




trekking & outdoor footwear



TRAINING BOOK

TECHNICAL HANDBOOK FOR OUTDOOR
FOOTWEAR EXPERTS



We like to think that whoever buys
our products is a conscious user
of **authentic and functional
manufactured goods**,
not simply the end-consumer of stuff.

Respectful ethical products,
with real value made to last in time.

(AKU)
trekking & outdoor footwear

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MANUFACTURING TRADITION

AKU is a family run company founded 40 years ago by Galliano Bordin, shoemaker in Montebelluna, core of the Italian outdoor footwear industry.

Since the beginning, passion, experience and creativity are the values that shape the personality of a company fully committed to save the legendary Italian craftsmanship tradition.

Most of the models in the collection are made in Europe. Even today, the company's headquarters and production plant is located in Italy, in Montebelluna, a second factory owned by the company is in Cluj Napoca, Romania, and two others in Simanovci and Vranje, Serbia. A precise choice of company policy has always included the use of raw materials coming mainly from local suppliers, able to provide certain information on the origin and

characteristics of the materials, ensuring full traceability of every product component.

From construction methods to the choice of leathers; from the study of the last to research into the best solutions to support motor dynamics: AKU's responsible commitment has always been the main guarantee offered by the company to the end user, on the reliability of its footwear.



HOW IS AN OUTDOOR FOOTWEAR CREATED?

Mountain footwear is a product made almost entirely by hand, and mechanization of production is a minimal part of it.

The construction of a quality shoe, whether for mountaineering, trekking or leisure, is a long and laborious process. In a shoe, in fact, traditional craftsmanship and cutting-edge technology are mixed and condensed. Because quality footwear, even today, is produced with a manufacturing cycle that, alongside sophisticated automated processes, includes an important contribution of manual skills.



1 DESIGN

Design in AKU footwear combines Made in Italy creativity with research into new materials and technologies to improve comfort and performance. Designers and production technicians work closely together to develop products that are increasingly sophisticated on a stylistic level and high-performance on a technical level.



2 MODELLING

Last research originates at the craft level with the handcrafting of wooden forms that form the basis for all subsequent processing steps. Through the use of the handcrafted form, pattern makers create a three-dimensional object, the shoe, from leather and fabrics.



3 CHOICE OF MATERIALS

The best materials are needed to achieve excellent footwear. Natural leathers are combined with textile fibers for the upper, while special padding is used for the toe box, heel and insole to ensure comfort and protection. Finally, for the sole, special rubbers are chosen according to the type of performance sought.



4 CUTTING

Depending on the type of shoe, its intended use, and the designer's desired style, cutting is carried out, which is done either through the use of a set of dies or with laser instrumentation that projects the parts to be cut onto the leather.



5 HORING

Hemming consists of joining the various pieces that go to make up the upper. With the help of professional sewing machines, the work is done by following marks and reference points until an initial preformed template is obtained.



6 FITTING

Man's sensitivity grants the creation of the actual footwear with all its details. More than 80 percent of the models in the collection are entirely assembled by hand with care and precision, respecting an ancient manufacturing tradition that underlies the quality value of the product.



7 FINISHING AND SHIPPING

At the end of the production line, the footwear undergoes a final preparation with the cleaning of production residues and a general brushing. It thus results ready to be packaged and shipped.



TECHNICAL TESTS

Before the entire production programme is developed, the footwear undergoes a series of technical tests in the laboratory and in the field. The former verify the structural tightness and performance of the product in terms of thermal, breathability and waterproofness, the latter, carried out by professionals, verify the tightness, comfort and performance level of the footwear.

OUR

STRENGTHS



OUR STRENGTHS

RESPONSIBLE ACTION

*"We feel part of a single ecosystem, social and environmental,
we feel responsible for its balance"*

This short sentence summarizes the sense of AKU's commitment. A commitment that goes beyond the simple fact of producing outdoor footwear capable of respecting the highest functional performance and which is expressed, in terms of environmental sustainability, in the constant search for innovative design solutions, aimed at containing the environmental impact, to promote the responsible use and reuse of resources, with a view to increasingly focused on the principles of the circular economy.



WATCH THE VIDEO

One of the most important actions in this respect was the decision to be the first in the outdoor footwear sector to adopt the **Carbon Footprint Systematic Approach**: a certified calculation system that allows the independent and rapid quantification of the CO₂ equivalent emissions of each individual shoe.



