

*Growing Out of Its Armor*

# Ceradyne, Inc.

**Ceradyne, Inc., is best known for producing lightweight ceramic body armor for use by U.S. military personnel. With the conflict in the Middle East, demand for the protective inserts has been high, contributing to the company's strong results. Earnings per share have risen at an average annual rate of 56 percent over the past five years, Value Line reports. Sales have increased an average annual 37 percent. That track record was among the reasons Ceradyne was named the 2006 Growth Company of the Year at the BetterInvesting National Convention last September.**

Based in Costa Mesa, Calif., the company has produced military armor since its launch 40 years ago. In fiscal-year 2005 (ended Dec. 31, 2005), Ceradyne derived two-thirds of its sales from defense business. That worries some analysts, who suggest the company's results could dip once the United States role in Iraq winds down and demand for body armor is reduced. Management disagrees that military armor sales will decline significantly over the next few quarters, however (see page 31).

Joel P. Moskowitz, 66, chairman and CEO, says Ceradyne is misidentified as a defense corporation. The company co-founder describes Ceradyne as a manufacturer of advanced technical ceramics that have many industrial applications because of their hardness, lightness and temperature resistance. The corporation is developing new nondefense products, some of which are claimed to have the potential to generate annual sales of \$1 billion or more. In naming Ceradyne, Inc., the Stock to Study for February, members of the Editorial Advisory and Securities Review Committee highlighted its potential to increase sales of ceramic products for nonmilitary applications.

## Corporate Transformation

In addition to making body armor, Ceradyne produces armor components for military vehicles, small naval craft and helicopters and other aircraft. The defense segment also makes missile nose cones.

Ceradyne makes industrial products (23 percent of fiscal-2005 sales) such as components for aluminum processing. It also produces components for silicon refining, semiconductor processing, glass tempering, metal casting and aluminum metalizing (coating with a thin layer of metal).

Automotive and diesel engine products (8 percent of sales) include drive train and hydraulic fuel pump components. The unit also makes piston pins and insulators for jet engine igniters.



**Silicon Strides.** Ceradyne crucibles are used to manufacture electricity-producing solar cells.

The company's smallest business is medical and dental products (3 percent). These include components for defibrillators, surgical procedures, joint replacements, dental implants and orthodontic brackets.

With its August 2004 acquisition of ESK Ceramics in Germany, Ceradyne obtained control of a source of the ceramic powders used in many of its products. The deal made Ceradyne a more vertically integrated organization. That structural change will play an important role in the expansion of Ceradyne's nondefense businesses, management reports.

Several nondefense initiatives are in energy-related industries (see page 31). An example is Ceradyne's partnership with Alcan Inc. to produce nuclear shielding for containment of spent nuclear fuel rods in dry cask storage containers. The companies plan to start producing aluminum-ceramic matrix shielding at a facility in Quebec this year. The shielding absorbs neutrons, allowing safe storage of the radioactive material outside nuclear power plants.

## Financial Results

Sales totaled \$368.3 million for fiscal-year 2005 (ended Dec 31, 2005), up 70.8 percent from \$215.6 million the previous year, Value Line reports. The company saw net income of \$46.8 million before nonrecurring and special items, an increase of 69.6 percent from 2004's \$27.6 million. Diluted earnings per share totaled \$1.86

## Meet the CEO



**Joel P. Moskowitz**

**Tenure as CEO:** 40 years.

**Education:** Alfred University, B.S., ceramics engineering; University of Southern California, M.B.A.

**Previous Post:** Research Engineer, Interpace Corporation

### What are the prospects for future sales of body armor?

We're currently shipping approximately 25,000 sets of body armor a month. We believe we'll continue at that rate through second-quarter 2008. The government now is working on a new system, which we're interested in producing. This next-generation armor (NGA) may come into play sometime in 2008. We've made prototypes that are being evaluated by soldiers right now. If the military goes forward with it, the concept is that NGA will have a higher level of ballistic protection. They also wanted it, if possible, to be more comfortable. We've developed a prototype providing more airflow between the protective armor and the soldier's body. It provides higher lethality protection without any increase in weight. There also will be a constant stream of replacement for the armor that's currently in use. The Army believes it will be replacing about 15 percent of the fielded units in any particular year.

### What are some of the most interesting new markets?

One of our biggest new developments is in the aluminum industry, which is growing by leaps and bounds globally. The industry is making aluminum by smelting bauxite the same way it has for years. There's a great deal of incentive for lowering the cost of making aluminum, reducing the electricity required and making it more environmentally friendly. Our titanium diboride ceramic has a unique advantage in the way it doesn't react with molten aluminum. This could be the first billion-dollar opportunity for our company. Another effort is manufacturing ceramic crucibles for melting silicon in the manufacture of photovoltaic solar cells. This is a market that's growing 35 percent a year. We've just broken ground for a facility with 105,000 square feet in Tianjin, China, to service this market. We're also working on a number of programs for the automotive and diesel engine industries. Ceramic components made of silicon nitride would be used in the engine itself to reduce weight and increase wear resistance, particularly in the valve train.

### What other products are in development?

The world has an estimated 2 trillion barrels of conventional oil reserves. There's 3 trillion barrels of unconventional

reserves, mostly oil so viscous it's trapped in shale or sand. Most of it's in North America, in Colorado and the Peace River formation in Alberta, Canada. It's difficult extracting that oil without ruining the environment or facing costs so high it doesn't pay. Currently, you get at the oil by strip mining and heating the oil-bearing material in retorts, then rebuilding the land to a natural state.

