The Key to Tableting Success: *How to Choose the Right Tooling*

Choosing the right tooling can increase tablet output, decrease waste and ultimately determine the success of a product launch.

Consider Production Limitations from the Start

Generally, a tablet starts as a concept in a company's marketing department without serious consideration of how it will be manufactured. If the marketing staff does not understand what's feasible in actual production and propose a complicated or impractical tablet design, the tablet could make it all the way to the production floor before someone discovers it will fail.

In order to avoid this costly mistake, organize a meeting with an experienced tool manufacturer and include people from marketing, product development, engineering, and production. Doing this at the start of the project allows everyone to share their ideas and concerns, and utilizes the resources and expertise of an experienced tool manufacturer who can help you avoid common problems by avoiding designs that have proved troublesome or impractical for others in the past.

Ask the Right Questions

After assembling your "dream team" from marketing, product development, engineering, and production, it's time to meet with your tooling vendor. Here are some critical questions to ask before making any decisions on tablet design:

1. Given the intended tablet shape and size, what tooling configuration will the product require?
2. How will the tooling configuration of the cup affect the compression force required to compress the tablet?
3. Is the product prone to sticking and picking?
4. Is the product sensitive to the heat of standard operating temperatures?
5. Is the product abrasive or corrosive?

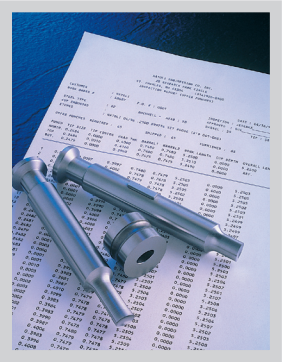
Failure to answer these questions in the early stages of product development will likely cause major problems when the product reaches the production floor. Every detail counts — so be sure to provide your tooling vendor with as much information as possible. Preventative measures taken early in the process will lead to increased tablet consistency and longer life from your tooling and other processing equipment.

Steel Selection

Steel selection is one of the most important factors to consider when choosing your tablet compression tooling. General-purpose steels, such as S1 and S7 for punches and D3 for

Natoli Engineering Company, Inc.
28 Research Park Circle • St. Charles, MO 63304
p: 636 926 8900 • *f:* 636 926 8910 • info@natoli.com • natoli.com

dies, provide a good combination of wear-resistance and toughness. If your product is abrasive, you may want to consider using A2, D2 or DC53 grades, or in extreme cases, consider punch tips and dies lined with tungsten carbide. For severely corrosive formulations, 440C or M340 high chromium steels are good options. When using premium tool steel, the punch must have a strong cup design in order to avoid tip fractures.



When choosing tool steels, you should always consider both the formulation characteristics and the tool design in order to determine the best solution. Your tooling vendor is your best resource for information and guidance, so be sure to take advantage of their knowledge and expertise.

Conclusion

Always remember that every formulation is different. There are no two products that are exactly alike. They don't run the same. They don't perform the same under compression and decompression forces. Likewise, when choosing tooling for tablet presses, tablet manufacturers need to know that one size does not fit all.

There are standards for tooling, but you can't always expect the standard tool configuration to be the optimum configuration for your product. Don't be afraid to ask your tooling vendor questions — and do it early. They should have the knowledge and experience to assist you with product development.

Questions? Ask the tableting experts at Natoli. Our experts have decades of tableting experience and are available to help prevent potential production problems or troubleshoot existing issues you may be experiencing.

To meet the growing demands of the tableting industry, two new divisions of Natoli Engineering have been developed: Natoli Metallurgy has the capability to assist your business in the selection and treatment of steels to improve the longevity of your processing equipment. Natoli Scientific, recently partnered with Long Island University to establish the Natoli Engineering Institute for Industrial Pharmacy Development and Research, is dedicated to assisting customers with unique solutions to their product formulation and tooling requirements.

Visit natoli.com today to gain access to our collection of how-to videos, technical articles, whitepapers, and more. Want to discuss a specific tableting issue? Contact a Natoli expert at 636.926.8900 or by email at info@natoli.com.

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