

ABSTRACT

PT. XYZ Indonesia is an international shoe manufacturing company geared by multi-divisions including main and supporting division. The supporting division is Tooling Division, which the job is to make molds that are going to be used by Press Division to cast shoe outsole. In the process of making the mold, Tooling Division was given a hydraulic table that used as material handling equipment (MHE) to handle the mold inter their sub-division. However, the using of their existing MHE as mentioned is causing scenarios where operators move in postures that are in high risk of musculoskeletal disorders (MSDs) that can give long term negative impact to health conditions and even can cause disabilities if its neglected (according to WHO.) Operators were also complaining about physical discomfort that was assessed using CMDQ (Cornell Musculoskeletal Discomfort Questionnaires). Result showed that their lower back is the most risky to get injured. Its also shown that according to REBA assessment result, based on the work postures and material weights the score is 11 which a very high risk of MSDs and change should be implemented. According to observation, its concluded that what caused risk factors occurred is because of incompatibility between existing MHE and the needs in actual condition. Therefore, changing existing MHE is needed to lower MSDs risks of the operators. Ergonomic Function Deployment is used as the method of designing proposed MHE to support operators' health, safety, and comfort. Ergonomic aspects EASNE (Effective, Safe, Healthy, Comfort, and Efficient) were used as the main concern to arrange interview questions that generating need statements as the main base for designing. Results were, according to REBA assessment proposed MHE is capable to help lower MSDs risks on operator by decreasing risk score from 11 (very high risk) to 6-4 (medium risk). Validation result by Lead User also showed that proposed MHE is better than existing MHE according to its concept, with the needs in actual condition.

Key words – Material Handling Equipment (MHE), Musculoskeletal Disorders (MSDs), Ergonomic Function Deployment (EFD).