WELD FUME CONTROL
Product Selection Guide

LINCOLN ELECTRIC - MAKING WELD FUME MANAGEMENT EASY

PLUG-N-PLAY PRODUCTS | CONFIGURED TO APPLICATION PRODUCTS | COMPLETE DESIGN, INSTALLATION, AND MAINTENANCE SERVICES

Weld Fume Control By The Welding Experts®

As the global leader in welding equipment and consumables, who better to turn to for weld fume solutions than The Welding Experts? Our weld fume control product portfolio includes a broad range of equipment for the capture, extraction and filtration of welding fume and particulate. We offer a complete line of portable, stationary, and configured-to-application solutions with dedicated staff to help in Making Fume Management Easy.

Lincoln Electric Total Solution - Here to Help!

- Weld Fume Control is a critical component of the welding process
- It is the manufacturers responsibility to be OSHA compliant
- Lincoln Electric has a dedicated staff ready to help - ask about weld fume control early in any welding project and we can assist in Making Fume Management Easy.

Contact a Lincoln Electric Environmental Specialist

Email: weldingfumecontrol@LincolnElectric.com
Request a Quote: www.lincolnelectric.com/fume

Contact Lincoln Electric Service

1-866-LEQ-0411

DID YOU KNOW?

Lincoln Electric does it all! We manufacture, design, install, and service all of our own weld fume control equipment

Weld Fume Management Services

In addition to weld fume extraction equipment, Lincoln Electric offers the following services to help our customers manage welding fume. Our team of dedicated experts include; Environmental Sales Specialists, Project Managers, Installers and Field Service Representatives to simplify your weld management needs.

System Design

– Our environmental specialists provide solutions, including the sizing of the fans, filter banks, and duct work all in custom production drawings for your shop.

Installation

– Once you have identified the right system for your shop, our environmental experts install the arms, hoods, filter banks and duct work on-site to get you to filtered air faster.

Service

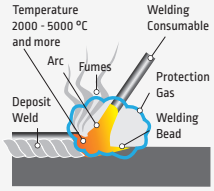
– System commissioning includes air flow balancing, fan optimization and more. We offer on-site preventative maintenance programs that include filter replacement, inspections and data collection to ensure your system is always running efficiently. Call 1-866-LEA-0411 for more information.

Welding Fume, Shop Air Quality, & Compliance

Lincoln Electric is here to help educate our customers on welding fume. Welding fume is comprised of very small complexed metallic oxides. The concentration levels are a way to measure exactly how much of those solids, or welding fume, or airborne particulate is circulating in the air by mg/m3. The higher the concentration level the more solids particle are floating in the air. Measurements can be made to evaluate airborne concentrations of welding fume and its hazardous constituents as an averaged concentration in the welder's breathing zone. This can be taken over a work shift and compared to applicable exposure limits. If levels are below applicable exposure limits, this means workplace controls are effective enough to avoid overexposures. An Environmental system designed by Lincoln Electric which is properly installed and maintained can achieve adequate ventilation to avoid overexposures.

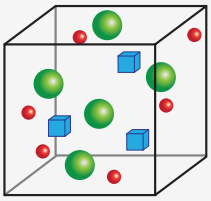
Any Questions Contact Us

Contact one of our Highly Trained Environmental Specialists via email weldingfumecontrol@lincolnelectric.com



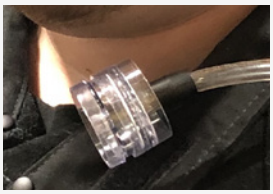
Welding Fumes

Welding fume is comprised of complexed metallic oxides with weight measured in mg, often along with silicates and fluoride compounds, forming particles that are typically less than 5 microns (µm) in diameter, that are suspended in the air that primarily comes from consumables. Concentrations of particles in air are typically measured in mg/m3. Welding fume particulate often includes fluoride and silicate compounds that form part of the particle's shell structure.



Concentration Levels of Airborne particulate

- Total particulate concentration – total airborne solid mass (mg/m^3) in one cubic meter of air
- Specific contaminate concentration – concentration of the regulated component mass (mg/m^3) – example Chrome VI



Shop Air Quality

Occupational exposure levels measured in (mg/m^3) are measured in the breathing zone and expressed as an 8 hour time weighted average. The total particulate sample is sent to a lab to measure specific contaminate concentration.

