ISTpure Innovation and Leading Technology

SOLVENT RECYCLERS

SR 120-120V & 180-180V

380V - 50 Hz

- Warranty
- Safety
- Operation
- Service Parts
- Accessory Information
- Registration Form

154896
CSA Listed Mark - Canada / United States
Conforms to UL2208
Cetified to CSA C22.2 No. 30

INSTRUCTION MANUAL & PARTS

2018-04-11

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ISTPURE LIMITED WARRANTY

ISTpure warrants all equipment led in this manual which is manufactured by ISTpure and bearing its name, to be free from defects in material and workmanship on the date of sale by an authorized ISTpure dristibutor to the original purchaser for use. Notwithstanding any special, extended or limited warranty published by ISTpure will, for a period of TWELVE (12) months from the date of sale, repair or replace any part of the equipment determined by ISTpure to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with ISTpure 's written recommendations.

This warranty does not cover, and ISTpure shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non- ISTpure component parts. Nor shall ISTpure be liable for malfunction, damage or wear caused by the incompatibility with ISTpure equipment with structures, accessories, equipment or materials not supplied by ISTpure , or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by ISTpure .

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized ISTpure dristibutor for verification of the claimed defect. If the claimed defect is verified, ISTpure will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser, transportation prepaid. If the inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

ISTpure 's sole obligation and the buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought forward within one (1) year of the date of sale.

ISTpure MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY ISTpure . These items sold, but not manufactured by ISTpure (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. ISTpure will provide the purchaser with reasonable assistance in making any claim for breach of these warranties.

LIMITATION OF LIABILITY

In no event will ISTpure be liable for indirect, incidental, special or consequential damages resulting from ISTpure supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of ISTpure , or otherwise.

Report all accidents or "near misses" which involve ISTpure products to :
- Technical Assistance

The following items are not covered under the ISTpure warranty policy :
- Parts or chassis replacement due to normal wears.

Report all accidents or negligence involving ISTpure products to our Service Department :

1 800 361-1185

SOLVENT RECYCLER SPECIFICATIONS

SPECIFICATIONS	SR 120		SR 180	
Units system	Imperial	Metric	Imperial	Metric
Geometrical capacity of boiler	40 Gals	160 Liters	55 gals	205 liters
Useful capacity of boiler	30 Gals	120 Liters	45 gals	180 liters
Operating temperature	104º-360ºF	40º-180ºC	104º-360ºF	40º-180ºC
Solvent protection	Class 1, Div. 1, Group D			
Solvent temperature	class 310 ºC			
Absolute operating pressure	223 – 1,000 hPa			
	170 –760 mmHg			
	-0.223 – 1 bar			
Relative operating pressure	-776 – 0 hPa			
	-590 – 0 mmHg			
	-0.776 – 0 bar			
Time per cycle of distillation	3.5 to 4.5 hours (estimate)			
Yield	85% — 97%			
Cooling system	Motor Fan 1 hp		Motor Fan 1 hp	
Boiler material	Stainless steel AISI 304			
Cover material	Stainless steel AISI 304			
Condenser material	Copper (standard) / Stainless steel (optional)			
Voltage	380V – 3 Ph – 50 Hz			
Power consumtion	10 000 W		15 000 W	
Amperage	20A (380V)		25A (380V)	
Thermic oil capacity	17 Gallons	64 Liters	17 Gallons	64 Liters
Dimensions (D x W x H)	43" D x 72" W x 79" H	110 x 83 x 200 cm	43" D x 72" W x 79" H	110 x 83 x 200 cm
Weight	1070 lbs	480 kg	1070 lbs	480 kg
Warranty	12 months standard warranty additional 12 months extension with returned warranty card			

SAFETY AND WARNINGS

GENERAL SAFETY

1. Carefully inspect the shipping crate for any signs of transport damage. The damage to the crate often indicates possibility of transport damage to the equipment inside.
2. Carefully remove your ISTpure Recycler Cabinet from the shipping crate.
3. Check your equipment immediately to ensure that it is free of transport damage. Report any transport damage to the carrier without delay for possible claim procedures. ISTpure. is not responsible for damage to equipment after it leaves our warehouse.
4. Check the equipment list and compare it with the parts you have received. If any parts are missing, contact the supplier you purchased the equipment from.

Before operating the ISTpure Recycler Cabinet, read this Instruction Manual completely. All ISTpure products are engineered and manufactured to the highest performance standards and have been subjected to detail testing before shipment from the factory.

DANGER AND WARNING LABELS

1. Presence of flammable vapors and solvents
2. No smoking or metal grinding nearby
3. Keep away from open flames
4. Wear breathing mask
5. Observe warnings at all times.
6. Read the Instruction Manual carefully.
7. Wear solvent-proof rubber gloves.
8. Wear protective eyewear before use.

SAFETY AND WARNINGS (CONT'D)

⚠ WARNING ⚠

« READ ALL INSTRUCTIONS » Failure to follow the SAFETY RULES identified by a BULLET ( ) symbol listed BELOW and other safety precautions may result in serious personal injury.
« SAVE THESE INSTRUCTIONS »

GENERAL SAFETY RULES

- **KEEP WORK AREA CLEAN.**
- **KEEP CHILDREN AWAY.** Do not let visitors come in contact with the equipment. All visitors should be kept away from the work area.

PERSONAL SAFETY

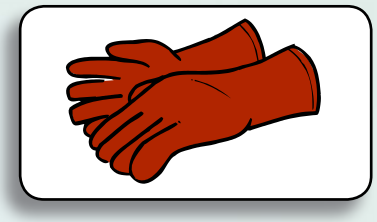
- **DRESS PROPERLY.** Do not wear loose clothing or jewelry. They can be caught in the moving parts. Wear protective hair covering to contain long hair.
- **USE SAFETY EQUIPMENT. WEAR SAFETY GOGGLES** or glasses with side shields.
- **STAY ALERT. USE YOUR COMMON SENSE.** Concentrate on what you are doing. Do not operate the unit when you are tired or under the influence of drugs or alcohols.
- **DO NOT OVERREACH.** Keep proper footing and balance at all times.

UNIT USE AND CARE

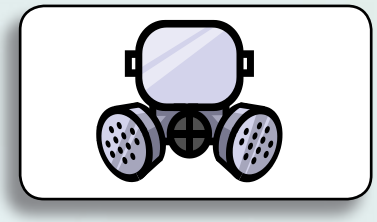
- **DO NOT FORCE THE UNIT.** It will perform better and safer at the rate for which it was designed.
- **THE USE OF ANY OTHER ACCESSORIES** not specified in this manual may create a hazard.
- **CLOSE THE MAIN AIR SUPPLY VALVE AND MAIN POWER DISCONNECT BEFORE SERVICING** or when not in use.
- **DO NOT ALTER OR MISUSE THE UNIT.** These units are precision built. Any alteration or modification not specified is misuse and may result in a dangerous situation.

Only trained repairmen should attempt ( ) **ALL REPAIRS**, electrical or mechanical. Contact the nearest ISTpure a repair service facility. Use only ISTpure replacement parts, any other parts may create a hazard.

SAFETY RULES (CONT'D)

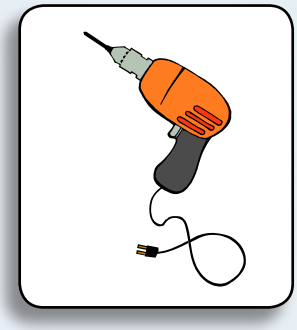


- **THE OPERATOR MUST WEAR** protective water-proof rubber gloves to prevent contact between his hands and the products used for washing.



- **THE OPERATOR MUST WEAR** protective eyewear to prevent spatter from coming in contact with his eyes.

- **STAY ALERT** at the start of the wash cycle. Make sure the liquid solution is not «corrosive» or flammable. Immediately stop the using and replace the solvent whenever you note signs of corrosion on the unit.
- **IF EYES COME IN CONTACT WITH SOLVENTS** rinse thoroughly with water.
- **BEFORE USING** the Solvent Recycler, make sure that all safety devices are in perfect operating condition.
- **BECOME FAMILIAR WITH THE CONTROLS** and their functions before commencing work.
- **BE CAREFUL** when you load or unload the solvent in the unit. Make sure you do not splash or spill the contents on the workshop floor.
- **THE OPERATOR MUST PERIODICALLY** check the level of the solvent contained in the equipment to be sure to not run this pump dry.



- **DO NOT USE ELECTRICAL OR PNEUMATICAL TOOLS WITH THE UNIT. AVOID GASEOUS AREAS.** Do not operate portable electric tools in explosive atmospheres in the presence of flammable liquids or gases. Motors in these tools normally spark, and do not scrape or scratch the machine with metal objects; the sparks might ignite fumes.

- **DO NOT ALLOW FAMILIARITY GAINED FROM FREQUENT USE OF YOUR WASHER TO BECOME COMPLACENCE.** Always remember that a careless fraction of a second is sufficient to inflict severe injury.
- **DO NOT ALTER OR MISUSE THE UNIT.** Any alteration or modifications is a misuse and may result in serious personal injuries.

SAFETY RULES (CONT'D)

- **COMPLY WITH LAWS IN THE COUNTRY** where the washer is installed regarding the use and disposal of the products used to wash clean objects.

- **FIRE EXTINGUISHING SYSTEMS** must be installed in the same room or close to the unit in case of emergency. These appliances must be kept efficient and inspected every year by a certified person.

- **THE INSTALLATION SITE MUST PERMIT PERSONNEL TO EASILY AND QUICKLY MOVE AWAY FROM DANGER ZONES IN CASE OF AN EMERGENCY.**

- **DO NOT USE THE UNIT TO** wash or degrease objects designed to come in contact with food.

- **COMPLY WITH LAWS IN THE COUNTRY** where the Solvent Recycler is installed regarding the use and disposal of the products used to wash clean objects.

- **DO NOT USE UNSTABLE REACTIVE** avoid distilling solvent that may include unstable reactives, such as nitrocellulose.

THINK SAFETY! SAFETY IS A COMBINATION OF THE OPERATOR'S COMMON SENSE, KNOWLEDGE OF THE SAFETY AND OPERATING INSTRUCTIONS AND ALERTNESS AT ALL TIMES WHEN THE UNIT IS BEING USED.

OPERATING PRINCIPLES OF THE DISTILLATION UNIT

This PLC controlled solvent recycler, will recycle many different types of solvents that have been contaminated by paints, pigments, inks, greases, oils, etc. Through the simple distillation process, the distiller separates the contaminants from the original solvent.

The boiling of the polluted solvents consists of a boiler surrounded by a reservoir containing thermal oil, heated by an electrical resistance. The solvent vapors produced in the boiler are eventually conveyed in an solvent cooled drum and then brought back to their liquid state. The cooled solvent is gathered in a clean stainless steel collecting tank, ready to be re-used again. The process does not alter the characteristics of the distilled solvent. Consequently, the operation can be performed endlessly.

The residues remains inside the boiler and can be unloaded when cold. It is recommended to use a liner bag, for information contact the authorized reseller) to be placed inside the boiler. These bags facilitate the unloading of residues at the end of the distillation cycle.

The cycle is completely automatic. The operator only has to close the lid, touch the START button and remove the residues at the end of the cycle.

In case of malfunction, abnormal increase of temperature or power failure, the cycle is automatically STOPPED and the recycler CANNOT be re-started until the problem has been resolved.

AIMS

The aims that can be achieved with ISTpure distillation units are :

1. Solvent recycling with the highest yield possible.

2. Obtaining «special» and not «toxic and noxious» residues.

3. Reducing intervention times and operator discomforts.

As « Solvent / Contamination product » topologies are so different that there is no such rule valid for all cases, we will try to summarize providing general information that may be useful to you. Experience will later on help you find the most adequate method of meeting your requirements.

The products to be recycled normally consist of :

Solvent or Reducer + Contaminated Products

- **Solvent**

« Solvent » defines the liquid, which, without reacting chemically, dissolves other substances (solutes), forming a solution.

As every solvent has its own boiling temperature, we must (in order to distill the solvents) set the thermostat at a higher working temperature of about 10°C to 50°C (30°F to 80°F) than the boiling point.

- **Reducer**

A mixture of solvent is defined as a « reducer ».

As every solvent component in the mixture has its own boiling temperature, in order to proceed to the distillation of a reducer, set the thermostat at a working temperature of about 10°C to 50°C (30°F to 80°F) higher than the boiling point of the most high-boiling solvent.

AIMS (CONT'D)

- **Chlorinated Solvents (these solvents can be recycled with the SR30V-SR60V-SR120V or SR180V only)**

Chlorinated Solvents are **non-flammable solvents**, generally utilized for cleaning and degreasing metal surfaces. Normally, these types of solvents are polluted by **oil, grease,** etc.

Atmospheric pressure distillation of chlorinated solvents will result in a partial recovery, leaving a distillation residue containing about 20% of solvents. This occurs when the oil contents in the boiling solution increases; therefore the mixture distillation temperature rises.

These solvents are thermalable, meaning that when they exceed their specific critical temperature they decompose causing the formation of hydrochloric acid. This acidifies the product and therefore cannot be reused. When operating with atmospheric pressure, and reaching this critical temperature, we shall have distilled only 80% of the solvent.

Operating with a vacuum will allow you to achieve a yield of 100%, as you do not reach the critical temperature (vacuum kit is optional).

- **Liquid Polluting Products**

The most common liquid contamination products are :

Oil, Ink and Water

The presence of liquid contamination may (in the distillation phase) drag contaminants into the clean product, leaving traces in the distillate.

For different types of oil and ink with particularly high boiling temperature, this problem normally does not occur and the process of separation may be obtained with a simple distillation.

If there is **«water»** in the contaminated product, you **must recycle** with a **fractional distillation**. This operation is not possible with a simple distillation process.

Unloading a liquid polluting product from the distiller presents no problem. It is possible to obtain a completeseparation of the polluting product from the reducer.

This complete separation is not possible when **Chlorinated Solvents** are to be distilled under atmospheric pressure.

For these solvents it is necessary to proceed with a **«vacuum»** distillation. This process allows you to obtain a residue without solvent.

- **Solid Polluting Products**

The most common solid polluting products are :

Resins, Pigments, Paints, Polymers, Glue, Powder, Grease, etc.

Solid polluting products, according to their nature, already classified as «toxic and noxious» have the advantage (in comparison to liquid contamination products). They can be unloaded into controlled waste dumps, as they do not release toxic substances into the ground. However, this is on the condition that the percentage of solvent will not exceed that of the Concentration Limit (CL) – a value legally stabilized for different types of solvents used in different Countries.

By distillation, and this is another considerable advantage, you can obtain an extremely pure distilled product as there will be no contaminants dragged into the distilled product.

The disadvantage, in comparison with liquid polluting products, is a greater difficulty in cleaning the distillation unit.

Leave a minimal percentage of solvent (3-10%) with the contaminants in the solution of residue, in order to obtain a semi-solid residue, and therefore will be easily discharged.

These percentages, however, are greater than the Concentration Limit (CL) accepted for the disposal in controlled dumps.

WARNING FOR THE DISTILLATION UNIT

The operating staff must be fully instructed on the use and function of the unit as well as on the correct application of the protection devices. The instructions must be repeated in regular intervals.

It is essential to keep the Instruction Manual inside the door slot or close to the unit.

Operator must wear anti-static clothes, avoiding clothes made of synthetic material (nylon, rayon, etc.).

Open the cover only after the unit has cooled down, with the control board indicating less than 100°C (212°F).

When unloading residues, it is recommended to use solvent resistant gloves and an anti-vapor mask.

Do not use any metallic tools as they could provoke sparks.

The unit must undergo a revision and control according to its grade of use. Maintenance must be carried out by qualified personnel and according to the indications of the Manufacturer.

It is important to pay attention to the control of the security installations: thermostats, flow controls, thermocouple detectors, switches of safety levels, aspirators, etc.

Before using a distillation unit, which has been out of use for a long time, it must be checked and brought back into optimal condition in order to guarantee the operator's security at all times.

According to the type of liquid to be distilled and the kind of operation to be performed, it is important to adopt adequate personal protection rules.

If you are not using plastic bags, the residues must be cleaned with tools that do not provoke sparks.

The cover works as a safety valve. If you notice steam leaking from the cover, immediately shut down the recycler and consult page 19, **« Defects, Causes and Remedies »**. In any case, never modify in any way the parts on top of the cover or block the cover in order to avoid the steam from leaking.

Nitrocellulose which is an ester of cellulose and nitric acid and is a component in many lacquers, inks, adhesives and cements cannot be recycled. It automatically **ignites** at 135°-166°C (275°-330°F) and can be extremely volatile.

It is important to clean the boiler thoroughly after each cycle, as a build up of residue will stop the transmission of heat and cause a malfunction.

If repairs are necessary shut off the power supply **IMMEDIATELY.**

Do not smoke, cause sparks or use open flames near the recycler.

This unit is for use in a 40°C (104°F) environment with no forced ventilation. Under these conditions, the unit shall be spaced a minimum space according to national regulation from potential sources of ignition such as electrical receptacles, switches, pilot light fixtures, contacts and other similar equipment that can produce sparks. If the equipment is used in higher ambient temperatures an increase in spacing from sources of ignition shall be considered.

This unit has been tested for use with the solvents indicated in the Instruction Manual (see tables on pages 21-22, **« Flammable Solvents and Non-Flammable Chlorinated Solvents »).**

PROTECTION OF THE NATURAL ENVIRONMENT

The user must provide protection of the environment so that the recycler may not be the cause for emission of vapors or odors and that the residues are treated and disposed of in a correct way as per local laws reguarding waste residues.

