Vanmark 1820 Peeler/Washer
Parts and Service Manual

Vanmark Peelers/Washers are designed and built to provide long years of service with minimal maintenance. Operation is simple and easy to learn. However, it is important that operators be properly trained and that they use care to prevent injury to themselves and damage to the equipment.

This manual is provided with your Peeler/Washer as a guide for operation and as a maintenance aid. Please read and understand this manual before attempting to install, operate, service or repair your machine, as Vanmark does not assume any responsibility for work performed by unauthorized personnel. Drawings, parts and instructions are identified as right or left when facing the inlet of the machine or the direction of product flow. Parts, drawings, photographs and text are subject to change.

Always shut-off and lock-out electrical power before performing maintenance.

If any items are unclear or difficulties are encountered, please contact Vanmark Equipment for assistance.

VANMARK® www.vanmarkequipment.com
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300 Industrial Parkway (740) 201-0004 Phone
Creston, Iowa 50801 (641) 782 9209 Fax

Revision Date: 6-18-18

Since developing the first commercial potato peeler in 1954, Vanmark has been the globally recognized leader in the manufacture of industrial food processing solutions for a wide range of produce products.

Our key machinery includes continuous peelers, polishers, scrubbers and washers for potatoes and other root crops, fruits, nuts and vegetables. We also manufacture food product material handling, storage and feeding equipment in a large variety of sizes. Vanmark focuses on equipment that ranges from the product receiving area to the major processing areas including conveying, fluming, cleaning, destoning, bulk in-process storage and product metering.

January 1, 2012 Vanmark acquired GME International, the leading maker of hydrocutters and other food equipment used in the French fry, fruit and vegetable processing industry. Working together; Vanmark and GME International can offer customers a more complete solution to their processing line needs.

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Series 1820 Peeler/Washer

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1.1000 DATA SHEET

SERIES 1820 PEELER/WASHER

Machine Number_____ Serial Number_____

Purchaser:

Name _____

Address _____

_____

_____

_____

Date Shipped: _____

Application _____

Selected Options:

_____ Inverter

_____ Quick change couplers

_____ Trapped Key Access

_____ 6 roll (1826)

_____ 4 roll (1824)

PLEASE REFER TO THIS INFORMATION IN USING YOUR MANUAL. IN ANY COMMUNICATIONS TO VANMARK EQUIPMENT FOR PARTS OR SERVICE; USE THIS MODEL AND SERIAL NUMBER.

1.2000 SPECIFICATIONS

1.2100 SERIES 1824/1826 PEELER/WASHER

Equipment Specifications

Approximate Weight ..... 1000 Lbs.

Overall Dimensions

Length ..... 84.42”/214.4cm
Width ..... 24.60”/62.5cm
Height ..... 57.82”/146.9cm
Discharge Height ..... 39.40”/100.1cm

Mechanical Rollers

Roll Speed ..... 150 – 450 RPM
Motor ..... (1824) 1.5 HP – (1826) 2 HP (optional voltages)

Spray Bar

Water Flow

@ 5 PSI ..... 8 GPM (30.28 Liter/Min)
@ 10 PSI ..... 11 GPM (41.64 Liter/Min)
@ 20 PSI ..... 15 GPM (56.79 Liter/Min)
@ 40 PSI ..... 21 GPM (79.50Liter/min)
Water Connection ..... 1.25" (Nominal) MPT

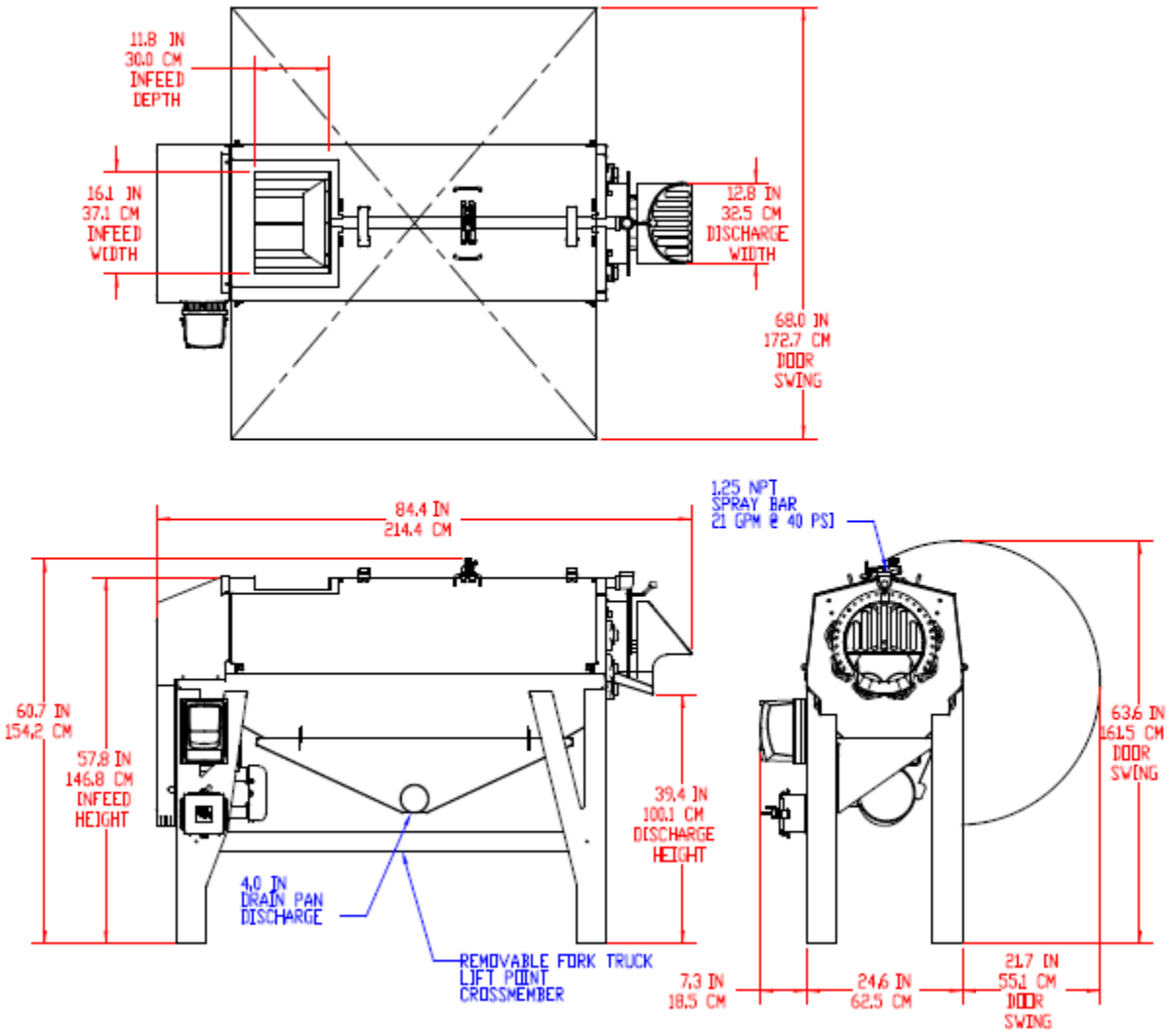
1.2200 LUBRICANTS

GREASE:

H1 lubricants - These may be used on food-processing equipment as a protective antirust film, as a release agent on gaskets or seals of tank closures, and as a lubricant for machine parts and equipment in locations where the lubricated part is potentially exposed to food. "H1" is a USDA authorized lubricant for applications which require a non-toxic, clean lubricant.

Typical physical requirements:

NLGI Grade Code	2
USDA Rating	H1
Work Penetration	375
Texture	Tacky
Dropping Point, °F (°C)	470 (243)
ASTM D-942 Oxidation; pressure drop in 100 hrs. PSIG	5.0 Max.
Color	Cream White
Operating Temperature	-30 - 370° F

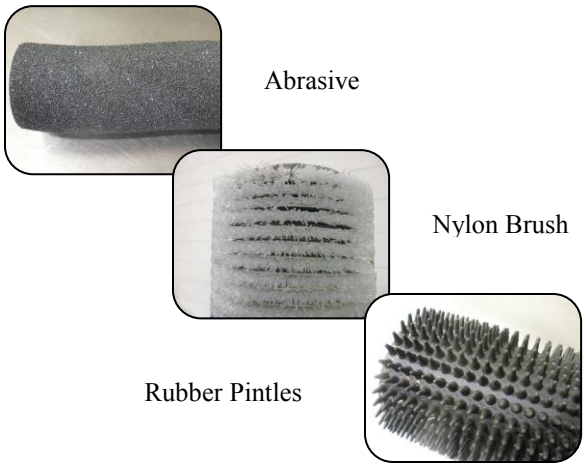


Vanmark Peeler/Washers are designed and built to provide long years of service with minimal maintenance. The Series 1820 offers options which give it the versatility to ensure effective continuous peeling or washing to meet specific processing requirements.

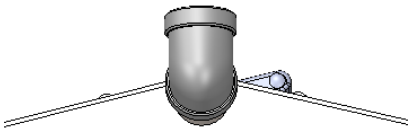
The peelers are constructed of stainless steel making them easy to clean. High quality materials and components are used insuring long term operation with minimal maintenance.

1.3000 MACHINE DESCRIPTION

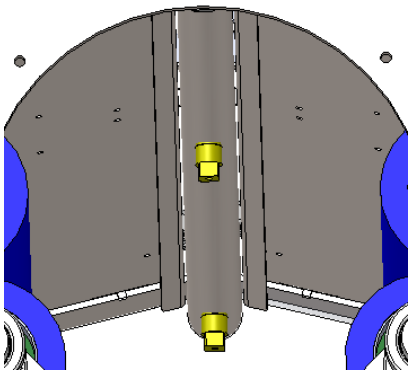
The peeling chamber of the 1826 consists of six (6) rolls, and the 1824 consists of four (4) rolls. These rolls are offered with three (3) types of surface coverings. Roller types include: Abrasive is many grit sizes, available in Sine - Wave, straight, agitator and lift rolls; Nylon Brushes with varied rigidity; and Rubber Pintles in straight, or sinewave.



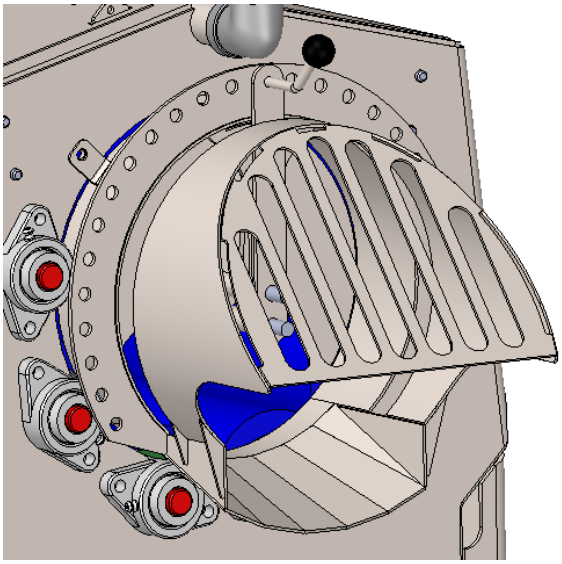
The Sine-Wave double contoured rollers are designed to create a natural tumbling action for consistent peel removal. The Sine-Wave design helps prevent flat spots, even in regular shaped fruits vegetables. This means less waste and a clean finished product.



A centralized water wash system is centered in the top of the peeling chamber. The water spray bar with nozzles located along its length; provides a constant water spray through the product as it is being processed.



The product depth in the peeling bed is controlled at the discharge end of the machine with a gate controlling the effect of the rollers on the product.
The discharge gate is manually adjustable. To increase or decrease the discharge opening, the handle is moved until the desired position of the gate is reached. The gate is bi-directional as the peel chamber is symmetric and can be run in either a clockwise or counterclockwise direction.



2.1000 RECEIVING AND POSITIONING

Receiving and Positioning

- Inspect machine for shipping damage and make carrier claims immediately if necessary.

- Machine is shipped on skid that may be towed on level surface by end crossmember. Machine may also be carried on lift truck by extending forks under bolt-on horizontal cross brace of frame. Center of gravity is approximately one-third of overall length from inlet end.

- NOTE: If drain pan of machine extends below lower horizontal braces, it may be necessary to remove drain pan when using a lift truck.

- If jib crane is used to move machine, use two (2) slings under bolt-on horizontal cross brace of frame. Use spreaders on top of machine to reduce sling pressure against sides of machine.

- Remove any bolts that go through foot pads of frame into skid and lift machine off of skid. Remove any hold-down straps or vertical bracing by cutting and discarding.

- Machine is to be located over a waste trench, or other means provided to dispose of water and product waste. Locate machine to allow for adequate clearances to other equipment, access to covers, removal of discharge gate or opening auger discharge, and ventilation at drive compartment.

- Machine doors must be clear of all obstacles:
  Two (2) peel chamber side doors
  One (1) peel discharge gate

- Drive compartment panel to remain removable, free of plumbing and conduit mounts.

- Machine must be level for proper operation. Vanmark recommends checking level, on the bottom roller, inside the machine. Machine may have a fall of 0 – 1”/2.5cm in six (6) feet/1.83m toward discharge end.

- Anchor machine to the floor through the holes in hold down pads in the frame, if mounting machine on stand, or elevated framework, level machine as previously described and then anchor it by bolting or welding to stand.

- Check that all fasteners are tight.

2.2000 UTILITY CONNECTIONS

2.2001 Scope of Supply - Vanmark does not supply any material or labor for utility connections.

2.2002 Utility Requirements - See Specifications Section 1.2000 for utility requirements to size required components. See section 1.3000 for utility locations.

Utility Connections

Electrical

- All electrical connections shall be permanent water-tight and shall confirm to Local and National electrical codes.

- When routing cables, conduit, and water piping; do not interfere with access to machine covers and other moving and removable parts.

- Motor is to be connected to and controlled by inverter, for roll speed control. A 3 second ramp-up and ramp-down delay is recommended, while recommended frequency range is from 30 to 90 Hz. Motor and roll rotation may be run in either clockwise or counter-clockwise direction, when viewed from the discharge end of machine.

Water

- Water to spray bar connection is made at 1.25” MPT located at discharge end of machine. Vanmark recommends installation of solenoid valve connected to main drive power and manual valve (spherical ball type) to control flow.

- Open ball valve full open to flush contaminates from new piping, check flow at nozzles, remove and clean if necessary. Set ball valve at minimum flow setting that provides full spray coverage of the peel chamber.

