5 Tips to get gloves to fit

Gloves come in only 6 sizes while people's hands come in an infinite number of shapes and configurations. We can help you get the best fit for the job. Take a look at these 5 tips and get your work gloves to fit well the first time.

Glove Size Tip #1:
Using this Glove Size Chart, Hand Width vs. Length

Glove Size from Hand Width Measurement:

- **Wrap a tailor's measuring tape around your dominant hand just below knuckles, excluding your thumb, and make a fist.**
- **Dominant hand is the hand you use to hold a pen**
- **If you don't have a tailor's soft tape, use a piece of string and make a mark and measure the string with a ruler**
- **This measurement is your "hand width" glove size.**

Hand Width Glove size chart

Glove Size US and (EN420)	
6-7 inches	XS (6)
7-8 inches	S (7)
8-9 inches	M (8)
9-10 inches	L (9)
10-11 inches	XL (10)

	11 plus inches	XXL (11)

Glove Size from Finger Length Measurement:

- **Measure from the bottom edge of your palm - use the first crease at your wrist as the starting point**
- **Measure to the tip of your middle finger**
- **This measurement is your "finger length" glove size.**

Glove Size US and (EN420)	
6 5/16 inches	XS (6)
6 3/4 inches	S (7)
7 3/16 inches	M (8)
7 9/16 inches	L (9)
8 1/16 inches	XL (10)
8 7/16 plus inches	XXL (11)

Finger Length Glove size chart

What's most important in the Glove Size Chart

The hand width should be treated as secondary to the hand length. The reason that we think that length is more important is you don't want glove fingers that are too long. If you have a heavy muscular hand using width can push you up a size and the fingers may be too long. So concentrate on using the length data as the primary glove sizing criteria.

We have other suggestions for users with heavy full palms and fingers.

Glove Size Tip #2: Check your index finger length

Glove length is based on middle finger length. Gloves manufacturers assume the index finger is an average amount shorter than the middle finger.

Table: Biometric data on index to middle finger length differences

	Index (inches)		Middle (inches)		Difference (inches)
X Small	2.56		2.76		0.20
Small	2.68		2.91		0.24
Medium	2.87		3.07		0.20
Large	2.99		3.27		0.28
X Large	3.15		3.43		0.28
XX Large	3.43		3.70		0.28

This table shows that the AVERAGE difference between your index and middle finger is around 1/4 inch.

Table: Middle finger length delta by size

	Middle (inches)		Change by size (inches)
X Small	2.76		
Small	2.91		0.16
Medium	3.07		0.16
Large	3.27		0.20
X Large	3.43		0.16
XX Large	3.70		0.28

This table shows you that the change in finger length by size is between 1/8 and 5/16 of an inch.

Table: Min-Max index finger length from Bio metric data

	Index (inches)		Variability of finger length (97% of population)
X Small	2.56		0.31
Small	2.68		0.24
Medium	2.87		0.31
Large	2.99		0.31
X Large	3.15		0.31
XX Large	3.43		0.55

The heart of the finger length issue is in this table. The difference between middle finger length and index finger length has a lot of variation. Up to 1/2 for larger hands. For small size hands if your index finger is shorter than your middle by 1/4 to 5/16 go down a size. For larger hands if your index is shorter than your middle finger by 1/2, consider going down a size.

Glove Size Tip #3:
Heavy hands -- issues with large diameter fingers

Many users have heavy muscular palms and fingers. For these customers they might be tempted to choose a larger size as suggested by their hand width measurement and the glove sizing chart. We suggest that they consider the style of the gloves that they use. The way that a glove design can stay snug on a range of hand types is STRETCH. The more stretch in the glove material the better the glove will accommodate large diameter muscular fingers. Glove leather is not the highest stretch material used in gloves. Knit textile has higher stretch than leather.
So for users with heavy muscular fingers we suggest that you opt for glove types that have stretch knit on the backs and sides of fingers. Consider gloves that are not all leather. A really good option is a seamless knit glove

Glove Size Tip #4: Keep it Thin

Tips #4 and #5 are related. Many customers ask us for gloves with the highest protection possible. This leads to gloves that are thicker than they might need to be. At TurtleSkin we have developed a whole family of materials that provide cut level 5 and are very thin. If you want your gloves to fit and be comfortable don't opt for really thick level 5 cut gloves. A glove that is 1-2mm should be enough for cut level 5. You don't need 3 or 4mm of thickness to achieve this level of protection.
Keep your gloves as thin as possible and they will fit better and be easier to use.

