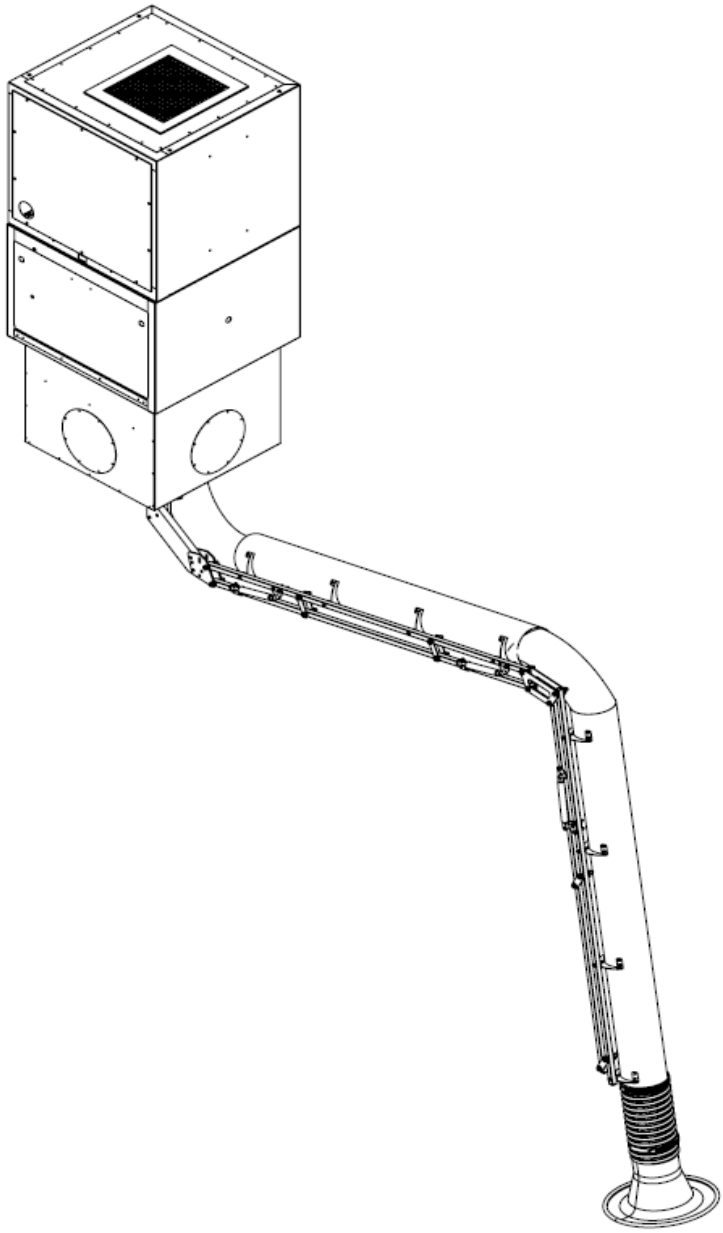
MODELS M32R&L, M33R&L, M66R&L, M68R&L, M73
Source Capturing
INDUSTRIAL MEDIA AIR CLEANERS



AIR QUALITY ENGINEERING

Before you get started please review the following:

Purchase Date: _____

Serial Number: _____

Motor Spec: _____

Belt and Sheave Used: _____

Type of oil / coolant collected: _____

Type of filter and AQE P/N: _____

Customer Technical Support:

To contact Air Quality Engineering use:

Mail: Air Quality Engineering
7140 Northland Drive N.
Brooklyn Park, MN 55428
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763.531.9823

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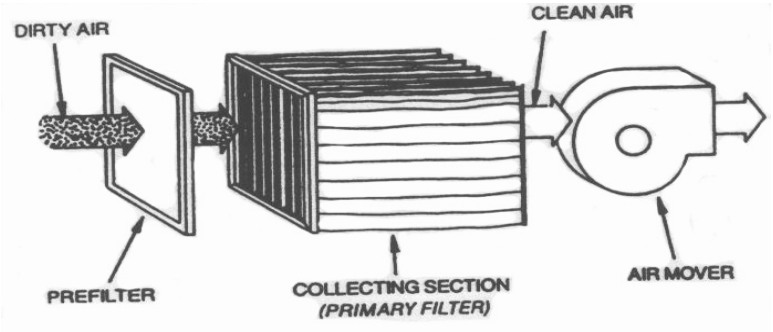
Disclaimer
All statements, technical information and recommendations in this manual or related documents are believed reliable, but the accuracy and completeness thereof are not guaranteed or warranted, and they are not intended to be, nor should they be understood to be representation or warranties concerning the products described. Specifications are subject to change without notice.

This unit is to be used exclusively for source control in industrial applications in California.

TABLE OF CONTENTS

HOW AIRBORNE CONTAMINATION IS REMOVED

Dirty air passes through the prefilter. The prefilter removes large particulate, such as lint. The primary filter then captures the remaining smaller particulate. As the contaminant load on the filters increases, the filters become more efficient in capturing the smaller particles. At the same time, however, the dirty filter allows less particle collection and a decrease in the overall effectiveness of the air cleaner.



SPECIFICATIONS

- IMPORTANT -

THE SPECIFICATIONS GIVEN IN THIS PUBLICATION DO NOT INCLUDE NORMAL MANUFACTURING TOLERANCES. THEREFORE, THIS UNIT MAY NOT MATCH THE LISTED SPECIFICATIONS EXACTLY. ALSO, THIS PRODUCT IS TESTED AND CALIBRATED UNDER CLOSELY CONTROLLED CONDITIONS AND SOME MINOR DIFFERENCES IN PERFORMANCE CAN BE EXPECTED IF THOSE CONDITIONS ARE CHANGED.

THE INDUSTRIAL AIR CLEANERS CAPTURE SMOKE, DUST, MIST AND OTHER AIRBORNE POLLUTANTS IN THE WORKPLACE. THEY ARE COMPLETE SELF-CONTAINED AIR CLEANERS THAT ARE USED IN SOURCE CAPTURE APPLICATIONS TO PROVIDE HEALTHIER WORKING CONDITIONS.

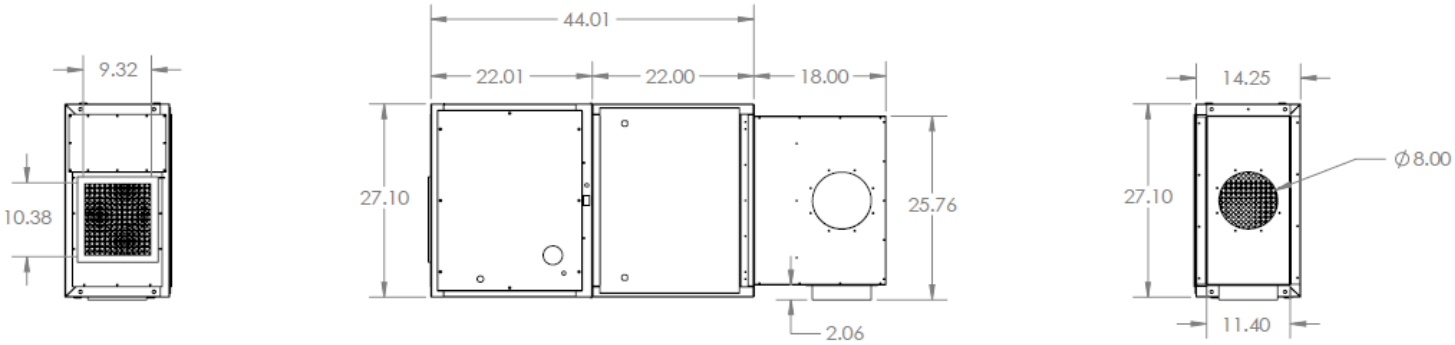
- Factory-installed pressure gauge provides filter status at a glance.
- Heavy-duty, permanently lubricated, ball-bearing motor requires no maintenance.
- Models are available with airflow from left to right or right to left.
- Units are powered from standard grounded outlet. All single phase models equipped with a 10-foot power cord. Three phase have pig tail only.
- Adjustable discharge grill directs airflow where needed.
- The operating temperature range is -40°F to 125°F.
- 16 gauge welded steel cabinet with a baked enamel, textured coated finish.
- Source Capture:
  - M32, M33, M66, and M68 units will include a plenum that can fit various flange and collar sizes.
  - M73 unit will include a customizable plenum.

	Amps				
Vac, Hz, Ph	**1 Hp**	**1.5 Hp**	**2 Hp**	**3 Hp**	**5 Hp**
120, 60, 1	12.6	17.2	NA	NA	NA
208-240, 60, 1	6.3	8.6	10.2	NA	NA
208-240, 60, 3	NA	NA	NA	8.6	13.2
440-480, 60, 3	NA	NA	NA	4.3	6.6

* Note: 50hz models, 575V and other electrical requirements available upon request.