3.1000 INITIAL START-UP

3.1001 Lubrication – At the discharge end; check that bearings have grease and set screws are tight. (Max torque limit 35 in-lbs)

3.1002 Discharge Gate – Check that discharge gate is set to about the 2 o'clock position if the rolls are to be run in the clockwise direction as viewed from the discharge end. The gate should be set to about the 10 o'clock position if the rolls are to be run in the counter-clockwise direction as viewed from the discharge end.

3.1003 Loose Equipment - Check that all chutes or other loose items are in their proper place before powering up machine.

3.1004 Peeling Chamber - Check that peel chamber is clear of any loose items.

3.1005 Covers - Close and latch all covers and discharge gate

3.1006 Personnel - Check that all people are clear of machine.

3.1007 Power-Drive System - Turn on power.

3.1008 Motor Rotation - Check that shaft rotation of drive unit is as desired when viewed from inlet end of machine.

3.1009 Peel Roll Rotation - Check that roll rotation is as desired when viewed from inlet end of machine.

3.1010 Drive System – Set motor control for about 250 rpm for initial start up.

3.1011 Water - Turn on water to spray bar at machine or ahead of solenoid valve.

3.1012 Product Tests - Machine is now ready to run with product.

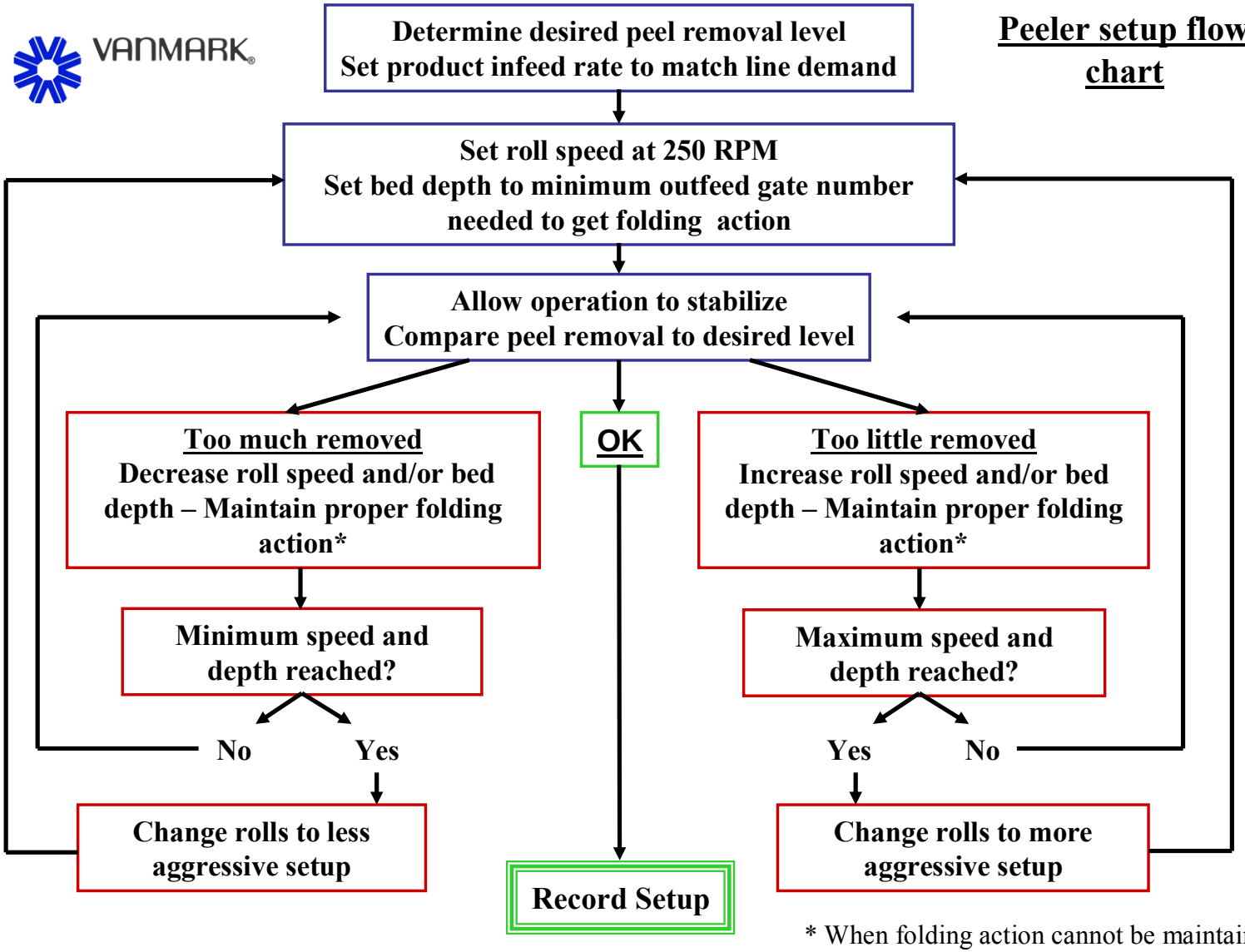
3.1013 Discharge Gate - Open the discharge gate manually until the product depth levels at a point needed to accomplish good peel removal or wash.

3.1014 End of Test - See Section 3.4000 for shut-down sequence of operation.

3.1015 Set Screws – Check set screws for tightness.

3.1016 Daily Operation - Machine is now ready for production. See Section 3.3000 for start-up sequence of operation.

Peeler setup flow chart



* When folding action cannot be maintained roll setup change is indicated

3.2000 ADJUSTMENTS

3.2001 Three major factors that affect continuous peeling efficiency are:

1. Effect of roller surface on product.
2. Amount of roller surface moving past product.
3. Retention time of product in peeling chamber.

Discharge Gate position will control product load level and retention time. Product load level will determine how much force is applied to the product on the roll surface and will effect tumbling action.

A good tumbling action will produce a more evenly peeled product. Retention time is how long the product is in contact with the rolls inside the machine. These adjustments work hand in hand with roll speed.

Roll speed is a very important factor in how well your peeler/washer performs. It is very easy to run the rolls at a higher rpm than required to achieve proper peeling/washing. Roll over speed will cause increased peel loss and product damage, and an inconsistent peel removal. After machine installation, take some time to determine proper bed depth and tumbling action with as little roll rpm as possible.

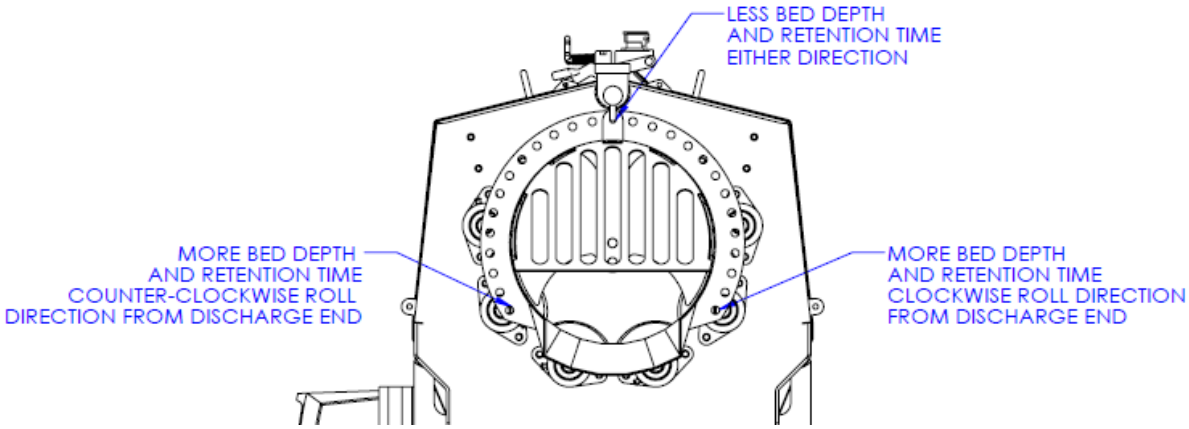
For best results, a steady inlet flow of product is necessary for consistent bed depth and peel removal.

3.2002 Adjustments are a judgment of the operator that is made by examining the product when it reaches the inspection table. Speed of rolls and discharge gate opening should compliment each other. Different products and product condition will determine ultimate machine setup.

Remember - - too much peel removal creates excess product loss. Proper adjustment is essential for efficient operation of machine.

3.2100 Roll speed on the 1820 Peeler/Washer is set with an electrical inverter. Electrical requirements for this machine can be found in section 1.2000. To find the exact Hertz output to roll RPM, a handheld tachometer could be used to set the roll RPM manually. For your convenience; a chart has been included in Section 7.4000

3.2200 DISCHARGE GATE ADJUSTMENT



To adjust discharge opening, move handle to rotate gate to desired location.

3.2300 ROLL SPEED CONTROL

Speed is controlled by inverter, mounted on left hand side at the rear of the machine. Display is shown in frequency (Hz), to convert to RPM, consult chart in Section 7.4000.

3.3000 START-UP

3.3001 Loose Equipment - Check that all chutes or peeler chamber panels are in their proper place.

3.3002 Discharge - Manually close the discharge gate.

3.3003 Covers - Close and latch all covers.

3.3004 Power - Turn on power to roller and tumbling unit, if so equipped, drive systems.

3.3005 Water: - Turn on water to spray bar ahead of solenoid valve.

3.3006 Drive System - Engage settings to low or middle range on the indicator.

NOTE: See Section 3.2000 Adjustments

3.3007 Filling Bed - Allow peeler/washer chamber to fill with a deep bed of product. Product fed to peeler should be controlled for even flow.

3.3008 Discharge Gate - Open the discharge gate manually until the product depth levels at a point needed to accomplish good peel removal or washing.

NOTE: See Section 3.200 Adjustments.

3.4000 SHUT-DOWN

3.4001 Product Flow - Stop product flow to machine.

3.4002 Empty Bed - Slow peeling rollers to minimum speed. Allow all product to discharge from bed.

3.4003 Cleaning - Wash down peeling chamber. Make sure that all product residue is removed from rolls.

IMPORTANT: During high pressure cleaning do not aim steam directly into drive compartment or onto bearings.

3.4004 Power - Shut off electric power to drives and spray bar water solenoid.

3.4005 Covers - Close all covers.

3.4006 Clean exterior of machine - High pressure spray or a cleaning solution used with a cloth, is recommended.

IMPORTANT: During high pressure cleaning do not aim steam directly into drive compartment or onto bearings.

3.5000 GENERAL SANITATION PRACTICE

Vanmark's equipment and parts have been designed and made of such materials and workmanship that make them adequately cleanable when properly maintained. It is at the equipment user's discretion to determine the appropriate level of sanitation required for each machine's specific application and location within a given facility. This should be done by the user to maintain compliance, and consistency with each company's own sanitation standards. The rolls that act on product are designed for ease of removal from the machine, and disassembly. If the cavity formed by a hollow roll tube requires access for cleaning, the roll must be removed from the machine and disassembled (reference section 4.3000).

4.1000 ROUTINE SERVICING

Your Vanmark Peeler/Washer is designed and constructed for efficient operation, but it does require service and maintenance. A major breakdown can be expensive. Therefore, it is economical to follow this routine servicing program to assure that problems can be detected and corrected.

Service schedule is estimated based on eight (8) hours of production per day, five (5) days per week under normal operating conditions. Schedule may require adjustments if production time and operating conditions are different.

4.1100 Daily

- Clean peeling chamber.
- Check condition of peeling rolls.
- Check for clogged nozzles on spray bar.
- Check for line up-time (maximum number of shut-offs not to exceed three (3) times per hour with 85 - 90% line up-time).
- Check for belt stretching and excessive wear.

4.1200 Weekly

- Check for loose or binding hardware.
- Check bearings for wear.
- Clean abrasive rolls with diluted muriatic acid. Let stand approximately two (2) hours (vary time with amount of starch and peel build up). Scrub abrasive surface with stiff brush and rinse thoroughly. Personnel should wear personal protective equipment as recommended by cleaning agent manufacturer or employer.
- Check all belts for stretching and excessive wear.
- Adjust drive belt if required

4.1300 Monthly

- Tighten set screws in bearings and bushings.
- Inspect roller bearing for tight fit.

4.1400 Annually

- Inspect and replace any belt with excessive wear.
- Inspect and replace each roller bearing.

4.2000 TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Poor Peel Removal	Tumbling (mixing) action in peeling chamber is slow	Increase roller speed - See Section 3.2200 Replace worn rollers
	Too much product in peeling chamber	Adjust discharge gate - See Section 3.2100 Maintain even infeed
	Poor line up-time	Control product flow evenly - See Section 3.2001
	Abrasive rollers have starch build-up or are worn	Clean or replace
	Not enough water	Check spray bar nozzles for clogging and adjust water flow
	Brush rollers are worn	Replace
	Brushes installed backwards	Reverse rolls end for end
	Sequence and type of rollers is not effective with product	Contact Vanmark for recommendation
	Roller rotation is counter-clockwise at discharge end	Change electric motor rotation
Product loss from peeling chamber	Roller surfaces worn	Replace
	Splash guards improperly aligned	Realign by lifting the masking over roll and adjusting the splash guard bolts
Not all rollers turning	Belt loose or broken	Repair or replace
Rollers run unevenly	Discharge gate obstructed	Remove obstruction by opening discharge gate. Reset to desired setting
Rollers not turning	Product or foreign item jammed in bed	Turn off power to peeler. Remove obstruction. Restart

