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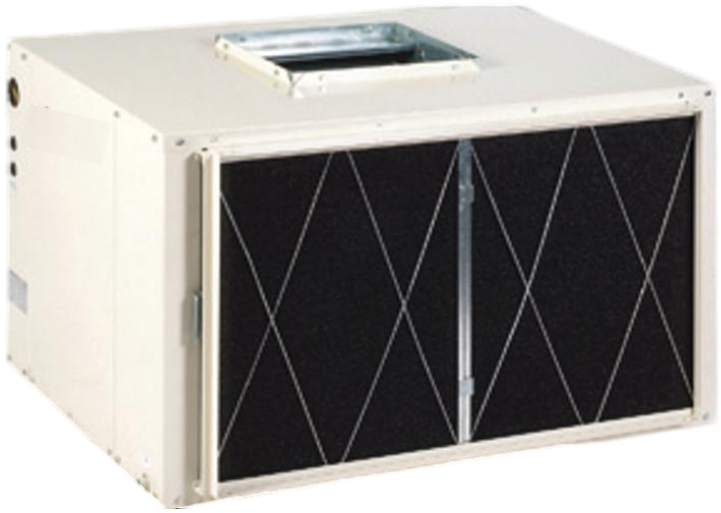
BAXI



Installation & maintenance manual

Evaporation units air – air

ECVBA / ECVA

Models: 351 – 401 – 501 – 701 – 721 – 751 – 801 – 1001 – 1201 – 1402 – 2002 – 2302 – 2402 – 3002 – 3502 – 4002 - 4502

Cooling Capacities: from 9.8 kW to 134.7 kW

Heating Capacities: from 10.4 kW to 142.4 kW

INDEX

INTRODUCTION

Purpose of this Manual

The present manual together with any other technical document such as refrigeration or hydraulic lines drawings and electrical diagrams among others have been issued to provide the necessary information for installation, start-up and maintenance of the unit. Therefore it is essential to read the instructions very carefully. Please contact us if your machine is equipped with an option or any special modification that are not mentioned in the present manual.
Make sure that all the necessary information for the correct installation of the system is included in the manuals that have been supplied together with this unit and/or the rest of the indoor units, accessories, etc.
The manufacturer declines any responsibility in case of people/animals injuries or material damages resulting from an incorrect use of the unit and/or non-compliance with these instructions.
In case of different interpretations and/or errors, the priority order of validity of the given documents will be: 1. Name plate of the unit stating the specifications. 2. IOM (the present document), 3. EDM, technical catalogue, 4. UM user manuals.

Storage of the Manual

This manual and the electrical diagram of the unit must be preserved and remain available to the operator for any further consultation.

Updating the Data

The continuous improvement in design and performance to which we are committed to gives us the right to modify the specifications of our products without prior notice.

Electrical Supply

Check that the electrical network features comply with the data shown in the data nameplate of the unit.

Local Safety Regulations

Observe and analyse all the possible causes of accidents that may arise in the place or places of installation of the units, check all the medium and the tools that will be used, etc. It is not possible to anticipate each one of the potential circumstances of danger in this manual. Respect the valid local security standards during installation.

Principles of Security

The unit has been designed and built so that it does not represent any risk to the health and safety of people. Appropriate solutions for the project have been planned to eliminate the possible causes of risk during installation.

Installation

Please read carefully the present document. Any damage to the equipment caused by an incorrect installation will not be covered by the insurance. Any installation operation shall be completed according to the instructions of the manufacturer and carried out by certified personnel. This document has been issued for installers, however, should you find the instructions not clear enough, please do not hesitate to contact us.

Reminder: all operations shall be completed according to the local security regulations.

Utilization

The unit will be used only for the purpose it has been designed for. Any other use does not imply any kind of liability or responsibility from the manufacturer.

INTRODUCTION

Incorrect Operation

In case of breakdowns or operation faults, turn the unit off.

Periodic Inspections and Maintenance

Carry out periodic inspections to detect possible damaged or broken parts. If these parts are not repaired, people injuries or material damages could be caused. Disconnect the power supply of the unit before carrying out any maintenance operation.
Make sure that the maintenance areas are accessible. If these areas have to be invaded by the lateral air supply and/or return ducts, verify that the design of the ducts allows the access to the fans and that they are not a hindrance when replacing the filters. If that is not possible make sure access is possible from the other side.
All operations shall be carried out in accordance with the local safety regulations.

Repairing Operations

The reparations shall always and exclusively be completed by trained personnel previously authorized by the manufacturer and only original spares shall be used. The safety devices of the unit may be damaged in case of non-compliance with these warnings.

Modifications

The manufacturer will not respond to possible warranty claims and damages of the unit in case of electrical and/or mechanical modifications. The unauthorized manipulation, reparation or modification of the unit will automatically invalidate the warranty.

Packaging and Replacement of Equipment

The material of the package (plastic bags, insulating materials, nails, etc.) is a potential source of danger. Consequently, it should be kept out of the reach of children and properly recycled according to the valid local safety regulations.
Do not mix this product with household waste at the end of its life. Due to the refrigerant, oil and other components contained in this product, it must be dismantled by professional installers. All the waste, depending on its nature shall be sent to recycling, composting or treatment plants, or to an authorized management agency in accordance with the current local legislations.

Refrigerant

This product is hermetically sealed and its operation depends on the use of R-410A which is a HFC fluorinated greenhouse gas.

REGULATIONS AND CERTIFICATIONS

ISO 9001 CERTIFICATION: BAXI, by endeavouring to always gain the maximum satisfaction from their customers, obtained the ISO 9001: Quality System for its production activity. That result shows our continuous determination to improve quality and the reliability of all our products. Our commercial activities, design, raw materials, production processes and after-sales service represent the means to reach our goal.

CE MARKING: Our products are CE marked according to the essential requirements of the applicable EC directives and their last modifications and comply with the national legislation of each country.

CE

REGULATIONS AND CERTIFICATIONS

Please go to the website for the Declaration of Conformity:
https://declaration-of-conformity.bdrthermeagroup.com

SAFETY PRECAUTIONS

WARNING!

Before starting installation, service or maintenance, turn off the main power switch in order to avoid electrical shock that may cause personal damages.

DANGER

• In case of folding electrical panels, before folding them up in order to access to the interior of the machine, it is MANDATORY to disconnect the power supply hose from the electrical voltage, IT MUST ALWAYS BE FREE OF VOLTAGE for this operation.

• Do not touch or adjust the safety elements inside of any unit of the system. Use only original spare parts in repairs and install them in the same position where old parts were placed.

• The installation and maintenance of the air conditioning equipment could be dangerous because the system is under pressure, some of its elements have high temperatures and include electrical components.

• Do not install the unit in the explosive atmosphere.

ATTENTION!

• Only qualified and trained service staff (technical service) must make the installation, commissioning and carry out maintenance works. Unqualified staff can only make basic tasks such as cleaning and replacement of filters, etc.
• Prevent access to children so they cannot play with the appliances.
• In every visit, all precautions must be taken into account: those recommended in the installation, operation and maintenance instructions, as well as the ones indicated in labels of the unit. Do not forget to strictly follow any other safety precautions. .
• DO NOT introduce objects into the air inlets or outlets that can be drawn into the fan, people, etc.
• Use safety glasses, work gloves and any other necessary safety accessory.
• For brazing operations use a quenching cloth and take precautions to have at close distance a fire extinguisher.
• This product contains fluorinated greenhouse gases, its leakage can cause displacement of air and cause insufficient oxygen to breath.
• This manual should only provide basic instructions for operations that can be performed on the equipment by a normal user (a person without specific training, children over 8 years of age, etc.).
• This equipment can be used by children over 8 years of age and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, provided they are supervised or have been given instructions on how to use the equipment safely and understand the risks to which they are exposed.
• Do not pierce or burn.
• Please note that refrigerants may be odourless.
• Machine not accessible to the general public.
• All safety recommendations must be followed.

TECHNICAL SPECIFICATIONS

MODEL		351	401	501	701	721
CAPACITIES						
Cooling capacity (1)	kW	9.8	12.5	14.4	18.9	19.6
Heating capacity (2)	kW	10.4	13.7	15	20	21
INDOOR CIRCUIT FAN						
Type		Centrifugal, double aspiration				
Nominal air flow	m3/h	2315	2600	3540	4720	4720
Available static pressure	Pa	43	50	60	55	55
Model		10/10 DD	10/10 SS	10/10 SS	12/12 SS	12/12 SS
Nominal motor Power	kW	0.25	0.55	0.55	0.75	0.75
Maximum absorbed motor power	kW	0.4	0.5	1.1	1.2	1.2
Speed	r.p.m.	872	870	1032	809	809
ELECTRICAL SPECIFICATIONS						
Power supply	V/~/50	400/III+N / 50	400/III+N / 50	400/III+N / 50	400/III+N / 50	400/III+N / 50
Max. power input	kW	0.4	0.5	1.1	1.2	1.2
Max. current input	A	1.8	1.1	1.8	2.1	2.1
DIMENSIONS AND WEIGHT						
Length	mm	937	937	1087	1130	1130
Width	mm	750	750	750	800	800
Height	mm	580	580	580	650	650
Weight	kg	92	95	99	126	126
REFRIGERANT						
Type		R410A				
Global Warming Potential (GWP) (3)		2088				
Charge (4)		-	-	-	-	-
OTHERS						
Liquid-gas refrigerant connections	“	3/8 – 3/4	1/2 – 3/4	1/2 – 7/8	1/2 – 7/8	1/2 – 7/8