INSTALLATION

If the unit is installed in a small closed room like 10' x 10' than it has sufficient natural or artificial air ventilation. If installed in explosion proof room or mixing room for paint ink... there is no need to had additional ventilation.

Places and zones with sufficient artificial air ventilation are those with such ventilation capacity as to change air circulation ten times per hour. The outlet of the unloading air channels must be placed in a way that the evacuation of emerging vapors does not cause any form of danger.

Complete air circulation should be provided in case of artificial air ventilation.

Air ventilators or their motors should be explosion proof.

Make sure that the emergency exit is easily accessible.

The distillation unit must be positioned near one door that leads to an exit door.

Place a fire extinguisher near the unit (for fire type B and C).

Keep a distance of at least 24 inches between the unit and any object to allow the recycler to cool off, and be able to perform the maintenance if necessary.

Place the unit on a flat surface away from heat, sparks and any source of flames.

Connect permanently the unit to an efficient grounding pole.

Place a container of at least twice the capacity of the boiler, 15 gallons or more for the A8, 30 Gallons or more for the SR60.

The power outlet is located on the back of the unit. The unit should be permanently connected into a 380 Volt single phase, 20A explosion proof electrical line.

When service or maintenance work is required, disconnect the main breaker switch before servicing or for maintenance work.

DISTILLER ELECTRICAL CONNECTIONS

Provide for the installation of an adequate (CSA or U-L approved as per NFPA regulation and local authorities).

For the current and voltage specifications, refer to the nameplate on the right side panel.

It is suggested to locate the above-mentioned electrical box, at a height of 5 to 6 feet from the floor.

N.B. : An adequate explosion installation must be provided for the solvent recycler and all other components around (for example: protection type Class 1, Div. 1, Group D, with increased safety).

Once the electrical connections are complete, open the main breaker for the recycler and the keyboard light will be « **ON** ».

Each time the power is closed and re-opened, the ISTpure electronic keyboard will self-test itself. During **5 seconds,** all 5 lights and all 5 digits of 7 segment lights will stay on. Then the keyboard will display its own programming version (example: r 6.0) for a few seconds and then the thermometer light will stay « **ON** » and the actual temperature of the thermic oil will be displayed.

The control board is « **READY** » for instructions.

DATA & SPECIFICATIONS

Electrical Requirements
Amp Draw listed for entire unit — including motor and heating element

MODEL	Full load Amp Draw			Location	
	220V	480V	600V	Non-classified area	In mix room/ classified area
SR 30	11.7	—	—	• General purpose disconnect • Min. 5 ft away from unit • Min 18" off the floor	Explosion proof disconnect required
SR 60	23.4	—	—		
SR 120	—	14.5	11.3		
SR 180	—	20.8	15.0		
SR 240	—	24.8	19.5		

Air Requirements

ITEM	Air Line Specifications	cfm	Notes
SR30V-60V	3/8" @ 100 psi	5	Factory set at 85-90 psi
SR120V-180V	½" @ 100 psi	10	
SR120V-180V	½" @ 100 psi	10	
SR 240	½" @ 100 psi	10	

Thermal Heat Transfer Oil

Model	Oil Capacity	Parts Number		
		Standard	High Temp.	Volume
SR30 TO SR240	Please refer to your product identification plate for required oil volume. 	330066	330166	1 gal / 4 L
		330067	330167	2.5 gal / 9.5L
		330068	330168	5 gal / 19 L
		330069	330169	55 gal / 208 L

Recycler Bags

MODEL	Part number
SR 30	300006
SR 60	300019
SR 120	300008
SR 180	300009
SR 240	300010

INFORMATION CODES

ISTpure offers a complete line of spray gun cleaners and solvents recyclers that conform to the requirements of :

- NFPA-33 Standard for spray application using flammable and combustible materials.
- NFPA-30 flammable and combustible liquid code
- IFC : International Fire Code

The recycler has been certified and listed :

- UL 2208 standard for solvent distillation unit

The recycler has been reviewed and approved by :

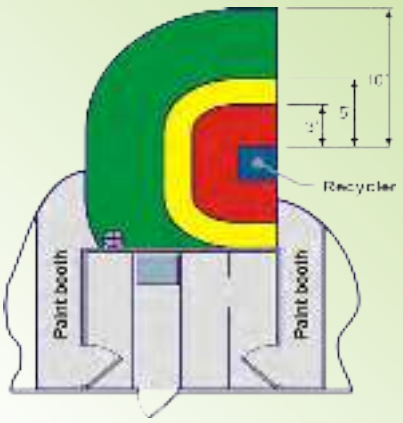
- CSA for U.S. & Canada requirements report #154896

Conformity of all these requirements is dependent upon the manner in which the equipment is installed. The contractor will make cetain that all of the electrical wiring and conduit, piping, gas supply, roof penetrations, automatic fire protection systems, and the location of the equipment within the building also conforms to the cited codes and the other references.

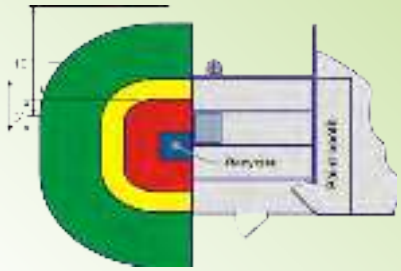
GENERAL ARRANGEMENT

ISTpure
4160 Industrial Blvd. Laval, Quebec, H7L 6H1
Tel.: 1 877 629-8202 / 450 963-4400 Fax : 450 963-5122

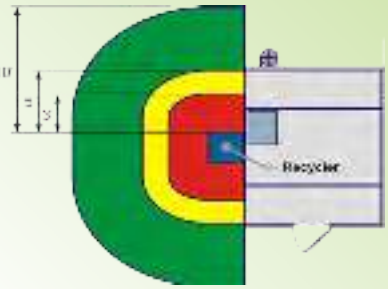
INSTALLATION DRAWINGS AS PER NFA CODES



INTERMEDIATE MIX ROOM



THREE SIDES MIX ROOM



FREE STANDING MIX ROOM

ENTIRE SYSTEM OUTSIDE MIX ROOM

ENTIRE SYSTEM INSIDE MIX ROOM

LEGEND

	Class 1 - Div 1
	Class 1 - Div 2
	Class 1 - Div 2 18" High only

C SA US

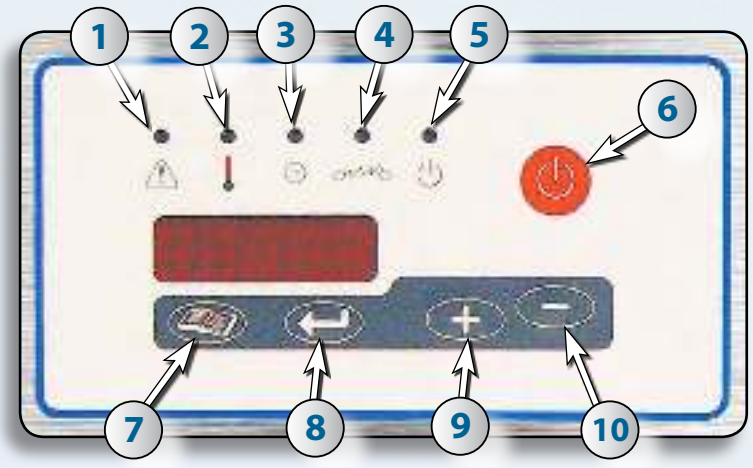
Classification zones as per :

A) NFPA 33 standard for spray application using flammmable and combustible materials, sections 4.3.5
B) International fire code, chapter 34 flammable and combustible liquids 3403.1.1
Zone requirements apply to both gun cleaners and recyclers together and stand alone.

GENERAL ARRANGEMENT

ISTpure
4160 Industriel Blvd. Laval, Quebec, H7L 6H1
Tel.: 1 800 -361-1185 / 450 963-4400 Fax : 450 963-5122

KEYBOARD OPERATIONS



Keyboard Symbols :

1. Trouble
2. Temperature
3. Time
4. Electric Heater
5. Start/Stop (light)
6. Start/stop (button)
7. Menu
8. Enter
9. Increase
10. Decrease

KEYBOARD OPERATIONS (CONT'D)

This ISTpure temperature control board has been designed to control the different cycles during the distillation operation. It controls the temperature of the thermic oil, vapors and the distillate solvent coming out of the condenser. It uses this information to maintain a constant temperature, starts the cooling fan to cool the vapors coming off the condenser and stops the cycle if necessary.

Two heat sensors are used to read different temperatures. The thermic oil and the distillate solvent temperatures are captured using two thermocouples (because of high temperatures rising up to 175°C (343°F)). These sensors assure precision of the readings of the temperatures of ± 1°C (± 2°F).

The **ISTpure** board also totals the number of hours of operation of the recycler. **For every 2000 (two thousand) hours of operation, the display code «OIL» will appear to remind you that it is time to replace the thermic oil follow the steps on page 23 to 25.** The code «**OIL**» will remain displayed for ten (10) hours and then will disappear.

The display board consists of 5 digits of 7 segments, of 5 independent LEDs and of 5 touch-tone keys (7, 8, 9, 10 and 11) to operate the distiller. The operator can program the temperature, select the amount of time for the cycle, start or stop the cycle, choose Celsius or Fahrenheit degrees, and if necessary, display every code to verify the operation of the distiller in case of problems.

The safety devices will stop the cycle in case one of the sensors detects any trouble. The **TROUBLE** light will be displayed. The distiller **CANNOT** be re-started until the problem has been resolved.

THERE ARE FIVE TROUBLE CODES THAT CAN BE DISPLAYED IF A PROBLEM OCCURS :

1. **O HI** code indicates that the **OIL** temperature is too **HIGH.**
2. **L HI**code indicates that the recycled **SOLVENT** temperature is too **HIGH.**
3. **S HI** code indicates that the recycled **SLUDGE** temperature is too **HIGH (OPTIONAL)**
4. **PRS LO :** water pressure too **LOW**
5. **FIL - 0 : FILL NOT COMPLETED** after 20 minutes

The **TROUBLE** code can be erased by touching the + key (9) for each code.

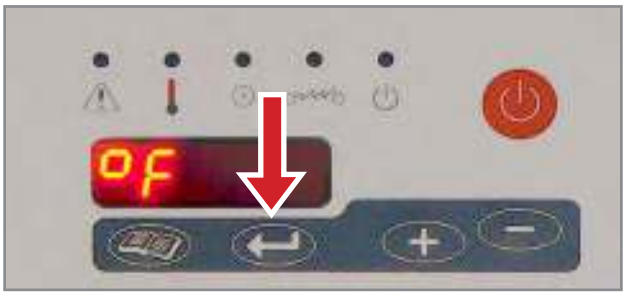
Once all the codes have been erased, the display returns to normal and the **TROUBLE** light disappears.

KEYBOARD OPERATIONS (CONT'D)

SELECTION BETWEEN CELSIUS AND FAHRENHEIT MODE

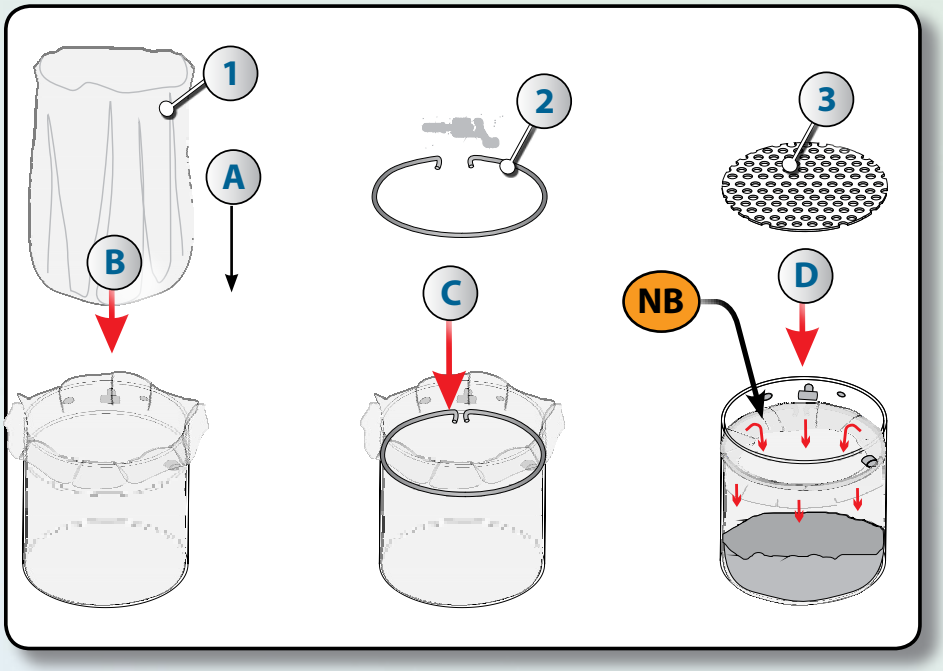
All units manufactured by **ISTpure** are programmed in **CELSIUS.**

Press	Indication	Result of the keyboard
	**Step 1 – Press +** **Press and hold the Plus sign for 7 seconds**	
	**Step 2 – Press -** **Press and hold the Minus sign once**	

Press	Indication	Result of the keyboard
	**Step 3 – Press the Arrow** Confirm by pressing the arrow sign you are now in Fahrenheit	
	Now set up time and temperature (see page 21)	

STARTING PROCEDURES

1-Plastic bag installation steps



A. Pull the bottom corner of the bag inwards.

B. Insert the plastic bag **(#1)** in the boiler .

C. Insert the retaining ring **(#2)** **SR120/180 : # 323121**

D. Optional antifoam grate **(#3)**, **SR120/180 : #324023**

NB **Once filled, be sure to fold the sides of the bag located <u>above the retaining ring</u> below the area of the supply ports and steam outlet <u>before closing the lid.</u>**

Good installation (bag folded down)

Wrong installation (Bag <u>above</u> the "T")

<u>Note :</u> the recycler boiler shown above is a SR30, but the principle is the same for all models.

PROCEDURE FOR OVERFLOW

If the liner bag were to prevent the vapors from escaping the boiling chamber through the "T" found in the boiling chamber, this would create a pressure build up and the lid, designed to act as a relief valve in these cases, would let the excess pressure and hot burning solvent escape from the lid possibly creating a situation where nearby operators could be injured (burned).

Should this ever happen, before approaching the unit in order to turn the cycle switch off, the operator must make absolutely sure he/she can turn the cycle switch off without being splashed with burning solvent. If this is not the case, the unit must be turned off using the circuit breaker (allowing him/her to keep away from solvent splash).

<u>Important:</u> Wait at least 1 hour before opening the unit and put on gloves and a protective mask before approaching the boiler.

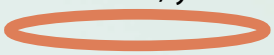
STARTING PROCEDURES (CONT'D)

2. Filling up the Recycler

A. Open the cover and fill the boiler with dirty solvents up to approximately 1 inch (25 mm) below the grooved slot mark indicating the maximum level.

B. Before closing the cover, verify the condition of the lid gasket. **It is recommended to change the oil liter container), & the cover seal (#304020) with vacuum (#304025) every 2000 hours of work or every year witch ever comes first. See page 28 for oil change procedures.**

C. According to the type of solvent to be distilled, you must use the proper cover gasket.

Part #304020 Gasket Orange Color 

Part # 304025 Gasket Black Color 

Using a non-suitable gasket will cause vapors to leak from the cover.

Some solvents, during the boiling phase, create a quantity of foam that a correct separation of the solvent from the polluting product is not possible; in fact, in these cases, the distillate will still be dirty. To avoid this inconvenience, it unnecessary to use the anti-foam kit (part # 324023) for models SR120-180 V.

Pay the utmost attention while the residues are drying. Some polluting products with an increase of temperature tend to carbonize with a considerable discharge of smoke from the distiller.

In case this occurs, press the (START / STOP) button to end the cycle.

In this case it is not possible to dry the residues at atmospheric pressure; proceeding to the vacuum distillation phase may solve the problem. This technique allows you to operate at a much lower temperature.

Opening the cover before the distillation cycle is complete will cause the gasket to swell. You must wait at least **one hour.**

D. Close and secure the cover properly. Your cover acts as a safety valve. **NEVER** modify the cover mechanism and **NEVER** use any tools to tighten the cover.

E. **DO NOT SHAKE OR TILT** the load recycler during operation.

NOTE : All **ISTpure** recyclers are pre-tested and are shipped with thermic oil in it and are ready to be used.

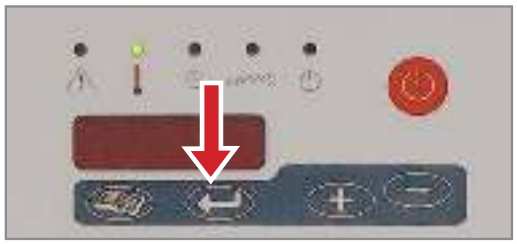
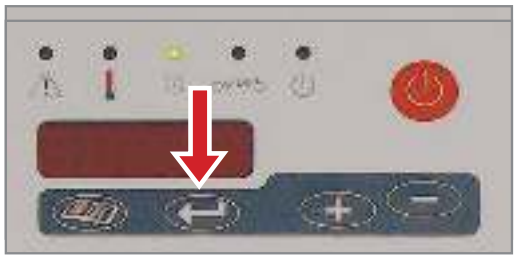
SELECTING TEMPERATURE AND DURATION OF THE CYCLE

Before starting the cycle, you must select between **CELSIUS** and **FAHRENHEIT** temperatures (see p.17). Temperature settings are determined by the **BOILING POINT** of the solvent to be reclaimed. The boiling points shown are for **NEW SOLVENTS.**

To recycle contaminated solvents, the temperature setting **MUST BE** 10°C to 50°C (50°F to 122°F) **HIGHER** than the boiling point. Starting with 10°C/30°F for the first batch increasing by until 50°C /122°F proper setting is obtain.

