

# **Z600 Silent**

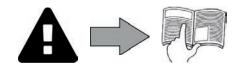


Instructions for installation and use English



More documents on: www.zodiac-poolcare.com





#### WARNINGS

- Failure to respect the warnings may cause serious damage to the pool equipment or cause serious injury, even death.
  The appliance is intended for a specific pool use and must not be used for any use other than that for which it was designed.
  It is important that the equipment is operated by competent and qualified (both physically and mentally) people who have
- previously received the instructions for use. All persons not meeting these criteria must not approach the appliance in order
- to avoid exposure to dangerous elements.
  Keep the appliance out of the reach of children.
  The device must be installed by a qualified technician according to the manufacturer's instructions and in compliance with local regulations. The installer is responsible for installation of the equipment and for compliance with national installation regulations. Under no circumstances can the manufacturer be held liable in the event of failure to comply with applicable
- Incorrect installation and/or use may cause serious damage to property or serious injuries (possibly causing death).
   All equipment, even postage and packing paid, travels at the risks and perils of the recipient. The consignee shall make reservations in writing on the carrier's bill of lading if damage is detected, caused during transport (confirmation to be sent to the carrier within 48 hours by registered mail with acknowledgement of receipt). In the event of a device containing coolant that has been turned on its side, mention your reservations in writing to the carrier.
- If the appliance suffers a malfunction, do not try to repair the appliance yourself, contact a qualified technician.
   Refer to the warranty conditions for details of the permitted water balance values for operating the appliance.
- Eliminating or shunting one of the safety devices automatically voids the warranty, as does the replacement of parts using
- parts not manufactured by ourselves.
  Do not spray insecticide or any other chemical (inflammable or non-inflammable) in the direction of the appliance, as this may damage the body and cause a fire.
  Heat pump, filtration pump and filter appliances are compatible with all types of water treatment.
  For heat pump appliances or dehumidifiers, do not touch the fan or insert a rod or your fingers through the grating when
- the appliance is in operation. The fan rotates at high speed and may cause injuries or even death.
- The electrical supply to the appliance must be protected by a dedicated 30 mA differential residual current protection device, complying with the standards and regulations in force in the country where it is installed.
   Before carrying out any operations, check that:

   The voltage indicated on the maker's plate of the appliance corresponds to the mains voltage,
   The power grid is adapted to the power requirements of the appliance, and is grounded.
- The plug (where applicable) is suitable for the socket.
- In the event of abnormal function or the release of odours from the appliance, turn it of immediately, unplug it from its power supply and contact a professional.
- Before any intervention on the appliance, ensure that the latter is switched off and disconnected from the power supply, in addition to any other equipment connected to the appliance, and that the heating priority (where applicable) is deactivated.
  Do not disconnect and reconnect the appliance to the power supply when in operation.
- Do not pull on the power cord to disconnect it from the power supply.
- Do not handle the electrical elements with wet hands.
- Clean the terminal board or the power supply socket before connection.
- For any component or sub-assembly containing a battery: do not recharge or dismantle the battery, or throw it into a fire.

- For any component or sub-assembly containing a battery; do not recharge or dismantie the battery, or throw it into a fire. Do not expose it to high temperatures or direct sunlight.
  In stormy weather, unplug the appliance to prevent it from suffering lightning damage.
  Do not immerse the appliance in water (with the exception of cleaners) or mud.
  Do not discharge R410A or R407C fluid into the atmosphere. These are fluorinated greenhouse effect gases, covered by the Kyoto Protocol, with a Global Warming Potential (GWP) = 1975 for R410A or 1653 for R407C (Directive EC 842/2006).
  According to French decree No. 2007-737, if the appliance has more than 2 kg of refrigerant gas (refer to manufacturer specifications), the cooling circuit must be checked for leakage at least once a year. This operation must be carried out by a certified cooling appliance specialist. certified cooling appliance specialist.

  Additional recommendations in relation to the Pressure Equipment Directive (PED-97/23/EC)

# Installation and maintenance

The unit may not be installed close to combustible materials, or the air duct inlet of an adjacent building .

With some devices, it is essential to fit protection grids if the unit is installed in an area with uncontrolled access.

