Guidance on design for longevity – knitwear

Extending the lifespan and use of garments is one of the most significant ways of reducing the environmental impact of clothing.

Product overview

- Knitwear refers to manufactured styles produced by weft knitting, including jumpers, cardigans and dresses.
- Designers require specialist knowledge of the key stages in the lifecycle of knitwear garments: choice of fibre, yarn production, manufacture of knitting fabric, garment construction and consumer end use.
- The quality of yarn, colours, shape, make-up and aftercare instructions, specifically linked to type of fibre, will influence the life-span of knitwear.
- Knitwear is often seen as an investment piece due to the high level of skill and craftsmanship required to produce the garment.
- Appropriate laundering of knitwear is particularly important as it is susceptible to shrinkage and becoming misshapen.

Top five solutions

- Using quality yarn and fibres to improve the strength and colourfastness of knitted garments.
- Ensuring care and laundry advice is clear and simple.
- Taking steps to preserve the quality of knitted fabric (including colourfastness) and garment manufacture throughout production.
- Providing guidance for use and design in re-use and encourage consumers to downcycle old garments.
- Focusing on classic design and loose shapes.

Extending the average life of clothes (2.2 years) by just three months of active use per item would lead to a 5-10% reduction in each of the carbon, water and waste footprints, and cut resource costs by £2bn.
What limits lifetime?

Knitwear is more liable than many other garment categories to distortion, shrinkage, shape loss, pilling and felting. This means garments either become unwearable, or stop looking good.

- These issues are worse in items made using poor quality processes or substandard raw materials, which are more likely to lose shape, shrink or suffer from pilling.
- Knitwear is also damaged by incorrect laundry and aftercare practices.
- When washed at high temperatures, shrinkage and felting can occur.
- Pilling occurs when items are worn or washed too frequently.
- Garments can lose their shape during storage when hung rather than folded.
- Like other garments, knitwear can become outdated when fashions change.

Around 30% of clothing waste ends up in landfill.

The waste footprint for clothing is estimated at 1.2 million tonnes, equivalent to 5% of UK household waste.
Recommendations on fibre and fabrics

The use of high-quality fibres, yarns and fabric is especially important for knitwear if garments are to be long-lasting.

- Elastomeric yarns in knitted structures can enhance the recovery of stretch fabrics, particularly at cuff and hem ribs.
- Acrylic yarns, though less luxurious in terms of feel, can produce long-lasting garments and are inexpensive and hard-wearing.
- Fibre dyeing can sometimes be used in preference to yarn dyeing for assurance of colourfastness when using some types of fibre (i.e. wool or cotton).
- Pre-shrinking treatments may be applied to the fabric as a finishing process.
- Pilling can be prevented or minimised by selecting yarns with longer fibres, and avoiding blended fibres.
- As well as selecting fibres, designers can also specify fabric tensions and qualities, including wales and courses.
- Once standards are set, testing at various stages of production can help ensure the quality of the garments is maintained.
Recommendations on design and manufacture

Designing knitwear for longevity is a question of attention to the smallest details as well as overall shape and style.

- Classic colours and marl effects, high-quality fine and chunky plain and ribbed knits and traditional stitch patterns (such as Fair Isle and Arran) can all encourage longevity.

- Oversized, loose and fitted shapes are also all identified as being likely to lead longer patterns of wear. Looser fits allow for fluctuations in body shape.

- Designing-in adjustable features or creating multi-functional garments (e.g. dresses that can be worn as jumpers) can help extend lifetime.

- Seams, trims and components need to be considered as part of the overall design and meet the same quality standards as the other components and processes. Particular care is needed to ensure that trims and components are properly attached.

- To minimise seam breakage, consider cup seaming; where overlocking is used, for price reasons, follow guidance on required stitches per inch.

- Emerging knitting technology allows the production of seamless garments – reducing the risk of seam breakage but also offering benefits in terms of style, comfort and fit.

- Once design specifications are set, specification sheets can be produced for use at all stages of manufacture to ensure quality construction. Quality control checks as part of the overall production process can also refer to these.
Recommendations on care and repair

Because knitwear is so easily damaged by washing, drying or storage practices, consumers need advice and encouragement to look after their garments appropriately and so increase longevity.

- Advice on care labels could be complemented by more detailed information in other formats, such as swing tickets or via websites.
- Information could include step-by-step guidance on reshaping whilst damp, or explanations of why washing too frequently damages knitwear.
- As well as instructions on washing and drying, there may be value in providing information on how to store knitwear.
- Specialist care tools such as pilling removal tools could be included with garments.
- Home repair kits – including correct-coloured yarn and thread, spare buttons and other components, as well as instructions – could encourage consumers to make small repairs themselves.
- As specialist skills and machinery may be required for repairs and alterations, there is an opportunity to develop specialist aftercare services or identify companies (or community-based initiatives) to recommend to customers.

For minor repairs, supply yarn for mending
Recommendations on re-use and discard

Re-use is preferable to discarding when items are in a reasonable condition. Product development teams can facilitate re-use by considering it at the design stage.

- Knitwear is commonly resold or reused, even when it has shrunk or become slightly misshapen.
- Garments that no longer look good can still be used for outdoor activities such as gardening.
- There is also potential demand for higher quality knitwear for resale, creating possible business opportunities to develop ‘buy back and resale’ schemes.
- Retailers can facilitate this by providing advice and guidance for consumers on their websites, or on garment labels, encouraging customers to give unwanted knitwear to charity or pass it on to others.
- Worn-out knitwear can be recycled. Using a single fabric facilitates recycling, but where multiple fabrics and components are used, there is scope for designers to make it easy to disassemble these, without compromising the robustness of the product.
This is one of a series of Guidance Notes for product development teams offering guidance on design for longevity.

For further information visit:

www.wrap.org.uk/clothing