

Basic Garment Construction

Activewear pattern making begins with a solid grasp of the terminology that defines garment construction. Understanding each term not only clarifies the design process but also ensures accurate communication between designers, technicians, and manufacturers. The following comprehensive list presents the key vocabulary used throughout the course, accompanied by clear definitions, examples of application in activewear, and common challenges that may arise when interpreting or implementing each concept.

Seam – The line where two pieces of fabric are joined together. In activewear, seams must be strong yet flexible, often reinforced with flatlock stitching to prevent chafing. A typical challenge is maintaining seam allowance consistency when working with stretchy knits, as the fabric can distort during cutting.

Seam allowance (SA) – The distance between the stitching line and the raw edge of the fabric. Standard allowances for activewear range from $\frac{1}{4}$ " to $\frac{1}{2}$ ", depending on the fabric weight and the type of seam. A frequent error is neglecting to add extra allowance for fabrics that fray easily, such as woven polyester blends.

Flatlock stitch – A seam finish that creates a smooth, low-profile seam by interlocking two rows of stitching. This technique is preferred for leggings and sports bras because it reduces bulk and skin irritation. The main difficulty lies in setting the machine tension correctly to avoid puckering on highly elastic fabrics.

Overlock (serger) stitch – A stitch that simultaneously trims the edge of the fabric while enclosing it with thread. Overlock stitching is essential for finishing raw edges on activewear to prevent fraying. When using a serger on stretchy material, the tension must be balanced to avoid stretching the seam during stitching.

French seam – A seam that is sewn twice, with the raw edges encased within the seam allowance, creating a clean interior finish. Although less common in activewear due to added bulk, French seams are useful for delicate inserts, such as mesh panels, where a smooth interior is desirable. The challenge is maintaining a consistent seam width on fabrics that stretch.

Bias – The diagonal direction of the fabric grain, typically at a 45° angle to the warp and weft. Cutting on the bias gives the fabric more stretch and drape, which is advantageous for shaping sleeves or waistbands in performance tops. However, bias-cut pieces can distort during sewing if not handled carefully.

Grainline – A line drawn on a pattern piece indicating the direction of the fabric's warp (parallel to the selvage). Aligning the grainline ensures the garment hangs correctly and maintains its intended stretch properties. Misalignment can cause a garment to twist or lose shape after wear.

Selvage – The tightly woven edge of fabric that prevents fraying. In activewear, selvage is often used as a reference for aligning grainlines during cutting. Ignoring selvage placement can lead to uneven stretch across the garment.

Notch – Small marks, usually triangular, placed on pattern edges to indicate where pieces should be matched during assembly. Notches are critical for aligning seams in complex activewear designs, such as multi-panel leggings. Overlooking a notch can cause mismatched seams and an uncomfortable fit.

Marking – The process of transferring pattern information onto fabric using tools such as tailor's chalk, fabric pens, or heat-transfer pencils. For activewear, water-soluble markers are preferred to avoid residue on moisture-wicking fabrics. A common pitfall is using a marking tool that reacts with the fabric's finish, leaving stains.

Dart – A tapered fold of fabric used to shape a garment to the body. In activewear, darts are often minimized to maintain a sleek silhouette, but may appear in fitted tops to accommodate bust contours. Incorrect dart placement can create unwanted bulges or restrict movement.

Gusset – An inserted piece of fabric that adds extra room and flexibility, commonly placed in the crotch area of leggings or underarm of sleeves. Gussets improve range of motion and reduce stress on seams. Designing a gusset involves careful measurement to avoid excess bulk while providing sufficient stretch.

Yoke – A shaped panel that provides structure and support, often found in the back of sports jackets or the waist of high-waisted shorts. Yokes distribute tension evenly across the garment. A challenge is ensuring the yoke's grain aligns with the body's natural lines to avoid twisting.

Panel – A separate fabric piece that forms part of a garment, frequently used in activewear to combine different textures (e.g., Mesh, neoprene, and woven polyester). Panels must be precisely cut and aligned to maintain aesthetic continuity. Misaligned panels can create visual seams that disrupt the design's flow.

