



## **DUST COLLECTOR**

### **SERIE DCM 2000 to 50000**



- **Warranty**
- **Safety**
- **Operation**

- **Service Parts**
- **Accessory Information**
- **Registration Form**



# **INSTRUCTION MANUAL**



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## **NOTICE TO PURCHASERS AND USERS OF OUR PRODUCTS** **AND THIS INFORMATIONAL MATERIAL**

**Welcome to the ISTblast® family of sandblasting products. This booklet contains helpful information and acquaints you with the operation and maintenance of your equipment. Please read carefully and follow our recommendations to assure trouble free operation. If you have any questions, please do not hesitate to contact your distributor or our technical service.**

1. Carefully inspect the shipping carton for any signs of transport damage. The damage to the carton often indicates possibility of transport damage to the equipment inside.
2. Carefully remove your ISTblast dust collector from the shipping carton and skid.
3. Check your equipment immediately to ensure that it is free of transport damage. Report any transport damage to the carrier without delay for possible claim procedures. ISTblast is not responsible for damage to equipment after it leaves our warehouse.
4. Check the equipment received and compare it with the parts you have received. If any parts are missing, contact the supplier you purchased the equipment from.

Before operating the ISTblast dust collector, read this Instruction Manual completely. All ISTblast products are engineered and manufactured to the highest performance standards and have been subjected to detail testing before shipment from the factory.





## INTRODUCTION

The cartridge dust collector is a self-cleaning unit, using cartridge, which is capable of collecting sub-micronic particles without creating an excessive pressure drop in the system. The pulse cleaning system used in this unit maintains a high filtration efficiency with a constant pressure drop. This system does not need a shutdown period to clean the cartridges.

The high filtration velocities used in the cartridge dust collector allow the use of more compact units, reducing installation and maintenance costs. Typical filtration velocities are between 1 and 3 ft/min. for the cartridge dust collector, and between 1 and 5 ft/min. for conventional shaker type units.

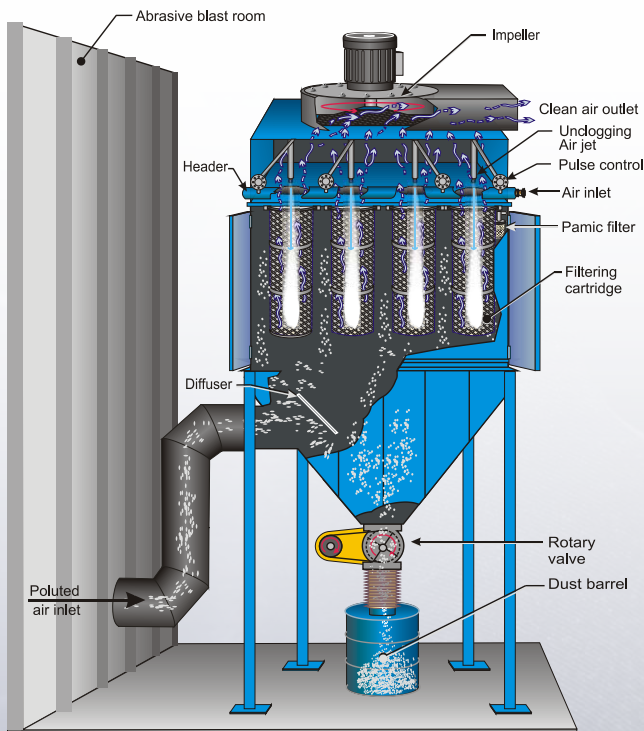
The principal selection criterions for cartridge dust collectors are as follows:

1. Type of dust to be collected.
2. Concentration of dust.
3. Gas conditions: Temperature, humidity, dew point, and corrosive agents.
4. Available space.
5. Location of dust collector.
6. Method of disposal of the collected dust.

**The technical department of ISTblast  
is ready to help you in selecting a cartridge dust collector.**

## THEORY OF OPERATION

### HOW IT WORKS



The dust-laden gases come in the side of the dust collector hopper, under vacuum or pressure. The gases are filtered through the cartridge, and exit through the Venturi, into the clean air plenum. The cleaned air is exhausted to an H.E.P.A. Filters assembly.

**The automatic cleaning system operates as follows:**

- For each row of cartridges, there is a diaphragm valve connected to an air tank. This diaphragm valve is opened by a solenoid valve; an electronic controller opens each valve in sequence.

Short pulses of compressed air are ejected through calibrated orifices in the blow tube. The small primary flow of air through the Venturi generates a much larger secondary flow of clean air creating a pressure wave moving down the cartridge, that breaks the accumulated dust cake on the cartridge.

Because only one row of cartridges is cleaned at a given moment, the dust collector can operate continually.



## WARNING

« READ ALL INSTRUCTIONS » Failure to follow the SAFETY RULES identified by a BULLET (●) symbol listed BELOW and other safety precautions may result in serious personal injury.

« SAVE THESE INSTRUCTIONS »

## GENERAL SAFETY RULES

- **KEEP WORK AREA CLEAN.**
- **KEEP CHILDREN AWAY.** Do not let visitors come in contact with the equipment. All visitors should be kept away from the work area.

## PERSONAL SAFETY

- **GUARD AGAINST ELECTRIC SHOCK.** Non-skid footwear is recommended where damp or wet ground may be encountered. A ground fault circuit interrupter protected power line must be used for these conditions.
- **DRESS PROPERLY.** Do not wear loose clothing or jewelry. They can be caught in the moving parts. Wear protective hair covering to contain long hair.
- **USE SAFETY EQUIPMENT. WEAR SAFETY GOGGLES** or glasses with side shields.
- **WEAR A DUST PROOF MASK.**
- **STAY ALERT. USE YOUR COMMON SENSE.** Concentrate on what you are doing. Do not operate the unit when you are tired or under the influence of drugs or alcohol.
- **DO NOT OVERREACH.** Keep proper footing and balance at all times.

## USE AND EQUIPMENT MAINTENANCE

- **BEFORE CONNECTING THE UNIT** to an electric current, make sure that the current is the same as that indicated on the identification plate of the collector. An electric current higher than indicated that could seriously injure the user and also damage the collector. If you have any doubts, do not connect the unit.
- **DO NOT FORCE THE EQUIPMENT.** It will perform better and more safely if it will perform according to the manufacturer's specifications and without hazards
- **USE OF ANY OTHER ACCESSORIES** not specified in this manual may be dangerous.
- **DISCONNECT THE UNIT** on its maintenance.
- **DO NOT ALTER OR IMPROPERLY USE THE UNIT.** These units are precision equipment. Alteration unspecified or modification can lead to a dangerous situation. Only a qualified technician should make all repairs (•), whether electrical or mechanical. Contact your nearest repair ISTblast service. Use only ISTblast original parts, the use of other parts carries a risk.



## SPECIFICATIONS

<b>SPECS</b> <b>DCM MODEL</b>	<b>TYPE</b>	<b>CAPACITY (cfm)</b>	<b>FILTRATION AREA (SQFT)</b>	<b>MEDIA</b>	<b>COMPRESSED AIR REQUIRED (cfm @ 80 psi)</b>	<b>CARTRIDGES NUMBER</b>	<b>NUMBER OF VALVES</b>	<b>NUMBER OF HOPPERS</b>	<b>WEIGHT (lb)</b>
2000		2000	1260						1472
3000		3000	1890		3.75	6	2		1599
4000		4000	2835		5	9	3	1	1989
6000		6000	3780		7.5	12	4		2607
8000		8000	5040		10	16	4		2830
10 000		10 000	6300		12.5	20	4		3019
12 000		12 000	7560		15	24	6		4214
14 000		14 000	9450		17.5	24	6		4498
16 000		16 000			20	30	6	1	4498
18 000		18 000	12600		22.5	36	6	ou	6066
20 000		20 000			25	40	8	2	6476
22 000		22 000	15120		27.5	48	8		6476
24 000		24 000			30	48	8		6476
26 000		26 000			32.5	48	8		5887
30 000		30 000	20160		37.5	64	8		7570
35 000		35 000			43.75	64	8	2	7570
40 000		40 000	30240		50	84	10		8728
50 000		50 000	35280		62.5	112	14	3	11694





## DUST COLLECTOR COMPOSITION

### CONSTRUCTION

The standard unit is constructed of 3/16 "and 10 ga hot-rolled steel. The dust collection unit is formed and reinforced to maintain structural integrity at 25" w.g. All valves, wires, air hoses, solenoid valves and diaphragm valves are installed outside the housing. The size of the inlet and outlet flange will determine the size of the dust collector (refer to your dust collector manual).

### CARTRIDGE



The operation of automatic cleaning of the cartridge is carried out by an inverse pulse of compressed air one row at a time. The cartridges are made of filters (cellulose / polyester). The negative pressure limit of these cartridges is 20 Hg. The maximum air flow allowed by each cartridge is 500 cfm. The filtration efficiency of this medium is 99.7% for the 0.3 microns.



#### **IMPELLER**

Installed on top of the dust collector housing or on the floor, the impellers vary in size from 5 hp to 150 hp. Adjust the power of the impeller according to the needs of your application.

#### **CARTRIDGE ACCESS DOORS**

The cartridge access doors are located on the front of the dust collector housing. These doors are used for the maintenance of the cartridges

#### **DUST COLLECTOR BARREL**

One barrel (or more depending on model of dust collector) of 55 gallons included with dust collector



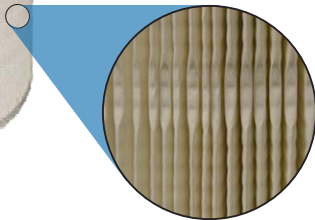
## CARTRIDGE MEDIA



ISTblast cartridge-type dust collectors use pleated cartridge filter media made of cellulose and polyester blend. Nanofiber cartridge is also available for optional filtration efficiency.

Cartridge media provides exceptional filtration capacity, thanks to their unique pleat lock design that consists of a special folding process where a lock is pleated into the media allowing the entire filter surface to be available.

This technology also keeps the pleat evenly apart and prevents them from adhering to one another—which is particularly important if the process has any moisture during the application—, and allows for better release during the pulse cleaning process.



The cleaning process is controlled by the DCT1000 Dust Collector Timer Controller which triggers a series of reverse pulses inside the cartridge to release exceeding dust buildup on the surface.

Pleat Lock Design

SPECIFICATIONS		
Cartridge Type	Standard	Nanofiber
Product No.	601307	601317
Length	36"	
Filter Area	318 sq.ft. of media	
Pleat Count	318 pleats	
Maximum Working Temperature	180 °F	
Filtration Efficiency*	99.9% of particles down to 5 µm	99.9% of particles down to 0.35 µm
MERV (Minimum Efficiency Reporting Value)	11	15
Air Permeability	15 cfm/sq.ft. @ 0.5" H <sub>2</sub> O	28 cfm/sq.ft. @ 0.5" H <sub>2</sub> O
Flame Retardant	Optional	Included
CONSTRUCTION		
Media Type	85/15 Media Cellulose Polyester Blend	
Top Cap	Electro Galvanized	
Bottom Cap		
Inner Core		
Outer Core	Two Polyester Bands	

\* Filtration efficiency is provided for "seasoned cartridges" (when a dust layer is formed on its surface to achieve optimal filtration efficiency). Performance may vary according to the application.





## QUICK ASSEMBLY GUIDELINES

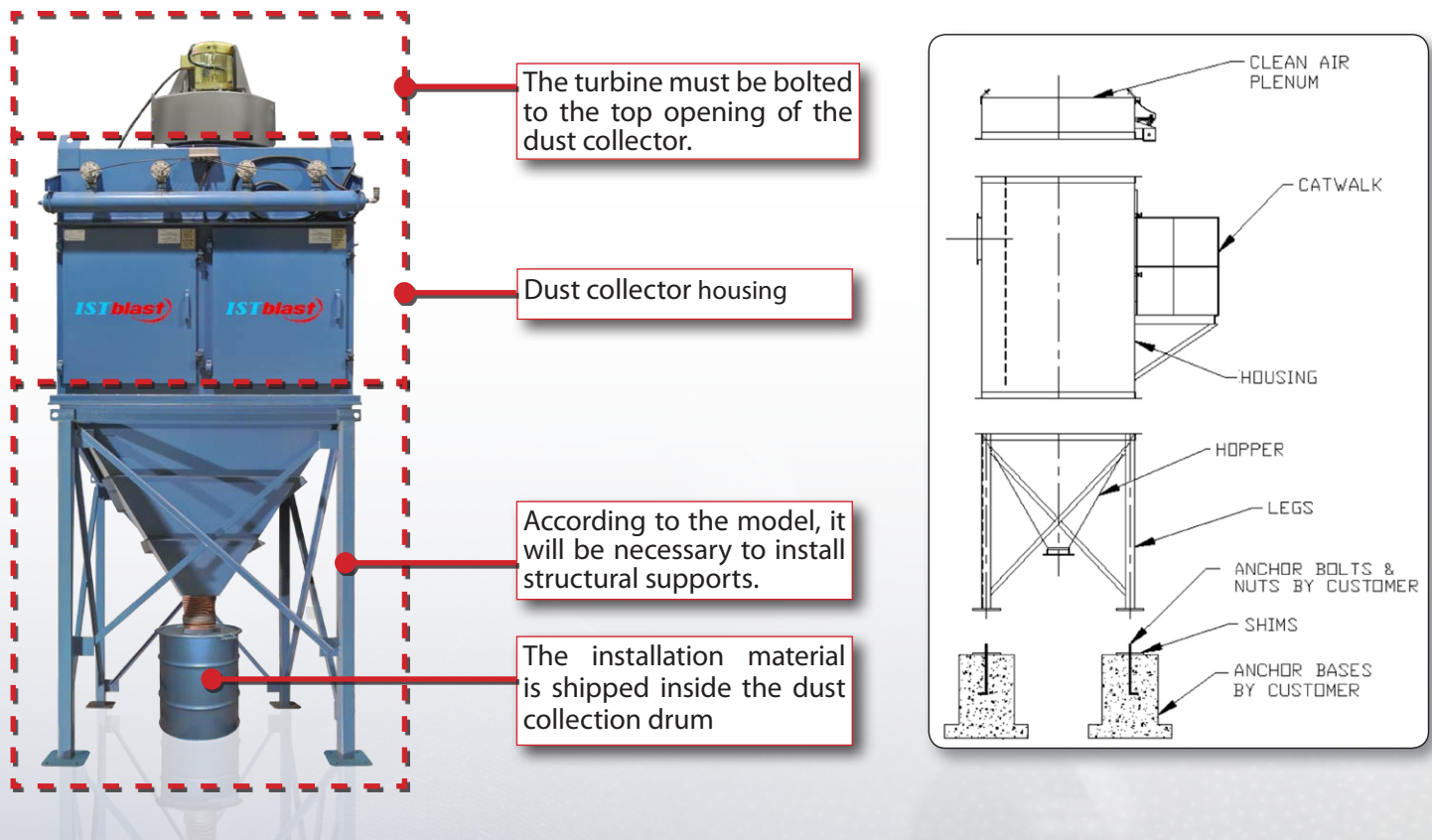
### INTRODUCTION

The following document contains instructions for the assembly of the dust collector model DCM2,000 to 50,000. The dust collector should be installed on a concrete pad. The concrete pad should be prepared prior to the arrival of the dust collector. The bag house dust collector is shipped in separate parts.

**The following is a list of the major components that are shipped with the dust collector:**

- Dust collector body (filter side)
- Hopper
- Structural supports (Legs & braces)
- Catwalk & ladder
- Front flame deflector, blowback damper & square to round duct

The dust collector is partially assembled in our installations but is supplied in sections (housing, hopper and structural supports), it can also be equipped with additional ladders, gangways and accessories.





## QUICK ASSEMBLY GUIDELINES (CONT'D)

### SUPPLIED HARDWARE

The hardware box is shipped with the dust collector. The assembly procedures in this document will refer to the hardware inventory presented in Tables 1 and 2.

**TABLE 1 – HARDWARE INVENTORY**

DESCRIPTION	QTY
BOLT Ø3/8" X 1"	100
BOLT Ø3/8" X 1-1/2"	100
(STC) BOLT Ø1/2" X 1-1/2"	45
(STC) BOLT Ø3/4" X 2-1/2"	20
(STC) BOLT Ø5/8" X 1-1/2"	15
BOLT Ø1/2" X 1-1/2"	10
SHIELD Ø3/8"	4
SHIELD Ø3/4"	20
NUT Ø3/8"	200
NUT Ø1/2"	10
BEVEL WASHER Ø3/8"	100

**\*NOTE:** STC bolts are for structural components such as braces for support legs. STC bolts are preassembled with washers and nuts.

**TABLE 2 – HARDWARE PER PARTS ASSEMBLY**

DESCRIPTION	QTY	USE FOR ASSEMBLY
BOLT + NUT + BEVEL WASHER Ø 3/8" X 1 1/2"	86	HOPPER + FILTER SECTION
(STC) BOLT Ø 3/4" X 2 1/2"	16	SUPPORT LEGS + HOPPER
(STC) BOLT Ø 1/2" X 1 1/2"	36	BRACES + SUPPORT LEGS
SHIELD Ø 3/4"	16	SUPPORT LEGS ANCHORING
(STC) BOLT Ø 5/8" X 1 1/2"	10	CATWALK + DUST COLLECTOR
BOLT + NUT Ø 1/2" X 1 1/2"	8	LADDER + CATWALK
SHIELD Ø 3/8"	2	LADDER ANCHORING
BOLT + NUT Ø 3/8" X 1"	26	FRONT FLAME DEFLECTOR + DUST COLLECTOR OUTLET
	24	BLOWBACK DAMPER + DUST COLLECTOR INLET
	20	SQUARE TO ROUND DUCT + HOPPER

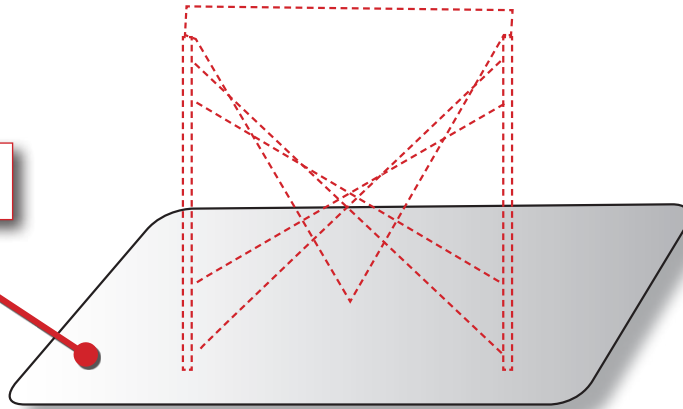


## QUICK ASSEMBLY GUIDELINES (CONT'D)

### FOUNDATIONS

The required foundations must be prepared in advance, using the dimensions and weights shown in the overall drawing. Consult installation drawings for detailed assembly and installation procedures.

- 1 Check dimensions and level of foundations.



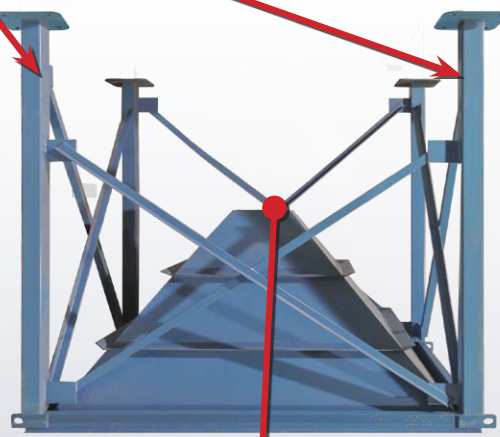
### HOPPER AND STRUCTURAL SUPPORTS

Position the hopper with the large opening at the bottom in order to facilitate the assembly of the support legs.

**WARNING** DO NOT POSITION DUST COLLECTOR HOPPER DIRECTLY ON THE GROUND. DOLLIES, SKIDS OR ANYTHING EQUIVALENT SHOULD BE USED TO AVOID CONTACT BETWEEN THE HOPPER SUPERIOR FLANGE AND THE GROUND. HAVING CONTACT BETWEEN BOTH SURFACES COULD DAMAGE THE FLANGE.

**NOTE** STC BOLTS ARE FOR STRUCTURAL COMPONENTS SUCH AS BRACES FOR SUPPORT LEGS. STC BOLTS ARE PREASSEMBLED WITH WASHERS AND NUTS.

- 2 Position and install corner support legs (4x) on all four corners of hopper by using (STC)  $\varnothing 3/4"$  x 2-1/2" bolts. (4 bolts/leg, 16 bolts total) Do not tighten the bolts. Adjust the height of the support legs leaving enough clearance to fit the dust container (barrel, conveyor or else)



- 3 Once the support legs are secured on the hopper, position and install the braces (8x) by using (STC)  $\varnothing 1/2"$  X 1-1/2" bolts (9 bolts/side, 36 bolts total).

- 4 **Tighten and secure all the support legs/braces.**



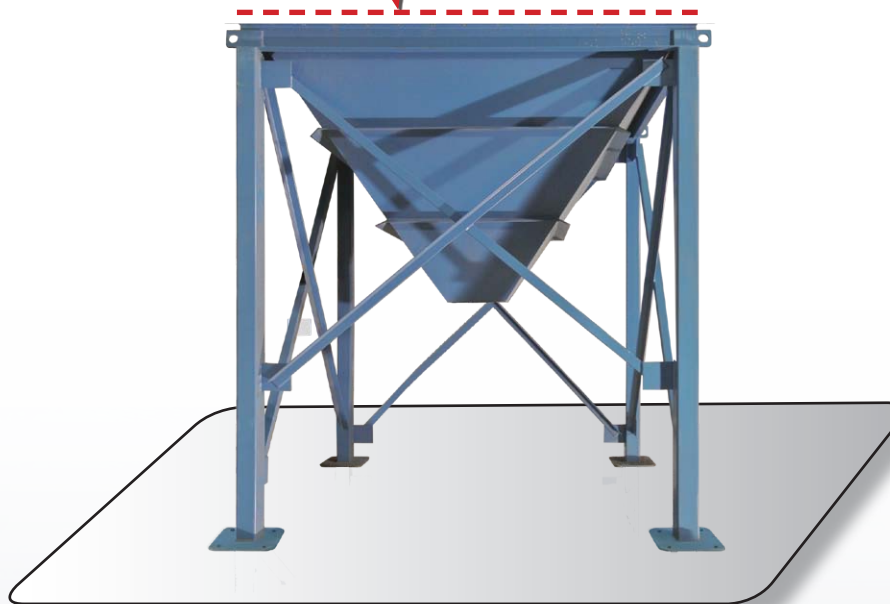
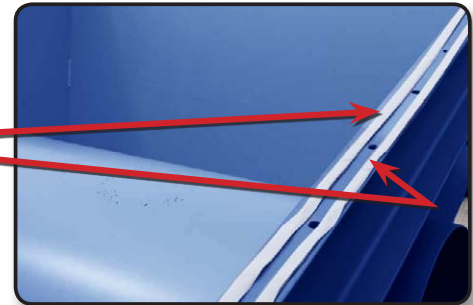


## QUICK ASSEMBLY GUIDELINES (CONT'D)

### HOPPER AND STRUCTURAL SUPPORTS (CONT'D)

- 5 Verify if all the support legs/braces are installed and secured properly. With the appropriate lifting equipment, position the hopper assembly on the concrete pad. Do not anchor to slab yet.

