

3HP High Vacuum Dust Collector



Owner's Manual



Thank You for Choosing an Oneida Air Systems Product!

OAS manufactures and sells dust collection equipment only. Our qualified technicians and sales staff are available 7:30am - 6:00pm EST Mon. - Thur. and 7:30am - 5:00pm EST Fri. to answer any questions concerning OAS products and dust collection. Call for ductwork design and ductwork quotes, including system pricing and shipping cost.

Read the entire Owner's Manual before installing or operating system!

Proudly
Made in
the U.S.A. 

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I. System Start-Up Information

1. Read the installation and maintenance instructions as well as the recommended safety practices in this manual.
2. Install Ductwork completely:
 - A.) Seal ductwork with silicone sealant or duct tape.
 - B.) Have Dust Bin in place and sealed.
3. Have licensed electrician wire Fan / Blower according to wire diagram in this owner's manual.
4. Have licensed electrician check current draw on motor with all gates open. Current draw should not exceed maximum motor amperage. (OAS is not responsible for destroyed motors.)

Caution

The Dust Collector & Fan/Blower is heavy. Handling and installation should always be performed by experienced and trained personnel who have experience with rotary equipment. In addition to the following instructional manual, care should be taken to ensure compliance with specific safety requirements mandated by federal, state and local codes.

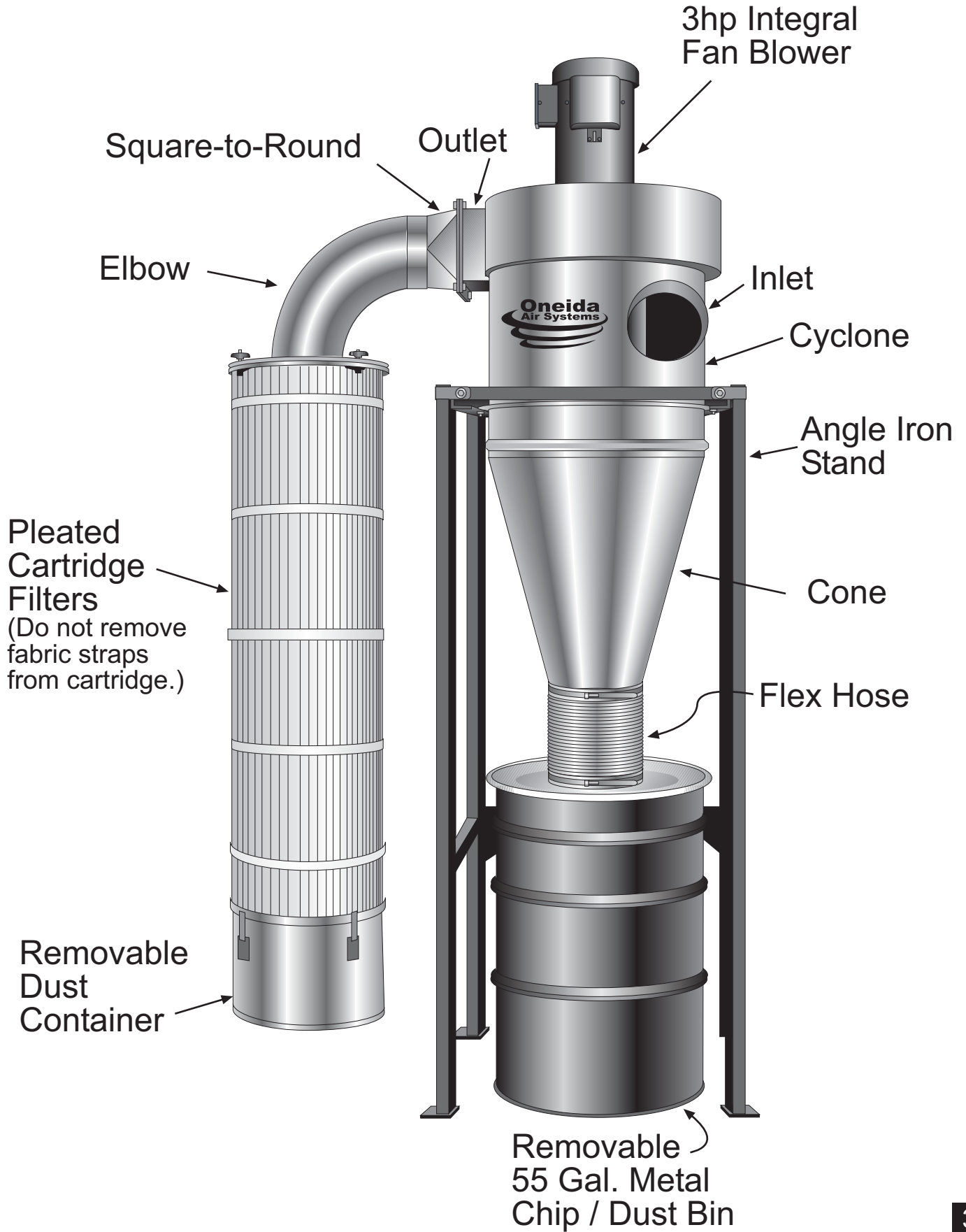
Warning

Do not operate Fan / Blower without connecting ductwork. Never operate Fan/Blower without belt and shaft guard in place. Keep clear of exhaust. Keep hands and objects clear of inlet and outlet.

Warning

Check amperage draw during operation with all blast gates open. Make certain amperage is not outside operating limit indicated on motor plate! If amperage is too high - shut down immediately! (See Troubleshooting section.)

II. 3hp High Vacuum Configuration



III. General Specifications & Fan Performance Curves

Physical and Electrical Data for 3 hp High Vacuum Unit.