MODEL		751	801	1001	1201	1402
CAPACITIES						
Cooling capacity (1)	kW	22.7	25.05	30.65	36.5	37.8
Heating capacity (2)	kW	23.9	26.3	31.2	38.85	39.5
INDOOR CIRCUIT FAN						
Type		Centrifugal, double aspiration				
Nominal air flow	m3/h	5133	5125	6277	8000	8000
Available static pressure	Pa	53	83	73	91	130
Model		12/12 SS	12/12 SS	12/12 G2L	12/12 G2L	12/12 G2L
Nominal motor Power	kW	1.1	1.1	1.1	1.5	1.5
Maximum absorbed motor power	kW	1.4	1.4	1.4	2.0	2.2
Speed	r.p.m.	891	910	800	896	862
ELECTRICAL SPECIFICATIONS						
Power supply	V/~/50	400/III+N / 50				
Max. current input	A	2.5	2,5	2,5	3,4	3,9
DIMENSIONS AND WEIGHT						
Length	mm	1130	1130	1700	1700	2000
Width	mm	800	800	870	870	939
Height	mm	650	650	650	650	747
Weight	kg	136	136	197	199	253
REFRIGERANT						
Type		R410A				
Global Warming Potential (GWP) (3)		2088				
Charge (4)		-	-	-	-	-
Liquid-gas refrigerant connections	“	5/8 – 1 1/8	5/8 – 1 1/8	5/8 – 1 1/8	5/8 – 1 1/8	1/2 – 7/8

(1) Return temperature: 27°C dry bulb and 19 °C humid bulb, Evaporation temperature 7°C.
(2) Return temperature: 20 °C, condensation temperature 40°C.
(3) GWP: Global warming potential (climatic) of 1 kg of greenhouse gas relative to 1 kg of CO_2, calculated in terms of 100-year warming potential.
(4)The unit is delivered with a pre-charge of refrigerant and with a quick connection valve.
Remember to add the needed charge according to the length of the installation.

TECHNICAL SPECIFICATIONS

ECVA-ECVBA

MODEL		1501	1502	1602	2002	2302	2402
CAPACITIES							
Cooling capacity (1)	kW	42.9	43.4	50.3	62.9	73.6	76.2
Heating capacity (2)	kW	43.6	44.2	52.5	63.6	81.9	79.2
INDOOR CIRCUIT FAN							
Type		Centrifugal, double aspiration					
Nominal air flow	m3/h	9000	10000	10000	11000	12000	12000
Available static pressure	Pa	130	145	145	175	160	160
Model		12/12 G2L	12/12 G2L	12/12 G2L	15/11 G2L	15/11 G2L	15/11 G2L
Nominal motor Power	kW	2.2	2.2	2.2	3	3	3
Maximum absorbed motor power	kW	1.5	2.2	2.4	3.2	3.0	3.7
Speed	r.p.m.	920	913	965	745	787	734
ELECTRICAL SPECIFICATIONS							
Power supply	V/~/50	400/III+N / 50					
Max. current input	A	4.6	4.6	4.6	6.2	6.2	6.2
DIMENSIONS AND WEIGHT							
Length	mm	2000	2000	2000	2600	2600	2600
Width	mm	939	939	939	980	980	980
Height	mm	747	747	747	752	752	752
Weight	kg	272	272	272	333	333	333
REFRIGERANT							
Type			R410A				
Global Warming Potential (GWP) (3)			2088				
Charge (4)			-	-	-	-	-
Liquid-gas refrigerant connections	"	5/8 – 1 1/8	5/8 – 7/8	5/8 – 1 1/8	5/8 – 1 1/8	5/8 – 1 1/8	5/8 – 1 1/8

MODEL		3002	3502
CAPACITIES			
Cooling capacity (1)	kW	85.8	111.5
Heating capacity (2)	kW	87.7	118.9
INDOOR CIRCUIT FAN			
Type		Centrifugal, double aspiration	
Nominal air flow	m3/h	14000	18000
Available static pressure	Pa	200	200
Model		15/15 G2L	18/18 G2L
Nominal motor Power	kW	4	4
Maximum absorbed motor power	kW	4	4
Speed	r.p.m.	775	730
ELECTRICAL SPECIFICATIONS			
Power supply		400.III / 50	400.III / 50
Max. current input	A	8,1	8,1
DIMENSIONS AND WEIGHT			
Length	mm	2800	2800
Width	mm	1050	1050
Height	mm	915	915
Weight	kg	418	524
REFRIGERANT			
Type		R410A	
Global Warming Potential (GWP) (3)		2088	
Charge (4)		-	-
Liquid-gas refrigerant connections	"	5/8 – 1 1/8	7/8 – 1 3/8

(1) Return temperature: 27°C dry bulb and 19 °C humid bulb, Evaporation temperature 7°C.
(2) Return temperature: 20 °C, condensation temperature 40°C.
(3) GWP: Global warming potential (climatic) of 1 kg of greenhouse gas relative to 1 kg of CO_2, calculated in terms of 100-year warming potential.
(4) The unit is delivered with a pre-charge of refrigerant and with a quick connection valve.
Remember to add the needed charge according to the length of the installation.

TECHNICAL SPECIFICATIONS
ECVA-ECVBA

MODEL		4002	4502
CAPACITIES			
Cooling capacity (1)	kW	123.9	134.7
Heating capacity (2)	kW	131	142.4
INDOOR CIRCUIT FAN			
Fan type		Centrifugal, double aspiration	
Fan model		18/18 G2L	
Nominal motor power	kW	5.5	5.5
Motor maximum absorbed power	kW	4.2	4.6
Nominal air flow	m3/h	20500	22000
Available static pressure	Pa	210	200
Speed	r.p.m.	763	748
REFRIGERANT			
Type		R410A	
Global Warming Potential (GWP) (3)		2088	
Charge (4)		-	-
ELECTRICAL SPECIFICATIONS			
Power supply		400.III / 50	400.III / 50
Maximum current	A	10.5	10.5
DIMENSIONS AND WEIGHT			
Length	mm	2900	2900
Width	mm	1200	1200
Height	mm	1150	1150
Weight	kg	550	570
OTHERS			
Liquid-gas refrigerant connections	“	7/8 – 1 3/8	7/8 – 1 3/8

(1) Return temperature: 27°C dry bulb and 19 °C humid bulb, Evaporation temperature 7°C.
(2) Return temperature: 20 °C, condensation temperature 40°C.
(3) GWP: Global warming potential (climatic) of 1 kg of greenhouse gas relative to 1 kg of CO_2, calculated in terms of 100-year warming potential.
(4) The unit is delivered with a pre-charge of refrigerant and with a quick connection valve.
Remember to add the needed charge according to the length of the installation.

TECHNICAL SPECIFICATIONS
OPTIONAL EC FAN

ECVBA/ECVA		801	1001	1201	1402	1501	1502	1602	2002	2302	2402	3002	3502	4002	4502
Type		RADIAL with EC motor (Plug-Fan type)													
Quantity / Size	- / mm	1 / 400	2 / 400	2 / 400	2 / 450	2 / 450	2 / 450	2 / 450	2 / 450	2 / 450	2 / 450	2 / 560	2 / 560	2 / 630	2 / 630
ELECTRICAL SPECIFICATIONS (for a fan)															
Power supply	V/~/Hz	380-480 / 3 / 50													
Nominal motor power	kW	2.4	2.4	2.4	2.0	2	2	2	2	2	2	3.4	3.4	3.8	3.8
Max. current (400V)	A	3.7	3.7	3.7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	5.2	5.2	6	6
NOMINAL OPERATION CONDITIONS															
Nominal air flow	m^3/h	5150	6200	8000	8000	9000	10000	10000	11000	12000	12000	14000	18000	20500	22000
Nominal static pressure	Pa	62	75	75	75	75	75	100	100	100	100	125	125	150	150
Total power input	kW	0.72	0.68	1.06	0.82	1.05	1.35	1.44	1.31	1.61	1.61	1.66	2.65	3.38	3.59
Speed	rpm	1706	1252	1488	1103	1213	1324	1344	1342	1448	1448	979	1164	1015	1047
Total sound power (Lw)	dBA	80	73	78	74	77	79	79	81	83	82.9	77	81	83	84
OPERATING LIMITS VALUES															
Max. available pressure	Pa	813	1059	961	840	741	665	665	637	610	610	801	651	583	568
Max. sound power	dBA	87	93	91	87	86	86	86	86	87	87	89	87	89	89

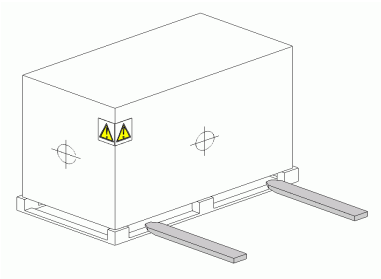
TRANSPORT & RECEPTION

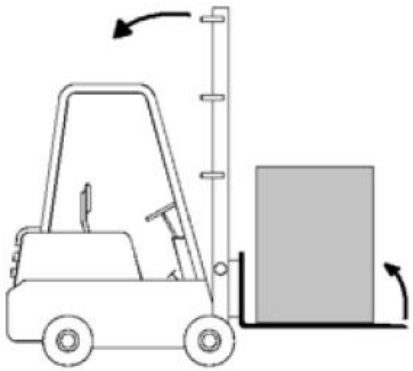
INSPECTION AT RECEPTION

- It is advisable to examine the equipment carefully at the time of its reception.
- Check that the equipment has not been damaged during transport and it has been supplied complete with all parts specified in the order and/or with the options specified in the order. If this is not the case, contact the transport company immediately. (First 48h).
- Verify the correct voltage of the nameplate and make sure it is in accordance with local power supply.
- In case of any flaw or anomaly detected, please contact BAXI.

