

**70+ Years
Experience**

**IATF / ISO
Certified**

**Mold & Tool
Building**

**Blow
Molding**

**Injection
Molding**

**Product
Design**



Flambeau®

CONTRACT MANUFACTURING

***Putting All The Pieces
Together For You***

**Complex
Assemblies**

**Tool
Design**

**Project
Management**

**Secondary
Operations**

Prototyping

Automation

**Material
Analysis**

Shaping the Products of Tomorrow... In Plastic®

Flambeau Contract Molding & Assembly

Diverse Industries. Diverse Applications.

Flambeau is a custom manufacturer of injection-molded and blow-molded parts, components and assemblies supplying a wide range of applications utilizing a broad variety of materials and engineering assistance.

Applications include, but are not limited to:

- Agriculture
- Construction
- Heavy Duty Truck
- Medical / Healthcare
- Appliance
- Communications
- Industrial
- Premiums & Special Markets
- Automotive
- Defense
- Lawn & Garden
- Recreational / Outdoors
- Business Electronics
- Forestry
- Marine
- Transportation



www.flambeaucases.com
Phone: 1-800-628-1672

Flambeau Packaging and Storage Solutions offers the industry's largest selection of stock rigid plastic packaging for quality brands and products. Any of our products can be uniquely customized through engraving, printing, hot-stamp labeling, in-mold decorating, and various stock and custom colors. We will work with you to build your very own custom case with an engineering team on hand to fit exact specifications. Our injection, blow, and rotational molding capabilities are a one-stop source of stock and custom plastic packaging products to add value to retail and original equipment products. Consider Flambeau packaging as Your "Art to Part" Source!

Our Full Range of Services Include:

- Part design
- Mold design and fabrication
- Manufacturing and assembly
- Various product fulfillment programs
- Prototyping
- Sampling
- Custom quoting



www.flambeaumedical.com
Phone: 1-800-628-1672

Flambeau Medical Markets Group is a diverse manufacturing company providing a complete product fulfillment service for the medical device industry. For cleanroom applications our Phoenix, Arizona facility is ISO 13485 (CFR21 820 Compliant) certified contract manufacturing company with capabilities to support the manufacturing of FDA Class I, II, and III Devices.

Expertise in:

- Plastic Manufacturing
- Project Management
- Custom Injection
- Injection Molding
- Contract Manufacturing Services
- Mold Design
- Material Testing
- Blow Molding
- Ultrasonic Welding
- Secondary Operations & Assembly
- Product Design
- Cleanroom Molding
- Sterile/Non-Sterile Packaging
- Rapid Prototyping
- Cleanroom Assembly
- Bioscience Diagnostics
- Precision Tooling
- Fluid Management Connectors & Containers

Target Markets:

- Cardiovascular
- Anesthesia
- Sterile/Non-Sterile Packaging
- Orthopedics / Spine
- Infection Control
- Bioscience Diagnostics
- Respiratory Care
- Wound Care
- Fluid Management Connectors & Containers
- Ophthalmology
- Pain Management
- OR Products
- Dental
- OR Products



Flambeau has over 40 years of experience supplying a wide array of blow-molded and injection-molded products and assemblies to OEM and Tier-1 automotive customers. The core products of Flambeau Automotive include – but are not limited to – HVAC ducts, air intake ducts, washer tanks, reserve tanks, cargo boards with molded-in carpet, and debris screens.

Support Capabilities:

- Complete in-house tool building capability
- Full design responsibility or design support provided
- IATF certified
- BIQ certification
- DV/PV testing
- Complex line and work cell assembly experience
- Plastics bonding
(hot plate, vibration, sonic, infrared, spin)
- Over-molding



When you think of plastic injection or blow molded Contract Manufactured components or products, Flambeau is the “go-to” resource name. Flambeau molds Industrial parts for companies in over 40 specific market areas. We have over 70 years of engineering expertise and manufacturing knowledge to assist in bringing the best designs to market for our customers. From engine shrouds to filtration systems, or metal to plastic conversions, look to Flambeau as your total resource for injection and blow-molded products, as well as development of products incorporating both manufacturing processes, giving you the best of both worlds. We can help you optimize your total costs of supply with a solution you can depend on.