System Performance

3hp - 1342 cfm @ 3.5 SP

System Dimensions

Height w/ 55 Gal. Drum: 110 1/8"

Footprint: 56" x 34"

Fan Wheel diameter: 15" Backward Incline design

Cyclone Inlet: 6"

Dust Bin

55 Gal. Steel Drums

Large dust bins available

Included:

Magnetic Motor Starter

Filter Efficiency Gauge

Integral Fan Blower - 3hp

TEFC 60 Hz Motor - Single Phase

Insulation Class: F4

Voltage: 230

Amperage: 14.5

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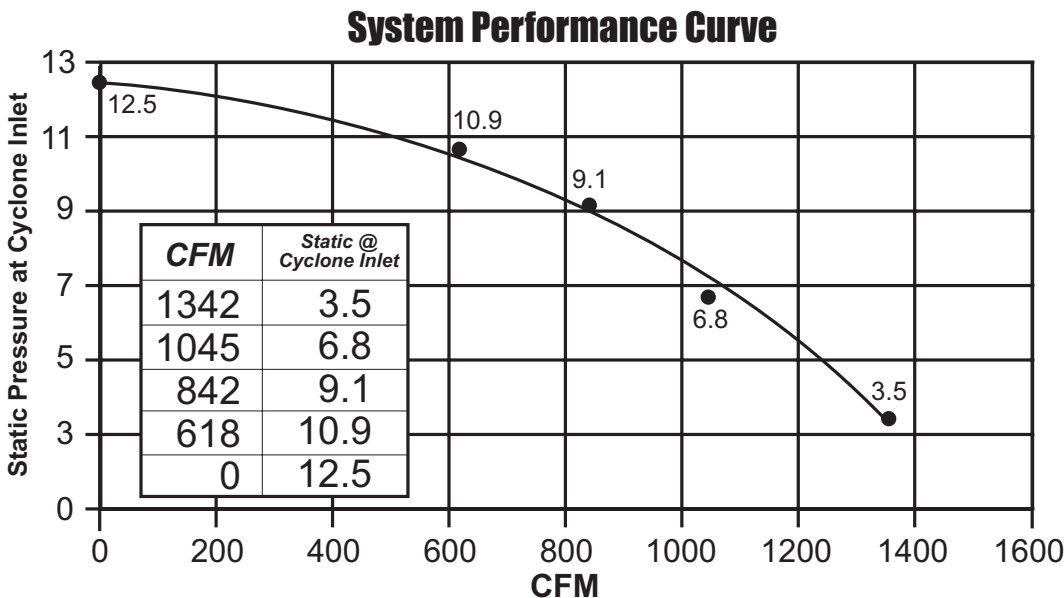
External Cartridge Filter

1 Pleated Cartridge - 130 sq. ft.

Spun-Bonded polyester BIA ZH1 / 487 test - Rated C

Captures 99.99% of test material over 20 microns

Captures 99.9% of test material between 0.2 - 2.0 microns @ 11fpm

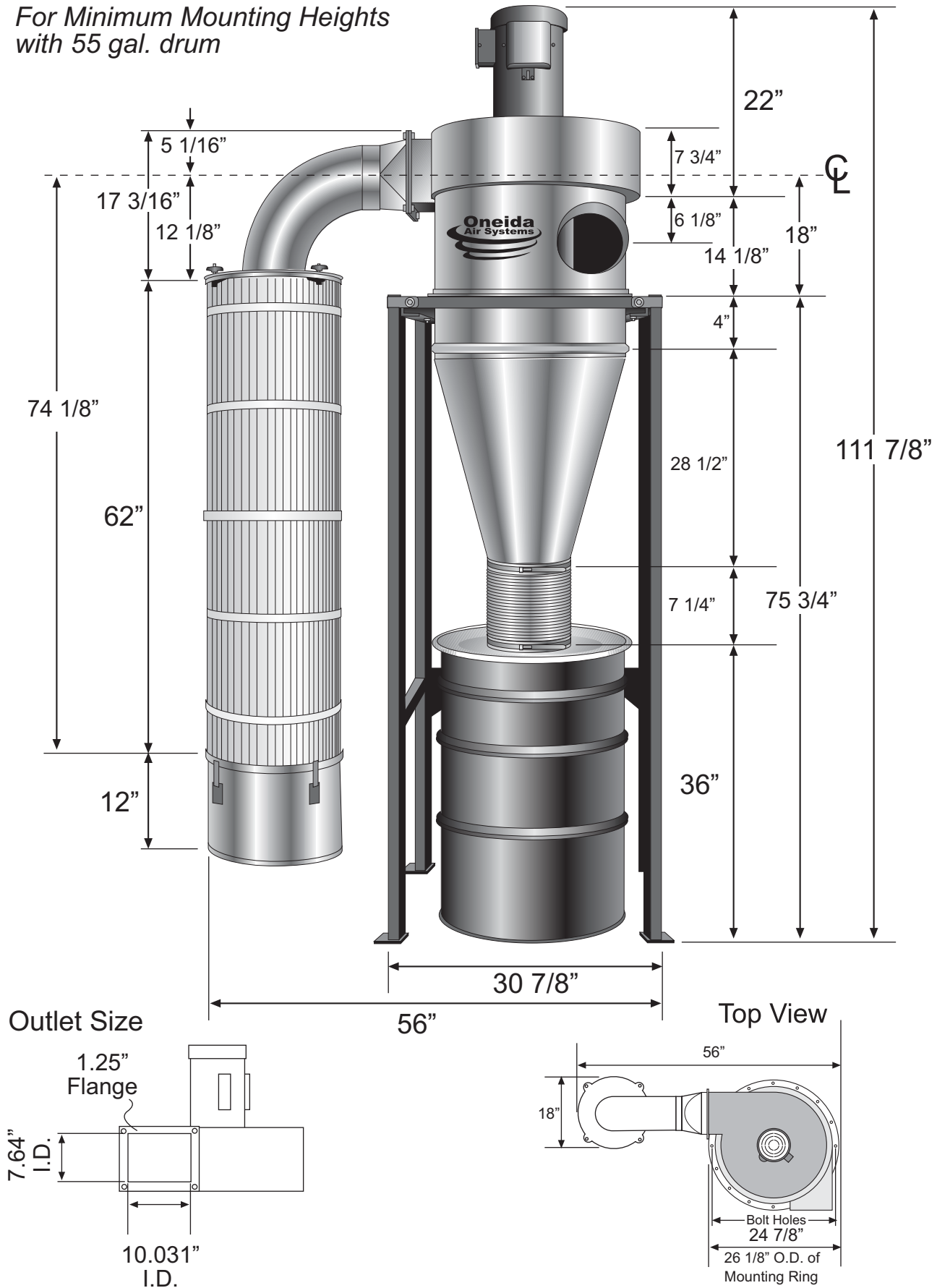


Static pressure and volume together determine a fan's performance. Several factors, such as layout of ductwork and diameter of openings, can affect a fan's performance.

