ATRIA GT AND ATRIA 70 CUTTER

User Documentation

April 2023

Edition 3

1013269002

Copyright Notice

Copyright © 2006 – 2023 by Lectra SA and its affiliates, all rights reserved. This document may not be reproduced by any means, in whole or in part, without the written permission of the copyright owner. This document is part of the proprietary articles furnished to document the Atria™ cutter.

In consideration of the furnishing of the information contained in this document, the party to whom it is given assumes control and custody and agrees to the following:

- The information contained herein is given in confidence and any part thereof shall not be copied or reproduced without the written consent of Lectra SA and its affiliates.
- This document, or the contents herein, under no circumstances shall be used in the manufacture or reproduction of the articles shown, and the delivery shall not constitute any right or license to do so.

The information in this document is subject to change without notice. Lectra SA and its affiliates shall not be liable for errors in this documentation or for incidental or consequential damages in connection with furnishing, or use of this material including, for example, loss of profits, fabric, and production time.

GERBERcutter®, AccuMark®, and CutWorks® are registered trademarks of Lectra SA and its affiliates all rights reserved. Atria™ is a trademark of Lectra SA and its affiliates in the United States, all rights reserved. Other company names, brand names, and product names mentioned in this publication are trademarks or registered trademarks of their respective companies.

Table of Contents

Introduction **1**

Features **1**

Customer Support **2**

Safety Instructions **3**
- Safety Labels 3
- Warnings and Cautions 5
- Dangerous Procedures 6
- Equipment Training 6
- Do No Maintenance Alone 6
- Energized Circuits 6
- De-Energize Cutter before Maintenance and Inactivity 6
- Compressed Air 6
- Do Not Operate in an Explosive Atmosphere 6
- Moving Machinery 7
- Replacing Parts 7
- Laser Light 7
- Clothing 7
- Cutting Tools 7

Regulatory Compliance **8**

System Description **9**

Atria Advantages **11**
- Advanced Cutting Algorithms (SMART motion) 11
- Vacuum System 11
- Re-Sealer 11
- Redesigned Head 12
- Knife Sharpener 12
- Knife Sensors 12
- GERBERconnect 13
- Poly Guides 13

Hardware Overview **14**
- Main Power Switch 14
- Vacuum Breaker Switch 14
- Servo Enable Button 15
- Emergency Stop Switches and Safety Paddles 16

Cutter Head and Beam 18
Cutter User Interface Panel 19
Beam Operator Panel 19
Joystick 21
Pause Buttons 22
Conveyorized Take-Off Table (CTOT) 23
Plastic Film Dispenser 26
Material Jog Buttons 27
Lateral Drive Control 27
Automatic and Manual Modes 28

Operating the Atria 29
Basic Concepts 29
Data Preparation 29
Start Points 30
Lift and Plunge Points 31
Slow Down Codes 31
Buffer 31
Notches 31
Vacuum Hold Down 31
Material Characteristics 32
Nesting Considerations 32
Knife Sharpness 32
Sharpen Frequency 33
Knife Wear 33
Motion Control 34
Maximum Velocity 34
Slow Down Codes 34

Software Overview 35
Cutter Software Main Menu 35
Workflow Status Area 36
Display Window 36
Workflow Steps 36
Cutter Status 36
Utility Drawer 37
Control Buttons 37
Turning on Cutter and Logging In 37
Emergency Stop Switches and Safety Paddles 37
E-Stop Recovery Procedure 39
Pausing and Resuming a Job 40

Completing a Cut 41
Log in 41
Prepare Cutter 41
Prepare Job 43
Process JOB File 47
DisplayID 51
Knife Options and Tool Change 52

Appendix – Input File Formats 53

Appendix – Atria Part Numbers 54

Appendix – Specifications 55

Appendix – Patent Information 59

Appendix – Certificate of Conformity 60

Glossary 61

List of Figures

Figure 1: Safety labels 3
Figure 2: WEEE compliance 8
Figure 3: RoHS, CE, ETL compliance 8
Figure 4: Atria 10
Figure 5: Main Power and Vacuum Breaker switches 14
Figure 6: Servo Enable button 15
Figure 7: Emergency stop switch 16
Figure 8: Emergency stop safety paddles 17
Figure 9: Cutter head and beam 18
Figure 10: Cutter user interface panel 19
Figure 11: Beam operator panel 20
Figure 12: Beam operator panel onscreen controls 21
Figure 13: Pause button 22
Figure 14: Exhaust stack and power mast 24
Figure 15: Air regulators 25
Figure 16: Plastic film dispenser 26
Figure 17: Lateral drive control 27
Figure 18: Cutter software 35
Figure 19: E-Stop switch 38
Figure 20: E-Stop paddles 39
Figure 21: Prepare cutter indicator 41
Figure 22: Beam operator panel 42
Figure 23: User interface panel with open job button 43
Figure 24: User interface panel with a list of jobs 44
Figure 25: Quick job review 45
Figure 26: Valid origin position is green 46
Figure 27: Invalid origin position is red 46
Figure 28: Cut job 47
Figure 29: Stop button 48
Figure 30: Job status 48
Figure 31: Changing tools 52
Figure 32: Common part numbers 54
Figure 33: Atria GT specifications 55
Figure 34: 1.8 m Atria GT dimensions top view (mm [in.]) 56
Figure 35: 2.2 m Atria GT dimensions top view (mm [in.]) 56
Figure 36: Atria GT dimensions side view (mm [in.]) 57
Figure 37: 1.8 m Atria 70 dimensions top view (mm [in.]) 57
Figure 38: 2.2 m Atria 70 dimensions top view (mm [in.]) 58
Figure 39: Atria 70 dimensions side view (mm [in.]) 58
Figure 40: GERBERcutter patents 59

Figure 41: Standards Certificate.....60

Introduction

The Atria cutter is the next generation computer-controlled, automated cutting system and the optimal solution for multiply cutting of a wide range of challenging composite materials, upholstery fabrics and technical textiles.

Features

The Atria GERBERcutter is a premium flexible material cutting system that uses advanced software and electrical and mechanical designs to provide superb precision and productivity.

The Atria family has the following features:

- Standard (1.8 m) and wide (2.2 m) configurations available
- Cutter software to control operation of the machine and process job files from a queue
- CutWorks software to import and convert CAD data or cut files to job files for processing
- Reciprocating knife, optional drills and pen
- Electronic pressure regulation (EPR) assists to control tool pressures
- Energy efficient vacuum system
- Comprehensive reports to analyze system throughput, processing times, job statistics, and more
- Cutting speeds up to 0.67 m/s, 30.5 m/min. (20 ips)
- Accelerations up to 0.25 g (96 ips^2)

Customer Support

Please contact your local service office for assistance.

When calling, have the following information available for support:

Support phone number _____

Sales order number _____

Purchase date _____

Product model _____

Optional equipment used _____

Software (include version) _____

Equipment number _____

Provide a description of problems and the exact wording of any computer error messages.

Safety Instructions

Read and understand all safety instructions before operating the Atria to prevent personal injury, death, or equipment damage.

It is important to operate and service this machine in accordance with the user documentation, safety labels, safety instructions, and with strict adherence to all local, state, and country safety and health rules and regulations.

Safety Labels

These safety labels are located at various parts of the Atria, including the cutter head, beam, and electrical components.

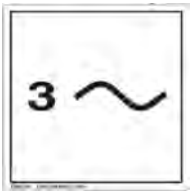
Symbol	Description
	Electrical ground to frame.
	Earth ground.
	Earth (ground) terminal.
	3-Phase power.

Figure 1: Safety labels

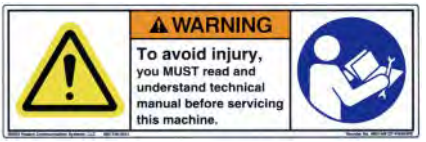
Symbol	Description
	Electrical shock potential.
	Friction hazard.
	Moving member.
	Warning: Avoid direct eye exposure with the laser light beam.
	Pinch point.
	Danger: Moving parts can crush and cut.
	Warning: To avoid injury, read and understand the user documentation before using this machine.

Figure 1: Safety labels (Continued)

Symbol	Description
	Warning: Read and understand user documentation before using this machine.
	Caution: Hot surface. Do not touch. (Vacuum exhaust and silencer surfaces may be hot.)

Figure 1: Safety labels (Continued)

Warnings and Cautions

Warnings and cautions precede some steps or procedures. Always follow these precautions to prevent personal injury or equipment damage.

- Warnings are put before procedures that could result in personal injury, death, or equipment damage.
- Cautions are put before procedures that could result in equipment damage.

Dangerous Procedures

Always follow warnings and cautions. Follow all other necessary safety instructions to ensure safe equipment operation in its operating location.

Equipment Training

Operate this machine only after approved training.

Do No Maintenance Alone

Do not perform equipment maintenance alone. Make sure another person is present who can administer emergency first aid.

Energized Circuits

High voltages are inside the vacuum enclosure, electric panel and electronics control box. There are no serviceable parts inside these covers.

Circuits must be de-energized before trained maintenance personnel can safely work inside these areas. There must be a main switch to de-energize each power supply that is compatible with local electrical codes.

De-Energize Cutter before Maintenance and Inactivity

CAUTION! This cutter has more than one connection to the supply source. To reduce the risk of electrical shock, disconnect all such connections before servicing.

Before performing maintenance and periods of inactivity, turn off both the Main Power switch and the Vacuum Breaker switch.

Compressed Air

Do not use compressed air to remove lint and dust from clothing or skin. Failure to comply could result in personal injury.

Do Not Operate in an Explosive Atmosphere

Use caution when handling flammable liquids such as cleaning solvents. Do not operate the cutter near flammable gases or fumes.

Moving Machinery

Keep hands away from all moving machine parts to prevent personal injury. Make sure no one else is near the machine during operation.

Replacing Parts

Notify a field service representative of any broken or missing parts. Do not use parts or modifications that are not approved by Lectra. Equipment damage or personal injury could result.

Laser Light

The laser light (origin light) points at the cutting surface. It is a Class IIIr laser product with a peak power of 5 mW at a wavelength of 670 nm. Use of controls, adjustments or performance of procedures not in this manual may result in hazardous radiation exposure.

WARNING! Do not look directly into the laser light source as temporary or permanent eye damage may result. Direct, bright reflections from the laser may also cause eye damage. Remove reflective material (such as jewelry and mirrors) from the conveyor surface before energizing the laser light.