Flambeau Fluid Systems manufactures custom tanks, caps, fittings, components and sub-assemblies and is the industry leader in proprietary stock and customized stock tanks used in a wide variety of equipment and vehicles. Our products are frequently used for radiator overflow, coolant recovery, hydraulic reservoirs, fuel tanks (including CARB/EPA compliant fuel and DEF systems) and windshield washer systems. Flambeau offers a wide range of secondary processes including plastic welding, assembly, pad printing, in-mold labeling and other decorating, while specializing in meeting the needs of your application from a single component to a complete value-added assembly.



Flambeau's Engineering Services

Our 70+ years of experience allows us to optimize the design and construction of the blow and injection molds.

Engineering Services include:

- Product design - engineering and design support
- On-site design or engineering support as desired
- Design for manufacturability consulting services
- Customized product testing and process validation control
- Project Management - PMGS (Project Management Gate System) APQP driven
- Turnkey solutions
- EPA regulatory compliance and certification
- Prototype and production tooling
- Fabrication of secondary automated equipment and robotics
- CMM capabilities

Turnkey Product Design / Product Development / Consulting

Flambeau Engineering Services are based on a 5 factor approach which is fundamental to good part design:

1. Comprehensive Part Design

- The Flambeau Team has many tools available to review and support part design development. Our experienced and knowledgeable designers can support SolidWorks, NX, Pro/ENGINEER and CATIA. Reviewing details with mold-flow and FEA analysis up front saves our customer time and money.
- Our staff of engineers is experienced at giving hands-on support from conception through production to ensure robust part designs and manufacturing processes. Prototyping - We have the capability to validate part design using our in-house 3-D printing equipment.

2. The Right Material

- A thorough and accurate part design along with the right material for the application are inseparable. Our team will work with you and our staff of material specialists have the technical and material expertise to ensure we are delivering the optimized material for your application.

3. Optimized Mold Design

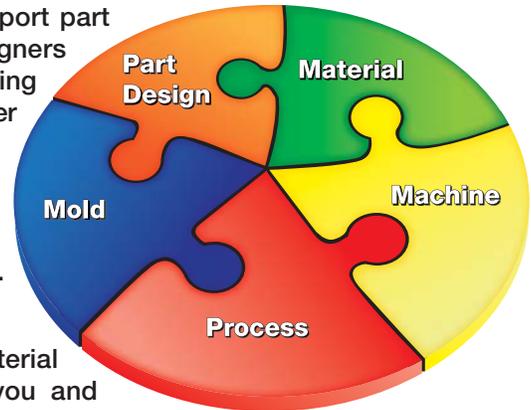
- Flambeau is unique in its ability to provide in-house mold building capabilities. We provide high quality tooling made in America and a strong knowledge base to support optimal mold design. For those looking for off-shore tooling, Flambeau leverages a network of international mold-building resources. Full CAD-CAM design and tool-build capabilities, mold-flow analysis tool-build optimization.

4. Scientific Molding Process

- Flambeau's Injection Molding utilizes Scientific Molding and RJG E-Dart technology to implement successful molding processes focused on the four cornerstones of injection molding: Part Design, Material, Mold Design, and Process.
- Implementing this successfully has been and continues to be a focused effort utilizing key molding variables to optimize part quality and cycle time for our customers.

5. Machine

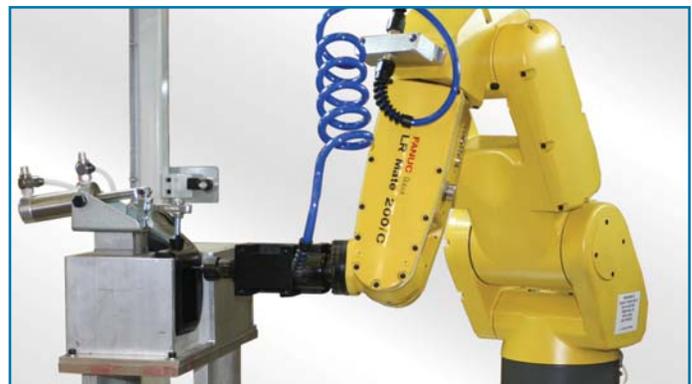
- The machine must be "statistically capable". It must be maintained in accordance with OEM specifications in order to provide valid data to develop a durable molding process for each mold it runs.



