

"bio" series, gloves for rescue operations

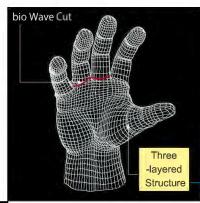
GLOVE CATALOGUE

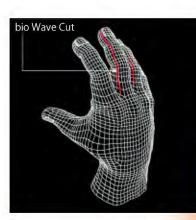
A&T GLOVE STUDIO

Through our <creativity + design + technology>, we provide safety and security.

Unique processing, cutting, and sewing techniques to make finger and hand movements smooth We continue developing professional products that deliver maximum safety and security by leveraging our innovative ideas and long-accumulated know-how.

Our product line encompasses everything from products for tough operations in severe environments to those for specific purposes.







<Patent Number: 3091740> bio Wave Cut, evolution of the conventional gunn cut

It allows natural finger movements and firm grips

Conventional gunn cut

In the gunn cut, straight stitching worked to interfere with the effort to make the most of material characteristics, including elastic ones, leading to the tense or flabby

bio Wave Cut

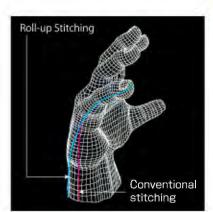
1. It is a cutting method where the area connecting the base of fingers and the palm is cut in a wavelike fashion. This cutting method reduces the tense or flabby feelings that occur when fingers are bent and keeps the hand in a natural condition, leading to an excellent fit that conventional products cannot provide.

2. The sides of the fingers are cut in a curve to facilitate joint movements.

Benefits of the bio wave cut

It achieves the following by reducing wrinkles, slack, and tense feelings and enhancing a fit:

- 1. Smooth movements and good work performance
- 2. Reduction of fatigue
- 3. Economical as it minimizes tear or thread breakage.





Roll-up Stitching

When sewing the fabrics together on the side of the little finger, every manufacturer used to sew them together along the side line.

In <bio> gloves, however, the stitching line goes toward the back of the hand as it departs from the base of the little finger toward the wrist.

This sewing method is called "roll-up" stitching. It reduces not only the pain arising from a contact between the seam and the palm side, which is hit often during work, but also thread breakages, leading to the enhancement of the durability and safety of the gloves.







bio631 Para-aramid gloves for rescue operations (short)





bio913 Short Hoist Operator Gloves (three fingers)



bio914 Short Hoist Operator Gloves (five fingers)



bio630

Para-aramid gloves for rescue operations (short)



bio605 Para-aramid gloves for rescue and fire-fighting operations (long)



bio913 Long Hoist Operator Gloves (three fingers)



bio914 Long Hoist Operator Gloves (five fingers)



bio915 Long Hoist Operator Gloves (five fingers)



bio915 Long Hoist Operator Gloves (five fingers)



bio520 Deerskin



bio505 Cowhide



bio501 Cowhide

Canvas Leggings for Pump Operation Competitions



bio531 Fast Roping /Rappelling Gloves

Formal Warm Gloves



NWP-901 Nylon + PU film + Raised Polyester



603 Athlete Leggings for Common Shoes with Strings





Harness Protector

7900 NAVAHO Harness Protector



8900 NAVAHO Harness Protector



varon

Para-aramid gloves for rescue operations

Thin Para-Aramid fibers Gloves with Cowhide and a Protector Short type designed to enhance safety and easy work performance

Twaron®, para-aramid fibers that have high cut and abrasion resistance, is used as a core material. Work efficiency is significantly enhanced by the use of cowhide reinforcement, which provides high friction resistance and an excellent fit, the patented manufacturing process, and detailed design.



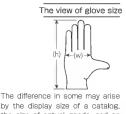
The leather pad and separation method applied to the bending area on the palm to facilitate rope operations allow comfortable grips and enhance work performance.



A shock-absorbing urethane pad is applied to the area above the wrist (palm side) as a protector.



