


This MotoCAP safety rating applies to:

Brand: Merlin
Model: Orbital
Type: Jacket - Textile
Date purchased: 9 August 2019
Sizes tested: XL and 2XL
Gender: M
Style: Streetwear
Test code: J19T21

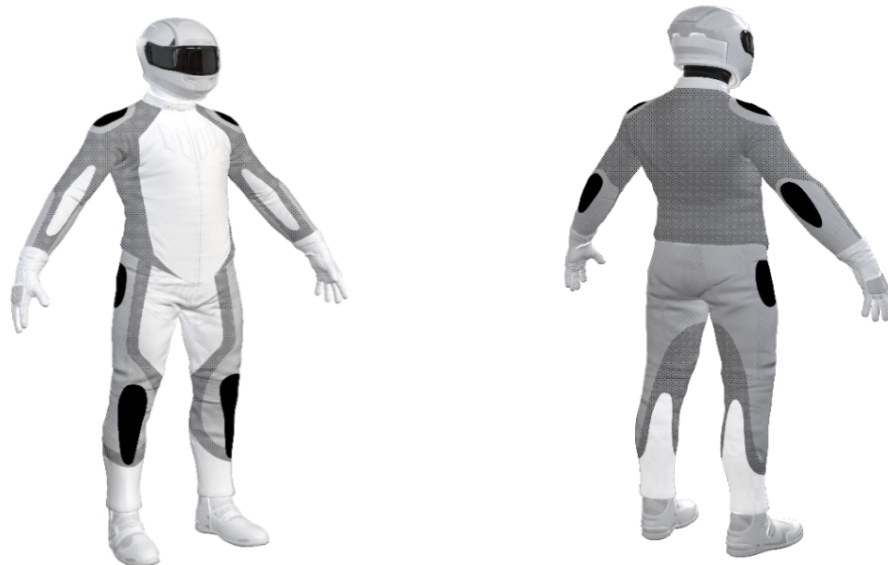
Test Results Summary:

	Rating	Score
MotoCAP Protection Rating	★★	29.1
Abrasion	1/10	0.23
Burst	8/10	860
Impact	8/10	64.5
MotoCAP Comfort Rating	↘	0.132
Moisture Vapour Resistance		128.4
Thermal Resistance		0.282
Water resistance	1/10	54

This garment is fitted with impact protectors for the elbows and shoulders. A pocket is provided at the back for an aftermarket impact protector. There are no vents to allow airflow movement through the garment.

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

Abrasion Resistance

The garment was tested for abrasion resistance in accordance with MotoCAP test protocols. 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.

Details of materials used in garment:

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

Zone	Coverage (%)	Abrasion time for each test (seconds)						Average (seconds)	
		1	2	3	4	5	6		
Zone 1 and 2 areas (High abrasion risk)									
Material A	50%	1.03	1.01	1.36	0.97	0.00	0.00	1.09	P
Material B	50%	0.48	0.38	0.36	0.49	0.35	0.32	0.40	P
Zone 3 area (Medium abrasion risk)									
Material B	100%	0.48	0.38	0.36	0.49	0.35	0.32	0.40	P
Zone 4 area (Low abrasion risk)									
Material B	100%	0.48	0.38	0.36	0.49	0.35	0.32	0.40	M

Abrasion times are capped at a maximum of 10.00s.

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 above. The colour coding is based on the worst performing material in each zone.



Determining Criteria		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

Burst Strength

The garment's burst strength was tested in accordance with MotoCAP test protocols. 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 (kPa)

Area	1	2	3	4	5	Average	
Zones 1 & 2	793	934	1100	1173	883	977	A
Zone EZ	704	570	728	1162	1007	834	A
Zones 3 & 4	573	758	647	705	697	676	M

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 above.



Impact Protection

The garment was tested for impact protection and coverage in accordance with MotoCAP test protocols. 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.

Impact protector type	Elbow		Shoulder	
Average force (kN)	14.1	G	15.2	A
Maximum force (kN)	20.6	A	20.7	A
Coverage of zone 1 area	140%		120%	
Coverage of zone after displacement	100%		100%	

Individual test results

Impact force (kN)	Elbow			Shoulder		
	A	B	C	A	B	C
Impact Protector 1	7.7	14.4	20.6	11.4	16.1	20.7
Impact Protector 2	10.8	11.0	20.1	13.2	14.1	16.8
Impact Protector 3	9.4	13.4	19.4	12.7	14.0	17.9

The diagram below is a visual indication of the likely performance of each impact protector calculated from the data in the table above. The colour coding is based on the worst performing score for average or maximum force for each impact zone.



Determining Criteria	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

Areas shaded black are not considered in the impact protection ratings.

Thermal comfort

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

	1	2	Average
Moisture Vapour Resistance - R_{et} (kPam ² /W)	133.5	123.2	128.4
	1	2	Average
Thermal Resistance - R_{ct} (Km ² /W)	0.279	0.285	0.282

Water spray and rain resistance

This garment 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 (%)
Garment 1	368	39%	98.3	36%
Garment 2	307	33%	201	72%
Average	337	36%	149	54%

Location of wetting:

Visible wetting to the cotton underwear worn under the motorcycle water resistant garment was present over the neck and chest of both garments measured and on the back of one of the garments measured.

Assessment Details.

Brand	Merlin
Model	Orbital
Type	Jacket - Textile
Date purchased	9 August 2019
Tested by	AMCAF, Deakin University
Garment test reference	J19T21
Rating first published	October 2019
Rating updated	1 October 2021