

ABSTRAK

Aktivitas pengisian es krim 8 liter di PT. Jatim Van Houten masih dilakukan secara manual dengan posisi kerja duduk sambil menahan tabung es krim secara statis dan berulang selama ± 8 jam kerja. Kondisi tersebut berpotensi menyebabkan kelelahan otot dan gangguan *musculoskeletal disorders* (MSDs). Berdasarkan hasil evaluasi awal menggunakan metode *Recommended Weight Limit* (RWL) dan *Lifting Index* (LI), diperoleh nilai RWL sebesar 4,56 kg serta nilai LI sebesar 1,05 pada kondisi *origin* dan 1,10 pada kondisi *destination* yang menunjukkan bahwa aktivitas kerja memiliki tingkat risiko ergonomi sehingga diperlukan perbaikan. Penelitian ini bertujuan merancang alat bantu penopang tabung es krim 8 liter yang ergonomis menggunakan metode *Design Thinking* dengan pendekatan antropometri wanita Indonesia. Proses perancangan dilakukan melalui tahapan *empathize*, *define*, *ideate*, *prototype*, dan *test* dengan pengumpulan data melalui observasi, wawancara, dan kuesioner. Rancangan alat bantu dimodelkan menggunakan perangkat lunak Autodesk Fusion 360 dan menghasilkan mekanisme penopang tabung yang dilengkapi sistem pengaturan ketinggian berbasis *gear* dan ulir serta sistem ring bergerak untuk memudahkan penyesuaian posisi tabung selama proses pengisian. Hasil simulasi dan validasi menunjukkan bahwa rancangan alat mampu memenuhi kebutuhan pengguna, membantu mengurangi beban pada lengan, bahu, dan punggung, meningkatkan kenyamanan serta kestabilan kerja, dan secara teoritis mampu menurunkan risiko cedera akibat aktivitas pengisian manual karena beban tabung dialihkan ke struktur alat. Rancangan alat bantu ini mendukung peningkatan aspek ergonomi, keselamatan kerja, dan inovasi proses produksi di sektor manufaktur, sejalan dengan *Sustainable Development Goals* (SDGs) poin 9 yaitu *Industry, Innovation and Infrastructure*.

Kata kunci: ergonomi, *Design Thinking*, antropometri, *Lifting Index* (LI), *Sustainable Development Goals* (SDGs).

ABSTRACT

The activity of filling 8 liters of ice cream at PT. Jatim Van Houten is still done manually with a sitting work position while holding the ice cream tube statically and repeatedly for ± 8 working hours. This condition has the potential to cause muscle fatigue and musculoskeletal disorders (MSDs). Based on the results of the initial evaluation using the Recommended Weight Limit (RWL) and Lifting Index (LI) methods, the RWL value was obtained at 4.56 kg and the LI value was 1.05 at the origin condition and 1.10 at the destination condition, indicating that the work activity has a level of ergonomic risk so that improvements are needed. This study aims to design an ergonomic 8-liter ice cream tube support tool using the Design Thinking method with an Indonesian female anthropometric approach. The design process is carried out through the stages of empathize, define, ideate, prototype, and test with data collection through observation, interviews, and questionnaires. The design of the tool is modeled using Autodesk Fusion 360 software and produces a tube support mechanism equipped with a gear and thread-based height adjustment system and a moving ring system to facilitate adjustment of the tube position during the filling process. Simulation and validation results indicate that the tool design meets user needs, helps reduce stress on the arms, shoulders, and back, improves comfort and stability, and theoretically reduces the risk of injury from manual filling activities because the cylinder load is transferred to the tool structure. This tool design supports improvements in ergonomics, occupational safety, and production process innovation in the manufacturing sector, in line with Sustainable Development Goals (SDGs) point 9, Industry, Innovation, and Infrastructure.

Keywords: ergonomics, Design Thinking, anthropometry, Lifting Index (LI), Sustainable Development Goals (SDGs).