



Vibration damping in Switches & Crossings

TRACKELAST

Specialist Rail Solutions
the high performance solution provider



Tiflex

SWITCHES AND CROSSINGS

TRACKELAST

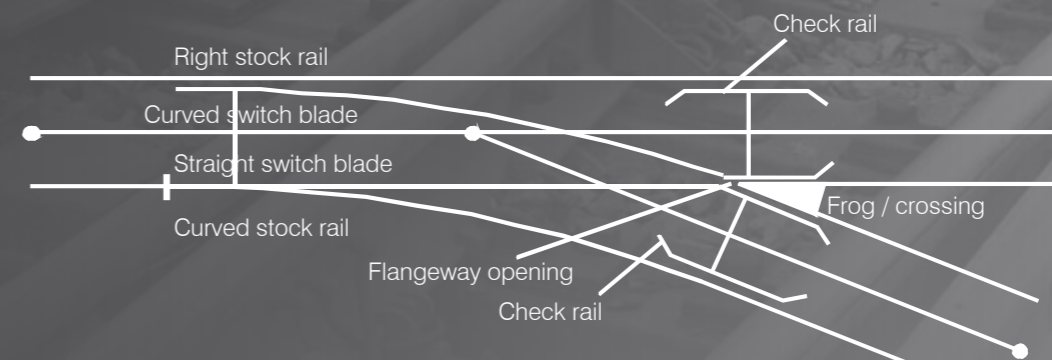
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Problem

Switches and Crossings are relatively delicate devices with moving parts, subjected to high, local, repetitive forces and vibrations: eg axle loads up to 22.5 tons and train speeds up to 125 mph. Due to this the different parts of the Switches and Crossings will wear and the geometry will deteriorate. Switches and Crossings are subjected to high, concentrated, dynamic forces mainly due to the flangeway spacing at the frog, which a train wheel has to "jump" and the fact that the curved direction has a small radius without cant, which causes high lateral forces. Due to the short (or non-existence of a) transition curve in the switch or crossing, there is also a rapid change in the lateral acceleration, called the jerk. A phenomenon that can be noticed by the train traveller through big sideways movements just before a train enters a station. Failure of one of the parts can lead to direct derailment. Speed of degradation depends mainly on the following track properties: state of the track materials, track geometry and materials quality.

The Solution

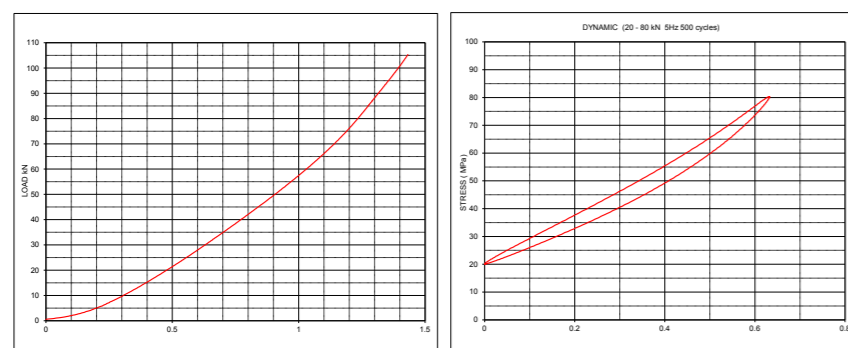
Rail pads with high impact attenuation protect the track materials from breaks and cracking. Constant stiffness throughout Switches and Crossings can only be achieved by use of rail pads of graded stiffness. High quality materials with high abrasion resistance and resilience.



Tiflex is the only manufacturer capable of making and testing suitable products – FC584, FC846.

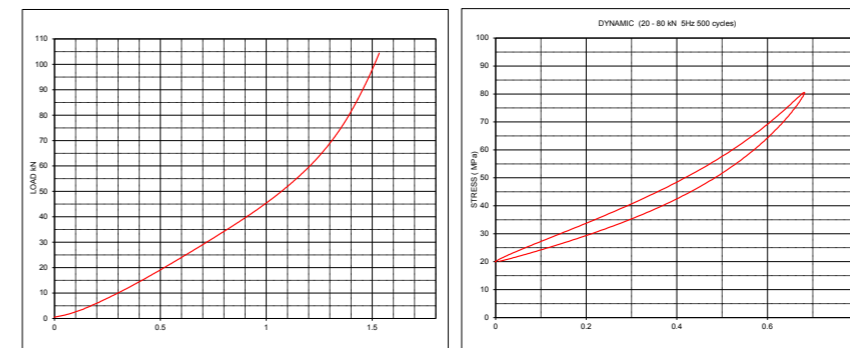


Trackelast 8mm Type 1 pad 12/46/L1



SAMPLE DETAILS	
Thickness	7.95 mm
Length	241 mm
Width	241 mm
Density	0.93g/cc
Temperature	21 °c
Graph Ref	Mayes
Date	22/11/12
Pre-Load	0.5kN
Load Rate	500 kN/mm
Cycles	6
0.5 - 80 kN @ 6 cycles per min	
TEST RESULTS	
Static stiffness 20 - 80 kN	79.4 kN/mm
Dynamic stiffness 20 - 80 kN	95.2 MPa/mm

Trackelast 8mm Type 12 pad 12/46/L1



SAMPLE DETAILS	
Thickness	7.65 mm
Length	260 mm
Width	180 mm
Density	0.92g/cc
Temperature	21 °c
Graph Ref	Mayes
Date	19/11/12
Pre-Load	0.5kN
Load Rate	500 kN/mm
Cycles	6
0.5 - 80 kN @ 6 cycles per min	
TEST RESULTS	
Static stiffness 20 - 80 kN	68.7 kN/mm
Dynamic stiffness 20 - 80 kN	88.9 MPa/mm

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- o Cost effective, high-integrity elastomer engineering
 - o High performance vibration attenuation
 - o Standard and custom-designed products
 - o Researched, developed, tested and proven
 - o Backed by surety of global supply

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