

case study

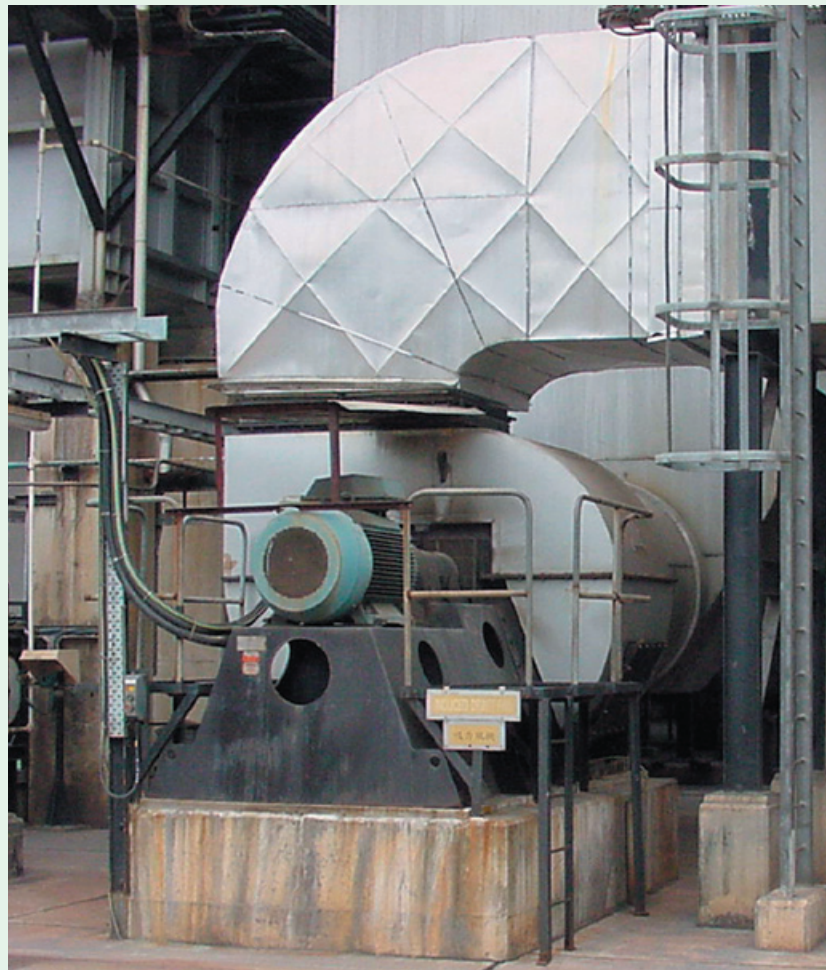


case study 04

Halifax Zone 2 ID fans boost efficiency at Hong Kong Gas

To meet rising demand for gas, Hong Kong and China Gas Co. Ltd. is carrying out a major refurbishment of its gas plant at Tai To in the New Territories to increase production to 115% of current levels.

A major element of that refurbishment is the increase in capacity of their Reformer Furnace which supplies heat for the chemical process which derives the gas from naphtha feed stocks.

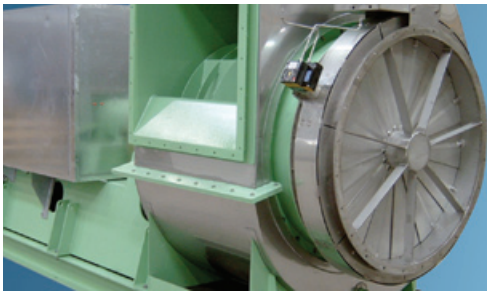


Halifax Fan has won the contract to supply 4 off 200kW and 4 off 75kW ID fan systems complete with speed control and soft-start back-up. The fans will operate in a Zone 2 environment and Halifax's experience in hazardous areas was critical in their selection. High volume, medium pressure Beaufort models met the need for greater volume capacity within the physical envelope of the fans they replace. Self-cleaning, backward facing impellers ensure fan efficiency is maintained despite particulates in the air stream and reduce periodic

maintenance and downtime. In addition the fans were constructed to the original ICI Arduous Duty specification with increased service factors for improved life and reliability. Despite this, the high efficiency of the Beaufort design means that the operational duty requirements were met with little increase in motor rating, a critical factor owing to main supply transformer limitations at the gas plant.

More unusually, the complete fan power string has been supplied as a whole, complete with motors, 12

pulse inverter drives and soft-start back-ups. Inlet Vane dampers have also been provided so that controlled operation can be maintained in the event of any inverter failure and the motors having to be soft-started and run at full speed. Gas storage is confined to the underground pipe system, and any plant outage would badly disrupt gas supplies to their customers. This means the plant is required to continue to perform even in the event of mains electrical supply failure and the alternatives of variable frequency or



 **halifax fan**

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Application benefits

- Efficient self-cleaning fan design
- Zone 2 hazardous area operation
- Arduous duty specification
- Variable speed controlled for energy saving
- Low starting current for UPS back-up
- Low harmonic 12-pulse drive design
- Fully in-house proven prior to shipping

electronic soft-start of the fans allows low current starting on the Uninterruptible Power Supply system.

Paul Fan, Mechanical Manager at the plant, said, "The use of variable speed control of the ID fans will provide us with a number of benefits. Not only will it ease starting on our limited mains supply or on our UPS, but as we experience less than 40% demand for gas at night, reduced speed on the fans means a substantial reduction in energy absorbed by the fan motor."

Halifax conducted rigorous tests, including over-speed testing, on the complete system strings in-house, prior to despatch. According to Halifax Fan Managing Director, Malcolm Staff, "Fans absorb around 25% of industrial energy globally, and the adoption of inverter variable speed control offers enormous benefits in energy reduction and



Hong Kong Gas Reformer Furnace ID Fan

thus lower greenhouse gas emissions at reduced throughput. Halifax's ability to supply and test large fan systems complete with VSD control, in our own premises, is a big plus when it comes to fulfilling export contracts. Both we and the customer know that the complete system is fully

proven before it arrives on-site and is installed, giving confidence that on-site commissioning will run smoothly with no negative impact on plant start-up dates. For us it doesn't matter if the plant is in Hong Kong or Hull, because when the fan gets to site, it's to specification and proven to be so."

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