

Fabric Technologies

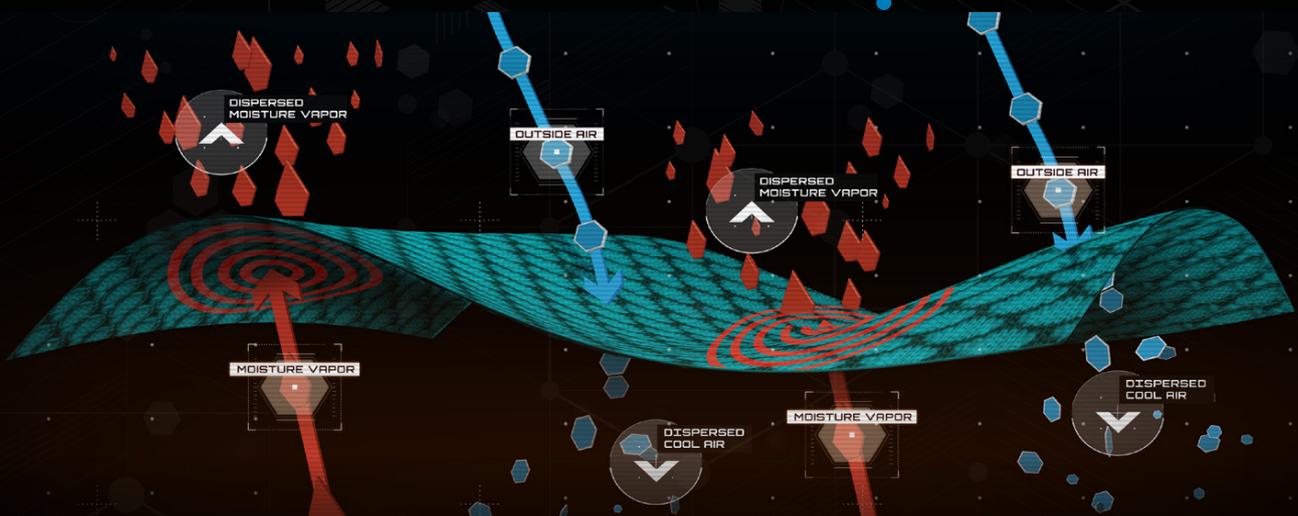
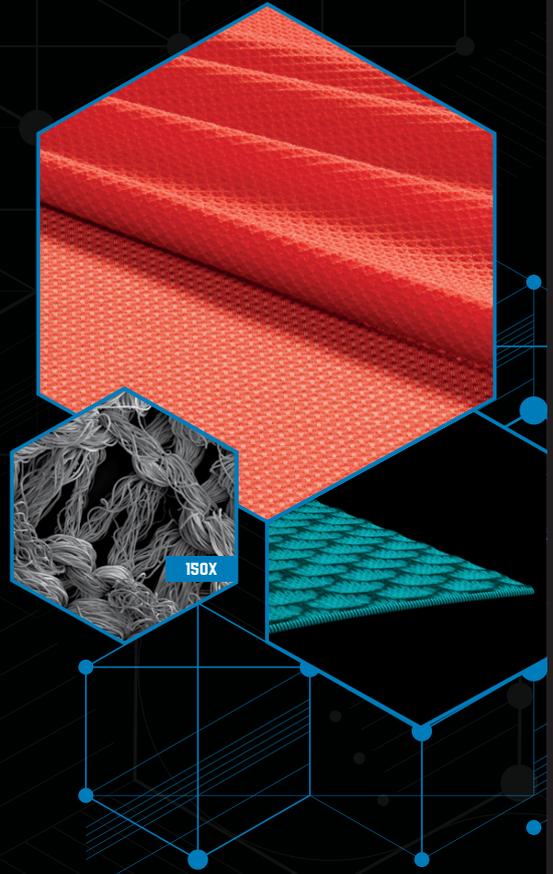
POLARTEC[®]

DELTA[™]

COOLING FABRIC

— CHANGE WHAT YOU WEAR WHEN IT'S HOT. —

POLARTEC[®] DELTA[™] WAS CREATED SO COOLING FABRIC TECHNOLOGIES COULD BETTER UTILIZE THE BODY'S NATURAL COOLING PROCESS — *SWEAT*. Next-to-skin fabrics that target wicking and fast drying will keep moisture moving, but don't work towards actually cooling the body down. Delta[™] works more efficiently by elevating touch-points for increased airflow, faster moisture dispersal, and reduced wet-cling.