Custom Machinery for Automated Finishing

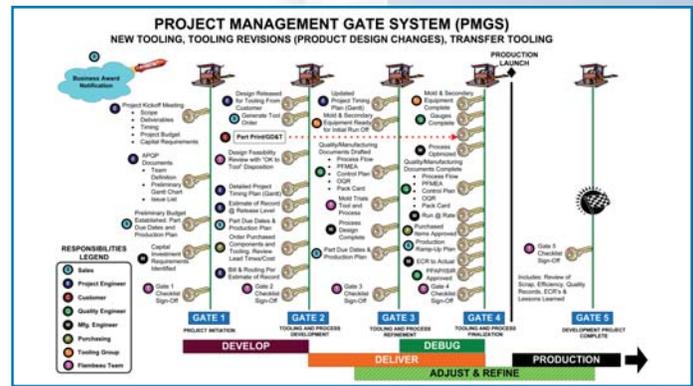
Custom engineered for each application, our automated equipment finishes your part in one step.

- Our in-house secondary design and build services is unique in the industry
- Maximizes efficiency, minimizes cost and cycle times
- Ensures consistency and quality
- Programmable controllers for accuracy, repeatability and safety
- Statistically capable extension of the molding and manufacturing process
- Incorporates the ability to do "mistake-proofing," for quality at the source.



Project Management

Flambeau has a rigorous project management system which is used on all programs. Every project has a full team comprised of an account manager, engineering, production and customer advocate behind it with proven development methods and actively engages customer participation to insure success.



Prototype Capabilities - Prototyping and Pre-Production

Flambeau offers many methods of helping our customers evaluate their designs prior to production. Prototype models can be developed in days to meet your engineering and marketing needs. Fast limited-run production tooling speeds your product to market and our two in house 3-D printers can offer a cost effective way to make functional models of your parts.

- 3-D Printed models from CAD files
- Wide range of rapid prototype tooling options
- Testing and evaluation services

Processes:

- In-House 3-D printing using FDM technology
- 3-axis and 5-axis CNC Machining
- Inserted MUD Bases for quick injection molded tooling
- Injection and Extrusion Blow Molding prototype tooling



Tool Design / Fabrication

You gain a competitive edge from our experience and resources. Our fifty years of experience designing and building molds for Flambeau has prepared us for your most challenging projects. Precision molds are delivered on time, even for highly engineered products. When product and tool design are concurrent, your tools are ready up to one-third faster.

- Expertise in both the design and construction of injection and extrusion blow molding
- 11 CAD workstations (Unigraphics, SolidWorks, CATIA and PRO-E)

- Surface/solids capabilities
- Expertise in automation and runnerless molds
- Internet based electronic file transfer, 24 hours a day
- Offers tooling options for prototyping

Precision Tool Construction

Our 38 skilled craftsmen average 18 years experience. Even the most complex, highly engineered tooling is right the first time.

- Running two shifts of operations
- Certified tooling with pre-production molded samples
- Alliances with off-shore and domestic tooling resources



CNC Capabilities

Computer generated CNC programs are utilized for accuracy and repeatability. High-speed machining dramatically cuts total cycle time.

- EDM (wire and sinker capabilities)
- Shop floor tool path programming (2D & 3D)
- Around-the-clock unattended operations
- 3 and 5 axis CNC machining centers
- Precision injection molds sized to run in 15-1,700 ton machines
- Extrusion blow molds sized to run in presses from 1 to 35 pound shots



Flambeau's Manufacturing Capabilities

Before you select your next plastics manufacturing partner, contact us. We have the people, processes and resources to meet your contract manufacturing needs.

