



**This MotoCAP safety rating applies to:**

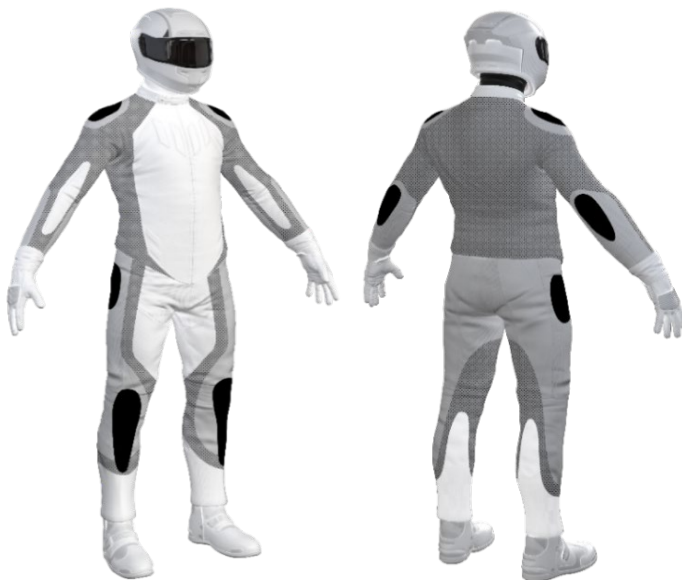
Brand	Harley-Davidson
Model	Ovation 3-in-1
Type	Jacket - Textile
Date purchased	3 April 2023
Sizes tested	XL
Test garment gender	Male
Style	Cruiser
RRP	\$608.70

Test Results Summary	Rating	Score
MotoCAP Protection Rating	★	15.4
Abrasion	1/10	0.76
Burst	10/10	1163
Impact	1/10	0.0
MotoCAP Breathability Rating	↘	0.126
Moisture Vapour Resistance	-	124.0
Thermal Resistance	-	0.261
Water resistance	N/A	N/A

Pockets are provided at the shoulders, elbows and back for fitting aftermarket impact protectors. Adding elbow and shoulder impact protectors would improve the protection levels of this garment. There are zipped vents in the sides 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.

**Jacket and Pants - Crash Impact Risk Zones**

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



**Zone 1**  
  
 High risk of abrasion  
 High risk of impact

**Zone 2**  
  
 High risk of abrasion

**Zone 3**  
  
 Medium risk of abrasion

**Zone 4**  
  
 Low risk of abrasion

**Removable liners**

Thermal liner	<input type="checkbox"/>
Water resistant liner	<input type="checkbox"/>

**Removable impact protection**

	Pockets	Armour
Elbow	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Shoulder	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Back	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## 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	1/10
Abrasion score	0.76

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	Coverage (%)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Average		
Zone 1 & 2	Material A	60%	6.65	1.33	1.60	7.43	1.37	1.60	3.33	A
	Material B	40%	0.97	0.64	0.84	0.75	0.87	0.84	0.82	P
Zone 3	Material B	100%	0.97	0.64	0.84	0.75	0.87	0.84	0.82	M
Zone 4	Material B	100%	0.97	0.64	0.84	0.75	0.87	0.84	0.82	M

### Details of materials used in jacket

Material A	Woven fabric shell, foam layer and mesh inner liner
Material B	Woven fabric shell 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	1163

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	1282	1028	819	1508	915	1546	1183	G
Zones 3 & 4	1271	1194	931	1261	830	1004	1082	G

## Impact Protection

This jacket was not tested for impact protection as impact protectors were not provided with the garment. 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 for impact protection ratings.



### Impact Protection Performance

Impact rating	1/10
Impact score	0.0

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)	P	P
Maximum force (kN)	P	P
Coverage of Zone 1 area	0%	0%
Coverage of Zone after displacement	0%	0%

**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		
	Centre	Mid	Edge	Centre	Mid	Edge
Impact Protector 1						
Impact Protector 2						
Impact Protector 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.

<b>Without removable liners</b>		<b>With water-resistant liner</b>	
Breathability rating	↘	Breathability rating	N/A
Breathability score	0.126	Breathability score	N/A

<b>Moisture Vapour Resistance - <math>R_{et}</math> (kPa.m<sup>2</sup>/W)</b>	<b>1</b>	<b>2</b>	<b>Average</b>
Without removable liners	122.4	125.7	124.0
With water-resistant liner	N/A	N/A	N/A

<b>Thermal Resistance - <math>R_{ct}</math> (K.m<sup>2</sup>/W)</b>	<b>1</b>	<b>2</b>	<b>Average</b>
Without removable liners	0.261	0.262	0.261
With water-resistant liner	N/A	N/A	N/A

### Water spray and rain resistance

This jacket has not been advertised as water-resistant so has not been tested for water spray and rain resistance.

#### Assessment Details.

Brand	Harley-Davidson
Model	Ovation 3-in-1
Type	Jacket - Textile
Date purchased	3 April 2023
Tested by	AMCAF, Deakin University
Report approved by	MotoCAP Chief Scientist
Garment test reference	J23T17
Rating first published	July 2023
Rating updated	11 July 2023