- 6 Install the supplied auto-adhesive foam gasket on the hopper flange, one strip on each side of the bolts holes.



**WARNING** PROCEED WITH CAUTION WHEN DROPPING THE HOPPER AND SUPPORT STRUCTURE ASSEMBLY ON THE CONCRETE PAD TO AVOID DAMAGING THE LEGS.

**WARNING** VERIFY THE ORIENTATION OF THE HOPPER ASSEMBLY WITH THE GENERAL ARRANGEMENT DRAWING IN ORDER TO POSITION THE INLET IN THE RIGHT DIRECTION.



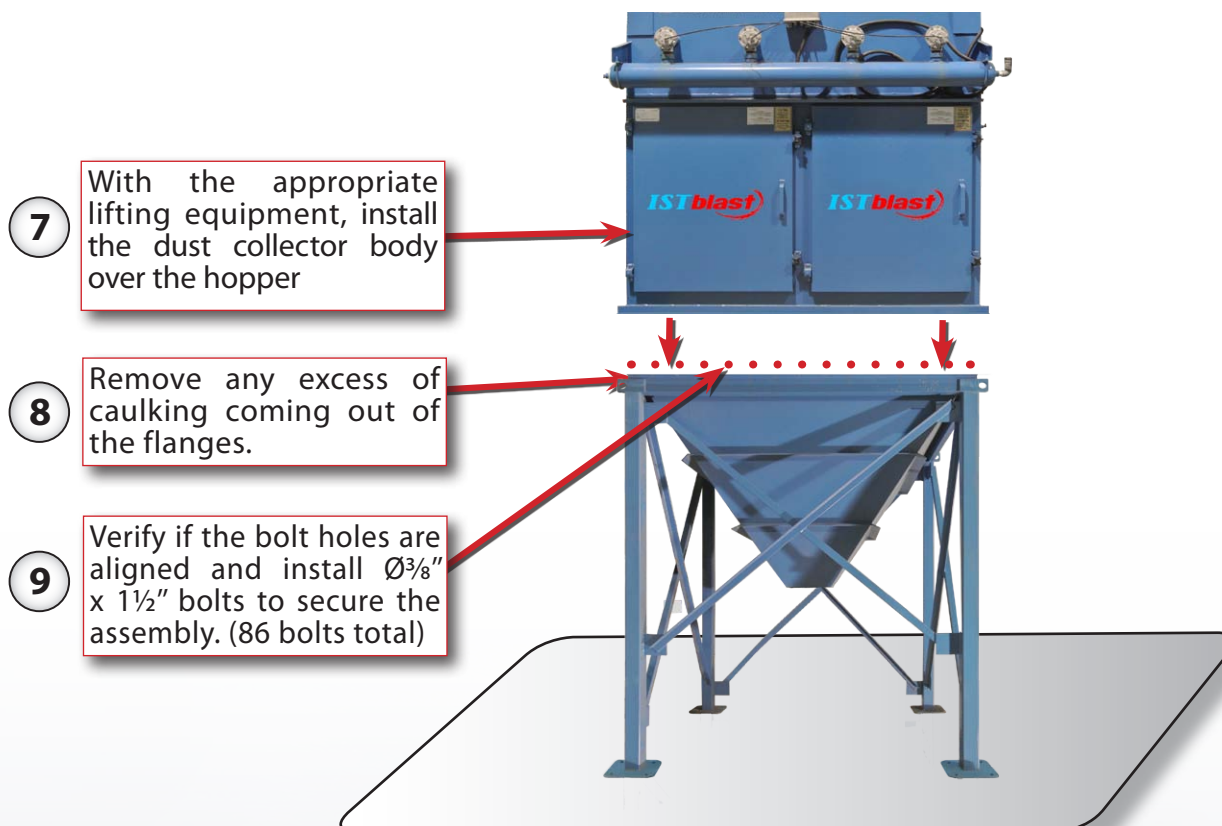
## QUICK ASSEMBLY GUIDELINES (CONT'D)

### DUST COLLECTOR BODY

Once the hopper assembly is positioned on the concrete pad, the filter section can be installed above the hopper section. If the explosion doors are secured with chains, covers and brackets, they should be removed in order to keep the chains loose.

#### **WARNING**

DO NOT POSITION DUST COLLECTOR FILTER SECTION DIRECTLY ON THE GROUND. DOLLIES, SKIDS OR ANYTHING EQUIVALENT SHOULD BE USED TO AVOID CONTACT BETWEEN THE FLANGES AND THE GROUND. HAVING CONTACT BETWEEN BOTH SURFACES COULD DAMAGE THE FLANGES.



#### **WARNING**

PROCEED WITH CAUTION WHEN DROPPING THE FILTER SECTION ON THE HOPPER TO AVOID DAMAGING THE FLANGES.

#### **WARNING**

VERIFY THE ORIENTATION OF THE FILTER SECTION WITH THE GENERAL ARRANGEMENT DRAWING IN ORDER TO POSITION PROPERLY THE INLET AND THE SPRINKLER PIPE.

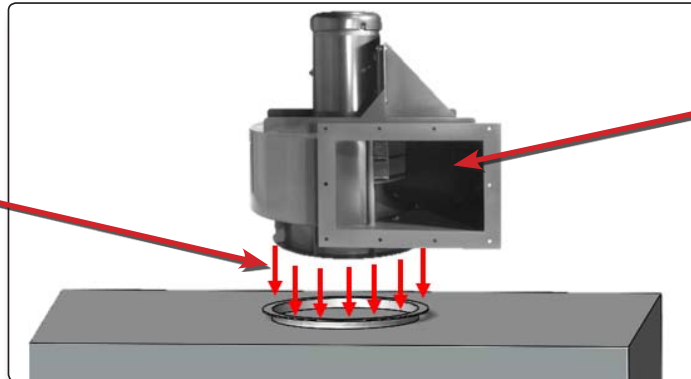


## QUICK ASSEMBLY GUIDELINES (CONT'D)

### IMPELLER

10

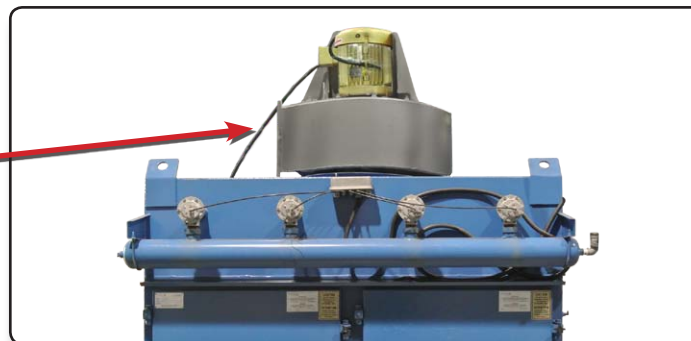
Screw the impeller onto the housing. You will need to properly seal this junction. The dust collector must be waterproof.



If your dust collector is equipped with an adjustable baffle barrier, adjust it to the maximum opening.

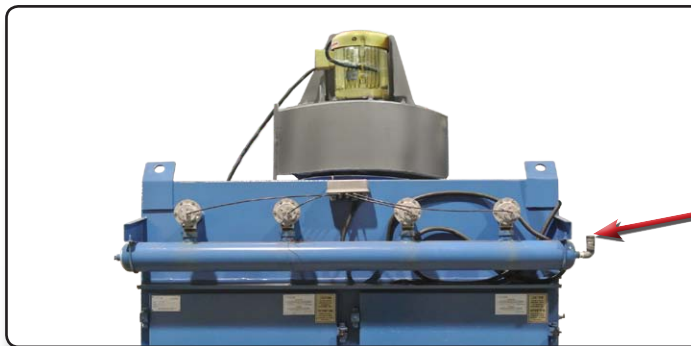
11

Connect the turbine power supply to the main electrical panel supplied with the abrasive blast room.



### AIR SUPPLY

Ensure the air supply is clean, dry and oil free.

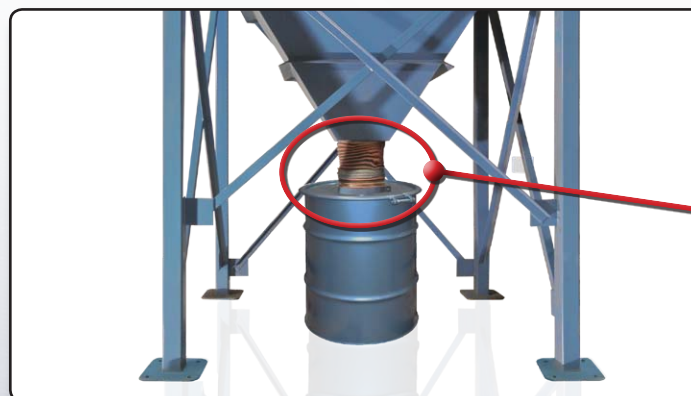


12

Connect the air supply to the pulse cartridge cleaning system. An air regulator must be used to maintain a constant air pressure in the accumulation tank. The pipe and fittings must be  $\frac{3}{4}$ " inside diameter.

### DUST COLLECTION

The dust transfer hose connection to the barrel cover must be airtight.



13

Install the dust collection barrel under the hopper and use screw clamps to secure the dust hose.

### **WARNING**

**NEVER DRILL HOLES IN THE HOUSING OR HOPPER OF THE DUST COLLECTOR. THE USE OF SELF-DRILLING SCREWS IS ALSO PROHIBITED IN ORDER TO KEEP THE DUST COLLECTOR AIRTIGHT.**





## QUICK ASSEMBLY GUIDELINES (CONT'D)

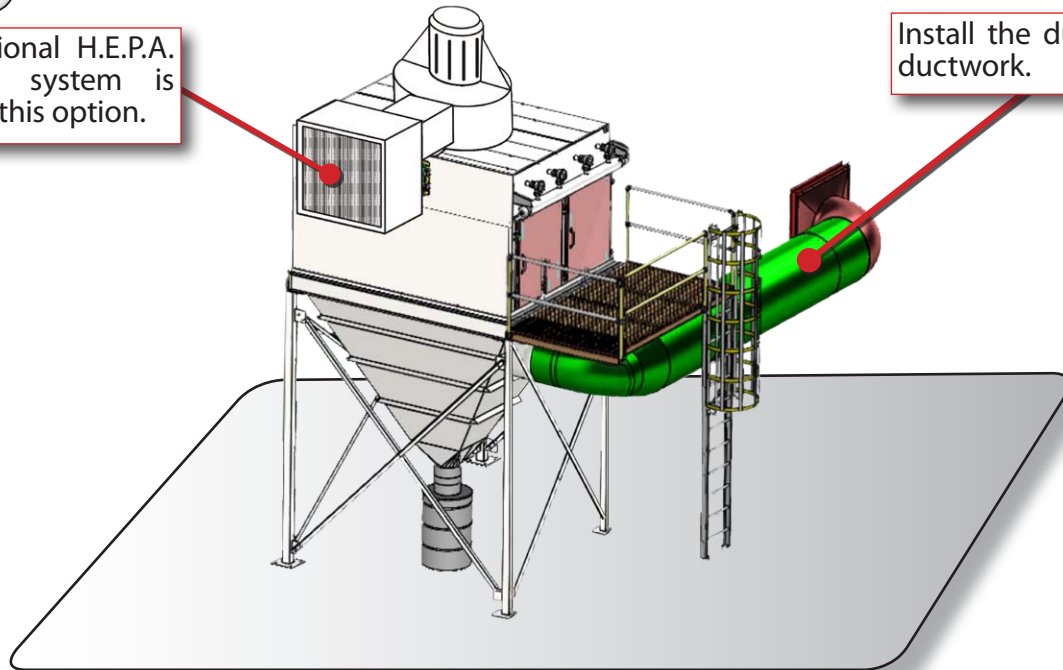
### SUB-COMPONENTS ASSEMBLY

14

Install the optional H.E.P.A. filter if your system is equipped with this option.

15

Install the dust collecting ductwork.

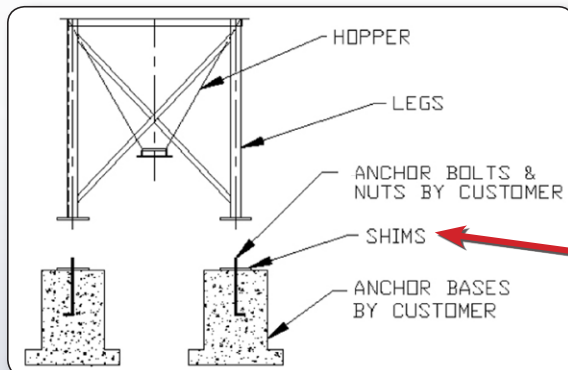


### ANCHORING LEGS

Before anchoring the dust collector assembly on the concrete pad, ensure all components are well positioned according to the general drawings.

16

Once the main components are assembled together (hopper and filter section), drill all the holes necessary to prepare the installation of the anchoring bolts (4 holes/leg, 16 holes total)



17

If necessary, correct the level with shims. Then, secure the legs using  $\varnothing \frac{3}{4}$ " shield anchor bolts. (4 shields/leg, 16 shields total)



### NOTE

THE BASEPLATE SHOWN ABOVE IS USED ONLY AS A REFERENCE. NUMBER OF BOLT HOLES ON BASE PLATES FOR LEGS CAN VARY (3 OR 4 HOLES). ALL HOLES SHOULD BE DRILLED IN ORDER TO PREPARE THE ANCHORING BOLTS INSTALLATION.

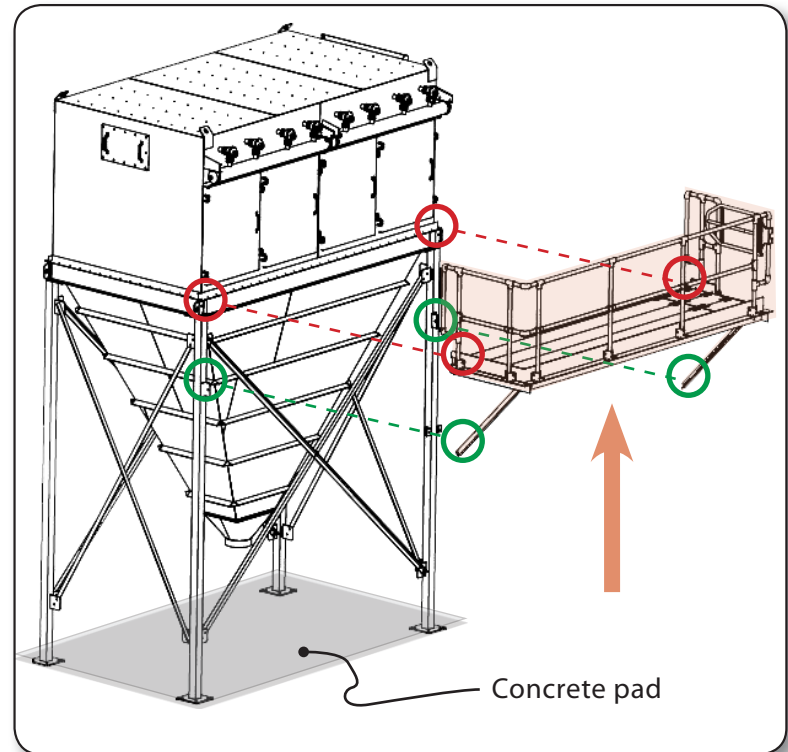


## QUICK ASSEMBLY GUIDELINES (CONT'D)

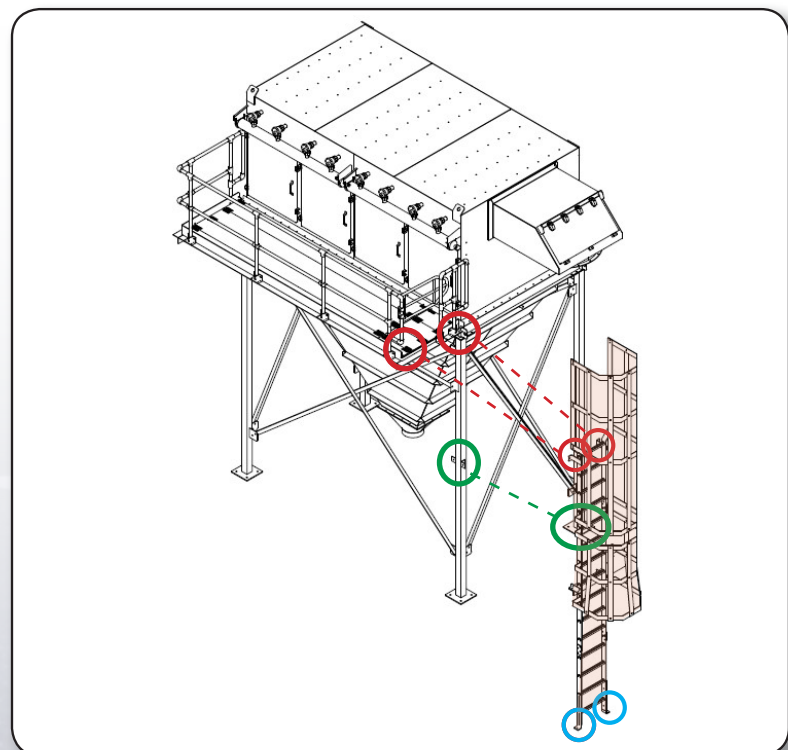
### OPTIONAL CATWALK & LADDER

The catwalk and ladder assembly should be installed once the dust collector is properly positioned on the concrete pad.

1. Lift and position the catwalk between the hopper and filter section on the opposite side of the air entry.
2. First, install (STC)  $\varnothing \frac{5}{8}$ " x 1- $\frac{1}{2}$ " bolts that connects the dust and the catwalk (3 bolts/side, 6 bolts total). (For bolts position, refer to **red circles**)
3. Then, install the same bolts on the reinforcement bar under the catwalk (2 bolts/side, 4 bolts total). (For bolts position, refer to **green circles**)
4. Once the catwalk is in place, lift and position the ladder on the right side of it.



5. Start by installing  $\varnothing \frac{1}{2}$ " x 1- $\frac{1}{2}$ " bolts at the catwalk level (2 bolts total). (For bolts position, refer to **red circles**)
6. Then install the same diameter bolts at the middle of the ladder on the reinforcement bar (6 bolts total). (For bolts position, refer to **green circles**)
7. Last step is to secure the legs using  $\varnothing \frac{3}{8}$ " shield anchor bolts (1 shields/leg, 2 shields total). If necessary, correct the level with shims. Refer to **blue circles**





## QUICK ASSEMBLY GUIDELINES (END)

### FRONT FLAME DEFLECTOR, BLOWBACK DAMPER & SQUARE TO ROUND DUCT

The front flame deflector, the blowback damper and the square to round duct should be installed once the dust collector is properly positioned on the concrete pad.

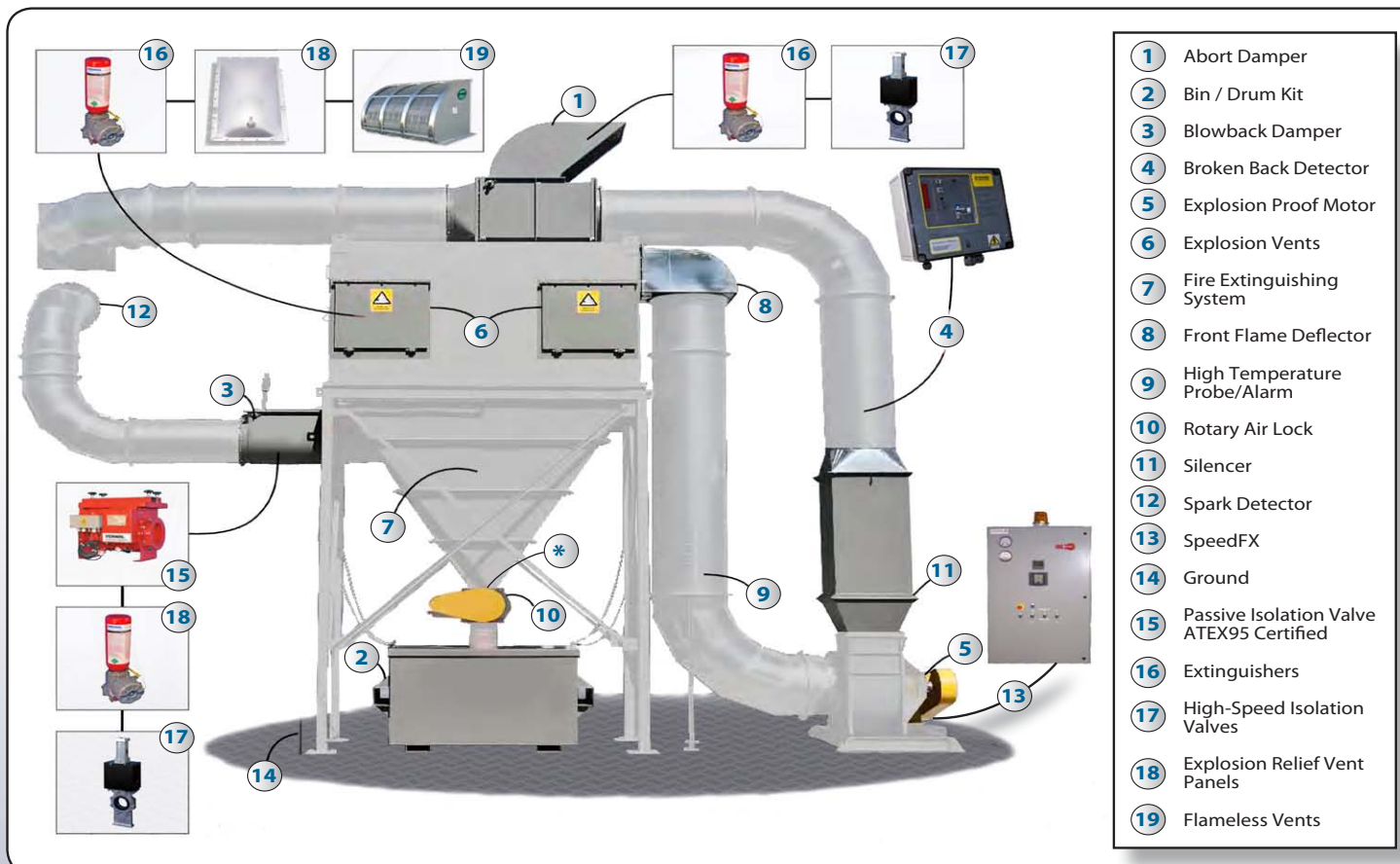
#### NOTE

USE  $\varnothing \frac{3}{8}$ " X 1" BOLTS TO CONNECT THE FLANGES OF THE PARTS DESCRIBED BELOW UNLESS STATED OTHERWISE. STRIPS OF CAULKING BETWEEN THE FLANGES OF EACH INTERCONNECTING DUCT PARTS SHOULD BE APPLIED ON BOTH INTERIOR AND EXTERIOR SIDES OF THE BOLT HOLES. THE STRIPS CAN BE APPLIED ONLY ONE OF THE TWO FLANGES THAT WILL BE ASSEMBLED. EXCESS OF CAULKING BETWEEN THE FLANGES MUST BE REMOVED.

