



THE CORE COMPETITIVENESS OF CORRUGATED BEAM GUARDRAILS: AN ENERGY-ABSORBING ARCHITECTURE

The primary competitive advantage of corrugated beam guardrails lies in their sophisticated, energy-absorbing structural design. At the exact moment of impact, the collision force is dissipated through a highly efficient, three-stage deformation mechanism:

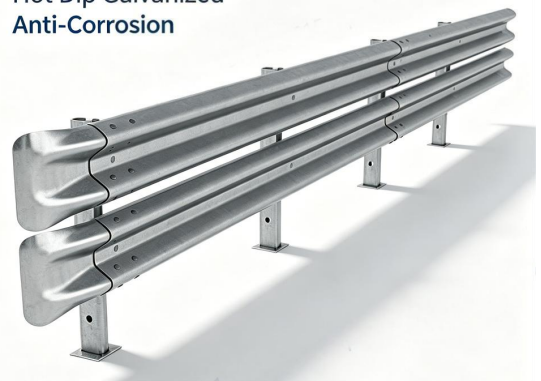
The Guardrail Panel: The force is initially transmitted to the corrugated steel rail, which undergoes controlled bending and deformation.

The Support Posts: The kinetic energy then moves to the posts, causing them to tilt or bend within the soil foundation.

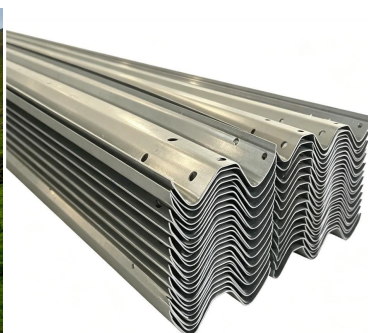
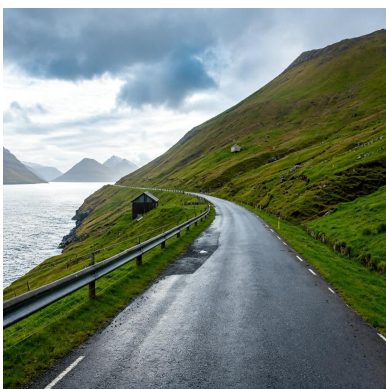
The Soil Foundation: Finally, the surrounding soil matrix absorbs the remaining energy.

Direct Manufacturer

Hot Dip Galvanized
Anti-Corrosion



By shedding force layer by layer, this progressive deformation effectively disperses what would otherwise be a catastrophic, instantaneous shock into a manageable deceleration over time and distance.



Direct Manufacturer



Key Engineering Advantages

Minimized Occupant Injury

As semi-rigid barriers, corrugated guardrails inflict significantly less damage on vehicles and their occupants. They eliminate the severe, instantaneous peak impact force typical of rigid concrete barriers during high-angle collisions.

Rapid Post-Impact Repair & Low Maintenance Costs

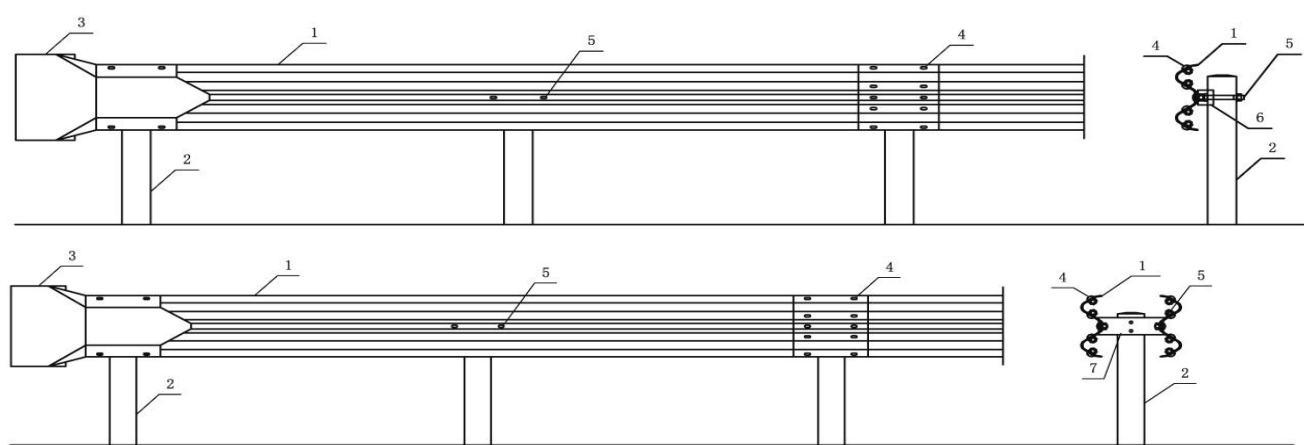
Both the beam panels and posts are highly standardized components. Following a collision, maintenance crews only need to replace the localized damaged sections rather than reconstructing the entire system — significantly reducing repair time and labor costs. This modularity is exceptionally valuable for optimizing highway maintenance budgets, especially for cost-sensitive infrastructure projects and regions with limited maintenance resources.

