

ISO 9001 QUALITY



ETL SAFETY STANDARDS



Intertek

INVESTING IN QUALITY, RELIABILITY & PERFORMANCE

World Leading Design and Technology

This product is manufactured to meet the stringent requirements of the internationally recognized ISO 9001 standard for quality assurance in design, development and production.

The Highest Standards of Manufacturing

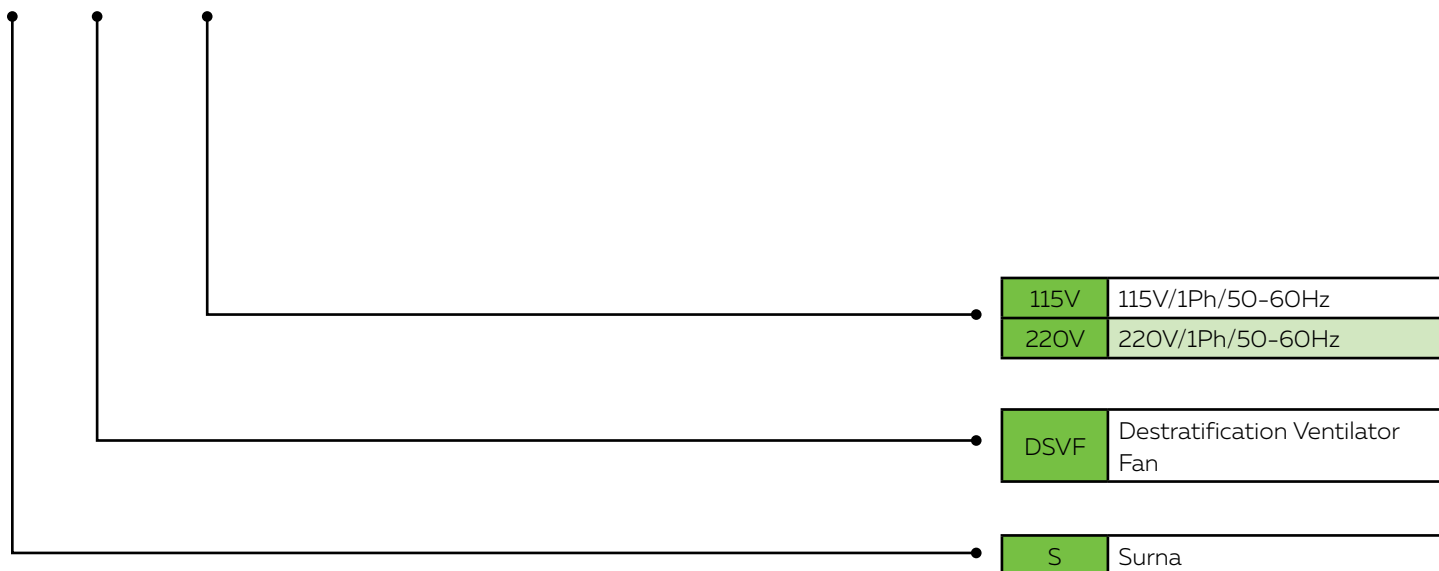
EN60335-1: Safety requirements of households and similar electrical appliances..
GB12350: Safety Requirements of small power motors.

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MODEL CODE NOMENCLATURE

S - DSVF - XXXV



SPECIFICATIONS

S-DSVF-XXX-V

PHYSICAL	Model S-DSVF-115V	Model S-DSVF- 220V
Fan Diameter	17.91 ± 0.12 in (455 ± 3 mm)	
Height	12 in (305 mm)	
Weight	22 lbs (9.98 kg)	
Fan Base Diameter	25.71 ± 0.12 in (653 ± 3 mm)	
Mounting Bracket Length ¹	6.54 in (166.1 mm)	
Mounting Bracket Width	6.06 in (154 mm)	
ELECTRICAL		
Power Supply	115V/1Ph/50-60Hz	220V/1Ph/50-60Hz
Current Draw	4.0 ± 10% Amps	1.42 ± 10% Amps
Power Input	340 ± 10% Watts	310 ± 10% Watts
FAN PERFORMANCE		
Speed	1,800 ± 10% RPM	
Air Flow	2,400 ± 10% CFM (4,077.6 ± 10% m ³ /h)	
Sound Level Max. (dB(A))	68	

