DEVELOPMENT & MANUFACTURING GUIDE

zipzōn®

July 2026

Introduction

Welcome to the zipzōn Development & Manufacturing Guide. This document provides detailed design, integration, and installation guidelines for properly installing zipzōn components during the development and production processes. It ensures a consistent, high-quality fit experience across all partner products.

This document will be updated periodically with our latest learnings, recommendations and new parts.

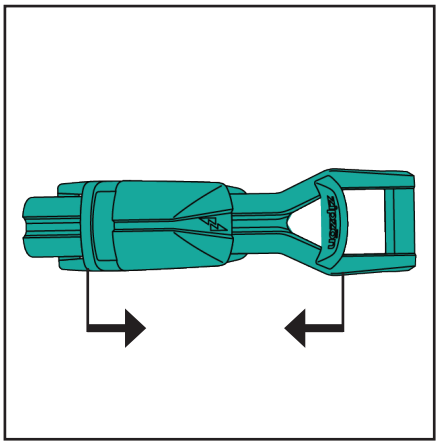
How the zipzōn System Works

The zipzōn system replaces laces and other traditional closure systems with a Strap and Adjuster that engage webbing or a canopy to close the shoe and provide an adjustable, zonal fit.

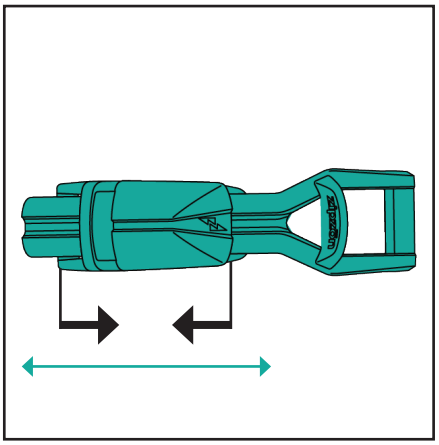
How Adjustment Works

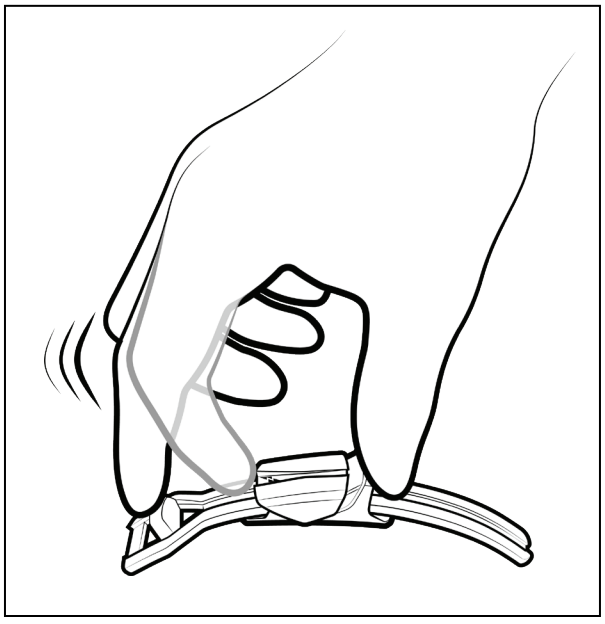
- User pinches the Adjuster and Strap together to tighten.
- User pinches and slides the spring-loaded Adjuster to loosen.
- Strap moves through the Adjuster.
- Webbing/canopy wraps around the shoe.

Pinch together to tighten.



Pinch and slide to loosen and adjust.





What a Good Setup Looks Like

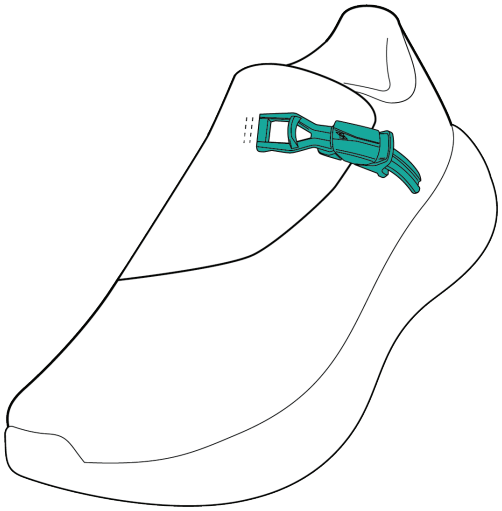
- Smooth tightening (no material interference).
- All zipzōn System components properly placed:
  - Optimized pull force direction.
  - No protrusion over the sole.
  - No pressure points on the foot.
- Full opening for entry and exit.
- Full closing for secure fit.

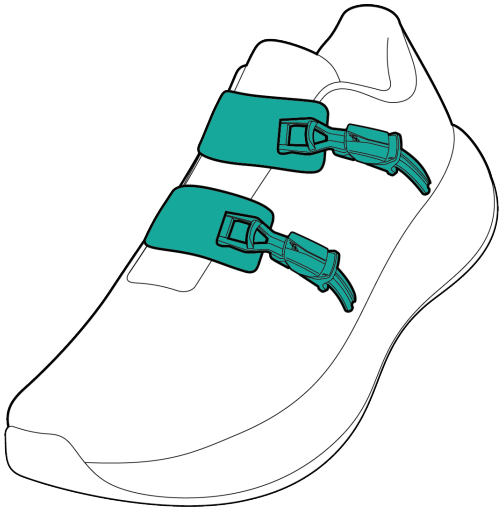
Common Problems

- Strap too short → cannot open and possibly not enough closure zone.
- Strap too long → difficult to integrate into space and excess Strap tail exposed.
- Webbing path too complex → inefficient closure and poor fit.
- Wrong angles → poor closure and fit.

Types of zipzōn System Fit Solutions

- Speed Fit = One zipzōn System crossing per shoe
- Custom Fit = Two or more zipzōn System crossings per shoe





Speed Fit

Best for:

- Forward motion activities
- Comfort fit

Example applications:

- Running, walking
- Cycling
- Casual, lifestyle

Custom Fit

Best for:

- Lateral motion activities
- Zonal fit

Example applications:

- Court sports
- Trail running
- Training, crossfit

Fit Zones Overview for Low Cut Footwear

The zipzōn System enables the ability to uniquely fit different zones of the shoe. We refer to these zones as upper, middle and lower zones for simplicity. The function of these zones is retention, proprioception and stability.

Upper zone

Location

- Top of the shoe near the ankle opening (collar).
- Around top shoelace hole area (not including “runner’s loop”).

Function

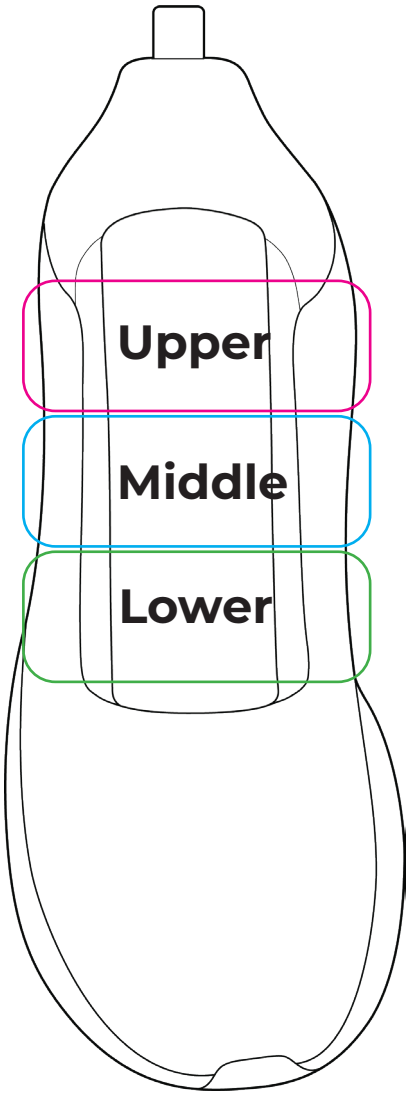
- Controls heel hold.

Placement Rules

- Place zipzōn System as high as possible.
- Avoid ankle flex area.

Restrictions

- Do not place parts directly on ankle joint.



Middle zone

Location

- Center of the shoe (top of foot & arch).

Function

- Provides proprioceptive feedback.

Placement Rules

- Align evenly between upper and lower zones.

Restrictions

- Do not restrict arch rise (allow some give).

Lower zone

Location

- Front of shoe near metatarsal heads (ball of foot).
- Above toe box.

Function

- Prevents foot from sliding forward.

Placement Rules

- Place just above metatarsal heads.
- Typically >10mm above metatarsals.

Restrictions

- Do not place directly *on* metatarsal heads.
- Do not place in flex crease area to avoid discomfort.

Product Overview: zipzōn System Components

The zipzōn System offers five components: an Adjuster, a Strap, a Quick-Connect, Webbing Guides, and Webbing.

Adjuster

10001 Standard Adjuster

Strap

See pg. 8 for Strap options

QuickConnect

10038 QuickConnect 20

Webbing Guides

10024 10mm Slot Guide

10027 10mm Ring Guide

10mm Webbing

10029-11 10mm Webbing
-Pantone Black 6C

10029-12 10mm Webbing
-Pantone White 000C

10029-13 10mm Webbing
-Pantone Cool Gray 9C

Product Overview: zipzōn System Components

Strap part numbers are listed on the back of the webbing bar end.
Strap sizes are listed on the back side at the Strap tail end.

