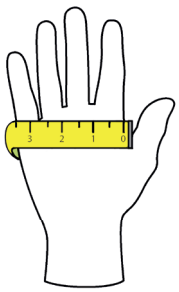
Choosing The Right Glove Size



Option 1.
Measure the circumference of your hand at the palm using a tape measure. The size chart, below, explains which size glove will fit you best.

Option 2.
Place your right hand on the diagram with the line between your thumb and index finger. The line closest to the right side of your hand indicates the best fitting glove size.

Knitting Gauge
This symbol denotes the knitting gauge of the glove liner

7 10 12 13 15 18

Heavy **Fine**

Glove & Hand Size Chart as per Standard EN420

Hand Size	6	7	8	9	10	11	12	13
Palm Circumferences (mm)	6"	7"	8"	9"	10"	11"	12"	13"
Hand Length (inches)	6-6½	6½- 7	7- 7½	7½	8	8½	9	9½
Minimal Glove Length (inches)	8½	9	9½	9½-10	10-10½-	10½-11	11½-12	12½
Glove Size	XS / 6	S / 7	M / 8	L / 9	XL / 10	XXL / 11	3XL/12	4XL/13
Portwest Cuff Color Code								

Know your Gloves

HAND PROTECTION IS CRITICAL - FIND THE RIGHT GLOVE FOR THE JOB
Below we have compiled a guide to help you find and identify the right hand protection for the job. Below is a guide to materials used and the performance factors associated. This will aid in decision making to secure the right hand protection for the job.

GENERAL GLOVE INDUSTRIAL USE:

DISPOSABLE GLOVES	FABRIC GLOVES	LEATHER GLOVES	CHEMICAL RESISTANCE GLOVES
Made from rubber, synthetic rubber or PVC. Typically used in Food manufacture, engineering, medical and pharmaceutical industries.	Constructed using cotton or fabric material, used to insulate the hands from heat or cold. Used for enhanced grip and handling slippery objects	Leather is a traditional material used to protect against injuries from rough abrasive surfaces. Ideal for use in welding applications	Made from rubber, synthetic rubber or PVC. These gloves protect hands from corrosives, oils, and solvents
			

GLOVES LINER TYPE

KNITTED	Highly breathable, close fitting with good dexterity
SEAMLESS	Avoids hand irritations due to no seams, increase comfort
SEWN & IMPREGNATED	Available with several types of construction and assembly, mainly cut and sewn. Coating is bound to the fabric for good resistance to abrasion. Sewing and impregnation process allows the manufacturing of thin gloves, for enhanced dexterity
COATED/ DIPPED	Made by dipping a knitted or woven cloth liner into the glove compound - the liner "supports" the compound and adds strength. Compound used enhances the mechanical performance, different compounds are used for different conditions

GLOVE LINER MATERIAL

COTTON	POLYESTER	NYLON	ACRYLIC	PARA-ARAMID	HPPE	GLASS FIBER	LEATHER: SMOOTH GRAIN	LEATHER: SPLIT GRAIN
Comfort/ Breathability	Durability	Stretch / Elasticity	Insulation	Cut Resistance / Heat Resistance	High performance Cut Resistance, Comfort, Abrasion Resistance	Cut Resistance	Durable, supple, oil & water repellent	Abrasion Resistance, Durable. Dry grip

DIPPING MATERIAL / IMPACT PADS MATERIAL

NITRILE	NEOPRENE	NITRILE FOAM	PU	LATEX	PVC	TPR	TPV
Excellent resistance to snag, cut, puncture and abrasion. Dry grip	Dry, wet and oil grip	Oil and wet grip	Good abrasion resistance. Dry grip	Dry and wet grip	Good abrasion resistance. Dry, wet and oily grip	Impact Protection	Impact Protection

CUFF STYLE

UNSUPPORTED GLOVES	BEADED	STRAIGHT	PINKED	SUPPORTED GLOVES	GAUNTLET	KNITWRIST	SAFETY CUFF	SLIP ON CUFF
Molds are dipped directly into a compound material, giving the wearer maximum dexterity. There are two options, unlined or flock-lined with cotton or rayon polyester for improved comfort	Optimize liquid protection with increased cuff strength	Additional length which protects forearm from liquid runoff	Traditional style, improved edge grip for ease of donning and glove removal	A liner is dipped into a compound material. This absorbent liner holds provides improved comfort during wear and adds strength and durability to the glove	Additional length which protects forearm (4" plus)	Securely fits gloves in place and prevent dirt entering the glove	Provides additional wrist protection (2.5" in length)	Easy donning, economical design
								

USA Hand Protection Standards Explained

ANSI/ISEA 105

American National Standard for Hand Protection

This standard addresses the classification and testing of hand protection for specific performance properties related to chemical and industrial applications. Hand protection includes gloves, mittens, partial gloves, or other items covering the hand or a portion of the hand that are intended to provide protection against or resistance to a specific hazard.

