AERMEC
air conditioning

60Hz · RS485 · R410A

**MULTIPURPOSE UNITS FOR 2/4 - PIPE SYSTEMS - Installation manual**

# NRP 0800-1800

## REVERSIBLE HEAT PUMPS

- DESIGNED FOR 2 AND 4-PIPE SYSTEMS FOR EXTERNAL INSTALLATION
- OUTDOOR UNIT
- HIGH EFFICIENCIES

AERMEC COMPANY QUALITY SYSTEM ICIM ISO 9001:2008 - Cert. n° 0128 CISQ IQNet AERMEC S.P.A.

C ETL CM LISTED US Intertek

EN

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INRP2UY. 1312. 5806712_01

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 they 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

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# NRP

MODEL
SERIAL NUMBER
DATE

## DECLARATION OF CONFORMITY

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

**NAME** NRP

**TYPE** MULTI-PURPOSE UNIT

**MODEL**

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

| | |
|---|---|
| **CEI EN 60335-2-40** | Safety standard regarding electrical heat pumps, air conditioners and dehumidifiers. |
| **CEI EN 61000-6-1** | Immunity and electromagnetic emissions for residential environments. |
| **CEI EN 61000-6-3** | Immunity and electromagnetic emissions for industrial environments. |
| **CEI EN 61000-6-2** | |
| **CEI EN 61000-6-4** | |
| **EN378** | Refrigerating system and heat pumps - Safety and environmental requirements. |
| **UNI EN 12735** | Seamless, round copper tubes for air conditioning and refrigeration. |
| **UNI EN 14276** | Pressure equipment for cooling systems and heat pumps. |

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

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

The product, in agreement with Directive 97/23/CE, satisfies the Total quality Guarantee procedure (form H) with certificate no. 06/270-QT3664 Rev. 7 issued by the notified body n.1131 CEC via Pisacane 46 Legnano (MI) - Italy

The person authorised to constitute the technical file is: Pierpaolo Cavallo - 37040 Bevilacqua (VR) Italy – Rome, 996

Marketing Manager

Signature

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# 1. RECEIPT OF THE PRODUCT AND INSTALLATION

## 1.1. RECEIPT AND HANDLING

The machine is delivered from the factory wrapped in estincoil.
Before handling the unit, verify the lifting capacity of the machines used.
Handling must be performed by qualified, suitably equipped staff.

## 1.2. HANDLING THE MACHINE:

Whenever the machine must be lifted using belts, place protections between the belts and the framework to prevent damage to the structure.
NRP 0800-1800 units are supplied with eyebolts; they must be lifted using suitable belts hooked to all the installed eyebolts.

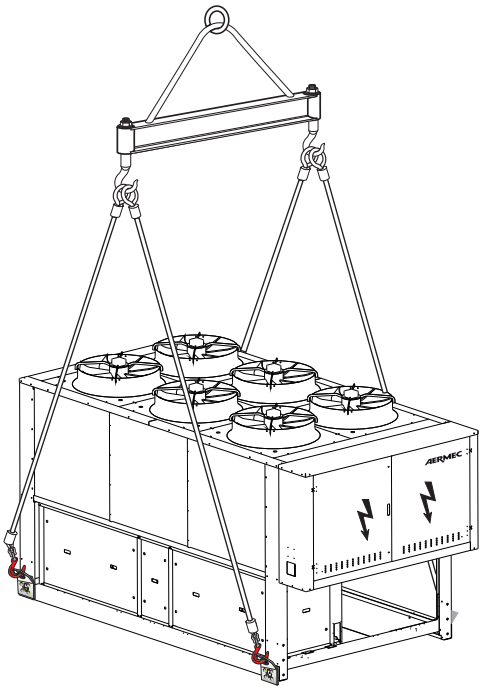
### 1.2.1. LIFTING REGULATIONS

1. All panels must be tightly fixed before handling the unit;
2. Before lifting, check the specific weight on the technical plate;
3. Use all, and only, the lifting points indicated;
4. Use ropes in compliance with Standards and of equal length;
5. Use a spacer beam in compliance with Standards (not included);
6. Handle the unit with care and without sudden movements

It is prohibited to stop under the unit during lifting operations.
- **The machine must always be kept in a vertical position;**
**- ATTENTION: The units CANNOT be stacked.**

## 1.3. SELECTION AND PLACE OF INSTALLATION

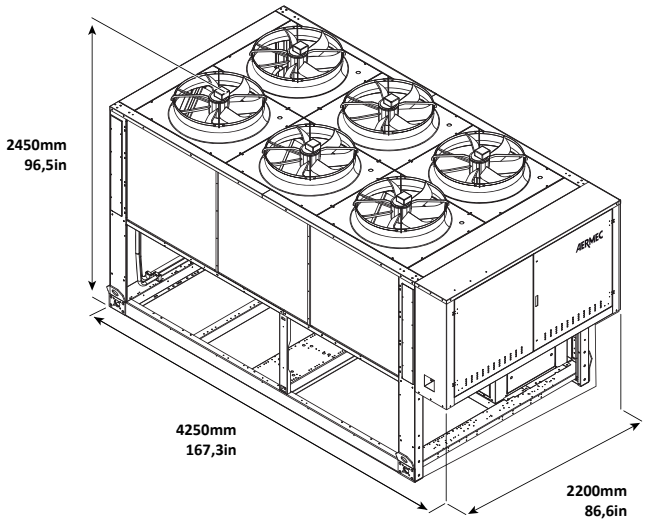
The NRP air/water OUTDOOR heat pump with gas side inversion (R410A) is sent from the factory already inspected and only requires electric and hydraulic connections in the place of installation.
Before beginning the installation process, decide with the customer where the unit is to be installed, whilst paying attention to the following:
1. The support surface must be capable of supporting the unit weight.
2. The safety distances between the units and other appliances or structures must be scrupulously respected.
3. The unit must be installed by a qualified technician in compliance with national laws in the country of destination.
4. It is mandatory to envision the necessary technical spaces in order to allow ROUTINE AND EXTRAORDINARY MAINTENANCE interventions.
5. Remember that during operation, the chiller can cause vibrations; therefore “AVX” anti-vibration mounts (ACCESSORIES) are recommended, which are fixed to the base according to the assembly layout.
6. Fix the unit checking that it is level.



