



DIVERSITECH
Air Pollution Solutions

Operation & Maintenance Manual

TYPHOON CENTRAL DUST COLLECTOR



READ AND SAVE THESE INSTRUCTIONS

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SECTION 1 - SAFETY

1.1 Safety statement

The air cleaning equipment supplied by Diversitech ranges from very large multiple-component assemblies which require significant and complex, rigging, handling and assembly on-site, to small compact assemblies that are easily handled and maneuvered. In addition to size, many of the dust collectors will require electrical connections, compressed air connections, and will feature high speed rotating equipment.

At all times, when dealing with industrial equipment such as dust collection equipment personnel safety must be the highest priority of all involved, from riggers, installers, operators, users, and maintenance personnel. Those responsible on-site shall review the details of the equipment beforehand and develop a plan for dealing with all stages of the installation from receipt of the equipment on-site to start-up, commissioning, and hand-over. All applicable health, safety, and environmental ("HSE") rules, regulations and legislation shall be fully complied with at all times.

1.2 Safe working practices and staff training

Diversitech is fully committed to the safety of its employees and those of its customers. In this spirit the following guidelines are offered for the consideration of those responsible:

- All personnel shall receive safety training specific to the site, the task, and the conditions under which the work will be conducted.
- All personnel shall be equipped with appropriate safety apparel and equipment, such as clothing, footwear, hard-hats, gloves, ear protection, eye protection, and safety harness.
- All personnel involved in any stage of the process shall have been trained for the tasks in which they will be involved and at all times shall be under the direct supervision of experienced supervisors and managers.
- All personnel shall be equipped with appropriate tools and equipment to safely and efficiently complete their task.
- Adequate lighting shall be supplied at all times while work is being conducted.
- A work perimeter shall be set up to define the limits of the area within which the work will be conducted and outside which there will be no threat to the safety of personnel or plant. The perimeter shall be taped-off and marked appropriately to prevent accidental ingress of uninvolved personnel or equipment. When the work area impedes into existing access ways or traffic routes for which no practical alternative is available, barriers, wardens and flaggers shall be employed to safely control crossing traffic and personnel.
- At any time only those personnel directly involved in completing the task at hand shall be allowed within the work perimeter.

1.3 Dust explosion hazard

By its very nature the Typhoon Central Dust Collector is intended to be used to capture airborne particulate matter, otherwise known as dust.

Many dusts have the potential to be explosive. Dust explosions constitute a serious industrial hazard and may result in death, serious injury, and devastating property damage. It is the responsibility of the user to identify the nature of the dust generated during any process or activity, whether or not it poses an explosive hazard, and to properly mitigate this hazard.

Except as otherwise expressly provided in writing, Diversitech makes no representation or warranty in connection with explosion hazard equipment, including, but not limited to, the necessity or effectiveness of explosion hazard equipment or to the design, installation, operation, and performance of such equipment.

The basic standards for dealing with explosive dust applications are published by the National Fire Protection Agency ("NFPA"). The user shall be fully conversant with the provisions of the particular codes and standards that apply to the specific application and equipment used, and shall comply in full with all of the requirements of the applicable codes and standards.

1.3.1 NFPA 654 and referenced codes and standards

The owner shall review and comply with **NFPA 654: Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids**, and those other documents referenced therein. NFPA 654 pertains to "all phases of manufacturing, processing, blending, conveying, repackaging, and handling of combustible particulate solids or hybrid mixtures, regardless of concentration or particle size, where the materials present a fire or explosion hazard". The purpose of the standard "is to prescribe technical requirements for safety to life and property from fire and explosion and to minimize the resulting damage from a fire or explosion". The user shall be fully conversant with the provisions of NFPA 654 and shall comply in full with all of its requirements and those of all applicable referenced codes and standards.

Note that NFPA 654 does not apply to the specific applications or materials covered by the other NFPA documents unless specifically referenced by those documents.

1.3.2 NFPA 484, Light Metals

There are various methods for dealing with a dust explosion hazard. The Typhoon Central Dust Collector is particularly appropriate for the collection of dust generated by the working of light metals such as aluminum, titanium and magnesium. These dusts are highly explosive and the Typhoon Central Dust Collector uses water as a medium for neutralizing the development of a potentially explosive dust cloud and for eliminating the possibility of ignition. The specific standard that applies to these applications is **NFPA 484: Standard for Combustible Metals**. This standard applies to “the production, processing, finishing, handling, recycling, storage, and use of all metals and alloys that are in the form that is capable of combustion or explosion”. When the Typhoon Central Dust Collector is used to collect dust from the working of light metals, the user shall be fully conversant with the provisions of NFPA 484 and shall comply in full with all of its requirements.

1.3.3 Other requirements

The use of a dust collector for the collection of explosive dust is only one part of a safe dust prevention and mitigation program. Dust shall not be allowed to accumulate or build up on the surfaces of the dust collector, on the air intakes or in the surrounding area. The owner's attention is directed particularly to the “Housekeeping” chapters in NFPA 654 (Chapter 8 in the 2013 edition) or NFPA 484 (Chapter 7 in the 2015 edition). If any of the other codes and standards referenced above applies, consult the appropriate chapters in those documents.

The editions referenced here were current at the time of writing. Be aware that they may have changed. When referring to NFPA standards, the user shall ensure that they are working with the most current edition.

For information on NFPA® standards, go to <http://www.nfpa.org/>. NFPA provides free on-line read-only access to its codes and standards. Standards may also be purchased.

1.4 Electrical hazards

Before doing any work on the Diversitech equipment make sure that all potential electrical hazards have been identified and that all electric current connected to the equipment, and to any connected or associated equipment, has been properly disconnected and securely locked-out to prevent accidental reconnection prior to completion of the work. All electrical work shall be done in full accordance with the current edition of NFPA 70, the National Electrical Code, and all other applicable laws, rules, and regulations. All electrical work shall be performed by a licensed electrician. Only original Diversitech parts shall be used as replacements for ongoing maintenance and repair.

1.5 Rotating equipment

The Typhoon Central Dust Collector incorporates a fan which is close-coupled and installed on top of the Typhoon Central Dust Collector, or installed separately (typically ground mounted) and ducted to the outlet of the Typhoon Central Dust Collector. The fan impeller (fan wheel) may rotate at nominal speeds approaching 3600 rpm and has the potential to cause severe injury. The fan impeller can be accessed through the collector from inside the cabinet if the moisture eliminator is removed, from the outside of the collector through the collector discharge, or from the connecting inlet or outlet ductwork. All due care should be exercised to avoid any contact with the operating fan. Under no circumstances should the fan ever be allowed to operate when any of the access panels on the dust collector, silencer, or connecting ductwork have been removed. The fan must be disconnected and locked out prior to the performance of any maintenance work, see paragraph 1.4.

1.6 Safety guards

The dust collector cabinet prevents access to the fan inlet. All access panels and ducts shall remain bolted in place while the fan is operating. Prior to the removal of any access panel or ducts the electrical power to the collector shall be disconnected and locked out, see 1.4 and 1.5.

After electrical power is disconnected the fan impeller will continue to rotate for a period of time before coasting to a stop. Do not access the fan until the fan wheel has come to a complete stop.

SECTION 2 - GENERAL PRODUCT INFORMATION

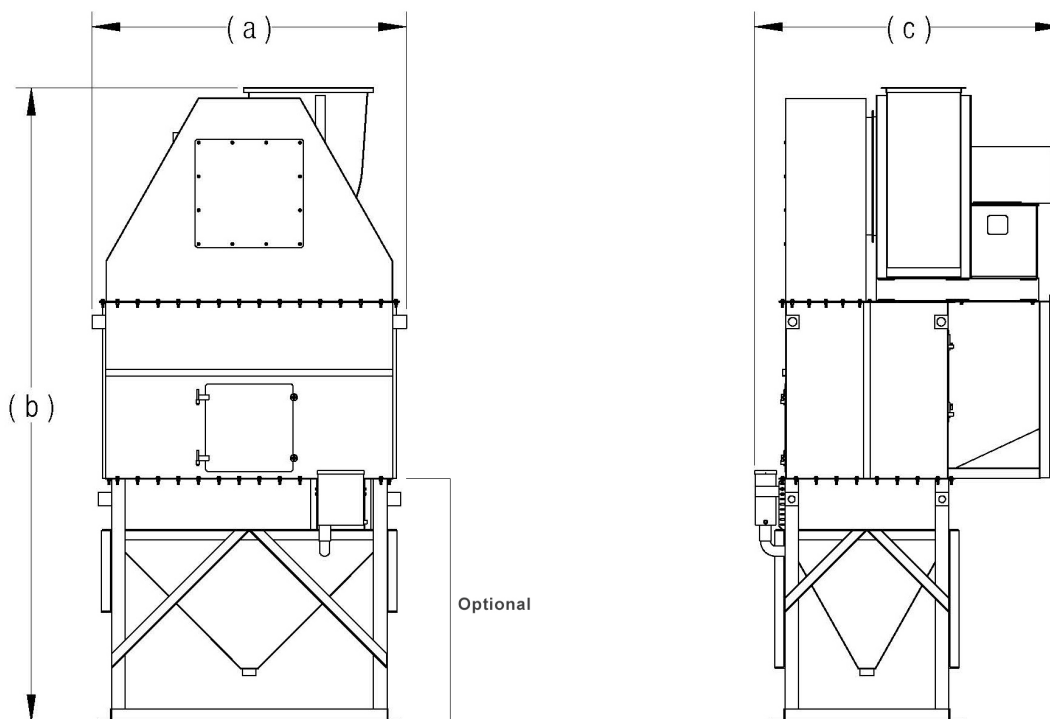
2.1.1 Description

The Typhoon Central Dust Collector is a wet dust collector which uses water as the medium to separate dust from air by means of mixing through a baffle and basin. When installed and operated properly, the Typhoon Central Dust Collector operates automatically and will require very little maintenance. However, as is the case with any mechanical equipment, it should be operated, maintained and serviced in accordance with these instructions to ensure long life and trouble free performance and use.

The dust generated by the particular operation for which the Typhoon Central Dust Collector is employed is drawn into the collector through the inlet ductwork, into a water bath, and then through Diversitech's unique baffle section which through a combination of induced aerodynamic and hydrostatic forces causes the dust to mix thoroughly with the water and separate from the air. The cleaned air is then emitted from the dust collector through the fan and the separated dust settles to the bottom of the water bath. The dust forms a sludge which is then periodically removed from the collector.

The Typhoon Central Dust Collector can only be operated when it is filled with water to the correct level. A low water level would result in by-pass of unfiltered air. Automatic filling allows the Typhoon Central Dust Collector to run continuously and in case of a failure event cut-out devices prevent operation of the fan if the water level is too low.

