

STARiQ150



USER MANUAL



WELCOME

Hello and welcome to the PDX.GOLD family. We understand there are a lot of choices in the marketplace for botanical recovery systems, so we are delighted you have chosen to invest in us.

We designed our Solvent Transfer And Recovery pumps with you in mind and sincerely hope you notice the difference in quality and safety standards that set us apart from our competitors. We built this machine to last and want you to enjoy the benefits of its durability for years to come.

Sincerely,

PDX.GOLD



PRECAUTIONS & SAFETY



WARNING:

THE STAR iQ150 IS DESIGNED FOR HIGH VOLUME RECOVERY AT PRESSURES BELOW 150 PSI. IT HAS SAFETY PRESSURE SWITCHES TO LIMIT THE SYSTEM PRESSURE TO 150 PSI.

DEADHEADING YOUR PUMP FOR ANY SIGNIFICANT TIME AGAINST PRESSURES AT OR ABOVE 150 PSI GENERATES EXCESSIVE HEAT AND WILL DAMAGE THE PUMP OVER TIME. ALWAYS ENSURE YOUR SOLVENT RECOVERY TANK HAS CAPACITY TO RECOVER THE SOLVENT IN THE SYSTEM. WE RECOMMEND A PRESSURE BELOW 80 PSI AT STARTUP.

ADJUSTING OR ATTEMPTING TO ADJUST ANY SAFETY OR SYSTEM REGULATING HARDWARE IS DANGEROUS AND VOIDS ALL WARRANTIES.

CAUSES OF EXCESSIVE RECOVERY PRESSURE INCLUDE: ENTRAPPED ATMOSPHERE IN THE STORAGE VESSEL AND INSUFFICIENT POST PUMP HEAT CONTROL, RESULTING IN A TANK TEMPERATURE RISE.

HIGHER PRESSURE CAUSES THE EQUIPMENT TO WORK HARDER. ANY TIME YOU ENCOUNTER SIGNIFICANT MACHINE VIBRATION, TURN OFF THE SYSTEM IMMEDIATELY AND REMEDY THE CONDITION CREATING THE VIBRATION BEFORE PROCEEDING ANY FURTHER!

- ! Unit must be installed in a lab designed to accommodate explosive atmospheres.
 - ! R600 / R600a / Propane must be handled in compliance within all federal, state and local safety and environmental requirements.
1. Do not use this recovery system without reading this manual in its entirety.
 2. Always perform the “Pre-Flight Check”, outlined in the Operations section of this manual prior to using the recovery system.
 3. Always confirm that there is ample space in the recovery vessel prior to solvent recovery. Due to the relatively low density of these gases, internal float switches often do not work, so an electronic scale is required.
 4. Do not attempt to overfill the recovery tank.
 5. Always utilize proper ventilation with explosion proof fans and exhaust systems.
 6. Do not allow liquid or gaseous solvent to come into contact with exposed skin, mucous membranes or eyes.

SPECIFICATIONS

General Specifications

Maximum Output Pressure (STAR iQ150)	150 PSI
Motor Size (STAR iQ150)	2 Hp
Noise Level	78 dB
Free Air Displacement (STAR iQ150)	6.5 CFM
Pressure Shut off Valve (STAR iQ150)	150 PSI
Applicable Media	Butane, Propane, Propane blends.

Electrical Requirements

115v / 208-230v Installation	50 / 60Hz, 30 Amps
230v / 460v Installation	50 / 60Hz, 30 Amps
Watts	1,500

Plumbing Connections

System Input	½" tube fitting (Swagelok compatible)
System Output	½" tube fitting (Swagelok compatible)

Physical Characteristics

Shipping Weight	375 lbs
System Weight	300 lbs
Shipping Dimensions	57" Length x 40.5" Width x 48.5" Height
Operating Dimensions	20" Length x 28" Width x 36" Height

INSPECTION & RECEIVING



UNPACKING AND INSPECTING

Do not proceed if there is any evident shipping damage. Stop at once and photograph the unit and packaging materials.

1. Once visual inspection has verified no obvious damage has occurred during shipment, carefully uncrate the unit.
2. If the unit looks damaged, stop at once and call PDX.GOLD Customer Service.
3. Remove the unit from the pallet.
4. Use two people to lift the unit off the pallet, then roll it into position and lock wheels in place.
5. If not already shown below, record the model number and serial number of your unit in the space provided and maintain this record for future reference.

