



**MANUFACTURING CONTROL PLAN
CONTRACT**

Document Number: CP-QUAL-106
Document Owner: Quality Manager

CP Number:	CP-QUAL-106	Supplier(s)/Plant(s):	Camira Fabrics - HDL	Change Control Ref:	
Author:	Dave Ducker	Date:	10/18/2021	Supplier Code(s):	Internal (18)
Style Code(s):	HCUZEDF400; HCUZMDF400; HCUZDDF400; HCUZLDF400	Commission Supplier Document:		Approvals	
Product Description:	Blazer Piece Dyed - HDL	WIP Route:	18	Department	Name
Composition:	100% Wool			Quality:	Bob Ellins
Colourways:	All			Manufacturer:	Bill Green
		<input type="checkbox"/> Design and Development <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> Production <input type="checkbox"/> VCA <input type="checkbox"/> VOC		HDL	Dave Ducker

Signature
 Bob Ellins
 Bill Green
 Dave Ducker
 David Ducker

PROCESS NUMBER	PROCESS NAME/ OPERATOR DESCRIPTION	MACHINE / DEVICE (E.G. JIG, TOOL FOR MFG)	M/C CHARACTERISTICS			CONTROL CHECK OR TEST	METHODS						REACTION PLAN
			PRODUCT	PROCESS	KEY SETTINGS		PROCESS SPEC AND TOLERANCE	EVALUATION/ MEASUREMENT TECHNIQUE	SAMPLE		CONTROL METHOD - PREVENTION	CONTROL METHOD - DETECTION	
									SIZE	FREQ.			
1	Strategic Purchasing Team	Supplier machinery and Test Equipment	1/16's woollen yarn - supplied from outside camira group suppliers	Supplier blending, carding, spinning, twisting, winding.	See relevant yarn supplier's process control plan.	Supplier Certificate of Analysis	Check CoAs against YSP	Check that each new batch has a CoA from the supplier	Each yarn Lot	Each yarn lot	Certificates to be checked	Certificates must show that the yarn is within the agreed specification.	Refuse delivery of the yarn or quarantine yarn and return to supplier.
1a	Camira Yarns	Supplier machinery and Test Equipment	1/16's woollen yarn - supplied internally by Camira Yarns	Supplier blending, carding, spinning, twisting, winding.	See Camira yarns process control plan.	Each yarn lot is checked for strength elongation, count, twist and uster evenness	yarn manufactured to issued spec in YSP	Each batch tested at various stages of processing - test results stored on Techserve Drive	Each yarn Lot	Each yarn lot	testing conducted by experienced testing operative	Test results must meet specification within agreed tolerances	Inform production manager and inform Camira fabrics Quality and supply chain of any non conforming product
2a	Warping	Karl Mayer Warping Machine	Ecru Packages	Creeling	Style: H0125 Colour: Y00314 Style: H0118 Colour: Y00305 Style: H0120 Colour: Y00313 Style: H0141 Colour: Y09097 Number of cones creeled calculated by warping	Check yarn details: • Style code • Colour code • Lot number	Yarn supplied to exactly match details on job sheet	Code check	N/A	All creel loads	Training of warper		Do not creel, return yarn to store. Inform: Team Leader/Planning

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2b	Warping	Karl Mayer Warping Machine	Ecru Packages	Creeling		Cursory checks for: • Uneven yarn • Poor winding • Damaged/ Soft packages	Subjective assessment of acceptability	Visual / tactile assessment by operative. Pack sizes can indicate poor winding or soft packages.	All Cones	All creel loads	Experience of operative		Stop process. Inform: Team Leader and QA manager
2c	Warping	Karl Mayer Warping Machine	Warp Beam	Initial Setting of creel and Karl Myer tensions	C = 4 T = 60 B = 100 400m/min 2,088 ends	Check machine tension settings are correct.	Creel: manual setting of tension. Karl Myer: Computer programmed.	See Warping Work Instruction	All yarn paths	All creel loads.	Experience of operative		Adjust tension settings as required
2d	Warping	Karl Mayer Warping Machine	Warp Beam	Warping of 1st section	Calculated section width (according to WI)	Measurement of section width at the point where the yarn paths meet the drum	+/-2mm	Measurement with calibrated ruler	All yarn paths	Warping of all creel loads - first section	Calibration of ruler		Re-sley all ends in line with Warping work instruction.
2e	Warping	Karl Mayer Warping Machine	Warp Beam	Warping of 1st section	T = 60 Warp Length: 54 m 2,088 ends	Tactile check of first section	Subjective assessment of acceptability	Tactile assessment of tension	All yarn paths	Warping of all creel loads - first section	Experience of operative.		During 1st section: Manually adjust tension as required. After 1st section: scrap section
3a	Gear Preparation	N/A	Gear	Building of Gear	• 203.98 • 13 dents/ inch • Wire size: 8.0 x 3.8 mm (LxW) standard J and C type • 2 ends/dent • 4 straight	Check gear make up is correct: • Reed width • Dent density • Wire size in heald • Ends/dent	To exactly match manufacturing specification	Specification check	N/A	Every gear change as determined by Barco planning system	Experience of Knotter knowing specification. Or, use of manufacturing specifications.		Select or build a different gear
3b	Knotting	Knotting machine	Knotted Beam	Knottting	N/A	Check laisings are correct and not damaged	All ends to alternate 1/1 next to laise	Visual check by knotter	All ends	Every warp change	Experience of Knotter		Re-laise warp

