How we make EtaProof

Natural performance.....

The secret of ***EtaProof's*** success lies in our attention to details. We begin by searching the world for the highest grade, long staple cotton. Infact only the very best of the worlds cotton crop meets our exacting standards, and it is with this small fraction that we make ***EtaProof*** fabrics.

Fibres are then carefully spun with a low twist specification to provide an even, uniform yarn where individual fibres fall neatly into line. This low twist spinning results in a streamlined yarn, essential for giving ***EtaProof*** fabrics their unique waterproof characteristics and is only possible with high grade, long staple cotton. Resulting yarns are then doubled up, with an extra low twist-factor, to further increase the strength.

This yarn is then wound onto cones for ease of handling. The strands from over 700 cones are then wound onto a multiple number of back beams for sizing – a natural treatment process which prepares the threads for compressive weaving. During this sizing process all back beams combine to make the main warp (or single weavers beam) ready for weaving.

Over 15,000 individual strands of yarn are then threaded onto the loom, a process which takes precision and many man hours to complete. ***EtaProof*** is then carefully woven and strict controls are continuously maintained at all times, especially with regard to the rate of take off to ensure a constant number of picks (weft) being woven into the fabric.

Careful inspection of ***EtaProof*** fabrics follows under the trained eyes of our textiles experts who run loom state fabric across high intensity light machines to expose potential faults. Following this inspection, which is always done by hand, only 100% 'A'-grade fabric is sent off for dyeing and finishing.

Due to the incredibly dense structure of the fabric ***EtaProof*** is pre-treated and dyed using a specific continuous process to ensure the required rate of dye penetration.

After dyeing, the fabric is treated with a specially developed durable water repellency finish for increased performance. Even wind driven rain makes no impact on ***EtaProof.***

To ensure the highest technical specifications of our product is always met, ***EtaProof*** is subject to strict inspection procedures and laboratory testing during all stages of processing. In this way an assurance of ***EtaProof's*** excellence is given to our customers.

eta PROOF

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Outdoor, leisure and sporting uses

Natural performance.....

Whether you're fixing skidoos in Antarctica or trekking across the Sahara there is no better fabric than ***EtaProof*** fabrics which are offered in different weights and cellulosic mixes providing outstanding natural performance combined with unparalleled breathability. In bad weather you can relax confident in the knowledge that ***EtaProof*** fabrics will keep you safe and dry.

The way it works is both natural and simple. Long staple cotton fibres are softly spun, doubled and woven, resulting in a fine but dense weave, which accommodates up to thirty percent more yarn than conventional fabrics. Whether dry or wet it is remarkably warm and windproof, and breathes far more effectively than alternative fabrics ensuring comfort whether relaxing or exercising.

A special treatment gives ***EtaProof*** excellent Durable Water Repellency (DWR) properties shedding water from its surface as demonstrated in nature. In the unlikely event of torrential rain penetrating the DWR treatment, moisture will cause the gently spun fibres to swell, closing the weave even tighter. Far too tight infact to let water in yet still allowing body vapour to escape.

If you are fishing for salmon in Scotland, struggling through blizzard conditions in the Alps or standing on a windswept golf course you can depend upon ***EtaProof*** fabrics to offer you the highest levels of comfort and protection.

Indeed, ***EtaProof's*** properties are such that the fabric is widely recognised by Arctic research groups as being the naturaland best choice for allround performance, where durability and reliability is of paramount importance.

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Industrial and military uses

Natural performance....

EtaProof fabrics are made from the world's finest extra long staple cotton yarns specially selected by Stotz & Co.. ***EtaProof*** is produced in a plain weave to give the fabric incredible strength and the greatest possible density.

The result is a range of ***EtaProof*** fabrics offered in different weights and cellulosic mixes providing outstanding natural performance combined with unparalleled breathability.

Indeed, ***EtaProof's*** properties are such that the fabric's exceptional characteristics are demanded by the military sector where fabric performance, durability and reliability across a range of environments is of paramount importance.

The customers who benefit from our extensive years of experience in this field are predominantly discerning people, because, as a product which both natural and high-tech.

EtaProof has extensive use for outdoor clothing, raincoats and accessories, as well as clothing for fishermen, hunters, riders, cyclists and even popular territory explorers.

EtaProof is also used for work clothing at airports and service stations.

EtaProof combines the advantages of natural materials with those of advanced manufacturing technology.

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Natural performance....

Key benefits of EtaProof are:

TOTALLY WEATHERPROOF
from the freezing snows of the Arctic to the hot winds of the Sahara.