2.1.2 Typhoon Central Dust Collector Dimensions



Model	Inlet Collar Diameter (in.)	Footprint			Water		Weight (lbs)
		Width [a]	Height [b]	Length [c]	Supply (in.)	Drain (in.)	
TY-8000	20	7'-7"	15'-8"	7'-9"	1/4" NPT	2" NPT	4000
TY-10000	20	7'-7"	15'-8"	7'-9"	1/4" NPT	2" NPT	4000
TY-12000	20	7'-7"	15'-8"	7'-9"	1/4" NPT	2" NPT	4000

2.2 Purpose and intended use

The Typhoon Central Dust Collector is intended to be used to collect a wide range of dust produced in industrial applications. It is particularly effective for the collection of dusts that are potentially explosive such as light metal dusts (aluminum, titanium, or magnesium) and coal dust, or dusts that are damp, wet, sticky or oily. **Contact Diversitech support at 1-800-361-3733** for assistance with your application.

2.2.1 Collection of explosive dusts

As mentioned, the Typhoon Central Dust Collector is primarily particularly effective for the collection of dust generated by the working of light metals such as aluminum, titanium, and magnesium, and for the collection of other explosive dusts such as coal dust. Such dusts have the potential to be highly explosive if not dealt with correctly.

The Typhoon Central Dust Collector neutralizes the threat of a dust explosion by encapsulating the captured dust in water and preventing the development of both a dust cloud that might reach the explosive limit and of any potential ignition source.

It bears repeating here that the use of a dust collector for the collection of explosive dust is only one part of a safe dust prevention and mitigation program. Dust shall not be allowed to accumulate or build up on the surfaces of the dust collector, on the air intakes or in the surrounding area. The owner's attention is directed particularly to the "Housekeeping" chapter in NFPA 484 (Chapter 7 in the 2015 edition) and in NFPA 654 (Chapter 8 in the 2013 edition).

2.2.2 Collection of other dry dusts

The Typhoon Central Dust Collector can also be used to collect dust generated by the working of other metallic and non-metallic materials that may not present an explosion hazard.

2.2.3 Collection of damp, wet, oily or sticky dusts

The Typhoon Central Dust Collector is an effective collector of dusts that are difficult or even impossible for other collectors, particularly dry collectors such as cartridge and bag collectors, to collect. Damp, wet, sticky or oily dusts can clog the pores of paper and fabric media. In pulse clean or shaker style self-cleaning dust collectors, these dusts will not release from the cartridges or bags, causing the dust collector to clog and quickly fail.

2.3 Normal Operation

The Typhoon Central Dust Collector cleans the air by the combined action of centrifugal force and a thorough mixing of water and dust laden air. The dust is separated from the air by means of a water curtain, created by the flow of air through a partially submerged stationary impeller (see Figure 1). Air flowing through the impeller at a high velocity conveys water with it in a very turbulent sheet. Additional water is introduced at the narrowest portion of the impeller through a specially designed slot in the bottom. Since there is a certain differential pressure through the impeller, the water flows upward through the slot in an attempt to reach the water level on the clean air side. This water flow upward through the slot creates increased interaction between the dust and water, thus, increased collection efficiency. Since the water flows upward in an attempt to reach the water level on the clean air side of the impeller, the impeller opening can be decreased (resulting in higher differential pressure and collection efficiency) by raising the water in the unit. This is accomplished by a unique and patented variable water level control box. The centrifugal force exerted by the rapid changes in direction of flow causes the dust particle to penetrate the water film and become permanently trapped. (Figure 1)

The water in the reservoir is continually reused and since the water curtain is produced by the air flow, no pumps or nozzles are required. The water level is maintained by the overflow weir in the control box as long as a small amount of fresh water is supplied through the make-up water connection or by electrical controls that automatically add water, as needed to compensate for evaporation and water lost as the collected dust is removed from the unit.

SECTION 3 - PRODUCT SHIPMENT

3.1 How the product ships

The Diversitech Typhoon Central Dust Collector is shipped with the base, cleaning, clean air, and motor-blower sections disassembled.

3.2 Items that ship separately

To reduce freight costs, Diversitech may ship items separately. The customer will be notified which equipment ships separately when the order is placed. Items that ship separately should be set aside in an area that is clean, dry, and in a place where damage to the equipment will not occur, see **section 6** for information on storage and protection.

SECTION 4 - PRODUCT RECEIPT AT THE DESIGNATED DELIVERY POINT

The people of Diversitech take pride in the quality of the products that we supply and it is our intention that our customer's experience with our products and services be positive and satisfying. This process begins at delivery. It is important to ensure that the product delivered is what was ordered and that it arrives at its destination in perfect condition. Adequate preparation on the part of the buyer, together with a structured approach to receipt and inspection, will ensure that if problems exist they are communicated swiftly and efficiently through the proper channels allowing them to be resolved in the shortest possible time.

4.1 Responsibilities of the customer or customer's agent

Ensure all loading/unloading equipment and safety equipment is on site at the time of delivery. Safe and efficient operation of the collector depends on proper installation. Know proper laws, codes and regulations before installation starts.

4.2 Receiving

Remove crates, tarps, shipping straps, etc. along with any loose items or equipment before unloading the Diversitech Typhoon Central Dust Collector.

4.3 Inspection on arrival

The Diversitech Typhoon Central Dust Collector is normally shipped by truck and should be checked for damage that may have occurred in route. Compare the collector(s) received to the description and/or drawing of the collector(s) ordered. Immediately report any differences or missing items from the order to Diversitech. Remove loose items or components before lifting the collector from the truck.

A qualified installation and service company should complete installation of the collector and accessories.

4.4 Damaged goods

If there is any visible damage to the packaging or the equipment, notify the carrier and Diversitech before proceeding further and, if appropriate, file an immediate claim with the carrier against such damage. Be aware that damage to packaging may indicate hidden damage to the product that is not immediately discernable.

Digital color photographs must be taken of any damage to the packaging and the equipment immediately on discovery. The nature of any damage must also be documented in writing. Adequate documentation will be critical to support any claims.

Contact Diversitech support at 1-800-361-3733 for claim filing procedure.

4.5 Missing goods

Any missing goods should be noted on the delivery receipt, and the carrier and Diversitech notified immediately.

Contact Diversitech support at 1-800-361-3733 for claim filing procedure.

SECTION 5 – UNLOADING AND HANDLING

5.1 Unloading

- Failure to lift the collector correctly can result in severe personal injury, property damage, or even death.
- Connect lifting sling to at least four cabinet lifting lugs, if possible, distributing the load evenly.
- Use clevises, not hooks, on lifting sling.
- Use of spreader bars is recommended on all lifting slings.
- Check the drawings of the specific Typhoon Central Dust Collector ordered for dimensions and weights to ensure proper lifting and installation equipment.
- All lifting operations must be made in compliance with the relevant HSE legislation.

5.2 Handling

Only personnel experienced in handling equipment shall be employed for this task.

If lifted by its shipping pallet, attention must be paid to properly balancing the load and strapping it to the handling device. Care shall be taken to ensure that the equipment is not dropped or subjected to any impact loads.

5.3 Rigging and Hoisting instructions

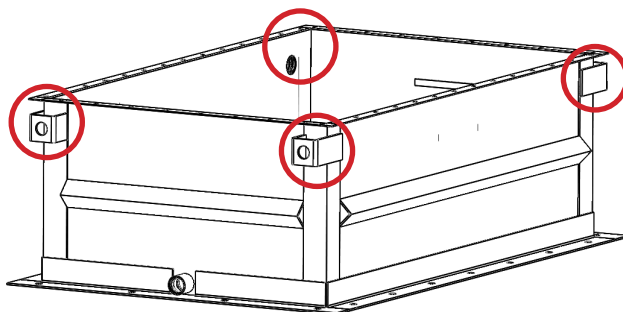
Only personnel experienced in rigging and hoisting equipment shall be employed for this task.

It is recommended that each item of equipment remain on its pallet until it has been moved to its final installation location. The Typhoon Central Dust Collector may be moved using a forklift to lift the product using its shipping pallet, if available.

The Typhoon Central Dust Collector also has lifting lugs mounted on the top. These may be used to hoist the product instead of lifting it using the shipping pallet. All lifting lugs must be used when hoisting the product. When using the top mounted lifting lugs use spreader bars at all times. Position the spreader bars so that the force applied to each lifting lug is vertical and not angled. Also make sure that lifting straps or cables do not come into contact with any other part of the product to prevent the possibility of damage from abrasion. Before hoisting make sure that the load is properly balanced. At the beginning of the lift, hoist the product slowly and carefully.

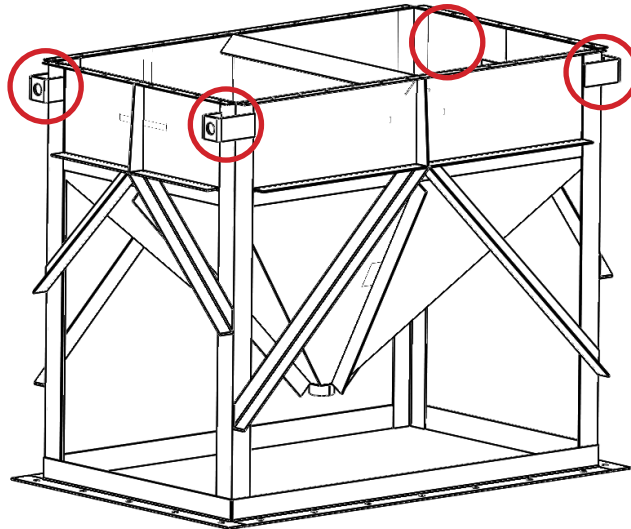
5.4 Flat Base Hoisting

Hoisting must be done from the hoist mounts. Appropriate hoisting procedure should be followed according to **section 5.3 Rigging and Hoisting Instructions**.



