


20²⁴/₂₅



O'NEILL

W E T S U I T C L I N I C



ESTABLISHED 1952

- DESIGNED AND TESTED IN SANTA CRUZ, CALIFORNIA -

CONTENTS

O'Neill has prepared this Clinic to provide in-depth information about our Wetsuits. Use the following Table of Contents to navigate quickly:

KNOW JACK.....03

Get acquainted with our **Founder**, our **Prototyping Research and Design Department**, the **Rider Developed, Rider Proven Process** and **Program**, the **O'Neill Reputation**, our famous **Engineered Fit**, and **How a Wetsuit Works**.

AREA 52.....04

Learn the **ins and outs** of our **Research and Design Development Process**.

O'NEILL BLUE.....05

Discover **O'Neill's Ocean Mission** and the **Components** central to our **Sustainable Product Line** including the **3rd and 4th Generations** of **TechnoButter** materials.

TECHNOBUTTER 4.....06

Familiarize yourself with the **Fourth Generation** of our **Exclusive** and **Revolutionary TechnoButter** family of materials. This iteration of **TB** builds on the previous version with a **Breakthrough** in **Thermal Technology** and **Durability**.

rTB3 & HYPERFREAK.....07

TechnoButter 3 and **TB3X** are now created with **Recycled Materials** within the jerseys that line the **Eco ENVY Rubber Foam Core**. The **HyperFreak Wetsuit Collection** uses **Sustainable O'Neill Blue Components**.

MATERIALS.....08-09

Become well-versed in all of the **Types of Neoprenes** within our **Product Line**.

SEAM CONSTRUCTION.....10

Wetsuits are created using **panels**, which are **Fixed Together** through different **Construction Techniques**. These range from **Cold Water High-End Watertight Seams** to **Breathable Seams Designed for Tropical Weather**.

ENTRIES & CLOSURES.....11

The **Entry/Closure** is one of the most important aspects of any **Wetsuit**. We have **Patented** and **Industry-Leading Systems** offering **Adjustable Watertight Seals** while making **Entry** and **Exit** easier than ever before.

UNIQUE TECHNOLOGIES & FEATURES.....12

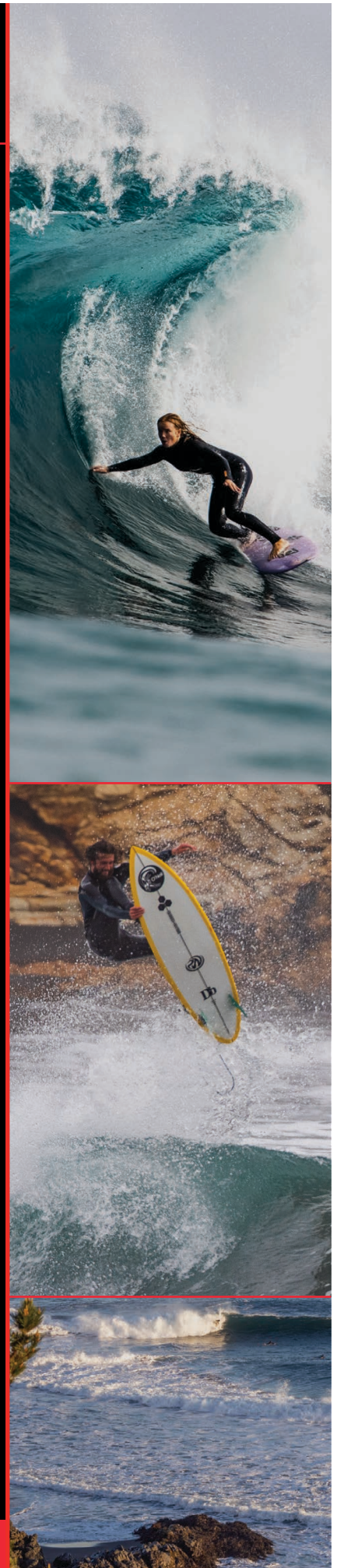
Find out more information on our many **Exclusive Materials** and **Technologies** that make up our products.

SIZE & TEMPERATURE CHARTS.....13-16

Easily size **anyone** for the **Perfect Fitting Wetsuits**, **UV Protection**, **Water Sports Vests**, and **Accessories** like **Gloves**, **Hoods**, and **Boots**. Then **Quickly Reference** the **Right Thickness** for a **Wetsuit or Other Products** based on the **Temperature**.

WETSUIT TECH CHART & NOTES.....17

An at a glance **Breakdown** of the **Details** that make up each of our **Wetsuit Series**. Add some of your own **Notes** to **Reference** for later.



KNOW JACK.

O'Neill was founded in the bone-chilling waves of Northern California when a young man named Jack O'Neill and his unstoppable passion for surfing found a way to beat Mother Nature at her own game. Back in 1952, Jack pioneered the first neoprene wetsuit and shortly after opened the doors (garage door) to his first Santa Cruz Surf Shop. The rest is history...

O'NEILL WETSUITS

For more than 70 years now, the O'Neill name has been synonymous with wetsuit performance, durability, and style. O'Neill has earned its place as the number-one wetsuit brand in the world. O'Neill continues to make the most technically advanced wetsuits, but most don't know the specific reasons why. Without letting too many of Jack's secrets leak, we have prepared this document because the more you know about O'Neill wetsuits, the more you will understand what makes them the best.

AREA 52: RESEARCH AND DEVELOPMENT

Our prestigious -one of a kind- O'Neill Wetsuits Research and Development team includes the World's most experienced designers, engineers, pattern makers, and test pilots. O'Neill Owns & Operates the only Wetsuit Production, Repair, and Prototyping facility in North America. Our Team continuously creates, tests, and refines all products, building upon the concept-to-prototype foundational process pioneered by Jack O'Neill.

RIDER DEVELOPED. RIDER PROVEN.

The O'Neill design team includes everyday surfers to world-renowned athletes like Ian Crane, Jordy Smith, Johanne Defay, and Caitly Simmers, who test our products every day in all conditions around the world.

OUR REPUTATION

- The best fitting wetsuits on the market
- The number one wetsuit brand in the world
- Developing wetsuit innovations since 1952
- A leader not a follower
- Family owned and operated
- Rider developed. Rider proven.

THE O'NEILL FIT

O'Neill created and maintains the best fit in the industry. One of the most critical factors in selling a wetsuit is fit. If a wetsuit doesn't fit right, it isn't comfortable and won't keep you warm. The suit should be comfortably snug all over. If the suit fits too loose, cold water will enter the suit constantly, and you'll never stay warm. Plus, a suit that is too small or too big can cause rashes. O'Neill's decades of wetsuit design and engineering ensure an excellent fit.

HOW IT WORKS

A wetsuit creates a barrier against the elements for the user, utilizing the insulating properties of closed-cell neoprene. Neoprene is a closed-cell foam made of thousands of tiny air bubbles known as cells. The air within the cells creates an insulating barrier that slows down the conduction of heat and cold and allows body heat to be retained.

