



**RefTec**  
INTERNATIONAL SYSTEMS LLC

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# MINIPURGE

Low & High Pressure  
Portable Commercial  
Noncondensable Purge Unit

HIGH PERFORMANCE  
PURGE FOR USE ON REFRIGERANTS  
R11, R123, R12, R134, R22, 500, 502, 507



OPERATION MANUAL  
(VERSION 2) Single Cylinder Compressor  
103-127V-1Ph, 50/60Hz 0.5Hp Model

RefTec International  
LARGO, FL

Technical Support  
800-214-4883

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## SPECIFICATIONS

### Electrical Power Requirements:

#### Purge unit Main Components & Controls

- 103-127 VAC, 60 Hz, 1-Phase, 15-Amperes  
MIN CKT AMP 10.0, MAX FUSE 15 AMPS
- 200-240 VAC, 50/60 Hz, 1- Phase, 5-amperes  
MIN CKT AMP 5.0, MAX FUSE 15 AMPS

#### Dimensions (approximate)

- 18" length x 10" wide x 14" high

#### Weight

- 65-lbs. (75-lbs. shipping)

## OPTIONAL ACCESSORIES

- 30-lb. & 50-lb. Recovery Tanks
- 5' x 1/4" Red SealRight Tank Hoses
- 5' x 3/8" Red SealRight Tank Hoses

REV. DATE 10/28/20  
MINIPURGE 10/28/20

### Notice

RefTec International, Inc. urges that all HVAC service personnel working on RefTec equipment or any manufacturer's products, make every effort to eliminate, if possible, or vigorously reduce the emission of CFC, HCFC, and HFC refrigerants to the atmosphere resulting from installation, operation, routine maintenance, or major service of this equipment. Always act in a responsible manner to conserve refrigerants for continued use even when acceptable alternatives are available. Conservation and emission reduction can be accomplished by following recommended service and safety procedures.

### WARNING!

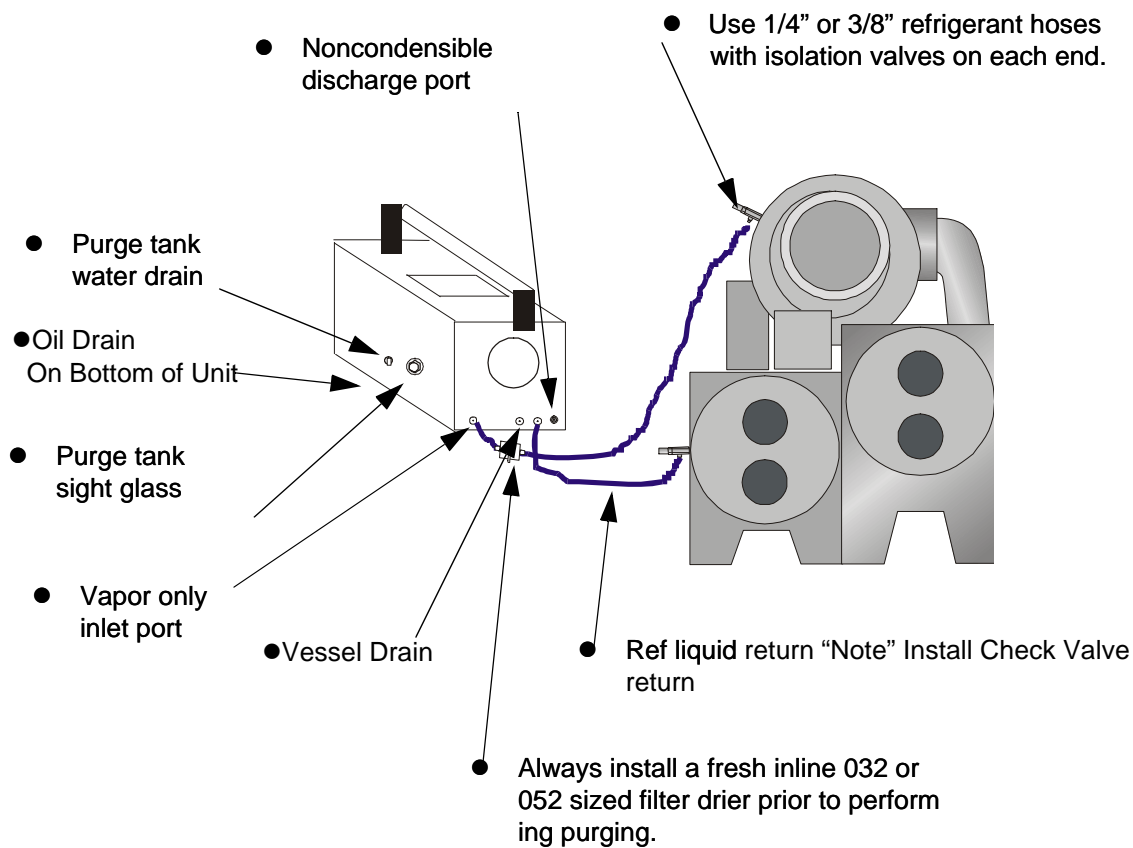
To avoid injury or death due to inhalation of, or skin exposure to refrigerant, closely follow all safety procedures described in the Material Safety Data Sheet for the refrigerant and to all labels on refrigerant containers. Certain procedures common to refrigeration system service may expose personnel to liquid or vaporous refrigerant.

