

TFC-1230 ROLLER COMPACTOR

INSTALLATION - MAINTENANCE INSTRUCTIONS



YOUR GLOBAL EQUIPMENT AND PROCESSING SOLUTION

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INTRODUCTION

The Vector Roller Compactor is a compacting machine designed to produce a dry compacted granulation. Powder is charged into a hopper where a screw feeder pre-compacts, de-aerates and feeds the powder into a gap between two cantilevered compacting rolls. The compacting rolls process the powder into a compacted sheet that is then fed into a knife mill.

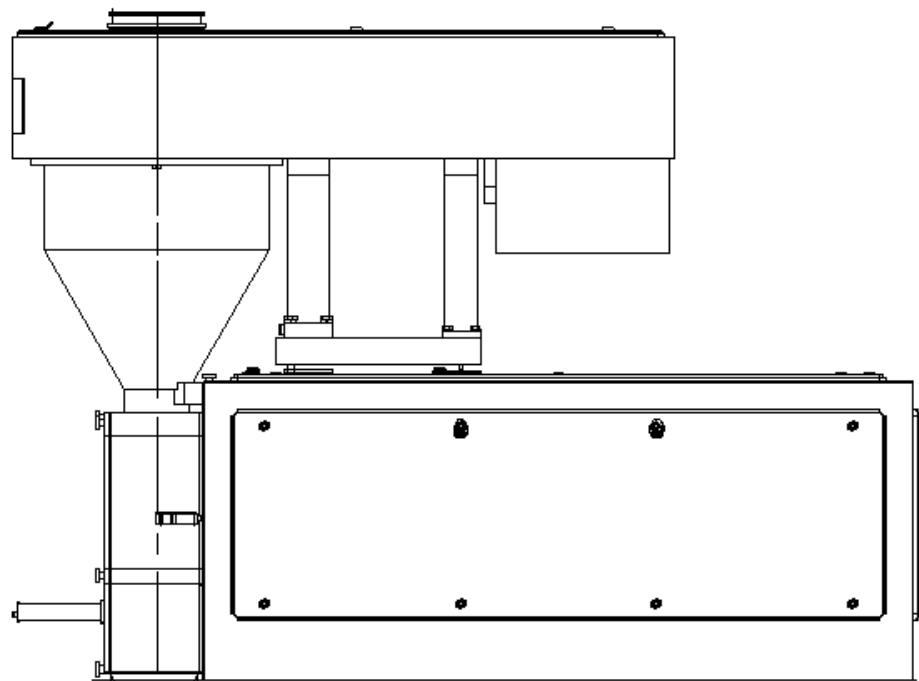


Figure 1. TFC-1230 Roller Compactor

GENERAL INFORMATION

To assure successful operation of this machine, the material presented in this publication must be thoroughly read and understood BEFORE proceeding.

Our goal is to provide you with the most complete and accurate information as possible to help you operate and maintain your machine. The examples and diagrams are included solely for illustrative purposes. Should you find any errors, please be sure to contact us so we may continue to improve the quality of our publications.

Throughout this manual, you will find warnings, cautions and notes. These items are to make you aware of safety considerations.



Warnings - Indicate a potentially hazardous situation with specific procedures or policies that should be followed to avoid serious injury or death.



Cautions - Indicate a potentially hazardous situation with specific procedures or policies that should be followed to avoid minor or moderate injury to personnel OR damage to equipment.



Notes - Indicate specific information that will benefit the reader in the use and care of the machine.

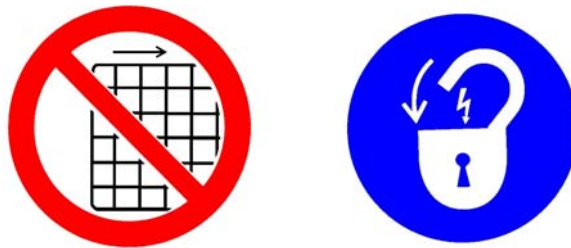
GENERAL INFORMATION

LABELS

Following is a listing of the various labels used on the Roller Compactor. Please become familiar with each label and its meaning.

DO NOT OPERATE WITH GUARDS OR COVERS REMOVED

LOCK OUT ELECTRICAL POWER



This combination of labels will be found on all the removable covers on the machine.

The first label informs the operator and service personnel that the covers or guards are NOT to be removed during operation of the equipment.