Clothing

Do not wear loose clothing, neck chains, neckties, jewelry or long hair near the machine. Failure to comply could result in personal injury.

Cutting Tools

Use only Lectra-supplied cutting tools.

CAUTION! Be sure all tools are correctly installed on the equipment and properly mapped in the CutWorks and cutter software. Failure to do so may result in equipment or material damage.

Regulatory Compliance

All Lectra equipment is labeled as required by the Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC for products placed on the market after August 13, 2005. The WEEE Directive mandates the collection and treatment of electrical and electronic equipment at end of life. Refer to the Directive's specific regional requirements.



Figure 2: WEEE compliance

Atria has CE, ETL, and RoHS compliance.



Figure 3: RoHS, CE, ETL compliance

System Description

The Atria GERBERcutter system consists of a conveyorized cutter and operator controls.

Atria is designed to work with CAD and cut files from CutWorks and AccuMark. Atria includes CutWorks, which automatically converts cut data to the job file format used by Atria.

The components of the cutter are described in the Hardware Overview and the control software in the Software Overview.

ID	Component
①	Conveyorized take-off table (CTOT)
②	Emergency (E-Stop) stop switch
③	Pause buttons
④	Exhaust stack and power mast
⑤	Resealer
⑥	Cutter head and beam
⑦	Plastic film dispenser
⑧	Material jog button
⑨	Lateral drive connection
⑩	Joystick
⑪	Beam operator panel
⑫	Emergency stop safety paddle
⑬	User interface panel
⑭	Servo enable button

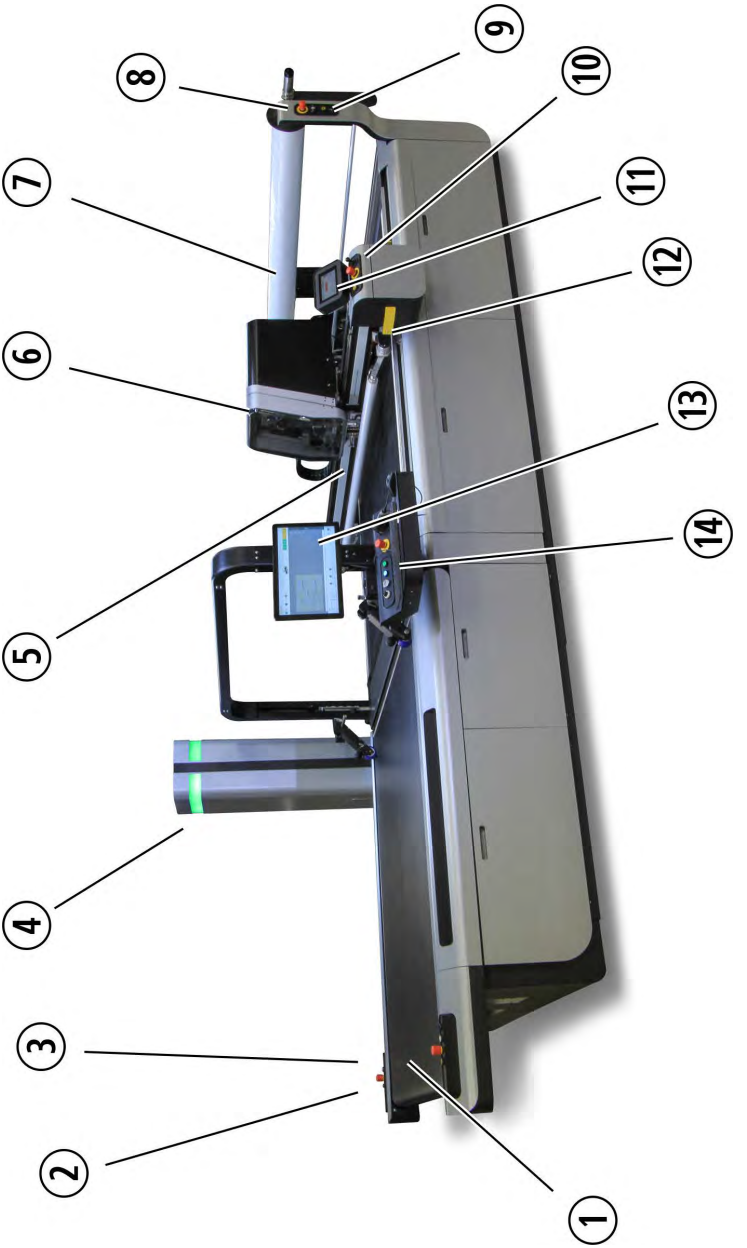


Figure 4: Atria

Atria Advantages

Atria has numerous advantages that help improve your workflow.

Advanced Cutting Algorithms (SMART motion)

Advanced cutting algorithms provide for smart acceleration and deceleration of the cutting head and beam. Controlling these factors enables optimal cutting speeds and throughput. It enables smooth transitions from stop to start, corners, adjacent part slow down, notches, and intricate geometry.

Controlling accelerations provides for a smoother operation that significantly decreases vibration on the machine and lessens wear and tear. Controlling these factors, lowers the noise of the cutter.

Vacuum System

Vacuum is key to cut part accuracy and throughput. Vacuum provides material stability. Stable material enables higher cut speeds and higher accuracy of cut parts.

Vacuum sustainability is the most important factor of vacuum. It does no good to have 6 mm Hg at the start of the cut, if it drops to 3 mm Hg during the bite.

Atria's vacuum system can hold vacuum 6 – 5.5 mm Hg in typical denim and knits. And, while most foam laminate materials used in automotive seating use ~4 mm Hg, that vacuum must be sustained even with open areas created by drill holes.

Atria’s vacuum can sustain the needed vacuum level throughout the entire bite, 24/7 in hot, humid, dusty, enclosed environments.

Re-Sealer

The re-sealer provides material stability and energy conservation. As the parts are being cut, the vacuum seal is broken by the cut lines. The vacuum motor must increase speed to maintain the vacuum level. This speed increase consumes significantly more electricity. The re-sealer covers the cut lines (re-seals) so that the vacuum level is sustained without the vacuum motor having to speed up as often or as high.

The re-sealer extends the life of the vacuum system by decreasing the workload of the vacuum motor and impeller.

Redesigned Head

The Atria has the knife motor mounted in a static position and drives the knife with a simple serpentine belt. The new design significantly reduces the vibration in the head and increases knife motor life. It also greatly reduces the noise coming from the head.

The head design increases the stiffness of the knife drivetrain, which contributes to maintaining cut part accuracy over time. It also improves reliability of the cutting head itself.

Additionally, the Atria head features cooling fans that help keep the amps and motors cool, thus extending the life of the components under the head cover.

Knife Sharpener

The Atria knife sharpener is a completely new design with an absolute focus on increasing the knife sharpness, keeping a straight edge, extending the knife life, and lowering maintenance associated with the sharpening system.

The knife is sharpened with two parallel barrel stones that engage at high speed in a linear motion. This results in an extremely sharp hollow-ground knife with a superb straight edge from top to bottom of the knife. The sharpening cycle is quick, and the knife stays sharper longer.

Additionally, sharpener stones are designed to be self-cleaning. When they do need cleaning, they can quickly be removed and replaced in seconds and without tools or removing the head cover. The sharpener design provides for less maintenance and more uptime for cutting.

Knife Sensors

The new knife edge sensor adds to the power of Knife Intelligence (KI). As the knife is sharpened, the edge of the knife moves back, and the knife gets smaller as it is sharpened. Traditionally the operator had to make adjustments on the fly to account for a smaller knife. If they did not, the part accuracy of parts cut later in the day with a worn knife, were not as good as parts cut earlier in the day with a new knife.

The knife edge sensor measures the knife on each sharpen cycle. The measurement is instantly sent to the cutter software so that the controls system knows where the knife edge is. This change is fed to the smart motion algorithms so that the cut data is adjusted for the actual knife edge location instantly, affecting and resulting in highly accurate cut parts.

GERBERconnect

GERBERconnect is a powerful software solution to remotely and securely gather data off the cutter. This data can be remotely analyzed to provide insight into machine and operator efficiency. Health data and cutter error messages are captured. This data can be used by Lectra service to help diagnose the cutter remotely and assist with application issues. Machine use information can be used to help identify when the cutter is available, when it was cutting, and when it was sitting idle. The data can help to identify the number of hours the machine has run and when preventive maintenance should be scheduled.

Poly Guides

Poly guides help to eliminate poly overlay from getting caught under the take-off fingers, which increases overall throughput of the cutter.

Poly-overlay getting jammed into the take-off fingers causes damage to the fingers and the bristle. This damage is compounded after each incident, increasing the likelihood that it will happen again. So, poly guides extend the life of the bristle and take-off fingers.

Hardware Overview

This section describes the major parts of the Atria GERBERcutter hardware.

Main Power Switch

The Main Power switch is on the exhaust stack. This switch controls power to the cutter and the computer that runs the software.

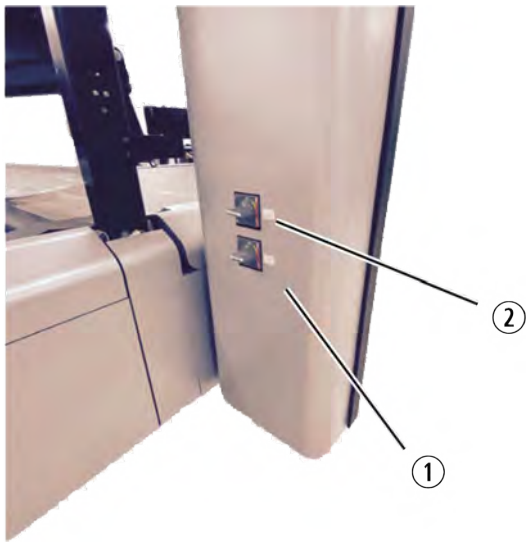


Figure 5: Main Power and Vacuum Breaker switches

ID	Component
①	Vacuum breaker switch
②	Main power switch

Vacuum Breaker Switch

The Vacuum Breaker switch is on the exhaust stack. It turns on the high voltage power for the cutter's vacuum system. The vacuum system provides vacuum to the conveyorized table surface.

Servo Enable Button

The Servo Enable button activates the servo components that move the beam, cutter head and cutting tools.

Note: On the cutter user interface panel, a blinking green light on the image of the cutter indicates that servos are not enabled.