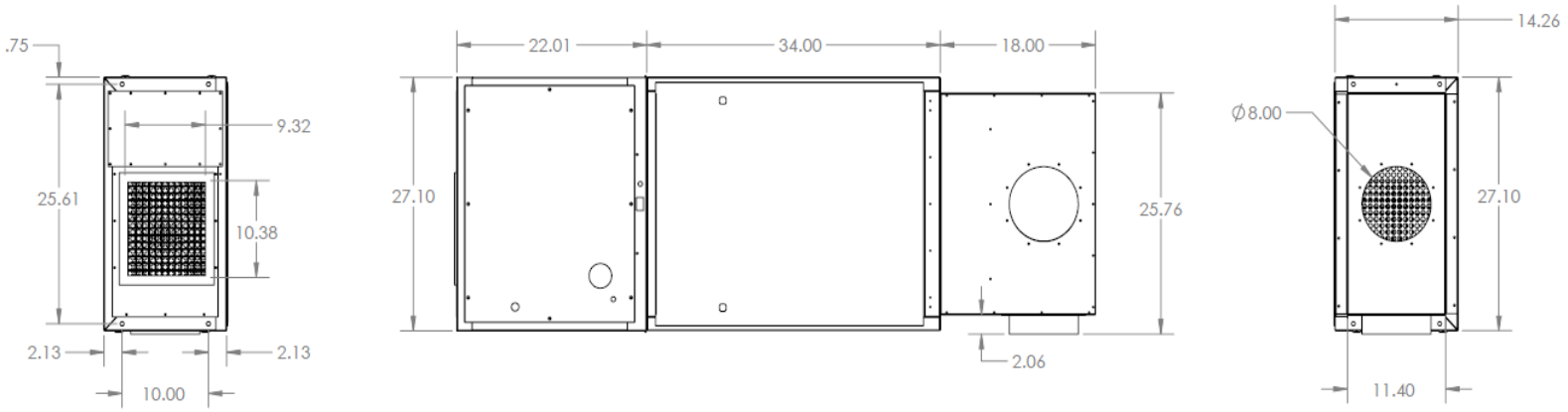
DIMENSIONS

M32 R&L



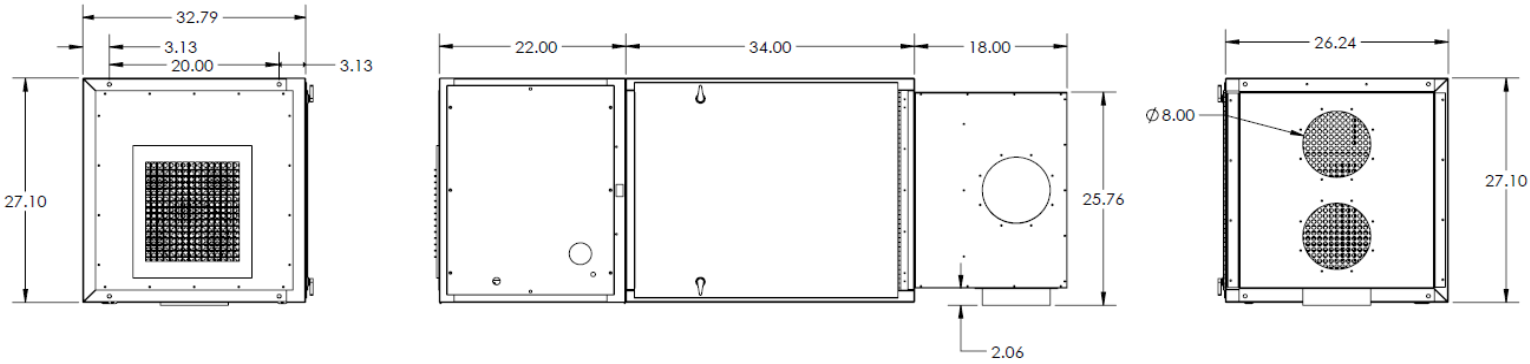
- M32 215 lbs installed weight, 250 lbs shipping weight
- M32 Filter Door Clearance: 21”
- Source Capture: A plenum will be included that can either fit a 6” or 8” flange and hose. Optional upgrades include a custom plenum, various flanges and collar sizes, cap for unused duct openings, and a control and hood light for the source capture arm.

M33 R&L

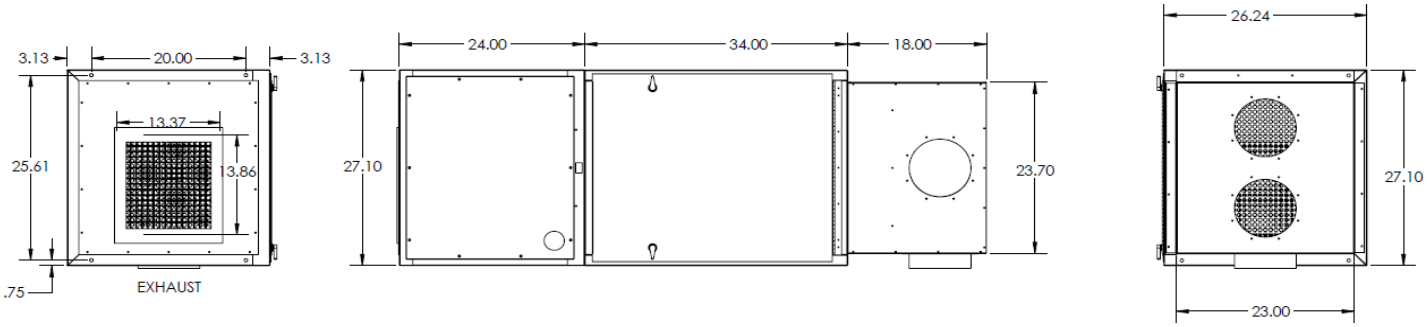


- M33 230 lbs installed weight, 270 lbs shipping weight
- M33 Filter Door Clearance: 33”
- Optional 22 lb carbon module adds 40 lbs to the installed and shipping weight.
- Optional 44 lb carbon module adds 84 lbs to the installed and shipping weight.
- Source Capture: A plenum will be included that can either fit a 6” or 8” flange and hose. Optional upgrades include a custom plenum, various flanges and collar sizes, cap for unused duct openings, and a control and hood light for the source capture arm.

M66 R&L Belt Drive



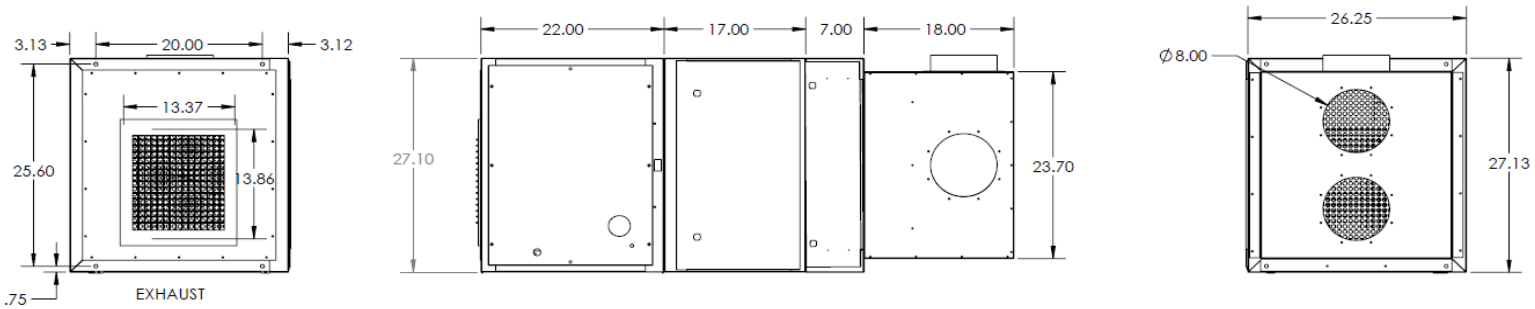
M66 R&L Direct Drive



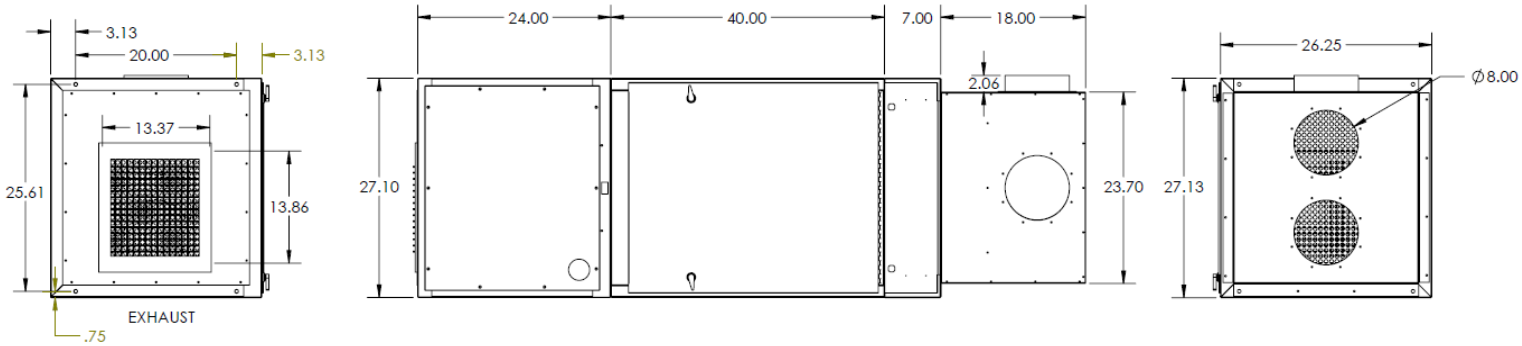
- M66: 280 lbs installed weight, 330 lbs shipping weight
- M66 Filter Door Clearance: 33”
- Optional Wrap-around Pre-filter section: Adds 20” to length and 50 lbs to weight, front access for filter replacement
- Optional additional Prefilter section (4” prefilter): Adds 7” to length and 33 lbs. to weight
- Prefilter door clearance: 6”
- Optional additional Impinger section (4” impingers): Adds 7” to length and 55 lbs. to weight
- Impinger door clearance: 6”
- Optional 45 lb carbon module adds 95 lbs to the installed and shipping weight, adds no length to unit.
- Optional 90 lb carbon module adds 190 lbs to the installed and shipping weight, adds no length to unit.
- Optional additional Carbon module: Adds 14” to length and 150 lbs. to weight
- Carbon module door clearance: 11”
- Optional additional HEPA module: Adds 17” to length and 125 lbs. to weight
- HEPA module door clearance: 15”
- Optional Silencer: Adds 12” to length and x 60 lbs. to weight

- Source Capture: A plenum will be included that can either fit a 6”, 8”, 10”, 12”, or a 14” flange and hose. Optional upgrades include a custom plenum, various flanges and collar sizes, cap for unused duct openings, and a control and hood light for the source capture arm.