Use this space below to record the identification plate information of your specific unit. The identification plate is located on the baseplate and can viewed by looking through the ventilation screen on the left side of the unit. Use blank spaces to record your internal information if required eg: sales order, purchase order number, installer initials, etc.

UNIT INFORMATION

Model Number	
Serial Number	
Certification Number	
Date of Purchase	

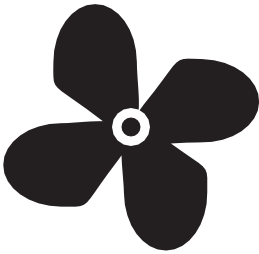
Notes	
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SYMBOLS & WARNINGS



This recovery system pumps Butane and Propane, both flammable gases. This machine must be kept in an explosion-proof lab that meets environmental, safety and other regulations.

Explosion Hazard: NO smoking, NO open flames, NO sparks



Do not use STAR iQ150 without proper workspace ventilation.



Eye protection is strongly encouraged while using this machine.



Protective clothing: Fire resistant coveralls or jumpsuit is highly recommended. Although working with a CLE (closed loop extractor) drastically cuts down the risk of an explosive environment, we still strongly suggest that anyone operating the STAR iQ150 wears fire resistant clothing due to the flammable nature of Butane and Propane.

PRODUCT OVERVIEW

Key Components

1. Power switch / Enclosure
2. Stainless Worktop
3. Input Connection
4. Output Connection
5. High Pressure / Low Pressure Gauges
6. Locking Casters
7. CycloneDry™ (add-on item)
8. Power Cord



Theory of Operation

The PDX.GOLD STAR iQ150 is a single-switch operation. This solvent transfer and recovery system transfers solvent gas within a closed loop extractor and returns it, under pressure (up to 150 psi), to a recovery tank for isolation and storage. The STAR iQ150 requires a dedicated 115V / 230V, 30 Amp circuit and must be connected to a power source by a licensed electrician. The internal components are all food grade and are comprised of aluminum, stainless steel, iron, and Viton and Buna-N elastomers.

PRODUCT OVERVIEW

Component Overview

The main power switch is pictured here in the OFF position. When the switch is in the “ON” position, the pump will be fully engaged and operational. There are no other switches or valves to manage.

The Input Connection is located on the side of the unit labeled “input”. The Input Connection is ½” tube fitting (Swagelok compatible).

The Output Connection is located on the same side of the unit labeled “output” and is also ½” tube fitting (Swagelok compatible).



Pressure Control System: The STAR iQ150 is rated to accommodate 150 psi internal pressure. If the pressure in the system exceeds 150 psi, the pressure control switch will activate and shut off the motor. The system also has a Pressure Relief Valve back-up in the event of a pressure switch failure. If the unit shuts off, resolve any issues that caused the shut off and cycle the switch back to the OFF position to reset the switch. Turn the switch to ON to re-start the unit.

There are two gauges on the STAR:

Located on the gauge panel, set into the left side the worktop, you will find both pressure gauges. On the top you will find the Output gauge. The Output gauge reads in psi and displays a range of 0-200 psi. During normal operation, the gauge should read “0” when not in use, and between 40 - 80 psi when moving solvent.

On the bottom you will see the Input gauge. The Input gauge has two different scales – one reads positive pressure in psi and the other reading negative pressure in-Hg (inches of mercury). The Input gauge displays a range of 0-160 psi and 0-30 in-Hg. The Input gauge will read into the negative range when the pump has fully evacuated the solvent from the extractor.

IMPORTANT NOTE: The recovery system may begin to draw negative pressure as the extractor evacuates. While this is normal and is part of the design operation of the pump – it is **NOT INTENDED AS A VACUUM PUMP**. Continued use of the system at vacuum levels greater than 15 in-Hg will result in damage to the seals and drawing atmospheric air into the system.

Many factors will influence the actual gauge readings during processing:

- Temperature variance between input gas and output recovery vessel will have a dramatic impact on recovery speed.
- Type of solvent used. This machine runs butane, propane, and blends of the two. Recovery speed varies based on the solvent you choose.

