

Modular unit doubles gasoline output

Over the past eight years, Pakistan has increased its level of petroleum imports to meet growing domestic demand for gasoline. To reduce its new-found dependence on imports, Pakistan Refinery Limited (PRL) needed a way to boost the production of gasoline from its refinery, and selected Honeywell UOP's Penex process. By converting light naphtha to isomerate, the Penex process produces high octane gasoline blending components for the production of cleaner fuels with reduced emissions.

Working with PRL, UOP provided a detailed design for the Penex unit, doubling PRL's monthly output of high quality gasoline to 24 000 tonnes. The unit was built and delivered as a modular solution, greatly simplifying the construction phase and reducing interruption to refinery operations.

Equipment specifications were developed using UOP's Schedule A, basic engineering design. Using a 3D model, UOP engineers worked with PRL to visualise the plant and review the designs throughout the project to ensure that it met PRL's processing objectives.

The modules were fabricated in the United Arab Emirates, and were fully inspected before delivery to the site. The modules shipped in November 2014, only 12 months after the order was placed. Within two weeks of their arrival, the first module was bolted to its foundation at PRL's site. UOP personnel were on-site to supervise installation and commission the unit.

This modular equipment is ideal for many remote locations, short project timelines and regions with

limited resources. Built under controlled conditions in fabrication shops and fully inspected prior to shipment, the modules are designed to reduce installation time and can result in earlier start-up, further improving project economics.

In addition, Honeywell Process Solutions and UOP Process Information and Control teams worked together to execute the process control system for the unit, which was critical to its successful operation. In addition to licensing and modular equipment, UOP provided PRL with catalysts, adsorbents, engineering, technical support, and a drier regeneration control system (DRCS) for extended catalyst life for the unit. The DRCS worked seamlessly with the existing Honeywell distributed control system. Both systems were built on Honeywell's Experion PKS platform, which uses a unified automation system and advanced software applications to increase operator productivity and profitability. Process graphics were tailored to PRL's plant, and both systems were delivered on time and ready for start-up with the unit.

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For more information: info@uop.com

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