

# ADVANCED MANUFACTURING IS HERE!



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## ARTICLE TAKEAWAY:

- Advanced Manufacturing is in our future and can be added to nearly any equipment providing any customer a manufacturing advantage.

I have the wonderful opportunity to speak with customers on a daily basis. Besides hearing about the unique things that go on in other areas around this country and the world, some customers are responding to an article that I might have written, a quote that has been submitted, the sizing and layout of a system, or even a different thought for a matter at hand. These discussions are great as they exercise our understanding of the jobs we pursue and the challenges at hand. In the end, we walk away with a better understanding of the issues confronting us in the workplace and a small personal connection that helps us understand the differences in our cultures.

A little reading on Advanced Manufacturing and some study as to what the general manufacturing industry “thought” it was about over the years has turned up some interesting considerations. You see the mere

term Advanced Manufacturing is such that it conjures up all sorts of ideas about what the term might actually mean. The most ambiguous phrase I ran across was the process of using “cutting edge tools and processes to create specialized items for a customer.” The phrase “cutting edge” may not be a bad description, but it is definitely hard to quantify, yes?

As it turns out, the US government has its own definition and has even provided a webpage for those looking for more information on Advanced Manufacturing. This website's location is the internet address of <https://www.manufacturing.gov/glossary/advanced-manufacturing> which is part of the Advanced Manufacturing National Program Office. This site, updated in October 2020, notes that Advanced Manufacturing is the “use of innovative technologies to create existing products

and the creation of new products. Advanced manufacturing can include production activities that depend on information, automation, computation, software, sensing, and networking.”

On this basis, one may anticipate that their own production capabilities can somehow fit into the definition above. Many ingenious employees have already been doing some of this work over the years in order to make their jobs more efficient. Let's review some of the Klein equipment and its functions as they relate to the Advanced Manufacturing definition alone.

Our standard sand transporters carry some of the features noted above. These features allow for quicker and easier diagnosis of possible unexpected events in the field over time. For example, if a valve were to leak air from wear over time, a pressure sensor sends a signal back to the equipment's control indicating that the possibility of a malfunctioning discharge valve is present. Back at the control, a control alarm is activated and the control processes through its logic to determine if the equipment should report this error to the industrial control network or consider this data point a onetime event. If this is the first error and no other errors are present over the next X number of cycles, the system can be allowed to continue until another flag is presented as an unexpected action by the equipment's mechanics.

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# SIMPLE SOLUTIONS THAT WORK!

To move further into the Advanced Manufacturing realm, take for example one aspect of the above definition to include Information Communication Technology (ICT). ICT could be defined as a seamless communication path over different networking subsystems culminating in a signal to the machine designer that something is not operating properly. Imagine a platform that reports the issues to the customers maintenance team as well as the equipment manufacturer. Maybe the manufacturer has agreed to reserve a spare part for the customer in their inventory if this communication is received. This

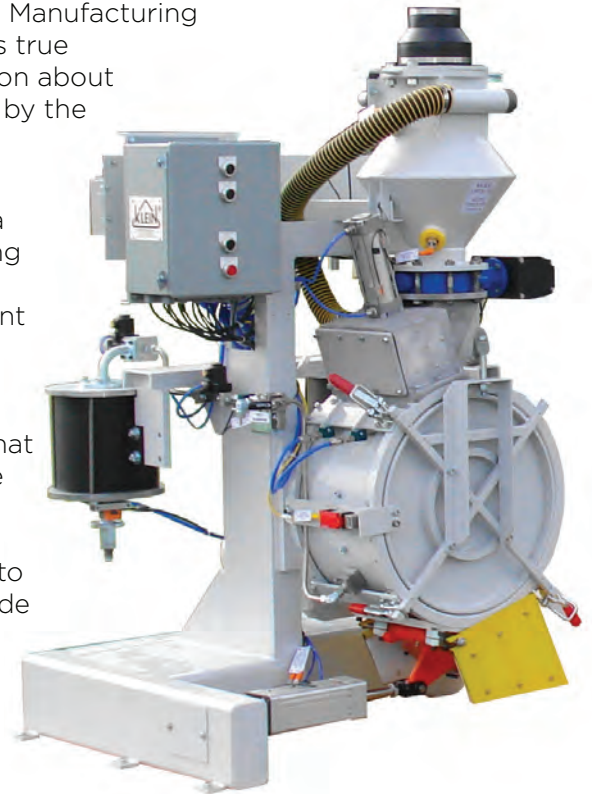


idea fits in with the Advanced Manufacturing thought process as it provides true automation and communication about the capital equipment owned by the customer.

