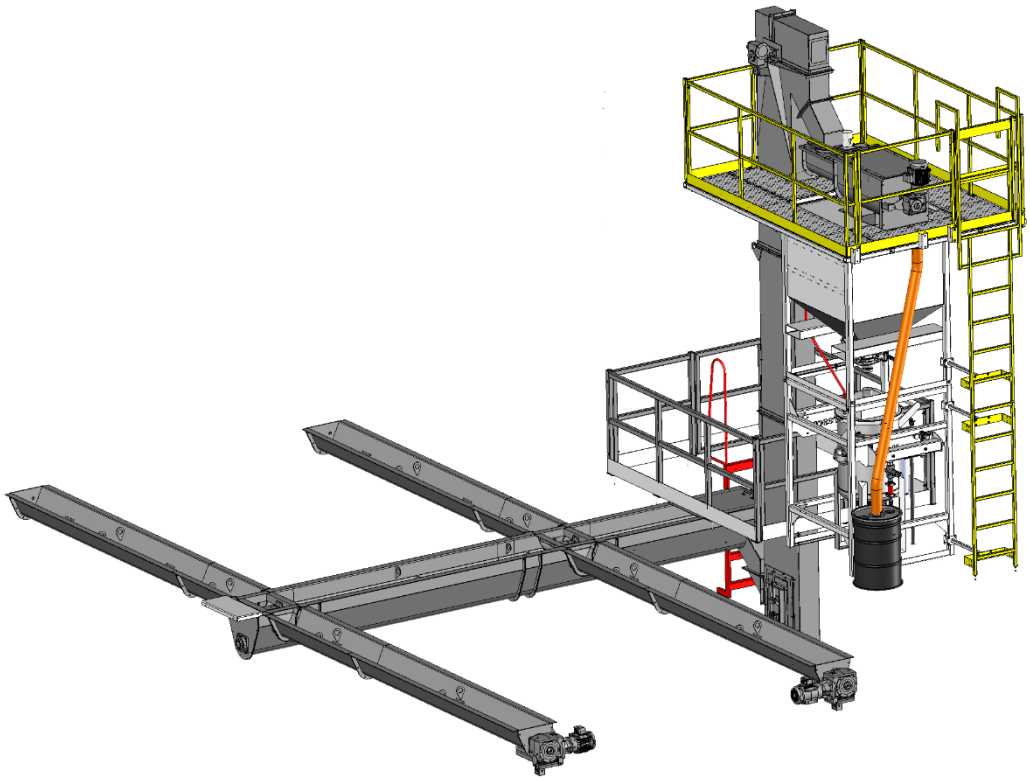
Sandblast Booth

Mechanical Recovery System

Instruction Manual



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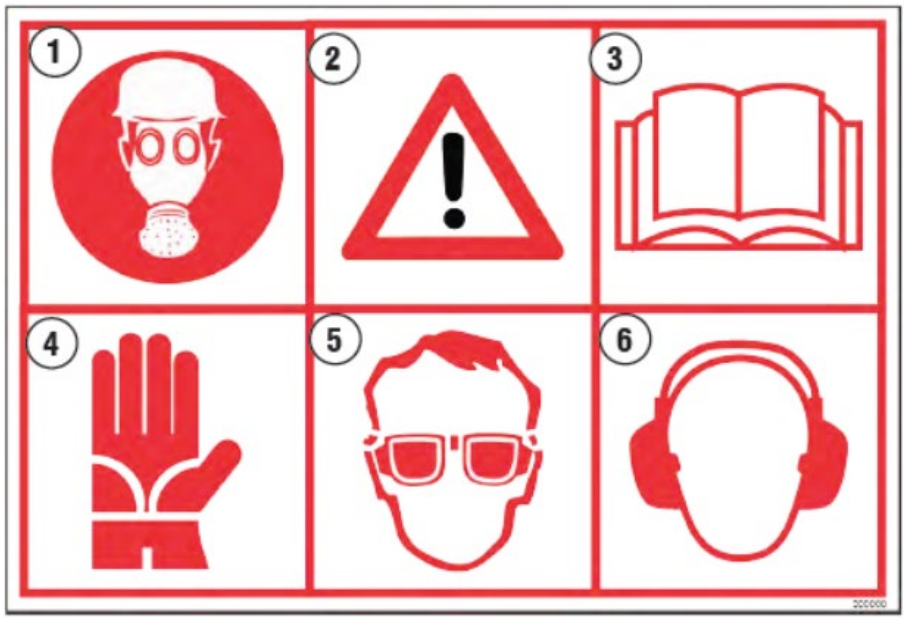
DANGER AND WARNING LABELS



1. Wear a respiratory mask
2. Observe the security warnings at all times
3. Read the instruction manual carefully.
4. Wear safety gloves
5. Wear safety glasses before use
6. Wear hearing protection before use

WARNINGS

Please read the User Manual and all other safety instructions carefully before using this equipment. Failure to follow the SAFETY RULES and other precautions described in this document may result in serious injury.

WARNINGS

Sandblasting equipment can emit potentially hazardous dust and airborne contaminants during operation. Appropriate respiratory protection must be worn at all times when operating or near the equipment.

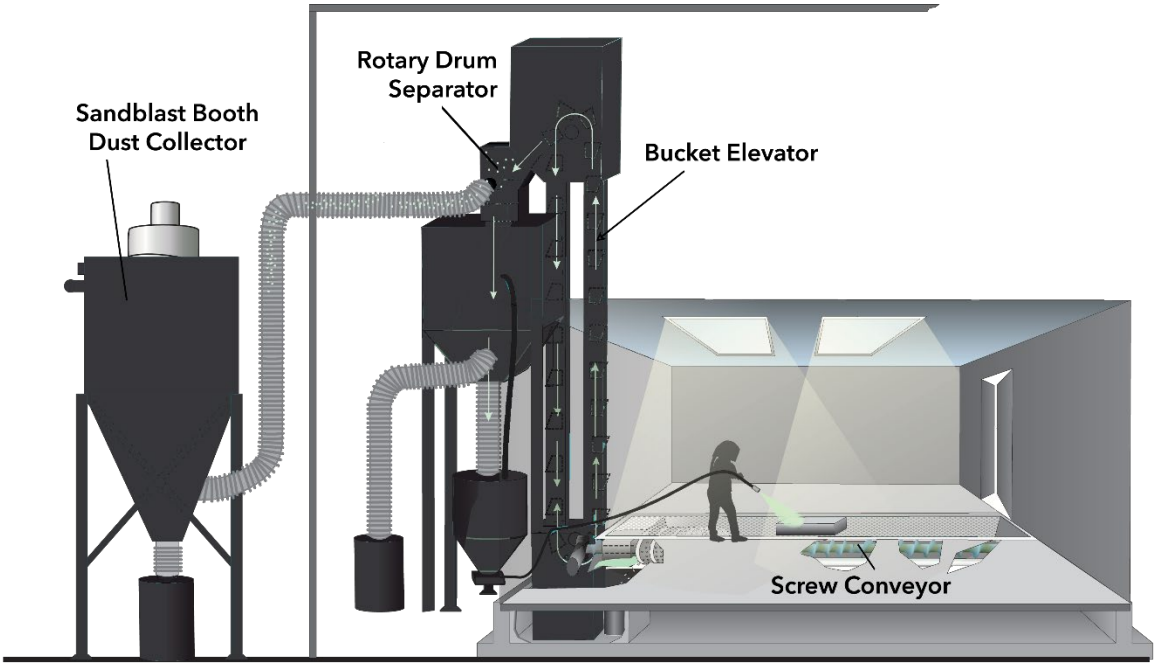
EQUIPMENT OVERVIEW

OPERATING PRINCIPLE

The mechanical recovery system for sandblasting booths is a robust and reliable solution for recovering used abrasive media with minimal effort.

