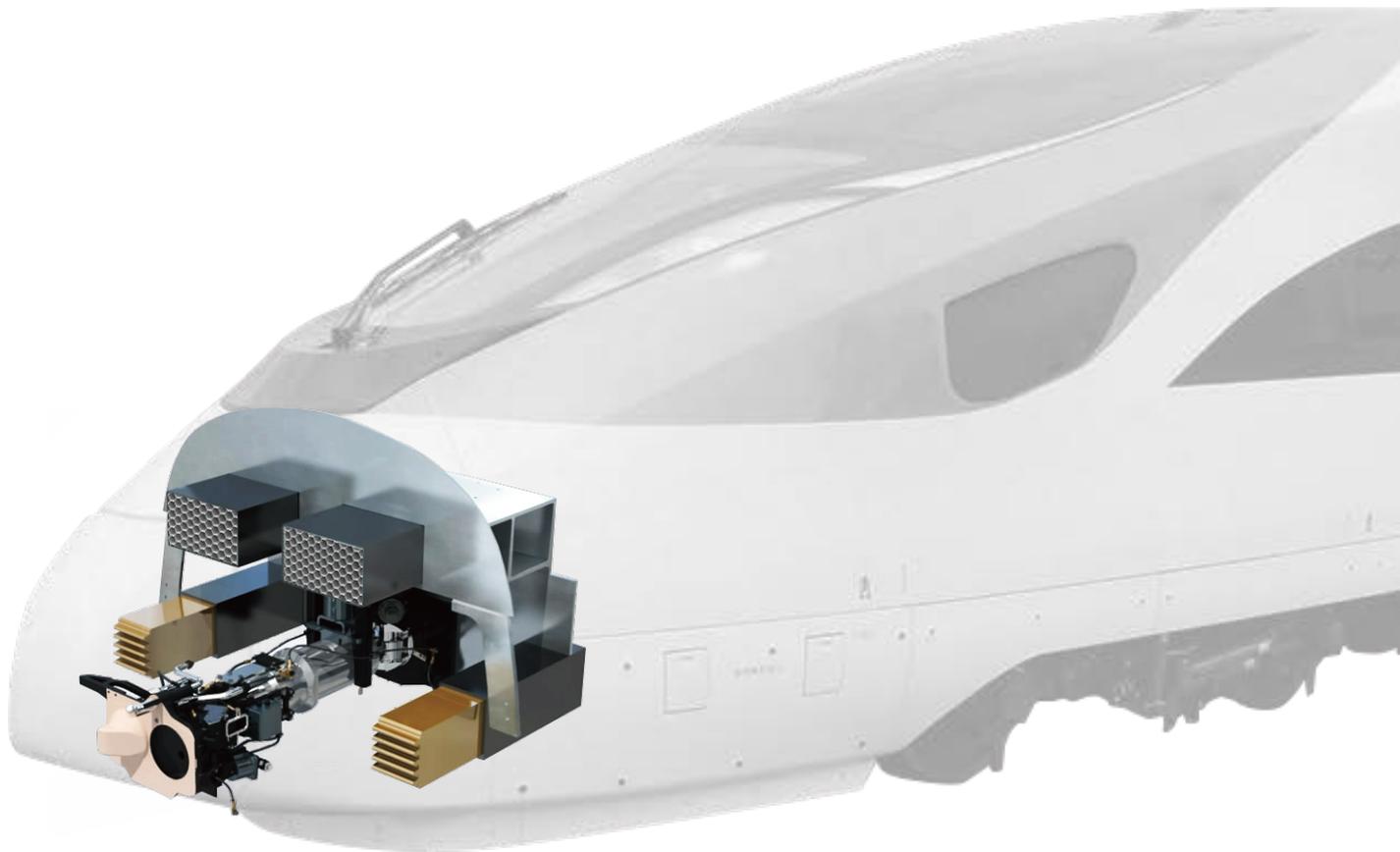


CANSINGA

Safety Protection for Rail Train

Anti-climber Product | Collision Energy Management Software



Company Profile

Cansinga, with complete quality management system, has acquired ISO9001: 2008 Certificate, EN15085 Certificate, and National Military Standard Qualification etc., and becomes the coordinated demonstration project of industrial resilient base of national MIIT in 2017.