DELTA[™]

FABRIC TECHNOLOGY

FEATURES + BENEFITS:

- | COOL TOUCH
- | HIGHLY BREATHABLE
- | SUPERIOR WICKING
- | REGULATED DRYING
- | REDUCED CLING
- | ODOR CONTROL



POLARTEC[®] DELTA[™] FEATURES AN INNOVATIVE COMPOSITION THAT REGULATES DRY TIMES AND ALLOWS BETTER BREATHABILITY WHEN WET. Delta's specialized knit construction uses both hydrophobic and hydrophilic yarns for more advanced control of moisture dispersal. These patent-pending radiating knit structures keep you cooler in hot conditions by increasing airflow to dissipate heat.

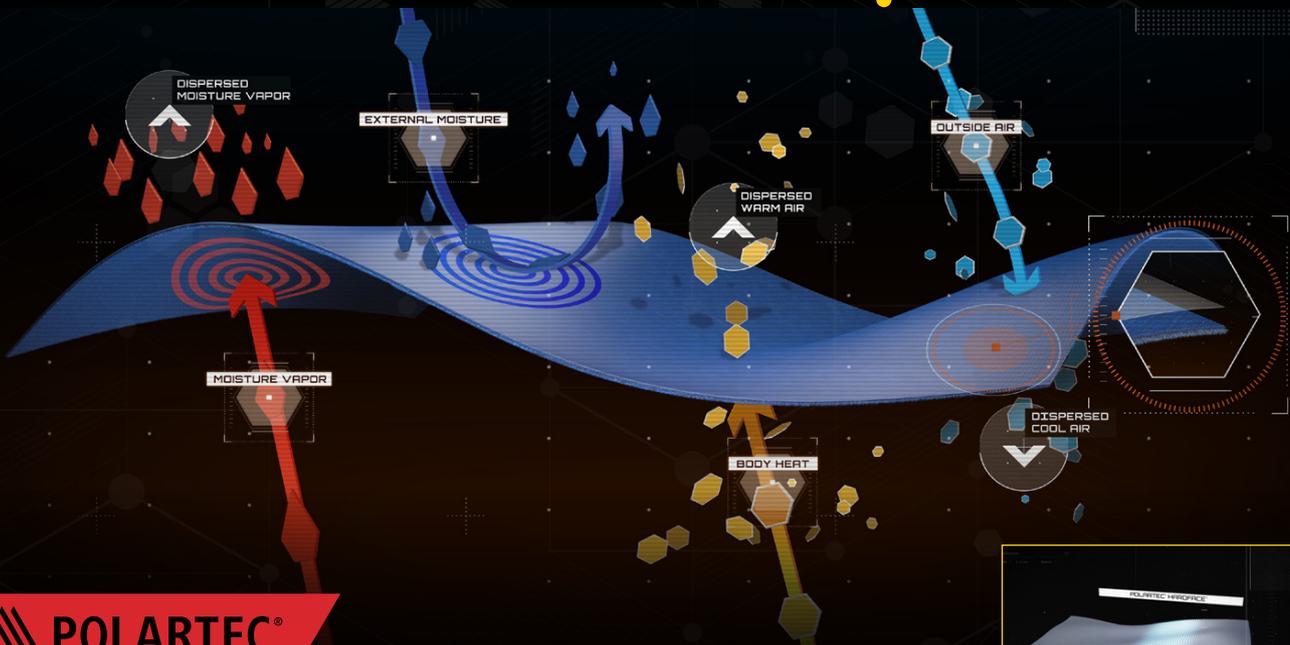
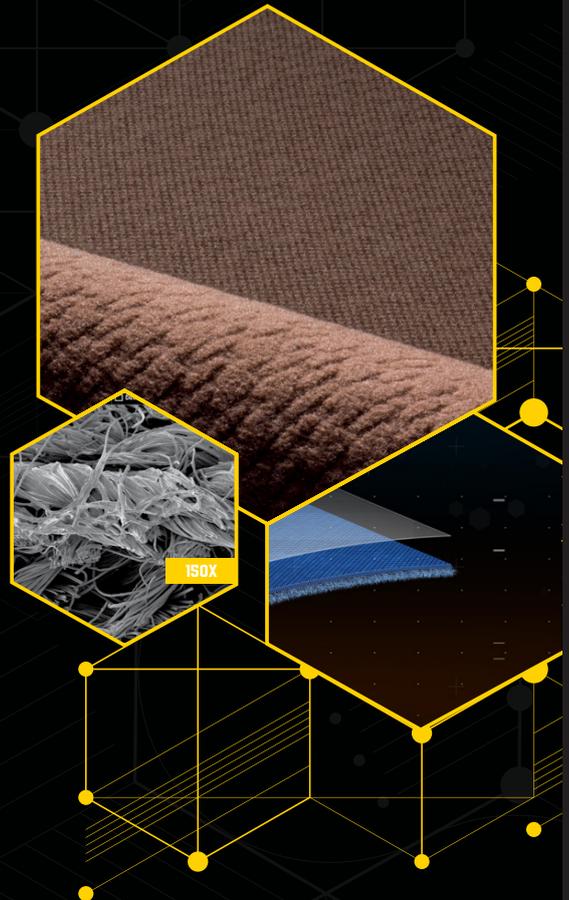
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POLARTEC[®] HARDFACE[®] SURFACE TREATMENT

