



Power-UP

1. Verify the area of operation is clear and safe to process doors
2. Ensure factory air is applied to all machines.
3. Verify that all E-Stop buttons are OUT and Gates are CLOSED.

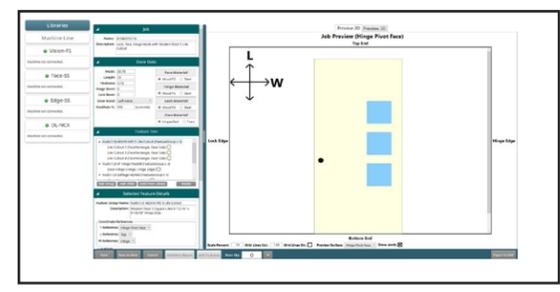


4. Turn the Electrical Disconnect to the ON positions on each Electrical Cabinet in the production line.
5. Turn the Control Circuit Switch to the ON position. (Approximately 3 minute boot-up)
6. Push the Start Button.
7. All Six Light Indicators Should be ON
See reverse side for 6 Lights Description



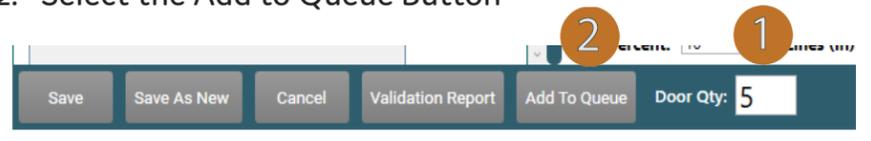
Verify Door Job

Verify the Door Job specifications. Look for validation errors.
Note: For more information about Libraries, see the KvalCam Manual.



Add Doors to Queue

1. Enter the quantity of door to be processed in the Door Qty box at the bottom of the screen
2. Select the Add to Queue Button

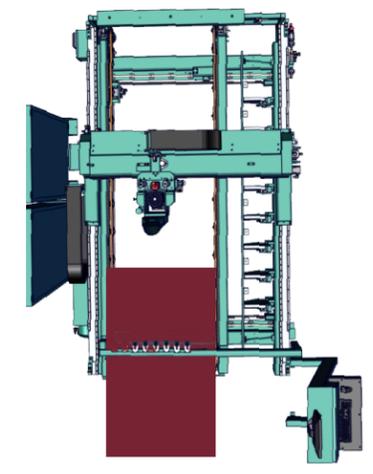


Process a Door

1. The machine width adjusts and the door is fed into the DL-NCD.

Actions

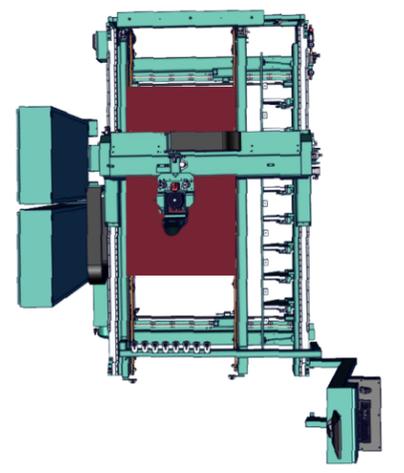
- The Machine width adjusts to the door width.
- The door is pulled (Auto-Feed, Call Door) in from the previous machine.



2. The door is positioned against the stop and the door is clamped.

Actions

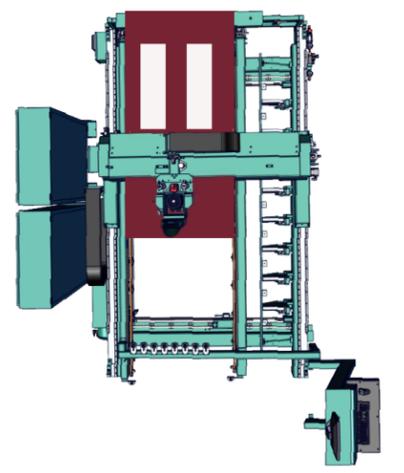
- Door Stop (s) are extended.
- The door is positioned.
- The door is clamped to hold it in position.
- (Opt) Door Probes measure parts of the door and the data is fed back to the PLC.



3. The machining process is started.

Actions

- The Cutter Head will make the programmed cuts on the door.
- Tool changing may occur during the cutting process.
- After cutting is completed, the the door will unclamp.
- Door is ready to be fed out of the machine.



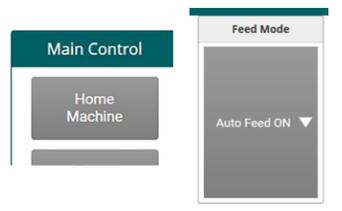
4. The door is fed out to the next machine.

Tips

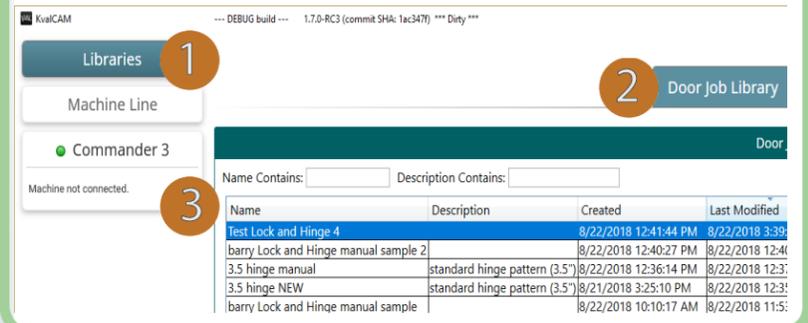
- * Never store the Tool Holder in the Motor overnight. Rust may occur. Store the Tool Holders at the Tool Holder Rack located at the end of the machine.
- * Torque the collet to recommended values, See the Service Manual for torque values.
- * Perform Preventative Maintenance on the machine. See the Service Manual for lubrication locations.
- * For detailed information about the DL-NCD, see the Operation Manual.

