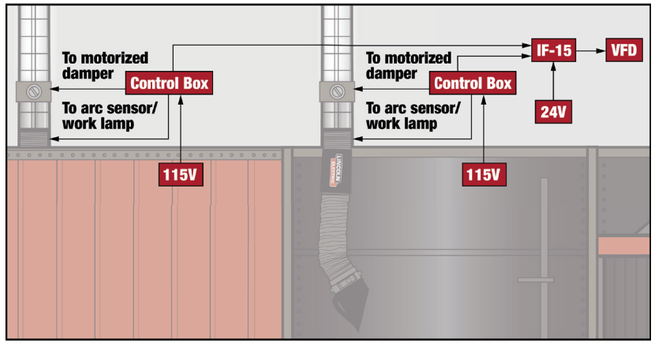
Option: Automatic System Operation

Installing an arc sensor in the end of each extraction arm provides for automatic system operation. Striking an arc will cause the sensor to signal a motorized damper to open, allowing air to flow through the arm. At the same time, the variable frequency drive receives a signal to increase the speed of the fan to accommodate the additional extraction arm in use. When the arc is extinguished, the opposite process takes place: The damper closes and the fan decreases in speed. If no arc is present, the system is off and in “standby” mode.

Lower energy consumption is possible since the fan will typically operate at a reduced load for most of the time.

A 7-watt, 600 lumens LED work lamp is included with the arc sensor package.



Options: Welding Booths

Welding Curtain Strips

Welding curtains help to protect other students and workers from arc flash and sparks. Composed of overlapping individual red-orange strips, the curtain covers the entire width of the entrance to the Lincoln Electric welding booth.

When installed at the top of the booth wall, the curtain strips hang to approximately 24 inches above the floor. The strips are compliant with AWS F2.3M:2011 (*Specification for Use and Performance of Transparent Welding Curtains and Screens*).

Lockable Storage Cabinet

This lockable cabinet is ideal for storing welding helmets, jackets, gloves, small tools and related items. It has heavy-duty all-steel construction and a recessed stainless steel paddle latch featuring a padlock loop. Each leg has a provision for lagging the cabinet to the floor.

LED Light Kit

Do not depend on overhead fixtures to provide adequate light in the welding booth. These kits include two LED light bars (one for each side panel), mounting hardware, connecting cables and an on/off switch.

Tables/Stands

Stand w/Adjustable Platform

Weld Table w/Adjustable Platform (32” and 47” wide)

Standard Weld Table w/ Adjustable Half-Circle Table and Welding Fixture

Pipe Weld Table w/ Adjustable Rectangular Table and Pipe Clamp

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 levels should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

Customer Assisstance 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 for any updated information.

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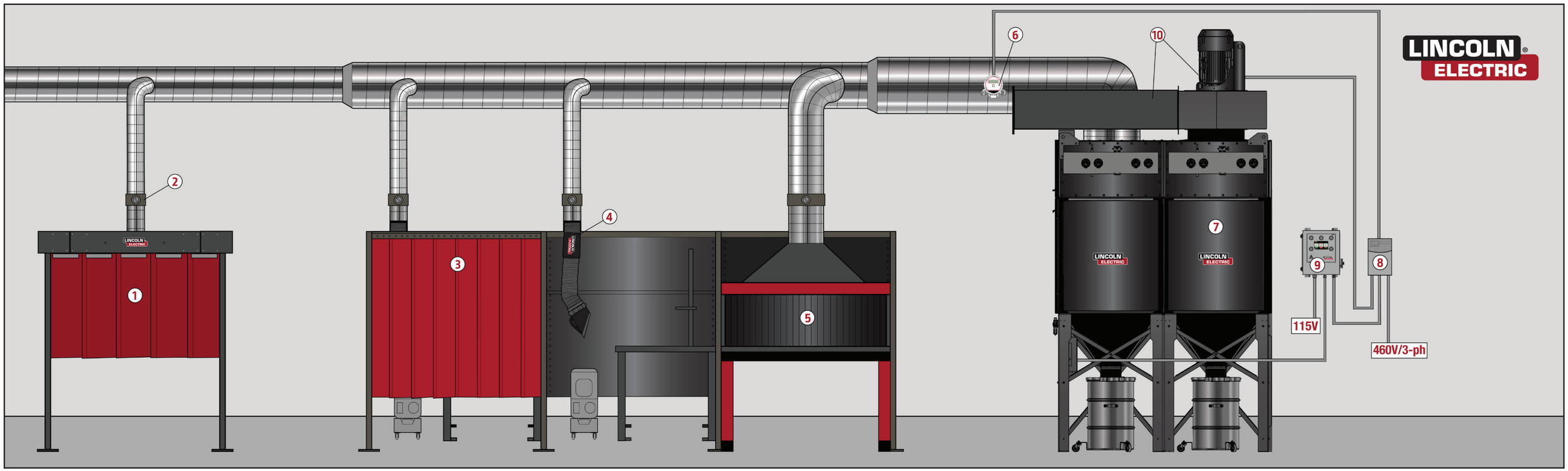
LINCOLN® ELECTRIC

Low Vacuum Central System Overview

Configured to the Application



Low Vac Central System Overview

Weld fume control systems can take many forms. Depicted above is a low vacuum central system; it has multiple extraction devices connected to a central filtration unit and exhaust fan using ductwork.

