

Fastener in occupational wear-investigative study to identify types & to set parameters in the case of BSF

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Abstract

Any or various device which holds two different part or object together. Also some time to separates two object or parts. Performance as ease in opening and closing, upholding, protection, comfort, usage and aesthetics. requires appropriate qualities. As strength, durability, pull strength, Flexibility, resistance to corrosion etc; as per type of fastener. study of existing fastener and setting up parameters to assess performance.

Keywords: aesthetics, performance, parameters, fastener, comfort

Introduction

Fastener adds function and detail to the uniform, the fastener use will be determined by following factor Type of uniform, type of Fabric, function, position. type of opening and closing. like soft and thin fabric may required covered snap, thick fabric will required rugged open snap. Some places touch and close fastener is required as per strength and operation time. Type of button material, size, placement is decided by the function required strength, operation. As per the uniform of BSF listing out present fastener and classification has been done in this study along with setting up various standard to measure various factor which are affecting durability and performance. investigative study of different fastener used in various type of uniform of Border security force has been conducted.

Methodology

To categorized different type of fastener analysis of video recording on field activity interview with officers and "jawans" were conducted.

Literature review for the recent and new development in field of fastening system has been conducted. Along with various standard adopted for testing has been reviewed. As per that categorization and parameter has been decided to set standard.

1. Button & Button hole

Buttons are 3D object used with buttonholes for fastening of garments. Buttonholes are complete hole sized to house a button without straining the piece of clothing or fabric. Buttonholes are made on the overlap of the garment. Garments may have vertical or horizontal buttonhole. Button are stitched using yarn in to one part of fabric and other part consists button hole or loop to house it, button has two or four hole to stitch in to fabric mainly three type of button has been found in various type of uniform of BSF. Flat button with two or four hole, Snap button, shank button attached with polyester thread. worked button hole, button loop for these variation following parameter has been drawn after investigation for testing and field trial.

Table 1

Type of Button	Material	Placement	Attachment procedure	Testing type	Required result	
Two /four hole button	Appropriateness of material for button and thread	Placement as per length and width of area	Sewing technique and thread count/strength	Pull test and field trial	Depending on stressing	
Snap button	Sew on snap	Appropriateness of material for button and thread	Placement as per length and width of area	Sewing technique and thread count/strength	Pull test, corrosion test and field trial	Depending on stressing/duration
	No sew on snap	Appropriateness of material for button	Placement as per length and width of area	Snapping technique	Pull test, corrosion test and field trial	Depending on stressing/duration
Shank button	Appropriateness of material for button and thread	Placement as per length and width of area	Sewing technique and thread count/strength	Pull test, corrosion test and field trial	Depending on stressing/duration	

2. Hook and eye

Hook and eye fastener are used in the high stress area of uniform as west line, hook and eye comes in different size from very small to large depending on how much strength is required hook and eye fastener has two different attachment sew on and no sew hook and eye. No sew fastener is

clamped with fabric and it has four component. sew on fastener has round shape eye and no sew fastener has I shape eye. Few places thread eye also found mainly area which has less amount of stress. After investigation and study following parameter has been drawn for testing and field trial to validate and set up standard.

Table 2

Type of hook and eye	Material	Placement	Attachment procedure	Testing type	Required result
Sew on hook and eye	Appropriateness of material hook and eye and thread	Placement as per length and width of area and low stress area	Sewing technique and thread count/strength	Tensile strength corrosion test	Depending on stressing
No sew on hook and eye	Appropriateness of material hook and eye and thread	Placement as per length and width of area	Clamping technique	Pull test, corrosion test and field trial	Depending on stressing/ duration

3. Hook and loop

This variety of fastener is found in various place like uniform accoutrement, combat uniform, accessory. Property of easy to use of hook and loop fastener makes it more widely used fastener it has

two strap one is with polyester hooks and another strap with nylon loops touch. After investigation and study of hook and loop fastener following parameter has been drawn for testing and field trial to validate and set up standard required.

