



OPERATOR'S MANUAL

Metal Working



AUTOMATIC HORIZONTAL BANDSAW MODEL: BS-20A

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THANK YOU & WARRANTY

Thank you for your purchase of a machine from Baileigh Industrial Holdings LLC. We hope that you find it productive and useful to you for a long time to come.

Inspection & Acceptance. Buyer shall inspect all Goods within ten (10) days after receipt thereof. Buyer's payment shall constitute final acceptance of the Goods and shall act as a waiver of the Buyer's rights to inspect or reject the goods unless otherwise agreed. If Buyer rejects any merchandise, Buyer must first obtain a Returned Goods Authorization ("RGA") number before returning any goods to Seller. Goods returned without an RGA will be refused. Seller will not be responsible for any freight costs, damages to goods, or any other costs or liabilities pertaining to goods returned without a RGA. Seller shall have the right to substitute a conforming tender. Buyer will be responsible for all freight costs to and from Buyer and repackaging costs, if any, if Buyer refuses to accept shipment. If Goods are returned in unsalable condition, Buyer shall be responsible for full value of the Goods. Buyer may not return any special-order Goods. Any Goods returned hereunder shall be subject to a restocking fee equal to 30% of the invoice price.

Specifications. Seller may, at its option, make changes in the designs, specifications or components of the Goods to improve the safety of such Goods, or if in Seller's judgment, such changes will be beneficial to their operation or use. Buyer may not make any changes in the specifications for the Goods unless Seller approves of such changes in writing, in which event Seller may impose additional charges to implement such changes.

Limited Warranty. Seller warrants to the original end-user that the Goods manufactured or provided by Seller under this Agreement shall be free of defects in material or workmanship for a period of twelve (12) months from the date of purchase, provided that the Goods are installed, used, and maintained in accordance with any instruction manual or technical guidelines provided by the Seller or supplied with the Goods, if applicable. The original end-user must give written notice to Seller of any suspected defect in the Goods prior to the expiration of the warranty period. The original end-user must also obtain a RGA from Seller prior to returning any Goods to Seller for warranty service under this paragraph. Seller will not accept any responsibility for Goods returned without a RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 10 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (e) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

EXCLUSION OF OTHER WARRANTIES. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY AND ALL OTHER EXPRESS, STATUTORY OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. NO WARRANTY IS MADE WHICH EXTENDS BEYOND THAT WHICH IS EXPRESSLY CONTAINED HEREIN.

Limitation of Liability. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR DOWN TIME) ARISING FROM OR IN MANNER CONNECTED WITH THE GOODS, ANY BREACH BY SELLER OR ITS AGENTS OF THIS AGREEMENT, OR ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY OF LIABILITY. BUYER'S REMEDY WITH RESPECT TO ANY CLAIM ARISING UNDER THIS AGREEMENT IS STRICTLY LIMITED TO NO MORE THAN THE AMOUNT PAID BY THE BUYER FOR THE GOODS.



Force Majeure. Seller shall not be responsible for any delay in the delivery of, or failure to deliver, Goods due to causes beyond Seller's reasonable control including, without limitation, acts of God, acts of war or terrorism, enemy actions, hostilities, strikes, labor difficulties, embargoes, non-delivery or late delivery of materials, parts and equipment or transportation delays not caused by the fault of Seller, delays caused by civil authorities, governmental regulations or orders, fire, lightening, natural disasters or any other cause beyond Seller's reasonable control. In the event of any such delay, performance will be postponed by such length of time as may be reasonably necessary to compensate for the delay.

Installation. If Buyer purchases any Goods that require installation, Buyer shall, at its expense, make all arrangements and connections necessary to install and operate the Goods. Buyer shall install the Goods in accordance with any Seller instructions and shall indemnify Seller against any and all damages, demands, suits, causes of action, claims and expenses (including actual attorneys' fees and costs) arising directly or indirectly out of Buyer's failure to properly install the Goods.

Work By Others; Safety Devices. Unless agreed to in writing by Seller, Seller has no responsibility for labor or work performed by Buyer or others, of any nature, relating to design, manufacture, fabrication, use, installation or provision of Goods. Buyer is solely responsible for furnishing and requiring its employees and customers to use all safety devices, guards and safe operating procedures required by law and/or as set forth in manuals and instruction sheets furnished by Seller. Buyer is responsible for consulting all operator manuals, ANSI or comparable safety standards, OSHA regulations and other sources of safety standards and regulations applicable to the use and operation of the Goods.

Remedies. Each of the rights and remedies of Seller under this Agreement is cumulative and in addition to any other or further remedies provided under this Agreement or at law or equity.

Attorney's Fees. In the event legal action is necessary to recover monies due from Buyer or to enforce any provision of this Agreement, Buyer shall be liable to Seller for all costs and expenses associated therewith, including Seller's actual attorney fees and costs.

Governing Law/Venue. This Agreement shall be construed and governed under the laws of the State of Wisconsin, without application of conflict of law principles. Each party agrees that all actions or proceedings arising out of or in connection with this Agreement shall be commenced, tried, and litigated only in the state courts sitting in Manitowoc County, Wisconsin or the U.S. Federal Court for the Eastern District of Wisconsin. Each party waives any right it may have to assert the doctrine of "forum non conveniens" or to object to venue to the extent that any proceeding is brought in accordance with this section. Each party consents to and waives any objection to the exercise of personal jurisdiction over it by courts described in this section. Each party waives to the fullest extent permitted by applicable law the right to a trial by jury.

Summary of Return Policy.

- 10 Day acceptance period from date of delivery. Damage claims and order discrepancies will not be accepted after this time.
- You must obtain a Baileigh issued RGA number PRIOR to returning any materials.
- Returned materials must be received at Baileigh in new condition and in original packaging.
- Altered items are not eligible for return.
- Buyer is responsible for all shipping charges.
- A 30% re-stocking fee applies to all returns.

Baileigh Industrial Holdings LLC makes every effort to ensure that our posted specifications, images, pricing and product availability are as correct and timely as possible. We apologize for any discrepancies that may occur. Baileigh Industrial Holdings LLC reserves the right to make any and all changes deemed necessary in the course of business including but not limited to pricing, product specifications, quantities, and product availability.

For Customer Service & Technical Support:

Please contact one of our knowledgeable Sales and Service team members at:
(920) 684-4990 or e-mail us at sales@baileigh.com



INTRODUCTION

The quality and reliability of the components assembled on a Baileigh Industrial Holdings LLC machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However, if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.

Our technical staff will do their best to help you get your machine back in working order.

In this manual you will find: (when applicable)

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Setup and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

GENERAL NOTES

After receiving your equipment remove the protective container. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact Baileigh Industrial Holdings LLC and inform them of the unexpected occurrence. Temporarily suspend installation.

Take necessary precautions while loading / unloading or moving the machine to avoid any injuries.

Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any modifications.



Note: This symbol refers to useful information throughout the manual.



IMPORTANT

PLEASE READ THIS OPERATORS MANUAL CAREFULLY

It contains important safety information, instructions, and necessary operating procedures. The continual observance of these procedures will help increase your production and extend the life of the equipment.



SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, **BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**



Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** – is used with the safety alert symbol. **NOTICE**, which is not related to personal injury, is used without a symbol.

DANGER: Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING: Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE: Indicates a situation which, if not avoided, could result in property damage.

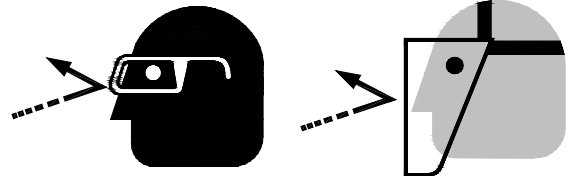


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



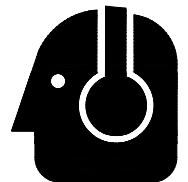
PROTECT EYES

Wear safety glasses or suitable eye protection when working on or around machinery.



PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.



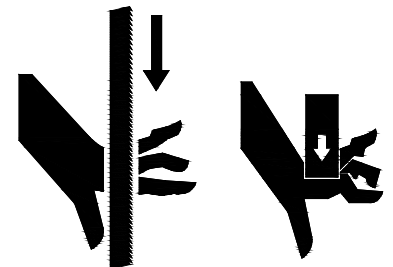
HIGH VOLTAGE

USE CAUTION IN HIGH VOLTAGE AREAS. DO NOT assume the power to be off.
FOLLOW PROPER LOCKOUT PROCEDURES.