This system combines the robustness and power of a screw conveyor system and a bucket elevator to collect residual media in ground-level recovery hoppers. Its rotary drum separates debris and dust from the reusable media, which is then returned to the storage hopper.

It can handle most abrasive media available on the market and offers a variety of configurations for the recovery floor.



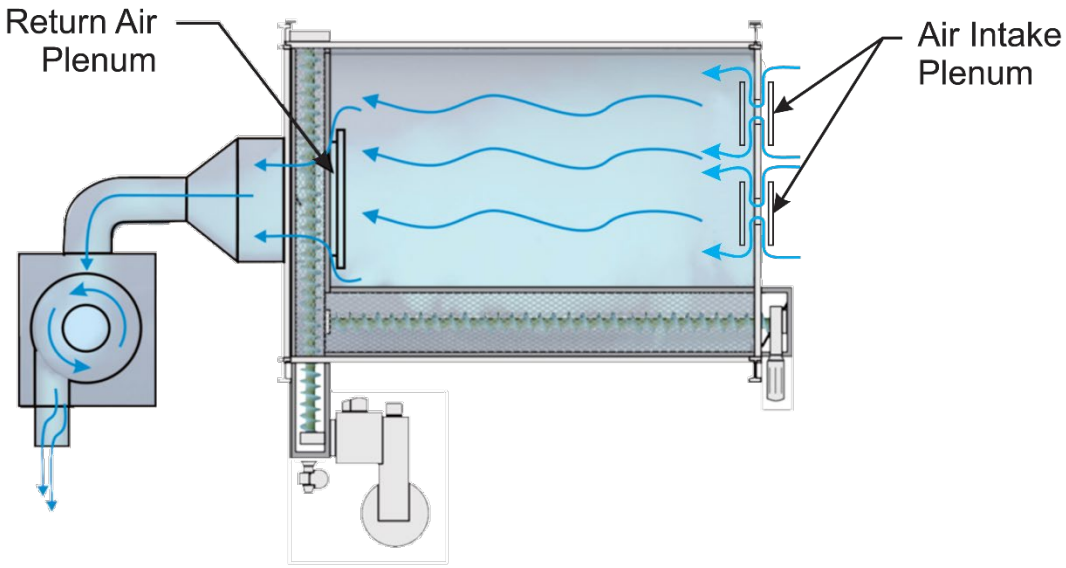
VENTILATION

The ventilation of the booth is created by means of a powerful fan mounted on a dust collector which sucks up the air contaminated with dust and airborne contaminants from the booth.

The fan and suction ducts are calibrated according to the booth dimensions to achieve a negative pressure of 1/2" wg (Nominal) at the end of the room.

This configuration draws in outside air through the air inlet plenums located at the opposite end of the booth and creates a cross-flow of air through the booth which provides ventilated air and increase visibility inside during sandblast operation.

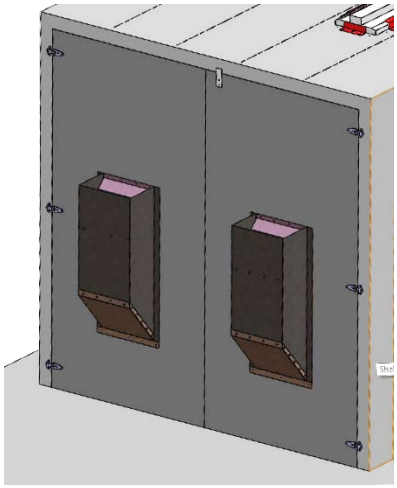
The outlet plenums allow dust-laden air to be directed to the sandblast booth dust collector. The inlets and outlets are proportioned to ensure adequate air volume and flow rates.



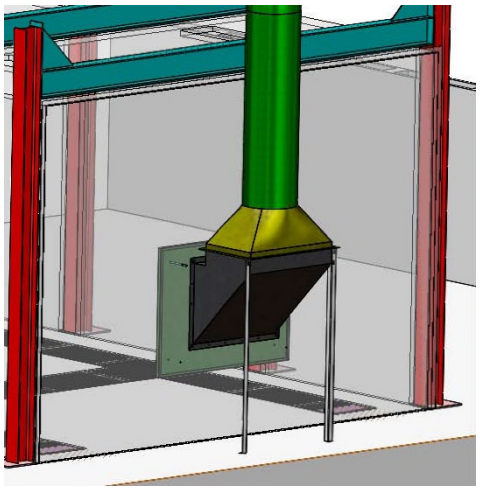
AIR INLET AND OUTLET PLENUMS

Different inlet and outlet plenum configurations are available depending on the booth parameters and product loading door type.

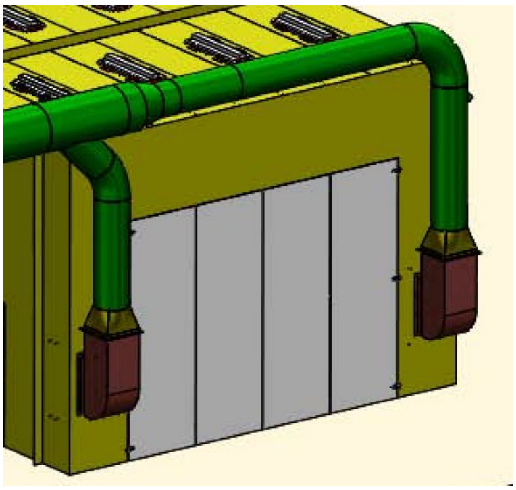
Inlet plenums are typically installed on product loading doors while outlet plenums are located at the opposite end (on the booth wall in the case of single-exit chambers and around the unloading doors for a 'Drive-Thru' type booth).



Air intake plenums



Outlet plenum of a 'Solid Back' type booth



Outlet plenums of a 'Drive-Thru' type booth

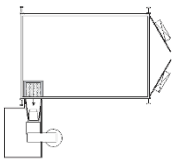
FLOOR RECOVERY HOPPERS

After contact with the part, the abrasive media falls onto the floor of the booth and mixes with the waste generated during the sandblasting process – paint chips, rust, scale, mill scale, media chips, solid debris, etc.

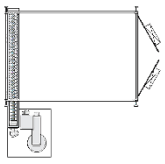
In a mechanical recovery system, the contaminated media is swept into inground recovery hoppers equipped with augers that convey the media to a bucket elevator to then be cleaned through a ventilated rotary screen drum where the particles are separated according to their specific density.

