



**Weld Fume
Control**

T H E L I N C O L N E L E C T R I C C O M P A N Y

Automation Division: 22221 Saint Clair Ave • Cleveland, Ohio 44117 • U.S.A Tel: +1 (216) 383-2667 • Fax: +1 (216) 383-4727

March 17, 2014

Project: Hardin County Early College & Career Center

Herein you will find a formal proposal and quote information for a **weld fume control system** prepared and submitted by The Lincoln Electric Company for Hardin County Early College & Career Center. The proposal/quote addresses the following items:

- 1) Lincoln Electric Weld Fume Control quotation
- 2) Delivery
- 3) Terms and Conditions
- 4) Service and Maintenance
- 5) Warranty
- 6) Equipment Specifications

The Lincoln Electric Company has reviewed the specifications for Hardin County Early College & Career Center and has designed a low vacuum weld fume control system for a total of 16 welding stations.

The system equipment has been designed for 16 extraction arms per the customer provided requirements, floor dimensions and layout. Based on that information, the approximate airflow is 600 to 650 CFM per arm. If the requirements, floor dimensions or system layout changes the CFM value may or may not be affected.

System Components

The SF20000 central fan consists of a 30 horsepower 3-phase motor, fan, vibration suppressors, and a sound absorbing box which reduces operating noise level by 10 dB(A). The motor speed is controlled using a variable frequency drive and is adjusted based on airflow demand. The SF20000 weighs 882 lbs.

The Statiflex® Filter Bank filtration system features MERV 16 rated filter cartridges that have the ability to extract $\geq 99.5\%$ of particulate that is 0.3-1.0 microns in size (the range for most welding particulate), thus significantly reducing the amount of particulate in the air at the individual welding station and in the overall facility.

An electronic control system in the Statiflex FB monitors airflow rates in and out of the filters and will automatically signal a cleaning pulse when an increased pressure drop is detected. An automatic cleaning cycle can and must be set. Self-cleaning usually takes place during central fan off-line hours and addresses the entire filter surface area.

Note: The position of the central fan's inspection cover and inlet / outlet configuration of the filtration unit may change based on the final installation location of these items. Any variance from the pre-selected components listed in the quotation may or may not impact the pricing.



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The LTA 2.0-CW telescopic extraction arm extends 5 to 8 ft. and features a pivoting motion. The hood rotates a full 360°.

Recommended installation height of the extraction arms is 9.5 to 10.5 ft. from the floor. Specific applications may require mounting the arm at a different height. The wall should be of solid construction, e.g. steel, concrete block or sturdy backing board to support the weight of the extraction arm and the force created when the arm is repositioned.

Spiral ductwork from 8-inch to 24-inch diameter and an air compressor system (90-105 psi, dry clean air capacity) **are not included** in the Equipment List and Pricing Sheet, but are required for the central filtration system.

It is recommended that a summer/winter switch (turn valve) be integrated into the exhaust duct beyond the central fan and silencer. The summer/winter switch will give the option of indoor recirculation or outdoor exhausting.

Equipment Pricing is specified as "weld fume control equipment" only and **does not include** any ducting or ducting installation, service and maintenance, any electrical costs associated with installation of the equipment within the facility including hardware and labor or shipment of the equipment to the facility from Lincoln Electric.

Please refer to the "Delivery" and "Terms and Conditions" sections for further explanation.

Thank you for the interest in Lincoln Electric weld fume control systems. Lincoln Electric looks forward to working with you in creating the optimal welding environment that will benefit you and your facility.

When you send the order in for processing, reference the quote number and list the line items being purchased by part number as they appear on this quote.

If you have any questions, please let me know.