BEWARE OF CUT AND PINCH POINTS

Moving saw blade may result in loss of fingers or limb. **DO NOT** operate with guard removed. **Follow lockout/tagout procedures before servicing.**



EMERGENCY STOP BUTTON

In the event of incorrect operation or dangerous conditions, the machine can be stopped immediately by pressing the **E-STOP** button. Twist the emergency stop button clockwise (cw) to reset. Note: Resetting the E-Stop will not start the machine.



CALIFORNIA PROPOSITION 65

WARNING: Cancer and Reproductive Harm.
www.P65Warnings.ca.gov





SAFETY PRECAUTIONS



Metal working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

Safety equipment such as guards, hold-downs, safety glasses, dust masks and hearing protection can reduce your potential for injury. But even the best guard will not make up for poor judgment, carelessness or inattention. **Always use common sense** and exercise **caution** in the workshop. If a procedure feels dangerous, don't try it.

REMEMBER: Your personal safety is your responsibility.



**WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN
SERIOUS PERSONAL INJURY**

Dear Valued Customer:

- All Baileigh machines should be used only for their intended use.
- Baileigh does not recommend or endorse making any modifications or alterations to a Baileigh machine. Modifications or alterations to a machine may pose a substantial risk of injury to the operator or others and may do substantial damage to the machine.
- Any modifications or alterations to a Baileigh machine will invalidate the machine's warranty.

PLEASE ENJOY YOUR BAILEIGH MACHINE!PLEASE ENJOY IT SAFELY!

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.** Learn the machine's application and limitations as well as the specific hazards.
2. **Only trained and qualified personnel can operate this machine.**
3. **Make sure guards are in place and in proper working order before operating machinery.**
4. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
5. **Keep work area clean.** Cluttered areas invite injuries.
6. **Overloading machine.** By overloading the machine you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.
7. **Dressing material edges.** Always chamfer and deburr all sharp edges.



8. **Do not force tool.** Your machine will do a better and safer job if used as intended. **DO NOT** use inappropriate attachments in an attempt to exceed the machines rated capacity.
9. **Use the right tool for the job. DO NOT** attempt to force a small tool or attachment to do the work of a large industrial tool. **DO NOT** use a tool for a purpose for which it was not intended.
10. **Dress appropriate. DO NOT** wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
11. **Use eye protection.** Always wear ISO approved protective eye wear when operating machinery. Wear a full-face shield if you are producing metal filings. Eye wear shall be impact resistant, protective safety glasses with side shields which comply with ANSI Z87.1 specification. Use of eye wear which does not comply with ANSI Z87.1 specification could result in severe injury from breakage of eye protection.
12. **Do not overreach.** Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.
13. **Stay alert.** Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.
14. **Check for damaged parts.** Before using any tool or machine, carefully check any part that appears damaged. Check for alignment and binding of moving parts that may affect proper machine operation.
15. **Observe work area conditions. DO NOT** use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well lighted. **DO NOT** use electrically powered tools in the presence of flammable gases or liquids.
16. **Blade adjustments and maintenance.** Always keep blades sharp and properly adjusted for optimum performance.
17. **Keep children away.** Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
18. **Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep them out of reach of children.
19. **DO NOT** operate machine if under the influence of alcohol or drugs. Read warning labels on prescriptions. If there is any doubt, **DO NOT** operate the machine.
20. **DO NOT** touch live electrical components or parts.
21. **Turn off power** before checking, cleaning, or replacing any parts.
22. **Be sure all equipment** is properly installed and grounded according to national, state, and local codes.
23. **Keep all cords** dry, free from grease and oil, and protected from sparks and hot metal.
24. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. **Bare wiring can kill!!**



- 25. **DO NOT** bypass or defeat any safety interlock systems.
- 26. Keep visitors a safe distance from the work area.

GENERAL NOTES

- Take necessary precautions while loading / unloading or moving the machine to avoid any injuries. Refer to the related chapter of this Manual for the best way of handling the machine.
- Always disconnect the machine from the power source before a blade change, carrying out any maintenance job, or any abnormal machine operation.
- Always check that the work piece is securely clamped and that long pieces are properly supported.
- If the blade gets stuck in the cut, press the emergency stop button immediately. Reset the E-stop button. In manual mode you can now raise the saw bow, open the vise, and remove the piece part. Check the blade for any broken teeth and replace blade if necessary.
- The operator should stand in front of the machine while the saw is cutting.
- Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any unauthorized modifications.





TECHNICAL SPECIFICATIONS

Capacity Rectangular 90° / 45°	13" x 18" / 13" x 11" (330 x 460mm / 330 x 280mm)
Capacity Round 90° / 45°	13" / 11" (330mm / 280mm)
Capacity Square 90° / 45°	13" x 13" / 11 x 11" (330 x 330mm / 280 x 280mm)
Miter Adjustment	Swivel Head
Miter Angle	0 - 45°
Blade Size (H x T x L)	1.06" x .035" x 162.6" (27 x .90 x 4130mm)
Blade Speed	98 – 279fpm (30 – 85mpm) Variable
Chip Removal	Hydraulic Auger
Table Height	32.3" (820mm)
Blade Guide	Carbide x Roller
Material Clamping Bundling	Hydraulic
Material Feed	Hydraulic
Saw Bow Descent Control	Pressure Assist Hydraulic
Saw Bow Return	Hydraulic
Power	220V, 3ph, 60hz
Motor	5hp (3.75kw) 220V, 3ph, 60hz, 15A
Shipping Weight	3677lbs (1668kg)
Shipping Dimensions	90" x 86" x 69" (2280 x 2190 x 1730mm)

TECHNICAL SUPPORT

Our technical support department can be reached at 920.684.4990 and asking for the support desk for purchased machines. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs: (other than die sets and blades).

For specific application needs or future machine purchases contact the Sales Department at: sales@baileigh.com, Phone: 920.684.4990, or Fax: 920.684.3944.



Note: The photos and illustrations used in this manual are representative only and may not depict the actual color, labeling or accessories and may be intended to illustrate technique only.



Note: The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.



UNPACKING AND CHECKING CONTENTS

Your Baileigh machine is shipped complete. Separate all parts from the packing material and check each item carefully. Make certain all items are accounted for before discarding any packing material.



WARNING: SUFFOCATION HAZARD! Immediately discard any plastic bags and packing materials to eliminate choking and suffocation hazards to children and animals.

If any parts are missing, **DO NOT** place the machine into service until the missing parts are obtained and installed correctly.

Cleaning



WARNING: DO NOT USE gasoline or other petroleum products to clean the machine. They have low flash points and can explode or cause fire.



CAUTION: When using cleaning solvents work in a well-ventilated area. Many cleaning solvents are toxic if inhaled.

Your machine may be shipped with a rustproof waxy coating and/or grease on the exposed unpainted metal surfaces. Fully and completely remove this protective coating using a degreaser or solvent cleaner. Moving items will need to be moved along their travel path to allow for cleaning the entire surface. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces.

Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.



Important: This waxy coating is **NOT** a lubricant and will cause the machine to stick and lose performance as the coating continues to dry.



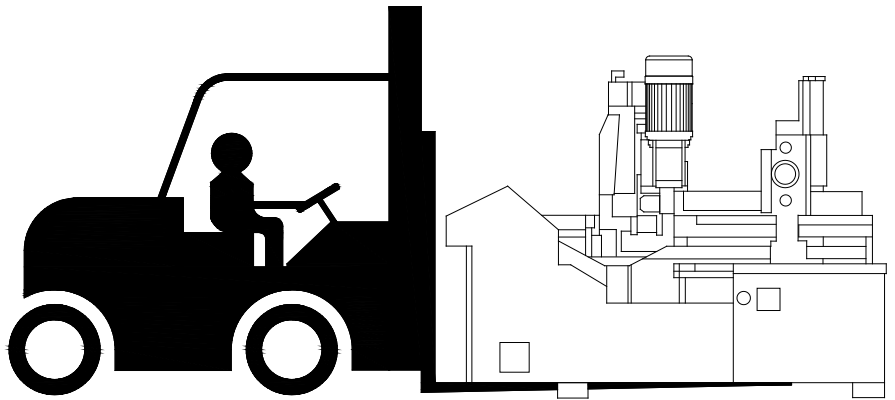


TRANSPORTING AND LIFTING

NOTICE: *Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced.*

Follow these guidelines when lifting:

- Use proper lifting techniques when moving the saw from location to location.
- Make sure the machine is balanced, level, and securely tied or strapped to the transport vehicle or device so that all the supporting feet are taking the weight of the machine and no rocking is taking place.
- While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.



INSTALLATION

IMPORTANT:

Consider the following when looking for a suitable location to place the machine:

- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, work tables, or other machinery.
- Clearance from walls and other obstacles. Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Keep the floor free of oil and make sure it is not slippery.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.
- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.
- **LEVELING:** The machine should be sited on a level surface. The accuracy of any machine depends on the precise placement of it to the mounting surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.



