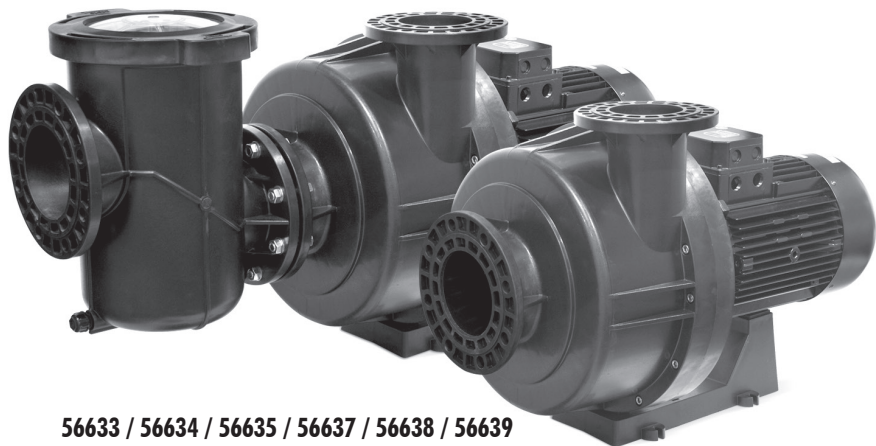


KIVU MANUAL
MANUEL KIVU
MANUAL KIVU
MANUALE KIVU
KIVU MANUELL
MANUAL KIVU

ORIGINAL INSTRUCTIONS
INSTRUCTIONS D'ORIGINE
INSTRUCCIONES ORIGINALES
ISTRUZIONI ORIGINALI
ORIGINALANLEITUNG
INSTRUÇÕES ORIGINAIS



63042 / 63043 / 63044
66047 / 66048 / 66049



56633 / 56634 / 56635 / 56637 / 56638 / 56639

CENTRIFUGAL PUMP FOR SWIMMING POOLS
POMPES CENTRIFUGE POUR PISCINES
BOMBAS CENTRÍFUGAS PARA PISCINAS
POMPE CENTRIFUGHE PER PISCINE
ZENTRIFUGALPUMPEN FÜR SCHWIMMBECKEN
BOMBAS CENTRÍFUGAS PARA PISCINAS

CE

ASTRALPOOL



KIVU

IMPORTANT

This manual contains basic information on the safety measures to be adopted during installation and start-up. The fitter and the user must therefore read the instructions before installation and start-up.

1. GENERAL SAFETY INSTRUCTIONS

These symbols (  ) indicate the possibility of danger where the corresponding instructions are not followed.



DANGER. Risk of electrocution.

Failure to abide by these instructions may lead to the risk of electrocution.



DANGER.

Failure to abide by these instructions may lead to the risk of injury or damage.



WARNING.

Failure to abide by these instructions may lead to the risk of damage to the pump or the installation.

2. GENERAL SAFETY REGULATIONS

GENERAL



- The machines indicated in this Manual are especially designed for the pre-filtering and recirculation of water in swimming pools.

- They are designed to work with clean water at temperatures not exceeding 35°C. (Fig. 4 T med. Max).



- Install them in line with the specific instructions for each installation.

- Respect current regulations regarding accident prevention.

- All modifications to the pump require prior authorisation from the manufacturer. Original spare parts and accessories authorised by the manufacturer ensure greater safety. The pump manufacturer is exempt from all liability regarding any damage caused by unauthorised spare parts or accessories.



- When working on each machine or on the units linked to them, disconnect the unit from the power supply and the start-up devices, as the electrical parts of the pump are live during operation.

- All assembly and maintenance work must be carried out by qualified and authorised personnel who have carefully read the installation and service instructions.



- To guarantee safety when operating the machine, you must comply with that set out in the installation and service instructions.

- In the event of defective operation or faults, contact your supplier or nearest representative.

WARNINGS DURING INSTALLATION AND ASSEMBLY WORK



- Once the pump has been removed from the box, it should be handled by the suction inlet and the engine body, and should not be held up in just one point.



