



AN OEE APPROACH TO SOLID DOSE EQUIPMENT PURCHASING AND IMPLEMENTATION

→ BY **ADAM COVITT**, FEDERAL EQUIPMENT COMPANY

More than ever, the success of a particular OSD product rests on operational excellence and the ability to deliver high-performing variation-free process.

Acquiring pharmaceutical processing equipment and successfully integrating it into operations is not as straightforward as it may seem. Whether used or new, everything is up for consideration and evaluation: vendor, type, specifications, performance, reliability, capability, service life, price and, importantly, availability. Oral solid dose (OSD) manufacturing, especially at commercial scale, is particularly dependent on the operational efficiency of a familiar but increasingly complex train of processing equipment to mass produce tablets and capsules. More than ever, the success of a particular OSD product rests on operational excellence and the ability to deliver high-performing variation-free process.

Measuring the operational performance of process equipment has evolved over the years, and the methodology to determine overall equipment effectiveness (OEE) is gaining popularity. Focused on measuring equipment availability and reliable, as-designed functionality, OEE principles focus on 'losses' that can be generated from a whole host of issues related to equipment. At a macro level, OEE focuses on Availability Loss, Performance Loss and Quality Loss – it also takes into account idling and minor stops, one of the Six Big Losses to OEE that affect OEE performance (see Table 1).¹

In a 2014 *Industry Week* article, senior consultant Ellis New, Business Practice

Leader for Productivity Inc., explained that “OEE assigns numerical value to improvement opportunity. It factors in the availability, performance and quality of output of a given piece of equipment and asks you this: How much right-the-first-time product did this machine produce compared to what it should have produced in the allocated time?” In other words, the question and answer is this: Is a piece of equipment effective within its value stream? “Does it let you meet present or future customer demand? If not,” says New (and this is critical), “OEE helps you analyze the reasons why, so you can address them systematically.”¹

MAKING EQUIPMENT ACQUISITION MORE STRATEGIC

Without sounding too simplistic, the primary reason pharmaceutical manufacturers purchase production processing equipment is to meet present or future demand for its products. Beyond that, there are hundreds of business and competitive drivers prompting equipment acquisition, and it's safe to assume that the better a company is at acquiring and integrating equipment into operations, the more economical, efficient and flexible those operations can be. Given speed to market, response to market demand, competition and all the other factors involved, OSD pharma processors are increasingly looking to head off OEE's six big 'losses' as early as possible and boost equipment value as soon as possible once a piece of equipment hits the

books, and by necessity, must earn its keep for years to come.

Federal Equipment Company's long experience selling used equipment is similar to new equipment vendors; pharma's OSD manufacturers want to get the most value out of every dollar spent on capital equipment. Pharma manufacturers operate some of the most intensive processing environments and, after 40 years in the business, we understand customers engage us and return to us because we've developed a business model that provides a range of resources – not only optimal equipment selection, but its acquisition, installation and process implementation.

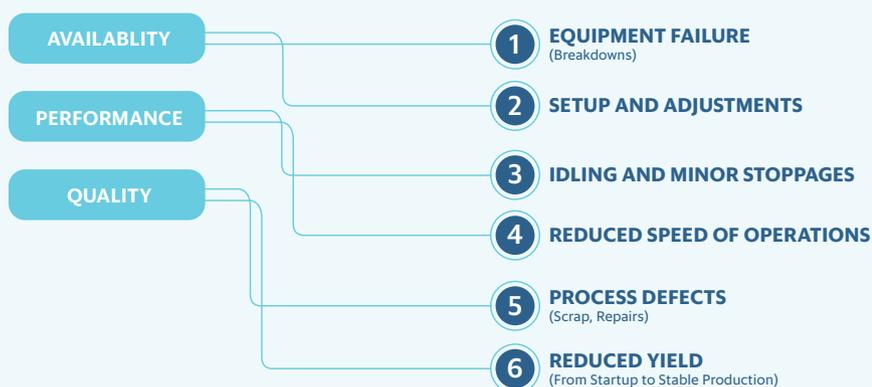
The process and manufacturing community understands OEE offers a solid foundation for measuring or scoring operational excellence. It also offers a guide on how we marshal company resources and key partnerships to support our customer's equipment acquisitions and integrations. Whether choosing from the extensive inventory of used OSD equipment that Federal Equipment Company maintains, or selecting new technology from prominent OEMs – many of them partners – we've created a unique equipment buyer's journey built around key equipment supply chain relationships, relationships that effectively support equipment acquisition strategies for some of pharma's most prominent branded, generic and contract OSD manufacturers.