Notches are provided at finger joints to ensure smooth finger movements.



by the display size of a catalog, the size of actual goods, and an amorous glance of goods.



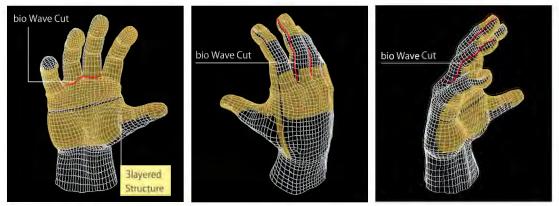
bio631

Para-aramid gloves for rescue operations (short)

- ■Size / S 8.0 inches (h)224mm×(w)100mm
 - M 8.5 inches (h)230mm×(w)106mm L 9.0 inches (h)236mm×(w)112mm
 - LL 9.5 inches (h)242mm×(w)118mm
- Material / Body Para-aramid fibers +

Cowhide reinforcement (0.7 to 0.8 mm) + On the palm - Urethane pad (protector) + Lining - 100% cotton lining (only on the back of the hand) Wrist - Pile knit

Safe three-layered structure comprising para-aramid fibers, a cowhide reinforcement, and a 100% cotton lining (only on the back side of the hand) and "bio wave cut" that reduces stress on the hand



[■]Color / Orange + Yellow Moss green + Black

twaron®, ultra high-function para-aramid fibers



Combined use of para-aramid fibers twaron®, a strong functional material, and a cowhide reinforcement Our unique patented manufacturing process enables smooth movements and achieves exceptional comfort.

Carefully selected materials that enhance safety and comfort

point 1 <Para-aramid Fibers>

• Cut resistance • Flame retardance • Flexibility (thin knit)

point 2 <Cowhide Reinforcement>

Durability
 Abrasion resistance
 Cut resistance

Manufacturing process that enhances functionality and comfort

point 3 < Innovative Design</p>

Protector (absorbs part of shocks on the palm)

Separation structure on the joint reinforcement

leather (ensures the flexibility of the fingers and palm)

point 4 <Patented Manufacturing Process> "bio" wave cut

• Ensures smooth bending and stretching of fingers.

• Reduces discomfort in finger joints.

• Enhances a fit.

Safety enhanced via superior fibers properties

There are always hazardous objects, such as glass and metal debris, in accident and disaster sites. Moreover, fire-fighting activities always involve flames and heat. Ultra high-function para-aramid fibers, "twaron[®]," protects your hand from these hazards.

Higher heat resistance and cut resistance are achieved by using a double-knit fabric made of high density para-aramid fiber yarn (20 yarn count, areal fiber weight of 280 to 290 g) as the base material.

With a solid three-layered structure comprising para-aramid fibers, "twaon[®]," a 100% cotton lining, and natural leather, the gloves provide the highest safety and security for tough work.

High performance achieved by innovative design and manufacturing process

Safety and easy movement are enhanced via superb materials comprising para-aramid fibers and natural leather and user-friendly design, such as "bio wave cut" to facilitate smooth finger movements and leather reinforcement that covers a wide area, including the base of thumbs.

Cut resistance and abrasion resistance of para-aramid gloves (cotton work gloves)

Cut Resistance

Sample	Cutting Resistance (frequency)
100% twaron para-aramid	14
100% cotton	3
100% nylon	3

• To cut the glove material with a razor blade requires more than four times the strength to cut a cotton material.

For cotton samples, 7G cotton work gloves were used.

* A method to use a universal abrasion tester is adopted. (The measurement was conducted by the BOKEN QUALITY EVALUATION INSTITUTE.)

Abrasion Resistance

Sample	Bursting Strength (kg/cm ²)	Abrasion Strength (frequency)
twaron para-aramid	6.2	More than 5,000
100% AC	6.6	161
100% cotton	5.6	216
	-	161

Abrasion strength: JIS L 1018 uniform method

 This product is economical as the abrasion resistance of the product material is about 20 times the abrasion resistance

of cotton or acryl products, indicating that the product wears well. (The measurement was conducted by the

BOKEN QUALITY EVALUATION INSTITUTE.)