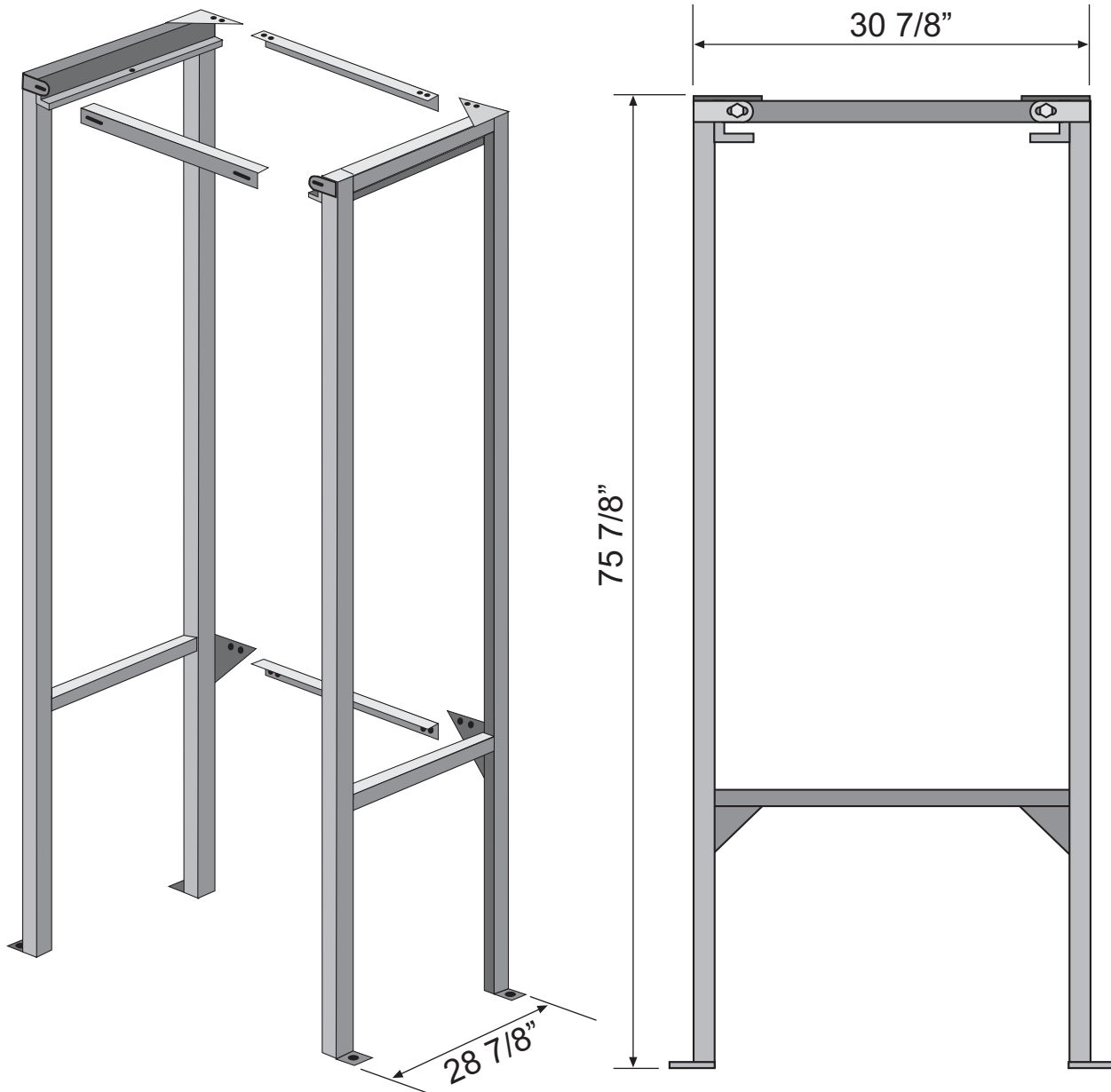
IV. Dimensions

For Twin 55 Gal. Barrel Measurements See Page 9.

For Minimum Mounting Heights with 55 gal. drum



V. Angle Iron Stand



Bolt together the stand using the cross bars and $\frac{3}{8}$ " x 1" bolts. Note: the cross bar on the cyclone stand goes in the back so that the dust bin can slide out.

VI. Assembly Instructions

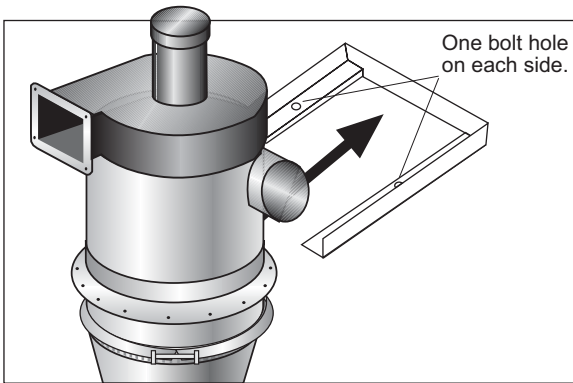
Fan / Blower is shipped strapped to Cyclone Barrel. It is NOT attached to the unit. You must bolt them together. Follow the instructions below.

