

## 4000 SERIES SPRAYBOOTH &amp; OVENS

Todd Engineering's Poseidon 4000 Series Spray booths are a high specification, high-performance range of machines designed to fulfil the needs of the most demanding Bodyshops. The Poseidon utilises the latest technology available to achieve rapid and efficient process times while maximising energy savings and providing perfect automotive refinishing conditions. The Poseidon features Todd Engineering's Hydracure™ water-based curing system as standard to reduce flash-off times of water-based paints, with an air handling rate of 30,000m<sup>3</sup>/hr overspray is quickly removed through the fully extracted, filtered floor.

**Layout**

The 'Poseidon' is a downdraught type spray booth that features a fully filtered floor area; the downdraught design ensures all overspray and dirt is pulled immediately to floor level and held there during the spraying process, this eliminates overspray contaminating other areas of the paintwork and provides a perfect finish. The full-size ceiling air input plenum helps facilitate this design by producing an even through flow of heated air that completely envelops the vehicle, meaning all areas of the car, including sills, are heated to the required panel temperature evenly for rapid curing.

**Construction**

The spray booth cabin is constructed using double skinned rock-wool insulated panels with a white polyester finish both internally and externally. Panel sections are joined with bright aluminium sections, which give a seamless and attractive finish that takes away the exposed joints that would otherwise be filled with sealant.

**Performance**

The spray booth plant work is fitted with two 7.5kW direct-drive aerofoil backwards curved centrifugal fans to achieve the design airflow rate of 30000m<sup>3</sup>/hr. This provides a rate of 7 air changes per minute within the cabin, with extracted air being exhausted to the atmosphere. The extraction system is fitted with two-stage filtration incorporating 50mm EU2 paint stop filter and EU3 blue pre-filter; this ensures that emissions meet EPA requirements. Input air is filtered through high-quality EU5 filter media housed in the full ceiling plenum, capturing contaminants down to 10 microns.

**Lighting**

Todd Engineering has developed a state-of-the-art LED lighting system specifically for use in our range of spray booths that meet and surpass the very highest standards required in the automotive refinishing sector. The cabin is superbly lit with high-level light pods which are angled to reduce glare and shadowing; these pods are outfitted with a state-of-the-art LED lighting system that gives illumination levels in excess of +1800 lux through the use of high output LED SMD Chips designed to provide colour temperature of 5000K @ 90CRI which offers unrivalled lighting quality when colour matching. These LED's consume 50% less energy than conventional tubes with an equivalent light output and operate via an external low voltage driver at 36VDC. The lighting is fitted with a hi-tech laser etched 'Luminit' film, which removes the visual appearance of each individual LED and creates a flat panel of light that is distributed and angled to prevent glare and shadowing. The light pods are finished with a frameless, toughened glass cover and intumescent seal to separate electronics from the booth atmosphere.

**Spraying Cycle**

Fresh air is drawn from the atmosphere & is heated to the required temperature. It then passes through EU5 ceiling filters into the booth & over the vehicle carrying away paint, over-spray & vapours. The air is extracted via a twin dry filter system & exhausted to the atmosphere. By using recommended filters with regular changes, 99% of pollutants can be captured.

**Heating**

The spray booth is fitted with a state of the art direct-fired modulating gas/LPG premix burner with an output of 220kW or 750,000Btu's/hr; this allows input air to be rapidly heated to the pre-set temperature on the control panel, cabin temperature is then held within +/- 1 degree. Modulation is achieved using integrated variable speed drive technology for greater control and efficiency of the heating plant.

**Noise Levels**

Comfortable working cabin levels of between 70-75 dB, variable speed motors contribute to 50% lower dB outbreak levels.

**Main Doors**

The main vehicle entry doors are a three-leaf construction that opens in a concertina fashion, saving space on the overall opening distance. Door Hinges have been designed specifically for application in spray booths and are made through aluminium extrusion in a white powder-coated finish. White plastic cover plates then cover the fixing bolts to complete the look of the hinge. Two individual locking mechanisms allow one single leaf door to be used as a second personnel door; this is fitted with a self-closer and dictators to provide a good seal. The door frame has a white powder-coated finish and a built-in rubber compression seal; each door has a large full-length glass viewing panel framed in aluminium, increasing internal booth visibility.

**Personnel Door**

A second personnel door can be fitted to any wall panel, generally to the rear of the cabin, to provide a safe fire escape route. The door is fitted within its own white powder coated frame complete with self-closer, dictators, full-length viewing window, extruded aluminium hinges and rubber compression seals.

**Control Panel**

The Spraybooth control system uses the latest technology to give the operator intelligent and user-friendly control of all processes. Simple push-button controls are used for cycle selection and lighting, meaning in most cases, the booth can be controlled with one touch of a button. The PLC-based system's intelligent programming monitors and adjusts cabin pressure and temperature to suit and displays the current spray booth status on a 3.5" full-colour TFT Touchscreen display. Separate controllers for temperature and cycle time duration are fully adjustable by the operator and indicate set points, current temperature, and remaining process time.

**Inverter Variable Speed Drives**

All Todd Engineering spray booths are fitted with Inverter variable speed drives to balance cabin pressure electronically; this is achieved by controlling the fan speeds using the inverters. This control method helps maximise the spray booth's energy efficiency by only running the fans at speed required by the process. The inverters also increase the life expectancy and reduce maintenance of all associated components, including the motor, driveshafts, and bearings through controlled acceleration and deceleration of the motors; this also eliminates electrical surges as the spray booth is started.



<b>Poseidon Specifications</b>	
Standard Model Overall Dimensions (LxWxH) - Internal	6750mm x 3900mm x 2600mm
Standard Model Overall Dimensions (LxWxH) - External	7400mm x 4000mm x 3700mm
High Top LWB Model Overall Dimensions (LxWxH) - Internal	7900mm x 3900mm x 3300mm
High Top LWB Model Overall Dimension (LxWxH) - External	8600mm x 4000mm x 4000mm
Power Supply / Load	415VAC 3Ph/N/E (50/60Hz) / 63A
Maximum Absorbed Power	16kW
Gas Supply	Natural Gas or LPG
Gas Rated Power (kW/BTU'S)	220kW/750,000BTU's/hr
Natural Gas Consumption	14m <sup>3</sup> /hr
LPG Consumption	6.5kg/hr
Pneumatic Supply	5 bar
Airflow	35,000m <sup>3</sup> /hr
Extraction Type	Downdraught
Fan Type / Rated Power	Aerofoil Backwards Curved Centrifugal/7.5kW
Inverter Variable Speed Drives	Yes
LED Lighting	Yes - 5000K/90CRI/+1800lux