M68R&L Belt Drive



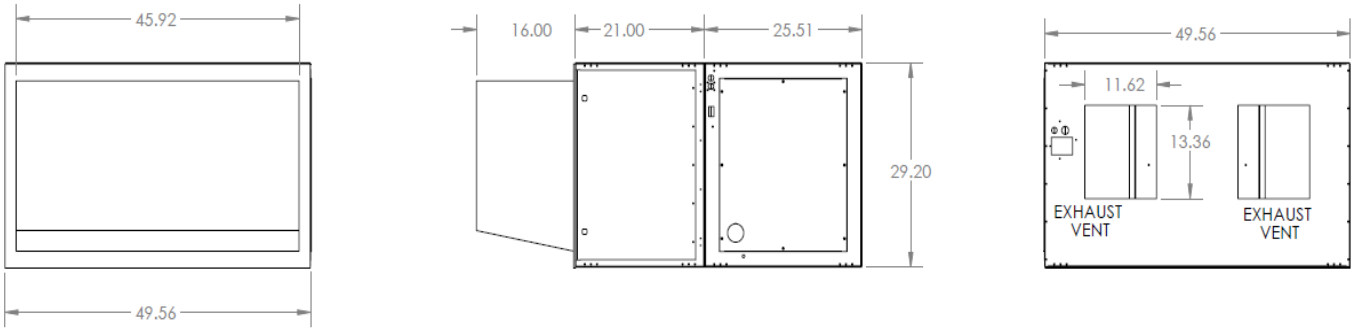
M68R&L Direct Drive



- M68: 280 lbs installed weight, 330 lbs shipping weight
- M68 Filter Door Clearance: 15”
- Prefilter door clearance: 6”
- Optional Wrap-around Pre-filter section: 20”L x 27.1”H x 26.25”D x 50 lbs, front access for filter replacement
- Optional additional Prefilter section (4”prefilter): Adds 7” to length and 33 lbs. to weight
- Prefilter door clearance: 6”
- Optional additional Impinger section (4” impingers): Adds 7” to length and 55 lbs. to weight
- Impinger door clearance: 6”
- Optional M66 Filter housing: Adds 34” to length and 100 lbs to weight
- M66 Filter Door Clearance: 33”
- Optional Carbon module: Adds 14” to length and 150 lbs. to weight
- Carbon module door clearance: 11”
- Optional Silencer: Adds 12” to length and 60 lbs. to weight
- Source Capture A plenum will be included that can either fit a 6”, 8”, 10”, 12”, or a 14” flange and hose. Optional upgrades include a custom plenum, various flanges and

collar sizes, cap for unused duct openings, and a control and hood light for the source capture arm.

M73 R&L



- M73: 450 lbs installed weight, 510 lbs shipping weight
- M73 Filter Door Clearance: 17”
- Source Capture: A custom plenum will be included. Optional upgrades include various flanges sizes, cap for unused duct openings, and a control and hood light for the source capture arm.
- Optional Wrap-around Pre-filter section: Adds 20” to length and 100 lbs. to weight
- Wrap around Pre-filter front access for filter replacement
- Optional additional Impinger section (4” impingers): Adds 7” to length and 105 lbs. to weight
- Impinger door clearance: 6”
- Optional Carbon module: Adds 33” to length and 450 lbs. to weight
- Carbon module door clearance: 27”

PLANNING THE INSTALLATION

- WARNING -

Air Quality Engineering, Inc. air cleaners are not explosion-proof. They must not be installed where there is danger of vapor, gas or dust explosion.

INTRODUCTION

Clean air is the subject of numerous laws and regulations. Typical requirements in the United States are those put out by the Occupational Safety and Health Administration (OSHA). Private groups, such as the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), have also published numerous recommendations.

Normally, clean air is defined in regulations and recommendations as air having a limited amount of contaminant in it, commonly expressed as parts per million or milligrams per cubic meter. Approved counteractions are intended to lower or eliminate the amount of contaminants in the air. One of the more common methods of achieving this goal is through the use of media air cleaners.

At no time should a media air cleaner be placed where there is a potential for explosion due to the presence of explosive dusts, gases or vapors.

Contact the nearest Air Quality Engineering, Inc., representative for assistance in determining the correct application of a media air cleaner.

SIZING

Sizing is that part of the installation which determines how many air cleaning units are required to maintain a desired level of air quality.

The process of sizing an application involves roughly calculating the number of air cleaners needed and then modifying the calculation according to the specific characteristics of each application.

Since contaminants are generated from fixed locations, hoods and hoses will be used to capture them at the source, making air cleaning strongly recommended. For source capture air cleaning, a hood is installed where the contaminants are generated, and an attached hose feeds the contaminants to a source capture plenum. The plenum transfers the contaminants directly into the air cleaner.

The actual number of contaminant sources that can be ducted into one air cleaner may vary depending on the nature of the contaminants. The composition, quantity and rate of generation of the contaminants determines the air velocity needed to effectively capture these contaminants at the source. The required air velocity, in turn, not only affects the hood design and location but it also sets limits on how much hose can be used before the air pressure drop becomes too great for effective contaminant capture.

Therefore, when sizing an application for source capture air cleaning, it is necessary to keep in mind how the specific contaminants, the hood and the needed velocity all combine to affect the number of stations which can be attached to a single unit and the number of units which will be needed for a particular application.

SOURCE CAPTURE CLEANING

When selecting a location for a media air cleaner that uses a hood and hose to capture the contaminants at the source, note the available stand or ceiling mounting areas that will provide satisfactory air distribution for the air cleaner outlet. Choose the location that will keep the air pressure drop caused by the length of the hose within an acceptable range. Do not mount the outlet of the air cleaner so close to a wall that it inhibits the airflow. Also, the outlet of an air cleaner should not be located such that it interferes with the source capture process of another air cleaner hood.

To effectively control atmospheric contamination at its source, proper hood design is necessary. Minimum airflow and power consumption are also important factors in designing an effective local exhaust system to control contamination.

Capturing air contaminants at their source requires the creation of sufficient airflow past the contaminant source to remove the contaminated air and draw it into an exhaust hood. Fine airborne dust particles, mist, vapors, gases and fumes follow air currents. Airflow alone is sufficient to capture these contaminants.

Larger dust particles tend to have a trajectory, or throw, in air. Capturing these heavier particles calls for barriers and proper hood placement to direct the particles into the hood before they fall out of the air stream. This placement should also prevent particle scattering.

Basic knowledge of the contaminated airflow to be controlled is necessary before an effective hood or enclosure can be designed. The more complete and effective the design, the more economical and efficient the installation will be.

A complete enclosure is often the best way to start. Once a source is ideally enclosed, provide access and working openings as required. This concept can be used to develop booths, side- or downdraft hoods and side shields.

The access and working openings must be kept to a minimum. Whenever possible, they must also be kept away from the contaminated airflow. Any inspection and maintenance openings should be provided with tight doors whenever possible.

A hood that is open and does not enclose or confine the contaminant should be avoided. Open hoods can be used but exhaust volumes must be large and cross drafts nearby can easily upset draft control.

Canopy hoods are effective in controlling operations that may suddenly release surges of gases and vapors. Hot processes are an example.

However, canopies should not be used where people may be working in the airflow between contaminant source and canopy because exhaust airflow can actually increase the worker's exposure to the contaminant. Plating tanks and cementing tables typically have this problem with canopy-type hoods.

The duct takeoff in the exhaust hood should be located in the normal line of contaminant travel. Arrange the duct openings to distribute the exhaust airflow throughout the hood. This is especially important with large, shallow hoods where air movement tends to concentrate close to the duct opening. The airflow can be spread around the hood by using multiple duct takeoffs, interior baffles or filter banks.

Air intake from areas not needing airflow or without contaminants can be controlled with flanges. Flanges minimize airflow from areas outside the desired air collection area. Usually the flange width is equal to the hood diameter but not exceeding 6 inches (152.4 mm). Flanges may increase the effectiveness of the hood allowing a reduction in hood airflow requirements by up to 25 percent.

Exhaust airflow requirements are calculated after the hood design is determined. The airflow volume is calculated using the enclosure's known open area and the airflow velocity needed to collect the contaminants. The collected airflow must be sufficient to prevent the escape of any contaminated air. Table 1 shows airflow capture velocities for various type of processes.

Where enclosing the process is impractical, the hood should be located as close to the source as possible. The airflow must be adequate to maintain the capture velocity required to carry the contaminants to the hood opening. See Fig. 4.

