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# AMIAD Water Systems Ltd.

## Sand Separator

# Operation and Maintenance Instructions

## **AMIAD Water Systems Ltd.**

### **Sand Separator**



## Introduction

### General

Amiad Water Systems congratulates you on purchasing the 2" sand separator. All Amiad Filtration Systems are easy to install, use and service and do not require special skills to operate them. For proper operation and maintenance of the system please follow the instructions manual

## Safety Instructions

Prior to installation or handling of the filter, please read the Installation and Operation Instructions carefully.

1. Confirm filter draining prior to service and / or maintenance.
2. Take precautions while lifting, transporting or installing the filter.
3. Installation of the filter should be performed so as to avoid direct water contact with the electronic control unit.
4. Confirm that filter weight, when full, does not exceed support construction limitations.
6. Prior to installation confirm that line pressure does not exceed filter's operational pressure rating (10 bar).
7. Please note, that during normal operation the filter may enter into flushing mode automatically, without prior warning.
8. Use only original parts when servicing the filter.
9. Amiad cannot accept responsibility for any changes or modifications to the equipment.

### Special Note

Before opening the filter clamp, make sure that there is no system pressure in the filter.

## Sand Separation Technology

### The Separation Process:

- The water stream enters the sand separator at a relatively high velocity via the inlet pipe, which is positioned, tangentially to the body of the sand separator.
- The shape of the cone creates a vortex of water.
- The resulting centrifugal force pushes the sand and other solids of a high specific gravity, out of the main flow stream.
- The low flow speed, next to the cyclone walls, cannot carry the heavy particles and allows them to drop by gravity to the collecting tank below, while the clean water rises up in a spiral motion to the outlet port.
- Flushing of the dirt collected by the chamber is achieved by opening a control valve, normally activated by a controller usually triggered by time or set volume.

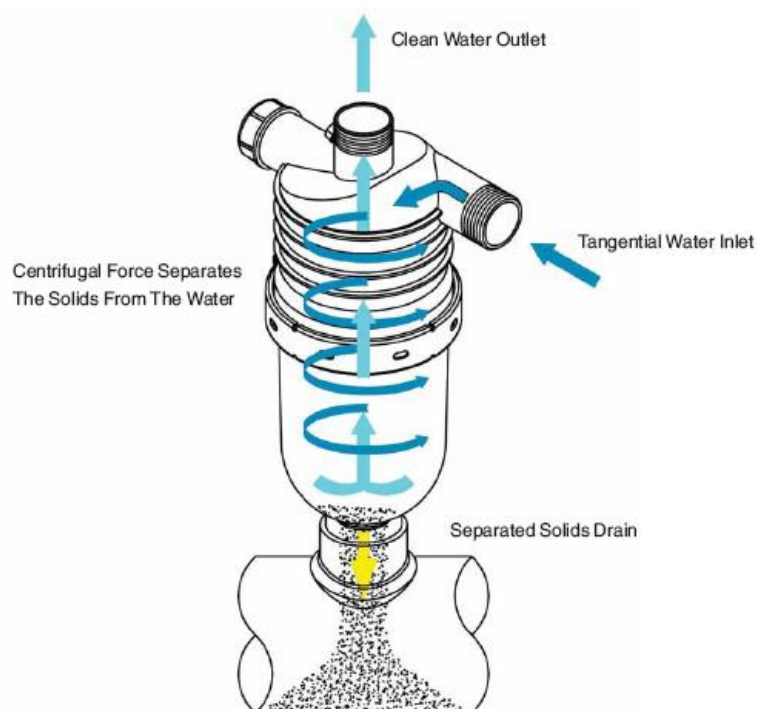
## Sand Separator Technology

Hydrocyclones operate effectively and efficiently under a set flow rate. Constancy of flow rate and adaptability of design enhance efficiency further.

When flushed regularly, cyclones require minimal maintenance.

The Hydrocyclone is a function specific product, designed for the removal of sand and therefore comprising an invaluable element in any total filtration system where sand is an issue.

