

## Spray Booths / Baking Ovens

*Spray booths are one of the biggest assets for a body repair workshop, but can also be one of the biggest energy users.*

*Rising electricity costs has pushed for improved energy efficient design and technology amongst the spray painting industry.*

*Technology that is commonly designed into spray booths and may also be retrofitted to older spray booths include:*

- ◆ Variable speed drives
- ◆ Direct gas firing systems
- ◆ Automatic air recirculation



### Variable Speed Drives

Retrofitting variable speed drives (VSD) can help manage the pressure balance of a fan motor by keeping it as low as possible. Reducing the speed of the fan motor by 20 per cent can reduce your energy consumption up to 40 per cent.

Whilst the booth is standing idle or when vehicles are being loaded or unloaded into the cabin, 100% airflow isn't always necessary. A VSD can increase efficiency by varying the airflow volume to suit the different processes during a spray cycle.

When matching a VSD with an existing motor, be

sure that it is not overloaded top oversized.

### Direct Gas Firing System

A direct gas firing system directly heats the air, allowing required temperatures to be reached faster and therefore reducing the operating time.

They are more efficient than indirect fired heating systems and can save up to 30 per cent in fuel energy costs.

### Automatic Air Recirculation

Traditionally, spray booth ovens operated on 100% fresh air during spraying, and recirculated air during the baking phase. With improved technology and designs, there are now recirculation systems that can be designed into spray booths; where air recirculation automatically switches during different stages of a spray cycle.

Air recirculation reduces energy usage as it uses less fresh air which means less fresh air needs to be heated.

### Maintaining an energy efficient spray booth

A noticeable difference between individual spray booths is the temperature and curing times. Generally temperatures are set between 60°C and 65°C with a curing time of 40 to 45 minutes.

There are many factors that can influence the temperature and curing time, such as level of insulation and the type of paint being used.

If curing times are exceeding 40 to 45 minutes, Consider improving the booth insulation level.

#### Acknowledgement Statement

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It may also be worthwhile to consider adjusting the temperature. It is best to speak to your paint supplier on expected curing times before any adjustments are made.

### **Other practices that could improve the efficiency of spray booths:**

#### *Ensure regular maintenance*

Changing spray booth filters regularly will increase efficiency of exhaust fans and reduce energy consumption.

#### *Ensure regular burner tuning*

Regularly tuning the burner ensures that they are running efficiently and not consuming more gas or electricity than required.

#### *Control air flow rates*

Reduce the air flow rate inside the spray booth when the spray painter is not spraying. If possible, also reduce the flow rate of heated air that leaves the booth.

#### *Keep monthly records on energy usage*

Keeping a monthly record on energy usage and hours used can help your business monitor the efficiency of the burner. It will also give you an indication of when the burner needs tuning.

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### FOR MORE INFORMATION

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