



# Dialysis System

SW 8.09.13

## Training Module 2 – Treatment in Practice

*Ref: Operator's Manual SW 8.09.13*

*Chapter 1 – General Description*

*Chapter 3 – Machine dressing and Priming*

*Chapter 4 – Double Needle Hemodialysis Treatment*

# HD Treatment in Practice



- Treatment Type Selection
- Prescription Settings
- Timer reminder
- Automatic Blood Pressure monitoring (BPM)
- Low Consumption Mode
- Treatment start
- A/V limits pressure handling
- Stop treatment
- Automatic rinseback
- Unload Artisets

## **Important Note:**

This presentation does not relieve any user of the Artis Dialysis System from his or her duty to carefully read the full text of the Operator's Manual before using the system.

## **Important:**

Please note that the SW change to 8.09.13 of this presentation does not change the content of the training of the Artis Dialysis System for users.

# Treatment Type selection



Patient ID

Id: ---  
Name: ---  
Surname: ---

Treatment

Treatment Type: HD - DN  
Needle: Double

Parameter	Value
Treatment Time	4:00 h:min
UF Volume	0.00 L
Temperature	37.0 °C
Dialysis Fluid Flow	500 mL/min
Sodium	140 mmol/L
Bicarbonate	34 mmol/L

Activated Functions

- Auto BPM
- Heparin Auto Start
- Diascan
- Hemocontrol
- Hemoscan
- Ultra Control

Treatment Settings

Type

HD - DN

Needle

Double

Treatment Type

HD - DN

HD - DN

HDF Post

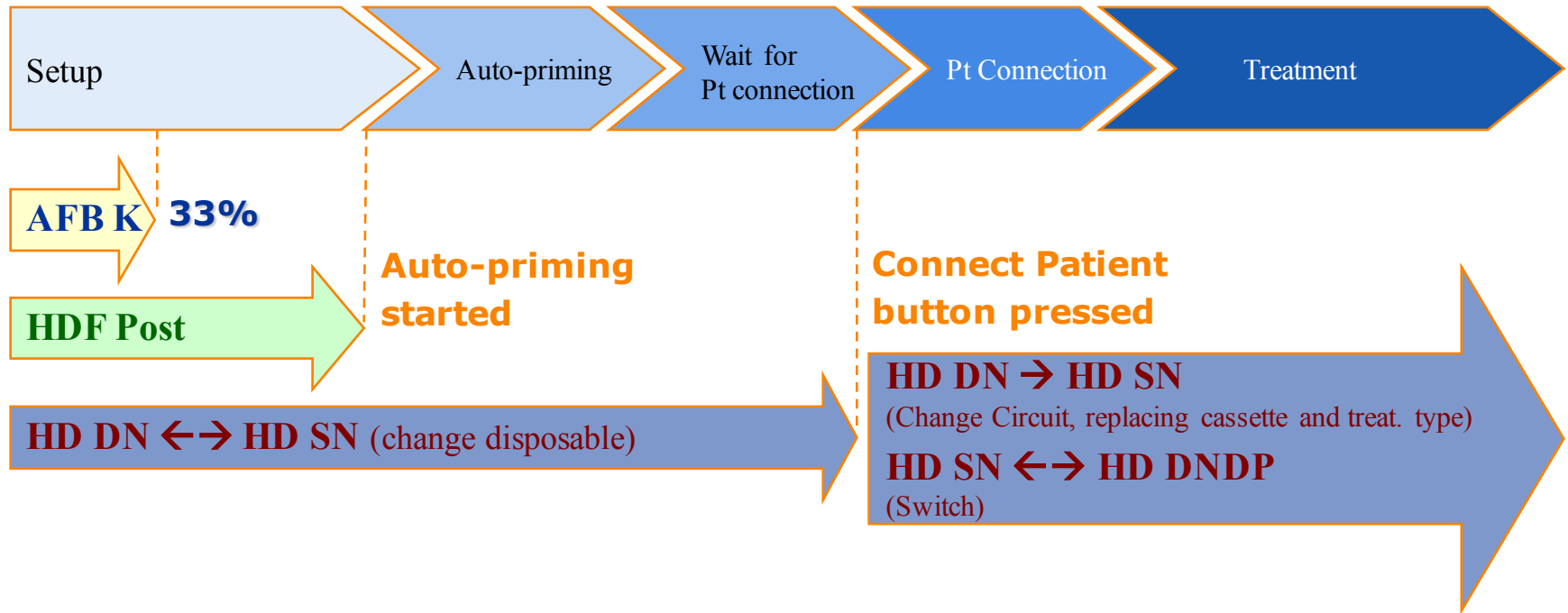
HD - SN

AFB K

Confirm

Cancel

# Treatment Type Confirmation Point



*It is possible to switch from SN to DN mode without changing the ArtiSet*

# Prescription Settings



1. 2.

The screenshot displays the Prescription Settings interface. On the left, there is a patient information section with fields for Patient ID, Id, Name, and Surname, and a Treatment button. Below this, the Treatment Type is set to HD - DN and the Needle Mode is Double. The central part of the screen is a table with two columns: Parameter and Value. The parameters listed are Treatment Time (4:00 h:min), UF Volume (0.00 L), Temperature (37.0 °C), Dialysis Fluid Flow (500 mL/min), Sodium (140 mmol/L), and Bicarbonate (34 mmol/L). On the right, there is an Activated Functions section with five rows, each containing an icon and a function name: Auto BPM (heart icon), Heparin Auto Start (syringe icon), Diascan (DIASCAN KEV icon), Hemocontrol (HEMO CONTROL icon), and Ultra Control (ULTRA CONTROL icon). Arrows on the right side of the table and function list indicate scrollability.