Although the Hydrocyclone will remove / separate any particles with a higher specific gravity (SG) than water ( $1\text{g}/\text{cm}^3$  or  $9.345\text{ lb}/\text{ft}^3$ ), maximum benefits are gained with an optimal SG ratio of 1.1:1, where the sand SG is 40% greater than the water SG (i.e.  $1.4\text{g}/\text{cm}^3$  or  $11.683\text{ lb}/\text{ft}^3$ ).



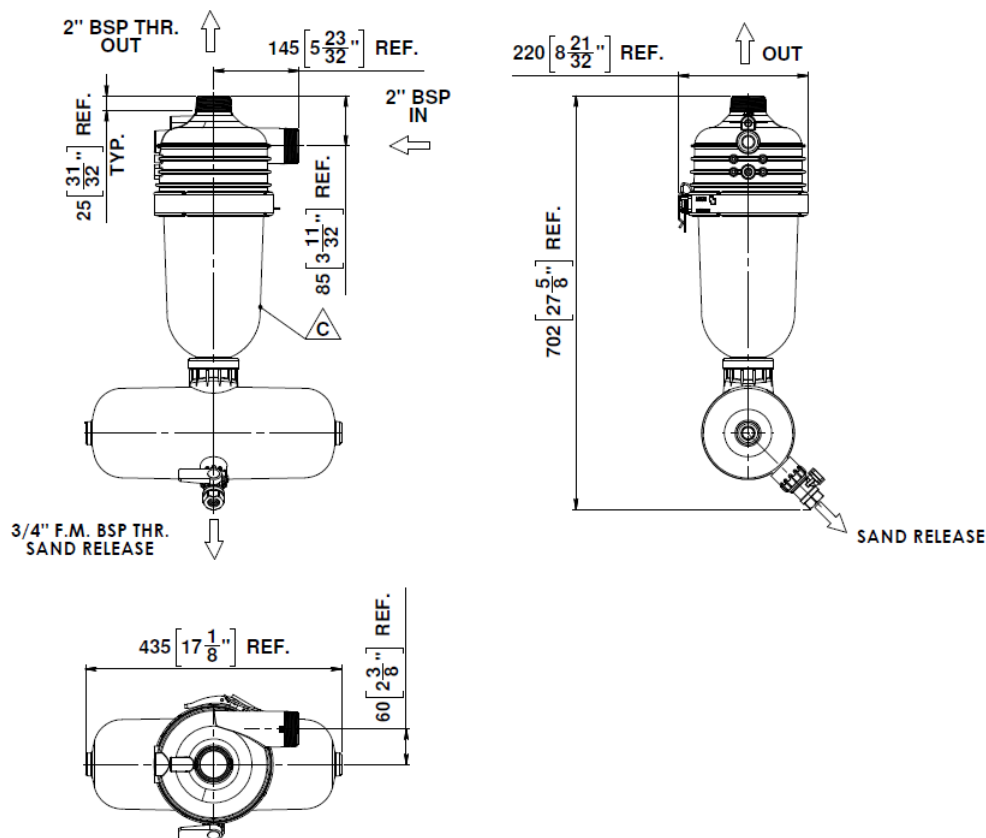
## Sand Separator Batteries

### Mode of Operation

1. Raw water flows through the inlet manifold and is distributed tangentially into the 2" Sand Separator.
2. The tangential inlet causes centrifugal forces, which in turn cause separation of the heavy sand particles from the water, throwing the sand particles toward the walls of the Sand Separator, where the sand particles settle down to the sand collector manifold.
3. The clean water flows up to the outlet manifolds for consumer use.

### Flush Mode

1. The drain valve on the sand collector is opened automatically through electric controller triggered by time or manually by the user.
2. The flushing process takes approximately 20 second.

