DATA SHEET (Effective 1st August 2018)

HERCULES

6000 SERIES SPRAYBOOTH & OVENS

The Hercules 6000 Series spraybooth combines the high performance and quality of Todd Engineerings downdraught spraybooths with the very latest in Gas Catalytic IR drying technology. Featuring the Greentech E6 plus robotic arch the Hercules represents game changing innovation for todays automotive refinishing industry by dramatically reducing energy consumption, key to key times and paint expenditure, while all the while achieving a better quality finish.

Layout
The 'Hercules' is a downdraught type spraybooth which features Todd Engineering's LP157 HVEX low profile downdraught floor, 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 ensures 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 spraybooth cabin is constructed using double skinned rock-wool insulated panels with a white polyester finish both internally and externally, the panels include built-in steel sections to provide support for the E6 arch, this design eliminates the need for additional framework that would encroach into the cabin and provides a flush and more complete finish. 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 spraybooth plant work is fitted with two high performance 4.0kW direct drive aerofoil bifurcated axial fans to achieve the design airflow rate of 25,000m^3/hr. This provides a rate of 4 air changes per minute within the cabin, with extracted air being exhausted to 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. The spraybooth is capable of operating at temperature ranges of up to 45 degrees in spray and flash-off modes and up to 90 degrees in bake.

Lighting
Todd Engineering have developed a state-of-the-art LED lighting system specifically for use in our range of spraybooths 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 high output LED SMD Chips designed to give 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 which 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 atmosphere & is heated to the required temperature. It then passes through EU5 ceiling filters into the booth & over the vehicle carrying away paint overspray & vapours. The air is extracted via a twin dry filter system & exhausted to atmosphere. By using recommended filters with regular changes, 99% of pollutants can be captured.

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Heating
The spraybooth is fitted with a direct fired gas/LPG burner with an output of 170kW or 600,000Btu'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. A Pneumatic changeover system allows to spraybooth to recirculate air within the cabin to attain a low bake temperature.

Noise Levels
Comfertable working cabin levels of between 60-65 dB, variable speed motors contribute to 50% lower dB outbreak levels.

Main Doors
The main vehicle entry doors are a three leaf construction that open in a concertina fashion which saves space on the doors overall opening distance. Door Hinges have been designed specifically for application in spraybooths 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.

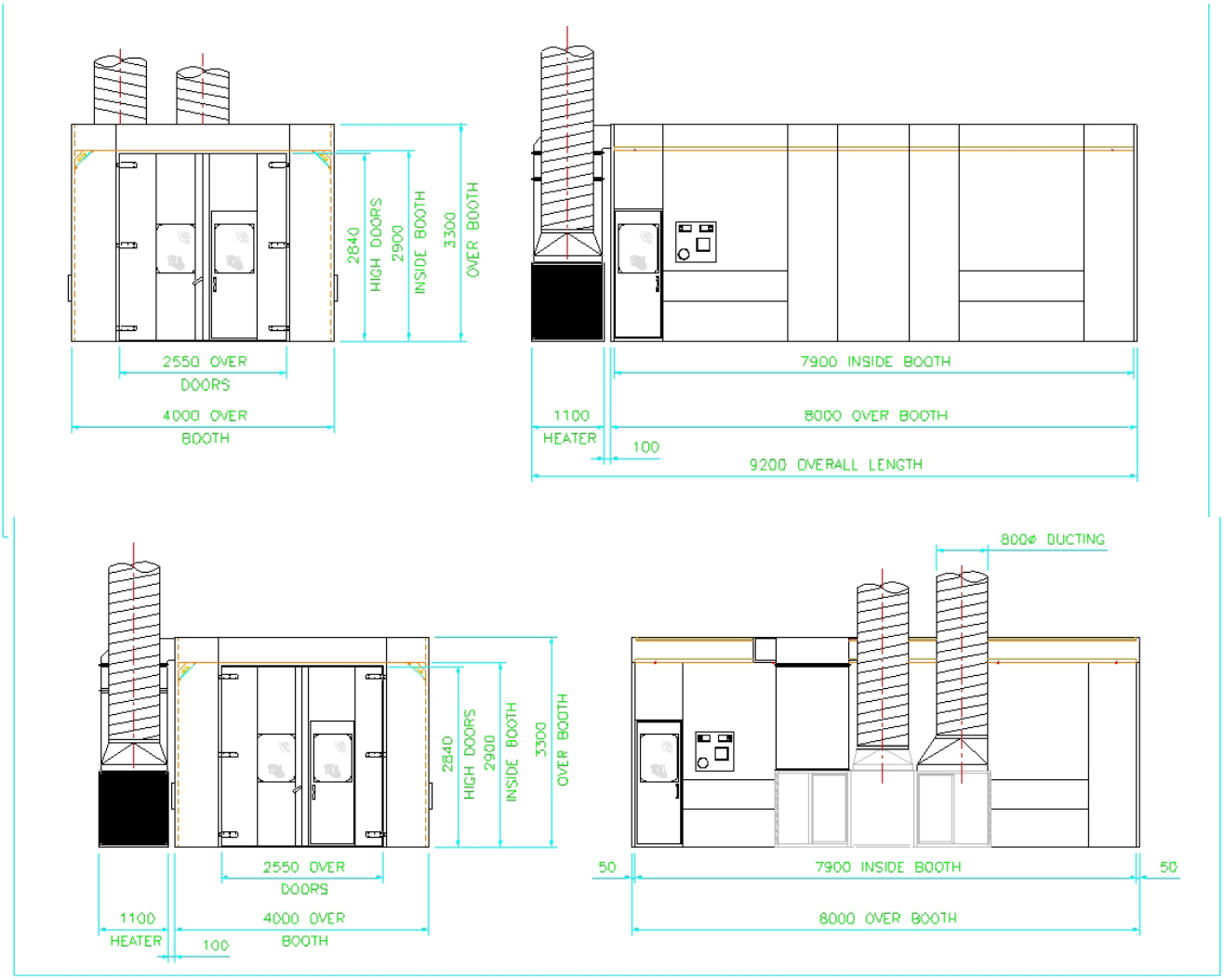
Personnel Door
A second personnel door can be fitted to any wall panel, generally to the rear of the cabin to provide a safe fire escape route. The door is fitted within its own white powder coated frame complete with self-closer, dictators, full length viewing window, extruded aluminium hinges and rubber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

