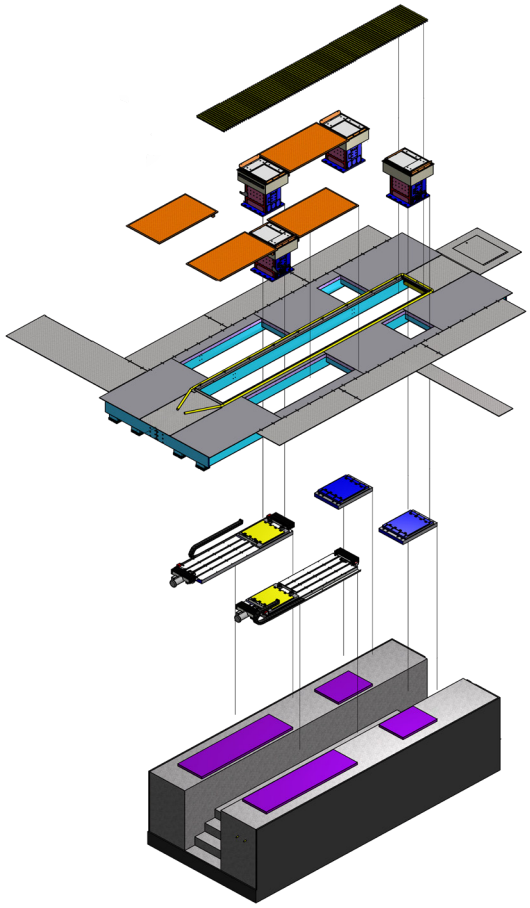
TURN-KEY FACILITY INTEGRATION SERVICES

eMpulse provides turn-key facility integration services to support the needs of our clients. We provide facility integration plans directly or work with your architectural engineering firm. Common support areas include:

REACTION MASS

eMpulse designs required reaction mass to help contain energy within the test system.



WHEELBASE ADJUSTMENT

To allow for vehicles of different wheelbases it is necessary to have a system that can move at least one set of wheels.

- Automated with real-time feedback for the operator. The standard wheelbase adjustment system has an adjustment travel of 1.4m with the optional long-travel range of 2.4m.
- Relative Vehicle Location: eMpulse provides a system to move all 4 actuators which allows the vehicle to remain in the center position of the chamber. The standard wheel pan size will still accommodate the stated track width requirements so no actuator position system is needed for track width adjustment.
- Automated Wheelbase Adjustment: allows the operators to see the current wheelbase length and adjust the location with the click of the mouse. Wheelbase change time is less than 3 minutes, typically adjusting the rear actuators only.
- Safety Features: an audible buzzer is activated when the wheelbase adjustment system is moving to warn nearby personnel of any potential hazard. Photo sensors and adjustable motor overloads are provided to protect against wheelbase adjustment when a vehicle is present on the 4-Poster.

ACTUATORS

A range of different actuators are available with different strokes and power to meet the need of NVH and Endurance testing of vehicles up to 6 Ton gross weight.

The actuator assembly is modular and can accept a number of different motor and permanent magnet combinations, to optimally match the continuous and peak force, as well as the required velocity, to the test requirements.

ENVIRONMENTAL CHAMBER INTEGRATION

eMpulse will partner with your preferred climactic chamber manufacturers to provide turn-key solutions to fit your environmental testing requirements.

TOP FRAME OR CHAMBER FLOOR

The top frame is designed to allow for underbody inspection of the vehicle through an opening along the centerline of the vehicle. The typical top frame will have removable fiberglass grating to cover underbody inspection opening. If, however, the installation is in an environmental chamber, eMpulse will work with the Chamber supplier to ensure the complete integration of 4-Poster and Climatic Chamber.

DRIVE CABINET

The Drive Cabinet houses all servo drive components, including the Main Disconnect, the 3 phase high voltage Active Interface Module (line conditioning/filter/isolator), the Active Line Module (AC/DC Rectifier), the Motors Control Unit, and the Motor Modules for controlling and driving the commutation commands to the servo motors. Additional components include the dual redundant KTY/PTC internal thermal sensors monitoring, the incoming 3-phase voltage sensing module, and the redundant safety relay. All components employ the failsafe Safe Torque Off (STO) safety features inherent in the drive components and are hardwired through the redundant safety contacts of the safety relay. NVH 21kN 4-Poster systems use a dual Rittal TS8 double bay cabinet, while the higher capacity 41kN systems use two sets of these dual TS8 double bay cabinets.

SERVO CONTROLLER CABINET

The TIAB S2M servo controller is housed in a compact industrial 10U rack enclosure. The TIAB incorporates embedded Profinet communications hardware to communicate digitally with the servo drives. This enclosure also contains a rack mounted control PC and UPS (Uninterruptible Power supply). The control PC uses a standard Windows operating system and provides an easy to use graphical user interface for system operation. This control PC communicates with the TIAB controller via a standard USB 2.0 interface.

Optional MIMIC (Multi-Input, Multi-output Iterative Control) Software can be provided to accommodate all drive file development.

Contact eMpulse for any integration needs not listed above.