— THE FINISHING TOUCH FOR DURABILITY. —

POLARTEC[®] HARDFACE[®] IS A PATENTED POLYMER SURFACE TREATMENT APPLIED TO ENHANCE DURABILITY. Fused at the fiber level, Hardface[®] increases abrasion resistance and water repellency. Select Hardface[®] styles feature DWR to add even greater water repellency. Breathability is not sacrificed by the Hardface[®] coating of each individual fiber. Hardface's added fabric protection maintains performance quality and extends the life of garments.



HARDFACE[®] FABRIC TECHNOLOGY

FEATURES + BENEFITS:

- | POLYMER TREATMENT
- | ABRASION RESISTANCE
- | SELECT STYLES
- | ADVANCED DURABILITY
- | BREATHABLE
- AVAILABLE WITH DWR



POLARTEC[®] HARDFACE[®] EXPANDS THE BENEFITS OF POLARTEC'S HIGH PERFORMANCE FABRICS. Hardface[®] creates a smoother exterior finish to resist abrasion and snagging, for a longer garment life and lasting look. This polymer treatment bonds with every fiber of the outer surface to add weather resistance. The precision application of Hardface[®] increases the strength of any fabric style.





TREADLIGHT

Technology

treadlightrain collection...

Our treadlightrain collection uses a combination of cutting edge technologies to create garments that offer the performance you expect from Marmot while reducing their impact on our environment. Every component has been optimized to reduce its environmental harm while maintaining performance. Collectively these technologies greatly reduce Chemical, Energy, and Water usage, lessen CO2 emissions, repurposes waste materials, and is free of harmful PFC's.

every garment saves*

- Power Savings equal to 25 mins of energy consumption of the average home
- Water Savings of 1.5 gallons
- CO2 emission reduction equal to 2.5 days of home refrigerator energy use
- 85% reduction in Dye Stuffs
- 100% free of PFC's (Perfluorocarbons)
- * Saving calculated based on conventional dyeing and weaving with virgin yarn.

EACH GARMENT IS MADE WITH THE FOLLOWING TECHNOLOGIES

Upcycled nylon face fabric:

Industrial nylon waste is upcycled into new nylon yarn greatly reducing the petroleum & energy necessary to create virgin yarn. This recycled nylon yarn has the strength and durable of virgin material.

Solution Dyed:

Instead of using conventional dyeing processes to color the fabric used in the treadlight collection uses a process called Solution Dyed. This method mixes the color pigment directly to nylon feedstock when the yarn extruded and spun. This method greatly reduces the amount of water, energy, and harmful dye stuffs. The resulting dyed yarn has superior color fastness & color consistency.