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3c	Knotting	Knotting machine	Knotted Beam	Knotting	N/A	Visual check for ends out	No broken ends or dropped headles	Visual check by knotter	All ends	Every warp change	Experience of knotter. Knotting machine: • Bi-weekly oiling • Monthly oil bath service		Repair yarn path
4a	Weaving	Loom	Ecru Packages	Mounting weft cones	Style: H0125 Colour: Y00314 Style: H0118 Colour: Y00305 Style: H0120 Colour: Y00313	Check yarn details: • Style code • Colour code • Lot number	Yarn supplied to exactly match details on job sheet	Code check	N/A	Every yarn box supplied to loom	Training of Weaver		If style/ colour is different: Return to yarn store. Inform Team leader/ planning. If lot is different: Update job sheet.
4b	Weaving	Loom	Ecru Packages	Mounting weft cones	Mix weft on 3 or 4 feeders	Weft packages are fed off the correct number of feeders	To exactly match manufacturing specification	Visual check by weaver	All Cones	All cones for all batches	Training of Weaver		Stop loom immediately and adjust feed to match specification.

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4c	Weaving	Loom	Loomstate	Shift change weaving check	N/A	<ul style="list-style-type: none"> Correct yarn lot at loom Dropping short Fly backs/Trailers Temple marks Wrong sleyed ends Ends out Uneven yarn Warp lines Floating ends Fringes on roll ends Electrical cabinet doors are locked 	<ul style="list-style-type: none"> Weft yarn lot exactly matches details on job sheet. No faults in fabric Cabinet door locked 	<ul style="list-style-type: none"> Check yarn lot number on yarn packages against job sheet Visual and tactile check 	Every loom	Beginning of every shift	Experience and training of tuner		Record check on FORM-WEAVE-008 . Tick box if no fault/issue found. Cross box if fault is found and note detail on sheet. Depending on severity of fault/issue, tuner to amend problem and document on sheet or inform Team Leader. Report yarn faults to quality.
4d	Weaving	Loom	Loomstate	Setting up checks	N/A	Check temple and pin wheel condition: <ul style="list-style-type: none"> Contamination Damage 	Pass/fail acceptability: <ul style="list-style-type: none"> Free of contamination No damage observed 	Visual check by tuner	Both temples	Beginning of every job	Experience and training of tuner		If contaminated: Clean If damaged: Replace
4e	Weaving	Loom	Loomstate	Setting up checks	N/A	Check accumulator tensions	Tension should be even across feeders	Tactile assessment of tension to compare weft feeders	Every weft feeder	Every weft cone change	Experience and training of tuner		Adjust tension setting on accumulator

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4f	Weaving	Loom	Loomstate	Setting up checks	118.00 picks/10cm	Piece glass pick rate check	To exactly match manufacturing specification	Visual check by tuner	5cm ²	Beginning of every job	Experience and training of tuner. For pick wheel changes: pick wheel table.		Document on job sheet. If incorrect, depending on loom type, change pick wheel or pick rate setting. Check beam let off speed (warp diameter). Inform: Team Leader if cannot be corrected.
4g	Weaving	Loom	Loomstate	Setting up checks	N/A	Check the gratter roller: • No foreign objects between the warp and gratter • Guards are in place	• No foreign objects present • Guards are in place	Visual check by tuner	N/A	Beginning of every job	Experience and training of tuner		Remove foreign objects if present. Replace guards if missing. Sign job sheet.
4h	Weaving	Loom	Loomstate	Setting up checks	kN Tension on Warp	Warp tension check	Subjective assessment of acceptability	Tactile assessment of tension	N/A	Beginning of every job	Experience of tuner		Adjust tension as necessary. Not routinely recorded.
4i	Weaving	Loom	Loomstate	Black Pick Passing Strips	Disc/ peg plan: 0408 102.36 ends/10cm 118.00 picks/10cm	Check strip for: • Width • End density • Pick density • Woven structure • Weft yarns have been fed in correct order • Ends out/Double ends	• 193.78 +/- 2 cm • See key settings • See key settings • Structure correct • No faulty ends	• Tape Measure • Pick glass • Visual assessment against peg plan or physical standard	30cm strip	Beginning of every job	Experience of Team leader Peg plan specification Woven standards		Stop loom immediately. Do not continue until tuner has identified and corrected problem. Repeat passing strip check until approved by team leader.