- When connecting the electrical wiring to the machine motor, check the layout inside the connection box and make sure there are no pieces of wiring inside after it has been closed and that the earthing conductor is correctly connected. Connect the motor in line with the wiring diagram attached to the machine.

- Make sure that the electrical wiring connections to the machine terminal box are well mounted and screwed tight to the connection terminals.

- The equipment should be connected to an alternating current supply (see data on the pump's plate) with earth connection, protected by a residual current device (RCD) having a rated residual operating current not exceeding 30 mA.
- Correctly use the seal of the terminal box for the electrical motor to prevent water getting in. Likewise, position and tighten the gland inside the cable duct of the terminal box.



- Make sure that water is unable to enter the motor or the live electrical parts.
- Where the intended use is not as indicated, additional technical adaptations and regulations may be required.

WARNINGS DURING START-UP



Before starting the machine, check the calibration of the electric protection devices on the motor and that the protection against electrical and mechanical contacts is correctly positioned and secure.

NOTE

The pool should not be used while the pumping equipment is running.

Do not use the pump if anyone is in contact with the water.

WARNINGS DURING ASSEMBLY AND MAINTENANCE WORK



- Take into account national installation regulations when assembling and installing the pumps.



- Make sure that water is unable to enter the motor or the live electrical parts.
- Avoid contact at all times - even accidentally - with moving machine parts while the machine is running and/or before it comes to a complete standstill.



- Wait for the machine to come to a halt before handling it.



- Before any electrical or mechanical maintenance operation, disconnect the unit from the power supply and block the start-up devices.



- Follow the steps below before handling the machine:



1. Disconnect the machine from the mains.
2. Block all start-up devices.
3. Check that there is no voltage in the circuits, even in the auxiliary circuits and additional services.
4. Wait for the impeller to come to a complete standstill.

The list indicated must be used as a guideline and is not binding for safety purposes. There may be particular safety regulations in specific standards.



Due to the complex nature of the cases treated, the installation, user and maintenance instructions contained in this manual do not seek to examine all possible and imaginable cases of service and maintenance. Should you require additional instruction or have specific problems, please do not hesitate to contact the nearest Technical Assistance Service.

The electrical installation should be done by someone qualified in working with electrical equipment. This equipment is not designed for those with physical, sensory or mental handicap or people lacking in experience, unless done under supervision or with instructions of use from a person in charge of safety.

Do not permit children nor adults to sit or lean on the equipment. Children should be supervised to ensure that they do not play with the equipment.

3. HANDLING THE PUMP

HANDLING

Weight: See the label on the packaging.



Note: The motors are supplied with eye bolts that should not be used to lift the entire pump assembly. See fig. 1
The pumps can only be lifted using nylon straps attached to a hook as shown in fig. 3.

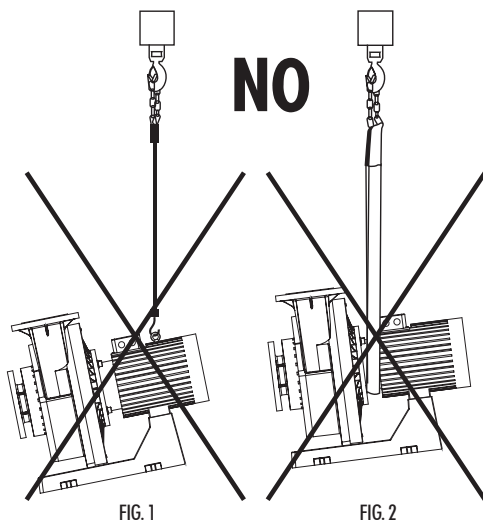


FIG. 1

FIG. 2

Lifting the pump incorrectly

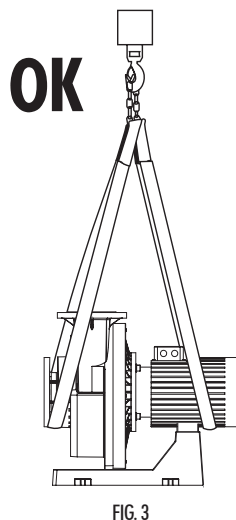


FIG. 3

Lifting the pump correctly

4. INFORMATION ON THE IDENTIFICATION LABEL

Each pump has two identification labels that provide information about it. Both labels are placed on the motor (one on the cover of the terminal box and another on the fan cover).

