


**This MotoCAP safety rating applies to:**

**Brand:** Macna  
**Model:** Intro 2 WP  
**Type:** Glove - Textile  
**Date purchased:** 29 October 2018  
**Sizes tested:** XL and XXL  
**Test glove gender:** Male  
**Style:** All Purpose  
**RRP:** \$59.95

**Test Results Summary:**

	Rating	Score
MotoCAP Protection Rating	★★★	3.8
Abrasion	10/10	5.75
Seam strength	5/10	8.2
Impact	3/10	5.9
Water resistance	1/10	24.0

These gloves are fitted with impact protection for the knuckles only. There is no impact protection for the palms. There is no provision for ventilation to allow airflow movement through the glove.

**Gloves - Crash Impact Risk Zones**

This diagram is a pictorial representation of the crash impact risk Zones.


**Impact protection**

Knuckles   
 Palm

**Zone 1**

High risk of impact  
High risk of abrasion

**Zone 2**

High risk of abrasion

**Zone 3**

Medium risk of abrasion

## Abrasion Resistance

The gloves were tested for abrasion resistance in accordance with MotoCAP test protocols. The diagram below is a visual indication of the likely abrasion performance of the materials in each Zone calculated from the data in the table below. The colour coding is based on the worst performing material in each zone.



### Abrasion Resistance Performance

Abrasion rating	10/10
Abrasion score	5.75

Determining Criteria	Area	Good	Acceptable	Marginal	Poor
High abrasion risk	Zone 1 & 2	> 4.0	2.7 - 4.0	1.2 - 2.6	< 1.2
Medium abrasion risk	Zone 3	2.5	1.8 - 2.5	0.8 - 1.7	< 0.8

**Individual Abrasion Resistance Results:** - The table below shows the test results for time to abrade through all layers of the materials. Calculated for each sample by Zone, type and area coverage of each material as a proportion of that Zone. Abrasion times are capped at a maximum of 10.00s.

### Abrasion time for each test (seconds)

Zones	Coverage (%)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Average	
Material A	90%	10.00	10.00	10.00	10.00	10.00	10.00	10.00	G
Material B	10%	2.44	6.99	2.55	3.03	2.35	0.11	2.91	A
<b>Zone 2</b>	<b>Coverage (%)</b>	<b>Sample 1</b>	<b>Sample 2</b>	<b>Sample 3</b>	<b>Sample 4</b>	<b>Sample 5</b>	<b>Sample 6</b>	<b>Average</b>	
Material B	90%	2.44	6.99	2.55	3.03	2.35	0.11	2.91	A
Material C	10%	0.56	6.34	2.47	4.49	2.08	0.22	2.69	M
<b>Zone 3</b>	<b>Coverage (%)</b>	<b>Sample 1</b>	<b>Sample 2</b>	<b>Sample 3</b>	<b>Sample 4</b>	<b>Sample 5</b>	<b>Sample 6</b>	<b>Average</b>	
Material B	40%	2.44	6.99	2.55	3.03	2.35	0.11	2.91	G
Material C	60%	0.56	6.34	2.47	4.49	2.08	0.22	2.69	G

### Details of materials used in glove - derived from manufacturer provided information

Material A	Fabric and foam patch over woven fabric shell, water resistant layer and fabric inner liner
Material B	Coated fabric shell, water resistant layer and laminated fabric inner liner
Material C	Woven fabric shell, water resistant layer and fabric inner liner

## Seam Tensile Strength

The tensile strength of the gloves seams and glove restraint (the force required to drag off a properly fastened glove) were tested in accordance with MotoCAP test protocols. The diagram below illustrates the tensile strength and wrist restraint results in terms of the likely performance of the glove in a crash and is a pictorial representation of the data from the tables below.



### Seam Strength Performance

Seam strength rating	5/10
Seam strength score	8.2

Determining Criteria	Unit	Good	Acceptable	Marginal	Poor
Seam tensile strength	(N/mm)	> 11	9 - 11	6 - 8.9	< 6
Glove restraint	(N)	> 200	100 - 200	50 - 99	<50

**Individual Seam Strength Results:** - The table below shows the seam tensile strength in newtons per millimeter (N/mm) for each seam tested by Zone and the average result for each Zone.

Seam tensile strength (N/mm)

Area	1	2	3	4	5	Average	
Zones 1 & 2	8.01	7.42	6.40	9.16	9.66	8.13	M
Zone 3	8.29	6.88	6.52	10.84	8.55	8.22	M

**Individual Glove Restraint Results:** - The table below shows the force required to remove the restrained glove in newtons (N) for each of the five gloves tested and the average result.

Glove restraint (N)

Glove	1	2	3	4	5	Average	
Wrist restraint	198.1	208.3	245.3	263.5	313.6	245.8	G

### Impact Protection

The glove was tested for impact protection and coverage in accordance with MotoCAP test protocols. The diagram below is a visual indication of the likely performance of each impact protector calculated from the data in the table below. The colour coding is based on the worst performing score for average or maximum force for each impact zone. Areas shaded black are not considered in the impact protection ratings.



#### Impact Protection Performance

Impact rating 3/10  
Impact score 5.9

Determining Criteria	Unit	Good	Acceptable	Marginal	Poor
Impact force	(kN)	< 2	2 - 4.9	5 - 8	> 8

\* Poor may also indicate that no impact protector is present in the glove

**Impact Protector Results:** - The table below shows the test results for each strike on each impact protector in kilonewtons (kN) and their area of coverage in percentage (%) within the Zone. Impact forces are capped at a maximum of 10.0kN.

Impact protector type	Knuckles	Palm
Average force (kN)	3.2 <span style="border: 1px solid black; padding: 2px;">A</span>	<span style="border: 1px solid black; padding: 2px;">P</span>
Maximum force (kN)	5.0 <span style="border: 1px solid black; padding: 2px;">M</span>	<span style="border: 1px solid black; padding: 2px;">P</span>
Coverage of zone 1 area	120%	0%

**Individual test results:** - The table below shows the test results for each strike on each impact protector in kilonewtons (kN) and the position of the strike. Impact forces are capped at a maximum of 10.0kN.

Impact protector type	Knuckles			Palm	No impact protector present
	1	2	3	1	2
Impact Protector 1	2.7	2.9	2.6		
Impact Protector 2	3.9	3.0	3.9		
Impact Protector 3	2.2	5.0	2.4		

### Water spray and rain resistance

This glove is advertised as water-resistant, and so has been tested for water spray and rain resistance according to the MotoCAP test protocols. The table below shows the water absorbed (ml) and the wetting proportion (%) of the glove and under-glove due to water absorption.

	Water absorbed by glove		Water absorbed by cotton glove	
	Volume (ml)	Percentage (%)	Volume (ml)	Percentage (%)
Pair 1	174.0	81%	55.8	263%
Pair 2	374.5	174%	51.3	243%
<b>Average</b>	231.8	108%	48.0	227%

### Location of wetting:

Major visible wetting to the cotton under-glove was present over the entire hand in all four of the gloves tested.

### Assessment Details.

Brand	Macna
Model	Intro 2 WP
Type	Glove - Textile
Date purchased	29 October 2018
Tested by	AMCAF, Deakin University
Report approved by	MotoCAP Chief Scientist
Garment test reference	G18T01
Rating first published	March 2019
Rating updated	30 July 2021