





PASSESS

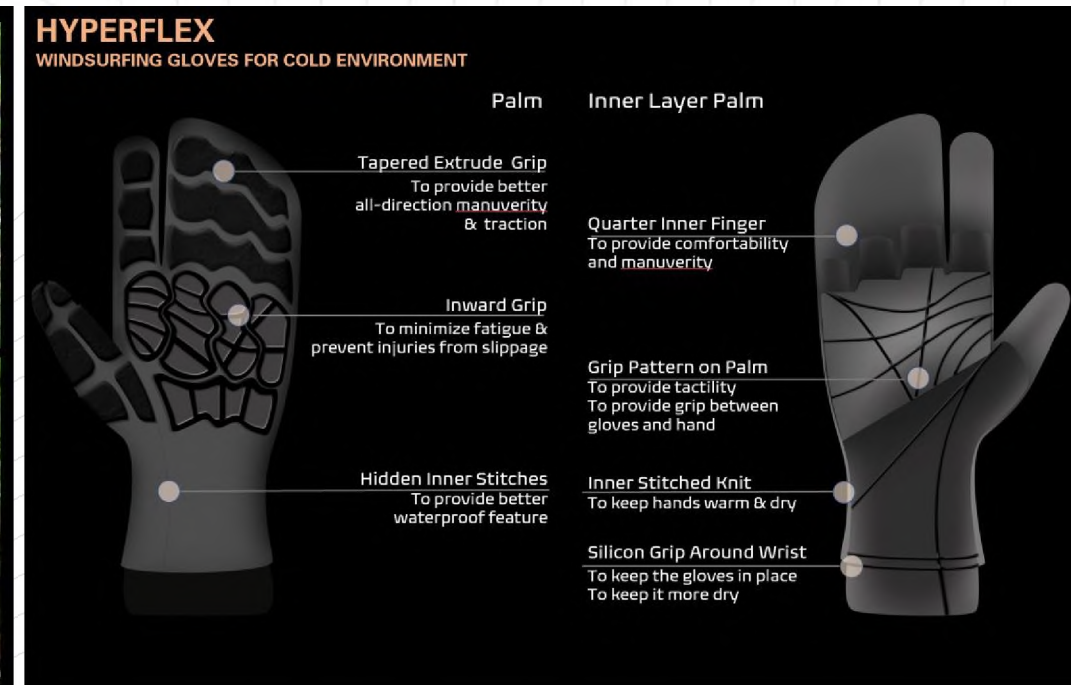
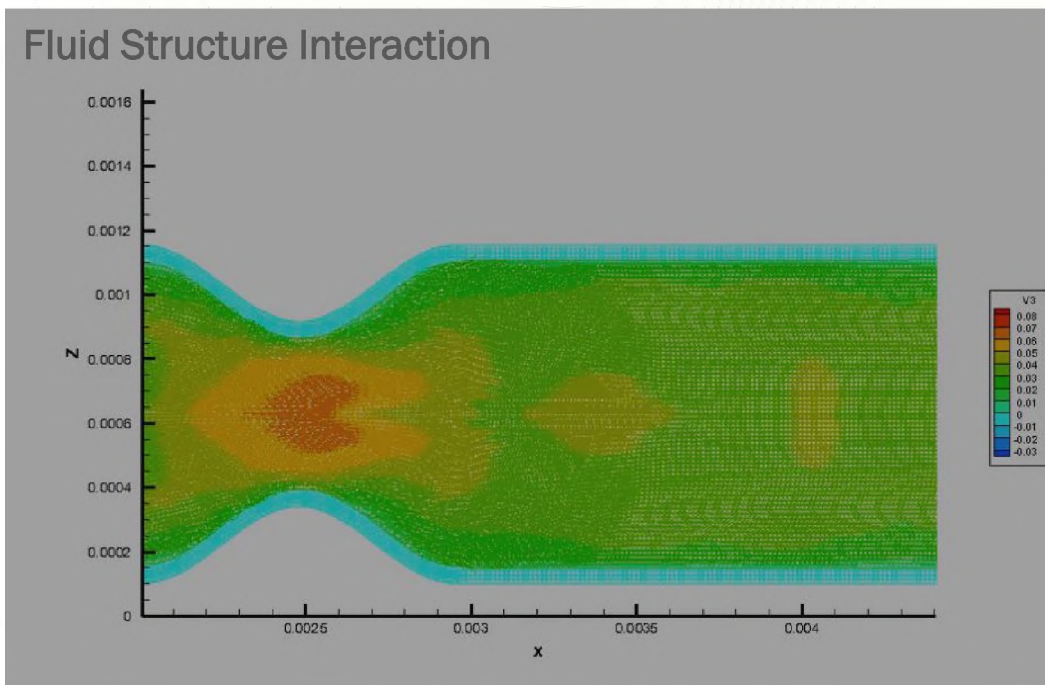
Accessible Outdoor Bag Design
for Nature Enthusiasts

CONTENT

- Introduction
- Research
- Problems
- Goals
- Moodboard
- Ideation & Prototyping
- Benchmark Performance testing
- Final Performance testing
- Final Design-Performance, Fit
- Features & Benefits + Techpacks
- Materials
- Colorways
- Expert Validation & Suggestion-Recorded-Mehrdad Javidi
- Athlete Validation
- Packaging

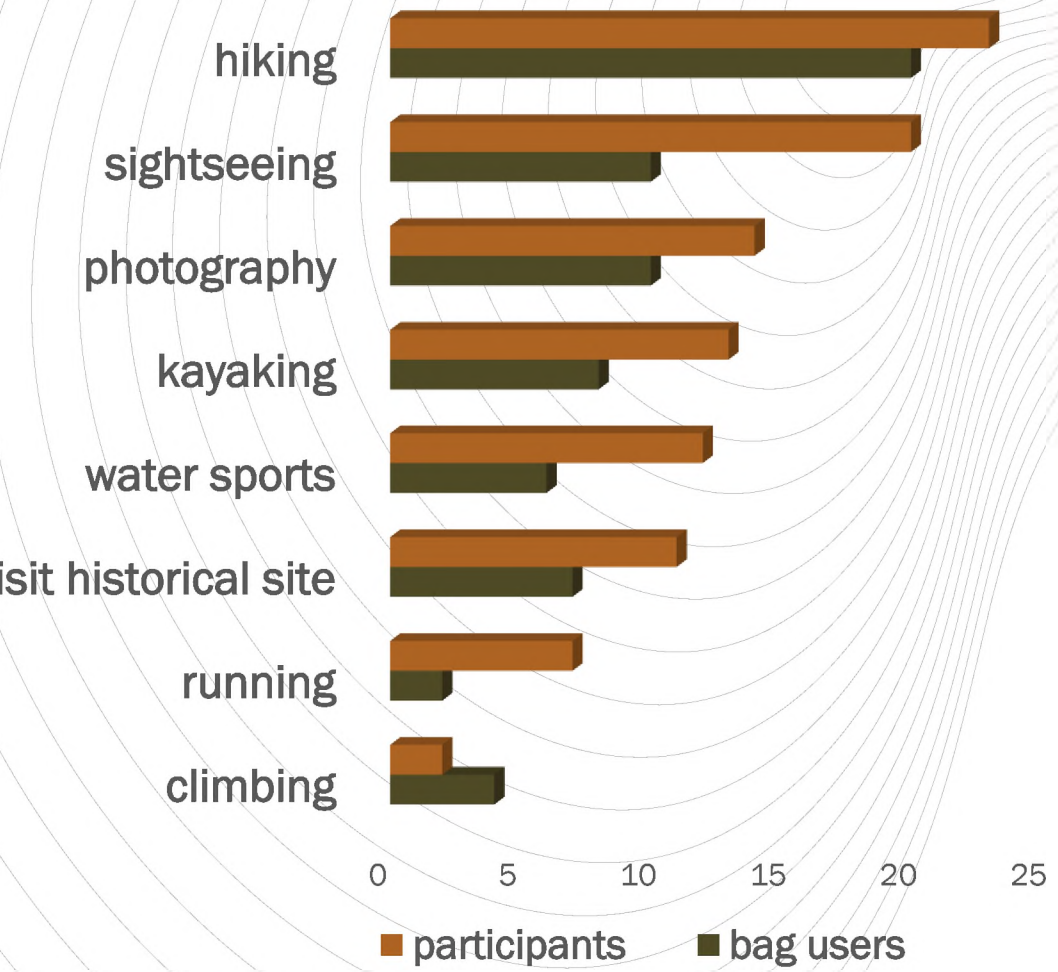
GAZAL MALEKITABRIZ

- **Background** Mechanical Engineering from Shiraz University, Iran.
Thesis Fluid Structure interaction **Industry** Two years as an engineer
- **Why-Purpose** Improve Aesthetic and efficiency through performance testing & implementing technology
- **Postgraduation** I've devoting my time to explore soft good and hard good products, and construction



CONSUMER RESEARCH

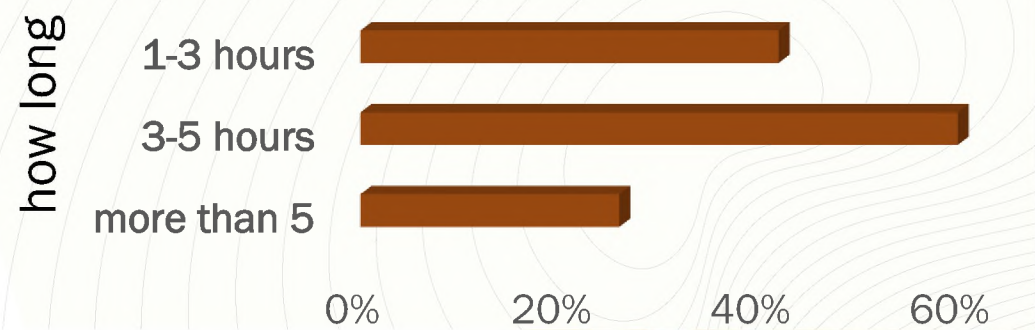
30 Campers & Glampers Surveyed on activities using bags & packs



USER GROUP

50 Campers & Glampers Surveyed,
9 Personal Interviews & 3 Benchmark Demos

Age 41.2% 30–40-year-old



urban hikers and photographers
on daily usage



photographer & nature enthusiasts while hiking



CONSUMER RESEARCH

9 responses
20-60-year-old



PROBLEM STATEMENT

How can we design **bag solutions** to empower 30-to-45-year-old nature & photographer enthusiasts to **efficiently pack and access items** while **hiking and photographing**.



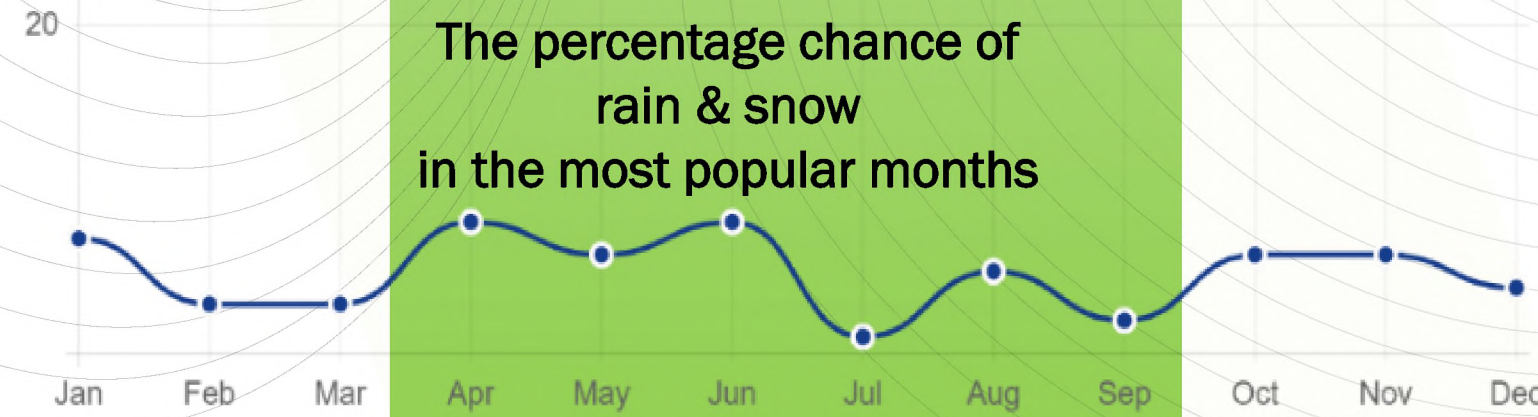
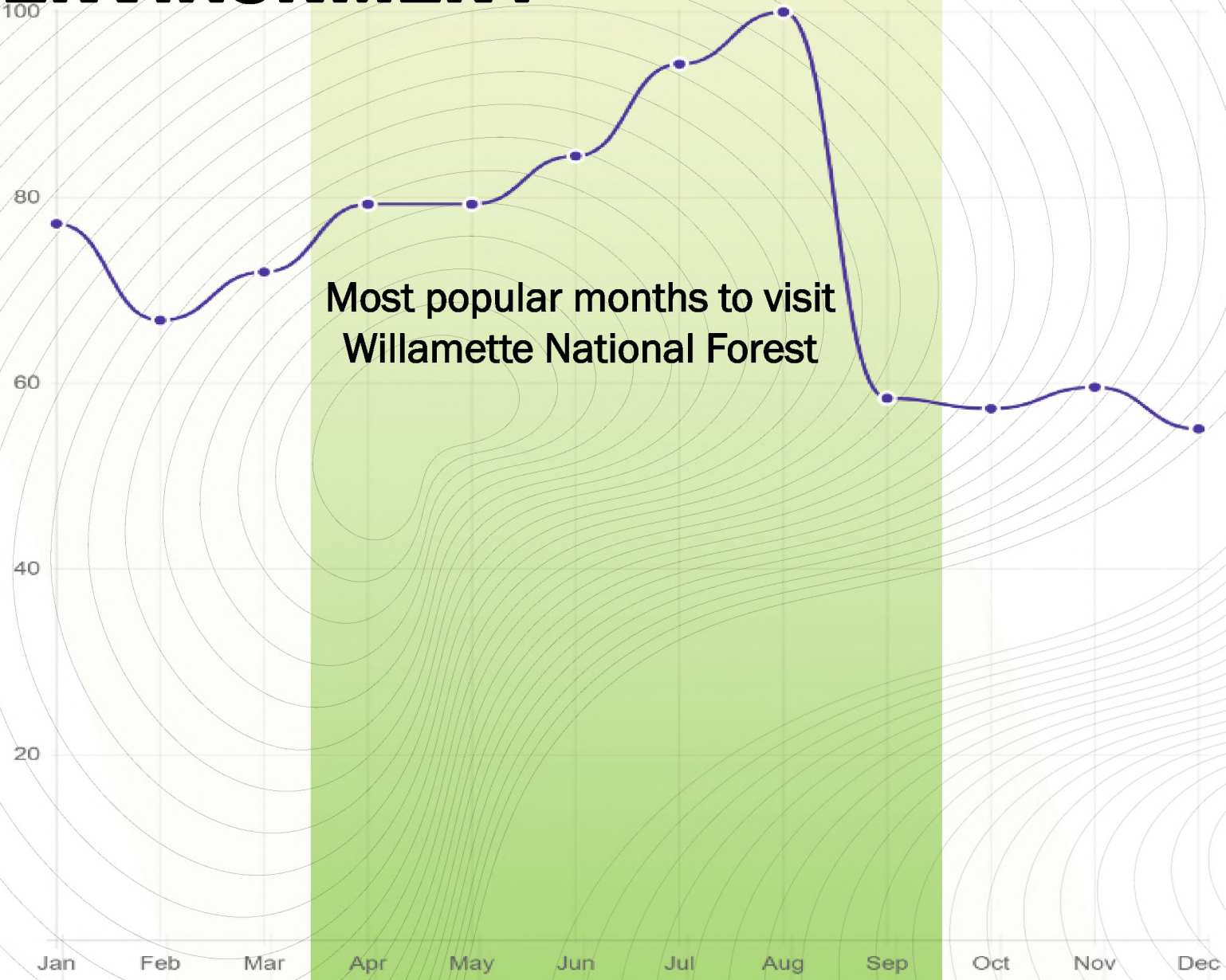
urban hikers and photographers
on daily usage



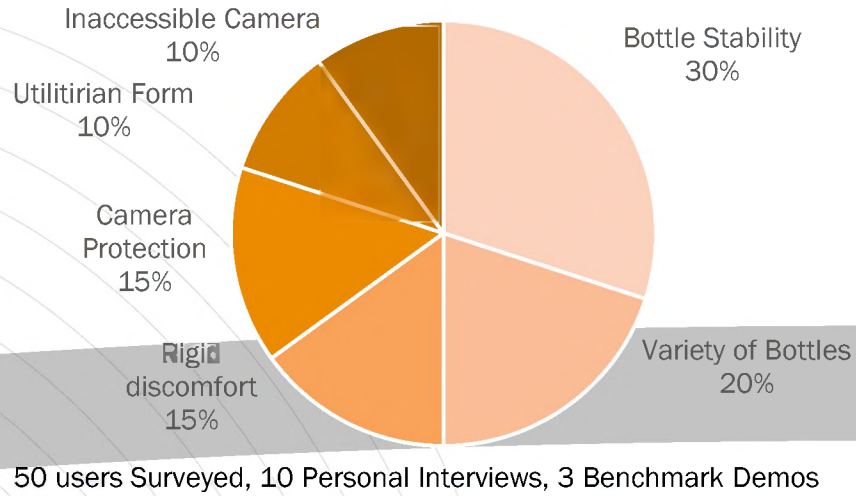
photographer & nature enthusiasts while hiking



OUTDOOR HIKING ENVIRONMENT



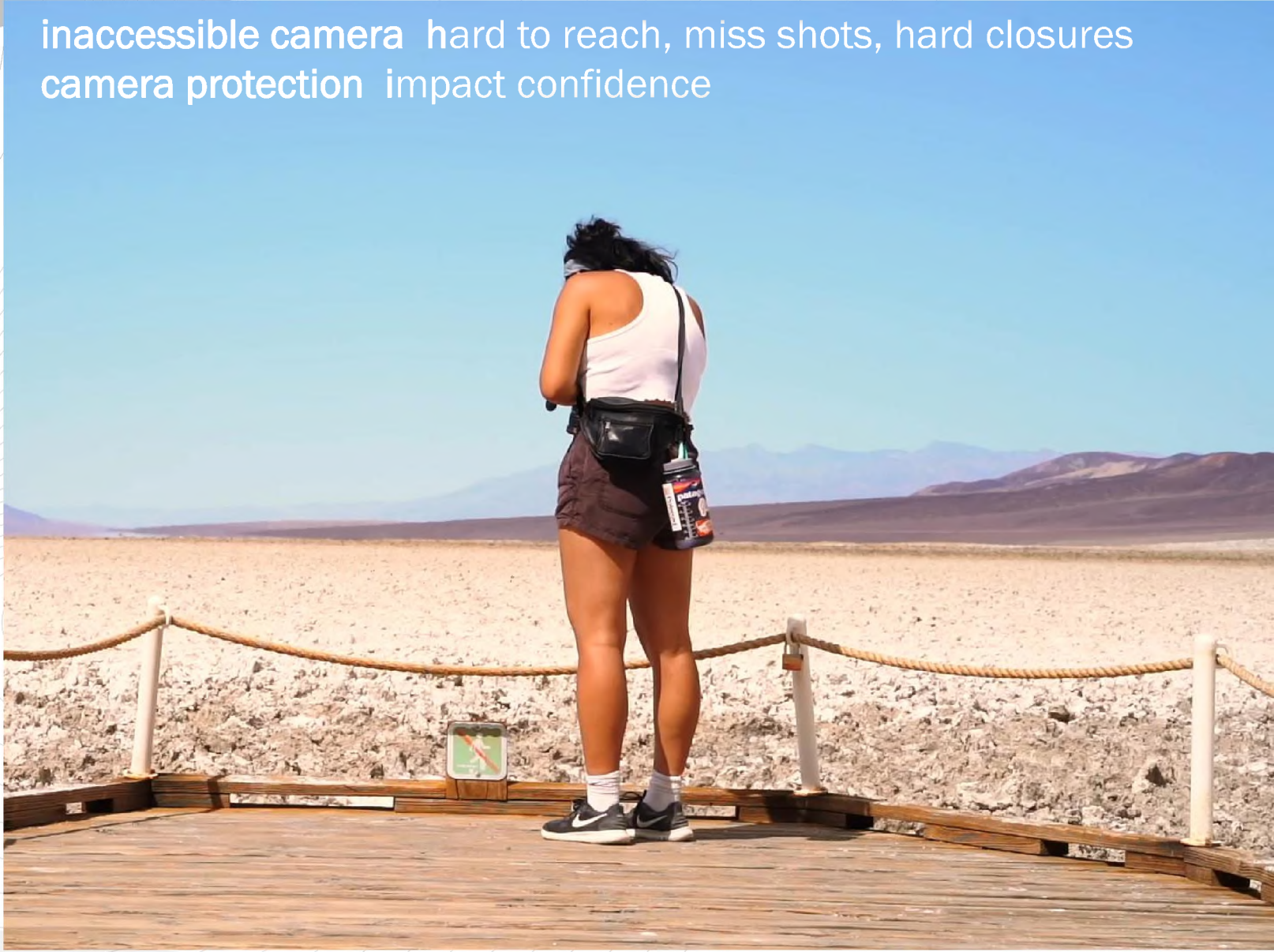
PROBLEMS TO SOLVE



bottle/camera stability
wobbles while moving



inaccessible camera hard to reach, miss shots, hard closures
camera protection impact confidence



