This MotoCAP safety rating applies to:

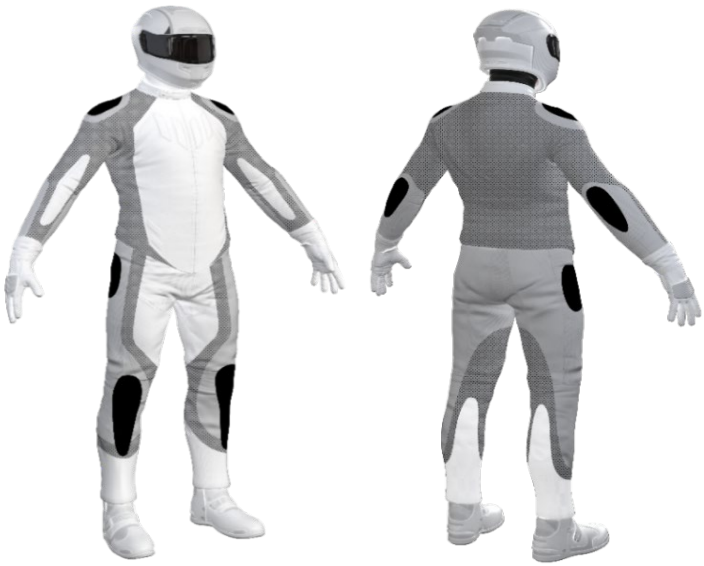
Brand	Macna
Model	Shine Ladies
Type	Jacket - Textile
Date purchased	29 October 2020
Sizes tested	XL and M
Test garment gender	Female
Style	All Purpose
RRP	$349.00

Test Results Summary	Rating	Score
MotoCAP Protection Rating	★★	36.4
Abrasion	2/10	1.56
Burst	10/10	1003
Impact	8/10	61.8
MotoCAP Breathability Rating	★	0.084
Moisture Vapour Resistance	-	188.7
Thermal Resistance	-	0.265
Water resistance	5/10	11.3

This garment is fitted with impact protectors for the elbows and shoulders. A pocket is provided for an aftermarket back protector. There are zipped vents in the inner upper arms and back to allow controlled airflow movement through the garment. The breathability rating is based on tests of the garment's materials when all vents are closed. The breathability of this product may be better when the vents can be opened. Breathability was measured without the removable thermal liner installed.

Jacket and Pants - Crash Impact Risk Zones

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



Removable liners

Thermal liner	✓
Water resistant liner	

Removable impact protection

	Pockets	Armour
Elbow	✓	✓
Shoulder	✓	✓
Back	✓	

Zone 1	Zone 2	Zone 3	Zone 4
High risk of abrasion High risk of impact	High risk of abrasion	Medium risk of abrasion	Low risk of abrasion

Abrasion Resistance

The jacket was 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	2/10
Abrasion score	1.56

Determining Criteria	Area	Good	Acceptable	Marginal	Poor
High abrasion risk	Zone 1 & 2	> 5.6	3.0 - 5.6	1.3 - 2.9	< 1.3
Medium abrasion risk	Zone 3	> 2.5	1.8 - 2.5	0.8 - 1.7	< 0.8
Low abrasion risk	Zone 4	>1.5	1.0 - 1.5	0.4 - 0.9	< 0.4

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)

Zone 1 & 2	Coverage (%)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Average	
Material A	70%	5.24	5.32	3.60	7.58	10.00	3.09	5.81	G
Material B	30%	1.18	0.82	0.96	0.80	0.65	0.84	0.87	P
Zone 3	**Coverage (%)**	**Sample 1**	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**	**Sample 6**	**Average**	
Material B	100%	1.18	0.82	0.96	0.80	0.65	0.84	0.87	M
Zone 4	**Coverage (%)**	**Sample 1**	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**	**Sample 6**	**Average**	
Material B	100%	1.18	0.82	0.96	0.80	0.65	0.84	0.87	M

Details of materials used in jacket

Material A	Woven fabric shell, foam layer, water resistance layer and mesh inner liner
Material B	Woven fabric shell, water resistant layer and mesh inner liner

Burst Strength

The jacket was tested for burst strength in accordance with MotoCAP test protocols. The diagram below illustrates the burst strength results in terms of the likely performance of the garment in an impact and is a pictorial representation of the data from the table below.

Burst Strength Performance	
Burst rating	10/10
Burst score	1003

Determining Criteria	Unit	Good	Acceptable	Marginal	Poor
Burst strength	(kPa)	> 1000	800 - 1000	500 - 799	< 500

Individual Burst Strength Results: - The table below shows the burst pressure in kilopascals (kPA) for each sample tested by Zone and the average result for each zone.

Burst pressure for each seam (kPA)

Area	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Average	
Zones 1 & 2	749	1248	1183	645	1450	622	983	A
Zones 3 & 4	1335	1030	879	977	1046	1246	1085	G

Impact Protection

The jacket 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 maximium force for each impact zone. Areas shaded black are not considered for impact protection ratings.

Impact Protection Performance	
Impact rating	8/10
Impact score	61.8

Determining Criteria	Unit	Good	Acceptable	Marginal	Poor*
Impact force	(kN)	< 15	15 - 24	25 - 30	> 30

* Poor may also indicate that no impact protector, or impact protector pocket is present in the garment

Individual 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 as a proportion (%) of the Zone. Individual strike results are capped at a maximum of 50kN.

Impact protector type	Elbow		Shoulder	
Average force (kN)	11.1	G	11.3	G
Maximum force (kN)	13.6	G	16.3	A
Coverage of Zone 1 area	120%		95%	
Coverage of Zone after displacement	100%		100%	

Individual Impact Protector Results: - The table below shows the test results for each strike on individual impact protectors in kilonewtons (kN) and the position of the strike. Individual strike results are capped at a maximum of 50kN.

Force transfer for each impact strike (kN)

Impact protector type	Elbow			Shoulder		
Strike location	Centre	Mid	Edge	Centre	Mid	Edge
Impact Protector 1	9.0	9.9	10.4	9.9	10.3	13.5
Impact Protector 2	11.5	11.6	9.6	9.9	9.9	11.2
Impact Protector 3	11.3	13.0	13.6	9.8	10.6	16.3

Breathability

The jacket was tested for breathability following the MotoCAP test protocols. The table below shows the moisture vapour resistance and the thermal resistance values obtained.

Without removable liners		With water-resistant liner	
Breathability rating	✓	Breathability rating	N/A
Breathability score	0.084	Breathability score	N/A

Moisture Vapour Resistance - R_{et} (kPa.m^2/W)	1	2	Average
Without removable liners	187.3	190.1	188.7
With water-resistant liner	N/A	N/A	N/A

Thermal Resistance - R_{ct} (K.m^2/W)	1	2	Average
Without removable liners	0.262	0.267	0.265
With water-resistant liner	N/A	N/A	N/A

Water spray and rain resistance

This jacket 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 garment and undergarments due to water absorption.

	Water absorbed by garment		Water absorbed by underwear	
	Volume (ml)	Percentage (%)	Volume (ml)	Percentage (%)
Jacket 1	164	16%	14	5%
Jacket 2	194	19%	50	18%
Average	179	17%	32	11%

Location of wetting

Visible wetting to the cotton underwear was present as major wetting over the chest of one jacket and as minor wetting to the chest of the other jacket tested.

Assessment Details.

Brand	Macna
Model	Shine Ladies
Type	Jacket - Textile
Date purchased	29 October 2020
Tested by	AMCAF, Deakin University
Garment test reference	J20T03
Rating first published	January 2021
Rating updated	20 January 2021