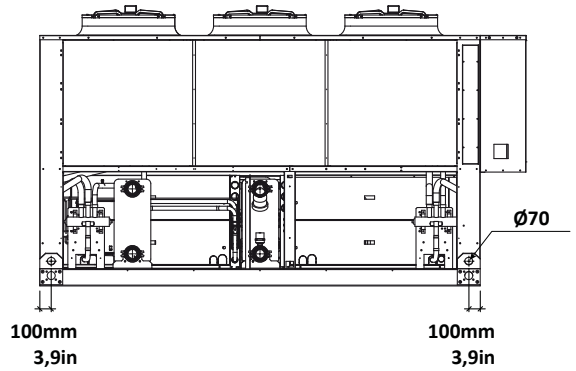
***EXAMPLE***
***"OF THE LIFTING"***
NRP 0800-1800 (always use all the provided eyebolts)
Before moving the unit, check the lifting capacity of the machines used.
Once the packaging has been removed, the unit must be handled by qualified personnel, using the appropriate equipment. To handle the machine:
"IN THE EVENT OF LIFTING", hook the lifting cables to the special eyebolts In order to avoid damaging the unit with the cables, insert protection elements between them and the machine. Is it absolutely forbidden to stand beneath the unit.

## 2. DIMENSIONAL TABLES

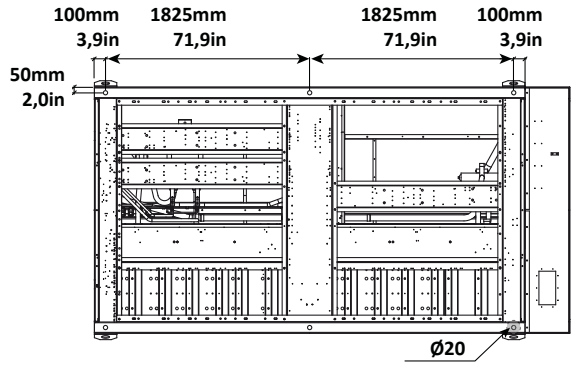
### 2.1. DIMENSIONS NRP 0800 - 1000



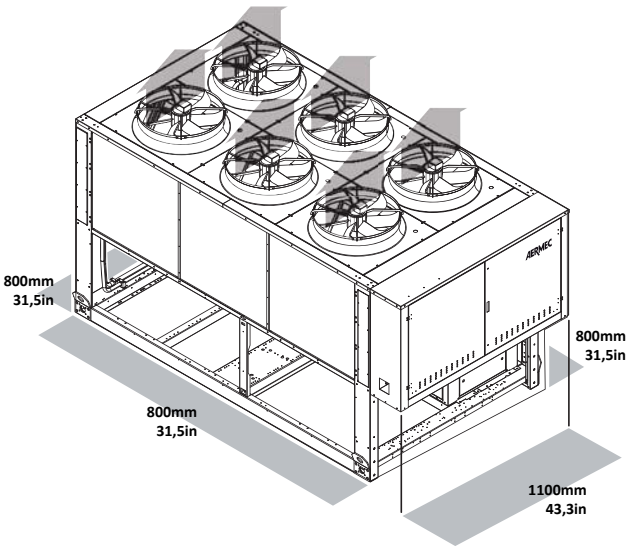

### 2.2. LIFTING POINTS



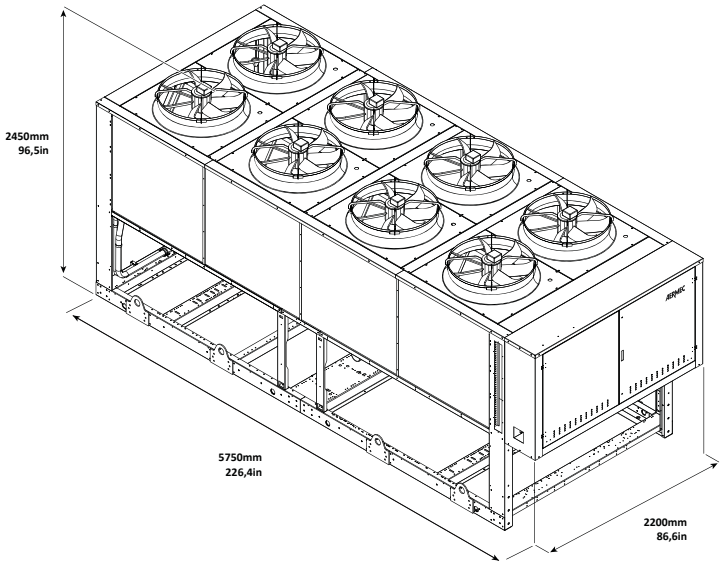

### 2.3. POSITION ANTI-VIBRATION MOUNTS



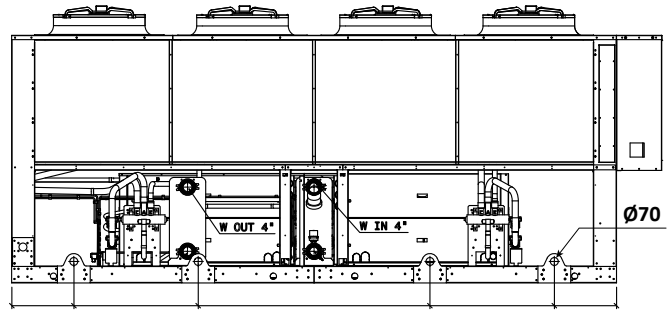

### 2.4. MINIMUM CLEARANCE SPACE



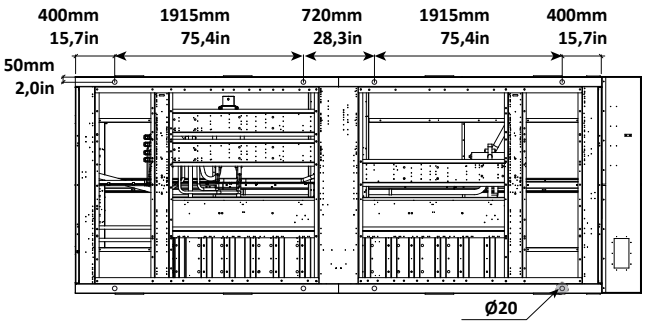
