

Buying Magnets Overseas: A Strategic Decision

Recently, I received a call from a magnet buyer with a Fortune 100 corporation. The buyer needed alnico magnets, and he needed a lot of them -- thousands of pounds of them, in fact. The company he works for is renowned for its strategic prowess, with a management training program that rivals the education offered at many top business schools. Despite this largess, the company was being pressured by suppliers in China. The company's suppliers were raising their magnet prices dramatically and the buyer wasn't going to accept this. He was looking to take control. My discussion with him centered on Thomas & Skinner's ability to make the highest quality alnico magnets in the world and our desire to meet his needs. But I couldn't help him. I told him that years ago, the U.S. plants that made high-volume, low-value magnets were driven out of business by intense foreign competition. The equipment required to produce the magnets was auctioned off, and in many cases, cut up and sold for scrap. In fact, the ability to make these magnets simply no longer exists in the US. Despite the massive resources of the buyer's company, he was stuck. Instead of offering a ready source of supply, I was forced to tell him that unless his company was willing to invest millions of dollars to rebuild the capacity to make these magnets, no one in the US could help him. In fact, the situation is so dire that the Chinese could now dictate not only the price he would pay, but possibly, how much alnico he would get.

Unfortunately, many companies are suddenly finding out that being dependent solely on the Chinese for their magnets is not a supply chain risk they can afford. Just ask any buyer of NdFeB magnets. Manufacturers of hard disc drives, speakers, hybrid cars, electric motors and many other electro-mechanical devices are suddenly finding that they are subject to the pricing and supply whims of a foreign land -- a foreign land driven by its own strategic interests, not theirs. It is an unsettling position, to say the least. Some would call it dangerous.

Michael E. Porter warned us of this danger in 1980, with his eloquent model of the 5 Forces that can influence an industry. His framework showed how a concentration of supplier power can severely impact a business's costs, and ultimately its competitive position. We see the results of supplier concentration every day. The OPEC nations, who supply about 40% of the world's oil, routinely flex their pricing power. Vale, a Brazilian mining company and the world's leading supplier of iron ore, forced steel producers in Japan, Korea and Germany to swallow a **65%** price increase in 2008 (BW, 3/3/08, *Brazil's Iron Giant Reaches for the Top*). When a country dominates the supply of a commodity, it's only a matter of time before they use that position to control the market and drive prices higher. Porter's 5 Forces model warns business managers to watch for this. Yet over the past 10 years, US companies have eagerly sourced their magnets from *only* China, without a thought about how this might put their business in jeopardy. And now many are paying the price.

Under the guise of free trade and globalization, the US military has unwittingly allowed itself to become dependent on China as well -- and runs the risk of becoming even more dependent in the future. For example, there are existing weapons today in the US arsenal

that use NdFeB magnets made by the Chinese. A prime example is the JDAM bomb. You may have heard of this weapon during the Iraq war. It's the smart bomb that killed Abu Musab al-Zarqawi, the Al-Qaeda terrorist in Iraq, in June of 2006. It is an extremely effective weapon – one which allows pinpoint accuracy in attacking a target. High performance NdFeB magnets are critical to the performance of the JDAM bomb. Yet, there are no US manufacturers of these magnets. Sure, many fabricators and distributors can grind magnets from stock shapes and blocks. But no one in the US currently makes the NdFeB stock shapes, blocks or powders used for magnets in these weapons. And even if a US company could make the NdFeB powders, China still controls the vast majority of the world's supply of rare earth metals (neodymium, dysprosium, praseodymium and samarium). So if the Chinese decide they don't want the US to use these weapons, they can simply stop shipping NdFeB magnets to the US. And the US military would have to scramble to get the raw materials, blend the NdFeB powder *and* create the capacity to produce the magnets. Astonishingly, the Pentagon is considering loosening the current requirement (DFARS 252.225-7014 Preference for Domestic Specialty Metals) that alnico and samarium cobalt magnets used in military applications be melted in the US or qualifying countries. By allowing Chinese magnets to be used in more military applications, the US military would become even more dependent on foreign suppliers