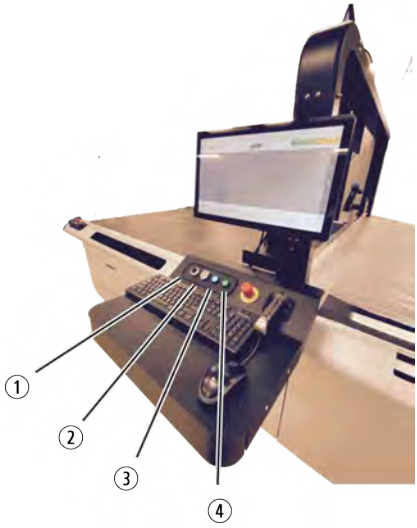


Figure 6: Servo Enable button

ID	Component
①	Vortec coolant switch,
②	USB port
③	UPS status light ♦ Green: Machine has power and the 24 VDC input to the UPS is operating ♦ Red: UPS alarm ♦ Blue: Battery mode enabled
④	Servo power switch

Emergency Stop Switches and Safety Paddles

The cutter has seven red emergency stop (E-Stop) switches and four yellow E-Stop safety paddles. They are used to immediately shut down the cutter when there is danger to people, the cutter, or the cut material.

An emergency stop shuts down all motors and tools. It stops all motion, including the conveyor, cutter head and beam. The software keeps running and data is saved. The screen shows the location of the E-Stop that was activated.

To resume, the operator must follow the E-Stop recovery procedure.

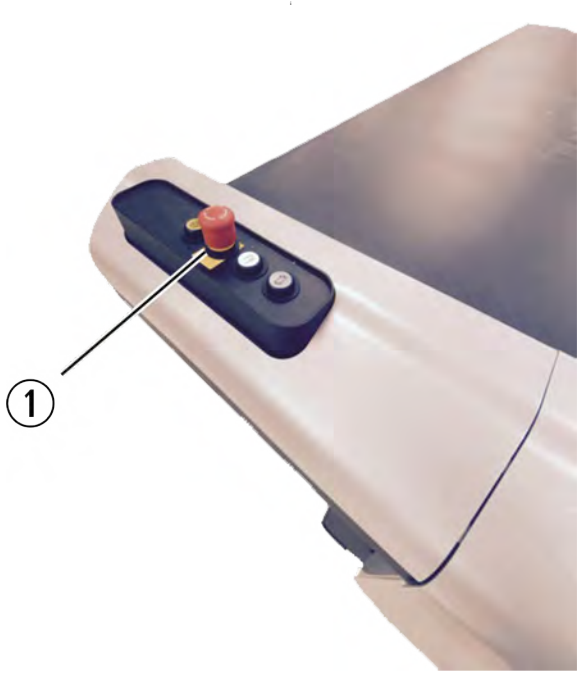


Figure 7: Emergency stop switch

ID	Component
①	E-Stop switch

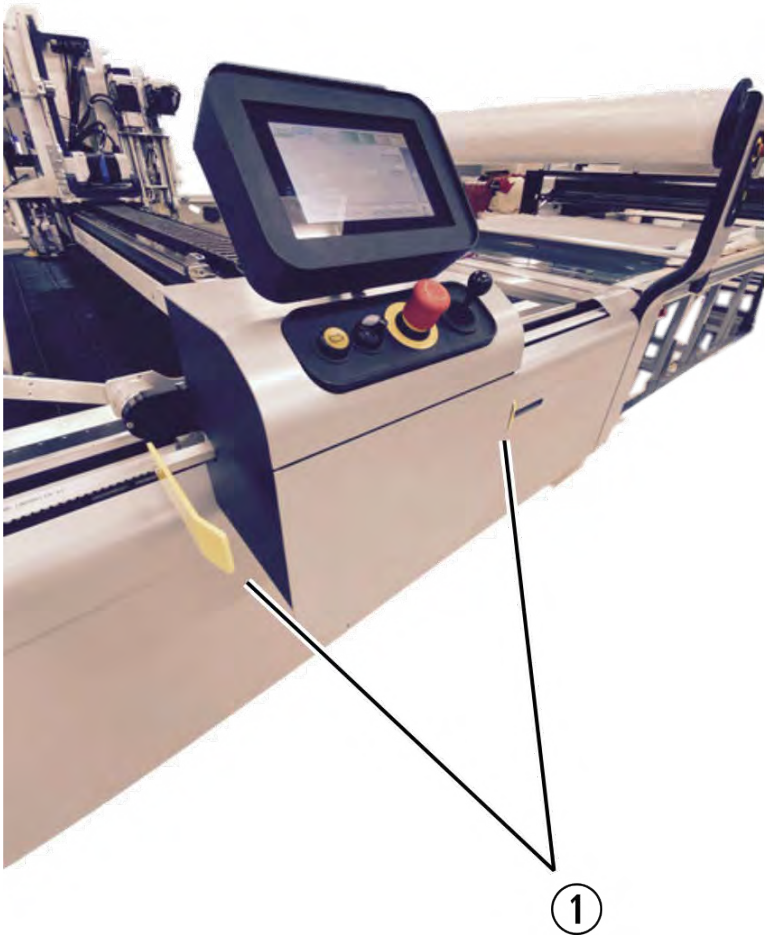


Figure 8: Emergency stop safety paddles

ID	Component
①	E-Stop paddles

Cutter Head and Beam

The cutter head moves along the width of the cutting table on the beam. The cutter head and beam are controlled by the cutter software. The cutter head carries the tools (knife and drill) and laser light.

The beam has E-Stop safety paddles and E-Stop switches at each end.



Figure 9: Cutter head and beam

Cutter User Interface Panel

This panel gives the operator access to the cutter software. This is the main software that controls the cutter, holds the job files and stores data about jobs, materials, etc.



Figure 10: Cutter user interface panel

Beam Operator Panel

The beam operator panel is located on the beam. It includes a computer screen, the joystick and several other controls. The screen allows the operator to access functions of the software that directly interact with the cutter.

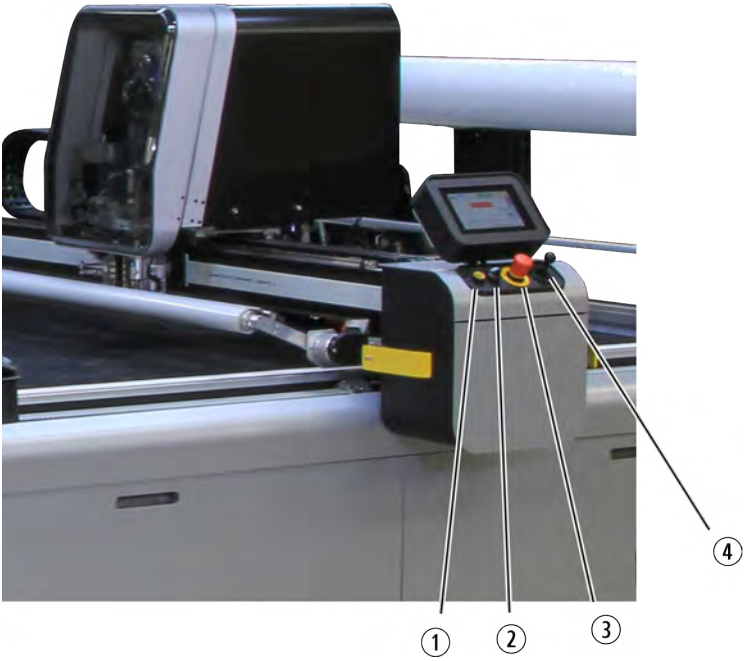


Figure 11: Beam operator panel

ID	Component
①	Slew enable
②	Knife switch
③	E-Stop switch
④	Joystick.

Use the beam operator panel to:

- View information about the status of the cutter
- Start or stop processing a job file
- Perform calibrations

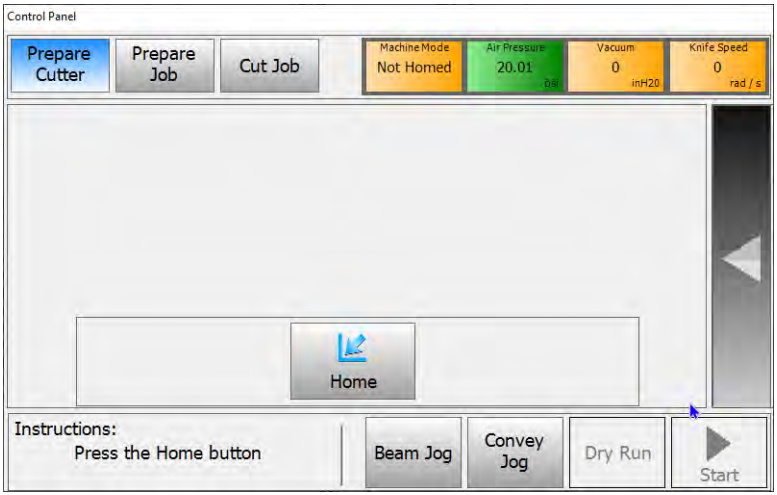


Figure 12: Beam operator panel onscreen controls

The panel includes onscreen controls that let the operator:

- Home the cutter
- Jog the head or conveyor
- Initiate a dry run
- Pause or start the cutter

Joystick

The joystick is mounted on the cutter near the beam operator panel.

When the system is in manual mode, the joystick allows the operator to move the cutter head and beam and to jog the conveyor.

Pause Buttons

Four yellow Pause buttons are on the four corners of the cutter. Pushing a Pause button stops cut processing after the current cut segment is complete. The vacuum and cutter software remain running.

Note: The Pause button does not immediately stop the cutting operation. In case of an emergency, the E-Stop should be used to immediately stop all motion.

The Pause switch is a latched switch. As long as it is selected, cutting cannot start. The switch must be pressed again to release the switch before pressing the start button to continue cutting.

