# TEST REPORT

| Author | Report no. | Version | Date |
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| Petter Eide | 0535-25BRM-A | 1 | 2025-11-12 |

TITLE:

## Test with fire blanket on a burning vehicle

SPONSOR:

## Bridgehill AS

PRODUCT/SPECIMEN:

## Bridgehill Pro X Car Fire Blanket

STANDARD/METHOD:

## Bespoke / Ad-Hoc



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# Test with fire blanket on a burning vehicle

| | |
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| *SPONSOR'S REF.* | Thomas Jahren |
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| *PRODUCT/SPECIMEN* | Bridgehill Pro X Car Fire Blanket |
| *TEST SPECIMEN RECEIVED* | 2025-08-27 |
| *DATE OF TEST* | 2025-09-09 |
| *TEST LOCATION* | RISE Fire Research AS<br>Tillerbruvegen 202<br>NO-7092 Tiller<br>Norway |
| *PURPOSE OF TEST* | Informational purpose / Research and development purpose |

| | |
|---|---|
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| *QUALITY ASSURANCE* | Tian Li, Research Manager |

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*Any test results relate only to the item tested.*

# Document history

| Version | Date | Version description |
| --- | --- | --- |
| 1 | 2025-11-12 | First version. |

# Contents

**1 SUMMARY ..... 4**

**2 REMARKS AND DEVIATIONS ..... 5**

2.1 REMARKS ..... 5
2.2 DEVIATIONS ..... 5

**3 TEST SPECIMEN ..... 6**

3.1 GENERAL INFORMATION ..... 6
3.2 DESCRIPTION ..... 6
3.3 MANUFACTURERS / SUPPLIERS ..... 6
3.4 INSTALLATION / MOUNTING / CONSTRUCTION ..... 6
3.5 CONDITIONING ..... 6
3.6 SELECTION / DELIVERY ..... 6
3.7 VERIFICATION ..... 7
*3.7.1 Measured properties for some materials ..... 7*

**4 TEST PROCEDURE ..... 8**

4.1 TEST SETUP ..... 8
4.2 INSTRUMENTATION ..... 9
4.3 TEST CONDITIONS ..... 9
4.4 WITNESSING OF TEST ..... 9

**5 MEASUREMENTS, OBSERVATIONS AND RESULTS ..... 10**

5.1 MEASUREMENTS ..... 10
5.2 OBSERVATIONS ..... 10
5.3 PERFORMANCE CRITERIA ..... 12
5.4 RESULTS ..... 12

**APPENDIX A. VISUALISATION OF MEASUREMENTS ..... 13**

**APPENDIX B. PHOTOS ..... 14**

**APPENDIX C. PRODUCT DATA SHEETS ..... 18**

# 1 Summary

The *Bridgehill Pro X Car Fire Blanket* was tested on a vehicle which was set on fire. The blanket was pulled over the vehicle 30 times as planned, with an average fire exposure time of 8 minutes. The blanket had a few rifts after the test series. Necessary field repairs on bigger rifts in the blanket were done a few times during the test series. The centre part of the blanket, which was in direct contact with the surface of the vehicle, was more discoloured and felt stiffer than the outer parts of the blanket after the test series.

With a few exceptions, where large gaps in the blanket allowed smoke and flames to emerge through the openings, no visible flames were observed outside the blanket when applied around the vehicle. The blanket was able to reduce the temperature inside the vehicle after being applied to the vehicle, and it was indifferent which side of the blanket was applied.

# 2 Remarks and deviations

## 2.1 Remarks

No evaluation has been done on how the blankets will age and retain their properties after exposure to multiple vehicle fires over a longer time span.

Only visual observations have been made, and no material tests have been performed.

A projecting metal part from the vehicle went through the fire blanket during the test.

The testing has not been performed according to any known or published test standard.

## 2.2 Deviations

The testing has not been performed according to any known or published test standard, and therefore, no deviations have been noted.

