

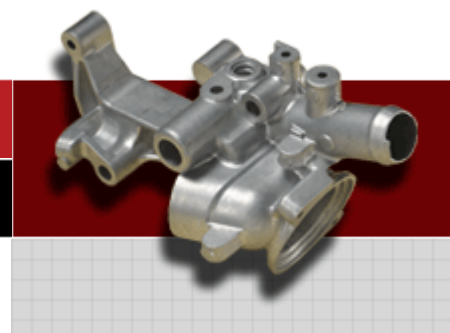
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## Hidden Costs of Offshore Sourcing

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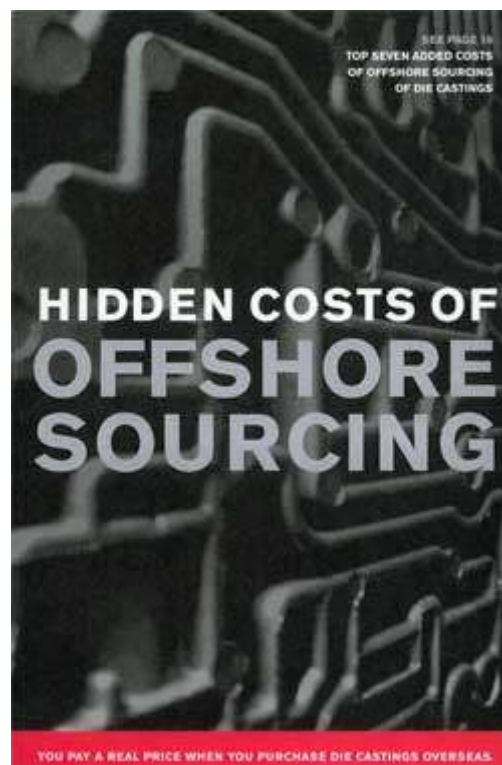
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### YOU PAY A REAL PRICE WHEN YOU PURCHASE DIE CASTINGS OVERSEAS.

Lured by visions of low prices, many unsuspecting North American manufacturers and OEM purchasers have chosen to use offshore sources for die castings. Unfortunately, many of them have learned a hard lesson: The transoceanic pipeline can be very long and filled with unexpected—and expensive—twists and turns. In fact, most OEMs who have purchased die castings overseas have at least one horror story to relate.

These are true stories.



(Download the image of the **Hidden Costs of Offshore Sourcing. 1 MB**)

### THE HIDDEN COSTS OF OFFSHORE SOURCING: TRUE STORIES

**A West Coast computer printer manufacturer** retooled a large die cast substructure in Taiwan a year before it planned to put the product on the market. The unit price quoted was 50 percent lower than the domestic supplier quotation. Problems with the die casting die and the initial casting

resulted in a 12-month delay. When the Taiwanese tooling was finally approved, new prices were quoted for the die casting production—42 percent higher than the agreed-upon figure. After adding in all of the built-in costs of doing business overseas, the company said its costs exceeded what they would have been domestically.

**A producer of power saws and snow blowers** in the Southeast aggressively sought out a "less expensive" overseas supplier. Then he discovered inferior tooling—trouble with design and workmanship that required extensive welding on die cores and other major tooling repairs. The overseas business arrangement looked "cheaper at the front end," but management is now seriously concerned with how long the dies will last. "It's difficult to put a number on what we will have gained, if anything, in the long run," the company's purchasing agent said, adding that management is not optimistic.

**A Midwestern small appliance manufacturer** was attracted to the shorter tool manufacturing time offered by offshore die casting toolmakers and rushed to gain an advantage over competitors. "In our highly competitive business, timely entry of new products is imperative if we want to remain a leader in the industry," a manager pointed out. However, as is common in production of new components, design changes were necessary. Difficulties in communicating the revisions to the overseas supplier resulted in delays that wiped out the initial saving in lead-time. The purchasing agent does not believe the company saved money in this venture, and he is sure it did not save time.

