Heavy Duty Clutch Provides Proper Service Factor

Most of us take little notice of the glass that is all around us in our daily lives let alone give any consideration to the machinery that is used to produce it. A client of Mach III’s manufactures systems that temper, bend and laminate glass. This process creates stronger and shatter resistant glass suited for car windows, shower enclosures and glass used on the exterior of buildings such as the Great American Tower shown above.

**SYNOPSIS:** The glass sheets were transported through the bending, tempering and quenching zones of the glass processing system on a zoned conveyor. Clutches, connected to rollers with a double strand chain, were cycled on and off to energize the zones and maintain proper timing of this process. Smooth acceleration was critical to maintain the positioning of the glass, therefore, air applied friction clutches, known for soft engagement, were ideal. The torque requirement was 1,250 pound inches at a cycle rate of 15 times per minute. For much of the process, the line speed was 300 feet per minute but could accelerate up to 1,320 feet per minute when a bender section was included in the system.

Two types of clutches were utilized for this application. For the sections transporting the glass sheets between processes, standard through shaft mounted clutches with pilot mounted sprockets were adequate. The process zones were different; they needed a heavy duty clutch. The tempering furnace section, for instance, required the clutches to cycle the rollers in both directions in order to move the glass backward and forward a number of times. The heat of the furnace and glass particulate contamination were also factors in this zone. For the process sections, the clutch pictured was applied. With a torque rating of 4,863 pound inches (a service factor of 4) it provided a longer wear life in the more demanding sections of the conveyor. Also, the enclosed construction shielded the internal components of the clutch effectively keeping out all glass particulates.