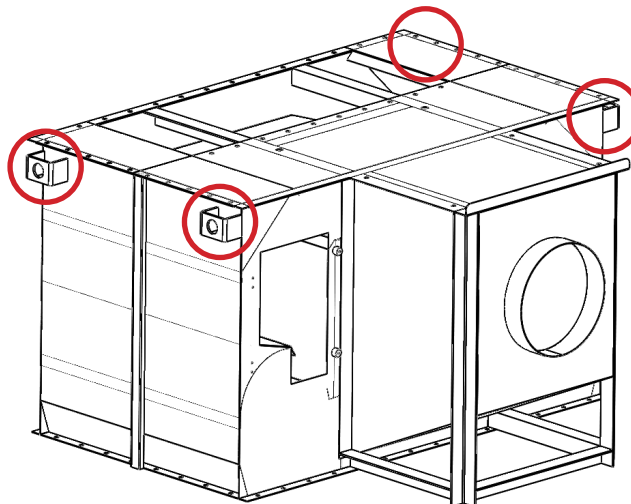
5.5 Hopper Base Hoisting

Hoisting must be done from the hoist mounts. Appropriate hoisting procedure should be followed according to **5.3 Rigging and Hoisting Instructions**



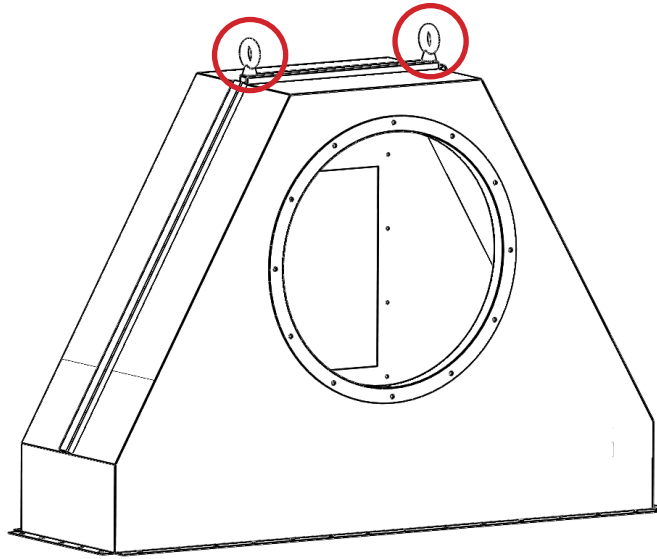
5.6 Middle Section Hoisting

Hoisting must be done from the hoist mounts. Appropriate hoisting procedure should be followed according to **5.3 Rigging and Hoisting Instructions**



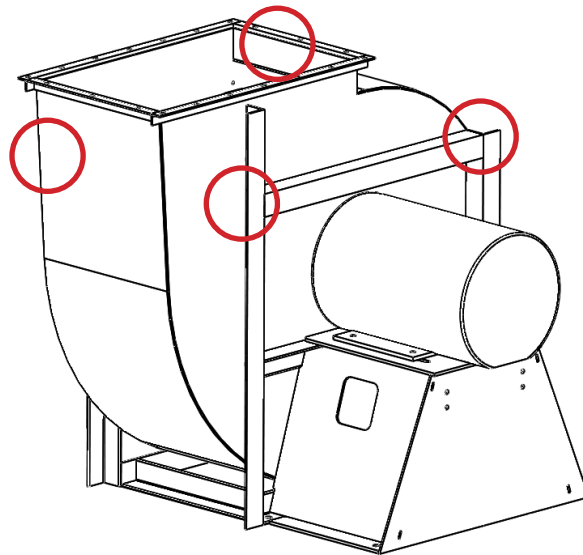
5.7 Top Section Hoisting

Hoisting must be done from the hoist mounts. Appropriate hoisting procedure should be followed according to **5.3 Rigging and Hoisting Instructions**



5.8 Motor-Blower Hoisting

Hoisting must be done from the hoist mounts. Appropriate hoisting procedure should be followed according to **5.3 Rigging and Hoisting Instructions**



SECTION 6 – STORAGE AND PROTECTION

- If not installed immediately, the equipment shall be retained and stored in a protective environment until immediately prior to installation. This environment shall be clean, dry, and temperature and humidity-controlled.
- At all times the equipment shall be protected from exposure to weather and from standing water.
- All equipment shall be stored on its original shipping pallet so that it is elevated above grade.
- The equipment shall be clearly labelled and be stored in a location that is easily and readily accessible.
- If prolonged storage (greater than 30 days) is anticipated, the equipment shall be covered with plastic to prevent the accumulation of surface dust and include the following:
 - Motor shaft and flanges to be coated with easily removable rust preventative Tectyl No.502-C, or equal.
 - Block all openings to prevent rodents and small animals from nesting inside.
 - Insert silica gel desiccant in control boxes and motor junction boxes.
 - Cover units completely to exclude dirt, dust, moisture, and other foreign materials. If possible, insert motor in strong, transparent plastic bag. Attach moisture indicator to side of motor, place several bags of silica gel inside, then seal plastic bag. If motor cannot be placed in plastic bag and relative humidity exceeds 50%, use space heaters to keep motor at least 10F above ambient air temperature.
 - Rotate motor shaft at least 10 revolutions every month; re-lubricate bearings after each year of storage.
 - Check desiccant bags and rust prohibitive monthly; replace desiccant and recoat with rust preventative as required. Also check operation of space heaters.
- If the unit has been in use and prolonged storage is anticipated, the unit shall be cleaned on the inside and outside of dust and water to prevent damage to the interior and exterior of the collector.

SECTION 7 - SITE PREPARATION

7.1 Locating equipment

When locating the Typhoon Central Dust Collector, the design engineer shall consider the many factors associated with site selection including, but not limited to, seismic design category and site class, environmental conditions, flood design data, design load bearing value of soils, serviceability, risk category, and load combinations, including dead loads, live loads, snow loads, wind loads, and earthquake loads. Such factors and values are typically defined by the building codes and standards imposed by the local authority with jurisdiction for buildings and structures.

- The equipment installation, including supports, must be selected and designed to adequately resist all external loads, and combinations of loads, acting on the equipment at all times.
- Take appropriate precautions to reduce operating equipment noise levels to levels mandated by the relevant legal authorities.
- Take appropriate precautions necessary for all phases of manufacturing, processing, blending, conveying, repackaging, handling and disposal of hazardous materials as mandated by the relevant legal authorities.
- The Typhoon Central Dust Collector is not intended to be used as a load bearing structure and all connecting components, including ducts, must be supported separately.
- Provide adequate clear space around the Typhoon Central Dust Collector for access and maintenance.

7.2 Foundations and anchor bolts

The foundations supplied must be level and rigid, must fully support the Typhoon Central Dust Collector during operation, and prevent vibration. Refer to **section 2.1.2** for machine weight. Foundation must be able to support filled operating weight with appropriate safety factor. Sufficient anchor bolts shall be supplied to connect all Typhoon Central Dust Collector support points. The anchor bolts shall be designed and selected to adequately resist all forces between the Typhoon Central Dust Collector and the foundation. Note that the Typhoon Central Dust Collector is equipped with a bottom outlet drain. The foundation for the Arrangement D must be designed to accommodate this drain. See **section 8.2** for further details.

SECTION 8 - ASSEMBLY AND INSTALLATION

- Safe and efficient operation of the Typhoon Central Dust Collector depends on proper installation.
- Diversitech recommends that the ductwork going into the collector be as straight as possible, with at least 5 diameters of straight run recommended.
- Authorities with jurisdiction should be consulted before installing the Typhoon Central Dust Collector to ensure local installation laws, codes, regulations and procedures are followed.
- A qualified installation and service agent must complete installation and service of the dust collector and equipment.
- Ensure all covers from shipping and loose materials are removed from the collector before installation. Failure to do so can result in failure of the dust collector.
- Ensure the hardware on the dust collector assemblies are properly installed and tight before installation.

8.1 Assembling and installing the structure

Shipping Arrangements

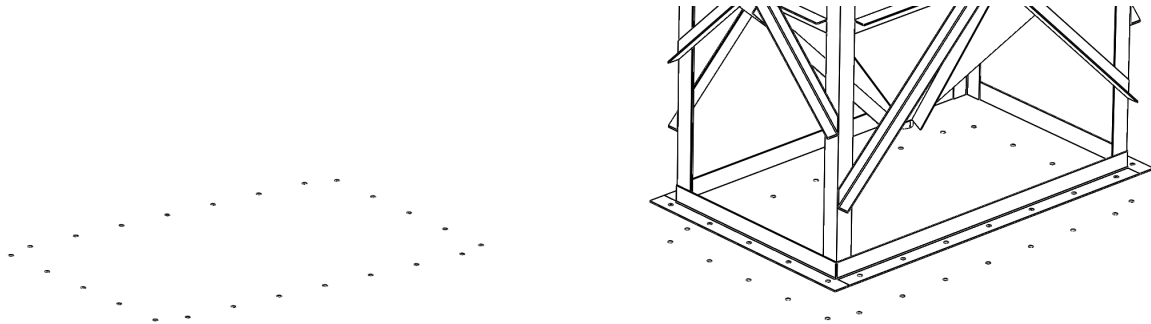
The equipment delivered to the site will arrive in one of a number of various arrangements depending on the size and style of the product supplied and the customer's particular needs and requirements. Review the product documentation supplied, especially the sales drawing, for details.

The Typhoon Central Dust Collector may be shipped disassembled in major subassemblies as follows:

- Hopper/Base section
- Baffle/Middle section
- Clean air/Top section
- Blower and Motor assembly

8.2 Foundation Installation and Levelling

Prepare the foundation by drilling anchor bolt holes according to the supplied dimensional drawings.



Install the Typhoon Central Dust Collector base onto the prepared foundation using appropriately selected anchor bolts. Hoist according to **section 5**.

Adjust the base until the equipment is completely level in all directions. This operation is critical; the Typhoon Central Dust Collector will not operate properly if not level. There are two recommended methods for achieving this:

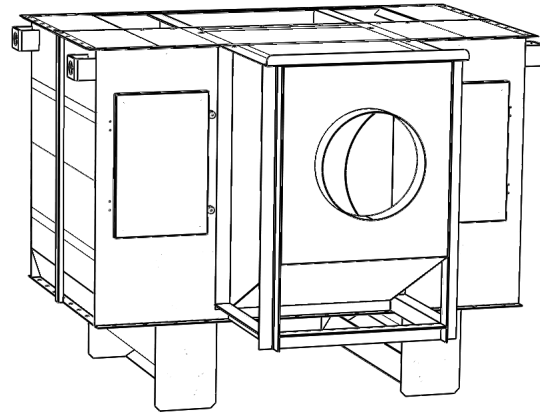
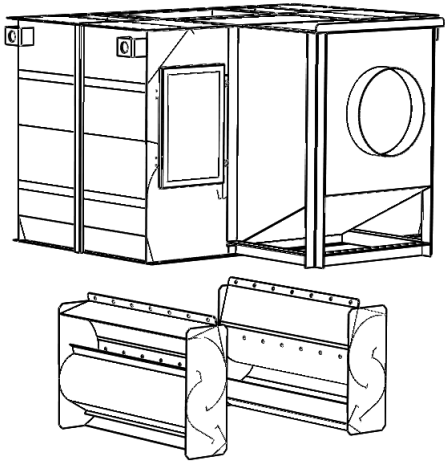
- Place a spirit level on the leveling strips welded on two or more sides of the hopper. The Typhoon Central Dust Collector must be accurately levelled in both orthogonal directions (along axes 90 degrees apart).
- Fill the Typhoon Central Dust Collector with water until the level reaches the entering edge of the impeller (Figure 1). On Typhoon Central Dust Collector with double impellers (sizes 8 and above) this will apply to both impellers simultaneously. The entering edge of each impeller must be level with the water along its entire length with a maximum allowable variation of plus or minus 1/8 of an inch. On Typhoon Central Dust Collector with single impellers (sizes 6 and below), the Typhoon Central Dust Collector will still need to be leveled in the other direction.

