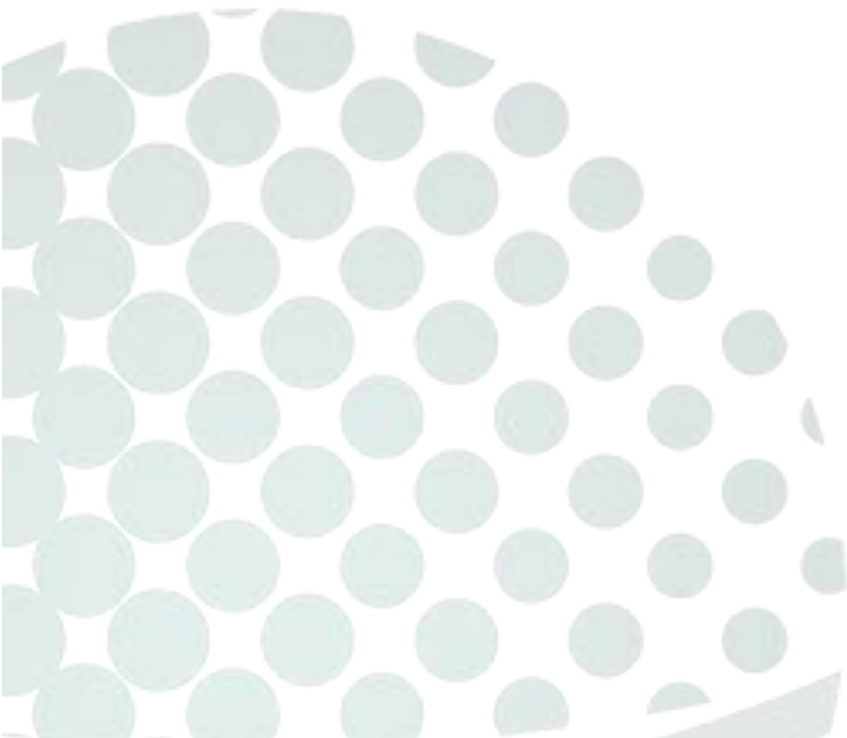
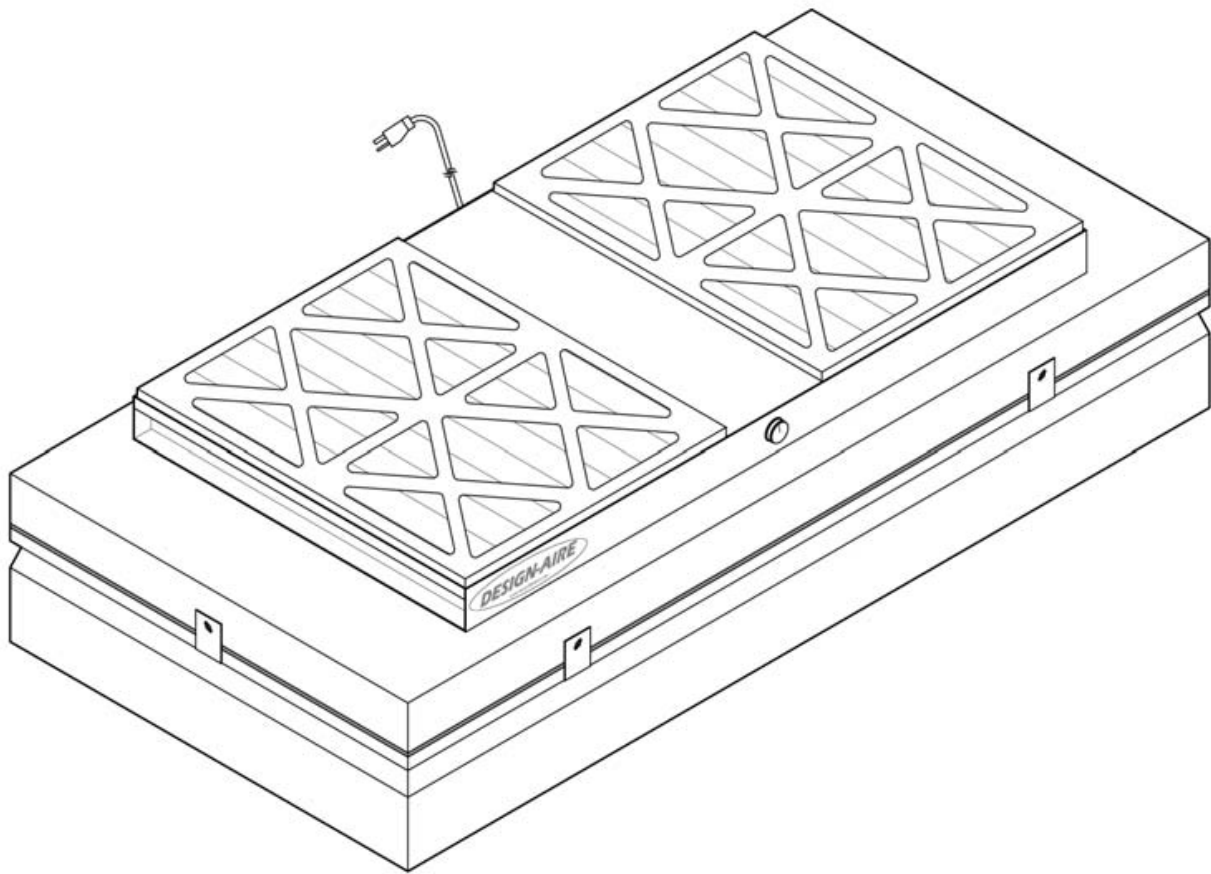


