TGE Gas Engineering

INNOVATIVE EQUIPMENT SELECTION FOR BOIL-OFF GAS HANDLING

SELECTION OF ROTARY SCREW COMPRESSORS FOR ETHANE

INTRODUCTION

The duty of the Boil Off Gas (BOG) compressors is to maintain the tank pressure by extracting the BOG generated in the tank due to heat ingress.

Due to economic advantage skid mounted, oil-injected screw type compressors were selected for Borealis Ethane tank. Since the minimum design temperature of the compressors is higher than the BOG temperature from the tank, the BOG requires heating prior to enter the compressors. To avoid additional operating cost from electric heater or hot gas injection TGE's solution was to transfer heat via heat exchanger from warm compressor discharge to cold compressor suction.

The compressors themselves are equipped with a stepless capacity control and a redundant lube oil system which ensures a proper lubrication of the bearings and a proper sealing of the rotors. The lube oil cleanliness is given by a two stage filtration system. A two-step oil separation is installed downstream of the compressor to minimise the remaining lube oil in the discharge stream.

MAIN TECHNICAL DATA

Suction mass flow	5,000 kg/h
Discharge pressure	16 bar g
Main motor power	630 kW
Capacity control range	20 – 100 %
Remaining oil at battery limit	5 ppm
Total weight per skid	24 t

ADVANTAGES

The main advantage of screw compressors over reciprocating compressors is that they can provide a more economical solution. Screw compressors provide increased operational flexibility since their capacity is continuously variable. This provides more stable tank pressure with less start / stop type operations.

For further information
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