PROBLEMS TO SOLVE

Utilitarian form

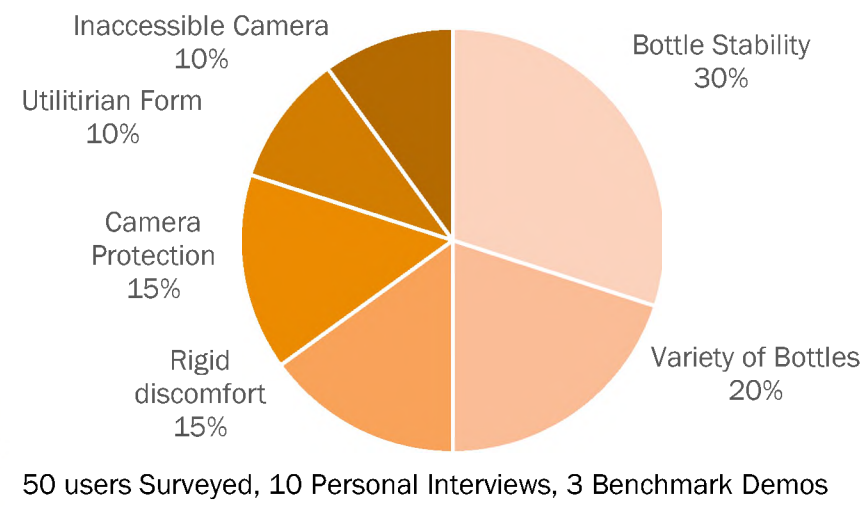
Visible functions, dull colors

Variety of bottles

Larger is tight, smaller moves

Rigid discomfort

Box like shapes, no body ergonomic



GOALS

Performance

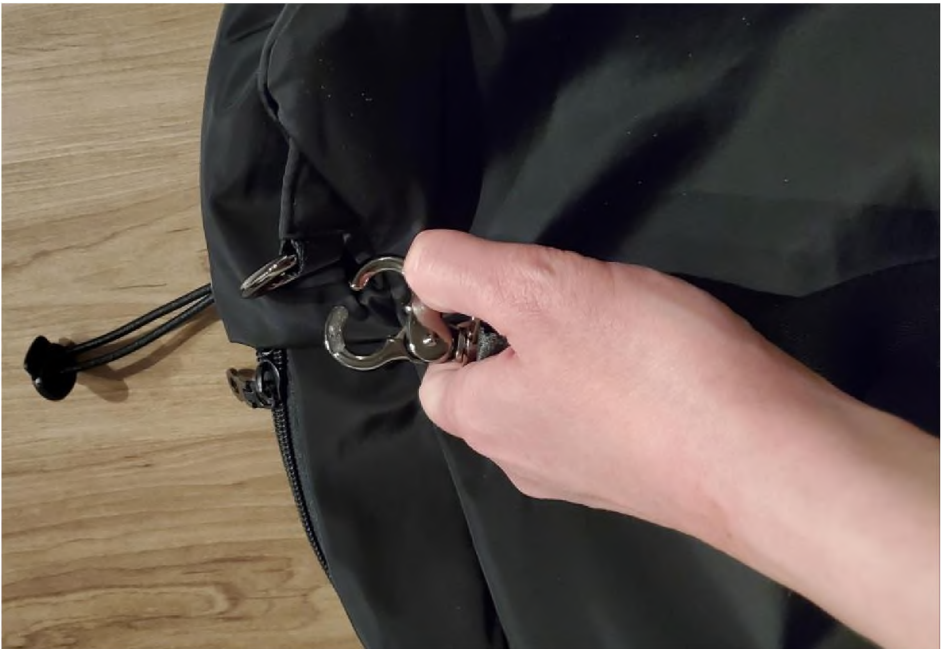
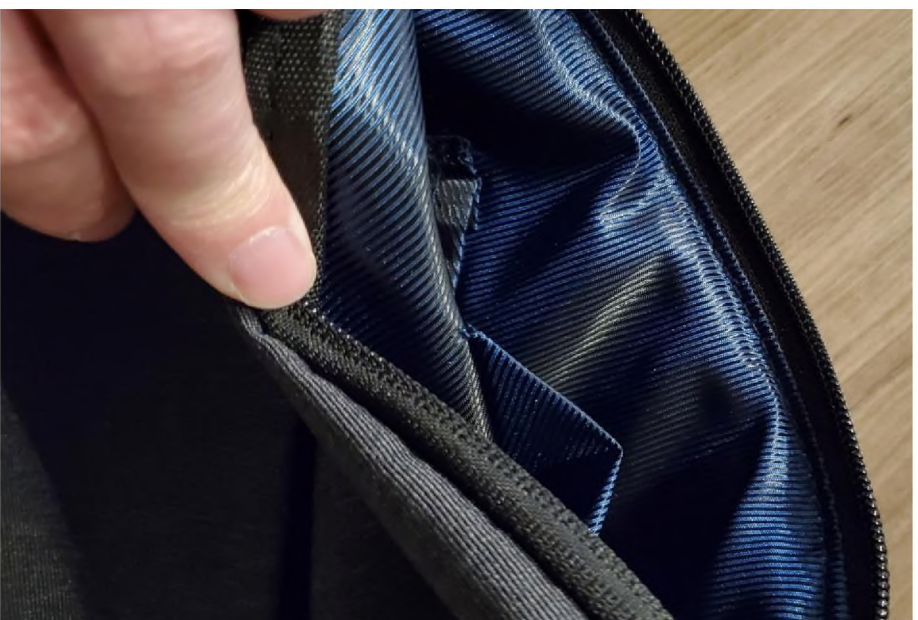
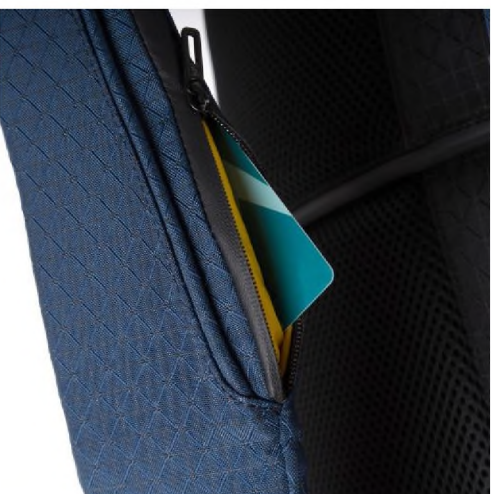
Ease of access/repack
Provide easily accessible storage by considering elbow/wrist movement, while protecting valuable and/or heavy items

Form

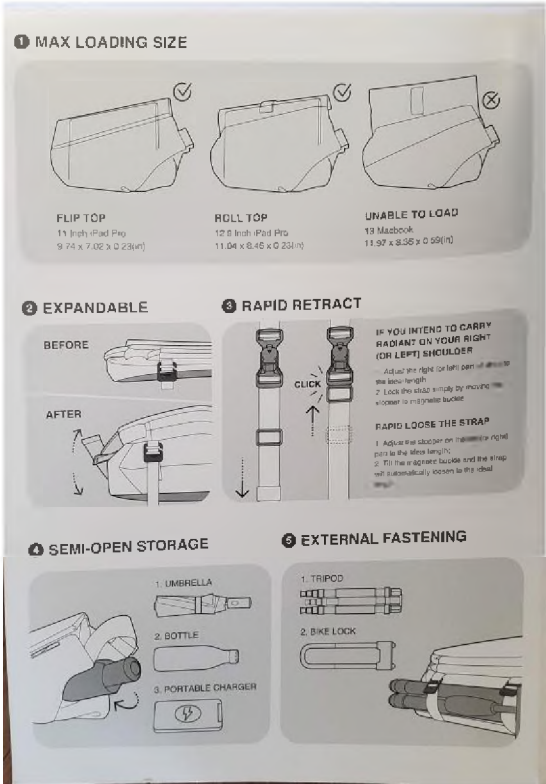
Versatility
Provide universal carry by considering weight distribution and storage placement, while creating a safe space for common items

MARKET



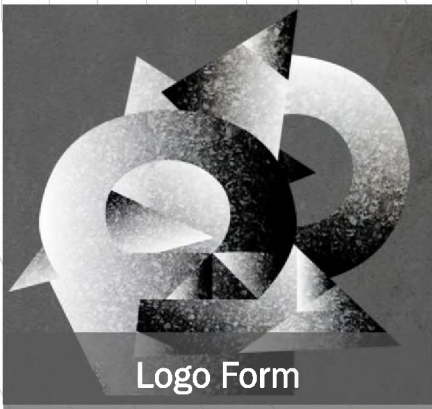


MARKET





Accessible Curvature Form



Logo Form



Compression Adaptive Form



Fluid-in-Motion Ergonomic Layers



Internal Feature



Magnetic Click



Interchangeable Straps



Outer Structure Trim

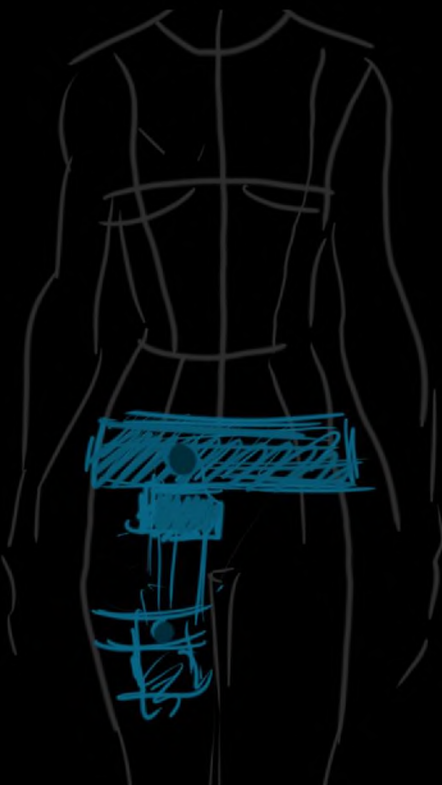
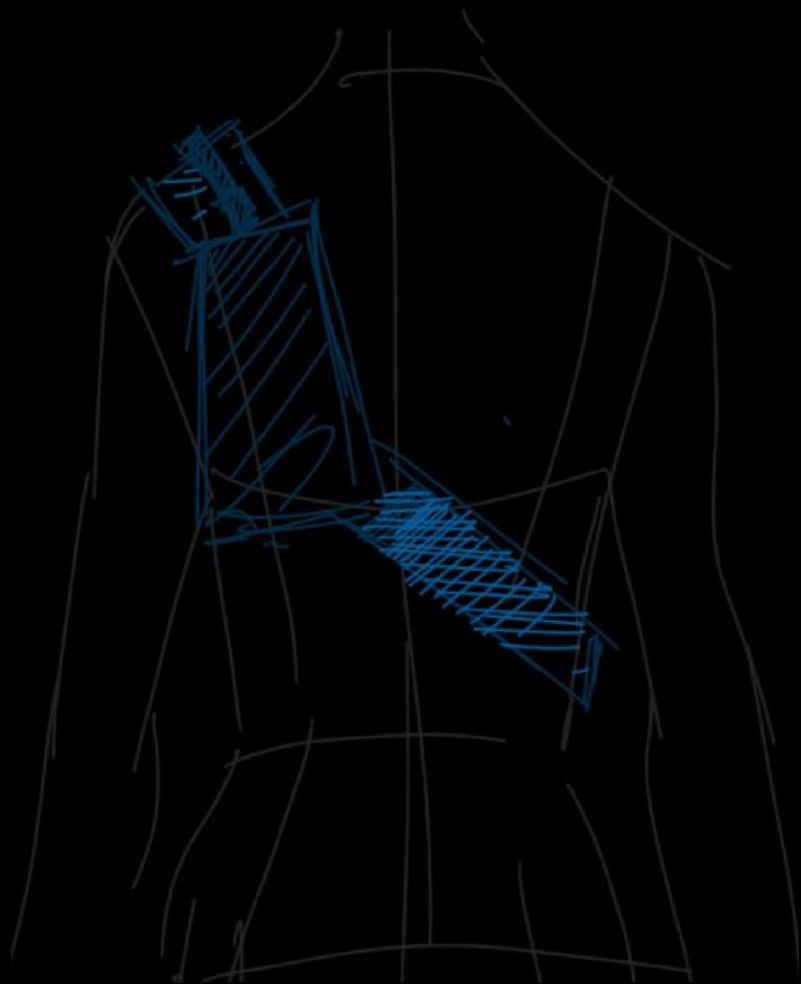
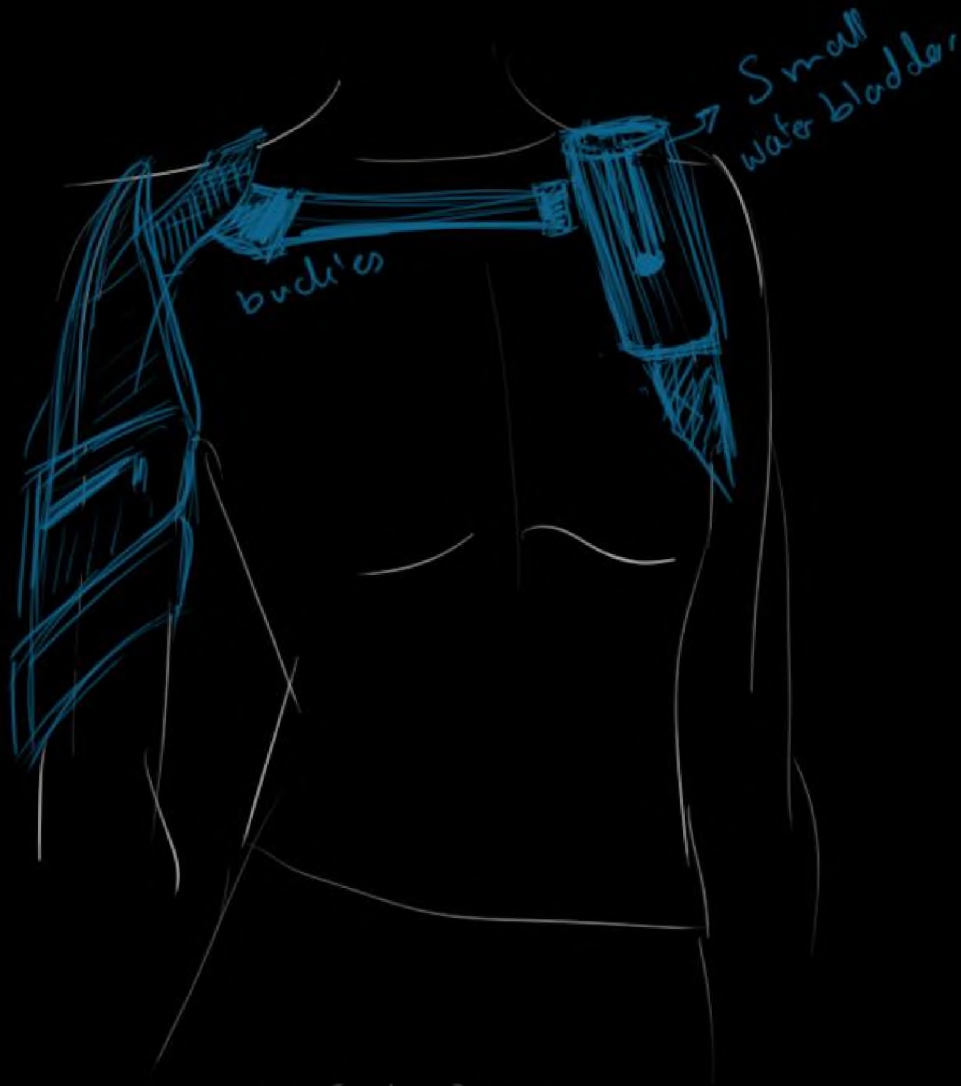
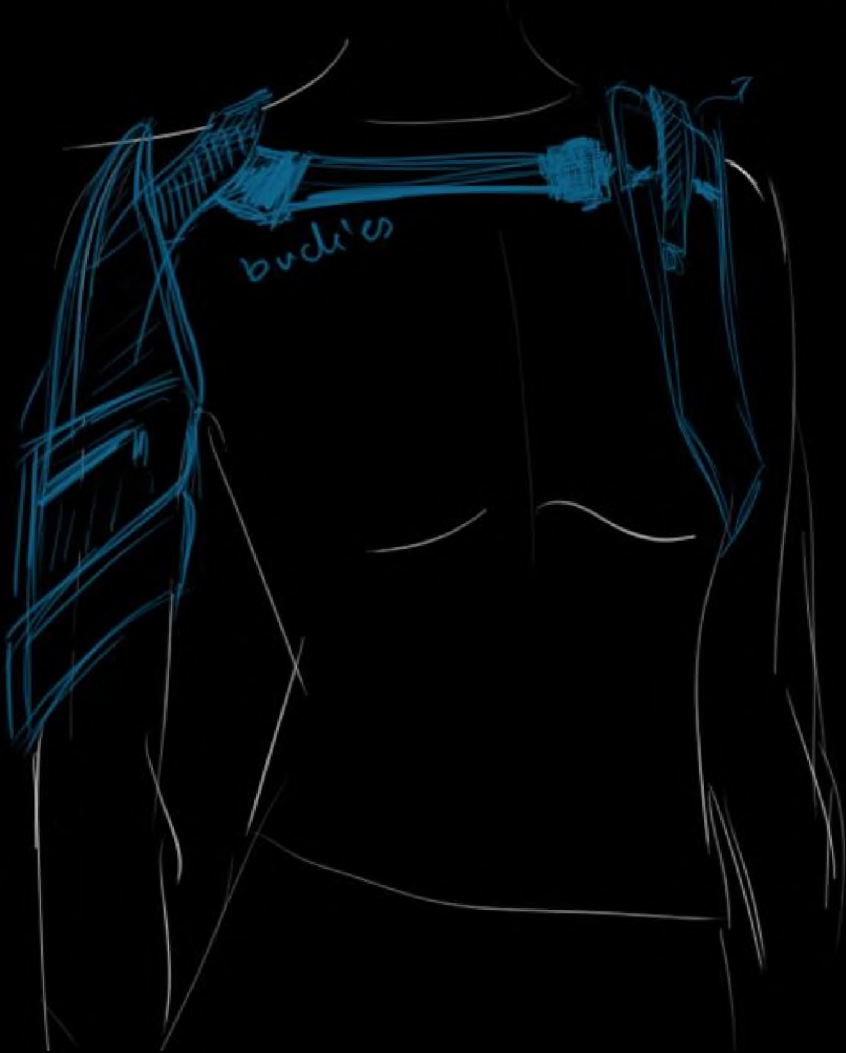


Engraved Reflective

FACE	Vetiver	17-0613 TPX
ACCENT	Vintage Khaki	16-0205 TPX
INTERIOR	Frozen Dew	13-0513 TPX
FACE	Carbon Black	19-4012 TPX
ACCENT	Ochre Yellow	16-1148 TPX
INTERIOR	Ochre	14-1036 TPX

IDEATION

Water bottle path
extending to the
front



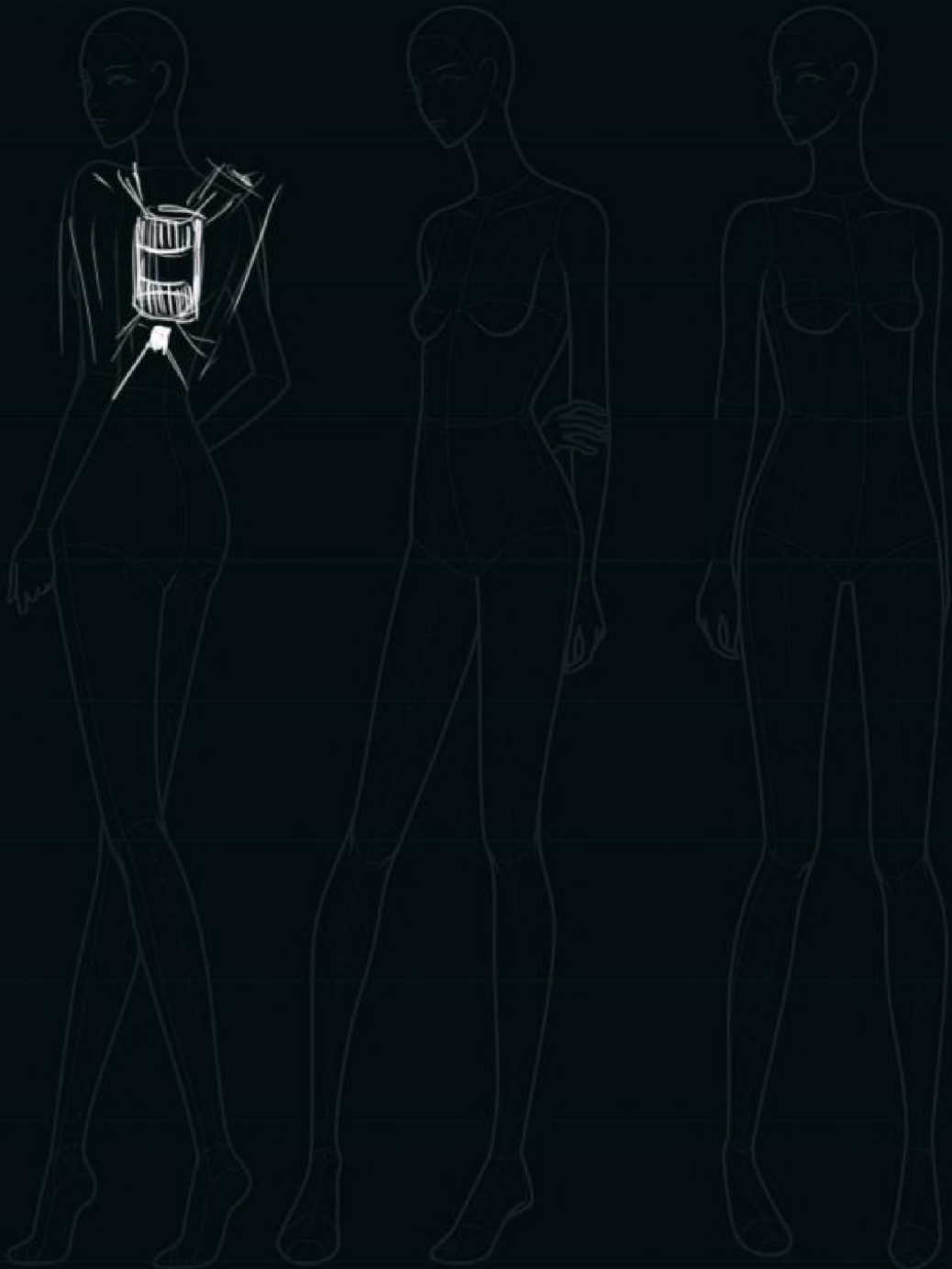
IDEATION

Quick Release

Straps



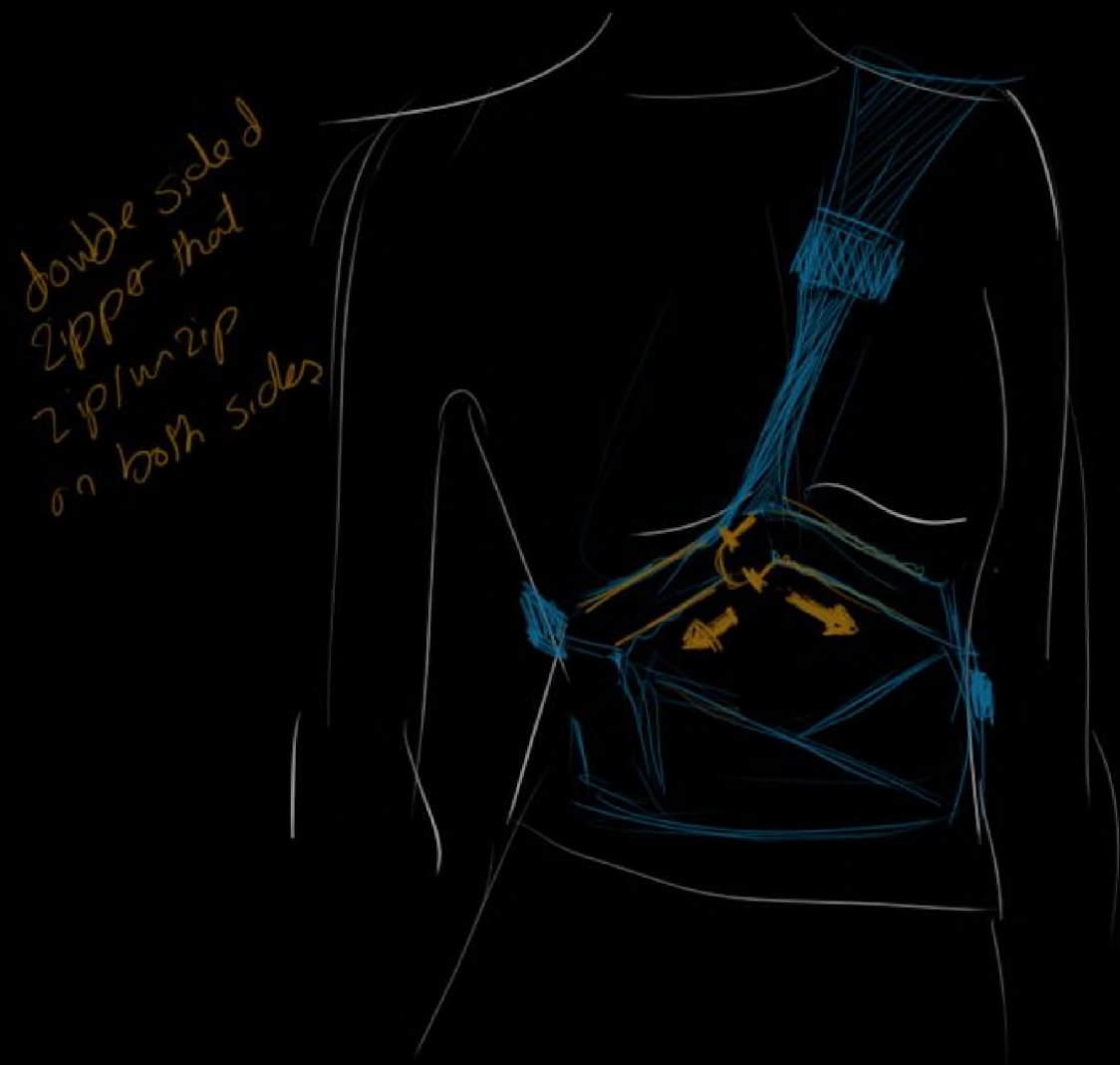
9 head



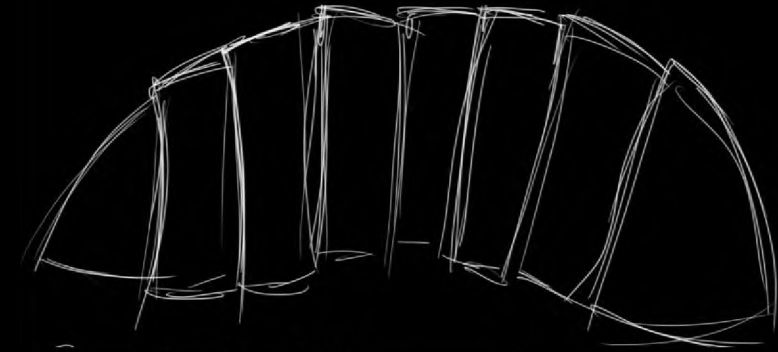
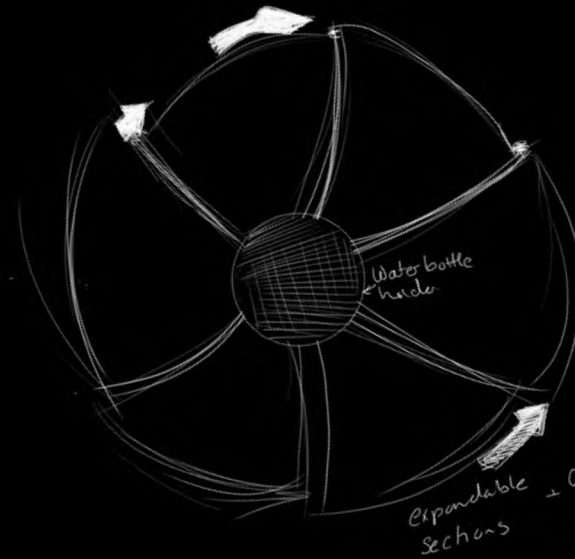
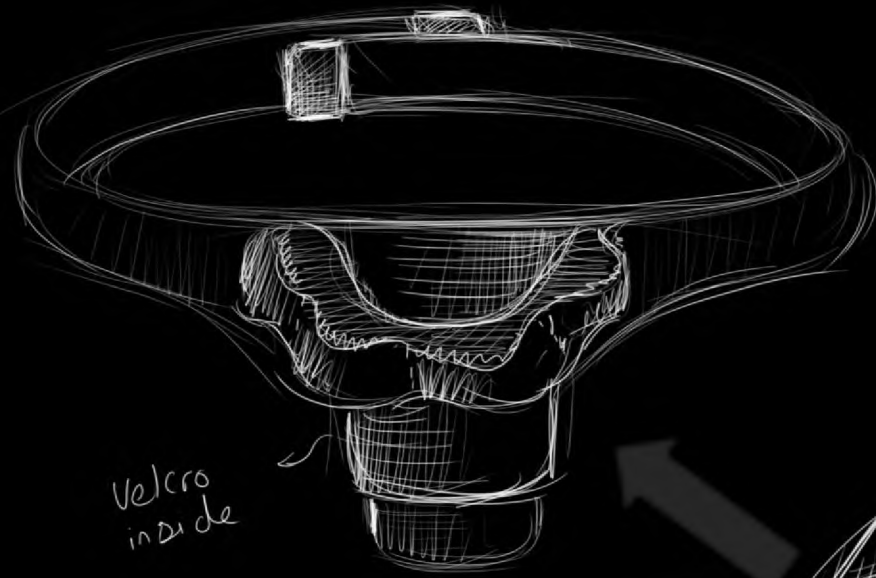
9 head