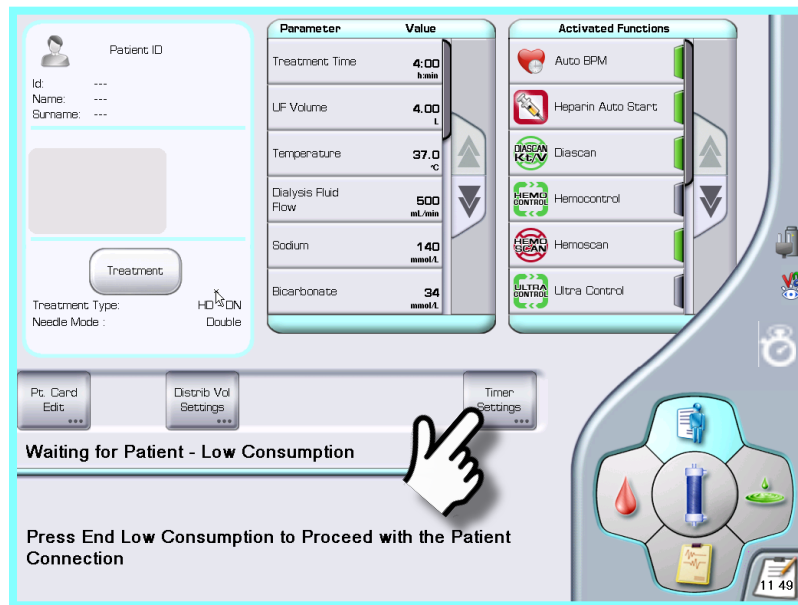
Parameter	Value
Treatment Time	4:00 h:min
UF Volume	0.00 L
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Dialysis Fluid Flow	500 mL/min
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Bicarbonate	34 mmol/L

Activated Functions	
Auto BPM	HEMO CONTROL
Heparin Auto Start	HEMO CONTROL
Diascan	HEMO CONTROL
Hemocontrol	HEMO CONTROL
Hemoscan	HEMO CONTROL
Ultra Control	ULTRA CONTROL

On the Prescription screen press:

1. Parameter buttons to set treatment related parameters
2. Function buttons to access the respective sub-screen for settings and activation

