



Company Profile___

Arrow Gear

In its 56-year history, Arrow Gear has made a name for itself as the company to call when gears of the highest possible precision are called for, and the caliber of its customer base stands as validation of that reputation.

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At a point in time when the truth is hard to find, and "spin" is applied to nearly everything, it's refreshing to talk to a man like James Cervinka, the 83 year-old cofounder and CEO of the Arrow Gear Company. "I'll be honest with you, I started this company to get rich, and what's wrong with that?" he says with a laugh. "But in the process, Arrow Gear has provided for hundreds of employees and their families, and we also provide superior precision gears to the top aerospace and commercial manufacturers in the world. So that's a pretty good record, as far as I'm concerned."

That record, compiled over the company's 56-year history, includes a client list crowded with the names of aerospace giants such as Bell Helicopter, Boeing, Curtiss-Wright, Hispano-Suiza, Pratt & Whitney, and Rolls Royce, just to name a very few. And although aerospace makes up a substantial portion of the company's revenues, Arrow also provides gearing for commercial applications, including robotics, printing presses, and even high-performance Indy racers.

That was the plan from the very start, according to Cervinka. "Anybody can make gears for manure spreaders," he says. "So what I wanted to do was go after the toughest jobs out there, and develop a reputation for being able to manufacture the highest-precision gears for the most demanding applications imaginable. And that's just what we've done."

A very hands-on CEO who can often be found on the manufacturing floor, Cervinka says his interest in mechanics goes back to his days as a teenager growing up just outside of Chicago. "I was always buying old motorcycles and rebuilding them in the garage," he says. "I probably rebuilt about 20 of them. And then, during the summers, I worked at a gear manufacturing company where my buddy's father was vice president. So I've always been around machines."

This interest led Cervinka to study engineering and metallurgy at the Armour Institute—now the Illinois Institute of Technology—and at Cornell University while in midshipman's school preparing for a near three-year stint in the Navy, where he was a lieutenant engineering officer. His involvement with the military would prove pivotal.

Although he considered pursuing a military career, Cervinka recalled the advice his father had given him. "He said 'whatever you do, try to do something for yourself. You see people come to this country, and they open a fruit stand or a store, and they work hard at it, and pretty soon they've got a successful business, and they're far better off than people who work for somebody else,'" he says. "I took those words to heart, and I believe in them. That's what's made this country great, in fact, that

asked him for business. As it turned out, all of his sons were engineers, but none of them had decided to go into business with him, as he'd hoped they would. So he said to me 'tell you what, I'm going to help you out. I'm going to give you some work, and I'm going to make all the tooling you need, and I'm going to pay you on time so that you'll have enough money to operate,'" Cervinka recalls. "So here was a man who was willing to stick his neck out for us, and in return we made him the best gears he'd ever seen. And that allowed us to stay in business long enough for other people to see that we were still around, and that we weren't going anywhere, so they all started to give us some business, too."

Company

people can work hard and enjoy the fruits of their labor. So that's what I set out to do."

On leaving the Navy, Cervinka had planned to return to college to work toward his master's degree, but he found that all of the engineering schools were filled, so he took a job with a gear company in Chicago while awaiting an opening. There he met Frank E. Pielsticker, and the two decided to start a business together. "We got along famously. We were good friends, and we were both engineers, so we had a lot in common. Both of us felt that, if we took the risk of quitting our jobs and going into business, it would be very good to have someone to share the successes and failures with; and we had far more of the former, as it turned out. It was a partnership that neither of us regretted. Frank passed away some time ago, unfortunately."

Cervinka's status as a veteran proved crucial in this endeavor. Not only was he able to obtain a low-interest \$25,000 loan from the government, he was also given priority by the War Assets Administration, which was charged with selling surplus machines—including gear machines.

"Not only did that mean I was at the head of the line, in front of even the largest gear-manufacturing company, but I also got a 25-percent discount," he says. "And the fact that we could've sold that equipment for far more than we'd paid for it at any time during the company's early years provided a great deal of security for us in case things didn't work out."

Things more than worked out, however, but with the help of a man Cervinka now considers to be a mentor. "I went back to the father of my childhood friend and basically

Having obtained a small parcel of land, Cervinka was able to wrangle a deal to build a 4,000 square-foot manufacturing facility in 1947—"yet another good-hearted soul who said 'as long as you own the land, we'll build the building, and we'll work out the payment details once you're up and running'"—which housed Arrow Gear during the early years of its development. In the late sixties, Cervinka purchased five acres in nearby Downers Grove—where the company is still located, and now on some 10 acres of land—and built "a fine plant, with all of the

amenities you need," he says.

From the start, however, Arrow Gear has focused on precision work, manufacturing spiral bevel gearing to meet the needs of the most demanding customers. "We've got all the equipment to do it," says Cervinka, "but, most importantly, we've got the people who know how to do it."

One of those people is Ernest Kauzlarich, vice president of facilities, who handles plant operations and has overseen the company's numerous expansions. "Over the years, he and I developed the best maintenance department any company could wish for," says Cervinka. "We are now able to totally rebuild and repair any of our machine tools faster than anyone, and what a great help that is."