OUR STRENGTHS

MANUFACTURING SPECIALIZATION

Each model is the result of a long research process capable of merging the values of traditional craftsmanship with the best technical solutions offered by the market.

Today, more than 80% of the models in the collection are entirely assembled by hand with care and precision, respecting an ancient manufacturing tradition that underlies the qualitative value of the product.

The entire design and production process is carried out directly by AKU within its own factories, guaranteeing complete quality control along the entire production chain.



OUR STRENGTHS

COMFORT OF FIT

AKU is recognised as the footwear specialist. The company's philosophy has always been to develop products that respond to the real needs of the end user, allowing them to enjoy their outdoor experiences while enjoying adventures in nature without worrying about the footwear on their feet.

For this specific reason, the priority is to create footwear that reflects the morphology of the foot and the natural movement while walking, in order to offer maximum comfort, even in models with the highest technical content.



OUR STRENGTHS

RELIABILITY AND DURABILITY

All AKU models are made from top-quality raw materials selected according to high standards, produced with experience and expertise, and subjected to careful control throughout the production cycle.

Before being introduced to the market, they are tested in-house in the laboratory and in the field by experts such as athletes, mountaineers or mountain guides, until complete qualitative excellence is achieved.

In this way, every single AKU footwear represents a product of absolute value, ethically correct, safe, reliable and destined to last over time, also thanks to the resole possible on many of the models in the collection.

TECHNOLOGIES

**THE EXCLUSIVE
AKU COMFORT FIT**

LAST and FUNCTIONAL USE OF THE PRODUCT



ORIGIN

The research into lasts originates at the craft level with the manual working of wooden lasts, which form the starting point for all subsequent processing stages. Through the use of the hand-crafted last, pattern makers create a three-dimensional object, the shoe, from two-dimensional elements laid flat, i.e. leather and fabric.

VALUE OF THE LAST

The value of this workmanship can be perceived in the fit of each individual model. AKU last is distinguished by its ability to perfectly follow the plantar anatomy, guaranteeing harmony and comfort in the fit while supporting the natural movement of the foot.



TYPES

The creation of a last is a long and careful process in which AKU's long experience in the design and production of high quality footwear is condensed. Identifying the last in relation to the morphology of the foot is one of the basic criteria in choosing the right footwear. The original AKU last is the matrix, the result of constant research into plantar anatomy.

From it, thanks to specific adaptations, derive the different types of last and fit, which vary according to the different models and the specific function of use of the product.



Dry, enveloping lasts for professional footwear in the Mountain segment, designed to promote precision and sensitivity in rock and ice climbing.



Comfortable and enveloping anatomical lasts for footwear in the Trekking segment, designed to offer comfort and stability and to promote dynamic action when walking on mountain trails with uneven ground.



Precise and slightly curved lasts, for the footwear of the Backpacking and Multiterrain segments, suitable for dynamic use on medium-difficulty terrain or demanding on technical terrain.



Soft and welcoming lasts for footwear in the Mountain Inspired segment, intended for leisure and light outdoor activities.



Lasts specifically developed for the female foot anatomy, comfortable and enveloping provide comfort and stability when walking on mountain trails with uneven ground.



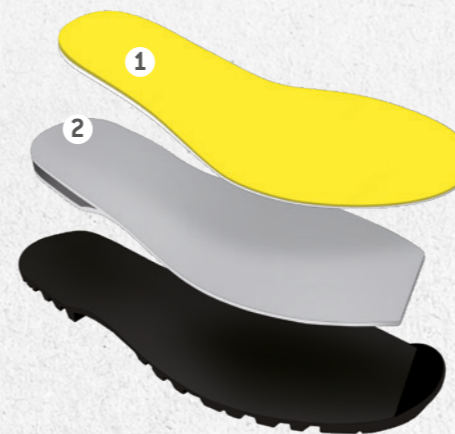
TECHNOLOGIES / THE EXCLUSIVE AKU COMFORT FIT

IMS

INTERNAL MIDSOLE SYSTEM

Internal Midsole System is an exclusive technology used by AKU in the **construction of the insole**, which combines the traditional nylon support structure with an EVA microporous layer positioned inside the upper.

