RECOVERY, RECLAIM & DECOMPOSITION OF FLUOROCARBON
**High speed professional recovery machine**

**ECO SAVER V230 SP**

Recovery and charging of refrigerant in case of disposal, replacement, repair and maintenance of room air conditioners, commercial conditioners, freezers, refrigerators, showcases, air conditioners for cars (automobile, trains, etc.) air conditioners for ships and aircrafts & other refrigeration equipments

---

**Equipped with a 1HP twin compressor**

- The highest recovery speed in the same class was realized by the newly developed 1HP twin compressor.

**New compressor + pressure regulation**

- Prevent failure with a valve.

**Stable cooling by a geared fan with large air flow + a clutch type fan**

- The air flow was increased by 70% compared with the existing models. The clutch type fan cools the condenser and the compressor efficiently.

**Equipped with two capacitors**

- Ensure stable recovery work even at low voltage with two capacitors for starting and running.

**Improves Efficiency of recovery work**

- Easy operation with single valve.

**Self cleaning function**

**Limit scale applicable**

**Oil less**

**Evacuation**

---

**Eco Saver Machine V230 SP**

**Code No. ES300**

**Code No. ES330 (220–240V)**

- **R410A Vapor recovery 240g/min**
- **Fluorocarbons Recovery and Destruction compliant machine**

---

- **Recover refrigerant from small - large refrigeration equipment!**

---

**Applicable refrigerant**


**Recovery method**

- Compressed vapor recovery method / Push- Pull method

**Voltage**

- Made to order

**Compressor**

- 750W

**Weight**

- 16.3kg

**Operating temperature**

- 0~40°C

**Automatic cut-off pressure**

- ~−0.035MPa (with ON~OFF function)

**Ultimate vacuum**

- Max. ~−0.09MPa

**Applicable cylinder**

- Float sensor type: Recovery cylinder with float sensor

**Weighting type**

- Used with Limit Scale: Recovery cylinder without float sensor

**Standard accessories**

- 1/4” charging hose 183cm×1, 1/4” charging hose with ball valve 183cm×1, Hose adapter 5/16” female × 1/4” male for R410A, Filter, Shoulder strap, Power cord

**Recovery rate**

<table>
<thead>
<tr>
<th>Type of refrigerant</th>
<th>R410A</th>
<th>R22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor (g/min)</td>
<td>240</td>
<td>230</td>
</tr>
<tr>
<td>Liquid (g/mm)</td>
<td>2,750 / 1,240</td>
<td>2,530 / 1,060</td>
</tr>
<tr>
<td>Push pull (g/mm)</td>
<td>7,300</td>
<td>6,150</td>
</tr>
</tbody>
</table>

*Our own test value. Rates vary under different conditions.*

*Vapor recovery rate are under JIS B8629 inspection standard.*

---

Based on Notify No.139 by Ministry of Trade and Industry compatibility self-certified product

API/ AIR-CONDITIONING & REFRIGERATION INSTITUTE permissible substitute

UL (Underwriters Laboratories) certified machine

---

---

---
**High speed and powerful recovery with quadruple compressor**

**ECO SAVER TETRA**

For refrigerant recovery from a commercial refrigeration/air-conditioning equipment which has large amount of refrigerant such as centrifugal chiller, gas heating pump A/C, and package A/C

**Quadruple compressor**
- Liquid / Vapor speed is increased with a new designed horizontally-opposed quadruple compressor. Horizontally-opposed pistons are free from poor compression due to wearing and maintain the maximum capacity.
- Liquid / Vapor speed is increased with a new designed horizontally-opposed quadruple compressor.
- High speed and powerful recovery with quadruple compressor.
- High speed turbine fan realized high efficiency and high durability for strong cooling of compressor head.
- Light weight & compact
  - Can be carried by one person as it weighs only 20kg.
- Outstanding recovery power
  - The most suitable for refrigerant recovery from large systems.
- Self cleaning function
  - Residual liquid refrigerant in the machine can be recovered to cylinder to prevent from mixing of refrigerant.
- High durability and long life
  - High speed and powerful recovery with quadruple compressor.
- Evacuation Limit scale applicable

**Refrigerant recovery machine**

**Eco Saver Tetra**

Code No. ES800  
Code No. ES802 (220-240V)

- **R32 applicable**
- **R410A Vapor recovery 325g/min**
- **Fluorocarbons Recovery and Destruction compliant machine**

**Most suitable to recover refrigerant from large refrigeration equipment!**

**Recovery rate**

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor (g/min)</td>
<td>325</td>
</tr>
<tr>
<td>Liquid (g/min)</td>
<td>7,190</td>
</tr>
<tr>
<td>Push pull (g/min)</td>
<td>19,270</td>
</tr>
</tbody>
</table>

**Applicable cylinder**

- 3/8" charging hose 183cm × 2, 3/8" ball valve female × male, Hose adapter 5/16" female × 3/8" male for R410A, Hose adapter 1/4" female × 3/8" male, Filter

**Standard accessories**

- Refrigerant Recovery Cylinder with float sensor
  - In case of recover large quantity of R410A-R32 with Eco Saver Tetra, use together with Cooling Unit CL3.

**Cooling Unit CL3**

Cooling support system for recovery machine.

- In case of recover large quantity of R410A-R32 with Eco Saver Tetra, use together with Cooling Unit CL3.

**3/8" Refrigerant Recovery Cylinder**

with float sensor

- In case of using Eco Saver Tetra, make sure to use 3/8" port cylinder.
**Long seller model**

**RECOVER XLT**

Air-conditioner, auto mobile air-conditioner, small package air-conditioner, and vending machine, large air-conditioning, repair refrigerant air-conditioning equipment, and refrigerant recovery for abandon system.

---

**Easy operation with single valve**


**SPR function (Suction pressure relief valve)**

- SPR enables easy recovery in summer climate and R410A.