TABLE 1: General Specifications

¹ From top of mounting bracket to lip of destrat fan

DIMENSIONAL DRAWINGS

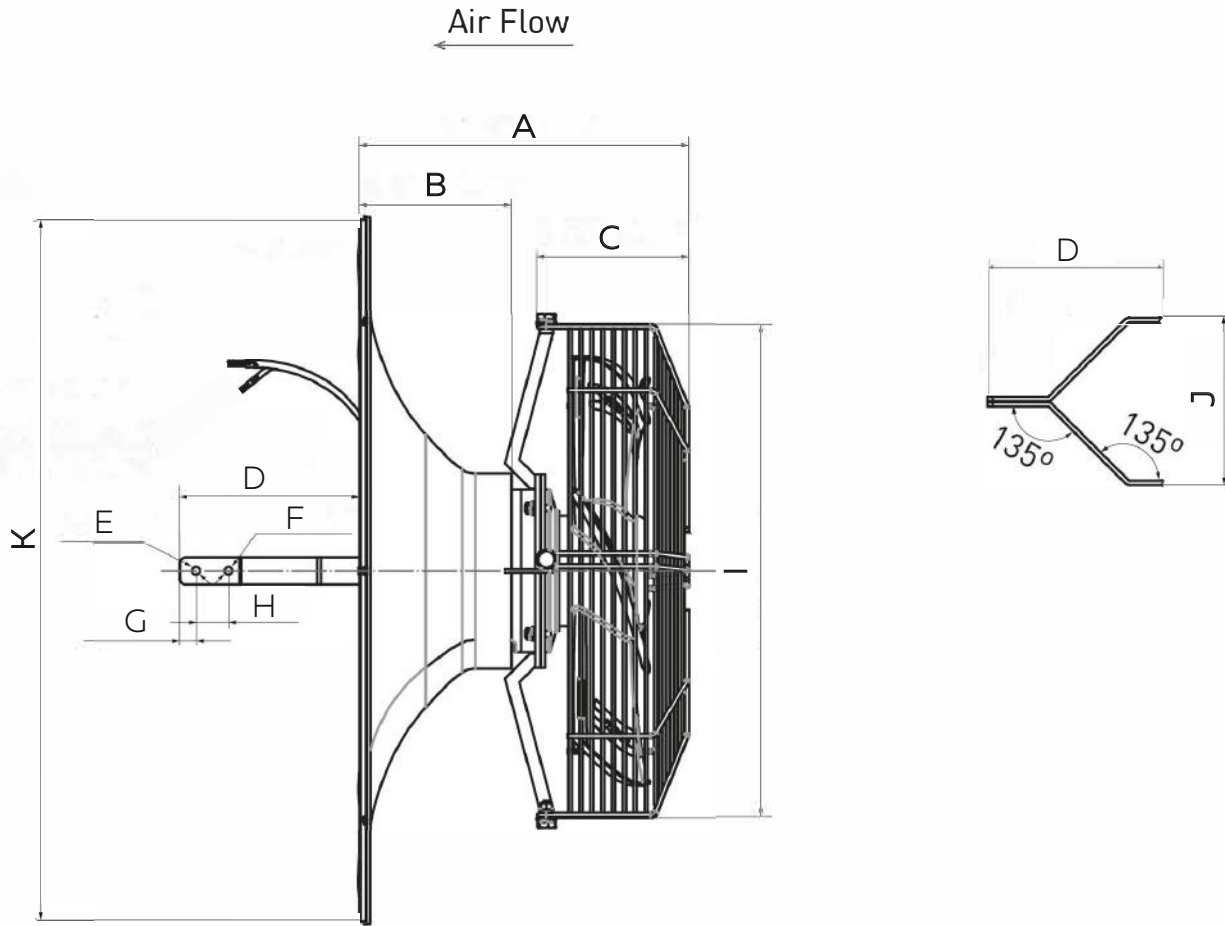


FIGURE 1: Dimensional Drawings

A	B	C	D	E	F
12 in 305 mm	5.51 ±0.12 in 140 ±3 mm	5.55 ±0.12 in 141 ±3 mm	6.54 in 166.1 mm	Ø0.31 in Ø8 mm	Ø0.31 in Ø8 mm

G	H	I	J	K
0.59 in 15 mm	1.18 in 30 mm	Ø17.91 ±0.12 in 455 ±3 mm	6.06 in 154 mm	Ø25.71 ±0.12 in 653 ±3 mm

TABLE 2: Dimensions

WARNINGS

DEFINITIONS

CAUTION: Risk of minor/moderate injury if precaution not taken.

WARNING: Risk of death/serious injury if warning isn't heeded.

DANGER: Risk of death/serious injury if danger isn't avoided.

SAFETY SYMBOLS USED



CAUTION: Important information, read the provided instructions carefully



WARNING: Potential electric shock hazard



WARNING: High voltage



WARNING: Cut/Crush hazard



Protective earth connection



Action prohibited

DESTRAT VENTILATOR SAFETY GUIDE



Please read the information in this document carefully prior to attempting the installation, operation and/or servicing of the Surna Destrat Ventilator. This document contains information required to install and operate the fan. Failure to follow the directions provided could cause

damage to the unit and/or accessory equipment, damage to building facilities and/or cause serious injury or death to the operator. Please adhere to all applicable safety guideline requirements in this document and all electrical and mechanical jurisdictional codes. Using the Ventilator in a manner not described in this manual may void unit warranty.



Prior to providing power to the equipment, inspect the area for water spills, which may present a shock hazard to the user. Take extra care to mount accessory electrical equipment away from areas regularly exposed to water. Provide secure wire and cable routing to protect personnel from shock hazards.