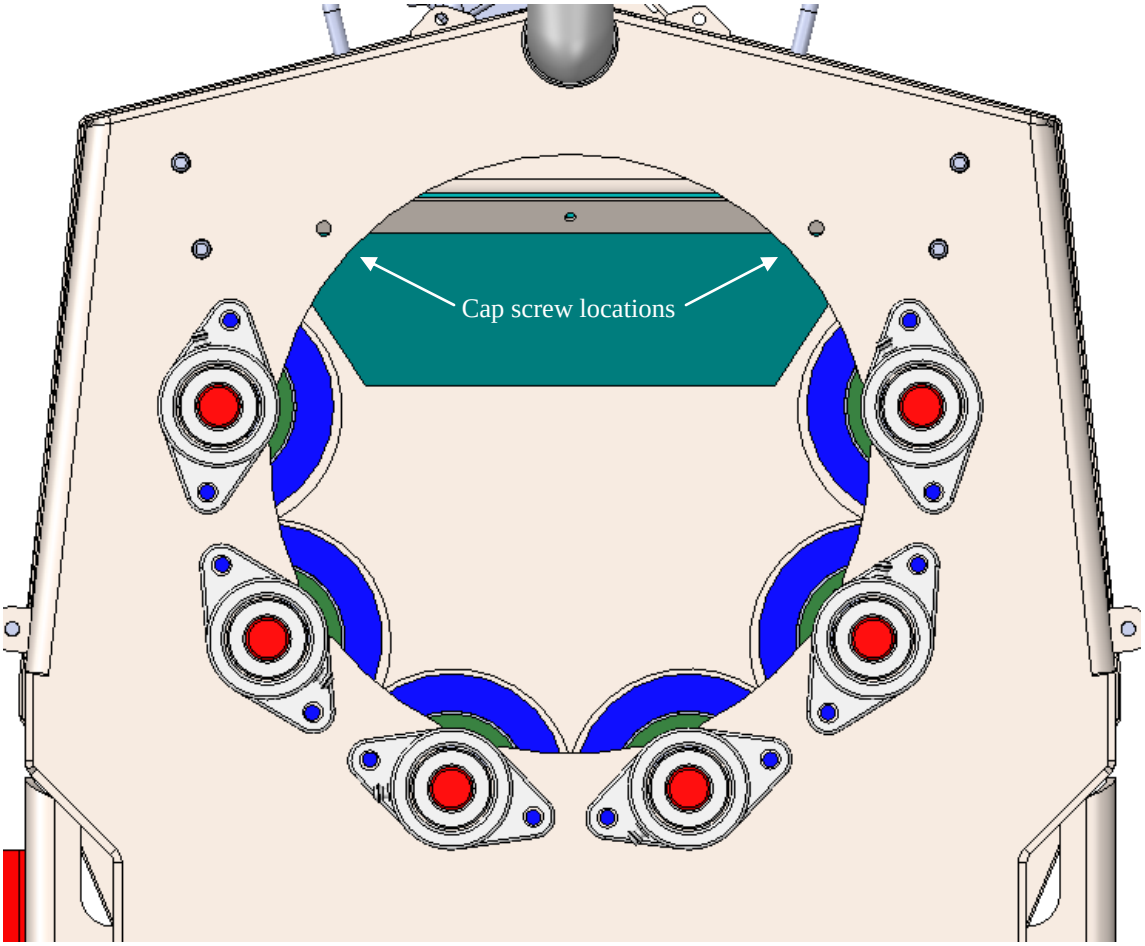
4.2000 TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Electric drive or tumbling unit motors do not run	Power is off	Turn on power
	Wiring loose or disconnected at motor or motor starter	Check wiring
	Motor defective	Replace motor
	Breaker off or tripped	Reset breaker. Turn off power to peeler. Check peeler bed, tumbler, drive case, belts, etc. for obstruction that may have caused breaker to trip. Reset breaker, turn on peeler. If breaker continues to trip, check for proper breaker size, based on motor amp draw.
Roller drive motor runs, rollers do not	Belts or pulleys worn, misaligned, broken or loose	Replace and adjust
No water to spray bar	Manual valve closed	Open valve
	Nozzles on spray bar clogged	Clean
	Solenoid defective or incorrectly wired	Replace solenoid
	Drive motor is off	Turn on motor

4.3000 PEELING CHAMBER AND ROLLERS

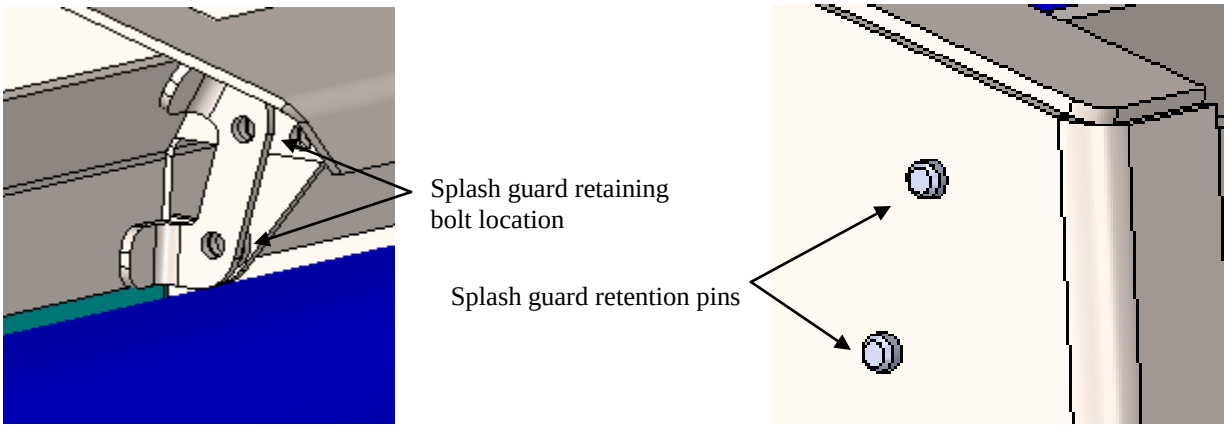
4.3100 Peeling Roller Removal - Removal is required to change shaft arrangement, replace roller bearings or when work is required to drive compartment. This could include drive coupling replacement, or replacing belts, shafts and bearings in drive case. To work on roller related drive components with rollers still in machine is nearly impossible.

4.3105 Expose the peeling rolls by unlatching peel chamber side covers and rotating down to full open position. Next, remove two (2) cap screws holding discharge gate, remove gate and set aside.



4.3110 Splash Guard Removal - Splash Guard removal is not necessary to remove the rollers, however, it is more convenient to remove them before work is started on roller removal.

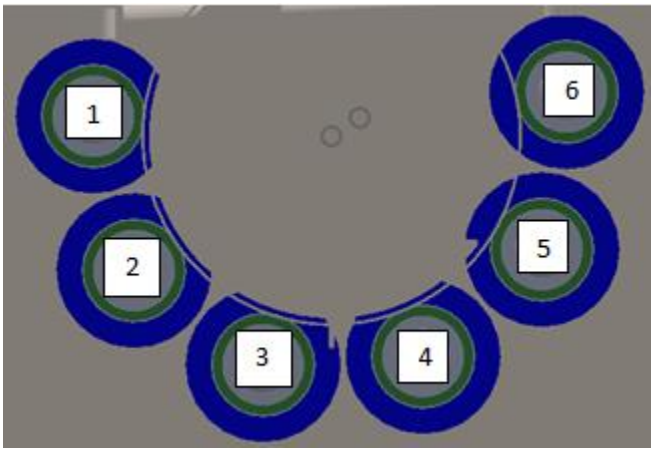
4.3000 PEELING CHAMBER AND ROLLERS



1. Remove retaining bolts that attach splash guard to infeed plate. Pins secure the splash guard at the discharge end of the machine.

<u>Do not operate machine without splash guards in place.</u>

4.3115 <u>Identifying Peeling Rollers</u>

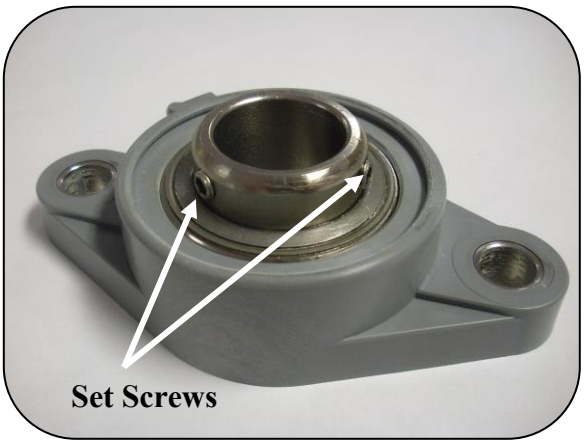


1. Six (6) Roller Units: Before removing any roller shafts, identify the kind, and position of roller by numbering them from 1 through 6. Rollers must be reassembled in the same position as they were originally removed.

Ref: Section 7.1000 Peeling Roll Configuration

4.3000 PEELING CHAMBER AND ROLLERS

4.3120 Removing Peeling Roller



1. Loosen two (2) set screws on bearing collar. Unbolt bearing, and remove. From side of machine, support shaft with both hands, lift discharge end of roll high enough so roller will clear end plate. At the same time, apply lateral pressure together with a slight twisting (rocking) motion to help release inlet (drive end) from drive coupler. Remove the shaft from machine. Repeat procedure for each remaining roller.

4.3125 Reassembly of Peeling Rollers

1. Clean bearing components.

IMPORTANT: *Food grade anti-seize is applied at the factory to all bearing bores, bearing shaft, and cap screw threads in this assembly at the time of assembly. It is strongly recommended that this procedure be followed to prevent seizure of any components.*

2. To reassemble, reverse procedure. Rollers should be replaced in No. 3 and 4 positions first, working outward to each side. See section 5.100 for roller component list. Install rollers in pairs noting the following:

   A. Consult machine notes relating to original roller arrangement.

   B. Two (2) set screws in bearing should be loose to allow bearing to slide on shaft.

3. Guide square end of roller shaft into drive coupling until end of shaft "bottoms out". Do not use force – firm hand pressure is sufficient.

4. Slide bearing on shaft, bolt bearing to discharge plate with bolts that were removed, making sure to use food grade anti-seize to prevent seizure.

5. With shaft still "bottomed out" against drive coupling, tighten two (2) socket head (Allen type) set screws on each bearing.

6. Re-install splash guards and close all machine covers before re-starting machine and checking roller action.

2” Aluminum Socket

1 3/8-6 Locking Nut

4.3200 Abrasive Rollers

Disassembly

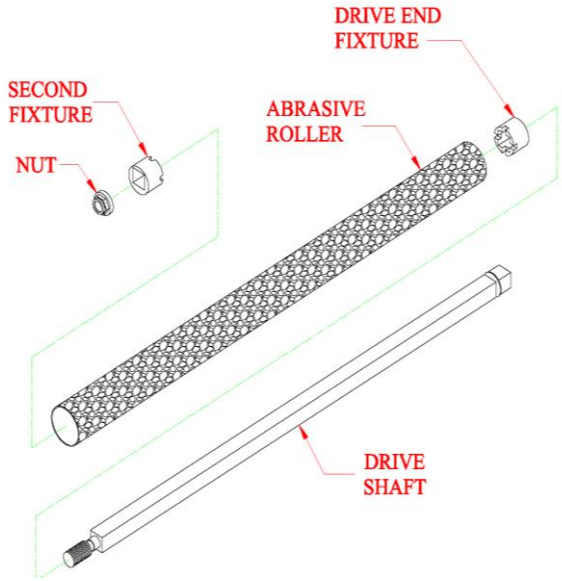
1. Remove 1 3/8 - 6 locking nut with 2” aluminum socket provided with machine.

2. Remove shaft from assembly by pulling out from drive (square) end.

3. Remove polyurethane fixture from each end of roller.

4. Clean all components thoroughly and inspect for abnormal wear or damage. If questionable, replace now.

NOTE: Vanmark will recondition abrasive rollers. Worn rollers are thoroughly cleaned and a new coat of abrasive added.



Reassembly

1. Install polyurethane fixture on drive end of roller. Check that roller drive lugs are nested in fixture recess.

NOTE: For rollers having more than one grade of abrasive "grit", use the larger (coarsest) abrasive on the drive end. This end is mounted at the inlet or drive end of machine; also rollers that have notches go toward drive end.

2. Install shaft through fixture and roller. Care should be taken to not damage threads on bearing shaft by striking roller tube lugs.

3. Slide second polyurethane fixture over bearing end of drive shaft. Elevate shaft to center of roller. Align polyurethane fixture recesses with roller lugs and push fixture "home".

4. Install the 1 3/8–6 locking nut. Before tightening nut securely, center polyurethane fixture in roller for smooth operation. **DO NOT** over tighten as damage to segments can occur. See section 4.3700 for locking nut assembly instructions

SINEWAVE ROLLER

4.3300 Sinewave Abrasive Rollers

Disassembly

1. Remove 1 3/8-6 locking nut with 2" aluminum socket provided with machine.

2. Place board of suitable size on floor. With bearing (threaded) end facing down, strike board with entire roller assembly. This should loosen segments from shaft. Repeat procedure if segments do not come loose the first time.

NOTE: Do **NOT** strike bearing shaft on bare floor or with hammer. Resulting damage might require dressing down or replacement.

3. Remove segments from bearing end of shaft. Stop washer prevents removal from drive (square) end.

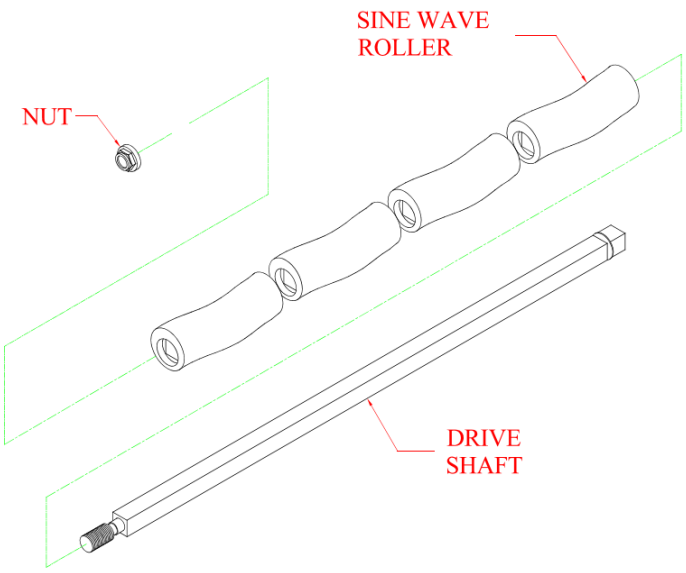
4. Clean all components thoroughly and inspect for abnormal wear or damage. If questionable replace now.

NOTE: Vanmark will recondition abrasive rollers. Worn segments are thoroughly cleaned and new coat of abrasive added. If chunks of the rubber core are missing, replace that segment.

Reassembly

1. Stand abrasive segments on end so that stamped word (either right or left) is facing up. If more than one grade of abrasive segment is installed on same shaft, large (coarsest) grit segments ordinarily go next to the drive (square) end of shaft and are put on first.

2. Rest drive end of shaft on floor and support the bearing end. Place segments on shaft with the stamped word towards you. Slide it toward drive end until the stop washer is seated in recess of segment.



3. Repeat the procedure to install the remaining three (3) segments. Always keep the stamped word towards you and in direct line with the word on the segment previously installed. DO NOT install right and left segments on same shaft.

NOTE: Segment can be determined right or left handed by looking along its length from either end. If helix or "high" part of wind curves to your left, it is left hand; if it curves to the right, it is right hand.

