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MANUAL

Flow **Inverter**

DFI-150



DURAFLOW



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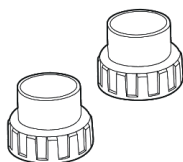
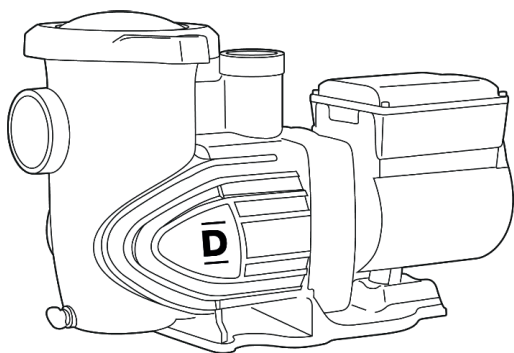
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1. Box content

Included in the final package with the DFI-150 are:

- 1x DFI-150 water circulation pump (incl. 3,5m power cable)
- 1x Inlet and outlet Fitting Ø63mm
- 1x Quick Guide



2. About the DFI-150

The Dura Flow inverter circulation pump, DFI-150 is a self-priming centrifugal pump for recirculation and filtration of the water in small and medium sized pools with prefilter integrated.

The DFI-150 is part of the full DuraLink solution. Communication is done using power line communication. Which means that only 1 cable connection is required for power and communication between a remote-control system and the circulation pump.

The inverter for the DFI-150 is integrated in the circulation pump and allows the pump to run at variable speeds.

The pump is using a permanent magnet electro motor which is energy efficient.

The DFI-150 is durable, reliable and easy to install.

The ambient temperature must be between 0 °C and + 40 °C and must be as constant as possible. The relative humidity at the installation location must not exceed 90%, no condensation may occur. Keep out of direct sun light and away from heat sources.

The DFI-150 will only be controllable by the LINK Master.



3. Technical specifications

3.1. General specifications

Input Voltage: 230VAC 50Hz 16A

- Flow rate max: 28,8m³/h
- Max. head: 22m
- Max current: 8,2A
- Min. speed: 750RPM
- Max. speed: 3450RPM
- P1 (Input power): 1,7kW (power consumption)
- P2 (Output power): 1,1kW/1.5HP (rated power)
- Ambient Air Temperature: 0°C to +40°C
- Humidity: 10% to 90% RH - non condensing
- Ingress protection rate: IP55
- Box outer size: 690 x 280 x 410 mm
- Weight: 23 kg
- CE compliance



3.2. DFI-150 overview



3.2.1 Spare parts list

Diagram reference number	Description	Spare part number
4	Filter-basket	SP_DFI-001
1, 2, 3	The filter cover + sealing	SP_DFI-002
3	Filter cover sealing	SP_DFI-003
13	Mechanical sealing	SP_DFI-004
5, 6, 7	63 mm fitting (pipe fitting + nut fitting) with sealing	SP_DFI-005
12	Impeller	SP_DFI-006
8, 9	drain plug with o-ring	SP_DFI-007
15	Electrical inverter board assembly (incl. housing)	SP_DFI-008
11	support block	SP_DFI-009
10	diffusor o-ring	SP_DFI-010
14	pump cover o-ring	SP_DFI-011



3.3. Wiring diagram and terminal blocks

See LINK Master manual for further details regarding the wiring diagram and terminal blocks for connecting the power cable.



4. Installation instructions

4.1. Warnings

Before installation and use of the pump, the basic safety warnings need to be understood. Specific contents include the following warnings:

1. Be careful of electric shock. The pump can only be installed in combination with the LINK Master. The LINK Master has all safety devices on board to make for a safe installation.

Please check the LINK Master manual for instructions on how to install and connect the DFI-150 correctly with the LINK Master. The DFI-150 has a pre-connected in power cable with a length of 3,5 m.

2. Make sure the pump motor is disconnected from the main power supply in case of maintenance or repair of the DFI-150.
3. The national standards and regulations for installation of the country in which the pump is installed, should be followed.
4. Failure to comply with safety instructions may result in serious body injury or death. The installation and maintenance of the pump must be done by professional pool service personnel, installers or operators.
5. The owner of the pool must carefully read the safety warnings and instructions before using the pump.



5. Operation modes

For operation of the pump and instructions for scheduling, please consult the manual of the Link Master (DLM-450, DLM-600).