WINDPROOF
a totally windproof barrier protecting you from wind-chill.

WATER REPELLENCY
unique finish provides outstanding water repellency.

RAINPROOF
uniquely spun fibres swell to stop ingress of water.

BALANCED
warm when it's cold and cool when it's hot.

HIGHLY BREATHABLE
the most breathable weatherproof fabric available.

COMFORTABLE
as comfortable as wearing a cotton shirt.

QUIET
rustle free, at one with nature.

EASY CARE
a rugged fabric which doesn't require special care. Won't break down like coated and laminated fabrics after repeated use.

ENVIRONMENTALLY FRIENDLY
made from natural products.

RELIABLE
will not suddenly break down like laminated petro-chemical fabrics.

DURABLE
long lasting, often improving in performance and drape with age.

EASY TO CONSTRUCT
EtaProof's unique performance characteristics guarantee dryness yet requires no taping behind seams.

EASY TO REPAIR
no taping required behind seams.

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How we test EtaProof

Natural performance....

Before we bring you a performance fabric we test it in every way possible. ***EtaProof*** has been subjected to some of the most stringent tests in the textiles industry and come out with flying colours.

EtaProof has been subjected to tensile tear strengths where our advanced machines measure exactly how difficult it is to tear the fabric across its weft and warp (horizontal/ vertical weave of fabric).

We experiment with different types of stitching, try to pump water under pressure through the fabric (hydrostatic head), measure moisture vapour transmission rates for breathability, conduct abrasion tests, all in an effort to ensure you get the best natural fabric available to mankind.

Test method

BREAKING/TEAR STRENGTH

Tests: Fabric is placed in a tensile tear tester which applies increasing strain upon the material in an attempt to tear it. The exact breakage point is measured to gauge fabric strength. A subsequent test measures forces required to tear fabric across its warp and weft measuring resistance of fabric to ripping once an initial breach has been made.

Reason: Important in establishing suitable uses for fabric in garment production. For example a specific fabric can be used in areas such as seat, knee and shoulder which often come under substantial strain, whereas other fabrics may be more suitable for use as linings in jackets or as a material for shirts.

DIMENSIONAL STABILITY

Test: The fabric is washed at 30 degrees centigrade or soaked in water over a period of 24 hours at 20 degrees centigrade.

Reason: To measure shrinkage across the warp and the weft of the fabric. Important in determining to what degree fabric shrinkage occurs and to ensure that respective specifications are always met.

WATER REPELLENCY

Test: Shower test. Water is poured over fabric at a controlled rate and pressure for a period of 30 minutes, equivalent to 1hr of heavy rain. Fabric is subsequently examined and weighed for any water absorption.

Reason: Important in establishing performance of Durable Water Repellency treatment. Indiscernible to touch or the naked eye, hydrophobic (water hating), DWR treatment has the characteristics of a special finish making water bead off fabric as demonstrated in nature.

HYDROSTATIC HEAD

Test: Water forced under pressure (hydrostatic head) against the fabric to see at what point moisture penetrates. Testing is carried out over a 5 minute period at different pressure levels.

Reason: While rain droplets do not hit with sufficient force to penetrate the fabric, areas of a garment such as the knees (when kneeling), shoulders (when carrying a rucksack) are often subjected to high pressure. If wet, water can be forced through these areas on fabrics with a low hydrostatic head.

AIR PERMEABILITY

Test: Air is drawn through the fabric to establish wind resistance.

Reason: To test for wind resistance. Essential if garments are to be used in windy environments or in medical circles where strike through of bacteria is to be prevented.

WATER VAPOUR PERMEABILITY

Test: The test is carried out on the so called 'skin model' the main part of which is a porous plate and the resistance towards water vapour penetration (evaporated sweat) is determined. For this the heating energy used by the plate to evaporate the water is exactly measured. The smaller the resistance the higher the rate of water transmission through the fabric.

Reason: Breathability of a fabric is important if the wearer is to stay dry and comfortable, by avoiding a build up of moisture inside the garment when active. The higher the MVTR the more comfortable the wearer will be.

COLOUR FASTNESS

Test: Fabric is exposed to dry and wet rubbing against white cotton fabric, and also to washing together with a special industrial standard compilation strip of different materials to see the staining effect on the various fibre materials. Tests are also undertaken under the influence of sweat simulating solutions.

Reason: To see if there is a danger of colour staining and/or bleeding and affecting other garments and also to establish at what rate the material will fade.

[Specification see back page!]

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EtaProof-Spezifikationen

Natural performance.....

