



# SpeedVac™ SPD210

## Vacuum Concentrator

### Installation and Operation

80302131 • Revision A • September 2018

**IMPORTANT:** Read this instruction manual. Failure to follow the instructions in this manual can result in damage to the product, injury to operating personnel, and poor equipment performance.

**CAUTION:** All internal adjustments and maintenance must be performed by qualified service personnel.

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# Introduction

Thermo Scientific Savant SpeedVac™ SPD210 vacuum concentrator offers fast, reliable processing of samples. It effectively removes non-aggressive organics such as methanol, acetonitrile, water and HPLC fractions.

The combination of vacuum applied to the sample chamber from an external source and centrifugal action promotes solvent evaporation without sample loss due to foaming or bumping. The evaporation process is accelerated with the addition of chamber heat to counteract the extreme evaporative cooling of the samples. The concentration process is completed with the addition of a vapor condensation trap available separately for virtually 100% solvent recovery. This results in a thorough evaporation process in a safe environment for both the sample and the user. The unit features an advanced front panel with dual timer for automatic or manual control of run conditions, it also features three programs that are modifiable which enable user to retrieve and store application protocols for future use.

The compact, SPD210 features:

- Good resistance to organic solvents with the following provisions:
  - Components made of Polypropylene® and Teflon® used exclusively in the vapor path.
- Microprocessor control of run and heat times offer fully unattended, automatic operation
- 3 programs that are modifiable for custom application-based run parameters.

# Safety Precautions

In this manual, the following symbols and conventions are used:



This symbol when used alone indicates important operating instructions which reduce the risk of injury or poor performance of the unit.



**CAUTION:** This symbol, in the context of a CAUTION, indicates a potentially hazardous situation which if not avoided could result in minor to moderate injury or damage to the equipment.



**WARNING:** This symbol, in the context of a WARNING, indicates potentially hazardous situations which, if not avoided, could result in serious injury or death.



This symbol indicates situations where dangerous voltages exist and potential for electrical shock is present.



The snowflake symbol indicates extreme low temperatures and high risk of frostbite. Do not touch bare metal or samples with unprotected body parts.



This symbol indicates possible pinch points which may cause personal injury.



This symbol indicates a need to use gloves during the indicated procedures. If performing decontamination procedures, use chemically resistant gloves.



Before installing, using or maintaining this product, please be sure to read the manual and product warning labels carefully. Failure to follow these instructions may cause the product to malfunction, which could result in injury or damage.



This symbol represents protective conductor terminal.

Below are important safety precautions that apply to this product:



**WARNING:** Disconnect the unit from all power sources before cleaning, troubleshooting, or performing other maintenance on the product or its controls.



**WARNING:** Do not use this device in radioactive, highly reactive or explosive atmosphere.

Do not use this device to process any explosive, radioactive, highly reactive or explosive atmosphere creating substances.

# Operating Standards

## Product Specifications

Operative Power*	115 VAC; 60 Hz; 8 amps 230 VAC; 50 Hz; 6 amps
Vacuum Chamber	TEFLON® coated chemical resistant aluminum casting
Cover	Glass cover - includes a safety interlock
Induction Motor	Maintenance free
Bearings	Standard
Chamber temperature	35°C to 65°C, 5°C increments
Weight	117 lbs 53 kg
Dimensions (W x D x H)	19 in x 26 in x 18 in 48 cm x 66 cm x 46 cm
Fuse	8 A, 250 VAC, Time-lag 6 A, 250 VAC, Time-lag

\*Dependent upon ambient temperature, line voltage fluctuation, and load capacity.

## Environmental Conditions

Indoor use only, in the absence of hoarfrost, dew, percolating water, rain and solar radiation.

Maximum altitude	2000 meters above mean sea level
Ambient temperature range	17°C to 32°C
Humidity	20% to 80% non-condensing
Pollution degree	2

Main supply voltage fluctuations not to exceed  $\pm 10\%$  of the nominal voltage.

Transient overvoltages per Installation Categories II.

# Installation

## Contents

Table 1. Contents

Qty.	Description
1	Thermo Scientific Savant SpeedVac™ SPD210 Concentrator
1	Cover Lock Emergency Release Tool
1	Line Cord

**Unpacking.** Open the shipping cartons. Carefully remove the instrument and accessories. **Lift and carry with two people, holding securely underneath with both hands. Use proper lifting technique (lift with the legs, not the back) to avoid personal injury.** Compare the contents with the packing list. If there is a discrepancy, call Thermo Scientific technical service.

**Inspection.** Inspect the unit and accessories for damage that may have occurred during shipment. Should there be any damage, report it to the carrier and contact Thermo Scientific immediately. Make sure the carrier inspects the damage and leaves an inspection report. Register any claims for shipping damage against the carrier or his agent. Save the shipping carton in the event a return is necessary. Call Thermo Scientific technical service for further assistance.

**Site preparation.** The SPD210 requires a stable surface that is clean, dry, level, and within 4 feet (1.2 meters) of a compatible electrical outlet. Place the unit in a convenient location with access to a vacuum source and a vapor trap<sup>1</sup>.

The SPD210 units configured for 115 VAC, 60 Hz, should be plugged into a circuit rated for at least 8 amps. The SPD210 units configured for 230 VAC, 50 Hz, should be plugged into a circuit rated for at least 6 amps.



**CAUTION:** Be sure to leave at least 4 inch clearance on all sides of the unit. Overhead clearance, equal to 19 inch (48 cm), is required for raising the cover. Verify that the unit is on a leveled and stable platform. If necessary, move the unit to a more suitable location.



**WARNING:** Before connecting the unit to an electrical outlet, make certain that voltage, frequency, and amperage match the requirements indicated on the product label, name plate of the instrument. Use sockets with a protective earth conductor and correct mains cable.

**Note:** Do not use any detachable power cord that is not adequately rated for the unit.

## Installation of SPD210

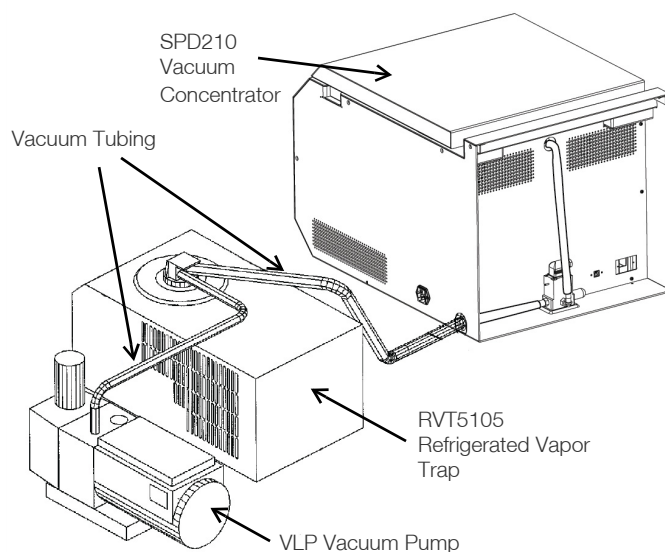


Figure 1. Rear View of System



**CAUTION:** Cold trap should be in line between the vacuum source and the SPD Unit.

1. To prevent damage to pump due to vapor exposures from sample solvent and to extend pump life, a vapor trap that condenses and traps vapors must be placed in line between the SpeedVac™ concentrator and vacuum pump. We offer integrated universal vacuum systems (integrated vapor trap with the vacuum pump) or component vacuum system (vapor trap plus vacuum pump).

# Operation

Connect the power cord to the power inlet on the right side of the unit and plug it into the appropriate outlet. Turn on the main power switch located on the front of the unit in the lower right to energize the unit. The safety lid locking mechanism on the SPD210 will automatically disengage. Do not attempt to open the lid unless the unit is plugged in.