LABEL ON THE COVER OF THE TERMINAL BOX

It provides information on the hydraulic characteristics of the pump. (Fig. 4)

ASTRALPOOL

Manufactured by : Metalast, S.A.U.
Pg.de Sanllehy, 25 - 08213 Polinyà

REF:		N°SERIE: 000000	
Q	m ³ /h	H	m.w.h.
V	V~	I	A~
P1	kW	P2	kW
n	r.p.m.	Hz	
H max	m.w.h.	Tmed. max	= °C
H min	m.w.h.	Date :	
Made in			

Ref.	Pump code
Serial no.	Serial number of the pump
Q	Nominal flow rate (m ³ /h)
H	Nominal differential pressure (m.w.h.)
V	Supply voltage
I	Nominal operating intensity
P1	Absorbed power
P2	Delivered power
n	Pump speed
Hz	Nominal frequency
Hmax	Closing differential pressure (m.w.h.)
Hmin	Minimum operating differential pressure
Date	Date of manufacture
Made in	Country of manufacture

LABEL LOCATED ON THE FAN COVER

It provides information of the motor. (Fig. 5).

SERIAL NO:		TYPE:		COS Φ		IE3 CE	Serial no.	Motor code
				Ins. Cl.	IP-XX		Type	Type of motor
V	Hz	P1-kW	P2-kW	RPM	A		Cos Φ	Power factor
							V	Motor supply voltage
							Hz	Frequency
							P1	Motor power supply
							P2	Motor mechanical power
							A	Intensity
							IP-XX	Protection
							Ins. Cl.	Insulation class
							IE3	Motor efficiency
							RPM	Revolutions per minute

5. LOCATION



Warning: Do not install the pump in enclosed or poorly ventilated environments where conditions may be unfavourable for the presence of staff. Ensure that there is enough light on the pump for the installer.



- Fit the pump underneath the water level in the pool to improve pump performance.
- Where a self-priming pump is to be fitted above the water level, the pressure differential to the pump suction should not be higher than 0.02 MPa (2 mH₂O), ensuring that the suction pipe is as short as possible as a longer pipe would increase suction time and the installation's load losses.
- Self-priming Kivu pumps are 3cv, 4cv and 5.5cv models with prefilter.



- Make sure that the pump is safe from possible flooding and receives dry ventilation.

6. INSTALLATION AND ASSEMBLY



- Our pumps may only be assembled and installed in pools or ponds that are compliant with HD 384.7.702. Should you have any doubts, please consult your specialist.



- Fit the pump horizontally due to the pre-filter. The pumps are fitted with a pre-filter with a basket inside to collect any large particles, as they may damage the hydraulic part inside the pump.
- All pumps are fitted with a foot with holes in it to anchor it to the ground.

INSTALLATION

- The pumps should be installed horizontally.
- The pumps need a free space of 0.5 m behind the motor and at least 1 m above the motor so that lifting equipment can be used.

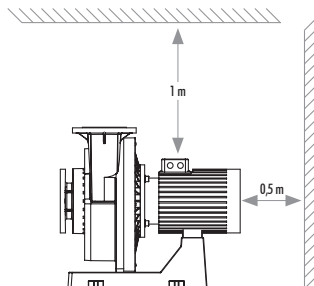


FIG. 6: Free space required

INSTALLING PIPES (RECOMMENDATIONS)

When installing the pipes, ensure that the pump body is not under pressure from the pipes.

