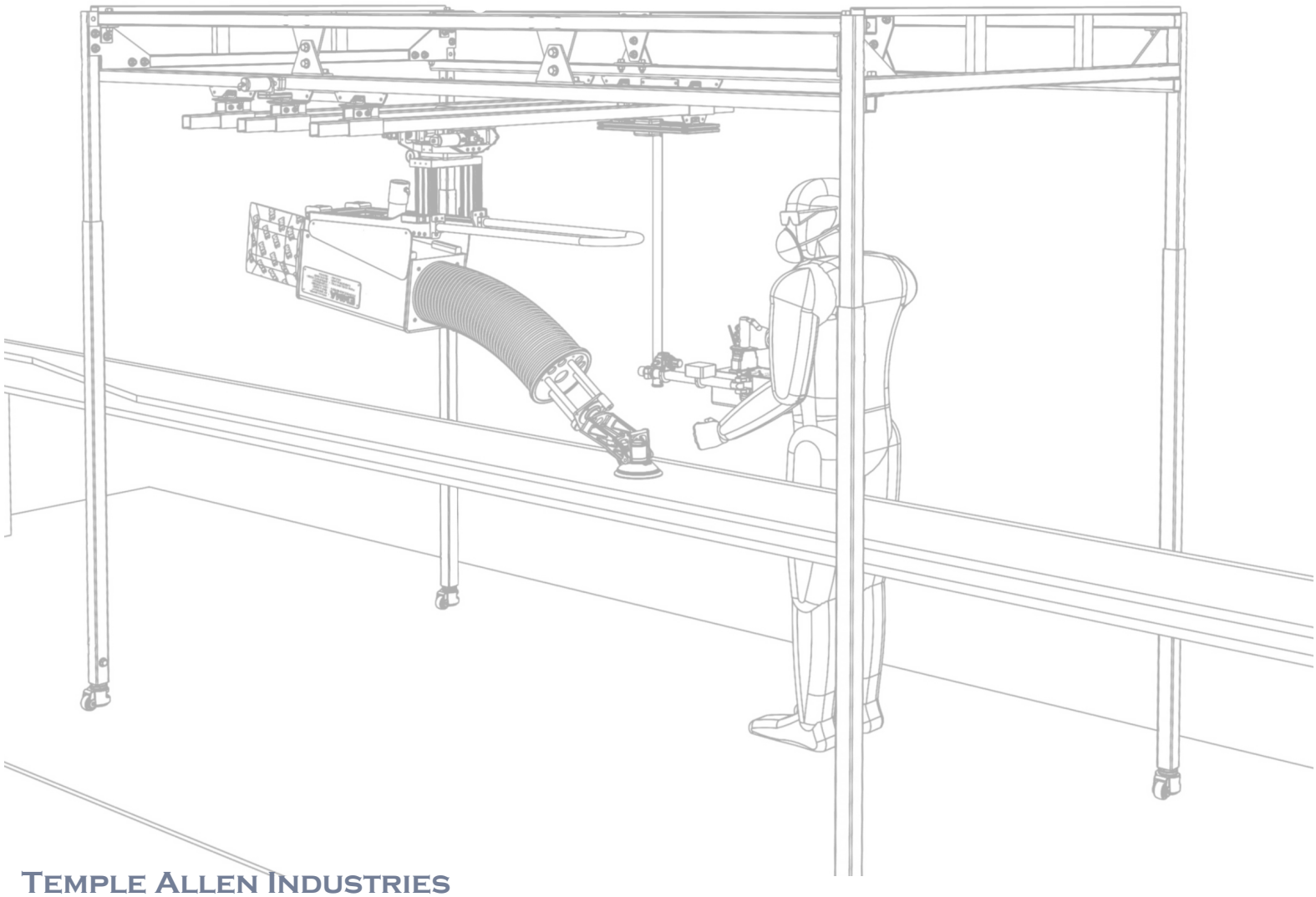
meet EMMA [easily manipulated mechanical arm]

Overhead Systems

EMMA™ from Temple Allen Industries is a 100% pneumatic arm that can deliver a variety of surface preparation tools while effectively shielding artisans from the health and safety problems associated with manual sanding. All EMMA systems include the core technology - the EMMA module - combined with a deployment structure designed to best position the artisan and the End-Effector for a given application.