Glove Size Tip #5: Specify the Protection that You Need

Utility knife requires high cut and puncture resistance

Wood splinters require moderate puncture resistance

If you select the gloves with the highest level of protection, you are probably not getting the best fitting gloves that are the most comfortable. Obviously you need to select enough cut and puncture protection to keep your hands safe. Think about your application. If you are dealing with knife blades and sharp metal, then cut 5 protection is necessary. On the other hand if you're dealing with machine parts with occasional burrs, then cut 3 or 4 may be enough. Same story on puncture. If you are faced with needles and other sharps, then you need 700-800 grams of puncture protection. If you are dealing with wood splinters, 200-400 grams may well be enough for your situation. Selection of the right level of protection makes gloves easier to fit, less expensive and more comfortable.

Did you know:

- **For Safety Gloves good sizing can make your staff more productive? If the glove fits, they'll wear it.**
- **For Law Enforcement Gloves good sizing makes all the difference in marksmanship and safety.**

The right glove size is not subjective. The Minnesota test for dexterity shows that when glove sizes are right, the speed and accuracy of hand motion is improved.

At TurtleSkin we have found that:

- **Snug fit around the finger tips is key to good dexterity**
- **Your fingers should fill the glove fingers with no extra material**
- **Finger tips should snug on the tips of the glove fingers.**
- **This simple rule for glove sizes will make your staff happier and more productive at work.**

Go to TurtleSkin.com for a variety of protective gloves

6 Tricks to work glove selection so you get the right gloves with the right features

Knits, Wovens, Leather and Rubber Coatings. There are a lot of options for gloves. What is the right material for my work glove application? Here are 6 factors to think about when choosing a work glove:

1. Make an estimate of your risk factors
    a. **Cut risk = Low, Moderate, High**
        If you are using box cutters, sharp tools, glass, sheet metal etc., your risk is high. If you are using tools and some cutting equipment, it's moderate. Other work rates as low risk. Note: getting cut is easy so don't underestimate; one bad cut is a serious lost time issue.
    b. **Puncture risk= Low, Moderate, High** ,
        If you have exposure to small sharp tools, needles or broken glass your risk is high. If you are around nails, splinters, sharp tools risk is moderate. Other work risk is low. Be sure to think about how small in diameter your puncture threats are. Small sharp objects are harder to stop and will define your glove selection.
    c. Coverage for your protection should be selected based on the most likely injury locations. If you don't have any history on injuries this will be an educated guess on injury area.

2. Make an estimate of how much dexterity you need to do the job.
    a. Dexterity and Grip = Low, Moderate, High
        Does the job require handling small parts all the time? If so, dexterity should be rated as high. If you have some fine motor work, dexterity is moderate. If most of the work involves gross motor tasks, like moving large objects, dexterity is low. For programs where you have small parts handling you need both dexterity and grip. For situations where you have to accommodate lots of fine hand work always consider the stretch knit materials for your gloves. Leather, woven fabrics and full dip coatings do not stretch as well as knits. When your work gloves stretch well, hand stress is reduced and users are happy.

3. Are there other materials or conditions in the workplace that must be considered:
    a. Liquids
    b. Pathogens and glove cleaning
    c. Abrasive materials
    d. Heat
    e. Cold

These special materials and conditions are very important because they limit the types of gloves that will work for your applications. Make sure that you look carefully at these considerations. Include a disposable cover glove as one of your options for Liquids, pathogens, and cleaning. This can be a very simple and cost effective solution to really challenging PPE conditions.

For situations where you need to address abrasion or liquids don't go overboard with your work glove selection. Consider a leather palm knit back or a palm dipped work glove with knit sides and back. These hybrid glove designs can really optimize the solutions by giving you enough durability/liquid protection while keeping the gloves easy to wear and dexterous.