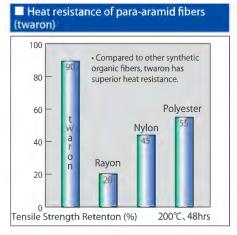
Thermal properties of para-aramid fibers (twaron)

Value (unit)		
29 (LO1% (oxygen index))		
500 (°C)		
90 (%)		
1420 (J/kgK)		
0.05 (W/mk)		
0 (%)		

hot air for 15 minutes)

• It is flame retardant and does not melt. It starts carbonizing at 427 to 488 degrees centigrade. Hardly any CO, CO2, and HCN emissions are generated even when the temperature is below 400°C

• Since twaron is heat resistant up to 600°C, if it is for a short time, the product is safe to wear for operations involving high heat.







Para-aramid gloves for rescue operations

Short gloves equipped with reinforcing leather that protect the fingers and palm and enable the performance of hard tasks.

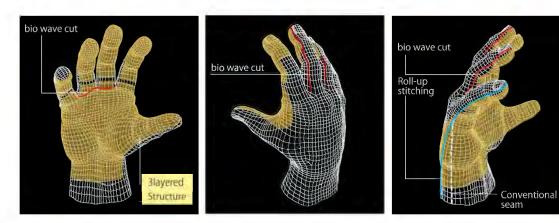






bio630 Para-aramid gloves for rescue operations (short)

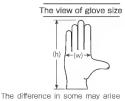
■Color/Orange + Yellow Black + Black ■Size/M 8.5inches (h)225mm×(w)106mm L 9.0inches (h)231mm×(w)112mm LL 9.5inches (h)237mm×(w)118mm ■Material/Body:アラミド繊維+ deerskin reinforcement (0.7 to 0.8 mm) + Lining: 100% cotton







bic



The difference in some may arise by the display size of a catalog, the size of actual goods, and an amorous glance of goods.







Para-aramid gloves for rescue operations

Made of thick para-aramid fibers and a deerskin reinforcement with protectors Long type for dangerous rescue and fire-fighting operations

Long gloves that protect wide areas above the wrists and ensure safety in dangerous work sites

Shock-absorbing urethane pad protectors on the back and long arms with double stopper bands fully protect the hands of users.



■ Shock absorbing urethane pad protectors are applied to the joints on the back, which are susceptible to contact with hazards



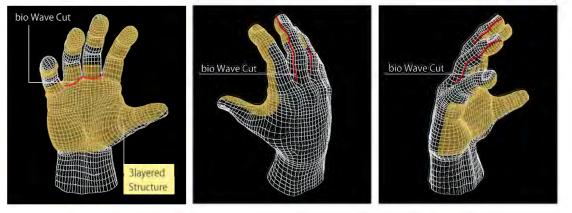
bio605 Para-aramid gloves for rescue and fire-fighting operations (long)

 Color / Orange + Yellow Black + Black
 Size / M 8.5inches (h)240mm×(w)106mm L 9.0inches (h)255mm×(w)114mm LL 9.5inches (h)270mm×(w)122mm
 Material / Body: Para-aramid fibers+ deerskin reinforcement (0.7 to 0.8 mm) + Back side: Urethane pad (part of the protector) + Lining: 100% cotton



■ Long gloves with double wrist bands are hard to slip off, protecting the hands from the entry of hazards.

Three-layered structure comprising para-aramid fibers, deerskin reinforcement, and a 100% cotton lining and "bio wave cut" that reduces stress on the hands





HOIST

OPERATOR



Patent Number: 4938570

GLOVE



While the body is made of microfiber, para-aramid fibers are used for the inner reinforcement. Ultra thick special leather is applied to the palm, which comes in direct contact with cables, for reinforcement. The thick and solid-spec based on the sandwich structure comprising different types of materials and ultra thick leather coupled with our unique manufacturing process has realized the strong gloves with an exceptional fit.