**Air flow system**

- Large airflow system provides excellent cooling effect for recovery.

**Compact and light body**

- Compact and light body is easy to carry at the working site. Power code can be set up to back of body.

**Design for easy operation**

- Good visibility with tilted operation pannel.

**Installed mesh strainer**

- Protect recovery machine circuit from contaminated refrigerant by installed 200 micron mesh filter.

**Self cleaning function**

- The rest of liquid refrigerant in this machine can be recovered to cylinder to protect from mixing of refrigerant.

**Evacuation Limit scale applicable**

---

**Refrigerant recovery machine**

**Recover XLT**

**Code No:** Y95769

**R32 applicable**

**R22 Vapor recovery 150g/min**

**Fluorocarbons Recovery and Destruction compliant machine**

---

**Easy operation enable to recover refrigerant from various type of refrigeration equipment!!**

---

**Applicable refrigerant**


**Recovery method**

- Compressed vapor recovery method / Push-Pull method

**Voltage**

- made to order

**Compressor**

- 375W Oil less

**Weight**

- 15kg

**Operating temperature**

- 0 ~ 40°C

**Ultimate vacuum**

- −0.044MPa (−330mmHg)

**Applicable cylinder**

- Float sensor type: Recovery cylinder with float sensor
- Weighing type: Used with Limit Scale: Recovery cylinder without float sensor

**Standard accessories**

- 1/4" charging hose 183cm × 1,
- 1/4" charging hose with ball valve 183cm × 1,
- Hose adapter 5/16" female × 1/4" male for R410A

**Evacuation Limit scale applicable**

---

**Based on Notify No.139 by Ministry of Trade and Industry compatibility self-certified product**

- ARI (AIR-CONDITIONING & REFRIGERATION INSTITUTE) permissible substitute
- UL (Underwriters Laboratories) certified machine

---

**Table: Recovery rate**

<table>
<thead>
<tr>
<th>Type of refrigerant</th>
<th>R410A</th>
<th>R22</th>
<th>R134a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor (g/min)</td>
<td>135 (190)</td>
<td>150 (170)</td>
<td>120 (170)</td>
</tr>
<tr>
<td>Liquid (g/min)</td>
<td>560 (760)</td>
<td>800 (900)</td>
<td>880 (900)</td>
</tr>
<tr>
<td>Push pull (g/min)</td>
<td>3,700 (5,260)</td>
<td>4,800 (5,810)</td>
<td>4,800 (5,810)</td>
</tr>
</tbody>
</table>

※ Our own test value. Rates vary under different conditions.
※ Vapor recovery rate are under US ER239 inspection standard.
※ Recovery rate in ( ) are under USA ARI-740 – 98 inspection standard.
### Refrigerant Cylinder for Recovery • Reclaim

#### R32 applicable

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Port</th>
<th>Weight</th>
<th>Code No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1L</td>
<td>1/4&quot; flare</td>
<td>1.7kg</td>
<td>TF040</td>
</tr>
<tr>
<td>6L</td>
<td>1/4&quot; flare</td>
<td>7.3kg</td>
<td>TF090</td>
</tr>
<tr>
<td>12L</td>
<td>1/4&quot; flare</td>
<td>10.1kg</td>
<td>TF056</td>
</tr>
<tr>
<td>24L</td>
<td>1/4&quot; flare</td>
<td>14.8kg</td>
<td>TF057</td>
</tr>
<tr>
<td>24L</td>
<td>3/8&quot; flare</td>
<td>15.0kg</td>
<td>TF128</td>
</tr>
<tr>
<td>40L</td>
<td>1/4&quot; flare</td>
<td>27.0kg</td>
<td>TF130</td>
</tr>
<tr>
<td>40L</td>
<td>3/8&quot; flare</td>
<td>27.3kg</td>
<td>TF131</td>
</tr>
<tr>
<td>120L (117L)</td>
<td>1/4&quot; flare</td>
<td>55.0kg</td>
<td>TF110</td>
</tr>
<tr>
<td>120L (117L)</td>
<td>3/8&quot; flare</td>
<td>57.2kg</td>
<td>TF129</td>
</tr>
<tr>
<td>120L (117L)</td>
<td>1/2&quot; flare</td>
<td>57.3kg</td>
<td>TF097</td>
</tr>
<tr>
<td>120L (117L)</td>
<td>3/4&quot; flare</td>
<td>57.3kg</td>
<td>TF098</td>
</tr>
</tbody>
</table>

### Capacity


- **Note:** The appointed date of delivery is needed.

- **Note:** There are variations in the cylinder mass, the graph with reference values.

### Mass weighing (with limit scale)

Use together with limit scale. (Based on Notify No.139 by Ministry of Trade and Industry)

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Port</th>
<th>Weight</th>
<th>Code No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>24L</td>
<td>1/4&quot; flare</td>
<td>15.7kg</td>
<td>TF080</td>
</tr>
<tr>
<td>120L</td>
<td>1/4&quot; flare</td>
<td>52.5kg</td>
<td>TF070</td>
</tr>
</tbody>
</table>

### Cable Adapter 4P → 3P

- In case to connect not ASADA cylinder to ASADA recovery machine.
- Code No. TF032

### Cable Adapter 3P → 4P

- In case to connect ASADA cylinder to not ASADA recovery machine.
- Code No. TF022

---

**High pressure – resistant refrigerant recovery • reclaim cylinder**

### General Refrigerant Cylinder for Recovery and Reclaim

#### R32 applicable

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Port</th>
<th>Weight</th>
<th>Code No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>24L</td>
<td>1/4&quot; flare</td>
<td>15.7kg</td>
<td>TF080</td>
</tr>
<tr>
<td>120L</td>
<td>1/4&quot; flare</td>
<td>52.5kg</td>
<td>TF070</td>
</tr>
</tbody>
</table>

### Capacity


- **Note:** The appointed date of delivery is needed.