**Then there is the tale of the unusual refrigerator door handle.** The failure of this particular zinc die cast handle is the basis of a lawsuit filed by a manufacturer of restaurant kitchen equipment against its domestic hardware supplier. The door handles, cast in Taiwan, "pulled right off the units" and were designed in such a way that the defective handles could not be replaced. The entire door had to be replaced instead. The OEM sued its hardware vendor because it would not cover the cost of the door handles and the additional expense of replacing the doors. The vendor sees itself as a victim, unable to recoup its losses from the overseas die caster who produced the defective part. All relationships have been severed, and it appears no one will end up a winner.

**Don't let this happen to you.**

These stories illustrate some of the hidden costs of offshore sourcing. But there are many others as well. By using offshore sources for die cast tooling, you lose market potential in the export market. You lose market share in the North American market. You lose intellectual property, including design, specifications, and know-how. Perhaps the largest cost: You create a new, direct competitor who has an unfair cost advantage.

While tooling up an offshore source for a component or subassembly, the OEM provides both marketing intelligence and engineering specifications about the piece part and the subassembly or finished product. When that happens, the problems multiply:

- The offshore firm sees the production numbers and concludes there is sufficient volume to justify copying the product for sale in overseas markets. The cost, at the very least, is the potential loss of market share for the North American firm in the foreign market.
- The offshore firm enters the North American market as a competitor. It uses the North American company's engineering and builds duplicates of the tooling.
- The offshore firm enters the North American market with off-price knockoffs of the North American product; often they use the identical name for the product and copy the packaging. U.S. Commerce Secretary Donald L. Evans has pointed this out in remarks to manufacturers: "Chinese manufacturers are copying Toro's designs and producing knockoffs that differ only by adding a K before the word Toro."
- The offshore company will use the North American company's tooling. This could involve the die casting die or all of the tooling used to produce the components in the subassembly or finished products. This use of "free tooling" gives the offshore competitor a decided advantage over the North American OEM.

### **GETTING AT THE FACTS**

An extensive survey of North American companies—including in-depth interviews with purchasing managers—indicates that big trouble often accompanies the decision to purchase from producers in Taiwan, Singapore, Korea, India, and China.

The interviews had a recurring theme—offshore sourcing is a breeding ground for added costs. Buyers who focus only on price quotations are deceiving themselves, experienced managers say. They are ignoring the complications of implementing design changes across time, space, and cultural differences. They are forgetting the inflexibility of international finance or the after-effects of delayed delivery or miscommunications. They may be ignoring the ambiguities of Public Law 98-39 (part of the Trade Agreements Act of 1979), which assesses additional custom costs when a U.S. company "assists" an offshore toolmaker.

In response to these problems, some North American companies are reversing course and working only with domestic suppliers. One U.S. bicycle manufacturer, for example, rejects Asian suppliers so that its technological breakthroughs will stay at home. "Once an overseas supplier had our business, he would use the technology to manufacture for everyone else too," the purchasing manager said. "By working with domestic suppliers, we are nipping our competition in the bud."

### **THE HIDDEN COSTS OF OFFSHORE SOURCING: OTHER HEADACHES**

**Are you willing to add 20 percent to your costs?** Cheap labor and generous government subsidies may allow overseas suppliers to offer initially attractive die casting piece-part costs. But North American company executives who have been trading overseas for several years generally agree it is not worthwhile to buy die castings offshore for anything less than a 15-20 percent margin. The "hidden costs" include travel budgets, larger inventories, and cash flow restrictions.

A large North American computer manufacturer is well aware of the potential problems linked with offshore sourcing and closely calculates its net economic value. "The disadvantages of offshore sourcing are only offset by unit price—if you can keep control," stated one of its buyers. "With the long pipeline, it is difficult to react in a timely manner if engineering changes are necessary."

#### Constant troubleshooting

To combat problems that may arise from working with sophisticated die casting dies and tight tolerances, the company employs an independent quality inspection agency or has its own employees inspect for quality at the overseas die casting site before shipment is made. This extra cost of dealing with offshore suppliers is necessary to combat quality problems. "When parts were not meeting specifications, we found ourselves backtracking hundreds and thousands of finished castings in various stages of delivery," the buyer said.

