

# Monorail



Expo 86 Vancouver, Canada

**Local traffic-technology  
in a new dimension:  
road-independent, economic,  
versatile.**

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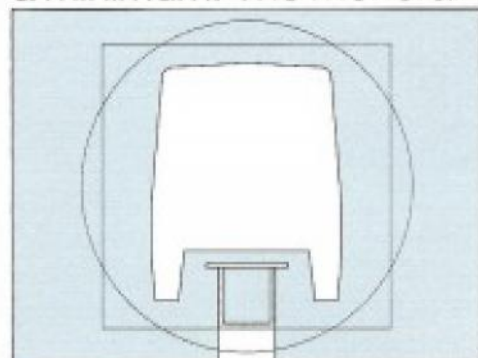
**Von Roll-Habegger**

## The system

Monorail — “on one rail”: a pioneering and nevertheless already proven rail system. A solution for many problems of urban traffic bursting at the seams.

Road-independent — elevated from the start — the monorail literally imparts a new dimension to local traffic. It affords very high transit capacities. Its reliability leaves no wish unfulfilled: full automatic operation is also possible.

The investment costs are also a positive aspect: not least due to the low spatial requirement for just the one rail which needs no terrain and limits land purchases to a minimum. The monorail system is based on proven vehicle technology and, after



20 years of development, uses the experience gained with the many, already existing systems.

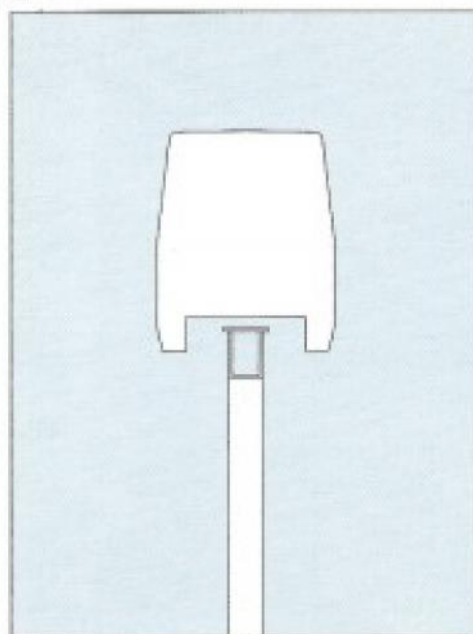
The monorail finds versatile application: in local municipal traffic, on fair and exhibition grounds, in amusement parks or zoological gardens. With heatable rails it is even suitable for winter sport resorts.

This type of railway is friendly to the environment, amongst other things due to its elevated rail which, with its small cross-section, only slightly interferes with the landscape. In addition, the electrically driven vehicles produce very little noise.

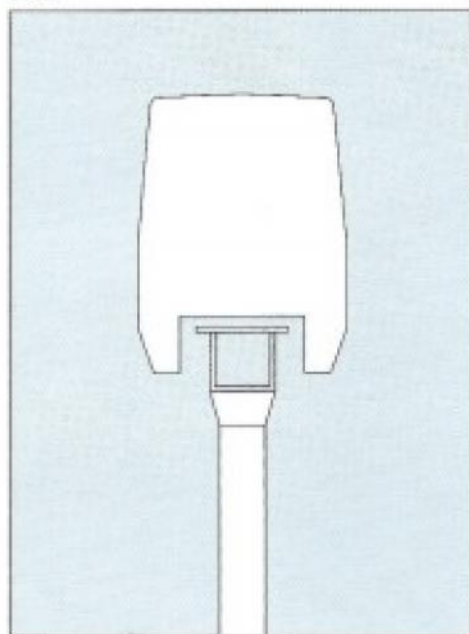


# The Monorail types

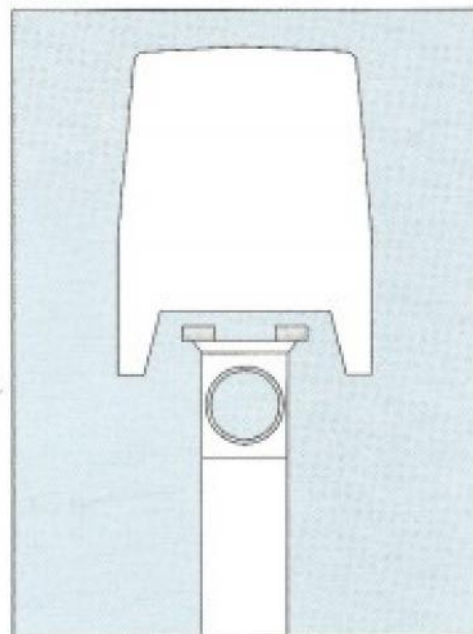
4500 persons  
transit capacity per hour



