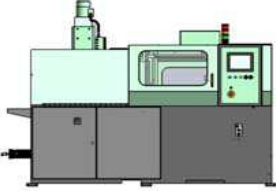
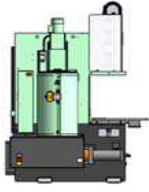
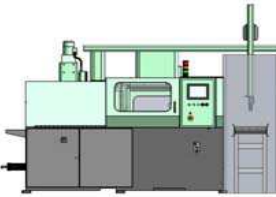
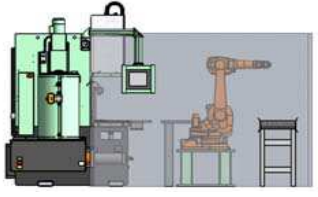


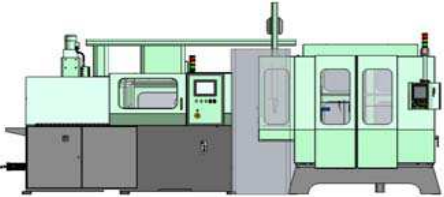
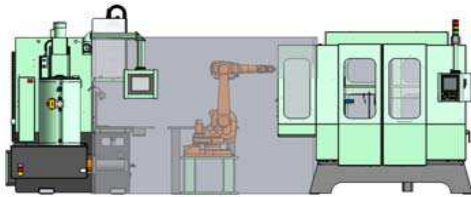
## AUTOMATED INJECTION / ASSEMBLY CELL - PHASES OF AUTOMATION

MODEL 45 INJECTION WITH A CARTESIAN ROBOT VS. MODEL 55 INJECTION WITH A 6 AXIS ROBOT

PHASE 1 - STANDALONE INJECTION MACHINE	
MODEL 45 AUTOMATIC HORIZONTAL INJECTION MACHINE FEATURES	MODEL 55 SEMI-AUTOMATIC C-FRAME INJECTION MACHINE FEATURES
	
<ul style="list-style-type: none"> <li>Operates fully automatically dropping patterns into water</li> <li>Includes die lubrication as standard</li> <li>Fast Closing Speed 8"/sec (proportional control)</li> <li>Standard with full platen guarding</li> <li>3 axis nozzle positioning available</li> <li>More floor space required</li> </ul>	<ul style="list-style-type: none"> <li>Operates semi-automatically, requires operator to remove the wax pattern</li> <li>Manual die lubrication completed by operator</li> <li>Closing Speed 4"/sec</li> <li>Standard with full platen guarding</li> <li>2 axis nozzle position</li> <li>Less floor space required</li> </ul>
<b>Comments</b>	
<p>Model 45 operates fully automatically as a standalone machine.</p> <p>This is the recommended solution for automatic operation of a standalone machine</p>	

PHASE 2 - INJECTION CELL - (INJECTION MACHINE, ROBOT, AUTOMATIC PATTERN PLACEMENT ONTO A CONVEYOR)	
MODEL 45 AUTOMATIC HORIZONTAL INJECTION MACHINE FEATURES	MODEL 55 SEMI-AUTOMATIC C-FRAME INJECTION MACHINE FEATURES
	
<ul style="list-style-type: none"> <li>Operates fully automatically patterns robotically removed and placed on a conveyor</li> <li>3 axis cartesian robot</li> <li>Includes die lubrication, single axis</li> <li>Fast Closing Speed 8"/sec (proportional control)</li> <li>Standard with full platen guarding</li> <li>3 axis nozzle positioning available</li> <li>injection runner removal - 3 axis</li> <li>pattern placement conveyor - fixed orientation</li> <li>Same floor space requirements</li> </ul>	<ul style="list-style-type: none"> <li>Operates fully automatically, patterns robotically removed and placed on a conveyor</li> <li>6 axis robot, totally programmable position and orientation</li> <li>Programmable automatic die lubrication with programmable position and orientation</li> <li>Closing Speed 4"/sec</li> <li>Standard with full platen guarding</li> <li>2 axis nozzle position</li> <li>injection runner removal - programmable position and orientation</li> <li>pattern placement conveyor - programmable position and placement</li> <li>Same floor space requirements</li> </ul>
<b>Comments</b>	
<p>Model 55 wax injector is recommended solution for robotic removal of a wax pattern.</p> <p>The 6 axis robot provides the most flexibility and future expansion</p>	

