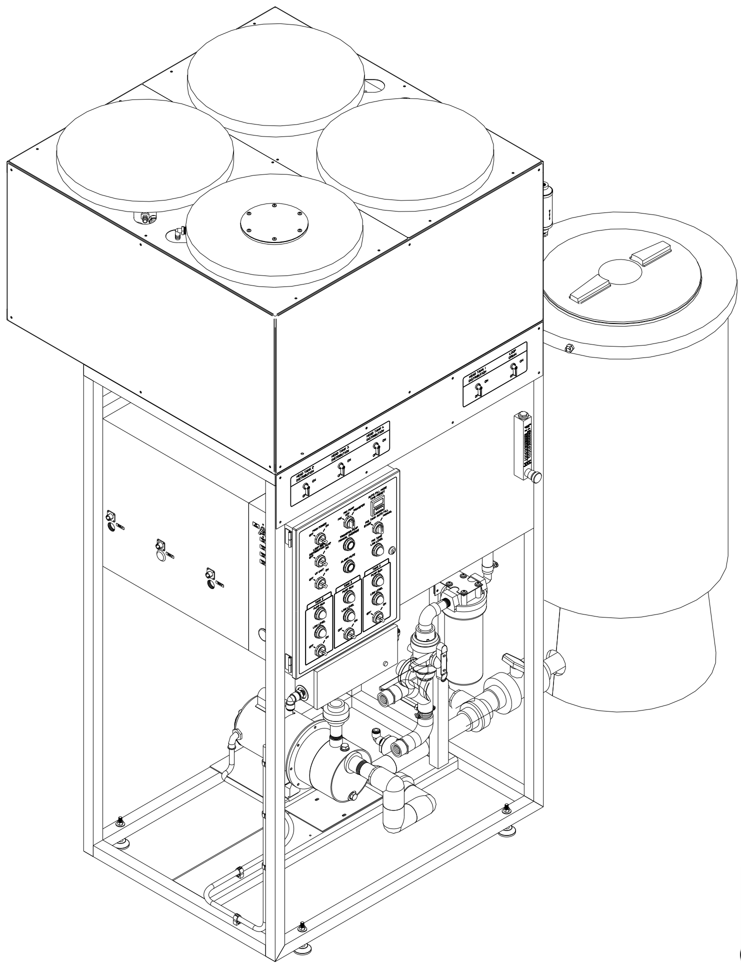
MAR COR PURIFICATION
A Cantel Medical Company

SOLUTION DELIVERY SYSTEM LOCAL (SDSL)

Operation and Maintenance Manual



SOLUTION DISTRIBUTION SYSTEM
(SDS)
Installation, Operation and Maintenance Manual

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Mar Cor Purification Solution Delivery System (SDSL)

CHAPTER ONE: GENERAL INFORMATION

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1.1 The Manual

This manual has been prepared to provide the operator with information and instructions regarding the installation, use, maintenance, and troubleshooting of the Mar Cor Purification Solution Distribution System (SDS).

> **CAUTION:**
> When used as a medical device, Federal law restricts this device to sale by or on the order of a physician. Per CFR 801.109 (b)(1).

The manual has been written in narrative form supplemented with schematics and drawings for clarification. The operator can perform most procedures mentioned in this manual. Any exceptions will be clearly identified by a qualifying statement.

1.2 Safety Summary

Words in **BOLD CAPITAL** letters are used to identify labels on the device and key safety or qualifying statements. A list of all symbols and abbreviations is located at the end of this chapter. See Technote 120 in Appendix A for a glossary of relevant terms.

This safety summary does not contain all of the safety statements in the manual. Other safety statements are included within the manual text and are enhanced and defined as follows:

> **NOTE:**
> Statements that provide further clarification.
>
> **CAUTION:**
> Statements identifying conditions or practices that could result in equipment or other property damage.
>
> **WARNING:**
> Statements identifying conditions or practices that could result in personal injury or loss of life.

READ THIS MANUAL:
Prior to operating or servicing this device, this manual must be read and understood. Keep this and other associated manuals for future reference and for new operators or qualified service personnel. A note sheet is provided at the end of each chapter for operators to make notations that may be valuable to other users.

USE PROPER POWER CONNECTIONS:
Use proper wiring and connection methods to satisfy hospital electrical codes.

DO NOT REMOVE COVERS OR PANELS:
To avoid electrical shock hazard, do not remove covers or panels when power is supplied to the device. Do not operate the device when covers or panels are removed.

SHOCK HAZARD:
Connect this device to a proper ground connection in accordance with the National Electrical Code. DO NOT under any circumstances remove the ground wire or ground prong from any power plug. DO NOT use an extension cord with this equipment.