**CAUTION:** Use appropriate Thermo Fisher Scientific designed rotors recommended for the product.

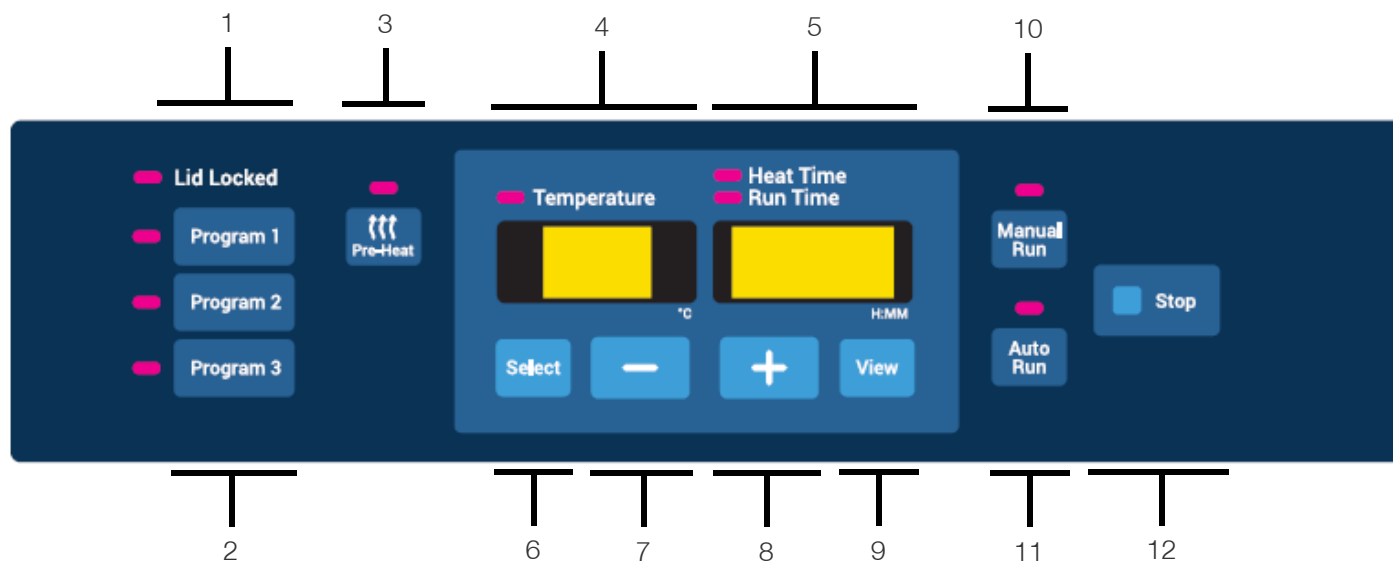
**Note:** The SPD210 Concentrator is an important component in a complete concentration system that should also include a refrigerated vapor trap and a vacuum pump along with other applicable accessories. Please refer to operating instructions of each component for details on usage.

**Rotor installation.** Open the lid of the rotor chamber. Visually align the pin on the drive shaft with the groove on the bottom of the rotor. Carefully lower the rotor onto the drive shaft. Rotate the rotor by hand to ensure alignment of the pin with the groove. Secure the assembly by screwing the retaining knob into the drive shaft above the rotor. Tighten it firmly but not excessively.



**CAUTION:** Load the rotor and close the lid. Always balance rotor loads. An imbalanced rotor causes vibration that will damage the system's bearings and equipment. Load the rotor symmetrically. There need not be a tube in each holder, but the load must be evenly distributed. When using a rotor with aluminum tube holders, insert all the tube holders.

## Description Of Control Panel



1. **Lid locked** - Indicates if the lid of the concentrator is locked or not. The indicator will be illuminated when locked.
2. **Program buttons** - 3 programs that are modifiable. Loading a program is achieved by pressing the corresponding **Program** button. The following parameters are automatically loaded onto the screen:

- Temperature set point
- Heat time

- Run time

### Default Program Settings

The table 2 below shows the factory default values attributed to the programs parameters.



**Table 2. Program Settings**

Program	Description	Default UI parameters
Program 1	Water	Temperature: 45°C Heat time: 2.00 Run time: 2.00
Program 2	“Low Boiling” ACN/MEOH	Temperature: 65°C Heat time: 2.00 Run time: 2.00
Program 3	HPLC H2O + Low Boil solvent +.1% acid	Temperature: “no” Heat time: 0.01* Run time: 2.00

\*When the temperature is set to “no”, the heat time is defaulted to “0.00” while executing the run.



**Note:** The programs are for convenience only. Prior to use, users are advised to conduct a risk assessment to confirm that the program parameters meet the user’s application specific needs and conditions. Users accept the risks associated with using these programs.

Saving a program is achieved by pressing and holding down the corresponding **Program** button for 3 seconds. The parameters displayed in the screen are stored into the program and can be loaded for use at a later time.

- Pre-Heat** - Use to pre-heat the chamber to 45°C prior to beginning a run or between runs. Once a run is initiated, the pre-heat automatically stops.

Note that the pre-heat function is only enabled if the temperature set point is different than “no”.

- Temperature display** - Indicates the set temperature or the actual temperature during a run in °C. The temperature set point can be set from 35°C to 65°C at a 5°C interval. In addition, it is possible to set the temperature to “no”, which means that heating will not be applied during the run. The temperature setting of “no” can be reached under 35°C or over 65°C.
- Time display** - Indicates the heat timer or the run timer set points. During a run, it indicates the elapsed or remaining run time or the remaining heat time. The range for these timers is from 0.01 [1 min.] to 9.59 [9 hours, 59 minutes] at a 1-minute interval. In addition, it is possible to set the heat time to “CCC”, which represents a continuous heating throughout the execution of a run. The setting of “CCC” can be reached under 0.01 [1 min.] or over 9.59 [9 hours, 59 minutes].
- Select** - Press this button to select the parameters to be modified. The selection is from left to right, in a cyclic

manner. The selected parameters is shown by the corresponding indicator that is illuminated.

- Minus (“-”)** - Decrements the value of the selected parameter.
- Plus (“+”)** - Increments the value of the selected parameter.
- View** - During a run, pressing view shows the set run parameters. When no run is ongoing, pressing view displays the actual live parameters. The time display shows either “0.00” or the end status of the last executed run (e.g. “End”, “Err.”).
- Manual run** - Starts a “Manual” run based on the parameters loaded in the screen, use manual run function if you do not want to set a fixed run time.
- Auto run** - Starts an “Automated” run based on the parameters loaded in the screen, use auto run function if you want to set a fixed run time.
- Stop** - Terminates a “Manual” or “Auto” run.

**Note:** Restoring the factory default parameters for a given program is achieved by selecting it and then pressing and holding down the **Stop** button for 3 seconds. The default parameters associated with the program (factory default) will be restored and the screen updated accordingly.

## Audible Notification

The concentrator will play tones depending on the user actions. Below is a description of these tones.

**Table 3. Audible Notifications**

Event	Sound Description
Start-up	5 beeps
Starting a run (manual or automatic)	1 single beep
Manually stopping a manual or automatic run	3 beeps
Automatically stopping an automatic run	1 beep that is repeated until the user pushes the <b>Stop</b> button or opens the cover of the concentrator
Program saved	3 beeps
User input error	1 long beep that lasts for 1 second

**Table 3. Audible Notifications**

System error	1 long beep that lasts for 1 second and that is repeated until the user pushes the <b>Stop</b> button or opens the cover of the concentrator
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## Manual Run

1. Connect the unit to its required voltage.
2. Turn the power switch located on the front of the UNIT, to the **ON** position, (light on switch indicates ON). The cover lock disengages, allowing the top cover to be opened.

The display lights up and shows the following in sequence:

- Name of the concentrator
- Software revision number
- Default values:
  - Temperature 35°C
  - Run Time 2.00 hours
  - Heat Time 2.00 hour

3. Select a run configuration using one of the following methods:
  - Load a program
  - Directly modify values that are loaded on the screen, using the **Select** button and the “+”/ “-” buttons.
4. Set the temperature set point between 35°C and 65°C, or “no”, for no heat.
5. Using the **Select** button and the “+”/ “-” buttons select and modify “Heat Time” to between 0.01 and 9.59 hours or “CCC” (for continuous heating). When the heat timer expires, the heater will shut off, no matter what the temperature set point reads (except if “CCC”).
6. Select Run Time: Since this is a manual run, no time adjustment is needed.
7. Place sample tubes in rotor so load is balanced. Secure rotor with the supplied knob (hand tight). Close cover.
8. Pre-heat may be selected at this time, to apply a 45°C heat to the chamber.