Dammit, we did it first! (A short talk with Jack O'Neill)

Q. Good afternoon, Mr. O'Neill. Thought I'd ask you a few questions while you're between phone calls. First, what year was the jacket you have there?

A. Yes.
Q. Well, I suppose you've seen a similar jacket advertised by one of your competitors?
A. As a matter of fact, I have, but, dammit, we did it first! You know, it seems like every time development we come up with is immediately copied. And what a luxury about it is that they can't even copy it right.

Q. How do you mean?
A. Well, take our O'Neck[®] here. The manufacturer of the insurance was in such a hurry to move forward to understand the concept behind it. By using this material, we said at the time it seemed when the rubber is folded over as it's designed to do.

Q. What do you propose to do about the continuing pirating of your ideas?
A. What can we do? They've taken our name, our store, and our designs over the years. All an old dog is long about with new ideas and improvements will treat the customer to see the difference in the suits.

Q. Any advice for people in search of warmth?

A. Some imitations are copies and frequently miss the point. If you want the best wetsuit, come to us. If we weren't the best, we wouldn't be the most copied. It's frustrating to work for something and have others come along and take the credit, but it forces us to keep up and moving and that's where it's at for us.

Q. Well, friends, you've heard it tonight from the source. You can buy it here or you can buy it there. But you can buy it here better. And sooner.

O'Neill

1071 4th Ave., Santa Cruz, California 95060 (408) 475-7500

Manufactured in America by O'Neill Wetsuits, Australia S.A. / Exported by Tattersall Ltd., Borneo, London/Office, Sweden by Alan C. Hadden, Ltd., Australia/Exported by O'Neill Wetsuits, Ltd.

* 1983-1984 and other years omitted.



Would you believe we've done 90% of original wetsuit design... that's a fact!
THE O'NEILLS FACTORY!
801 4th Ave. Santa Cruz, CA 95060 (408) 475-7500

AREA 52

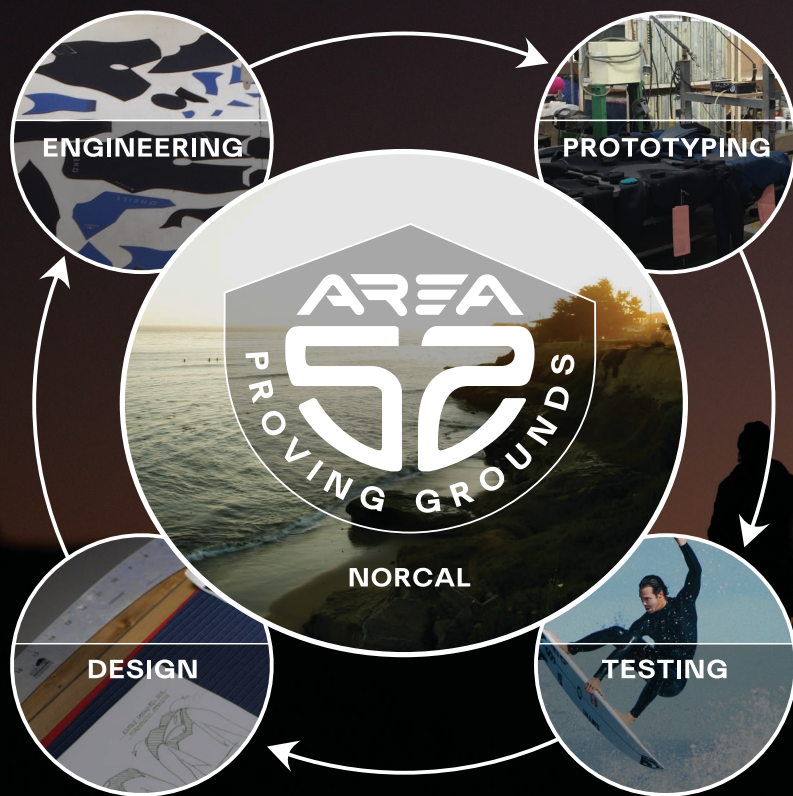
RESEARCH & DEVELOPMENT

The same spirit that drove Jack O'Neill to create the world's first wetsuit still drives us forward more than seventy years later. The O'Neill Area 52 Research and Development team embodies this spirit of innovation with perpetual evolution.

The Area 52 team combines the most experienced designers, engineers, pattern makers, and the world's best athletes as test pilots. Multiple hand built and refined prototypes allow us to create the best fitting, most technically advanced wetsuits in the industry.

AREA 52 KINETICS:

THE EMBODIMENT OF THE DESIGN PROCESS
IN PERPETUAL MOTION.



Rapid prototyping and development set O'Neill apart from all other wetsuit brands. More prototypes and extensive testing create wetsuit products with the world's best quality, fit, and function.

Our refined process allows our team to create a finished prototype in less than one week. Then, they head straight into the frigid Norcal waters for testing.

All new designs require multiple prototypes before they meet our high standards. Best of all, every new design specification is kept within the exclusive confines of Area 52 before they are sent to our exclusive partner facilities.

CLASSIFIED DOCUMENT

AREA 52

KEEPING OUR SECRETS TOP SECRET.



O'Neill is committed to protecting the oceans for generations to come. Its ocean mission is to minimize its impact on our planet and become a frontrunner in sustainability. This began in 1996 when Jack O'Neill founded the Sea Odyssey to educate the youth about ocean conservation. Today, O'Neill carries on Jack's spirit by protecting our playground through ocean initiatives, supply chain tiers, and expanding the O'Neill BLUE sustainable product collection.

"THE OCEAN IS ALIVE AND
WE'VE GOT TO TAKE CARE OF IT"

Jack O'Neill
- JACK O'NEILL -

3RD - 4TH GENERATION TECHNOBUTTER COMPONENTS



RECYCLED PLASTIC

Help us to remove and repurpose harmful plastic from potentially polluting the world's living oceans. Broken-down plastic can be reused in any of our synthetic fiber jerseys.



DOPE DYED YARN

Dope Dyeing involves infusing color pigment into the core of fiber filaments before turning them into yarn. This process increases color durability, conserves energy, and reduces water usage and pollution.



RECYCLED OYSTER SHELLS

We use recycled Ocean Oyster Shells in place of Calcium Carbonate powder which makes up approximately 10% of our neoprene foam core.



ECO-FRIENDLY PACKAGING

From recycled polybags to hangtags made with recycled paper and soy-based printing inks.

Conserving water, energy, and virgin materials. 100% digital catalogs.



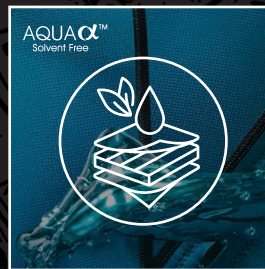
ECO CARBON BLACK

Carbon Black is one of the key ingredients in any neoprene rubber foam core. Eco Carbon Black is extracted from scrap rubber and old tires.