During installation, troubleshooting and maintenance, pipes may not be used as steps: the pipe could break under the weight, spilling refrigerant and possibly causing serious burns.

When servicing the appliance, the composition and state of heat carrying fluid must be checked, as well as the absence of

During the annual unit sealing test in accordance with applicable legislation, the high and low pressure switches must be checked to ensure that they are securely fastened to the coolant circuit and that they cut-off the electrical circuit when tripped.

During maintenance work, ensure there are no traces of corrosion or oil around cooling components.

Before beginning work on the cooling circuit, stop the device and wait for a few minutes before fitting the temperature and pressure sensors. Some elements such as the compressor and piping may reach temperatures in excess of 100°C and high pressures with the consequent risk of severe scalding.

**Troubleshooting**All soldering work must be carried out by a someone qualified to do so.
Replacement pipes must always be made of copper in compliance with standard NF EN 12735-1.

Leak detection, pressure test:

never use oxygen or dry air, risk of fire or explosion,

use dry nitrogen or the mixture of nitrogen and refrigerant indicated on the information plate, the test pressure for both the high and low pressure circuits must not exceed 42 bar (for R410A), 20 bar and 15 bar (for R407C) in the case the device is equipped with the optional pressure gauge.

The high pressure circuit pipes are made of copper and have a diameter equal to or greater than 1"5/8. A certificate as indicated in §2.1 in compliance with standard NF EN 10204 will be requested from the supplier and filed in the facility's technical documentation. Technical data relative to the safety requirements of the various applicable directives must be indicated on the information plate. All this information must be recorded in the unit's installation manual, which must be kept in the technical file of the unit: model, code, serial number, maximum and minimum OT, OP, year of manufacture, EC label, manufacturer's address, refrigerant and weight, electrical parameters, thermo-dynamic and acoustic performances

This symbol means that your appliance must not be thrown into a normal bin. It will be selectively collected for the purpose of reuse, recycling or transformation. If it contains any substances that may be harmful to the environment, these will be eliminated or neutralised.

Contact your dealer for recycling information.

 Before you do anything with the device, it is vital that you read this installation and user manual, as well as the "warnings and warranty" booklet delivered with the device. Failure to do so may result in material damage or serious or fatal injury and will invalidate the warranty.



- Keep and pass on these documents for later consultation during the device's life time.
- It is prohibited to distribute or modify this document in any way without authorisation from Zodiac®.
- Zodiac® is constantly developing its products to improve their quality; therefore, the information contained in this document may be modified without notice.

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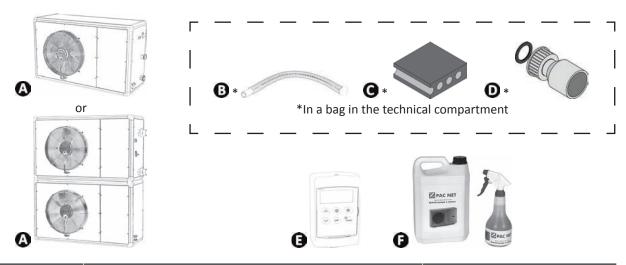
#### Tip: to make it easier to contact your reseller

• Write down your reseller's contact details to help you find them more easily and fill in the "product" information on the back of the manual; your reseller will ask you for this information.



# Specifications

# 1.1 | Description



А		Z600 Silent
В	Condensate evacuation	•
С	Anti-vibration studs (x6)	<b>Ø</b>
D	Ø50 connector to be glued (x2)	•
Е	Remote control	0
F	PAC NET (cleaning product)	0