When the Typhoon Central Dust Collector has been properly levelled, fix the equipment in position using shims and anchor bolts and then grout beneath the structural support elements to ensure that the equipment is fully supported.

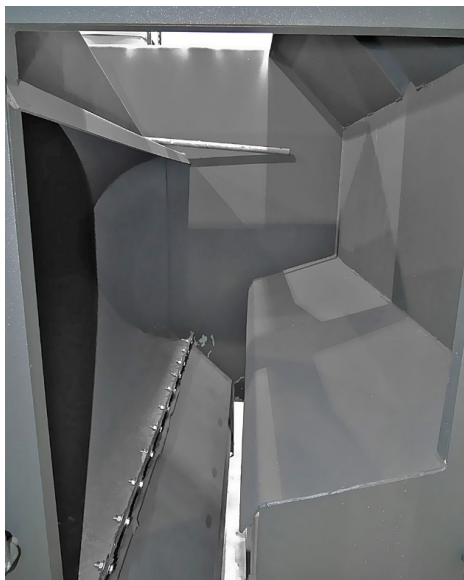
8.3 Assembly of Hopper to Cleaning Sections

As previously noted (see **section 8**), the hopper (lower level) and cleaning section (middle level) supplied for Typhoon Central Dust Collector are shipped separately for installation at the jobsite. Follow hoisting instructions from Section 6. Field assembly of these sections will be as follows:

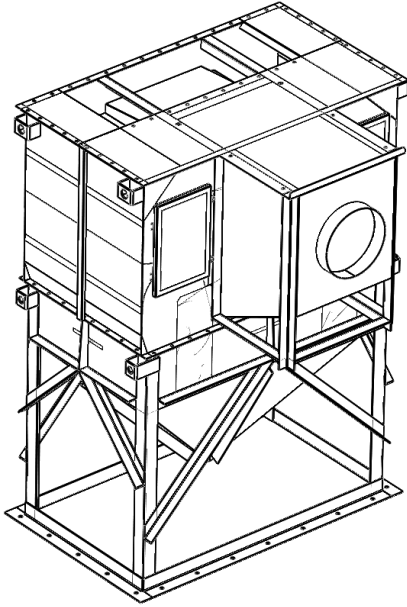
If the baffles of the middle section were shipped separately, they will need to be installed prior to mounting the middle section on the lower section.



Securely mount the middle section on stands. Apply bead of silicone along bolting edge.



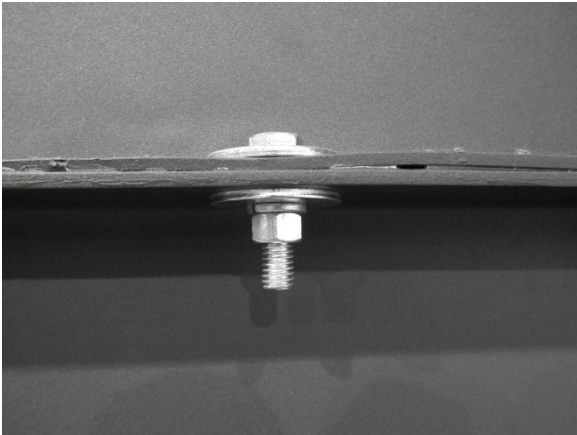
Insert the middle section baffles and bolt in place with bolt, lock washer, washer, washer, nut. Spray with rubber sealant.



Prepare the base section on the foundation and clean the mounting flange.

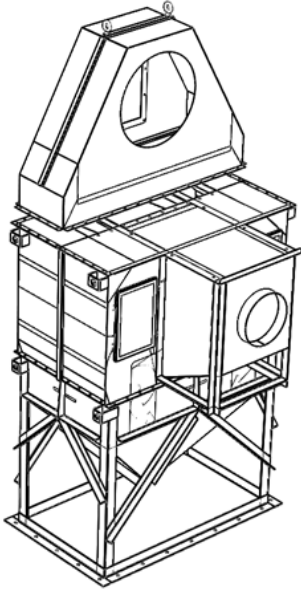
Place the supplied sealant tape or a thick constant bead of silicone around the base section external flange to create a gasket with the middle section.

Lower the middle section carefully onto the flange of the hopper section, watching for interference between intermediate sheets and baffles. Set the cleaning section in place so that its bolting flange matches the base flange.



Bolt the outside flanges of the middle section and base section with bolt, washer, washer, lock washer, nut

8.4 Foundation Installation and Levelling



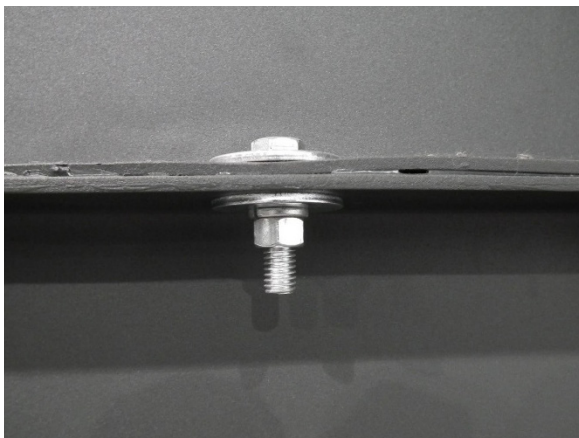
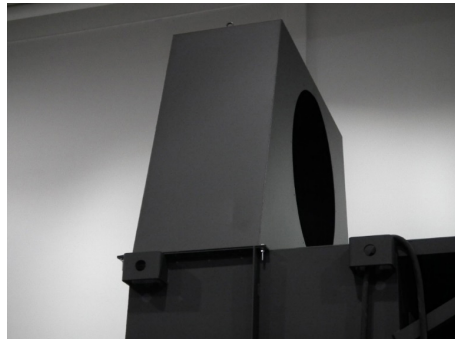
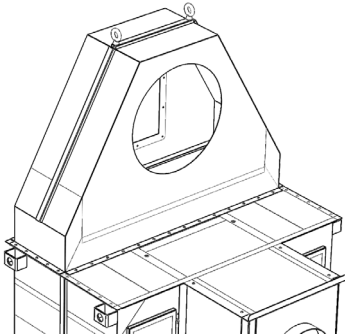
With the middle section installed on the hopper, the clean air transition section can be installed. Follow hoisting instructions from **section 6**

As previously noted (see **section 8.3**), the clean air transition supplied for the Typhoon Central Dust Collector ships separately for installation at the jobsite. The gasket will be a bead of silicone material for sealing the flange between the Typhoon Central Dust Collector middle section and the clean air transition section.

Locate the middle section top flange and wipe clean

Place sealant tape or a thick constant bead of silicone around the middle section external flange to create a gasket with the clean air section.

Lower the clean air section carefully onto the flange of the middle section, watching for interference. Set the clean air section in place so that its bolting flange matches the middle flange.

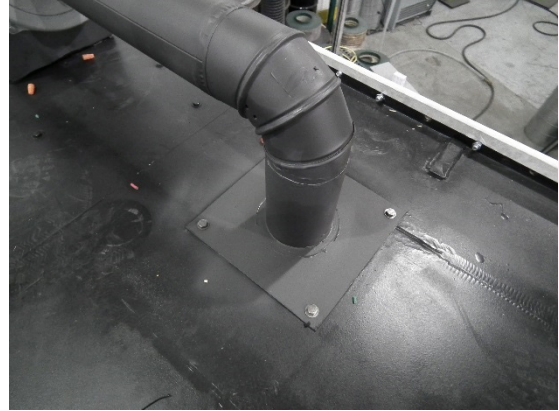
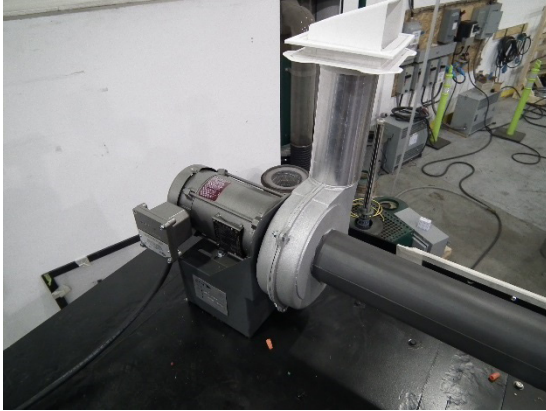


Bolt the outside flanges of the clean air section and middle section with bolt, washer, washer, lock washer, nut

8.5 Assembly of Hydrogen Vent Fan

With the clean air section installed on the middle section, the hydrogen vent fan can be installed.

- Locate the predrilled mount pattern on the middle section
- Bolt the hydrogen fan and motor to the middle section
- Connect the inlet duct to the fan inlet and bolt the plenum to the main body
- Connect the fan outlet to an appropriate duct and vent the hydrogen out of the facility.



8.6.1 Assembly of Motor and Blower to Clean Air Transition Section

With the clean air section installed on the middle section, the blower and motor can be installed.

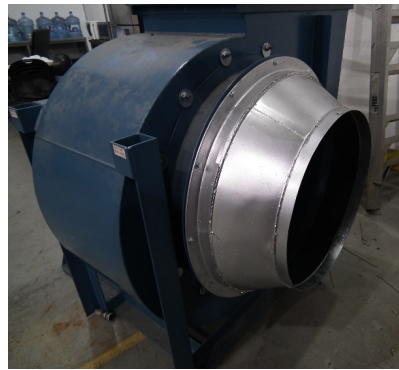
As previously noted (see **section 8.3**), the motor and blower supplied for Typhoon Central Dust Collector ships separately for installation at the jobsite.

8.6.2 Ground Mount Blower Assembly

With the clean air section installed on the middle section, the ductwork, blower and motor can be installed.

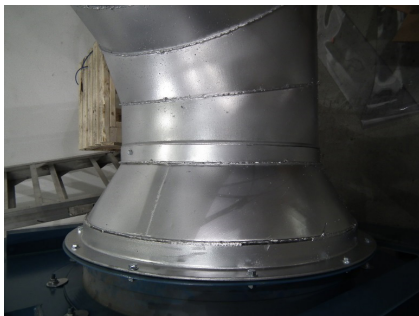


Connect the first section of ductwork to the clean air transition exhaust plenum.



Connect blower inlet transition duct to blower inlet flange

Connect duct to blower inlet transition. Ensure the duct to duct connection is properly spaced to allow connection sleeve. Use tek screws to connect duct to the blower inlet transition. Install duct sleeve over duct to duct connection.



