FAILUR ANALYSIS THE BOLT OF PISTON VVCP GAS COMPRESSOR GEMINI DS-504 EMP MALACCA STRAIT SA

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Abstract
Starting from the failure of the bolt piston gas compressor VVCP Gemini DS-504 conducted this study to determine the cause of the failure. Stages of the investigation includes macro observation, SEM, tensile test, hardness test, chemical composition test, metallography and the manual calculation of the received bolt stress analysis.

From the observation in the composition of the test, there are several elements that should not exist in the bolt. The results of tensile testing showed that the bolts have a higher tensile strength than the specification of bolt the results of hardness test hardness value is also higher than it should be. Metallography results show that the microstructure of tempered martensite whereas SEM test results show there is a striation in crack propagation area and the fracture area morphologic looks rough. from calculating the bolt stress analysis shows still secure against criteria for fatigue failure due to compression loads, but the calculation of buckling theory does not fit the bolt.

From the results of investigations bolt failure with fracture type unidirectional bending, due to the inability of the bolt receiving compression loads resulting in buckling and make bolt failure

Keywords: Bolts, failure, buckling, unidirectional bending
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