# Time Reminder Options



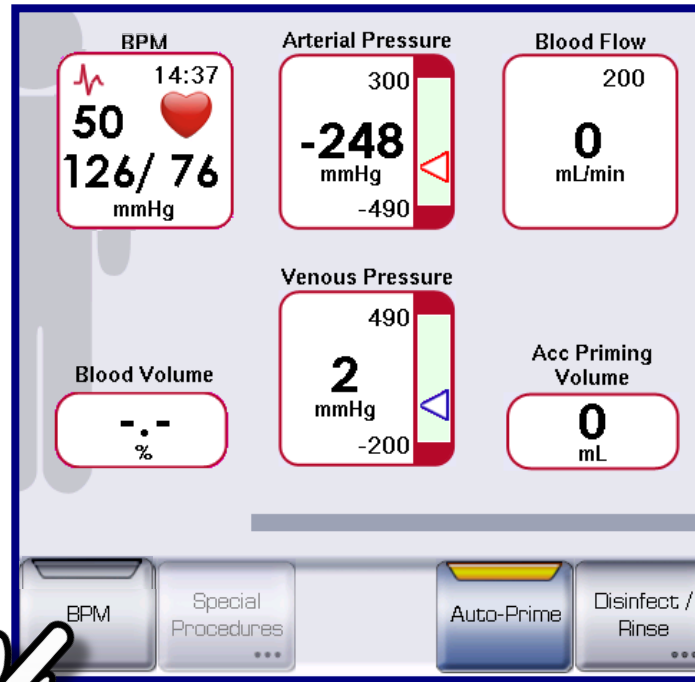
Prescription screen



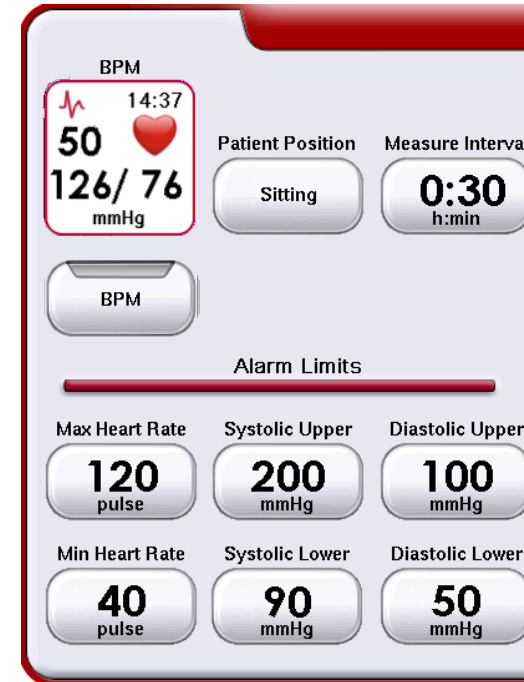
Timer Settings screen

***Time countdown starts immediately after the timer is activated***

# Manual Blood Pressure Monitoring **Baxter**



Treatment Overview screen



BPM Settings screen

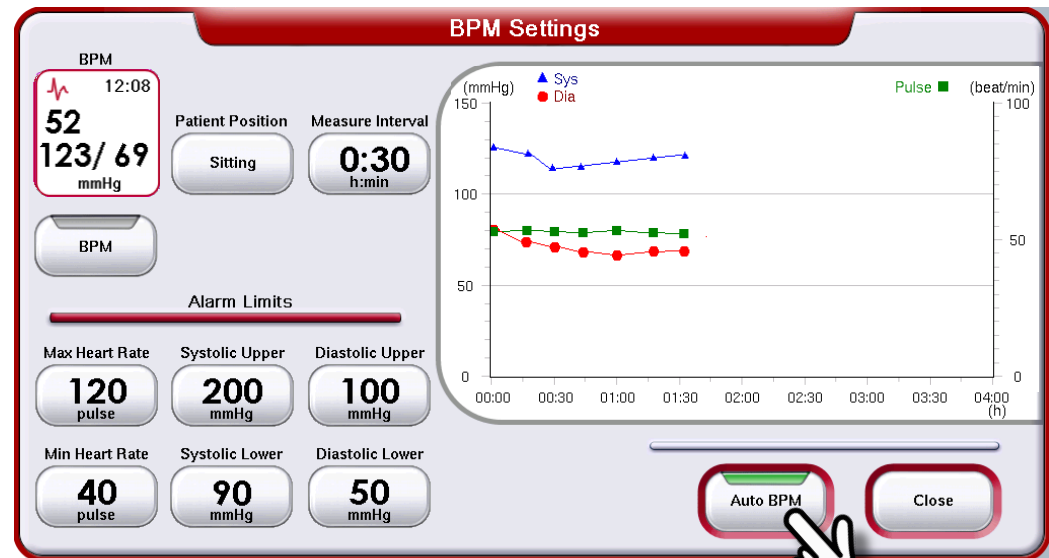
**Point of time, the blood pressure and pulse are displayed in the BPM value boxes and in the Report screen Event table**

# Automatic Blood Pressure Monitoring

Set :

- Patient position
- Measuring interval
- Alarm limits

When activated a clock appears on top of the heart icon in the BPM value box



BPM Settings screen

- Auto BPM values are plotted in the trend graph on the BPM Setting screen
- BPM values are displayed on the Treatment Overview screen, the BPM Settings screen and are automatically transferred to the Report screen Event list



Whenever a BPM fails, it is indicated by question marks and an X over the heart in the BPM value box



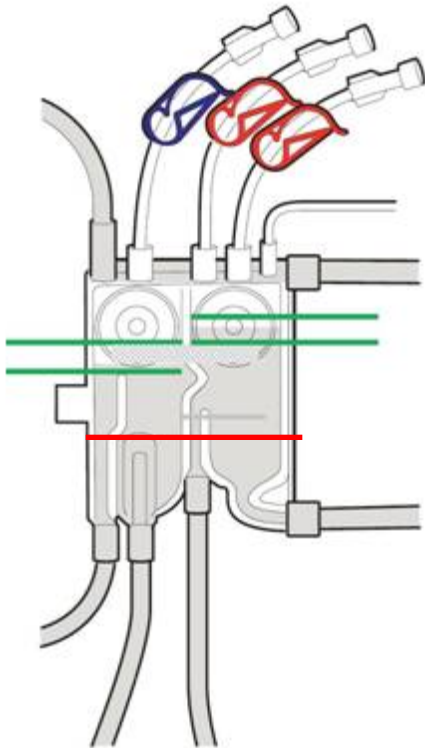
# Extra Prime

- During priming, accumulated priming volume is displayed in the Overview screen
- Priming setting sub-screen is accessed via the Blood screen "Priming Settings" button

Autopriming Settings sub-screen

Blood screen

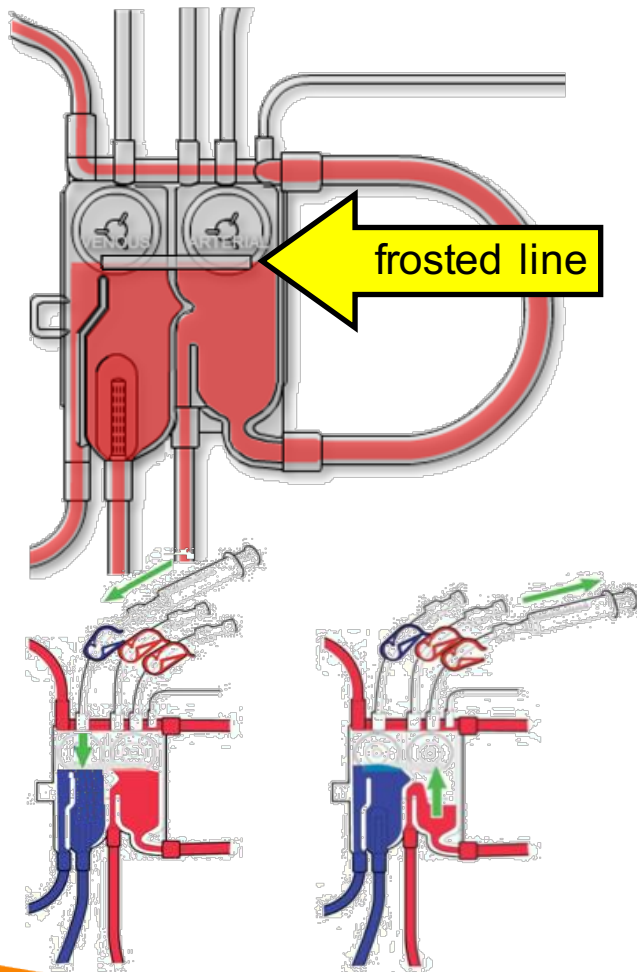
# Chamber fluid levels – Auto-Prime completed



- Levels might need to be adjusted at the end of priming due to:
  - Empty saline bag during the priming
  - Patient lines not properly connected to EvaClean ports
  - Infusion line clamps not closed
  - Inappropriate priming volume for the dialyzer in use
- If the fluid levels are extremely low (see red line)
  - Reset Prime in the Priming Settings sub-screen and activate Auto-Prime on the Treatment Overview screen
- If the fluid levels are *not* significantly lower or higher than frosted line
  - Connect Patient and adjust the blood levels manually after treatment start (see next slide)