IDEATION

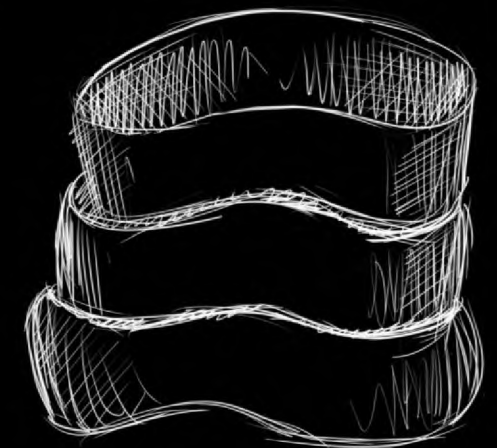
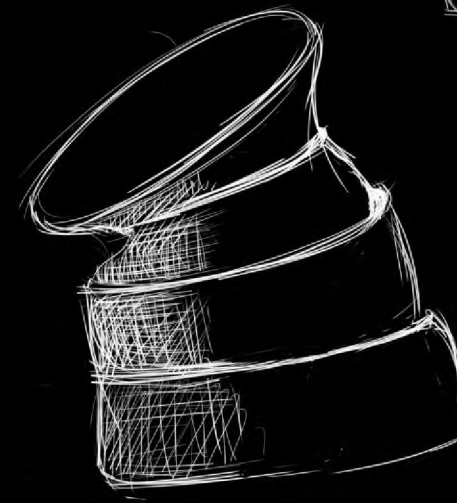
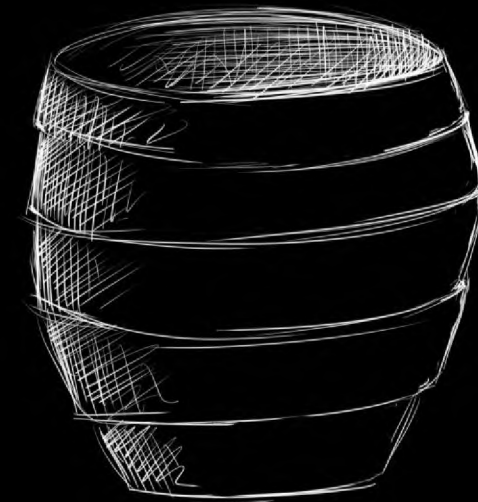
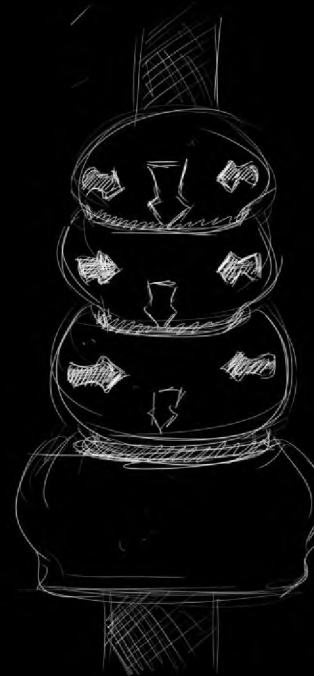
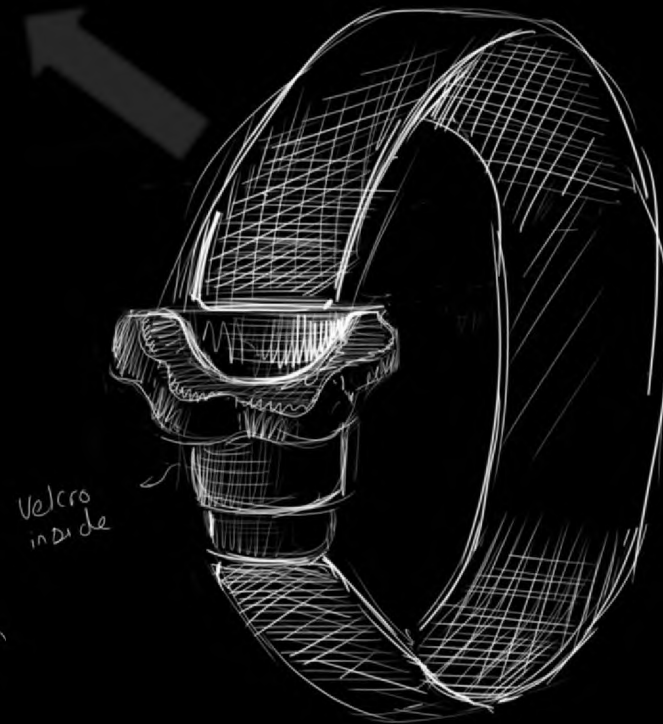


IDEATION



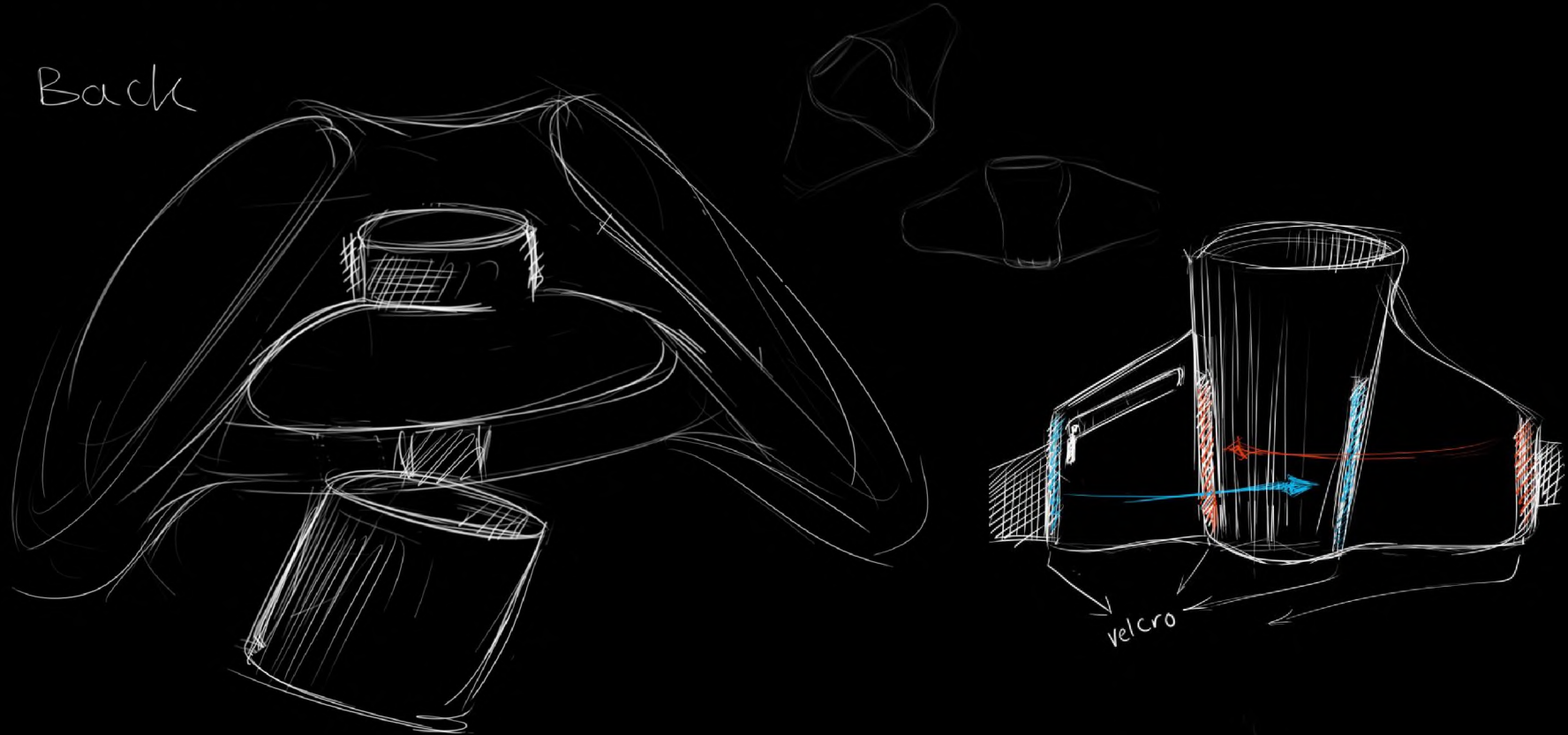
Roly Poly

gets its popular name for its ability to roll back into a ball when something disturbs it. They have an exoskeleton with plates. They may not be able to bite or sting, but many are able to roll up into a ball for protection. But when they are not rolled up, they can be as long as 0.71 inches (18 millimeters).



IDEATION

Back



spotted-winged

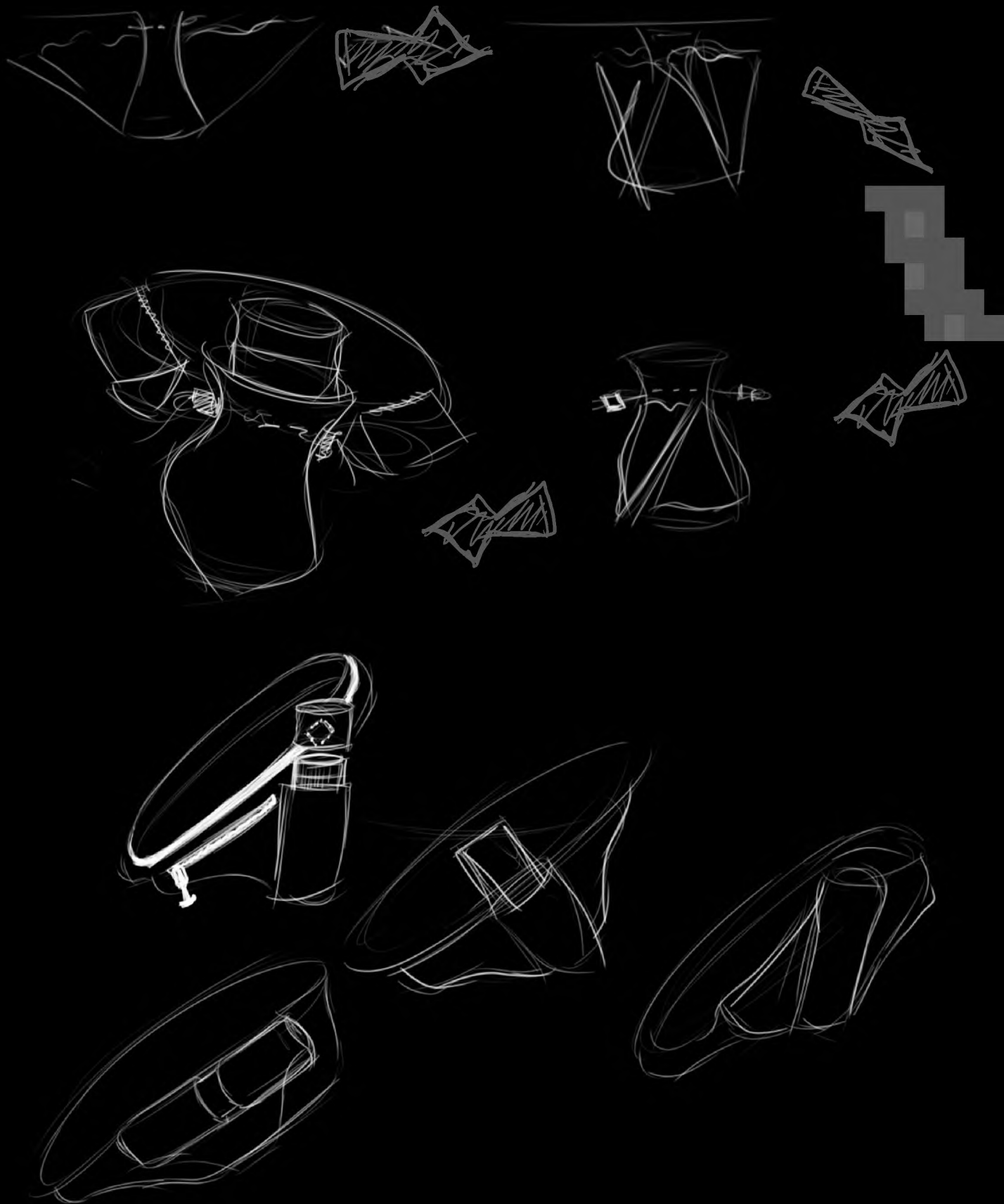
Fruit Bat

A megabat, weighs only 14.2 g (0.50 oz).^[34] The fruit bat spends much of its time hanging **upside down in trees or caves with other members of the same species**. They are aptly named for their habit of feasting exclusively on fruits and plant parts.

double sided zipper that zip/unzip on both sides

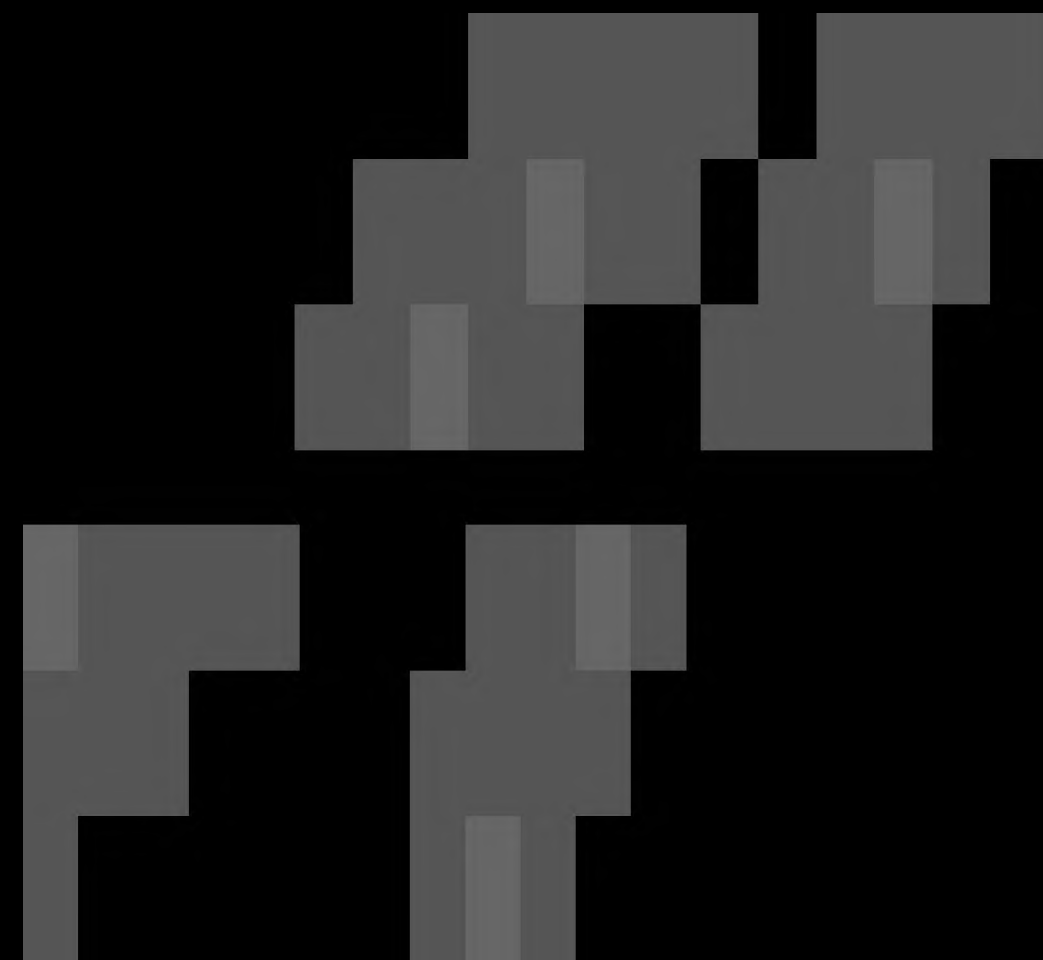


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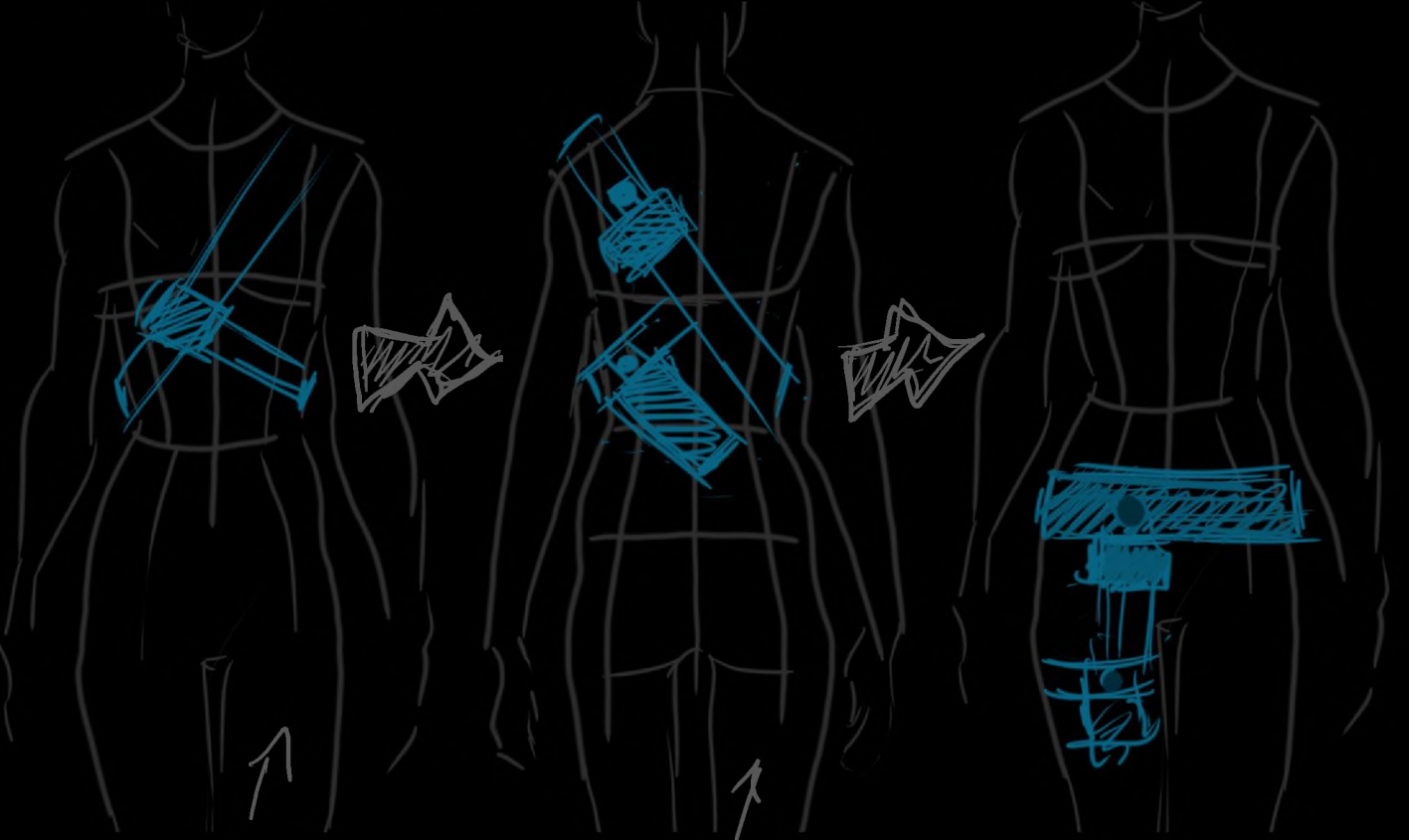


Spotted-winged Fruit Bat

A megabat, weighs only 14.2 g (0.50 oz). The fruit bat spends much of its time hanging **upside down in trees or caves with other members of the same species**. They are aptly named for their habit of feasting exclusively on fruits and plant parts.