TABLE 1 – CONTAMINANT CAPTURE VELOCITIES[a]

CONTAMINANT DISPERSAL CONDITION	EXAMPLES	CAPTURE VELOCITY fpm	CAPTURE VELOCITY m³/hr.
Released with practically no velocity into quiet air.	Evaporation from tanks, degreasing, etc.	50-100	914-1829
Released at low velocity into moderately still air.	Spray booths, intermittent container filling, low speed conveyor transfers, welding, plating, pickling.	100-200	1829-3658
Active generation into zone of rapid air motion.	Spray painting in shallow booths, barrel filling, conveyor loading, crushers.	200-500	3658-9144
Released at high initial velocity into zone of very rapid air motion.	Grinding, abrasive blasting, tumbling.	500-2000	9144-36,576

In each category above, a range of capture velocity is shown. The proper choice of values depends on several factors.

Lower End of Range
1. Room air currents minimal or favorable to capture.
2. Contaminants of low toxicity or of nuisance value only.
3. Large hood-large air mass in motion.

Upper End of Range
1. Disturbing room air currents.
2. Contaminants of high toxicity.
3. High production, heavy use.
4. Small hood-local control only

[a]From INDUSTRIAL VENTILATION MANUAL by American Conference of Governmental Industrial Hygienists.

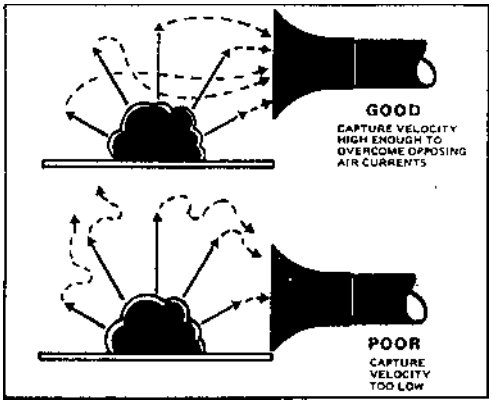


FIGURE 4 – CAPTURE VELOCITY

Collecting contaminants is accomplished by eliminating or minimizing natural air currents at the contaminant site and by pulling the air into the exhaust hood. The airflow velocity must be high enough to overcome any opposing air currents and maintain the capture velocity. See Fig. 4.

Source of air motion to either minimize or use to advantage in hood design:
- Thermal air currents from heat generating operations.
- Machinery motion (conveyor belts, grinders, etc.).
- Material motion (dumping or container filling).
- Operator movements.
- Room air currents (generally 50 fpm [85 m³/hr.] minimum, could be much higher).
- Spot heating, cooling or ventilation equipment near area.

See Fig. 5.

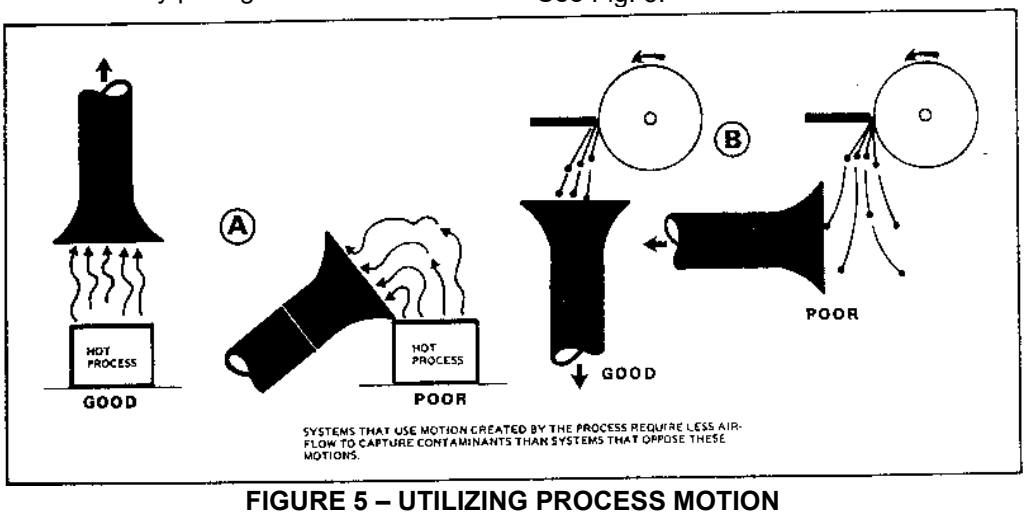


FIGURE 5 – UTILIZING PROCESS MOTION

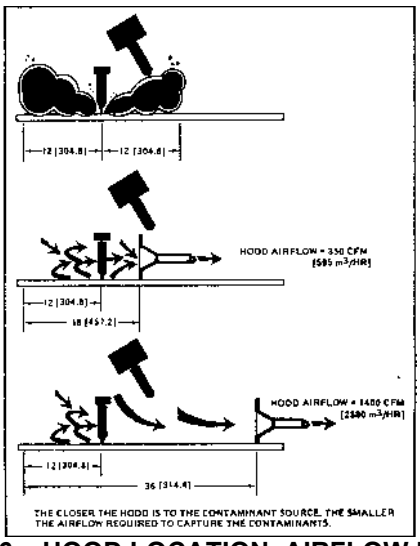


FIGURE 6 – HOOD LOCATION, AIRFLOW NEEDED INCREASES WITH DISTANCE FROM WORK

The airflow needed in a hood design is affected by hood shape, size and location. The hood should be as close as possible and enclose the operation as much as possible.

Suction in a duct opening will draw in air equally from all directions. As distance from the inlet opening increases, the decrease in airflow velocity occurs more quickly. The velocity in feet per minute (fpm) equals the cubic feet per minute (cfm) from Fig. 10 divided by inlet area in feet (0.35 for 8-inch hose).

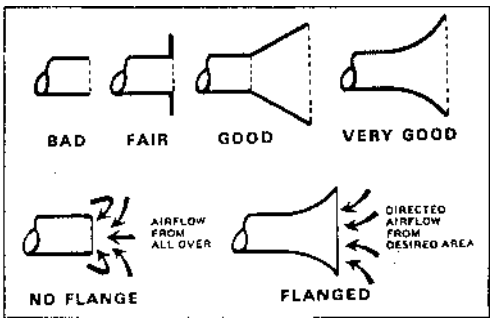


FIGURE 7 – HOOD FLANGES

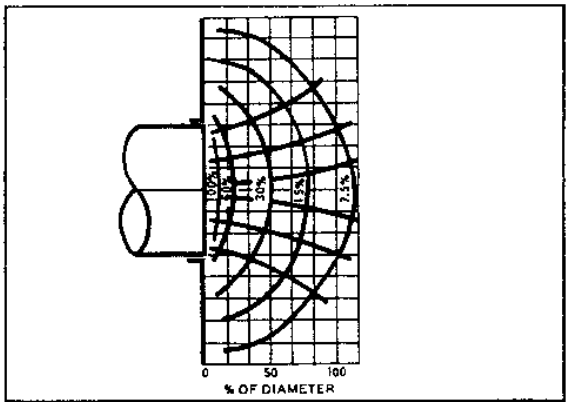


FIGURE 8 – VELOCITY CONTOUR (IN PERCENTAGE OF OPENING VELOCITY) FOR FLANGED CIRCULAR OPENING

When utilizing thermal airflow occurring in a process, exhaust airflow should be greater than the process airflow. This will minimize air spillage at the rim of the hood.

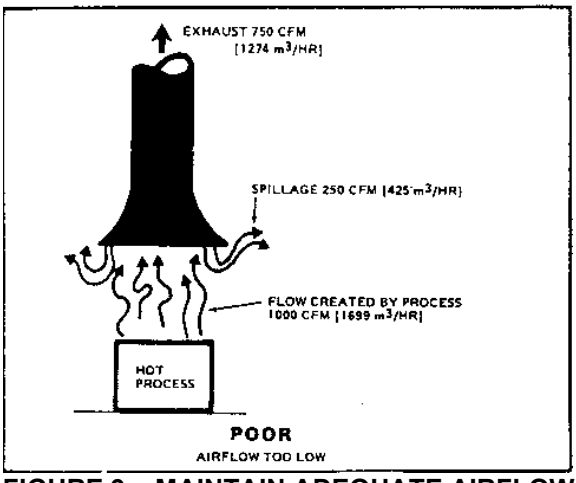


FIGURE 9 – MAINTAIN ADEQUATE AIRFLOW

For further information on ventilation and hood design, refer to a more complete source, such as:

INDUSTRIAL VENTILATION, by American Conference of Governmental Industrial Hygienists, published by Committee on Industrial Ventilation, Lansing, Michigan 48106.

HANDBOOK OF VENTILATION FOR CONTAMINANT CONTROL, by Henry J. McDermott, published by Ann Arbor Science, Box 1425, Ann Arbor, Michigan 48106.

INSTALLATION

WHEN INSTALLING THIS PRODUCT

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.

2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.

3. Installer must be a trained, experienced service technician.

4. After installation is complete, check out product operation as provided in these instructions.

UNPACKING

The air cleaner mounting brackets and hardware are packed in one box. Check all air cleaner components carefully when unpacking. Remove all shipping cardboard. Be sure to inspect all packing materials before discarding them.

- CAUTION -

1. Do not connect the power source until after the air cleaner is mounted. This will prevent electrical shock or equipment damage.

