WESTERN™ AIRCONDITIONING

QUALITY ASSURED FIRM ISO 9001 MERT CERT BSI
MSZ EN ISO 9001:2001

USE AND INSTALLATION MANUAL **ELFO**

Heat pump air conditioning system with recessed condensing unit

MONO

ELSKOV - 12

ELSKOV - 18

DUAL

ELMOV2-14H5

ELSKOV2 - 18

TRIAL

ELSKOV3 - 24

Version1.3

western.nl

CE DECLARATION OF CONFORMITY

Description

MONO/ MULTI DC INVERTER ARIA-ARIA

Modello - Model

ELSKOV-12
ELSKOV-18
ELMOV2-14H5
ELSKOV2-18
ELSKOV3-24

Is in compliance with the follow ECC direcrives, latest modification included, and the relevant nationale granting regulations in force:
2004/108/CE
2006/95/CE
2003/108/CE
2011/65/CE
2012/2016/CE

INDEX

1. GENERAL INFORMATION

1.1 SYMBOLOGY

Within this publication and / or inside the equipment we used the following symbols:

U

USER: Information, paragraph, chapter Manual affecting the user or the user.

INS

INSTALLER: Information, paragraph, section of the manual that affect the installer.

CAT

TECHNICAL ASSISTANCE CENTRE: Information, paragraph, chapter of the manual that affect the service center.

IMPORTANT: Calls attention to technical information and practical advice that make possible a more efficient use and economical equipment.

OBLIGATION: Calls attention to actions that impose an obligation in order to obtain the correct functioning of the machine.

WARNING: Calls attention to actions that, if not correctly performed, may cause serious injury.

PROHIBITION: Calls attention to actions that impose a ban.

VOLTAGE WARNING: Calls attention to actions that, if not carried out correctly, can cause serious injury or death to exposed persons.

DANGER HIGH TEMPERATURES: Calls attention to actions that, if not correctly performed, may cause serious personal injury caused by the high temperature of the components.

1.2 USE ALLOWED

These appliances have been designed for heating and / or cooling of the air. A different application, unless expressly authorized by Tekno Point, is to be considered improper and therefore not permitted.
Tekno Point excludes all contractual and non-contractual liability for damage caused to people, animals or things by incorrect installation, adjustment and maintenance, improper use or as a partial or superficial reading of the information contained in this manual. In addition, the ongoing improvements of the products, reserves the right to change the data in any time and without notice and is not responsible for any inaccuracies contained in this document, if due to printing or copying errors.
Please read this file, the execution of all work must be performed by qualified and experienced personnel, knowing the rules in force in different countries.
The guarantee is invalidated if they do not meet the above mentioned directions.
The documentation supplied with the unit must be delivered to the end customer (user) who should keep it carefully for future maintenance or service.

Upon delivery of the goods by the carrier, check the integrity of the packaging is that the units. Should you find any damage or lack of components, indicate this on the delivery note to the unit's receipt: please make an all-party control, in order to verify that the transport did not cause damage, the damage may be present must be communicated to the carrier, adding the clause reserves on the transport document, specifying the type of damage, also inform, by fax or registered mail within 8 days from the date of receipt of goods, a formal complaint to the company.

The Owner's Manual is an integral part of the equipment; it is recommended to read and kept with care.
Unpack only with equipment placed in the installation position. After removing the packaging, handling should be carried out by qualified personnel and equipped with adequate facilities to the weight of the structure. The manipulation of the condensing unit is only permitted in the vertical position maintained equipment.

1.3 OBSERVATIONS

Keep the manual in a dry location to avoid deterioration. carefully read and understood all the information contained in this manual.
Pay particular attention to the operating standards with **“DANGER,” “PROHIBITION” or “REQUIRED”** because, if neglected, may cause damage to the machine and / or to persons and property.
For anomalies do not by this manual, contact the Customer Service. Tekno Point accepts no responsibility for any damage due to improper use of the machine, and a partial or superficial reading of the information contained in this manual.

The device must be installed in such a way as to make possible the maintenance and / or repair.

The warranty does not cover in any case cover costs due to lifting apparatus and platforms or other lifting systems that would be necessary to carry out warranty work.

Tekno Point does not emit drawings or specifications of the connection systems. Any departure from the requirements contained in this manual must be validated in writing by the technical Tekno Point.

1.4 WARNINGS AND PRECAUTIONS

1. Do not put your fingers do other objects in the inlet and outlet holes.

2. You must install the unit in a dry place. If the unit is directly exposed to direct heat sources need to be protected from them.

3. The unit should be used only for purposes specified by the manufacturer.

4. Do not insert any object above or below the unit.

5. Around the unit, there must be sufficient space for cleaning or for repair in case of need.

6. The positioning in the following locations can cause malfunctions:
locations that contain mineral oil, places where air can be high in salt (proximity to riverside areas or marine coasts), places with the presence of sulfur, places where there are large fluctuations in the power supply, places where there are flammable substances such as fossil fuels (eg natural gas, IPG, diesel) or kitchens, heating plants, industrial, places where there are chemical substances and / or explosive gases and high power flash and places where acids are present and / or alkaline substances.

1.5 NOTES FOR THE INSTALLER

You need to choose a suitable mode of transport for the unit so that they can not cause problems along the way that might impact on its functional structure. Maintain the condensing ELF retractable in the vertical, as indicated by the arrow. Do not flip or place horizontally. Move the unit from the truck to the installation site without removing the original packaging if possible, which also serves as protection. If the media outdoor unit are in contact with metallic parts of the building, there must be effective to isolate the unit according to the technical norms in force, in order to avoid problems and / or noise and / or vibration transmission along the elements of metal continuity between exterior and part of the building units. If you install the unit in a place isolated or very hot and humid, which can be frequent phenomena of lightning, provide the appropriate protection systems units as voltage arresters and / or current arresters. It is necessary that the metal exterior of the unit is connected to the earth conductor and from the latter to the relative dispersion system.
According to Directive 89/336 / EEC. During installation, to prevent the formation of a power sparks during the start of the compressor, observe the following conditions:
- The connection to the air conditioner must be run directly to the main line of supply.
- No other electrical device must be connected to the power line conditioner service (switchboard).
- Ensure that the operation can take place simultaneously with the use of other equipment such as washing machines, air conditioners and / or electric ovens.
- For more on nutrition outdoor unit details check the technical data on the label.
- For other problems related to plug the external drive is not specifically mentioned contact technical service Tekno Point.

