

Top 5 Reasons to Consider a Beside-the-Press Granulator

Discover the factors that can help you determine whether a beside-the-press granulator is ideal for your plastics processing operation.

INTRODUCTION

No matter what type of process is the mainstay of your plastics manufacturing operation – injection molding, thermoforming, extrusion – every floor manager knows that the waste materials generated can be significant. Ideally, those materials are reclaimed back into the process. By grinding the plastic materials down to a size that's similar to the virgin material, you drastically decrease waste and use less of that new material in the process.

Regardless of the size of your operation or type of manufacturing process, regrinding of plastic components has the potential to create substantial savings. There are multiple types of size reduction equipment including shredders and granulators that can be used to transform the material into a more useable state. The type of machines utilized in a process depend on the material characteristics, size and density. Considering the annual savings over many manufacturing runs, it's vital that the right type of granulator is chosen based on your unique plastic processing operation, type of materials, labor, floor and storage space, and many other factors.

To help get the most from regrinding, plastics manufacturers typically use one of two types of manufacturing floor configurations and the equipment designed for that workflow – a central granulator or a beside-the-press granulator. (It should be noted that Under-the-Press (UTP) granulators are sometimes categorized with beside-the-press granulators, although they are generally located beneath a plastics thermoforming line) Each approach to regrinding has pros and cons that are unique to each operation, so the burden is on floor managers and manufacturing engineers – with the help of a knowledgeable equipment partner – to determine what works best to meet the company's unique needs, limitations, and goals.

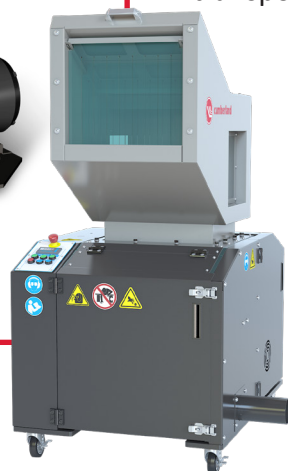
Although a central granulator configuration offers many benefits for those operations that are well-suited for that equipment, this white paper will focus on beside-the-press granulators (BTP). We'll explore the top reasons you might want to choose this type of granulator equipment for your plastic component waste, as well as other considerations.

Central or Beside-the-Press?

When determining whether to configure your plastics manufacturing operations with a central or beside-the-press regrinding process, it's essential to partner with a knowledgeable equipment supplier that can guide you to the decision that's right for your unique operation. Although the focus here is on beside-the-press granulators, central granulators are well-suited for specific types of operations. One important factor is the number of material changes. If, for example, you run a recycling facility that processes the same type of plastics and floor space is not an issue, a central granulator is likely your best choice. Consult with a trusted supplier to determine the right workflow and equipment for your facility.



T50 Central Granulator



FX1000 Beside-the-Press Granulator

REASON #1: MATERIAL SAVINGS

Depending on your current floor operations, selecting a beside-the-press configuration may result in substantial materials savings for several reasons.

First, by their very nature, beside-the-press granulators offer a tailored solution for the most usable reclaim. It's vital to work with your equipment supplier to ensure that you determine the best chamber geometry for your applications and type of material. You also want to consider the size of the discharge bin – a larger bin allows for more uptime, which decreases the frequency of bin emptying. When Vacuum-Take-Off (VTO) is used, a larger bin helps create a buffer for surges in granulator discharge rates.

Second, the beside-the-press granulator can reduce material loss due to inefficient material handling and machine clean out. While central granulators have their place for many production floor operations, beside-the-press granulators have the benefit of direct throughput from the press, eliminating the need for excessive manual handling and clean outs that can result in material waste. BTP's can be hand fed or robot fed at the press.

Third, the regrind materials can be fed directly from the granulator take-off back into the primary process. This might include an equipment configuration with an evacuation system that sends regrind material back into the process line. It can be completely automated, eliminating manual processes and the resulting material losses and leakage.

REASON #2: LABOR SAVINGS

Beside-the-press granulators eliminate the need to collect, store, and process batches in a central granulator workflow. For example, a typical central granulator process might include dedicated personnel responsible for:

- Collecting materials to regrind
- Depositing them in gaylords
- Using a forklift to move the gaylords to a dedicated central granulation room
- Regrinding the materials there using a central granulator
- Depositing the ground materials back into gaylords
- Forklifting ground materials back into the production facility for reuse, or transporting them back to storage (either onsite or offsite)

Obviously, all these manual tasks – done repeatedly – present a layer of complexity and increase labor costs. For operations where a beside-the-press granulator is the best fit, the benefits may include an immediate decrease in operational costs without the need to handle and transport regrind materials constantly.

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REASON #3: INCREASE PRODUCTION FLOOR SPACE

In today's competitive environment, square footage on the production floor comes at a premium. A beside-the-press granulator is an ideal solution for maximizing your floor space.

With a beside-the-press granulator, you can increase production capacity. This gives you the ability to replace former storage space with potential additions to production floor space. The net effect is increased production capacity where material storage previously took place.

Also, you'll benefit from less storage or material to be processed, as well as decreased storage of regrind material after processing.

REASON #4: LESS MAINTENANCE

With a beside-the-press granulator, the frequency of machine cleanout is minimized because each unit is typically dedicated to one production line. Whereas, with a central granulation process the system may need to be cleaned out multiple times a day with material changes from multiple lines. Plus, with newer well-designed models, you have the potential to realize accelerated total machine cleanout due to increased accessibility to the cutting chamber. The potential benefit may make machine cleanout up to six times faster.