ENVY NEOPRENE FOAM CORE

A featherweight rubber foam core formulated with microscopic air cells increases the insulation and warmth factor while decreasing mass. It is created with Eco Carbon Black and Calcium Carbonate powder harvested from Oyster Shells.



WATER BASED GLUE

Aqua Alpha is a non-solvent-based glue used to fuse the fabric jersey to the rubber foam core. The water-based glue eliminates harmful VOCs while being as durable as traditional solvent-based adhesives.



AREA 52 REPAIR FACILITY

O'Neill's advanced repair facility prolongs the life cycle of our products, keeping our wetsuits out of the landfill.

TB4

TECHNOBUTTER 4

BREAKTHROUGH THERMAL TECHNOLOGY

4TH GENERATION TechnoButter is the outcome of extensive technical research and hardcore testing in the coldest waters on Earth. Our work has always been to find the ideal balance between stretch and warmth, and after years of development, O'Neill Area 52 presents the next generation of TechnoButter. A heat-retaining, durable, and insanely flexible neoprene. A fire-hot feedback loop of the body heat is generated by graphene-infused neoprene jerseys (liners) and kept near the skin by the insulative properties of our micro air-cell, super stretchy Eco Envy Rubber Foam Core.



TECHNOBUTTER 4

TB4 uses the form-fitting, durable outer grid jersey with our comfortable, soft, and stretchy internal jersey. Graphene fibers near the skin increase the warmth factor.



TB4 FIREWALL

TB4 Firewall dries incredibly fast and utilizes graphene-infused fibers in a light and soft thermal layer to create a fire-hot feedback loop, conducting warmth back into the body while extending heat retention.



TB4 AIR FIREWALL

TB4 Air Firewall uses an aerated neoprene core, a unique lamination process to trap air pockets, and a graphene-infused Firewall jersey to create the toastiest conditions. Take summer with you anywhere.



TECHNOBUTTER 4X

TechnoButter 4X is our double-sided soft and stretchy jersey with increased wear strength and warmth from the durable graphene-infused fibers.



TB4X FIREWALL

TechnoButter 4X and TB4 Firewall combine with graphene-infused, buttery soft, quick-dry fibers for the perfect consciously created match of comfort, warmth, and the most flexibility in Firewall materials to date.



TB4 DURASKIN AIR FIREWALL

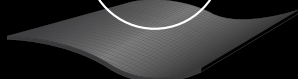
O'Neill's TechnoButter 4 Air Firewall paired with Duraskin stitchable smoothie (SL) takes trapped air technology to the next level. Featuring a recycled interior infused with graphene and a wind-shielding, fully water repellent smoothskin exterior that is more durable and warmer than ever before.

rTB3

RECYCLED TECHNOBUTTER 3

LAYERS OF INNOVATION

rTB3



rTB3 EXTERIOR JERSEY

Maximum stretch hydrophobic yarns that keep you flexible and dry by shedding water for the lifetime of the suit. O'Neill's exclusive TechnoButter 3 neoprene liner fabric is now being made with made with recycled Nylon fibers.

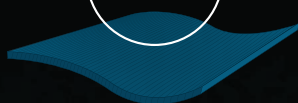
BUILT TO LAST.

ECO ENVY FOAM RUBBER CORE

Featherlight warmth. Microscopic air-cell rubber core formula increases the insulation factor by decreasing mass. Envy foam rubber is now being made with Eco Carbon Black pyrolyzed from scrap rubber and calcium carbonate powder harvested from oyster shells.

LIGHTER. WARMER. FURTHER.

rTB3X



INTERIOR COLOR: ULTRA BLUE
EXTERIOR COLOR: VARIES

rTB3X INTERIOR/EXTERIOR JERSEY

Pre-stretched to retain its form for maximum buttery flexibility. Snaps back to hug the body for ultimate comfort. O'Neill's exclusive TechnoButter 3X neoprene liner fabric is now being made with made with recycled Nylon fibers. Legendary floor-to-ceiling stretch and a buttery lightweight feel make TB3X a true game-changer.

SUPERIOR FIT. LEGENDARY STRETCH.

The same quality and performance but is better for our planet and ocean.

HYPERFREAK®

WETSUITS
for the CHAMP!



HYPERFREAK COMP-X

FULL TECHNOBUTTER X = ULTIMATE FREEDOM

O'NEILL

FIRST NAME IN THE WATER

LEGENDARY
FLOOR-TO-CEILING
STRETCH



TECHNOBUTTER + PREMIUM SKINS TECHNOLOGY

INDUSTRY INNOVATION

HYPERFREAK WARM WATER

HyperFreak Neo-Skins tops feature strategically placed 50+ UPF sun-blocking, highly-breathable, featherweight 4-way stretching Premium Skins material combined with the flexible hydrophobic Recycled TechnoButter 3 neoprene containing recycled fibers in the liner fabrics.

HYPERFREAK NEOxSKINS

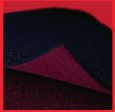
The HyperFreak Neo-Skins Collection defines super lightweight, ultra-stretchy warm water gear.

DESIGNED AND TESTED IN O'NEILL'S EXCLUSIVE AREA 52. RIDER-DEVELOPED, RIDER-PROVEN.

MATERIALS

O'Neill travels the world for the best neoprene and innovative materials available. Materials are manufactured to our exact specifications in order to have the right combination of warmth, strength, flexibility, and durability. O'Neill inspects each sheet of neoprene and rejects it if below standard. Here are the complete neoprenes and jerseys (liners) in our line:

COMPLETE NEOPRENES



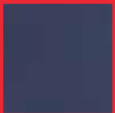
TECHNOBUTTER 4

TB4 uses the form-fitting, durable outer grid jersey with our comfortable, soft, and stretchy internal jersey. Graphene fibers near the skin increase the warmth factor.



TECHNOBUTTER 3

Durable TB3 jersey on the exterior and the TB3X interior jersey boosts the overall flexibility and comfort. Quick dry properties shed water efficiently to offer rapid drying time (RDT). Now made with recycled fibers.



FLUID FOAM

Highly durable neoprene that resists abrasion and compression with a supple feel and decent stretch.



TECHNOBUTTER 4X

TechnoButter 4X is our pre-stretched double-sided soft and flexible jersey with increased wear strength and warmth from the durable graphene-infused fibers.



TECHNOBUTTER 3X

The gummiest goopy neoprene ever developed. Double-sided pre-stretched TB3X jersey forms the lightest most flexible material available. O'Neill's exclusive TechnoButter 3X neoprene liner fabric is now made with recycled fibers.



ULTRAFLEX

High-performance super-stretch neoprene with a durable outer skin that resists velcro pulls and snags. We now make recycled UltraFlex neoprene which has recycled fibers within the neoprene liner fabrics.



RG8 ULTRAFLEX

Performance stretch material made with recycled fiber liner fabrics fused to a Natural Rubber Foam Core using water-based lamination glue.

SPECIALTY JERSEYS (LINERS)



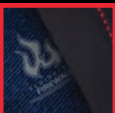
TECHNOBUTTER 4 FIREWALL

TB4 Firewall dries incredibly fast and utilizes graphene-infused fibers in a light and soft thermal layer to create a fire-hot feedback loop, conducting warmth back into the body, extending heat retention.



