GWORX2

Original

HI-VIS

Features

- **4-Way Spandex:** Enables complete hand movement and unrestricted flexibility.
- **Synthetic Palm:** Provides a more durable alternative to leather.
- **Neoprene Palm:** For vibration control and enhanced grip of tools.
- **Hi-Vis Liner:** Enhances wearer safety for maximum visibility.
- **Reinforced Double Stitching:** For increased strength and longevity.
- **Velcro Closure:** Reduces glove movement on the hand for enhanced fit, comfort and security.
- **Breathable:** Wearer comfort in hot conditions.
- **ID Area:** For easy recognition or adding an issue date for convenient usage monitoring.
- **UPF50+:** Maximum sun protection.

Standards & Certification

EN 388 3243A

REACH COMPLIANCE

AS/NZS4399 UPF 50+

CE Cat. II

CERTIFIED PRODUCT Australian Standard AS/NZS 2161.2:2020 AS/NZS 2161.3:2020 Lic. BMP 719030

Force360 recognise that without product certification by a Notified Body all product performance testing, and adherence to standards claims cannot be independently verified. If they are not as claimed, serious safety implications for the wearer, and legal implications for the supplier and even the employer may arise.
Force360 source their entire range of Mechanics hand protection from a single manufacturing partner to ensure consistency and reliability of product, but most importantly Force360 have taken the further step of engaging a globally recognised Notified Body to audit and certify both the manufacturing process and the products.
All of Force360's hand protection is certified to the latest AS/NZS hand protection standards.

Specifications

Part No.	GWORX2
Liner	Synthetic leather

Packaging

1 | 12 | 72

Sizing & Fit

Available Sizes

GWORX2.S	Small
GWORX2.M	Medium
GWORX2.L	Large
GWORX2.XL	X Large
GWORX2.2XL	2X Large

Dexterity Level

Maximum Dexterity Level 5
Certified under AS/NZS 2161.2020

GWORX2

Hand Protection Standards

AS/NZS 2161.2:2020

EN ISO 21420:2020

This standard adopts EN ISO 21420:2020 in its entirety, but makes minor modifications for the Australian market.

The new glove standard AS/NZS 2161.2:2020 has been introduced as a replacement for AS/NZS 2161.2:2005 and ensures the materials manufacturers of PPE use in their products do not adversely affect the health or safety of the user. It also responds to the growing trend in standardisation to address the topic of "innocuousness" and takes into consideration the requirements of the EU PPE Regulation in terms of the Essential Health and Safety aspects of Annex II.

AS/NZS 2161.2:2020 specifies the general requirements and relevant test procedures for glove design and construction, innocuousness, comfort and efficiency, as well as the marking and information supplied by the manufacturer applicable to all protective gloves.

REACH COMPLIANCE

Required Safe pH Level

Certified under AS/NZS 2161.2

AZO Dye and Irritant Chemical Free

Certified under AS/NZS 2161.2

SUN PROTECTION

UPF50+ Sun Protection

Pass under AS/NZS 4399 Sun Protective Clothing. *Tested by Australian Radiation Protection And Nuclear Safety Agency (ARPANSA).*

GLOVE CARE

Machine Wash <40°C
Cold Water Rinse
Dryer <60°C

EN 388

3243A

AS/NZS 2161.3:2020

EN 388:2016

This Australian standard adopted EN 388:2016,A1:2018 in its entirety and came into effect from November 2020. The standard specifies requirements, test methods, marking, and information to be supplied for protective gloves against the mechanical risks of abrasion, blade cut, tear, puncture and, if applicable, impact.

ABRASION TEST

3 X X X X X

The abrasion resistance test is carried out using an instrument known as a Martindale tester. The material to be tested is placed on a bed, and a rubbing head of fixed size and pressure, covered with a standard abrasive material, is moved in a circular motion over the test specimen.

Abrasion Resistance (Cycles)	Rating
8000	4
2000	3
500	2
100	1

CUT (COUPE TEST)

X 2 X X X X

Until the EN 388:2016 standard was released, the 'Coupe Blade Cut Test' was the only standard test method for measuring cut protection. A rotating blade moves horizontally across a fabric sample with a fixed force of 5 Newtons. The test is complete when the blade breaks through the fabric, and the result is indicated as an index value.

Cut Index	Rating
20	5
10	4
5	3
2.5	2
1.2	1

TEAR TEST

X X 4 X X X

The tear test is carried out by clamping four sample material swatches (taken from the glove's palm) into a standard tensile strength testing machine. The machine moves apart at a speed of 100mm per minute, and the force required to tear the fabric is measured in Newtons.

