

A photograph of an industrial facility, likely a manufacturing or processing plant. The image shows a complex network of large, silver, corrugated metal ductwork or piping running horizontally and vertically across the frame. In the foreground, there is a large, red, corrugated metal container or tank. The background shows various industrial equipment, including a white machine with a black panel, and shelving units with boxes. The ceiling is high with exposed structural elements and a single light fixture is visible.

## SYSTEM PROPOSAL **Central System**

PREPARED BY:

Brian Sullivan

22221 Saint Clair Avenue - Cleveland, OH - 44117

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PREPARED FOR: Central Nine Career Center

Quote # 20663368-1

QTY	PRODUCT NUMBER	PRODUCT DESCRIPTION
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2 L17587-36

**PRISM, 12 BANK, 3 WIDE, TOP DUAL FAN**

*INCLUDES PROVISION FOR DUAL TOP-MOUNT FANS/SILENCERS AND SEPARATE CONTROL PANEL FOR INDOOR/OUTDOOR INSTALLATION OF FILTER BANK.*

*SYSTEMS INCLUDE:*

*KP4519-2 FILTER, VFB, CELLULOSE/NANO MERV 16 x24*

*S31229-53 FAN, 20HP, 7400 CFM @ 12" WG x4*

*S32715-125SILENCER, HORIZONTAL, 20HP x4*

*AD1283-78 DANFOSS VFD FC101 IP20 460V 40HP x2*

1 AD1321-100

**SYSTEM ENGINEERING SUPPORT**

*INCLUDES ENGINEERING AND INSTALLATION PHONE SUPPORT FOR THE ELECTRICAL AND MECHANICAL CONTRACTORS.*

*TWO SYSTEM INSTALLATION MANUALS ARE INCLUDED WITH THE PURCHASE OF THE QUOTED SYSTEM. BOTH COPIES WILL BE SHIPPED SEPARATELY FROM THE EQUIPMENT. ELECTRONIC VERSIONS OF THE SYSTEM MANUAL WILL BE PROVIDED UPON REQUEST BY LINCOLN ELECTRIC'S CUSTOMER.*

*LINCOLN ELECTRIC DOES NOT PROVIDE THE SPIRAL DUCTWORK NOR THE INSTALLATION OF THE SYSTEM -- UNLESS OTHERWISE QUOTED AND PURCHASED -- WHICH INCLUDES AND IS NOT LIMITED TO ANY HVAC COMPONENTS, ELECTRICAL CONNECTIONS, EQUIPMENT MOUNTING AND COMPRESSED AIR CONNECTIONS.*

1 AD1321-101

**SYSTEM COMMISSION**

*INCLUDED IS SYSTEM START-UP, COMMISSIONING AND TECHNICIAN SUPPORT TO TEST AND TUNE THE SYSTEM AT INITIAL SYSTEM OPERATION. COMMISSIONING INCLUDES MANUAL DAMPER ADJUSTMENT, AIRFLOW SETPOINT, EXTRACTION SYSTEM OPERATION VERIFICATION AND EXPLANATION OF SYSTEM OPERATION AND MAINTENANCE. POST INSTALLATION COMMISSIONING INCLUDES A POINT-BY-POINT CHECKLIST AND SIGN-OFF PROCEDURE.*

*PRICING INCLUDES TRAVEL AND LIVING EXPENSES FOR ONE FACTORY TECHNICIAN.*

*A MINIMUM OF TWO WEEKS NOTICE IS REQUIRED PRIOR TO COMMISSION DATE TO ESTABLISH TRAVEL ITINERARY.*

*COMMISSIONING OF SYSTEM WILL BE DONE BY A LINCOLN ELECTRIC*

**06/01/2022**

**Quote No. 20663368-1**

*FACTORY TECHNICIAN. COMMISSIONING DATA AND REPORTS ARE DONE FOR THE PURPOSE OF WARRANTING THE SYSTEM. CREATED REPORTS ARE NOT INTENDED TO BE USED FOR ANY OFFICIAL USE. IF A CERTIFIED REPORT IS REQUIRED IN YOUR AREA, PLEASE CONTACT LINCOLN ELECTRIC PRIOR TO THE PURCHASE OF THE SYSTEM.*

1 XCUSTOM\_ITEM

**FREIGHT COST**

*ESTIMATED FREIGHT COST FOR SHIPMENT IN A 53-FOOT VAN(S) (SWING DOOR) FROM CLEVELAND, OH TO END USER FACILITY.*

*ADDITIONAL CHARGE MAY APPLY IF A SPECIAL TRAILER TYPE IS REQUIRED DUE TO THE UNLOADING CAPABILITIES AT THE DESTINATION.*

**TOTAL SYSTEM PRICE: \$131,559**

**Estimated lead time is 8-12 weeks.**

QTY	PRODUCT NUMBER	PRODUCT DESCRIPTION
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PRICE	
EACH	EXT.

