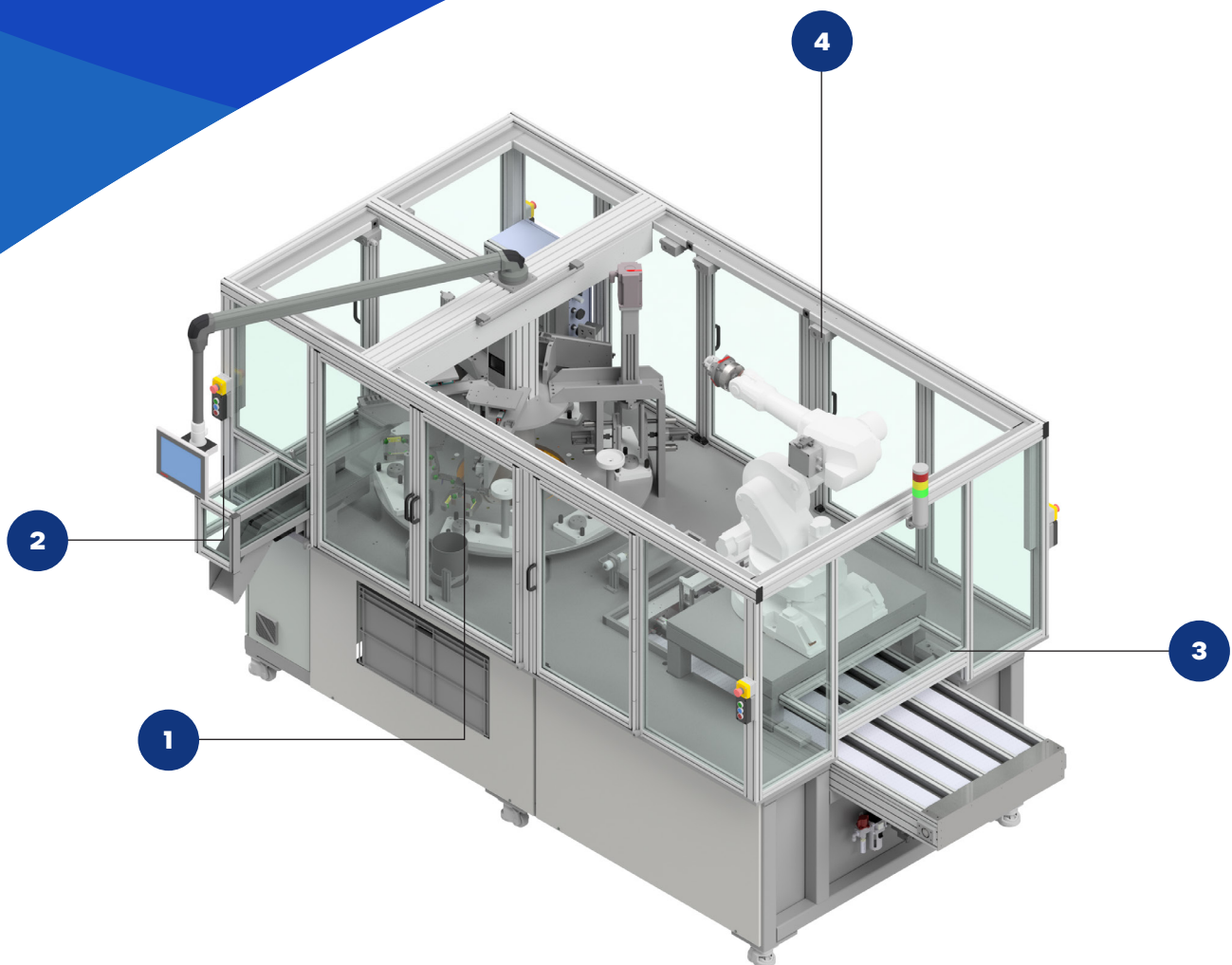


# Flexible Multi Part Assembly System



**1** Tooled mechanical Indexer to move assembly between press, lubrication, and test positions

**2** Outfeed onto existing conveyor with reject parts off loaded into reject bin

**3** Multi part Infeed of components with ability to reconfigure to suit product variation

**4** Six axis robot tooled to pick up multiple parts from an array of positions

# Flexible Multi Part Assembly System

When considering automation, companies review their current processes, assessing which they wish to keep and which parts they need to change or adapt. This often forms a part of the discussions with the applications team at SP Automation & Robotics, to ensure they full understand key elements of the clients process. In addition many of our clients require an automation solution that can cater for a family of parts to allow the automation costs to be justified by having more than one product range handled on the machine.

A leading plastics building products company approached us with a request for an automation system which would assemble a multi part assembly and 100% leak test the product.

## The Challenge

The main requirement for this client was that they needed a system that would automatically assemble and test assemblies. The system needed to adapt to processing a range of parts, comprising of a different number of assembled parts. The system was also required to check the fittings to ensure there were no leaks.

- Auto load parts into the machine
- Minimise tool changes for when changing between products
- 100% Inspection of parts for leaks
- Manipulate parts whilst testing for leaks
- Flexibility
- Increase throughput

## The Solution

To ensure that the machine could handle the required range of assemblies, SP worked with the client to identify common features on the product to ensure no tooling changes were required of the infeed of products. Servo systems were used throughout the machine to allow for quick products change overs, by simply selecting the product range on the HMI and having the servos reset to the designed positions.

The assembly machine concept was based around a six stop rotary indexing system and was designed to accept four component parts and assemble them together into a finished assembly. Assembly components were loaded manually onto four streams segregated in feed conveyors and fed into the machine to a robotic pick and place working zone for assembly. Once gathered, a servo driven actuator pressed the assembly together. The completed assembly was then indexed for leak out check. The test station included all the equipment required for pressurising the assembly and detecting for decay in pressure over set period of time.

Finished and tested assemblies were picked off from the indexer table unloaded and placed onto the output conveyor/collection bin for further processing.

## Features & Benefits

- In feed to accommodate a family of products
- Multiple servo controls for simple and fast product changeover
- Auto load of parts into the machine using 6 axis robot
- Functional and Visual Inspection of parts for leaks
- Accurate Grease dispensing as part of process
- Multiple assembly fixture design
- Use of servos to accommodate product variation
- Bespoke air test system and tooling



For more information or to discuss your bespoke solution get in touch.

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