Table 3

Type of hook and loop	Material	Placement	Attachment procedure	Testing type	Required result
Sew on hook and loop	Appropriateness of material hook and loop and thread	Placement as per length and width of area and low stress area	Sewing technique and thread count/strength	Fatigue testing shear and peel strength	Depending on stressing

4. Slide fastener:

It is a closing device consisting of inter- lockable essentials each attached to one of the opposite split ends of two tapes and a movable part called a “slider” that spans the inter-lockable essentials. The term slide fastener and zipper are used interchangeably

The physical parts of a zipper are the scoop teeth, chain, lock, pull, tape, and slider. Some zippers have a thong attached to the pull link to facilitate the pulling action. Zippers may also have retainers, stops, or retainer pins. At the investigation metal and plastic moulded zipper found in use following parameters drawn to set up standard.

Table 4

Slide fastener	Material	Placement	Attachment procedure	Testing type	Required result
Metal Zipper	Appropriateness of material for set slide fastener	Placement as per length and width of area and low stress area	Sewing technique and thread count/strength	Pull of and tensile strength Lateral strength element slippage	Depending on stressing
Plastic casted Zipper	Appropriateness of material for set slide fastener	Placement as per length and width of area and low stress area	Sewing technique and thread count/strength	Pull of test Lateral strength element slippage	Depending on stressing

5. Buckle

Buckle fastener are fastening devices that are used to join together two ends of a belt, strap, or other items to keep them secure Buckles may be characterized by the application for which it is intended, the material of which it

is made, and the fastening mechanism used. there are following buckle has been found Cam Buckles, Roller Buckles, Side Release Buckles, Slide Buckles, Snap Buckles, Tie Buckles. Following parameter has been drawn for the setting standard as per field trial.

Table 5

Buckle	Material	Placement	Attachment procedure	Testing type	Required result
Cam Buckles	Appropriateness of material	Placement as per requirement	Sewing technique and thread count/strength	Braking force of buckle, fatigue resistance of buckle, strength of fastened buckle	Depending on stressing
Roller Buckles	Appropriateness of material	Placement as per requirement	Sewing technique and thread count/strength	Braking force of buckle, fatigue resistance of buckle, strength of fastened buckle	Depending on stressing
Side Release Buckles	Appropriateness of material	Placement as per requirement	Sewing technique and thread count/strength	Braking force of buckle, fatigue resistance of buckle, strength of fastened buckle	Depending on stressing
Snap Buckles	Appropriateness of material	Placement as per requirement	Sewing technique and thread count/strength	Braking force of buckle, fatigue resistance of buckle, strength of fastened buckle	Depending on stressing
Tie Buckles	Appropriateness of material	Placement as per requirement	Sewing technique and thread count/strength	Braking force of buckle, fatigue resistance of buckle, strength of fastened buckle	Depending on stressing

6. Laces, Strap & elastic

Laces with knot is being used in various paces. Strap is being used with different length and different type of buckle. Varity of laces is being used starting from shoe lace

to lanyards and epaulette. strap is being used in form of belt or with accoutrements. elasticised bottom of trouser in combat uniform has been observed. following parameter were been identified in investigative study.

Table 6

Laces and strap	Material	Length/ braiding/weaving technique	Edge and end finishing	Testing type	Required result
Lace	Appropriateness of material quality of yarn	Type of braiding and length	Type of tail end finishing.	Knot Slippage Test, Loop Wick Test, Abrasion test, Breaking Force And Extension	Depending on strength required
Strap	Appropriateness of material quality of yarn	Type of weaving and length	Type of tail end finishing	Abrasion test, Breaking Force And Extension test	Depending on strength required
Elastic	Appropriateness of material quality	Width and attachment technique	Edge finishing	Breaking force	Depending on strength required

7. Pin and clips

Split pin fastener, safety pin hat pin, multipurpose pin has

been observed in use for various accoutrements fastening. following parameter has been set in investigative study.

Table 7

Pin and clips	Material	Placement	Attachment procedure	Testing type	Required result
Pin & Clips	Appropriateness of material	Placement as per requirement	Sewing technique and thread count/strength	Tensile strength. corrosion test	Depending on strength required

Conclusion

Categorization of fastener from all type of uniform including combat uniform has been indicted along with the parameter finalization for testing of fastener and setting up standard to achieve durability and performance.

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