Before You Go—

A CHINA GEAR MARKET UPDATE

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It would not be an exaggeration to say that China is often the most-covered country in the news today. Many articles appear in newspapers and magazines each day, and just about every topic seems to be of interest—from the Dalai Lama to the Olympics, from bird flu to lead paint in toys. And the business press can't seem to find enough superlatives to describe the year-on-year growth for just about every sector of the country's economy. So what's going on in the Chinese gear industry?

Market size. It is not news that China has already become a major gear-producing country. According to the Chinese Gear Manufacturers Association, (CGMA), "With the development of the national economy, especially due to the automobile industry, total growth of the Chinese gear market in the last five years has increased by 150 percent. Meanwhile, China's total sales of gear products have increased by over 100 percent, reaching 70 billion yuan RMB (USD $9.8 billion), ranking third in the world and surpassing Italy" (Table 1).

Table 1— 5-Year Gear Market Size (automotive and non-automotive combined) Unit: Billion USD

Year	Sales in Domestic Market	Net Value of Imports	Total Market Size
2002	4.5	0.4	4.9
2003	5.4	1.1	6.5
2004	6.4	1.7	8.1
2005	7.6	1.8	9.4
2006	9.8	2.8	12.6
Note: Net import = import – export			

Table 2— Regional distribution of gear product sales

Area	Eastern China	Northern China	West-Southern China	Middle China	West-Northern China	East-Northern China
Proportion (%)	52.8	19.1	8.7	8.1	6.7	4.7

Table 3— Regional features of gear product export in 2006

Value	Zhejiang	Shanghai	Jiangsu	Tianjin	Shandong	Beijing	Guang-dong	Hebei	Others
(%) Proportion	20.1	19.8	13.4	10.0	6.6	4.7	4.7	4.7	16.0

Table 4— Application of gear products in different industries in 2006 Unit: Billion USD

Category	Auto	Farm Machinery	Engineer-ing	Motor-cycle	Cement and con-struction materials	Crane and trans-portation	Mining	Metal-lurgy	Miscella-neous
Value	$4.62	$1.30	$0.72	$0.67	$0.56	$0.53	$0.53	$0.22	$3.40
(%) proportion	36.6	10.3	5.8	5.3	4.4	4.2	4.2	1.8	27.4

Table 5—Gear import and export for the last four years in the China automotive sector Unit: Billion USD

Year	2003	2004	2005	2006
Value of Import	$1.44	$1.99	$2.25	$3.37
Value of Export	$1.06	$1.53	$1.66	$2.60
Value of Trade Deficit	$0.38	$0.46	$0.59	$0.77

Demographics. In the West, we often speak of China as if it were one large, continuous market. Indeed, China is the size of the territorial United States, including the Gulf of Mexico. It's also as culturally, linguistically and economically diverse as Europe. About half of the Chinese gear industry is located in what is known as the Eastern Seaboard, and the provinces of Zhejiang and Jiangsu are where many of the larger gear enterprises are located. In 2006, for example, seven companies in these provinces had sales figures totaling over $70 million USD. We are also seeing very modern, well-equipped enterprises in Shandong Province, and the Shanghai area is becoming very important to exporters (Tables 2 and 3).

So what, exactly, is being manufactured in China, and where are the opportunities? Due to the great progress of China's automobile industry, its gear industry has witnessed a growth at an average annual rate of nearly 20 percent over the past five years. There are now around 1,000 gear enterprises in China, of which more than 50 have reached a scale of $70 million USD.

Basically, the manual automobile gearbox (including heavy, medium, light and mini gearboxes), sedan gearbox and motorcycle gearbox can now be locally produced to meet the demands of the Chinese domestic market. In 2006, 49 percent of all gearboxes were imported for the automobile industry, amounting to $228 million USD. And in addition to gearboxes, 60% of all other automotive-related gears—e. g., worm shafts for car seats, plastic gears for instruments, etc.—were imported.