StopStraps

With stops that limit opening and prevent full ejection

10008 StopStrap Extra Large

10007 StopStrap Large

10006 StopStrap Medium

Part number location all Straps

OpenStraps

No stops to allow full ejection

10020 OpenStrap Extra Large

10019 OpenStrap Large

10018 OpenStrap Medium

Size location StopStraps & OpenStraps

TunnelStraps

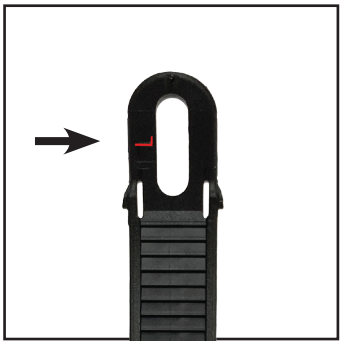
Setback stops that retain the strap end within an integrated tunnel

10014TunnelStrap Extra Large

10013 TunnelStrap Large

10012 TunnelStrap Medium

Size location TunnelStraps



10mm Webbing

Developed in collaboration with Paiho Group, our optimized webbing is engineered for compatibility across all zipzōn System components. Use of our custom-developed webbing is strongly recommended for consistent, proven performance.

Webbing features:

- C0-DWR treatment ensures stability in wet and dry conditions.
- Sheds dirt and debris for long-term reliability and precision.
- Starched for easier handling on factory floor.
- Compatibility across all zipzōn System components.

Important webbing information:

- While we recommend our optimized webbing, alternative webbing may be used as long as it meets the same specs.
- **The thickness spec of 0.6mm is critical.** Thicker webbing can limit space and negatively affect function by causing drag of the Strap through the Adjuster or poor movement through Guides.
- ***NOTE:*** *Nylon webbing is not recommended. This material will negatively affect overall performance due to its water-absorbing characteristics, resulting in reduced strength, increased stretch, increased weight and slow drying potential. These effects will hinder attachment stability, webbing movement through Guides, and overall durability.*

Webbing specs for ordering 10mm Webbing:

Supplier: Paiho
Item Code: TP01-295
Width: 10mm
Thickness: 0.6mm
Material Composition: 100% Polyester w/ 40% starching & non-wicking coating

Strap Type Selection:

Choose zipzōn Strap type based on function.

Strap Type	Usage
StopStrap 	Use to keep Strap connected/closed.
OpenStrap 	Use to enable fully ejecting the Strap for shoe entry/exit.
TunnelStrap 	Use to keep Strap connected/closed, and to conceal the tail when integrating into a tunnel construction.

Strap Size Selection

Use the shortest strap possible that allows full adjustment range.

Straps must allow:
- Full opening for foot entry.
- Full closing to fully tight.

General Strap Size Guidelines

Position	Recommended Length
Upper zone	L / XL
Middle zone	M / L
Lower zone	M

How to Check for Correct Strap Size:

Components must be placed so the shoe can:

- Open wide enough for easy foot entry and exit.
- Close completely after entry.

What Affects Opening Range:

Opening is controlled by:

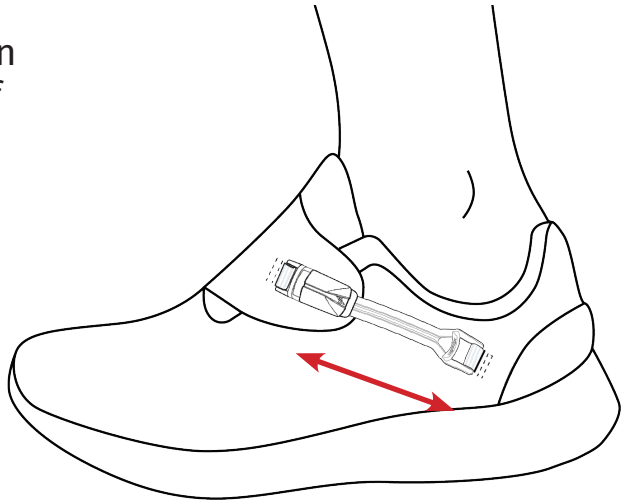
- Strap size.
- Strap and Adjuster location (especially top zone).
- Webbing path (straight vs multi-path): Each webbing redirection reduces opening distance.

In the fully open position, the zipzōn System should allow full opening of the shoe.

- Check that it is easy to put on.
- Move up one Strap size if more opening is needed.

OR

- Move parts closer together.
- Test again to confirm adequate opening.

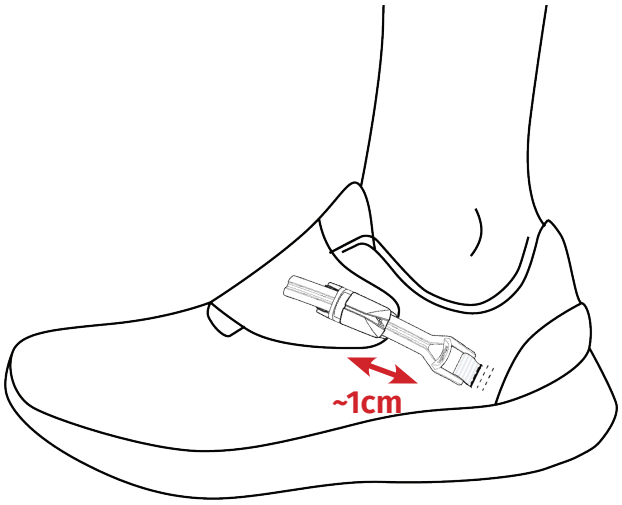


At fully closed, there should be about 1cm minimum of adjustment range remaining.

- Check that it can get fully tight.
- Move down one Strap size if there is excessive opening range (more than needed to get in and out).

OR

- Move parts farther apart.
- Test again to confirm adequate closing.



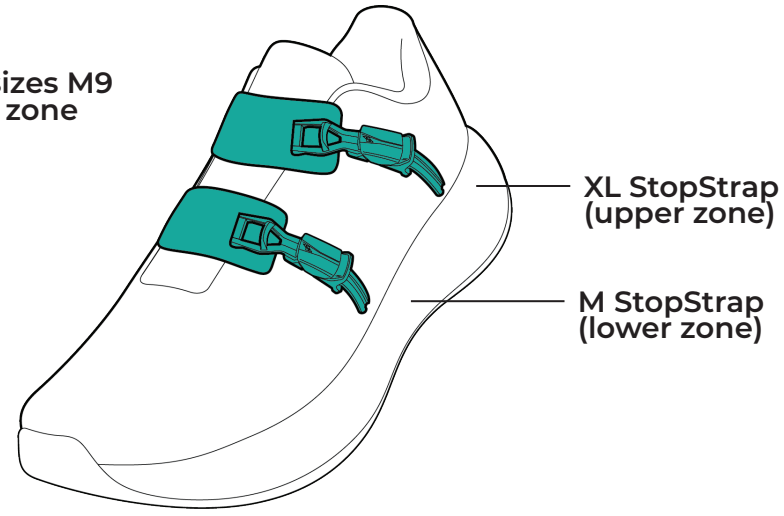
Strap Size Selection for Size Grading

Strap Size recommendations per shoe size for non-opening Straps (Stop-Straps and TunnelStraps) are below.

NOTE: These recommendations are intended as a starting point for Strap size selection and may differ from final size grading per shoe/model.

Size (US)	Size (EU)	Upper zone	Middle zone	Lower zone
W5	**35**	L	M	M
W6	**36**	L	M	M
W7	**37/38**	L	M	M
W8	**38/39**	L	M	M
W9	**39/40**	XL	M/L	M
W10/M7	**40/41**	XL	M/L	M
W11/M8	**41/42**	XL	L	M
M9	**42/43**	XL	L	M
M10	**43/44**	XL	L	L
M11	**44/45**	XL	L	L
M12	**45/46**	XL	L	L
M13	**46/47**	XL	L	L
M14	**47/48**	XL	XL/L	L

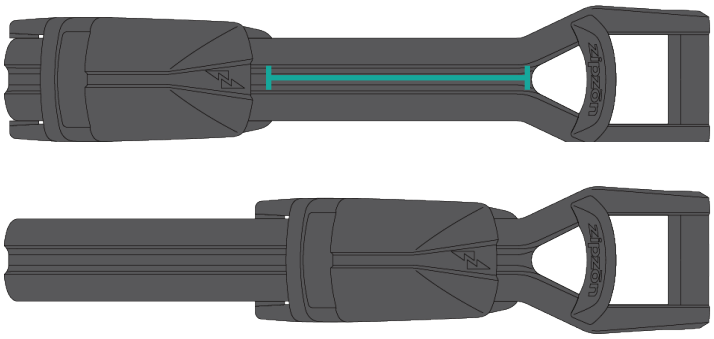
Example Strap sizes M9 Custom Fit dual zone configuration



Strap Dimensions and Adjustment Range

Strap Adjustment Range (with Adjuster on Strap)

XL Straps: 65mm
L Straps: 47mm
M Straps: 32mm



Fully open

Fully closed

Total Strap Length (Including Webbing Bar)

TunnelStrap

XL: 123mm
L: 106mm
M: 89mm

*Measured along arc or flattened

OpenStrap

XL: 116mm
L: 98mm
M: 82mm

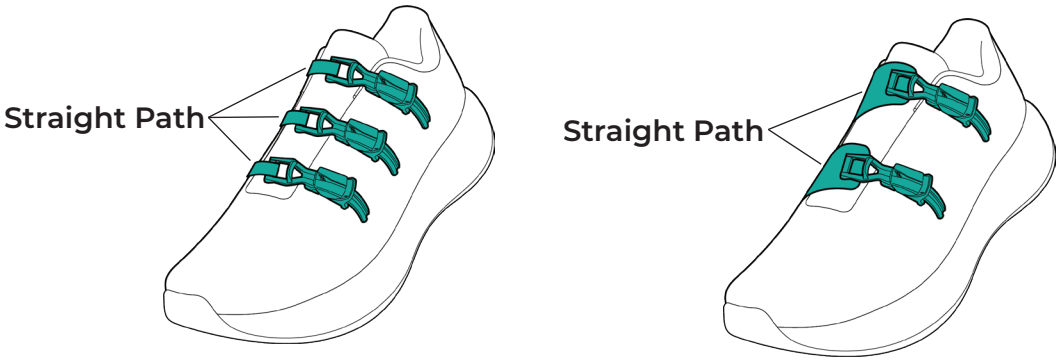
StopStrap

XL: 116mm
L: 98mm
M: 82mm

zipzōn System Configuration Types

Straight Path Configurations

- Uses a single zipzōn Strap routed in a direct, straight path across the shoe.
- Delivers linear tension and controls a single fit zone (upper, middle, or lower).