DEVICE LABELING:
Do not under any circumstances remove any Caution, Warning or any other descriptive labels from the devices until the conditions warranting the label are eliminated. Do not remove model number, part number, or serial number labels for any reason.

DO NOT OPERATE IN A FLAMMABLE ATMOSPHERE:
To avoid fire or explosion, do not operate this device in an explosive environment or near flammable anesthetics.

1.3 Applications

The Solution Distribution System (SDS) is intended to be used for mixing and distributing sodium bicarbonate (bicarb) as well as acid concentrates to remote points of use.

Bicarb and acid concentrates are used with purified water at the point of use to create the dialysate solutions used for hemodialysis.

> **NOTE:**
> The SDS is not a proportioning device. It is only a fluid delivery system.
>
> **WARNING:**
> The SDS is not equipped with monitoring devices for conductivity, pH or other parameters. The operator must follow the testing recommendations of the solution, chemical or product manufacturer. The operator is responsible for the correct application of these procedures.

1.4 Contraindications

The Solution Distribution System is not designed, sold or intended for use outside of the device's stated applications, specifications or limitations.

1.5 Environmental Considerations

Prior to the installation of your SDS, it will be necessary to provide utilities and create an environment suitable for the trouble free operation of the SDS and its accessories.

POWER:

The SDS operates on 115V single-phase power. Histories of power failure, power surges, and low line voltages should be noted and reported to the manufacturer or their agent, as they may create adverse conditions for the operation of equipment.

WATER:

The SDS requires water that meets AAMI or local hemodialysis water quality standards. Additionally, it is necessary to have adequate flow rates and pressures. The minimum flow rate required for operation of the SDS is ½ gallon per minute.

> **NOTE:**
> Three to five gallons per minute flow rate is recommended. Lower flow rates will prolong the filling of the mix tank.

DRAIN:

The SDS requires a drain outlet. The drain must have a minimum capacity of twenty gallons per minute of continuous flow. The maximum height for the drain is six inches.

TEMPERATURE:

The equipment should be located in an environment that will protect the equipment from freezing or excessive heat. Refer to the bicarb manufacturerôs recommendations for the pr

> **NOTE:**
> Low water temperature may cause difficulty in mixing and/or will result in extended mixing times.

NOISE:

It is advisable to locate the system away from the patient area. Hard walls and floors will reflect noise and may make the unit seem louder.

1.6 Theory of Operation

The SDS provides semi-automatic mixing of bicarb concentrate and the distribution of bicarb and acid concentrates from storage to the patient stations. The mixed bicarb solution is automatically transferred to an elevated reservoir (head tank). The SDS, depending on the model purchased, can automatically transfer up to three different acid concentrates to elevated head tanks from 55-gallon drums or larger bulk acid storage tanks. Bicarb and acid then flow, via gravity, from the head tanks to the dispensing stations.

1.7 Fluid Components

Inlet Water Filter:

The 0.2-micron (nominal) filter prevents entry of particulate larger than 0.2 microns into the mixing system. The filter housing is opaque to inhibit algae growth.

Inlet Water Solenoid Valve:

The solenoid valve serves to shut off/turn on the water supply to the bicarb mix tank, permitting automatic or manual filling. This device is not supplied on all machines.

Flow Meter:

The flow meter, with integral needle valve, allows for visual indication and adjustments of fill rate. This device is not supplied on all machines.

Mix Tank:

The mix tank is a sealed tank with a conical shaped bottom. It is made of high purity polyethylene. The mix tank has volume marks molded into its side. The 70-gallon tank has 5-gallon and 10-liter graduations. The 100-gallon tank has 5-gallon graduations. The mix tank is made up of the following components:

- The low-level control switch prevents the mix pump from operating when the mix tank has insufficient volume for safe pump operation.
- A spray head for rinsing all internal surfaces.
- A sampling port is located at the bottom of the tank for testing/sampling purposes.
- A removable cover with O-ring seal is provided for access into the tank.
- An eductor (mix nozzle) is located in the mix tank to aid in the mixing of powdered bicarb.
- The tank outlet is screened to protect the pump from small particles, and a cartridge vent filter inhibits dust or other debris from entering the tank.

Drain:

A drain valve is provided to allow discharge of unused solution or rinse water.

Mix Pump:

The mix pump provides recirculation to mix the bicarb powder into solution.

Flow Switch:

The flow switch is located on the output side of the mix pump to prevent damage to the pump. The flow switch will automatically turn the mix pump off during insufficient flow situations.

Transfer Pump(s):

Transfer pump(s) provide automatic refilling of the head tank(s). An individual transfer pump is provided for each solution.

