

Know Your Facts...

The 'True Costs' of Foreign Sourcing: What Every Metalcaster Must Tell Their Customers

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Inside This Story:

While 'Purchasing 101' preaches total acquisition costs, many of your customers fail to look beyond unit price when evaluating a foreign quote.

The 'hidden' costs related to foreign sourcing often are not known and can be "eye-openers" for your customers when presented properly.

North American metalcasters should use this article as another tool to market and sell the merits of North American suppliers.

The "total acquisition cost" of a cast component is not as simple as the quoted price per pound. This is the message to bring to your customers when competing against foreign competition.

From coast to coast and industry to industry, North American casting buyers are enamored with the low price per pound quotes they are receiving from foreign foundries. The goal of metalcasters must be to detail to their customers why these low price per pound costs aren't the entire picture. In fact, there are many 'hidden costs' related to foreign sourcing that aren't related to casting production at all.

In an attempt to wrap our hands around the global sourcing trend and determine prices and capabilities, Aurora Metals went through an educational mission, which included a trip to Asia, to uncover the true costs of foreign sourcing. Based on our own "learning experience," it's fair to say that our customers may not recognize these costs either, as all eyes rapidly fixate on unit prices during the search for the world's lowest price tag.

While a report on these hidden costs

was initially prepared as an internal document for company officials, it has been abstracted here as a strawman exercise to help metalcasters as they educate their customers on the costs of foreign sourcing. Depending on each customer's overall strategy, some purchasers may find that the promise of price reduction is not worth the additional worry, time and company overhead required.

Staffing & Travel Costs

For a casting buyer to rely on a foreign source to supply its manufacturing lines and keep them running, dedicated personnel will be needed. This individual will be needed to manage and oversee the following.

Documentation—Accurate logs and documentation is very important. Records must be kept on the country of origin for NAFTA and other trade agreements. There have been cases in which the fines have exceeded \$100,000 due to inaccurate or incomplete recordkeeping. It is also critical that documentation of export-import insurance is maintained in the event of a claim.

Separation of Product—Keeping U.S. vs. foreign product separated may be

Fig. 1. Direct Personnel & Travel Costs

Dedicated Staffer for International Sourcing:	\$100,000 (including benefits)
Travel Expenditures:	\$35,000
Trips Per Year:	5
Average Stay:	10 days
Airfare/Business Class:	\$5,000
Annual Air Travel:	\$25,000
Room and Board:	\$2,000 (\$200/day)
Annual Room/Board:	\$10,000
Total Annual Direct Costs:	\$135,000

important. Examples are instances in which U.S. content must be shown in the final assembly and/or if the manufacturer markets the product with U.S. content requirements. Firms importing parts should expect additional internal administrative costs. In cases where manufacturers are dual sourcing components, this will mean more part numbers and inventory, requiring twice the work in tracking, sorting and storing of inventories.

Staff travel will also be a cost that should be factored into the total acquisition costs. Figure 1 lists the annual expenses that a firm should expect in the way of personnel and travel for foreign sourcing. The travel estimate does not account for the additional insurance that most companies will want to protect their employees from illness or more dangerous matters overseas.

Beyond these costs, there are unplanned events that firms buying castings offshore should be aware of. As an example, two of our customers were forbidden to take scheduled travel to their Asian suppliers due to the SARS crisis. Another, who had returned from a trip to Asia, was told to stay at home for one week prior to returning to the plant as a precautionary method to protect plant employees. In this case, the purchasing agent felt a significant personal "cost" in the way of heavy workload after losing an additional week from the office after two overseas.

Freight & Inventory Costs

In some cases, freight apparently fails to enter the mind of some firms when evaluating offshore bids. Figure 2 lists some of the freight costs to be aware of, including ocean freight. Using China to a U.S. port as an example, ocean freight—the largest cost component—is estimated at \$3800 per 40,000-lb container, or about \$0.095/lb. These costs have increased 10% over the past year and are expected to continue to increase for reasons such as security costs and general operating costs.