: supplied

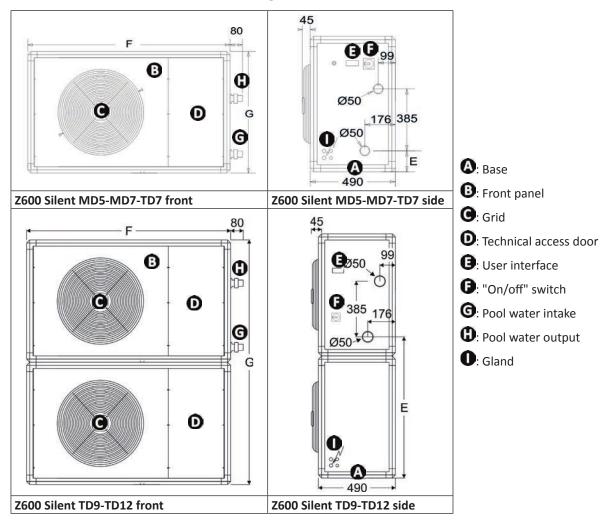
: available as an accessory

# 1.2 I Technical specifications

Z600 Silent		MD5	MD7	TD7	TD9	TD12		
Operating temperature range	air	-8 to 38 ℃						
Operating temperature range	water		10 to 35 °C					
Voltage		230V-50Hz	230V-50Hz	400V-50Hz	400V-50Hz	400V-50Hz		
Acceptable variation in voltage		± 6 % (during operation)						
Nominal absorbed intensity A		9.2	12.7	5.2	8.3	10.8		
A4:	mm²	3x2.5	3x4	5x2.5	5x2.5	5x4		
Minimum cable section*		3G2.5	3G4	5G2.5	5G2.5	5G4		
Proof pressure	bar	3						
Service pressure	bar	1.5						
Head loss	mCE	1.5			.1			
Water flow m³/h		6-10	6-12	6-12	10-20	10-24		

<sup>\*</sup> Values provided for information purposes for a maximum length of 20 metres (calculation base: NFC15-100), must be checked and adapted to the installation conditions and standards of the installation country.

# 1.3 I Dimensions and marking



Z600 Silent	E	F	G
MD5	121	1,300	780
MD7-TD7	121	1450	970
TD9	901	1,300	1560
TD12	1085	1450	1940

Overall dimensions in mm



# 2.1 I Selecting the location



- The device must be installed at a minimum distance from the pool's surrounding edge.
   This distance is determined by the electrical standards which apply in the installation country.
- For outdoor installation, provide free space around it (see § "2.2 I Hydraulic connections").
- Install the 6 anti-vibration studs under the base and place the device on a stable, solid and level surface.
- This surface must be able to bear the weight of the device (in particular in the case of installation on a roof, a balcony or any other support).

#### The device must not be installed:

- In a location subject to high winds,
- With the blowing towards a permanent or temporary obstacle (window, wall, hedge, awning, etc.) less than 4 metres away.
- Within range of water or mud jets, sprays or run-off (take the effect of the wind into account),
- Near a heat source or flammable gas,
- · Near high frequency equipment,
- In a location where it would be subject to snow build-up,
- In a location where it might be flooded by the condensation produced by the device when operating.

#### Tip: reduce any noise annoyance from your heat pump

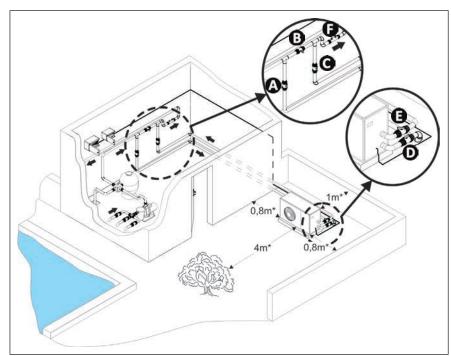




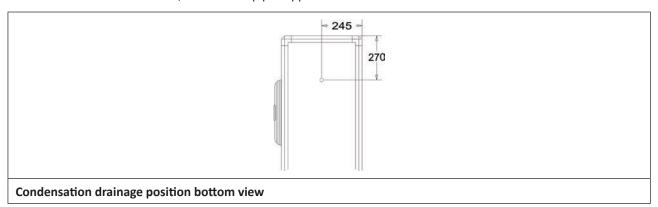
- Do not tilt it towards your neighbours.
- Install it in a clear space (the sound waves are reflected on surfaces).
- Install an acoustic screen around the heat pump, respecting the distances.
- Install the anti-vibration studs under the heat pump and replace them regularly.
- Install 50 cm of flexible PVC pipe at the heat pump water input and output (stops vibrations).

# 2.2 I Hydraulic connections

- The device will be connected with a Ø50 or Ø63 PVC pipe (see § "1.3 | Dimensions and marking"), to the pool's filtration circuit, after the filter and before the water treatment.
- Respect the direction of hydraulic connection.
- A by-pass must be installed to make it easier to work on the device.



