



MANUFACTURING CONTROL PLAN

Document Number: CP-QUAL-101
 Document Owner: Quality Manager

CP Number : CP-QUAL-101		Supplier(s)/Plant(s) : Camira Fabrics/ HDL		Change Control Ref :	
Author : Dave Ducker	Date : 1/18/2021	Supplier Code(s) : Internal (18)		Author :	Date Approved :
Style Code / Codes	HLDSFCF400 HLDSFCF400 HLDSPCF400 HLDSMDF400	Wip Route : 1/18/1900		Approvals	
Product Description : Synergy 140 Piece Dyed	Note- Yarn supply of 1/16`s is dual supplied by more than one supplier including Camira yarns		Department	Name	Signature DocuSigned by:
Composition : 95% Wool, 5% Polyamide			Quality : Bob Ellins		
Colourways : All			Manufacture : 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		Commission Supplier : Dave Ducker	

PROCESS NUMBER	PROCESS NAME/ OPERATOR DESCRIPTION	MACHINE / DEVICE (E.G. JIG, TOOL FOR MFG)	PRODUCT CHARACTERISTICS			CONTROL CHECK OR TEST	METHODS						REACTION PLAN
			PRODUCT	PROCESS	KEY SETTINGS		PRODUCT/ 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	2/23NM.	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.
1b	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.
1c	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



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2a	Warping	Karl Mayer Warping Machine	2/23NM All wool.	Creeling	See Manufacturing Specification on issued Job Sheet for relevant for style code.	Check yarn details: • Yarn Style and colour code • Yarn lot number	Yarn supplied to exactly match details on job sheet.	Code Check	N/A	All creel loads	Creeling working Practice		Do not creel, return yarn to store. Inform: Team Leader/ Planning
2b	Warping	Karl Mayer Warping Machine	2/23NM All wool.	Creeling	See Manufacturing Specification on issued Job Sheet for relevant for style code.	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	See Manufacturing Specification on issued Job Sheet for relevant for style code.	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 to those specified
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 the yarn paths meet the drum	+/-2mm	Measurement with calibrated ruler	All yarn paths	First section of every warp	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	See Manufacturing Specification on issued Job Sheet for relevant for style code.	Tactile check of first section	Subjective assessment of acceptability	Tactile assessment of tension	All yarn paths	First section of every warp	Experience of operative.		During 1st section: Manually adjust tension as required. After 1st section: scrap section and inform team leader.

Revision: R11

Last Revision Summary: Change of Dyeing / Finishing from WTJ to HDL

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3a	Gear Preparation	N/A	Gear	Building of Gear	See Manufacturing Specification on issued Job Sheet for relevant for style code.	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	Knotting	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
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		Repair yarn path
4a	Weaving	Loom	1/15.2 YSW. All wool.	Mounting weft cones	Yarn Style: H0117; H0127; H0118.	Check yarn details: • Yarn Style and colour code • Yarn lot number	Yarn supplied to exactly match details on job sheet.	Code Check	N/A	Every yarn box supplied to the 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	1/15.2 YSW. All wool.	Mounting weft cones	Weft mix on 3 or 4 feeders	Check that the weft packages are fed off 3 or 4 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	Loom state fabric.	Shift 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/communicate to Team Leader. Report yarn faults to quality.
4d	Weaving	Loom	Loom state fabric.	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		<ul style="list-style-type: none"> If contaminated - clean If damaged - replace
4e	Weaving	Loom	Loom state fabric.	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
4f	Weaving	Loom	Loom state fabric.	Setting up checks	Check picks / inch = 25.4	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, refer to pick table for pick wheel changes		Document on job sheet. If incorrect, depending on loom type, change pick wheel or pick rate setting. Check beam let off speed (warp diameter).