Other questions to consider include:

Warehousing—Will a warehouse be required in the U.S. to house the offshore sourced cast components? Are there

Real-Life Headaches

On a cast impeller sourced overseas, a shipment of sample parts arrived with the blade vanes pointed in the opposite direction of the blueprint. The offshore source apparently had difficulty in understanding the blueprint. After lengthy communications and discussions, the interpretation problems were thought to be resolved.

Separately, another order was placed for a five-vane impeller. To its surprise, the buyer opened the container to find six-vane impellers.

Time and money must be factored into dealing with such problems. To get a part tooled up is not as easy an endeavor as in the U.S. where the tool and die industry is taken for granted.

Produced in China, this cast impeller was delivered with six vanes when the purchase order specified five.



inventory issues? Are a specified number of inventory turns an objective? Does the casting buyer need to inventory two part

involved for warehousing.

Additionally, one should consider at what point in the process the offshore sourced goods become the buyer's responsibility. While consignment purchase arrangements are attractive to some manufactur-

ers, such agreements require buyers to pay on quicker terms than in traditional supply arrangements. From a cash flow perspective, even a significant price reduction may not make financial sense.

Domestic Freight—This is the cost from the U.S. port to the casting buyer's dock. While dependent on geographic location, a typical shipment may be estimated at \$1000 from the West Coast to the Midwest.

[Ocean freight] has increased 10% over the past year and is expected to continue to increase.

Figure 2. Freight Costs

Ocean Freight Per 40,000 lb Container:	\$3800
Domestic Freight:	\$1000 (West Coast to U.S.)
Total Freight Costs for Single Container:	\$4800
Air Freight for Samples (20 lb):	\$251
	Air freight: \$65
	Destination Charge—\$45
	Broker Customs Entry Fee—\$100
	Local Freight—\$41

numbers (one for U.S. content, one for foreign)? Is labeling required for the country of origin? Regardless of who bears it, there is a cost of money in-

Air Freight—Even under the best of circumstances, unforeseen problems will arise and air freight and associated expenses will be required. Figure 2 also shows what the air freight costs may be for 20 lb of sample castings or emergency product shipped from China to the Midwest.

Associated Fees & Expenses

Beyond staffing, freight and inventory, Fig. 3 describes other costs for casting buyers to consider. Beyond these, two other areas to consider are duties and broker margin.

Duties—Does the product being imported require a duty? This should be determined early in the process, as well as where the part is physically produced, as differing nations have different duties. Many buyers believe

Fig. 3. Associated Fees & Expenses

Freight Forwarder—\$65 per shipment
Custom Brokers Processing Fee—\$100 per shipment
Continuous Bond—\$500 annual fee
Merchandise Processing Fee—0.21% up to a max. of \$485 per shipment
Harbor Maintenance Fee—0.125% content value per shipment
Letter of Credit—2% of content

that their parts are being produced in one nation only to find out that they were produced in another. Another question is whether the duty is likely to be increased in the near future.

Broker Margin—The fee of the casting sales rep or broker should be evaluated. There will be some margin over the foreign source's sales price to account for the carrying costs, which are often unknown. If the sales rep's fee is based on an 8% markup and it is later

determined that the carrying costs amount to 10%, the casting buyer can expect an increase in short fashion. The supply contract should specify how and when the price can be increased for this reason.

Additional Concerns


While more difficult to put a dollar value on, other issues should be weighed in any offshore purchasing evaluation.


Metallurgical Integrity—Is metallurgical integrity important with the casting in question? This may be a remedial question, but it should be asked of every part.