OSHA Requirements

The Occupational Safety and Health Administration (OSHA) is the primary US agency regulating air quality. OSHA sets PELs (Permissible Exposure Limits) for compounds, some of which may be found in welding fume. Employer is legally obligated to maintain occupational exposure levels below the PELs.

OSHA Example PEL – Chrome VI is 0.005 mg/m^3

OSHA 1910.1000 Table Z1: lists specific Permissible Exposure Limit (PELs) for each listed airborne compound/contaminant. Lincoln Electric recommends that the lower of the OSHA PEL or the ACGIH TLV be used to evaluate safe workplace exposure levels.

Lincoln Electric Product Claim

Weld fume control products manufactured by The Lincoln Electric Company are designed to be utilized as an engineering safety control to aide in achieving adequate ventilation which is when the Occupational Exposure is below PELs. (See formal claim on last page).

Fume Extraction Types

Low Vacuum

Low vacuum is when high volumes of air are being extracted. The typical range of CFM in a low vacuum application is 650-850 CFM. Low Vacuum extraction is traditionally done 6-8 (152.4mm-304.8mm) from the weld source. Low vacuum extraction is handled by flexible extraction arms with larger diameter openings.

High Vacuum

High vacuum is high local pressure where low volumes of air are being extracted. The typical range of CFM in a high vacuum application is 30-180 CFM. High vacuum extraction is traditionally done 2-4" (50.8mm-101.6mm) from the fume source and is typically handled by small, compact systems that utilize fume extraction guns and extraction nozzles with small openings.

Source

Capture fume right at the arc for increased arc visibility, by nozzle, arm or fume gun

Local

Isolated fume extraction hoods for robotic applications

Ambient

Facility-wide fume extraction solutions through general air and push pull systems

Any Questions
Email us at: weldingfumecontrol@lincolnelectric.com
or visit us at: www.lincolnelectric.com/fume

Welding Booths and Fume Extraction

Two Easy Ways to Order

1. Small Schools or Facilities

- Easy-to-order K-numbered welding booths that include fume extraction
- Sizes: 5 x 5 ft. or 6 x6 ft. (other sizes from 4 – 8 ft. available)
- Requires power at each booth
- Welding tables and power sources sold separately
-

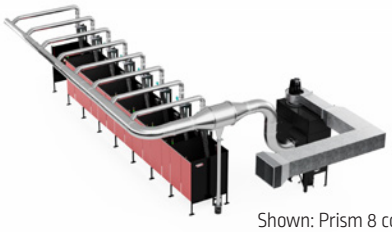
2. Large Facilities

- Custom layout designed by our specialists
- Incorporates a central filter bank (indoor or outdoor) with ducting
- Includes 2D custom layout, installation, project management, and commissioning

Steps to Get Started

1. Identify how many booths you need
2. Measure your available space
3. Choose your booth configuration (side-by-side or back-to-back)
4. Select preferred fume extraction and accessories
5. Purchase by K# (small schools & facilities) or contact a Lincoln Electric Environmental Specialist - weldingfumecontrol@lincolnelectric.com

Shown: Prism Exhaust Booth Standalone (Side-by-Side Starter), K5664-1, and Welding Booth Dual with PRISM Wall Mount - One-Pak®. K5563-2.



Shown: Prism 8 connected to an engineered 8 booth solution.

Plug and Play Products (PNP)

Standard products listed in the Lincoln Electric price book for immediate order.

Protect the Welder

VIKING™ 3350 & 3250D FGS® PAPR SYSTEMS

Powered Air Purifying Respirator Welding Helmets

- Complete wearable system that purifies ambient air from the shop and delivers filtered air to the user
- 8 to 16 Hour Battery Life Options Available
- Designed for confined spaces and all day comfort

See E14.744 and E14.746 for complete specs.

VIKING 3350 PAPR SYSTEMS

VIKING 3250D FGS® PAPR SYSTEMS

Plug and Play Products (PNP)

Standard products listed in the Lincoln Electric price book for immediate order.

High Vacuum Source Capture

X-Tractor® Mini

- Lightweight and portable, high vacuum system
- Perfect for small shops
- Use with a selection of nozzles
- SCFM: 95 CFM (Low) or 108 CFM (High)

K4260-2 One-Pak® Package

See E13.11 for complete specs.