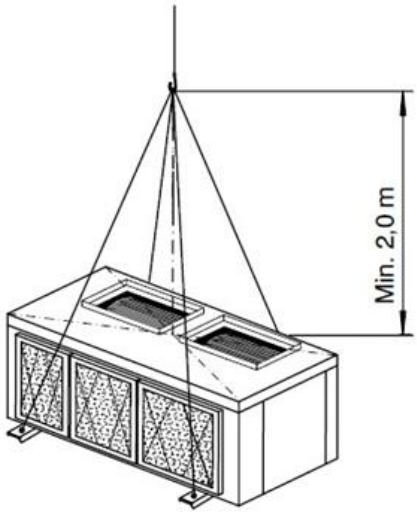
RIGGING

- Before moving the unit, make sure that all panels are well fixed.
- Raise and set down the equipment carefully.
- Do not tilt the unit more than 15 degrees during transportation.
- Always transport the unit in its original packaging to the place of installation.
- All units come with a particular rigging diagram of that model, similar to the one shown below. Be sure to hoist the machine through the points indicated in the diagram.
- Make sure that the unit is balanced, stable and without any deformations when it is lifted.





- Check minimum cable rigging lengths.



TRANSPORT & RECEPTION

STORAGE

If the equipment is going to be stored before the installation, please follow the instructions below in order to avoid damages, corrosion or deterioration:

- Move it carefully.
- Do not place the machine in places exposed to ambient temperature above 50ºC and preferably keep the unit away from direct sunlight.
- Avoid placing the unit with plastic wrapping protection under the sun, as the pressure of the circuits could reach values that could lead to the intervention of the safety valves.

  In addition, when cooling, water condensation occurs inside the machine and the plastic wrap.
- Avoid placing other objects on top of the unit (unless it is done within the limits of the overlap planes indicated on the packaging, etc. Follow these indications).
- Avoid prolonged storage, before installation, water inlet, dust and objects in general due to invasion or biological, meteorological and/or human interactions.
- Minimum storage temperature: -10ºC.
- Maximum relative humidity: 90%

INSTALLATION

INSTALLATION LOCATION

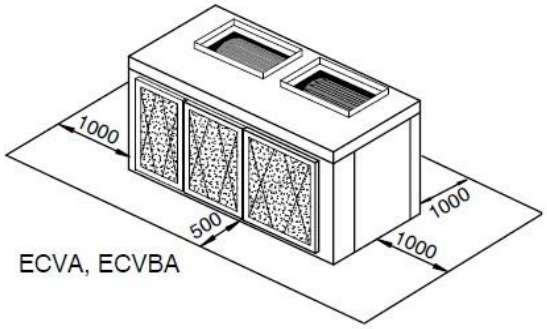
- Consult and respect the rules and local regulations which regulate the installation of air conditioning systems.
- Choose a site without dust and debris.
- Respect the appropriate service area for the equipment which will be installed.
- Verify that the ground or structure on which the unit will be installed is able to support its weight in operation.
- Fit shock absorbers throughout the installation to prevent the transmission of noise and vibration.
- Check that the direction of the sound level is not going to disturb anyone.

UNIT SETTLEMENT

- Make sure that the unit is correctly levelled.
- The bed frame should have the area and the strength to support the weight of the unit.
- Be sure that after settlement the unit drain is working properly.

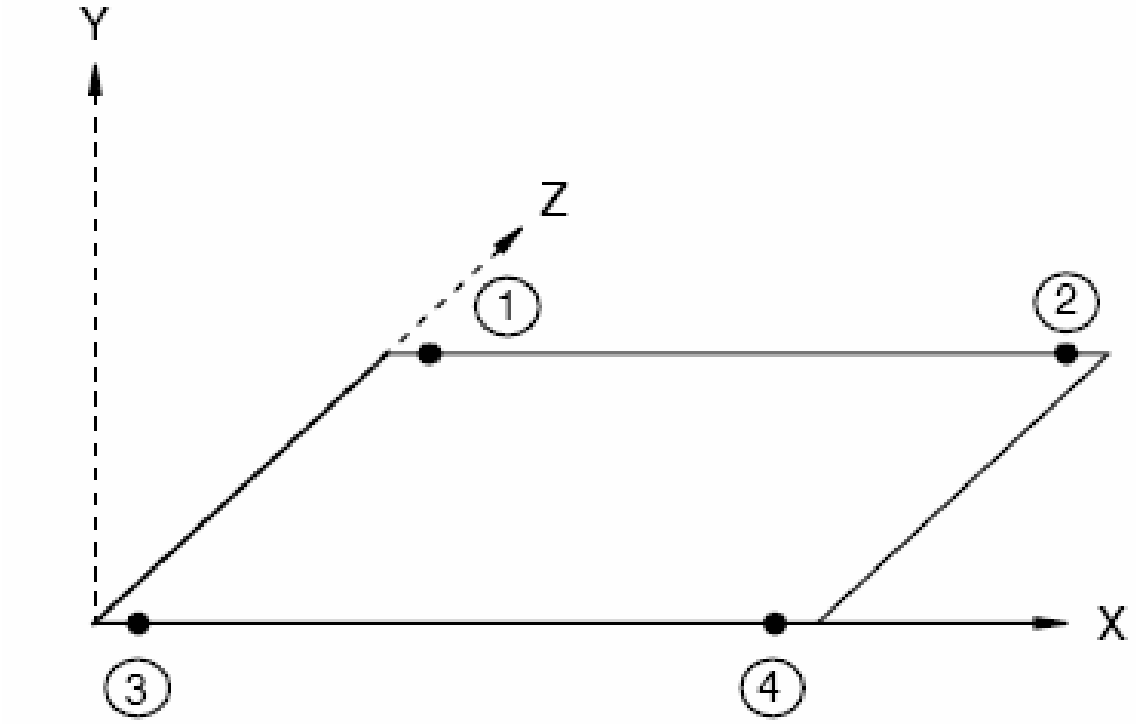
SERVICE AREA (mm)

Make sure to respect the following measurements for the correct operating of the unit.



INSTALLATION

WEIGHT DISTRIBUTION

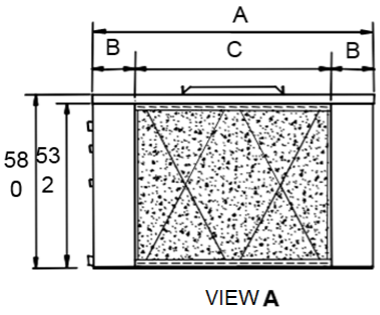


ECVBA	1	2	3	4
351	23	23	23	23
401	24	24	24	24
501	25	25	25	25
701	32	32	32	32
721	32	32	32	32
751	34	34	34	34
801	34	34	34	34
1001	49	49	49	49
1201	50	50	50	50
1402	64	64	64	64
1501	68	68	68	68
1502	68	68	68	68
1602	68	68	68	68
2002	84	84	84	84
2302	84	84	84	84
2402	84	84	84	84
3002	105	105	105	105
3502	131	131	131	131
4002	138	137	137	138
4502	143	142	142	143

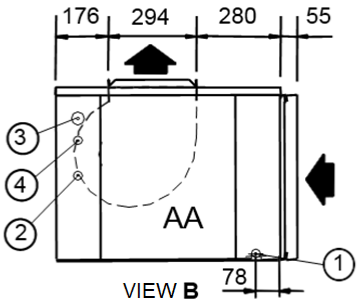
INSTALLATION

DIMENSIONS
ECVA-ECVBA

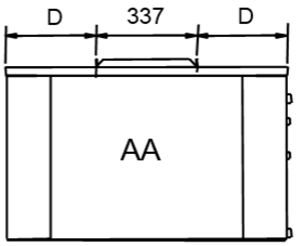
Models 351-401-501



VIEW **A**



VIEW **B**



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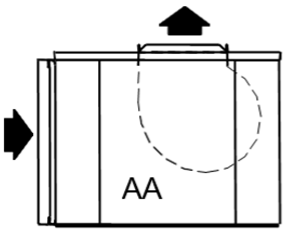
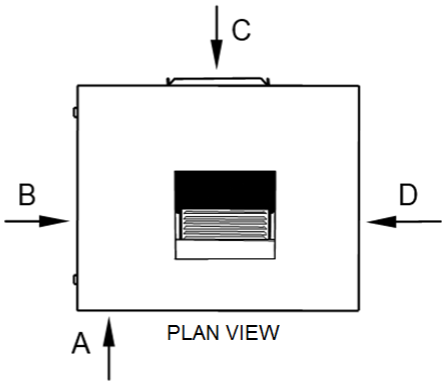