Locate the blower on the floor at the appropriate distance from the main body. Fasten blower in place with foundation bolts

8.6.3 Top Mount Blower Assembly

As previously noted

- Locate the middle section top bolting holes for securing the motor-blower assembly
- Lower the motor-blower carefully onto the middle section, watching for interference. Set the motor-blower assembly in place so that its base structure bolt pattern matches the middle section bolt hole pattern
- Bolt the base structure of the motor-blower assembly to the middle section with bolt, lock washer, washer
- Insert connection flange between blower inlet flange and clean air section outlet
- Bolt to blower flange and clean air section with bolt, lock washer, washer, washer, nut
- Run motor electrical cable to the control box and see **section 8.8** for electrical connection
- Secure electrical cable to body with cable clamps

8.7.1 Water Inlet and Solenoid Valve

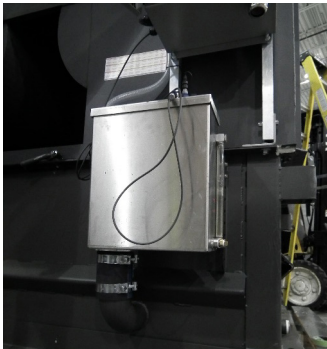


The water inlet solenoid will be provided with the Typhoon Central Dust Collector and will need to be installed on site.

- Connect water inlet "L" piping
- Connect the water inlet solenoid
- Connect the blue pressure hose to the water inlet solenoid fitting and to the clean air section pressure hose fitting
- Secure the blue pressure hose to the body with hose clamps
- Connect the solenoid leads to black, white, and green wires in accordance with solenoid wiring diagram
- Run solenoid wire cable to the control box and see section 9.2.8 for electrical connection
- Secure to electrical cable to body with cable clamps along lower section and middle section bolting flange
- Connect the manual shut off valve
- Connect a 1/2" NPT water supply line to the manual shutoff valve with standard pipe fittings.

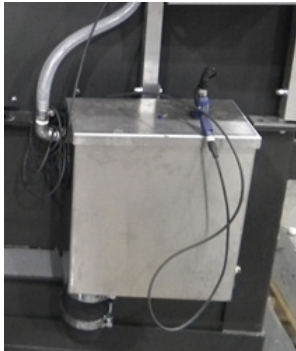
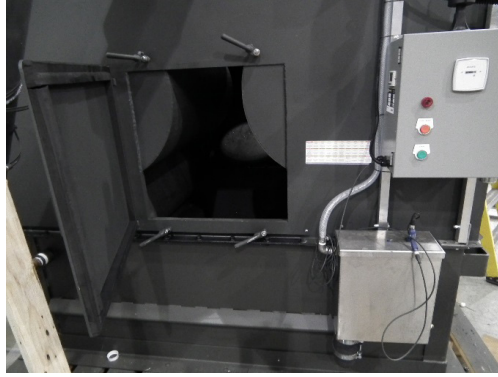
8.7.2 Water Level Box

The water level box houses the water level sensor and will be provided with the Typhoon Central Dust Collector and may need to be installed on site.



- Connect level box to the main body. Connect outlet duct to body with hose clamps and sealant

- Connect a 3/4" hose from the water level box to the main body outlet to allow pressure equalization.



- Secure to body with hose clamps
- Mount the water level sensor on the lid of the water level box
- Connect the water level sensor leads to black, white, and green wires in accordance with wiring diagram
- Run water level sensor wire cable to the control box and see **section 8.8** for electrical connection
- Secure the electrical cable to body with cable clamps

8.7.3 Electrical connections

The normal set of electrical components that may be supplied with the Typhoon Central Dust Collector comprise of the following:

The exhauster motor, the exhauster motor starter, the solenoid inlet valve, the water level sensor, and the control box. Each electrical connection shall be made in accordance with the appropriate wiring schematic enclosed with the Typhoon Central Dust Collector instruction packet. Also note the following:

- Control box: The control box is mounted to the middle section and will connect to each of the other electrical components.
- Exhauster motor: The motor nameplate will show the connection hook-up of the motor leads. The motor leads will already be connected to the motor cable, which will need to be connected to the control box according to the wiring diagram.

Mount the control box to the middle section via the supplied mounting bracket. Install the bracket arms to the upper and lower flanges and bolt in place.





Mount the control box to mounting brackets with bolt, washer, nut.

CAUTION: After connecting the motor leads, ensure that the exhauster rotates in the proper direction as indicated by the arrow on the exhauster housing.

- Exhauster motor starter: The exhauster motor starter may or may not be supplied by Diversitech
- Solenoid valve: This valve is normally supplied in the water supply line. A solenoid valve is furnished with Typhoon Central Dust Collector. Connect the solenoid valve black wire to the #11 terminal, the white wire to the N2 terminal, and the green wire to the control box grounding terminal.
- Water level sensor: The water level sensor is part of the water level subassembly. Connect the water level sensor black, white and green wires to the control box terminal according to wiring diagram.

8.8 Drain Connection for Typhoon Central Dust Collector

Each time water is drained from the Typhoon Central Dust Collector, clean the internal elements after collected material has been removed from the Typhoon Central Dust Collector housing. A drain in the base for draining the water from the equipment for cleaning and maintenance will remain closed during normal operation. Connect the base drain from the Typhoon Central Dust Collector to the customer's drain line or sewer. The customer's drain or sewer line **MUST** be equal to or larger in size to the drain from the Typhoon Central Dust Collector.



For the flat bottom Typhoon Central Dust Collector, install the P-Trap to the base section with teflon tape.

8.9 Ductwork Installation

In order to prevent surging within the Typhoon Central Dust Collector, three to four duct diameter lengths of straight run prior to the inlet will provide uniform distribution at the inlet. If an elbow is required due to space constraints, turning vanes must be used in the elbow to evenly distribute the air and prevent surging.

Inlet and exhaust ductwork must be supported from the floor, wall or ceiling; not from the Typhoon Central Dust Collector or fan exhauster. Depending on the application and local conditions, the discharge from the exhauster may be either returned to the workroom or discharged to the atmosphere. It may be desirable to have both outside and inside discharges fitted with a selective damper. This will save heat in the winter with recirculation and aid ventilation by discharging outside during the summer months. When a discharge duct is required, it should extend above adjacent roof lines and should discharge vertically upward, a drain cap or weather hood should be used. Cross-section of the discharge duct should not be less than the exhauster outlet area.

SECTION 9 – WATER LEVEL CONTROL OPTIONS

Water loss can occur in the Typhoon Central Dust Collector for a variety of reasons. These include:

- Evaporation
- Sludge removal

It is critical for the proper operation of the Typhoon Central Dust Collector that the correct operating water level be maintained at all times. For this reason, make-up water must be supplied to the Typhoon Central Dust Collector at all times.

9.1 Water Level Box

The water level control box is used to monitor the water level during operation of the Typhoon Central Dust Collector. Makeup water will be added to the system only when needed. This control also prevents the Typhoon Central Dust Collector from operating when there is not sufficient water in the equipment.

The water supply system contains a fill valve with a solenoid connected to the main control panel. An ultrasonic sensor that continuously monitors the water level relays the signal to the solenoid to open and provide more water to the Typhoon Central Dust Collector.

The ultrasonic sensor is installed in on the top of the water level box. This low water safety device is designed to be continuous monitoring the water level of the system. When the water level is restored, the solenoid valve closes and stops the flow of makeup water. This prevents water from continuously overflowing the system.

SECTION 10 – START-UP & OPERATION

10.1 Principles of Operation

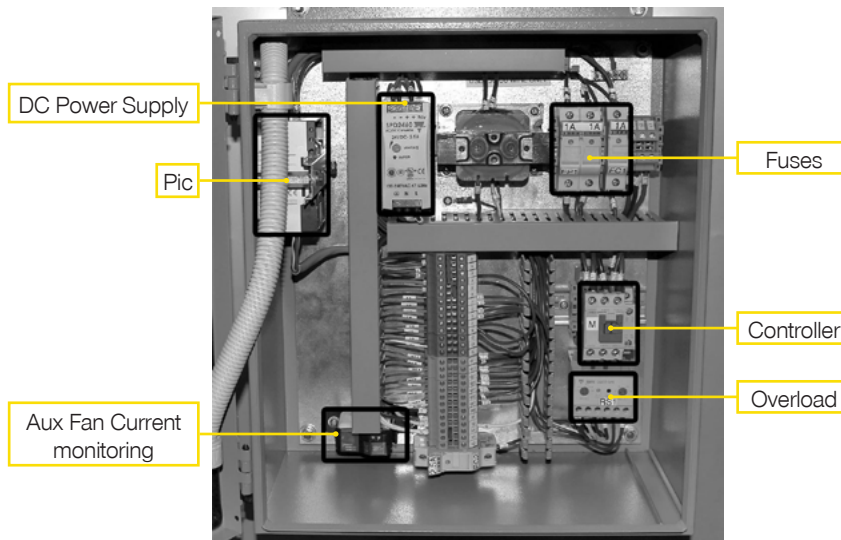
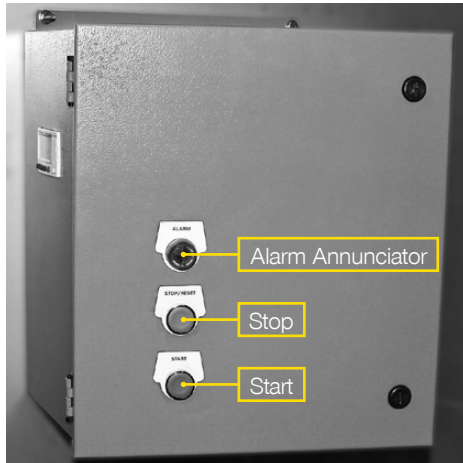
This product is designed to capture potentially combustible dust particulate from certain industrial applications using a wet filtration process. When operating, air and dust is drawn into the table, passes through installed ducts, into the Wet Dust Collector's filtration system, and then finally exhausted out the top discharge. The agitation of water creates a humid environment within the collector, trapping the hazardous dusts, which will settle in the bottom of the basin.

1. This product consists of five basic components:
2. A cabinet for housing all components
3. A motor blower assembly
4. Electrical assemblies
5. Collecting assemblies (filters pad and water)
6. Downdraft table (optional)

During the normal operation of the wet collector, shop air is drawn into the collector. As this air passes through the collector's water it removes some water in the form of humidity and over a period of a few hours this results in a drop of the collector water level. The WX-series of collectors rely on a sophisticated ultrasonic control system to continually monitor water levels and refill automatically the collector on-line. In addition, the controls support

1. High water alarm
2. Low water alarm
3. Blower shut down in case of alarms
4. Interface for auxiliary vent fan
5. Current sensing/alarm for auxiliary vent fan
6. Master / Slave input for scrubber to run when dust producing equipment is "on" (may require additional hardware)
7. PLC LCD display showing water level and alarm conditions

10.2 Controls



10.3 Water Level Monitoring

As soon as the start button is pressed, the main motor will start if no alarm conditions are present and will run until an alarm occurs or the stop button is pressed. If connected, there is also a remote control input on the PLC that can trigger the Start/Stop command. Note, the controls at the front of the panel will have priority on the machine state for safety reason. (ex. The remote control has started the machine but, if the stop button is pressed, the machine will stop). Meanwhile, the machine will try to maintain the water level to a set water level while running and while stopped.