Sincerely,

Mike Clemente
Proposals Engineer

Revision 2

LOW VAC WELD FUME CONTROL SYSTEM

HARDIN CO EARLY COLLEGE/CAREER CTR

03/17/2014

Quote No. 20182703 R2

QTY	PRODUCT NUMBER	PRODUCT DESCRIPTION
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16 K1655-7

LTA 2.0-CW TELESCOPIC EXTRACTION ARM

THE LTA 2.0-CW IS A WALL-MOUNTED TELESCOPIC EXTRACTION ARM WITH A 360 DEGREE ROTATABLE HOOD.

INCORPORATED INTO THE HOOD IS A THROTTLE VALVE THAT CAN BE FULLY OPENED, PARTIALLY OPENED OR COMPLETELY CLOSED TO CONTROL AIRFLOW AT THE HOOD OPENING. THE ARM FEATURES A FOCUS EXTRACTION SPOILER, WHICH DIRECTS THE AIR INTO THE HOOD.

THE EXTRACTION ARM IS BASED ON A TELESCOPIC TUBE, ALLOWING IT TO BE EXTENDED TO GIVE A 7FT WORKING RADIUS AND COMPRESSED TO 3FT. THE ARM IS FITTED WITH A SPRING-BALANCE WHICH ENABLES IT TO BE MOVED FROM A VERTICAL TO A HORIZONTAL POSITION IN ONE EASY MOVEMENT. THE COUNTERWEIGHT MECHANISM ENSURES THE ARM WILL STAY EXACTLY WHERE IT IS POSITIONED. THE ARM CAN BE TURNED THROUGH 300 DEGREE DUE TO THE BALL-BEARING JOINT. THIS IS FITTED TOGETHER WITH AN ADJUSTABLE FRICTION BRAKE IN THE WALL MOUNTING BRACKET. ALL MOVEMENT OF THE ARM IS CONTROLLED FROM THE HOOD.

16 S23267-1

ENV,CIUT S23267 TO 8" DIAMETER MARK

EIGHT INCH TAPERED CONNECTION FLANGE USED TO ADAPT AN EXTRACTION ARM TO A WELD FUME CONTROL CENTRAL SYSTEM.

16 S23385-41

MANUAL DAMPER, MD200MM

THE MD200 MANUAL DAMPER IS USED TO CONTROL OR "TUNE" THE EXTRACTION AIR VOLUME PER ARM IN A MULTIPLE ARM EXTRACTION SYSTEM. IT IS USED IN A FULLY CONTROLLED OR UNCONTROLLED SYSTEM.

IT IS 8" DIAMETER AND IS MOUNTED BETWEEN THE EXTRACTION ARM AND THE AD200 (IF PRESENT) OR THE CENTRAL/MAIN DUCT.

16 S23385-39

AUTOMATIC DAMPER, AD 200MM

THE AD200 AUTOMATIC DAMPER IS USED IN A FULLY CONTROLLED FUME EXTRACTION SYSTEM. IT IS 8" DIAMETER AND IS MOUNTED BETWEEN THE EXTRACTION ARM OR MD200 (IF PRESENT) AND THE CENTRAL/MAIN DUCT.

THE AD 200 WILL AUTOMATICALLY OPEN/CLOSE IN 8 SECONDS. IT IS CONNECTED TO THE EXTRACTION ARM CONTROL BOX WITH A WORK LIGHT AND ARC SENSOR (AST) AND OPERATES AT 24VAC.

16 AD1221

LAMP/ARC SENSOR KIT, CENTRAL SYSTEM

03/17/2014

Quote No. 20182703 R2

LAMP KIT WITH ARC SENSOR FOR USE WITH FUME EXTRACTION ARMS. INCLUDES LAMP KIT FOR HOOD MOUNTED LIGHT SOURCE, ARC START SENSOR THAT STARTS THE FAN WHEN THE SENSOR DETECTS THE PRESENCE OF A WELDING ARC, CONTROL BOX AND INSTALLATION INSTRUCTIONS.

