

A/C Recovery, Recycling And Recharge Machine

EKM ECO

Operating And Service Manual



CE


ENGLISH

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SAFETY WARNINGS

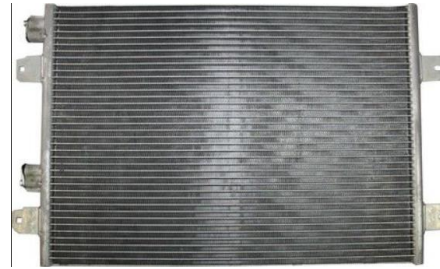
- ❖ Read this manual carefully and understand all the procedures outlines in this manual before operating the unit. Failure to follow these procedures could result in personal injury or property damage.
- ❖ Allow only qualified personnel to operate this unit. The operator must have basic knowledge of air conditioning and refrigeration systems, including potential hazards associated with the handling of refrigerants and systems under high pressure.
- ❖ Always wear safety goggles and appropriate protective clothing. Avoid contact of liquid refrigerant with the eyes and prolonged skin exposure.
- ❖ Pressurized tank contains liquid refrigerant.
- ❖ Never fill the refrigerant tank to more than 80% of its maximum capacity.
- ❖ Hoses may contain refrigerant under pressure.
- ❖ Make sure to use a properly grounded AC outlet.
- ❖ Do not operate the unit with a damaged cord or plug. Extension cords should not be used unless absolutely necessary.
- ❖ Disconnect unit from power supply before removing any protective cover.
- ❖ Do not expose the unit to wet environment.
- ❖ Only use the correct refrigerants.
- ❖ Avoid breathing in refrigerant vapors. Use only in well ventilated areas.
- ❖ The unit must be transported in a vertical position.
- ❖ The refrigerant scale must be fixed in place before transport.

TECHNICAL SPECIFICATIONS

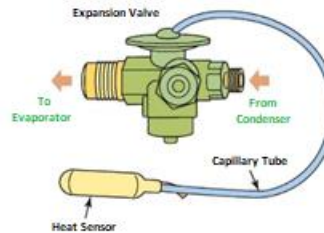
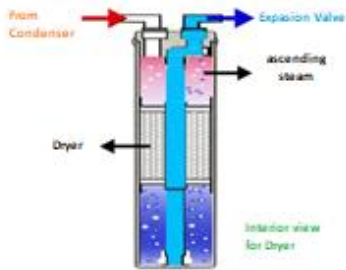
Model.....	EKM ECO
Refrigerant Types.....	R134a & R1234yf
Power Supply	220 V \pm 10% / 50Hz
Display.....	4x20 LCD
Storage Tank Capacity	15 kg
Scale Resolution.....	\pm 5 gr
Compressor.....	1/3 HP 12 cc hermetic
Vacuum Pump.....	3 m ³ /hour
Recovery Rate	450 gr/min maximum
Filter Capacity	150 kg
Operating	8°C to 49°C
Low Pressure Gauge	16 bar
High Pressure Gauge	40 bar
Hose Length.....	180 cm (Optional 250 cm & 300 cm)
Dimensions.....	45 cm x 110 cm x 55 cm
Weight.....	82 kg

VEHICLE AIR CONDITION SYSTEM

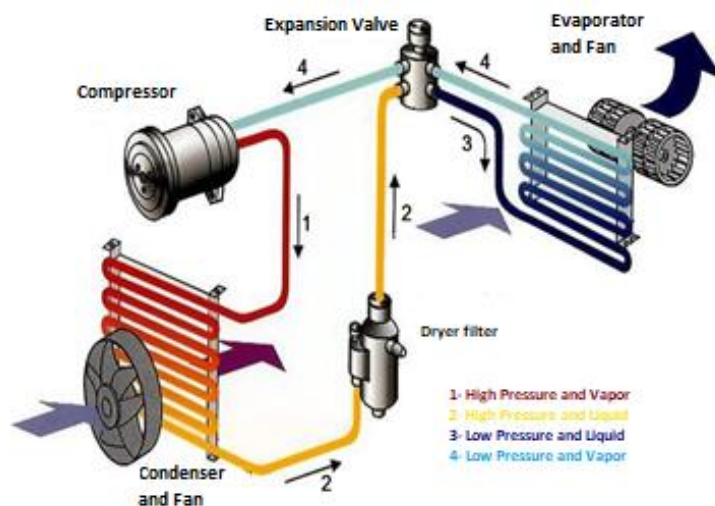
COMPRESSOR : It increase pressure of refrigerant. **CONDENSER:** Role of this unit transition refrigerant to liquid state from gaseous state
 Meanwhile refrigerant temperature increase too.