TECHNOBUTTER 3 FIREWALL

The lightest interior thermal layer with quick dry properties for the most flexible firewall yet.



FLUIDFLEX™ FIREWALL

Windproof exterior with a water wicking interior thermal jersey.



RG8 FIREWALL

Durable exterior paired to a water wicking interior fabric liner made with recycled fibers fused to a Natural Rubber Foam Core using water-based lamination glue.



KRYPTO ARMOR

Our most durable neoprene liner is made of a thick nylon and spandex blend. Knit with a special contrast grid pattern that conforms to the body while resisting abrasion and fin cuts. You can find it in our Krypto Knee Padz and select accessories.

MATERIAL PROGRESSION AND DETAILS

When wetsuits were first invented, the neoprene rubber foam was so sticky it was common for surfers to use a slow and methodical approach when getting into their wetsuits. Raw neoprene on the inside of the suit would be very susceptible to tears, not to mention extremely difficult to get into and out of. Experimentation led to wearing base layers and using body powder to help slip into a suit. While this solved some issues, it also created new problems in the form of chafing and rashes because the moving layers created friction on the skin.

That all changed with the neoprene fabric liner. This fabric jersey liner is fused to the neoprene rubber foam using lamination glue. The jersey retains its shape and moves with the neoprene as one, allowing the surfer to slip in and out of the suit easily while avoiding chafing. As neoprene technology advanced, so did the liner fabrics, allowing the neoprene to stretch further while increasing its durability.

Now, rashes are a thing of the past, as suits can be worn as a comfortable second skin, offering insane flexibility. Super stretchy neoprene and equally stretchy jerseys sparked the Feels Like Freedom revolution spearheaded by our innovative HyperFreak Series. While high-stretch materials are essential for movement performance, there are some instances, like on the outside chest and back panels, where jersey-less smooth skin neoprene provides superior warmth and wind protection. Without any fabric to absorb water, smooth neoprene sheds water, absorbs more sunlight for increased solar heat retention, and blocks out all wind. To get the best of both worlds, we employ a Multi-density composite design that strategically places thicker, often less flexible materials in the core and thinner, more flexible materials in high-travel areas like the shoulders, arms, and legs.

The following details how we use neoprene and various fabric jersey liners to keep surfers toasty and stoked:

FINISHES



DOUBLE-LINED (DL)

Double-lined neoprene has a flexible jersey material laminated to both sides creating a soft durable surface. The various types of jerseys we offer are what determine the amount of stretch, durability, and sometimes even increased warmth different DL neoprene will have.



SINGLE-LINED (SL)

Single-lined neoprene has a flexible jersey material laminated to the inside and a smooth skin surface, sometimes referred to as smoothie, on the outside which allows maximum water runoff which reduces wind chill and surface heat loss.



THICKNESS

The warmth of any wetsuit starts with the thickness of the foam used. From ultra-thin 0.5mm foam meant for the tropics to thick 5mm and 7mm foam developed for the coldest, harshest conditions imaginable. Multi-density wetsuit design allows for the strategic placement of thick materials in the core and thinner, more flexible materials in high-travel areas like the shoulders and arms.

MULTI-COMPOSITE DESIGN

O'Neill incorporates uniquely formulated neoprenes to meet specific product needs. For example, UltraFlex DS or TechnoButter X is used in strategic areas to increase flexibility performance and decrease fatigue. Firewall jersey is used on the interior to increase warmth where needed most, with a Smooth Skin (SL) exterior to reduce wind-chill on the chest and back. Some wetsuits may utilize four or more types of neoprene in order to meet specific design needs.

FOAM TYPES

There are various types of rubber foams, each will strongly determine the baseline amount of stretch, durability, and warmth. For example, our Air Firewall uses a special layered aerated neoprene foam which greatly increases the insulative warmth. Another unique foam type is our most durable, which is used in our Krypto Knee Padz. Lastly our most stretchy type, is our Envy Rubber Foam used in our exclusive and revolutionary TechnoButter family of materials.

SEAM CONSTRUCTION

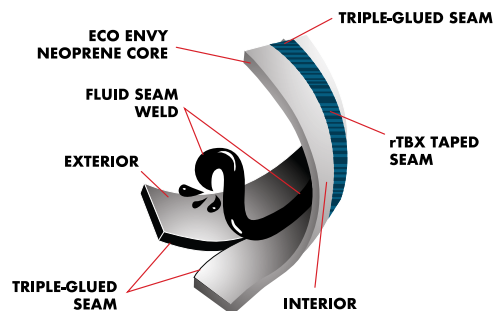
BEWARE OF IMITATIONS!



DOUBLE SEAL STITCHLESS TECHNOLOGY

O'NEILL'S DOUBLE SEAL STITCHLESS TECHNOLOGY is the pinnacle of our seam construction to date. All triple-glued seams are fully sealed, blocking out water on both sides using internal rTBX tape and our external 8mm silicone-based urethane Fluid Seam Weld. Expect insane stretch and a robust watertight seal session after session.

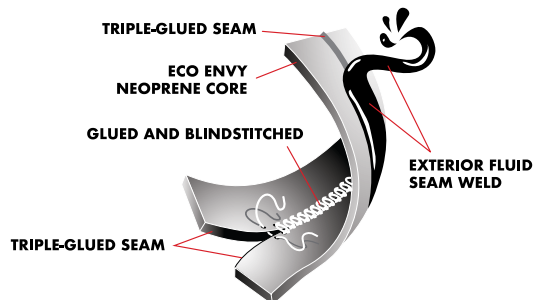
- Double sealed seams keeps you dry
- Durable, no stitch to unravel
- Near unlimited flexibility
- Strong



FLUID SEAM WELD

O'NEILL'S FLUID SEAM WELD is a revolutionary seam construction that utilizes a non-chafing high-grade, 8mm silicone-based urethane applied in liquid form to the outside of a glued and blindstitched seam completely blocks out water without restricting flexibility. Welded seams are incredibly strong and made to move fluidly.

- A completely dry seam and seal
- Extreme flexibility and strength
- Durable
- Long lasting



TAPED SEAMS

UltraFlex 0.5mm split neoprene tape applied to the inside of a triple glued and blindstitched seam with water-based glue to keep you dry and loose.

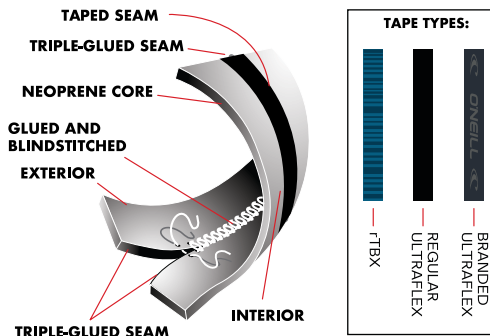
- Dry and light
- Durable and flexible



RECYCLED TECHNOBUTTER X TAPED SEAMS

The lightest and stretchiest neoprene tape ever developed. rTBX 0.5mm split-neoprene tape applied to triple-glued and blindstitched seams. rTBX tape is made with 85% or more recycled fibers in the neoprene liner fabric and in our Ultra Blue color to reflect the recycled material change.

