Capability

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Ryobi offers full service Die-Cast solutions. Our strength includes die design, die making capabilities within the Ryobi Group, engineering, melting and in-house alloying, die maintenance, casting, finishing, machining, and assembly.Â Our casting weights range from 3 lb to 40 lbs. Â We melt over 200 million pounds of aluminum annually and service some of the worldâ€™s top automotive manufacturers.

Vertically Integrated Systems

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1) Die Design

Die Designers,Â Tooling Engineers and Casting Engineers collaborate to decide best procedures.

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2) Die Fabrication

State-of-the-art machine tools and proprietary technologies used.

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3) Casting

Over 60 years of continuous improvement in high speed and high pressure die casting processes.

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4) Machining & Final Assembly

Machined and assembled.

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5) Quality Inspection

Precision inspection conducted including 3-D measurement of dimensions, X-ray, trial machining, destructive inspection, and mechanical properties testing.

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Concurrent Engineering

We use concurrent engineering and get involved at the design phase to assure a very good quality and productivity benefit to the customer for the life of the program.Â Ryobi can provide dedicated personnel from the design phase through launch to ensure program success by:

Assisting customerâ€™s product designers

Resolving castability issues (machining stock, ejector pin design, cored hole design, draft angle, etc.)

Providing product interface between the customer, Ryobi, and tooling vendors

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Design Assistance

- Ryobi has extensive experience in large and middle sized castings

- Complete computer simulation analysis:

- MAGMA solidification andÂ flow analysis

- Flow analysis

- Solidification:Â JS-Cast, CAP

- FEA analysis:Â I-DEAS, ANSYS & NASTRAN

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Evaluation

- Ryobi offers rapid prototype or sand cast prototypes

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CAD System

- 3D CAD System

Â Unigraphics NT2 (version 15.0)

Â SDRC I-DEAS (version 10.0)

Â IMB CATIA (revision 4.2.4)

Â CADDS 5 (revision 11.0)

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- 2D CAD System

Â AUTOCAD LT 2002

Â Personal Designer (revision 6.0)

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Process Failure Mode & Effects Analysis (PFMEA)

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Ryobi utilizes PFMEA, a structured procedure for identifying and eliminating process related failure modes.

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Cost Productivity Quality Recovery (CPQR)

Ryobi has 15 cross-functional improvement teams in action ready to respond.Â They are multi-disciplinary, multi-functional team that strives to get â€œQualityâ€• right the first time.

Auto-sorting Technology

Die-Casting is a very complex manufacturing process with literally hundreds of parameters that can possibly affect the quality of castings made.Â At Ryobi, process engineers carefully select die-casting machine parameters such as pressures, temperatures and velocities.Â These parameters are then transferred to dedicated computers hooked up to each die-cast machine. Â Special software named â€œRyobi Die-Cast Monitor (RDM)â€• is installed on each of these computers to monitorÂ parameters and compare them to preset low-high alarm settings. If a part produced is out of alarm settings, the part is automatically dumped into the underground scrap conveyer.Â Process engineers also use computer generated reports to understand the pattern of the die-cast machine parameters and make quick adjustments whenever required.

Quality Assurance Structure

- CMM dimensional audit checks

- Computer generated SPC from CMM data

- Die Cast

- Machining

- X-Ray and Machining audit check for porosity

- In-Process check

- L.A.S.T.

- LookÂ - AdviseÂ - SegregateÂ - Take Action

- Layered audit

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Die Maintenance

Ryobi offers a strong â€œon siteâ€• preventive die maintenance team that responds quickly to any situation (24 hour/day).Â We implement thorough and persistent shot preventive maintenance on all die cast dies.