The second label tells personnel that when the guards or covers are removed for servicing, that electrical power should be locked out to avoid injury.

ELECTRICAL SHOCK HAZARD



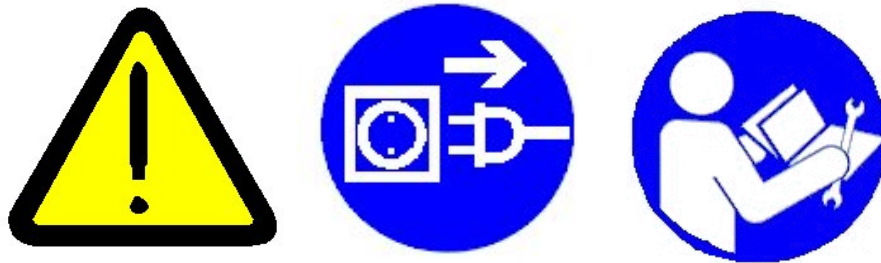
This label cautions the operator to be aware of the hazard of electric shock. The hazard exists when the guards or covers are removed from the machine or the doors to electrical panels are opened. The operator should take extreme care to avoid the hazard of electric shock, usually by removing the power supply from the area or taking extra precautions for safety.

GENERAL INFORMATION

LABELS (Continued)

DISCONNECT POWER SUPPLY

BEFORE SERVICING CONSULT SERVICE MANUAL



The first label cautions the operator to pay attention.

The second label tells the operator to disconnect the power supply.

The third label tells the operator to consult the service manual before performing any service or maintenance on this machine.

CRUSH HAZARD



This label warns the operator of the Crush Hazard that exists when the Upper Cover Assembly is lowered into processing position. The operator **MUST** keep hands clear of the area between the Lower and Upper Cover Assemblies. When servicing the unit, Lock Out/Tag Out procedures should be initiated to keep the operator or serviceman from injury.

GENERAL INFORMATION

LABELS (Continued)

ROLL HAZARD



This label will be found on the compacting roll cover assembly. Although a safety cover is provided for the compacting rolls, this cover may be removed by the operator.

This label cautions the operator to be aware of the hazard of entanglement between the compacting rolls. Keep hands, fingers, tools and ALL objects away from the compacting rolls during operation.

As always, Vector recommends shutting down the power supply before removing the guards and performing service on the machine.

GENERAL INFORMATION

LABELS (Continued)

FEED SCREW HAZARD



This label warns the operator of the Crush Hazard that exists when the Upper Cover Assembly is lowered into processing position. The operator **MUST** keep hands clear of the area between the Lower and Upper Cover Assemblies. When servicing the unit, Lock Out/Tag Out procedures should be initiated to keep the operator or serviceman from injury.

FEED SCREW CRUSH HAZARD



This label warns the operator of the feed screw hazard that exists inside the funnel where the feed screw is located. **DO NOT** stick hands or objects inside the funnel at any time. Keep clear of the area during processing. If servicing is required, all electrical power to the machine should be shut down.

SPECIFICATIONS

Roll Motor	10 HP 1800 RPM
Roll Variable Speed	2 - 20 RPM
Roll Gap	.02" - .25" (0.5mm - 6.0mm)
Rolls - Cantilevered, variable roll gap	"S" type (serrated profile) "DP" type (smooth with die & punch profile) "DPS" type (serrated with die & punch profile)
Compacting Roll Force-Maximum (13,500 lbs per linear inch)	32 Tons (64,000lbs)
Screw Motor	3 HP 1800 RPM
Screw Variable Speed	7 - 70 RPM
Screw	Vertical tapered
Overall Dimensions	50 1/4 W X 83 3/8 D X 72 3/8 H 1276 mm X 2108 mm X 1829 mm
Max. Rated Capacity	(660 lbs/hr) (300 kg/hr)*

*NOTE: Capacity will vary depending on the bulk density of material. Capacities shown are based on tests using lactose with a compacted bulk density of 0.85gr/cm³.

SYSTEM DESCRIPTION

The Roller Compactor consists of the following assemblies:

- Feed Screw/Hopper Assembly
- Roll Assembly
- Control Cabinet/Operator Interface

FEED SCREW/HOPPER ASSEMBLY

The feed screw/hopper assembly consists of an forty (40) liter hopper, a feed screw, a scraper and a screw motor. Product is placed into the hopper. The screw motor rotates the feed screw in the hopper, moving the product through the bottom of the hopper into the top seal of the roll assembly. The feed screw is used for the processing of both high and low density powders.