**Recommended Options:**

4 AD1387-6

**SPARK GUARDIAN 20 IN. W/ HATCHES**

\$15,616

THE SPARK GUARDIAN IS HIGHLY EFFICIENT IN PREVENTING SPARKS AND CIGARETTE BUTTS FROM REACHING THE FILTER. ALSO, IT IS A VERY EFFECTIVE IN-LINE PRE-SEPARATOR, REDUCING DUST LOAD IN THE CONNECTED FILTER BANK.

INCLUDES INSPECTION HATCHES AND 5 GAL. DUSTBIN. A CUSTOMER SUPPLIED 8 IN DIAMETER DUCT CONNECTS THE SPARK GUARDIAN TO THE DUSTBIN.

1 XCUSTOM\_ITEM

**AUTOMATIC CONTROLS**

\$50,617

OPTIONAL UPGRADE TO CONVERT THE SYSTEM TO FULLY CONTROLLED, AUTOMATIC OPERATION USING LAMP/ARC SENSOR TECHNOLOGY.

**INCLUDES:**

(40) AD1221 - LAMP/ARC SENSOR KIT  
 (40) S28367-2 - AUTOMATIC DAMPERS  
 (2) S23385-37 - IF15 INTERFACE CONTROL  
 (1) G3207-303 - PLC

AUTOMATIC CONTROL PROVIDES ENERGY SAVINGS, EXTENDED FILTER LIFE, AND REDUCED NOISE BY MEANS OF ON-DEMAND OPERATION INSTEAD OF A TYPICAL ON/OFF CONSTANT 100% SYSTEM OPERATION THROUGHOUT THE DAY. LINE ITEM PRICING REFLECTS ALL THE ABOVE COMPONENTS TO PROVIDE AUTOMATIC CONTROLS TO 40 FUME EXTRACTION ARMS.

1 AD1321-4

**BUDGETARY INSTALLATION PRICE**

\$150,000

FOR BUDGETARY PURPOSES ONLY. THIS IS NOT A FIRM PRICE. LAYOUT DRAWINGS REQUIRED FOR INSTALLATION PRICE QUOTE. LINCOLN ELECTRIC CAN PROVIDE DRAWINGS UPON REQUEST.

INSTALLATION INCLUDES: PROCUREMENT AND ASSEMBLY OF DUCTING MATERIALS AND FUME EXTRACTION EQUIPMENT IN THIS QUOTE. INSTALLATION ALSO INCLUDES LABOR NEEDED TO INSTALL EQUIPMENT AND DUCTING. SEE CUSTOMER CHECKLIST PAGE FOR ADDITIONAL DETAILS.

# Customer Responsibility Checklist

## Required

- ☐ Pull all applicable permits
- ☐ Provide flat and level surface for fan and filtration unit and accessory items (e.g. concrete housekeeping pad)
- ☐ Provide enclosed shelter for fan and filtration unit (when required)
- ☐ Provide 3-phase power for central exhaust fan
- ☐ Provide disconnect box for exhaust fan within 5 ft. (1.5 m) of unit
- ☐ Provide 115V, 1-phase power for filtration unit cleaning controls within 5 ft. (1.5 m) of unit
- ☐ Provide 115V, 1-phase power for each arc sensor/lamp control box, (if system is so equipped)
- ☐ Provide compressed air connection within 5 ft. (1.5 m) of filtration unit (air must be clean, dry and oil-free)
- ☐ Preparation of site including removal of existing system (if applicable)
- ☐ Provide any building HVAC system components for installation
- ☐ Provide clean and unobstructed storage/staging area for equipment prior to and during installation
- ☐ Perform Pre-/Post- Industrial Hygiene Air Monitoring
- ☐ Obtain air permits for (non-filtered systems)

## Recommended

- ☐ Perform routine system maintenance and service



# A Guide to the Installation of Custom Weld Fume Control Systems

This guide is intended to provide pertinent information to our customers to ensure timely and efficient installation of your weld fume control equipment. The below chart outlines three levels of services provided by Lincoln Electric®. Before equipment installation can occur, the customer/owner must comply with the electrical and building requirements listed in the sidebar. It is the responsibility of the customer/owner to have the requirements completed to specification prior to the installation of the weld fume control equipment.