- **Note:** There are variations in the cylinder mass, the graph with reference values.

---

**Bearer cylinder. Don’t forget to write refrigerant names on the cylinder by a marker for cylinder.**
**Powerful Large Recovery machine!!**

**ECO SAVER R350**

Eco Saver R350 is an ideal machine for refrigerant recovery from large or small A/C systems, centrifugal chillers and high pressure refrigerations. Also for transferring refrigerant from small to large tank!!

- **Strong cooling with large condenser & large fan**
  - R350 has a large cooling fan, and condenser to keep refrigerant from over-heating during recovery process.

- **Easy operation**
  - Easy to switch from vapor to push-pull recovery, only handling three valves and no need of reconnecting the hose.

- **Easy to transfer filling**
  - By connecting 4 hoses, switchovers from push-pull recovery to vapor transfer filling with high speed easily.

- **Preventing a temperature rise when transfer filling**
  - Transfer filling by push-pull, therefore a temperature in the cylinder doesn’t go up while operating.

- **Long time operation**
  - Open drive compressor enables to operate long time.

- **Auto / Manual stop**
  - When a degree of vacuum reaches ~-0.044MPa, automatically stops recoverying.

- **No need of vacuuming after transfer filling**
  - ~-0.08 ~-0.098MPa suction possible with a high performance compressor, therefore omits vacuuming after transfer filling.

- **Evacuation possible**

- **Limit scale applicable**

1/2" Refrigerant recovery cylinder 120L (with sensor)

The most suitable for recovery of large amount of refrigerant with big diameter port. Port, valve, and siphon tube all using big diameter. Protect liquid over fill by using a sensor.

<table>
<thead>
<tr>
<th>Code No.</th>
<th>TF097</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>120L (117L)</td>
</tr>
<tr>
<td>Port</td>
<td>1/2&quot; flare</td>
</tr>
</tbody>
</table>

**Eco Saver R350**

- **Applicable refrigerant**

- **Recovery method**
  - Compressed vapor recovery / Push-pull

- **Voltage**
  - made to order

- **Compressor**
  - 1500W 2 piston open drive (oil in compressor)

- **Weight**
  - 45.4kg

- **Operating temperature**
  - 0 ~ 40°C

- **Ultimate vacuum**
  - Auto stop : ~-0.044MPa (~-330mmHg)
  - Manual stop : Max ~-0.098MPa (~-735mmHg)

- **Applicable cylinder (Overfill protection)**
  - Float detection: Cylinder with sensor (120L)
  - Mass weighing: Cylinder when using Limit scale (120L)

- **Standard accessories**
  - Charging hose 1/2” 3m x 2, Charging hose 1/2” 6m x 2, 1/2” ball valve x 2, Safety cable, Filter dryer x 2, Adapter for different diameters 1/4” female x 1/2” male x 4, Manifold filter 1/2” x 1

**Recovery rate**

<table>
<thead>
<tr>
<th>Refrigerant</th>
<th>R22</th>
<th>R12</th>
<th>R134a</th>
<th>R500</th>
<th>R407C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor (g/min)</td>
<td>700</td>
<td>700</td>
<td>700</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td>Push pull (g/min)</td>
<td>25,000</td>
<td>25,000</td>
<td>25,000</td>
<td>25,000</td>
<td>25,000</td>
</tr>
</tbody>
</table>

- **Based on Notify No.139 by Ministry of Trade and Industry compatibility self-certified product**
  - AR (AIR: CONDITIONING & REFRIGERATION INSTITUTE) permissable substitute
  - UL (Underwriters Laboratories) certified machine

**Eco Saver R350**

- **Powerful large recovery machine**
  - Code No. ES350
  - Made-to-Order

- **R22 vapor recovery : 700g/min**
  - **R22 push pull recovery : 25,000g/min**

- **"Fluorocarbons Recovery and Destruction" compliant machine**

For push-pull recovery from large A/C.

Transfer filling from a cylinder to a cylinder!!

- **For push - pull recovery from large A/C.**
  - Transfer filling from a cylinder to a cylinder!!

- **Transfer filling by push-pull, therefore a temperature in the cylinder doesn’t go up while operating.**

- **Open drive compressor enables to operate long time.**

- **When a degree of vacuum reaches ~-0.044MPa, automatically stops recoverying.**

- **-0.08 ~-0.098MPa suction possible with a high performance compressor, therefore omits vacuuming after transfer filling.**

- **Limit scale applicable**

**Eco Saver R350**

- **Made-to-Order**

- **Compressed vapor recovery / Push-pull**

- **1500W 2 piston open drive (oil in compressor)**

- **45.4kg**

- **Auto stop : ~-0.044MPa (~-330mmHg)**

- **Manual stop : Max ~-0.098MPa (~-735mmHg)**

- **Cylinder with sensor (120L)**

- **Cylinder when using Limit scale (120L)**

- **Charging hose 1/2” 3m x 2, Charging hose 1/2” 6m x 2, 1/2” ball valve x 2, Safety cable, Filter dryer x 2, Adapter for different diameters 1/4” female x 1/2” male x 4, Manifold filter 1/2” x 1**

- **Our own test value. Rates vary under different conditions.**

- **Vapor recovery rate are under JIS B8629 inspection standard.**

- **Powerful large recovery machine**

- **Code No. ES350**

- **Made-to-Order**

- **R22 vapor recovery : 700g/min**

- **R22 push pull recovery : 25,000g/min**

- **"Fluorocarbons Recovery and Destruction" compliant machine**

Please contact us when operating only vapor recovery from A/C.