6000 persons  
transit capacity per hour



10 000 persons  
transit capacity per hour



	Type	MR I	MR II	MR III
Traveling speed Max.	km/h	14	30	50
Transit capacity Max.	pers./h	4500	6000	10 000
Number of cars per train (Max.)		16	9	8
Number of passengers per train (Max.)		90	102	200
Track gauge	mm	300	550	800
Support spacing	m	18	20	25
Min. bend radius (horizontal)	m	15	20	25
Max. incline	%	6	6	10

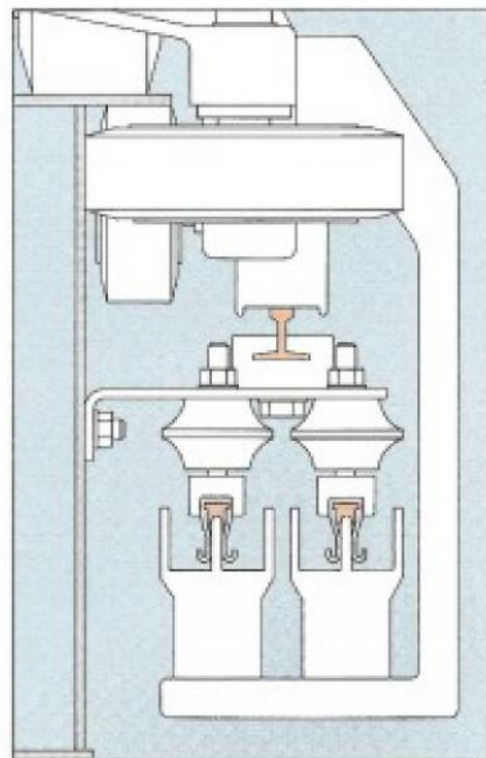
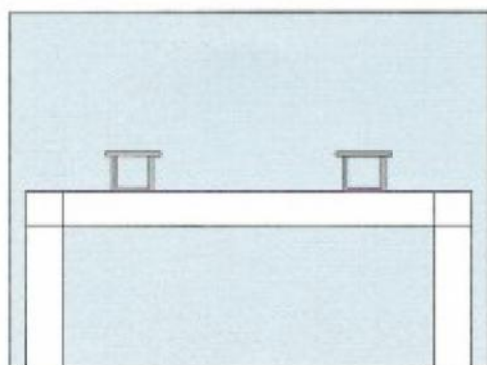
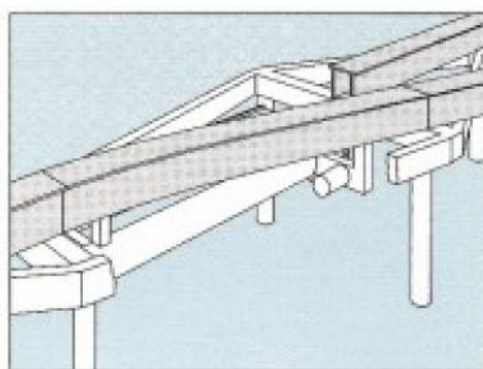
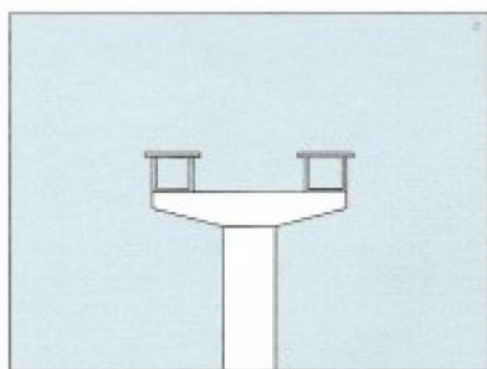
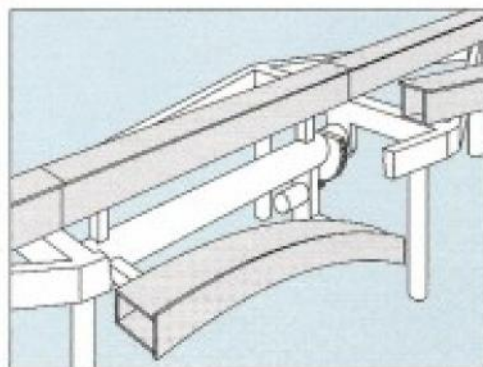
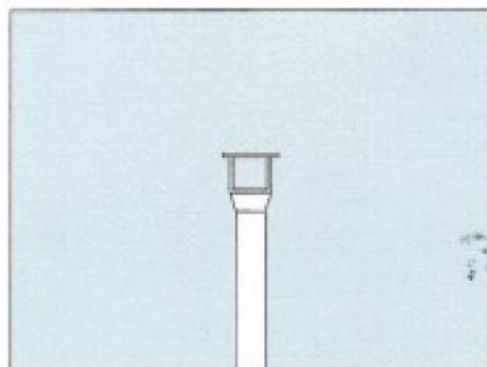
## The track