Facing – A fabric piece used to finish the interior edge of an opening, such as a neckline or armhole. In activewear, facings are often made from the same stretch fabric to preserve comfort. The difficulty lies in stitching facings without causing distortion, especially on curved edges.

Binding – A strip of fabric used to finish raw edges, providing both durability and a decorative element. Binding is common on the edges of jogger pants or the hem of a sports tee. When binding stretchy fabric, the binder must be cut on the bias to allow for adequate flexibility.

Hem – The finished edge of a garment, typically at the bottom of a shirt, pant leg, or sleeve. In activewear, hems may be left raw, overlocked, or finished with a folded hem for a clean look. A common issue is uneven hemming on elastic fabrics, which can lead to uneven drape.

Topstitch – A line of stitching visible on the garment's exterior, often used for decorative purposes or to reinforce seams. In activewear, topstitching may be placed on the outer side of a seam to add visual interest and extra strength. Too tight a topstitch on stretchy fabric can cause the seam to pucker.

Understitch – A stitching line placed on the inside of a seam, securing the seam allowance to the garment's interior. This prevents the seam from rolling outward, a frequent concern in leggings. The challenge is achieving an even stitch length without pulling the fabric.

Stay – A strip of fabric, often interfacing, inserted into a garment to provide rigidity, such as in the collar or

waistband of a performance jacket. Stays must be lightweight to avoid restricting movement. Selecting the wrong weight of interfacing can make the garment feel stiff.

Interfacing – A material used to add structure to specific areas, bonded or sewn to the fabric. In activewear, fusible interfacing is preferred for its light weight and ease of application. Over-interfacing a stretch panel can hinder its elasticity.

Lining – An inner layer of fabric that adds comfort, opacity, or moisture management. Many activewear jackets feature a breathable mesh lining to wick sweat. A challenge is selecting a lining that does not add bulk or impede the garment's stretch.

Moisture-wicking – Fabric technology that pulls sweat away from the skin to the garment's outer surface for evaporation. Understanding this term helps in pattern design, as seam placement should avoid areas where wicking may be compromised. Improper seam placement can trap moisture, leading to discomfort.

Four-way stretch – Fabric that stretches both horizontally and vertically, essential for high-performance activewear. Patterns must accommodate this elasticity by allowing for appropriate ease. Over-restricting a four-way stretch fabric can negate its benefits.

One-way stretch – Fabric that stretches primarily in one direction, usually the warp. Designers must align the stretch direction with the body's movement, such as along the length of a sleeve. Misalignment can cause the garment to feel restrictive.

Ease – The amount of extra space built into a garment for comfort and movement. Activewear typically employs minimal ease to achieve a close-fit aesthetic while still allowing range of motion. Calculating ease incorrectly can result in a garment that is either too tight or too baggy.

Fit – The overall shape and how a garment conforms to the body. In activewear, fit categories include "compression," "support," and "relaxed." Understanding fit terminology guides pattern adjustments and grading decisions. A misfit can affect performance, especially in compression gear.

Grading – The process of creating multiple size patterns from a base size by proportionally increasing or decreasing dimensions. Grading activewear requires special attention to stretch percentages and seam allowances, as small changes can dramatically affect fit. A common error is applying linear grading to fabrics that behave non-linearly under stretch.

Pattern block – A basic, reusable shape that serves as the foundation for developing more complex garment patterns. For activewear, a basic bodysuit block can be modified to create tanks, leggings, or jackets. Mastery of the block simplifies design variations.

Drafting – The act of creating a pattern from measurements or a block. Drafting activewear patterns often involves adding features such as mesh inserts, zippered pockets, and reflective panels. Drafting precision is critical; small inaccuracies can lead to poor performance.

Scale ruler – A ruler marked with proportional scales used for pattern making and grading. In activewear, a 1:2 Or 1:4 Scale may be employed for large pattern pieces. Misreading the scale can cause significant size

discrepancies.

Tracing wheel – A tool used to transfer pattern lines onto fabric or paper by rolling it over a template. When tracing on stretchy fabrics, a light hand is needed to avoid stretching the material. Excessive pressure can distort the pattern line.