4. Coverage
    a. Liquids
    b. Cut
    c. Puncture

Coverage is a selection criteria that should be treated carefully. Don't get caught in the trap that because some is good, more must be better. We are specifying work gloves because we have have risk and history for lost time injuries. This means that we have some information on where the injuries are most likely to occur on users hands. If at all possible, keep puncture protection on the palm and fingertips only.

5. Special Shells for Special Work Glove needs:
    a. FDA wash compatibility for food service
    b. Cover gloves
    c. Hot applications
    d. Chem resistance
    e. Vibration

These are pretty easy to understand with the possible exception of the cover glove and wash compatibility issues. Cover gloves are a great solution for some vexing work glove issues. By using a disposable nitrile cover glove over a compatible protective glove, you keep the higher cost glove clean and don't have to worry about cross contamination. The other special shells listed are covered in the advanced users guide.

6. Choose a glove that people will actually wear. The protective features you've carefully chosen won't matter at all if the glove is not worn. If the glove looks good, feels good and supports worker productivity, it's more likely to be used consistently.

Let's look at some examples of how to work with your results to get good work glove solutions.

----------Example#1----------

Construction work: install and fabricate sheet metal.

Cut risk = moderate, tools and knives
Puncture risk = moderate, wire, nails, sheet metal
Dexterity = high, fine motor work
Special Materials= none
Special Conditions = none

This example is pretty straightforward. Dexterity is the driver and the puncture and cut requirements come second. Because there is fine motor skill required, the grip of the glove is critical. So the materials used for the fingertips of the glove are really important for this job.

Dexterity = high, fine motor work
Select: *CP Grip with Tips option for best fine motor control and dexterity*

Cut risk = moderate, tools and knives
Puncture risk = moderate, wire, nails, sheet metal
Select*: coverage and protection level 300 or 330 the CP glove line,*

Special Materials= none
Special Conditions = none

Go to TurtleSkin.com for a variety of protective gloves

***Select**: CP Grip glove is fine for this set of conditions because you don't need any liquid protection*

----------Example #2----------

Cleaning in hospitality

Cut risk = moderate, broken glass
Puncture risk = high, needles and broken glass
Dexterity = high, fine motor work
Special Materials= liquids and pathogens
Special Conditions = none

This example is not so straightforward: The drivers for this selection are puncture, liquid and pathogens. Liquid and pathogens is the driver and the puncture and cut requirement come second. Because there is fine motor skill required, the grip of the glove is critical. The materials used for the fingertips of the gloves are really important for this job.

Puncture risk = high, needles and glass

***Select:** CP Insider with 330 or protection that includes the finger tips*

Special Materials = liquids
Special Conditions = pathogens

***Select:** CP Insider and use with a 0.005 purple disposable nitrile cover glove*

Dexterity = moderate, cleaning tasks
Cut risk = moderate, broken glass

The CP insider will work well for both this level of cut and dexterity

----------Example #3 ----------

Trucking waste and recycling

Cut risk = high, broken glass and all kinds of sharp materials in the waste stream
Puncture risk = high, needles and broken glass
Dexterity = moderate, gross motor tasks and driving, machine operation
Special Materials= liquids and pathogens
Special Conditions = highly abrasive environment

Again this example is not so straightforward: Truckers are very particular about the look and feel of their PPE and not just any glove will satisfy these users. The needle puncture and cut are the drivers for the protection. However you have a conflict with the liquid-pathogens and the highly abrasive requirements. The truckers want an all leather glove but leather is not easy to clean and its not very effective for liquids. Palm dipped type gloves would fit this application better. Lets run the ratings:

Puncture risk = High needles and glass
Cut risk = High Glass and all manner of shapes in waste stream

Select: *CP wrap 330 protection that includes the finger tips*
Or
Select *TurtleSkin Utility with the leather palm*

Special Materials = Liquids
Special Conditions = Pathogens

Select: *CP Wrap 330 because it offers the full palm dip for liquids abrasion and this glove can be cleaned*
Or
Select *TurtleSkin Utility with the leather palm, knowing that user acceptance is sometimes more important than other factors in glove selection*

Dexterity = Moderate driving and machine operation

Both of these options will be great for dexterity

TurtleSkin Basic Glove Guide, Section #3

Quick Guide to PPE Glove Standards

Puncture and Cut Resistant Gloves.