Load Door Job from KvalCam

Home the machine and verify Auto Feed is selected at the Machine Main Screen.



1. Select the Libraries Tab at the upper left side of the screen
2. Select the Door Job Library Tab at the upper center screen
3. At the Door Job List double click the desired door job to go to the Door Job screen



About the 6-Lights

Control Power

Light turns on when the Control Transformer power is working, Indicates power on secondary side-of transformer and High Power is applied to all components

Overload Relay

The overload circuit is working when light is on.

E-Stop

If the light is NOT on, ensure gates are closed and all E-Stops are not activated



Stop

This light will be on if Machine Stop button is deactivated.

Start

This light turn on when the Machine Start button is pressed and the ACR Relay is latched.

24VDC

Light turns on once the ACR is latched and the 24VDC Power Supply is working. Powers the PLC.

Tips

Light NOT ON	Steps to Try
Control Power	Check Main Power to the machine Ensure the Control Circuit Button is ON Tech: (Lock/Tagout) Ensure the Disconnect Switch in the Panels is ON Tech: (Lock/Tagout) Check Control Transformer
Over Load Relay	Tech: (Lock/Tagout) Check Overload Relays on Contactors
E-Stop	Ensure ALL E-Stops are in the OUT position. Ensure ALL Safety Gates are closed and Light Curtain feedback is error free. Tech:(Lock/Tagout) Check resistance of E-Stop circuit
Stop	Ensure Stop Button is not stuck Tech: (Lock/Tagout) Check resistance of Stop circuit
Start	Ensure Start Button is making connection Tech: (Lock/Tagout) Check ACR Circuit
24VDC	Tech: (Lock/Tagout) Check voltage in to and out of the 24VDC power supply

For Technicians: Get detailed troubleshooting information on the 6 Lights. (See a video ,Download a PDF)

Video (6-LightsTroubleshooting): <https://www.kvalinc.com/videos/training>
PDF (6-Lights Troubleshooting): <https://www.kvalinc.com/machine-support>



High Voltage may cause *injury or death*.
Troubleshooting checks must be performed
by a *Qualified Electrical Technician*.



Machine Terminology

	Machine Terminology	
Machine	Electrical Panels	Electrical Panels contain the brains and power for the machine. The Main Electrical Panel contains the main PLC and servo drivers to control the servo motors. The High Frequency Panels contain the VFD's to drive the routers, width adjust, and feed motors.
	Door Clamp	The Door Clamp secures the door for stable routing and drilling.
	Probes	Probes are an option. Encoder based assemblies that measure door width ,length, or depth of a cut. Data is fed back to the PLC to create exact measurements of the door.
	Door Stop	The Door Stop sets a reference for the door to be in the correct position for processing.
	Cutter Head	The Cutter Head contains the cutting motor. The Head picks up a Tool Holder and cuts the face of the door.
	Edge Router	(Option) The Edge Router is an available option to rout the edge of the door.
	Tool Holder Rack	Tool Holder Rack stores the Tool Holders. The rack is located at the end of the machine. The Cutting Head is programmed to automatically pickup and replace the desired tool at the rack.
Tools	Sensors	Sensors provide input to the PLC as part of the automation of the door cutting process, including feed through, door clamping, and door location. It is important to keep the sensors cleaned and aligned to keep the door process running smoothly. There are two classifications of sensors, Photo Electronic and Inductive Proximity Sensor.
	Tool Holder	The Tool Holder Assembly contains the Flange, Collet, Collet Nut and the Cutting Tool. A Tool Holder is automatically picked up by the Cutting Head to perform the cutting process. The Tool Holders are stored at the Tool Holder Rack.
Operation	Chisels	(Option) Chisels are located in the Cutter Head. The chisels square corners on the Lite Cut-Out.
	Operator's Station	The Operator's Station is the interface of operator to machine. It contains power controls and touch screen interface to control the cutting parameters of the door.
	KvalCAM	The KvalCAM software includes a single User Interface to control the entire machine line. Each machine can also be controlled separately or as a collective. Door Jobs and Features from a library can be downloaded remotely and created at the station.The KvalCAM interface uses tabbed navigation to jump to desired screens.
	Door Job	In the Door Job creation screen, door cuts can be created, the door parameters stored and machining of the door can be processed using this information.
	Feature Group	In the Features Group creation screen, door cuts can be created and verified by way of the Job Preview screen. Templates are stored to be called into the Door Job.

Remote Troubleshooting

Kval's Support Team is able to work remotely with your maintenance staff or contractor to diagnose and troubleshoot machinery issues. To get started, please create a support ticket online. Call (800)- 553-5825 or start a support ticket Online <https://www.kvalinc.com/support>.

Tools Needed for machine hardware troubleshooting:

- Access to a broadband internet connection
- An iPhone or Android smart-phone (We use Apple FaceTime or Google Duo for video)
- A DMM
- A standard toolset

Allow Kval to Logon to the Machine

- Exit the KvalCAM program. On the Windows Screen, select the KVAL Service Icon



For machine software troubleshooting:

- Access to a broadband internet connection
- A computer running Windows
- Our remote support client