NOTE : The temperature setting starting point indications will vary according to the solvent used and the percentage of contaminants in the solvent.

SELECTING TEMPERATURE AND DURATION OF THE CYCLE

Press	Indication	Result of the keyboard
	Thermometer light is **ON**. Keyboard will display the actual temperature of the thermic oil.	
	Thermometer light **flashes.** You have the option to select the temperature for the cycle by pressing keys. + **or** −	
	You have the option to select your own amount of time for the cycle by pressing keys : + **or** − Recycler will automatically stop when time has expired.	
	Clock light is **ON**. The total amount of working hours of the recycler since day one will be displayed. **This cannot be changed.** For every 2,000 hours of operation the message **OIL** will flash to notify you to change the thermic oil.	
	Thermometer light is **ON**. Keyboard will display the actual temperature of the thermic oil.	

STARTING THE UNIT

Press	Indication	Result of the keyboard
	Press the **START/STOP** key. **ON** light will go on. Electric element will start heating the thermic oil. Element light will go on.	

DURING THE DISTILLATION CYCLE

A. Every 5 seconds, the keyboard will display 3 different readings:

1. Selected boiling temperature: (Thermometer light will flash).
2. Amount of time selected for that cycle: (Clock light will flash).
3. Elapsed time since starting the unit: Clock light will be on).

B. Cooling fan will start turning.

C. Recycled solvents will start dripping approximately one hour after the start-up.

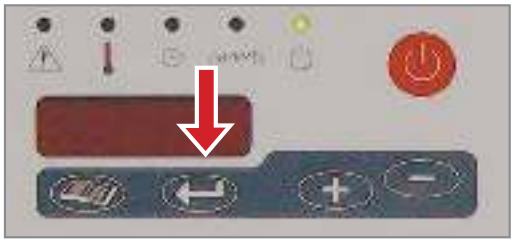
D. At the end of the cycle, the ON light will flash AND a count down timer will show the cool timeperiod remaining on the control board for 60 minutes. During the cool down time the heating element will be off but the cooling fan will remain on during the cooling period. When cycle is finish Board will indicate -END-.

E. The cooling fan will automatically shut off at the end of the cooling cycle.

AT THE END OF THE CYCLE

- The keyboard will display the total elapsed time for that cycle.
- All lights will shut off except the ON light.
- Wait at least one hour before opening the cover.
- You can now remove the residues.
- Press the stop key. 

OPTION AUTO-FILL : STARTING THE UNIT

Press	Indication	Result of the keyboard
	Press the **START/STOP** key. **ON** light will go on. Electric element will start heating the thermic oil. Element light will go on.	
	**FILL** signal will show on board. Make sure dirty solvent loading valve is on the ON position **Press the arrow to confirm you want to fill unit**. Pump will start filling up the recycler Once unit reach level sensor ON light will go on. Electric element will start heating the thermic oil. Element light will go on	

DURING THE DISTILLATION CYCLE

A. Every 5 seconds, the keyboard will display 3 different readings:
   1. Selected boiling temperature: (Thermometer light will flash).
   2. Amount of time selected for that cycle: (Clock light will flash).
   3. Elapsed time since starting the unit: Clock light will be on).

B. Cooling fan will start turning.

C. Recycled solvents will start dripping approximately one hour after the start-up.

D. At the end of the cycle, the ON light will flash AND a count down timer will show the cool Time period remaining on the control board for 60 minutes. During the cool down time the heating element will be off but the cooling fan will remain on during the cooling period. When cycle is finish Board will indicate - END -.

E. The cooling fan will automatically shut off at the end of the cooling cycle.

AT THE END OF THE CYCLE

- The keyboard will display the total elapsed time for that cycle.
- All lights will shut off except the ON light.
- Wait at least one hour before opening the cover.
- You can now remove the residues.
- Press the stop key. 

FLAMMABLE SOLVENTS

	Distillation Temperature		Temperature Class	Ignition Temperature		Seal	Condenser Type	
SOLVENT TYPE	°C	°F		°C	°F	Silicone	cop	s/st
Acetone	56	133	T2	535	995	A	A	A
Alcohol Amyl	145	293	T2			A		B
Alcohol Butyl	118	244	T2			A	A	A
Alcohol Ethyl	79	175	T2	362		A	A	A
Amyl Acetate	126-155	259-311	T2	375	707	A	A	A
Benzol (Benzene)	80	176	T-1	498	1040	A	B	B
Butanol (Butyl Alcohol)	118	244	T2	366	691	A	A	A
Butyl Acetate	128	262	T-2	370	698	A	B	A
Cabinol	65	149	T-2	385	725	A	B	A
Cellosolve Acetate	156	313	T-2	377	711	A	B	A
Cyclohexanone	155	311	T-2	419	786	A	B	A
Ethyl Acetate	79	174	T-2	427	801	A	A	A
Ethyl Alcohol (Ethanol)	79	175	T-2			A	A	A
Ethyl Benzene	136	277	T-1	466	871	A	A	A
Ethyl Glycol Acetate	156	313	T-2	377	711	A	A	A
Iso Amyl Acetate	125-155	257-311	T-2	375	707	A		A
Iso Butyl Acetate	104-119	219-246	T-2	420	788	A		
Iso Butyl Alcohol	111	232	T-2	430	806	A		
Iso Propane	83	181	T-2	400	752	A	B	A
Iso Propyl Acetate	89	192	T-2	460	860	A	A	A
Iso Propyl Alcohol	83	181	T-2	400	752	A		A
Iso Propyl Glycol	143	289	T-2	345	653	A		
Lacquer Solvents	140	284	T2	535	995	A	A	A
Methyl Acetate	58	136	T-2	454	850	A	B	A
Methyl Cellosolve Acetate	156	313	T-2	377	711	A	B	A
Methyl Ethyl Ketone (M.E.K.)	80	176	T-1	530	986	A	A	A
Methyl Glycol Acetate	137-152	278-305	T-2	380	716	A	A	A
Methyl Isobutyl Ketone (M.I.B.K.)	117	243	T-1	459	858	A	B	A
N. Butyl	118	244	T2	366	691	A		A
Pentanol	138	280	T2	327	621	A		A
Propanol	98	208	T2	371	700	A		A
Propyl Alcohol	98	208	T2	371	700	A	A	A
Propyle Acetate	101	214	T2	450	850	A	A	A
Paint Thinner	140	284	T2	535	995	A	B	B
Sec. Butyl Alcohol	101	214	T2	390	734	A		A
Toluol	110	231	T1	480	905	A	A	A

FLAMMABLE SOLVENTS (VACUUM SYSTEM REQUIRED)

	Distillation Temperature		Temperature Class	Ignition Temperature		Seal	Condenser Type	
SOLVENT TYPE	°C	°F		°C	°F	Teflon braided	cop	s/st
Aliphatic hydrocarbons		370			487	A	A	A
Bottcherin		370			487	A	A	A
Citrus terpenes	176	349		237	458	A	A	A

FLAMMABLE SOLVENTS (VACUUM SYSTEM REQUIRED) CONT'D

	Distillation Temperature		Temperature Class	Ignition Temperature		Seal	Condenser Type	
SOLVENT TYPE	°C	°F		°C	°F	Teflon braided	cop	s/st
D Limonene	176	349		237	458	A	A	A
Dimethylformamide (DMF)	153	307	T-2	445	833	A	A	A
Ether Glycol	210			277		A	A	A
LO NX (Kodak)	203	398		N/A	N/A	A	A	A
N-Methylpyrrolidone	202	396		N/A	N/A	A	A	A
White Spirit	150-175	302-374	T-2	353	489	A	A	A
Varsol	150	302	T-2	351	487	A	A	A
Virosol 225				N/A	N/A	A	A	A
Xylol (Xylene)	144	291	T-1	463	907	A	A	B

NON - FLAMMABLE CHLORINATED SOLVENTS (VACUUM SYSTEM REQUIRED)

	Distillation Temperature		Temperature Class	Ignition Temperature		Seal	Condenser Type	
SOLVENT TYPE	°C	°F		°C	°F	Silicone	cop	s/st
1,1,1, Trichloroethane-(Methyl Chloroform)	74	165				A		A
n-Propyl Chloride	47	117				A		A
Isopropyl chloride	40	104				A		A
Methylene chloride	40	106				A		A
Dichloroethylene	37	99				A		B
Ethylene dichloride	84	183				A		A
Monochlorobenzene	133	273				A		A
Propylene dichloride	98	208				A		A
Chloroform	61	142				A		A
Trichloroethylene	92	198				A		A
Trichloroehane	115	239				A		A
Ortho dichlorobenzene	182	361				A		A
1.2.3. trichloropropane	158	317				A		A
Carbon tetrachloride	78	172				A		A
Perchloroethylene	122	254				A		A
Tetrachloroethane	147	297				A		A

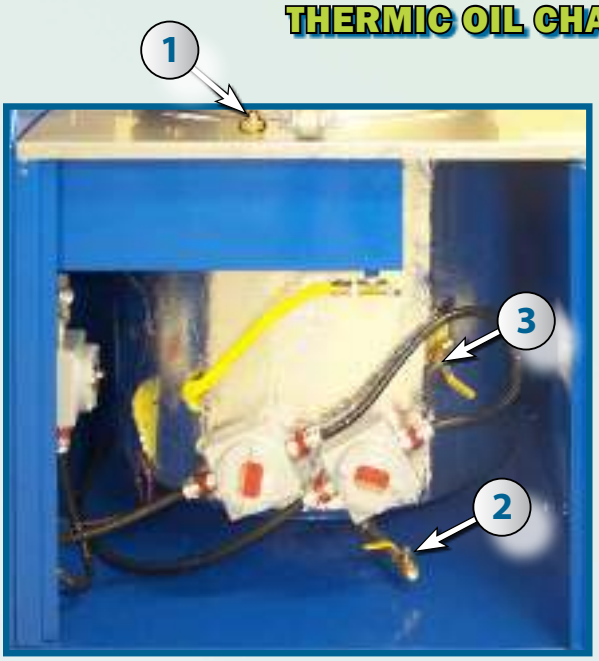
WARNING

The information and data set forth in this catalog or the information disclosed by a representative is for your general information only. Many factors influence the resistance of materials to corrosion, such as temperature, concentration, aeration and contaminants.

A – Recommanded B – Not Recommanded

Blank – Information not available

THERMIC OIL CHANGING PROCEDURE



It is recommended to change the oil for SR120-180 & the cover seal (304020) for SR120 or 304025 (black) for SR180 every 2000 hours of work or every year witch ever comes first.

1. Remove the overflow valve # (1) and remove the plug on the ball valve # (2) & # (3) and open the breather valve # (3)

2. Place the empty oil collector container below the ball valve # (2) on open the valve to remove the used oil.

3. When empty, close the ball valve # (2), remove the container and re-install the plug on the ball valve # (2).

4. Install a funnel on (1) and pour new thermic oil into the funnel until full.

5. Close the ball valve (3) and re-install the vent tube plug on the ball valve (3) and the overflow valve (1).

DEFECTS, CAUSES AND REMEDIES

Distillation at Atmospheric Pressure

Defects	Causes	Remedies
Unit heats but does not distill	Boiler is dirty.	Clean the boiler.
	Reducer boiling temperature is higher than the temperature set on the control panel.	Set a higher temperature on the control panel.
	Reducer boiling temperature is higher than distiller's maximum working temperature.	Use a reducer with a lower boiling temperature or vacuum distill with the suitable kit (optional).
	Thermic oil is worn out.	Change thermic oil.
	Lack of thermic oil.	Add thermic oil
Smoke comes out from the cover.	Polluting products overheating.	Reduce time and/or working temperature.
	Polluting products decomposing.	Possibly vacuum distill with the suitable kit.
	Dirt on cover gasket.	Clean cover gasket.
Cover gasket swells.	Cover is opened while distiller is hot.	Open the cover one hour after the cycle is complete
	The cover gasket is not suitable for the type of solvent to be distilled	Mount the suitable gasket (see page 26).

DEFECTS, CAUSES AND REMEDIES (CONT'D)

Distillation at Atmospheric Pressure

Defects	Causes	Remedies
Solvent leaks from the gasket.	Worn out gasket.	Replace the gasket.
	Vapor manifold is clogged	Using a funnel, pour in clean solvent, wash vapor tube and blow air into the tube.
	Vapor condenser is clogged.	Replace the condenser.
Unit is in operation mode but does not heat. Indicator light is ON.	Temperature is set at zero.	Increase the operating time.
	Burnt out heater.	Set a higher temperature on the control panel
	Mechanical thermostats is defective.	Change the faulty thermostat.
	Thermocouple sensor is defective	Change the faulty thermocouple
Distills only part of the dirty solvent.	Insufficient operating time selected.	Increase the operating time.
	The undistilled fraction has a boiling temperature higher than the temperature set on the control panel.	Set a higher temperature on the control panel.
	Solvent-boiling temperature is higher than the distiller's maximum working temperature.	Convert to a lower boiling solvent or use a vacuum operated unit.
Trouble light flashes and horn signals a problem	**Distillate temperature is over 40°C (104°F).**	
	Ventilator motor burns out.	Replace the ventilator motor.
	Vapor condenser internally dirty	Clean by compressed air jet.
	Vapor condenser externally scaled.	Wash it, by pouring clean solvent with a funnel into manifold
	The security thermostat is defective.	Replace the thermostat
Distillate comes out dirty	Loaded with a quantity superior to the maximum.	Load with the exact quantity.
	Solvent foams.	Wait at least 48 hours after utilizing the solvent before starting the next distillation
	Temperature set on control panel too high.	Reduce working temperature.
	Vapor manifold or condenser dirty.	Wash it by pouring clean solvent with a funnel into manifold

DEFECTS, CAUSES AND REMEDIES (END)

Distillation at Atmospheric Pressure

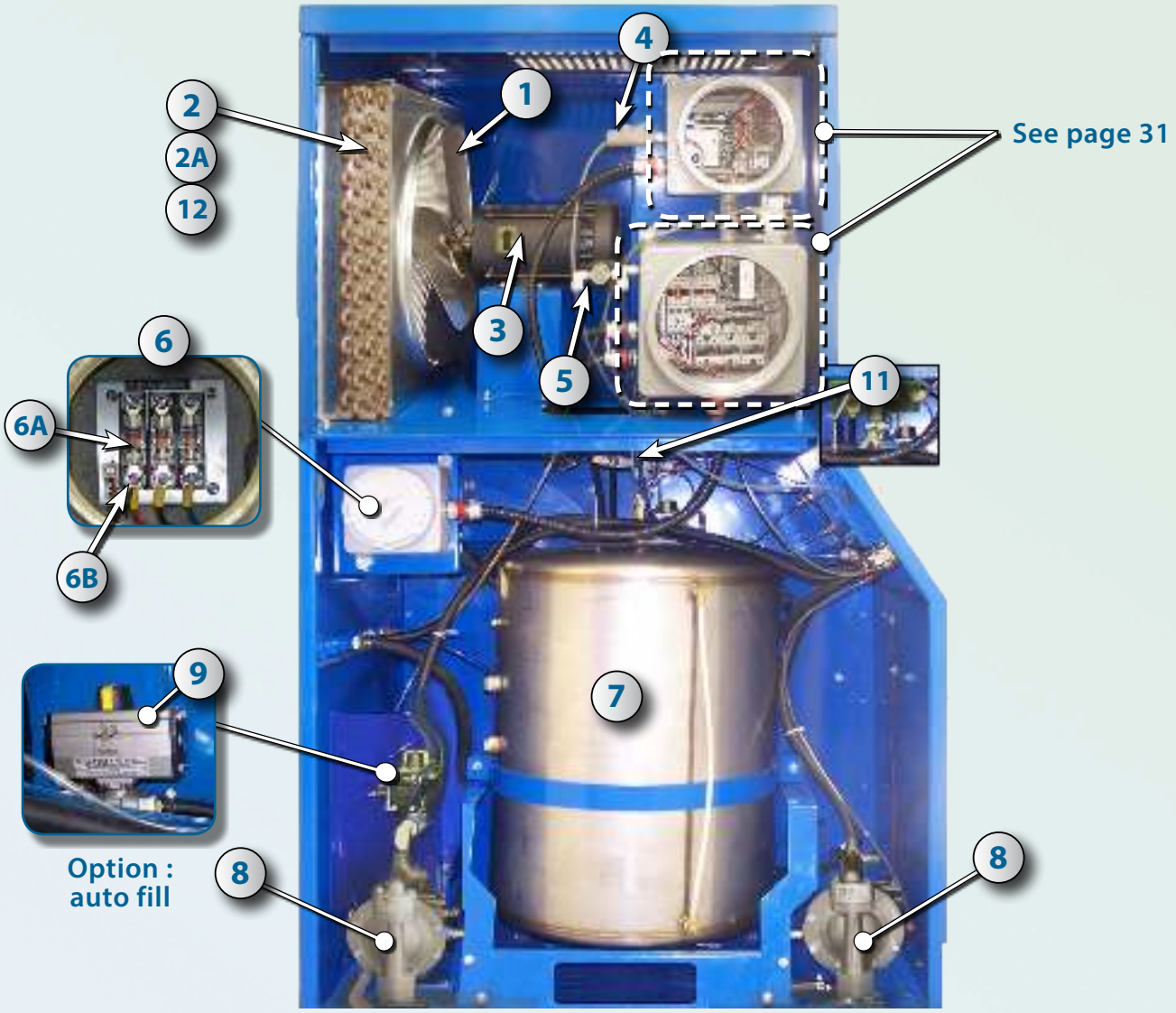
Defects	Causes	Remedies
Distillate assumes a greenish color.	**Distilling solvents or reducers in general.**	
Condenser is becoming corroded.	The solvent is acidic.	Replace copper condenser with a stainless steel condenser.
	Distilling a chlorinated solvent.	
	Temperature set on the control panel is higher than the temperature indicated.	Set the correct working temperature
	Solvent acidifies. If the temperature set on the control panel is correct, acidification occurred during process before distillation	Replace the solvent immediately.
Distillation time is more than 4 hours.	There is a considerable percentage of water in the dirty solvent	Replace the solvent.
	Lack of thermic oil.	Add thermic oil.
	Thermic oil is worn out.	Change thermic oil.
	Heater is scaled.	Remove thermic oil and clean the heater.