When the machine is stopped, an exhaust fan will start running.

10.4 Alarms

Any alarm condition will be indicated on the user interface and the buzzer on the panel will be heard. When one of these alarms is present, the machine will lock-down and will not allow to be started:

- Motor Overload: if the main motor overload is tripped. The alarm will remain until the situation is corrected and the over load is manually reset.
- High temperature: if the temperature in the filter units exceed the threshold. The alarm will remain until the situation is corrected.
- Pressure switch (optional): if the pressure in the unit exceed the threshold set on differential unit. The alarm will remain until the situation is corrected.
- Exhaust fan: if the exhaust fan is not detected as running within a certain amount of time once the machine is stopped. The alarm will remain until the situation is corrected.
- Low level: if the water level reaches the low level set point set from the interface for 5 seconds or more. The alarm will remain until the situation is corrected.
- High level: if the water level reaches the high level set point set from the interface for 5 seconds or more. The alarm will remain until the situation is corrected.

10.5 Level Set Point



CAUTION

This should only be done in consultation with an authorized Diversitech technician!
The following steps have been done at the factory and should not need adjustment.

Initial Set Point Adjustment if the PLC has been factory reset

- At the initial start-up, the set point will be at 0.
- To set the running water level, the machine has to be powered and “on”. Once on, the button #1 can be pressed to enter the manual set point entry. Then, use the button #2 and #3 to modify the set point value. If no key is pressed within 5 seconds, the interface will go back to the main screen. The other way would be to fill the machine to the desired level (start between 7 to 7.5 inches of water) and then press the button #4 for 5 seconds to teach the set point.
- The machine is ready to start.
- Since the water level has to be higher while stopped, the running set point has to be set once the water has reached turbulent levels. To set the “Running Set Point” press button 4 for 5 seconds or until the display shows the current level=running level. Note the refill sequence has been set to start when the current level is 4 below the running level for at least 30 seconds.

Level alarms:

- To set the level upper limit, the button #2 can be pressed. Then, use the button #2 and #3 to modify the set point value. If no key is pressed within 5 seconds, the interface will go back to the main screen.
- To set the level lower limit, the button #3 can be pressed. Then, use the button #2 and #3 to modify the set point value. If no key is pressed within 5 seconds, the interface will go back to the main screen.

10.6.1 Reprogramming Water Level Sensor - Loading Program

Be certain the drain valve in the Typhoon Central Dust Collector hopper is closed.

Open the Fill Valve and add water until it reaches a point 2 inches below the running level in the water level control box glass sight. This level is marked on the outside of the control box on the glass sight.

When filling for the first time:

- First bring water level to the entering edge of the impeller, see Figure 1, and check that the Typhoon Central Dust Collector was properly leveled during erection.

Pour one gallon of water down the control box drain pipe to make an air seal at the bottom of the pipe.

Close control box cover so the ultrasonic sensor can read the water level.

10.6.2 Regular Operation: To Start Typhoon Central Dust Collector

Check the control box cover and be certain it is tight. Check water supply valve is open.

Press start button for the Typhoon Central Dust Collector. Solenoid valve in the water supply line should be interlocked to the water level sensor to open if water is required and will automatically fill the system to the correct water level. Once the correct water level is achieved the blower will start.

10.6.3 Regular Operation: To Stop Typhoon Central Dust Collector

Press the stop button for the Typhoon Central Dust Collector exhauster. The solenoid valve in the water supply should be interlocked to close.

10.7.1 Reprogramming Water Level Sensor - Loading Program

Load program if it isn't already loaded



1. Push menu/ok key
2. Select stop program using up down keys
3. Push menu/ok
4. Push menu/ok button and scroll to transfer
5. Press menu/ok Push menu/ok key



6. Insert flash memory
7. Select memory>zelio
8. Press menu/ok
9. Program will now transfer
10. Once done press menu/ok and scroll to run/stop
11. Select run
12. Select from non-volatile memory (first one on list) and press Ok

10.7.2 Reprogramming Water Level Sensor - Tech Ultrasonic Probe



1. Prepare two buckets
 - a) One empty (orange one)
 - b) One with water up to 4.5 inches from the rim
2. Place probe over empty bucket first
3. Press and hold teach button until LED flashes
4. Release teach button and place the sensor over the orange bucket
5. Press and hold teach for 3 to 5 seconds and then release
6. Move sensor to bucket with water
7. Press and hold the teach for 3-5 seconds and then release (note you need to move bucket to bucket within 20 seconds)
8. Wait until the sensor flashes and changes color
9. Reinstall probe on sensor box

10.7.3 Reprogramming Water Level Sensor - Set High Water Level Alarm



1. Press button 2
2. Using up/down keys set the alarm to 95
3. Wait 5 seconds for the reading to be set

10.7.4 Reprogramming Water Level Sensor - Set Low Water Level Alarm



1. Press button 3
2. Using up/down keys set the alarm to 5
3. Wait 5 seconds for the reading to be set

10.7.5 Reprogramming Water Level Sensor - Set Water Level When Machine Off



1. Press button 1 and using the up key [3] set the SP at 70 to start
2. Press button 4 to enter this value
3. After about 20 to 30 seconds the scrubber will start to fill
4. Monitor the water level using a tape measure
5. Readjust the SP to match the correct water level for the scrubber

10.7.5 Reprogramming Water Level Sensor - Set Water Level When Machine Off



1. Check that the temperature sensors and Photohelic are properly connected
2. If they aren't there, check that the jumpers are installed
3. Set the minimum for the Photohelic to almost zero [Left Dial]
4. Set the high at about 3.5 [Right Dial]
5. Close the fill valve
6. We close the fill valve to make sure that the controls detect and ask for a refill. If you leave it open, you will not know if it did or did not refill
7. Start the scrubber and check that you have the correct rotation
8. Check that an iris is installed on the scrubber intake and that it is set at 5
9. Once the water reaches steady state the zelio display will show current level = abc and the running SP=000. You need to set the running SP
10. Press and hold button 4 so that the current level becomes the running SP
11. Monitor performance

Note: Refilling will only happen when the current water level is 4 less than the running SP for at least 30 seconds

SECTION 11 – MAINTENANCE

11.1 Record Keeping

It is suggested that a record be kept of operational data and that all servicing maintenance be recorded.

Maintenance data to be recorded should include details of inspections and any parts replaced.

More frequent cleaning may be required for certain applications.

11.2 Pre-Use Checklist

Prior to use in your application, turn the unit ON, and perform a function test. To do so:

1. Turn switch to ON position
2. LOOK: Is the unit level, stable, and that nothing is obstructing the extraction path. Is there adequate water in the basin.
3. LISTEN: Does the motor and suction sound smooth and within expected volumes.
4. FEEL: Place your hand on top of the unit and sense for unexpected vibration.
5. Inform all potential users of this equipment where they may find and review this manual.

11.3 Water Level Control Box

Observe water in the control box frequently. Be certain that water level is at the running level. Observe frequently through glass sight in control box side.

Open the water level box each week while the Typhoon Wet Dust Collector is stopped and remove any accumulation in the box, check air equalizing port, ultrasonic sensor, and drain pipe for plugging, build-up and wear; clean if necessary.

11.4 Typhoon Central Dust Collector Housing

Each month, drain the Typhoon Central Dust Collector and check for build-up on any surface. Open the access doors located on the middle section. Check all impeller surfaces and base walls carefully and wash down with water hose, if required. Frequency of this operation can be extended until proper cycle for a given application has been determined.

11.5 After Filters

Each month, open the access doors located on the middle section and the access panel on the top clean air section. Inspect the after filters for wear and cleanliness, and replace as needed. After filters must be replaced regularly to ensure airflow is not restricted.

11.6 Exhaust Fan

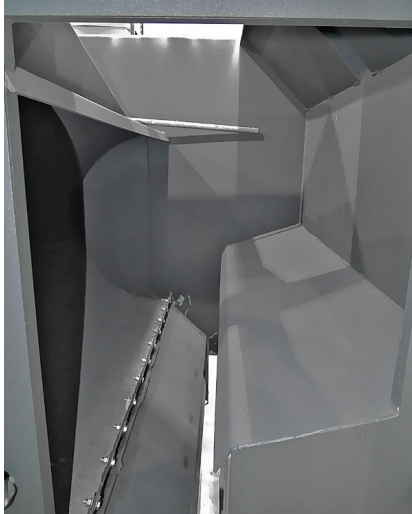
Check the fan for excessive vibration each month. Be certain the fan is rotating in the proper direction.

Check the fan wheel for any dust accumulation every three (3) months.

11.7 Replacement Part Stock

Replacement of impeller and other sections may be required at prolonged intervals. Routine inspection will give ample warning for replacement requirements.

11.8 Routine Maintenance Schedule



Pre-Use

- Perform pre-use inspection to ensure operating correctly.
- Ensure water level sensor has filled to the correct water level by reading the water level sight on the water level control box

Weekly Inspection

- Inspect all equipment surfaces for dust buildup, and wipe down as needed.
- Inspect Water Level Control Box, see **Section 11.2 Pre-Use Checklist**.

Every (1) Month or Specific Cleaning Cycle – Exchange Water

1. Remove the water using the drain outlet, considering:
2. Drained material should be kept away from any electrical equipment;
3. Drained material may contain high concentrations of material waste, and depending on application, may require additional treatment, or special handling for disposal. Consult your local regulators.
4. Open access panels and use pressure washer or plastic bristle brush to thoroughly clean interior baffling of any sludge or residue.
5. Remove semi-solid build-up at bottom of basin, using a Diversitech PneuVac (DTECH-PNEU) or similar equipment, considering:
6. Removed material may contain high concentrations of material waste, and depending on application, may require additional treatment, or special handling for disposal. Consult your local regulators.
7. Clean basin with pressure washer or plastic-bristle brush (no metallic brushes).
8. Turn machine on and allow the Auto-level Water Control System to fill the basin, or fill basin manually.

Every (3) Months or As Required

1. Replace after-filter media when it appears torn or dirty.
2. Check fan wheel for dust accumulation or wear

Every (12) months – Inspect Basic Components

1. Clean unreadable labels and exterior surfaces
2. Inspect water inlet and outlet drain valves
3. Wash cabinet internal assemblies with warm water mixed with mild detergent (Allow 12 hours to dry before use).
4. Inspect controls for loose wiring.
5. Examine motor for signs of unusual wear.