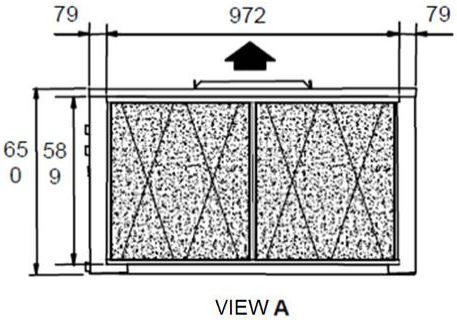
VIEW **C**

ECVA ECVBA	A	B	C	D
351	937	143	651	300
401	937	143	651	300
501	1087	178	731	375



PLAN VIEW

Models 701-721-751-801



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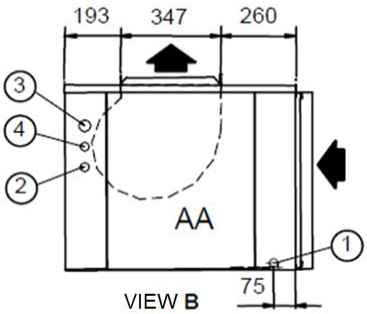

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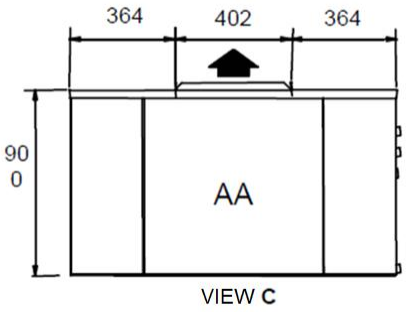
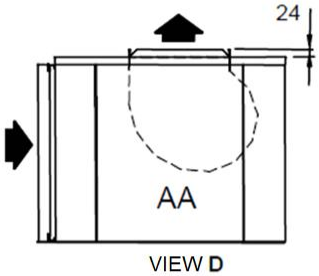
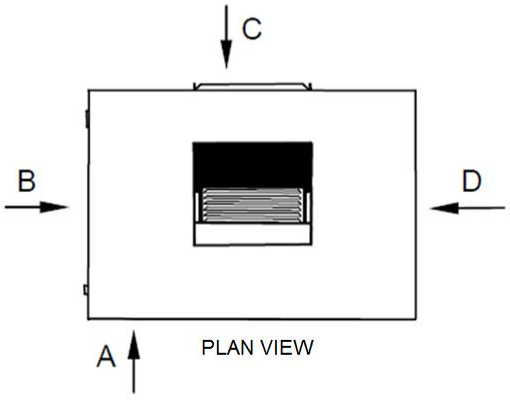


VIEW **C**



VIEW **D**



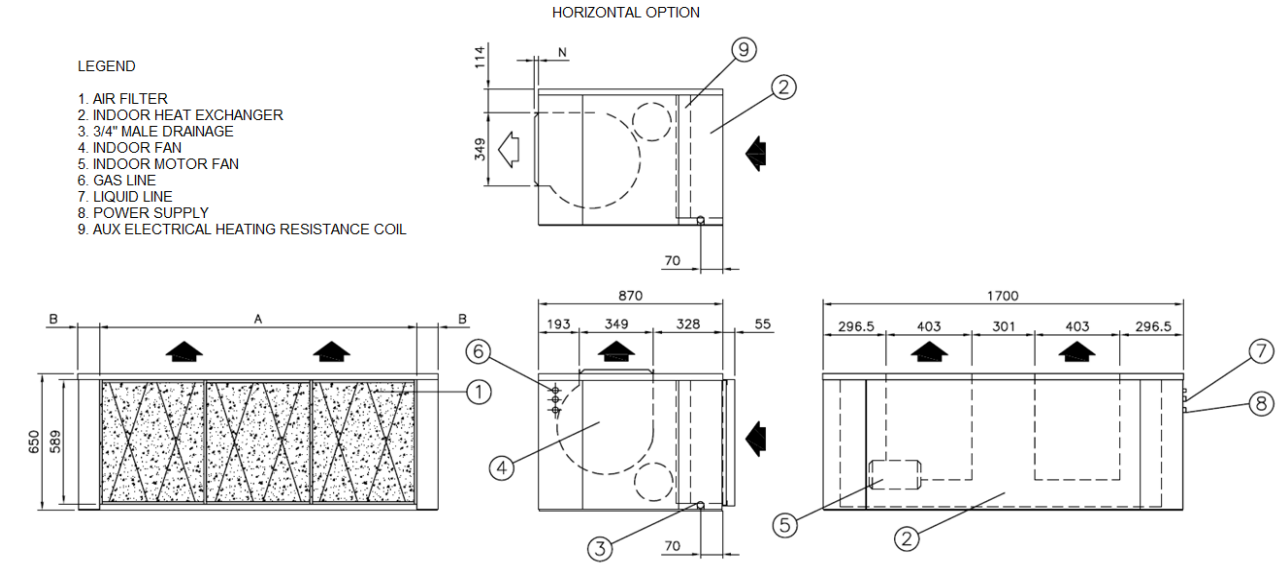
PLAN VIEW

LEGEND
1.- 3/4" male drainage
2.- Power supply input
3.- Gas line
4.- Liquid line
AA.- Access panel

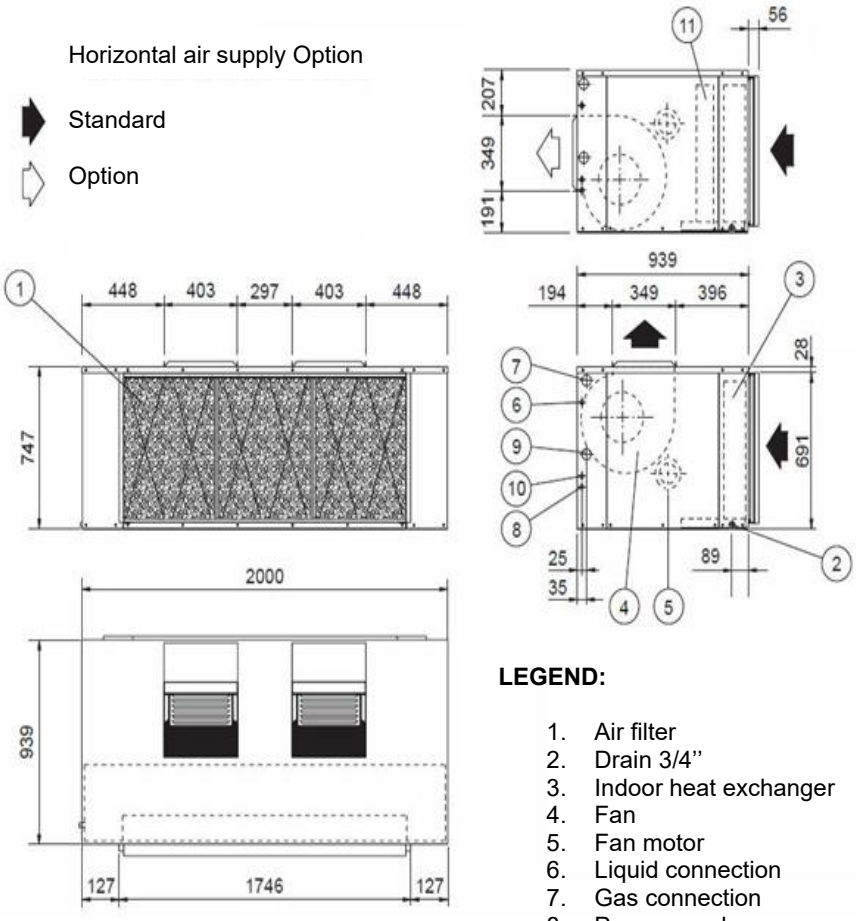
INSTALLATION

DIMENSIONS ECVA-ECVBA

Models 1001-1201



Model 1501

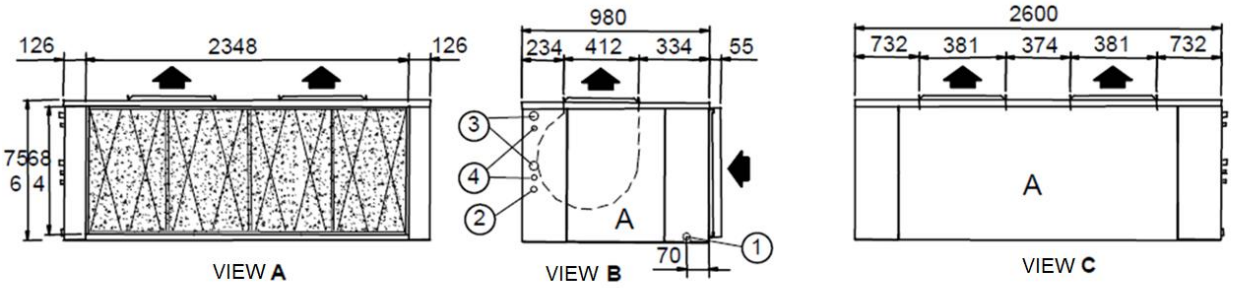


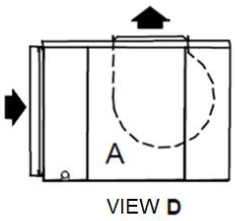
LEGEND:

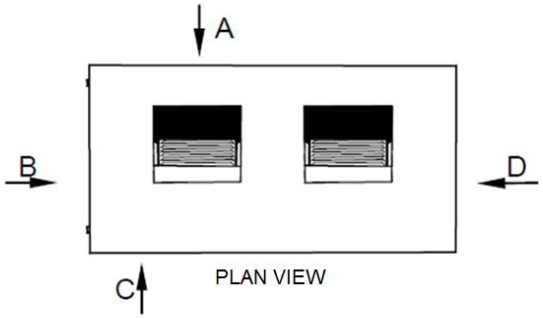
1. Air filter
2. Drain 3/4''
3. Indoor heat exchanger
4. Fan
5. Fan motor
6. Liquid connection
7. Gas connection
8. Power supply
9. Gas line
10. Liquid line
11. Electrical heating resistances

INSTALLATION
DIMENSIONS ECVA-ECVBA

Models 2002-2302-2402

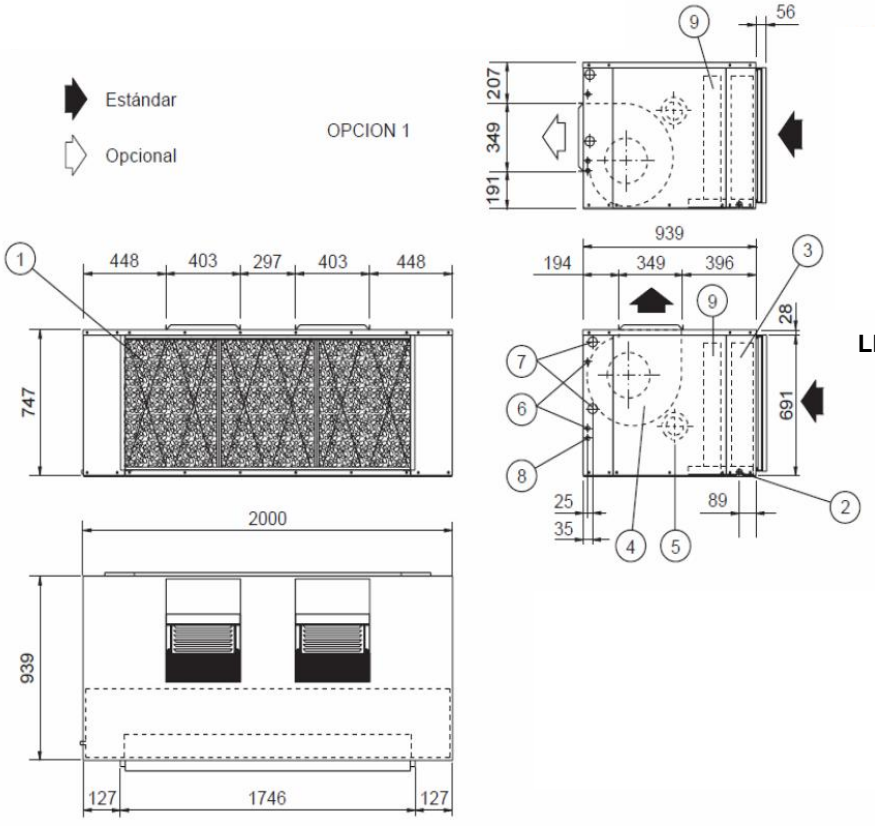






LEGEND
1.- 3/4" male drainage
2.- Power supply input
3.- Gas line
4.- Liquid line
AA.- Access panel

Models 1402-1502-1602



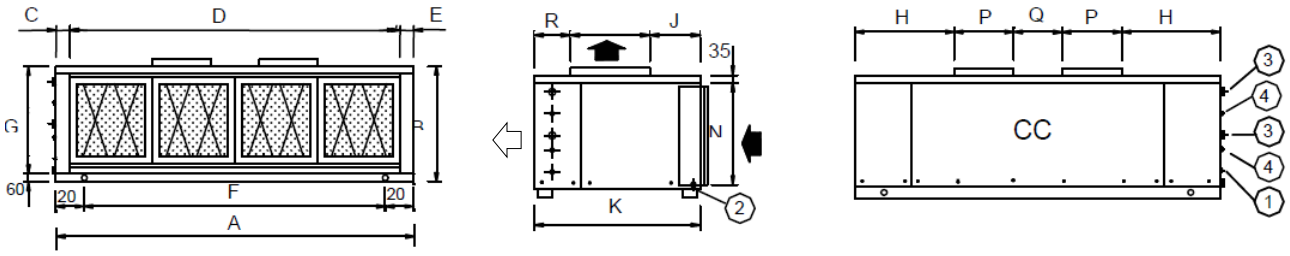
LEGEND:

1 Air filter
2. Drain 3/4'' male
3. Indoor heat exchanger
4. Fan
5. Fan motor
6. Liquid connection
7. Gas connection
8. Power supply
9. Electrical heating resistances

INSTALLATION

DIMENSIONS ECVA-ECVBA

Models 3002-3502



MODEL	A	B	C	D	E	F	G	H	I	J	K	N	P	Q	R
3002	2800	915	142	2598	60	2391	855	733	408	387	1050	780	479	376	255
3502	2800	915	142	2598	60	2391	855	613	484	258	1050	780	562	450	308

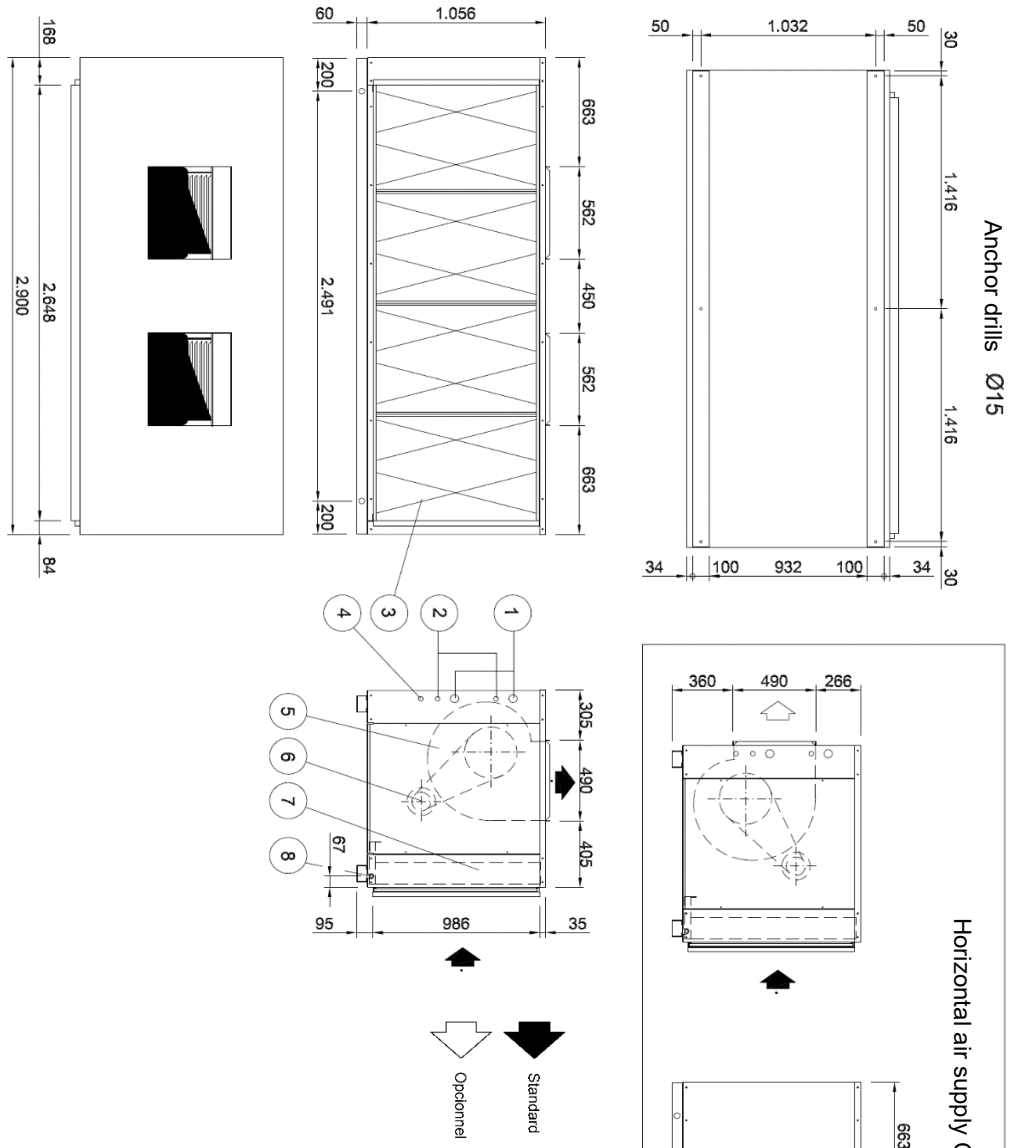
LEGEND
1.- Power supply input
2.- 3/4" male drainage
3.- Gas line
4.- Liquid line

ACCESS PANEL:
CC - Motor and fan

INSTALLATION

DIMENSIONS ECVA-ECVBA

Models 4002-5502



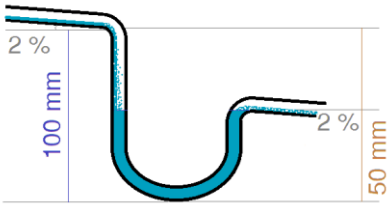
LEGEND:

1.Gas connection
2.Liquid connection
3.Air filter
4.Power supply inlet
5.Fan
6.Fan motor
7.Drain
8.Electrical heating resistances

INSTALLATION

DRAINAGE

- The indoor unit drainage (condensate water) has a 3/4” MPT connection.
- Condensate drain pipe diameter should be equal or larger than the unit drain connection depending on the line length and general building configuration.
- The drainage line should inclined a minimum 2% for proper water evacuation.
- When drain line is exposed to temperatures below 0 degrees, it is necessary to cover with thermal insulation or electrical heating wire to avoid water freezing and tube damages.
- It is convenient to install the water drain trap with proper dimensions (see diagram).