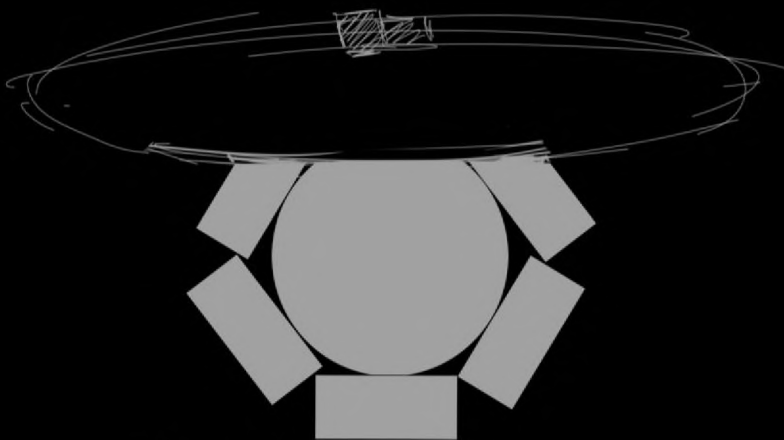
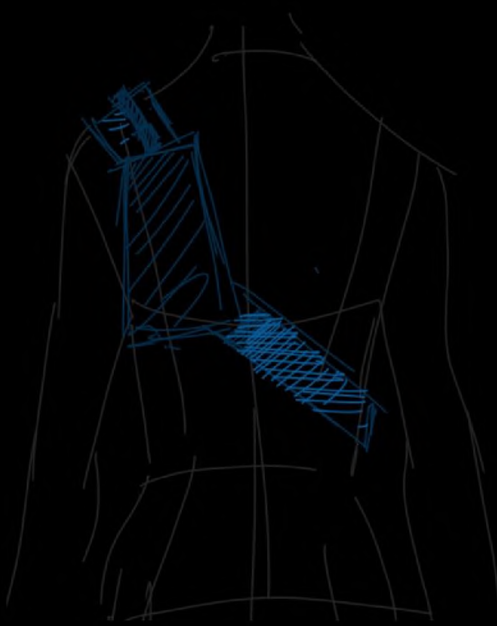
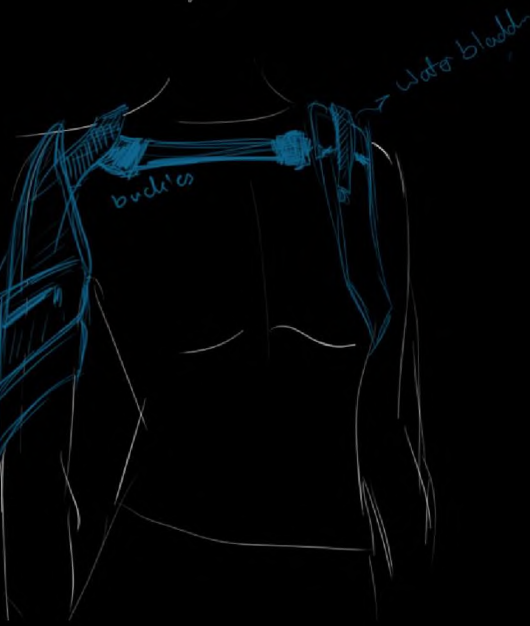
IDEATION



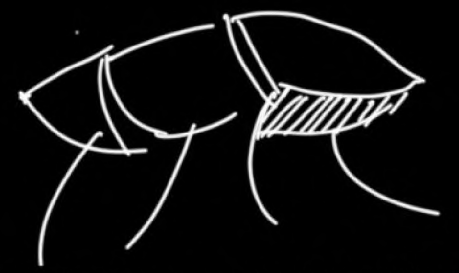
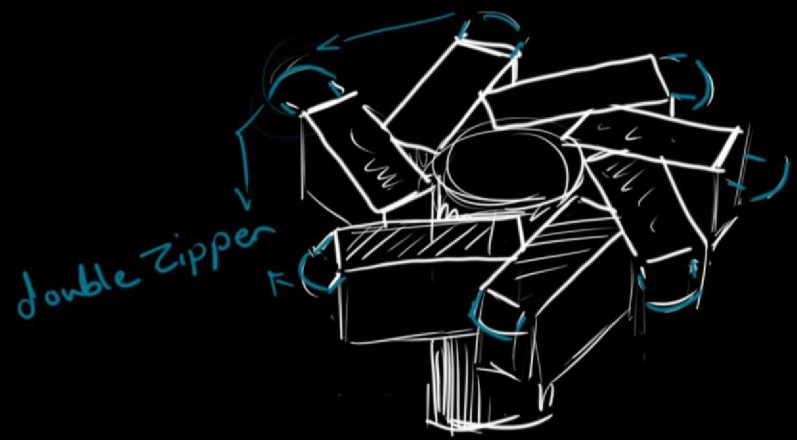
Crossbody
Front

Crossbody
Back

Hip pack



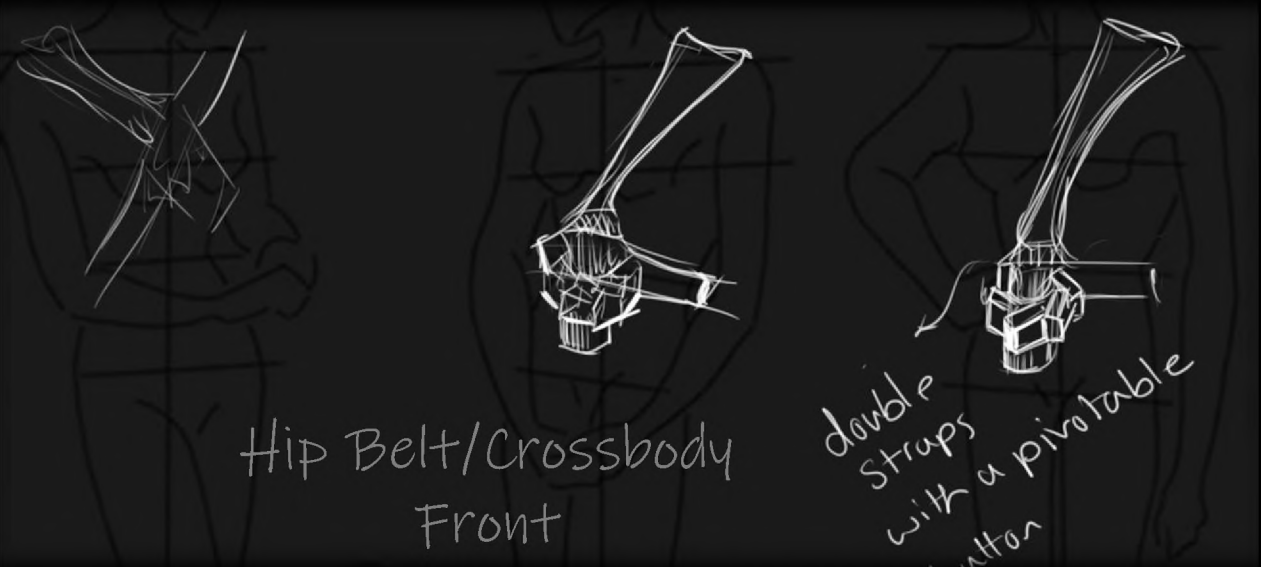
Top View



Dung Beetles

They save the US cattle industry around \$359 million annually by supporting the processing and removal of livestock waste.

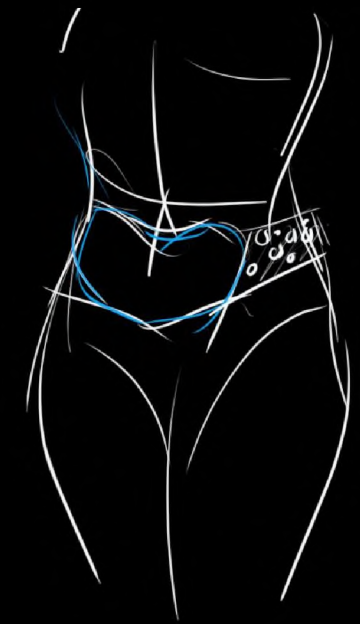
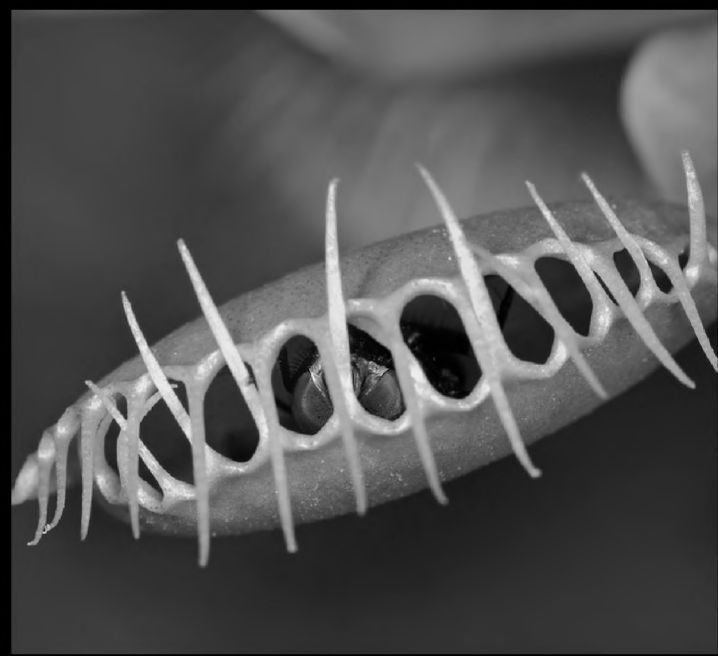
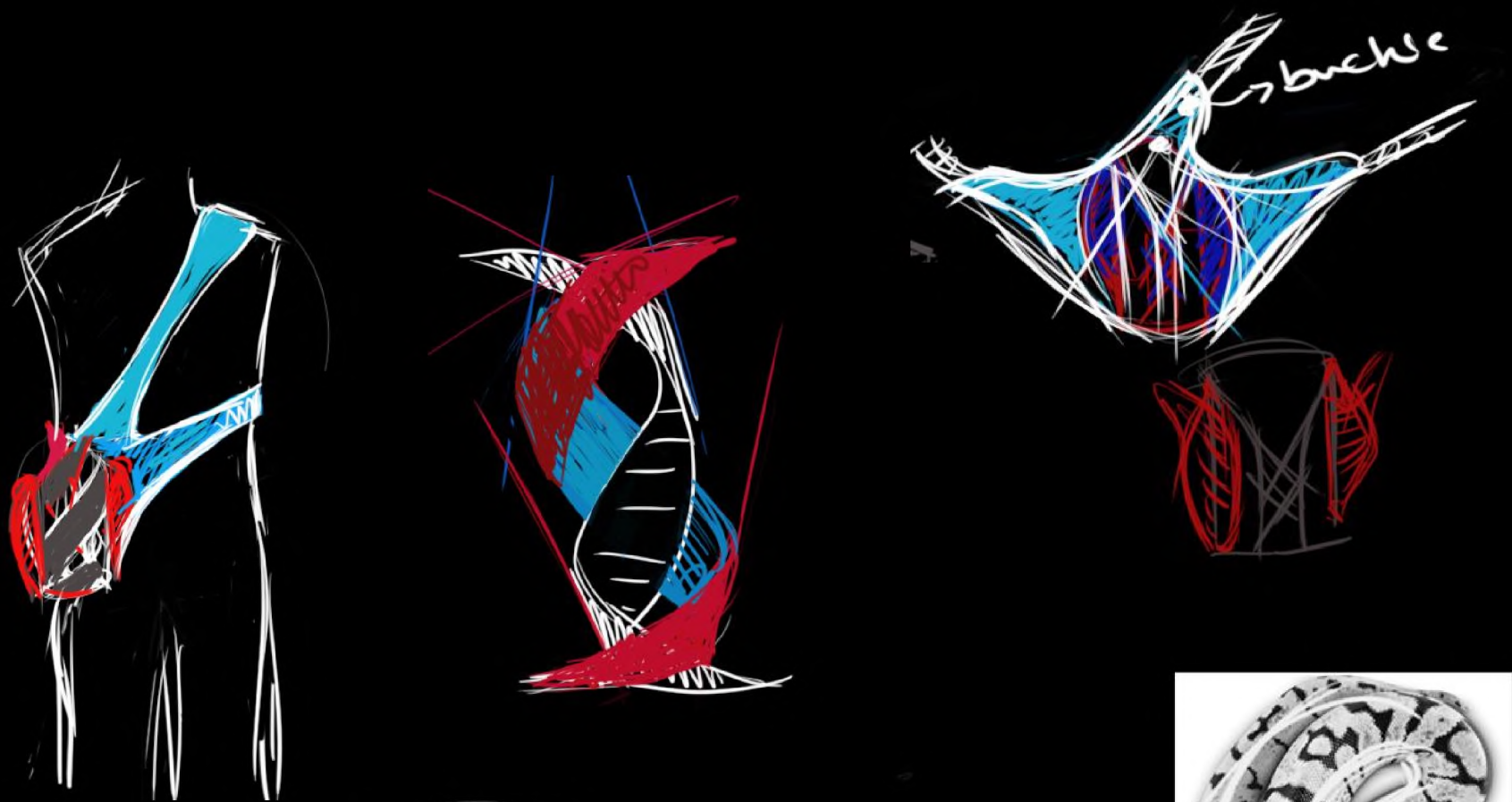
Hip belt
Front



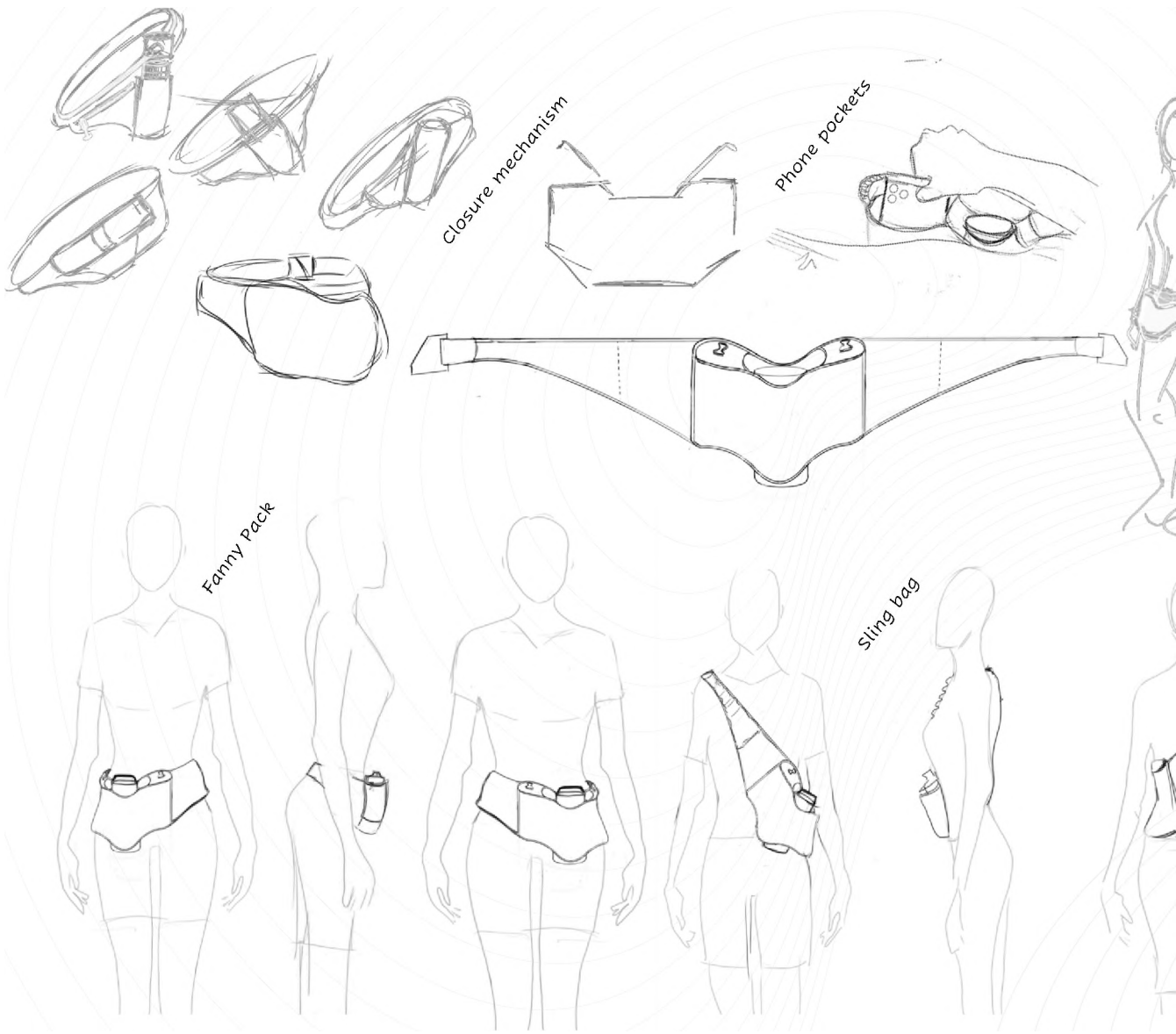
Hip Belt/Crossbody
Front

double
straps
with a pivotable
button

IDEATION

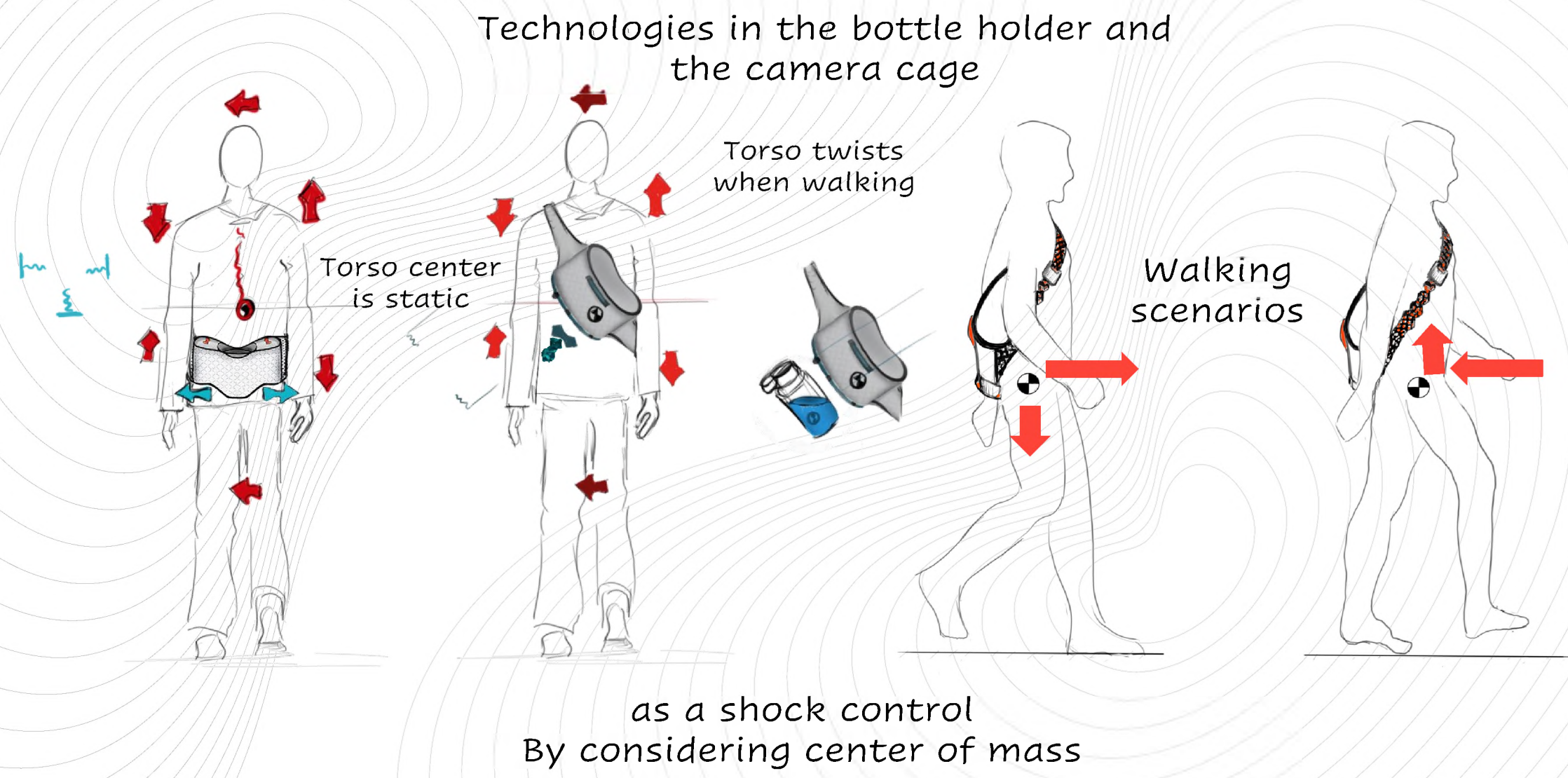


IDEATION

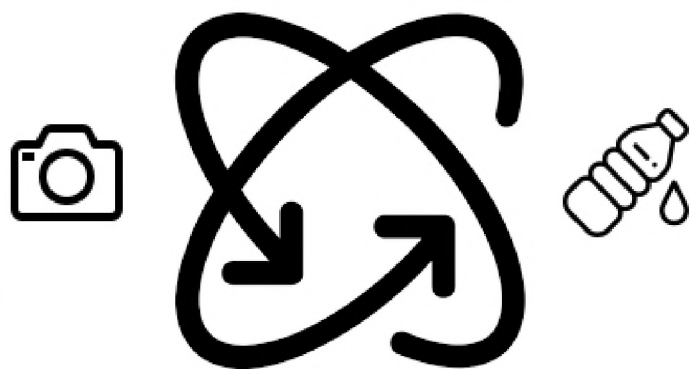




TECHNOLOGIES



INITIAL TECHNOLOGIES



	<i>paxWRAP</i>	<i>paxLASTIC</i>	<i>paxBALANCE</i>
Inspire	Constricting ball python snake	Opening Venus fly trap	Swaying bat
Tech	Shock-absorbing channel wrapping	Elastic X-cross attached to board storing kinetic energy	Self-adjusting limited movement mounting internal point
Perform (+10%) Access + Repack	Absorbs horizontal fluid related shocks while holding position	Gives spring push assistance during removal of camera or water bottle	Mostly maintains preferred positioning reducing jarring

TECHNOLOGIES

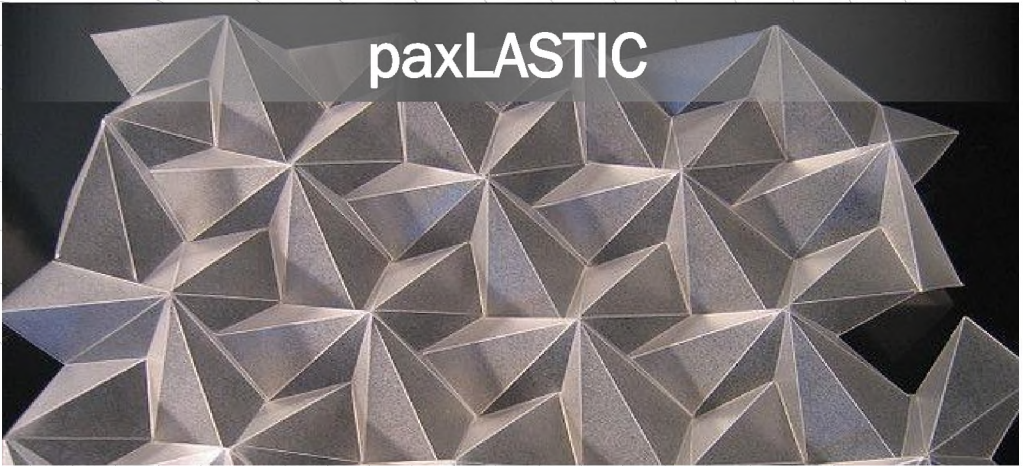


Mechanisms

channel wrapping bottle holder
compressible Straps

Benefits

comfort
impact absorbing



Mechanisms

spring push assist while
repacking

Benefits

impact absorption
while hiking



Mechanisms

self adjusting movement mounting
internal

Benefits

stability & balance
vertical position & reduce jarring

PROCESS

MIND MAP

Items to pack

Hiking

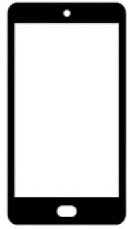
Cellphone

Water Bottle

First Aid Kit

Snacks

Key & Cards



Camera

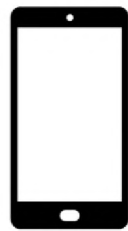
DSLR-Mirrorless

Cellphone

Water Bottle

Add. battery

Snacks



Dimension

Water bottles

12oz

Hydroflask

24oz

32 oz

Camera

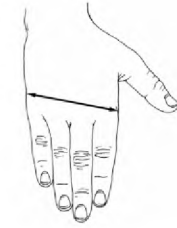
Not being larger than benchmark products

