



MACHINE

EQUIPMENTS

Model LV227 Liquid Transfer & Vapor Reclaim Machine

Model LV227

A unique machine for 1MY 227 (HFC-227ea) Liquid transfer and Vapor recovery
 A fast and no-waste solution to transfer HFC-227ea

The LV227 unit is designed to transfer and recover HFC-227ea in the most efficient way. There are two separate sections in the LV227 unit. The first section completes the transfer of the liquid HFC-227ea from cylinder to cylinder and its pressurization with nitrogen at 24 or 42 bar. The second section allows the residual vapor of HFC-227ea to be recovered from the source/storage cylinder/ tank.

Description

The Model LV227 machine is designed to transfer liquid HFC-227ea efficiently and its Vapor Recovery unit saves cost on reclaiming HFC-227ea vapor in a storage tank. It is a fast and no-waste solution to transfer HFC-227ea with a single unit machine.

Since it is able to reclaim the maximum amount of HFC-227ea from the source/storage cylinder/tank, the LV227 unit is particularly cost effective.



Technical Features

Pump Specifications

FLOW RATE (kg/min)	6
MAXIMUM WORKING PRESURE (bar)	70

Recovery Section Specifications

FLOW RATE (kg/min)	0.7
MAXIMUM WORKING PRESURE (bar)	21
RECOVERY EFFICIENCY (%)	ABOUT 90%

Overall Specifications

VOLTAGE/FREQUENCY (VAC/Hz)	400/50
POWER (kW)	4
DIMENSIONS (Length x Width x Height) (mm)	1250 x 700 x 1590
WEIGHT (kg)	300

* Other voltages are available upon request



Description

Orient Test System is dedicated to providing our customer with superior quality leak testing system. With access to advanced designs, features and test algorithms in our leak tester devices, we promise a fast and reliable leak test product that will also provide repeatable results for air leakage, gas leakage, or any other leak where reliable testing equipment is needed. OCI XP-1A Refrigerant Leak Detector is critical to ensuring proper product quality, safety and performance.

Features

- ▶ Tri-colour, six-segment visual leak size indicator display 18 alarm levels
- ▶ LED Leak Size Indicators
- ▶ Seven levels of sensitivity adjustments provide an increase of up to 64x including our unique ScanMode
- ▶ Battery test function with true voltage indication
- ▶ Mute feature silences audible alarm
- ▶ Reset Button for instant re-calibration
- ▶ Detachable probe
- ▶ High efficiency pump
- ▶ Detects ALL Halogenated Refrigerants, including R-410A
- ▶ Constant Power Indication
- ▶ Carrying case and spare sensing tip included
- ▶ Tactile keypad control

Full featured but easy to use, the original TIF detector. The detector offers the detachable, flexible probe with micro-pump, leak intensity indicators, and all the features you have come to know and trust. Includes the patented SCAN mode that revolutionized leak detection.



OCI XP-1A

Specification

- ▶ Power Source: 3V DC; 2 "C" cell alkaline batteries
- ▶ Ultimate Sensitivity: OCI XP-1A - Less than 0.1 oz./yr. (3 g/yr.)
- ▶ Sensing Tip Life: Approx. 20 hours
- ▶ Operating Range: 30° to 125° F (0° to 52° C)
- ▶ Battery Life: OCI XP-1A – Approx. 30 hrs.
- ▶ Duty Cycle: Continuous
- ▶ Response Time: Instantaneous
- ▶ Reset Time: One second
- ▶ Warm-up Time: Approx. 2 seconds
- ▶ Unit Weight: 1.2 lbs. (560 grams)
- ▶ Unit Dimensions: 9" x 2.25" x 2.25" (22.9 cm x 5.7 cm x 5.7 cm)
- ▶ Fixed Probe Length: 14" (35.5 cm)

VERTICAL DRILL PRESS

A vertical/mill press with attached work table, bench model, is required for use in Orient Field Nozzle Drilling Stations. It provides the most secure and rigid placement of the nozzles to be drilled as well as allowing for precision movement of the nozzle during the drilling process. Floor mounted drills are also permitted for use in Orient Field Nozzle Drilling Stations, however are not recommended as they do not provide the same level of precision as the aforementioned models.