The vertical tapered feed screw rotates to feed material into the roll assembly at a uniform rate. The speed of the feed screw can be adjusted as needed.



Figure 2. Feed Screw

SYSTEM DESCRIPTION

ROLL ASSEMBLY

After product has left the hopper, it enters the top seal of the roll assembly. The top seal and side seals surround the pressure rolls keeping the product contained.

The Roll Assembly, located inside the machine cabinet consists of two pressure rolls supported by four (4) roll bearings. The right roll is adjustable. Under each roll is an under scraper. These scraper blades ride against the face of each pressure roll, cleaning product residue from the rolls.

Three (3) different sets of pressure rolls are available to adapt the equipment to the product being compacted: DP, DPS and S rolls.

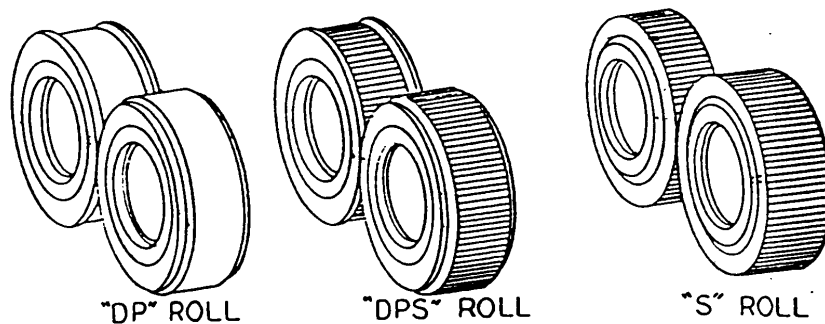


Figure 3. Pressure Rolls

The DP and DPS pressure rolls are designed to provide a uniform distribution of force to the powder, creating a consistent ribbon of product. The machined profile on the sides of the rolls minimizes leakage, un-compacted powder and undersized product production.

SYSTEM DESCRIPTION

ROLL ASSEMBLY (Continued)

The "DP" pressure rolls should be used with materials that are cohesive or compress easily. The smooth surface minimizes any product from building up on rolls.

The "DPS" pressure rolls should be used with materials that are inherently lubricous or do not compress easily and are not fed through the rolls easily. The roll surfaces are grooved to prevent material slippage.

The "S" pressure rolls can be used on materials with characteristics similar to those described for the "DPS" rolls. The "S" rolls do not have the machined profile the other rolls have, resulting in increased fines. The complete roller surface is used for compacting, increasing throughput.

CONTROL CABINET/OPERATOR INTERFACE PANEL

The Control Cabinet contains the controllers and relays necessary for the operation of the roller compactor.

The operator controls most of the functions of the roller compactor from the Operator Interface Panel. Instructions for the operator controls are explained in detail in the Operator Interface section of this manual.

SYSTEM DESCRIPTION

OPTIONAL FEATURES

PROCESS VARIABLE PRINTING OPTION

Process variable printing provides a permanent printed record of the data displays on the monitor. This option includes a printer and all necessary cabling for interfacing with the roller compactor.

VACUUM DE-AERATION

The de-aeration system aids in the removal of entrained air in the uncompressed powder as it moves through the compaction zone. Compressed air moving through an eductor past a de-aeration port creates a vacuum at the port in the side seal to remove air from the powder.

HOPPER FUNNEL

A Hopper Funnel is used to assist powder transfer from the customer-supplied powder feed system to the TFC-1230 screw hopper. The hopper funnel is removable for cleaning.

PROCESSING INFORMATION

Five factors determine the compactors capacity: Roll Diameter, Roll Width, Roll Speed, Flake Thickness, and Flake Density. The capacity differs depending on the bulk density of the materials according to the following equation:

$$Q = 3.1416 * D * W * T * \gamma * N * 60$$

Q = Capacity

D = Roll Diameter

W = Roll Width

T = Flake Thickness

γ = Flake Density (g/cm²)

N = Roll Speed (RPM)

REFERENCE DOCUMENTS

Prior to the installation of this equipment, it is highly recommended that copies of the following Standards, Codes and other documents be obtained. These documents, along with the preliminary drawing package and a familiarity of local safety regulations, will assist you in determining that the completed installation meets all acceptable regulations.