Custom Weld Fume Control System		Level of Service ✓ = Provided by Lincoln Electric		
Description	Equipment Only*	Equipment and Drawings**	Equipment, Drawings, Installation**	
Engineering Support via phone for Mechanical and Electrical Contractors	✓	✓	✓	
System Commissioning - System start-up, airflow tuning and training of personnel on system operation	✓	✓	✓	
Provide single copy of System Installation Manual	✓	✓	✓	
Suggested duct sizes and equipment layout (basic line drawing or sketch); on request	✓			
Weld Fume Control System design intent layout with details in 2-D CAD, supplied in PDF format (PE stamps not provided)		✓	✓	
Assemble and Install extraction devices, filtration unit, fan, silencer, controls, and welding booths			✓	
Procurement and Installation of Duct and Ducting Materials (includes duct, hangers, stands, clean-out doors, removable caps at all terminal ends, and negative pressure relief doors per SMACNA industrial guidelines)			✓	
Exhaust Gravity Damper (non-filtered systems)			✓	
Wiring to connect electrical equipment to disconnect boxes			✓	

\*Standard on all quotes

\*\*Additional cost



## Prism 12 (20 HP x 2) Specifications

The Lincoln Electric Prism® 12 consists of a filtration unit, dual top-mount fans, exhaust silencers and filter cleaning controls in an easy-to-assemble package.

Applications include extracting and filtering fume and particulate generated by arc welding, plasma cutting, arc gouging, and grinding\*.

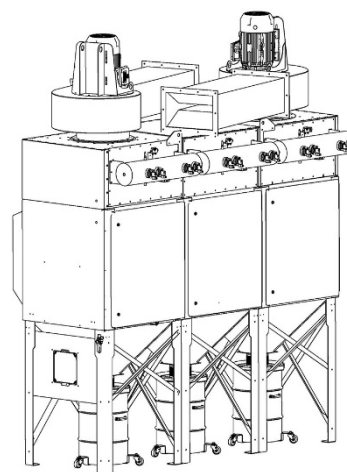
Filters are oriented in the vertical position, enhancing the effectiveness of the uniform, high-energy pulses of compressed air\*\* released during the filter cleaning cycle.

Wheels on the dustbins make system maintenance easier.

A variety of filter types are available.

\* Not suitable when grinding aluminum, magnesium or other materials which may produce explosive dust.

\*\* Customer supplied. Must be clean, dry and oil-free.



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Lincoln Electric Customer Assistance Policy: [www.lincolnelectric.com/assistpolicy](http://www.lincolnelectric.com/assistpolicy)

