

WHITE PAPER

THE BENEFITS OF FANUC ROBOTS FOR MANUFACTURING FACILITIES

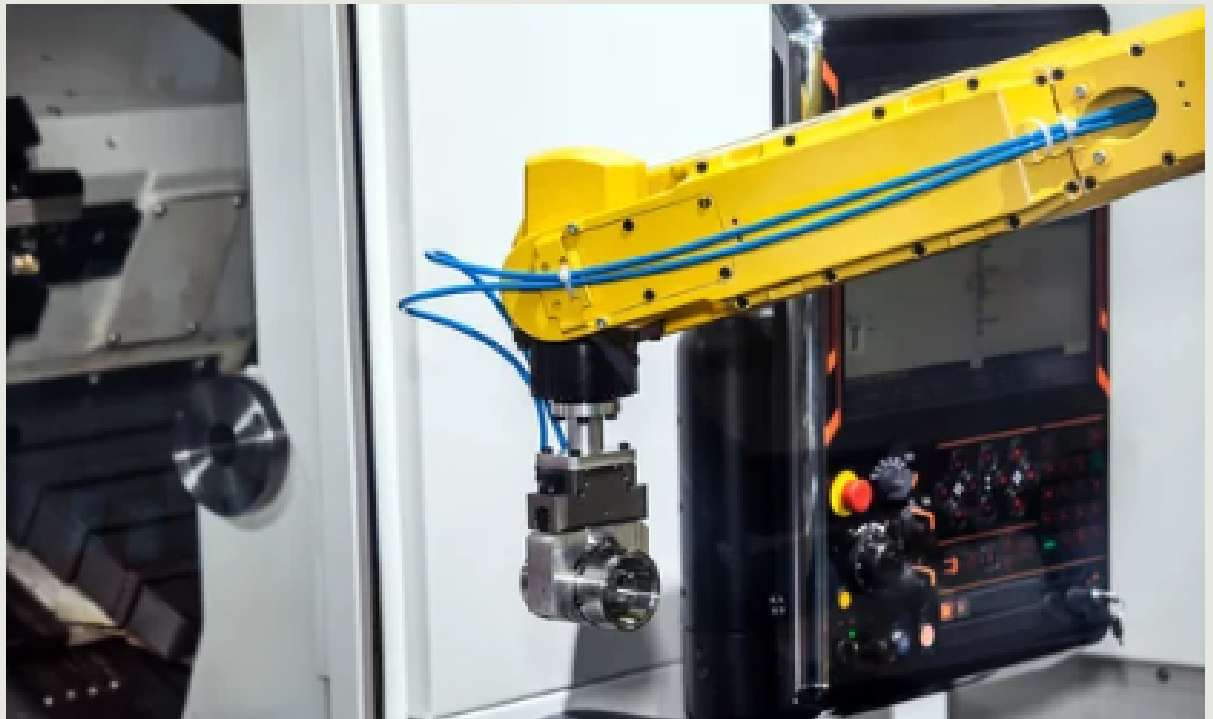
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Transforming Automation into Measurable Returns: How FANUC Robots Deliver Payback Through Productivity, Precision, and Uptime

Manufacturers today face a dual challenge: improve quality and compliance while reducing operating costs. FANUC robotics deliver measurable ROI by increasing uptime, throughput, and quality — while lowering labor, scrap, and downtime costs.

In high-precision industries such as medical & life sciences, aerospace & defense, and plastics, the financial return isn't just in labor savings — it's in quality consistency, regulatory reliability, and equipment utilization. This paper outlines the quantifiable and strategic benefits FANUC robots deliver to manufacturers in these sectors and explains how to evaluate and justify investment with a clear ROI framework.



Why FANUC Robotics Drive Measurable ROI

1. Higher Equipment Utilization

Robots can run 24/7 with minimal downtime. A single FANUC robot can often replace two or more manual shifts, yielding 60–80% uptime improvement. Over time, this improves OEE (Overall Equipment Effectiveness) and asset productivity.

2. Labor Efficiency

With labor costs rising and skilled operator shortages growing, automation delivers rapid payback. A typical robotized workstation can reduce direct labor by 30–50%, freeing skilled staff for higher-value roles such as quality verification or maintenance.