THIS ITEM IS USED IN CENTRAL SYSTEM APPLICATIONS WHEN THERE IS ONE CENTRAL FAN. THE AUTOMATIC DAMPERS (AD200) ARE CONTROLLED BY AND WIRED INTO THE CONTROL BOX. THIS EQUIPMENT OPERATES ON 120VAC AND FURTHER TRANSFORMS THE VOLTAGE TO A 24 VAC OPERATING RANGE.

1 S23385-37

IF 15 - INTERFACE CONTROL

THE IF 15 INTERFACE CONTROLLER IS USED ON A FULLY CONTROLLED CENTRAL FUME EXTRACTION SYSTEM WITH UP TO 15 ARMS CONNECTED TO THE SYSTEM. THE IF 15 INTERFACE IS WIRED WITHIN THE SYSTEM, BETWEEN THE CONTROL BOX AND THE CENTRAL FAN FREQUENCY CONTROLLER

THE IF 15 CONVERTS THE SIGNALS OF THE ARC SENSORS (AST) THAT ARE MOUNTED WITHIN THE HOOD AT THE END OF EACH EXTRACTION ARM. IT USES A mA SIGNAL FROM EACH ARM AND IS THEN COMMUNICATED TO THE FAN FREQUENCY CONTROLLER THUS CONTROLLING THE EXTRACTION VOLUME OF THE SYSTEM.

THE IF 15 IS SELF-ENCLOSED AND GETS ITS VOLTAGE SUPPLY OF 24VAC FROM ANY ONE OF THE EXTRACTION ARM CONTROL BOXES.

1 AD1389-2

ENV, PRESSURE DIFFERENTIAL KIT

THIS SYSTEM MONITORS THE SATURATION LEVEL OF THE FILTER CARTRIDGES AND ADJUSTS THE AIR VOLUME RATE BASED ON A PREDETERMINED SETPOINT. AS THE FILTER CARTRIDGES BECOME SATURATED, THE CONTROLLER ADJUSTS THE FAN SPEED TO MAINTAIN THE REQUIRED AIR VOLUME DETERMINED BY THE AIR VOLUME SETPOINT.

1 M18464-11

SE20000LI, 22KW EXTRACTION FAN, LEFT

CENTRAL FAN CONTAINS A 22kW (30 HP) MOTOR THAT RUNS AT 2850 RPM. THE MOTOR IS MOUNTED IN A METAL SOUND ABSORBING BOX THAT IS DESIGNED WITH INTERNAL SHOCK ABSORBERS WHICH AID IN REDUCING VIBRATION AND SOUND LEVELS. OPERATING VOLTAGE IS 400-690VAC/3PH/50Hz. THE CASE IS OUTFITTED WITH A LEFT SIDE ACCESS/INSPECTION DOOR FOR EASE OF MAINTENANCE.

1 AD1283-45

ENV, POWERFLEX 400, 30HP, 47AMP, IP54VFD

03/17/2014

Quote No. 20182703 R2

THE FREQUENCY CONTROLLER IS A POWER LINE FILTER THAT REGULATES THE CENTRAL FAN INPUT VOLTAGE BASED UPON THE AMOUNT OF ARMS THAT ARE OPERATING. IT RECEIVES AN INPUT SIGNAL FROM THE IF 15 INTERFACE AND BASED ON THE EXTRACTION DEMAND, WILL AUTOMATICALLY ADJUST THE CENTRAL FAN SPEED ACCORDINGLY TO MAINTAIN THE SAME AMOUNT OF AIR VOLUME (CFM) PER STATION.

1 XCUSTOM_ITEM

TRANSFORMER, 208V TO 460V

1 L16480-23

STATIFLEX FB-20-STD/S

THE STATIFLEX FB-20-STD/S IS DESIGNED TO FILTER A MAXIMUM OF 11600 CFM OF AIR. THIS AIRFLOW CAPACITY COMBINED WITH SELF-CLEANING TECHNOLOGY OFFERS AN ECONOMICAL SOLUTION FOR WELDING FUME FILTRATION.