1. The front flame deflector (8) needs to be installed at the top on the outlet of the dust collector. It has 26 bolts on his inlet connection and 16 bolts on his outlet.
2. The blowback damper (3) needs to be installed on the hopper at the inlet of the dust collector. It has 24 bolts on both outlet and inlet connections.
3. The square to round duct (\*) needs to be installed at the bottom of the hopper and it has 20 bolts on this connexion.

#### NOTE

REFER TO APPENDIX B FOR THE DETAILS AND EMPLACEMENTS OF THOSE PARTS.

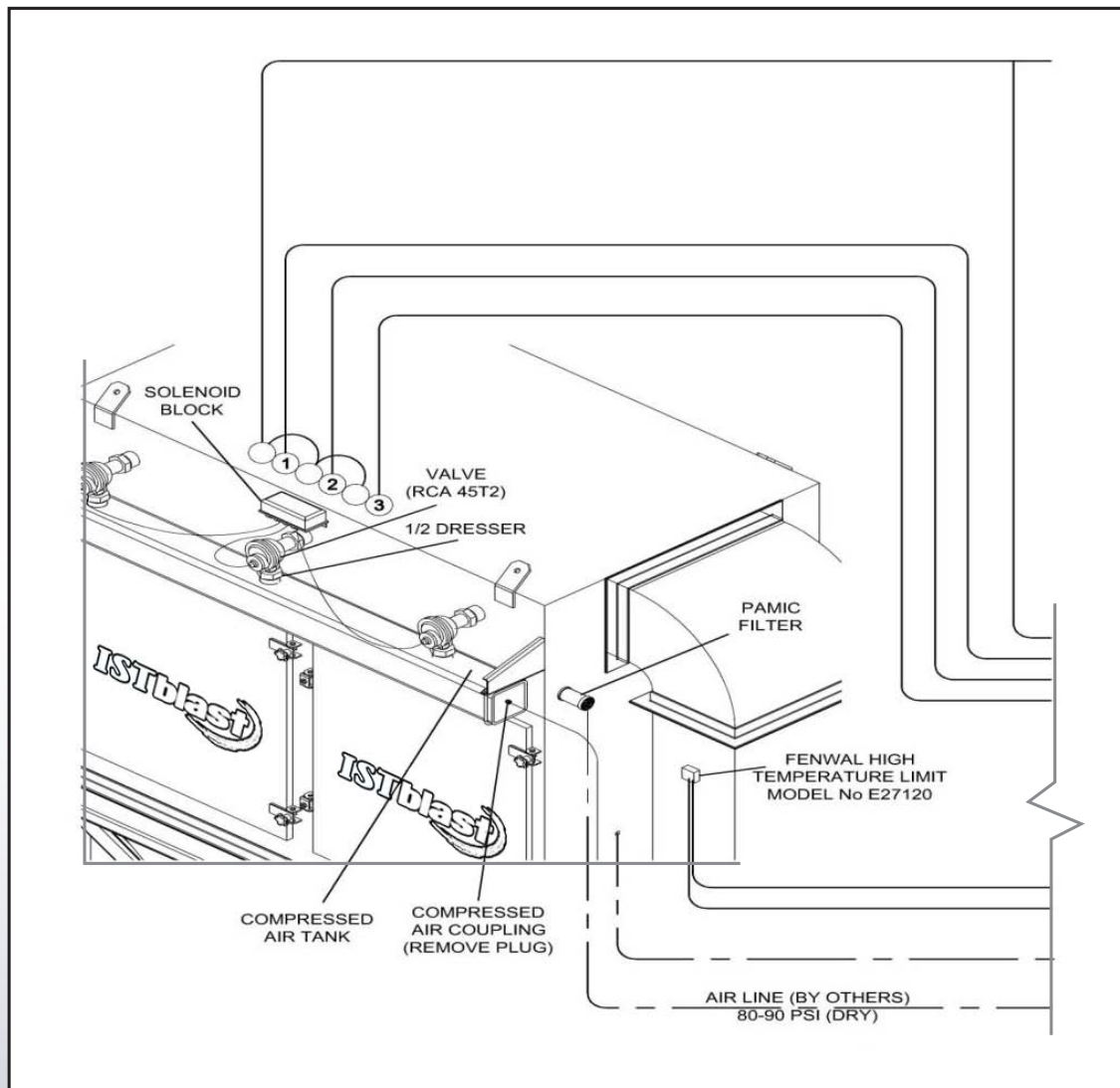






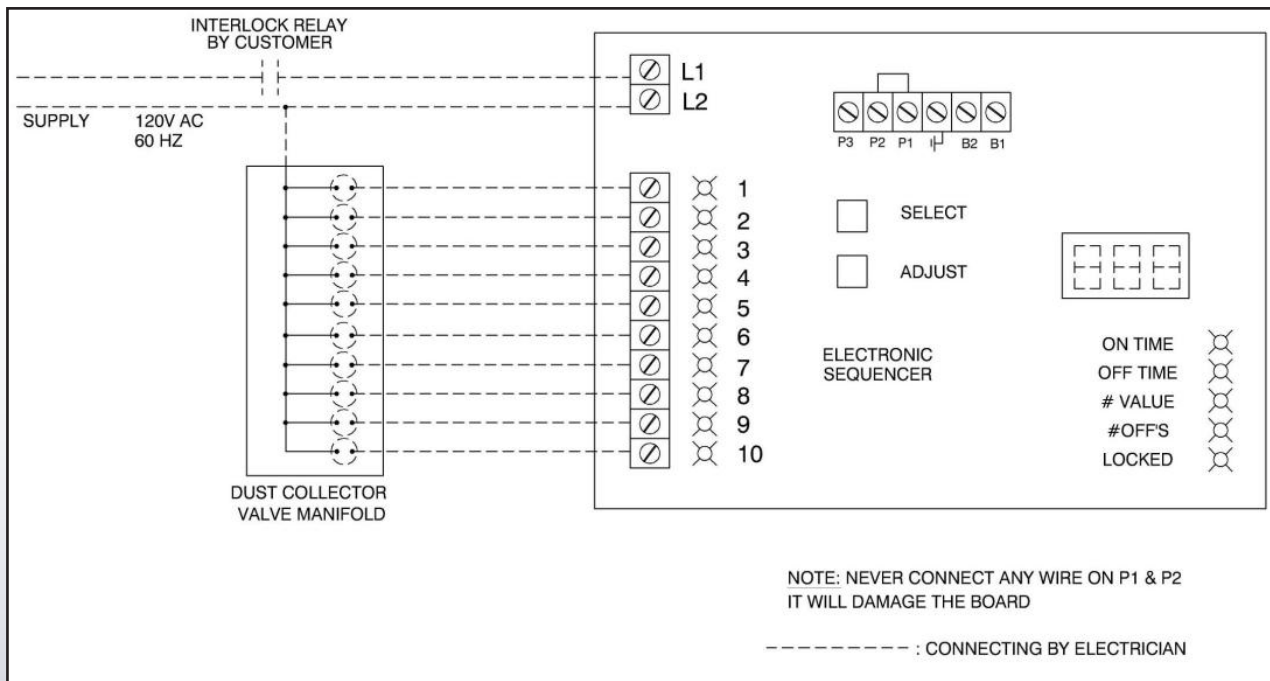
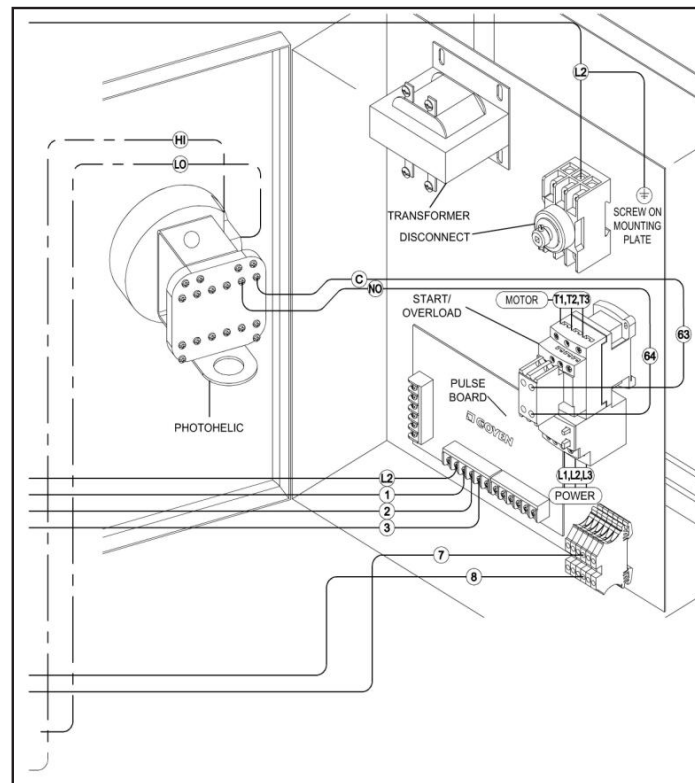
## ELECTRICAL CONNECTIONS TO THE CLEANING SYSTEM

- The electronic timer is generally supplied separately, to be mounted in an accessible location.
- The standard enclosure for the timer is Nema-12/4 (industrial – dust tight / water tight).
- This type of enclosure should be mounted inside. Nema-4 (water-proof) and Nema-9 (explosion-proof) enclosures can be supplied.
- The timer can also be mounted on the dust collector and pre-wired if required.
- A normal 110V lighting circuit is enough to power two timers. Each timer can operate a maximum of 20 or 29 solenoid valves (2 valves per outlet).
- The wiring diagram between the timer and solenoid valve enclosures is shown on drawings below.





## ELECTRICAL CONNECTIONS TO THE CLEANING SYSTEM (CONT'D)





## PNEUMATIC CONNECTIONS TO THE CLEANING SYSTEM

The "DCM" dust collectors are shipped with the cleaning system pre-assembled at our plant.

In order to operate correctly and reduce maintenance, the compressed air supplied to the air tank should have the following characteristics:

- a) The air pressure in the tank must be 60 to 80 psi for models DCM2000 DCM4000.  
The air pressure in the tank must be 70 to 90 psi for models DCM6000 to 8000.  
The air pressure in the tank must be 90 to 100 psi for models DCM10000 and more.

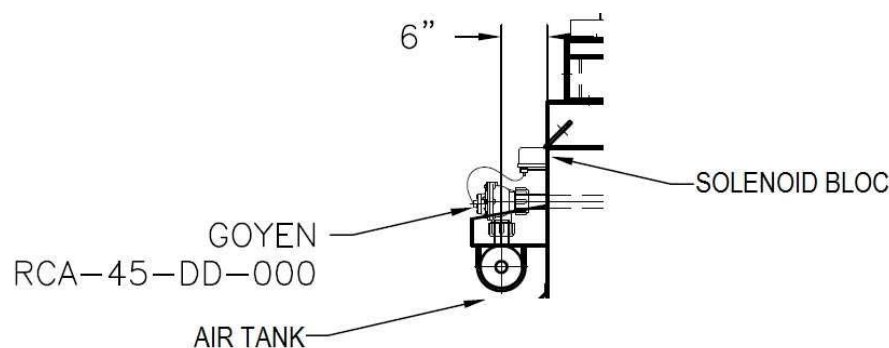
### NOTE

**PRESSURE SHOULD NOT VARY MORE THAN 5 PSIG UNDER OR OVER OPTIMUM.**

- b) The compressed air connection can be made at either end of the air tank. A coupling is installed at both ends. Do not forget to plug the coupling not in use. (See drawing page 7)
- c) Compressed air should be clean, dry and oil-free. If the dust collector is installed in a heated area, the air should be dry enough to prevent condensation. If the dust collector is exposed to cold air, an air dryer should be used, in order to maintain a dew point of  $-40^{\circ}\text{C}$ .
- d) The compressed air flow should be sufficient to operate the system. The compressed air requirements are included in the dust collector specifications.

### NOTE

**REFER TO OWNER'S MANUAL FOR COMPRESSED AIR REQUIREMENTS. IT IS RECOMMENDED THAT A PRESSURE REGULATOR AND MANOMETER ARE INSTALLED AT THE AIR TANK INLET.**







## THEORY OF OPERATION

The dust-laden gases come in the side of the dust collector hopper, under vacuum or pressure. The gases are filtered through the cartridge, and exit through the Venturi, into the clean air plenum. The cleaned air can be exhausted outside or re-circulated, depending on application.

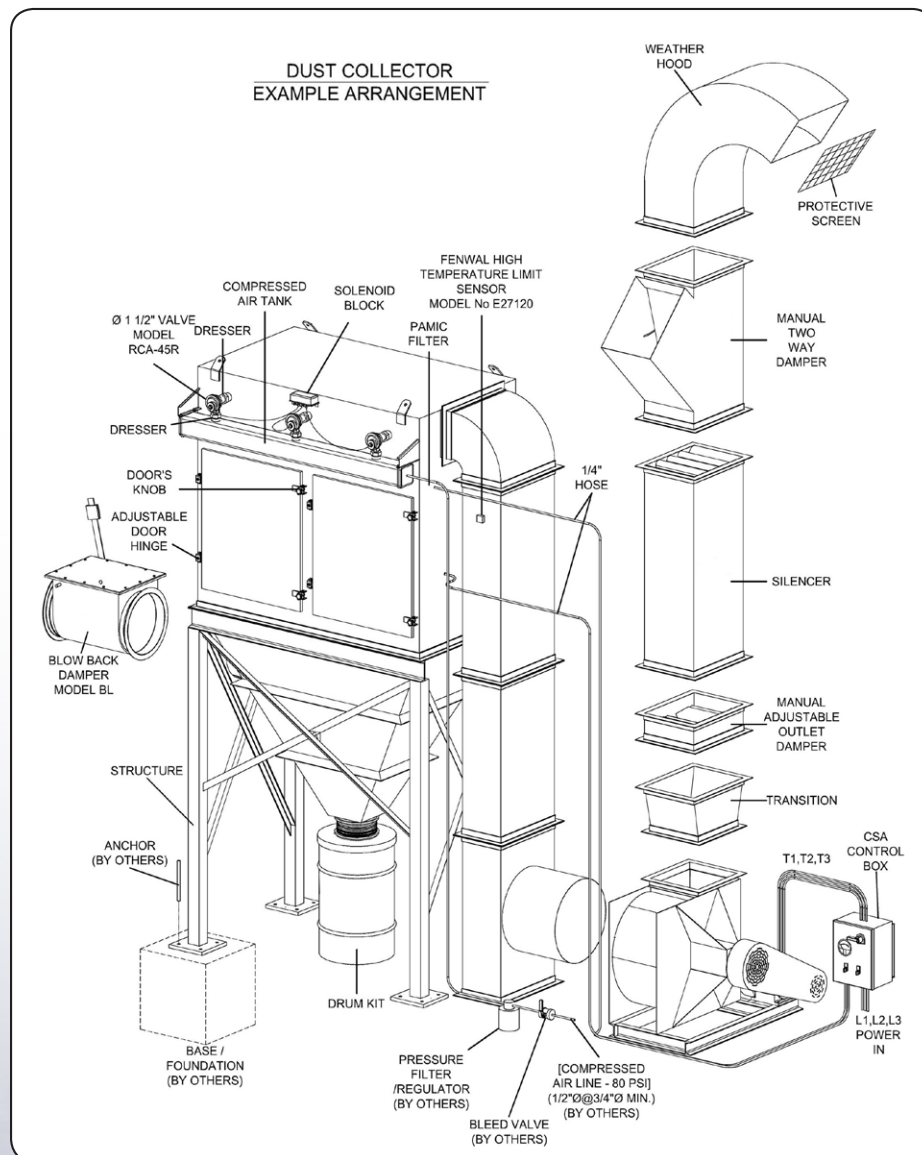
The automatic cleaning system operates as follows :

For each row of cartridges, there is a diaphragm valve connected to an air tank. This diaphragm valve is opened by a solenoid valve; an electronic controller opens each valve in sequence.

Short pulses of compressed air are ejected through calibrated orifices in the blow tube, into the Venturi. The small primary flow of air through the Venturi generates a much larger secondary flow of clean air from the plenum; the combined airflow creates a pressure wave moving down the cartridge, that breaks the accumulated dust cake on the cartridge.

Because only one row of cartridges is cleaned at a given moment, the dust collector can operate continually.

## EXAMPLE OF GENERAL ARRANGEMENT





## **START-UP INSTRUCTIONS**

Before starting a new dust collector, the following items should be checked:

- Check compressed air line for leaks.
- Check timer connections and input voltage (110 V/1 Ph /60 Hz).
- Check fan rotation.
- Check operation of all accessories (screw conveyors, air locks, compressor, air dryers, bin indicators, etc.)
- When started, check the amperage on all motors. ( Note: if blast gates are installed please ensure all gates are open prior to start up.

**During a start-up, the following points should be considered :**

1. When starting a dust collector with clean cartridges, the pressure drop through the cartridges will be very low, and will increase with an accumulation of dust. Until a normal pressure drop is obtained (between 1" and 3" w.g.), the fan motor may overload because of a large airflow. A fan outlet damper may be required to prevent this problem.
2. Starting up a dust collector below it's normal capacity is a good practice, permitting a gradual loading of the cartridges, and preventing the dust from imbedding itself in the filter media. This procedure can be mandatory for very fine dusts, which could block the cartridges.
3. When using a DCM dust collector on hot combustion gases, the dust collector should be preheated before starting the dust-generating process in order to prevent condensation on the cartridges and dust collector walls.
4. During normal operations, a DCM dust collector does not require a full time operator. The pressure drop through the cartridges should be checked occasionally as it is a good indicator of the dust collector performance. The Magnehelic gage should be easily accessible and located near the timer. The normal operating pressure is between 1" and 3" w.g.
5. Adjusting the frequency and duration of the pulsations will have an effect on the operating pressure. Increasing the frequency and/or duration will lower the pressure drop, but will shorten the cartridge and valve life.
6. If dust is seen at the dust collector outlet (except during start-up), the cartridges should be inspected.
7. If an abnormal operation condition exists, contact a technician.



## **ACCESSORIES**

### **TECHNICAL INFORMATION ON ACCESSORIES SUPPLIED WITH THE DUST COLLECTOR UNIT**

This section included literature on the accessories supplied with your cartridge dust collector.

#### **Some accessories are supplied with all models, such as :**

- Diaphragm valves;
- Solenoid valves;
- Electronic timer;
- Magnehelic gage.

#### **Other accessories may have been supplied with your unit :**

- Fan and motor;
- Compressor and air dryer;
- Bin level indicator "indicator";
- Pressure regulator and manometer;
- Thermocouple;
- « Zero Speed Switch »;
- Bearings and auto reducer for unloading accessories.

#### **Also, drawings for accessories may be found :**

- Fan;
- Ductwork;
- Hoods and covering;
- Dampers;
- Unloading accessories;
- Special electrical panels.





## **MAINTENANCE**

### **MAINTENANCE**

DCM dust collectors require only minimal maintenance. No lubrication is necessary, except for accessories such as fans, rotary air locks, etc.

### **PERSONS**

Servicing any items on top of collector(s) must be attached / secured properly to safety hooks.

### **CARTRIDGES**

Cartridge dust collectors are fabricated with mild steel; the unit should be painted occasionally to prevent rust.

The outlet plenum should be cleaned during cartridge replacement; this will prevent dust from reaching the clean side of the cartridges during the cleaning cycle. Also, it would be easier to detect torn cartridges or improper cartridge installation.

### **DOOR GASKETS**

The door gaskets may have to be replaced occasionally, mainly because of damage caused by ice formation. The standard door gaskets are made of porous rubber, although temperature or chemical considerations may require use of another type of material.

### **DIAPHRAGM AND SOLENOID VALVES**

The operation of the valves should be checked regularly. The diaphragms in the diaphragm valves will sometimes need to be rebuilt or replaced occasionally; the solenoid valves will sometimes need to be rebuilt or replaced. Naturally, the wear and tear on these valves will depend on dust collector use. An abnormally high rate of diaphragm replacement may indicate excessive air pressure.

### **ELECTRONIC TIMER**

DCM dust collectors are equipped with solid-state timers. Repairs at the work site are not recommended; the complete printed circuit board should be replaced.



## **TROUBLESHOOTING**

### **A. PRESSURE LOSS TOO HIGH**

Normal pressure should be between 1" and 3" w.g.

- 1) **The air flow through the dust collector is too high:**
  - Check fan speed or damper adjustments (if so equipped).
  - Ductwork design may be incorrect.
  - Balance the system with blast gates on each branch; reduce fan speed if necessary.
- 2) **Compressed air pressure is too low:**
  - Pressure should be 100 psi at the air tank inlet.
  - Adjust compressor setting.
- 3) **Non-functioning solenoid valve.**
  - Verify electrical connections.
- 4) **Broken diaphragm:**
  - Easy to detect because of noise caused by air leak.
- 5) **Malfunctioning timer:**
  - Check for normal operation of each outlet on TB-Board
- 6) **Cartridges plugged by condensation:**
  - Operate the cleaning system with the fan off to dry the cartridges.
  - Preheat the dust collector before starting the dust generating process to prevent this problem.
- 7) **Cartridges clogged by very fine dust:**
  - Operate the cleaning system with the fan off to clean the cartridges
- 8) **Static electricity can cause a high pressure loss:**
  - Increase humidity in plant or install antistatic cartridges.