3. Scrap and Rework Reduction

Repeatable robotic precision means fewer defective parts. FANUC's repeatability (± 0.01 – 0.02 mm for many models) can reduce scrap by 1–5%, which in high-value industries like aerospace or medical can mean tens of thousands saved annually.

4. Cycle Time Gains

FANUC's motion optimization and vision-guided operation enable cycle time reductions of 10–25% versus manual or semi-automated processes, directly increasing throughput.

5. Safety and Risk Avoidance

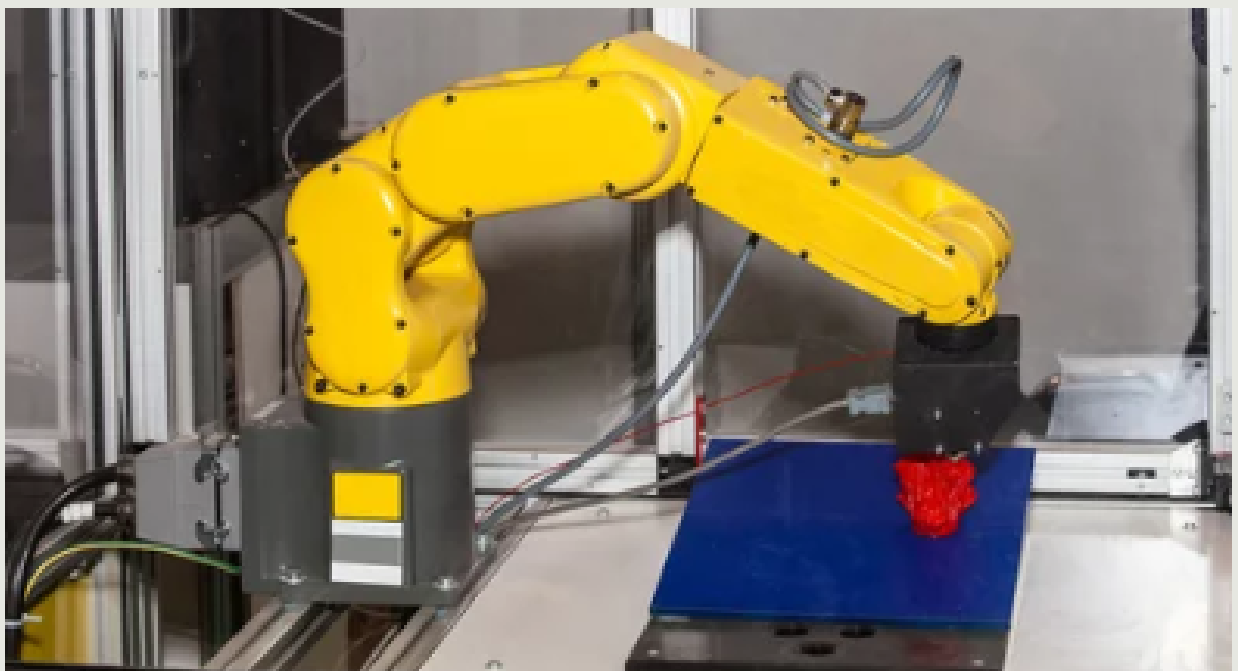
Reduced workplace injuries translate to lower workers' compensation costs and insurance premiums, often saving \$5,000–\$10,000 per incident avoided.

6. Standardization Across Facilities

With FANUC's unified control architecture and model range, manufacturers can standardize across multiple plants, reducing training and spare-parts inventory — a less visible but significant long-term ROI contributor.

ROI Framework for Automation Projects

ROI Lever	Typical Range	Example Financial Impact
Labor Reduction	30–50%	\$60,000– \$120,000 saved
Scrap/Defect Reduction	1–5%	\$10,000–\$50,000 annually
Cycle Time Improvement	10–25%	10–20% more throughput from same equipment
Downtime Reduction	15–30%	Increased uptime adds additional shift capacity
Safety/Compliance Savings	Variable	Fewer injuries, fewer line stops
Total Payback Period	1.5–3 years	Typical for FANUC projects



Medical & Life Sciences

ROI Drivers:

- Reduced contamination risk: Robots with cleanroom and IP-rated designs eliminate human contact, lowering costly product loss due to contamination or failed sterility validation.
- Improved yield in sterile assembly: A 1% yield improvement on high-value medical assemblies (e.g., \$10/unit) can generate \$100,000+ annual gain per line.
- Traceability automation: FANUC controllers integrate with MES and serialization systems, reducing manual documentation costs and error risk.