THE SELF-CLEANING CYCLE IS TRIGGERED USING A PRESSURE DIFFERENTIAL SWITCH, WHICH MONITORS THE PRESSURE DROP ACROSS THE FILTER CARTRIDGES, OR A TIMER. UNIFORM, HIGH ENERGY BURSTS OF COMPRESSED AIR ARE PULSED THROUGH EACH FILTER CARTRIDGE, PROVIDING LONGER FILTER LIFE AND LOWER OPERATING COSTS.

INCLUDES FILTER BANK AND DUST DRUM(S). UNIT REQUIRES DRY OIL-FREE COMPRESSED AIR AND ELECTRICAL POWER SUPPLY.

1 S23273-6

ENV,CTRL BOX FB, PRSSURE, UP TO 24 CART

THE CONT-C24 OFFERS THE TOP OF THE LINE CLEANING AVAILABLE. THIS UNIT MONITORS FILTER PRESSURE TO ENSURE CLEANING IS ONLY DONE WHEN IT IS NECESSARY. THIS REDUCES COMPRESSED AIR USAGE AND ENSURES MAXIMUM FILTER LIFE.

20 KP3369-1

FILTER, STATIFLEX FILTER BANK, MERV 16

CART-MB HIGH EFFICIENCY FILTER CARTRIDGE FOR THE STATIFLEX FILTER BANK UNIT. THE FILTER MEDIA OFFERS A MERV 16 LEVEL OF FILTRATION EFFICIENCY. THE AMOUNT OF FILTERS REQUIRED IS BASED ON THE SIZE OF THE FILTER BANK.

1 S23281-43

STRAIGHT SILENCER SAS 630

THE SAS630 IS A STRAIGHT SILENCER THAT IS USED ON THE EXHAUST SIDE OF THE SF15000 OR SF20000 CENTRAL FAN. THE DUCT DIAMETER IS 24" AND THE OUTER DIAMETER IS 29" AND THE OVERALL LENGTH IS 47". IT IS USED TO REDUCE THE NOISE LEVEL OF THE EXHAUSTED AIR APPROXIMATELY 20 dB(A).

03/17/2014

Quote No. 20182703 R2

1 AD1321-100

SYSTEM ENGINEERING SUPPORT

INCLUDES ENGINEERING AND INSTALLATION PHONE SUPPORT FOR THE ELECTRICAL AND MECHANICAL CONTRACTORS. LINCOLN ELECTRIC DOES NOT PROVIDE THE SPIRAL DUCTWORK NOR THE INSTALLATION OF THE SYSTEM WHICH INCLUDES AND IS NOT LIMITED TO ANY HVAC COMPONENTS, ELECTRICAL CONNECTIONS, EQUIPMENT MOUNTING AND COMPRESSED AIR CONNECTIONS.

LINCOLN ELECTRIC WILL PROVIDE A PICTORIAL REPRESENTATION OF THE DUCTING DIAMETERS AND LAYOUT, PROVIDED LINCOLN ELECTRIC RECEIVES A COPY OF THE FACILITY LAYOUT FROM CUSTOMER. ANY DETAILED DRAWINGS, PE STAMPS, OR PERMITS WILL BE THE RESPONSIBILITY OF THE MECHANICAL/ELECTRICAL INSTALLER AND/OR CUSTOMER.

ONE SYSTEM INSTALLATION MANUAL IS INCLUDED WITH THE PURCHASE OF THE QUOTED SYSTEM AND WILL BE SHIPPED WITH THE SYSTEM EQUIPMENT. ELECTRONIC VERSIONS OF THE SYSTEM MANUAL WILL BE PROVIDED UPON REQUEST FROM LINCOLN'S CUSTOMER. ADDITIONAL HARD COPIES OF THE INSTALLATION MANUAL ARE AVAILABLE FOR AN ADDITIONAL CHARGE OF \$100.00 FOR EACH COPY.

