

# Weld Fume Collectors

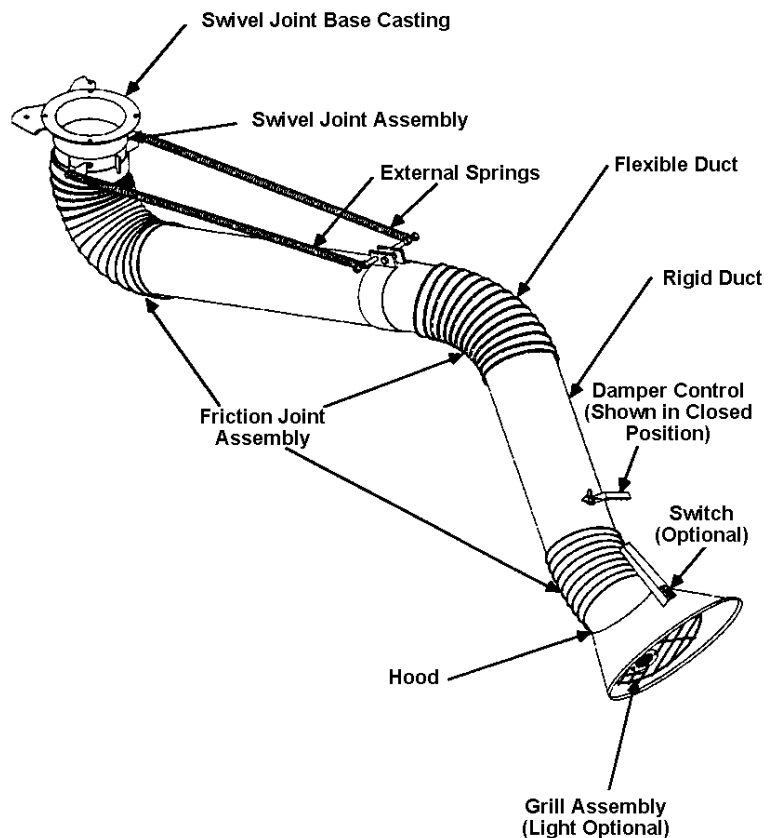
The weld fume products were introduced in 1987. The product family includes: the FT-500, Flex-Trunk<sup>®</sup> Plus, Easy-Trunk<sup>®</sup>, PT-1000, T-2000, and AT-3000. Each product is outlined with an overview, operational explanation, application summary, features/advantages/benefits, and the criteria for sizing and selecting.

## Flex-Trunk<sup>®</sup> (FT-500) - Product Overview

The Flex-Trunk (FT-500) is available as a stand-alone product, and is incorporated with other weld fume products. It is a nominal 6" (152 mm) diameter, 7 to 14' (2.1 to 4.2 m) articulating arm with a tapered, oval hood designed for source capture of welding fume and welding by-products.

The FT-500 has unique friction joints which enable the user to position the hood to draw in fumes before they reach the worker's breathing zone. In 1998, the FT-500 was improved with a new friction disc, new flexible duct, improved hardware, improved casting, and new packaging. The unique internal joint provides less maintenance and lower pressure drop. The FT-500 can operate longer without adjustment, and when it is needed, the new flexible duct makes adjusting easy. The castings' aerodynamic shape and location provide lower pressure drop than many external joint arms.

The FT-500 has the flexibility to be used in a wide variety of locations, with or without the optional fan motor, and/or with or without a hood light and switch. It can be wall-mounted, installed in a central duct system, or used as a standard component of other weld fume products.



## Operation Explanation

**Normal Operation:** The operator positions the Flex-Trunk hood precisely above the work area. An optional light and switch allow the operator to turn the collector ON and OFF at the hood. Dirty air is drawn away from the work area into the hood, through the Flex-Trunk, and exhausted out of the work area. Flex-Trunks have three friction joints and one swivel joint that allow positioning of the hood over a large work area. The ideal hood location is approximately 12" to 18" (305 mm to 457 mm) above the welding zone. With the hood in this location, fumes are effectively captured.

The Flex-Trunk can rotate 359° (there is a stop in the swivel joint base) depending on the type of mounting method. The specification control drawing and Installation and Operation Manual show the degree of rotation and reach of the Flex-Trunk.

## Application Summary

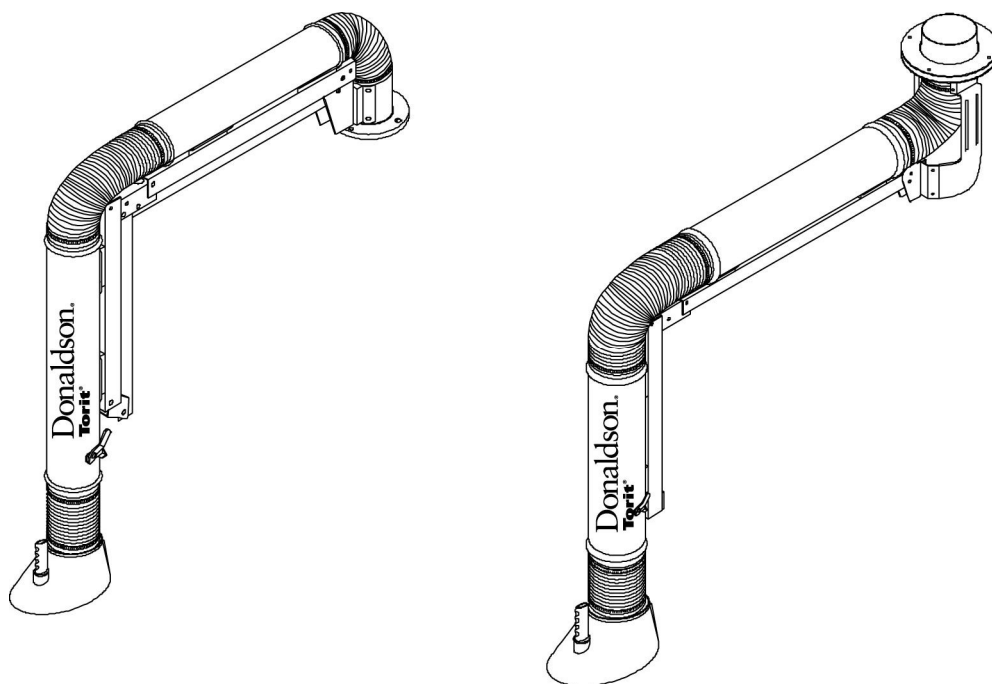
The FT-500 is suitable for any application that requires source capture of fumes, dust, or smoke, provided the contaminant is not sticky or highly abrasive. When fitted with the optional exhaust fan, the FT-500 handles approximately 970 cfm at 5.8 "wg (1,648 m<sup>3</sup>/h at 1.4 kPa) static pressure in either the 7-foot and 14-foot (2.1 - 4.2 m) models. The arms can also be used without a fan when connected to a larger ductwork system or a collector, such as the Easy-Trunk, PT-1000, or T-2000.

