

# Best Practices: Baldor Electric Co. <br> Wired For Quality

**In its 83rd year, the Arkansas-based electric-motor manufacturer continues to deliver high-quality products and customer-focused value through good times and bad.**

Randy Branan, vice president of marketing (top) and Neil Condray, corporate quality manager. Behind them are views of Baldor's main manufacturing facility in Fort Smith, AR.

Rick Carter, Editor-in-Chief

Talk to anyone from Baldor Electric for more than a few minutes and you're going to learn about the company's value formula. For the Fort Smith, AR-based builder of motors, drives and generators, the value formula is shorthand for its core belief that the only way to prosperity is to ensure the customer believes he's getting top value for his money. You'll see it on company business cards, annual reports, marketing information and other company printed matter, expressed like this:  $Vp = Qp \times Sp / C \times T$ .

It means *value perceived by the customer* ( $Vp$ ) equals *quality perceived by the customer* ( $Qp$ ) multiplied by *service perceived by the customer* ( $Sp$ ), divided by the *product's cost* multiplied by the *time to get the product to the customer*. The company's Mission Statement, often mentioned with the value formula, includes the phrase "To be the best, as determined by our customers."

"This means, let's take care of the customer," says Neil Condray, corporate quality manager. "Let's not send out any defective product and let's do whatever we have to do to show improvement." The value formula, he says, is Baldor's creed.

The formula was coined by Rollie Boreham, chairman of the board, when he was company president in the 1980s. Condray says it first served as a focal point for the company's expanding quality initiatives. "We've always spent a lot of time talking about quality," he says, "but most quality programs are general and don't give you a road map to do it. The value formula is focused. 'To be the best as determined by our customers' is pretty cut and dry: Whatever our customer perceives as value is important, and that's our number-one priority. Is it easy? No. Is it discipline? Yes. But it's top-down discipline. I've had the luxury of having support for this from the chairman of the company, the CEO, and the board members, as well as management in all the plants."

Rollie Boreham, Jr., Baldor chairman, has been a guiding force for the company's modern successes. A trained physicist and electrical engineer, he began with Baldor in 1923.

Founded in St. Louis, MO, in 1920 by engineer Edwin Ballman and machinist Emil Doerr, Baldor (the name combines the founders') built its early reputation on rugged, quality motors that featured ball bearings and other unique characteristics. Fueled by the era's industrial boom, the company's growth was directly related to manufacturers' rapidly growing need to put electricity to work for them. Today, Baldor is a \$550 million, publicly held business, well-known to both OEM

## Best Practices: Baldor Electric Co. **Wired For Quality**

Published on Industrial Maintenance & Plant Operation (<http://www.impomag.com>)

---

specifiers and MRO buyers. It produces commercial motors, generators, drives and motion controls, in addition to a broad range of custom and stock industrial motors up to 1600 hp. Baldor operates almost exclusively in the U.S. at 14 manufacturing locations. Its Fort Smith headquarters and manufacturing plant is the largest; its single overseas facility produces motion controls in Bristol, England.

Keeping the bulk of its operations in the U.S. is a strong selling point for the company and a matter of pride and security for its employees. But as with everything else about this focused company, the reason behind its continued U.S. presence is ultimately about meeting customer needs.

"We've not had any customer say, 'I want to buy a motor made in China,'" says Randy Breaux, vice president of marketing. "What they ask for is a product that meets their needs from the standpoints of quality, cost and delivery. Our goal is to provide that. And we believe we can do it in the U.S., but this means we have to do some things better than others."

One way the company does this is with its flex-flow production strategy, a system based on customer demand rather than batch production. "We forecast on just what customers want in a 14-day process cycle," says Condray. "On stock items, we'll have it out in one day. If it's a non-stock item, we have five days to get the material from our suppliers and five days to process this through our system and have it ready for delivery. I make it sound simple, but the introduction of flex-flow into the Baldor system had a huge impact because quality had to be married to manufacturing."

A Baldor employee checks motor wiring at Fort Smith.

Flex-flow necessitated that Baldor establish partnerships with its suppliers so the company could guarantee its ability to produce custom product with minimal notice. "Our materials group keeps as close to perfect balance as possible," says Condray. "They can do that because of our supplier relationships. Key suppliers keep some inventory on the shelf, knowing that we're going to need something. And they'll break into their setups just like we break into ours to take care of customers." More importantly, flex-flow required that Baldor redefine its manufacturing process. It was key that lines be redesigned for maximum, lean efficiency, and that workers understand how to make the new process work. Because it had long emphasized quality in its processes, Baldor was in a good position to implement flex-flow at most of its locations.

One plant that had some difficulty was its 165,000-sq.-ft. Columbus, MS, facility that makes medium- to large-frame AC motors. Condray was hired by Baldor in 1993 to rectify supplier-related issues at that plant that were affecting product quality.