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

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

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

COMMISSIONING OF SYSTEM WILL BE DONE BY A LINCOLN ELECTRIC 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.

03/17/2014

Quote No. 20182703 R2

TOTAL SYSTEM PRICE: \$86,798

LOW VAC WELD FUME CONTROL SYSTEM

HARDIN CO EARLY COLLEGE/CAREER CTR 03/17/2014

Quote No. 20182703 R2

QTY	PRODUCT NUMBER	PRODUCT DESCRIPTION
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PRICE

EACH | EXT.

Recommended Options:

1 AD1321-4

SYSTEM INSTALLATION

\$65,000

\$65,000

SYSTEM INSTALLATION PRICE IS AN ESTIMATE USING TWO INSTALLATION TECHNICIANS. THIS COVERS THE MECHANICAL INSTALLATION OF THE DUCTWORK, CONNECTION OF THE AIRLINE FROM THE CUSTOMER SUPPLIED DROP TO THE FILTER AIR REGULATOR, POSITIONING OF THE FILTER AND FAN UNITS AND THE ELECTRICAL CONNECTION OF THE SYSTEM CONTROL CABINET TO THE FAN UNIT, SYSTEM CONTROL CABINET TO FILTER CONTROL UNIT AND SYSTEM CONTROL CABINET TO DUCT DIFFERENTIAL PRESSURE UNIT.

CUSTOMER MUST SUPPLY APPROPRIATE POWER AND APPROPRIATELY SIZED DISCONNECT BOXES FOR CONNECTION TO SYSTEM CONTROL UNIT. CUSTOMER MUST ALSO SUPPLY A COMPRESSED AIR CONNECTION WITHIN 5FT OF THE FILTER UNIT.

INSTALLATION EQUIPMENT SUCH AS SCISSOR LIFT AND SKYJACKS ARE NOT INCLUDED IN THIS LINE ITEM AND WILL BE BILLED SEPARATELY AT STANDARD MARKET PRICES UNLESS THIS EQUIPMENT IS SUPPLIED BY THE CUSTOMER.

02/28/2014

Quote No. 20182703

LINCOLN ELECTRIC ENVIRONMENTAL SYSTEMS FOR WELDING FUME EXTRACTION

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 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:

All prices are F.O.B. Cleveland, Ohio, with Freight Prepaid and invoiced to customer.

Environmental Systems terms: 60% due with order, and 40% due net-30 days after shipment, unless otherwise approved by Automation Division Management.

System Equipment Prices are in effect for sixty (60) days from date of quotation.

System Equipment Prices do NOT include:

1. assembly, electrical or mechanical installation
2. electrical wiring
3. state and local taxes
4. freight
5. ducting
6. air-compressor and related accessories

Order Cancellation Charges:

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

Fittings may be added or omitted upon installation to account for unforeseen obstacles.

Distributors invoice will be adjusted where appropriate.

Central Filter/Fan Location:

The central filter and fan units 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.

Statiflex 6000-MS and Pre-Separator: If these components will be placed outdoors, it is required that they are installed in an enclosed shelter to maximize fume extraction system life and performance. The shelter should consist of a roof and walls constructed of materials appropriate to the location's climate.

Furthermore, a climate controlled shelter is recommended if area temperatures fluctuate between hot and cold and/or high levels of humidity exist.

Statiflex Filter Bank: These units are suitable for use outdoors and do not require a shelter.

02/28/2014

Quote No. 20182703

The customer is responsible for providing a suitable installation surface and shelter.

Ducting Specifications:

The fume extraction system will need a duct system based on the facility layout and positioning of the central fan and extraction arms. The duct system is not included in the total system price unless previously identified in body of 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. Per ACGIH recommendations, Clean-out doors in ducts should be provided in horizontal runs, near elbows, junctions, and vertical runs. Spacing of clean-out doors should not exceed 12 linear feet. If applicable, removable caps are recommended at all terminal ends, and last branch connection should not be more than six inches from the capped end.