United States

- United States National Fire Protection Association (NFPA) 68, Guide for Venting of Deflagrations
- NFPA 69, Standard on Explosion Prevention Systems
- NFPA 70, National Electrical Code (NEC)
- Occupational Safety and Health Administration

International

- International Electrotechnical Commission (IEC)
- Canadian Standards Association (CSA)
- European/German Standard VDI3673
- European/German Standard VDI2263
- European Standard EN60204 cl. 20 (International Electrotechnical Commission (IEC) 204-1)

INSTALLATION REQUIREMENTS

BASIC ROOM LAYOUT

Prior to receipt of the equipment, it is important that a proper facilities layout be performed. Properly planned, location and installation of the basic unit will maximize the efficiency of production during operation. Proper clearances must be allowed to perform routine maintenance, inspection and service.

SERVICE CONNECTIONS

ELECTRICITY



WARNING!

Electrical installation of this equipment must be in accordance with all state and local electrical codes as well as in compliance with the National Electric Code (NEC™). Failure to install this equipment properly could result in damage to equipment, property and loss of life.

Please check the serial number nameplate and/or specific project electrical drawings for voltage/ampere requirements.

The customer is responsible for supplying and installing the primary power cable from the machine plug for connection to the facility main power supply.

INSTALLATION REQUIREMENTS

For shipment, the TFC-1230 is mounted to a wooden skid, braced and blocked for extra support, and covered with heavy plastic sheeting. It is then placed in a shipping container for transport.

Upon arrival of equipment, immediately check shipping container for shipping damages. Report all damage to the carrier. Inspect all invoicing and material lists to ensure all parts are accounted for. Report all shortages immediately. Check for items that may be boxed separately.

Remove the TFC-1230 pallet from the shipping container. All lifting devices, straps, clamps, etc. must be rated to handle the weight of the TFC-1230 Roller Compactor. Check the shipping invoice to determine the appropriate lift rating required.

INSTALLATION REQUIREMENTS

INITIAL TFC-1230 ROLLER COMPACTOR SETUP

Prior to moving the TFC-1230 Roller Compactor to the installation site, the following precautions must be taken:



WARNING!

Failure to observe the following precautions can result in injury to personnel and/or damage to equipment.

1. **SAFETY FIRST!** Observe all safety rules associated with the lifting equipment as provided by the manufacturer.
2. All lifting devices, straps, clamps, etc. must be rated to handle the weight of the TFC-1230 Roller Compactor. Check the shipping invoice to determine the appropriate lift rating required.
3. All lifting equipment should be in good working condition. Double check to ensure proper placement of equipment BEFORE lifting the machine.
4. The top and bottom of the unit should be lifted simultaneously, keeping the unit balanced. This will help to avoid excessive shifting of the equipment during transport to the installation site.

Transport the TFC-1230 Roller Compactor to the installation site using properly rated lifting equipment, fork lift or overhead crane.

INSTALLATION REQUIREMENTS

INITIAL TFC-1230 ROLLER COMPACTOR SETUP (Continued)

Prepare to remove the TFC-1230 Roller Compactor from the shipping pallet.

Remove the shipping pallet.

In preparation for final installation, position the TFC-1230 Roller Compactor into a structure that is designed to handle its weight. (Refer to TFC-1230 Roller Compactor Specification Drawing)

MAIN AIR

Main air supplies air to the pneumatic controls and other controls on the machine. A 3/8" T quick connection on the rear of the unit is provided for connection to the customers' main air supply.

90 PSIG @ 2 SCFM(6 BAR @ 57 LPM)

WATER SUPPLY (Optional)

The compacting rolls are cooled by a water circulation system. The customer makes the water supply connections at the rotary joints on the compacting rolls.

Maximum Water Pressure	150 PSI (10.3 BAR)
Average Water Usage	7 - 12 GPM (75.7 - 113.55 L/Min)
Average Water Temperature	40 - 60°F (4 - 16°C)

NITROGEN CHARGED ACCUMULATOR

The hydraulic system comes equipped with a bladder accumulator to dampen any pulsation of pressure applied to the pressure rolls during operation. The accumulator is charged with N² gas (nitrogen).



CAUTION!