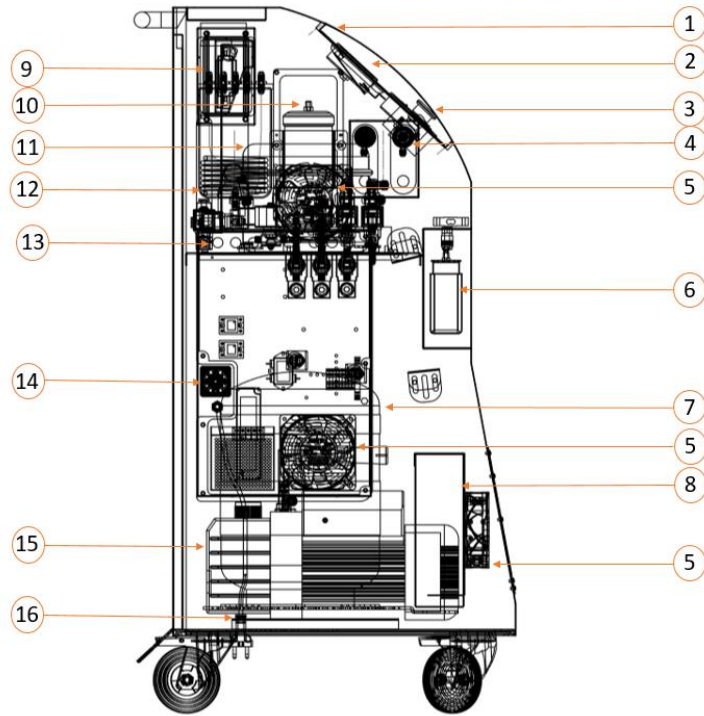
DRYER FILTER: It filter and dry refrigerant. **EXPANSION VALVE:** A expansion valve is a component in refrigeration and air conditioning systems that controls the amount of refrigerant released into the evaporator thereby controlling superheat.



EVAPORATOR: An evaporator is a device in a process used to turn the liquid form of a chemical substance such as water into its gaseous-form/vapor. The liquid is evaporated, or vaporized, into a gas form of the targeted substance in that process.



COMPONENTS



1	Metal Case	5	Fans	9	Gas analyse mode	13	Block
2	H.P And L.P Gauges	6	Oil Bottles	10	Dryer Filtre	14	On/Off Button
3	Emergency Stop Button	7	Gas Tank	11	Compressor	15	Vacuum Pump
4	Adaptors	8	Condenser	12	Oil seperator	16	Load Cell

CONTROL PANEL



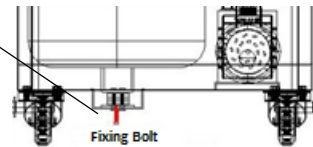
SETUP

Open the box and take out accessories.Box contents:

- EKM ECO Unit
- Low pressure(Blue) and high pressure(Red) hoses and vehicle adaptors
- Power cable
- User manual and warranty certificate

BEFORE FIRST USING:

1. Place the unit on a flat surface.
2. Connect quick-action coupler valves to the service hoses (DO NOT OVERTIGHTEN).
3. Remove aluminum foil from the vacuum pump and install oil filler cap.
4. Remove fixing bolt located under the unit.
5. Plug the power cable into a grounded power outlet.
6. Turn on the power switch.
7. Perform a vacuum calibration (page 13).



WARNING: The scales are calibrated at the factory. There is no need to calibrate again.

