

Quality Management: Quality Leadership 100

by Quality Magazine Staff
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ARTICLE TOOLS

Quality is the key to success for this year's top companies.

Quality is a way of life and that can clearly been seen when looking at this year's *Quality Leadership 100* list. For the first time since the list began in 2006, a company is a two-time winner. Back in 2008, Advanced Instrument Development Inc. (AID, Downers Grove, IL) topped the leadership list and they're back on top again in 2010.

Jim Owen, quality manager at AID, was surprised when he got the call that they were named to the top of the list. To his credit, quality continues to play an important role at the company. In the two years since first topping the list, AID has moved facilities, automated a process and become certified to sell product in both Europe and Canada.



John Pharr, manufacturing quality engineer at Pneumadyne Inc. (Plymouth, MN), manufacturer of miniature pneumatic products, and the number two company this year, says, "Our slogan is quality through continuous improvement, and quality is our starting point and our finishing point. Everything filters in through our quality system."

Congratulations to all of the companies—and their employees—listed in the 2010 *Quality Leadership 100*.

Survey Criteria

More than 800 manufacturers participating in the *Quality Leadership 100* were surveyed on criteria such as scrap and rework as a percentage of sales, warranty costs as a percentage of sales, rejected parts per million shipped and contribution of quality to profitability and shareholder value.

Companies also were evaluated based on the number of quality programs in place; registration to various standards; percentage of employees dedicated to quality responsibilities; average number of hours monthly that employees receive quality training; and the role quality professionals play in the acquisition of test, measurement and inspection tools, software and services.

1. Advanced Instrument Development Inc. Downers Grove, IL



They say that lightning cannot strike the same place twice, but in the case of Advanced Instrument Development Inc. (AID), it has. In 2008, AID, an independent manufacturer of ionization chambers for diagnostic medical X-ray systems, was named the top company in the *Quality Leadership 100*, and again this year they're at the top of the list. Their chambers are used as original equipment by virtually every North American equipment manufacturer as well as many others around the world. Since its inception, 40 years ago, AID has focused on X-ray subsystems for other manufacturers. Products have included high speed starters, solid state contactors, heat unit integrators and other similar items.

Quality Manager Jim Owen, who has been with AID for 10 years, was excited with the honor. When asked the changes that have taken place in the past two years, Owen mentioned a computer-controlled router table has replaced the hand routing of a foam spacer, about 1/8-inch thick, used in the ionization chambers. "It's quicker, more accurate and it really helps the production," says Owen. The unit can be programmed for the different sizes the company uses. Because of the change, fixtures are no longer needed for the process thereby further simplifying the process.

Other improvements come in reducing the amount of lead in the components. "We have a small circuit board that's probably 1.5 inch wide by 7 inches long and we were using through-hole components. Now we're using surface mount and we're gradually moving over to lead-free soldering," says Owen. "One of the components in the ionization chamber itself was lead coated and we came up with another material that removed the lead totally so there's no lead in there. The only lead now is in the solder." Completely removing the lead in the solder could result in tin whiskers and could become a reliability problem. Tin whiskers are single crystals of tin that spontaneously grow from the surface of tin and tin alloy platings.

AID's products are static sensitive and everyone complies with using static control methods of handling the product, according to Owen. In the old facility, the waxed floor was static sensitive, but in the new facility, the static-conductive epoxy floor is easier to maintain.

In addition to maintaining their ISO 9000 and ISO 13485 certification, AID has completed certification for the CE mark in order to sell product in Europe as well as Canadian certification to sell to their customers in Canada.

For more information on AID, visit www.aidxray.com.

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2. Pneumadyne Inc. Plymouth, MN

Pneumadyne has been manufacturing miniature pneumatic products for more than 30 years. "We're not limited to miniature pneumatics, however. We make a lot larger scale ones. We're worldwide distribution," says John Pharr, manufacturing quality engineer. The products that Pneumadyne makes ranges from pneumatics for tooling, paint guns and tattoo artists, to flow controls, dental and medical equipment. The company counts Grainger as one of its largest customers.



Pneumadyne is ISO 9001: 2008 registered and also holds many patents for several of its product lines. "Our slogan is quality through continuous improvement, and quality is our starting point and our finishing point. Everything filters in through our quality system," Pharr says.

Inspection happens at every point of the manufacturing process. According to Pharr, the auditor that came in 2009 said, "we had one of the highest levels of internal audits they've ever seen." The end results, he continues, are better for the company.

Pneumadyne, which makes anywhere from 250,000 pieces a month to more than 1 million pieces of product a month, employs around 50 people. The company emphasizes its focus on the customer and also has a tight handle around its supply chain. Pharr is proud to say that all of the company's suppliers have top-notch quality systems in place.

For more information on Pneumadyne, visit www.pneumadyne.com.

[Listen to the Q-Cast Podcast](#)

3. Sun Hydraulics Corp. Sarasota, FL



In 1970, Robert E. Koski and John Allen co-founded Sun Hydraulics Corp., and in 1997 the company went public. It has paid a dividend every quarter since.