Hand drills are strictly PROHIBITED for use in Orient Field Nozzle Drilling Stations.

INDEXING/ DIVIDING HEAD

An indexing head is required as part of the drill press assembly. The indexing head provides secure fastening of the nozzle to the drilling station. In addition the indexing head, when attached to the drill press, allows for precise angular rotations of the nozzle, ensuring even, accurate and correct spacing of drill points.

DRILL BITS

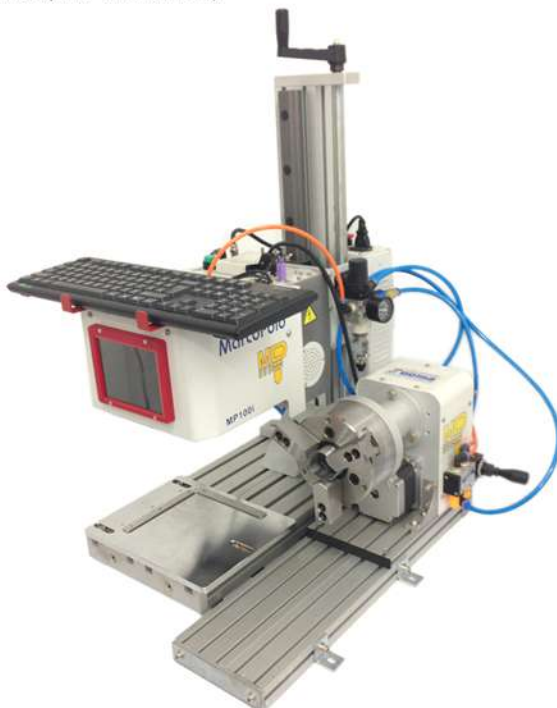
Orient Field Nozzle Drilling Stations are required to contain the following sets of drill bits:

- Wire Gauge Set #1-60
- Fractional Inch, 1/16" - 21/32" in 1/64" increments, 39 pieces
- Lettered bits A-Z, 26 pieces
- Center Point Punch
- Countersink bits, #2 for holes 0.25" and smaller, #5 for holes larger than 0.25"
- Burr Tool

Orient recommends that drill bits are made from Cobalt Steel. Drill bits may also be made from high speed or high carbon steel and can be coated with black oxide or any titanium nitride (TiN, TiAlN, TiCN).



Nozzle Drill Station
P/N: OCI MRF-25



Nozzle Marking and Label Marking Machine

P/N: OCI MMP100i

DRILL LUBRICANT

Orient recommends that drill lubricant be applied throughout the drilling process. It reduces the effort required to drill the nozzles as well as extending the drill bit operational lifespan and reducing the amount of drill bit breakages. Orient recommends the use of Tap Magic Aluminum or equivalent non-flammable lubricant.

INSPECTION EQUIPMENT

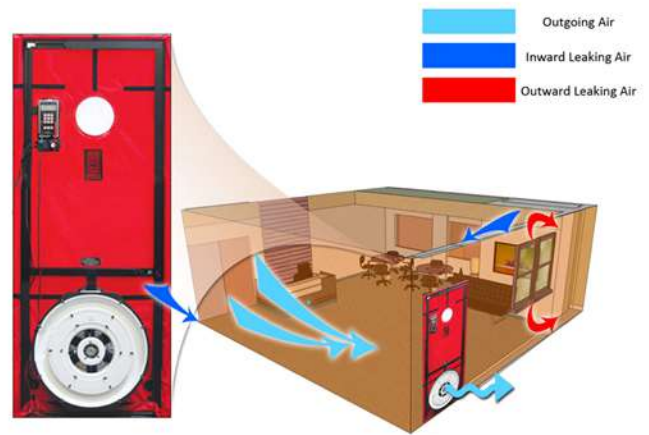
To ensure that Orient nozzle holes have been accurately drilled a set of Digital Callipers accurate to 0.0005" are required. In addition pin gauges are to be used to check drill diameter and uniformity of the drilled hole. Pin gauges are required for measuring nozzle port diameters measuring 1/2" or less.

MARKING EQUIPMENT

All Orient nozzles must be marked with the correct OCI part number, with the option to put the logo of the drill station of its manufacture on the top of the nozzle. The marking machine must be able to neatly and permanently engrave the part number on to the nozzle directly and at varying font sizes.

