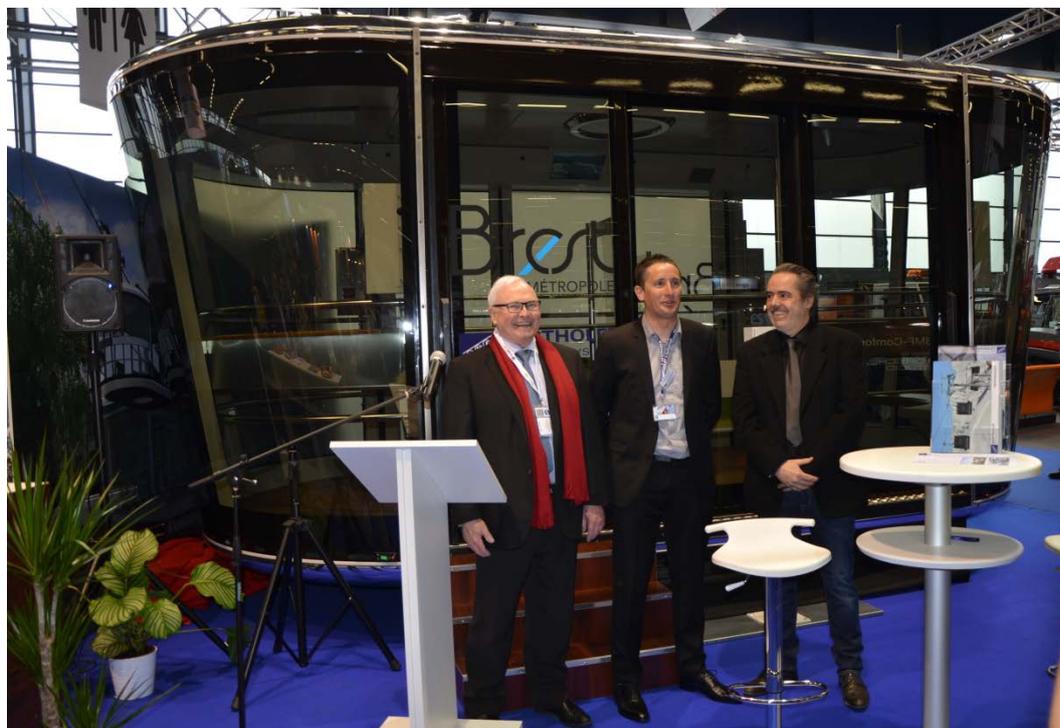


## First urban public ropeway in France – with Bartholet Ropeway from Switzerland

*At this year's Mountain Planet in Grenoble, Bartholet Ropeways presented a global achievement: the first French ropeway to be integrated into the public transportation system. Together with Alain Masson, Vice-president from Brest, and Eric Rhinn, Avant-Première Design, the new cabin was unveiled during the trade show and presented to a wide audience for the first time*



Alain Masson (on the left) and Eric Rhinn (on the right) together with Nicolas Chapuis, CEO BMF Remontées Mécaniques France in front of the new Brest cabin.

### Crossing a river in Brest

The Penfeld River bisects Brest, the French city located on the outer tip of Bretagne. A special reversible aerial tramway concept will be used to fill this gap in transportation service.

During 2013 the contracting authority launched a public consultation, inviting “design-construction” tender proposals. In order to participate in this competition, Bartholet teamed up with Bouygues, one of the leaders in France’s construction and public works sector. In November the group around Bartholet has been nominated as the winner of the public tender due to its innovative, ecologic and economic solution.

Construction of the ropeway is moving rapidly forward, and the reversible aerial tramway is scheduled to go into service at the end of October this year.



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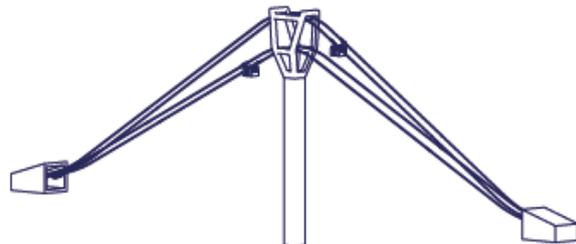
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## The SDMC - Concept

The concept consists of two track ropes and two carrying ropes on each track. The two gondolas, going forth and back have different track dimensions (distance between the two track ropes). Its advantage is that both gondolas use the same platform on both sides so it can be designed as small as possible.

In the middle the two gondolas cross ON TOP OF EACH OTHER – What a feeling!!



## Cabins



The cabins have a capacity of 60 people. They are connected to the suspension and traction cables by separate lower suspension lines, like on Funitel lifts. Constructed by Gangloff Cabins (BMF Group), they are extremely spacious and bright. They have integrated lighting and sound systems.

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## Line

The line has just one central pylon. Given the need to leave clearance free above the Penfeld, it reaches a height of 82 m above ground at the Siam side.

## Main transmission system

The two traction cables, spliced into 2 separate loops, are each powered by an asynchronous electric motor with a frequency converter. Each loop is pulled along by 2 drive pulleys driven by 2 distinct motor + gearbox units. These are mechanically connected to their counterparts on the other loop via a connecting shaft, thus ensuring that the 2 loops are perfectly synchronised. Within one loop, the 2 motor units are mutually controlled by their respective pairs; thus, the cabins are constantly receiving the equal effort of 2 traction cables and cannot block each other's paths.

## Operational safety

This urban transport facility requires an availability rate of close to 100%. In order to meet this objective, there are duplicates of the "vital" components:

- Each cable loop can be powered by just 1 of the 2 motors + the 2 motors of the second loop via the mechanical connection
- The motors of one loop are capable of driving the other loop in the event that the motors fail via the mechanical connections
- There are two emergency motor units with hydrostatic transmission
- In the event of a brake failure, the other brakes are designed to ensure that the facility stops
- There is a double hydraulic braking system
- The same can be said for all the automatic controls and the pulley rollers

Moreover, the principle of the Funitel-style suspension of the cabins ensures that the facility can operate in wind speeds of up to 30 m/s (108 km/h).

## Technical features

Commissioning:	<b>2016</b>
Installation type:	<b>Aerial tramway with cabins for 60 people</b>
Top station:	<b>39 m a.s.l.</b>
Valley station:	<b>32 m a.s.l.</b>
Vertical rise:	<b>7 m</b>
Inclined length:	<b>419 m</b>
Number of vehicles:	<b>2</b>
Driving speed:	<b>0 – 7.5 m/s</b>
Capacity:	<b>1220 pers./h</b>
Horse power:	<b>318 kW</b>
Rope:	<b>Suspension rope: 50 mm Hauling rope: 25 mm</b>
Number of towers:	<b>1 pcs</b>
Control system:	<b>Seirel Automatismes</b>

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