

2011 STATE OF THE GEAR INDUSTRY

READER SURVEY RESULTS

TRENDS
IN
EMPLOYMENT

OUTSOURCING

MACHINE
TOOL
INVESTMENT

AND OTHER
GEAR INDUSTRY
BUSINESS
PRACTICES

In November, Gear Technology conducted an anonymous survey of gear manufacturers. Invitations were sent by e-mail to thousands of individuals around the world. More than 300 individuals responded to the online survey, answering questions about their manufacturing operations and current challenges facing their businesses.

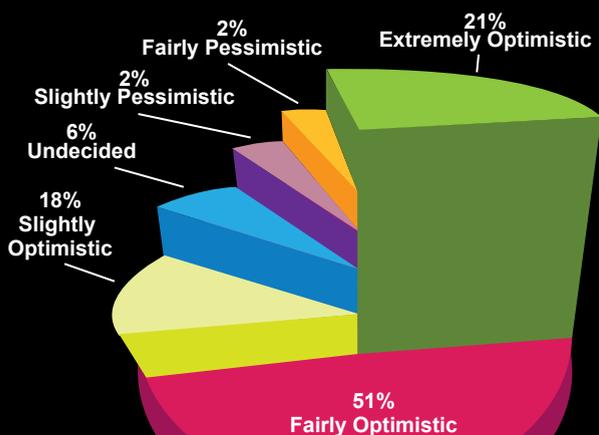
The respondents considered here all work at locations where gears, splines, sprockets, worms and simi-

lar products are manufactured. They work for gear manufacturing job shops (44 percent), and captive shops at OEMs (56 percent).

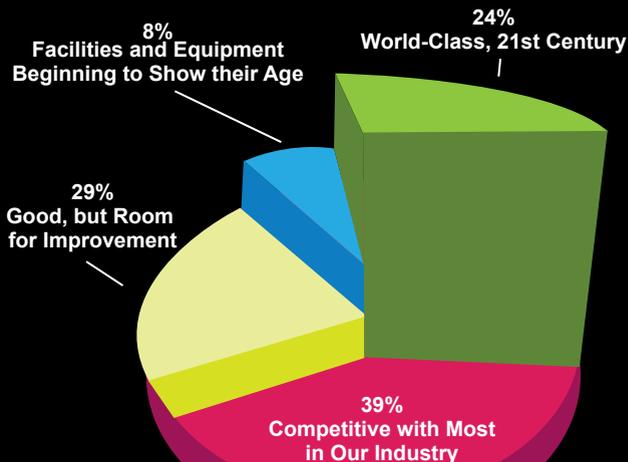
The survey covers gear manufacturing around the world, with 60 percent of respondents working in the United States, and 40 percent outside the United States.

A full breakdown of respondents can be found at the end of this article.

88% of Gear Industry Respondents are Optimistic About their Ability to Compete over the Next Five Years



How Do Respondents Describe their Manufacturing Operations and Technology?



What Factors Are Presenting Significant Challenges To Your Business?

"Low price and poor qualities produced from Mainland China; Difficult to enter the wind turbine supply chains, as they are controlled by a few players."

—Design engineer at an Asian gear reducer manufacturer

"Barriers to foreign entry."

—Sales manager at a U.S. gear manufacturing job shop

"Brand recognition."

—Design engineer at U.S. manufacturer of control actuators

"Chemical costs."

—Worker at a U.S. public water utility

"Companies are starting to back-charge for the cost of their blanks when they are scrapped during our operations. Their blanks can be very complex and very expensive. The cost of scrapping a single part can exceed the value of our work."

—Manufacturing engineer at a U.S. gear manufacturing job shop

"Currency change."

—Quality engineer at an Asian manufacturer of automobile transmissions

"Delivery time from vendors (machine shops)."

—Design engineer at a U.S. design/engineering consultancy

"Energy cost."

—Purchasing manager at a South American gear manufacturing job shop

"Energy efficiency, lead times, vendors not cooperating."

—Corporate executive at an Asian manufacturer of plastic gears

"Environmental and government controls."

—Purchasing manager at a U.S. manufacturer of pumps for gas and oilfield

"Finding qualified motor and gear manufacturers for aerospace applications."

—Design engineering manager at a U.S. manufacturer of aerospace actuators

"Finding reliable high quality suppliers."

—Design engineer at a U.S. aerospace OEM

"Gears with high accuracy."

—Quality engineer at an Asian gear manufacturer

"Government change; More socialistic oriented."