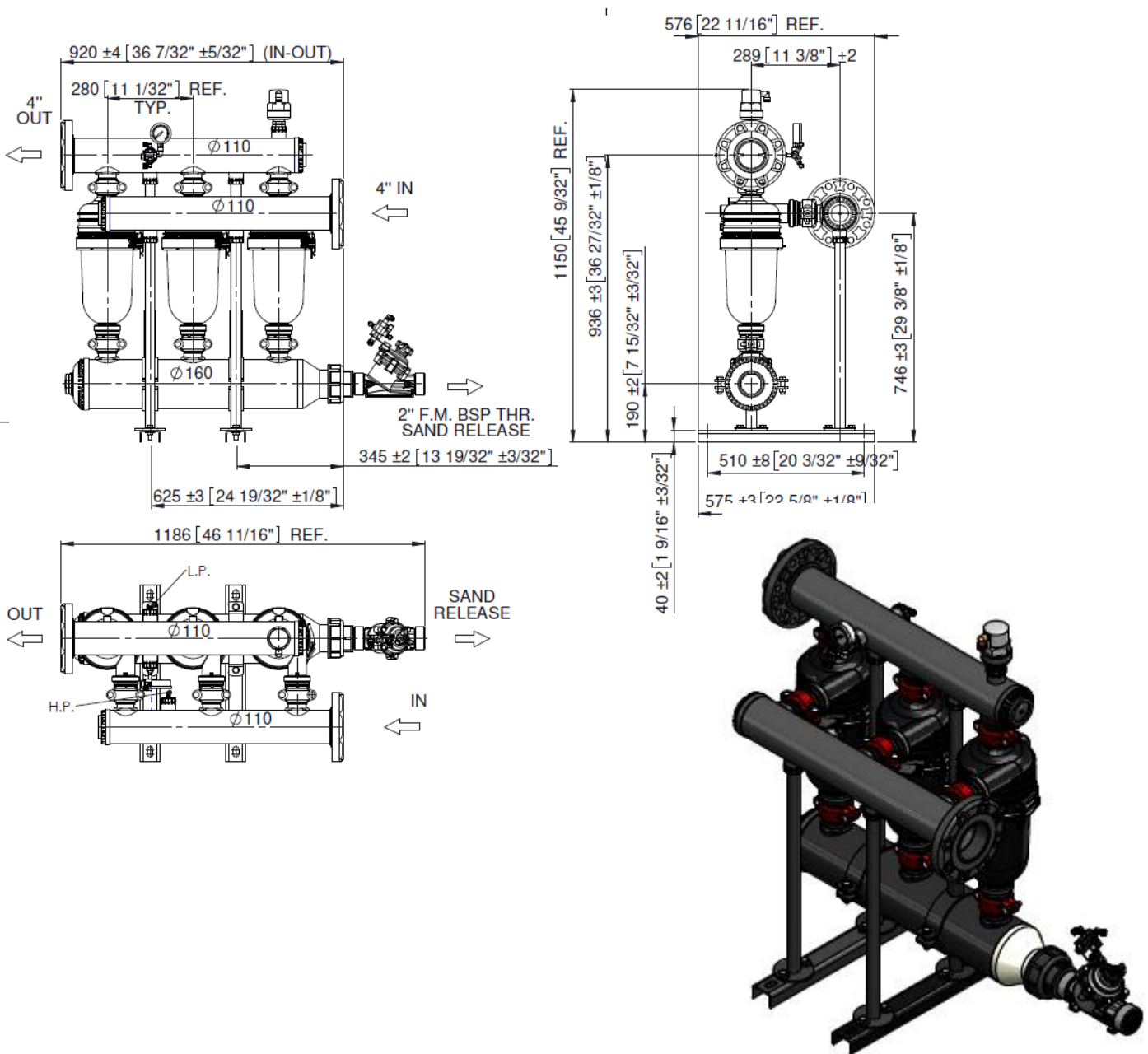


### Battery Installation

1. Pay careful attention that the inlet and outlet are correctly installed (see arrows on the manifold).

### Control System Installation

1. Refer to the manufacturer's handbook before installing the controller.
2. Ensure that the voltage of unit solenoids and controller are correct (all solar units must have latching solenoids).
3. Set the controller to a 20 second flush a setting may require changing to suit local watering conditions.
4. Set the flush time: 3 - 4-hour intervals between flush is recommended.