When using Eco Saver R350, 1/2” Refrigerant recovery cylinder 120L (TF987) is necessary. If not using a recovery cylinder with a port over 1/2", Eco Saver R350 may be broken. We will confirm the intended use and working condition before ordering Eco Saver R950. Please understand that it may be not sold depending on conditions and usages.
Eco Saver R450 is an ideal machine for refrigerant recovery from large or small A/C systems, centrifugal chillers and high pressure refrigeration installations. Also for moving refrigerant from small to larger tanks.

For push pull recovery from large A/C!!

1/2" Refrigerant Recovery Cylinder 120L (with sensor)
Port, valve, and siphon tube all using big diameter. Protect liquid over fill by using a sensor.

<table>
<thead>
<tr>
<th>Code No.</th>
<th>TF097</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>120L (117L)</td>
</tr>
<tr>
<td>Port</td>
<td>1/2&quot; flare</td>
</tr>
</tbody>
</table>

3/4" Refrigerant Recovery Cylinder 120L (with sensor)
Port, valve, and siphon tube all using big diameter. The most suitable for recovery of large amount of refrigerant with big diameter port.

For push pull recovery from large A/C!!

3/4" Refrigerant Recovery Cylinder 120L (with sensor)
Port, valve, and siphon tube all using big diameter. The most suitable for recovery of large amount of refrigerant with big diameter port.

<table>
<thead>
<tr>
<th>Code No.</th>
<th>TF098</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>120L (117L)</td>
</tr>
<tr>
<td>Port</td>
<td>3/4&quot; flare</td>
</tr>
</tbody>
</table>

**Please contact us when operating only vapor recovery from A/C.**

When using Eco Saver R450, 1/2" Refrigerant recovery cylinder 120L (TF097) is necessary. If not using a recovery cylinder with a port over 1/2", Eco Saver R450 may be broken. We will confirm the intended use and working condition before ordering Eco Saver R450. Please understand that it may be not sold depending on conditions and usage.
Low pressure refrigerant recovery machine

**Eco Saver R11**

- **Code No.** ES11
- Made-to-order

**Applied refrigerant:** R11, R13, R122, (R245fa)

**Recovery method:** Compressed vapor recovery / Push-pull

- **Voltage:** made to order
- **Compressor:** 1500W 2 piston open drive (oil in) compressor
- **Weight:** 96kg
- **Operating temperature:** 0°C ~ 40°C
- **Ultimate vacuum:** ~ 0.098MPa (~ 725mmHg)
- **Applicable cylinder:** 3/4” port recovery cylinder or drum for refrigerant
- **Standard accessories:** Filter for R11, 3/4” hose 6m, 3/4” hose 3m × 2, 3/4” Ball valve × 4, Safety cable, Hose adapter for water cooling condenser × 2

For recovery of low pressure refrigerant from large air-conditioning and refrigeration chiller systems.

**Eco Pump P-1100**

- **Code No.** XP507

**Discharge amount:** 18L/min (50Hz), 21.6L/min (60Hz)

**Max discharge pressure:** 0.45MPa

**Applicable cleaner:** R11, R113, R123, R12, R134a, R22, R141b, System cleaner CF - 20

**Drum Can Adapter**

- **Code No.** XP532

For 100L drum can. Recover refrigerant without leaking to the air by using an adapter.

**Low pressure refrigerant recovery machine**

**Eco Saver R111V**

- **Code No.** ES111V
- Made-to-order

**Applied refrigerant:** R11, R13, R122, (R245fa)

**Recovery method:** Compressed vapor recovery (vacuum pump) / Push-pull

- **Voltage:** made to order
- **Compressor:** 1500W 2 stage rotary vacuum pump
- **Weight:** 104kg
- **Exhaust rate:** 250/min (50Hz) ~ 300L/min (60Hz)
- **Ultimate vacuum:** Auto stop: - 0.098MPa Manual stop: -4Pa.abs.
- **Vacuum pump:** 750W 2 stage rotary vacuum pump
- **Pump speed:** 1425/11725min⁻¹ (50/60Hz)
- **Applicable cylinder:** 3/4” port recovery cylinder (with sensor) or drum for refrigerant
- **Standard accessories:** Filter for R11V, 3/4” hose 3m × 2, 3/4” hose 6m, Safety cable, 3/4” Ball valve × 4, Adapter for water cooling condenser × 2

For recovering and vacuuming of low pressure refrigerant from large air-conditioning, refrigeration chiller systems.

**Built-in vacuum pump!**

Possible to vacuum before filling & recovering refrigerant with one unit!!

**Drum Can Adapter**

- **Code No.** XP532

For 100L drum can. Recover refrigerant without leaking to the air by using an adapter.

※ When recovering low pressure refrigerant into a drum can.

When using Eco Saver R11, 3/4” Refrigerant recovery cylinder 120L (7098) or drum for refrigerant is necessary. If not using either a recovery cylinder with a port over 3/4” nor a drum, Eco Saver R11 may be broken. We will confirm the intended use and working condition before ordering Eco Saver R11. Please understand that it may be not sold depending on conditions and usages.

When using Eco Saver R111V, 3/4” Refrigerant recovery cylinder 120L (70998) or drum for refrigerant is necessary. If not using either a recovery cylinder with a port over 3/4” nor a drum, Eco Saver R111V may be broken. We will confirm the intended use and working condition before ordering Eco Saver R111V. Please understand that it may be not sold depending on conditions and usages.
**Eco Saver RS13**

**Code No. ERS13**

Made-to-Order

**Vapor recovery 150g/min**

“Fluorocarbons Recovery and Destruction” compliant machine

Recovery of refrigerant from environment testing unit, super low temperature creating machine, snow making machine, equipment of low temperature chemical industry, etc.