SR120/180 - SCHEMATIC OF UNIT - FACE VIEW

Nb	PART #	DESCRIPTION	Qty
1	331028	STICKER CHANGING OIL	1
1A	33105X	CONTROL PANEL STICKER	1
2	307003	FRONT KEY BOARD	1
3	324574	AIR CONTROL VALVE	1
4	324574	USED SOLVENT VALVE	1
5	324574	CLEAN SOLVENT VALVE	1
6A	306003	VACUUM PRESSURE GAUGE	1
6B	611022	AIR PRESSURE GAUGE	1
7	608028	AIR REGULATOR	1

Nb	PART #	DESCRIPTION	Qty
8A	301022	COVER	1
8B	304020	COVER SEAL (ORANGE W/O VACUUM)	1
9	323120	COVER HANDLE	1
10	331011	SAFETY STICKER	1
11	331001	SAFETY STICKER	1
13	331053	ISTPURE STICKER	1
14	323117	DOOR HANDLE	1
15	323075	LEVELERS	2

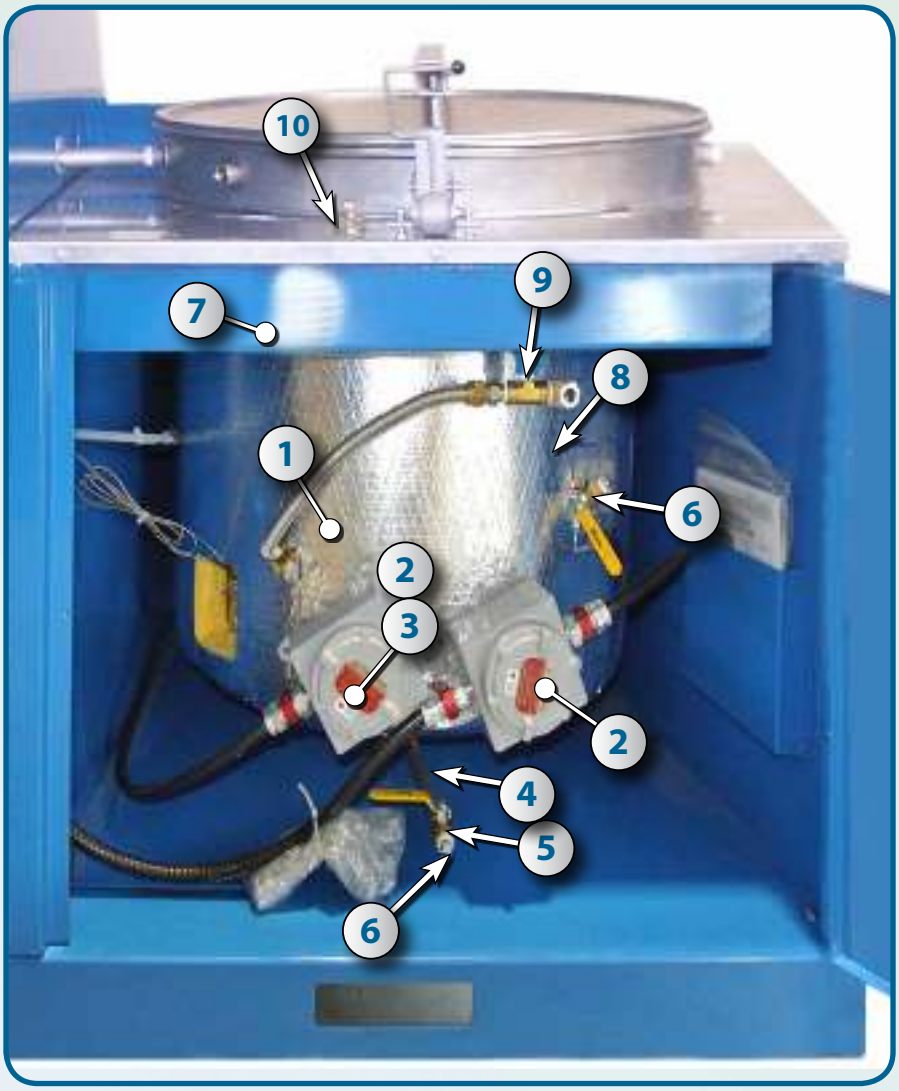
SR120/180 - SCHEMATIC OF UNIT - LEFT VIEW



Nb	PART #	DESCRIPTION	Qty
1	303014	FAN BLADE	1
2	306016	COPPER CONDENSER	1
2A	306015	S/S CONDENSER	1
3	303013	MOTOR 380V - 50Hz	1
4	322012	EYS CONNECTOR	1
5	324003	SOLENOID VALVE	1
6	322001	FUSES BOX	1
6A	307027	FUSE 25A	3

Nb	PART #	DESCRIPTION	Qty
6B	917738	FUSE HOLDER	3
7	324100	VACUUM TANK	1
8	324596	CLEAN & USED SOLVENT PUMPS	2
9	324532	VALVE ROTEX	1
10	919810	LEVEL SWITCH	1
11	314078	VACUUM GENERATOR	1
12	305006	COPPER CONDENSER LEFTSIDE IN / OUT	1

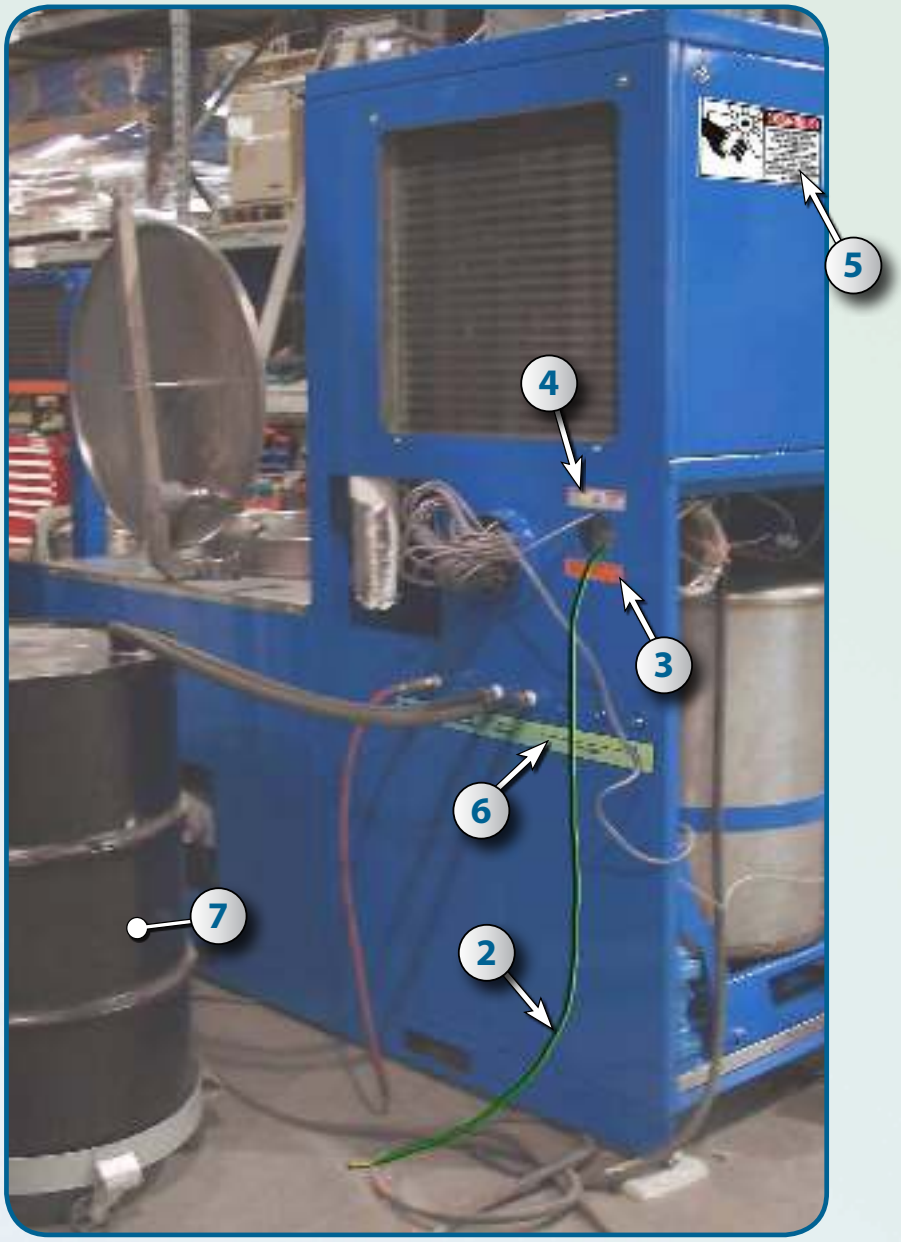
SCHEMATIC OF UNIT - OIL CHAMBER SR120 & SR180



Nb	PART #	DESCRIPTION	Qty
1	323150	OIL FLEXIBLE TUBE	1
2	322002	EXPLOSION PROOF BOX	1
3	302005	HEATER 380V - 50Hz	1
4	323527	LONG NIPPLE ½" X 8"	1
5	608102	BALL VALVE ½"	1

Nb	PART #	DESCRIPTION	Qty
6	323522	VALVE PLUG	2
7	NPN	OVERFLOW TANK	2
8	310010	OIL LEVEL INDICATOR	1
9	323215	TEE	1
10	323063	BREATHER VALVE	1

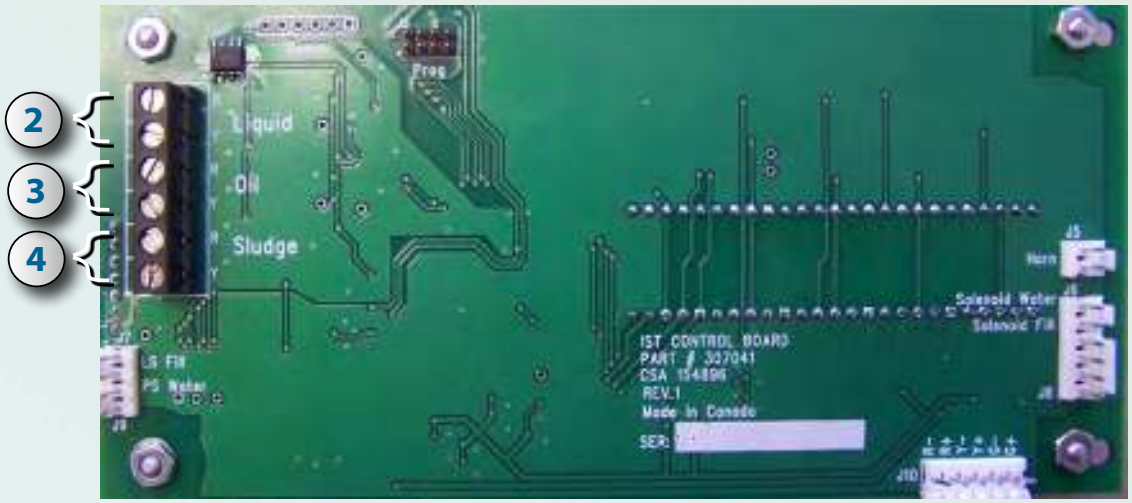
SCHEMATIC OF UNIT - BACK OF UNIT SR30V



Nb	PART #	DESCRIPTION	Qty
2	323086	GROUND CABLE WITH CLIP	1
3	NPN	STICKER 600V	1
4	331024	STICKER VOLTAGE WARNING	1

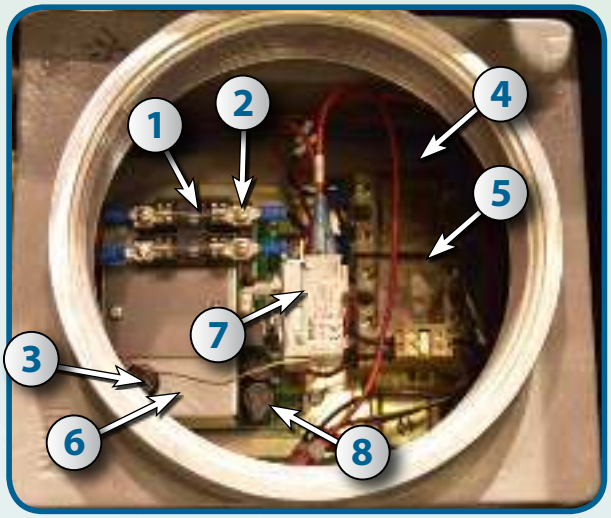
Nb	PART #	DESCRIPTION	Qty
5	331060	STICKER " DANGER "	1
6	331059	STICKER OUTLETS ID	1
7	NPN	OPTIONAL BARREL	1

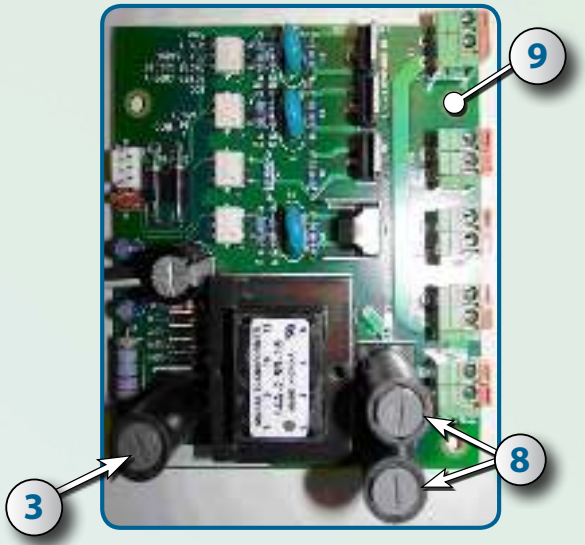
SCHEMATIC OF UNIT - CONTROL BOARD



Nb	PART #	DESCRIPTION	Qty
1	307041	CONTROL BOARD	1
2	307123	TEMP. SENSOR FOR SOLVENT	1
3	307122	OIL HEAT SENSOR	1
4	321031	SLUDGE THERMOCOUPLE	1

SCHEMATIC OF UNIT SR120-180 - POWER SUPPLY KIT (307040)

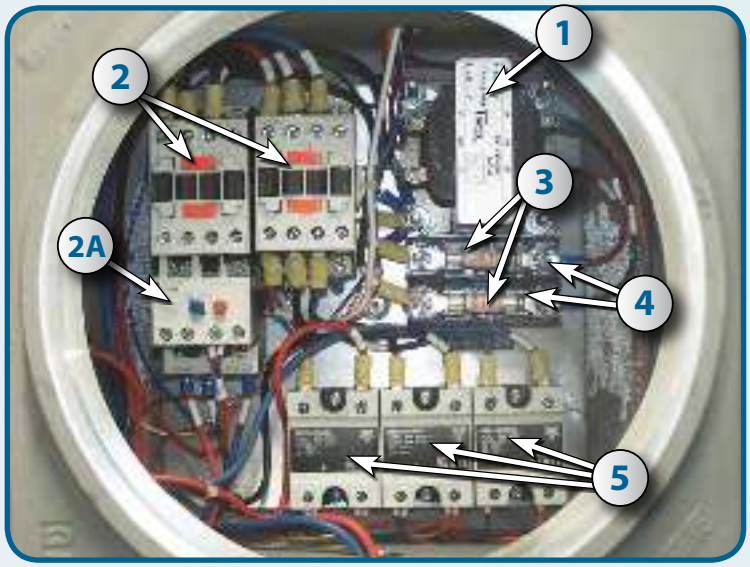




Nb	PART #	DESCRIPTION	Qty
1	307032	FUSE 0.5 A	2
2	307017	FUSE HOLDER	1
3	307131	FUSE ¼	1
4	303053	SOLID STATE RELAY	1
5	303053	SOLID STATE RELAY	1

Nb	PART #	DESCRIPTION	Qty
6	330009	INTRINSEC BARRIER	1
7	308010	HIGH LIMIT SWITCH	1
8	307130	FUSE	2
9	307040	POWER SUPPLY BOARD	1