For greatest system performance and leak-proof installation, it is recommended that the ductwork be of a clamp-together design using a die-formed, rolled edge, which is then joined together by a single lever clamp of similar material. All clamp together ducting should be of continuous construction, preferably through Laser welding, along the longitudinal seam of the rolled form duct. All connections should have a nitrile rubber gasket for rolled edges and nitrile rubber o-ring for rolled edge to duct connection and seal in clamp for standard applications. Duct system must follow the standards as set by SMACNA leakage CLASS 3 for 10 inch SP and duct wall thickness to handle a maximum of 12 inch SP.

Spiral duct thickness recommendations for system:

8, 10, 12, 14, 16 (inches): 20 Gauge

18, 20, 22, 24 (inches): 18 Gauge

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. The system can be set up to operate in either an on/off or automatic configuration. On/off systems are simply that, they are operated by a one switch system that turns the fan unit on or off and all the arms are extracting at the same time. A fan exhaust shutter must be installed on the exhaust port of the fan unit to prevent backflow or reverse air flow back into the facility when the fan unit 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, "CFM airflow tuning" 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 value of Pre- and Post- Installation industrial hygiene air monitoring is that it documents and assures that the use of the ventilation system is adequate both from the equipment and work practice prospective for which it is intended to be used. OSHA defines adequate ventilation to be that ventilation required to maintain or to reduce personal exposures below the applicable Permissible Exposure Limits. This service is not provided by Lincoln Electric.

02/28/2014

Quote No. 20182703

In addition, either personal or area IH Monitoring can provide an empirical measure of the degree of effectiveness of the exposure control; i.e. it reduces the potential exposure by half, 10x etc. This information can be used to estimate the impact on the capacity of the system to handle changing work conditions.

Welding Fume Exhaust to the Outdoors and USEPA Regulations:

The US 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 ventilation 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/where.html>

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, type of welding process, condition of base metal and overall type of usage and air quality extracted through system, it is recommended that the particulate drums beneath the Statiflex filter unit and pre-separator be emptied as needed.

Because the particulate matter collected in the unit 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 duct and overall system be routinely inspected and cleaned. Periodic inspection and cleaning of 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

02/28/2014

Quote No. 20182703

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 made of a cellulose material and 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 (ie. hood, arm, duct, filter, fan), the maintenance schedule may have to be adjusted for shorter or longer intervals.

NOTE: If routine service and maintenance is 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) (ie. 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 material safety data sheets (MSDS available at <http://www.lincolnelectric.com/msds>) when using Lincoln Electric products. Further information regarding their safe use may be found on the following website:
<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.

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.

Subject to Change: This information is accurate to the best of our knowledge on the date provided. Please refer to www.lincolnelectric.com for any updated information

02/28/2014

Quote No. 20182703

Warranty:

One (1) year -- equipment and parts.

Thirty (30) days -- filters.

Conditions of Warranty - To obtain warranty coverage:

The End User must contact LECO about any defect claimed under LECO's warranty prior to correction. Determination of warranty on equipment will be made by LECO or LECO's Authorized Service Facility.

Warranty Repair:

If LECO or LECO's Authorized Service Facility confirms the existence of a defect covered by this warranty, the defect will be corrected by repair or replacement at LECO's option. At LECO's request, the Integrator or end-user must return to LECO or LECO's Authorized Service Facility any "Goods" claimed defective under LECO's warranty.

Warranty/Service Freight Costs:

For equipment, the end-user customer is responsible for shipment both to and from LECO's Authorized Service Facility. LECO will bear the cost of any required return shipment from LECO's Authorized Service Facility to LECO.