X-Tractor 1 Fume Gun

- Lightweight and portable, high vacuum extraction unit
- Perfect for light duty welding for nozzle or fume gun applications
- SCFM: 55-115 CFM
- Manual cleaning filter allows for use in medium to heavy duty applications with nozzles, fume guns

K4260-4 One-Pak Package

See E13.17 for complete specs.

X-Tractor 2 Fume Gun

- High vacuum systems designed to provide suction for attached nozzles or fume extraction guns
- One of the largest, self cleaning filters in the industry
- Perfect for heavy-duty semiautomatic and on-torch nozzle, or fume gun applications
- SCFM: 0-150 CFM

See E13.19 & E13.22 for complete specs.

X-Tractor 2 Fume Gun

Low Vacuum Source Capture

Prism® Mobile & Prism Mobile with Mechanized Cleaning

(MERV 14 & MERV 16 Filter Configurations)

- Designed for maintenance departments, general/heavy fabrication and job shops that require fume extraction in multiple locations
- Self cleaning filter allows for use in medium to heavy duty applications
- SCFM: 735 CFM with 10 ft & 13 ft Prism Mobile Fume Arms

See E13.21 for complete specs.

Prism Mobile with Mechanized Cleaning and 10 ft Extraction Arm

Prism Mobile with 13 ft Extraction Arm

Prism Wall Mount & Prism Wall Mount with Mechanized Cleaning

(MERV 14 & MERV 16 Filter Configurations)

- Perfect for maintenance departments, general and heavy fabrication applications, weld schools and weld shops
- SCFM: 735 CFM with 10 ft & 13 ft Prism Wall Mount extraction arm
- Single or dual arm configurations
- Mechanized cleaning extends filter life which lowers operating costs

See E13.14 for complete specs.

Prism Wall Mount single arm base unit

Prism Wall Mount with Mechanized Cleaning single arm base unit

Extraction Arms

- Position rotatable/flexible hood in any direction to capture fumes
- Automatic on/off operation with arc sensor
- Dent and scratch resistance for minimal maintenance

See E13.16 for complete specs.

Prism Downdraft Tables

- Compact/fixed fume extraction workstations
- Accommodate Stick, TIG, MIG, flux-cored, grinding* and plasma cutting processes
- SCFM: 1750 CFM

See E13.53 and E13.50 for complete specs.

**Not suitable for grinding Aluminum, Magnesium or other explosive materials.*

Prism Downdraft Direct

Prism Downdraft

Prism Downdraft with Mechanized Cleaning

Weld Tables and Curtains

- Overlapping red-orange strip curtains cover entire entrance to booth and help to protect other students and workers from arc flash and sparks
- The Booth Assist is a control panel located inside any weld booth paired with a visual monitoring system to easily alert instructors

See E13.51 for complete specs.

Welding Booths with Fume Extraction - One-Pak Packages

Prism Exhaust Booth

- Welding booth with integrated top-mounted fume extraction, no ductwork required
- Captures fume in two key locations – near the fume source with an extraction arm and through the vent hood.
- Ideal for small to medium shops and schools

Welding Booth (Single and Dual) with Prism Wall Mount

- Standard welding booths combined with a Prism Wall Mount fume extraction unit.

See E13.51 for complete specs and available configurations.

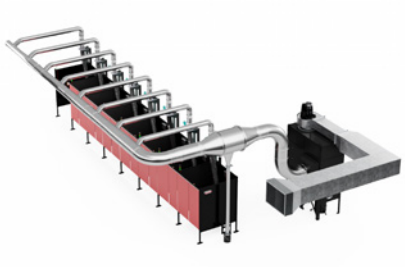
Prism® Exhaust Booth

Welding Booth Dual with Prism® Wall Mount

Configured to Application (CTA)

Off the shelf products configured by Lincoln Electric's Weld Fume Control Specialists for a specific application.

Educational Products



Lincoln Electric offers a full suite of products designed specifically for welding education; these products include the welding booths, the Prism fume extraction arms, and Prism Filter Bank. This weld fume management system will extract the welding fume from the breathing zone of the welder and deliver it to a central filter bank where the welding fume is filtered out and filtered air can be recirculated back to the weld school. In addition to the equipment, Lincoln Electric also offers Weld School System Design, Installation and Filter Replacement Service.