## **TROUBLESHOOTING (CONT'D)**

### **B. VISIBLE DUST AT THE DUST COLLECTOR OUTLET**

- 1) **During start-up this is normal. Filtering efficiency will increase when an initial coat of dust is deposited on the cartridges.**
- 2) **Worn or torn cartridges.**
  - Verify and change.
- 3) **Les cartouches sont usées ou brisées.**

### **C. AIR FLOW TOO LOW**

- 1) **Fan rotates in the wrong direction:**
  - Reverse two phases on the motor.
- 2) **Check pressure loss in dust collector.**
- 3) **Fan belts slipping:**
  - Retighten or replace.
- 4) **Air leaks in system:**
  - Ductwork, access doors, air locks, etc.
- 5) **Ductwork plugged with dust:**
  - Closed blast gates
  - Malfunctioning dampers.
- 6) **Major modifications of initial ductwork.**
- 7) **Incorrect design of ductwork.**

### **D. IMPOSSIBLE TO MAINTAIN COMPRESSED AIR PRESSURE**

- 1) **Stuck solenoid valve:**
  - Clean or rebuild.
- 2) **Electrical short circuit, keeping several solenoid valves open.**
- 3) **Frequency or duration of pulses is too high.**
- 4) **Broken diaphragms.**
- 5) **Malfunctioning timer.**





## COMPONENTS AND REPLACEMENT PARTS RECOMMENDED

### SOLENOID VALVE

	SOLENOID VALVE TYPE	TYPE	VALVE	REPAIR	REPLACEMENT COIL
<input checked="" type="checkbox"/>	Normal	Goyen	RCA-3D2-QT	M-1131	QT
<input type="checkbox"/>	Explosion proof	Goyen		M-735	QT

### DIAPHRAGM VALVE

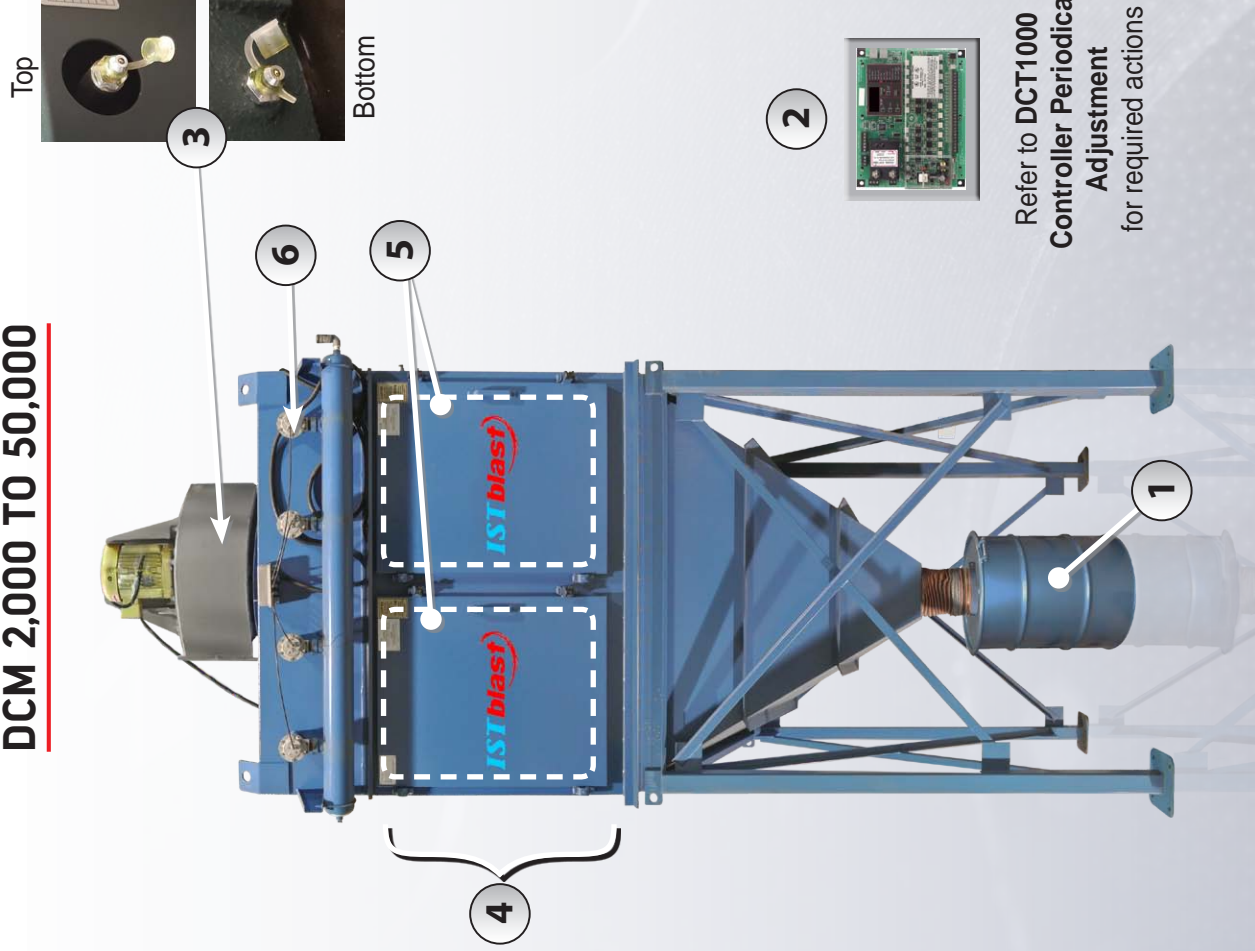
	DIAMETER DIAPHRAGM VALVE	TYPE	COMPLETE VALVE	REPAIR KIT
<input type="checkbox"/>	¾"	Goyen	RCA-20	M-1204
<input type="checkbox"/>	1"	Goyen	RCA-25	M-1183
<input checked="" type="checkbox"/>	1-1/2"	Goyen	RCA-45T2	M-2162



### CARTRIDGES

# 601307

## DCM 2,000 TO 50,000



### DAILY MAINTENANCE & OPERATION

**Recuperation drum ①** : Check level every day and empty if needed

### WEEKLY MAINTENANCE

**Cartridges**: Check for alarm signal and adjust value displayed on the DCT1000 control panel ②  
Replace cartridges as needed ④

### MONTHLY MAINTENANCE

**Ducting**: Check for leaks and wear, replace as needed  
**Pulse Cleaning System**: inspect Goyen Valves ⑥ , and replace or service as needed.

### BI-ANNUAL MAINTENANCE

**Motor ③**: Check motor bearings  
Refer to name plate for oil type and volume required

### REPLACE WHEN NEEDED (about every 3 years)

DESCRIPTION	PART Nb
Basic Cartridges ④ (each)	601307
Nanofiber Cartridges ④ (each)	601317
Door Seal ⑤ (1½" x 1") (sold by foot)	618305
1½" Goyen Valve Complete Assembly ⑥	601329
1½" Goyen Valve Repair Kit ⑥	M-2192







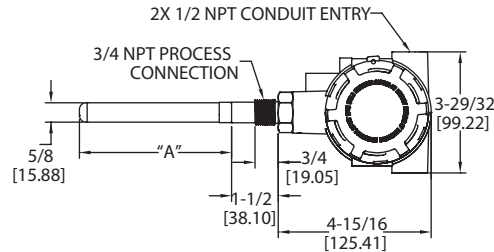
## APPENDICE 1 - DUST COLLECTOR PARTICULATE TRANSMITTER

### SPECIFICATIONS - INSTALLATION AND OPERATING INSTRUCTIONS

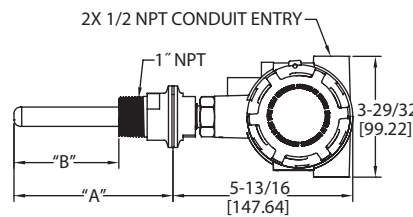


ASSEMBLAGE NPT MALE 3/4"		
Sonde Longueur	A po. [mm]	
3"	3 [76.20]	
5"	5 [127.00]	
10"	10 [254.00]	
15"	15 [381.00]	
20"	20 [508.00]	
30"	30 [762.00]	
36"	36 [914.40]	

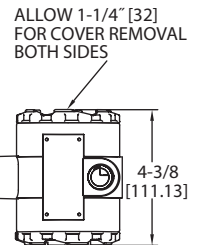
1.5" TRI-CLAMP MOUNT		
Probe Length	A in [mm]	B in [mm]
3"	3-1/2 [88.90]	1-25/32 [45.24]
5"	5-1/2 [139.70]	3-25/32 [96.04]
10"	10-1/2 [266.70]	8-25/32 [223.04]
15"	15-1/2 [393.70]	13-25/32 [350.04]
20"	20-1/2 [520.70]	18-25/32 [477.04]
30"	30-1/2 [744.70]	28-25/32 [731.04]
36"	36-1/2 [927.10]	34-25/32 [883.44]



3/4" Male NPT Mount



1.5" Tri-Clamp Option Mount



The **SERIES PMT2** Particulate Transmitter is designed to measure particulate emission levels from dust collector discharge. Using DC coupled electrostatic induction sensing technology, the transmitter monitors a pA current that is generated as particulate passes near the probe; a 4 to 20 mA signal will vary based on the particulate level. The PMT2 offers 6 sensitivity ranges allowing the user to choose the range that will best fit the application. The range and test selector switch can also be set to output a 4 mA or 20 mA signal to assist with set up or trouble shooting. Averaging time setting can be used to dampen the signal if desired.

#### FEATURES/BENEFITS

- Simple 2-wire installation for PLC and control panels
- Non-stick PTFE coated probe to prevent false readings from moist and conductive dusts, condensate, and dust buildup
- Remote zero calibration helps to decrease maintenance time

MODEL CHART				
Example	PMT2	-05	-A	-U2
Series	PMT2			
Probe Length		03 05 10 15 20 30 36		
Process Connection			A B	
Enclosure Rating				U2
Options				ST

#### SPECIFICATIONS

**Service:** Air and compatible gases, any type of particulate conductive or non-conductive.  
**Wetted Materials:** 316L SS, silicone, and PTFE.  
**Enclosure:** Powder coated aluminum.  
**Accuracy:** ±5% of reading.  
**Particulate Size:** 0.3 microns and higher.  
**Detection Range:** 5 to 5000 pA (6 selectable range options).  
**Temperature Limits:** Ambient: -40 to 145°F (-40 to 63°C); Process: -40 to 248°F (-40 to 120°C).  
**Pressure Limit:** 30 psi (2 bar).  
**Output Signal:** 4 to 20 mA.  
**Power Requirements:** 12 to 28 VDC (---).  
**Electrical Connection:** Two 1/2" female NPT conduit openings.  
**Terminal Block:** Removable (16 to 20 AWG wire).  
**Process Connection:** See model chart.  
**Probe Lengths:** See model chart.  
**Enclosure Rating:** Type 4 (IP66).  
**Mounting Orientation:** Any.  
**Averaging Time:** 1 to 360 s (10 selectable options).  
**Weight:** Varies with length of probe and type of mount.  
**Agency Approvals:** CE, cULus; ATEX pending, IECEx pending. UL Listed Intrinsically Safe for Class I, Groups C and D; Class II, Groups E, F and G; Class III; Class I Zone 0 AEx ia IIB T4 Ga; Class I Zone 0 Ex ia IIB T4 Ga.

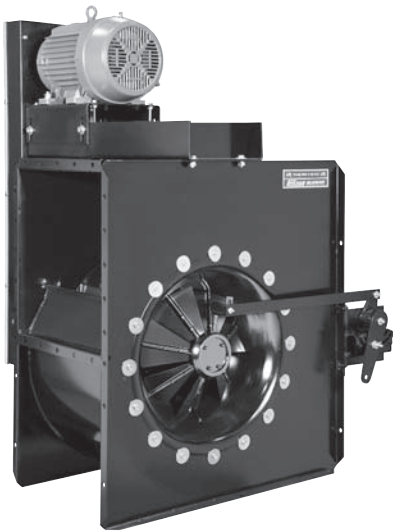




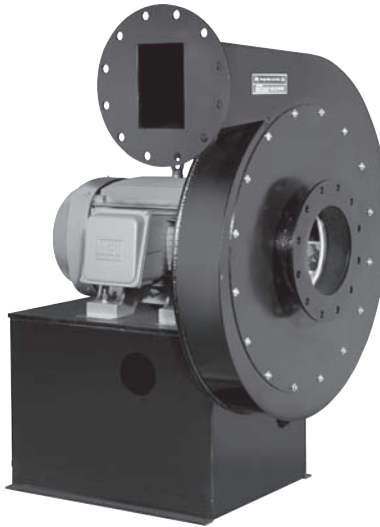
## **APPENDIX 2 - DUST COLLECTOR IMPELLER**

### **SAFETY - INSTALLATION - OPERATING AND MAINTENANCE INSTRUCTIONS**

This Manual is for the following Fans: D/10A and D/36A (SQA/SQB, SQAD/SQBD), Centrifugal Airfoil and "B" Wheel Fans; D/16A, D/39A (SQI), and D/52 Industrial Fans; D/51 Double Width, Single Width and Plenum Fans; D/53 Pressure Blowers; D/5120 Plenum Fans; D/54 PBI (Packaged Backward Inclined).



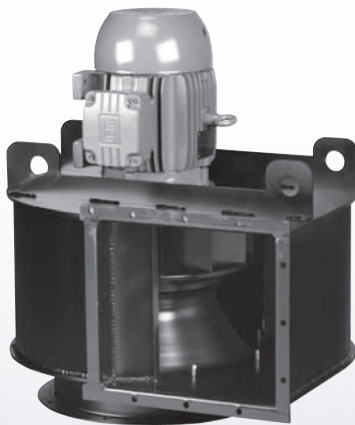
D/36A Centrifugal Fan



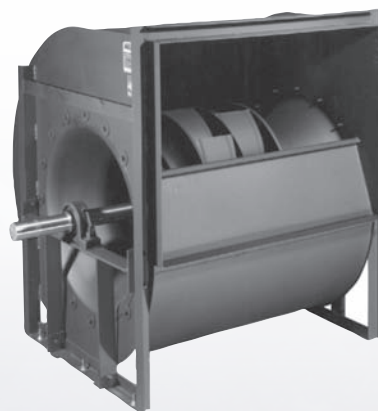
D/53 Pressure Blower



D/16A Industrial Fan



D/64 PBI Fan



D/51 Double Width Fan

#### **TO ORDER SPARE PARTS**

Spare or repair parts can be ordered from your nearest IST sales engineer by indicating the name of the part (impeller, motor, bearing) etc.) and the FAN SERIAL NUMBER from the nameplate or the JOB ORDER drawings. If possible, also give the bearing number or shaft size and fan class. Because of the small number of parts needed, spare parts lists are not necessary or available. Use these instructions instead.



## APPENDICE 2 - DUST COLLECTOR IMPELLER (CONT'D)

### RECEIVING :

IST equipment is prepared for shipment in accordance with the Uniform Freight Classification. It is thoroughly inspected at the factory and, barring damage in transit, should be in good condition upon arrival.

When a carrier signs IST bill of lading, the carrier accepts the responsibility for any subsequent shortages or damage evident or concealed, and any claim must be made against the carrier by the purchaser. Evident shortage or damage should be noted on the carrier's delivery document before signature of acceptance.

Inspection by the carrier of damage evident or concealed must be requested. After inspection, issue a purchase order for necessary parts or arrange for return of the equipment to IST factory for repair.

IST Blower fans are shipped, skidded, and may be handled and moved using good rigging techniques, being careful to avoid concentrated stresses that distort any of the parts.

### STORAGE :

If the fan installation is to be delayed, store the unit in a dry, protected area. Protect the fan, especially fan and motor bearings, from moisture and vibration. Protect all machined surfaces such as shafts, couplings, and bushings. Rotate the wheel several revolutions every two weeks, stopping the wheel in a position other than its initial position. Keep the bearings fully greased by filling monthly with a grease compatible to that originally supplied. Contact IST for extended storage instructions.

### SAFETY PRECAUTIONS :

The fan which you have purchased is a rotating piece of equipment and can become a source of danger to life or cause injury if not properly applied. The maximum operating temperature or speed for which this fan is designed must not be exceeded. These limits are given in our catalog or on IST drawings.

Personnel who will operate this fan, or those who will perform maintenance thereon, must be given this bulletin to read and warned of the potential hazards of this equipment.

Personnel who will operate this fan, or those who will perform maintenance thereon, must be given this bulletin to read and warned of the potential hazards of this equipment.

### INSTALLATION :

- Good results require a proper foundation. Foundations should be level, rigid, and of sufficient mass for the equipment. Concrete is preferable. Its mass should be at least four times the fan weight. Adequately brace steel platforms in all directions. The minimum natural frequency of any part must be at least 50% higher than the fan running speed.
- Shim the fan support points before tightening foundation bolts. Do not distort or twist the equipment. Duct connections should be located at least five wheel diameters from fan inlet and outlet (see AMCA Publication 201 for further details). Flexible connections should be used at inlet and discharge. The fan should never support or restrain any duct weight or force.
- Make sure the power is locked "OFF".
- Check wheel-to-inlet clearance to make sure it has not shifted during shipment or handling. There should be approximately equal radial clearance all around. Rotate wheel by hand to check that it runs free.

- the fan wheel is fastened with a taper-lock bushing and the wheel must be shifted, follow this procedure:
  - Match mark the bushings and hub so they can be reinstalled in exactly the same relative position so to not unbalance the wheel.
  - Remove all bolts from the bushings.
  - Insert two bolts in the threaded holes in the bushing (Note that one bolt is left over and not used in the demounting).
  - Tighten bolts alternately until bushing is loosened in hub. If bushing does not loosen immediately, lightly tap hub while applying torque to the bolts.

To reinstall the taper-lock bushing in the wheel hub, position the bushing to align the match marks and insert the three mounting bolts through the unthreaded bushing holes into the hub. Alternately tighten the bolts. When tightening, the bolts should be turned down equally to the initial Torque requirement given below. Then tighten the bolts progressively one-half turn per bolt to the Second Torque setting. Finally, the bolts should be tightened in small increments to the Final Torque settings.

Size Bushing	Initial Torque*		Second Torque*		Final Torque*	
	Alum.	Steel	Alum.	Steel	Alum.	Steel
Q & R	57	120	108	240	228	348
P	36	64	72	132		192

\*Torque values shown are inch lbs. and apply when both components are either aluminum or steel. If either component is aluminum, use values for aluminum. Values for steel are for Grade 5 hardware.

Check bushing to verify type or refer to bushing box sent with the fan.

- Check the motor wiring and fusing in accordance with the National Electrical Code and local requirements. Follow wiring diagram on the motor nameplates.
- IST requires that all appurtenances, including ductwork or stacks, which are attached to the fan inlet or outlet, be independently supported, unless prior approval has been obtained from IST. Excess dead loads or wind loads can distort the fan housing causing misalignment and possible failure. Flexible connections are also necessary to prevent duct expansion or movement from adding loads to the fan.
- IST recommends the use of caulk or gasket when mounting appurtenances to the inlet or outlet flanges to minimize leakage.

**Overlap value (A)  
between the wheel and the  
entrance cone**

Impeller		Overlap A (po)	Impeller		Overlap A (po)		
Dim's			Dim's				
D/36	D/51		D/36	D/51			
8¾	100	¾	22¼	245	½		
10	122		24½	270	9/16		
12¼	135		27	300	11/16		
13½	150	¼	30	330	13/16		
15	165		33	365	1		
16½	182		36½	402	1 1/32		
18¼	200	¾	40¼	445			
20	222	7/16	44½	490			

### SET SCREW TORQUE VALUES

Bolt Size (In. Diam.)	Threads per inch	Steel grade 2 non-plated (in./lb)
1/4	20	65.5
5/16	18	136.0
3/8	16	239.0
7/16	14	381.0
1/2	13	586.0
5/8	11	1163.0
3/4	10	2076.0

- the wheel is striking, correct it by loosening the hub set screws and reposition the wheel on the shaft, or loosen the motor mounting bolts (for Arrangement 4 fans) and realign the wheel to the inlet so it does not hit. Retighten all set screws over the keyway first, then retighten all set screws located 90° to 120° from the keyway. Torque all set screws per Torque Values chart. Turn wheel by hand to verify wheel to inlet cone clearance.





## APPENDICE 2 - DUST COLLECTOR IMPELLER (CONT'D)

BEARING LUBRICATION							
AMBIENT CONDITIONS		CONDITIONS OF USE		USE TEMP. OF ROLLING (°F)		LUBRICATION INTERVALS SUGGESTED **	USE THESE FATS OR EQUIVALENT
DIRTY	MOIST	CHARGE	SPEED	BOTTOM	TOP		
Clean	Dry	Light to Medium	Slow to Medium	0	120	2 to 6 months	NLGI #1 or #2 multipurpose high quality  Bearing greases are generally satisfactory.  Consultation with a reputable lubricant supplier is recommended.
				120	200	1 to 2 months	
Moderate to dirty				0	120	1 to 4 weeks	
				120	200	1 à 7 days	
Very dirty				0	200	Daily - Dump the dirt	
High humidity - Splashes - direct water splashes*.		Light to Heavy	Slow to Medium	32	200	1 to 4 weeks - grease when stopped	Mobil Oil Corporation, Mobilith AW-2 Texaco Inc., Premium RB2 Shell Oil Company, Gadus S2 V220
		Heavy to very heavy	Slow	0	200	1 to 8 weeks	Shell Oil Company, Gadus S2 V220
				-20	120		Mobil Oil Corporation, Mobiltemp 78
		Light	High speed	100	200		Amoco, Rykon No. 2 Texaco Inc., Premium RB 2
	Possible frost	Light to heavy	Lente à moyenne	-65	250	1 to 4 weeks - grease when stopped	Mobil Oil Corporation, Mobiltemp SHC32 Texaco Inc., 2346EP Low Temp Shell Oil Company, Aeroshell 7A
Clean to moderate	Dry	Light to Medium		80	250	1 to 8 weeks	Union Oil Company, Unoba EP2 Mobil Oil Corporation Mobiltemp 78
Clean to dirty		Light	Slow		300	1 to 4 weeks	Keystone Lubricants Company, No. 89 Dow Chemical Company, DC44

\* Additional bearing protection or special sealing may be required.