Cutting line – The line along which fabric is cut, usually indicated on the pattern. In activewear, the cutting line must be clear to avoid cutting into hidden seam allowances. Inaccurate cutting lines can lead to missing seam allowance and weak seams.

Notches, holes, and ticks – Small marks that help align pattern pieces during assembly. Notches are triangular, holes are circular, and ticks are small lines. In activewear, ticks often indicate the placement of elastic bands. Forgetting to align these can cause asymmetry.

Elastic – A flexible material used to provide stretch and recovery, commonly found in waistbands, cuffs, and bra straps. Elastic is measured in width and percentage of stretch (e.g., 100% Stretch). Over-stretching elastic during sewing can reduce its lifespan.

Bias tape – Narrow strips of fabric cut on the bias, used for binding edges or decorative accents. Bias tape is especially useful for finishing armholes on stretch tops. The challenge is ensuring the tape is correctly folded to avoid bulk.

Grommet – A metal or plastic ring inserted into fabric to reinforce a hole, often used for drawstrings on hoodies or leggings. Grommets must be placed away from high-stress seams to prevent tearing. Installing grommets on stretch fabric requires a proper tool to avoid distorting the surrounding material.

Snap fastener – A two-part closure that clicks together, frequently used on sports bras and jackets. Snaps need to be applied with a snap press to ensure a secure fit. Incorrect alignment can cause the snap to sit unevenly, leading to discomfort.

Hook-and-loop (Velcro) – A fastening system consisting of two complementary strips: Hooks and loops. It is widely used for adjustable cuffs and straps in activewear. Hook-and-loop must be sewn with a strong stitch and reinforced stitching to withstand repeated opening and closing.

Zipper – A mechanical closure consisting of interlocking teeth. In activewear, lightweight YKK® zippers are preferred for their durability and smooth operation. Zippers must be positioned so that the teeth do not interfere with stretch zones, and the stitching should be reinforced at the top and bottom stops.

Seam ripper – A tool used to remove stitches. While not a construction element, it is essential for correcting errors in activewear patterns where a misplaced seam can affect stretch. Using a seam ripper carefully prevents tearing delicate fabrics.

Pattern grain – The direction of the warp and weft in a pattern piece. Proper grain alignment is crucial for maintaining the intended drape and stretch. For example, a side seam cut on the grain will behave differently from one cut on the bias.

Fabric grain drift – A slight deviation of the fabric's grain from the expected straight line, often caused by the way the fabric is laid out. Detecting grain drift before cutting prevents mismatched seams, especially in fabrics with a directional print.

Stretch percentage – The amount a fabric can elongate relative to its original length, expressed as a percentage. Knowing the stretch percentage helps determine appropriate seam allowances and ease. Under-estimating stretch can cause seams to break under load.

Recovery – The ability of a fabric to return to its original shape after being stretched. High recovery is essential for compression garments. Low recovery can result in sagging or loss of support over time.

Fabric weight – Measured in ounces per square yard or grams per square meter, indicating the thickness and density of the material. Lightweight fabrics (e.G., 3-4 Oz) are used for tops, while heavier fabrics (e.G., 8-10 Oz) suit jackets. Selecting the correct weight influences seam strength and comfort.

Fabric hand – The way a fabric feels to the touch, including its softness, drape, and flexibility. In activewear, a "soft hand" is often desired for comfort against the skin. Fabric hand can affect how the pattern sits on the body; a stiff hand may require additional ease.

Print direction – The orientation of a printed pattern or graphic on the fabric. When cutting activewear, the print direction must be aligned with the garment's design to maintain visual consistency. Ignoring print direction can result in mismatched graphics across seams.

Seam finish – The method used to treat raw edges to prevent fraying and improve durability. Common finishes in activewear include overlock, flatlock, and binding. Choosing the wrong finish can create bulk or reduce breathability.

Pellicle – A thin, flexible coating applied to fabric to enhance water resistance or UV protection. Though not a construction element, knowing whether a fabric has a pellicle influences decisions about seam sealing and stitching tension.