# 3 Test specimen

## 3.1 General information

The test specimen was a fire blanket from Bridgehill (hereafter referred to as blanket), with dimensions 8 m x 6 m (L x W) and with a weight of approximately 28 kg/blanket. The blanket was labelled “Car Pro X Fire Blanket”.

## 3.2 Description

The blanket was delivered in a bag suitable for testing. The blanket was folded to make it easy to place it in front of the vehicle and to be ready to pull it over the burning vehicle.

See also drawings supplied by the sponsor in Appendix C.

## 3.3 Manufacturers / Suppliers

*Table 1 Manufacturers/suppliers of some materials/components included in the test specimen.*

| *Designation/Name* | *Specifications* | *Manufacturer/Supplier* |
|---|---|---|
| Car Pro X Fire blanket | Fire blanket | Bridgehill AS |
| Volvo V50 | Discarded vehicle. Production year unknown. | Volvo |

## 3.4 Installation / Mounting / Construction

Not applicable for this test.

## 3.5 Conditioning

The blankets were stored indoors from the day of arrival to the day of testing. The vehicles were placed outside from the day of arrival to the day of testing.

## 3.6 Selection / Delivery

RISE acquired the vehicles used in the test from a scrapyard, but did not pick which vehicles to be delivered. RISE only specified that it must be a fully functional, regular-sized vehicle. RISE was not involved in the selection of the blankets or any materials/products that the tested blankets consisted of.

RISE was not involved in setting the performance criteria described in section 5.3.


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## 3.7 Verification

RISE did not receive drawings on the tested specimen(s) before the test and was therefore not able to perform a verification.

### 3.7.1 Measured properties for some materials

No material properties were measured at RISE.

# 4 Test procedure

## 4.1 Test setup

A vehicle was transported to RISE the week before testing. For safety reasons, the vehicle was drained for fuel, oil and other liquids days before testing. Pressurised containers used in e.g. seatbelts, airbags, closing devices, etc., were not removed. The tyres were still inflated.

The vehicle was placed on the concrete of the outside testing area. Windows on each side of the vehicle were opened before the test to allow sufficient circulation and access to oxygen. The vehicle was placed in a way that allowed sufficient space around the vehicle for handling the blankets used in the test. The ground was continuously cooled with water from a water sprinkling device.

A blanket was placed approximately 5 meters in front of the vehicle. The blanket was folded a couple of times according to instructions given by the sponsor to allow for easier handling of the blanket.

The test was initiated by igniting a zip-lock bag with a mixture of diesel and heptane, which was placed inside the vehicle. After the vehicle was set on fire, the temperatures were monitored. After the temperature at the top of the vehicle, detailed in section 3.2, reached approximately 800 °C, the blanket was pulled over the vehicle after instructions given by the sponsor. This was done by pulling the loops on two corners facing the vehicle and lifting it as high and firmly as possible so that the blanket managed to cover the entire vehicle. The two people doing this were fully equipped with firefighting gear.

After the blanket had covered the vehicle, it was wrapped around the vehicle using the feet to move the blanket closer to the vehicle near the ground.

After the temperature had dropped to around 250 °C, measured at the top of the vehicle, the blanket was removed. Because of time constraints, the temperature criteria for removing the blankets were later changed from 250 °C measured in the ceiling to approximately 300 °C – 400 °C measured in the ceiling for some of the tests. More details can be found in the temperature measurements in the appendix.

The blanket was removed by pulling the loops in the opposite direction of the blanket and pulling it back to the starting position. The blanket was then folded as it was initially done and placed in the same position as before pulling the blanket over the vehicle. After the test was repeated a number of times, pieces of wooden pallets were placed inside the vehicle to keep the fire going, as most of the combustible interior of the vehicle was burned out. The test was repeated 30 times.



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## 4.2 Instrumentation

Shielded thermocouples, type K, were installed to measure the temperature in different positions of the vehicles. These were used to monitor the temperature of the vehicles and to use as an indicator for when to apply the blankets to the vehicles and when to remove them. Positions are also given in Table 2 and Figure 1.

