DYNOMAX

ISO 9001:2000 AS9100:2004 Registered




Design

Manufacturing

Performance

www.dynomaxinc.com

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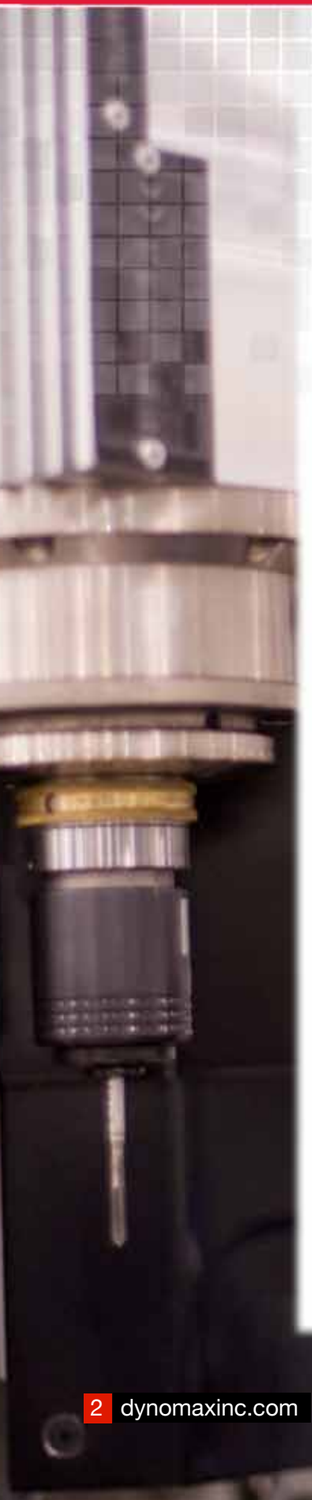
Design • Manufacturing • Performance
ISO 9001:2000 • AS9100:2004 Registered



"At Dynomax, we are dedicated to the pursuit of manufacturing excellence. We continually strive to provide our customers with the highest quality products and services available, with a focus on technology, innovation, and customer satisfaction."

Dr. Richard Zic, Founder and CEO

Dynomax's strong reputation has been built on providing our customers with integrated ***precision*** manufacturing solutions. Dynomax's customers include some of the largest names in aerospace, transportation, energy, defense, mining, and construction.

Since 1986, Dynomax has committed to developing ***complete*** solutions that enable our customers to be leaders in their industry. Our portfolio of capabilities includes high precision machining, spindle design and manufacturing, custom tooling and fixtures, precision injection molding for complex components, robotics and automation, component assemblies, and machine design for specialized applications.

In addition, our customers receive the full benefit of our dedicated team's extensive experience and knowledge in the engineering sciences. This depth of information provides our customers with innovative solutions that translate into quantitative, measurable values, delivering high-quality, cost-effective ***results***.

DESIGN

- Research and Development
- Material and Metallurgy Consultation
- Feasibility Analysis
- Engineering Consultation
- Prototyping
- Application Consultation

MANUFACTURING

- Precision Machining
- Production Components and Assemblies
- Injection Molding and Tooling
- Industrial Automation
- Specialty Machine Design and Manufacture
- Machine Tool Spindle Design, Manufacture and Repair

PERFORMANCE

- ISO9001:2000
- AS9100:2004 Certified
- Quality Driven
- Continuous Improvement
- Employee Commitment
- Dedicated to Customer Satisfaction

DYNOMAX DESIGN
ENGINEERING AND CONSULTATION

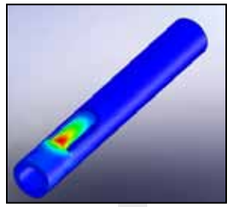
RESEARCH & DEVELOPMENT
Firmly rooted in engineering and design, Dynomax is committed to ongoing research and development activities. By constantly pushing the envelope in both design and technology, we are able to provide our customers with innovative solutions to complex manufacturing problems. Always on the cutting edge, Dynomax provides the competitive advantage needed to strive in today's competitive manufacturing world.

APPLICATION CONSULTATION
Dynomax's application engineers are highly skilled and experienced in providing high quality consultation services. Whether it's matching a customer with the ideal Dynomax spindle or recommending a new material for injection molding runs, our team is dedicated to getting our customers what they need when they need it.

FEASIBILITY ANALYSIS
In the early stage of a new project, Dynomax's engineers can provide project feasibility consultation based on real world conditions. Channeling years of training and experience, Dynomax's engineers provide valuable, quantitative metrics that allow our customers to make informed decisions on project investment and development to ensure maximum returns.