## Features/Advantages/Benefits

Features	Advantages	Benefits
<b>7' to 14' (2.1 - 4.2 m) Lengths</b>	<ul style="list-style-type: none"> <li>Length can be selected to match need</li> </ul>	<ul style="list-style-type: none"> <li>Flexibility in placement</li> </ul>
<b>Internal joints</b>	<ul style="list-style-type: none"> <li>Less cumbersome than external supports</li> <li>Joints and supports protected from external damage</li> </ul>	<ul style="list-style-type: none"> <li>Arm is easier to position</li> <li>Reduced maintenance</li> </ul>
<b>6" (152 mm) PVC tubing</b>	<ul style="list-style-type: none"> <li>Resistant to damage or breakage</li> <li>Less airflow restriction</li> </ul>	<ul style="list-style-type: none"> <li>Reduced maintenance</li> <li>7' and 14' (2.1 and 4.2 m) arms provide approximately same airflow</li> <li>Greater airflow than any competitive arm with internal joints</li> </ul>
<b>7" (178 mm) Reinforced flex hose at joints</b>	<ul style="list-style-type: none"> <li>Reduces airflow restriction at joints</li> <li>Protects joint from external damage</li> </ul>	<ul style="list-style-type: none"> <li>Higher airflow than with 6" (152 mm) joint</li> <li>Reduced maintenance</li> </ul>
<b>Counterbalance spring at top joint</b>	<ul style="list-style-type: none"> <li>Arm requires less force to position</li> </ul>	<ul style="list-style-type: none"> <li>Ease of operation</li> </ul>
<b>2hp exhaust fan (optional)</b>	<ul style="list-style-type: none"> <li>Integral fan package</li> </ul>	<ul style="list-style-type: none"> <li>Can be used as a stand alone unit</li> </ul>
<b>70-watt, 12-volt halogen light (optional)</b>	<ul style="list-style-type: none"> <li>Small, heavy-duty</li> <li>Low voltage</li> <li>Provides illumination of work area</li> </ul>	<ul style="list-style-type: none"> <li>Little maintenance</li> <li>Safe</li> <li>Higher worker productivity and improved product quality</li> </ul>
<b>Oversized hood with protective grill</b>	<ul style="list-style-type: none"> <li>Hood size and shape appropriate for welding</li> <li>Grill protects light and wiring from damage</li> </ul>	<ul style="list-style-type: none"> <li>Better capture of fume and particulate</li> <li>Reduced maintenance</li> </ul>
<b>Adjustable damper</b>	<ul style="list-style-type: none"> <li>Allows variation of airflow</li> </ul>	<ul style="list-style-type: none"> <li>Airflow can be reduced or eliminated at each hood</li> </ul>

## Flex-Trunk® Plus - Product Overview

The Flex-Trunk Plus is available as a stand-alone product, and is incorporated with other weld fume products to capture and carry dust, fume, and mist away from the worker's breathing zone. The Flex-Trunk Plus is the easiest to position and requires the least maintenance of any arm on the market. It is available in more sizes to effectively control fume. The Flex-Trunk Plus arm has a unique external counterbalance that uses no friction discs. A spring, hidden inside the counterbalance assembly, is easily fine-tuned with a hex tool (included, and factory adjusted).



The Flex-Trunk Plus arm is available in the following sizes and configurations:

- 4" x 7' (101 mm x 2.1 m) Standard (bench) mount
- 4" x 10' (101 mm x 3 m) Standard mount
- 6" x 10' (152 mm x 3 m) Standard and overhead mount
- 6" x 14' (152 mm x 4.2 m) Standard and overhead mount
- 7" x 10' (178 mm x 3 m) Overhead mount
- 7" x 14' (178 mm x 4.2 m) Overhead mount

All arms are black-coated mild steel. The 4" and 7" (101 and 178 mm) diameter arms include an aluminum hood with plastic handle. The 6" (152 mm) arm includes a black, hard plastic hood with handle. The 6" arm is available as an added cost option on the Easy-Trunk, the Porta-Trunk, and the Trunk 2000. It is also available with a blower, blower starter, light, and switch assemblies. A wall-mounting bracket is available for all arm sizes.

## Operation Explanation

**Normal Operation:** The operator positions the Flex-Trunk Plus hood precisely above the work area. An optional light and switch allow the operator to turn the collector ON and OFF at the hood. Dirty air is drawn away from the work area into the hood, through the Flex-Trunk Plus, and exhausted out of the work area. The ideal hood location is approximately 12" to 18" (305 to 457 mm) above the welding zone. With the hood in this location, fumes are effectively captured.

## Application Summary

The Flex-Trunk Plus source collection arm is applied like the Flex-Trunk and other suction tube assemblies. Please note that the standard, or bench-mount Flex-Trunk Plus cannot be positioned straight up. Refer to the positioning limitations shown on the specification drawings. The original Flex-Trunk is appropriate when vertical positioning is required. Typical airflow ranges and applications for each size are shown in the table below. Note that the arm size and airflow increases with the amount of fume generated.

Size	Typical Airflow	Application
4" (101 mm)	350 cfm (594 m <sup>3</sup> /h)	Soldering, TIG welding
6" (152 mm)	800 cfm (1,359 m <sup>3</sup> /h)	Moderate wire feed and stick welding
7" (178 mm)	1,000 cfm (1,699 m <sup>3</sup> /h)	Flux core wire and stick welding, plasma cutting

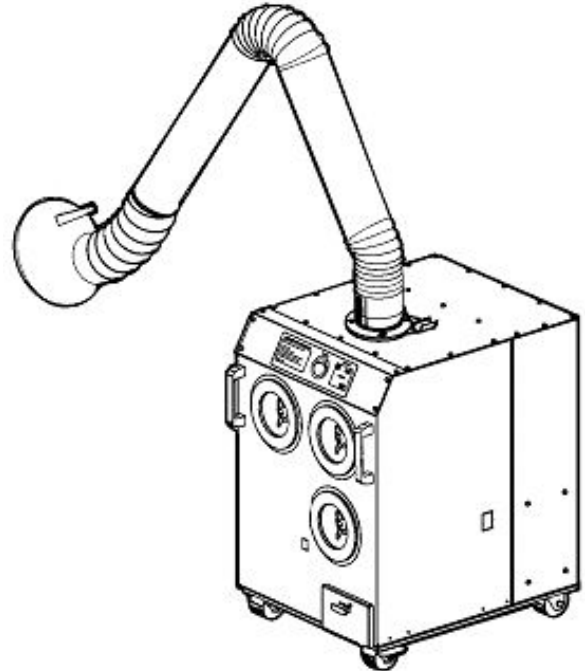
## Features and Benefits

Features	Benefits
<b>No wear counterbalance</b>	<ul style="list-style-type: none"><li>• Low maintenance reduces maintenance expense</li><li>• Easy movement increases worker productivity</li><li>• Safe. No pinch points to cause worker accidents.</li></ul>
<b>Standard high temperature construction</b>	<ul style="list-style-type: none"><li>• Good to 194°F (90°C) without modification</li></ul>
<b>Heavy-duty construction materials</b>	<ul style="list-style-type: none"><li>• Resists failure, reduces downtime</li></ul>
<b>Heavy-duty hose</b>	<ul style="list-style-type: none"><li>• Spark and fire resistant, reduces risk of fire</li></ul>
<b>2hp exhaust fan for 6" diameter Flex-Trunk Plus (optional)</b>	<ul style="list-style-type: none"><li>• Can be used as a stand alone unit</li><li>• Easy Installation</li></ul>

## Easy-Trunk<sup>®</sup> - Product Overview

The Easy-Trunk is a portable weld fume collector with an 8-foot (2.4 m) Flex-Trunk<sup>®</sup> Fume Arm offering compact size, high filtration efficiency, long filter life, plug and go operation, and built-in filter cleaning for intermittent-duty maintenance or light production applications.

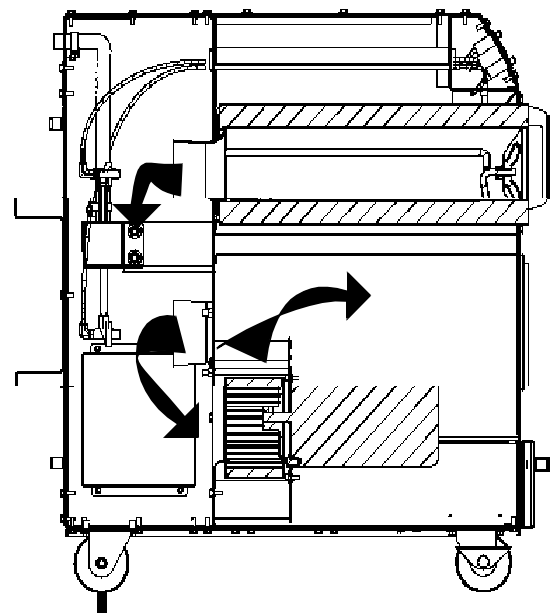
It is easy to see when the filters need cleaning with the color-coded filter gauge, the cleaning controls are easy to use, and the cleaning instructions are easy to follow. Even the dust drawer is easy to empty. Three (3) Ultra-Web<sup>®</sup> FR (Flame Retardant) filter cartridges provide superior filtration efficiency and long life with an excellent air-to-media ratio. With its patented cleaning system, pulse cleaning performance is both effective and quiet. The Easy-Trunk collector is compact and mobile, allowing it to fit through any standard doorway. Once positioned in the work area, simply lock the brakes on the front casters, plug-in, flip a switch, and start welding.