Seam allowance reduction (SAR) – The practice of decreasing the standard seam allowance in areas where a tighter fit is required, such as around the ankle of a compression sock. SAR must be calculated carefully to avoid weakening the seam.

Chamfer – A beveled edge created by cutting off a corner of a pattern piece, often used to ease the joining of curved sections. In activewear, chamfers help reduce bulk at the intersection of a cuff and a leg seam. Improper chamfer size can cause gaps.

Notch placement – The strategic location of notches to guide assembly. In multi-panel garments, notches are placed at key points such as the apex of a side seam or the center of a waistband. Missing a notch can lead to misaligned panels.

Fly front – A closure system on the front of pants, typically involving a zipper and a placket. While less common in tight-fit leggings, a fly front may appear on joggers. Designing a fly front in stretch fabrics requires reinforced stitching to prevent tearing.

Placket – A strip of fabric that houses a closure, such as a zipper or buttons. In activewear jackets, a concealed placket provides a clean look while protecting the zipper from sweat. Incorrect placket alignment can cause the zipper to sit unevenly.

Collar – The band of fabric that frames the neckline. Activewear collars range from simple ribbed cuffs to high-neck performance collars with moisture-wicking liners. A poorly constructed collar can irritate the neck during vigorous activity.

Ribbing – A knit fabric with vertical ribs that provides elasticity, commonly used for cuffs, waistbands, and collars. Ribbing must be cut on the grain to maintain its stretch characteristics. When sewing ribbing to a woven panel, a stretch stitch is essential to avoid puckering.

Stretch stitch – A stitch length and tension setting that accommodates elastic fabrics, allowing the seam to stretch without breaking. Most modern sewing machines have a dedicated stretch stitch option. Using a regular straight stitch on stretchy fabric often results in seam breakage.

Backstitch – A reinforcing stitch at the beginning and end of a seam to prevent it from unraveling. In activewear, backstitching is critical at high-stress points such as the ends of a zipper or where elastic is attached. Forgetting to backstitch can cause seam slippage.

Bar tack – A dense, reinforced stitch used to strengthen areas that experience high stress, such as pocket corners or strap attachments. In activewear, bar tacks are placed where a drawstring passes through a cuff. Improper bar tacking can create a hard spot that irritates the skin.

Bias binding – Binding cut on the bias to provide flexibility around curved edges, often used on the leg openings of leggings. Bias binding must be folded correctly to avoid bulk. A common mistake is using straight-grain binding, which restricts movement.

Underlining – A lightweight fabric sewn between the outer fabric and the lining to add structure without adding weight. In performance tops, underlining helps maintain shape while preserving breathability. Selecting an underlining that is too heavy can hinder stretch.

Fabric grainline indicator – A small arrow or line on a pattern piece showing the direction of the grain. In digital pattern software, the indicator may be a colored line. Always verify the indicator before cutting to avoid grain misalignment.

Pattern layout – The arrangement of pattern pieces on the fabric to maximize material usage and ensure grain consistency. For activewear, layout must also consider directional prints and the placement of stretch zones. Poor layout can waste fabric and create mismatched patterns.

Marker – A layout plan, often created in CAD software, that shows how multiple pattern pieces will be placed on the fabric. Markers are essential for large-scale production to reduce waste and maintain consistency. Errors in the marker can lead to mismatched seams in the final garment.

Fabric slippage – The tendency of fabric layers to shift against each other during cutting, especially with slippery synthetic blends. To prevent slippage, use a static-reducing spray or weigh the fabric down.

Slippage can cause misaligned grainlines and uneven seam allowances.

Seam puckering – A gathering or rippling of fabric along a seam, often caused by uneven tension, incorrect stitch length, or mismatched stretch. In activewear, puckering reduces comfort and can cause abrasion.

Adjusting tension and using a stretch stitch can mitigate this issue.

Stitch density – The number of stitches per inch a machine makes. Higher stitch density provides stronger seams but can cause fabric perforation in delicate knit fabrics. Finding the optimal density for each fabric type is key to durability.