—Corporate executive at a European gear manufacturing job shop

"Government regulations."

—Manufacturing engineer at a U.S. auto manufacturer

"Increasing cost of quality audits from suppliers despite years of successful audits and multiple 3rd party certifications."

—Corporate executive at a U.S. company providing services to gear manufacturers

"Low cost, Chinese products."

—Design engineering manager at an Asian manufacturer of industrial air compressors

"Our company is known as a world leader, but competition is always a factor."

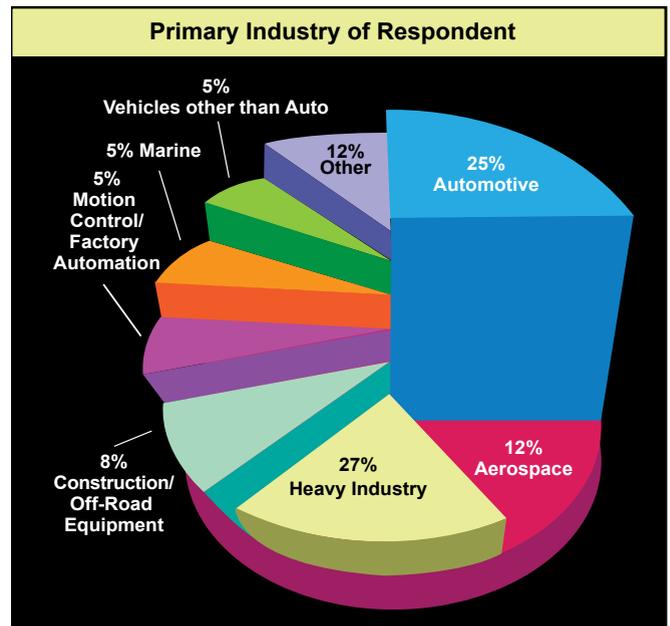
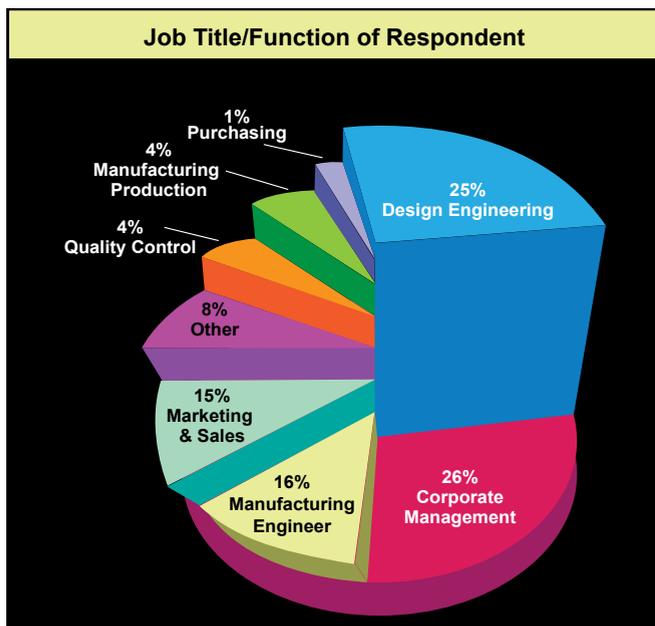
—Quality manager at a U.S. manufacturer of printing equipment

"Outsourcing to China versus quality; Global selling and related service and pricing."

—Corporate executive at a U.S. manufacturer of winches

"Re-shoring efforts and cost to import is rising."

—Sales manager at U.S. gear manufacturing job shop



What Factors Are Presenting Significant Challenges To Your Business?

"Steel delivery; Cutting tool delivery."

—Corporate executive at a U.S. gear manufacturing job shop

"Technological changes in manual transmissions (dual clutch, CVT); the R&D activities are too costly."

—Design engineer at a Mexican manufacturer of manual transmissions

"The lack of knowledge of gears in mid- to upper-level management."

—Manufacturing engineer at a U.S. manufacturer of power transmission products

"The shortage of skilled workers."

—Manufacturing engineer at an Asian gearbox manufacturer

"The unknown about where the business taxes are going."