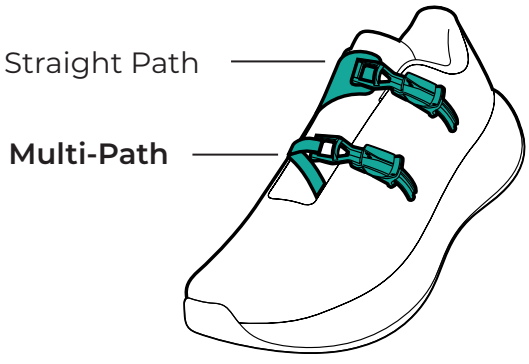


Multi-Path Configurations

- Routes webbing through zipzōn Guides, enabling tension to be applied across multiple or larger fit zones.
- Offers mechanical advantage: closing power is doubled.

Best Practice for Multi-Path Configurations:

- "V" webbing routing (one webbing redirection) is the only approved multi-path configuration currently.
- Keep angles controlled (See pg. 16 for placement instructions.).
- Test opening and closing on an actual foot because redirecting webbing through a Guide cuts closure amount in half (like a pulley system).



IMPORTANT: MULTIPATH SYSTEMS USING MORE THAN A SINGLE "V" WEBBING CROSSING MUST BE APPROVED BY zipzōn.

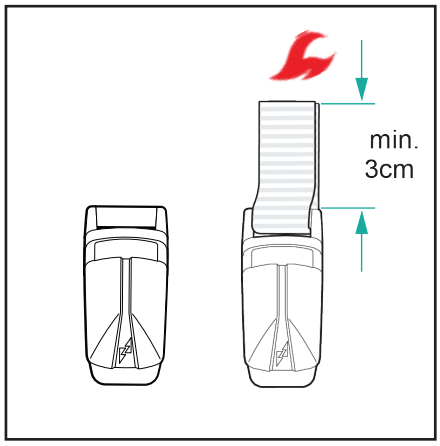
Adjuster and Strap Installation Instructions

zipzōn System components are attached to the shoe or additional components via webbing looped around a webbing bar and stitched in place.

Adjuster and Strap Installation

1) Attach webbing to Guide

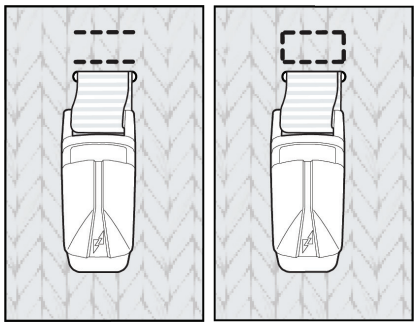
- *Wrap webbing around webbing bar.*
- *Leave 3cm of webbing length.*
- *Pre-tack webbing with stitching, adhesive or ultrasonics.*
- *Burn webbing ends.*



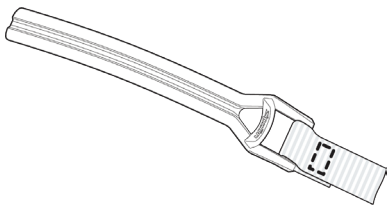
2) Stitch webbing

- *Insert webbing into slit in upper or overlay.*
- *Stitch across at least 8mm of the webbing width.*
- *Use 2 lines or box stitch.*
- *Stitch length: 1.5–2mm*
- *Backstitch at end and burn thread ends.*

Adjuster example



Strap example



Requirements

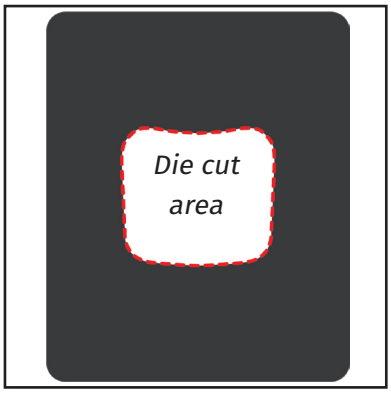
- Must pass 25 lb pull test of Adjuster and Strap stitched to upper material.

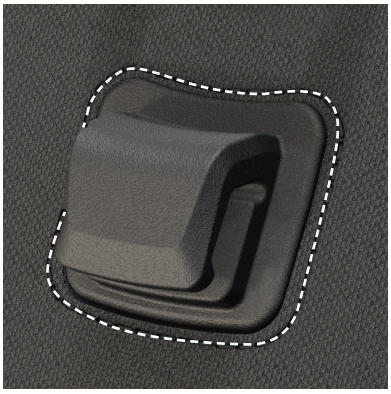
QuickConnect 20 Installation Instructions

The QuickConnect 20 part is used to enable full release of the zipzōn System by engaging and disengaging with the Strap bar.

1) Die cut opening for QuickConnect part

- *QuickConnect 20 can be installed into the upper or an overlay on the upper.*
- *Place part behind material through die cut.*
- *Stitch 1-2mm from edge with 1.5 - 2mm stitch length.*
- *One line of stitching required.*
- *Backstitch at end. Burn thread ends.*



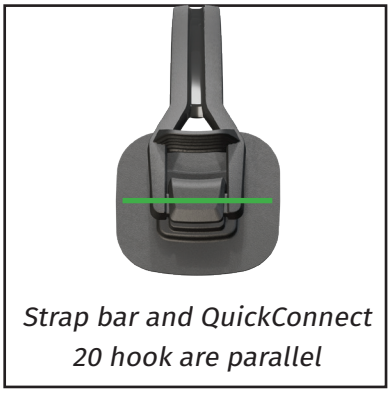


Note

- *QuickConnect 20 has a **front** and **back.** Be sure the **hook** faces down, so the Strap bar is pulled over the part and hooked from behind.*

Important

- Be sure QuickConnect 20 is oriented in line with the Strap. The Strap bar should seat parallel with the hook on the part, with no stress on either side from misalignment.



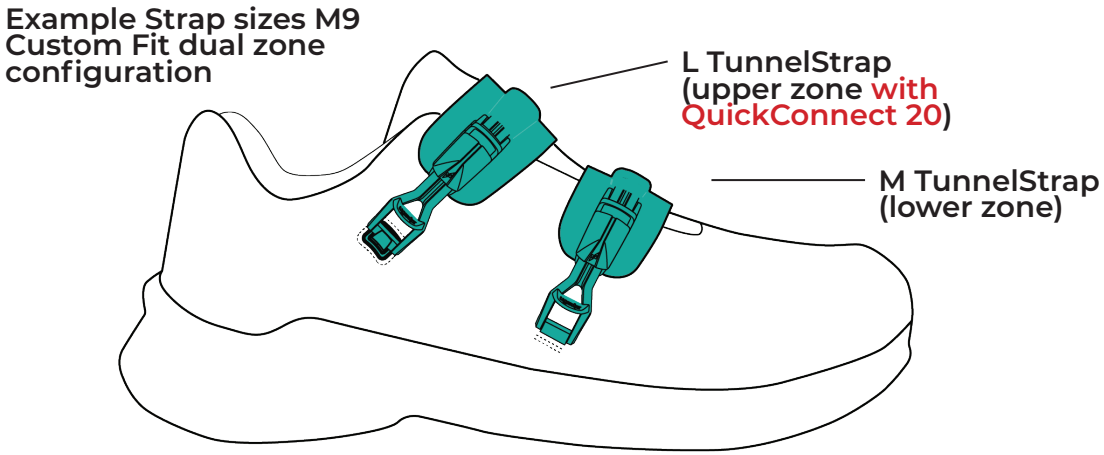
Strap Size Selection for Size Grading with QuickConnect 20

Strap Size recommendations per shoe size for non-opening Straps (Stop-Straps and TunnelStraps) used with QuickConnect 20 are below.

NOTE: These recommendations are intended as a starting point for Strap size selection and may differ from final size grading per shoe/model.

Size (US)	Size (EU)	Upper zone
W5	35	M
W6	36	M
W7	37/38	M
W8	38/39	M
W9	39/40	L
W10/M7	40/41	L
W11/M8	41/42	L
M9	42/43	L
M10	43/44	L
M11	44/45	L
M12	45/46	L
M13	46/47	L
M14	47/48	L

- Because QuickConnect 20 is generally needed only at the top of a shoe, only the Upper zone is referenced here.
- Full opening of the zipzōn System with QuickConnect 20 usually allows for a shorter Strap to be used in the Upper Zone.
- Be sure the Strap length still allows the desired amount of adjustment range for the application. See Strap adjustment ranges on pg. 13.



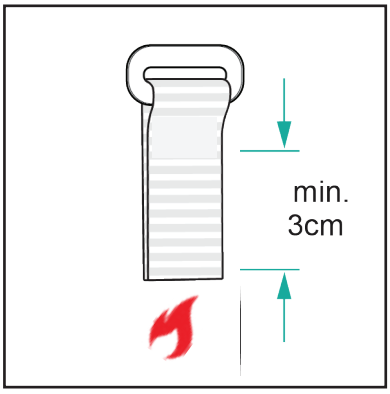
Guide Installation Instructions

Ring Guides and Slot Guides are used to change webbing direction.

Ring Guide: Use when Guide sits on top of upper.