Other questions to ask are: Will the offshore foundry use raw material or ingot? Does it have a spectrometer or wet lab? How much confidence can be


A 14-Point Checklist of Offshore Casting Costs


Compiled following a nationwide survey of U.S. manufacturers, this 14-point checklist is part of a special report, "Offshore Sourcing: The Hidden Costs" published by the Diecasting Development Council, Rosemont, Illinois. To obtain a copy of the report, visit www.diecasting.org/ddc.


 **Overseas Travel and Lodging.** Several extended trips may be required before a qualified casting supplier is even located; continuing return visits should be scheduled to monitor performance onsite. Management must be aware that a buyer's desire to see the world may be hiding a bad business decision.


 **The Third-Party Factor.** Use of a manufacturer or trading representatives with offshore suppliers involves costs in excess of the normal commissions. In the case of casting tooling and production, the expense of onsite presence and control cannot be sidestepped through the use of such representatives.

 **Miscommunication.** Communicating important design changes and assuring their proper implementation over barriers of language, distance and culture carries built-in extra costs, regardless of trading partner agreements.


 **Frozen Monies.** Common methods of financing international trade involve long-term bank deposits that are removed from company cash flow for many months.


 **Payment Sight Unseen.** With customary advance payment requirements—no ifs, ands or buts—the purchaser has no right to review shipment quality or quantity before cash changes hands.


 **Added Handling Costs.** Shipment damage is more likely with offshore purchases. Additional costs for packing, handling and insurance should be allocated.


 **The Paperwork Snake.** Manufacturers understand that offshore purchasing involves substantial paperwork, with added procedures, shipment docu-


ments and customs forms.


 **Excessive Inventory Requirements.** Production and transoceanic shipping requirements may demand that the total amount of the casting order, comprising a company's long-term needs, be shipped all at once. Inventory storage costs should be factored into the piece-part price. Just-in-time strategies are ruled out.


 **Long Lead Times.** Long offshore production lead times and common delays necessitate accurate forecasting. If a company's crystal ball is cloudy and the product demand soars or drops, commitments to overseas suppliers cannot be easily altered. Short-term cancellations are virtually impossible.

 **Bait-and-Switch.** The experience of offshore purchasers indicates that an initially low casting piece-part price may go up dramatically once the tooling is in place.

 **The Price of Tooling Failure.** Low tooling costs may be based on uncertified, untreated materials with no guarantees of tooling life—foreshadowing the heavy costs of premature tooling failure.

 **Legal Liabilities.** The use of uncertified, off-spec alloy often contributes to the low pricing offered by offshore casters. Even when initial onsite inspections are made, this factor can be a time bomb for manufacturers who risk disastrous product failures when such components are incorporated into their products.

 **Technology at Risk.** There may be danger present when a manufacturer reveals secret technology to an offshore supplier with whom he cannot develop a close relationship. The firm may find his technology shared with his competitors—at home or abroad.

 **Market Share at Risk.** There is a potential cost of creating a new competitor for the American product using the American firm's marketing information, specifications and possibly even the same tooling. **MC**

placed on a certification? If a wet lab is used, does the casting buyer believe the foreign foundry will take the time to check each heat prior to casting? This itself raises another question about how confident the casting buyer can be in their quarantining system when quality issues are uncovered.

Tooling—What type of tooling is being paid for to use in production at the foreign casting supplier? Is it metal, wood or urethane? If metal, what grade of metal is being used for the tooling? Has it been heat-treated? These questions are important because they affect the life of the tool. While the tooling often appears very inexpensive, its durability is another matter. Premature tooling wear will alter the performance of the casting, and questions on who will resolve and pay for the dimensional changes over time must be addressed.

Rep Issues—The casting buyer must ask about the sales rep/broker's relationship with the foreign foundry, and what degree of influence he/she can have on delivery issues, quality, etc. Is the rep willing to go overseas to resolve quality and tooling issues or will the casting buyer be required to send engineering staff?

Dimensional Consistency—Will the parts be made on an automated machine that provides consistency or will they be made with a great deal of human variables? Inspection criterion must also be spelled out. Many quotes do not contain any type of inspection, and specific criterion is often not followed on a consistent basis.

