



Variable Multi Flow
VMF



CHILLER - HEAT PUMP - INSTALLATION MANUAL

REVERSIBLE CHILLERS AND HEAT PUMPS

- EXTERNAL UNIT
- HIGH EFFICIENCY
- DHW UP TO 55°C

NRL

0280-0700

A RENDEMENT ELEVE
E RENDEMENT ELEVE SILENCIEUSE
HA POMPE A CHALEUR RENDEMENT ELEVE
HE POMPE A CHALEUR RENDEMENT ELEVE
SILENCIEUSE



Aermec
participate in the EUROVENT
program: LCP/A/P/C
the products are present on the site
www.eurovent-certification.com



EN



INRLPI_1305_5280205_00

Dear Customer,

Thank you for choosing an AERMEC product. This product is the result of many years of experience and in-depth engineering research, and it is built using top quality materials and advanced technologies.

In addition, the CE mark guarantees that our appliances fully comply with the requirements of the European Machinery Directive in terms of safety. We constantly monitor the quality level of our products, and as a result AERMEC products are synonymous with Safety, Quality, and Reliability.

Product data may be subject to modifications deemed necessary for improving the product without the obligation to give prior notice.

Thank you again.
AERMEC S.p.A

INDEX

1.	Notes regarding the documentation	3
2.	Fundamental safety regulations.....	3
3.	Product identification	3
4.	Dimension (mm).....	4
5.	Centers of gravity position and anti-vibration.....	9
6.	Safety warnings and installation regulations.....	13
7.	Receiving the product.....	13
8.	Hydraulic circuits	14
9.	Filter maintenance	16
10.	Position of hydraulic connections	17
11.	Electrical connections	19
12.	Commissioning	22
13.	Maintenance	24
14.	Disposal.....	24
15.	Improper use.....	25

For the installation of the appliance, please comply with the safety rules and regulations contained in these instructions



Moving parts hazard



High temperature hazard



Voltage hazard



Danger: Disconnect voltage



Generic danger



Useful information and notices

**AERMEC S.p.A.**

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NRL

MODEL	_____
SERIAL NUMBER	_____
DATE	_____

EC DECLARATION OF CONFORMITY

We, the undersigned, hereby declare under our own responsibility that the assembly in question, defined as follows:

NAME

NRL

TYPE

AIR/WATER | HEAT PUMPS

MODEL

To which this declaration refers, complies with the following harmonised standards:

IEC EN 60335-2-40

Safety standard regarding electrical heat pumps, air conditioners and dehumidifiers

IEC EN 61000-6-1

Immunity and electromagnetic emissions for residential environments

IEC EN 61000-6-3**IEC EN 61000-6-2**

Immunity and electromagnetic emissions for industrial environments

IEC EN 61000-6-4**EN378**

Refrigerating system and heat pumps - Safety and environmental requirements

EN12735

Copper and copper alloys - Seamless, round copper tubes for air conditioning and refrigeration

UNI 12735

Seamless, round copper tubes for air conditioning and refrigeration

UNI 14276

Pressure equipment for cooling systems and heat pumps

Thereby, compliant with the essential requirements of the following directives:

- LVD Directive: 2006/95/EC**- Electromagnetic Compatibility Directive 2004/108/EC****- Machinery Directive 2006/42/EC****- PED Directive regarding pressurised devices 97/23/EC**

The product, in agreement with Directive 97/23/EC, meets the Total quality Guarantee procedure (form H) with certificate no. 06/270-QT3664 Rev. 6 issued by the notified body n.1131 CEC via Pisacane 46 Legnano (MI) - Italy

The person authorised to drawn up the technical file is: **Massimiliano Sfragara - 37040 Bevilacqua (VR) Italy - via Roma,996**

Marketing Manager
Signature

1. NOTES REGARDING THE DOCUMENTATION

1.1. USE IN COMPLIANCE WITH DESTINATION

AERMEC units are constructed according to the recognised technical standards and safety regulations. These appliances are designed and built for heating and hot water production and also for cooling and must be used in compatibility with their technical features. In spite of this, dangers to the user or third parties may arise, as well as damage to the appliance and other objects, in the event of improper use and use that is not in compliance with that envisioned.

Any use not expressly indicated in this

manual is not permitted. **Consequently AERMEC will not assume any responsibility for damage that may occur due to failure to comply with these instructions.**

1.2. PRESERVATION OF THE DOCUMENTATION

The installation instructions, along with all the related documentation, must be given to the user of the system, who assumes the responsibility of keeping the instructions so that they are always at hand in case of need.

READ THIS DOCUMENT CAREFULLY, the appliance must be installed by

qualified and suitably prepared staff in compliance with the national legislation effective in the country of destination. (Ministerial Decree 329/2004).

The appliance must be installed so that maintenance and/or repairs can be carried out. The appliance warranty does not cover the costs for ladders, scaffolding, or other elevation systems that may become necessary for carrying out servicing under warranty.

The validity of the warranty shall be void in the event of failure to comply with the above-mentioned indications.

2. FUNDAMENTAL SAFETY REGULATIONS

We remind you that the use of products that employ electrical energy and water requires that a number of essential safety rules be followed, such as:

- ⦿ This appliance is not suitable for use by persons (including children) with limited physical, sensory, or mental capacities or those lacking experience or know-how, unless they are supervised or instructed regarding the use of the appliance by a person who is responsible for their safety. Children must always be supervised to ensure they do not play with the appliance.
- ⦿ It is prohibited to carry out any technical or maintenance operation before the unit has been disconnected from the electrical mains by switching off the master switch of the system and the main power switch on the control panel.
- ⦿ It is prohibited to modify the safety or adjustment devices without the manufacturer's authorisation and precise instructions
- ⦿ It is prohibited to pull, disconnect, or twist the electrical cables coming from the unit even if disconnected from the electrical mains.
- ⦿ It is prohibited to leave containers and flammable substances near to the unit.
- ⦿ It is prohibited to touch the appliance when you are barefoot and with parts of the body that are wet or damp.
- ⦿ It is prohibited to open the access hatches to the internal parts of the appliance without first having switched off the system master switch.
- ⦿ It is prohibited to disperse or abandon the packing materials and they must be kept out of the reach of children, as they are a potential source of danger.

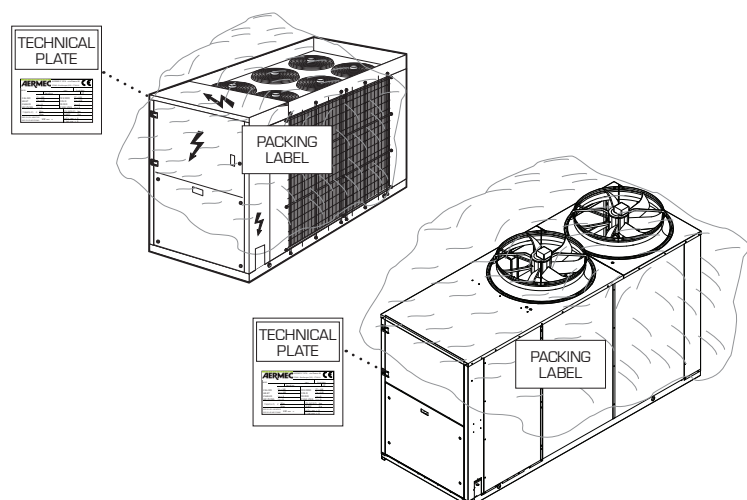
3. PRODUCT IDENTIFICATION

NRL can be identified by means of:

- **Packing label**
that reports the identification data of the product.
- **Technical plate**
positioned on the lateral cross-member of the electric box.

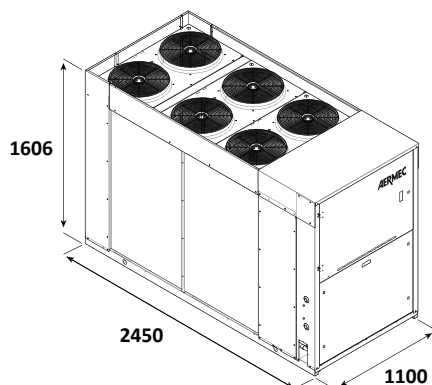
NOTE:

Tampering, removal, lack of the identification plate or other does not allow safe identification of the product and will make any installation or maintenance operation to be performed difficult.

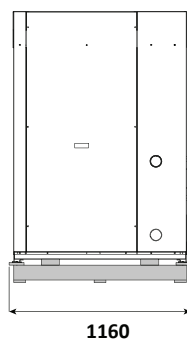
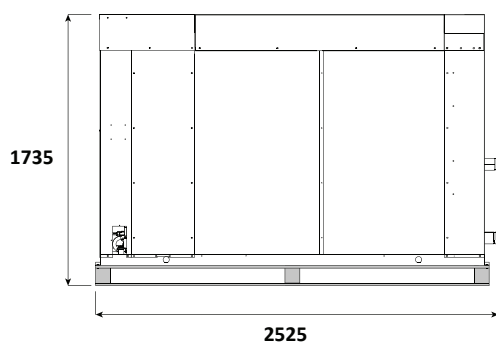


4. DIMENSION (mm)

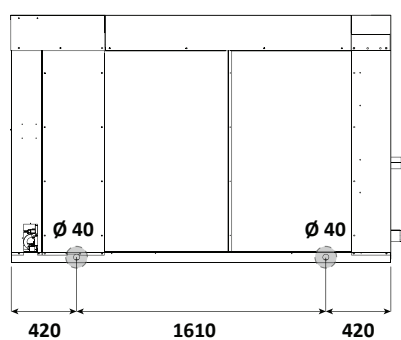
4.1. DIMENSION NRL 0280 [E-HE] / (mm)



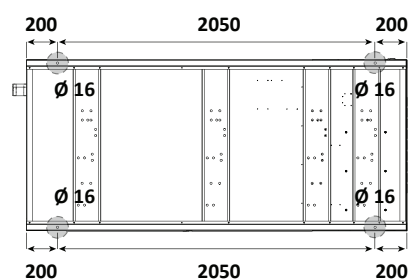
ATTENTION
Lifting poles not supplied



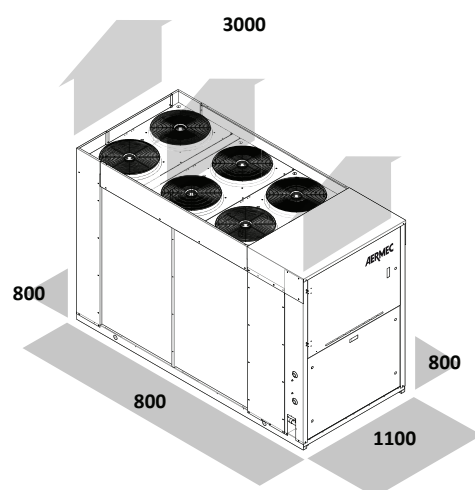
4.1.1. LIFTING POINTS (mm)



4.1.2. POSITION ANTI-VIBRATION MOUNTS (mm)

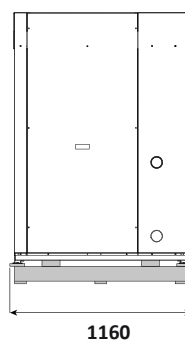
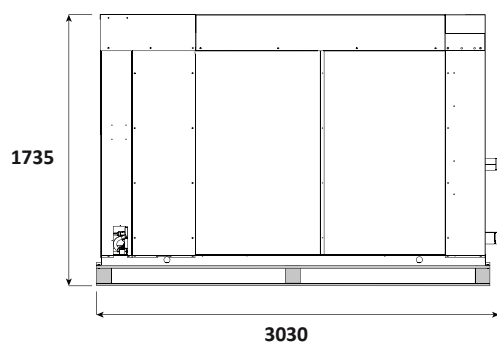
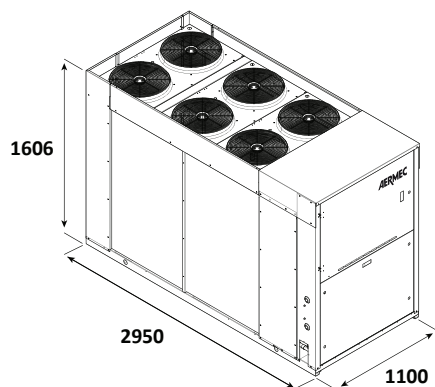