- (A): water entry valve
- **B**: by-pass valve
- **G**: water exit valve
- water entry adjustment valve (optional)
- **(**e): water exit adjustment valve (optional)
- **6**: water treatment
- \* minimum distance
- To evauate the condensation, connect the pipe supplied under the device.





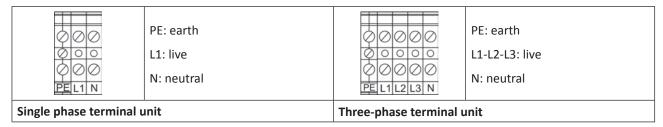
### **Tip: condensation drainage**

Caution, several litres of water must be drained from your device each day. We strongly recommend connecting the drainage to the sewers

# 2.3 I Electricity supply connections



- Incorrectly tightened terminals may cause the terminal unit to heat up, which is not covered by the warranty.
- Before any work inside the device, you must cut the electricity supply as there is a risk of electric shock which may cause material damage, serious injury or even death.
- Only a qualified and experienced technician is authorised to carry out cabling in the equipment or to replace the supply cable.
- The heat pump's electrical supply must be provided through a protection and circuit breaking device (not supplied) complying with the standards and regulations in force in the country where it is installed.
- Electrical protection: by circuit breaker (D curve) (for calibre, see § "1.2 | Technical specifications"), with a 30 mA dedicated differential circuit breaker (circuit breaker or switch).
- The electricity supply must correspond to the voltage indicated on the device's information plate.
- The electricity supply cable must be insulated against any cutting or hot elements that may damage or crush it.
- The equipment must be connected to an earth socket.
- The electrical connection lines must be fixed.
- Use the gland to pass the supply cable into the device.
- Use the supply cable adapted for outdoor or buried use (or run the cable into a protection duct).
- We recommend burying the cable at a depth of 50 cl (85 cm under a road or path) in an electrical duct (red ribbed).
- If this buried cable meets another cable or pipe (gas, water, etc.), there must be more than 20 cm between them.
- Connect the supply cable to the connection terminal unit inside the device.





• For the three-phase models, check the phase order on the phase order controller present in the device; the LED lights up if the connection is correct.

# 2.4 I Option connections

## 2.4.1 "Remote control" option



- Any incorrect connection to the terminal unit may damage the device and cancel its warranty.
- When intervening on the terminal unit, there is a risk of electrical return current, injuries, material damage and death.
- Use cables with a section of 2x0.75mm<sup>2</sup> minimum.
- Run the cables through glands. The cables used for the options and the supply cable must be kept separate (risk of interference) using a collar inside the device just after the glands.
- This option enables the device's user interface to be duplicated to enable the device to be controlled by remote. To do so, use the remote control kit available as an accessory.
- For the connection, consult the manual supplied with the kit.

## **♦** 3.1 I Operating principle

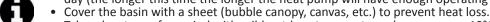
Your heat pump uses the calories (heat) in the air to heat up your pool's water. The process to heat your pool's water to the temperature you want may take a few days as it depends on the weather conditions, your heat pump's power and the difference between the water temperature and the temperature you want.

The heat pump is ideal for maintaining temperature.

The higher the air and water temperature, the better your heat pump will perform.

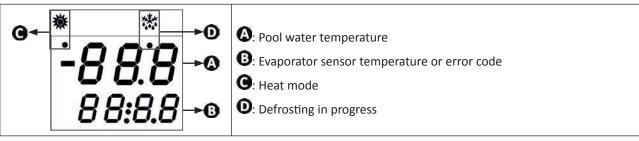
## Tip: improve your pool's temperature rise and maintenance

- Anticipate the commissioning of your pool far enough in advance before you use it.
- For the temperature rise, set the water circulation to continuous operation (24/24).
- To maintain the temperature throughout the season, run "automatic" circulation for at least 12 hours/day (the longer this time the longer the heat pump will have enough operating range to heat up).



- Take advantage of a period with mild outdoor temperatures (on average > 10°C at night); it will be even more effective if it runs during the warmest hours of the day.
- Keep the evaporator clean.
- Set the temperature you want and let the heat pump run (adjusting the setpoint to maximum will not heat the water more quickly).

