

# PRISM<sup>®</sup>

## FUME EXTRACTION SYSTEM



Shown: Prism 4, 8 & 12 L17587-4, L17587-1, L17587-3

### Efficient. Compact. Connected.

The Prism 4 fume extraction system is a reduced-footprint fan/filtration unit combination designed with robotic welding and plasma cutting systems in mind. The 4 bank vertically positioned filter configuration can provide extraction capacity for any automated system equipped with a hood or can connect easily to plasma cutting tables. The vertical positioning enhances the effectiveness of the uniform, high-energy pulses of compressed air<sup>(1)</sup> released during the filter cleaning cycle.

Note: 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.

#### Processes »

Stick, TIG, MIG, Flux-Cored, Plasma Cutting, Arc Gouging, Grinding<sup>(2)</sup>

#### Input »



<sup>(1)</sup> Customer supplied. Must be clean, dry, and oil free.

<sup>(2)</sup> Not suitable when grinding aluminum, magnesium, or other materials which may produce explosive dust.

## FEATURES:

### » Easy-to-Use HMI Screen for Preventative Maintenance

- Large easy-to-read dials provide real-time status of vital functions
- Track fan speed, filter bank pressure and duct pressure to monitor filter life for filter replacement
- Proactively order filters to increase productivity with less downtime

### » Small Footprint

- The small footprint takes up less floor space than competitive units - 45 x 45 in. (1143 x 1143 mm)

### » Automatic Filter Cleaning

- System will automatically start pressure-based cleaning process once pre-set pressure differential is reached
- Vertical filter orientation allows for more efficient cleaning
- Particulates will be collected into the 30 gallon dust bin

### » Easy to Install and Use

- Locate and secure base module to floor
- Fasten upper filter module with \*preinstalled fan on leg base assembly and secure
- Connect power, compressed air and duct sensor for fan speed control
- Smart Connect™ technology allows for quick and seamless wire connectivity
- Position silencer and dust bin

### » Quiet and Efficient Operation

- Silencer on exhaust fan drastically reduces airflow noise
- Intelligent fan control technology
- Variable speed drive regulates fan speed based on filter loading to maximize fume extraction
- Conserves energy and extends equipment life

### » Modular Configuration

- Available in 4-24 bank models

\*Preinstalled fans only included with AD series Prism models.

## SMALL FOOTPRINT

Prism fume extraction systems are designed not only to be efficient, but to reduce the amount of space that fume extraction systems tend to take up. Your warehouse space is valuable, and the Prism system allows the ability to have a fume extraction close to your application without taking up too much space.



Prism 4 connected to Torchmate® 5100 table



Shown: Prism 4 Connected to Fab-Pak® FHS B2B

For best welding results with Lincoln Electric equipment, always use Lincoln Electric consumables. Visit [www.lincolnelectric.com](http://www.lincolnelectric.com) for more details.

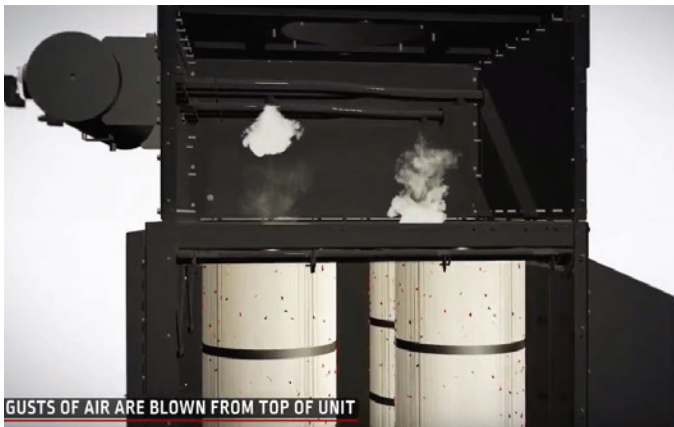
Manufactured at a facility with certified ISO Quality and Environmental Management Systems.

## AUTOMATIC FILTER CLEANING

Prism fume extraction systems are equipped with an air pressure sensor that allows for efficient automatic filter cleaning. When the air pressure reaches a certain parameter, the automatic filter cleaning system is engaged, causing bursts of air to pass through the filters knocking particulate outwards and downwards into the extraction bin where particulate can later be disposed of. Automatic filter cleaning can also be done manually by turning off the fan and engaging the air compressor using the control panel.



1. Once the fan has been turned off manually, or if the airflow pressure detector determines it is time to clean off the filters, the automatic filter cleaning process can be started manually or automatically, depending on your settings and preferences.