1. Orient the blower housing to match the stand configuration and the desired angle for the cyclone inlet. Bolt the fan / blower to the cyclone barrel using the hardware taped on the motor. Bolts are already welded on Fan/Blower unit. Put strip of the neoprene gasket around the cyclone barrel behind the bolt holes. Then put bolts through holes in barrel. Put flat washer on bolt. then lock washer, then hex nut.

Cyclone Inlet and Fan / Blower are independent. Filters can be to the right or left of the unit.

16 ea. 3/8" Flat Washers, Lock Washers and Hex Nuts

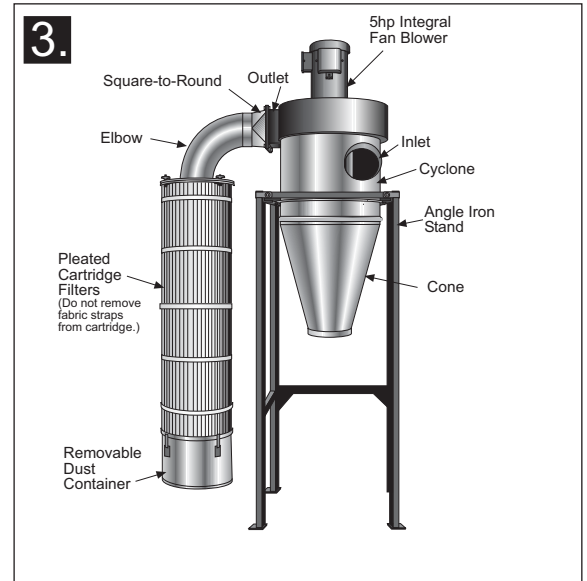
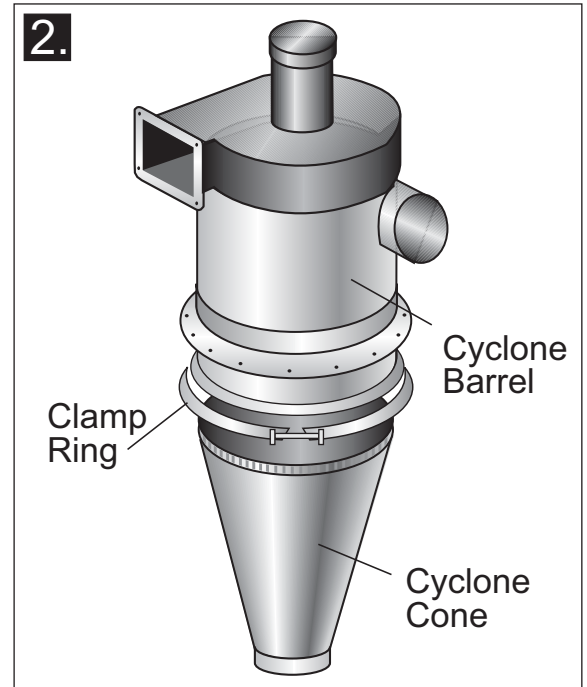
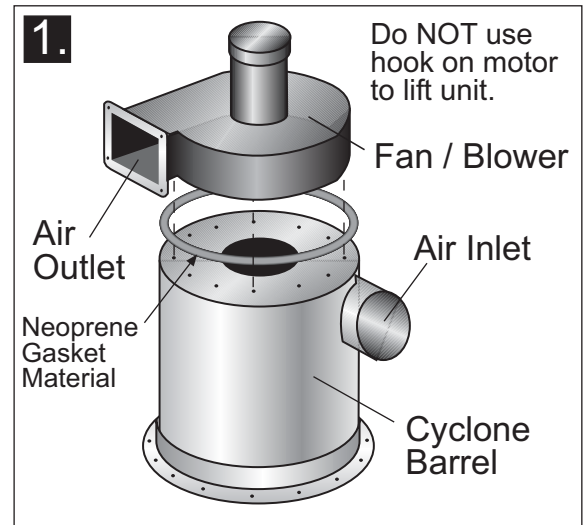
2. Clamp the fan housing and cyclone barrel to the cyclone cone with the clamp ring. Note: the fan / blower and the cyclone barrel are very heavy. The system will be top heavy. One method is to lay the stand down, then bolt the cyclone with the fan / blower to the stand. The iron ring will slide into stand.



3. Tip the fan housing and cone upright. The system is very top heavy.

4. Bolt the elbow-cartridge housing to the fan housing outlet (rectangular). Clamp the cartridge to the flat plate. Clamp the dust bins to the bottom of the cartridge filters.

Continued on next page.



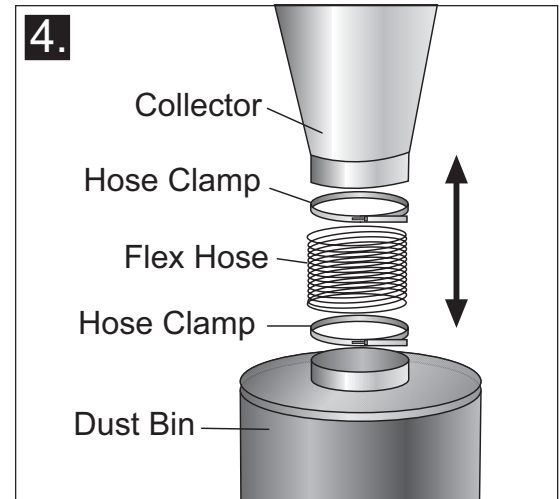
VI. Assembly Instructions (Cont.)

5. Attach flex hose to bottom of collector and to lid of dust bin. Securely fasten hose clamps. There must be an air tight seal between the collector and dust bin.

6. Make sure the dust bin lid sits securely and the rubber gasket on the bin lid is in place on the barrel. Maintain an air tight seal between cyclone and dust bin to prevent motor from overloading.