2. Be sure to turn the air cleaner off before servicing it. The air cleaner motor may be equipped with an automatic thermal overload. Should the motor become overheated, it will automatically stop. It will automatically start after a sufficient period of cooling (several minutes to an hour).

3. If the air cleaner must be turned on for an electrical check, be extremely careful in avoiding electrical shock. Also, take care when working near the air cleaner's moving parts.

STAND MOUNTING

Securely place the air cleaner on an appropriate stand or cart. The position should also allow satisfactory distribution of air from the outlet of the air cleaner. When using a source capture plenum and arm, read the instructions in PLANNING THE INSTALLATION for selecting a suitable location for the unit.

OVERHEAD MOUNTING

When installing the air cleaner in an overhead location, read the instructions in PLANNING THE INSTALLATION for source capturing. It is important to select an overhead mounting location for the air cleaner that provides easy access for cell cleaning and maintenance. Do not place a ladder against the air cleaner when it is mounted overhead in order to gain access to the air cleaner interior.

Be certain that the mounting hardware (not included) from the air cleaner to the ceiling provides adequate strength and stability and that it is securely attached to the overhead structure. Do not fasten the air cleaner to a false ceiling, to plaster or to plasterboard. In some cases, it may be necessary to construct supports that will bear the weight of the air cleaner when it is hung in an overhead location.

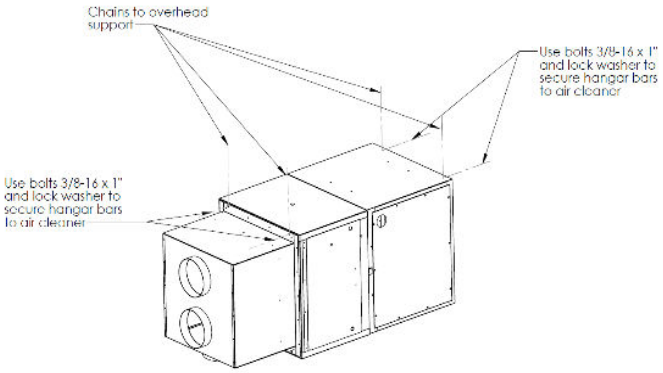


FIGURE 10 – MOUNTING M66 OVERHEAD M73 USES 3/8" EYEBOLTS PROVIDED

SOURCE CAPTURE PLENUM

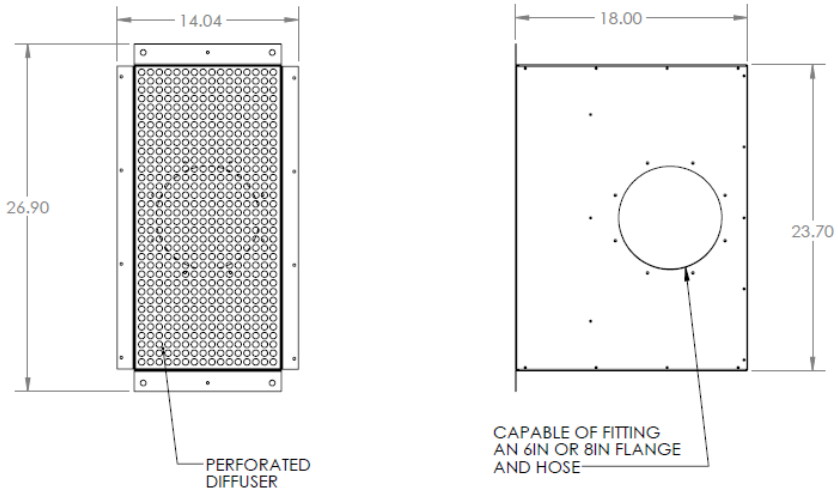
1. Locate the plenum and install using 4 included 3/8” bolts using existing weld nuts on air cleaner.

2. Fasten the plenum to the air cleaner using No. 10 sheet metal screws, ½ to ¾ inch, (12.7 mm to 19 mm) long (not furnished).

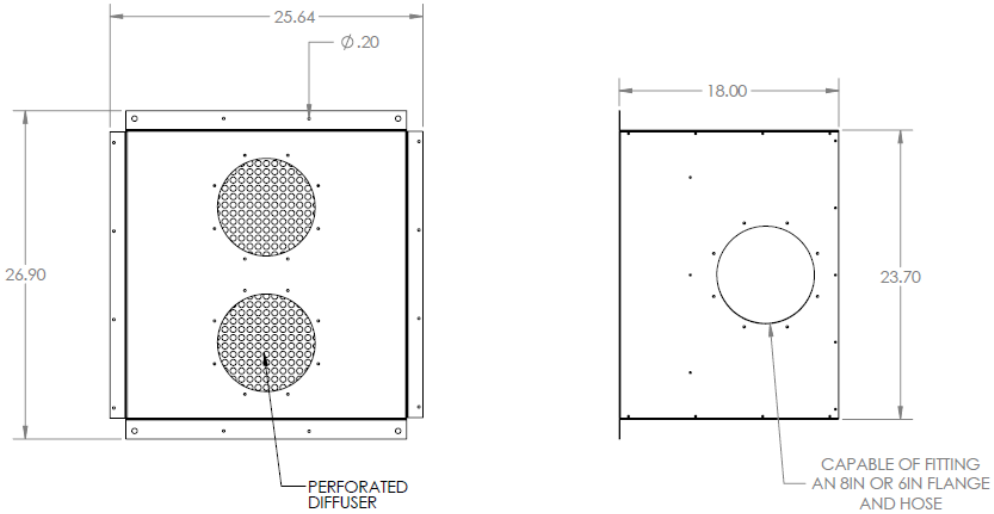
3. Replace the filters. Connect the hose length to the desired plenum flange using hose clamps (not furnished). Block off unused plenum openings with caps, available separately.

4. Route the hose(s) to the source capture hood. Support the hose(s), as necessary, using hangers and support bands. Support bands on the hose should be at least 2 ¼ inches (57.2 mm) wide and placed at 5 foot (1.52 m) intervals. Do not pinch or flatten the hose.

5. Hood size and location should be determined by an accepted authority or reference, such as the INDUSTRIAL VENTILATION MANUAL, to meet applicable codes and ordinances for a particular application.



M32/M33 SOURCE CAPTURE PLENUM DIMENSIONS



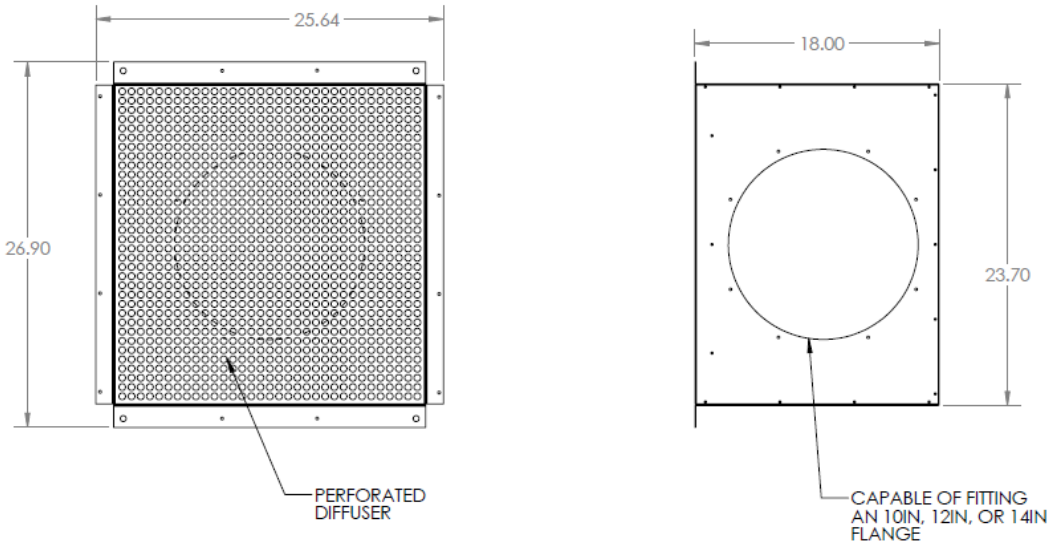


FIGURE 11 – M66/M68 SIZE SOURCE CAPTURE PLENUM DIMENSIONS

This procedure should be attempted only by persons qualified to install electrical wiring.

ELECTRICAL INSTALLATION

1. Cord Connected

The power cord must not be concealed above the ceiling or behind the walls. Route the power cord so it will be out of the way of the building's occupants.

The air cleaner models have 10-foot power cords with standard three-prong plugs. There must be a standard grounded outlet provided within 10 feet of the air cleaner. Do not use an extension cord.

The three phase air cleaner models have a 10-foot power cord. An appropriate plug is required since it is not standard with the air cleaner.

2. Conduit Connected

- CAUTION -

All wiring must comply with applicable codes and ordinances. Be sure the power source is compatible with the model ordered.

It is recommended that No. 12 gauge wire be used to complete the wiring from the air cleaner wiring compartment to the external power source. However, be certain to comply with local codes. A green wire is provided in the wiring compartment for a grounding connection. Proper grounding of this device is mandatory for proper operation and safety.

a. Remove the wiring compartment cover and the 10-foot power cord.

b. Run the 12-gauge wires through the conduit. Attach the conduit to the knockout desired, ½" or ¾".

c. Use the wire nuts to make connections in the wiring compartment. See Fig. 12 for single phase models. See Fig. 13 for three phase models.

d. Re-attach the wiring compartment cover.