5.1 Mechanical Protection

5.1.1 Cut Resistance

The new ASTM F2992-15 test replaces ASTM F1790-05 and ensures uniform testing plus increases the performance levels beyond the old level 5. The sample is cut 15 times by a straight edge blade, under load. A new blade is used for each cut. The data is then used to determine the required load to cut through the material and this in turns is equated to a cut level. The new levels are now prefixed with the letter A.

Table 1 Classification for Cut Resistance

Level	Load (grams)
-	*<200*
A1	*201-499*
A2	*500-999*
A3	*1000-1499*
A4	*1500-2199*
A5	*2200-2999*
A6	*3000-3999*
A7	*4000-4999*
A8	*5000-5999*
A9	*>6000*

5.1.2 Puncture Resistance

When tested in accordance with Clause 6.4 of EN 388:2003 Protective gloves against mechanical risks, the gloves resistance against puncture shall be classified against the levels listed in Table 2, using the puncture force.

The average of a minimum of 12 specimens shall be used to report the classification level.

Table 2. Classification for Puncture Resistance

Level	Table 2. Classification for Puncture Resistance Level : Puncture (Newtons)
0	*<10*
1	*≥ 10*
2	*≥ 20*
3	*≥ 60*
4	*≥ 100*
5	*≥ 150*

5.1.3 Abrasion Resistance

When tested in accordance with ASTM D3389-05, Standard Test Method for Coated Fabrics Abrasion Resistance or ASTM D3884-09, Standard Guide for Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method), the gloves abrasion resistance shall be classified against the levels listed in Table 3 using the number of abrasion cycles to failure (test endpoint). These test methods shall be followed using H-18 abrasion wheels with a 500 gram load for levels 0 to 3 and a 1000 gramme load for levels 4 to 6. Using ASTM D3389-05 for coated glove fabrics or unsupported gloves, the end point at which the glove material is determined to fail shall be at the number of abrasion cycles just before the film or coating has a hole abraded through it. Using ASTM D3884-05 for coated glove fabrics, the end point shall be when the first thread or yarn is broken. The average of a minimum of 5 specimens shall be used to report the classification level.

Table 3. Classification for Abrasion Resistance

Level (tested at 500 g load) :	Abrasion cycles to fail
0	*<100*
1	*≥ 100*
2	*≥ 500*
3	*≥ 1,000*
Level (tested at 1000 g load)	
4	*≥ 3,000*
5	*≥ 10,000*
6	*≥ 20,000*

5.2 Chemical Protection

5.2.1 Chemical Permeation Resistance

When tested in accordance with ASTM F739-07, Standard Test Method for Permeation of Liquids and Gases through Protective Clothing Materials under Conditions of Continuous Contact the gloves chemical permeation shall be classified against the levels listed in Table 4 using the average standard breakthrough time (for each chemical tested). The average of a minimum of 3 specimens shall be used to report the classification level. In reporting permeation data for each chemical the permeation rate shall be reported in µg/cm2 min. It shall be permitted to report the cumulative permeation in g/cm2 that occurs within 1 hour of the test for each chemical.

Table 4. Classification for Chemical Permeation

Level	Standard breakthrough time (minutes)
0	*<10*
1	*≥ 10*
2	*≥ 30*
3	*≥ 60*
4	*≥ 120*
5	*≥ 240*
6	*≥ 480*

5.4 Heat and Flame Protection

5.4.1 Ignition Resistance and Burning Behavior (or After-Flame Time)

When tested in accordance with ASTM F1358-08, Test Method for Effects of Flame Impingement on Materials Used in Protective Clothing Not Designated Primarily for Flame Protection, the glove materials ignition resistance and burning behavior shall be classified against the levels listed in Table 6, using ignition time and burn time. In order to be classified at a specific level, the glove material shall meet each of the criteria at that specific level. The average of a minimum of 3 specimens shall be used to report the classification level.

Table 6. Classification for Ignition Resistance and Burning Resistance

Level	Time Exposed to Flame (s)	After-Flame time (s)
0	*3*	*> 2*
1	*3*	*≤ 2*
2	*12*	*>2*
3	*12*	*≤ 2*
4	no ignition in either 3 or 12 second exposure period	

5.4.3 Conductive Heat Resistance

When tested in accordance with ASTMF1060-08 Test Method for Thermal Protective Performance of Materials for Protective Clothing for Hot Surface Contact, the gloves conductive heat resistance shall be classified against the levels listed in Table 8. Classification of glove performance shall be based on the contact (surface) temperature at which both the time-to-second degree burn is equal to or greater than 15 seconds, and the alarm time is greater than 4 seconds. The average of a minimum of 5 specimens shall be used to report the classification level.