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5	Marshal Fabric	Weight scales and transport	Loomstate Fabric	Packing and dispatch	[(Weight - 4kg) ÷ 0.641kg/m]÷2 = length As stated on F-PD-0001	Measure weight of roll to find out the length per piece	+/- 0.2 kg	Weight full roll on scales	49m	Every Loomstate Roll	Measured by marshal, update records. Calibration of scales annually.		If correct: Document roll length on freight note and book roll (with length) on AS400. If incorrect: Inform team leader.
SEND TO HFD													
6a	Unroll and measure	Roll to roll measuring machine.	Rolled fabric prepared for scour milling	Unrolling and cuttling	Set loomstate lengths of 400	Measure to required length. Document length of each roll on production worksheet.	Linear metre measurement: Upper tolerance 10 metres	Length measure via Trumeter	Full roll	Every Loomstate roll for every batch			If above 10m tolerance, remove excess to be put aside for roll ends.
6b	Unroll and measure	Roll to roll measuring machine.	Rolled fabric prepared for scour milling	Unrolling and cuttling	N/A		No tolerance - measurement for reference only		Single point	Once per batch	Operative Training		N/A
7	Scour Mill	Milling Machine	Milled Fabric	Scour and Mill	Mill to dimensions, refer to specification chart Length 82 cms Width = 33.5 cms	Measure width of outside of roll. Mill to width 28 cms / length 82 cms		Measure Width using ruler and Length with a metre mark string sewn in	800m	4 cycles per day, checked after 1 hour			Controlled by operator to predefined measurements. IF out of listed specification, operator works out the new milling time, or requests calculation from supervisors
8	Detwisting	Detwister	Milled Fabric	Detwist for final heat set	N/A	No control checks in place	N/A	N/A	N/A	N/A	N/A		N/A

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9	Drying	Tenter	Milled fabric	Dry pre piece dyeing	Pyro: 160 Speed: 14m/minute 140cm pin-pin	Temperature Check	Minimum temperature of pyrometer setting for this product (as per tenter setting programme).	Temperature strip applied to face of cloth			Operative Training. Regular machine maintenance.		If temperature strip hasn't reached required temperature, report to engineer, adjust temperature and reprocess full batch. If oil stains present dry clean at 15m/min.
10	Bagging	Bagging	Dried Fabric	Bagging	N/A	N/A	N/A	N/A	Full roll				
13	Dyeing	Winch Dyeing Machine	Dyed Fabric	Dyeing	Dye Temp 98°c / Rope speed 70m/min Assess shade after 4 hours	Rope speed check? Time / temp check.	Check shade by eye.	Visual assessment by trained dyer. to agreed master.	Visual	Every batch	Operative Training. Regular machine maintenance.		Re-dye if off shade.
14	Detwist	Detwister	Dyed Fabric	Drying and Detwisting	N/A	N/A	N/A	N/A	All batch	All dye lots	N/A		N/A
15	Tenter	Tenter	Dyed Fabric	drying	Temp 160°c Speed 14m/min width 146cm	Check temperature Check weft straightness	As per Temperature setting						
16	Cuttle	Carts	Dyed Fabric	Cuttling	N/A	N/A	N/A	N/A	All batch	All dye lots	N/A		N/A
17	Cropping	Cropper	Dyed dry fabric	Cropping	Face x 2 back x 1	Visual check for hairiness	As per machine setting	Visual assessment	1 sample	All dye lots			Correction for shade

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18	Perch	Perch	Dyed Fabric cropped fabric	Cropping	Inspect to Camira inspection tagging procedure - Visual check of bow and skew.	Visual assessment of weft straightness	No tolerances determined	Visual assessment	All metres	Every batch			Report to supervisor.
19	Fabric Pressing	Sperotto Decofast	Finished fabric	Decofast (Continuous Decatise)	Prog: 13	No processing control checks in place							No control checks in place
20	Final Inspection	Illuminated (D65) rolling and inspection machine.	Finished fabric	Inspection	Inspect to Camira inspection tagging procedure - Visual check of bow and skew; useable width to specification for fabric.	Visual check of bow and skew on every piece inspected. Check tagging level to Camira tagging procedure.	Finished width 140cms (minimum); bow and skew = 2.5% max.	Visual by trained operator.	100% inspection.	Every batch.	Trained fabric inspector.		Re-process fabric or inform Camira QA of "out of specification" fabric.

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