EVAPORATION PRESSURES

Vapor Pressure (psig)

MIXTURE	Propane C ₃ H ₈	100	70	50	30	0
	Butane C ₄ H ₁₀	0	30	50	70	100
TEMPERATURE °F	-44	0	0	0	0	0
	-30	6.8	0	0	0	0
	-20	11.5	4.7	0	0	0
	-10	17.5	9	3.5	0	0
	0	24.5	15	7.6	2.3	0
	10	34	20.5	12.3	5.9	0
	20	42	28	17.8	10.2	0
	30	53	36.5	24.5	15.4	0
	40	65	46	32.4	21.5	3.1
	50	78	56	41	28.5	6.9
	60	93	68	50	36.5	11.5

FILTER DRYER

Ingesting ANY substance other than solvent vapor into the compressor is not considered normal or customary use. Foreign matter is considered contamination (extracted oils / organic byproducts / dirt / etc.), may damage the pump and void your warranty.

To ensure peak performance of your solvent transfer and recovery system, we strongly recommend the user to install a molecular sieve / solvent filter dryer in the system before the input of the pump.

CYCLONEDRY

The STAR series are high-performance solvent transfer and recovery pumps and may overwhelm many types of filter dryers. PDX.Gold has designed our own filter dryer, the CycloneDry, which may be configured for ANY size extraction system. CycloneDry is a modular system - simply daisy-chain any number of CycloneDrys to your recovery system (via stainless steel braided hoses) to keep up with your level of processing.

CycloneDry are available in 2 sizes with the input fitting, output fitting and a pressure relief valve on the top of the unit. Units are constructed of stainless steel, assembled with explosion proof tri-clamps and Viton or Buna-N gaskets. The CycloneDry is designed to accommodate three or four desiccant filter cores (depending on the size selected) to absorb water vapor or oil and works in two ways:

1. As the solvent is drawn in by the pump, the CycloneDry acts as a “cold trap” and heavier constituents such as water vapor or oil are spun out of the gas, condense on the sides of the unit and settle to the bottom.
2. The included desiccant filter cores absorb any remaining water vapor and / or suspended oils and removes them from the solvent gas*.

Filter Core Recharging

During normal use, the filter cores can become saturated with moisture and lose effectiveness. Cores can be re-conditioned in a vacuum oven and may be reused many times before requiring replacement if they have not been contaminated with organic material. The cores will catch vaporous oils on the surface of the cores, which often is visible as a “sheen” on the desiccant surface. Visible contamination on the cores is an indication it is time to discard them and replace with new cores. Failure to maintain the cores may allow contaminants to migrate over time through the desiccant material and into the compressor.

* Reconditioning / replacement of the cores may be required to maintain effective operation if they become saturated or contaminated.

INSTALLATION

Lifting & Handling

The STAR iQ150 is a precision machine that should be handled with care and respect.

1. Except for initial removal from the pallet, do not lift the STAR iQ150. Utilize the installed casters to roll the unit into place.

*** Highly recommended that you use two people to lift from pallet ***
2. Lock the casters once in place.
3. The unit is not intended to be moved after wiring and installation. Casters are for positioning and transport during set-up and installation only.

Environmental Conditions of Operation

The STAR iQ150 best functions in an environment that is between 50-90°F. The STAR iQ150 should remain dry at all times. Poor air quality can result in shorter pump life. Protect your pump from air-borne dust and debris that can impede ventilation.

Installation Location Requirements

The STAR iQ150 is intended to be used indoors on a flat surface. The laboratory environment should comply with all local and state regulations and safety standards. Prior to installation, consider the power source, location of other equipment and operator comfort and efficiency.

Power Source

The STAR iQ150 requires hard-wired connection to a power source. This installation must be performed by a licensed electrician if local regulations require.

1. Verify the power switch is in the "OFF" Position.
2. Verify voltage and amperage on the datatag.
3. Verify voltage and amperage of the power source.
4. Connect STAR iQ150 to the appropriate power supply.

INSTALLATION



The STAR iQ150 does not have any manually adjustable valves. Use the valves on your extractor to control the flow of gas.

Connecting to the Extractor

1. Follow all instructions in this manual closely.
2. Follow all instructions associated with your closed loop extractor closely.
3. Close the Input and Output Valves on the Extractor.
4. Using a ½” tube stub (Swagelok compatible) terminated hose, connect the Output of the Extractor to the Input of the STAR iQ150. The Input is located on the right side panel and is labeled “Input”.

