

Milling of slabs | several mills

Custom Powders has the reputation of being Europe's Centre of Excellence for milling services. We have over 25 years of experience under our belt with the milling of a wide variety of products and on a large assortment of equipment. Next to the milling of powders we are also active in the area of granulating products by size reduction.

In principal every solid material that is large and crisp enough can be reduced to a granule. The expertise is in establishing what the right kind of equipment is for the individual product and how to set it up in such a way that maximum throughputs can be achieved without creating too many fines.

A good example is the transforming

of flakes into granules in order to enable the product to be more easily transported into continuous processing equipment or can be better homogenised with other ingredients of a granular blend. This also applies to larger prills or beads that need to be reduced in size to less than 1 mm. Molten materials are often solidified into slabs or lumps. In order to reduce them in size it is necessary to break them up as well as mill them. This route can result in an end product that contains too many fines that need to be sieved off, giving a disappointingly low yield in the end.

The granules produced this way (without further processing) will typically have an angular shape.



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The Crusher

The Crusher is a machine specifically designed to break down larger pieces of material into smaller better manageable particles. The slabs/lumps that can be fed into this piece of equipment can have a maximum size of 10 x 15 cm. These lumps are then broken down by a rotating bar to a size ranging from several millimetres to several centimetres.

The fines that are created by this breaking action can be sieved off. Often this breaking step is only a preliminary step to a further milling action. The crusher is intended to bring the material to a manageable dimension. It is not a piece of equipment that is very suitable to achieve specific particle size distributions. The success of this route depends mainly on how hard and



breakable the raw material is. The granules that are created via this route are normally angular in shape and can vary substantially in size.



The Kibbler

The kibbler principally is designed to serve as a pre-breaker as well. It can be used independently for crude milling actions or in combination with other milling devices in order to get to the desired particle size distribution. It is a robust machine that breaks and forms the material by forcing it with a lot of force through a perforated steel plate. This machine can handle lumps or slabs up to a size of about 10 centimetres, and that require a reduction in size to say 2 – 3 mm. This piece of equipment provides a better control over the particle size distribution that can be achieved than the crusher.

Again the milled material can then be fed to a sieve or next milling step.



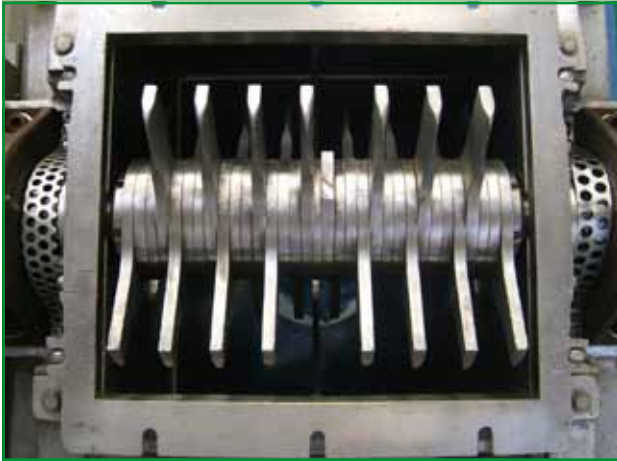
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The Nibbler

The nibbler enables one to reduce agglomerates, slabs, lumps in size without generating a lot of fines or noticeably increasing the temperature of the product. This is achieved by using a low speed on the milling rotor and pulling the material over a perforated steel plate. Products of a couple of centimetres can be reduced in size to about 1 - 25 mm. This machine works in a similar manner to the kibbler but is better suited to produce a consistent particle size whereby no or only a bit of dust and heat is created.

This makes this equipment very suitable for products that are sensitive to heat because they will melt, smear or get sticky.

The granules produced with this machine are normally angular in shape and show a uniform size distribution.



The Hammermill

This mill is specifically designed to break down larger particles or mill them down but it also has wider range of applications. Typical applications are the breaking or crude milling of dry materials, size reduction of granules, pulverizing and granulation of compacted materials.

Often these types of mills are integrated in agglomeration or compaction processes. Typical sizes that can be achieved vary from one to a couple of centimetres.

The big advantage of these mills is that they are multifunctional and with granulation give a very good control over the particle size distribution of the end product. This mill also produces angular granules with a uniform distribution.

If interested in one of the discussed techniques or if you want to find out if your product can be granulated this way, please do not hesitate to contact us.

