OPERATING INSTRUCTIONS

Blast Cabinets

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MADE IN THE USA

Operating Instructions For Blast Cabinets

Blast Cabinet System is made up of 3 Main Components

These components are shown below:

DUST COLLECTOR

SCDC

BLAST MACHINE

HOPPER

RECLAIMER STACK

BLAST CABINET

Titan Abrasive

PO Box 750

Montgomeryville, PA 18936

SCDC DUST COLLECTOR:

The SCDC Cartridge Dust Collector has it's own Manual / Operating Instructions - see operating instructions TITAN SCDC Cartridge Dust Collector.

The SCDC Cartridge Dust Collector will be referenced and refered to in this Manual / Operating Instructions.

BLAST MACHINE / HOPPER / RECLAIMER STACK:

The BLAST MACHINE has it's own Manual/Operating Instructions - see operating instructions TITAN UltraBlast Stationary Blast Machine. All specific Information, Equipment, Configurations and Options will be covered in this Manual / Operating Instructions.

The HOPPER (300 Hopper) is covered in the TITAN Stationary Manual / Operating Instructions.

The RECLAIMER (900 / 1200 cfm) is covered in the TITAN Stationary Manual / Operating Instructions.

The BLAST MACHINE / HOPPER / RECLAIMER STACK will be referenced and refered to in this Manual / Operating Instructions.

BLAST CABINET ASSEMBLY:

The BLAST CABINET ASSEMBY is completely covered in this Manual / Operating Instructions, Including Set Up, Operation, Maintenance, Troubleshooting, Optional Equipment and Parts.

APPLICATION OF DUST CONTROL EQUIPMENT:

- Special care must be taken when combustible materials are present. These materials may present a fire or explosion hazard. Please consult and comply with all National and Local Fire codes and or other appropriate codes when determining the location and operation of dust collection equipment.
- Avoid mixing combustible materials with dust generated from grinding of ferrous metals due to the potential fire hazard caused by sparks being pulled into the dust collection equipment.
- When dust collection equipment is used to collect flammable or explosive dusts, the dust collection equipment should be located outside the building. Also, an installer of fire extingushing equipment, familiar with this type of fire hazard and local fire codes, should be consulted for recommendations and installation of the proper fire extinguishing equipment. Titan Dust Collectors do NOT contain fire extinguishing equipment.
- Explosion relief vents are required on some applications. Vents installed on dust collection equipment within a building must relieve to the outside of the building to minimze the chance of a secondary explosion. Consult the proper authority to determine proper method of venting the dust collection equipment. Titan Dust Collection equipment does NOT come standard with explosion relief vents.
- Explosive dust can be generated from blast media, removed coatings and substrates. An extreme concentration of dust may combust if ignited by spark or flame. As a precaution, clean the system and empty the dust collector often. Change media that has excessive dust concentration.
- Emptying the Dust Collector: Always wear an appropriate dust mask when emptying the dust collector and changing filters. Empty the dust collector daily.

IMPORTANT WARNING

SILICA SAND IS NOT TO BE USED IN ANY TITAN BLAST EQUIPMENT

Safety Precautions

Read this manual completely before installing and operating the Titan Blast Cabinet.

Never attempt to service “any component” of your Titan Blast Cabinet System while the system power is on / running.

For maximum safety, never install, remove or modify any part of the main electrical and/or air supply of the Titan Blast Cabinet System (including replacement of filter cartridges) without first shutting off or disconnecting both air and electrical supply.

Dust removal from the SCDC Cartridge Collector Hopper by slide gate should only be attempted when Blast Cabinet and collector are off (not in service).

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1 Introduction

1.1 Contents of this Manual

This manual covers the Operation and Maintenance of all Titan Abrasive Blast Cabinets manufactured after June 2021.

Read this manual carefully and keep it handy for future reference.

Replacement parts can be ordered online 24/7 at www.titanabrasive.com. Technical and field support is always available from the factory. If you have any questions regarding the operation or maintenance of your Titan equipment please contact us at (215) 310-5055 or email: tech@titanabrasive.com

(Titan 4848 – cabinet only)

1.2 Normal Operation

During normal operation, clean air enters the blast cabinet through the top filtered air inlet and is directed forward past the window assembly (creating a constant clean air wash over the window area - for better viewing during blasting). The clean air is then mixed with media and dust in the main blast chamber of the blast cabinet. The contaminated air is dircted downward through the floor and into the blast cabinet cone, where it exits through the bottom outlet and hose to the reclaim system. (See figure 1)

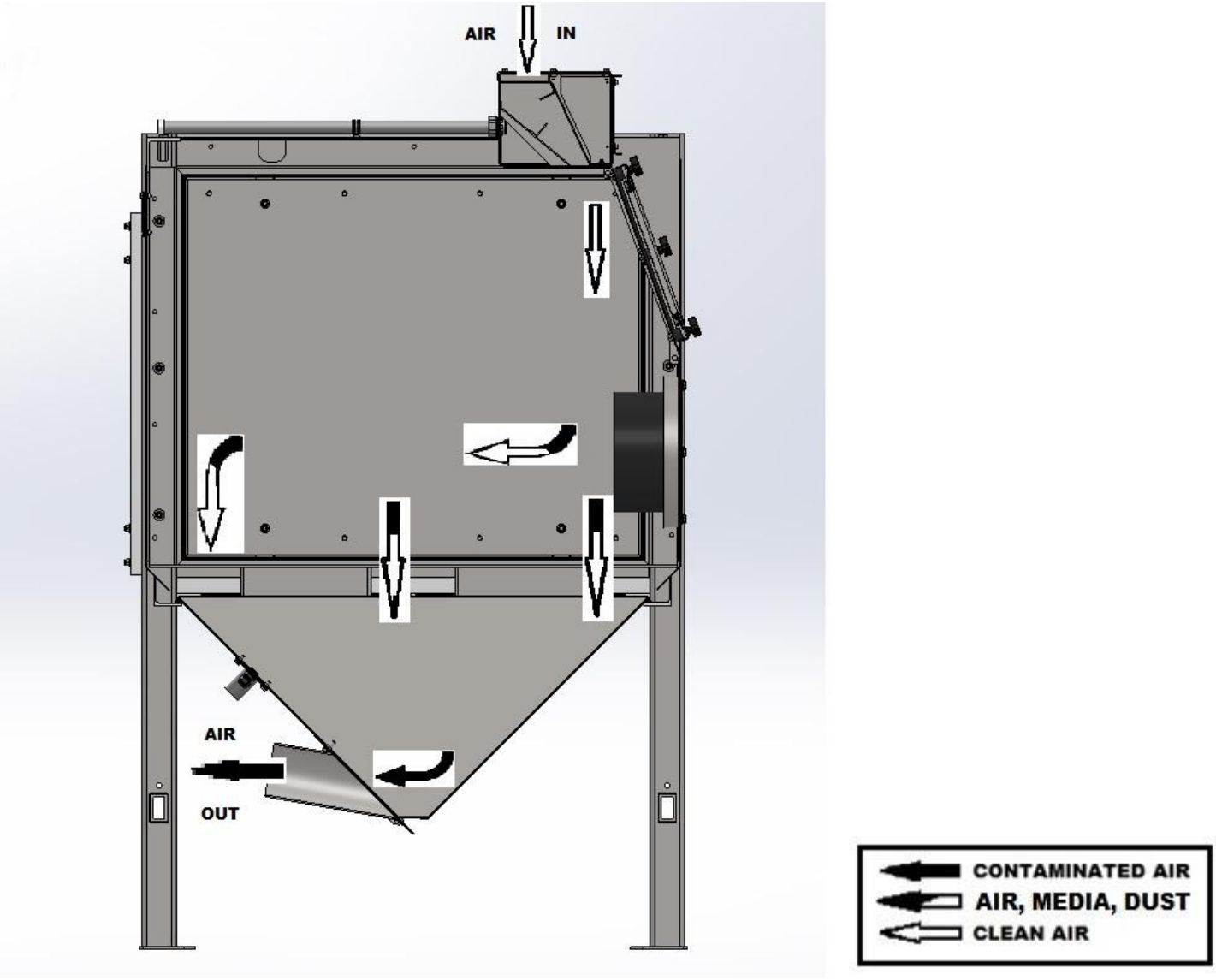


Figure 1

1.3 Cartridge Filter Cleaning

Filter cartridges are cleaned manually (standard), by an operator controlled push button located on the control panel above the operator. The filter cartridge pulse cleaning system cleans one filter at a time (2 total).