—Corporate executive at a U.S. aerospace components manufacturer

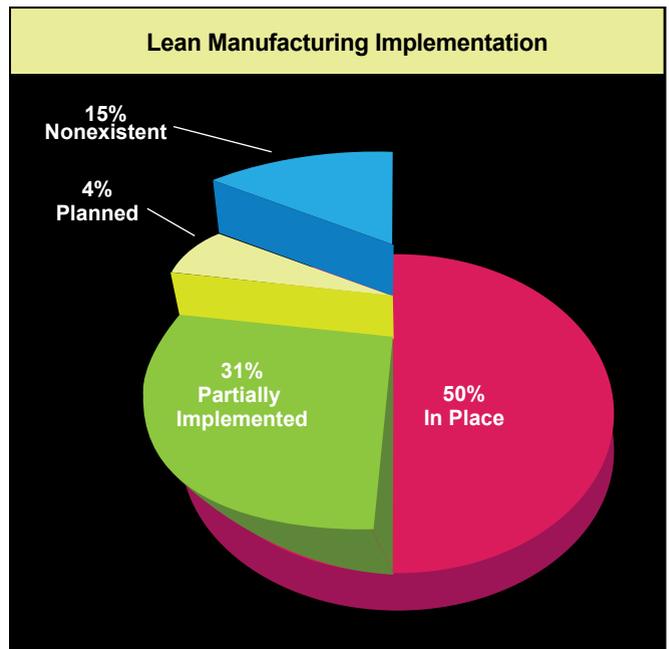
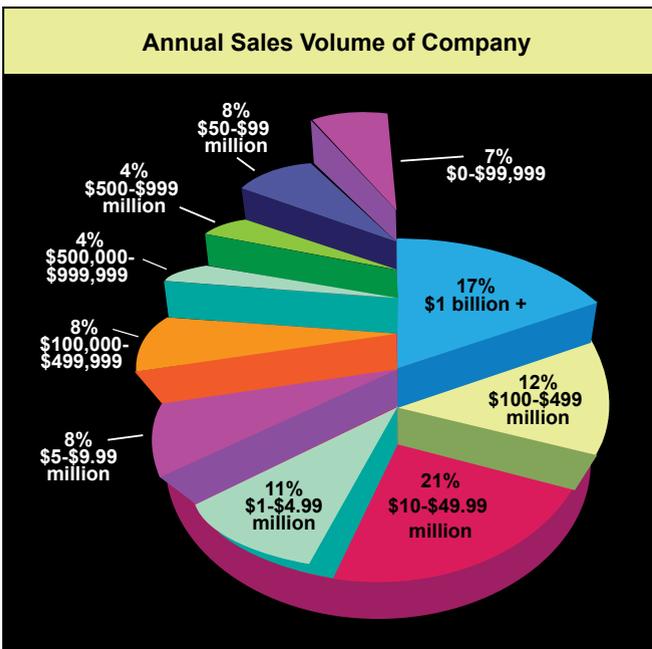
"Unfocused corporate initiatives."

—Manufacturing engineering manager at a U.S. manufacturer of motors and gearheads

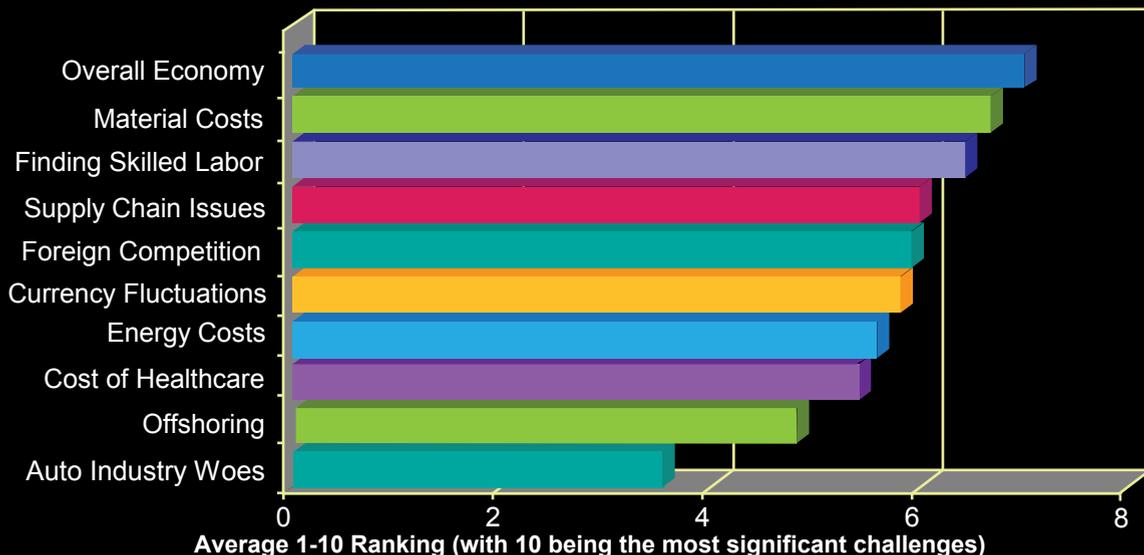
"Washington's ever tightening grip on manufacturing regulations that stifle growth; Useless green and carbon taxing legislation; No energy policies; Less government is what America needs to regain and become the great manufacturing country that it once was."