The Zeiss/Höfler CNC Gear Inspection System is used in conjunction with Arrow's Computer Controlled Manufacturing (CCM) Closed Loop System for the inspection of spiral and hypoid bevel gears during tooth cutting and grinding operations.

Another valued member of the team is Joe Arvin, president of Arrow Gear, who has been with the company for the past 31 years and is also a trained engineer who studied at Purdue University. "Joe has an excellent reputation, and he's known by all the top executives worldwide," says Cervinka. "He's one of the main reasons we've been able to sell to companies around the globe, in countries like Italy, Germany, France,

England, Israel, and Scotland. He understands the mechanics of machining, and he's been able to develop new processes that are saving us a great deal of money."

On the list of challenges Arvin faces is the fact that, when you're already at the head of the pack, in what direction should you choose to grow? "Arrow Gear makes more jet-

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engine gears than any other company in the world," he says.

"While there are other companies manufacturing these types of gears, many of them aren't 'gear companies,' specifically. We make twice the number of jet-engine gears that most of them do, and even Fiat, which is probably the closest company in our range, only makes about 75 or 80 percent of the gears that we make."

One area in which the company plans to devote its attention is in the actual design of high-precision gears for its customers. "We're doing gear design and making prototypes for the GP7200 project, which is a consortium between GE and Pratt & Whitney, who are working together to design a new jet engine. We did the power takeoff gear tooth design for Pratt & Whitney, and the bevel gear design for Hamilton Sundstrand,



A Phoenix Hobbing Machine located inside Arrow's Hobbing and Shaping Department.

who's making the assessor drive box," says Arvin. "Another big program that we're doing the design and making prototypes for is the F135, which goes on the new joint strike fighter jet."

Still, the company has taken its hits from the weak economy, along with the rest of the industry. While some have experienced as much as a 70-percent drop in revenue, however, Arrow Gear has dealt with a far more manageable 30 percent loss. "That

still hurts," says Arvin. "I took a call from Boeing in November 2001, just after 9/11, for instance, in which I found out that they were cutting the number of 737s they were producing—which we've been heavily involved in—from 28 to 14 per month, which represented a \$6-million blow for us. So that's why we're down, because the whole aerospace industry is down."

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BURKA-KOSMOS

Gear Tooth Grinding Wheels

Burka-Kosmos has been manufacturing grinding wheels since 1890. They have specialized in grinding wheels for gear grinding since 1980 and now over 95% of their production is for gear grinding applications. They manufacture wheels for profile grinding, generative grinding and thread grinding. They offer both aluminum oxide and ceramic. JRM International, Inc. is the exclusive North American partner of Burka-Kosmos. We stock wheels for all applications in a variety of sizes. We are also available to assist you in optimizing your grinding process.



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As a result, and while waiting for an economic recovery, Arrow Gear has focused on its operations and forging new partnerships in developing innovative manufacturing techniques. "We're currently working with the Navy and Penn State on new heat-treat processes," says Arvin. "And, from an internal standpoint, we've managed to cut our lead time down from 22 weeks to 10 weeks using lean manufacturing, among other things. And Mr. Cervinka and I are constantly out on the shop floor, experimenting with new machining and grinding methods."

Despite the hard times being experienced across the industry—and around the world—Arrow Gear is continuing its course as a manufacturer and global supplier of high-precision gearing. "We export 33 percent of our product, and that is phenomenal. I know of no other gear company that can make that claim," Arvin says.

"What's made this country great is that people can work hard and enjoy the fruits of their labor, so that's what I set out to do."
—James Cervinka

"And the reason for that is our high-quality technical expertise and engineering capabilities, that's why the foreign countries come to us. We have a reputa-

tion for doing precision work that's based on nearly 60 years of experience in this industry, and we continue to hold to that tradition of quality and innovation."

Another reason for the company's health has to do with diversification, according to Cervinka. "Although we deal primarily with the aerospace industry, commercial work makes up about 25 percent of our revenues, and we provide the same quality product for that market as we do for our aerospace and military customers," he says. "I remember back when we first decided to mix precision work with high-grade commercial work, a lot of people were telling me that it would never work. But I didn't agree with them. And then, a couple of years ago, many of the government agencies sent a notice out to their suppliers suggesting that they take on commercial work to see them through lean times in the aerospace and military industries, so I was right! I really got a kick out of that."

Cervinka says he gets that same kick out of every day he spends at Arrow Gear. "On average, we'll have between 450 and 600 different jobs going on at the same time, and it's just fascinating to be involved in all of that," he says. "I had a sculpture commissioned a couple of years ago that's made up of all the gears that we produce, and we've got it right out in front of the building. It's huge, and every time I look at it I'm reminded not only of everything we do, but of all the people who are behind the success of this company, and that's what keeps me excited about coming to work every day. And since our sons are involved in Arrow Gear, the future certainly looks bright."

"Hell, at 83 years old, I might be the oldest CEO in the country," says Cervinka, "but I have no intentions of slowing down." 📷

For several years, Jim Cervinka has had unused and setup pieces welded into a unique gear sculpture. The sculpture is located on the grounds of the main plant.



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Producing reliable, high precision gears requires the most advanced technology available – the technology that is now available at Arrow Gear Company.

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