To disperse the parts of the package, or leave them within reach of children as they are potential sources of danger. Packaging must be disposed according to local legislation.

Check upon receipt that there are no transport damage and / or handling, and that in the package are present all desired accessories.

1.6 OPERATING LIMITS

	Temp. Indoor [°C]	Temp. Outdoor [°C]
Thermal power Max.	27/-	24/18
Cooling capacity Max.	32/23	43/26

The operating temperature (outside temperature) for cooling is of 18/43 ° C.
For the heat pump is -7/43 ° C.

1.7 BEFORE INSTALLING

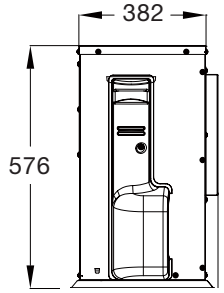
Before installing the equipment read carefully and keep the user manual and general conditions tekno point here below.

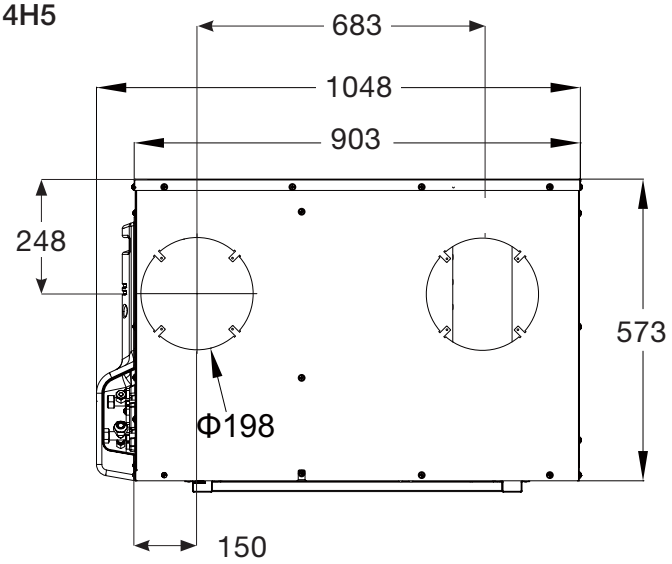
1. Make sure that the equipment meets the system requirements.
2. Check that the refrigerant and water pipes are correct to manufacturer's instructions.
3. Make sure that the electrical connection terminals arrivals the correct voltage (see type plate on the equipment applied identification). An incorrect voltage compromise irreparably major equipment components.
4. If you were to turn on alarms, refer to the user manual or contact the manufacturer of the CAT.
5. Do not force for any reason the operation of the machine tampering or altering the safety devices on the inside.
6. You can not make starts with incomplete systems, provisional or performed in a precarious way.
7. The connections to the machine must be performed by trained and competent personnel and must meet all safety standards and protection of health at the time and in force in the country where it operates.
8. The technical documentation (diagrams and operating instructions) must be kept in good condition in a location easily accessible for quick reference when needed.
9. The equipment must not be used for purposes that do not match the specifications for which it was built.
10. Respect the clearances indicated in this manual to ensure good access to the maintenance of the machine.
11. In the event occurring in damage caused by failure to observe the above points or the information contained in this booklet, the manufacturer reserves the right to partially or totally cancel the warranty.
12. For any clarification, please contact our technical department.