—Corporate executive at a U.S. manufacturer of coating equipment

continued



What are the Most Significant Challenges Facing Gear Industry Companies?



What Are Your Company's Greatest Manufacturing/Engineering Challenges for 2012?

"Shortage of new engineers compared to the orders incoming; Time efficiency for developing new products."

—Design engineering manager at an Asian manufacturer of gear reducers

"Ability to rapidly scale up or down as dictated by projects."

—Corporate executive at a U.S. provider of services to gear manufacturers

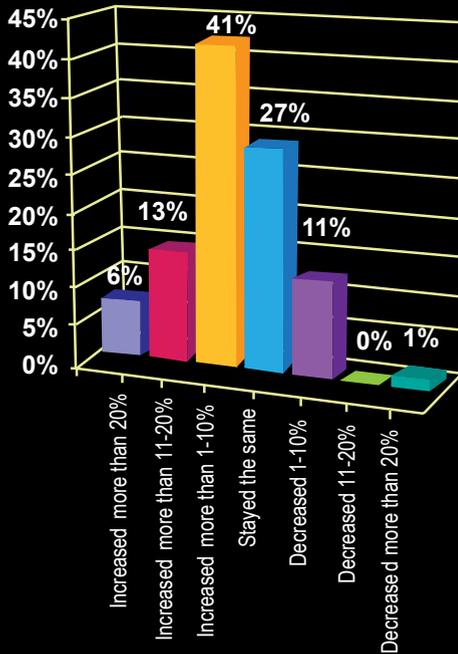
"Accommodating rising demand for our products and services."

—Corporate executive at a U.S. manufacturer of plastic gears

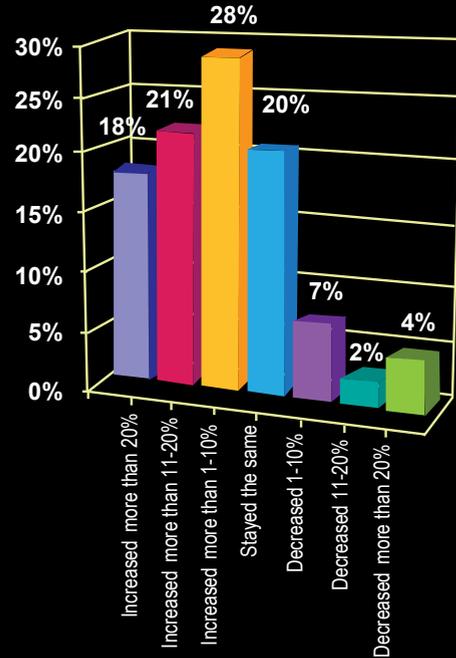
"Advances in electronic technology."