2. The air compressor then releases bursts of air down from the top of the system into and through the middle of the filters, causing particulate to be disbursed outwards.



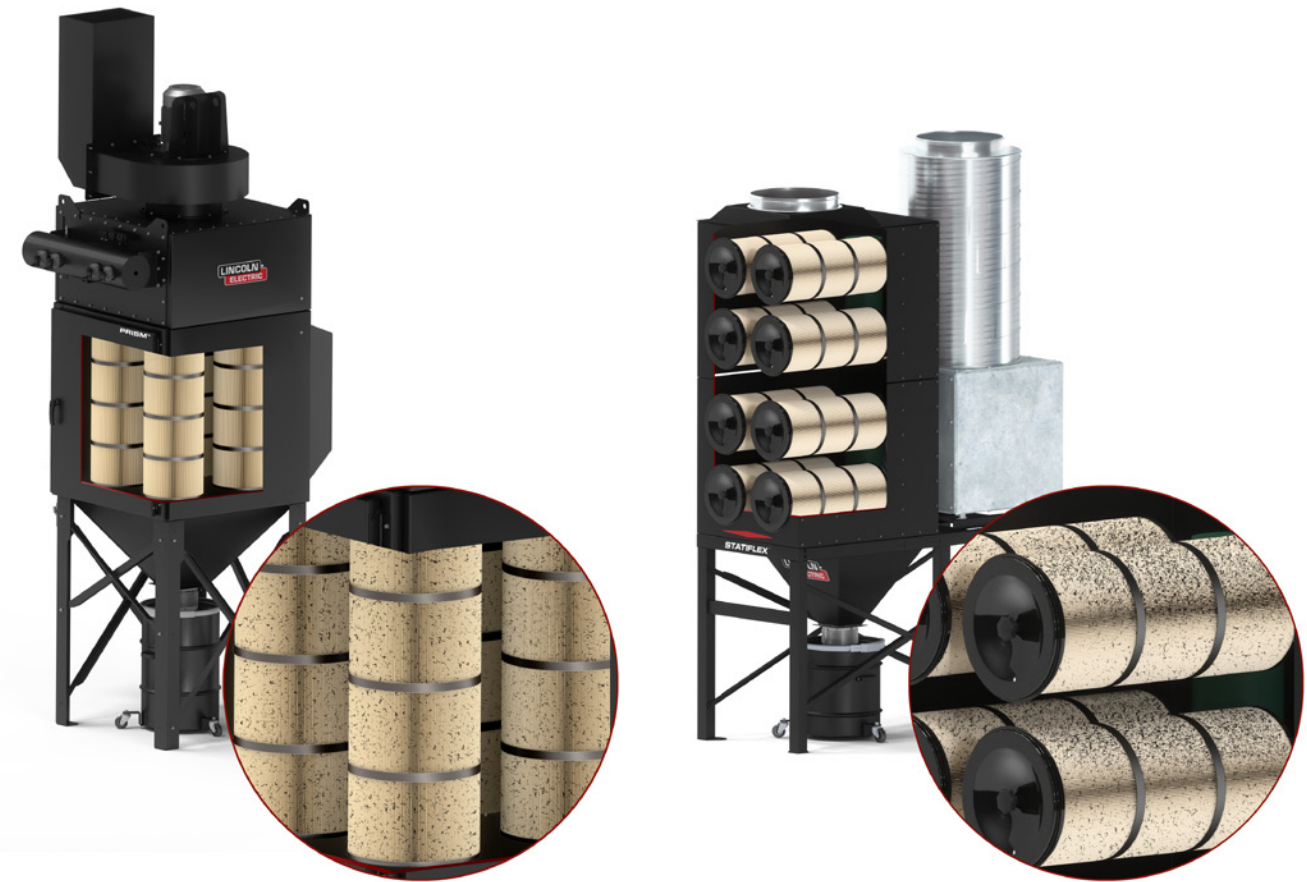
3. The systematic pulses of air come to a halt allowing the particulate to fall into the dust bin below the system, where particulate can sit or safely be extracted. Airflow resistance should be reduced, thus lengthening the lifetime of filter usage.

## VERTICAL FILTER EFFICIENCY

The Prism fume extraction system's vertical filter alignment allows for more even dispersal of particulate, compared to horizontally-aligned filters. Where horizontally-aligned filters tend to catch most of the particulate at the top of the filters, vertically-aligned filters result in a more even dispersal of particulate. More even dispersal of particulate means the Prism fume extraction system can be more efficient and require less frequent maintenance than typical horizontally-aligned filter systems.