Only operate the equipment with an appropriately sized switch or circuit breaker in place. Only operate equipment with adequate wire sizes and current carrying capacity. Consult with a licensed electrician and the **specifications** section of this manual before attempting electrical installation. The switch or circuit breaker shall be accessible without the use of a tool, shall be easily accessible to users, shall be clearly marked with "ON" and "OFF" positions, and shall disconnect all current carrying conductors simultaneously.



DO NOT use a rope or chain to suspend the Ventilator.



To reduce risk of injury, do not bend the blade brackets when installing the brackets, balancing the blades, or cleaning the fan. Do not insert foreign objects in between rotating fan blades.



DO NOT use an extension cord or plug adapters. These actions may result in a fire hazard or electric shock.



DO NOT operate this unit with damaged power wires. If the power wires are damaged it must be replaced by the manufacturer or a qualified/licensed service technician.



DO NOT use this unit to circulate fluids, solids, gases, or any other substance that is not expressly permitted. This fan is designed for air ventilation only.



This unit must be connected to a protective earthing system prior to operation. DO NOT remove the grounded connection while power is being supplied to the fan. Doing so presents an electric shock hazard to users and service personnel.



All wiring must be in accordance with the National Electrical Code, ANSI/NFPA 70 and local electrical codes. Electrical installation should be performed by a qualified electrician.



Ensure that power is off before installation or performing work on the unit.



To reduce the risk of fire or electric shock, do not use this unit with any solid-state speed control device.



To reduce risk of injury, it is recommended to mount the fan at least 10 feet (3.1 meters) above the floor.



This device is intended for indoor use only and should be protected from rain and flooding.



This equipment is not meant for connection to a duct system.



A minimum clearance of 36 inches (915 mm) shall be provided around the fan intake and 72 inches (1,828 mm) around the shroud to ensure proper air flow and servicing. After installation, service and maintenance personnel shall be able to access the power supply and fan blades.



Prior to installation, care must be taken to ensure the structural integrity of the supporting members when mounting the fan. Verify the load bearing capacity of any mounting surface is rated for the load of the Ventilator.

WARRANTY INFORMATION

For the equipment manufactured by Surna ("Company"), the warranty shall exist for a period of twelve (12) months from initial start-up or eighteen (18) months from date of shipment, whichever period is shorter, against failure due to defects in material and/or manufacturing and warranted to the capacities and ratings set forth in Company's catalogs and bulletins ("Warranty").

Equipment, material, and/or parts that are not manufactured by Company are not warranted by Company and carry such warranties as may be extended by the respective manufacturer.

Exclusions from this warranty include damage or failure arising from: wear and tear; corrosion, erosion, deterioration; modifications made by others to the equipment; repairs or alterations by a party other than Company that adversely affect the stability or reliability of the Equipment; vandalism; neglect; accident; adverse weather or environmental conditions; abuse or improper use; improper installation; commissioning by a party other than Company; unusual physical, electrical or mechanical stress; lack of proper startup or maintenance as recommended by Company; operation with any accessory, equipment or part not specifically approved by Company.

Company shall not be obligated to pay for the cost of lost product or any other direct, indirect, or consequential damages. Company's obligations and liabilities under this warranty are limited to furnishing replacement equipment or parts, at its option, FCA (Incoterms 2000) factory or warehouse (f.o.b. factory or warehouse for US domestic purposes) at Company-designated shipping point, freight allowed to Company's warranty agent's stock location, for all non-conforming Company manufactured equipment which have been returned by Customer to Company.

Returns must have prior written approval by Company and are subject to restocking and replacement charges where applicable.

No warranty liability whatsoever shall attach to Company until Customer's complete order has been paid for in full and Company's liability under this warranty shall be limited to the purchase price of the equipment shown to be defective.

Additional warranty and service protection is available on an extra-cost basis and must be in writing and agreed to by an authorized signatory of the Company.

The warranty excludes: (a) labor, transportation and related costs incurred by the Dealer or Customer; (b) re-installation costs of repaired equipment; (c) re-installation costs of replacement equipment; (d) removal costs of equipment; (e) consequential damages of any kind; and, (f) reimbursement for loss caused by interruption of service.

COMPANY MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, REGARDING PREVENTION OF MOLD/MOULD, FUNGUS, BACTERIA, MICROBIAL GROWTH, OR ANY OTHER CONTAMINATES.

EXCEPT FOR COMPANY'S WARRANTY EXPRESSLY SET FORTH HEREIN, COMPANY DOES NOT MAKE, AND HEREBY EXPRESSLY DISCLAIMS, ANY WARRANTIES, EXPRESS OR IMPLIED CONCERNING ITS PRODUCTS, EQUIPMENT OR SERVICES, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF DESIGN, MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR OTHERS THAT ARE ALLEGED TO ARISE FROM COURSE OF DEALING OR TRADE.

DESTRAT VENTILATOR ORDER

Below is a list of all parts provided with each Surna Destrat Ventilator unit. The following are included with the order (quantities are dependent on individual order).