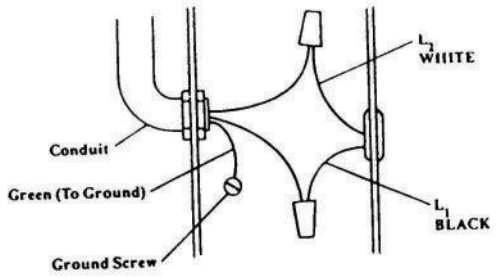


FIGURE 12 – SINGLE PHASE

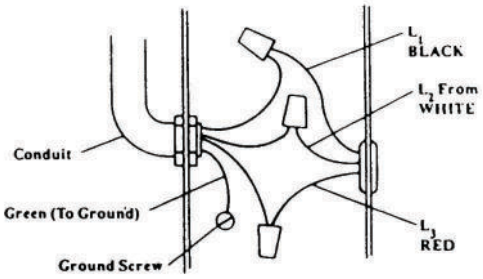


FIGURE 13 – THREE PHASE

CHECKOUT AND OPERATION

CHECKOUT

Before operating the air cleaner, check out the installation using the following procedures:

1. Make sure the air cleaner is oriented for good air circulation where it will not interfere with personnel and material traffic. Keep out of fire lanes and away from overhead cranes.

2. Make sure the air cleaner is securely mounted to the building structure.

3. Clean the inside of the cabinet, the outside of the cabinet and the installation area.

4. Make sure that the blower cover and the wiring compartment cover have been reinstalled securely.
5. Make sure the prefilter and the primary filter are properly oriented and the airflow arrows are pointing toward the blower.

6. Make sure the filter change gauge (manometer) is level. See the spirit level in the right hand corner of the gauge. If not make sure the air cleaner is level. Minihelic option: Make sure minihelic is at zero, if not reference calibration of the minihelic.

7. Check the oil level in the filter change gauge and adjust the zero knob so the oil level is at zero inches of water when the air cleaner is turned off.

8. Adjust the discharge grille to direct the airflow, as desired.

OPERATION

Turn on the air cleaner control switch. Make sure the blower is providing a strong discharge. On belt drive models, the blower should be rotating in the direction shown on Fig. 14. On direct drive models reference the arrow on the blower. **If the air cleaner is a three phase air cleaner, correct the rotation by interchanging any two power leads.**

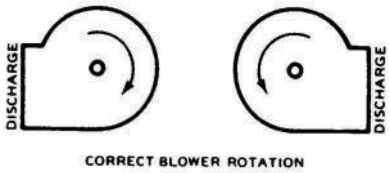


FIGURE 14 – BLOWER ROTATION

NOTE: If the air cleaner does not seem to be operating correctly, refer to the TROUBLE-SHOOTING section of the manual.

CALIBRATION OF THE DWYER FILTER GAUGE

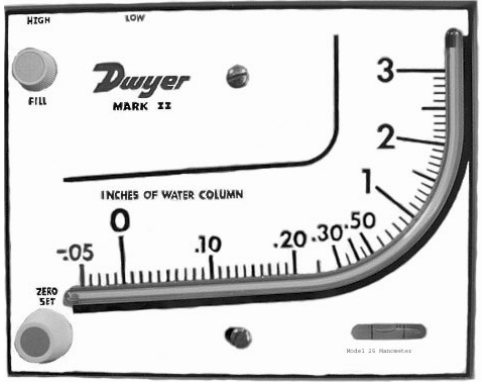
After the air cleaner has been installed and is ready for operation, the air filter gauge must be calibrated. See the following simple steps:

1. Check that the filter gauge is level. See the spirit level in the right hand corner of the gauge.
2. Check the red oil level and adjust the zero knob so that the oil level is at zero inches of water when the air cleaner is turned off.

3. Turn the air cleaner on with the clean filters in place. Place the green arrow adjacent to the point at which the red oil rises. The green arrow will indicate clean filters.

4. Place the red arrow on the gauge scale one inch higher (according to the scale) than the green arrow. This will indicate dirty filters. A one-inch rise in static pressure indicates a reduction in airflow of approximately twenty-five percent.

CALIBRATION OF THE MINIHELIC

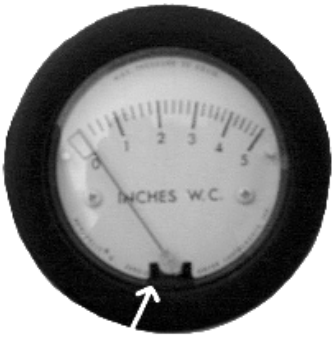


1. Remove the plastic cover by turning it counter-clockwise. One may have to press on the cover as one is turning it.
2. With the supplied hex wrench, one can adjust the needle by turning the hex screw at the bottom of the gauge.

Zeroing hex screw

ADJUSTMENTS

The blower capacity of the air cleaner is factory-set at the maximum volume of air, considering the filter efficiency and other options ordered, such as



impingers plenums and carbon.

On belt drive models if increased or decreased airflow is desired, it can be accomplished by adjusting the variable sheave on the motor. It is very important to measure the amperage before and after the adjustments are made on the variable motor sheave to insure that the motor is not overloaded. The rated amperage is listed on the schematic on motor itself.

1. Unplug the air cleaner and open the access door to the blower and motor section of the air cleaner.
2. Loosen the two bolts locking the end of the motor rail in position. Remove the belt.

3. Loosen the Allen setscrew on the face of the motor sheave.

4. Rotate the sheave into a position that gives the desired blower capacity.

5. Measure the amperage after the sheave adjustment to insure that you do not exceed the rated amperage

NOTE: When the sheave is rotated all the way into the shaft, the blower capacity is at its maximum. When the sheave is rotated five turns out on the shaft, the blower capacity is at its minimum. DO NOT ROTATE THE ADJUSTABLE SHEAVE MORE THAN FIVE TURNS OUT ON THE SHAFT. The sheave may already be adjusted one or more turns out on the shaft.

FILTER MAINTENANCE / REPLACEMENT

- CAUTION -

Always disconnect the power to the air cleaner before working on or near the air cleaner.

Do not place a ladder against the air cleaner when it is mounted in an overhead position. A lift platform should be used to gain access to the air cleaner for filter removal and servicing.

The air cleaner was designed to support only the weight of the internal components; motor, blower, and filters. Do not climb in or on the air cleaner. Failure to heed this warning could result in damage to the air cleaner or bodily injury

FILTER MAINTENANCE

Dirty air passes through the prefilter. Large particulate, such as lint, is removed by the prefilter. The remaining smaller particulate is then captured by the primary filter.

As the contaminant load on the filters increases, the filters become more efficient in capturing the smaller particles. At the same time, however, the dirty filter allows less air to pass through resulting in less particle collection and a decrease in the overall effectiveness of the air cleaner.

An increase of one inch on the gauge would be approximately a 25% decrease in airflow. If the reduction in airflow is not a problem, the air cleaner can be operated beyond this point. The red arrow can be replaced at the point at which the decrease in airflow becomes a problem.

FILTER REPLACEMENT

Prefilter:

1. Open the filter access door and filter retainer.
2. Slide the prefilter out of the track.
3. Slide new or cleaned prefilter in to the retaining track and swing the filter retainer closed
4. Close the filter access door.

If no performance improvement is evident after cleaning or replacing the prefilter then the primary filter will have to be replaced.

Primary Filter:

1. Open the filter access door and filter retainer.
2. Slide the filter out of its retaining track.
3. Slide new or cleaned main filter in to the retaining track and swing the filter retainer closed
4. Close the access door

HEPA:

- CAUTION -

The HEPA filter weighs approximately 40 lbs. Use appropriate means to support the HEPA filter during service.

1. Open the filter access door.
2. Loosen the two filter retainer bolts. A 9/16" wrench will be necessary for this step.
3. Remove the Hepa filter. Caution should be used because the filter weighs approximately 40 lbs. new.
4. Slide the new Hepa filter in place. Make sure the airflow arrow points towards the blower.
5. Using the 9/16" wrench, tighten the filter retainer bolts to compress the filter gasket.
6. Close the filter access door.

Carbon Module:

- CAUTION -

The carbon filter weighs about 50lbs in the M33 and 100 lbs in the M66. Use appropriate means to support the carbon filter during service.

1. Open the filter access door.
2. Reach into the air cleaner downstream of the filters. Slide the used carbon module out of the retraining track and remove the carbon module.
3. Slide the new carbon module into the retaining track
4. Close the access door.

- WARNING –

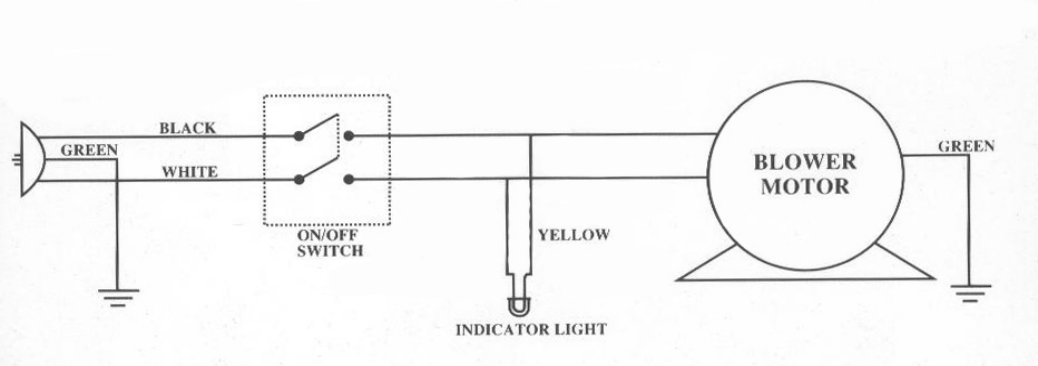
It is the customer's responsibility to determine the suitability of the carbon filter for any particular application or purpose. The effectiveness of activated carbon must be routinely monitored. In addition, certain substances can combine in the carbon that can result in a fire hazard. Air Quality Engineering, Inc., accepts no liability for the activated carbon effectiveness or fire hazard.

