

Static Hydraulic Servicing Station

You can wheel power to an aircraft. Or build it into the floor.

A CART SERVES AN AIRCRAFT; A STATION SERVES A LINE

The mobile family - trolleys and charging rigs - brings hydraulic power to one aircraft for one task and rests between jobs. A static station is the opposite duty: a plant room (reservoir, pump sets, accumulator bank, conditioning) feeding PERMANENTLY PLUMBED OUTLETS at every servicing bay, sized for the line's duty cycle - bays in parallel, all day - with the accumulator bank riding the peaks so the pumps are sized for the duty, not the worst second. At the bay there is simply an outlet: pressure, return, and a hose reel.

CLEANLINESS IS HELD CENTRALLY, OR IT IS NOT HELD

Aircraft hydraulics live and die by particle class. A fleet of carts is a fleet of small fluid systems, each with its own filter history, each drifting its own way - the class you certify is the class of whichever cart turned up. A central station holds ONE fluid volume at ONE class: filtered at the plant, polished on return, de-aerated in a properly sized reservoir, and SAMPLED AT THE OUTLETS where the aircraft connects, not at the pump. Where a site services types on different fluids, segregation is absolute - dedicated circuits and couplings that CANNOT PHYSICALLY CROSS-CONNECT, because fluid cross-contamination is not an incident, it is a fleet grounding.

AN AIRCRAFT IS ON THE OTHER END

The station's faults propagate into a connected airframe, so the design assumes the worst: an overpressure path INDEPENDENT of the control system; pulsation and ripple held to what aircraft servo components tolerate - they fatigue under ripple a workshop machine would shrug off; outlets DEAD UNTIL COMMANDED from the bay; and a shutdown that leaves the aircraft safe, not merely the station off. The test: no single failure anywhere in the station may put an out-of-limit condition into a connected aircraft.

INFRASTRUCTURE, NOT EQUIPMENT

Built into the building: plant-room siting, distribution pipework designed for velocity and pressure drop, bay consoles and hose reels at every position - and a commissioning programme that is mostly FLUSHING the whole distribution to the specified cleanliness class before the first aircraft ever connects, with the demonstration at the outlets. The pipework is the largest dirty component on site until it is flushed to class.

THE MACHINE

- Central plant - reservoir sized for de-aeration, pumps, accumulators, conditioning
- Distribution and outlets - plumbed bays, hose reels, couplings that cannot cross-mate
- Fluid integrity - one class held centrally, return polishing, sampling at outlets
- Control and protection - per-bay command, ripple held, relief independent, dump

VARIANTS

Single-bay static installation · Multi-bay depot distribution · Dual-fluid segregated installation · Component-test annex fed from the same plant

SCOPE

Ours: station design and integration, plant sizing from the line's duty cycle, distribution and the non-cross-connect coupling scheme, fluid integrity, control and protection, installation, commissioning including flushing to the specified cleanliness class demonstrated at the outlets, documentation, training, spares and AMC. Bought-in certified: pumps and motors, accumulators, filter elements and housings, valves, couplings, hose reels, instruments and control hardware. The customer's: the aircraft and their fluids, the applicable standard and the acceptance programme.

STATUS

Engineered to order. Equipment of this class has been quoted across air-force and aircraft-manufacturer static hydraulic servicing requirements; no delivered static hydraulic servicing station is claimed.