### Applicable refrigerant
- R13, R23, R503, R508A, R14, R116

### Recovery method
- Compressed vapor 2-stage recovery method

### Operating temperature
- 0~40°C

### Ultimate vacuum
- 3 stage setting: ~0MPa, ~0.034MPa, ~0.068MPa

### Function
- Recovery (simple recycling by filter dryer is available) + charging

### Applicable cylinder
- Special cylinder for RS13

### Standard accessories
- Limit Scale LS-45RS, Down transformer, Super high pressure stainless steel hose, Safety cable, Valve adapter with quick connector, 1/4" flare valve adapter, Valve adapter with safety valve, Spare gaskets, W22+W26 different diameter socket, 1/4" flare + W26 cylinder adapter

**Based on Notify No.139 by Ministry of Trade and Industry compatibility self-certified product**

**SF6 Booster**

**Code No. XP616**

Made-to-Order

For recovering high degree vacuum with Eco Saver SF6 when SF6 filled equipment disposal.

### Applicable gas
- SF6 (sulfur hexafluoride) Gas

### Recovery / Charging method
- Vapor recovery / Vapor charging made to order

### Compressor
- 37.5kW Oil-less compressor

### Weight
- 50kg

### Ultimate vacuum
- Max: 11322Pa abs. (857torr)
- Max (with SF6 Booster): 200Pa abs. (1.5Torr)

### Function
- Recovery-Charging (simple recycling recovery & recycling charge by filter dryer can be done)

### Applicable cylinder
- Cylinder for SF6

### Standard accessories
- Limit Scale LS-150D, Suction hose with coupler 4m, Suction hose adapter, 1/4" flare + W26 adapter (fixed type), Flare adapter W26 × W22, Jumper plug, 1/4" flare + W22 adapter (Movable), Plus II hose 152cm (yellow), Flare nipple 1/4" × 1/4", Filling hose with coupler ball valve 2m

**SF6 Booster**

**Cylinder for SF6**

47L : Code No. TF099
109L : Code No. TF044

**Main machine / system contains SF6 gas**

Gas switch box on the utility poles

Underground gas switch

- SF6 Booster (Code No. XP616) Made-to-Order
- For recovering high degree vacuum with Eco Saver SF6 when SF6 filled equipment disposal.
- Possible to recover high degree vacuum with oil less pump.

### Suction pump
- Oil less vacuum pump

### Voltage
- Made to order

### Size / Weight
- L:300 × W:400 × H:400mm / 21kg

### Operation temperature
- 0~40°C

### Displacement
- 1L/min (50Hz) / 1.5L/min (60Hz)

### Ultimate vacuum
- 200Pa.abs. (1.5Torr)

### Function
- Vacuuming + Usual recovery + Booster recovery + Charging + Purging

### Standard accessories
- Ball valve for suction hose, Filling hose with coupler
**Quick Charging Valve A**

**Tools for Removing Valve Core**

By carrying out the work in the following way, without removing a valve core in the service port, you can obtain the same effect as if it was removed.

**Filling / Recovering Refrigerant Tool**

Remove valve core for replacement without leaking. Can speed up vacuuming, charging, and recovery by removing valve core in the service port.

**Filling / Recovering Refrigerant & Valve Core Removal Tool**

Remove valve core for replacement without leaking. Can speed up vacuuming, charging, and recovery by removing valve core in the service port. Vacuum gauge can be attached.

**Working Method**

1. Remove a valve core from the access port of Quick Charging Valve A by a tool for removing valve core. Keep the valve opener that was removed.

2. Remove a valve core opener from female screw in ball valve by a tool for removing valve core. Keep the valve opener that was removed.

3. Connect the ball valve to the access port of Quick Charging Valve A. Close the ball valve.

4. Connect the Quick Charging Valve A into the system service port.

5. Loosen the valve core in the service port by a tool for removing valve core.

6. By the gas pressure inside of the system, the valve core will be pushed toward and come undone. Inside of the port is being open all the way.

7. Open the ball valve, the gas will come out.

---

**Quick Charging Valve A**


<table>
<thead>
<tr>
<th>Item</th>
<th>Screw diameter</th>
<th>Access port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; Quick Charging Valve A</td>
<td>1/4&quot; male × 1/4&quot; female</td>
<td>1/4&quot; male (with valve opener)</td>
</tr>
<tr>
<td>5/16&quot; Quick Charging Valve A (R32 / R410A)</td>
<td>5/16&quot; male × 5/16&quot; female</td>
<td>5/16&quot; male (with valve opener)</td>
</tr>
</tbody>
</table>

**Optional**

<table>
<thead>
<tr>
<th>Item</th>
<th>Code No.</th>
<th>Item</th>
<th>Code No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; Rethread Accessory</td>
<td>Y18976</td>
<td>5/16&quot; Seal Kit for 18985 valve: 18985</td>
<td>Y18984</td>
</tr>
<tr>
<td>1/4&quot; Schrader Remover</td>
<td>Y18979</td>
<td>5/16&quot; Schrader Core (10PCS)</td>
<td>Y19305</td>
</tr>
<tr>
<td>5/16&quot; Rethread Accessory</td>
<td>Y18988</td>
<td>1/4&quot; Crt Rod Assembly</td>
<td>Y18997</td>
</tr>
<tr>
<td>5/16&quot; Schrader Remover</td>
<td>Y18989</td>
<td>Superheat Thermomtr</td>
<td>Y69106</td>
</tr>
</tbody>
</table>

---

**Quick Charging Valve B**


<table>
<thead>
<tr>
<th>Item</th>
<th>Screw diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; Quick Charging Valve B</td>
<td>1/4&quot; male × 1/4&quot; female</td>
</tr>
<tr>
<td>5/16&quot; Quick Charging Valve B (R32 / R410A)</td>
<td>5/16&quot; male × 5/16&quot; female</td>
</tr>
</tbody>
</table>

**Optional**

<table>
<thead>
<tr>
<th>Item</th>
<th>Code No.</th>
<th>Item</th>
<th>Code No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; Rethread Accessory</td>
<td>Y18976</td>
<td>1/4&quot; Crt Rod Assembly</td>
<td>Y18997</td>
</tr>
<tr>
<td>1/4&quot; Schrader Remover</td>
<td>Y18979</td>
<td>5/16&quot; Crt Rod Assembly</td>
<td>Y18987</td>
</tr>
<tr>
<td>5/16&quot; Schrader Remover</td>
<td>Y18989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superheat Thermomtr</td>
<td>Y69106</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Tool for Removing Valve Core**

Remove valve core for replacement without leaking. Can speed up vacuuming, charging, and recovery by removing valve core in the service port. Vacuum gauge can be attached.