# Recommended Equipment & Practices for Peak Performance

MiniPurge performs:

- ☑ Noncondensable purging of most high & low pressure refrigerants.
- ☑ Direct hook up to stationary tanks.
- ☑ Direct hook up to operating or idle systems.
- ☑ Calculates discharge rates.
- ☑ Changes between refrigerants easily.

- Always connect a three prong power cord to a 1-Phase power source and that power cord and power source are properly sized for load.



# System Overview

The MiniPurge purge unit is designed to be used as a portable accessory for new or existing low pressure or high pressure A/C systems, centrifugal chillers, high pressure chillers and storage tanks. Whether noncondensibles (air, water vapor, etc.) are drawn into the chiller through small leaks in the subatmospheric pressure areas of the chiller, or introduced in service procedures on most high pressure refrigerants, they must be removed for maximum efficiency of the system in which they are used. Operation of the MiniPurge unit efficiently removes and separates noncondensibles from the condensable refrigerant and releases dry noncondensibles back into the atmosphere. In addition, a (furnished) supplementary inlet filter drier removes moisture, acid and other debris before they enter the purge unit separation vessel.

## Noncondensable Collection

Contaminated refrigerant vapor passes through a filter drier via a 3/8" refrigerant hose, through the inlet of the purge, to an internal pressure regulator, then into an hermetic compressor where it is then compressed, sent through an oil separator, into an air cooled condenser where it is condensed and sent to a purge chamber separation vessel. The liquid refrigerant begins to collect in the bottom of the purge vessel. As the liquid level starts to form at the bottom of the purge vessel, an electric prism liquid switch monitors the level of the refrigerant being condensed in the purge vessel. When the level of condensed liquid reaches the liquid switch, a signal from the switch is sent to the processor, causing a normally-closed liquid return solenoid valve, SV-1, to open, allowing the higher pressurized liquid to be returned via a 3/8" or 1/4" refrigerant hose to the evaporator of the chiller or into a storage tank. Having this liquid seal developed in the bottom of the vessel guarantees separation will occur and prevents noncondensibles from returning to the chiller.

As the condensable refrigerant vapor liquefies and leaves the purge vessel, any noncondensable gasses (air, etc.) that have entered the vessel are left behind and thus trapped in the vessel.

The microprocessor will monitor the proportions and amounts of noncondensibles versus pure refrigerant using the Laws of Partial Pressures and Perfect Gas Laws to calculate the amount of noncondensibles and the minuscule amount of refrigerant being discharged. When the purge vessel is essentially full of noncondensibles, a normally-closed solenoid valve, SV-2, is energized and a noncondensable purge pumped occurs.

## Purge Discharge

During the purge discharge cycle, solenoid valve SV-2 is opened and the noncondensibles are released out of the vessel at a controlled and cyclical rate of flow. Flow control is necessary to prevent any remaining liquid refrigerant from "flashing" back into a gaseous vapor. Once out of the vessel, the noncondensibles are released through a vent to the outside atmosphere.

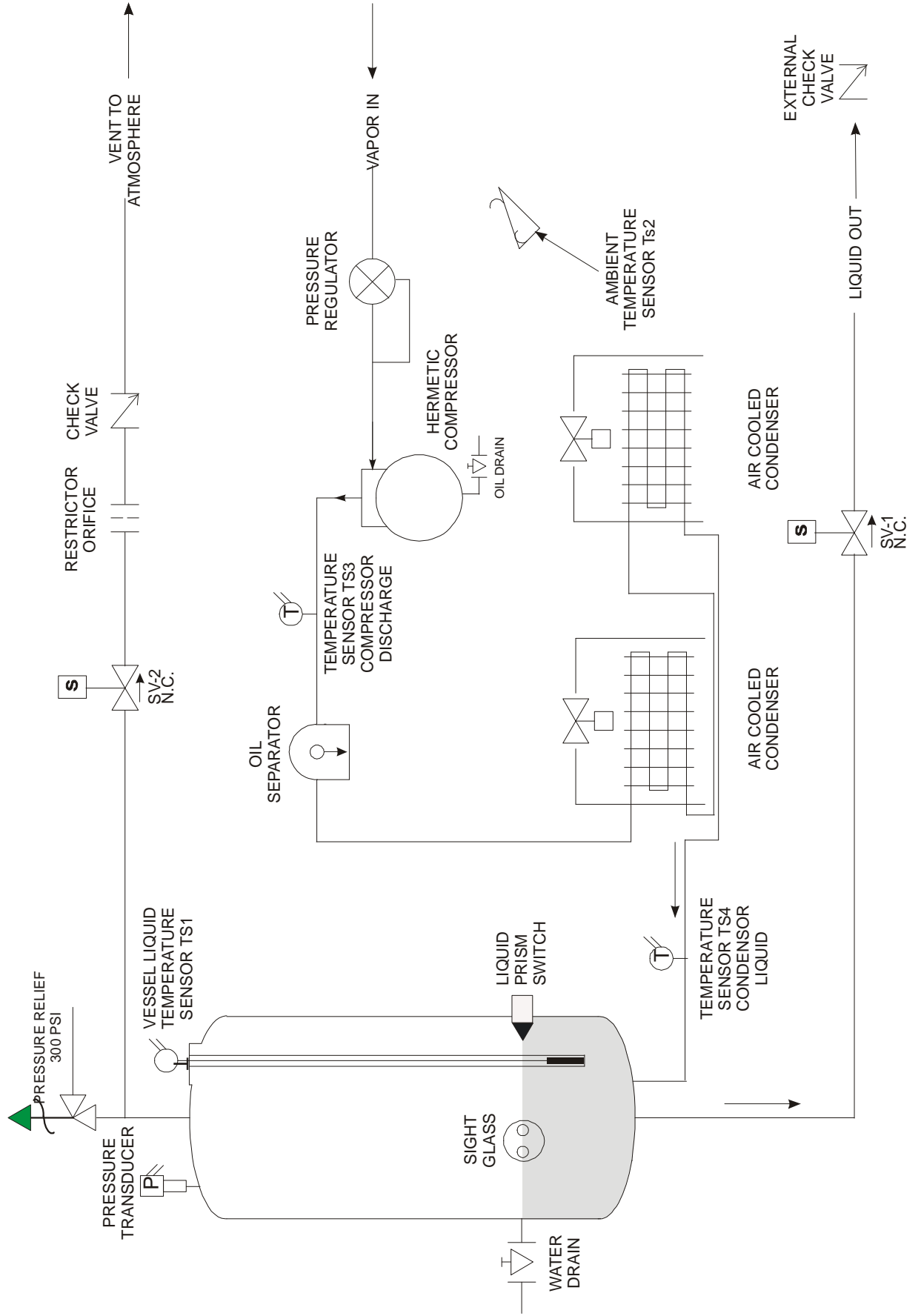
When a predetermined pressure in the vessel has been reached, based on Perfect Gas Laws for the specific refrigerant being separated from noncondensibles, purge discharge will stop and solenoid valve SV-2 will be de energized.