**PHASE 3 - INJECTION/ASSEMBLY CELL - (INJECTION MACHINE, ROBOT, APAS)**

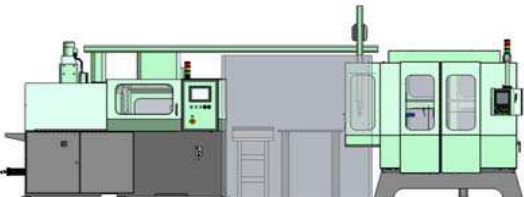
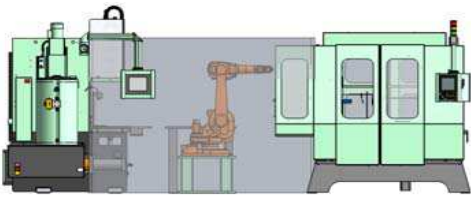
MODEL 45 AUTOMATIC HORIZONTAL INJECTION MACHINE FEATURES		MODEL 55 SEMI-AUTOMATIC C-FRAME INJECTION MACHINE FEATURES	
	<ul style="list-style-type: none"> <li>Operates fully automatically patterns robotically removed and placed on a conveyor</li> <li>3 axis cartesian robot</li> <li>Includes die lubrication, single axis</li> <li>Fast Closing Speed 8"/sec (proportional control)</li> <li>Standard with full platen guarding</li> <li>3 axis nozzle positioning available</li> <li>injection runner removal - 3 axis</li> <li>pattern placement directly onto APAS tray - fixed orientation</li> <li>Same floor space requirements</li> </ul>		<ul style="list-style-type: none"> <li>Operates fully automatically, patterns robotically removed and placed on a conveyor</li> <li>6 axis robot, totally programmable position and orientation</li> <li>Programmable automatic die lubrication with programmable position and orientation</li> <li>Closing Speed 4"/sec</li> <li>Standard with full platen guarding</li> <li>2 axis nozzle position</li> <li>injection runner removal - programmable position and orientation</li> <li>pattern placement directly onto APAS tray - programmable position and placement</li> <li>Same floor space requirements</li> </ul>

**Comments**

Model 55 wax injector is recommended solution for robotic removal of a wax pattern.

The 6 axis robot provides the most flexibility and future expansion

**PHASE 4 - INJECTION/ASSEMBLY CELL - (INJECTION MACHINE, ROBOT, APAS, WITH AUXILIARY OPERATIONS)**

MODEL 45 AUTOMATIC HORIZONTAL INJECTION MACHINE FEATURES		MODEL 55 SEMI-AUTOMATIC C-FRAME INJECTION MACHINE FEATURES	
	<ul style="list-style-type: none"> <li>Operates fully automatically patterns robotically removed and placed on a conveyor</li> <li>3 axis cartesian robot</li> <li>Includes die lubrication, single axis</li> <li>Fast Closing Speed 8"/sec (proportional control)</li> <li>Standard with full platen guarding</li> <li>3 axis nozzle positioning available</li> <li>injection runner removal - 3 axis</li> <li>pattern placement directly onto APAS tray - fixed orientation</li> <li>More floor space required</li> </ul>		<ul style="list-style-type: none"> <li>Operates fully automatically, patterns robotically removed and placed on a conveyor</li> <li>6 axis robot, totally programmable position and orientation</li> <li>Programmable automatic die lubrication with programmable position and orientation</li> <li>Closing Speed 4"/sec</li> <li>Standard with full platen guarding</li> <li>2 axis nozzle position</li> <li>injection runner removal - programmable position and orientation</li> <li>pattern placement directly onto APAS tray - programmable position and placement</li> <li>Less floor space required</li> </ul>

