



CASE STUDY

Precision Beyond Standards: 9-Year Partnership Delivers Complex Medical-Grade Linear Motion Solutions

When a global manufacturer of custom motion solutions needed precision-engineered aluminum rails for use in medical laboratory analyzers, it selected Momentum Manufacturing Group – Engineered Extrusions.

The Challenge

The customer's motion systems are integral to medical diagnostic equipment that demands extreme accuracy and reliability. Each machine includes linear-motion rails that must meet strict straightness, flatness, and cross-section tolerances to ensure smooth, vibration-free operation.

The customer needed a single-source partner capable of managing the entire manufacturing process—from precision extrusion through complex machining and specialized finishing—while maintaining the documentation and traceability required for medical device applications.

The Solution

In early 2016, the customer selected MMG Extrusions to produce one of its complex aluminum profiles. With its world-class extrusion capabilities, in-house large-format machining centers, and advanced CMM inspection systems, MMG Extrusions quickly proved itself to be a standout manufacturing partner. The customer wasted no time shifting more of its guide rails to MMG Extrusions

Advanced Manufacturing Capabilities

Beyond extruding the customer's multi-cavity aluminum profiles, MMG Extrusions provides:

- **Extensive Secondary Machining:** Over 200 features per rail require CNC milling and machining, including mounting holes, slots, and precision surfaces.
- **Large Format Processing:** Rails up to 55" in length and 6" in diameter are processed more quickly with specialized large-bed CNC equipment.
- **Tight Tolerances:** Dimensional requirements of ± 0.002 " across all machined features.

- **Advanced Quality Control:** Large-format Coordinate Measuring Machines (CMM) enable comprehensive inspection and verification of all machined features.
- **Surface Finishing:** Two-step finishing process including Type II chemical film and glossy powder coating for durability and improved conductivity.
- **Medical Device Compliance:** Complete material traceability from ingot to shipped part, including powder coating certificates.

Scaling Manufacturing Capacity

As the customer's business has grown, so has the demand for these complex linear guide rails. MMG Extrusions has consistently scaled its manufacturing capacity to meet increasing production volumes while maintaining the same exacting quality standards:

- **Process Optimization:** Continuous refinement of machining programs and workflows to improve efficiency without compromising precision.
- **Capacity Investment:** Strategic equipment additions and upgrades to handle higher volumes.
- **Dedicated Resources:** Allocation of specific equipment time and personnel to maintain consistency.
- **Quality Consistency:** Maintained dimensional accuracy and surface finish standards across all volume increases.

Choosing the Right Partner for Your Product

Companies developing precision products need manufacturing partners who can:

- Deliver world-class extrusion precision for complex profiles
- Provide large-format machining for oversized components
- Maintain tight tolerances across hundreds of features
- Coordinate integrated services to simplify supply chains
- Meet certification and traceability requirements
- Scale production capacity alongside business growth
- Build long-term partnerships focused on mutual success

Need to launch a new product or scale a growing product line? Need a manufacturing partner who has comprehensive in-house capabilities? Look no further than MMG Extrusions.



END-TO-END MANUFACTURING SUPPORT

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EXTRUSIONS**

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