MENU

RECOVER FROM VEHICLE

The device draws gas from the air conditioning system of the vehicle, separates it from oil and particles, trap the passed acid and moisture through by the filter, purifies it and transfers it to its own tank.

- Connect service hoses to the vehicle and open adapters.
- Select REC FROM VEHICLE then press ENTER.
- device will start recovering refrigerant from the A/C system.
- If you see the warning OPEN USED OIL VALVE,
 - open used oil valve SLOWLY.
- If you see the warning CLOSE USED OIL VALVE,
 - close used oil valve then press ENTER.
- Screen will display PROCESS COMPLETE.



WARNINGS:

- Some refrigerant will remain in the compressor, hoses or heat exchangers. The amount is dependant on the ambient temperature and last operation performed.
- If you operate the vehicle until the normal operating temperature before operation, the gas in the air conditioning system will heat up and the duration of gas extraction from the car will be shortened. The vehicle A/C must be off.

CHARGE VEHICLE

Uses to charge vehicle A/C system with refrigerant.

- Connect service hoses to the vehicle and open adapters.
- Select CHARGE REFRIGERANT then press ENTER.
- There is two choice



MANUAL&DATABASE



MENU

MANUAL

Operator must include the manually
(Vacuum time, leak control, amount of gas)

VACUUM TIME

Vacuum time entered to make the air conditioning system vacuum
The purpose of this process is to remove the air, water vapor and other non-condensable gases from the air conditioning system.

LEAK CONTROL

The purpose of this operation is to see if the vacuum level is deteriorating.

- Screen will display LEAK CONTROL TIME.
- Use UP & DOWN buttons to set the desired time.
- To skip leak control operation set the time to zero.
- Press ENTER to proceed.

WARNING:

- Unit will stop operation and screen will display LEAK IN SYSTEM in case of a leak.
- Vacuum operation is required prior to Leak Control.

AMOUNT OF GAS

The purpose of this process is to enter the amount of gas we want to apply to system.



NOTE: In order to get better results we have to add gas (30-40gr.), hose amount to the amount of gas we want to print.

MENU

FIILLING OIL

The purpose of this operation is to add new oil to the vehicle A/C system.

WARNING: Vacuum operation is firstly required to Add New Oil.

- Screen will display ADD NEW OIL.
- Use UP & DOWN buttons to select YES or NO.
- Skip oil injection by selecting NO.
- Press ENTER to proceed.

WARNING: Open oil valve when you see the warning on the screen. Add the desired amount by watching cursors then CLOSE OIL INJECTION VALVE. After closing the oil valve, press ENTER to proceed.



DATABASE

In this option, the gas filling process will be done completely automatically.

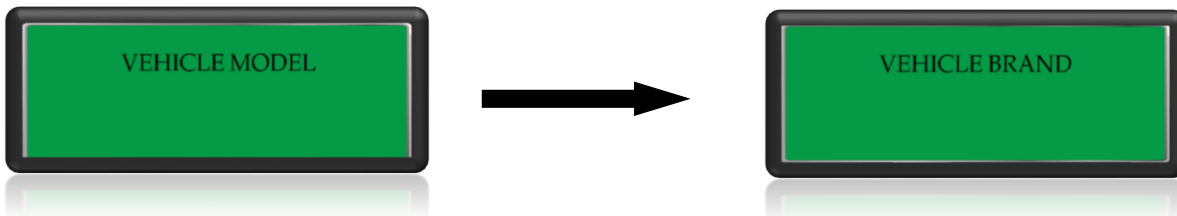


NOTE: it is not necessary to add the amount of gas which is the hose share in this process.

DATABASE

Select vehicle brand and model to charge vehicle A/C system with refrigerant.

- Select VEHICLE DATABASE then press ENTER.
- Use UP & DOWN buttons to select vehicle brand and model then press ENTER.
- Unit will proceed with Vacuum, Leak Control, Add New Oil and Charge operations.



MENU

REC FROM NEW TUBE

Add refrigerant to the storage tank.

