

Test Report

Testing Laboratory
 Product Safety



Test report No.	QA20170714
Applicant:	KingRack
Test item:	Rear Ski Carrier
Item No.	SKI-RACK
Test date:	2017/7/14
Testing Location	KingRack Testing Lab
Test Principle:	XP 18 904 4
Test Result:	Pass

Test Engineer:	<i>Leon</i>	Date:
R&D manager Validation:	<i>Chason</i>	Date:

Remark notes:

- 1.The test sample maximun a carriers of 6 ski with load capacity 45 kg.
- 2.Rear ski carrier installed on the tow ball.
- 3.The square tube size of this test is 1.5t and round tube size is 1.6t.

Dynamic tests

Description of the sleeping policeman:

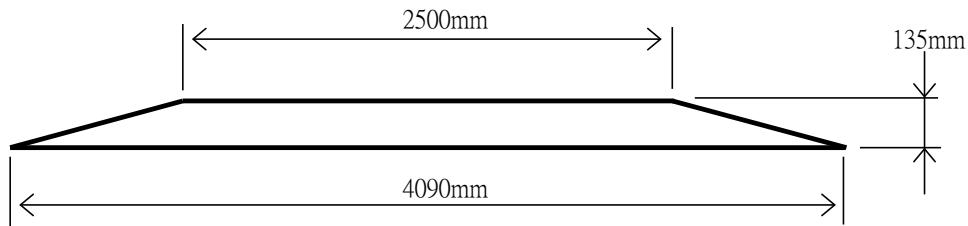


Figure 1 - Sleeping policeman Characteristics

This test shall be carried out as follows:

- Mount the rear ski carrier device on the appropriate vehicle(Benz ml350).
- Adjust the test ski to 10.5kg each, and carried 6 ski with $10.5 \times 6 = 63$ kg.
- Stabilise the vehicle speed at 30 km/h.
- Pass over the sleeping policeman at this constant speed 3 times.
- Measure and record the residual deflection.



Figure 2 - Test car - Benz ml350



Figure 3 - Application of the angle measure on the test bicycles

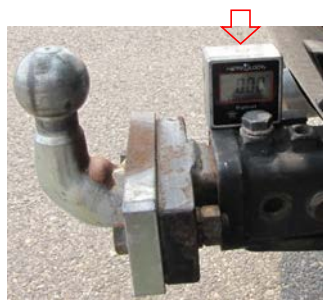


Figure 4 - " α angle" zeroing



Figure 5 - " β angle" zeroing

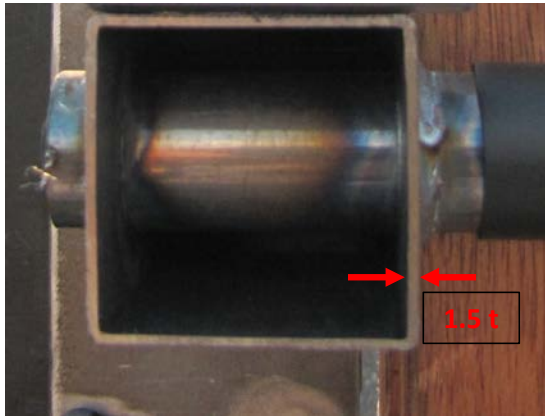


Figure 6 - Square tube size is 1.5t

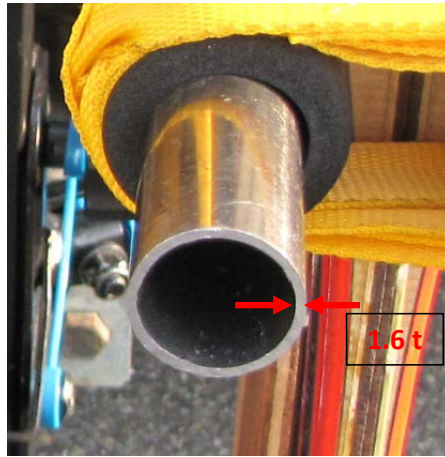


Figure 7 - Round tube size is 1.6t

α = angular deflection (3° max) δ = angular deflection (3° max)
 β = angular deflection (3° max)



$\alpha 1$	
Before test	+82.10°
After test	+82.20°
Angular deflection	+0.10°
Verdict	PASS

Figure 8 - Measure $\alpha 1$ angle after 3 times



$\alpha 2$ (Left)	
Before test	-6.60°
After test	-6.30°
Angular deflection	0.30°
Verdict	PASS



$\alpha 3$ (Right)	
Before test	+7.55°
After test	+7.65°
Angular deflection	0.10°
Verdict	PASS

Figure 9 - Measure $\alpha 2$ and $\alpha 3$ angle after 3 times

α = angular deflection (3° max) δ = angular deflection (3° max)
 β = angular deflection (3° max)



	$\alpha 4$ (Left)	
	Before test	-7.55°
	$\alpha 5$ (Right)	
	Before test	+8.50°
	After test	+9.25°
	Angular deflection	0.75°
	Verdict	PASS

Figure 10 - Measure $\alpha 4$ and $\alpha 5$ angle after 3 times



	$\beta 1$ (Left)	
	Before test	0.00°
	$\beta 2$ (Right)	
	Before test	0.00°
	After test	0.00°
	Angular deflection	0.00°
	Verdict	PASS

Figure 11 - Measure $\beta 1$ and $\beta 2$ angle after 3 times

α = angular deflection (3° max) δ = angular deflection (3° max)
 β = angular deflection (3° max)



$\beta 3$ (Left)	
Before test	-0.70°
After test	-0.20°
Angular deflection	0.50°
Verdict	PASS



$\beta 4$ (Right)	
Before test	-0.70°
After test	0.00°
Angular deflection	0.70°
Verdict	PASS

Figure 12 - Measure $\beta 3$ and $\beta 4$ angle after 3 times



$\delta 1$ (Left)	
Before test	357mm
After test	358mm
Angular deflection	0.14°
$\delta 2$ (Right)	
Before test	356mm
After test	360mm
Angular deflection	0.57°
Verdict	PASS

Figure 13 - Measure $\delta 1$ and $\delta 2$ angle after 3 times

- Notice:**
1. α, β, δ are the angles between carrier and vehicle
 2. D is the distance change between carrier and vehicle, d is the distance change between carrier and bike
 3. e is the distance between carrier parts

PASS