IMPORTANT:

*Do not operate the collector until the dust bin is in place and the connector is air tight or motor damage could result!
Stay clear of fan exhaust while collector is operating.*



7. Attach the ductwork from the woodworking machines to the inlet of the collector.

8. Bolt Angle Iron Stand to the floor. Unit is top heavy!

VII. Fan / Blower Maintenance

- A high pressure blower requires a certain amount of resistance which will prevent motor over amperage.
- Make sure power source matches wire voltage configurations.
- Check set screw and key in fan wheel, make sure fan wheel is secure. Fan blower should not vibrate.

1. Electrical - Failure to follow instructions and safe electrical procedures could result in serious injury or death. Disconnect all power and discharge all capacitors before servicing. Install and ground per local and national codes. Consult a licensed electrician with questions or if repairs are required.

Electrical Connections -

- A.) All wiring, fusing, and grounding must comply with National Electrical Codes and local codes.
- B.) To determine proper rotation and voltage connections, refer to the Wire Diagram of this manual.
- C.) Use the proper size of line current protection and motor controls as required by the National Electrical Code and local codes. Recommended use is 125% of full load amps as shown on the nameplate for motors with 40 degrees Celsius ambient and a service factor over 1.0. Recommended use is 115% of full load amps as shown on the nameplate for all other motors. Do not use protection with larger capacities than recommended. Three phase motors must have all three phases protected.

2. Cleanliness - Keep both the interior and exterior of the motor free from dirt, water, oil, and grease.

3. Safety - Motors should be installed, protected and fused in accordance with latest issue of National Electrical Code, NEMA Standard Publication No. MG 2 and local codes. Rotating parts such as pulleys, coupling, external fans, and unusual shaft extensions should be permanently guarded. Keep hands and clothing away from moving parts. Electrical repairs should be made by trained, qualified personnel only.

4. Service - Notice - If lubrication instructions are shown on the motor nameplate, they will supercede this general instruction.

Warning: Rotating Fan Blades. Keep Objects Clear of Inlet and Outlet.

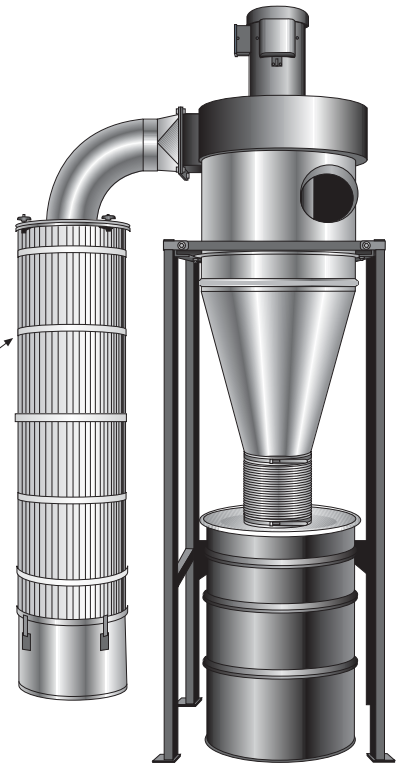
VIII. Filter Maintenance

External Filter Cartridge Cleaning Intervals

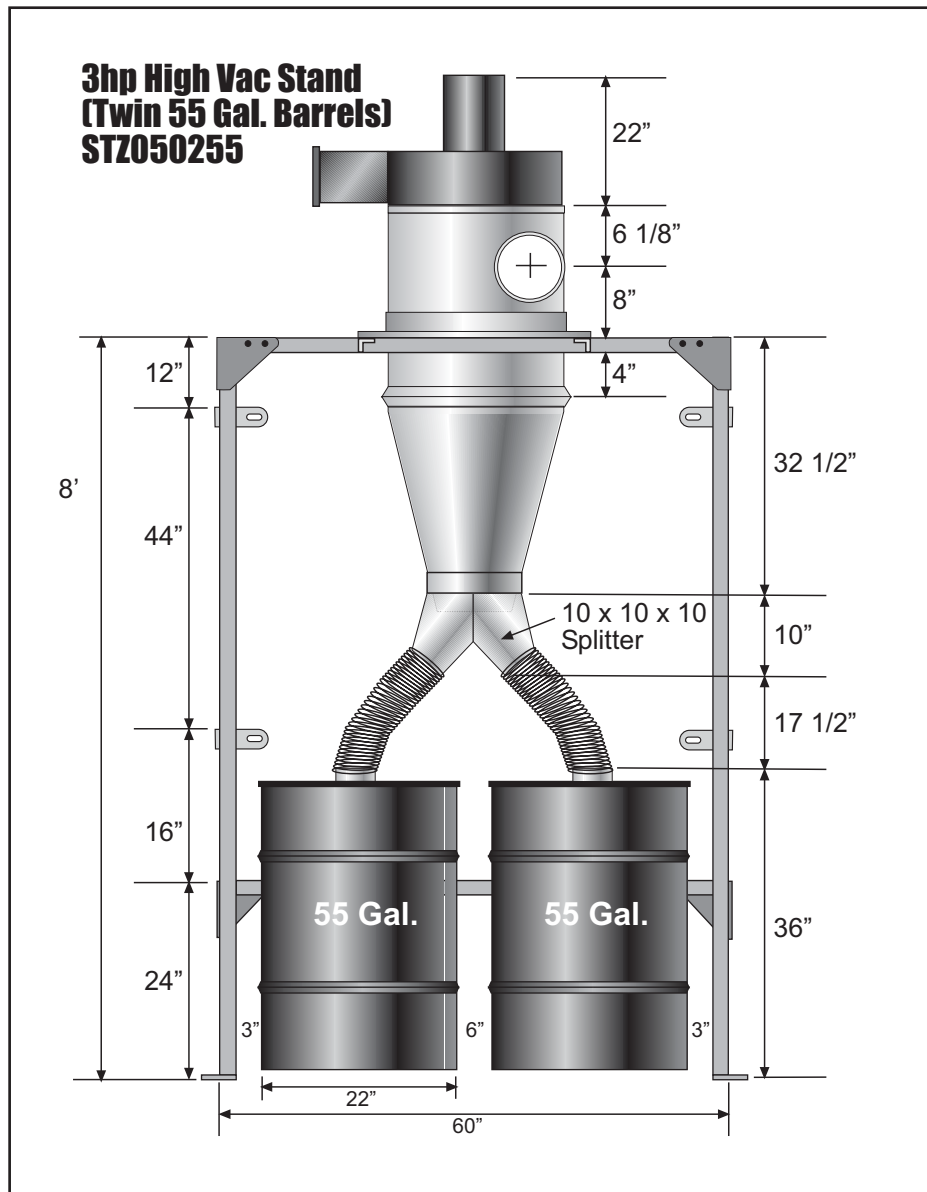
When unit is turned off, use compressed air to blow dust off from exterior of filter. Hold nozzle at least 8" away from filter pleats*. Do not remove bottom dust pan before or during the blow-off process! Let dust settle into dust pan. Unclip and dump out dust. Filter removal is not required. You can also run your fingers around the filter pleats to knock material down.