Recycled PFC – free Trims:

All the trims* are made of recycled material and contain no Perfluorocarbons.

*Excluding zippers

Waterproof / Breathable Membrane:

The 20 K waterproof / 20 K breathable hydrophilic PU membrane contains no Perfluorocarbons nor uses Perfluorocarbons during the manufacturing process.

High Definition Finish:

This revolutionary water repellency finish offers performance vastly superior to the conventional harmful C8 and C6 treatments. The Eco friendly chemistry contains no Perfluorocarbons and is applied in a patented process that bonds at the molecular level into the fiber creating a durable finish that lasts the life of the garment.



Treadlight sportswear

What is it?

Each yard of fabric of our treadlightsportswear is part of a network that supports over 3,876 income opportunities in parts of the world that need them most - without sacrificing the premium quality & performance Marmot & our customers demand. The resulting fabric is more 'green,' it's responsible.

PERFORMANCE SPECIFICATIONS

Every shirt makes an impact...

- 3 bottles recycled
- 115 gallons of water saved
- reduction of pesticides (.07lbs/shirt)
- use of recycled polyester results in reduction of carbon emissions (.67lbs/shirt)
- 50% upcycled plastic | 50% reclaimed cotton
- EnviroFree Technology which focuses on PVC/Phthalate free inks

Jobs created by THREAD

- almost 1345 jobs created in Haiti
- bottle collectors
- center owners
- recyclers
- Marmot helps close the production loop by bringing the fabric back to Haiti for
- cut & sew
- Providing additional employment opportunities in Haiti
- A ground to good™ process



MEMBRAIN™

What is it?

Marmot Membrain™ lamination utilizes advance technology that balances the best in performance of breathability, waterproofness, and water repellency with excellent durability. With a minimum of 10,000mm / 10,000mm performance it's guaranteed to keep you dry and comfortable in the worst of weather.

- Waterproofness: 10,000 mm minimum JIS-L 1092
- Breathability: 10,000 gm / 24h minimum JIGS-1099 B1
- Hohenstein RET: 6 to 8
- Technology: 2 layer Hydrophilic PU Lamination

PERFORMANCE SPECIFICATIONS

How does it work?

Marmot Membrain™ technology offers excellent weather protection with interior comfort. The hydrophilic nature of the PU lamination reduces internal condensation and increases comfort range by reducing the chilling effect caused by converting condensation build up back into vapor.

What are the benefits of this technology?

This 2 Layer Lamination combined with superior face fabrics, create a soft, quiet waterproof and breathability fabric with superior performance. With excellent breathability, and long term durable waterproofness this advance fabric technology brings a new level of performance to value conscious consumers.



MEMBRAIN™ ECO

What is it?

Marmot Membrain™ Eco lamination utilizes advance technology that balances the best in breathability, and waterproofness with environmental reasonability. Membrain™ Eco contains no PFC's and uses no PFC's in the manufacturing or bonding of the lamination.

- Waterproofness: 20,000 mm minimum JIS-L 1092
- Breathability: 20,000gm / 24h JIGS-1099 B1
- Technology: 2.5 Layer Hydrophilic PU Lamination

PERFORMANCE SPECIFICATIONS

How does it work?

Marmot Membrain™ Eco lamination technology offers excellent weather protection with superior interior comfort. The hydrophilic nature of the PU lamination reduces internal condensation and increases the comfort range by reducing the chilling effect caused by condensation. The Membrain™ Eco lamination in combination with the HDF DWR on the face fabric ensures that the fabric maintains its maximum breathability at all times.

What are the benefits of this technology?

This 2.5 Layer lamination bonded to a durable woven fabric, creates a soft quiet waterproof breathable fabric with superior performance. It's excellent breathability and waterproofness combined with the HDF DWR offers long term durable performance bringing a new level of comfort to users with minimal environmental impact.



NANOPRO™

What is it?

Marmot's most comfortable waterproof/breathable coating technology. NanoPro's™ superior microporous structure is dynamically air permeable, allowing for air exchange to help shed excess moisture vapor without compromising the waterproofness or windproofness of the garment.