U INS CAT

2. DESCRIPTION

2.1 COMPONENTS AND MEASURES ELMOV2-14H5

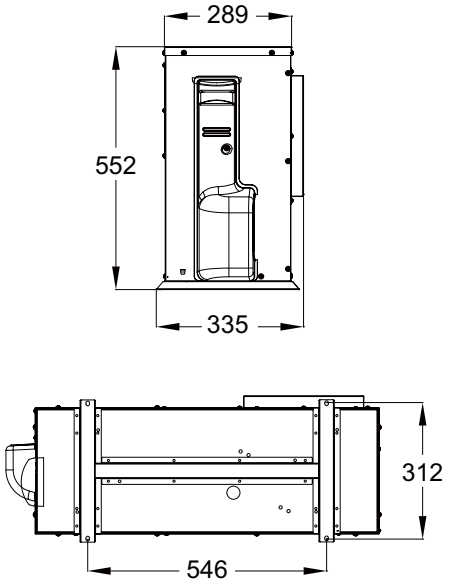


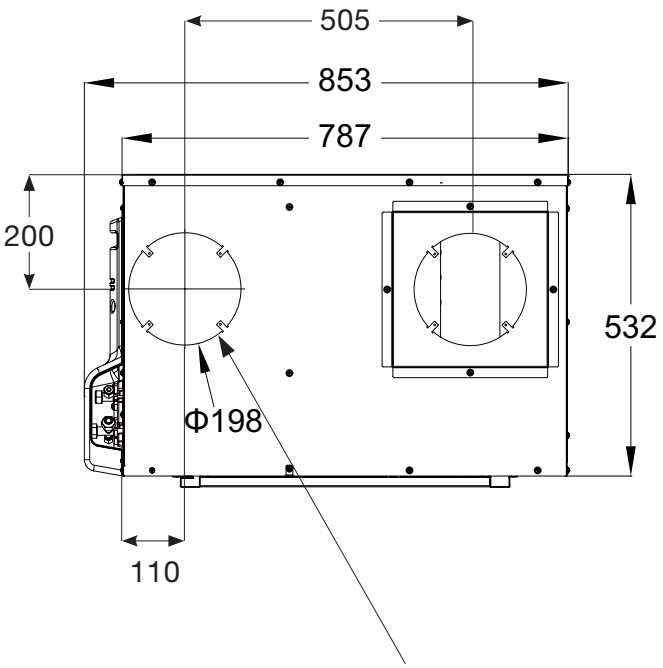


dimensions: mm

2.2 COMPONENTS AND MEASURES ELSKOV-12

dimensions: mm



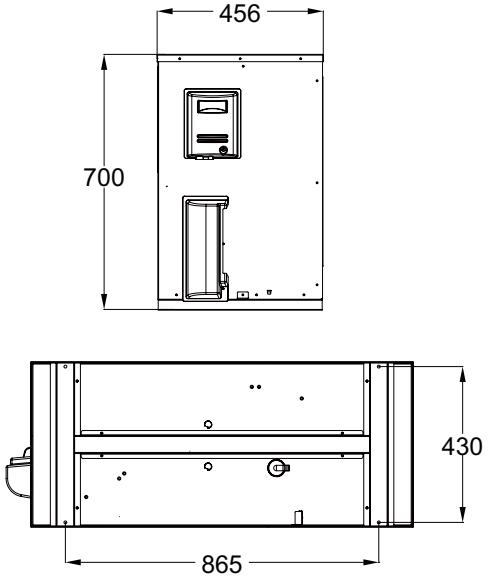


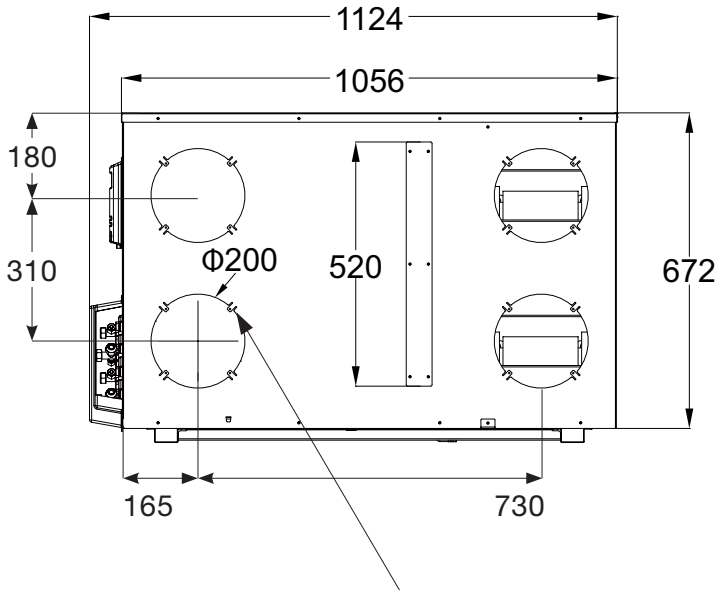
Actual product may be different, please refer to the actual product.

For the fastening of the rigid tube is necessary to bend the tabs 4 of the 90 ° hole to the outside.

2.3 COMPONENTS AND MEASURES ELSKOV-18 / ELSKOV2-18 / ELSKOV3-24

dimensions: mm





Actual product may be different, please refer to the actual product.

For the fastening of the rigid tube is necessary to bend the tabs 4 of the 90 ° hole to the outside.

3. PRELIMINARY CHECKS

3.1 EQUIPMENT

1. Level
2. Drill
3. Hexagonal wrench
4. Wrench
5. Vacuum pump
6. Screwdriver
7. Flaring
8. Cutter
9. Measuring tape
10. Pressure gauges
11. Core drill
12. Vacuum cleaner
13. Search Getaway
14. Metro

3.2 SAFETY PRECAUTIONS

1. Must be in the electrical safety regulations when installing the unit.

2. According to the local safety regulations, you must use a suitable power supply circuit.

3. Make sure that the power connections meet the requirements of the air conditioner. An unstable power or wiring may cause malfunction. Install a correct power supply circuit before using the air conditioner.

4. Properly connect the phase wires, neutral and ground.

5. Make sure the power is disconnected before proceeding with works related to electrical safety and energy.

6. Do not feed the circuit before finishing the installation.

7. If the power cord is damaged it must be replaced by qualified personnel, in order to avoid risks.

8. If the temperature of the refrigerant circuit is too high to keep the interconnect cables away from copper pipes.

9. The equipment should be installed in accordance with the national regulations of the electrical wiring.

10. The installation must be performed in accordance with the requirements on the NEC and CEC only by authorized personnel.

3.3 REQUIREMENTS OF GROUND

1. The air conditioner is an electrical appliance in Class A. The grounding should be performed with a suitable device to the ground. Make sure the ground is always respected, otherwise it may cause electric shock.

2. The yellow-green cable in the cable of the air conditioner is grounded, which can not be used for other purposes.

3. The grounding resistance should comply with the national electrical safety regulations.

4. The appliance must be positioned so that the plug is accessible.

4. INSTALLATION

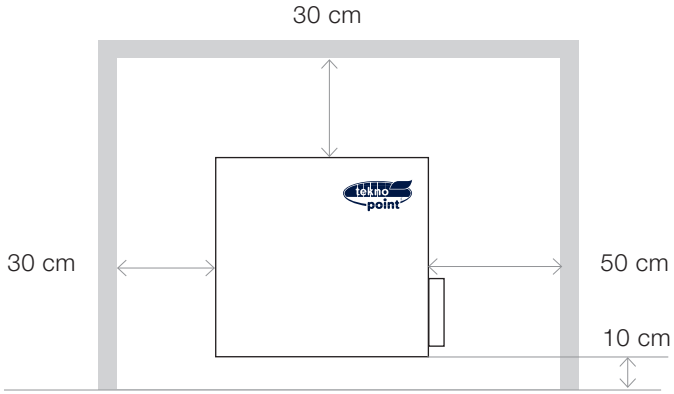
4.1 PLACE OF INSTALLATION

The installation location should be agreed with the customer, paying attention to the following points:

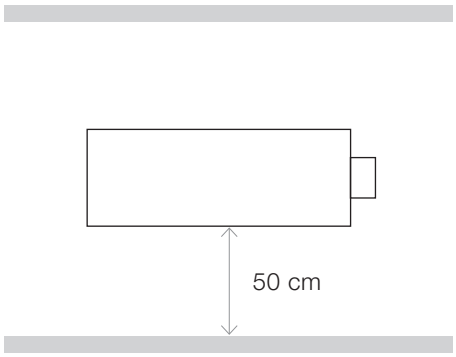
- The equipment should be placed in a technical room of adequate size and in accordance with applicable regulations in the countries where it will be installed.
- The condensing unit must not be installed outdoors.
- The plan on which will be supported to be able to support the weight, the rubber feet that is attached to the machine **SHOULD NOT BE REMOVED** except in case of use of anti-vibration spring for installations with wall bracket.
- The front panel must be inspected, so the front space should be adequate to permit the operator with all the steps required during installation, maintenance and assistance (controls, adjustments, refrigerant charge).
- In case of multiple installations (2 or more ELFO) **DO NOT STACK the condensing units.**
- The installation must allow authorized personnel to intervene in case of maintenance, in an easy manner which respects both the safety distances between the unit and other equipment that the technical areas mentioned below:

MINIMUM DISTANCES TO BE RESPECTED

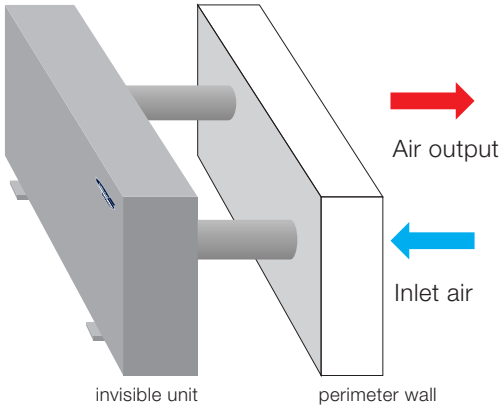
FRONT



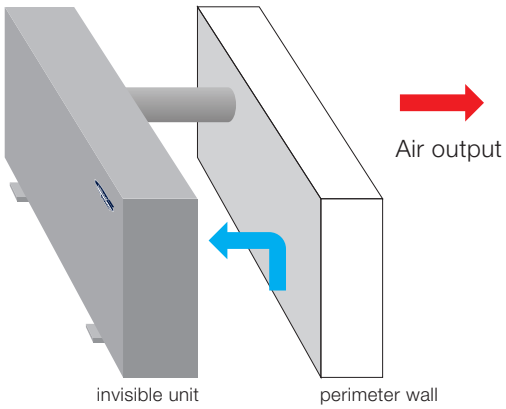
TOP



4.2 INSTALLATION MODE ELSKOV-12 / ELMOV2-14H5

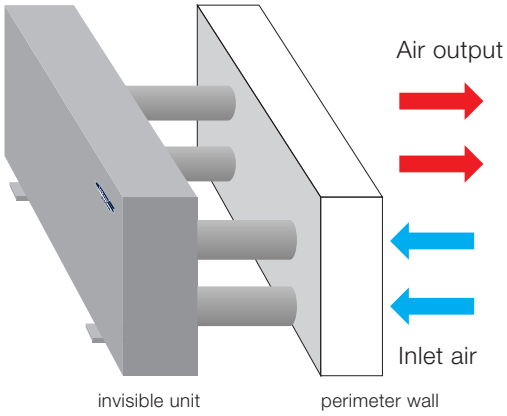


Maximum distance from the wall: 4 linear meters, 8 m long version. 2 holes Ø 200 mm, rigid pipe.

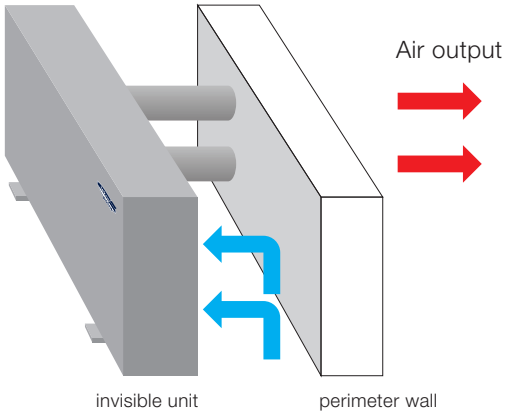


Maximum distance from the wall: 4 linear meters, 8 m long version. 1 hole Ø 200 mm **inlet equipment room min 150 mm, rigid pipe.**

4.3 INSTALLATION MODE ELSKOV-18

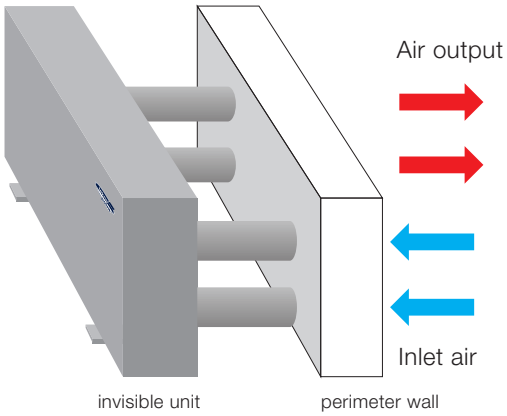


Maximum distance to the wall: 2 linear meters, 8 m long version.4 holes Ø 200 mm, rigid pipe.

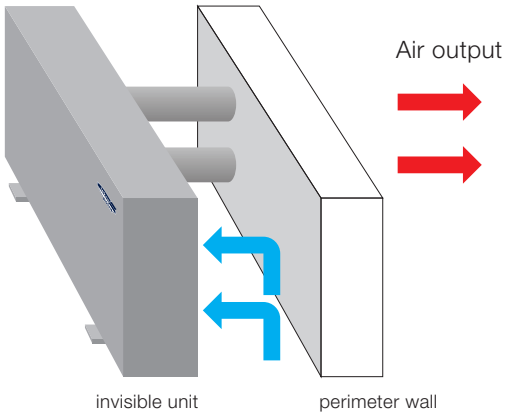


Maximum distance to the wall: 2 linear meters, 8 m long version. 2 holes Ø 200 mm **inlet equipment room min 500 mm**, rigid pipe.

4.4 INSTALLATION MODE ELSKOV2-18 / ELSKOV3-24

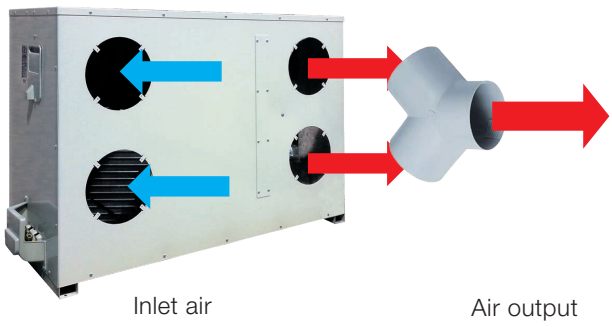


Maximum distance to the wall: 1 linear m, 4 m long version. 4 holes Ø 200 mm, rigid pipe.



Maximum distance to the wall: 2 m linear, 4 m long version. 2 holes Ø 200 mm **inlet equipment room min 500 mm**, rigid pipe.

4.5 SOLUTION WITH FITTING A “Y”



In connection with solution Y, the two ejection tubes and suction from Ø 200 can connect via a “Y” in a single conduit from Ø Ø 300 or equivalent area of 628 cm2. Max distance of 1 m.