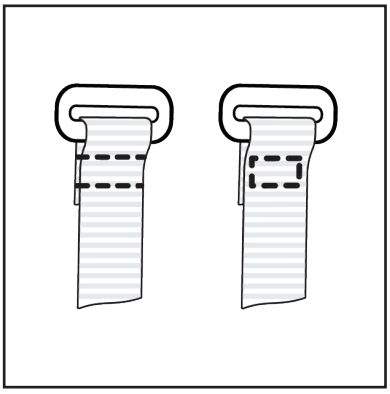
1) Attach webbing to Guide

- *Wrap webbing around webbing bar.*
- *Leave 3cm of webbing length.*
- *Pre-tack webbing with stitching, adhesive or ultrasonics.*
- *Burn webbing ends.*



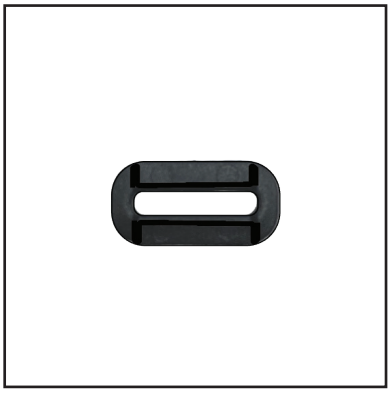
2) Stitch webbing

- *Insert webbing into slit in upper/ overlay.*
- *Stitch across at least 8mm of webbing width.*
- *Use 2 lines or box stitch.*
- *Stitch length: 1.5–2mm*
- *Backstitch at end. Burn thread ends.*



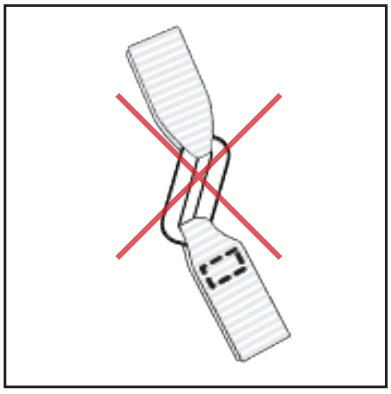
Note

- *Ring Guide has a **front** and **back** (back is cut out to accommodate webbing).*



Important

- Be sure webbing is stitched close (at approximately 2mm) to the Guide to prevent it from turning under load.
- Use Z20 Webbing or a webbing with at least 0.6mm thickness for stability.



Guide Installation Instructions (Continued from previous page)

Ring Guides and Slot Guides are used to change webbing direction.

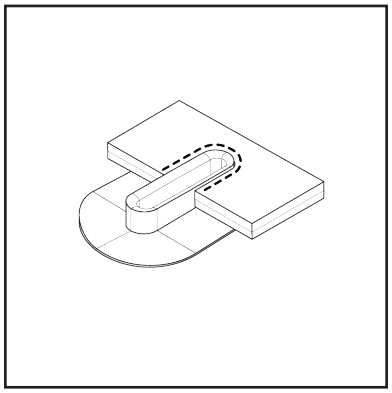
Slot Guide: Use when webbing passes through upper or panel.

1) Place Guide

- *Die cut Guide shape into upper or panel.*
- *Place Slot Guide behind upper/ panel in line with die cut.*

2) Stitch Guide

- *Stitch Guide with a single line of stitching.*
- *Stitch length: 1.5–2mm*
- *Backstitch at end. Burn thread ends.*



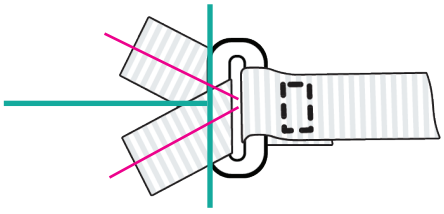
Note

- Sew flange must be bottom layer (do not sandwich guide between layers).
- Use smooth materials around Guide to avoid friction between webbing and upper material.

Ring Guide and Slot Guide orientation is critical for best function and durability.

Requirements

- Guide must align perpendicularly with center of webbing "V" (Max angle difference: ±5°).
- Angle of webbing should be =>90 degrees.
- Avoid angles <90°. Overlay wide angles cause inefficient pull force and poor fit.



zipzōn Component Strength Testing

For incoming inspection of zipzōn System parts, please test using the following strength requirements.

Tools

- Use a tension test machine with serrated clamps to hold each end of the tensile pieces.
- Use 10mm Z20 webbing or webbing that matches Z20 specs.

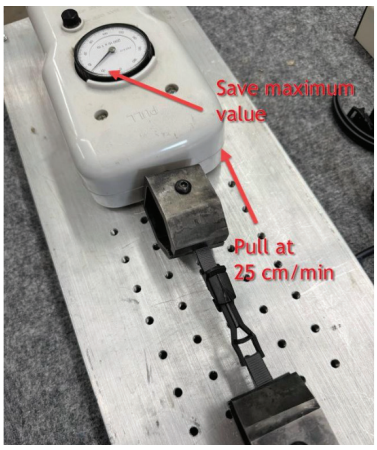
Test Types

Assembled System Test

- This is a test of the Adjuster and Strap together to test the strength of the ratchet teeth. This tests the webbing bar on the Strap and Base of the Adjuster along with the ratchet teeth all at the same time.

Test Parameters

- Pull test speed at 25cm/min.
- Pull test strength should not fail at 130N.

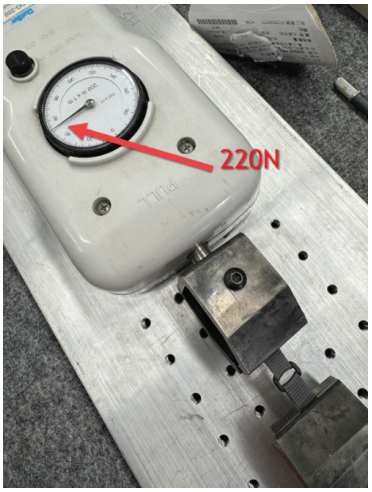


Ring Guide and Slot Guide Test

- This is a test of the Ring Guide or Slot Guide to test the strength of the guides.

Test Parameters

- Pull test speed at 25cm/min.
- Pull test strength should not fail at 220N.



Full Testing Method Instruction Document

Please request the complete zipzōn Component Testing Document for more detail.

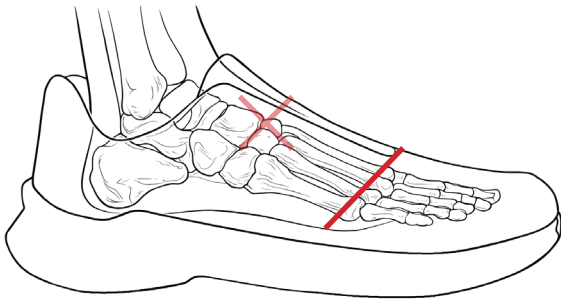
zipzōn Installation for Comfort & Function

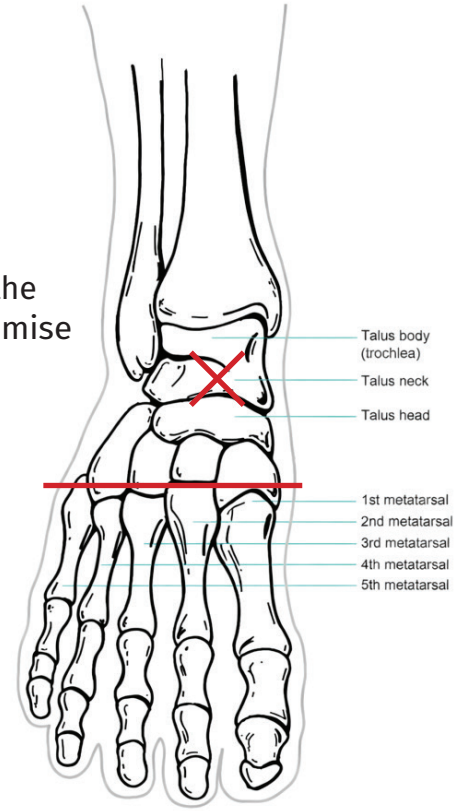
Correct placement of Straps, Adjusters, and Guides ensures:

- Full adjustment range.
- Even closure on foot.
- Secure fit without discomfort.

Placement:

- Avoid component installation directly on the talus head (the bone protruding on top of the foot near the ankle). This may cause discomfort and/or compromise performance.





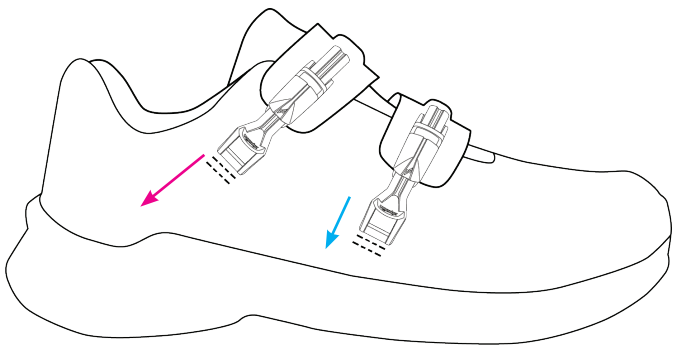
Pull Direction:

Upper Zone

- Place zipzōn and canopy as high as possible without interfering with ankle flexing.
- Pull direction should angle rearward (toward heel) to promote heel hold.

Middle & Lower Zones

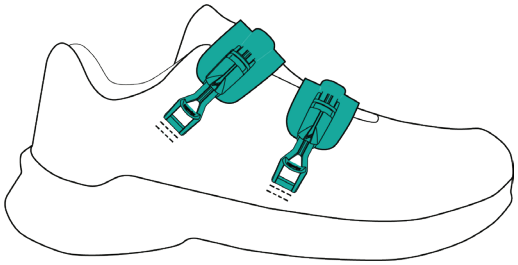
- Placement must be 1cm above metatarsal heads to avoid discomfort.
- Pull direction should angle slightly rearward and wrap the foot circumferentially.



zipzōn Orientation (Strap Tail Towards Top vs. Bottom of Shoe)

The Z20 Straps and Adjusters can be oriented with Strap tails up or down. As a general rule, choose one direction for tail for the entire shoe (Strap Tail pointed upward- or downward-facing) for simplicity of installation and user interface. Do not mix upward- and downward-facing on the same shoe.

