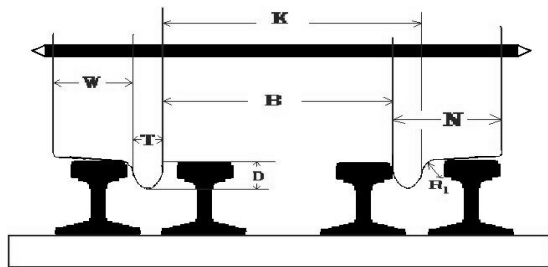


NMRA STANDARDS
S-4.3 STANDARDS, WHEELS WITH DEEP FLANGES



NMRA STANDARD	
Standards	
Wheels with Deep Flanges	
Proposed: July, 2007	S-4.3

Proposed – Released For Comment

NOTE: Both B and W are DERIVED. K is primary controlling dimension.

Scales with deep flanges were developed to accommodate the needs of modelers who wish to operate model trains on very sharp curves or on track that has twists which is common in outdoor environments. Compromises are often made to both selectively compress the model and/or develop mechanisms that have the ability to navigate very sharp curves. In general models in this class use wheels with larger flanges and usually use track with a larger code size.

Standard S4.3 Wheels using Target and Asymmetric Tolerance											
Scale	Scale Ratio	K			B			N	D	T	
		Wheel Check Gage			Back-to-Back			Width	Depth	Flange Width	
		Target	Plus	Minus	Target	Plus	Minus	Min	Max	Nom	Tol
G	1:20.3										
	1:22.5										
	1:24	1.656	0.004	0.015	1.582	0.004	0.015	0.271	0.118	0.074	+/- 0.002
	1:29										
	1:32										
O _{HI}	1:48	1.153	0.003	0.005	1.090	0.003	0.005	0.230	0.095	0.063	+/- 0.002
O ₂₇	1:48	1.153	0.003	0.005	1.090	0.003	0.005	0.230	0.095	0.063	+/- 0.002
S _{HI}	1:64	0.774	0.003	0.004	0.709	0.003	0.004	0.172	0.095	0.065	+/- 0.002

NOTES:

1. For information on both minimum and maximum manufacturing limits please see NMRA Tech Note: **TN-1.2.1 (In Work)**
2. Wheels shall have a scale reduction in tread diameter from the prototype.
3. Metric measurements are removed from the standards, designers and pattern makers are responsible for metric conversions.
4. Models built to the deep flange standards typically do not operate on track built to the S-3.1 or S.3.2 standards unless the trackwork has been built to accommodate the deeper flanges. Models built to the S-1.3 standards shall be clearly labeled in order to not confuse the modeler.
5. The term G scale is used to refer to range of scales developed to be able to be operated together, typically in an outdoors setting, for example a garden. G models all use the same wheel and track profiles to facilitate interchange.
6. To avoid difficulty with long wheelbase locomotives in curves sharper than 20 degrees, and where guard rails are used on both sides as in special trackwork, the following are suggested: See **RP-8**
 - Allow lateral movement in driver axles of 1 percent of the rigid wheelbase length.
 - Remove flanges from center drivers.