4.1.3. MINIMUM TECHNICAL SPACE (mm)

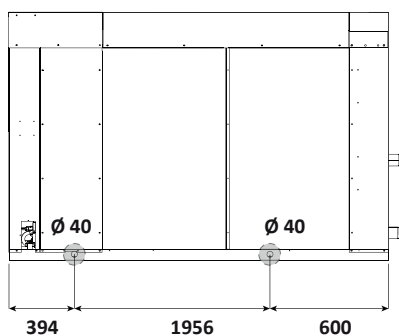


4.2. DIMENSION NRL 0300 [E] / (mm)

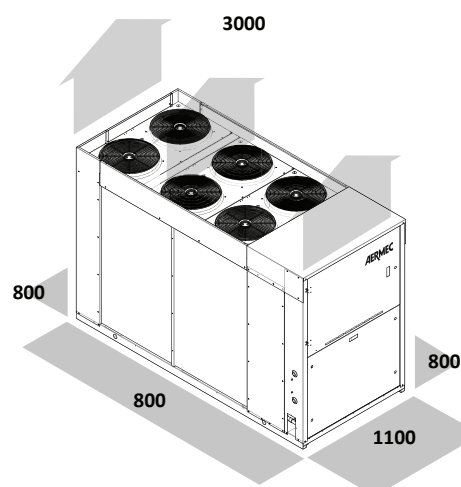
ATTENTION
Lifting poles not supplied



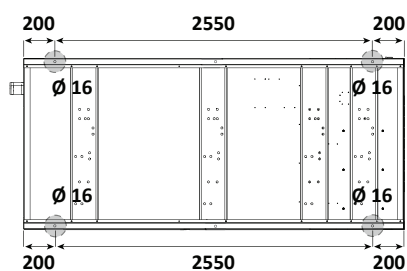
4.2.1. LIFTING POINTS (mm)



4.2.3. MINIMUM TECHNICAL SPACE (mm)

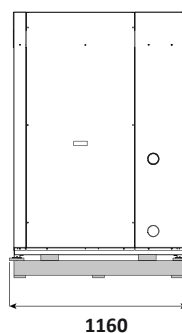
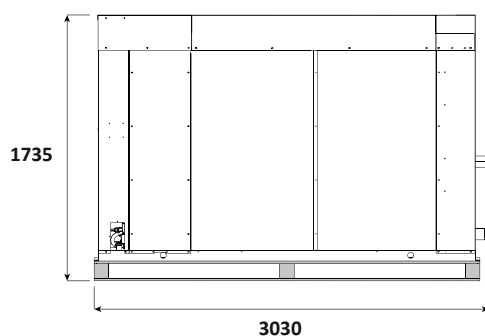
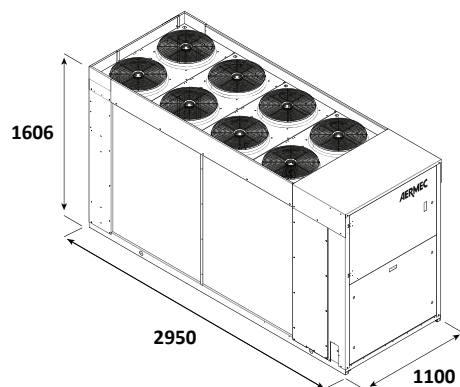


4.2.2. POSITION ANTI-VIBRATION MOUNTS (mm)

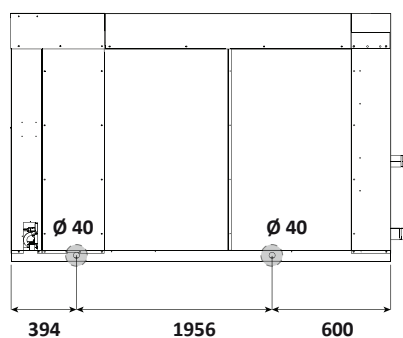


4.3. DIMENSION NRL [E] 0330-0350 / (mm)
 DIMENSION NRL [HE] 0300-0330-0350 / (mm)

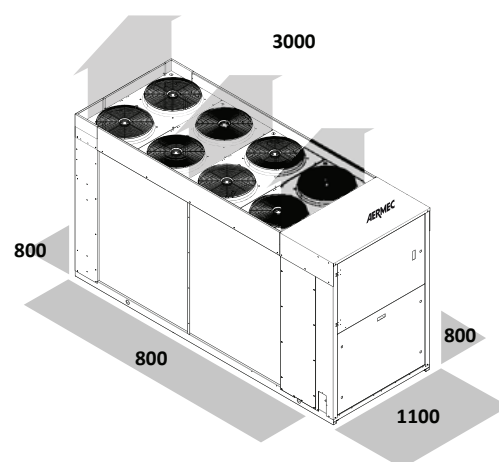
 **ATTENTION**
 Lifting poles not supplied



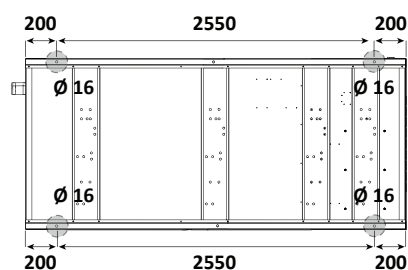
4.3.1. LIFTING POINTS (mm)



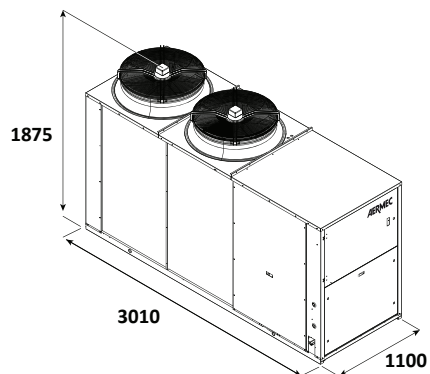
4.3.3. MINIMUM TECHNICAL SPACE (mm)



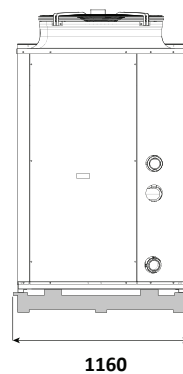
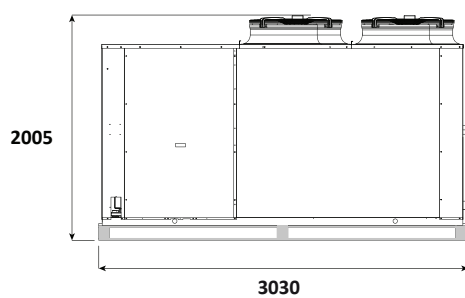
4.3.2. POSITION ANTI-VIBRATION MOUNTS (mm)



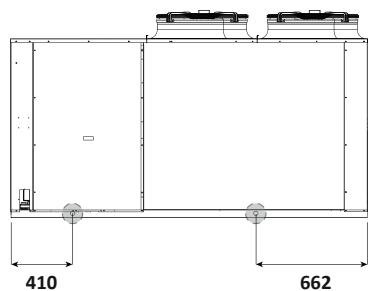
4.4. DIMENSION NRL 0500-0550-0600-0650 [A-E] / (mm)
 DIMENSION NRL 0500-0550-0600-0650 [HA-HE] / (mm)



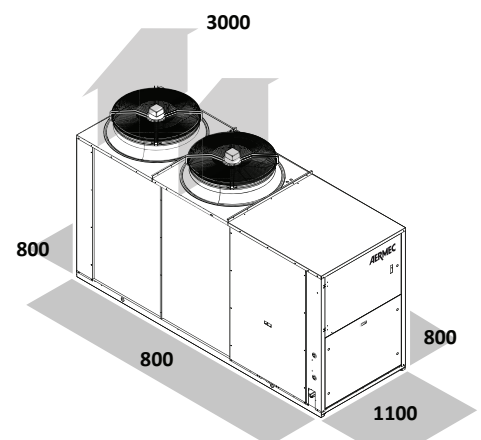
ATTENTION
 Lifting poles not supplied



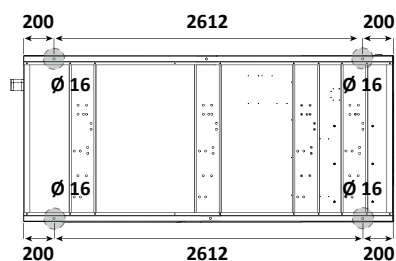
4.4.1. LIFTING POINTS (mm)



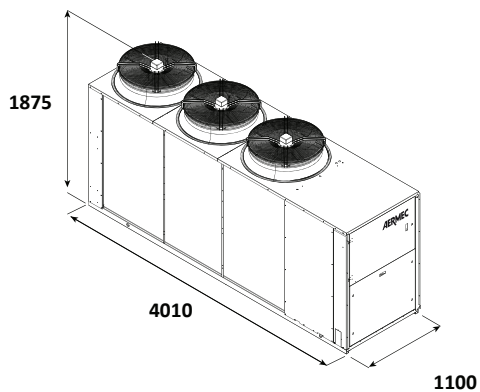
4.4.3. MINIMUM TECHNICAL SPACE (mm)



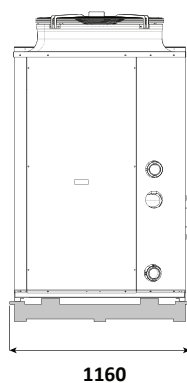
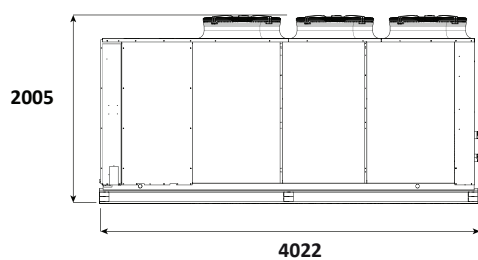
4.4.2. POSITION ANTI-VIBRATION MOUNTS (mm)



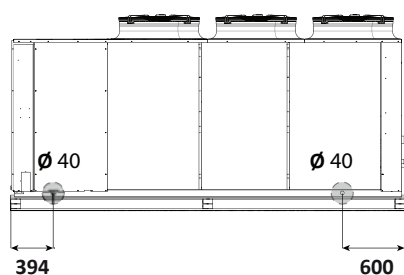
4.5. DIMENSION NRL [A-E] 0700 / (mm)
 DIMENSION NRL [HA-HE] 0700 / (mm)



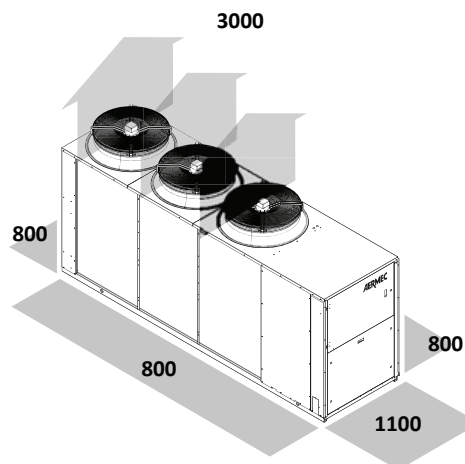
ATTENTION
 Lifting poles not supplied



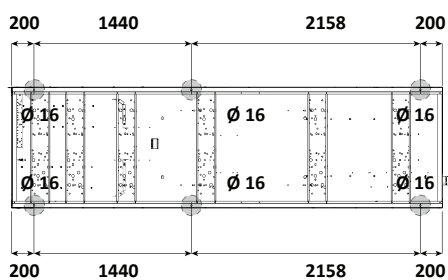
4.5.1. LIFTING POINTS (mm)



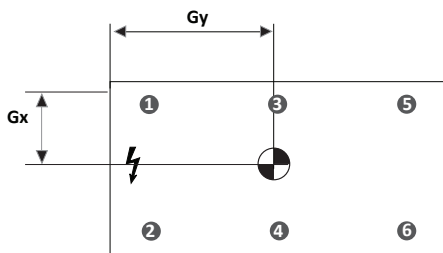
4.5.3. MINIMUM TECHNICAL SPACE (mm)