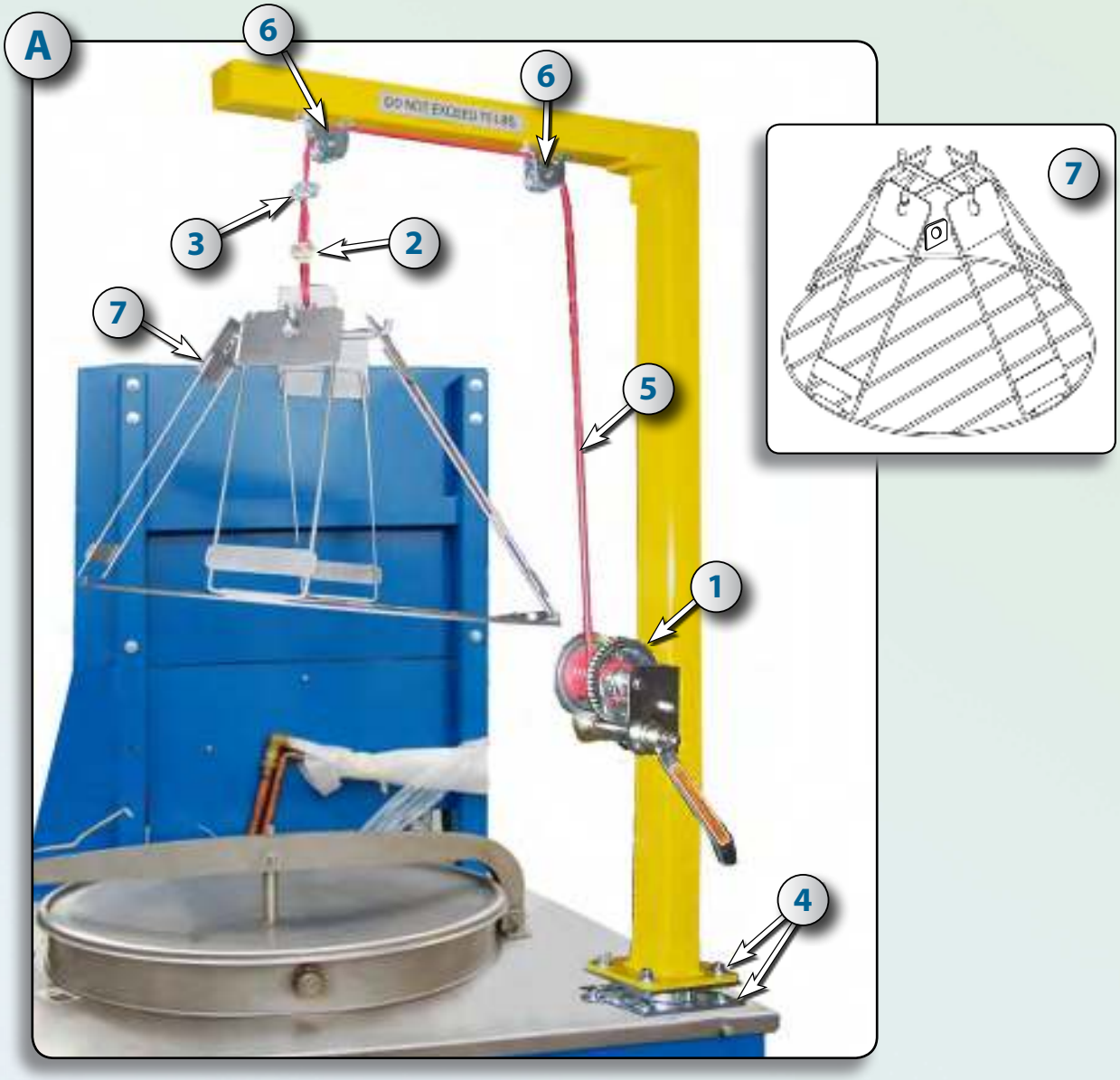
SCHEMATIC OF UNIT SR120-180 - POWER SUPPLY TO LARGE EX. PROOF BOX



Nb	PART #	DESCRIPTION	Qty
1	314082	TRANSFORMER 380V	1
	314073	TRANSFORMER 600V	1
2	314051	MOTOR CONTACTOR	2
2A	917730	MOTOR OVERLOAD 600V	1

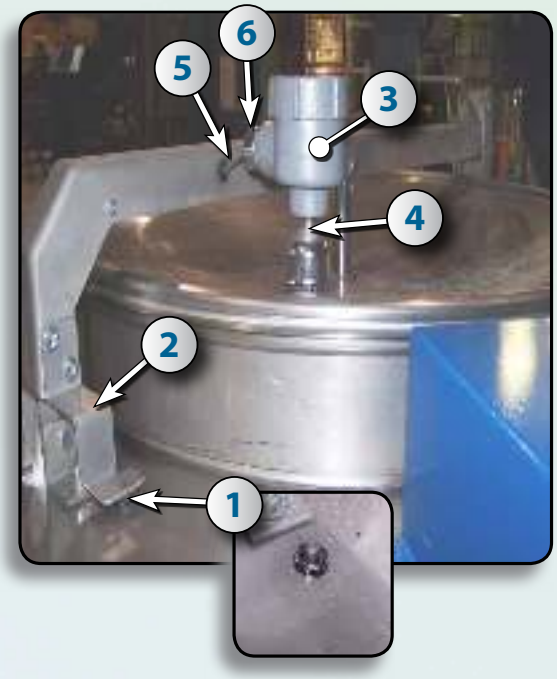
Nb	PART #	DESCRIPTION	Qty
3	917726	FUSE 0.5 A	2
4	917738	FUSE HOLDER	2
5	314072	HEATERS SOLID STATE RELAYS	3

BAG LIFTING DEVICE (OPTION)



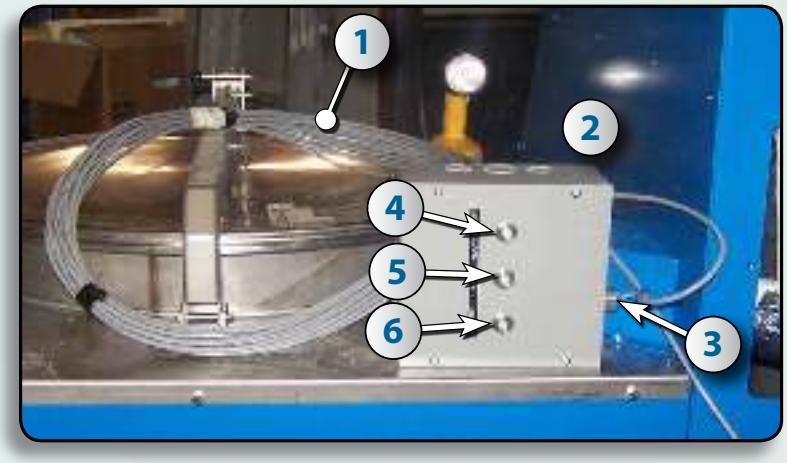
Nb	PART #	DESCRIPTION	Qty
A	320010	COMPLETE BAG LIFTING CRANE SYSTEM	1
1	301100	INCLINE-PULLING HAND WINCH WITH BRAKE EXPOSED GEAR	2
2	301102	COMBINATION WIRE ROPE CLAMP AND THIMBLE FOR ¼" ROPE DIAM.	1
3	301103	DBL-SADDLE CROSBY FORGED STEEL WIRE ROPE CLIP ZINC-PLATED	1
4	301104	LOCKABLE HEAVY DUTY TURNTABLE 4½" WIDTH X 6½" LENGTH PLATE, 1500 LBS. CAP.	1
5	301105	NYLON COATED WIRE ROPE	20 ft
6	301101	MOUNTED POLLEY	2
7	320005	HEAVY DUTY BAG RACK (OPTION)	1

LOADIND AND UNLOADING & AUTO FILL UP (OPTION)

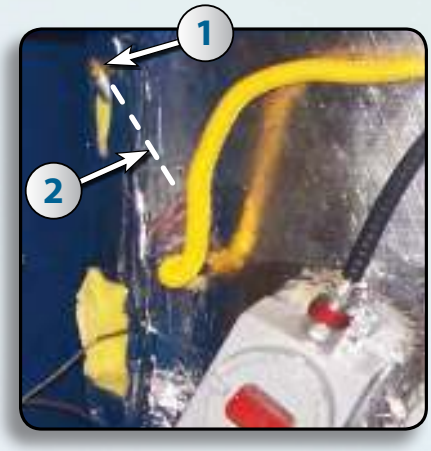


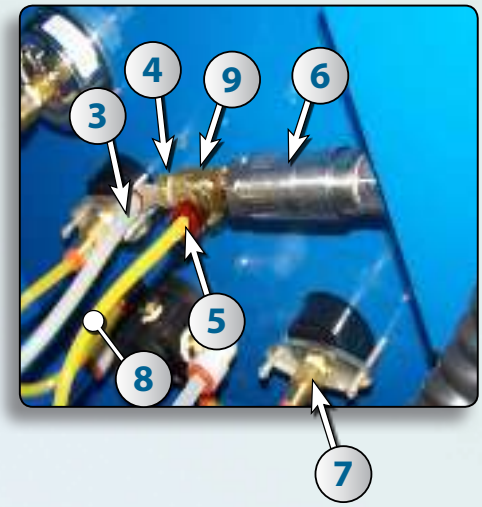
Nb	PART #	DESCRIPTION	Qty
1	324582	SWITCH FOR COVER	1
2	NPN	BRACKET	1
3	322006	JUNCTION BOX	1
4	919811	COUPLING	1
5	314066	COMMUNICATION CABLE	1
6	616740	CONNECTOR 2521	1
7	NPN	NIPPLE	1
8	323501	COUPLING	1
9	919810	LEVEL SWITCH	1
10	919812	REDUCING COUPLING	1
11	324532	AUTOFILL VALVE	1

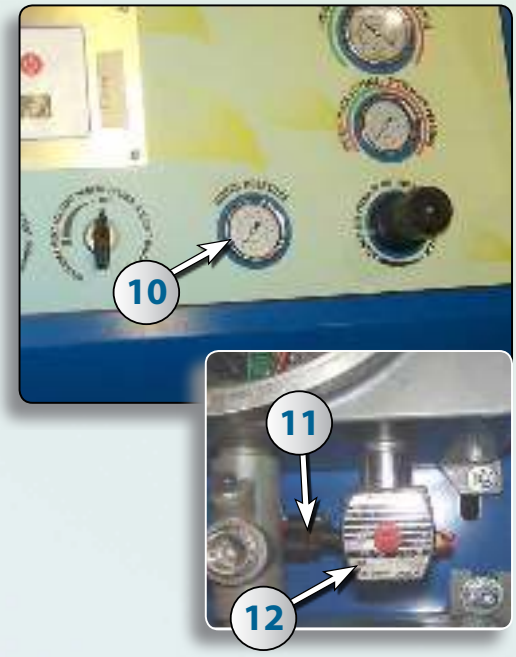
ELECTRICAL LIGHTS BOX (OPTION)



Nb	PART #	DESCRIPTION	Qty
1	314066	COMMUNICATION CABLE	100'
2	314065	ELECTRICAL BOX	1
3	616740	CONNECTOR 2521	1
4	314063	GREEN LIGHT	1
5	314062	RED LIGHT	1
6	314064	YELLOW LIGHT	1



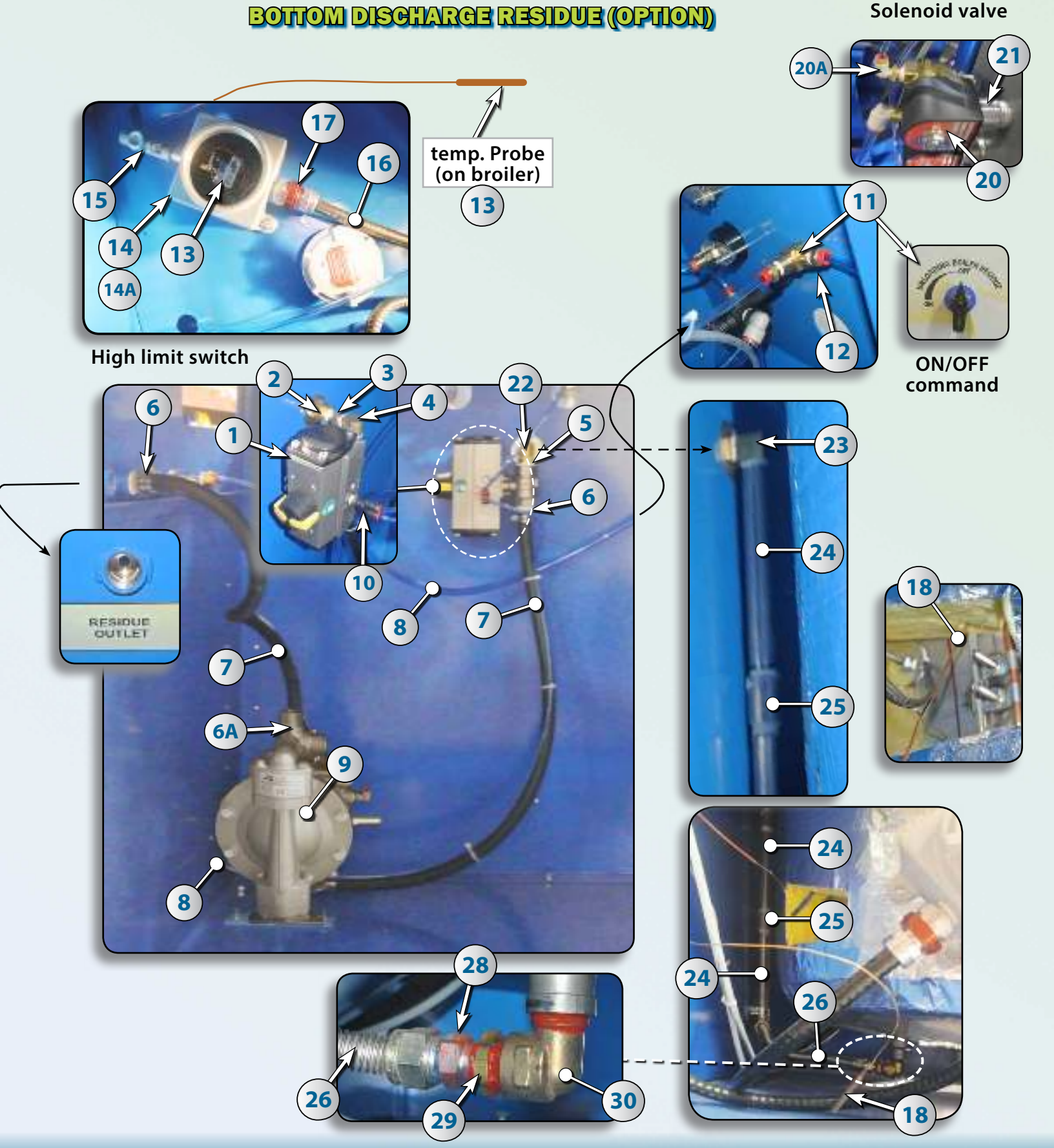




Nb	PART #	DESCRIPTION	Qty
1	323225	CONNECTOR FOR SENSOR	1
2	321031	SENSOR FOR SLUDGE	1
3	324512	CLEAR HOSE	6
4	323130	CONNECTOR	2
5	324558	PUSH IN ¼"	2
6	314068	PRESSURE SWITCH	1

Nb	PART #	DESCRIPTION	Qty
7	324573	PUSH IN ¼" FEM.	1
8	324511	URETHANE HOSE	1
9	632226	STREET TEE ¼"	1
10	911021	UNDER PRESSURE GAUGE	1
11	324557	PUSH IN ¼"Y	1
12	324003	SOLENOID VALVE	1

BOTTOM DISCHARGE RESIDUE (OPTION)

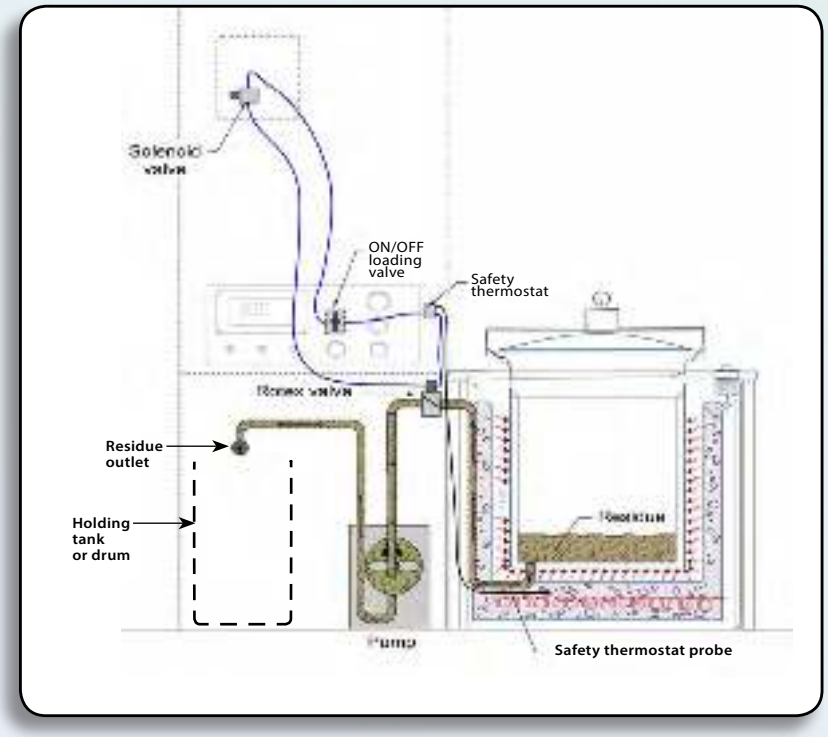


BOTTOM DISCHARGE RESIDUE (OPTION)

Nb	PART #	DESCRIPTION	Qty
1	324532	ROTEX VALVE ¾"	1
2	632741	NIPPLE CONNECTOR BULKHEAD	1
3	632706	NIPPLE ADAPTOR	1
4	632226	90° ELBOW BRASS	1
5	632971	REDUCER	1
6	632764	½" HOSE CONNECTOR	2
6A	323163	CONNECTOR FOR HOSE	2
7	323160	BLACK RUBBER HOSE ½" I.D.	6'
8	324571	¼" BLUE TUBING	10'
9	324596	PUMP 16GPM 1/2"	1
10	324557	¼" "Y" PUSH-IN CONNECTOR	1
11	324552	ON/OFF SWITCH COMMAND	1
12	324558	NIPPLE ADAPTOR FOR ¼" PUSH-IN	3
13	308010	HIGH LIMIT TEMPERATURE SWITCH WITH PROBE	1
14	322002	EXPLOSION PROOF BOX	1

Nb	PART #	DESCRIPTION	Qty
15	322012	"Y" EXPL. PROOF ½" CONNECTOR	1
16	321003	TECK CABLE 14/2	-
17	322004	TECK CONNECTOR	2
20	324003	SOLENOID VALVE	1
20A	324560	90° - ¼" PUSH-IN CONNECTOR	3
21	322013	FF IRON NIPPLE	1
22	632226	90° ½" ELBOW NPT	1
23			1
24	323527	MM NIPPLE ½" NPT	2
25	323501	FF CONNECTOR ½" NPT	2
26	323234	MM FLEXIBLE ½" NPT	1
28	323149	NIPPLE	1
29	632971	NIPPLE	1
30	323122	90° ELBOW	1
31	323201	CONNECTOR 1¼ X ¾"	1

HOW IT WORKS



The standard sludge discharge feature is manually done by the operator. Upon completion of the process and once the sludge is below 75° C the operator will position turn the un loading valve to the on position to activate an air Operated Diaphragm Pump. If the temperature is above 75° C the pump will not be activated because it is protected by a safety thermostat.