He outlined the chronology. "Manufacturing may take seven weeks if all goes well, but more likely it will take eight to ten weeks. Then there could be a week of waiting at the docks, four or five more weeks of actual shipping time, another six to eight days in customs, and three to five more days in land transportation. Needless to say, it is difficult to control engineering changes or quality problems once the pump is primed." Without being able to tap into shipments at any time—to stop them in midstream and reverse the transport process before it runs full cycle—changes become far more costly and take a great deal more time. This cost of backtracking and reversing the transportation cycle has weighed heavily on the "disadvantage" side of the company's offshore sourcing balance scale.

A small Southeastern fan manufacturer does not have the luxury of hiring an independent quality inspection agency to oversee production of die cast housings and blade holders produced overseas. The purchasing agent says she consistently finds that shipments "are not up to specifications." The parts are returned for rework, "wreaking havoc on production schedules."

This purchaser said her own choice would be to stick with domestic die casters, "who in the long run, are more economical." As it is, management allows her to maintain domestic sources as a backup. "I keep my guard up against overseas labor strikes and harbor strikes," she says.

#### Customer rejects

The problem of customer rejects was a nightmare to one Midwestern company.

Attracted by both low tooling and low piece-part prices, they began working with an overseas die caster several years ago. Initial production castings were of high quality, but the second run, for 35,000 parts, was refused by the customer on receipt. Problems arose first with getting replacement parts for the rejects, then obtaining credit for the rejects, rework cost, scrap value, and disposal of the rejected parts. Any initial savings were dissipated, and the company returned to its domestic producer.

As "global sourcing" has become more and more of a procurement trend, the number-one reason given for the push has been lower costs. Publicized cost savings in tooling and high-volume die casting production appear so attractive, purchasing consultants point out, that some North American company top executives are virtually mandating that a certain percentage of purchases be directed offshore. Several purchasing agents report their own attempts to protest such mandates at their companies.

A vice president of purchasing at a small appliance company is waging a one-man campaign against the concept of management-assigned overseas purchases. But he has to do his job twice. He gets quotes on prices for new die cast parts from both stateside and offshore vendors. Based on his own experience, he then itemizes and adds to the offshore quotes each of the extra costs associated with ordering overseas.

"I keep hoping top management will be enlightened by what they see," he said. "No one is measuring the costs of doing business this way. These hidden costs are buried in other budgets and assumed to be part of the price of business generally. Nothing is further from the truth."

### **THE HIGH COST OF BEING THERE**

A purchasing manager who is a consultant in the field says companies should consider two major things before they leap across the ocean.

First, overseas visits are imperative, both in the initial investigation of the supplier and then to keep a lid on failures and rejects. Travel budgets may balloon as a result. Relying on a trading company or manufacturer's representative may seem easier, but it can be an invitation to disaster. "One trading company manager asked us to have tools built by a shop he represented," he says. "When we visited the shop we found one lathe, one drill press, and one grinder. We politely informed him that his equipment was not suitable for our needs."

Second, be prepared to spend more time abroad to avoid miscommunication, he says. "It is difficult enough to communicate design clarifications to the guy across town. The difficulty is compounded with a language barrier. One U.S. engineer was led to believe that a supplier had an English-speaking person in-house. He found out, however, that the English-speaking person he had to deal with was a non-technical support person."

## THE HIDDEN COSTS OF OFFSHORE SOURCING: OPEN SECRETS

**Frozen money and other nightmares.** When manufacturers deal directly with offshore suppliers, payments for goods are generally made through a letter of credit. This calls for having funds on deposit with the bank so money can be drawn as needed, with final payment required before or at the time of shipment. Rarely is the cost of "frozen cash" factored into the offshore supplier's quotation. "We have had our money tied up for four months or longer," an exercise equipment manufacturer reported. "And then we pray that the merchandise arrives in good, usable condition."

Why is prayer sometimes a necessary ingredient in offshore sourcing? A vice president at a large Chicago bank that specializes in international trade provided some insight. "With a sight draft, the supplier is entitled to receive payment just as soon as the proper documents appear at the bank. Neither you nor the bank has any right to review the shipment itself. If the documents supporting your transaction come in, and we find the bill of lading is not an original, you won't be able to take possession, even though it's the supplier's fault, not yours.

