


This MotoCAP safety rating applies to:

| | |
|---------------------------|-------------------------|
| Brand: | Alpinestars |
| Model: | Apex V2 Drystar |
| Type: | Glove - Leather/Textile |
| Date purchased: | 22 March 2021 |
| Sizes tested: | L, XL and 2XL |
| Test glove gender: | Male |
| Style: | All Purpose |
| RRP: | \$159.99 |

Test Results Summary:

| | Rating | Score |
|---------------------------|--------|-------|
| MotoCAP Protection Rating | ★★★ | 3.6 |
| Abrasion | 9/10 | 4.96 |
| Seam strength | 2/10 | 5.4 |
| Impact | 5/10 | 8.8 |
| Water resistance | 9/10 | 3.0 |

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 | <input checked="" type="checkbox"/> |
| Palm | <input checked="" type="checkbox"/> |

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 | 4.96 |

| 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 | 50% | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | G |
| Material B | 50% | 4.04 | 3.30 | 3.36 | 7.32 | 2.08 | 4.72 | 4.14 | G |
| Zone 2 | Coverage (%) | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 | Sample 6 | Average | |
| Material C | 40% | 4.64 | 3.14 | 5.28 | 4.82 | 5.12 | 4.60 | 4.60 | G |
| Material B | 60% | 4.04 | 3.30 | 3.36 | 7.32 | 2.08 | 4.72 | 4.14 | G |
| Zone 3 | Coverage (%) | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 | Sample 6 | Average | |
| Material C | 15% | 4.64 | 3.14 | 5.28 | 4.82 | 5.12 | 4.60 | 4.60 | G |
| Material D | 85% | 1.16 | 0.55 | | 0.67 | | 0.75 | 0.78 | P |

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

| | |
|------------|---|
| Material A | Hard-shell armour over foam layer, fabric liner, water-resistance layer, fibre layer and fabric inner liner |
| Material B | Leather shell, water-resistant layer, fibre layer and fabric inner liner |
| Material C | Suede patch over leather shell, water-resistant layer, fibre layer and fabric inner liner |
| Material D | Woven fabric shell, water-resistant layer, fibre layer and 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 | 5.4 |

| 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 | 14.02 | 14.09 | 6.24 | 16.00 | 4.91 | 11.05 | G |
| Zone 3 | 10.01 | 12.24 | 7.06 | 10.42 | 12.87 | 10.52 | A |

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 | 111.4 | 105.5 | 107.8 | 80.6 | 88.9 | 98.8 | 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 | 8.8 |

| Determining Criteria | Unit | Good | Acceptable | Marginal | Poor |
|----------------------|------|------|------------|----------|------|
| Knuckle Impact force | (kN) | < 2 | 2 - 4.9 | 5 - 8 | > 8 |
| Palm impact force | (kN) | < 4 | 4 - 5.9 | 6 - 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) | 1.2 | G | 5.3 | A |
| Maximum force (kN) | 1.4 | G | 6.9 | M |
| Coverage of zone 1 area | 100% | | 40% | |

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 | 1.0 | 1.0 | 1.3 | 4.9 | 5.4 |
| Impact Protector 2 | 1.3 | 1.2 | 1.4 | 6.1 | 6.9 |
| Impact Protector 3 | 1.2 | 1.3 | 1.1 | 4.5 | 4.2 |

Water spray and rain resistance

This glove 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 glove and under-glove due to water absorption.

| | Water absorbed by glove | | Water absorbed by cotton glove | |
|----------------|-------------------------|----------------|--------------------------------|----------------|
| | Volume (ml) | Percentage (%) | Volume (ml) | Percentage (%) |
| Pair 1 | 192.2 | 73% | 5.9 | 28% |
| Average | 192.2 | 73% | 5.9 | 28% |

Location of wetting:

There was no visible wetting to the cotton under-glove on either of the gloves tested.

Assessment Details.

| | |
|------------------------|--------------------------|
| Brand | Alpinestars |
| Model | Apex V2 Drystar |
| Type | Glove - Leather/Textile |
| Date purchased | 22 March 2021 |
| Tested by | AMCAF, Deakin University |
| Report approved by | MotoCAP Chief Scientist |
| Garment test reference | G20L21 |
| Rating first published | September 2021 |
| Rating updated | 14 September 2021 |