WARNINGS:

- Do not fill the own storage tank to its full capacity.
- Turn the external tank upside down to speed up the process.
- Connect any one of the service hoses to the external tank and open tank's valve.
- Open the valve of the connected service hose, close the other one on manifold.
- Use UP & DOWN buttons to select REC FROM VEHICLE then press ENTER.
- Unit will start transferring refrigerant to the own storage tank.
- Operation will automatically stop when the storage tank is full or the external tank is empty.
- Stop the operation by closing external tank's valve.
- Screen will display COMPLETED.

Valve Test

Test all Valves, Motors and Fans.

Air Purge

Excess air in the storage tank is purged. During recovery, air might be sucked into the storage tank with refrigerant due to leaks in the system. The unit will perform automatic air purge when sensors detect excess air in the storage tank. Operation time might differ depending on the amount of air in the tank.

Usage Informations

This menu contains the following information:

- Last recovered amount
- Total vacuum time
- Filter usage
- Tank refilled amount
- Total amount recovered
- Total amount charged

MENU

SETTINGS

This menu for adjusting machine options and calibrations. To get password please contact to our customer service.

MACHINE SETTINGS

DATE / TIME

To adjust the Date and Time of machine.

LANGUAGE

Turkish and English languages are registered in it's own memory. User's request the desired language is loaded onto

SYSTEM VACUUMING

It is a process used to vacuum the system

SERVICE

Use to usage reset, tank capacity, filter capacity and oil bottle setting

CALIBRATIONS

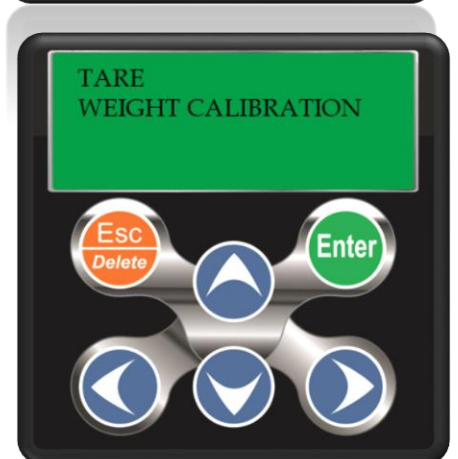
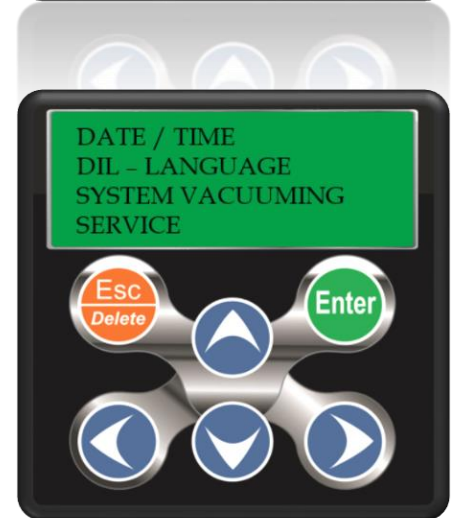
WEIGHT CALIBRATION

To do this, firstly we need an object that we know the net weight of it.

TARE: To reset the weight of machine own tank weight.

WEIGHT CALIBRATION: When you choose this menu it is automatically measured and the object which you know the weight of it, put it on the tank and press Enter to complete.

NOTE: The own tank must be completely empty



MENU

VACUUM CALIBRATION

- Select vacuum calibration option.
- For calibration open manifold valves and press ENTER.
- After a beep warning close the manifold valves and press ENTER.
- Machine automatically starts to countdown a timer and the number beside it also will decrease to a certain number.
- After finishing the operation screen will display COMPLETED.

WARNING: Don't execute if this action not necessary.



PRESSURE CALIBRATION

Select pressure calibration option

ZERO: By selecting this the pressure of machine is equalized to the atmospheric press.

GAIN: To perform this operation

- Combine manifold outlets with a single hose and open manifold valves.
- Charge 100 gr. Refrigerant
- Note the pressure of gauge
- Select the GAIN option.
- By using the arrows, insert the pressure which you noticed before in the bar section.
- To COMPLETE press Enter.



