Downs Aluminium Casting

Queensland

FIEE Toolkit

Downs Aluminium Casting is a small family owned and operated non-ferrous foundry located in the rural town of Toowoomba in south-eastern Queensland. The site produces repetition aluminium castings for the construction industry, power and marine industries. Production is focused around three resistance furnaces which feed gravity dies casting machines and a pressure die casting machine.

Downs Aluminium Casting is one of a small but increasing number of foundries that has a roof-top solar PV system. A 27kW system was installed in early 2013 to reduce reliance on mains electricity and electricity cost. On average the system offsets 10% of Downs Aluminium Castings annual electricity consumption.

In 2013 Downs Aluminium Casting participated in the Foundry Industry Energy Efficiency (FIEE) Toolkit program funded by the Australian Government under the Energy Efficiency Information Grants program to help them identify energy efficiency opportunities within their business. Through the program an energy efficiency opportunity was identified through upgrading the dust extraction system.

Dust extraction system

Downs Aluminium Casting’s dust extraction system has a 22kW motor which accounts for 4.3% of the site’s annual electricity consumption. A review of the system indicates that efficiency improvements could be achieved through the installation of a variable speed drive (VSD) to the system’s motor. VSDs continually adjust the motor speed to match the motor output load. On average a VSD can saves around 20% of motor power. The potential savings
are provided below. This is a longer-term investment that may become viable if the variation in motor load is substantial.

A lower cost alternative is the installation of a ‘soft starter’ on the motor, which allows the motor to gradually ramp up the motor speed at start-up, reducing start/stop spikes in electrical demand. The cost of a soft starter can range between $500 and $1200. The majority of savings from soft-starters are from maintenance savings and increased lifespan of the motor as the mechanical stress on the motor is reduced.

For businesses on a demand-based tariff (for which Downs Aluminium may be placed on in the near future), soft-starters may help to reduce the peak demand and associated costs.