THE MEAT LOCKER

BY AMERICAN MEAT SCIENCE ASSOCIATION

The Basics of Meat Grinding

Understanding how meat grinders work might seem straightforward, but grasping the mechanics behind them is crucial for choosing the right grinder and keeping it in good shape.

A meat grinder is a mechanism designed to build sufficient compression of a meat product to force it through a hole plate, while a knife assembly continuously cuts the meat particles at the contact point with the hole plate. The key words of this definition are compression, continuously, and cuts. Failure in any of these areas will result in poor grinding. Here is a quick review of the importance of each:

Compression

Compression happens when meat gets pushed against the blade and plate. Things like the type of feed used, the length of the auger and barrel, how firm the meat is, and the size of the hole in the plate all affect compression. Meat can be compressed against the plate using either an auger feed or a pumping device. Auger feeds always have some slippage, which means they're not as efficient and they create heat, especially if the auger is worn or damaged. Longer barrels and augers increase compression at the blade, making the cut more consistent, but they also increase slippage. The length of the barrel depends on how firm the meat is. Hard or frozen meat needs a shorter auger and barrel, like for ground beef. Softer or pre-ground meat needs a longer compression chamber. Grinders can also be pump-fed, which usually makes them more consistent because there's no slippage from the auger.

Continuous

Meat needs to be fed steadily and evenly into the auger so it can be smoothly pulled towards the blade and plate. If there are interruptions in the flow of meat to the blade, it can cause fat to smear because the meat gets torn instead of cleanly cut, which degrades how the product looks and feels. When meat comes out of a grinder, the pieces should be shaped like cylinders, clearly round and separate from each other. This shape looks and feels the best and is ideal for mixing with other ingredients later on.

Cuts

The blade's job is to slice the meat, so it can move away from the plate. This cutting action serves two purposes: it breaks down the meat into smaller pieces, and it helps prevent too much heat from building up at the plate. If the blade isn't sharp enough, it can cause fat smearing. The best results come from blades that sweep smoothly across the hole plate. Sometimes the holes are tapered to make it easier for the meat to come out.

Key Takeaways:

- **Proper feeding and cutting prevent fat smearing and ensure consistent particle size.**
- **The ideal outcome is cylindrical meat particles with distinct shapes for enhanced texture and appearance.**
- **Blade sharpness and plate design play crucial roles in preventing fat smearing and achieving optimal particle definition.**

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