# DESIGN-AIRE SL

Operations Manual



**DFMZ**  
DESIGN FILTRATION MICROZONE



**MODELS COVERED**

DA2-1HSL	DA2-1USL
DA3-1HSL	DA3-1USL
DA4-1HSL	DA4-1USL

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Thank you for purchasing our Design-Aire SL, with proper care and maintenance your unit will provide you with many years of trouble free performance. Please read instructions carefully before installing and operating your Design-Aire SL.

**WARNING: TO REDUCE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS PLEASE REVIEW THE FOLLOWING PRECAUTIONS.**

- Do not expose your Design-Aire SL to rain or moisture.
- Always disconnect the Design-Aire SL from power supply when servicing, moving parts may cause serious injury.
- Always disconnect while grasping the plug, not the cord.
- Do not expose Design-Aire SL to gaseous or explosive vapors. Motors normally spark and may ignite fumes.
- Do not block airflow to top or back of unit, allow at least 4" above unit
- Do not modify the plug of your unit if it will not fit in your duplex outlet. Have a proper outlet installed by a qualified electrician.
- Use only specified replacement parts recommended by Design Filtration Microzone.
- Use this equipment only in the manner intended by Design Filtration Microzone.

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## 1. SHIPPING AND UN-CRATING

Design Filtration Microzone assembles and factory tests each unit prior to shipping. On occasion, damage can occur during the transportation of your new Design-Aire SL. You should inspect your unit for damage that may have been caused and report it immediately to your transportation company.

Carefully remove your Design-Aire SL unit from the shipping carton and remove from plastic bag. Use extreme caution when handling HEPA filters; do not touch the filter media as damage can easily occur.

All shipments are F.O.B. Design Filtration Microzone. All claims for damage due to shipping should be filed with the carrier. Design Filtration Microzone and its dealers are not responsible for shipping damages.

Your Design-Aire SL has been factory tested and set for appropriate airflows, however all HEPA filtered equipment should be certified by a qualified technician prior to use.

