

# 560 Tonne Single Piece Vacuum Column, Indian Oil Corporation Ltd, Haldia Refinery, West Bengal, India

**Client:** Indian Oil Corporation Limited

**Engineering Contractor:** Bharat Heavy Plate & Vessel Ltd.



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Bharat Heavy Plate & Vessels Limited (BHPV) Visakhapatnam, fabricated a Vacuum Column for the Indian Oil Corporation Limited's (IOCL), Haldia Refinery in a single piece which had a dressed weight of 560 Tonnes, and a height of 61m. This is the first time that a Vacuum Column was fabricated in a single piece in India and within a record period of 14 months. BHPV decided in favour of lifting this huge vessel in one piece with Fagioli PSC's approved Towerlift System rather than fabricate and erect in multiple sections. One piece erection helped BHPV eliminate the high cost of scaffolding, welding and hydrotesting at such heights and fabrication at ground level was both safer and quicker. The Fagioli PSC Towerlift system has standard Tower bases, Tower legs, Cantilever top beams and Crosshead beams of variable length and capacity to suit every situation.



Fagioli PSC's Towerlift legs are 400mm dia, 19mm wall tubes joined by pinned braces which can be assembled in square or triangular format depending on the load. Tower legs are available in 12m or 4m sections. All the steelwork has been fabricated to the most stringent codes and their manufacture has been witnessed by Lloyds throughout. In a square format a pair of towers in a portal configuration is capable of erecting 2000 Tonne vessels. For the Haldia Vacuum Column, a triangular format with a capacity of 800 Tonnes was more than adequate. Setting such a vessel on its plinth using a Towerlift system is normally carried out by over spanning the foundation with a portal, lifting the vessel alongside the plinth and skidding it suspended from across the top beam for lowering on to the plinth.

The lift arrangement of the Haldia Vacuum Column had five 62m high Fagioli PSC towers set on top of the plinth on the vessel centre line, with a span of 12m and a pair of crosshead beams.



The 2 No. 450 Tonnes Fagioli PSC lifting jacks, with their cable angle set to a maximum of 10 degrees, began by lifting the vessel up the face of the plinth. The towers were maintained in the vertical by loading opposing 50 Tonnes rated Fagioli PSC guy jacks and the vessel was held back from the plinth by another 2 No. 50 Tonnes Fagioli PSC strand jacks. The tailing crane, therefore, carried out its duties in the normal fashion, simply supporting the load at the tail. After clearing the skirt of the vessel over the plinth, the hold back jacks were eased off until the vessel was suspended vertically before lowering in to final position.