The Pump will remove the liquid sludge from the vessel and discharge the sludge contents to a holding tank or drum near the system. Depending on the size of the distillation vessel, it will take multiple batches before filling up a drum.

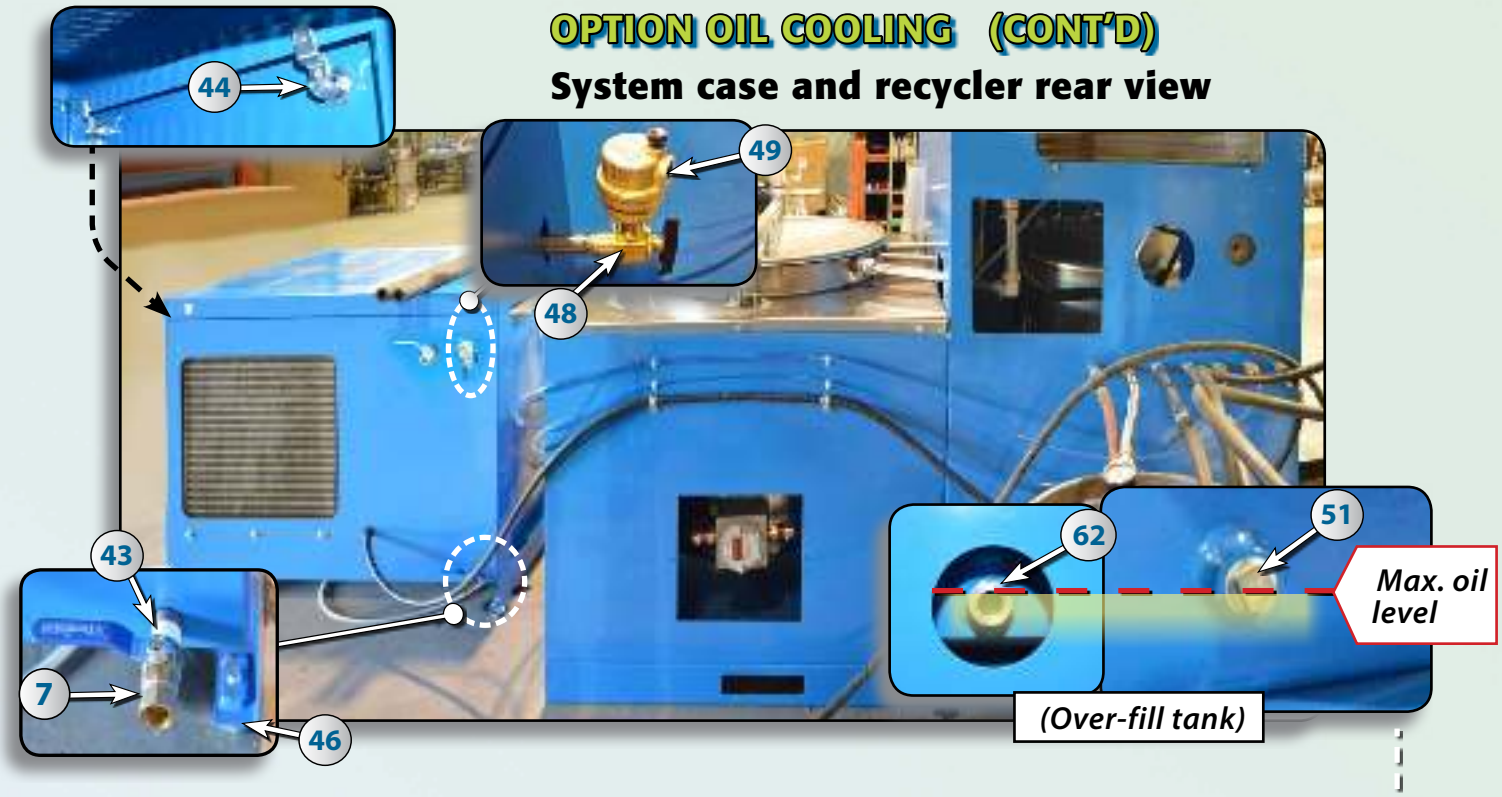
OPTION OIL COOLING

1 - System case

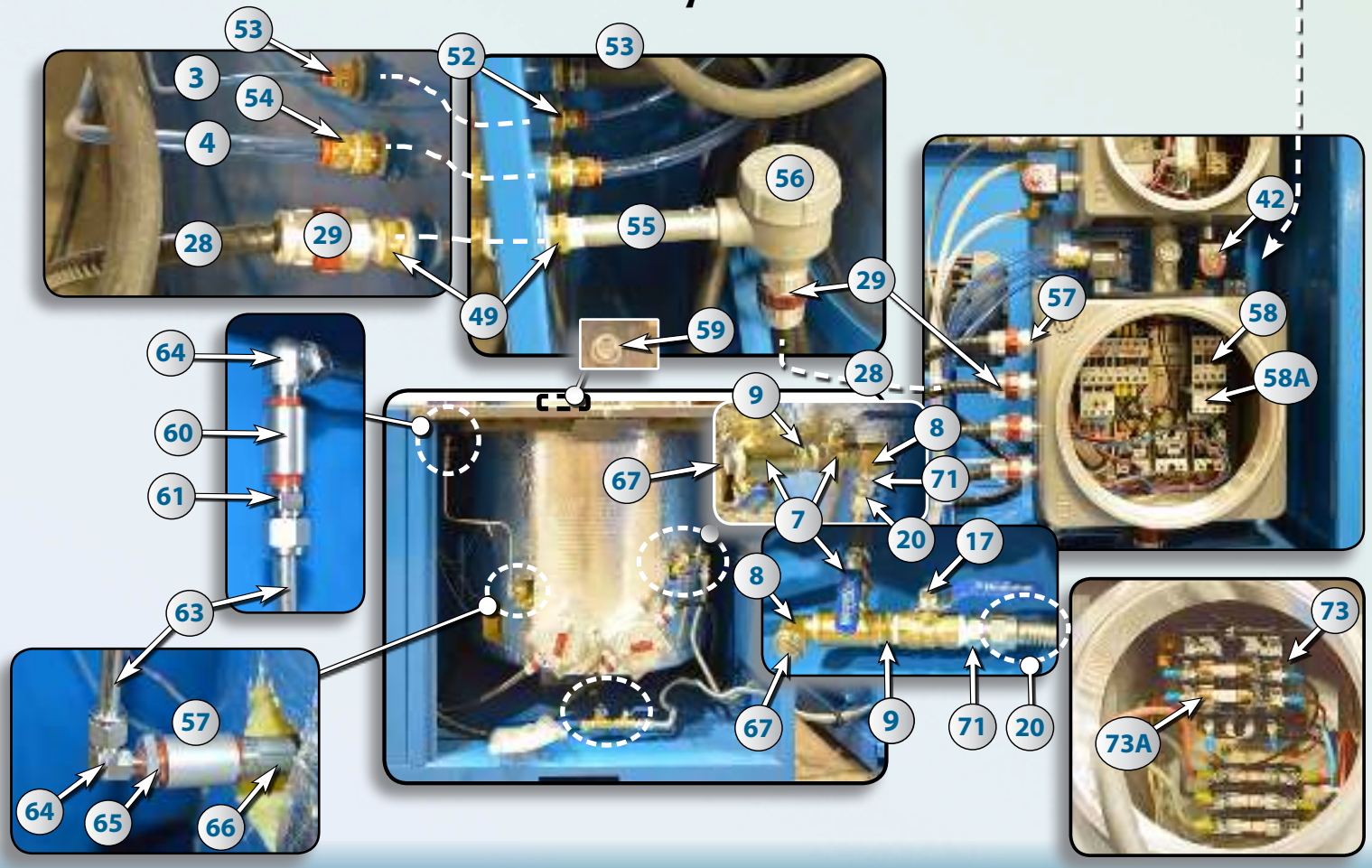
NB : If you already have the **nitro option** your card have to be changed for : # 307043,
and **with the auto-fill option** :# 307044

OPTION OIL COOLING (CONT'D)

System case and recycler rear view



2 - Connections and additions to recycler



OPTION OIL COOLING - PARTS LIST

#	STOCK	DESCRIPTION
1	314022	PUSH-IN ½"NPT X ½" TUBE
2	324502	BUSHING UNION ¼"
3	324570	POLYURETHANE HOSE ¼"
4	314025	POLYURETHANE HOSE ½"
5	324573	PUSH-IN ¼" FNPT X ¼" TUBE
5A	324558	PUSH-IN ¼"NPT X ¼" TUBE
6	632226	¼" TEEE STREET
6A	608409	ADAPTER FOR 608408
6B	608408	FLOW CONTROL
7	608102	BALL VALVE ½"
8	632730	½" 90° ELBOW
9	632706	½" HEX. NIPPLE
10	323525	½" NIPPLE x 3"
13	323535	REDUCER ¾" TO ½"
14	632232	¼" 90° ELBOW
15	324509	¼" X 6" NIPPLE
16	324509	½" ROTEX VALVE
17	324560	PUSH-IN 90° ¼"NPT X ¼" TUBE
18	324539	MECHANICAL SEALS PUMP
19	934140	¾" 90° ELBOW FF
20	323153	GAS CONNECTOR ½" X 48"
21A	632971	REDUCER ¾" TO ½"
22	323164	COMP. FITTING ½"NPT X 5/8" TUBE
23	NPN	½" FITTING
24	323192	¾" 90° ELBOW
25	324519	PUMP BRACKET
26	314058	PUSH-IN 90° ¼" NPT X ½" TUBE
26A	934029	OILER
26B	323508	NIPPLE ¼" X 3" LG.
26C	323555	¼" 90° ELBOW
26D	934030	OIL FOR PUMP
27	618133	GROMMET
28	916602	TECK CABLE 14-3
29	322004	TECK CONNECTOR ½"
30	303021	1hp / 460V MOTOR
31	305005	RADIATOR
32	303012	MOTOR FAN
32A	303011	HUB 5/8"
33	324584	PUSH-IN TEE ¼" TUBE

#	STOCK	DESCRIPTION
34	324570	PUSH-IN 1/8" NPT - ¼" TUBE
35	324557	PUSH-IN "Y" ¼ NPT - ¼" TUBE
36	323514	¼" PLUG
37	608534	PILOT VALVE
38	324527	MOTOR PUMP
39	324585	INSTALATING TUBE
41	632224	¼" TEE
42	324003	SOLENOID VALVE
43	323525	NIPPLE ½" X 3" LG.
44	924197	DOOR LATCH
46	323076	LEVELER
48	324522	2 WAYS VALVE
49	932050	OIL BREATHER
51	323522	½" PLUG
52	323167	REDUCER ¾" TO ¼"
53	324558	PUSH-IN ¼" NPT - ¼" TUBE
54	314022	PUSH-IN ½" NPT - ½" TUBE
55	321041	ELECTRIC NIPPLE
56	322006	JUNCTION BOX
57	324528	SHAFT COUPLING
58	314051	CONTACTOR
58A	917730	OVERLOAD
59	NPN	CAP
60	323503	¼" UNION
61	323238	COMP. S/S FITTING ¼" NPT - 3/8" TUBE
62	308008	PORT HOLE
63	321039	3/8" S/S TUBE
64	323209	90° COMP. FITTING ¼" NPT - 3/8" TUBE
65	323206	REDUCER S/S ½" X ¼"
66	323525	NIPPLE ½" X 3"
67	323522	PLUG S/S ½"
73	314084	TRANSFO 480/240 100VA C/W FUSE AND FUSE HOLDER
73A	917726	FUSES ATMR 1/2

OPTION OIL COOLING - OIL FILLING PROCEDURE

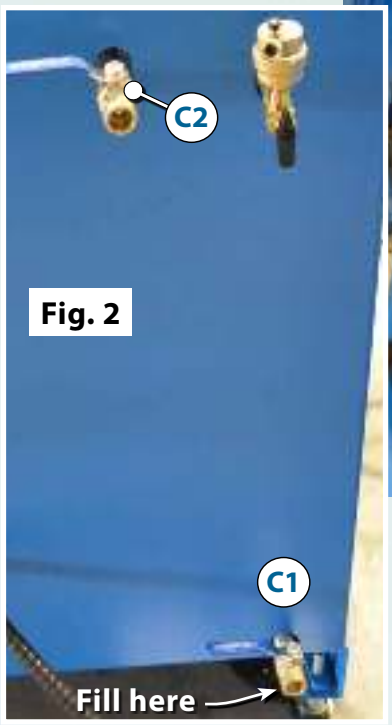


Fig. 2

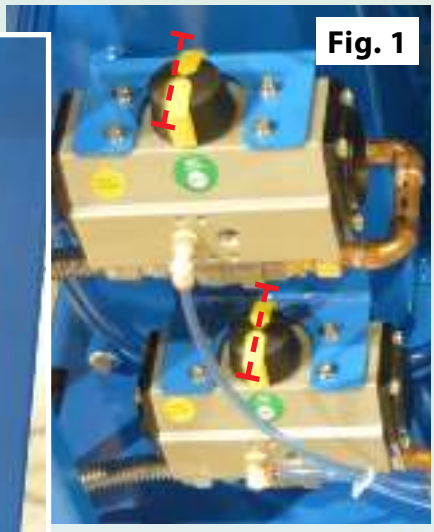


Fig. 1

Before you begin, ensure the 2 Rotex valves (Fig. 1) are closed.

1. Start filling the tank by connecting to the ball-valve **C1 (Fig. 2)** of the oil cooling
2. Fill until to see oil get out of the ball valve **C 2 (Fig. 2)** of the oil cooling
3. Remove your oil supply hose and connect it to the ball-valve of the boiler **(Fig. 5)**
4. Fill to see oil go up the expansion tank control window **--- (Fig. 6)** (Use a flashlight if necessary to see correctly the oil level).
5. Unscrew the ¼ '' plug located on the side of the expansion tank **(Fig. 7)** and continue to fill until you see the oil flow spill out of it : stop filling and rescrew the plug in place.

Your filling process is now completed.