**Improved the performance of the valve core removal!!**

---

**R32**

**R410A**

**R**

---

**Filling / Recovering Refrigerant Tool**

Copy to 1/4" for 1/4"

Copy to 5/16" for 5/16"
Cooling support system for recovery machine

Cooling Unit CL3

Code No. ES801

- R32 applicable
- R410A applicable
- Copper piping: 3/8" (1/4"-3/8" flare shared)
- Ball valve

Effectively cools down the refrigerant with 3/8" condenser when the ambient temperature is high.

Improves recovery efficiency in summer climate or large volume by using together with recovery machine.

The necessary tool for recovery operation in summer time.

- Recovers up to 6 units at the same time.
- Possible to install and uninstall hoses during the operation with the valve.
- Make connection port for recovery from equipment which has no service port, such as home use refrigerator, etc.

Applicable refrigerant


Voltage

made to order

Power consumption

65W / 102W

Connecting port

3/8" flare (with 1/4" adapter)

Weight

8.0kg

Standard accessories

3/8" × 1/4" quick adapter × 2 (Y19104)

Refrigerant recovery - vacuuming efficiency up tool

Header

Code No. TF013

- R32 applicable
- R410A applicable

Receives up to 6 units at the same time.

Increase efficiency and save the working hours !!

Screw diameter

flare 1/4" male

Adapter (Y06114K) is necessary for R32 / R410A.

Refrigerant recovery - vacuuming efficiency up tool

Piercing Valve

Code No. TF014

- R32 applicable
- R410A applicable

Make connection port for recovery from equipment which has no service port, such as home use refrigerator, etc.

Copper pipe size

3/16" - 1"

Connection port

1/4" flare (with Schrader valve)

Replacement Needle

Code No. TF015

Gasket

Code No. TF016

Refrigerant recovery - vacuuming efficiency up tool

Header (with ball valve)

Code No. TF039

- R32 applicable
- R410A applicable

Possible to install and uninstall hoses during the operation with the valve.

Increase efficiency and save the working hours !!

Screw diameter

flare 1/4" male

Adapter (Y06114K) is necessary for R32 / R410A.

Wagon for recovery machine

Recovery Machine Wagon

Code No. XP545

Can load Limit Scale also.

Weight

14kg

Loadable machine

Recover XLT, Eco Saver mini • R50 • R60S • TC • R100 • V200Eco

※ Can load 12L / 24L cylinder × 2 or 6L cylinder × 4 with a recovery machine.

Cool down strongly with a large fan!

Water source is unnecessary!!

Cylinder set up chain
**Refrigerant recovery & reclaiming efficiency up tool**

**Oil Separator**  
Code No. XP705

Protect a recovery machine by removing oil or the sludge when recovering refrigerant. Using the heat of discharged refrigerant. Easy to operate with valves on all ports.

- Double hooked – safety work.
- Removes oil, moisture, acid, particles, cutting chips during recovery.
- Protects recovery machine.

**Reclaim Unit**  
Recovery machine becomes refrigerant recovery & reclaim machine with Reclaim Unit.

**Protection tool for recovery machine**

**Filter Dryer**

Removes oil, moisture, acid, particles, cutting chips during recovery.

- Protection tool for recovery machine
- Refrigerant status check tool

**Refrigerant Cleaner Eco : Filter Dryer 2PCS SET**

**For Refrigerant Cleaner Eco : Filter Dryer 2PCS SET**

**Sight – Glass** (male × male)

Check the flow of liquid refrigerant. (New refrigerant is normally charged in liquid)

Drying condition can be checked with moisture indicator when vacuuming.
Open the solenoid valve of A/C forcibly and recover refrigerant completely!!

Charging oil to compressor

**Oil Pump DX**

Code No. Y77930

Applicable to use under pressure.

- **Discharge Volume**: 112ml / time
- **Max Discharge Pressure**: 1.7MPa
- **Thread diameter**: 3/8” flare

Use adaptor for different size.

<table>
<thead>
<tr>
<th>Spare parts</th>
<th>Item</th>
<th>Code No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat Packing HDPE</td>
<td>Y77925</td>
<td></td>
</tr>
<tr>
<td>O-Ring for Piston</td>
<td>Y77931</td>
<td></td>
</tr>
<tr>
<td>Piston Rod Set</td>
<td>Y77932</td>
<td></td>
</tr>
<tr>
<td>Spring &amp; Ball Set</td>
<td>Y77935</td>
<td></td>
</tr>
</tbody>
</table>

Recommeded ASADA products for refrigerant recovery

**Refrigerant recovery machine**

**Eco saver V230SP**
Code No. ES330

**Manifold**

4valve Manifold AF Kit
Code No. AI109C

**Filling/Recovering refrigerant & valve removal tool**

**Tool for Removing Valve Care**
Code No. AP303

**Applicable to maximum 20kg cylinder**

**Charging Scale CSII-50**
Code No. ES737
High level reclaiming of recovered refrigerant
Contribute to energy saving !!

ECO CYCLE RC200

Speedy reclaiming with triple heater & built-in heat exchanger.
Heat exchanger strongly separates refrigerant from oil. (simple distillation)
Filter removes acid and moisture.
Possible to recover & reclaim with high purity by using with recovery machine !!
Reduce operation errors with coloured ball valve and easy-to-read gauge.

