Energy Savers – Small Tools with Great Effect

Even small-scale actions can contribute greatly to achieving more energy-efficiency in foundry operations without necessitating fundamental changes toproduction organisation and production machinery.

Energy efficiency during non-productive periods

In many foundries the energy consumed during stoppages in the production process can account for a considerable share of total energy consumption. This applies in particular to situations where, in spite of foreseeably longer periods of downtime, drive systems of production machinery remain switched on, while heating and cooling devices, furnaces and other peripherals also remain in production mode. During such periods the production equipment keeps consuming energy without adding value. Apart from awareness-raising and training of machine operators by permanently visualising the energy use of machines and production cells, simple shut-down routines that are built into the machine's control system can be a highly effective means to prevent the wasting of energy almost completely while production equipment its standing idle.

Energy-saving mode of operation

After having shut down the drive systems of die casting machines, an additional stand-by signal can be transmitted to peripheral equipment connected to the die casting cell, such as the dosing furnace, heating and cooling devices or the exhaust system. The signal prompts them to change into energy-saving mode to reduce the usage of electrical energy and other operating media, such as compressed air or water for cooling.

Here Frech offer shut-down programmes for hot as well as cold-chamber die casting machines which can be configured with the help of the machine's visualisation system. The shut-down signals can be transmitted to peripheral devices across interfaces which can be retrofitted.

Intelligent reduction of energy costs

Peak load management systems help bring down energy costs of die casters through active avoid-ance of more expensive peak load demand, which utilities use as the basis for billing energy supplied during the respective billing period. This is a technology which can be implemented in cold- as well as hot-chamber die casting foundries and has been used to great effect by many die casters for a good many years now. Energy demand, in particular the energy needed for dosing and machine furnaces or heating and cooling technology, tends to fluctuate widely during production, ranging from almost zero to peak values within very short periods of time. As a rule there is no overarching process control or other control system to monitor production systems and their respective switching patterns or to switch them in a targeted way. It is for this reason that
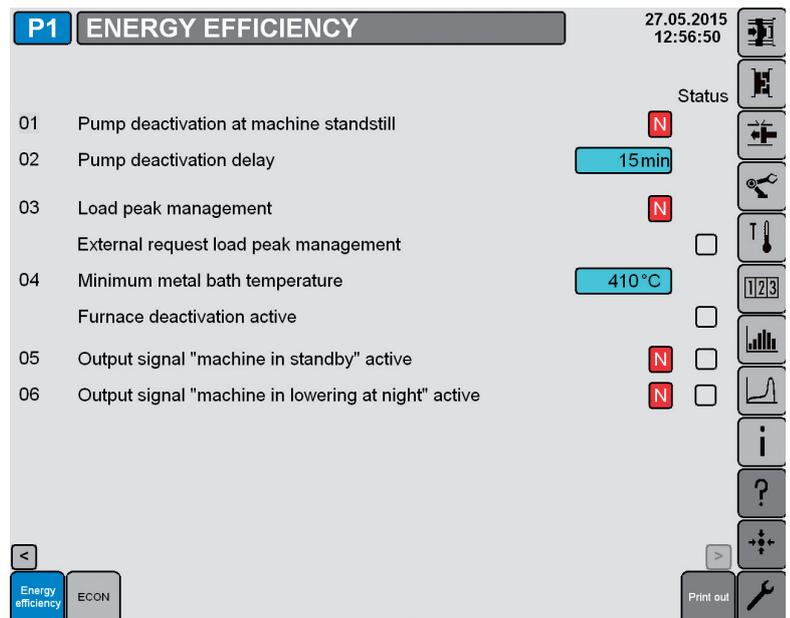
peak loads occur when machines and devices by coincidence simultaneously switch to higher power levels which then result in high energy costs.

Selective deactivation without loss of quality or productivity

In a typical cold-chamber foundry, but also in hot-chamber foundries, dosing and machine furnaces can be shut off for defined periods of time due to the prevailing physical conditions without detrimental effects to the quality or effectiveness of the die casting production process. Peak load management systems harness this effect to harmonise energy consumption and avoid or minimise peaks in the foundry by shutting down such loads in a targeted way. In some cases even the different power levels of heating and cooling equipment can be integrated into the peak load management system. In this case, the energy savings here are not due to increases in energy efficiency as conventionally understood, but rather to a harmonisation of loads which ultimately results in lower energy costs.

Frech offer peak load management systems as well as the related planning services - they are included in the scope of services and products offered by us. If required, we are pleased to provide you with an estimate of potential savings based on a load profile analysis of your die casting operations.