Sun designs and manufactures screw-in hydraulic cartridge valves and manifolds that control force, speed and motion as integral components in fluid power systems.

Dave Swetz has been with the company for 31 years. Like many employees at Sun, he was able to work in a variety of positions at the company, eventually starting the quality control program. The program teaches employees how to read blueprints and use measuring equipment, and with the plant's in-process inspection system, operators do not wait for an inspector to look at their part and tell them if it passes.

"We don't have one or two quality inspectors," says Swetz, who is now in charge of the gage lab. "We have 550 people that look at the production process."

The gage lab is a resource center mostly used for inspecting measuring equipment and answering employee questions. The tight tolerances—50 millionths of an inch—mean that the company takes quality seriously. "In the gage lab, we purchase the highest quality measuring equipment that I can find to do the required measurement task," Swetz says.

The company does not use titles, so each member of the company's workforce is encouraged to take the initiative to get the job done. As a publicly traded company, they do have a chief executive officer and chief financial officer, but overall, the only "plant manager" was a person in charge of hanging plants, Swetz says.

Sun sells its products globally, primarily through independent distributors, to mobile and industrial equipment and machinery manufacturers, and has facilities in the United States, England, Germany and Korea, as well as a joint venture company in China.

The temperature- and humidity-controlled plant is able to manufacture all components of its products with the exception of raw materials, springs and seals. "We employ some of the cleanest, best machines that you could want," Swetz says. "Everything in the shop is kept very clean and immaculate. You can't hold this level of precision without a clean work

environment.

"I've been in a lot of different shops," says Swetz, "and I want to stay right here."

For more information on Sun Hydraulics, visit www.sunhydraulics.com.

4. Becton Dickinson Sumter, SC location

Medical supplies are showing no signs of backing down. Couple that with the emerging presence and hindsight of an early century technology boom, and you have a recipe for success.

Global conglomerate Becton Dickinson (BD) has been playing its cards right since 1897, teaming medical supplies with groundbreaking innovation. Focusing on injection- and infusion-based drug delivery, BD was the first company to build a facility in the United States that manufactured needles and syringes. But the real coup de gras of a successful business is the coupling of product with quality.



Doing business in nearly 50 countries, and employing 27,000 workers, BD is a worldwide manufacturer and seller of medical devices, instrument systems and reagents. Its focus has been to continually provide innovative solutions to reduce the spread of infection, while enhancing the durability of its products.

BD, a believer in Six Sigma, strives for process improvement and variation reduction. To achieve this, BD uses robust design controls, process validation and critical parameter management to control quality and eliminate errors.

In addition to continuous quality improvement, BD has developed a Customer Advisory Board and the BD Instrument Company Liaison Team to actively identify and understand challenges in diagnostic testing and develop practical solutions to continuously ensure quality, accuracy and consistency.

For more information on Becton Dickinson, visit www.bd.com.

5. American Ordnance, Milan Army Ammunition Plant Milan, TN



Quality is a matter of life and death. And no company takes that mantra closer to heart than the American Ordnance (AO), Milan Army Ammunition Plant. AO specializes in the manufacturing of military ammunition, as well as industrial X-ray, meteorology lab services and material storage. And, with that said, it is left at a distinct disadvantage when it comes to conjuring up a product in a timely, high-quality fashion, as highly explosive materials are very dangerous.

Judy Solgaard, director of quality/lean management, says, "Quality is everything, especially when dealing with high explosives. Everything has to get done, on time, in order to get the best product in the hands of our soldiers in the field."

AO's supplies, loaded and assembled at its plants, goes out to the Army, Marines and Navy. "Our mission is to provide quality ammunition to support the war fighter," Solgaard says. "Our products play an important part in defending America."

As an ISO 9001: 2008 and 14001: 2004 company, AO has quality at its core. And, as if supplying America's troops with high quality ammunition isn't reward enough, the employees are given incentives for their high-quality performances each quarter.

Solgaard goes on to say that, while AO does recognize individuals for superb performance, superior quality spans across the entire company, and all are rewarded. That is why in 2005 AO started an incentive program, based on incremental quality standards, to reward high-quality company wide.

"We set up certain goals for quality standards that have to be met each quarter—no accidents, no injuries, minimal scrap or rework, no spills—things like that," Solgaard says. "If the company meets their metrics, they get a day off. That is up to four additional days off each year."

The incentive program is built to ensure the products meet the rigorous standards that AO is held to by its accreditation, as well as the by U.S. government, while going above and beyond expectations. The incentive program runs the span of a quarter. The company is evaluated by upper-management, and at the end of the quarter, if the standards are met, everyone is rewarded with a day off. The only catch is, that with each subsequent quarter, the metric gets tougher. In 2009, AO achieved three out of four incentive days.

The challenge ensures that every employee stays focused on what is important for meeting tough goals.

For more information on American Ordnance, visit www.aollc.biz.