## 2. FEATURES

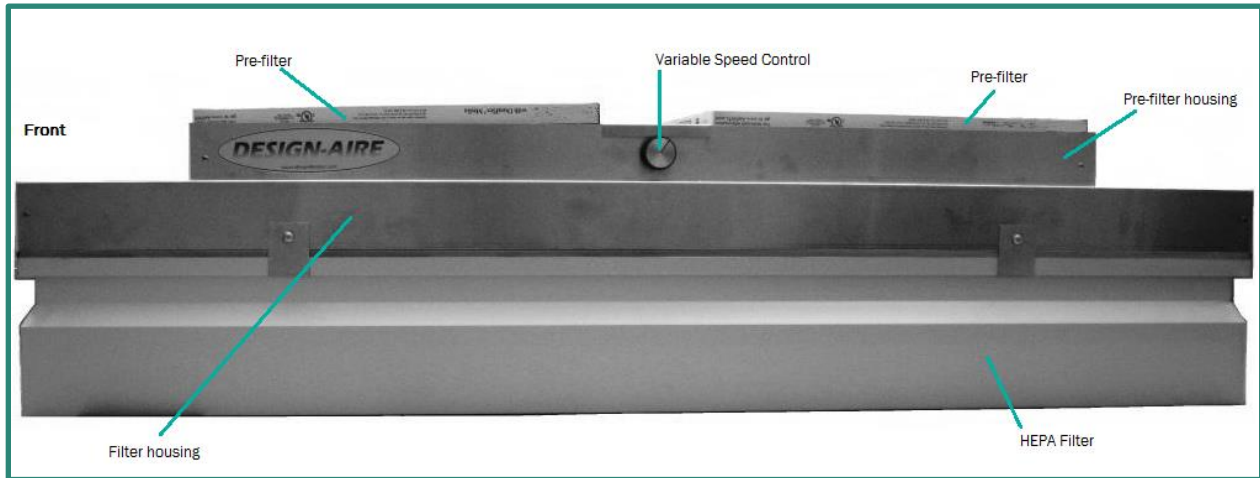


Figure 2.1

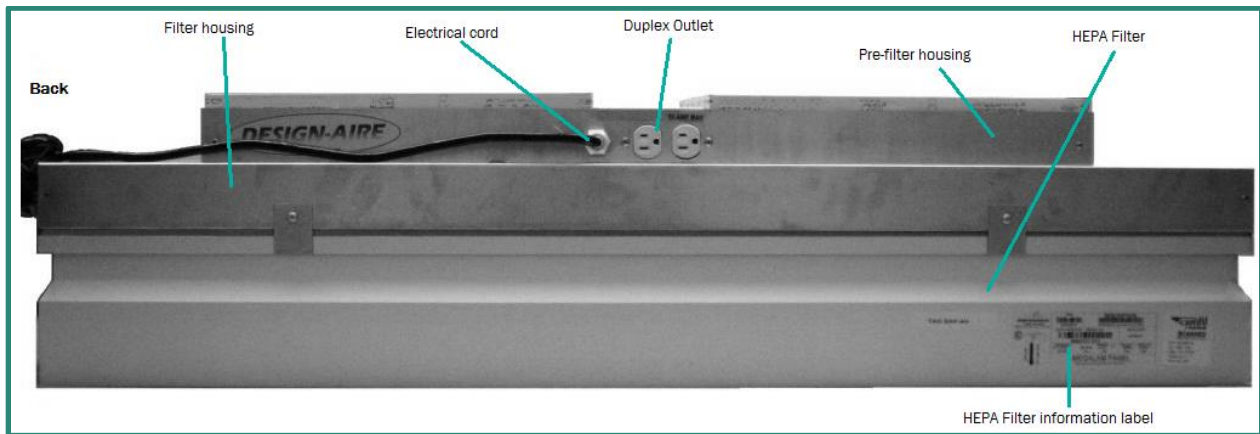


Figure 2.2

## 3. FILTER HOUSING

The filter/pre-filter housings are manufactured with light weight 16-gauge aluminum with easily removable catch hooks for trouble free filter changes. The housing features a screwed in place aluminum screen for the pre-filter placement, allowing quick and easy pre-filter change outs. All housings are sealed air tight with RTV silicone. The standard variable speed control and duplex are located on the pre-filter assembly.

#### 4. VARIABLE SPEED CONTROL

Design-Aire comes equipped with a variable speed control, which enables adjustments within the recommended airflow range. The variable speed control knob is located on the side panel of the pre-filter housing, opposite the duplex outlet. If your Design-Aire is equipped with the optional speed control cover you will require a #2 Philips screwdriver to remove the cover.

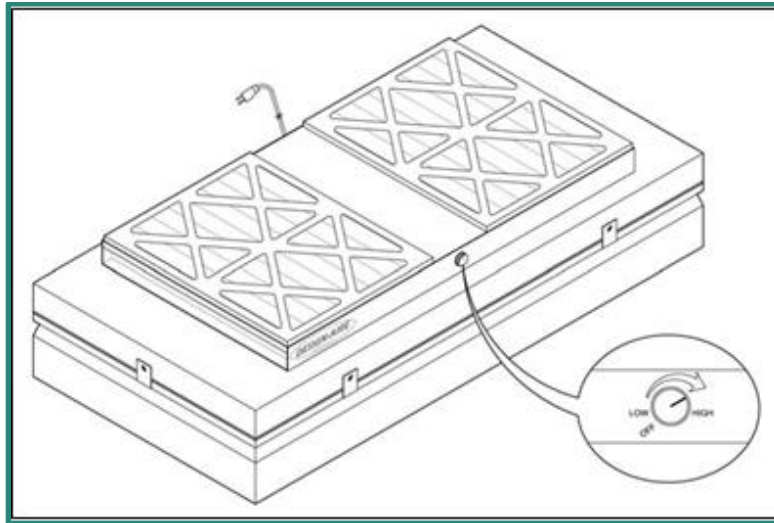


Figure 4.1

#### 5. DUPLEX OUTLET

Design-Aire comes complete with a duplex outlet located on the pre-filter housing on the back of your unit. The duplex can be used for joining up to 6 Design-Aire units together.