* **WARNING:** A close, direct blast with the compressed air nozzle too close to filter, may damage filter media. Always wear safety glasses while blowing off filter.

Do not remove fabric straps.



Caution: Fine dust collected in filter is hazardous to your health! Do not breathe!



IX. Single and Three Phase Wire Diagram

Use wiring diagram on motor plate if different from below.

Wiring should always be done by a licensed electrician!

- Electrically insulate all connections.
- For counter-clockwise rotation, looking from top of motor down.

3hp Single Phase Baldor Motor / 230v / 14.5 amps / TEFC

1 - Blue — Power Line 1*

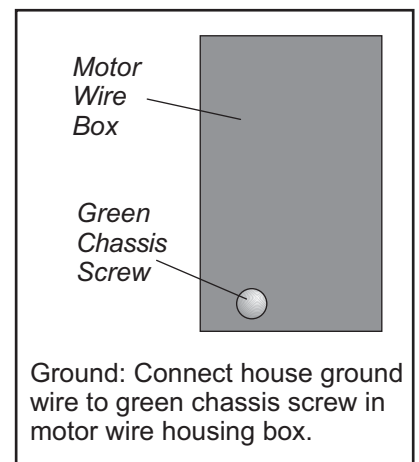
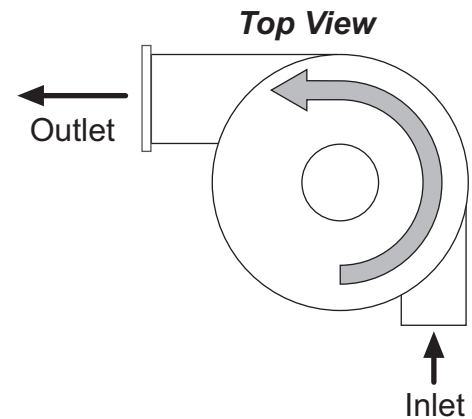
2 - White
3 - Orange
8 - Red

→ Tie together and insulate with a wire nut (do NOT connect to any house wiring)

4 - Yellow
5 - Black

→ Power Line 2*

* Power Line 1 and 2 are interchangeable

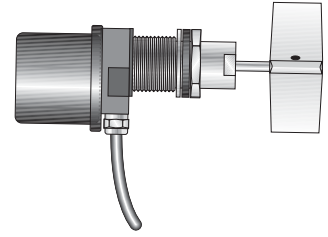


*Check rotation after wiring.
Wire for counter-clockwise rotation.*

X. Accessories

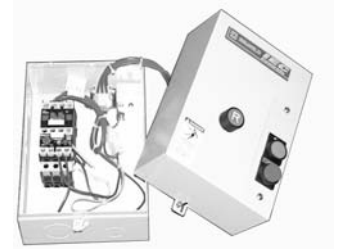
Bin Level Monitor - Provides level sensing for dry bulk solids. The monitor operates by using a 1 rpm synchronous motor to rotate a paddle.

When paddle rotation is impeded by material surrounding it, the motor is de-energized and triggers a SPDT snap switch. The snap switch can be used in conjunction with a motor starter to turn equipment off or provide alarm functions.



Magnetic Motor Starters - The 3hp high pressure dust collectors do not come wired or with an on/off switch. Because of the voltage and amperage requirements of the system, an industrial switch must be used.

OAS offers Square "D" Full Voltage Non-Reversing across the Line Starters, Nema Type 1 Enclosure with Start/Stop in cover, and class 10 overload. Industrial switches can also be purchased through your local electrician. Due to varying electrical codes, OAS cannot specify exact wiring requirements. When wiring the collector you should always hire a licensed electrician.



The BAG Gripper™

ABX000000

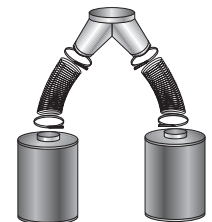
The BAG Gripper provides the ability to use convenient plastic bags inside your dust drum. It provides a constant, negative pressure on the outside surface of the plastic bag that keeps it pulled tight against the sides of the dust drum. Can be used with 35 and 55 gal. barrels. Must be wired into your system.



Dust Bin Options - (Must Order Custom Mounting Stand.)

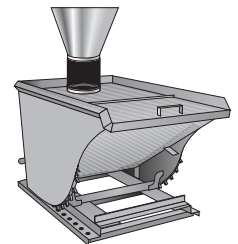
1. Multiple Drums -

Custom order the System Mounting Stand for multiple drums or hoppers. Stand widths will vary depending on dust container.



2. Hoppers -

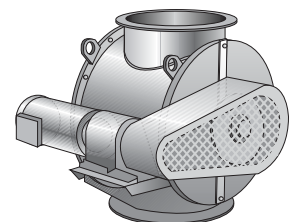
Large capacity hoppers from .5 cu. yd. to 3 cu. yd. 3/16" reinforcing angle for added support - 3/16" plate body is 100% continuously MIG welded on inside - 3/8" rear cross brace angle (not 3/16") - three 3" base channel - All angles are structural not formed.