1. Surna Destrat Ventilator fan unit
2. Surna Destrat Ventilator product manual
3. Surna Destrat Ventilator mounting bracket

INTENDED APPLICATION

The Surna Destrat Ventilator is a critical component of the sealed environment ventilation system. This fan helps maintain stable air temperatures throughout the facility's environment by pulling hot, humid air from the canopy into the terminal unit processing area to cool, dehumidify and/or heat.

By dispersing the hot, humid air of the canopy throughout the space, the Surna Destrat Ventilator is intended to create a consistent, homogenous temperature and humidity level. Rather than blowing the air directly down, creating a dome effect, the Surna Destrat Fan disperses the air to all sides of the space.

For commercial or industrial use only.

INSTALLATION INSTRUCTIONS

MECHANICAL

Mounting details are shown in **figures 2 and 3**.

The unit must be securely supported in compliance with local codes. Do not use rope or chain to suspend the Destrat Ventilator. Generally, 14G unistrut is used to suspend and support the unit. Using provided bolts and washers, hang the fan from the mounting slots provided on the top of the unit, taking care to engage all the threads of the nut and tightening until the fan is secure.

Equivalent support methods are acceptable, provided structural members have sufficient load bearing capacity to support the fan's weight. Unistrut supports should be mounted to the ceiling or support structure using a minimum size of 3/8 inch (9.5 mm) all-thread and appropriate spring nuts and washers per Unistrut OEM installation procedures.

When installing, service clearances must be provided to maximize performance (proper airflow is critical), and allow servicing of the unit. Ensure that a minimum of 36 inches (915 mm) of clearance is provided around the shroud of the fan, and a minimum of 18 inches (457.2 mm) of clearance around the fan intake.



CAUTION: Mount with the lowest moving parts at least 10 feet (3.1 meters) above floor or grade level.

All set screws must be checked and retightened where necessary before installation.

ELECTRICAL



WARNING: Turn off the breaker until all electrical connections are made.

All wiring shall comply with local and national codes.

The high voltage terminal block should be connected to your incoming 115V or 220V power wires.

The fan is connected to the power supply through a socket outlet on the chassis exterior. Do not remove this plug when in operation or try to operate other equipment from this connection.

WIRING



WARNING: This unit must be connected to a protective grounding system.

Before attempting system installation, verify that the electrical system and wiring are adequate for supplying the required ampacity to the fan at 115V or 220V. Field wiring terminals are provided for control connections. Always employ the services of a qualified electrician prior to installing and operating the equipment. Making improper electrical wiring connections could cause damage to the equipment or servicing personnel.

