

# NMRA STANDARDS

## S-1.1 Standards for Proto Models

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NMRA STANDARD	
<b>General</b>	
<b>Proto and Fine Scales</b>	
Approved July 2009	S-1.1

Proto: Scale is an alternative Track and Wheel system that faithfully reproduces the actual wheel tread profile and track work used by the Association of American Railroads and the American Railway Engineering Association. Developed by the Model Railway Study Group in Great Britain in 1966, their Protofour was later translated into popular American model scales. Proto:Scale modeling requires larger minimum radius than standard scale (traditional) track work, so is not for everyone. It is not compatible with existing HO, S or O scale, even though the track gage and model scale is the same as HO and S, nor is it meant to replace them. Proto: Scale is for modelers who want total realism in their track work and equipment. Wheels and track built to Proto:Scale standards should be clearly labeled as such to avoid interchange issues. For more information please see Tech Note: TN-1.1.2.

NAME OF SCALE		SCALE TO FOOT	PROPORTION	TRACK GAUGE	
Alpha Numeric	Common/ Fractional			Min	Max
<b>Proto:20.32</b>	15 mm	.591" (15.00 mm)	1:20.32	2.781" (70.64 mm)	2.842" (72.19 mm)
<b>Proto:20.32n3</b>	15 mm	.591" (15.00 mm)	1:20.32	1.772" (45.01 mm)	1.833" (45.56 mm)
<b>Proto:32</b>	3/8"	.375" (9.53 mm)	1:32	1.766" (44.86 mm)	1.805" (45.85 mm)
<b>Proto:32n3</b>	3/8"	.375" (9.53 mm)	1:32	1.125" (28.58 mm)	1.164" (29.57 mm)
<b>Proto:48</b>	1/4"	.250" (6.35 mm)	1:48	1.177" (29.90 mm)	1.203" (30.56 mm)
<b>Proto:48n3</b>	1/4"	.250" (6.35 mm)	1:48	.750" (19.05 mm)	.776" (19.71 mm)
<b>Proto:64</b>	3/16"	.1875" (4.76 mm)	1:64	.883" (22.43 mm)	.902" (22.91 mm)
<b>Proto:64n3</b>	3/16"	.1875" (4.76 mm)	1:64	.563" (14.30 mm)	.582" (14.78 mm)
<b>Proto:87</b>	3.5mm	3.5mm (.1378")	1:87.1	.649" (16.48 mm)	.663" (16.84 mm)
<b>Proto:87n3</b>	3.5mm	3.5mm (.1378")	1:87.1	.413" (10.49 mm)	.428" (10.87 mm)

Fine: Scale is an alternative Track and Wheel system that tries to come close to the actual wheel tread profile and track work used by the Association of American Railroads and the American Railway Engineering Association but makes compromises for performance and manufacturability. Wheels and track built to Fine: Scale standards should be clearly labeled as such to avoid interchange issues. For more information please see Tech Note: TN-1.1.2

NAME OF SCALE		SCALE TO FOOT	PROPORTION	TRACK GAUGE	
Alpha Numeric	Common/Fractional			Min	Max
<b>Fine:HO</b>	3.5mm	3,5mm (.1378")	1:87.1	.649" (16,5 mm)	.665" (16,9 mm)
<b>Fine:HOn3</b>	3.5mm	3,5mm (.1378")	1:87.1	.413" (10,5 mm)	.429" (10,9 mm)
<b>Fine:TT</b>	1/10"	.100" (2,54 mm)	1:120	.471" (12,0 mm)	.485" (12,3 mm)
<b>Fine:TTn3</b>	1/10"	.100" (2,54 mm)	1:120	.300" (7,6 mm)	.314" (8,0 mm)
<b>Fine:N</b>		.075 (1,9 mm)	1:160	.354" (9,0 mm)	.360" (9,1 mm)
<b>Fine:Nn3</b>		.075 (1,9 mm)	1:160	.256" (6,5 mm)	.259" (6,6 mm)