***If auto-priming is not performed appropriately and levels are not correct, Reset Prime and reactivate the Auto-Prime button (check for sufficient volume in the saline bag)***

# Chamber blood levels – During treatment

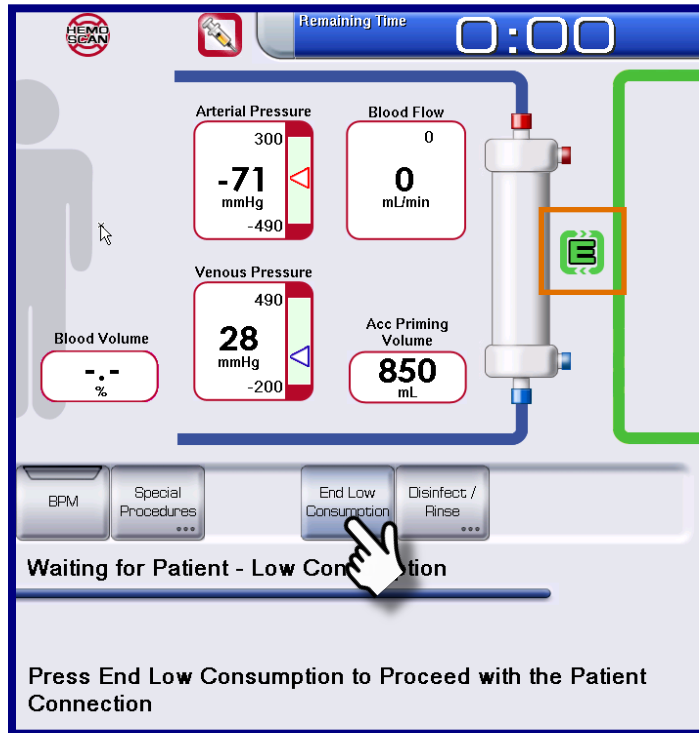


When adjusting the blood levels in the chambers during treatment:

- Attach a **sterile** *luer-lock* syringe to the respective chamber infusion line and adjust the level using the syringe
- Expand the AV pressure limits but **do not** decrease the blood pump speed
- *Gently* aspirate or inject air to increase or decrease the fluid level and adjust to frosted line (suggested ideal level in chambers)

**Check and adjust the chamber blood levels on a regular basis during the treatment**

# Low Consumption State



Treatment Overview screen

Reduction of water and concentrate consumption

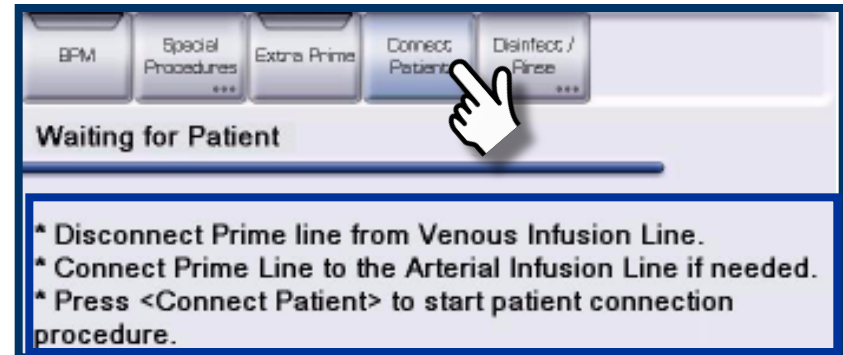
- Should be activated in Service Level 2
- Starts automatically 1-10 min (preset) after priming is completed
- Is stopped via the “End Low Consumption” button
- When stopped, the “Connect Patient” button becomes available with a short delay

***Low consumption state is automatically re-entered if Connect Patient button is not pressed within the preset time limit plus 5 minutes***

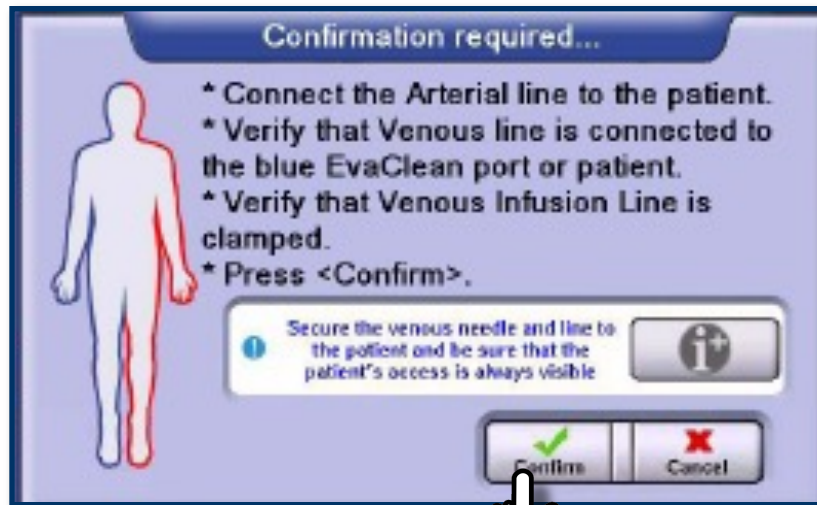
# Patient Connection

Connect Patient button becomes available when Mandatory parameters are set and Auto-Prime is completed