## Operation Explanation

**Normal Operation:** To start the Easy-Trunk, plug the power cord into a proper voltage receptacle and turn on the ON/OFF switch mounted in the handle of the Flex-Trunk hood. The ON/OFF switch also controls the 75-watt halogen work light mounted in the Flex-Trunk hood.

Fume or dust enters through the Flex-Trunk hood, flows through the trunk arm, and into the collector. As the air passes through the filters, fume or dust is captured and collected on the outside surface of the pleated filter cartridges. The clean, filtered air flows up through the center of the filter elements, passes through the venturis into the clean air plenum, through the blower fan, into the silencer section of the cabinet, and finally exits through the clean side air outlet.



The Flex-Trunk hood should be located 12" to 18" (305 to 457 mm) above the arc zone, depending on the type of welding. With the hood in this general location, the lamp at the end of the trunk should be positioned to light the work area. The hood is now in a good position to collect fumes and smoke being generated by the welding operation. The Flex-Trunk rotates 359° (stop in swivel base assembly) and has three flexible joints for optimal positioning of the hood. Friction devices are located in each flexible joint to hold the hood where it is needed.

The blower motor is protected from overload conditions by a thermal protection device. Depending upon the model purchased, this device is either in the motor or in the electrical control box on the magnetic motor starter.

**Filter Cleaning:** A compressed air supply of 90 - 100 psig (621 - 690 kPa) must be connected to the threaded coupling in the back of the Easy-Trunk. While the Easy-Trunk is on and running, the damper should be fully open on the Flex-Trunk arm. If the Filter Gauge indicator is in the green zone, do not pulse-clean the filters. If the indicator is in the red zone, then the filters may be cleaned by leaving the power on, closing the damper in the Flex-Trunk arm, quickly pressing and releasing each pulse button in sequence while waiting three seconds between pulses to allow the air manifold to recharge. After cleaning, open the damper on the Flex-Trunk arm, read the Filter Gauge indicator, and repeat these steps until the indicator is in the green zone. If the Filter Gauge fails to return to the green zone after several cleaning attempts, filter element replacement may be necessary.

Every time a pulse button is pressed and released, a reverse jet of high pressure air is introduced through the venturis into the filter cartridge. This back-flushing of air through the filter initiates the cleaning cycle, which will dislodge any dust or contaminant accumulated on the outside of the filter media. In turn, the dust will fall into the dust drawer located in the bottom of the Easy-Trunk, where it can be easily removed and properly disposed.

## Application Summary

The Easy-Trunk is ideal for intermittent welding, such as for maintenance, to light production welding. These typical processes include:

- Shielded metal arc welding (stick)
- Wire feed (MIG, gas metal arc)
- Tungsten inert gas (TIG) welding
- Intermittent brazing
- Intermittent soldering
- Resistance welding

The rated airflow for the Easy-Trunk is 750 cfm (1,274 m<sup>3</sup>/h).

The Easy-Trunk **should not** be used for plasma, oxygen, acetylene or arc cutting, thermal spraying, or handling of explosive fumes or vapors.

Note that welding on oil-laden parts or heavy production welding, especially with processes that use a flux coating or core, should be avoided. Heavy fume loading will result in excessive maintenance, such as cleaning cycles and/or fume disposal. Also, the hydrocarbons (soot) from the burnt oil and/or flux can plug the media.

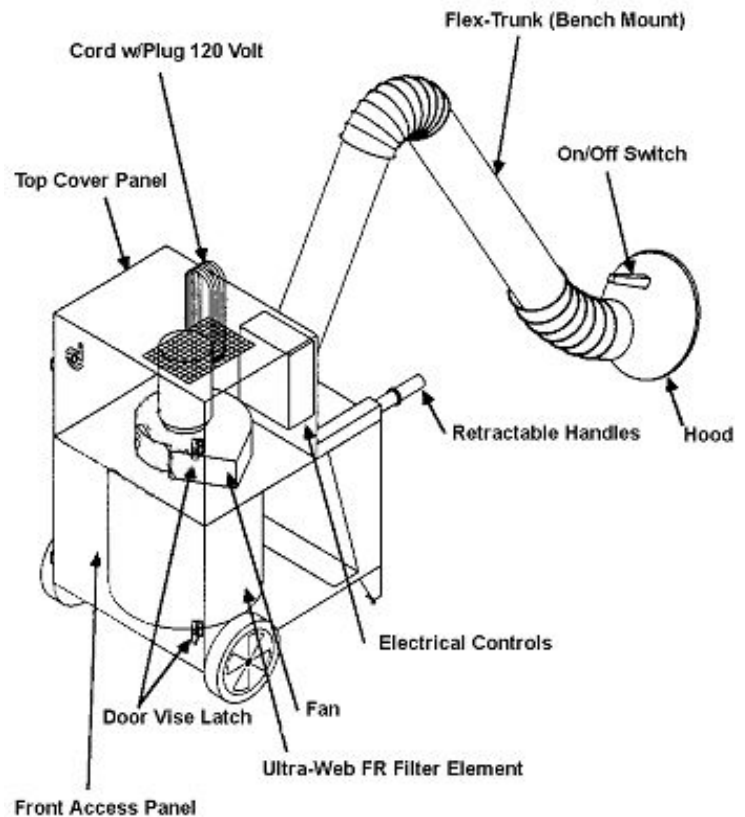
## Features and Benefits

Features	Benefits
<b>Compact size</b>	<ul style="list-style-type: none"> <li>• Frees up production space for increased productivity</li> </ul>
<b>Standard Ultra-Web<sup>®</sup> FR (Flame Retardant) cartridges</b>	<ul style="list-style-type: none"> <li>• Higher efficiency provides a cleaner and safer working environment, reducing worker sickness, increasing productivity</li> <li>• Eases compliance with OSHA regulations</li> </ul>
<b>750 cfm (1,274 m<sup>3</sup>/h) actual airflow</b>	<ul style="list-style-type: none"> <li>• Proven capture performance provides a cleaner, safer, more productive workplace</li> </ul>
<b>Easy operation</b>	<ul style="list-style-type: none"> <li>• Increased productivity - welders can spend their time “making parts”</li> </ul>
<b>Easy maintenance</b>	<ul style="list-style-type: none"> <li>• Reduces maintenance time and expense</li> </ul>
<b>Clean dust disposal</b>	<ul style="list-style-type: none"> <li>• Quick and easy maintenance</li> </ul>
<b>Quiet, 70 dB(A) operation</b>	<ul style="list-style-type: none"> <li>• A quieter working environment for easy conformance with OSHA guidelines</li> </ul>
<b>Quick ship models</b>	<ul style="list-style-type: none"> <li>• Donaldson Torit<sup>®</sup> can solve the fume problem better, and faster, than any of our competitors</li> </ul>
<b>Color-coded filter gauge</b>	<ul style="list-style-type: none"> <li>• Indicates when the filters need cleaning, so cleaning is done only when needed, reducing maintenance time and expense</li> </ul>
<b>8' (2.4 m) FT-500 extraction arm</b>	<ul style="list-style-type: none"> <li>• Provides up to 200 ft<sup>2</sup> (18.58 m<sup>2</sup>) of workspace</li> </ul>

## Porta-Trunk® (PT-1000) - Product Overview

The PT-1000 is a portable collector designed for intermittent collection of dust, smoke, and welding fumes. A halogen lamp lights the work area. When the light is located to illuminate the workplace, the intake is also properly located.

The unit is completely self-contained and portable for easy mobility between work locations. It passes through a standard doorway and the handles can be retracted when not needed. It includes a 7-foot (2.1 m) FT-500 arm to allow specific positioning of the hood for source collection. The Ultra-Web® FR (Flame Retardant) filter cartridge, which provides superior efficiency with maximum life, is easily accessible for cleaning or replacement. A 115-volt power cord is connected to a control panel that is prewired to the unit fan. A switch at the hood of the FT-500 starts the fan and work light.



