The advantages of interchangeable drums for tablet coating systems

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This article gives examples of how using a coating system with interchangeable drums simplifies production increases, preserves capital, and makes better use of floor space.

R&D and pilot-scale coating systems have used interchangeable drums for more than 25 years, including a 24-inch-diameter lab-scale system that my company introduced in 1990 [1]. Ten years ago, we extended the interchangeable-drum concept to production-scale equipment [2]. As a result, manufacturers of pharmaceuticals and nutraceuticals can coat as few as 100 tablets in the lab and use similar equipment to coat production batches as large as 1,200 liters (900 kilograms).

Whatever their size, systems that use interchangeable coating drums are widely accepted and provide many advantages over systems that use fixed-sized drums. In a production setting, the key benefit is the larger range of capacities, meaning your coating operation is no longer limited to the traditional turndown ratios of 2-to-1, 3-to-1, or 4-to-1 (maximum-to-minimum capacity). Rather, with interchangeable drums, the turndown ratios increase to 10-to-1 or bet-
What interchangeable drums can do for coating systems is similar to what interchangeable turrets did for tablet presses. Few people would buy a new tablet press today that didn't have an easily interchangeable turret. Yet many people continue to buy coating systems that use fixed-size drums. Properly specified, those systems will certainly coat the products you're making today, but they may not be well suited for the products you'll need to coat a year from now or 5 years from now. In that sense, interchangeable drums future-proof your operation because they enable you to match the drum to new batch sizes or to other coating requirements that may arise later.

Here are three scenarios that illustrate the advantages of an interchangeable-drum coating system.

**Example 1: Accommodating growth in demand**

Company A buys an interchangeable-drum coating system and a 48-inch drum to support its product launch. At launch and for 1 year thereafter, the company made 120-kilogram batches. But as its managers had predicted, batch sizes had to increase to accommodate demand for the product. Because of that foresight, the company was able to easily switch to a 60-inch drum with a capacity of 300 kilograms per batch. In subsequent years, batch sizes could grow even more, which would require a 65-inch-diameter drum capable of handling up to 675 kilograms. By investing in a coating system that accepts different drum sizes, Company A is spared the expense of buying three different coating systems over the lifecycle of its new product.

**Example 2: Contract manufacturing**

Company B is a contract manufacturer and makes a variety of products for several customers. With interchange-