


This MotoCAP safety rating applies to:

Brand:	Torque
Model:	Carbon Knuckle
Type:	Glove - Leather
Date purchased:	30 September 2020
Sizes tested:	L and XL
Test glove gender:	Male
Style:	All Purpose
RRP:	\$39.99

Test Results Summary:

	Rating	Score
MotoCAP Protection Rating	★★★	3.4
Abrasion	9/10	4.62
Seam strength	2/10	5.3
Impact	5/10	8.3
Water resistance	N/A	N/A

This glove is fitted with impact protectors for the knuckles and palm areas. 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	9/10
Abrasion score	4.62

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 1	Coverage (%)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Average	
Material A	55%	10.00	10.00	10.00	10.00	10.00	10.00	10.00	G
Material B	45%	2.26	4.31	2.39	1.78	2.23	2.20	2.53	M
Zone 2	Coverage (%)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Average	
Material C	15%	10.00	5.04	6.77	9.58	6.44	6.71	7.42	G
Material B	85%	2.26	4.31	2.39	1.78	2.23	2.20	2.53	M
Zone 3	Coverage (%)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Average	
Material C	10%	10.00	5.04	6.77	9.58	6.44	6.71	7.42	G
Material B	90%	2.26	4.31	2.39	1.78	2.23	2.20	2.53	G

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

Material A	Hard-shell armour over leather shell, foam layer and fabric inner liner
Material B	Leather shell with fabric inner liner
Material C	Suede patch over leather shell with 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	2/10
Seam strength score	5.3

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	16.00	15.43	9.75	6.62	14.34	12.43	G
Zone 3	12.05	14.11	11.47	12.40	12.88	12.58	G

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	91.5	91.4	87.8	78.5	75.6	85.0	M

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	5/10
Impact score	8.3

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)	1.7	G	6.5	M
Maximum force (kN)	2.5	A	7.9	M
Coverage of zone 1 area	100%		80%	

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	
Strike number	1	2	3	1	2
Impact Protector 1	1.7	1.7	1.6	6.8	7.9
Impact Protector 2	1.3	1.6	1.6	4.5	6.3
Impact Protector 3	1.8	1.8	2.5	6.7	6.7

Water spray and rain resistance

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

Assessment Details.

Brand	Torque
Model	Carbon Knuckle
Type	Glove - Leather
Date purchased	30 September 2020
Tested by	AMCAF, Deakin University
Report approved by	MotoCAP Chief Scientist
Garment test reference	G19L66
Rating first published	January 2021
Rating updated	23 August 2021