Hiking bag

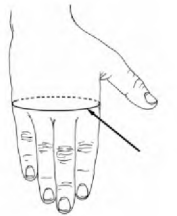
Camera bag

Hand circumference and avg finger dimension for smaller pockets in the hiking bag

			Hand Breadth		
FEMALE N = 1288			MALE N = 1774		
Centimeters	Mean Std Dev Maximum Minimum	Inches	Centimeters	Mean Std Dev Maximum Minimum	Inches
7.94 .38 9.80 6.60	3.13 .15 3.86 2.60		9.04 .42 10.60 7.70	3.56 .17 4.17 3.03	
Percentiles			Percentiles		
7.09 7.19 7.25 7.34 7.47 7.56 8.03 7.74 7.79 7.84 7.89 7.93 7.98 8.03 8.08 8.13 8.18 8.25 8.32 8.42 8.56 8.66 8.74 8.86	1 st 2 nd 3 rd 4 th 5 th 10 th 15 th 20 th 25 th 30 th 35 th 40 th 45 th 50 th 55 th 60 th 65 th 70 th 75 th 80 th 85 th 90 th 95 th 99 th	2.79 2.83 2.86 2.89 2.94 2.98 3.00 3.05 3.07 3.09 3.11 3.12 3.14 3.16 3.18 3.20 3.22 3.25 3.28 3.34 3.41 3.44 3.49	8.07 8.19 8.27 8.36 8.51 8.61 8.69 8.75 8.82 8.87 8.93 8.98 9.03 9.09 9.14 9.20 9.26 9.32 9.40 9.48 9.59 9.66 9.82 10.04	3.18 3.22 3.25 3.29 3.35 3.39 3.42 3.45 3.47 3.49 3.51 3.54 3.56 3.58 3.60 3.62 3.64 3.67 3.70 3.73 3.78 3.84 3.88 3.91 3.95	



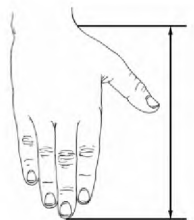
			Hand Circumference		
FEMALE N = 2208			MALE N = 1774		
Centimeters	Mean Std Dev Maximum Minimum	Inches	Centimeters	Mean Std Dev Maximum Minimum	Inches
18.62 .85 23.00 15.80	7.33 .33 9.06 6.22		21.36 .97 24.70 18.20	8.42 .38 9.72 7.17	
Percentiles			Percentiles		
16.73 16.93 17.07 17.25 17.55 17.75 17.91 18.04 18.17 18.28 18.39 18.50 18.60 18.70 18.81 18.92 19.04 19.16 19.26 19.36 19.47 19.69 20.03 20.25 20.43 20.72	1 st 2 nd 3 rd 4 th 5 th 10 th 15 th 20 th 25 th 30 th 35 th 40 th 45 th 50 th 55 th 60 th 65 th 70 th 75 th 80 th 85 th 90 th 95 th 99 th	6.59 6.67 6.72 6.79 6.91 6.99 7.05 7.10 7.15 7.20 7.24 7.28 7.32 7.36 7.41 7.45 7.49 7.54 7.58 7.62 7.66 7.75 7.88 7.97 8.04 8.16	19.16 19.45 19.62 19.85 20.18 20.40 20.57 20.72 20.86 20.98 21.11 21.23 21.34 21.46 21.59 21.72 21.86 22.01 22.18 22.38 22.64 23.03 23.28 23.46 23.74	7.54 7.66 7.72 7.81 7.94 8.03 8.10 8.16 8.21 8.26 8.31 8.36 8.40 8.45 8.50 8.55 8.61 8.67 8.73 8.81 8.90 9.02 9.17 9.24 9.35	



			Wrist-Center Of Grip Length		
FEMALE N = 2208			MALE N = 1774		
Centimeters	Mean Std Dev Maximum Minimum	Inches	Centimeters	Mean Std Dev Maximum Minimum	Inches
6.63 .49 8.30 5.20	2.61 .19 3.27 2.05		6.97 .49 8.70 5.70	2.75 .19 3.43 2.24	
Percentiles			Percentiles		
5.57 5.69 5.77 5.87 6.02 6.12 6.21 6.28 6.35 6.41 6.47 6.54 6.60 6.66 6.73 6.80 6.87 6.95 7.04 7.15 7.29 7.49 7.62 7.71 7.85	1 st 2 nd 3 rd 4 th 5 th 10 th 15 th 20 th 25 th 30 th 35 th 40 th 45 th 50 th 55 th 60 th 65 th 70 th 75 th 80 th 85 th 90 th 95 th 99 th	2.19 2.24 2.27 2.31 2.37 2.41 2.44 2.47 2.50 2.52 2.55 2.60 2.62 2.65 2.68 2.70 2.74 2.77 2.81 2.87 2.95 3.00 3.04 3.09	5.99 6.08 6.15 6.23 6.37 6.47 6.55 6.62 6.69 6.75 6.82 6.88 6.94 7.01 7.07 7.14 7.22 7.30 7.39 7.50 7.63 7.83 8.04 8.16	2.36 2.40 2.42 2.45 2.51 2.55 2.58 2.61 2.63 2.66 2.68 2.71 2.73 2.76 2.78 2.81 2.84 2.87 2.91 2.95 3.00 3.08 3.13 3.21	



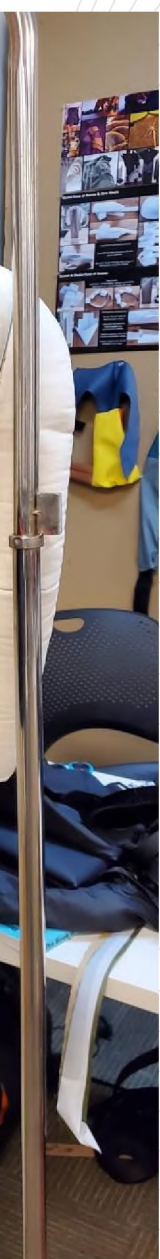
			Hand Length		
FEMALE N = 2208			MALE N = 1774		
Centimeters	Mean Std Dev Maximum Minimum	Inches	Centimeters	Mean Std Dev Maximum Minimum	Inches
18.05 .97 21.50 14.90	7.10 .38 8.46 5.87		19.38 .96 23.19 16.00	7.63 .39 9.17 6.30	
Percentiles			Percentiles		
15.89 16.15 16.29 16.50 16.83 17.06 17.24 17.39 17.53 17.66 17.78 17.90 18.02 18.14 18.26 18.39 18.52 18.67 18.84 19.04 19.29 19.69 19.96 20.16 20.50	1 st 2 nd 3 rd 4 th 5 th 10 th 15 th 20 th 25 th 30 th 35 th 40 th 45 th 50 th 55 th 60 th 65 th 70 th 75 th 80 th 85 th 90 th 95 th 99 th	6.26 6.35 6.41 6.50 6.63 6.72 6.79 6.85 6.90 6.95 7.00 7.05 7.10 7.14 7.19 7.24 7.29 7.35 7.42 7.49 7.55 7.66 7.75 7.94	17.28 17.52 17.67 17.87 18.18 18.39 18.56 18.71 18.85 18.97 19.09 19.21 19.33 19.45 19.57 19.70 19.84 19.99 20.16 20.37 20.64 21.06 21.55 21.99	6.80 6.90 6.96 7.04 7.16 7.24 7.31 7.37 7.42 7.47 7.52 7.56 7.61 7.66 7.70 7.75 7.81 7.87 7.94 8.02 8.13 8.29 8.49 8.62	



PROCESS

PAXESS-PIX



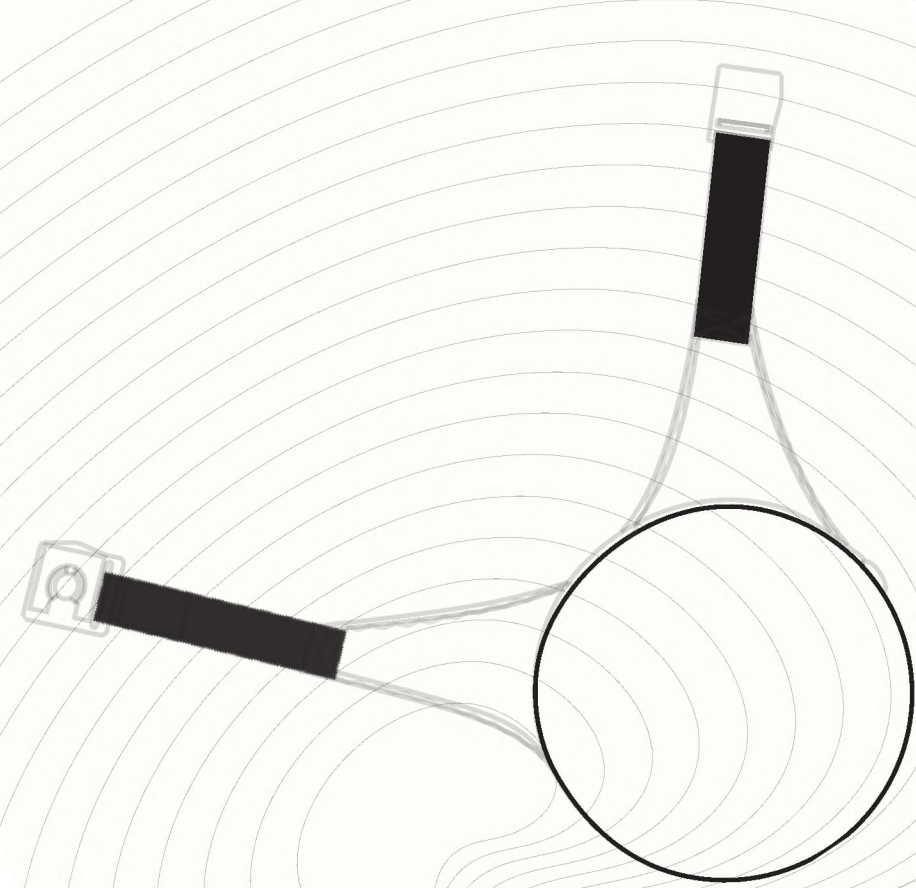


PROCESS PAXESS-PIX



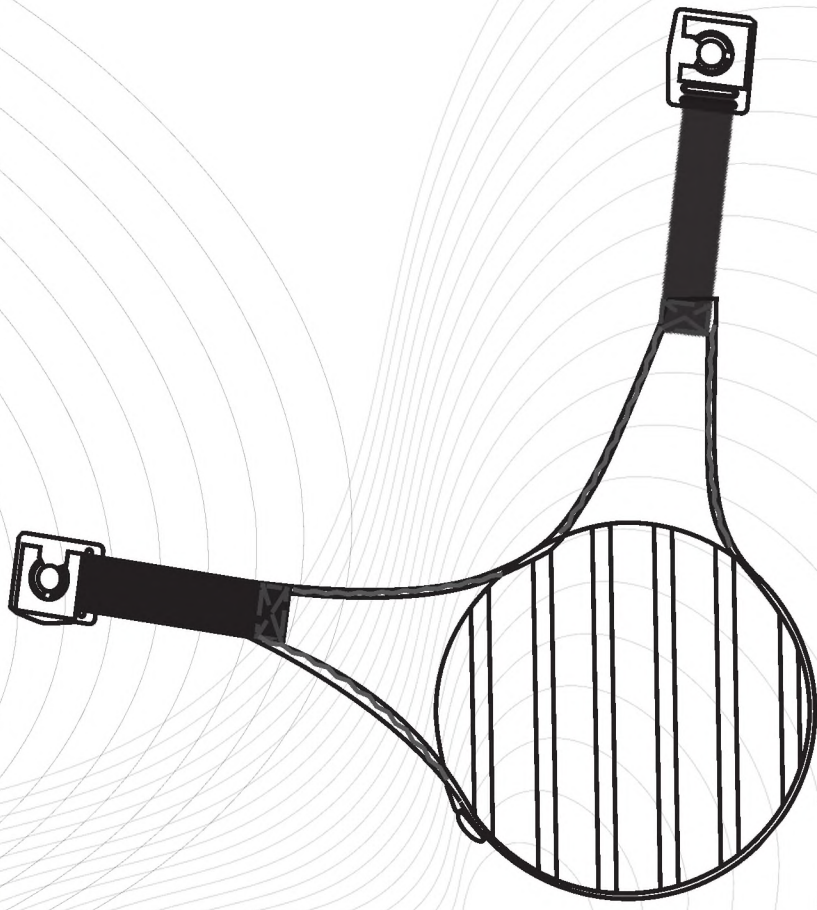
ITERATION 1

PAXESS-PIX



Front view

- 1 Snap magnetic buckle**
Slide magnetic closure mechanism
Provide ease of wear
- 2 Magnetic strips**
Grab and pull to provide ease of access and repack
- 3 body form straps**
Align around body
Provide comfortability
- 4 Split bar v buckle**
Provide safety

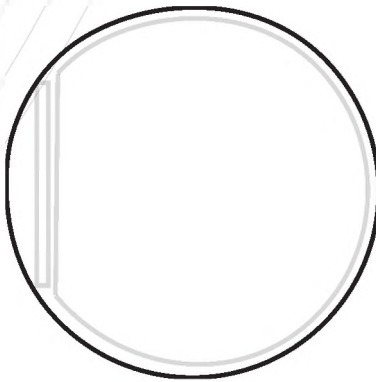


Back view

- 5 Gel & Memory Foam**
Molded camera customizable
Adaptive memory foam with refreshing gel layer all around camera to provide support, comfort and cool
- 6 divider**
Provide space for additional stuff
- 7 Bemis on Foam**
Provide comfortability
- 8 Corrugated Foam core Boards**
All around to provide protection



Side view



Interior

ITERATION 2

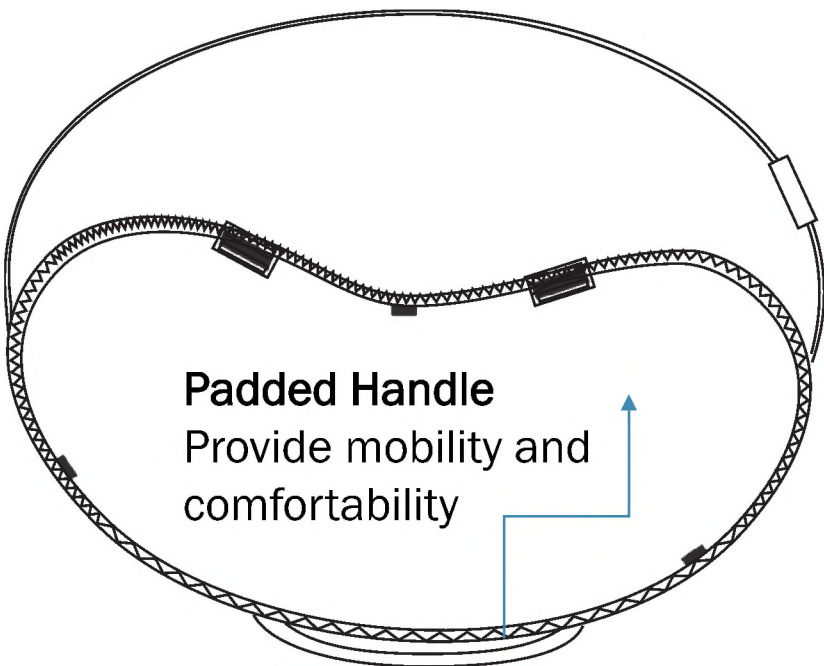
PAXESS-PIX



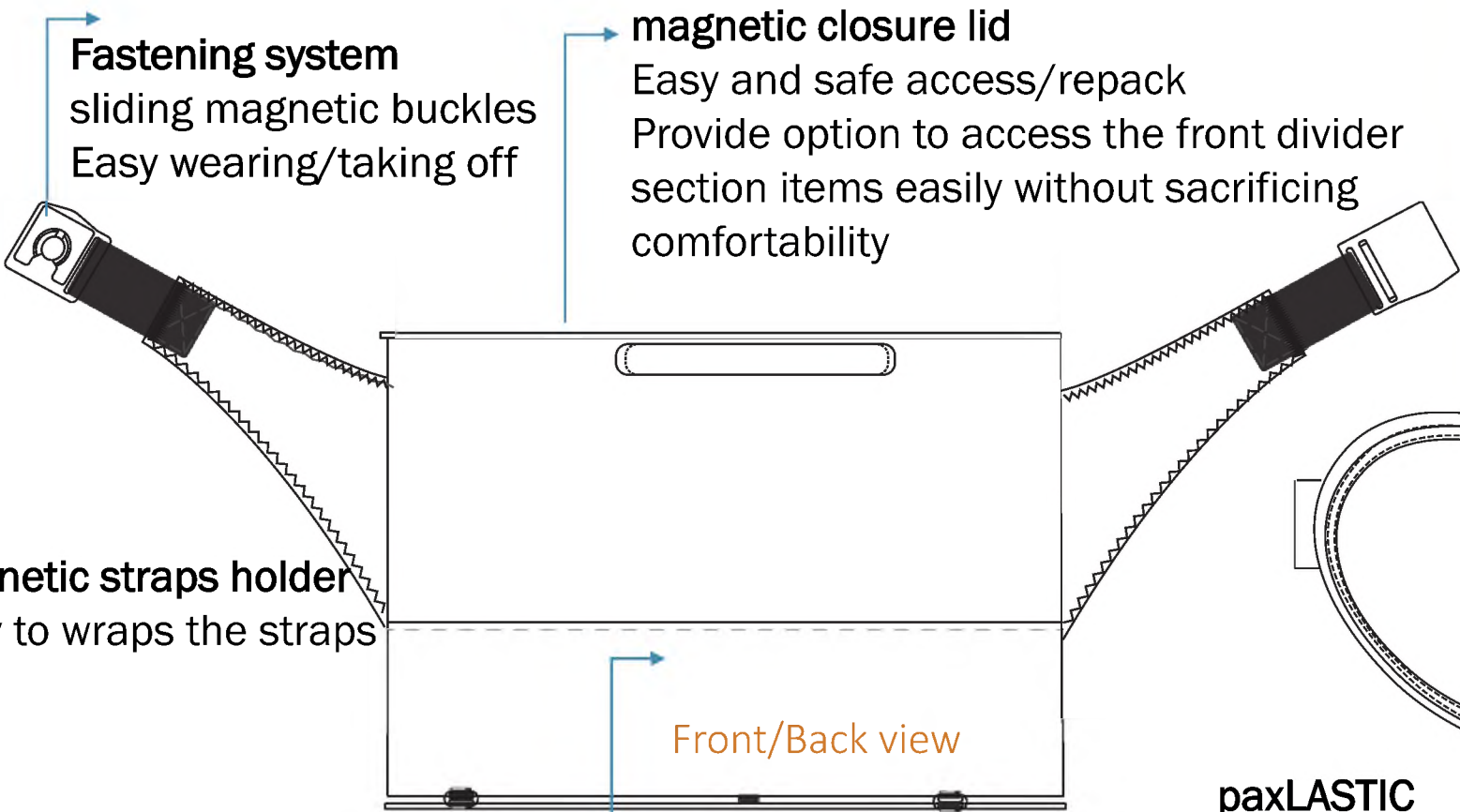
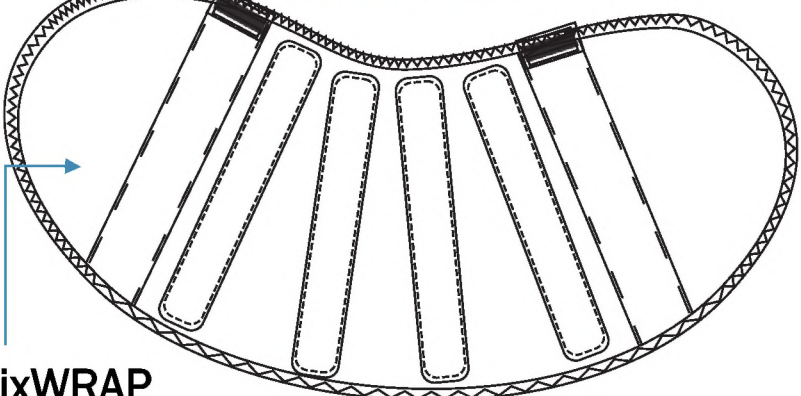
- All around Velcro inner side
- Symmetrical form and straps
- Provide left-handed/right-handed usability

Dimension
7.5"x11.4"x5"

Top View

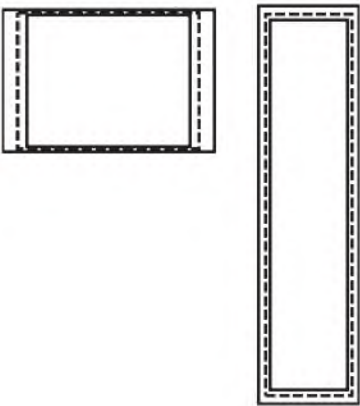


Bottom View



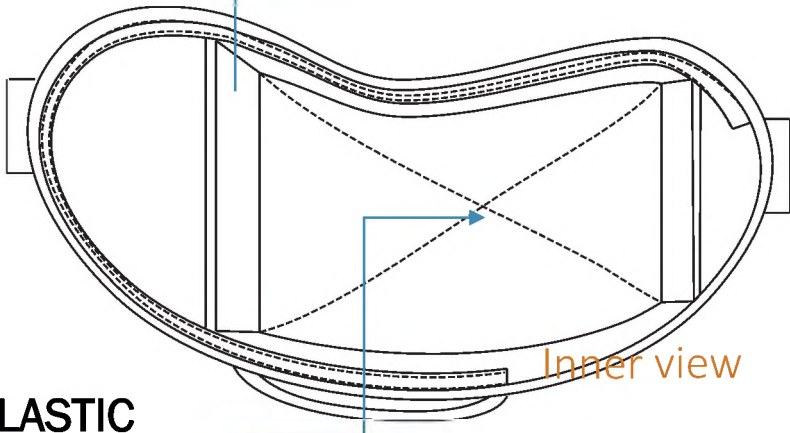
Front and back side access pockets
Provide space to attach waist straps
Provide space to attach hiking bag to the camera bag

Attachable/detachable Velcro pockets
Adjustability, organization, accessibility



2 inner divider
Adjustability, organization, accessibility
To pack phone and other items separately