The track—or rail—consists of a light, torsionally-stiff steel structure. The rail is borne by steel supports arranged at distances of 18 to 25 m.

The elements of the steel structure are prefabricated in the factory. Field erection is therefore unproblematic and takes little time. The system line can be extended at any time.

Track branchings are possible. The switch points are furnished with a mechanical and an monitoring system which prevents travel over an uninterlocked switch point.

Power supply. The contact rails are attached at the side of the track. They consist of three copper collector lines mounted on isolators. A plastic cover profile along the entire track length protects against accidental contact.

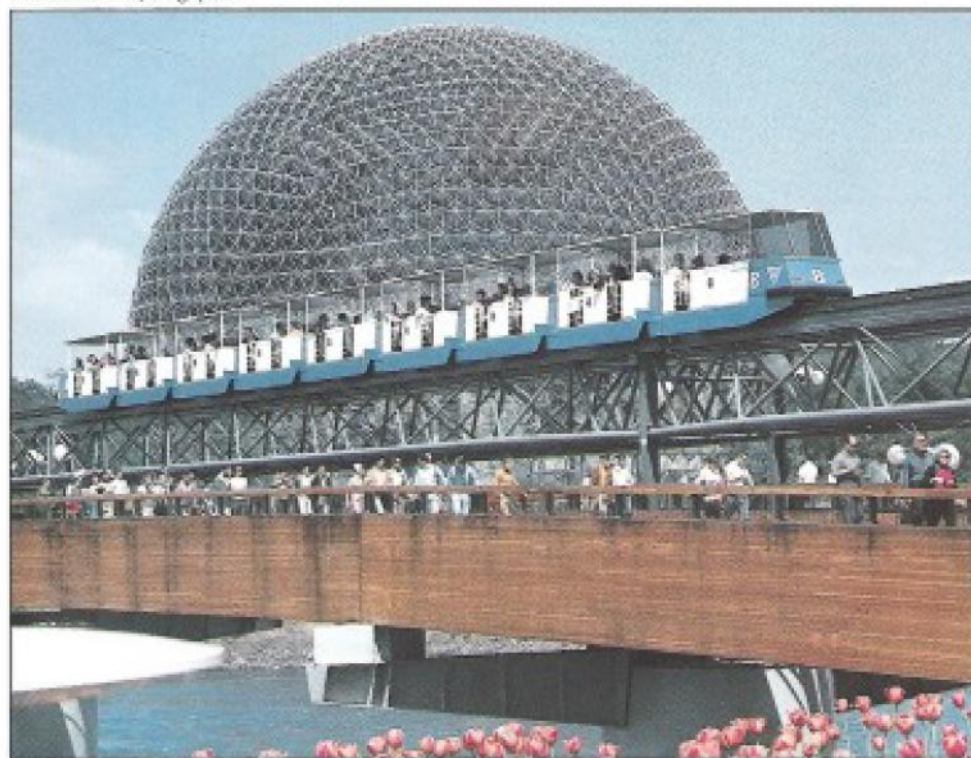




# The examples



Sentosa Island, Singapore



Montreal, Canada



Carowinds, USA