**MAXIMUM DUPLEX OUTLET DRAW: 10-AMPS.**

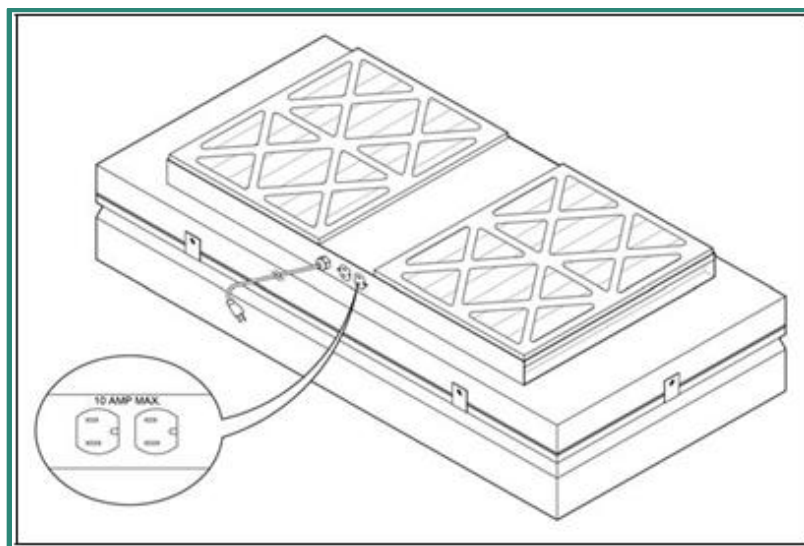


Figure 5.1

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## 6. POWER CORD

Design-Aire comes complete with a grounded 3-prong electrical cord. Do not remove or alter ground on plug, serious damage could occur. Do not modify the plug of your unit if it will not fit in your duplex. Have a proper duplex installed by a qualified professional.

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## 7. PRE-FILTER

Your Design-Aire is equipped with disposable pre-filters, which are manufactured from bonded synthetic media set into a moisture resistant “beverage” board. Pleated pre-filters supplied with your Design-Aire carry an efficiency rating of MERV 7 (Minimum Efficiency Reporting Value) to change the pre-filters simply lift it off the pre-filter housing and replace dirty pre-filter with new pre-filter.

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## 8. PRE-FILTER MAINTENANCE

Disposable pre-filters cannot be washed or cleaned and should be changed regularly. You can determine a proper schedule for your facility based on your specific room conditions. Pre-filters should be inspected on a monthly basis or as room conditions dictate and replaced when necessary.