—Design engineer at a U.S. manufacturer of controls and actuators

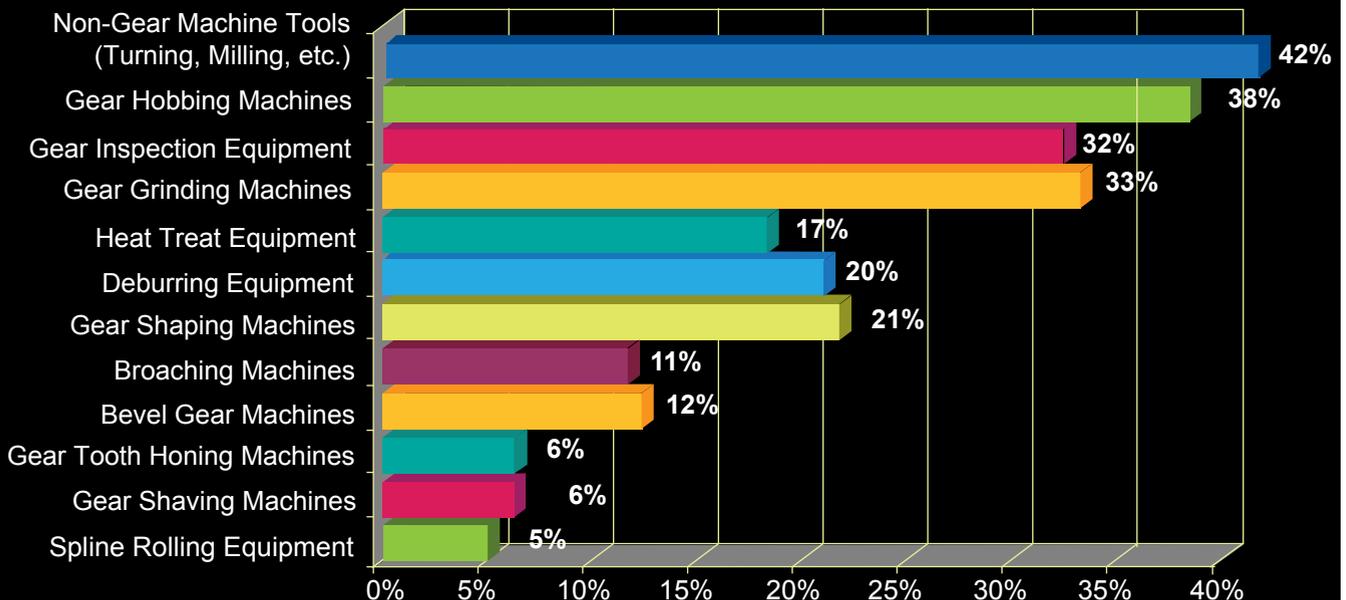
60% of Gear Industry Respondents Work at Locations where Employment Increased in 2011



67% of Respondents Saw Production Volumes Increased in 2011



Machine Tool Purchase Plans 2012



Of those planning to purchase capital equipment, the percentage planning to purchase in each category

What Are Your Company's Greatest Manufacturing/Engineering Challenges for 2012?

"Better quality."

—Purchasing manager at a South American gear manufacturing job shop

"Building production, finding high quality suppliers."

—Purchasing manager at a Canadian manufacturer of gearboxes

"Company's lean production."

—Corporate executive at a European manufacturer of speed reducers

"Competent suppliers."

—Design engineer at a U.S. manufacturer of diesel engine fuel systems

"Consistency in end results."

—Manufacturing engineer at a U.S. manufacturer of reconditioned assemblies

"Continuing to lower costs."

—Manufacturing engineer at a U.S. automobile transmission manufacturer

"Continuous learning and implementation of Gleason's system."

—Corporate executive at a European gear manufacturing job shop

"Cost and on-time delivery."

—Design engineer at a U.S. manufacturer of aerospace actuators

"Cost of manufacturing."

—Quality engineer at an Asian gear manufacturing job shop

"Cost reduction."

—Manufacturing engineer at a U.S. manufacturer of automotive components

"Developing new products to compete."

—Design engineer at a U.S. manufacturer of mining equipment

"Energy efficiency management."

—Worker at a U.S. public water utility

"Fighting raw material cost increases and increases in productivity to offset competition and wage increases."

—Manufacturing engineering manager at an Asian automotive gear manufacturer

"Finding new business in competitive plastics market."

—Corporate executive at an Asian manufacturer of plastic gears

continued

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"Faced with today's global challenges gear manufacturers need not only machines that reliably produce high quality parts, but also machines that are a good value. For gear shaving the Raso 200 Dynamic fits the bill."

Ettore Miletto
Ettore Miletto / Sicmat CEO

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What Are Your Company's Greatest Manufacturing/Engineering Challenges for 2012?

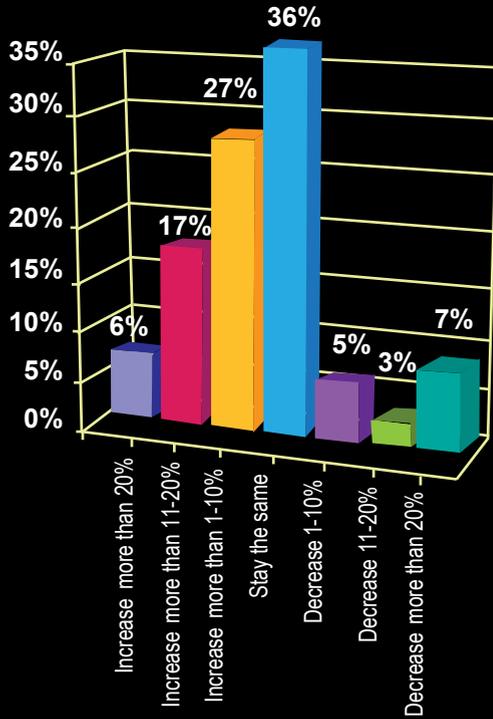
"Finding skilled CNC CAM programmers."
—Corporate executive at a U.S. gear manufacturing job shop

