

Underwear Fabric & Construction Spec Guide

Fibre choice, weights, stretch, seams — and what each one costs you

Version 1.0 · 2026
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1. Fibre comparison for next-to-skin underwear

Fibre	Typical blend	GSM range	Breathability	Moisture	Durability	Best for / watch-outs
Combed cotton	95% cotton / 5% elastane	150–190	Good	Absorbs, dries slowly	Good	Everyday men's and kids' underwear; the safe default. Watch shrinkage — pre-shrunk or compacted yarn costs a little more.
Micro modal	92% modal / 8% elastane	140–170	Very good	Wicks well	Medium (pilling risk)	Premium men's and women's; very soft hand. Needs a tighter knit and controlled washing to resist pilling.
Bamboo viscose	95% bamboo / 5% elastane	150–180	Very good	Wicks, cool	Medium	Warm-climate and eco-positioned ranges. Confirm the fibre's environmental claim with the mill before marketing it.
Cotton / spandex jersey	90–95% cotton / 5–10% spandex	160–200	Good	Absorbs	Very good	Boxer briefs that must hold shape after 50+ washes; higher spandex = better recovery, higher cost.
Polyamide / elastane microfibre	85% PA / 15% EA	130–160	Medium	Wicks, dries fast	Very good	Sport and seamless; excellent recovery, less breathable than cotton for all-day wear.
Rib knit (cotton/EA)	95% cotton / 5% elastane	180–220	Good	Absorbs	Good	Vests and thermal tops; stretches around the body without cutting in.
Woven cotton / poplin	100% cotton or cotton/EA	110–140	Good	Absorbs	Good	Woven boxer shorts and sleepwear sets; crisper look, less stretch.

2. Construction specifications that decide quality

Element	Standard practice	Why it matters in wear
Waistband	Jacquard woven elastic, 30–35 mm, or knitted elastic for softness	Too narrow rolls; too stiff digs in. Ask for the recovery figure after 50 washes.
Seam type	Flatlock on side seams and gusset; overlock where bulk is acceptable	Flatlock removes the ridge that chafes under trousers — the single biggest comfort upgrade.

Stitch density	10–12 stitches per inch (SPI) on knits	Too few = seam grin; too many = perforated fabric that tears.
Gusset & lining	Cotton-lined gusset, double-stitched	Hygiene and comfort; also a labelling claim that must match the actual construction.
Leg opening	Elastic-free hem or light elastic, 1x1 rib trim	Controls ride-up; the most common consumer complaint in briefs.
Pouch / support	Contoured or flat-front panel	Determines the look under clothing; specify it in the tech pack, not by photo.
Shrinkage	≤5% length, ≤4% width after 3 washes (knits)	Pre-shrunk fabric or a small pattern allowance avoids a size complaint after the first wash.
Colourfastness	Grade 4+ to washing, Grade 4 to rubbing (dark shades)	Dark navy and black are the shades that fail first; test before approving bulk.

3. Weight and handfeel: what the number means

- **Under 150 gsm:** light, cool, more transparent in light colours; suits hot climates and sport.
- **150–180 gsm:** the commercial sweet spot for everyday underwear — opaque, durable, reasonable cost.
- **Over 190 gsm:** substantial hand, better opacity in white, slower drying; common for winter and premium lines.
- **Elastane percentage** drives both comfort and cost: 5% is standard, 8–10% gives noticeably better shape retention.

4. Cost drivers, in order of impact

Driver	Relative impact	How to manage it
Fibre choice	High	Modal and bamboo cost more than combed cotton; confirm the retail price supports it
Order quantity	High	Price falls steeply from 1,000 to 10,000 pcs, then flattens — consolidate styles and colours
Colour count	Medium–high	Each colourway carries a dyeing minimum; four colours on a small order is the classic cost trap
Packaging	Medium	Boxed sets and printed hangtags can add more per piece than the fabric upgrade you were considering
Trims & labels	Low–medium	Woven labels and custom elastics have their own minimums

How to use this guide: pick the fibre and weight first, then set the construction spec, then confirm packaging. Send us the sequence and we will quote the three options side by side, with the cost difference per piece and the lead-time difference for each.