

# ROLLON ACTUATORS FOR INJECTION MOLDING

Off-the-shelf robots for injection molding parts removal tend to be more expensive and less flexible than those made in-house. That's why Stone Plastics & Manufacturing Inc. builds its own.

Stone Plastics makes in-house, customizable robots for manufacturing plastic parts, allowing them to monitor and control costs, as well as serve more industries. For linear

motion in their robots, the company uses Rollon actuators. Here's a look at the role these actuators play in unloading plastic parts from injection molds.

**CUSTOMIZABLE PARTS REMOVAL ROBOTS.** Mainly used for automotive and consumer goods applications, Stone Plastics operates 68 injection molding machines ranging

anywhere from 22 to 1,000 tons. They also have roughly 800 unique molds with up to 16 cavities in each. Aside from automotive and consumer goods, Stone Plastics makes plastic parts for applications in other industries such as furniture manufacturing, recreation, construction and appliance manufacturing.

Stone Plastics' customized 3-axis robot with end-of-arm tooling (EOAT) extracts the plastic parts from the molds. The EOAT is equipped with vacuum cups that remove the finished parts and drop them on a conveyor. Average cycle times for this process range anywhere from 10 to 30 seconds, depending on the application.



*Stone Plastics makes in-house, customizable robots for manufacturing plastic parts, allowing them to monitor and control costs, as well as serve more industries.*



*Mainly used for automotive and consumer goods applications, Stone Plastics operates 68 injection molding machines ranging anywhere from eight to 1,000 tons. They also have roughly 800 unique molds with up to 16 cavities in each.*

Using their own custom design also lets Stone Plastics use floor space more efficiently. They can extract parts to the end of the press instead of the traditional side of the press, allowing them to put the presses closer together. This also lets them bring operator stations for multiple presses into close proximity to efficiently handle material right at the aisle.

Since downtime can be costly, Stone Plastics needed a reliable actuator. After reviewing the technical features, performance characteristics and overall capabilities, they decided that Rollon actuators were a natural fit.

**ABOUT THE ACTUATORS.** Stone Plastics uses three Rollon actuators for their 3-axis robot: R-SMART 160 SP6 for the X-Axis, R-SMART 120 SP4 for the Y-Axis and the S-SMART 65 SP

actuator for the Z-Axis. The SMART linear actuators feature performance characteristics that meets their application requirements, including:

- High speed and acceleration.
- High load capacity.
- High permissible bending moments.
- Low friction.
- Long life.
- Low noise.

Rollon's R-SMART 120 and 160 actuators are a great choice for Stone Plastics' robots due to their high load capacity and small footprint. The R-SMART achieves these capacities using dual profile rails instead of a single profile rail.

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Another benefit of the high moment capacity is that a cantilevered gantry can be used when space is limited. The Instead of a gantry system, R-SMART can be used in a cantilevered XYZ system. This not only reduces cost from dual X-Axis actuators, but also removes additional complications and price adders such as controls, gearboxes, motors, connection shafts, etc. Using R-SMART as X and Y-Axes saved Stone Plastics money in both the long and short run.

Chosen primarily for its strong economic value, the S-SMART Z actuator features a sturdy, well-designed anodized aluminum fixed drive head, as well as a robust moving extruded aluminum profile

with a cross-section width of 65 millimeters. This high-quality actuator is driven by a steel reinforced polyurethane belt in an omega configuration. Payloads are easily supported by a single profile linear guide rail with two recirculating ball bearing runner blocks.

