DESIGN OF GATE VALVE USING SOLIDWORKS AND ANALYSES OF FLUID FLOW OF THE GATE VALVE USING SOLIDWORKS FLOW SIMULATION SOFTWARE

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ABSTRACT

This paper presents the design of gate valve using SolidWorks and the analysis of the gate fluid flow using SolidWorks Flow Simulation software. The scope of this project focus on two parts, firstly design of gate valve and secondly on analyze the fluid flow of the gate valve being designed. The gate valve was designed in detail with two and three dimensional model that consists of parts, assembly and drawings. The SolidWorks Flow Simulation was used to test the effectiveness and limitation of the gate valve that has been designed. The gate valve also has been analyzed by using fluid to observe the reaction of the gate valve. This gate valve has the ability to cut through liquids, very durable, and it is mostly used in the petroleum industry.

Keywords: Gate Valve, SolidWorks, SolidWorks Flow Simulation

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

In recent years, gate valve has increased tremendously and often used in the petroleum industry for on-off service. Gate valves are widely used in the control situation because of the ability to cut through liquids. Gate Valve also known as sluice valve can be defined that closing or modifying the passage through a pipe, outlet, and inlet in order to stop, control or allow the flow of a fluid media [1]. In piping design the valve probably require more engineering effort than any other piping component.

Gate valve are often used when a straight line flow fluid, as it is primary used to prevent the flow of liquids. Therefore, the use of gate valve occurs with high initial cost and requires complex and tedious attachments and fittings, unless they are specifically designed for the purpose of controlling the flow of liquids [1, 2]. Hence, there is need to design a gate valve that require an economical which can be easily implemented and can be observe with primary method of control the flow simulation based on pressure, velocity and density.

Nowadays, there are various type of software that can help engineers and drafters to allow them to design in the shortest time possible at lower cost in their development task. Currently, there are software that enable for the designer and drafter to design and simulate any type of object into three dimensional (3D). Previously, there