BRACKET DIAGRAM

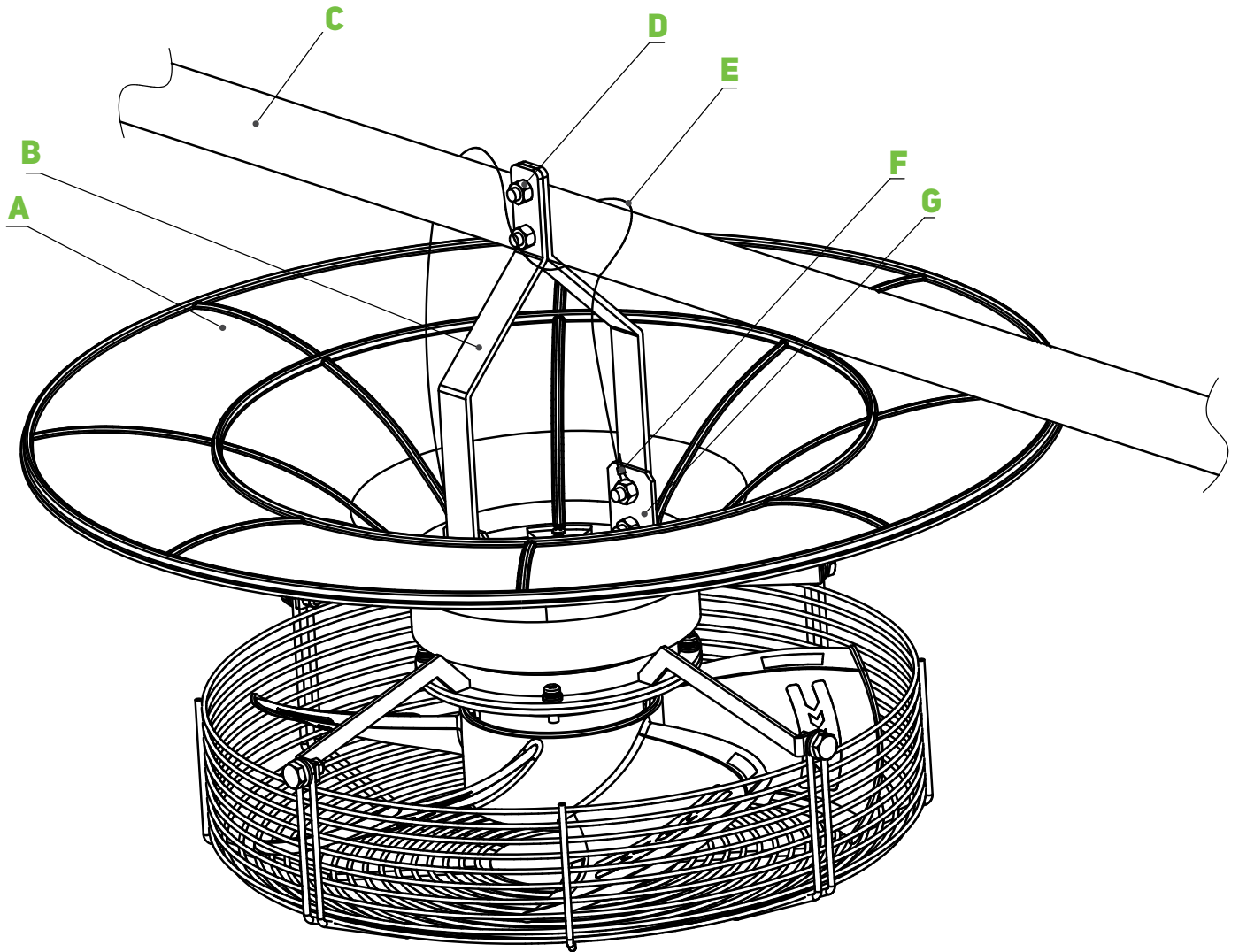


FIGURE 2: Bracket Diagram

Dimension	Specification
A	Airflow guide
B	Hanger bracket
C	Crossbeam
D	Bolts with washers for mounting
E	Supportive wire ¹
F	Supportive wire lock
G	Hanger base

TABLE 3: Bracket Parts

¹: Recommended only; not included.