Manufacturing versatility with expertise in multiple processes:

- Injection Molding: 24 Ton – 1,700 Ton
- Two-Shot Injection Molding
- Blow Molding: Up to 40 Pound Shot – Accumulator and Continuous Extrusion
- Gas Assist Molding
- Over-Molding
- Insert Molding
- Class 7 Cleanroom Molding
- Global sourcing team for components and complimentary products we do not manufacture



Capitalizing on Automation / Robotics



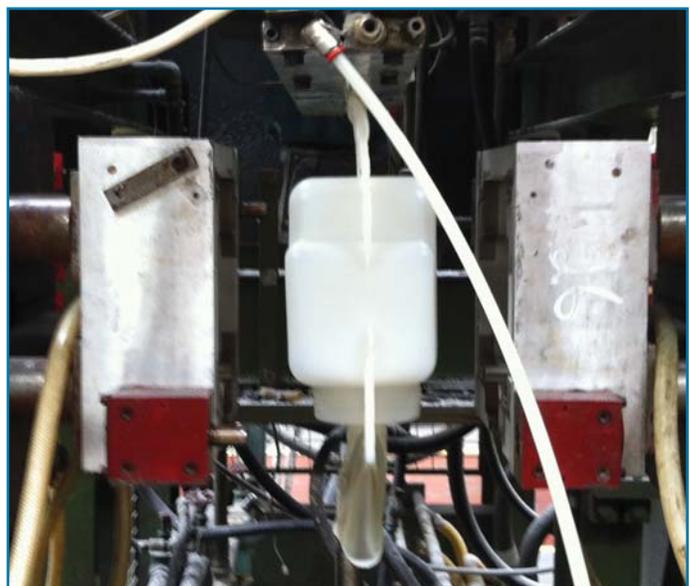
2 Shot Injection Molding

Flambeau's Blow Molding Capabilities

In 1961, Flambeau added blow molding to our capabilities. Flambeau now has over 100 blow molding machines ranging in size from 1 to 40 pound shot in its facilities around the world. Our facilities are IATF and ISO certified, with on-site quality control laboratories to ensure the highest-quality products.

We can provide design assistance or complete product design through our in-house Technology Center where we have technical resources who specialize in blow molding. We can design and build prototype and production tools as well as provide complete program management and automated secondary operations.

Whether your need is in extrusion blow molding, suction blow molding or continuous extrusion blow molding in a wide variety of resins, Flambeau is able to offer the process that is best suited for your application.



Extensive Blow Molding Capabilities

Flambeau's Injection Molding Capabilities

Flambeau has over 160 injection molding machines ranging in size from 24 to 1,700 ton. We provide automated production which allows us to accommodate high-volume requirements. Our capabilities include precision molding to meet the extremely tight tolerances required for small precision parts, as well as cleanroom molding facilities. Our facilities are IATF and ISO certified, and MIL 45208 qualified, plus we have on-site quality control laboratories to ensure the highest-quality products – worldwide.

We can provide design assistance or complete product design through our in-house Technology Center where we have technical resources who specialize in injection molding. We can design and build prototype and production tools as well as provide complete program management and automated secondary operations.

Whether your need is in two-shot molding, over-molding or standard injection molding in a wide variety of resins, Flambeau is able to offer the process that is best suited for your application.



Large Part Injection Molding with Robotic Removal & Assembly

Flambeau's Secondary Operations Capabilities

Work Cells

From concept to the finished product, we can customize work cells to fit your requirements. This capability, coupled with Flambeau's engineering services and manufacturing capabilities, provide our customers a complete “turnkey” option for their most challenging projects.

Flambeau designs work cell environments that are customized to fit the specific needs and requirements of every customer/product, providing value as well as a competitive advantage.

These are some of the Secondary / Custom Operations we offer to complete your project:

- Complex / Product Assembly – Manual, Semi-Automatic, Automatic Custom Packaging and Custom Packaging Including POP Display
- Inserting, Cutting, Slitting, Routing, Robotic Routing, Drilling, Reaming, Facing, Punching, De-gating, Fastening, Stapling, Riveting, Crimping, and Vacuum Metalizing
- Custom Post-Mold Assembly
- Bonding and Welding: Melt Welding/Hot Plate Bonding, Infrared Welding, Welding, Heat Staking, Spin Welding, Ultrasonic Welding, Ultrasonic and Heat Thread Insert Installation, and Vibration Welding
- Decorating: Hot Stamping, Pad Printing, Silk Screening, SpectraMolding™ In-Mold Labeling / Graphics – Including fabrics and carpeting, Post Mold Decorating Including Painting and Printing, and Heat Transfer