Some will argue that because of globalization, we don't need to worry about the supply of key military components. The theory goes that other countries, in the case of magnets, would step up and supply the United States military with all the magnets it would need in the event of a war. For instance, the Europeans are still able to supply NdFeB magnets. But the Europeans have shown themselves to be quite unreliable during times of war when it comes to supplying military components. The Swatch Group, a Swiss manufacturer of watches as well as quartz crystals, happened to be a supplier of key components for a US bomb guidance system prior to the Iraq war. This company decided it didn't like the US invasion of Iraq, and stopped supplying the US military with crystals. Suddenly, the Pentagon was scrambling to find another manufacturer of these crystals. They found that there was only one US company that could supply the crystals required for the guidance system. If not for this US supplier, the military industrial base would not have been able to build this bomb critical to the US armed forces. By relying heavily on foreign sources for strategic supplies, the Pentagon found that the supply chain may balk, and put lives of American service men and women at risk. As US citizens, the question we must then ask ourselves is, "Should the foreign policy and actions of the US be subject to the veto power of a company in another country?"

Here's the rub. China is the world's dominant supplier of magnets, and they know it. They control the neo magnet market through the supply of the rare earth metals. This is nothing new. You can talk all you want about alternative sources and supplies for rare earth oxides, but the reality is that every country that supplies rare earth oxides other than China has major problems. The Australian oxides come with radioactive thorium, the Canadian source is undeveloped, and the US source has been closed for over 10 years and only recently started a minimal operation to process previously-mined material. Knowing this, the Chinese have raised prices of the rare earth metals sky-high, and show

no signs of relinquishing control of this market. The evidence of China's intentions to dominate the global magnet industry is not just limited to rare earth materials either. The Chinese would very much like to control other magnet materials as well. This is exemplified by news out of Washington DC. On February 20 of 2008, the Commerce Department preliminarily found that Chinese producers/exporters of flexible raw magnets have received net countervailable subsidies of over **70%**. That's right. ***Subsidies of over 70%***. Larry Lasoff, a trade lawyer at the Washington, DC law firm of Kelley Drye commented, "While a recently filed trade case against Chinese magnet imports only examined the level of subsidization on a preliminary basis, it is difficult to believe the Chinese magnet sector is not subsidized. Indeed, the 70% preliminary subsidy rate is high by any standard." Clearly, the Chinese want to dominate the magnet industry, and they are willing to put enormous resources in place to do just that. Purchasing managers must then ask themselves, "How vulnerable do I want my company, *and my country*, to be?" And, "If the domestic magnet industry disappears, what options will I have?"

Four steps would ensure that US companies and military weapons systems don't become solely dependent on foreign magnet suppliers:

- Maintain and enforce the current DFARS 252.225-7014 Preference for Domestic Specialty Metals.
 - *Weed out and punish any remaining scofflaws supplying Chinese-melted magnets containing nickel and/or cobalt for US military applications.*
- Invest in strategic US magnet capacity and research.
 - *Upgrade current magnet manufacturing capabilities.*
 - *Re-establish the capacity to manufacture NdFeB powders and magnets in the US.*
 - *Push current US magnet research to the forefront of global technology.*
- Source locally.
 - *Buy domestically at least a portion of magnet requirements to ensure against 100% foreign dependence.*
 - *Maintain control over quality, production and new technology.*
- Create strategic stockpiles of key high-performance magnet materials, including cobalt, samarium, neodymium, dysprosium and praseodymium.
 - *Prevent supply disruptions in times of geopolitical instability.*

It doesn't matter if you're the world's superpower, a Fortune 500 company, or an engineer working out of his garage -- maintaining control over your supplier base is critical to success. When suppliers gain the upper hand, you no longer have control over your costs or your access to raw materials. Going overseas for magnets may have been the smart strategy years ago, but it's time to re-evaluate the competitive landscape. The cost of production may be less about dollars and cents, and more about maintaining control over strategic production capabilities.