Remove the plug, and connect here. (the 2 boiler ball-valves **must be in <u>open position</u>, but the 2 cooling tank ball valve must be <u>closed</u> to avoid over filling it**)

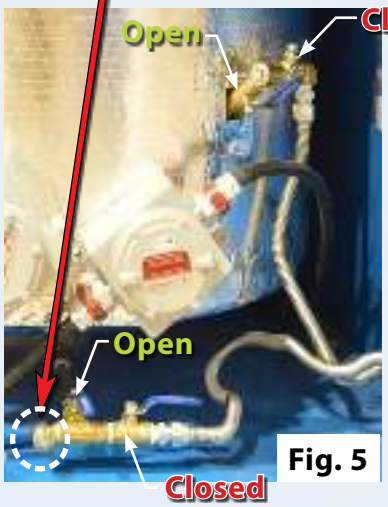


Fig. 5

Fig. 6

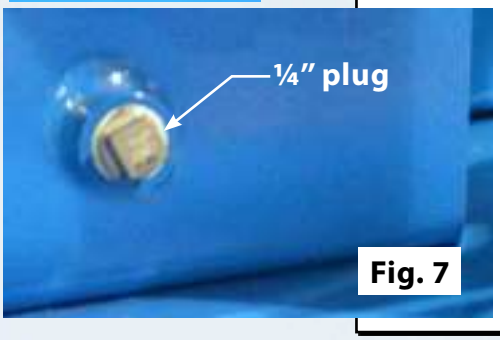
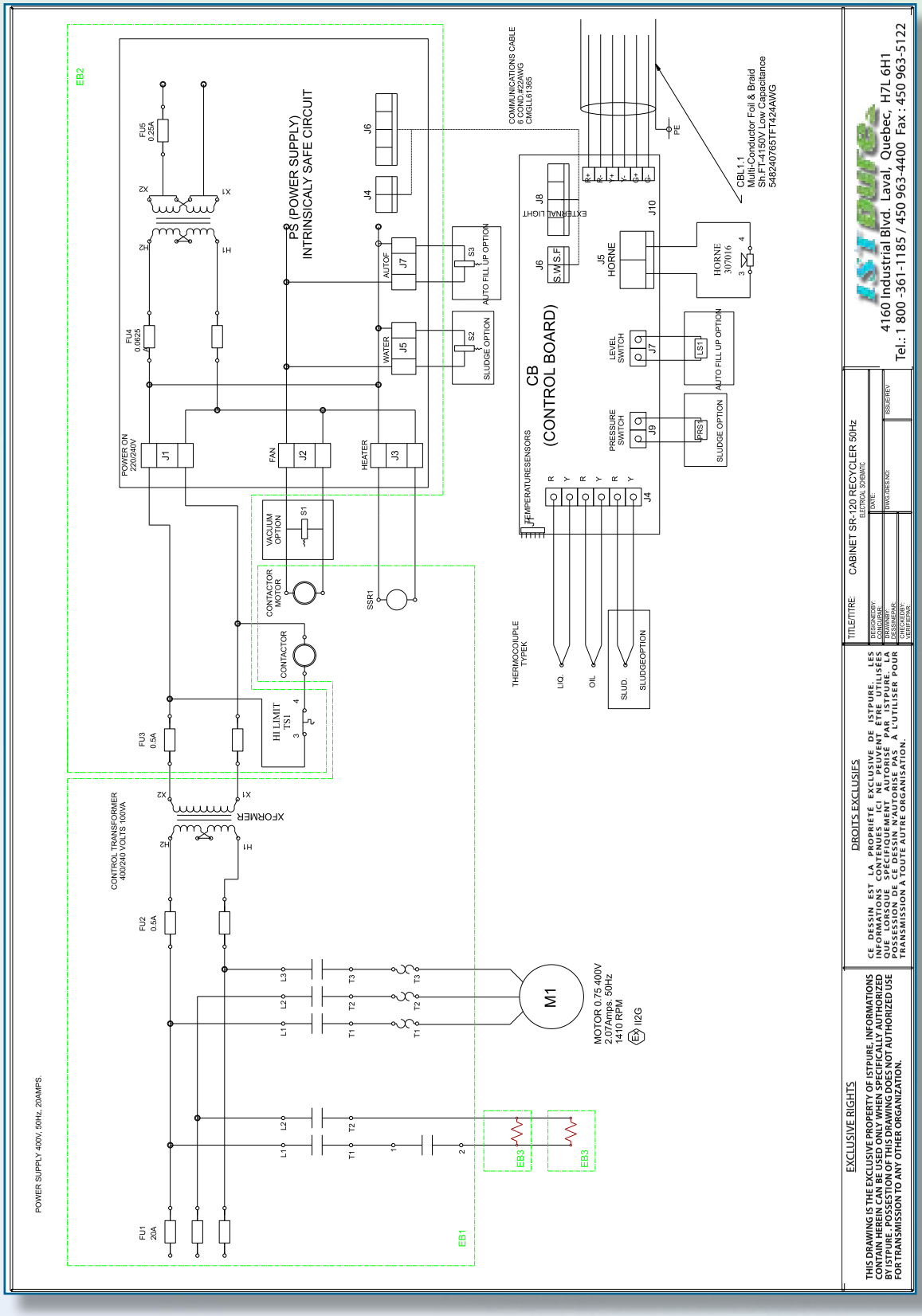


Fig. 7

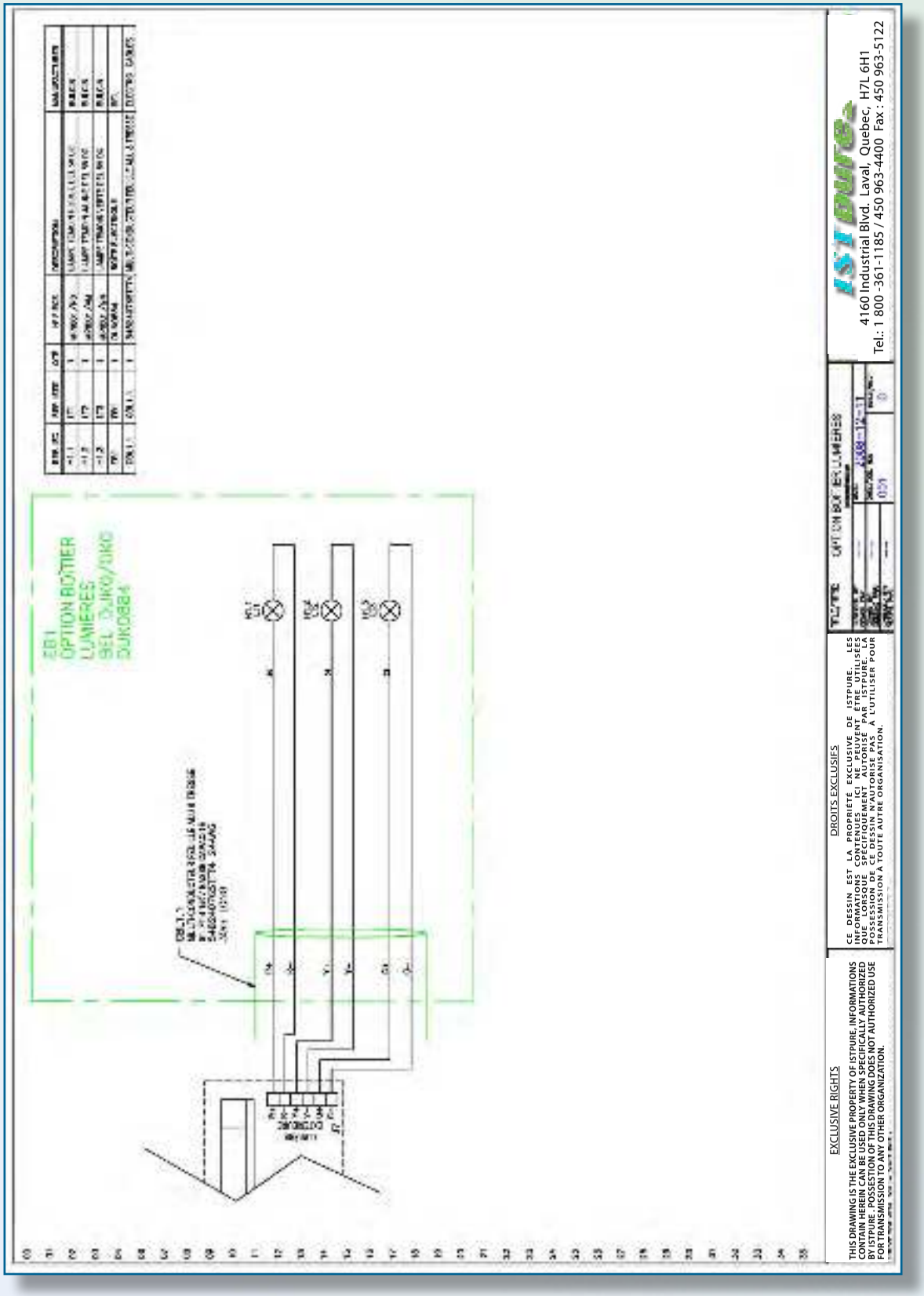
NB : ensure that the **oiler pump is always filled** with pneumatic oil by checking the level **(Fig. 8)**

Fig. 8

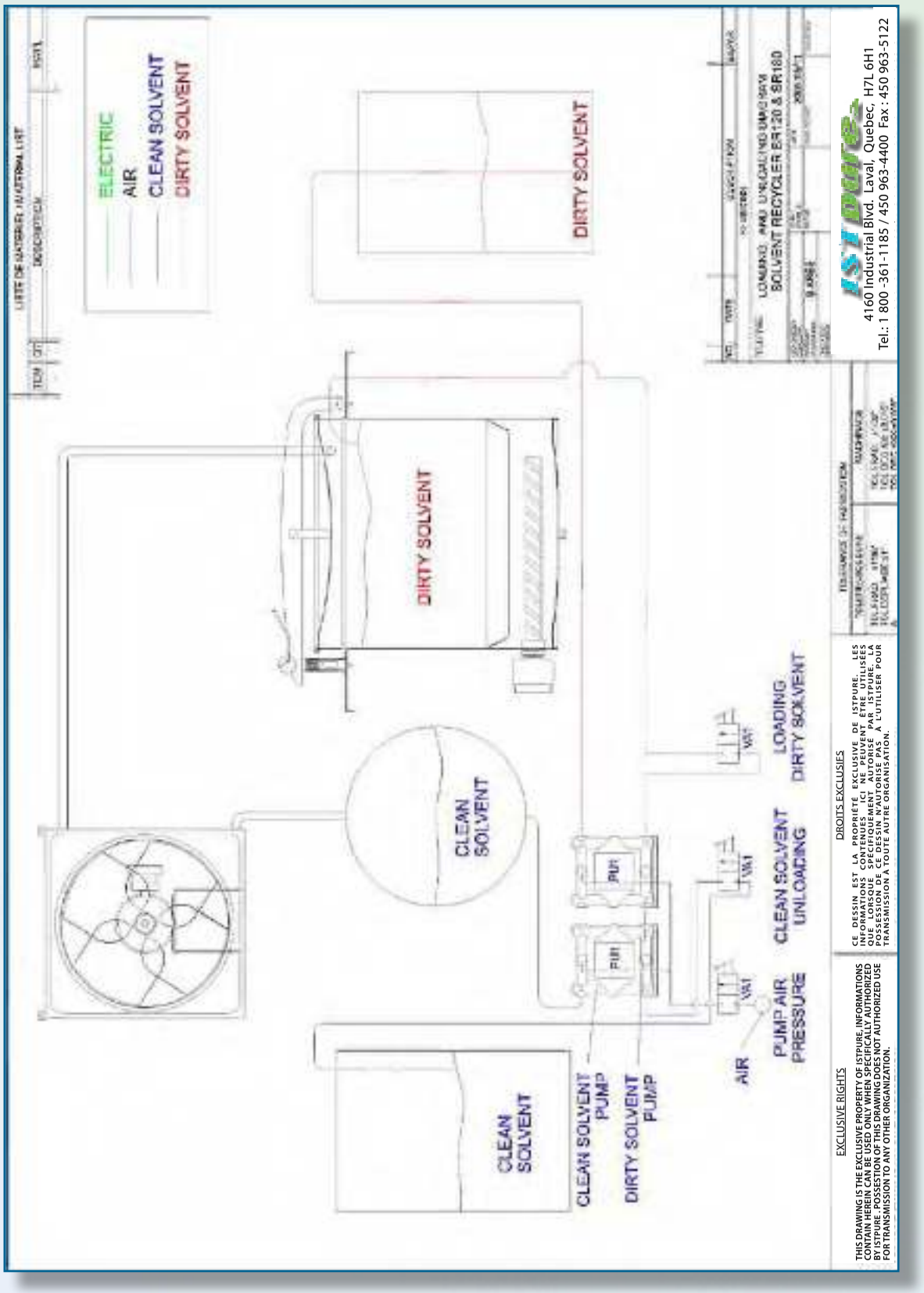
ELECTRICAL DRAWING SR120- 180, 380 V - 50 HZ