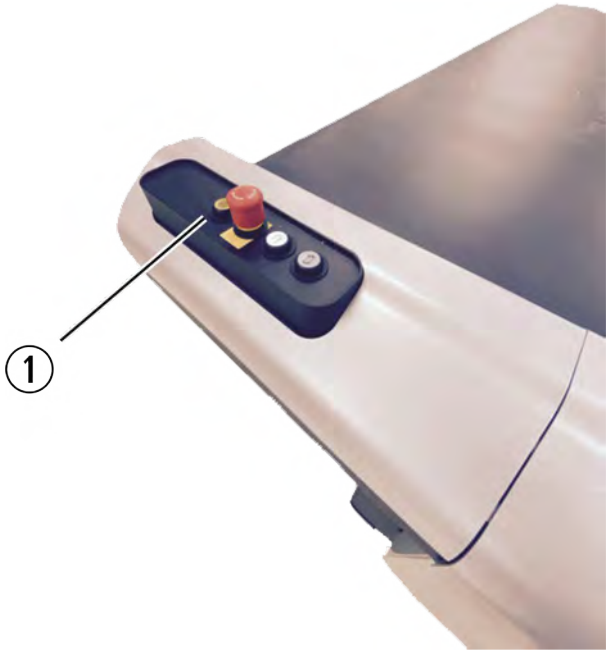


Figure 13: Pause button

ID	Component
①	Pause button

Conveyorized Take-Off Table (CTOT)

Cut parts automatically move off the cutting table to the conveyorized take-off table (CTOT). Cut parts should be removed from the CTOT when cutting is complete.

Exhaust Stack and Power Mast

The exhaust stack vents the vacuum air away from the cutter. It includes a replaceable filter that requires inspection and maintenance. The power mast is a tower that holds power cables and air hoses.

The flashing light on the power mast flashes and the cutter beeps before the cutter starts moving.

Note: The GERERcutter software lets you program the lights to display in the same way as previous cutters, where a red light indicates an error and an amber flashing light indicates a beam move or when a home sequence or job file is started.

Power mast lights indicate the following:

- The green light indicates normal operating condition. It flashes and the cutter beeps before the cutter starts moving. While the beam is moving, the green light is solid green.
- A yellow light indicates an error.
- A flashing red light indicates a potentially hazardous condition, such as when the lateral drive is activated and the cutter is moving laterally.
- Blue: Operator action required
- White: Power on

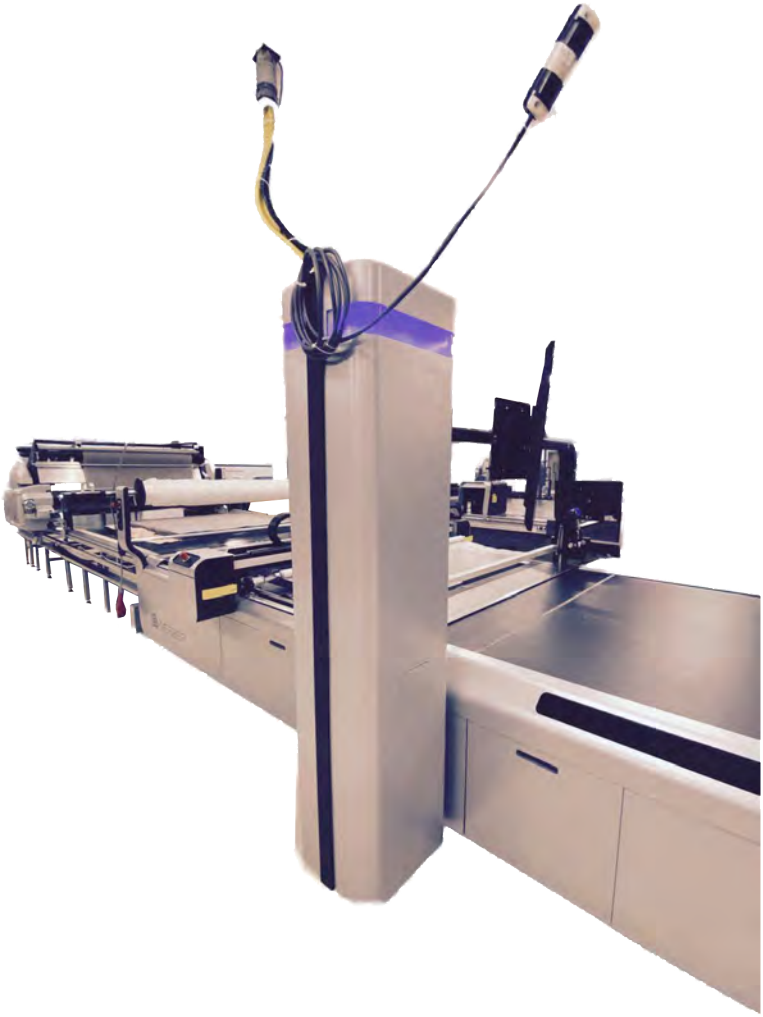


Figure 14: Exhaust stack and power mast



Figure 15: Air regulators

Plastic Film Dispenser

The plastic film dispenser holds a roll of plastic film that is placed on top of the material before cutting to ensure an even vacuum.

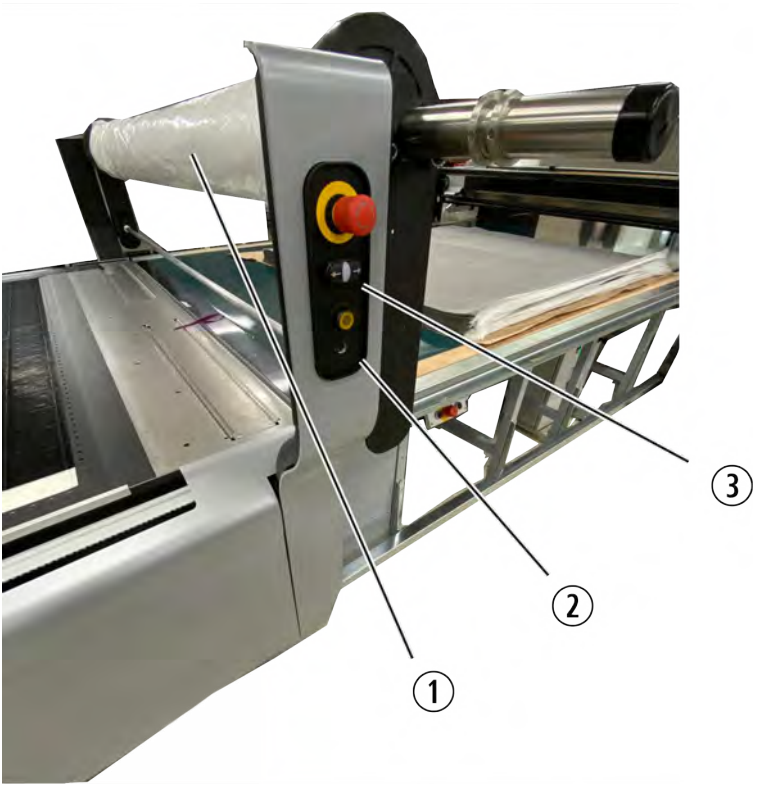


Figure 16: Plastic film dispenser

ID	Component
①	Plastic film dispenser
②	Lateral drive control connector
③	Material jog button

Note: .

Material Jog Buttons

The Material Jog buttons are used to advance the conveyor and move the material on the conveyor surface.

Lateral Drive Control

The lateral drive control is used to move the cutter on rails from one spreading table to another.

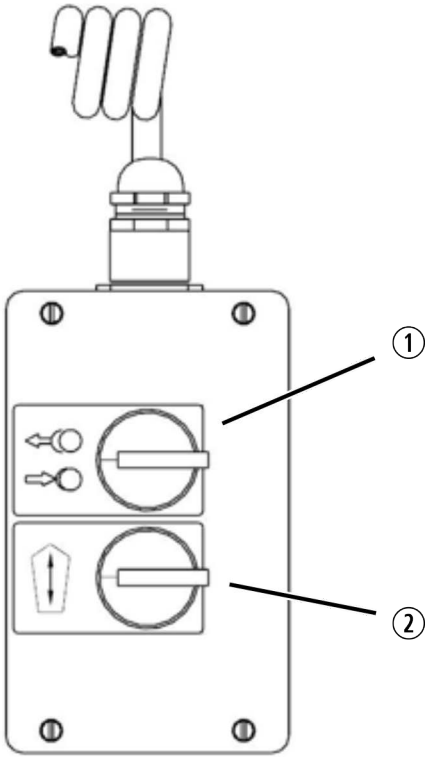


Figure 17: Lateral drive control

ID	Component
①	Brake switch
②	Forward/reverse switch

Automatic and Manual Modes

The Atria functions in two modes: automatic mode and manual mode.

- Automatic mode is the default mode when the system is processing Job files.
- Manual mode allows the operator to manually control hardware functions, such as moving the cutter head, beam, and conveyor. When the cutter is in manual mode and the head Jog button is pressed, the laser light is visible on the cutter table.

When in manual mode, the operator can move, or jog, the conveyor to position material on the table.

1) At the beam operator panel, press and hold the **Convey Jog** button.
2) Move the joystick in the desired direction.

Operating the Atria

Basic Concepts

The Atria is a computer controlled, multi-ply cutting system. The cutter software controls the cutting system and runs job files. Computer Aided Design (CAD) software, such as AccuMark and CutWorks, allow parameters to be changed to accommodate differences in patterns, materials and manufacturing.

Effective automated cutting depends on four key concepts:

- Data preparation
- Vacuum hold down
- Knife sharpness
- Motion control

This section discusses each of these concepts in more detail and gives tips for effective cutting.

The cutter software includes wizards that help customers implement best practices. Wizards possess a collection of information that let the operator deal with challenging materials and situations automatically, because the wizard is based on the knowledge and experience of Lectra experts. Furthermore, when customers make their own adjustments to settings for a particular job or material, these can be stored for future use.

Your Lectra representative can point you to more advanced training on wizards and material files.

Data Preparation

The Atria GERBERcutter follows cutting instructions originating from CAD software, such as the AccuMark system. Data from many other sources can also be converted into job files in CutWorks. The cutter software uses its knowledge and reference based interface to guide users through the cutting process to apply the practices that are intuitive in manual cutting.

Properly defined CAD data is essential for optimal system performance and cut accuracy. Following are examples of parameters in CAD data that can have a major effect on throughput and quality.

Note: Use as few grade and intermediate points as possible. Using too many data points can slow the cutter and may negatively affect curve smoothness.

Start Points

Piece data may include alternate start points. This allows Lectra software to optimize cutting by minimizing the dry haul between pieces. If there are no alternate start points assigned, the cutter typically starts cutting at the first digitized point of the piece.

Tip: If possible, don't assign a start point on a curve. If cutting begins on a curve, the part may not be cleanly cut or could be distorted at the start or end point.

Starting and ending on an acute corner gives better results than cutting through that corner.

Lift and Plunge Points

These points control how the cutter software cuts a corner. Most corners can be cut with the knife continuously in the material. For corners where accuracy is critical, the knife can be lifted out of the material, turned to the next heading and plunged into the material to complete the corner.