4. Install 1 3/8-6 locking nut and tighten securely. Segments must not appear to be loose on shaft; however, **DO NOT** over tighten as damage to segments can occur.

See section 4.3700 for lock nut assembly instructions.

Brush Roller

4.3400 Brush Rollers

Disassembly

1. Remove 1 3/8-6 locking nut with 2" aluminum socket provided with machine.

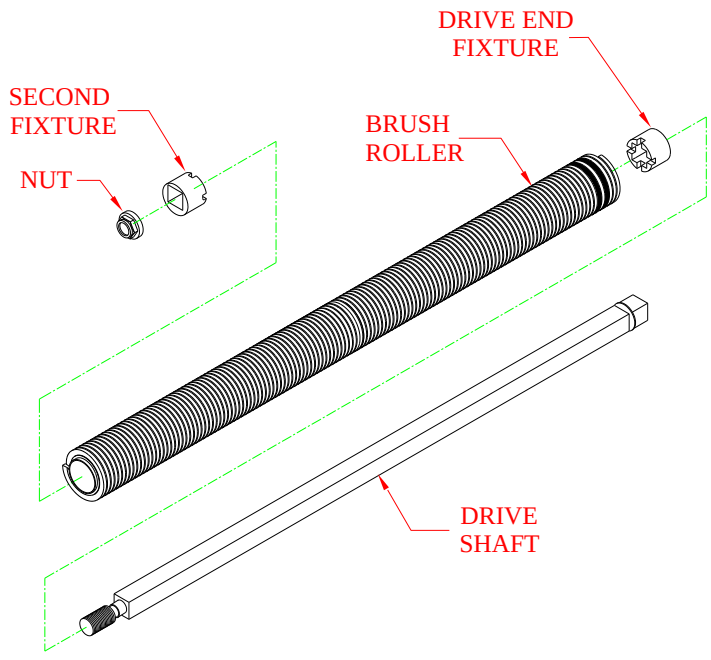
2. Remove shaft from brush roller assembly by pulling out from drive (square) end.

3. Remove polyurethane fixture from each end of roller.

4. Clean all components thoroughly and inspect for abnormal wear or damage. If questionable, replace now.

Reassembly

Brush rollers can not be reconditioned. They must be replaced when worn. Black band of bristles, at one end of new brush, identifies drive end. Bristles are slanted five (5) degrees in direct relationship to the wrap of the bristles on the tube.



1. Install polyurethane fixture in drive (black bristled) end of brush. Check that roller drive lugs are nested in fixture recesses.

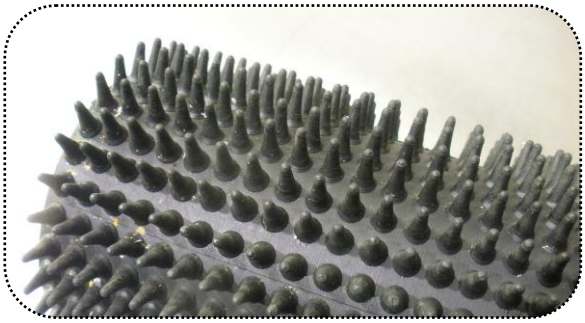
2. Install shaft through fixture and brush roller. Care should be taken not to damage threads on bearing shaft by striking lugs on brush tube.

3. Slide second polyurethane fixture over bearing end of drive shaft. Elevate shaft to center of roller. Align polyurethane fixture recesses with roller lugs and push fixture "home".

4. Install 1 3/8-6 locking nut. Before tightening nut securely, center polyurethane fixture in roller for smoother operation.

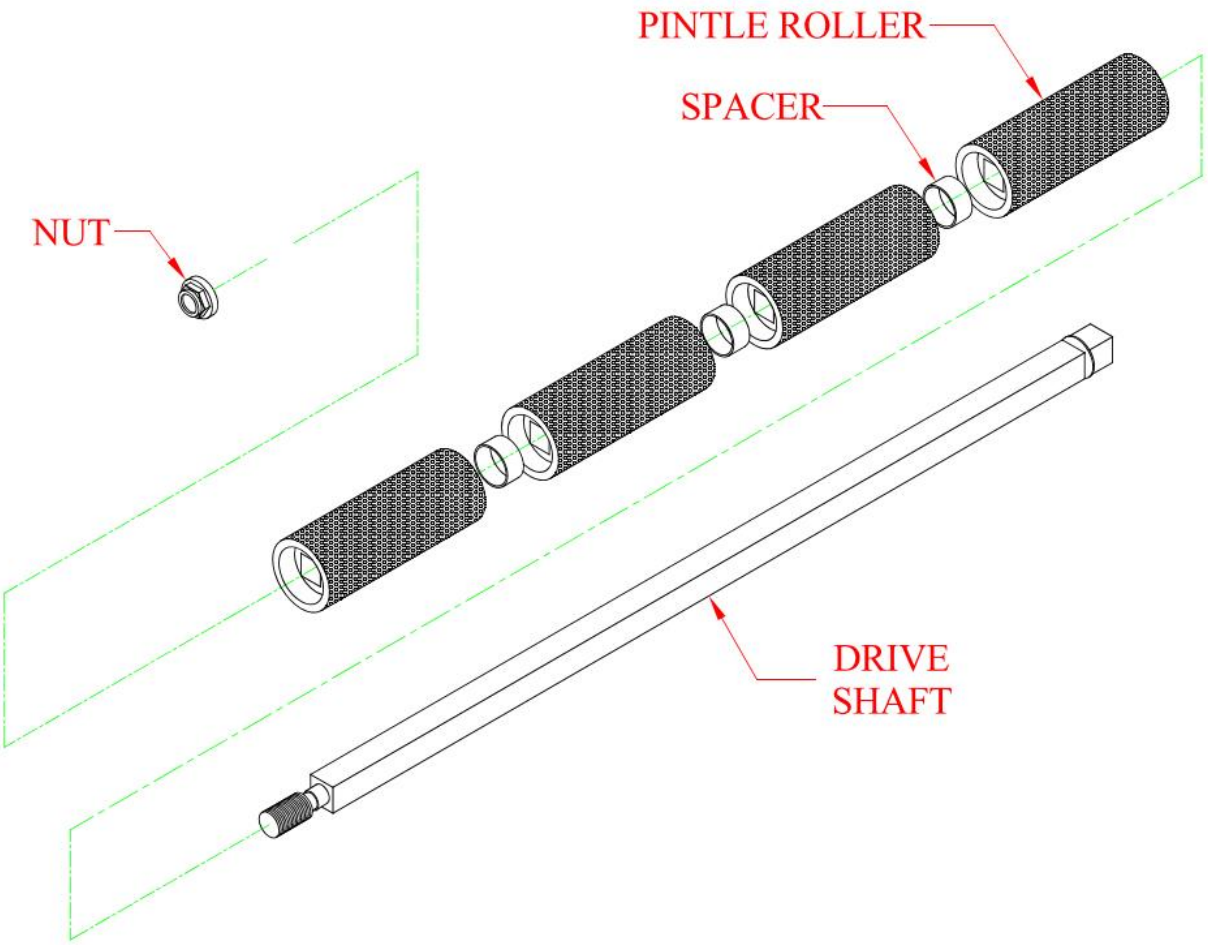
See section 4.3700 for lock nut assembly instructions.

Pintle Roller

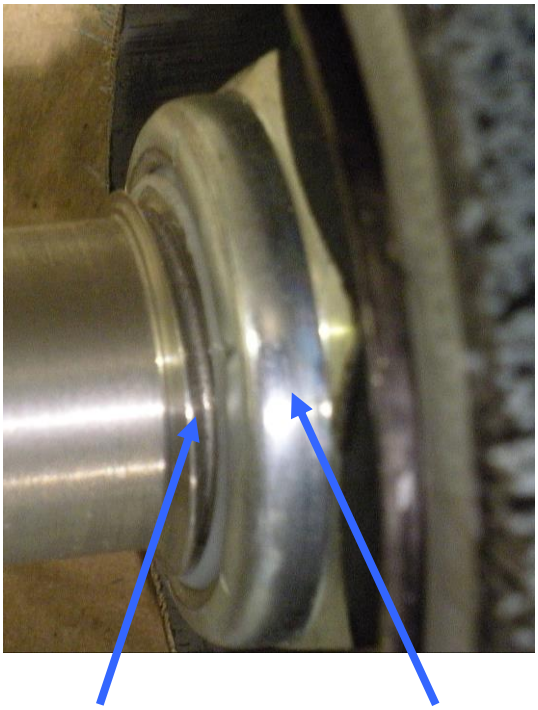


4.3500 Pintle Rollers:

Use disassembly and assembly instructions for sinewave abrasive rollers. Disregard reconditioning statement in disassembly instructions. Straight segments do not require timing. Remember to install spacers between each pintle segment. DO NOT over tighten as damage to segments can occur. See section 4.3700 for locking nut installation instructions.



4.3700 Lock Nut Assembly Instructions



Visible Threads Nut

- **Picture to the left shows ideal nut position on finished assembly.**
- **There should be 1 to 2 full threads visible beyond the nut.**
- **Minimum torque required to achieve nut position should not be less than 35 ft-lb.**
- **New nut is required if 3 or more threads are visible by applying less that 35 ft-lb.**
- **Tightening nut to 4 or more visible threads will cause product damage, product loss at discharge end of peeler, damage to infeed end wall plate and brush at infeed end.**

4.4000 DRIVE - MECHANICAL

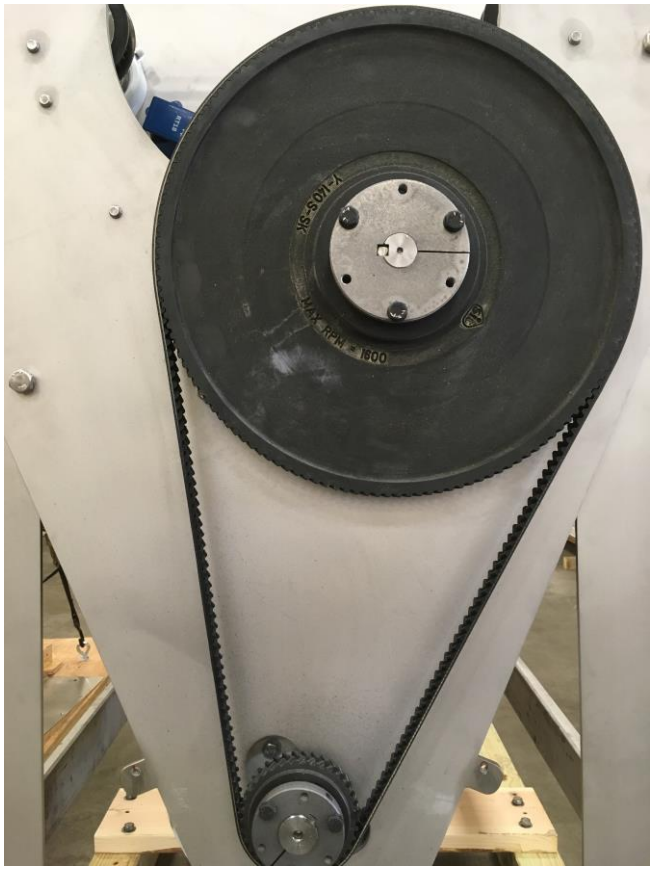
4.4100 Drive Belt Replacement

1. SHUTOFF AND LOCKOUT ELECTRIC POWER to prevent accidental starting.

2. Remove drive compartment inlet panel on inlet end of machine.

3. Loosen belt tension at motor mount.

4. Replace belt, then reverse procedure.



Shown with belt guard removed.

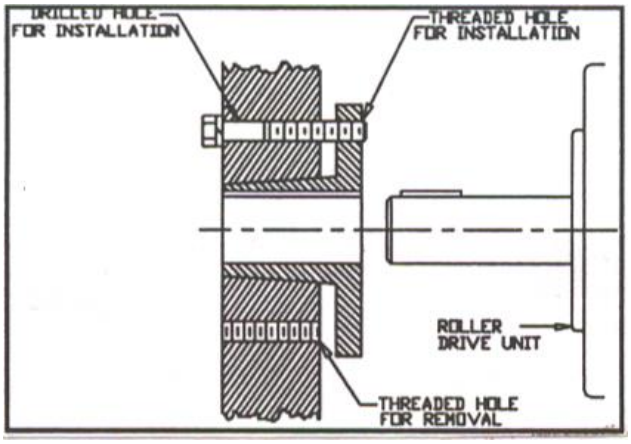
4.4200 Replace Pulleys and Pulley Hub Bushings

Disassembly

1. SHUT-OFF AND LOCK-OUT ELECTRICAL POWER to prevent accidental starting.

2. Remove inlet panel, and belt cover as described in Section 4.4100.

3. Remove belt as described in Section 4.4100.



4. Loosen and remove cap screws in bushing.

5. Insert cap screws in tapped removal holes and progressively tighten each one until pulley is loose on bushing.

6. Remove pulley from bushing.

7. Remove bushing from shaft.

Reassembly

1. Thoroughly inspect bore of mating part and tapered surface of bushing. Any paint, dirt, oil, or grease must be removed.

NOTE: Do not use lubricants.

2. Insert bushing into pulley,

3. Loosely insert cap screws into bushing and pulley.

4. With key in key seat of shaft, slide assembly onto shaft. If it is difficult to slide bushing onto shaft, wedge screwdriver blade into saw cut to overcome tightness.