**Note:** The pre-heating function requires the temperature set point to be different than “no” and requires the lid to be closed.

9. Press the **Manual Run** button. The cover locks and the lid locked indicator is illuminated. The rotor starts

spinning. The “Run Time” display counts up. The temperature rises to the set temperature. The “Heat Time” will count down if set point is not set to “CCC” and if the temperature set point is not “no”. The vacuum will be applied to the chamber.

**Note:** If the cover is not closed, the display will show “Lid” and the run will not start.

10. To end the manual run, press **Stop** button. The unit will sound three audible beeps. The display will show “End”, the valves will click, allowing air to bleed into the chamber.
11. After the rotor stops spinning, the cover lock disengages and the lid locked indicator is turned off. The display reverts to last set parameters.
12. Open the cover and remove the samples.

**GENERAL:** During the run, display shows actual parameters. To check set parameters, press **View** button and **Select** button. The display will revert temporarily to the set points for approximately 5 seconds.

## Auto Run

1. Refer to the **Manual Run** section for start-up.
2. To execute an AUTO “TIMED” RUN, use the **Select** button and the “+”/ “-” buttons to select and modify the Temperature, “Heat Time” and “Run Time” parameters. The Run and Heat Time can be set from 0.01 to 9.59 hours (Heat Time also has “CCC” for continuous use).
3. Place the sample tubes in the rotor so that the load is balanced. Secure the rotor with the supplied knob (hand tight). Close the cover.
  - a. Press the **Auto Run** button to start the run. The cover locks and the lid locked indicator is lit. The rotor starts spinning. The run time display is counting down in 1 minute Intervals. The heat time is counting down if the set point is not set to “CCC” and if the temperature set point is not set to “no” (use the select button to view “Heat Time”). The temperature rises in 1°C increments to set temperature. The vacuum is applied to the chamber.



**Note:** If the cover is not closed, the display will show “Lid” and the run will not start.

- b. Once the time decrements to 0.00 Hours, the run will automatically stop, the display will show “End”, the valve will click, allowing air to bleed into the chamber. The unit will sound 1 beep that will be repeated until the user acts on it.

- c. After the rotor stops spinning, the cover unlocks and the lid locked indicator is turned off. The display reverts to last set parameters.
- d. Open the cover and remove samples.

**GENERAL:** During the run, display shows actual parameters. To check set parameters, press **View** button and **Select** button. The display will revert temporarily to the set points for approximately 5 seconds.

## Drying Rate

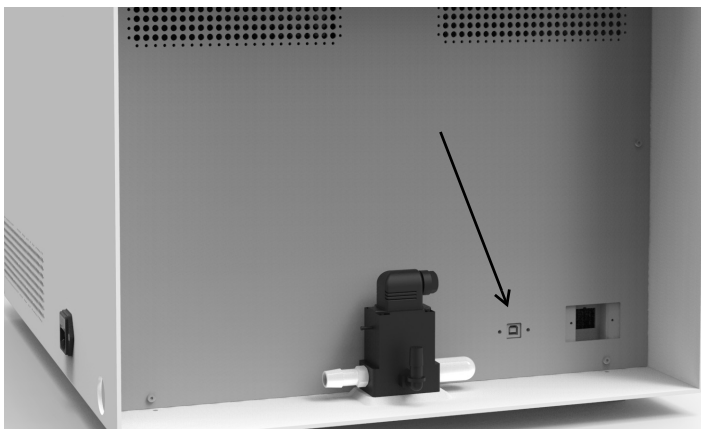
Thermal energy can be applied to the concentrator chamber to counteract the cooling effect of evaporation, maintain the samples in the liquid state, and accelerate the concentration run. Select the highest drying rate if you desire accelerated drying. To ensure against over drying of samples, and possible denaturing, it is recommended that the “Heater” timer be set for only a portion of the total run time (e.g., 50%-75% of total run time).

## Exporting Live Run Data

The unit is equipped with a USB port to enable communication with an external computer. The USB port is located on the rear panel of the unit and is connected to a computer via a standard USB type A to B cable.



**CAUTION:** USB lead length less than 3 meters shall be used to connect to the computer



**Figure 2. USB Port location**

When a run is ongoing, the unit exports the following information via the USB port every minute.

- The live temperature applied to the samples chamber

- The remaining heat time for the run (“CCC” indicates continuous heating)
- The remaining or elapsed run time, depending on the run type (manual or automatic)

The data are sent at a fixed baud rate of 115200 and are comma-separated as shown in the format: **<temperature>**, **<heat time>**, **<run time>**.

- The temperature is represented as a 2-digit integer in °C
- The heat time is expressed as a 3-digit integer in minutes (or “CCC” for continuous heating)
- The runtime is expressed as a 3-digit integer in minutes.



In case of a communication failure between the monitoring program of the computer and the product, user can re-establish the connection by disconnecting and reconnecting the USB cable.

**Note:** The following section details the step-by-step procedures for configuring Microsoft® HyperTerminal running on a host computer using Windows® XP. These instructions may need to be modified to be used with a different terminal emulator program and/or operating system. Contact Technical Services if further assistance is required.

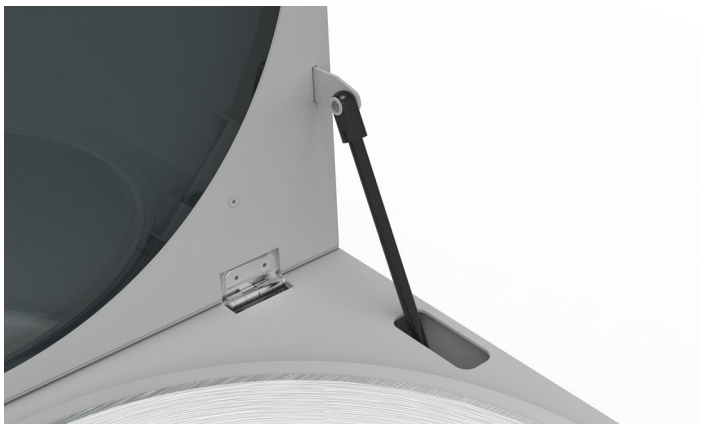
## HyperTerminal Configuration

1. Power up the host computer and close any running applications.
2. Open the HyperTerminal application by clicking on **Start** \ “Programs” \ “Accessories” \ “Communications” \ “HyperTerminal.”
3. In the “Connection Description” box, enter the name “SPD210” and choose an icon and click **OK**.
4. Connect to the virtual COM port that is linked with the SpeedVac™ concentrator attached to the computer (USB virtual com port).
5. In the “COM Port Properties” box \ “Port Settings” folder select the following options:
  - Bits per second: \_ 115200
  - Data bits: \_ 8
  - Parity: \_ None
  - Stop bits: \_ 1
  - Flow control \_ None
 After verifying the above settings, click **OK**.
6. In the main dialog box click on **File** \ **Save**.

7. Exit the program by clicking on **File \ Exit \ Yes**.
8. Verify the program was saved by going to **Start \ "Programs" \ "Accessories" \ "Communications" \ "HyperTerminal" \ "SPD210"**.
9. This completes the configuration of HyperTerminal.
10. Turn on SpeedVac™ system and connect to the virtual COM port that is linked with the SpeedVac™ attached to the computer.
11. Start HyperTerminal by clicking on **SPD210**.
12. Initiate the run and SpeedVac™ will screen print **<temperature>, <heat time>, <run time>,,**

## Lid Stay Mechanism

The unit is equipped with a hydraulic damper that will assist the user in closing the cover. It will secure the lid and maintain it open, allowing the user to operate the unit with both hands.