The Chinese automobile sector is indisputably its leading industry in total gear market demand, occupying 36.6 percent, or $462 million USD (Table 4).

It is well worth mentioning that nearly one half of the Chinese automobile industry requires the supply of imported products, and the same applies for its gear industry as a whole. According to statistics gathered over the last four years, import and export activity for gear products have both been on the rise, while imports have outpaced exports (Table 5).

A new movement toward quality. We are beginning to see a rush of Chinese manufacturers moving towards higher-quality products, no more so than in the development of automatic transmission gearboxes. Much of China's needs remain dependent on imports—specifically, vehicle drivetrain axles, spiral-bevel gear sets and wheel redactors. These components serve to meet China's domestic demands, but quality levels for export are still maturing. Companies such as Shanghai Automotive, Jiangsu Aerospace and Shanxi Fast Gear are increasing their investment in gear machining quality and assembly to produce export-quality components.

Basic views on the Chinese gear industry. Nevertheless, the domestic gear industry here has seen great advances in the past years, mostly in the rapid increase of product quantity, if not quality. It is expected that 2007 figures will show that the entire market grew more than 15 percent, or approximately 10 billion yuan. But as shown candidly by the 2007 CGMA

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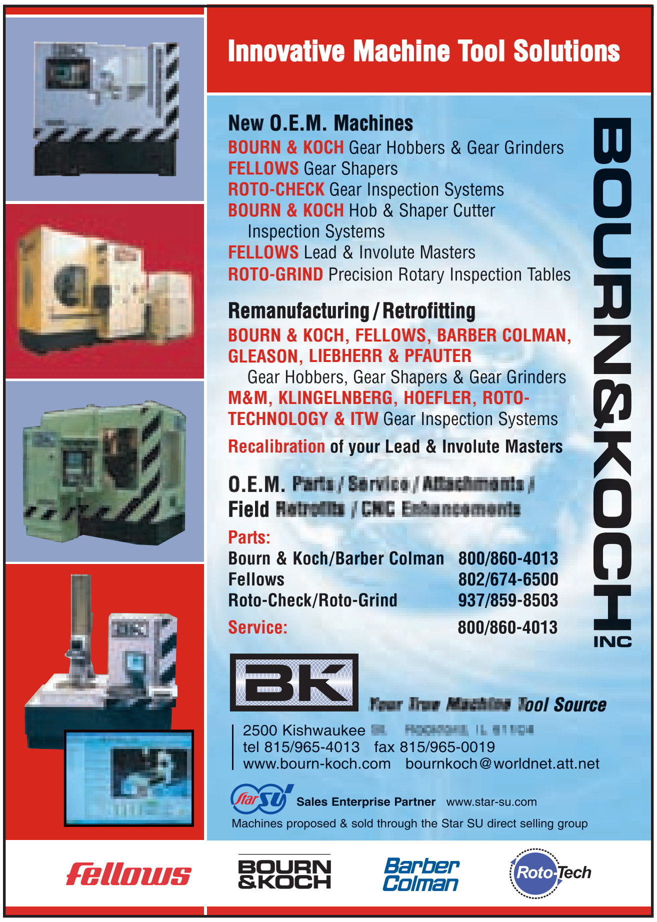