- Check that the prescribed functions are activated before continuing



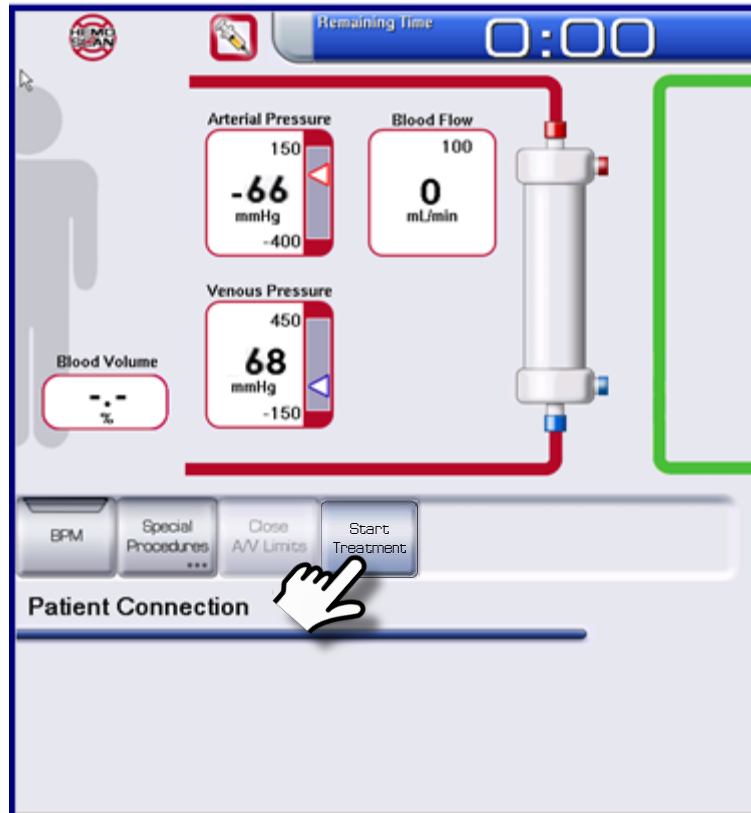
Treatment Overview screen



## Three Patient Connection options

- Straight connection (both lines)
- Bleed-out connection with the venous line connected to the EvaClean
- Bleed-out connection with the venous patient line connected to a waste bag
- Confirm *after* connection

# Blood detection



When blood is detected in the venous patient sensor, the Blood Pump stops:

Verify that the Arterial and Venous Patient lines are connected to the patient

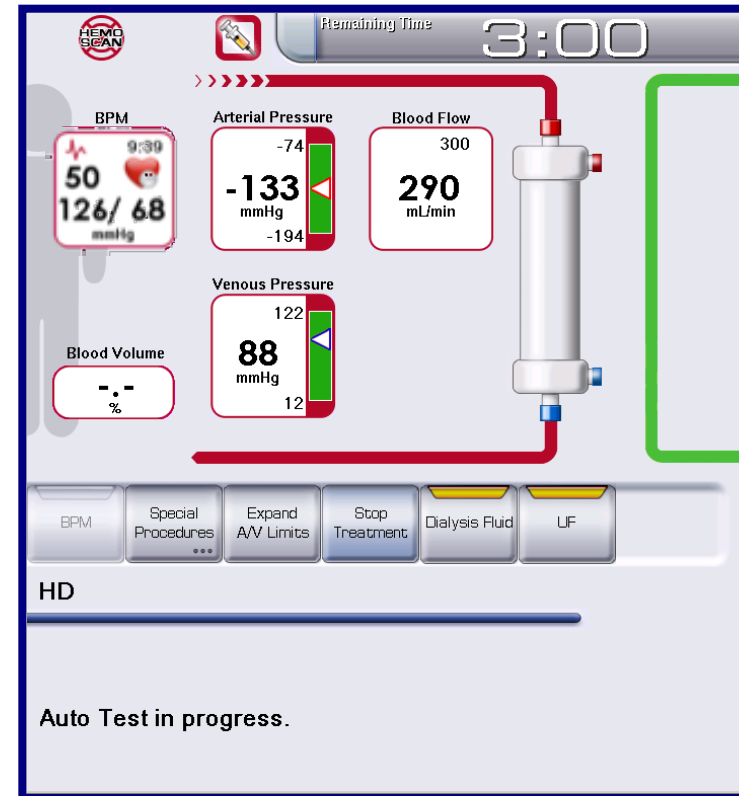
- Restart the Blood Pump
  - Start Treatment button becomes available

# Start Treatment

- Press Start Treatment button
  - The Dialysis Fluid and UF buttons are displayed - indication bars are yellow lit
- Increase the Blood Pump speed per your unit policy
- Press Close the A/V pressure Limits key when the pressures have stabilized

When the initial auto-test is completed:

- Dialysis Fluid and UF flow rates are automatically activated (indication bars turn green) and the “Real TX Time” value on the Fluid Screen starts decreasing.



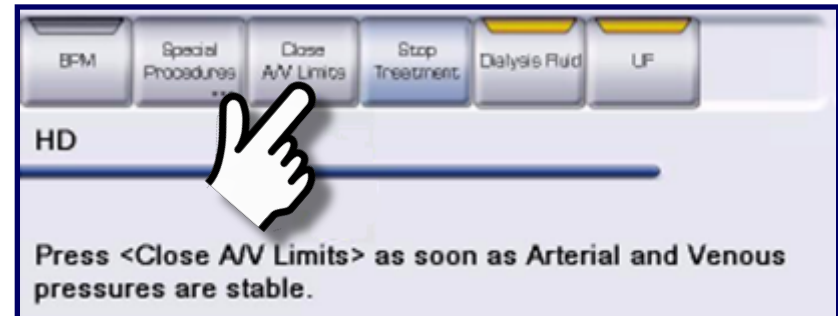
# A/V Pressure Limit Handling

At treatment start:

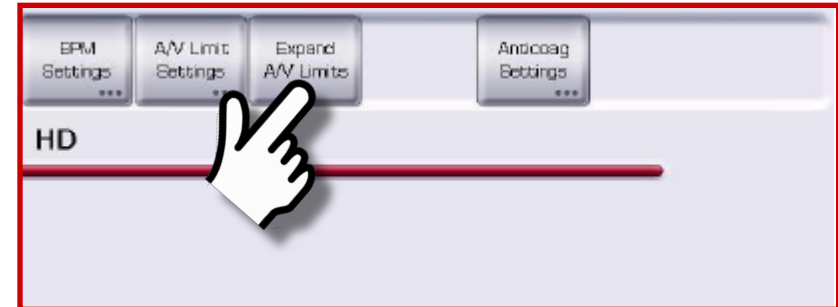
- Follow operator's message to close the predefined A/V Pressure Limits (this narrows the alarm limit window to a safe value)

During treatment:

- Press Expand A/V Limits to open the pressure limits for a short period of time
- When closing the A/V pressure limits the alarm window automatically adjusts to the current pressures
- The A/V Limits are automatically expanded and closed when the blood pump speed is changed



Treatment Overview screen



Blood screen

***The pressure limits are not automatically closed when expanded by the operator***



# Expand/Close Pressure Limits

machine upper pV limit

Expand Limits

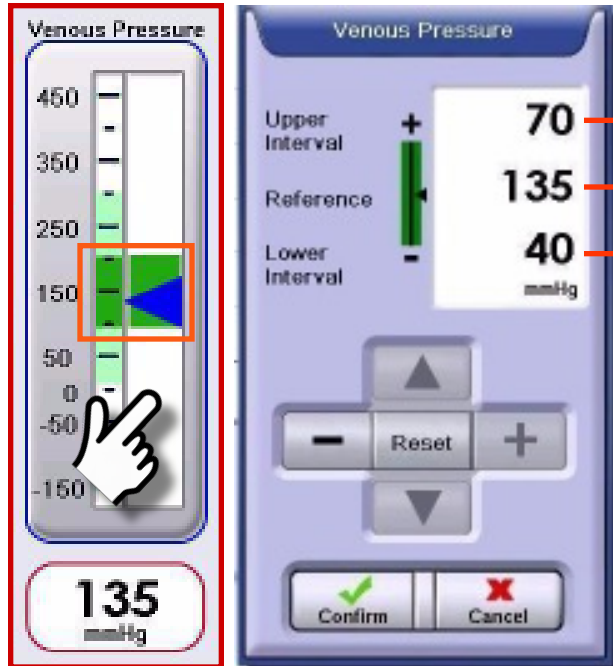
machine lower pV limit

Close Limits

Blood screen

Default values (can not be modified)	mmHg
machine upper pA limit	150
machine lower pA limit	- 400
machine upper pV limit	450
machine lower pV limit	10

# A/V Pressure Alarm Limit Window *Baxter*

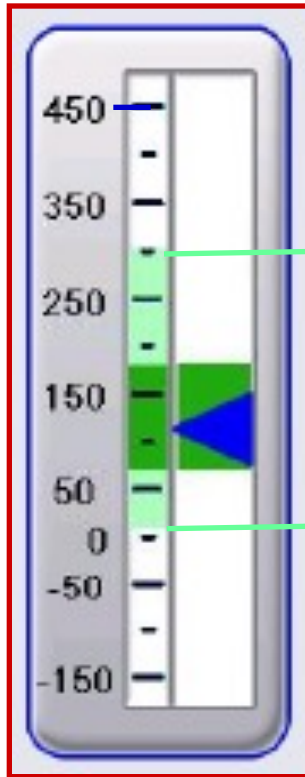


- alarm limit = reference pressure + upper interval value
- current value
- alarm limit = reference pressure – lower interval value

- +/- to widen/restrict the alarm window
- ▲▼ to move the alarm window up/down

Default values	mmHg
pA upper value	60
pA lower value	-60
pV upper value	70
pV lower value	40

