YOUR HANDS

27 BONES
123 JOINTS
29 MUSCLES

48 TENDONS
40 ARTERIES

BECAUSE THEY'RE WORTH IT
Hand Injury Statistics

70% of hand injuries result from not wearing any type of hand protection.

Cost of average puncture: $53K

Cost of average fractured: $106K

Cost of average severed tendon: $70K

20% of disabling workplace injuries involve hands.

30% of hand injuries caused by wearing the wrong glove.

Data sources: ASSE.org, BLS.gov, NSC.org, and OSHA.org
Hand Injury Statistics

• Over 1,000,000 hand injuries in the U.S. alone

• 70% of hand injuries result from not wearing any type of hand protection

• 20% of disabling workplace injuries involve hands

• 30% of hand injuries caused by wearing the wrong glove

• Over $740,000,000 in hand and wrist injuries
Hand Injury Statistics

These are huge costs, especially when considering that 70% of hand injuries are caused by not wearing any type of hand protection. OSHA provides a breakdown of various occupational injuries and estimates of what they cost per year, per incident:

• Lacerations: $40,023
• Punctures: $47,703
• Fractures: $101,833
• Crushing: $118,769
Hand Injury Statistics

- From The Bureau Of Labor Statistics Annual Study:
  - There were 186,830 nonfatal occupational injuries to hands and wrists that involved days away from work
  - Wrist injuries led to 15 median days away from work and hand injuries led to 5 median days away from work
  - Number of injuries to hands and wrists by nature of injury are broken down as follows:
    - 30,400 sprains, strains, and tears
    - 17,000 fractures
    - 12,300 pain and soreness
    - 6,790 bruises and contusions
Hand Injury Statistics

Total Industry Lost Time Incidents by Body Part
• Out of 743 incidents:
  o Finger injuries led with 22.88% of total incidents
  o Hand/Wrist injuries were 6.85% of total incidents

Total Industry Recordable Incidents by Body Part
• Out of 2,386 incidents:
  o Finger injuries led with 31.44% of total incidents
  o Hand/Wrist injuries were 10.03% of total incidents

Total Industry Recordable Incidents by Body Part
• Finger/Hand/Wrist injuries led with 40.6% of total incidents
• Of the incidents reported:
  o Floor hands and derrickmen, combined, accounted for 53% of all accidents
  o 36% were struck by/against
  o 26% were caught in between
Understanding Glove Ratings

The new EN ratings

<table>
<thead>
<tr>
<th>Test</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion (cycles)</td>
<td>Level 4</td>
</tr>
<tr>
<td>Cut (Coupe Test)</td>
<td>Level 4</td>
</tr>
<tr>
<td>Tear (N)</td>
<td>Level 5</td>
</tr>
<tr>
<td>Puncture (N)</td>
<td>Level 4</td>
</tr>
<tr>
<td>Cut (TDM-100 Test)</td>
<td>Level E</td>
</tr>
<tr>
<td>Impact protection</td>
<td>Achieved</td>
</tr>
</tbody>
</table>
Understanding Glove Ratings

ANSI NEW vs OLD ANSI CUT STANDARDS RATINGS

NEW ANSI (F2992M-15)

OLD ANSI (F1790-05)

NEW ANSI vs EN 388 CUT STANDARDS

Level A: 2 Newtons (203.94gf)
Level B: 5 Newtons (505.96gf)
Level C: 10 Newtons (1019.71gf)
Level D: 15 Newtons (1529.57gf)
Level E: 22 Newtons (2243.37gf)
Level F: 30 Newtons (3069.14gf)

*1n = 101.97gf
GLOVE RATINGS EXPLAINED

The North American Standards Institute and European Union have developed different standards for testing and rating PPE against cut hazards. The United States uses ANSI/ISEA standards while Europe uses EN certification. Recent updates to ANSI and EN388 testing methods aim to significantly improve the way gloves are tested and rated.

THE UPDATED CE EN388 STANDARD

In 2016, the European standard used to evaluate mechanical risks for hand protection was updated. The below material is meant to help guide you through what changes were made and how those changes will be reflected in the glove markings.