*Table 2 Positions of the thermocouples for temperature measurements.*

| *ID no.* | *Position* |
|---|---|
| 1 | Inside the vehicle, around the gear stick. |
| 2 | In the centre top of the vehicle, approximately 2 cm underneath the roof. |
| 3 | Inside the vehicle, towards the trunk. |

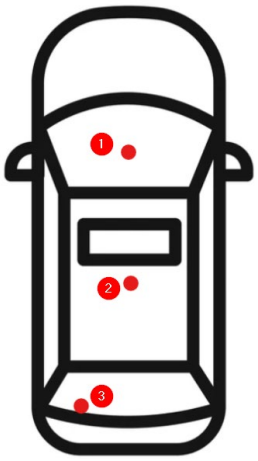



*Figure 1 Position of thermocouples. The figure is for information only and is not to scale and not representative of the vehicles used during the tests.*

## 4.3 Test conditions

The tests were done outside. The weather was partly cloudy. The air temperatures were approximately 15 - 20 °C, and wind speeds were approximately 2 – 5 m/s.

## 4.4 Witnessing of test

*Table 3 Witnesses during the test.*

| *Name* | *Role* | *Representing* |
|---|---|---|
| Petter Eide | Principal test engineer. | RISE |
| Jan Erik Andersen | Technician | RISE |
| Frode Løvik | Technician | RISE |
| Thomas H. Jahren | Sponsor | Bridgehill AS |
| Joakim Sørensen Lundberg | Sponsor | Bridgehill AS |


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# 5 Measurements, observations and results

## 5.1 Measurements

Temperature measurements inside the vehicle are given in Appendix A.

## 5.2 Observations

Observations during the test are given in Table 4.

The number in parentheses in the observation tables corresponds to the number of times the blanket is pulled over the vehicles.

*Table 4 Observations made during the test. The times given in the table are relative to the test start. Number of times the blanket is pulled over the vehicle in parentheses. Whether the vehicle self-ignited or was reignited by one of the operators is not described in the observations.*

| *Time [hour:min]* | *Observations* |
|---|---|
| 00:00 | **Test starts** at 2025-09-02 at 09:47. The vehicle is a Volvo V50. The vehicle was set on fire. The Bridgehill Pro X blanket was prepared and used throughout the day. A representative from the sponsor and a representative from RISE are handling the blanket during the test. |
| 00:06 | Pulling the blanket over the vehicle (1) |
| 00:12 | Removing the blanket from the vehicle. |
| 00:13 | The vehicle ignites. |
| 00:17 | Pulling over the blanket (2). |
| 00:25 | Removing the blanket. |
| 00:28 | The vehicle ignites. |
| 00:34 | Pulling over the blanket (3). |
| 00:35 | Loud bangs are heard multiple times during this phase of the test. They are, however, not identified with a specific part of the vehicle. |
| 00:44 | Removing the blanket |
| 00:46 | The vehicle ignites |
| 00:53 | Pulling over the blanket (4) |
| 00:54 | The blanket starts to turn white from the middle of the vehicle and backwards. Some flames go through the blanket in this area. |
| 00:58 | A very loud noise |
| 01:08 | The blanket is removed as larger holes in the centre of the blanket make it unable to seal the fire completely. |
| 01:09 | The vehicle continues to burn (in the front) after the blanket has been removed. The blanket has 4-5 rifts ranging from 1 cm to 5 cm. These are patched (sewn) by the representative from the sponsor using a designated repair kit.<br><br>A piece of metal with dimensions approximately 10 cm × 3 cm (W × L) and a thickness representative of metal used in vehicles is found around 5 meters from the vehicle. The metal piece has likely penetrated through the blanket and projected through the air. |
| 01:19 | Pulling over the blanket (5). |
| 02:32 | Removing the blanket. |