MANOMETER GAUGE MAINTENANCE

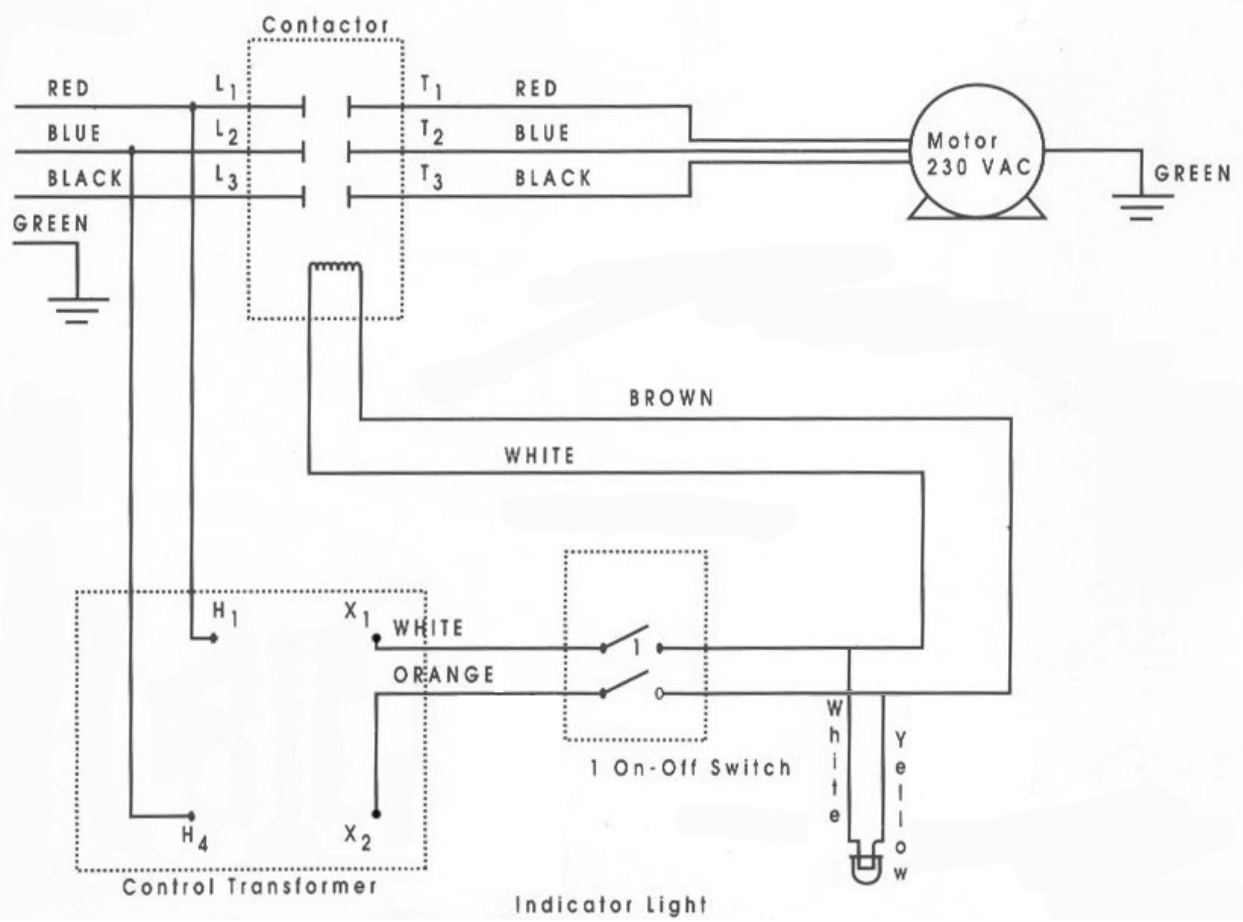
Check the oil level occasionally and adjust the zero knob as required. Be sure all pressure is removed by turning the air cleaner off before adjusting the zero knob. If it becomes necessary to add more oil to the gauge, be certain to use only Dwyer Oil that is provided with the air cleaner. Other fluids may damage the gauge. To fill the gauge first max out (turn clockwise) the zero adjust knob (lower left). Unscrew the fill cap (upper left). Pour in oil. Oil is thick so be patient. Screw back on the fill cap. If oil is past the zero level back out (turn counter clockwise) the zero adjust knob.

Clean the gauge with a soft cloth using a little soap and water. Use of a small brush will aid in cleaning the knobs. Avoid cleaning fluids and liquid soaps, which may have chlorinated solvents in them as they may damage the gauge.

ELECTRICAL SCHEMATICS



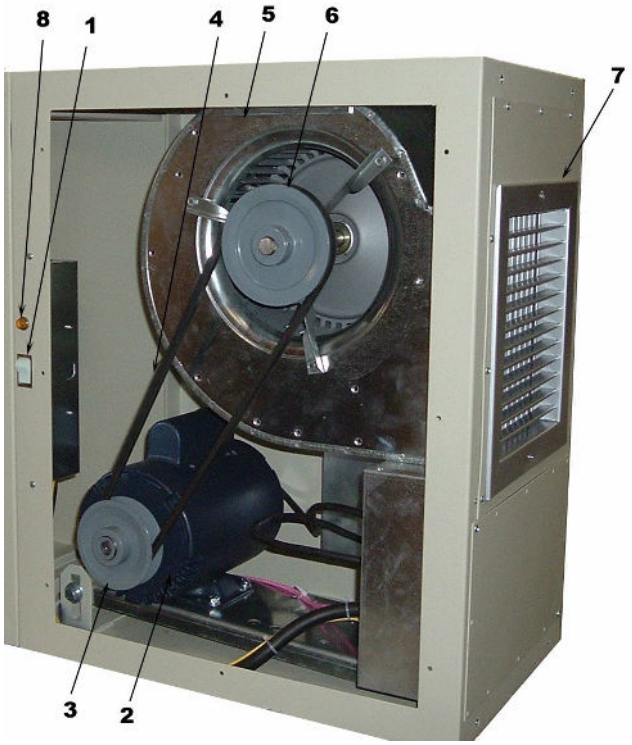
SINGLE PHASE



3 PHASE – 230V or 460V

PARTS LIST

M32/ M33 BELT DRIVE BLOWER SECTION



NO.	DESCRIPTION	PART NO.
1	On/Off Switch	10140
2	Motor, 1 Hp single phase 1.5 Hp single phase 2 Hp single phase 1 Hp 3 phase 2 Hp 3 phase	40013 40037 40039 40009 40040
3	Motor Sheave Variable 1VL44-5/8 Motor Sheave Variable 1VM50-5/8 Motor Sheave Variable AK56-5/8	30166 30583 30577
4	Belt A40 Belt A41 Belt A42 Belt A43 Belt A44 Belt A45 Belt A46 Belt A47	30603 30602 30011 30543 30531 30581 30582 30234
5	Blower	37020
6	Blower Pulley AK41-3/4 Blower Pulley AK46-3/4 Blower Pulley AK51-3/4 Blower Pulley AK56-3/4 Blower Pulley AK64-3/4	30601 30599 30600 30019 30167
7	Exhaust Grille	30530
8	Indicator Light	10097

M32 / M33 Filters

Standard Prefilters for M32/M33: 41124
Standard Primary Filters for M32: 41220, 41221
Standard Primary Filters for M33: 41128, 41129

Prefilters

41110	Polyester Media Roll for Media Pad Prefilter, 2" x 26" x 60'
41124	35% eff. High-capacity Pleated Prefilter, 12" x 24" x 4"
	41124 each for quantity of 5
41170	Aluminum Mesh Prefilter, 23 3/8" x 11 3/8" x 2", (two req.)
41179	Frame for Media Pads, 24" x 12" x 2" (2 req.)
41202	Aluminum Mesh Impinger, 14" x 24 19/32" x 2" (Inside 07072)

Primary

41128	95% Bag Filter (M33/M33V)
41129	85% Bag Filter (M33/M33V)
41161	90-95% DOP Extended Service Filter, 12" x 24" x 12"
41136	90-95% Extended Service Filter, 12" x 24" x 12"
41137	80-85% Extended Service Filter, 12" x 24" x 12"
41181	85% Mist Bag, 12" x 24" x 26", M33
41182	95% Mist Bag, 12" x 24" x 26", M33
41184	85% Rigid Mist Filter, 12" x 24" x 12"
41185	95% Rigid Mist Filter, 12" x 24" x 12"

Carbon

41123	22 lb. Carbon Module, M33 Only
41165	50 lb. Carbon Refill
41081	200 lb. Carbon Refill, granular A/C