The suction and discharge pipes should be of the correct size, taking into account the inlet pressure of the pump.

Install the pipes so that air pockets are avoided, especially on the suction end of the pump.

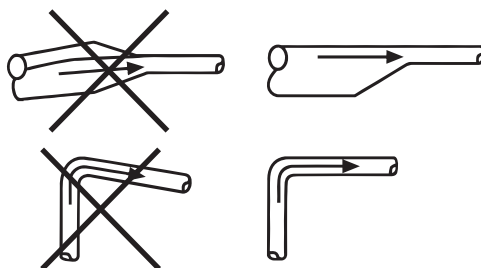


FIG. 7: Pipes

Assemble the shut-off valves on both sides of the pump to prevent the system from emptying if we have to clean or repair the pump.

Check that the pipes are held in place as close as possible to the pump, both on the suction and the discharge sides. The counter flanges should be aligned with respect to the pump flanges, without stresses that could cause damage to it.



The pump cannot operate when a valve is closed, as this will cause an increase in the temperature/formation of steam in the pump, which may cause it damage.

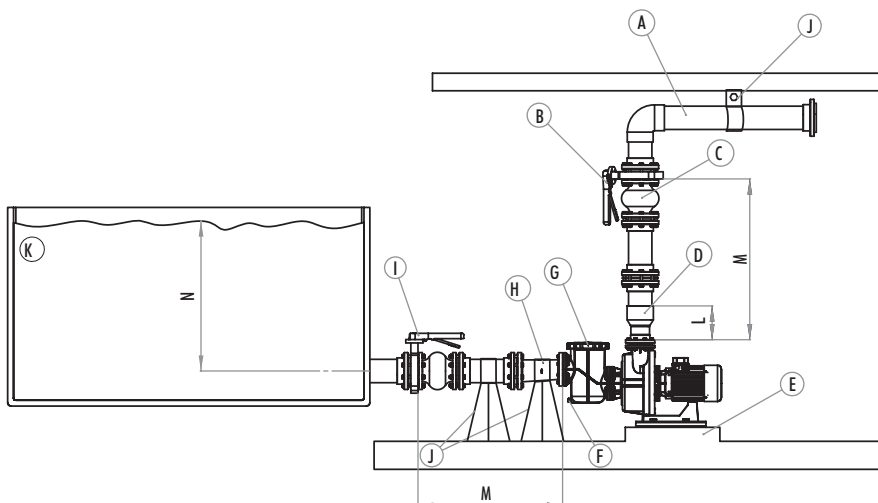


FIG. 8: Installing the pump

	ENGLISH	FRANÇAIS	ESPAÑOL	ITALIANO	DEUTSCH	PORTUGUÊS
A	Return pipework	Refoulement	Tubería impulsión	Tubazione di mandata	Druckverrohrung	Tubagem de impulsão
B	Conical valve	Vanne de contrôle	Válvula de control	Valvola de controllo	Kontrollventil	Válvula de controle
C	Expansion joint	Joint de dilatation	Junta de expansión	Giunto di espansione	Rohrkompensatoren	Junta de compensação
D	Coincetric cone	Cone concentrique	Cono concéntrico	Cono di Giunzione	Konzentrischer konus	Cone concentrico
E	Concrete foundation	Fondation en béton	Cimentación de hormigón	Base in calcestruzzo	Betonfundament	Maço de betão
F	Drain plug	Bouchon de purge	Tapón de purga	Tappo di scarico	Entleerungsstopfen	Tampão de despejo
G	Prefilter Lid	Couvercle prefiltre	Tapa prefiltro	Coperchio prefiltro	Vorfilterdeckel	Tampa do prefiltro
H	Eccentric cone	Cône excentrique	Cono excentrico	Cono excentrico	Exzentrischer konus	Cone excentrico
I	Stop valve	Vanne D'arret	Válvula de parada	Valvola di chiusura	Absperrventil	Válvula de retenção
J	Supports	Supports	Soportes	Supporti	Stützen	Suportes
K	Tank	Bac	Depósito	Deposito	Behälter	Deposito
L	2 times the pipe diameter	2 fois le diamètre du tube	2 veces el diámetro de tubo	2 volte il diametro del tubo	2 x Rohrdurchmesser	2 vezes o diâmetro do tubo
M	10 times the pipe diameter	10 fois le diamètre du tube	10 veces el diámetro de tubo	10 volte il diametro del tubo	10 x Rohrdurchmesser	10 vezes o diâmetro do tubo
N	Minimum distance	Distance minimale	Distancia mínima	Distanza minima	Mindestabstand	Distância mínima