Triple Heater
- Heat exchange of 2 types of oil separator and rubber heater.
- Equipped with rubber heater to the body part and the bottom of the oil separator where are easy to freeze by refrigerant.
- By two heaters, reclaim without being condensed.
- Heat-exchange by oil separator and heat the refrigerant to promote the vaporization, which makes reclaiming efficiency up and the pressure of the refrigerant (after reclaiming) down.

Large capacity filter
- Large capacity filter makes reclaiming efficiency up. Easy to replace the filter.

Pressure gauge
- Large and coloured gauge – easy to read.

Valve
- Coloured ball valves for the easy operation. Valves are placed vertically to reduce the operation errors.

Reclaiming capacity

<table>
<thead>
<tr>
<th>Refrigerant</th>
<th>R12</th>
<th>R22</th>
<th>R32</th>
<th>R500</th>
<th>R502</th>
<th>R507A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture (ppm)</td>
<td>~20</td>
<td>~20</td>
<td>~20</td>
<td>~20</td>
<td>~20</td>
<td>~20</td>
</tr>
<tr>
<td>Acid (ppm)</td>
<td>~1</td>
<td>~1</td>
<td>~1</td>
<td>~1</td>
<td>~1</td>
<td>~1</td>
</tr>
<tr>
<td>Total residue on evaporation (%)</td>
<td>~0.01</td>
<td>~0.01</td>
<td>~0.01</td>
<td>~0.01</td>
<td>~0.01</td>
<td>~0.01</td>
</tr>
<tr>
<td>Non condensable gas (%)</td>
<td>~1.00</td>
<td>~1.00</td>
<td>~1.00</td>
<td>~1.00</td>
<td>~1.00</td>
<td>~1.00</td>
</tr>
</tbody>
</table>

Filter Dryer

For easy reclaiming of used refrigerant !!
World – First Electrostatic Separation technology!!

ECO CYCLE AURORA

High purity reclaiming of used refrigerant (Applicable to R410A)
For reclaiming & recovering from A/C, cleaning refrigerant pipes

Electrostatic Separation Method!!
Remove moisture and oil in the refrigerant

■ It charges the impurities in refrigerants by friction with the needle valve, and removes the impurities by the electrostatic precipitator. The moisture that has been separated with the impurities will be removed by a high performance filter dryer and possible to reclaim purely as new. (PAT.)

Reclaims purely the same level as the distillation
■ Even though it’s small & light weight, by adopting, Electrostatic separation method, ensures the high purity reclaiming.

New development
■ Asada newly developed “Electrostatic separation method”. Removes not only oil & contaminated refrigerants as a large distillation apparatus, but also moisture & acid by a large filter dryer.

Applicable to mixed refrigerants such as R410A
■ Possible to keep mixed refrigerants in minimum changes of the composition because it directly absorbs the refrigerants in liquid & fill it to a cylinder.
■ Reclaiming R407C causes a composition change.

Portable
■ Large wheels and casters make it possible to carry the machine in worksites.

Refrigerant recovery & reclaim machine

Eco Cycle Aurora II

Code No. AR022
Code No. AR023 (220~240V)

Portable and high purity by Electrostatic Separation technology!!

Recovery
Reclaim speed
Reclaiming capacity
Moisture (ppm)
Acid (ppm)
Total residue on evaporation (%) Non condensable gas (%)

Refrigerant R410A R22

Approved
R32 R410A

High speed reclamation 180g/min “Fluorocarbons Recovery and Destruction” compliant machine

R32 applicable
R410A applicable

Voltage
Made to order
Compressor
560W* Oil less compressor with ceramic bearing
Oil separator
Heat exchange style•Capacity 2L
Weight
60kg
Operating temperature
5~35°C
Applicable cylinder
Float sensor type: Cylinder with sensor (6L~12L~24L~40L~120L)
Weighing type: With limit scale, cylinder w/o sensor (12L~24L~40L~120L)

Standard accessories
1/4” Charging hose puls II with ball valve 183cm (red•blue)×1, AR filter core, Filter

Based on Notice No.139 by Ministry of Trade and Industry compatibility self-certified product
ARI (AIR: CONDITIONING & REFRIGERATION INSTITUTE) permissible substitute

AR Moisture Adsorbent (PACK) Code No. AR222
Improve the efficiency of chiller “Automatically” “Large Energy Saving” by minimizing energy consumption “Keep Stable Operation” of system preventing from shut-down by overload

**AIR PURGE UNIT**

Easy installation
- Cost less to install than comparable purge units.
  Utilizes existing purge connections.
  Less or minimum soldering or welding required.

Less maintenance
- The purge tank design shall include a provision for cleaning the interior coils and surfaces from corrosion build-up.

Fast
- Fast non condensable removal and operates independent of system (chiller) operating status.
  Automatic operation for 24 hours
  Automatic self-adjusting microprocessor.
  Controller learns system’s needs operating only when necessary saving energy and wear on purge unit.

Low emmission
- The high efficiency purge system shall expel no more than 0.59 pounds of refrigerant for every pound of air purged (0.0049 lbs of CFC per pound of air when used with an optional activated Carbon Emissions Collection Canister.