KEY SOLUTION COMPONENTS

Prism Filter Bank
(From 2 up to 72 Filters)

- All-in-one vertically positioned filter bank
- MERV 11, 16 PTFE and oil-resistant filter choice, and HEPA

See E13.109 for complete specs.

Weld Booths, Tables and Curtains

- Available in 4ft-8ft wall widths
- Single or multiple booth options (Square or Rectangle)
- Available accessories include a variety of welding table designs, welding curtains, a lockable storage cabinet and LED Light Kits.

See E13.51 for complete specs.

Extraction Arms

- Position rotatable/flexible hood in any direction to capture fumes
- Automatic on/off operation with arc sensor
- Dent and scratch resistance for minimal maintenance

Prism Wall Mount Flexible 7 ft Extraction Arm

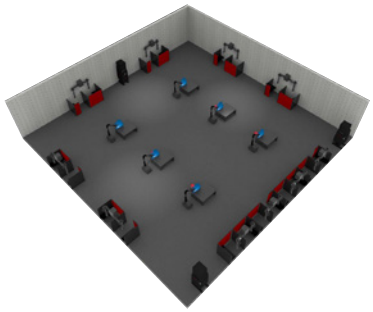
Prism Wall Mount Telescopic 4-6 ft Counter-Weight Extraction Arm

Extension Crane 7 ft

See E13.16 for complete specs.

Contact one of our Highly Trained Environmental Specialists for more information or a quote.

Industrial Products



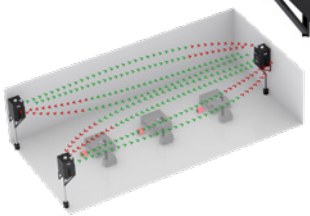
Lincoln Electric offers a full suite of ambient air filtration products designed specifically for the larger parts and higher duty cycles of Industrial welding. Ambient air or general filtration is the filtration of the entire air volume in the shop. Ambient air filtration is typically done with circulators or push pull systems. Lincoln Electric offers the Prism Suspend and Prism Circulators which are designed to create push pull systems between multiple units to filter ambient air – see diagram below. In addition to the equipment, Lincoln Electric also offers System Design, Installation and Filter Replacement Service.

KEY SOLUTION COMPONENTS

Prism Suspend 4000 System

Ceiling or Wall Mounted Circulator

- A series of circulators mounted across from each other, above the shop floor, to circulate and filter ambient air.
- Easily mounted to an I-beam, flat ceiling or wall.
- Ductless push/pull system

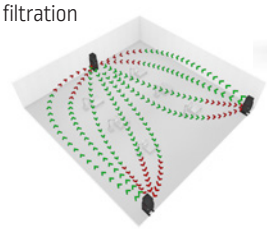


See E13.25 for complete specs.

The Prism Circulator® 4000

Free-Standing Ambient Air Filtration

- Ideal for large and small shop environments
- Generates up to 4000 SCFM of filtered air flow that can reach air throw distances up to 50-90 feet, depending on Low, Medium, or High air fan speed
- 40,000 cu. ft. of ambient air filtration every 10 minutes
- Easily installed in 1 hour



See E13.24 for complete specs.

Cutting Products

Combining a Prism Fume Extraction & Filtration System with metal cutting tables can help provide a total fume extraction solution for metal fabrication and cutting. The system is the perfect complement to metal cutting applications due to the efficient extraction, small footprint, quiet operation, and available thermal suppression.

KEY SOLUTION COMPONENTS

Prism Filter Bank

(4 Bank Filter)

- All-in-one vertically positioned filter bank
- Perfect for general/heavy fabrication, plasma, education, and automation applications
- MERV 11, 16 and PTFE filter choices

See E13.109 for complete specs.

Thermal Protection

Utilizing a proper thermal suppression system based on your specific welding and cutting applications can reduce the risk of a thermal event. Prism thermal suppression mitigates risk and helps contain a potential thermal event caused by heated welding and cutting particulate reaching the filter bank. The thermal suppression system is available for both the Prism Filter Bank and Prism 4 Compact systems.

KEY SOLUTION COMPONENTS

Guardian™ Limestone Feeder

- Provides a protective layer of lime between the filter and the contaminate
- Aides in proper cleaning which helps extend filter life for oily applications
- Decreases the risk of a thermal event

See E13.108 for complete specs.