Operating this equipment with the accumulator shut off, without a nitrogen charge, or below the nitrogen charge pressure, will cause large fluctuations in the pressure roll force. These fluctuations will result in comparable variations in the compaction of powder, and could affect the quality of the compaction.

ADJUSTING CHARGE PRESSURE

Usually, nitrogen losses on the accumulator are very low. However, a regular check of the gas pressure is recommended. The charge pressure for the TFC-1230 Roller Compactor should read 550 PSI (+/- 25PSI). If the pressure readings DO NOT fall within this range, the charge pressure should be adjusted.



WARNING!

Use extreme care when handling pressurized tanks during charging of the accumulator. Ensure that all connections are properly made between nitrogen supply and accumulator tanks. Safety glasses should be worn when charging accumulator!

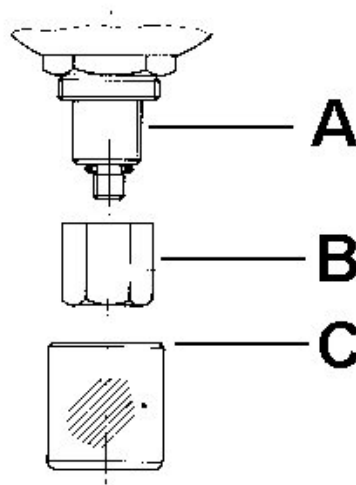
The pre-charge pressure as shown on the accumulator body, must be set after every new installation or repair and then checked at least once during the following week. If no nitrogen loss is detected, a further check should be made after approximately four months. If after this period no change in the pressure is found, a yearly check should be sufficient.

NITROGEN CHARGED ACCUMULATOR

ADJUSTING CHARGE PRESSURE (Continued)

PREPARATION FOR CHARGING/TESTING

Prior to each testing, charging or topping-up of nitrogen, the accumulator has to be separated from the pressurized system by means of the shut-off valve AND the fluid has to be released.



**Figure 4. Nitrogen Charged Bladder
Accumulator**

5. The protective cap (A) and cap screw (B) have to be unscrewed. DO NOT remove the o-ring (C).
6. Screw the charging and testing unit onto the accumulator gas valve. Turn the charging unit to a position where the gauge can be easily read.
7. Open the valve by screwing in the spindle on the charging unit. After the pointer of the gauge begins to deflect, unscrew the spindle by a further full turn. The gauge now shows the charging pressure in the accumulator. The charge pressure for the TFC-1230 Roller Compactor should read 550 PSI (+/- 25PSI). If the pressure readings DO NOT fall within this range, the charge pressure should be adjusted.

NITROGEN CHARGED ACCUMULATOR

ADJUSTING CHARGE PRESSURE (Continued)

An alternate method of checking the bladder accumulator nitrogen charge pressure is as follows:

1. Pump up the pressure roll hydraulic system to full pressure as indicated on the pressure roll gauge.
2. Slowly bleed off the hydraulic pressure and watch the pressure roll gauge closely.

The pressure roll gauge needle should fall back slowly until the nitrogen charge pressure is reached. At that point, the needle will drop rapidly to zero. The point where the needle drops rapidly is the nitrogen charge pressure.

If the needle continues to zero without speeding up, then the accumulator has lost its charge and will not function properly. This situation is remedied by charging the accumulator. Instructions for the charging of the accumulator can be found in this text.

3. If you are trying to compact below 110% of the nitrogen charge level indicated, it is as if you have no accumulator. Vector suggests that the nitrogen charge be a maximum of 90% of the minimum hydraulic pressure being used. Bleeding the nitrogen back to this lower level will ensure that the system will operate properly.

NITROGEN CHARGED ACCUMULATOR

ADJUSTING CHARGE PRESSURE (Continued)

4. If you are using this equipment for more than one product, bleeding the accumulator nitrogen charge below the factory recommended charge pressure will have a limited impact on compaction accuracy, at the higher compaction forces. If this causes a problem in product quality at higher compaction forces, it may be necessary to charge and discharge the accumulator to accommodate this wider range of operating force. In most cases the variation of compaction force will be a minimal factor - <1% of total compaction force.



CAUTION!

DO NOT operate this equipment below 110% of the bladder accumulator charge pressure. Operation below this point can result in wide fluctuations in product quality.