INSTALLING BRACKET

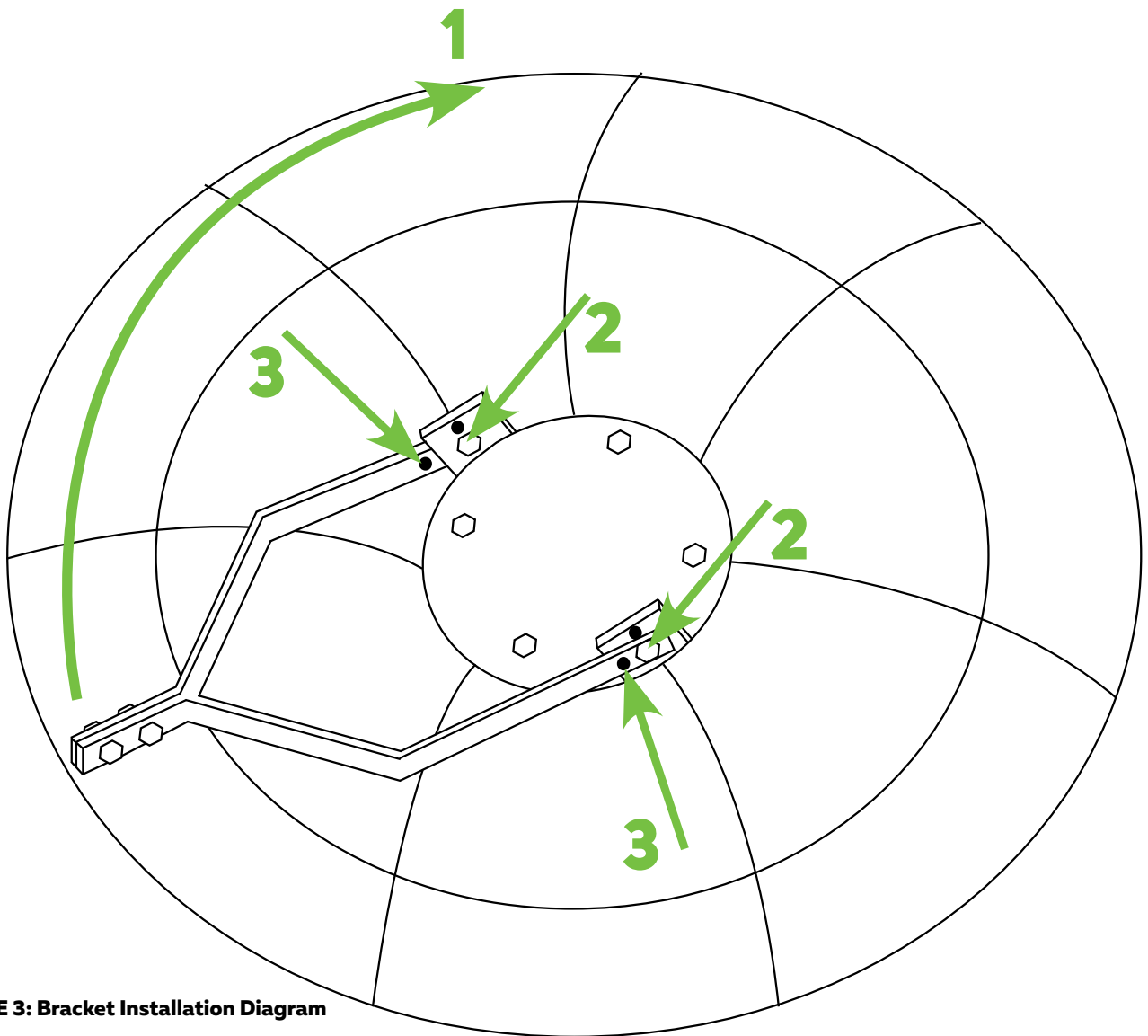


FIGURE 3: Bracket Installation Diagram

1. Lift bracket to 90° angle.
2. Tighten lower bolts on bracket.
3. Insert two bolts into the holes, secure using washers and nuts provided.

MOUNTING

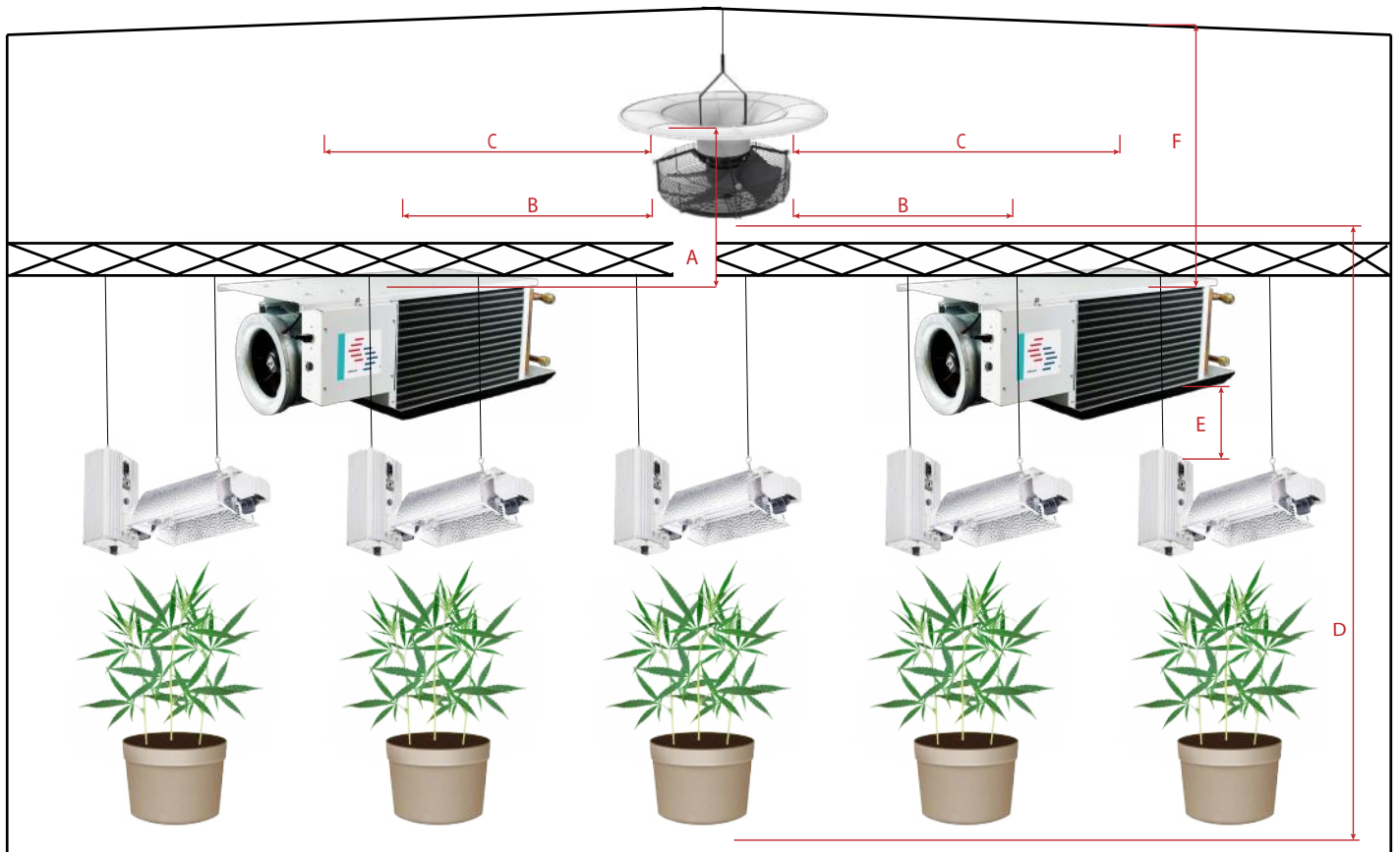


FIGURE 4: Mounting Dimensions

Dimension	Specification
A	It is recommended that the Fan shroud be hung a minimum of 6 in (152.4 mm) above the top of any fan coils
B	Minimum clearance of 18 in (457.2 mm) around fan intake.
C	Minimum clearance of 36 in (915 mm) around fan shroud.
D	Fan to be mounted a minimum of 10 ft (3.1 m) above the floor.
E	It is recommended that the distance between fan coils and lights be kept as minimal as possible.
F	Mount fan coils a minimum of 12 in (304.8 mm) from ceiling. Mount the Destrat Ventilator as high above the fan coil as possible.