Spark Arrestor

- Fire safety solution for fume control systems and is recommended for applications with an increased fire risk; such as:
  - Robotic and automatic welding of oily products
  - Manual welding of oily products
  - Cutting tables

See E13.107 for complete specs.

Prism 4 Compact with Thermal Protection

- Adds an easy to maintain thermal suppression system to the filter bank for added safety.
- Recommended for oily and stamped applications
- Integrated Spark Arrestor

Automation Products

Production welding is often done with robotic systems. Lincoln Electric offers a full line of products designed specifically for the high fume generation that is produced from the high production welding done in robotic cells. The products include the Prism Exhaust hood which captures the fume, and the Prism 4 Compact which filters the welding fume and returns filtered air back to the environment. Lincoln Electric also offers on-torch fume extraction where a fume extraction nozzle is mounted right on the welding torch for source capture.

KEY SOLUTION COMPONENTS

Prism 4 Compact & Prism Exhaust Hood

- Ideal solution for welding fume extraction for single cell automation or robotic applications
- Comes in standard sizes or can be customized to fit a non-standard sized cell

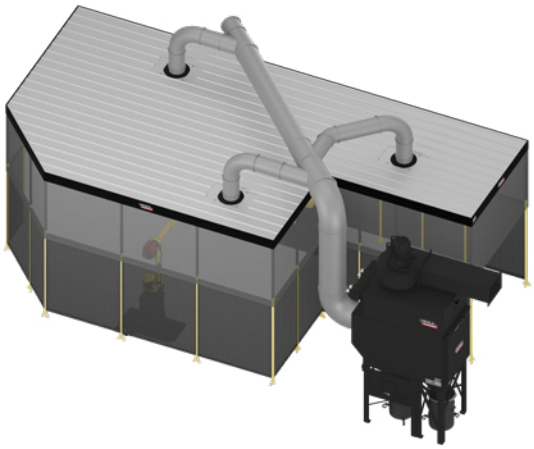
On Torch Fume Extractor

- High Vacuum Source Capture for both water and air cooled torches
- Ideal for robotic applications
- Used with the X-Tractor® 2 Fume Gun

Prism Robotic Line Hood

- Fume Extraction for Large Production Lines — Engineered to Fit Your Space
- Contains fume to the hooded area and helps keep it from reaching other production areas within the facility.
- Designed to be paired with a Prism Filter Bank to extract fume and recirculate filtered air back into the facility.
- Ideal for automated production lines (up to 30 robotic arms) or large manual welding and cutting areas.

See E13.120 for complete specs.



Replacement Filters

See E13.90 for a guide to your filter replacements

Contact Us

Contact one of our Highly Trained Environmental Specialists for more information and support.

Our service and support does not end at 5:00 pm ET.
We provide 24/7 access to our team to answer questions or concerns:

1-866-LEA-0411

Email: weldfumecontrol@lincolnelectric.com

Easily Request a Quote at: www.lincolnelectric.com/fume

Lincoln Electric Product Claim - Weld fume control products manufactured by The Lincoln Electric Company are designed to be utilized as an engineering safety control to aide in achieving adequate ventilation while conducting welding or it's allied processes. The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, and the specific welding procedure and application involved. When the equipment is used as designed - and when properly installed, operated and maintained - it can be a valuable and effective tool to help employers maintain adequate ventilation in the workplace. Lincoln Electric defines adequate ventilation as that which is required to maintain occupational exposure levels below the applicable exposure limits when sound work practices are utilized. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

Lincoln Electric, weld fume control, products are highly effective at decreasing the occurrence level of thermal events, however thermal events can still happen even if the system is operating as designed.

CUSTOMER ASSISTANCE POLICY

The business of Lincoln Electric is manufacturing and selling high quality welding equipment, automated welding systems, consumables, cutting equipment and EV charging systems. Our challenge is to meet the needs of our customers, who are experts in their fields, and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or technical information about their use of our products. Our employees respond to inquiries to the best of their ability based on information and specifications 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, or to provide engineering advice in relation to a specific situation or application. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or communications. Moreover, the provision of such information or technical information does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or technical information, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose or any other equivalent or similar warranty is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the definition of specifications, and 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 for any updated information.

All trademarks and registered trademarks are the property of their respective owners

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.

Publication MC19-17 | Issue Date 09/25
© Lincoln Global, Inc. All Rights Reserved.
www.lincolnelectric.com/automation