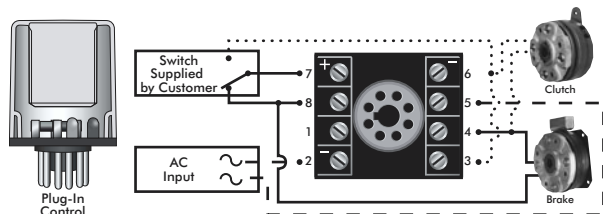


The primary function of a clutch-brake control is to provide power to operate the clutch and/or brake. All Dynacorp® Dynatec® 2000 series controls are designed to produce 90 VDC+, suitable for operating all 90 V field magnets.



Simple controls are available which do little more than rectify 115 or 230 VAC into 90 VDC. They use a diode bridge, as illustrated in Fig. 1. The 90 VDC is then switched on and off via the customer's external switch or relay contact, to energize or de-energize the clutch and/or brake.

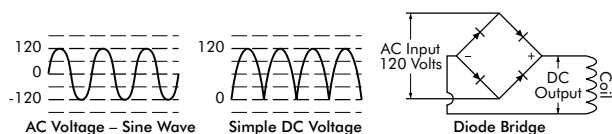


Figure 1

Other controls provide additional functions such as anti-overlap, over-excite, torque adjustment, adjustable acceleration and deceleration, and emergency stop. Following is a basic description for each of these functions.

## Anti-Overlap

Anti-overlap prevents simultaneous current flow in both the clutch and brake by an interlocking technique. Coil current overlap is eliminated by guaranteeing fast field decay in one coil before allowing build-up of current in the other coil. The result is less clutch-brake heating...substantially less than when using a conventional control. Tests utilizing anti-overlap versus conventional controls have shown reduced clutch-brake temperatures by as much as 30°F. Ancillary benefits include the reduction of torque shocks reflected through the drive train. This substantially improves drive life and consistency in starting and stopping. See Fig. 2.

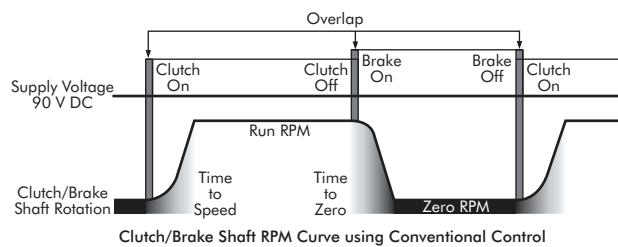


Figure 2

Models D2650, D2550, D2750 & D2950 have this feature.

## Over-Excite (OE)

This function produces approximately 245 to 487 VDC over-excite (OE) "spike" to the clutch and/or brake. By using high OE voltages, field coil saturation times are reduced by up to 75%. This dramatically reduces engagement time, slippage and heat. When engagement time is shortened, the clutch/brake can operate the same load at a higher and more precise cycle rate, as illustrated in Fig. 3.

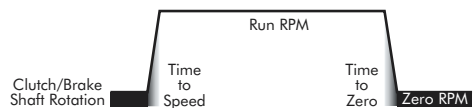
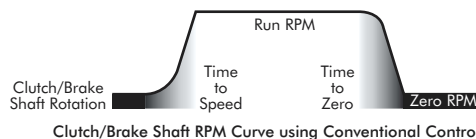


Figure 3

Model D2950 has this feature.

## Torque Adjustment

By utilizing this function, the output voltage (torque) to the clutch and/or brake can be adjusted from 0-90 VDC. Older design controls used this feature to perform soft start and stop. If soft start/stop is required, we recommend an accel/decel control.

Model D2650 has torque adjustment.

## Soft Start and Stop Acceleration and Deceleration (Accel/Decel)

With this function, the user can activate a torque ramp on the clutch and/or brake. Time to torque is potentiometer adjustable between 0 and 3 seconds, as illustrated in Fig. 4.

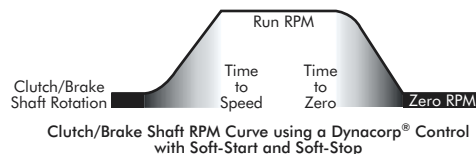
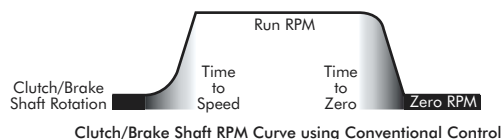


Figure 4