The pulse cleaning system, along with the optional solid state timer, or (energy efficient) photohelic gauge, is covered in the separate SCDC Cartrige Dust Collector Manual. The SCDC Cartridge Dust Collector Manual also covers the entire setup, operation, maintence, troubleshooting and parts for your TITAN SCDC Cartridge Dust Collector.

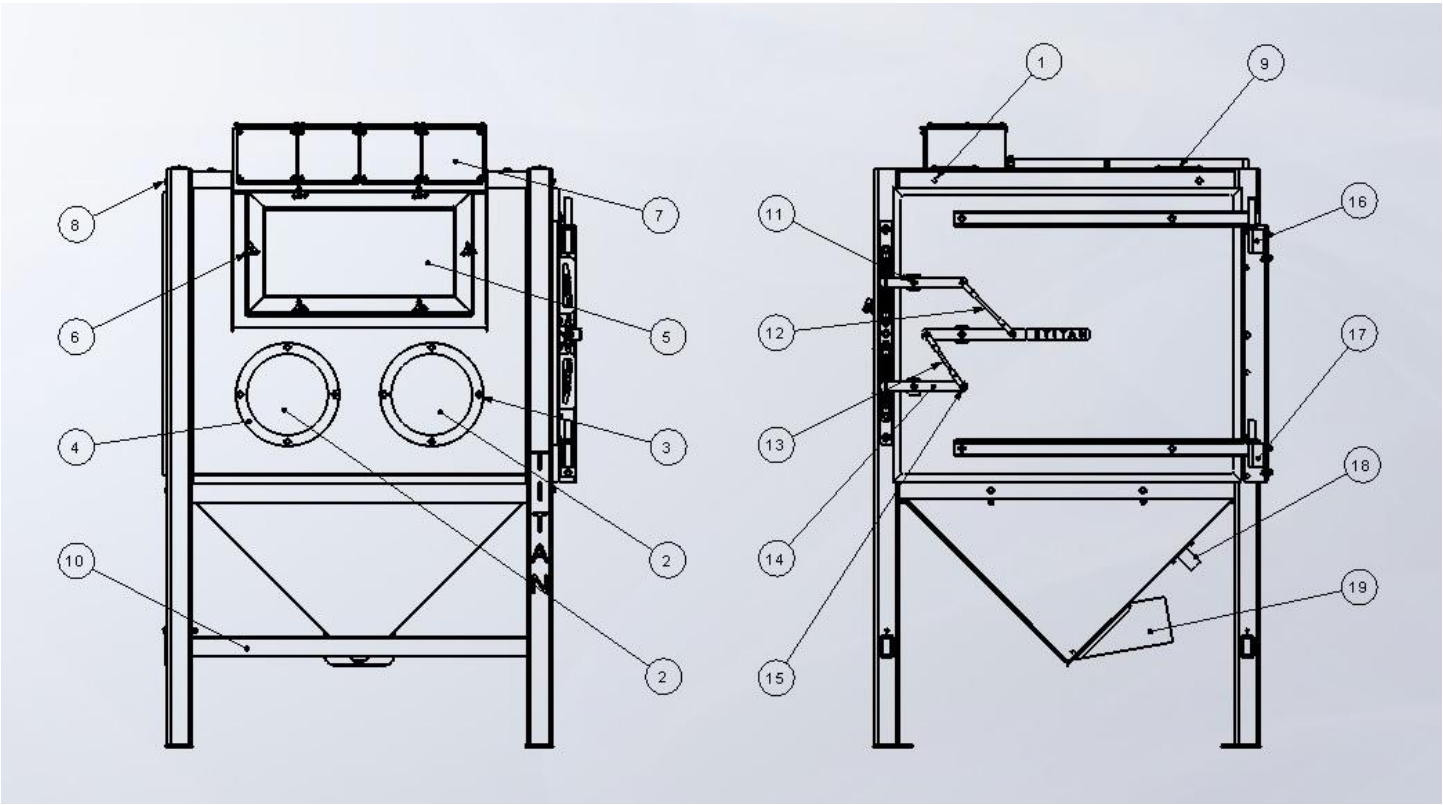
1.4 Additional Information

1.5 NOTES:

2 Blast Cabinet Assembly

2.1 Description

The Blast Cabinet is illustrated in *Figure 2* and the parts list is provided in *Table 2*. Reference numbers in *Figure 2* correspond to the numbered items in *Table 2*.



FRONT VIEW **SIDE VIEW**

Figure 2

Table 2-1 Part List for the TITAN Blast Cabinet

Ref.	Part Number	Description
1	BC-PROXSENS	DOOR PROX SENSOR
2	9650 9650R 9650L	GLOVES, PAIR, 10” X 33” GLOVE, RIGHT, 10” X 33” GLOVE, LEFT, 10” X 33”
3	RAR10GL	GLOVE FLANGE, 10”
4	9648-10	GLOVE CLAMP, 10”
5	BC-WIND1426	WINDOW GLASS
6	BC-THK3816	KNOB, WINDOW
7	BOPBCB	CONTROL PANEL PLATES, BLANK
8	DRTRCAB2	DOOR TRIPPER FOR PROX SENSOR
9	HTCPCAB	COVER PLATE
10	LFTBR48 / LFTBR60	LIFTING BAR KIT
11	SS3816x38-KIT	DOOR PIVOT KIT
12	TR3816x4SS TR3816x8SS	DOOR LOCKING EXTENSION ROD, SHORT 4848 DOOR LOCKING EXTENSION ROD, SHORT 6060
13	TR3816x6SS TR3816x9SS	DOOR LOCKING EXTENSION RED, LONG 4848 DOOR LOCKING EXTENSION RED, LONG 6060
14	LPPSDCAB	DOOR PIVOT PLATE
15	BC-CRE3816	DOOR CLEVIS KIT
16	SDHAU48 SDHAU60	DOOR HINGE, UPPER, 4848 DOOR HINGE, UPPER, 6060
17	SDHAL48 SDHAL60	DOOR HINGE, LOWER, 4848 DOOR HINGE, LOWER, 6060
18	BHBPWCAB X	BLAST & BLOWOFF PLATE, KIT, ½” BLAST & BLOWOFF PLATE KIT, ¾”
19	HAW4CAB HAW6CAB	OUTLET PLATE KIT, 4” OUTLET PLATE KIT, 6”
20	9643	BLOWOFF GUN (NOT SHOWN)

Note: Recommended Spare Parts (Section 5), page 36.

Individual Components Parts (Section 6), page 37.

2.2 Principles of Operation

Titan Blast Cabinet System starts operating when a remote Blower Fan (located on SCDC Collector) starts rotation – the resulting air flow pulls fresh air in thru the cabinet Inlet (above window & behind control enclosure) thru Cabinet Work Area and out thru the conveying hose at the bottom of the cabinet cone. The Conveying hose then moves the air/media thru the reclaimer – separating dust from reusable media. Dust enters into the Dirty Side of Collector thru the collector Inlet. Air moves thru filter Media – depositing Dust particles on Dirty Side of Cartridges. The now Clean air moves thru the Clean Side of the Collector and Exits thru the Blower Outlet. Meanwhile the reusable media is screened in the lower half of the reclaimer (where any debris / trash is separated from reusable media) – media is then stored in hopper ready to be used upon next blowdown of Blast Vessel.

An Operator control on/off switch is used to start the Blast Cabinet System (located in the control enclosure – above window). An adjustable Potentiometer is provide for full adjustment of the LED Lighting System located in the window frame (located in the control enclosure – above window).

An Operator foot pedal (moveable) is used to start blast. The foot pedal should NEVER be depressed until the operator is in full control of the blast hose (in hand).

