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# INTRODUCTION OF **KOREAN SAFETY INNOVATION**

**WE WILL MAKE DILIGENT EFFORTS TO DEVELOP**  
ADVANCED TECHNOLOGY & GUARANTEE HIGH QUALITY

DIFFERENCES IN THOUGHTS  
**CREATE CHANGES.**

COMPANY  
**KSI CO., LTD.**



## FUNCTION & EFFECTIVENESS

- Provide safety fixture for drivers and passengers to prevent from fatal accident by absorbing shock energy, converting the shock energy into rotation energy
- E.V.A (Ethylene Vinyl Acetate) and special treatment which owns by KSI, make the most strengthen & Ultra elastic restoring force to save drivers from fatal accident
- Does not melt, burn, fade, shrink, expand and crack
- Sustain performance until 50,000psi from compression




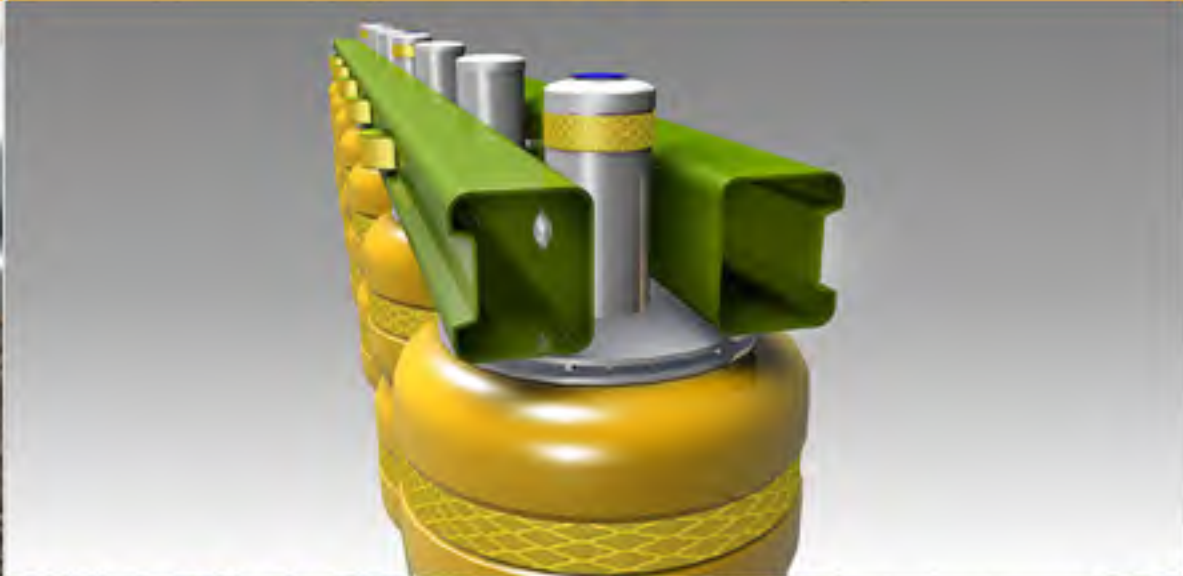




## FEATURES & STRENGTHS



- Ultra elastic restoring force of E.V.A foam from shock, leads to secure driver safety and low maintenance cost for lifetime
- Applying PosMAC (Innovative high corrosion resistance steel plate by POSCO) will keep excellent rust prevention and strength to guardrail  
※The force against a barrier deformation after impacting is very high
- Stopper board provides resistance and friction braking for transferring optimal kinetic energy to rotational energy

02. INTRODUCTION OF SRB SYSTEM | WHAT IS DIFFERENT?

# Why KSI's SRB & What is Different?

NO	Conventional	KSI	Difference
1			<p>Manufactured pole and rail in one piece, the pillar does not go slide</p>
2			<p>The big size roller provides more absorbing shock capability</p>
3			<p>Restoration after car crash (No damaged by the midsize car. Only minor damaged by large vehicle)</p>


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NO	Conventional	KSI	Difference
4			<p>Attaching sub-struts instead of con'c to the inside of strut for reinforcing to protect bending from crash / easy maintenance</p>
5			<p>Long length (2m) between the strut makes easy on-site installation &amp; makes low maintenance cost</p>

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NO	Conventional	KSI	Difference
6			The existing guard rail with 2m pillar distance can be changed to SRB system by swapping a plate with EVA roller.
7			The method of multi-layer installation can adjustment height and replace roller easily when it get damaged
8	 <p>No reflection angle</p>		Photovoltaic LED guidance lights are attached to ensure visibility during night driving. (effective in the foggy areas)

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# Why KSI's SRB & What is Different?