## Compressor Maintenance

Change compressor oil to match the refrigerant oil, so that a cross contamination does not occur. Change oil after every 10 hours of use.

To change oil pressurize unit with nitrogen to 5psi on the inlet port and drain oil through oil drain port. To add oil pull vacuum on inlet port and then add 14oz new oil.

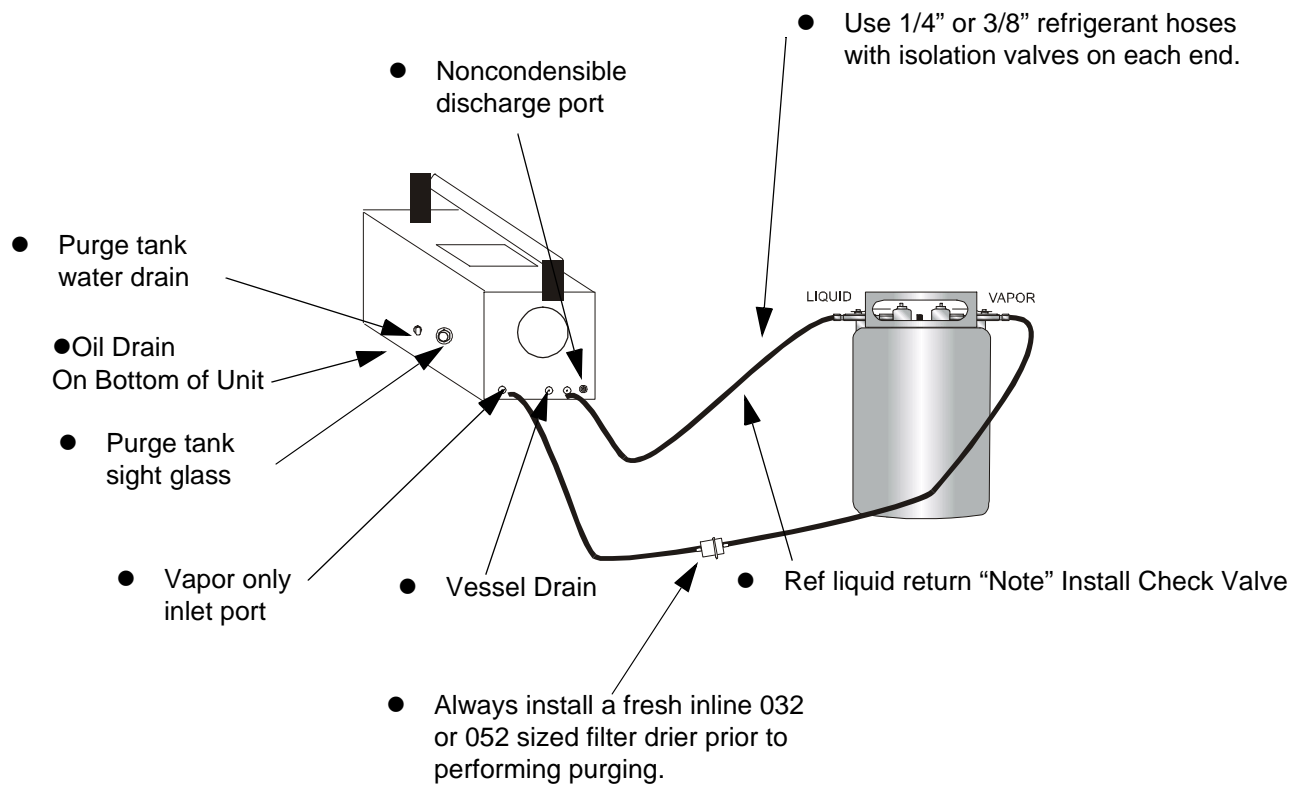
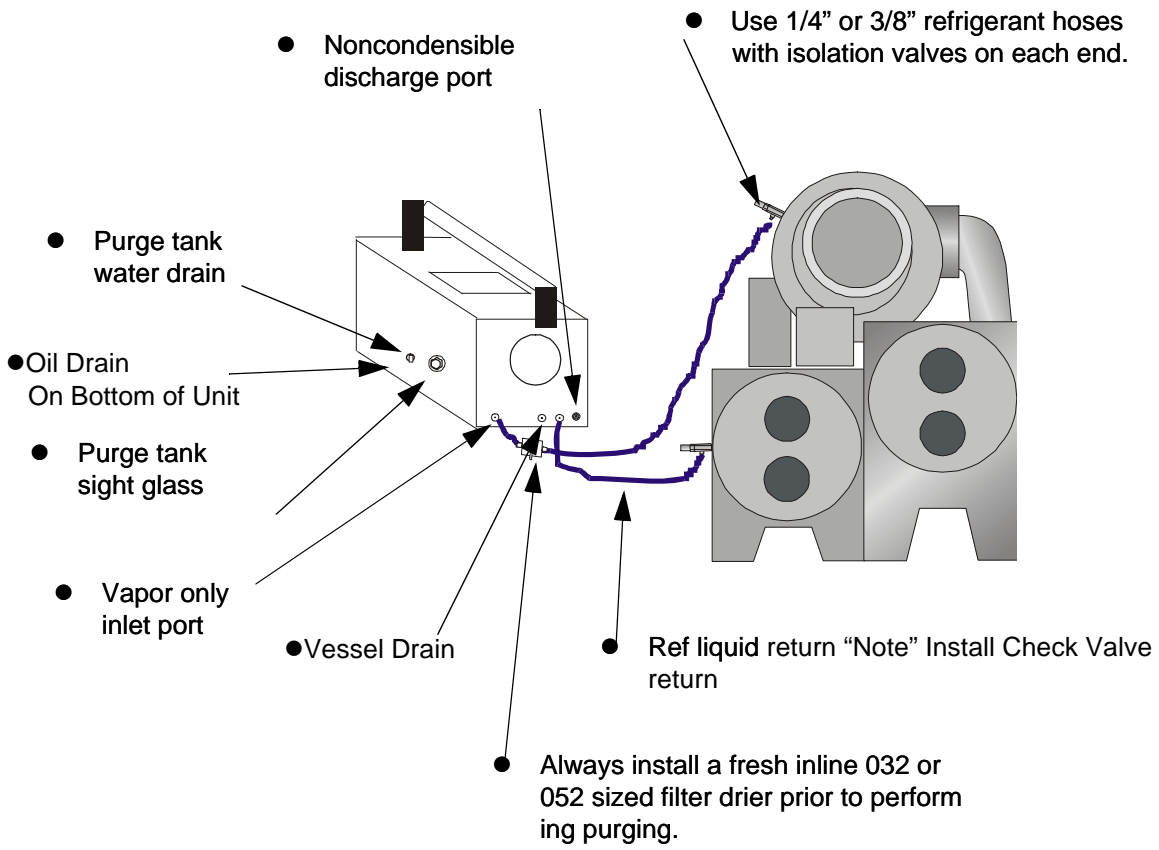
# MINPURGE P&ID