There are different floor configurations to optimize process costs (initial investment versus effort required to clean the floor from the booth to the recovery hoppers).

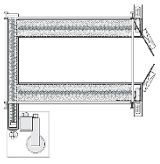
EXAMPLES OF FLOOR CONFIGURATIONS



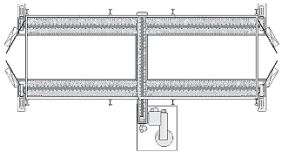
Corner Chute



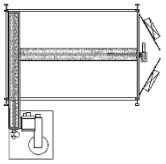
Simple Pit



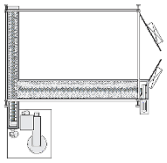
U-Shape



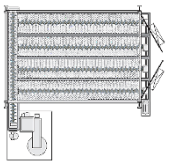
H-Shape



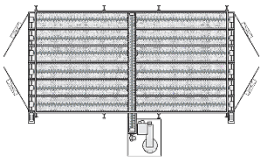
'T'-Shape



L-Shape



Complete Floor

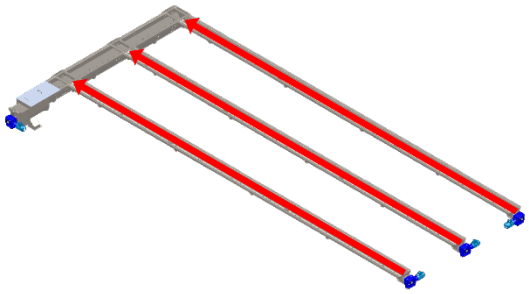


Dual Full Floor

LONGITUDINAL SCREW

The longitudinal screw conveyor modules (also called 6” screws) consist of a 10-gauge steel inground screw structure equipped with endless screws supported by a suspension bearing at each section.

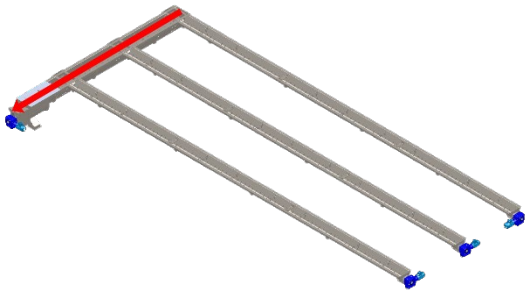
The screws are designed in a way to convey the media into the transverse module.



TRANSVERSE SCREW

The transverse screw conveyor modules (also called 9” screws) consist of a 10-gauge steel screw structure excavated at a lower level than longitudinal screws.

The screw is supported by hanger bearings. The transverse screw conveyor collects the media and transports it to the dust collector intake located at the end of the screw.



ROTARY DRUM SCREEN

Cleaning and recycling of the abrasive media is possible thanks to the rotating sieve located on top of the sandblasting pot assembly and its storage hopper.

In the first section of the rotating drum, a screw conveyor mounted on a sealed drum screen maintain the media in movement while dust and fine particles are extracted and vacuumed to the dust collector in the booth. In the second section, a screw conveyor mounted on a perforated drum lets fall the reusable media into the storage hopper, while the debris continues its path to a collection drum.

A debris drawer with a wire mesh bootom and smaller openings is also located above the sandblasting pot and allows large pieces (hardware, wood particles, etc.) to be captured to prevent them from entering sensitive components of the system such as the valves and the sandblasting nozzle.

REMOTE-CONTROL BOX

A remote-control unit located inside the sandblast booth allows the operator to control certain valves of the blast pot from inside the chamber using a switch, without having to remove their personal protective equipment (PPE).

PRESSURIZATION/DEPRESSURIZATION SWITCH

The pressurization/depressurization switch allows the operator to depressurize the pressurized vessel of the blasting pot in order to fill its reservoir.

This switch controls the AV-176 combo air valve to release pressure inside the blasting pot, allowing the plunger to fall and letting the abrasive contained in the storage hopper fill the vessel.

SANDBLASTING/AIR ONLY SWITCH

The sandblasting/air only switch allows control of the opening and closing of the media regulating valve.

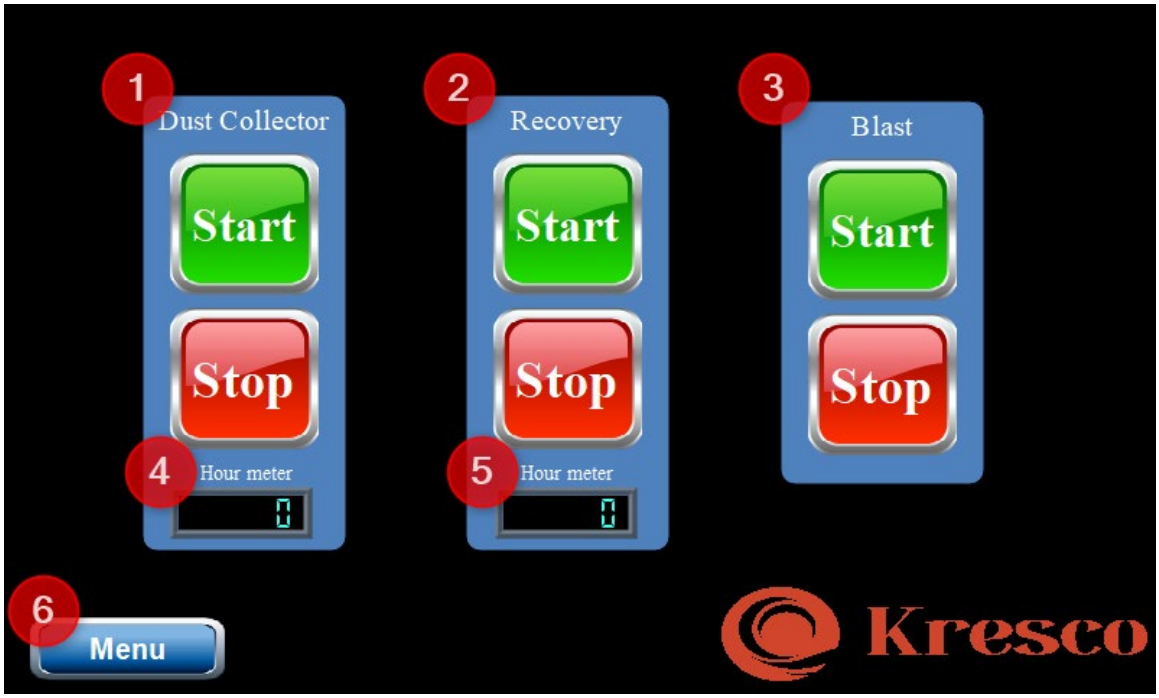
The 'air only' position of this switch allows the sandblasting line to be transformed into a powerful blower producing high-velocity compressed air that can be used to blow dust off of the freshly sandblasted parts or to blow abrasive residue into excavated recovery pits.

CONTROL PANEL

Sandblasting booths equipped with a recovery system from Kresco come with a control panel featuring a touchscreen user interface to control the main functions.