MENU

NEW OIL CALIBRATION

This menu for adjust new oil bottle Calibrations

Cannot be done unless it is necessary

WARNING: Fill the bottle with 250 ml of fresh oil to get real results



MENU

MAINTENANCE

CHANGE FILTER

Dryer filter keeps recovered refrigerant clean and moisture free. Filter must be replaced periodically in order to ensure the unit is working properly. Using full-time filters is not covered by the warranty. EKM MAX filters need to be replaced every 150 kg of operation. After 130 kg of operation, the unit will start reminding the user at every start up. When the filter reaches 100 kg, the unit will be locked.

- Order a new filter.
- Replace the filter.
- Turn on the unit.
- SERVICE > MAINTENANCE > CHANGE FILTER.
- Select FILTER CHANGE and press ENTER.
- Use UP & DOWN buttons to write password then press ENTER.



CHANGE VACUUM OIL

In order to maintain pump efficiency, vacuum pump oil must be changed regularly. Contaminated oil might lead to irreversible damage to mechanical components of the vacuum pump. Change vacuum pump oil under the following conditions:

- Every 30 working hours or when filter drier is replaced
- When the color of the oil becomes dark or cloudy
- Obtain an empty container to collect the used oil.
- Disconnect the unit from the electrical supply.
- Unscrew the oil filler cap.
- Unscrew the drain plug.
- Allow the oil to drain out.
- Close the drain plug.
- Pour in new vacuum pump oil through the fill hole until mid level.
- Replace oil filler cap.
- Turn on the unit.
- SERVICE > MAINTENANCE > CHANGE VACUUM OIL.
- Select VACUUM OIL CHANGE to erase the warning.



MENU

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To get password contact with customer service.

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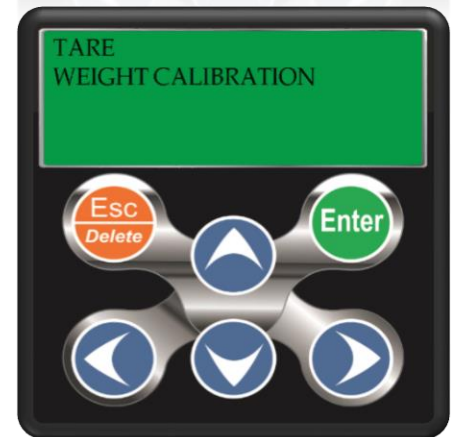
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- To COMPLETE press Enter.



TROUBLESHOOTING

Problem	Cause	Solution
Unit does not turn on	Power cord not plugged in	Plug in the power cord
	Power switch off	Turn the power switch on
	Circuit breaker error	Replace circuit breaker
	No power in AC outlet	Check power source
Unit does not recover	Manifold valve closed	Open valve
	Service adapters closed	Open adapters
	Storage tank full	Empty Storage Tank
	Vacuum calibration error	Re-calibrate vacuum
Unit does not charge	No refrigerant in tank	Fill tank with refrigerant
	Tank valve closed	Open valve
	Service hose couplers closed	Open couplers
	Service hose constricted	Straighten hose
	Leak in vehicle AC system	Find and repair leak
	Scale calibration error	Re-calibrate scale
Unit cannot pull vacuum	Loose hose connection	Tighten hose connections
	Leak in vehicle AC system	Find and repair leak
	Oil injection valve open	Close oil injection valve
	Leak in hoses	Find and repair leak
	Contaminated vacuum pump oil	Change vacuum pump oil
Weight inaccuracies	Unit moving	Do not move unit
	Storage tank touching the unit	Prevent contact

