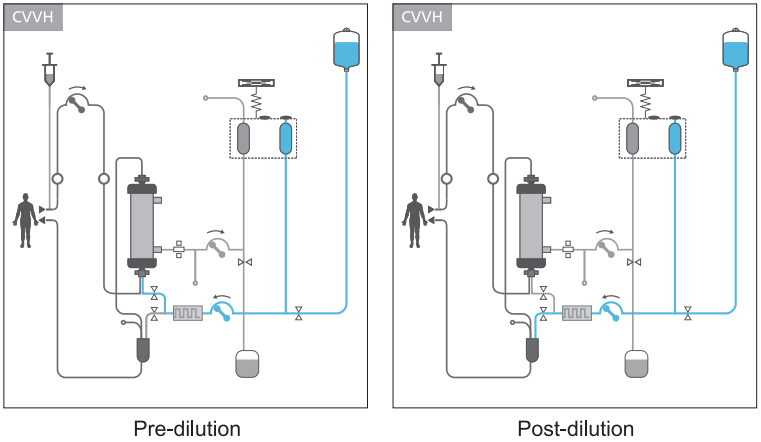
Plasma recovery screen

Automatic plasma recovery

With the single touch of a button, the machine completes plasma recovery in the DFPP and PA modes that use two filters.

Selection of pre- or post-dilution mode

The use of two pinch valves allows the user to switch between pre- and post-dilution during CVVH and CVVHDF treatment modes with the single touch of a button.



Automatic flow rate control

- Each treatment mode provides the automatic flow rate control function to assure safe use of our filter products.
- DFPP, PA and PE modes: According to the 1st filter TMP, the plasma separation flow rate is automatically reduced to prevent hemolysis.
 - LCAP mode: The blood pump speed is automatically reduced according to the pressure difference.

Auto-restart from blood shortage alarm

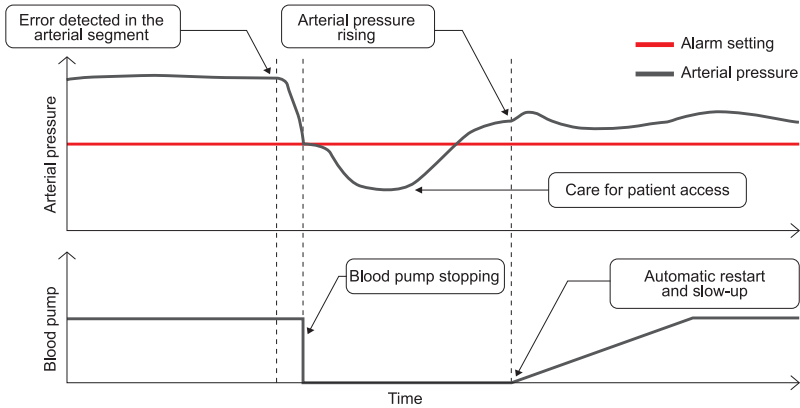
The blood pump automatically restarts when normal arterial pressure is restored. The blood pump can be set to slow-up operation after the blood shortage is restored.

