



Popular Mechanics

Five American Manufacturers Doing It Right: Made in the USA

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BULLDOZERS

Caterpillar
Peoria, Ill.

BIG CAT	KEY PRODUCT	U.S. EMPLOYEES
The 248,600-pound D11 is the world's biggest bulldozer. It has a 525-gal. gas tank.	D-series track-type tractor, invented in 1904.	50,657

Workers at Caterpillar's East Peoria, Ill., plant touch up (from left) a D8 and two D10 bulldozers.

The factory floor—as big as 16 football fields—is noisy with the clatter and grind of huge lathes and drills shaping steel plates, gears and rods for giant yellow bulldozers that will churn through major construction sites. [Business](#) is brisk, and new workers have come on board, armed with welding torches and, just as often, the controls to high-tech robotic manufacturing equipment. It takes sophistication to build the king

of the dirt pile, Caterpillar's iconic D-series track-type tractor. From the company's plants in Illinois, the bulldozers are shipped throughout the country and the world.

Heavy manufacturing in the American heartland? Wait a minute. Haven't we outsourced all that work to low-cost suppliers in Asia, Latin America and elsewhere? Not so fast.

America's manufacturing sales stagnated at the \$4 trillion mark in the late 1990s. But then something surprising happened. America started selling again—finding more customers for tractors, steel, plastics, knives and medicines than ever before. Manufacturing sales hit a [record](#) \$5 trillion in 2006, according to the U.S. Census Bureau. "People talk about a doomsday scenario for manufacturing, but that's not the case," says Vinod Singhal, a professor at the Georgia Institute of Technology's College of Management. "The best U.S. manufacturers have become more competitive, no doubt about it."

[Sales](#) of big gnarly machines, like mining, farm and construction equipment, are up 20 percent since 2002. Revenue from coal products and refinery activity nearly doubled during the same period. The business of refining and processing raw materials such as iron, steel, aluminum and copper has increased 40 percent. Chemical manufacturing, notably pharmaceuticals, grew 22 percent. Even car production expanded.

How are American companies competing against overseas manufacturers with dirt-cheap payrolls? Successful CEOs tell Popular Mechanics that building in the United States provides advantages foreign competitors often can't match: speed, flexibility and access to the highly capable U.S. workforce. The Specialty Blades factory in Staunton, Va., for instance, makes blades destined for diverse uses, from scalpels to the little gadgets that spit out gas station receipts. The stars of the company's operation are engineers, who have worked with surgeons to develop a number of sophisticated tools, such as a circular cutting and stapling device to reduce the invasiveness of digestive-tract surgery. "U.S. engineering is flat-out way more developed than in China for this function," says the company's CEO, Peter Harris.

Measured by the mass of metal involved, there are few products less similar to Harris's than a 124-ton tractor. But like Specialty Blades, Caterpillar has focused on innovation—in both product and process. "I start with a piece of raw iron," says machinist Bill Marvel, who operates five machines that turn metal into 22-in. gear rings and other parts in the East Peoria, Ill., plant. "When I was hired here 30 years ago, I ran a manual machine. Today I do a lot of work from start to finish without touching the parts. The job is quicker and not as hard as it used to be."

Not all the news is positive. Many people across the country have found that as factories become more high-tech, they tend to require fewer industrial workers. Specialty Blades uses computerized equipment to sharpen blades, an operation that would be done by hand in some overseas factories. And while the country's overall unemployment stands at a moderate 5 percent, manufacturers have reduced their workforce by 18 percent since 2000.

Caterpillar is a bright spot. The company has hired more than 13,000 U.S. workers since 2006, prompted partly by rising demand from a surprising source. "The growth in China is driving growth in the U.S.," says Mark Pflederer, Caterpillar vice president for the heavy construction and mining division. The company's Illinois plants are producing more than bulldozers, it seems. They're also building a success story of American manufacturing.



WIRE BASKETS

Marlin Steel Wire
Baltimore, Md.

DIY CONNECTION	KEY PRODUCT	U.S. EMPLOYEES
Marlin makes custom pegboard hooks and S-hooks-- just send in a sketch.	Custom baskets for industrial use.	20

Robotic basket welders like this attach the vertical sides to the base, helping Marlin turn out 1 million baskets annually. Left to right: Kendall Browning, Dong Moon, Drew Greenblatt and Hector Carmona.

Offshore competition nearly put Marlin Steel Wire out of business. Owner Drew Greenblatt used to make wire baskets for bagel shops, but that market disappeared with the entry of Chinese competitors. “They could make the entire product cheaper than I could chrome it,” Greenblatt says. “We barely survived—and it forced us to transform.”