## 2.5. DIMENSIONS NRP 1250-1800



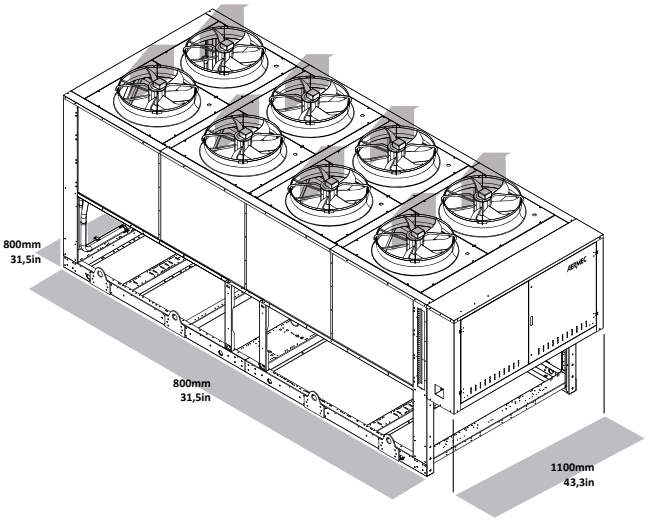

## 2.6. LIFTING POINTS



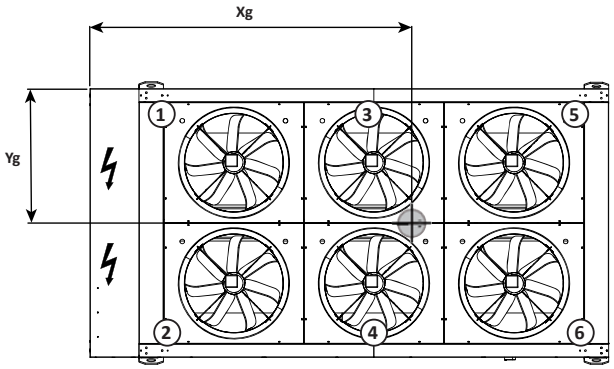

## 2.7. POSITION ANTI-VIBRATION MOUNTS




## 2.8. MINIMUM CLEARANCE SPACE

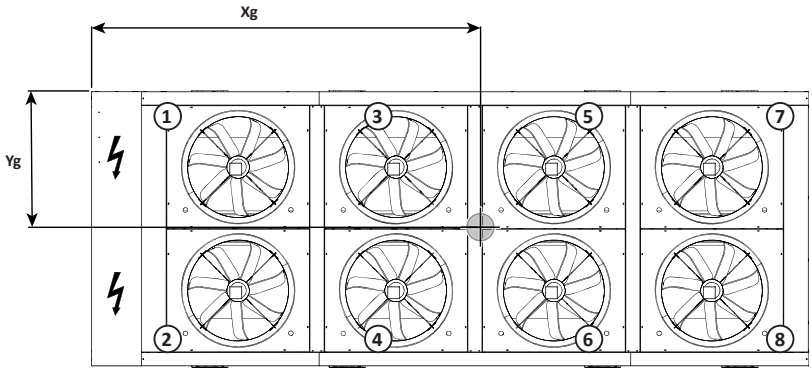


## 3. WEIGHTS | CENTRE OF GRAVITY AND POINT LOAD PERCENTAGES




| EMPTY WEIGHT | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NRP | HYDRONIC KIT | UNIT WEIGHT (Kg) | UNIT WEIGHT (lb) | BARYCENTRE (mm) | | BARYCENTRE (in) | | WEIGHT DISTRIBUTION ON SUPPORTS (%) | | | | | | | |
| | | | | Xg | Yg | Xg | Yg | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 0800 | 00 | 2430 | 5357,2 | 2080 | 1127 | 81,9 | 44,4 | 16% | 15% | 26% | 25% | 9% | 9% | - | - |
| 0900 | 00 | 2610 | 5754,1 | 2143 | 1165 | 84,4 | 45,9 | 15% | 13% | 28% | 25% | 10% | 9% | - | - |
| 1000 | 00 | 2870 | 6327,3 | 2122 | 1193 | 83,5 | 47,0 | 15% | 13% | 29% | 24% | 10% | 8% | - | - |

