

Standards for European Model Railroads  
**Tracks and Turnouts for Large and Garden Railroads**  
**Guiding Track Dimensions**

**NEM**  
**110G**  
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Binding Standard

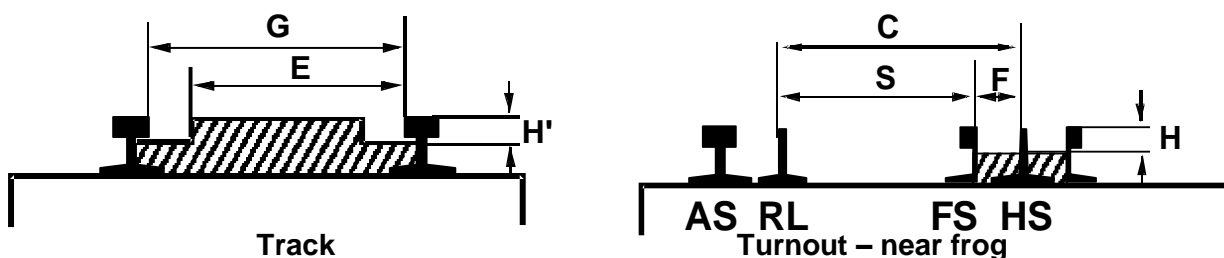
Dimensions in mm

**Edition 2011**  
 (First English Edition)

This standard is the basis for the manufacture and testing of tracks, turnouts, and intersections. It is applicable to track layouts with minimum curve radii per NEM 111. It is a further development based on the standard for European steam and garden railroads NEDG 310.

The dimensions deviate from the scale reductions from prototypes in the interest of operational reliability.

AS Outer Stock Rail    FS Wing Rail  
 RL Guard Rail        HS Point of Frog



The horizontal dimensions of this standard are measured from the vertical edges of the rail profile.

**Dimensions**

Gauge G <sup>2)</sup>		C <sup>3)</sup>		E <sup>4)</sup>	S		F <sup>5)</sup>		H <sup>6)</sup>
Nominal	max	min	max <sup>1)</sup>	max <sup>1)</sup>	min	max <sup>1)</sup>	min <sup>1)</sup>	max	min
89	92	85.0	86.7	83.0	80.3	82.0	3.0	4.7	4.0
127	130	122.0	123.0	119.0	115.0	116.0	6.0	7.0	4.7
184	190	176.0	178.0	173.0	168.0	170.0	6.0	8.0	6.3
260	268	251.5	253.0	254.0	240.0	241.5	10.0	11.5	9.0

**Remarks:**

- 1) Achieving these values results in the greatest prototypical similarity.
- 2) Strive to match the nominal values on straight track; it is also always the minimal value. With smaller radius curves and on turnouts, it is suitable to widen the gauge for rolling stock with a large wheelbase.
- 3) The limit **C<sub>min</sub>** only applies in the critical area of the guard rails. It is not permitted to arbitrarily combine limits for dimensions **F**, flangeway, and **S**, span, in order to stay within the dimensional limits for **C**. **C** is the primary controlling dimension.
- 4) The limit **E<sub>max</sub>** applies with guard rails as utilized in small radius curves, with guard rails on bridges, in the flangeways of grade crossings, for the distal turnout point blades (see NEM 124), and for the ends of wing rails in turnouts, to ensure that the rear surface of the wheels do not contact the flangeway edges.

- 5) The limit  $F_{max}$  at the frog may be exceeded if it is intended that the wheels run on the flange. Adherence to the maximum flangeway width at the frog enables operation with the community of wheels whose flange have varying heights  $D$  (per NEM 310).  
 If, due to wheel set rotation, it is necessary to exceed the dimension  $F_{max}$  in the flangeway region and thus analogously reduce the value  $S$ , then the minimum flange height  $D$  is allowed to only be 0.1 mm less than the maximum. The flangeway depth  $H_{max}$  is then only allowed to be  $\geq H_{min} + 0.1$  mm.  
 The necessary flangeway width at the frog,  $F$ , is determined by the rotation of the wheel set in the track curve. The following benchmarks apply:  
 R > 55 G: Minimal dimension  $F$   
 R > 42 G: Average of dimensions  $F_{min}$  and  $F_{max}$   
 R > 30 G: Maximum dimension  $F$   
 R < 30 G: Special determination of  $F$ , when vehicles with large fixed wheel base are used.

Beyond the frog flangeways, the applicable value at the guard rail is:  $F_R = G - C$  and in free flangeways:  $F' = G - E$ .

- 6)  $H_{min}$  applies only for the depth of the flangeway at the frog. Furthermore it is necessary to maintain a depth of  $H' > 1.3 H$  below the running surface (RS).