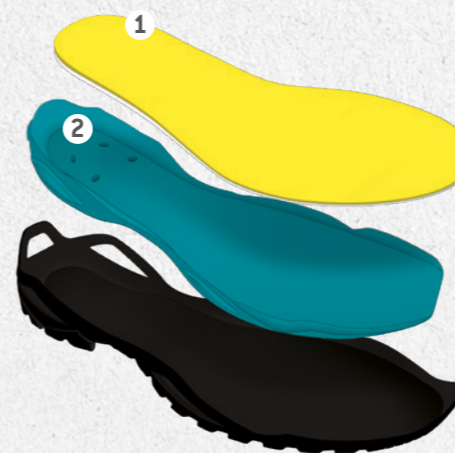
This system allows the footbed to perfectly **capture the anatomy of the foot**, **guarantees an even distribution of pressure**, prevents lateral and frontal slippage during intense use and offers both shock **absorption and excellent wearing comfort**.



IMS + PRECISION

The Internal Midsole System in the IMS1 version is combined with a thin microporous EVA midsole. Thanks to the low profile of the midsole, maximum sensitivity, precision and reliability are guaranteed to ensure a correct and immediate response to ground stress.

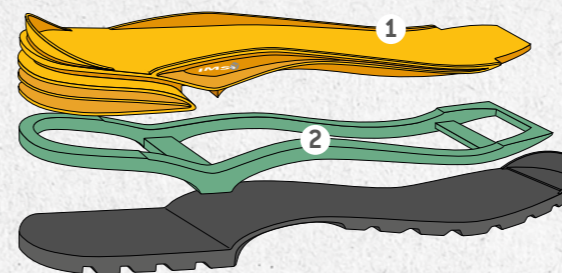
1 IMS - 2 SLIM MICRO EVA



IMS + AGILITY

The Internal Midsole System in the IMS1 version is combined with a thin microporous EVA midsole. Thanks to the low profile of the midsole, maximum sensitivity, precision and reliability are guaranteed to ensure a correct and immediate response to ground stress.

1 IMS - 2 MOLDED EVA / MOLDED PU



IMS + CUSHIONING

The Internal Midsole System is combined with a medium-density polyurethane Exoskeleton construction, which provides stability and protection, and an ultra-light polyurethane inner part, which provides cushioning and high shock absorption and compression resistance.

1 ULTRALIGHT PU - 2 EXOSKELETON IN PU



TECHNOLOGIES / THE EXCLUSIVE AKU COMFORT FIT

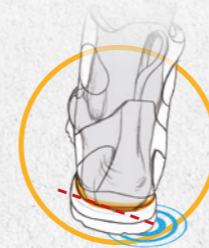
ELICA

AKU has always been committed to constant research into plantar anatomy and the study of the natural movement of the foot. Each footwear in the collection is developed taking into consideration the specific shape and fit requirements, which vary according to the different models and the function of use of the product. Each design is aimed at **favouring the natural movement of the foot**, allowing natural support and thrust, to offer optimal walking comfort.

Elica is an **integrated system consisting of FORMA – ASSEMBLY INSOLE – MIDSOLE – TREAD** that follows the anatomical shape of the sole of the foot and follows the normal inclination of the heel and forefoot.



SUPPORT PHASE



The assembly insole is inclined outwards to support the support of the heel.

+ COMFORT



In the external area of the heel the shock-absorbing thickness is greater to absorb impact.

+ CUSHIONING



Asymmetrical design of the tread aligned with the support axis and the protruding profile to increase the contact surface.

+ GRIP & STABILITY

PROPULSION PHASE



The assembly insole is inclined inwards to accommodate the support of the forefoot.

+ COMFORT



The internal front area of the wedge is made of shock-absorbing material to distribute the thrust force.

+ PROTECTION



On the inside the tread caps protrude outwards to increase the support surface.

+ GRIP & STABILITY



ELICA LAB TEST.

Laboratory tests certify that compared to a traditional shoe, footwear with ELICA guarantees **a more even distribution of foot pressure.**

Tests show a more even distribution of plantar pressures during the support phase. In the support phase the load is more central. Better arch support during the central phase and reduced pressure in the propulsion phase improve comfort.