Example:

550 PSI Actual Nitrogen Charge Pressure

$550 \times 110\% = 605 \text{ PSI}$

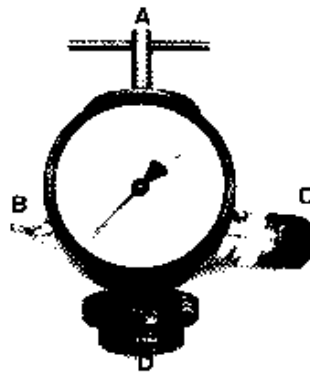
605 PSI is the suggested minimum hydraulic operating pressure for proper operation of the equipment if the nitrogen charge pressure equals 550 PSI.

NITROGEN CHARGED ACCUMULATOR

The following procedure should be followed when charging the accumulator:

CHARGING PROCEDURE

Please refer to Figure 5



**Figure 5. Accumulator Charging
and Test Unit**

1. Open the hydraulic return valve at the base of the pump to reduce the hydraulic pressure to zero.
2. Remove the valve guard and cap on the top of the accumulator.
3. Turn handle "A" on the gas charging assembly counterclockwise until it is fully open or up.
4. Connect the gas charging assembly to the valve stem on the accumulator.
5. Remove cover and valve cap on gas charging assembly.
6. Turn handle "B" clockwise until it is fully closed.
7. Connect the hose to the gas charging assembly and the Nitrogen gas supply tank.

NITROGEN CHARGED ACCUMULATOR

CHARGING PROCEDURE (Continued)

1. Turn handle "A" on the gas charging assembly clockwise until it stops.

CAUTION!



DO NOT force the handle of the gas charging assembly as it is opening the valve stem on the accumulator. Forcing the handle can cause damage to the accumulator tank.

2. Slowly open the valve on the Nitrogen supply tank and read the pressure on the gauge attached to the gas charging assembly. Pressure reading should range between 525 - 575 PSI (36.2 - 39.7 Bar).
3. When the required pressure has been achieved close the valve on the Nitrogen supply tank and wait three (3) minutes. Read pressure again.
4. If pressure is too high, open "B" to release excess gas. When pressure is correct close handle "B".
5. If pressure is too low, open valve on Nitrogen and charge again. When pressure is correct turn handle "A" counterclockwise until it is fully open. Open "B" again to release gas in charging assembly line.
6. Remove the gas charging assembly from the Nitrogen supply tank and accumulator.
7. Replace valve guard and cap on top of the accumulator.

The accumulator is now charged.

HYDRAULIC SYSTEM

HYDRAULIC INTENSIFIER PUMP

The Hydraulic Pump is designed to be virtually maintenance free as long as the air supply and hydraulic oil are contaminant free. However, it is recommended that the air cycling valve spool and seals be greased every six months or annually, depending on usage. For detailed instructions on pump maintenance, please reference the manufacturer's vendor information included in this manual.

RESERVOIR FILLING AND DRAINING

It is recommended that a light grade hydraulic oil be used. (I.e. Mobile DTE 24®, Shell Tellus 32®, or equivalent) Consult the manufacturer if your application requires other than light viscosity petroleum based fluids recommended above.

1. Remove vent/filler cap.
2. Pour clean oil through a strainer into reservoir until is completely full.
3. Replace vent/filler cap.
4. Top off the reservoir after the system has been bled.

START-UP AND BLEEDING THE SYSTEM

Once the above requirements are met and the reservoir is full, make sure the air regulator is completely turned out counterclockwise (CCW) before connecting the air supply. Slowly turn in the air regulator clockwise (CW) until the pump just begins to reciprocate. Alternately extend and retract the cylinders, bleeding the lines at the stroked end of each cylinder.

The Hydraulic System layout is detailed on the Piping and Instrumentation Drawing.

WATER COOLING SYSTEM

The water cooling system is an available option. Not all machines are equipped with this system.

The compacting rolls are cooled by a water circulation system.

When performing maintenance on the compacting rolls it may be necessary to remove the water cooling system to disassemble the unit.

1. Turn off the water.
2. Disconnect coolant hoses at the quick connects using the provided special tool. Unscrew the unions from the shafts. If desired the user may disconnect the hoses between the unions.

NOTE

K

Looking at the front of the machine, the left-hand rotary union has left-handed threads and should be rotated clockwise to loosen. The right-hand rotary union has right-handed threads and should be rotated counterclockwise to loosen.