	Norm/Standard	Einheit/Unit	EtaProof 5640	EtaProof 5620	EtaProof 5610	EtaProof 5635	EtaProof Organic 5620.1 RUC
FABRIC WIDTH MINIMUM		cm	150	150	150	150	150
FABRIC WEIGHT	ISO 3801	g/m² +/– 10	170	200	240	270	200
THREADS/CM		Kette/Warp	95	81	66	68	81
		Schuss/Weft	35	30	26	26	30
BREAKING STRENGTH	DIN EN ISO 13934-1						
warp minimum		N/5cm	1000	1100	1400	1200	1100
weft minimum		N/5cm	650	650	750	1000	650
TEAR STRENGTH	DIN EN ISO 13937-1						
warp minimum		g	900	1200	1800	1800	1200
weft minimum		g	650	750	1200	1600	750
DIMENSIONAL STABILITY	ISO 6330						
Maschine wash 30°C							
warp minimum		%	+/–3.0	+/–3.0	+/–3.0	+/–3.0	+/–3.0
weft minimum		%	+/–3.0	+/–3.0	+/–3.0	+/–3.0	+/–3.0
WATER REPELLENCY	DIN EN 29865						
Bundesmann 30 min Test							
Water repellency		Note/rating	4	4	4	4	4
Water absorption		Maximum %	10	10	10	10	15
Water penetration		Maximum ml	0	0	0	0	0
Hydrostatic head	DIN EN 20811						
mm of water column			750	750	750	750	600
max. No. of globules after 5 min			3	3	3	3	3
AIRPERMEABILITY	EN ISO 9237	cm³/cm²/sec@0.98 mbar	0.4	0.4	0.4	0.4	0.4
WATER VAPOUR PERMEABILITY	ISO 11092	Ret m²xPa/w	6	6	6	6	6
OIL REPELLENCY	AATTC 118-2002	Note/rating	5–6	5–6	5–6	5–6	–

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Manufacturing techniques for EtaProof fabrics

Natural performance....

EtaProof is a high performance product but, as with every fabric its performance characteristics can be enhanced by good design. Obviously design criteria will depend upon the intended use but we would recommend the following procedures for garment construction with ***EtaProof*** fabrics to ensure maximum performance:

Double lap felled seam

Raised or rolled seam

SEAM CONSTRUCTION

Basic principle is to use the thinnest needle and thickest thread.

The needle should have a ball point tip and the thread should be core-spun, i.e. a single filament polyester thread with a sheath of cotton.

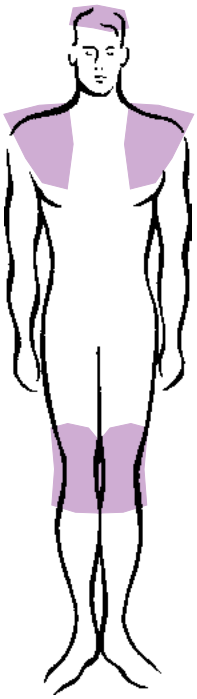
All seams should, where possible, face downwards.

Extensive testing has shown a double lap felled seam to give the best all-round results, however, a raised or rolled seam gives adequate performance providing the garment construction guidelines are followed.

GARMENT CONSTRUCTION

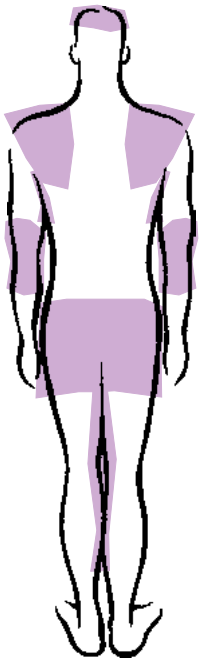
The basic principles to remember when constructing a garment are:

i. Where possible ensure no seams fall on areas which are subjected to the worst of the weather (see diagram).
ii. Use additional layers of EtaProof where the garment will be subjected to the worst weather and heavy use/stress.
iii. Ensure outer garment shell seams and lining seams do not lie in parallel.



Helpful Design Features

- Large hood with wired visor, keep seams to the minimum.
- Use storm flap (preferably doubled) to protect front zip.
- Elasticated drawstring waist and hem traps in warm air.
- Ensure extra protection on stress areas.
- Design pockets to eliminate water penetration.
- Ensure that logos are stitched onto an extra layer of ***EtaProof*** or backing fabric, to eliminate risk of leakage from needle penetration.
- Shaded area: Areas subject to worst weather and heavy use/stress.



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