Emphasis in Automation & Verification



Pad Printing



Custom Packaging



Robotic Machining

Certifications

- ISO 13485
- ISO 14001
- ISO 9001
- IATF 16949
- BIQ Certification
- MIL 45208 Qualified
- Directorate of Defense Trade Controls Registered
- Employee Training Certification Program

Flambeau's Manufacturing Locations

Flambeau Blow Molding - Baraboo, Wisconsin USA

715 Lynn Avenue • Baraboo, WI 53913 USA

Phone: 608-356-5551

- 228,546 Square Feet
- 29 Blow Molding Presses: 2-35 Lbs. Shot
- ISO 9001:2015 Certified
- IATF 16949:2016 Certified



Flambeau Injection Molding - Baraboo, Wisconsin USA

801 Lynn Avenue • Baraboo, WI 53913 USA

Phone: 608-356-5551

- 131,754 Square Feet
- 36 Injection Molding Presses: 24-1,100 Ton
- ISO 9001:2015 Certified
- IATF 16949:2016 Certified
- Two-shot Injection and Insert Molding Capabilities



Flambeau - Columbus, Indiana USA

4325 Middle Road • Columbus, IN 47203 USA

Phone: 812-372-4899

- 177,000 Square Feet
- 17 Injection Molding Presses: 85-1,500 Ton
- 3 Blow Molding Presses: 15-35 Lbs. Shot
- ISO 9001:2015 Certified
- IATF 16949:2016 Certified



Flambeau - Madison, Georgia USA

1330 Atlanta Highway • Madison, GA 30650 USA

Phone: 706-342-8300

- 150,000 Square Feet
- 12 Injection Molding Presses: 70-1,500 Ton
- 11 Blow Molding Presses: 2.5-30 Lbs. Shot
- ISO 9001:2015 Certified
- IATF 16949:2016 Certified



Flambeau - Middlefield, Ohio USA

15981 Valplast Street • P.O. Box 97 • Middlefield, OH 44062-0097 USA

Phone: 440-632-1631

- 88,000 Square Feet
- 23 Injection Molding Presses 150-730 Ton
- ISO 9001:2015 Certified



Flambeau Medical Markets Group - Phoenix, Arizona USA

3315 W. Vernon Ave. • Phoenix, AZ 85009 USA

Phone: 602-484-4520

- 20,000 Square Feet
- 4 Clean-Clamp Precision Medical Injection Molding Presses 55-165 Ton
- 1 Vertical Injection Molding Press 55 Ton
- 3600 Square Feet of ISO Class 7 or Class 10,000 Cleanroom Manufacturing and assembly
- Conventional and Cleanroom Molding
- ISO 13485:2016 Certified
- ISO 9001:2015 Certified
- Prototyping and Mold-making
- Secondary Operations and Assembly
- Insert Molding
- FDA Registered as OEM Contract Manufacturer



Flambeau Injection & Blow Molding - Phoenix, Arizona USA

3301 W. Vernon Ave. • Phoenix, AZ 85009 USA

Phone: 602-484-4520

- 60,000+ Square Feet
- 24 Precision Injection Molding Presses 55-440 Ton
- 6 Blow Molding Presses 3-15 Lb. Shot
- ISO 13485:2016 Certified
- ISO 9001:2015 Certified
- MIL-I-45208 Qualified
- Defense Registered (ITAR)



Flambeau - Sharon Center, Ohio USA

1468 Wolf Creek Trail • P.O. Box 354 • Sharon Center, OH 44274-0247 USA

Phone: 330-239-0202

- 123,000 Square Feet
- 15 Dual-head Blow Molding Presses: 3-40 Lbs. Shot
- 1 Continuous Extrusion Blow Molding Press (400 Lbs./Hr.)
- ISO 9001:2015 Certified and UL Certified
- IATF 16949:2016 Certified