### Chiller refrigerant cleaners

**Air Purge Unit**

<table>
<thead>
<tr>
<th>Model</th>
<th>R11</th>
<th>R113</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No.</td>
<td>FCA11</td>
<td>FCA113</td>
</tr>
<tr>
<td>Applicable</td>
<td>R11, R123</td>
<td>R113</td>
</tr>
<tr>
<td>Electrical requirements</td>
<td>99–121 VAC, 50Hz, 1 Phase, 15 Amp Fused Circuit</td>
<td></td>
</tr>
<tr>
<td>By AIR PURGE UNIT only</td>
<td>Expels 270g of CFC per 450g of air removed</td>
<td></td>
</tr>
<tr>
<td>With the canister (Optional)</td>
<td>Expels only 2g of CFC per 450g of air removed</td>
<td></td>
</tr>
<tr>
<td>Operating environment</td>
<td>4~ 50°C</td>
<td></td>
</tr>
<tr>
<td>Storage environment</td>
<td>–30~ 600°C</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>508 x 406 x 635mm</td>
<td></td>
</tr>
<tr>
<td>Condensing unit</td>
<td>R134a, 250W, Air Cooled, Centrifugal Chiller</td>
<td></td>
</tr>
<tr>
<td>Filter / Drier</td>
<td>Dual streamline One Pass vapor inlet filter—drier</td>
<td></td>
</tr>
<tr>
<td>Filter / Drier (Optional)</td>
<td>84 square inch liquid line filter—drier</td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td>Vapor Inlet 1/2” OD–Liquid Return 1/4” OD</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>50kg</td>
<td></td>
</tr>
</tbody>
</table>
Improve the efficiency of chiller
"Automatically"
"Large Energy Saving" by
minimizing energy consumption
"Keep Stable Operation" of system
preventing from shut-down by
overload

**OAM PURGER**

Energy saving design

- Power rate nearly same 250W electric light, will become reduction of working cost.
- In this machine operation of oil separation and refrigerant cleaning is accomplished via a unique process utilizing the properties of gravity, heat and pressure exclusively to function, does not utilize mechanical pumps of any type.

Recover peak operate efficiency

- Separating and reclaim oil melt into refrigerant of centrifugal chiller recharge.
- Get rid of [Acid] and [Moisture] from refrigerant and oil, recovering capacity for the best working efficiency.
- About one week, can be fractional distillation from chiller 385~560kg refrigerant.

Maintenance reduction

- Established type machine can reduce to take cost and time for regular maintenance, for example “refrigerant recover oil separation / reclaiming refrigerant charging”.
- The Filter Dryer can be possible to exchange while system operating.

Working for 24 hours

- This machine can be working for 24 hours / 365days regardless of the chiller operation.
- The refrigerant is permanently maintained in a virtual oil free state.

No need to manufacturing permission, set up at once

- It is possible to set up at once to establish low pressure centrifugal chiller when purchased.

---

**Chiller refrigerant cleaners**

**Oam Purger** PAT.P

**Studies supported by ASHRAE** (which also site other studies) and statements of a major chiller OEM indicate that oil in refrigerant reduces heat transfer and therefore efficiency.

Oil content of 1% (by weight) produces a reduction of 3% efficiency and up to 15% produces a reduction of 40 to 50% in efficiency.

The reduction in efficiency tends to be consistent for different refrigerants.

---

**Table: Oam Purger Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>R11</th>
<th>R113</th>
<th>R123</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No.</td>
<td>FCR11S</td>
<td>FCR113S</td>
<td>FCR123S</td>
<td>FCR12S</td>
</tr>
<tr>
<td>Electrical requirements</td>
<td>1–Phase, AC120V, 50/60Hz, 15 Amp Fused Circuit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating environment</td>
<td>21°C ~ 40°C ~ 5% ~ 80% relative humidity, non-condensing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage environment</td>
<td>17°C ~ 48°C ~ 5% ~ 80% relative humidity, non-condensing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>445 × 305 × 280mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>13kg (shipping weight ~23kg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td>Three 1/4” OD connection – (Combination Vapor / Liquid &amp; Oil)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distillation operating temperature</td>
<td>68°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressures</td>
<td>Tested Pressure 350psi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of refrigerant processed (Average)</td>
<td>477kgs per week, 24,750kgs per year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight of refrigerant processed per cycle (Average)</td>
<td>4.2kgs refrigerant–oil mixture per cycle</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Refrigerant decomposition in a factory!!

**PLASMA X**

Detoxifying processing of non-reclaiming refrigerant.
For operation in a factory or a working site where it is impossible to take refrigerant outside.

### Applicable refrigerant
R12, R22, R134a, R407C, R410A, and more

### Method
Torch Plasma

### Voltage
3 phase 200V (※)

### Processing capacity
2kg/hour (R22)
2kg/hour (R134a)
1kg/hour (R12)

### Decomposition rate
more than 99.9%

※ Other voltage available.

① Installation: Concrete floor foundation. (weight of unit ~700kg)
Need to keep the room temperature under 40°C.
② Power: 3 phase 200V, capacity of more than 10KW is required.
③ Water supply: 500L per day water consumption.
④ Plumbing: Plumbing sufficient for 50L/min water disposal is required.
⑤ Pipe for air: Compressor of 2.2KW (while operating nitrogen emission device) is required.
⑥ Pipe for exhaust gas: Duct for ø100~ø150mm is required.
⑦ Cooling device: Cooling tower (accessory part) must be installed outside.
⑧ Nitrogen gas: Approx. two 7m³ cylinders are required per day, although it is depending on the processing volume.

---

**ASADA plasma technology decompose fluorocarbon 99.99%!!**

Plasma decomposes fluorocarbon and detoxifies into calcium fluoride and calcium chloride.

### Small, compact and transportable to factory and work site
This device can be used when decomposing inside a factory or working site where it is impossible to remove refrigerant from the site.

### Easy operation
Operating by a touch panel.

### Preparation works required for installation

<table>
<thead>
<tr>
<th>Item</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable refrigerant</td>
<td>R12, R22, R134a, R407C, R410A, and more</td>
</tr>
<tr>
<td>Method</td>
<td>Torch Plasma</td>
</tr>
<tr>
<td>Voltage</td>
<td>3 phase 200V (※)</td>
</tr>
<tr>
<td>Processing capacity</td>
<td>2kg/hour (R22), 2kg/hour (R134a), 1kg/hour (R12)</td>
</tr>
</tbody>
</table>
| Decomposition rate | more than 99.9%

※ Other voltage available.