## Operation Explanation

**Normal Operation:** To start the Porta-Trunk, turn the ON/OFF switch that is mounted in the handle of the Flex-Trunk hood. The ON/OFF switch also controls the 12-volt, 75-watt halogen work light mounted inside the Flex-Trunk hood.

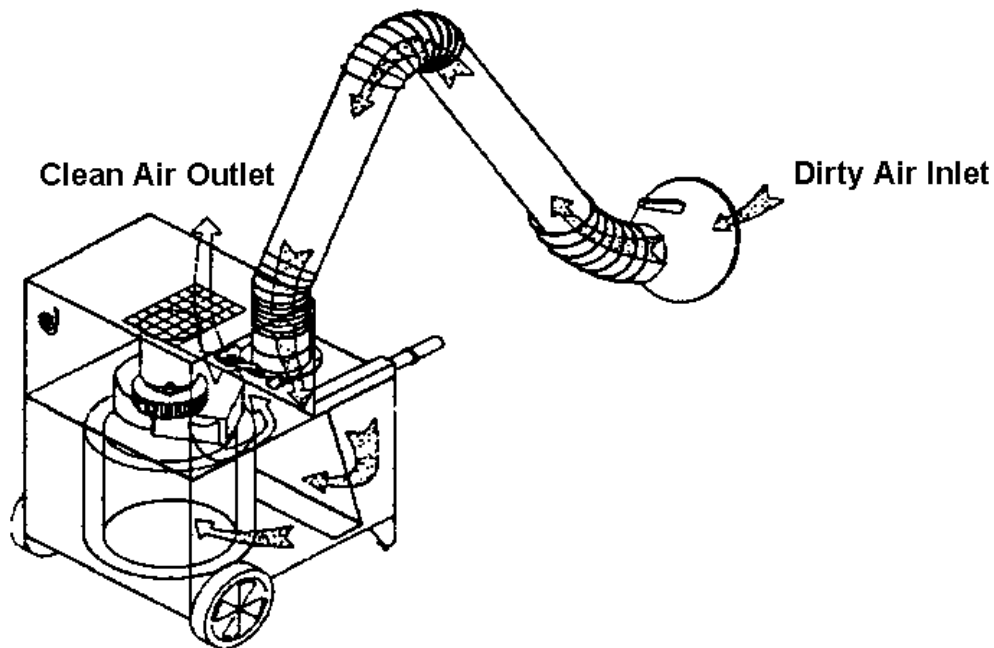
Fume or dust enters through the Flex-Trunk hood and then onto the filter element, where it is collected on the outside surfaces of the pleated filter cartridge. Clean air flows up through the center of the filter cartridge into the blower fan, through the silencer section of the cabinet, and exits through the top clean air outlet. Due to the superior filtration efficiency of the Ultra-Web II, air is allowed to recirculate back to the work area.

The hood is best located 12" to 18" (305 to 457 mm) above the arc zone, depending upon the type of welding. With the hood in this location, it will effectively collect fumes and smoke generated by the welding operation, and the lamp at the end of the trunk will also be positioned to light the work area.

The Flex-Trunk rotates 359° (stop in swivel joint base) and has three flexible joints for optimal positions of the intake hood. Friction devices are located in each flexible joint to hold the hood where it is needed.

The Porta-Trunk is easily rolled where needed by pulling out the two handles until the stop on each side is engaged. The handles are retracted into the cabinet by pressing down on the release button while sliding the handle back into the cabinet.

The blower motor is protected from overloading and overheating by an automatic thermal protection built into the motor.



## Application Summary

The PT-1000 is used primarily to collect welding fumes from an intermittent, nonproduction operation. The unit is portable and can be easily moved to service several work stations or for use during maintenance welding. Typical applications include:

- Gas welding
- Intermittent brazing
- Intermittent soldering
- Shielded metal arc welding
- Resistance welding

Typical airflow through the unit is between 700 and 780 cfm (1,189 and 1,325 m<sup>3</sup>/h). Depending on the application and use, the filter will require manual cleaning after 2-3 months.

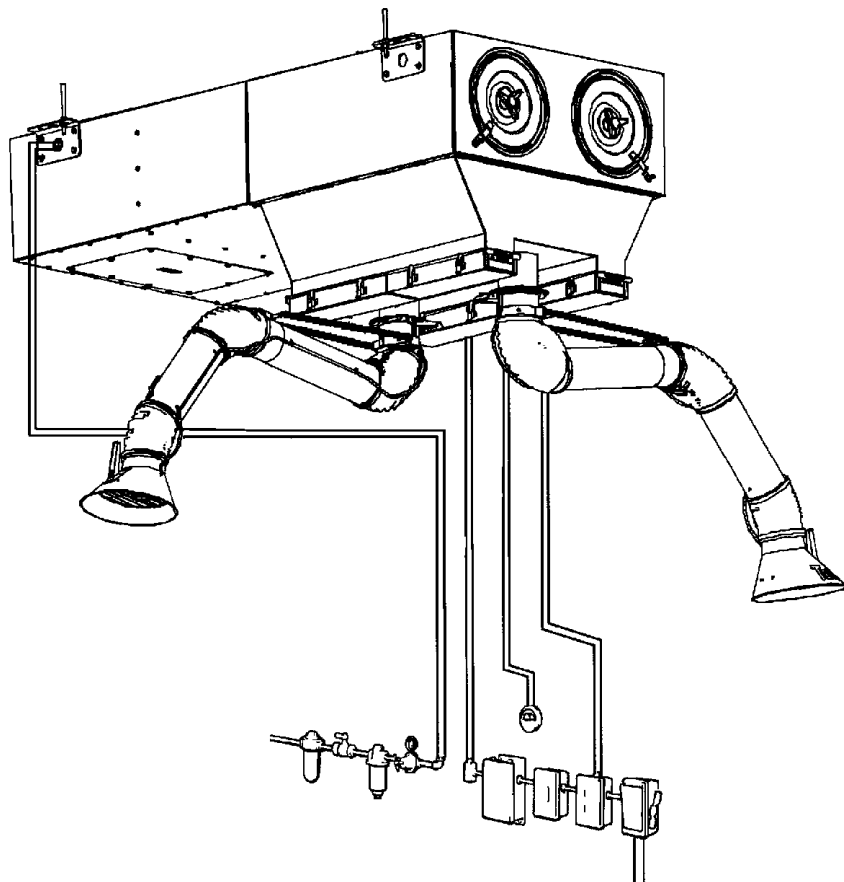
The PT-1000 **should not** be used for plasma, oxygen, acetylene or arc cutting, thermal spraying or handling of explosive fumes or vapors.

## Features/Advantages/Benefits

Features	Advantages	Benefits
<b>Low profile, compact, portable, with retractable handles</b>	<ul style="list-style-type: none"> <li>• Easily moved between work stations</li> <li>• Low center of gravity</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility for use in various plant locations</li> <li>• Easily moved without tipping</li> </ul>
<b>7' (2.1 m) Flex-Trunk with light package</b>	<ul style="list-style-type: none"> <li>• See FT-500</li> </ul>	<ul style="list-style-type: none"> <li>• See FT-500</li> </ul>
<b>Ultra-Web<sup>®</sup> FR (Flame Retardant) filter</b>	<ul style="list-style-type: none"> <li>• Filter efficiency allows recirculation of air</li> <li>• Filter media is self-extinguishing</li> </ul>	<ul style="list-style-type: none"> <li>• Clean working environment without added makeup air costs</li> <li>• Reduces risk of fire</li> </ul>
<b>Built-in sound attenuation</b>	<ul style="list-style-type: none"> <li>• Reduces fan noise</li> </ul>	<ul style="list-style-type: none"> <li>• Quiet operation</li> </ul>
<b>Single phase 115-volt power</b>	<ul style="list-style-type: none"> <li>• Operates on standard 15 amp circuit</li> </ul>	<ul style="list-style-type: none"> <li>• No special power requirements</li> </ul>

## Trunk 2000® (T-2000) - Product Overview

The T-2000 is a source collection system designed to handle one or two welding stations using one or two Flex-Trunks and recirculate clean air back to the workplace. It is designed for overhead mounting and is equipped with automatic pulse cleaning for continuous-duty production welding operation. The high-efficiency Ultra-Web® FR (Flame Retardant) filter cartridges provide superior filtration efficiency and maximum filter life.