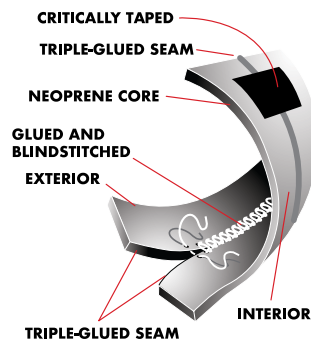
- Dry and light
- Durable and extremely flexible



GLUED & BLINDSTITCHED CRITICALLY TAPED

The blindstitch seam is aptly named because the stitching only goes partially through the neoprene. Blindstitching is paired with glue so there is no leakage through the seams providing a waterproof seal. A blindstitched suit is also taped in areas of excessive stress to ensure a long-lasting seam for countless wears in the most demanding conditions.

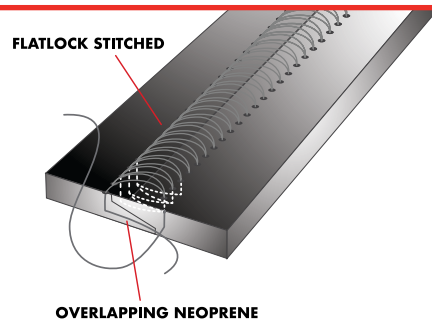
- A waterproof seam
- Flat, "butted" seam and limited thread eliminates rashing
- Extremely flexible
- Suitable for cool to frigid conditions
- Flexloc doesn't unravel



FLATLOCK STITCHED

The most popular method of sewn construction. The stitch uses 4 needles and 6 threads, and works by overlapping the neoprene panels and sewing them together. It is a strong stitch and is very comfortable because it is flat, but it is not a sealed seam so it is not intended for extremely cold conditions.

- Flat seam on inside of wetsuit for comfort
- Breathable seam for tropical to cool conditions
- Very strong
- Overlapping neoprene lets in less water than overlock seams



ENTRIES & CLOSURES

PATENTED ENTRIES AND CLOSURE SYSTEMS

Entry and closure systems are one of the most important aspects of a wetsuit. O'Neill is responsible for developing the most sought after closures in the industry. The following are the most used entry and closure systems used in the O'Neill line:

OFTEN IMITATED, NEVER DUPLICATED!



Z.E.N. ZIP SYSTEM

O'Neill's innovative patented Z.E.N. (back) ZIP Entry system is the most imitated entry/closure system in the world. The free floating exterior mini back zip allows for a light, zipperless feel with easy entry and exit. The barrier and drain holes underneath the zipper effectively stop water from entering the wetsuit, keeping you dry.



F.U.Z.E. SYSTEM

O'Neill's exclusive Front Upper (chest) Zip Entry (F.U.Z.E.) system uses the same free floating zipper technology as our patented Z.E.N. ZIP closure. This durable, reliable, and easy to get into closure keeps you dry, and allows unrestricted flexibility.



ZIPLESS SYSTEM

O'Neill's zipless entry is the most unique zipper-free closure available. A 360-degree anti-flush barrier with drain holes and an elastic cinch cord ensures a watertight closure. This lightweight entry system allows for incredible stretch making entry and exit a breeze.



MUTANT: MODULAR SYSTEM

An innovative pullover mini zip system allows users to mutate the wetsuit from a non-hooded to a hooded suit in seconds. Two small zippers free float on the exterior of the suit, creating a unique detachable system allowing you to customize the fit closure of your suit with different size and thickness options. Increase the life of your suit by replacing old and tattered closures with new ones. Another O'Neill first.



BACK ZIP SYSTEMS

Back zip wetsuit closures are still a popular option in our line. We offer two different back zip systems.



STANDARD BACK ZIP

This is our durable long zipper for easy entry and exit. This zipper is available mostly in our flatloc product.

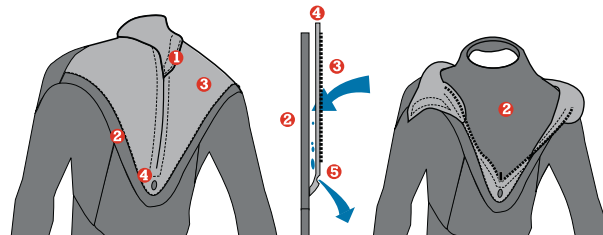


RED ZONE 3/4 ZIP

This highly water resistant short zip blocks out water, and offers more flexibility than traditional zippers.

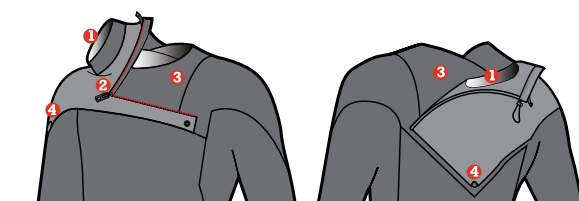
Z.E.N. ZIP CLOSURE SYSTEM:

(U.S. Patent #5,898,934)



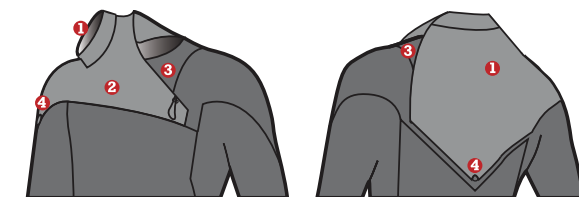
1. **Z.E.N. COLLAR:** Below the neck zipper collar maximizes comfort and minimizes injury.
2. **THE BARRIER:** Designed to go over the neck to block out water while facilitating our patented free-floating zipper design.
3. **SUPER SHORT ZIP:** A minimal length zipper that maximizes flexibility and maintains ease of entry/exit.
4. **FLOATING ZIPPER PANEL:** This patent-protected design features a free-floating zipper panel providing unmatched flexibility and seal.
5. **DRAIN HOLE:** Engineered drainage for any water that enters the zipper.

F.U.Z.E. CLOSURE SYSTEM:



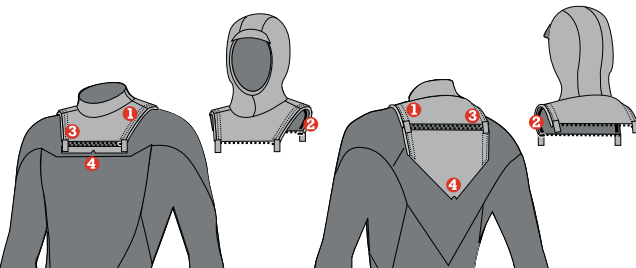
1. **GLIDESKIN SEAL NECK:** A neck seal that maximizes comfort while keeping water out.
2. **F.U.Z.E. ENTRY:** A short zipper entry that is free floating like our patented Z.E.N. Zip Entry System. Very dry and flexible.
3. **360° INNER BARRIER:** Blocks out water and prevents flushing.
4. **DRAIN HOLES:** Dual drain holes guide out any water that enters the 360° Barrier via the back and arm.