# Operating Procedures

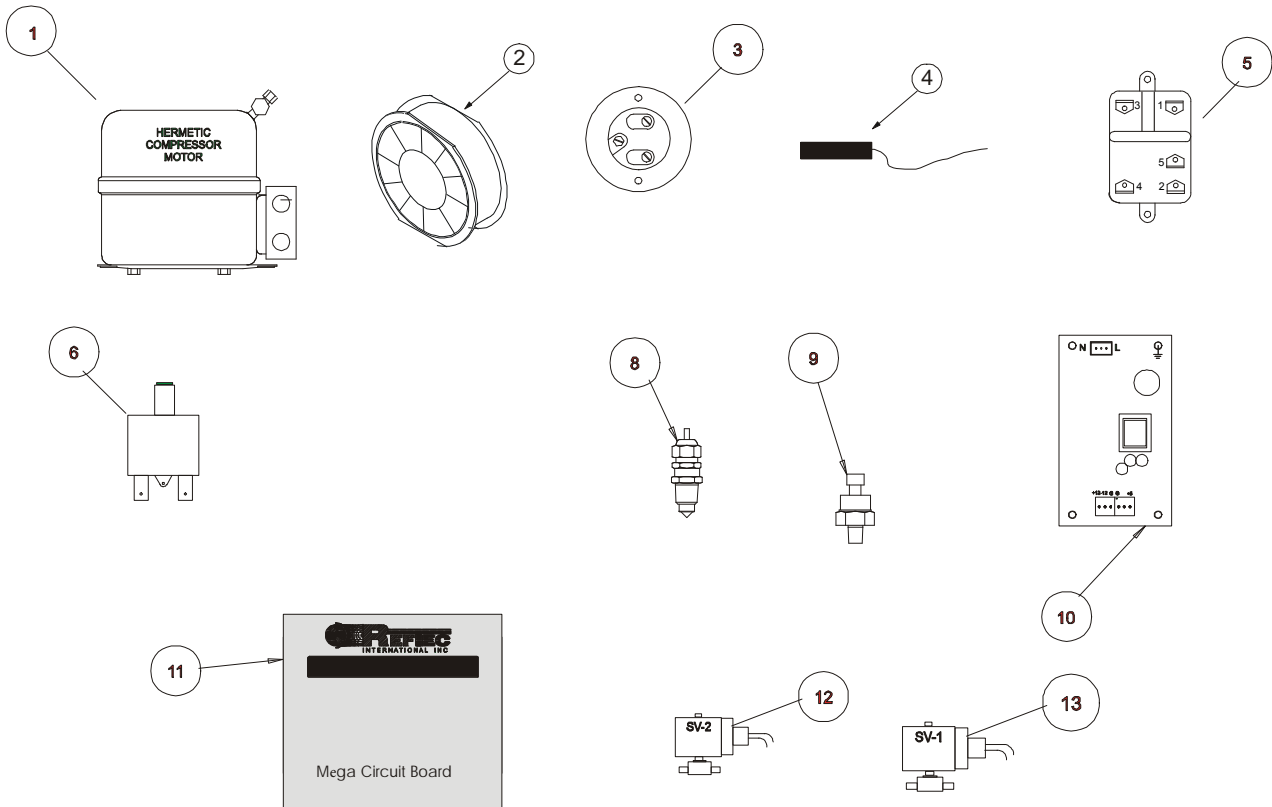
- A) Turn refrigeration or A/C system OFF & make sure it cannot restart. Then plug in MiniPurge unit.
- B) Connect refrigerant hoses as shown on next page:
- 1) To tank or system condenser or vapor port
  - 2) To tank or system evaporator or liquid port
  - 3) Install in-line drier to vapor side hose and then connect to the "VAPOR ONLY" inlet port of the MiniPurge
  - 4) Connect check valve & liquid hose to the "LIQUID" outlet port on MiniPurge
- C) Start-up Procedures:
- 1) MiniPurge display should read  
**REFTEC INTERNATIONAL HIGH PERFORMANCE PORTABLE MINI PURGE**
  - 2) Press the ON key.
  - 3) Next display should read  
**SELECT: 1 = RUN 2 = RUN PARAMETERS  
3 = SELECT REFRIGERANT**
  - 4) Select "3" - the display should read  
**SELECT REFRIGERANT WITH hi KEYS  
Rxxx THEN PRESS ENTER KEY**  
press "ENTER" after selection.
  - 5) Next display should read  
**SELECTED REFRIGERANT Rxxx  
IS THIS CORRECT? ENTER = YES,  
CANC = NO**  
press "ENTER" if correct or "CANCEL" to re-select refrigerant.
  - 6) Next display should read  
**CLEAR CURRENT DISCHARGE? 00.000 lbs  
1 = YES 2= NO**  
press "1" to clear accumulated discharge or press "2" or "Enter" to continue without clearing.
  - 7) Next display should read  
**CLEAR PURGE COUNT AND PURGE TIME?  
1 = YES 2= NO**  
press "1" to clear accumulated count and time or press "2" or "Enter" to continue without clearing display returns to main select menu.
- D) Procedures for **SERVICE MODE - SETUP PURGE TIME, RUN TIME, ETC.**
- 8) Next display should read  
**SELECT: 1 = RUN 2 = RUN PARAMETERS  
3 = SELECT REFRIGERANT**
