

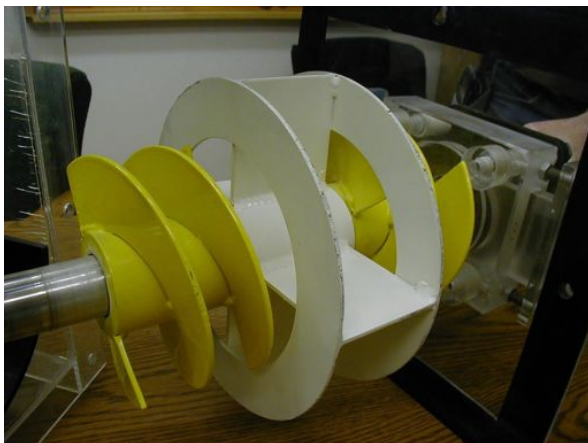
Summary of Impeller Packer History

In 1905, our ancestor company the Bates Valve Bag Company, introduced the Model 100-FC Impeller Packer. To our knowledge, it was the first impeller packer in the world. It was a vertical impeller design. With various refinements, modifications, and model number changes, the basic design survived until the 1980's.

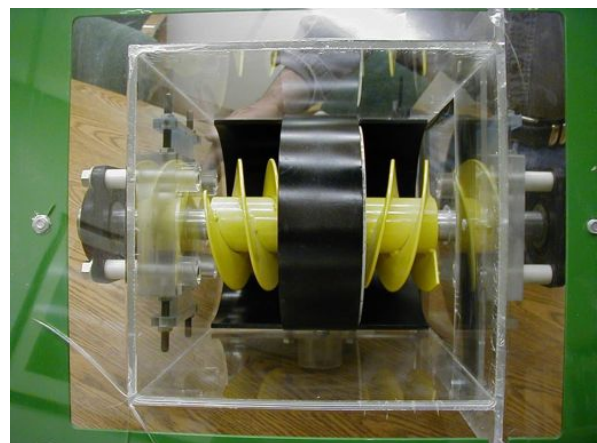
Our first horizontal impeller packer was the Model 105 FV developed in 1935. It was optimistically touted as the "Universal Packer!". It had only a 20 year lifespan. Other baggers proved to be more adept at handling most products.

In 1964 the Jetflow Packer was introduced. It was a vertical impeller design that utilized two side screws to feed product to the impeller. This basic design was carried on through to our Models 800, 801, and 820. The vertical impeller with dual side screw design has proven to be effective on a wide range of products from cement to clay, talc, alumina, gypsum, grout, and coal dust (just to name a few). Please note the photographs attached (white impeller, yellow side screws, and optional black baffle). The side screws move the product to the impeller in a dense state, minimizing the amount of air entrained in the product. The entrance to our impeller housing is a 10" x 10" (254mm x 254mm) square rather than the much smaller inlet supplied on many competitive units. This large opening minimizes the inclination of the product to bridge. Additionally, the movement of the side screws acts to break up a product bridge. Many competitive units require the introduction of large amounts of air immediately above the impeller housing to minimize the effects of bridging. Some of this air stays with the product and ends up in the bag.

Despite the stable foundation of our Impeller bagger, we have found that the stickiest products, like some grades of titanium dioxide, offer some unique challenges. We have addressed these challenges with machine refinements that aid in product flow and the removal of air from the bag. A century of experience in the design and application of impeller packers provides us with the underpinning and confidence to successfully tackle even the most difficult products



Shows side screws. Impeller paddle design varies with product flow characteristics.



Shows optional shroud over paddle