Although this glove was developed as only for a hoist operator, the following purposes of use also demonstrate power.

1.As the exaggerated glove at the time of repelling descent 2.As the ground assistance at the time of lifting rescue Support the hands of hoist operators and ensure their safety. Patented gloves tailored for hoist operators who engage in dang Reduces burns due to frictional heat and features significantly in

Hoist Operator Gloves

- 1. Robust gloves developed exclusively for helicopter hoist operations
- High price, yet low cost. The amazing sturdiness and durability make the gloves exceptionally economical.
- 3. The product produces hardly any friction-related leather waste, which often attach to cables, reducing stress on the cables.
- 4. It performs well in bad conditions. The best choice for hoist operators.
- Ongoing efforts to better secure users' safety drive design evolution and new innovations.

Our

genuity

Many inquiries from various quarters around the world, including military forces, rescue corps, and security organizations.

An extremely thick and stout, yet exceptionally supple structure with few wrinkles

Microfiber

Two-way Stretch Knit

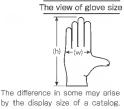
The two-way stretch knit delivers a superb fit.

Microfiber

For the body, microfiber fabrics highly resistant to rain or water drops are used.

Field test commissioned by our company (After about 130 hoists in hoist training)





by the display size of a catalog, the size of actual goods, and an amorous glance of goods.

erous operations proved durability.



Ultra thick <C fit> special tanned leather Initial model Compact design that minimizes wrinkles and slack. Excels in operability.

Design where the ultra thick special tanned leather reinforcement spans from the palm over to part of the back

Para-aramid fibers

Glue applied to sewn areas to prevent unraveling.

Innovative design to enhance the pliability of the ultra thick special



Para-aramid fibers

* Notes on ordering

* Please select either right-handed or left-handed type.

* Please select the same size as your leather gloves since the product is made on the assumption that it will be worn on leather gloves. If you want to wear this product over para-aramid gloves, please order one size larger.

The example of use of Short Hoist Operator **Gloves (three fingers)**





bio913 **Short Hoist Operator Gloves** (three fingers)



Separate sales of single gloves available

■Color / Black+Gray+Yellow

- ■Size/M 8.5inches (h)140mm×(w)104mm
 - 9.0inches (h)145mm×(w)110mm L
 - LL 9.5inches (h)150mm×(w)116mm
 - 3L 10.0inches (h)155mm×(w)122mm

■Material/Body:Microfiber+

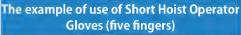
Inside: Para-aramid fibers+ Palm Ultra thick special tanned leather



bio913 Long Hoist Operator Gloves (three fingers)

■Color / Black+Gray+Yellow

- ■Size/M 8.5inches (h)140mm×(w)104mm
 - 9.0inches (h)145mm×(w)110mm L
 - LL 9.5inches (h)150mm×(w)116mm
 - 3L 10.0inches (h)155mm×(w)122mm
- ■Material / Body: Microfiber+
 - Inside: Para-aramid fibers+
 - Palm Ultra thick special tanned leather







bio914 **Short Hoist Operator Gloves** (five fingers)



■Color / Black+Gray+Yellow

- ■Size/M 8.5inches (h)140mm×(w)104mm
 - 9.0inches (h)145mm×(w)110mm L
 - LL 9.5inches (h)150mm×(w)116mm
 - 3L 10.0inches (h)155mm×(w)122mm
- ■Material / Body: Microfiber+
 - Inside: Para-aramid fibers+
 - Palm Ultra thick special tanned leather



bio914 Long Hoist Operator Gloves (five fingers)