  - 9) Select "2" the display should read  
**ENTER NEW VALUE PURGE TIME  
(MINUTES) =**  
press "ENTER" after selection  
  
(Note: this value is maximum continuous purge pumpout value and is in minutes). Factory default time is set to 4 minutes; can be adjusted to a maximum of 24 minutes.
  - 10) Next display should read  
**ENTER NEW VALUE  
RUN TIME (HOURS) =**  
press "ENTER" after selection. (Note: this value is maximum continuous purge unit run time and is set in hours). Factory default time is set to 4 hours; can be adjusted to a maximum of 24 hours.
  - 11) Next display should read  
**REVIEW ENTRIES?  
1 = YES 2 = NO**  
press "ENTER" or "2" if complete. The screen returns to main select menu.
  - 12) Next display should read  
**SELECT: 1 = RUN 2 = RUN PARAMETERS  
3 = SELECT REFRIGERANT**
  - 13) Select "2" and the MiniPurge starts running and displaying several scrolled values as follows:  
**PURGE COUNT  
PURGE TIME (MINUTES)  
PURGE DISCHARGE RATE (IN POUNDS)  
CONDENSOR OUTLET TEMPERATURE  
AMBIENT TEMPERATURE  
COMPRESSOR DISCHARGE TEMP  
VESSEL LIQUID TEMPERATURE  
PURGE TANK PRESSURE  
RUN TIME REMAINING**
  - 14) Once unit begins to run, open both the vapor and liquid ports on tank or system. MiniPurge will run continuously and remove Noncondensibles indefinitely until either the maximum run time has elapsed or until user shuts unit off. When unit shuts down, unit displays "compressor pumpdown in process" while scrolling monitored values. During the pump-down process, close inlet valve to purge unit. Once purge unit has completely stopped running, close liquid port and disconnect hoses.