# A/V Treatment Max & Min Pressures



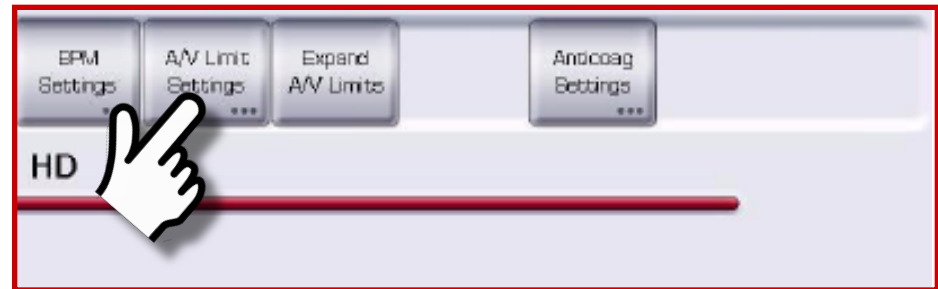
Blood screen

pV treatment max. limit

The range within which the dark green “window” may move during the treatment

pV treatment min. limit

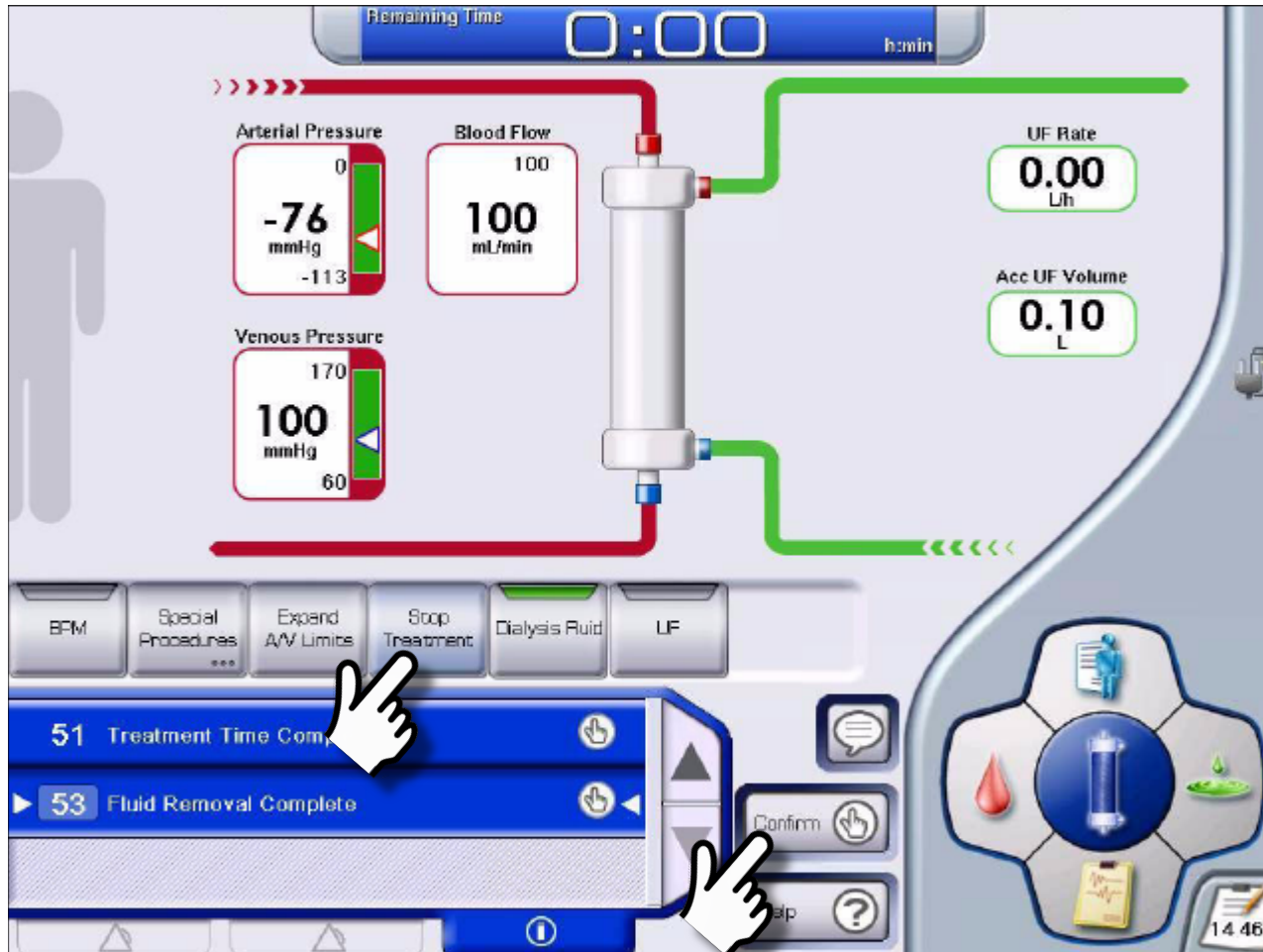
Default values (can be modified in preset)	mmHg
pA treatment max limit	0
pA treatment min limit	- 300
pV treatment max limit	300
pV treatment min limit	10



# A/V Treatment Max & Min Pressures

The screenshot displays the 'A/V Limit Settings' interface. On the left, under 'Venous Limits', there are two buttons: 'Ven Treatment Max Limit' set to 300 mmHg and 'Ven Treatment Min Limit' set to 10 mmHg. A hand icon points to the 300 mmHg button. Below these are two vertical gauges. The left gauge shows a green bar up to 150 mmHg and a blue triangle at the bottom, with a digital readout of 97 mmHg. The right gauge shows a green bar up to 0 mmHg and a red triangle at the bottom, with a digital readout of -76 mmHg. On the right side, a numeric keypad is open for the 'Ven Treatment Max Limit', showing the value 300 mmHg. The keypad includes arrow keys, a 'C' key, a numeric keypad (0-9), and 'Confirm' and 'Cancel' buttons.