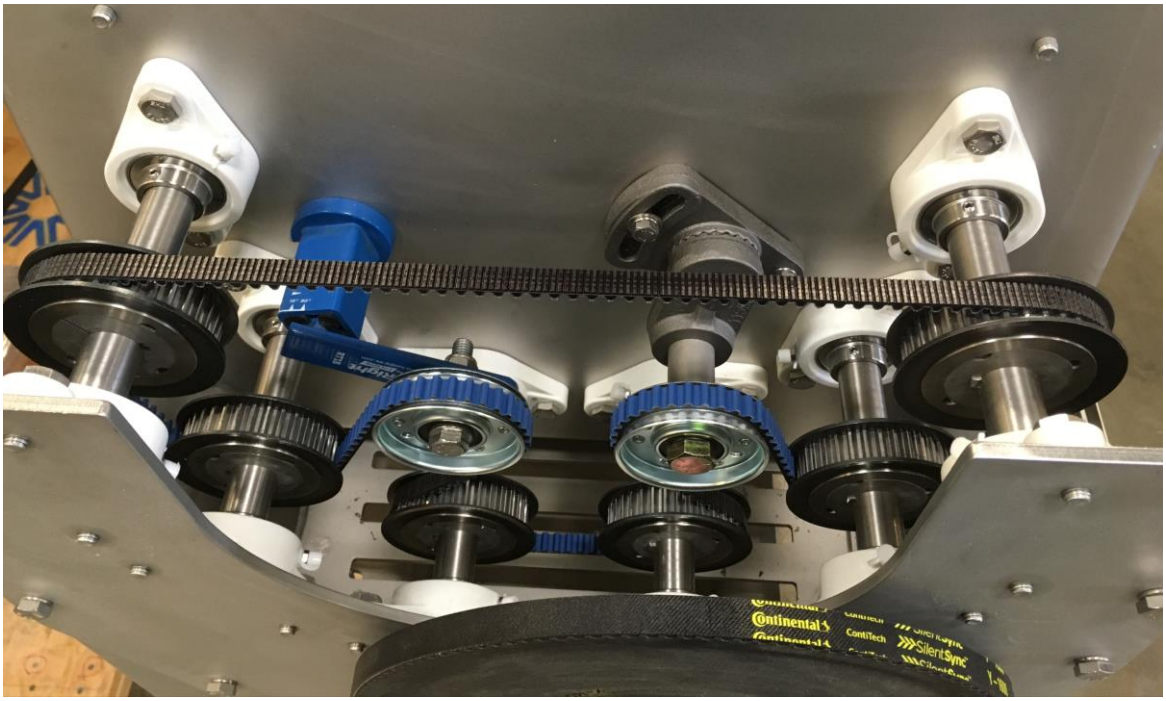
5. Position the assembly on shaft so belt will be in alignment when installed. To align, place a straightedge against the outside edge of pulleys. Move pulleys until the straightedge touches two (2) outside and two (2) inside edges of pulleys. (Align pulleys, and install on shaft as near bearings on drive case as possible.)

6. Tighten cap screws evenly and progressively until obtaining correct torque. There must be a gap between bushing flange and mating hub when installation is complete.

7. Replace drive belt as described in Section 4.4100 and replace covers.

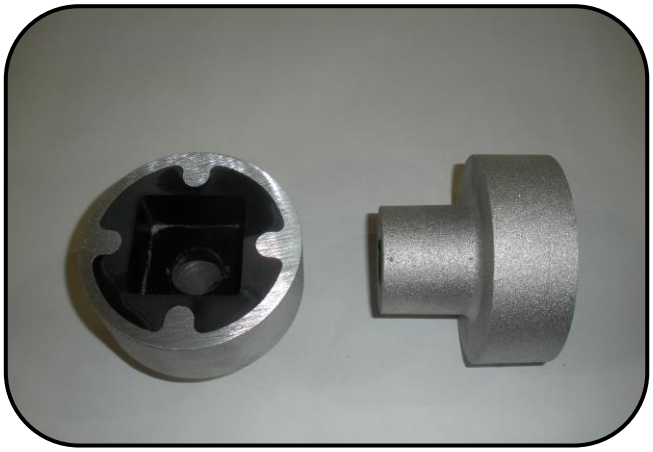
4.4000 DRIVE - MECHANICAL

4.4300 Mechanical Roller Drive Case – Repair of components is possible without removal of entire drive case unit from the machine. See section 5.2000 for parts.



4.4400 Drive shaft and Roll shaft replacement – Design of drive case allows removal of any shaft without the need to remove another shaft first. Drive case dimensions and part identification can be found in section 5.2000.

Roller Drive Coupling



4.4500 Roller Drive Coupling - Drive coupling provides support for drive end of each roller and connection between power source and the peeling bed rollers. No maintenance or adjustment is required for day-to-day operation. Visual inspection on a regular basis should be made for cracks in the casting, loose or missing set screws and looseness of the coupling on its drive shaft. When any peeling rollers are removed from machine, careful inspection of urethane mold should be made. Check for square opening to be excessively worn (or egg shaped), softness of urethane mold, and that the urethane is firmly adhered to casting. Replace coupling if any one of these conditions are found. Drive couplings are bored to a very close tolerance. Couplings are installed on the shaft through a heat-shrink process.

WARNING: DO NOT:

A. Increase bore diameter of coupling.
B. Decrease (dress down) overall size of output shaft.
C. Overheat casting to point of melting, or modify urethane mold.
D. Use undue force when mounting coupling.

Disassembly

1. Shutoff and lockout power.

2. Remove rollers from peeler as described in Section 4.3000

3. Remove the main drive belt, as described in Section 4.4100

4. Loosen the set screw in the drive coupling being replaced. Remove coupling from shaft using a gear puller, if required.

Reassembly

1. Check key in output shaft keyway for nicks. Replace if necessary.

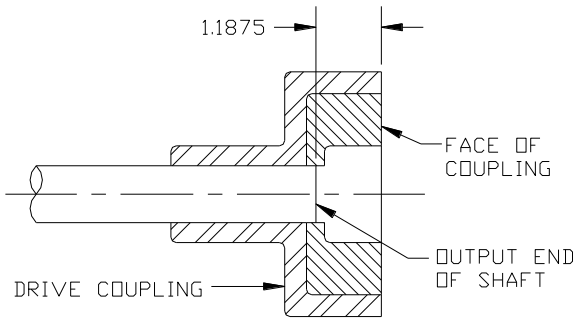
2. Clean any foreign material from surface of output shaft. Do not reduce overall diameter of shaft.

3. Remove any nicks or burrs from bore and keyway of coupling. Do not enlarge inside bore diameter.

4. Remove set screws from coupling.

5. Place coupling on work area with urethane down. Apply heat with torch for a few moments to external part of bore. DO NOT overheat. Rotate coupling to distribute heat evenly.

WARNING: ***Always wear appropriate eye protection. Use heavy gloves as aluminum couplings become too hot to handle with bare hands.***

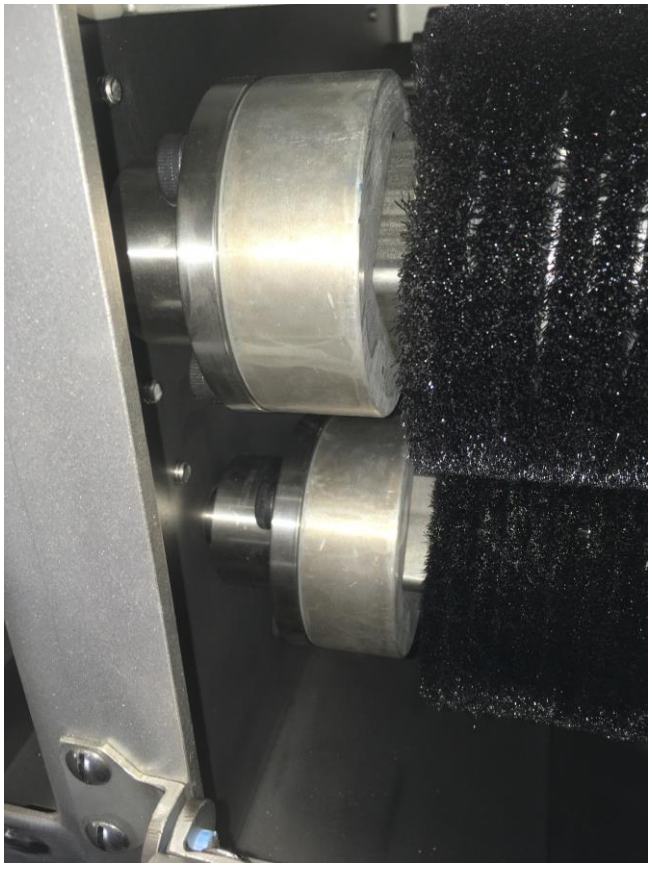


6. Align keyways of shaft and coupling. Push the heated coupling on shaft and bottom out against step on shaft. Correctly heating casting and speed in installing will allow coupling to "slip" onto its mating shaft quite easily. Immerse coupling in coolant immediately after installation to preserve urethane and its bond to casting.

7. To install, reverse procedure, making sure to time drive rollers.

Quick Change Coupler

The quick change coupler is a two piece design; with the urethane insert half being removed and replaced without removing the shaft or drivecase from the machine; significantly reducing service time.



Quick Change Coupler Kit

Complete Coupler
P/N 60660-01-5

Coupler Mount Hub With Set Screws

P/N 59360-01-5

Replaceable Coupler With 4 Bolts

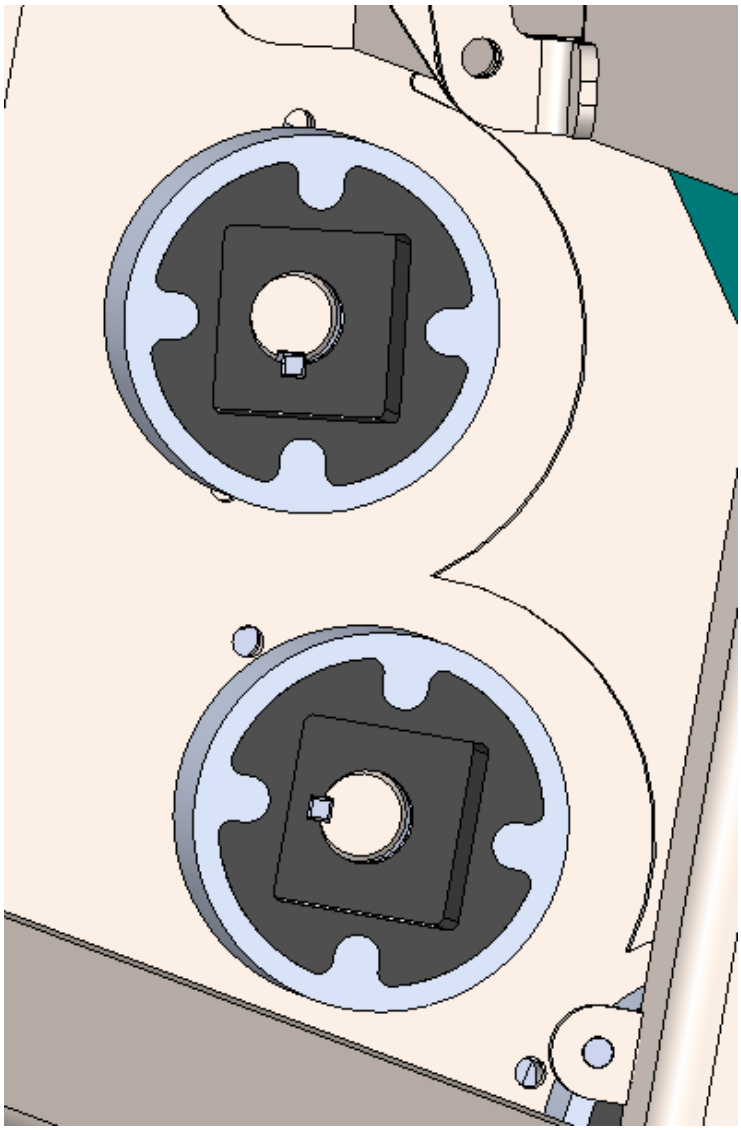
P/N 59359-01-9

Bolts can be ordered individually as
P/N 48398-01-1

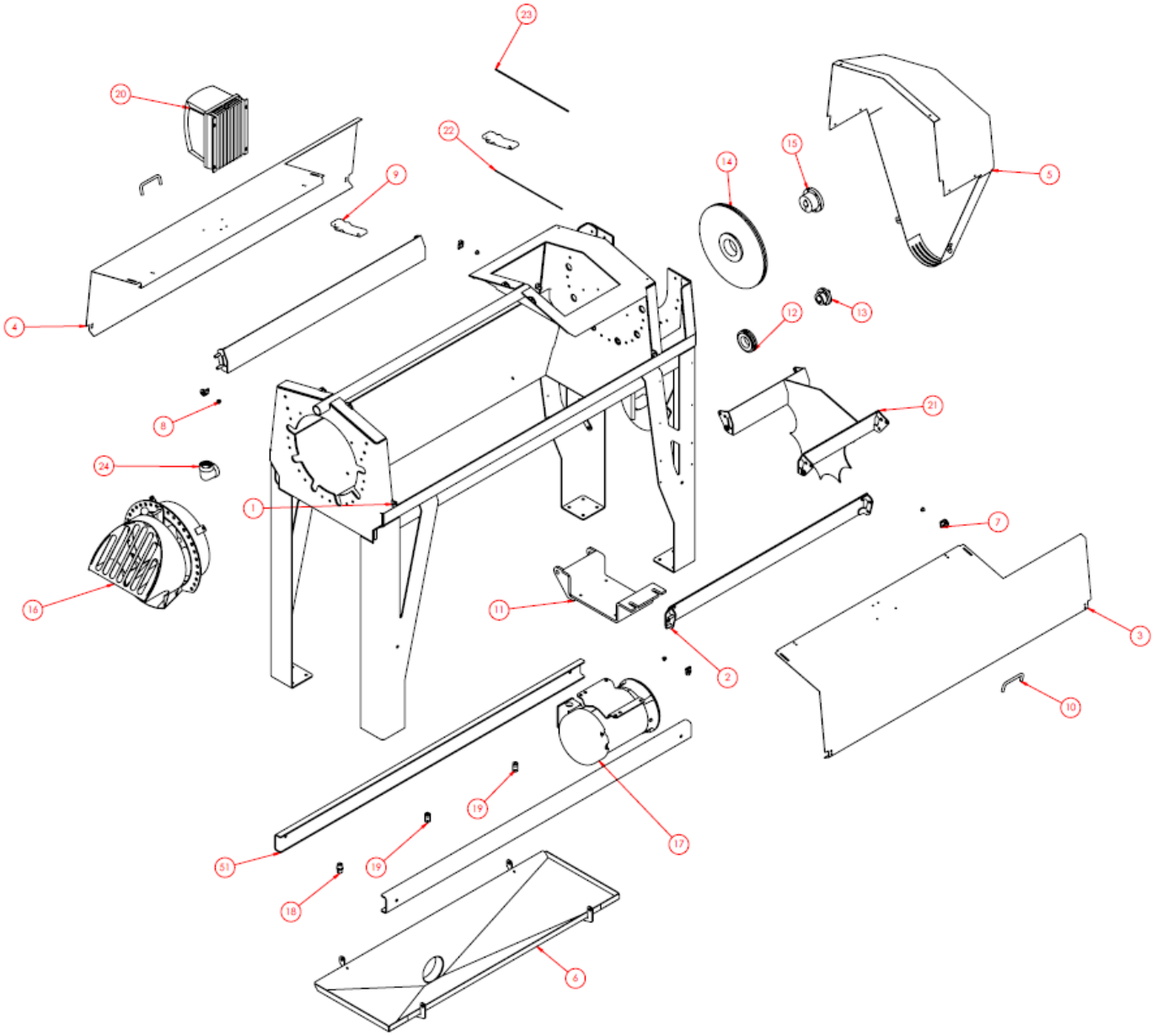
4.4600 Timing Drive Roller - Timing or coordinated rotation of rollers is only needed in machines using sinewave abrasive rollers.