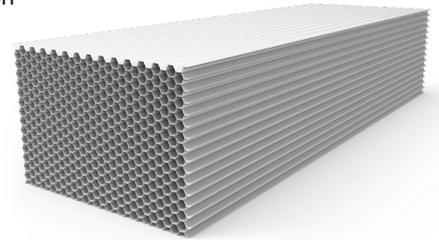
Cansinga has not only successfully provided products and solutions for the rail vehicle like China High Speed Rail, EMU, Metro, Tramcar etc., but also cooperated with the clients in Military Vessel and Aerospace field, dedicating to become an expert enterprise in passive safety protection field, and to provide clients with the most professional passive safety protection product and integrated solution.



High Strength Aluminum Honeycomb

Product Features

- Light weight, high compression ratio, 40kJ/kg of mass-for-energy absorption
- Stable load, high energy-absorbing efficiency
- Extremely outstanding acceleration response
- Accurate and controllable mechanical property, strength deviation $\leq 5\%$
- Practically applied to high speed train and military field



Product Specification

	AH-08	AH-10	AH-15	AH-20	AH-25	AH-30
Dynamic Stability Strength (MPa)	8 \pm 5%	10 \pm 5%	15 \pm 5%	20 \pm 5%	25 \pm 5%	30 \pm 5%
Height (mm)	\cong 680	\cong 680	\cong 680	\cong 400	\cong 400	\cong 400
Width (mm)	\cong 600					
Length (mm)	\cong 600					
Effective Compression Ratio (%)	70	70	68	68	64	64

Anti-climbing Energy Absorber

Drawer-type Aluminum Honeycomb Anti-climber

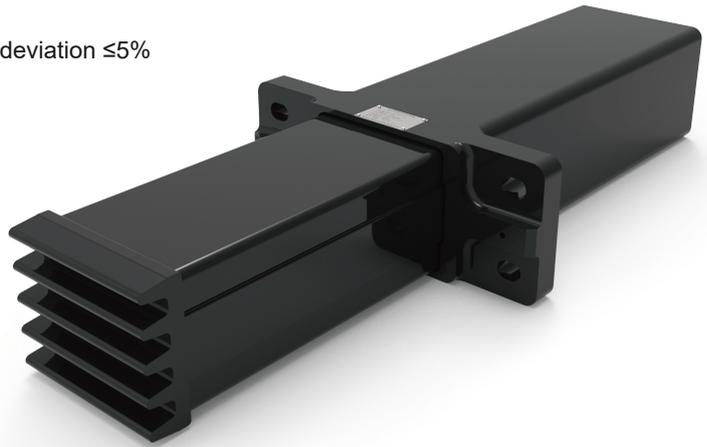
Drawer-type aluminum honeycomb anti-climber adopts honeycomb structure as energy-absorbing element, with the gear meshing with each other and crushing the honeycomb inside when collision happens, and has been applied to the High Speed Rail, EMU, Metro, etc.

Product Features

- Simple structure, easy maintenance
- Light weight, smooth buffering power
- Multilevel energy-absorbing structure, flexible flange location
- Stable load, high energy-absorbing efficiency
- Extremely outstanding acceleration response
- Accurate and controllable mechanical property, strength deviation $\leq 5\%$
- Passed industry standard tests

Product Specification

- Average Buffering Power : 500-2000 kN
- Max. Energy-absorbing Stroke : 1000 mm
- Max. Energy-absorbing Capacity : 2000 kJ
- Vertical Load Capacity : ≥ 150 kN



Guide-type Aluminum Honeycomb Anti-climber

Product Specification

- Average Buffering Power : 400-2000 kN
- Max. Energy-absorbing Stroke : 800 mm
- Max. Energy-absorbing Capacity : 1600 kJ
- Vertical Load Capacity : ≥ 150 kN