High volume treatment

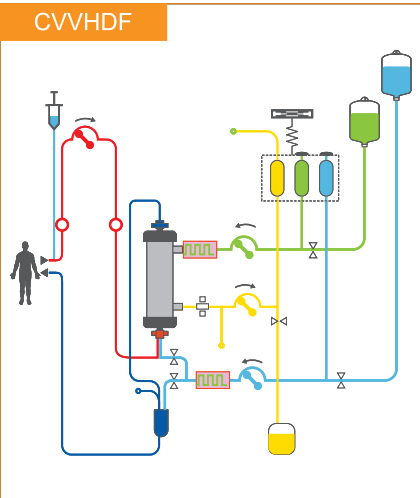
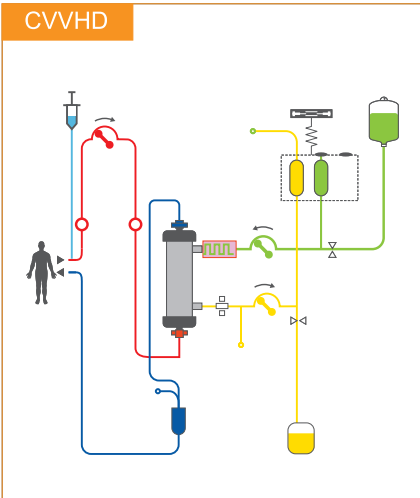
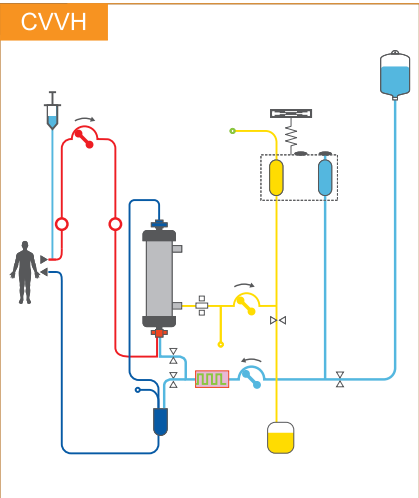
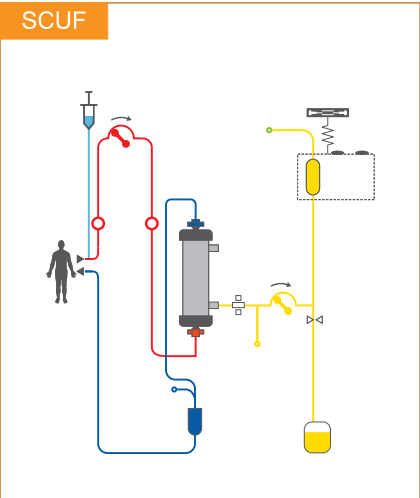
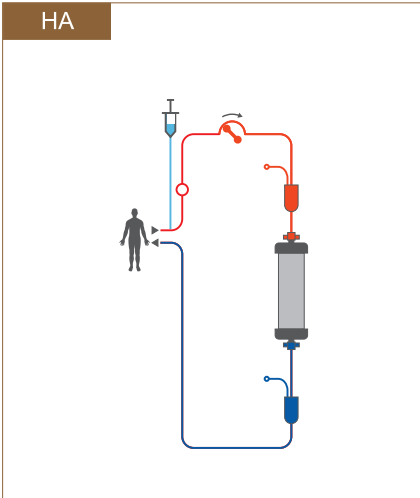
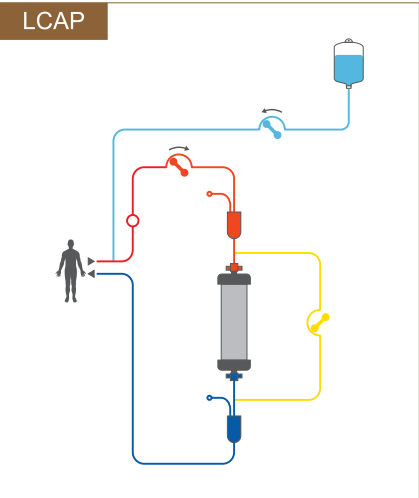
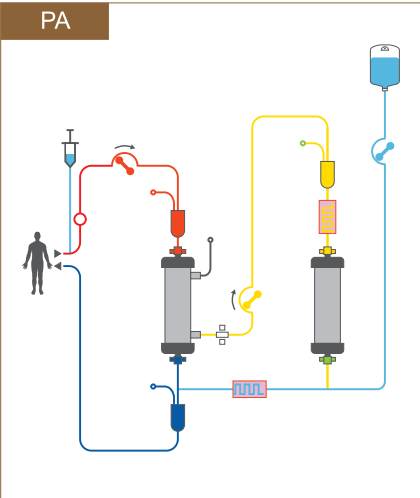
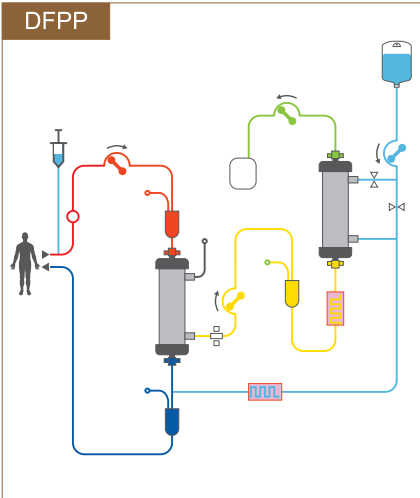
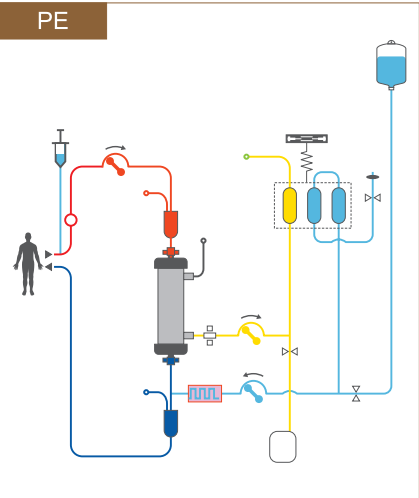
The replacement pump and dialysate pump provides the set range up to 10.00L/h, which meets the needs of high volume treatment.

