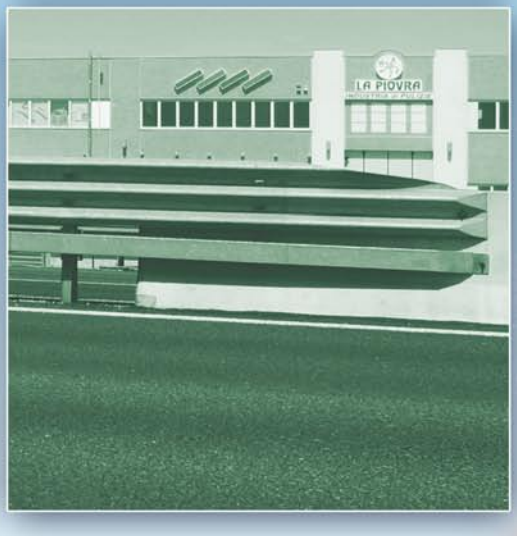
S-A-B®

Gate System



Road Safety

S-A-B® Gate System

Central reservation longitudinal side impact crash barriers on dual carriageways may often have openings or gaps in them at 2 to 4 km intervals which allow for the emergency vehicles to cross over. The advantageous of these gaps is that they also help to divert road traffic when major accidents occur or major maintenance road works are underway. However the gaps when left open can cause major accidents because of drivers attempting to 'U' turn through them or driving through them to avoid a possible vehicle collision. Some drivers have been known to drive through the open gaps and continue to drive the wrong way down the adjoining carriageway with horrific accident results. If the gaps are closed up by extending the crash barrier across them then their advantageous to emergency vehicles and

traffic diversion points to help with major accident and maintenance situations are lost.
The S-A-B removable barrier can safely maintain these gaps.
S-A-B is a special modular barrier which acts as a vehicle restraint system whilst providing a quick and easy opening mechanism.
The modules are about 4 m long and are joined to each other by double steel hinges. The end supports are anchored to the ground and have lateral coupling connections to the adjoining crash barrier which can be steel or concrete.

Each module is formed from a triple wave steel beam strip with a further steel longitudinal running beam that is designed to the wheels of any impacting vehicle.
The sides of the module are joined by strong steel supports which include the mounting supports for the hinges and the removable frame posts.
The wheel units are located between the sides panels and are lowered to the ground when the barrier is opened.
S-A-B is designed so that the modules can be opened singularly or in parts - to get a quick emergency route - or as a whole which can quickly provide a two lane traffic diversion contra-flow route for traffic.
S-A-B can be opened by 2-3 personnel in a few minutes without the need for any special equipment.
S-A-B has been the subject of a major development programme and it performs in its closed position as a normal vehicle restraint system.
A crash test using a 13,000 kg bus (level H2) caused it to buckle by about 1 m but the bus was only slightly damaged which did not prevent the bus being driven away from the crash site back to its depot without any assistance.
A 900 kg car crash test resulted in an ASI = 1 (level A) and no windows in the car were shattered.

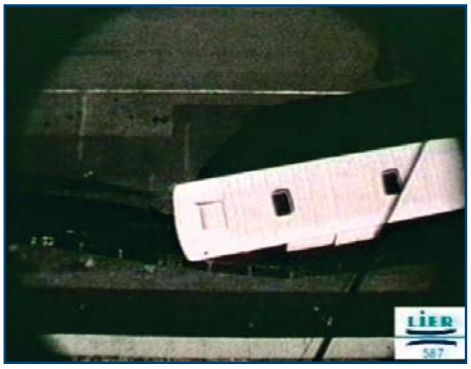
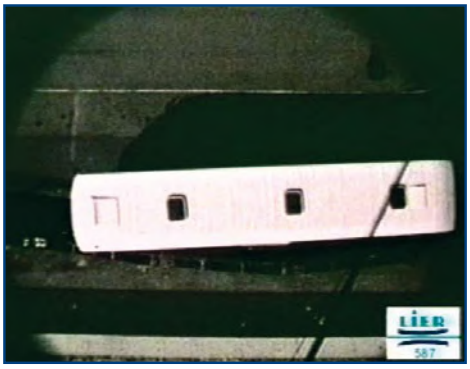
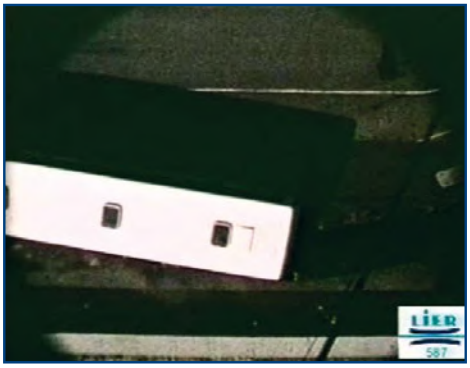
The S-A-B removable barrier meets the requirements of ENV 1317–4 (chapter 6) at the TB 51 and TB 11 test levels and the system has been tested by the French Laboratory LIER.