4.5.2. POSITION ANTI-VIBRATION MOUNTS (mm)



5. CENTERS OF GRAVITY POSITION AND ANTI-VIBRATION



5.1. PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (EMPTY WEIGHT) VERSIONS (E - HE)

NRL	TYPE	WEIGHT	BARICENTRE		PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (%)						KIT VT
			Gx	Gy	1	2	3	4	5	6	
NRL 0280E	00	686	558	1.030	23,6%	26,2%	-	-	23,8%	26,4%	17
NRL 0280E	02 - 04	831	556	1.140	21,1%	23,3%	-	-	26,4%	29,2%	13
NRL 0280E	01 - 03	816	557	1.122	21,5%	23,8%	-	-	26,0%	28,7%	13
NRL 0280E	P2 - P4	716	558	1.076	22,5%	25,0%	-	-	24,9%	27,6%	17
NRL 0280E	P1 - P3	701	558	1.053	23,0%	25,6%	-	-	24,4%	27,0%	17
NRL 0300E	00	751	557	1.225	24,6%	27,3%	-	-	22,8%	25,3%	17
NRL 0300E	02 - 04	896	556	1.296	23,4%	25,8%	-	-	24,2%	26,7%	13
NRL 0300E	01 - 03	881	556	1.282	23,6%	26,1%	-	-	23,9%	26,4%	13
NRL 0300E	P2 - P4	781	557	1.260	24,0%	26,6%	-	-	23,4%	26,0%	17
NRL 0300E	P1 - P3	766	557	1.243	24,3%	26,9%	-	-	23,1%	25,6%	17
NRL 0330E	00	761	558	1.223	24,7%	27,4%	-	-	22,7%	25,2%	17
NRL 0330E	02 - 04	906	556	1.294	23,4%	25,9%	-	-	24,1%	26,6%	13
NRL 0330E	01 - 03	891	556	1.279	23,7%	26,2%	-	-	23,8%	26,3%	13
NRL 0330E	P2 - P4	791	557	1.258	24,0%	26,6%	-	-	23,4%	25,9%	17
NRL 0330E	P1 - P3	776	557	1.241	24,3%	27,0%	-	-	23,1%	25,6%	17
NRL 0350E	00	767	558	1.215	24,8%	27,6%	-	-	22,6%	25,1%	17
NRL 0350E	02 - 04	912	557	1.287	23,5%	26,0%	-	-	24,0%	26,5%	13
NRL 0350E	01 - 03	897	557	1.272	23,8%	26,3%	-	-	23,7%	26,2%	13
NRL 0350E	P2 - P4	797	558	1.250	24,2%	26,8%	-	-	23,2%	25,8%	17
NRL 0350E	P1 - P3	782	558	1.233	24,5%	27,2%	-	-	22,9%	25,4%	17
NRL 0280HE	00	730	557	1.009	24,1%	26,7%	-	-	23,3%	25,9%	17
NRL 0280HE	02 - 04	875	556	1.117	21,6%	23,9%	-	-	25,9%	28,6%	13
NRL 0280HE	01 - 03	860	556	1.099	22,0%	24,3%	-	-	25,5%	28,1%	13
NRL 0280HE	P2 - P4	760	557	1.053	23,1%	25,5%	-	-	24,4%	27,0%	17
NRL 0280HE	P1 - P3	745	557	1.031	23,6%	26,1%	-	-	23,9%	26,5%	17
NRL 0300HE	00	795	557	1.205	25,0%	27,7%	-	-	22,4%	24,8%	17
NRL 0300HE	02 - 04	940	556	1.276	23,8%	26,2%	-	-	23,8%	26,2%	13
NRL 0300HE	01 - 03	925	556	1.262	24,0%	26,5%	-	-	23,5%	26,0%	13
NRL 0300HE	P2 - P4	825	557	1.239	24,4%	27,0%	-	-	23,1%	25,5%	17
NRL 0300HE	P1 - P3	810	557	1.223	24,7%	27,3%	-	-	22,8%	25,2%	17
NRL 0330HE	00	805	557	1.197	25,2%	27,9%	-	-	22,3%	24,7%	17
NRL 0330HE	02 - 04	950	556	1.269	23,9%	26,4%	-	-	23,7%	26,1%	13
NRL 0330HE	01 - 03	935	556	1.255	24,1%	26,7%	-	-	23,4%	25,8%	13
NRL 0330HE	P2 - P4	835	557	1.231	24,5%	27,2%	-	-	22,9%	25,4%	17
NRL 0330HE	P1 - P3	820	557	1.215	24,9%	27,5%	-	-	22,6%	25,0%	17
NRL 0350HE	00	811	557	1.190	25,3%	28,0%	-	-	22,1%	24,5%	17
NRL 0350HE	02 - 04	956	556	1.262	24,0%	26,5%	-	-	23,5%	26,0%	13
NRL 0350HE	01 - 03	941	556	1.248	24,3%	26,8%	-	-	23,3%	25,7%	13
NRL 0350HE	P2 - P4	841	557	1.224	24,7%	27,3%	-	-	22,8%	25,2%	17
NRL 0350HE	P1 - P3	826	557	1.207	25,0%	27,7%	-	-	22,5%	24,9%	17

5.2. PERCENTAGE OF WEIGHT DISTRIBUTION ON SUPPORTS (MACHINE WORKING) VERSIONS (E - HE)

NRL	TYPE	WEIGHT	BARICENTRE		PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (%)						KIT VT
			Gx	Gy	1	2	3	4	5	6	
NRL 0280E	00	701	550	1.037	23,8%	25,7%	-	-	24,3%	26,3%	17
NRL 0280E	02 - 04	1146	550	1.248	18,8%	20,3%	-	-	29,3%	31,6%	13
NRL 0280E	01 - 03	1131	550	1.236	19,1%	20,6%	-	-	29,0%	31,3%	13
NRL 0280E	P2 - P4	731	550	1.082	22,7%	24,5%	-	-	25,4%	27,4%	17
NRL 0280E	P1 - P3	716	550	1.060	23,2%	25,1%	-	-	24,9%	26,8%	17
NRL 0300E	00	769	548	1.233	24,9%	26,7%	-	-	23,3%	25,0%	17
NRL 0300E	02 - 04	1214	549	1.361	22,5%	24,2%	-	-	25,7%	27,6%	13
NRL 0300E	01 - 03	1199	549	1.351	22,7%	24,4%	-	-	25,5%	27,4%	13
NRL 0300E	P2 - P4	799	548	1.267	24,3%	26,0%	-	-	24,0%	25,7%	17
NRL 0300E	P1 - P3	784	548	1.251	24,6%	26,4%	-	-	23,7%	25,4%	17
NRL 0330E	00	780	549	1.230	25,0%	26,8%	-	-	23,3%	25,0%	17
NRL 0330E	02 - 04	1225	549	1.357	22,5%	24,2%	-	-	25,7%	27,6%	13
NRL 0330E	01 - 03	1210	549	1.348	22,7%	24,4%	-	-	25,5%	27,4%	13
NRL 0330E	P2 - P4	810	549	1.264	24,3%	26,1%	-	-	23,9%	25,7%	17
NRL 0330E	P1 - P3	795	549	1.247	24,6%	26,4%	-	-	23,6%	25,3%	17
NRL 0350E	00	786	549	1.223	25,1%	27,0%	-	-	23,1%	24,8%	17
NRL 0350E	02 - 04	1231	549	1.352	22,6%	24,3%	-	-	25,5%	27,5%	13
NRL 0350E	01 - 03	1216	549	1.342	22,8%	24,5%	-	-	25,4%	27,3%	13
NRL 0350E	P2 - P4	816	549	1.256	24,5%	26,3%	-	-	23,8%	25,5%	17
NRL 0350E	P1 - P3	801	549	1.240	24,8%	26,6%	-	-	23,4%	25,2%	17
NRL 0280HE	00	746	550	1.015	24,3%	26,2%	-	-	23,8%	25,7%	17
NRL 0280HE	02 - 04	1191	550	1.226	19,3%	20,9%	-	-	28,8%	31,0%	13
NRL 0280HE	01 - 03	1176	550	1.215	19,6%	21,2%	-	-	28,5%	30,7%	13
NRL 0280HE	P2 - P4	776	550	1.059	23,3%	25,1%	-	-	24,8%	26,8%	17
NRL 0280HE	P1 - P3	761	550	1.037	23,8%	25,6%	-	-	24,3%	26,3%	17
NRL 0300HE	00	814	548	1.213	25,3%	27,1%	-	-	23,0%	24,6%	17
NRL 0300HE	02 - 04	1259	549	1.343	22,8%	24,5%	-	-	25,4%	27,3%	13
NRL 0300HE	01 - 03	1244	549	1.333	23,0%	24,7%	-	-	25,2%	27,1%	13
NRL 0300HE	P2 - P4	844	549	1.246	24,7%	26,5%	-	-	23,6%	25,3%	17
NRL 0300HE	P1 - P3	829	548	1.230	25,0%	26,8%	-	-	23,3%	25,0%	17
NRL 0330HE	00	826	549	1.204	25,5%	27,3%	-	-	22,8%	24,4%	17
NRL 0330HE	02 - 04	1271	549	1.336	22,9%	24,7%	-	-	25,2%	27,1%	13
NRL 0330HE	01 - 03	1256	549	1.326	23,1%	24,9%	-	-	25,1%	26,9%	13
NRL 0330HE	P2 - P4	856	549	1.237	24,8%	26,7%	-	-	23,4%	25,1%	17
NRL 0330HE	P1 - P3	841	549	1.220	25,1%	27,0%	-	-	23,1%	24,8%	17
NRL 0350HE	00	832	549	1.197	29,8%	29,7%	-	-	20,3%	20,2%	17
NRL 0350HE	02 - 04	1277	549	1.331	23,0%	24,8%	-	-	25,1%	27,0%	13
NRL 0350HE	01 - 03	1262	549	1.321	23,2%	25,0%	-	-	25,0%	26,8%	13
NRL 0350HE	P2 - P4	862	549	1.230	25,0%	26,8%	-	-	23,2%	25,0%	17
NRL 0350HE	P1 - P3	847	549	1.214	25,3%	27,1%	-	-	22,9%	24,6%	17

5.3. PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (EMPTY WEIGHT) VERSIONS (A - E)

NRL	TYPE	WEIGHT	BARICENTRE		PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (%)						KIT VT
			Gx	Gy	1	2	3	4	5	6	
NRL 0500A-E	00	955	511	1.302	29,9%	26,0%	-	-	23,6%	20,5%	13
NRL 0500A-E	02 - 04	1119	517	1.423	27,4%	24,3%	-	-	25,6%	22,7%	10
NRL 0500A-E	01 - 03	1102	516	1.401	27,9%	24,6%	-	-	25,2%	22,3%	10
NRL 0500A-E	P2 - P4	989	513	1.354	28,9%	25,2%	-	-	24,5%	21,4%	13
NRL 0500A-E	P1 - P3	972	512	1.329	29,4%	25,6%	-	-	24,1%	21,0%	13
NRL 0550A-E	00	959	510	1.298	30,0%	26,0%	-	-	23,6%	20,4%	13
NRL 0550A-E	02 - 04	1123	516	1.419	27,5%	24,3%	-	-	25,5%	22,6%	10
NRL 0550A-E	01 - 03	1106	516	1.397	28,0%	24,7%	-	-	25,2%	22,2%	10
NRL 0550A-E	P2 - P4	993	512	1.350	29,0%	25,2%	-	-	24,5%	21,3%	13
NRL 0550A-E	P1 - P3	976	511	1.325	29,5%	25,6%	-	-	24,0%	20,9%	13
NRL 0600A-E	00	1142	553	1.325	27,4%	27,7%	-	-	22,3%	22,6%	13
NRL 0600A-E	02 - 04	1308	552	1.428	25,7%	25,9%	-	-	24,1%	24,3%	10
NRL 0600A-E	01 - 03	1290	552	1.409	26,0%	26,2%	-	-	23,8%	24,0%	10
NRL 0600A-E	P2 - P4	1178	553	1.371	26,6%	26,9%	-	-	23,1%	23,4%	13
NRL 0600A-E	P1 - P3	1160	553	1.348	27,0%	27,3%	-	-	22,7%	23,0%	13
NRL 0650A-E	00	1155	553	1.317	27,5%	27,8%	-	-	22,2%	22,4%	13
NRL 0650A-E	02 - 04	1321	553	1.420	25,8%	26,1%	-	-	24,0%	24,2%	10
NRL 0650A-E	01 - 03	1303	553	1.400	26,1%	26,4%	-	-	23,6%	23,8%	10
NRL 0650A-E	P2 - P4	1191	553	1.362	26,8%	27,0%	-	-	23,0%	23,2%	13
NRL 0650A-E	P1 - P3	1173	553	1.340	27,1%	27,4%	-	-	22,6%	22,8%	13
NRL 0700A-E	00	1323	553	1.896	7,2%	7,2%	31,0%	31,3%	11,6%	11,7%	22
NRL 0700A-E	02 - 04	1489	552	1.972	6,1%	6,1%	31,7%	32,0%	12,0%	12,1%	22
NRL 0700A-E	01 - 03	1471	552	1.956	6,2%	6,2%	31,8%	32,1%	11,8%	11,9%	22
NRL 0700A-E	P2 - P4	1359	553	1.932	7,0%	7,0%	30,8%	31,1%	12,0%	12,1%	22
NRL 0700A-E	P1 - P3	1341	553	1.914	7,1%	7,1%	30,9%	31,2%	11,8%	11,9%	22