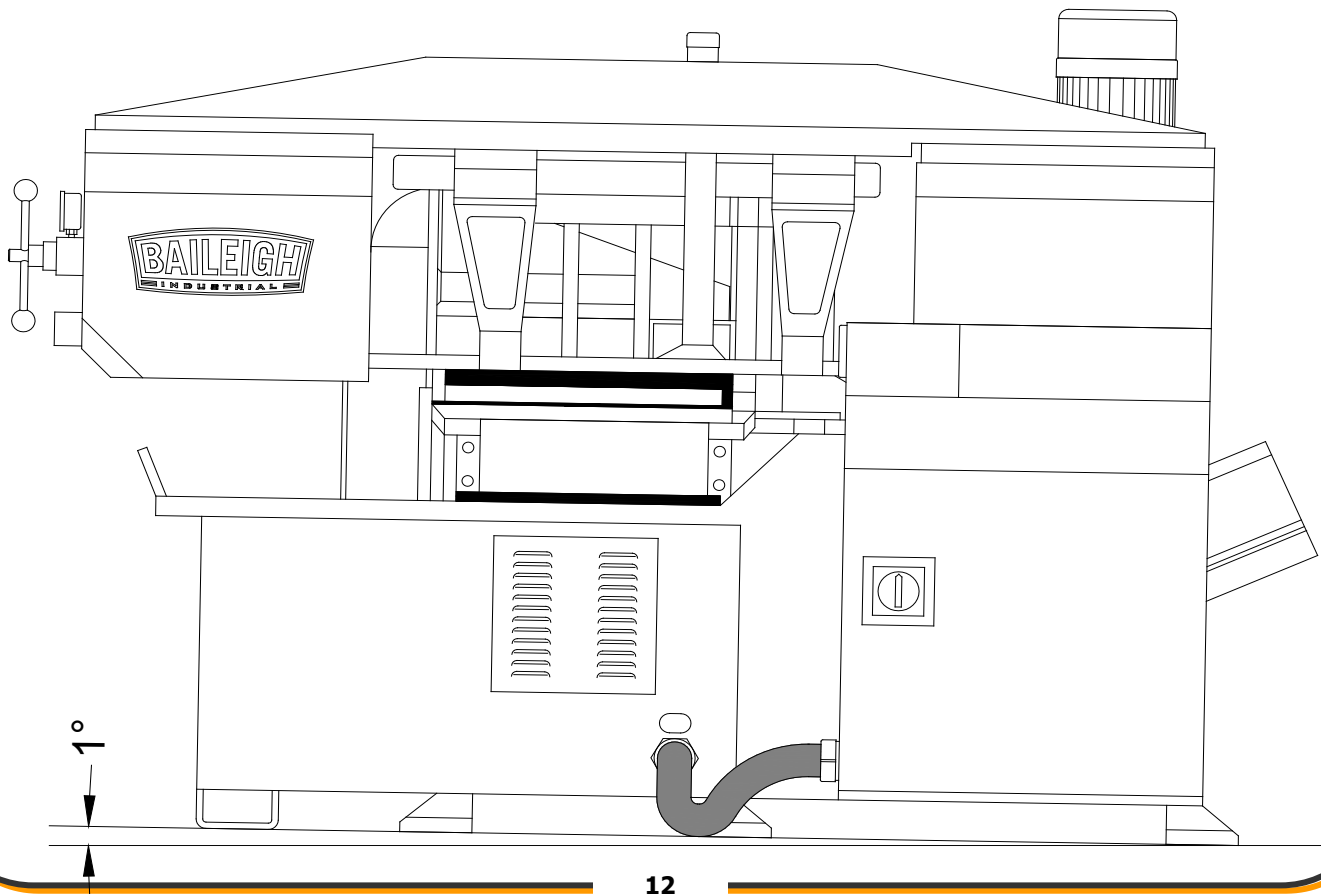
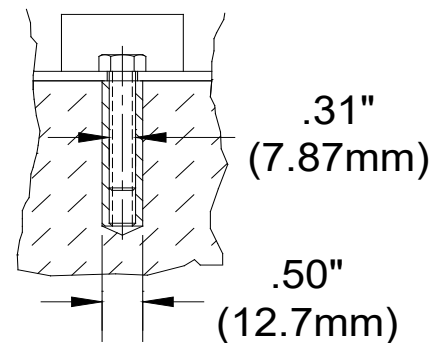
- **POWER SUPPLY PLACEMENT:** The power supply should be located close enough to the machine so that the power cord is not in an area where it would cause a tripping hazard. Be sure to observe all electrical codes if installing new circuits and/or outlets.

Anchoring the Machine

- Set the saw on a flat and level foundation of reinforced concrete. Maintain a minimum distance of 32" from the rear of the machine to the wall.
- Machinist's levels should be used alternately on the vise slide plates and work feed table. Adjust the left to right and front to back level of the machine with leveling bolts. When leveling front to back, adjust the back to be 1° higher than the front. This will provide for proper return of the blade coolant to the reservoir.
- When leveling left to right, adjust the left side to be approximately 1° higher than the right side. This will allow proper return of the coolant to the reservoir.
- Now secure the saw to the foundation with anchor bolts, screws and expansion plugs, or tie rods sunk in the concrete.

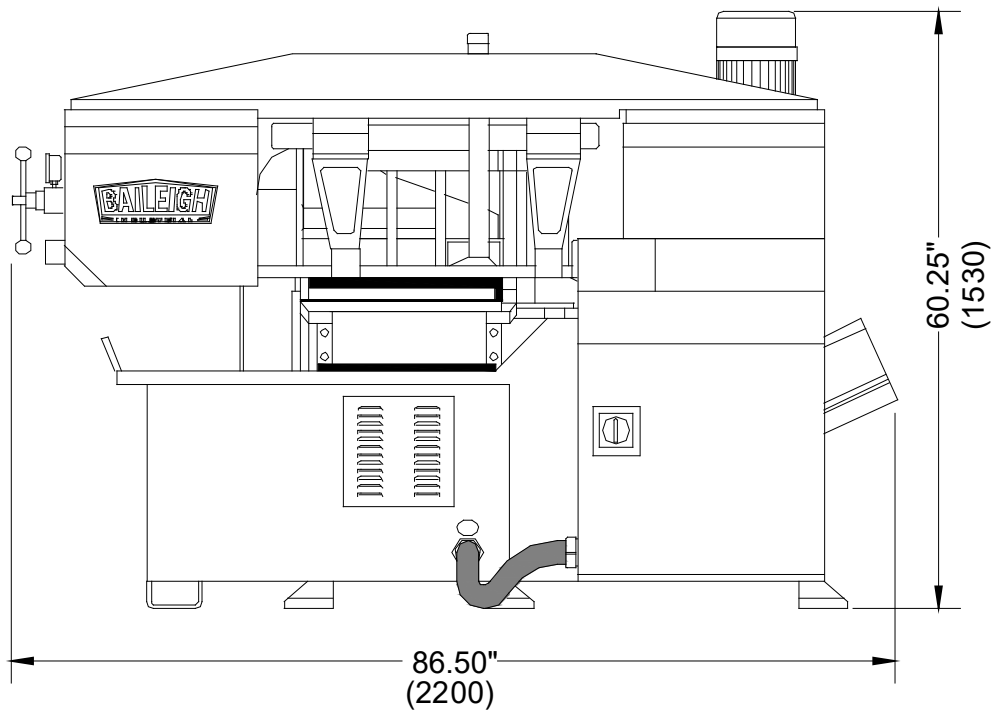
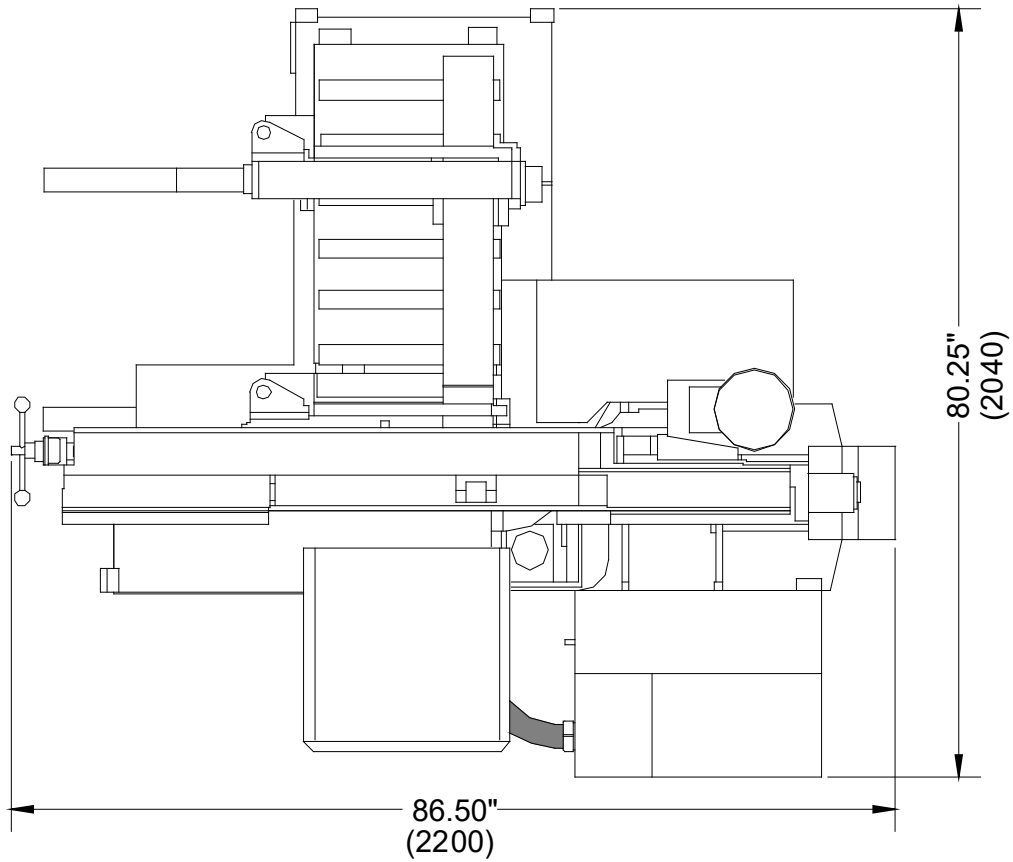


