



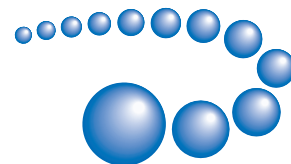
*Founded in 1970, BMC started as a sales outlet for a manufacturer of laboratory casework and fume hoods. As the business evolved, BMC began to manufacture the products it was selling. BMC's major markets are industrial laboratories in the chemical and pharmaceutical industries, as well as the education segment, supplying universities and high schools.*

**Summary:**

BMC, a manufacturer of laboratory fume hoods for the industrial, pharmaceutical and university industries, faced order entry and product configuration challenges that were eroding its competitiveness.

By automating the order entry process, with *Concept™* a configurator from *Configure One™*, BMC has dramatically reduced the time it takes to configure an order from an average of four hours to only minutes. More impressively, the engineering effort has been reduced from between four to forty hours, depending upon complexity, to minutes. Now BMC designs a custom product, with 100 percent guaranteed accuracy, in about an hour from start to finish.

BMC no longer turns away orders because of timeframes. While the industry average lead-time for standard products is six to eight weeks, and longer for custom products, a custom product within two weeks is not a problem for BMC.



Configure One

Faced with challenges that were eroding BMC's competitiveness, Brian White, vice president, realized a radical change was needed to overhaul BMC's order entry, product configuration, and engineering processes.

White explained BMC's old process:

"To configure a custom product, we would start with a base model, and add a 'kit' for different options. We would merge the different 'kit' options together and try to create a bill of materials (BOM). We had over 20,000 standard drawings, and that didn't even begin to cover all of the possible configurations. With top panels alone we had approximately 1500 drawings, and it was almost impossible to find the right one. Even though engineering accuracy was high, 99 percent, errors of one percent would kill us. Unfortunately, we wouldn't find the mistakes until the very end of the assembly process."

## Time for a New Approach

"We had a good idea of how we wanted to improve our configuration process", said White. "To address our problems we needed to automate the process, accurately capture customers' requirements, eliminate errors, and reduce our order lead time. We developed a detailed specification of our vision."

"During the implementation Configure One gave us the support and assistance we needed. Our Configure One consultant was excellent."

## Build or Buy

Like many companies that believe their business processes are unique, BMC first looked to create a custom application. White explains BMC's search for a potential solution:

"Originally we looked at this as a custom-built application. Several companies reviewed our specification and, although they thought it was a doable project, most declined to quote. I found Configure One while searching the Internet. My first contact was an hour-long telephone conversation. I was amazed when they said their product, *Concept*, could do everything we were looking for in our specification. It seemed to be a perfect match.



Brian White, Vice President, BMC.

## More Effective Manufacturing

"Another goal was to more efficiently assemble our products. We needed to have more of a production line assembly. We knew this wouldn't work unless we could make sure the right parts were going to be in the right place at the right time. Before *Concept*, we couldn't guarantee the

accuracy of the parts that were needed on the assembly line, so the first phase was to get the configuration process automated. The next phase was to build a new production facility that would allow us to streamline our manufacturing process and become more efficient. There is no way we could have done that without Configure One," said White.

## Implementation

"We started with Configure One in January 2002 and went live in January 2003. It sounds like a long time, but for six months we were running the system side-by-side with our existing program. During testing, we would run a project and incrementally build the product. First, we checked to see if the framework was correct. That was a milestone. Then we'd check the liner and then the fixtures. We did it in small steps. Once we went online, we went live immediately, as we had proved the system over a six-month period. It was a work-in-process, and when the work was done we simply turned it on.

"During the implementation Configure One gave us the support and assistance we needed. Our Configure One consultant was excellent. I knew exactly what to send him and he knew exactly how to respond. The whole process worked very well," said White.

## Re-engineering the Product

During the implementation, BMC took the opportunity to completely re-engineer its product. White explained:

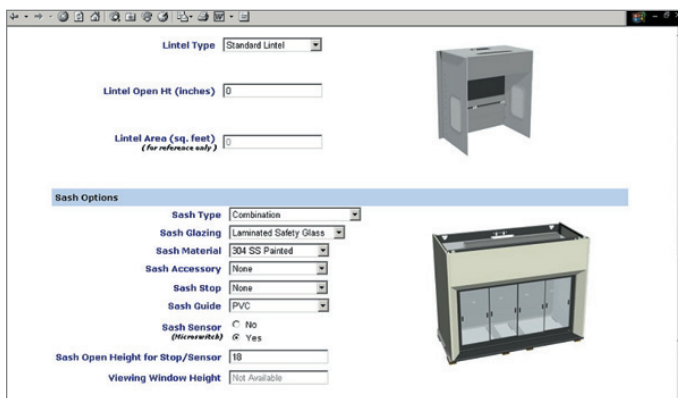
"We threw away over 20,000 standard drawings. We used those drawings to develop the rules, but once the information was in *Concept*, and because we are now working in solid-model CAD, the 3-D model is more accurate and more flexible than the drawings we had.