ZIPLESS CLOSURE SYSTEM



1. **GLIDESKIN SEAL NECK:** A neck seal that maximizes comfort while keeping water out.
2. **ZIPLESS ENTRY:** A zipperless entry that is free floating like our patented Z.E.N. Zip Entry System. Very dry with incredible stretch making entry and exit a breeze.
3. **360° INNER BARRIER:** Blocks out water and prevents flushing.
4. **DRAIN HOLES:** Dual drain holes guide out any water that enters the 360° Barrier via the back and arm.

MODULAR CLOSURE SYSTEM



1. **MODULAR CLOSURE:** Interchangeable crew neck and hood via zippers.
2. **PLASMA SEALS:** Fluid Seam bands on shoulder lining and inside of closure prevent over expansion and seal out water.
3. **FLOATING ZIPPER SYSTEM:** Ergonomically positioned zipper panels maximize flexibility by allowing the zippers to float as an unrestricted external layer.
4. **DRAIN HOLES:** Front and rear drain holes guide out water that enters.

UNIQUE TECHNOLOGIES & FEATURES

O'Neill has developed a multitude of groundbreaking features and patented technologies for surfing and wetsuits over the decades. Our heritage of innovation has led to many industry firsts and exclusive material rights with our manufacturing partners. The following are only a few of those revolutionary features and technologies:



Triple-glued seams block water on both sides using the O'Neill exclusive super stretchy internal recycled TechnoButter X 0.5mm split-neoprene tape and our non-chafing, high-grade 8mm silicone-based urethane external Fluid Seam Weld. Expect insane stretch and a robust watertight seal session after session.

FSW is applied in liquid form to completely block out water without restricting flexibility. Welded seams fluidly move with the body and are incredibly strong. rTBX tape is made with 85% or more recycled fibers in the neoprene liner fabric and in our Ultra Blue color to reflect the recycled material.



A truly unique game changer in the thermal quest for flexible, functional insulation. Utilizing a special layering process that sandwiches together neoprene with specially perforated core to hold pockets of air. Trapped air technology drastically improves the warmth factor of any suit. Usually this technology is reserved for the high-end tier of our wetsuit line due to the increased cost of this processed neoprene firewall. The Psycho Tech and Blueprint Series currently use this technology in their core body panels.

An O'Neill first for the industry.



Utilizing a special layering process creates a unique smoothskin that can be stitched and absorbs more glue into its layers, drastically improving durability. Duraskin resists finger slicing and can be paired with an Air Firewall to further increase the thermal insulation factor. The ultimate cold water shield.

Stitchable single lined Smoothskin neoprene.



The next generation of the O'Neill RG8 legacy. First launched in 2010, the 'Regenerate' (RG8) label represents high-performance stretch and quality made with better sustainable materials for our planet and ocean. RG8 Technology features a natural rubber foam core laminated with water-based glue to fabric liners containing recycled fibers.



Fully adjustable glideskin seal. Available in F.U.Z.E. (Chest-Zip), Z.E.N. Zip, and select Back Zip entries. Comfortable, lightweight, and watertight.



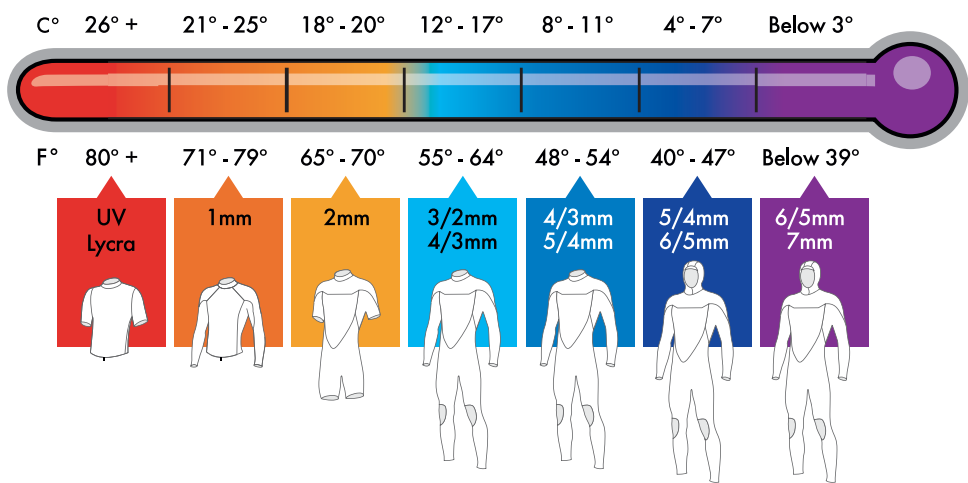
Insane flexibility, fit and durability using a unique design which utilizes larger panels and far less seams. This includes seamless paddle zones for an arm pit irritation-free session.



This specialized technique creates a lower profile finish for ankle and wrist openings. A thinner material section near the opening sits closer to the skin, making it harder for water to push through and providing a more robust, water-tight seal.

WETSUIT SIZE & TEMPERATURE CHARTS

SUGGESTED WETSUIT THICKNESS (BASED ON TEMPERATURE)



*** FOR REFERENCE ONLY ***

The actual wetsuit required for different water temperatures will depend on many factors including body type, activity level, outside climate, etc.

