



Australian Model Railway Association Intermediate tolerance wheel and track standard

Version 1.1
May 2010

Aim

The aim of this standard is to provide a set of practical dimensions for wheels and track that are compatible with the majority of commercially produced wheels and track.

Introduction

In manufacture it is impossible to produce components to an exact size. This is why we need to build components between a maximum and minimum value. The difference between these values is called the tolerance. Limits are the extremes of size that are allowed for a dimension.

Recommended dimensions are sizes that are within the limits of dimensions. The recommended dimensions in this standard have tolerances broad enough for easy manufacture and are suitable for economic mass production.

Design Notes

The track in this standard is designed to be compatible with wheels complying with the AMRA fine tolerance standard, MOROP NEM 310, Gauge 0 guild fine scale and the EM gauge society's standards.

Prototype clearances are assumed to be the size of the full size railway wheel / rail divided by the scale assuming each gauge is 1435mm standard gauge. Common model scales are used.

The minimum clearance between the wheels outside flange face to the track is equal or larger than prototype clearances. The minimum clearance between the wheel back to back and track span is at least half the prototype clearance. Calculations and experience shows this clearance is adequate for turnouts built to scale proportions.

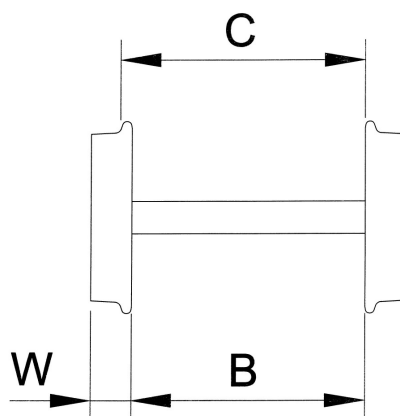
The recommended wheel width is double the maximum recommended flange way dimension, resulting in minimal wheel drop at the track crossing V (Frog). Wheels made to the minimum wheel width limit may experience noticeable wheel drop at the crossing V.



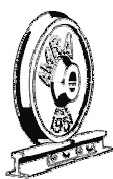
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Wheel limits



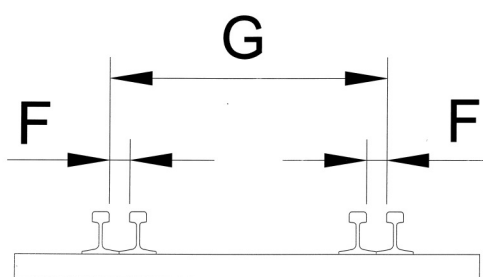
Gauge name	C	B	W	
	Check Gauge	Back to Back	Wheel Width	
	Maximum	Minimum	Minimum	Recommended
Z	5.90mm	5.25mm	1.50mm	1.70mm
N	8.10mm	7.40mm	1.60mm	2.10mm
TT	10.90mm	10.20mm	1.90mm	2.20mm
H0	15.20mm	14.30mm	2.10mm	2.60mm
EM	17.20mm	16.40mm	2.10mm	2.60mm
S	20.90mm	19.80mm	2.90mm	3.10mm
0	30.00mm	28.40mm	3.40mm	4.20mm
1	41.80mm	39.80mm	5.20mm	6.20mm



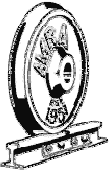
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Recommended crossing V and K (frog) dimensions



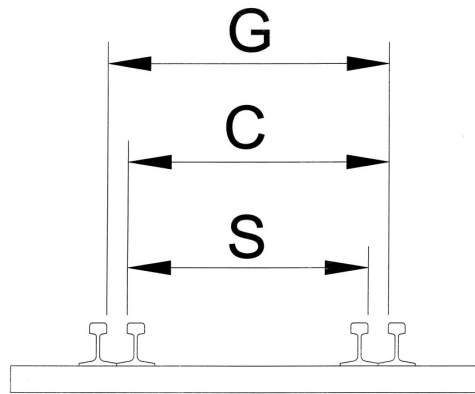
Gauge name	G		F	
	Track gauge		Flange way	
	Minimum	Maximum	Minimum	Maximum
Z	6.75mm	6.80mm	0.80mm	0.85mm
N	9.15mm	9.25mm	0.95mm	1.05mm
TT	12.00mm	12.10mm	1.00mm	1.10mm
H0	16.50mm	16.60mm	1.20mm	1.30mm
EM	18.40mm	18.50mm	1.10mm	1.20mm
S	22.45mm	22.55mm	1.45mm	1.55mm
0	32.10mm	32.20mm	2.00mm	2.10mm
1	44.90mm	45.10mm	2.90mm	3.10mm



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Track limits



Gauge name	G		C	S
	Track gauge		Check gauge	Span
	Minimum	Maximum	Minimum	Maximum
Z	6.45mm	6.85mm	5.90mm	5.20mm
N	8.85mm	9.30mm	8.10mm	7.35mm
TT	11.70mm	12.30mm	10.90mm	10.10mm
H0	16.20mm	16.80mm	15.20mm	14.10mm
EM	18.20mm	18.80mm	17.20mm	16.30mm
S	22.15mm	22.85mm	20.90mm	19.50mm
0	31.50mm	32.50mm	30.00mm	28.20mm
1	44.10mm	45.40mm	41.80mm	39.30mm