TABLE 4: Mounting

NOTES:

1. To achieve optimal effect, mount the Destrat Ventilator at the highest point of the ceiling or as far above all other equipment as possible.

2. The Destrat Ventilator must be mounted to a stable structure to avoid extreme vibration or falling. Common methods of mounting include unistrut, angle iron and all thread. DO NOT use a rope or chain.

3. Lights shown in Figure 4 are used for example purposes only; lighting method is immaterial to the use of the Destrat Ventilator.

ELECTRICAL

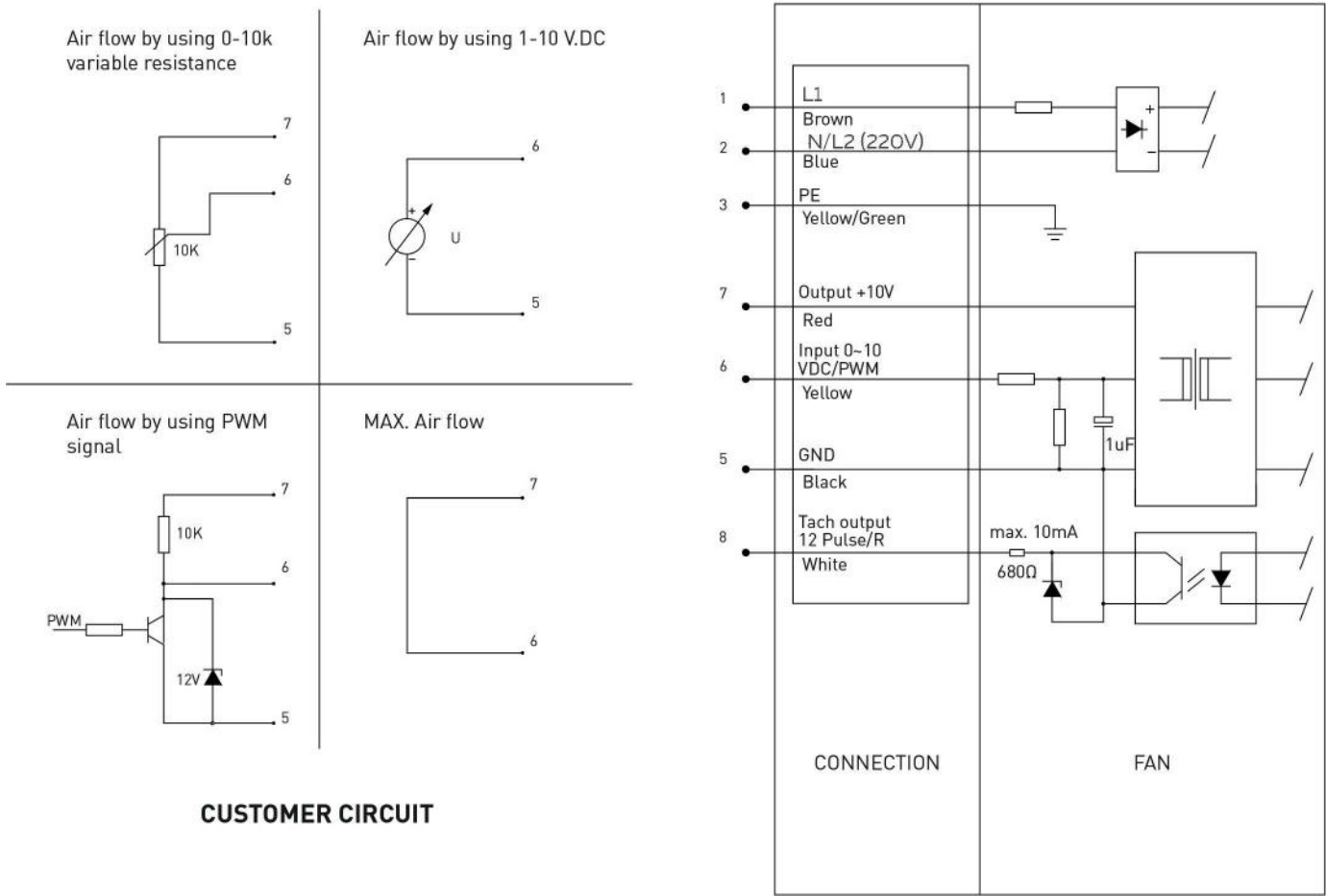


FIGURE 5: Connection Diagram

No	Signal	Color	Spec	Connector
1	L	Red	DC10V	12MS-4-A3
2	N	Yellow	0 - 10 V / PWM	
3	PE	Black	GND	
4	N	White	Pulse/R	