| RUNNING WEIGHT | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NRP | HYDRONIC KIT | UNIT WEIGHT (Kg) | UNIT WEIGHT (lb) | BARYCENTRE (mm) | | BARYCENTRE (in) | | WEIGHT DISTRIBUTION ON SUPPORTS (%) | | | | | | | |
| | | | | Xg | Yg | Xg | Yg | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 0800 | 00 | 2450 | 5401,3 | 2095 | 1127 | 82,5 | 44,4 | 16% | 15% | 26% | 25% | 9% | 9% | - | - |
| 0900 | 00 | 2630 | 5798,2 | 2158 | 1165 | 85,0 | 45,9 | 15% | 13% | 28% | 25% | 10% | 9% | - | - |
| 1000 | 00 | 2900 | 6393,4 | 1741 | 1192 | 68,5 | 46,9 | 15% | 13% | 29% | 24% | 10% | 8% | - | - |

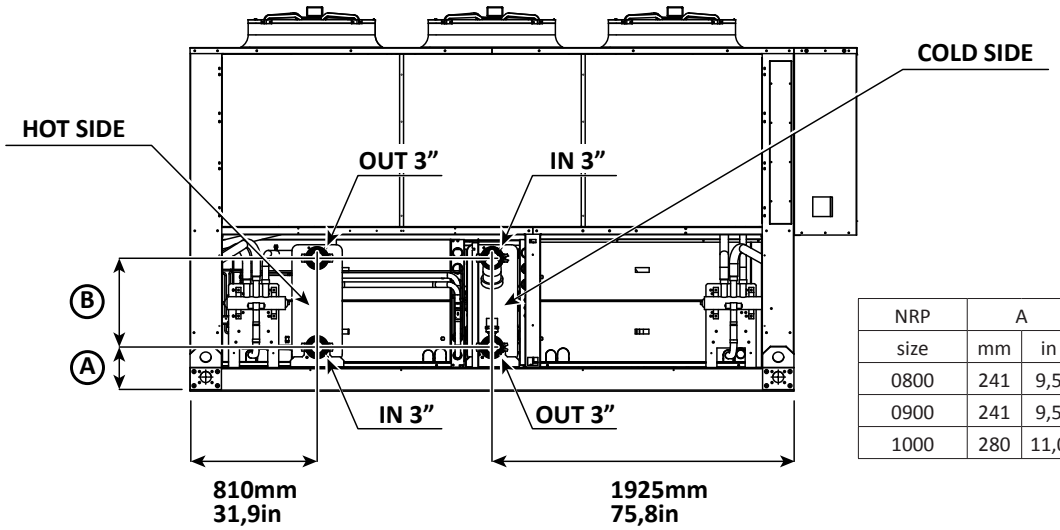



| EMPTY WEIGHT | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NRP | HYDRONIC KIT | UNIT WEIGHT (Kg) | UNIT WEIGHT (lb) | BARYCENTRE (mm) | | BARYCENTRE (in) | | WEIGHT DISTRIBUTION ON SUPPORTS (%) | | | | | | | |
| | | | | Xg | Yg | Xg | Yg | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1250 | 00 | 3530 | 7782,3 | 2849 | 919 | 112,2 | 36,2 | 12% | 17% | 12% | 17% | 9% | 13% | 8% | 12% |
| 1400 | 00 | 3640 | 8024,8 | 2871 | 911 | 113,0 | 35,9 | 12% | 16% | 12% | 17% | 10% | 14% | 8% | 11% |
| 1500 | 00 | 3720 | 8201,2 | 2870 | 905 | 113,0 | 35,6 | 11% | 16% | 12% | 17% | 10% | 14% | 8% | 11% |
| 1650 | 00 | 3900 | 8598,0 | 2938 | 887 | 115,7 | 34,9 | 11% | 16% | 11% | 16% | 11% | 16% | 8% | 12% |
| 1800 | 00 | 4080 | 8994,9 | 2942 | 871 | 115,8 | 34,3 | 10% | 15% | 12% | 18% | 10% | 16% | 8% | 12% |

| RUNNING WEIGHT | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NRP | HYDRONIC KIT | UNIT WEIGHT (Kg) | UNIT WEIGHT (lb) | BARYCENTRE (mm) | | BARYCENTRE (in) | | WEIGHT DISTRIBUTION ON SUPPORTS (%) | | | | | | | |
| | | | | Xg | Yg | Xg | Yg | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1250 | 00 | 3570 | 7870,5 | 2868 | 921 | 112,9 | 36,3 | 12% | 17% | 12% | 16% | 10% | 13% | 8% | 12% |
| 1400 | 00 | 3680 | 8113,0 | 2892 | 913 | 113,8 | 35,9 | 11% | 16% | 12% | 16% | 10% | 14% | 8% | 12% |
| 1500 | 00 | 3760 | 8289,4 | 2893 | 907 | 113,9 | 35,7 | 11% | 16% | 12% | 17% | 10% | 14% | 8% | 12% |
| 1650 | 00 | 3950 | 8708,3 | 2961 | 889 | 116,6 | 35,0 | 11% | 16% | 11% | 16% | 11% | 16% | 8% | 12% |
| 1800 | 00 | 4130 | 9105,1 | 2966 | 874 | 116,8 | 34,4 | 10% | 15% | 11% | 17% | 10% | 16% | 8% | 12% |