NO	Conventional	KSI	Difference
9			The rotation blocking plate reduced the vehicle's acceleration in the event of a vehicle collision.
10			Not separated when PVC collides inside the roller (by forming a through hole with the threaded P.P pipe material)
11			Attaching reflecting tape to the stainless plate is providing detachable adherent

02. INTRODUCTION OF SRB SYSTEM | WHAT IS DIFFERENT?

# Why KSI's SRB & What is Different?

NO	Conventional	KSI	Difference
12			Rectangular multiple-row structured guard rail increased shock absorption and restoration
13			Ultra elastic restoring E.V.A foam provides a strong and long-lasting lifetime
14			Can be attaching shade screen to protect glare from large vehicles light



02. INTRODUCTION OF SRB SYSTEM | WHAT IS DIFFERENT?

# Why KSI's SRB & What is Different?

Before installing Safety roller



After installing Safety roller



After crash of Lorry 14 ton (Not bent)



After crash (Be Resilient)

Severe Damage



No damage

## Structural Characteristics

Item	Conventional Type		SRB (Safety Roller Barrier)
	Guardrail	Concrete	
Structure (strength)	Low	High	Mid
Occupant protection	Mid	Low	High
Safety after a crash	Mid	Mid	High
Total cost for 5yr (Install + maintenance)	High	High	Low

## Why SRB?

The fatality costs are not just considered an expense but the most uncountable value factor for people to save a life.

**However, the SRB system can save the cost of fatal crashes that can't avoid.**

State	Rural	Urban	Urban Freeway	Total
	Fatal crash (\$)	Serious injury crash (\$)	Other injury crash (\$)	Fatal crash (\$)
New South Wales	2,875,402	588,546		2,538,351
Victoria	2,843,808	628,914	26,217	2,521,384
Queensland	2,728,617	642,035	25,822	2,456,692
South Australia	2,826,043	610,963	26,080	2,385,285
Western Australia	2,868,662	638,358	28,970	2,447,722
Tasmania	2,568,291	579,621	28,381	2,351,823
Northern Territory	2,803,648	664,275	24,241	2,945,056
Australian Capital Territory	-	-	-	2,857,595

Table 1. Australian Transport Assessment and Planning 2013 cost of a fatality

## Cost comparison for maintenance

KSI's SRB system has excellent shock absorption capacity to have rare damage to the structure in the event of a vehicle collision. It is almost permanent and long-lasting. These make not only increase the safety of drivers but also reduce maintenance cost is much lower.

- Australian Transport Assessment and Planning

	W-beam based on VicRoads Data. (1 incident per month)	W-beam based on Real Data (2 incidents per month)	Princess Freeway-High Street Off ramp Safety Roller Costs (SRB)
1 Year	\$ 44,640	\$ 89,280	\$ 60,100 (Initial Cost)
2 Year	\$ 89,280	\$ 178,550	NIL
3 Year	\$ 133,920	\$ 267,840	\$ 20,000
4 Year	\$ 178,560	\$ 357,120	NIL
5 Year	\$ 223,200	\$ 476,400	NIL
Lifetime Cost at December 2020	\$ 223,200	\$ 476,400	\$ 80,100

Table 2. KSI cost analysis associated with the High Street Laverton Project



## Comparison of initiation cost to maintenance cost

Item	W-Beam Guardrail	Concrete	SRB (Safety Roller Barrier)
1 Year	110\$	180\$	530\$
2 Year	110\$	180\$	-
3 Year	110\$	180\$	63\$
4 Year	110\$	180\$	-
5 Year	110\$	180\$	63\$
<b>Total</b>	<b>550\$</b>	<b>900\$</b>	<b>656\$</b>
<b>Remark</b>	Due to ultra crash absorption and restoration capability, SRB needs very low maintenance costs.		

# EXAMPLE OF INSTALLATIONS

Diverging Point



Road Center



Protection of sign post



LED Light



Entrance of Median strip



# EXAMPLE OF INSTALLATIONS

Highway ramp section



Tunnel (Highway)



Sharp curved section (accident hazard)



Collision risk section



# EXAMPLE OF INSTALLATIONS

Cases of overseas installation (Bangkok in 2014)








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INTRODUCTION OF KSI CO., LTD.

THANK  
YOU!

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