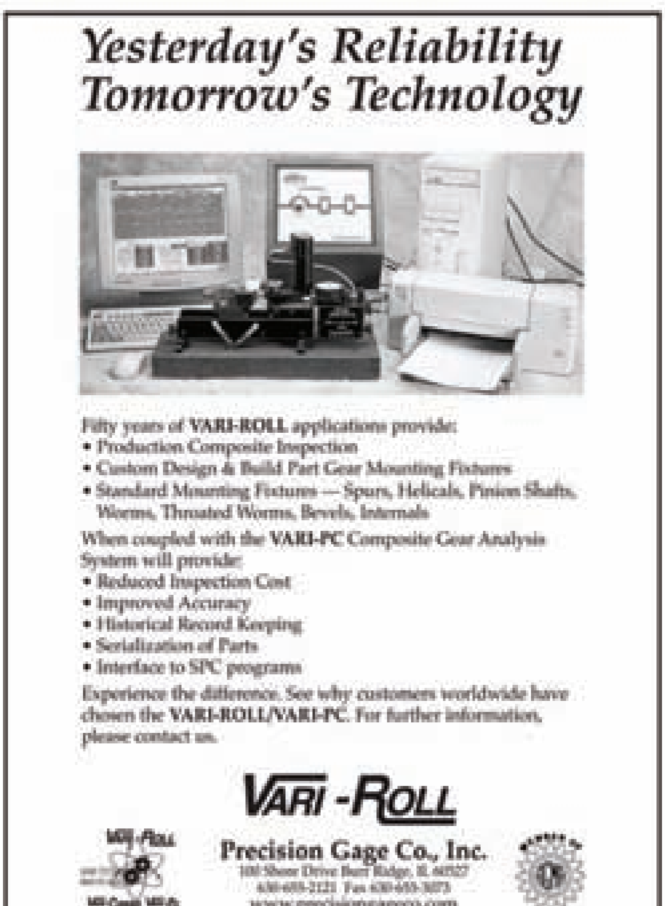

report, there are still obvious, sizable gaps, when compared with developed countries in the following respects:

- R&D—The research and development capability of many of China's gear manufacturers has not collectively improved.
- Backward Technology—Although a large number of new-generation equipment and machinery units have been imported from abroad, they are not being utilized to their capacity because the skill sets required to run them have not been appropriately learned and managed.
- Inferior enterprise management—Modern restructuring and processes have been carried out within many domestic manufacturers, but many enterprises still lack the will or ability to free up the enthusiasm and creativity of their employees.

This of course lowers the overall company efficiency, and results in inferior product quality and high turnover rate. The overall effect results in an industrial race-to-the-bottom competition, with price alone trumping quality products.

Evaluating the Outsourcing Opportunities

Nevertheless, China represents a sizable market that—if pursued diligently and with the right support staff on the ground—can offer unique benefits to outsourcing. Sourcing gears from China can be an attractive way of increasing your company's capabilities without having to doing it yourself. Gears of various diameter, or gear types sourced, rather than made, broaden your product line without significant investment in machinery, tooling and technical know-how. Machine components, like cast or granite bases, improve your lead time and costs.

Following Are Some Guidelines

Know the manufacturing costs. Try to view China's cost benefit from the point of view of reducing overhead and raw material costs. Of course, total overhead rates vary significantly by supplier, but keep in mind, they can be less than half of Western levels. Additionally, including hourly wage rates and benefits, Chinese wages are about 10 percent of the salaries of their counterparts in the United States and Western Europe.

Some tips before you come. Know the total labor content (direct and indirect) of your product. A target product for outsourcing to China would have a labor component in the area of 20 percent or more of the product cost structure. Where possible, look to add assembly processes to the machining projects you outsource.

Design reengineering. Reevaluate those products that run the risk of continual redesign or reengineering, or you could be left with significant risk exposure to obsolete inventory. Remember also that it takes time for reengineering processes to take effect on the Chinese manufacturing floor. A good guideline is any product requiring more than three redesigns per year should be reconsidered.

Don't overlook the transportation factor. Remember, in China a product must go from the factory to the port, onto a ship, and then to the U.S. or other major markets, where it is unloaded and trucked to its destination. Generally, prices are quoted F.O.B. Chinese port, with a transport time of four to six weeks. Calculate $0.06–$0.10 per pound for sea freight, and $1.50–$2.00 per pound for air freight.

Don't bother surfing the internet to find suppliers. It is a truism here that the better suppliers have the worst websites, and that marginal suppliers have the slickest. Remember too, that, as with dancing, there is more involved than simply finding a partner. Once you decide upon a Chinese supplier, the real day-to-day work is just beginning.