**Comments**

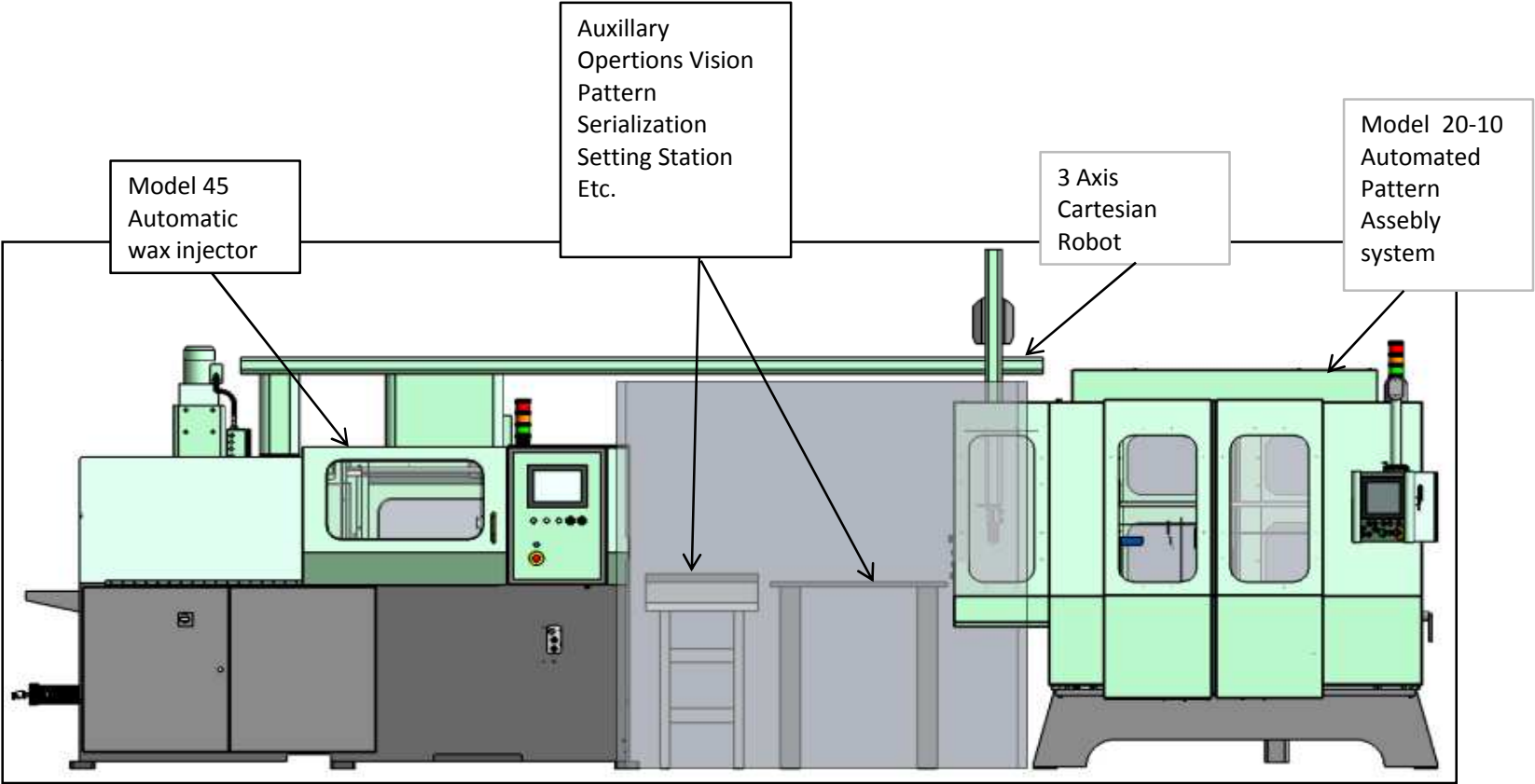
Model 55 wax injector is recommended solution

The 6 axis robot provides the most flexibility and future expansion

The robot can transfer the pattern to other stations for such operations as inspection, pattern serialization, touch up, etc.

<b>GENERAL CELL OPERATIONS</b>	
<b>MODEL 45 AUTOMATIC HORIZONTAL INJECTION MACHINE FEATURES</b>	<b>MODEL 55 SEMI-AUTOMATIC C-FRAME INJECTION MACHINE FEATURES</b>
No Injection Cell Operator terminal.	Cell includes central Operator Interface Terminal.
Fixed sequence that can not be altered	Programmable sequence, more easily expandable to future operations
Operator requires some robot programming experience	Operator requires some robot programming experience
3 axis operation only	

**MODEL 45 - INJECTION/ASSEMBLY CELL  
(INJECTION MACHINE, ROBOT, APAS, WITH AUXILLARY OPERATIONS)**



## MODEL 55 - INJECTION/ASSEMBLY CELL (INJECTION MACHINE, ROBOT, APAS, WITH AUXILLARY OPERATIONS)