DESCRIPTION

Blower Door tests are used to measure the air tightness level of building envelopes, diagnose and demonstrate air leakage problems, estimate natural infiltration rates, estimate efficiency losses from building air leakage, and certify construction integrity.



Blower Door Features

- Lightweight and rugged injection molded fan housing.
- Quick and accurate flow measurements from 300 to 6,300 CFM (141 to 2,973 l/s, 510 to 10,700 m³/h).
Optional rings C,D and E will measure down to 11 CFM (5 l/s, 19m³/h)
- Solid state variable speed fan control.
- Compatible with both pressurization and depressurization testing.
- Fan flow is reversible for diagnostic testing.
- Both 110V and 220V models available

Automated Testing Options

Automated testing provides computerized control of the Blower Door fan and automated capture of the building pressure and fan flow measurements. This feature reduces operator error, ensures that tests are conducted the same way every time, and improves test accuracy in windy weather. Automated testing even includes a "Cruise Control" feature for maintaining a constant building pressure during diagnostics or air sealing. In addition to a user supplied laptop computer, automated testing requires:

- DG-700 Gauge(Standard equipment) or an APT Data Acquisition Box
- TECTITE Software
- Cabling to connect the Blower Door System to your laptop computer



DG-700 Pressure and Flow Gauge with New Cruise feature

“Anatomy of the Minneapolis Blower Door”

Lightweight, Durable Door Frame and Panel

- This innovation design is the result of years of refinements based on the experience of thousands of users. There is no easier way to seal a Blower Door fan into a door opening.
- Snap-together aluminum frame comes in a compact case and sets up in seconds.
- Precision cam lever mechanism securely clamps the nylon panel into the door opening.

DG-700 Pressure and Flow Gauge

- Specifically designed for air tightness testing with specialized measurement functions. One of the best all around pressure measuring gauges on the market.
- Channel A measures the change in building pressure.
- Channel B measures air flow from the Blower Door fan.
- DG-700 can be connected to a laptop computer for automated testing.

Fan Speed Controller

- Precision control of fan speed throughout the entire range.
- Compatible with Cruise Control feature and automated testing.

Powerful, Calibrated Fan

- The Minneapolis Blower Door comes with Rings A and B to measure a wide range of air tightness conditions. Optional Rings C, D and E extend the low range of the Blower Door fan.
- Flow Sensor at the entrance to the fan assures precision readings from 11 CFM to 6300 CFM.



“Multi-fan Blower Door Systems”



“Blower Door Accessories”

TECTITE Airtightness Test Analysis Software

- Calculates building airtightness test results including leakage areas, ACH50, CFM50, building leakage curve, estimated natural and design infiltration rates, and the cost of air leakage.
- On-line help screens make TECTITE extremely user friendly.
- Compatible with both manual Blower Door tests and automated tests using a DG-700 or APT System.
- Calculation procedures and reports are done in accordance with CGSB-149. 10-M86.
- Calculates mechanical ventilation requirements in accordance with ASHRAE 62.2.
- Easy to use data entry screens, file storage, and file retrieval features.
- Choice of report formats including an easy to read homeowner report or a detailed technical report.



Fan Cases (additional protection for your Blower Door fan)

- Our lightweight, heavy duty, water resistant nylon case provides excellent protection from dirt and scratches
- The Padded nylon case is made of the same tough material as our lightweight fan case, but also includes plenty of high density foam to protect your Blower Door fan from the bumps and bangs of everyday use. The Padded case is perfect for anyone who keeps their Blower Door in the back of a truck.



Pressure Pans

- The pressure pan is a duct leakage diagnostic tool which is used along with the Blower Door and digital pressure gauge to identify exterior air leakage in duct systems. The pattern of pressure pan readings allows for quick identification of major exterior leakage sites, and can be used to tell technicians if they have sufficiently air sealed the duct system. Because the pressure pan does not require taping off registers and grills, it is an extremely quick diagnostic procedure.
- Two size pressure pans are available: 12 ½ in x 14 ½ in x 4 in. (32 cm x 37 cm x 10 cm) and 22 in x 22 in x 2 in (56 cm x 56 cm x 5 cm)
- Includes 6 foot (1.8 m) extension pole for high registers.