Strap Tail Upward



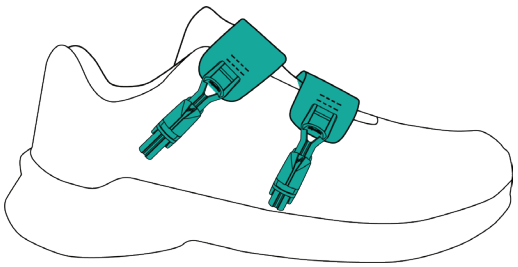
Usage

- Often used with tunnels to conceal Strap tail.
- Use when more space is needed to accommodate closure zone.
- Use for activities involving sliding, and with debris or obstacles such as rocks or brush (e.g. trail running).

Notes:

- Enables Strap concealment when using TunnelStrap.
- More intuitive motion for loosening (user pinches Adjuster and naturally pulls upward, releasing the system).

Strap Tail Downward



Usage

- Must have room on lateral side of shoe for full closure zone.
- Usually doesn't need tunnel because Strap tail stays against shoe.
- Use when components shouldn't be on top of the foot (e.g. soccer, basketball).

Notes:

- Clean aesthetic without tunnels.
- Less intuitive for some users when loosening (user must flex foot forward or pull Strap to release).

Shoe Construction Tips

For optimal function and comfort with the zipzōn System, minimize friction and thick material overlaps to ensure smooth canopy and component movement during tightening.

Traditional Shoe Construction

- A shoe design with a central tongue and two side panels (eyestays), creating a U-shaped opening (U-throat) that is closed using laces or a closure system. (See image reference A)

Advantages

- Familiarity on development and consumer side.
- Allows large throat opening = easier foot entry.

Suggested Modifications

- Reduce material overlap in throat area.
- Soften or thin out throat edges.
- Avoid thick overlays along eyestay.

Optional Improvements

- When using gussets, make them thin and conforming (to slide easily inside shoe).
- An elastic panel can be added across the throat area in the middle, lower, or both zones.
  - Provides initial hold during entry.
  - Improves user experience with single zone configurations.

Image reference A

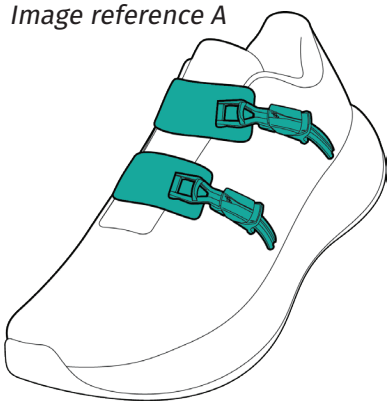
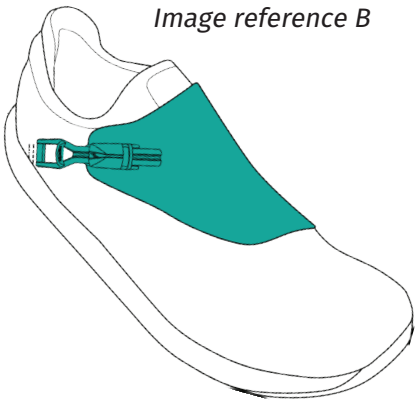


Image reference B



Alternative Shoe Constructions

- Sock constructions. (See image reference B)
- Hybrid constructions (partial elastic + partial tongue). (See Elastic Throat Panel on pg. 21)
- Overlapping “burrito” constructions. (See image reference C)

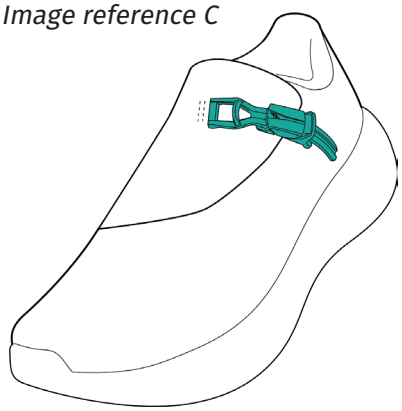
Advantages

- No full U-throat = less material overlap and pressure points.
- Canopy can slide smoothly over the foot.
- Visual cleanliness.

Optional Improvements

- Use smooth materials over top of foot to avoid friction.

Image reference C

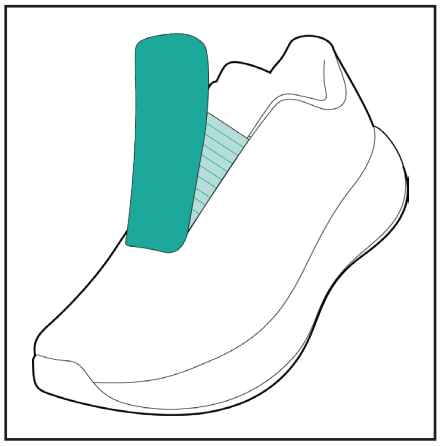


Shoe Construction Tips (Continued from previous page)

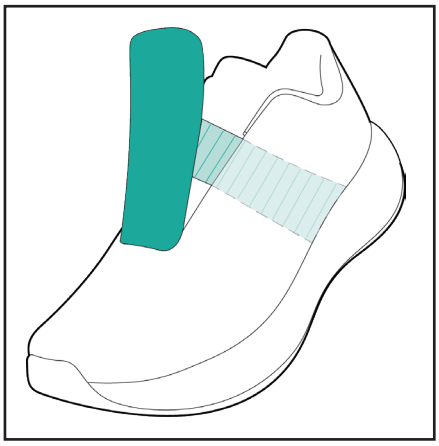
Tongue Construction Tips

- Employ measures to ensure that tongue stays centered and inside eyestay edges.
  - Use thin, internal gussets.
  - Tether sides of tongue with elastic.
  - Use an elastic panel across the throat.
  - Use dense and thinner tongue construction because puffy/thick tongues restrict vamp from sliding over tongue, and cause bunching of materials.

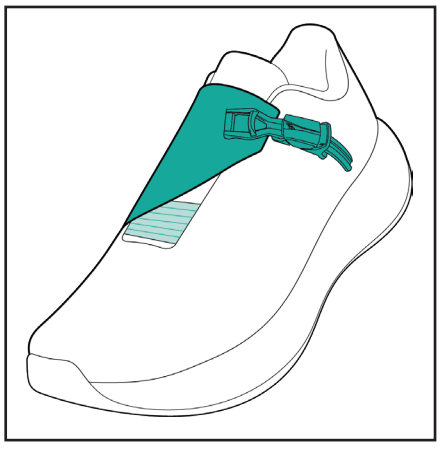
Thin, internal gusset



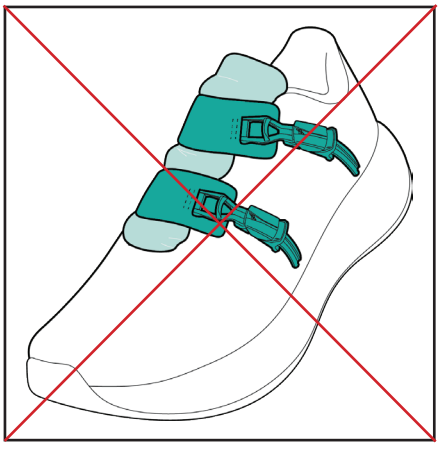
Elastic tethers



Elastic throat panel



Avoid puffy and thick tongues



Using Canopies with zipzōn

Canopies can be used to spread out the force area on the foot with the zipzōn System.

Canopy Construction

- Must be strong, yet thin and conforming.
- Material must have enough structure to lay flat (no rolling edges).
- Breathability should be built in to match breathability of the shoe upper.

How the Canopy Works

- zipzōn Adjusters, Straps, and Guides should be positioned at the edge to pull the canopy over the foot smoothly.
- The canopy is pulled in a straight line from the zipzōn attachment point.
- To spread the force, the canopy should fan out (triangulate) from this point.
  - Typical direction: inside (medial) → outside (lateral).
- Any part of the canopy outside the pull direction will not tighten.

Canopy Pattern Types

Integrated Canopy

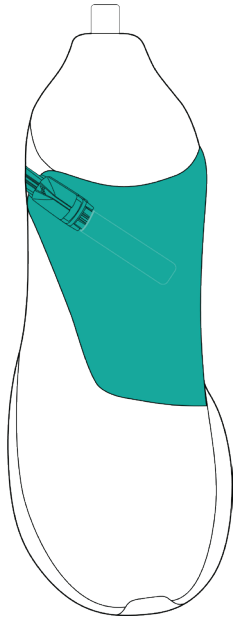
- Built into the upper pattern.
- Pulls the upper directly.

Advantages:

- Fewer layers.
- Clean look.

Note:

- May require a pattern break in U-throat constructions.



Integrated Canopy

External Canopy

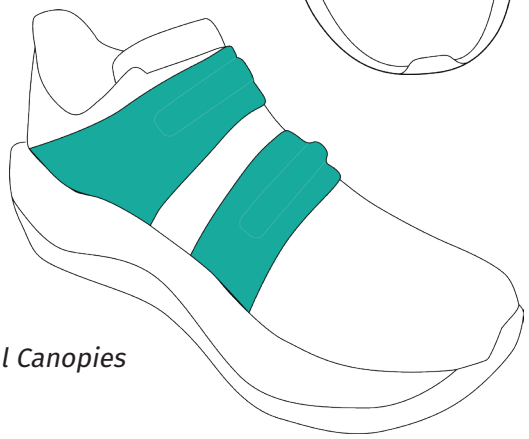
- Separate panel placed over the upper and attached in Strobel stitch.
- Provides strong top-down hold.

Advantages:

- Strong lock down.
- Works well with thin uppers.

Best when:

- Attached near midsole.
- Upper is not bulky.