## Technical Data

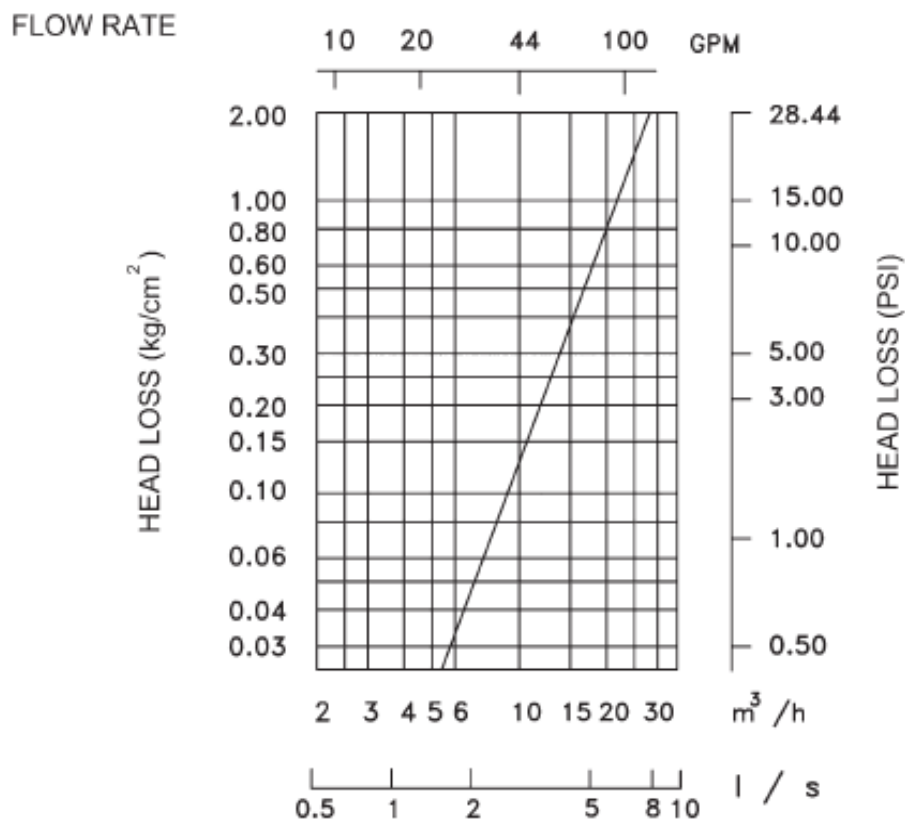
### 2" Sand Separator

	Metric	US
Connection diameter	50 mm	2 inch
Maximum pressure	10 bar	145 psi
Maximum temp.	70°C	149° F

### Separation Efficiency / Flow Rate

	Particle size larger than (micron):			m <sup>3</sup> /h	gpm
	150	100	50		
% Efficiency	90	85	82	15	66
	95	90	85	20	88
	98	95	90	25	110

