

Production problems melt away for ingot manufacturer

An interest-free loan from a UK government body helped a small privately owned company in the West Midlands upgrade its melting facilities and improve reliability and production levels.

The decision to replace its two one-tonne capacity 1950s vintage induction furnaces was an easy one for Longwear Products when breakdowns and finding suitable maintenance cover started to seriously affect production levels. The prospect of improved operating efficiencies, specifically in terms of power consumption, sealed the deal and Longwear chose to install two new one tonne furnaces, a VIP Powertrack inverter and Melt Manager computer (with auto-control sintering, pre-programmed melting and diagnostics) package from Inductotherm.

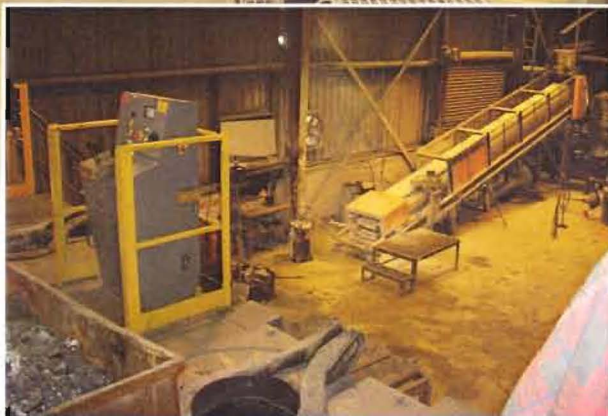
Managing director Steve Jones takes up the story: "We lost about two months production in total in 2009 because of the reliability issues with our existing furnaces, it was a horrendous year. We had previously looked at replacing them and shelved the idea in 2008 because of the general economic outlook, but it was a problem that couldn't be ignored."

The company carried out numerous repairs to keep the old kit going but Steve and the team knew they needed a longer term solution which meant taking the plunge and replacing their existing, over-stretched melting facilities.

"Inductotherm's name kept coming up and we knew we wanted to move into new markets which would require an argon purging facility so we had to take the plunge and find a way to finance the new kit."

Aware of the offer of interest-free credit from the Carbon Trust, Longwear set about applying - a process which, although initially straight-forward, became more complex throughout.

Once funding was in place, thanks in part to the Carbon Trust and to some extra savings made in conjunction with Inductotherm by reviewing the cooling system so avoiding on-going water treatment costs, the deadline was set for the change - Christmas 2009.



The cold spell over December 2009 did little to help, but with determination and competence Inductotherm engineers removed the old furnaces and installed the new equipment which was commissioned by the second week of January. "It used to take one hour and 20 minutes to melt a tonne with the old furnaces and we are now doing it in 40 minutes - our guys are staggered," said Steve Jones.

New territory

Currently working to a comfortable 4 tonne/day melt programme, Longwear is well placed to double capacity if needed and is looking forward to the next phase of its development. "To push argon purging of material we need to look at analysis of gasses and we're also looking to carry out further upgrade of our spectrometer," Jones continued. "We need to run

trials on different materials to find the best way of carrying out argon purging as it is new territory for us."

Although unable to quantify it at the moment, as it is early days, Steve said the furnace operation is giving far better results than expected. The company had its highest production in February for 16 months which Jones says fully justifies the decision to make the investment. "We are really pleased and are very impressed with Inductotherm, they provide a very good response and the Melt Manager (on-board PC system) is amazing, our lads have taken to it so well." The system has an integrated USB port so information can be downloaded with ease. Three elements essential to the investment and the choice of Inductotherm were: the Melt Manager software, hydraulic lining push out device, and the porous plug set-up.

For Steve and the team the novelty of coming in to work in the morning and switching the furnace on and getting melted metal in a short amount of time, is still making them smile. Steve says he is delighted with the reliability of the new melting system and may also look at installing a half tonne furnace in the next phase of the company's investment plans.

Inductotherm builds induction melting, holding, heating and pouring systems for virtually all metals and is the world's largest manufacturer of induction equipment. Technical and after-care support in the UK is available from the base in Droitwich, Worcestershire and Jones says the response rate and professionalism is exemplary.

Inductotherm also offers Longwear peace of mind in terms of maintenance support, industrial health checks and priority call-outs.

Longwear manufactures certified analysis ingots in a wide range of alloys and supplies the investment casting industry worldwide with a 50% export base. Materials range from low alloy and stainless steels to nickel and cobalt based alloys with the plans now in the pipeline to look at more exotic materials.

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Trust in the process

Dr Ray Durman, a consultant to Longwear, was actively involved in the application process for the Carbon Trust interest-free loan and has prepared a presentation to be given at the forthcoming FESA Foundry Workshop to help future applicants avoid some of the pitfalls befallen by Longwear during the six month process.

He said: "We were operating at a 60% capacity and we based our application on what we should have been doing rather than on what we were doing. The tonnes of carbon saved relates to the thousands of pounds loan available so we showed a projected saving (based on total efficiency) which was less than the actual saving as we were running way below capacity.

"It was established from existing data that melting energy consumed over the period June 2008 to May 2009 was 567,550 kWh – to melt 648.6 tonne of product – at a rate of 875kWh/t. This was compared with the projected consumption of 610 kWh/t estimated with Inductotherm after considering a number of factors. Projected consumption at this rate for 648.6 tonne of melted metal would result in usage of 395,646 kWh – a saving of 171,904 kWh (30%). Using these figures the Carbon Trust's offer of an interest-free loan was reduced to just over £70,000 – just 30% of the project cost." As companies can't reapply for the same project, this became the amount available to Longwear.

Although the loan was some way short of the finance needed, Longwear was able to make the investment and savings have proven to be much higher than their calculations. Ray and Steve are also thankful of the help and assistance from the Carbon Trust and would encourage others to proceed with applications but to "read the small print" to make sure they are showing the true carbon savings they will be making rather than to underestimate them because of errors early on in the application.

The loan offer was significantly reduced to Longwear because of a reduced output level, caused by breakdowns and a market downturn – offers relate to projected energy savings based on actual data, so they do not take into account the savings made when increasing output.

Nevertheless the experience was overall a positive one which helped Longwear develop its plans for the future.