**Figure 3. Lid stay mechanism view**



**WARNING:** Device lid can crush your fingers.

**Keep away:** Do not reach between the device and lid when opening or closing the device lid.

## Other Topics

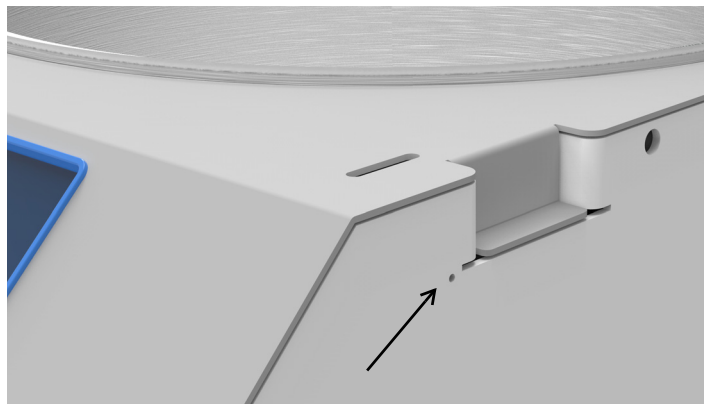
**Chamber Cover.** The cover must be closed before beginning a run. If you press **Manual Run** or **Auto Run** and the cover is open, the display shows “lid” to remind you to close the cover. The run will start immediately after closing the cover.

If a user tries to open the lid at the start of the run, when the lid has already been locked, the unit will automatically abort the run and signal the user with the “Lid” message on the display and an error tone. Otherwise, during a run the user cannot open the cover due to vacuum in the concentration

chamber. The cover is locked down at all times during a run and whenever power to the unit is interrupted.

The cover lock is an additional safety feature that reduces the risk of injury or damage while rotor is spinning. Never bypass the cover lock mechanism during a run.

If removal of samples from the concentrator chamber during a power failure is required, insert cover lock emergency release tool into the slot provided on the right side of the unit. Press the object gently into the slot until the lock releases. The cover can then be opened.



**Figure 4. Opening chamber cover in emergency**



**CAUTION:**

**List of Solvent and Solvent Combinations:**

### Solvent & Solvent Combination

Water+ACN+MeOH+low concentration of 0.1% Trifluoroacetic acid

Acetonitrile

Ammonium hydroxide

n-Butyl alcohol

Ethanol

n-Hexane

n-Heptane

Isopropyl alcohol

Isobutyl alcohol

Methanol

n-propyl alcohol

Pyridine

In the event that your choice of solvents and applications are unique and not listed above, please contact Thermo Scientific Customer Support for advice.



**WARNING:** Do not use this device in radioactive, highly reactive or explosive atmosphere.

Do not use this device to process any explosive, radioactive, highly reactive or explosive atmosphere creating substances.



**CAUTION: Product Maintenance:**

Maintenance of product only permitted to be performed by trained service staff using suitable measuring and auxiliary equipment as well as detailed service instruction.



Wear gloves, eye protection, masks and lab coats while working on the system.

2. Ensure all glass condensation flask in emptied, cleaned and checked for crack before every run.
3. Clean the cover, cover seal and chamber with a soft lint free cloth with one of the following:
  - Mild detergent solution
  - Diluted Methanol (50%)
  - Diluted Ethanol (50%)



**WARNING: Burns due to hot device parts:**

When the concentrator is set to a temperature of 60°C and above the rotor and the sample tubes will be hot, do not touch the wall of the rotor chamber, use suitable auxiliary to remove the sample tubes.

**Routine checks:**

1. Check all the hoses to ensure that they are secure.

## Rotors and Rotor Blocks

### Traditional Rotors for SPD210 Vacuum Concentrator\*

Type	Description	No. of Tubes	Working Volumes (ml)	Rotor Part No
Microcentrifuge Tubes	1.5 - 2.0 ml	200	1.2 - 1.6	RH200-12
	17x60 mm (5 ml)	10	3.5	RH10-15
Glass and Plastic Tubes	12x75 mm	200	4	RH200-12
	13x100 mm	32	8	RH32-13
	16x25 mm, 18x125 mm	48	12	RH48-18-125
	18x150 mm, 16x125 mm	32	24	RH32-18-150
	16x125 mm	88	24	RH88-16-125
Centrifuge Tubes	50 ml conical (28x115 mm)	48	40	RH48-50U
Flasks	100 ml pear-shaped flask	8	80	RH8-200
Vials	1-Dram vial (15x45 mm), 4 ml	192	3	RH192-15
	20x60 mm, 20 ml scintillation vial	50	16	RH50-28-60
Microwell Plates	Shallow well	12	-	MPTR12-210
	Deep well (Shallow well)	4	-	MPTR8-210

\*Requires purchase of adapter cat. no. RAD200.

# Rotor Block: For Use With Four-Position Rotor (FPR-4A)

All blocks come as a set of two.

Type	Description	No. of Tubes/ Vials/ Flasks	Working Volumes (ml)	Rotor Block Part No
Centrifuge Tubes	50 ml conical (30x115 mm)	6	40	RBA6-30-115
	15 ml conical (17x120 mm)	24	12	RBA24-16-100
Vials	28x60 mm, 20 ml scintillation vial	12	4	RBA12-28-58
	19x65 flat bottom	24	4	RBA24-19-65
	12x32 mm	54	2	RBA54-12-32
	15x45 mm, 1-dram	24	3	RBA24-15-45
Round or Flat Bottom Flask*	-	2	50 ml each flask	RBA2-FLSK-100
	-	1	175 ml each flask	RBA1-FLSK-250

\*Must be special ordered.

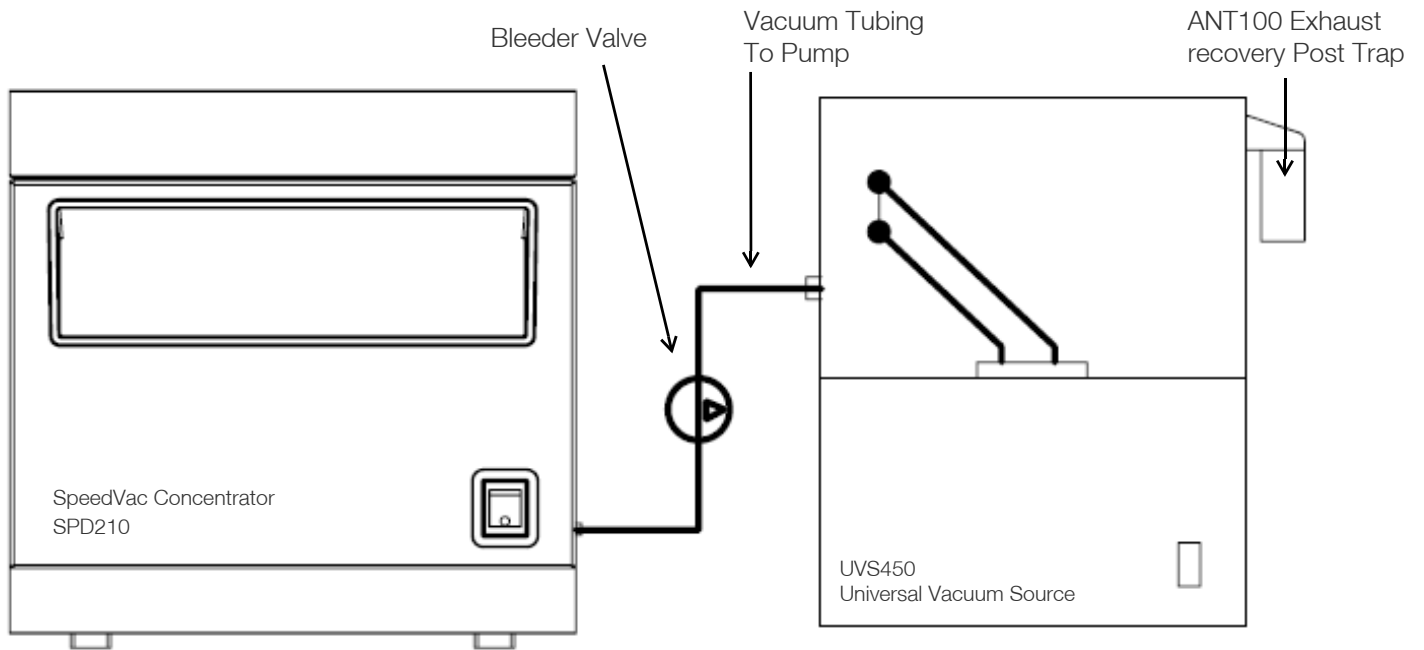
## Accessories

Part No.	Description
GF4000	Glass condensation flask (4 liter)
121-6162-00	White Foam Insulating ring for coverglass trap
SCC1*	CryoCool <sup>®</sup> heat transfer fluid (1 liter)
RAD200	Rotor Adapter for the SUMAX400 Upper Magnet assembly
ANT100	Post-trap assembly for Oligo Preps -Used on UVS850DDA only
ANS121	Ammonia neutralizing solution for Oligo Preps - UVS850DDA only
SCT120	Chemical trap (order cartridges separately)
DTK120R	Chemical trap kit for radioactivity
DC120A	Disposable cartridge for neutralizing acid
DC120R	Disposable cartridge for trapping volatile radioactivity
CC120/DX	Deluxe convenience cart for SpeedVac <sup>™</sup> systems