2010 Quality Leadership 100

1. Advanced Instrument Development Inc., Downers Grove, IL
2. Pneumadyne Inc., Plymouth, MN
3. Sun Hydraulics Corp., Sarasota, FL
4. Becton Dickinson, Sumter, SC
5. American Ordnance, Milan Army Ammunition Plant, Milan, TN
6. Brembo North America, Plymouth, MI
7. Continental Automotive Systems, Fletcher, NC
8. Praxair Surface Technologies, Indianapolis, IN
9. Delta Systems Inc., Streetsboro, OH
10. Multax Corp., Morton, IL
11. Champion Laboratories Inc., Albion, IL
12. Checkpoint Systems, Alpha Security, Canton, OH
13. LuK USA LLC, Wooster, OH
14. Control Products Inc., East Hanover, NJ
15. EDAC Aero, Newington, CT
16. Heat Pipe Technology, Gainesville, FL
17. John Wood Co., Oaks, PA
18. Quintech Electronics and Communications Inc., Indiana, PA
19. Cleveland Hardware, Cleveland, OH
20. Hyde Manufacturing, Southbridge, MA
21. Kaiser Aluminum, Sherman, TX
22. Southern Spring & Stamping Inc., Venice, FL
23. Arnold Magnetics, Rochester, NY
24. California Screw Products Corp., Paramount, CA
25. Red Lion Controls, York, PA
26. Nordson Corp., Adhesive Dispensing Systems, Duluth, GA
27. ThyssenKrupp, Calvert, AL
28. General Dynamics, Burlington, VT
29. Bosch Rexroth LMT, Charlotte, NC
30. Honeywell, Morristown, NJ
31. Pelco Products Inc., Edmond, OK

32. NAI Tech Products Inc., Auburn, CA
33. Goodrich, Burnsville, MN
34. PAS Technologies, Phoenix, AZ
35. Southco Inc., Rochester, NY
36. Autoliv Inc., Auburn Hills, MI
37. Dresser-Rand Steam Turbine Business Unit, Burlington, IA
38. Ram Jack, Ada, OK
39. Siemens, New York, NY
40. Tektronix, Beaverton, OR
41. 4D Technology, Tucson, AZ
42. Orbital Sciences Corp., Dulles, VA
43. Horton Inc., Britton, SD
44. Johnson & Hoffman LLC, Carle Place, NY
45. C.E. Niehoff & Co., Evanston, IL
46. Watlow Electric Manufacturing Co., Richmond, IL
47. Rheem Manufacturing Co., Fort Smith, AK
48. Ariens, Brillion, WI
49. Comtech PST Corp., Melville, NY
50. EnerSys, Reading, PA
51. Millennia Technology, Cheswick, PA
52. Dilon Technologies, Newport News, VA
53. Vapor Rail, Plattsburgh, NY
54. Varian Medical Systems Inc. X-Ray Products, Salt Lake City, UT
55. Ford Motor Co., Dearborn, MI
56. Benchmark Electronics, Angleton, TX
57. Applied Materials, Austin, TX
58. Medtronic, Warsaw, IN
59. Alard Machine Products, Gardena, CA
60. Sunrise Medical, Longmont, CO
61. D.E. Hokanson Inc., Bellevue, WA
62. Honeycutt Machine Inc., Mukilteo, WA
63. Elkhart Products Corp., Elkhart, IN
64. Pave Technology Co., Dayton, OH
65. Accellent Inc., Salem, VA
66. RTD Co., Ham Lake, MN

67. Berry Enterprises, Clearfield, UT
68. Wolverine Machine Products Co., Holly, MI
69. Oberg Industries, Freeport, PA
70. Diversatek, Germantown, WI
71. Alcoa Fastening Systems, Waco, TX
72. Connex Inc. USA, Fairview, PA
73. F & F Machine Specialties, Mishawaka, IN
74. Topy America Inc., Frankfort, KY
75. KeyTronic Corp., Spokane, WA
76. Painted Feather Precision, Minneapolis, MN
77. Interplex Industries, Fort Lauderdale, FL
78. Roberts Automatic Products Inc., Chanhassen, MN
79. Presrite Corp., Cleveland, OH
80. The MedTech Group, South Plainfield, NJ
81. Bothe Associates, Kenosha, WI
82. Circuits LLC, Murrysville, PA
83. Tier One LLC, Newtown, CT
84. Xandex Inc., Petaluma, CA
85. Top Tool Co., Blaine, MN
86. American Spring Wire, Bedford Heights, OH
87. Segue Manufacturing Services LLC, Lowell, MA
88. Kobe Aluminum Automotive Products, Bowling Green, KY
89. Dayton Progress Corp., Dayton, OH
90. Florida MicroElectronics, West Palm Beach, FL
91. The Chamberlain Group, Elmhurst, IL
92. Apollo Valves, Conbraco Industries, Matthews, NC
93. Vollrath Co. LLC, Sheboygan, WI
94. API Heat Transfer Inc., Buffalo, NY
95. Conval Inc., Somers, CT
96. Girtz Industries Inc., Monticello, IN
97. Industries for the Blind Inc., West Allis, WI
98. MPC Inc., Walworth, WI
99. C-Temp International, Anaheim, CA
100. Karl Schmidt Unisia Inc., Auburn Hills, MI