### Headloss Chart



## Technical Data

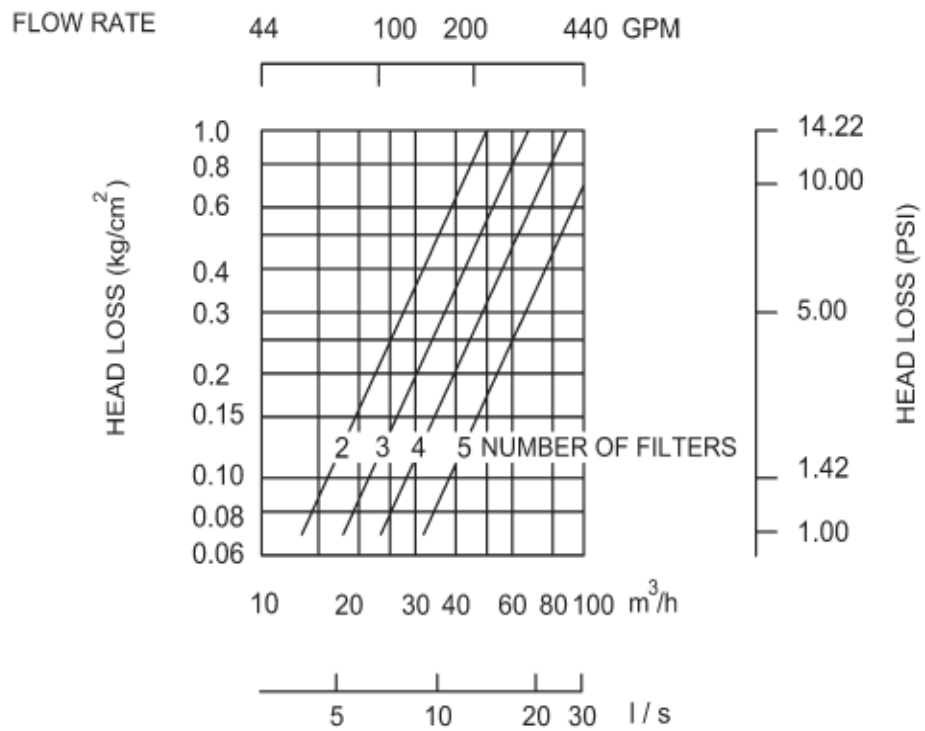
### 2" Sand Separator Batteries

	Metric				US			
	HYD-2	HYD-3	HYD-4	HYD-5	HYD-2	HYD-3	HYD-4	HYD-5
Connection diameter	110mm	110mm	160mm	160mm	4 inch	4 inch	6 inch	6 inch
Maximum pressure	10 bar				145 psi			
Maximum temp.	70°C				149° F			

### Separation Efficiency / Flow Rate

	Particle size larger than (micron):			m <sup>3</sup> /h				gpm			
	150	100	50	HYD-2	HYD-3	HYD-4	HYD-5	HYD-2	HYD-3	HYD-4	HYD-5
% Efficiency	90	85	82	30	45	60	75	132	198	264	330
	95	90	85	40	60	80	100	176	264	352	440
	98	95	90	50	75	100	125	220	330	440	550