We're working on a process to heat the ground, lowering the viscosity to more easily get the oil out. When you do that, you're not going to touch the environment. You need a very robust material for the equipment going into the ground, and we have it. We're a supplier to a company that has holes in the ground, and the process is working very well. The economics look quite good. If the technology goes forward, it would be a major new product line for Ceradyne. A decision won't be made until 2009.

We're also in the early stages of developing medical applications — body implants such as hip replacements. We believe ours would be superior. It's a market that's growing significantly. We've brought in a consulting team that's very skilled in this. We believe we have the material already. The real issue is going to be the methodology of forming it into a product. In that area, you need all those things that go along with medical implants — extremely tight procedures to ensure absolute reproducibility and traceability, as well as very clean facilities. It's a very different procedure from making lightweight body armor. We would supply the distributors. We would not market the product to doctors or the hospitals ourselves. We would work through the giants.

### How would you characterize Ceradyne's overall strategy?

In the next year or so, Ceradyne will be similar to the company you see right now. Then, if we're right, you'll see more opportunities in China, not only in photovoltaic cells, but also in a whole series of applications where our ceramics will go into their industrial base. We're also looking at acquisitions. Going into 2008, 2009, I see two or three acquisitions that will alter the face of the company as it currently stands. Our strategy is to utilize our strong cash position to make accretive acquisitions that make sense, and to expand our nondefense lines. We recently hired a senior vice president just to work on our acquisitions. We're one of the fastest-growing companies in the United States. I don't believe we'll grow at the unbelievable rates we have been seeing in the past, but we want to continue to grow. Our growth will come from our nondefense businesses, generally energy-related products.

before nonrecurring and special items, up 66.1 percent from \$1.12 the year before.

Sales for third-quarter 2006 (ended Sept. 30) totaled \$185.8 million, up 96.8 percent from \$94.4 million in the year-earlier period. Diluted EPS totaled \$1.34 before nonrecurring and special items, up 152.8 percent from \$.53 the year before. The company reported third-quarter unadjusted net income of \$36.9 million, an increase of 176.8 percent from \$13.3 million a year earlier. *(Editor's note: Value Line, the source for the results in this article, doesn't report adjusted quarterly net income. In the case of the third-quarter EPS, however, the company and Value Line figures agree, so the net income figures match up.)*

Sales totaled \$484.2 million for the year to date, a 90.5-percent increase from \$254.1 in fiscal 2004. Diluted EPS amounted to \$3.34 after adjustment (versus the unadjusted, company-reported \$3.31), up 171.5 percent from \$1.23 a year earlier. Ceradyne reported unadjusted net income of \$90.7 million for the first three quarters, up 195.1 percent from \$30.7 million in the year-earlier period.

Value Line has granted the magazine permission to publish its most recent company and industry reports for Ceradyne. The accompanying Stock Selection Guide has been partially completed showing primarily historical information similar to that seen by the magazine's



**Efficiency Gains.** Temperature-resistant Ceradyne ceramics are used to reduce power consumption and emission levels in aluminum processing.

Editorial Advisory and Securities Review Committee.

Readers are urged to perform their own studies of Ceradyne using SSG resources and instructions in BetterInvesting publications. The Stock to Study goal is a doubling in investment value (appreciation plus dividends) within five years. No investment recommendation is intended.

### Performance Expectations

In mid-December Value Line analyst Eric M. Gottlieb projected diluted EPS of \$4.50 for fiscal 2006 and \$4.85 for fiscal 2007. He estimated long-term annual earnings growth of 28 percent. Yahoo! Finance reports 10 analysts provide research commentary on Ceradyne. Their consensus opinion was that the

company's earnings would grow at an average annual rate of 15 percent over the next five years.

In mid-December shares were being traded at \$54.89. The stock's price at the time of selection for this feature was \$52.77, and its recent 52-week trading range was \$38.72 to \$63.84. At the recent share price, market capitalization stood at \$1.5 billion.

Ceradyne pays no cash dividends. Its stock underwent 3-for-2 splits in 2004 and 2005. The company doesn't sponsor a direct stock purchase plan.

Officers and directors held 7.8 percent of the 27 million shares outstanding, according to the company's April 2006 proxy statement. Institutions owned 90 percent, Yahoo! Finance reported in mid-December.

### Final Notes

The magazine hasn't previously profiled the company, and Ceradyne hasn't ever appeared in the magazine's annual Top 200 survey of investment club holdings. Internet links to other background information on the company and its industry can be found in the online version of this article at the BetterInvesting website. Ceradyne, Inc., is traded on the Nasdaq National Market under the symbol CRDN. For more information about the company, contact Silverman Heller Associates, 1100 Glendon Ave. PH-1, Los Angeles, CA 90024-3526. **B**

The Editorial Advisory and Securities Review Committee next meets Jan. 5, 2007. The Stock to Study and Undervalued Company selected for the March 2007 issue of the magazine will be announced shortly afterward. Look for the Stocks to Study box on the right-hand side of the homepage. The link will take you to the announcement at the BetterInvesting Newsroom ([www.betterinvestingnewsroom.org/releases/index.html](http://www.betterinvestingnewsroom.org/releases/index.html)).

### Websites of Interest

Ceradyne, Inc.  
[www.ceradyne.com](http://www.ceradyne.com)

— Reporting by Associate Editor Kevin Lamiman