WETSUIT SIZING

MENS					WOMENS				
SIZE	HEIGHT ^(IN)	WEIGHT ^(LB)	CHEST ^(IN)	WAIST ^(IN)	SIZE	HEIGHT ^(IN)	WEIGHT ^(LB)	CHEST ^(IN)	WAIST ^(IN)
XS	5'7" - 5'9"	125 - 140	36.5" - 37.5"	28.5" - 29.5"	2	5'1" - 5'3"	90 - 105	30" - 32"	24.5" - 26.5"
S	5'8" - 5'10"	135 - 155	37.5" - 39"	29.5" - 31"	4	5'3" - 5'5"	100 - 115	30.5" - 32.5"	25" - 27"
ST	6' - 6'2"	145 - 165	37.5" - 39"	29.5" - 31"	6S	5'2.5" - 5'4.5"	105 - 120	31.5" - 33.5"	26" - 28"
MS	5'6.5" - 5'8.5"	145 - 165	39" - 41"	31" - 33"	6	5'4" - 5'6"	110 - 125	31.5" - 33.5"	26" - 28"
M	5'9" - 5'11"	155 - 170	39" - 41"	31" - 33"	8S	5'3.5" - 5'5.5"	115 - 130	32.5" - 34.5"	27" - 29"
MT	6'1" - 6'3"	160 - 180	39" - 41"	31" - 33"	8	5'5" - 5'7"	120 - 135	32.5" - 34.5"	27" - 29"
LS	5'7.5" - 5'9.5"	160 - 180	41" - 43.5"	33" - 35"	8T	5'6.5" - 5'8.5"	125 - 140	32.5" - 34.5"	27" - 29"
L	5'10" - 6'	170 - 190	41" - 43.5"	33" - 35"	10S	5'4.5" - 5'6.5"	125 - 145	34" - 36"	29" - 30.5"
LT	6'2" - 6'4"	180 - 200	41" - 43.5"	33" - 35"	10	5'6" - 5'8"	130 - 150	34" - 36"	29" - 30.5"
XLS	5'8.5" - 5'10.5"	180 - 200	43.5" - 46"	35" - 37"	10T	5'7.5" - 5'9.5"	135 - 155	34" - 36"	29" - 30.5"
XL	5'11" - 6'1"	190 - 210	43.5" - 46"	35" - 37"	12S	5'5.5" - 5'7.5"	135-155	35.5" - 37.5"	30.5" - 32"
XLT	6'3" - 6'5"	200 - 220	43.5" - 46"	35" - 37"	12	5'7" - 5'9"	140 - 160	35.5" - 37.5"	30.5" - 32"
2XLS	5'9.5" - 5'11.5"	200 - 220	46" - 48.5"	37" - 39"	12T	5'8.5" - 5'10.5"	145 - 165	35.5" - 37.5"	30.5" - 32"
2XL	6' - 6'2"	210 - 230	46" - 48.5"	37" - 39"	14	5'8" - 5'10"	150 - 170	37" - 39"	31" - 33.5"
3XL	6' - 6'3"	230 - 250	48.5" - 51"	39" - 44"	16	5'9" - 5'11"	165 - 185	38.5" - 40.5"	33.5" - 35"
4XL	6'1" - 6'4"	250 - 270	51" - 53.5"	44" - 48"					
					SIZE	HEIGHT ^(IN)	WEIGHT ^(LB)	CHEST ^(IN)	WAIST ^(IN)
TODDLERS					1	2'10.5" - 3'2.5"	25 - 30	19" - 21"	18" - 20"
					2	3'2.5" - 3'6.5"	30 - 35	20" - 22"	19" - 21"
					3	3'6.5" - 3'10.5"	35 - 40	21" - 23"	20" - 22"
YOUTH					4	3'10.5" - 4'1.5"	40 - 55	23" - 25"	20" - 22"
					6	4'1.5" - 4'4.5"	50 - 65	24.5" - 26.5"	21.5" - 23.5"
					8	4'4.5" - 4'7.5"	60 - 75	26" - 28"	23" - 25"
					10	4'7" - 4'10"	75 - 90	28" - 30"	23" - 25"
					12	4'10" - 5'1"	90 - 105	29" - 31"	25" - 27"
					14	5'1" - 5'4"	105 - 120	31" - 33"	27" - 29"
					16	5'4" - 5'7"	120 - 135	33" - 35"	28" - 30"

UV SUN PROTECTION SIZE CHART

UV SUN PROTECTION SIZING					
MENS	SIZE	HEIGHT ^(IN)	WEIGHT ^(LB)	CHEST ^(IN)	WAIST ^(IN)
	XS	5'7" - 5'9"	125 - 140	36.5" - 37.5"	28.5" - 29.5"
	S	5'8" - 5'10"	135 - 155	37.5" - 39"	29.5" - 31"
	M	5'9" - 5'11"	155 - 170	39" - 41"	31" - 33"
	L	5'10" - 6'	170 - 190	41" - 43.5"	33" - 35"
	XL	5'11" - 6'1"	190 - 210	43.5" - 46"	35" - 37"
	2XL	6' - 6'2"	210 - 230	46" - 48.5"	37" - 39"
	3XL	6' - 6'3"	230 - 250	48.5" - 51"	39" - 44"
WOMENS	SIZE	HEIGHT ^(IN)	WEIGHT ^(LB)	CHEST ^(IN)	WAIST ^(IN)
	XS	5'4" - 5'6"	110 - 125	31.5" - 33.5"	26" - 28"
	S	5'5" - 5'7"	120 - 135	32.5" - 34.5"	27" - 29"
	M	5'6" - 5'8"	130 - 150	34" - 36"	29" - 30.5"
	L	5'7" - 5'9"	140 - 160	35.5" - 37.5"	30.5" - 32"
	XL	5'8" - 5'10"	150 - 170	37" - 39"	31" - 33.5"
	2XL	5'9" - 5'11"	165 - 185	38.5" - 40.5"	33.5" - 35"
INFANTS	SIZE	HEIGHT ^(IN)	WEIGHT ^(LB)	CHEST ^(IN)	WAIST ^(IN)
	6M	23" - 27"	12 - 17	17"	16.5" - 17.5"
	12M	27" - 29"	17 - 22	18"	17.5" - 18.5"
	18M	29" - 31"	22 - 27	19"	18.5" - 19.5"
TODDLERS	1	2'10.5" - 3'2.5"	25 - 30	19" - 21"	18" - 20"
	2	3'2.5" - 3'6.5"	30 - 35	20" - 22"	19" - 21"
	3	3'6.5" - 3'10.5"	35 - 40	21" - 23"	20" - 22"
YOUTH	4	3'10.5" - 4'1.5"	40 - 55	23" - 25"	20" - 22"
	6	4'1.5" - 4'4.5"	50 - 65	24.5" - 26.5"	21.5" - 23.5"
	8	4'4.5" - 4'7.5"	60 - 75	26" - 28"	23" - 25"
	10	4'7" - 4'10"	75 - 90	28" - 30"	23" - 25"
	12	4'10" - 5'1"	90 - 105	29" - 31"	25" - 27"
	14	5'1" - 5'4"	105 - 120	31" - 33"	27" - 29"
	16	5'4" - 5'7"	120 - 135	33" - 35"	28" - 30"

WATER SPORT VEST SIZE CHARTS

ASSAULT USCG VEST		
MENS	SIZE	CHEST ^(IN)
	XS	33" - 35"
	S	35" - 37"
	M	37" - 39"
	L	39" - 41"
	XL	41" - 43"
	2XL	43" - 46"
	3XL	47" - 50.5"

REACTOR USCG VEST		
MENS	SIZE	CHEST ^(IN)
	XS	32.5" - 35"
	S	35" - 37.5"
	M	37.5" - 40"
	L	40" - 42.5"
	XL	42" - 45"
	2XL	45" - 47.5"
	3XL	47.5" - 50"

SUPERLITE USCG VEST		
MENS	SIZE	CHEST ^(IN)
	S	33" - 36"
	M	37" - 40"
	L	41" - 44"
	XL	45" - 48"
	2XL	49" - 52"
	3XL	53" - 56"
	4XL	57" - 60"

SIREN USCG VEST		
WOMENS	SIZE	CHEST ^(IN)
	4	30" - 32"
	6	32" - 34"
	8	34" - 36"
	10	36" - 38"
	12	38" - 40"
	14	40" - 42"
	16	42" - 44"

