



KEEPING UNITIZING OPERATIONS RUNNING IN EXTREME HEAT

Background:

A major Midwest aluminum recycler supporting the automotive industry needed to modernize an end-of-line packaging process for high-temperature, 30-pound aluminum ingots. The existing system ran too slowly, experienced frequent breakdowns, and struggled to keep pace with production demands.

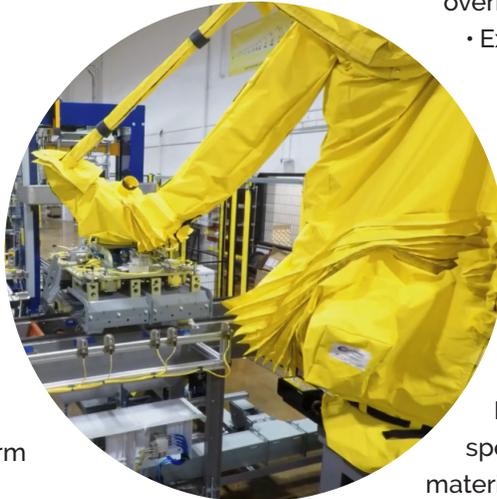
MMCI engineered a new robotic unitizing cell built around a FANUC M410iC robot to align, stack, weigh, and strap ingots for transport and storage. However, the cell operated in a high-temperature industrial environment where heat exposure and airborne particulates posed serious risks to the robot's long-term performance and reliability.

Challenge:

The robotic cell required a protection solution capable of supporting continuous operation in a harsh, high-heat environment. The facility needed a robot cover that could:

- Withstand sustained exposure to elevated ambient temperatures

- Protect joints, cabling, and servo housings from heat soak and contamination
- Maintain full articulation without restricting motion or payload performance
- Prevent unexpected downtime caused by overheating faults
- Extend the life of capital equipment in a rugged production setting



The protection solution needed to integrate cleanly into a high-speed automation cell without impacting throughput.

Solution:

Roboworld engineered a custom Robosuit® protective cover designed specifically for high-temperature material-handling applications. The suit was tailored to the FANUC M410iC robot and built to protect critical joints, cables, and servo components from thermal exposure and harsh environmental conditions.

To further enhance performance, the robotic system is monitored with inline temperature probes connected to a climate-controlled cabinet certified to 120°F.





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Together, the integrated protection and monitoring strategy reduced the risk of heat-related shutdowns and ensured reliable operation at the increased production speeds required by the new unitizing cell.

Results:

Following installation, the facility achieved:

- Reliable high-speed unitizing performance that kept pace with production
- Virtually eliminated downtime through rugged cell design and robot protection

- Improved long-term robot reliability through thermal protection and monitoring
- Increased overall efficiency through automated weighing and strapping

With Roboworld's custom Robosuit® in place, the automation cell maintained continuous operation in a high-heat environment while protecting the robot investment and supporting long-term uptime.



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