Control Panel
The Spraybooth control system is fully integrated with the E6 Robot for seamless and reliable operation, it uses the latest technology available 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 intelligent programming of the PLC based system monitors and adjusts cabin pressure and temperature to suit and displays the current spraybooth 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 give clear indication of set points, current temperature and remaining process time.

Inverter Variable Speed Drives
All Todd Engineering spraybooths are fited with Inverter varable speed drives to electronically balace cabin pressure, this is achived by controlling the fan speeds using the inverters. This method of control is beneficial in maximising the energy efficiency of the spraybooth by only running the fans the speed required by the process. The inverters also increase the life expectancy and reduce maintenance of all associated components including the motor, drive shafts, and bearings thorugh controlled acceleration and decelleration of the motors, this also eliminates electrical surges as the spraybooth is started.

Greentech E6 Plus Robotic Gas Catalytic IR Technology
The principals behind Gas Catalytic infrared technology is based on utilising a medium wavelength energy which has a spectrum wavelength which is able to directly penetrate the molecule of any paint product instantly bringing cross-linking in a few minutes.The differences between this and other technologies is all down to the wavelength, electrical IR technologies produce short wavelength energy below 2 microns which passes through the paint molecules and into the substrate material beneath; resulting in the material being heated to cure the paint. Conventional spraybooths cure paint through convection which first heats air to transmit energy to the part to cure the paint. The panels of the E6 produce IR Energy at a medium wavelength of between 3-8 microns which directly penetrates the paint molecules resulting in a full cure within minutes.

Hercules Dimensions (detailed below)



Hercules Specifications	
Overall Dimensions (LxWxH) – Internal	8000mm x 4000mm x 3000mm
Overall Dimensions (LxWxH) – External	8100mm x 4800mm x 4000mm
Power Supply / Load	400VAC 3Ph/N/E (50/60Hz) / 32A
Maximum Absorbed Power	10kW
Gas Supply	Natural Gas or LPG
Gas Rated Power (kW/BTU'S)	170kW/580,000BTU's/hr
Natural Gas Consumption	9m^3/hr
LPG Consumption	5.5kg/hr
Pneumatic Supply	5 bar
Airflow	25,000m^3/hr
Extraction Type	Downdraught
Fan Type / Rated Power	Aerofoil Bifurcated Axial / 4kW
Inverter Variable Speed Drives	Yes
LED Lighting	Yes – 5000K/90CRI/+1800lux

E6 Specifications	
Overall Dimensions (W x H x D)	2840mm x 2600mm x 540mm
Quantity of Catalytic Panels	12
Weight	320kg
Power Supply / Load	400VAC 3PH/N/E (50/60Hz) / 32A
Maximum Absorbed Power	8kW
Radiant Surface	2.4m^2
Gas Supply	Natural Gas or LPG
Natural Gas Rated Power (kW/BTU'S per hour)	45kW / 154,368BTU's
Natural Gas Consumption	4.7m^3/hr
LPG Rated Power (kW/BTU's per hour)	46kW / 159,743BTU's
LPG Consumption	3.67kg/hr
Pneumatic Supply	6 bar

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