PROPRIETARY AND CONFIDENTIAL:

THIS ENTIRE QUOTE DOCUMENT CONTAINS PROPRIETARY INFORMATION OWNED BY THE LINCOLN ELECTRIC COMPANY AND MAY NOT BE DUPLICATED, COMMUNICATED TO OTHER PARTIES OR USED FOR ANY PURPOSE WITHOUT EXPRESS WRITTEN PERMISSION OF THE LINCOLN ELECTRIC COMPANY.



**Weld Fume
Control**

T H E L I N C O L N E L E C T R I C C O M P A N Y

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March 17, 2014

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Sincerely,

Mike Clemente
Proposals Engineer

Revision 1

WELDING BOOTHS

HARDIN CO EARLY COLLEGE/CAREER CTR 03/17/2014

Quote No. 20183231 R1

QTY	PRODUCT NUMBER	PRODUCT DESCRIPTION
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1 XCUSTOM_ITEM 16 - [5' X 5'] - WELDING BOOTHS

ALL PANELS ARE MADE FROM STEEL WITH 2"x2" SUPPORTS. BOOTH SIZE WILL BE 5FT x 5FT x 7.5FT (LxWxH). WALLS WILL BE PAINTED BLACK. END PANELS WILL BE PAINTED RED AND BLACK.

INCLUDES:

- (2) RIGHT PANELS*
- (2) LEFT PANELS*
- (14) CENTER PANELS*
- (16) BRACKETS TO MOUNT EXTRACTION ARM ON BOOTH WALL*
- (18) SPACER FOR BOOTHS WITH NO BACK WALLS*

- (16) WELDING TABLES*
- (16) WELDING CURTAINS*

NOTE: QUOTE BASED ON ROWS OF 7 AND 9 BOOTHS, WHERE EACH BOOTH IS SET SIDE-BY-SIDE IN THEIR RESPECTIVE ROW. CUSTOMER TO SUPPLY HARDWARE TO MOUNT PANELS TO WALL.

TOTAL SYSTEM PRICE: \$33,242

03/06/2014

Quote No. 20183231

LINCOLN ELECTRIC ENVIRONMENTAL SYSTEMS FOR WELDING FUME EXTRACTION

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 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:

All prices are F.O.B. Cleveland, Ohio, with Freight Prepaid and invoiced to customer.

Environmental Systems terms: 60% due with order, and 40% due net-30 days after shipment, unless otherwise approved by Automation Division Management.

System Equipment Prices are in effect for sixty (60) days from date of quotation.

System Equipment Prices do NOT include:

1. assembly, electrical or mechanical installation
2. electrical wiring
3. state and local taxes
4. freight
5. ducting
6. air-compressor and related accessories

Order Cancellation Charges:

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

Fittings may be added or omitted upon installation to account for unforeseen obstacles.

Distributors invoice will be adjusted where appropriate.

Central Filter/Fan Location:

The central filter and fan units 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.

Statiflex 6000-MS and Pre-Separator: If these components will be placed outdoors, it is required that they are installed in an enclosed shelter to maximize fume extraction system life and performance. The shelter should consist of a roof and walls constructed of materials appropriate to the location's climate.

Furthermore, a climate controlled shelter is recommended if area temperatures fluctuate between hot and cold and/or high levels of humidity exist.

Statiflex Filter Bank: These units are suitable for use outdoors and do not require a shelter.

03/06/2014

Quote No. 20183231

The customer is responsible for providing a suitable installation surface and shelter.

Ducting Specifications:

The fume extraction system will need a duct system based on the facility layout and positioning of the central fan and extraction arms. The duct system is not included in the total system price unless previously identified in body of 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. Per ACGIH recommendations, Clean-out doors in ducts should be provided in horizontal runs, near elbows, junctions, and vertical runs. Spacing of clean-out doors should not exceed 12 linear feet. If applicable, removable caps are recommended at all terminal ends, and last branch connection should not be more than six inches from the capped end.