### TECHNICAL SPECIFICATIONS

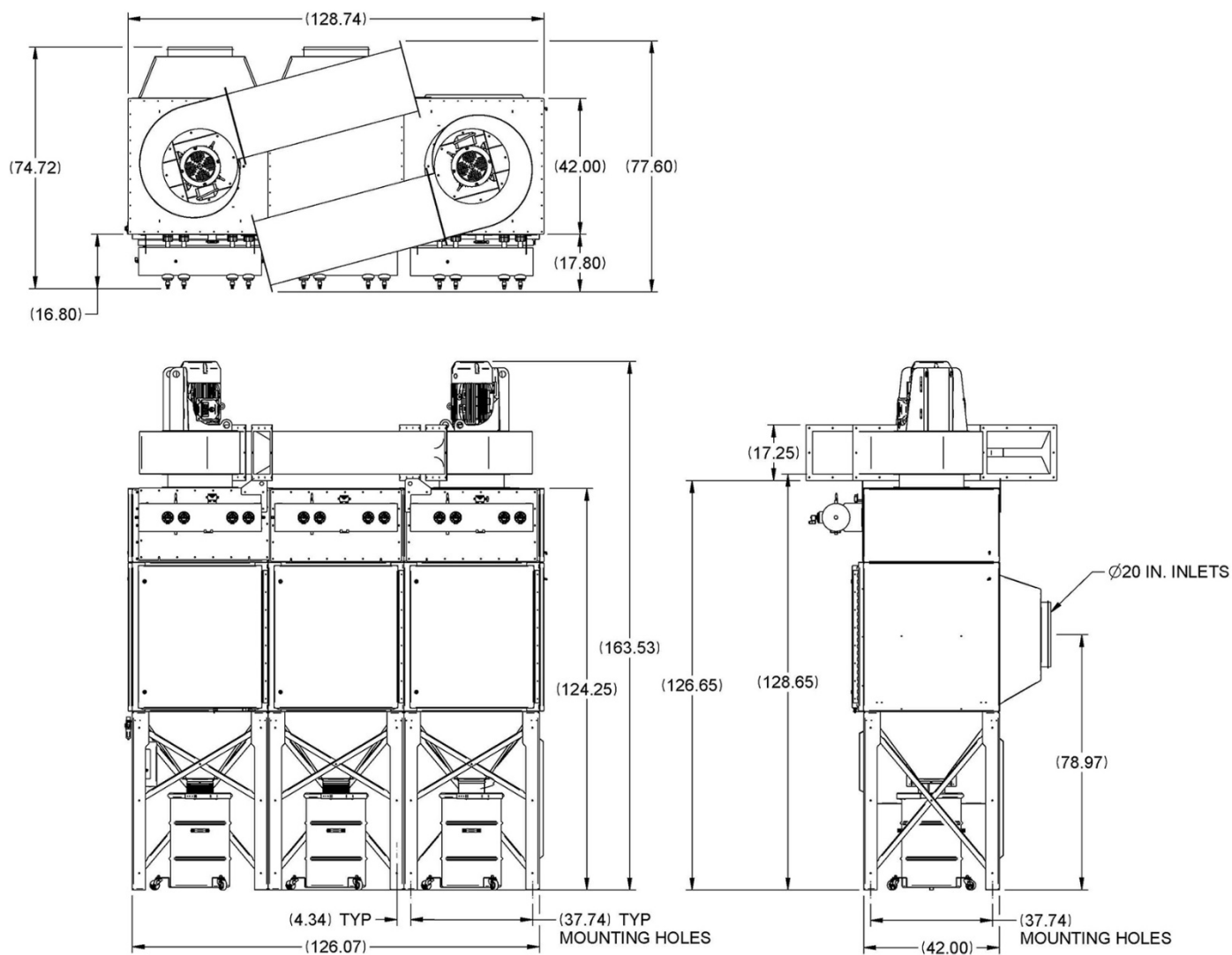
Product Number		L17587-36
Number of Filters (supplied separately)		12
Number of Inlets (dia.) / Position		2 (20 in.)   Back
Number of Dustbins (30 gal. each)		3
Filter Cleaning Control	Type	Pressure-based
	FL Current	1.6 amps @ 115/1/60
Exhaust Fans (data per fan)	Position	Top-Mounted
	Motor Characteristics	20 HP   3600 rpm   256T   TEFC
	FL Current	22.6 amps @ 460/3/60 (with S32715-430)
Total Airflow @ Static Pressure		17600 CFM @ 7 in. WG   14800 CFM @ 12 in. WG
Sound Level with Silencers*		75 dBA at 5 ft. at Position B (side of silencer) under "free field" conditions
Assembled Weight (approx.) w/o Filters		4850 lb. (2200 kg)
Dimensions		See page 2
Clearance Requirements		3.5 ft. (min.) in front to change filters / 3 ft. (min.) on side for control panel access

\* This value represents noise generated by the moving air and does not take into consideration other factors which may contribute to the overall sound level. For example; noise from the motor, casing, duct and other equipment.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing.

The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

## Dimensions



## Filter Specifications

The KP4519-2 filter cartridge is used as the main filter in the Prism® filter bank and Prism Compact. The number of filters required is based on the size of the filter bank.

All filters installed in an individual filter bank should have the same MERV rating and material.

Package includes filter, dust mask, gloves and plastic bag.



### TECHNICAL SPECIFICATIONS

Product Number	KP4519-2
Where Used	Prism Filter Bank, Prism Compact
Filter Characteristics	MERV 16 according to ASHRAE 52.2
Filter Material	Cellulose/Nano
Band Color	White
Type	Cylinder
Diameter (Exterior)	14.4 in. (365 mm)
Top Flange	16.8 x 21 in. (426 x 534 mm)
Overall Height	40 in. (1017 mm)
Filter Surface Area	323 ft. <sup>2</sup> (30 m <sup>2</sup> )
Net Weight	25 lbs. (11.3 kg)

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## Variable Frequency Drive Specifications – 40 HP

The Danfoss FC 101 VLT® HVAC Basic Drive is optimized for efficient, basic control of fans and pumps in variable speed operation applications.



Photo courtesy of Danfoss A/S

### TECHNICAL SPECIFICATIONS

Product Number	AD1283-78
Model	Danfoss FC 101
Input Power	380-480V ±10%/3-Phase/50-60Hz
Max. Input Current, Continuous, 440-480V	49-46 amps
Output Rating	40 HP (30 kW)
Output Current, Continuous, 440-480V	52 amps
Frame Size	H6
Enclosure	IP20 / NEMA 1
Ambient Temperature	up to 50 °C
Accessories Included	Decoupling Plate, IP20/NEMA 1 Kit, LCP Panel
Dimensions (H* x W x D)	23.4 in. x 9.4 in. x 9.5 in. (595 mm x 239 mm x 242 mm)
Approx. Net Weight**	54 lbs. (24.5 kg)

\* Including decoupling plate.