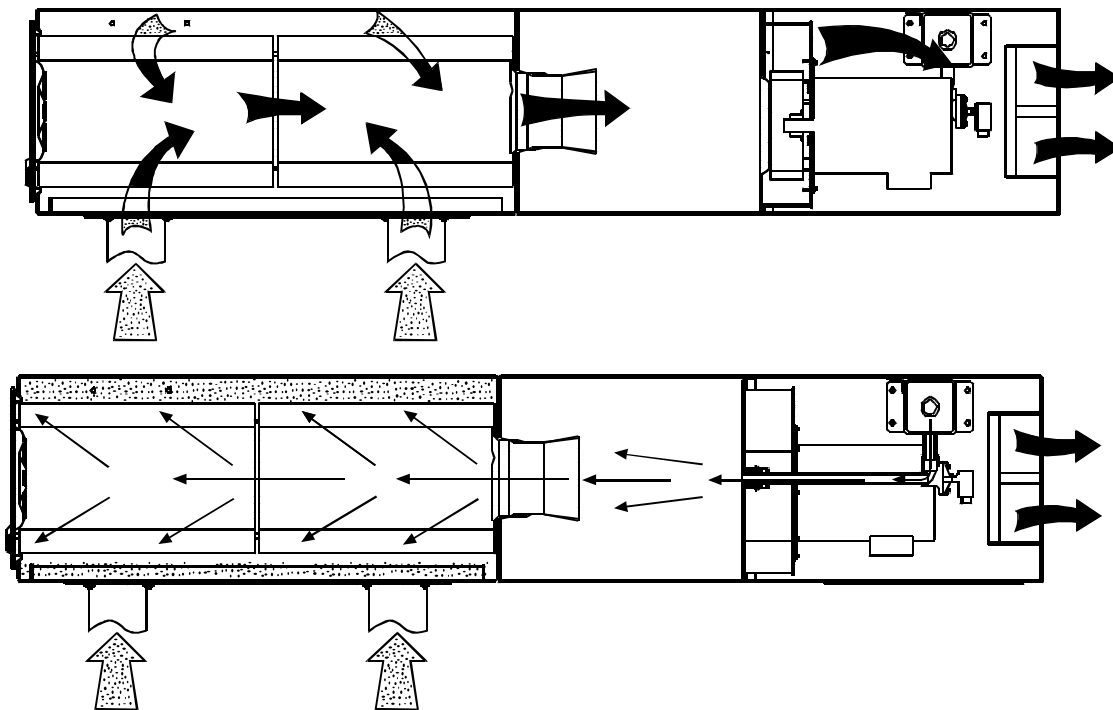
In 1999, the T-2000 was improved with optional hoppers, the ExtraLife™ Filter Cleaning System, and easier installation. The optional hoppers were optimized using FLUENT™\* design software to reduce fume loading to the cartridges. This increases filter life by creating a quiet, downward airflow pattern into the optional hoppers. Fixed baffles above the containers allow fume to drop, while redirecting airflow. This keeps airflow and pulse energy away from the captured fume. Once fume drops into the container, it stays in the container. The optional hopper is recommended on all moderate to heavy loading applications. To make handling easy, four (4) dust containers are used. No tools are required—each container has four (4) spring latches and a location tab to hold one end of the container, making opening and closing latches easy. The ExtraLife Filter Cleaning System increases cleaning energy along the entire cartridge length for longer life. Lower filter restriction provides higher capture velocities and better fume capture. A new service plate was added below the motor and cleaning controls to make wiring much easier. In addition, the T-2000 is shipped right side up so units can be lifted into place with the existing skid.

## Operation Explanation

**Normal Operation:** Dust enters through the Flex-Trunk(s) and is collected on the outside surfaces of the four (4) Ultra-Web® FR filter elements. The cleaned, filtered air passes through the center of the filter elements into the blower, through the silencer sections of the cabinet, and exits out the clean air outlet. Due to the high efficiency of the Ultra-Web® filter elements, air is recirculated back to the workplace.

\*FLUENT is a trademark of Fluent, Inc.

**Filter Cleaning:** Filter cleaning starts when the blower is turned on. A solid-state control timer energizes a solenoid valve, causing the corresponding diaphragm valve to send a pulse of compressed air through the filter elements (from the inside outward). This removes the dust from the outside of the filter elements and it then falls into the hopper. At the end of the pulse, the diaphragm valve closes and the elements are back in normal operation. After a preset time interval elapses, the timer sequences to the next valve in the system. This cycle will continue until the blower fan is turned OFF.



## Application Summary

The T-2000 is primarily used for source capture of welding fume. When fitted with two (2) Flex-Trunks, airflow to the unit is between 750 and 890 cfm (1,274 and 1,512 m<sup>3</sup>/h) per arm. Typical applications include:

- Shielded metal arc welding
- Gas shielded arc welding
- Diffusion welding
- Flux core arc welding
- Resistance welding

For source collection on moderate to heavy production welding, the optional hopper is strongly recommended. The base model (without hopper) is best used on intermittent to light production welding applications.

The T-2000 **should not** be used for soldering, brazing, or plasma arc because the collected material will not pulse from the filters.

## Features and Benefits

Features	Benefits
<b>Dust storage hopper</b>	<ul style="list-style-type: none"> <li>• Quick and easy fume disposal, resulting in lower maintenance costs</li> </ul>
<b>Standard Ultra-Web® FR (Flame Retardant) cartridges</b>	<ul style="list-style-type: none"> <li>• Higher efficiency provides a cleaner working environment, reducing worker sickness, increasing productivity</li> <li>• Eases compliance with OSHA regulations</li> </ul>
<b>FLUENT designed inlet and hopper</b>	<ul style="list-style-type: none"> <li>• Minimizes fume re-entrainment</li> <li>• Maximizes filter life</li> <li>• Reduces maintenance expense</li> </ul>
<b>Patented cleaning system</b>	<ul style="list-style-type: none"> <li>• Maximizes filter life</li> <li>• Reduces maintenance expense</li> </ul>
<b>Ceiling mounting</b>	<ul style="list-style-type: none"> <li>• Frees-up valuable production space</li> </ul>
<b>Two capture arm options</b>	<ul style="list-style-type: none"> <li>• Provides customers with a choice</li> </ul>
<b>Quick ship models</b>	<ul style="list-style-type: none"> <li>• Donaldson Torit® solves the fume problem faster</li> </ul>

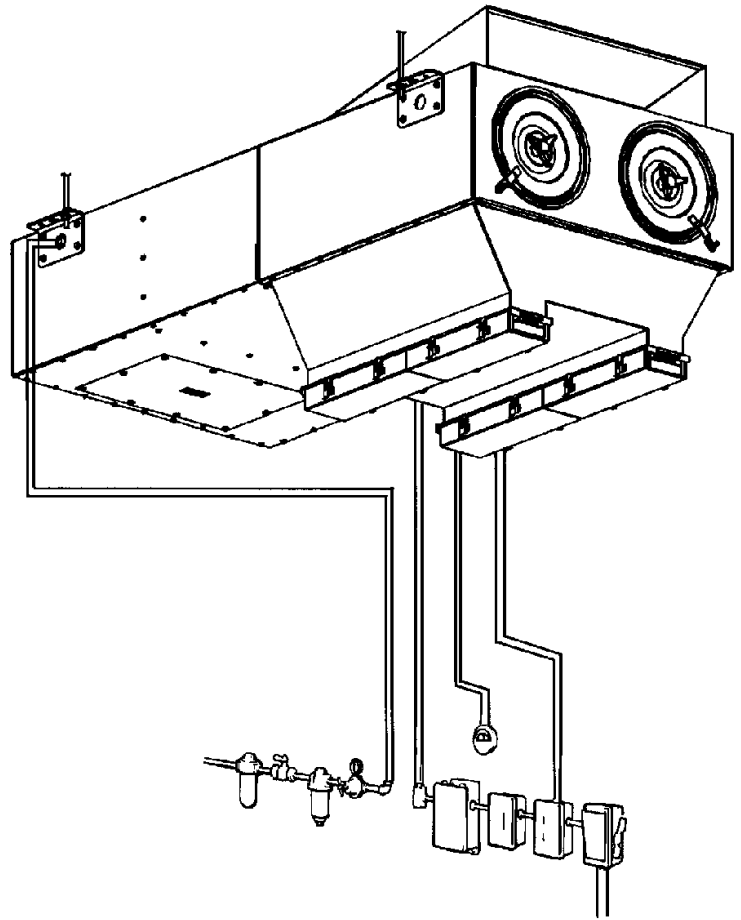
## Ambient Collection System (AT-3000) - Product Overview

The AT-3000 is an ambient pulse cleaned fume collection system designed for multiple unit overhead installation when source capture of welding fume is not practical. Ceiling hung, the compact size coupled with large air volume handling capability, allows this unit to be placed in a wide variety of sites which were previously inaccessible to high-efficiency dust collectors.