1. To time sinewave abrasive rollers, rotate mechanical drive case so that the sides of the square openings in couplings are in a horizontal and vertical position.

2. Install abrasive rollers into drive case checking that word “left” or “right” on segment closest to bearing is in the same position. Position of the word on the first shaft installed is unimportant, but keeping all the words of succeeding rollers in same position as the first is of highest importance.



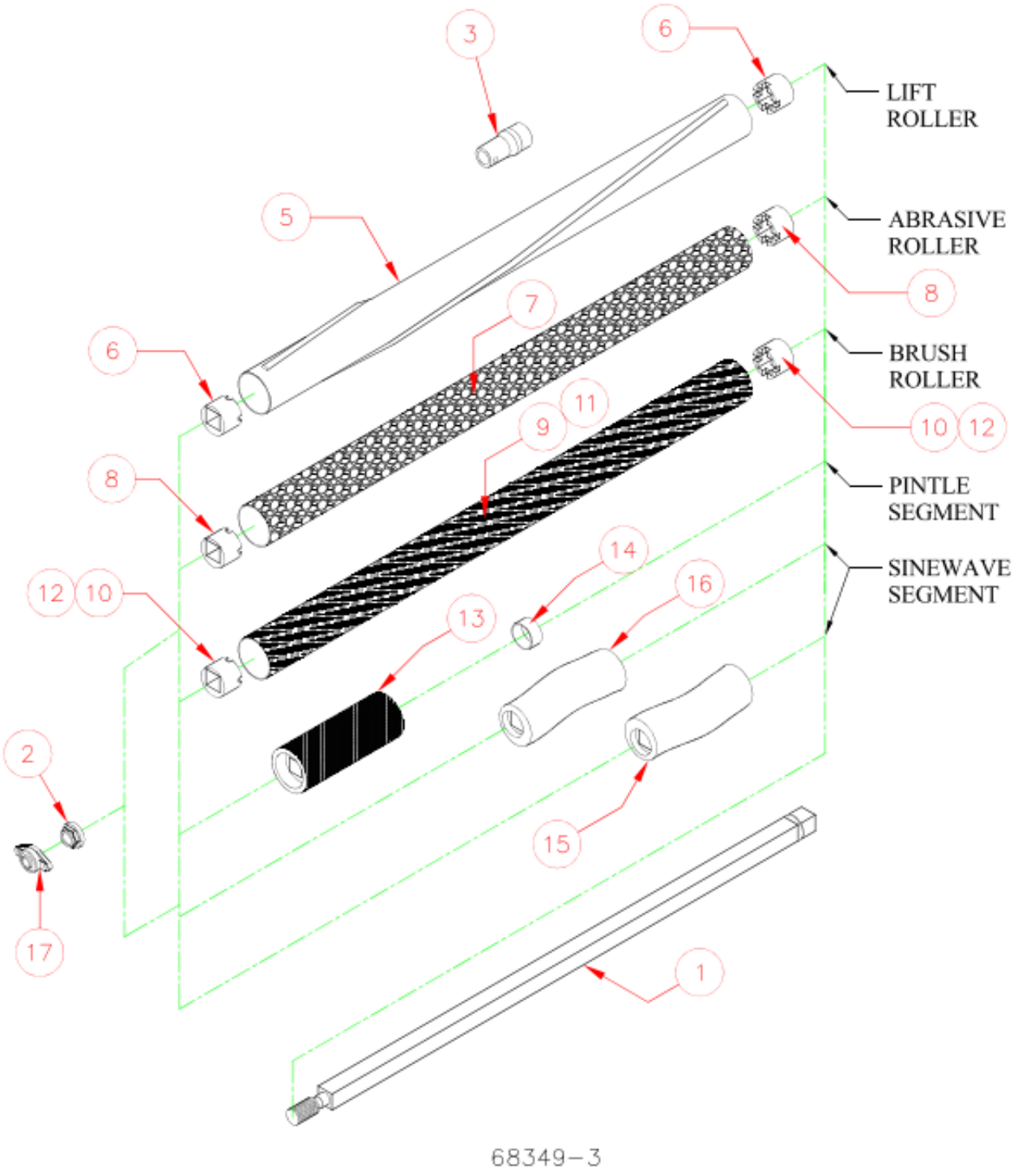
5.0000 Maintenance Parts



1820 Peeler/Washer

Ref. No.	Part Number	No. Req.	Description
1	20-27945-01-5	1	Frame, 1820 Peeler
2	20-27956-01-5	2	Splash Guard, 01820
3	20-27958-02-5	1	Door, 01820
4	20-27958-01-5	1	Door, 01820
5	20-27952-01-5	1	Shield, 1820 Rear
6	20-27955-01-5	1	Drain Pan, 01820
7	20-28037-01-5	4	Bracket, Door Hinge 1820
8	40-44205-06-9	4	Bushing, 8mm x 10mm x 9.5mm Flange
9	40-42797-02-5	2	Latch, Flexible Draw Soft Large
10	40-41124-01-5	2	Handle
11	20-27953-01-5	1	Pivot Plate, 01820, 184T w/enclosure
12	40-43794-23-9	1	SPRKT, Eagle PD, 36T
13	40-40957-09-1	1	Bushing, QD, #SH, 1.12B
14	40-43794-22-9	1	SPRKT, Eagle PD, 140T
15	40-40106-11-1	1	Bushing, QD, #SH, M25B
16	20-27786-01-5	1	Chute, 01820 Discharge Gate
17	40-40040-xx-9	1	Motor, 2HP (Voltage Optional)
18	40-42477-02-5	1	Nozzle, Vee Jet
19	40-42195-03-5	2	Nozzle, Full Jet
20	40-42807-xx-9	1	Inverter, 2 HP NEMA 4X/IP66 (Voltage Optional)
21	20-27954-01-5	1	Product Protector, 01820 6 Roll
22	30-40265-01-5	1	Clamp, Product Knockdown
23	30-40264-01-9	1	Flap, Product Knockdown
24	40-41030-02-5	1	Elbow, Pipe 1.25 SS
51	30-40345-01-5	2	Brace, Shipping 1820
	40-43793-17-9	1	Belt, Motor Drive

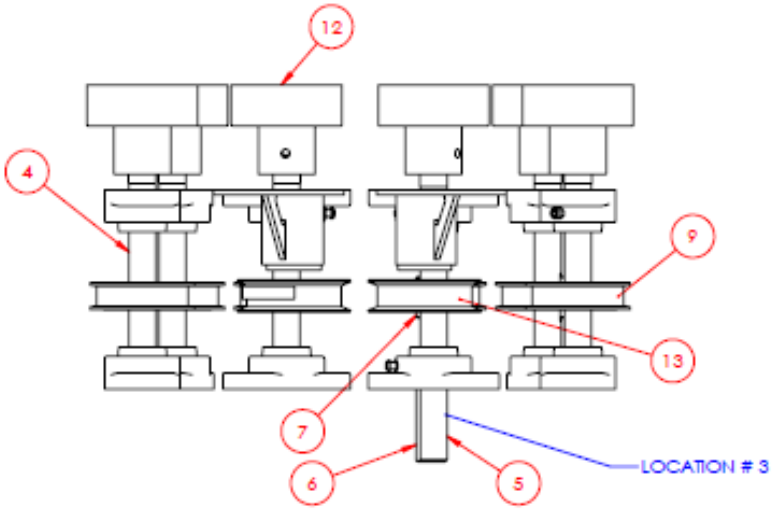
5.1000 PEELING ROLLS

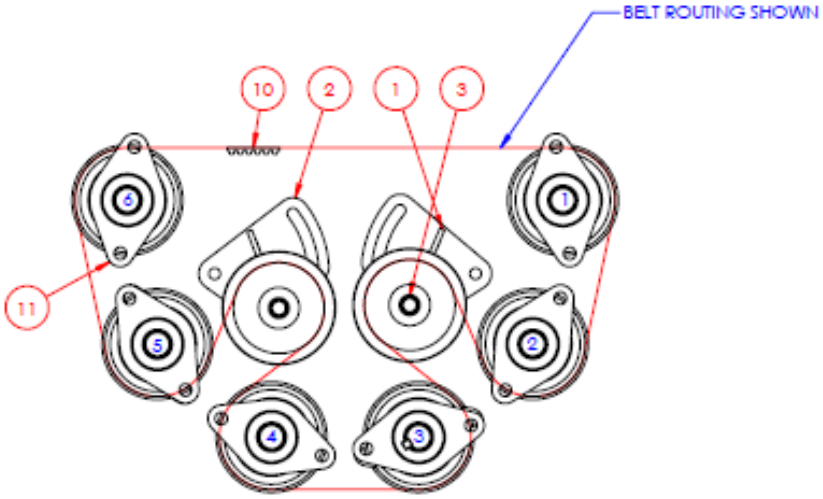


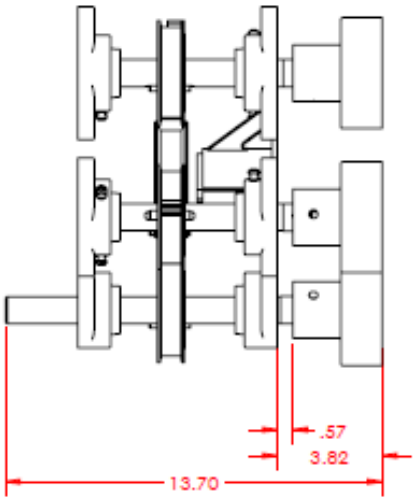
5.1000 PEELING ROLLS

01820 PEELERS

Ref. No.	Part Number	No. Req.	Description
1	20779-06-5	Req.	SHAFT, Peeling Roll
2	20249-01-1	Req.	NUT ASSEMBLY
3	31126-01-9	Req.	SOCKET, Nut Assembly
6	32485-01-9	Req.	ROLL, Lift End Fixture - 2 / Roll
7	59522-01-1	Req.	ROLL, Abr - #10 Grit - 5.00 OD
7	59522-02-1	Req.	ROLL, Abr - #20 Grit - 5.00 OD
7	59522-03-1	Req.	ROLL, Abr - #30 Grit - 5.00 OD
7	59522-04-1	Req.	ROLL, Abr - #36 Grit - 5.00 OD
7	59522-06-1	Req.	ROLL, Abr - #60 Grit - 5.00 OD
7	59522-08-1	Req.	ROLL, Abr - #80 Grit - 5.00 OD
8	41129-01-9	Req.	ROLL, Abr End Fixture - 2 /Roll
9	44577-01-9	Req.	BRUSH, .026 – Blue/2 Black stripes
9	44577-02-9	Req.	BRUSH, .008 – Black/2 Natural stripes
9	44577-03-9	Req.	BRUSH, .010 – Black/2 Blue stripes
9	44577-04-9	Req.	BRUSH, .012 – Black/2 Green stripes
9	44577-05-9	Req.	BRUSH, .014 – Black/1 Natural stripe
9	44577-06-9	Req.	BRUSH, .018 – Black/1 Blue stripe
9	44577-07-9	Req.	BRUSH, .022 – Black/1 Green stripe
10	40259-02-9	Req.	BRUSH, End Fixture - 2 / Roll
12	33740-01-9	Req.	BRUSH, 3.12 ID End Fixture -
13	40369-01-9	Req.	SEGMENT, Pintle Straight Rbr -
13	40369-02-9	Req.	SEGMENT, Pintle Straight Ntrl -
13	40242-01-9	Req.	SEGMENT, Pintle Sine RH Rbr -
14	32118-01-5	Req.	SPACER – Pintle 3.00” O.D. X 1.44
15	31990-01-9	Req.	SEGMENT, Abr Sine - LH - #10
15	31156-01-9	Req.	SEGMENT, Abr Sine - LH - #20
15	33658-01-9	Req.	SEGMENT, Abr Sine - LH - #36
16	31991-01-9	Req.	SEGMENT, Abr Sine - RH - #10
16	31157-01-9	Req.	SEGMENT, Abr Sine - RH - #20
16	33659-01-9	Req.	SEGMENT, Abr Sine - RH - #36
17	41978-08-9	Req.	BEARING, 2 Bolt Flg. 25mm Bore


12
4
9
13
7
6
5
LOCATION # 3


BELT ROUTING SHOWN
10
2
1
3
11
6
1
5
2
4
3


.57
3.82
13.70

5.2000 MECHANICAL DRIVE CASE

Ref. No.	Part Number	No. Req.	Description
1	20-28013-01-5	1	BRACKET, IDLER RIGHT
2	20-28013-02-5	1	BRACKET, IDLER LEFT
3	30-40328-01-5	2	BUSHING, IDLER TENSIONER METRIC
4	30-40308-01-5	5	SHAFT, DRIVECASE 1820 BRUSH
5	30-40308-02-5	1	SHAFT, DRIVECASE 1820 MOTOR
6	30-40341-02-5	1	KEY, M8 SQ X 1.88 LG
7	30-34185-16-5	6	KEY, M8 SQ X 1.50 LG
8	30-34185-29-5	6	KEY, .25 SQ X 1.50 LG
9	40-42938-27-9	6	SPROCKET, POLY CHAIN GT
	40-41583-07-1	6	BUSHING, TL M25B
10	40-42937-25-9	1	BELT, POLY CHAIN GT
11	40-41978-08-9	12	BEARING, BALL FLANGE M25B
12	40-40236-01-9	6	COUPLER, URETHANE 1.00B (STD)
	60-60660-01-5		COUPLER, QUICK CHANGE ASSY
	50-59359-01-9		REPLACEABLE COUPLER W/BOLTS
	48-48398-01-1		INDIVIDUAL COUPLER BOLTS
13	40-44550-02-1	2	PULLEY, IDLER

