Technical Specification for CLOTH, Tartan, Various

Defence Clothing (DC)

PROPERTY OF
DEFENCE CLOTHING

Defence Equipment & Support

MINISTRY OF DEFENCE

TABLE 1 – PRODUCT LIST

Item Name	**CLOTH, Tartan, Various**	
Nato Stock Number (NSN)	**Pattern No**	**Colour and Description**
N/A	MAT0019B	Royal Regiment of Scotland Black, Dark Blue and Green tartan
N/A	8625A	Highland, No.1, Black Watch
N/A	8628A	Highland, No.3, Gordon
N/A	8629A	Highland, No.4, Cameron of Erracht
N/A	8630A	Highland, No.5A, MacKenzie, HLI
N/A	8631A	Highland, No.6, Douglas
N/A	8632A	Highland, No.7, Leslie
N/A	8633A	Highland, No.8, Hunting Stewart
N/A	8635A	Highland, No.9, Forbes
N/A	8636A	Highland, No.11, Red Erskine
N/A	8643A	Highland, Royal Stewart
N/A	8644A	Highland, Hunting Rose
Development File No	DCIPT/5/10/1/3 for RRS	

Any colour shown in this document is for representation and must not be used for colour matching.

IPR STATEMENT

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Technical documents in this specification refer to the edition current at the date of tender or contract unless otherwise stated.

TABLE 2 – ISSUE RECORD

Issue No	Comments	Issue Date
5	Specification updated and amended to include tartans from Def Stan 83-22/4 which is obsolete The following patterns have been transferred from Def Stan 83/22/4; 8625A Highland, No.1, Black Watch 8628A Highland, No.3, Gordon 8629A Highland, No.4, Cameron of Erracht 8630A Highland, No.5A, MacKenzie, HLI 8631A Highland, No.6, Douglas 8632A Highland, No.7, Leslie 8633A Highland, No.8, Hunting Stewart 8635A Highland, No.9, Forbes 8636A Highland, No.11, Red Erskine 8643A Highland, Royal Stewart 8644A Highland, Hunting Rose The following patterns have not been transferred from Def Stan 83-22/4 as they are not used in any DC garment specification 8626A Highland, No.1A 8627A Highland, No.2, MacKenzie, Seaforth 8634A Highland, No.8A, Hunting Stewart 8637A Highland, No.15, Red Grant 8638A Highland, No.16, Red MacDuff 8639A Highland, No.18, Red Robertson 8640A Highland, No.19, Hunting Fraser 8641A Highland, No.22, MacDonald of the Isles 8642A Highland, No.26, MacDonald of Keppoch NSN's deleted as DC do not purchase or hold any of the cloths Tables 4 & 5: Paragraph numbers added Table 4: Complete update to incorporate information for added tartans Table 6: Updated to include testing for added tartans Table 7: Updated to include testing for added tartans Table 8: Inserted to show requirements for check size	15 August 2014

TABLE 2 – ISSUE RECORD continued

Issue No	Comments	Issue Date
4	Reference to IPT deleted Dry clean staining added (test method update)	12 January 2011
3	Amendments to Break and Tear strengths and Fibre diameter inline with bulk production values.	29 July 2008
2	Insertion of check sizes and tolerance value (from Def Stan 83-22) Amendment to 'alternative selvedge' clause and width Twill direction, mass, and micron values amended NSN Removal	06 November 2006
1	New Specification	29 August 2006