Important: All leveling bolts should support the weight of the machine evenly. The operating accuracy of precision machinery depends on the accuracy of the installation.



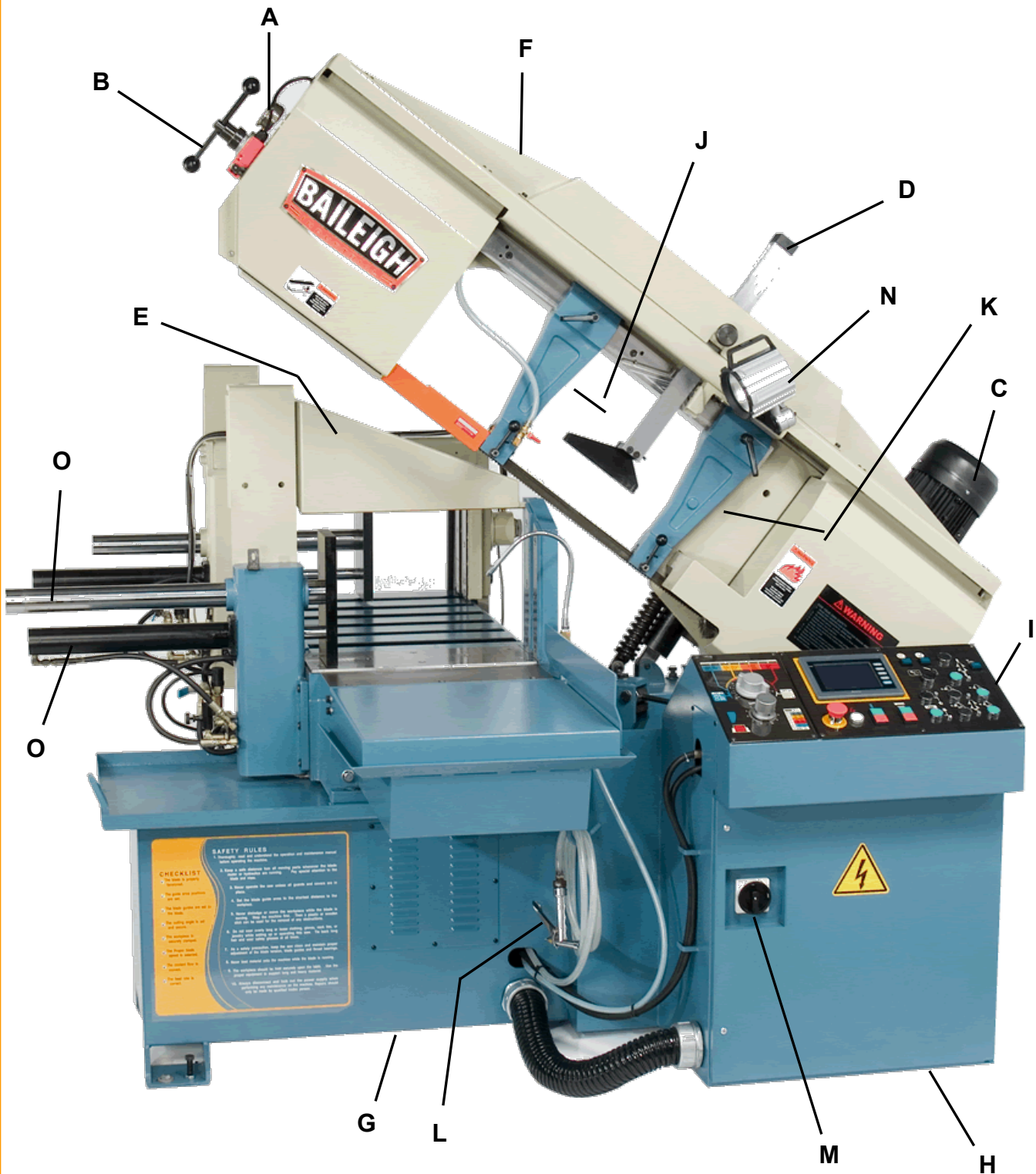


OVERALL DIMENSIONS





GETTING TO KNOW YOUR MACHINE

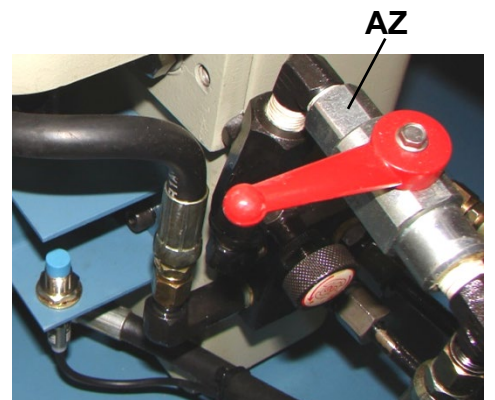




A	Blade tension gauge	Reads tension in Kgs / cm2
B	Blade tension handle	For applying and releasing blade tension
C	Drive motor	Supplies power to reducer to drive blade
D	Material probe arm	Device that reduces operation cycle time
E	Nesting clamps	Used for bundle cutting operations
F	Saw bow	Pivoting saw head including drive components
G	Saw base	Supports the saw assembly
H	Electrical enclosure	Houses disconnect and electrical components
I	Control console	Houses the operator controls
J	Left blade guide post	Adjusts front end of blade
K	Right blade guide post	Adjusts rear end of blade
L	Spray gun	Uses coolant for machine chip cleaning
M	Disconnect switch	Controls main power to the saw
N	Halogen work light	Provides lighting to work area
O	Hydraulic Vise cylinders	Provide work stroke to vise clamps
P	Chip auger	Hydraulic motor driven chip removal
Q	Coolant pump	Recirculates blade coolant

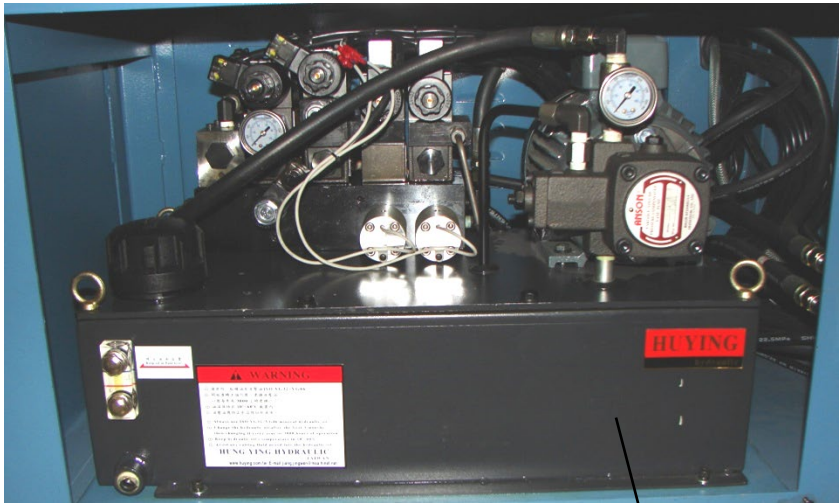
Nesting Clamps

Nesting clamps are used for bundle cutting operations. They vertically press down upon a stack of equally sized piece parts. Using these hydraulically operated clamps you can cut multiple pieces at once. To regulate the speed of the cylinder turn the flow control knob located below the hydraulic shut-off valve. If you want to stop using the nesting clamps, allow them to return to the up position, and turn off the hydraulic valves (AZ).