\*\* Without accessories.

*Danfoss is a trademark of Danfoss A/S.*

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# SPARK GUARDIAN™

## GUARDIAN™ Fire Safety Solutions for Fume Control Systems

### CYCLONE SPARK ARRESTOR

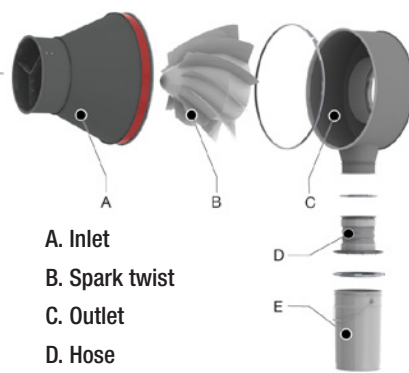
The Spark Guardian™ is highly efficient in preventing sparks and cigarette butts from passing through, and on to the filter. Also, it is a very effective in-line pre-separator, reducing dust load in the connected fume control filter system.

The Spark Guardian™ is to be mounted in a horizontal position. Its modular housing enables maintenance without duct disassembly.

The Spark Guardian™ comes with a 5 gal. dustbin and inspection hatches. The distance between the spark arrestor and dustbin can be lengthened by adding a duct of 8 inches in diameter between the two.



#### Mounting Position



- A. Inlet
- B. Spark twist
- C. Outlet
- D. Hose
- E. Dustbin

#### APPROVALS/CERTIFICATES



### APPLICATIONS:

The Spark Guardian™ is part of Lincoln Electric's GUARDIAN™ fire safety solutions for fume control systems and is recommended for applications with an increased fire risk, such as:

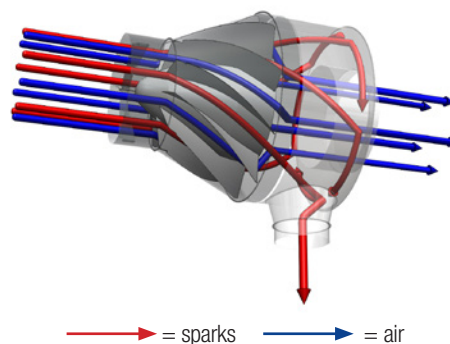
- Robotic welding of oily stamped products
- Robotic and automatic welding of oily products
- Manual welding of oily products
- Cutting tables
- Schools/Other areas with risk of cigarette butts

### SPECIFICATIONS:

#### Physical Dimensions and Properties:

- Material:
  - Inlet & Outlet: Powder-Coated Steel
  - Spark Twist: Galvanized Steel
  - Dustbin: Steel (Painted Black)
  - Hose: Fiberglass/Kevlar/Metal

#### Separation of Sparks:



#### Installation Possibilities:



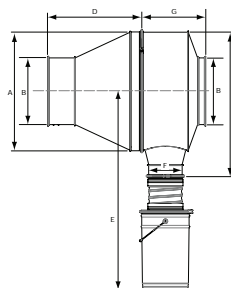


# SPARK GUARDIAN™

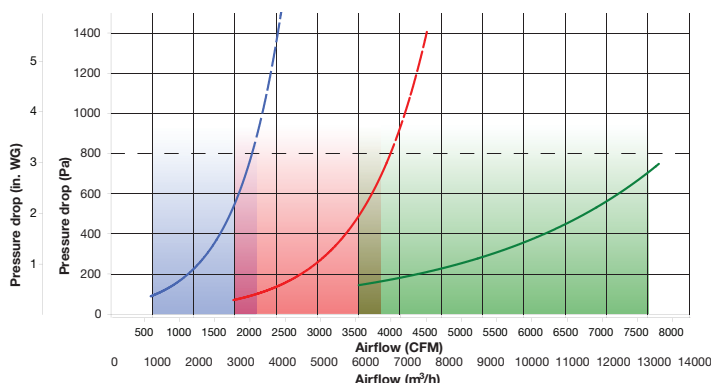
## GUARDIAN™ Fire Safety Solutions for Fume Control Systems

