Reciprocating Kompressor Sizing For Natural Gas With Capacity 15 Mmscf/d, Suction Pressure 100 Psig And Discharge Pressure 450 Psig (Case Study at Seng Gas Plant EMP Bentu Ltd.)

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ABSTRACT

Energi Mega Persada Bentu Ltd. know distributes natural gas to PLN Pekan Baru naturally flow. Over time the pressure of natural gas from wells at Segat field will decrease. According to reservoir simulation EMP Bentu Ltd. results, if natural gas distribution still using natrural flow, natural gas can’t be distributed until the end of the PJBG (contract agreement between buyer and gas seller). So that need gas compressor which will be placed in Seng Gas Plant. This compressor is used to increase the pressure of the gas from the well so that the pressure of the wellhead can be set lower and then the gas can be distributed until the end of the PJBG.

The sizing of reciprocating compressor starts from calculating the chemical properties of natural gas obtained from the chemical composition of the gas. specific speed calculation is performed to determine whether the type of selected compressor is right according to the needs. The design followed by counting the number of stage, power needed by each stage and cylinder bore at each stage. Next is calculating the rod load to determine the maximum load that occurs in reciprocating components.

The result In this final assignment is obtained the number of stage and power needed by compressor according Seng Gas Plant requirement, which is 100 psig on the suction side, 450 psig
at the discharge side with a flow rate of 15 MMSCFD. Rod load at each stage reciprocating compressor are obtained.

Keywords: natural gas, PJBG, reciprocating compressor, rod load, and dimension