### Legal liabilities

It's an open secret that one reason for the lower cost of some castings manufactured offshore is the use of alloy that does not meet ASTM alloy specifications. Testing of a zinc die cast component for a security device manufactured in China revealed high lead and low aluminum and manganese content, which could result in intergranular corrosion and accelerated failure of the part. Testing of a cast part for a large fan revealed a potential for product failure due to out-of-spec alloy. Understandably, this is not a subject that company purchasing agents care to discuss, but the threat of future liability suits when vital components crumble is all too real.

The cost of legal counsel also may be involved if the North American business plans to assist the offshore toolmaker in any way. Public Law 96-39 outlines possible liability for certain custom costs. Purchasing agents state that legal advice in this complex area is required if any such assistance is rendered.

### More true stories

To compensate for longer overseas lead times, an electric motor manufacturer planned to place orders for die cast motor housings at regular intervals, postponing shipments if and when the supply outstripped the demand. Too late, the manufacturer discovered that the offshore supplier required larger minimums than anticipated to fill the shipping containers before they could be loaded on ocean vessels. The result was either a feast or famine of motor housings. To help determine whether an overseas vendor could provide what an appliance manufacturer needed, a purchasing manager requested a copy of the company's standard practices manual. It was provided quickly but failed to clarify anything. It was written in Chinese.

A West Coast office machine manufacturer placed an order with a Taiwanese die caster for two castings to be finished and packaged as a subassembly. The price was

based on a minimum order, which was nearly equal to the manufacturer's annual requirement. Operating under the assumption that shipments could be staggered, managers were looking forward to substantial savings. Only after tooling was in progress was the company informed that the total quantity ordered would be the quantity shipped. The unanticipated extra cost for necessary storage space for the subassemblies wiped out the anticipated saving.

A buyer for an automotive assembly plant worries about too little inventory, not too much. Although the company provides the plant with scheduling data, forecasting is complicated and sometimes there is a variance between what is scheduled and what is needed. If orders go up and the plant is caught without inventory, parts produced overseas must be shipped by expensive air freight. However, if the merchandise is already on a vessel, there is little that can be done except wait the four weeks shipping time.

#### Problem after problem

Some purchasing managers are on call 24 hours a day, and most admit that the hidden, intangible costs of communication, time, travel, and inventory carrying time are never added into the cost of dealing overseas. "When estimating the cost of a part, I add in 10-12 percent to cover other costs, but there is no way to accurately measure the intangibles or to predict the possible problems," a buyer for a toy manufacturer noted. "Besides, we tend to think of problems as one-time situations that won't be repeated. But that still does not take into account another problem that may occur."

Building vendor relationships through close communication is not possible when dealing with an offshore supplier. "There is no way to build a long-term relationship with an overseas buyer," one executive commented, "unless the company is willing to send some of its people overseas permanently or to employ people there. Global trading creates a complex situation in which problems are multiplied by cultural differences. How many buyers are equipped to understand the culture of a foreign people and work within that culture?"

#### THE PENDULUM SWINGS

A very well-known manufacturer in the United States made a nationally acclaimed comeback after being left in the dust by the Japanese in the 1980s. Management turned the company around by adopting Japanese techniques, but that didn't include adopting Asian suppliers. "We get our castings from suppliers within 100 miles of our plant," the purchasing manager explained, "and we've worked out a system of round-robin trucking that keeps our leased vehicles full and transportation costs down. You can't do that with overseas suppliers."

The production plant works from a greatly reduced inventory and is developing close relationships with its suppliers. That's more important than transoceanic sourcing for lower prices, the manager says. "We look for ways to lower our production costs, but we do not look for cheap prices, because purchasing castings that way doesn't add up

to real savings. We used to do it that way—and it didn't work when the competition got tough. So we got smarter."

In turning the company around, the manufacturer asked its domestic suppliers for extended payment terms, which were granted. Other OEMs say domestic suppliers have adjusted terms of payment in various ways, either on tooling costs or part production. "You can't hope to get that with an overseas vendor," a buyer pointed out. "Minimums are often set, and up-front costs are low. There is no leverage for negotiation. So you take the price and absorb the extra costs. Most of the time it's a wash—if you're lucky."