5-sided cushioning Protection



paxLASTIC
Pushing access and shock absorption under water bottle holder



Embroidery Icon tags
Provide information for each pocket on how to pack

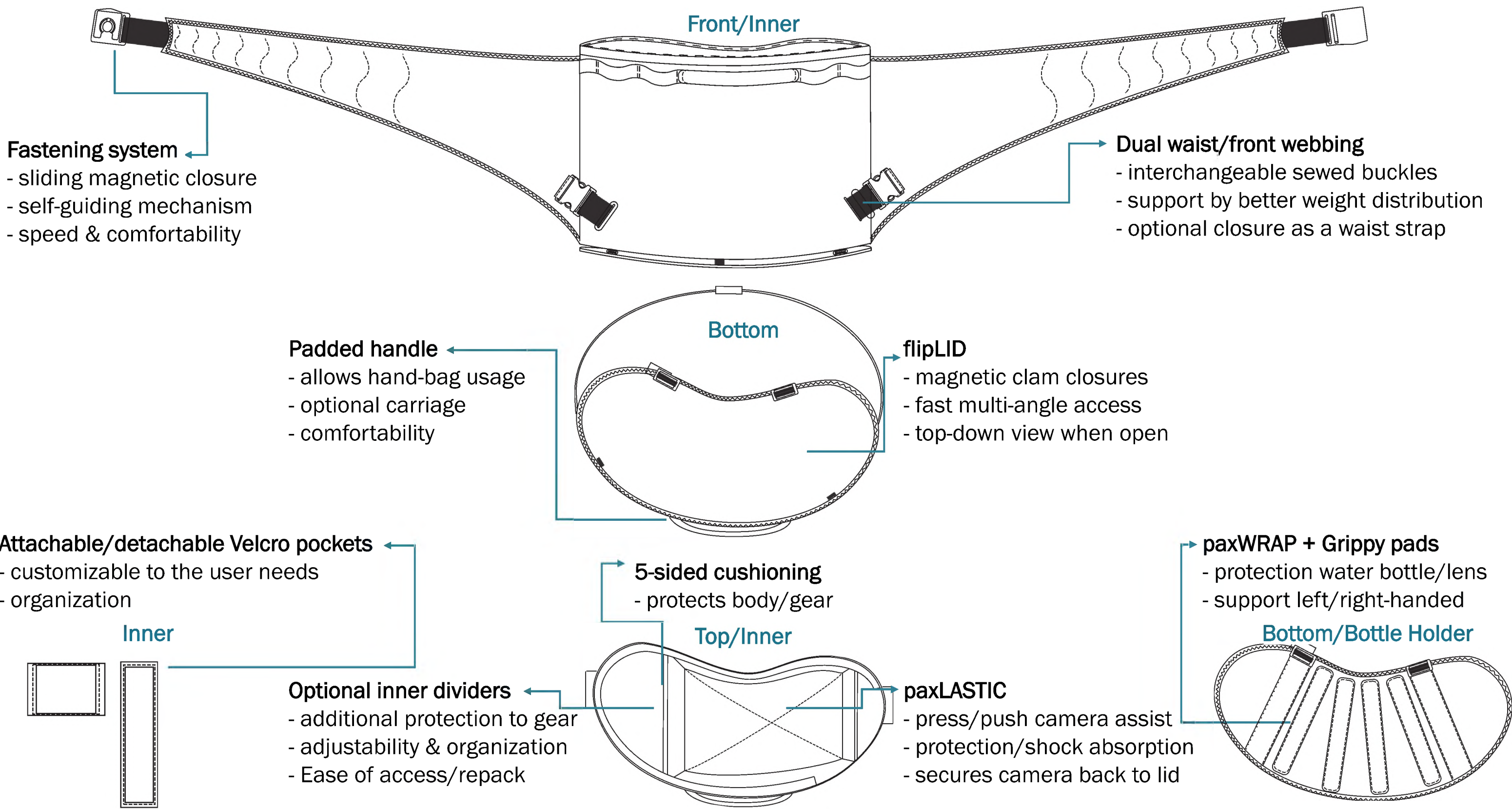
ITERATION 3

PAXESS-PIX

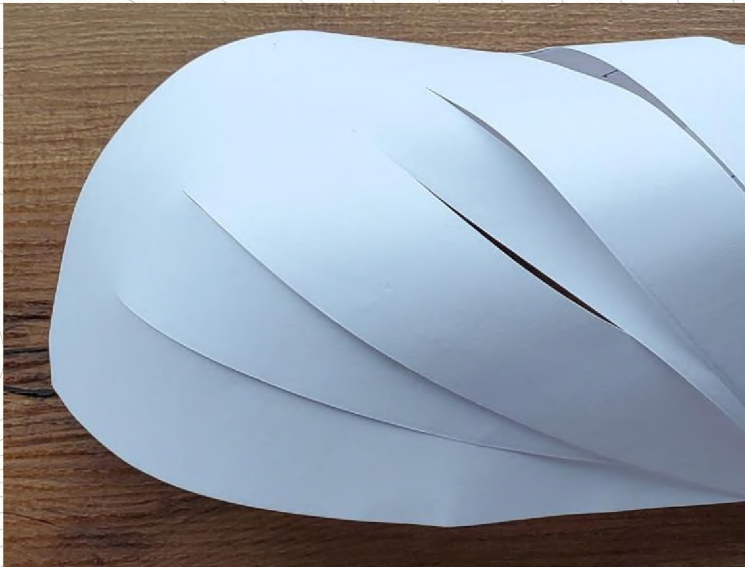
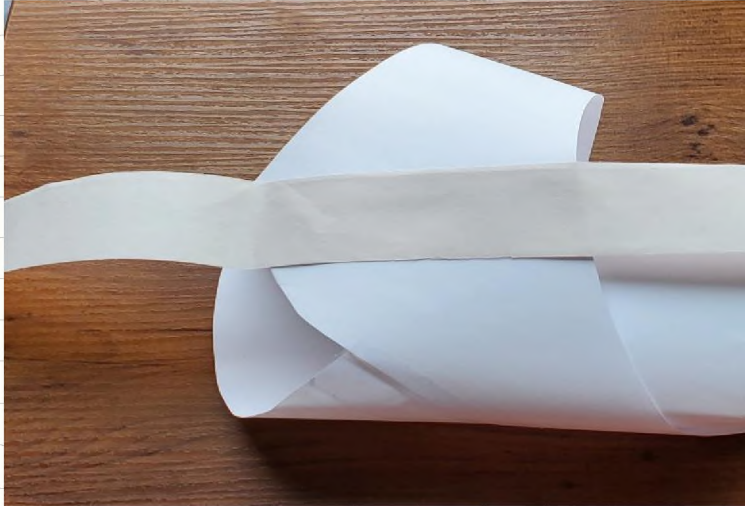
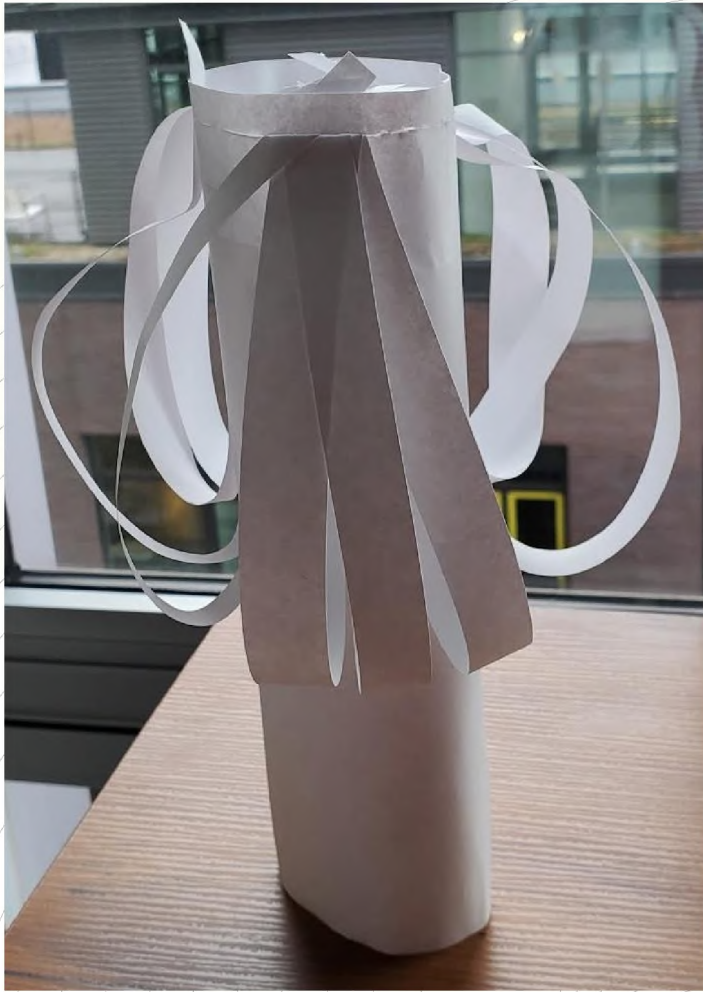


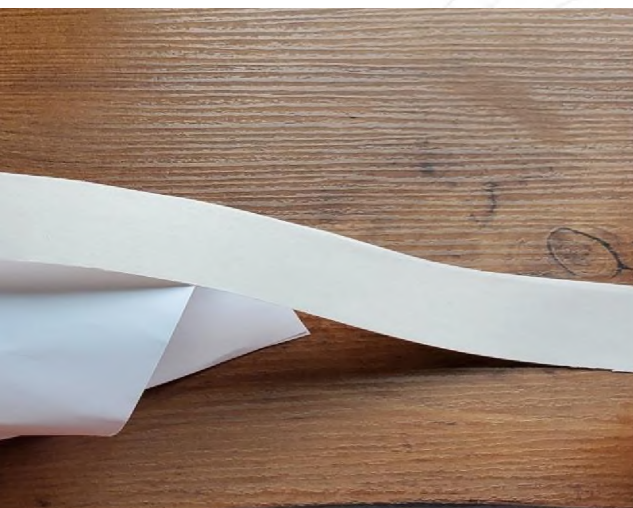
360 inner Velcro with moveable pockets/camera cage
- Symmetrical body-fitting for left-handed/right-handed usability with utility functions hidden

Dimension (without straps)
7.5"x11.5"x5"



PROCESS-PAXESSHIKE







PROCESS-PAXESSHIKE

ITERATION 1

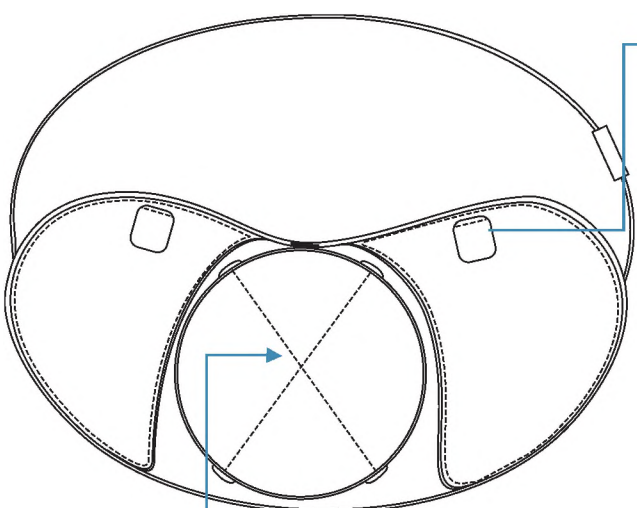
PAXESS-HIKE



Dimension
7.5"x11"x4"

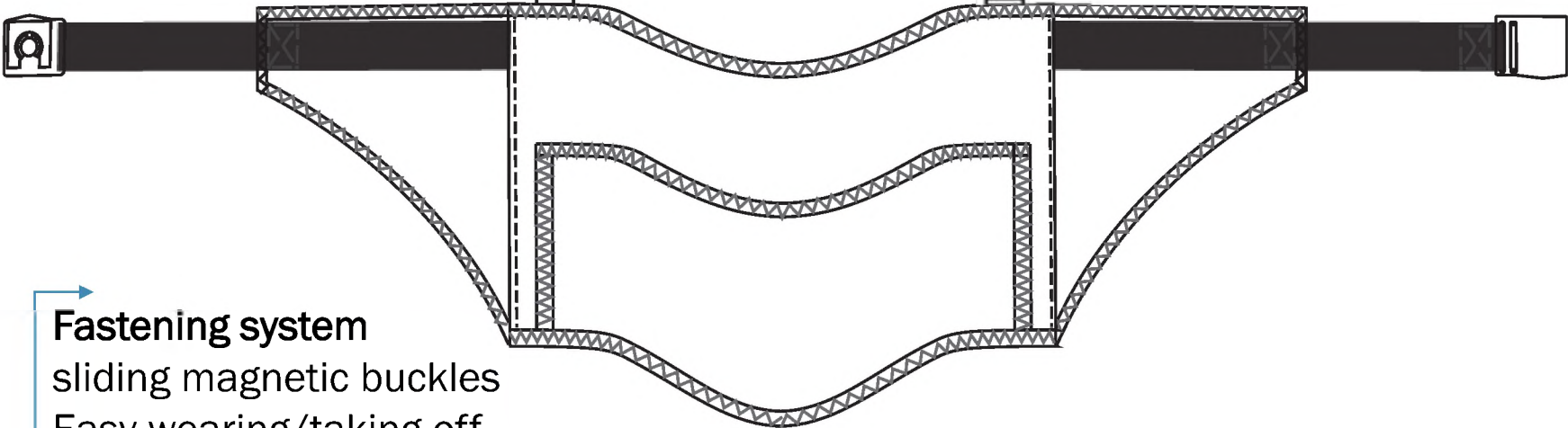
Two side pockets and symmetrical straps
Provide left-handed/right-handed usability

FLPlid
magnetic closure lid for side pockets
Easy access/repack
Easy movement as far as the wrist movement



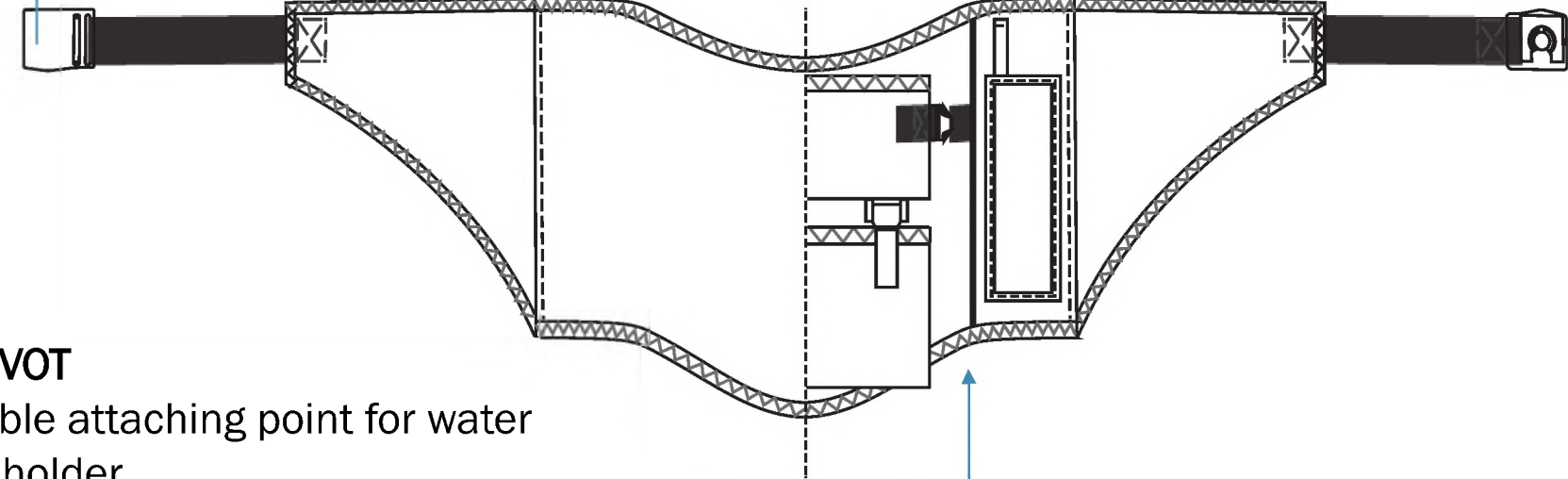
paxLASTIC
mechanism under water bottle holder

Bottom/Top view



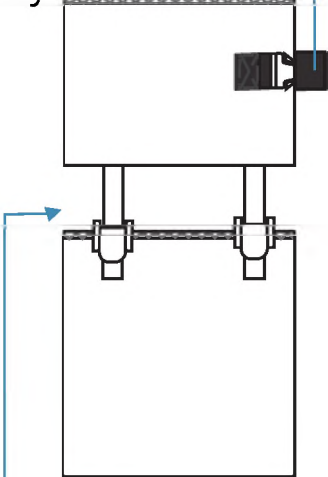
Fastening system
sliding magnetic buckles
Easy wearing/taking off

Front/Back view



Divider
Adjustability, organization, accessibility
To pack phone and other items separately

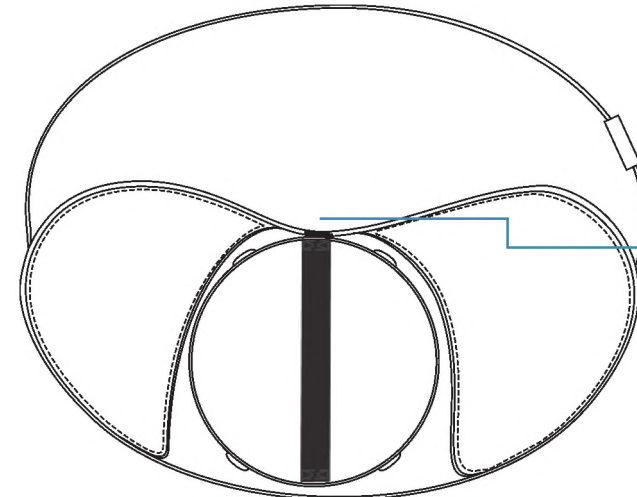
hike
Adjustable straps with quick release buckles
Provide compression around different diameter water bottles up to 5.5" and security



hikeHEIGHT
Provide ease of adjustability
Provide flexibility and cover different height water bottles

hikePIVOT
Pivotable attaching point for water bottle holder
Provide adjustability

Handle
Provide ...



Embroidery Icon tags
Provide information for each pocket on how to pack



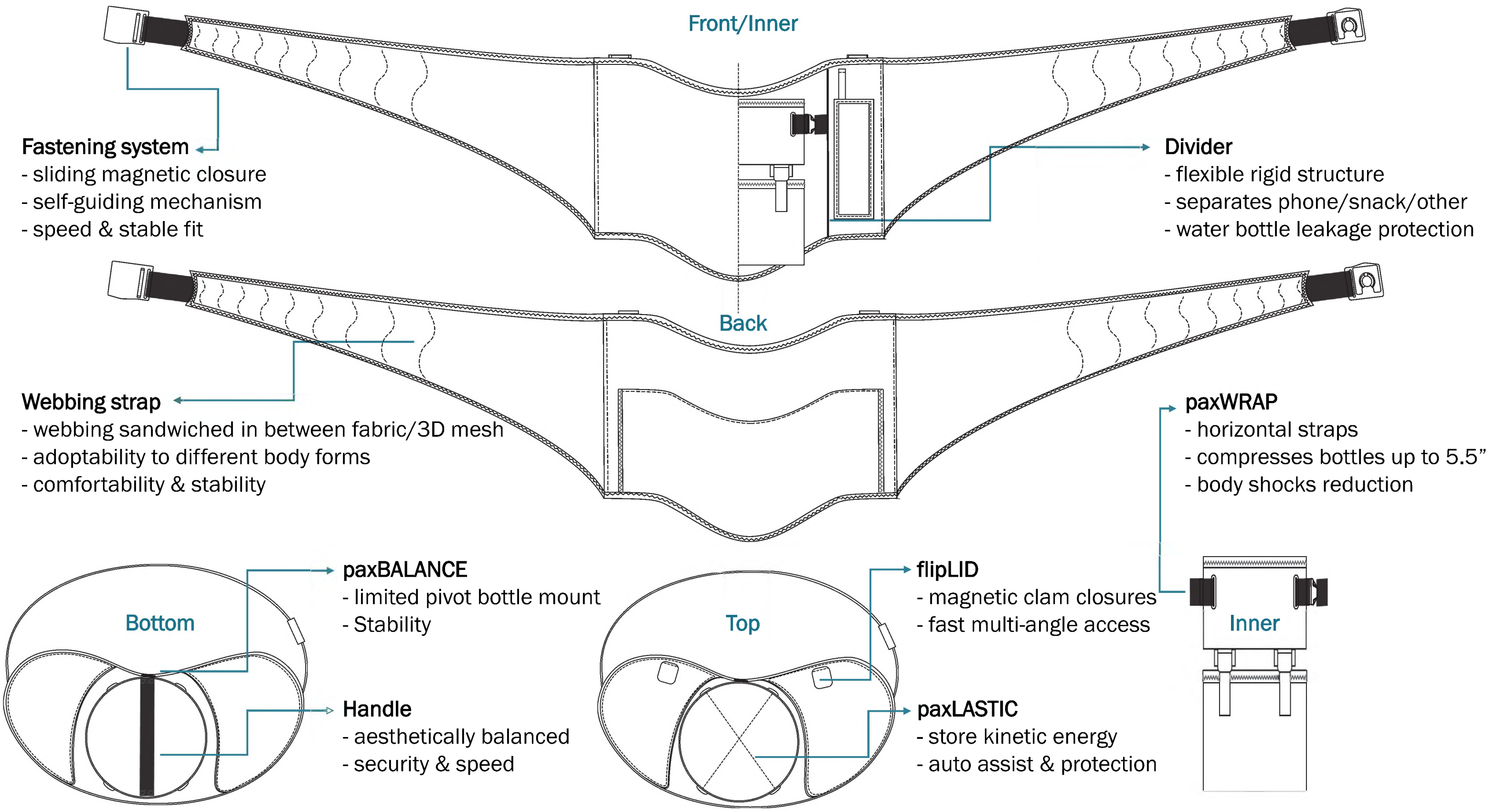
ITERATION 2

PAXESS-HIKE



Two side pockets, one-size-all bottle holder
- Provides left-handed/right-handed usability with utility functions hidden

Dimension (without straps)
7.5"x11"x4"



BENCHMARK RESEARCH

Photography - common items to carry



Surveyed 30 photographer enthusiasts

- 1 DSLR-Mirrorless 43%-32%
- 2 Cellphone 100%
- 3 Water Bottle 85%
- 4 Add. battery 48%
- 5 Filter 40%
- Snack & First aid kit

Crossbody Bag

- ❖ Mesh wide shoulder straps
Provide comfortability
- ❖ Weatherproof zippers and materials Protect items
- ❖ Abrasion resistance
Provide durability

Hiking - common items to carry



Surveyed 50 outdoor hikers

- 1 Cellphone 100%
- 2 Water Bottle 98%
- 3 First Aid Kit 67%
- 4 Snacks 50%
- 5 Whistle 32%
- 6 Compass 27%

Fanny Pack + Water Bottle Holder

- ❖ Anti-fall elastic strings
Keep water bottle stable
- ❖ Two compartments
Phone not being scratched
- ❖ Mesh pad

INITIAL PERFORMANCE TESTING

Technology

paxWRAP



Method of Testing

- Testing different sizes of water bottles fitting/accessing/repacking
- Tested water bottles include
 - Hydroflask 20/26oz
 - YETI 26oz



HIKE Results

PIX Result

Benchmark

PAXESS

Benchmark

PAXESS

Access/Repack



PERFORMANCE TESTING

Technology

paxWRAP



Method of Testing

- Qualitative and Quantitative
- Testing and Timing both bags with two glampers
- Compare the timing results of PAXESS with benchmark products



	Performance	Benchmark	PAXESS
	Access	6	4
	repack	5	3
	Access	3	3
	repack	5	3

HIKE Results

Benchmark

PAXESS

PIX Results

Benchmark

PAXESS

Benchmark vs. PAXESS
YETI 26oz & HYDROFLASK
32oz



Benchmark vs. PAXESS



Repack

10%
faster

40%
faster

INITIAL PERFORMANCE TESTING

Technology **paxLASTIC**



Method of Testing

- Qualitative and Quantitative
- Testing and Timing both bags with two glampers compare the timing results of added/removed paxLASTIC
- Compare the timing results of PAXESS with benchmark products



	Performance	Benchmark	With paxLASTIC	Without paxLASTIC
	Access	3	3	3
	repack	3	3	2
	Access	12	10	11
	Repack	13	8	8
	Access	3	3	-
	repack	5	3	-

HIKE Results

Benchmark vs. PAXESS

0.1% to
10%
faster

PIX Results

w/o paxLASTIC

17%
faster

Benchmark vs. PAXESS

0.1 to
33%
faster

PAXESS



Access/Repack

Feedback

- Loves the colors and hidden functionality in design
- Non-rigid and form fitting design gives more comfort
- Water bottle wobbles less giving one handed access

INITIAL PERFORMANCE TESTING

Technology

paxBALANCE



Method of Testing

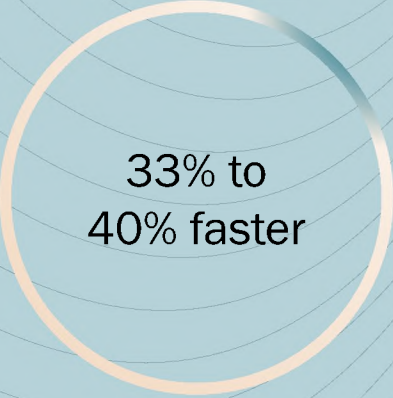
- Qualitative & Quantitative
- Testing HIKEPaxess with a glamper compared to the benchmark product in a sling mode