Dip Tube:

Acid is drawn from a 55-gallon drum using a Dip Tube with an integrated level switch. An audible alarm sounds and the transfer pumps are disabled when the tank is empty. When bulk acid storage is used, a level switch with connections to the tank provides the same low level alarm function as the dip tube.

Bicarb Head Tank:

The tank is a conical bottom, elevated head tank that stores bicarb solution for distribution to the patient stations via gravity. The tank is equipped with two level control switches. The high level switch stops the filling of the tank when it is full. The low-level switch initiates the filling of the tank. In the event that the low-level switch is not satisfied within 2 minutes, an audible alarm sounds. The tank contains a spray-head assembly that facilitates rinsing of the internal surfaces of the head tank. The tank is equipped with an air vent that prevents pressure build-up in the system and provides overflow protection in the event that the upper level control switch should fail.

Acid Head Tank:

The tank is a conical bottom, elevated head tank that stores acid solution for distribution to the patient stations. The tank is equipped with two level control switches. The high-level switch stops the filling of the tank when it is full. The low-level switch initiates the filling of the tank. In the event that the low-level switch is not satisfied within 2 minutes, an audible alarm sounds. The tank is equipped with an air vent that prevents pressure build-up in the system and provides overflow protection in the event that the upper level control switch should fail.

UV Unit:

The Ultraviolet Unit is located in the bicarb solution flow path to the patients, assisting in the reduction of bacteria.

LRDP:

The Loop Rapid Distribution Pump purges air from the bicarb distribution system and primes distribution piping.

1.8 Monitors and Controls

Control Panel:

Main Power Switch:

The Main Power Switch turns power **ON** and **OFF**. The switch must be **ON** for any function to take place.

Mix Pump Switch:

The Mix Pump Switch is a three-position switch (**MIX**, **OFF**, **TRANSFER**) that controls the power to the mix pump and transfer pump.

Auto Fill Mode Timer:

The fill timer is used to fill the mix tank for a predetermined amount of time. The user sets the mode on the auto fill timer to **E** and the time base to **m** (minutes) and adjusts the timer for the desired time. This device is not supplied on all machines.

LRDP Switch:

The LRDP Switch powers the bicarb loop distribution pump (after a 1 minute delay). The LRDP, on the bicarb loop, purges air from the distribution system and primes distribution piping.

Transfer Pump Manual Override Switch:

The Transfer Pump Manual Override Switch allows the user to transfer residual bicarb to the head tank manually. Once initiated, the transfer pump will operate for 5 minutes or until the head tank is full.

Mix Tank Auto Fill Switch:

The Mix Tank Auto Fill Switch (a momentary switch) initiates automatic or manual filling of the mix tank. When the **AUTO** position is selected, the fill timer and solenoid are activated, filling the mix tank. When manual filling is required, the switch must be held in the **MANUAL** position until the required water level in the mix tank is achieved.

UV Unit Switch:

The UV Unit Switch signals the UV unit to illuminate only when the bicarb head tank is adequately filled.

Alarm Mute Switch:

The Alarm Mute Switch silences any audible alarm and changes any flashing alarm light to solid. The mute switch will silence the audible alarm for 5 minutes before the alarm sounds again unless the alarm situation has been corrected.

Mix Tank Low-Level Indicator:

The Mix Tank Low-Level Indicator red light flashes and an audible alarm sounds when the bicarb solution is below the mix tank low-level switch. The light will turn solid when the alarm mute switch is activated.

Auto Fill Flow Meter with Needle Valve:

The flow meter, with integral needle valve, allows for visual indication and adjustments of fill rate. The flow meter can be read in gallons per minute (gpm) and liters per minute (lpm). This device is not supplied on all machines.

Acid Tank Switch:

The Acid Tank Switch energizes the transfer pump system controlling the automatic refill of the acid head tank(s). SDS units with acid pumps may have up to three Acid Tank Switches.

Pump Run Indicator:

A green pump run indicator will illuminate whenever the transfer pump is operating.

Low Level Indicator:

A red low-level indicator will illuminate, accompanied by an audible alarm when a low-level condition in the acid tank (55 gallon drum or bulk acid tank) occurs.

Dip Tube:

A dip tube, with an integrated level switch, sounds an audible alarm and disables the transfer pumps when the tank is empty. When bulk acid storage is used, a level switch and connections in the tank provide the same functionality as the dip tube.

Flow Switch:

The flow switch is located on the output side of the mix pump to prevent damage to the pump. The flow switch will automatically stop the mix pump during insufficient flow situations or if the line becomes clogged.

Mix Tank Low Level Switch:

The low-level float switch, located in the mix tank, prevents the mix pump from operating when the mix tank has insufficient volume for safe pump operation.

Audible Alarm:

An audible alarm will sound when any alarm condition is activated. The sound may be muted using the mute switch on the control panel.