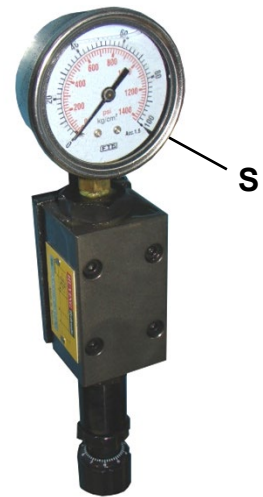




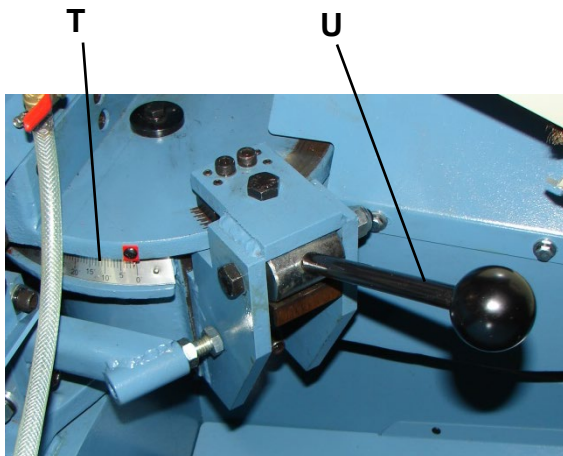
R	Hydraulic system	Supplies power to hydraulic components
S	System pressure gauge	Monitors vise clamp pressure
T	Angle indicator	Shows angular cutting degrees
U	Miter angle lock lever	Tightens and loosens table to set angles
V	Wheel driven wire brush	Cleans debris from blade



R

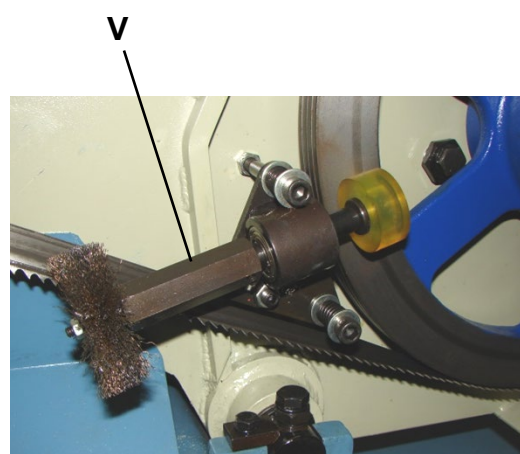


S



T

U



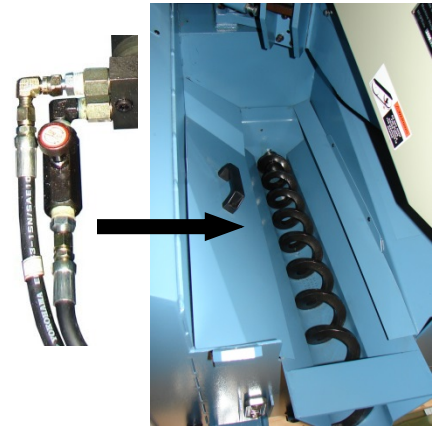
V



Chip Auger

The chip auger (P) is driven by a hydraulic motor. It is set to run automatically when the cutting cycle starts. To access a flow control valve for the hydraulic motor, lift off the cover.

⚠ WARNING: Keep hands and clothing clear of auger. It will run automatically.



Coolant Pump

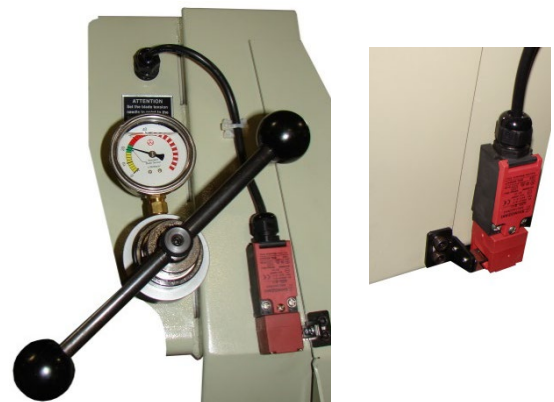
The coolant pump (Q) recirculates coolant to the blade at two locations. The amount of coolant to each is regulated with a flow control valve. The spray hose located to the left of the control console is used to flush chips and debris from the rest of the saw.



(Cover removed)

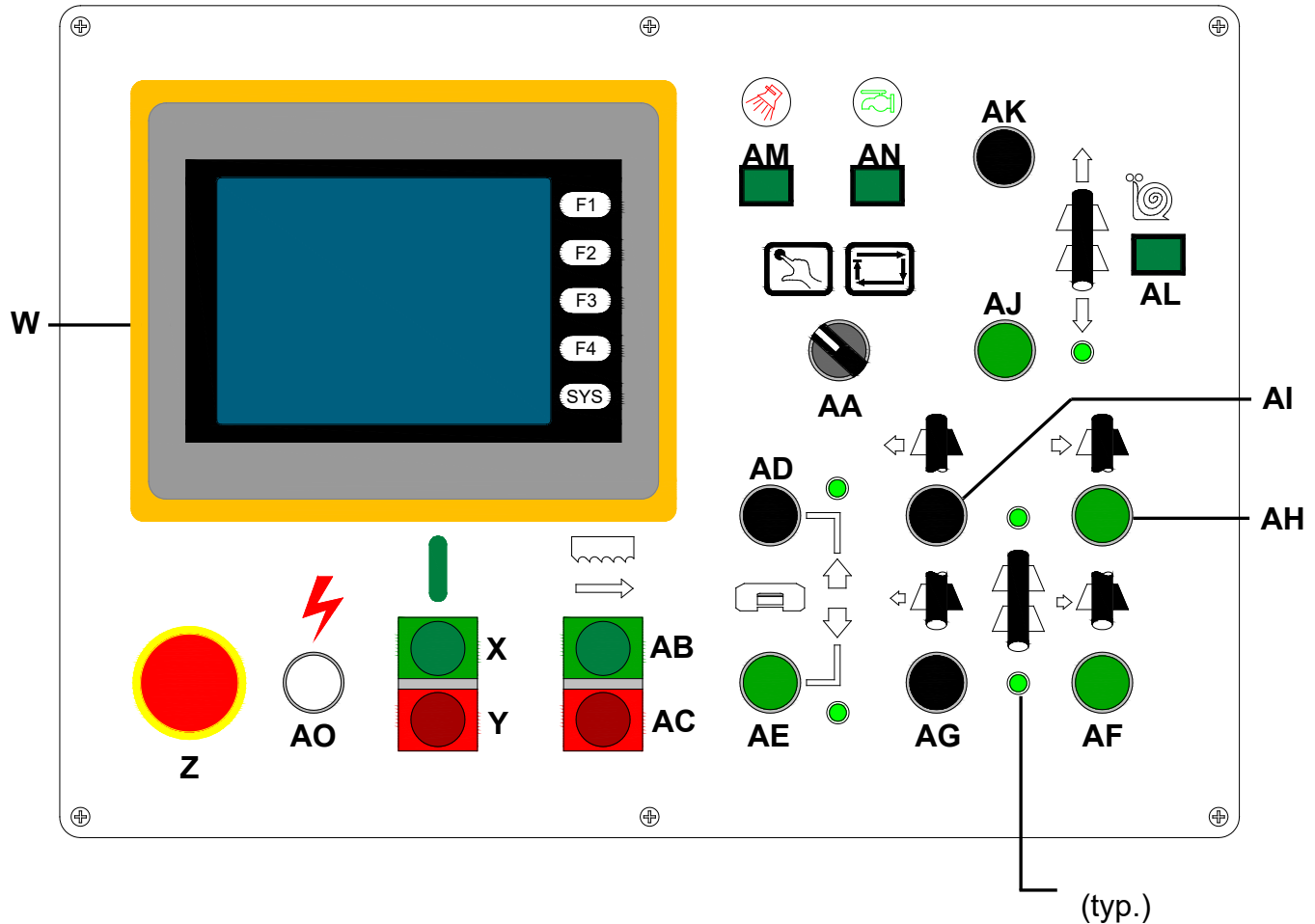
Blade Safety Interlock Switch

When either hinged access cover for the blade is opened, the switch tongue disengages the switch and the saw will not run.