FIRST THINGS FIRST

As mentioned, there can be hundreds of reasons prompting an equipment purchase, but first you have to find it. Acquiring the right machine for the job at the speed of business, and within often-severe financial constraint, has frustrated many a process engineer under pressure to extend a line in a hurry. New equipment is one answer, but manufacturers' timelines and other constraints can disrupt or delay critical equipment/process-related project timelines if delivery won't fit the schedule. The dynamics of the secondary equipment market can offer relief – and working with an experienced and knowledgeable broker, can locate and source affordable access to a particular machine or system and meet challenging project goals and deadlines.

TABLE 1

The Six Big Losses



OEE PHILOSOPHY IS CENTERED ON FINDING IMPROVEMENT OPPORTUNITIES.

In OEE circles, 100% performance means equipment in the manufacturing process is running at its theoretical maximum speed while operating. There are so many things that contribute to process performance (or the lack thereof) and, like any complex technical endeavor, require a comprehensive approach. Applying OEE strategy and a GMP-like process to equipment purchasing, uptake and acquisition is best practice. Because product quality is so tightly linked to equipment performance, pharma OSD manufacturers must gain mastery over all aspects of formulation, equipment condition and proper operation and maintenance. However, not every pharma processor has the resources or internal processes to accomplish this internally.

TODAY'S CURRICULUM: EQUIPMENT EXCELLENCE

OEE philosophy is centered on finding improvement opportunities. As Federal Equipment Company's experience with equipment acquisition has continued to grow, it became apparent that good customer experience and success with an equipment purchase is closely associated to how well an organization understands all the improvement opportuni-

ties that might be associated with their equipment purchase.

Addressing this knowledge gap and helping pharma's OSD manufacturers institutionalize better operational practices (in an effort to foster a more transparent and effective understanding of equipment and solid dose process) has been technical consultant Mike Tousey's mission for decades. Under the Techceuticals banner, Tousey has been schooling OSD equipment manufacturers, pharma processors and equipment operators on the finer points of tablet and capsule processing. Years of client referrals and cooperation created synergies that our mutual customers increasingly find valuable.

In 2012 Federal Equipment Company extended its relationship with Tousey, co-locating Techceuticals classrooms and labs adjacent to new environmentally controlled equipment staging and storage facilities that were acquired in a recent expansion. Combining lecture and hands-on training, Techceuticals Laboratory provides a perfect venue to address gaps in OSD process optimization and conduct equipment evaluations as part of a comprehensive equipment acquisition strategy. Tousey explains that not every company understands exactly what equipment or process specifics will suit their needs best or how to optimize formulation/equipment to curtail quality excursions and other things gumming up operations. The lab creates an opportunity to explore and evaluate alternatives and options without the financial commitment. The lab currently houses some of the most advanced solid dose manufacturing equipment now offered by the industry's biggest names, including Glatt,

Ohara, Korsche, Fette, Globe, Vector and similar, popular OEMs.

Recently, Glatt installed two of its latest wet and dry granulators at the Cleveland lab, part of an ongoing relationship with Techceuticals, Federal Equipment Company and the pharmaceutical manufacturing industry. Quality OSD equipment can have an extended life (especially once it moves into secondary markets) and, whether acquired new or used, the closer equipment vendors can be to its users the better. "Our commitment to customers doesn't end with delivery," said Ed Godek, process technology manager for Glatt. "We want to connect with our users in meaningful practical ways; central to that effort is our direct support of Techceuticals training and optimization mission. Beyond that we offer factory support to Federal Equipment Company's buyers of used Glatt equipment – the relationship creates great synergies that all our customers value."

According to Tousey, the Techceuticals lab provides a real-world processing environment where students can evaluate the performance of their current and proposed formulations in machines they are looking to specify and acquire. "We provide the training and the equipment necessary for anyone looking to get better performance and quality from the solid dose products they manufacture," he says.

NEXUS FOR OPERATIONAL EXCELLENCE

Acquiring equipment and implementing it effectively is becoming a strategic imperative no pharma manufacturer can avoid. Equipment performance metrics like OEE can provide guidance and frame a best practice acquisition strategy. The synergies between Federal Equipment Company, Techceuticals and Equipment OEMs form a nexus for operational excellence and provide the means to effectively evaluate equipment, explore process optimization tactics to make equipment acquisition more strategic and extend the value of every equipment dollar spent. **P**

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Adam has over 19 years of experience in the pharmaceutical and chemical process and packaging industry, with a focus on Investment Recovery and the purchase and sale of high-end equipment to major pharmaceutical sites and contract manufacturers with a global footprint. Mr. Covitt earned a bachelor's degree from Ohio University, Athens, Ohio.

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REFERENCES

1. New, Ellis. "OEE – Learn How to Use It Right." IndustryWeek. 19 Aug. 2014. Web.



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