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EMMA [technology]

Actuation Package
The Actuation Package houses the pneumatic circuitry and an array of cylinders that power the Arm.

Turntable
Each EMMA OMR System includes a turntable feature which allows the EMMA module to rotate +/- 180° in the yaw axis so as to position the tool wherever it is needed.

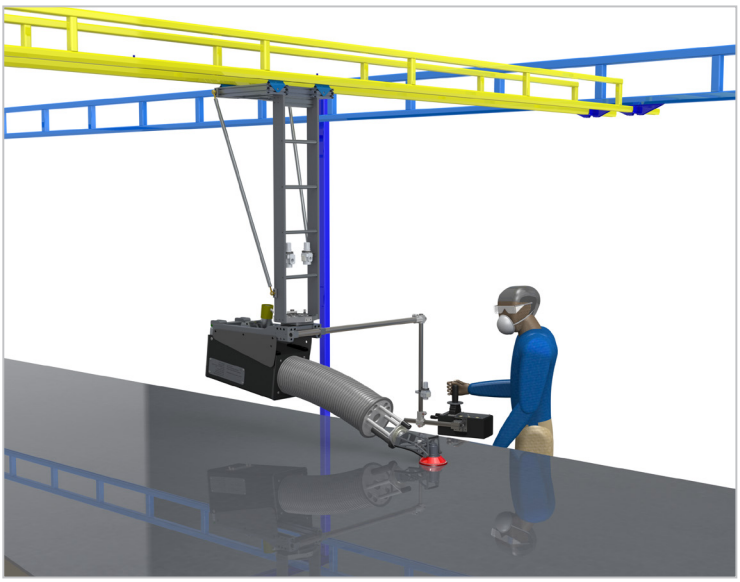
Joystick Box
With intuitive joystick controls, an EMMA operator is always in full control of the sanding system and material removal rate. The Arm features proportional controls, which allow the artisan to vary the sweep rate by moving the joysticks more/less.

Arm
The Arm is a sheathed set of control cables and a polyurethane core that generates EMMA's smooth motion. In addition to absorbing all vibration generated by the sander(s), the core provides the necessary compliance to offer artisans the option to manually guide the End-effector by its handle to make micro-adjustments to in-crease/decrease contact pressure and navigate in/around areas requiring detail sanding.

End-Effector
The End-Effector is the mounting assembly that holds the sander(s) at the end of the Arm. In an EMMA End-Effector frame, the sander(s) independently pitch and roll and are balanced to allow abrasive discs to conform to the working surface. EMMA End-Effectors always hold sanders flat (normal) to the surface. EMMAs can be outfitted with a variety of End-effectors to tackle different surface preparation challenges.

Auto-Adjust
Each EMMA has an Auto-Adjust mechanism that accommodates both flat and curved surfaces, ensuring the consistent application of user-specified contact pressure over the skin of an aircraft.