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| *Time [hour:min]* | *Observations* |
|---|---|
| 02:39 | Pulling over the blanket (6). |
| 02:43 | Removing the blanket. |
| 02:44 | Igniting the car. Filling up the vehicle with pieces of wooden pallets. |
| 02:51 | Pulling over the blanket (7). |
| 03:01 | Remove the blanket and fill the vehicle with pieces of wooden pallets. |
| 03:06 | Pulling over the blanket (8). |
| 03:14 | Removing the blanket. |
| 03:20 | Pulling over the blanket (9). |
| 03:31 | Removing the blanket. |
| 03:35 | Pulling over the blanket (10). |
| 03:44 | Removing the blanket. |
| 03:47 | Pulling over the blanket (11). |
| 03:52 | Removing the blanket. |
| 03:55 | Pulling over the blanket (12). |
| 04:03 | Removing the blanket. |
| 04:08 | Pulling over the Blanket (13). |
| 04:13 | Removing the blanket. |
| 04:18 | Pulls over the blanket (14). |
| 04:26 | Removing the blanket. |
| 04:28 | Pulls over the blanket (15). |
| 04:34 | Removing the blanket. |
| 04:36 | Pulling over the blanket (16). |
| 04:44 | Removing the blanket. |
| 04:48 | Pulling over the blanket (17). |
| 04:58 | Removing the blanket. |
| 05:00 | The stitches in the two largest rifts, approximately in the middle of the blanket, have loosened. The rifts are sewn again. |
| 05:16 | Pulling over the blanket (18). |
| 05:24 | Removing the blanket. |
| 05:27 | Pulling over the blanket (19). |
| 05:39 | Removing the blanket. |
| 05:42 | Pulling over the blanket (20). |
| 05:52 | Removing the blanket. There is a rift in the centre part of the blanket as parts of the plastic part of the bumper loosen, creating sharp edges. The rift is repaired with a stapler and sewing thread. |
| 06:00 | Pulling over the blanket (21). |
| 06:08 | Removing the blanket. Change the sides of the blanket (Pull the loops from the back) as it gets stuck when trying to remove it from the vehicle with the loops in the front of the vehicle. The remaining tests are done alternately, so both sides of the blanket are exposed to the fire. |
| 06:18 | Pulling over the blanket (22). |

| *Time [hour:min]* | *Observations* |
|---|---|
| 06:25 | Removing the blanket. |
| 06:30 | Pulling over the blanket (23). |
| 06:35 | Removing the blanket. |
| 06:38 | Pulling over the blanket (24). |
| 06:44 | Removing the blanket |
| 06:46 | Pulling over the blanket (25). |
| 06:53 | Removing the blanket |
| 06:55 | Pulling over the blanket (26) |
| 07:05 | Removing the blanket |
| 07:08 | Pulling over the blanket (27) |
| 07:20 | Removing the blanket |
| 07:23 | Pulling over the blanket (28) |
| 07:31 | Removing the blanket |
| 07:35 | Pulling over the blanket (29) |
| 07:43 | Removing the blanket. Filling up with pieces of wooden pallets. |
| 07:47 | Pulling over the blanket (30). |
| 07:55 | Removing the blanket. |
| 07:55 | **The end of the fire test is at the request of the sponsor.** No more tests are done because of time constraints and because the number of tests planned has been performed. Directly after the end of the test series, the blanket is inspected. The centre part of the blanket is more discoloured and feels stiffer than the outer parts of the blanket. |

## 5.3 Performance criteria

The performance criterion given by the sponsor was to perform the test 30 times.

## 5.4 Results

The test was repeated 30 times with a single blanket, which was patched using a field repair kit a few times. Time constraints did not allow for more tests to be performed. The number of tests was in accordance with the performance criterion set by the sponsor.