Some tips while you're here. Don't be scared to look at locally sourced raw materials in China. It used to be the case just a few years ago that Chinese suppliers had to import materials, such as high-quality steel alloys, and those who thought they were locally available took a significant cost penalty to their procurement programs. Now, many international steel suppliers have established modern facilities here with foreign-trained staff management. Good cost savings are possible when these materials are locally sourced from competitive suppliers.

When hiring a local staff, ensure you have the ability to review references thoroughly, and that you are satisfied they are capable to do the work assigned. Don't make the mistake of hiring a person for their English language capability only. The Chinese government this year published a new labor law (Labor Contract Law) requiring all employers to enter into a contract agreement with their employees. It's designed to protect the employee from questionable employers, and streamlines the process for workplace litigation. Should an employer find the employee doesn't live up to the work assigned, the employer must keep a detailed account of his efforts to retrain or reassign the employee. In essence, you need to thoroughly understand whom you are hiring. Additionally, keep in mind equivalent levels of education in China differ from developed countries. In other words, a Chinese person with a masters degree from a Chinese university in mechanical engineering doesn't necessarily equate to his or her Western-educated counterpart.

Selling into China—the Time is Now?

There are several developments currently under way which make China particularly attractive for U.S.-made products. One, of course, is the weakening U.S. dollar. It currently trades with the Chinese RMB at $1 USD / ¥7.15—which gained 12 percent in value in the last year alone—and with the euro at $1 USD / € 0.65. Secondly, the perception of high quality rests with Germany, but German-made products are experiencing long lead times, thus impacting efficiencies the Chinese seek. Third, but more remotely, the Chinese retail banking sector, in complying with WTO scheduling, is undergoing an intense reformation. As more international banks relocate to the mainland, we may begin to see that loans for manufacturing equipment are more like years away, not decades.

While the Chinese gear manufacturers remain intent on buying international machinery, the Chinese gear market

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can be viewed by various capital structures—wholly owned foreign enterprises (WOFEs); JV manufacturers (JVs); and Domestic Private Companies (DPCs). All have their own purchasing preferences, but in general most WOFEs in China tend to remain national in their supply structures, aside from those of the United States—i.e., Germans stay with Germans, Japanese with Japanese. It's only the Americans, it is said, that seek to shop the world. The JVs seek to gain the highest technology transfer attainable, and therefore favor the Germans. On the other hand, while many domestic, private companies remain content to supply the low-quality domestic sector, they now seek to build higher-quality products in order to gain exporter status. If the U.S. dollar continues on its current pace, American manufacturers could begin to see all of these sectors of the Chinese market developing in their favor.

Selling—Some Tips Before You Come

Rethink your concept of quality. What you may advertise as your product advantages could be obstacles in the China market. Research what the market is buying over here and determine whether your company is willing to build a different product to gain entrée to a new market. Know your international competition's offerings, as they are likely over here as well.

Guanxi rings rule. Guanxi loosely translated means relationships, but more often than not it's viewed in the West as graft and underhanded dealings. This description doesn't quite complete the picture, however. When I think of a person's guanxi, I like to picture a circular target with the Chinese employee as the bulls-eye. The next guanxi ring surrounding the employee is the family ring, followed by a former classmates ring and then a past and previous workmates ring. This is where the employee has demonstrated credibility and trustworthiness. Beyond this ring (and guanxi influence), are the transactional relationships with tradeshow and other foreign contacts. A Chinese person, absent an English word to describe these various layers, will describe their relationships as simply "friend." (It's the reason there is no such thing as cold-calling customers in China). It is important to remember that, should your employee leave your company, he takes his guanxi with him. It isn't conferred upon the company he works for. Therefore, maintaining employee morale and the relationships they have maintained for you takes effort and sincerity on your part. In essence, both parties are gambling on each other.

Bidding in China is a lengthy, detailed process. Technical specifications for the bid opportunity are usually a reference target, with verbal details discussed before the bid opening ceremony, or sometimes after. In short, guanxi matters.

