

Glove Comfort Assessment: S5

Comfort Evaluation Protocol

This template helps identify the main reason a glove becomes uncomfortable during use: heat, sweat, fatigue, chafing, or reduced touch control.

◆ Phase 1: Research Protocol

Central Problem Entity:

Prolonged glove comfort breakdown

Problem Statement:

The glove becomes uncomfortable during wear because of heat buildup, sweat trapping, hand fatigue, seam rubbing, or reduced tactile control.

Primary Objective:

Identify the main comfort bottleneck and test one practical improvement.

Primary Metric:

Dynamic Comfort Index (DCI)

DCI Formula:

$$DCI = \frac{Heat + Sweat + Fatigue + Chafing + Touch\ Control}{5}$$

◆ Phase 2: Variable Isolation & Control

Comfort Drivers

Driver	What It Shows
Heat	Glove feels too warm

Sweat	Moisture builds inside glove
Fatigue	Hand feels tired or stiff
Chafing	Seam, liner, or material rubs skin
Touch Control	Glove reduces feel, grip, or precision

Controls

Keep these the same during the test:

- Same glove model
- Same glove size
- Same task type
- Same test duration
- Similar environment
- Same hand condition before testing

◆ Phase 3: Comfort Matrix / Quantitative Data Log

Test Setup

Field	Entry
Glove Model	
Size	
Material	
Task	
Environment	

Score Scale

Score	Meaning
4	Excellent / no issue
3	Acceptable

2	Noticeable problem
1	Serious problem
0	Failed / intolerable

Comfort Matrix

Time	Heat	Sweat	Fatigue	Chafing	Touch Control	DCI	Notes
30 min							
60 min							
120 min							

◆ Phase 4: Comfort Bottleneck Analysis

Comfort Decay

$$\text{Comfort Decay} = \text{DCI}_{30 \text{ min}} - \text{DCI}_{120 \text{ min}}$$

Decay	Meaning
$0 \leq \text{Decay} \leq$	Stable comfort
$0.6 \leq \text{Decay} \leq$	Mild decline
$1.1 \leq \text{Decay} \leq$	Major comfort issue
$\text{Decay} \geq$	Severe failure

Diagnosis Guide

Lowest / Fastest-Dropping Score	Likely Bottleneck
Heat	Thermal buildup
Sweat	Poor breathability / sweat trapping
Fatigue	Stiffness or poor flexibility
Chafing	Seam, liner, or friction issue
Touch Control	Glove too thick, stiff, or poorly matched to task

Insight Statement:

The main comfort bottleneck is _____ because the score dropped from ____ at 30 minutes to ____ at 120 minutes, creating a decay of ____.

◆ Phase 5: Testable Hypothesis / Comfort Blueprint

Hypothesis:

By changing _____, I can improve _____ and keep the DCI above _ after _ minutes of wear.

Action Test

Bottleneck	Improvement to Test
Heat	Try a lighter or more ventilated glove
Sweat	Try a more breathable or moisture-managing glove
Fatigue	Try a more flexible glove or better size
Chafing	Try a smoother liner or different seam design
Touch Control	Try a thinner or more task-matched glove

Validation

Test	Glove	Duration	Success Target	Result
Baseline	Current glove	120 min	Record current DCI	
Improved Test	New glove / size / material	120 min	DCI improves by 0.5+	

Final Decision:

- DCI 3.5 to 4.0 = Excellent comfort
- DCI 3.0 to 3.4 = Acceptable comfort
- DCI 2.0 to 2.9 = Comfort risk
- DCI below 2.0 = Failed comfort test

Safety Stop Rule:

Stop testing if numbness, burning, swelling, rash, sharp pain, grip loss, chemical leakage, or circulation restriction appears.

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