PLC:

The PLC, or “Programmable Logic” is the Comput r /O
device that controls almost all functions of the SDS machine. It accepts various input signals from the hand switches on the control box, as well as signals from the various switches located in the mix tank, head tank(s), and drums (acid bulk storage). It then processes these inputs and, if the correct input signals are received (and certain other conditions are met) it will send an output signal to the appropriate component (acid transfer pump, bicarb mix pump, etc.) to activate that component. It also monitors the status of the various systems and triggers an audible and/or visual alarm when necessary. The operating program is factory installed and needs no user adjustment.

1.9 Options

Number of Acids:

The various models of the SDS are capable of delivering up to three different acid concentrates.

Acid Loop Auxiliary Pump:

Mounted in the unit or separately, the Acid Loop Auxiliary Pump purges air from the acid distribution system and primes the distribution piping.

SDS Remote Status Monitor:

A Remote Status Monitor is available as an option. It is used to alert dialysis station personnel when a problem with the Solution Delivery System exists, and that appropriate steps should be taken to ensure patient safety. The SDS remote status monitor is a status indicator only, and does not include any controls that allow remote operation or adjustment of the SDS system.

Wall Stations:

Wall-mounted solution dispensers are capable of delivering up to four different concentrates and water as well as drain access. Process connections are configured to be compati equipment.

Ozone:

The Mar Cor Purification O_3Z ozone system is available as an alternate disinfectant for the bicarb mixing and delivery pathway. The ozone system attaches easily to the SDS unit.

> **WARNING:**
> The ozone system is intended for equipment disinfection only. It is not intended for the disinfection of bicarb solution.

Bulk Acid Storage:

Larger tanks (165ï 1000 gallon) are available for on site bulk storage of acid. When the tanks are located away from the dialysis stations, an auxiliary transfer pump unit may be required.

Head Tank Mounting:

Head tanks are attached to the mix frame.

1.10 Specifications

1.10.1 Input Water Requirements

	Minimum	Maximum
Input Flow Rate (AAMI Quality Water)	0.5 GPM	5.0 GPM
Temperature (Water)*	10°C (50°F)	30°C (86°F)
pH (Water)*	3.0	11.0
Inlet Pressure	20 PSI	100 PSI
Drain Capacity	20 GPM	N/A
Drain Height	N/A	6 in. (0.15 m)

* Refer to the bicarbonate powder manufacturerô temperature and pH level.

1.10.2 Electrical Specifications

Voltage:	115 ~
Hertz:	60
Amps:	16
Phase:	single

1.10.3 Environmental Requirements

	Minimum	Maximum
Ambient Temperature	4°C (39°F)	32°C (90°F)
Storage Temperature	2°C (36°F)	32°C (90°F)
Altitude	N/A	10,000 feet

> **NOTE:**
> The user/operator should recognize that moisture can be caused by condensation and is not necessarily an equipment leak. This equipment will function in the presence of condensation.

1.10.4 Dimensions

Mixing Tank:	70 or 100 gallon
Head Tank:	10, 15 or 30 gallons
SDS with 70 gallon Mix Tank*	92ò H x 112ò W x 58ò
SDS with 100 gallon Mix Tank*	92ò H x 118ò W x 64ò

*Additional space is required for operator access and acid drums/bulk storage tank.

1.10.5 Approvals

This equipment is listed by the Canadian Standards Association as certified. This medical equipment has been tested and demonstrated compliance with the following standards:

¶ CAN/CSA Standard C22.2 No 601.1

¶ UL 2601-1

1.11 Disposal

Disposal of this product or parts must be carried out according with local disposal codes.

1.12 Electromagnetic Interference

This equipment can generate, use and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with other devices, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

¶ Reorient or relocate the receiving device.

¶ Increase the separation between the equipment.

¶ Connect the equipment into an outlet on a circuit different from that to which the other device(s) is connected.

¶ Consult the field service technician or manufacturer for help.

1.13 Service Assistance

If service assistance is required, please take the following steps:

1. Consult the óTroubleshootingô section of problem cannot be identified and corrected by any of the procedures found in that section, then
2. Contact your Facility Equipment Technician. If the technician is unable to help, then
3. Call Mar Cor Purification Technical Support Department at (800) 633-3080. Technicians are available for all calls between 7:00 a.m. and 4:30 p.m. CST, Monday through Friday. Technicians are also available at other times for **emergency calls only**. Product consultants will be on hand to discuss the problem with you and endeavor to rectify it over the phone. If the problem appears to be of a more serious nature, you will be given instructions regarding the action to be taken. Prior to making the phone call, you must be prepared to answer two questions:

    1. What model do you have; i.e., Bicarb and Number of Acids?

       UNIT MODEL: ________________________________

    2. What is the serial number of your SDS (Serial Number Label is located on the left side of the SDS)?

       UNIT SERIAL NUMBER: _______________________

1.14 Return Goods Authorization (RGA) Procedure

If you wish to return goods for warranty evaluation and/or credit, please have your original sales order, invoice and device serial number available when you call Mar Cor Purification. Call Mar Cor Purification at (800) 633-3080 and request Technical Support. A Mar Cor Purification Technical Support representative will provide instructions and a return goods authorization number, **which needs to be clearly written on the outside of the box used to ship your materials**. All equipment must be shipped to Mar Cor Purification with the freight prepaid by the customer. Call our Customer Service Center with any questions or issues concerning freight claims and a representative will discuss your situation. See the warranty details in Appendix B.

> **NOTE:**
> All materials to be returned must be rendered into a non-hazardous condition prior to shipping.

1.15 Symbols and Abbreviations

~	Volts Alternating Current
24N	Neutral or ócommonô connection of the 24-volt AC power supply
-V	ó-Vô refers to the **NEGATIVE direct current** 24-volt **(ó-24 VDCô)** power supply
+V	ó+Vô refers to the **POSITIVE direct current** 24-volt **(ó+24 VDCô)** power supply
AAMI	Association for the Advancement of Medical Instrumentation
C	Celsius
C1	Contactor (Motor Starter Relay ï Mix Pump)
CB	Circuit breaker (óCB-1ô)
cc	Cubic Centimeters
cfu/ml	Colony Forming Units per milliliter
cm	Centimeters
CO_2	Carbon dioxide
CR	Control Relay (Example: óCR2-13ô refers to the number 13 terminal on the number 2 control relay)
CSA	Canadian Standards Association
EU	Endotoxin Units
F	Fahrenheit
FDA	Food and Drug Administration
FNPT	Female National Pipe Thread
Ft.	Foot (feet)
FU	Fuse FU1, FU2é
GPM	Gallons Per Minute
H	Hot (or line voltage) connection to the 115-volt power supply
Lbs.	Pounds
LPM	Liters Per Minute
LRDP	Loop Rapid Distribution Pump
m	Meter
mm	Millimeter
mEq	Milliequivalents
mg/L	Milligrams Per Liter
ml	Milliliters
MNPT	Male National Pipe Thread
N	Neutral (or common) connection of the 115-volt power supply
N/A	Not Applicable
ng/ml	Nanograms Per Milliliter
NPT	National Pipe Thread
NSF	National Sanitation Foundation
OTT	Ozone Throttle Tube
OZ	Ozone
PLC	Programmable Logic Controller

PLC-XM	Programmable Logic Controller ï ó Expansion Mo
P/N	Part Number
ppm	Parts Per Million
PSI	Pounds Per Square Inch
PVC	Polyvinyl Chloride
QD	Quick Disconnect
RO	Reverse Osmosis
SDS	Solution Distribution System
SDSL	Solution Distribution System Local
TB	Terminal Barrier Strip (9 Main to the terminal marked number 9 on the Main Terminal Barrier Strip)
UV	Ultraviolet
VAC	Volts Alternating Current
VDC	Volts Direct Current

NOTES:

Mar Cor Purification Solution Delivery System (SDSL)

CHAPTER 2: INSTALLATION GUIDELINES AND INSTRUCTIONS

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2.1 Installation Guidelines for the Solution Distribution System

The following are basic guidelines for the installation of the SDSL system. Each application/installation will have particular characteristics that require attention when planning the installation.