Tear Resistance (Newtons)	Rating
70	4
50	3
25	2
10	1

PUNCTURE TEST

X X X 3 X X

The puncture test is carried out by a compression test machine that pushes a 50mm rounded stylus through a sample cut from the glove's palm at a speed of 100mm per minute. The maximum resistance force is recorded and used to give the performance level rating from 1 to 4.

Puncture Resistance (Newtons)	Rating
150	4
100	3
60	2
20	1

EN ISO 13997 CUT TEST

X X X X A X

Gloves engineered for cut resistance commonly have a blunting effect on blades; for this reason, additional cut tests must now be completed and verified. Any fabric that blunts the 'Coupe Blade Cut Test' blade will be marked with an X, and testing using the new EN ISO 13997 test should be carried out.

EN ISO Cut Resistance	Rating
30N (3059g)	F
22N (2243g)	E
15N (1530g)	D
10N (1020g)	C
5N (505g)	B
2N (204g)	A

IMPACT TEST

X X X X X X

The impact test is a new addition to EN 388:2016 and is a pass/fail optional test. It is the resistance to a 2.5kg weight impacting 5J (Joules) energy onto the glove. The material may not fracture or split and is measured following EN 13594:2015 as either Pass (P) or Fail (F). If this test is not carried out, it is recorded with an 'X'.

EN13594:2015	Rating
Fracture / Split	Fail
No Change	Pass
Not Tested	X

GWORX2

Hand Protection Standards

AS/NZS 2161.4:1999

EN 407:2020

The standard specifies requirements, test methods, marking and information for protective gloves and other protective hand equipment against thermal risks for professional use, consumer and/or domestic use. This test method is used for all gloves and other protective equipment which protect the hands or part of the hand against heat and/or fire in one or more of the following forms: flame, contact heat, convective heat, radiant heat, small splashes or large quantities of molten metal. It is only applicable in conjunction with EN ISO 21420:2020.

LIMITED FLAME SPREAD

X X X X X X

A new test setup system for the testing machine has been defined to prevent glove shrinkage when the ignition flame is applied. After the flame is applied for 10 seconds, the after-flame time and after-glow constitute the test results scores as per the table. Three gloves must be tested.

After-Burn Time (sec)	After-Glow Time (sec)	Rating
Under 2 Seconds	Under 5 Seconds	4
Under 3 Seconds	Under 25 Seconds	3
Under 10 Seconds	Under 120 Seconds	2
Under 20 Seconds	Infinity	1

CONTACT HEAT RESISTANCE

X X X X X X

The entire glove (palm, fingers, etc.) and all its component materials must be tested. Three gloves must be tested. The glove shall protect the wearer from pain for 15 seconds whilst being exposed to an incremental temperature range of 100 to 500°C. Depending on the temperature reached, a score is given (1-4).

Temperature after 15 Seconds (ºC)	Rating
500ºC	4
350ºC	3
250ºC	2
100ºC	1

CONVECTIVE HEAT RESISTANCE

X X X X X X

To determine the convective heat resistance of a glove, a laboratory must test three 140×140mm specimens taken from the palm of a glove. If a glove consists of multiple layers, a sample consisting of all the layers must be tested.

Seconds	Rating
Under 18 Seconds	4
Under 10 Seconds	3
Under 7 Seconds	2
Under 4 Seconds	1

RADIANT HEAT RESISTANCE

X X X X X X

Three 80×170mm specimens taken from the back of a glove must be tested. If a glove consists of multiple layers, a sample consisting of all the layers must be tested. The length of time the glove can delay the transfer of heat from a radiant heat source is measured and scored (1-4).

Seconds	Rating
Under 150 Seconds	4
Under 90 Seconds	3
Under 30 Seconds	2
Under 5 Seconds	1

SMALL SPLASHES OF MOLTEN METAL

X X X X X X

The test method described in EN 348 is used to determine the number of drops of molten metal that will increase the temperature between the inside of the glove and the wearer's skin by 40°C. A score is given only for a performance level of 3 or 4 in the test.

Number of Drops	Rating
Over 35	4
Over 25	3
Over 15	2
Over 5	1

LARGE SPLASHES OF MOLTEN METAL

X X X X X X

The test method described in ISO 9185 determines the glove's resistance to large splashes of molten metal. Three 260×100mm specimens of material, including any seams where necessary, must be tested. The lowest result gives the performance level.