MAIN MENU (AUTOMATIC MODE)

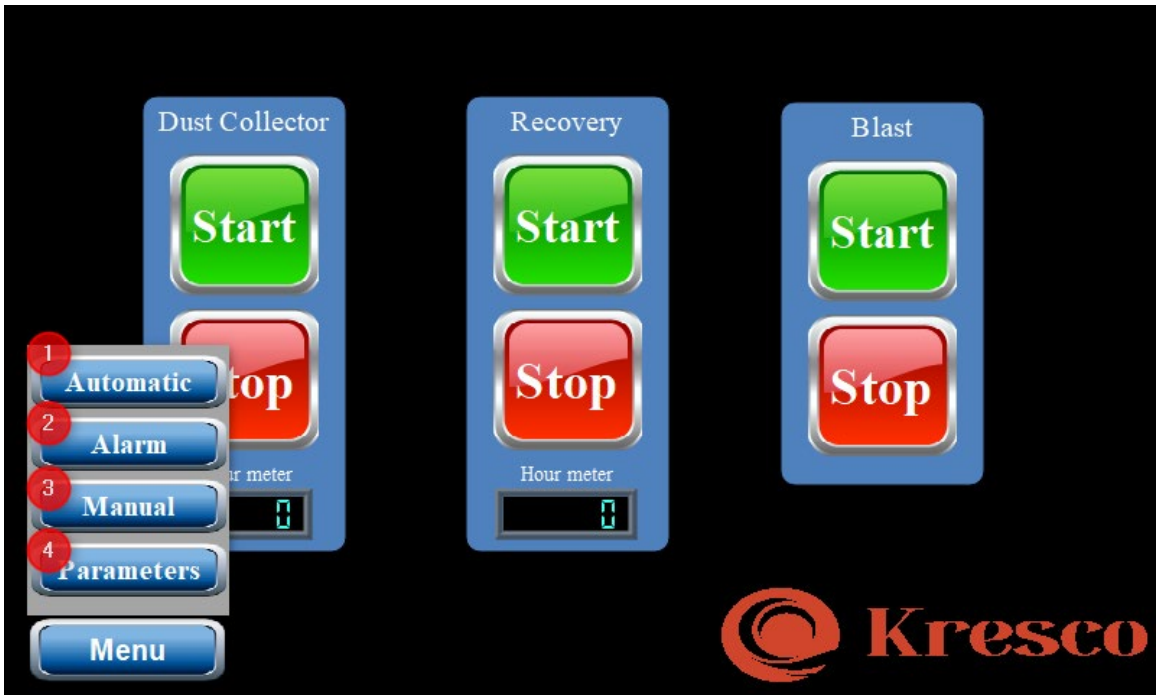
The main menu is the main screen that appears when the control panel is opened.



This is a simple user interface that allows the operator to control basic system parameters, including:

1. Start/Stop the booth dust collector
2. Start/Stop the recovery system
3. Start/Stop the sandblasting system
4. Display the booth dust collector's operating hours
5. Display the recovery system's operating hours count
6. Access other menu options

OTHER MENU OPTIONS

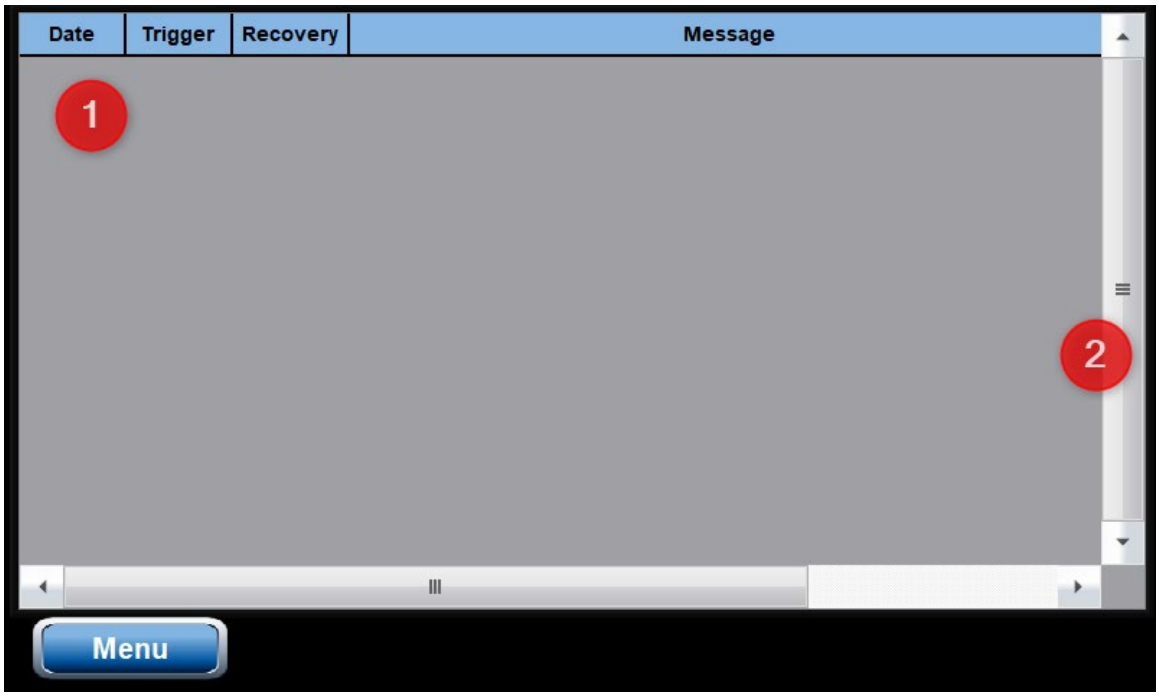


The different menu options are:

1. **Automatic**– Access the main screen in automatic mode
2. **Alarms**– Access the Alarms page
3. **Manual***– Access the Manual Mode page which allows you to operate each piece of equipment individually
4. **Settings***- Access the system configuration page

Menus marked with an asterisk (*) are password protected. To access them, the operator must log in as an administrative user.