PART 1

1. USE OF THE PRODUCT

Tartan cloths for making regimental kilts, trews and plaids

TABLE 3 – RELATED SPECIFICATIONS AND DOCUMENTS

Specification/Document	Detail
BS EN ISO 105	Textiles. Tests for colour fastness
Part B02	Colour fastness to artificial light: Xenon arc fading lamp test
Part D01	Colour fastness to dry cleaning
Part E01	Colour fastness to water
Part E04	Colour fastness to perspiration
Part X12	Colour fastness to rubbing
BS EN ISO 12945	Textiles. Determination of fabric propensity to surface fuzzing and pilling
Part 1	Pill box method
BS EN ISO 12947	Textiles. Determination of abrasion resistance of fabrics by the Martindale method.
Part 2	Determination of specimen breakdown
BS EN ISO 13934	Textiles. Tensile properties of fabrics.
Part 1	Determination of maximum force and elongation at maximum force using strip method
BS EN ISO 13937	Textiles. Tear properties of fabrics.
Part 3	Determination of tear force of wing shaped test specimens
BS EN 1049	Textiles. Woven construction. Methods of analysis.
Part 2	Determination of number of threads per unit length
BS EN 1773	Textiles. Fabrics. Determination of width and length
BS EN 12127	Textiles. Fabrics. Determination of mass per unit area using small samples
BS 2043	Method for the determination of wool fibre fineness by use of the projection microscope
BS 2819	Methods for determination of bow, skew and lengthening distortion in woven and knitted fabric
BS 4323	Method for the determination of dimensional change of fabrics induced by free steam
BS 4736	Determination of dimensional changes of fabrics induced by cold water immersion

2. PATTERNS

a. Master Pattern: DC holds a Master Pattern for this product. Potential contractors may view the pattern on site by arrangement with the DC Commercial Department.

b. Standard Patterns: A Standard Pattern may be obtained from the DC Technical Information Office and may be used to provide the criteria for shade, handle, finish etc not fully defined in this specification.

PART 2

3. PRODUCT DESCRIPTION

TABLE 4 – PRODUCT COMPONENTS

4.1 FIBRES	• For Pattern Number MAT0019B – 100% pure new wool quality as Table 6 • All other Pattern Numbers – 100% pure new wool of a quality at least equal to the standard pattern
4.2 YARNS	• Pattern number MAT0019B evenly spun on the worsted system • All other pattern numbers evenly spun on the woollen system

4.3 CLOTH	• Pattern number MAT0019B uniformly woven in 2 x 2 ‘Z’ twill
	• All other pattern numbers uniformly woven in 2 x 2 ‘S’ twill
	• The design is to match the relevant Standard Pattern. A guide for pattern MAT0019B is shown at Figure 1 For all other patterns overall check repeat shall be square to the size specified in Table 8 and within tolerance
	• The position of the check pattern relative to the selvedge is critical in kilt manufacture. No departure may be made from the design position as shown on the Standard Pattern.
	• Bowed or skewed cloth, as defined in BS 2819, is not acceptable
	• Tenter pinholes are to be in the selvedges and must not be prominent
	• Selvedges are to be
	  • Woven as the body of the cloth
	  • Firm and straight
	  • Conventional type
	Note: Alternative selvedge types may be considered for cloth intended for making up trews where the selvedge is not seen

TABLE 4 – PRODUCT COMPONENTS continued

4.4 DYEING AND FINISHING	• Shades and appearance of each element of the tartan is to match the corresponding element in the appropriate Standard Pattern • Handle is to match the appropriate Standard Pattern • To be steam set to prevent shrinkage or distortion by steam pressing during garment manufacture. • To be free from grease, soap, filling or any substance used to add weight or modify the handle.

TABLE 5 – SAMPLING AND COMPLIANCE TESTING

5.1 SAMPLING	• One sample is to be taken from each finishing batch, and not less the 16m from the end of a piece • Each batch must not exceed 10 pieces • Each sample is to be large enough to provide material for all the tests required • Each sample is to be identified with the piece from which it was taken