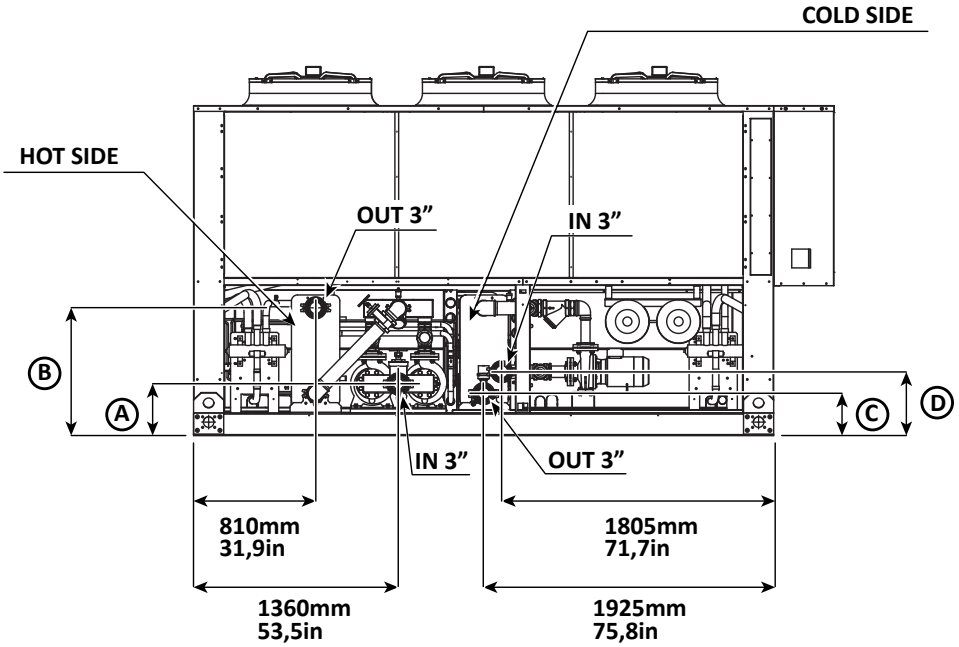
## 4. POSITION OF HYDRAULIC CONNECTIONS

### 4.1. POSITION OF HYDRAULIC CONNECTIONS NRP 0800÷1000 | STANDARD VERSION “00”



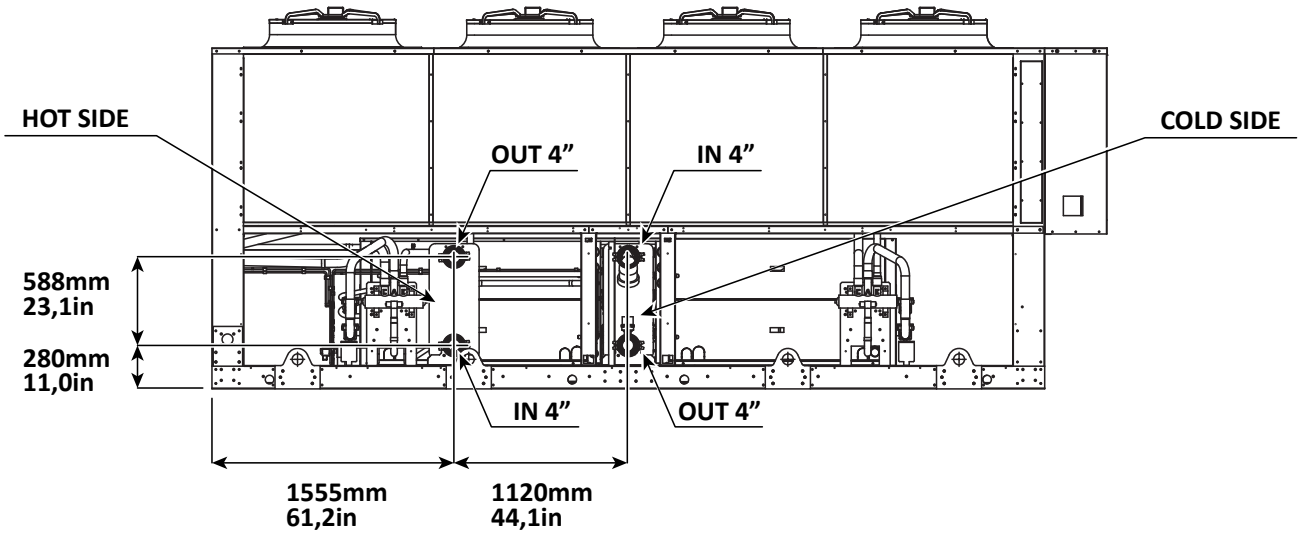

| NRP | A | | B | |
|---|---|---|---|---|
| size | mm | in | mm | in |
| 0800 | 241 | 9,5 | 369 | 14,5 |
| 0900 | 241 | 9,5 | 369 | 14,5 |
| 1000 | 280 | 11,0 | 568 | 22,4 |