Recommended water drain trap measures

INSTALLATION

AIR DUCTS

- Air duct dimensions will be determined according to the airflow and available pressure of the unit.
- Ducts must be designed by qualified technical people.
- Use ducts made of non-inflammable materials in order to avoid any risk of fire as a consequence of the deflagration of gases. It is advisable to use metal sheet duct with insulation.
- Use flexible ducts to connect air ducts into the unit and thus avoid vibration and noise transmission.

ELECTRICAL INSTALLATION

WARNING!

Disconnect main switch from main power supply before starting any type of operations.

- Unit power supply should be within 10% of volts indicated on the unit nameplate. Damage caused by the start-up of the unit in an incorrect voltage line is not covered by BAXI's warranty.
- When making electrical connections always use the unit wiring diagram.
- The line protection elements have to be placed by the installer according to the current legislation local laws.
- Must check that the crankcase heater is working prior the start of the unit.
- Use a suitable cable: power cables for outdoor use must not be lighter than flexible polychloroprene-coated cable (designation 60245 IEC 57).
- The earthing connection must be made directly without passing through the condenstion unit.

The interconnecting wires have to be located in the protection tube or inside the groove cannel.

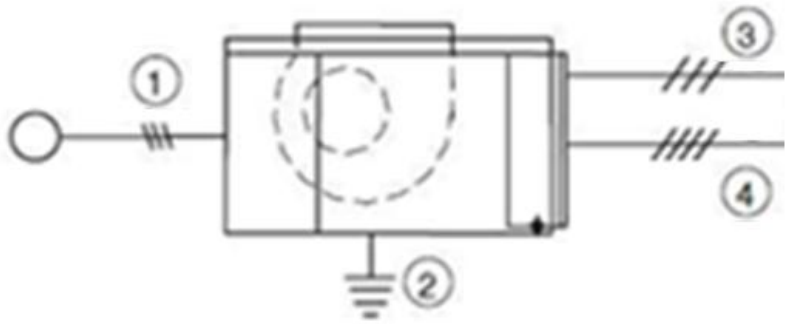
Electrical data

ECVBA/ECVA		351	401	501	701	721	751	801	1001	1201
Voltage		400.3 + N								
Start current	A	3.3	8.2	8.2	10.7	10.7	17.7	17.7	17.7	23.3

ECVBA/ECVA		1402	1501	1502	1602	2002	2302	2402	3002	3502	4002	4502
Voltage		400.3 + N										
Start current	A	23.3	33.7	33.7	33.7	47.9	47.9	47.9	56	56	87.5	87.5

INSTALLATION
ELECTRICAL INSTALLATION

Electrical connections



Legend

1. Electrical heater supply 400/3l
2. Ground
3. Indoor fan motor supply 400/3
4. Available power supply for indoor unit 400V.3~+PE or 230V.1~+N+PE

Refrigeration pipes design

Please refer to the instructions regarding pipe sizing in the documentation of the condenser unit.

OPERATION

BEFORE START UP

- Start up has to be performed by a qualified service personnel in air conditioning.
- Make sure that panels are firmly secured with screws.
- Check that there is no leakage of oil or refrigerant.
- Ensure that the unit is evenly leveled.
- Check if there is enough space for operation and maintenance.

Before opening the electrical panel and having access to the inside of the machine it is MANDATORY to disconnect the power supply hose of the machine which MUST BE FREE OF VOLTAGE for this operation.

- Check that the drainage is not blocked.
- Always use the electrical diagram of the unit to make the connections.
- Make sure that all electrical connections are properly tight.
- The power supply of the unit must be as indicated on the serial plate. Damage caused by the start-up of the unit in an incorrect voltage line is not covered by BAXI's warranty.
- The unit must not be supplied with any other voltage than that the indicated on the serial plate. The power supply to the unit must be within 10% of the voltage indicated on the serial plate.
- Check the correct rotation direction of the fans.
- The installer must place line protection elements in accordance with current legislation.
- Wiring of electrical connections must be protected by a tube or other cable conduits.
- Make sure if the crankcase heater of each compressor has been operating during 24 hours prior the start up.
- Check that the air filters are clean and correctly fitted.
- Check the condition and placement of grilles, diffusers, air ducts, tarpaulins, etc.

START UP

- It is necessary to take notes of the air inlet and outlet temperatures to the internal coil, the volts and amps of the compressor and motor fan, as well as the suction and discharge pressure of each compressor.
- It should be remembered that it is necessary to clean the air filters after the first 4 hours of operation.
- Observe, at least, 3 cooling cycle operations.
- Due to the unit has frequency converters, it is essential that the protection be at least 300mA to prevent power cuts caused by the activation of the circuit breaker.

OPERATION

INDOOR FAN TRANSMISSION ADJUSTMENT

- Adjust transmission in such a way that the indoor motor consumption comes to its normal value.
- If consumption is below nominal value it means that unit air flow is too low.

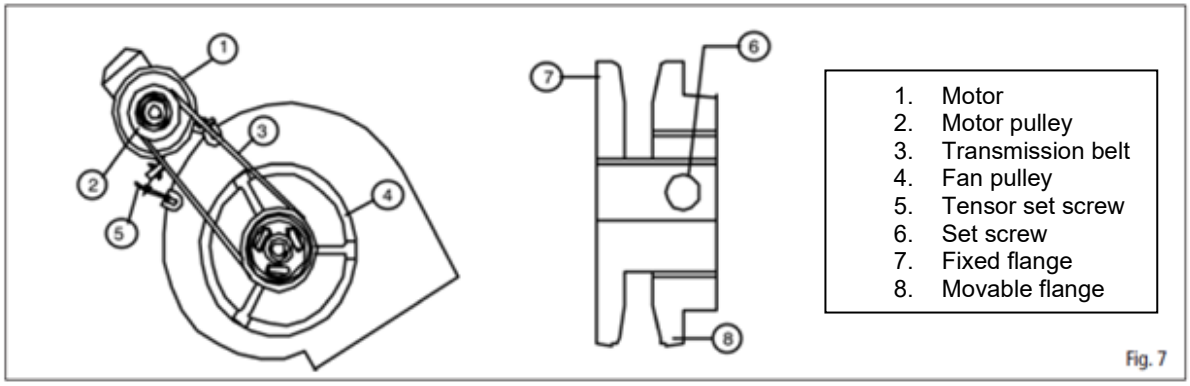


Fig. 7

To change fan speed:

1. Remove the belt. Move the motor along its track (or loosen the tensor set screw) in order to release it.
2. Loose the set screws of the motor pulley and turn the movable flange. Open of close depending on the needs (Open: speed decreases).
3. Tighten set screws.
4. Place the belt in the pulley cannel. The closure of opening of the pulley could void the size of the prior belt. In this case, replace it for other belt of the same profile and with the appropriate length.
5. Tighten the belt by using tensor screw or sliding the motor, depending on the case.

- **Align fan and motor pulleys:**

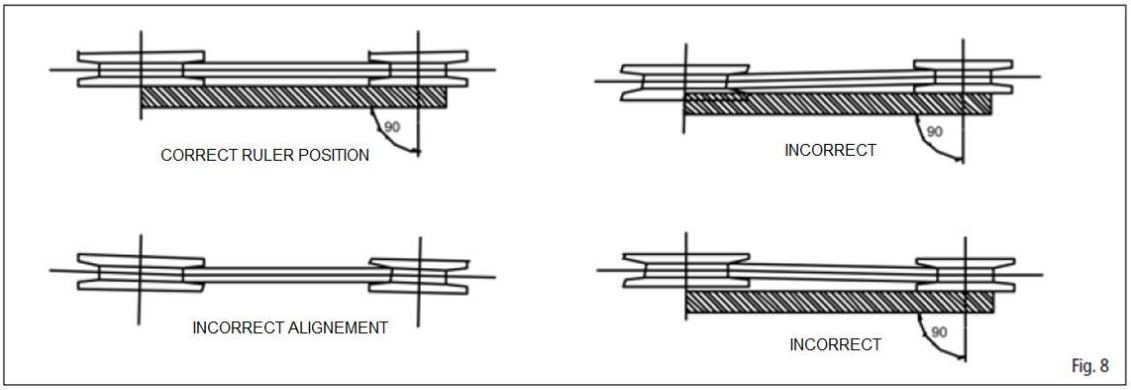
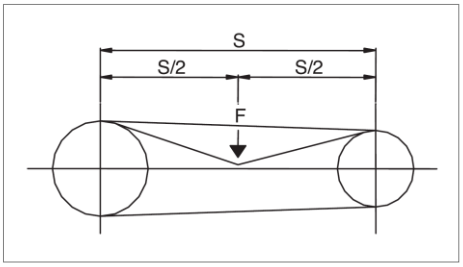


Fig. 8

1. Loose fan pulley set screws.
2. Slide fan pulley along the shaft and align with motor by using a ruler in order to ensure that is parallel to the belt.
3. Tighten fan pulley set screws.