Slow Down Codes

Use the Lectra CAD system to assign slowdown codes to parts or to sections of a part as needed. For example, small parts can often be cut more accurately when cut more slowly. Cut direction affects accuracy as well. Bi-directional cutting can improve the symmetry of mirrored parts.

Buffer

The amount of buffer space between parts depends on the material being cut and industry practices. Lectra CAD systems allow selective buffering, so the operator can fine-tune places where more or less buffer is needed.

Notches

Notch enhancement on the Atria improves the appearance of v-notches regardless of the dimensions.

Ask your Lectra representative for further information on how data preparation can improve quality, material utilization and overall throughput.

Vacuum Hold Down

The Atria vacuum system is designed to accommodate most common materials. The vacuum system compresses and stabilizes material and is critical to performance and accuracy. The Vacuum Energy Regulation and Bite Under Vacuum options can provide concise control over the amount of vacuum applied to material during critical cutting and biting operations, resulting in energy savings for multi-ply cutting.

The hold down capability of the Atria is much more than a pressure level on a gauge. It is affected by the characteristics of the material, knife sharpness and speed.

Material Characteristics

A porous material such as woven cotton is easier to hold down than a non-porous material such as vinyl. More plies also may require more vacuum.

On the other hand, highly compressible materials, such as foam, may require reduced vacuum to prevent distortion.

Nesting Considerations

The size and shape of a part also affects hold down. Large rectangular parts are easier to hold down than small narrow parts. A good practice is to define the cut sequence to cut small parts before the larger, adjacent parts.

Tip: Using the optional active resealer greatly minimizes vacuum loss to improve material stability.

Slowing down when cutting smaller parts also helps ensure a good quality cut.

The Cut Quality wizards can make automatic adjustments to key parameters that affect cutting to guide users through any cutting task.

Ask your Lectra representative for assistance with optimizing performance for specific material types.

Knife Sharpness

Knife sharpness is key to cutting performance and accuracy. The sharpness determines how well the knife travels through material. A dull knife can push material and cause inaccuracies.

Some materials require the knife to be sharpened more frequently. The cutter software allows a great deal of flexibility in controlling how frequently the knife is sharpened.

Sharpen Frequency

The parameter for Sharpen Frequency controls the distance the knife cuts before automatic sharpening is performed. The value can be made lower or higher to sharpen the knife more or less frequently. Increasing the value (distance) decreases the number of times the knife is lifted to do the sharpening.

By default, sharpening is performed when the set Sharpen Frequency is reached. The Sharpen Only When Knife Is Up parameter minimizes interruptions by extending the cut distance between sharpens until the knife is lifted to move to another piece.

The Sharpen Every *n* Pieces parameter controls sharpening based upon cutting a determined number of parts, which may work well if parts are approximately the same size.

Knife Wear

Although the cutter software monitors knife wear, a knife inspection is recommended at the start of each shift to determine the condition of the knife.

Ask your Lectra representative whether a carbide knife (which does not require sharpening) is suitable for your application.

Motion Control

Motion control refers to the movement of the cutting tool through the material, along with the speed of the cutter head, beam and tools. To optimize performance of the Atria, material and type of manufacturing must be considered.

Maximum Velocity

The velocity of the cutting head may impact cut performance. The velocity parameters control the maximum velocity. The cutter software ensures that the speed of the cutting tool does not exceed this value. During actual cutting, the cutting tool may not reach maximum velocity, depending on the Maximum Cut Acceleration parameter, and the shape and size of the parts.

Tip: *Maximum Cut Velocity may have little or no effect on throughput depending on the complexity of the cut parts. Look to Maximum Cut Acceleration for a big impact to cut quality and stability.*

Slow Down Codes

Add slowdown codes to certain parts or to specific sections of a part as needed. Examples are small parts or parts where accuracy is essential.

Cut direction affects accuracy as well. Bi-directional cutting can improve the symmetry of mirrored parts.

Tip: *Lower ply heights, slower velocity, and slower acceleration help ensure quality and throughput. First establish quality, and then optimize throughput.*

Fusing can be a challenge with certain materials. Use the Cut Quality wizard for assistance.

Software Overview

This section provides an overview of the cutter software.

Cutter Software Main Menu

Operation and maintenance for the Atria is handled by cutter software. This section describes the major parts of the software.

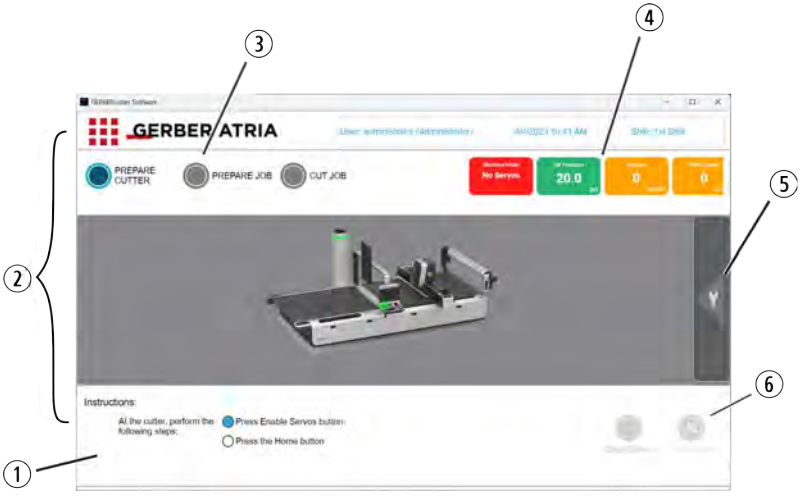


Figure 18: Cutter software

ID	Component
①	Workflow status
②	Display window
③	Workflow steps
④	Cutter status
⑤	Utility Drawer
⑥	Control buttons

Workflow Status Area

Information about the current task shows below the display window. Read the instructions here before performing tasks on the cutter.

Display Window

Depending on the current task, this window displays either a 3D diagram of the cutter or a view of the job as it is processing. The image of the 3D cutter uses animation to show current system status, such as a flashing green light when servos are not enabled.

Workflow Steps

The workflow instructions direct the operator through the required steps for cutter operation. These display both in the cutter software and on the beam operator panel. These instructions are:

- Prepare Cutter
- Prepare Job
- Cut Job

Colors are used this way:

- Green indicates the task has been completed.
- Blue is the next task for the operator to do.
- Gray is a future task.

Cutter Status

The cutter status tells you the operational state of the cutter. These include:

Machine mode, which indicates no servos enabled, manual, and automatic mode.

- Air pressure
- Vacuum
- Knife speed

Colors are used to indicate status at a glance. Colors include:

- Green – Status is good
- Yellow – A warning that there is something for you to look at or consider
- Red – An error condition requires your attention

Utility Drawer

The Utility Drawer gives access to tools that let the user monitor or change preset cutter functions. These include diagnostics, configuration and system administrator functions.

Control Buttons

The red Stop Cutter button and the yellow Cancel Jobs button are used to stop the cutter or cancel the job in progress.

Turning on Cutter and Logging In

To log in:

1) At the exhaust stack, set the **Main Power** switch to on.
2) Set the **Vacuum Breaker** switch to on.
3) Start the cutter software by selecting the software icon from the user interface panel.
4) Log in by entering your username and password. The Main Menu screen displays after a successful login.

Emergency Stop Switches and Safety Paddles

In case of an emergency, where there is possible danger to people, the cutter or the cut material, press one of the red E-Stop switches or yellow E-Stop safety paddles. All motors and tools are shut down. All motion stops. The computer remains on and data is saved.

To resume, follow the E-Stop recovery procedure.

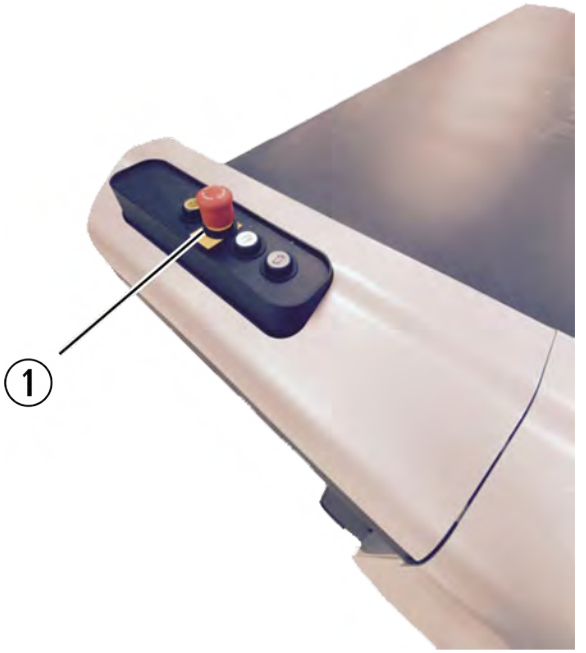


Figure 19: E-Stop switch

ID	Component
①	E-Stop



Figure 20: E-Stop paddles

ID	Component
①	E-Stop paddles

E-Stop Recovery Procedure

The user interface panel shows the location of the E-Stop that was activated. To recover from an E-Stop:

- If an E-Stop switch was pressed, twist and release that switch.
- If an E-Stop safety paddle was pushed, reset the paddle to its original position.
- At the cutter, push the **Servo Enable** button.

To restart the job file that was processing before the E-Stop:

1) Ensure that the material is ready to be cut.

2) At the beam operator panel, choose **Start**.

Pausing and Resuming a Job

A Pause means that processing stops after the current cut segment is finished. There are two ways to pause a job.

Using the yellow Pause buttons on the four corners of the cutter:

- Push one of the four yellow **Pause** buttons.
- The vacuum and cutter software remain running. The user interface panel shows a blinking yellow light to indicate the Pause button that was pushed.
- To resume, the operator must press the same **Pause** button again, to release it. Cutting does not begin until you press the **Start** button on the control panel.

Using the beam operator panel:

- While the cutter is running a job in automatic mode, the beam operator panel displays a large red Stop button.
- Choose the **Stop** button from the beam operator panel.
- To resume, choose the **Start** button from the beam operator panel.

Completing a Cut

This section gives step-by-step instructions to complete a cut using the Atria GERBERcutter.

WARNING! Read the safety instructions before operating the cutter. Gerber

The three main stages of workflow on the Atria cutter are:

- Prepare Cutter
- Prepare Job
- Cut Job

The operator can follow the workflow in the dashboard area of the user interface panel. When the requirements for one stage are completed, the indicator for that stage turns green. The indicator for the next stage turns blue.