Control Panel



* There are (5) small green indicator lights on the control panel. They correspond to the vise and bow UP or Down operation. One is for shuttle vise movement and the others indicate clamping of the vises. They will be lit when the piece part(s) are properly clamped in their respective vises or the shuttle vise has reached the forward limit position. The saw bow will not start the down stroke until the green clamping indicator lights are lit.



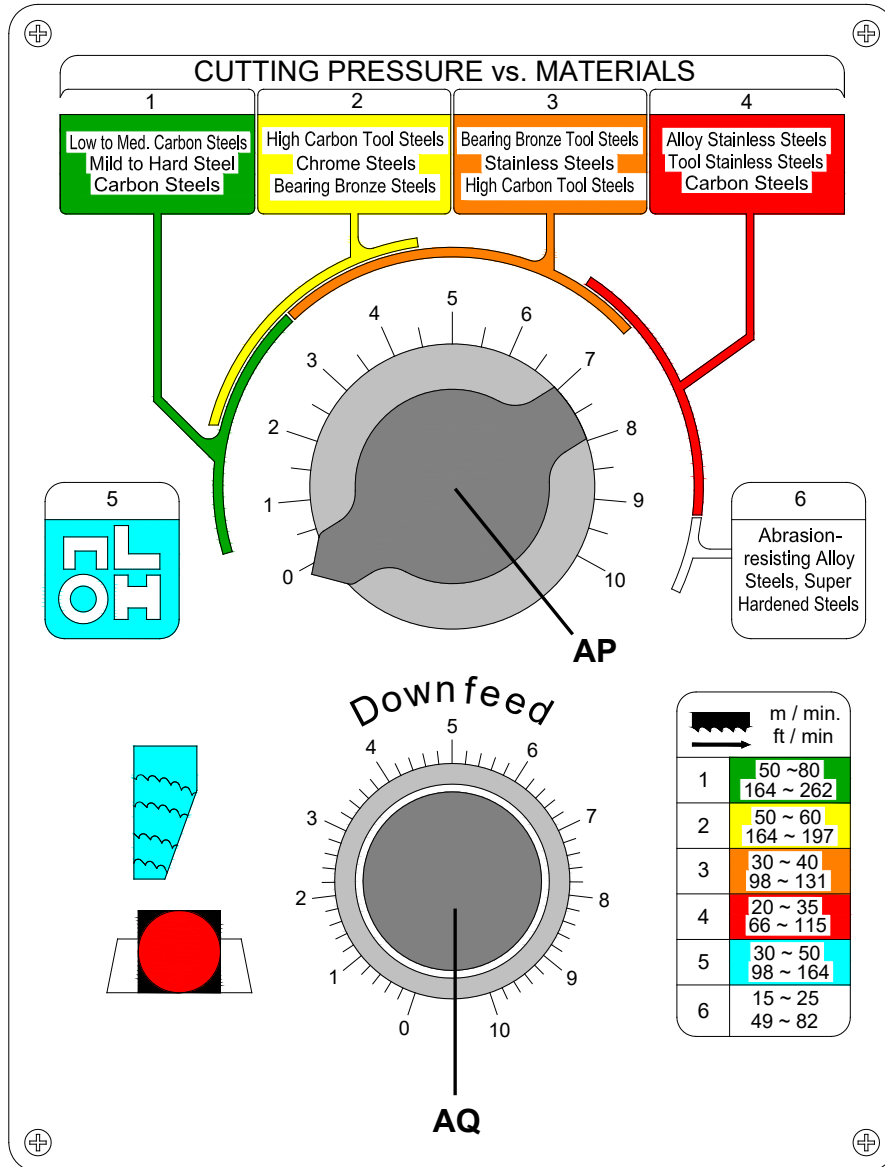
W	Human-Machine Interface (Touch screen)	Press the hydraulic start button X to start
X	Hydraulic Pump Start Switch	Press to start the pump, Indicator light will be lit.
Y	Hydraulic Pump Off Switch	Press to stop the pump, Indicator light will not be lit.
Z	Emergency Stop Button	Stops and resets the machine parameters, rotate the button (cw) to release.
AA	Auto / Manual Switch	This is an operation mode selector. Manual mode for single cut operations and Auto mode for multiple cutting cycles.
AB	Operation Start Button	Starts the cutting operation cycle.
AC	Operation Stop Button	Stops the cutting operation cycle.
AD	Bow Up Button and Stop Cycle Cutting	Press to raise the saw bow and stop the machine's operation without resetting.
AE	Bow Down Button	Press to lower the saw bow.
AF	Bench Vise Close Button	Press to approach or clamp the piece part.
AG	Bench Vise Open Button	Press and hold to adjust the widths to desired lengths. When saw bow is not at the safe height limit, the vise will open 0.20" (5mm) for every push of the button.
AH	Shuttle Vise Close Button	Press to approach or clamp the shuttle vise on the piece part.
AI	Shuttle Vise Open Button	Press and hold to adjust the widths to desired lengths. Opens one full length when saw bow is at the safe height. When saw bow is not at the safe height, the vise will open 0.20" (5mm) for every push of the button.
AJ	Shuttle Vise Forward Button	Press to advance the vise or piece part.
AK	Shuttle Vise Backward Button	Press to back-off the vise or piece part.
AL	Shuttle Vise Slow Motion in Manual Operation	Press button AJ to move feeding vise forward or button AK to move backward. Pressing the slow motion button AL will cause the feeding vise to move at slow speed and the light will be lit.
AM	Work Light Switch	Press to turn on the work lamp. The button light will be lit. Press again to turn off the lamp. The button light will not be lit.
AN	Coolant Switch	Press to start the coolant pump and begin coolant flow. The button light will be lit. Press again to stop the coolant pump.
AO	Power Indicator Light.	The power indicator light will be lit when the main power disconnect on the machines electrical enclosure is turned on.
AP	Cutting Pressure Knob	This control knob sets the rate of the cutting pressure for different materials



AQ

Bow Down Feed Knob

This control knob sets the down bow cutting feed rate.





Saw Bow

The saw bow consists of a variable speed drive motor, reducer, pulleys, saw blade, blade tensioning system, guide arms, blade guide blocks, material probe arm, and a halogen work light.

Machine Base

The machine base is the structure that supports the saw bow, the vise, the coolant pump, the hydraulic system, the rollers, and the feeding system.

The Vise System

The hydraulically driven vise system consists of a fixed vise and a shuttle vise. The shuttle vise is movable for extension of stock material and can be positioned to provide more support while clamping. Both jaws on the shuttle vise are driven with heavy duty hydraulic cylinders providing flexibility and security when clamping irregular stock. The vises also move vertically to secure stock for bundle cutting.

Shuttle Vise Encoder

An electrical rotary encoder (AS), via a gear rack attached to the shuttle vise, sends shuttle position information back to the PLC. This information is used to measure the material length as set on the touch screen interface. Any problem with the encoder will show up as a fault on the touch screen.

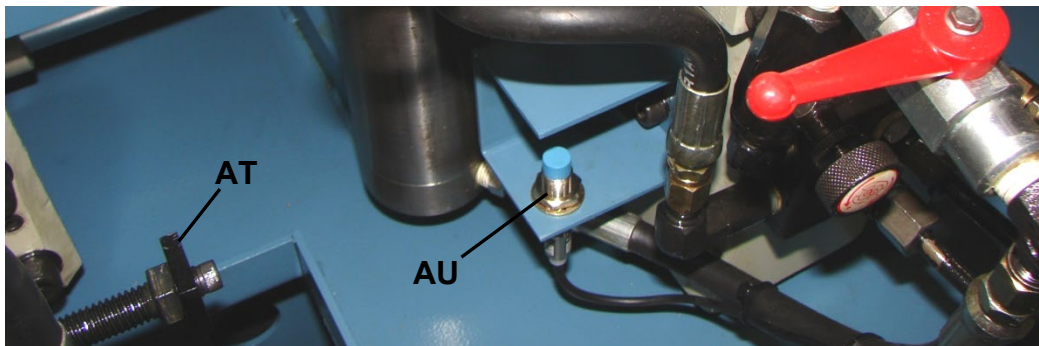


AS



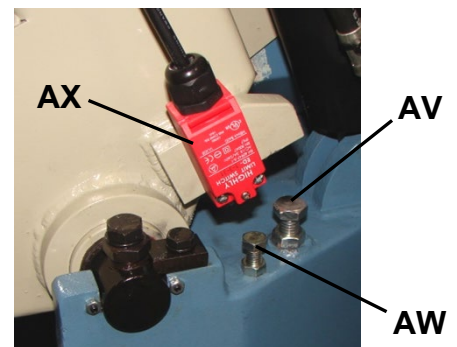
Shuttle Vise Forward Sensor

When the shuttle cylinder is retracted, the actuator (AT) on the shuttle vise will pass over the proximity sensor (AU). This is the zero position and the sensor will send a signal to the PLC for the next motion.