5.4. PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (MACHINE WORKING) VERSIONS (A - E)

NRL	TYPE	WEIGHT	BARICENTRE		PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (%)						KIT VT
			Gx	Gy	1	2	3	4	5	6	
NRL 0500A-E	00	976	505	1.310	30,1%	25,5%	-	-	24,0%	20,4%	13
NRL 0500A-E	02 - 04	1640	523	1.585	24,3%	22,0%	-	-	28,2%	25,6%	10
NRL 0500A-E	01 - 03	1623	523	1.572	24,5%	22,2%	-	-	28,0%	25,3%	10
NRL 0500A-E	P2 - P4	1010	507	1.361	29,1%	24,8%	-	-	24,9%	21,2%	13
NRL 0500A-E	P1 - P3	993	506	1.336	29,6%	25,2%	-	-	24,5%	20,8%	13
NRL 0550A-E	00	980	504	1.306	30,2%	25,5%	-	-	24,0%	20,3%	13
NRL 0550A-E	02 - 04	1644	523	1.582	24,3%	22,0%	-	-	28,1%	25,5%	10
NRL 0550A-E	01 - 03	1627	522	1.569	24,6%	22,2%	-	-	27,9%	25,3%	10
NRL 0550A-E	P2 - P4	1014	506	1.357	29,2%	24,8%	-	-	24,8%	21,1%	13
NRL 0550A-E	P1 - P3	997	505	1.332	29,7%	25,2%	-	-	24,4%	20,7%	13
NRL 0600A-E	00	1166	547	1.331	27,6%	27,3%	-	-	22,7%	22,4%	13
NRL 0600A-E	02 - 04	1832	548	1.571	23,5%	23,3%	-	-	26,7%	26,5%	10
NRL 0600A-E	01 - 03	1814	548	1.559	23,7%	23,5%	-	-	26,5%	26,3%	10
NRL 0600A-E	P2 - P4	1202	547	1.376	26,8%	26,5%	-	-	23,4%	23,2%	13
NRL 0600A-E	P1 - P3	1184	547	1.354	27,2%	26,9%	-	-	23,1%	22,8%	13
NRL 0650A-E	00	1181	547	1.322	27,7%	27,4%	-	-	22,5%	22,3%	13
NRL 0650A-E	02 - 04	1847	548	1.564	23,6%	23,4%	-	-	26,6%	26,4%	10
NRL 0650A-E	01 - 03	1829	548	1.551	23,8%	23,6%	-	-	26,4%	26,2%	10
NRL 0650A-E	P2 - P4	1217	547	1.366	27,0%	26,7%	-	-	23,3%	23,0%	13
NRL 0650A-E	P1 - P3	1199	547	1.345	27,4%	27,1%	-	-	22,9%	22,7%	13
NRL 0700A-E	00	1359	545	1.903	7,1%	7,0%	31,6%	31,0%	11,7%	11,5%	22
NRL 0700A-E	02 - 04	2025	547	2.079	3,4%	3,4%	34,7%	34,3%	12,2%	12,0%	22
NRL 0700A-E	01 - 03	2007	547	2.068	3,5%	3,4%	34,8%	34,4%	12,0%	11,9%	22
NRL 0700A-E	P2 - P4	1395	545	1.938	6,9%	6,8%	31,4%	30,8%	12,2%	11,9%	22
NRL 0700A-E	P1 - P3	1377	545	1.921	7,0%	6,9%	31,5%	30,9%	12,0%	11,7%	22

5.5. PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (EMPTY WEIGHT) VERSIONS (HA - HE)

NRL	TYPE	WEIGHT	BARICENTRE		PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (%)						KIT VT
			Gx	Gy	1	2	3	4	5	6	
NRL 0500HA-HE	00	1099	523	1.329	28,9%	26,1%	-	-	23,6%	21,4%	13
NRL 0500HA-HE	02 - 04	1263	526	1.432	26,8%	24,6%	-	-	25,3%	23,2%	10
NRL 0500HA-HE	01 - 03	1246	526	1.413	27,2%	24,9%	-	-	25,0%	22,9%	10
NRL 0500HA-HE	P2 - P4	1133	523	1.373	28,0%	25,4%	-	-	24,4%	22,2%	13
NRL 0500HA-HE	P1 - P3	1116	523	1.351	28,4%	25,8%	-	-	24,0%	21,8%	13
NRL 0550HA-HE	00	1103	522	1.325	29,0%	26,1%	-	-	23,6%	21,3%	13
NRL 0550HA-HE	02 - 04	1267	525	1.429	26,9%	24,6%	-	-	25,3%	23,1%	10
NRL 0550HA-HE	01 - 03	1250	525	1.410	27,3%	24,9%	-	-	25,0%	22,8%	10
NRL 0550HA-HE	P2 - P4	1137	522	1.370	28,1%	25,4%	-	-	24,4%	22,1%	13
NRL 0550HA-HE	P1 - P3	1120	522	1.348	28,5%	25,8%	-	-	24,0%	21,7%	13
NRL 0600HA-HE	00	1204	553	1.297	27,9%	28,1%	-	-	21,9%	22,1%	13
NRL 0600HA-HE	02 - 04	1370	552	1.399	26,2%	26,4%	-	-	23,6%	23,8%	10
NRL 0600HA-HE	01 - 03	1352	552	1.380	26,5%	26,7%	-	-	23,3%	23,5%	10
NRL 0600HA-HE	P2 - P4	1240	553	1.342	27,1%	27,4%	-	-	22,6%	22,8%	13
NRL 0600HA-HE	P1 - P3	1222	553	1.320	27,5%	27,8%	-	-	22,3%	22,5%	13
NRL 0650HA-HE	00	1212	553	1.291	28,0%	28,3%	-	-	21,8%	22,0%	13
NRL 0650HA-HE	02 - 04	1378	552	1.393	26,3%	26,5%	-	-	23,5%	23,7%	10
NRL 0650HA-HE	01 - 03	1360	552	1.374	26,6%	26,8%	-	-	23,2%	23,4%	10
NRL 0650HA-HE	P2 - P4	1248	553	1.335	27,2%	27,5%	-	-	22,5%	22,7%	13
NRL 065HA-HE	P1 - P3	1230	553	1.313	27,6%	27,9%	-	-	22,2%	22,4%	13
NRL 0700HA-HE	00	1390	553	1.858	7,5%	7,6%	31,0%	31,3%	11,2%	11,3%	22
NRL 0700HA-HE	02 - 04	1556	552	1.936	6,4%	6,5%	31,7%	32,0%	11,7%	11,7%	22
NRL 0700HA-HE	01 - 03	1538	552	1.920	6,5%	6,6%	31,8%	32,1%	11,5%	11,6%	22
NRL 0700HA-HE	P2 - P4	1426	552	1.894	7,3%	7,4%	30,8%	31,1%	11,6%	11,7%	22
NRL 0700HA-HE	P1 - P3	1408	552	1.877	7,4%	7,5%	30,9%	31,0%	11,4%	11,5%	22

5.6. PERCENTAGE OF WEIGHT DISTRIBUTION ON SUPPORTS (MACHINE WORKING) VERSIONS (HA - HE)

NRL	TYPE	WEIGHT	BARICENTRE		PERCENTAGE OF WIEGHT DISTRIBUTION ON SUPPORTS (%)						KIT VT
			Gx	Gy	1	2	3	4	5	6	
NRL 0500HA-HE	00	1123	517	1.334	29,0%	25,7%	-	-	24,0%	21,3%	13
NRL 0500HA-HE	02 - 04	1787	529	1.578	24,1%	22,4%	-	-	27,8%	25,7%	10
NRL 0500HA-HE	01 - 03	1770	529	1.566	24,3%	22,6%	-	-	27,6%	25,5%	10
NRL 0500HA-HE	P2 - P4	1157	518	1.378	28,2%	25,1%	-	-	24,7%	22,0%	13
NRL 0500HA-HE	P1 - P3	1140	518	1.357	28,6%	25,4%	-	-	24,3%	21,6%	13
NRL 0550HA-HE	00	1127	516	1.331	29,1%	25,8%	-	-	23,9%	21,2%	13
NRL 0550HA-HE	02 - 04	1791	529	1.575	24,2%	22,4%	-	-	27,7%	25,7%	10
NRL 0550HA-HE	01 - 03	1774	529	1.563	24,4%	22,6%	-	-	27,5%	25,5%	10
NRL 0550HA-HE	P2 - P4	1161	517	1.374	28,3%	25,1%	-	-	24,7%	21,9%	13
NRL 0550HA-HE	P1 - P3	1144	517	1.353	28,7%	25,4%	-	-	24,3%	21,5%	13
NRL 0600HA-HE	00	1240	544	1.306	28,2%	27,6%	-	-	22,4%	21,9%	13
NRL 0600HA-HE	02 - 04	1906	546	1.546	24,0%	23,6%	-	-	26,4%	26,0%	10
NRL 0600HA-HE	01 - 03	1888	546	1.534	24,2%	23,8%	-	-	26,2%	25,8%	10
NRL 0600HA-HE	P2 - P4	1276	544	1.349	27,4%	26,8%	-	-	23,1%	22,6%	13
NRL 0600HA-HE	P1 - P3	1258	544	1.328	27,8%	27,2%	-	-	22,7%	22,3%	13
NRL 0650HA-HE	00	1241	547	1.296	28,2%	27,9%	-	-	22,1%	21,9%	13
NRL 0650HA-HE	02 - 04	1907	548	1.539	24,0%	23,8%	-	-	26,2%	26,0%	10
NRL 0650HA-HE	01 - 03	1889	548	1.527	24,2%	24,0%	-	-	26,0%	25,8%	10
NRL 0650HA-HE	P2 - P4	1277	547	1.339	27,4%	27,2%	-	-	22,8%	22,6%	13
NRL 0650HA-HE	P1 - P3	1259	547	1.318	27,8%	27,5%	-	-	22,4%	22,2%	13
NRL 0700HA-HE	00	1428	545	1.865	7,5%	7,4%	31,6%	31,0%	11,4%	11,2%	22
NRL 0700HA-HE	02 - 04	2094	547	2.048	3,8%	3,7%	34,7%	34,3%	11,9%	11,7%	22
NRL 0700HA-HE	01 - 03	2076	547	2.037	3,8%	3,8%	34,8%	34,4%	11,7%	11,6%	22
NRL 0700HA-HE	P2 - P4	1464	545	1.900	7,3%	7,2%	31,4%	30,8%	11,8%	11,6%	22
NRL 0700HA-HE	P1 - P3	1446	545	1.883	7,4%	7,3%	31,5%	30,9%	11,6%	11,4%	22

6. SAFETY WARNINGS AND INSTALLATION REGULATIONS

i Safety warnings The unit must be installed by a qualified and suitably trained technician, in compliance with the national legislation in force in the country of destination. AERMEC will not assume any responsibility for damage due to failure to follow these instructions.	i Before starting any operation READ THE INSTRUCTIONS CAREFULLY AND PERFORM SAFETY CONTROLS IN ORDER TO REDUCE ANY DANGER TO A MINIMUM. All staff involved must have thorough knowledge of the operations and	any dangers that may arise at the time in which the installation operations are carried out.
Danger! The refrigerant circuit is pressurised. Moreover, very high temperatures can be reached. The appliance may only be opened by an after-sales service technician or by a qualified technician. Interventions on the cooling circuit may only be carried out by a qualified refrigeration technician.	410A GAS The unit comes supplied with a sufficient quantity of 410A refrigerant fluid. This is a chlorine-free refrigerant and does not damage the ozone layer. 410A is not flammable. However, all maintenance operations must be carried out exclusively by a specialised technician using suitable protective equipment.	Danger of electric shock! Before opening the unit, disconnect the appliance completely from the mains power supply.

7. RECEIVING THE PRODUCT

7.1. HANDLING

Before beginning installation agree on the place of positioning with client and pay attention to the following points:

- The support surface must be able to support the weight of the unit.
- The selected place must have enough space to permit laying of the necessary pipes.
- Remember that whilst operational the chiller can cause vibrations; therefore anti-vibration mounts (VT accessories) are recommended. Fix them to the holes on the base, following the assembly layout.
- It is mandatory to provide the necessary technical spaces in order

to allow ROUTINE AND EXTRAORDINARY MAINTENANCE interventions.

7.2. POSITIONING

The unit is sent from the factory wrapped in estincoil placed on a pallet. Before handling the unit, verify the lifting capacity of the machinery used.

On removal of the packaging, handling must be carried out by qualified staff, which is suitably equipped.