5.2 COMPLIANCE TESTING	• All samples to meet the appropriate requirements specified in Tables 6 and 7
	• Check size to meet the appropriate requirement specified in Table 8 or Figure 1
	• The check size of the finished cloth shall be measured every 5m
	  • Warp direction: No individual measurement shall vary by more than 1.5%, or the mean of the values by more than 1.0%
	  • Weft direction: There is a +1.0% tolerance but no negative tolerance
	• Mass: No plus tolerance is specified, but if a cloth is so heavy that it is unsuitable for its intended use, it will be rejected
	• Colour Fastness to Light:
	  • If the first batch sample meets requirements, no further testing required provided the dye formulation stays the same
	  • if the dye formulation is changed, light fastness is to be re-tested
	• If a sample does not meet any requirement, 2 further samples from two different pieces in the same batch are to be tested
	• If either re-test samples does not meet all requirements, the whole batch is to be rejected
	• If both re-test samples meet all requirements, the batch can be accepted except for the piece from which the failed sample was taken

TABLE 6 – PHYSICAL PERFORMANCE REQUIREMENTS

	METHOD OF TEST							
	BS EN 1773	BS EN 12127	BS EN 1049-2		BS EN ISO 13934-1		BS EN ISO 13937-3	
	Width	Mass	Threads		Breaking Strength		Tear Strength(1)	
	cm	g/m²	per cm		N		N	
	Including Selvedges	min	nominal		min		min	
			Warp	Weft	Warp	Weft	Warp	Weft
MAT0019B	140	375	17.0	15.5	640	600	55	55
All other patterns	142	360	15.7	15.0	300	300	-	-

	METHOD OF TEST				
	BS EN ISO 12945-1	BS EN ISO 12947-2	BS 4736	BS 4323	BS 2043
	Resistance to Pilling(2)	Resistance to Abrasion(3)	Dimensional Stability to Cold Water	Dimensional Stability to Free Steam	Fibre Diameter(4)
	Grade		%	%	micron
	No worse than	min	max	max	max
			Warp & Weft	Warp & Weft	Warp & Weft
MAT0019B	4-5	No breakdown	1.5	1.5	27

(1) Mean of means by electronic method
(2) 36,000 revs after 1 dry clean cycle to BS EN ISO 105: D01
(3) 50,000 cycles using 9kPa pressure
(4) To have a normal distribution and Coefficient of Variation = 25% (max)

TABLE 7 – MINIMUM COLOUR FASTNESS REQUIREMENTS

	METHOD OF TEST								
	BS EN ISO 105								
	B02	D01		E01		E04		X12	
	Light	Dry Cleaning		Water		Perspiration Acid and Alkali		Rubbing	
	Rating	Change	Stain	Change	Stain	Change	Stain	Wet	Dry
MAT0019B	6	4-5	5	4-5	4-5	4-5	4-5	4	4-5
All other patterns	6-7	4-5	5	4-5	4-5	4-5	4	3-4	4
	Except Light Blue 6 Red 6 Yellow 6								

Notes to colour fastness testing

(1) Light fastness tests are to be carried out on each individual colour. It may be necessary to make up a hank of yarn unravelled from the finished cloth to do this.

(2) For other colour fastness tests an overall assessment based on a composite specimen(s) containing all colours may be carried out.

TABLE 8 – CLOTHS, TARTAN, WOOL

Pattern No	Colour and Description	Size of Check (cm)	Remarks
MAT0019B	Royal Regiment of Scotland	See Figure 1	
8625A	Highland, No.1, Black Watch	27.5	
8628A	Highland, No.3, Gordon	34.5	
8629A	Highland, No.4, Cameron of Erracht	23.5	
8630A	Highland, No.5A, MacKenzie, HLI	35.4	
8631A	Highland, No.6, Douglas	13.6	
8632A	Highland, No.7, Leslie	22.0	Imbalance at centre of piece
8633A	Highland, No.8, Hunting Stewart	28.0	Imbalance at centre of piece
8635A	Highland, No.9, Forbes	34.7	Imbalance at centre of piece
8636A	Highland, No.11, Red Erskine	11.8	
8643A	Highland, Royal Stewart	23.8	
8644A	Highland, Hunting Rose	14.0	

FIGURE 1 – GUIDE TO TARTAN COLOUR, DESIGN AND CHECK SIZE