

SPARTAN



2000 SERIES SPRAYBOOTH & OVENS

The Todd Engineering Spartan 2000 series spray booth is a premium rear extract type spray booth offering high-performance levels at an affordable price, ideally suited to applications with a medium to high throughput; the Spartan can be the workhorse of any Bodyshop. The Spartan boasts a 20,000m³/hr airflow rate resulting in 4 air changes per minute; this is achieved using a highly efficient fan design and plant configuration, combined with energy-efficient technology such as variable speed drives, which ensures that the unit is very economical to run.

Layout

The booth is a rear extraction type spray booth that requires no additional groundworks before installation. The machine is simply constructed on a smooth, flat concrete base with an extraction chest at the rear and plant work situated on top. This provides a front to rear, diagonally flowing tunnel of air that moves across the vehicle to carry away over-spray and fumes.

Construction

The spray booth cabin has a fire-resistance rating of 30 minutes and is constructed using double skinned insulated panels with white polyester finish 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 plant work is fitted with two 4.0kW direct-drive bifurcated axial fans to achieve the design airflow rate of 20,000m³/hr. This provides a rate of 5 air changes per minute within the cabin, with extracted air being exhausted to the atmosphere. The extraction system is fitted with two-stage filtration using 50mm EU2 green paint stop and EU3 blue pre-filters; this ensures that emissions meet EPA requirements. The input system uses high-quality EU5 filter media to ensure incoming air is free of 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 a colour temperature of 5000K @ 90CRI which offers unrivalled lighting quality when colour matching. These LEDs 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 direct-fired natural gas/ LPG burner with an output of 90- 110kW or 300,000 Stus/hr; a pneumatic changeover system allows the spray booth to recirculate air within the cabin to reach low bake temperature rapidly.

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 which saves 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 cabin's rear, 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 state-of-the-art PLC control panel is fitted with variable speed drives to electronically balance the cabin pressure and provides the operator with simple push-button selection for spray & bake modes, automatic bake timing with readout & cool-down facility, lighting control, temperature controller readout for spray and bake cycles, clearance time safety interlocks, magnehelic pressure monitoring with positive pressure alarm, emergency pressure alarm and shutdown.

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 is beneficial in maximising the spray booth's energy efficiency by only running the fans at the 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.



Spartan Specifications	
Standard Model Overall Dimensions (LxWxH) - Internal	6750mm x 3900mm x 2600mm
Standard Model Overall Dimensions (LxWxH) - External	8625mm x 4000mm x 3000mm
High Top LWB Model Overall Dimensions (LxWxH) - Internal	7950mm x 3900mm x 3300mm
High Top LWB Model Overall Dimension (LxWxH) - External	9000mm x 4000mm x 3700mm
Power Supply / Load	415VAC 3Ph/N/E (50/60Hz) / 32A
Maximum Absorbed Power	10kW
Gas Supply	Natural Gas or LPG
Gas Rated Power (kW/BTU'S)	110kW/300,000BTU's/hr
Natural Gas Consumption	9m ³ /hr
LPG Consumption	5.5kg/hr
Pneumatic Supply	5 bar
Airflow	20,000m ³ /hr
Extraction Type	Rear Extraction
Fan Type / Rated Power	Bifurcated Axial / 4kW
Inverter Variable Speed Drives	Yes
LED Lighting	Yes - 5000K/90CRI/+1800lux