CHANGES TO CUT TESTING

The most significant change is the formal inclusion of the ISO 13997 standard, the TDM 100 Test. Prior to 2016, the Coup Test was the preferred method for measuring the cut resistance of a glove. The Coup Test utilizes a circular blade that rotates back and forth on the palm material of the glove until a cut through is achieved. The score is defined as a cut index and is given a rating of 1-6.

In 2016, the decision was made that the TDM-100 would be the cut testing machine of choice in Europe but it was also decided that the glove must be also tested and certified under the Coup Test. The most common complaint regarding the Coup Test was that the blade would dull during the test. Therefore, the 2016 revision stated that if the blade dulled during the 60 passes over the test fabric the testing house must stop the Coup Test and use the TDM-100 test as outlined under the ISO 13997 standard.

There are significant differences between the two tests. The TDM test utilizes a straight blade and is only used once. The blade travels 20mm and the force applied is increasing. The score is defined in newtons and is given an alpha rating that ranges from A-F (low to high).

Under the 2016 update, the markings on the glove will change for cut. The second position will show the rating results (I-G) from the Coup Test. If a TDM test was utilized, the TDM test results will show ratings (A-F) in the 5th position. In this case, the manufacturer may opt to show the Coup Test results as an X and only show the TDM test results.

IMPACT RATING

The CE EN388 standard was also updated to incorporate an impact test if the glove has impact protection on the back of the hand. The test is in accordance with EN388A. The impact test consists of placing a block of hand knuckle material over a block of flat metal and dropping a 2.5 kg flat face surface striker from a height that provides an impact energy of 5 joules. The peak force is recorded by a sensor beneath the flat metal block. The test is performed 5 times in each protected area from four different gloves to ensure consistent results. In order for the glove to pass the test the transmitted force needs to be less than or equal to 7kN with no single result more than 8kN. If the glove passes the test the glove marking will contain the letter P in the 6th position.
Glove Matrix

GLOVE BOARD
BECAUSE THEY'RE WORTH IT.

169  SUPER HERO CR
SECURE CUFF

179  SUPER HERO CR
SLIP-ON CUFF

277  ZERO COLD WEATHER
TEFLON PALM

279  SUB-ZERO COLD WEATHER
LEATHER PALM

665  R-HIDE IMPACT
Genuine Leather

COMMON JOBS REQUIRING HAND PROTECTION

<table>
<thead>
<tr>
<th>Job Task</th>
<th>169</th>
<th>179</th>
<th>277</th>
<th>279</th>
<th>665</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Compressor, pump, engine, crane maintenance</td>
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<td>✔</td>
<td>✔</td>
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<td>✔</td>
</tr>
<tr>
<td>Cutting and sawing</td>
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<td>✔</td>
</tr>
<tr>
<td>Housekeeping (moving equipment and debris)</td>
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<td>✔</td>
<td>✔</td>
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<td>✔</td>
</tr>
<tr>
<td>Pipe/tubing handling, cutting, threading</td>
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<td>✔</td>
<td>✔</td>
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<td>✔</td>
</tr>
<tr>
<td>Pressure washing of equipment and parts</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Process equipment modifications</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Reinforcing/cutting/lining and line breaking</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Opening valves, orifice meters, controllers</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Rigging loads for lifting operations, handling of wire rope</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Tool use (powered and non-powered)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Exposure to cold temperatures</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

HALLIBURTON

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Schlumberger
IMPACT PROTECTION GLOVE CHART

065  R-FLEX IMPACT
NITRILE D/P - TOUCHSCREEN

R-169  SUPER HERO
SYN LEATHER

R-179  SUPER HERO
SYN LEATHER

R-259 ROUGHNECK
SYN LEATHER

R-259B ROUGHNECK BARRIER
SYN LEATHER

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Think 10 Program

TIPS FOR HAND SAFETY

1. Remove all jewelry from hands and fingers.
2. Know the hazards associated with the task or job.
3. Identify your risks.
4. Be aware of pinch points and crush zones.
5. Ensure proper sizing and fit of gloves.
6. Make sure you use the correct tools for the job.
7. Choose the proper gloves for the task.
8. Take your time and be aware of where your hands are.
9. Be aware of rotating or moving surfaces.
10. Leave work at the end of the day with all 10 tools.

Because They’re Worth It.”
GLOBAL REACH

- Ringers Gloves Headquarters
- Distributor Partner
- Distributor Center