PROTOTYPING
Dynomax is fully equipped to support the rapid prototyping needs of our customers. With engineering, manufacturing and quality control all under one roof, we can seamlessly design, produce and inspect finished product in a short time frame. From one-off piece parts to small production runs, Dynomax will efficiently fulfill your manufacturing needs.

ENGINEERING AND CONSULTATION



MATERIALS CONSULTATION
Dynomax's metallurgical department can assist in a variety of ways:

- Develop new alloys for specific applications.
- Fabrication of alloys or composites into useful configuration.
- Design and control of processes that will produce mechanical, physical, and chemical properties required for any specific application.
- Solve complex problems that arise when using specific alloys in applications that span great environmental changes, such as wide temperature, pressure, and chemical stresses.
- Dynomax can quickly identify problem areas in material applications and provide beneficial scientific solutions.

Dynomax has many years of combined experience dealing with complex issues, particularly in the demanding areas of aerospace, defense, military and other industries. Our in-house team of Metallurgical and Material Science Ph.Ds can assist in complex material selection, failure analysis, surface condition examinations, structural analysis and more.

ENGINEERING CONSULTATION
Our technically skilled engineering workforce ensures successful engagement of resources for projects and provides our customers with complete integrated engineering solutions. From conceptual design to operational equipment, we bring innovative solutions that deliver cost-saving, practical, and code compliant designs.

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DYNOMAX MANUFACTURING
PRECISION MACHINING SERVICES

MILLING

- 3 & 5-axis vertical machining centers
- 18,000 rpm Dynomax brand spindle
- Envelopes up to 48” x 24” x 24” travel with 20.5” rotary table diameter
- 30 position tool changer with 2 second tool changeover
- Table load capacity up to 1500 lbs
- 1575 ipm rapid traverse rate
- X-Y positioning tolerance .0005”
- Z axis depth tolerance .001”
- All machines are calibrated to ASME B5.54
- Materials: Aluminum, Stainless Steel, Titanium, Exotics

DYNOMAX, 5-axis machine

BROACHING

- Maximum workpiece diameter 1.75”
- Minimum inner diameter .410
- 3 Linear Axis (XYZ)
  1 Rotary Axis (B)
- Programmable (I.D. or O.D.)
  Broached Slots within .001
- Additional Drilling or Milling Linear Axis (Y)

BORING

- Envelopes of 48” x 24” x 24”
- Tolerance of 0.0001”
- Table load capacity of 6600 lbs

GRINDING

- O.D. Grinding: .500” to 14” Diameter
- I.D. Grinding: .250” to 5” Diameter
- T.I.R. : .0001”
- Surface Finish: 16 to 32
- Surface Grinding up to 12”x24”
- Regrind Spindle Tapers

Gantry type milling machine, ideal for high precision machining of very large parts.

XS PARPAS

- Materials: High Strength Steel and Aluminum, Titanium Alloys, Carbon Fiber
- Travel: 19.6’ x 9.8’ x 4.9’
- Working Area: 23’ x 8’
- Table Load: 16.5 tons/sq.m
- Spindle Speed: 7,000 to 24,000 rpm
- Dimensions (WxLxH): 30’x25’x20’
- Total Machine Weight: 227,000 lbs

KITAMURA BRIDGECENTER -10

- Table Size: 54”x118”
- Travel (XYZ): 100”x 69”x31.4”
- Spindle Speed: 10,000 rpm- BT50
- Tool Storage: 30 - 80 Tools
- Rapid Feed X,Y / Z: 24 / 24 m/min
- Positioning Accuracy: +/- 0.002 mm; / Full Stroke
- Repeatability: +/- 0.001mm
- Intelligent Advance Control System
- High-Efficiency Chip Management System

Double-column design provides expansive work envelope and super-rigidity needed for heavy table loads and tough cutting conditions.

THIN WALL MACHINING

- Wall thickness can be machined to below 0.0100” (2.5 mm)

LASER MACHINING

- Precision Laser Micro-Machining
- Custom laser mark your parts
- Prototypes are our specialty
- Primary & secondary operations
- EDM Wire/Sinker support - Up to 5 axis

DYNOMAX MANUFACTURING

PLASTIC INJECTION MOLDING AND CUSTOM TOOLING

Dynomax is proud to produce its mold tools and run its injection mold presses here in the United States. All of our products are guaranteed to meet your specifications and made with quality throughout. Dynomax can produce your mold tool, provide first article documentation, and fulfill your part production needs.