WATCH THE VIDEO TO DISCOVER MORE ABOUT ELICA TECHNOLOGY



TECHNOLOGIES / THE EXCLUSIVE AKU COMFORT FIT

DFS
DUAL FIT SYSTEM

**DOUBLE THE COMFORT,
DOUBLE THE PERFORMANCE**

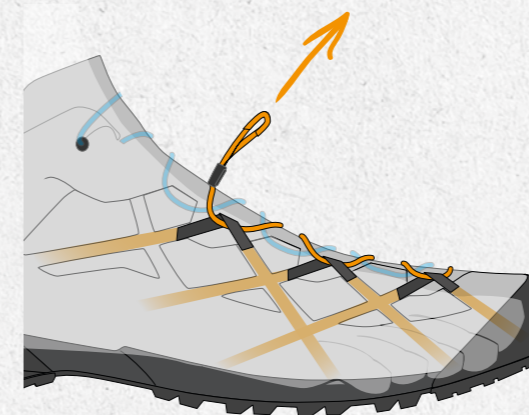
The DFS lacing system is a **technical innovation designed by AKU to provide a customised and precise fit**. This system makes it possible to use the **COMFORT WALKING** lacing to obtain a **snug and comfortable fit** during the approach and to use the **PRECISE CLIMBING** lacing to **wrap around the forefoot and increase precision** in the most delicate and demanding passages.

DFS - DUAL FIT SYSTEM is adopted in the highest technical performance models for mountaineering, approach, via ferrata or demanding trekking on mixed terrain, where comfort of fit is combined with the necessary precision in the most delicate and demanding passages.



COMFORT WALKING
DURING FOR THE APPROCH PHASE

A traditional lacing system comprising four anchor points that effectively secure the instep, whilst allowing maximum volume at the forefoot.



PRECISE CLIMBING
LACING FOR SCRAMBLING AND CLIMBING

The fast lock lanyard reaches through three anchor points, encasing the forefoot and thereby reducing volume at the shoe's tip.



WATCH THE VIDEO TO DISCOVER MORE ABOUT DUAL FIT SYSTEM TECHNOLOGY

DYNAMIC FIT



TECHNOLOGIES / THE EXCLUSIVE AKU COMFORT FIT

DYNAMIC FIT

SECURE COMFORT

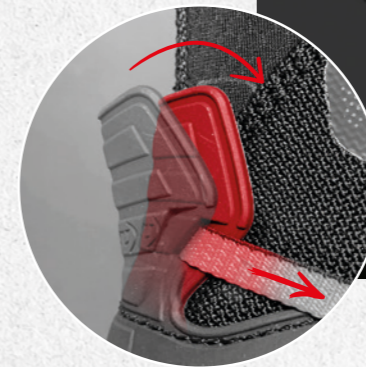
DYNAMIC FIT is the new AKU technology that dynamically adapts the boot's heel tension with your natural stride to increase comfort and stability.



WATCH THE VIDEO TO DISCOVER MORE ABOUT DYNAMIC FIT TECHNOLOGY

PROPULSION

When stepping forward, pressure is applied to a set of laces connected to the free-floating webbing located behind your heel (1). The heel counter pulls forward, locks your heel into place and reduces your heel slip (2).



LANDING

Landing on your heel releases pressure on the laces and relaxes the boot's heel webbing (3). This movement allows the boot's heel counter to bend backwards together with your Achille's tendon and to reduce pressure on your legs (4).



TECHNOLOGIES

**WATERPROOFNESS,
BREATHABILITY
AND THERMAL
COMFORT AT THE
HIGHEST LEVEL**



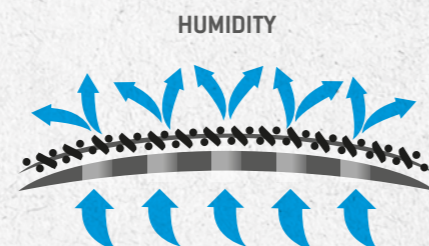
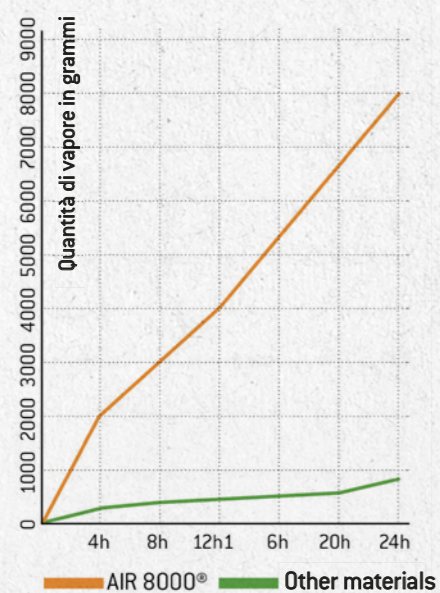
TECHNOLOGIES / WATERPROOFNESS, BREATHABILITY AND THERMAL COMFORT AT THE HIGHEST LEVEL

