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Quality vs. Price: The Ultimate Balancing Act

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Engineers are constantly being asked to achieve two seemingly conflicting goals: assure the high quality of their products while keeping costs low. While it may seem futile to try to resolve these two conflicting issues, a structured approach towards cost and quality can help, especially when it comes to passives, electromechanical devices, interconnects and connectors, many of which are commodity products.

Engineers typically approach the price-vs.-quality conundrum in one of several ways. Common options include:

- Changing the design to accommodate lower-priced products of similar quality
- Extensively researching prices of the branded product(s) from various suppliers
- Substituting a lower-cost brand equivalent (e.g., replacing Bourns with Cermet or vice versa) after design sign-off
- Substituting a lower-cost, non-branded equivalent (e.g., replacing Bourns with an unmarked product), again after the initial design has been finalized.

All these approaches can help the engineer develop cost-effective, high-quality products. However, engineers need to carefully consider which approach is right for their circumstances, as each approach has different strengths and limitations.

Changing the design – Engineers may decide to change some element of the design in order to meet a price point for the finished product. For example, an engineer could replace a high-density connector with a lower-density (read bigger) one. Such changes are difficult to make after design sign-off. These changes can impact the product's functionality, be time-consuming, and affect the time to market. All these factors make this option inappropriate in many cases.

Extensively researching prices – The engineer can try to find the chosen item at a lower price each time the product is purchased. Having the same branded product provides maximum consistency. Unfortunately, finding a lower price can be time-consuming, a trade-off that must be considered especially given the typical compensation for a domestic engineer. While larger companies have purchasing departments to do this research, many are not big enough to make extensive price comparisons worth the effort.

The value of searching for a lower cost depends, at least partially, on the quantities involved. Large price differences are rare, so if the production run is small, the savings may not be worth the time and trouble. However, over a large production run, small savings can definitely impact a company's bottom line.

Some branded product might be less expensive because the supplier, knowingly or unknowingly, has purchased counterfeit products. Counterfeit products often have quality

and consistency issues, making them substandard to branded, generic and non-branded products. Unfortunately, it is becoming more and more difficult to identify and ferret out the counterfeits, another important consideration.

Brand-name replacement – Alternatively, the engineer might try to exchange the originally specified component with another equivalent brand.

This could reduce costs somewhat, but finding and qualifying the replacement product could also be time consuming. The development schedule could be affected, adversely impacting the time-to-market; and the overall savings might be outweighed by the cost of qualifying the alternative brand. Additionally, any substitution carries an inherent quality and consistency risk. This risk could be mitigated depending upon the suppliers.

Non-branded replacement – Finally, the engineers might exchange a branded connector with a substantially less-expensive unbranded one.

Of course, a non-brand-name product can carry an inherent quality risk, but that risk can be dramatically mitigated by carefully selecting the supplier. And, when purchased from the right supplier, using non-brand names has an interesting advantage. The counterfeit issue basically becomes moot because, by definition, only brand names are counterfeited.

While the owners of brand names rightfully say that non-branded products can be risky, it is also true that these companies are protecting their own interests as well. Well-developed brands command much higher prices, generating large profits for their owners. And, because of volume, brand names typically have multiple layers of distribution, which raises prices even more.

As a result, properly selected non-brand-names can offer the highest savings. For example, buyers can save a significant amount, 20 to 30 percent and more, when purchasing Jameco's ValuePro™ and ReliaPro™ products compared to comparable, name-brand products.

For this approach to work, however, the engineer needs to work with a supplier that can meet both the quality and cost requirements. Specifically the supplier should:

- Be experienced at buying directly from manufacturers
- Have long-term relationships with low-cost suppliers
- Visit potential suppliers to better assess their adherence to quality
- Test the product's quality and adherence to specifications
- Have significant buying power
- Guarantee its products.

Conclusion

The typical engineer will probably use all of these approaches at some point or another. The important thing is that the engineer carefully evaluate the alternative approaches, maintain the quality and cost-competitiveness of the products and consequently add to his or her company's bottom line. It may not be easy, but in today's global economy,

balancing cost and quality is an important component to a company's health and profitability.

	Savings	Quality Issues	Research
Design Changes	Low to High	None to Medium	Low to High
Pricing Research	Low	None	Potentially High
Brand Replacement	Low	None	None to Medium
Non-brand Equivalent	Best	Medium to High	Low

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