Thread tension – The force applied to thread as it passes through the machine's tension discs. Proper tension ensures balanced stitches. In stretchy fabrics, a slightly looser tension helps prevent seam breakage.

Bobbin thread – The thread wound on the machine's bobbin, forming the underside of a stitch. Matching bobbin thread weight to the top thread is crucial for balanced seams. Using a heavy bobbin thread on a lightweight top thread can cause puckering.

Thread type – The composition of the thread, such as polyester, cotton, or nylon. Polyester thread is commonly used in activewear for its strength and elasticity. Selecting a thread that is too rigid can limit seam stretch.

Seam allowance grading – The process of tapering seam allowances to reduce bulk in curved areas, such as armholes or necklines. Grading creates a smoother finish and improves comfort. Failing to grade can result in a stiff, uncomfortable seam.

Pattern grading rule – A set of guidelines that dictate how much each measurement should increase or decrease between sizes. In activewear, grading rules must account for the fabric's stretch and the intended fit category. Applying a standard clothing rule without adjustment can produce ill-fitting sizes.

Pattern notch depth – The size of the notch cut into a pattern piece, typically 1/4" to 3/8". Deeper notches are easier to see on thick fabrics but can weaken the edge if not reinforced. Choose an appropriate depth based on fabric thickness.

Pattern grainline tolerance – The acceptable deviation from the true grainline, usually measured in degrees. In high-precision activewear, tolerance is kept within 2° to maintain consistent stretch. Exceeding tolerance can cause distortion during wear.

Pattern digitizing – Converting hand-drawn or scanned patterns into digital files for CAD manipulation. Digitizing enables easy modifications, grading, and marker creation. Accuracy in digitizing is vital; even small errors can propagate through the production process.

Pattern scaling – Adjusting a pattern's size proportionally, often done when adapting a design for different body types. Scaling must preserve the relationship between pattern pieces to maintain fit. Over-scaling can lead to excessive fabric waste.

Pattern nesting – Arranging multiple pattern pieces within a larger area to minimize waste, similar to marker

creation but focused on a single size. Effective nesting reduces material cost and environmental impact.

Fabric lay – The way fabric is placed on the cutting table, considering grain, pattern direction, and any printed elements. A proper lay ensures consistent grain across all pieces. Improper lay can cause one leg of a pant to be tighter than the other.

Fabric tension – The resistance of fabric to being stretched or pulled. High tension fabrics, such as woven polyester, require different handling than low tension, highly elastic knits. Understanding tension guides decisions about seam allowance and stitch type.

Seam allowance reduction (SAR) – A targeted decrease in seam allowance for areas where a tighter fit is needed, such as the inner thigh of compression leggings. SAR must be balanced against the need for seam strength; too little allowance can cause seam failure.

Seam allowance reinforcement – Adding extra stitches, bar tacks, or interfacing to strengthen a seam. In activewear, reinforcement is often applied at the ends of a zipper, at gusset corners, and where elastic is sewn. Reinforcement adds durability without sacrificing flexibility.

Seam allowance marking – The practice of drawing the seam allowance on the fabric after cutting, using a fabric-safe marker. This helps in aligning pieces during sewing, especially when multiple layers are involved. Inaccurate marking can cause mismatched seams.

Seam allowance stitching – The actual stitching of the seam allowance to the fabric. For activewear, a stretch stitch with a slight stretch is preferred to maintain seam integrity while allowing movement.

Seam allowance trimming – Cutting away excess seam allowance after stitching to reduce bulk. In tight-fit activewear, trimming is essential to prevent the seam from creating a ridge that could irritate the skin. Care must be taken not to cut too close to the stitching.

Seam allowance grading – Tapering the seam allowance gradually from thick to thin to reduce bulk, especially in curved areas. Grading improves the garment's drape and comfort.

Fabric pre-shrinkage – The process of pre-washing fabric to reduce future shrinkage after the garment is made. Many activewear fabrics are pre-shrunk, but checking specifications is important. Failure to account for shrinkage can result in a tight final product.