WARRANTY

WARRANTY TERMS

1. Warranty period is (...) years and commences on the delivery date of the product.
2. The entire product except the hoses and the adapters is warranted by our company.
3. The warranty certificates without the sales date written by the seller/dealer and stamp and signature are invalid.
4. If the product becomes defective within the warranty period, the time elapsed during repair is added to the warranty period. The repair period of the product is maximum 30 (thirty) working days. This period starts as of the date the defect of the product is notified to the service station, or if a service station is not available, to any one of the product's seller, distributor, agency, representative, importer or manufacturer. If defect of the product is not remedied within 15 working days, the manufacturer and importer must allocate another industrial product with similar functions to the use of the consumer until repair of product is completed. National, legal and religious holidays and weekends are not considered as working days.
5. If the product becomes defective within its warranty period due to faults of material and workmanship or assembly, its repair shall be performed without demanding any charges as a cost of workmanship or replaced part, or by any other means.
6. Even though the consumer uses its right of repair, if;
 - * As of the delivery date of the product to the consumer, within one year, provided that the determined warranty period is valid; the same failure recurs more than twice, or different failures occur more than four times, or total of different failures within the determined warranty period is more than six, and also if these failures prevent benefiting from the product continuously;
 - * The required maximum repair period is exceeded;
 - * It is determined that the defect cannot be remedied with a report prepared by the service station of the company, and if a service station is not available, by any one of the product's seller, distributor, agency, representative, importer or manufacturer, respectively; the consumer may request the replacement of the product free of charge, or return of the cost or a discount in the cost at the rate of defect.
7. Malfunctions taking place due to the use that is other than the ones stated in the operating manual of the product will not be covered under the scope of the warranty.
8. The warranty will expire automatically whenever one of the following occurs: failure to perform maintenance; **use of non-original spare parts, non recommended oils and/or gases**; use of expired filters; use of unsuitable refrigerants and/or lubricants; damage caused by shocks, fires, or other accidental events.
9. The manufacturer declines any and all responsibility for damage to vehicles on which recovery/recycling and recharging are performed if said damage is the result of unskillful handling by the operator or of failure to observe the basic safety rules set forth in the instruction manual.
10. This warranty does not cover damage arising during transportation. The product for which repair under guarantee is requested must be shipped to the manufacturer under the customer's exclusive responsibility.
11. The manufacturer shall not be responsible for any additional costs associated with a product failure including, but not limited to, loss of work time, loss of refrigerant, cross-contamination of refrigerant, and unauthorized shipping and/or labor charges.
12. For the problems that may arise concerning the certificate of warranty, you may refer to the General Directorate for the Protection of Consumers and Competition of the Ministry of Industry and Trade.

WARRANTY

WARRANTY CERTIFICATE

MANUFACTURING COMPANY

TITLE ELCİ ELEKTRONİK KLİMA SANAYİ VE TİCARET LTD. ŞTİ.
ADDRESS İVEDİK ORGANİZE İNDUSRIAL REGION WOOD WORKING SITES
1354. ST. 1357. Qr. NO: 30 YENİMAHALLE / ANKARA / TÜRKİYE
TELEPHONE +90 312 395 53 53 (PBX)
FAX +90 312 395 18 86

PRODUCT

TYPE REFRIGERANT RECOVERY RECYCLE RECHARGE MACHINE
BRAND ELCİ
MODEL EKM ECO
SERIAL NUMBER
PLACE AND DATE OF DELIVERY
WARRANTY PERIOD
MAXIMUM REPAIR PERIOD 30 WORKING DAYS

DEALER OR DISTRIBUTOR COMPANY

TITLE
ADDRESS
TELEPHONE
FAX
INVOICE DATE AND NUMBER

SUGGESTIONS

Gases and oils recommended by the manufacturer;

Refrigerants:

- ✓ Tazetti
- ✓ Solkane
- ✓ AG Aedge
- ✓ Arkema
- ✓ Honeywell
- ✓ Chemours

Compressor Oils:

- ✓ ELCI PAO Compressor Oil
- ✓ Reniso PAG
- ✓ Reniso Triton SEZ 68 POE
- ✓ Reniso Triton SE 170 POE

Vacuum Pump Oils:

- ✓ ELCI Vacuum Pump Oil
- ✓ Value Vacuum Pump Oil

ABOUT US

ELCI Electronic Air Conditioning Industry Trade Limited Company was founded in 2003 and has become the leader in the production of Air Conditioning Service Stations in a short time.

Since its foundation, **ELCI** had contributed to continuous development with production according to Turkish Standards and European norms.

We are awarded with ISO 9001:2008 that has the validity all around the world and CE certificate that satisfies all quality and safety requirements necessary for European Union (EU) countries.