\*\* Suggested starting interval for maintenance program. Check grease condition for oiliness and dirt and adjust greasing frequency accordingly. Watch operating temperatures. Sudden rises may show need for grease or indicate over lubrication on higher speed applications.

**IST INC. cannot be held responsible for performance of individual batches of grease. Changes in lubricant specifications, performance and lubricant guarantees are the responsibility of the lubricant manufacturer**

### FAN BEARINGS

Units are prelubricated with lithium base NLGI #2 grade grease, but make sure they have adequate grease. As a precaution, if equipment is to be built and left idle for any period of time prior to actual use, the units should be filled 100% full to provide maximum protection from corrosion, etc. The suggested lubrication schedule on the following page is a general guide.

The specific conditions on an application such as exact hours of operation, temperature, moisture, speed and dirt govern the required lubrication cycle. This can be determined by inspection of the flushed out lubricant during a trial period of operation. Add grease slowly. Use a sufficient volume to purge bearing seals of old lubricant it is preferable to rotate bearings during relubrication where good safety practice permits.

**Inspect bearing installations at least every six months. Any unusual noise or vibration change should be immediately investigated.**

- Bearing must be properly locked to the shaft. Check before operation. Make sure bearing locking collar is in position and set screws are tightened to the bearing manufacturer's recommended torque levels. See bearing manufacturer's instructions enclosed for details. The bearing set screws should be re-torqued after eight and twenty-four hours of operation.

### VERTICAL OPERATION

If the fan is to operate with its shaft vertical, reset the bearings as follows

- With the shaft vertical, unlock the drive end bearing set screws and turn the shaft by hand. This allows the wheel end bearing to take the gravity load of the shaft and wheel.
- Re-lock the drive end bearing locking device and replace and torque set screws as required by the bearing manufacturer's instructions so that this bearing now takes only the belt pull.

### FANS WITH COUPLINGS

On any completely assembled fan, where CSC has mounted the motor and coupling, it is required that the alignment be rechecked after the fan is set on its permanent foundation. It is not possible to hold alignment during shipment or when set on a different foundation. Coupling must be realigned and lubricated per manufacturer's instructions sent with the fan.

### V-BELT DRIVES

- Alignment of the drives must be checked with a straightedge or string. Belt tension must be properly adjusted to assure good belt and bearing life. Sheave faces should be parallel and aligned within 1/16". Use balanced sheaves.
- With all belts in their proper grooves, adjust the centers to take up all slack and until the belts are fairly taut.
- It is normal on V-belt drives handling more than 20 hp to "squeal" on start-up. Do not tighten belts too tight. Normal belt tension can be determined by being able to depress belt, at mid-point a distance equal to one belt width, with normal finger pressure.
- After a few days of operation the belts will seat themselves in the sheave grooves and it may become necessary to readjust so that the drive again shows a slight "bow" in the slack side. The drive is now properly tensioned and should operate satisfactorily with only an occasional readjustment to compensate for belt and groove wear.





## APPENDIX 2 - DUST COLLECTOR IMPELLER (END)

### OPERATION OF FAN

After installing the fan per these Instructions and the Instructions of the manufacturers, make final safety checks to prevent injury to personnel or damage to the equipment. Always block rotating parts to prevent windmilling while inspecting the fan.

1. Lock power source in «OFF» position.
2. Check bearings for alignment and proper lubrication, with wheel and inside of the housing clean and free of debris.
3. Check wheel position for proper clearance and rotation. Unblock rotating parts and turn wheel by hand to insure that it rotates freely.
4. Check sheave set screws or bushings and wheel set screws for tightness. If fan is a HEAT FAN, check to see that the shaft cooling wheel bolts are tight. Check foundation bolts. Secure safety guards and access doors.
5. If fan is designed for low density (such as high temp), make sure overload of fan motor is avoided if fan is run with standard air.
6. Start fan and allow unit to reach full speed, then shut down. During this short period, check for rotation, excessive vibration, any unusual noise, or overheating of the motor. Check the motor amps drawn against the nameplate rating. A plate over the fan inlet will limit the horsepower drawn during a test run with limited ductwork.
7. After the trial run lock the power-OFF».
8. Recheck for tightness of hold-down bolts, wheel set screws and keys, and retighten if necessary. Recheck after eight and twenty-four hours of operation.
9. The run-in period should be at least eight hours. Check bearings a minimum of once each hour during this period. Overgreasing may cause bearings to heat up. There need be no concern if the bare hand can be held on the bearings briefly. Bearings will vent extra grease and cool down after start-up. Recheck torque of all bearing set screws after eight and twenty-four hours of operation to insure levels are maintained per the bearing manufacturers recommended levels.
10. Take vibration readings at the bearings, or the motor bearings if the fan wheels are mounted directly on the motor shaft. Adhere to these limits. **Velocity limits in inches/second:**
  - Normal : ..... 0,15
  - Alarm : ..... 0,22
  - Shutdown : ..... 0.50

These values are peak velocity values, filter-in, at the fan rotational speed.

**NOTE: For high temperature applications - the impeller should not be turned off until the air stream temperature is below 200 °F.**

### MAINTENANCE

To insure long life and trouble-free service, frequently check all bearing lubrication. See the bearing manufacturer's instructions packed with the fan.

**Should excessive vibration develop, check the following possibilities:**

1. Build-up of dirt or foreign material on the wheel.
2. Loose bolts on bearings, housings, foundation and drive.
- 3a. **If the fan is belt driven:**
  - V-belt drive improperly aligned. Belts must have proper tension, sheaves must be balanced.
  - The pulleys must be balanced.
- 3b. **If the fan is directly driven:**
  - Coupling may be improperly aligned.
4. Check wheel set screws or bushing cap screws.
5. Foreign matter may have entered fan causing damage to wheel, shaft or bearings.
6. Fan support improperly shimmed to foundation.
7. Vibration may be coming from a source other than the fan. Stop the fan and determine if the vibration still exists. Disconnect the driver from the fan and operate it by itself to determine if it produces vibration.
8. Improper clearance between the wheel and the inlet cone.

Vibration may be coming from a source other than the fan. Stop the fan and determine if the vibration still exists. Disconnect the driver from the fan and operate it by itself to determine if it produces vibration.

After approximately one (1) month of operation, all base, hub bearing, pedestal, etc. bolts should be checked.

Potentially damaging conditions are often signaled in advance by change in vibration and sound. A simple, regular audio-visual inspection of fan operation leads to correction of the condition before expensive damage occurs. Vibration levels should be checked by an approved technician using electronic balancing equipment.

If air handled by the fan contains corrosive, erosive or sticky materials, fan should be shut down regularly for inspection, cleaning and reconditioning of interior parts.

If the fan is to remain idle for an extended period, fill bearing with grease. Protect motor and exposed surfaces. Follow the motor manufacturer's recommendations for storage and rotate the shaft by hand several revolutions each month.

**Mechanical Integrity:** Certain operating conditions reduce the built-in strength in the fan impeller and may cause unsafe operation. It is the user's responsibility to inspect for these conditions as frequently as necessary and make corrections as required. Failure to comply with the following limits voids the IST warranty.

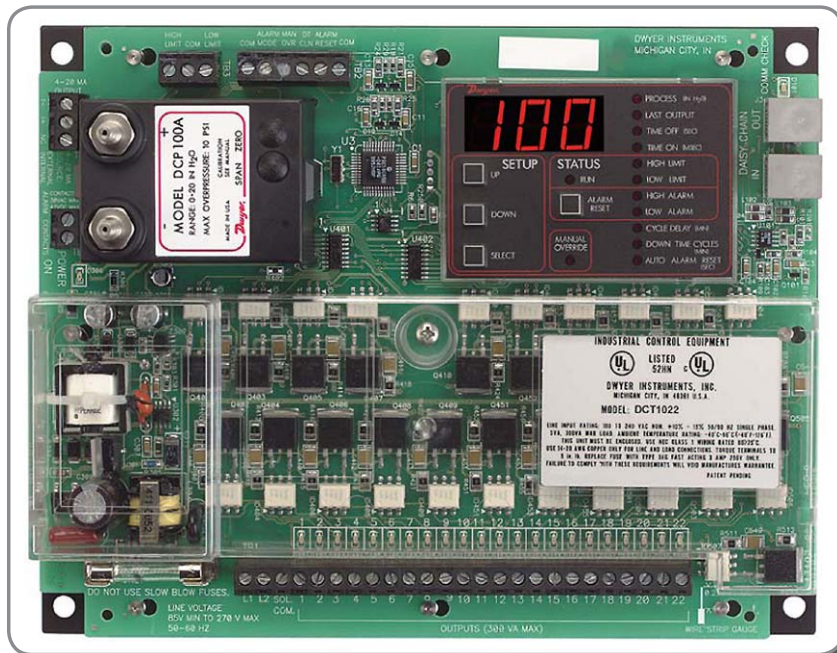
**Maximum Safe Speed and Temperature:** Operation exceeding maximum safe RPM and temperature even for a short time causes over-stressing or fatigue cracking of the impeller resulting in unsafe condition. Maximum safe speed and maximum safe temperature are shown on fan assembly drawings, catalogs or order acknowledgement.

**WARRANTY: The warranty on IST fans is our standard warranty. The warranty on the motor is that extended by the motor manufacturer.**



## APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER

### Spécifications - Instructions d'installation et d'exploitation



Thank you for purchasing the DCT1000 Dust Collector Timer Controller. You have selected a state of the art dust collector timer control that will provide years of dependable operation and service.

The DCT1000 Dust Collector Timer Controller was designed to be used with pulse-jet type dust collectors for on-demand or continuous cleaning applications.

Continuous cleaning applications do not require external inputs and can be used for time based "on-demand" cleaning through use of the cycle delay feature.

For on-demand applications, the plug-in pressure modules (DCP100A/200A) can be used to take full advantage of all the features the DCT1000 offers, or an external pressure switch (such as the

Dwyer Photohelic®) can be used for High/Low limit control.

As with traditional Dwyer products, the Dwyer DCT1000 was designed so that it is easy to use, thus allowing for a quick and easy start up for your dust control applications. The contents inside this

installation and operating manual will guide you through the features of the DCT1000 and how they can be applied to get the most out of your dust control requirements.

Take full advantage of all the features of the DCT1000, or an external pressure switch (like the Dwyer Photohelic®) can be used for high/low limit control. As with traditional Dwyer products, the Dwyer DCT1000 has been designed so that it is easy to use, allowing a quick and easy start-up for your dust control applications. The content at the heart of this installation and operation manual will guide you through the features of the DCT1000 and how they can be applied to get the most out of your dust control needs.

### Specifications

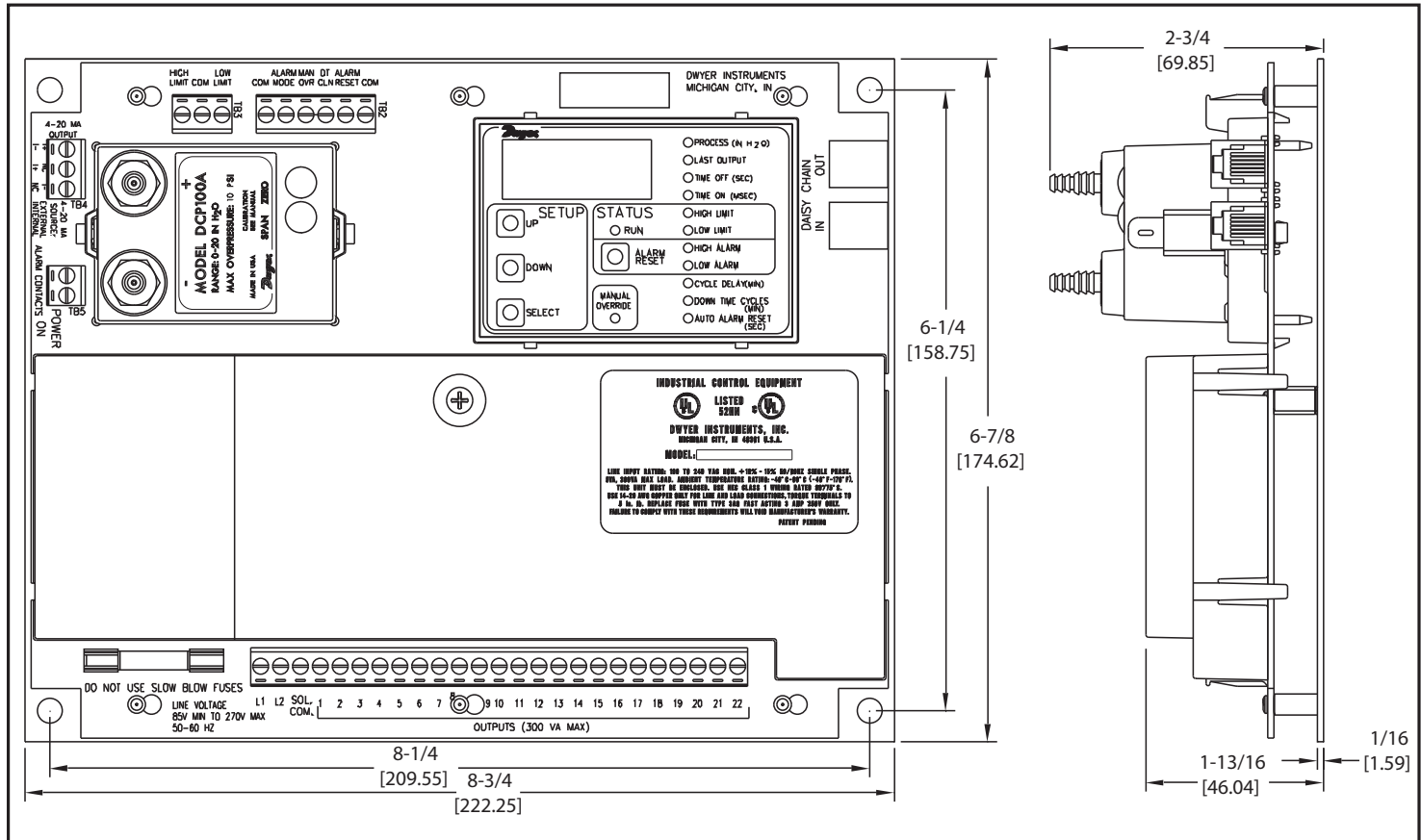
- **Output Channels:** 6, 10, & 22 channels. Expandable to 255 channels using DCT1122 & DCT1110 channel expander boards.
- **Power Requirements:** 85 to 270 VAC, 50 or 60 Hz.
- **Solenoid Supply:** 3A maximum per channel.
- **Fuse:** 3A @ 250 VAC. Low voltage control circuitry is isolated from the line voltage for system safety.
- **Temperature Limits:** -40 to 140°F (-40 to 60°C).
- **Storage Temperature Limits:** -40 to 176°F (-40 to 80°C).
- **On Time:** 10 msec to 600 msec, 10 msec steps.
- **On Time Accuracy:** ±10 msec.
- **Off Time:** 1 second to 255 seconds, 1 second steps.
- **Off Time Accuracy:** ±1% of the value or ±50 msec, whichever is greater.
- **Weight:** 1 lb 3.0 oz (538.6 g).
- **Agency Approvals:** UL, cUL.





## APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER(CONT'D)

### DIMENSIONS AND SIZE



### 1.0 — DCT1000 INSTALLATION



**CAUTION:** Always install and service this device with the power off and with an interlock installed if necessary. The line voltage will be exposed at the output/power connector and fuse. For this reason, we have installed a plastic protector to protect the user from accidental contact with this exposed area.

Please note that the power supply cover is a safety device and should not be removed under any circumstances. For ease of installation and maintenance, the connectors and fuses have been left unprotected. The open frame design of the DCT1000 requires an enclosure that meets appropriate safety and local code requirements. For optimum performance, the enclosure must also protect the controller from dirt, water and direct sunlight. There are no special orientation requirements, and the controller is easily mounted using the mounting holes on the factory installed base plate.



**WARNING :** Do not place control cables, communication cables, or other Class 2 wiring in the same conduit as the power cables.

System malfunction may occur if Class 2 wiring is placed too close or with the power conductors.





## **APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)**

### **1.0 — DCT1000 INSTALLATION (CONT'D)**

#### **1.1 — Power requirements**

The controller has a “universal” power supply that allows the connection of electrical inputs from 120V AC to 240V AC. The input voltage must be between 85 and 270V AC/ 50 or 60 Hz. No circuit changes are required when switching between these voltages. The solenoid values, however, must be adjusted to accommodate the selected line voltage.

#### **1.2 — DCT1000 Terminal Connections**

The line and solenoid connections are located on the bottom edge of the board below the plastic cover. The terminal block is a «Euro» type connector system that clamps the wire into the connector body.

The connector accepts 14 to 22 AWG wire. The wire should not be stripped more than 0.25 inches to avoid shorting or exposing the wires to the elements creating a potential shock hazard. To help you determine the correct length of stripped wire required, a stripping wire length marker is provided in the lower right corner of the board.

The connector system used on the DCT1000 is specified for a single connection, but you may splice multiple connections together provided local codes allow it and good workmanship practices are followed. To power up the master controller and channel expander, the power supply must be connected to the L1 and L2 line (see dimensional specifications, VIEW 1).

Connect the solenoids between the selected output and the solenoid common. Solenoid common and L2 are connected internally.

The switch contacts connected to the control inputs at the top of the panel must be isolated and connected only to the appropriate terminal and the common terminals. The following points describe the connections for the external switch. Refer to VIEW 2 for the switch connection.

##### **1.2.1 External pressure connection**

The controller can be used with an external pressure limit switch or sensor to provide cleaning operation on demand. The high limit and low limit inputs can be used for this purpose. A simple on-off system can be established with a single pressure switch connected to the high limit input. Better control can be achieved with a high and low limit switch such as the Photohelic Dwyer®. In this mode on demand, time, free time, and cycle delay can be programmed to define the cleaning cycle. A three-pin terminal block (TB3) is used to connect the outside of the high and low travel switches (see VIEW 2 on next page). These switches must be isolated from the contacts. The common line must not be connected to ground or protective equipment on the floor, as they may introduce electrical noise and cause malfunction or possible damage to the sequencer. The operation of these inputs is summarized as follows:

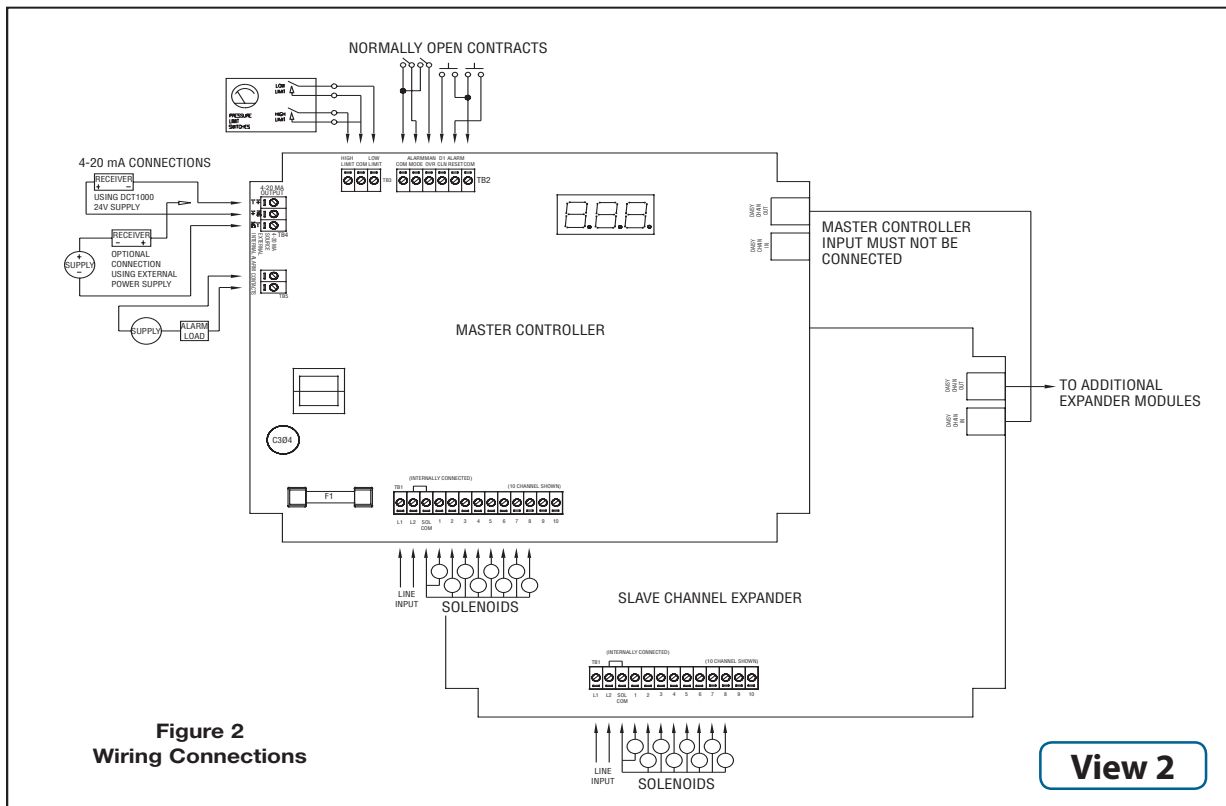
OPERATION IN PROGRESS	LOW LIMIT SWITCH	HIGH LIMIT SWITCH	NEXT OPÉRATION
Waiting	Open		Waiting
Waiting or in progress	X	Closed	In progress
Waiting	Ø	Open	Waiting
Working	Closed	Ø	In progress
Waiting		*	
		Ø	

LEGEND	
X	either open or closed
Ø	open to closed transition
*	closed to open transition



## APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)

### 1.0 — INSTALLATION (CONT'D)



#### 1.2.2 - Manual Override Switch Connection

The manual override function allows the system to be set to the run mode regardless of other conditions. This mode is enabled when the manual override terminal and common are connected. It is disabled when they are disconnected. If the controller is to be run in continuous mode, a jumper wire may be wired across these terminals. When manual override is needed on a periodic basis, wire a SPST toggle switch between the manual override terminal and the common terminal.