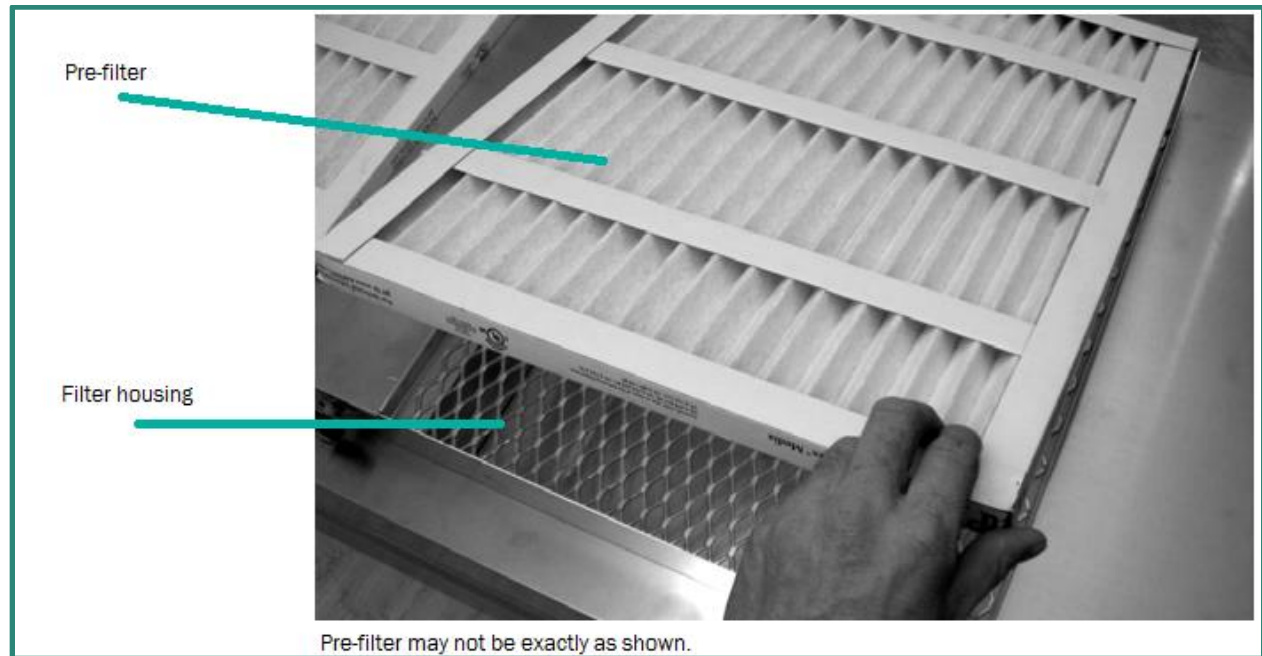


Figure 8.1

### 9. HEPA FILTER

Design-Aire HEPA filter features a 5.88" deep anodized aluminum frame with a protective painted screen located on the filter face. The 2" pleat wet laid glass media is set into the frame with a urethane seal. Efficiency is minimum 99.99% at 0.3 micron particle size and larger. HEPA filters cannot be cleaned and must be replaced when necessary.

Your Design-Aire may be equipped with an optional ULPA filter which is rated minimum 99.9995% efficient at 0.12 microns and larger. ULPA filters cannot be cleaned and must be replaced when necessary.

Your independent certifier, who is trained in the testing and certification of HEPA/ULPA filters, can determine when your filters are loaded (dirty) and should be changed.

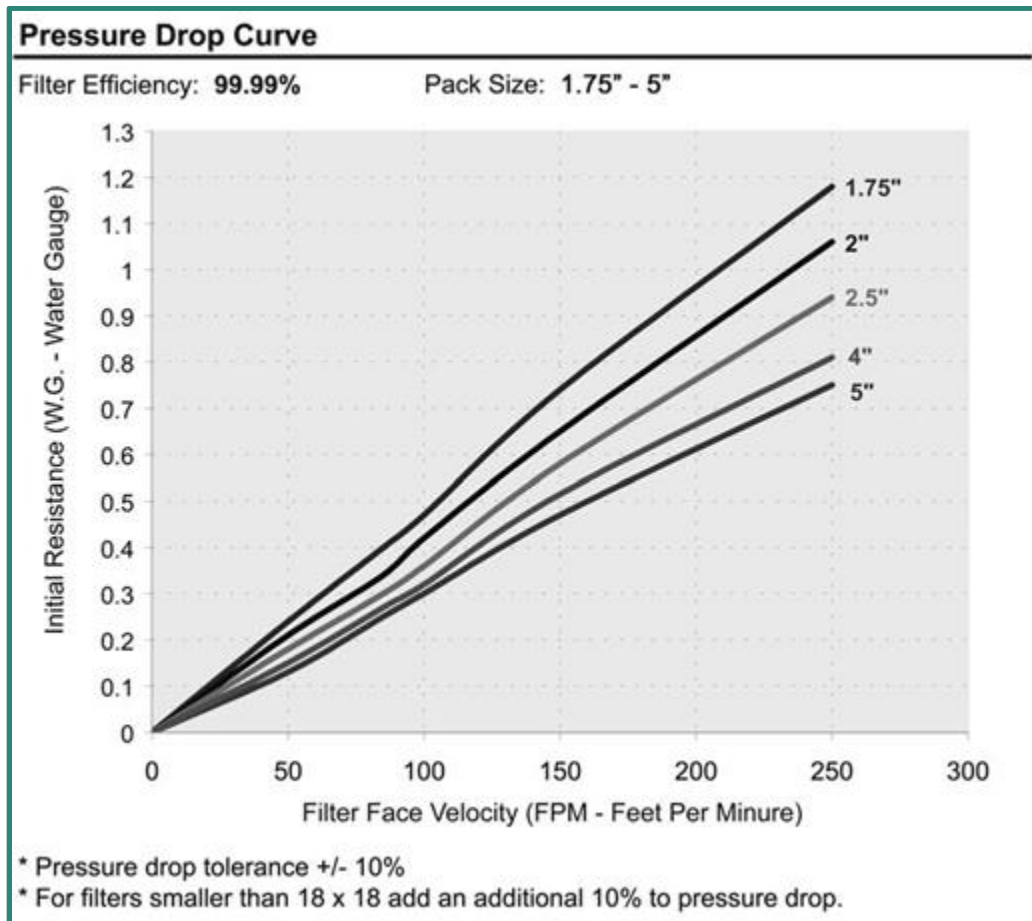


Figure 9.1



## 10. CHANGING HEPA/ULPA FILTERS

Disconnect Design-Aire from the power source prior to servicing your unit. Remove the #8-32 Philips tooth lock screw and the six catches (4 on 2x2 Design-Aire) holding the filter housing to the HEPA/ULPA filter. Once the screws and catches are removed simply lift the filter housing from the HEPA/ULPA filter. Remove your new filter from its packaging and visually inspect it for sign of damage. Carefully line up the filter housing with the new filter and place on filter. Re-attach the catches and screws.