# HOSE CONNECTIONS



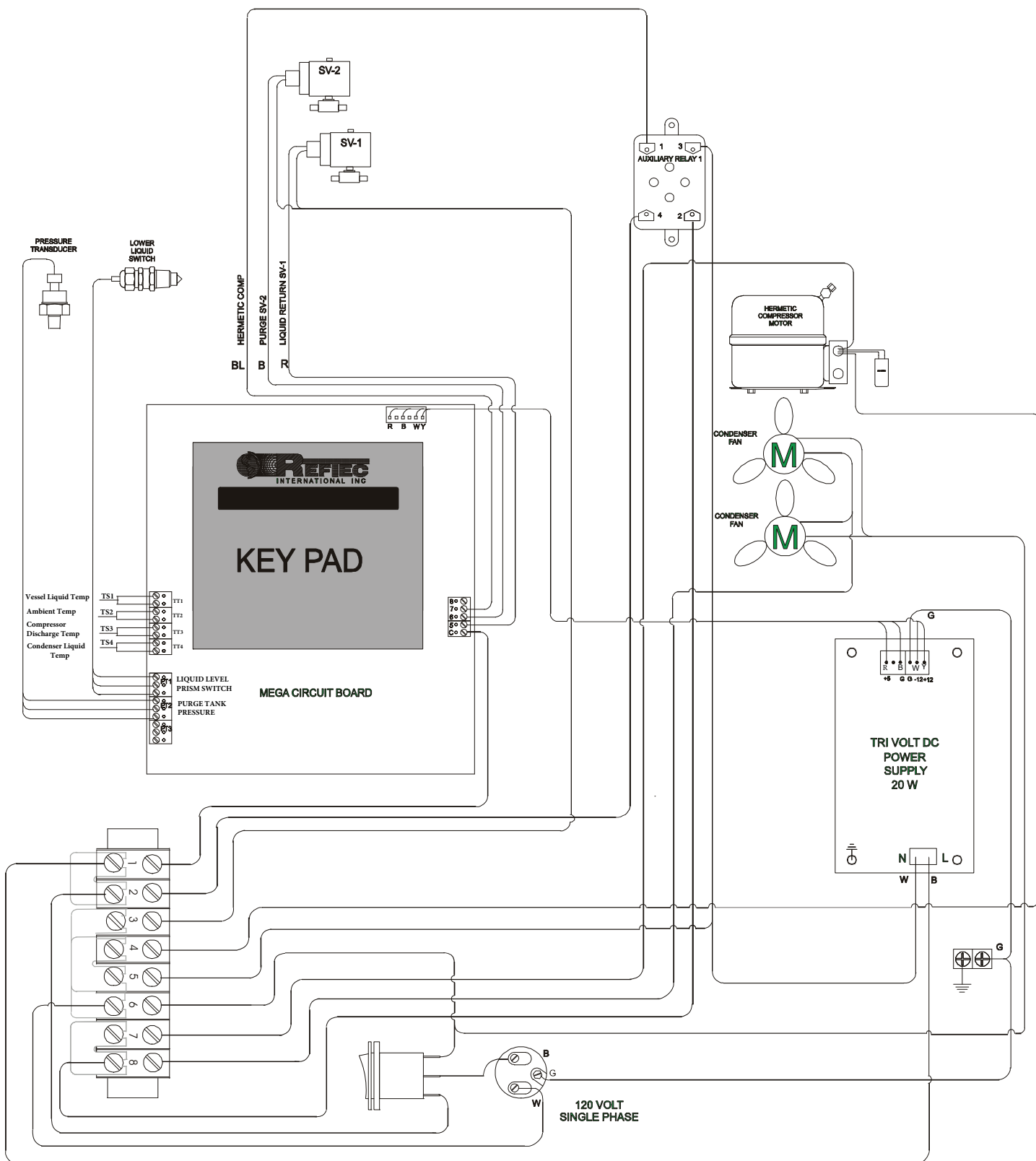
# ELECTRICAL PARTS BREAKDOWN

	Part Description	MPS-115 Part #	Part Description	MPS-240 Part #
1	Compressor Motor - .5 HP, 115 VAC, 60 Hz, 1Ph 1725 RPM 9.5/8.5 FLA.	RCP927	Compressor Motor - .5 HP, 200-240 VAC, 50/60 Hz, 1Ph 2975/3450 RPM 3.1-2.6 FLA.	RCP928
2	Condenser Fan Motor 36W, 115V, 60 Hz.	EMO136	Condenser Fan Motor 35W, 230V, 50/60 Hz	EMO035
3	Male Inlet - 15A, 125V, 2 P, 3W GRD.	EMI115	Male Inlet - 15A, 250V, 2 P, 3W GRD.	EMI461
4	Temp Sensor	XTS320	Temp Sensor	XTS320
5	Relay 120 Vac Coil	ERY004	Relay 240 Vac Coil	ERY005
6	Circuit Breakers- 15 Amp, 250 VAC, 28 VDC.	EBR115	Circuit Breakers- 15 Amp, 250 VAC, 28 VDC.	EBR115
8	Liquid Switch - 30 in.lb. Torque	RSL006	Liquid Switch - 30 in.lb. Torque	RSL006
9	Pressure Transducer	XPT002	Pressure Transducer	XPT002
10	Power Supply - 20W, 115V, 1A / 230V, 0.6A	XPS200	Power Supply - 20W, 115V, 1A / 230V, 0.6A	XPS200
11	CPU Mother Board Assembly	XPC800B	Mega Board Assembly	XPC800B
12	Solenoid Valve 120V 50/60 Hz 1/4"	RSV112	Solenoid Valve 120V 50/60 Hz 1/4"	RSV112
13	Solenoid Valve 120V 50/60 Hz 3/8"	RSV119	Solenoid Valve 120V 50/60 Hz 3/8"	RSV119
14			240 volt coil for RSV112	RSV115
15			240 volt coil for RSV119	RSV116



