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Determination of reliability indicators of thread connections of textile bands for manufacturing of modular system

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Analysis of the range of existing types of military equipment proved the relevance of using modular systems for the purpose of placing and adjusting them on mobile equipment. Reasonable choice of textile bands with high indicators of strength and types of seams for their connection is appropriate. It has been established that belt bands and thread connections during their operation are negatively affected by stretching, contamination, multiple bending, abrasion, tearing, ripping, the effect of light and weather, moisture, etc., as a result of which the values of their quality indicators gradually decrease. Improvement of modular systems is carried out by using modern bands and appropriate types of seams made of multifilament threads. Based on the analysis of the assortment of modern textile wear-resistant bands presented on the market of Ukraine, samples of polyester and polyamide fibers were selected for further research. In accordance with the operating conditions, significant physical loads affect textile bands when they are caught during movement by objects in the surrounding environment. The expediency of conducting experimental studies to determine the reliability indicators of thread connections of textile bands is substantiated. The operating conditions of modular systems are simulated in the laboratory. Experimental studies to determine the breaking load were carried out in an accredited analytical and research testing laboratory according to a known methodology in accordance with current regulatory documents. The results of tests of samples of the modular system are presented, taking into account different types of seams connecting the layers. The obtained data was processed by methods of mathematical statistics and graphs of the dependence of elongation on the load of samples of textile tapes were constructed.

Keywords: experimental studies, reliability, belt braids, moving machinery, thread connections

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