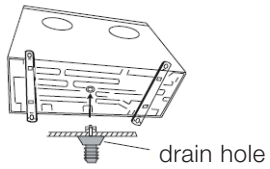
4.6 INLET AUX

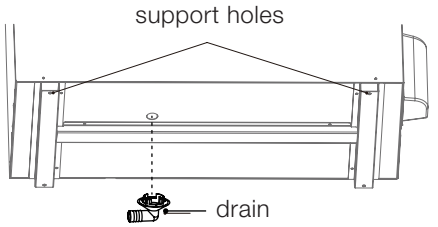
In particular conditions, you may need to make use of an AUX jack. Contact technical service Tekno Point for more information.

4.7 DRAINAGE PIPE

When the unit is in heating, the condensation water produced, must be forced out through the appropriate hole of drainages oposto on the bottom of the machine, by installing the joint drainage so that the water can exit. Remember that the flow is gravity.

To connect the joint water drainage:
1. Connect the coupling of external drainage in the hole in the frame, as shown in the picture below.
2. Connect the discharge tube into the discharge mouth





4.8 PREPARING PIPE REFRIGERATION

Only use copper pipes as “cold” and that fit each model. The “gas pipe” and the “liquid tube” must be absolutely isolated with an insulator of 6 mm. of minimum thickness. Insert the flare nuts on the ends of the tubes before you prepare them with a flaring tool. The insulated pipe separately with the respective fittings can then be bound to the evacuation pipe of the condensate and to electric cables by means of cable ties.

4.9 PATH OF PIPES

The radius of curvature of the pipes must be equal to or greater than three and a half times the diameter to the tube axis. Do not bend the pipe more than three times in a row and not make more than 10 bends on the total length of the connection. In the case where there is a height difference between the evaporating unit and the condensing unit greater than 5 m. it will be mandatory to prepare a siphon every 3 m. The siphon must have a radius of curvature as tight as possible.

4.10 EXTRACTION AIR IN PIPES AND COOLING UNIT EVAPORATING

The refrigerant charge is contained only condensing unit. The Internal unit contains a small amount of neutral gas. Therefore, after making the connections will be imperative to extract the air contained in said links and Internal units.

WARNING FOR THE TIGHTENING OF THE VALVE IS ESSENTIAL TO USE A SECOND KEY.

4.11 ADJUSTMENT OF REFRIGERANT CHARGE

In function of the connection length independent way, it may be necessary to top up the refrigerant charge (the condensing units are preloaded to a 5-meter line). This operation must be performed by qualified personnel and in good standing of the art refrigeration engineer. The completion of charging is introduced through the fitting service valve Flare of condensing (big road). If the refrigerant line is less than 5 m. “Download” the amount of excess refrigerant. Any intervention on the refrigerant circuits imply compliance elle recommendations elative disposal of R410A in the environment (according local regulations).

4.12 COOLING CONNECTIONS

The refrigerant connections are made on the connections located on the right side of the machine. The connections for the refrigerant lines are of the “flare”.

4.13 ASSEMBLY PROCEDURE

The condensing ELFO SHALL BE INSTALLED IN POSITION ACCESSIBLE technician in safely, otherwise the CAT (service centers) may refuse the intervention. THE CONDENSING MUST NOT BE INSTALLED AS OUTSIDE IN WINTER MAY CAUSE DAMAGE.

- Connect the unit and connecting pipes condensing unit Inner.
- Connect the vacuum pump to the fitting (suction), set in motion and make sure that the needle drops to - 0.1 MPa (-76O mm. Hg). Before disconnecting the vacuum pump check that the vacuum indicator remains stable for> 15 minutes.
- Close the service valve and disconnect the vacuum pump.

4.14 FIXING THE CONDENSING UNIT

Depending on the installation requirements:
1. Choose the installation path based on the structure of the house.
2. Secure the support of external units ON or OFF position with expansion screws.
3. Place the outdoor unit on the stand.
4. Fix the holes in the feet of outdoor unit with bolts at least three feet above the floor.

Notes:

- Take protective measures sufficient during the outdoor unit installation.
- Make sure the media can withstand at least four times the weight of the unit.
- The unit must be installed at least 10 cm from the floor to install the drain pipe.

4.15 CAUTION BEFORE CONNECTING THE PIPES

1. During transport and storage, prior to use, always keep the tubes sealed with a cap or with tape to prevent the ingress of water, dust and dirt.

2. Always lubricate with freezing oil flange surfaces of the nipples and union before connecting them. This facilitates good sealing of the joint.

3. Keep the flanged pipe, the nipples of the joint and well-aligned union, then tighten the union by hand to achieve a good contact between the flange and the pipe nipples.

4.16 ISOLATION OF THE COOLING PIPE

• The piping to the entire unit, including, the distribution connector (purchased separately) must be applied thermal insulation.

• For the gas pipes, the insulation material must be heat-resistant to temperatures of 120 ° C or higher. For other piping, it must be heat resistant to temperatures of 80 ° C or higher.

• The thickness of the insulation must be suitable to ensure minimum heat loss and prevent condensation and dripping.

• In the case where there are the conditions inside the false ceiling that exceed 30 ° C in temperature and 70% relative humidity, increasing the thickness of the insulation of an increase of the gas pipe.

4.17 INSULATION AND TAPING OF COMMON ENDS OF PIPES

• Wrap the pipe unions with insulating coprirubinetti or white ribbon, then cover it with the insulation and seal with black ribbon. Finally fix the insulator at both ends with plastic hose clamps (after checking the system leak test).

• The refrigerant lines (and electrical wiring if allowed by local laws) should be taped together using reinforced adhesive tape. The drain tube must be left separate.
• Wrap the tape from the outside unit. to get to the top where the pipe enters the wall. Overlap the tape for about half its width.

• Attach the pipes to the wall with brackets arranged at 1 meter intervals.

Do not bend the copper pipe with tight radius after the tube has been isolated, it may break.

The presence of air and moisture in the refrigerant system may have the following side effects:
• Increased pressure in the system
• Increased operating current
• Reduction of the efficiency of cooling (or heating)
• Possible freezing upon in the refrigerant circuit, resulting in blockage occurring
• Possibility of corrosion caused by the water of part of the refrigerating system
Therefore, the indoor unit and tubing between the indoor and outdoor unit must be tested for leaks and
emptied to remove any trace of elements non-condensing and moisture from the system.