Fabric pretension – The amount of stretch applied to fabric before cutting, often done by pulling the fabric taut on the cutting table. Proper pretension ensures accurate dimensions, particularly for fabrics with high stretch.

Fabric stabilization – Adding a temporary stabilizer to prevent distortion while cutting or sewing delicate stretch fabrics. Stabilizers are removed after construction. Incorrect stabilization can leave residue or affect breathability.

Pattern grainline verification – Checking that the grainline on the pattern matches the actual grain of the fabric before cutting. This step prevents costly errors in fit and stretch performance.

Fabric bias binding – Binding cut on the bias to finish edges that require flexibility, such as the hem of a yoga pant. Bias binding follows the natural stretch of the fabric, preventing restriction.

Bias cut – Cutting fabric at a 45° angle to the grain, producing a piece that stretches more freely. Bias cuts are used for decorative elements and for shaping curves. However, bias-cut pieces can distort if not handled carefully.

Grainline shift – When the grainline on a pattern piece moves relative to the fabric during cutting, often due to fabric movement. Detecting and correcting grainline shift is essential for maintaining consistent stretch.

Pattern matching – Aligning pattern pieces that have matching prints, seams, or design elements. In activewear with bold graphics, precise matching ensures a seamless visual flow. Misalignment creates a disjointed appearance.

Pattern repeat – The distance between identical design elements in a printed fabric. When cutting activewear, the pattern repeat must be considered to avoid cutting through a graphic at an awkward point.

Pattern scaling factor – The ratio used to increase or decrease a pattern's size. For example, a scaling factor of 1.05 Enlarges the pattern by 5%. In activewear, scaling must respect the fabric's stretch properties.

Pattern piece interlock – The relationship between adjacent pattern pieces that must lock together precisely, such as the front and back of a sports bra. Interlock accuracy ensures even distribution of stress across the garment.

Pattern pinning – The method of securing pattern pieces to fabric before cutting, using pins, weights, or adhesive spray. In stretch fabrics, pins can create holes; therefore, weights or pattern tape are often preferred.

Pattern drape – The way a pattern falls on the body, influenced by the fabric's weight and stretch. Drape is a critical consideration for flowy activewear tops versus body-contouring leggings.

Pattern tension lines – Lines on a pattern that indicate where tension will be applied during wear, such as the side seams of a compression shirt. Designers use tension lines to plan reinforcement and seam placement.

Pattern grain stretch ratio – The proportion of stretch in the warp versus the weft direction. A 2:1 Ratio means the warp stretches twice as much as the weft. Knowing this ratio helps in orienting pattern pieces for optimal performance.

Pattern seam line – The line on a pattern where two pieces will be sewn together. Clear seam lines with designated allowances simplify construction and reduce errors.

Pattern seam allowance notation – Symbols on a pattern indicating the size of the seam allowance, such as "1/4" or "1/2". Correctly interpreting these notations is essential for accurate sewing.

Pattern seam allowance reduction (SAR) notation – Marks that indicate where the seam allowance should be

reduced, often shown as a dashed line. SAR is used in high-stress areas to improve fit without compromising strength.

Pattern seam allowance grading notation – Indications of where the seam allowance should be tapered, usually shown with a series of decreasing lines. Grading reduces bulk and improves comfort.

Pattern seam allowance reinforcement notation – Symbols indicating where extra stitching or bar tacks are required, often a double line or a small “R”. Reinforcement ensures durability at critical points.

Pattern notch notation – Small triangles or arrows on pattern edges indicating alignment points. Accurate notch placement is vital for assembling multi-panel activewear.

Pattern tick notation – Small lines indicating where elastic or drawstrings will be inserted. Ticks help position functional elements precisely.

Pattern grainline arrow – An arrow drawn on a pattern piece pointing in the direction of the grain. The arrow must align with the fabric’s selvage during layout.

Pattern grading rule chart – A table that lists the amount of increase or decrease for each measurement between sizes. In activewear, the chart includes adjustments for stretch and fit categories.

Pattern grading increment – The specific measurement change applied during grading, such as +0.5Cm for bust width. Increment values differ for stretch fabrics compared to woven fabrics.

