

Conveyor for bridges over molten wax tank



Client:
CSR Limited
Location:
Somersby, NSW,

Value:
\$60,000

Design, manufacture & install a highly loaded custom slat chain conveyor operating in a high temperature environment, to transport bridge & rod assemblies over a molten wax tank for a continuous dipping process.

The Project

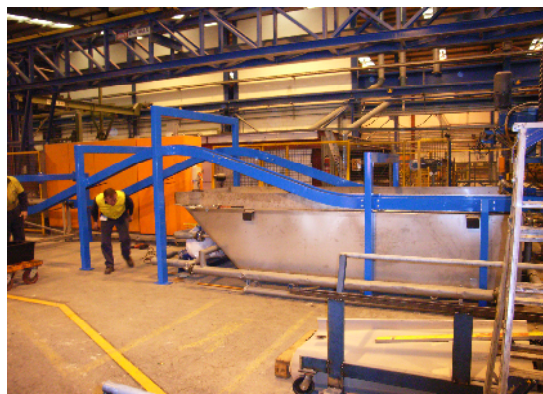
CSR Hebel had an existing conveyor to transport their bridge and rod assemblies over their hot wax tank for a dipping process. The existing conveyor was experiencing critical problems, such as:

- It could not be loaded properly due to variations in the bridge and rod assemblies, and was running jerkily due to its poor design and high load,
- It was not effective and transferring the bridge onto an out-feed conveyor after the operation was complete,
- poor reliability due to both the design and harsh operating environment

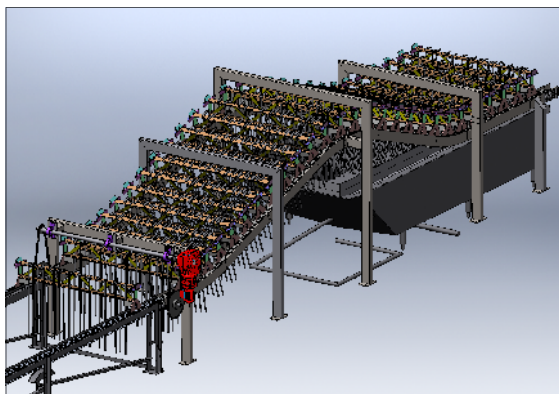
Following consultation with Australis, CSR decided that the existing conveyor was unserviceable and a new design was required that would have the following attributes:

- Able to transport their bridges from inside the wax tank, to a high level out-feed conveyor smoothly
- Smooth operation under high load, while being able to withstand the high temperature environment,
- It was critical the conveyor was able to transfer the bridges onto the out-feed conveyor smoothly, preventing any jam ups
- Near "continuous" operation of conveyor.

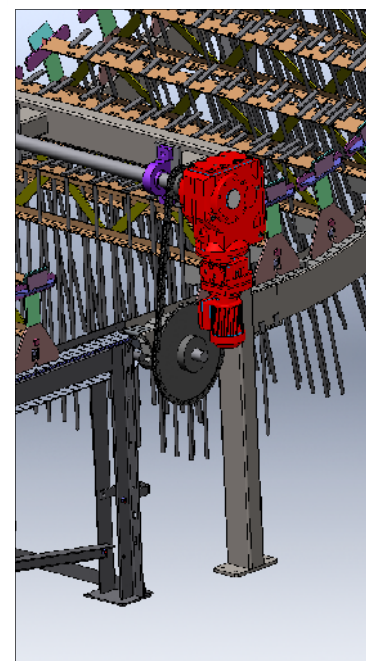
Compact conveyor design



High loads



Special slat chain



The Result

Australis Engineering's solution included:

- Design, manufacture and install an 8.5 metre powered chain conveyor to handle 23 bridge and rod assemblies for a total conveyor load of 1.5 tonnes;
- The conveyor was loaded with the bridge assemblies inside the wax tank, then moved the assemblies along the tank, elevated them out of the wax tank, then lowered them back down to an acceptable working height to be transferred onto an existing out-feed conveyor, saving CSR further money by not needing to modify their existing out-feed conveyor in any way.
- Designed, a very compact conveyor profile to fit into a very confined space on either side of their molten wax tank. The conveyor design also compensated for the very high thermal expansion experienced by the temperature fluctuation being next to the wax tank.
- Design, manufacture and install a very small high strength roller bed to ensure good transfer of the product off the conveyor and onto the existing outfeed conveyor.

Innovation

A key element of the Australis solution was the use of the special slat chain, combined with the compact conveyor design. This allowed the conveyor to smoothly convey the 1.5 tonnes of load and elevate it up to 2 meters off the ground, while still being reliable and able to withstand the 1950 Nm of torque required to convey the product.

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