To complete one of the sample job files provided, use a piece of fabric or paper at least 1.3 m x 1.3 m (54 x 54 in).

Log in

Log into the cutter. You need a username and password.

1) Select a username from the dropdown list.
2) Type the password for your username.
3) Select **Enter**.

Prepare Cutter

To prepare the cutter:

1) Clear the cutter table of all obstacles.

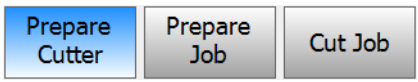


Figure 21: Prepare cutter indicator

2) If needed, clear any E-Stops.

3) Push the **Servo Enable** button.

   The location of the button is shown by a green flashing light on the image of the cutter displayed on the user interface panel.

4) At the beam operator panel, choose **Home**.

   The green light flashes on the power mast, the beep sounds, and the machine starts to move.

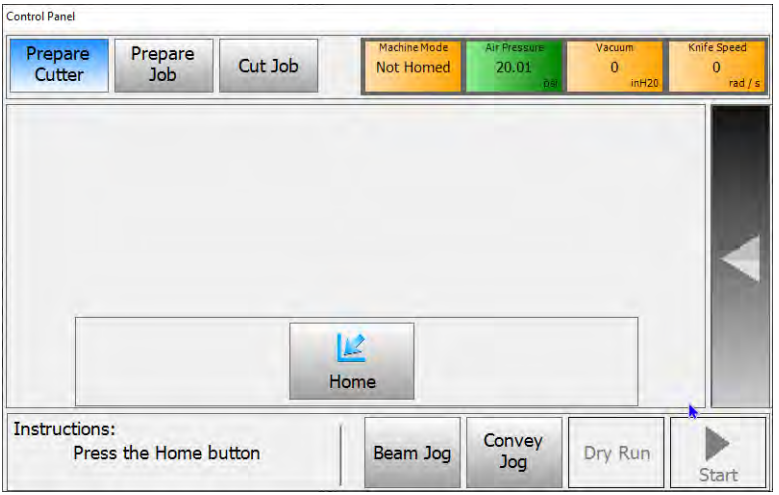


Figure 22: Beam operator panel

5) Make sure the beam reaches the home position and the machine has stopped moving.

   On the dashboard of the user interface panel, Prepare Cutter turns green, indicating that the Prepare Cutter stage is done. The next stage, Prepare Job, turns blue.

Prepare Job

Using the Material Jog button, convey material onto the bristled surface of the cutter table. Cover the material and the table surface with plastic film from the film dispenser.

1) At the user interface panel, choose **Open Job**.

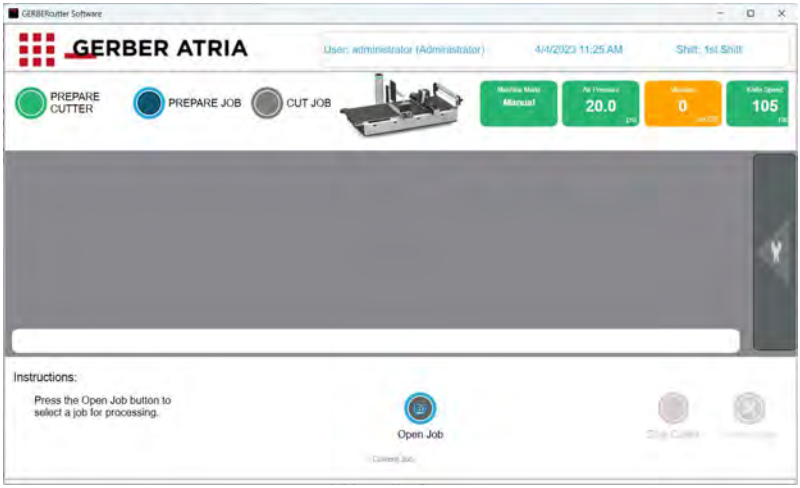


Figure 23: User interface panel with open job button

2) Browse to the **C:\Jobs\Samples** directory.



Figure 24: User interface panel with a list of jobs

3) To select the job file manually, select the job file type, select **SampleCut.job**, and then press **Open**.

4) Verify that the information is correct, and then choose **Submit**.

5) Choose **Select Material**, choose the material required, and then choose **OK**.

6) Choose **Set Ply Count**, choose the number of plies you are cutting, and then choose **OK**.

   The user interface panel shows the choices that have been made. The instructions at the bottom left of the screen give the next steps, which are done at the beam operator panel.

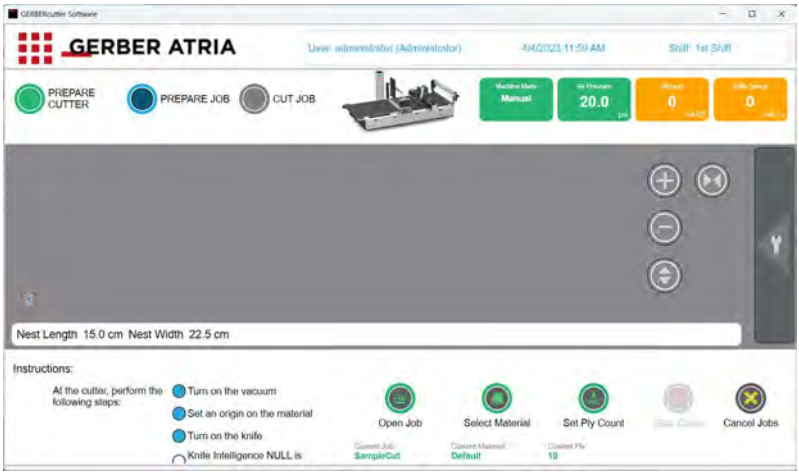


Figure 25: Quick job review

7) At the beam operator panel, follow the workflow instructions at the lower left corner of the screen.

   a) Choose **Turn On Vacuum**.

   b) Press and hold the head Jog button, and move the joystick in the desired direction to move the laser to the corner of the material.

   c) Choose **Set Origin** to enter the current position as the origin for the job. The origin coordinates are displayed in a rectangle in the middle of the screen.

      If the rectangle is green, the origin is valid for the job. If the rectangle is red, the origin is invalid for the job. When prompted, move the head in direction of the blue arrow.

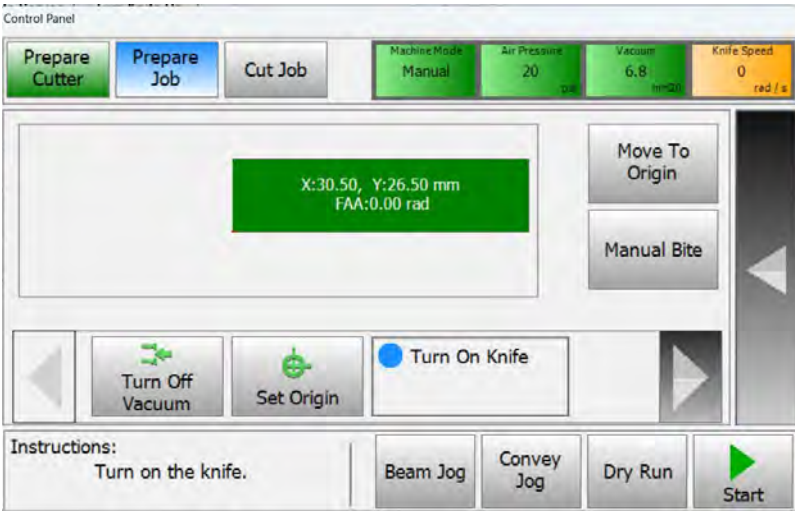


Figure 26: Valid origin position is green

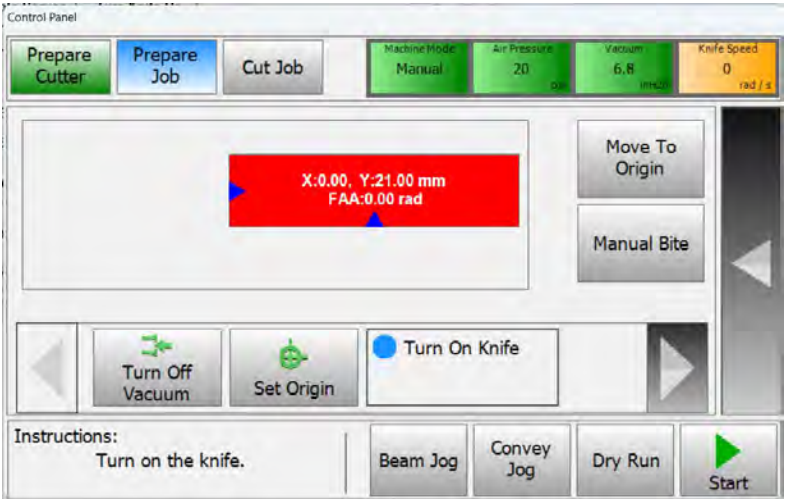


Figure 27: Invalid origin position is red

d) Choose the **Turn On Knife** button. The Knife On/Off switch illuminates. The Prepare Job indicator turns from blue to green, indicating that these steps have been completed. The Cut Job indicator turns blue.

e) Select **Null KI** (Knife Intelligence).

Process JOB File

To process a job file:

♦ At the beam operator panel, choose **Start**.

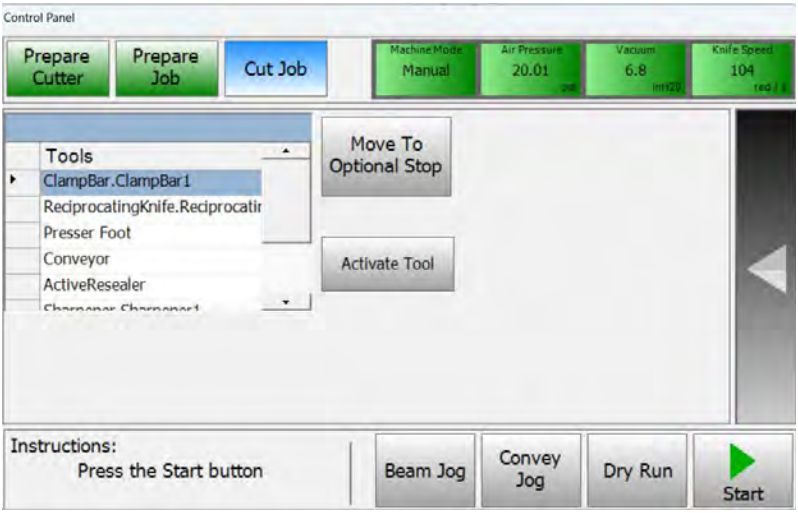


Figure 28: Cut job

- The vacuum ramps up to the Cut level and the machine starts cutting.
- The beam operator panel changes to a large Stop button when the Atria is in automatic mode.