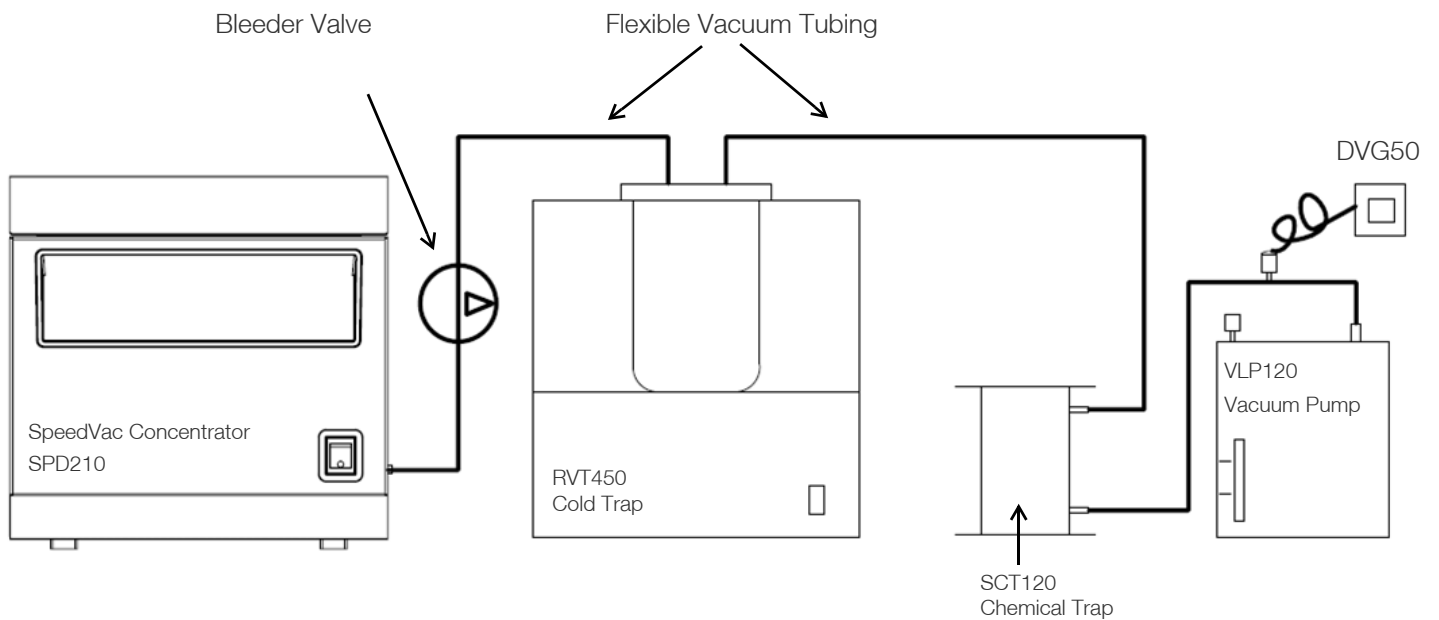
\*Hazardous Materials - These items require special shipping / handling when shipped by air.

# Appendix 1

## Additional SPD210 System Setup



**Figure 5. Semi-Integrated System**



**Figure 6. Component High Vacuum System**

# Appendix 2

## 1. TO INCREASE THE RATE OF SOLVENT EVAPORATION AND SHORTEN DRYING TIME, TRY ONE OR MORE OF THE FOLLOWING:

- Use glass tubes and vials in place of plastic.
- Preheat the SpeedVac™ chamber and rotor before drying.
- Use rotors with metal tube carriers instead of plastic rotors (e.g., RH12-20, RH8-18).

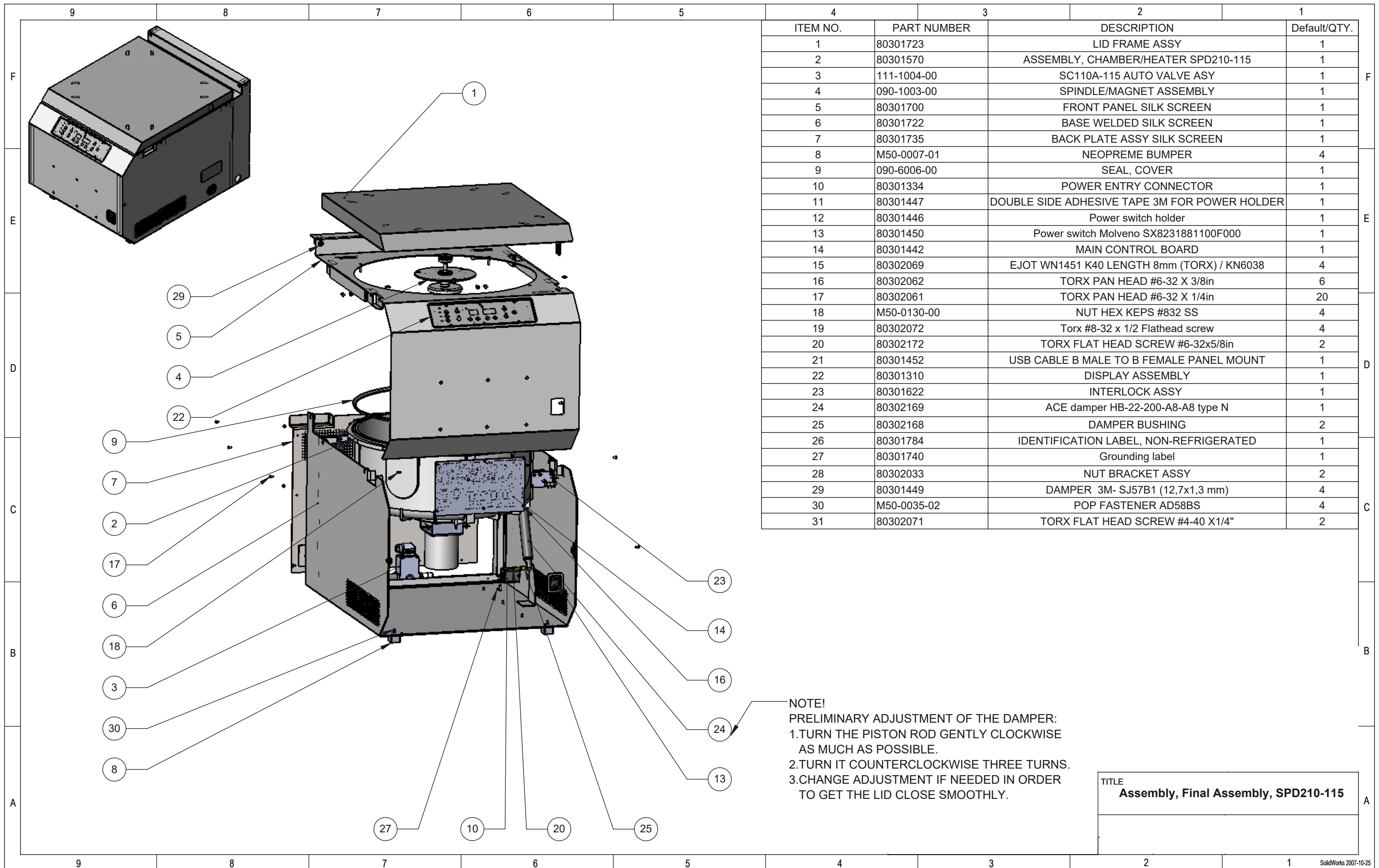
These rotors conduct and transfer heat to tubes for faster sample drying.