## THE HIDDEN COSTS OF OFFSHORE SOURCING: GOOD NEWS

**The benefits of coming home.** Some buyers are resigned to the twists and bends in the long transoceanic pipeline. They accept the problems of offshore sourcing as the cost of doing business. But there's no reason to live with all these problems. Many manufacturers are discovering that there are very good reasons for coming home again. They've learned that, when you choose a North American die caster, you choose:

### Innovation

North American die casters offer solutions that improve product performance while reducing total manufacturing costs. They work with you as partners not just suppliers. North American die casters can participate in product development meetings, collaborate on design and manufacturing, and add value by offering new ideas.

### Integrity

Sourcing die cast parts in North America means consistent quality and protection of intellectual property. You won't have to worry about long-term costs associated with "first batch syndrome" (the first batch of parts is fine, but the quality deteriorates in later batches). You can avoid discovering that your supplier has used sub-par raw materials. And your patents will protect you from copycats and foreign legal systems.

### Accessibility

Working with suppliers who are close to home ensures a flexible manufacturing strategy, on-time part delivery, and a faster product development cycle. And because you'll be able to communicate easily, you can work together to develop new products, new technologies, or prototyping—all of which would be impossible with someone from a radically different culture, speaking a different language.

### Reliability

Using North American die casters lowers risk and product liability. North American die casters do the job right—and they can be held accountable for their actions. If a product does not meet the stringent standards of the die casting industry, or if the manufacturer has any concerns, there are several ways to solve the problem, including, if necessary, legal recourse. This option does not exist in many countries,



especially those under Communist rule.

Many manufacturers say the enthusiasm they once had for offshore sourcing is fading. "Our experiences have made us smarter, but not more profitable," says one executive. "Our overseas purchases are dwindling. From now on, we're going to work exclusively with North American die casters."

### Top Seven Added Costs of Offshore Sourcing of Die Castings

<b>1. Market Share at Risk</b>	You may create a new competitor for your product. The competing product can be developed using your marketing information, specifications, and even tooling.
<b>2. Technology at Risk</b>	It's dangerous to reveal secret technology to an offshore supplier. You may find your technology shared with your competitors—at home or abroad.
<b>3. Miscommunication</b>	Extra costs are built in to the process of communicating die design changes and assuring their proper implementation despite barriers of language, distance, and culture.
<b>4. Long Lead Times</b>	Long offshore production lead times and delays are common. If a company's crystal ball is cloudy and product demand soars or drops, commitments to overseas suppliers can't be easily altered. Short-term cancellations are virtually impossible.
<b>5. The Price of Die Failure</b>	Low die costs may be based on uncertified, untreated die steel, with no guarantees of tooling life—foreshadowing the heavy costs of premature die failure.
<b>6. Legal Liabilities</b>	The use of uncertified, off-spec alloy often contributes to the low prices

	offered by offshore die casters. This factor can be a time bomb for manufacturers, leading to a high risk of product failures when such components are incorporated in products.
<b>7. Payment Sight Unseen</b>	Because of advance payment requirements—no ifs, ands, or buts—you have no right to review shipment quality or quantity before cash changes hands.

The best die casting products are made by the finest die casters in the world: the die casters of North America. These highly skilled individuals are problem solvers who value their relationship with their customers. Working with a North American die caster guarantees innovation, integrity, accessibility, and reliability.

For more information about North American die casters, or to find a die casting partner, go to [www.diecasting.org](http://www.diecasting.org), or request your own printed copy by sending a note to: [oem@diecasting.org](mailto:oem@diecasting.org).

Download the image of the **Hidden Costs of Offshore Sourcing**. (1 MB)

**This review of the experiences of North American original equipment manufacturers engaged in offshore sourcing of die castings is based on research jointly funded by the North American Die Casting Association (NADCA) and the U.S. Department of Commerce. Statements, findings, conclusions, recommendations, and other data in this report are solely those of the grantee/ cooperator and/or its consultants and do not necessarily reflect the views of the U.S. Department of Commerce. Printed in U.S.A. © 2004 NADCA**