



▲ First silo: roof lifted, Second silo: walls under construction and roof still waiting to be lifted!

The new and growing port of Sohar, in the Sultanate of Oman, is turning out to be an important industrial area in the Middle East Region.

By supplying a package service, VSL took an important part in the realisation of two main silos intended for the storage of alumina, (alumina is responsible for the metallic aluminium's resistance to weathering).

### Scope of work performed

Post tensioning of silo walls and lifting of 2 silo roofs, weighing 240 t each, diameter 42m and lifting height 49 m.

Equipment: 32 lifting units type SLU 10/200 and 16 lifting units SLU 30/250



▲ Balanced cantilever system

VSL Middle East installed 600t of Post-Tensioning and VSL Heavy Lifting Department lifted the two silo roofs.

VSL's post-tensioning system employed the PT Plus Plastic duct technology together with EC anchorage types 6-7, 6-12 and 6-19; which was installed in 3 tendons per layer with 119 layers per silo.

Each roof, weighing 240t and with a diameter of 42m had been built inside the silo at ground level.

As scheduled, only 1.5 day was required to reach the top of the silo, 49m higher, by the use of 48 lifting

units working at the same time. The roofs were simultaneously lifted from 16 lifting points corresponding to the 16 radial main girders.

To avoid introduction of horizontal forces into the top of the peripheral concrete wall, they were eliminated by direct transfer to the ground slab by means of an ingenious system combining cantilever beam and counterweight.

Each of the 16 lifting cantilevers supported 3 lifting jacks: 2 x SLU 10 connected to the roof for lifting and 1 x SLU 30 connected to bottom base slab as counterweight to equalise the force.

**OWNER**  
Sohar Aluminium Company

**MAIN CONTRACTOR**  
Carillion Alawi Ltd.

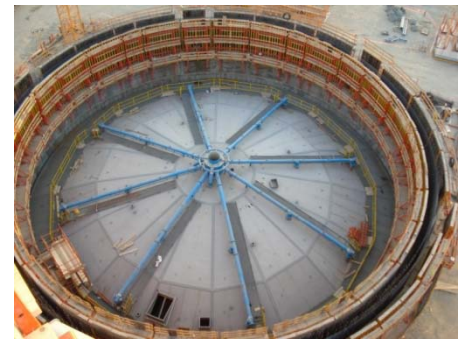
**VSL ENTITY**  
VSL ME for PT  
VSL Heavy Lifting Department

**DATE**  
2008



▲ *Balanced cantilever system*

▼ *Roof was assembled on the basement of the silo first, then was constructed by means of a climb form.*



[www.vsl.com](http://www.vsl.com)

Edited 2008  
ID 2580