"Their biggest problem was that the material coming in was not very good," he says. Workers had lived with imperfections in metal stock and other issues for so long they accepted them as normal. "I said 'No, we don't accept this,'" says Condray. "We started working with our suppliers and made vast improvements with them. But we also recognized that our metrology wasn't as accurate as it needed to be. So we entered an aggressive program to change our tooling and gauging in that plant. We also changed the way we fixture parts to hold higher and closer tolerance. Electric motors aren't an aerospace product," he says, "but they do have tolerances that have to be correct. You have to accurately measure within tenths of an inch. You also have to address concentricity because it has a moving shaft." Condray's

## Best Practices: Baldor Electric Co. **Wired For Quality**

Published on Industrial Maintenance & Plant Operation (<http://www.impomag.com>)

---

task was to convince workers that improvements were both possible and important, then teach them what to do.

"We concentrated on what caused problems for the folks on the floor," he says, "and they responded tremendously. We fixed a lot of their problems. We bought them new gauges and we taught them not only to measure and to gauge product with new gauges that were more accurate, we taught them to measure for accuracy. And that's a little different."

A Baldor Super E motor rolls toward completion in Fort Smith. The gold-painted, energy-efficient unit is designed to run cooler than comparable motors, and can reach efficiency ratings of 95%, according to the company.

Condray and his team were able to eventually push quality control back to the workers through the entire plant. At this point, he says, "We moved away from being a quality-control department to being a quality-assurance department. We became a flexible conduit from the customer into our plant, and through our plant back to our suppliers. If we were having problems, we shared it, not to be downgrading, but to improve. And we enlisted all of our employees to help. Only some were behind us at first, but then it moved from several to 50% and 60%, to today, where everyone in that plant is 100% focused on the same thing."

Baldor workers at other company plants are just as focused, says Condray. All are required to understand how they fit into every aspect of company operations. This is the result of an employee training program that is as much a part of the company and its culture as what the company produces. "We get a lot of things done by explaining things to people," says Condray. "The value formula is a good example: In 1993 and 1994 we trained everyone in the organization. There were five classes value, cost, time, service, quality \_ and each one of those classes was four hours long. We taught every employee in every plant."

Training remains at the core of Baldor's strategy. Before beginning a job at any of the company's facilities, for example, every new employee must complete up to 12 hours of training. It covers company basics, such as company history, the company handbook, job requirements and expectations, safety, flex-flow and the value formula.

Additional training opportunities are available to all employees throughout their tenure at the company. Options include leadership courses (offered in partnership with the University of Arkansas), Dale Carnegie self-improvement courses, as well as courses on blueprint reading, machine-tool technology, shop math, gauges, machine use, CAD use, and on general topics such as computer use and the principles of free enterprise.

The training has produced a workforce that can operate on many levels. Equipment cross training, for example, enables Baldor to meet the just-in-time demands of flex-flow, while the cultural foundation that supports the training efforts keeps employees focused on the big picture.

In 2000, Baldor president and CEO John McFarland began a company-wide energy-savings initiative that now saves \$1 million annually. Part of the savings come from the use of Super E motors.

"Everybody here understands they're in sales," says Randy Waltman, vice president of operations. Evidence of this, says Condray, is that "you can go up to any machine operator and they can tell you what they're doing. They understand the

requirements and they understand the results of not doing it." When customers tour Baldor facilities, they often converse with Baldor line workers. "Our customers come in and tell us what they'd like to see," says Condray. "I'll give a general overview, but if a customer has a question or idea, we let them share it with the employees." Condray also does the reverse, taking Baldor teams to meet customers at their locations so they can see how Baldor products are used. The strategy further enlarges employees' understanding of the big picture. It also exemplifies Condray's belief that "you should expect the best out of your employees. They can help you a lot more than what you might think. Our employees are resources," he says. "They can help us go forward or they can help us go backward."

During the recent downturn in manufacturing, Baldor made sure not to lose this resource. Instead of getting pink slips, workers were pulled off the floor and put into classrooms. "Slow times are when you have to improve," says Condray. "When the economy ramps up again, we want people to be even better. Focus on your customers, because they're still your customers, whether it's slow or not."

Recent acquisitions and improvements at the company will also likely help it blunt the impact of slow times. The most important may be its 2000 acquisition of the Pow'r Gard Generator Corp. in Oshkosh, WI. "We got into the generator business thinking it would be a nice sideline," says Baldor chairman Boreham. "We're finding out now that could be as big as the rest of it." Just as self-generated and uninterruptible power have become critical issues to industry, Baldor can now offer a range of generators for portable and fixed back-up power up to 140 kW. Its OptiGen generator, introduced this year, is a generator-industry first, due to its ability to adjust its speed to match load requirements.

Baldor has also decided to more aggressively pursue commercial-motor opportunities. Designing and building small motors for hotels, motels and restaurants "could make us a billion-and-a-half dollar company," says Boreham. A key part of the effort is Baldor's automated winding facility. Housed in a separate building across the street from the main manufacturing complex in Fort Smith, the system can wind and test a commercial-size motor winding in 20 minutes significantly less time than the eight hours needed to wind them by hand.