■Color/Black+Gray+Yellow

- ■Size/M 8.5inches (h)140mm×(w)104mm
 - L 9.0inches (h)145mm×(w)110mm
 - LL 9.5inches (h)150mm×(w)116mm
- 3L 10.0inches (h)155mm×(w)122mm ■Material / Body: Microfiber+
 - Inside: Para-aramid fibers+
 - Palm Ultra thick special tanned leather



Exclusive Gloves for Hoist Operators







<S-fit> Ultra Thick Special Leather

A large piece of ultra thick special leather protects the entire palm. Our pursuit of better work performance has evolved the structure into

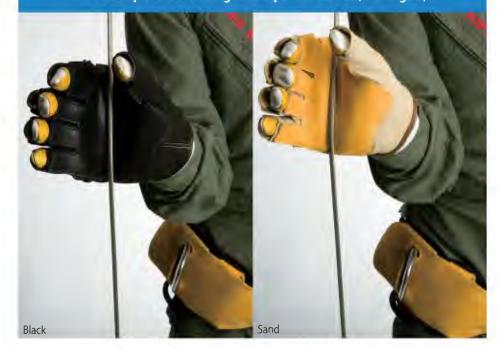




bio915 Long Hoist Operator Gloves (five fingers)

 Color / Sand beige + Yellow Black+Gray
 Size / M 8.5inch (h)140mm×(w)104mm L 9.0inch (h)145mm×(w)110mm LL 9.5inch (h)150mm×(w)116mm 3L 10.0inch (h)155mm×(w)122mm
 Materials / Body: Microfiber + Inside: Para-aramid fibers+ Palm : Ultra thick special tanned leather

Separate sales of single gloves available The example of use of Long Hoist Operator Gloves (five fingers)



Ultra thick special leather is applied to the palm, which comes in direct contact with cables, for reinforcement.

The thick and solid-spec based on the sandwich structure comprising different types of materials and ultra thick leather coupled with our unique manufacturing process has realized the strong gloves with an exceptional fit.

* Notes on ordering

* Please select either right-handed or left-handed type.

* Please select the same size as your leather gloves since the product is made on the assumption that it will be worn on leather gloves. If you want to wear this product over para-aramid gloves, please order one size larger.





Rappel/Fast Rope Gloves

A split in the leather patch (cowhide

Roll-up Stitching

reinforcement) to enhance plinbility

For the base material, soft, stretchy white chrome-free cowhide (0.7 mm) is used. For the reinforcement on the palm, friction-resistant yellow cowhide (0.8 to 0.9 mm), which provides a superb fit, is used. Operability is significantly enhanced via our patented manufacturing





bio531 Rappel/Fast Rope Gloves

- ■Color / White + Yellow ■Size / M 8.5inch (h)230mm×(w)106mm L 9.0inch (h)236mm×(w)112mm
 - LL 9.5inch (h)242mm×(w)118mm

■ Materials / Body - Chrome-free cowhide (0.7 mm, white) Palm - Leather reinforcement (0.8 to 0.9 mm, yellow) Wrist - Moisture absorbent, fast-drying pile rubber (white)

Two types of natural leathers and our unique cutting structure together fully protect the hands of operators and contribute to their speedy rescue operations. Body: Non-chrome cowhide (0.7 mm) Water repellent Features: Soft and supple and has an exceptional fit · Leather patch: Chrome cowhide (0.8 to 0.9 mm) Features: Wear and abrasion resistant Features: Wear and abrasion resistant



A Velcro band is flying corps-spec designed along the form of a wrist watch. We paid particular attention to details, such as the use of a sweat-ab-

Chrome-free cowhide 0.7 mm

A harness is an indispensable item for rescue operations.