2.3 Set-Up

Inspection

The Titan Blast Cabinet should be checked for any damage that may have occurred during shipping prior to signing for delivery. Any damage should be noted with the shipping carrier immediately.

Additonal Items

Items shipped with the Titan Blast Cabinet include:

- Conveying, Dust hose & Clamps
- Blast Vessel & Foot Pedal Assembly
- Drum Lid & Hose Assembly
- Hopper & Reclaimer Assembly
- SCDC Dust Collector & Hardware

Equipment/Tools Required

The following is a list of typical equipment/tools required to install and assemble your Titan Blast Cabinet .

- Crane or Fork Lift
- Slings/Spreader Bars/Clevis Pins
- Drift Pins
- Screwdrivers
- Pipe Wrenches
- Socket Wrenches
- Large Crescent Wrench
- Drill and Drill Bits
- Pipe Sealant
- Safety Glasses and Hard Hat
-

Pre-Installation

The blast cabinet and all related equipment is usually mounted on a reinforced concrete foundation. When calculating for foundation mouting, the weight of the cabinet and equipment plus the media being used, product being blasted, and all auxiliary equipment must be considered together with wind (anything being mounted outside), seismic, and other live loads. See the Specification Sheet (Section 8) for the total Blast Cabinet System weight.

⚠ CAUTION ⚠

Location must be clear of all obstructions such as utility lines or roof overhang (see Specification Sheet). A Crane or Fork Lift must be used to move the Blast Cabinet System into position.

To avoid delay, install foundation in the proper location. Pay particular attention to the anchor bolt location. Anchor bolts must extend at least 1–1/2" above foundation – see Section 6.6. The System should be located with consideration for emptying hopper/drum area, filter replacement, shortest runs of inlet and outlet duct work, electrical and compressed air connections, and convenience of maintenance. In case of hazardous dust collection, consult with local authorities for the proper location of the dust collector. Titan can supply a basic Blast Cabinet System Layout upon request.

Assembly of Standard Equipment

NOTE

A Crane or Fork Lift is recommended for unloading, assembly, and installation of Cabinet and all related equipment.

⚠ CAUTION ⚠

- **Distribute loads equally.**
- **Use clevises, not hooks on lifting sling.**
- **Use lifting areas on equipment along with spreader bars on lifting.**

Assembly of Standard Equipment Cont.

Remove all crating and shrink wrap from the unit. Remove all miscellaneous connecting hardware (Screws, Plates, etc.). Check the parts received against the packing slips. If there are parts missing, the carrier and Titan should be notified immediately.

Leg Installation

The Leg Installation for the (SCDC) Small Cartridge Dust Collector is covered in the SCDC Cartridge Collector Manual under - 2.3 Set Up section.

The Blast Cabinet and Blast Machine legs are already installed and ready to go.

Basic System Set Up

The Blast Cabinet Assembly should be placed in the basic desired location, take into account electrical box location (on back of Blast Cabinet), Swing Door(s) area and part access.

The (SCDC) Small Cartridge Dust Collector should be located within close proximity of the Blast Cabinet, taking into account the need for Cartridge changing and maintenance access.

The Blast Machine, Hopper and Reclaimer Stack. Start with Blast Machine on a level surface and lift Hopper / Recaimer Assembly (installed together at TITAN) by reclaimer, mount and secure on top of Blast Machine. Line up the (2) angles on the side of Hopper with the (2) ears at the top of the Blast Machine – this gives you two mounting positions 180 degrees apart, pick the position that best fits your needs (keep in mind that the reclaimer can be rotated in multiple positions by rotating to the next bolt hole position (AFTER) mounting the Hopper to the Blast Machine). Secure Hopper / Recaimer to Blast Machine with J-hooks and hardware before moving entire stack.

⚠ CAUTION ⚠

Blast Machine / Hopper / Reclaimer Stack is VERY unstable until lagged to floor or connected to wall or other equipment.

Basic System Set Up - Continued

Connect the Conveying Hose from the cone outlet of the Blast Cabinet to the Inlet of the Reclaime and secure with provided clamps.

Connect the Dust Hose from the Outlet of the Reclaimer to the Inlet of the (SCDC) Small Cartridge Dust Collector and secure with provided clamps.

Connect the Blast Hose from the Blast Cabinet to the Outlet on the Blast Machine.

Connect the Blowoff Hose from the Blast Cabinet to the pipestring on the Blast Machine.

Connect Blow Down Hose from the Blast Machine Exhaust Valve to the Inlet area of the Reclaimer, using proper hardware (supplied). This Blow Down Hose MUST be 1” Blast Hose – NOT Air Hose.

Electrical Installation

NOTE

All electrical work must be done by a qualified electrician according to local codes.

Run line from main power source / main disconnect to main enclosure mount on back of cabinet. Then from the main enclosure on back of cabinet to the blower motor on (SCDC) Small Cartridge Dust Collector. Be sure wire is properly sized for for voltage and ampage per electrical requirements.

Make connection of (low voltage) line from main enclosure on back of Blast Cabinet to Blast Machine (for Blast Signal), this line comes wrapped around the main enclosure on back of cabinet and is labeled “To Blast Machine”.

Foot pedal line is connected to electrical box on Blast Machine – move pedal under and to the front area of Blast Cabinet.

 **CAUTION** 

Disconnect all electrical power before servicing any electrical component.

Installation – Compressed Air Supply

NOTE

- **It is important that the compressed air supply be both oil and moisture free. Contamination in the compressed air used to clean cartridges will result in poor cleaning or cleaning valve failure and poor collector performance.**
- **Purge compressed air lines to remove debris before connecting to the dust collector compressed air manifold.**

CAUTION

Shut off and bleed off compressed air supply before doing any service work.

An 1-1/4” N.P.T. MINIMUM supply is required. Connect the compressed air supply line to the Shut Off ball valve on the BLAST MACHINE. Use thread-sealing tape or pipe sealant on all compressed air connections. TITAN supplies a Moisure Separator, Pressure Regulator with gauge and Shut Off Ball Valve. Locate these components for convenient service, start-up and shutdown of the Blast Cabinet.

A ½” N.P.T. MINIMUM supply is required for the SCDC Small Cartridge Dust Collector – See Small Cartridge Dust Collector Manual for more detailed setup information.

Be sure that all compressed air components are adequately sized to meet the minimum system requirements.

Adjust air pressure to desired Blast Pressure – NEVER exceed 150 psig pressure to your TITAN Blast Cabinet.

2.4 Operation

Pre Start-Up Check

> **CAUTION**
>
> **Check to be sure the blower fan exhaust is free of debris before starting.**

1. Make sure Blast Machine Hand Access Door is securely closed, Reclaimer and Hopper Doors are closed and SCDC Collector Door and Covers are all securely closed.

2. Make sure Blast Cabinet Doors are closed and properly secured.

Start-Up

1. Turn on the compressed air supply to the (SCDC) Small Cartridge Dust Collector compressed. Adjust to 90 psig of pressure with the compressed air regulator. Pressure of 90 psig is the most typical setting for satisfactory cleaning performnace. (See Section 4.1 Routine Maintenance). Adjust the Photohelic low setpoint to 2 inches and the high setpoint to 4 inches. (If applicable)

2. Adjust the control damper on the fan exhaust for desired system airflow.

> **NOTE**
>
> **Make sure the SCDC hopper discharge opening is air tight (not open to atmosphere). Too much airflow to the blower fan can cause electrical failure.**

3. Turn on the compressed air supply to the Blast Machine. Adjust air regulator to desired blast pressure.

4. Turn on System by using the on/off selector switch on front of cabinet, above window, in control enclosure. Blower motor on SCDC will start.

5. Adjust the potentiometer for the LED lighting.

6. While looking through window, push hands into gloves and test blowoff gun – by pressing handle.

7. While looking through window, hands still in gloves - test blast by grabbing blast hose (and only while holding blast hose – with it aimed towards the back wall of cabinet), depress foot pedal.

8. When finished return the on/off switch to the off position.

Fine Tuning – Blast System

1. Air Pressure Regulator and Gauge are supplied on the Blast Machine – adjust to desired air pressure (per application).

