

SMART AUTOMATION EMMA SYSTEMS

DRAMATICALLY FASTER, MEASURABLY BETTER SANDING FOR AIRCRAFT PARTS, PANELS, AND COWLINGS



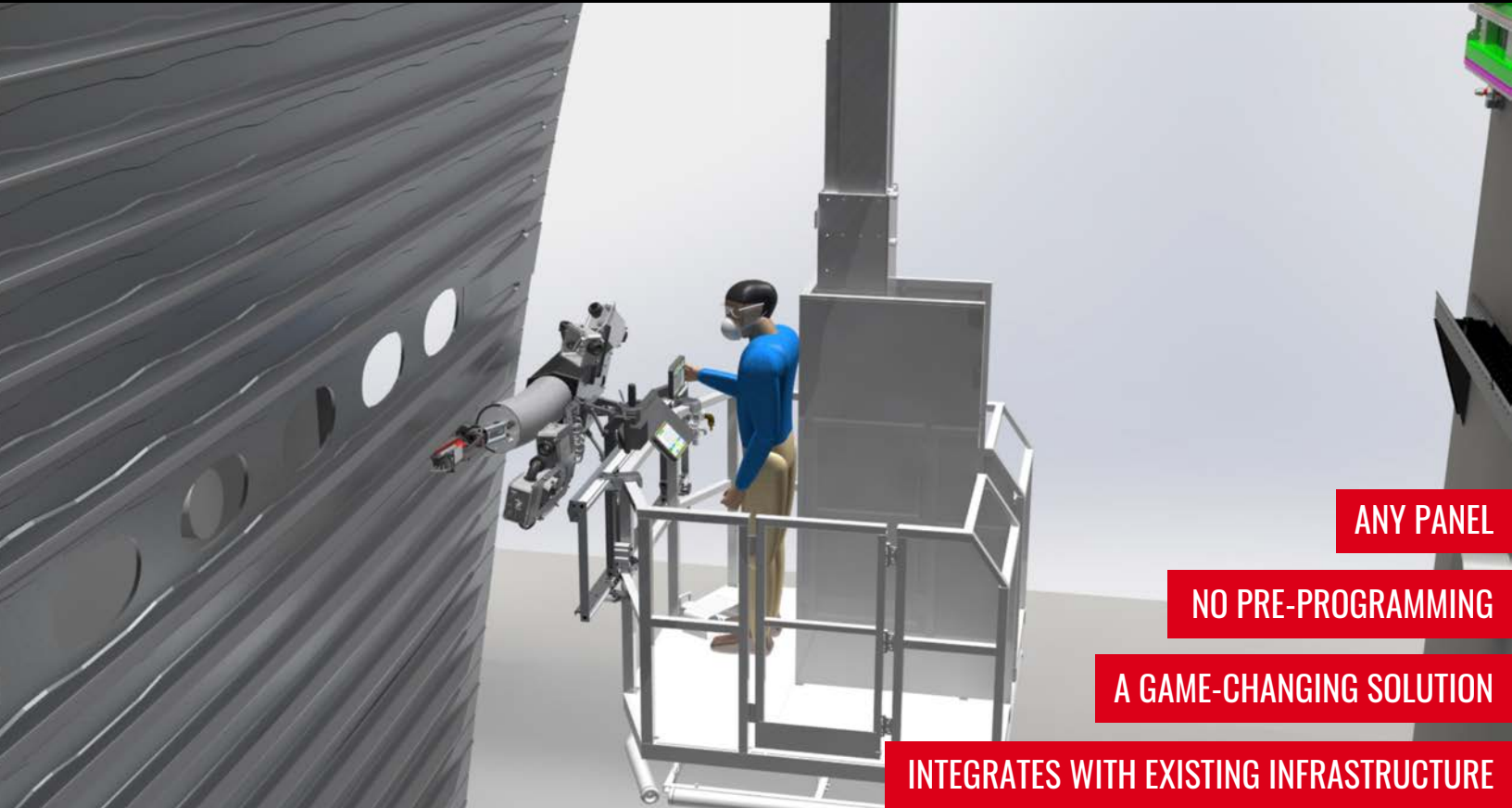
SA EMMA SYSTEMS FOR
PANEL SHOPS



TEMPLE ALLEN
INDUSTRIES

NEXT-GEN SURFACE PREPARATION

A NEW STANDARD FOR AIRCRAFT PARTS, PANELS, & COWLINGS



ANY PANEL

NO PRE-PROGRAMMING

A GAME-CHANGING SOLUTION

INTEGRATES WITH EXISTING INFRASTRUCTURE

SPEED

ACCELERATES THE PRODUCTION SCHEDULE

Smart Automation EMMA systems have reduced the scheduled calendar time for a wide-body de-paint from ten days down to three days. This productivity improvement is now coming to panel shops

PRECISION

TOTAL CONTROL OF MATERIAL REMOVED

