

Post Tensioned Cement Silos, Buxton



Three of the seven silos



Work carried out from mast climbers



Strand dispenser ready for pushing



Jacking at an anchorage position



Grout mixing



Finished anchor prior to grouting and filling

Silo contract demonstrates Balvac's ability to successfully secure and carry out one of the largest and most demanding post tensioning contracts let in the UK.

Client	Buxton Cement Works
Principal Contractor	Mermaid Construction
Contract Value	£ 500,000
Programme	6 months
Completion	December 2002

In August 2001 Balvac was awarded the subcontract to supply and install post tensioning to a variety of silos at Buxton Cement Works. The order was placed with Balvac by Mermaid Construction, a joint venture between Gleeson Civil Engineering and Monberg & Thorsen. The large subcontract was secured after detailed discussions and negotiations based on Balvac's previous work with Gleeson and experience of silo construction using post tensioning.

There are a total of 7 silos: 2 clinker silos – these are the largest at 25 m diameter and 48 m high; 1 CF silo; 3 cement silos; and 1 water tank

The post tensioning system used is the MK4 system, for which Balvac is the UK licensee. Tendons pass 180° around the silo wall, anchored in external buttresses. The tendon types vary from silo to silo, using 4, 7, or 12 strands per tendon, dependent on silo configuration. Prestressing strand is 15.7 mm diameter with a breaking load 279kN. The ducts are made from galvanised corrugated mild steel.

Material supply commenced in October 2001 with Mermaid responsible for casting anchor and ducts into the silo walls during slipforming. Balvac commenced on site in June 2002, carrying out strand installation, stressing, and grouting, all from mast working platforms. All tendons are stressed with MK4 'MS' type jacks; these are the most modern designs available, incorporating automatic strand gripping devices and hydraulic lock-off. All tendon ducts were filled using a specially designed grout, mixed and pumped from specialist Balvac grouting equipment located at ground level.

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