Crash Tests

Real crash tests according to European Specifications ENV 1317-4 (chapter 6).

Test TB 51




Test TB 11









These crash tests have been made by the French Laboratory LIER in Lyon.

FAQ about Gate System

1. What is a gap?
A gap is an opening in the central reservation crash barrier which is located on dual carriageways that provides a point where in special circumstances vehicles may cross over from one carriageway to the other. For example the gap may benefit emergency vehicles or providing a traffic contra-flow when major accidents or maintenance works take place.

2. What are the risks of leaving a gap permanently open?
The gap provides an un-protected cross over point where a vehicle could cross over into the path of an approaching vehicle on the adjoining carriageway with horrific accident consequences.

3. What is an opening gap?
A high containment vehicle restraint system placed between the ends of existing crash barriers which can be partially or totally opened in a few minutes.

4. What properties must an opening gap have?
It must withstand impacts from buses which are the fastest heavy goods vehicles travelling on motorways.
It must withstand a small car impact so that the occupants will not suffer from high-ASI-acceleration / deceleration levels and the passenger compartment is minimally damaged.
It must have a suitable working width - deflection - so that it can fit into the available central reservation width, even where it is particularly narrow.

5. What are the design features of the S-A-B opening barrier?
S-A-B has been designed to work with most of the vehicle restraint systems which meet the EU Standard EN1317
It meets the requirements of ENV 1317-4 :
ú at the H2 –bus- level when the unit buckled by about 1m without causing serious damage to the bus which was driven away from the crash site without any external help.
ú at the TB11 –900 kg car- level when an ASI level of 1 (class A) was recorded and no car windows shattered.

6. What are the ideal requisites for an opening gap?
Service personnel should be able to open the gap in just a few minutes so that an emergency situation can be quickly responded to.
Two types of openings should be allowed for ;
ú emergency opening say 4 m wide
ú traffic diversion to allow contra-flow two or four lanes wide

7. How does the S-A-B barrier open?
The S-A-B module units have wheels which are lowered by their screw cranks to the ground. The module units have connecting hinge pins and posts which can be removed depending on how many module units are to be opened.
Emergency passage can be obtained by removing a module and moving it one side.
The entire unit may be opened by lowering the wheels and removing the central hinge pins and pushing the modules to one side.
The action is similar to that required to open a gate.
Time taken to do this is between 5 and 10 minutes and no special tools are needed.

8. Why is the point between the opening gap unit and the existing fixed crash barrier so important?
The space or gap at this point must not be too wide and the correct fittings and connections must be made so that vehicles will not be caught (or pocketed) up in it. A head on crash impact against the end of the fixed crash barrier could cause a horrific accident if the gap is too wide.

9. What is the connection between the S-A-B and the fixed crash barrier made?
The S-A-B opening barrier is provided with special couplings which are designed to be fixed to the adjoining crash barrier. These couplings are designed to withstand crash impacts and to suit the form of the adjoining crash barrier which may be in steel or concrete construction.

10. How is the S-A-B opening barrier supplied?
The package is made up of pre-assembled 4,3 m long steel modules, 2 anchorage units with posts and couplings to suit the adjoining crash barrier.

11. How is the S-A-B opening barrier installed and how long does it take?
Installation instructions describe the procedures and equipment required. Installation will take account of the site specific Health & Safety plan including arrangements for traffic management. A pre-formed hard surface is required so that the wheels have a smooth path when the barrier is opened or closed.
The installation equipment needs to include:

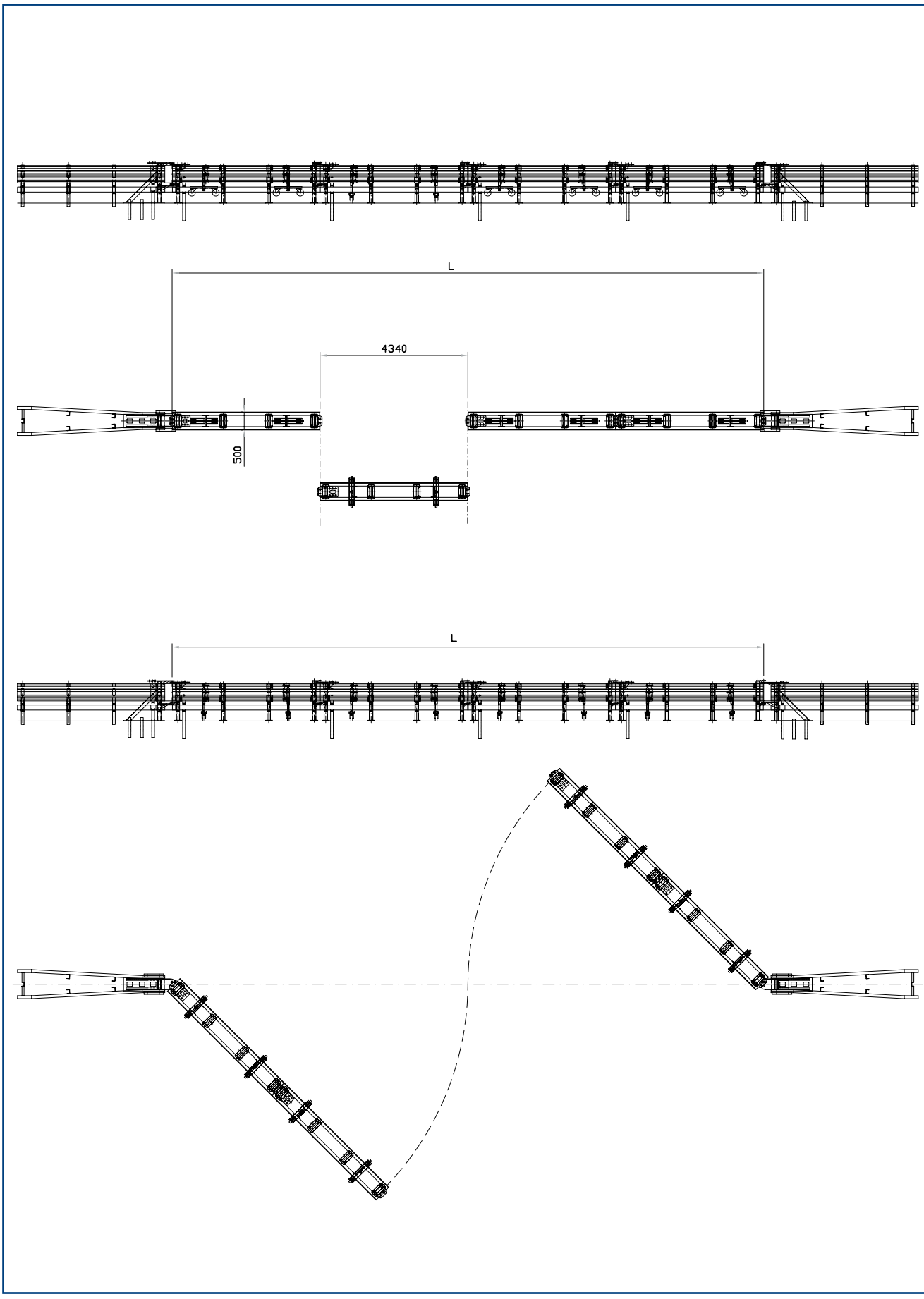
- Post driver for the cable anchorage posts
- Lorry mounted crane
- Small tools –shovels, spanners ,sweeping brushes etc.
- Plus 3 trained personnel

The time taken is usually four hours including the time to make the couplings to the adjoining side crash barrier but this excludes the time to put up and take down the traffic management system or to form the hard surface or take out existing barriers to form the opening.

12. What maintenance is required for the S-A-B opening barrier?
Maintenance instructions describe the procedures and equipment required .An annual inspection is recommended including the cleaning and protection measures so that excessive amounts of dirt and rubbish do not build up particularly at the hinged joints which will assure best performance when regularly lubricated.

13. How is the S-A-B opening barrier repaired after a crash and how long does it?
Repair instructions describe the procedures and equipment required which will take account of the site specific Health & Safety plan including arrangements for traffic management.
The work usually involves :
- An initial thorough examination to identify all damage
- Replacement of all damaged components (panels, posts, supports, etc.)
- Check and replace, if necessary, the anchorage posts and connections to adjoining crash barrier
- Plus 3 trained personnel and usual tools.

Technical Drawnings



snoline

Solutions for **SAFETY ON THE ROAD**

Snoline
Via F. Baracca 19/23
20056 Trezzo sull'Adda (MI) ITALY
Tel. +39 02.909961 Fax +39 02.90996213
e-mail: export@snoline.com
www.snoline.com