

Report of the NMRA "Large Scales " Definition Working Group Version 1.0

The Large Scales Definition Working Group was convened by the National Model Railroad Association to establish nomenclature for the Large Scale community in an effort to end the confusion surrounding the availability of various scales being sold under the label "G" and/or operating on 45 mm track. Presently manufactures model standard, meter, 3 foot and 2 foot gauge prototypes in 1:32, 1:29, 1:24, 1:22.5 and 1:20.3 scale to run on 45 mm gauge track. The working group does not expect this situation to immediately change, but feels that establishing a common nomenclature is a key step in promoting the expansion of this segment of the hobby. By providing more information to the consumer, the confusion surrounding the proliferation of similar scales can be contained and the average user can make a more informed decision in the purchase of equipment to suit his or her needs. Following are the recommendations/conclusions of the working group.

- 1) After consulting with a wide range of users and manufacturers, the working group recommends that the industry use the term "Large Scales" when one is speaking generically about this segment of the hobby. In addition, all manufacturers and hobby magazines are encouraged to adapt a policy of using both the models scale and gauge when discussing a specific rather than a generic item.
- 2) The working group concludes that the use of the terms "G gauge", "G Scale", "G" and "Gn3" to refer to a wide variety of scales that operate on Gauge #1 track are inappropriate and represent a major contribution to the confusion that surrounds this portion of the hobby. The term "G" should only be used to refer to for the single scale 1:22.5.
- 3) The working group recognizes the needs of both the Hi-Rail and Fine Scale communities. While the fine scale community desires precise standards for a specific scale/gauge combinations, the hi-rail community needs some degree of communality across scales that share the same gauge. The working group therefore recommends that the NMRA and NEM establish appropriate standards and recommended practices as appropriate for each community.

4) To assist communication between the various Large Scale communities, the working group has identified four classes that are intended to represent the fidelity of the model: AAR, Fine Scale, Coarse Scale, and Hi-Rail. We have also identified four areas for evaluating which class of fidelity a model belongs in: a) the proportions of the model, b) the correctness of the model's gauge, c) the fineness of the model (e.g. wheel profiles, amount of detail) and d) the finish of the model. The following are initial definitions of fidelity, which understandably must evolve over time. A model built to AAR fidelity refers to a near precise reproduction to AAR tolerances and painted to an appropriate prototype. A model built to Fine Scale fidelity may utilize greater tolerances, such as the use of RP-25 wheel profiles; must still be built to a consistent scale/gauge combination; and have a paint scheme that is not inconsistent with the intent of the model. A model built to Course Scale fidelity may make additional minor tolerances in the track gauge of the model, in the amount of detail present, or in the fineness of finish, but otherwise, the model is a faithful reproduction of the prototype. Hi-Rail fidelity refers to models whose proportions have more significant alterations, whose wheel profiles are greatly exaggerated, or have paint schemes that are not consistent with the intent of the model.

5) The working group recommends that manufacturers properly label their products to include scale, gauge, and fidelity of the model. For example, Bachmann would be encouraged to label their Bachmann Plus 4-6-0 locomotives as Scale - 1:20.3; Gauge - 45 mm; Fidelity - Coarse Scale.

6) The working group encourages that wherever possible, manufacturers select a consistent scale/gauge combination based upon the size of the model they intend to make and the prototype. For example, 3 foot narrow gauge equipment that is intended to operate on 45 mm gauge track should be built to 1:20.3 scale while meter gauge equipment intended to operate on 45 mm gauge track should be built to 1:22.5 scale. Standard gauge equipment built to 1:32 scale should be built to operate on 45 mm gauge track while that same equipment built to 1:22.5 scale should be built to operate on 64 mm gauge track.

7) To help clarify the confusion surrounding the various scales that share the same gauge within the Large Scale community, the following tables are provided. These tables are illustrative of various potential scales that can properly share 45 mm Gauge track. The scale/gauge combinations that are currently commercially available are highlighted. Both fine scale and the more precise ARA measurements are provided for comparison.

Fine Scale Dimensions

Scaling Ratio	Scale Letter	4'8 1/2" Gauge	42 Inch Gauge	Meter Gauge	3 Foot Gauge	30 Inch Gauge	2 Foot Gauge
1:32	#1	45 mm		32 mm	28.6 mm		19 mm
1:29	X	49.5 mm¹	37.5 mm		32 mm		22.5 mm
1:24	H	60 mm	45 mm	41 mm	37.5 mm	32 mm	
1:22.5	G ²	64 mm		45 mm	41 mm	32 mm	
1:20.3	F	71 mm		49.5 mm	45 mm	37.5 mm	30 mm
1:16	E ³	89 mm	64 mm	60 mm		45 mm	37.5 mm
1:14	M	102 mm		71 mm	64 mm		45 mm
Appended	letter	--	n3 1/2	m	n3	n2 1/2	n2

AAR Scale Dimensions

Scaling Ratio	1 Foot =	4'8 1/2" Gauge	42 Inch Gauge	Meter Gauge	3 Foot Gauge	30 Inch Gauge	2 Foot Gauge
1:32	3/8"	1.766"			1.12"5		0.75"
1:29	10.5 mm	49.5 mm			32 mm		22.5 mm
1:24	1/2"	2.354"	1.75"		1.5"		
1:22.5	13.5 mm	63.8 mm		44.4 mm	40.6 mm		
1:20.3	15 mm	71 mm			45 mm		30 mm
1:13.55	22.5 mm						45 mm

The following table is provided as an approximate guide for converting between inches and millimeters for the various track gauges. A more precise conversion can be done by using the conversion 1 inch = 25.4 mm.

mm	22.5	28.6	32	37.5	41	45	49.5	60	64	71	89	102
inches	7/8	1 1/8	1 1/4	1 1/2	1 5/8	1 3/4	2	2 3/8	2 1/2	2 3/4	3 1/2	4

Signed

Stan Ames (Working Group Chairman)

Marc Horovitz (editor Garden Railways magazine)

Glenn Joesten (Large Scales Committee Chairman)

Joe Macaluso ("1 Scale Committee Chairman)

Gary Raymond (President: Gary Raymond Metal Wheels)

Garrett Paine (Large Scale modeler)

Russ Reinberg (editor Outdoor Railroader magazine)

H. Lee Riley (Director Product Development, Bachmann industries)

¹ A Hi-Rail version of this scale is currently marketed using 45 mm gauge track

²NEM 010 refers to this scale as II Scale

³NEM 010 refers to this scale as III Scale