"This has had a huge impact," says vice president Waltman, who led the team that discovered how to automate the labor-intensive process. Using 144 Baldor motors and drives, as well as Baldor software, the \$3 million system was designed in part by Baldor engineers and went online in fall 2002. It currently produces some 2,000 motors per week.

Baldor's automated winding unit for commercial motors reduces the time needed to make the smaller motor windings from eight hours to 20 minutes. It went on line in fall 2002, powered by 144 Baldor motors and drives. Company chairman Boreham says he believes Baldor's successful pursuit of the commercial motor market could triple the size of the company.

Energy-savings is another area that has received Baldor's high level of self-scrutiny and self-improvement, both as a way to build company value and to cut costs. In 2000, the company embarked on a program to reduce energy consumption that it says now results in savings of \$1 million annually. Improvements include lighting upgrades at all Baldor plants, additional ceiling insulation, use of programmable thermostats, use of motion detectors in conference rooms and bathrooms that turn off lights when rooms are empty, as well as widespread use of the company's own energy-efficient Super E model motors in production.

For its efforts, Baldor became an Energy Star partner in August 2003. The

distinction means the company is recognized by the U.S. Environmental Protection Agency as one that both offers energy-efficient products to its customers and practices sound energy management at its own facilities. There are more changes to come. "We want to get more of the benefits of lean thinking," says Waltman. "We want to get every plant to a three-day-or-less manufacturing cycle. We also want to improve first-pass yields above the 99% level."

Condray says a new quality initiative at the company that allows all Baldor plants to measure themselves in the same way will help it build on previous Six Sigma efforts and further reduce lead times. "We now have the ability to continuously measure our first-pass yield," he says. "This means we can quickly see when we're having issues, or as they come up, we can address them."

Marketer Breaux says he's working to make Baldor "the preferred adjustable-speed drive producer and the preferred generator manufacturer." He says he believes this can happen in the same way the company's reputation as a world-class motor producer has come to overshadow that of many of its higher-profile competitors. Breaux and others, though, believe the company can continue to improve only by sticking with the basics that have served it well so far. "Simply, we have to remain the highest value provider in the industry," he says, "we have to be priced competitively, and we have to have the best lead time. And we need to do this day after day." Breaux stresses that Baldor will always build the motor "the customer needs," including those with custom performance requirements. "This is good for us because it locks us into this customer," he says. "And it's good for him because it keeps him competitive. That's how we build long-term relationships. And once we get a customer, we don't lose him."

The winding unit, a \$2 million project, was developed with the leadership of Randy Waltman, vice president of operations and significant design input from Baldor engineers.

Another element of Baldor culture the company plans to keep, says Breaux, is the way the company goes to market. Since the 1940s, the company has relied on independent manufacturer representatives to sell its products instead of a dedicated force of Baldor salespeople. Today, some 35 independent reps are the only channel through which Baldor customers are served in North America. The interesting twist is that the group has agreed to sell nothing but Baldor products, and its members are happy to do so. "As a result, these people are like family to us," says Breaux, who adds that the strategy frees Baldor from the administrative duties a dedicated staff would require, "and gives us the ability to let those entrepreneurs run. We empower them to make decisions on behalf of Baldor without having to come here to check every decision." The reps are linked to the same Baldor computer network as Breaux, and can place and track orders from any plant or warehouse, as well as check company-wide inventory. The reps are so much a part of the Baldor system, that "unless we tell a customer we have an independent sales force," says Breaux, "they usually believe they're Baldor employees."

Baldor leaders also say they don't want to change the company's strategy to perform most of its manufacturing in the U.S. Breaux believes that its stateside status will only make it stronger in years to come. "As more companies move offshore, they can't respond to the immediate needs of a lot of their OEM customers here in the states," he says. "Most customers operate on some type of just-in-time manufacturing system, so they don't carry a lot of inventory. This means they're

## **Best Practices: Baldor Electric Co.<br>□Wired For Quality**

Published on Industrial Maintenance & Plant Operation (<http://www.impomag.com>)

---

depending on being supplied in a timely manner. And the window of need might be only one or two days." Buying from offshore, he says, means that someone has to hold product in reserve. "One of our strengths is being able to build it and ship it when it's needed so no one needs to hold inventory."

It's this level of support and service that the company is betting will remain in the minds of customers. "Thousands of times a day, a person sits down and decides to buy a motor," says Waltman. "If that person has had a good experience with Baldor and we've maintained a good reputation in the marketplace," he says, "he'll probably decide to stick with us."

**Source URL (retrieved on 08/29/2014 - 1:23pm):**

[http://www.impomag.com/articles/2003/12/best-practices-baldor-electric-co-wired-quality?qt-recent\\_content=1](http://www.impomag.com/articles/2003/12/best-practices-baldor-electric-co-wired-quality?qt-recent_content=1)