2. Media Valve is supplied on the Blast Machine – adjust to desired media rate (per application).

3. Secondary Air Metering Band (on Reclaimer) – The metering band is used to adjust secondary air that is entering the Reclaimer. The MORE secondary air allowed in, the LARGER the particles removed from the system and sent to the SCDC Dust Collector. If GOOD media is being carried to the SCDC Dust Collector, CLOSE the metering band. If TOO much dust is being recycled thru the blast system along with good media, OPEN the metering band. Use as directed above and make adjustments in 1/16” increments as needed until a final setting is achieved. Keep in mind that a new system or new cartridges in the SCDC Dust Collector will take from 8 – 12 hours of system operation to “SEASON” and that a FINAL metering band adjustment will not be able to be made until fully seasoned cartridges are achieved.

4. Blast Nozzle and even Blast Hose “SIZE” can make a difference – depending on the blast application. Always replace any excessively worn Blast Nozzle or Blast Hose.

2.5 Individual Component Details

RUGGED, STRUCTURAL STEEL FRAME

The first of its kind, Titan's blast cabinet is built to withstand day-to-day abuse, including forklifts. The structural steel frame won't bend, fold, or twist.

LEAK-PROOF DOORS

Every Titan blast cabinet comes standard with two rigid, steel channel, double panel doors with knife edge. These doors will not leak or warp! Everything about these doors has been designed with productivity – and ease of use – in mind:

- Lift-off hinges allow for fast on-off door removal – eliminating the troublesome welded hinges of the past.
- Full-opening doors maximize work chamber capacity and ease loading of larger parts.
- Self-adjusting dual door latches lock at two points – enabling a perfect, dust-free seal every time. Doors allow for post-purchase option to easily add custom doors for your specific blasting application at any time.

LED LIGHTING

To aid visibility while blasting, and to reduce energy costs, we placed LED lights around the window frame. Housed in the metal frame, outside of the blast environment, the lights shine in the direction the operator is working – eliminating shadows on the work surface and providing an exceptionally bright work area. Inlet air keeps the viewing window clear during operation. When the glass needs replacing due to pitting, simply unscrew the knobs, pop off the frame, and insert a new window.

SAFETY DOOR PROXIMITY SENSORS

The first in the industry. Electric proximity sensors ensure the blast doors are shut properly. Using zero contact technology – eliminating broken trip switches and trippers. Proximity Sensors are fully adjustable and include an internal 'tripped" led to aid in adjusting or troubleshooting. Improves response time of blast safety circuit.

100% ELECTRICAL CONTROLS

Significantly improve response time and eliminate having to troubleshoot air leaks. Moveable Foot pedal for ease of use.

COMPLETE HIGH - PERFORMANCE SYSTEM

Each Titan blast cabinet comes standard with the following:

3 cu. ft. BLAST MACHINE

A TITAN 3 cu.ft. Blast Machine is supplied STANDARD. Resulting in longer continuous blasting and at higher pressures for longer periods of time.

SMALL CARTRIDGE DUST COLLECTOR (SCDC)

A TITAN Small Cartridge Dust Collector (SCDC) with MERV 15 rated Cartridges comes STANDARD. Resulting in a better cleaning of air to a smaller micron for a longer service life.

Media Reclaim System – Hopper and Reclaimer

A Media Reclaim System, including a larger capacity Storage Hopper. A highly efficient Reclaimer (cyclonic dust separator) with wear band, and a semi-permanent mid screen to prevent foreign objects from being introduced into the blast system and clogging valves, hose or nozzle.

2.6 Troubleshooting

Use the following procedure to troubleshoot the Blast Cabinet System

Trouble	Possible Cause	Remedy
System will not start.	1. Power off.	1. Check main power source is on
	2. Tripped main Breaker or Blown main power supply fuse(s).	2. Check/reset breaker main breaker or replace bad fuse(s).
	3. Selector on/off switch is off or faulty.	3. Check selector switch is on / replace if faulty.
	4. Tripped overload relay.	4. Reset overload relay and check that the relay trip current for the overload is properly adjusted per the manufacturer's instructions.
System will start, but fan motor will not start.	1.Optional fan motor disconnect open.	1.Close optional fan motor disconnect.
	2.Faulty motor starter.	2.Test motor starter by pushing manual override button – see if fan motor starts, also rotate on/off switch from off to on – see if the motor starter tries to click in and start fan motor.
System and fan motor will start, but system shuts down.	1. Tripped overload relay.	1. Reset overload relay and check per Section above #5.
	2. Fan moving too much air.	2a. Check for an airtight seal of the drum cover to the drum and at the filter access doors. If the drum is removed, the slide gate must be closed. 2b. Check dust hose from reclaimer to dust collector for holes and leaks. If leaks are found, repair or replace hose.
Material discharge out of clean air / Fan outlet.	1. Cartridge Filter improperly installed.	1. Check that Filter cartridge gaskets are correctly sealed by removing door and checking cartridge seal to back wall of cartridge area.
	2. Cartridge filter damage, dent in the end cap, gasket damage or missing or holes in pleated media.	2. Replace the cartridge filter. Use ONLY Titan Cartridge Filters (see Section 2, Section 5 or Section 6 for Cartridge Filter Part Number). Install Cartridge per Section 4 in this Manual.

Trouble	Possible Cause	Remedy
Insufficient airflow (poor visibility)	1. Fan rotation backwards.	1. Check fan rotation. The fan rotations should be (same as rotation sticker on fan housing) looking in at the outlet of the blower fan motor. ALWAYS WEAR EYE PROTECTION. See Section 2.3 Set-up located in this manual.
	2. Collector openings not tight or closed.	2. Make sure all access covers are tightened securely. Also check hopper outlet area of SCDC. See Section 2.3 Start-Up.
	3. Fan exhaust area is restricted.	3. Check fan exhaust area for blockage. Remove material or debris that is blocking the fan exhaust area or adjust flow control damper on fan.
	4. Cartridges plugged with particulate.	
	a. Lack of compressed air.	4a. Check compressed air supply for 90 psig minimum. Increase pressure as described in Section 4.1 Routine Maintenance in this manual.
	b. Pulse cleaning needed or not energized.	4b. Check Minihelic Gauge & Manual pulse as needed. Check the Photohelic Gauge setpoints. (if applicable) Check supply voltage to the control timer with a volt ohm meter. See Section 3.2 Photohelic Gauge Installation.
	c. Dust storage area is too full or plugged.	4c. Clean out dust storage area / hopper (See SCDC Manual for more detailed information)
	d. Cartridges need to be replaced.	4d. Remove and replace using ONLY Titan Cartridges (See SCDC Manual and the Replacement Parts List Section 6)
	.	

Trouble	Possible Cause	Remedy
	5. Pulse valves are not functioning.	
	a. Pulse valves are leaking compressed air.	5a. Lock out all electrical power to the small dust collector (SCDC) and bleed off the compressed air supply. Check for debris, valve wear or diaphragm failure by removing the cover on back of the pulse valves. Also check for solenoid leakage and /or damage. If pulse valves or solenoid valves and solenoid tubing are damaged replace part(s) (refer to Replacement Parts List – in SCDC Manual).
	b. Pulse solid state control timer has failed.	5b. check supply voltage to the control timer with a volt ohm meter. If the red indication light is not on and input power to the control timer is okay, but there is not any output voltage to the solenoid pulse control valves, replace the pulse control timer (reference Replacement Parts List – in SCDC Manual).
	c. Pulse control timer and Photohelic gauge are out of adjustment	5c. Refer to the SCDC Manual - Section 2.3 Electrical Installation located in this manual and Figures and for timer adjustment and Section 3.2 for Photohelic Gauge adjustment.

Trouble	Possible Cause	Remedy
LED Lighting will not turn on	1. No or low voltage.	
	a. No line voltage.	1a. Check to make sure main disconnect or main fusing is intact, in good working condition and on. If blower motor is running generally these components are good, but if any are damaged replace part(s) (refer to Replacement Parts List).
	b. No voltage.	1b. Make sure System on/off selector switch is in the on position.
	c. Low voltage	1c. Check that the LED lighting potentiometer is adjusted correctly. If it is adjusted all of the way to minimum (the lights will shut off). Adjust is needed.