"Gear cutting."
—Corporate executive at a European manufacturer of winches and gearboxes

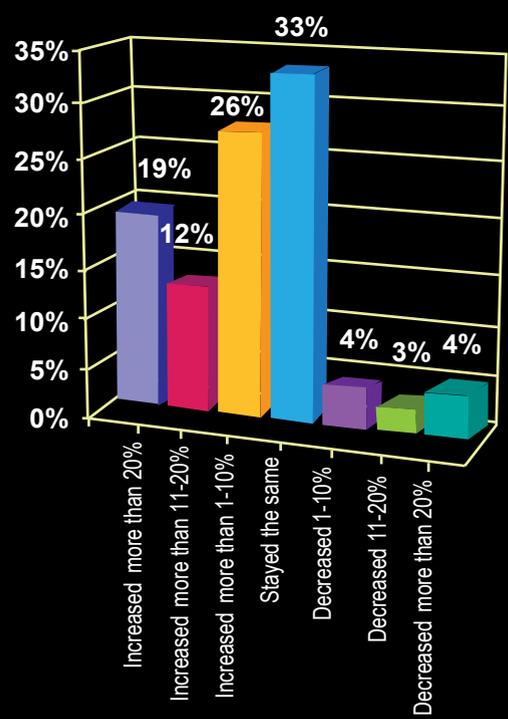
"Getting enough space and capacity fast enough."
—Corporate executive at a European gear manufacturing job shop

"Hiring skilled technicians and engineers."
—Corporate executive at a U.S. manufacturer of packaging machinery

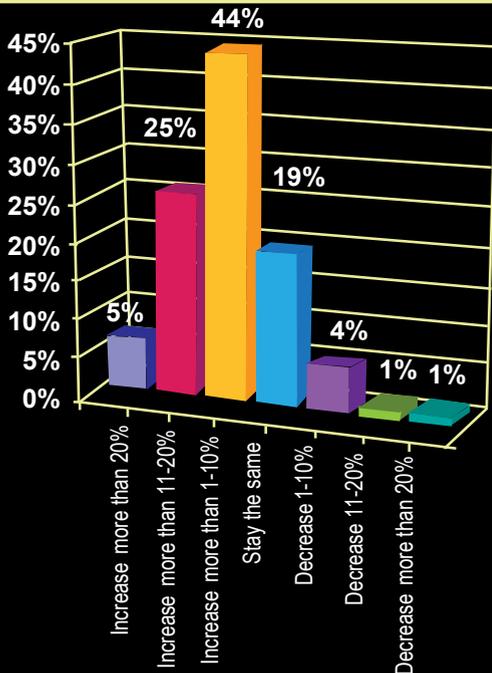
50% Expect Capital Spending at their Locations to Increase in 2012



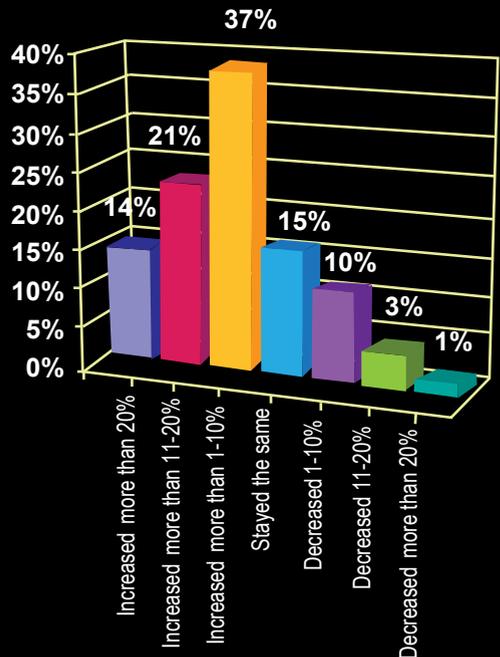
57% Work at Locations where Capital Spending Increased in 2011