SECTION 12 – TROUBLESHOOTING

12.1 Reduction in airflow at exhaust hoods

Accumulations in ducts and hoods due to sticky nature of dust or settling in ducts caused by low conveying velocities.

Addition of more exhaust points to the system

During winter, when doors and windows are closed, insufficient makeup air to the exhaust system will create high negative pressure in the room.

High water level in the Typhoon Central Dust Collector can be observed through the closed glass sight on the control box. Water level above running level can be caused by:

- Open or leaky fill valve that allows water to flow freely into the Typhoon Central Dust Collector or malfunctioning solenoid valve
- Malfunctioning ultrasonic sensor
- Air leak in water level control box

Plugged eliminator plates or accumulations in impellers or dirty air chamber.

Plugged air equalizing hose or air leak in hose.

12.2 Reduced dust collection efficiency

Extreme reduction in air flow may be caused by corrosion or abrasion to impeller sections.

Low water level in Typhoon Central Dust Collector. Can be observed through closed glass sight. Water level below running level can be caused by:

- Open or leaky drain valve.
- Insufficient water supply due to plugged fill valve or faulty solenoid valve
- Solenoid valve sticking in closed position.
- Faulty ultrasonic sensor or accumulation on sensor
- The unit is out of level.

12.3 Water entrainment in fan discharge

Rain or snow draining into exhauster housing during erection or shut down.

Excessive air flow through Typhoon Central Dust Collector. Overrating can be checked by measuring the differential pressure across the Typhoon Central Dust Collector. This can be done by subtracting the static pressure directly upstream of the inlet of the Typhoon Central Dust Collector from the static pressure directly downstream of the exhaust plenum (between the Typhoon Central Dust Collector and the exhauster).

To stop entrainment caused by excessive air flow, increase static pressure or reduce exhauster speed.

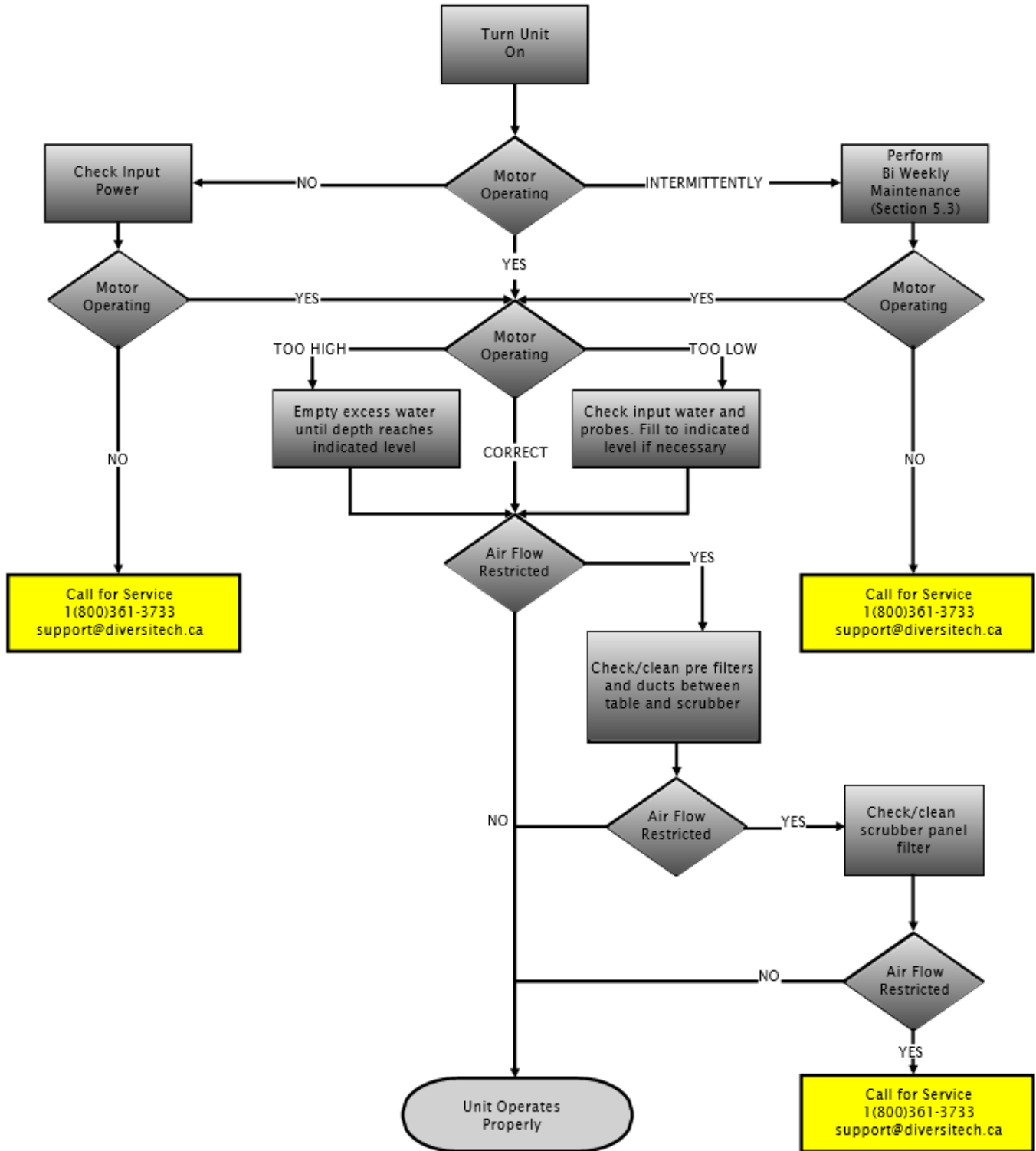
A plugged air equalizing hose will cause the water level control box to maintain a too-high water level in the unit. Clean the hose and readjust the water level.

Surging of the Typhoon Central Dust Collector is a rocking of the water from end to end in the unit. This can be caused by running the unit well below its rated capacity.

- Surging can also be caused by a duct elbow at the Typhoon Central Dust Collector inlet. Four to five duct diameters length of straight run will give an even air flow at the inlet. If an elbow is required due to space limitations, turning vanes in the elbow will evenly distribute the air and eliminate surging.

If the unit is out of level water entrainment will result.

12.4 Troubleshooting Procedure



APPENDIX 1A – ELECTRICAL DIAGRAM [230/460/575V] 3-PHASE POWER



ELECTRIC SHOCK HAZARD

Disconnect power before performing any maintenance on unit, including filter inspection. The input power to this unit is high voltage, and touching any live electrical parts can cause fatal shocks or severe burns. Do not touch live electrical parts.

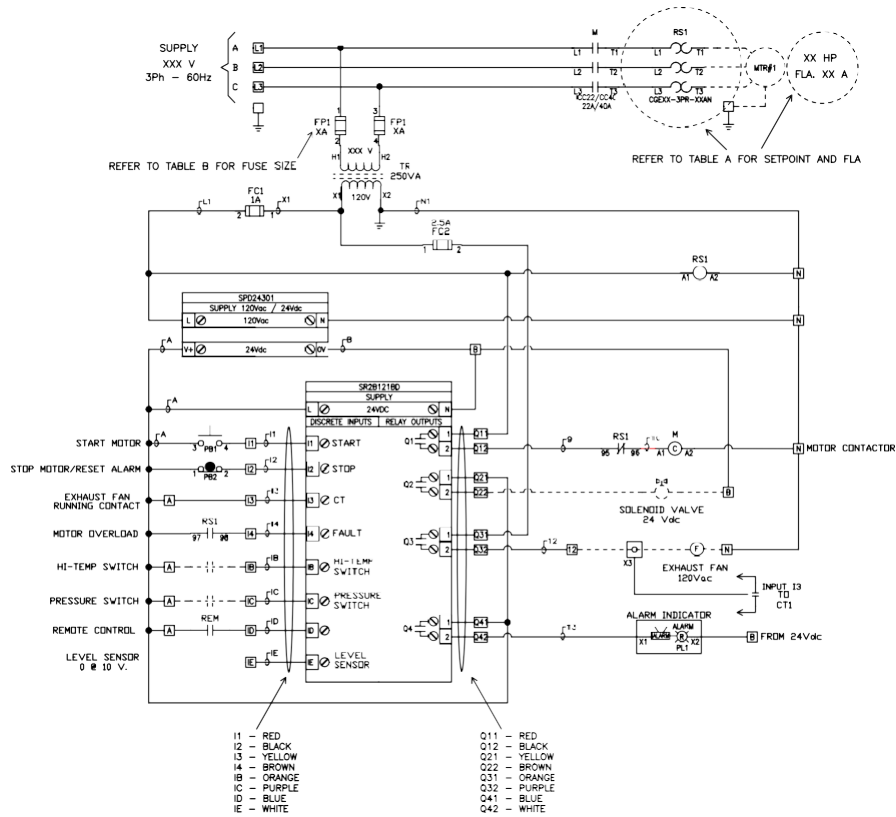


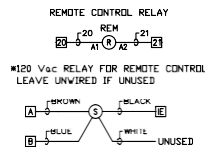
TABLE A : OVERLOAD MODEL AND SETPOINT (FLA)

V _{RI}	3	5	7.5	10	15
208	CGE22-22A (11)	CGE22-22A (17.5)	CGE40-40A (25.3)*	CGE40-40A (32.2)*	XXXX
230	CGE22-22A (9.6)	CGE22-22A (15.2)	CGE22-22A (22)	CGE40-40A (28)*	XXXX
480	CGE22-5A (4.8)	CGE22-22A (7.6)	CGE22-22A (11)	CGE22-22A (14)	CGE22-22A (21)
600	CGE22-5A (3.9)	CGE22-22A (6.1)	CGE22-22A (9)	CGE22-22A (11)	CGE22-22A (17)