The valve associated with this connection will be referred to in this manual as “Input Valve”.

5. Using a ½” tube stub (Swagelok compatible) terminated hose, connect the Output of the STAR iQ150 to the Input of the solvent recovery vessel. The Output is on the right side panel and is labeled “Output”.

The valve associated with this connection will be referred to in this manual as “Output Valve”.

Optimal Operating Pressures

It is recommended that the Input pressure remains at or below 80 psi and the Output pressure remains at or below 150 psi. If the Input pressure exceeds 80 psi, the case may pressurize and cycle the pressure relief valve.

OPERATION



The following operation instructions assume the unit has been properly installed in accordance with all applicable municipal safety, regulatory and legal compliance. Do not proceed until proper installation has been completed.

Pre-Flight Check

1. Verify all fittings and connections between your extractor and STAR iQ have been tightened appropriately.
2. Verify the CycloneDry / molecular sieve filter elements are in a new, or reconditioned state.

* IMPORTANT NOTE: Using old or saturated filter elements will have a negative effect on the life of your pump and the quality of your product. Drawing moisture and / or organic material into the pump will void the warranty.

3. Verify both the input and output valves on the closed loop extractor are open **BEFORE** turning on the pump. **NEVER RUN THE PUMP WITH THE INPUT VALVES OR OUTPUT VALVES CLOSED.**

Power-Up

Once you have verified the installation and checked out the system, it is time to power up. Activate the power switch to begin transferring solvent.

Power-Down

1. Close the output valve on the extractor.
2. Turn off the pump.
3. Close the input valve on the solvent recovery tank.

Notice

The recovery system may begin to draw negative pressure as the extractor evacuates. While this is normal and is part of the design operation of the pump – it is NOT INTENDED AS A VACUUM PUMP. Continued use of the system at vacuum levels greater than 15 in-Hg will result in damage to the seals and drawing atmospheric air into the system.

Safety Measures

The system will auto shut off at 150 psi of the output pressure.

OPERATION

What to do if your STAR iQ150 Auto Shuts-off

The STAR iQ150 has an auto shut-off that engages if any number of parameters are exceeded.

- Input vacuum is greater than -20 in-Hg
- Output pressure is greater than 150 psi
- Motor amperage current is exceeded

There is no external indicator on the unit showing which condition caused the auto shut-off to engage. You will need to examine the system to determine the reason.

1. Turn the ON / OFF control switch to “OFF”, this will reset the unit.
2. While scanning the gauges, turn the switch to “ON” and review if the operation limits have been exceeded for the input or output pressures.
 - a. Maximum input vacuum -20 in-Hg
 - b. Maximum Output pressure 150 psi
3. If either pressure limit is reached, the unit will auto shut-off again. Troubleshoot your attached equipment to bring the operating conditions back to within the pump’s operating parameters.

If neither gauge indicates a pressure limit has been reached, the motor controller circuit may have disengaged to prevent excessive current draw.

1. Turn the ON / OFF switch to “OFF”, this will reset the unit.
2. Perform a visual inspection to ensure no debris or materials have become boundup in the pump / motor / belt drive system.
3. If anything has fouled the drive system, disconnect and isolate the unit from the power supply and clear any debris from the drive system.
4. Turn the pump / motor / belt system by hand to confirm free rotation.
5. Reconnect the unit to the power supply.
6. Turn the control switch to “ON” and observe unit.

Continuing auto shut-off events NOT associated with pressures near the operating limits may indicate pump contamination and / or motor damage. Contact PDX.GOLD for assistance.

MAINTENANCE



WARNING: Disconnect the unit from power supply prior to doing any maintenance on the STAR iQ150.

General Maintenance

When cared for and operated properly according to this manual, the unit is essentially maintenance free and will provide years of dependable service.

THE MOST IMPORTANT THING THE USER CAN DO TO REALIZE A LONG, TROUBLEFREE PUMP LIFE IS TO TRANSFER CLEAN AND DRY SOLVENT.

EVERY piston pump on the market will be adversely affected by ingestion of contaminants and ours is no exception to this rule.

This recovery system is an oilless design and requires no oil changes.

Preparing for Shipment

1. Disconnect the pump from the closed loop extractor.
2. Disconnect the molecular sieve / CycloneDry. Clean and store per the instructions recommended by the manufacturer.
3. Properly package the unit in a shipping container, ensuring the unit is secure inside the container to prevent movement during shipping.
4. Attach to a standard shipping pallet and band / secure the unit to the pallet for shipping
5. Alternately, store in a dry, clean environment for future use.

