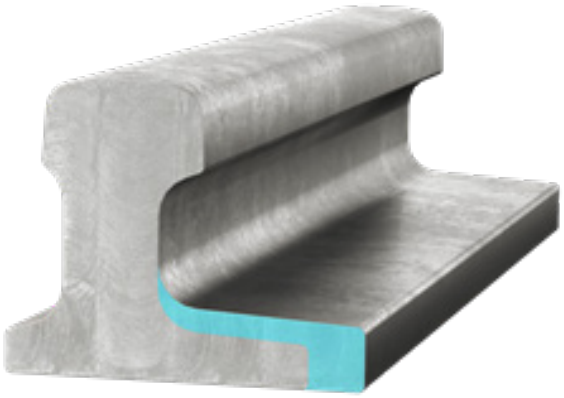
RAILWAY SYSTEMS
by voestalpine

DETECTING SWITCH RAIL

Description

Area of application are switch devices for turnouts, whose switch rails are made of special rail profiles.
These innovative rail profiles (detecting switch profiles) were developed by voestalpine Railway Systems GmbH for the purpose of reliable foreign object detection. The high stiffness of these switch profiles makes it possible, that foreign bodies of inadmissible size between switch rail and stock rail are detected even without additional end position detectors located in the field.



System advantages

- Improved foreign object detection
- End position detectors can be omitted
- More stable position of the open and closed switch rail during operation
- Reduction of bending stresses in the foot of the switch rail
- Increase of the turnout availability
- Reduction of the maintenance effort of the turnout
- No increase in the required setting force
- No reduction of the closest passage

General

When switching the switch devices of turnouts, foreign objects (such as gravel grains, ice, etc.) may be located between the switch rail and the stock rail. Foreign objects that lead to an impermissible track gauge narrowing in this area must be detected.
I.e. the system should only lock when the switch rail is completely closed or there is only a slight gap between the switch rail and the stock rail.
This depends on the elasticity of the switch rail, the setting forces, the number of setting levels, arrangement and setting of the position detection.
For detection purposes, end position detectors are often used between the locking levels, which monitor the elastic bending of the switch rails in these areas.
In the case of switch devices with a detecting switch rails, switch rails are made of particularly stiff rail profiles, which prevent the detection system from locking in the presence of a foreign object. Impermissible foreign objects are recognized even without end position detectors.

Technical description

- Special switch rail profiles for switch devices
- Same height of rail profile compared to switch rail profiles used by default
- The foot of the switch rail profiles is longer and thicker compared to usual ones
- The stiffness of the switch rail profiles in lateral direction is more than twice as large compared to usual ones