Flambeau Europe - Ramsgate, Kent England

Manston Road • Ramsgate, Kent CT12 6HW England

Phone: +44 (0) 1843 854000 • Web: www.flambeau.co.uk

- 140,000 Square Feet
- 21 Injection Molding Presses: 60-1,700 Ton
- 11 Blow Molding Presses: 10-200 Liter
- ISO 14001:2015 Certified
- ISO 9001:2015 Certified
- IATF 16949:2016 Certified



Plásticos Flambeau - Saltillo, Coahuila Mexico

Calle 17, No. 3692 • Ampliación Morelos • Saltillo, COAH. C.P. 25217 Mexico

Phone: (52) 844-411-9760

- 150,000 Square Feet
- 12 Injection Molding Presses: 55-1,100 Tons
- 17 Blow Molding Presses: 3-25 Lbs. Shot
- ISO 14001:2015 Certified
- ISO 9001:2015 Certified
- IATF 16949:2016 Certified
- BIQ Certified



Flambeau's USA Sales & Engineering Offices

Flambeau Automotive Sales & Engineering Office - Auburn Hills, Michigan USA

2701 Cambridge Court, Suite 515 • Auburn Hills, MI 48326-2563 USA

Phone: 248-364-3357 • Fax: 248-364-4457 • Customer Service: 608-355-6550

- Our office is conveniently located just off the University Drive exit of I-75 less than a mile north of the Chrysler Headquarters.
- We are staffed with direct Flambeau associates who provide professional Account Management, Program Engineering, CAD Design, and Cost Estimating services.
- Flambeau will provide full product design responsibility or product design support according to individual need.
- Guest engineering support is available.
- Complete product validation testing can be provided.



Flambeau Industrial & Fluids Sales Office - Baraboo, Wisconsin USA

801 Lynn Avenue • Baraboo, WI 53913 USA

Phone: 608-356-5551 • Fax: 608-356-5260 • Customer Service: 608-355-6550

- We are located just one hour north of Madison off I-94, approximately 2 hours northwest of Milwaukee, approximately 3 hours northwest of Chicago, and approximately 3 hours southeast of Minneapolis.
- We have a large engineering department at the Flambeau Technologies Tool Group (see below for description of services).
- Complete product validation testing can be provided.



Flambeau Technologies Tool Group - Baraboo, Wisconsin USA

911 Lynn Avenue • Baraboo, WI 53913 USA

Phone: 608-356-5551 • Fax: 608-356-5337

- Providing professional account management, program engineering, CAD design, mold-flow analysis and cost estimating services.
- Flambeau will provide full product design responsibility or product design support according to individual need.
- Fully equipped mold making facility for injection and blow molds, prototyping, fixture capabilities, automation design and manufacture, secondary operations, and assembly.



Flambeau Medical Markets Group - Phoenix, Arizona USA

3315 W. Vernon Ave. • Phoenix, AZ 85009 USA

Phone: 602-484-4520 • Customer Service: 608-355-6550 • Fax: 602-484-4525

- Flambeau Medical Markets Group is a premier medical device contract manufacturer delivering the highest quality products through a collaborative, transparent approach.
- Our expertise in all forms of polymer-based solutions makes us a preferred partner for many of the largest OEM's and Tier-1 suppliers in the industry.
- Flambeau Medical Markets Group provides new-product development solutions and we can assist with intellectual property development and commercialization of new products.
- Flambeau's Phoenix, Arizona facilities provide mold and tooling design, engineering and manufacturing for low volumes up to SPI Class 101 multi-cavity molds for high volume production.



Flambeau Retail Markets Group - Middlefield, Ohio USA

15981 Valplast Street • P.O. Box 97 • Middlefield, OH 44062-0097 USA

Phone: 440-632-1631 • Customer Service: 1-800-457-5252 • Fax: 440-632-1581

Located one hour east of Cleveland, this location handles sales and customer service of the following Flambeau retail brands:

- ArtBin - Art & craft storage/transport products.
- Duncan Toys - Yo-yos and skill toys for kids of all ages.
- Flambeau Cases - Distinctive packaging for quality brands and products.
- Flambeau Hardware - Storage/transport items for craftsman/do-it-yourselfer.
- Flambeau Outdoors - Hunting/fishing products including decoys and tackle storage.
- Flambeau Packaging - Product protection packaging.
- Flambeau Premiums - Customizable, promotional products.
- OrnaMates - Realistic life-like wildlife lawn ornaments.