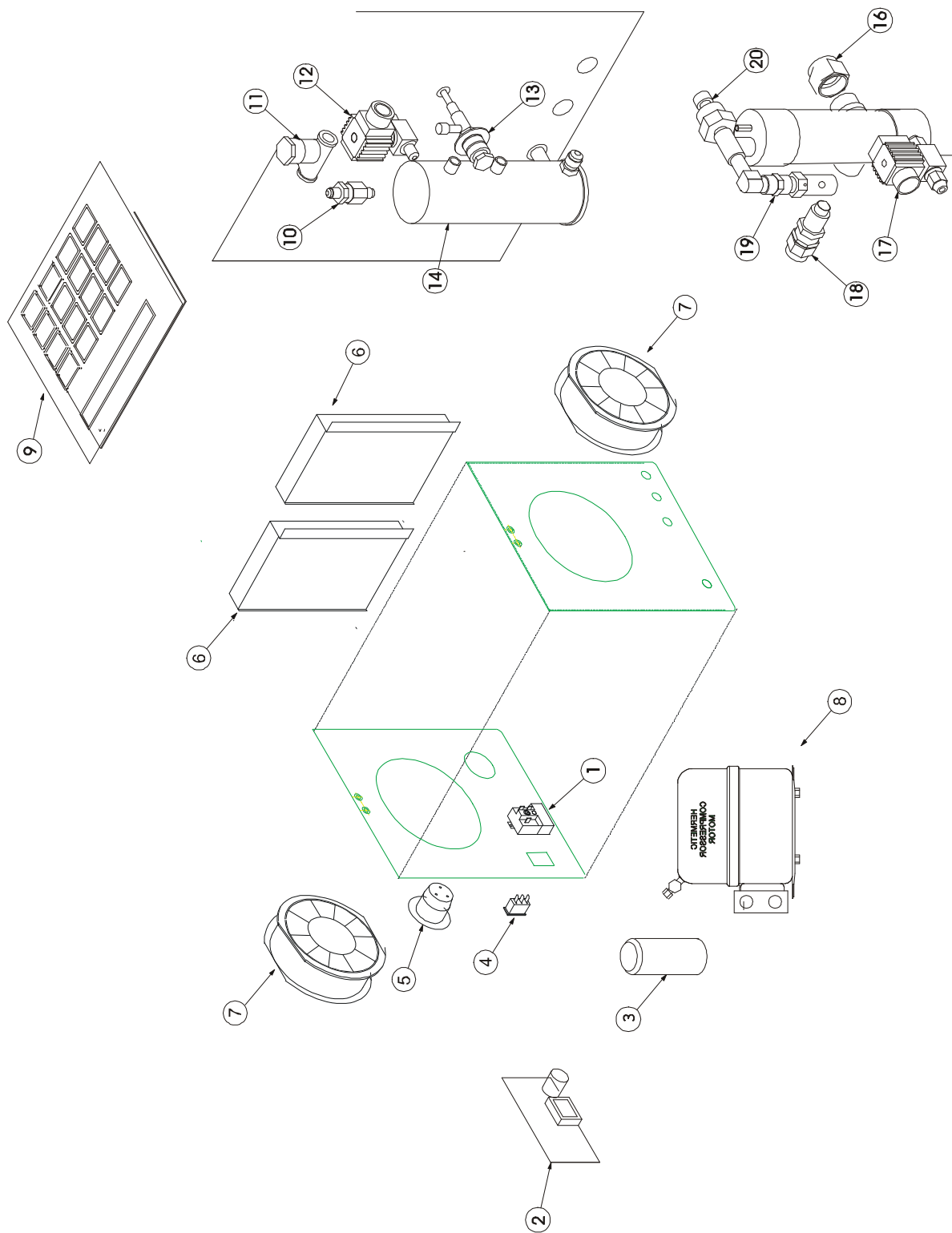


# MINIPURGE BLOCK WIRING DIAGRAM



## SPARE PARTS LIST

<u>No.</u>	<u>Part No.</u> <b>MPS-115</b>	<u>Part No.</u> <b>MPS-240</b>	<u>Item Description</u>
1	ERY004	ERY005	RELAY
2	XPS200	XPS200	POWER SUPPLY
3			
4	EBR115	EBR115	15 AMP BREAKER
5	EMI115	EMI461	POWER MALE INLET
6	RCC019	RCC019	9.00 x 6.00 CONDENSOR COIL
7	EMO136	EMO035	CONDENSOR FAN MOTOR 36W 115VAC
8	RCP927	RCP928	1/2 HP COMPRESSOR
9	XPC800B	XPC800B	MEGA BOARD
10	RVC102	RVC102	PURGE DISCHARGE CHECK VALVE
11	RVC001	RVC001	OUTLET CHECK VALVE
12	RSV112	RSV112	PUMPOUT SOLENOID VALVE
13	RVX203	RVX203	EXPANSION VALVE
14	SAMPVES	SAMPVES	BARE VESSEL
15	XTS320	XTS320	TEMPERATURE SENSOR
16	RSG016	RSG016	SIGHT GLASS
17	RSV119	RSV119	LIQUID RETURN SOLENOID VALVE
18	RSL006	RSL006	LIQUID LEVEL SENSOR
19	RVR300	RVR300	PRESSURE RELIEF VALVE
20	XPT002	XPT002	PRESSURE TRANSDUCER
21		RSV115	240V Coil for RSV112
22		RSV116	240V Coil for RSV119
23	RRE021	RRE021	FLOW RESTRICTOR



## Manufacturers Limited Warranty

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RefTec warrants that the equipment will, under normal and anticipated use, be free from defects in refrigerant related parts for a period of one (1) year from and after the date of shipment, and be free from defects in electrical related parts for a period of ninety (90) days from and after the date of shipment, but in all cases excluding consumables and other matters as hereinafter provided. Labor is NOT covered and shall be the sole cost and responsibility of the Purchaser. The obligation of RefTec under this limited warranty is limited to the supplying of parts (excluding consumables) as hereinabove specifically provided. Parts shall be new or nearly new.