Trouble	Possible Cause	Remedy
No Blast - when foot pedal is depressed – but system is on.	1. Blast circuit and blast interlock curcuit.	
	a. Proper blast pressure or leaking compressed air.	1a. Check air pressure regulator and gauge on the Blast Machine, adjust if needed. Also check for solenoid leakage and /or damage. If solenoid valves and solenoid hoses are damaged replace part(s) (reference Replacement Parts List, Section 6).
	b. Faulty foot pedal or blast control valves.	1b. Check foot pedal and valves are properly working / clicking or with volt ohm meter, replace any faulty components (reference Replacement Parts List, Section 6).
	c. Doors are closed, proximity switch properly adjusted.	1c. Check to make sure both swing doors are properly and securly closed, if needed - make adjustments to door proximity switch.
	d. Blast hose or Blast nozzle clogged or worn.	1d. Check blast hose and nozzle for clogs and excessive wear, unclog and or replace any excessively worn items (reference Replacement Parts List, Section 6).

Trouble	Possible Cause	Remedy
Little or No media during Blast.	1. Low on media, media valve needs adjustment or faulty.	
	a. Refill cycle needed on blast machine.	1a. Put blast machine thru a refill cycle (See Stationary Manual for detailed information).
	b. Media valve needs adjustment or needs service.	1b. Check media valve setting and adjust per (Stationary Manual and for service parts too).
	c. Blast hose or Blast nozzle partically clogged or worn.	1c. Check blast hose and nozzle for clogs and excessive wear, unclog and or replace any excessively worn items (reference Replacement Parts List, Section 6).
	d. Air leak(s) at, sealing plunger/o-ring, exhaust valve, tank access door	1d. Repair/replace leaking and worn parts.

Blast Cabinet Optional Equipment

3

3.1 Solid State Timer - Option

The timer cycle is continuous unless an optional Photohelic pressure switch is installed and wired correctly. Wiring for the solid state control timer to plant power is by customer unless TITAN installation is purchased. Contact TITAN for more information, see page 8 for contact info.

This option is mounted on the (SCDC) Small Cartridge Dust Collector and is NOT available in a remote to cabinet option.

Input Operating Voltage: 90-240 VAC/50-60 Hz/1ph

An optional: 24 VAC/VDC unit is available – check with TITAN for pricing.

NOTE

Do not adjust ON time unless the proper test equipment is used. Too much or too little ON time can cause shortened cartridge life. Consult TITAN before any changes are made to factory settings.

On time: Adjustable 150 msec. to 700 msec, factory set at 300 seconds.

Off time: Adjustable 4 to 210 seconds, factory set at 210 seconds.

Operating Temperature Range: 14° to 140° F (-10 ° to 60 ° C).

Power Consumption: 25 VA.

Enclosure Rating: NEMA 4X (IP65)

3.2 Photohelic Gauge Assembly – for SCDC reverse pulse cleaning - Option

The optional Photohelic Gauge Assembly is an upgrade to the solid state timer controls for the reverse pulse cleaning circuit of your Cartridge Dust Collector.

This option is available in both (standard) mounted on (SCDC) Small Cartridge Dust Collector and a (remote) mounted in control enclosure on the front of the blast cabinet.

1. Zero and maintain Photohelic Gauge per operating and maintenance instructions provided by the manufacturer of the Photohelic gauge.
2. A Photohelic Gauge Assembly is used as an internal control switch to the solid state timer, the valves will pulse only when the differential pressure reaches the high set point and will continue the pulse sequence until the low pressure set point is reached. (This is the most efficient way to control pulse cleaning)
3. Photohelic requires 120 volt 50/60Hz 1ph electrics to operate. Other operating voltages are available, contact TITAN for more information, see page 8 for contact info.

3.3 Remote Blast Pressure Regulator and Gauge - Option

The optional Remote Blast Pressure Regulator and Gauge Assembly is a system upgrade that relocates the regulation of blast pressure to the control enclosure on the front of the blast cabinet from the standard location on the blast machine. Contact TITAN for more information, see page 8 for contact info.

3.4 System Security Key-Lock - Option

The optional System Security Key-Lock Assembly is a system upgrade that adds a Key-Lock to the on/off selector switch on control enclosure on the front of the blast cabinet. This helps to prevent use of the blast cabinet system from unauthorized personnel. Contact TITAN for more information, see page 8 for contact info.

3.5 Remote Mini-Helic and Pulse Push Buttons - Option

The optional Remote Minihelic & Pulse Buttons Assembly is a system upgrade that relocates the Minihelic and the two Pulse Push Buttons to the control enclosure on the front of the blast cabinet from the standard location on SCDC Dust Collector. Contact TITAN for more information, see page 8 for contact info.

3.6 NOTES:

Blast Cabinet

4

4.1 Routine Maintenance

Check entire system for air leaks – air leaks can cause intermitant operation to system not working.

Compressed air for blast is recommended to be set between 60-100 psig. If optional control timer is present, it is factory set to clean one cartridge every 210 seconds.

NOTE

• Do not increase compressed air pressure beyond 150 psig on Blast Vessel as component damage may result.

• Do not increase compressed air pressure beyond 90 psig on SCDC as component damage may result. It will waste compressed air and cause shortened cartridge life. And may result in a broken cartridge.

Pulse ON TIME can be checked or adjusted by contacting TITAN and scheduling a service call. Titan does not recommend adjustment of this timer.

The preferred method of controlling cartridge pulse cleaning is with the pressure switch control (Photohelic gauge). This controls the solid state control timer to only pulse at the desired high and low ΔP set points. The pulse cycle starts when the filter ΔP reaches the high set point and continues until the low ΔP set point is reached, at which time the pulse cycle stops. This method of using the Photohelic gauge can save additional compressed air, aid in longer filter life, especially when the dust collector is not collecting dust and contaminants.

NOTE

Check the fan motor amperage draw against the motor manufacturer's nameplate amperage rating. Over amperage of manufacturer's recommended rating of motor will cause damage.

4.1.1 Operating Checks (Daily to Weekly)

Check window assembly for excessive wear, cracks and leaks. Replace or repair all needed components.

Checks gloves for excessive wear, cracks or holes. Replaces as needed.

Check swing door areas for leaks. Replace gaskets as needed.

Check Blast hose and nozzle for excessive wear, holes, etc. Replace as needed.

Check all conveying and dust hoses for leaks and holes, make sure clamps are tight. Replace as needed.

Check SCDC exhaust. Exhaust should remain visually clean. If a leak develops, it will be first noticed as a visible puff of dust immediately after a cleaning pulse.

Monitor cartridge pressure drop. Equilibrium pressure drop (stabilized ΔP) is generally 3-4 inches water gauge on a Magnehelic or Photohelic for seasoned filters, but 1 to 6 inches water gauge is considered normal.

NOTE

At initial start-up with any new cartridges, the fan motor may overload because of airflow higher than design level. If this happens, partially close air volume control damper and check blower fan motor amperage draw.

Service

CAUTION

- **Disconnect electrical power before servicing any electrical components.**
- **Shut off and bleed compressed air supply before servicing any compressed air components.**
- **No Welding should be performed inside unit without fire protection.**

4.1.2 SCDC Cartridge Removal

1. When removing the cartridges, reference (SCDC) Small Cartridge Dust Collector Manual and follow as instructed.

4.1.3 SCDC Cartridge Installation

1. When installing the cartridges, reference (SCDC) Small Cartridge Dust Collector Manual and follow as instructed.

Original Equipment Cartridge

(See Replacement Parts List – Section 6)

Titan nanofiber cartridge filters are custom designed to work exclusively with Titan equipment and are the only replacement filter cartridge that will provide the high level of performance that you expect from your investment.

4.1.4 Dust Removal (10-Gallon and 55-Gallon Drum)

NOTE

Do not let the dust storage containers overfill. It can cause poor collector performance and create an extensive clean up due to overflow of dust when removing the container. In addition, it can cause dust to accumulate in the collector hopper, which should never happen.