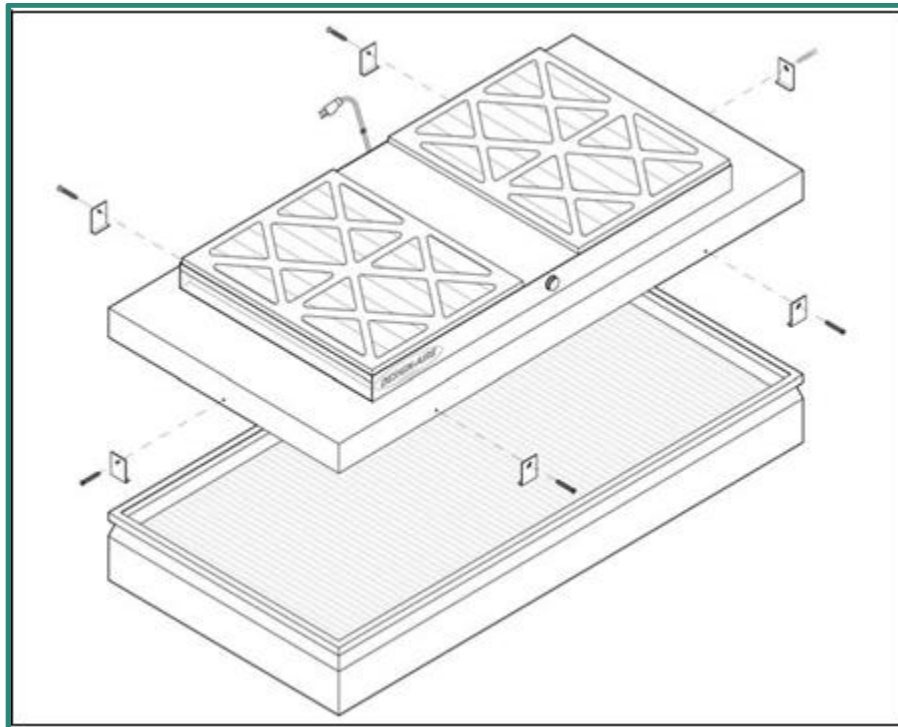


Figure 10.1

## 11. MOTOR/ELECTRICAL

Design-Aire uses 115-volt, energy efficient backward curved impellers to provide excellent airflow distribution, quieter noise levels and low heat loads. No maintenance is required for the motors, although a periodic inspection for dirt build up is recommended. Dirt on your motor can cause vibrations and shorten the life cycle of the motor.

The standard variable speed controller comes complete with on/off switch to help increase filter life cycle. A duplex outlet located on the pre-filter assembly enables units to be joined together in series, thus helping reduce additional up front in house electrical costs, up to six units or 10-amps may be plugged into the duplex.

A standard FT2 type 3-prong electrical cord is included with your Design-Aire. Always check local electrical codes prior to installing your Design-Aire unit.