3. Increase roll gap to maximum value.
4. Remove four (4) bolts in each of the front roll washer and pull off both washers.
5. Rolls may now be slipped off shafts. Be sure to note which roll is on which shaft for reassembly in the proper position.
6. In some cases, to be determined by the customer, the water cooling system is not needed. Simply remove the system from the unit as above.
7. Replace with the washer that has the center hole with the washer without the center hole.

MAINTENANCE

Regularly scheduled maintenance will play a big part in the continued optimum performance of this unit. Maintenance schedules vary dependant on the type of product being processed and the frequency of use. It is ultimately the customers responsibility to set up and enforce maintenance schedules.

NOTE: Vector recommends the use of closed-style wrenches- where possible-to remove hardware.

SEALS AND SCRAPER

1. Check top seal, side seal and bottom scraper frequently. Replace if worn or damaged.

MISCELLANEOUS

1. Check V-seals on screw shafts and roll shafts once per month. Replace if worn or damaged.
2. Check all lubricants once per month. Refer to the Lubrication chart.

For complete disassembly/reassembly instructions please refer to the cleaning section of this manual.

LUBRICATION CHART

The following parts should be inspected and serviced. Refer to the manufacturer's maintenance and lubrication recommendations included in this manual for more detailed information.

		SUGGESTED LUBRICANTS
Screw Assembly Reducer	Shaft Bearing and Speed Reduction Mechanism	NLGI No. 2 Grease or Alvania #2 - Shell Oil
Roll Assembly Reducer	Shaft Bearing and Speed Reduction Mechanism	Multipurpose EP Gear SAE 90 United Lubricants ISO 150 Mobilgear 629
Pressure Roll Bearings	Inspect and lubricate every 40 hours	Permalube FG™ Grease (Food Grade Aluminum Complex Lubricant)

Pressure Roll Surfaces and Shaft Sleeves should be lightly coated with a silicon or mineral oil type lubricant prior to reassembly.

CLEANING



WARNING!

Always disconnect electrical supply before attempting to clean this unit. Failure to do so may result in injury to personnel.

1. Brush or vacuum excess material from the external surface of the unit.
2. Remove front cover.

REMOVE SCREW FEEDER ASSEMBLY

(Refer to Screw Assembly Drawing)

3. Remove the five (5) threaded knobs from the hopper. Two of the knobs are located just behind the hopper base, securing the hopper to the roll frame. The other three knobs are in the top ring, securing the hopper to the screw housing.
4. Raise the screw housing.
5. Once the screw is raised to its' topmost position, insert the Stop Collar Assembly around the powered hydraulic cylinder rod.



WARNING!!

Refusal to place the Stop Collar Assembly around the hydraulic cylinder rod poses a serious threat to the safety of personnel. This Stop Collar Assembly is used to hold the screw housing in the UP position in the event of hydraulic failure.

If the Stop Collar Assembly is NOT in position and hydraulic failure occurs, crushing of hands and other body parts can occur.

CLEANING

REMOVE SCREW FEEDER ASSEMBLY (Continued)



WARNING!!

The hopper is **HEAVY!** The hopper weighs approximately 75 pounds.

Precautions should include but are not limited to the use of lifting straps or using two people to accomplish the removal of the screw.

6. Raise the hopper out of the top seal and remove from the machine.
Removing the hopper exposes the screw.
7. While supporting the screw, loosen the two (2) sets of bolts holding the screw to the screw coupling.



WARNING!!

The screw is **HEAVY!** The screw weighs approximately 40 pounds.

Precautions should include but are not limited to the use of lifting straps or using two people to accomplish the removal of the screw.

Support of the screw while removing the bolts from the screw coupling will take the bind off the bolts and make for easier removal.

8. Slowly lower the screw out of the coupling and remove.
9. Loosen the remaining hardware holding the coupling to the reducer drive shaft and remove the coupling and the v-seal.
10. Clean with appropriate solution.

CLEANING

REMOVE SEAL AND SCRAPER ASSEMBLY

(Refer to Seal and Scraper Assembly Drawing)

11. Lift out the top seal, then lift out the side seals. If seals are too tight, run rolls in reverse to cause the seals to lift away from the rolls.



WARNING!!

To prevent injury, keep hands away from the rolls while lifting out the seals.

