

# AQ Fit Calculator Product Spec

Introduction: The AQ Fit Calculator is an online tool to help female riders find motorcycle gear that fits. It will take a user's fit information, store it to a database, and return a list of gear options that best match the user's fit information.

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## Problems:

- 1) **Women's motorcycle gear is hard to find.** Despite women making up 19% of motorcycle owners as of 2019 (and 26% of millennial motorcycle owners), women's gear selection remains poor. Most brands do not offer women's models of the same quality or feature/protection level as men's gear, and women often have to compromise on fit, price, or features/protection.
  - 2) **Women's gear is even harder to size.** Of the gear that is available, retail stores do not offer many models to try on. Women riders must order online and return the items that don't fit, which takes more time, shipping money, and effort.
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## Goals:

- 1) **Create a fit calculator to help women find the best-fitting motorcycle gear.** Gather user-provided measurements and current gear sizing, compare these to official sizing charts and other riders' measurements and sizing, and calculate the best fits. Display the results to the user with sizing notes.
- 2) **Populate DB with data from users, manufacturers, and user comments on retail sites.** Collect data from users at motorcycle gatherings. For manufacturers, only a sizing chart will be collected. User comments on retail sites will provide the bulk of "real world" sizing data.
- 3) **Working prototype done by Femmewalla**

## Non-goals:

- 1) This tool will be built with US riders in mind. Riders in other countries are free to use it, but sizing and brands will be limited to north American standards.
  - 2) This tool will start as specific to street and track apparel only. Dirt, ADV, helmets, and other segments can be added later.
  - 3) This tool will be built in English only
  - 4) Only major brands that retail in the US will be available
  - 5) This first version will focus on sizing ONLY. Feature filtering, e.g. perforated, one- or two-piece suits, CE-level rating, color, material, riding style, etc. can come later.
  - 6) This first version will use measurements ONLY. Support for height/weight and jeans/shirt sizing can come later.
  - 7) This first version will not include any gear buying guides and will focus on sizing ONLY
  - 8) This first version will focus on jackets, pants, and suits ONLY. Gloves, shoes/boots, and helmets can come later.
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## User Context

### Use Cases:

- 1) Users want to:
  - a) Enter as little information as possible to have a good fit estimate
  - b) On mobile, and occasionally desktop
  - c) Receive a fit report in less than 3 minutes from arriving on the page
  - d) Receive optional guidance on how to choose gear

### User Profiles:

- 1) **Abby:** Abby is a 26-year old sales manager who lives in Los Angeles. Her boyfriend Alex rides motorcycles, and after months of riding on the back wearing borrowed gear Abby has decided to get her motorcycle license and ride on her own. She already has some gear from riding pillion, but wants to upgrade these for safety, style, cost, and comfort, in that order. She knows she needs a real moto jacket and gloves (she can keep using her pillion helmet, though it's noisy and she'd like to upgrade. Her pillion jacket and gloves fit horribly). She is unfamiliar with major brands, and unaware of moto jeans, moto shoes, and many other protective gear choices. Alex keeps giving her recommendations but she doesn't understand some of the distinctions, e.g. gauntlet vs short gloves, and she's a bit overwhelmed by the choices and costs.
- 2) **Belinda:** Belinda is a 32-year old programmer living in Phoenix, married with 2 dogs and no children. She has been riding motorcycles on the street for a few years, and at the urging of their riding buddies she and her husband have signed up for their first track day. She needs to order a leather suit and track boots, and is unsure whether she should wear her street gloves. She's already familiar with all the major gear manufacturers but doesn't know much about track gear, and most of her riding buddies are male so they can't help much with recommendations. She has a shortlist of suits from brands she knows, but needs help deciding on perforated vs unperforated, one-piece or two-piece, and fit. She is eager to know if there are other brands making women's race gear besides Dainese and A-Stars, and how reliable they are.
- 3) **Catherine:** Catherine is a 22-year old barista living in San Diego. She just started dating Carlos, a marine with a motorcycle, and wants to ride pillion with him. She knows she can borrow some gear from her boyfriend, but she wants her own gear that's stylish, cheap, safe, and has never been worn by one of his exes. She doesn't know what gear she needs besides a helmet, and is unfamiliar with major brands. Carlos will help her decide what gear to buy but he's unfamiliar with women's moto gear.
- 4) **Danielle:** Danielle is 33 years old and lives in San Francisco. She's been riding for several years now and has a good set of gear, but it's time to replace her jacket and she's changed size since she bought it. She knows she wants a cafe racer-style perforated leather jacket with back and elbow protection, and has a couple in mind that

she's already seen on Revzilla and on her riding buddies. She needs to know what size to order, not help to discover new items.

