**This MotoCAP safety rating applies to:**

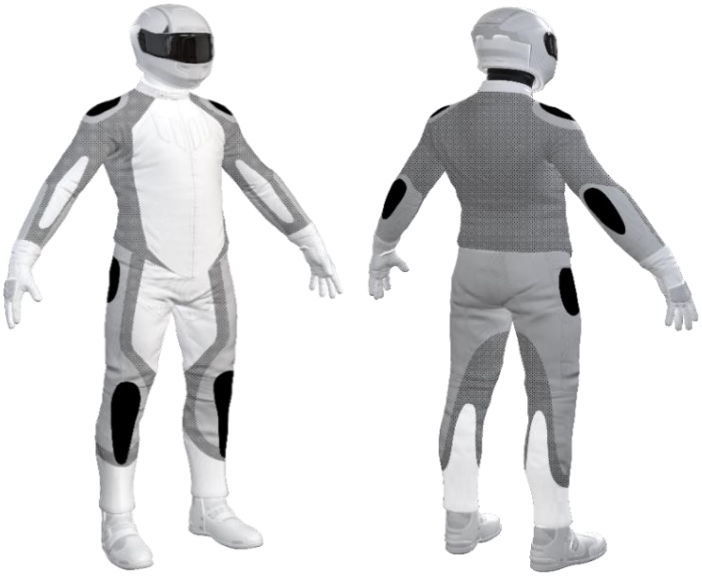
| | |
|---|---|
| Brand | Klim |
| Model | Switchback Cargo |
| Type | Pants - Textile |
| Date purchased | 19 June 2024 |
| Sizes tested | 36 and 38 |
| Test garment gender | Male |
| Style | Adventure |
| RRP | $515.95 |

| Test Results Summary | Rating | Score |
|---|---|---|
| MotoCAP Protection Rating | ★★ | 28.5 |
| Abrasion | 1/10 | 0.63 |
| Burst | 8/10 | 857 |
| Impact | 8/10 | 55.9 |
| MotoCAP Breathability Rating | ★★★ | 0.448 |
| Moisture Vapour Resistance | - | 27.8 |
| Thermal Resistance | - | 0.208 |
| Water resistance | N/A | N/A |

This garment is fitted with impact protectors for the knees and hips. There are zipped vents in the upper legs 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 are opened. There is the potential for burns from heat transferred through the fly button and pocket studs of the pants during a slide.

## 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 |
|---|---|---|
| Knee | ✓ | ✓ |
| Hip | ✓ | ✓ |

| Zone 1 | Zone 2 | Zone 3 | Zone 4 |
|---|---|---|---|
| High risk of abrasion<br>High risk of impact | High risk of abrasion | Medium risk of abrasion | Low risk of abrasion |

## Abrasion Resistance

These pants 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 | 1/10 |
| Abrasion score | 0.63 |

| Determining Criteria | Area | Good | Acceptable | Marginal | Poor |
|---|---|---|---|---|---|
| High abrasion risk | Zones 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)**

| **Zones 1 & 2** | Coverage (%) | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 | Sample 6 | **Average** | |
|---|---|---|---|---|---|---|---|---|---|
| Material A | 80% | 1.11 | 0.73 | 0.80 | 1.09 | 1.05 | 1.22 | 1.00 | P |
| Material B | 20% | 0.47 | 0.39 | 0.28 | 0.49 | 0.41 | 0.29 | 0.39 | P |
| **Zone 3** | Coverage (%) | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 | Sample 6 | **Average** | |
| Material A | 50% | 1.11 | 0.73 | 0.80 | 1.09 | 1.05 | 1.22 | 1.00 | M |
| Material B | 50% | 0.47 | 0.39 | 0.28 | 0.49 | 0.41 | 0.29 | 0.39 | P |
| **Zone 4** | Coverage (%) | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 | Sample 6 | **Average** | |
| Material A | 10% | 1.11 | 0.73 | 0.80 | 1.09 | 1.05 | 1.22 | 1.00 | M |
| Material B | 90% | 0.47 | 0.39 | 0.28 | 0.49 | 0.41 | 0.29 | 0.39 | P |

**Details of materials used in pant**

| | |
|---|---|
| Material A | Woven fabric shell and woven fabric layer |
| Material B | Woven fabric shell |

## Burst Strength

These pants were 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 | 8/10 |
| Burst score | 857 |

| 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 | 1045 | 921 | 949 | 1105 | 653 | 728 | 900 | A |
| Zones 3 & 4 | 781 | 1147 | 327 | 823 | 491 | 530 | 683 | M |

## Impact Protection

These pants were 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 | 8/10 |
| Impact score | 55.9 |

| 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

**Impact Protector Results:** - The table below shows the average and maximum force transmitted through each impact protector type in kilonewtons (kN) and their area of coverage as a proportion (%) of the Zone.

| Impact protector type | Knee | | Hip | |
|---|---|---|---|---|
| Average force (kN) | 16.9 | A | 16.4 | A |
| Maximum force (kN) | 18.4 | A | 19.6 | A |
| Coverage of Zone 1 area | 105% | | 150% | |
| Coverage of Zone after displacement | 60% | | 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 | Knee | | | Hip | | |
|---|---|---|---|---|---|---|
| Strike location | Centre | Mid | Edge | Centre | Mid | Edge |
| Impact Protector 1 | 15.7 | 17.1 | 18.4 | 15.4 | 15.9 | 15.5 |
| Impact Protector 2 | 16.3 | 16.4 | 17.2 | 15.7 | 16.9 | 15.5 |
| Impact Protector 3 | 16.0 | 16.9 | 18.2 | 16.8 | 16.1 | 19.6 |

## Breathability

These pants were 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 | ★★★ | Breathability rating | N/A |
| Breathability score | 0.448 | Breathability score | N/A |

| Moisture Vapour Resistance - $R_{et}$ (kPa.m$^2$/W) | 1 | 2 | Average |
|---|---|---|---|
| Without removable liners | 26.6 | 29.1 | 27.8 |
| With water-resistant liner | N/A | N/A | N/A |

| Thermal Resistance - $R_{ct}$ (K.m$^2$/W) | 1 | 2 | Average |
|---|---|---|---|
| Without removable liners | 0.202 | 0.214 | 0.208 |
| With water-resistant liner | N/A | N/A | N/A |

## Water spray and rain resistance

These pants have not been advertised as water-resistant so have not been tested for water spray and rain resistance.

### Assessment Details.

| | |
|---|---|
| Brand | Klim |
| Model | Switchback Cargo |
| Type | Pants - Textile |
| Date purchased | 19 June 2024 |
| Tested by | AMCAF, Deakin University |
| Report approved by | MotoCAP Chief Scientist |
| Garment test reference | P25T02 |
| Rating first published | November 2024 |
| Rating updated | 8 November 2024 |