6. Special function description and application

6.1. Internal protection functions

See addendum 8.1 for corresponding error codes. In case of error, the error code will be displayed on the LinkTouch or can also be retrieved in the DuraCloud application.

6.1.1. Overvoltage and undervoltage protection

- If the AC voltage is higher than 240V or lower than 208 V.
- Starting the motor is disabled.
- The following codes can be displayed: OV1 for overvoltage and UV1 undervoltage.

6.1.2. Over-current protection

- After the fault occurs, the controller stops the output and automatically clears the fault and restarts after 10 or 30 seconds.
- After 3 consecutive errors, the motor will not restart and one of the following error codes will be displayed: OC1, OC2, OC3, OC4.

6.1.3 IPM (Intelligent Power Module) protection

- In case of IPM failure, the motor will immediately stop running
- The following error code will be displayed: OC3.
- The controller will automatically clear the fault and will restart the pump after 30 seconds.
- After 3 consecutive errors, the motor will not restart, and the fault can't be cleared. Only after a power cycle of the motor, the fault will be cleared.
- In case the OC3 alarm remains even after a power cycle, then this means that the internal hardware has failed.

6.1.4. Overheat protection

- When the motor temperature is higher than 95 °C, the system will automatically and gradually reduce the motor speed in steps of 50RPM to protect the motor. When the temperature is too high, the system stops running. The following error code will be shown: OH1.



6.1.5. Dry pumping protection (no water protection)

- The dry pumping protection is controller by the LINK Master
- This feature only works from and above 2100 RPMs



7. Attention points

7.1. High-speed running at start-up

Every time the pump will be activated, the motor will start running at high speed to remove the air in the pipe. This is controlled by the LINK Master.

7.2. Filter cleaning

The filter basket must be cleaned on a regular basis to guarantee the waterflow and to avoid any damage of the pump due to a blocked filter.



8. Addendum

8.1 Error code

Display Code	Fault Name	Failure Cause	Description
OC1	Overcurrent during driver speed change	- Overloaded - Use of a special motor or a motor with a power greater than the applicable power. - The output side of the driver has a fault short circuit and grounding	At this time: 1) Please check whether the motor and the driver match 2) Please check whether the output terminal of the driver is short circuited or connected to the wrong wire 3) Please reduce the load
OC2	Overcurrent in the driver at steady speed	- Overloaded - Use of a special motor or a motor with a power greater than the applicable power. - The output side of the driver has a fault short circuit and grounding	At this time: 1) Please check whether the motor and the driver match 2) Please check whether the output terminal of the driver is short circuited or connected to the wrong wire 3) Please reduce the load
OC3	Driver instantaneous overcurrent or overheating	- Overloaded - The output side of the driver has a fault short circuit and grounding - Driver IPM module is damaged	At this time: 1) Please check whether the wiring on the output side of the driver is normal and whether there is a short circuit 2) Try to reduce the load 3) Please check that the driver is overheated, and try again if the driver cools down 4) If the above situation still keeps reporting OC3 failure, please return to the factory for repair
OC4	Overcurrent of driver module	Overcurrent of driver module	- The system will restart 30s after the fault. - After 3 consecutive occurrences, the pump won't restart
OV1	Main Circuit Over-voltage	- Input power voltage is too high - The power supply voltage exceeds the working range of the driver when powering on	At this time: 1) Please check whether the power supply voltage is consistent with the working voltage of the driver 2) Please check whether the power on device is in good contact to avoid instant overvoltage caused by poor power on contact 3) For other questions, please return to the factory for repair and indicate the situation
OH1	Heat sink is over-heated	- The ambient temperature is too high - There are hot objects around - The cooling fan of the driver stops working - Blocked radiator	At this time: 1) Please check the ambient temperature and move the driver to a cool and ventilated place to avoid outdoor high temperature exposure 2) Please check if there is a heating element around, please remove if there is 3) Please check if the cooling fan is blocked or broken
UV1	Low voltage of main circuit	- Instantaneous power failure occurred - The input power voltage fluctuates - The wiring of the input power supply is loose - Phase loss of input power - Cut off the power, the driver is discharging too much	At this time: 1) Please check if the input power supply voltage is stable 2) Please check whether the wiring of the input power supply is loose or poorly connected 3) Please check whether the input power supply lacks phase
CE	Current transformer self-check failure	Driver internal failure	At this time: 1) Please check if there is a strong electronic interference source near the driver and remove it 2) If the CE failure continues to be reported, please return to the factory for repair

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