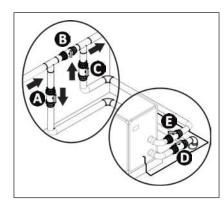
# 3.2 I User interface presentation



			Fixed	Flashing	Off		
	*	Heat mode	heating active	/	no heating request		
	*	Defrosting	defrosting active	timed	no defrosting request		
Lights	°C	Temperature unit					
Compressor operation							
	Zz	Standby mode					
	bar	Pressure unit (bar or psi)					
	4	Fan operation					
			Funct	tions			
	SET	<ul><li>Display or modify the setpoint</li><li>Select a value</li><li>Validate a value</li></ul>					
Keys	冷	<ul><li>Scroll through the values</li><li>Increase the values</li></ul>					
	*	Scroll through the values     Reduce the values					
	M	View the alarm history	ory				

# 3.3 I Operating

- Check that there are no tools or other foreign objects in the machine.
- The panel that provides access to the technical section must be put in place.
- Set the valves as follows: valve B wide open, valves A, C, D and E closed



- A: water entry valve
- **B**: by-pass valve
- **©**: water exit valve
- :water entry adjustment valve (optional)
- water exit adjustment valve (optional)



# An incorrect by-pass setting may cause the heat pump to malfunction.

- Check that the hydraulic corrections are correctly tightened and that there are no leaks.
- Check that the device is fully stable.
- Set the water circulation running.
- Close valve B gradually so that the filter pressure is increased by 150g (0.150 bars).
- Open valves A, C and D fully then valve E by half (the air which has built up in the heat pump condenser and the filtration circuit will bleed out). If valves D and E are not present, open valve A wide and close valve C by half.
- Connect the heat pump's electricity supply and activate the "on/off" switch.
- If the heat pump is on standby, activate it by holding down for 5 seconds.
- Set the temperature you want ("setpoint" temperature).

After the start-up steps for your heat pump:

- Shut down the water circulation temporarily (by stopping the filtration or closing valve B or C) to check that you device stops after a few seconds (via the activation of the flow rate controller).
- Reduce the setpoint temperature to below the water temperature to check that the heat pump stops operating.
- Switch off the heat pump by by cutting the "on/off" switch and check that it stops fully.

# 3.4 I User functions

### 3.4.1 Adjusting the temperature set point:

- Press and hold **SET** for 3 seconds; the value will flash,
- Press to increase the temperature by 0.1 °C,
- Press to reduce the temperature by 0.1 °C.
- Press **SET** to confirm.

The heat pump stops automatically when the pool reaches the required temperature.

#### 3.4.2 Activating / deactivating standby mode

• Press and hold for 5 seconds to activate or deactivate standby mode.

### 3.4.3 Sensor temperature reading

• Press once to display the water output temperature: 23.2°
• Press once to display the exterior air temperature:



# **♦** 4.1 I Wintering



- Wintering is vital, or else the condenser may freeze. This is not covered by the warranty.
- To avoid damaging the equipment with condensation, do not fully cover it.
- Switch off the heat pump by cutting the "on/off" switch,
- · Open valve B,
- Close valves A and C and open valves D and E (if present),
- · Make sure that there is no water circulating in the heat pump,
- Drain the water from the condenser (risk of freezing) by unscrewing the two water input and output connectors on the back of the heat pump,
- In the case of full wintering for the pool (complete shutdown of the filtration system, bleed the filtration circuit or even pool drainage): tighten the two connectors by one turn to prevent any foreign bodies from getting into the condenser,
- In the case of wintering for the heat pump only (shutdown of the heating only, the filtration keeps running): to not tighten the connectors but add 2 caps (provided) on the condenser's water inputs and outputs.

# **●** 4.2 I Maintenance



 It is recommended that the device be general serviced at least on a yearly basis to ensure proper operation, maintain performance levels and prevent some potential failures. These operations are carried out at the user's expense, by a technician.

#### 4.2.1 User maintenance

- Make sure that the filter is not blocked by any foreign bodies.
- Clean the evaporator (for location see § "1.3 I Dimensions and marking") using a soft brush and a fresh water spray (disconnect the power cable); do not fold over the metal wings, then clean the condensation drainage pipe to remove any impurities that may be blocking it.
- Do not use a high pressure jet. Do not spray with rain water, which is salty and full of minerals.
- Clean the outside of the device; do not use any solvent-based products. We can provide you with a specific cleaning kit as an option: the PAC NET, see § "1.1 | Description".