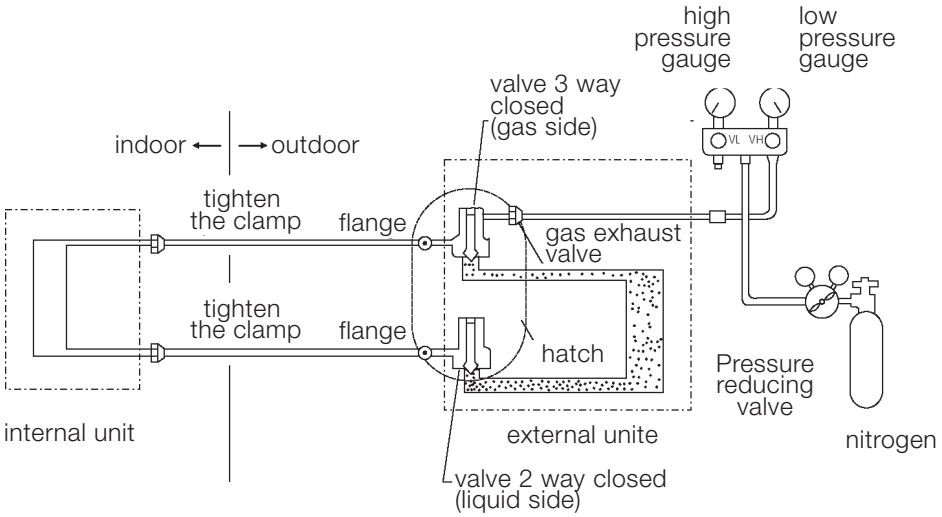
LEAK TESTING
After completing the connection of the refrigerant pipes, run the tightness test. In the test, to pressurize the tubes using a nitrogen cylinder.

• Close the valves of the liquid and gas. The nitrogen may enter the outdoor unit refrigerant circuit, therefore, before pressurizing the pipes, batten down the taps gas and liquid side side.

• For each of the refrigerant circuits, acting pressurize the tubes from the gas exhaust valve:
1. pressurize for 3 minutes at 0.3MPa (3.0 bar).
2. pressurize for 3 minutes at 1.5MPa (15.0 bar). You will be found a great loss.
3. Pressurize for about 24 hours at 3,0MPa (30.0 bar). You will be found a small leak.
If the pressure does not drop, the system is in place. If the pressure drops, you have to find the leak.

• While pressurizing for 24 hours, every change of 1 ° C of the ambient temperature will result in a variation
of 0,01MPa pressure (0.1 kg / cm2g). It must take this into account during the test run.

• At points 1 to 3, if the pressure drops, check each joint with touch, hearing, and soap solution to locate the leak. Then rerun the coupling or tighten the nut well.



4.18 INSTALLATION OF PIPES FOR COOLING

The main cause of refrigerant leaks is due to a defect in flaring. Make folders correctly observing the following guidelines:

Cut the copper cooling pipes and the electrical cable
1. Use tubes with appropriate measures the installed unit.
2. Measure the distance between the Indoor and Outdoor Unit.
3. Cut the pipes to a slightly greater length of the measured distance.
4. Cut the electrical cord 1.5 m longer than the length of the tube.

Filler positioning
Remove the nuts fixed indoor and outdoor unit, insert them on the tube, and perform the flanging and the removal of burrs as previously indicated.

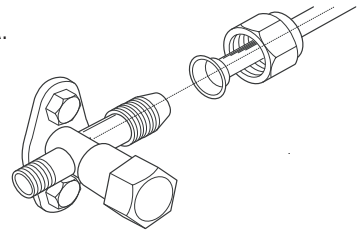
A. Securing the refrigerator connection
1. Align the pipes.
2. sufficiently tighten the nut with the help of two keys

Removal of copper burrs
1. Completely remove all burrs from the pipe cross section.
2. The machining should be performed with the machinable end down so that the burrs do not fall inside the copper tube.

Flaring
Secure the copper tube with a die size indicated in the table.

B. Precautions
An excessive torque can ruin the folder and cause refrigerant leakage.

A.



B.

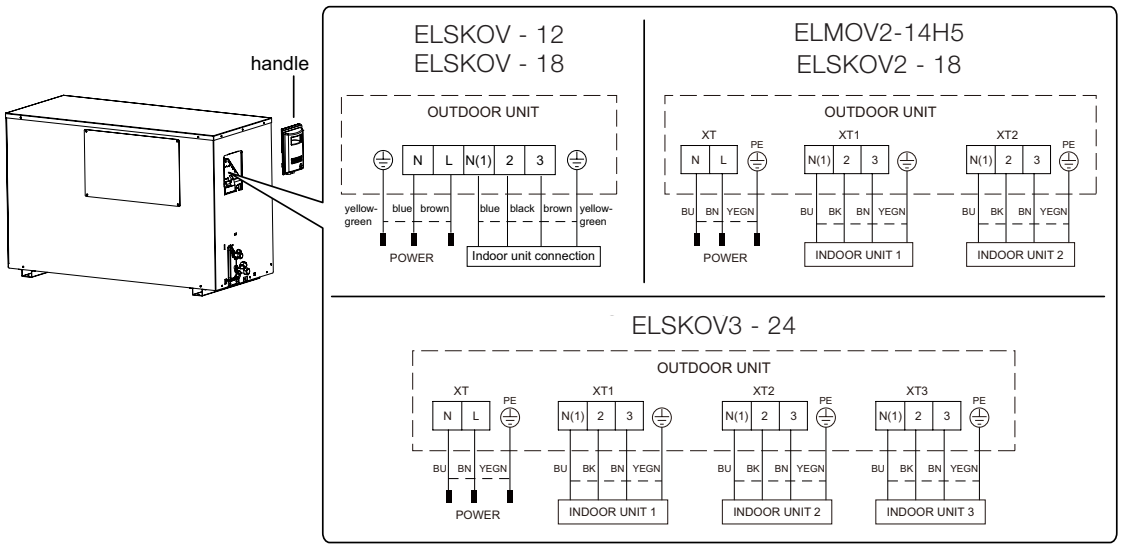
diameter pipe [mm]	tightening torque [Nm]
6,35 - 1/4”	15 - 18
9,52 - 3/8”	31 - 35
12,70 - 1/2”	50 - 55
15,88 - 5/8”	60 - 85
19,05 - 3/4”	100 - 120

MAXIMUM DISTANCE BETWEEN THE OUTDOOR UNIT AND INDOOR: TECHNICAL OFFICE.
MAXIMUM HEIGHT BETWEEN THE OUTDOOR UNIT AND INDOOR: TECHNICAL OFFICE.

