

LARGE SCALE NATURAL GAS METERING SYSTEM

The natural gas metering skid designed and manufactured by DKI for Lakshmi in India, provides custody transfer and quality metering of Natural Gas. It is based on a three run, 10", 600# system with the primary elements being dual chamber orifice fittings. Full bore upstream and downstream ball valves are included, together with flow control valves for each run. The upstream and downstream headers are 12", schedule 80 pipe is used throughout the skid. The runs are designed to AGA-3 API 14.3 2000, for a 0.7 beta ratio.

Throughput of the station is approximately 150 mmscfd.

Each run has a turn down of approximately 5:1, while maintaining an accuracy of about 0.5%. An analyser shelter for the gas quality monitoring instruments and calorific determination chromatograph is incorporated on the skid itself, with two retractable sample probes and a sample conditioning system supplying conditioned samples for the chromatograph, an H₂S monitor, a water dewpoint probe and a hydrocarbon dewpoint monitor.



Flow calculations are performed by three identical flow computers, one dedicated to each run. Each flow computer communicates with the gas chromatograph via a redundant communications link. The flow computers calculate flow rates and totalisations for mass, standard volume and energy flows. Data from the chromatographs and the flow calculations is stored in the flow computers and passed on to the client's distributed control system via a communications link.

A feature of the design is the ability to split the skid into two sections for transportation. Each section fits into a 40ft shipping container, offering substantially reduced shipping charges for transportation to the Indian installation.