Also, today's premium models feature high-quality knives and screens that have increased longevity, reducing consumable parts and decreasing variable operating cost. It's not uncommon for new machines to run for well over a year with the original knives and screens and zero downtime. Generally, the knife and screen kits for each beside-the-press granulator are selected for regrinding a specific type of material. This specificity results not only in greater performance but greater uptime and less required maintenance.

REASON #5: INCREASED SAFETY

Safety during servicing is important. Features such as rotor lock, safety interlocks to access the chamber, hopper and chamber lift assist, tipping prevention, and other key features are recommended with any granulator installation. Industry-leading companies use a variety of interlocks to assure service work can be done safely, including:

- Zero Rotor Speed Detection – prevents users from accessing the cutting chamber until the rotor has stopped
- Hopper Lock – automatically engages with manual disengage
- Rotor Lock – automatically engages with manual override
- Chamber Lock – upper chamber is locked via solenoid-activated interlock
- Discharge Bin Lock – via solenoid-activated network

Currently, the gold standard for granulator safety is ISO 12100 and Category 3 requirements. This requires that the equipment conforms to the principles of risk assessment and has two sets of redundant safety interlock circuits so that a single fault does not lead to the loss of the safety function. Safety rated components and reliability are also part of these requirements.

REASON #5: INCREASED SAFETY (CONTINUED)

Because of the direct contact inherent with a beside-the-press granulator, plastic manufacturing operations with size reduction processes will naturally reduce injury risks and increase safety overall by minimizing manual handling of material. The decrease in the maintenance of knives and screen components mentioned above is also a factor that keeps employees safe. Simply put, the fewer the tasks involved with unloading, cleaning, retooling knives or screens, or any other internal workings of a granulator, the safer your operation.

Poor service on a granulator can result in poor quality regrind with excessive dust and fines. So accessibility to the cutting chamber, rotors, and knives is extremely important. Knives must be kept sharp and clean for best results, and the cutting gap between rotating and stationary knives should be easy to set and maintain. Ease of cleaning is also important, particularly in short-run environments where the granulator must be thoroughly cleaned before moving on to the next material.

Finally, harmful high sound levels are another layer of safety risks every operation must consider as they look to decrease the liability of hearing loss of employees. Not surprisingly, most of the sound generated by a granulator process occurs in the cutting chamber. But significant noise can be generated by the drivetrain as well. A full sound enclosure is designed for maximum noise suppression and will typically lower the sound decibel level outside the machine by 10 to 30 percent. When determining the right beside-the-press granulator for your facility, look for sound dampening features for lower sound output and decibels that help make your operation quieter, safer, and more enjoyable for your employees.

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Case Study Snapshot: Teel Plastics

When Teel Plastics tracked the process lifecycle and shrinkage in their size reduction, they noticed as much as 30,000 pounds of materials being lost every year. Also, their complex central granulator workflow included many material changes on their extrusion lines, resulting in manual tasks that were inefficient and took up substantial square footage. Most importantly, their existing equipment didn't meet their factory safety standards.

After moving to a more streamlined beside-the-press granulator workflow and adding Cumberland FX Series granulators, Teel Plastics benefitted from:

- Over 1,000 hours of labor savings per year
- A 28,000 lbs reduction of material loss!
- Up to \$300,000 in material savings per year
- A 50 percent reduction in cleanout downtime with much lower maintenance requirements
- Overall substantial increases in safety, noise reduction, and operational efficiency



CONCLUSION

Although beside-the-press granulators are not a new type of plastics size reduction equipment, there are many in the industry that are not aware of these five significant benefits for certain manufacturing operations where this workflow is advantageous.

Accelerated growth is another important factor. If your plastics manufacturing operation is anticipating growth, space may come at a higher premium, your operational costs can be an issue, and rising overhead expenditures may lead you to reevaluate your size reduction workflow and granulator equipment.

A deeper operational assessment of your regrind workflow that takes into account material changes, floor and storage space, labor resources, and other factors discussed here may lead you to conclude that a beside-the-press granulator is right for your facility.

Cumberland can help you determine if a beside-the-press granulator is right for your manufacturing floor operation.

Cumberland is a leader in granulator technology. If you're assessing your size reduction processes, our expert manufacturing consultants can help you determine the right equipment for you. We can walk you through several granulator solutions that can be tailored to your specific needs. Our technical support team is ready to evaluate your operation and ensure the right solution for all your size reduction needs.

Our new FX Series line of beside-the-press granulators offers:

- Highest quality regrind
- Superior maintenance access
- Application flexibility
- Industry leading safety
- Durability and performance

Contact us today to discuss your plastic material size reduction and regrinding needs.

ABOUT CUMBERLAND

Cumberland is the world's brand leader in size reduction equipment. Since 1939, Cumberland granulators and shredders have proven to be rugged, reliable, and dependable. As the first granulator company, Cumberland still leads the way with the broadest line of granulators and shredders to meet the growing needs of the plastics and recycling industries. Whether the application requires single or four shaft shredders, beside-the-press or central granulators, our customers rely on Cumberland to deliver their throughput requirements and produce the highest quality regrind available in the industry.

For more information,
visit www.cumberland-plastics.com
or call 262-641-8600

