

# ***DeltaSwitch***

## **DELTASWITCH IMPROVES SETTING OF SWITCH RAILS**

*DeltaSwitch is a greaseless system suitable for all half tongue movements with a so-called "high tongue profile" and tongue roll in plain, symmetrical and English switches.*



# DeltaSwitch

**KAMPA**   
Innovative railparts

## INTRODUCTION

Switches and crossings are an indispensable part of the railway track. Its functioning must be safe and reliable.

Smooth movement of the switch rails is very important for proper operation. Track narrowing and the risk of flange contact must be prevented to ensure safe train passage. Minimizing friction will improve the service life of the switch machines and contribute to track availability.

DeltaSwitch offers a proven solution that eliminates the need for lubricating railway points while improving performance.



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## DELTASWITCH

Problems with narrow flange clearance or gauge narrowing mainly occur in turnouts with relatively long switch rails. Especially switch rails resting on rollers in open position can easily be hit and bounce back repeatedly by subsequent wheels. Switch rails that are slightly deformed often do not connect properly to the stock rail.

To promote smooth movement to both end positions, DeltaSwitch bi-stable mechanism has been developed that helps tumbling the switch rail. A tiltable block midway between the point machine and the heel, helps the switch rail tip over.



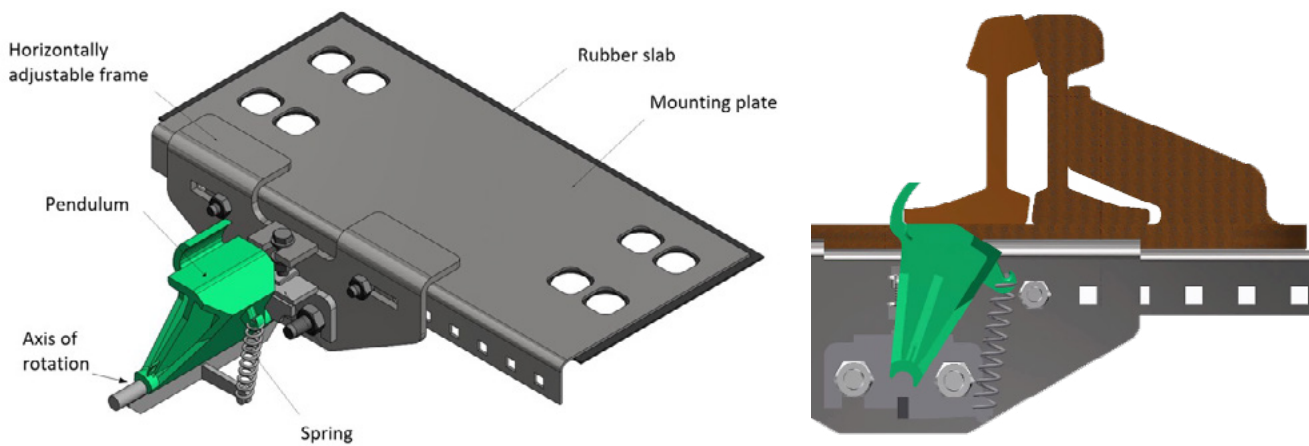
DeltaSwitch lifts the switch rail from the sliding chairs, generating enough potential energy to bring the rail into a stable end position, both when opening and closing the switch rail. Because the rail is lifted, friction between sliding chairs and the switch rail disappears and makes lubrication superfluous. This simple solution has been tested and proven to be effective preventing flange back contact, promoting closure of the switch rail and reducing the force required to set the switch.

## BISTABLE MECHANISM

For several decades, lubrication of sliding chairs has been replaced by roller systems that (partially) lift the switch rail when it is moved to the open position. Each switch rail has two or three of these rollers. Proper functioning of a switch rail, requires adequate adjustment and good bearing condition of the rollers, which is not always the case.

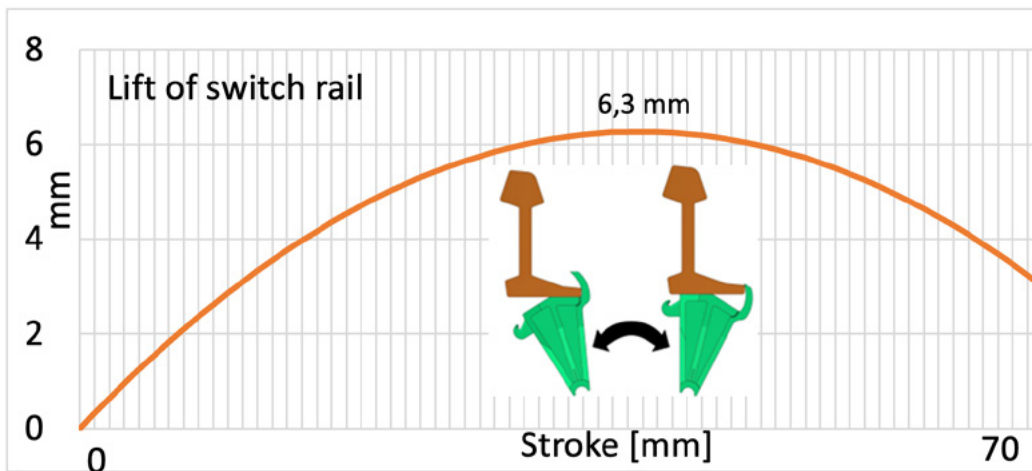
The bistable mechanism called DeltaSwitch, uses a maintenance free rotating block that carries the moving switch rail. The shape of the block is such that it provides two stable end positions to the switch blade. The device is situated between two bearers about halfway between the toe and the heel of the switch rail.

The top of the block ensures that the switch rail to be lifted when it is moved horizontally. The potential energy of the lifted switch rail facilitates it to complete its stroke. Because the block lifts the switch rail more than 6 mm, only one device per switch rail is sufficient.



Bistable device. Cross section with switch rail in closed position (right picture).

The large active radius of the block and the use of polyamide on a steel bearing shaft, ensure that the friction of the switch rail is virtually zero. The protruding lip at one side of the bistable block and the spring mounted on the other side ensure that the block follows the horizontal movement of the switch rail.



Position of the bistable block in open (L) and closed (R) position.  
The orange line in the graph represents the movement of the switch rail.

## BENEFITS OF DELTASWITCH

- Effective means to reduce the friction between sliding chairs and switch rail
- Preventing flange back contact, reducing gauge narrowing in switches and crossings
- Ensure stable end positions of the switch rails.
- Lubrication-free, low maintenance solution
- Easy installation
- Low cost