

# Aerospace Assembly Application



## Space Saving (*and Day Saving*) Torque Limiter



- > Emergency retrofit; **12 business days** from initial inquiry to delivery.
- > Combines the drive pulley and torque limiter to resolve space constriction
- > 760 lb.in. torque rating

In an ideal world, the need for overload protection in the drive train is foreseen and accommodated in the original design. But in the real world, the overload problem often pops up after equipment has gone into use. Then, of course, there are multiple problems: #1 – you need a torque limiter; #2 – you need to find a way to squeeze it in; and #3 – your client expects it to be resolved quickly.

**SYNOPSIS:** An arm used to position components during the assembly of an aircraft had problems with overload when it went into use. The arm was articulated by a timing belt pulley located at the pivot point that was driven by a belt connected to the motor. Extra load put on the wing assembly transferred backward through the arm to the motor. A torque limiter would resolve the issue, but there was only one inch of axial space available between the pulley and frame in which it could be placed. Nothing existed that was that thin and would deliver the needed 530 pound inches of torque required. It appeared redesign and rebuilding of the arm might be the only option, one which would be both time consuming and costly.

Luckily, Mach III's engineering team figured out how to combine the timing belt pulley and torque limiter into one component using less than one inch of available axial space. Nothing had to be moved; even the belt position was maintained. An illustration showing the torque limiter in place is below. Just as remarkable, Mach III expedited production to keep the maker of the assembly arm out of hot water with their client. Only 12 days after the application was presented to Mach III, 5 complete torque limiter/pulley assemblies arrived onsite.