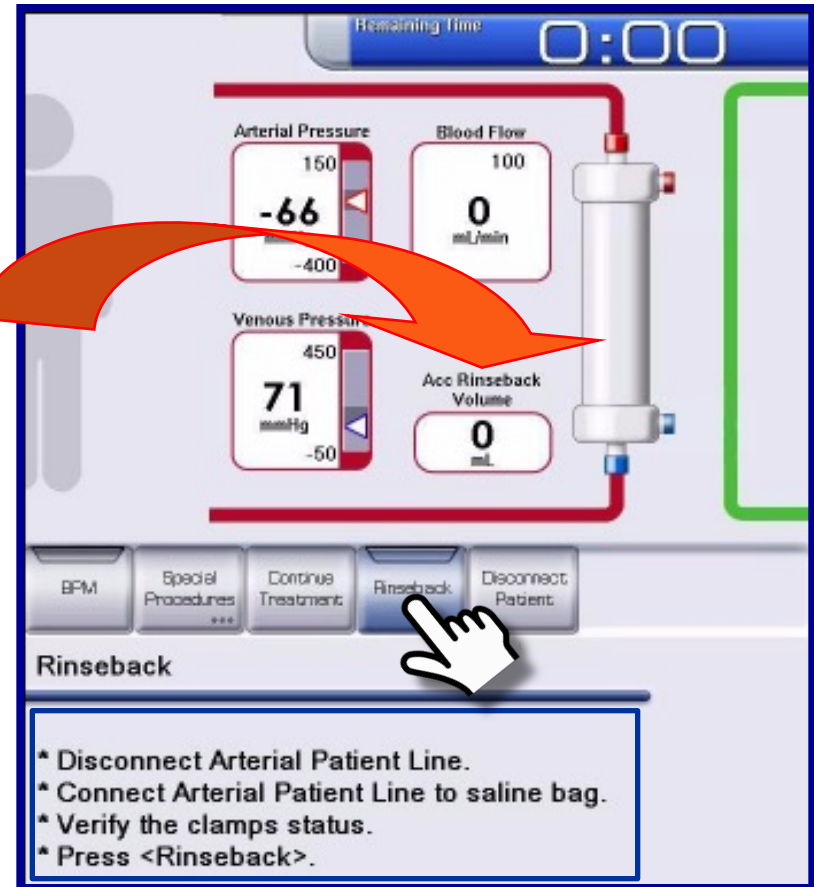
# Stop Treatment



# Rinseback

Follow Operator's Message for Rinseback and Disconnect Patient procedure

- The accumulated rinseback volume is displayed in the Overview screen
- The Blood pump stops when the set rinseback volume is achieved
  - Blood pump can also be stopped manually
  - Extra Rinseback button becomes available
- Rinseback Settings sub-screen is accessed via the Blood screen



**Press the “Drain Cartridge” button as soon as it becomes available when the Rinseback is confirmed**

# Unload ArtiSet



- Press “Unload Cassette” and Confirm
  - The pump rotor turns to its horizontal position
- Open the Sensor bar door
  - The cassette hooks are pushed out

*Wait for the blood pump to stop before opening the cover*

- Release the AV patient lines from the automatic clamps
- Release the heparin syringe and line
- Open the blood pump cover and remove the cassette
- Close the Sensor bar door and blood pump cover

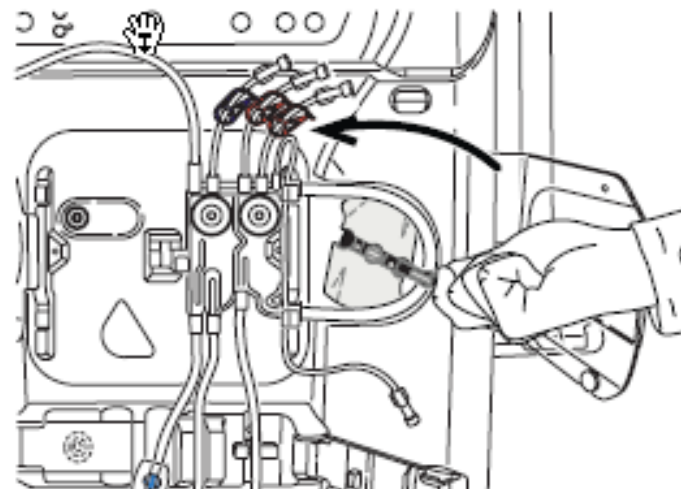
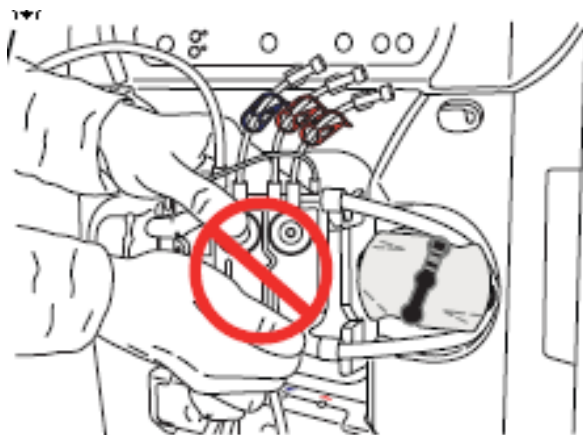
***It is possible to activate a Disinfection/Rinse program before unloading the Cassette***



# Manual unloading of the pump segment

If the pump cover is opened before the blood pump has stopped, the pump segment may not be fully released

***Do not remove the cassette with the pump segment still in the pump rotor***



- Extract the crank from the pump rotor
- Manually turn the pump rotor in a counter-clockwise direction while carefully releasing the pump segment
- Turn the pump rotor in order to align the crank with its axis and close the crank



# Nice to know



- Start Treatment - diffusion and UF flow rates start automatically when the initial UF system auto-test is completed
- Cartridges - do not have to be drained before removal
- Empty circuit - fluid and blood compartment are drained
- Unloading ArtiSet - do not open the blood pump cover before the pump segment is released
- EvaClean must be cleaned each time the Patient Connection procedure is performed keeping the venous patient line in to the EvaClean port until the machine detects blood (as per Operator manual)

## Hands on Module 2

- *Treatment time 60 min*
- *UF volume 1.0 L*
- *Heparin program*
- *Auto BPM 15 min*
- *Set two reminders - one on repeat*
- *End low consumption mode*
- *Connect Patient – straight connection*
- *Start Treatment*
- *Stop/Start UF*
- *Stop/Start diffusion*
- *Heparin bolus*
- *Stop Treatment and Auto-rinseback*
- *Drain Cartridges and Empty Circuit*
- *Rinse*
- *Unload Artiset*

# Treatment type reference

HD DN HC: Hemodialysis Double Needle, Hemocontrol

HDF post: Hemodialfiltration Post dilution

HD SN: Hemodialysis Single Needle

HD SN DP: Hemodialysis Single Needle Double Pump

HD DN DP: Hemodialysis Double Needle Double Pump

For the safe and proper use of the devices referenced within, refer to warnings, Precautions and the complete Instructions For Use or the appropriate manual available by contacting customer support

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