4.19 ELECTRICAL CONNECTIONS

IT MUST MAKE AN EFFECTIVE EARTHING
The manufacturer is not responsible for damage caused in the absence of the same

The electrical connections must be made according to the following indications:
- Use cables that meet the current standards in different countries.
- Follow the order of connecting phase, neutral and ground.
- Install a suitable protective device and the electricity disconnection with delayed characteristic curve, contacts opening of at least 3 mm and an adequate breaking and leakage protection.
- If the power of the machine appears to be three-phase, one must be sure to observe the exact sequence of steps (check with gauges work properly).
- The supply voltage of the condensing unit must have a value between ± 10% of the indicated value on the production data plate. If this is not respected, you have to contact their electricity supplier. In the presence of three-phase supply, the unbalance between the three phases, must be at most 3%.
- It is forbidden to enter the electrical wiring in the condensing unit in any other part than that provided by the manufacturer (the holes with rubber grommet).
- Pass compulsorily the power supply cable through one of the holes with rubber grommet located on the left side of the car. The electrical connections are made on the terminal block that is located inside of the electrical components located behind the inspection panel.
- Connect the cable to terminals inside the electrical panel.
- Avoid direct contact with metal parts.
- Ensure, after about 10 minutes of operation of the condensing unit, the closure of the screws on the power terminal.



4.20 PERFORMANCE OF EMPTY

• Use a pump to run the vacuum, it is strictly forbidden to drain the coolant.

• Vacuum Pump selection: Choose a pump that achieves a degree of vacuum (less than -
755mmHg) and that has high air discharge capacity (greater than 40 liters / min).

• After completing the tightness test and downloaded nitrogen, connect the instrument to the diverter
of the gas exhaust valve (3-way), then connect the vacuum pump as shown in FIG.

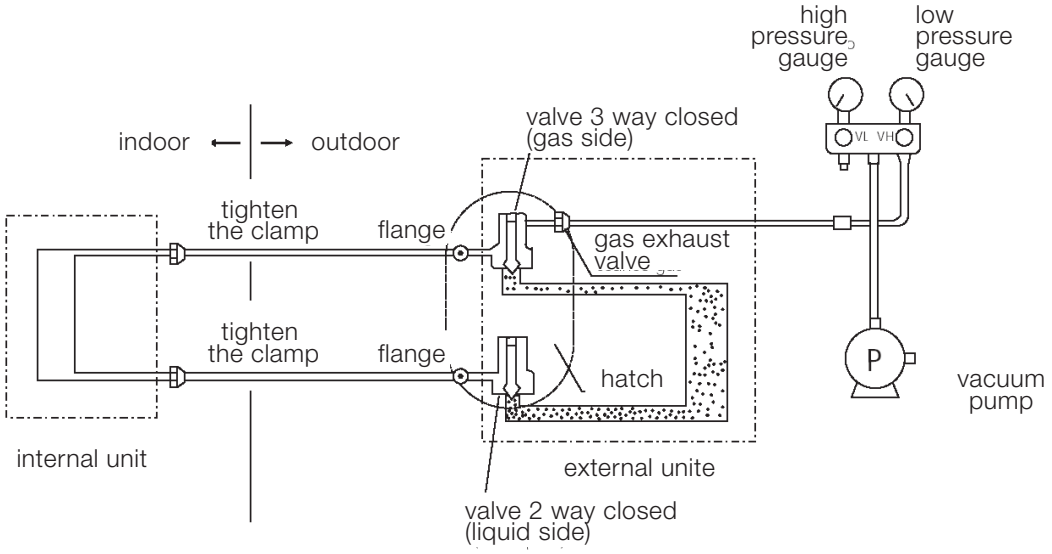
• Run the vacuum for 1-2 hours depending on the length of the pipes. Before the operation, make sure the liquid and gas valves are fully closed.

• If after 2 hours the pressure does not reach values lower than -755 mmHg, continue to run the vacuum for another hour. If after 3 total hours the pressure is not yet dropped below -755 mmHg, you have to find the leak and repair it.

• If after 2 hours the pressure falls below -755 mmHg, close both valves VL and VH of the diverter, then close the pump and observe if after 1 hour the vacuum level undergoes changes. Sevaria, it means that there is a leak in the system, so you have to find the leak.

• After running the vacuum, replace the vacuum pump with the refrigerant container and the refrigerant charging (if necessary)

Run the procedutra described above for each individual circuit is present when the service connection.



4.21 ADDITIONAL CHARGE OF REFRIGERANT

• If the total length (L) of the connecting pipes between the units is less than m, it is not necessary to make an additional refrigerant charge.

• If the connecting pipes have a length (L) greater than, one must make an additional charge per meter (M).

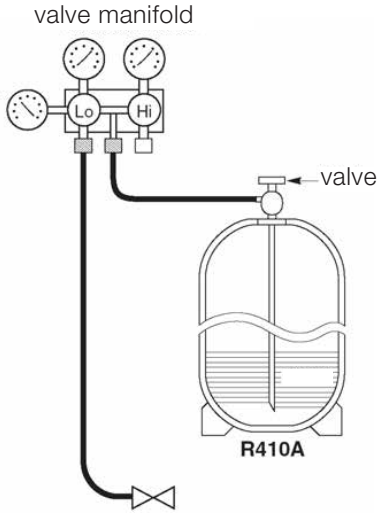
• Charge the additional refrigerant (calculated according to the distance between indoor and outdoor units) using the large tube service valve.

• Use a scale to measure the refrigerant accurately.

• Add coolant only in cooling mode.

• Be careful not to let air enter the system, and charge refrigerant only in liquid form.

• If you run an additional refrigerant charge, indicate the length of the refrigerant piping and the amount of additional refrigerant charge on the product label.



4.22 LEAK DETECTION

1. Check for leaks with leak detector.

2. If the leakage probe is not available, please use soap and water for leak detection.

Apply soap and water in the suspected position and maintain the soap and water for more than 3 minutes. If there are bubbles coming out from this position, identify and restore the loss.