ALARMS MENU

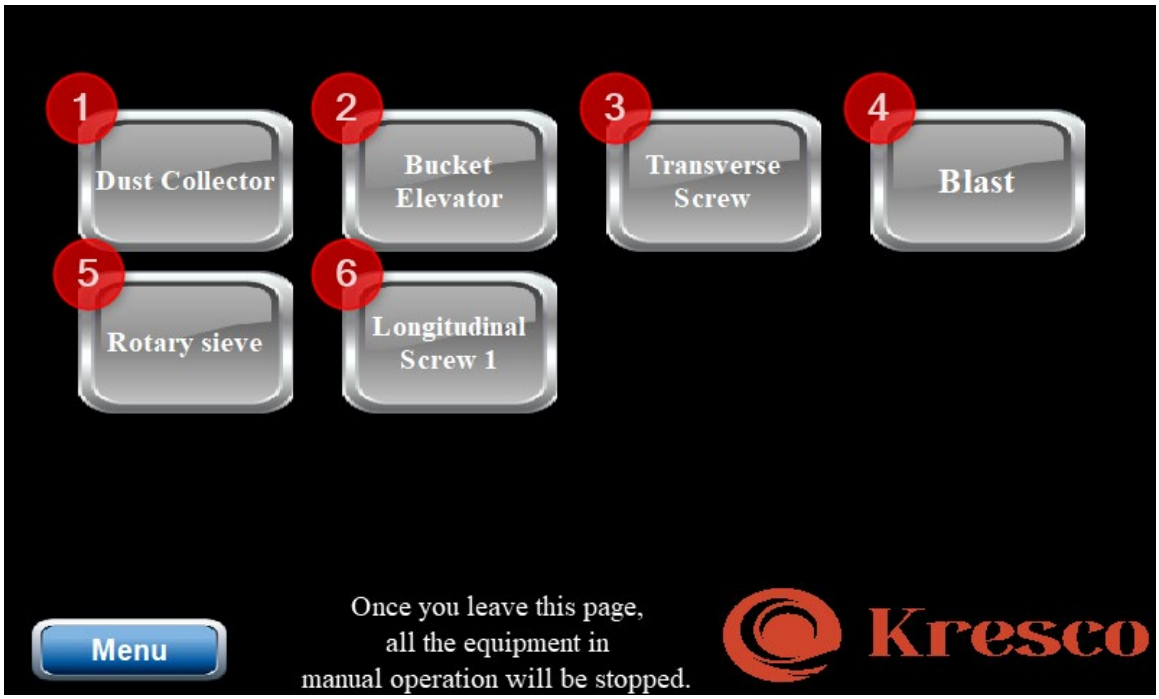


The Alarms menu options are:

1. Displaying current alarms (in red) as well as resolved alarms (in green).
2. The arrows allow you to scroll through the alarm history.

MANUAL MENU

The Manual Menu allows maintenance personnel to operate each system individually for maintenance or verification purposes.



To activate a component in manual mode, press the component for 3 seconds until the button changes from grey to green.

1. Start/Stop the booth dust collector
2. Start/Stop the bucket elevator
3. Start/Stop the cross screw
4. Start/Stop the sandblasting system
5. Start/Stop the rotary drum screen
6. Start/Stop the screw conveyor system (screw 1, 2, 3… depending on the system)

All components currently in operation will cease to function upon exiting the Manual menu.

MENU SETTINGS

The Settings menu allows you to modify certain basic system settings, including:

1. Modify the booth dust collector start-up delay
2. Modify the booth dust collector shutdown time
3. Modify the start-up delay of the cross screw
4. Modify the start-up delay of the longitudinal screw 1
5. Modify the start-up delay of the longitudinal screw 2
6. Change the bucket elevator start-up delay
7. Modify the stop delay of the transverse screw
8. Modify the stop delay of the longitudinal screws
9. Modify the bucket elevator shutdown time
10. Modify the rotary screen shutdown time
11. Change the menu display language

WARNINGS

The system startup and shutdown times are factory-set by Kresco technicians. It is not recommended to alter these settings to avoid irreversible damage to your system unless specifically instructed to do so by a Kresco representative.

START-UP PROCEDURE

ABRASIVE MEDIA LOADING PROCEDURE

Follow the procedures below to add abrasive media to the system:

1. Start the booth dust collector
2. Start the recovery system
3. Depressurize the sandblasting pot
4. When the screw conveyors start rotating, introduce the abrasive media directly into the recovery pits near the bucket elevator take-up.
5. Stop filling the media when the system detects that there is enough media and it shuts down.

WARNINGS

In order not to overload the recovery system, level detectors are located in the transfer hopper as well as in the storage hopper (optional on some hoppers).

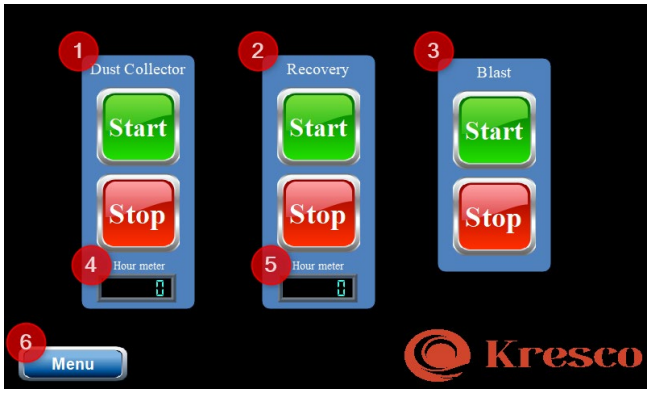
When the transfer hopper level sensor is triggered, the screw conveyors will stop rotating. Cease adding media when the screws stop rotating.

The maximum volume of abrasive media added to the system should correspond to the capacity of the storage hopper plus that of the sandblasting pot.

SYSTEM OPERATION

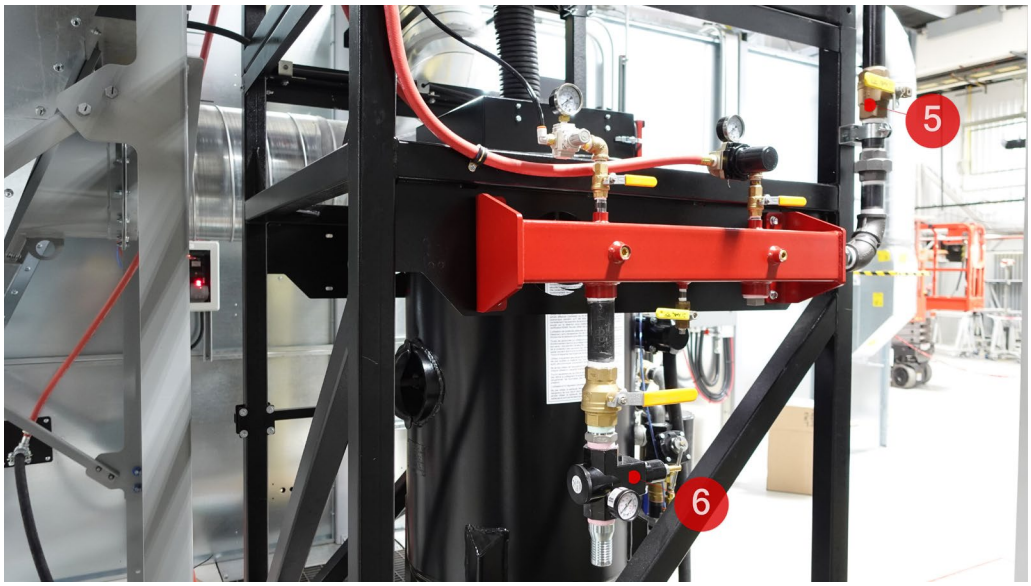
From the control panel:

1. Start the booth dust collector.
2. Start the recovery system.
3. Start the sandblasting.
4. Turn on the booth lights.



From the air intake manifold:

5. Open the ball valve at the air inlet.
6. Adjust the working pressure to the desired pressure.

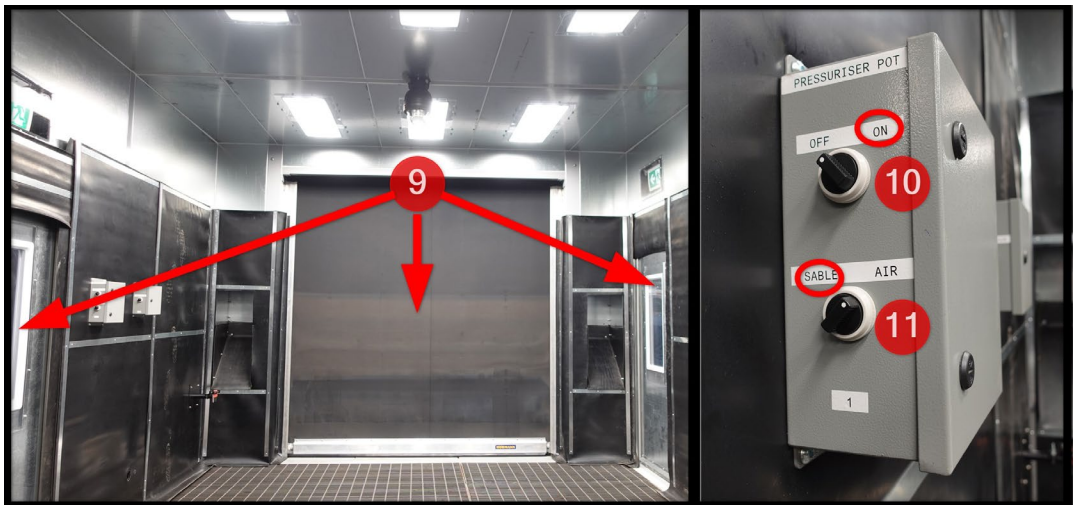


Before entering the sandblasting chamber:

7. Inspect the blasting pot and air breathing filtration system to ensure that no failures, leaks or breakages could impair system operation or endanger the operator's life.
8. Put on appropriate personal protective equipment (PPE).

Before starting the sandblasting operations:

9. Ensure that all doors to the sandblasting chamber are closed and that the door opening detectors are not in alarm.
10. Pressurize your sandblast pot:
    a. If your system has a remote-control box: Position the Pressurization/Depressurization switch in the 'Pressurization' position.
    b. If your system does not have the remote-control unit: Close the exhaust ball valve and open the air intake ball valve on the pot.
11. If your system has the remote-control box: Position the Sandblasting/Air Only switch in the 'Sandblasting' position.



12. Install the parts to be sandblasted in the center of the booth to avoid projecting the abrasive media towards the doors or control systems.
13. Position the sandblasting hose to avoid sharp bends as much as possible (they risk damaging and prematurely wear the hose).
14. Check that the nozzle is screwed on securely and that the connections are airtight.

Congratulations! You are now ready to begin the sandblasting operations.

Useful advices during sandblasting:

15. Position the sandblasting hose on your shoulder, holding the hose firmly near the control handle.
16. Press the control handle to begin sandblasting. Be careful of the inertia created by the launch of the abrasive jet.
17. Wait a few seconds for the jet to stabilize. If necessary, adjust the media regulation valve following the procedure described in your sandblasting pot manual to obtain the optimal jet.
18. Release the control handle when moving or repositioning.
19. Gently place the nozzle on the ground. Do not throw it abruptly as it may break.

When the blast pot is empty of material:

20. Depressurize your sandblast pot:
    a. If your system is equipped with a remote-control unit: Position the Pressurization/Depressurization switch in the 'Depressurization' position. Be aware of the high-pitched noise that will escape through the depressurization valve.
    b. If your system does not have the remote-control box: Close the air intake ball valve on the pot and open the exhaust ball valve.
21. Wait approximately three (3) to five (5) minutes to allow time for the vessel to fill.
22. Pressurize your sandblasting pot:
    a. If your system has a remote-control box: Position the Pressurization/Depressurization switch in the 'Pressurization' position.
    b. If your system does not have the remote-control unit: Close the exhaust ball valve and open the air intake ball valve on the pot.
23. Wait about ten seconds to allow the hose to depressurize.
24. Resume sandblasting operations normally.

Following the sandblasting operations:

25. Depressurize your sandblasting pot:
    a. If your system is equipped with a remote-control unit: Position the Pressurization/Depressurization switch in the 'Depressurization' position. Be aware of the high-pitched noise that will escape through the depressurization valve.
    b. If your system does not have the remote-control box: Close the air intake ball valve on the pot and open the exhaust ball valve.
26. If your system is equipped with the remote-control unit:
    a. Position the Sandblasting/Air Only switch in the 'Air Only' position.
    b. Press the control handle to use the sandblasting hose as a powerful blower to clean parts.
27. Clean the floor by directing residual floor media towards the recovery pits using the hose in blower mode (if your system has a remote-control box) or heavy-duty shovels.

SYSTEM SHUTDOWN

WARNINGS

Before opening the booth doors and stopping the dust collector, wait 2 minutes inside the booth after all sandblasting, floor cleaning and room cleaning operations are completed to allow the chamber dust collector to properly remove suspended dust.

From the control panel:

1. Turn off the booth lights
2. Stop the sandblasting
3. Stop the recovery system
4. Stop the booth dust collector

PREVENTIVE MAINTENANCE

SANDBLAST BOOTH

WEEKLY MAINTENANCE ROUTINE

Component	Additional information
Rubber coating	→ Check the rubber coating for wear or deterioration ① and replace it if necessary.
Lighting system	→ Clean the Lexan light protector frequently ③ and replace when necessary.
Staff entrance	→ Clean the Lexan window of the door frequently ⑤ and replace when necessary. → Make sure the door seal ⑥ is airtight and replace when necessary.

REPLACE WHEN NECESSARY

#	Kresco Code	Description
1	RUR-SBR-1/8X48-BLK	1/8" black SBR rubber, 48" Wide (sold by foot)
2	SBBOP-DOOR-SWITCH	Safety Switch
3	LEX-CH-0001	Clear Lexan for LED fixture for sandblasting booth 18" wide x 47" long x 1/8"
4	LIG-FL-120V-45WH-1800	Fixture light 120-277V 45" Long 18,000 Lumen
5	LEX-PL15-3/4X32-3/4X1/16	Protector for Lexan 15-3/4" wide x 32-3/4" long x 1/16" thick
6	ROL-NO1X1-S-ME	Open-cell polyester urethane foam, 1" width x 1" thickness

SANDBLASTING EQUIPMENT

DAILY MAINTENANCE ROUTINE

Component	Additional information
Personal protective equipment (PPE)	→ Inspect the personal protective equipment ①. Maintain or replace as needed.
Sandblasting hose	→ Position the sandblasting hose ② in a way to avoid overlaps and overly sharp curves.