Example ROI:

A medical device packaging cell with two operators replaced by a single FANUC LR Mate cleanroom robot saved \$85,000/year in labor and \$25,000/year in reduced rejects. Payback in 18 months.

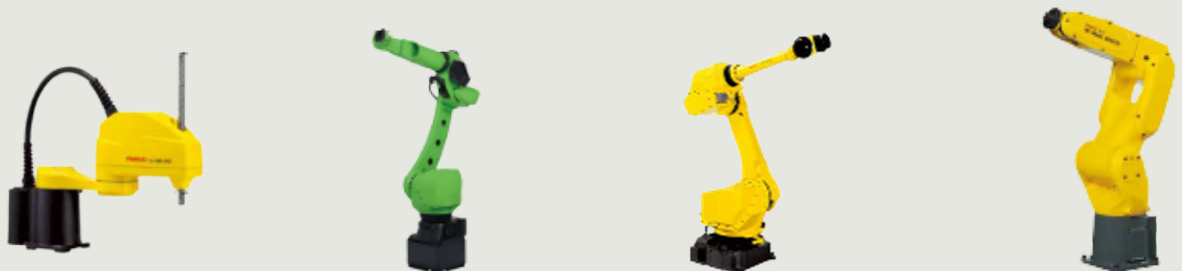
Aerospace & Defense

ROI Drivers:

- Precision = less rework: Rework on aerospace components can cost thousands per part. FANUC's accuracy ensures consistent drilling and fastening, reducing rework and NDT (non-destructive testing) failures.
- Increased throughput: Robots can maintain precision for extended shifts, allowing production ramp-ups without additional staff.
- Labor redeployment: Skilled machinists move from repetitive drilling to high-skill inspection and setup, improving overall workforce ROI.

Example ROI:

A composite drilling application improved cycle time by 20% and reduced rework from 3% to 0.5%. With high part values, ROI was achieved in under 2 years.



Plastics (Injection Molding, Extrusion, Thermoforming)

ROI Drivers:

Cycle time reduction: Robots remove parts faster and more consistently, trimming 3–5 seconds off each molding cycle. On high-volume molds, this adds up to thousands of extra parts per day.

Scrap reduction: Eliminating manual part distortion or mis-picks prevents wasted material.

24/7 machine tending: Robots enable “lights-out” operation for night or weekend shifts.

Example ROI:

A plastics molder using two FANUC M-10iD robots for press tending cut labor needs by 40% and achieved an 18-month payback — plus added capacity worth \$200,000/year without buying new presses.

Quantifying ROI: Inputs for Your Model

To accurately model ROI, gather the following data for each cell or process:

- Current hourly labor rate and staffing level per shift
- Number of shifts and annual operating hours
- Scrap/rework percentage and part value
- Average machine downtime per shift
- Planned robot system cost (including EOAT, safety, integration)
- Energy and maintenance savings (FANUC robots are energy efficient and low-maintenance)

Sure Controls uses this data to build a customized ROI analysis that highlights payback and net annual gain.



Implementation Factors That Protect ROI

1. Correct Robot Selection: FANUC offers the world's widest range of robot models — ensuring the robot matches payload, reach, and environment requirements.
2. Process Simulation & Proof of Concept: Using FANUC ROBOGUIDE software, Sure Controls can simulate cycle time and validate ROI before purchase.
3. Scalable Design: Modular EOAT and standardized controls reduce reprogramming cost for new parts.
4. Training & Maintenance: On-site operator training ensures high utilization and fast troubleshooting, protecting long-term ROI.

ROI in Context: Beyond Dollars

While ROI is typically measured in payback years, strategic benefits are equally important:

- Faster time to market for new products.
- Customer confidence from consistent quality.
- Workforce attraction — automation helps retain skilled workers by removing monotonous tasks.
- Data visibility — integrated analytics support continuous improvement initiatives.

Conclusion

FANUC robots consistently deliver measurable and repeatable ROI across precision manufacturing industries. By improving throughput, reducing waste, and ensuring compliance, they transform automation from a cost into a competitive advantage.

Sure Controls, as a FANUC integration partner, helps facilities quantify these gains with real operational data — ensuring each project has a clear, defensible business case before the first robot is installed.

Let's Connect

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