

# Choosing the Right Agitator for your Application

## Welded Paddle



Welded agitators are the only choice for any mix that requires food-grade sanitation. In addition to food, that can include pharmaceuticals, medical plastics and nutraceuticals. Paddles use a scoop, lift and tumble action for gentle handling of mixes. Often paddles are used in mixes that have different types of ingredients with dissimilar shapes, sizes, densities and viscosities. Paddles can be used for food mixes that should maintain the integrity of the different particulates. With the paddle action, materials travel in a 3-dimensional figure-8 pattern constantly pulling from both ends of the mixer to the middle.

**Applications:** *Bakery mixes, coffee, soups, dairy powders, ready-to-eat salads, biomass, chemicals, medical grade plastics, sensitive pharmaceutical materials.*

## Double Ribbon



The double ribbon agitator is best for low density, free-flowing materials that are of like size and shape. For that reason, the double ribbon is a great choice for many powders. The double ribbon is advantageous in applications requiring a lot shear (work), such as salt or sugar. The inner and outer ribbons move ingredients from end-to-end in opposite directions. The blending action occurs by rolling material back and forth. Double ribbon agitators are designed with a continuous spiral, with no gaps between the ribbon flighting. The ribbons are welded for the same level of sanitation as paddles, and although it may require more careful inspection, the design eliminates potential for pockets of stagnant material.

**Applications:** *Powders, nutraceuticals, pharmaceuticals, chemicals, pet foods, drinks drink mixes, dairy powders*

## Hybrid Paddle/Ribbon



A hybrid offers a higher level of agitation than the paddle or ribbon alone. The double-reversing design creates a mixing combination of the figure-8 movement of the paddle style with the scrubbing action of a ribbon blender. The hybrid is best used when products contain a lot of texture or bulk. This translates into increased energy being transferred into the ingredients, and even product levels inside of the trough.

**Applications:** *Cappuccinos, sugar/salt-based spices*

## High-Speed Choppers



In addition to your agitator, high-speed choppers, with up to 3600 RPM, movements add the ability to disperse materials throughout the mix. Choppers are installed on the sides of the mixer trough, and the agitator moves the material to the choppers head. In some applications, oils or shortenings are injected through nozzles near the chopper. The chopper head provides and assists in better particle integration with the mix. Choppers are available with various styles of cutting heads. They are designed to rip apart lumps and agglomerates, break up liquid-rich shot balls, open matted fibrous materials, and distribute pigments.

**Applications:** *Pigments for plastic powder, resins for building materials, shortenings in bakery mixes, PVC resins, blending of dry pharmaceuticals with liquid binders, pigments for grout and cement mixes*

## Welded Arm/Bolted Paddle



Bolted paddles provide the easiest replacement, so if you are working with abrasive materials that result in wear and tear, you'll want replaceable parts to reduce the operational costs of replacing the whole agitator shaft. The problem with bolted blades and arms is that for every bolt, you end up with another crevice to clean. If there's a need for a high level of sanitation or frequent cleaning, it's better to choose bolted paddles with welded arms for enhanced cleanability. This is where the welded/bolted configuration is a design advantage. If you are using a mixer for multiple types of mixes where you need to clean in between, this is ideal.

**Applications:** *Minerals, some chemicals, building materials, biomass, colored grouts and livestock feed*

## Bolted Arm/Bolted Paddle



For abrasive applications where wear becomes a concern, it's inevitable that you'll need to replace parts. The bolted design allows you to replace arms and blades individually as they wear. Instead of needing to make a full replacement of an agitator, the bolted paddles with bolted arms allow for easy maintenance and longer lifetime of the mixer. The paddles still give the 3-dimensional figure-8 pattern of the welded paddles, but they can be replaced. Bolted paddles are appropriate for mixes where sanitation isn't much of a worry such as with minerals or with materials that don't stick, corrode or ferment if a bit of residue remains.

**Applications:** *Minerals, biomass, building materials*