CERTIFICATION

STAR iQ150 is certified by the third party engineering group, 3PCert. 3PCert specializes in certifying cannabis extraction machines and the rooms in which they reside.

If you have purchased a certified unit, your STAR iQ150 will have a serial tag provided by 3PCert attesting to the fact your machine has been reviewed and held to the utmost standards in cannabis extraction technology.

PDX.GOLD and 3PCert offer certification for 34 states and the District of Columbia in the United States. If your location is not listed, give us a call and we can review getting your location added to our certification list!

Certified States




Arizona	Maryland	Ohio
Arkansas	Maine	Oklahoma
California	Michigan	Oregon
Colorado	Minnesota	Pennsylvania
Washington D.C.	Missouri	South Dakota
Florida	Montana	Texas
Idaho	North Carolina	Utah
Illinois	North Dakota	Vermont
Kansas	Nebraska	Washington
Kentucky	New Mexico	Wyoming
Louisiana	Nevada	
Massachusetts	New York	

Certification Report Number

180043



CERTIFICATION

<i>Electrical</i>		
Part	Manufacturer	Description
Motor STAR iQ150 	Leeson	NEMA 7, 2 HP, 1725 rpm.
Switch Enclosure 	Sprecher-Schuh	NEMA 7 switch housing, includes motor controller and shunt circuit.
Pressure Switches 	Ashcroft	NEMA 7, 1/4" FNPT
<i>Fittings & Hoses</i>		
Part	Manufacturer	Description
Fittings	Swagelok / SSP	1/2" 2600 psi working pressure, Swagelok compatible.
Hoses	Corlee	Stainless Steel braided hoses: Certified high pressure PTFE, smooth bore hoses, specifically designed for applications requiring strength, reliability, and long term performance.

Specifications

STAR iQ150: Leeson - 2 HP

- UL Class 1, Division 1
- Maximum pressure: 150 psi.
- Maximum vacuum of 20" Hg

WARRANTY

LIMITED USA AND CANADA WARRANTY POLICY – PDX.GOLD warrants products sold against defects in material or workmanship as follows: PDX.GOLD, at its option, unless otherwise agreed, will replace or repair any defective product unit or defective part of the product unit at no charge, provided that:

1. The warranty claim is made in writing within the period of time specified in the catalog or in information enclosed with the product packaging (6 months); and
2. The proof of purchase by bill of sale or receipted invoice is submitted concurrently with the claim and shows that the product is within the applicable warranty period to Customer Service of PDX.GOLD; and
3. The purchaser complies with Procedures for Returns listed under the General Terms and Conditions contained herein; and
4. The purchaser complies with all the manufacturer's requirements. The warranty is in force from the date of shipment from PDX.GOLD's manufacturing facility. The warranty period begins on the day the customer receives the product, but not later than 90 days after the date of shipment from PDX.GOLD's manufacturing facility. PDX.GOLD reserves the right, at its discretion, to fulfill warranty claim with refurbished or reconditioned parts or units.

This warranty shall not apply to:

- a) Defects or damages resulting from (1) misuse of the product, (2) use of the product in other than its normal and customary manner, (3) accident or neglect, (4) improper testing, operation, maintenance, service, repair, installation, or storage, (5) unauthorized alteration or modification, (6) damage determined to be the result of freight or shipping after the product has left the factory; or
- b) Normal tear and wear of the product, its components, or parts; or
- c) Post-expiration dated material

Other limitations

This warranty is the exclusive remedy of the purchaser, and PDX.GOLD disclaims all other warranties, whether express, implied or statutory, including without limitation, warranties of merchantability and fitness for particular purpose. No employee, agent, or representative of PDX.GOLD is authorized to bind PDX.GOLD to any other warranty. In no event shall PDX.GOLD be liable for incidental or consequential damages.

All express and implied warranties, including the implied warranty of merchantability and the implied warranty of fitness for a particular purpose, are expressly disclaimed and shall not apply to any products sold or services rendered hereunder. PDX.GOLD shall not be liable for consequential, incidental, special, or other direct or indirect damages resulting from economic loss or property damage sustained by you or any end user from use of the products sold or services rendered hereunder.