To handle the machine:

"IN THE CASE OF LIFTING"

Insert pipes (NOT SUPPLIED) in holes on the base with length such to allow positioning of the belts used for lifting.

To prevent the unit structure being damaged by the belts place protections between the latter and the machine.

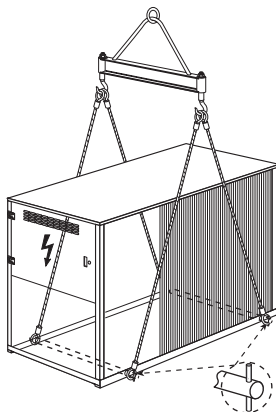
It is prohibited to stop under the unit.

NOTE:

The appliance warranty does not cover the costs for ladders, scaffolding, or other elevation systems that may become necessary for carrying out servicing under warranty.

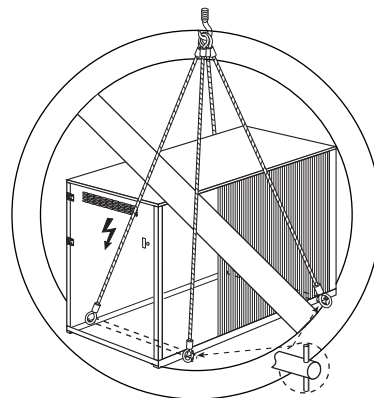
7.3. HANDLING EXAMPLE

- Correct handling



- The internal diameter of the flange's lifting holes is 40 mm.

- Incorrect handling



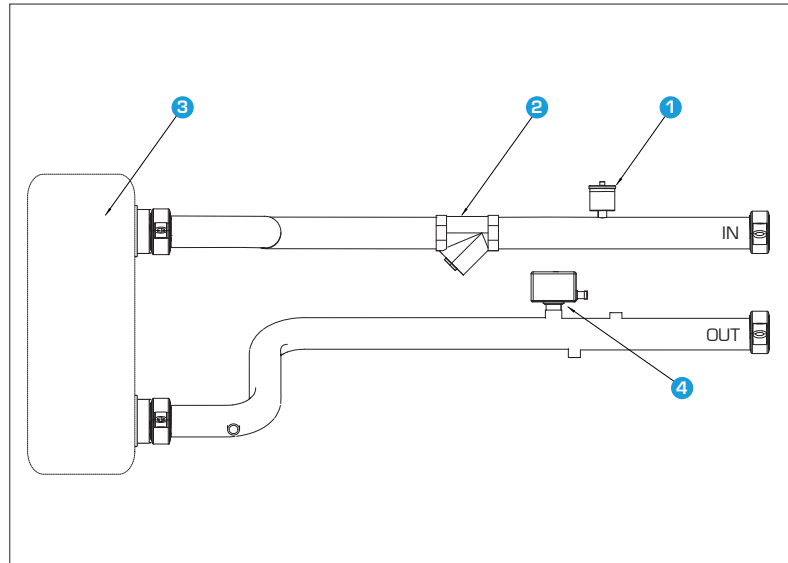
8. HYDRAULIC CIRCUITS

8.1. HYDRAULIC CIRCUIT INSIDE NRL "00"

(without storage tank and without pump)

The hydraulic circuit is made up from:

- Plate heat exchanger
- Mounted filter
- Flow switch
- Water inlet/outlet probes (SIW- SUW).
- Vent valve

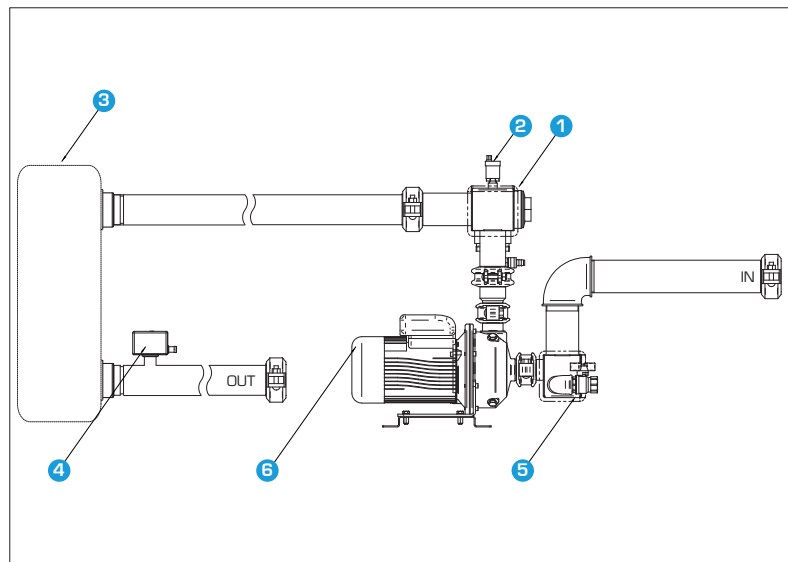


Key	
1	Vent valve
2	Filter
3	Plate heat exchanger
4	Flow switch

8.2. HYDRAULIC CIRCUIT INSIDE NRL "P1-P2-P3-P4"

The hydraulic circuit is made up from:

- Vent valve
- Safety valve
- Pump
- Plate heat exchanger
- Mounted filter
- Filter drain
- Drain
- Flow switch
- Water inlet/outlet probes (SIW- SUW).

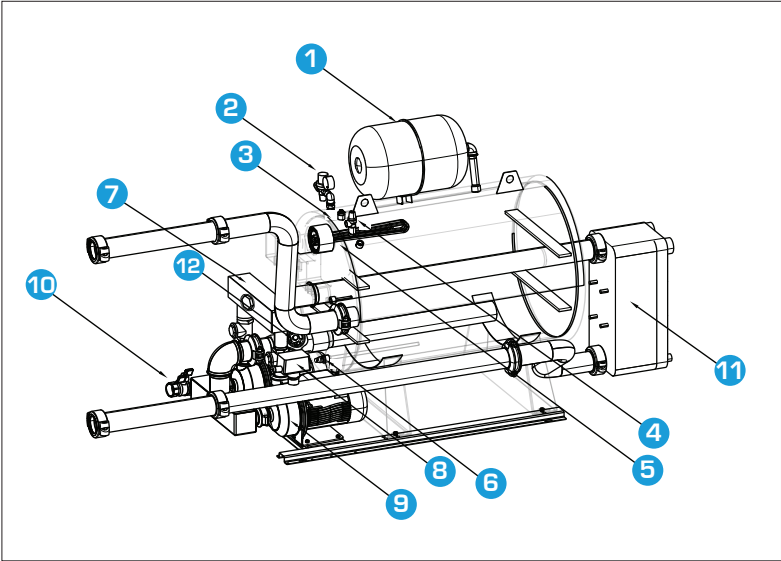


Key	
1	Filter
2	Vent valve
3	Plate heat exchanger
4	Flow switch
5	Drain cock
6	Pump

8.3. HYDRAULIC CIRCUIT INSIDE NRL "01-02-03-04-05-06-07-08"

The hydraulic circuit is made up from:

- Storage tank
- Loading unit
- Vent valve
- Safety valve
- Expansion vessel
- Pump
- Plate heat exchanger
- Mounted filter
- Filter drain
- Storage tank draining
- Flow switch
- Water inlet/outlet probes (SIW- SUW).
- Resistance only for versions "05-06-07-08"

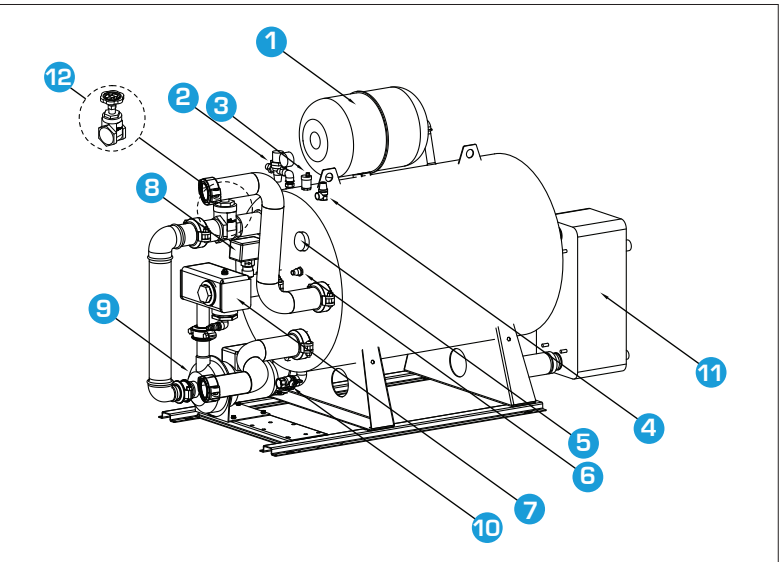


Key			
1	Expansion vessel	7	Filter
2	Loading unit	8	Flow switch
3	Vent valve	9	Pump
4	Safety valve (6 bar)	10	Storage tank draining
5	Resistance	11	Plate heat exchanger
6	Probe	12	Shut-off valve

8.4. HYDRAULIC CIRCUIT INSIDE NRL "09-10"

-The hydraulic circuit is made up from:

- Storage tank
- Loading unit
- Vent valve
- Safety valve
- Expansion vessel
- Pump
- Plate heat exchanger
- Mounted filter
- Filter drain
- Storage tank draining
- Flow switch
- Water inlet/outlet probes (SIW- SUW).
- Resistance only for versions "10"



Key			
1	Expansion vessel	7	Filter
2	Loading unit	8	Flow switch
3	Vent valve	9	Pump
4	Safety valve (6 bar)	10	Storage tank draining
5	Resistance	11	Plate heat exchanger
6	Probe	12	Shut-off valve

NOTES:

The presence of a filter is mandatory; removal voids the guarantee. IT SHOULD BE KEPT CLEAN AND THEREFORE must be checked after installation of the unit and its status must be checked frequently.

The installation of the manual shut-off valves between the unit and the rest of the system is mandatory in all NRL models (with and without storage tank) and for all hydraulic circuits that affect the chiller itself (desuperheaters, total recovery): FAILURE TO COMPLY VOIDS THE WARRANTY.

It is mandatory to calibrate the

flow switch on the flow rate values requested by the system; FAILURE TO COMPLY VOIDS THE WARRANTY.

RECOMMENDED EXTERNAL HYDRAULIC CIRCUIT

The choice and the installation of components outside the NRL is up to the installer, who must operate according to the rules of good practice and in compliance with the regulations in force in the country of destination (Ministerial Decree 329/2004).

Installation of the following is recommended:

- Filling/air vent unit.
- Anti-vibration joints.
- Pump (if not supplied with the machine).

- Expansion vessel (if not supplied with the machine).
- Shut-off cocks.
- Flow switch
- Safety valve (if not supplied with the machine).
- Manometers.

NOTE

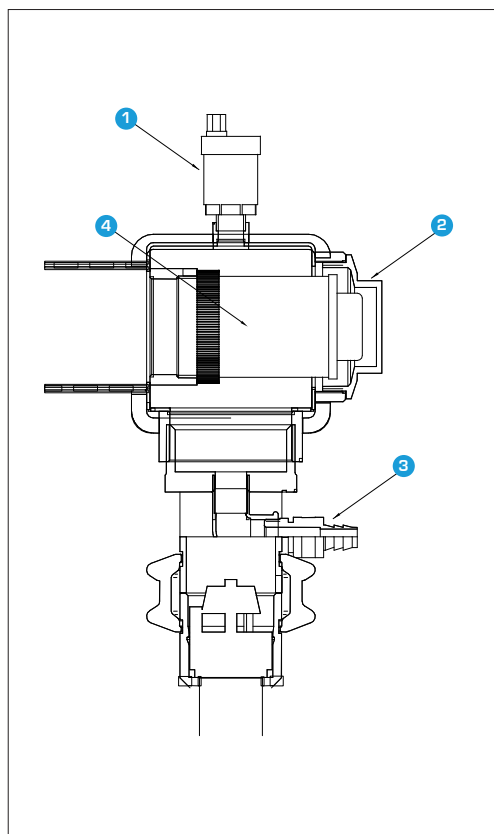
The hydraulic pipes for connection to the machine must be suitably dimensioned for the effective water flow rate requested by the system when functioning. The water flow rate to the heat exchanger must always be constant.