Figure 29: Stop button

- The user interface panel shows the progress of the job. As each part is being cut, a red cursor follows the path of the cutting tool. Parts that are not completely cut are shown in yellow. Parts that are done are shown in a different color.
- Zoom and scroll buttons let you get a closer view of the job and move the view.
- The screen shows information, such as the job name, the elapsed time, and the percentage of the job completed.

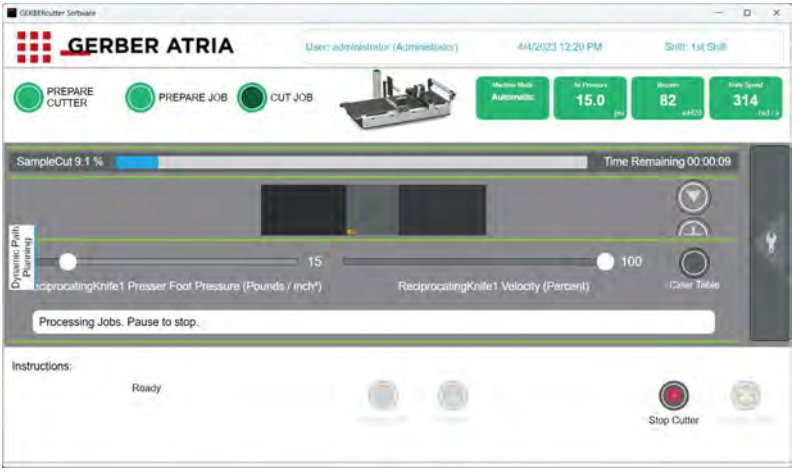


Figure 30: Job status

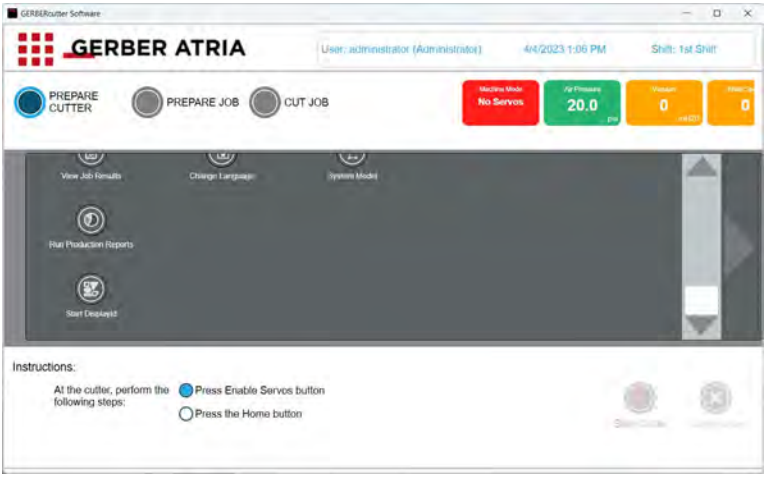
- To pause the cutter during processing, press the **Pause** button. As parts are completed, the material is conveyed off the cutting area onto the CTOT.
- When the final job in the queue is complete, the cutter goes into prepare job mode. At the beam operator panel, press and hold the **Convey Jog** button. Use the joystick to move material off the table.

Review this section for cutter options.

DisplayID

DisplayID is a software option that helps you bundle kits of parts that have been cut. The option includes a monitor mounted over the cutter's take-off end to show parts on the cutter's take-off table. Each part displayed on the DisplayID monitor contains relevant annotation that identifies the part and its kitting group. Each unique kitting group has an associated color, which quickly highlights all of the parts within a given kitting group. The combination of the kitting group color and part annotation helps the bundling of kits of parts.To enable this option:

1) Install the DisplayID kit.
2) In the cutter software:
    a) Open the **Utility Drawer**.
    b) Scroll down if needed.
    c) Select **Start DisplayId**.
    d) Log in.



Knife Options and Tool Change

Several knife options are selectable.

1) Open the Utility Drawer.
2) Choose **Tool Change**.
3) Select the tool you want to change, including knife, from the holder.
4) Select **Done** when you finish.



Figure 31: Changing tools

Appendix – Input File Formats

The Atria GERBERcutter cuts job files that are generated directly from AccuMark. AccuMark job files contain enhanced curve data, model and order information, bundle IDs, ply heights, and material information.

CutWorks can automatically convert the following file types to the .job file format:

ACCUMARK	GENERIC PLT
ASTM	HPGL
AUTOMETRIX	IGES
CEI	LOG
CMD	MICROMARK
CSV	MOD PLT
DDES2	NC
DXF	PLX
DXF15	SEW FILE
GCODE	VIRTEK

Appendix – Atria Part Numbers

Use the following common part numbers when ordering Atria parts.

Part Number	Description
644500908	KRAFT PAPER, 84.5" W #60 PERFORATED
644500109	PAPER,KRAFT, 72" W 40#, PERFORATED, ROLL
644500916	POLY, HIGH DENSITY FILM .0014" x 84"W
644500256	NMRM FILM HI_DENS POLY .007"THK x 96" W
644500921	PLY, OVLYHI-DENSI FILM .0014 " X 88" W3150L
1011876030	WHEEL, GRINDING STONE, 7.2CM, INNER
1011875030	WHEEL, GRINDING STONE, 7.2CM, OUTER
1013924030	KIT, GRINDING STONES, OD 30.0, FEPA D151
1013924010	KIT, GRINDING STONES, OD 30.0, FEPA D251 (COARSE)
180500342	BELT, RUBR DM 83A, RND 3/32 IN DIA, 8 IN
1013522000	KNIFE, 093 X 5/16, HOLLOW, NOTCHED, 7.2 CM
1012550000	BLADE, 7.2 CM,093X5/16,HOLLOW
92911001	BRISTLE 1.6"POLY - SQUARE FOOT - BLACK
92911002	BRISTLE 1.6"POLY - SQUARE FOOT - WHITE

Figure 32: Common part numbers

Appendix – Specifications

The dimensions, weights, performance measurements, and other data referred to in this documentation are approximate and have no contractual value.

Max Cut Height	7.2 cm
Max Cut Width	1.8 m & 2.2 m
Max Bite Length	1.8 m
Max Cut Speed	0.67 m/s, 30.5 m/min. (20 ips)
Max Acceleration	0.25 g (96 ips^2)
Max Velocity	0.76 m/s, 45.7 m/min. (30 ips)
Noise Level	< 78 dBA
Installed Weight 1.8 m wide	4184 kg (9224 lbs)
Installed Weight 2.2 m wide	4898 kg (10798 lbs)
Control Power	3 wire, 200V - 240V, single phase grounded 50/60Hz, 20A
Vacuum Power	380/480V 3 phase grounded 50/60Hz, 100 A (Atria GT) or 60 A (Atria 70), or in accordance with local and national electrical code
Compressed Air	113 liters/min @ 6.8 bar 4 CFM @ 100 PSI0
Temperature (max)	40˚C (104˚F)
Humidity (max)	95% (non-condensing)
Vacuum System	760 m (2500 ft) above sea level
Table Height	80 cm, 85 cm, or 90 cm
Operating System	Microsoft® Windows® 10 Professional 64 bit

Figure 33: Atria GT specifications

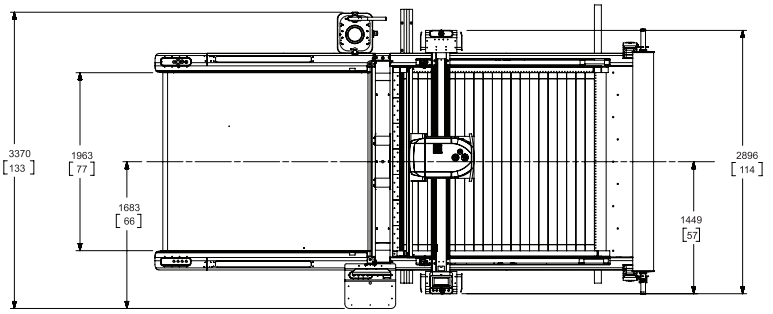


Figure 34: 1.8 m Atria GT dimensions top view (mm [in.])

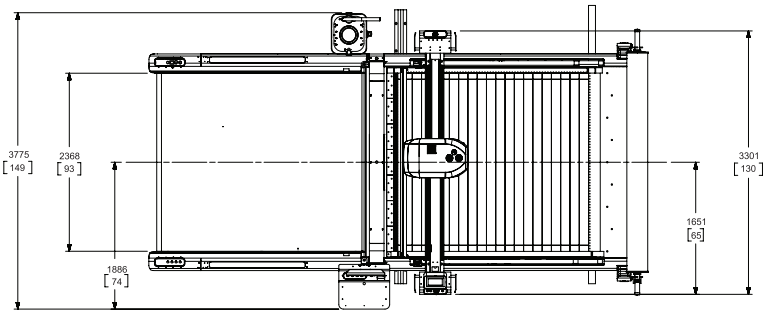


Figure 35: 2.2 m Atria GT dimensions top view (mm [in.])

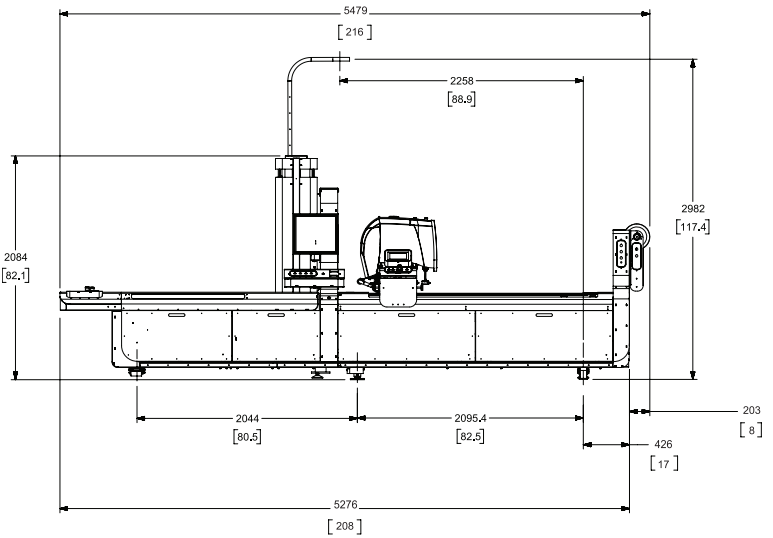


Figure 36: Atria GT dimensions side view (mm [in.])