### Vertical Filter Alignment Benefits

- Gravity helps with even distribution of particulate
- Efficient automatic filter cleaning
- Long filter life
- Easy maintenance



**PRISM SILENCER TEST RESULTS (5 HP)**

|       | <b>No Silencer</b> | <b>90° Turn Up<br/>(Vertical Silencer)</b> | <b>Rectangular<br/>(Horizontal Silencer)</b> |
|-------|--------------------|--------------------------------------------|----------------------------------------------|
| FAN   | <b>DB</b>          | <b>DB</b>                                  | <b>DB</b>                                    |
| 30 HZ | <b>68</b>          | <b>60</b>                                  | <b>59</b>                                    |
| 40 HZ | <b>74</b>          | <b>64</b>                                  | <b>63</b>                                    |
| 50 HZ | <b>79</b>          | <b>70</b>                                  | <b>68</b>                                    |
| 60 HZ | <b>81</b>          | <b>74</b>                                  | <b>74</b>                                    |

The Prism fume extraction system with attached silencer allows for a drastic noise reduction through the use of the variable frequency drive (VFD), which allows the customer to tailor the fan speed to specific applications while also conserving on energy. The average customer with a 5 HP fan may see between an 7-11 dB reduction in noise when using an available silencer on the Prism unit, which allows for easier communication around the unit.

**PRISM SILENCER TEST RESULTS (10 HP)**

|       | <b>No Silencer</b> | <b>90° Turn Up<br/>(Vertical Silencer)</b> | <b>Rectangular<br/>(Horizontal Silencer)</b> |
|-------|--------------------|--------------------------------------------|----------------------------------------------|
| FAN   | <b>DB</b>          | <b>DB</b>                                  | <b>DB</b>                                    |
| 30 HZ | <b>75</b>          | <b>63</b>                                  | <b>61</b>                                    |
| 40 HZ | <b>82</b>          | <b>71</b>                                  | <b>68</b>                                    |
| 50 HZ | <b>88</b>          | <b>75</b>                                  | <b>73</b>                                    |
| 60 HZ | <b>94</b>          | <b>79</b>                                  | <b>78</b>                                    |

The average customer with a 10 HP fan sees between an 11-16 dB reduction in noise when using an available silencer on the Prism unit, which allows for easier communication around the unit.

\*Sound for this testing was measured approximately 8 ft. (2.43 m) from the side of the unit and 5.5 ft. (1.67 m) off of the floor.



Prism fume extraction systems are designed to not only extract welding fume efficiently, but also allow filter maintenance to be quick and simple.

1. Turn the system off before starting maintenance on the filters.
2. Unlock to release the filters for extraction.
3. Pull the filter straight out. Be sure to leave yourself enough room behind you to step backwards if necessary.
4. Replace filters from back-to-front.
5. Lock filters in place and close the door.
6. Turn filtration system back on.

## APPLICATIONS

- General welding and cutting fabrication
- Heavy welding and cutting fabrication
- Robotic welding and cutting applications

## WHAT'S INCLUDED

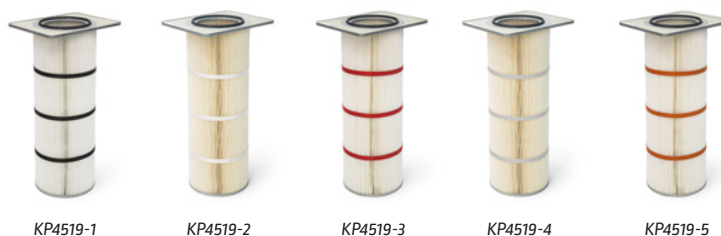
- Filtration unit
- Dust collection bin
- Exhaust fan
- Stand
- Control package
- Exhaust silencer

## KEY ACCESSORIES/FILTERS

- KP4519-1: Filter, MERV 11, Prism (Black Strap)
- KP4519-2: Filter, MERV 16 NANO, Prism (White Strap)
- KP4519-3: Filter, MERV 16 PTFE, Prism (Red Strap)
- Prism MERV 11 Filter, Oil Resistant (Gray Strap) KP4519-4
- Prism MERV 16 Filter, Oil Resistant (Orange Strap, NANO) KP4519-5
- Optional Spark Guardian™

### Filter Replacements:

Filter replacement is crucial to the performance and longevity of your Prism extraction unit. The correct filter can be identified by the strap color on the existing filter and matched with the part number listed above. Replacement filters can be purchased at [www.weldfumefilters.com](http://www.weldfumefilters.com).