We also redesigned the product. It was an excellent opportunity, as product lines tend to evolve over time. The ‘old’ product worked, but it was not designed as efficiently as it could have been.”

## Process Automation

By automating the order entry process, BMC has dramatically reduced the time it takes to configure an order from an average of four hours to minutes. More impressively, the engineering effort has been reduced from between four to forty hours, depending upon complexity, to minutes. Now BMC designs a custom product, with 100 percent guaranteed accuracy, in about an hour from start to finish.

*Concept* automatically creates information for sales and manufacturing including to-scale approval drawings and images, complete BOM, part numbers, manufacturing drawings, and web-viewable 3D models.



“We can receive an order in a variety of ways, depending on where it originates from,” said White. “It may be a written order, a specification, or shop drawings. Our order entry department deciphers the documents and configures the product, any size, with any combination of options, in about ten minutes. If we need to run that product in a hurry we could be on the shop floor cutting sheet metal in less than an hour from when we received the order. Before Configure One, a custom product could take up to three weeks – just to get the engineering completed.”

This cycle time improvement was recently demonstrated when BMC received an RFQ far later than its competitors. White explained the scenario:

“We needed to have a custom prototype fume hood on-site in less than a week. We received the information on Monday and needed to have a prototype on-site by Friday. We configured the product and were on the shop floor cutting the metal within an hour. We assembled the product, put it on a truck and had it on-site later that week. Before Configure One we couldn’t have completed the engineering design in that timeframe.

“Our order entry department deciphers the documents and configures the product, any size, with any combination of options, in about ten minutes.”

“These are everyday occurrences. We don’t turn away orders anymore because of timeframes. A product within two weeks is not a problem. Our normal production lead-time is 30 to 45 days. If an order needs to happen quicker than that, we can accommodate it. An order can go from configuration to completed item in two weeks, without anyone having to hand-carry it through as a special. The average lead-time in our industry for this type of product is six to eight weeks for standard product. For custom products, our competitors’ lead times are even longer. To us, ‘custom’ is ‘normal’.”

## Integration with MRP

To further automate the process, Configure One needed to integrate with BMC’s custom-developed MRP program. This was easily accomplished with the help of the Configure One implementation team. White explained:

“The integration was painless. We had a short meeting with Configure One and decided what information needed to be passed from *Concept* to MRP. As *Concept* handles the creation of new parts this information is used to populate the item master and create the BOM in the MRP system.”

## Benefits

BMC has received enormous benefits in both order entry and on the shop floor from using Configure One’s *Concept*.

“Problems tend to feed off themselves. If an engineer is working on a new project and is interrupted to fix a problem on the shop floor, the distraction is likely to cause mistakes on a new project and the cycle keeps repeating itself,” said White.

“One of the big benefits is the improved morale on the shop floor. There is nothing more frustrating for someone in the shop than having to stop work because something is wrong. In a typical week we will produce approximately 900 individual components. Even though our accuracy was 99 percent, one percent caused serious problems. An error in engineering would cause the product to sit for weeks waiting for new parts to arrive. This caused a tremendous bottleneck. Fume hoods are large, so if one batch can’t be finished, it is difficult to start another. With Configure One we have totally eliminated those problems.”

“We have reduced our engineering staff through attrition and we are producing more with fewer individuals because of Configure One’s software.”

### New Product Development

“Because we have freed up engineering time, we have been able to focus additional efforts on new product development. Before Configure One we were limited because engineers were busy working on production orders. We have reduced our engineering staff through attrition and we are producing more with fewer individuals because of Configure One’s software,” said White.

### Concurrent Engineering

BMC has taken advantage of the engineering detail from Configure One to reduce the product lead time on the shop floor. White describes the new manufacturing process:

“Before Configure One, we would assemble the fume hood before starting the plumbing and wiring. When the assembly work was completed, the plumber and electrician would come to the hood and start taking measurements for piping, wiring, etc. With Configure One, we start cutting pipe and wire at the same time we start cutting metal. We now have enough engineering detail to start the time consuming things, like plumbing and wiring, far in advance of needing them on the assembly line.



“There are a number of different valves and faucets that go into a fume hood. Sometimes the lead time on those fixtures is longer than it takes to build the hood itself. It is not uncommon to have a 30 to 45-day lead time for fixtures on a hood that could be built in two weeks. Any time lost ordering fixtures is devastating. Now, as soon the configuration is complete, the first thing generated is a fixture summary out of *Concept*. The summary is attached to a purchase order, and fixtures are ordered immediately.”



### Competitive Edge

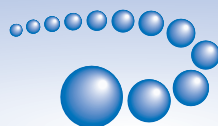
“We are not the largest supplier in this market, but our quality, service, and accuracy of meeting delivery dates are second to none. On an annual basis we are taking market share. We are growing and Configure One is one of the reasons for that. We have been able to accomplish

this without adding additional staff. In fact we have fewer people than before we implemented Configure One. Not only in engineering, but also on the shop floor. We are more efficient in how we manufacture the product,” said White.

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