#### 1.2.3 - Down Time Clean Connection

The down time clean operation forces the system into a run cycle for a programmed length of time between 0 – 255 minutes. The operation is initiated by connecting the down time clean terminal to a common terminal. This function is best accomplished through use of an external normally open switch.

#### 1.2.4 - Connecting Multiple Timer Boards

Both master controller boards and slave boards can have up to a maximum of 22 channels each. The system may be expanded up to 255 channels using master controller boards and slave boards. The DCT1000 will automatically detect the total number of channels involved and make their outputs available. You will note that both the master controllers and slave boards have a telephone style connector mounted on the upper right hand side of the board. These connectors are for use in systems requiring slave boards that must be daisy chained together to provide additional channel capability. For systems that require the slave boards, the master controller must not have any connection made to its daisy chain input unless it is designated as a slave control itself. (For larger systems requiring more than three slave boards, a master controller must be used as the fourth slave board to satisfy power requirements.) This sequence would repeat itself until the limit of 255 channels has been reached. The cables used are not ordinary telephone style cables.



## **APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)**

### **1.0 — INSTALLATION (CONT'D)**



**CAUTION :** Do not use telephone jumper cables. These have a “twist” in the connection and may damage the controllers. Cables designed for use with the DCT1000 are available from Dwyer Instruments (Model DCAC02-2 ft., DCAC04-4 ft., etc.).

#### **1.2.5 - Continuous Cycle Mode**

The master controller has several operating modes available for different applications. Starting with the most basic mode, it is capable of operating in a continuous cleaning cycle. This can be initiated by either placing a jumper between the high limit input and the common, or the manual override input to the common connection. Controlling this cycle are three setup parameters: time off, time on, and cycle delay. Time on and time off specifically deal with the solenoid on time and the time interval between the end of the on pulse and the start of the next. The cycle delay allows a delay of up to 255 minutes to be programmed between the end of one complete cleaning cycle and the beginning of the next. This allows additional options for defining a cleaning profile.

#### **1.3 - DCP Installation**



**CAUTION:** Prior to installing the DCP100A/200A please review the operating specifications carefully. Some operating systems, especially in pneumatic conveying applications, may see static pressure or vacuum conditions that exceed the capability of the DCP100A/200A pressure module.

For these conditions there are a number of alternate Dwyer pressure products that can be used to meet your application requirements, all of which can be terminated to the Dwyer DCT1000 Dust Collector Timer Controller. For more information on these and other Dwyer products, please call us at (219) 879-8000, or visit us on the web at [www.dwyer-inst.com](http://www.dwyer-inst.com) or [www.dust-controls.com](http://www.dust-controls.com).



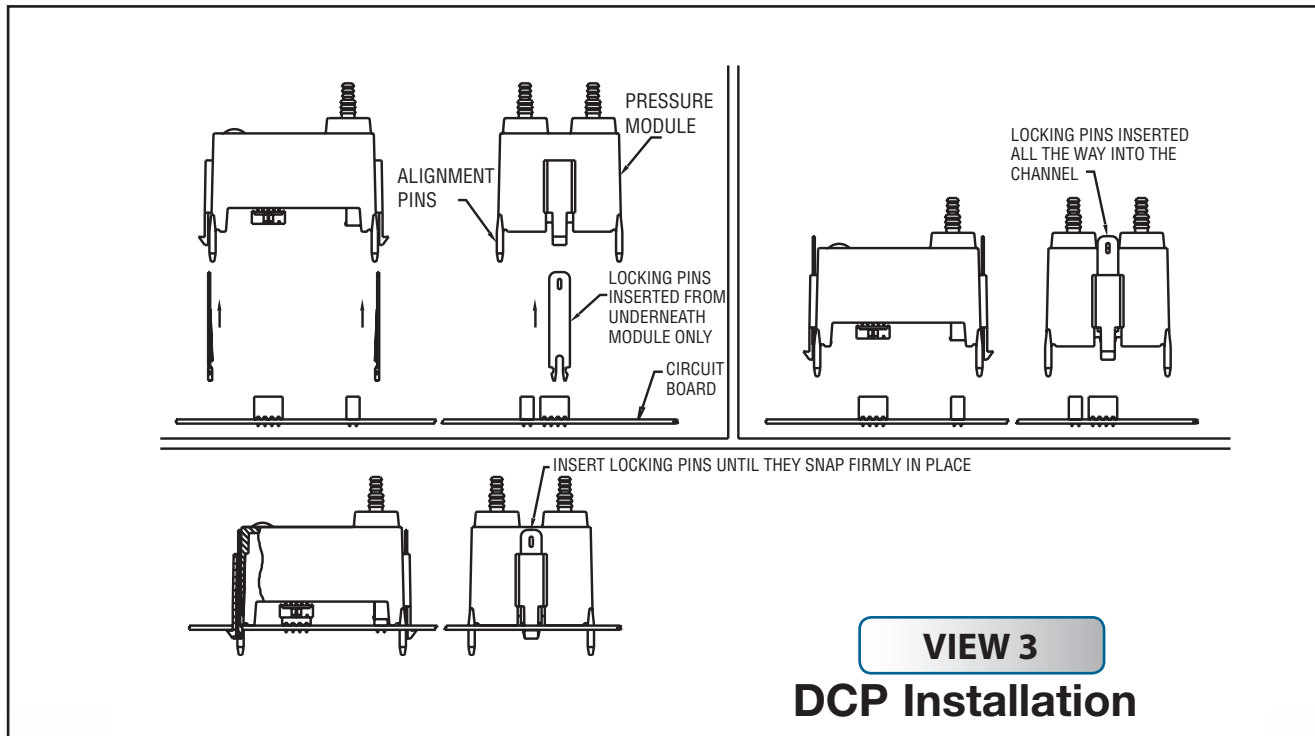


## APPENDICE 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)

### 1.0 — INSTALLATION (CONT'D)

#### 1.3.1 - Location

The system should be located in an enclosure that meets relevant safety standards and electrical codes. There are no other special orientation requirements as the pressure module is not orientation sensitive. Care should be observed when routing the air hoses to ensure that any potential condensation or moisture will not drain into the sensor. Where heavy condensation is present, a drip loop or an in-line filter should be installed to ensure long term operation.



#### 1.3.2 - Connecting DCP to Master Controller

The pressure module is attached to the Master Controller using integral connectors on both units. The insertion ports for the pressure module are located in the upper left quadrant of the DCT1000 Master Controller. The pressure module can be removed by compressing the retaining clips on each end of the module, then gently pulling the module out of the master controller board. When inserting the module, the following procedure should be adhered to insure proper installation:

- Examine the bottom of the pressure module and note the orientation of the connectors.
- Align the module so that these connectors match the connector receptacles on the controller board.
- Orient the module with the four alignment pins over their respective mounting holes.
- Gently press the module into the connectors and snap the retaining clips on either end of the module into their slots.
- Always install and service this device with the power off and a lockout installed if required. "Hot" plugging the pressure module into an operating system may damage the system or cause the calibration parameters to be erased.

When installing or removing the module make sure to orient the module straight with board. Installing or removing the module at any angle may break the alignment pins.



## **APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)**

### **1.0 — INSTALLATION (CONT'D)**

#### **1.3.3 — Pressure Model Locking Pins**

The DCP100A and DCP200A are supplied with locking pins to secure the module. In normal operation these are not required since the latching tabs are sufficient to secure the module even in a high vibration environment. However if the unit is to be shipped or used where severe mechanical shock could be encountered the locking pins ensure the module will not snap out of the board.

To install the locking pins, from underneath the module insert one pin behind each of the two latching tabs. Press these all the way into the channel. The ends of the tabs will extend through the slots at the top of these channels. Next insert the module in the board as described above, making sure it is properly aligned and snaps firmly in place. Press the exposed locking tabs down until the tab is seated behind the latch in the board. To remove the module, slide the locking tabs up using a small screw driver then remove the module as described above. See Figure 3 page 39.

#### **1.3.4 — DCP Connections**

When a pressure module is installed, the 4-20 mA process signal and the alarm relay contacts are available. The 4-20 mA circuit is isolated from ground and other signals. The alarm relay contacts are isolated, normally open contacts. Pressure connections may be made to the stepped hose barbs with either 1/8" or 3/16" I.D. tubing.



**CAUTION :** Do not force the module into the connectors. Forcing insertion may damage the connectors. Properly aligned, the module should snap into place.

#### **1.3.5 — DCP Maintenance**

The pressure module should require very little maintenance under normal operating conditions. However, periodic calibration may be desirable to ensure accurate readings. The module can be removed and returned to the factory for calibration.

### **1.4 — Alarm connection mode switch**

Automatic alarm reset is controlled by the alarm connection mode switch. To activate the automatic alarm reset the alarm input mode which must be connected to a common connection. A jumper can be used when automatic alarm reset is still active. A switch can be used if there are times when automatic alarm silencing needs to be disabled. The switch should be an isolated contact and wired, so that no connection is made between either wire and ground. See VIEW 2 connections.

#### **1.4.1 — Reset alarm connection mode**

The alarm can be reset by pressing the alarm reset button on the control panel or by an external switch connected between the alarm-reset terminal and one of the common terminals. The alarm reset only works if the pressure module is installed and the pressure has returned to a normal state. See View 2 connections.

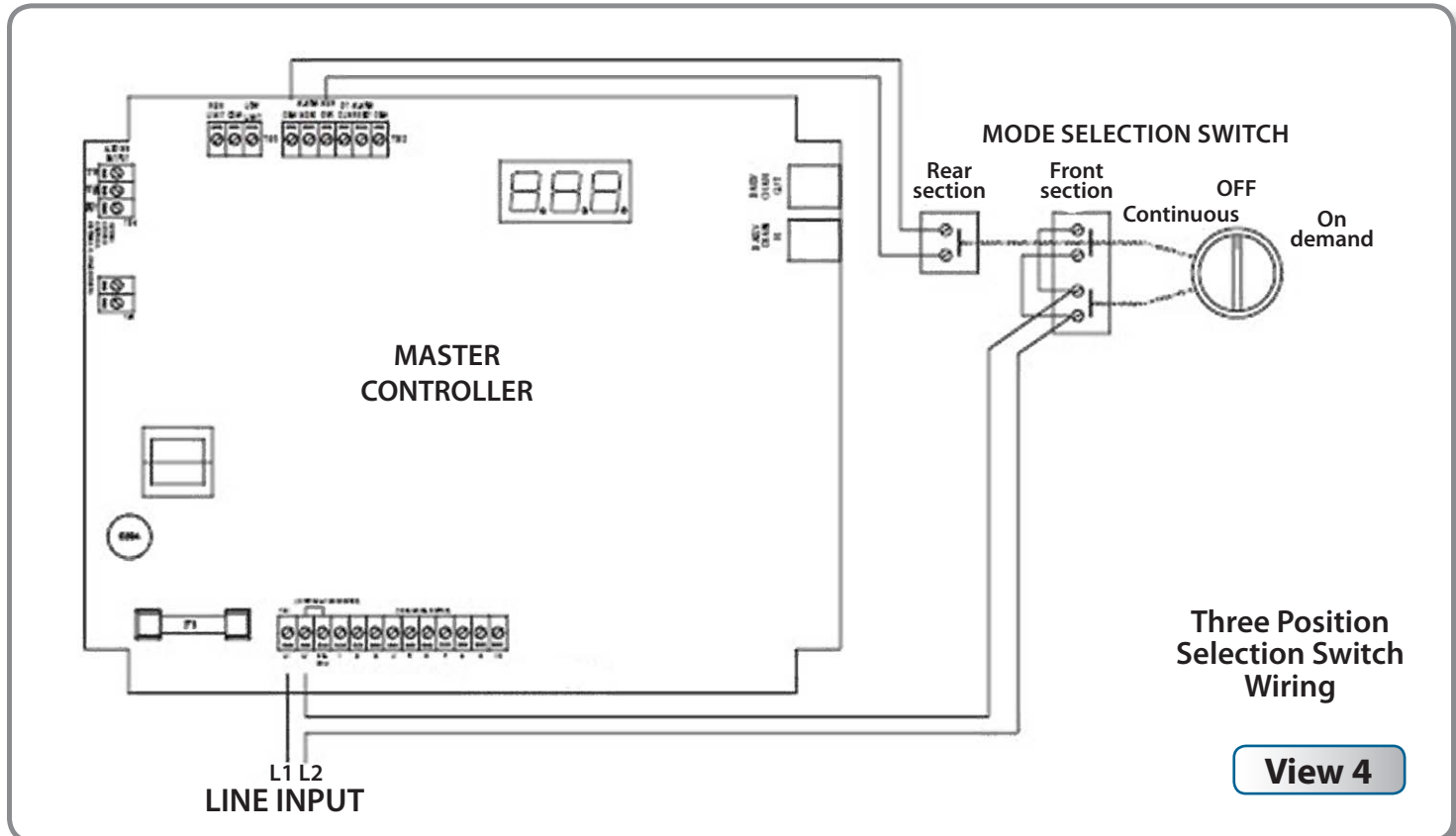
#### **1.4.2 — Connecting the 4-20 mA loop**

The pressure module provides an isolated 4-20 mA output, which can be used to remotely monitor differential pressure in dust bags or canisters. The connection is made on the main control module to the terminal designated for this signal. The connection is a 2-wire configuration with the option of using either an external 15 to 35 VDC or internal 24 VDC. See VIEW 2 connections



## APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)

### 1.0 — INSTALLATION (CONT'D)



#### 1.4.3 — Connecting the Alarm Relay

With the pressure module installed, a relay contact is provided for controlling an external alarm. This relay is a single form-A contact. It is activated when either the high alarm threshold is exceeded, or the pressure drops below the low alarm threshold. The connection is made at the two-pin connector TB5. See Figure 2 Wiring Connections

#### 1.5 — Three Position Selection Switch Wiring

An optional mode selection switch is available with the weatherproof enclosure. With this switch the user may select either continuous cleaning, on-demand cleaning, or off. This switch is supplied factory wired as shown in Figure 4. The switch has a front and rear section. The front section, consisting of two independent contacts, controls the power to the board. These contacts must be wired in parallel as shown in the diagram. The rear section controls the manual override, which when closed will force the system into continuous must be reconnected, follow the wiring diagram.



**CAUTION :** Do not interconnect the low voltage manual override leads with the power leads. This will destroy the control board as well as pose a serious shock hazard.





## **APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)**

### **2.0 — PROGRAMMING THE DCT1000 MASTER CONTROLLER**

We've made it easy to navigate the DCT1000. Menu items can be accessed simply by pressing the "SELECT" button. The menu item that you are currently accessing is indicated by the illumination of an LED. To change menu items, all you have to do is push "UP" to increase a value or push "DOWN" to decrease a value. There are no keystrokes that you need to memorize, special combinations, or passwords that are required.

The master controller is equipped with an on board display and programming information center. The controller will power-up with the process indicator illuminated. If a pressure module is installed, the display will indicate the measured pressure in inches of water (w.c.); otherwise it will normally be blank.

#### **2.1 — Last Output**

The Last Output setup selects the last channel to be activated. When first selected, the display will flash the last output available in the system. With single board installations, this will be the number of channels installed, typically 6, 10 or 22. This value becomes more important when multiple modules are installed. The last output value flashed will be the sum of all channels available in the system.

After the last available channel indication has completed, the currently programmed last channel value is displayed. This value may be changed using the "UP" and "DOWN" buttons. The minimum value is one while the maximum value is the maximum number of installed channels, including all expansion modules. The default value is the maximum number of channels. Pressing "SELECT" will change the setup mode to Time Off Setup.

#### **2.2 — Time Off (Sec.)**

Time off defines the period of time between solenoid activations when no channels are enabled. This may be set between one second and 255 seconds. The factory default is 10 seconds. The display will show the current time off setting when the time off setup mode is entered. The value may be changed using the Up and Down buttons. Pressing both "UP" and "DOWN" simultaneously and holding for approximately four seconds will restore the default value of 10.

#### **2.3 — Time On (msec)**

Time On Setup sets the solenoid on time. The display will indicate the currently programmed time on setting. This is measured in milliseconds. Using the "UP" and "DOWN" buttons, the value may be changed. The value may be set between 10 msec and 600 msec in 10 msec increments. Pressing the "UP" and "DOWN" buttons simultaneously for approximately four seconds will restore the factory default value of 100 msec. Pressing the "SELECT" button will advance the setup mode to the High Limit setup if the pressure module is installed. With no pressure module, it will step to Cycle Delay Setup.

#### **2.4 — High Limit [Only available when DCP connected]**

The High Limit Setup, available only with a pressure module installed, sets the pressure at which the cleaning cycle will begin. This value may be between zero and the pressure module full scale pressure. Normally, the High Limit should be above the Low Limit. If, however, the High Limit pressure is set below the Low Limit, the cleaning cycle will begin when the High Limit is exceeded and stop when the pressure falls below the High Limit. The Low Limit in this case will have no effect. Pressing "SELECT" will change the system to the Low Limit Setup mode.

#### **2.5 — Low Limit [Only available when DCP installed]**

The operation of the Low Limit, available only with a pressure module installed, is identical to the High Limit except this value sets the pressure where the cleaning cycle will end. The upper settable value is the calibration pressure of the pressure module and the lower limit is zero. Pressing "SELECT" will change the system to the High Alarm Setup mode.



## **APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)**

### **2.0 — PROGRAMMING THE DCT1000 MASTER CONTROLLER (CONT'D)**

#### **2.6 — High Alarm [Only available when DCP installed]**

The operation of the High Alarm Setup is identical to the High and Low Limit Setup and is only available when a pressure module is installed. The High Alarm default is 0. The upper settable value is the full scale pressure of the pressure module and the lower limit is zero. Pressing "SELECT" will change the system to the Low Alarm Setup mode.

#### **2.7 — Low Alarm [Only available when DCP installed]**

The operation of the Low Alarm Setup is identical to the High and Low Limit Setup. The Low Alarm default is 0. The upper settable value is the full scale pressure of the pressure module and the lower limit is zero. Pressing "SELECT" will change the system to the Cycle Delay Setup mode.

#### **2.8 — Cycle Delay (min)**

The cycle delay inserts a delay time between the end of the last channel and the beginning of the first channel. This may be set to between zero and 255 minutes. The factory default is zero. Setting the value to zero will disable the delay. Pressing "SELECT" will change the system to the Down Time Cycles Setup mode.

#### **2.9 — Down Time Cycles (min)**

The Down Time Cycles setup will select a value between zero and 255 minutes. The factory default is one minute. Selecting zero will disable the operation. When the down time cycles is activated by shorting the down time cycles input to the common terminal, (see figure 2) the system will enter a forced cleaning mode for the programmed duration. NOTE: The cycle delay, if one is programmed, will not be inserted in the timing cycle. Pressing "SELECT" will change the system to the Auto Alarm Reset Setup mode, if a pressure module is installed, or to Process when no pressure module is available.

#### **2.10 — Auto Alarm Reset (sec) [Only available when DCP installed]**

The Auto Alarm Reset Setup, available only when a pressure module is installed, allows the auto alarm reset time to be selected. This value may be set between zero and 255 seconds. The factory default value is five seconds. When the auto alarm reset is enabled by shorting the auto alarm reset terminal to a common terminal (See Figure 1) the alarm will be reset after the pressure returns to the normal range and the timeout has expired. Pressing "SELECT" will change the system to Process mode.

### **3.0 — MAINTENANCE SUPPORT AND DIAGNOSTICS**

We have also included a number of features that will aid maintenance personnel in diagnosing problems or verifying that the system is operating.

#### **3.1 — Restoring Factory Defaults**

The DCT1000 has been programmed with factory default values that meet most industry operating conditions. In the event that you want to restore all of the parameters to the original factory default values:

1. Return the master controller to the process mode.
2. Press and hold both "UP" and "DOWN" buttons.

The display will indicate a 10-second countdown, at the end of which all parameters will be restored to factory defaults. Releasing the switches prior to the end of the count will stop the process and no modification will be made. Likewise, in each of the parameter setup modes, pressing and holding the "UP" and "DOWN" buttons simultaneously will reset the individual default value, leaving other settings unchanged.

#### **3.2 — Power Indicator**

A power on LED indicator is provided at the center left edge of the board. This will be illuminated when the power supply is operating properly. If the power LED is not illuminated, the primary power may be off or there is a fault in the power circuit.





## **APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER (CONT'D)**

### **3.0 — MAINTENANCE SUPPORT AND DIAGNOSTICS**

#### **3.3 — Active Channel Indicator**

Located just above the solenoid terminations, you will find that each channel is provided with an LED that is illuminated when the triac switch is on. This allows a visual correlation between the channel being pulsed and the operation of the solenoid.

#### **3.4 — Comm Check Indicator**

The comm check indicator can be found in the upper right hand corner of the slave and master controller board (just above the "out" terminal, a telephone style connector). This indicator is used for two purposes. First, on a master controller a brief flash once per second is produced to indicate that the system is operating. Second, this indicator is used to show when the communication check operation is performed on slave boards. The master controller will check each of the slave boards at a rate of about one inquiry per second, starting with the slave board connected directly to the master controller and ending with the last slave board in the chain. The master controller will flash its Comm Check LED for about 250 msec each time it makes a communication check. The external module selected for test will also flash its Comm Check LED for about the same time each time it is interrogated. Observing this test sequence will indicate that the communication between boards is operational. When a slave board powers up, the Comm Check LED will be illuminated continuously. It will be extinguished when the master controller has initialized its communication channel. This indicator then shows that a master controller is operating and that each slave board is responding properly on the daisy chain.

#### **3.8 — Error Codes**

Error codes will be displayed on the three-digit display when certain faults occur. Most of these indicators are associated with the daisy chain communication, but certain error codes pertain to single board operation also. **These codes are:**

Display	Meaning	Action required
<b>Err 1</b>	This is a "watchdog" reset that is enabled when the master controller isn't able to cycle through its operation.	Make sure all electrical connections are appropriately shielded so the master controller is not disrupted by noise.
<b>Err 2</b>	The pressure module has failed to respond to the request of the master controller.	The master controller will try to recover from the fault. If unsuccessful, replace the pressure module.
<b>Err 3</b>	Communication error in the daisy chain interface. This will only appear when the master controller is used in conjunction with a slave board.	Make sure the control cable used in the daisy chain interface is properly shielded from noise.
<b>Err 4</b>	The master controller has detected a change in module configuration or a fault in one of the modules.	Reinstall all modules in accordance with the instructions in the factory IOM.
<b>Err 5</b>	If the fault described in "Err 4" is not corrected, the master controller will reconfigure the modules that are responding properly and operate at a degraded condition.	Reinstall all modules. Contact factory if the problem persists.
<b>Err 6</b>	A message error affecting the software of the master controller or one of its modules.	Check the integrity of all connecting cables used to drive slave boards for additional solenoids. Also check the electrical grounding of the system installation.
<b>Err 7</b>	Indicates that one of the TRIAC drivers are not functioning.	Return to factory for evaluation and repair.
<b>Err 8</b>	Internal Error.	Contact the factory.
<b>Err 9</b>	Unassigned message code.	