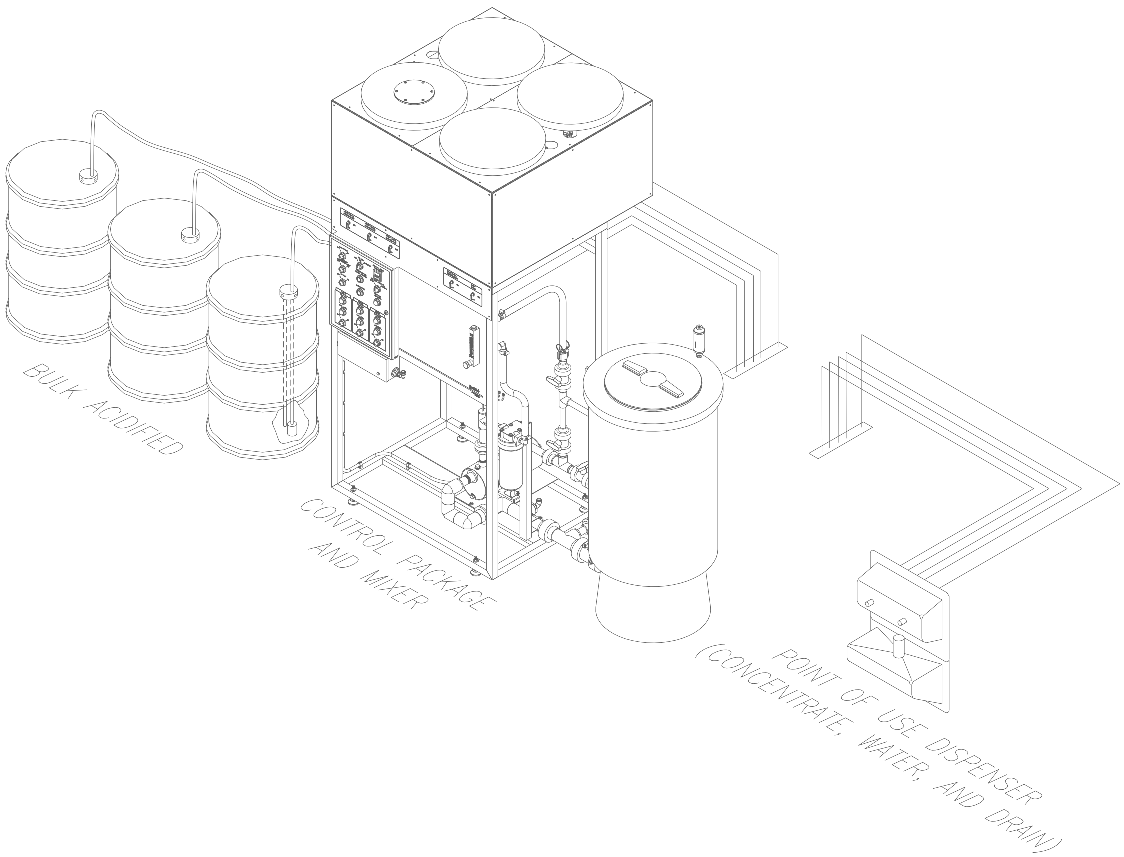


Figure 2.1: SDSL System Diagram

2.2 SDS Unit Installation Requirements

The Solution Distribution Unit and the Bicarbonate Mix Tank should be located as close to the patient care area as possible.

The Local Solution Distribution Unit and the Bicarbonate Mix Tank footprint requirements.

With a 70 gal. Solution Mix Tank:	58ò depth by 112ò
With a 100 gal. Solution Mix Tank:	64ò depth by 118ò

An additional 48ò depth for operating spa
recommended.

2.2.1 Electrical Requirements

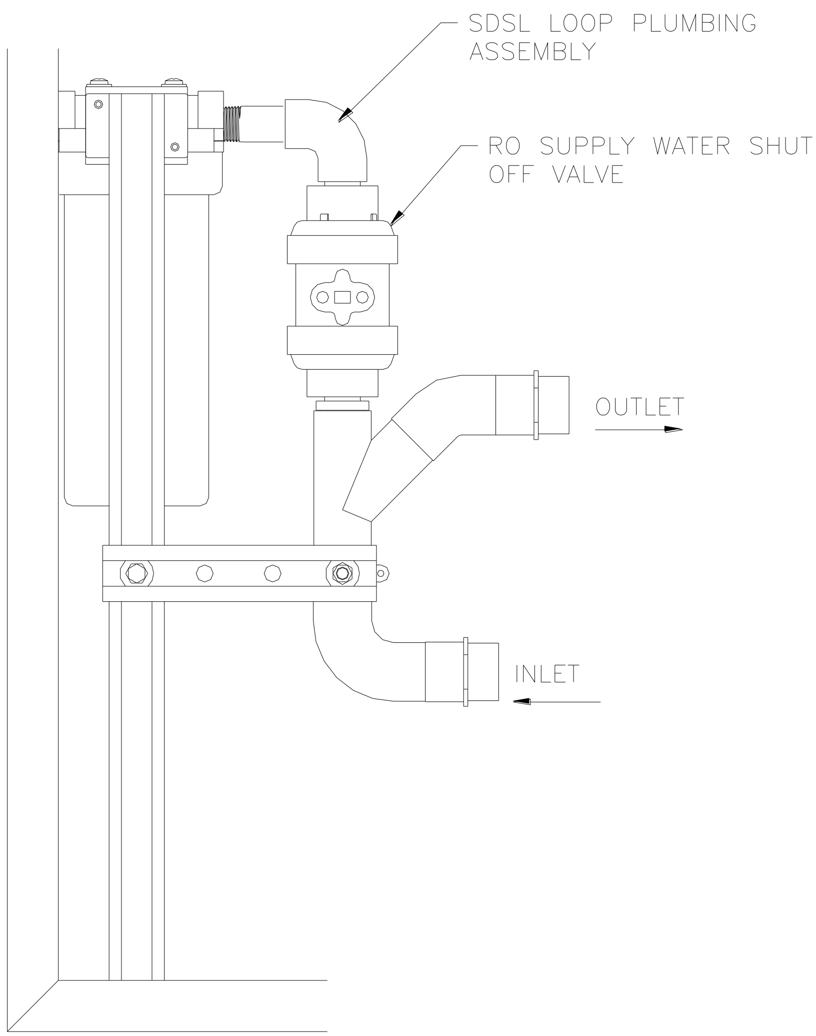
115 VAC, 20 AMP, 1 Phase straight blade.