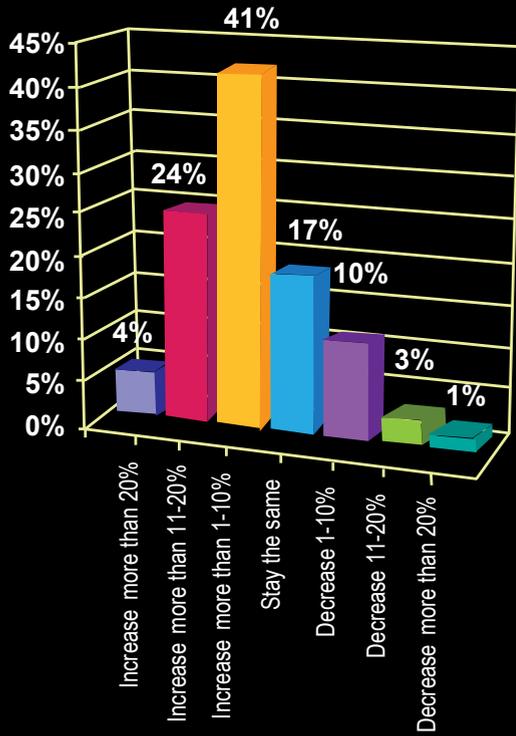
74% Expect Production Volume to Increase in 2012



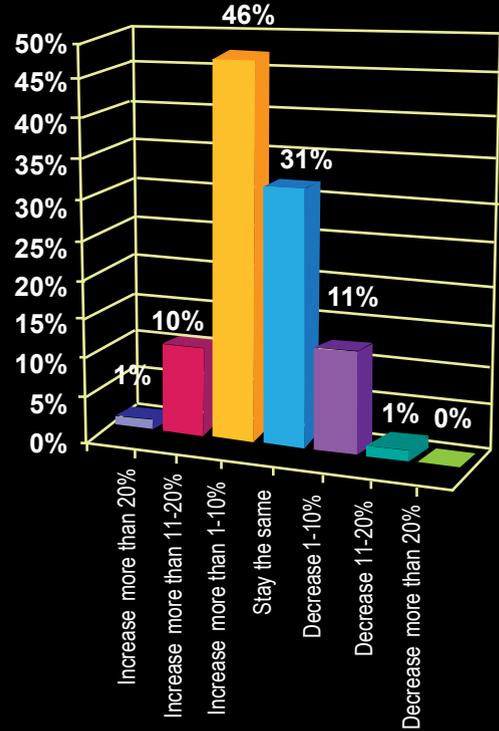
72% Saw Sales Volume Increase in 2011



69% Expect Sales Volume to Increase in 2012



Most Gear Industry Respondents Expect Little Change In Employment in 2012



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What Are Your Company's Greatest Manufacturing/Engineering Challenges for 2012?

"Increase capacity."

—Purchasing manager at a U.S. manufacturer of pumps for gas and oilfield

"Keep abreast of the new equipment so as to make up for the loss of skilled labor."

—Corporate executive at a U.S. manufacturer of aerospace components

"Keeping up with new requirements and designing to meet these changes."

—Quality engineer at a U.S. manufacturer of printing equipment

"Lean and six sigma implementation; New technology; Continuous improvement."

—Corporate executive at a U.S. manufacturer of winches

"Manufacture components for a new customer."

—Design engineer at a Mexican manufacturer of manual transmissions

"Manufacture of oil-free compressors, gear noise issues, high vibration levels."

—Design engineer at an Asian manufacturer of industrial air compressors

"Meeting schedules."

—Design engineer at a U.S. aerospace OEM

"Meeting the customer's lead times and price points."

—Sales manager at a U.S. manufacturer of plastic gears

"More parts at less cost with zero defects' Long-term agreements with cost control for ten years; Who can predict any costs for a ten-year contract?"

—Manufacturing engineering manager at a U.S. gear manufacturing job shop

"Process improvement. Cost reduction."