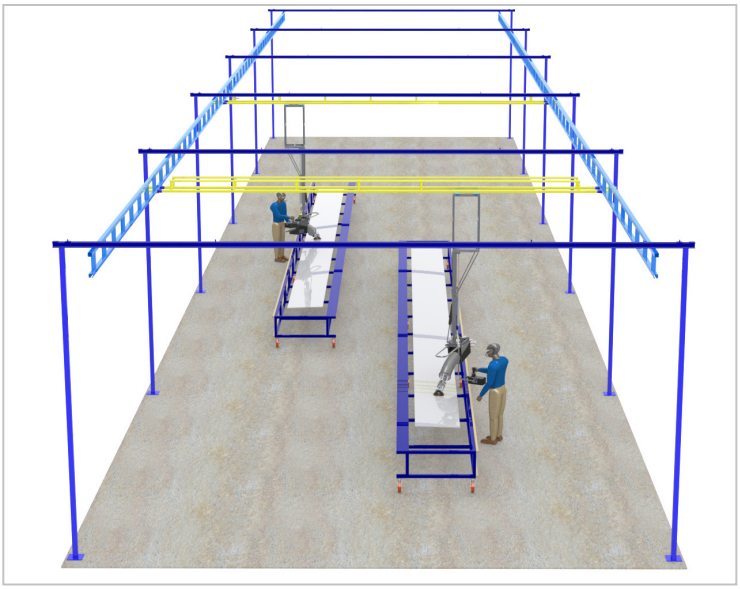
EMMA [Overhead-Mounted Rail System (X-Y)]



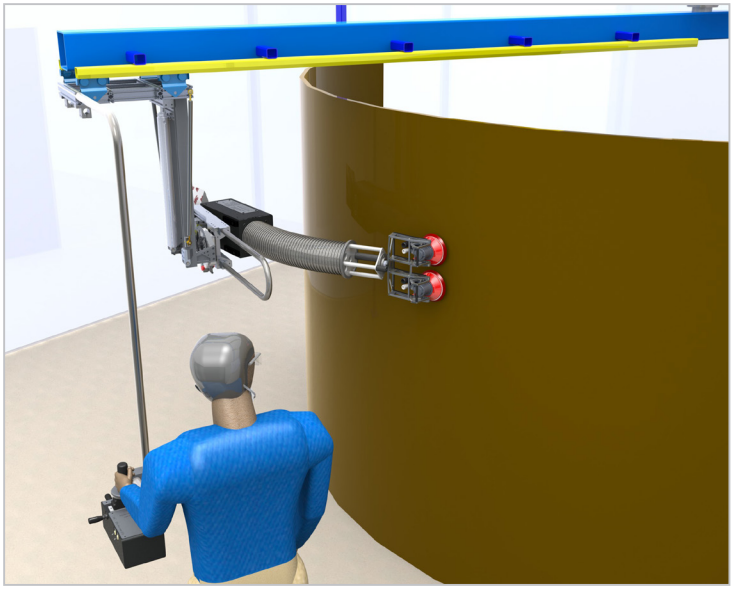
EMMA™ Overhead Rail System

The EMMA™ Overhead Rail System is designed to address a wide range of parts. It is typically suspended from the ceiling of a prep booth or shop, or from a floor-supported gantry system. Standard installations include rotating turrets, straight rails, X-Y frames, and U-shaped tracks for accessing both sides of larger parts.

Ideal parts for Overhead Rail Systems can be large (wings, rudders, nacelles) or relatively small (panels, flight controls, doors, or parts on a table-top fixture).



EMMA Overhead Rail Systems integrate seamlessly with existing shop infrastructure. The Overhead EMMA Systems have degrees of freedom built in that extend the work envelope of the human operator, eliminating awkward postures while sanding complex or otherwise difficult to reach parts.



EMMA
[Overhead-Mounted Rail System (Turret)]

The EMMA Overhead-Mounted Rail Turret Systems have a Turntable feature that grants the artisan freedom to lock the EMMA module in various positions in the yaw axis. Combined with other degrees of freedom built into the deployment frame, macro- and micro- positioning is easily achieved. Overall, EMMA deployments eliminate the need for the artisan to reach too far and allow the operator to maintain an optimal distance from the tool.

EMMA™ OMR Turret Systems are ideal for round parts and to enable accessing both sides of larger panels held vertically:

- Nacelles
- Radomes
- Fan Collars
- Empennage Panels
- Flight controls
- Struts

EMMA™ OMR Turret Systems

EMMA OMR Turret Systems traverse laterally on an X-Y frame, with rotational capacity provided by an integrated jib arm allowing both inner and outer surfaces of round parts to be safely and easily addressed. Each EMMA OMR System accesses both horizontal and vertical surfaces.