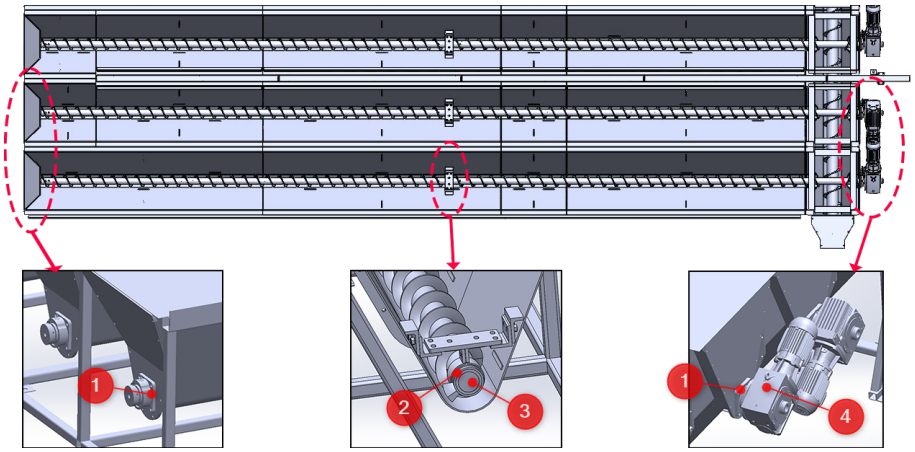
WEEKLY MAINTENANCE ROUTINE

Component	Additional information
Remote-control handle	→ Inspect and maintain the remote-control handle ②.
Sandblasting hose	→ Inspect the sandblasting hose ②. Look for signs of wear or leakage and replace if necessary.
Sandblasting nozzle	→ Inspect the sandblasting nozzle ③ and replace when required.
'Whip' section of the sandblasting hose	→ Inspect the 'whip' hose ④ for leaks and replace when necessary. The "whip" hose has a thinner wall for easier handling but wears out more quickly than regular sandblast hose.

MONTHLY MAINTENANCE

Component	Additional information
Sandblasting 'push' line	→ Inspect the sandblasting hose ②, the fittings and their sealing gaskets ⑥ for signs of premature wear or leakage. → Replace them if necessary.
Personal protective equipment (PPE)	→ Inspect the breathing air supply hose ⑦ fittings and seals for weak points and premature wear. → Replace them if necessary.

SCREW CONVEYOR



MONTHLY MAINTENANCE

Component	Additional information
Bearings	→ Lubricate the ball and/or roller bearings ① with multi-purpose bearing grease.

MAINTENANCE EVERY 6 MONTHS

Component	Additional information
Suspended bearings	→ Inspect each hanger bearing ② and their coupling trees ③ for signs of wear. → Both components are self-lubricating and maintenance-free. → Replace them when you notice signs of wear and/or when you hear a persistent squeaking noise. See procedure and parts details on the next page.

MAINTENANCE EVERY 2,000 HOURS OF USE

Component	Additional information
Geared motor	→ Change the oil in the gearmotor ④. Refer to the nameplate for the type and volume of oil required.

REPLACE IF NECESSARY

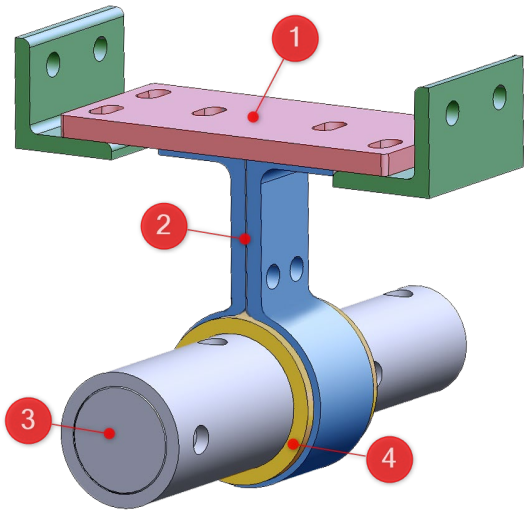
#	Kresco Code	Description	
1	BEAR-C-4HF-BB2-7/16	4-hole flanged bearing 2-7/16"	
	SBB-SCREW-SUPPORT-6	Roller bearings for 6" longitudinal screw	
	SBB-SCREW-SUPPORT-9	Roller bearings for 9" transverse screw	
2	SBB-SCREW-HANGER-BEARING	Hanger bearing	
3	SBB-SHAFTCC2-7/16	Coupling shaft	
4	MOT-GM-480V	2 hp / 480 V gearmotor	
	MOT-GM-600V	2 hp / 600 V gearmotor	

SUSPENDED BEARING

Procedure for replacing a hanger bearing:

1. Remove the support plate ① and the 'J' brackets ②.
2. Remove the 2 sections of the hanger bearing ④.
3. Clean the surface of the coupling shaft ③ with a soft emery cloth if necessary.
4. Install the new hanger bearing ④ in place. Use only the original "Martin" cast iron bearing, impregnated with oil.

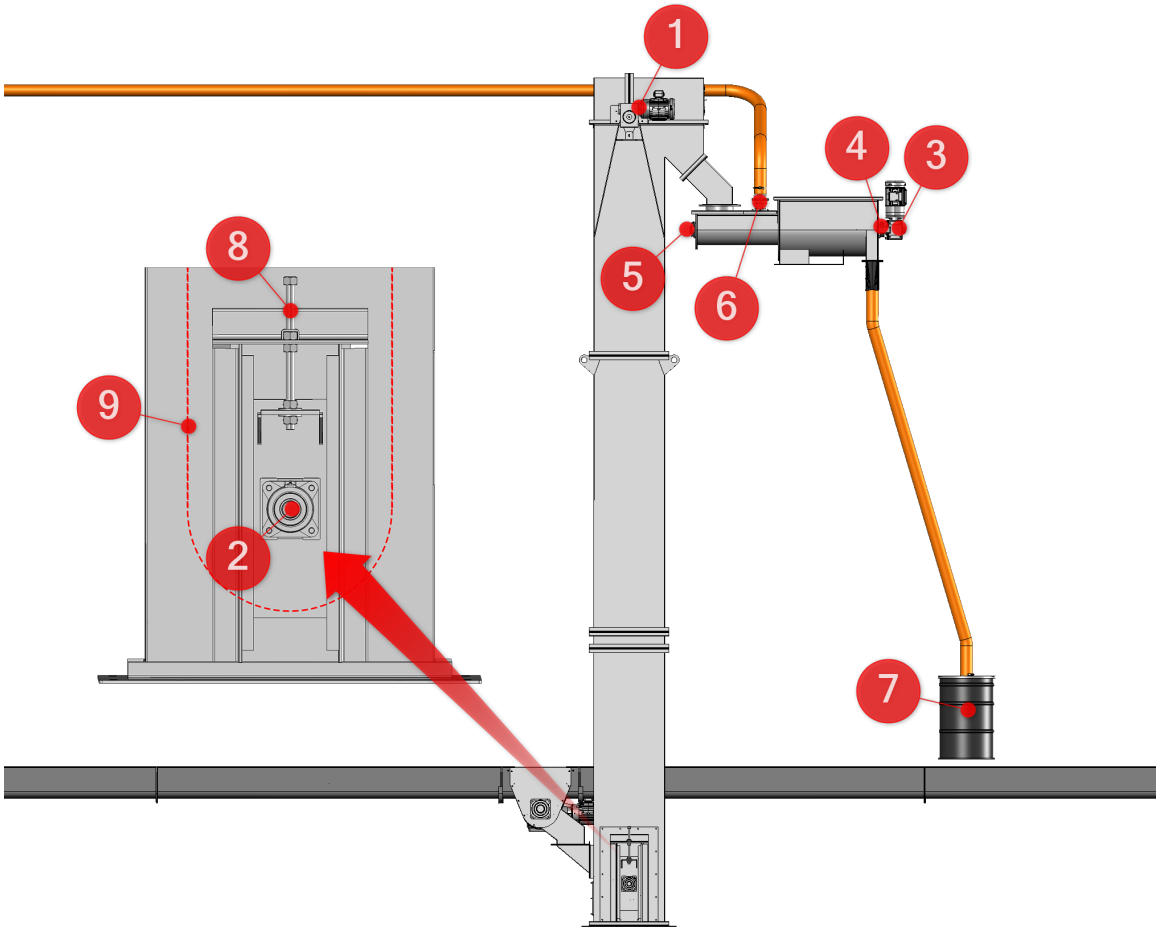
Only replace the coupling shaft if it shows signs of wear.



