Molten Metal Transfer Pump

PYROTEK PRODUCTS

M-30 transfer pump with insulated piping
M-28 transfer pump
Bonded particle filter (BPF®) vertical gate filter

PROCESS

Gravity casting foundry, aluminium

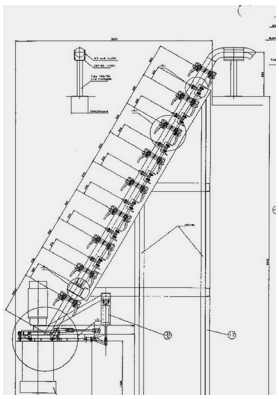
PREVIOUS SITUATION

A well established gravity caster in Italy that provides engine blocks for a major automaker needed to improve its metal transfer method. Pyrotek and this caster have had a long business relationship in which Pyrotek provides metal transfer pumps and other products.

Historically, the foundry had filled a transfer ladle on the ground floor then transferred metal via monorail lifter to the first floor, moving it through the plant and over workers. New safety laws required the company to use another method to transfer 1 tonne of molten aluminium per minute with a 7 metre head from the melting furnace to the casting machines.

Left, Pyrotek M-30 transfer pump with piping. Top right, M-30 pump and impeller. Bottom right, Pyrotek BPF vertical gate filter.

PYROTEK SOLUTION



Pyrotek designed an M-30 pump with piping to lift metal from the basement to the first floor of the foundry.

Pyrotek designed a special high-lift pump based on its M-30 pump design. The pump and insulated piping would transfer metal to the first floor and fill a 1.4-tonne transfer ladle, which would then be moved to the casting machines by forklift.

M-Series pumps have a proven long and reliable operating life and are designed for use in nonferrous molten metals with working temperatures below 871°C (1600°F). They feature high-efficiency impellers, rigid motor mounts to minimize distortion and ensure alignment. Pump posts are made from SST-grade graphite treated with a proprietary Pyrotek process and covered with a ceramic sleeve to provide added durability.

A Pyrotek BPF vertical gate filter was placed between the furnace chamber and pump well to filter metal before transferring it with the M-30 pump.

In addition, Pryotek provided an M-28 emergency transfer pump to fill the transfer ladle if the main pump is offline due to maintenance, downtime or other situations.

Pyrotek M-28 pump.

RESULTS

The new pump system's design allowed the caster to create a safer environment for its workers and maintain production. The M-30 pump's high-lift flow rate was enough to keep three casting lines at full production.

The vertical gate filter helped improve cleanliness of the molten metal before it reaches the casting machine, resulting in less inclusions in the final cast product.

JUL-17-EN-1676