The StatorMix control can be provided with the option for a remote access point containing a customer authorized access function back to the equipment manufacturer. Again, this access is fully controlled by the customer internally. This remote access point is such that if a customer has an issue, the customer can grant access to the machine over their virtual and secure machine network to the design engineers who made the equipment. At that point, using teams or other video / audio meeting software, a conference can take place between the engineers and the customer so that any programming or upgrades available can be added to the unit. Much like the oil monitor in a newer car indicating to the operator the need to perform preventive maintenance, this remote access option can be created to assist the facility in their own preventive maintenance operations.

Consider the addition of this feature as it can be added to many current controls and provide the ability to calculate maintenance intervals to the operator. All of the information can be presented to the customers industrial network for the purpose of maintaining and identifying possible issues that could lead to unexpected results.

Are these advanced manufacturing solutions effective? We believe this example of one long-time valued customer show how effective



and efficient these advanced solutions can be. This customer has a portion of this aforementioned system installed on their complete reclamation sand system. The system had been online for some time and our routine check and verification process of the remote communication system indicated that the customer should identify and review an issue that was observed. Imagine that customers surprise when we called and brought this to light. They may never have noticed this issue existed if it were not for the review on our end! With Advanced Manufacturing we believe that we have gained a customer for life and created a simple solution that works for important customer challenges.



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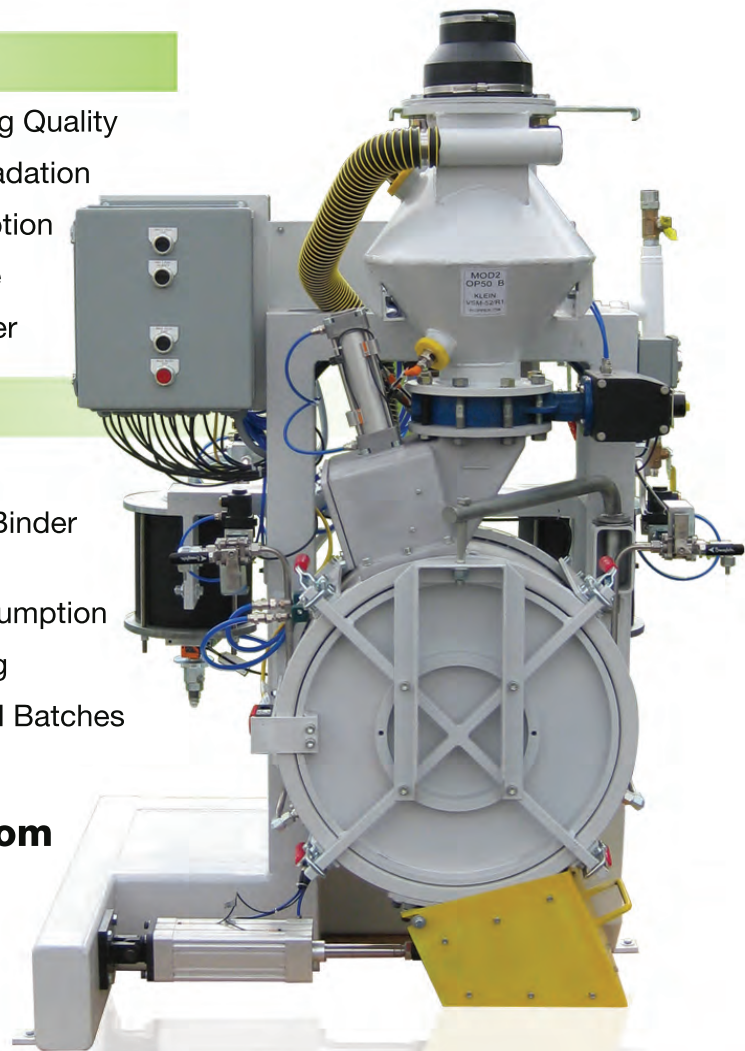


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