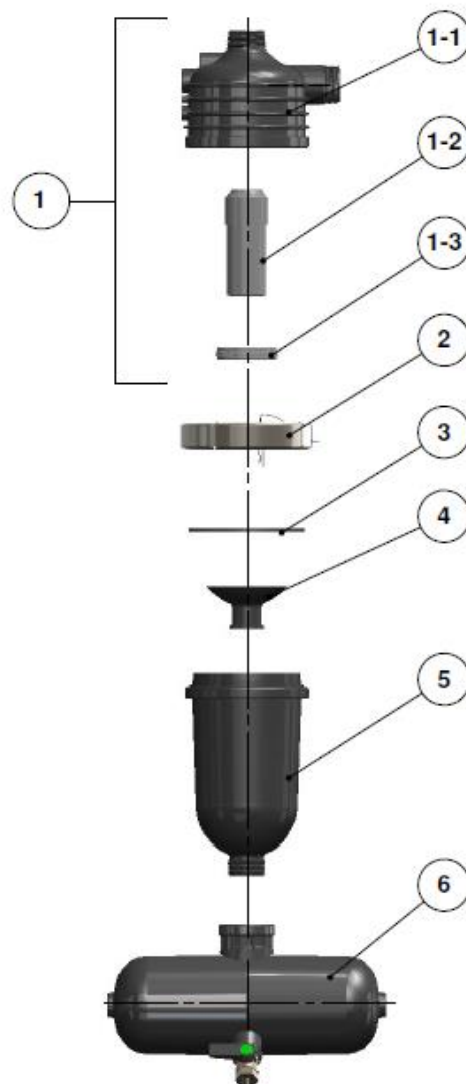
### Headloss Chart





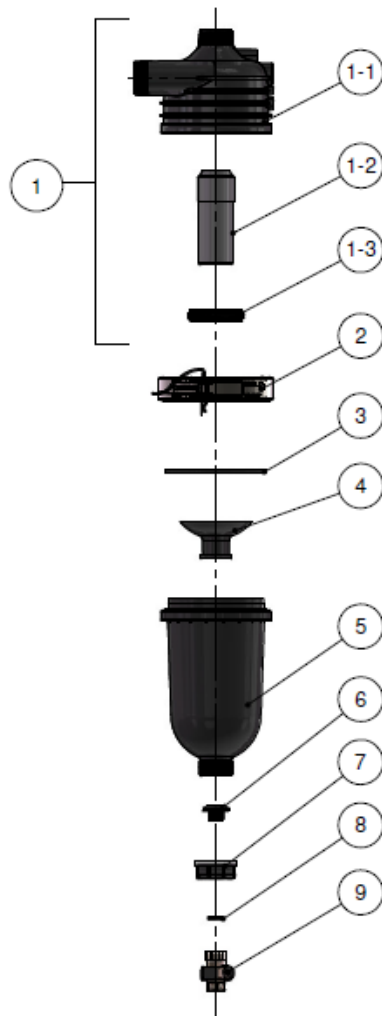
## Spare Part Single Unit with Accumulator Tank

Item No.	Part Number	Description	Qty.	Material
1	700190-006103	Sand separator body complete	1	Assortment
1.1	710103-011027	2" sand separator body BSP RPA black	1	RPA (Black)
1.2	710103-010727	Pipe central sand separator PVC machined	1	PVC
1.3	710103-010728	Nut special sand separator PVC machined	1	PVC
2	760108-000002	Filter clamp 2"-3" S/ST 304	1	S/ST 304
3	770104-000248	Hydraulic seal 2"-3" EPDM	1	EPDM
4	770104-000057	Shaped seal natural 60 shore erosion preventer	1	Natural Rubber
5	710103-000370	2" sand separator cover	1	RPA (Black)
6	700190-000190	Arkal accumulator tank for sand separator + tap	1	Assortment



## Spare Part Single Unit for Battery

Item No.	Part number	Description	Qty.	Material
1	700190-006103	2" sand separator body complete	1	Assortment
1.1	710103-011027	2" sand separator body BSP RPA black	1	RPA (Black)
1.2	710103-010727	Pipe central sand separator PVC machined	1	PVC
1.3	710103-010728	Nut special sand separator PVC machined	1	PVC
2	760108-000002	Filter clamp 2"-3" S/ST 304	1	S/ST 304
3	770104-000248	Hydraulic seal 2"-3" EPDM	1	EPDM
4	770104-000057	Shaped seal natural 60 shore erosion preventer	1	Natural Rubber
5	710103-000370	Cover sand separator RPA	1	RPA (Black)
6	710103-000206	Adaptor 3/4" sand separator PP	1	Polypropylene
7	710103-000126	2" cap with 41 mm hole	1	Polypropylene
8	770102-000011	Parker O-ring 2-210 NBR 70 shore	1	Natural Rubber
9	730104-000231	2-way ball valve 3/4" F/F manual	1	Brass/Nickel



