



SideCheck

To ensure that the inspection of the connections becomes quicker, safer, and more reliable.

SideCheck is an automatic inspection system which inspects safety splice-bars of rail connections at high speeds of up to 180 km/h. Safety-relevant errors such as missing bolts or crack formations are inspected and entered in a track state protocol as a result so that an objective status of the inspected track is provided to the user with a high quality and safety in the shortest period of time. With the help of state of the art image processing technologies, SideCheck ensures that the inspection of the connections becomes quicker, safer and more reliable.

Recording

The picture recording system is integrated in device modules suitable for railway vehicles, which are installed in a carrier frame on the bogie frame of the carrier vehicle. The camera systems arranged at both sides of the rail consist of monochrome digital line scan cameras and a highly coated lens with a fixed focal length.

The photograph is taken controlled along the optical path length by means of an incremental position encoder linked to the wheels and is independent of the speed. The fault pattern assignment to the current rail position is controlled by means of a central chainage system.

The inspection area is illuminated by powerful headlights. The illumination of the entire inspection area is arranged as a reflected-light illuminator for forming optimal contrast in dry and wet weather conditions.

Evaluation / Documentation

The resulting pictures are evaluated online by means of ultra-modern image processing algorithms. The fault patterns are classified automatically and the results are provided in a fault protocol immediately after inspecting the rails, archived in a database or forwarded to superordinated systems.

Résumé

The system includes the following features:

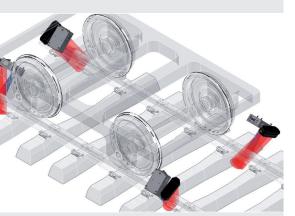
- Scalable speed of up to 180 km/h
- High detection performance
- · Low incorrect detection rate
- Easy operation; intuitively controllable user interface
- Modular concept
- Low maintenance costs
- Proven suitability for railway vehicles
- Easy integration thanks to small space requirements both under and in the vehicle
- Open system; easy adaption to country-specific database systems or central data acquisition on the vehicles

SideCheck enables the automatic detection of the following types of faults:

- Missing joints / fishplates
- Crack detection on fishplates
- · Missing bolts
- Missing nuts
- Rail discontinuities
- · Web cracks
- · Head cracks

Typical resolution:

- · 1 mm along the track
- 0.09 mm along the scanned camera line



SideCheck System



Broken fishplate / joint bar; missing bolts

Inspection run Filter settings	10	Position	Side	Disject	Description	Length	Wavelength	Energy	Severity
E No. 101: -		200MI 141FT	right in	Joint bar	41 - Bolt hole	1.7	0	0	low
Date: 2012/01/19 17:36:43		200MI 141FT	right out	Joint bar	40 - Bolt hole	2.0	0	0	low
Default4-Default8		200MI 162FT	left out	Joint bar	42 - Bolt hole	2.2	0	0	low
#: No. 1581: -		200MI 162FT	left in	Joint bar	43 - Bolt hole	1.7	0	0	low
# No.1582 -		200MI 163FT	left	Joint bar	44 - Missing bolt	44.9	0	0	yellow
# No. 1583: -		200MI 165FT	left in	Joint bar	47 - Bolt hole	2.1	0	0	low
# No.1554 -		200MI 165FT	left out	Joint bar	46 - Bolt hole	1.7	0	0	low
# No. 1585: -		200MI 185FT	right in	Joint bar	49 - Bolt hole	2.4	0	0	RED
# No. 1556: -		200MI 185FT	tight out	Joint bar	48 - Bolt hole	1.8	0	0	RED
# No. 1567: -		200MI 187FT	right	Joint bar	51 - Missing bolt	46.1	0	0	RED
+ No. 1558: -		200MI 189FT	right out	Joint bar	52 - Bolt hole	23	0	0	RED
# No. 1589 -		200MI 189FT	right in	Joint bar	53 - Bolt hole	2.0	0	0	RED
+ No. 1560: -		200MI 199FT	left	Joint bar	60 - Missing bolt	45.0	0	0	yellor
		200MI 199FT	left in	Joint bar	62 - Cracked	2.9	0		RED
		200MI 199FT	left in	Joint bar	57 - Bolt hole	1.3	0	0	low
		200MI 199FT	left in	Joint bar	61 - Bolt hole	2.0	0	0	low
		200MI 199FT	left out	Joint bar	58 - Bolt hole	1.7	0	0	low
		200MI 199FT	left out	Joint bar	59 - Bolt hole	1.5	0	0	low
		200MI 218FT	left out	Joint bar	70 - Bolt hole	2.0	0	0	low

EventManager Evaluation mode