- Prewash plastic tubes with methanol to remove materials that inhibit or prevent evaporation of aqueous samples.

## 2. TO KEEP VACUUM PUMP OIL CLEAN, TRY THE FOLLOWING:

- Empty solvent(s) collected in the Refrigerated Vapor Trap as frequently as possible.
- Change the oil in the vacuum pump when it becomes brown in color or smells of solvents being evaporated.
- Attach a Thermo Scientific VPOF110 Vacuum Pump Oil Filter/Recirculator to your vacuum pump when evaporating acids (e.g., HCl, acetic, TFA) in the SpeedVac™.
- Attach a Thermo Scientific SCT120 Chemical Trap with acid neutralization cartridge when evaporating acids (i.e. HCl, acetic, TFA) in the SpeedVac™.

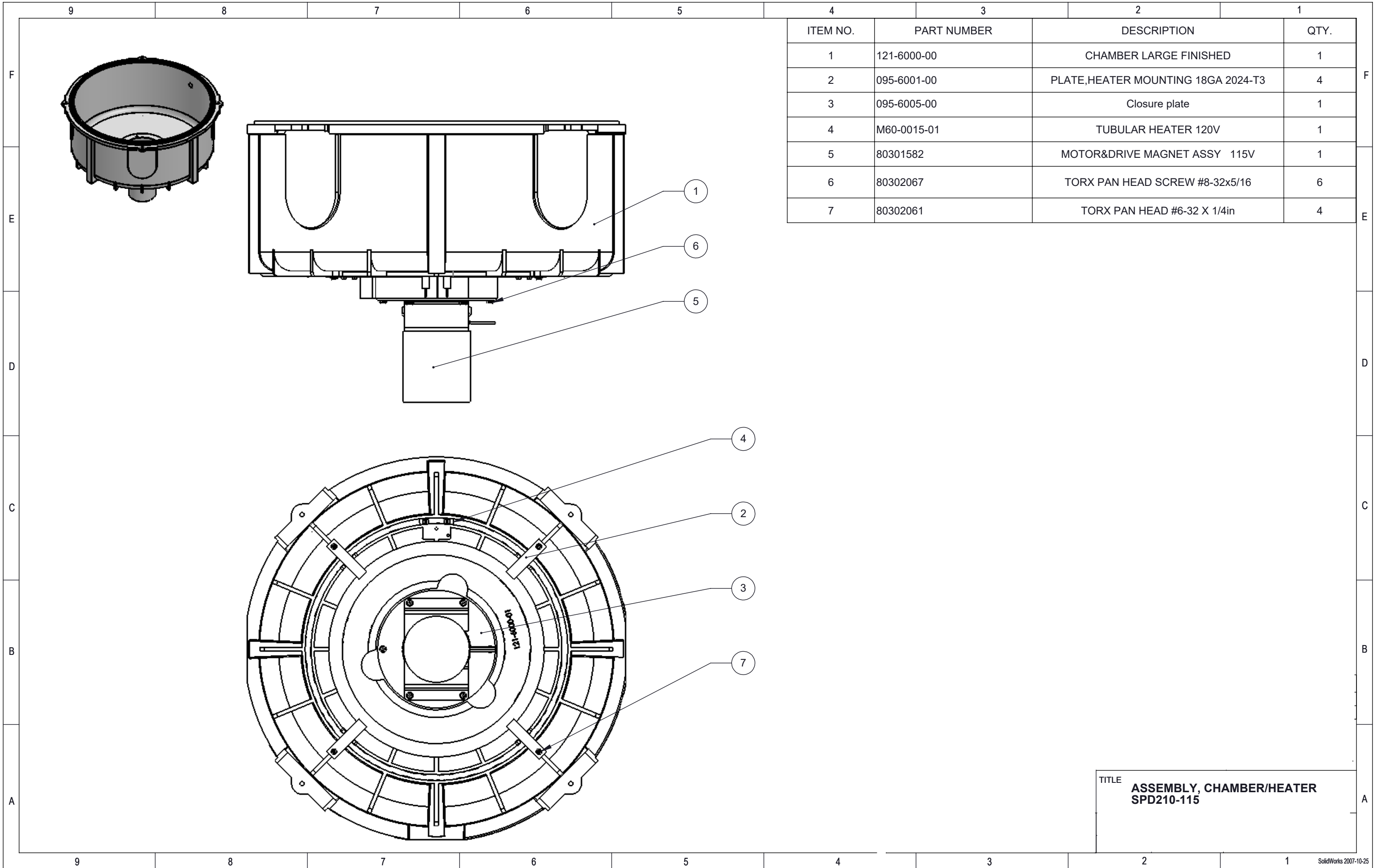




ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY.
1	80301723	LID FRAME ASSY	1
2	80301570	ASSEMBLY, CHAMBER/HEATER SPD210-115	1
3	111-1004-00	SC110A-115 AUTO VALVE ASY	1
4	090-1003-00	SPINDLE/MAGNET ASSEMBLY	1
5	80301700	FRONT PANEL SILK SCREEN	1
6	80301722	BASE WELDED SILK SCREEN	1
7	80301735	BACK PLATE ASSY SILK SCREEN	1
8	M50-0007-01	NEOPREME BUMPER	4
9	090-6006-00	SEAL, COVER	1
10	80301334	POWER ENTRY CONNECTOR	1
11	80301447	DOUBLE SIDE ADHESIVE TAPE 3M FOR POWER HOLDER	1
12	80301446	Power switch holder	1
13	80301450	Power switch Molveno SX8231881100F000	1
14	80301442	MAIN CONTROL BOARD	1
15	80302069	EJOT WN1451 K40 LENGTH 8mm (TORX) / KN6038	4
16	80302062	TORX PAN HEAD #6-32 X 3/8in	6
17	80302061	TORX PAN HEAD #6-32 X 1/4in	20
18	M50-0130-00	NUT HEX KEPS #832 SS	4
19	80302072	Torx #8-32 x 1/2 Flathead screw	4
20	80302172	TORX FLAT HEAD SCREW #6-32x5/8in	2
21	80301452	USB CABLE B MALE TO B FEMALE PANEL MOUNT	1
22	80301310	DISPLAY ASSEMBLY	1
23	80301622	INTERLOCK ASSY	1
24	80302169	ACE damper HB-22-200-A8-A8 type N	1
25	80302168	DAMPER BUSHING	2
26	80301784	IDENTIFICATION LABEL, NON-REFRIGERATED	1
27	80301740	Grounding label	1
28	80302033	NUT BRACKET ASSY	2
29	80301449	DAMPER 3M- SJ57B1 (12,7x1,3 mm)	4
30	M50-0035-02	POP FASTENER AD58BS	4
31	80302071	TORX FLAT HEAD SCREW #4-40 X1/4"	2

