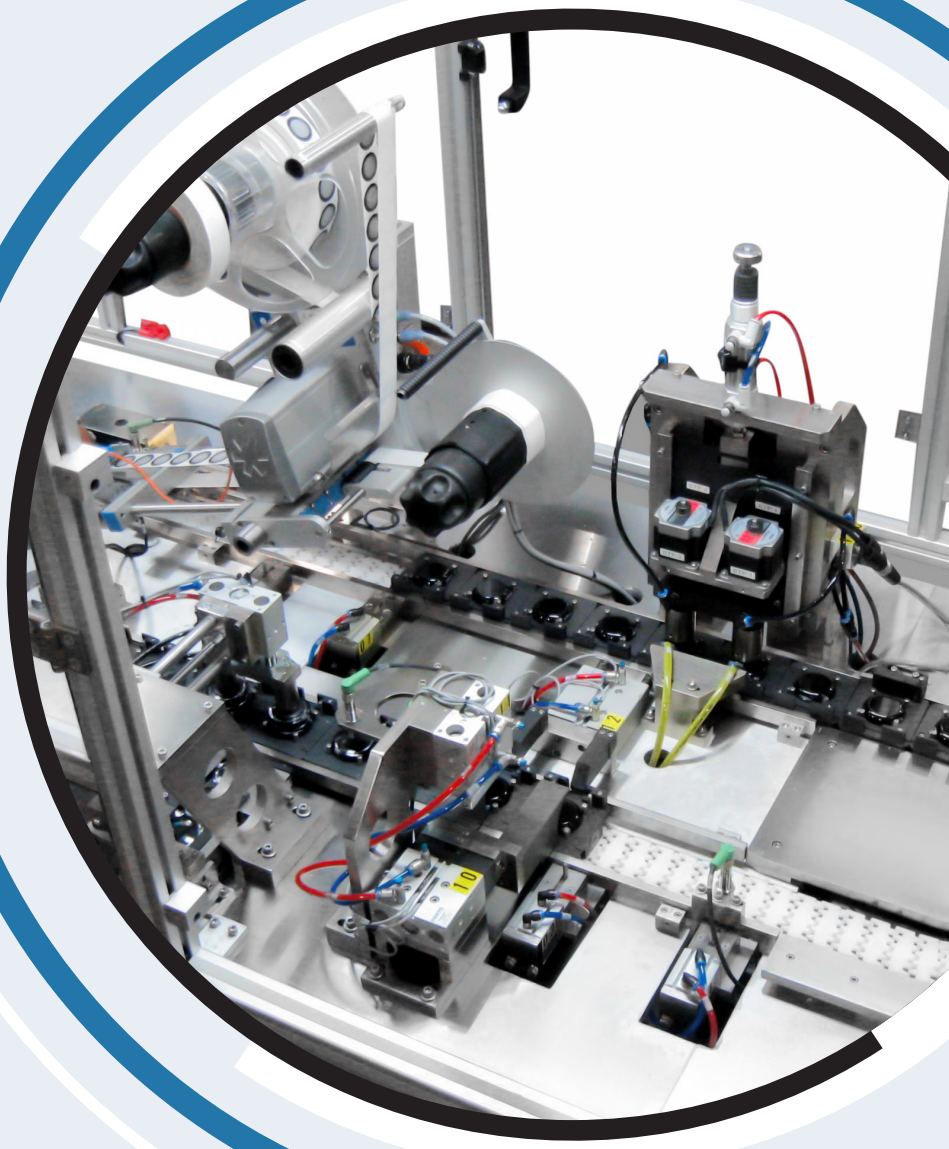
Orientech

AUTOMATION SOLUTIONS



MANUFACTURING LINE
SHUTDOWN AND RESTART
CHECKLIST

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Date of Shutdown

Date of Restart

Machine Name

Machine Number

Department

Technician(s) Names and Number

Operator(s) Names

MANUFACTURING LINE **SHUTDOWN CHECKLIST**

Steps to follow	Scheduled	WIP	Completed
#1 - End of production sequence ▸ Make sure all components have been removed automatically Glue, parts, liquid, and powder should have been removed from the production path. If necessary, remove designated elements manually			
#2 - Air purge ▸ Release air through the pressure valve ▸ Make sure that the air pressure accumulator is relieved if equipped			
#3 - Cleaning of the machine ▸ Clean the product line from any residual elements: › Purge air line › Clean filters › Remove all dirt and Foreign Object from the equipment			
#4 - Preventive maintenance ▸ Follow your company preventive maintenance program or use the operation and maintenance manual from your partners ▸ Fill up spare parts and components' list			
#5 - Environmental ▸ Make sure that your equipment is in a stable environment, control temperature, humidity, and cleanliness ▸ Check ventilation every week to avoid moisture or humidity ▸ If approved, proceed to WD40 spray on certain elements			
#6 - Protection ▸ Put all protection devices in place to avoid any unintional start ▸ Use a protection (ie tarp) for your entire equipment			
#7 - Electricity ▸ Make a backup of all your machines: › PLC › HMI › Robots ▸ Replace the batteries following the manufacturer's recommendations ▸ Control that breakers are open and secure			
#8 - Get support (if needed) ▸ Call external support for your product line manufacturer			

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MANUFACTURING LINE **RESTART CHECKLIST**

Steps to follow	Scheduled	WIP	Completed
#1 - Cleaning of the machine ▸ Clean the system ▸ Tighten locknuts of the leveling legs ▸ Check that all security lids are well-secured ▸ Make sure there is no active alarm on the touchscreen ▸ Check main air supply (90 PSI, clean air) ▸ Check for any bent hoses (pneumatic hoses) ▸ Verify the air regulators gauges are at their proper pressure adjustment ▸ Check if the machine is clean and without broken parts (ie, caps or tubes) inside the working area			
#2 - Visual appearance ▸ Machine does not have any visible damage ▸ All air regulator settings are tagged with name and settings ▸ Settings are not attached to removable components that could be replaced ▸ Feeder bowl has air jet locations engraved on bowl and air lines tagged with proper regulator location ▸ All bowls and motor controllers are tagged with settings ▸ All doors open in an operator friendly way as stated in standards ▸ Base platform is at an acceptable height ▸ Machine paint is acceptable			
#3 - Connection ▸ Level sensors work (low and high when applicable) ▸ Counter counts every piece correctly and does not overcount ▸ Counter keeps memory if power is lost ▸ No programs are lost when machine is power cycled ▸ All wires are numbered ▸ Breakdown/installation hook-ups indicated ▸ Copy of electrical drawings in electrical enclosure ▸ Batteries replacement ▸ Breakers are open and secure			
#4 - Warm-up ▸ Put the machine in "jogging" mode and check cycle by cycle, for any issue ▸ Continue in auto mode, at a low-speed cadence to run tests			
#5 - Run to normal production ▸ Cycle start			
#6 - Get help and support ▸ Need for external support			

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