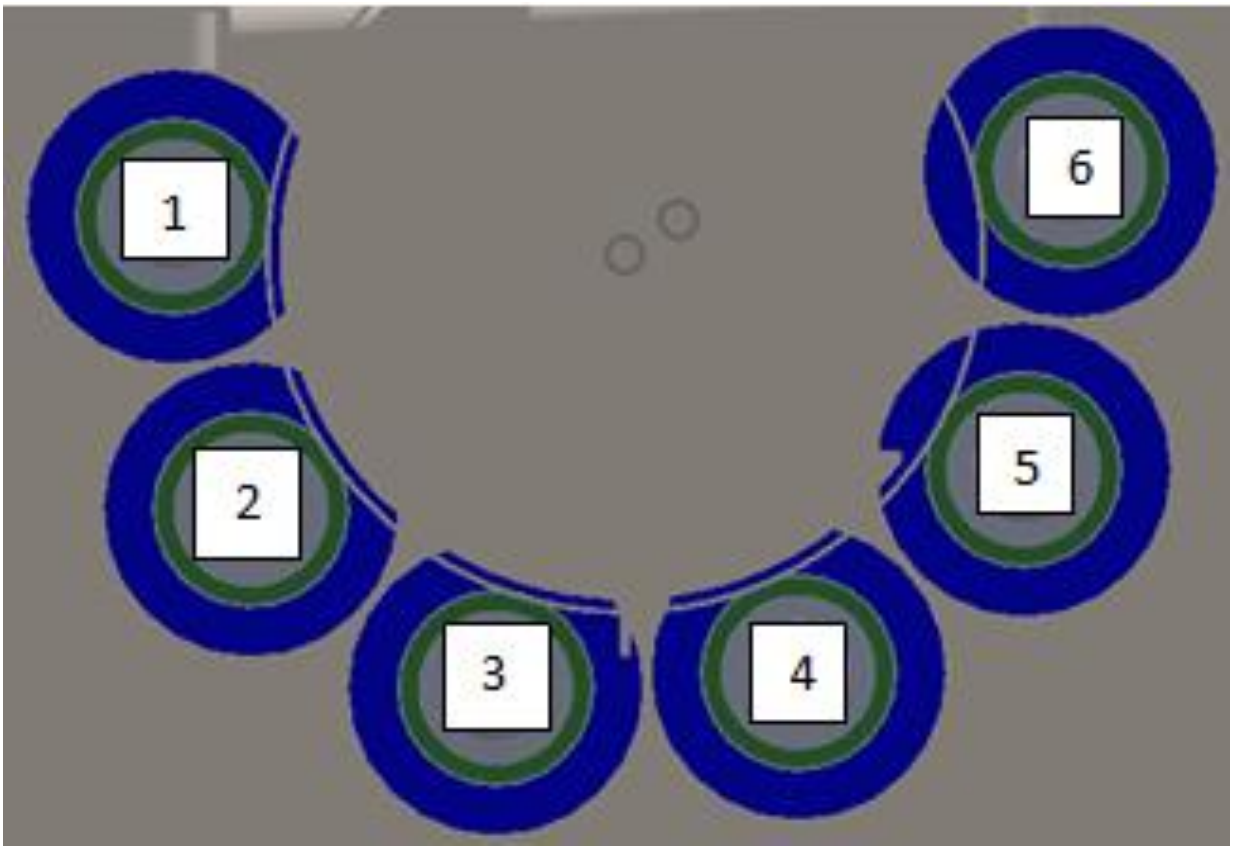
6.0000 SPARE PARTS

Part Number	Est. Qty. / Year Intermit	Cont.	Description
20-20779-06-5	2	4	SHAFT ASSEMBLY, Peeling Roll
30-40308-01-5	1	2	SHAFT, DRIVECASE 1820 BRUSH
30-40308-02-5	1	1	SHAFT, DRIVECASE 1820 MOTOR
20-20249-01-1	1	2	NUT ASSEMBLY, Peeling Roller
40-42938-27-9	1	1	SPROCKET, Drive Case Roll
40-42937-25-9	1	2	BELT, Drive Case Timing
40-43793-17-9	1	1	BELT, Drive Case Drive Belt
40-43794-23-9	1	1	SPROCKET, Motor Drive
40-43794-22-9	1	1	SPROCKET, Motor Driven
40-41978-08-9	3	5	BRG, BALL FLG 2 BLT 25MM PLASTIC COM
40-40236-01-9	2	2	COUPLER, Drive Shaft to Roll - 1.00 Bore

NOTE: Quantities to have on hand for standard intermittent use are based on a production schedule of eight (8) hours per day, five (5) days per week with at least one year of such usage anticipated.

Quantities to have on hand for continuous use are based on a production schedule of twenty four (24) hours per day, five (5) days per week with at least one year of such usage anticipated.

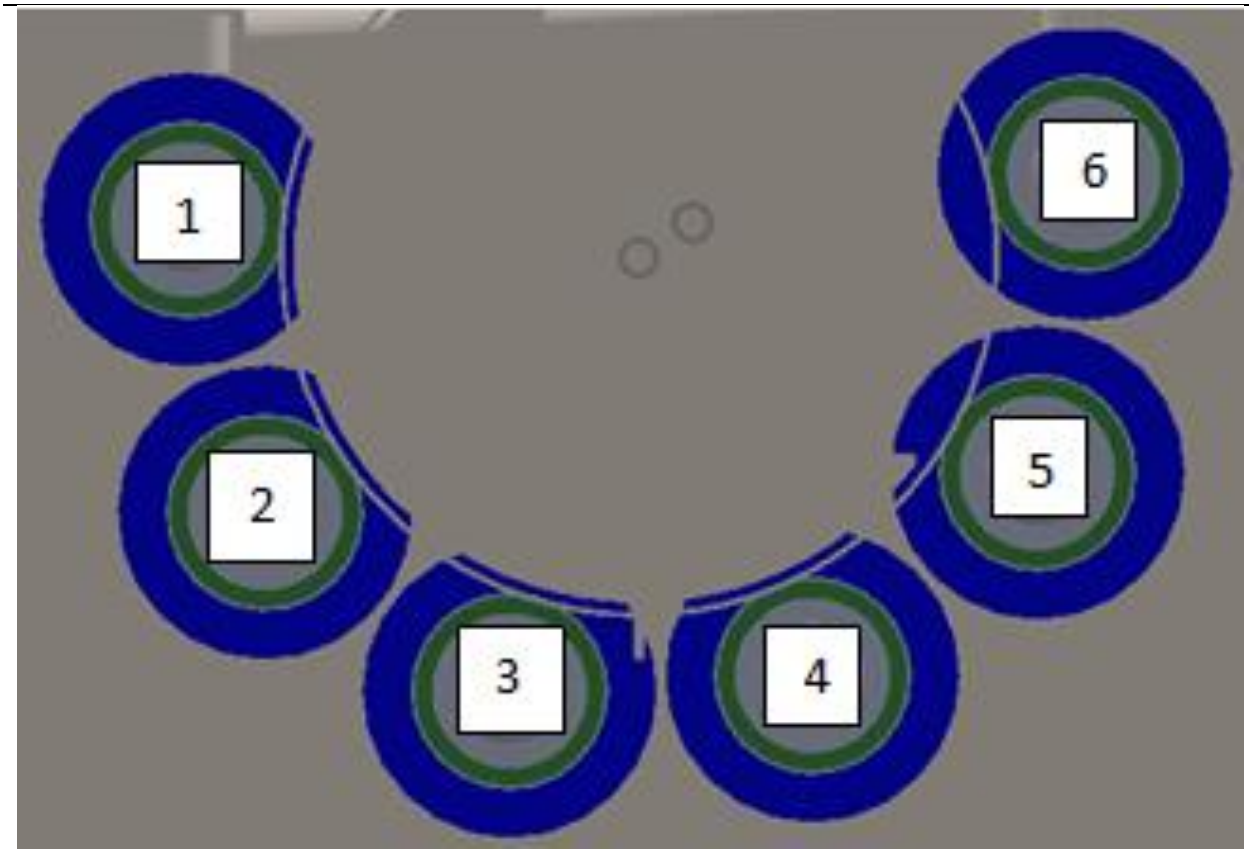
7.1000 PEELING ROLL CONFIGURATION



DISCHARGE END VIEW

ROLL NO.	PART NO.	ROLL TYPE
1.		
2.		
3.		
4.		
5.		
6.		

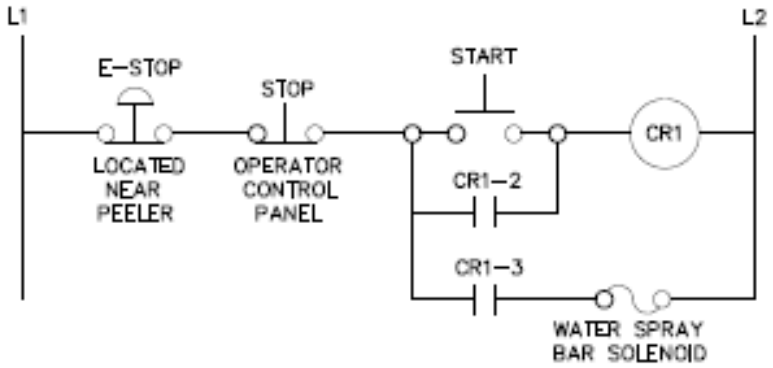
7.1000 PEELING ROLL CONFIGURATION

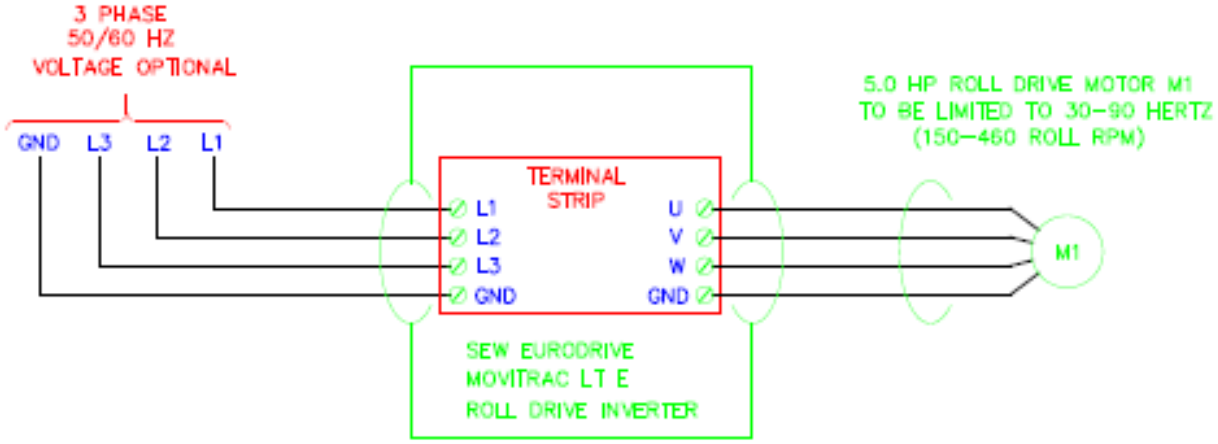


DISCHARGE END VIEW

ROLL NO.	PART NO.	ROLL TYPE
1.		
2.		
3.		
4.		
5.		
6.		

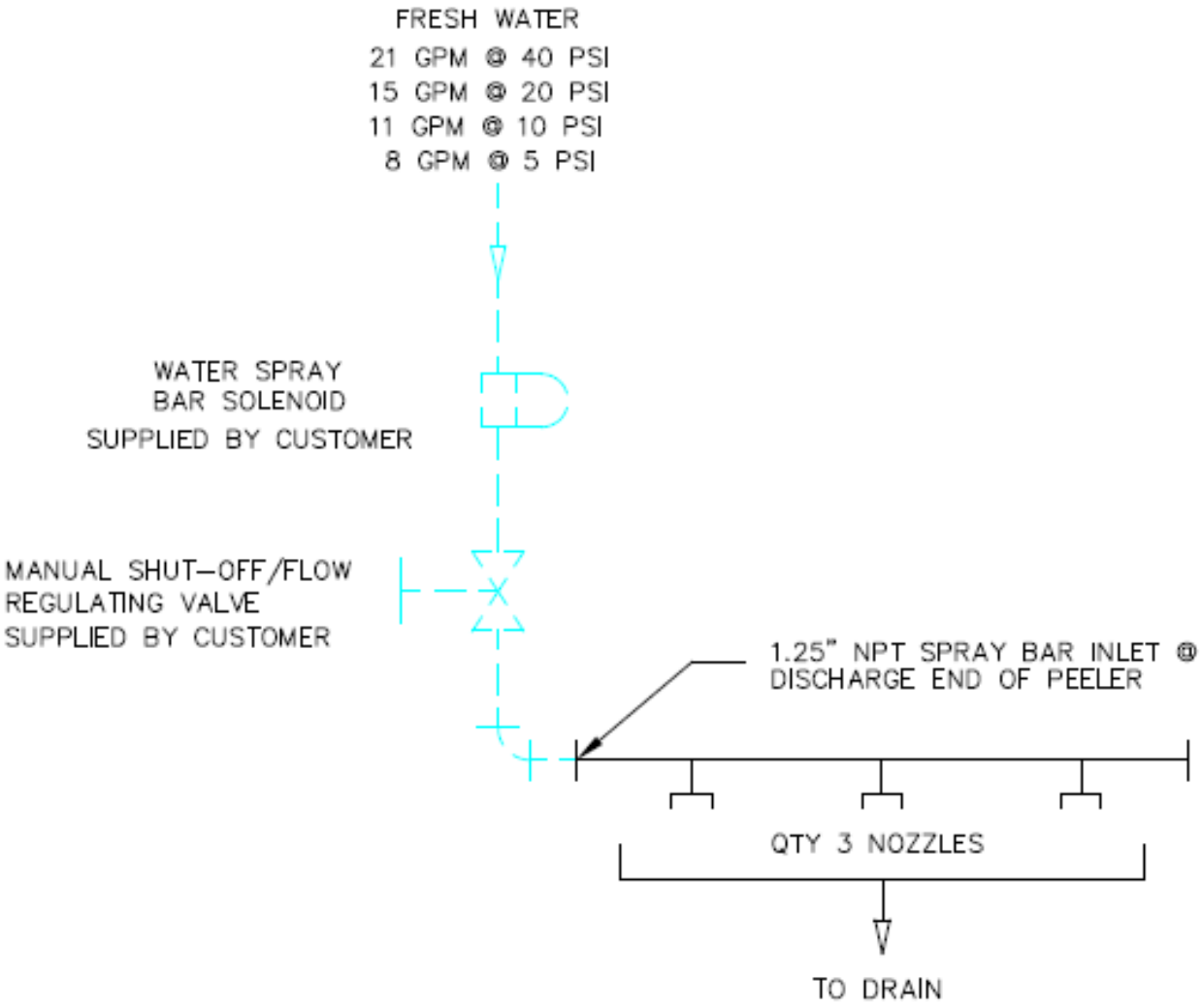
7.2000 RECOMMENDED ELECTRICAL SCHEMATIC





69778-2

7.3000 RECOMMENDED WATER SCHEMATIC



01820 Peeler/Washer

Hz. TO RPM CONVERSION

Hz	RPM
20	98
25	122
30	147
35	171
40	195
45	220
50	244
55	269
60	293
65	318
70	342
75	367
80	391
85	415
90	440