**TABLE 1: SPECIFICATIONS PER TYPE**

SPARK GUARDIAN™	10	16	20
<b>Physical Dimensions and Properties</b>			
A	19.7 in.	28.0 in.	35.4 in.
B	9.8 in.	15.7 in.	19.7 in.
D	17.0 in.	23.1 in.	25.7 in.
E	min. 41.3 in.	min. 47.2 in.	min. 52.2 in.
F	7.9 in.	7.9 in.	7.9 in.
G	13.6 in.	15.2 in.	19.9 in.
H	24.3 in.	34.1 in.	42.8 in.
Total Weight (net): Spark Arrestor Only:	52.1 lbs 44.1 lbs	79.4 lbs 70.5 lbs	119.0 lbs 110.0 lbs
Appropriate duct size	10 in.	16 in.	20 in.
<b>Accessories</b>			
Manual damper	MD-8	MD-8	MD-8
<b>Shipping Data</b>			
Gross weight - excl.pallet (incl. pallet)	61.7 lbs (81.6 lbs)	90.4 lbs (119.0 lbs)	132.3 lbs (187.4 lbs)
Packing dimensions - in.	31.5 x 23.6 x 31.5	47.2 x 31.5 x 39.8	47.2 x 39.8 x 47.2



### PRESSURE DROP & WORKING RANGE



SPARK GUARDIAN™	Pressure Drop	Working Range (max. 3 in. WG)
10	Blue line	Blue shaded area
16	Red line	Red shaded area
20	Green line	Green shaded area

### ORDER INFORMATION

Product Name	Product Number
Spark Guardian™ 10	AD1387-4
Spark Guardian™ 16	AD1387-5
Spark Guardian™ 20	AD1387-6

The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

#### CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to [www.lincolnelectric.com](http://www.lincolnelectric.com) for any updated information.

### WORLD-CLASS WELD FUME CONTROL EXPERTISE

Our technical sales team is trained and knowledgeable about the methodology of substation, isolation, and ventilation. As a key partner, with a wealth of experience and knowledge of welding, welding fume and welding fume removal, we can assist you to identify the right weld fume control solution for your application. Lincoln Electric has a global network of facilities and people to provide quick response and personalized attention, no matter where your welding operations are located.

### SUPPORT & TRAINING PROGRAMS

We offer support materials, training tools, free seminars and courses to enhance your welding and cutting safety program.

Our service and support programs are designed to meet your needs. For on-going preventive maintenance and support, our team can train your staff, conduct evaluations or audits and deliver the services you need to stay productive and effective.

### VALUABLE CUSTOM SOLUTIONS

The Lincoln Electric weld fume control team understands and recognizes that each welding application is unique with its own set of variables; one equipment and consumable solution does not fit every application. Our team will engineer a system to efficiently and effectively remove welding fume and particulate from your metalworking operations.

Contact us today!

#### Environmental Solutions Group

1-888-935-3878 (Menu option #4)

#### Automation After-Hours Technical Support

1-888-532-8001



#### The Lincoln Electric Company

Automation Division

22221 St. Clair Avenue  
Cleveland, OH 44117-2525 U.S.A.

1-216-481-8100

Email: [WeldFumeControl@lincolnelectric.com](mailto:WeldFumeControl@lincolnelectric.com)

[www.lincolnweldfumecontrol.com](http://www.lincolnweldfumecontrol.com)

[www.lincolnelectric.com/safety](http://www.lincolnelectric.com/safety)

## LINCOLN ELECTRIC WELD FUME CONTROL SOLUTIONS AND WELDING BOOTHS

Welding ventilation systems manufactured by The Lincoln Electric Company are designed to be utilized as an engineering safety control to aid in achieving adequate ventilation while welding when the equipment is properly designed, installed, operated, and maintained.

### > Delivery:

Estimated shipping date is 12 weeks. Actual shipping timeline may vary, and is to be determined based on production schedule at the time an order is received, accepted and confirmed. The confirmed ship date may qualify for expedited delivery based on equipment and production availability. Any partial or expedited delivery before confirmed shipment date will result in an additional fee.

Delivery date to be confirmed upon receipt of purchase order.

### > Terms and Conditions:

This quote is valid for 30 days, and is governed by Seller's Terms and Conditions of Sale located at <https://www.lincolnelectric.com/en/Terms-and-Conditions>. Any reference to Buyer's request for quote incorporates only the technical information described therein. ALL TERMS AND CONDITIONS IN BUYER'S REQUEST FOR PROPOSAL/QUOTE ARE DEEMED MATERIAL ALTERATIONS AND ARE HEREBY EXPRESSLY REJECTED.