## AMIAD LIMITED WARRANTY

1. This certificate applies to Amiad Water Systems Ltd. ("**Amiad**") products purchased by you (the "**Buyer**") from Amiad unless specifically agreed otherwise in writing by Amiad. This Warranty extends only to the original purchaser, and is not transferable to anyone who subsequently purchases, leases, or otherwise obtains the product from the original purchaser.
2. Amiad hereby warrants that the products are and will be free from defects in material and workmanship under normal use and service. Amiad warrants that it will correct manufacturing defects in the products, in accordance with the conditions set out in this Warranty.
3. This Warranty is enforceable for a period of 12 months after the date upon which the products were delivered (the "**Warranty Period**").
4. In the event that during the Warranty Period the Buyer discovers a defect in material and/or workmanship in any product or part (the "**Defective Product**"), it shall submit a written complaint to Amiad using Amiad's standard Buyer Complaint Form. For the receipt of the Buyer Complaint Form, the submission of the complaint or any questions please contact your service representative.
5. Upon written demand by Amiad the Buyer shall return the Defective Product - or a sample thereof - to Amiad, at Amiad's cost. If the Buyer ships any such Defective Product, Amiad suggests the Buyer package it securely and insure it for value, as Amiad assumes no liability for any loss or damage occurring during shipment. Provided however that in the event Amiad determines that this Warranty does not apply to such product, Buyer shall promptly reimburse Amiad for such cost (including freight and customs). Any returned product or part must be accompanied by the Warranty certificate and the purchase invoice. It is clarified that the Buyer may not return the Defective Product unless such return was coordinated and approved by Amiad in advance.
6. Amiad's obligation under this Warranty shall be limited to, at Amiad's option, the repair or exchange, free of charge, of the product or any part which may prove defective under normal use and service during the Warranty Period. The provision of a repair or replacement of a product during the Warranty Period will result in an extension of the Warranty Period by an additional period of 12 months, provided that the total accumulated Warranty Period shall in any event be no more than 18 months from the date upon which the products were delivered.
7. This Warranty is valid on the condition that the products are installed according to Amiad's instructions as expressed in Amiad's instruction manuals and according to the technical limitations as stipulated in Amiad's literature or as stated by a representative of Amiad.
8. This Warranty will not apply to damaged or defective products resulting from or related to:
  - (i) Fire, flood, power surges or failures or any other catastrophe and/or unforeseen occurrence, such as but not limited to those for which the Buyer is customarily insured for, or any force majeure events;
  - (ii) Fault, abuse or negligence of the Buyer;
  - (iii) Intake water not meeting the agreed standards, as set forth in a written document, approved by Amiad, or improper storage;
  - (iv) Improper or unauthorized use of the product or related parts by the Buyer, including Buyer's failure to operate the product in conformity with the recommendations and instructions of Amiad, as set forth in Amiad's manuals and other written materials, the operation of the product other than by a trained and qualified operator, or improper installation of the product by a third party not authorized by Amiad;
  - (v) Performance by the Buyer of maintenance or operation other than in conformity with the recommendations and instructions of Amiad, or other than in accordance with procedures defined in the literature supplied for products (including the timely replacement of requisite parts), and for services provided other than by a trained and qualified advanced operator; or
  - (vi) Any alteration, modification, foreign attachment to or repair of the products, other than by Amiad or its authorized technical representatives.
9. In no event shall Amiad be liable to the Buyer or any third party for any damages to property, or for any intangible or economic loss, including loss of profits, loss of customers or damage to reputation, for any damages, including indirect, special, consequential damages, or punitive damage arising out of or in connection with this Warranty, or arising out of or in connection with the product's performance or failure to perform, even if it has been advised of the possibility of such damages.
10. Amiad will be excused for failure to perform or for delay in performance hereunder if such failure or delay is due to causes beyond its reasonable control or force majeure preventing or hindering performance.
11. This Warranty set forth herein is the only contractual warranty given by Amiad and is provided in lieu of any other warranties created by any documentation, packaging or otherwise.
12. Amiad makes no warranty whatsoever in respect to accessories or parts not supplied by Amiad. In the event that Amiad is required to correct a Defective Product or product not covered by this Warranty, it will do so solely in consideration for additional fees.
13. The parties will actively endeavor to amicably settle any dispute arising between them. In the event that the parties are unable to reach an equitable settlement of such dispute, any claim or lawsuit related to the Warranty, its validity execution, its performance be brought before only the courts of Tel-Aviv, Israel. Israeli law will govern the Warranty, to the exclusion of any conflict of law rules.

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