The four (4) Ultra-Web® FR (Flame Retardant) filter cartridges are the heart of the AT-3000. They help ensure that only clean air is returned to the plant environment. Changing the filters is easy with the slide-in design. In properly sized applications, the filter elements will typically last a year or more before they need replacing.

In 1999, the AT-3000 was improved with a new inlet location, optional hoppers, improved cleaning system, and easier installation. The inlet was moved to the top to provide a downward airflow pattern. The optional hoppers were optimized using FLUENT™ design software to reduce fume loading to the cartridges. This increases filter life by creating a quiet, downward airflow pattern into the optional hoppers. Fixed baffles above the containers allow fume to drop, while redirecting airflow. This keeps airflow and pulse energy away from the captured fume. Once fume drops into the container, it stays in the container. The optional hopper is recommended on all moderate to heavy loading applications. To make handling easy, four (4) dust containers are used. No tools are required—each container has four (4) spring latches and a location tab to hold one end of the container, making opening and closing latches easy. The ExtraLife™ Filter Cleaning System increases cleaning energy along the entire cartridge length for longer life. Lower filter restriction provides higher capture velocities and better fume capture. A new service plate was added below the motor and cleaning controls to make wiring much easier. In addition, the AT-3000 is shipped right side up so units can be lifted into place with the existing skid.

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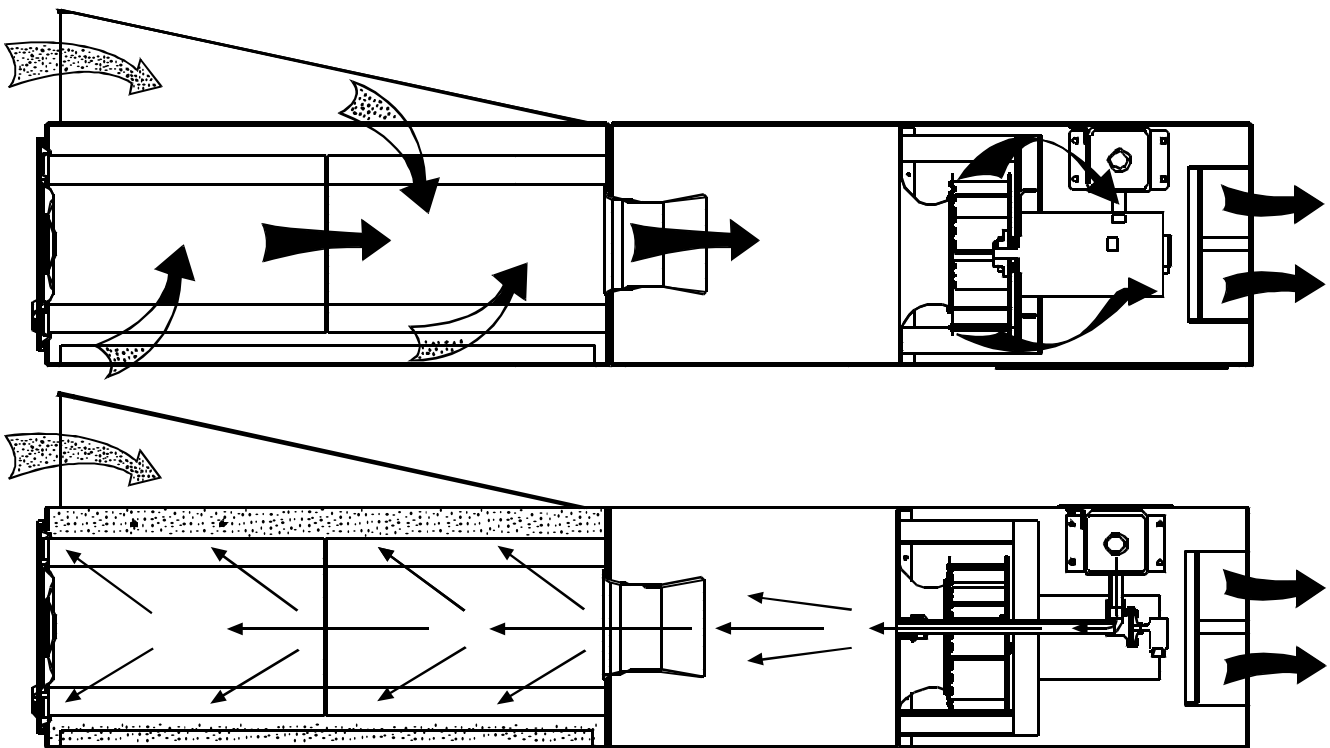


## Operation Explanation

**Normal Operation:** Dust-laden air enters at the contaminated air inlet and is collected on the outside of the elements. The clean, filtered air passes through the plenum and exits at clean air outlet.

**Filter Cleaning:** Filter cleaning starts when the operator switches the Pulse Control ON. A solid-state timer energizes a solenoid valve, causing the corresponding diaphragm valve to send a pulse of compressed air through the filter elements (from the inside outward), removing the dust from the outside of the elements. The dust then falls into the storage area.

At the end of the 100 millisecond pulse, the diaphragm valve closes and the elements are back in normal operation. After a preset time interval elapses (normally 10 seconds), the timer sequences to the next valve in the system. This cycle will continue until the Pulse Control is turned OFF.



## Application Summary

The AT-3000 is designed for general ventilation of welding fume, and provides superior performance to electrostatic precipitators (ESPs). Each unit is designed to handle 2,500 - 3,000 cfm (4,248 - 5,097 m<sup>3</sup>/h) of air, drawing in through an inlet scoop and exhausting through the rear of the unit. These collectors are generally sold as multiple-unit systems positioned according to specific application parameters.

## Sizing and Selecting

The AT-3000 is ideal for general ventilation when source collection is not possible. To determine the number of AT-3000 units needed for a room, calculate the room volume, divide by 2900 and the suggesting air exchange rate, as shown in the table below.

Welding Environment	Description	Air Exchange Rate
Light	>16,000 ft <sup>3</sup> /work station, TIG and MIG welding	20 minutes
Typical (Moderate)	12,000 – 20,000 ft <sup>3</sup> /work station, wire welding without flux	15 minutes
Heavy	<16,000 ft <sup>3</sup> /work station, flux core wire, stick welding	10 minutes

Example: 60' x 80' x 40' room, 10 welding stations, wire welding.

$$\frac{192,000 \text{ ft}^3}{15 \text{ min (2900 ft}^3\text{/min)}} = 4.41 \text{ units (use 5)}$$

The AT-3000 units are best arranged so that there is continual air movement in all areas near the ceiling, created by the exhaust of the one collector blowing toward the inlet of another collector. If there is no air movement, fume “clouds” will form. Therefore, single unit installations are not recommended.

Note that welding on oil-laden parts or heavy production welding, especially with processes that use a flux coating or core, will shorten filter life. This is caused by the hydrocarbons (soot) from burnt oil and/or flux, which plugs the media, and is difficult to pulse clean.