M66&M68 BELT DRIVE BLOWER SECTION

NO.	DESCRIPTION	PART NO.
1	On/Off Switch	10140
2	Motor, 1 Hp 1 Ph Motor, 1.5 Hp 1 Ph Motor, 2 Hp 1 Ph Motor, 3 Hp 3 Ph	40013 40037 40039 40041
3	Motor Sheave 1VL44-7/8 Motor Sheave 1VL50-7/8 Motor Sheave 1VL56-7/8	30534 30362 30715
4	Belt A40 Belt A41 Belt A42 Belt A43 Belt A44 Belt A45 Belt A46 Belt A47	30603 30602 30011 30543 30531 30581 30582 30234
5	Blower	37012
6	Blower Pulley AK41-3/4 Blower Pulley AK46-3/4 Blower Pulley AK51-3/4 Blower Pulley AK56-3/4 Blower Pulley AK64-3/4	30601 30599 30600 30019 30167
7	Exhaust Grille	30486
8	Indicator Light	10097
9	Transformer (3Ph only)	10075
10	Relay, contact (3Ph only)	10078

M66&M68 DIRECT DRIVE BLOWER SECTION

NO.	DESCRIPTION	PART NO.
1	On/Off Switch	10140
2	Inlet Cone, 2 Hp & 3 Hp Inlet Cone, 5 Hp	37036 37033
3	Wheel, 2 Hp Wheel, 3 Hp Wheel, 5 Hp	37040 37035 37032
4	Motor, 2 Hp 3 Ph Motor, 3 Hp 3 Ph Motor, 5 Hp 3 Ph	40071 40070 40056
5	Exhaust Grille	21782
6	Relay, Contact	10078
7	Transformer	10075

M66 Filters

Standard Prefilter for M66: 41143
Standard Primary Filters for M66: 41055, 41056, or 41072

Prefilters

41053	35% eff. Pleated Prefilter, 24" x 24" x 2"
41143	35% eff. High-capacity Pleated Prefilter, 24" x 24" x 4"
	41143 each for quantity of 5
41089	65% eff. Pleated Prefilter, 24" x 24" x 2"
41173	65% eff. High-capacity Pleated Prefilter, 24" x 24" x 4"
	41173 each for quantity of 5
41083	Aluminum Mesh Prefilter, 24" x 24" x 2"
41146	Aluminum Mesh Impinger, 24" x 24" x 2"
41106	Polyester Media Pad for Wrap-around Prefilters, 2" x 26" x 63"
41110	Polyester Media Pad for Wrap-around Prefilters, 2" x 26" x 60’
41082	Polyester Media Pad for Wrap-around Prefilters, 135’ x 24" x 1"

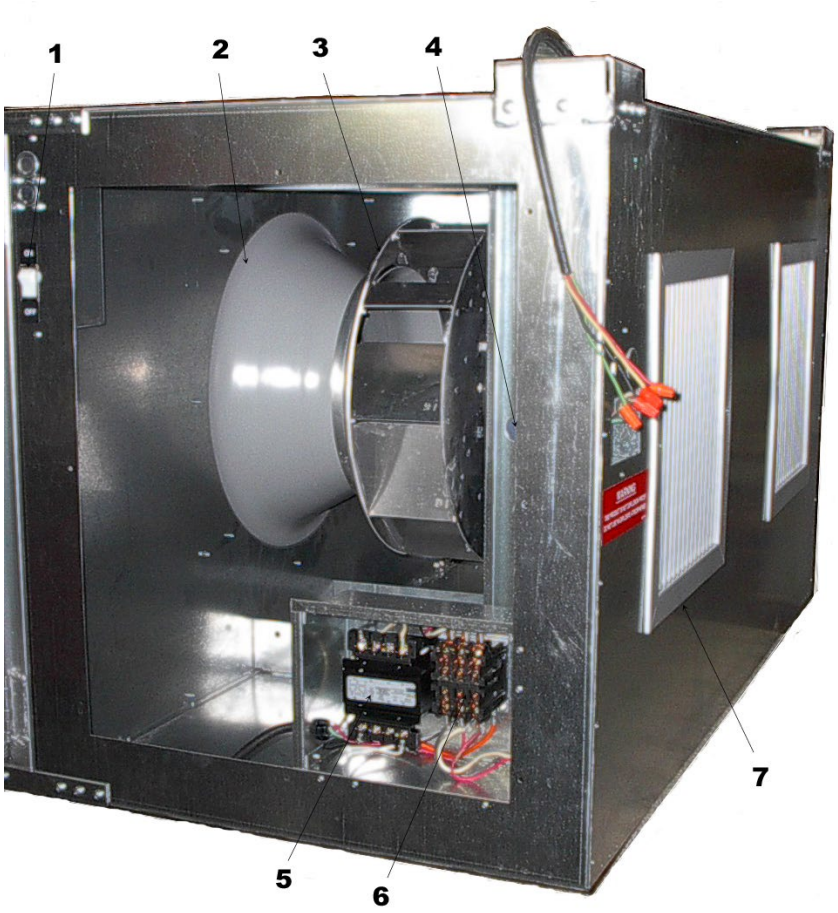
Primary

41061	35% Cube, 24" x 24" x 22"
41055	MERV 11 Multi-Pocket Bag, 24" x 24" x 21"
41056	MERV 13 Multi-Pocket Bag, 24" x 24" x 21"
41072	MERV 14 Multi-Pocket Bag, 24" x 24" x 21"
41233	95% Mist Bag 24x24x26 10 Pocket
41234	85% Mist Bag 24x24x26 10 Pocket
41134	90-95% Extended Service Filter, 24" x 24" x 12"
41135	80-85% Extended Service Filter, 24" x 24" x 12"
41160	90-95% DOP Extended Service Filter, 24" x 24" x 12"
41186	95% Rigid Mist Filter, 24" x 24" x 12"
41187	85% Rigid Mist Filter, 24" x 24" x 12"
41218	MERV 14 Polypropylene ESF Filter, 24" x 24" x 12"
41219	MERV 13 Polypropylene ESF Filter, 24" x 24" x 12"
41223	MERV 11 Polypropylene ESF Filter, 24" x 24" x 12"
41232	Heavy Duty Long Life Mist Filter
41235	Heavy Duty Long Life Mist Filter With Header

Carbon

41077	45 lb. Carbon Module Filter
41165	50 lb. Carbon Refill
41081	200 lb. Carbon Refill, granular A/C

M73 BLOWER SECTION



NO.	DESCRIPTION	PART NO.
1	On/Off Switch	10140
2,3	Inlet Cone & Wheel	37042
4	Motor, 5 Hp 3 Ph	40061
5	Transformer	10075
6	Relay, Contact	10078
7	Exhaust Grille	30565
(Not Shown)	Prefilter (2) MERV 8 - 35% Prefilter (2) MERV 11 – 65%	41143 41173
(Not Shown)	MERV 14 Polypropylene ESF Filter, 24" x 24" x 12" (2)	41218
(Not Shown)	MERV 13 Polypropylene ESF Filter, 24" x 24" x 12" (2)	41219
(Not Shown)	MERV 11 Polypropylene ESF Filter, 24" x 24" x 12" (2)	41223

CERTIFICATE OF WARRANTY

THREE-YEAR LIMITED WARRANTY

Air Quality Engineering, Inc. (AQE), warrants to the original purchaser, subject to the conditions below, that if the "Product" covered by this warranty should fail to perform by reason of improper workmanship or material, AQE will during the period of three (3) years from the date of original purchase either (i) replace the product or (ii) provide all necessary parts to repair the product without charge. The decision to replace the product or the necessary parts shall rest solely with AQE. This three-year limited warranty does not apply to main filter elements. AQE will replace without charge the main filter elements during the period of thirty (30) days from the date of original purchase if the main filter elements fail to perform by reason of improper workmanship or material. This warranty is valid only under the following conditions:

CONDITIONS

1. REGISTRATION: The purchaser's completion and mailing of the Registration Card to Air Quality Engineering, Inc., 7140 Northland Drive North, Minneapolis, Minnesota 55428-1520 within 30 days of original purchase.

2. AUTHORIZATION: The purchaser will contact AQE at (800) 328-0787 for authorization, returned goods number (RGA) and the shipping address. AQE will direct the purchaser to either return the necessary parts or the product at AQE's option.

3. PROPER DELIVERY: The shipping, freight prepaid or delivery of the parts or the product to AQE in either its original carton or in a carton assuring similar protection of the product with the returned goods number (RGA) clearly displayed on the outside of the carton.

4. UNAUTHORIZED REPAIR: A showing by the original purchaser that the product has not been altered, repaired or serviced by anyone other than an authorized service technician using genuine AQE parts.

5. UNAUTHORIZED PARTS: A showing by the original purchaser that the product has had only genuine AQE parts and filters used in its operation and maintenance.

6. SERIAL NUMBER INTACT: A showing by the original purchaser that the serial number has not been altered or removed.

7. MISUSE: A showing by the original purchaser that the product has not been involved in an accident, freight damaged, misused, abused or operated contrary to the instructions contained in the Owner's Manual.

Air Quality Engineering, Inc.'s, sole responsibility shall be to repair or replace the product within the terms stated above. AQE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY, EXPRESS OR IMPLIED, APPLICABLE TO THIS PRODUCT. Some states do not allow the exclusion or limitation of consequential damages so this limitation may not apply to you.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED BEYOND THE THREE-YEAR DURATION OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts so the above limitation may not apply to you.

This warranty gives you specific legal rights and you may also have other rights that vary from state to state.

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7140 NORTHLAND DRIVE NORTH
BROOKLYN PARK, MINNESOTA 55428-1520

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