Preps metal or composite surfaces with a degree of precision and consistency that is impossible to achieve with manual techniques. Safely creates a smooth, well-faired surface at unprecedented speeds

SAFETY

SAFETY FIRST

EMMA works safely alongside artisans. Able to see and react to the part and environment in real time, EMMA avoids obstacles. Improved dust collection also reduces toxic dust released into the environment

QUALITY

DELIVERS CONSISTENT RESULTS

Higher quality and consistent results all day, every day, from every artisan, from every shop or booth. Meaningfully improves DOI (distinctiveness of image)

MEASUREABLY HIGHER QUALITY

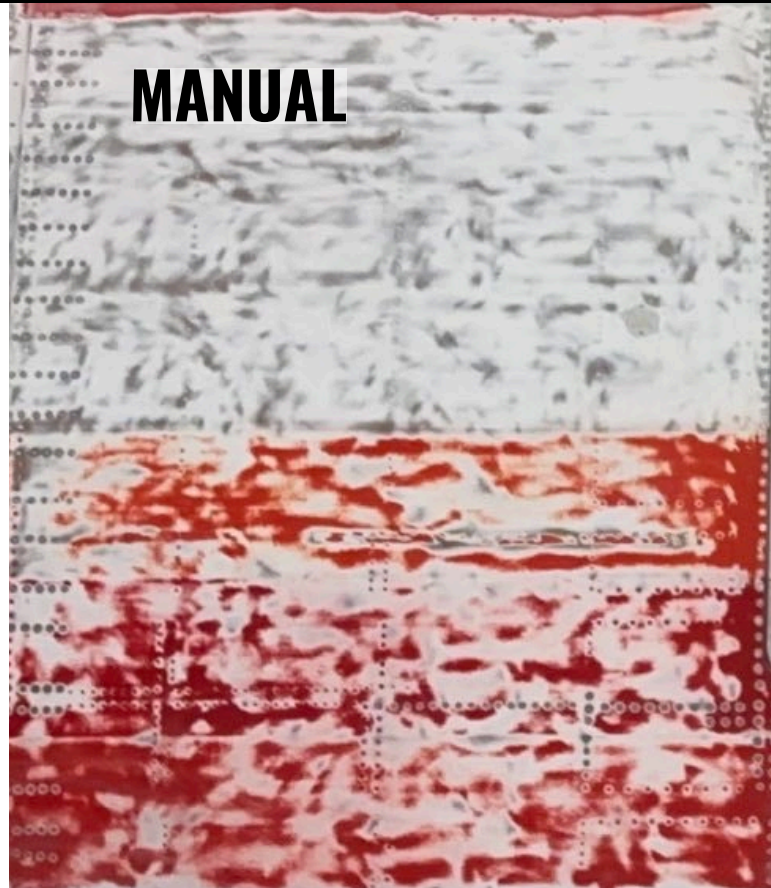
BETTER SURFACE PREP YIELDS BETTER FINAL FINISH