115 VAC, 20 AMP, 1 Phase duplex electrical outlet. Required for the Ozone Sanitization System.

2.2.2 RO Water Supply

The unit includes two, 1 inch threaded female NPT ports for inlet and outlet RO water connections.

Inlet and outlet connections are shown in the illustration below. The inlet SDSL port is field connected from the loop supply feed. The outlet SDSL port is field connected to the loop return line.



BACK VIEW
SDSL FRAME, REF

2.2.3 Drain (Floor Sink)

Floor sink capacity, minimum: 20 gpm

The drain area should be sloped to a floor drain in addition to the required floor sink.

2.3 Patient Loop Installation Requirements

Distribution loop tubing:

- Material: Polyethylene
- Size: ½ inch (outside diameter)
- Color: Blue (bicarb), Red (acid #1), Orange (acid #2), Yellow (acid #3)

The maximum number of patient stations per loop should not exceed 20 stations.

If the number of patient stations in the facility is greater than 20 stations, the distribution loop should be split into two separate loops, each feeding 20 patient stations or less.

The maximum length per distribution loop should not exceed 700 feet.

If the distribution loop is longer than 700 feet, the distribution loop should be split into two separate loops each less than 700 feet in length.

Each solution requires a separate loop of a different color: Blue (bicarb), Red (acid #1), Orange (acid #2) and Yellow (acid #3).

All distribution loop tube runs start at the Solution Distribution Unit and are routed to the patient stations and require a return to the Solution Distribution Unit.

The distribution loops may be routed in the ceiling (or raceway), dropping down to the patient stations, or under the floor, rising to the patient stations.

If the distribution loop is to pass under the floor (concrete slab) to the wall chase and between wall chases, the tube must be run in 4-inch diameter pipe with ósweepô type elbows to route the tube(s) ar inches (minimum) above the floor. Pipe must be watertight and must be installed with lal óspturingô. If the distribution loop(space, it should be insulated to prevent freezing.

Distribution loop tube must be continuous (no in-line couplings in walls or ceiling). Breaks or splices in tube runs should only occur with a tee fitting at the patient station dispenser.

Distribution loop tube must be installed with no kinks, pinched sections, scratches, marks (paint or plaster) or blemishes.

Distribution loop tube must be installed straight (level) with appropriate restraints to prevent sagging and any bends must have a minimum radius of 2 ½ inches.

2.4 Loop Installation Instructions

1. At each patient station location, supply extra tube as shown in Illustration 6-3 4 , ñ P a t i e n t L o o p I n s t a l l a t i o n , ò i n C h a p
2. Label the ends of the distribution loop tube(s) at the Solution Distribution Unit area **BICARB TO LOOP** and **RETURN**. If more than one bicarb distribution loop is required, label the tube supply lines **BICARB TO LOOP 1** and **BICARB TO LOOP 2** and label the return lines **RETURN 1** and **RETURN 2**. Use the same method for each acid distribution loop.
3. Each end of the supply loop should be long enough to be routed to the appropriate isolation valve on the SDSL frame and have an additional 10 feet of tube.
4. Each end of the return loop should be long enough to be routed to the SDS frame and have an additional 10 feet of tube.

NOTE:
For best results and assistance with installation and warranty, a Mar Cor Purification representative should install the SDSL frame and mix tank. The plumber or other contractor should install the loops during the construction of the facility.

2.5 SDSL Frame and Head Tank Installation Instructions

1. Locate the SDS frame and mix tank in a level location. The location must include a floor drain, good ventilation, a 20 amp 115 VAC straight blade outlet, a 20 amp 115 VAC duplex outlet (for ozone systems) and be within 10 horizontal feet from the head tank(s). A water supply valve should be in close proximity.
2. Attach the rubber feet pads to the SDS feet and level the mix frame.
3. Place the head tank frame assembly on the SDSL frame. Align holes and secure using the supplied hardware. See Installation,ò below.

