

Pilot Filtration Rig for the Mineral process industry



OBJECTIVES

- To detail design and construct a skid mounted pilot filtration skid.
- Constructing a sand filter vessel, kelly filter and heated feed tank.
- A versatile system to test an assortment of filtration methods and conditions.
- Including an on-board Supervisory Control and Data Acquisition System, monitoring flow, pressure, temperature and levels throughout the rig.
- Utilising the gathered data to log and adjust to set system parameters.

INTRODUCTION

Control and Thermal Engineering were approached to detail design and manufacture a pilot filtration rig for research more efficient filtration methods in the mineral refining industry.

The project required the design and manufacture of a system of piping and valving to link together a sandfilter, kelly filter, agitated/heated feed vessel and gas injection unit. Creating a versatile system that would fulfill their research with the versatility to adapt to possible future tests.

The rig also included an on-board Supervisory Control and Data Acquisition system collecting data from a multitude of locations on the rig to constantly monitor and adjust the variable speed pumps, agitators and heaters.

Stainless steel was used for the majority of components in contact with process fluids to cope with a range of corrosive mediums used in testing.

Success of the project led to another 'second generation' rig being ordered some time later. The original rig was relocated to another site for further research trials.

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