- Waterproofness: 10,000 mm minimum JIS-L 1092
- Breathability: 17,000 gm / 24h minimum JIGS-1099 B1
- 11,500 gm / 24h minimum JIGS-1099 A1
- CFM: 0.2 CFM Air Permeability
- Hohenstein RET: 5.0 to 5.4
- Technology: 2.5 layer Microporous Coating

PERFORMANCE SPECIFICATIONS

How does it work?

Marmot NanoPro™ coating utilizes a microporous pore structure that is 30 % smaller than previous generations. These very small, very densely packed pores allow for enhanced breathability while maintaining excellent waterproofness.

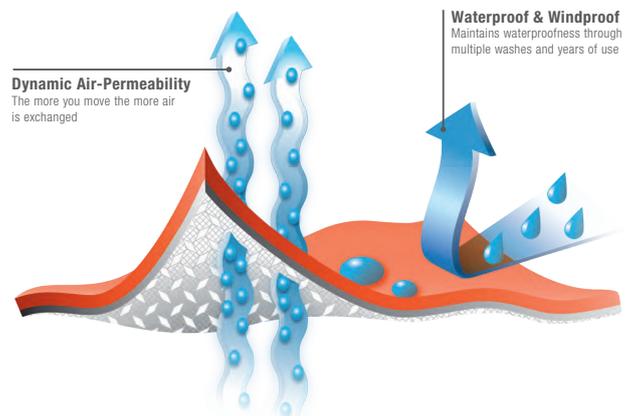
This pore structure is also air permeable allowing for dynamic air exchange. This air permeability combined with the enhanced breathability creates a fabric that is incredible comfort through a wide range of activities.

Dry Touch

The Marmot NanoPro coating is protected from direct abrasion by a layer of very small non-organic particles. This protective layer creates a comfortable dry feeling next to skin. We call this protective layer "Dry Touch".

What are the benefits of this technology?

The most technically advanced 2.5 Layer coating on the market. Offering unprecedented performance in a coated fabric with its Dynamic Air Permeability, Dry Touch finish, and long term durable waterproofness. This advancement in fabric technology brings a new level of performance to value conscious consumers.





NANOPRO™ 3-LAYER

What is it?

The newest addition to the Marmot's revolutionary NanoPro waterproof / breathable collection Nano-Pro Membrain™ 3 layer combines the superior performance of NanoPro Membrain technology with the durability of a 3 layer fabric construction.

- Waterproofness: 20,000 mm minimum JIS-L 1092
- Breathability: 13,500 gm / 24h minimum JIGS-1099 B1
- 9,500 gm / 24h minimum JIGS-1099 A1
- CFM: 0.05 CFM Air Permeability
- Technology: 3 layer Microporous Lamination

PERFORMANCE SPECIFICATIONS

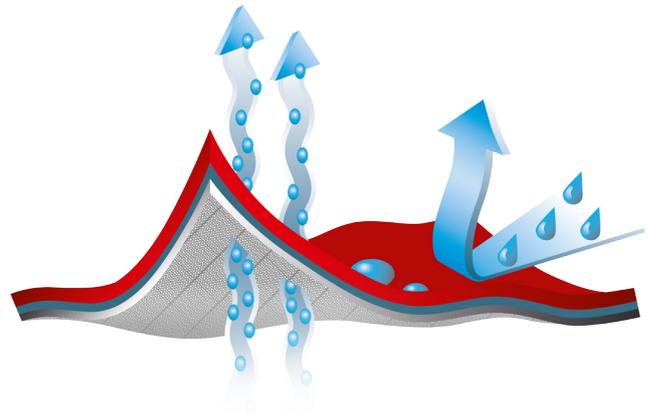
How does it work?

Marmot NanoPro Membrain™ utilizes a microporous lamination technology with a pore structure that is 30 % smaller than previous generations. These very small pores (three microns in size) are very densely packed allowing for enhanced breathability while maintaining excellent waterproofness.