1. Turn off the Blast Cabinet System and empty as necessary. Both the 10-gallon and the 55-gallon drum are to be emptied when the drum is 2/3 full.
2. The hopper has a slide gate attached, close the slide gate before servicing the drum. Remove and empty the drum. Reinstall the drum and open slide gate. Ensure that the drum cover and

drum make an airtight seal. The collector fan does not have to be shut off if this procedure is followed.

4.1.5 Compressed Air Components

CAUTION

- **Compressed air can be dangerous.**
- **Before attempting service, shut off plant air supply to blast vessel or dust collector, and depressurize air manifold.**
- **Do not operate blast vessel or SCDC dust collector with inspection or access doors removed.**

1. Periodically check the compressed air components and service them by installing new compressed air filters and draining any moisture off by following manufacturer's instructions.
2. Check the blast machine & SCDC cartridge dust collector air manifold for containmination, oil and/or water. Clean or drain if necessary.
3. With the compressed air supply turned on, check the pulse cleaning valves, solenoid valves, and hoses / tubing for any leakage on Blast cabinet, Blast Vessel and SCDC collector. Replace any components that are leaking compressed air (reference the Replacement Parts List - section 6).

4.2 NOTES:

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RECOMMENDED SPARE PARTS FOR TITAN BLAST CABINET SYSTEM

Quantity	***Part Number***	***Description***
2	DCF-NFB	TITAN FILTER CARTRIDGE
2	NL1213	LOCKNUT for Cartridge Filter
1	BC-WND1426	WINDOW
1	GSK14x12	WINDOW GASKET
3	GSK12x1-14	DOOR GASKET
1	9650	GLOVES (PAIR)
1	HASD-CDC	HOSE KIT - Slide Gate to Drum
1	PV-1	PULSE VALVE
1	HRDKIT-SCDC	COLLECTOR HARDWARE KIT
1	NZL-CDC	NOZZLE FOR PULSE VALVE
1	TCK-CDC	TUBING & CONNECTOR KIT
1	RSPK-PHRC-24VDC	BLAST MACHINE PARTS KIT
1	BH-050-25	BLAST HOSE (25 feet)
2	TCN-?	BLAST NOZZLE (must specify size)

6

Individual Components Parts

Title **Page**

INDIVIDUAL COMPONENTS	PARTS

6.1 Window Assembly and Window Parts

Part Number	Description
BC-WIND1426	GLASS WINDOW, SAFETY, 14” X 26”
BC-WND-UND	WINDOW UNDERLAYMENT
GSK14x12	GASKET FOR WINDOW
BC-THK3816	KNOB FOR WINDOW
BC-WND-DAMPER	SPACER BUMPER FOR WINDOW
HH3816x2FT	BOLT FOR WINDOW

6.2 Foot Pedal Assembly and Foot Pedal Parts

Part Number	Description
BC-FP	FOOT PEDAL ASSEMBLY
BC-FP-CORD	FOOT PEDAL ASSEMBLY with CORD
6200-CABLE	CORD – FOOT PEDAL TO BLAST POT
BC-FP-SW	REPLACEMENT SWITCH FOR FOOT PEDAL

6.3 Door Assembly and Door Parts – (Swing Doors)

Part Number	Description
BC-PROXSENS	DOOR PROX SENSOR
BC-CRE3816	DOOR CLEVIS KIT
GSK12x1-14	SWING DOOR GASKET
DRTRCAB2	DOOR TRIPPER FOR PROX SENSOR

6.4 Control Assembly, Control Parts and Control Options

Part Number	Description
BC-SELSWCH2P	SWITCH, ON/OFF
BC-P10K	POTENTOMETER, LED LIGHTING
BC-SELSWCH2P-KEY	SWITCH, ON/OFF WITH KEY-LOCK
PHLC-SCDC	PHOTOHELIC PULSE CONTROL KIT – on SCDC
PHLC-CAB	PHOTOHELIC PULSE CONTROL KIT – on CABINET

6.5 Glove Assembly, Gloves and Blowoff Parts

Part Number	Description
9650	GLOVES (PAIR)
9650L 9650R	GLOVE, LEFT HAND GLOVE, RIGHT HAND
9648-10	CLAMP, for 10 GLOVES
9643	BLOWOFF GUN

6.6 SCDC Cartridge Filter and Hardware

Part Number	Description
DCF-NFB	TITAN CDC FILTER CARTRIDGE
NL-1213	NYLOCK NUT

6.7 Lifting and Lagging

Part Number	Description
LFTBR48	LIFTING BAR KIT, 4848 CABINET
LFTBR60	LIFTING BAR KIT, 6060 CABINET
AHR-CDC	ANCHOR STUD KIT
LAK-CDC	L – ANCHOR KIT

6.8 Blast Hose, Blast Nozzle and Blast Machine Parts

For all Blast Hose, Blast Nozzle, Blast Machine Parts – See TITAN Stationary manual / operating instructions.

6.9 Dust Containment Parts - SCDC

Part Number	Description
DRUM-10	DRUM 10 GALLON
LID-10	LID FOR DRUM 10 GALLON
HASD-CDC	HOSE KIT - Slide Gate to Drum Lid
SG4	SLIDE GATE
LG55-SCDC	LEG ASSEMBLY & LID - SCDC for DRUM 55 GALLON
DL-55-4	LID for Drum 55 GALLON

6.10 Hose and Hose Parts – Conveying / Dust

Part Number	Description
MCH-400	4” CONVEYING HOSE
MCH-600	6” CONVEYING HOSE
HAW4CAB	4” OUTLET FLANGE KIT
HAW6CAB	6” OUTLET FLANGE KIT

6.11 LED Lighting Kit and Lighting Parts

Part Number	Description
BC-LEDLK	LED LIGHTING KIT
BC-LED-DRIVER	DRIVER, LED LIGHTING

Warranty

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LIMITED WARRANTY

Titan Abrasive Systems, LLC ("Titan") warrants all parts and equipment against defect in material and workmanship to the original purchaser for a period of **three (3)** years after shipment. Upon prompt notification by the buyer, to Titan, components that are determined by Titan to be defective will be repaired or replaced at no additional charge.

LIMITATIONS:

1. This warranty does not apply to normal wear items such as nozzles, blast hose, and re-claimers or to other components that are exposed to direct contact with blast media.
2. The buyer must follow all recommended maintenance schedules; see Operating Instructions & Maintenance Manual.
3. Does not apply to misapplication of product.
4. Unauthorized service, repair, improper installation, improper operation, improper maintenance, alterations, misuse, neglect, accident or excessive ambient conditions will void the warranty.
5. **If genuine Titan replacement parts are not used the warranty is void.**
6. Returned Materials Authorization (RMA) form must be completed and accompany all returned materials. Returns will not be recognized without prior authorization and RMA number.
7. Associated installation costs are excluded.
8. Freight cost for materials returned to Titan are to be assumed by the buyer unless the parts are determined defective by Titan.
9. Parts not supplied by Titan are not covered. Commercial components are warranted under terms of the original manufacturer.