RefTec shall be liable to replace the applicable parts only if (i) RefTec is properly notified by Purchaser upon discovery of the alleged defects, (ii) defective parts are returned to RefTec upon authorization with all transportation charges prepaid by Purchaser, (iii) RefTec's examination of the parts discloses to its satisfaction that the defects were not caused by the Purchaser or its agents and (iv) the parts are otherwise covered by RefTec's limited warranty.

Purchaser shall be responsible to select the means of transportation and bear the cost of inbound and outbound freight expense associated with any replacement parts, and all risk of loss attendant thereto.

Notwithstanding anything contained in this warranty to the contrary, (i) this limited warranty shall become null and void upon the use of any improper chemicals or in the event any modifications or improper service or installation is performed on the equipment, (ii) this limited warranty does not apply to consumable materials such as, but not limited to, indicator lamps, fuses, all fluids, filters, coatings, etc., and (iii) this limited warranty is applicable only to Purchaser, and no subsequent purchasers of the equipment from Purchaser shall be entitled to any warranty whatsoever from RefTec, express or implied.

THIS WARRANTY CONSTITUTES THE SOLE AND EXCLUSIVE WARRANTY OF REFTEC WITH RESPECT TO THE EQUIPMENT, THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND REFTEC SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING (WITHOUT LIMITATION), ANY AND ALL WARRANTIES AS TO THE SUITABILITY OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF THE EQUIPMENT FURNISHED HEREUNDER.

THE EXCLUSIVE REMEDY OF PURCHASER AGAINST REFTEC FOR ANY BREACH OF THE FOREGOING LIMITED WARRANTY SHALL BE TO SEEK REPLACEMENT OF THE AFFECTED PARTS. IN NO

EVENT WILL REFTEC'S LIABILITY IN CONNECTION WITH THE EQUIPMENT WHICH IS FOUND TO BE DEFECTIVE EXCEED THE AMOUNTS PAID BY PURCHASER TO REFTEC HEREUNDER FOR SUCH EQUIPMENT WHICH IS SPECIFICALLY FOUND TO BE DEFECTIVE. THESE LIMITATIONS APPLY TO ALL CAUSES OF ACTION IN THE AGGREGATE, BOTH AT LAW AND IN EQUITY, AND INCLUDING WITHOUT LIMITATION, BREACH OF CONTRACT, BREACH OF WARRANTY, REFTEC'S NEGLIGENCE, INFRINGEMENT, STRICT LIABILITY, MISREPRESENTATION AND OTHER TORTS AND CONTRACTUAL CLAIMS. EXCEPT FOR THE EXCLUSIVE REMEDY PROVIDED ABOVE FOR REFTEC'S BREACH OF THIS LIMITED WARRANTY, PURCHASER, FOR ITSELF AND ITS SUCCESSORS AND ASSIGNS, HEREBY WAIVES AND RELEASES REFTEC FROM ANY AND ALL OTHER CLAIMS OR CAUSES OF ACTION THEY HAVE AGAINST REFTEC ON ACCOUNT OF OR ASSOCIATED WITH THE EQUIPMENT PURCHASED HEREUNDER OR FOR REFTEC'S BREACH OF THIS LIMITED WARRANTY. IN NO EVENT SHALL REFTEC BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, SUCH AS, BUT NOT LIMITED TO, LOSS OF ANTICIPATED PROFITS, LOST SAVINGS, LOST REVENUES, FINES, OR OTHER ECONOMIC LOSS IN CONNECTION WITH OR ARISING OUT OF THE EXISTENCE, FURNISHING, FUNCTIONING OR USE OF ANY ITEM OF EQUIPMENT PROVIDED UNDER THIS AGREEMENT, EVEN IF REFTEC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND/OR SUCH DAMAGES ARE REASONABLE AND/OR FORESEEABLE. FURTHER, PURCHASER FOR ITSELF AND ITS SUCCESSORS AND ASSIGNS, WAIVES AND RELEASES ANY RIGHTS THEY MAY HAVE TO BRING AN ACTION ARISING OR RESULTING FROM THIS AGREEMENT, REGARDLESS OF ITS FORM, MORE THAN FIFTEEN (15) MONTHS AFTER SHIPMENT OF THE AFFECTED EQUIPMENT BY REFTEC TO PURCHASER.

The provisions of this warranty shall supersede any contrary provisions contained in this agreement, any document supplied by RefTec to Purchaser or by Purchaser to RefTec, or any other agreement, written or oral, between Purchaser and RefTec, notwithstanding the fact that the provisions contained in this warranty directly conflict with other terms or provisions of this agreement or such other documents, or that such other documents or agreements were provided, delivered, made or executed subsequent to this agreement unless such agreements are in writing, specifically refer to this agreement, specifically provide that they are amending this and are signed by the President of RefTec.

# MiniPurge

*“Put an End to  
Slow & Inefficient  
Noncondensable Purging!”*

