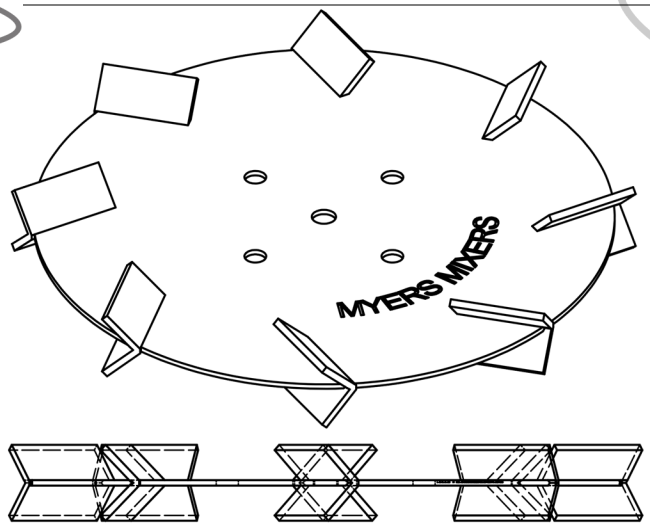
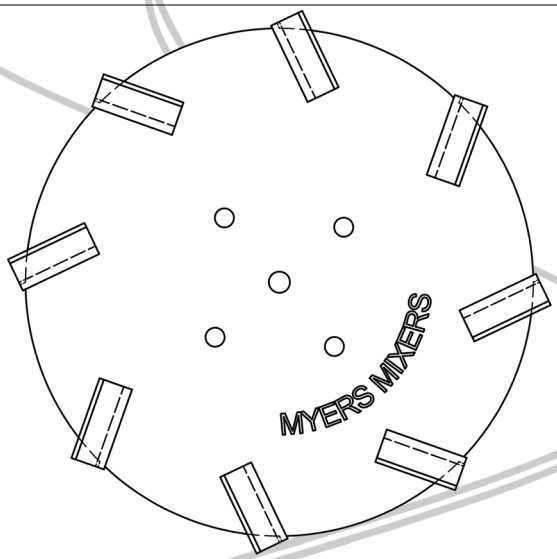
MYERS MIXERS

SUPER PUMPER BLADE





Various impeller designs and configurations are used, depending on batch viscosity and processing requirements for components within the batch. Unfortunately, despite all the technology currently available, most companies- regardless of how big or small- do not properly apply the different types of dispersion. More than 90% of people within the industry believe that a proper tip speed for a disperser is 5,000 feet per minute (FPM). While this speed is required for particle size reduction and deagglomeration, it is by no means necessary or efficient when used in blending applications, or in applications that contain shear-sensitive components. Blade selection is also not well understood, and there are types of blades that should be used for one type of process yet not another.

The Myers Mixers Radial Pumper impeller is an exemplary choice when incorporating shear-sensitive fillers into thixotropic and/or viscid materials. The basic principle behind the Radial Pumper impeller is that the angled teeth sling the material outward, continually accelerating the perpetual batch movement; the teeth do not shear the product. An axial pumper can help to draw material in from the surface; there are many blade options available, and careful consideration of each will ensure maximally effective results. By creating perpetual batch movement, viscid material (10,000 - 150,000 cP) can be thoroughly mixed while maintaining a low shear environment. Forward facing teeth provide longer contact between the impeller and product captured in the flute; this results in a higher velocity or product energy each time the product is in contact with the impeller surface. The product remains in contact with the impeller surface longer, developing a higher velocity and energy transfer, which enables the mixer to run slower, resulting in less initial impact forces. This blade configuration allows for a rolling vortex to be achieved without the damaging forces of traditional high speed dispersion.

The radial pumper physically pushes the product outward; creating an area of low pressure underneath the shaft, as product rushes back to fill in the void in an attempt to equalize pressure and product distribution. This low pressure void is a good place to incorporate fillers into the batch, especially when the mixing tank being utilized does not have a good seal. When fillers are incorporated subsurface in this manner, they are thoroughly assimilated into the liquid product. This enables rapid blending without exposing powders to the atmosphere; a potential health and safety hazard. The material within the tank acts as a filter, by wetting out the fillers so they cannot become airborne.

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co-authored by Myers Mixers' Cary Buller (President/CEO) and Stephanie Shira (Applications Engineer)

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