For greatest system performance and leak-proof installation, it is recommended that the ductwork be of a clamp-together design using a die-formed, rolled edge, which is then joined together by a single lever clamp of similar material. All clamp together ducting should be of continuous construction, preferably through Laser welding, along the longitudinal seam of the rolled form duct. All connections should have a nitrile rubber gasket for rolled edges and nitrile rubber o-ring for rolled edge to duct connection and seal in clamp for standard applications. Duct system must follow the standards as set by SMACNA leakage CLASS 3 for 10 inch SP and duct wall thickness to handle a maximum of 12 inch SP.

Spiral duct thickness recommendations for system:

8, 10, 12, 14, 16 (inches): 20 Gauge

18, 20, 22, 24 (inches): 18 Gauge

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. The system can be set up to operate in either an on/off or automatic configuration. On/off systems are simply that, they are operated by a one switch system that turns the fan unit on or off and all the arms are extracting at the same time. A fan exhaust shutter must be installed on the exhaust port of the fan unit to prevent backflow or reverse air flow back into the facility when the fan unit 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, "CFM airflow tuning" 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 value of Pre- and Post- Installation industrial hygiene air monitoring is that it documents and assures that the use of the ventilation system is adequate both from the equipment and work practice prospective for which it is intended to be used. OSHA defines adequate ventilation to be that ventilation required to maintain or to reduce personal exposures below the applicable Permissible Exposure Limits. This service is not provided by Lincoln Electric.

03/06/2014

Quote No. 20183231

In addition, either personal or area IH Monitoring can provide an empirical measure of the degree of effectiveness of the exposure control; i.e. it reduces the potential exposure by half, 10x etc. This information can be used to estimate the impact on the capacity of the system to handle changing work conditions.

Welding Fume Exhaust to the Outdoors and USEPA Regulations:

The US 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 ventilation 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/where.html>

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, type of welding process, condition of base metal and overall type of usage and air quality extracted through system, it is recommended that the particulate drums beneath the Statiflex filter unit and pre-separator be emptied as needed.

Because the particulate matter collected in the unit 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 duct and overall system be routinely inspected and cleaned. Periodic inspection and cleaning of 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

03/06/2014

Quote No. 20183231

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 made of a cellulose material and 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 (ie. hood, arm, duct, filter, fan), the maintenance schedule may have to be adjusted for shorter or longer intervals.

NOTE: If routine service and maintenance is 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) (ie. 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 material safety data sheets (MSDS available at <http://www.lincolnelectric.com/msds>) when using Lincoln Electric products. Further information regarding their safe use may be found on the following website:
<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.

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.

Subject to Change: This information is accurate to the best of our knowledge on the date provided. Please refer to www.lincolnelectric.com for any updated information

03/06/2014

Quote No. 20183231

Warranty:

One (1) year -- equipment and parts.

Thirty (30) days -- filters.

Conditions of Warranty - To obtain warranty coverage:

The End User must contact LECO about any defect claimed under LECO's warranty prior to correction. Determination of warranty on equipment will be made by LECO or LECO's Authorized Service Facility.

Warranty Repair:

If LECO or LECO's Authorized Service Facility confirms the existence of a defect covered by this warranty, the defect will be corrected by repair or replacement at LECO's option. At LECO's request, the Integrator or end-user must return to LECO or LECO's Authorized Service Facility any "Goods" claimed defective under LECO's warranty.

Warranty/Service Freight Costs:

For equipment, the end-user customer is responsible for shipment both to and from LECO's Authorized Service Facility. LECO will bear the cost of any required return shipment from LECO's Authorized Service Facility to LECO.

PROPRIETARY AND CONFIDENTIAL:

THIS ENTIRE QUOTE DOCUMENT CONTAINS PROPRIETARY INFORMATION OWNED BY THE LINCOLN ELECTRIC COMPANY AND MAY NOT BE DUPLICATED, COMMUNICATED TO OTHER PARTIES OR USED FOR ANY PURPOSE WITHOUT EXPRESS WRITTEN PERMISSION OF THE LINCOLN ELECTRIC COMPANY.