Customer Acceptance:

Signature: _____Date: _____

Print Name: _____ Company Name: _____

TITAN – BLAST CABINET - 4848 - DATA SHEET

1. **P/N:** 4848
2. **MAXIMUM TEMPERATURE:** 180 degrees F (82.22 degrees C)
3. **DIMENSIONS – WIDTH - NORMAL:** 54" WIDTH
4. **DIMENSIONS - WIDTH – CLEARANCE: 5**6" WIDTH
5. **DIMENSIONS - DEPTH - NOMINAL:** 50" DEPTH
6. **DIMENSIONS - DEPTH – CABINET CLEARANCE:** 52" DEPTH (NOT INCLUDING ELECTRIC BOX)
7. **DIMENSIONS – DEPTH – OVERALL CLEARANCE:** 57" DEPTH (INCLUDING ELECTRIC BOX)
8. **DIMENSIONS – HEIGHT – NOMINAL:** 78" HEIGHT
9. **DIMENSIONS – HEIGHT – CLEARANCE:** 80" HEIGHT
10. **DIMENSIONS – FLOOR HEIGHT FROM GROUND:** 34"
11. **DIMENSIONS – ANCHOR BOLT PATTERN:** 45" WIDTH x 40" DEPTH
12. **WEIGHT – SHIPPING:** 1,300 lbs. (Approx.)
13. **WEIGHT – ASSEMBLIED/FINISHED:** 1,200 lbs.
14. **BLAST CABINET TECHNICAL SPECIFICATIONS:**

    A. **INTERIOR**: 48" WIDTH x 48" DEPTH x 38" HEIGHT

    B. **OVERALL – OUTSIDE:** 56" WIDTH x 50" DEPTH x 78" HEIGHT

    C. **DOOR OPENING:** 35" HIGH x 42" WIDTH

    D. **DOOR TYPE:** SWING

    E. **No. OF DOORS:** 2

    F. **LED LIGHTING BRIGHTNESS:** 6,600 LUMENS

    G. **PRESSURE VESSEL SIZE:** 3 cu. ft.

    H. **RECLAIMER SIZE:** 900 cfm

    I. **FAN HP:** 3

    J. **FLOOR THICKNESS:** 3/16" PERFORATED

    K. **FLOOR CAPACITY:** 1,000 LB.

15. **BASIC 4848 BLAST CABINET SYSTEM DIMENSIONS:** 144" WIDTH x 108" DEPTH x 120" HEIGHT

16. **ELECTRICAL REQUIREMENTS:** 120 VOLT / 60 HZ / 1 PH = 35 AMP (contact Titan for pricing and availability)
    220 VOLT / 60 HZ / 1 PH = 20 AMP
    230 VOLT / 60 HZ / 3 PH = 15 AMP
    460 VOLT / 60 HZ / 3 PH = 8 AMP (contact Titan for pricing and availability)

TITAN – BLAST CABINET - 6060 - DATA SHEET

1. **P/N:** 6060
2. **MAXIMUM TEMPERATURE:** 180 degrees F (82.22 degrees C)
3. **DIMENSIONS – WIDTH - NORMAL:** 66" WIDTH
4. **DIMENSIONS - WIDTH – CLEARANCE:** 68" WIDTH
5. **DIMENSIONS - DEPTH - NOMINAL:** 62" DEPTH
6. **DIMENSIONS - DEPTH – CABINET CLEARANCE:** 64" DEPTH (NOT INCLUDING ELECTRIC BOX)
7. **DIMENSIONS – DEPTH – OVERALL CLEARANCE:** 69" DEPTH (INCLUDING ELECTRIC BOX)
8. **DIMENSIONS – HEIGHT – NOMINAL:** 87" HEIGHT
9. **DIMENSIONS – HEIGHT – CLEARANCE:** 89" HEIGHT
10. **DIMENSIONS – FLOOR HEIGHT FROM GROUND:** 34"
11. **DIMENSIONS – ANCHOR BOLT PATTERN:** 57" WIDTH x 52" DEPTH
12. **WEIGHT – SHIPPING:** 1,800 lbs. (Approx.)
13. **WEIGHT – ASSEMBLIED/FINISHED:** 1,700 lbs.
14. **BLAST CABINET TECHNICAL SPECIFICATIONS:**

    A. **INTERIOR**: 60" WIDTH x 60" DEPTH x 50" HEIGHT

    B. **OVERALL – OUTSIDE:** 68" WIDTH x 50" DEPTH x 87" HEIGHT

    C. **DOOR OPENING:** 47" HIGH x 54" WIDTH

    D. **DOOR TYPE:** SWING

    E. **No. OF DOORS:** 2

    F. **LED LIGHTING BRIGHTNESS:** 6,600 LUMENS

    G. **PRESSURE VESSEL SIZE:** 3 cu. ft.

    H. **RECLAIMER SIZE:** 900 cfm

    I. **FAN HP:** 3

    J. **FLOOR THICKNESS:** 3/16" PERFORATED

    K. **FLOOR CAPACITY:** 1,000 LB.

15. **BASIC 4848 BLAST CABINET SYSTEM DIMENSIONS:** 180" WIDTH x 120" DEPTH x 120" HEIGHT

16. **ELECTRICAL REQUIREMENTS:** 120 VOLT / 60 HZ / 1 PH = 35 AMP (contact Titan for pricing and availability)
    220 VOLT / 60 HZ / 1 PH = 20 AMP
    230 VOLT / 60 HZ / 3 PH = 15 AMP
    460 VOLT / 60 HZ / 3 PH = 8 AMP (contact Titan for pricing and availability)

Blast Media Characteristics Comparison

Material	Mesh Size	Shape	Density lbs/ft3	Mohs	Friability	Initial Cost	No. of Cycles	Per use Cost	Source	Typical Applications
Silica Sand•	6-270	★	100	5.0-6.0	high	low	1	med.	nat.	Outdoor blast cleaning
Slag	8-80	★	85-112	7.0-7.5	high	med.	1-2	med.	b-p	Outdoor blast cleaning
Garnet	8-300	★	130-145	7.0	med.	med.	2-2.5	med.	nat.	Cleaning, finishing, deburring, etching
Steel Grit	10-325	★	230	8.0	low	high	200+	med.	mfd.	Removing heavy scale
Steel Shot	8-200	●	280	8.0		high	200+	low	mfd.	Cleaning, peening
Aluminum Oxide	12-325	★	125	9.0	med.	high	6-8	med.	mfd.	Cleaning, finishing, deburring, etching
Silicon Carbide	12-325	★	110	9.5	med.	high	5-6	med.	mfd.	Surface preparation on extremely hard substrates
Glass Bead	10-400	●	85-90	5.5-6.0	med.	med.	8-10	low	mfd.	Cleaning, finishing
Plastic	12-80	★	45-60	3.0-4.0	low/med.	high	8-10	med.	mfd.	Paint stripping, deflashing, cleaning
Sodium Bicarbonate	60-170	★	60	2.5	high	high	1	high	mfd.	Cleaning, paint removal
Wheat Starch	12-80	★	45	2.0	med.	med.	12-15	high	mfd.	Paint, adhesive removal; composites
XL Corn Hybrid Polymer	16-60	★	45	3.0	low	high	14-17	med.	mfd.	Composite paint removal, adhesive deflash
Corn Cob	8-40	★	35-45	2.0-4.5	med.	low	4-5	low	b-p	Removing paint from delicate surfaces

★=Angular ●= Spherical nat. = Natural b-p = By-product mfd. = Manufactured

•Consult OSHA regulations before using silica sand as a blast abrasive.

Typical ID to OD Relationship in Common Blast Hose

Standard Hose (4-Ply)		Whip Hose (Lightweight 2-Ply)	
ID	**OD**	**ID**	**OD**
1/2"	1-5/32"	1/2"	1-1/16"
3/4"	1-1/2"		
1"	1-7/8"		
1-1/4"	2-5/32"	1-1/4"	1-7/8"
1-1/2"	2-3/8"		

Component Compatibility Guide

No.	Nozzle Orifice	Recommended cfm Range	Minimum Blast Machine Capacity	Minimum Piping ID	Blast Hose ID	Minimum Air Hose ID
3	3/16"	45 - 81	3 cu ft	1"	3/4"	1"
4	1/4"	81 - 137	3 cu ft	1"	1" - 1-1/4"	1-1/4"
5	5/16"	137 - 196	3 cu ft	1"	1" - 1-1/4"	1-1/4"
6	3/8"	196 - 254	6 cu ft	1-1/4"	1-1/4"	1-1/2"
7	7/16"	254 - 338	6 cu ft	1-1/4"	1-1/4" - 1-1/2"	2"
8	1/2"	338 - 548	6 cu ft	1-1/4"	1-1/2"	2"