### 4.2. POSITION OF HYDRAULIC CONNECTIONS NRP 0800÷1000 | PUMP/PUMPS VERSION



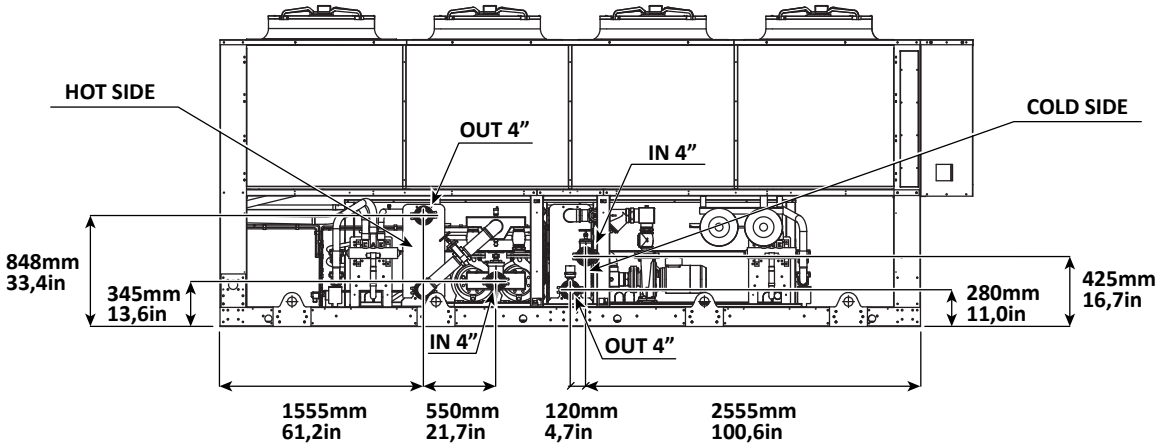

| NRP | PUMP/S | A | | B | | C | | D | |
|---|---|---|---|---|---|---|---|---|---|
| size | type | mm | in | mm | in | mm | in | mm | in |
| 0800 | P1/P2 | 348 | 13,7 | 610 | 24,0 | 241 | 9,5 | 348 | 13,7 |
| 0800 | P3/P4 | 373 | 14,7 | 610 | 24,0 | 241 | 9,5 | 373 | 14,7 |
| 0800 | R1/R2 | 348 | 13,7 | 610 | 24,0 | 241 | 9,5 | 348 | 13,7 |
| 0800 | R3/R4 | 373 | 14,7 | 610 | 24,0 | 241 | 9,5 | 373 | 14,7 |
| 0900 | P1/P2 | 348 | 13,7 | 610 | 24,0 | 241 | 9,5 | 348 | 13,7 |
| 0900 | P3/P4 | 373 | 14,7 | 610 | 24,0 | 241 | 9,5 | 373 | 14,7 |
| 0900 | R1/R2 | 348 | 13,7 | 610 | 24,0 | 241 | 9,5 | 348 | 13,7 |
| 0900 | R3/R4 | 373 | 14,7 | 610 | 24,0 | 241 | 9,5 | 373 | 14,7 |
| 1000 | P1/P2 | 348 | 13,7 | 848 | 33,4 | 280 | 11,0 | 427 | 16,8 |
| 1000 | P3/P4 | 373 | 14,7 | 848 | 33,4 | 280 | 11,0 | 427 | 16,8 |
| 1000 | R1/R2 | 348 | 13,7 | 848 | 33,4 | 280 | 11,0 | 427 | 16,8 |
| 1000 | R3/R4 | 373 | 14,7 | 848 | 33,4 | 280 | 11,0 | 427 | 16,8 |

### 4.3. POSITION OF HYDRAULIC CONNECTIONS NRP 1250÷1800 | STANDARD VERSION “00”

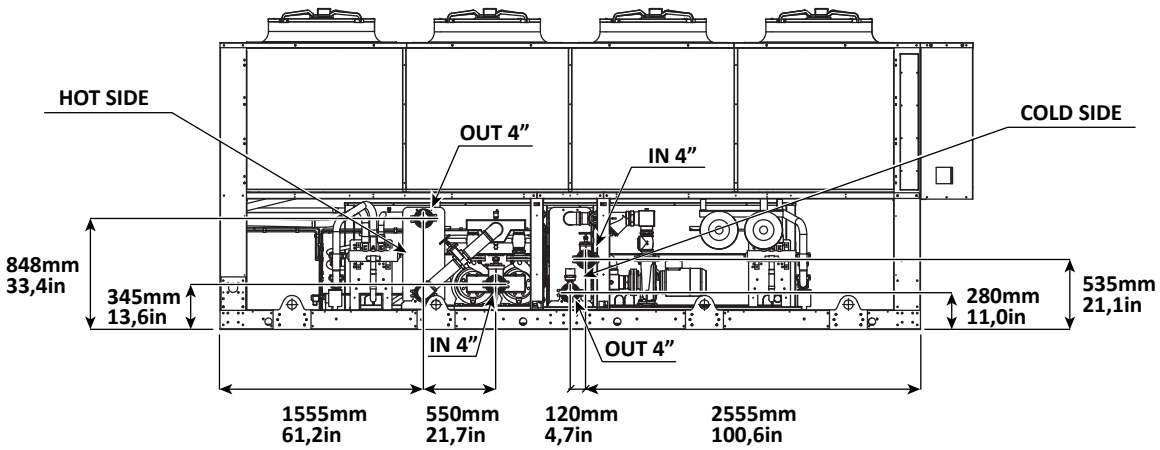



### 4.4. POSITION OF HYDRAULIC CONNECTIONS NRP 1250÷1800 | PUMP/PUMPS VERSION

**VERSION WITH SINGLE PUMP “P1/P3”**




**VERSION WITH PUMP+RESERVE PUMP “P2/P4”**



**ATTENTION**
Check the hydraulic sealing of the joints.

**ATTENTION**
It is recommended to repeat this operation after the appliance has operated for several hours and to periodically check the system pressure. Reintegration must be performed with machine off (pump Off).

### 4.5. SYSTEM LOADING

Before starting loading, position the unit master switch at OFF

1. Check that system drain cock is closed
2. Open all system and relative terminals vent valves.
3. Open all system cut-off devices
4. Start filling by slowly opening the system water load cock, outside the appliance.
5. When water starts to escape from the terminal vent valves, close them and continue loading until the envisioned pressure value for the system is reached.