# Appendix A. Visualisation of measurements

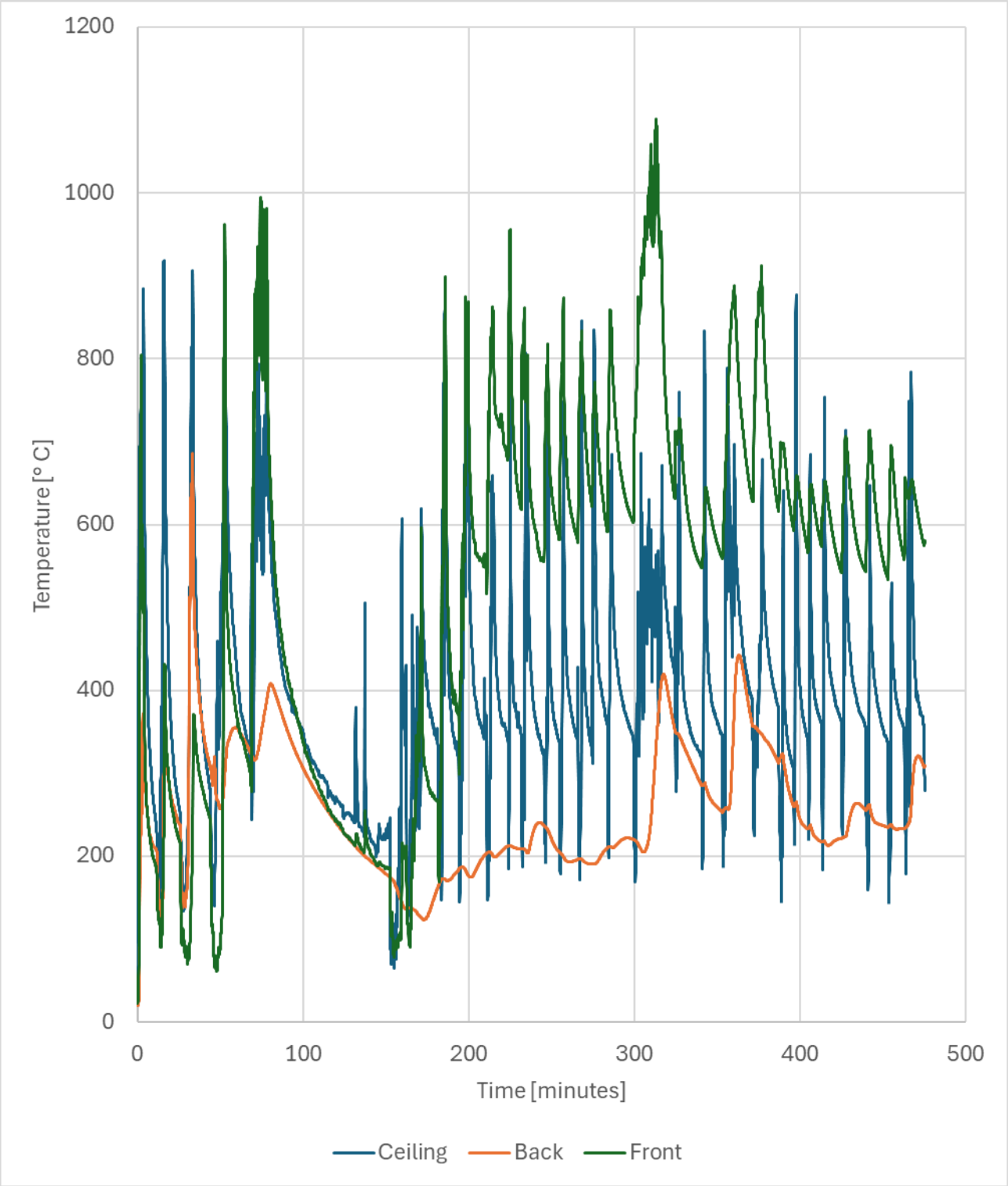



*Figure 2 Temperature measurements inside the vehicle during the first test day with the Car Pro X Fire Blanket. Peaks in temperature represent the temperature before applying the blanket.*

# Appendix B. Photos



*Photo 1 Blanket being folded, and the operators are getting ready to pull the blanket over the vehicle.*