Table 8. Classification for Conductive Heat Resistance

Level	Highest contact temperature(°C) at which both time-to-2nd degree burn > 15 seconds and alarm time> 4 seconds
0	*< 80*
1	*80*
2	*140*
3	*200*
4	*260*
5	*320*

ASTM F2675-13

Test Method For Determining Arc Ratings of Hand Protective Products Developed and Used for Electrical Arc Flash Protection.

This test method is used to measure and describe the properties of hand protective products in response to convective and radiant energy generated by an electric arc under controlled laboratory conditions. There are 4 levels in the Hazard Risk Category rated by the ATPV (Arc Thermal Performance Value).

Hazard Risk Category	Minimum ATPV cal/cm2
0	*n/a*
1	*4*
2	*8*
3	*25*
4	*40*

European Hand Protection Standards

PROTECTIVE GLOVES : GENERAL REQUIREMENTS

EN 420: 2003 + A1 2009

This standard defines the general requirements for glove design and construction, innocuousness, cleaning instructions, electrostatic properties, sizing, dexterity, water vapor transmission and absorption along with marking and information.

PROTECTIVE GLOVES AGAINST MECHANICAL RISKS

EN 388 - 2016

EN388:2003 Standards specifies physical and mechanical aggression caused by abrasion, blade cut, tearing and puncture. EN388:2016 updates the existing standard with this new test method for abrasion, blade cut & impact resistance. EN ISO 13997:1999 (TDM test) records cut results as a Newton value - the force of the blade on the glove material needed to cut through the material 20mm. The results are represented on a scale A-F.

EN388 2016

1.3.1.2.E.P

Revised Coup Cut Test

EN388:2016

- Max 60 Cut cycles

EN388 2003

1.3.1.2

EN388:2003

- Unlimited Cut cycles

1 3 1 2 E P

REQUIREMENTS

Performance level P
IMPACT RESISTANCE
Impact-resistant properties to 5J
2016 ONLY

Performance levels A – F
STRAIGHT BLADE CUT RESISTANCE:
(TDM cut test) Measures the average load to achieve the moment of cut-though
2016 ONLY

PERFORMANCE LEVELS 1-4
d: PUNCTURE RESISTANCE:
Force required to pierce the sample with a standardized punch.

Performance Levels 1-4
c: TEAR RESISTANCE:
Maximum force required to tear the sample.

Performance Levels 1-5
b: BLADE CUT RESISTANCE: (Coup cut test)
Number of cycles required to damage the sample at constant speed.

Performance Levels 1-4
a: ABRASION RESISTANCE:
Number of cycles required to damage the sample at constant speed.

TEST	Level 1	Level 2	Level 3	Level 4	Level 5
Abrasion resistance(number of cycles)	100	500	2,000	8,000	-
Blade cut resistance (index) Coup test method	1.2	2.5	5	10	20
Tear resistance (N)	10	25	50	75	-
Puncture resistance (N)	20	60	100	150	-

EN ISO 13997:1999 TDM	Level A	Level B	Level C	Level D	Level E	Level F
Cut resistant test levels (N)	2	5	10	15	22	30

EN374

AKL

Protective Gloves : Against Chemicals And Micro-Organisms

EN 374-1: 2003

This European standard specifies the requirements for gloves to protect the user against chemicals and/or micro-organisms and defines terms to be used.

EN 374-2:2003

This European Standard specifies a test method for the penetration resistance of gloves that protect against chemicals and/or micro-organisms.

EN 374-3: 2003

This European Standard specifies the determination of the resistance of protective glove materials to permeation by potentially hazardous non-gaseous chemicals under the condition of continuous contact.

EN374

Gloves must prove that they are an effective barrier against liquids and micro-organisms.
Performance levels are according to Acceptable Quality Levels (AQL) whereby samples are taken from a batch of gloves and tested during production for pinholes and leaks by either inflation with air or by filling with water.
Gloves must meet at least level 2, to be considered micro-organism resistant.
(Level 1 = AQL 4.0) (Level 2 = AQL 1.5) (Level 3 = AQL 0.65)

EN374

The "Low Chemical Resistant" or "Waterproof" glove pictogram is to be used for those gloves that do not achieve a breakthrough time of at least 30 minutes against at least three chemicals from the defined list, but which comply with the penetration test.