## APPENDIX 3 - DCT1000 DUST COLLECTOR TIMER CONTROLLER

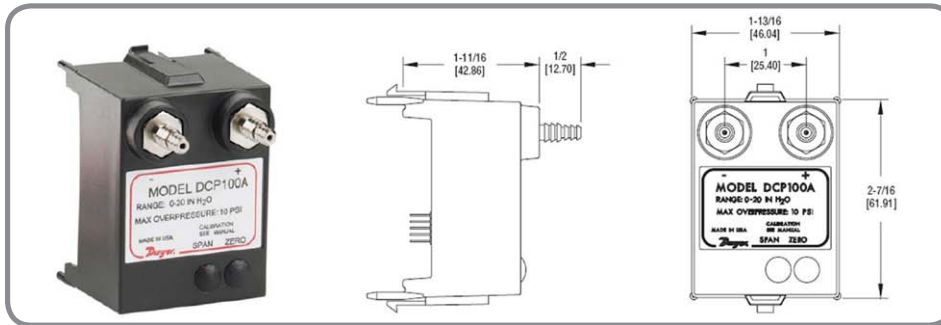
### 4.0 — GLOSSARY OF TERMS

- **Run Mode:** The term used when the timer board is firing the solenoids.
- **Pressure Module:** The pressure measurement subsystem that includes the software and hardware for on-demand cleaning, alarms and signal retransmission of the process variable (i.e., the differential pressure across the dust bags).
- **Master Controller:** The primary timer board that contains all of the major features, connections for external inputs and power to drive the DCT1000 Dust Collector Timer Controller system.
- **Power Guard:** A plastic shield that covers the output triacs and other line voltage circuitry.
- **Demand Cycle Mode:** A process in which the run mode is enabled through the on-board pressure module or an external switch such as the Dwyer Photohelic®.
- **Euro Connector:** A “caged” connection used to terminate solenoids, incoming power, or external switches on the DCT1000.
- **Continuous Cycle Mode:** A time based cycling mode dependent on solenoid time on/off settings and time set between complete cycles.
- **Manual Override:** Allows the user to override the DCT1000 remotely or from the master controller panel through use of a switch or a wire jumper.
- **Slave Board:** A channel expander that is used in conjunction with the master controller to accommodate additional solenoids on larger dust collection systems. It can be recognized easily as it does not have the on-board display panel or the power supply present. A master controller may also be used as a slave board.



## APPENDIX 4 - DCP100A/200A SERIES PRESSURE MODULES

### SPECIFICATIONS - INSTALLATION AND OPERATING INSTRUCTIONS



The DCP100A or DCP200A pressure modules are designed exclusively for use with the Dwyer DCT1000 Dust Collector Timer Controller boards for on-demand cleaning requirements. These series of modules are available in 10" w.c. [2.49 kPa] or 20" w.c. [4.98 kPa] ranges, which allow for differential process pressure measurement as indicated on the display of the master controller. An isolated 4-20 mA readout channel is provided for remote pressure

display. The 4-20 mA output may be wired either for use with an external power supply and indicator or using the isolated on-board 24 V power supply to power the loop.

#### SPECIFICATIONS

**Pressure Ranges:** 10" w.c. or 20" w.c.

**Temperature Limits:** -40 to 140°F (-40 to 60°C).

**Pressure Limit:** 10 psi (68.95 kPa).

**Pressure Limit (differential):** 10 psi (68.95 kPa).

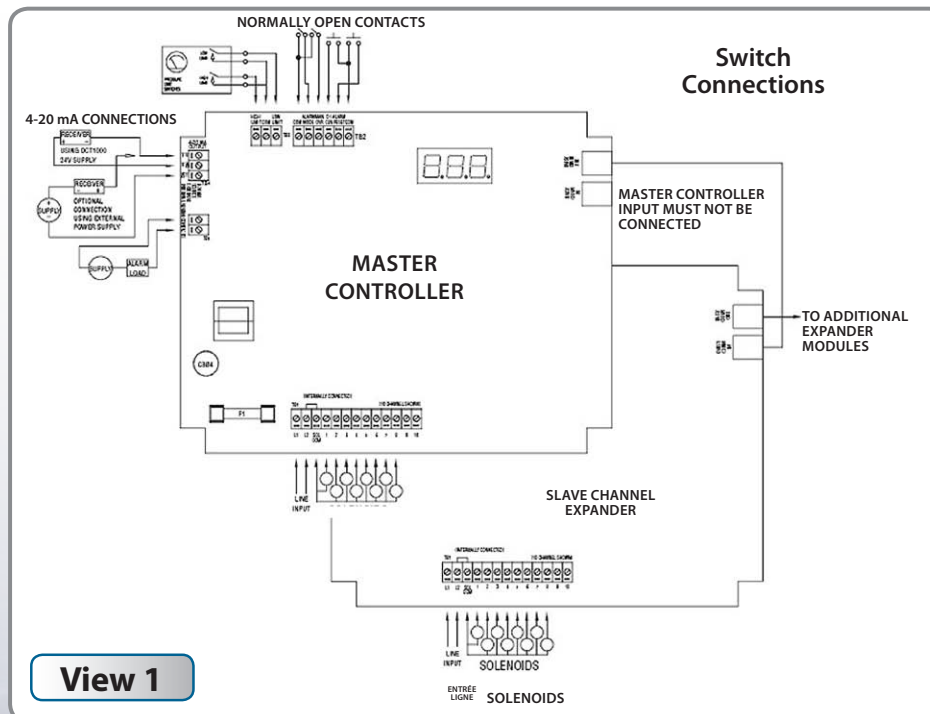
**Accuracy :** ±1.5% F.S. @ 73°F (22.8°C).

**Output Signal:** 4-20 mA.

**Alarm Contacts:** 1.5A inductive load, 3A resistive load @ 30 VAC or 40 VDC.

**Process Connections:** Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing.

**Weight:** 5.5 oz (155.9 g).





## **APPENDIX 4 - DCP100A/200A SERIES PRESSURE MODULES**

### **SPECIFICATIONS - INSTALLATION AND OPERATING INSTRUCTIONS (CONT'D)**

#### **1.0 — Installation**



**CAUTION:** Prior to installing the DCP100A/200A please review the operating specifications carefully. Some operating systems, especially in pneumatic conveying applications, may see static pressure or vacuum conditions that exceed the capability of the DCP100A/200A pressure module. For these conditions there are a number of alternate Dwyer pressure products that can be used to meet your application requirements, all of which can be terminated to the Dwyer DCT1000 Dust Collector Timer Controller. For more information on these and other Dwyer products, please call us at (219) 879-8000, or visit us on the web at [www.dwyer-inst.com](http://www.dwyer-inst.com) or [www.dust-controls.com](http://www.dust-controls.com).

#### **1.1 — Location**

The system should be located in an enclosure that meets relevant safety standards and electrical codes. There are no other special orientation requirements as the pressure module is not orientation sensitive. Care should be observed when routing the air hoses to ensure that any potential condensation or moisture will not drain into the sensor. Where heavy condensation is present, a drip loop or an in-line filter should be installed to ensure long term operation.

#### **1.2 — Connections**

When a pressure module is installed, the 4- 20 mA process signal and the alarm relay contacts are available. The circuit may be used with the internal 24-volt power source or with an external source. In either case, the 4-20 mA circuit is isolated from ground and other signals. The alarm relay contacts are isolated, normally open contacts. Pressure connections may be made to the stepped hose barbs with either 1/8" or 3/16" I.D. tubing. The following subparagraphs describe the external switch connections. Refer to Figure 1 (above) for switch connection illustration.

#### **1.3 — Pressure Module Installation**

The pressure module is attached to the Master Controller using integral connectors on both units. The insertion ports for the pressure module are located in the upper left quadrant of the DCT1000 Master Controller. The pressure module can be removed by compressing the retaining clips on each end of the module, then gently pulling the module out of the master controller board.

**When inserting the module, the following procedure should be adhered to insure proper installation:**

- Examine the bottom of the pressure module and note the orientation of the connectors.
- Align the module so that these connectors match the connector receptacles on the controller board.
- Orient the module with the four alignment pins over their respective mounting holes.
- Gently press the module into the connectors and snap the retaining clips on either end of the module into their slots.
- Always install and service this device with the power off and a lockout installed if required. "Hot" plugging the pressure module into an operating system may damage the system or cause the calibration parameters to be erased.



**CAUTION:** Do not force the module into the connectors. Forcing the insertion may damage the connectors. Properly aligned, the module should snap into place.





## **APPENDIX 4 - DCP100A/200A SERIES PRESSURE MODULES**

### **SPECIFICATIONS - INSTALLATION AND OPERATING INSTRUCTIONS (CONT'D)**

#### **1.3.1 — Alarm Mode Switch Connection**

The auto alarm reset is controlled by the alarm mode switch connection. To enable the auto alarm reset the alarm mode input must be connected to a common connection. A jumper may be used when auto alarm reset is always active. A switch may be used if there are times that the auto alarm reset must be disabled. The switch must be an isolated contact and wired such that no connection is made between either of the wires and ground.

#### **1.3.2 — Alarm Reset Switch Connection**

The alarm may be reset either by pressing the Alarm Reset button on the control panel or by an external switch connected between the alarm-reset terminal and one of the common terminals. The alarm reset will only operate if the pressure module is installed and the pressure has returned to a normal condition.

#### **1.3.3 — Connecting the 4-20 mA loop**

The pressure module provides an isolated 4-20 mA output, which may be used to remotely monitor the differential pressure across the dust bags or cartridges. The connection is made on the master control module at the terminal block designated for this signal. The connection is a 2-wire configuration with the option of using either an external 15 to 35 V DC power source or using the internal 24 V DC source.

#### **1.3.4 — Connecting the Alarm Relay**

With the pressure module installed, a relay contact is provided for controlling an external alarm. This relay is a single form-A contact. It is activated when either the high alarm threshold is exceeded, or the pressure drops below the low alarm threshold. The connection is made at the two-pin connector TB5.

### **2.0 — Demand Mode using a DCP100A/200A Pressure Module**

The DCT1000 system may be configured to be a self-contained on-demand control system with the installation of the DCP100A /200A pressure module. When this module is installed, the master controller detects it and automatically sets the system to an on-demand mode, enabling features associated with the pressure sensor. The following subparagraphs describe the setup and operation of these pressure related features.

#### **2.1 — High Limit Setup**

The High Limit Setup sets the pressure at which the cleaning cycle will begin. This value may be between zero and the pressure module calibration pressure. Normally, the High Limit should be above the Low Limit. If, however, the High Limit pressure is set below the Low Limit, the cleaning cycle will begin when the High Limit is exceeded and stop when the pressure falls below the High Limit. The Low Limit in this case will have no effect. Pressing both Up and Down buttons simultaneously and holding for about four seconds will restore the factory setting for High Limit to 5.0" w.c. [1.24 kPa].



## **APPENDIX 4 - DCP100A/200A SERIES PRESSURE MODULES**

### **SPECIFICATIONS - INSTALLATION AND OPERATING INSTRUCTIONS (END)**

#### **2.2 — Low Limit Setup**

The operation of the Low Limit mode is identical to the High Limit mode except that the default Low Limit pressure is 3.0" w.c. [0.75 kPa]. The upper setable value is the calibration pressure of the pressure module and the lower limit is zero. Press the Select button until the Low Limit indicator is illuminated. Use the Up and Down controls to set the limit to the desired setting. Pressing both Up and Down buttons simultaneously and holding for about four seconds will restore the factory default.

#### **2.3 — High Alarm Setup**

The operation of the High Alarm Setup is identical to the High and Low Limit Setup. The High Alarm default is 0.0" w.c. The upper setable value is the calibration pressure of the pressure module and the lower limit is zero. Press the Select button until the High Alarm indicator is illuminated. Use the Up and Down controls to set the limit to the desired setting. Pressing both Up and Down buttons simultaneously and holding for about four seconds will restore the factory default.

#### **2.4 — Low Alarm Setup**

The operation of the Low Alarm Setup is identical to the High and Low Limit Setup. The Low Alarm default is 0.0" w.c. The upper setable value is the calibration pressure of the pressure module and the lower limit is zero. Press the Select button until the Low Alarm indicator is illuminated. Use the Up and Down controls to set the limit to the desired setting. Pressing both Up and Down buttons simultaneously and holding for about four seconds will restore the factory default.

#### **2.5 — Auto Alarm Reset Setup**

The Auto Alarm Reset Setup mode allows the auto alarm reset time to be selected. This value may be set between zero and 255 seconds. The factory default value is five seconds. When the auto alarm reset is enabled by shorting the auto alarm reset terminal to a common terminal, the alarm will be reset after the pressure returns to the normal range and the selected timeout period has expired.

### **3.0 — Pressure Module Maintenance**

The pressure module should require very little maintenance under normal operational conditions. However, periodic calibration may be desirable to assure accuracy of the readings. The module may be removed and returned to the factory for calibration.



# DCT1000 TIMER CONTROLLER - PERIODICAL ADJUSTMENTS

## HOW IT WORKS

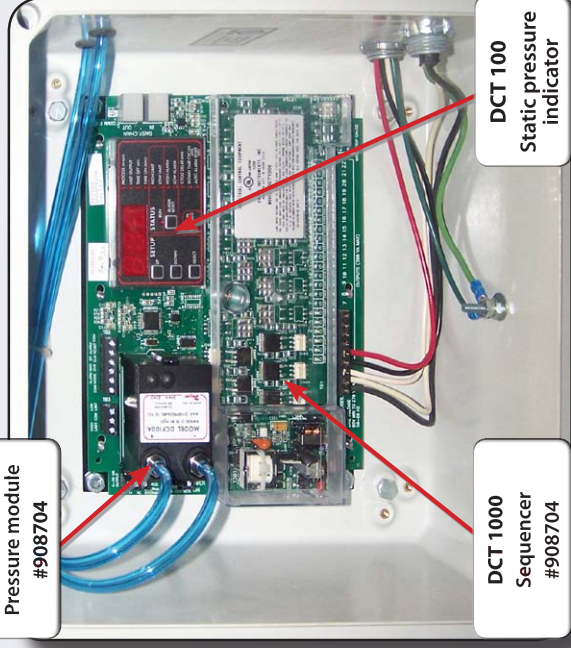
DCT1000 TIMER CONTROLLER

Static pressure loss



High limit / Low limit

DCP 100  
Pressure module  
#908704



DCT 1000  
Sequencer  
#908704

## MONITORING OF PRESSURE DROPS

The DCT1000 monitors the static pressure differential between the clean and the dirty sides of cartridge filters – so-called pressure drop. As the filters load with dust, the resistance to air flow increases, and so does the pressure drop.

Brand new cartridge filter set will indicate a process value between **0.2 and 1.0**. During the first few hours of operation, dust will build up on the cartridges' pores in order to reach their optimal filtration capacities – this process is commonly referred to as the "dust cake".

**High limit : 3.5**

**Low limit : 2.0**

Once the new cartridges are saturated with a dust layer, the normal operating value should be between **2 and 3.5** – which are the initial **Low Limit** and **High Limit** defined in the DCT1000.

## CARTRIDGE CLEANING

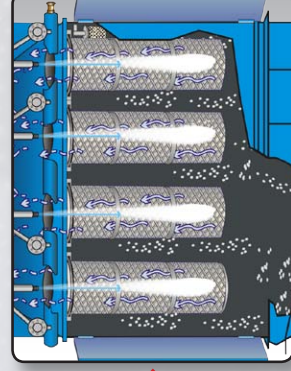
When the process value reaches the **High Limit**, the cleaning cycle starts emitting a series of pulses of air through each cartridge in order to dislodge exceeding amount of dust buildups. Pulses of air can be heard when the cycle is on.

During the cleaning cycle, the pressure drops should decrease on each pulse until it reaches the **Low Limit** which interrupts the cleaning cycle.

High Limit



REVERSE PULSE CLEANING



Low Limit





# DCT1000 TIMER CONTROLLER - PERIODICAL ADJUSTMENTS

## HOW IT WORKS (CONT'D)

### INITIAL VALUES

High limit : 3.5  
Low limit : 2.0

Stagnant pressure drop



### NEW VALUES

High limit : 3.9  
Low limit : 2.4



Follow the procedure below in order to extend the life span of your cartridge filters while maximizing the filtration capacity of your dust collector.

When the cleaning process of the cartridges is no longer able to reach the **Low Limit** value, the cleaning cycle will run continuously.

At that moment, it is advised to increase the **Low Limit** and **High Limit** in order to extend the life span of the cartridge media to a certain limit.

Start increasing the **Low Limit** and **High Limit** of the cleaning process by 2 decimals above the stagnant value. For example, if the cleaning cycle runs continuously and the process value on the DCT1000 indicates **2.2**, set the new **Low Limit to 2.4** and the new **High Limit to 3.9**.

### NEED TO REPLACE CARTRIDGES

#### FINAL VALUES

High limit : 8.5  
Low limit : 7.0

Keep increasing moderately until your cartridges are incapable of reaching a **Low Limit of 7.0**. At that moment, it is time to change your cartridge filters and reset your process values to initial **Low Limit 2.0** and **High Limit 3.5**.

### REPLACEMENT OF CARTRIDGE FILTERS

Change all your cartridge filters at the same time, regardless of their individual condition.

If you notice a damaged cartridge, immediately replace all your cartridge filters at once – if a cartridge filter is damaged and/or perforated, it may cause severe damage to your impeller and mislead the DCT1000 timer controller in its ability to control the cartridges cleaning cycles properly.

**Refer to the owner's manual for parts number and changing procedure.**

# DCT1000 TIMER CONTROLLER - PERIODICAL ADJUSTMENTS

## ADJUSTMENTS

Use the keys (Select) and (Up) (Down) you will be able to change some parameter

Note: Your unit has been programmed in the factory, if you change some settings be sure to write down the initial settings



### SETTINGS

**Process:** Value displayed during operation of the fan (inches of water restriction cartridges)

**Last Output:** Number of active solenoid (this value can not be changed because the system auto-detects the number of active coil connected to the card)

**Time Off:** downtime between each pulse (value 10 seconds)

ON Time: Time pulse valves (value 250 milliseconds)

**High Limit:** The value to which the cleanup will begin (value between 2.5 and 3.5)

**Low limit:** The value to which the cleaning will stop automatically (value between 1.5 and 2.5)

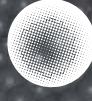
**High Alarm:** Value must be reached to activate alarm (High limit value 2)

**Low Alarm: Value must be reached to activate alarm (value = 0)**

**Cycle Delay:** This value is to operate in manual mode (value = 0)

**Down time cycles:** This value is to operate in manual mode (value = 0)

**Auto Alarm reset:** This value is to operate in manual mode (value = 0)



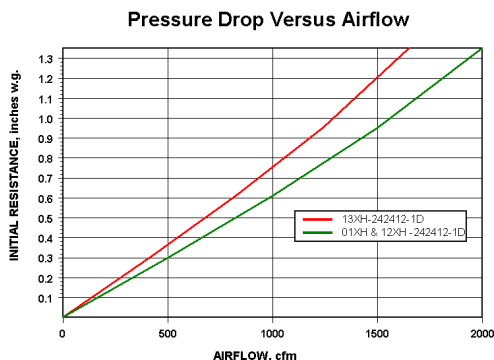




## APPENDICE 4 - DUST COLLECTOR HEPA FILTER TECHNICAL DATA



**Tapered separators allow increased media area for energy savings or more airflow in air-starved systems**

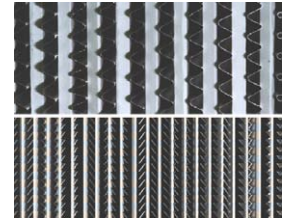


Camfil Farr high-capacity absolute filters are manufactured from the highest quality components, under demanding quality control conditions, and are certified to ensure performance in the most critical of applications. The XH is available in efficiencies from 99.97% to 99.999% on 0.3 micron particles. The XH is your choice for HEPA level air filtration in applications wherein ultra-clean air, increased airflow capacity and energy-savings are critical. Each Camfil Farr XH absolute includes:

A galvanized 16-gauge steel frame to create a durable, dimensionally stable corrosion-resistant enclosure.

X-Body frame that is assembled without the use of penetrating fasteners to ensure leak-free performance throughout the life of the filter. Our unique urethane potting process completely encapsulates the filter pack within the enclosing frame.

Safe-edge tapered corrugated aluminum separators (allowing up to 88% more media area than standard HEPA filters) to ensure uniform airflow throughout the media pack and maintain pack stability. The edges of the separators are hemmed for added strength and to protect the media from damage during manufacture, shipping and installation.



Micro glass fiber media to provide efficiency to specified performance values. The media is highly resistant to moisture in high humidity environments.

A one-piece seamless urethane gasket to ensure a leak-free filter-to-holding mechanism seal. (A neoprene dove-tailed juncture gasket is also available).

Every Camfil Farr absolute filter is individually tested per IEST Recommended Practice IEST-RP-CC001 (Type A, C or D). Each unit is labeled noting tested efficiency, penetration, rated and performing airflow, pressure drop and a unique serial number for unit tracking and quality assurance.