This pore structure is also air permeable allowing for dynamic air exchange. This air permeability combined with the enhanced breathability creates a fabric that is incredible comfort through a wide range of activities. The lamination is protected from abrasion by a 20 denier tricot backer. With a soft supple hand this protective layer creates a comfortable dry feeling next to skin.

What are the benefits of this technology?

By combining the outstanding performance of Marmot NanoPro Membrain™ technology with the robust durability of a 3 layer fabric construction we have created our comfortable 3 layer fabrics ever. An additional benefit to the technology is its ability to work with stretch fabrics. Unlike other 3 layer technologies Marmot NanoPro Membrain™ 3 layer allows stretch fabrics to maintain their full range of motion.



Solution Dying Technology

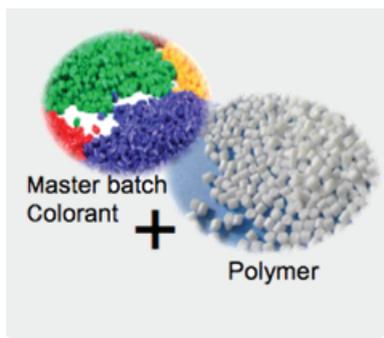
What is it?

Solution Dying also known as dope dying is an environmental friendly process to color fabrics. It uses no water, creates no hazardous chemical effluence or other chemical waste byproducts, and uses far less energy than conventional dying methods.

PERFORMANCE SPECIFICATIONS

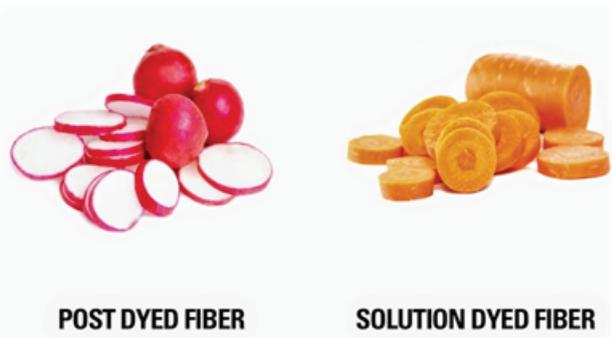
How does it work?

The color is mix with the polymer feedstock at the time of extruding and spinning the yarn. This method colors the yarn to its core unlike conventional dying methods which color just the exterior of the yarn. This dying method is used in the Automotive or Carpet industrials because of its color fastness to fading under high UV exposure. Because the color goes completely through the yarn it has extreme good wash durability and no color migration.



What are the benefits of this technology?

The result is fabrics woven with these yarns have superior color fastness and wash durability while eliminating color migration issues. It also great reduces the environmental impact created by conventional fabric dying. Conventional fabric dying uses enormous amount of water and is one of the largest polluter of fresh water by chemical discharge. Solution dying uses no water and has no chemical discharge, and in addition requires very little energy. A jacket made with a solution dyed fabric on average saves 5.26 liters of water and reduces CO2 emissions by 0.465 (kg/CO2) compared to conventional Piece dying. That is a reduction of water usage by 89% and CO2 emissions b y 84%.



High Definition Finish DWR Technology

What is it?

A ground breaking technology this DWR treatment offers superior water repellency to any textile to which it is applied without the use of harmful PFC or PFOA chemicals. It uses a unique environmentally friendly long chain Hydrocarbon chemistry which has superb water repellency and excellent wash durability

PERFORMANCE SPECIFICATIONS

How does it work?

Unlike conventional Durable Water Repellant finishes such as C8 and C6, the HDF contains no harmful fluorine. Its chemistry uses hydrogen atoms bonded to carbon known as "hydrocarbons". Hydrocarbons are widespread in nature: the human body uses and makes these all the time. To get a solid polymer coating the chemistry uses an 18 carbon atom chain. This longer carbon atom chain is what helps give the HDF DWR its superior water repellency. The chemistry is set into the fabric by heat and pressure using a special chamber which drives the polymer it into the fibers of the yarn at the molecular level. This cross linked polymerization is what gives the finish it's abrasion resistance and wash durability which exceeds the standard 80/100 wash standard.

What are the benefits of this technology?