Lightweight Design & Cost-Effective Logistics

Taking a standard W-beam panel as an example, a 4-meter panel weighs approximately 48 kg at a 3mm thickness, and about 66 kg at a 4mm thickness—vastly lighter than a concrete barrier of equivalent protective length. This lightweight profile drastically reduces container shipping costs and simplifies on-site installation.

Highly Adaptable Specifications & Full-Spectrum Protection

By adjusting key parameters—such as plate thickness, wave profile (W-beam vs. Thrie-beam), post cross-sections, and spacing—corrugated guardrails can be engineered to cover containment levels from Level 2 all the way to Level 6. This versatility makes them ideal for any scenario, from rural county roads to high-speed expressways.



Components: 1—Thrie-beam panel; 2—Thrie-beam backup plate (used only with H-section steel posts); 3—post; 4—end terminal; 5—splice bolt assembly; 6—connecting bolt assembly; 7—reinforcing rail; 8—blockout or bracket.

W-Beam Panels

W-beam panel specifications shall comply with the table below (Table 1). Unit: mm.

Product Name	Model	Specification (Length × Width × Wave Height × Thickness)	Use
W-beam panel	DB00	8320×310×85×(2 / 2.5 / 3 / 4)	Extended panel
	DB01	4320×310×85×(2 / 2.5 / 3 / 4)	Standard panel
	DB02	3820×310×85×(2 / 2.5 / 3 / 4)	Adjustment panel
	DB03	3320×310×85×(2 / 2.5 / 3 / 4)	Adjustment panel
	DB04	2820×310×85×(2 / 2.5 / 3 / 4)	Adjustment panel
	DB05	2320×310×85×3	Standard panel
		2320×310×85×(2 / 2.5 / 4)	Adjustment panel
	DB06	Lx×310×85×(2 / 2.5 / 3 / 4)	Adjustment panel

Note 1: A standard panel is of standard length used in installation; an extended panel is lengthened to reduce splicing; an adjustment panel handles leftover spacing through the distribution method. **Note 2:** In model DB06, Lx denotes an

adjustment panel of any length under 2320 mm, used to handle the spacing remainder after standard, extended, and fixed-length adjustment panels have been used; the exact length is determined by design or project requirements.

Flexible Specifications with Broad Protection Level Coverage By adjusting the thickness of the beam plates, wave profiles (W-beam / Thrie-beam), post cross-sections, and spacing, corrugated beam guardrails can cover the complete protection level range from Level 2 to Level 6, perfectly suiting all application scenarios from county roads to expressways.



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TEST REPORT

Report Number: XH2606B0023217GR

Date of issue: Jun.8, 2026

Name of Testing Laboratory preparing the Report: Xihua International Testing & Certification (Shenzhen) Co., Ltd.
Building 10, No.23, North Lane 1, Beihuan Road, Shiyao, Bao'an District, Shenzhen, Guangdong, China

Application Name: Shandong Pipe Engineering Technology Co., Ltd.

Address: Room 1-1102, Ginza Jingdu International Plaza, No.66 Shunhedong Street, Shizhong District, Jinan City shandong

Test specification

Standard: EN 1317-1:2010
EN 1317-2:2010
EN 1317-3:2010
EN 1317-4:2010
EN 1317-5:2007+A2:2012/AC:2012
EN ISO 1461:2022
EN 10025-1:2004

Test procedure: Entrusted Inspection

Procedure deviation: N/A

Non-standard test method: N/A

Test item

Description: Highway Guardrails

Trade Name: /

Model and/or type reference: /

Add module: /

Manufacturer: Shandong Pipe Engineering Technology Co., Ltd.
Room 1-1102, Ginza Jingdu International Plaza, No.66 Shunhedong Street, Shizhong District, Jinan City shandong

Address: Room 1-1102, Ginza Jingdu International Plaza, No.66 Shunhedong Street, Shizhong District, Jinan City shandong

Test sample(s) received: Jun.1, 2026

Test in period: Jun.1, 2026-Jun.8, 2026

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

CTesting Laboratory: Xihua International Testing & Certification (Shenzhen) Co., Ltd.

Testing location/address: Building 10, No.23, North Lane 1, Beihuan Road, Shiyao, Bao'an District, Shenzhen, Guangdong, China

Tested by (name, function, signature): Penny Chen / Project Handler

Approved by (name, function, signature): Johnson Xu / Designated Reviewer

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