Grams of Molten Metal	Rating
200g	4
120g	3
60g	2
30g	1

COLD RISKS

EN 511:2006

The standard specifies the requirements and test methods for gloves that protect against convective and conductive cold down to -50°C, as well as water permeability. The EN 511 symbol is accompanied by three numbers that rate how well the glove performs in a particular test. With convective and contact cold tests, the higher the number, the better the performance, while water penetration is only marked with either 0 or 1, where 0 signifies the glove failed the test and 1 means the test was successful.

CONVECTIVE COLD

X X X

This test method gauges the thermal insulation (ITR) of a glove against convective cold. During this test, the glove is placed on an electrically heated artificial hand that measures the amount of power required to maintain 30°C and 35°C in a thermally controlled compartment.

Thermal Insulation (TR) in m2ºC C/W	Rating
>0.30	4
0.22 < TR < 0.30	3
0.15 < TR < 0.22	2
0.10 < TR < 0.15	1

CONTACT COLD

X X X

The contact cold test gauges a glove's thermal resistance (R) using metal plates at varied temperatures. The measured temperature drop across the test specimen is then used to calculate its thermal resistance. This test replicates how well a glove protects the wearer when touching or handling cold surfaces and objects.

Thermal Insulation (R) in m2ºC C/W	Rating
>0.150	4
0.100 < R < 0.150	3
0.050 < R < 0.100	2
0.025 < R < 0.050	1

WATER PENETRATION

X X X

The water penetration test is a simple pass/fail test. Firstly, the glove is submerged in water for 5 minutes. If the glove retains its impermeability, it passes with a Level 1 rating, while the gloves that fail receive a Level 0 rating. Level 1 gloves will keep hands dry as well as warm.

Water Penetration	Rating
> 30 mins	Pass
< 30 mins	Fail

GWORX2

Hand Protection Standards

EN ISO 374:2016

AS/NZS 2161.10.1/2/3:2005

The standard specifies which gloves are classed as: Type A, Type B or Type C depending on their performance level and number of chemicals they can protect against.

EN ISO 374-1 / Type A

ABCDEF

Penetration resistance (EN374-2)
Breakthrough time ≥ 30min for at least 6 chemicals in the new list (EN16523-1)

EN ISO 374-1 / Type B

ABC

Penetration resistance (EN374-2)
Breakthrough time ≥ 30min for at least 6 chemicals in the new list (EN16523-1)

EN ISO 374-1 / Type C

Penetration resistance (EN374-2)
Breakthrough time ≥ 10min for at least 1 chemicals in the new list (EN16523-1)

Code Letter	Chemical	CAS Number	Class
A	Methanol	67-56-1	Primary Alcohol
B	Acetone	67-64-1	Ketone
C	Acetonitrile	75-05-8	Nitrile compound
D	Dichloromethane	75-09-2	Chlorinated hydrocarbon
E	Carbon disulphide	75-15-0	Sulphur containing organic compound
F	Toluene	108-88-3	Aromatic hydrocarbon
G	Diethylamine	109-89-7	Amine
H	Tetrahydrofuran	109-99-9	Heterocyclic and ether compound
I	Ethyl acetate	141-78-6	Ester
J	n-Heptane	142-85-5	Saturated hydrocarbon
K	Sodium hydroxide 40%	1310-73-2	Inorganic base
L	Sulphuric acid 96%	7664-93-9	Inorganic mineral acid, oxidizing
M	Nitric acid 65%	7697-37-2	Inorganic mineral acid, oxidizing
N	Acetic acid 99%	64-19-7	Organic acid
O	Ammonia 25%	1336-21-6	Organic base
P	Hydrogen peroxide 30%	7722-84-1	Peroxide
S	Hydrofluoric acid 40%	7665-39-3	Inorganic mineral acid
T	Formaldehyde 37%	50-00-0	Aldehyde

Definition of Terms

PENETRATION

When a chemical moves through a pinhole, seam or other imperfection in a glove material at a non- molecular level.

PERMEATION

The absorption of a chemical through the glove material at a molecular level. Breakthrough time is how long it takes for the chemical to move through the material and come into contact with the skin.

DEGRADATION

A negative change in the glove material after contact with a chemical. Signs of degradation include swelling, disintegration, flaking, brittleness, colour change, dimensional change, hardening or softening.

Under EN374-5 gloves claiming bacteria and fungi protection must pass the penetration resistance test in accordance with standard EN 374-2: 2014. Gloves claiming bacteria, fungi and virus protection must also pass ISO 16604: 2004 (method B) test.

Gloves that meet the above requirement use the pictograms below:

EN ISO 374-5

For gloves offering protection against bacteria and fungi.

EN ISO 374-5

VIRUS

For gloves offering protection against bacteria, fungi and viruses.