Down Bow Hard Stop and Limit Switch

With the saw bow down on the hard stop, the micro-switch will actuate, stopping the saw blade motor. To change the saw bow travel limit, loosen the jam nut, and screw the hex bolt (AV) in or out as needed. Adjust hex bolt (AV) so that micro-switch (AX) actuates and stops the blade.



Vertical Guide Roller

The vertical roller is located at the end of the inlet roller conveyor. It is used to guide material entering the shuttle vise.



Nesting Cylinder Stop Clamp

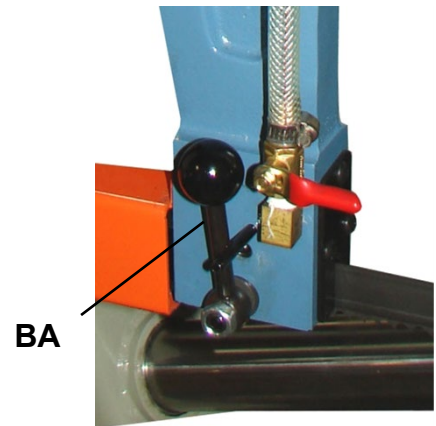
The stop clamp when in position as shown, keeps the nesting arm 1" (25.4mm) above the inlet roller table. Removing the clamp allows the nesting arm to rest on the roller table.





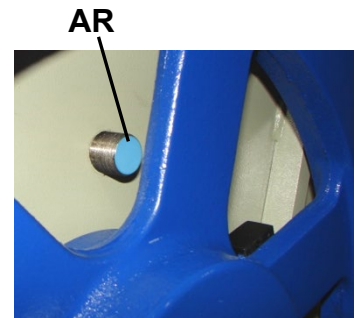
Blade Tension Handle

Turning the handle (BA) counterclockwise (ccw) releases tension of the carbide guides on the blade. The stop pin prevents the guides from being overtightened and pinching the blade.



Blade Broken Proximity Switch

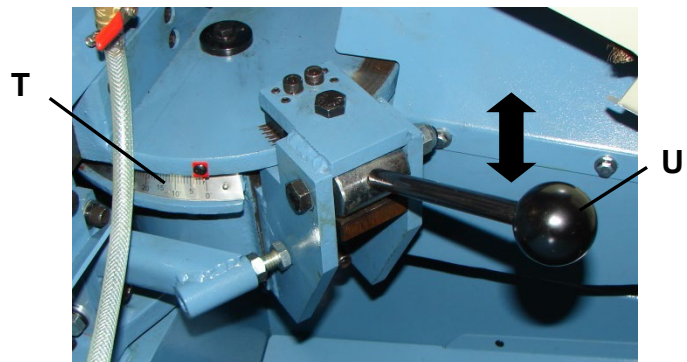
The saw comes equipped with an automatic power shut-off safety device to prevent damage when a blade has broken. The actuators on the idler pulley are detected by the proximity switch (AR) as the idler rotates. When the blade breaks or the tension is set too low, the idler does not turn and no signal is sent to the switch. This shows up as a fault on the touch screen interface.



Swivel Saw Head

Angles can be cut up to 45° (Right).

1. Unlock the rotating saw head by pulling up on the miter lock lever (U).
2. Rotate the saw head to the desired angle as shown on the angle indicator (T).
3. Lock the saw head by pushing the lock lever (U) down.



IMPORTANT: Check that the saw blade clears the vise table guide before cutting. The guide has slots to allow for adjustments.



ELECTRICAL



WARNING: Baileigh Industrial Holdings LLC is not responsible for any damage caused by wiring up to an alternative 3-phase power source other than direct 3-phase. If you are using an alternate power source, consult a certified electrician or contact Baileigh Industrial Holdings LLC prior to energizing the machine.



CAUTION: HAVE ELECTRICAL UTILITIES CONNECTED TO MACHINE BY A CERTIFIED ELECTRICIAN!

Check if the available power supply is the same as listed on the machine nameplate.



WARNING: Make sure the grounding wire (green) is properly connected to avoid electric shock. DO NOT switch the position of the green grounding wire if any electrical plug wires are switched during hookup.

Power Specifications

Your machine is wired for 220 volts, 60hz alternating current. Before connecting the machine to the power source, make sure the power source is OFF.

Before switching on the power, you must check the voltage and frequency of the power to see if they meet with the requirement, the allowed range for the voltage is $\pm 5\%$, and for the frequency is $\pm 1\%$.

Considerations

- Observe local electrical codes when connecting the machine.
- The circuit should be protected with a time delay fuse or circuit breaker with an amperage rating slightly higher than the full load current of machine.
- A separate electrical circuit should be used for your machines. Before connecting the motor to the power line, make sure the switch is in the "OFF" position and be sure that the electric current is of the same characteristics as indicated on the machine.
- All line connections should make good contact. Running on low voltage will damage the motor.
- In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This machine is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.



WARNING: In all cases, make certain the receptacle in question is properly grounded. If you are not sure, have a qualified electrician check the receptacle.

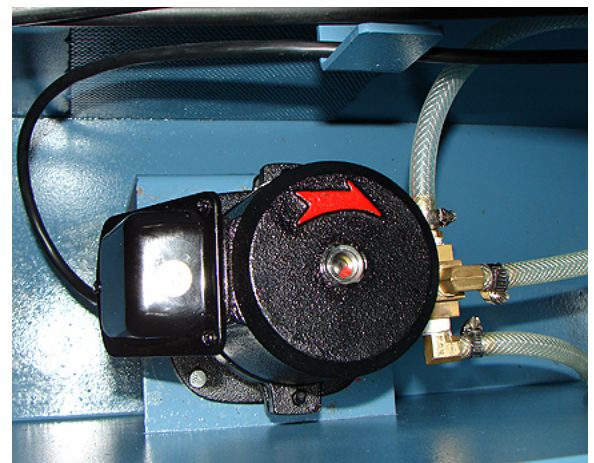
- Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
- Check with qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the machine is properly grounded.
- Repair or replace damaged or worn cord immediately.

Power cord connection:

1. Turn the main disconnect switch on the control panel to the OFF position.
2. Unwrap the power cord and route the cord away from the saw toward the power supply.
 - a. Route the power cord so that it will NOT become entangled in the saw bow, saw blade, or feed assembly in any way.
 - b. Route the cord to the power supply in a way that Does NOT create a trip hazard.
3. Connect the power cord to the power supply and check that the power cord has not been damaged during installation.
4. When the saw blade is clear of any obstruction and raised up off of the limit switch. The main disconnect may be turned ON to test the saw operation. Turn the main disconnect to OFF when the saw is not in operation.

Check for correct rotation of the motor

5. Close the electrical enclosure door.
6. With power connected and the main disconnect turned ON, the power light on the control panel will be lit.
7. Remove the cover to the coolant pump to be able to see the rotation of the coolant pump motor.
8. Start the coolant pump and verify that the motor rotates as indicated by the red arrow.
9. If not, disconnect power to the machine, and switch the L1 and L3 wires. DO NOT move the ground wire.





BEFORE EACH USE

- For dusty operations, wear a face shield along with safety goggles.
- It is important to choose the right blade for the material and the type of cutting you plan to do. This saw is equipped with a bi-metallic blade which can be used to cut stainless steel, steel, iron, brass, aluminum, wood, plastic.
- Make sure the direction of rotation arrow on the blade matches the direction arrow on the saw. The blade teeth should always point downward at the front of the saw.
- Make sure the blade is sharp, undamaged and properly aligned. With the saw unplugged, push the power-head all the way down. Rotate the blade by hand checking for clearance. If the blade hits anything, make the adjustments shown in the Maintaining Maximum Cutting Capacity section.
- Never cut freehand.
- Make sure the cut-off piece can move sideways after it is cut off. Otherwise, it could get wedged against the blade and thrown violently.
- Never turn the saw "ON" before clearing everything except the work piece beneath the blade.
- Never put lubricants on the blade while it is spinning.