Communication Difficulties—While email has made communication easier, manufacturers are finding that differences in blueprint interpretations occur more frequently with overseas suppliers. Because Asian countries are 12-14 hr ahead of U.S. manufacturers, there will be a need for middle-of-the night conference calls to clarify casting designs.

Time to Market—Castings produced offshore are typically delivered 12 weeks after the order. This includes 6-8 weeks to process the order, plus 4-6 weeks for ocean and domestic land travel. Just in time deliveries are difficult to forecast domestically, not to mention attempting to plan for 12 weeks ahead. Therefore, if a given part is of low volume and low predictability, most seasoned casting buy-

ers agree that it is a bad idea to source offshore. Whether or not a predictable and repetitive order pattern exists should be a first-round qualifier in any offshore purchasing evaluation.

Lead-Times for Tooling—Tooling typically takes 4-8 weeks to produce. Air freight is advised for samples. Buyers should also plan for contingencies such as tooling built incorrectly, and the amount of time needed to adjust to such problems.

Interruptions in Supply—What is the casting buyer's response plan for an interruption in the supply chain? Many buyers are dual-sourcing (50%

...the differential between an established source and the quoted bargains by an offshore foundry can close significantly.

foreign, 50% domestic) in order to keep a trusted domestic source healthy and ready in the case of an emergency. As problems occur or as currencies fluctuate (see below), domestic relationships can more easily respond to meet full production quantities, particularly on long-established jobs.

Currency Valuation—While the U.S. dollar has recently been returning to more practical values, it is still 25% higher than it was in the early 1980s. Some countries keep their currency artificially low to make their exports more attractive. Eventually, valuations should fully return to more practical levels. As of press time, the Bush Administration and Congress are in the midst of intense scrutiny on the current currency relationship between the

U.S. and China. Leading up to the election in 2004, this situation is expected to come under even further scrutiny and possibly result in duties, tariffs or other measures.

For this and other reasons, it is wise to see that domestic foundries are healthy enough to remain in business.

The Gap May Close

Figure 4 shows the results of this simple strawman analysis, which only considers the tangible items in which costs can be assigned. Based on this information, a buyer purchasing \$500,000 in castings annually could incur up to 42% more costs than what the original unit price (price per pound) indicated. Even at \$1 million in purchases, there would still be 22% tied up in the "hidden" costs.

So if a manufacturer does not require a high dollar amount of offshore castings, the application of the necessary overhead—once recognized—may change the purchaser's viewpoint. Looked at in this light, the differential between an established domestic casting source and the quoted bargains by an offshore foundry can close significantly. **MC**

This article was adapted from a presentation at the 107th AIS Casting Congress.

About the Author

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For More Information

"Offshore Sourcing: The Hidden Costs," Diecasting Development Council, Rosemont, Ill. at www.diecasting.org/ddc.

Fig. 4. Summary of Total Costs, Summarized by Percent of Order

Inventory Personnel			\$100,000
Travel Expenditures			\$35,000
Ocean Freight (\$3800 x 12 containers per year)			\$45,600
Freight Forwarder (\$65 x 12 containers per year)			\$780
Domestic Freight (\$1000 x 12 shipments per year)			\$12,000
Customs Broker (\$100 x 12 shipments)			\$1200
Continuous Bond (annually)			\$500
Merchandise Processing Fee			\$485
Harbor Maintenance Fee (\$500,000 year x 0.125%)			\$625
Cost of Money (\$40,000 per month @ 2%)			\$800
Total Expenditures			\$199,000
Annual Sales	\$500,000	\$1,000,000	\$2,000,000
Annual Expenses	\$199,000	\$199,000	\$199,000
Letter of Credit Costs	2% of value	2% of value	2% of value
Total Hidden Cost of Purchase	42%	22%	12%