## Features and Benefits

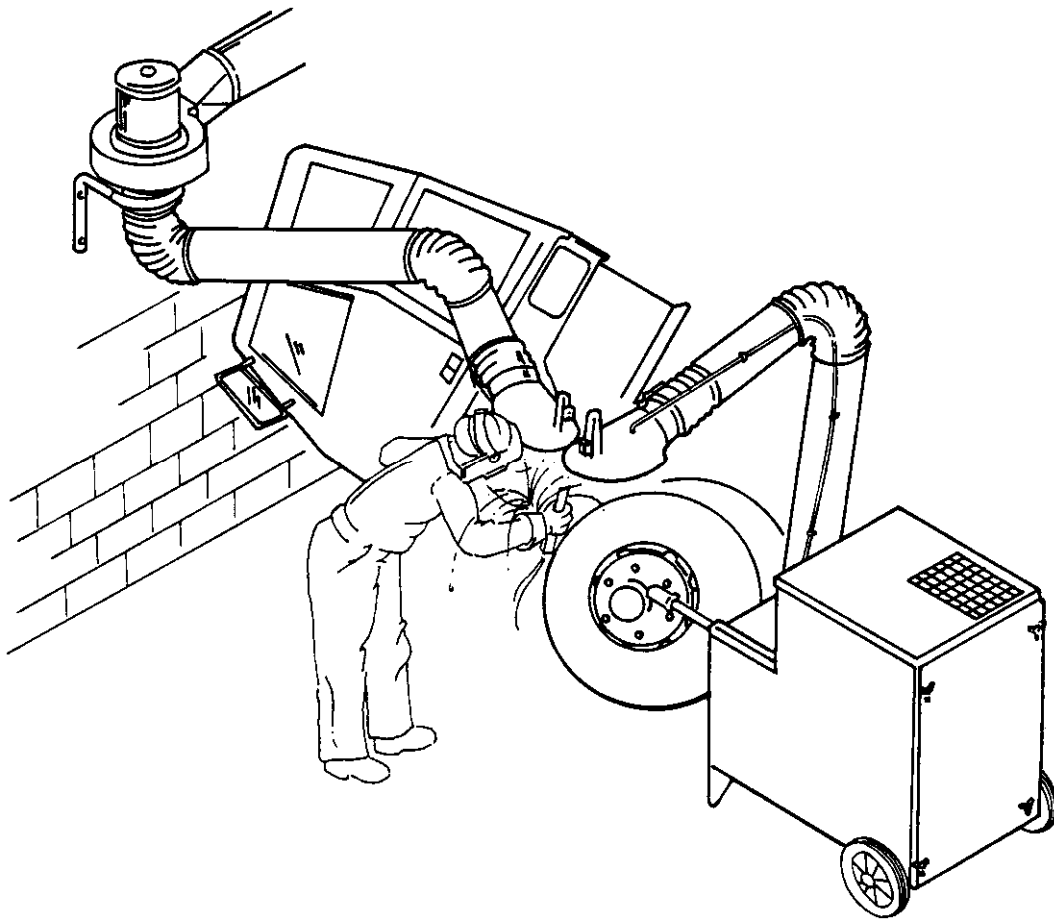
Features	Benefits
<b>Dust storage hopper</b>	<ul style="list-style-type: none"> <li>• Quick and easy fume disposal, resulting in lower maintenance costs</li> </ul>
<b>Standard Ultra-Web<sup>®</sup> FR (Flame Retardant) cartridges</b>	<ul style="list-style-type: none"> <li>• Higher efficiency provides a cleaner working environment, reducing worker sickness, increasing productivity</li> <li>• Eases compliance with OSHA regulations</li> </ul>
<b>FLUENT designed inlet and hopper</b>	<ul style="list-style-type: none"> <li>• Minimizes fume re-entrainment</li> <li>• Maximizes filter life</li> <li>• Reduces maintenance expense</li> </ul>
<b>Patented cleaning system</b>	<ul style="list-style-type: none"> <li>• Maximizes filter life</li> <li>• Reduces maintenance expense</li> </ul>
<b>Ceiling mounting</b>	<ul style="list-style-type: none"> <li>• Frees-up valuable production space</li> </ul>
<b>Two capture arm options</b>	<ul style="list-style-type: none"> <li>• Provides customers with a choice</li> </ul>
<b>Quick ship models</b>	<ul style="list-style-type: none"> <li>• Donaldson Torit<sup>®</sup> solves the fume problem faster</li> </ul>

# Sizing and Selecting Criteria for Weld Fume Products

## For One Person Station

When a customer has a small, permanent welding area that is used periodically, recommend the self-powered FT-500, a portable Easy-Trunk or PT-1000 unit or stationary Weld Bench. When the customer is performing small or light welding operations in various parts of the plant, recommend the Easy-Trunk or PT-1000.

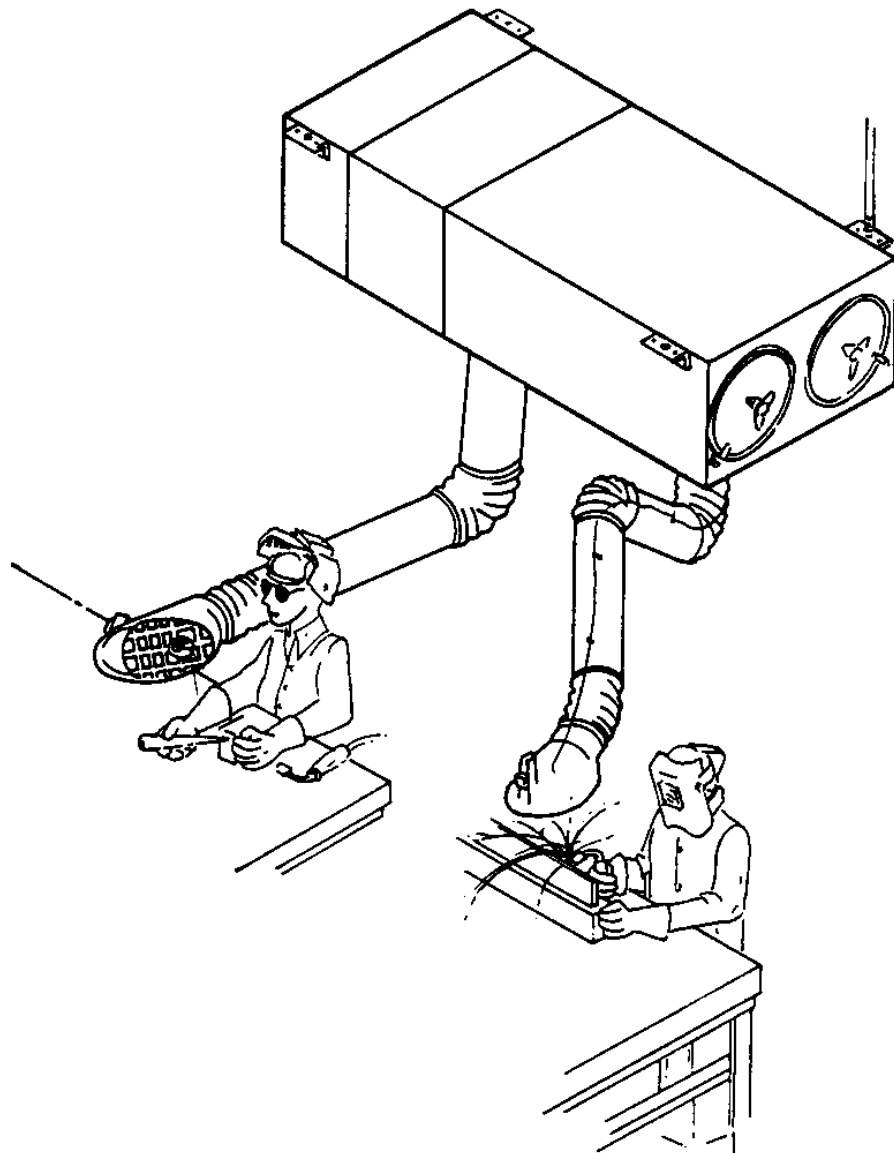
**Diagram of One Person Station**



## For Two Welder Area

When a customer has dedicated continuous welding stations with one or two welders in close proximity, recommend the T-2000.