Language. It will take a good deal of your company's time and patience to cut through the verbal and written language barriers. And just because your Chinese employee nods his head at the right moments doesn't mean he understands what you are saying. Keep the discussions focused by using simple sentences and elementary vocabulary, directed to the business at hand. When your employees snicker at the creative, English e-mails received from their Chinese counterparts, encourage them to conceptualize the difficulty of replying back in Chinese. Don't expect your China staff to be a self-directed, autonomous entity. Build in daily or weekly conference calls with all pertinent staff available.

Getting paid. Demand issuing a letter of credit. This is fairly common now with international purchases. In effect, the bank takes on the role of importer and exporter in handling documents and monies. The letter of credit vehicle is a guarantee that the bank will pay once all terms are satisfied by both parties. In the initial phase of commercial dealings with your Chinese partner, they are likely to request pre-payment terms. They'll make claims they need to purchase raw materials for your order and/or final payment before the goods are shipped. Unless you have visited them and feel absolutely comfortable that they are legitimate—and here's an example of how an appreciation of guanxi is crucial—I would advise against this method. And even though there are more services in China capable of determining credit worthiness (the U.S. Commercial Service among them), it remains true that the country lacks transparency.

Wanted: Strategic Partnerships

Viewed in the context of a 5–10 year timeframe, perhaps the most attractive strategy now in play for U.S. manufacturers is establishing a strategic relationship with a Chinese partner.

On the one hand, the "graying" of the U.S. gear industry has been widely reported; it is an industry fact. It is also fair to say that machinists are more difficult to find than ever before, and that once they are on-board, it takes time and effort to train them. Even then there is no guarantee of retaining them. And of course fewer university students are attracted to the engineering departments of their colleges. (It is interesting to contemplate this point when you consider how many U.S. students these days, even in primary school, are studying Chinese).

Many Chinese manufacturers have some of the most modern equipment available, capital and labor. It is not uncommon to have job seekers lined up outside the factory gates, and technical colleges are continually graduating gear-specific technicians. But they lack the shop floor technology, management processes and knowledge of, let alone access to, new markets. At this point many Chinese factories are still in an "order taker," or commodity mentality, and it will take some time before they are capable of chasing after new markets on their own. But the day will come.

A strategic partnership with a Chinese manufacturer allows him to gain access to the necessary technology, management processes and access to new markets at a time when U.S. manufacturers are finding it difficult to create a long-term succession plan. A willingness to pursue this avenue for the American manufacturers would mean a shift of focus from solely manufacturing to export processes, as well as from maintaining in-house sales and marketing. Of course you can

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still maintain quality by performing all the finishing operations in-house.

This, admittedly, is a controversial topic. But it's an interesting way to conceptualize defending against a Chinese competitor—i.e., by using your Chinese partner. When your customer says they need to reduce costs, offer them your China price.

China represents an enormous but often little understood opportunity. Gone are the days when a wizened, grey-haired engineer arrived in China and taught the Chinese what they needed to buy. The Chinese are more aware of the rest of the world than we often give them credit for. They now expect agile, dedicated teams to work with them on a daily basis. The Chinese want to know you are more involved in this market than simply dipping a toe in the water. It helps to have a presence on the ground in China.

And an open mind back home.

(Otis Edwards has lived and worked in China for nearly 15 years, beginning in the early 1990s familiarizing himself with the emerging Chinese consumer goods manufacturing environment. While in China, he has managed such processes as quality control, sales and sourcing for U.S.-, South American- and European-based companies. He studied Chinese at Nankai University (Tianjin), has a B.A. in Chinese Studies from the University of California, and an MBA from Ivey Business School (UWO). Edwards has completed the AGMA gear manufacturing training course, and has—quite unexpectedly—become fond of gears. Edwards lives in Hong Kong and is managing director of Red Rover Ltd., an export sales management and strategic sourcing company focusing on the gear and machine tool industries. Red Rover, an AGMA member, has offices in Hong Kong and Shanghai.)