EMMA



Note: these photos are from adjacent areas of the same aircraft

MANUAL



EMMA SUBSTANTIALLY REDUCES INSTANCES OF NON-CONFORMANCE ASSOCIATED WITH BOTH FINISH DAMAGE AND AIRPLANE DAMAGE

**VASTLY IMPROVED DOI
(DISTINCTIVENESS OF IMAGE)**



**EMMA FACILITATES PAINT
SO SMOOTH YOU CAN
READ A REFLECTION**

EMMA PREVENTS:

DIVOTING – CUPPING – DISHING – SCALLOPING

**EMMA REMOVES EXACTLY
THE LAYERS YOU WANT**

**WHILE USING UP TO 80%
LESS SANDPAPER**



EMMA SMART AUTOMATION SYSTEMS

SAFETY - FOR YOUR PEOPLE, YOUR PARTS, AND OUR PLANET



CAN BE C1D1 / ATEX / IECEx CERTIFIED

ALWAYS-ON SAFETY OVERSIGHT

ERGONOMIC

REMOVES ROOT CAUSE OF INJURIES / FATIGUE

All the ergonomic issues with manual sanding - high grip forces, vibration exposure, repetitive stress, awkward postures, and fatigue – go away when the artisan no longer wields the sander – EMMA does

CLEAN TECH

ENVIRONMENTALLY FRIENDLY

Our Smart Automation systems have better dust capture than manual tools. By reducing hazardous waste, we help organizations implement sustainable production processes and achieve their environmental reporting targets

AOSO

ALWAYS ON SAFETY OVERSIGHT

EMMA sees her immediate environment and responds to the presence of personnel and the part in real time – creating a completely safe opportunity for artisans to work right alongside

C1D1 CERTIFIED

SAFE IN HAZARDOUS ENVIRONMENTS

Smart Automation EMMA Systems are available configured and certified for safe operation in all types of hazardous aerospace environments – C1D1, ATEX, IECEx, etc. Temple Allen equipment has been safely operating in such environments for over 20 years

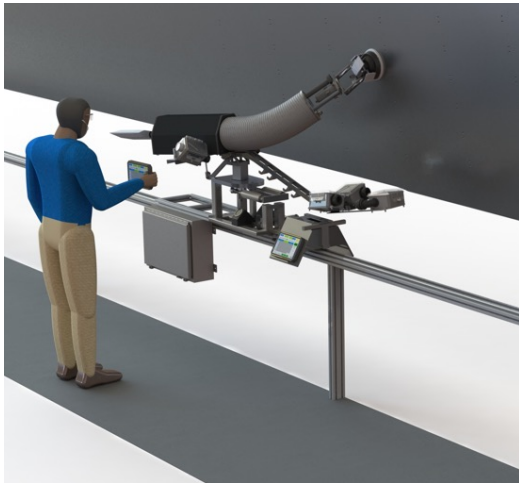
FLEXIBLE DEPLOYMENT OPTIONS

FOR COMPOSITE SHOPS, PREP BOOTHS, PRODUCTION LINES

RAILING

RAILING DEPLOYMENT

- Configurable to sand vertical panels, and tops or bottoms of horizontal panels
- Mounts on railings of any length
- Sands both flat and curved surfaces