12. WIRING DIAGRAM

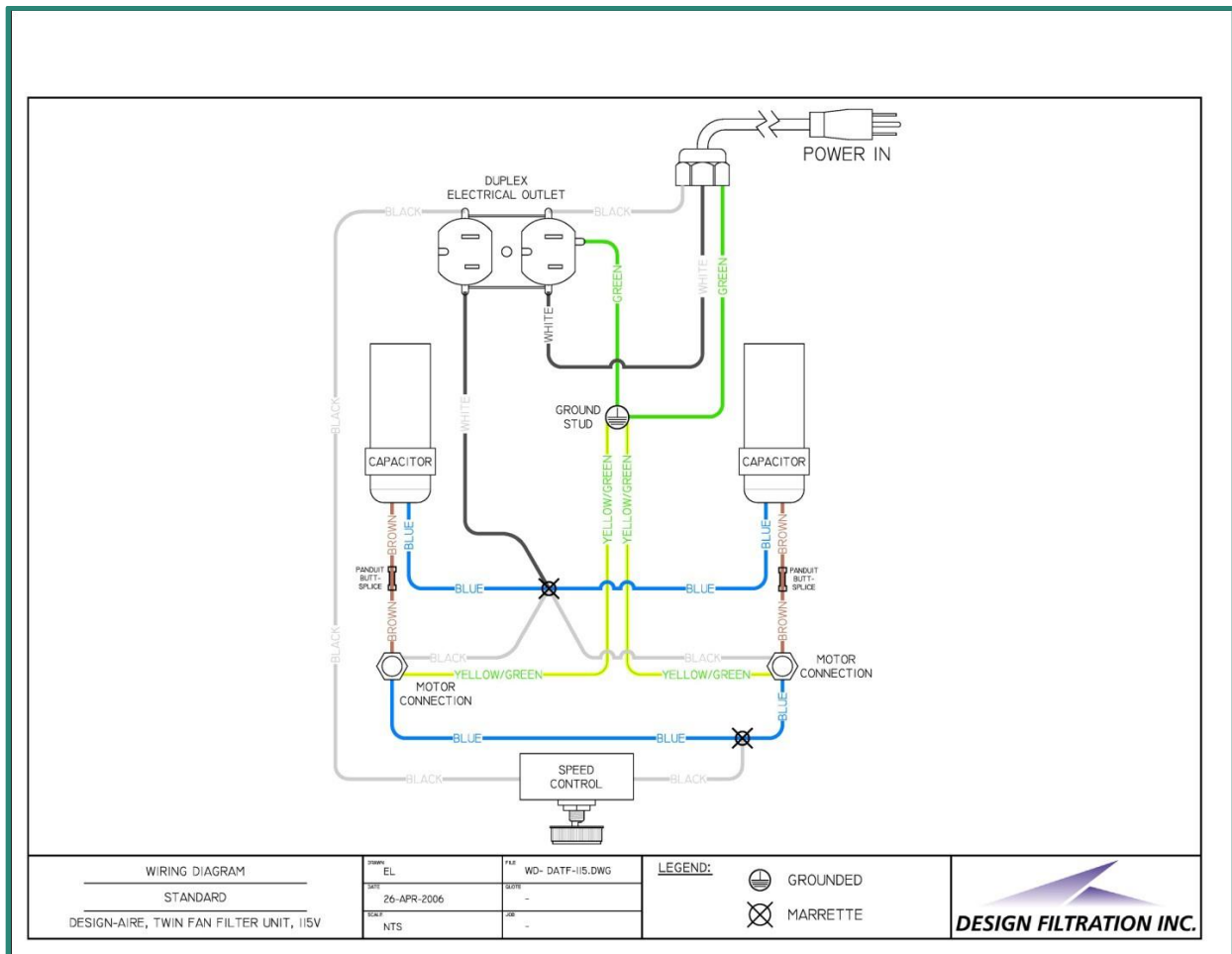


Figure 12.1

13. DIMENSIONS

Model	Dimensions	Electrical	Weight	Shipping Weight	Shipping Dimensions
DA2-1HSL	23.62" x 23.62" x 11.25"	115V, 1.08A 60Hz	29lbs	32lbs	15" x 24" x 25"
DA3-1HSL	23.62" x 35.62" x 11.25"	115V, 2.16A 60Hz	40lbs	44lbs	15" x 36" x 25"
DA4-1HSL	23.62" x 47.62" x 11.25"	115V, 2.16A 60Hz	44lbs	48lbs	15" x 48" x 25"

14. AIRFLOW

Model	Speed control full No pre-filter	Speed control full 1" pre-filter	Speed control low 1" pre-filter
DA2-1HSL	442 cfm	410 cfm	195 cfm
DA3-1HSL	730 cfm	689 cfm	240 cfm
DA4-1HSL	948 cfm	870 cfm	460 cfm

