

from Bodine Electric Company

## PMDC Motor and Control System Mixes it up Globally



**Benchtop Mixer / Laboratory Equipment**

encoder to accurately measure the speed of the mixer. Finally, the mixer needed a reliable dual-voltage speed control because it would operate at a wide speed range with varying torque loads. As with all laboratory equipment the new motor had to be quiet, dependable, and long-lasting.

Our engineering team provided a solution based on our 33A-frame PMDC motor (90 VDC, SCR rated) and our UPM series DC speed control.

### The custom motor and control system included:

#### Motor

- A threaded, stainless-steel motor shaft with a hollow bore through the entire motor allowed the impeller shaft to be adjusted to a wide range of heights. The impeller locked in position via a threaded collet chuck.
- An integral dual channel encoder contained entirely within the motor housing linked to the digital speed display.
- Long-life, pre-shaped and easily serviced motor brushes. Constant force brush springs ensure consistent performance over the full life and travel of the motor brushes.
- A single cord connected both the power and feedback between the motor and control.

#### Speed Control

- A dual voltage AC input speed control (115/230 VAC, 50/60 hz) allowed global operation using a single 90 VDC motor, eliminating the need to stock multiple motors for various input voltages.
- The system-matched speed control for the motor provided longer brush life, quieter operation and lower motor heating.

**Bodine brings over 110 years of problem solving experience to a wide range of applications in industries as diverse as energy production, medical, packaging, industrial automation, and solar powered outdoors equipment. We look forward to working with you on your next fractional-horsepower gearmotor design challenge.**

### Bodine Motor and Control Provide System-Matched Performance

A manufacturer of laboratory mixers contacted Bodine Electric to assist in the development of an enhanced mixer and speed control system. The new design required a through-bore motor shaft that could accept an adjustable height impeller shaft and locking mechanism. It also called for an

### application insights

#### The Design Requirements

An industrial mixer required a variable-speed motor and control system to drive an impeller at a variety of speeds and torque loads.

#### The Solution

- 33A-frame PMDC motor with through-bore stainless steel shaft for easy attachment and adjustment of stirrer assembly.
- Encoder built into the motor provides accurate speed measurement
- Single cord for power to the motor and feedback from the built-in encoder to the control



**Type UPM  
Unfiltered SCR  
DC Basic Speed  
Control**  
[\(click here for more info\)](#)



**Stock / standard  
33A frame motor**  
[\(click here for more info\)](#)



**Hollow-bore and  
threaded stainless  
steel shaft**