### 4.2.2 Maintenance to be carried out by a qualified technician

- Check that the regulation is operating correctly connected.
- Check that the condensation flows correctly when the device is operating.
- Check the safety mechanisms.
- Check the connection of the metal masses to the earth.
- Check that the electrical cables are correctly tightened and connected and that the electrical unit is clean.

# Q 5 Troubleshooting



- Before you contact your reseller, please carry out these few simple checks using the following tables if a problem occurs.
- If the problem continues contact your reseller.
- **E**: Actions reserved for a qualified technician

## **●** 5.1 I Device behaviour

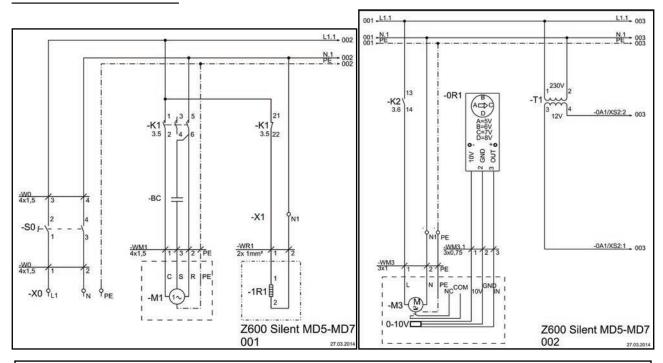
The device does not start heating straight away	<ul> <li>On start-up, the device remains "paused" for a few minutes before it starts operating.</li> <li>When the setpoint temperature is reached, the heat pump stops heating: the water temperature is higher than or equal to the setpoint temperature.</li> <li>When the water flow rate is zero or is not enough, the heat pump stops: check that the water is circulating correctly in the heat pump and that the hydraulic connections are correct.</li> <li>It may be that the heat pump has detected an operating fault (see § "5.2 I Error code display").</li> <li>If you have checked these points and the problem persists: contact your reseller.</li> </ul>
The device is draining water	<ul> <li>Often called condensation. This water is the moisture contained in the air which condenses on contact with certain cold mechanisms in the heat pump, especially on the evaporator. The more damp the air, the more condensation your heat pump will produce (your device may drain several litres of water per day). This water is retrieved by the base of the heat pump and drained through a hole.</li> <li>To check that the water is not coming from a leak in the pool circuit on the heat pump, shut down the heat pump and run the filtration pump for the water to circulate in the heat pump. If the water continues to flow through the condensation drains, there is a water leak in the heat pump; contact your reseller.</li> </ul>
The evaporator is iced over	<ul> <li>Your heat pump will soon switch to its defrost cycle to melt the ice.</li> <li>If your heat pump cannot manage to defrost its evaporator, this means that the outdoor temperature is too low.</li> </ul>
The device is not working	<ul> <li>If there is no display, check the supply voltage and the fuse.</li> <li>When the setpoint temperature is reached, the heat pump stops heating: the water temperature is higher than or equal to the setpoint temperature.</li> <li>When the water flow rate is zero or is not enough, the heat pump stops: check that the water is circulating correctly in the heat pump.</li> <li>It may be that the heat pump has detected an operating fault (see § "5.2 I Error code display").</li> </ul>
The device is working but the water temperature does not increase	<ul> <li>The cabling to the supply terminal unit is incorrect; check that the LED lights up on the phase order controller and reverse the phases on the supply terminal unit if necessary (device powered down).</li> <li>Check that the automatic filling valve is not stuck in open position; this will keep supplying cold water into the pool and will prevent the temperature from rising.</li> <li>There is too much heat loss as the air is cool. Install a heat insulated cover on your pool.</li> <li>The heat pump is unable to capture enough calories as its evaporator is clogged with dirt. Clean it to restore its performances (see § "4.2 I Maintenance").</li> <li>Check that the external environment is not hindering the heat pump (see § "2 Installation").</li> <li>Check that the heat pump is the right size for this pool and its environment.</li> </ul>
The device trips the circuit breaker	<ul> <li>Check that the circuit breaker is correctly dimensioned and that the cable section used is the right one (see § "1.2   Technical specifications").</li> <li>The supply voltage is too low; contact your electricity supplier.</li> <li>On the mono-phase models, check the condition of the condenser and replace it if necessary.</li> </ul>