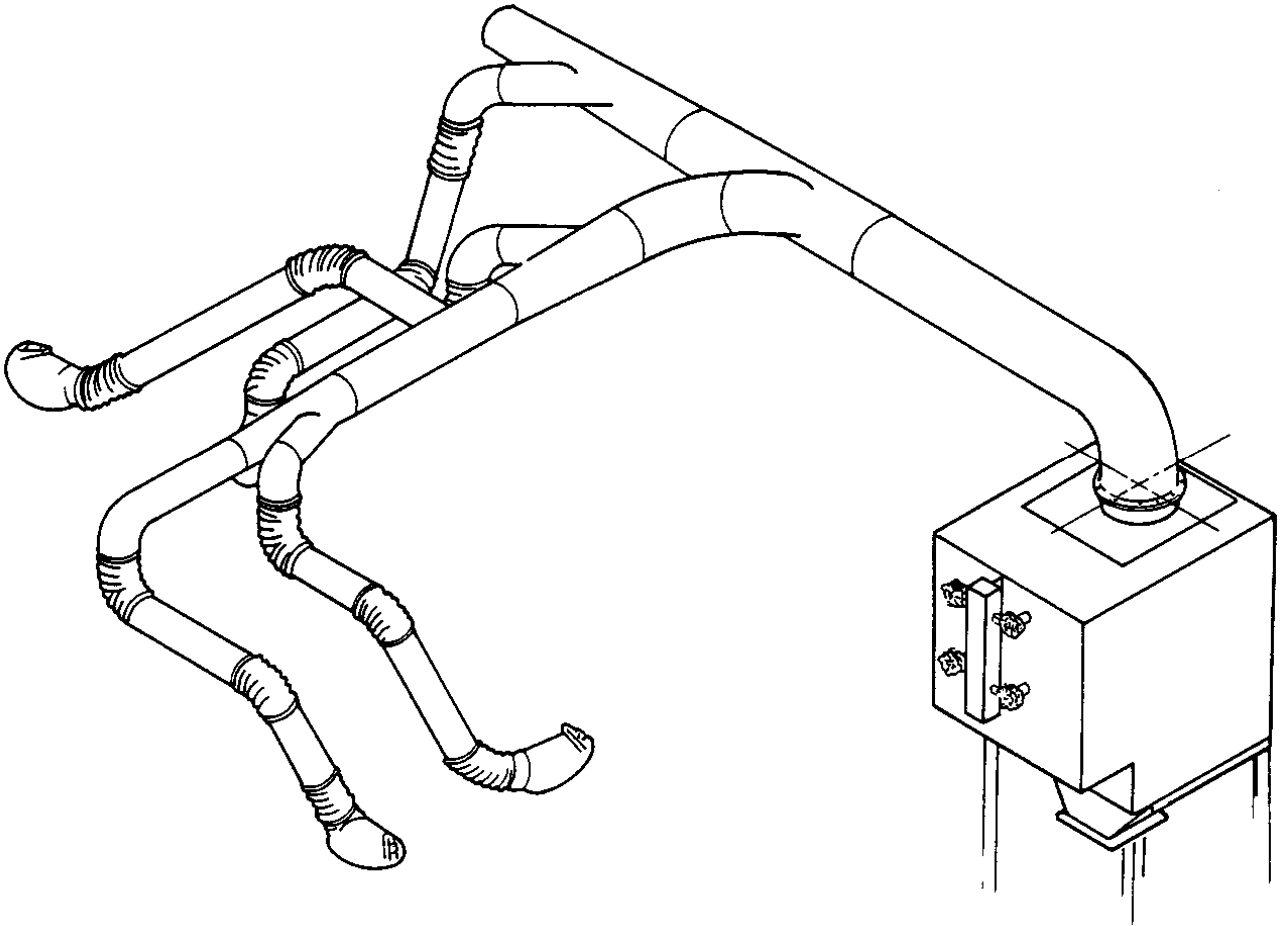
Diagram of Two Welder Area



## For Central System

When a customer has several welding stations located far apart, or for high-loading applications, recommend a central dust collection system, specifically the FT-500 for source collections. Discuss the features and benefits with them, then layout the ductwork and size the collector.

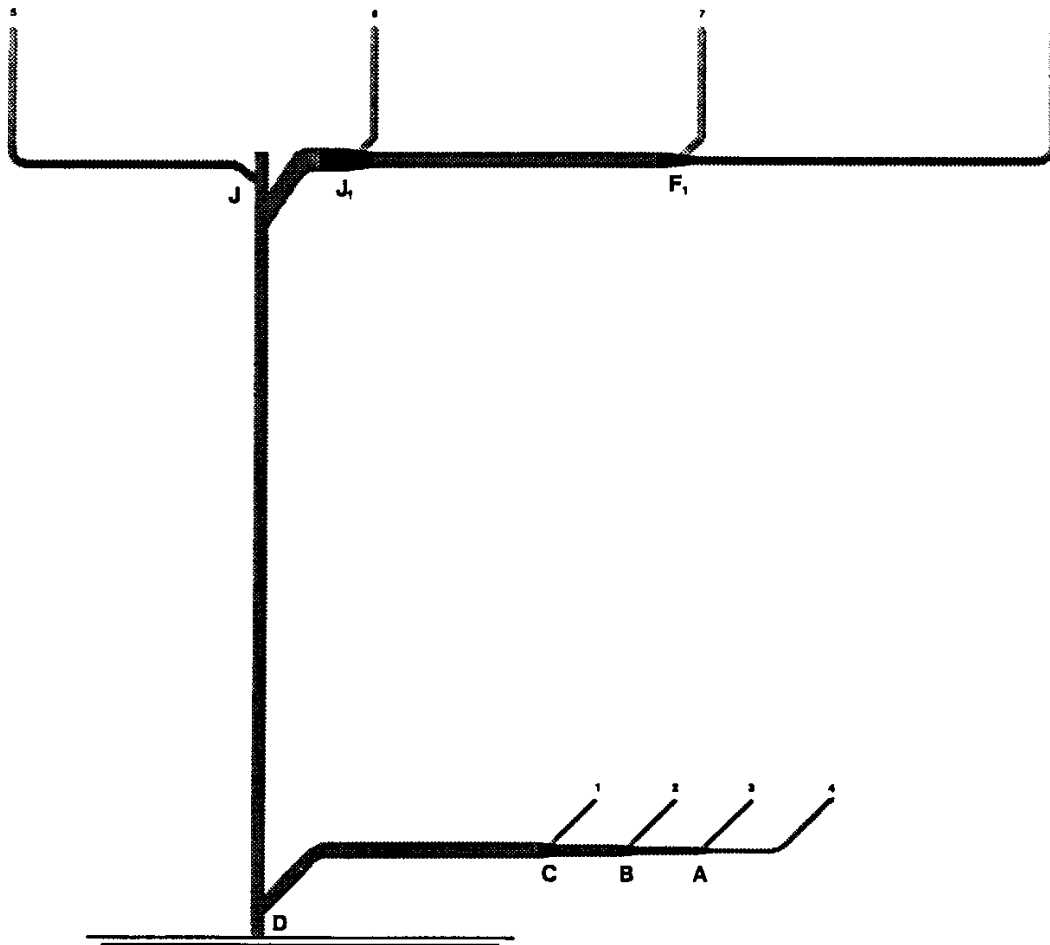
**Diagram of Central System**



## For Many Dedicated Welding Stations

When a customer has many dedicated welding stations, the system cost and performance needs must first be considered. For example, if there are ten (10) stations (two welders per station), the customer can choose either ten (10) T-2000s, each with two (2) FT-500 arms (one T-2000 will service two welders); or, he can choose twenty (20) FT-500s and attach them to ductwork within a central system. If the customer needs the flexibility to move stations to accommodate changes in workflow or layout, the T-2000 may be the better alternative. If the customer chooses the FT-500 option, there is an additional opportunity to sell other Torit equipment.

**Diagram of Many Stations**



## For Several Large, Scattered Welding Stations

When a customer has several large welding stations or areas scattered throughout the plant – some stationary, some portable – with no fixed drops due to overhead cranes or moving machinery, etc., then a general ventilation installation is probably the answer.