How Are These Products Rated?

For most glove buyers the key question is: How do I reduce injury rates at work? Common sense tells you that cut resistant gloves should be part of your safety program. But which cut and puncture gloves do you buy? There must be a PPE standard for safety gloves. Unfortunately buyers find PPE standards difficult to use and these standards are not very helpful with glove selection. We are going to try to boil this "standards and ratings" question down to just the key points.

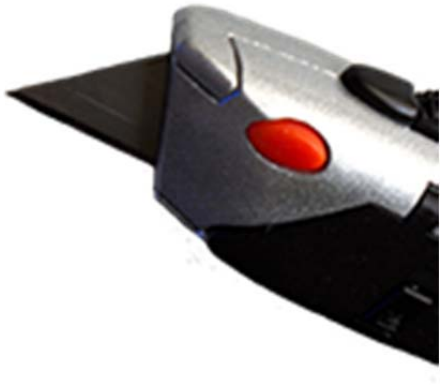
Worldwide there are 2 important safety glove rating systems:

- **In Europe and many parts of the world the EN388 standard is used**
- **In the US, the newer standard ANSI/ISEA 105-2011 is used**
- **Other standards for heat, chemical protection and vibration**

EN388 and ANSI/ISEA 105 are both mechanical protection standards, they cover:

- **Cut resistance to blades moving slowly, expressed as levels 1-5 with 5 the highest**
- **Puncture Resistance to large blunt rods, expressed as levels 1-4 with 4 the highest**
- **Abrasion Resistance**
- **Tear Resistance**

The test methods and levels are not the same for the two systems and some care needs to be used to make sure that you are comparing glove ratings within the same system - ANSI to ANSI and EN388 to EN388. Cut resistant glove ratings for ANSI/ISEA are somewhat higher than the same rating levels for EN388. So use the ANSI/ISEA system to keep things simple.



Utility Knife = Cut threats are the most common lost time issue in the work place

What is NOT Important in Safety Glove Ratings

So what's important about these standards? It may be easier to look at what's NOT important, or less important as a start:

Abrasion Resistance and the Tear Resistance are low priority for most users. It is unlikely that your glove performance will be affected by these ratings. If abrasion and tear are important to your application you are already aware of how to use these 2 rating factors for your glove needs.

This gets us down to the 2 key factors for most users, Cut Resistance and Puncture Resistance. We will look at these two rating factors one at a time.

Buy Cut 5 Rated Gloves and Reduce Your Injury Rates

Technology for cut resistant gloves has come a long way in 20 years. At one time this type of PPE was dominated by Kevlar fiber and Spectra fiber in knit gloves. Knitting enough Kevlar or Spectra into the glove to deliver cut 5 made for a thick, bulky product. Now there are more advanced composite materials, like TurtleSkin CP, used as a thin layer in very light glove. These materials give the highest cut level 5 performance with little or no loss of dexterity.
For users of cut resistant gloves it is very difficult to know what cut level is needed for a particular task. At this point advanced cut level 5 gloves are

thin and offer great dexterity. Go ahead and reduce your injury rates and buy the maximum level of cut resistance. Advanced glove technology makes cut 5 an easy decision.
If you just can't get enough of this PPE technology stuff see more information in the white paper on Dynamic Cut and Puncture.

Let's Try to Make Some Sense of Safety Glove Puncture Resistance Ratings

The second of the 2 most important factors is puncture. Most hand injuries are a combination of cut and puncture, so puncture resistance is a definite factor in reduction of lost time accidents. Unfortunately the ANSI and EN388 puncture tests use a very large diameter 0.2" or 5mm test probe. Most users of cut resistant gloves are really more concerned about smaller, sharper threats. Most customers talk about sheet metal slivers, small wires, glass shards, wood splinters and even hypodermic needles as the important puncture threats. The EN388 and ANSI/ISEA105 puncture rating does not help you with these threats. Some suppliers (TurtleSkin and others) use the ASTM F1342 -05(2013) because this test has the small sharp probe and hypo as test options.

If you feel that puncture is part of your injury history you can get more information on protection from our Puncture White Paper (http://www.turtleskin.com/blog/blog/2014/07/15/puncture-and-cut-gloves-materials/.