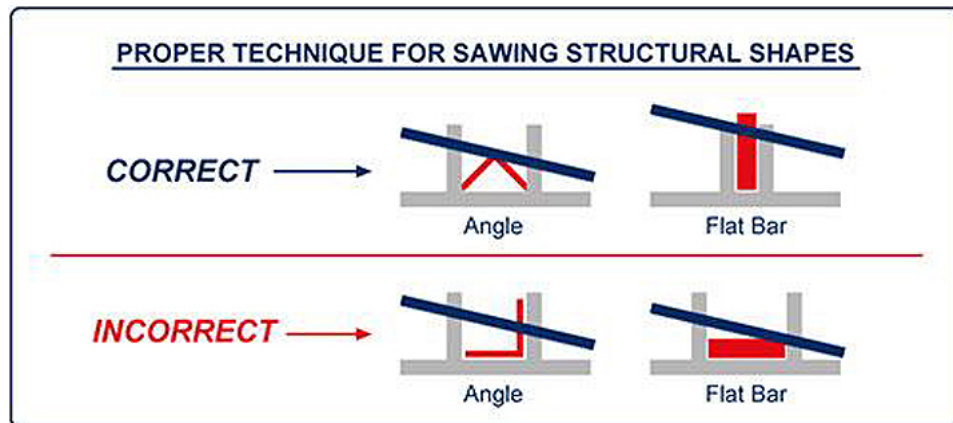
Whenever Saw is Running

- Never confine the piece being cut out.
- Never hold it, clamp it, touch it, or use length stops against it. It must be free to move sideways. If confined, it could get wedged against the blade and thrown violently.
- Avoid awkward hand positions where a sudden slip could cause a hand to move into the blade.
- Let the blade reach full speed before cutting.
- Feed the saw into the work piece only fast enough to let the blade cut without bogging down or binding.
- Before freeing jammed material, turn the switch off and unplug the saw. Wait for all moving parts to stop.
- After finishing a cut, keep holding the saw bow down, release the switch, and wait for all moving parts to stop before moving your hands.



Breaking in a Band Saw Blade

Sharp cutting edges with extremely small edge radii are required for high cutting capacity. To achieve the optimal tool life we recommend breaking-in the blade accordingly. The correct cutting speed is determined by the material being cut and its dimensions. It is very important that the new blade is first used with only 50% of the determined feed rate. This will avoid micro-breakages of the blade because of too large chip thicknesses. New band saw blades may tend toward vibrations and vibration sounds. In this case a slight reduction of the cutting speed is helpful. With small workpiece dimensions approximately 300cm² of the material should be cut for breaking-in. If large work piece dimensions are to be cut we recommend a breaking-in period of about 15 minutes. After breaking-in you may slowly increase the feed rate up to the determined value.



Metal Chip Indicators

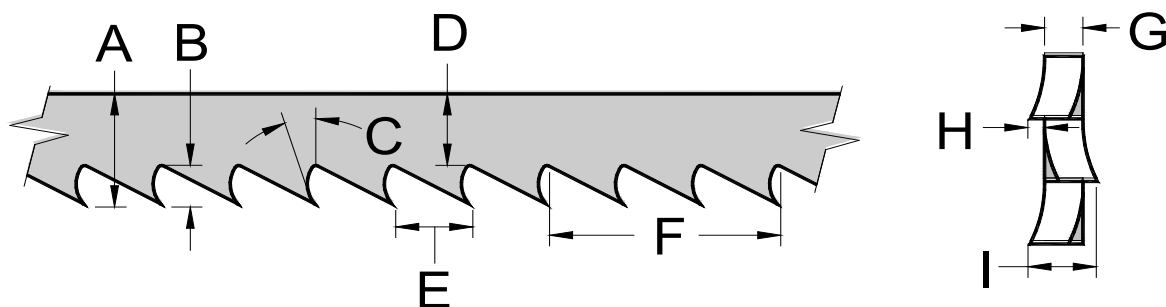
Chips are the best indicator of correct material feed force. Monitor chip information and adjust feed accordingly.

- Thin or Powdered Chips – increase feed rate or reduce saw speed
- Burned Chips – reduce feed rate and / or saw speed
- Curly Silvery and Warm Chips – optimum feed rate and saw speed

Baileigh Industrial offers a wide selection of tooth styles for various cutting applications. Please phone Baileigh Industrial at (920.684.4990) or fax to (920.684.3944) to have one of our technicians assist you in selecting the proper band saw blade for your cutting applications.



Blade Terminology



A	BLADE WIDTH	The widest part of the blade measured from the back edge of the blade to the tip of the tooth.
B	GULLET DEPTH	The distance from the tooth tip to the bottom of the curved area.
C	TOOTH RAKE	The angle of the tooth face from a line perpendicular to the length of the blade.
D	BLADE BACK	The distance between the back edge of the blade and the bottom of the gullet.
E	TOOTH PITCH	The distance between tooth tips.
F	TPI	The number of teeth per inch when measured from gullet to gullet.
G	GAUGE	The thickness of the blade.
H	TOOTH SET	The distance a tooth is bent from the blade.
I	KERF	The width of material that is removed by the blade when cutting.

Width of Blade

The blade width determines the largest and the smallest curve that can be cut. Usually the wider a blade is, the more accurate and straighter it will cut.

Length of Blade

The length of the band saw blade can be measured with a tape measure at it's circumference or by the formula below:

$$\text{Blade Length} = (2 \times A) + (3.14 \times B)$$

A = the distance in inches between the band saw pulley centers (when the upper pulley is midway in its adjustment range).

B = the band saw pulley diameter.



Blade structure

Bi-metal blades are the most commonly used. They consist of a silicon-steel blade backing by a laser welded high speed steel (HSS) cutting edge. The type of stocks are classified in M2, M42, M51 and differ from each other because of their major hardness due to the increasing percentage of Cobalt (Cc) and molybdenum (Mo) contained in the metal alloy.

Blade type

They differ essentially in their constructive characteristics, such as:

- Shape and cutting angle of tooth
- Pitch
- Set

Shape and angle of tooth

REGULAR TOOTH: 0° rake and constant pitch.



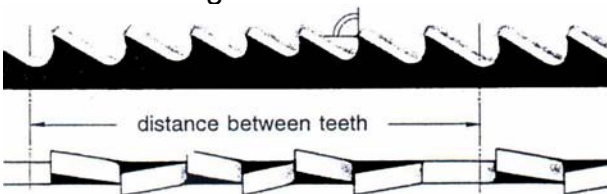
Most common form for transversal or inclined cutting of solid small and average cross-sections or pipes, in laminated mild steel and gray iron or general metal.

POSITIVE RAKE TOOTH: $9^\circ - 10^\circ$ positive rake and constant pitch.



Particular use for crosswise or inclined cuts in solid sections or large pipes, but above all harder materials (highly alloyed and stainless steels, special bronze and forge pig iron).

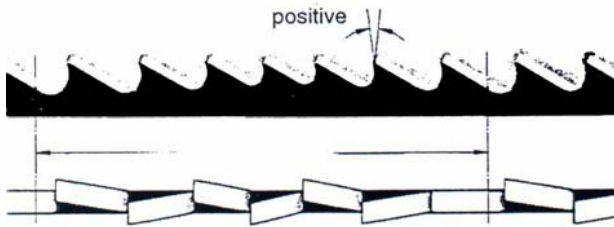
COMBO TOOTH: pitch varies between teeth and consequently varying teeth size and varying gullet depths. Pitch varies between teeth, which ensures a smoother, quieter cut and longer blade life owing to the lack of vibration.



Another advantage offered in the use of this type of blade in the fact that with an only blade it is possible to cut a wide range of different materials in size and type.



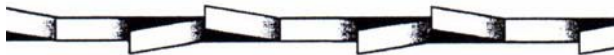
COMBO TOOTH: 9° - 10° positive rake.



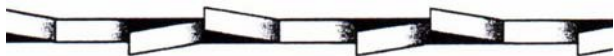
This type of blade is the most suitable for the cutting of section bars and large and thick pipes as well as for the cutting of solid bars at maximum machine capacity. Available pitches: 3-4/4-6.

SETS

Saw teeth bent out of the plane of the saw body, resulting in a wide cut in the workpiece.



REGULAR OR RAKER SET: Cutting teeth right and left, alternated by a straight tooth.



Of general use for materials with dimensions superior to 5 mm. Used for the cutting of steel, castings and hard nonferrous materials.

WAVY SET: Set in smooth waves.



This set is associated with very fine teeth and it is mainly used for the cutting of pipes and thin section bars (from 1 to 3 mm).

ALTERNATE SET (IN GROUPS): Groups of cutting teeth right and left, alternated by a straight tooth.



This set is associated with very fine teeth and it is used for extremely thin materials (less than 1mm).

ALTERNATE SET (INDIVIDUAL TEETH): Cutting teeth right and left.



This set is used for the cutting of nonferrous soft materials, plastics and wood.