

PYROTEK BOOSTS PRODUCTIVITY AND QUALITY FOR SAPA RC PROFILES, BELGIUM

In February 2008, Pyrotek France was requested by SAPA RC Profiles NV/SA, in west-central Belgium to improve the productivity and metal quality with new billet casting tables, which were to be installed in the following August. The team from Pyrotek worked closely with the customer to assess the process situation and devise technical solutions for improving performance, productivity and product quality.

EXISTING SITUATION

SAPA RC Profiles, in the international, Sweden-based SAPA Group, produces aluminium extrusions and operates a secondary casthouse in Ghlin, Belgium, producing 38,000 mt/yr billets with one casting pit. Liquid metal is supplied from a melting furnace with a capacity of 23 mt and a holding furnace of 26 mt. The casting tables are HT process equipped, for producing three billet diameters of 12, 14 and 16 inches, and a Hydro Hycast system is installed between the holding furnace and the casting table.

All launders between the melting furnace and the entry of the casting table were made from Pyrotek's Pyrocast 175, except for sensible parts such as the outlet of the furnace and the bend, which was made from Pyrocast 220HT and coated with Terrapaint 223 (a zircon, silica, graphite water-based coating).

The steel frames of the casting table were built in-house and the refractory was made from concrete giving a working life of one year, with some maintenance work required during the year. Other costs were incurred in terms of product quality, maintenance, and heat loss, through both lack of insulation and inclusions.

Following discussions and careful assessment by the Pyrotek team, the customer's main objectives were defined as follows.

- Increase the annual production up to 45,000 mt
- Replace the current refractory homemade linings with concrete
- Supply customised Pyrocast elements
- Reduce the heat loss
- Improve the coating procedure
- Decrease the scrap rate

PYROTEK INVOLVEMENT

The company's investment mainly involved the installation of totally new casting tables designed for pre-cast shapes, and a new casting pit. Pyrotek Sweden provided the design of the refractory parts and the heat loss evaluation, created the tools for the new shapes and delivered the parts in Pyrocast 175 on time. Insulation was produced in Promalight 15 mm and 20 mm. The lining was installed in August and Pyrotek spent two days applying ZYP Lubriccoat ZV blue and white, and training the operators on four shifts. Pyrotek engineers were also present for the start-up and for an audit two months later to adjust certain parameters in the coating process.

NEW SITUATION

After three months of industrial production, all the customer's objectives were achieved.

- Production has risen to 45,000 mt/yr, three months earlier than expected
- Temperature decreased by 20°C due to a lower heat loss: saving 2 m³ gas/mt of aluminium (100,000 m³/yr)
- Longer drops: eight of 19 mt are now made compared with 10 of 15 mt with the same personnel
- Casting flow is more regular throughout the casting channel
- Cleaning and maintenance of the launders is much easier with ZYP Lubriccoat® ZV blue and white



Casting table launder linings at SAPA RC Profiles, Belgium, here being coated with ZYP BN

- No refractory maintenance has been required after three months of operation, compared with the need for a complete reline after just two months with the previous process using homemade concrete
- Less metal sticking in the launders requiring less metal to remelt
- Improvement in yield
- Reduction of inclusions in the billets (this is to be confirmed over a longer period and based on feedback from end users)

TEAM AND COMPANY APPRECIATION

The SAPA Management in Sweden congratulated M. Cedric Duszak, Casthouse Manager for the improved performance achieved in a very short period. In turn, following the overall success of the project, he has declared his appreciation of the technical assistance supplied by both Pyrotek Sweden—in terms of design work, heat loss calculations and production, and by Pyrotek France (Jean-Marc Dumaillet with the assistance of Jean-Pierre Erard for the coatings)—on project follow up, installation, training, start-up and audit.

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