The second alternative is to buy gloves that are rated for ASTM F1342-05 at 200-700 grams of Hypodermic Needle (https://www.turtleskin.com/webstore/turtleskin-cp-neon-insider-gloves)
Puncture and you'll know your are covered.
One last thought on PPE :

"Buy what you will WEAR and then WEAR what you buy"
"Cut resistant gloves don't prevent injuries if they stay in your pocket."

TurtleSkin Basic Glove Guide, Section #4

Dexterity: Flexibility and Thinness for Cut Resistant Gloves - *A lesson in the magic of glove dexterity technology*

Hand protection is great but dexterity is magic for productivity.

Learn how to get the right dexterity in a PPE glove quickly with this dexterity review.

Modern glove materials make protecting your hands a lot less difficult -- and combining protection with good comfort and dexterity is now within reach. Use this section of our Glove User Guide to better understand how dexterity and comfort are measured and how to select gloves with high levels of protection that are also easy to wear.

Dexterity is a must for Puncture and Cut Resistant Gloves

Glove Dexterity is key for small part handling

In many industrial, maintenance and construction occupations it is not safe to work without gloves. Whenever a glove is worn, the glove material mediates between the user's touch and tactile control. If we could build gloves out of a material that would mimic human skin, this would be great for users. Even the best goat or kangaroo leathers are not as thin and soft as our skin, so we must accept some compromise when protecting users from hand injuries. Here are some guidelines that we can use for high performance cut resistant gloves:

- Glove materials must be thin -- 0.5mm overall thickness is an excellent target. For safety applications which require cut level 5 and puncture resistance 1.0mm of thickness is a good compromise between dexterity and protection.
- Glove materials must be flexible. This flexibility requirement is why high quality leathers are traditional glove materials. For modern materials, knit glove shells offer excellent flex and provide some of the protection for cut resistant gloves. However these inherently flexible materials are very hard to engineer for cut level 5 performance and offer little or no puncture resistance. Woven materials with coatings fill the gap for cut resistant gloves. These materials, like our TurtleSkin fabrics, are so thin that we can offer flexibility while still having a high density fabric. With these materials, we can create a cut level 5 glove that has puncture protection without undue stiffness.

Dexterity Measurement Standards: Minnesota Dexterity testing and EN420 Pin Pickup testing

There are test methods for measuring dexterity. The most common is the EN420 pin pickup test which uses steel pins from 5mm to 11mm in diameter to challenge the dexterity of the gloved hand. The pins must be picked up 3 times in 30 seconds and the smaller the pin that can be picked up with the glove, the better the test will rate the glove. While this test does measure the handling of small parts, it is not a complete look at glove dexterity. The pin pickup test does not evaluate hand fatigue from repetitive motion. Because the pin test only requires that the pins be picked up 3 times, there is no measurement of dexterity loss from prolonged glove use. The Minnesota Test does measure this repetitive motion performance. The Minnesota Test uses an array of small plastic disks with matching placement board. The disks must be carefully placed in sorting trays. The time to complete each tray with gloves on is measured against the time for the subject to complete the same replicates when using bare hands. This allows us to measure "Repetitive Motion Dexterity Reduction" from cut resistant gloves. We have found that users can accept up to 30% "Dexterity Reduction" as measured by the Minnesota Test and still rate the safety gloves as comfortable.

A Quick Dexterity Test You Can Run At Your Desk With A Pencil

The primary mechanism for Repetitive Motion Dexterity Reduction is the increased gripping force that the glove wearer must use to hold objects. This gripping force issue is a current topic of research for physical therapy and geriatric orthopedics. We call our simple test of gripping force the Subjective Pencil Pickup Test.

- Pick up a standard #2 pencil bare handed and make mental note of how much gripping force you must use to hold the pencil reliably.

- Put on the test gloves and repeat the pencil pick up, again take note of your gripping force.
- If you are using a high gripping force to pick up the pencil wearing the gloves, then the gloves will result in Repetitive Motion Dexterity Reduction of more than 30% and users will not be happy.
- If the gripping force needed to lift the pencil with the glove is close to the force you use with a bare hand, then the more likely your users will rate the cut resistant gloves as comfortable because the dexterity loss will likely be less than 30%