9. FILTER MAINTENANCE

9.1. PROCEDURE TO FOLLOW TO CLEAN THE FILTER:

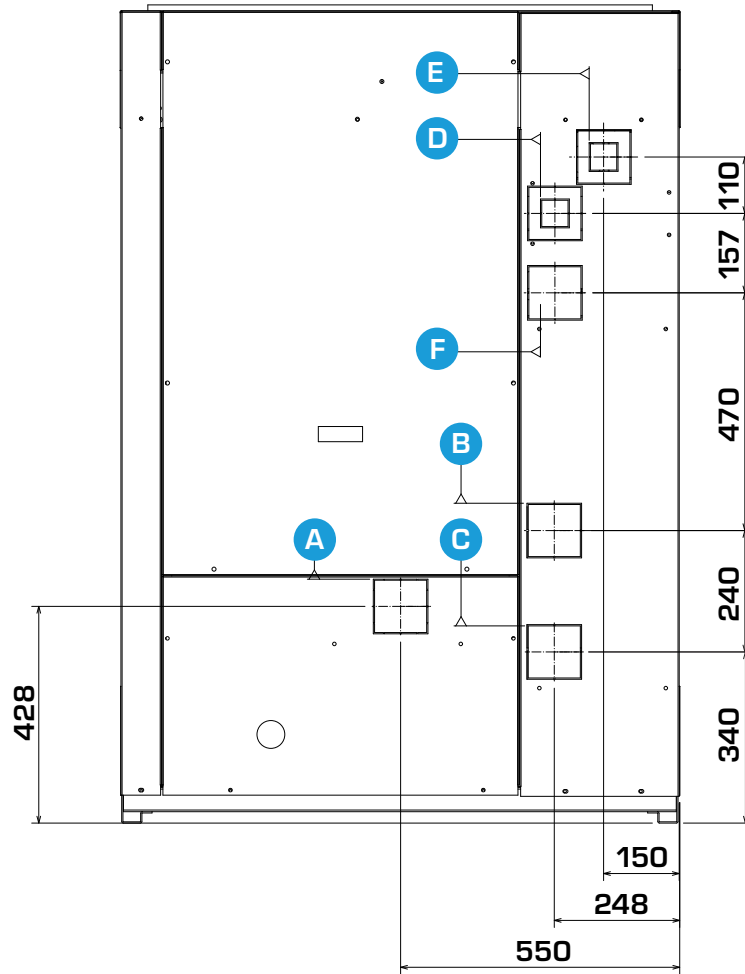
(Type of filter mounted only in the version with storage tank and pump).

- Stop the machine.
- Open the drain cock of the filter.
- Loosen the hexagonal nut positioned on the head of the filter; extract the metal ring nut and clean.
- Re-position the ring nut inside the filter housing, tighten the hexagonal nut.



Key	
1	Vent valve
2	Hexagonal nut
3	Filter drain cock
4	Metal ring nut housing

10. POSITION OF HYDRAULIC CONNECTIONS



Key:

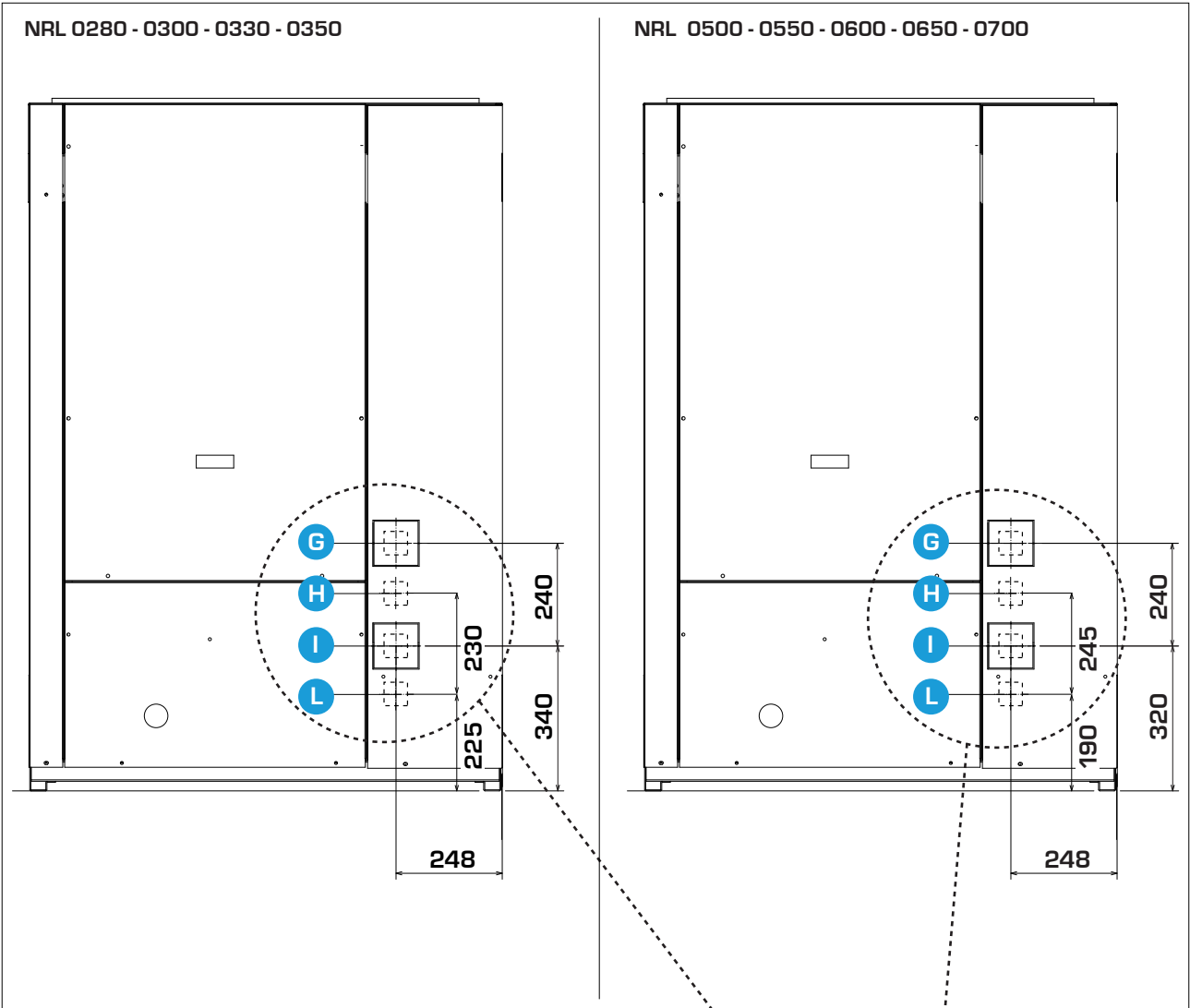
A	Return system versions with pump
B	Basic return system versions
C	At the storage tank and basic system versions
D	Desuperheater inlet (Ø 1"1/2)
	Heat recovery inlet (Ø 2")
E	Desuperheater outlet (Ø 1"1/2)
	Heat recovery outlet (Ø 2")
F	Return system versions with storage tank

ATTENTION:

Wash the system well, before connecting the unit. This cleaning will eliminate any residues such as welding drips, scale, rust, or other impurities from the

pipings. These substances can also deposit inside and cause machine malfunctioning. The connection piping must be adequately supported so that its weight is not borne by the appliance.

10.1. POSITION OF HYDRAULIC CONNECTIONS MOTORCONDENSING VERSION



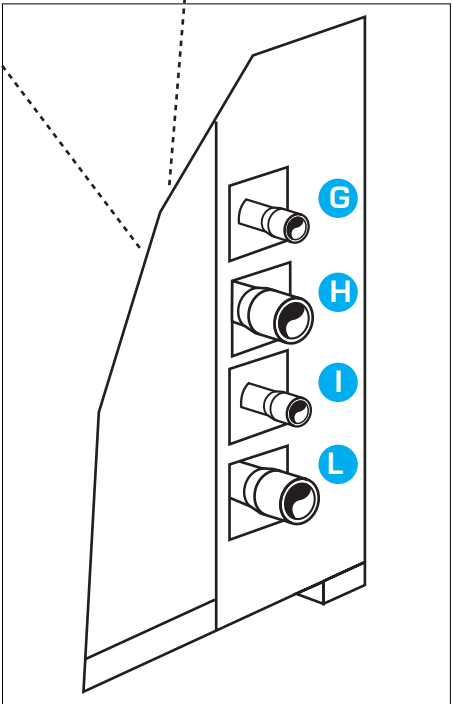
Key:	
G	Liquid line (C1)
H	Gas line (C1)
I	Liquid line (C2)
L	Gas line (C2)

Key:
C1: Cooling circuit (1)
C2: Cooling circuit (2)

ATTENTION:

Wash the system well, before connecting the unit. This cleaning will eliminate any residues such as welding drips, scale, rust, or other impurities from the piping. These substances

can also deposit inside and cause machine malfunctioning. The connection piping must be adequately supported so that its weight is not borne by the appliance.



11. ELECTRICAL CONNECTIONS

i All the electrical operations must be carried out by STAFF IN POSSESSION OF THE NECESSARY QUALIFICATIONS BY LAW suitably trained and informed regarding the risks related to these operations.

i The features of the electrical lines and of the related components must be determined by STAFF QUALIFIED TO DESIGN ELECTRIC SYSTEMS, in compliance with the international and national regulations of the place of installation of the unit and in compliance with the regulations in force at the moment of installation

i For the installation requirements refer only to the wiring diagram supplied with the appliance. The wiring diagram along with the manuals must be kept in good condition and ALWAYS AVAILABLE FOR ANY FUTURE SERVICING ON THE UNIT.

i It is mandatory to verify that the machine's watertight integrity before making the electrical connections, and it must only be powered after the hydraulic and electrical works have been completed.

The units are completely wired in the factory and only require connection to the electric power supply mains. Please verify that the characteristics of your electrical mains are suitable for the absorption values indicated in the table of electrical data, taking into consideration any other machines operating at the same time.

11.1. UNIT ELECTRIC LINES AND DATA

NOTE

The connection cables are not supplied.

The cable sections shown in Table 25.2 are recommended for a maximum length of 50 m. For longer lengths, the PLANT ENGINEER is responsible for the power supply line sizing and the earth connection, according to:

tion, according to:

- the length
- the type of cable
- the absorption of the unit, the physical location and the environmental temperature.

11.2. ELECTRICAL DATA

MODEL	VERSION	SEC A mm ²	Earth (sez PE) mm ²	IL A
0280	E - HE	16	16	63
0300	E - HE	16	16	63
0330	E - HE	25	16	80
0350	E - HE	25	16	80
0500	E - A - HE - HA	50	25	125
0550	E - A - HE - HA	50	25	125
0600	E - A - HE - HA	50	25	125
0650	E - A - HE - HA	70	35	160
0700	E - A - HE - HA	70	35	160

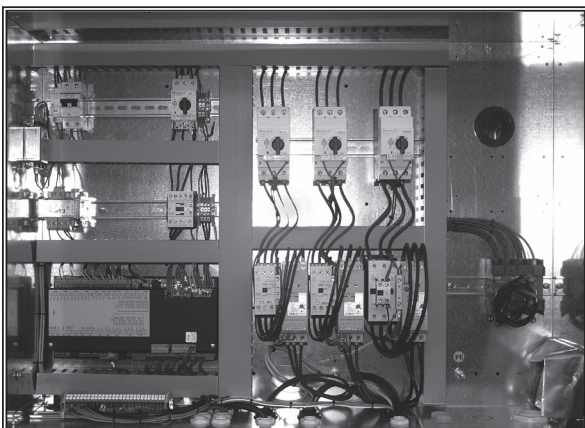
Key	
Sec A	Power supply 400V-3N-50Hz
Earth	Earth wire to connect to unit
IL	Master switch

NOTE:

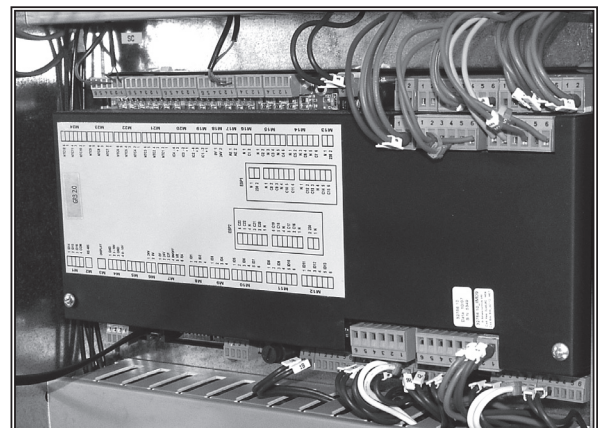
Check the tightness of all power conductor clamps on commissioning and after 30 days from the start of service. Subsequently, check tightness of all the power clamps every six months.

Loose terminals can cause overheating of the cables and components.