	Performance	Benchmark	PAXESS
	Access	6	4
	repack	5	3

HIKE Results

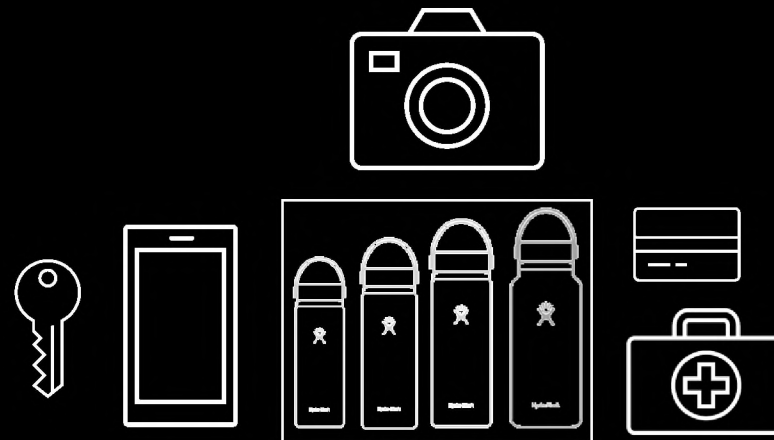
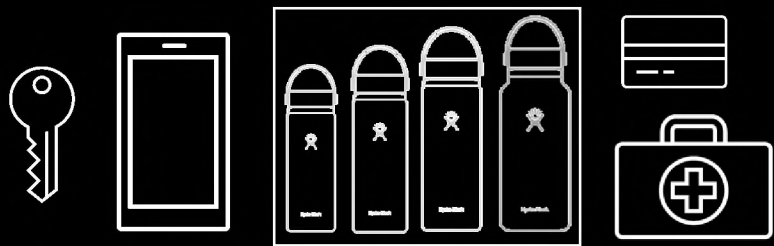
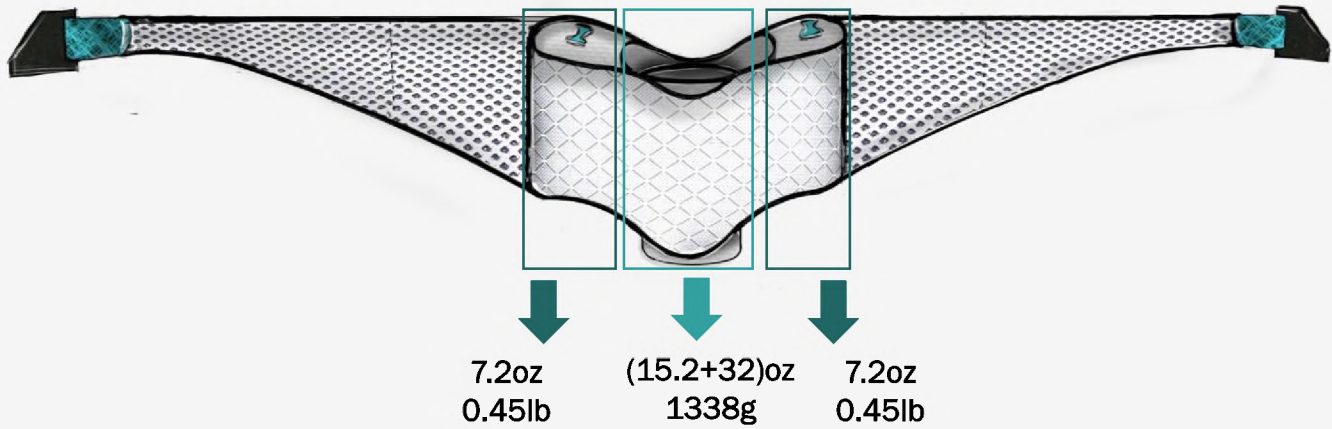
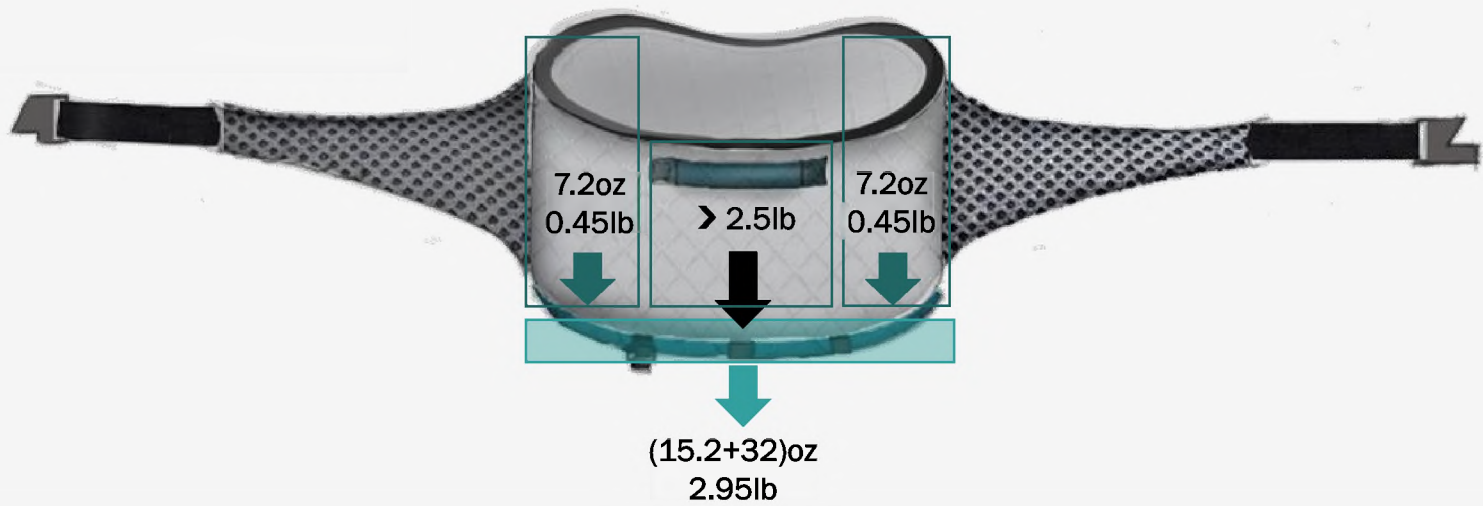
Benchmark vs. PAXESS



Access/Repack



WEIGHT DISTRIBUTION



FINAL PERFORMANCE TESTING



Hiking bag



Average timing to access/repack common items being carried by hikers & enthusiast photographers during outdoor hiking

Camera bag



Posture comparison
Before carrying the pack and after 45 min. hike



Marks on body after 45 min. hike

After

After

DATA

PERFORMANCE TESTING

Evaluate ease of access/repack by capturing videos & measuring time per 3 iteration and defining average timing

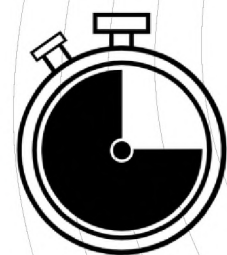


Performance Testing																	
Nature Hiking										Nature Hiking Photography							
Accessing/Repacking										Accessing/Repacking							
Wearing	Item	Steps	Access	repack						Item	Steps	Access	repack				
Fanny Pack	Water Bottle	Benchmark	3.10"	8.88"						Water Bottle	Benchmark	4.50"	6.33"				
		Proto	2.20	2.91"							Proto	2.197"	7.80"				
	Phone	Benchmark	5.69"	10.10"						Camera	Benchmark	8.20"	15.23"				
		Proto	5.50"	5.70"							Proto	4.30"	5.70"				

FINAL PERFORMANCE TESTING



Hiking bag



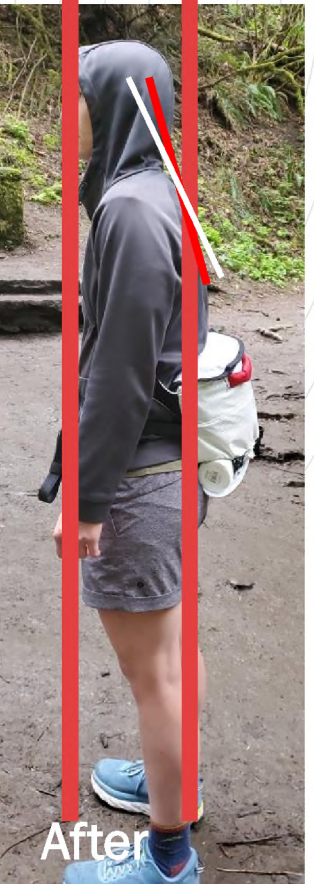
Camera bag

33% to 40%
faster than
benchmark

17% faster by
paxLASTIC

Posture/Marks

Posture
comparison
∞
At least 50%
improvement



No mark on
body



Thank You!

PERFORMANCE

Accessing & repacking items while hiking & photography



Common items to carry while hiking and photographing

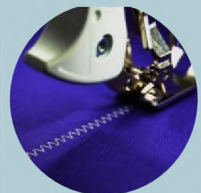


MATERIALS

STITCHES & THREAD



Straight Stitches
6 stiches/inch



Zigzag Stitches
6 stiches/inch

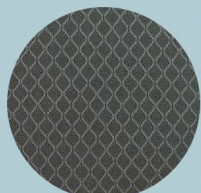


Serge Stitches

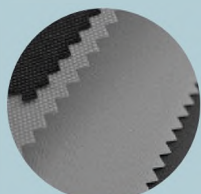


3-ply bonded **nylon** thread

FACE



**400 x 300 D. Diamond Ripstop
Nylon/Polyester**
Tight Weave
DWR finish & Urethane coating
Lightweight



**400 D. Packcloth
Nylon**
Woven Polyurethane coated
Flexible & Extremely
abrasion resistant

LINING



Soft shell & Laminated Nylon
100% polyester face
100% polyester micro light black
fleece lining
Woven Soft DWR

STIFFENER



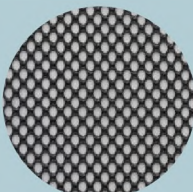
**Tear Away Machine Embroidery
Stabilizer**

Medium Weight 1.8 oz
100% polyester non woven acid
and lead free

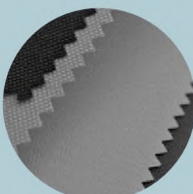


Pellon 70 Peltex
Ultra-Firm Sew non-woven stabilizer
100% Polyester

INNER POCKETS



Medium Polyester Mesh
Semi-stiff knit handed polyester
1/8" round holes



Laminated Nylon

HARDWARE



Magnetic Sliding Buckles
Sliding Buckles

Hook & Loop

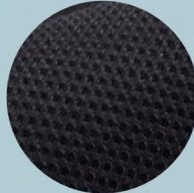


Sew on Hook and Loop
50% Polyester & 50% Nylon

STRAP



Webbing
100% Nylon
Consistent durable weave



350g air mesh
100% Polyester
Breathable & Comfortable Woven

BINDING

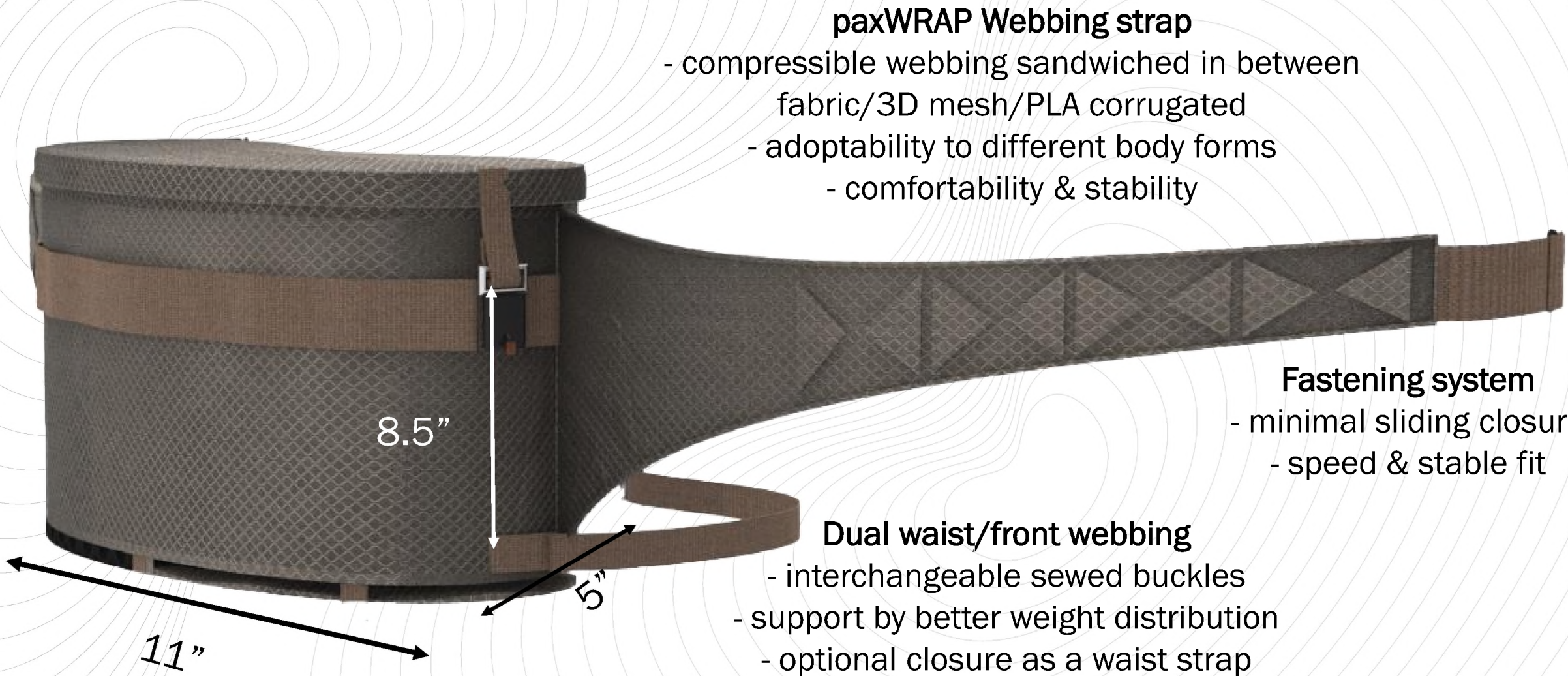


Tape
1/2" 100% Heavy Duty Polyester woven

FEATURES & BENEFITS

PAXESS-PIX

360 inner Velcro-compatible with moveable pockets/camera cage
-Symmetrical body-fitting for universal fit with utility functions hidden



FEATURES & BENEFITS

PAXESS-PIX



- Same materials being sandwiched together for the body, and eliminating foam from the bag, improve sustainability

FEATURES & BENEFITS

PAXESS-PIX

360 inner Velcro-compatible with moveable pockets/camera cage
-Symmetrical body-fitting for universal fit with utility functions hidden

flipLID

- magnetic clam closures
- fast multi-angle access

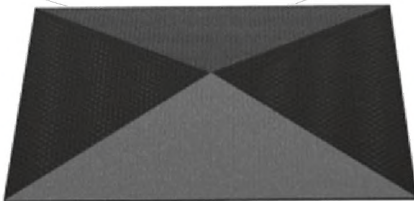
Attachable/detachable Velcro pockets

- customizable to the user needs
- organization



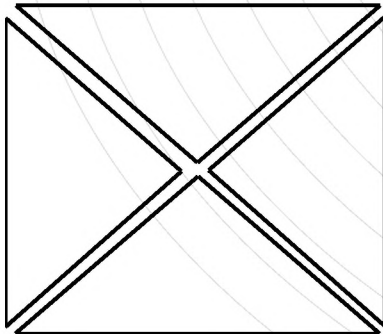
Optional paxLASTIC inner dividers

- additional protection to gear
- adjustability & organization
- Ease of access/repack

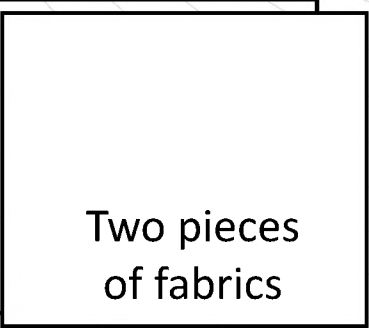


paxLASTIC Bottle Holder

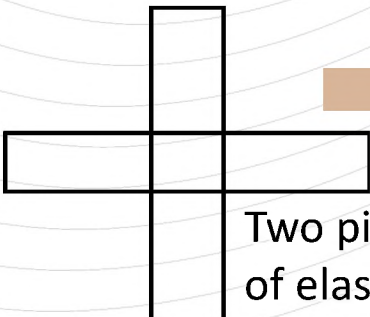
- store kinetic energy
- auto assist & protection



PLA
corrugated



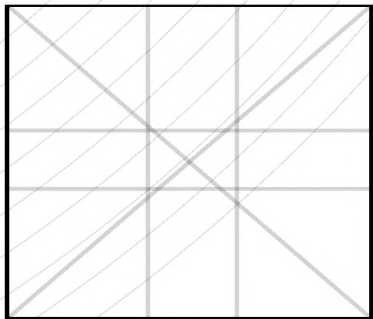
Two pieces
of fabrics



Two pieces
of elastic

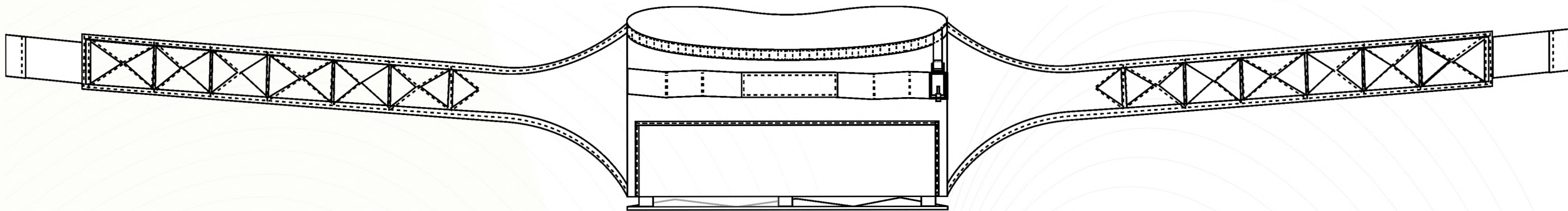
5-sided paxLASTIC cushioning

- protects body/gear



FEATURES & BENEFITS

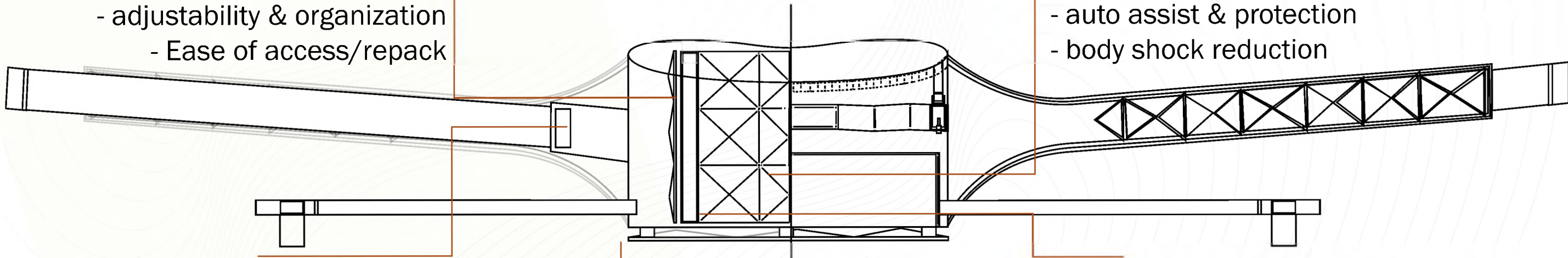
PAXESS-PIX



Front View

Optional paxLASTIC inner dividers

- additional protection to gear
- adjustability & organization
- Ease of access/repack



paxLASTIC

- store kinetic energy
- auto assist & protection
- body shock reduction

Webbing Straps

- 2" webbing sewed to 1.5" to bring stronger attachment and better weight distribution, while keeping the minimal secure around the body

Inner View + Front View

paxLASTIC Bottle Holder

- store kinetic energy
- auto assist & protection

Velcro

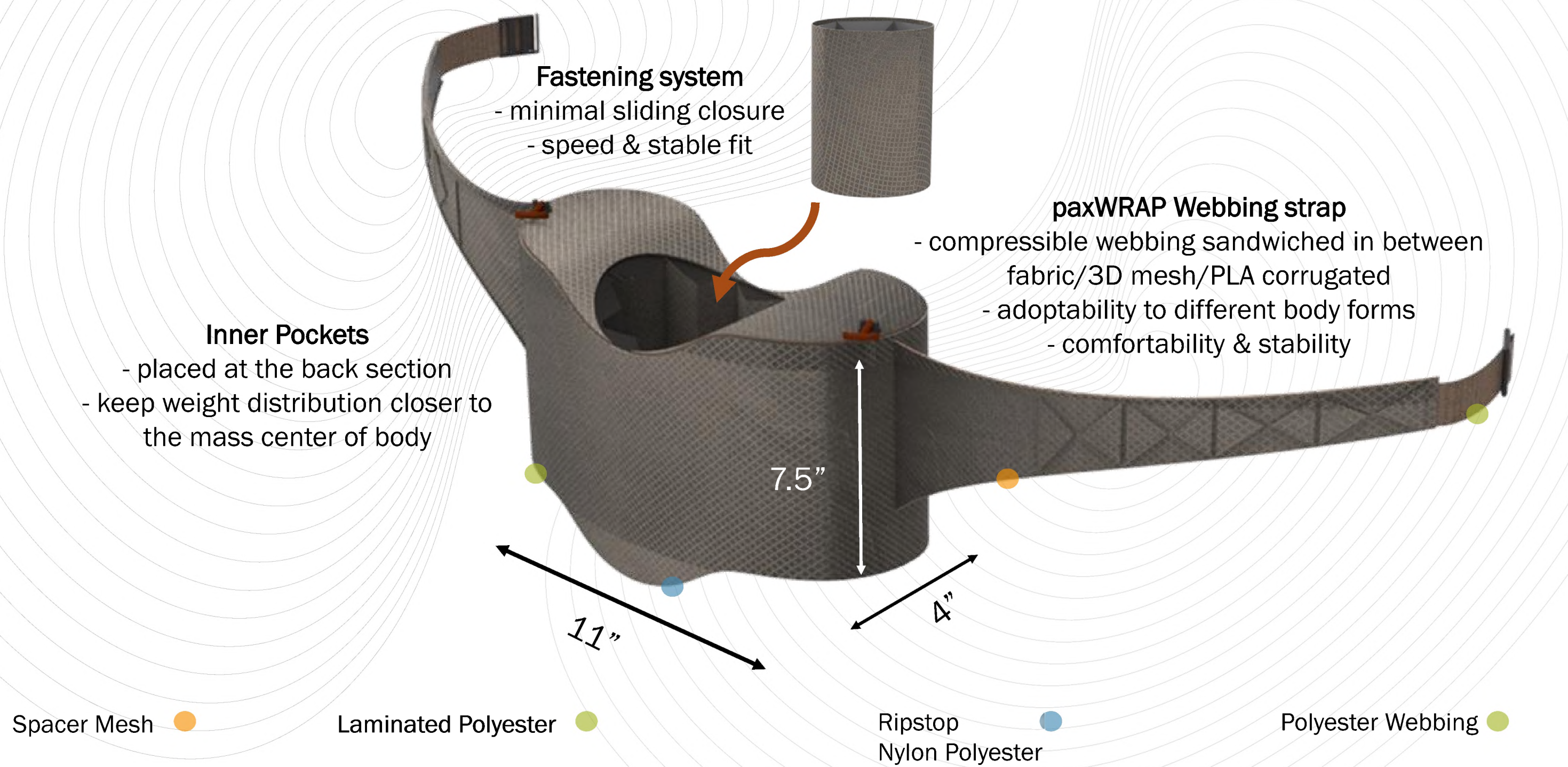
- side Velcro to attach the cage to the liner
- keep the cage secure