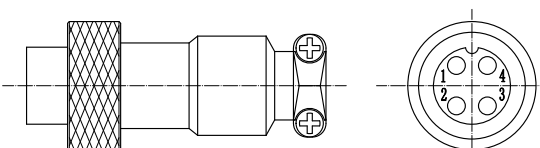
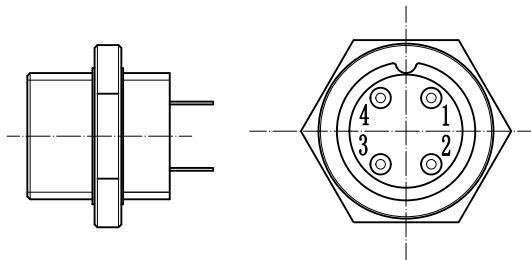


TABLE 5: Electrical Low Voltage Control

*Must connect with 12MP-4-B male connector as below. Plugs recommended only; not included.



Signal	Color	Voltage	Function/Note
L	Red	115	DC10V Output
		220	DC10V Output
N	Yellow	115	0 - 10V / PWM
		220	0 - 10V / PWM
PE	Black	115	GND
		220	GND
N	White	115	12 Pulse/R
		220	12 Pulse/R

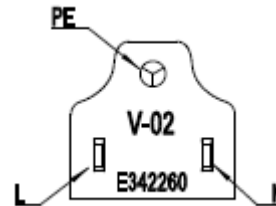
TABLE 6: Lead Wires Assembly

Wires: 4*AWG22

	S-DSVF-115V and S-DSVF-220V
Control Methods	0-10V V.DC / PWM
Power Output	+10V V.DC
Tach Output*	12 Pulse/R Duty 20% to 70%
Protection Function	Over-Temperature, Over-Current, Locked-Rotor, Lock-Voltage, Over-Voltage
EMC	EMC Immunity to Interference, EMC Circuit Feedback, and EMC Interference Emission
Level of Protection	IP44
Insulation Class	B
Leakage Current	According to GB 12350
Type of Application	S1
Installation Mode	Horizontal Down / Vertical

TABLE 7: Electrical Low Voltage Control

*The 10K Pull-Up Resistance should be connected between +10V DC Line and Tach Output Line



Signal	Color	Voltage	Function/Note
L1	Brown	115	AC115V 50/60Hz
		220	AC220V 50/60Hz
N/L2 (220V)	Blue	115	AC115V 50/60Hz
		220	AC220V 50/60Hz
PE	Yellow/Green	115	Ground
		220	Ground

TABLE 8: Lead Wires Assembly

Wires: 3*AWG18

ROUTINE MAINTENANCE

This product is designed to provide 40,000 hours of dependable use when properly maintained. Proper maintenance will consist of routine fan cleanings and routine usage. Allow the fan to run a minimum of one hour twice a month. Failure to provide proper maintenance can result in excessive operating cost and/or equipment failure.

The Surna Destrat Ventilator should be cleaned and assessed for damage at least once every 6 months.



WARNING: Before performing any maintenance or servicing, verify unit is disconnected from power source. **DO NOT** attempt maintenance or repairs unless you are properly qualified to do so.

CLEANING THE FAN

1. Remove power from the unit and allow the fan blades to come to a complete stop.
2. Use a mild detergent and warm water to clean the fan blades as follows:
 - a. Mix warm water and a simple detergent (that is non-corrosive to aluminum or copper), such as Cal-Green or Evap-Green, in a spray bottle, hand sprayer or garden sprayer.
 - b. Apply the water and detergent solution to the fan blades.
 - c. Wash the blades clean.

TROUBLESHOOTING

CONTACT US

To avoid voiding the warranty, please contact Surna via email at support@surna.com or via phone at **303.993.5271** before having a technician perform work.

UNIT WILL NOT TURN ON

1. Verify fan has power.
2. Ensure breaker has not tripped.
3. Verify the unit is supplied with proper power of 115V or 220V.
4. Remove power from unit and check for loose wires, burned/charred wires or components.
5. Verify incoming power wires are wired according to **figures 5-8**.

UNIT NOT PRODUCING ENOUGH AIRFLOW

1. Verify proper power is supplied of 115V or 220V.
2. Check that the fan is clean. If not, perform routine cleaning. (See **routine maintenance** section.)
3. Verify proper minimum clearance is provided around the unit. The recommended minimum clearance is 36 inches (914.4 mm) around the shroud and 18 inches (457.2 mm) around the fan's intake.
4. Check bearings for damage.

UNIT IS NOT PRODUCING THE DESIRED AIRFLOW PATTERN

1. Verify that all other ventilation sources are not interfering with the Surna Destrat Ventilator.



A 1780 55th Street
Boulder, CO 80301

P 303.993.5271

E info@surna.com

*Information is subject to change without notice.

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