4.23 CHECKS AT THE END INSTALLATION

A few simple checks ensure correct system operation:
- Check the electrical connections.
- In multi-split models perform testing before evaporating with one on and then the next (this will highlight any incorrect connections to the ventilation units)
- Ensure the proper flow of water into the drain used.
- Check the operating pressure (high pressure) by means of the manifold to verify the correct operation of the pressure valve
- Make sure the unit is installed securely.
- The thermal insulation of the pipeline is enough? It can cause condensation and water leaks.
- Check the grounding.
- Check for any obstruction to the air intake.
- The gas valves and connecting fluid are completely open?

4.24 STARTING THE CONDENSING

1. Connect the power supply, press the “ON / OFF” button on the remote control to start the operation.

2. Press the “MODE” button to select AUTO, COOL, DRY, FAN and HEAT to see if the operation creates a malfunction of the machine.

3. If the ambient temperature is below 16 ° C, the air conditioner can not cool the water.

5. MAINTENANCE UNIT

5.1 ORDINARY MAINTENANCE

Regular maintenance is essential to maintain the efficiency of the unit both in terms of operation and energy.
The maintenance plan that the Technical Assistance Centre should be observed annually, provides the following operations and checks:
- Periodic cleaning of the air filter.
- Efficiency safeties.
- Power supply voltage.
- Power consumption.
- Tightness of electrical connections.
- Compressor / the State.
- Verification of operating pressure, overheating and cooled.

5.2 CHEMICAL CLEANING EXCHANGE

It is recommended to chemically wash the plate heat exchanger every 3-4 years of operation.

To do this refer to the CAT.

5.3 REFRIGERANT CHARGE

The condensing units are loaded with R410A refrigerant gas and tested in the factory.
Under normal conditions (length within the ranges shown in the data sheets), thus they do not need any intervention on the refrigerant control.
However, over time, small leaks may develop at the joints leading to loss of refrigerant and draining of the circuit, causing the unit to function poorly.
In these cases must be found by the leaks of refrigerant, should be repaired and recharged refrigerant circuit.
The charging procedure is as follows:

- Empty and dry the entire refrigerant circuit using a vacuum pump is connected to the outlet of high pressure to the low outlet
- Connect the refrigerant cylinder to the gas outlet on the low pressure line.
- Charge the quantity of refrigerant gas indicated on the rating plate of the device in the liquid phase.
- Always check the overheating and undercooling values which must be between 4 and 8 ° C (overheating) and between 5 and 10 ° C (supercooling).

In the event of partial leaks, the circuit must be completely emptied before being recharged.

The R410A refrigerant must be charged only in liquid phase.
Operating conditions other than nominal, may produce considerably different values.
Seal testing or identification of leaks must only be performed using R410A refrigerant gas, checking with a suitable leak detector.

It is prohibited to load the refrigerant circuits with a different refrigerant than the one indicated on the identification plate. Use a different refrigerant may cause serious damage to the compressor.

You must never be used in the cooling circuit, oxygen or acetylene or other flammable or poisonous gases because they can cause explosion or poisoning.

You may not use oils other than those indicated.
Use oils other than those indicated may result in serious damage to the compressor.

You may not use tracer products for the detection of leaks in the cooling circuit.

5.4 FAULTS AND POSSIBLE REMEDIES

Anomalia	Causa	Rimedio	U/INS/CAT
The compressor does not start	Power failure	Verify the presence of voltage	INS
	main switch in pos. OFF	Check the upstream safety systems	U
	low supply voltage	Check power line	INS
	Fault compressor condenser	Replace the part	CAT
	compressor failure	Replace the part	CAT
	High pressure operation	Rearm pressostatato	U/INS/CAT
Yield insufficient	Lack of coolant	Check	INS
	Wrong size of the equipment	Check	INS
	Operation outside of the conditions the manufacturer's recommended operating	Check	INS
Compressor noisy	Part of the refrigerating circuit in contact with the carpentry	Check	INS
	Return of liquid to the compressor	Check charging / cleaning filters	CAT
	not suitable unit fixing	Check	INS
	Powered by reversed phase (400V models)	Reverse one phase	INS
Noise and vibrations	Contact with metal bodies	Check and outdistance	IST
	loose or missing screws	Tighten the screws	IST
The compressor He stops for intervention protections	Excessive head pressure	Check	CAT
	Low suction pressure	Check	CAT
	low supply voltage	Check the power supply	INS
	Electrical connections badly tightened	Check	INS
	Operation outside the permissible limits	Check	INS
	Bad operation or pressure probes	Replace the part	INS /CAT
	Thermal protection trip	Check electrical insulation windings	CAT
Pressure flow High> 24 bar	Excessive refrigerant	Check	CAT
	dirty filter fan units (in heat pump)	Clean the filter	U/INS /CAT
	Hot air layering (in heat pump)	Check	INS /CA
Pressing aspiration low <1 bar	Refrigerator discharge circuit	Check and reload	CAT
	Exchanger evaporator side blocked	Check and if necessary replace the component	CAT
	dirty filter fan units (cooling)	Clean filter	U/INS /CAT
Absorption high electrical	Refrigerant pressure is too high compared to what is recommended	Check maximum absorption expected in data and characteristics table	INS/CAT
	Wrong pressure valve adjustment	Calibrated valve pressure switch	INS/CAT
	Voltage does not comply	Check voltage supply	IST
The water of cooling It circulates also in machine off	Pressure valve not calibrated properly	Calibrate the pressure valve	INS /CAT
The blower does not work off blower fan and spies extinguished	Power failure	Verify the presence of voltage	U/INS
	main switch in pos. OFF	Check the upstream safety systems	U/INS
	Intervention safety pressure AP (high pressure)	Check the water flow and reset the pressure switch by pressing the button behind the black cap on the front panel (in case of dual compressor model there are 2 buttons, press them both)	U/INS/CAT

6. COMPATIBILITY

6.1 TABLES ELFO INVERTER COMPATIBILITY WITH INDOOR UNITS

OUTDOOR UNIT	INDOOR UNIT
ELSKOV-12	SKIV-12
	DBIS-12i
	CBIS-12i
ELMOV2-14H5	STK-09
ELSKOV-18	SKIV-18
	DBIS-18i
	CBIS-18i
ELSKOV2-18	SKIV-07
	SKIV-09
	SKIV-12
	DBIS-09i
	DBIS-12i
	CBIS-12i
ELSKOV3-24	SKIV-18
	DBIS-18
	CBIS-18
	SKIV-07
	SKIV-09
	SKIV-12
	DBIS-09i
	DBIS-12i
	CBIS-12i

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