

Featured Company: NASA - Dryden Flight Research Center

Meta-Lax Handles the Pressure at NASA

If you require close tolerance welding on sophisticated parts, high weld quality for critical in use applications, then top it off by making the weldment a high profile part, then you may be in the league of NASA-Dryden Flight Research Center, Edwards, CA.

Last year, NASA, located on Edwards Air Force Base, put in a Meta-Lax system, Model 1300-2AT and a 5-foot square Vibration Table Platform. Since then the program requirements haven't changed but the ease in completing programs has.

Recently, NASA-Dryden completed the largest test assembly base that they have ever attempted. Normally, this program would have been a nightmare. It was a 12-ton weldment, 20- x 27-foot, primarily consisting of four I-beams, 1020 hot rolled, with numerous gussets and flanges.

The frame was designed to hold test parts as it applies up to 360,000 lbs. of axial pressure, 60,000 lbs. (\pm) of shear pressure, and 240,00 lbs. of tension, all while operating in temperatures up to 900-F.

According to model makers Don Whitfield, Ed Swan, and Steve Blank, by using Meta-Lax weld conditioning the program went quite smoothly even though it took over 30 days to weld. Meta-Lax was used extensively while welding. No preheat was used, no post weld heat treat stress relief was applied.

After all the welding was complete they measured only 1/8-inch corner out of flatness and 1/8-inch out of squareness!

Normally, even when using holding fixtures, welding gussets caused at least a 1/2-inch distortion.



Setting Up-Shop specialists at the NASA Dryden Flight Research Center prepare the new test assembly fabricated there for a lengthy series of load and thermal tests on the titanium matrix composite panel already positioned inside the 12 ton "I" beam assembly. The test article is a side shear fuselage panel demonstrating aerospace plane technology.

Over the course of the year, Don has noticed that Meta-Lax weld conditioning reduces cracking and rework, too. "We use Meta-Lax about 50% of the time for stress relieving and 50% for weld conditioning", Don said.

"The system [Meta-Lax] is used on fixtures and fly-away parts, from all sorts of shuttle support fixtures and tooling to shuttle landing gears and wheels."

It's not surprising that Don, Ed, and Steve are frequently asked to give demonstrations to impress NASA's brass up and down California.

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