**ATTENTION**
If the system contains liquid anti-freeze, this
must not be drained freely, as it is a pollutant.
**It should be collected and if possible reused.**

### 4.6. SYSTEM LOADING

1. Before beginning emptying, place the unit master switch at OFF.
2. Check that the system water loading/reintegration cock is closed.
3. Open the drain cock outside the appliance and all system and relative terminals vent valves

## 5. CONTROL AND COMMISSIONING

The NRP multipurpose units are completely wired at the factory and only require connection to the electrical mains, downstream from a unit switch, according to that envisioned by the Standards in force on this subject in the country of installation. It s also advised to check that:

1. The electrical mains features are suitable for the absorption values indicated in the electrical data table, also taking into consideration any other machines operating at the same time.
2. The unit is only powered when installation has been completed (hydraulic and electric).
3. Respect the connection indications of the phase, and earth wires.
4. The power supply line must have a relevant protection mounted upstream against short circuits and dispersions to earth, which isolates the system with respect to other utilities.
5. The voltage must be within a tolerance of ±10% of the nominal power supply voltage of the machine (for unbalanced three-phase unit max 3% between the phases). Whenever these parameters are not respected, contact the electric energy public body.
6. For electric connections, use the cables with double isolation according to the Standards in force on this subject in the different countries.

**MANDATORY**

1. The use of an omnipolar magnet circuit breaker switch is mandatory, in compliance with the IEC-EN Standards (contact opening at least 3 mm), with suitable cut-off power and differential protection on the basis of the electric data table shown below, installed as near as possible to the appliance.
2. It is mandatory to make an effective earth connection. The manufacturer cannot be held responsible for any damage caused by the lack of or ineffective appliance earth connection.
3. For units with three-phase power supply, check the correct connection of the phases.

All the electrical operations must be carried out bySTAFF IN POSSESSION OF THE NECESSARY QUALIFICATIONS BY LAW, suitably trained and informed on the risks related to these operations.

The characteristics of the electrical lines and of the related components must be determined by STAFF QUALIFIED TO DESIGN ELECTRICAL 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.

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

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

### 5.1. ELECTRIC DATA TABLE

For longer lengths or different cable laying, it is up to the PLANNER to calculate the appropriate line switch, the power supply line as well as the connection to the earth wire and connection cables depending on:

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

**ATTENTION**
**It is prohibited to use the water pipes to earth the appliance.**

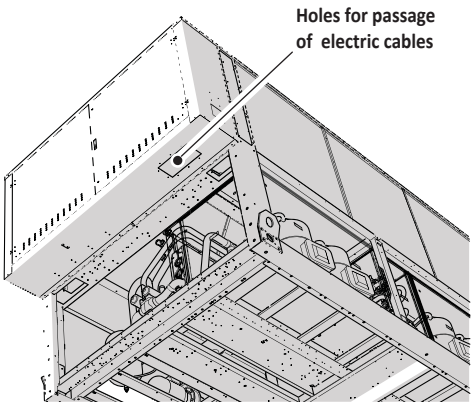
**ATTENTION**
Check the tightening of all power wire terminals on commissioning and after 30 days from start-up. Subsequently they must be checked every six months. Loose terminals can cause overheating of the cables and components.

### 5.2. ELECTRICAL DATA

| NRP | Power supply | U.M. | NRP 800 A | NRP 900 A | NRP 1000 A | NRP 1250 A | NRP 1400 A | NRP 1500 A | NRP 1650 A | NRP 1800 A |
|---|---|---|---|---|---|---|---|---|---|---|
| LRA | 230V-3-60Hz | A | 571 | - | - | - | - | - | - | - |
| MCA | 230V-3-60Hz | A | 309 | - | - | - | - | - | - | - |
| MOP | 230V-3-60Hz | A | 371 | - | - | - | - | - | - | - |
| Recommended fuse | 230V-3-60Hz | A | 350 | - | - | - | - | - | - | - |
| LRA | 460V-3-60Hz | A | 294 | 344 | 355 | 448 | 500 | 528 | 546 | 541 |
| MCA | 460V-3-60Hz | A | 151 | 162 | 172 | 234 | 266 | 294 | 312 | 328 |
| MOP | 460V-3-60Hz | A | 181 | 196 | 206 | 281 | 326 | 354 | 373 | 374 |
| Recommended fuse | 460V-3-60Hz | A | 175 | 175 | 200 | 250 | 300 | 350 | 350 | 350 |
| LRA | 575V-3-60Hz | A | 233 | 282 | 285 | 383 | 400 | 432 | 439 | 460 |
| MCA | 575V-3-60Hz | A | 134 | 136 | 139 | 193 | 230 | 262 | 268 | 270 |
| MOP | 575V-3-60Hz | A | 160 | 164 | 166 | 232 | 285 | 317 | 323 | 309 |
| Recommended fuse | 575V-3-60Hz | A | 150 | 150 | 150 | 225 | 250 | 300 | 300 | 300 |

**Data declarated with No Pump version.**

## 6. ELECTRIC POWER CONNECTION TO THE ELECTRICAL MAINS




1. Before connecting the unit to the power supply mains, make sure that the isolating switch is open.
2. Open the front panel.
3. Use the plates to pass the main electric power supply cable and the cables of the other external connections under the responsibility of the installer.
4. It is prohibited to access positions not specifically envisioned in this manual with electric cables.
5. Avoid direct contact with non-insulated copper piping and with the compressor.
6. Identify the clamps for the electric connection and always refer exclusively to the wiring diagram supplied with the unit.
7. For the functional connection of the unit, take the power supply cable to the electric control board inside the unit and connect it to clamps. L1-L2-L3 and PE respecting the polarities.
8. L1-L2-L3 as phases, and PE as earth; see figure.
9. Re-position the inspection panels.
10. Ensure that all protections removed for the electric connection have been restored before powering the unit electrically.
11. Position the system master switch (outside the appliance) at “ON”.