All prices are F.O.B. Cleveland, Ohio. Shipping and handling will be prepaid and allowed by Lincoln Electric, provided shipment is arranged through Lincoln Electric's preferred carrier and shipment occurs within the 48 contiguous states of the United States. For all other shipments, contact Lincoln Electric. Special shipping and/or handling requirements due to unloading capabilities of the destination may result in an additional fee.

The terms of payment are Net 30 days after shipment with pre-approved credit in place, no cash discounts allowed. The Lincoln Electric Company may change this method of payment in its sole discretion.

Prices do NOT include, unless explicitly stated:

1. Assembly, electrical or mechanical installation
2. Electrical wiring
3. State and local taxes
4. Ducting
5. Air-compressor (for systems with filtration) and related accessories

### > Order Cancellation Charges:

If an order is cancelled after work has been started on the order, cancellation charges will be assessed based on the percent completion of the order.

### > Central Filter/Fan Location:

The central filter bank and fan must be installed on a flat and level surface that is able to support the weight of these system components and their accessory items. Recommended surface material is concrete; asphalt is not a suitable surface.

A climate controlled shelter may be recommended if area temperatures fluctuate between hot and cold and/or high levels of humidity exist.

> Suspended Ambient Systems:

Installation of ambient systems intended to be hung from roof structures or wall mounted must have a building structure adequate to support the live weight of the equipment.

Installations of these units (including but not limited to the building structure, brackets, hardware and any other structural supports), shall be approved by a structural engineer licensed in the governing jurisdiction. Should the customer decline the Lincoln Electric quoted structural analysis, it is the customer's responsibility to obtain the structural approval which meets the codes of the local jurisdiction.

> Ducting Specifications:

The fume extraction system will need a duct system based on the facility layout and positioning of the central fan, filter bank (if included) and extraction devices (arms, hoods, downdraft tables). The duct system is not included in the total system price unless previously identified in the quotation. Lincoln Electric can aid in duct system design and provide an estimate for material and installation costs of which is the final responsibility of the customer.

The recommended duct design utilizes round, galvanized steel spiral pipe. The ductwork should be gauged and installed per the "Round Industrial Duct Construction Standards - Third Edition" published by the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA). Gauge information is shown in Table 11.3.2, "Minimum Required Gage for Class 1 Carbon and Coated Steel Spiral Pipe". If applicable, removable caps are recommended at all terminal ends, and the last branch connection should not be more than six inches from the capped end.

An acceptable alternative to round spiral duct is clamp-together ducting.

> Non-Filtration Systems:

Non-filtration systems are welding fume extraction systems that draw the welding fume into the system and exhaust it to the outdoors without filtering the particulate. A fan exhaust shutter must be installed on the exhaust port of the central fan to prevent backflow or reverse air flow back into the facility when the fan is not running. Please review section Welding Fume Exhaust to the Outdoors and USEPA Regulations for additional information regarding exhausting of welding particulate into the outside environment.

> Pre- and Post- Installation:

A pre-installation procedure is provided by Lincoln Electric which includes an overview of the system configuration and components with mechanical and electrical contractor(s). Pre-installation shall occur through teleconference or on-site visit.

A post installation inspection is provided by Lincoln Electric which includes system start-up, fume extraction system adjustments, airflow balancing for optimal performance and training of operation and routine service and maintenance. Routine service and maintenance of the fume extraction system is recommended and not included in the quoted price.

> Pre- and Post- Industrial Hygiene Air Monitoring:

The purpose of pre- and post-installation industrial hygiene air monitoring is to document and confirm that the ventilation system is sufficient for its intended use from both an equipment and work practice perspective. OSHA defines adequate ventilation as that which is required to maintain occupational exposure levels below the applicable Permissible Exposure Limits.

Lincoln does not provide pre- and post-installation industrial hygiene air monitoring services. Contact a certified Industrial Hygienist to conduct air monitoring.

> Welding Fume Exhaust to the Outdoors and US EPA Regulations:

The United States Environmental Protection Agency through state and local authorities sets limits on a facility's aggregate emissions of regulated chemicals (i.e. metals). The addition of a new stationary exhaust source such as a central welding fume extraction system with an outside exhaust may trigger the requirement for an air permit. If it does, then you will need a permit to install prior to getting a permit to operate.

If you do not know if you need an air permit to install a ventilation system with an outside exhaust, then you should contact your air permitting authority and determine what your requirements are. Failure to comply with air authority requirements in your region can result in significant fines. For more information, see <http://www.epa.gov/nsr>

> Recirculation of Filtered Welding Fume:

It is not the responsibility of Lincoln Electric to research, test and comply with local codes and regulations if filtered air is recirculated (exhausted inside the facility) or unfiltered air is exhausted outside of the facility. If exhausted outside the facility, Lincoln Electric is not responsible for any type of damage or environmental compliance caused by any exhausted particulates and/or substances within the exhausted air.