Expo 86 Vancouver, Canada



Kings Island, USA



Basle, Switzerland



Fuji Highland, Japan



## The stations

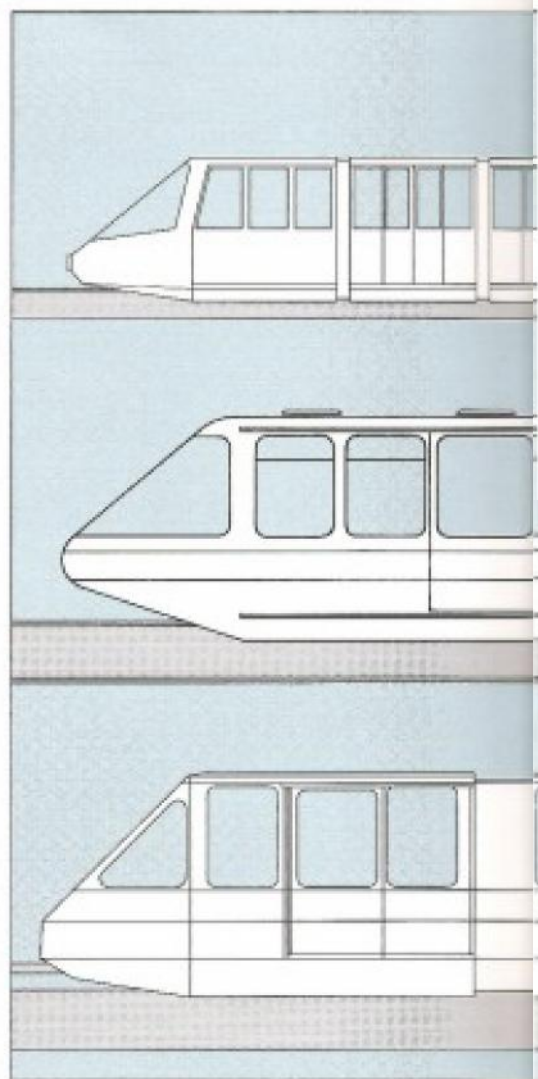
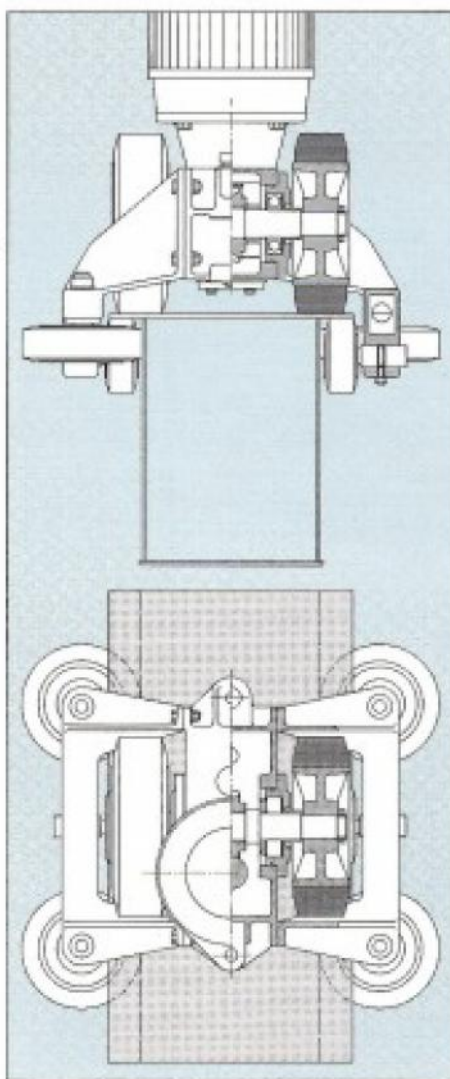
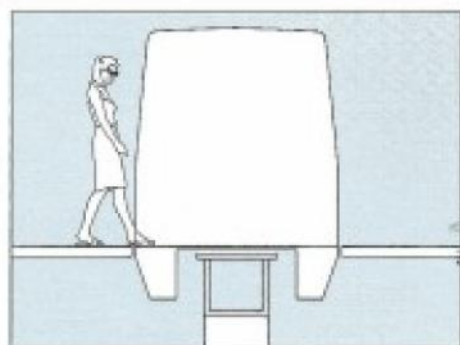
The station platform has the same height as the floor of the vehicle, thereby permitting unobstructed, quick boarding and unboarding. There are two station variants: with one or two platforms. With the two platform variant boarding is done from the one side, unboarding the other. The stop at the stations is thereby shortened and the transit capacity thereby increased.

For full automatic operation without station operating personnel, the station platform is furnished with a separating wall and automatic doors: up to the time the train arrives the waiting room remains separated from the track.