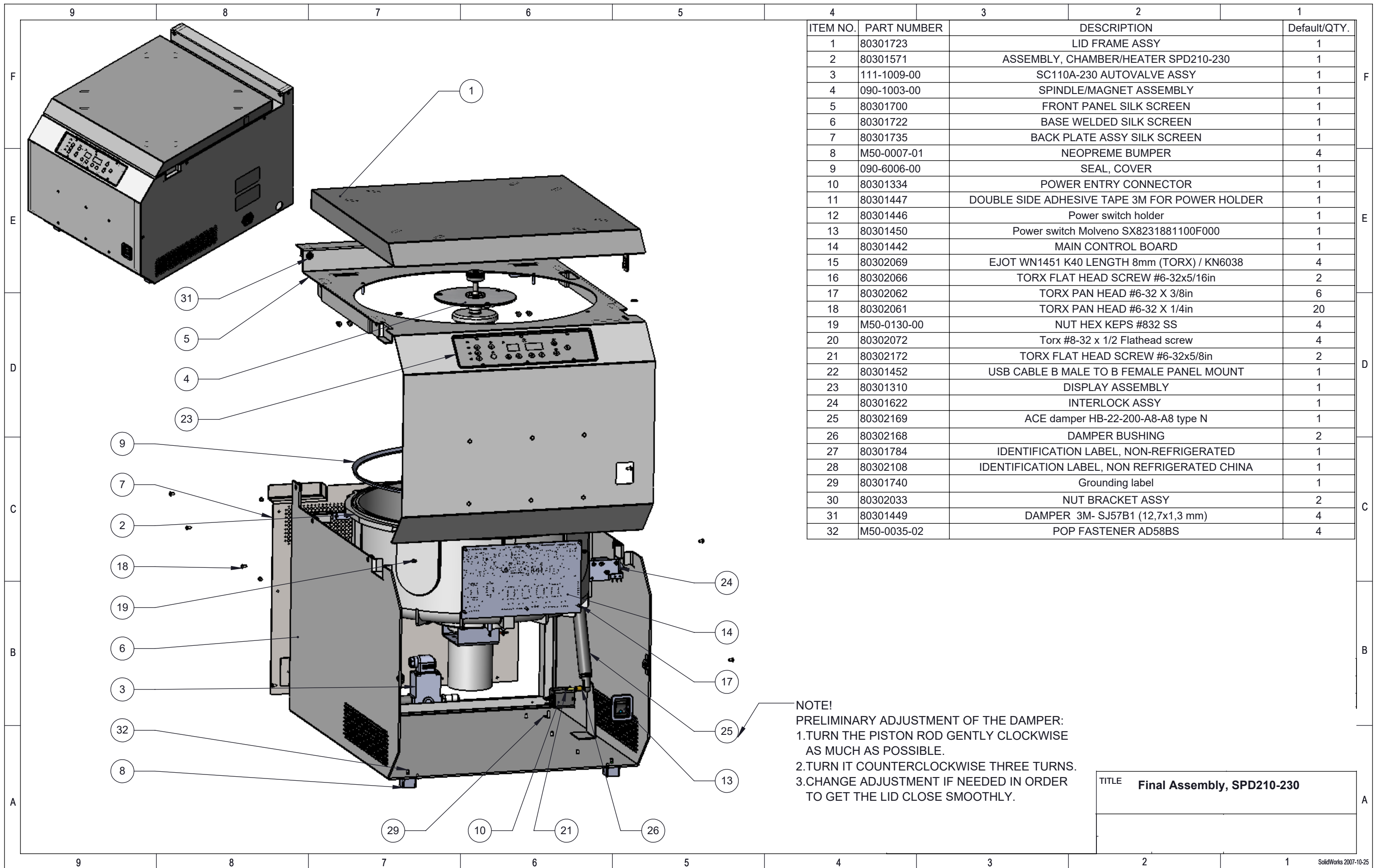
**NOTE!**  
 PRELIMINARY ADJUSTMENT OF THE DAMPER:  
 1.TURN THE PISTON ROD GENTLY CLOCKWISE AS MUCH AS POSSIBLE.  
 2.TURN IT COUNTERCLOCKWISE THREE TURNS.  
 3.CHANGE ADJUSTMENT IF NEEDED IN ORDER TO GET THE LID CLOSE SMOOTHLY.

TITLE
<b>Assembly, Final Assembly, SPD210-115</b>



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	121-6000-00	CHAMBER LARGE FINISHED	1
2	095-6001-00	PLATE,HEATER MOUNTING 18GA 2024-T3	4
3	095-6005-00	Closure plate	1
4	M60-0015-01	TUBULAR HEATER 120V	1
5	80301582	MOTOR&DRIVE MAGNET ASSY 115V	1
6	80302067	TORX PAN HEAD SCREW #8-32x5/16	6
7	80302061	TORX PAN HEAD #6-32 X 1/4in	4

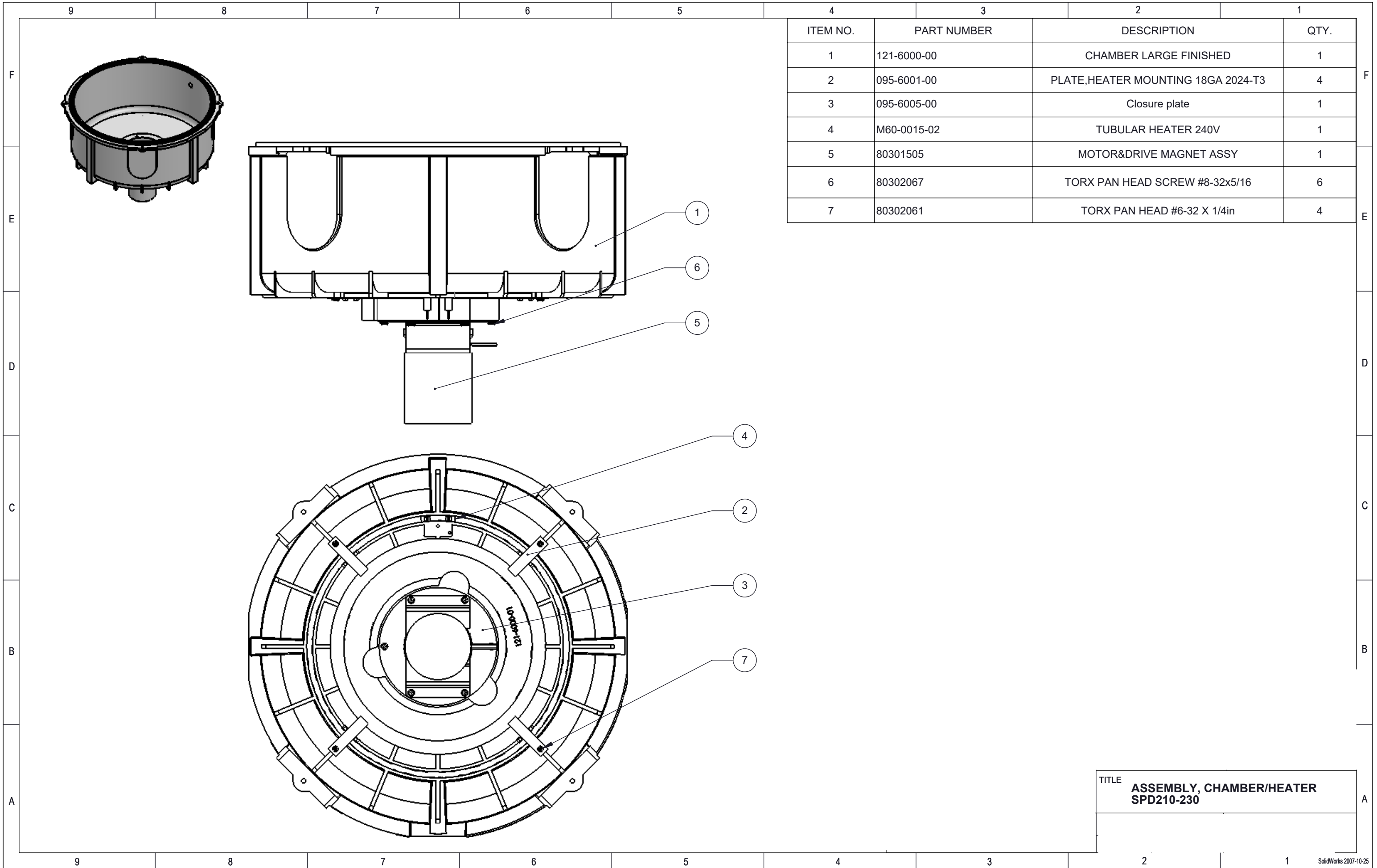
TITLE  
**ASSEMBLY, CHAMBER/HEATER  
 SPD210-115**



ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY.
1	80301723	LID FRAME ASSY	1
2	80301571	ASSEMBLY, CHAMBER/HEATER SPD210-230	1
3	111-1009-00	SC110A-230 AUTOVALVE ASSY	1
4	090-1003-00	SPINDLE/MAGNET ASSEMBLY	1
5	80301700	FRONT PANEL SILK SCREEN	1
6	80301722	BASE WELDED SILK SCREEN	1
7	80301735	BACK PLATE ASSY SILK SCREEN	1
8	M50-0007-01	NEOPREME BUMPER	4
9	090-6006-00	SEAL, COVER	1
10	80301334	POWER ENTRY CONNECTOR	1
11	80301447	DOUBLE SIDE ADHESIVE TAPE 3M FOR POWER HOLDER	1
12	80301446	Power switch holder	1
13	80301450	Power switch Molveno SX8231881100F000	1
14	80301442	MAIN CONTROL BOARD	1
15	80302069	EJOT WN1451 K40 LENGTH 8mm (TORX) / KN6038	4
16	80302066	TORX FLAT HEAD SCREW #6-32x5/16in	2
17	80302062	TORX PAN HEAD #6-32 X 3/8in	6
18	80302061	TORX PAN HEAD #6-32 X 1/4in	20
19	M50-0130-00	NUT HEX KEPS #832 SS	4
20	80302072	Torx #8-32 x 1/2 Flathead screw	4
21	80302172	TORX FLAT HEAD SCREW #6-32x5/8in	2
22	80301452	USB CABLE B MALE TO B FEMALE PANEL MOUNT	1
23	80301310	DISPLAY ASSEMBLY	1
24	80301622	INTERLOCK ASSY	1
25	80302169	ACE damper HB-22-200-A8-A8 type N	1
26	80302168	DAMPER BUSHING	2
27	80301784	IDENTIFICATION LABEL, NON-REFRIGERATED	1
28	80302108	IDENTIFICATION LABEL, NON REFRIGERATED CHINA	1
29	80301740	Grounding label	1
30	80302033	NUT BRACKET ASSY	2
31	80301449	DAMPER 3M- SJ57B1 (12,7x1,3 mm)	4
32	M50-0035-02	POP FASTENER AD58BS	4

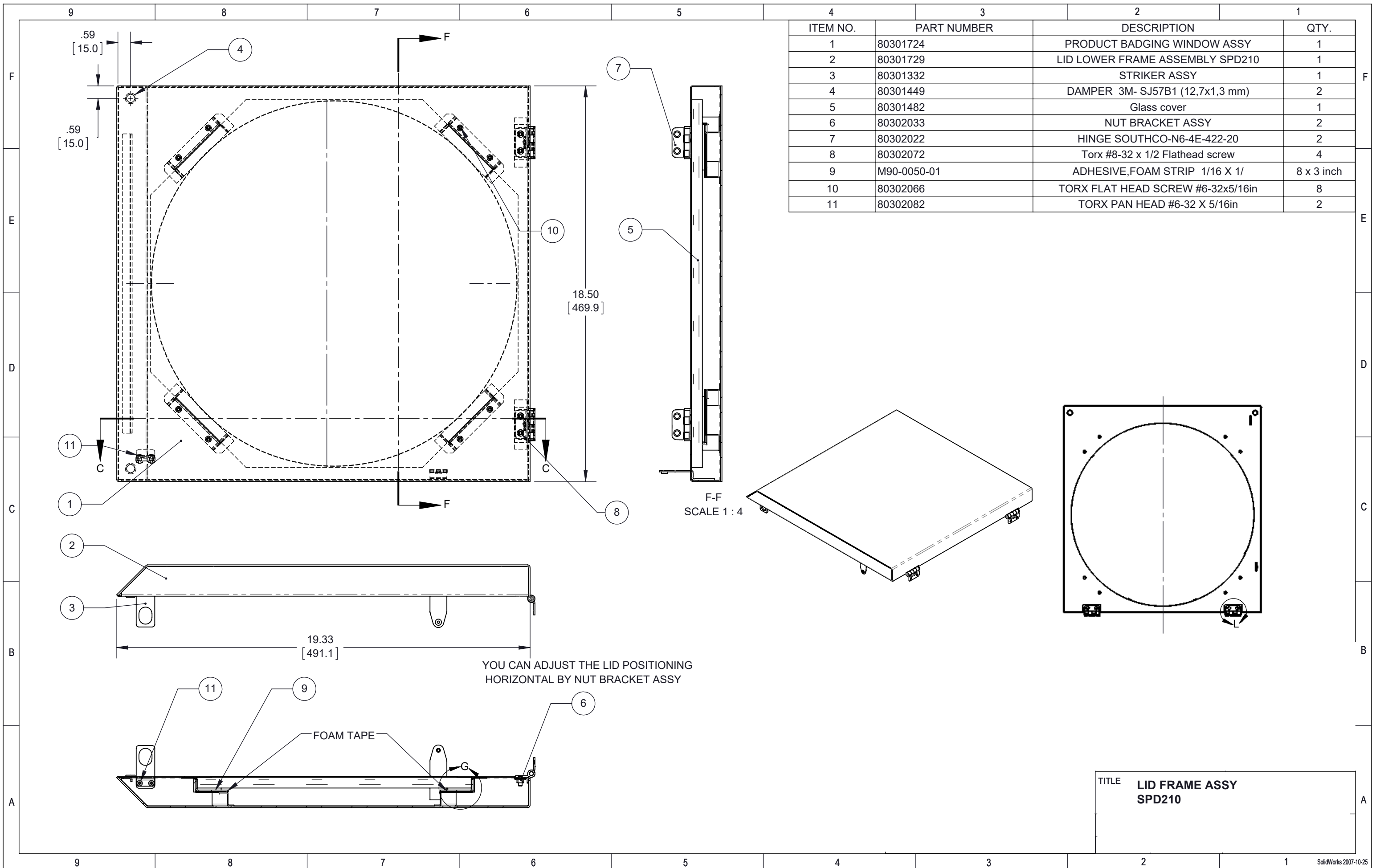
**NOTE!**  
 PRELIMINARY ADJUSTMENT OF THE DAMPER:  
 1.TURN THE PISTON ROD GENTLY CLOCKWISE AS MUCH AS POSSIBLE.  
 2.TURN IT COUNTERCLOCKWISE THREE TURNS.  
 3.CHANGE ADJUSTMENT IF NEEDED IN ORDER TO GET THE LID CLOSE SMOOTHLY.

TITLE	<b>Final Assembly, SPD210-230</b>



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	121-6000-00	CHAMBER LARGE FINISHED	1
2	095-6001-00	PLATE,HEATER MOUNTING 18GA 2024-T3	4
3	095-6005-00	Closure plate	1
4	M60-0015-02	TUBULAR HEATER 240V	1
5	80301505	MOTOR&DRIVE MAGNET ASSY	1
6	80302067	TORX PAN HEAD SCREW #8-32x5/16	6
7	80302061	TORX PAN HEAD #6-32 X 1/4in	4

TITLE  
**ASSEMBLY, CHAMBER/HEATER**  
**SPD210-230**



# Warranty

All Thermo Fisher Scientific products mentioned in this manual (excluding glassware) are warranted against defects in workmanship for one year after the date of delivery to the original purchaser. This warranty is limited to defective materials and workmanship and does not cover incidental or consequential damages.

Thermo Fisher Scientific will repair free of charge any apparatus covered by this warranty. If a new component fails to work, Thermo Fisher Scientific will replace it, absorb all charges, and continue the one-year warranty period. Warranty work is subject to our inspection of the unit. No instruments, equipment, or accessories will be accepted without a Return Material Authorization (RMA) number issued by Thermo. Costs of shipping the unit are not covered under warranty. The warranty obliges you to follow the precautions in this manual.

When returning apparatus that may contain hazardous material, you must pack and label them following U.S. Department of Transportation (DOT) regulations applying to transportation of hazardous materials. Your shipping documents must also meet DOT regulations. **All returned units must be decontaminated (free of radioactivity, biological, or chemical contamination).**

Use of this equipment in manners other than those specified in this manual may jeopardize personal safety. Under no circumstances shall Thermo Fisher Scientific be liable for damages due to the improper handling, abuse, or unauthorized repair of its products. Thermo Fisher Scientific assumes no liability, express or implied, for use of this equipment.

Visit us online to register your warranty:  
[www.thermoscientific.com/labwarranty](http://www.thermoscientific.com/labwarranty)



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