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The Callen Group of Companies

...represent a solid financial entity distinguishing itself as a "Best In Class" Full Service Supplier of high pressure and miniature non-ferrous Die Castings.

The Callen Group, consisting of three (3) international manufacturing facilities, is a closely held, private and financially strong manufacturing entity. This strength differentiates us from those who lack financial viability. Our financial stability is a powerful competitive edge that has been the foundation of steady growth, reinvestment and international expansion with satisfied customers.

At Callen we believe strongly in the capability of our plants and our enthusiastic people. We encourage you to visit our facilities and witness our commitment to continuous improvement, and our dedicated people as we together focus on the future and the development of new opportunities.

Callen Manufacturing Corporation Aluminum Die Casting

Modern Aluminum Die Casting Machines ranging in size from 600 N.T. to 1750 N.T. produce complex castings for a broad variety of industrial market sectors:

- Off-Road Equipment
- Lawn and Garden
- Automotive
- Computer Hardware
- Metering Devices
- Telecommunications
- Industrial Lighting
- General Engineered Castings





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Callen Manufacturing Corporation Aluminum Die Casting continued;

Certified Aluminum alloys include: 380, 383, 384, 413, and 360

A versatile range of Aluminum Die Castings weighing from a few ounces through 35 lbs. are produced in volume.

Vacuum-aided Die Casting is facilitated utilizing a unique Callen designed and manufactured hard-piped central vacuum system which is accessible at each casting machine via quick-connection.

Complex thin-walled, low porosity Aluminum Die Castings are produced from the combined benefits of vacuum-aided casting and electronic process monitoring.

Callen Manufacturing Corporation Zinc Die Casting

For more than 55 years Callen Manufacturing Corporation has demonstrated excellence in the field of Zinc Die Casting. Industrial Market Sectors served include:

- Metering and Control Devices
- Lawn and Garden
- Commercial Lighting
- General Engineered Die Castings

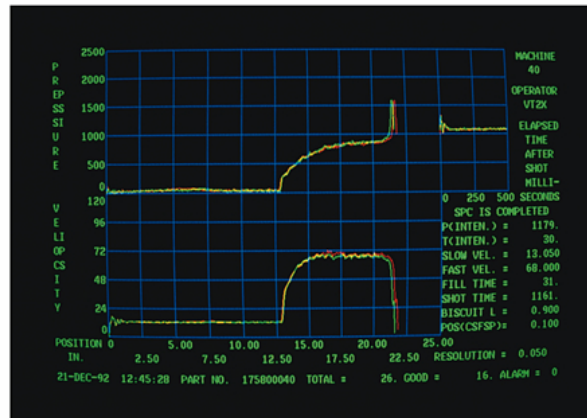


Certified Zinc Alloys that are cast include: No.3, No.5, No.7, and ZA-Alloys

Conventional Zinc Die Castings range in size from a few ounces to 12 pounds and are manufactured in 500 ton and 250 ton hot-chambered Die Casting machines.

Callen Manufacturing Corporation Process Control

Quality improvement is facilitated by the knowledge in real time of production process parameters giving process engineers and operators the information to control transformation technology in depth.



- Real Time Monitoring of Key Parameters
- Master Shot Profile comparison
- Capability Studies
- Die Casting Machine Calibration
- Fill-Time
- Multiple Shot Velocities
- Injection Pressures

Electronic monitoring provides operators with real-time feedback on more than 20 critical process parameters.

Critical process parameters are computed and displayed for the operator along with a full color shot profile. Each parameter is compared to master predetermined set points and tolerances. Results are automatically tabulated to create process control summary reports and process trend graphs.

The SPC software can compute the mean, capability indices, standard deviation range and upper/lower control limits on shot end and casting parameters, as well as, flag out-of-control points.



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Callen Manufacturing Corporation Product Design

All of our customers are provided with design and engineering consultation which yields parts with maximum value.

- CAD Capability
- Modern Process Technology
- First Time Capability
- Dimensional Control Planning
- Design Verification
- Rapid Prototyping
- Net Shape Casting Economies
- FMEA - (Design and Process)
- Variety of Recyclable Alloys



Callen Manufacturing Corporation Quality Assurance

Callen Manufacturing Corporation's philosophy of continuous quality improvement begins with the review of casting design by anticipating potential non-conformance and "building in" preventative action including appropriate monitoring of critical process characteristics.

Potential defects are detected and eliminated by the determination of root causes. Quality thought always precedes quality products and services.



