Claims:

1. A vehicle body collision energy absorbing structure, comprising:

a front-end collision energy absorbing structure suitable for being mounted at a front end of a head carriage, and a middle-end collision energy absorbing structure suitable for being mounted at an end of a middle carriage,

wherein the front-end collision energy absorbing structure includes a hermetic partition wall suitable for being connected to both a cab skeleton and a skin, a front-end coupler arranged below the hermetic partition wall along a center line of a vehicle body, front-end anti-climbers symmetrically distributed on both sides of the center line of the vehicle body and located below the hermetic partition wall, and a front-end energy absorbing module, wherein a side of the front-end energy absorbing module deviating towards the center line of the vehicle body is mounted on the hermetic partition wall; and

the middle-end collision energy absorbing structure includes a middle shearing coupler suitable for being mounted below an underframe, middle energy absorbing modules suitable for being mounted on both sides of an end wall of the middle carriage , and a middle anti-climber suitable for being mounted at a position corresponding to a side beam and below the middle energy absorbing modules, wherein a length of each of the middle energy absorbing modules extends along a height direction of the end wall.

2. The vehicle body collision energy absorbing structure of claim 1, wherein along a direction of the center line of the vehicle body, a front end of the front-end coupler, a front end of the front-end anti-climber and a front end of the front-end energy absorbing module are staggered; the hermetic partition wall is suitable for being mounted on the underframe; and in a vertical height direction of the vehicle body, the front-end energy absorbing module is symmetrically mounted or has a given offset.

3. The vehicle body collision energy absorbing structure of claim 2, wherein the front-end energy absorbing module includes a housing, a back plate and an energy

absorbing inner core mounted in the housing and abutted against the back plate, wherein the front-end energy absorbing module is mounted on the hermetic partition wall through the back plate.

4. The vehicle body collision energy absorbing structure of claim 3, wherein the offset of the front-end energy absorbing module is less than or equal to 20% of a height of the back plate, and the back plate is connected to the hermetic partition wall by bolts.

5. The vehicle body collision energy absorbing structure of claim 3, wherein a circumference of the housing has a taper angle, and the taper angle gradually decreases from a side of the back plate to a front end of the housing, and the taper angle is smaller or equal to 5 degrees.

6. The vehicle body collision energy absorbing structure of claim 3, wherein the energy absorbing inner core is a honeycomb core, and an axis direction of the honeycomb core is parallel or orthogonal to a travelling direction of the vehicle body.

7. The vehicle body collision energy absorbing structure of any one of claims 1 to 6, wherein a mounting end of the front-end coupler, a mounting end of the front-end anti-climber and a mounting end of the front-end energy absorbing module are not in the same mounting plane.

8. The vehicle body collision energy absorbing structure of any one of claims 1 to 6, wherein the middle energy absorbing modules are suitable for being mounted on the end wall of the middle carriage and are located on both sides outside a through passage, and each of the middle energy absorbing modules includes an aluminum honeycomb and an aluminum plate coated outside the aluminum honeycomb.

9. The vehicle body collision energy absorbing structure of any one of claims 1 to 6, wherein the middle anti-climber is provided with a guide rod, and an axis of the guide rod deviates from a center line of the middle anti-climber.

10. A rail vehicle having a head carriage and a middle carriage,

the head carriage comprising an underframe, a cab with a cab skeleton and a skin,

the middle carriage comprising an underframe and an end wall,

the rail vehicle comprising a vehicle body and the vehicle body collision energy

absorbing structure of any one of claims 1 to 9 mounted at a head end of the vehicle body.

11. The rail vehicle of claim 10, wherein a front end of the head carriage is provided with a stop beam, a front end of a traction beam on the underframe extends to be connected to the stop beam, a lower part of the stop beam is provided with reinforcing ribs of the front-end energy absorbing module, and no front-end floor is provided on a front end of the stop beam.