*Photo 2 Blanket being pulled over the vehicle.*



*Photo 3 Blanket placed over the vehicle.*



*Photo 4 Blanket being removed from the vehicle.*



*Photo 5 Blanket being folded in layers and prepared for a new test.*



*Photo 6 Field repairs on rifts in the blanket.*

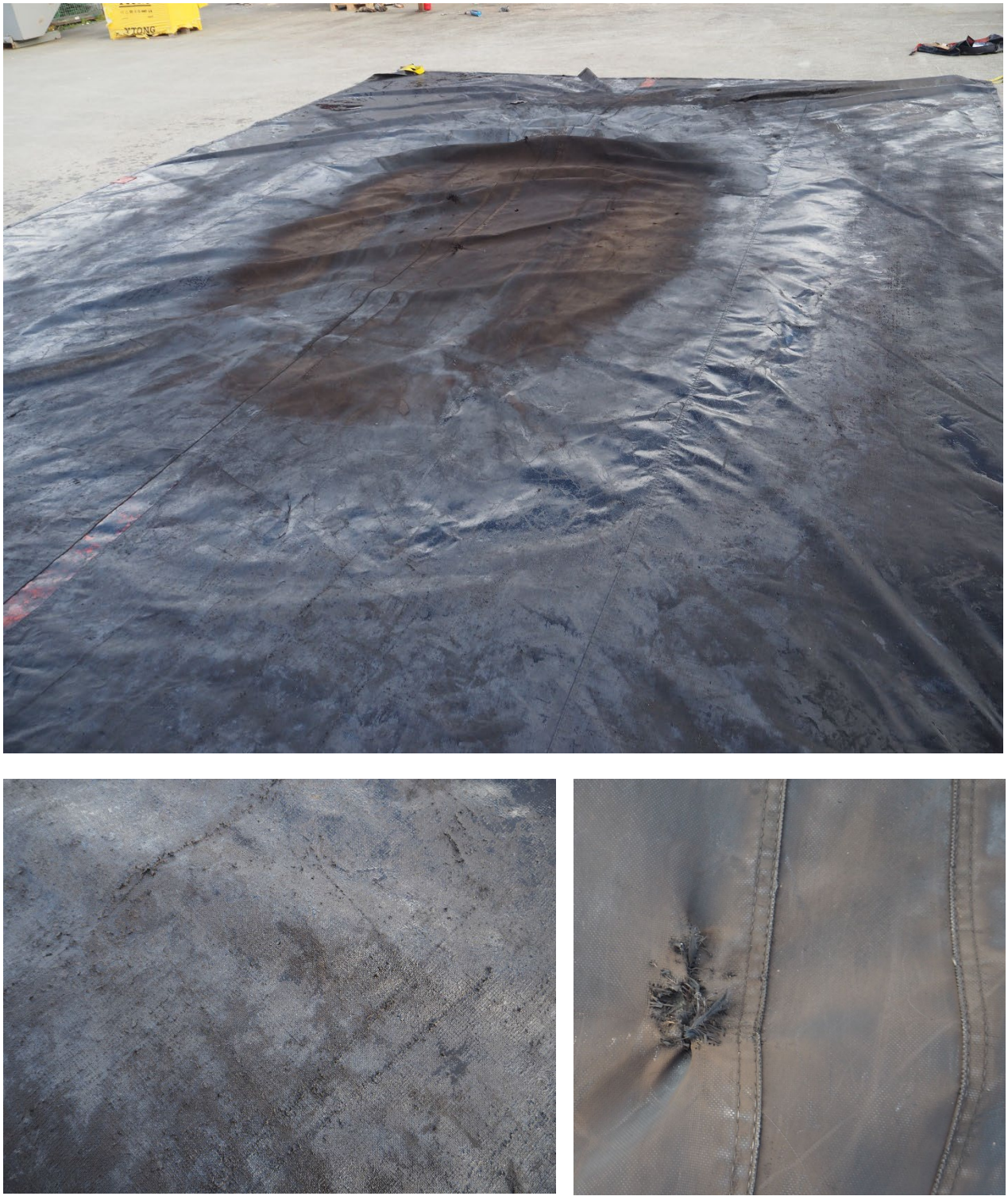



*Photo 7 Photos of the blanket after the end of the test.*

# Appendix C. Product data sheets

V1.10.09.2025

BRIDGEHILL®
WE SIMPLY BLOCK FIRE

## CAR PRO X FOR PROFESSIONALS

### ENGINEERED FOR STRENGTH AND VERSATILITY

A professional fire blanket designed for firefighters, delivering proven performance in demanding fire environments such as parking garages, charging stations, ferries, auto workshops, car dealerships, tunnels, and high-density parking areas.

**Key Benefits**

- Controls vehicle fires within seconds
- Most efficient solution for isolating electric vehicle fires
- Reusable for up to 30 vehicle fires
- Immediately contains toxic gases and smoke, reducing carcinogen exposure
- 6 times stronger than steel in tear-strength
- Suitable for standard vehicles, SUVs, and larger vehicles such as trucks
- Effective on small fires as well as full vehicle fires, offering versatile response

**Product Features**

- Compliant with DIN SPEC 91489 and NFPA 701-2019
- Red center stripe for easier deployment
- Red and yellow handles for improved usability
- Red center markings on both sides for quick orientation
- Delivered in a compact, portable smartbag
- Reinforced with eyelets every meter for use as a fire sail
- Usable as a vertical fire sail between buildings*



For instruction videos:
Scan QR code

**Smartbag:**
Included with every blanket for safe storage, easy transport, and long-term usability.

- Airtight
- Equipped with shoulder straps and handles for easy transport
- Includes instruction manual in four languages
- Comes with a repair kit for patching holes caused by sharp objects