## 7. CONTROL AND COMMISSIONING

### 7.1. PREPARATION FOR COMMISSIONING

Please note that, on request by the Aermec customer or the legitimate owner of the machine, the units in this series can be started up by the AERMEC After-Sales Service in your area (valid only on Italian territory). The start of operation must be scheduled in advance based on the frame regarding the realisation of the system. Prior to the intervention, all other works (electrical and hydraulic connections, priming and bleeding of air from the system) must have been completed.

### 7.2. START -UP

#### 7.2.1. PRELIMINARY OPERATIONS TO BE PERFORMED WITH NO VOLTAGE PRESENT

Control:

1. All safety conditions have been respected.
2. The unit is correctly fixed to the support surface.
3. The minimum technical spaces have been respected.
4. That the main power supply cables have appropriate cross-section, which can support the total absorption of the unit. (see electric data sections) and that the unit has been duly connected to earth.
5. That all the electrical connections have been made correctly and all the clamps adequately tightened.

**ATTENTION:**
Before carrying out the controls indicated below, make sure that the unit is disconnected from the mains electricity. Make sure that the master switch is locked in the OFF position and an appropriate sign is affixed. Before starting the operations, use a voltmeter or a phase indicator to check that there is no voltage present.

#### 7.2.2. THE FOLLOWING OPERATIONS ARE TO BE CARRIED OUT WHEN THE UNIT IS LIVE.

1. Supply power to the unit by turning the master switch to the ON position; see (fig1.) The display will switch on a few seconds after voltage has been supplied; check that the operating status is on OFF (OFF BY KEY B on lower side of the display).
2. Use a tester to verify that the value of the power supply voltage to the RST phases is equal to 400V ±10%; also verify that the unbalance between phases is no greater than 3%.
3. Check that the connections made by the installer are in compliance with the documentation.
4. Verify that the compressor sump resistance/s is/are operating by measuring the increase in temperature of the oil pan. The resistance/s must function for at least 12 hours before start-up of the compressor and in any event, the temperature of the oil pan must be 10-15°C higher than room temperature.

**HYDRAULIC CIRCUIT**

1. Check that all hydraulic connections are made correctly, that the plate indications are complied with and that a mechanical filter has been installed at the evaporator inlet. (Mandatory component for warranty to be valid).
2. Make sure that the circulation pump/s is/are operating and that the water flow rate is sufficient to close the flow switch contact.
3. Check the water flow rate, measuring the pressure difference between evaporator inlet and outlet and calculate the flow rate using the evaporator pressure drop diagram present in this documentation.
4. Check correct operation of the flow meters, if installed; on closing the cut-off valve at the heat exchanger outlet, the unit must display the block. Finally, open the valve and rearm the block.

### 7.3. MACHINE COMMISSIONING

After having performed all controls stated above, the unit can be started by pressing the ON key. The display shows the temperature of the water and machine operating mode. Check the operating parameters set (set-point) and reset any alarms present. The unit will begin operating after a few minutes.

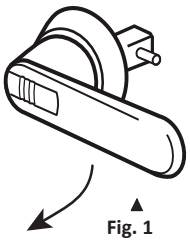


Fig. 1

## 8. FUNCTIONING FEATURES

### 8.1. SET POINT IN COOLING MODE

(Factory set) = 7°C, Δt = 5°C.

### 8.2. SET POINT IN HEATING MODE

(Factory set) = 45°C, Δt = 5°C.
If the unit power supply is restored after a temporary interruption, the set mode will be kept in the memory.

### 8.3. COMPRESSOR START-UP DELAY

Two functions have been prepared to prevent compressor start-ups that are too close.
- Minimum time from last switch-off 60 seconds in cooling mode.
- Minimum time from last switch-on 300 seconds in heating mode.

### 8.4. CIRCULATION PUMPS (NOT SUPPLIED)

The circuit board envisions outputs for the management of the circulation pumps.
The pump side utilities start immediately after the first 30 seconds of functioning. When the water flow rate has gone into normal working conditions, the flow meter control functions are activated (if envisioned). Below find the compressor start-up procedure, by switching the source side pump on with flow meter check if enabled after 20 seconds.
Whenever alarms do not occur, the compressor starts.

### 8.5. ANTI-FREEZE ALARM

The anti-freeze alarm [11] is active if the machine is off or in stand-by mode. In order to prevent the heat exchanger from breaking due to the water it contains freezing, envision compressor block (if the machine is on below 3.5°C) and ignition of the resistance (if standby below 5°C). If the temperature detected by the probe positioned in output of the heat exchanger and in inlet to the chiller is less than +3.8°C.

The intervention of this alarm [12] determines compressor block and not pump block, which remains active along with the switch-on of the resistance if installed.
To restore normal functions the temperature of the outlet water must rise above +4°C. Rearm is manual.

### 8.6. WATER FLOW RATE ALARM

The unit manages a water flow rate alarm controlled by a pressure switch or flow switch installed as per standard on the machine. This type of safety device intervenes after the first 30 seconds of pump functioning, if the water flow rate is not sufficient. The intervention of this alarm determines compressor and pump block.

**ATTENTION**

[11] This anti-freeze set temperature can only be varied by an authorised after-sales centre and only after having checked that there is anti-freeze solution in the water system.

[12] Whenever this alarm intervenes, call the nearest after-sales service immediately.

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