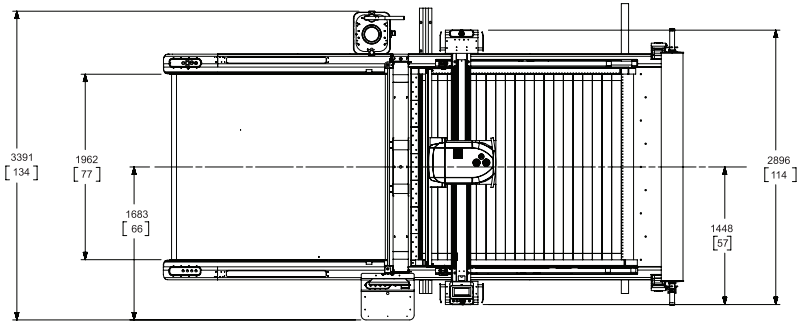


Figure 37: 1.8 m Atria 70 dimensions top view (mm [in.])

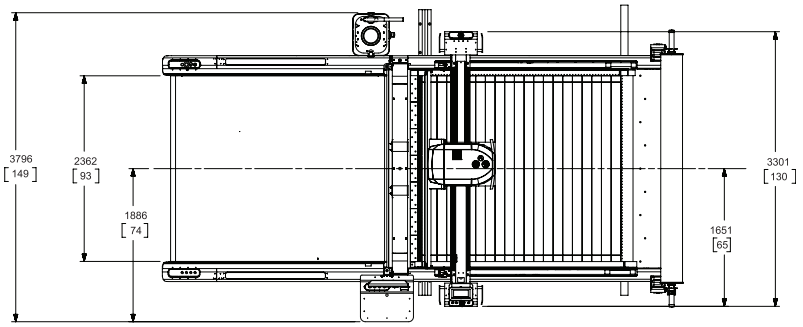


Figure 38: 2.2 m Atria 70 dimensions top view (mm [in.])

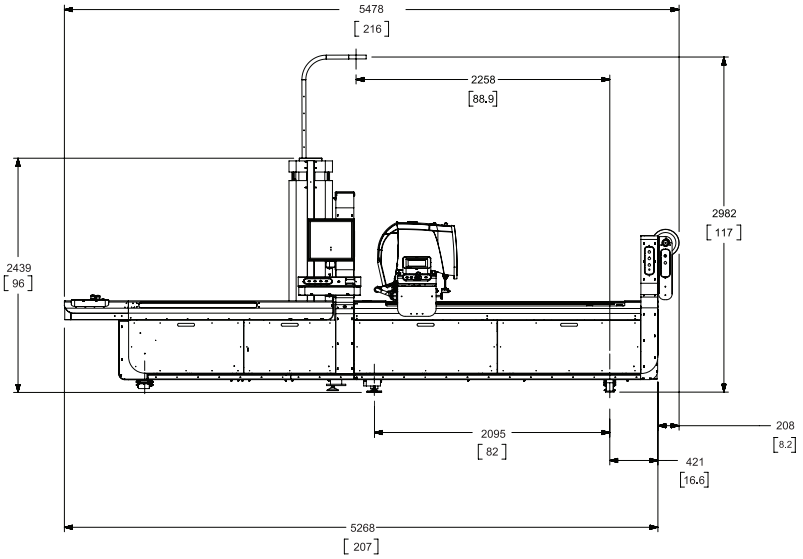


Figure 39: Atria 70 dimensions side view (mm [in.])

Appendix – Patent Information

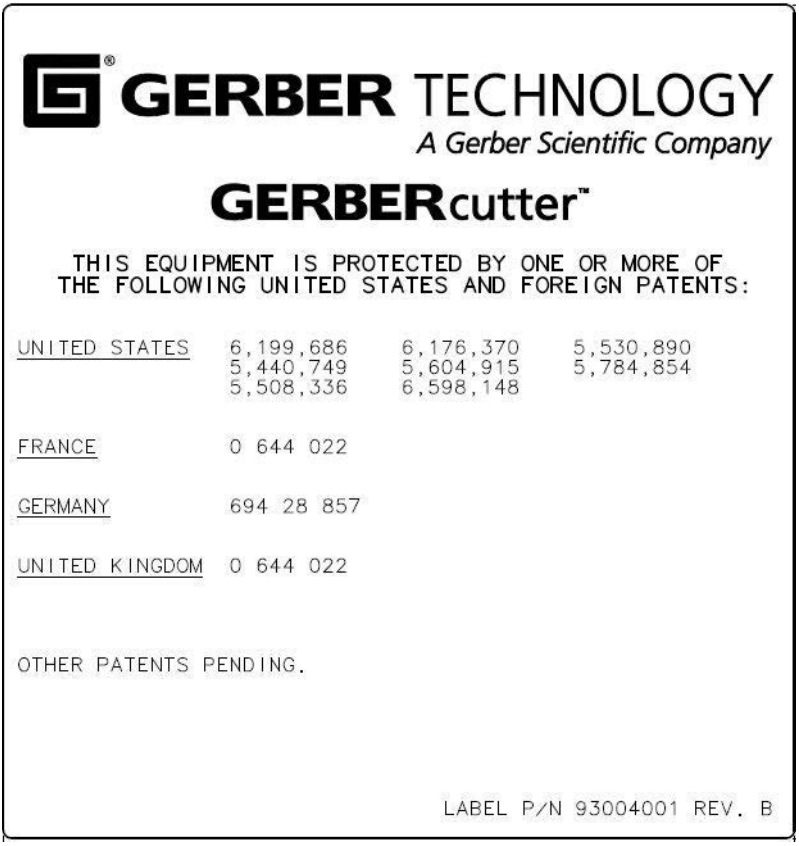


Figure 40: GERBERcutter patents

Appendix – Certificate of Conformity



intertek
Total Quality. Assured.

Test Verification of Conformity

On the basis of the referenced test report(s), sample(s) of the below product have been found to comply with the harmonized standards and Directives listed on this verification at the time the tests were carried out. Other standards and Directives may be relevant to the product.

Applicant Name & Address:	Gerber Technology LLC
Product Description:	ATRIA Cutter
Ratings & Principle Characteristics:	Vacuum: 380-480VAC, 3Φ, 100A, 50/60Hz Control & Drive System: 220VAC 1Φ, 20A, 50/60Hz
Models:	ATRIA LT, ATRIA ST, ATRIA GT
Relevant Standards	IEC 60204-1 (Fifth Edition) + A1:2008
Verification Issuing Office:	Intertek Testing Services NA Inc.
Date of Tests:	2020-06-19, 2020-06-23,2020-06-24
Test Report Number(s):	104336570BOX-002

Additional information in Appendix.

Signature

Name: Joaquin Pellot
Position: Senior Project Engineer
Issuing Office: Intertek NA Inc.
Date: 2021-03-15

ACCREDITED
Test Lab Cert xxxxxxx

This Verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to permit copying or distribution of this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/inspection results referenced in this Verification are relevant only to the sample tested/inspected. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Intertek Page 1 of 2 GFT-OP-11e (28-April-2017)

Figure 41: Standards Certificate

Glossary

Anchor	An alternative to the origin point designated as the reference point of a job. Used for recovery purposes.
Automatic mode	The online mode when the system is processing job files.
Beam	Carries and supports the cutter head as it moves along the width and length of the conveyor belt.
Bite	Is a defined length of conveyor advance. Typically, a bite is the length of the cutting area, but it is configurable. When cutting a nest that exceeds the length of the cutting table, the nest is divided into sections, which are bites.
Biting mode	Is a workflow where material is conveyed onto the cutting surface, parts are cut, then parts are conveyed from the cutting area using different levels of vacuum.
Continuous Mode	Is a workflow where parts are being cut while material is being conveyed through the cutting area at a constant vacuum level.
Conveyor belt	The conveyorized cutting table surface. Also called conveyor surface.
Cut window	The area of cutting on the table.
Default	A setting made at the factory. This setting is used until a supervisor overrides it with a different setting.
Drill tool	A cylindrical tool used to cut holes in material. Also called a punch.

Dry haul	Movement of the cutter head with the knife in the UP position (above the material) as it moves from one part to the next.
Emergency stop (E-Stop)	A red switch or yellow paddle that, when pushed, immediately stops all cutter movement.
Home	A function to establish the cutter table's home position (0,0).
Job file	A computer data file that tells the cutter how to cut patterns, or markers, from a spread of material.
Joystick	A movable stick control located near the beam operator panel, to jog the cutter head and beam in manual mode.
Laser pointer	A tool that is attached to the cutter head and is used as a pointer.
Manual mode	This mode allows the operator to manually control hardware functions, such as moving the cutter head, beam, and conveyor.
Job queue	A series of jobs to be cut in a sequential order.
Jog	Moving the conveyor using the joystick. This function is used to move material on and off the conveyor.
Jogging	Jogging the conveyor and beam is performed through a function called Manual Bite.
Nesting	The process of arranging parts to be cut to most efficiently use material.

Notches	Small V-shaped or slit cuts made on the edges of a part. Used to align parts during sewing.
Operator panel	A touch-screen device located on the side of the cutter, used to view the status of the hardware and start or stop jobs. Also called the beam operator panel.
Origin	The start position of a job. This is set at the corner of the marker closest to the take-off end on the beam operator panel side of the cutter.
Parameter	A software setting defined in a material file.
Part	A closed shape to be cut by the cutter.
Pause	This function stops processing after the current part has been cut. It is activated by pushing a Pause switch.
Punch tool	A cylindrical tool used to cut holes in material. Also called a drill.
Resealer	The resealer dispenses a roll of film used to cover parts that have already been cut. Using the resealer helps maximize vacuum power.
Servo motor	An electric motor that provides motion to a cutter component, such as the beam or head.
Spread	One or more layers of material on the conveyor belt. Also referred to as a lay.
Take-off end	The end of the cutter where cut parts and scrap material are removed after being cut.

Take-on end	The end of the cutter where material is placed on the table before being cut.
Tool holder	The machine mechanism that holds tools, such as the drill.