- Conformity with IP65



**Size/Weight Car Pro X Standard Size:**
≈ 6 × 8 m Weight ≈ 28 kg
≈ 19.8 × 26 ft Weight 61,7 lb

**Size/Weight Car Pro X - XL Size:**
≈ 7,5 × 10 m Weight ≈ 38 kg
≈ 24.6 × 32.8 ft Weight 83.78 lb

* See " Car Pro X - Building Protection" for details on building protection and additional applications.

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BRIDGEHILL®
WE SIMPLY BLOCK FIRE

# CAR PRO X

TECHNICAL SHEET

| | |
|---|---|
| **SKU** | Car Pro X: 103254<br>Car Pro X - XL: 103253 |
| **Size/Weight** | Car Pro X: ≤5% 6 × 8 m (48 m²), 28 kg / ≤5% 19.8 × 26 ft / 61,7 lb (without bag)<br>Car Pro X - XL: ≤5% 7,5 × 10 m, 38 kg / ≤5% 24.6 × 32.8 ft, 83.78 lb (without bag) |
| **Core material** | 340 gsm graphite |
| **Coating** | ±160 gsm BridgeTech™ polymer coating.<br>During fires with high conductive heat, flames may appear on the blanket's coating, without compromising performance. |
| **Blanket Edge** | Reinforced with eyelets every meter for use as a fire sail. |
| **Vehicle Compatibility** | Designed to handle standard cars, SUVs, and larger vehicles such as trucks. |
| **Main usage** | • As a fire blanket: Covers objects to effectively block fire.<br>• As a fire sail: Positioned vertically to stop fire spread. |
| **Smartbag Maintenance** | • Apply the included silicone grease to the zipper to maintain airtightness.<br>• Tested according to EN 60529: 1991 (Conformity with IP65). |
| **Shelf life** | 10 years shelf life. Annual visual inspection is recommended. |
| **Care** | No washing required. Air dry after use and store in the smart bag. |
| **Disposal Guidelines** | Check Local Regulations. |
| **Service temperatures on core fabric** | Short term ± 2500 °C / ± 4500 °F<br>Long term ± 1500 °C / ± 2500 °F |

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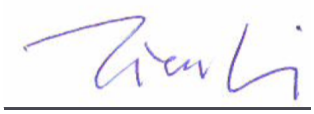
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