ELIMINATING NOISE AND VIBRATIONS

For optimum operation and to reduce noise and vibrations to a minimum, we advise the use of vibration absorbers.

Noise and vibrations are generated by the revolutions of the pump motor and by the flow in pipes and connectors. Their effect on the environment is subjective and depends on the correct installation and condition of the other parts of the system.

The best way of eliminating noise and vibrations is to use a concrete foundation, vibration absorbers and expansion joints.

7. ELECTRICAL INSTALLATION



- It is essential that you use a multiple disconnection device with a space of at least 3 mm between surfaces to disconnect the equipment from the electrical current.
- Use a rigid cable to connect to the mains. If you use a flexible cable to connect to the mains, it must have cable lugs to connect to the terminals of the pump motor.
- The equipment should be connected to an alternating current supply (see data on the pump's plate) with earth connection, protected by a residual current device (RCD) having a rated residual operating current not exceeding 30 mA.
- Adjust the value of the thermal relay appropriately depending on the pump current.
- Before connecting the motor, check the type of fuse required.
- Check the correct layout and connection of the earthing cable in the equipment.
- Respect the electrical installation and connection conditions. Failure to do so may lead to the pump manufacturer declining all responsibility and rendering the guarantee null and void.
- Special regulations may exist for the installation.
- Unsuitable mains connections involve the risk of electrocution.

For pumps with a three-phase motor:

- Use a motor guard with magneto-thermal protection.
- Protect the pump against overloads with a cut-off switch for the motor.

- Adjust the thermal value according to the thermal protection table. For the connection Δ (3 x 230 V network), use the protection with the highest indicated value. For the connection Y (3 x 400 V network), use the protection with the lowest indicated value.
- Connect the lowest voltage at Δ and the highest at Y for voltage intervals other than 230/400 V; 400/690 V.
- For AC, use a H07 RN-F3 type connection sleeve with a cable section that adapts to the power of the motor and the length of the cable.
- The mains cable may only be connected by skilled, authorised personnel.

VARIABLE FREQUENCY DRIVE

- These pumps are suitable for use with a variable frequency drive.
- It is recommended that you work within the limits of 20Hz to 50Hz.
- For more information, contact the supplier of the variable frequency drive.

8. START-UP INSTRUCTIONS

PRIOR TO START-UP



- Carry out the following operations before starting the pump:
 1. Remove the pre-filter cap by unscrewing the nut holding it in place.
 2. Fill the pump with water through the pre-filter until it rises up through the suction pipe.
 3. Should the basket be removed during these operations, do not forget to replace it to prevent large particles from entering the pump that could block it.
 4. Fit the pre-filter cap and screw on tight, not forgetting to fit the seal in its housing.
 5. Check that the mains voltage and frequency correspond with those indicated on the pump characteristics plate.
- The pumps must not be run without the pre-filter having first been filled with water. Where this is not the case, the mechanical gasket may be damaged, leading to a loss of water.



- Check that the motor rotates in the correct direction by means of the fan located at the back of the motor that can be seen through the view hole on the fan cover.

START-UP



- Open all the valves and connect the motor.
- Activate the self-priming and wait a reasonable time for this to be completed.



- The PUMP MUST NEVER FUNCTION WHEN IT IS DRY. The pump must not be started when it is dry as this would cause damage to its mechanical seal, causing water leaks.