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Proposal:

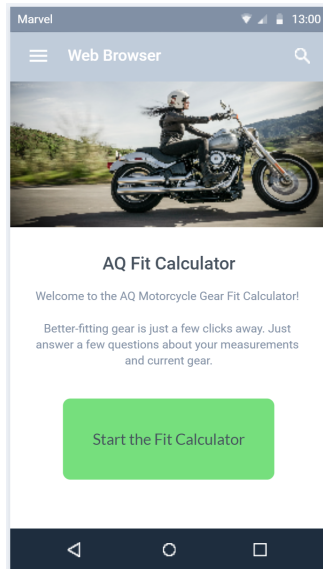
A responsive web app

First release can use existing hosting on wordpress with PHP and mySQL

Future drafts can be migrated to a unique domain with a proper frontend, better analytics, and potentially integrated into AWS or another suite.

UX Interface:

- 1) Users arrive on the home screen, and are greeted with a short (200-character) explanation and a single question (What piece of gear are you looking for?) with multiple-select radio buttons
  - a) UX notes: first users will be supervised, and ideally recorded. It needs to work, and fast, but doesn't need to be pretty.



- b)
- c) Potential for a future screen to ask if users want street, track, cruiser, or dirt oriented gear. Can also manage with tags and filters

Marvel 13:00

Web Browser

### AQ Fit Calculator

Which gear are you looking for?

- ☒ Jackets
- ☒ Gloves
- ☐ Boots and Riding Shoes
- ☐ Riding Pants
- ☐ Race Leathers

**Submit**

**Back** **Skip**

d)

- 2) Once the program knows what they're looking for (jackets, pants, gloves, or boots) it asks for measurements relevant to those categories. It will prompt for their measurements (later: street clothes sizing and height/weight).

Marvel 13:00

Web Browser

### AQ Fit Calculator

Please enter your measurements

Height  Ft  Inches

Weight  Pounds

Bust  Inches

Waist  Inches

Hips  Inches

Inseam  Inches

Palm Width  Inches

Shoe Size

Dress Size

**Submit**

**Back** **Skip**

a)

- i) Tech note: user AQ size will first be set here

- 3) Add Gear: Repeating page to gather fit information from each article. Brand-->item type (jacket/gloves/pants)-->item name, then: Is it small/perfect/big on you in the chest/waist/hips?

- a) Tech/UX note: in later versions we'll want to display an image of the item
- b) Tech/UX note: searchable dropdown for item names. To include all manufactured in the past 5 years.
- c) UX note: sliders or radio buttons on fit?
- i) Sliders, with 5 notches.

Marvel

☰

Title

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### AQ Fit Calculator

What gear do you already own?  
We'll use your feedback to fine tune your fit.

●

**Jackets**  
 Add fit reports for jackets here. You've added 3 so far.

●

**Gloves**  
 Add fit reports for gloves here. You've added 0 so far

Calculate Your Fit

Done adding gear? Calculate your fit now!

Back

Skip

d)

