New hand-sizing tool will standardize Army gloves

U.S. Army

NATICK, Mass. (Sept. 26, 2012) -- Stacey Lee, Project Engineer for Army gloves at Natick Soldier Research, Development and Engineering Center, teamed up with Masley Enterprises and created a Hand-Sizing Tool that has recently been patented.

Currently, there is no standard hand-measuring methodology. Most companies ask for the circumference of the palm and the length from the middle finger to the wrist crease; consumers generally try gloves on to find the right pair. Soldiers experience the latter when going through Rapid Fielding Initiative and other processes; a lot of time is spent trying on gloves and in the process, gloves are stretched out causing glove waste and incorrect fittings for those Soldiers at the end of the fitting line.

"The new tool will standardize glove sizing," said Lee. "Until all glove sizes are adopted to the tool size verbiage, we will at least be able to make correlation between sizes and be able to more easily requisition the correct gloves for Soldiers. Also, the new tool will be utilized for sizing Soldiers' hands during the Rapid Fielding Initiative."

Masley Enterprises' hand-sizing tool was originally a piece of paper that later became a piece of laminated paper mounted onto foam with a small block positioned to keep the hand in the correct position. Masley used Army data from the anthropometric study of 1989 as well as their own research to create glove sizes they believed fit best for the 95th percentile of Soldiers.

"When I was doing my research, I looked at the measurements the anthropometric team would take," said Lee, "and in measuring they always required that the finger-portion of the hand be raised eight to 10 millimeters. The reason to raise the fingers is because of the natural curve of the hand. Elevating the fingers reduces the amount that the hand is stretched when lying flat."

Lee also added something else to the newly patented design, a specified component on the tool that is important for measuring Soldiers' index fingers.

"The stopper is to measure the length of your trigger finger," said Lee. "The war fighter would normally be looking for sensitivity in the tip of their finger to feel their trigger, so you would bring that down as far as you could to measure for a tight fit at the finger tip."

The armed services vary in their methods of glove sizes ranging from sizes 4-11 while other pairs are sized XXS-XXL. Gauging the correct size for one pair of gloves can be a challenge, but figuring out the correct size in a completely different glove type and sizing scale becomes a dilemma.

Consumers face similar problems with sizing on a regular basis, but on the battlefield, ill-fitting clothing or gloves can come with dire consequences. When a Soldier needs a new pair of gloves, unless they already have a size in the specific glove, it can be challenging to order the right sized pair.

"We needed something that would measure the Soldier's hand and provide a size that is easy to remember. Included in the sizing system are the sizes as follows: extra small, small-wide, small, medium, large, extra large, large-long, extra extra large, large-long (meaning a person's fingers are longer and his or her hand is a normal width); these sizes achieve the best fit for the range within the 95th percentile."

There are eight sizes in total, but records show that five percent of Soldiers' hands are smaller or larger than sizes at the end of the spectrum. The Soldiers that fall within the five percent (outside of the mean 95 percent) have specific measurements for their custom gloves. Although most gloves are not currently made to the hand-sizing tool exact sizes, the gloves developed by Masley Enterprises, Inc. match the sizing of the tool. Having the appropriate glove size is incredibly important, not just for comfort but for efficiency in all environments.

"When you think about winter gloves, it is all about warmth and dexterity," said Lee. "If your glove is too tight, you will not be warm because it will either cut off your circulation or there will not be enough air space between your hand and the shell of the glove to provide insulation. That is why I talk about requiring a glove to fit a certain hand size and that is why the patent is labeled as a hand-sizing tool ... because we want to make sure a glove fits a specific size hand."

Existing services' gloves can be fitted onto the hand forms Masley designed, so that Lee is able to deduce the closest comparable size based on the measured hand and the glove being ordered. Lee knows that it is not going to be an exact replica until patterns are changed to the sizing scale, but she now has a charting system to compare sizes between different types of gloves.

Lee is also acutely aware of the most important factors for obtaining the correct fitting gloves.

"Dexterity and tactility are very important for proper functionality while wearing a combat glove," Lee explained. "If you're working with a work glove, it's not going to have the same tightness and dexterity as a combat glove. If you have a winter glove, it's going to have loft to it."

Overall, the hand-sizing tool will make the process smoother for Soldiers getting issued handwear. They can simply put their hand on the tool and do not have to try on multiple pairs of gloves, which is time consuming and wasteful.

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