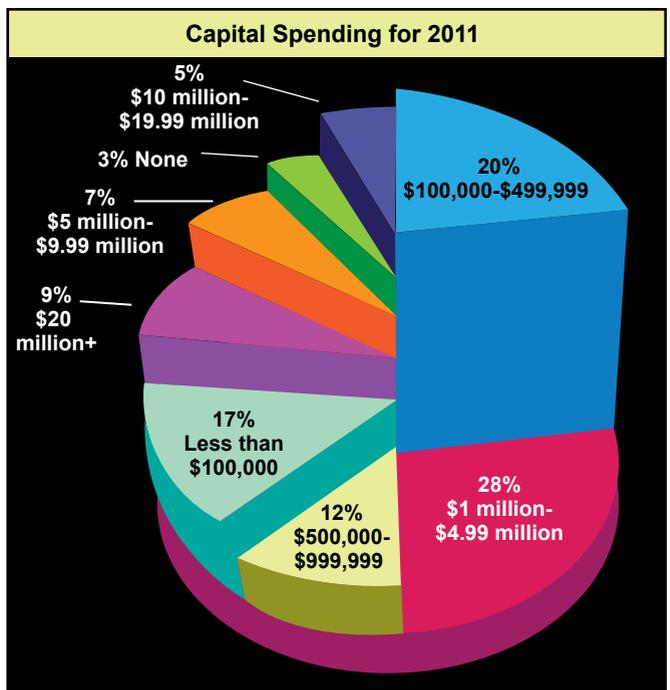
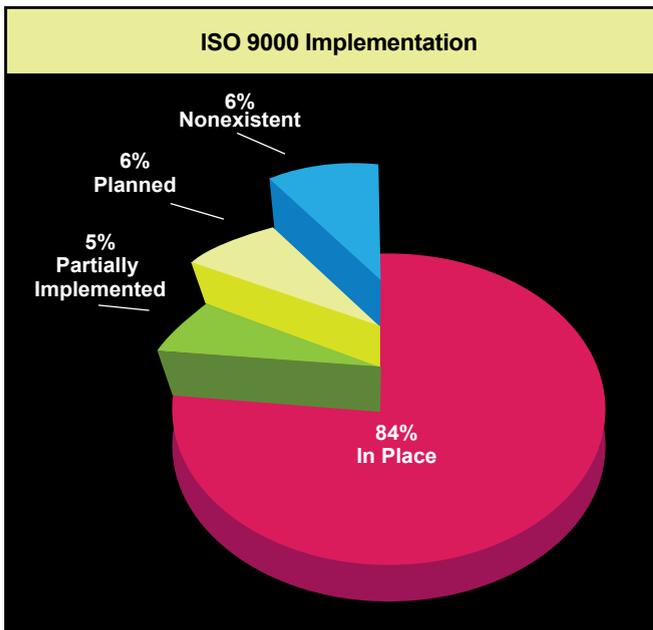
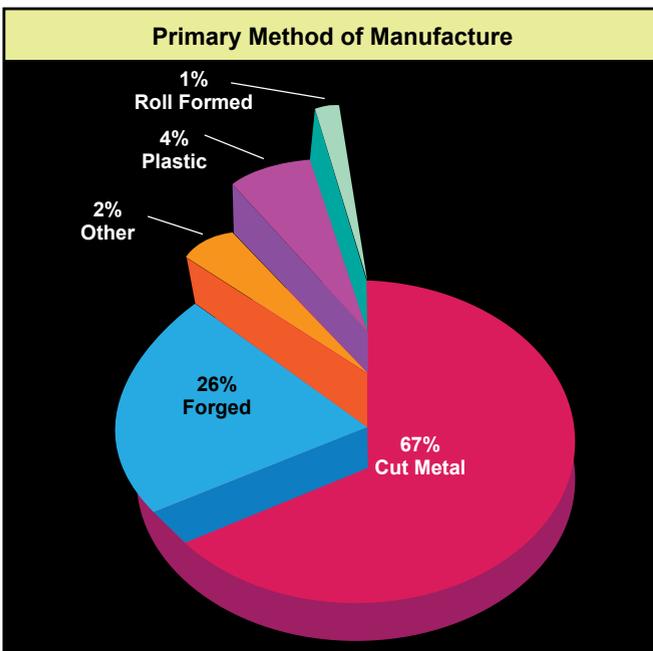
—Corporate executive at a U.S. gear manufacturing job shop

"Reducing cost, meeting delivery."

—Manufacturing engineer at U.S. manufacturer of agricultural equipment

"Rising energy and labor costs."

—Manufacturing engineer at a Mexican manufacturer of industrial gearboxes



What Are Your Company's Greatest Manufacturing/Engineering Challenges for 2012?

"Serial production; micro assembly."

—Corporate executive at a European manufacturer of actuators

"Skilled engineering persons that understand plastic gear functions, inspections and manufacturing methods."

—Quality engineer at a U.S. manufacturer of electromechanical actuators

"Staffing experienced engineering."

—Sales manager at a U.S. gear manufacturing job shop

"Supply chain of castings."

—Manufacturing engineer at U.S. manufacturer of hydraulic gear pumps

"Supply of input material constantly and consistently."

—Design engineer at an Asian manufacturer of commercial vehicle gearboxes

"The age of our machinery and the enormous expense of new equipment."

—Corporate executive at a U.S. gearbox repair facility

"The shortage of skilled workers."

—Manufacturing engineer at an Asian manufacturer of gearboxes