- The pump cannot function against a closed valve as this will cause an increase in the temperature and formation of steam in the pump, which could cause it damage.

MINIMUM PRESSURE -NPSHr /CAVITATION

- The minimum suction pressure depends on the flow rate and power of the Kivu pump. See NPSHr graphs.
- If the pump does not have the minimum pressure required, it can cavitate. Steam would cause vibrations that would damage the moving parts of the pump (impeller, mechanical seal, bearings) and fixed parts (flange, diffuser, volute).
- To avoid the effect of cavitation in the pump, ensure that the minimum pressure at the inlet of the pump is that required in the NPSHr graph.

MAXIMUM FLOW RATE

- The maximum flow rate is determined by the minimum differential pressure of the pump. The minimum pressure should never be less than that indicated on the pump label. (Fig.4)

MINIMUM FLOW RATE

- The pump should not work against a closed discharge valve, as this would cause an increase in temperature which could damage parts of the pump and shorten its useful life.
- The continuous minimum flow rate must be at least 10% of the nominal flow rate indicated on the pump label. (Fig.4).

9. MAINTENANCE

- For regular control:
 - Check that the mechanical parts are tightly secured and check the condition of the screws supporting the machine.
 - Clean the pre-filter basket regularly to avoid drops in pressure. To prevent the basket from breaking, do not hit it during the cleaning process.
 - The pump should be checked every 100 hours of operation or less, depending on the level of cleanliness of the water.
 - Check the temperature of the machine and the electric motor. In the event of a fault, stop the machine immediately and contact the nearest Technical Assistance Service.
 - Check for machine vibrations. In the event of a fault, stop the machine immediately and contact the nearest Technical Assistance Service.
- Should the pump stop, check that consumption of the running motor in amperes is equal to or below that indicated on the manufacturer's characteristics plate. If this information is available, contact the nearest Technical Assistance Service.



- Empty the pump if it is to remain at a standstill for a certain length of time, especially in cold countries where there is a risk of freezing.
- Remove the purge cap to empty the pump.
- Every time the pre-filter is opened, clean the seal and its seating of any impurities to ensure airtightness when the cap is closed.
- Pump components that, due to their normal use, suffer wear and/or tear must be regularly replaced to ensure good pump performance. The following table shows the perishables and/or consumables used in the pump and their estimated working life.

COMPONENT DESCRIPTION	ESTIMATED WORKING LIFE
O rings and general seals	1 year
Mechanical seal	1 year
Bearings	1 year

The estimated working life of the parts above has been established according to normal product use and installation conditions. Follow the instructions in the installation manual to maintain the working life of the pump.

10. REMOVAL

- The motor unit can be removed from the pump body without having to disconnect the pump's suction and return pipes.
- To remove the Motor unit from the pump body, remove the screws joining them together.

11. TROUBLESHOOTING

- | | |
|---|---|
| 1. The pump is not primed | 4. The pump will not start |
| 2. The pump releases only a small flow of water | 5. The motor is making a noise but will not start |
| 3. The pump makes a noise | 6. The motor is stopped |

1	2	3	4	5	6	CAUSES	SOLUTIONS
●	●					Air entering the suction pipe	Check the condition of connections and seals on the suction pipe
●						Filter cap badly sealed	Clean the filter cap and check the condition of the rubber seal
●	●					Inverted motor turning	Invert 2 power phases
●	●		●			Wrong voltage	Check the voltage on the characteristics plate and that of the mains
	●					Pre-filter blocked	Clean the filter
	●					Load loss in the installation	Prevent parts from causing load loss wherever possible
		●				Pump incorrectly secured	Secure the pump correctly
				●		Motor blocked	Remove the motor and contact the technical service
					●	Increased temperature in the terminal box due to electric arc	Check the terminal box connections
					●	The thermal protection trips	Connect the cables correctly to the terminal boxes
					●	Incorrect terminal box connections	Tighten the cable correctly to the terminal / Adapt the size of the cable connection to the terminal box