| Part Number              | KP4519-1                                            | KP4519-2                                                                            | KP4519-3                                | KP4519-4                                           | KP4519-5                                           |
|--------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------------------|----------------------------------------------------|
| MERV                     | MERV 11                                             | MERV 16                                                                             | MERV 16 PTFE                            | MERV 11                                            | MERV 16                                            |
| Recommended Applications | MERV 11 Filter used with Guardian Limestone Feeders | Primary MERV 16 Filter, Recommend for Welding Steel, Stainless Steel and Galvanized | MERV 16 filter for Cutting Applications | Oil Resistant Filter, MERV 11 Filter with Pre-Coat | Oil Resistant Filter, MERV 16 Filter with Pre-Coat |

## RECOMMENDED APPLICATION

- MERV 11 Filter used with Guardian Limestone Feeders
- Primary MERV 16 filter, Recommended for Welding Steel, Stainless Steel and Galvanized
- MERV 16 Filter for Cutting Applications
- Oil Resistant Filter, MERV 11 Filter with Pre-Coat
- Oil Resistant Filter, MERV 16 Filter with Pre-Coat Each

## PRODUCT SPECIFICATIONS

| Product Name                  | Product Number | Input Power Voltage/Phase/Hertz                   | Motor Horsepower HP | Input Current (Amps) | Number of Filters      | Airflow (CFM)          | Inlet Diameter in (mm)      | Clearance Needed                          | Filter Cleaning Control | H x W x D in (mm)                                | Weight lb (kg)           |
|-------------------------------|----------------|---------------------------------------------------|---------------------|----------------------|------------------------|------------------------|-----------------------------|-------------------------------------------|-------------------------|--------------------------------------------------|--------------------------|
| Prism 4 5 HP                  | AD1326-17      | 380-480V/3~/50-60Hz<br>575V option <sup>(1)</sup> | 5                   | 7.5                  | 4                      | 2750<br>@ 7 in.<br>WG  | 1 on<br>back at<br>16 [406] | 3.5 ft<br>(min.)<br>for front             | Pressure-<br>based      | 163 x 45 x 45<br>[4140 x 1143 x 1143]            | 1475<br>[669]            |
| Prism 4 10 HP                 | AD1326-19      |                                                   |                     |                      |                        | 4000<br>@ 7 in.<br>WG  |                             |                                           |                         | 169 x 45 x 45<br>[4293 x 1143 x 1143]            | 1588<br>[720]            |
| Prism 4 15 HP                 | L17587-4       |                                                   | 15                  | 21                   |                        | 6600<br>@ 7 in.<br>WG  |                             | 3 ft<br>(min.)<br>for<br>control<br>panel |                         | 169 x 45 x 45<br>[4293 x 1143 x 1143]<br>no fan  | 1171<br>[531]<br>no fan  |
| Prism 8 20 & 30HP<br>(2 Wide) | L17587-1       |                                                   | 20                  | 27                   | 8                      | 8800<br>@ 7 in.<br>WG  | 20 [508]<br>round           |                                           |                         | 169 x 87 x 45<br>[4293 x 2210 x 1143]<br>no fan  | 2142<br>[972]<br>no fan  |
|                               |                |                                                   | 30                  | 40                   |                        | 11600<br>@ 7 in.<br>WG |                             |                                           |                         |                                                  |                          |
| Prism 8 20 & 30HP<br>(2 Deep) | L17587-2       |                                                   | 20                  | 27                   |                        | 8800<br>@ 7 in.<br>WG  | 20 [508]<br>round           |                                           |                         | 169 x 45 x 87<br>[4293 x 1143 x 2210]<br>no fan  | 2112<br>[958]<br>no fan  |
|                               |                |                                                   | 30                  | 40                   | 11600<br>@ 7 in.<br>WG |                        |                             |                                           |                         |                                                  |                          |
| Prism 12 40HP                 | L17587-3       |                                                   | 40                  | 52                   | 12                     | 19400<br>@ 7 in.<br>WG | 24 [610]<br>round           |                                           |                         | 169 x 129 x 75<br>[4293 x 3277 x 1905]<br>no fan | 3113<br>[1412]<br>no fan |
| Prism 12 30HP                 | L17587-10      |                                                   | 30                  | 40                   |                        | 11600<br>@ 7 in.<br>WG |                             |                                           |                         |                                                  |                          |

<sup>(1)</sup> Optional frequency drive for 575V applications  
Contact your Lincoln Electric sales representative for complete dimensions.

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### 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.

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