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The HALO™ was developed to be the most effective and economical means of mitigating deaths and injuries in rollover crashes. The HALO™ is a comprehensive design which consists of an optimized tubular structure mounted on the vehicle roof similar to a roof rack in combination with internal pillar reinforcements that stay within the Original Equipment Manufacturer (OEM) plastic trim to maintain the interior space and appearance.

The HALO™ functions by tying all of the underlying vehicle’s vertical pillars together and reforming the vehicle’s trapezoidal cross-sectional shape while drawing on the internal reinforcement’s added vertical support. The HALO™ is a dynamically tested ROPS that maintains the Major Radius and minimizes Roof Crush and Occupant Injury.
The HALO™ was extensively tested on the JRS Dynamic Rollover test rig. Four prototype designs were developed and tested to optimize the structure.

The resulting design outperformed the Volvo XC90 and minimized intrusion speed and roof crush in all locations to less than 2 mph and less than 1” of crush.
Dynamic Testing

Finite Element Analysis: OEM vs. HALO™

HALO™ Dolly Rollover Testing at 42 MPH - 2 Roll Event

Launch off Dolly  Airborne Pre-Roll 2

Driver’s Touchdown Roll 2  Passenger’s Touchdown Roll 3

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Advantages of a HALO™ ROPS System include:

- Dynamically tested to optimize rollover performance.
- Reduced point load impacts to front roof corners.
- Allows deployment of seat and window curtain airbags.
- Light weight design minimally affects CG or payload capacity.
- Enhanced Side Impact Protection from reinforcements.
- Limits roof crush and crush speed to maintain Occupant Survival Space and restraint function.
- Unique cross member and roll hoop design join the structural components together to:

**MINIMIZE ROOF CRUSH and OCCUPANT INJURY**

**HALO™ is approved by:**

![List of approved brands]
Product Details:

HALO™ is fitted on a 2013 Nissan NP300 Dual Cab

- **Item Number:** H13AKIT
- **HALO™ Dimensions:** 51 x 42 x 8 inches
- **Weight:** 51 lbs (23 kg)

1305 x 1065 x 203 mm
Product Details:

HALO™ is fitted on a 2013 Land Cruiser 79 Series Single Cab

Item Number: H14AKIT
HALO™ Dimensions: 40 x 50 x 10 inches
1016 x 1270 x 243 mm

Weight: 75 lbs (34 kg)

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Hilux Dual Cab

Product Details:

HALO™ is fitted on a 2012 and 2016 Toyota Hilux Dual Cab
Item Number: H6AKIT (2012) and H16AKIT (2016)
HALO™ Dimensions: 55 x 45 x 8 inches  Weight: 47 lbs (21 kg)
1397 x 1143 x 203 mm

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HALO™ is fitted on a 2012 and 2016 Mitsubishi Triton

Item Number: H5AKIT (2012) and H51AKIT (2016)
HALO™ Dimensions: 58 x 49 x 8 inches  Weight: 47 lbs (21 kg)
1473 x 1245 x 203 mm
HALO™ is fitted on a 2013 Toyota Hilux Single Cab

Item Number: H10AKIT
HALO™ Dimensions: 36 x 57 x 8 inches
911 x 1465 x 190 mm
Weight: 65 lbs (29 kg)
KB Single Cab

HALO™ is fitted on a 2013 Isuzu KB Single Cab

Item Number: H11AKIT
HALO™ Dimensions: 36 x 57 x 8 inches  Weight: 65 lbs (29 kg)
911 x 1465 x 190 mm

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Product Details:

HALO™ is fitted on a 2013 Isuzu KB Dual Cab

| Item Number: | H12AKIT |
| HALO™ Dimensions: | 55 x 45 x 8 inches | Weight: 52 lbs (24 kg) |
|               | 1397 x 1143 x 203 mm |

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Ford Ranger

Product Details:

HALO™ is fitted on a 2013 Ford Ranger

Item Number: H9AKIT
HALO™ Dimensions: 60 x 49 x 8 inches  Weight: 50 lbs (23 kg)
1524 x 1245 x 203 mm

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HALO™ is fitted on a 2010 Toyota Prado Wagon

<table>
<thead>
<tr>
<th>Item Number:</th>
<th>H4AKIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HALO™ Dimensions:</td>
<td>62 x 49 x 8 inches</td>
</tr>
<tr>
<td></td>
<td>(1570 x 1240 x 200 mm)</td>
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<tr>
<td>Weight:</td>
<td>56 lbs (25 kg)</td>
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</tbody>
</table>

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HALO™ Dimensions: 88 x 50 x 9 inches
(2230 x 1270 x 230 mm)

HALO™ is fitted on a 2012 Toyota Landcruiser 200

Item Number: H8AKIT

Weight: 64 lbs (29 kg)

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Our investigation of passenger vans and buses revealed that the roof structure, including the support pillars, are very weak, as shown in the accident photo below. HALO™ has been developed for these vehicle types and includes interior reinforcement pillars that are added to the existing structure to minimize the distance between supports. As with all HALO™ ROPS, our reinforcements are hidden under the OEM trim and not visible inside the vehicle.
HALO™ SAVING LIVES!

With more than 1000 HALO™ ROPS installed worldwide, it's successfully protected occupants in more than 40 Rollover events. Below are photos of the vehicles equipped with the HALO™ in real world rollover accidents. There were no serious injuries or fatalities from roof crush.
Contacts

Delivery Time Frames
Quantity Discounts
New Vehicle Types
Heavy Trucks
Mini-Busses
Crash Analysis
ROPS Analysis
Engineering Services

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