Data management

Data stored in the machine can be retrieved using a USB memory stick.



Available treatment modes



Specification

Treatment mode	CRRT	CVVH, CVVHD, CVVHDF, SCUF
Blood pump	Apheresis	PE, PA, DFPP, LCAP, HA
	Type	3-roller tubing pump
	Tube setting	Movable stator (interlocked with cover)
	Flow rate control range	1 to 400 mL/min (CRRT)
Pump (FP)	Flow rate control range	1 to 200 mL/min (Apheresis)
	Type	3-roller tubing pump
	Tube setting	Movable stator (interlocked with cover)
	Flow rate control range	0.01 to 12.00 L/h
Pump (DP)	Type	3-roller tubing pump
	Tube setting	Movable stator (interlocked with cover)
	Flow rate control range	0.01 to 10.00 L/h
	Type	3-roller tubing pump
Pump (RP)	Tube setting	Movable stator (interlocked with cover)
	Flow rate control range	0.01 to 10.00 L/h
	Type	3-roller tubing pump
	Flow rate control range	0.01 to 10.00 L/h
Syringe pump	Applicable syringe	20, 30 and 50mL syringes
	Flow rate control range	0.1 to 15.0 mL/h
	Fast feed flow rate	0.1 mL/s or more
	Type	Ultrasonic transmission
Air detector 1	Sensitivity	0.1 mL or more (blood pump flow rate: 100mL/min)
	Type	Ultrasonic transmission
	Sensitivity	0.01 mL or more (blood pump flow rate: 100mL/min)
	Type	Optical (infrared)
Blood detector	Type	Ultrasonic transmission
	Empty detector 1	Type
	Empty detector 2	Type
	Blood leak detector	Type
Pressure sensors	Arterial pressure	Measurement range
	Inlet pressure	Measurement range
	Venous pressure	Measurement range
	Filtrate pressure	Measurement range
Heater 1	2nd filter pressure	Measurement range
	Type	Single-sided heating plate
	Temperature set range	35 to 40°C (plate surface)
	Type	Single-sided heating plate
Heater 2	Temperature set range	35 to 40°C (plate surface)
	Rating	3 kg
	Operating time	Can operate blood pump for about 15 min
	Rated voltage	AC 100 to 240 V
Electrical ratings	Rated frequency	50/60 Hz
	Power unit	400 VA
	Signal I/O P1	Remote alarm port
	Signal I/O P2	Ethernet port
Electric shock protection	Class I equipment, Type BF applied part	
	Waterproofing	IPX1
	EMC	Conform to EMC standard EN60601-1-2:2007
	Dimensions	496(W) X 1454(H) X 547(D) mm
Weight		Approx.70 kg (including options)