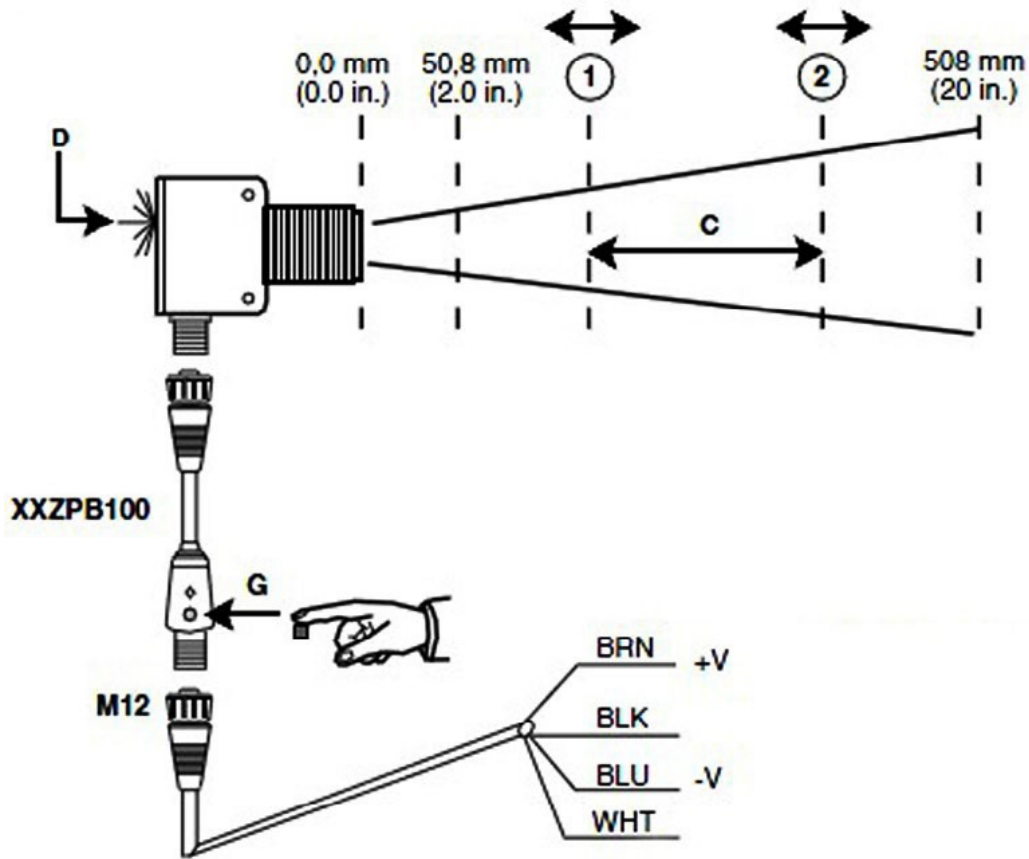
* USE CONTACTOR CC40 WHEN USING CGE40 OVERLOAD

TABLE B : FUSE SIZE

V	TRANSFO	FP1 (TYPE FNQ-R)
208	DL10742QE	2A
230		1 1/2A
480		1A
600		1A



APPENDIX 1B – SETTING SENSING WINDOW



Setting the Sensing Window

Note: For manual setup use the external contact in place of button G.

1. Install accessory XXZPB100
2. Remove all objects from the sensor's field of detection
3. Align the sensor with the object to be detected
4. Push and hold the setup button (G) until the bicolor LED (D) rapidly flashes green
5. Releases the button. The bicolor LED continues to flash green
6. Within 30s, insert an object into position 1, then push and release the setup button. The bicolor LED flashes green, then turns steady amber

The device is set up properly if:

- The LED turns amber when an object is sensed in the window.
- The LED turns green when an object is not sensed

To reset the sensor, repeat Step 4.

When setup is complete, disconnect power and remove accessory XXZPB100 Reconnect power to the sensor

NOTES

TERMS AND CONDITIONS TO SALES ORDERS

1. INTERPRETATION

- 1.1. All references to “we”, “us” or “our” herein mean Diversitech Equipment and Sales (1984) Ltd.
- 1.2. All references to “you” or “your” herein mean:
 - (a) the “Customer” referred to herein and in the Sales Order joining these presents (such Sales Order together with any amendments, supplements and additional agreements related thereto and all annexes and schedules in respect thereof, collectively the “Sales Order”); and
 - (b) any affiliates and any party related, whether directly or indirectly, to such “Customer”.

2. LIMITED WARRANTY AND LIABILITY

- 2.1. All units and equipment sold by us to you (collectively “Units”) pursuant to the Sales Order are warranted to be free from defects in material for a period of 2 years from the date of purchase (the “Warranty Period”).
- 2.2. We expressly exclude all warranties whatsoever, other than those included at Section hereof, express or implied, legal or conventional, including, without limitation, any and all warranties of quality, merchantability and fitness for a particular purpose.
- 2.3. We will repair or replace, at our discretion, any defective parts that fail during the Warranty Period. The client will be responsible to return defective parts to the manufacturer’s plant with freight prepaid. This warranty is limited to replacement parts ONLY, subject to on-site or in- house evaluation of defective materials and does not apply to any personal liability or property loss that occurs due to the use or installation of this equipment.
- 2.4. During the Warranty Period, prior to any warranty work being effected, any such work must be pre-approved by us by sending a request to us at service@diversitech.ca in the prescribed warranty claim form available on our website at •. All such work must be completed by us or a party expressly authorized by us. We may charge you any costs, expenses and disbursements incurred by us to effect such work, the whole in our entire discretion.
- 2.5. In the event that you direct a third-party to complete any service or warranty work during the Warranty Period and:
 - (a) the authorization and approval pursuant to Section 2.4 hereof has been received but such third-party has not been expressly authorized by us to complete such work; or
 - (b) the authorization and approval has not been received pursuant to Section 2.4 hereof, then any costs, expenses and disbursements of such third-party for such work shall be borne entirely by you.
- 2.6. Any repair, rework or modifications of any sort, including, without limitation, modifications to software, hardware and components, not authorized by us or completed by anyone other than us, or a party authorized by us, will void the warranty set forth at Section 2.2 hereof.
- 2.7. To the extent that any Units are integrated with any products, equipment, units, connections and/or systems of a third-party (“Third-Party Products”), we hereby expressly exclude all of the following warranties, express or implied, namely:
 - (a) warranty against defects of any kind (latent or apparent), fitness for purpose, merchantability or functionality to the extent of any such Third-Party Products; and
 - (b) any warranty against any defects or problems of any kind, whether latent or apparent, in respect of Units or a Third-Party Product, caused or arising directly or indirectly as a result of the integration with or use of Units in connection with any Third-Party Product.
- 2.8. You hereby expressly waive and renounce to any and all claims against us relating to loss of profits, loss of business or goodwill, interruption of business and all indirect, special, incidental or consequential damages of any kind whether arising from or in connection with the Sales Order or from the use of Units, however caused, and whether in the nature of breach of obligations, breach of warranty, repudiation of contract, tort, negligence (save in the event of gross negligence or intentional fault) or otherwise. Accordingly, save in the event of gross negligence or intentional fault, we shall have no liability whatsoever towards you under these presents or the Sales Order for any losses or damages, direct or indirect, consequential, exemplary, incidental or otherwise, regardless of whether we received advanced notice or were advised of the possibility of such claim, loss or damage.
- 2.9. You are solely responsible for:
 - (a) determining if Units fit your particular purpose and are suitable for your designated process, application, fitment, tooling, set-up and uses(s); and
 - (b) all hazards associated with your processes, products and ingredients, regardless of whether the hazards relate to fire, explosion, material handling, exposure to harmful dusts, fumes or other contaminants, or any other hazard that poses a risk to persons or property.
- 2.10. Unless otherwise expressly agreed and indicated and without limiting any of the foregoing, we do not provide any guarantee or warranty with respect to compliance with process safety, environmental health and safety or codes and standards.
- 2.11. Without limiting any of the foregoing, you hereby undertake to indemnify and hold us harmless and you agree to fully indemnify and defend us, at your sole cost and expense, against any and all present and future, actual, potential, contingent or threatened suits, actions or claims, of any nature or source whatsoever, which may, at any time, be made or asserted against us by any person, including, without limitation, your employees (current or former), contractors, representatives or any third-party, directly or indirectly, for any reason whatsoever, related to and/or arising from exposure to emissions, dust, fumes, pollutants or noxious substances from your processes, materials, ingredients, systems or improper use of Units.

3. FREIGHT CLAIMS

3.1 Shipments must be inspected by you upon arrival. All Units are sold ex-plant. Therefore, it is the receiver's responsibility to file any freight claims with the carrier for obvious or concealed damages. Damaged shipments must be refused at the time of receipt.

4. RETURN MATERIAL POLICY

4.1 Prior to the return of material, for whatever reason, a return merchandise authorization number ("RMA#") is required from our customer service department. This procedure is necessary for proper control and handling of returned materials. Call **1-800-361-3733** or email **support@diversitech.ca** to obtain a RMA #. Credit will be given for returns for warranty repair or replacement. It is the shipper's responsibility to ensure that material being returned to us is adequately packaged for shipment in order to prevent damages.

5. FEES AND CANCELLATION CHARGES

5.1 You will be responsible for any additional charges and fees not expressly included in the Sales Order, including, without limitation, any fees or charges relating to installation, service calls, consulting, installation, customization, "right-sizing", engineering, maintenance and/or repair. For greater certainty, unless expressly provided in the Sales Order, we do not provide you with any form of service with respect to Units, including, without limitation, installation, repair and maintenance services

5.2 In the event that you:

- (a) cancel the Sales Order at any time whatsoever, including, without limitation, prior to shipment;
- (b) refuse to honour the Sales Order; or
- (c) fail to take possession of any Units for any reason whatsoever,

you will be responsible for reimbursement to us of any and all costs, expenses and charges we have incurred to date.

5.3 In the event that:

- (a) the Sales Order is for a customized product, including, without limitation, any custom engineered product; and
- (b) an event set forth at Section **5.2** hereof occurs,

you will be responsible for payment of the entire amount of the Sales Order in addition to the reimbursement set forth at Section **5.2** hereof.

6. JURISDICTION AND ATTORNMENT

6.1 The interpretation, validity and enforcement of these presents and the Sales Order shall be subject to and governed by the laws of the Province of Quebec and the laws of Canada applicable therein.

6.2 The parties hereto expressly submit, attorn and consent to the exclusive jurisdiction of the appropriate Court for the District of Montreal, Province of Quebec, with respect to any controversy arising out of or relating to these presents and the Sales Order, or any supplement hereto or to any transactions in connection therewith. To the extent permitted by applicable law, you irrevocably waive any objection (including any claim of inconvenient forum) that you may now or here after have to the venue of any legal proceeding arising out of or relating to these presents and the Sales Order in such courts.

7. GENERAL

7.1 If any provision of these presents or the Sales Order shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.

7.2 These presents and the Sales Order shall be binding upon and inure to the benefit of the parties' respective successors and assigns.

7.3 The parties hereto acknowledge that they have requested and are satisfied that the foregoing as well as the Sales Order and all notices, actions and legal proceedings be drawn up in the English language. / Les parties à cette convention reconnaissent qu'elles ont exigé que ce qui précède ainsi que le « Sales Order » et tous avis, actions ou procédures légales soient rédigés et exécutés en anglais et s'en déclarent satisfaites.

For full product support, visit our website:
<https://bit.ly/2P6CGBX>



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An Absolent
Group Company



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