- **Adjust belt tension**:

1. Loose motor mounting plate bolt and slide it.
2. Belt flexion in millimeters is estimated by dividing S by 40.



S(mm) +/- 2	F (mm) +/- 1
200-250	5,0 - 6,2
250-300	6,2 - 7,5
300-325	7,5 - 8,1
325-350	8,1 - 8,7
350-375	8,7 - 9,4
375-400	9,4 - 10,0
400-425	10,0 - 10,6

S(mm) +/- 2	F (mm) +/- 1
425-450	10,6 - 11,2
450-475	11,2 - 11,8
475-500	11,8 - 12,5
500-525	12,5 - 13,1
525-550	13,1 - 13,7
550-650	13,7 - 16,2
650-750	16,2 - 18,7

OPERATION

FAN TRANSMISSION ADJUSTMENT

- Adjust transmission in such a way that the indoor motor consumption comes to its normal value.
- If consumption is below nominal value it means that the unit air flow is too low.

	Motor				Transmission		Open*
	Ext.	Int.	Nominal		Pulley		Turns
			kW	A	Fixed	Adjustable	
ECVA-ECVBA 351		X	0.25	1.84	-	-	-
ECVA-ECVBA 401		X	0.55	1.1	150CC 1A	75/100 E191A	1 1/2
ECVA-ECVBA 501		X	0.55	1.8	150CC 1A	100/125 E191A	1
ECVA-ECVBA 701, 721		X	0.75	2	160CC 1A	75/100 E191A	1
ECVA-ECVBA 751, 801		X	1.1	2.6	150CC 1A	75/100 E241A	1
ECVA-ECVBA 1001		X	1.1	2.6	180CC 1A	75/100 E241A	0
ECVA-ECVBA 1201		X	1.5	3.5	150CC 1A	75/100 E241A	1
ECVA-ECVBA 1402		X	1.5	3.9	150CC 1A	75/100 E241A	1
ECVA-ECVBA 1502, 1602		X	2.2	4.3	180CC 2A	100/125 E282A	1
ECVA-ECVBA 2002		X	3	5.6	224CC 2A	100/125 E282A	0
ECVA-ECVBA 2302, 2402		X	3	6.4	224CC 2A	100/125 E282A	1
ECVA-ECVBA 3002		X	4	8.9	224CC 2A	100/125 E282A	0
ECVA-ECVBA 3502		X	4	8.9	212CC 2A	100/125 E282A	2

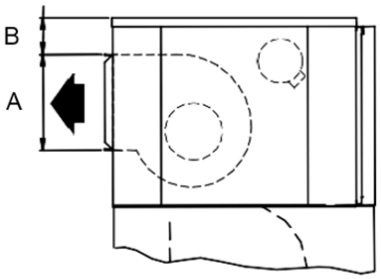
*The standard unit leaves the factory with the adjustable pulley with the open turns indicated in the table.

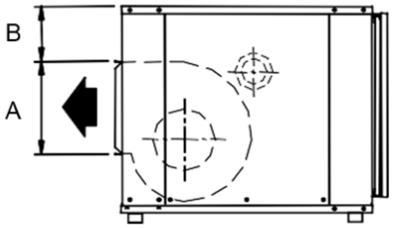
OPERATION LIMITS

	INDOOR AIR TEMPERATURE
COOLING CYCLE	ºC
Minimum conditions	15
Maximum conditions	32
HEATING CYCLE	ºC
Minimum conditions	10
Maximum conditions	26

OPTIONS
AIR INTAKE AND DISCHARGE

MODEL	A	B
ECVA - ECVBA 351 - 501	294	109
ECVA - ECVBA 701 - 801	347	104
ECVA - ECVBA 1001 - 1201	349	114
ECVA - ECVBA 1402 - 1602	349	207
ECVA - ECVBA 2002 - 2402	411	89
ECVA - ECVBA 3002	408	172
ECVA - ECVBA 3502	484	68





ECVA - ECVBA 3002, 3502

OPTIONS

EC MOTOR FAN (OPTION)

Safety instructions

This document contains information to avoid personal and material damage. These instructions are not intended to be complete. If you have questions or problems, our technicians are at your disposal for any queries you wish to make.

Intended use

- The fans are only intended for the conveyance of air of mixtures similar to air.
- All parts that compose the product: EC motor, turbine, supports, cables, etc., cannot be separated from each other.
- Fans are an indivisible part of the unit which they are mounted or for which they have been sold as accessories or spare parts.

WARNING!

- **Other uses which do not coincide which, or which exceed those specified will be deemed unauthorised unless contractually agreed. Damages resulting from such unauthorized uses will not be the liability of the manufacturer. The user will assume sole liability.**
- **Do not connect built-in fans to open flue pipes of gas and other firing devices.**
- **VDE-approved fans (see power nameplate) may only be used as built-in fans for internal wiring, and they are not appropriate for direct wiring in the terminal unit.**
- **Reading this document and complying with all contained instructions – specially the safety notifications contained therein – are considered part of intended use.**
- **To consider is also the documentation of attached components.**

Improper use

Improper use / reasonably foreseeable misuse

- Conveyance of aggressive and explosive gaseous media.
- Use in explosive atmosphere in which there is conveyance of gas, fogs, vapors or mixtures of them.
- Conveyance of solids or fraction solids in the conveyance media.
- Operation with ice up fan impellers.
- Conveyance of abrasive or adhesive media.
- Conveyance of liquid media.
- Use of the fan and add-on parts (e.g. safety grille) as a resting surface or climbing aid.
- Fans with an additional diffuser element (rear mounting kit) are not designed to walk on them! The ascent must be done with auxiliary means.
- Unauthorized constructional modifications to the fan.
- Operation of the fan as a safety component or for the performance of safety-relevant functions in the sense of EN ISO 13849-1.
- Blocking of braking of the fan by inserting objects.
- Loosening of fan blade, impeller and balancing weight.
- All applications not listed in the intended use.

WARNING!

Not the manufacturer, rather the operator of the frequency inverter is liable for any personal harm or material damage arising from non-intended use.

OPTIONS
EC MOTOR FAN (OPTION)

Explanations of symbols

Safety instructions are highlighted with warning triangles and are depicted according to the degree of hazard as follows.

	Attention! General hazardous area. Death or severe injury or significant property damage can occur if the corresponding precautions are not taken!
	Danger due to electric current Warning of dangerous voltage of dangerous current. Important damages can occur if appropriate precautions are not taken. Risk of death!
	Information Important additional information and advice for user.

Product safety

The device conforms to the state of the art at the time of delivery and is fundamentally considered to be reliable. The device and its accessories must only be used in a flawless condition and installed and operated in compliance with the assembly instructions and/or operating instructions. Operating outside the device's technical specifications (rating plate and attachment /technical data) can lead to a defect in the device and additional damage!

Requirements placed on the personnel / due diligence

Persons entrusted with the planning, installation, commissioning and maintenance and servicing in connection with the frequency inverter must have the corresponding qualifications and skills for these jobs.
In addition, they must be knowledgeable about the safety regulations, EU directives, rules for the prevention of accidents and the corresponding national as well as regional and in-house regulations. Personnel to be trained or instructed and apprentices are only permitted to work on the device under the supervision of an experienced person. This also applies to personnel undergoing general training. Comply with the legal minimum age.

Working on device

Information

WARNING!

Mounting, electrical connection, and start-up operation may only be carried out by an electrical specialist in accordance with electro-technical regulations (e.g. EN 50110 or EN 60204)!

OPTIONS
EC MOTOR FAN (OPTION)
Working on device

Danger due to electric current

WARNING!

- **It is generally forbidden to carry out work on electrical live parts. Protection class of the device when complete open is IP00! It is possible to touch hazardous voltages directly.**
- **The rotor is not protected against indirect contact neither by supplementary or reinforced insulation nor by connection to safety-earth in accordance with EN 60204-1, therefore, must the system constructor provide protection by enclosure in accordance with EN 61140 before the motor is connected to a power source. This protection can be achieved for example by a guard grille (Product overview: Application operational area and Installation: General).**
- **When the motor runs independently due to air flowing through of if it continues to run down after being turned off, dangerous voltages of over 50 V can arise on the motor internal connections through operation of the generator.**
- **The safe isolation from the supply must be checked using a two-pole voltage detector.**
- **Even after disconnecting the main voltage, life-threatening charges can appear between the protective ground "PE" and the main connection.**
- **The protective earth is conducting high discharge currents (dependent on the switching frequency, current-source voltage and motor capacity). Earthing in compliance with EN specifications shall therefore be observed even for testing and trial conditions (EN 50 178, Art. 5.2.11). Without earthing, dangerous voltages can be present on the motor housing.**
- **Maintenance work may only be carried out by suitably qualified personnel**.

Waiting period at least 3 minutes!

WARNING!

Through use of capacitors, danger of death exists even after switching off the device through directly touching the energized parts or due to parts that have become energized due to faults. The controller housing may only be removed or opened when the power line has been switched off and a period of three minutes has elapsed since switching it off.

OPTIONS
EC MOTOR FAN (OPTION)
Working on device

Attention, automatic restart!

WARNING!