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4g	Weaving	Loom	Loom state fabric.	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	Loom state fabric.	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	Loom state fabric.	Black Pick Passing Strips on Jacquard Looms only	See Manufacturing Specification on issued Job Sheet for relevant for style code.	Check strip for: • Width • End density • Pick density • Woven structure • Ends out/Double ends	• 143.17 +/- 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.
5	Marshal Fabric	Weight scales and transport	Loom state Fabric	Packing and dispatch	$[(\text{Weight} - 4\text{kg}) \div 0.6395\text{g/m}] = \text{length}$ 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	66.5m	Every Loom state Roll	Scales calibrated 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	Unrolling and cutting equipment	Cuttled Fabric	Unrolling and cutting	Jumbo rolls measured and cut for milling	Make sure sewing's are straight.	Total m/4		Full roll	Every loomstate roll for every batch			Bad sewing's to be cut out and re-sewn.
6b	Unroll and measure	Unrolling and cutting equipment	Cuttled Fabric	Unrolling and cutting	Single rolls numbered and unrolled.	Measure width of outside of roll and record on production records.	No tolerance - measurement for reference only	Measure width using tape measure	Single point	Once per batch	Standard measuring tape		Measurement for reference only

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7	Scour/ Milling	Rope scour/milling machine	Ecru fabric	Scour/ Milling	Mill to dimensions, refer to specification chart L= 82 W = 33.5	Scour mill to specification Length and width. Length 82 cms / Width 33.5 cms	Mill to width/length as spec chart	Measure width using tape measure	One piece.	Once per batch	Standard measuring tape		If weight or width cannot be achieved inform Camira Quality.
8	De-twist	De-Twister	Milled Fabric	De-twisting	N/A	N/A	N/A	N/A	All Batch	All dyelots			
13	Dyeing	Winch Dyeing Machine	Dyed Fabric	Dyeing	Dye Temp 98' c / Rope speed 70m/min Time 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	Detwisting	N/A	N/A	N/A	N/A	All batch	All dyelots	N/A		N/A
15	Tenter Drying	Tenter	Dyed Fabric	drying	Temp 160'c O/F 5% Width 146cm	Check bow and skew.	2.5% across usable width	As per WI	Single Point	Once per Batch			Visual assessment
16	Cropping	Solid Bed Cropping	Cropped Fabric	Cropping	Full crop, 3 cylinders	Visual check on cropped fabric by trained operative.	No visible long hairs present - compare to finished sample for this quality.	Visual by trained operator.	Single point	Once per batch	n/a		Re-crop.
17	Perch	Perching table	Cropped Fabric	Perching	Inspect to Camira inspection tagging procedure.	Visual check by trained operator against approved finished fabric for quality.	Visual assessment	Visual by trained operator.	Single point	Once per batch	n/a		Re-Press

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18	Decatize Press	Sperotto	Dyed Fabric	Pressing	Program 13	Visual check by trained operator against approved finished fabric for quality.	Visual assessment	Visual by trained operator.	Single point	all batches			
19	Final Inspection	Illuminated (D65) rolling and inspection machine	Finished fabric	Final Inspection	Inspect to Camira inspection tagging procedure. Check bow and skew and useable width to specification for fabric.	Check fabric width and bow and skew on every piece inspected. Check if faults tagged is in the requirement of Camira's tagging procedure for the fabric concerned.	Tag as per Camira tagging procedure. Finished width 140cms (minimum); bow and skew = 2.5% (maximum).	Visual by trained operator.	100% inspection.	Every Batch	Trained inspector.		Re-process fabric or inform Camira of out of specification pieces.
19a	Laboratory assessment prior to dispatch	Light Cabinet	Finished fabric	Testing of finished sample	D65 lighting	Visual assessment of colour	Must be within commercial tolerance to standard and sit with continuity	Visual assessment	10cm ²	Every Batch	Lightbulbs changed regularly. Trained Colour Analyst		Return fabric to dye vessel for rework
19b	Laboratory assessment prior to dispatch	Tape Measure	Finished fabric	Testing of finished sample	N/A	Width	140cm pin-to-pin minimum	BS EN 1773	1m	Every Batch	Measured by lab technician Calibrated ruler		If below specified width, wet out and reprocess
19c	Laboratory assessment prior to dispatch	Weight scales	Finished fabric	Testing of finished sample	N/A	Weight	495 gm ⁻² +/- 5% (271 - 298)	BS EN 12127	1m	Every Batch	Calibration of weight scales		If below specified width, wet out and reprocess

RETURN TO CAMIRA MELTHAM

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