Pattern grading curve – A graphical representation of how measurements change across sizes. This curve helps visualize fit progression and identify any irregularities.

Pattern grading software – Computer programs used to automate the grading process, allowing for precise adjustments and rapid size production. Popular choices include Gerber AccuMark and Lectra.

Pattern grading tolerance – The allowable deviation from the intended measurements during grading, expressed in millimeters. Tight tolerances are essential for performance wear where fit impacts function.

Pattern grading reference point – The location on the pattern from which all grading adjustments are measured, often the center front or waistline. Consistent reference points ensure uniform size scaling.

Pattern grading anchor – A fixed point that remains unchanged during grading, such as the waistline on a compression pant. Anchors maintain critical dimensions while other areas are adjusted.

Pattern grading ratio – The proportion of increase applied to different sections of the pattern, such as a 1:2 Ratio for bust versus waist. Proper ratios preserve the garment’s silhouette.

Pattern grading seam allowance – Adjustments made to seam allowances during grading to maintain seam integrity across sizes. Seam allowance may be increased slightly for larger sizes to compensate for additional stress.

Pattern grading stretch allowance – Additional ease added during grading to account for fabric stretch,

ensuring the garment remains comfortable across the size range. This allowance is often expressed as a percentage of the original measurement.

Pattern grading bias allowance – Modifications to bias-cut sections during grading to preserve the desired stretch characteristics. Bias allowance must be carefully calculated to avoid distortion.

Pattern grading test garment – A prototype created to evaluate the accuracy of grading before full production. Test garments reveal fit issues, seam behavior, and stretch performance.

Pattern grading iteration – The process of refining grading rules based on test garment feedback. Multiple iterations may be required to achieve optimal fit.

Pattern grading documentation – Detailed records of all grading adjustments, tolerances, and rationales. Documentation ensures consistency in future production runs.

Pattern digitization file format – Common formats include .DXF, .DWG, and .ART. Choosing the appropriate format ensures compatibility with cutting machines and grading software.

Pattern digitization resolution – The level of detail captured during digitization, measured in points per inch (PPI). Higher resolution yields more accurate curves, essential for complex activewear designs.

Pattern digitization accuracy – The degree to which the digital file matches the original hand-drawn pattern. Accuracy is verified by overlaying the digital file on the physical pattern.

Pattern digitization scaling error – A discrepancy that occurs when the digital file is not scaled correctly, leading to size mismatches. Calibration of the digitizing equipment prevents this error.

Pattern digitization layer – Separate layers for different garment components, such as outer fabric, lining, and reinforcement. Layer organization simplifies editing and marking.

Pattern digitization annotation – Textual notes added to the digital file to indicate special instructions, such as “use flatlock stitch here.” Clear annotation reduces miscommunication on the production floor.

Pattern digitization color coding – Using different colors to represent various fabric types or construction steps. In activewear, color coding helps differentiate stretch panels from static panels.

Pattern digitization version control – Tracking changes to digital patterns over time, ensuring that the latest approved version is used for cutting. Version control prevents outdated files from entering production.

Pattern digitization export – Converting the digital pattern into a format compatible with cutting machines, such as .STL or .TAP. Proper export settings maintain line precision.

Pattern digitization import – Bringing external pattern data into the design software for further editing. Importing must preserve scale and grainline information.

Pattern digitization verification – Checking the digital pattern against physical measurements to confirm accuracy before marker creation.

Pattern digitization backup – Storing copies of digital files in secure locations to prevent data loss. Regular backups protect against accidental deletion.

Pattern digitization collaboration – Sharing digital files with teammates, often through cloud platforms, to enable simultaneous work on complex designs. Collaboration tools must maintain file integrity.

Pattern digitization security – Protecting intellectual property by restricting access to digital patterns. Encryption and password protection are common measures.

Pattern digitization workflow – The sequence of steps from scanning a hand-drawn pattern to final marker creation. A streamlined workflow reduces turnaround time.

Pattern grading workflow – The systematic process of applying grading rules, generating size sets, and producing test garments. Efficient workflow accelerates time-to-market.