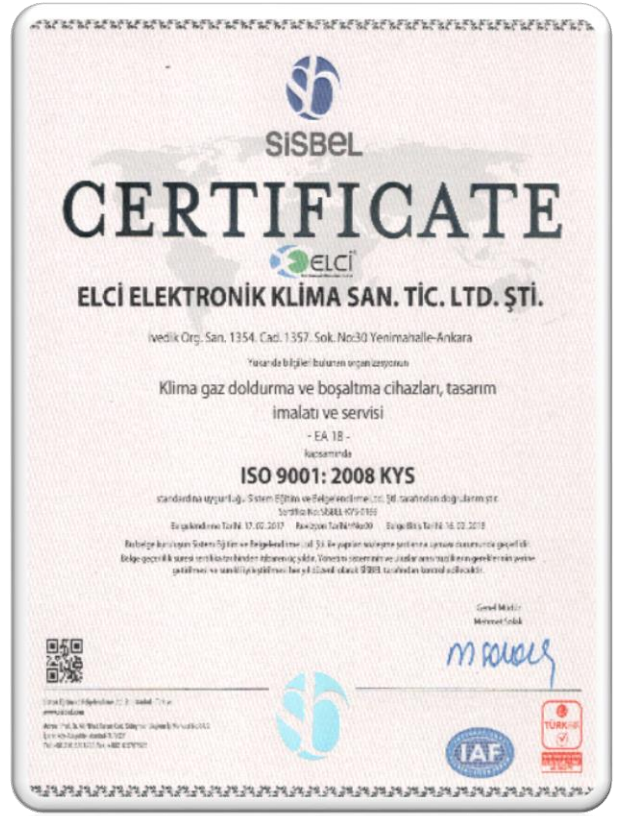
Our customer oriented management system and continuous research and development activities enable us to offer the best price to meet the expectations of the customers at highest level, without compromising the quality. From design to after sales in every stage of production, we are contributed to Total Quality Management System.

The first full automatic recharge station in Turkey was developed and produced by **ELCI** in 2003 with a great success. And in 2013 another milestone in the company's history, is the design and production of the first recharge station operating by a tablet via Bluetooth technology. From the beginning, our experienced team dedicated to follow the technological developments to produce more user friendly products for more environmentally friendly world.

MUNIMENTS



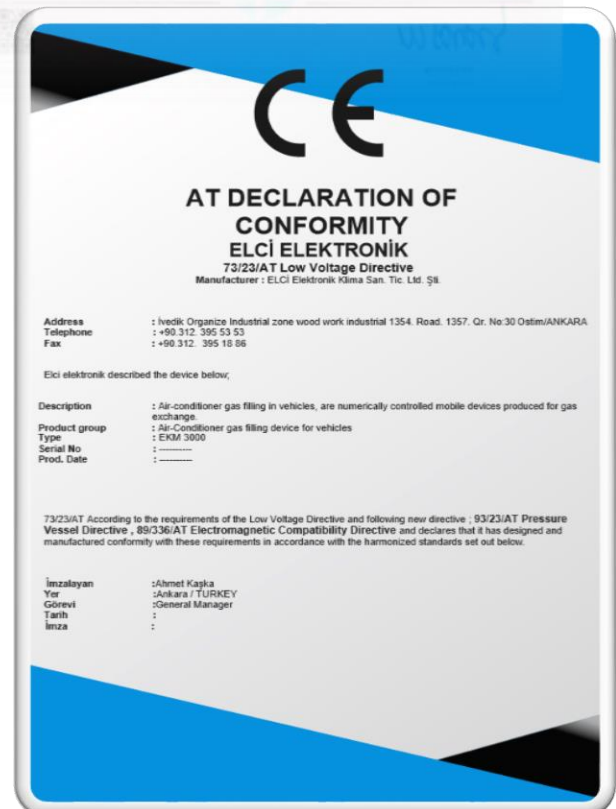
SERVICE QUALITY DOCUMENT



ISO 9001:2008



BRAND RENEWAL CERTIFICATE



CE DECLARATION OF CONFORMITY