External Canopies

Using Canopies with zipzōn (Continued from previous page)

Material Guidelines

Thickness:

- Typical: 1mm – 2mm

Too Thick:

- Hard to tighten
- Reduces efficiency
- Affects breathability (see “Breathability Options” below)

Too Thin:

- Weak closure
- Poor durability

Breathability Options

Mesh Windows

- Allow airflow
- Keep structure with reinforced edges

Perforations / Kerfing

- Improve airflow
- Help material flex over foot

Flex Behavior

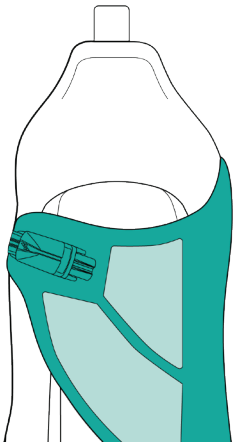
Target: Slight conforming (small give)

Too Stiff:

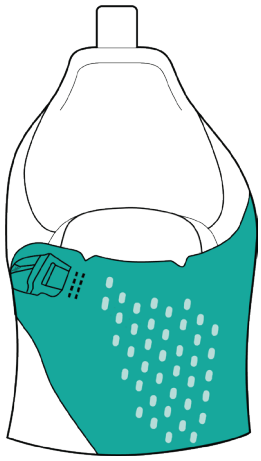
- Does not fit foot shape
- Causes pressure

Too Stretchy:

- Loses tightening power
- Wears out faster



Breathable sections



Kerfing

Topline Comfort

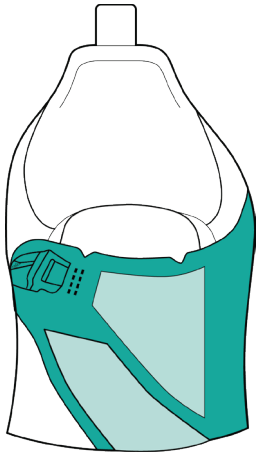
- Canopy must secure the heel
- Must allow ankle movement and flex

Design Rules

- Shape canopy to follow foot curve
- Avoid hard edges on top of foot

Options to Improve Comfort

- Darts
- Elastic edges
- Tapered material layers
- Skiving
- Cut-outs and kerfing



Topline cutouts

zipzōn TunnelStrap Integration Guide

Purpose of TunnelStraps:

- Keep Strap tails contained inside integrated tunnel
- Prevent Straps from sticking up or catching
- Improve clean appearance
- *Note: zipzōn does not supply tunnels, only the TunnelStrap component.*

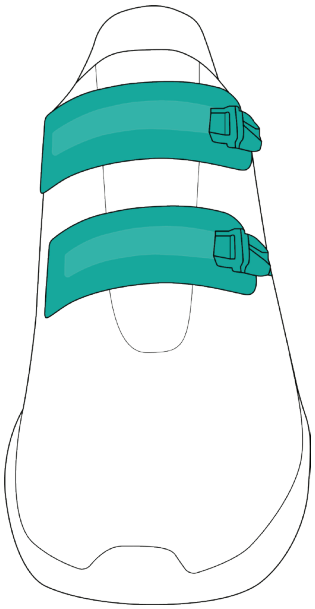
Tunnel Strap Sizes

Available sizes:

- Medium (M)
- Large (L)
- Extra Large (XL)
- Each strap includes a 15mm extension past the stop.

Note

- By design, the 15mm extension must stay inside the tunnel even when the system is fully loosened. This ensures easier handling and a clean look.



Integration Options

Tunnels can be:

- Built into quarter panel
- Integrated into a canopy (most common)

Choose based on:

- Strap location
- Upper construction

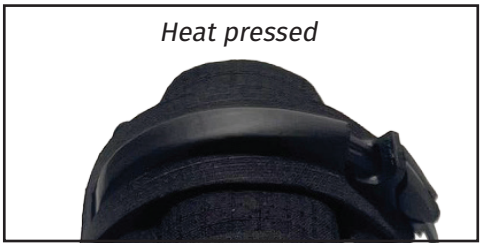
Tunnel Construction Options

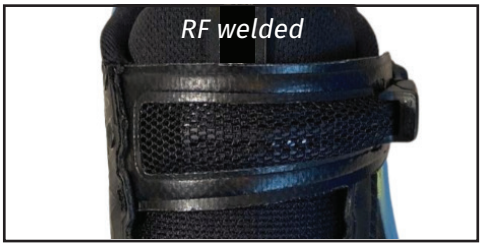
Tunnel layers can be combined using:

- Hotmelt film (heat press)
- HF / RF welding
- Stitching

Choose based on:

- Shoe design
- Capabilities
- Cost





zipzōn Tunnel Material Design Guide

When TunnelStraps are employed, certain tunnel design rules are important to ensure optimal performance and user experience.

Material Guidelines

Recommended Materials

- Waterproof materials are recommended to avoid degradation and absorption-based added weight.
- Thin, four-way stretch materials bonded with stretch TPU to conform to arced shape and prevent material collapse (see image reference A).
  - Examples: four-way stretch jersey, power mesh, thin Lycra
  - Materials should be low friction for smooth strap movement inside tunnel.
- Open Mesh
  - Stretch, open mesh can be used for breathability and flexibility (see image reference B).
  - Examples: Polyester pocket mesh
  - Mesh openings must be small and the Strap must not catch or snag.

Recommended Tunnel Total Material Thickness:

- 0.5 - 1.5mm

Materials that are NOT recommended

- Rough or high-friction surfaces (e.g. rubber, sticky TPU or PVC).
- Woven, non-stretch materials (will not conform to arced shape).

Image reference A

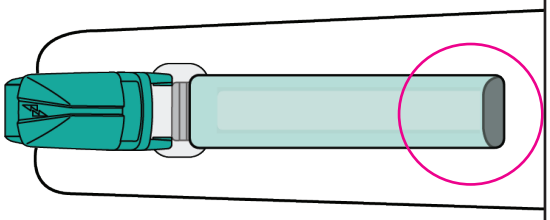
Image reference B

zipzōn Tunnel Material Design Guide

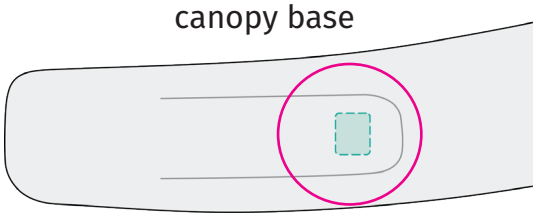
Dirty Environment Recommendations

- Allows dirt and debris to exit.
- Maintains smooth function.

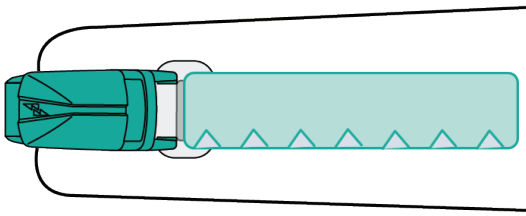
Leave tunnel open at one end



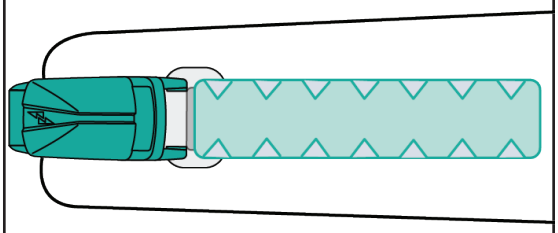
Add drain hole on back of canopy base



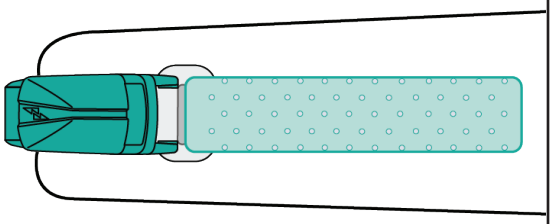
Cutouts along lower edge



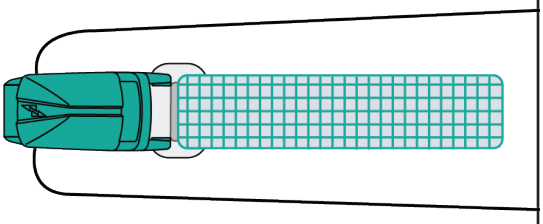
Cutouts along upper & lower edges



Perforation across entire tunnel



Use open mesh material



Tunnel Specifications Guide

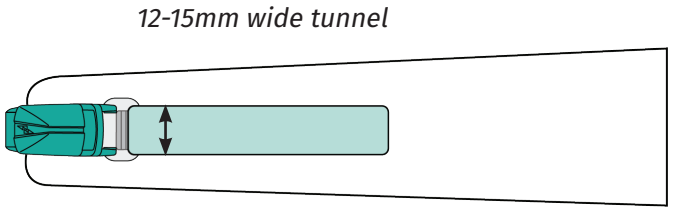
Tunnel dimensions must allow the strap to:
- Slide smoothly
- Stay contained

Internal Width

- 12–15mm internal width
- Must allow Strap to move freely

Too Narrow (<12mm):
- High friction
- Strap does not slide smoothly
- Poor tightening feel

Too Wide (>15mm):
- Reduced control
- Loose appearance

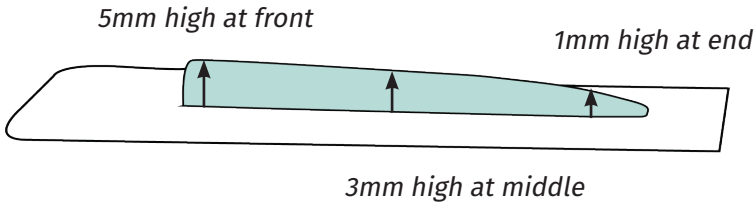


Internal Height (Clearance)

- 5mm minimum internal height at front
- Can taper to 4mm at middle and 1mm at end

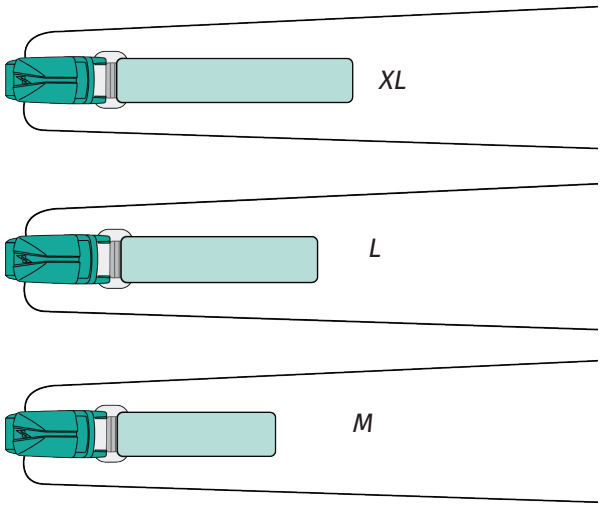
Too Low
- Increased friction
- Hard to adjust

Too High:
- Material folds
- Poor visual appearance



Minimum Internal Lengths

- XL TunnelStrap: =>8.2 cm
- L TunnelStrap: =>6.5 cm
- M TunnelStrap: =>5 cm
- Tunnel length must accommodate entire Strap length.