Quality, flexibility and customer service are benchmarks that have helped build Dynomax. We are proud of our customer service as well as our loyalty, integrity and commitment to providing the best possible thermoplastic, thermoset and silicone products.

CUSTOM MOLD TOOLING

Dynomax manufactures and supplies several types of production tooling including molds, fixtures, and jigs. Our experienced personnel excel in the design and manufacture of custom tooling that helps make product components of consistent size, shape and quality.

We utilize state-of-the-art technology and equipment, such as CNC mills, automatic water grinders, surface grinders, and form grinders used in specialty applications. All our design, tooling and mold building is done in-house to our customer's specifications.

PLASTIC INJECTION MOLDING

When it comes to precision injection molding of all grades of thermoplastic and thermosetting resins, compounds and silicones, Dynomax produces the highest quality molded parts in the industry. Dynomax's experienced staff and state-of-the-art horizontal and vertical molding equipment help us to strive for zero-defect products.

PLASTIC INJECTION MOLDING

The closer the tolerance and higher the complexity, the better! From the design stage through prototyping, in-house mold construction to micro tolerance injection molding, Dynomax can service your needs. Some of our services include mold sampling, mold troubleshooting, first article inspection, in-process inspection, insert molding, short runs, hot runner multi-cavity production and multi component parts.

We have extensive experience with all thermoplastics, both common and exotic, within the aerospace, defense and transportation industries. Our specialty is small to micromolding applications. All injection molding, automation, maintenance, repair, and mold building are done in-house by our staff of craftsmen. This allows Dynomax to provide a 24 hour response to your needs.

Dynomax has several dozen horizontal injection molding presses. We also have several vertical injection molding machines for insert molding. We can inject repeatedly in less than .1g shot ranges. Dynomax invests in technology and is rewarded with the benefits seen from servo electric, advanced 2-stage hydraulic and computer controlled presses.

Dynomax excels in LCP (and other high temperature thermoplastics). We utilize high temperature oil thermolators and electronically controlled drying equipment to ensure the highest quality, most cost effective cycles possible. We also injection mold silicone and provide post cure service on site in our computer controlled ovens. Dynomax is a full-service injection molder capable of providing a full range of services, consultation, tooling, and quality assurance.

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INDUSTRIAL AUTOMATION

At Dynomax, we help our customers reap the benefits of an automated process for their unique applications. By utilizing the most sophisticated advances in manufacturing technology, Dynomax provides flexible automated solutions that enable customers to reduce costs, improve quality, and increase industrial productivity. These benefits give them a definite competitive advantage and help differentiate themselves in their respective industries.

Call us today to inquire about how Dynomax can provide you with resources and solutions to automate your unique applications.

SPECIALTY MACHINE DESIGN AND CONSTRUCTION

Dynomax has a passion for efficiency that shines through with our automation solutions. Dynomax is the leading producer of flexible automated machine cells that can transform raw material to finished product with no operator interaction.

Dynomax's experienced engineering team can provide customers with a machine concept, design or a complete turnkey system. Service is provided with all specialty machine applications. Machine cells are built with our signature Dynomax brand spindles to guarantee a high-quality product.

PRODUCTION COMPONENTS AND ASSEMBLIES

Dynomax employs six-sigma methodologies to ensure components are assembled accurately, to specification, and within a tight time frame. We are ISO 9001 and AS9100 certified and guarantee documentation and traceability. ISO 7/10,000 clean room expert technicians perform all component assembly.

All orders can be assembled in-house to reduce labor and purchasing costs. Finished assemblies are tested and inspected to meet specific customer requirements. We offer smooth integrated solutions to your supply chain, from raw material to finished product. Whatever your assembly needs may be, Dynomax has the ability to meet them.

MACHINE TOOL SPINDLE DESIGN, MANUFACTURE, AND REPAIR

Dynomax is a rare domestic source for precision spindles unmatched in both quality and performance. Having shipped thousands of spindles to the biggest names in North American manufacturing for the past 20+ years, Dynomax has the experience required to get the job done right.

With an extensive engineering background, Dynomax is more than just a spindle supplier. Our in-depth technical knowledge of the complete spindle assembly allows us to provide our customers with spindles that accurately match their unique applications. Our on-site engineering staff is always available to help answer any technical questions.

- Block Spindles
- Multi-Head Spindles
- Specialty Spindles
- Standard Motorized Spindles
- Cartridge Spindles
- Gear Driven Spindles
- Quill Spindles
- High Speed Motorized Spindles

You can also try our innovative spindle creator online at www.dynospindles.com, where you can custom spec your spindle to fit any application.