## Rolling stock

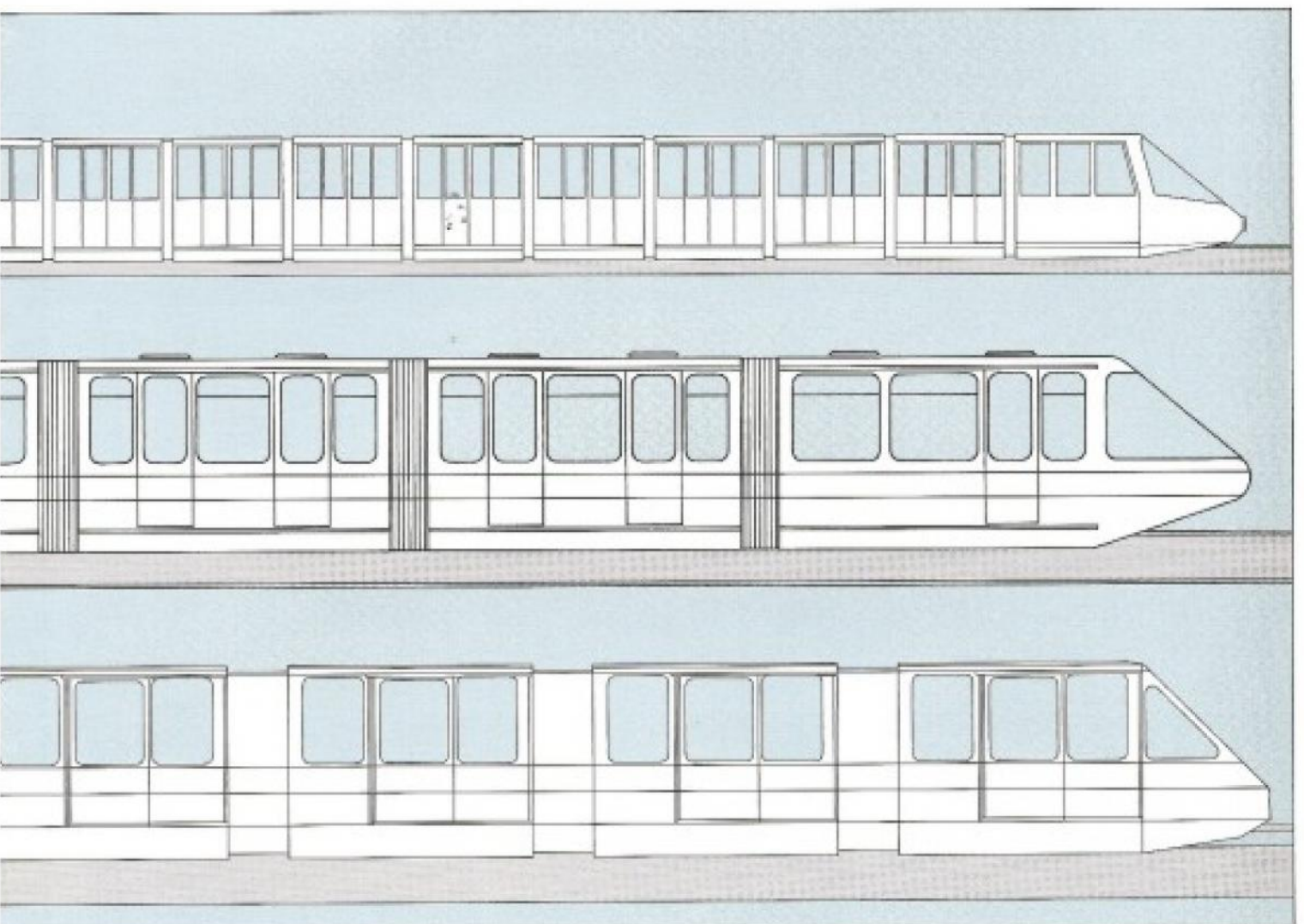
The rolling stock consists of compact trains. The electrical control equipment is accommodated in the front car. The single-axle bogies are arranged between the cars. This design affords an ideal overall height of the train with a correspondingly small clearance gauge. The rubber-tired drive and guide wheels give the monorail excellent riding and adhesion properties. The vehicles are powered by DC motors mounted on the bogies. Two independent brake systems acting on each drive axle assures maximum reliability.

The styling of the train components and the car interior can be individually selected to the extent allowed by the technical possibilities.



## Control

Four control variants are offered: from the simple manual control to full automatic operation without staff. With full-automatic operation starting, acceleration, deceleration, exact stopping in the stations, opening and closing of the doors etc. are controlled by an autopilot.







# Von Roll-Habegger

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