## APPENDICE 4 - DUST COLLECTOR HEPA FILTER SPECIFICATION SHEET

8		7		6		5		4		3		2		1	
NOMINAL SIZE (inches)	ACTUAL (in.)		ACTUAL (mm)		AIRFLOW CAPACITY (cfm)	CAMFIL MODEL NUMBER	NOMINAL SIZE (inches)	ACTUAL (in.)		ACTUAL (mm)		AIRFLOW CAPACITY (cfm)	CAMFIL MODEL NUMBER		
	H	W	H	W				H	W	H	W				
12x12x1	11.50	11.50	292	292	350	054862-025	16x25x4	15.38	24.38	391	619	1390	059413-022		
16x16x1	15.50	15.50	394	394	620	054862-012	20x16x4	19.38	15.38	492	391	1110	059413-004		
20x10x1	19.50	9.50	495	241	485	054862-016	20x20x4	19.38	19.38	492	492	1390	059413-003		
20x12x1	19.50	11.50	495	292	585	054862-019	20x24x4	19.38	23.38	492	594	1665	059413-023		
20x14x1	19.50	13.50	495	343	680	054862-006	20x25x4	19.38	24.38	492	619	1735	059413-021		
20x15x1	19.50	14.50	495	368	730	054862-008	24x12x4	23.38	11.38	594	289	1000	059413-002		
20x16x1	19.50	15.50	495	394	780	054862-001	24x16x4	23.38	15.38	594	391	1335	059413-011		
20x18x1	19.50	17.50	495	445	875	054862-020	24x18x4	23.38	17.38	594	441	1500	059413-009		
20x20x1	19.50	19.50	495	495	970	054862-002	24x20x4	23.38	19.38	594	492	1665	059413-008		
20x30x1	19.50	29.50	495	749	1460	054862-029	24x24x4	23.38	23.38	594	594	2000	059413-001		
22x22x1	21.50	21.50	546	546	1175	054862-021	25x16x4	24.38	15.38	619	391	1390	059413-005		
24x10x1	23.50	9.50	597	241	585	054862-022	25x20x4	24.38	19.38	619	492	1735	059413-006		
24x12x1	23.50	11.50	597	292	700	054862-010	25x25x4	24.38	24.38	619	619	2170	059413-010		
24x14x1	23.50	13.50	597	343	815	054862-026	25x29x4	24.38	28.38	619	721	2515	059413-007		
24x16x1	23.50	15.50	597	394	935	054862-015									
24x18x1	23.50	17.50	597	445	1050	054862-028									
24x20x1	23.50	19.50	597	495	1165	054862-011									
24x24x1	23.50	23.50	597	597	1400	054862-005									
25x10x1	24.50	9.50	622	241	610	054862-023									
25x12x1	24.50	11.50	622	292	730	054862-024									
25x14x1	24.50	13.50	622	343	850	054862-007									
25x15x1	24.50	14.50	622	368	910	054862-013									
25x16x1	24.50	15.50	622	394	970	054862-004									
25x18x1	24.50	17.50	622	445	1095	054862-017									
25x20x1	24.50	19.50	622	495	1215	054862-003									
25x25x1	24.50	24.50	622	622	1520	054862-014									
12x12x2	11.62	11.62	295	295	500	402314-001									
16x16x2	15.50	15.50	394	394	890	049880-019									
16x25x2	15.50	24.50	394	622	1390	049880-024									
18x18x2	17.50	17.50	445	445	1125	049880-022									
20x10x2	19.50	9.50	495	241	695	049880-008									
20x12x2	19.50	11.50	495	292	835	049880-007									
20x14x2	19.50	13.50	495	343	970	049880-009									
20x15x2	19.50	14.50	495	368	1040	049880-011									
20x16x2	19.50	15.50	495	394	1110	049880-001									
20x18x2	19.50	17.50	495	445	1250	049880-013									
20x20x2	19.50	19.50	495	495	1390	049880-002									
20x24x2	19.50	23.50	495	597	1665	049880-023									
20x25x2	19.50	24.50	495	622	1735	049880-021									
20x30x2	19.50	29.50	495	749	2085	402271-007									
24x12x2	23.38	11.38	594	289	1000	049880-006									
24x16x2	23.50	15.50	597	394	1335	049880-016									
24x18x2	23.50	17.50	597	445	1500	049880-015									
24x20x2	23.50	19.50	597	495	1665	049880-012									
24x24x2	23.38	23.38	594	594	2000	049880-005									
25x14x2	24.50	13.50	622	343	1215	049880-010									
25x15x2	24.50	14.50	622	368	1300	049880-020									
25x16x2	24.50	15.50	622	394	1390	049880-004									
25x18x2	24.50	17.50	622	445	1565	049880-014									
25x20x2	24.50	19.50	622	495	1735	049880-003									
25x25x2	24.50	24.50	622	622	2170	049880-018									

GENERAL NOTES:

1. MEDIUM EFFICIENCY, MERV 8 PANEL PLEATED DISPOSABLE FILTER. EFFICIENCY IS TESTED IN ACCORDANCE WITH ASHRAE 52.2-(LATEST REV). ALSO CLASSIFIED AS MERV-A 8-A PER APPENDIX J OF SAME STANDARD. PER ISO 16890, FILTER MEETS ISO ePM<sub>10</sub> 50% EFFICIENCY.

2. AVAILABLE SIZES (NOMINAL); SEE TABULATION BLOCK.

3. SEE CAMFIL BULLETIN 1002 FOR OTHER FEATURES, CONSTRUCTION, AND PERFORMANCE CHARACTERISTICS.

4. FILTER THICKNESS "D":  
1" NOMINAL = 0.88" ACTUAL  
2" NOMINAL = 1.75" ACTUAL  
4" NOMINAL = 3.75" ACTUAL  
FILTER CLASSIFIED AS UL 900.

5. MAX OPERATING TEMP: 200°F (93°C)

PERFORMANCE NOTES:

1. SEE TABULATION BLOCK FOR AIRFLOW CAPACITY.

2. CAMFIL RECOMMENDS FILTER TO BE INSTALLED WITH THE PLEATS RUNNING VERTICALLY, PARALLEL TO HEIGHT DIMENSION.

30/30°

24x24x2

049880-005

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## APPENDICE 4 - DUST COLLECTOR HEPA FILTER SPECIFICATION SHEET (CONT'D)

F		E		D		C		B		A	
1		2		3		4		5		6	
PART NUM.		CAPACITY (CFM) @ 1.35 IN. W.G.		SIZE (H x W x D) (inches)		DESCRIPTION		MATERIAL NOTES:		TESTING NOTES:	
855210989	1350	20 X 20 X 11-1/2	01XH-20Z20Z12-1D-3-C-A-00-0/00	1. FILTER MEDIA: MICRO-GLASS FIBER / ACRYLIC RESIN BINDER		1. EACH FILTER SHALL BE TESTED FOR EFFICIENCY IN ACCORDANCE WITH TEST-RP-CC-007.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210008	2000	24 X 24 X 11-1/2	01XH-24Z24Z12-1D-3-C-A-00-0/00	2. FRAME MAT'L: 16 GAUGE GALVANNEAL STEEL		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210061	930	12 X 24 X 11-1/2	01XH-12Z24Z12-1D-3-C-A-00-0/00	3. SEALANT MAT'L: FIRE RETARDANT/PHOSPHORUS FREE TWO PART POLYURETHANE		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210164	430	12 X 12 X 11-1/2	01XH-12Z12Z12-1D-3-C-A-00-0/00	4. GASKET MATERIAL: SEAMLESS URETHANE FOAM, DOWNSTREAM		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210007	1890	23 X 3/8 X 11-1/2	01XH-23F23F12-1D-3-C-A-00-0/00	5. GASKET MATERIAL: SEAMLESS URETHANE FOAM, DOWNSTREAM		5. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		5. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		5. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210006	930	24 X 12 X 11-1/2	01XH-24Z12Z12-1D-3-C-A-00-0/00	1. FILTER MEDIA: MICRO-GLASS FIBER / ACRYLIC RESIN BINDER		1. EACH FILTER SHALL BE TESTED FOR EFFICIENCY IN ACCORDANCE WITH TEST-RP-CC-007.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210039	2530	24 X 30 X 11-1/2	01XH-24Z30Z12-1D-3-C-A-00-0/00	2. FRAME MAT'L: 16 GAUGE GALVANNEAL STEEL		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210171	3200	30 X 30 X 11-1/2	01XH-30Z30Z12-1D-3-C-A-00-0/00	3. SEALANT MAT'L: FIRE RETARDANT/PHOSPHORUS FREE TWO PART POLYURETHANE		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210486	1200	15 X 24 X 11-1/2	01XH-15Z24Z12-1D-3-C-A-00-0/00	4. GASKET MATERIAL: SEAMLESS URETHANE FOAM, DOWNSTREAM		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210999	970	15-3/8 X 19-3/8 X 11-1/2	01XH-15F19F12-1D-3-C-A-00-0/00	1. FILTER MEDIA: MICRO-GLASS FIBER / ACRYLIC RESIN BINDER		1. EACH FILTER SHALL BE TESTED FOR EFFICIENCY IN ACCORDANCE WITH TEST-RP-CC-007.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210005	850	23-3/8 X 11-3/8 X 11-1/2	01XH-23F11F12-1D-3-C-A-00-0/00	2. FRAME MAT'L: 16 GAUGE GALVANNEAL STEEL		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210587	1460	18 X 24 X 11-1/2	01XH-18Z24Z12-1D-3-C-A-00-0/00	3. SEALANT MAT'L: FIRE RETARDANT/PHOSPHORUS FREE TWO PART POLYURETHANE		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210633	2530	30 X 24 X 11-1/2	01XH-30Z24Z12-1D-3-C-A-00-0/00	4. GASKET MATERIAL: SEAMLESS URETHANE FOAM, DOWNSTREAM		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210789	1640	20 X 24 X 11-1/2	01XH-20Z24Z12-1D-3-C-A-00-0/00	1. FILTER MEDIA: MICRO-GLASS FIBER / ACRYLIC RESIN BINDER		1. EACH FILTER SHALL BE TESTED FOR EFFICIENCY IN ACCORDANCE WITH TEST-RP-CC-007.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855211069	1540	23-3/8 X 19-3/8 X 11-1/2	01XH-23F19F12-1D-3-C-A-00-0/00	2. FRAME MAT'L: 16 GAUGE GALVANNEAL STEEL		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855211124	720	15 X 15 X 11-1/2	01XH-15Z15Z12-1D-3-C-A-00-0/00	3. SEALANT MAT'L: FIRE RETARDANT/PHOSPHORUS FREE TWO PART POLYURETHANE		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210157	850	11-3/8 X 23-3/8 X 11-1/2	01XH-11F23F12-1D-3-C-A-00-0/00	4. GASKET MATERIAL: SEAMLESS URETHANE FOAM, DOWNSTREAM		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210752	1560	23-1/2 X 19-1/2 X 11-1/2	01XH-23H19H12-1D-3-C-A-00-0/00	1. FILTER MEDIA: MICRO-GLASS FIBER / ACRYLIC RESIN BINDER		1. EACH FILTER SHALL BE TESTED FOR EFFICIENCY IN ACCORDANCE WITH TEST-RP-CC-007.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210886	1260	19-3/8 X 19-3/8 X 11-1/2	01XH-19F19F12-1D-3-C-A-00-0/00	2. FRAME MAT'L: 16 GAUGE GALVANNEAL STEEL		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210305	1640	24 X 20 X 11-1/2	01XH-24Z20Z12-1D-3-C-A-00-0/00	3. SEALANT MAT'L: FIRE RETARDANT/PHOSPHORUS FREE TWO PART POLYURETHANE		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210890	710	16 X 14 X 11-1/2	01XH-16Z14Z12-1D-3-C-A-00-0/00	4. GASKET MATERIAL: SEAMLESS URETHANE FOAM, DOWNSTREAM		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210487	1520	15 X 30 X 11-1/2	01XH-15Z30Z12-1D-3-C-A-00-0/00	1. FILTER MEDIA: MICRO-GLASS FIBER / ACRYLIC RESIN BINDER		1. EACH FILTER SHALL BE TESTED FOR EFFICIENCY IN ACCORDANCE WITH TEST-RP-CC-007.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855211278	1540	19-3/8 X 23-3/8 X 11-1/2	01XH-19F23F12-1D-3-C-A-00-0/00	2. FRAME MAT'L: 16 GAUGE GALVANNEAL STEEL		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855211331	1600	20 X 23-1/2 X 11-1/2	01XH-20Z23H12-1D-3-C-A-00-0/00	3. SEALANT MAT'L: FIRE RETARDANT/PHOSPHORUS FREE TWO PART POLYURETHANE		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855211332	910	12 X 23-1/2 X 11-1/2	01XH-12Z23H12-1D-3-C-A-00-0/00	4. GASKET MATERIAL: SEAMLESS URETHANE FOAM, DOWNSTREAM		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855211319	650	23-5/8 X 9 X 11-1/2	01XH-23J09Z12-1D-3-C-A-00-0/00	1. FILTER MEDIA: MICRO-GLASS FIBER / ACRYLIC RESIN BINDER		1. EACH FILTER SHALL BE TESTED FOR EFFICIENCY IN ACCORDANCE WITH TEST-RP-CC-007.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		1. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
855210208	1460	24 X 18 X 11-1/2	01XH-24Z18Z12-1D-3-C-A-00-0/00	2. FRAME MAT'L: 16 GAUGE GALVANNEAL STEEL		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
SUBMITTAL	2400	23-3/8 X 29-3/8 X 11-1/2	01XH-23F29F12-1D-3-C-A-00-0/00	3. SEALANT MAT'L: FIRE RETARDANT/PHOSPHORUS FREE TWO PART POLYURETHANE		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		3. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	
2240	2240	18 X 36 X 11-1/2	01XH-18Z36Z12-1D-3-C-A-00-0/00	4. GASKET MATERIAL: SEAMLESS URETHANE FOAM, DOWNSTREAM		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.		4. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.	

**MATERIAL NOTES:**

1. FILTER MEDIA: MICRO-GLASS FIBER / ACRYLIC RESIN BINDER
2. SEPARATOR MAT'L: CORRUGATED, 0.0015 THICK, 1145 ALUMINUM
3. FRAME MAT'L: 16 GAUGE GALVANNEAL STEEL
4. SEALANT MAT'L: FIRE RETARDANT/PHOSPHORUS FREE TWO PART POLYURETHANE
5. GASKET MATERIAL: SEAMLESS URETHANE FOAM, DOWNSTREAM

**TESTING NOTES:**

1. EACH FILTER SHALL BE TESTED FOR EFFICIENCY IN ACCORDANCE WITH  
TEST-RP-CC-007.
2. FILTER MEETS TEST-RP-CC001 TYPE H PERFORMANCE LEVEL.

**FILTER SPECIFICATIONS:**

PLEAT DEPTH (IN): 10-1/2 NOMINAL

EFFICIENCY: 99.97% MIN vs. 0.2-0.3 micron

MAX. OPERATING TEMP: 175 °F

MAX. REL. HUMIDITY: 99%

**UL RATINGS:**

1. FILTERS MEET UL-586 AND UL-900

**FRAME TOLERANCES:**

LENGTHS: +0, -1/8"

DIAGONALS: WITHIN 1/8" TOTAL ALLOWANCE FOR DIAGONALS < 30 in.  
WITHIN 1/4" TOTAL ALLOWANCE FOR DIAGONALS ≥ 30 in.

AIR FLOW

HEPA FILTER

W

H

D

LABEL

**CUSTOMER APPROVAL BLOCK**

YOUR APPROVAL OF THIS PRINT AUTHORIZES CAMFIL FAB TO PROCEED WITH MATERIAL PROCUREMENT, TOOLING AND PRODUCT FABRICATION. ANY CHANGES MADE AFTER APPROVAL MAY INCUR FURTHER EXPENSES TO THE CUSTOMER.

☐ OK AS IS ☐ SEND REVISED IMG

SIGNATURE/DATE: \_\_\_\_\_ DATE: \_\_\_\_\_ DRAWN BY: \_\_\_\_\_ DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_ DATE: 9/24/08 JC 9/24/08 1 of 1

REV. \_\_\_\_\_

DRAWING NUMBER: 500776

REV. \_\_\_\_\_



## **ISTBLAST LIMITED WARRANTY**

**ISTblast** warrants all equipment led in this manual which is manufactured by **ISTblast** and bearing its name, to be free from defects in material and workmanship on the date of sale by an authorized **ISTblast** distributor to the original purchaser for use. Notwithstanding any special, extended or limited warranty published by **ISTblast** will, for a period of TWELVE (12) months from the date of sale, repair or replace any part of the equipment determined by **ISTblast** to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with **ISTblast** 's written recommendations.

This warranty does not cover, and **ISTblast** shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non- **ISTblast** component parts. Nor shall **ISTblast** be liable for malfunction, damage or wear caused by the incompatibility with **ISTblast** equipment with structures, accessories, equipment or materials not supplied by **ISTblast** , or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by **ISTblast** .

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized **ISTblast** distributor for verification of the claimed defect. If the claimed defect is verified, **ISTblast** will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser, transportation prepaid. If the inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

**ISTblast** 's sole obligation and the buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought forward within one (1) year of the date of sale.

**ISTblast MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY ISTblast .** These items sold, but not manufactured by **ISTblast** (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. **ISTblast** will provide the purchaser with reasonable assistance in making any claim for breach of these warranties.

### **LIMITATION OF LIABILITY**

In no event will **ISTblast** be liable for indirect, incidental, special or consequential damages resulting from **ISTblast** supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of **ISTblast** , or otherwise.

**Report all accidents or "near misses" which involve ISTblast products to:**

- Technical Assistance

**The following items are not covered under the ISTblast warranty policy:**

- Parts or chassis replacement due to normal wears.

**Defective material or workmanship is not considered normal wear**





## ISTBLAST WARRANTY REGISTRATION

**ISTblast would like to thank you for your recent purchase of our product line. Please complete the card below and either mail or fax it to our office so that we may start the warranty of your product and keep you up to date on the EPA regulations by fax. Again, thank you for your purchase and if you have any suggestions or comments, please feel free to contact our office.**

COMPANY NAME :		
ADDRESS :		
CITY :	STATE/PROV. :	
COUNTRY :	ZIP CODE :	
CONTACT :		
TEL. NUMBER:		
FAX NUMBER:		
PURCHASE FROM:		
DATE OF PURCHASE:		
Month	Day	Year
SERIAL NUMBER:	MODEL NUMBER:	
TYPE OF MEDIA USED:		
Which factors most influenced your decision to purchase this ISTblast unit?		

**SUGGESTIONS ABOUT THE EQUIPMENT:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

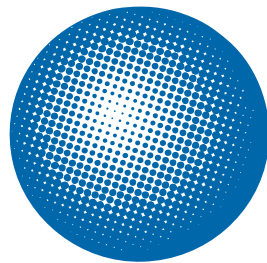
**IMPORTANT! Please complete and return within 30 days after purchase to activate the warranty.**

**PLEASE SEND THE COMPLETED FORM TO :**  
**info@istsurface.com or 450 963-5122**



## INFORMATION / TECHNICAL ASSISTANCE

**ISTblast** is a registered trademark of:



International  
Surface  
Technologies  
istsurface.com

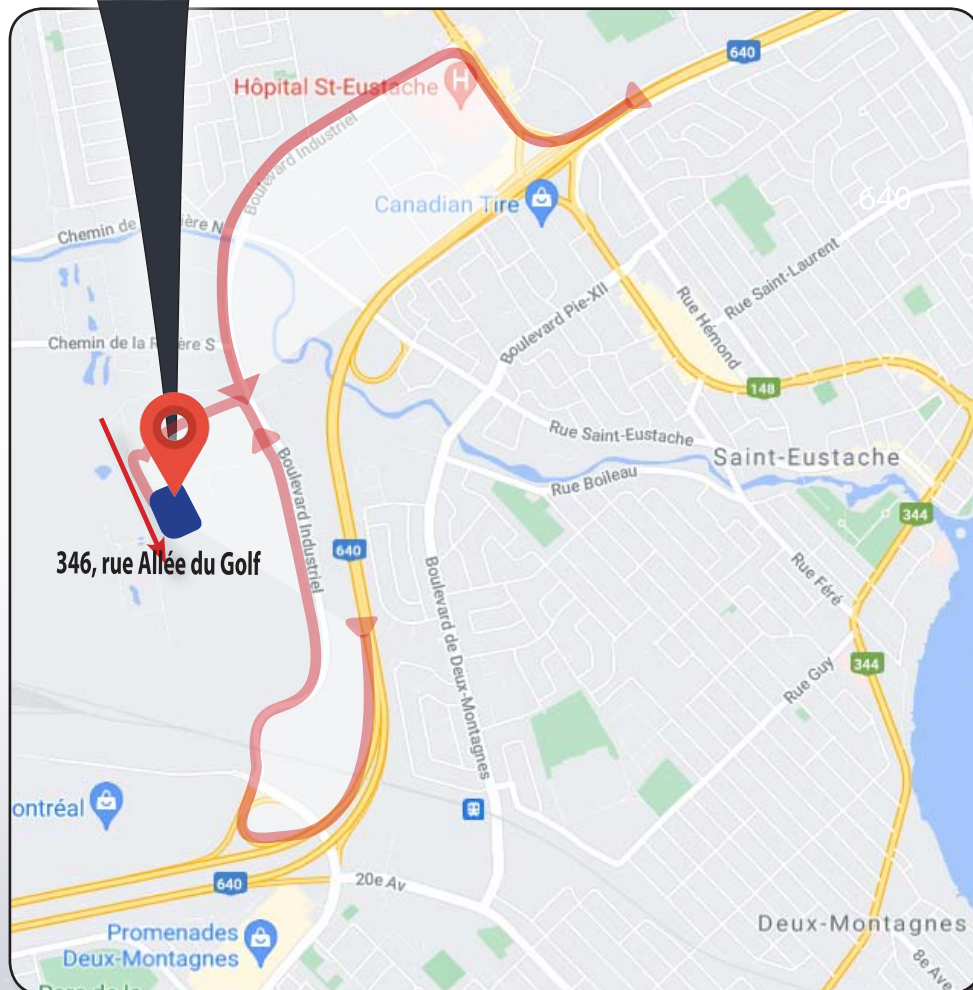
For more information, pricing or technical support, contact your local IST distributor or call / fax to our Consumer Information num-

**TEL.: 1 877 629-8202 & 450 963-4400 FAX : 450 963-5122**

Or visit us at:  
**istsurface.com**



## OUR MAP LOCATION





## ABOUT THE COMPANY

### WHO WE ARE

IST is a leading industrial manufacturer of standard and custom engineered equipment for the surface treatment industry and the solvent recycling industry.

### MISSION

IST is dedicated to being an innovative and trusted supplier in the conception, fabrication and distribution of surface treatment equipment and recycling equipment.

The success of our mission relies on the following core values :

### **Innovation - Integrity - Quality**

The products, technologies and industry expertise of IST are used in a wide range of manufacturing and industrial applications, including but not limited to :

- General Manufacturing
- Industrial Equipment
- Metal forming
- Aerospace and Aviation
- Rail and Transit
- Marine
- Automotive
- Petroleum
- Flexography (labelling) & Lithography
- Wood finishing
- Power & Energy
- Pharmaceutical