DYNOMAX PERFORMANCE

DEDICATED TO QUALITY AND CUSTOMER SATISFACTION

CONTINUOUS IMPROVEMENT

Dynomax follows a continuous improvement methodology that ensures consistent, systematic delivery of results. This methodology is a set of processes that guide us through complex situations, reduce our propensity for risk, and help us identify areas that need improvement.

Dynomax uses several methods to determine activities to incorporate into our system: monitoring of customer-related activities, supply chain management, and adopting industry best practices. Daily activities are monitored for quality-related issues that affect our customer or product and are addressed by a multifunctional team including engineering, production, and quality control.

All customer orders or activities begin with a thorough product realization which includes quality review, established processes, verification and validation of activities, and identification of resources to support operations.

QUALITY DRIVEN

Dynomax is an ISO 9001:2000 certified company and uses these standards to develop and evaluate quality systems, procedures, and feedback mechanisms to continuously improve operations.

Internal and external process and documentation audits are performed under the ISO standards to ensure production of high-quality products and services. A thorough trial inspection process is employed using technologically advanced inspection equipment such as CMM, laser micrometers, comparators, and custom vision equipment.

Dynomax has also obtained the prestigious AS9100:2004 certification, mandated by the aerospace industry, which incorporates the current version of ISO 9001:2000, while adding additional requirements relating to quality and safety. Dynomax applies the disciplines required by AS9100:2004 across all product lines and activities, making us a preferred supplier to major aerospace, defense, and biomedical manufacturers.


EAGLE Registrations Inc.

ANAB

Certificate No. 3626 (3 Copies)
10/06/2008 through 10/05/2011

Certificate of Registration

This is to certify that the Quality Management System of

DYNOMAX

956 Campus Drive, Mundelein, Illinois 60060
705 Armstrong Drive, Buffalo Grove, Illinois 60089

Has been assessed by EAGLE Registrations Inc. and conforms with the following standard:

ISO 9001:2000 with AS9100:2004 Rev B

This assessment was performed in accordance with the requirements of AS9104. EAGLE Registrations Inc. is accredited under the aerospace Registrar Management Program

Scope of Registration

Design, Manufacture, and Repair of Machinery Including, Spindles, Slides, Injection Mold Tooling, Connectors, Connector Components, and Related Processing Equipment.

Operations Director

EMPLOYEE COMMITMENT

Dynomax has invested heavily in the tools, talent and training necessary to provide our customers with high quality products and services. Our employees are empowered to take pride in their work and foster an environment based on teamwork, training and development, creativity, participation, loyalty, and belief in the values of the organization.

CUSTOMER SATISFACTION

Dynomax strives to produce products and services that meet or surpass our customer expectations. In order to achieve this goal, Dynomax is committed to providing quality products, cost-effective solutions, on time delivery, and continuous improvement.

STATE-OF-THE-ART FACILITIES

DYNOMAX WHEELING, IL

- Corporate Headquarters
- Engineering & Design Department
- Large Component Machining
- Spindle Manufacture / Repair & Service Center
- Industrial Automation
- Quality Control Department

DYNOMAX MUNDELEIN, IL

- Mold Tooling Department
- Thin Wall & Multi-Cavity Tooling
- Facility dedicated to Precision Injection Molding
- Hydraulic & Electric Actuation
- Vertical & Horizontal Presses

DYNOMAX BUFFALO GROVE, IL

- Facility Dedicated to Presicion Machining
- 3- & 5-Axis Machines
- Machine & Equipment Manufacturing
- Milling, Drilling, Boring & Broaching
- Assembly

DYNOMAX'S MISSION IS CLEAR!

DYNOMAX MISSION STATEMENT

C **COMMITMENT**
to our customers, co-workers, community, ourselves

L **LEADERSHIP**
with our customers, co-workers, community, and ourselves

E **ENHANCEMENT**
of our customers experience, co-workers environment, community involvement, and our own knowledge

A **ATTITUDE**
show a positive attitude to our customers, co-workers and community

R **RELIABILITY**
toward our customers, co-workers, community and ourselves

BUSINESS CONTINUITY PLANS

Dynomax's multiple locations through out the Chicago area, with equipment redundancy, allow for a significant degree of preparedness in the event of disasters. Disaster recovery and continuity plans are frequently discussed in management meetings.

DATA RECOVERY PLANS

Dynomax's mission critical data and information systems are continuously backed up in multiple off site data centers.

WHEELING

1535 Abbott Drive, Wheeling, 60090

MUNDELEIN

956 Campus Drive, Mundelein, 60060

BUFFALO GROVE

708 Armstrong Drive, Buffalo Grove, 60089

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