12. Slowly lower the screw out of the coupling and remove.
13. Disconnect De-aeration tubes and clean.
14. The side seals will now slide out of the groove in the top seal.
15. Unbolt the top scrapers from the top seal.
16. The lower scrapers are located in the outlet area of the roll assembly.
Remove the (2) bolts securing each scraper and support to the frame and remove the scraper and support.

REMOVE ROLL ASSEMBLY

(Refer to Roll Assembly Drawing)

17. Disconnect coolant hoses at the quick connects using the provided special tool. Unscrew the unions from the shafts. If desired the user may disconnect the hoses between the unions.

NOTE

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Looking at the front of the machine, the left-hand rotary union has left-handed threads and should be rotated clockwise to loosen. The right-hand rotary union has right-handed threads and should be rotated counterclockwise to loosen.

18. Increase roll gap to maximum value.

CLEANING

REMOVE ROLL ASSEMBLY (Continued)

19. Remove four (4) bolts in each of the front roll washer and pull off both washers.
20. Rolls may now be slipped off shafts. Be sure to note which roll is on which shaft for reassembly in the proper position.



WARNING!!

The rolls are HEAVY! The rolls weigh approximately 162 pounds each. Precautions should include but are not limited to the use of lifting straps and mechanical lifting device to accomplish the removal of the rolls.

21. Clean rolls with appropriate cleaners.
22. Clean Infeed Chute on screw housing using appropriate cleaner and a brush. Rinse and repeat until thoroughly cleaned.

REASSEMBLE ROLL ASSEMBLY

1. Apply a thin layer of grease to both shafts to prevent rolls from sticking.

NOTE

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All bearings are packed with PermaLube FG Grease (Food Grade Aluminum Complex Lubricant) manufactured by Certified Labs, a division of NCH Corporation.

2. Slide both rolls onto shaft. Replace the (4) washer and (4) bolts.

CLEANING

REASSEMBLE ROLL ASSEMBLY (Continued)

NOTE

K

Looking at the front of the machine, the left-hand rotary union has left-handed threads and should be rotated clockwise to loosen. The right-hand rotary union has right-handed threads and should be rotated counterclockwise to loosen.

3. Install roll covers. Latch into place.
4. Wrap threads on rotary unions with Teflon tape and screw unions into shafts.
5. Connect coolant supply and drain hoses.

REASSEMBLE SEAL AND SCRAPER ASSEMBLY

6. Insert lower scraper into notch on scraper support.
7. Place scraper back up bar (steel) on top of scraper (plastic) and secure with (2) bolts.



CAUTION!

DO NOT over-tighten bolts as plastic scraper will deform.

8. Loosely fasten the scraper assemblies into the outlet area of the roll assembly.

CLEANING

REASSEMBLE SEAL AND SCRAPER ASSEMBLY (Continued)

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NOTE

Both plastic scrapers must be positioned towards the center of the machine.

9. Push the lower scraper assemblies up until the plastic scrapers contact the bottom of the roll surface and secure with (2) bolts each.
10. Loosely fasten the top scrapers to the top seal.
11. To provide the proper clearance between the top scrapers and the roll surface, place a .020 shim between the scraper and the roll. Be sure to use the shim on BOTH top scrapers.
12. Tighten the two bolts securing the top scrapers to the top seal.
13. Insert side seals into groove in top seal (plastic seals smooth sides facing each other).
14. Reconnect the de-aeration tube.
15. Position top seal, with side seals, on top of rolls. Side seals should drop down on either side of rolls. If seals do not drop into place, run rolls forward to pull seals into place.

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NOTE

When using type DP or DPS rolls, the top seal will fit in one orientation only.

CLEANING

REASSEMBLE SCREW FEEDER ASSEMBLY

16. Replace coupling and the v-seal.
17. Secure the (2) sets of bolts to the coupling.
18. Replace the screw.
19. Lower the hopper back into the top seal.
20. Lower the screw housing.
21. Secure the five (5) threaded knobs to the hopper.
22. Install the front cover.

LONG TERM STORAGE

For long term storage of the Roller Compactor these steps should be followed:

1. Lubricate the machine per instructions provided on the lubrication chart.
2. Clean the machine according to the instructions provided in the cleaning section of this manual.
3. For the gear motor, refer to the manufacturer's recommended long-term storage instruction included in the vendor information section of this manual.
4. Wrap machine in plastic.
5. Store in controlled conditions.