7900 NAVAHO Harness Protector

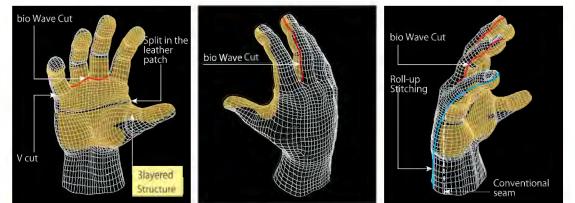
Color/Yellow or Black
 Size/ (h)100mm×(w)175mm
 Materials/Ultra thick top grain cowhide leather (2.3 mm to 2.5 mm)



8900 NAVAHO Harness Protector

- Color/Yellow or Black
- ■Size / (h)110mm×(w)215mm
- Materials / Ultra thick top grain cowhide leather (2.3 mm to 2.5 mm)

■ Features a double-layered structure comprising cowhide and leather reinforcement for the body and "bio wave cut" and "roll-up stitching" to reduce stress on the hands.





Deerskin Athletic Gloves

Athletic gloves where the highest-quality deerskin, which does not get hard when wet, provides a soft texture and a beautiful silhouette.

Athletic gloves made of high-quality, supple deerskin. Our patented manufacturing process and stretchy deerskin guarantee a superb fit that you can feel from the moment you wear them.



bio520 Deerskin Athletic Gloves

■Color / Cream

- ■Size/S 8.0inch (h)225mm×(w) 94mm
 - M 8.5inch (h)230mm×(w) 98mm
 - L 9.0inch (h)235mm×(w)102mm
 - LL 9.5inch (h)240mm×(w)106mm
- ■Materials / Body Deerskin (0.7 to 0.8 mm) Cuff - Pile rubber

■ The highest-quality deerskin with superb properties and our patented manufacturing process, "bio wave cut," deliver the nicest fit and comfort.





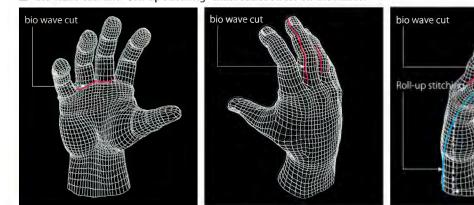




Benefits of using deerskin

Different from ordinary leather that becomes hard and coarse when wet, deerskin is less likely to stiffen and lose shape when wet and even after it is dry. Since deerskin stretches vertically and horizontally, it provides a nice, comfortable fit. Moreover, its unique adhesive and slimy properties prevent friction from developing on the surface, making the skin resistant to cuts.

■ "bio wave cut" and "roll-up stitching" that reduce stress on the hands.



The view of glove size

by the display size of a catalog, the size of actual goods, and an amorous glance of goods.

Conventional seam



bio" series, gloves for rescue operations

PROFESSIONAL GEAR [bio]



Cowhide Training Gloves

Thin cowhide athletic/training gloves with simple design and a superb fit

The product provides the natural, soft feel and texture of natural leather that artificial leather can never offer. The more you wear gloves made of natural leather, the better they will fit your hands.



bio505 Cowhide Athletic/Training

Gloves with Leather Patches

■Color/White ■Size/S 8.0inch (h)230mm×(w) 94mm M 8.5inch (h)236mm×(w)100mm L 9.0inch (h)242mm×(w)106mm LL 9.5inch (h)248mm×(w)112mm

Materials. Body - Cowhide (0.6 to 0.7 mm) Cuff - Pile rubber

A leather patch is applied to the base of the thumb on the palm side for reinforcement







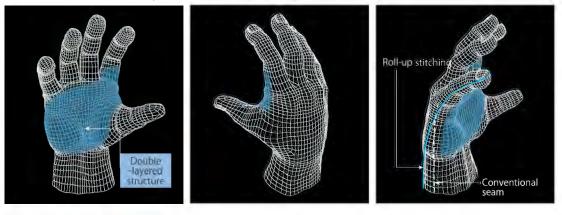
Cowhide Athletic/Training Gloves

■Color / White

- ■Size/S 8.0inch (h)230mm×(w) 94mm M 8.5inch (h)236mm×(w)100mm
 - L 9.0inch (h)242mm×(w)106mm
 - LL 9.5inch (h)248mm×(w)112mm
- ■Materials / Body Cowhide (0.6 to 0.7 mm) Cuff - Pile rubber

An S-cut is applied to the joint at the base of each finger and seams are placed away from the joint. Such twists prevent direct contacts between fingers and seams, reducing stiff, uncomfortable feelings. They also reduce slack, allow smooth performance, and provide a nice fit.