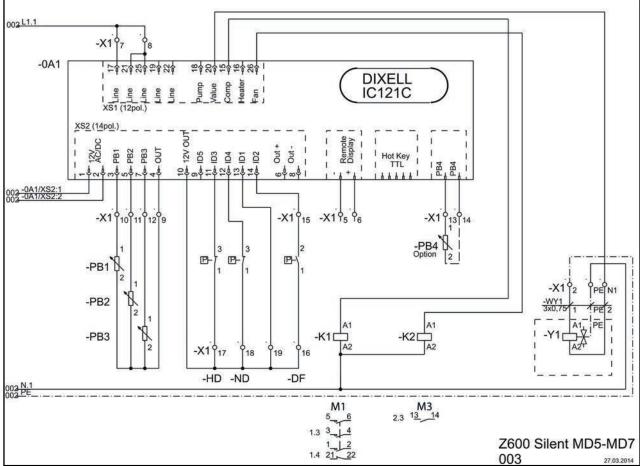
# **5.2** I Error code display

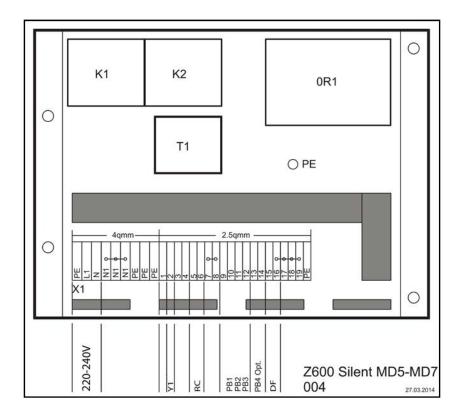
Display	Possible causes	Solutions
	Exchanger clogged with dirt	<b>2</b> Clean the water exchanger
HO or A01	Insufficient water flow	Increase flow using by-pass, check that the pool filter is not clogged
Cooling circuit high pressure fault	Air and water emulsion passed into the device	Check the pool's hydraulic circuit
	Flow controller blocked	<b>E</b> Check the flow controller
or A02 Low pressure fault on cooling circuit	Insufficient gas load	Call an approved technician
	Insufficient water flow	Increase flow using by-pass, check that the pool filter is not clogged
Flow! or A08 Water flow fault	Air and water emulsion passed into the device	Check the pool's hydraulic circuit
Trace. No in tour	Flow controller blocked or installed backwards	<b>2</b> Check the flow controller
	Unsuitable cable section	Check the cable section (see § "1.2 I Technical specifications")
Motor protection fault	Low voltage on the electricity network	Contact the electricity provider to find out if your installation has been modified.
A12 Exchanger protection in cool mode	Final defrosting temperature not reached	Wait until the exterior temperature rises
P1 Pb1 sensor fault water intake sensor	Sensor is faulty or offline	Reconnect or change the sensor
P2 Pb2 sensor fault water outlet sensor	Sensor is faulty or offline	Reconnect or change the sensor
P3 Pb3 sensor fault defrost sensor	Sensor is faulty or offline	Reconnect or change the sensor
P4 Pb4 sensor fault air temperature sensor	Sensor is faulty or offline	Reconnect or change the sensor

