

Design of Dry Chemical Fire Extinguisher Inspection Equipment in Order to Reduce Ergonomic Risks for Fire Extinguisher Inspectors

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Abstract : It is important that a dry chemical fire extinguisher must be inspected for its readiness. For each inspection, the inspectors need to turn the fire extinguisher tank upside down to let the chemical inside the tank move and prevent solidification, which would make the tank not ready for usage when needed. Each tank weighs approximately 16 kg. The inspectors have to turn each tank upside down twice (2 minutes/round). They need to put the tanks over their shoulder close to their ear in order to hear the chemical flow inside the tank or use their hands to feel it. The survey and questionnaire 'The Questionnaire Know Body', which includes neck, left shoulder, upper and lower right arms suggest that all 12 security staffs have the same fatigues. The current dry chemical fire extinguisher inspection affects various ergonomic health problems. Rapid Entire Body Assessment (REBA) is used for evaluation of posture risks so that the working postures may be redesigned or corrected. The dry chemical fire extinguisher inspection equipment has been developed to reduce ergonomic health risks for the inspectors. A REBA analysis has been performed again, and the risk score has been decreased from 13 to 3. In addition, feedbacks from the first trial of the developed equipment show that there are demands to increase the installation in order to reduce the ergonomic health risks.

Keywords : dry chemical fire extinguisher inspection equipment, ergonomic, REBA, rapid entire body assessment

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