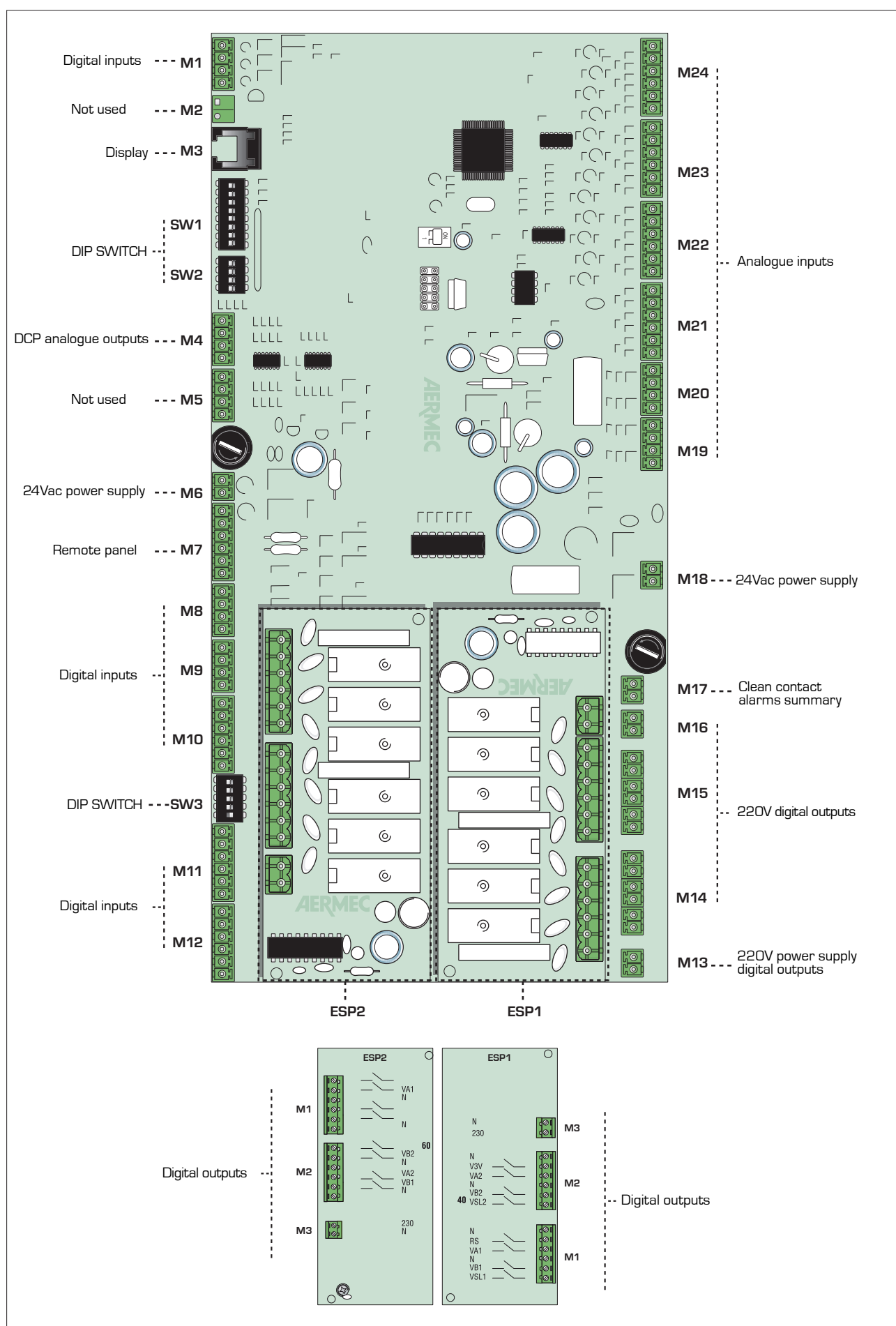
Electric Control Board



GR3

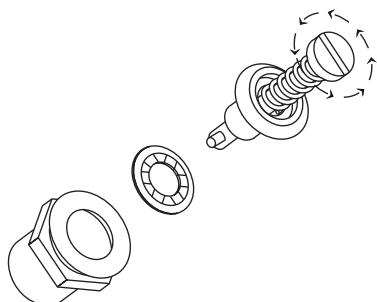


11.3. "GR3" CONTROL BOARD



11.4. CONNECTION TO THE ELECTRIC POWER SUPPLY MAINS

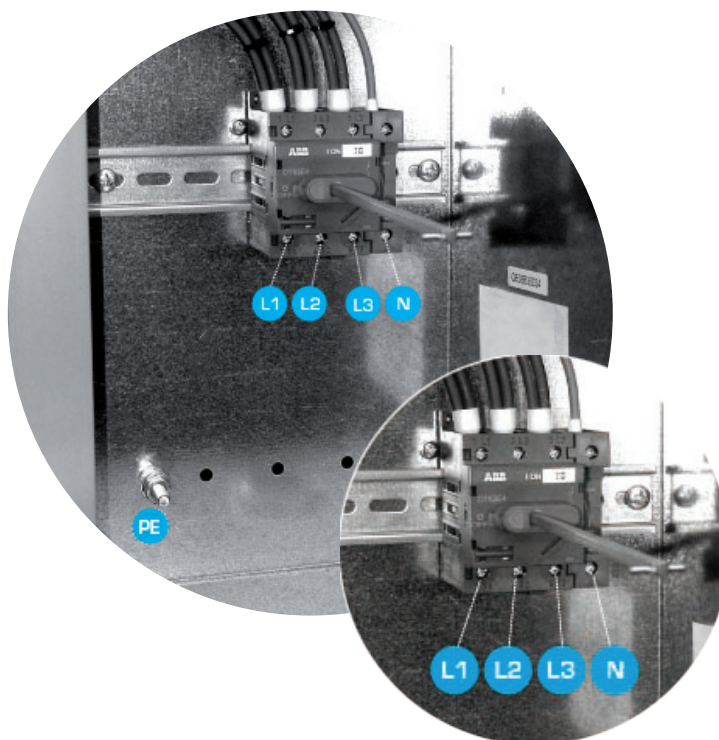
- Make sure that the electric line to which you are making the connection is not live.
- **To access the electric box:**
- **1** Move the screw by $\frac{1}{4}$ of a turn anti-clockwise



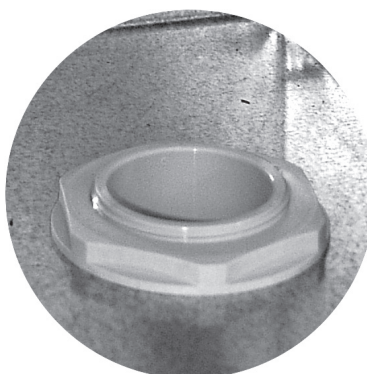
- **2** Turn the door-lock isolating switch to OFF, padlocked and with warning sign.



The figures below show the various parts used to make panel opening easy and the various line connections.



Key			
L1	Line 1	N	Neutral
L2	Line 2	PE	Earth
L3	Line 3		

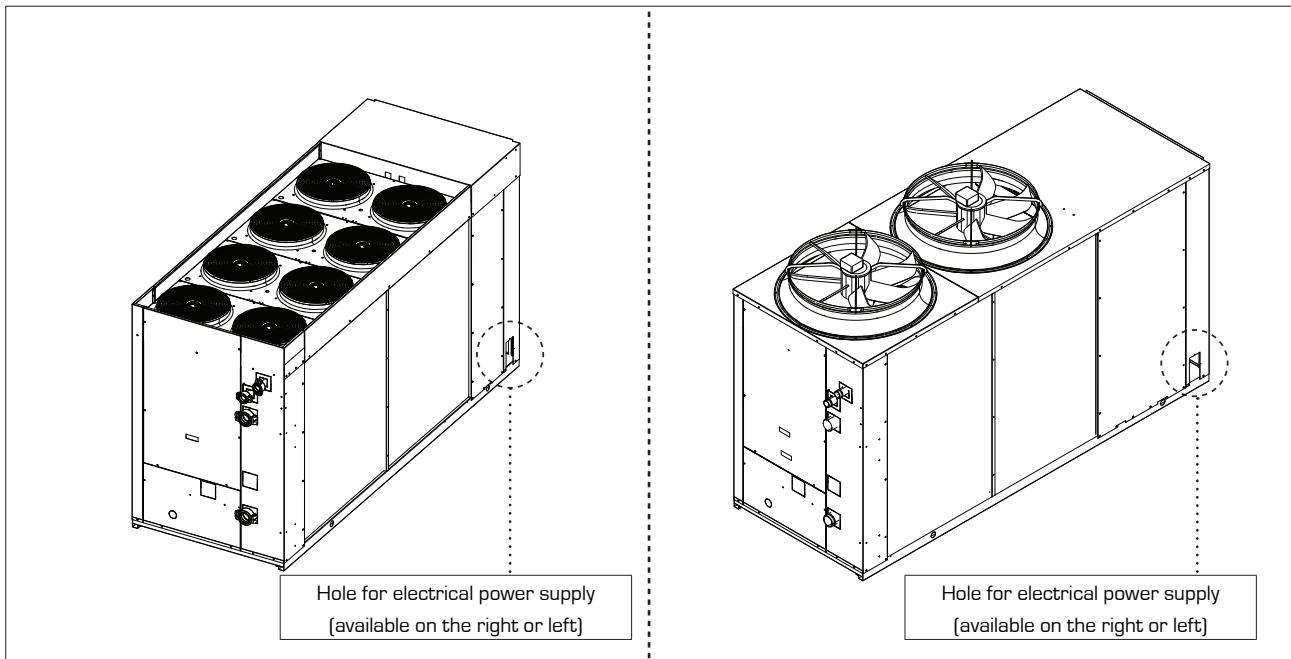


Electric cable passage hole



PE: Earth Connection

11.5. ELECTRIC CONNECTIONS



12. COMMISSIONING

12.1. PRELIMINARY OPERATIONS

ATTENTION

Before carrying out the controls indicated below, make sure that the unit is disconnected from the power mains.

Make sure that the master switch is in the OFF position and locked and a warning sign is applied. Before starting any operations check there is no voltage present using a voltmeter of a phase indicator.

12.1.1. Electric controls

- Check that the main power cables are suitably sized, able to support the overall absorption of the unit (see electric data) and that the unit has been appropriately earthed.
- Check that all the electrical connections have been made correctly and all the terminals adequately tightened. The following operations are to be carried out when the unit is not live.
- Supply power to the unit by turning the master switch to the ON position. The display will switch on a few seconds after voltage has been supplied; check that the operating status is at OFF (OFF BY KEYB on lower side of the display).

- Use a tester to verify that the value of the power supply voltage at the RST phases is equal to $400V \pm 10\%$; also verify that the unbalance between phases does not exceed 3%.
- Check that the connections made by the installer are in compliance with the data given.
- Verify that the compressor sump resistance/s is working properly by measuring the increase in temperature of the oil pan. The resistance/s must function for at least 24 hours before compressor start-up and the oil pan temperature must be $10 - 15^{\circ}\text{C}$ above the environmental temperature.

ATTENTION

- Power must be supplied to the unit at least 24 hours before it is started-up (or at the end of any prolonged stand-still period) in a way to allow the compressor sump heating resistances to make any refrigerant present in the oil evaporate. Failure to comply with this precaution can cause serious damage to the compressor and will void the warranty.

12.1.2. Hydraulic circuit controls

- Check that all the hydraulic connections have been made correctly and that the indications on the rating plates have been followed.
- Check that the hydraulic system is filled and under pressure and also make sure that no air is present; bleed if necessary.
- Verify that any shut-off valves present in the system are correctly opened.
- Make sure that the circulation pump/s is operating and that the flow rate of the water is sufficient to close the contact of the flow switch.
- Check correct flow switch functioning. By closing the shut-off valve at the outlet of the heat exchanger the unit must display the block. Finally, re-open the valve and rearm the block.

12.2. COMMISSIONING

ATTENTION

Remember that free commissioning is envisioned by the local AERMEC after-sales service for the units in this series if requested by the Aermec customer or legitimate owner, (VALID ONLY IN ITALY).

The commissioning must be scheduled in advance based on the timeframe for the completion of works for the system. Prior to the work to be carried out by the AERMEC after-sales service, all other works (electrical and hydraulic connections, filling and bleeding of air from the system) must have been completed.

Before carrying out the controls indicated below, make sure that the unit is disconnected from the electric mains, using the appropriate instruments:

12.2.1. Cooling circuit controls

- Check for any leaks of refrigerant gas, particularly in correspondence with the manometer pressure points, pressure transducers, and pressure switches (vibrations during transport may have loosened the fittings).
- After a brief functioning period, check the oil level in the compressor and the absence of bubbles in the liquid indicator window. The continuous passage of steam bubbles can mean that the refrigerant load is insufficient and that the thermostatic valve is not correctly adjusted. The presence of steam during functioning in cooling mode for brief periods is however possible.