OVERHEAD RAIL

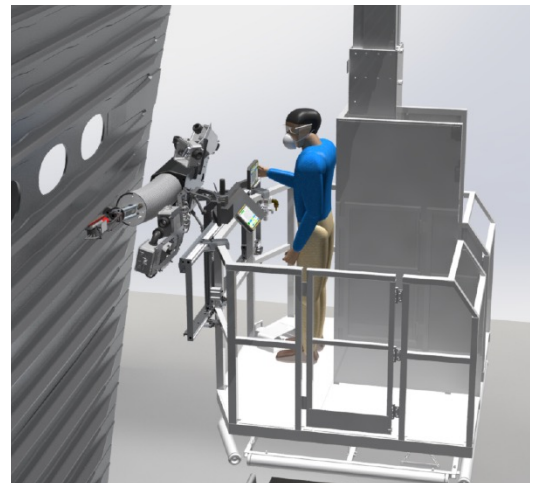
OVERHEAD RAIL DEPLOYMENT

- Configurable to sand vertical panels, and tops of horizontal panels
- Uses overhead track or jib arm for deployment, helps raise excess hosing and tubes out of the working environment.
- Sands both flat and curved surfaces

STAND/D-90

STAND DEPLOYMENT

- Configurable to sand vertical panels, and tops or bottoms of horizontal panels
- Operates on flat or grated flooring with no additional infrastructure
- Sands both flat and curved surfaces



PERSONNEL LIFTS

PERSONNEL LIFT DEPLOYMENTS

- Configurable to sand vertical panels and tops or bottoms of horizontal panels.
- Mounts on existing lifts used in the facility
- Sands both flat and curved surfaces

SANDS ANY PART OR PANEL

FOR COMPOSITE SHOPS, PREP BOOTHS, PRODUCTION LINES

COWLINGS



CONTROL SURFACES



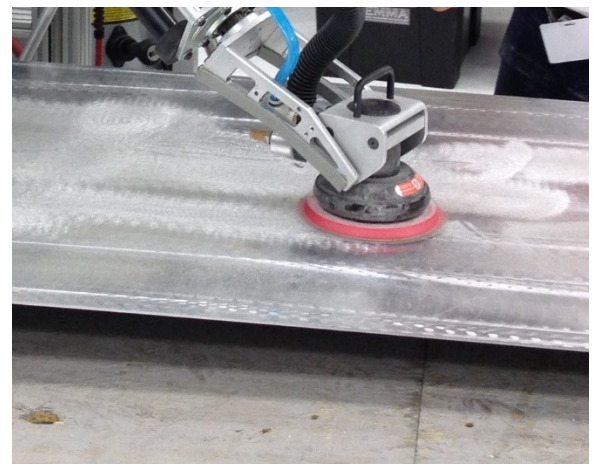
AIRPLANE SECTIONS



COMPOSITE PANELS



ALUMINUM PANELS



A DAY IN THE LIFE

A MORE PRODUCTIVE DAY FOR ARTISANS, SUPERVISORS, & MANAGEMENT



DATA ANALYTICS SUPPORTS DETAILED REPORTING

COORDINATED SANDING STRATEGY LETS EVERYONE FINISH AT THE SAME TIME

ARTISAN MORALE

PAIN & FATIGUE-FREE ARTISANS PERFORM BETTER

- Artisans monitor EMMA progress and guide performance of system via tablet
- Artisans able to perform remaining hand sanding with more energy
- Experienced Artisans stay healthy and able to work longer, postponing retirement
- Younger workers easier to recruit, as the job is no longer painful and dangerous

MANAGEMENT INSIGHTS

DATA ANALYTICS DOCUMENTS SANDING PROCESS

- Detailed tracking reports include abrasive consumption, sanding modes used, tool on time, and various crew performance metrics
- Compatible with facility digital documentation initiatives
- Above-the-shop-floor benefits include activity tracking, quality and production metric trending, and customer sanding status and quality report generation

SERVICES

AROUND THE CLOCK SUPPORT

Temple Allen offers support services tailored for artisans, maintenance, and management personnel

We also offer above-the-shop-floor support - an Optimized Sanding Strategy that can reduce the burden on planning and operations staff

UTILITIES

UTILITY REQUIREMENTS

Smart Automation EMMA needs just shop air & 110/120 or 220/240-volt AC power to operate, while an ethernet cable & Wi-Fi enable advanced features



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