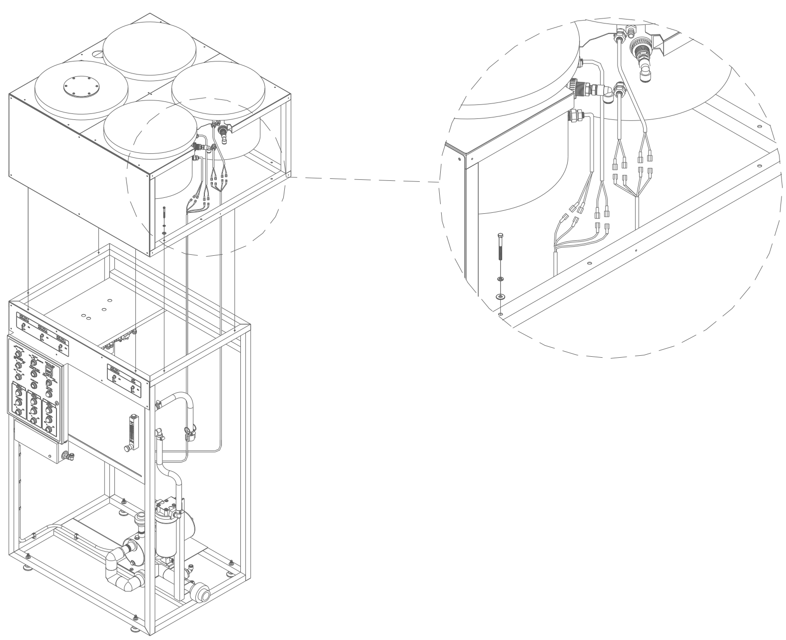


Figure 2.2: SDSL Head Tank Installation

4. Connect the float switch wires for each head tank. Connect the green and black wires to the low level switch and the red and white wires to the high level switch. Refer to Illustration 6-23, ñHead Tank and Float Installation,ò in Chapter 6.
5. Clean any shipping debris from inside the bicarb mix tank.
6. Ensure the bicarb mix tank is sitting properly on its stand and connect the SDSL frame to the mix tank at the two matching unions. Make certain that the union O-rings are in place. Tighten all union connections.
7. Connect the mix tank low float switch wires from the mix tank to the low float switch wires on the frame.

8. Assemble the drain manifold. Refer to Illustration 6-36, ñDrain Manifol Assembly,ò in Chapter 6. Mount the drain manifold in a manner appropriate for the location of the SDS frame and floor drain.
9. Connect the SDS drain valve (V-5) to the drain manifold with 1-inch flexible braided hose. Refer to Illustration 6-36: Drain Manifold Assembly in Chapter 6.
10. Use Ìò blue tube from the installation reducing union (P/N ME41160) located the on the Loop Drain Valve located in the valve panel and route to the drain manifold.
11. Install the UV quartz sleeve (P/N ME41886) and lamp (P/N ME41585) into the UV unit. For specific instructions see Chapter 4, Section 4.2.6.
12. Remove and discard the shipping plug from the tank vent filter connection point.
13. Assemble a flexible hose with a hose barb and female óCamloc disconnect fitting to connect the RO water supply to the filter inlet connection. Refer to Illustration 6-33, ñSDSL Water Connection
14. Tighten all electrical screws in the control box to 9 inch-pounds with the exception of the PLC and terminal barrier strip. The PLC terminals screws should be tightened to 5 inch pounds and terminal barrier strip to 7 inch pounds.

CAUTION:
Vibrations during shipping/operation may cause terminal connections to loosen. Loose terminals connections will not allow the SDS Unit to operate properly.

15. Connect the flexible hose located on the outlet of the water filter to the QD fitting on the Inlet Water Valve (V-3). Refer to Illustration 6-33, SDSL Water Connections.ò
16. Remove the inlet water filter housing and install the 0.2-micron filter (P/N ME40920). Reinstall the housing.
17. Route the power cord to the electrical receptacle.

2.6 Head Tank Tube Connections

Figure 2.3: Bicarb Head Tank Connections

> **CAUTION:**
> Overflow tubes must be routed in a manner such that the tubes are self-draining; i.e., no sags. Sags in overflow lines can fill with fluid, restricting the head tank from draining properly.
>
> **NOTE:**
> Fittings are provided on the acid dip tube and the bicarb mix tank for alternate overflow connections. If the bicarb mix tank fitting is not used, replace the fitting with a plug.

1. Connect Ìò blue tube from the **BICARB** bicarb tr **HEAD TANK SUPPLY** fitting.
2. Connect Ìò bl **LOOP DRAIN TEE** to the **BICARB LOOP SUPPLY** fitting.
3. Connect clear Ìò **HEAD TANK OVERFLOW** fitting the and route to drain.