Central systems are ideal for schools, fabrication shops, and manufacturing facilities. The number of extraction devices in a single central system can be as low as two or three and as many as 48 or more.

1. Extraction Hood

A hood is a local extraction device; the fume is contained in a defined space while being extracted. Hoods are ideal for automated applications such as plasma cutting CNC tables and robotic welding/cutting cells. Manual grinding and arc gouging operations are also suitable applications. Hoods are either floor mounted on legs (as shown) or hung from the ceiling. A large variety of sizes is available.

2. Manual Damper

A manual damper is included in each duct drop to the extraction device. It controls the amount of airflow (expressed as cubic feet per minute or CFM) allocated to that device. The damper is set during system commissioning, and normally only a modification in system configuration requires resetting.

3. Welding Booths

Welding booths are freestanding and constructed from heavy-duty steel. Available wall panel sizes include 4 ft. up to 8 ft. (1.22 m up to 2.44 m), in 1 ft. (0.3 m) increments. The shape of an individual booth can be square or rectangular. To reduce the number of panels needed, adjacent booths in a row share side panels, and adjacent booths in a block (two rows positioned back to back) share side and back panels.

Options: strip curtains, welding tables, LED lights, lockable storage cabinet and a shelf for a wire feeder or small power source.

4. Telescopic Extraction Arm

The Prism® wall-mount counter-weight telescopic extraction arm is a source capture device; when properly positioned the arm captures and extracts the fume near its point of generation, helping to prevent the fume from passing through the operator's breathing zone. This model arm has telescopic (in/out), up/down and side-to-side movement, allowing for fume extraction in all welding positions, including overhead. It is ideal for use in a welding booth.

5. Downdraft Table

The Prism Direct Exhaust downdraft table is a workbench designed for connection to an external extraction system.[1] Use it for extracting fumes from welding, grinding[2] and plasma cutting[3] applications. The Prism Direct Exhaust downdraft table has these features: work grid, dust collection tray, backdraft panel and hinged side panels.

Prism Downdraft tables (with or without mechanized cleaning) are standalone downdraft tables with on-board exhaust and filtration.

[1] Requires Duct Connection Kit.
[2] Not suitable for grinding aluminum, magnesium or other explosive materials.
[3] Requires Plasma Cutting Grid. Up to 50 amps.

6. Pressure Sensor

This device monitors the saturation level of the filter cartridges through changes in system pressure. As the filter cartridges load up with more and more particulate, the variable frequency drive (VFD) increases the fan speed to maintain the required airflow at the capture devices.

7. Prism® Filter Bank

The Prism Filter Bank houses the filters, which extract the solid particulate from the captured welding and/or cutting fumes. Some Prism models have the exhaust fan mounted on top of the main body, saving floor space and duct.

The filters in the Prism Filter Bank are vertically oriented. The vertical positioning enhances the effectiveness of the uniform, high-energy pulses of compressed air released during the filter cleaning cycle.

The welding or cutting application determines the type of filter selected. MERV, or Minimum Efficiency Report Value, expresses the ability of a filter to remove particulate from the extracted fumes. The MERV scale is 1 to 16. Filters receive a MERV 16 rating when they can capture the smallest diameter particle (0.3-1.0 µm) at an efficiency level of greater than 95%.

8. Variable Frequency Drive

The variable frequency drive, or VFD, powers the exhaust fan. It maintains consistent airflow at the capture device by adjusting the fan speed and airflow based on the condition of the filters, using input from the pressure sensor (6).

Additional benefits include reduced energy consumption and a limit on in-rush or starting current. VFDs have a "soft start" feature which limits the input current at start-up. With a full-voltage starter, starting current is 6 to 8 times the full load current, potentially causing stress on the power system.

9. Filter Cleaning Controls

The control panel determines when the filter cleaning cycle begins, and it signals the valves when to open, releasing blasts of compressed air. The force of the air knocks the particulate from the filters, dropping it into the dustbin(s) located below the filter chamber.

10. Exhaust Fan and Silencer

The central fan provides airflow/suction for the entire system. A matching exhaust air silencer mounts to the outlet of the fan and reduces the noise level of the exiting air.

Fan sizes range from 3 HP to 150 HP, and a variety of airflow/static pressure ratings are available.

A sound absorbing box to enclose the fan is available for sizes 30 HP and less for quieter operation. This is a salient feature when the fan/filtration unit installation is indoors.