It is strongly recommended that an indoor/outdoor exhaust duct valve (aka summer/winter switch) be installed if the intention is to recirculate filtered air inside the facility. The duct valve will allow filtered air to be either diverted back into the facility or sent to the outdoors. If recirculation is used, it is recommended to apply a fresh air exchange rate of 30% (minimum).

> Service & Maintenance:

Routine service and maintenance of the fume extraction system is required. Lincoln Electric does provide service and maintenance contract and it is not included in the fume extraction system quoted price. A contract can be supplied on request.

To sustain an optimal system performance level, routine service and maintenance of the fume extraction system is required. Based on the level of annual consumable usage, welding process(es), condition of base metal and overall type of usage and air quality extracted through system, it is recommended that the particulate drums be emptied as needed.

Because the particulate matter collected in the filter bank may be hazardous, take necessary precautions so that you and your fellow workers do not breathe dust and particulate. Wear a suitable respirator when disposing of the particulate. Follow local environmental regulations for disposal of filters and particulate matter.

NOTE: Lincoln Electric Environmental Systems are designed specifically for welding fume particulate extraction.

Due to weld fume compositions and resultant build-up over time, it is recommended that the duct and overall system be routinely inspected and cleaned. Periodic inspection and cleaning of the duct will preserve effectiveness and life of weld fume extraction system, and help prevent any potential fire hazards.

NOTE: When using weld fume extraction or Local Exhaust Ventilation (LEV) equipment, sparks from welding, cutting or grinding processes can cause fire within the equipment. To minimize potential fire, operation, service and maintenance guidelines for fume extraction or LEV equipment should be followed.



Improper maintenance of filter unit such as operating with fully saturated main filter over extended period of time may reduce equipment life, filter efficiency, and increase chance of overheating blower motor(s) and potential fire hazard.

The filter media is designed for dry air filtration. If the air and fume extracted contains any type of oils, anti-spatter, tip-dip and/or moisture, this can affect filter and system performance and life expectancy. It is recommended that routine system maintenance be performed at one month intervals for robotic welding applications and three month intervals for semi-automatic manual welding applications. For robotic welding application(s) with hood canopy fume extraction system(s) design, this includes monthly inspection and cleaning of inner hood canopy, deflector plate and hood outlet, extraction duct, pre-separator, filter, fan housing, fan blade condition and filter surface condition, recirculation duct and/or exhaust stack (if applicable). For semi-automatic welding application(s) with multiple arm fume extraction system(s), this includes inspection and cleaning every three months of extraction arm(s), extraction duct, pre-separator, filter, fan housing, fan blade condition, filter surface condition, recirculation duct and/or exhaust stack (if applicable). Based on the cleanliness or condition of the system components (i.e. hood, arm, duct, filter, fan), the maintenance schedule may have to be adjusted for shorter or longer intervals.

NOTE: If routine service and maintenance are not performed, applications and processes with oils, anti-spatter, tip-dip and/or moisture may cause damage to system equipment and may void the equipment and filter warranty. If the environmental system is not properly and routinely maintained, the airflow (CFM) level may also be affected.

Proper personal protection equipment (PPE) (i.e. respirators, eyewear, clothing and gloves) should be used when servicing and maintaining the system, along with disposal of filter (s). Proper disposal of filter (s) should adhere to federal, state and/or local guidelines and regulations.

Users and employers have the sole responsibility for and control over workplace conditions, including the manner in which work is performed and the safety measures taken. Always read and follow applicable OSHA regulations as well as all information on product labeling and safety data sheets (SDS available at <http://www.lincolnelectric.com/msds>) when using Lincoln Electric products. Further information regarding their safe use may be found here: <http://www.lincolnelectric.com/safety>.

The operation of welding fume control equipment is affected by various factors including proper use and positioning of such equipment, maintenance of the equipment and the specific welding procedure and application involved. Users and employers should have an industrial hygienist check worker exposure levels to be certain that they are within applicable OSHA PEL and ACGIH TLV limits.

#### > Customer Assistance Policy:

The business of the Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask the Company for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, the Company does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

The Company is a responsive manufacturer, but the selection and use of specific products sold by the Company is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of the Company affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change - This information is accurate to the best of our knowledge on the date provided. Please refer to

<http://www.lincolnelectric.com/assistpolicy> for any updated information.

> Warranty:

To view the Lincoln Electric "Industrial Limited Warranty", please visit <http://www.lincolnelectric.com/warranty>.

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