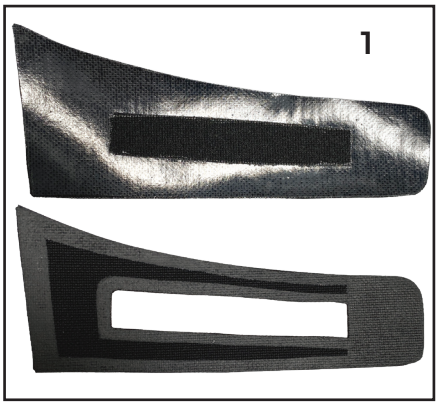


Tunnel Assembly Guide

Option 1: Three piece tunnel canopy

Components

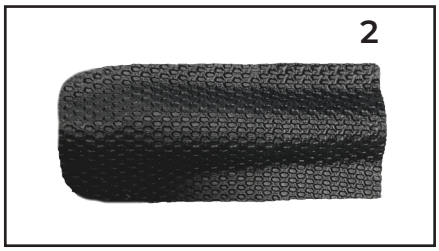
Canopy Base textiles (e.g. monomesh, canvas, PU leather)
Heat-formable tunnel material (e.g. TPU film-laminated textile, synthetic, or mesh)
Canopy Overlay textiles (e.g. TPU, PU leather)
Reinforcement and bonding layers as needed



Process

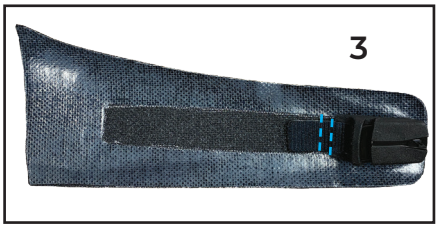
1) Die Cut Base and Top Pieces

- Base and top cut from outer canopy material.
- Base must be strong but conforming.
- Bottom of base must be smooth to slide over shoe easily.
- Hotmelt film applied to base.



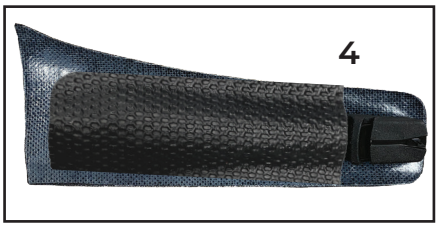
2) Cut and Form Tunnel

- Tunnel piece cut from heat-formable material.
- Heat in a matched metal mold or bladder press.
- Mold creates the raised tunnel geometry.
- Tunnel cools and retains shape.



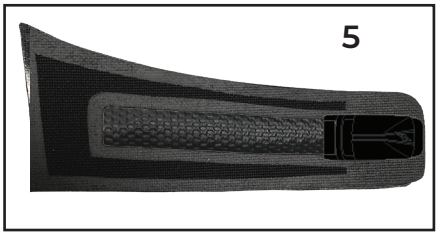
3) Stitch Adjuster

- Stitch Adjuster to base with front of Adjuster aligned to front end of canopy.
- Use two lines of stitching or box stitch.
- Burn webbing ends and thread ends.



4) Bond Tunnel to Canopy

- Heat-activated film or adhesive used.
- Tunnel aligned over canopy panel.
- Press in a flat heat press or RF press with mold to retain tunnel shape.
- Tunnel entrance must be directly behind Adjuster webbing bar (no extra space between) to prevent Strap tail from coming out of tunnel.



5) Attach Top Canopy Overlay

- Overlay can be sewn, heat-pressed or RF-welded to base and tunnel assembly.
- Do not collapse tunnel during attachment (can use tunnel form during attachment and remove afterwards).

Tunnel Assembly Guide

Option 2: Two piece tunnel canopy

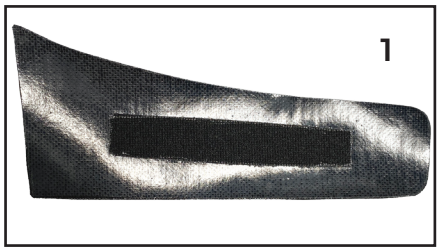
Components

Canopy Base textiles (e.g. monomesh, canvas, PU leather)
Heat-formable tunnel material (e.g. TPU film-laminated textile, synthetic, or mesh)
Reinforcement and bonding layers as needed

Process

1) Apply Hotmelt film to base

- Cut hotmelt film to canopy shape (excepting tunnel area) before adhering to base.
- Base must be strong but conforming.
- Bottom of base must be smooth to slide over shoe easily.

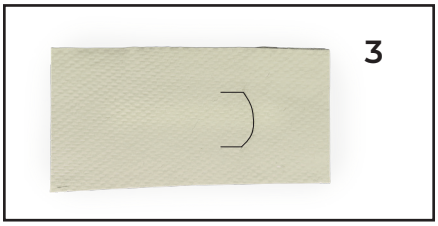


2) Stitch Adjuster

- Stitch Adjuster to base with front of Adjuster aligned to front end of canopy.
- Use two lines of stitching or box stitch.
- Burn webbing ends and thread ends.

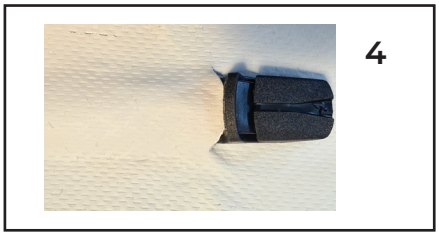
3) Create tunnel layer

- Bond tunnel materials together (e.g. stretch mesh between two layers of TPU film).
- Die cut tunnel mouth opening. Cut is U shaped to allow placement directly behind Adjuster.

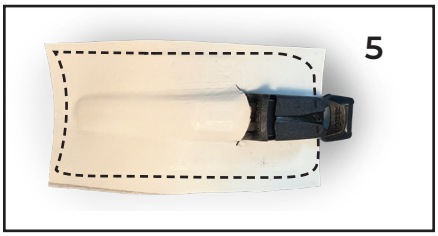


4) Bond Tunnel to Base

- Heat-activated film or adhesive used.
- Slip tunnel layer over Adjuster through tunnel mouth cut and align over canopy panel.
- Tunnel entrance must be directly behind Adjuster webbing bar (no extra space between) to prevent Strap tail from coming out of tunnel.
- Press in a flat heat press or RF press.
- Insert Strap mold into Adjuster and through tunnel to the end. Cool and remove mold.



5) Die cut full assembly to canopy shape



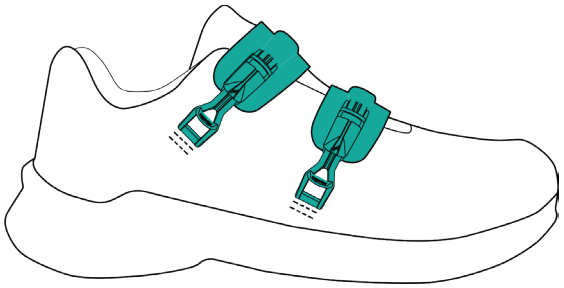
Tunnel Assembly Guide

Final Assembly:
Applies to two piece and three piece constructions.

7) Assemble Canopy Into Upper
- Completed canopy inserted into upper construction process.
- Canopy could be an extension of the medial quarter pattern or a separate piece sewn on top of the quarter.

8) After assembly, check the inside and outside of the tunnel.
- No exposed seam bulk along canopy edges.
- No glue squeeze-out.
- No internal obstruction in tunnel.

9) Attach TunnelStrap and check the function.
- Tunnel path must follow a smooth line.
- Avoid installing in areas with sharp foot curvature to avoid tunnel collapse.
- The zipzōn System should have a distinct, clicking sound as it is adjusted. If the System is quiet (no clicking), the tunnel is restricting the movement of the Strap (likely too short in height) and should be remade to the required specs on pg. 30 until the sound is heard clearly.



QC CHECKLIST

Before production, check:

☐ Correct Strap type selected

☐ Strap length correct for size

☐ Full open and close tested

☐ Guides aligned correctly

☐ No placement over metatarsal heads or sensitive areas

☐ Stitching passes 25lb test

☐ Webbing and thread ends burned

CRITICAL ITEMS

- Use Z20 webbing or your own webbing that meets required specifications.
- Test opening and closing on a real foot.
- Contact zipzōn for questions and trouble shooting.
- Send development sample for evaluation by zipzōn (highly recommended but not required).