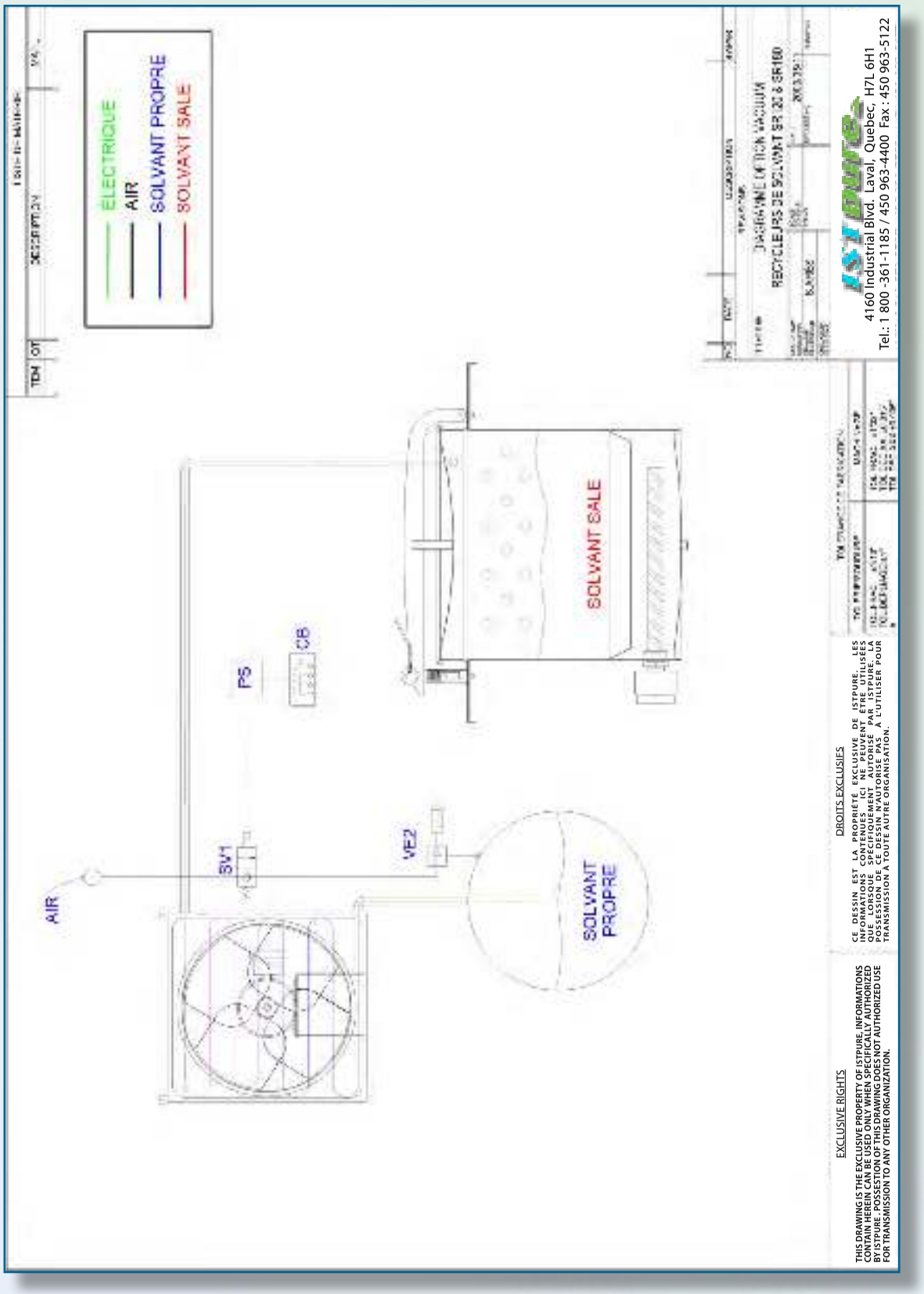
LIGHT OPTION KIT



LOADING AND UNLOADING DIAGRAM SR180



VACUUM OPTION DIAGRAM SR180



SLUDGE OPTION TEMPERATURE DIAGRAM SR180

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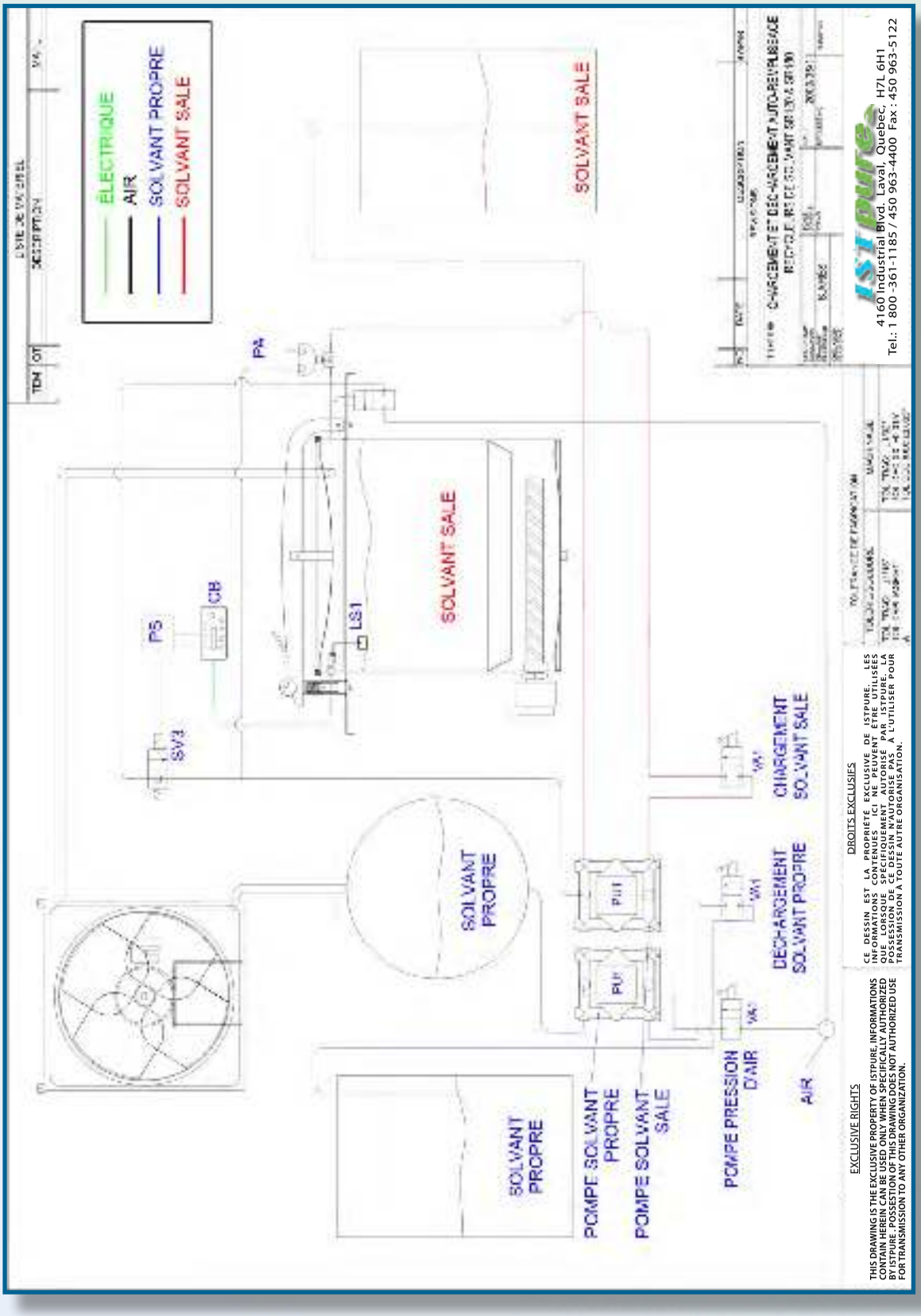
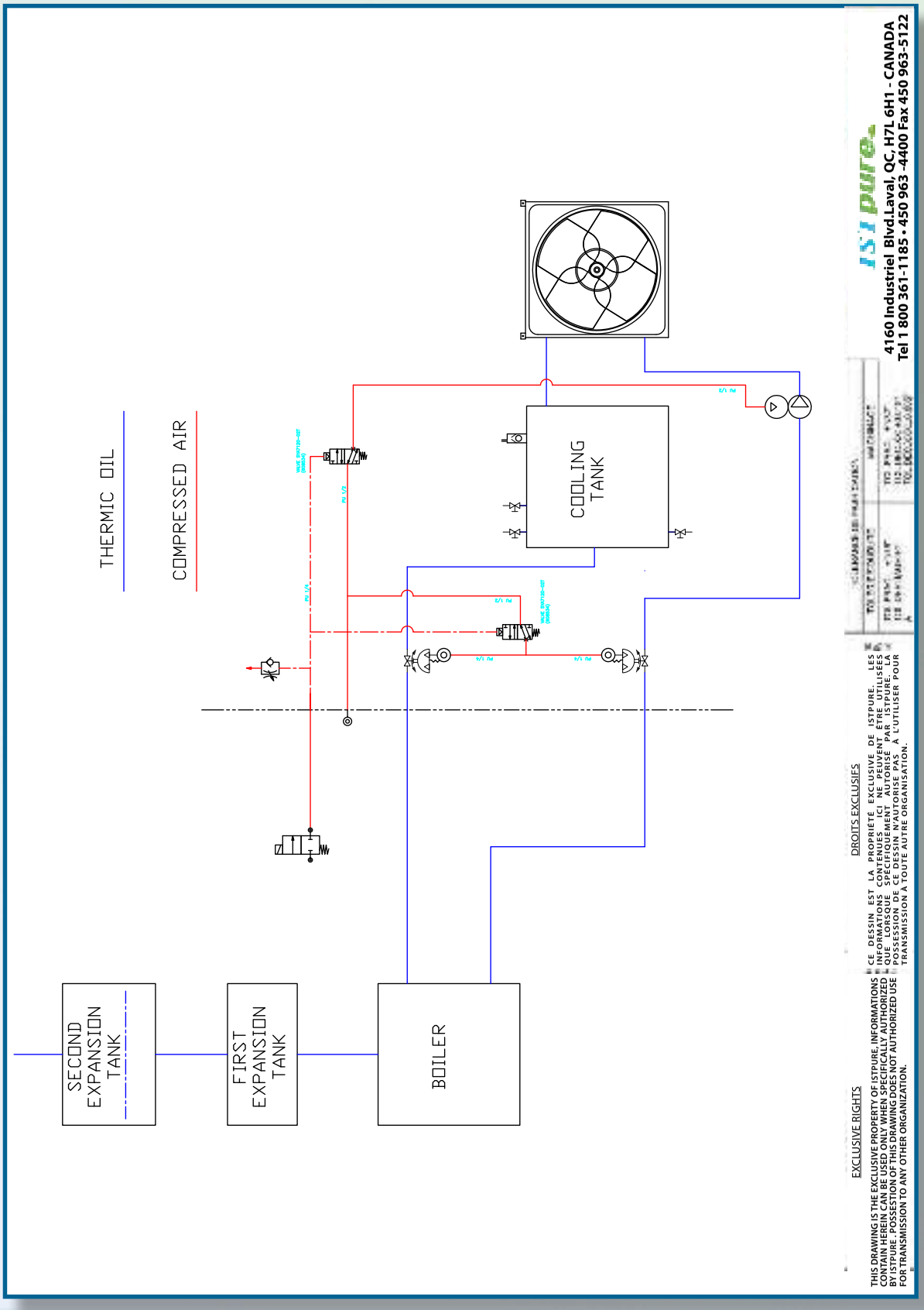
LOADIND AND UNLOADING & AUTOFILLUP DIAGRAM SR180



OPTION OIL COOLING - PNEUMATIC DIAGRAM

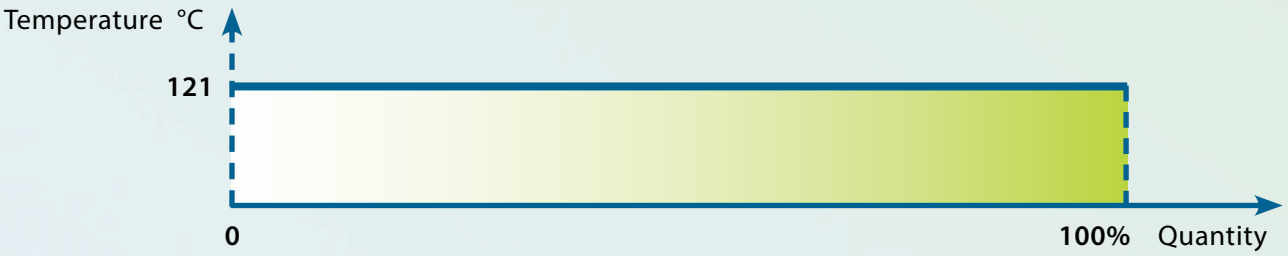


VACUUM DISTILLATION SECTION

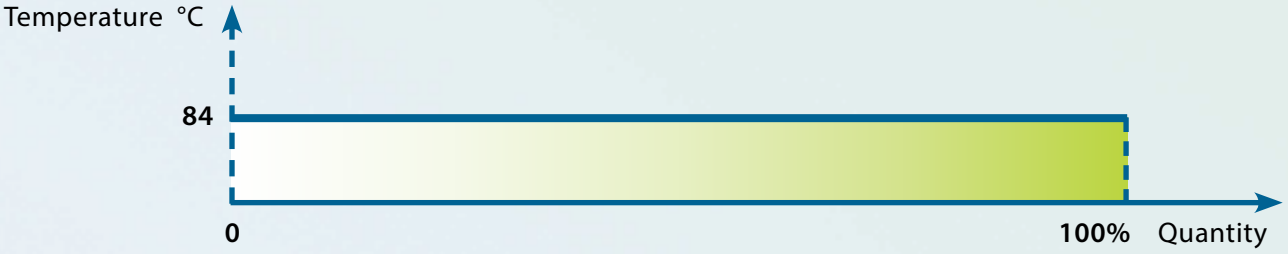
Examples

Product to be distilled :	Perchloroethylene
Distillation temperature at atmospheric pressure :	121°C
Distillation temperature at vacuum condition (223 hPa) :	84°C
Critical temperature of decomposition :	150°C

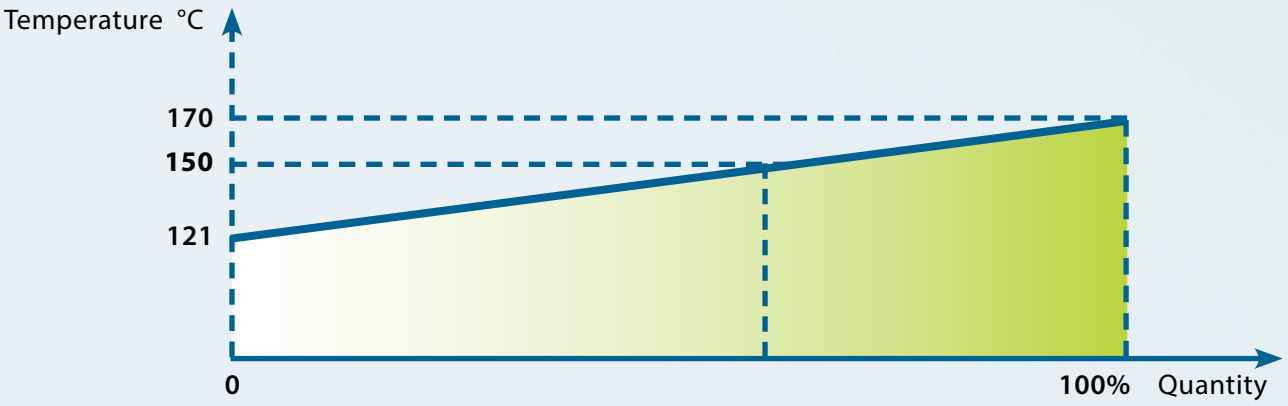
A. Boiling range of clean perchloroethylene at atmospheric pressure: 1,000 hPa.



B. Boiling range of clean perchloroethylene at vacuum condition: 223 hPa

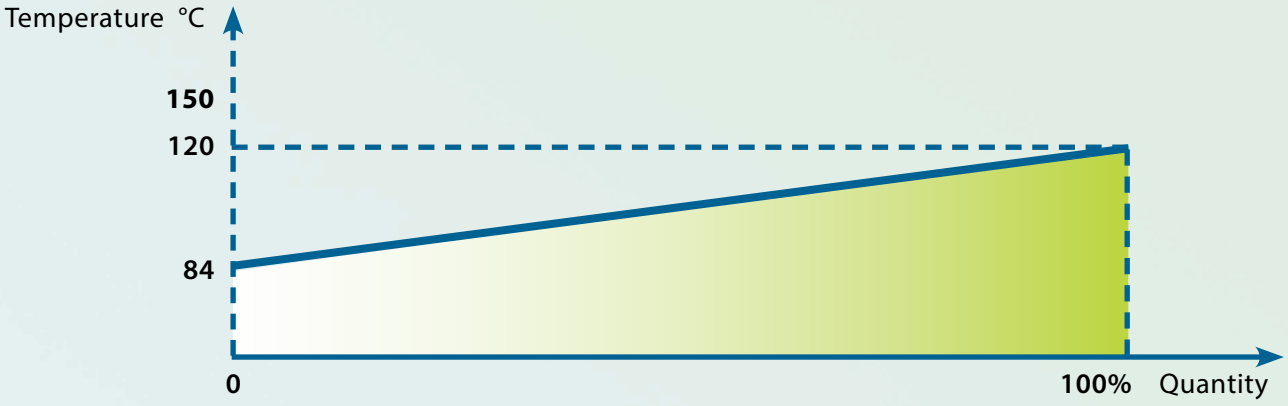


C. Boiling range at atmospheric pressure (1,000 hPa) of a mixture of 90% perchloroethylene + 10% of oil.



VACUUM DISTILLATION SECTION (OPTION) END

D. Distillation temperature at vacuum condition (223 hPa) of a mixture of 90% perchloroethylene + 10% of oil.



GRAPHIC (A) – (B)

The distillation temperature of a clean solvent remains the same until the process of the whole cycle is complete.

GRAPHIC (C) – (D)

The distillation temperature of the contaminated solvents increases during the process; this variation depends on the degree of contamination and on the type of contaminating substances.

GRAPHIC (C)

Once a temperature of 150°C (302°F) is reached, which is the critical non-supportable temperature, only 80% of perchloroethylene will be recovered.

GRAPHIC (D)

Operating with vacuum condition, 100% of perchloroethylene will be recovered when set at 120°C (248°F) and very far from the critical temperature of 150°C (302°F).

When distilling chlorinated solvents, the vacuum distillation is indispensable; this type of process is also necessary for minimal quantities of contaminants because of two specific reasons:

1. Yields 100%.
2. If the residual oil is contaminated with more than 2% of solvent, those oil waste-recycling companies authorized for the waste collections will not accept it.

VACUUM DISTILLATION — OPERATING PRINCIPAL DRAWING

Before reading this section, it is compulsory to read the previous section regarding the distillation at atmospheric pressure.

Unlike what occurs during atmospheric distillation, the distillation unit and the distillate collection tank are a single body.

A pneumatic vacuum generator joined at the solvent recovery tank provides the creation of the vacuum circuit.

Boiler Condenser Tank

The vacuum generator is fed with compressed air with a pressure of 70-100 P.s.i. with a maximum negative pressure of -27 P.s.i., -590 mm Hg.

NOTE : WITH VACUUM DISTILLATION IT IS POSSIBLE TO DISTILL SOLVENTS WITH DISTILLATION TEMPERATURE HIGHER THAN 60°C (140°F) AT ATMOSPHERIC PRESSURE.

For example, distilling at vacuum condition the Acetone, which has a distillation temperature of 56°C (133°F) at atmospheric pressure, will reach a boiling point of 39°C (101°F). Considering that the condenser is by air, if the temperature result is higher than 20°C (70°F) you will obtain a partial condensation of the solvent with an emission of Acetone vapor in the air.

OPERATING METHODS

DISTILLATION : AT ATMOSPHERIC PRESSURE
DRYING :

When processing solvents with distillation temperature lower than 60°C (140°F), polluted with liquid products.

DISTILLATION : AT ATMOSPHERIC PRESSURE
DRYING : AT VACUUM CONDITIONS

When processing solvents with distillation temperature lower than 60°C (140°F), polluted with solid products.

DISTILLATION : AT VACUUM CONDITIONS
DRYING :

In this case the process of the solvent reducers distillation temperatures between 60°-200°C (140°-392°F), and polluted with liquid products.

DEFECTS, CAUSES AND REMEDIES (CONT'D)

Distillation at Atmospheric Pressure

Defects	Causes	Remedies
No vacuum protection	Lack of compressed air.	Adjust the air pressure.
	Lack of compressed air circuit.	Check the connection.
	Distilling a chlorinated solvent.	Turn off the distillate-unloading tap.
	The rubber tube of connection to distillate container is not perfectly connected.	Check the connection towards the condenser and connection on rapid clutch.
	Rubber tube deteriorated.	Change the rubber tube.
	Lack of distillate level control.	Check the connections.
	The cover does not have a perfect seal.	Place the cover correctly on the shoulder of the boiler.
	Cover gasket deteriorated.	Replace the gasket.
	Solenoid defected.	Replace the solenoid.
	Vacuum pump damaged.	Change the vacuum pump.
During the distillation distillate comes out dirty.	Solvent foams.	Use anti-foaming discs, see page 17.
		Load less quantity of solvent.
		Reduce working temperature.
		Reduce the compressed air feeding.
		Wait at least 48 hours after utilizing the solvent before starting the next distillation.
During drying distillate pigments.	Draws polluted products.	Separate the distillation phase than the drying ones. At the end of the distillation discharge the distillate tank and proceed to dry. At the end of drying wash the tank.

ISTpure Innovation and Leading Technology

ISTPURE WARRANTY REGISTRATION

ISTpure would like to thank you for your recent purchase of our product line. Please complete the card below and either mail or fax it to our office so that we may start the warranty of your product and keep you up to date on the EPA regulations by fax. Again, thank you for your purchase and if you have any suggestions or comments, please feel free to contact our office.

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FAX NUMBER: |__|__|__| |__|__|__| - |__|__|__|__|

PURCHASE FROM:|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|

DATE OF PURCHASE: |__|__| |__|__| |__|__|__|__|

Month Day Year

SERIAL NUMBER: |__|__| - |__|__|__| - |__|__|__|__| **MODEL NUMBER:** |__|__|__|__|__|__|

TYPE OF SOLVENT USED: |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|_

Which factors most influenced your decision to purchase this ISTpure unit?

|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|

SUGGESTIONS ABOUT THE EQUIPMENT: ____

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IMPORTANT! Please complete and return within 30 days after purchase to activate the warranty.

PLEASE SEND THE COMPLETED FORM TO :

IST - International Surface Technologies

International Surface Technologies

4160 Industriel Blvd.
Laval, Quebec
H7L 6H1 Canada

Toll free 1 800 361-1185
T 450 963-4400
F 450 963-5122
Info@istpure.com
www.istpure.com

WARRANTY INFORMATION / TECHNICAL ASSISTANCE

International Surface Technologies
istsurface.com

For more information, prices or technical assistance, contact your local IST distributor or call / fax our Consumer Information Numbers :

1 800 361-1185 **450 963-4400** **Fax : 450 963-5122**

Or visit us at :

www.istpure.com

ISTpure

Innovation and Leading Technology

Our mission

Who we are

IST is a leading industrial manufacturer of standard and custom engineered equipment for the surface treatment industry and the solvent recycling industry.

Mission

IST is dedicated to being an innovative and trusted supplier in the conception, fabrication and distribution of surface treatment equipment and recycling equipment.

The success of our mission relies on the following core values :

Innovation
integrity
Quality

Markets served

The products, technologies and industry expertise of IST are used in a wide range of manufacturing and industrial applications, including but not limited to :

- ***General Manufacturing***
- ***Industrial Equipment***
- ***Metal forming***
- ***Aerospace and Aviation***
- ***Rail and Transit***
- ***Marine***
- ***Automotive***
- ***Petroleum***
- ***Flexography (labelling) & Lithography***
- ***Wood finishing***
- ***Power & Energy***
- ***Pharmaceutical***

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