Getting Ready to Purchase a New Mixer? Tips on How to Justify the Capital Expenditure

Purchase of new mixing equipment is typically not a hasty event. Unless an unexpected challenge abruptly hit your operations such as a sudden failure of an existing mixer or a right-now sales opportunity demanding an unprecedented spike in production, process engineers generally have time to prepare for what could be a serious expenditure. As with any capital investment, the purchase of a new mixing system ideally requires time and research. Getting the project approved entails a sound evaluation of your goals, your company’s business needs and all technical and financial options available to you.

What is your goal?
By purchasing a new mixer, what will it ultimately accomplish? Increased production is an all too easy answer. If you can adjust the scope of your goal to include reduction of existing problems, from say frequent power overloads to recurrent maintenance nightmares, then the new mixer becomes the answer to many problems. List a complete set of benefits that requires exactly the features a new mixer will provide. Some examples:

- Savings in energy consumption.
- Cleaner operation – less after-batch clean up, less dusting, better working conditions for mixer operators.
- Improved end product – increased batch-to-batch consistency, elimination of entrapped air contributing to better product appearance, fewer reworks or rejects, ability to extend the functionality of raw materials, etc.
- Shorter mixing cycle, heating/cooling time, or discharge time.
• Elimination of downstream deaeration steps.
• Smaller footprint.
• Less rigorous maintenance schedule and fewer parts replacements.
• Reduced dependence on operator skills (i.e. minimal training required for operators to efficiently run the new mixer).
• Safer environment for employees

Your request for a new mixer must also fit your company’s long-term goals. It makes no sense to install a new mixer if your company plans to outsource production by next year. In terms of the big picture, what will a new mixer achieve? Consider that this can result in overall increase in product out the door only if mixing is the production bottleneck. Otherwise, increasing output from your mixer or mixers means you’re only going to make mixed product sit idle longer. You’re only as fast as your slowest operation.

An instance where a new mixer does help improve a bottleneck is when a new “pre-mixer” achieves a finer dispersion than existing mixers such that fewer number of passes through downstream milling equipment is necessary to attain the desired product specs. Mills as well as high-pressure homogenizers are typically known for low throughputs. A considerable reduction of required passes through this high-energy equipment can translate to a huge savings in time and operating costs.

**Base performance assumptions on solid information.**
Some of your calculations may have to rely on several assumptions. As much as possible, base these assumptions on solid information, not guesses. One such way is to perform mixer tests at the equipment manufacturer’s facility. Another would be to test rental equipment right in your own plant. Simulating your process by producing a batch out of your own raw materials on the exact type of mixing system, which you are geared at purchasing, will gain you important information such as power loads and expected cycle
times or flow rate. You should be able to analyze the finished batch according to your own quality check procedures. This ultimately makes a strong point to the decision-makers of your company because it leaves no doubt that the mixer you are proposing works successfully for your particular product.

Testing at an equipment manufacturer’s facility where several mixer designs are available can also gain you new understanding of your own mixing operation and ways to perhaps improve it like applying vacuum, modifying the order of ingredient addition, or even utilizing an entirely different mixer configuration. Indeed, what you need might not be another one of your current mixers but a different kind of mixing system more appropriate for your product. Testing then gives you apple-to-apple values of comparison between a new mixer design and an existing one that needs replacement.

**Identify financial incentives.**

Don’t neglect to include your financial personnel in the process as they can help you discover certain tax incentives that may be available when you purchase mixing equipment.

Some rental programs offer credits toward purchase of new equipment. Remember that rental options are not limited to pre-owned equipment. A month or two of testing a mixer may be enough time to decide if the rented equipment indeed fits well into your production line. Cost-benefit analyses can therefore be based on direct measurements of improved efficiencies.

**Work with a reputable and experienced partner.**

Gathering all the technical and financial information necessary for a complete evaluation takes a lot of work, but knowing how an investment opportunity can impact your operation’s over-all performance is well worth the effort. Partner with a reputable mixing
equipment manufacturer and take advantage of their collective experience. Taking the
time to map out strategies and discussing them with your equipment manufacturer ahead
of time, rather than strictly working on a project-to-project basis, will ultimately pay off.
More than just taking your orders, a dependable and competent supplier can actually help
engineer your success.

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