REPLACE IF NECESSARY

#	Kresco Code	Description
1	SBB-SCREW-SUPPORT-6	Longitudinal 6" coupling shaft bearing support
	SBB-SCREW-SUPPORT-9	Transverse 9" coupling shaft bearing support
2	SBB-SCREW-JSUPPORT-6	'J' bracket for 6" screws
	SBB-SCREW-JSUPPORT-9	'J' bracket for 9" screws
3	SBB-SHAFTCC2-7/16	2-7/16" DC coupling shaft
4	SBB-SCREW-HANGER-BEARING	Oil-impregnated hanger bearing

BUCKET ELEVATOR AND ROTARY DRUM SCREEN



TENSION THE RUBBER BELT

Component	Additional information
Bucket elevator	→ The rubber belt of the bucket elevator ⑨ must be tensioned one (1) month after system start-up and periodically thereafter. → To adjust the belt tension, turn the adjustment screw ⑧ to increase tension or counterclockwise to release it. The tension must be equal on both sides of the bucket elevator.

MONTHLY MAINTENANCE

Component	Additional information
Bearings	→ Lubricate the bucket elevator bearings ② and the rotary drum screen ④⑤ with multi-purpose bearing grease.
Debris barrel	→ Empty the debris drum regularly ⑦. → Ensure a tight connection with the 4" hose connecting it to the rotary drum screen.

MAINTENANCE EVERY 2,000 HOURS OF USE

Component	Additional information
Gearmotor	→ Change the gearbox oil ①③. Refer to the manual for the type and volume of oil required.
Bucket elevator	→ Check the tension of the rubber belt ⑨ by looking through the service access window located at the top of the bucket elevator and adjust it as needed. → Inspect the buckets and replace them as needed.
Guillotine valve	→ Check the condition of the abrasive media → If it's too dusty inside the blast pot, slightly open the guillotine valve ⑥ to vacuum more dust from the rotary drum screen → If good media ends up in the booth dust collector drum, slightly close the guillotine valve ⑥ to reduce the velocity and therefore the particle size vacuumed to the dust collector

REPLACE IF NECESSARY

#	Kresco Code	Description
1	Kresco	2 HP / 1800 RPM, 575V motor (bucket elevator)
	Kresco	30:1 Reducer (bucket elevator)
2	Kresco	Bucket elevator bearing
3	Kresco	1 HP / 1800 RPM, 575V motor (rotary screen drum)
	Kresco	60:1 Reducer (rotary screen drum)
4	Kresco	Rotary screen drum bearing (exit)
5	Kresco	Rotary screen drum bearing (entrance)

WARRANTY STATEMENT

Kresco warrants all equipment led in this manual which is manufactured by **Kresco** and bearing its name, to be free from defects in material and workmanship on the date of sale by an authorized **Kresco** distributor to the original purchaser for use. Notwithstanding any special, extended or limited warranty published by **Kresco** will, for a period of TWENTY-FOUR (24) months from the date of sale, repair or replace any part of the equipment determined by **Kresco** to be defective.

This warranty applies only when the equipment is installed, operated and maintained in accordance with **Kresco**'s written recommendations. This warranty DOES NOT cover, and **Kresco** 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-**Kresco** component parts. Nor shall **Kresco** be liable for malfunction, damage or wear caused by the incompatibility with **Kresco** equipment with structures, accessories, equipment or materials not supplied by **Kresco**, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by **Kresco**.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized **Kresco** distributor for verification of the claimed defect. If the claimed defect is verified, **Kresco** 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.

Kresco'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 two (2) years of the date of sale.

Kresco 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 **Kresco**. These items sold, but not manufactured by **Kresco** (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. **Kresco** will provide the purchaser with reasonable assistance in making any claim for breach of these warranties.

LIMITATION OF LIABILITY

In no event will **Kresco** be liable for indirect, incidental, special or consequential damages resulting from **Kresco** 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 **Kresco**, or otherwise.

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

- → Kresco Technical Assistance at 1-877-757-3726

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

- → Parts or chassis replacement due to normal wear
- → Consumables and replacement parts (hoses, nozzle, gaskets, etc.)

Defective material or workmanship is not considered normal wear

ABOUT KRESCO

Kresco designs, manufactures, and supports industrial equipment for the surface treatment industries. **Kresco** has standard equipment designed for most applications and can customize equipment to meet or exceed your production expectations.

SANDBLASTING

- Sandblast Booths
- Sandblast Cabinets
- Automated Sandblasting Systems
- Abrasive Reclaiming Systems
- Pressurized Sandblasters
- Dust Collectors

SHOT BLASTING

- Roller Conveyor Blaster
- Rotary Table Blaster/Swing Table Blaster
- Spinner Hanger (Batch)
- Continuous Flow with Monorail.
- Rubber and Steel Flight Tumbler Blasters
- Flow Thru Barrel Blasters
- Mesh Belt Continuous Blasters
- Monorail System Blasters
- Rim Blasters
- Preservation Line

PAINTING & COATING

- Paint Spray Booths
- Powder Coating Booths
- Drying Ovens

SOLVENT RECOVERY

- Batch Solvent Distillers
- Continuous Flow Solvent Distillers
- Oil Cooling Systems

PARTS & CONSUMABLES

- Blast Nozzles
- Blast Hoses
- Abrasive Media (Glass Bead, Aluminum Oxide, Steel Shot and Grit)
- Air Valves
- Abrasive Metering Valves
- Cartridge Filters
- Sludge Bags
- Safety Equipment & PPE

SERVICES

- Turnkey Project Design
- Custom Design
- Full Installation
- Start-up Supervision
- Training
- Maintenance
- Retrofit & Upgrade

All systems are designed to build and they are manufactured with the highest quality standards in our manufacturing shop in Quebec, Canada.