Code	Chemical	Class
A	Methanol	Primary alcohol
B	Acetone	Ketone
C	Acetonitrile	Nitrile compound
D	Dichloromethane	Chlorinated paraffin
E	Carbon disulphide	Sulphur containing organic compound
F	Toluene	Aromatic hydrocarbon
G	Diethylamine	Amine
H	Tetrahydrofurane	Hetero-cyclic and ether compound
I	Ethyl acetate	Ester
J	n-Heptane	Saturated hydrocarbon
K	Sodium hydroxide 40%	Inorganic base
L	Sulphuric acid 96%	Inorganic Mineral Acid

Passage time measured (min)	Performance index to permeation
> 10	1
> 30	2
> 60	3
> 120	4
> 240	5
> 480	6

EN ISO 10819

Protective Gloves: Mechanical Vibration And Shock

EN 10819: 1996

This European Standard specifies a method for the laboratory measurement, the data analysis and reporting of the vibration transmissibility of gloves in terms of vibration transmission from a handle to the palm of the hand in the frequency range from 31.5 Hz to 1250 Hz. The standard is intended to define a screening test for the vibration transmission through gloves.

EN407

Protective Gloves Against Thermal Risks (Heat and/or Fire)

EN 407: 2004

This standard specifies thermal performance for protective gloves against heat and/or fire. The heat and flame pictogram is accompanied by a 6 digit number.

1 3 1 2 1 2

REQUIREMENTS

PERFORMANCE LEVELS 1-4
f: RESISTANCE TO A LARGE MELTING METAL SPRAY:
Amount of spray required to raise the glove to a certain temperature.

PERFORMANCE LEVELS 1-4
e: RESISTANCE TO SMALL MELTING METAL SPRAY:
Amount of spray required to raise the glove to a certain temperature.

PERFORMANCE LEVELS 1-4
d: RESISTANCE TO RADIATING HEAT:
Time required to raise a given temperature level.

PERFORMANCE LEVELS 1-4
c: RESISTANCE TO CONVECTIVE HEAT:
Time during which the glove is able to delay the transfer of heat of a flame.

PERFORMANCE LEVELS 1-4
b: RESISTANCE TO CONTACT HEAT:
Temperature (within the range of 100°C to 500°C) at which the person wearing the gloves will not feel any pain (for a period of at least 15 seconds).

PERFORMANCE LEVELS 1-4
a: RESISTANCE TO FLAMMABILITY:
Time during which the material remains lit and continues to be consumed after the ignition source has been eliminated.

B: RESISTANCE TO CONTACT HEAT:

PERFORMANCE LEVEL -	CONTACT TEMPERATURE (°C)	THRESHOLD TIME (Second)
1	100°C	≥15s
2	250°C	≥15s
3	350°C	≥15s
4	500°C	≥15s

EN1149

Protective Clothing: Electrostatic Properties

EN 1149-1:2006

This European Standard specifies a test method for materials intended to be used in the manufacturing of electrostatic dissipative protective clothing (or gloves) to avoid incendiary discharge. This test method is not applicable for materials to be used in the manufacturing of protective clothing or gloves against mains voltages.

EN 1149:2008

This is the harmonized European standard for protective clothing-protection against the danger caused by static electricity. This standard is not applicable for protection against mains voltages.

ESD

ESD - (Electrostatic Discharge)

ESD gloves are used to divert static electricity. Surface resistivity is tested according to method specified in EN1149-1 but test sample must meet the requirements of EN1149-5.

EN511

Protective Gloves Against Cold

EN 511:2006

The European Standard specifies the requirements and test methods for gloves which protect against conductive cold down to -50 degrees Celsius. This cold can be linked to the climate conditions or an industrial activity.

3 3 1

REQUIREMENTS

PERFORMANCE LEVELS 0-1
c: WATER PENETRATION

PERFORMANCE LEVELS 1-4
b: RESISTANCE TO CONTACT COLD

PERFORMANCE LEVELS 1-4
a: RESISTANCE TO CONVECTIVE COLD

EN12477

Protective Gloves For Welders

EN 12477: 2001

This European Standard specifies requirements and test methods for protective gloves for use in manual metal welding, cutting and allied processes. According to their performance, protective gloves for welders are classified into two types.

Type A: Lower dexterity (with higher other performance)
Type B: Higher dexterity (with lower other performance).

CE Food Safe

European legislation with respect to Food Contact Materials (Directive EC1935/2004) requires that food contact materials shall not transfer their ingredients to food and must not modify the organoleptic properties (ie. color, smell, texture and taste) of the food. Products intended for food contact shall be labeled as such.