The performance of this DWR far exceeds both existing PFC and Non-PFC DWR treatments for water repellency and durability. Because the process uses no water there is zero discharge of harmful chemical effluence. The water repellency performance of the HDF DWR exceeds that of the harmful C8 and C6 chemistry and maintains its performance after 100 washings. Garments using fabrics finished with HDF DWR will not wet out during prolonged rain or snow keeping users comfortable and dry, and they will maintain their performance the life of the garment.





Featherless

What is it?

Marmot Featherless is a Synthetic insulation that mimics the warmth and compact ability of down with the moisture resistance of Synthetic.

- Fill Power : 700
- Technology: Multi Denier Loose Fill Micro Fiber insulation
- The warmth of 700 fill down – a true down alternative.
- Works in larger baffle sizes – reduces cold spot and increases warmth.
- Hypoallergenic.
- Warmer than comparable synthetic insulations.
- Soft supple down like feel.
- Maintains warmth when wet.
- Highly compressible and compactable
- Machine Washable
- BlueSign Approved

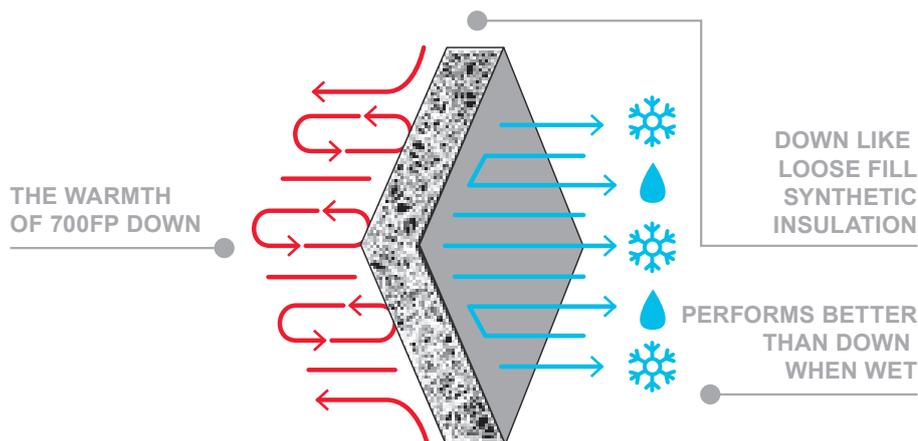
PERFORMANCE SPECIFICATIONS

How does it work?

Developed by 3M, this loose fill synthetic mimics natural down. A proprietary blend of multi denier micro fibers give this insulation its loft while helping to trap body heat. The nature of the fiber blend also gives the insulation its stability. This stability allows the insulation to work in a wide range of designs from lightly insulated jackets to larger baffled cold weather parkas. All the yarns are hydrophobic which allows them to resist moisture and perform when wet.

What are the benefits of this technology?

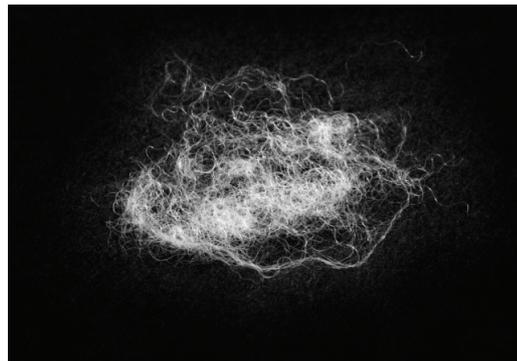
Marmot Featherless offers the same benefits as down with lightweight warmth and compactability while being hypoallergenic, and preferred by ducks and geese. Unlike other loose fill synthetic insulations on the market it has the stability to work in large baffle sizes allowing for the use in colder weather garments. It's washable, squishable, and contains zero feathers.