AIR 8000®

AIR 8000 is the first technology for the construction of the upper developed and patented by AKU since 1991 to increase the breathability of a mountain shoe.

Laboratory tests carried out by Gore Tex confirm that the upper made with the exclusive AKU AIR 8000® system offers a level of **breathability up to 11.5 times higher than normal standards.**

Almost 30 years later, the AKU AIR 8000® system remains one of the most advanced technologies to ensure excellent breathability of the mountain shoe.





TECHNOLOGIES / WATERPROOFNESS, BREATHABILITY AND THERMAL COMFORT AT THE HIGHEST LEVEL

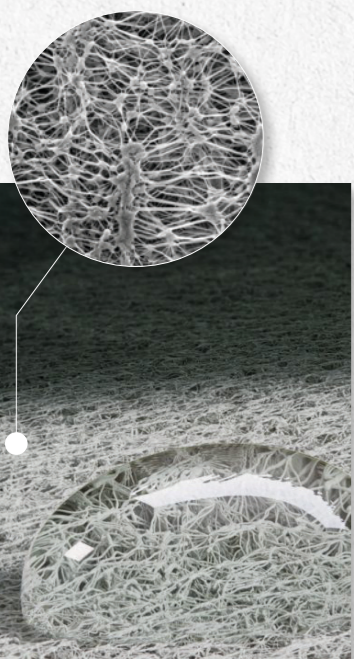
GORE-TEX

The Gore-Tex® membrane is an exclusive heat-sealed technical fabric which contains about 1.4 billion microscopic pores per square centimeter.

These pores are approximately **20,000 times smaller than a drop of water but 700 times bigger than a molecule of moisture vapor.**

So, whilst **water droplets cannot penetrate the GORE-TEX membrane** moisture vapor, namely perspiration in gas form, **can easily escape.**

GORE-TEX® has developed 3 specific types of membrane for the footwear sector, each with specific functional properties:



GORE-TEX MORE SEASONS

Ideal for moderate or warmer weather conditions. Exceptional performance in high-output activities and everyday use.

Key advantages:

- All-year indoor comfort and outdoor protection.
- Extremely breathable to prevent feet from overheating.
- Optimum heat conductivity and excellent moisture management ensure all-day climate comfort inside the shoe.
- Durable waterproof protection.

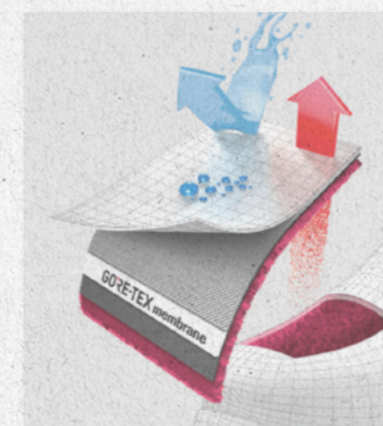


GORE-TEX MOST BREATHABLE

Moderate insulation to keep feet dry and comfortable during outdoor activities in a variety of weather conditions.

Key advantages:

- Moderately insulated for changing conditions
- Optimal combination of breathability and insulation keep feet warm and dry, even in unexpected weather
- Durable waterproof protection.



GORE-TEX INSULATED

Offers a range of insulation options to keep feet dry and comfortable in cold to very cold temperatures. Designed for the winter, they keep feet warm and dry all day long, even in rain, snow and ice. Key advantages:

- Various insulation options available, enabling selection of the right shoe for a particular winter activity
- Optimal combination of breathability and insulation keeps feet comfortable, never sweaty
- Durable waterproof protection keeps moisture out.