WOMENS	SIZE	CHEST ^(IN)
	4 (XS)	30" - 33"
	6 (S)	33" - 36"
	8 (M)	36" - 39"
	10 (L)	39" - 42"
	12 (XL)	42" - 45"
KIDS	SIZE	WEIGHT ^(LBS)
	CHILD	30 - 50lbs
	YOUTH	50 - 90lbs
	TEEN	75 - 125lbs

WOMENS	SIZE	CHEST ^(IN)
	S	30" - 33"
	M	34" - 36"
	L	37" - 39"
	XL	40" - 42"
	2XL	43" - 45"
KIDS	SIZE	WEIGHT ^(LBS)
	INFANT	00 - 30lbs
	CHILD	30 - 50lbs
	YOUTH	50 - 90lbs

COMPETITION VEST					
MENS	SIZE	CHEST ^(IN)	WOMENS	SIZE	CHEST ^(IN)
	XS	35" - 38"		4	30" - 33"
	S	37" - 40"		6	31" - 34"
	M	38" - 42"		8	32" - 35"
	L	40" - 44"		10	34" - 37"
	XL	43" - 47"		12	35" - 38"
	2XL	46" - 50"		14	37" - 40"
	3XL	48" - 52"		16	38" - 41"


ACCESSORY SIZE CHARTS

GLOVE SIZING*			
UNISEX	SIZE	HAND LENGTH ^(IN)	PALM WIDTH ^(IN)
	2XS	6" - 6.5"	6.5" - 7"
	XS	6.5" - 7"	7" - 7.5"
	S	7" - 7.5"	7.5" - 8"
	M	7.5" - 8"	8" - 8.5"
	L	8" - 8.5"	8.5" - 9"
	XL	8.5" - 9"	9" - 9.5"
* HAND LENGTH: Measurement from the bottom of your palm (where it meets your wrist) to the top of your middle finger.			
* PALM WIDTH: Measurement of the circumference of your hand from the first knuckle line, not including the thumb.			


HOOD & COLLAR SIZING			
UNISEX	SIZE	NECK ^(IN)	HEAD ^(IN)
	2XS	13.5" - 14.5"	18" - 20"
	XS	14" - 15"	19" - 21"
	S	14.5" - 15.5"	20" - 22"
	M	15" - 16"	21" - 23"
	L	15.5" - 16.5"	22" - 24"
	XL	16" - 17"	23" - 25"
	2XL	16.5" - 17.5"	24" - 26"

BOOT SIZING CONVERSION CHARTS *

MEN'S BOOT SIZING

ADULTS				
BOOT SIZE	SHOE SIZE			
	US MENS	US WOMENS	UK	EU
4	4-5.5	5.5-7	3-4	35-36
5	5-6.5	6.5-8	4-5	36-37
6	6-7.5	7.5-9	5-6	37-38
7	7-8.5	8.5-10	6-7	39-40
8	8-9.5	9.5-11	7-8	40-41
8.5	8.5-10	10-11.5	7.5-9	41-42.5
9	9-10.5	10.5-12	8-9	42-43
9.5	9.5-11	11-12.5	8.5-10	42.5-44
10	10-11.5	11.5-13	9-10	43-44
11	11-12.5	12.5-14	10-11	44-45
12	12-13.5	13.5-15	11-12	45-46
13	13-14.5	14.5-16	12-13	46-47
14	14-15.5	15.5-17	13-14	47-48
15	15-16.5	16.5-18	14-15	49-50

WOMEN'S BOOT SIZING

ADULTS			
BOOT SIZE	SHOE SIZE		
	US WOMENS	UK	EU
5	4.5-5.5	2.5-3.5	34-35
6	5.5-6.5	3.5-4.5	35-36
7	6.5-7.5	4.5-5.5	37-38
8	7.5-8.5	5.5-6.5	38-39
9	8.5-9.5	6.5-7.5	39-40
10	9.5-10.5	7.5-8.5	41-42
11	10.5-11.5	8.5-9.5	42-43
12	11.5-12.5	9.5-10.5	43-44

* FIT NOTE:

Neoprene boots are meant to fit like wetsuits —comfortably snug. The correct fit will keep feet and toes warm while keeping water out and avoiding material roll or toe drag.


Look for your usual shoe size on these charts to convert to the preferred boot size.

Individual preferences may vary based on the size ranges shown in our size chart. We recommend sizing down from your usual shoe size to get a snug fit that provides the maximum performance and board feel.

YOUTH

BOOT SIZE	SHOE SIZE		
	US	UK	EU
XS	8-9	7-8	26-27
S	10-11	9-10	28-29
M	12-13	11-12	30-31
L	1-2	0-1	32-33
XL	3-4	2-3	34-35



 WETSUIT TECH CHART	Main Neoprene						Finish		Firewall						Construction				Closure System						
	TechnoButter 4	TechnoButter 4X	TechnoButter 3	TechnoButter 3X	UltraFlex	RG8 Ultraflex (Natural Rubber)	Double & Single lined	All Double lined	TB4 Duraskin Air Firewall	TB4 Air Firewall	TB4X Firewall	TB4 Firewall	TB3 Firewall	FluidFlex Firewall	RG8 Firewall (Natural Rubber)	Stitchless FSW & rTBX Tape	FSW & G.B.S.	G.B.S. & Tape	Glued & Blindstitched (G.B.S.)	Flatlock	Z.E.N. Zip	F.U.Z.E. / Chest Zip	Zipless / Pullover	Modular	Back Zip
Series	Psycho Tech	X					X		X	X		X				X					X	X			
Mutant				X	X		X						X				X							X	
Heat				X	X		X						X				X								X
HyperFreak Fire	X	X						X				X					X				X	X			
HyperFreak Plus				X	X			X										X				X			
HyperFreak Comp				X	X			X										X					X		
HyperFreak Comp-X					X			X										X		X		X			
Thinskins					X			X											X				X		
Epic					X		X							X					X						X
Bahia					X		X	X											X						X
O’Riginals RG8						X	X	FULL ONLY							FULL ONLY				X			X	X		
O’Riginals					X		X	X												X					X
Reactor-2					X		X	X												X					X

[illegible]

W E T S U I T C L I N I C

20²⁴/₂₅



ESTABLISHED 1952

OVER 70 YEARS OF DESIGN AND INNOVATION

O'NEILL WETSUITS, LLC
1071 41ST AVENUE
SANTA CRUZ, CA 95062
USA
PHONE: 831-475-7500
FAX: 831-475-0544

O'NEILL WETSUITS, LTD
UNITS 11-14
HOLMBUSH INDUSTRIAL ESTATE
MIDHURST, WEST SUSSEX
UNITED KINGDOM, GU29 9HX
PHONE: +44 (0) 1730 811460
FAX: +44 (0) 1730 816302

SERVICE: USA & CANADA
CALIFORNIA: 800-662-7873
OUTSIDE CALIFORNIA: 800-538-0764
FAX FOR ALL: 800-538-2085

oneill.com/wetsuits