Energy-absorbing Tube-expansion Anti-climber

Product Specification

- Average Buffering Power : 100-1000 kN
- Max. Energy-absorbing Stroke : 550 mm
- Max. Energy-absorbing Capacity : 550 kJ
- Vertical Load Capacity : ≥ 100 kN



Tube-contraction Absorber

Product Specification

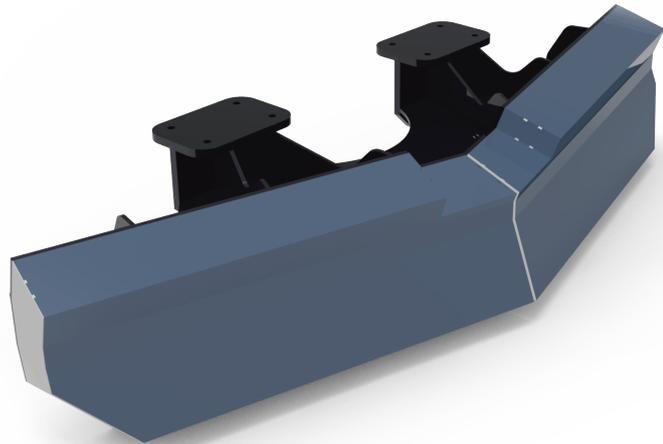
- Average Buffering Power : 145 kN
- Max. Energy-absorbing Stroke : 318 mm
- Max. Energy-absorbing Capacity : 46.1 kJ
- Vertical Load Capacity : ≥ 50 kN

Energy-absorbing Cowcatcher

Energy-absorbing cowcatcher consists of traditional cowcatcher plate and aluminum energy-absorbing element. The aluminum honeycomb is installed in front of the cowcatcher plate, to absorb a part of energy when vehicle collides with the obstacle, which weakens the impact force on vehicle body, and reduces the damage.

Product Specification

- Average Buffering Power : 5-50 kN
- Max. Energy-absorbing Stroke : 200 mm
- Max. Energy-absorbing Capacity : 100 kJ



Front-end Open and Close Energy Absorber

Front-end open and close energy absorber adopts honeycomb structure as energy-absorbing element. When train collision happens, the anti-climber gear mesh with each other to push the energy-absorbing element to get back-oriented, and the energy absorption gets accomplished.



Product Specification

- Average Buffering Power : 400 kN
- Max. Energy-absorbing Stroke : 360 mm
- Max. Energy-absorbing Capacity : 144 kJ
- Vertical Load Capacity : ≥ 50 kN

One-dimension Simulation Software of Collision Energy for Rail Train

Vehicle Parameter Setting-up

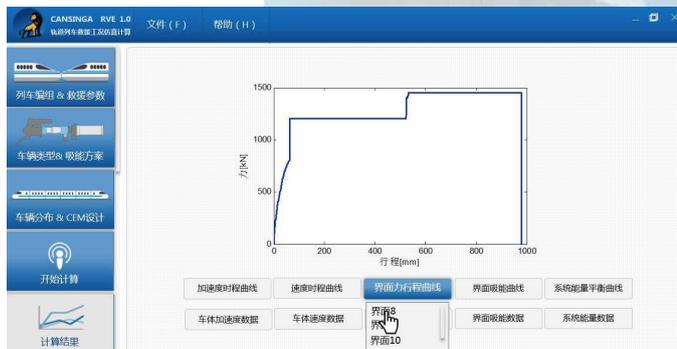


Based on the theory of dynamics and collision mechanics, Cansinga independently developed the Collision Energy Management Software. The end coupler buffering device and the energy-absorbing deformation components of each vehicle in the train are respectively characterized as nonlinear force-deformation characteristic curve, and the area surrounded by the curve represents the energy absorption capacity of the energy-absorbing components at each vehicle's end. By adjusting the relative parameters of force-displacement function of the force-deformation characteristic curve, the energy parameter variation of the buffering and energy-absorbing device at the vehicle's end can be realized. The dynamic simulation of train collision process gets realized by loading and calling on the simulation model of train collision.

Parameter Setting-up of Energy-absorbing Components



Computed Result



CANSINGA

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