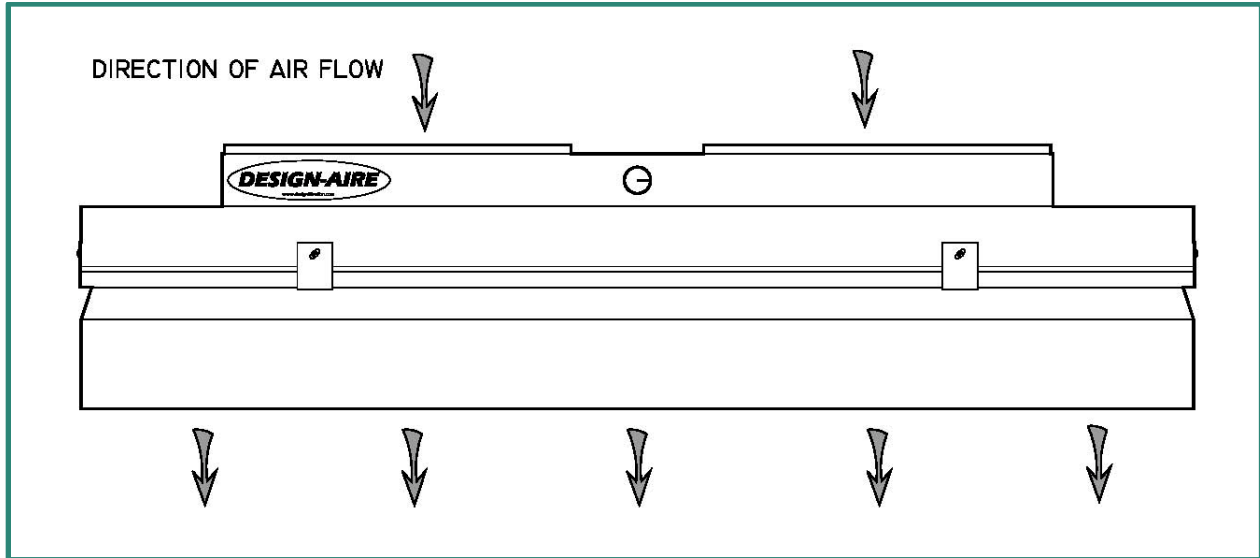


Figure 14.1

15. NOISE LEVELS

(Measured 36" from filter face in a 14 x 9 x 8 softwall cleanroom – background noise 42dba)

Model	Airflow – Decibels	Airflow – Decibels
DA2-1HSL	315 cfm – 57 dba	210 cfm – 51 dba
DA3-1HSL	490 cfm – 60 dba	350 cfm – 55 dba
DA4-1HSL	600 cfm – 57 dba	500 cfm – 55 dba

## 16. REPLACEMENT PARTS

Parts	Order Number
Replacement HEPA filter for DA2-1HSL (nominal 2 x 2)	10HE0520
Replacement ULPA filter for DA2-1USL (nominal 2 x 2)	10HE0521
Replacement HEPA filter for DA3-1HSL (nominal 2 x 3)	10HE0522
Replacement ULPA filter for DA3-1USL (nominal 2 x 3)	10HE0523
Replacement HEPA filter for DA4-1HSL (nominal 2 x 4)	10HE0524
Replacement ULPA filter for DA4-1USL (nominal 2 x 4)	10HE0525
Disposable pleated pre-filter (case of 12)	10PR0301
115-volt motorized impeller	17MI0006
Speed controller	17SW0052
Capacitor for motor – 8mf	17MC0006

## 17. SOLUTIONS TO COMMON PROBLEMS

<b>Fan filter unit does not start</b>	Electrical power cord may not be plugged in or connection may be loose	Make sure plug fits tightly into duplex outlet
	Fuse blown, circuit breaker tripped, power outage has occurred	Reset breaker or replace fuse. Do not increase fuse capacity. If circuit is overloaded contact qualified electrician. Call local electric company for power outage
	Motor is overheated. FFY motor will stop if overheated	Motor will automatically restart after cool down period
	Variable speed control is in off position	See page 6 for operation of variable speed control
<b>Low airflow from downstream side of HEPA</b>	Pre-filters are dirty	Change pre-filters and re-test airflows. See page 7
	HEPA filter is loaded.	Have qualified technician change HEPA filter and re-test airflows. See page 9
	Variable speed control is turned down	Adjust variable speed control to increase airflow output. Re-test airflow
	Power supply is not at 115-volt. Low voltage will affect operation of fan filter unit	Have qualified electrician determine proper voltage input at source
	One of the motors on the twin fan units has stopped working (DA3 and DA4 models)	Have qualified technician replace motor and re-test airflows
<b>High airflow from downstream side of HEPA</b>	Variable speed control is too high	Adjust variable speed control to decrease airflow output. Re-test airflow

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## 18. WARRANTY

Design Filtration Microzone warrants the equipment to be free of defects in materials and workmanship from the date of invoice. The Design-Aire SL shall be warranted against defects for a period of two years. Any units or parts found to be defective during this period will be replaced or repaired at our discretion. The buyer agrees to assume all transportation charges prepaid for return of unit to factory for repair. Design Filtration Microzone will not accept charges for removal or re-installation.

Design Filtration Microzone will not accept any returned items without prior written consent. Design Filtration Microzone is not responsible for repair or replacement by misuse or abuse by incorrect operating procedures of its equipment. Pre-filters and carbon filters carry no warranty against loading. Any modifications or changes made to equipment by customer without written consent of Design Filtration Microzone will void the warranty.

Model number and serial number located on your Design-Aire SL must be provided to verify invoice date. Failure to provide will void warranty.

**FOR FURTHER INFORMATION, PLEASE CONTACT US DIRECTLY.**

Design Filtration Microzone Inc., 86 Harry Douglas Drive, Ottawa, ON. K2S 2C7  
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info@dfmzgroup.com