Marvel

☰

Web Browser

🔍

### AQ Fit Calculator

#### Jackets

Brand

▼

Name

▼

Size

▼

Bust

Too Tight

Just Right

Too Loose

Waist

Too Tight

Just Right

Too Loose

Sleeve Length

Too Short

Just Right

Too Long

Hips

Too Tight

Just Right

Too Loose

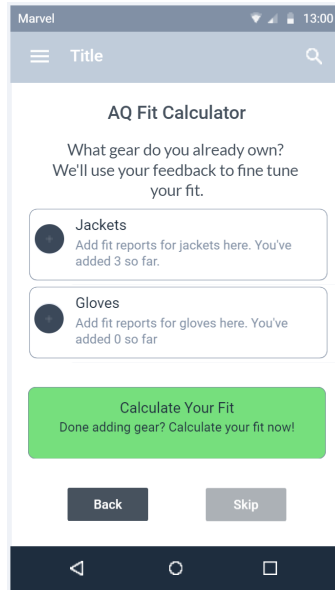
Submit

Back

Skip

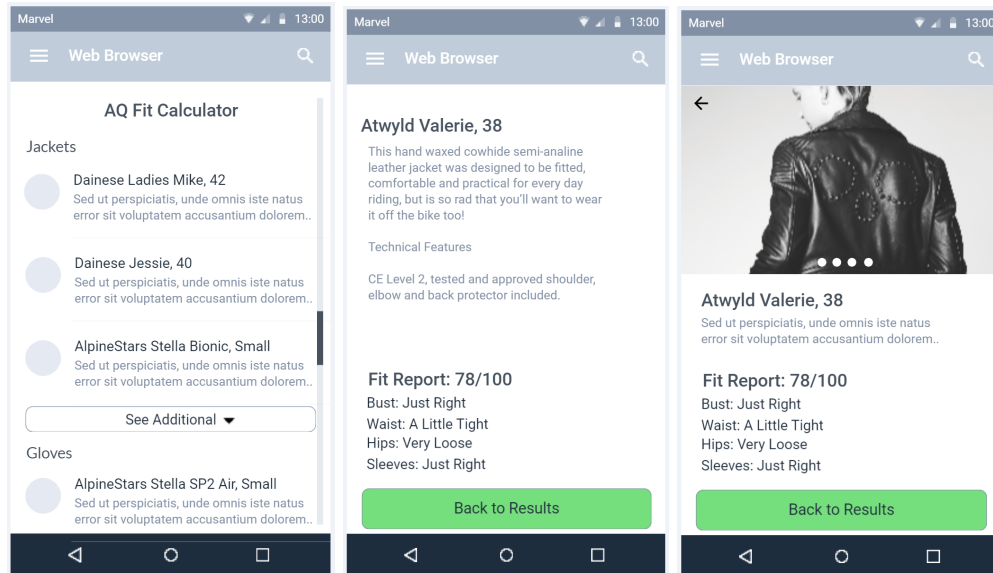
e)

i) Tech note: item's AQ sizing will be recalculated here



f) (Back to fit report home after submission)

- 4) Repeat until user selects "Calculate Your Fit"
  - a) Tech note: user AQ sizing will be recalculated here
- 5) Results screen should be ranked in descending order of best fit for each item type selected at the beginning of the calculator(jackets, pants, etc.)
  - a) UX note: We'll need a visual way to let users know how good the fit is expected to be. Something to show that even though the Dainese Jessie might be the best option, it may still be tight in the chest or short in the sleeves.
  - b) Dev/UX note: later versions should have the ability to filter for brand, color, perforated/non-perforated, and other features



c)

Technical Specs:

Database:

- 1) First version will be built in MySQL and PHP due to existing hosting availability,

- 2) 3 main tables for users, fit reports, and items
- a) USERS will contain a unique **user ID**, **measurements**: (height, weight) bust, waist, hips, (later: shirt size, pants size, shoe size, palm width) and **user AQ sizing** for bust, waist, and hips, etc.
  - b) FIT REPORTS will contain a unique **fit report ID**, the **user ID** of the submitter, the **item ID**, and user's **judgement of fit** in bust/waist/hips/sleeves (later: palm or foot) as appropriate, the **difference** between the user's measurement and the item's size in each dimension (e.g., +2 inches), the user's "**ideal\_size**" for the item, and the item's "**estimated\_size**" for the user.
  - c) ITEMS will contain a unique **item ID**, the item's **type**, **brand**, **name**, and **size**, **manufacturer's measurements** (bust/waist/hips), and **item AQ fit sizing**
    - i) Future versions should add features like "leather" or "perforated" as well as color and style (dirt, track, street, cafe, cruiser)
    - ii) Further versions should also add product descriptions and images, and maybe links to purchase

Algorithm:

#### **Calculating a user's AQ size**

If user supplied measurements, set these to AQ sizes

Else initialize to null

(Later: Elif user supplied dress/shirt/pant sizes and/or height/weight, convert to measurements for bust/waist/hips, etc.

Recalculate AQ size after fit reports: average the user's measurements and each fit report's estimated\_size

#### **Calculating an item's AQ size**

Set item AQ sizing equal to the manufacturer's sizing chart sizes

After each fit report is submitted, recalculate item's AQ sizing by averaging the manufacturer's sizing chart sizes and each fit reports "ideal\_size" for every relevant dimension (bust, waist, hips, sleeves, etc.)

Later versions: will need to consider height, shoe sizes, and glove sizes

#### **Returning records to the user**

For each item type the user selected,

Compare the user's AQ sizing with each item's AQ sizing, sum the squares of the variance of each relevant dimension, and return the 3 closest overall

Else If the user has no AQ size but has submitted a fit report, set user's AQ size equal to the item's AQ sizing bust/waist/hips/height and re-run

Else If the user doesn't have an AQ size, compare the user's height and weight (BMI) with the item's fit report height and weight (BMI)