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Callen Manufacturing Corporation Quality Assurance continued;

- ISO 9001:2000 Certified
- Gauge Calibration Software
- In - Process Inspection System
- Capability Study Software
- Corrective Action System
- Optical Emission Spectroscopy
- FMEA



Callen Manufacturing Corporation, located in Northlake, Illinois has been producing quality, precision engineered Aluminum and Zinc Die Castings since 1948.



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Callen Manufacturing Corporation Quality Assurance continued;

For years Callen has operated according to an independent quality system that has been certified by a number of Fortune 500 companies. Years ago, Callen Senior management recognized that potential new customers were mandating either ISO or QS compliance prior to issuing requests for quotation. With this driving mandate Callen solicited the professional services of Perry Johnson for the registration process.



According to Callen President Robert E. Wilson, "Our dedicated workforce, which has always been key to our long term success, has again demonstrated aptitude and flexibility in adapting to an internationally accepted quality standard which establishes a roadmap to continued prosperity. Once again the resourcefulness of our employees has allowed us to achieve another fundamental goal. We shall always maintain our internationally accepted quality credentials."



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Callen Manufacturing Corporation Value-Added Operations

Callen Manufacturing Corporation will take the responsibility to supply our customers with complete finished parts including: machining, coating and assembly.

A full array of metal working equipment is available per specific application:

- Precision Boring
- Reaming
- Drilling
- Tapping
- Milling
- Grinding
- Turning
- Sanding



Industrial engineering and tooling expertise is applied utilizing our versatile equipment to efficiently and accurately manufacture quality parts. As needs dictate, Callen is willing and financially able to design and jointly purchase special dedicated machinery.



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Callen Manufacturing Corporation Value-Added Operations continued;

The basic strengths of our value-added operations are further complemented by a certified capable vendor base concentrated in nearby industrial centers. These subcontractors are called upon to supply a complete line of miscellaneous services such as coating, painting, plating, impregnating and anodizing. Strict control of out-sourced services is constantly maintained.

The Callen Launch Process

- Design review and refinement while maximizing manufacturability
- Complete DFMEA and PFMEA
- Construct tooling, sourced globally
- Model and mistake proof the injection process
- Sample, correct and refine all injection parameters
- Submit PPAP level 3 on schedule
- Ramp-up routine automated production while further refining the injection process



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Callen Manufacturing Corporation Die Casting Facility



- Aluminum Die Casting Machines are horizontal cold chambered
- Vacuum Die Casting is available utilizing a central vacuum system
- Automated extraction and die spray application
- Zinc Die Casting machines are high pressure hot chambered



Alumimun Capacity		Zinc Capacity	
1	1750 Ton	2	500 Ton
2	1600 Ton	1	250 Ton
1	1200 Ton		
3	1000 Ton		
3	900 Ton		
9	600 Ton		



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Callen Manufacturing Corporation Die Casting Facility continued;

Machining Equipment

6 Wisconsin 4-Axis Drilling / Tapping Machines

1 Brother 32A CNC Milling / Tapping Machine

7 Drilling / Tapping Machines with Rotary Table

3 Vibratory Deburring Machines

1 Wheelabrator (12 Cu. Ft. Drum)

1 In-Line Shot Blaster

Sanding Equipment (Standard)

6 CNC Machining Centers

Additional equipment custom designed for specific work

Quality Assurance

2 Coordinate Measuring Machines

1 Optical Emission Spectrometer

1 Phillips Articulating X-Ray System

1 VISI-TRAK Electronic Process Monitoring System

1 Optical Comparator

A comprehensive collection of standard inspection and measuring devices is maintained and constantly upgraded.

Tool Room

A complete fully equipped tool room to facilitate the care and maintenance of the tooling assets entrusted to Callen.





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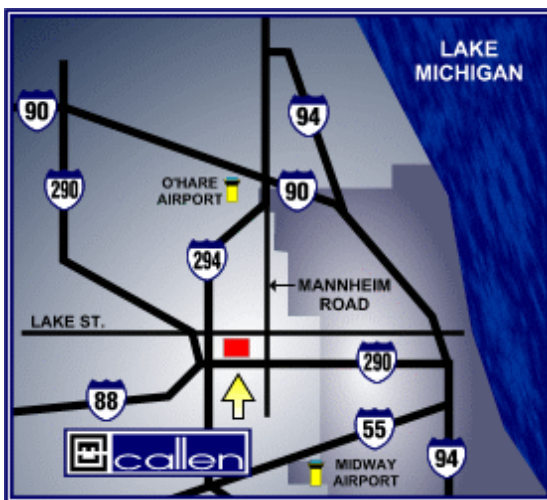
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