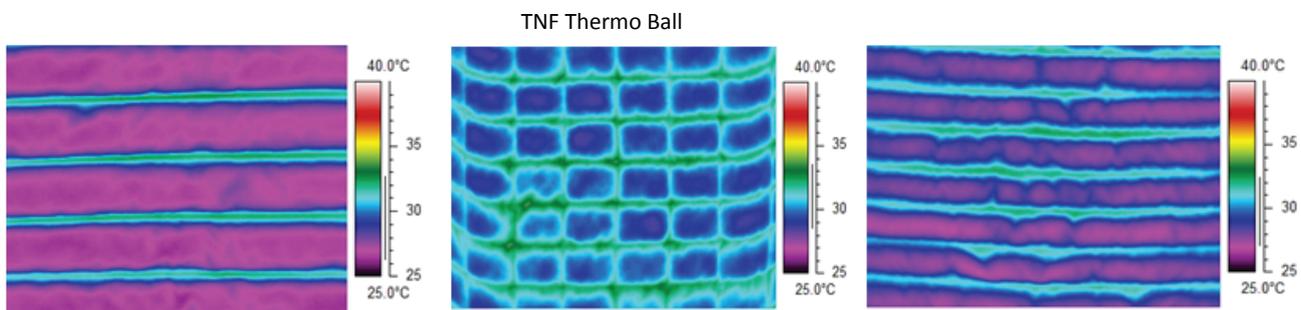


Featherless

Close Up Synthetic Insulation:



Thermal Imaging Comparisons:





CoolExchange

What is it?

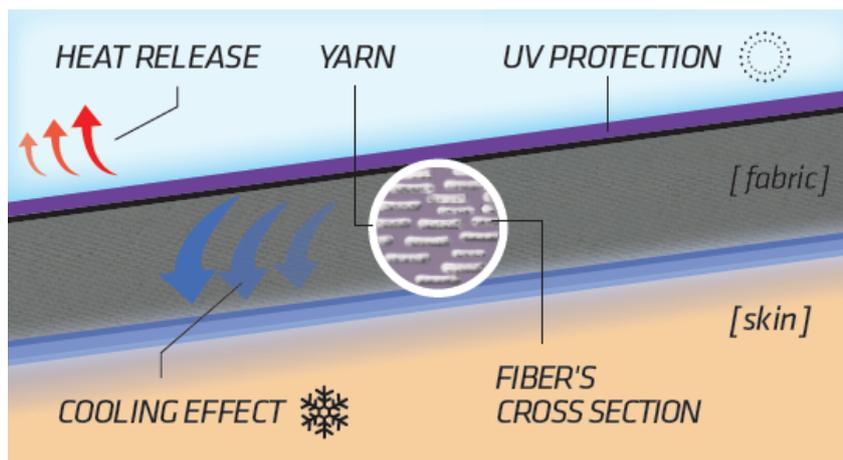
“COOLING THROUGH YARN CONSTRUCTION”

CoolExchange uses low bulk yarn that provides garment with maximum breathability and ventilation Using both nylon and polyester yarns to help cool the body and also wicks moisture away from the body.

PERFORMANCE SPECIFICATIONS

What are the benefits of this technology?

- Flat cross section structure with a wide surface for fast transfer of body heat.
- Permanent performance through yarn construction that won't wash out over time



GORE-TEX®

Paclite® Shell

GORE-TEX® PACLITE

What is it?

GORE-TEX® Paclite is totally waterproof yet breathable through the use of a bi-component multilayer ePTFE membrane that allows moisture vapor from the body to pass through while keeping rain and moisture out

- Waterproofness: JIS L-1092: Minimum 20,000 mm
- Breathability: Ret: 5 to 8 depending fabric

Garments engineered with GORE-TEX® fabric technology are durably waterproof, windproof and highly breathable, providing reliable weather protection and maximum comfort for a wide range of activities.

PERFORMANCE SPECIFICATIONS

How does it work?

The proven bi-component GORE-TEX® membrane is an extremely thin layer of expanded polytetrafluoroethylene (ePTFE). It has over 9 billion pores per square inch.

The microscopic pores of the membrane are 20,000 times smaller than a water droplet, which means that rain can't penetrate it. However the pores are 700 times larger than a water vapor molecule which means perspiration passes right through. This is what makes the membrane breathable.

What are the benefits of this technology?

GORE-TEX® Paclite will keep you dry and comfortable in the most adverse wet weather conditions. It is lightweight, packable and is optimized to deliver comfort without sacrificing waterproof protection or durability.