# **5.3** I Wiring diagrams

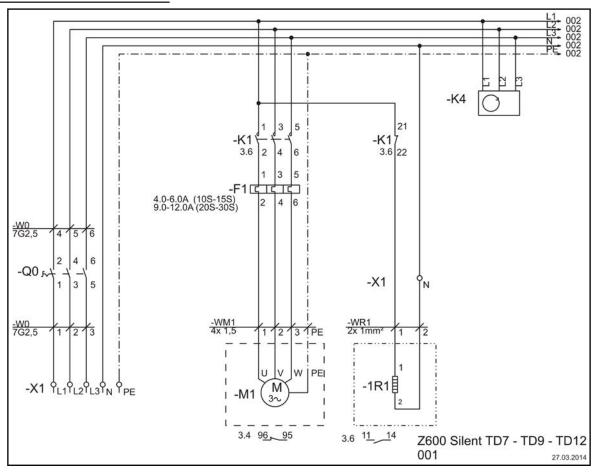
# 5.3.1 Z600 Silent MD5-MD7

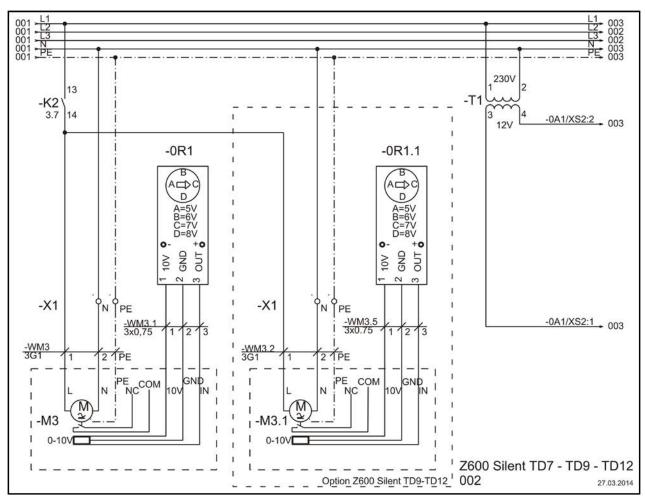


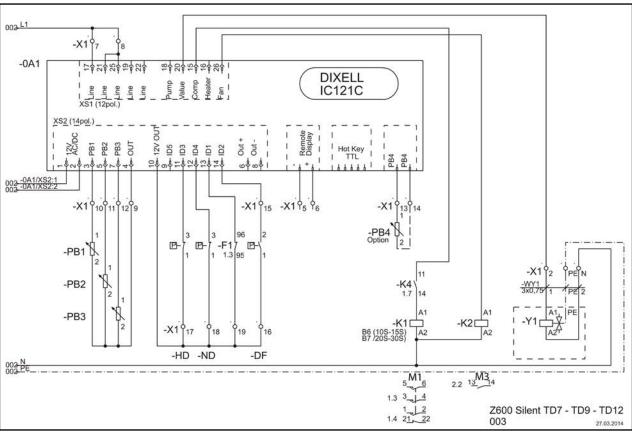


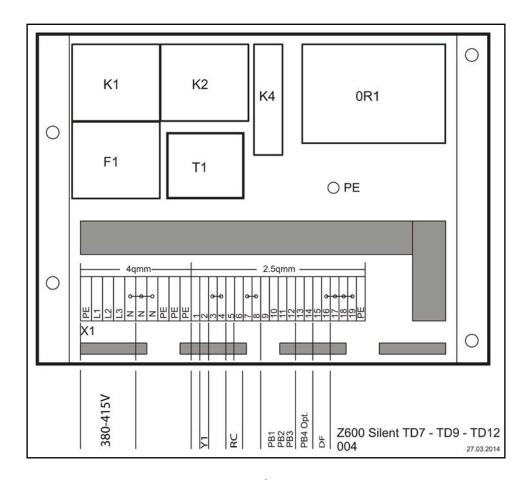


# 5.3.2 Z600 Silent TD7-TD9-TD12









0A1	Regulator
BC	Compressor condenser
DF	Flow interrupter
F1	Compressor heat
HD	High pressure switch
K1	Compressor contact
K2	Fan contact
K4	Phase controller
M1	Compressor
M3	Fan
M3.1	Fan
ND	Low pressure switch
PB1	PB1 sensor (Water intake temperature)
PB2	PB2 sensor (Water outlet temperature)
PB3	PB3 sensor (defrost)
PB4 Opt.	Optional PB4 sensor (Air temperature)
Q0	"On/Off" switch
OR1	Fan 1 speed setting module
OR1.1	Fan 2 speed setting module
1R1	Compressor casing resistance
RC	Remote control (white wire to 5, black wire to 6)
T1	Transformer
SO	"On/Off" switch
Y1	4-channel valve

Votre revendeur Your retailer		
Modèle appareil Appliance model		
Numéro de série Serial number		

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