3. Air Locks -

Rotary air locks provide an alternative to an air tight dust bin for larger volume capacity and less maintenance.

Example - A 10" air lock will drop 1.85 cu. ft. / rev. of material.



XI. Troubleshooting

Note: If you continue to experience difficulty with your collector call Oneida Air Systems at 1-800-732-4065 for assistance.

Motor Overheating

The motor's internal circuit breaker will trip if the motor is overheating.

Motor amperage too high - Shut system down.

Caused By:

- System should be completely bolted and sealed together.
- Ductwork should be completely installed and sealed with sealant.
- Air leaks between the collector and dust bin
 - The lid of the dust bin and the cyclone must be in place and sealed when operating the dust collector.
 - Make sure flex hose is not torn and the hose clamps are tight.
 - Check drum lid; cover should have a foam seal and be well seated.
 - Check for holes or leaks in the dust bin barrel.
- Motor not properly wired. Check wire connections.
 - Check motor rotation - See wire diagram
- Check breaker box. Make sure incoming power supply matches motor specifications.

Poor Dust Pick-Up at Woodworking Machines

Caused By:

Improper motor rotation - Running backwards will reduce suction by 30%.

- Check length of duct runs and duct diameters compared to ductwork design guideline.
- Make sure all ductwork is sealed. Large air losses will occur even through small cracks in the ductwork. Use silicone, duct tape or duct mastic compound as a sealant.
- Check for air leaks between collector and dust bin.
- Close all unused blast gates at your woodworking machines.
- Examine hood design for weaknesses according to the ductwork guide.
- Check for a restricted pipe, too small a hood port or too small a branch line. See branch line diameter chart in ductwork guide.
- Be sure that your filter is clean. See filter cleaning directions.

Filter Clogging

Caused By:

- Air leakage between cyclone and dust bin. Cyclone and dust bin must be air tight. Even small leaks will cause poor preseparation in the cyclone.
- Large chips clogging the filter
 - Check for a leak in the dust bin, flex coupling or lid. Check for split or torn flex coupling. (See also: Motor Overheating Section above)
 - Make sure dust bin has not over filled. Dust bin should be emptied before the dust reaches top of the container.
 - Interruption of air flow, such as vacuuming chips with a flex hose connection, will increase filter maintenance.
 - Minimum 4" diameter pick up at tool location. Less than 4" will restrict air flow into collector and will increase filter maintenance. If there is not enough air entry in system, open more blast gates.
 - Make sure clamp around cyclone is tight and sealed with silicone.

Excessive Vibration

Caused By:

- Loose mounting bolts
- Excessive system pressure or restriction of air flow due to closed blast gates.
- Accumulation of foreign material on the fan wheel.
- Inadequate support structure.

XII. Fire Hazards - Read Before Installing and Operating

Oneida Collectors are designed for WOOD DUST only!!

Wood shaping and cutting processes generate wood chips, shavings, and dust. These materials are considered combustible. Air borne wood dust below 420 microns in size (.017 of an inch) in certain concentration ranges when ignited can deflagrate (burn quickly).

An ignition source such as a spark, or ember, can ignite a dust mixture resulting in an expanding flame front, which can cause an explosion if tightly contained. A disturbance that raises a cloud of accumulated fine dust can raise additional dust clouds, which can cause a series of explosions that can level an entire building. *Until this type of fire has been witnessed, it is difficult to believe the devastation. This type of fire is rare but worth safeguarding against.*

The best way to avoid a wood shop fire is to keep the shop clean. A shop ankle deep in dust with layers of fine dust everywhere is an accident waiting to happen. A good dust collection system reduces overall fire hazards but also adds new concerns. A fire hazard is still present. Combustible material is now in the dust collector and storage container.

The following points are worth heeding:

- It is the buyer's responsibility to follow all applicable federal, state, local, OSHA, NFPA, or authorities having jurisdiction codes and regulations when installing and operating this dust collector.
- Fire Marshalls may want the unit located outside of the building. If the collector is located inside the facility, controls such as spark detection, suppression, or explosion venting may be required.
- Most local jurisdictions consult or adopt NFPA (National Fire Protection Agency) codes. However, other codes may apply. Local codes may vary from jurisdiction to jurisdiction.
- NFPA 664 Code book, "Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities", applies to woodworking operations that occupy areas of more than 5,000 sq. ft. or to areas where dust producing equipment requires an aggregate dust collection flow rate of more than 1500 cfm (Cubic Feet per Minute). This exempts some small operators from the NFPA code 664, but other codes may apply in your jurisdiction. Consult your local Fire Marshall for help. Additional information can be found in NFPA Code Book 664.

The customer assumes the responsibility for contacting their insurance underwriter with regard to specific application requirements of explosion venting or if additional fire protection and safety equipment may be required.

- **Do not use this product to collect other types of dust or flammable vapors.**
- **Fire or explosion may occur!**
 - Never collect sparks from a bench grinder into a wood dust collector.
 - Never introduce sparks or sources of ignition into the dust collector.
 - Personnel should keep at least 20 feet away from unit.
 - Check dust bin frequently and before leaving the shop for smoldering material.
- Keep portable Fire Extinguishers handy.
 - The ABC type (dry chemical) is generally a good choice for small wood shops.
 - Additional information on portable extinguishers can be found in NFPA 10 (Standard for Portable Fire Extinguishers).
- Be especially careful with sanding units. They can produce concentrations of dust in the combustible range. Make certain enough air volume is at the suction point to capture all the particulate generated.
 - This high air volume will dilute the mixture below the lower limit of flammability. Be careful not to generate sparks into the sanding dust.
 - Empty dust bin and clean filter often, especially when sanding.
 - Don't overload woodworking equipment, especially sanders. Excessive frictional heat can spontaneously ignite dust.
- Sparks can be generated in several ways:
 - High-speed sanders and abrasive planers may strike foreign material
 - Saws and edgers may strike foreign material and create a red hot metal fragment.
 - Knots in hardwood can create frictional sparks.
 - Tramp metal when drawn into the collector can spark against ductwork.
 - Check wood stock for old nails and screws which can create red hot metal fragments.
- Avoid using excessively large wood waste storage bins.
- Always check storage bins for smoldering material before leaving for the day.
- Electrically ground all equipment and ducting. Static sparks can ignite wood dust. (Avoid using PVC drainpipe)
- Don't allow accumulation of layers of fine dust on horizontal surfaces. (Especially overhead lights, electrical boxes, and fuse panels which can ignite dust)