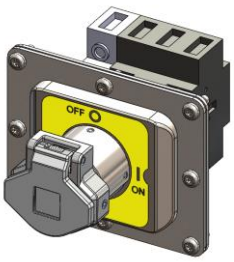
8.0000 COMPONENT BULLETINS

Sew Eurodrive Inverter – 40-42807

Allen Bradley Key Access – 40-44150

Allen Bradley Key Switch – Panel Mounted 40-44306

Trapped Key ISOLATOR SWITCH – Types ISP-WR
Operating Instructions



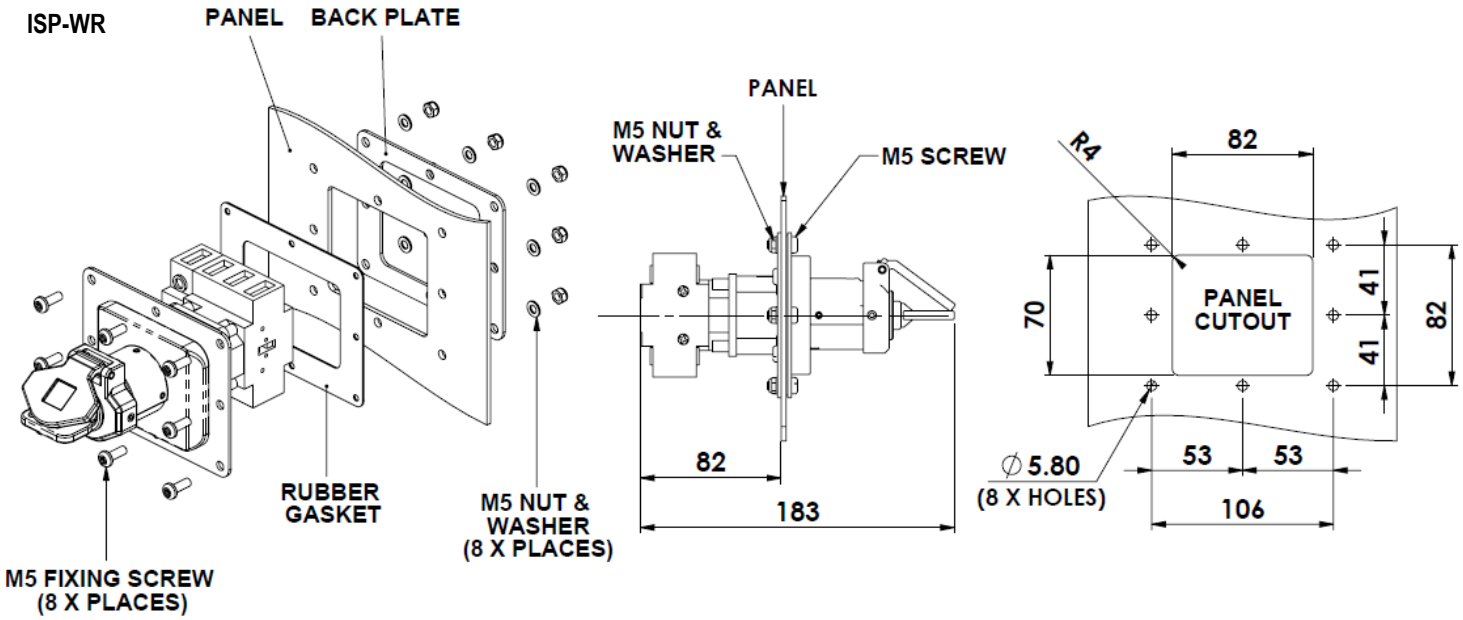
ISP-WR (Panel Mount)
(25A, 40A & 63A)

READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE INSTALLING, OPERATING, OR MAINTAINING THIS EQUIPMENT.
The product is designed to be a component of a customized safety-oriented control system. It is the responsibility of the user to ensure the correct overall functionality of its systems and machines. IDEM, its subsidiaries and affiliates, are not in a position to guarantee all of the characteristics of a given system or product not designed by IDEM.

WARNING:
It is the responsibility of the person installing the electrical equipment to ensure that the installation meets the requirements of the IET wiring regulations and is therefore 'fit for purpose'. Factors such as correct selection of components, cable sizing, protective devices and Earth bonding are all critical and should be checked prior to full testing and power-up. Any other regulations applicable to the equipment being installed such as the Machinery Directive and current health and safety legislation must also be adhered to. Terminals, including factory fitted, should be checked periodically to ensure correct tightness.

MAINTENANCE: Every month: Check correct operation of all circuits. If the key or housing display signs of mechanical damage then remove and replace.
IDEM will not accept responsibility for failure of the interlock functions if the installation and maintenance requirements are not implemented.
THESE INSTRUCTIONS FORM PART OF THE PRODUCT WARRANTY.

PRODUCT DIMENSIONS (mm):

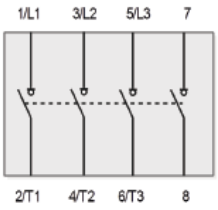


Trapped Key ISOLATOR SWITCH – Types ISP-WR

TECHNICAL SPECIFICATIONS (ISOLATOR BLOCK):

					ISP 25A	ISP 40A	ISP 63A
IEC & EN			Volts	V	690	690	690
UL			Volts	V	600	600	600
Main switch isolating voltage up to			Volts	V	750	750	750
Rated impulse withstand voltage Uimp			Volts	kV	6	6	6
Rated uninterrupted current Iu			Amps	A	25	40	63
IEC & EN	AC-22A		Up to 690V	A	25	40	63
	AC-21A		Up to 690V	A	32	63	80
	AC-1		Up to 690V	A	32	63	80
IEC & EN	3 Phase		220-240V	kW	11	22	30
			380-440V	kW	22	45	45
			500-690V	kW	22	45	45
IEC & EN	3 Phase		220-240V	kW	8	15	22
			440V	kW	15	30	30
			690V	kW	15	30	30
DOL	3 Phase		120V	hp	3	5	7.5
			240V	hp	7.5	10	15
			480V	hp	15	20	25
			600V	hp	20	30	30
	1 Phase		120V	hp	1.5	3	3
			240V	hp	2	5	7.5
Fuse Rating, Class J			Amps	A	45	70	70
Fuse Rating, Class RK5			Amps	A	-	-	-
Rated Fuse Short Circuit Current			Amps	kA	10	10	10
Maximum Fuse Size Type gl			Amps	A	32	63	63
Rated Fuse Short Circuit Current			Amps	kA	30	30	30
Single/Multiple Strand Wire				Min-mm^2	2.5	2.5	2.5
				Max-mm^2	10	25	25
Fine Strand with Sleeve				Min-mm^2	0.75	2.5	2.5
				Max-mm^2	6	10	10
American Wire Gauge				AWG	10	6	6
Recommended Tightening Torque				Nm	1.7	2.0	2.0

SCHEMATIC:



TECHNICAL SPECIFICATION:

Mechanical Life (B10d) **1,000,000 cycles.**
Ambient temperature **-20C / 40C.**

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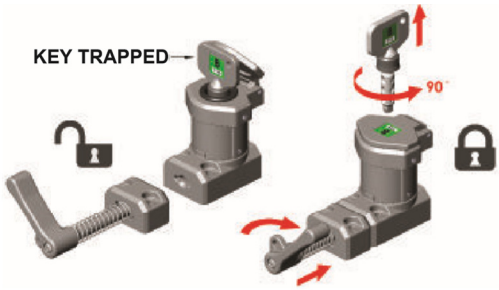
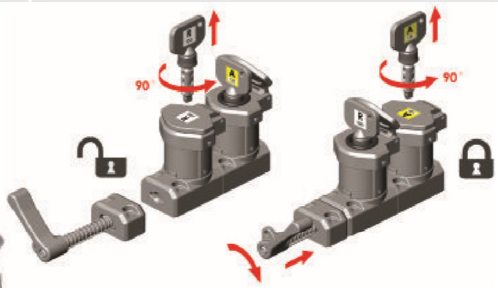
Doc:102666
Jan. 23

Sales Number	HANDLE INTERLOCK SINGLE KEY DIE CAST METAL (Mirror Finish)
M-HS	Key trapped - actuator unlocked (spring action handle)
M-HS-C	Key trapped - actuator unlocked (chain fixed to handle)
Sales Number	**HANDLE INTERLOCK SINGLE KEY STAINLESS STEEL 316**
SS-HS	Key trapped - actuator unlocked (spring action handle)
SS-HS-C	Key trapped - actuator unlocked (chain fixed to handle)



Sales Number	HANDLE INTERLOCK DUAL KEY STAINLESS STEEL 316
SS-HD-11	2 sequential keys - one key trapped one key free - actuator unlocked (spring action handle)
SS-HD-C-11	2 sequential keys - one key trapped one key free - actuator unlocked (chain fixed to handle)
Sales Number	**HANDLE INTERLOCK DUAL KEY DIE CAST METAL (Mirror Finish)**
M-HD-11	2 sequential keys - one key trapped one key free - actuator unlocked (spring action handle)
M-HD-C-11	2 sequential keys - one key trapped one key free - actuator unlocked (chain fixed to handle)



Trapped Key Handle Interlocks – Types HS HD

Operating Instructions

READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE INSTALLING, OPERATING, OR MAINTAINING THIS EQUIPMENT.

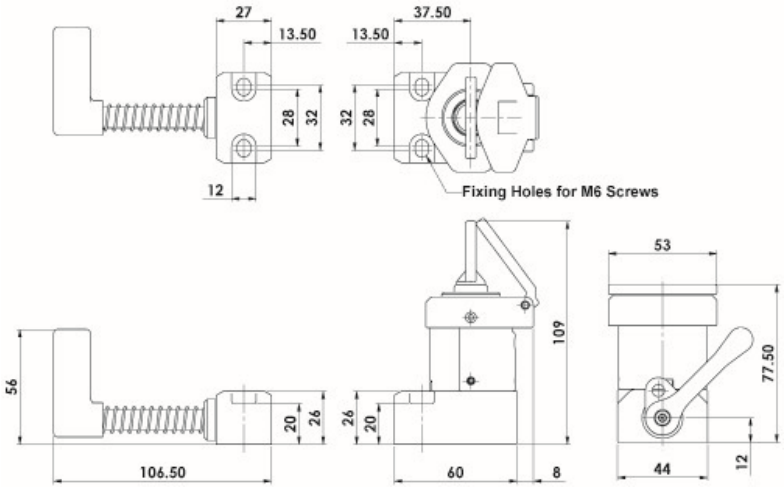
The product is designed to be a component of a customized safety oriented control system. It is the responsibility of the user to ensure the correct overall functionality of its systems and machines. IDEM, its subsidiaries and affiliates, are not in a position to guarantee all of the characteristics of a given system or product not designed by IDEM.

INSTALLATION: Installation must only be carried out by competent personnel and in accordance with these instructions.
Always use correct size metal mounting bolts (M6). Tightening torque 2Nm. Ensure that the holding force is sufficient to withstand the static forces applied during normal use and dynamic effects caused by bouncing of the guard shall not create an impact reaction force which exceeds the holding force. If the expected impact reaction forces are higher than the specified holding force for the switch, then design measures must be applied to avoid the force.

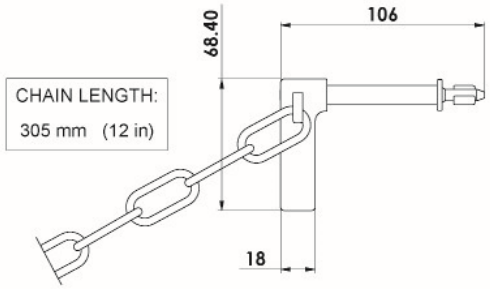
WARNING: FOR CHAIN VERSIONS, THE DESIGN OF THE GUARD MUST ENSURE THAT WHEN THE HANDLE IS WITHDRAWN IT CAN ONLY RETURNED TO THE LOCK POSITION WHEN THE GUARD IS IN THE PROTECTED POSITION. IT MUST NOT BE POSSIBLE TO ACCESS THE HAZARD WHILST THE GUARD IS CLOSED AND THE HANDLE IS IN PLACE.

MAINTENANCE: Every month: If the key, housing or handle display signs of mechanical damage then remove and replace.
IDEM will not accept responsibility for failure of the interlock functions if the installation and maintenance requirements are not implemented.
THESE INSTRUCTIONS FORM PART OF THE PRODUCT WARRANTY.

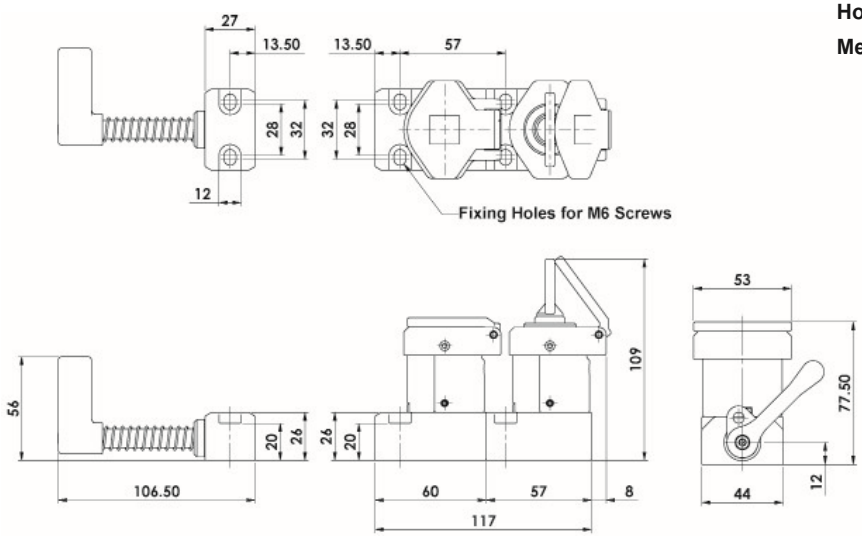
Handle Interlock Model HS



Handle with Chain



Handle Interlock Dual Key Model HS-11



TECHNICAL SPECIFICATIONS

Body Material: Stainless steel or die cast
Operating Temperature: -25C. to +60C.
Holding Force: 4000N. (F1max.) 3076N. (Fzh)
Mechanical Life (B10d) : 1,000,000 cycles

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