CONTACTS

Development, configuration, and installation:

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GLOSSARY OF TERMS

Adjuster
zipzōn component used to tighten and loosen the system

Adjustment Range (also called Stroke)
The total distance a strap can move through the adjuster from fully open to fully closed

Canopy
A textile panel that is pulled over the foot to create a secure wrap

Closure System
The components that tighten the shoe to close it on the foot

Closure Zone
A specific area of the shoe where the system adjusts tightness of the shoe around the foot

Dart
A shaped fold or seam in material used to remove excess and help the material conform to the shape of the foot

Doffing
Taking the shoe off

Donning
Putting the shoe on

Fit System
A set of components that work together to adjust, secure, and maintain the fit of a shoe on the foot

Flex Zone
Area of the shoe where the foot bends during movement

Guide (General)
A component that directs the path of the webbing

Hybrid Construction
Shoe design with a partial throat opening, partially bridged by a stretch or elastic material

Kerfing
A series of small cuts or perforations in material used to increase flexibility and allow it to bend or conform more easily

Overlay
Material layer placed on top of the upper for structure or design purposes

Skiving
A process that thins the edge of a material to reduce bulk and create smoother overlaps

Sock Construction
Shoe design without a full throat opening incorporating stretch for donning and doffing

Stop (on Strap)
Feature preventing the Strap from being pulled out of the Adjuster

Strap (component)
zipzōn component that slides through the Adjuster to tighten and loosen the system

Strap Tail
The loose end of the Strap that extends beyond the Adjuster when the system is tightened

Tunnel
A covered channel that contains the Strap

Tunnel Entrance
The opening where the Strap enters the tunnel

Tunnel End
The end of the tunnel where the Strap tail extends to and is contained within

U-Throat Construction
Traditional shoe opening with a tongue and two (eyerow) sides

zipzōn System
The combination of an Adjuster and a Strap as one unit (“a zipzōn System”)

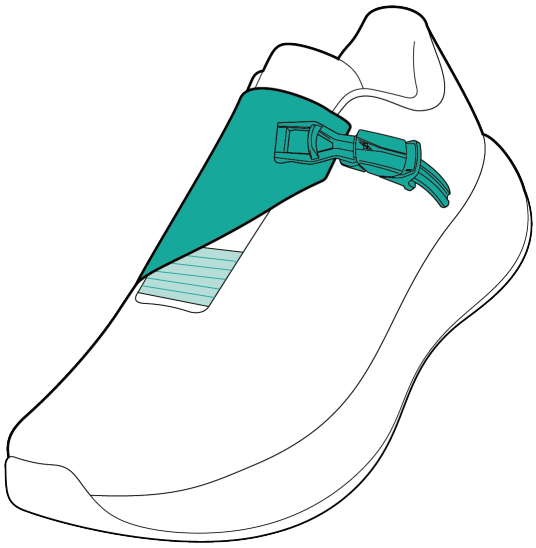
APPENDIX:
CONFIGURATION GUIDELINES

zipzōn®

April 2026

Speed Fit: Single Zone

This fit configuration engages the upper, middle, and lower zones through a single adjustment point, with strongest closure pull in the upper zone for good heel hold and a comfortable fit throughout.



Use Case

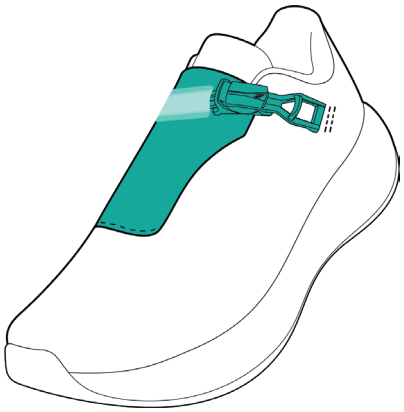
Primary Use
- Simple, direct tightening

Best For
- Minimal constructions
- Slip-on or hybrid uppers
- Applications requiring low complexity
- Cost optimized designs

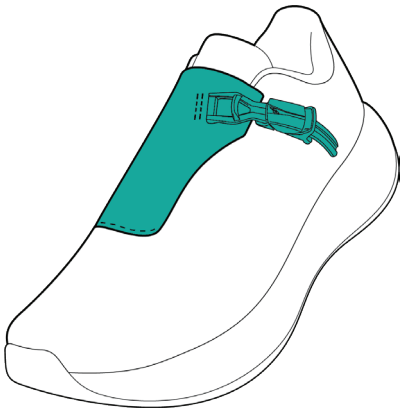
Construction Options

Single Canopy
- Strap facing upward with tunnel on canopy *(Ref. image A)*
- Strap facing downward/back with no tunnel *(Ref. image B)*

Ref. image A

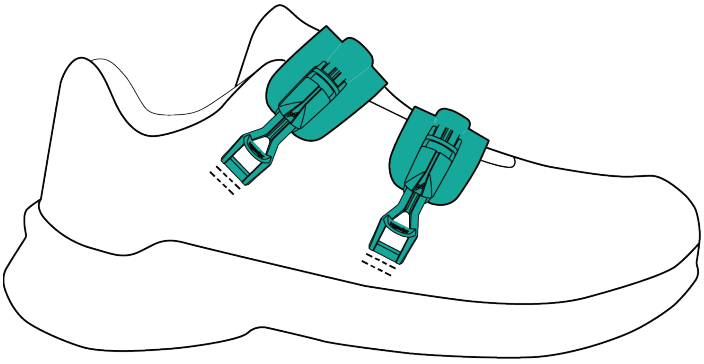


Ref. image B



Custom Fit: Dual Zone

This fit configuration uses two independent adjustment zones for a customizable and comfortable fit.



Use Case

Primary Use
- Balanced fit control over two areas of the foot

Best For
- Performance footwear
- Various constructions
- Applications requiring both:
  - Fit control
  - Stability

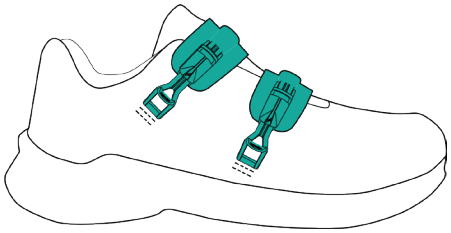
Construction Options

Canopies
- Strap facing upward with tunnels on canopies *(Ref. image A)*
- Strap facing downward/back with no tunnels *(Ref. image B)*

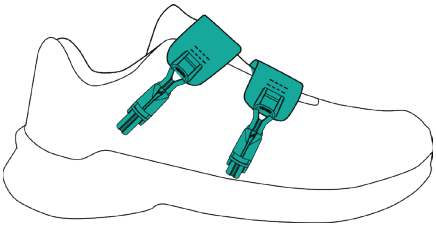
Direct attachment to upper *(Ref. image C)*
- Recommended only for more rigid uppers and substantially padded tongues

Webbing engagement in lower zone *(Ref. image D)*
- Webbing offers more closing power in the lower zone
- Note: Adjustment range (stroke) is cut in half

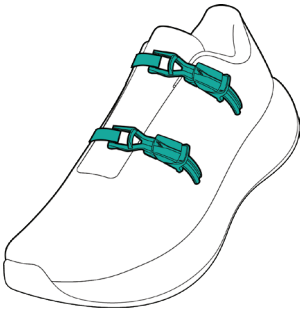
Ref. image A



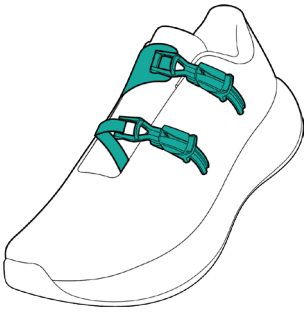
Ref. image B



Ref. image C

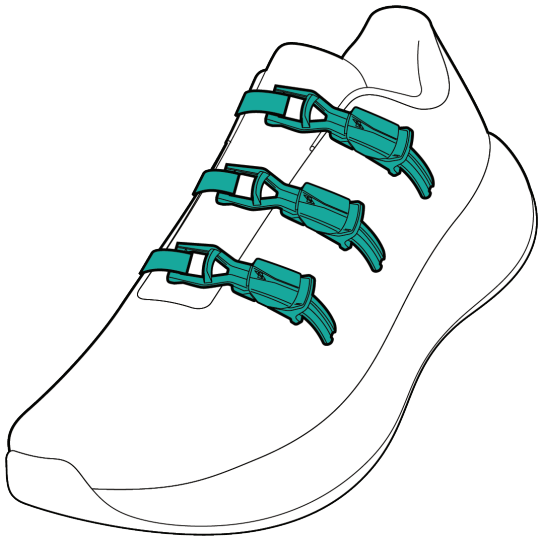


Ref. image D



Custom Fit: Triple Zone

This fit configuration uses three independent adjustment zones for a customizable and precise fit.



Use Case

Primary Use

- Maximum fit control across the entire foot

Best For

- High-performance footwear
- Precision fit requirements
- Wide range of foot shapes
- Product that demands premium fit and adjustability

Construction Options

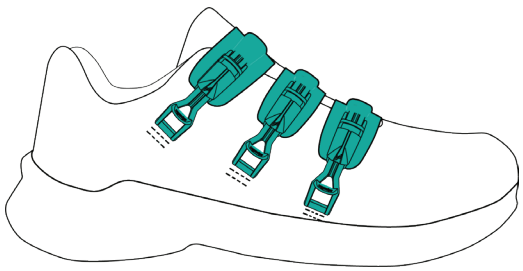
Canopies

- Strap facing upward with tunnels on canopies *(Ref. image A)*
- Strap facing downward/back with no tunnels *(Ref. image B)*

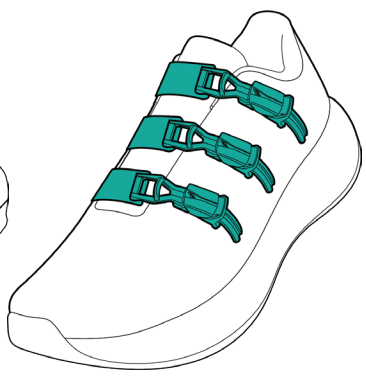
Direct attachment to upper *(Ref. image C)*

- Recommended only for more rigid uppers and substantially padded tongues

Ref. image A



Ref. image B



Ref. image C