ABSTRACT

PT Bumi Cahaya Unggul is a semi-manufacturing company that produces pump packages. Pumps that will be shipped must pass the testing stage. The Quality Control Division often works overtime to complete pump testing in accordance with the specified time. In accordance with the target set by the company, the preparation stage before the pump testing process is the pipe installation stage, where each type and size of pump requires a different pipe installation. One of the main components used for pipe installation is the flange.

Taking flanges takes a long time because the flange storage system is still stacked so that the flange retrieval process becomes less efficient, this system results in a waste of time if the flange needed for installation is in the middle to back arrangement. In addition to the long retrieval time, the flange retrieval process can also have a negative risk to the operator, namely Musculoskeletal Disorders (MSDs). After calculating the condition of the operator's existing posture using the Rapid Entire Body Assessment (REBA) method, a value of 7 or level 2 (medium) is obtained, which means changes need to be made.

In this study, a redesign of the flange storage area will be carried out using the reverse engineering method and using anthropometry as a reference in determining the dimensions of the storage.

The proposed flange storage is proven to reduce pipe installation time 54 minutes faster than the existing time and the calculation of the Rapid Entire Body Assessment (REBA) value for operators when using the proposed flange storage gets a value of 3 or has a level 1 (low) risk so that it can reduce or even eliminate the risk of Musculoskeletal Disorders (MSDs) in operators.

Keywords – **product design, reverse engineering, musculoskeletal disorders, flange, storage**