Compressed Air and Abrasive Consumption

Nozzle Orifice	Pressure at the Nozzle (psi) 50	60	70	80	90	100	125	150	
No. 2 (1/8")	11	13	15	17	18.5	20	25	30	Air (cfm)
	.67	.77	.88	1.01	1.12	1.23	1.52	1.82	Abrasive (cu.ft./hr
	67	77	88	101	112	123	152	182	& Lbs/hr)
	2.5	3	3.5	4	4.5	5	5.5	6.6	Compressor hp
No. 3 (3/16")	26	30	33	38	41	45	55	66	Air (cfm)
	1.50	1.71	1.96	2.16	2.38	2.64	3.19	3.83	Abrasive (cu.ft./hr
	150	171	196	216	238	264	319	383	& Lbs/hr)
	6	7	8	9	10	10	12	14	Compressor hp
No. 4 (1/4")	47	54	61	68	74	81	98	118	Air (cfm)
	2.68	3.12	3.54	4.08	4.48	4.94	6.08	7.30	Abrasive (cu.ft./hr
	268	312	354	408	448	494	608	730	& Lbs/hr)
	11	12	14	16	17	18	22	26	Compressor hp
No. 5 (5/16")	77	89	101	113	126	137	168	202	Air (cfm)
	4.68	5.34	6.04	6.72	7.40	8.12	9.82	1.178	Abrasive (cu.ft./hr
	468	534	604	672	740	812	982	1,178	& Lbs/hr)
	18	20	23	26	28	31	37	44	Compressor hp
No. 6 (3/8")	108	126	143	161	173	196	237	284	Air (cfm)
	6.68	7.64	8.64	9.60	10.52	11.52	13.93	1.672	Abrasive (cu.ft./hr
	668	764	864	960	1052	1152	1393	1,672	& Lbs/hr)
	24	28	32	36	39	44	52	62	Compressor hp
No. 7 (7/16")	147	170	194	217	240	254	314	377	Air (cfm)
	8.96	10.32	11.76	13.12	14.48	15,84	19.31	2.317	Abrasive (cu.ft./hr
	896	1032	1176	1312	1448	1584	1931	2,317	& Lbs/hr)
	33	38	44	49	54	57	69	83	Compressor hp
No. 8 (1/2")	195	224	252	280	309	338	409	491	Air (cfm)
	11.60	13.36	15.12	16.80	18.56	20.24	24.59	2.951	Abrasive (cu.ft./hr
	1160	1336	1512	1680	1856	2024	2459	2951	& Lbs/hr)
	44	50	56	63	69	75	90	108	Compressor hp

Minimum Air Volume Table
Air Volume Requirements at 100 PSI for a Complete Blast System

Nozzle	Size of Orifice	Volume of Air	Plus Helmet	Plus 50% (reserve)	Minimum Air Required
No. 4	1/4"	81	20	50	151 cfm
	6.5mm	2.3	0.5	1.4	4.2 m^3/min
No. 5	5/16"	137	20	79	236 cfm
	8.0mm	3.9	0.5	2.2	6.6 m^3/min
No. 6	3/8"	196	20	108	324 cfm
	9.5mm	5.5	0.5	3.0	9.0 m^3/min
No. 7	7/16"	254	20	137	411 cfm
	11.0mm	7.2	0.5	3.9	11.6 m^3/min
No. 8	1/2"	338	20	179	537 cfm
	12.5mm	9.6	0.5	5.0	16.1 m^3/min

Metric Nozzle Chart
Compressor Air and Abrasive Consumption

Nozzle Orifice	Pressure at the Nozzle (bar & kPa) 3.5 350	4.2 420	4.9 490	5.6 560	6.3 630	7.0 700	8.6 860	10.3 1035	Requirements: Air (m^3/min) Abrasive (kg/h) * & kW
5mm (3/16")	0.73	0.84	0.92	1.06	1.15	1.26	1.54	1.82	Air (m^3/min)
	68	78	89	98	108	120	145	174	Abrasive (kg/h)
	4.5	5.3	5.6	6.4	7.1	7.5	9.0	10.8	kW
6.5mm (1/4")	1.31	1.51	1.71	1.90	2.08	2.27	2.75	3.22	Air (m^3/min)
	122	142	161	185	203	224	276	325	Abrasive (kg/h)
	7.9	9.0	10.1	11.6	12.4	13.5	16.2	19.4	kW
8mm (5/16")	2.16	2.50	2.83	3.16	3.53	3.84	4.71	5.57	Air (m^3/min)
	212	242	274	305	336	368	445	534	Abrasive (kg/h)
	13.1	15.0	19.1	20.2	21.0	22.9	27.5	33.0	kW
9.5mm (3/8")	3.02	3.53	4.00	4.50	4.85	5.50	6.64	7.79	Air (m^3/min)
	303	347	392	435	477	573	632	758	Abrasive (kg/h)
	18.0	21.0	24.0	27.0	28.9	33.0	39.6	47.5	kW
11mm (7/16")	4.12	4.76	5.44	6.09	6.73	7.11	8.80	10.48	Air (m^3/min)
	406	468	533	595	657	719	876	1040	Abrasive (kg/h)
	24.8	28.5	32.6	36.4	40.1	42.4	50.9	61.1	kW
12.5mm (1/2")	5.46	6.28	7.06	7.85	8.65	9.46	11.46	13.45	Air (m^3/min)
	526	606	686	762	842	918	1115	1333	Abrasive (kg/h)
	32.6	37.5	42.0	46.9	51.8	56.3	67.6	81.1	kW

* Based on abrasive with a density of 1.5 kg per liter.

Effect of Nozzle Wear on Air Consumption

Nozzle Size.	Orifice size inches	metric	Air Flow in cfm	Increase in Air Consumption
4	1/4	6.5mm	81 cfm	
5	5/16	8.0mm	137 cfm	**69%** more than No. 4
6	3/8	9.5mm	196 cfm	**43%** more than No. 5
7	7/16	11.0mm	254 cfm	**29%** more than No. 6
8	1/2	12.5mm	338 cfm	**33%** more than No. 7

Information shown is based upon air consumption at 100 psi (7 bar/700kPa)

Minimum Compressor Air Line Sizes

Nozzle No.	Nozzle Orifice Size	Minimum Air Line ID
No. 3	3/16" (5.0mm)	1" (25.0mm)
No. 4	1/4" (6.5mm)	1" (25.0mm)
No. 5	5/16" (8.0mm)	1-1/4" (32.0mm)
No. 6	3/8" (9.5mm)	1-1/2" (38.0mm)
No. 7	7/16" (11.0mm)	2" (50.0mm)
No. 8	1/2" (12.5mm)	2" (50.0mm)
No. 10	5/8" (16.0mm)	2-1/2" (64.0mm)
No. 12	3/4" (19.0mm)	3" (76.0mm)

Minimum Connector ID by Nozzle Orifice Size

Nozzle Orifice Size		Minimum Connector ID
3	3/16" (5mm)	3/4" (19mm)
4	1/4" (6.5mm)	1" (25mm)
5	5/16" (8mm)	1-1/4" (32mm)
6	3/8" (9.5mm)	1-1/2" (38mm)
7	7/16" (11mm)	2" (50mm)
8	1/2" (12.5mm)	2" (50mm)
10	5/8" (16mm)	2-1/2" (64mm)
12	3/4" (19mm)	3" (76mm)

Approximate Pressure Loss Caused by Commonly Used Fittings

based on 100 psi (7 bar) in 1" (25mm) pipe

Fitting	Pressure Loss
90° pipe elbow	3 psi (0.2 bar/21 kPa)
pipe tee	5 psi (0.3 bar/34 kPa)
45° pipe elbow	1-1/2 psi (0.1 bar/10 kPa)
swing check valve	18 psi (1.2 bar/124 kPa)

Internal Area Loss Due to Hose Size Reduction

Main Hose Size	Whip Hose Size	% of reduction
2" (50mm)	1-1/2" (38mm)	44%
2" (50mm)	1-1/4" (32mm)	61%
1-1/2" (38mm)	1-1/4" (32mm)	31%
1-1/2" (38mm)	1" (25mm)	56%
1-1/4" (32mm)	1" (25mm)	36%
1-1/4" (32mm)	3/4" (19mm)	64%
1" (25mm)	3/4" (19mm)	44%