XIII. Terms and Conditions

Checking in Order

Please look over the shipped order very carefully in the presence of the delivery person for damage or incomplete shipment before signing the delivery receipt. Please note any tears or irregularities in shipping packaging, however slight, on the shipping delivery receipt. This could be an indication of extensive concealed damage. The shipping company will not take responsibility if the damage is not noted on the delivery receipt. In the event of shipping damage, call O.A.S. immediately so we can expedite replacements. Please check in all parts within 3 days from receiving order. Notify O.A.S. immediately of any missing or incorrect parts. O.A.S. does not accept any claims for damage or shortage after 3 days from date of delivery.

Limited Warranty

Oneida Air Systems warrants products it manufactures for a period of 2 years to the original purchaser from the date of purchase. Items not manufactured by O.A.S. are limited to their own manufacturer's warranties. This warranty does not apply to defects due directly or indirectly to misuse, negligence, accidents, abuse, repairs, or alterations or lack of maintenance. This is Oneida Air Systems sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. O.A.S. does not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall O.A.S.'s liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Oneida Air Systems shall be tried in the State of New York, County of Onondaga.

Oneida Air Systems shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our product.

Oneida Air Systems does not warrant or authorize use of wood dust collectors for other purposes. This includes wood products that are treated, coated, or otherwise altered from their natural state.

****Note: Motors should be protected from extreme weather to prolong motor life. Single phase motors should only be started and stopped up to 4 - 10 times per hour. Starting single phase motors more frequently can cause heat build up and can cause the motor overload to trip or cause motor damage. In general, motors should be started and stopped as little as possible for maximum lifespan and best economy (electrical use).***

Delivery Risk of Loss

Products will be shipped to Buyer's single destination. Title and risk of loss shall pass to the Buyer upon delivery to such destination. Buyer pays transportation expenses. Dates of shipment are advisory and O.A.S. will make reasonable efforts to ship on or before the date states for shipment, however, O.A.S. shall not incur any liability for failure to ship on that date.

Returned Goods Policy

Buyer must inform O.A.S. of any shortage or damage, by so noting in writing, on the freight delivery bill prior to signing to indicate receipt of shipment. All claims, including claims covered under the limited warranty, are subject to inspection and investigation by O.A.S.. O.A.S. reserves the right to inspect and investigate all returned products before Buyer's claim is settled. All products returned for a cash refund must be unused, resaleable and purchased within the last six months. There are no refunds on flex hose or custom made components. *There will be a 25% restocking fee applied to any returned items.*

XIV . Fan Motor Maintenance

Table 1 - Relubrication Interval

NEMA (IEC) Frame Size	Rated Speed (RPM)			
	3600	1800	1200	900
Up to 210 incl. (132)	5500 Hrs.	12,000 Hrs.	18,000 Hrs.	22,000 Hrs.
Over 210 to 280 incl. (180)	3600 Hrs.	9500 Hrs.	15,000 Hrs.	18,000 Hrs.
Over 280 to 360 incl. (225)	*2200 Hrs.	7400 Hrs.	12,000 Hrs.	15,000 Hrs.
Over 360 to 5000 incl. (300)	*2200 Hrs.	3500 Hrs.	7400 Hrs.	10,500 Hrs.

* Lubrication interval for 6313 or 6314 bearings that are used in 360 through 5000 frame, 2 pole motors. If roller bearings are used, bearings must be lubricated more frequently, divide the relubrication interval by 2.

Table 2 - Service Conditions

Severity of Service	Ambient Temperature Maximum	Atmospheric Contamination	Type of Bearing
Standard	40° C	Clean, Little Corrosion	Deep Groove Ball Bearing
Severe	50° C	Moderate dirt, Corrosion	Ball Thrust, Roller
Extreme	>50° C* or Class H Insulation	Severe dirt, Abrasive dust, Corrosion	All Bearings
Low Temperature	<-30° C**		

* Special high temperature grease is recommended.

** Special low temperature grease is recommended.

Table 3 - Lubrication Interval Multiplier

Severity of Service	Multiplier
Standard	1.0
Severe	0.5
Extreme	0.1
Low Temperature	1.0

Table 4 - Amount of Grease to Add

Frame Size NEMA (IEC)	Bearing Description (Largest bearing in each frame size)					
	Bearing	OD D mm	Width B mm	Weight of grease to add oz. (gram)	Volume of Grease to add	
					inches ³	teaspoon
Up to 210 incl. (132)	6307	80	21	0.30 (8.4)	0.6	2.0
Over 210 to 280 incl. (180)	6311	120	29	0.61 (17.4)	1.2	3.9
Over 280 to 360 incl. (225)	6313	140	33	0.81 (23.1)	1.5	5.2
Over 360 to 5000 incl. (300)	NU322	240	50	2.12 (60.0)	4.1	13.4

Weight in grams = 0.005 DB

Procedure

Clean the grease fitting (or area around grease hole, if equipped with slotted grease screws). If motor has a purge plug, remove it. Motors can be regreased while stopped (at less than 80 C) or running. Apply grease gun to fitting (or grease hole). Too much grease or injecting grease too quickly can cause premature bearing failure. Slowly apply the recommended amount of grease, taking 1 minute or so to apply. Operate motor for 20 minutes, reinstall purge plug if previously removed. Caution: Keep grease clean. Mixing dissimilar grease is not recommended.