Smoke Puffer

- A convenient source of a dense and persistent white smoke for diagnosing air leakage sites. The smoke puffer consists of a small 3 inch (7.6 cm) high Teflon bottle and 2 vials of chemical smoke.
- The smoke puffer will last for several months and can be easily refilled.



The FST Digital Enclosure Test Kit

Features:

The FST Digital Enclosure Test Kit is developed through years of experience in testing, training and support of NFPA 2001 enclosure integrity test procedure with The Energy Conservatory manufacture of the Minneapolis Blower Door™ to bring to the fire industry the best package of test equipment, EIT 2001 Quick Test software, training and support.

- **DG-700 Digital Pressure / Flow Gauge**

Developed and manufactured by The Energy Conservatory to provide unequalled accuracy and ease of use.

- **Direct Reading 4 Digit LCD Display**

Dual display provides direct, precise reading of both pressure and flow measurements with 1% accuracy. No miss-interpolations of analog gauges, no tapping of gauges

- **Compact, 6300 CFM Fan**

Powerful fan allows for testing zones up to 90,000 cubic feet (9,000 sq. ft) (1) Calibrated flow accuracy of +/- 3% from 100 to 6300 CFM. Easy to carry.

- **Fully Collapsible Aluminum, Commercial Sized Door Frame**

Lightweight but rugged, easy to carry and fast to setup. Fits openings from 30" w X 53" h to 48" w X 96" h Nylon panel comes with built-in vinyl window.

- **EIT Quick Test 2001 Enclosure Integrity Test Software**

Windows® based software, designed for ease of use. Provides 6 to 7 page detailed test report.

- **Handheld digital gauge, compact fan, collapsible aluminum frame**

Most compact, easy to carry test kit.

- **Complete test kit**

Everything necessary to conduct the NFPA 2001 Enclosure Integrity Test: fan, gauges, door frame, software, smoke tubes and manual, add only your choice of optional carrying cases.



Standard Minneapolis Blower Door Kit includes:

- Fan with variable speed controller.
- DG-700 Pressure and Flow Gauge
- Five piece adjustable aluminium door frame and frame case.
- Fabric door panel with viewing window.
- Two Flow Rings (A and B) and No Flow Plate.
- Padded attache case to hold gauge, manuals, tubing, speed controller, and fabric panel, with room for a laptop computer and other documents.

The Minneapolis Duct Blaster® is used to measure the airtightness of duct work.



The Exhaust Fan Flow Meter is used to measure exhaust flow through bath fans and other outlets.



The TrueFlow® Air Handler Flow Meter is used to measure the total amount of air moving through an air handler.

We offer several case options to meet our customers' requirements. The hard cases shown below are rugged and are suitable for shipping the equipment from location by UPS or the airlines. They will also withstand the abuse the equipment often receives when used by a number of different technicians. The soft, padded cases listed below are more compact and easier to carry but not quite as rugged.

Optional Cases

OCI88113-1 Padded, zippered Cordura Blower Door Fan, black

OCI88113-2 Padded attaché case to hold gauges, manuals, hoses, speed controller and nylon frame cover with room for laptop computer and other documents.

OCI88113-3 Custom hard case for Blower Door Fan, room for drop cords, door cover and miscellaneous items, black. 24¼"x11"x27" case wt 26 lbs. with fan 65 lbs.

OCI88113-4 Custom hard case for FST Special Door Frame , all-weather design with continuous "O" ring seal against water and dust. Heavy gauge molded HDPE with reinforced ribbing, six clamping latches and provision to add your padlock for security, black. Now with wheels and extra handle for easy portability. Supplied with foam for internal padding. 54½"x17¼"x6" case wt. 20 lbs. with frame 41 lbs.

OCI88113-5 Custom hard case will hold gauges, manuals, hoses, speed controller and nylon frame cover with room for laptop computer and other documents. Matches CAS-550 with all-weather design with continuous "O" ring seal against water and dust. Heavy gauge molded HDPE with reinforced ribbing, four clamping latches and provision to add your padlock for security, black. Supplied with foam for internal padding. 20¾"x16¼"x9¼" case wt. 12 lbs., with control module 22 lbs.