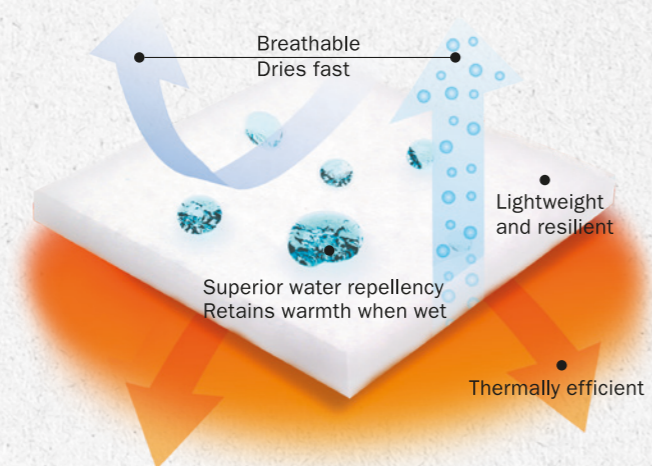
TECHNOLOGIES / WATERPROOFNESS, BREATHABILITY AND THERMAL COMFORT AT THE HIGHEST LEVEL

PRIMALOFT

PrimaLoft® insulation products offer superior performance for high-quality equipment intended for protection from the cold.

PRIMALOFT is **warm as a feather, compressible, lightweight and breathable** and offers **excellent water repellency to keep your feet dry**, warm and comfortable even in the most adverse weather conditions.

PRIMALOFT uses a patented ultra-fine microfibre structure to help the body retain heat and conserve energy.



WARM



WATER-REPELLENT



BREATHABLE



LIGHTWEIGHT



RECYCLED



DURABLE

TECHNOLOGIES

**STABLE AND SAFE
ON ALL TERRAINS**

TENUTA



TECHNOLOGIES / STABLE AND SAFE ON ALL TERRAINS

TENUTA GRIP

HIGH TRACTION

Tenuta Grip is the name that identifies a **special compound developed by AKU**.
A compound and tread designed for mixed and off-road use,
for a **perfect grip on smooth and wet surfaces**.





TECHNOLOGIES / STABLE AND SAFE ON ALL TERRAINS

VIBRAM

Vibram is synonymous with the sole for mountain footwear, an **essential component for the safety and technical performance of the product.**

Vibram's experience is condensed in the **research and development of specific compounds** for use on different terrains and environmental conditions; **AKU's** contribution is based on the **design of the tread profile**, conceived and designed according to the intended use of the product.

From this synergy are born soles that AKU adopts on many of its models, generating its own exclusive standard of performance.

THE SOLE DESIGN

The sole is one of the elements that make up the shoe and must be considered as part of a single project, consistent with the technical / functional needs of the type of shoe that is being designed and the last on which it will be built. **In the case of AKU, the sole must copy the anatomical and helical shape of the bottom of our last, in order to support and enhance its anatomical and dynamic characteristics.**

Another aspect to pay attention to is its reliability which must also be consistent with the use for which the shoe was designed, with a view to minimizing material waste to obtain the maximum required result.

A further element of attention is the search for the simplicity of interface / assembly between the sole and the other components of the shoe.

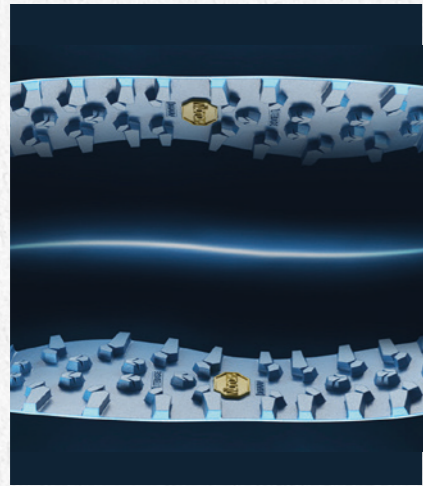
In summary: maximum attention to the minimalism of the sole, both in weight and in the components and design choices.





VIBRAM MEGAGRIP

A special compound designed by Vibram® to offer excellent grip on dry and wet surfaces. This compound today represents the highest standard in field performance for Vibram compounds dedicated to outdoor and sports footwear. Perfect mix of grip and durability, Megagrip expresses an excellent balance between stability and flexibility on all types of terrain. AKU adopts the Megagrip compound on some of its higher technical performance models.



