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Rolling Barrier Systems

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Abstract: In India, the transportation system is expanded fastly or rapidly. In India, the Government and Ministry of Road Transport and Highway is looking for the latest techniques for the safety of the roads and to reduce the accidents. Rolling Barriers consists of continuous pipe with urethane rings invented by the Korean company. The study of Rolling Barriers are carried out to evaluate the effectiveness of RB (Rolling Barrier) and to understand the characteristics of crash cushioning and to evaluate the required strength of barriers. In 2016, 4.8 lakhs accidents are recorded in India, leading 1.5 lakhs deaths. The Rolling Barrier are very useful to reduce the accidents in future. These barriers are used in curved roads, hilly areas, on expressways etc. The total study of Rolling Barriers Systems are elaborated in this paper.

Keywords: accidents, expressway, infrastructure, transportation, optimization, safety barriers, life, government, highways etc.

Introduction:

Nowadays transportation sector in India enhancing the services rapidly. Every year approximately 1.5 lakhs peoples dies due to road accidents. Today, India is one of the highest country which growing rapidly by road networks, transportation systems etc. But in road networks, the impact of road accidents on road safety is very major problem nowadays. Road accidents causes major injuries, damage to vehicles, loss of life of people etc. Road safety is very big issue at national level. Road accidents are increased by 10% in 2016 as compared to the 2015. To minimize the road accidents, Rolling Barrier System is newly concept invented with structure consists of urethane rings by Korean company. These rolling barriers are used in hilly areas, curved roads etc. When the vehicles hit the barrier, rolling barrier reduce the speed of vehicles and prevent it from accident. Rollers absorb the shock energy, when vehicle collapse on barrier and shock energy converted into rotational energy.

	Year 2015	Year 2016
Total accidents	4.2 lakhs	4.8 lakhs
Persons killed	1.2 lakhs	1.5 lakhs

Table: No of accidents increased per year

Objectives:

On expressways or highways the accidents are increasing rapidly day to day which causes the human lives. To avoid such fatal accidents, Government needs to develop better infrastructure and facilities to avoid such accidents. The Rolling barriers are used to avoid such accidents.

- To avoid the road accidents.
- To develop better facilities for smooth transportation.
- To save human lives.

Fig 1 – Rolling Barriers

Features:

- Rolling Barriers are made up of hard rubber (Urethane rubber) .
- Easy to install and maintain.
- It consists of LED lights which is useful at night.
- It is eco friendly.
- Reduces the speed of vehicles.
- Reduce the shock energy converts in rotational energy.
- Install at suitable height for vehicles.

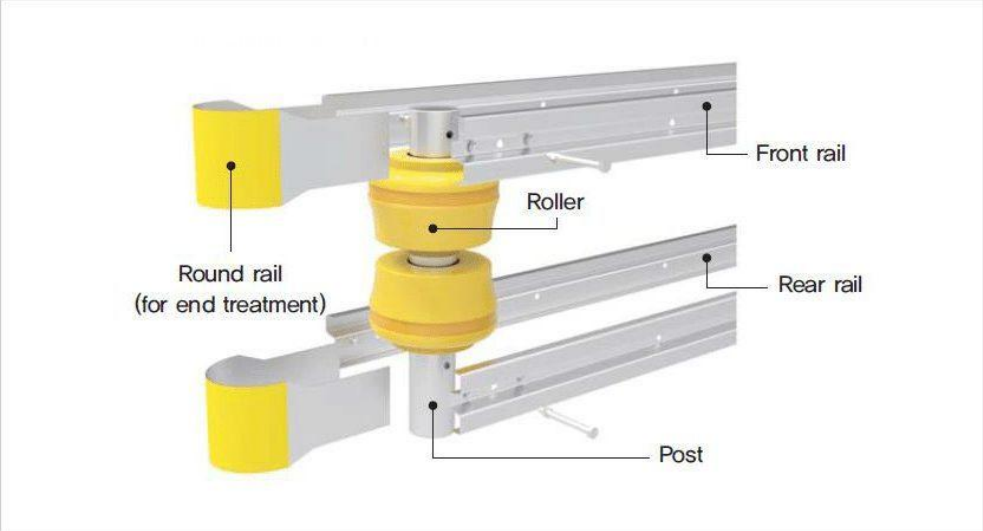

Fig 2 – Parts of Rolling Barrier

Advantages:

- Safety of the roads increased.
- Maintenance is low.
- Reduces the accidents on highways, expressways etc.
- Useful in hilly regions, curved sections or roads.
- Vehicles turn back on the road which saves the life of driver.
- Easy to install.
- Provided at ramps in city and highways.
- Vehicles are prevented from colliding on obstacles by Rolling Barriers.

Disadvantages:

- Availability of urethane resources is less.
- Proper maintenance and inspection is required.
- Requirement of labor for maintenance is more.
- Heat treatment is required.

Working:

- Rolling Barriers made up of hard rubber (Urethane rubber).
- It converts the shock energy or impact energy into rotational energy.
- In strengthen post, metal pipe is provided.
- LED lights (by solar energy) are provided which is useful at night.
- Rolling Barriers have flexibility and elasticity, so it can not damage easily.
- Reflective sheeting is provided for better visibility.

Fig 3 - Synthetic Result : Satisfied with Criteria

Fig 4 -View of the Curved path in Indian Highways

Conclusion:

India is a developed country in infrastructure and transportation sections. As a Engineer we construct the roads, highways , expressways but also we have to concentrate on the safety of the roads , to minimize the fatal accidents . In India, accidents are rapidly increasing which harmful for human lives. Nature problems such as rainy season, which affects on road accidents creates unexpectable situations for people. Life of people is more important than vehicles but when rolling barriers are used and saves the life. Rolling barriers are used to prevent the damage of vehicles. It will not only reduce the accidents , it also helpful to vehicle to turn back on road after collision on barriers and converts the shock energy into rotational energy.

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