Cowhide reinforcement (only bio505) and roll-up stitching less stressful on the hand





Patent pending: Patent application number: 2011-132744

Formal Warm Gloves for Ceremonies and the Hospitality Business

<Nylon + PU film + Raised Polyester> Warm and clean Indispensable item for ceremonies and the hospitality business. Innovative formal gloves with many protective functions against cold

The exterior made of nylon generates no flocks and provides a supple feel and nice fit.

The product keeps the cold out at events and ceremonies in winter



NWP-901

Formal Warm Gloves for Ceremonies and the Hospitality Business

■Color/White ■Size / SS、S、M、L、LL (see diagram below) ■Materials/Body - Nylon +PU film Inside - Raised polyester



Outstanding protection against the cold nature



It is three-layer solid construction and is this thinness.



The outer material is a nylon material.



★The hand by which it is frozen at an event or a festival is supported, it stands, and behavior and the appearance are also cinch. ★

Plastic bag: One pair

Box: 12 pairs





Three-layered structure



Size

	Cine Color		Dimension(mm)		Case (12 pairs)
SI	Size	Size Color	Width	Length	Size(mm)
	SS	White	86	198	
	S		90	206	
	М		96	220	210×260×100
	L		100	229	
	LL		104	238	

The difference in some may arise by the display size of a catalog, the size of actual goods, and an amorous glance of goods.

The view of glove size



bio" series, gloves for rescue operations

PROFESSIONAL GEAR [bio]



Canvas Leggings for Fire Pump Competitions

Ultra light! Sole band removed! Developed exclusively for fire pump competitions.Canvas leggings that allow quick movements and a beautiful silhouette

Fire brigade competition goods that support passionate teams working toward a national championship

Competition on speed and discipline, which is one of the important rating criteria. The significantly reduced weight and the use of stretchy materials and non-slip tapes help achieve both speed and disciplined beauty.

Two types of innovative leggings tailored to fire pump operations



603 Athlete Leggings for Common Shoes

- with Strings
- Color / White Size / L, LL (see diagram below)
- Body Cloth + Cowhide Belts
- r cominae ben

613 Athlete Leggings

Two types that can be selected by shoes used



■ Hook type for common shoes with strings Prevent misalignment by fixing a metal hook attached inside the legging to a shoe race.



Leather loop type for Velcro strap shoes

Prevent misalignment by passing a Velcro strap through a leather loop provided inside the legging.

Features of 613 and 603 Athlete Leggings



 Misalignment preventive tape

Misalignment preventive tapes are attached inside the leggings to reduce the sliding up of pants and prevent untidy clothing, which is one of discipline rating items.

Two-way knit It supports smooth movements of ankles and prevents them from getting stuffy in the hot season.



613 Athlete Leggings for ASICS shoes

Color / White Size / L, LL (see diagram below) Materials / Body - Cloth + Cowhide Belts

Size / How to select the right size L:140mm~170mm Calf: LL:160mm~190mm 230 to 240 mm from the floor (Double the length to get the circumference.) (Please measure without wearing shoes.) Ð (O L:120mm~150mm (Double the length to get the circumference.) LL:140mm~170mm Ð (Double the length Calf to get the circumference 220mm



A&T GLOVE STUDIO CO., LTD.

A&T GLOVE STUDIO

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* Since it may change without a preliminary announcement for an improvement, please understand specification, a design, etc. of a product. * Some colors of a product may differ on the relation of printing.