VIBRAM LITE BASE

Vibram Litebase is an innovative technology from Vibram that ensures a lighter sole, which is essential for conserving energy during use and improving performance. In fact, this solution reduces the overall weight of the sole by 30% thanks to a 50% reduction in thickness, while maintaining Vibram's qualities of grip, traction and durability.



VIBRAM TRACTION LUG

Vibram Traction Lug is a new design focused on the key element in traction. Vibram® has developed the tread with micro lug-shaped features, increasing the ground contact surface by 50%. Vibram® thus provides up to 25% better traction and improved stability during use. AKU has decided to use this technology in footwear that needs high performance and better grip, especially when pushing.



VIBRAM N-OIL

Vibram N-OIL compound is another innovative solution from Vibram, designed to offer a green alternative in the footwear world. Composed of more than 90% natural ingredients, while maintaining the performance and qualities of Vibram. This compound is also made without the use of solvents or chemicals. This is a step forward made by AKU and Vibram® in their constant search for innovations and high-performance, responsible products. AKU uses the N-OIL compound on some of its environmentally responsible models.

CHARACTERISTIC ELEMENTS OF SOLES

MOUNTAIN

- Particular resistance to abrasion
- Background design with a greater number of blanks
 - Fewer elements of which they are composed
 - Accentuated sculpting

TREKKING

- Appropriate resistance to abrasion
- Shock absorption capacity, especially in the heel area
- Accentuated sculpture, characterised by the correct height of the caps
 - Bottom design with empty areas for cleaning the bottom
 - Design that allows flexing and protection of the boot
 - Attention to lightness

MULTITERRAIN

- Particular resistance to abrasion
 - Shock absorption capacity
- Accentuated sculpting, characterised by a reduced height of the caps
 - Bottom design that supports the correct flexion of the foot
 - Increased number of elements from which they are composed
 - Remarkable lightness

TECHNOLOGIES



IMS 1 combines the Internal Midsole System with an external midsole in a thin microporous EVA. In this way, thanks to the low profile of the midsole, it provides maximum sensitivity, precision and reliability to ensure a correct and instant reaction to uneven terrains.



Dynamic Fit is the new AKU technology that dynamically adapts the boot's heel tension with your natural stride to increase comfort and stability.



AIR 8000® has been created to ensure the footwear has a high level of breathability. It consists of a specially made fabric whose level of breathability increases over a period of 24 hours up to more than 11 times that of a conventionally made fabric.



The version IMS2, couples the Internal Midsole System to a thicker midsole in molded EVA or molded PU, in order to create the right balance between ground control and shock absorption.



The Internal Midsole System is coupled with an Exoskeleton construction of medium density polyurethane for stability and protection, and a lightweight polyurethane inner part, which provides cushioning, shock absorption and high compressive strength. In addition it features a lightweight and durable TPU heel cap and a rubber toe cap for a perfect fit of the crampon.



The GORE-TEX INSULATED COMFORT laminate is equipped with an intermediate layer of wadding whose thickness varies depending on the thermal insulation required.



PrimaLoft® insulation products offer superior performance for high quality cold-weather gear. PrimaLoft® is lightweight and breathable with excellent water repellency to keep you dry, warm and comfortable even in the most extreme weather conditions.



Elica is an integrated system consisting of last - insole board midsole - outsole which faithfully follows the anatomical shape of the sole of the foot and adapts to normal heel and forefoot inclination to reduce impact and strain.



DFS allows you to customize fit to give you the best performance and greatest comfort on any terrain. Specifically, this AKU innovation gives you precise control to either relax your shoe's fit for greater comfort or snug it up for more technical performance.



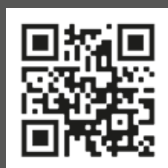
Tenuta Grip is the name that identifies a special compound developed by AKU for some models in the hiking and speed hiking category. A compound and tread designed for mixed and off-road use, for a special grip on smooth and wet surfaces.



Most of its collection AKU has exclusive outsoles designed together with Vibram®, for both the specific design and shape of the outsole, as well as for the composition of the rubber with which it is made. The outsole is also designed with thought for the specific needs and the different end use of the shoes.



aku.it  



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ARE AVAILABLE ONLINE AT AKU.IT