That was in 2002. Today, Marlin Wire is a thriving manufacturer. Its Baltimore plant is running at capacity, and its biggest challenge is hiring enough skilled workers.

The trick was finding the right niche. The company still makes wire baskets, along with other products, but now they are custom-built to hold expensive, delicate components of cars and jet engines that companies like Toyota and General Electric need to send through parts washers.

“An American engineer wants to talk on the phone and get a drawing fast, the next day, with baskets in a week or two,” Greenblatt says. “And they care about quality. They can’t wait eight weeks for an overseas guy to deliver it cheaper—and then find it might not fit.”



TELEVISIONS

Syntax-Brilliant
Tempe, Ariz.

CONTENT TOOLS	KEY PRODUCT	U.S. EMPLOYEES
In 2006, the company acquired Vivitar, which still makes cameras and camcorders.	Olevia 747i 47-in. LCD HDTV with dual tuners.	200

After Olevia LCD TVs are assembled at Syntax-Brilliant's Ontario, Calif. factory (top), they must be tested thoroughly (above).

Not since Zenith was bought by a Korean company in 1995 had a U.S.-based television manufacturer tried to compete with the Asian giants. That changed in 2006, when Arizona-based Syntax-Brilliant elbowed its way into the market with hi-def televisions assembled at a factory in Ontario, Calif. Sold under the Olevia brand name, the TVs are midprice LCDs with a growing—though still small—share of the market.

“Our biggest advantage is manufacturing in the United States,” says Vincent Sollitto, executive chairman. The televisions are designed and engineered in City of Industry, Calif. Then the components (panels, other electronic parts and plastics) are made separately in Asia and shipped to the West Coast facility. Syntax-Brilliant can put together whatever models its customers are calling for—and do it faster than the overseas competition.

“If Circuit City wants more of a certain set in three weeks, we couldn’t possibly do it from Asia,” Sollitto says. Shipping the televisions and maneuvering them through customs would consume a month or more.

“The most important thing in electronics is execution and speed,” he says. “You have to bring ideas to market when they’re hot, and stay ahead.”



FARM EQUIPMENT

Case IH
Racine, Wis.

FLEXIBLE FUEL	KEY PRODUCT	U.S. EMPLOYEES
All Case IH Magnum tractors built at the Racine plant can run on pure biodiesel, B100.	Axial-Flow combines with a single-rotor threshing design.	7900

Workers weld the boom of a Patriot sprayer at Case IH's Benson, Minn. plant (top), which has been manufacturing agricultural equipment for 50 years. Late in the assembly process, the sprayers wait for tires (above).

America has some of the richest farmland on Earth, with horizon-leaping fields of corn, wheat, soybeans, potatoes and more. Much of that acreage is tended by farmers driving machines made right here at home.

“The consistent high quality and productivity rate in the United States is a real advantage for us,” says Randy Baker, president and CEO of Case IH, which makes its biggest machines—combines, balers and tractors—at factories in six states. (The company also operates plants overseas, making sugar-cane equipment in Brazil, for instance, and smaller tractors in Austria.)

The factory turns a metal frame into a finished tractor in five to six days. “Building domestically allows us to be close to the end user,” Baker says. The faster Case IH can make and sell a tractor, the more profitable the company is—and a day or two after leaving the factory a machine can be in the fields, helping a farmer fill American grocery store shelves.



RACING BIKES

American Bicycle Group
Ooltewah, Tenn.

FAR FLUNG MARKET	KEY PRODUCT	U.S. EMPLOYEES
American Bicycle Group made the titanium tubing used in NASA's Mars rovers.	Litespeed Archon and Icon <u>performance</u> racing bikes.	100

The 1.7-pound Litespeed Ghisallo bike frame, held by American Bicycle Group CEO Peter Hurley at the company's 85,000-sq.-ft. factory, is one of the lightest in the world.

At just under 2 pounds, the most feathery titanium bike frames made by the American Bicycle Group nearly float off the workbenches in the company's factory in Ooltewah, Tenn. "Asian manufacturers don't have the expertise with titanium we do, and they don't have the same grade of titanium," says part-owner and CEO Peter Hurley. "The level of fabrication we have here does not exist anywhere else in the world."

Surprising clients come knocking when you've got titanium-shaping chops: NASA's Jet Propulsion Lab buys tubing from the company. But ABG is, primarily, a bike company, whose Litespeed and Merlin bike frames are favored by many triathletes, mountain bikers and road racers. In part, they have 22-year-old welder Josie Greek to thank. "With welding, I thought I'd get a job somewhere smoky, dirty," Greek says. "But this is clean. I love the work." And elite cyclists love the results.

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