Flambeau's International Sales Offices

Flambeau Europe - Ramsgate, Kent England

Manston Road • Ramsgate, Kent CT12 6HW England
Phone: +44 (0) 1843 854000 • Fax:+44 (0) 1843 854010
Web: www.flambeau.co.uk
E-mail: eusales@flambeau.com

Flambeau Europlast is the European Division of Flambeau Inc. and is based in a 140,000 square feet manufacturing facility in Ramsgate, Kent. We are market leaders in the plastic processing industry, with our injection-molding machines, ranging from 60 to 1700 tons and our blow-molding machines ranging from 10 to 200 liters. We injection mold and blow mold a diverse range of plastic components using a variety of different materials. Our highly skilled team provides custom molding services from tool design to turnkey customer solutions to packaged retail products for our retail brands.

Our customer service team processes orders from one product to container loads for distribution from our plastic manufacturing facility to anywhere in the world. We look forward to showing you how we can effectively fulfil your plastics processing requirements.

Worldwide Distribution of Flambeau Products:

- ArtBin
- Duncan
- Flambeau Automotive
- Flambeau Outdoors
- Flambeau Fluid Systems
- Flambeau Hardware
- Flambeau Packaging Solutions
- Stadium Building Products
- The Neat Nursery Co.



Flambeau Trading (Shenzhen) Co., Ltd. – Shenzhen, Guangdong, China

Room 2802, Building A • Xing He Shi Ji Da Sha,
Southwest of the cross of Shen Nan Da Dao and Cai Tian Lu,
Fu Tian District of Shenzhen City
Phone: 86-755-23985431 • Fax: 86-755-82721124
E-mail: cnsales@flambeau.com

Flambeau Trading (Shenzhen) Co., Ltd. was established to provide full engineering, manufacturing and distribution services for our China customers. Our professional engineering, quality assurance and manufacturing team is ready to handle your project from product design and tool build right through to manufacturing and delivering your product at your quality and cost expectations. Our manufacturing capabilities include blow molding, injection molding, metal fabrication, cut and sew operations, painting, decorating and assemble operations. We can manufacture products for export from China as well as product intended for China distribution.

Our Shenzhen location is close to major ports and is in the heart of the southern business district. Having done business in China for many years, we can also offer cost effective logistics both within China as well as for import and export.

Please contact our China Team for help with your next project.





Flambeau[®] INC.



Flambeau brings plastic to life for thousands of businesses and millions of professionals, hobbyists, and enthusiasts worldwide. Flambeau, Inc. and its divisions, in conjunction with other members of the Nordic Group of Companies, form a total resource network providing customer assistance in design and specifications of injection and blow molded thermoplastic components and products, building of tools and fixtures, and contract manufacturing of complete assemblies.

Flambeau brings plastic to life from Duncan toys to Flambeau Industrial Products and Packaging Solutions. The diversity of our many divisions touch lives young and old, far and wide offering quality products and solutions to meet all of your needs. Whether you are an outdoor enthusiast, artist or crafter, home improvement do-it-yourselfer or business professional, Flambeau has the products and services to enhance your life.

Flambeau, Inc. is a member of the Nordic Group of Companies, Ltd. Nordic Group (headquartered in Baraboo, Wisconsin) is a privately-held holding company consisting of subsidiaries with 21 facilities, and 24 marketing units around the world with over 2,590 associates. Nordic Group member companies manufacture and distribute plastic, seating and transportation products worldwide for industrial, commercial and consumer markets. For more information or catalog, write Nordic Group of Companies, Ltd., 715 Lynn Avenue, Suite 100, Baraboo, Wisconsin 53913 USA or visit www.nordicgroup.com.

Flambeau, Inc. Headquarters
801 Lynn Avenue • Baraboo, Wisconsin 53913 USA
Phone: 608-356-5551 • www.flambeau.com



Flambeau[®] *Shaping the Products of Tomorrow... In Plastic[®]*