12.2.2. Superheating

Verify the superheating by comparing the temperature measured with a contact thermometer situated on the compressor intake with the temperature shown on the manometer (saturation temperature corresponding to the evaporation pressure).

The difference between these two temperatures gives the value of superheating. Optimal values are between 4 and 8°C.

12.2.3. Subcooling

Verify the subcooling by comparing the temperature measured with a contact thermometer situated on the pipe at the outlet of the condenser with the temperature shown on the high pressure manometer (saturation temperature corresponding to the condensation pressure).

The difference between these two temperatures gives the subcooling value. The optimal values are included between 4 and 5°C in cooling functioning mode, between 1 and 3°C in heating functioning mode.

12.2.4. Pressing line temperature

If the subcooling and overheating values are regular, the temperature measured in the pressing line pipe at the compressor outlet must be 30/40°C above the condensation temperature.

12.3. SYSTEM LOADING UNLOADING

During the winter period, in the event of a system pause, the water present in the exchanger can freeze, causing irreparable damage to the exchanger, the complete discharge of the cooling circuits and, at times, damage to the compressors.

To prevent the danger of freezing, the following solutions are possible:

- Complete draining of the water from the heat exchanger at the end of the season and filling at the start of the next season using the vent valve on the storage tank in the versions with storage tank and/or pump.
- Functioning with glycoled water, with a percentage of glycol chosen based on the minimum outdoor temperature expected. In this case you must take into account the different outputs and absorption of the chiller, the sizing of the pumps and the output of the terminals.
- Use of heat exchanger heating resistances (as per standard on all appliances). In this case the resistances must always be live for the entire period of possible freezing (machine in stand-by).

13. MAINTENANCE

NOTE

All routine and special maintenance operations must be carried out exclusively by qualified staff.

Before starting any servicing operation or cleaning, be sure to disconnect the power supply to the unit.

All appliances are subject to inevitable wear and tear over time.

Maintenance makes it possible to:

- Maintain the efficiency of the unit
- Reduce the speed of deterioration
- Gather information and data and understand the status of efficiency of the unit in order to prevent possible breakdowns.

It is therefore fundamental to envision periodical controls:

- **YEARLY**
- **SPECIAL CASES**

Keep a maintenance log on the machine (not supplied with the unit, the user's responsibility) that enables you to keep track of the servicing carried

out on the unit. This makes it easy to organise the work appropriately and facilitates troubleshooting on the machine.

In the log, record the date, type of work carried out (routine maintenance, inspection, or repair), a description of the work, any measures taken, and so on....

- **Yearly checks**

Cooling circuit

- Verify the watertight integrity of the cooling circuit and that the pipes have not been damaged.
- Perform an acidity test on the oil of the cooling circuit.
- Verify the operation of the high and low pressure pressure switches; in the event of poor operation, replacement is recommended.
- Check the status of furring on the dehydrator filter; replace the filter if necessary.

- **Electric controls**

- Check the condition of the electrical wires and their insulation.
- Verify the functioning of the resistance of the evaporator and of the compressor sump.

- **Mechanical checks**

Check the tightness of the screws on the fan grids and on the fan bodies, the compressors and the electric box, as well as the exterior panelling of the unit. Incorrect fastening can lead to anomalous noise and vibrations.

Check the condition of the structure. If there are any oxidised parts, treat with paint suitable to eliminate or reduce oxidation.

- **Hydraulic controls**

- Clean the water filter
- Bleed the air from the circuit.
- Verify that the water flow rate to the evaporator is always constant.
- Verify the status of the thermal insulation of the hydraulic piping
- Where envisioned, check the percentage of glycol.

14. DISPOSAL

14.1. DISCONNECTING THE UNIT

The unit must be disconnected by a qualified technician.

Before disconnecting the unit, the following must be recovered, if present:

- The refrigerant gas: the gas must be extracted using suction devices operating in a closed circuit to ensure there are no gas leaks into the environment.
- The glycol must not be dispersed in the environment when removed, but stored in suitable containers.

NOTE

The disposal of the gas refrigerant, the glycoled water mixture where present and the recovery of any other material or substance must be carried out by qualified staff in compliance with the specific regulations in force on the subject to prevent injury to persons or damage to objects as well as the pollution of the surrounding area.

While waiting for disposal, the unit can be stored outdoors, as harsh weather conditions or extreme temperature changes do not cause damaging effects on the environment provided that the electrical, cooling, and hydraulic circuits are intact and closed.

14.2. DISMANTLING AND DISPOSAL

In the dismantling stage, the fan, the motor and the coil, if operational, can be recovered by specialised recycling centres.

NOTE

For dismantling/disposal, all the materials must be taken to the authorised facilities in compliance with the national regulations in force on this subject. For further information on disposal, contact the manufacturer.

15. IMPROPER USE

The appliance is designed and constructed to guarantee the maximum safety in its immediate vicinity (IP24), as well as to resist atmospheric agents.

The fans are protected from involuntary intrusion by means of protective grids.

Accidental opening of the electric control board with the machine running is prevented by the door-block isolating switch.

Avoid laying tools or heavy objects directly on the lateral heat exchanger coils, in order not to damage the louvers.

NOTE

Do not insert or drop objects through the grids of the fan motors. Do not lean against the heat exchange coils "Sharp surfaces".

15.1. IMPORTANT SAFETY INFORMATION

The machine must not exceed the pressure and temperature limits indicated in the table shown in the section "Functioning limits" paragraph of the technical manual.

Correct functioning of the unit is not guaranteed following a fire; before restarting the machine, have it checked by an authorised after-sales service centre.

The machine is equipped with safety valves which, in the event of excessive pressure, can discharge the high temperature gas into the atmosphere.

Wind, earthquakes, and other natural phenomena of exceptional intensity have not been considered.

If the unit is used in an aggressive atmosphere or with aggressive water, please contact the head offices.

ATTENTION

Following extraordinary maintenance work on the cooling circuit involving the replacement of components, before restarting the machine, carry out the following operations:

- Pay the maximum attention in restoring the load of refrigerant indicated on the machine plate (inside the electric control board).
- Open all the cocks present in the cooling circuit.
- Connect the electric power supply and earth correctly.
- Check the hydraulic connections
- Check that the water pump is working correctly.
- Clean the water filters.
- Check that the condenser coils are not soiled or blocked.
- Verify the correct rotation of the fan unit.

16. R410A REFRIGERANT GAS

CHEMICAL NAME	CONCENTRATION [%]
Difluoromethane (R32)	50 %
Pentafluoromethane (R125)	50 %

PHYSICAL AND CHEMICAL PROPERTIES	
Physical form	Liquefied gas
Colour	Colourless
Odour	Ether
pH	at (25°C) neutral
Boiling point/interval	-52.8°C (-63°F)
Flashpoint	not inflammable
Vapour pressure	11 740 hPa at 25 °C
Vapour pressure	21 860 hPa at 50 °C
Relative density	1.08 g/cm ³
Solubility	Water: 0.15 g/100 ml.

IDENTIFICATION OF DANGER
Skin contact with evaporating liquids can cause freezing of the tissues. Strong concentrations of vapours can cause headache, dizziness, sleepiness, nausea, as well as lipothymia. Irregular heart beat (arrhythmia).

FIRST AID MEASURES	
General information	In the event of unconsciousness, place the person on one side in a stable position and call a doctor. Do not administer anything to an unconscious person. In case of irregular breathing or respiratory arrest, practice artificial respiration. If the symptoms persist, call a doctor
Inhalation	In case of inhalation breathe fresh air. In case of respiratory difficulty, apply oxygen mask. In case of respiratory arrest, practice artificial respiration. Contact a doctor.
Contact with the skin	Skin contact with evaporating liquids can cause freezing of the tissues. In case of direct contact with the liquid, warm frozen parts with water and call a doctor. Remove all contaminated clothing and shoes. Wash clothing before re-use.
Contact with the eyes	Wash eyes with running water for at least 15 minutes, keeping eye lids open. If irritation persists, call a doctor.
Note for the doctor	Do not administer adrenalin or similar substances.

Toxicological information	Inhalation: Irregular heart beat (arrhythmia). Ingestion: No specific risk. Skin contact: Skin contact with evaporating liquids can cause freezing of the tissues. Slight irritation for the skin. Contact with the eyes: Slight irritation for the eye.
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FIRE-FIGHTING MEASURES	
Fire-fighting equipment	Not inflammable ASTM D-56-82; ASTM E-681. In case of fire, use fire hose, foam, dry chemical products or CO ₂ .
Particular risks of exposure	Possibility of dangerous reactions of during a fire due to the presence of units. F and/or Cl. Fire or overheating causes increase of pressure that can cause explosion of unit. Use fire hose to keep units exposed to fire cool. This product is not inflammable at room temperature and atmospheric pressure. However it can catch on fire if mixes with pressurized air and exposed to a strong source of ignition.

MEASURES TO TAKE IN CASE OF ACCIDENTAL RELEASE	
Environmental precautions	Block the leak if there is no risk present. Leakages can evaporate quickly.
Method of cleaning	Evaporates

HANDLING AND STORAGE	
Manipulations	Open carefully in order to allow the release of any internal pressure. Keep and use away from heat sources, sparks, naked flames or other ignition sources. Pressurised container. Protect from sun rays and do not expose to temperatures higher than 50°C. Do not puncture or burn after use. Foresee adequate ventilation. Wash thoroughly after handling the product.
Precautions for safe use	- Make sure there is a sufficient exchange of air and/or exhaust system in the work places. For salvage and maintenance works, dismantling and disposal, use an autonomous respiratory device. The vapours are heavier than air and can cause suffocation by reducing the oxygen available for respiration. - Protect your hands with gloves that insulate from heat. - Protect your eyes with safety goggles. - Manipulate following good practice regarding industrial hygiene and safety.

ECOLOGICAL INFORMATION	
Substance	FORANE 32
In the water	Not easily biodegradable: 5% after 28d (OCDE 107 guideline)
In the air	Degradation for OH radicals: t _{1/2} life= 1472d Potential for destroying the ozone layer: ODP (R-11) = 0 Potential greenhouse effect of the halogenated hydrocarbons: HGWP (R-11=1) = 0.13
Bioaccumulation	Practically not biaccumable: log Pow = 0.21 OCDE 107 guideline

INFORMATION REGARDING THE STANDARD	
EEC Directive	D.91/155/EEC modified by D. 93/112/EEC and D.2001/58/CE:
Safety card	Substances and dangerous preparations
Dangerous preparations	D.199/45/CE modified by D.2001/60/CE Not classified as dangerous

CONSIDERATIONS REGARDING DISPOSAL	
Disposal methods	Dispose of access and non-recyclable products via the use of authorized disposal company. Refer to manufacturer/seller information regarding collection/recycling.

PERSONAL PROTECTION	
Limits of professional exposure:	Difluoromethane (R32) LTEL - UK [ppm]: 1000

SYMBOLS



GB

Contains fluorinated greenhouse gases covered by the Kyoto Protocol

R410A (Global warming potential 1980)

ES

Contiene gases fluorados de efecto invernadero regulados por el Protocolo de Kioto

R410A (Potencial de calentamiento atmosférico 1980)

DE

Enthält vom Kyoto-Protokoll erfasste fluorierte Treibhausgase

R410A (Treibhauspotenzial 1980)

FR

Contient des gaz à effet de serre fluorés relevant du protocole de Kyoto

R410A (Potentiel de réchauffement planétaire 1980)

IT

Contiene gas fluorurati ad effetto serra disciplinati dal protocollo di Kyoto

R410A (Potenziale di riscaldamento globale 1980)

PT

Contém gases fluorados com efeito de estufa abrangidos pelo Protocolo de Quioto

R410A (Potencial de aquecimento global 1980)

GR

Περιέχει φθοριούχα αέρια θερμοκηπίου καλυπτόμενα από το πρωτόκολλο του Κιότο

R410A (Δυναμικό θέρμανσης του πλανήτη 1980)

PL

Zawiera fluorowane gazy cieplarniane objęte Protokołem z Kioto

R410A (Współczynnik ocieplenia globalnego 1980)

SE

Innehåller sådana fluorerade växthusgaser som omfattas av Kyotoprotokollet

R410A (Faktor för global uppvärmningspotential 1980)



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The technical data in the following documentation are not binding. Aermec reserves the right to make all the modifications considered necessary for improving the product at any time.