- **The fan/motor may switch on and off automatically for functional reasons.**
- **After power failure or main disconnection an automatic restart of the fan takes place after voltage return!**
- **Wait for the fan to come to a complete standstill before approaching it!**
- **In the external rotor motor, the external rotor turns during operation!**

Attention, hot surface!!

WARNING!

Temperatures of above 85ºC can occur on the motor surfaces, especially on the controller housing!

Modifications / interventions in the device

WARNING!

For safety reasons, no unauthorized interventions or modifications may be made on the device. All planned modifications must be authorized by the manufacturer in writing.

Use only genuine spare parts / genuine accessories from fan manufacturers. These parts were specifically designed for the device. There is no guarantee that parts from non-original sources are designed and manufactured in correspondence with load and safety requirements.
Parts and optional equipment not supplied by the manufacturer are not approved by the manufacturers for its use.

OPTIONS
EC MOTOR FAN (OPTION)
Diagnosis / faults

Trouble shooting

Type of error	Possible cause	Remedial measures
Fan does not run (anymore)	Failure line voltage. Failure of one phase. Under – or overvoltage.	Check line voltage.
	Earth fault.	Check motor connection and line voltage.
	Short circuit winding.	Replace fan.
	The thermal protection of the motor has triggered (motor is overheated)	Check for free air passages; remove foreign bodies if necessary "Impeller blocked or dirty". Check temperature of supply air. Check voltage.
	Impeller blocked or dirty	• Switch off power to the motor and secure against switching back on. • Check safe isolation from supply. • Remove safety grille. • Remove foreign bodies or soiling. • Remount the safety grille.
Fan will not start	Temperature too low for bearing grease.	Insert bearing with cold greasing.
	Air stream wrong direction (Motor turns in wrong direction at high speed)	Check air stream. ☞Behaviour in rotation by air current in reverse direction.
Fan turns too slowly	Impeller / blade scrapes / brushes.	When indicated clear foreign bodies / dirt from the fan.
	Active temperature management effective (Motor or electronics over-heated).	Check for free air passages; remove foreign bodies if necessary. "Impeller blocked or dirty". Check temperature of supply air. Check installation space (air speed overheat sink).
Air flow too low	Fan turns too slowly	☞ “Fan turns too slowly”.
	Airways blocked	Check for free air passages (supply/exhaust air vents, filters) “Impeller blocked or dirty”
	Pressure loss different to planned.	Check fan selection.
Vibrations	Imbalance.	Check blades for damage, soiling or ice. “Impeller blocked or dirty”
	No or wrong vibration dampers (only in radial)	Install correct vibration dampers
Unusual noises	Bearing damaged / worn.	Change bearings.
	Impeller / blade scrapes / brushes.	When indicated clear foreign bodies / dirt from the fan. “Impeller blocked or dirty”
	Operation beyond stall point (for axial fans)	Check for free air passages (supply / exhaust air vents, filters)
	Wrong overlap on nozzle (for centrifugal fans)	Observe the installation instructions.

OPTIONS
EC MOTOR FAN (OPTION)
Diagnosis / faults

Status Out with flash code

For motor size "D" and "G" status LED integrated in cover.

LED Code	Alarm relay K1 *	Cause (Explanation)
OFF	Open	No line voltage
ON	Closed	Normal operation without fault
1x	Closed	No enable = OFF
2x	Closed	Active temperature management
3x	Open	HALL-IC fault
4x	Open	Line failure (only for 3~ types)
5x	Open	Motor blocked
6x	Open	IGBT fault
7x	Open	DC under voltage
8x	Open	DC overvoltage
9x	Closed	IGBT cooling down period
11x	Open	Fault motor start
12x	Open	Line voltage too low
13x	Open	Line voltage too high
14x	Open	Error peak current
17x	Open	Temperature alarm

* K1: function programmed by manufacturer: error message not reversed.

OPTIONS

EC MOTOR FAN (OPTION)

Rotation caused by an air flow in false direction

When the fan is stopped (no signal, no electrical supply, etc.), the control of the motor does not interfere if the fan rotates in wrong direction (due to, for example, an air flow).
If you switch on the fan while it is rotating in the opposite direction, firstly the control will reduce the rotations in a controlled way until it reaches the '0' value (fan stoppage). Then, the control will make a restart in the correct rotation direction.
The higher the number of turns in the opposite direction, the longer the control will need to reach the fan.
In the event that the fan rotates strongly in the opposite direction, it is possible that the control could not start the fan in the proper rotation direction.

Information

WARNING!

Do not switch off line voltage that the fan can start again!
Safe starting of fans is not guaranteed if it is started in reverse. If the application demands safe starting, the machine manufacturer or owner must prevent reverse driving rotation by suitable measures.

Maintenance and repairs

- Repairing works must be carried out by trained specialists only.
- Wear safety shoes and gloves for handling.
- Please observe the safety regulations and the protection rules of the worker by all maintenance and service work (EN 50 110, IEC 364).
- Before working on the fan, this must be disconnected from the power supply and secured against switching back on!
- Keep the airways of the fan free – danger because of objects dropping out!
- No maintenance work at running fan!
- Depending on the application and the transfer medium the impeller has a natural wear. Deposits on the impeller can lead to imbalance and thus to damages (danger of endurance fracture). The impeller can disintegrate!
- There is risk that the impeller could break because of the massive corrosion in case of transporting the product in highly aggressive environment that could not be appropriate for it. The affected impellers for this type of corrosion have to be replaced immediately.
- Deposits on the motor, especially in the refrigerating wings and motor cavities, block an appropriate refrigeration causing a premature disconnection of the motor. Therefore they have to be removed on time (cleaning).
- Maintenance interval in accordance with the degree of contamination of the impeller!
- Check the fan in regular periods in respect of mechanical vibrations (recommended every 6 months). Keep in mind the limit values indicated on ISO 14694 and perform correction measures in case of exceeding them (e.g. posterior balance by trained specialists).
- Check the impeller, in particular weld-seams, for possible cracks.
- Repair, e.g. by welding is prohibited!
- The fan or motor is maintenance-free due to the use of ball bearings with "life-long lubrication". At the end of the grease life (30-40.000h approx.) it is necessary to change the bearing. Please contact our Service Department in this case as for all other damage (e.g. to the coil or electronics).
- Bolted-on wheels and / or wings may only be replaced by authorized manufacturer staff. The manufacturer shall not be liable for damage caused through improper repair work.

It is necessary a regular inspection, with cleaning if it requires, to avoid the imbalance and obstruction of the condensation water evacuation openings due to dirt.

OPTIONS
EC MOTOR FAN (OPTION)
Cleaning

Danger due to electric current

ATTENTION!

Voltage supply for motor must be interrupted and secured against restoration!

Clean the circulation area of the air fan.

Attention!

- Do not use any aggressive, paint solvent cleaning agents when cleaning.
- Make sure that no water gets inside the motor and the electronics (e.g. by direct contact with seals of motor openings), observe protection class (IP).
- It is necessary to check the free flow of the condensation water evacuation openings (if there are any) that are appropriate for set up position.
- In case of improper cleaning work no guarantee is assumed regarding corrosion formation / paint adhesion for unpainted / painted fans.
- To avoid humidity accumulation in the motor, the fan must be operated at least for 1 hour at 80 to 100% of maximum speed before cleaning!
- After the cleaning process, the fan must be operated for 2 hours at 80 to 100% of maximum speed for drying purposes!

MAINTENANCE

WARNING!

Before performing any service or maintenance operation it is mandatory to turn off the main power switch of the system to avoid any personal injuries. Locked it so that nobody other than a qualified technician can switch on electrical power

It is advisable to do maintenance works every 1.000 operating hours as well as at the beginning of each cooling season.

In case of leakage, any manipulation and / or recovery of refrigerant must be carried out by qualified and accredited personnel in the current regulations.

CONSERVATION AND CLEANING

Electrical circuit: Make sure that all electrical connections -wires, contactors and terminals- are properly tight. Record the readings for volts and amperes of each compressor and fan motor. Verify the starting current. Check the good operation of all relays, pressure switches and phase sequence relay of Scroll compressor.

Coils: At least once a year, clean condenser coils with water and detergent, then dry with air at a low pressure. Never clean with wire brush.

Fans: Check the direction of rotation of the fans. Examine the support of the fans. Check the operating status.
Before handling the fan, make sure that it is disconnected from the main power, even if it is already stopped and that nobody can start it during the intervention.
- It is necessary to make a regular inspection of the unit. Its frequency must be based on the working conditions to avoid the accumulation of dirt in propellers, turbines, motors and grids that could entail risks and shorten its life.
- Be very careful not to unbalance the propeller or the turbine in cleaning operations.
- Must observe the current safety legislations of each country in all maintenance and repairing works.

Motors and fans do not need any additional lubrication.

Transmission belts: Check the status and the tension of the transmission belt, at least twice the first operating month, after every 1000 operating hours.

Drainage system: Verify condition and good operation of the drainage tray and the drain trap.

Air filters: Clean filters after the first operating hours to collect possible light materials such as papers, pieces of porexpan, etc. left over from the installation and that have been dragged through the air circulation. Clean again every 3 months (or more often according to its operation). The filter can be cleaned with soapy water, after rinse it with clean water and let dry. If necessary, replace filters before they are in bad conditions (check current legislation of each country, EN 779, UNE-EN 13053…).

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