This MotoCAP safety rating applies to:

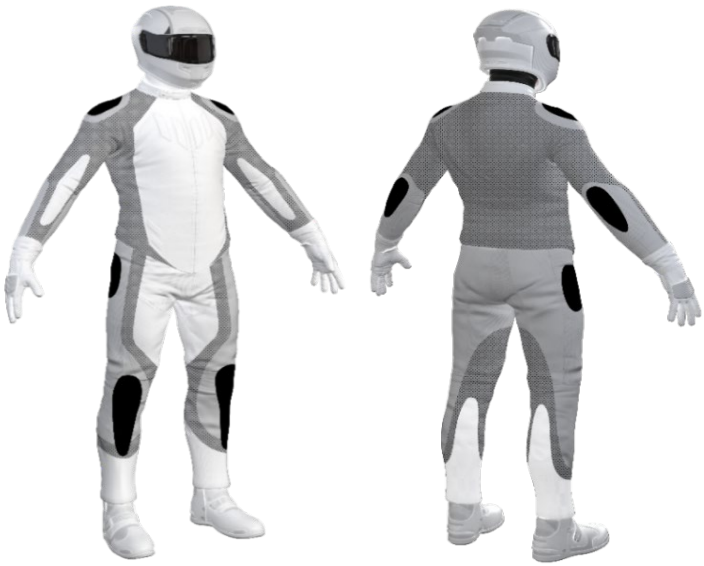
Brand	RST
Model	Alpha 4
Type	Jacket - Textile
Date purchased	25 May 2021
Sizes tested	XL and 3XL
Test garment gender	Male
Style	Tourer
RRP	NZ $259.95

Test Results Summary	Rating	Score
MotoCAP Protection Rating	★★	34.6
Abrasion	3/10	2.13
Burst	10/10	1591
Impact	4/10	26.8
MotoCAP Breathability Rating	★	0.078
Moisture Vapour Resistance	-	282.5
Thermal Resistance	-	0.365
Water resistance	8/10	3.4

This garment is fitted with impact protectors for the elbows and shoulders. A pocket is provided for an aftermarket back protector. Replacing the elbow and shoulder armour with higher performing impact protectors would improve the protection levels of this garment. There are zipped vents in the chest 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.

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	3/10
Abrasion score	2.13

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	100%	2.81	1.86	2.63	3.04	3.18	3.55	2.85	M
Zone 3	**Coverage (%)**	**Sample 1**	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**	**Sample 6**	**Average**	
Material A	10%	2.81	1.86	2.63	3.04	3.18	3.55	2.85	G
Material B	90%	1.18	0.71	1.09	0.93	0.86	0.83	0.93	M
Zone 4	**Coverage (%)**	**Sample 1**	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**	**Sample 6**	**Average**	
Material B	100%	1.18	0.71	1.09	0.93	0.86	0.83	0.93	M

Details of materials used in jacket

Material A	Woven fabric shell, fabric layer, water-resistance layer, foam layer and fabric inner liner
Material B	Woven fabric shell,water-resistance layer, foam layer and fabric 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	1591

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	1566	1566	1947	1945	1207	1607	1640	G
Zones 3 & 4	1946	1476	1144	894	1693	1240	1399	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 maximum force for each impact zone. Areas shaded black are not considered for impact protection ratings.

Impact Protection Performance	
Impact rating	4/10
Impact score	26.8

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)	25.5	M	25.8	M
Maximum force (kN)	29.2	M	31.2	P
Coverage of Zone 1 area	90%		110%	
Coverage of Zone after displacement	80%		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	22.5	24.1	29.2	23.8	24.3	31.2
Impact Protector 2	23.6	24.3	27.4	24.6	23.9	26.7
Impact Protector 3	24.9	26.4	26.9	25.2	27.4	25.6

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	4	Breathability rating	N/A
Breathability score	0.078	Breathability score	N/A

Moisture Vapour Resistance - R_{et} (kPa.m^2/W)	1	2	Average
Without removable liners	261.5	303.5	282.5
With water-resistant liner	N/A	N/A	N/A

Thermal Resistance - R_{ct} (K.m^2/W)	1	2	Average
Without removable liners	0.370	0.360	0.365
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	235	13%	17	6%
Jacket 2	116	6%	3	1%
Average	175	10%	10	3%

Location of wetting:

There was no visible wetting to the cotton underwear for one jackets and minor visible wetting to the neck of the other jacket tested.

Assessment Details.

Brand	RST
Model	Alpha 4
Type	Jacket - Textile
Date purchased	25 May 2021
Tested by	AMCAF, Deakin University
Garment test reference	J20T24
Rating first published	October 2021
Rating updated	11 October 2021