Pattern layout optimization – Using software algorithms to arrange pattern pieces on fabric to minimize waste while respecting grain and print direction. Optimization can reduce material costs by up to 15 % in large productions.

Pattern nesting algorithm – The mathematical method used by software to calculate the most efficient arrangement of pattern pieces. Advanced algorithms consider fabric defects, stretch direction, and pattern repeat.

Pattern nesting tolerance – The acceptable distance between nested pieces to allow for cutting blade clearance. Too tight a tolerance can cause pieces to be cut together, while too loose a tolerance increases waste.

Pattern cutting method – The technique used to cut fabric, such as manual shears, rotary cutters, or CNC laser cutters. For activewear, rotary cutters are popular due to their clean cut on stretchy fabrics.

Pattern cutting blade type – Specific blades designed for different fabrics; a serrated blade works well on woven fabrics, while a straight blade is better for knits. Using the wrong blade can cause fraying or uneven edges.

Pattern cutting pressure – The force applied by the cutting machine. Adjusting pressure ensures a clean cut without compressing the fabric. Excessive pressure can stretch the fabric before cutting, altering dimensions.

Pattern cutting speed – The rate at which the cutting head moves. Faster speeds increase productivity but may reduce accuracy on delicate stretch fabrics. Balancing speed and precision is key.

Pattern cutting order – The sequence in which pieces are cut to preserve grain orientation and reduce handling. Cutting large panels first can stabilize the fabric for smaller, more delicate pieces.

Pattern cutting waste management – Strategies for handling off-cuts, such as recycling or repurposing into accessories. Sustainable waste management aligns with many activewear brands' eco-friendly initiatives.

Pattern cutting quality control – Inspection steps to verify that cut pieces match the intended dimensions and grainlines. QC checks catch errors before sewing begins, reducing rework.

Pattern cutting defect – Any deviation from the intended cut, such as a missed notch or an uneven edge. Identifying defects early prevents downstream fit issues.

Pattern cutting calibration – Adjusting the cutting equipment to ensure accurate dimensions. Calibration should be performed regularly, especially when switching between fabric types.

Pattern cutting maintenance – Routine cleaning and blade replacement to keep the cutter operating at peak performance. Neglecting maintenance leads to dull blades and poor cuts.

Pattern cutting software – Programs that control automated cutters, such as Gerber Cutter or Lectra Modaris. Integration with grading software streamlines the production pipeline.

Pattern cutting file preparation – Converting the final marker into a cutter-compatible format, ensuring correct scale and orientation.

Pattern cutting safety – Guidelines for operating cutting machines safely, including proper guard use and blade handling. Safety protocols protect operators and preserve fabric integrity.

Pattern cutting ergonomics – Designing the workspace to reduce strain on the cutter operator, especially when handling large sheets of activewear fabric.

Pattern cutting documentation – Recording settings, blade types, and any adjustments made during the cutting process. Documentation supports repeatability and troubleshooting.

Pattern cutting training – Instruction for staff on best practices for cutting stretch fabrics, including handling techniques to avoid stretching or distorting the material.

Pattern cutting feedback loop – A system where cut quality data is fed back to the design and grading teams for continuous improvement.

Pattern seam design – The intentional planning of seam placement to enhance performance, such as placing seams along lines of least stretch to reduce stress. Seam design influences both aesthetics and durability.

Pattern seam allowance variation – Adjusting seam allowance size based on location, such as a larger allowance at the cuff for reinforcement. Variation must be clearly indicated on the pattern.

Pattern seam stitching method – Choosing between flatlock, overlock, or coverstitch based on fabric type and garment function. Each method offers distinct benefits for activewear.

Pattern seam stretch allowance – Adding extra allowance in areas where the seam will be subjected to repeated stretching, ensuring the seam does not rip. Typically an additional ¼" is added in high-stress zones.

Pattern seam reinforcement zone – Areas where extra stitching, bar tacks, or interfacing are applied, such as the attachment points of a drawstring. Reinforcement zones are marked on the pattern for clarity.