FEATURES & BENEFITS

PAXESS-HIKE

Two side pockets, one-size-all bottle holder

- Provides left-handed/right-handed usability with utility functions hidden



COLORWAYS

PAXESS-HIKE

- 400 x 300 D. Diamond Ripstop Nylon/Polyester
Tight Weave
DWR finish & Urethane coating
Lightweight



Top View



Bottom View

- Webbing
100% Nylon
Consistent durable weave

- 350g air mesh-Double
100% Polyester
Breathable & Comfortable knit

3D Printed elastic Puller
PLA/TPU



Front View



Back View

- PLA Corrugated
Lightweight
More Durable than foam

- Stiffener
350g air mesh
100% Polyester
Breathable & Comfortable knit

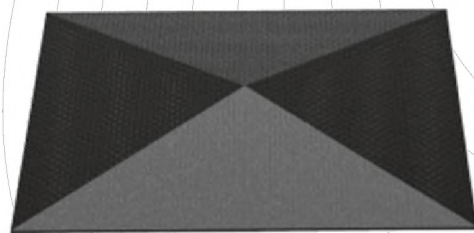
- Pellon 70 Peltex
Ultra-Firm Sew non-woven stabilizer
100% Polyester

- Liner:
Soft shell & Laminated Nylon
100% polyester face
100% polyester micro light black fleece lining
Woven Soft DWR

FACE	Vetiver	17-0613 TPX
ACCENT	Vintage Khaki	16-0205 TPX
INTERIOR	Frozen Dew	13-0513 TPX

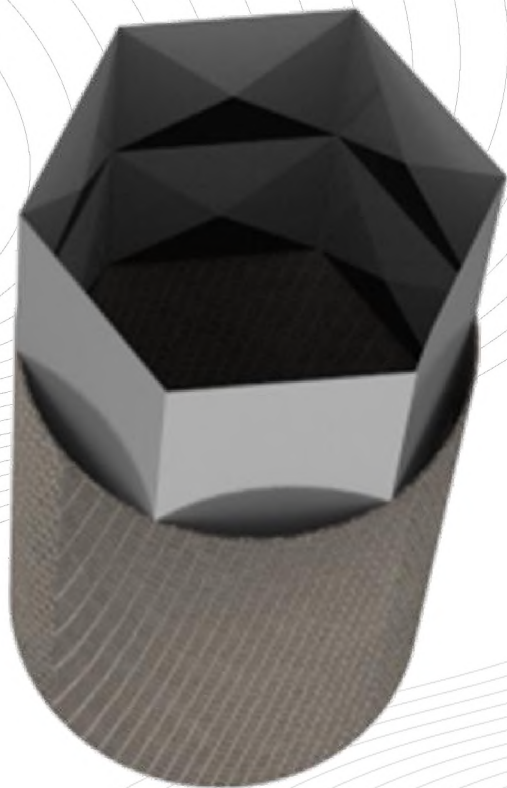
FEATURES & BENEFITS

PAXESS-HIKE



paxLASTIC

- store kinetic energy
- auto assist & protection
- body shock reduction



paxLASTIC

- Attached to each other



paxLASTIC

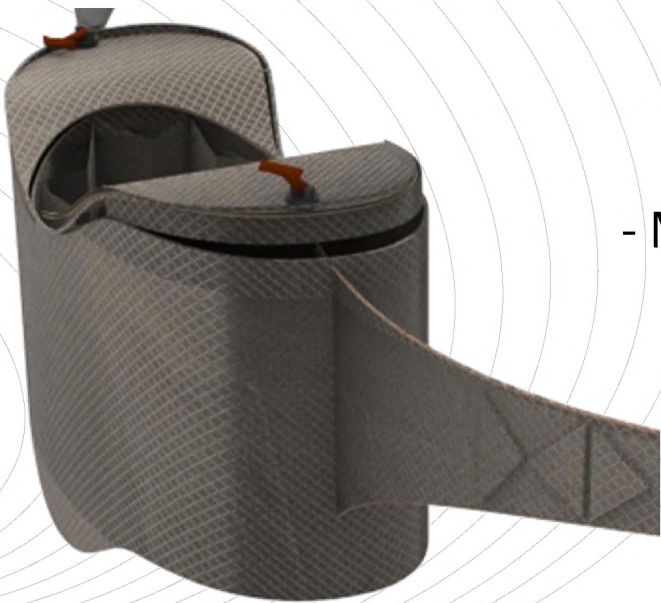
- Attached to the inner section
- Hold gears while reducing body shock

FEATURES & BENEFITS

PAXESS-HIKE

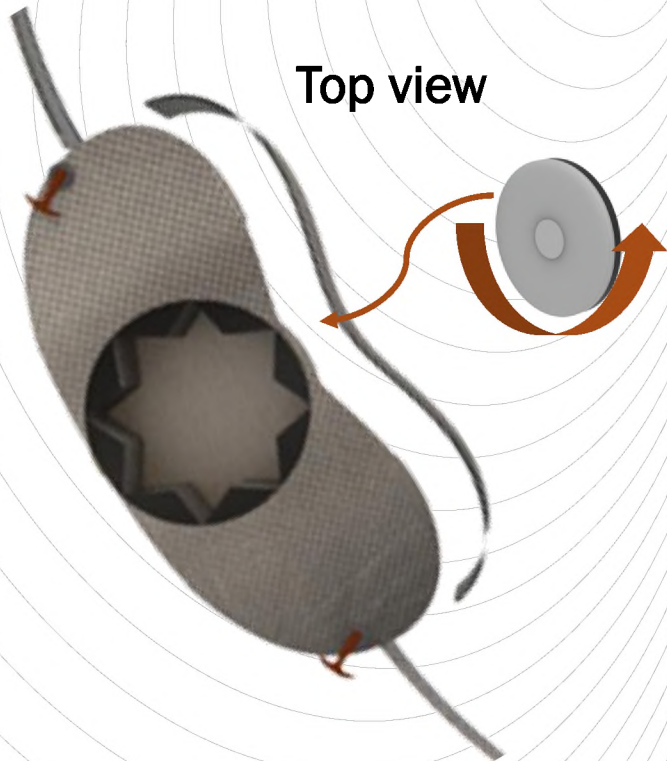
fliplid

- Magnetic closure with a puller sandwiched between fabrics



Closure

- Magnetic side pocket closure mechanism
- Provide ease of access



Top view

Front Inner view

Front Inner view



paxBALANCE

- sandwiched between bottle holder & back section
- limited pivot bottle mount
- Stability

divider

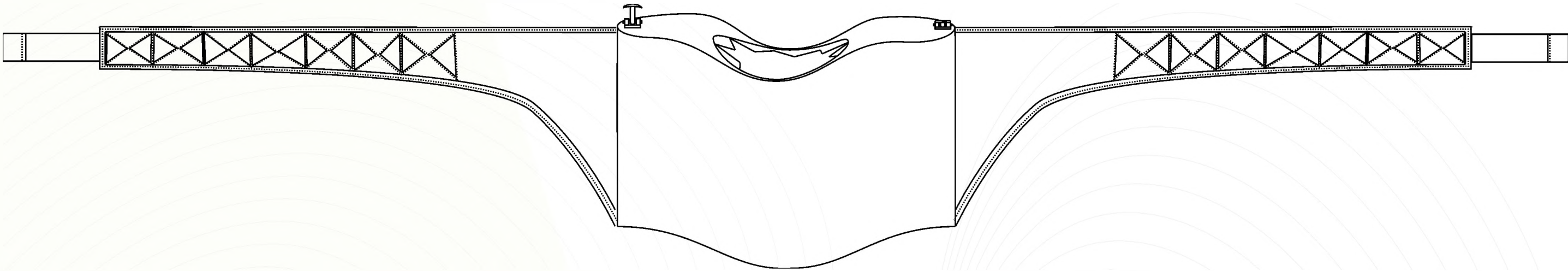
- flexible rigid structure
- separates phone/snack/other
- water bottle leakage protection

paxBALANCE

- two inclined divider provide space for bottle holder to move freely by weight

FEATURES & BENEFITS

PAXESS-HIKE



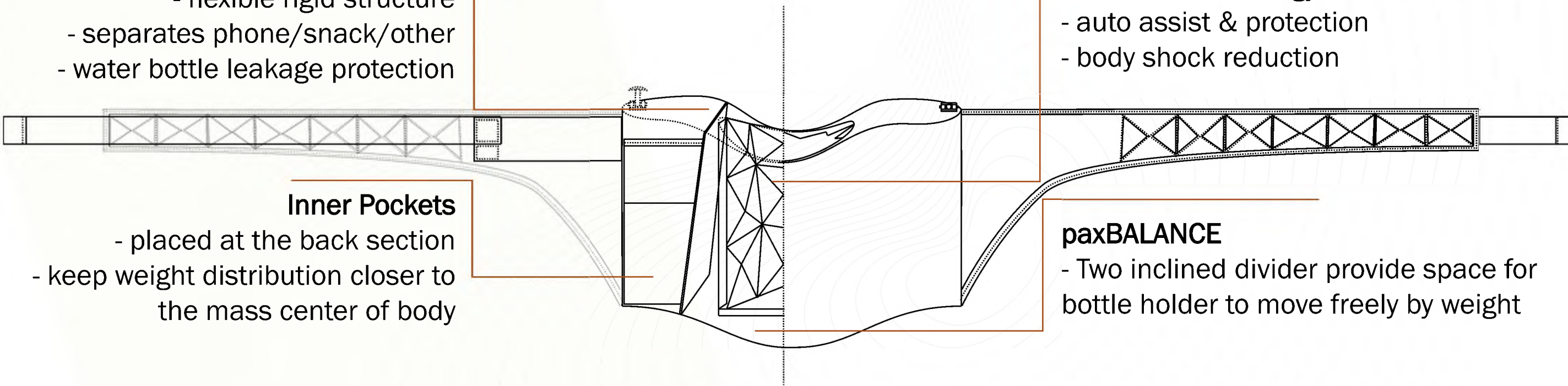
Front View

divider

- flexible rigid structure
- separates phone/snack/other
- water bottle leakage protection

paxLASTIC

- store kinetic energy
- auto assist & protection
- body shock reduction



Inner Pockets

- placed at the back section
- keep weight distribution closer to the mass center of body

paxBALANCE

- Two inclined divider provide space for bottle holder to move freely by weight

Inner View + Front View

COLORWAYS

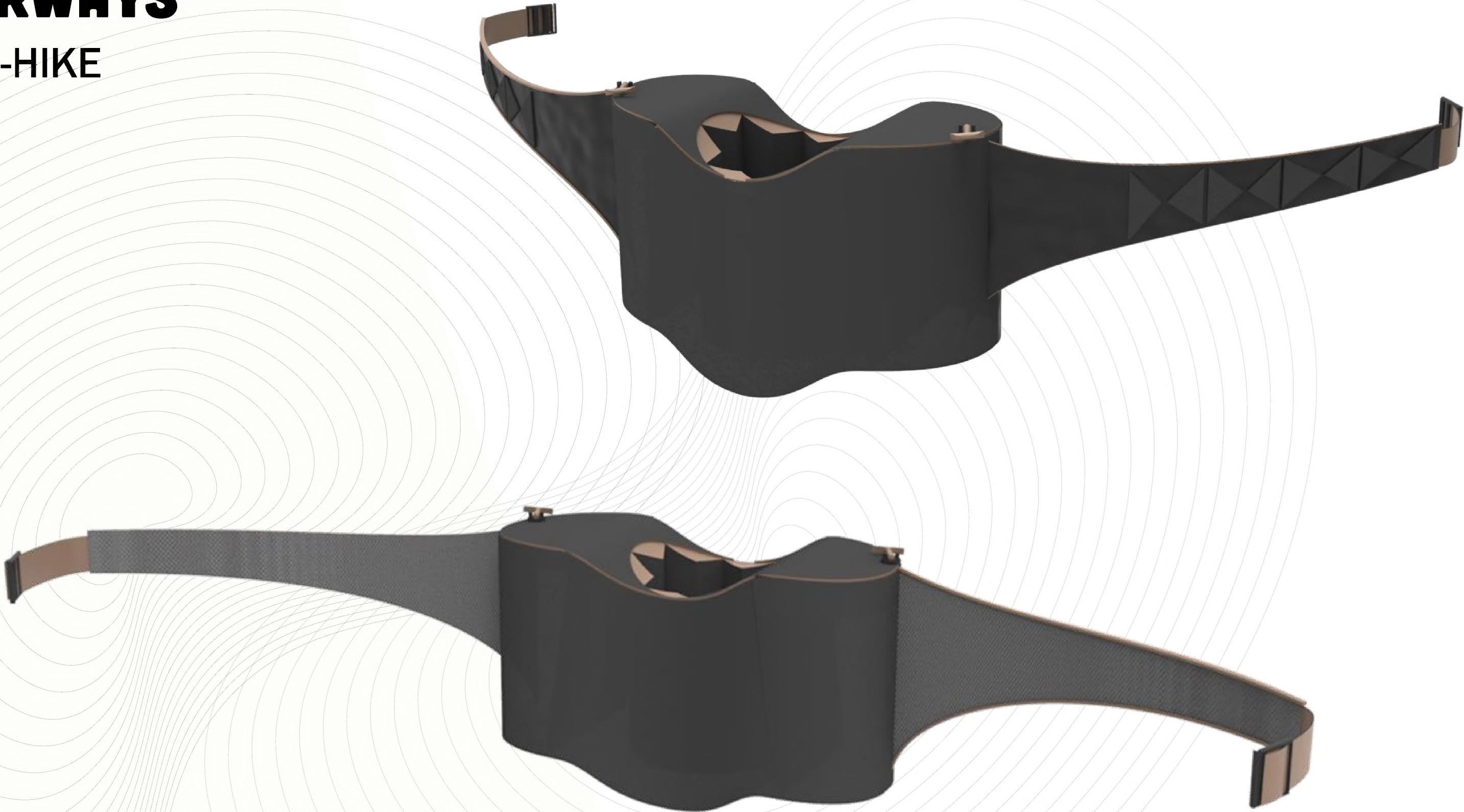
PAXESS-PIX



FACE	Carbon Black	19-4012 TPX
ACCENT	Ochre Yellow	16-1148 TPX
INTERIOR	Ochre	14-1036 TPX

COLORWAYS

PAXESS-HIKE



FACE	Carbon Black	19-4012 TPX
ACCENT	Ochre Yellow	16-1148 TPX
INTERIOR	Ochre	14-1036 TPX

COLORWAYS

PAXESS-HIKE

- 400 x 300 D. Diamond Ripstop Nylon/Polyester
Tight Weave
DWR finish & Urethane coating
Lightweight



Top View



Bottom View

- Webbing
100% Nylon
Consistent durable weave

- 350g air mesh-Double
100% Polyester
Breathable & Comfortable knit

3D Printed elastic Puller
PLA/TPU



Front View



Back View

- PLA Corrugated
Lightweight
More Durable than foam

- Stiffener
350g air mesh
100% Polyester
Breathable & Comfortable knit

- Pellon 70 Peltex
Ultra-Firm Sew non-woven
stabilizer
100% Polyester

- Liner:
Soft shell & Laminated Nylon
100% polyester face
100% polyester micro light black
fleece lining
Woven Soft DWR

FACE	Vetiver	17-0613 TPX
ACCENT	Vintage Khaki	16-0205 TPX
INTERIOR	Frozen Dew	13-0513 TPX

VALIDATION



Lauren H.

Athlete



Delaney

Athlete



Emily Karolidis

PhD Student in
Biomechanical and Sports
Product Design



Mehrdad Javidi

PhD in Bioengineering &
Biomedical Engineering
Focus on human and animal
motion



Raymond Kendall

Senior Bag & Pack Designer/Developer
Bag/Pack Expert



Sam

Photographer/Journalist



Brandy

Athlete/Photographer/
Videographer

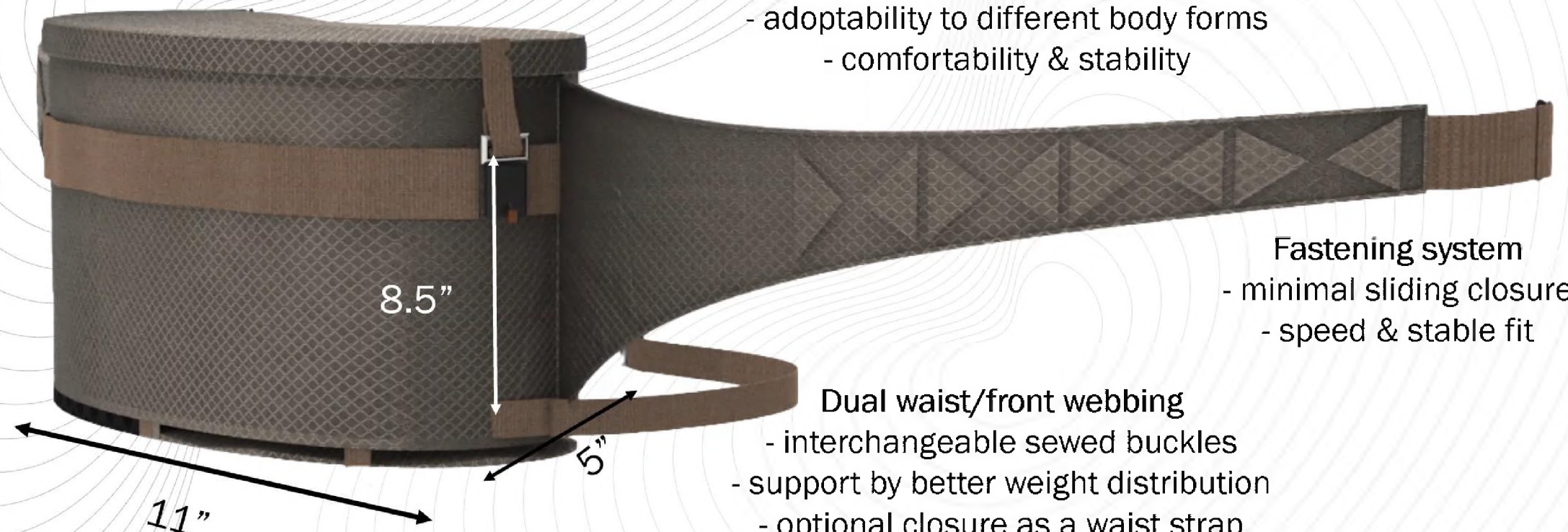
FEATURES & BENEFITS

PAXESS-PIX

- 360 inner Velcro-compatible with moveable pockets/camera cage
- Symmetrical body-fitting for universal fit with utility functions hidden



- Padded handle**
- allows hand-bag usage
- optional carriage
- comfortability



- paxWRAP Webbing strap**
- compressible webbing sandwiched in between fabric/3D mesh/PLA corrugated
- adoptability to different body forms
- comfortability & stability

- Fastening system**
- minimal sliding closure
- speed & stable fit

- Dual waist/front webbing**
- interchangeable sewed buckles
- support by better weight distribution
- optional closure as a waist strap



ATHLETE QUOTES

Lauren H.
Athlete

- "The straps are very comfortable giving me confidence and desire to hike more, especially since the water bottle isn't swaying with movement."

Delaney
Athlete

"I love the water bottle as such is stored in a secure, but accessible place without messy bungee cords."

"The bean shape contouring and structure of the bag feels good against the back and more so hips."





ATHLETE QUOTES

Sam

Photographer/Journalist

“straps are very comfortable, but I prefer to wear it as a fanny pack because the form is very comfortable around the hip.”

Brandy

Athlete/Photographer/Videographer

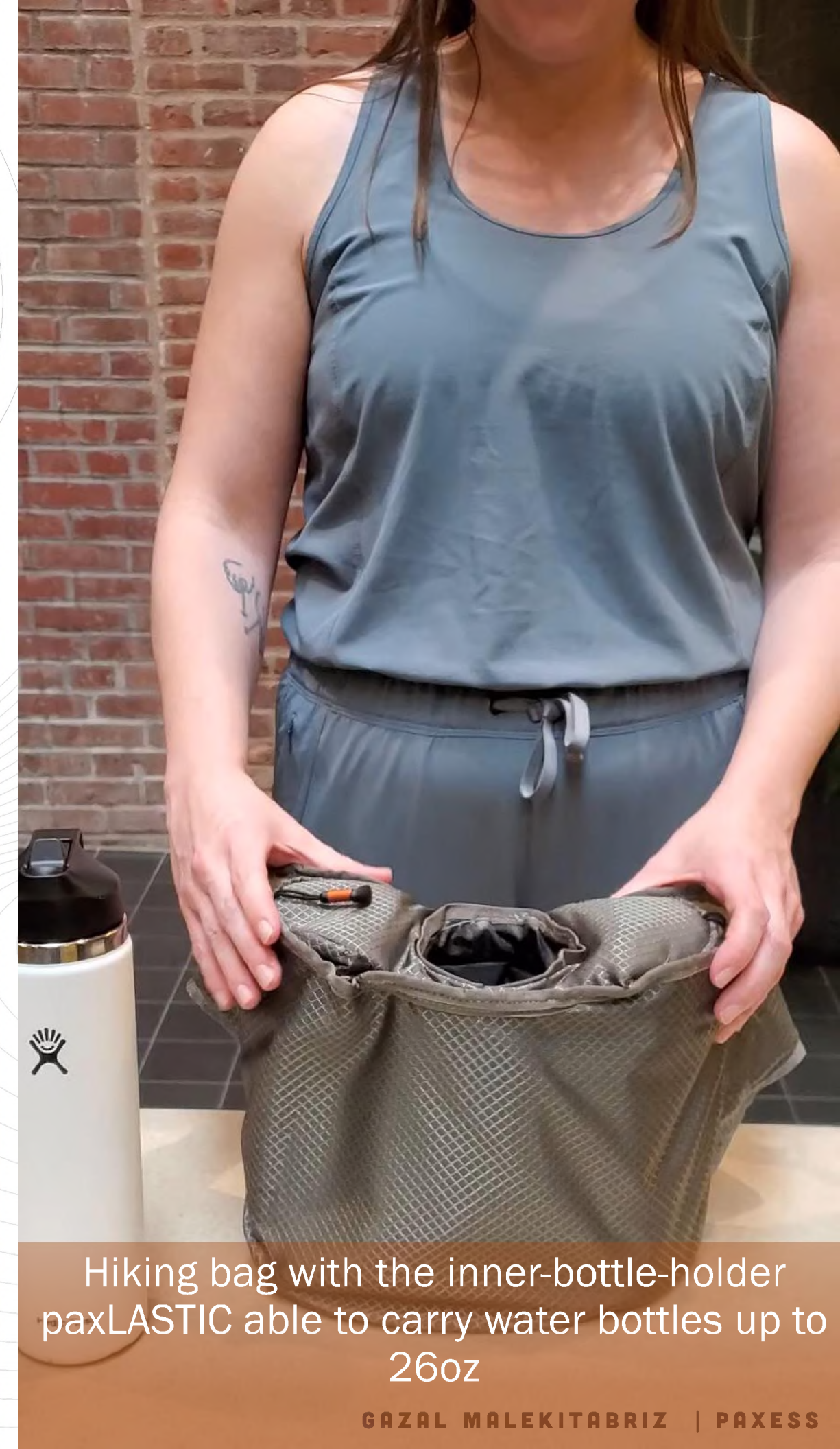
“The straps provide comfortability during nature hiking, while it could require accessibility to the camera few times in an hour.”

“It is great that we don’t need to deal with waist strap whenever we want to access the camera.”





Comparing wobbling of the bags w/o paxLASTIC under water bottle holder, while water bottle and the bags are full



Hiking bag with the inner-bottle-holder paxLASTIC able to carry water bottles up to 26oz

PACKAGING

Double-closure dry bag as a package
Provide opportunity to be used as a drybag and rain cover for the bags' collection
Openings on both sides give a space for the straps to be out of the bags while its being used as a rain cover



Face Materials
200 D. Heat Sealable Coated Oxford
Abrasion resistance
Waterproof
Light weight and flexible
Special coating (Urethane coated)
that makes it possible to be heat-sealed, coated side to coated side
Provide a waterproof seal





PASSESS

Thank You!