NMRA STANDARDS
S-1.2 Standards for Scale Models

Proposed – Released For Comment

NMRA STANDARD

General
Standard Scales

Proposed: July, 2007 | **S-1.2**

Standard Scale models are those which follow the popular standards scales. This Track and Wheel system sacrifices some scale fidelity of the actual wheel tread profile and track work to improve operation and interchangeability. These are the scales originally developed by the NMRA in 1940s. Only scales, which are maintained by the NMRA Technical Department, are included. Other popular scale standards (for example No.II) are maintained by MOROP in their NEM standards (see www.morop.org).

NAME OF SCALE		SCALE		TRACK GAUGE		
Alpha Numeric	Common/ Fractional	TO FOOT	PROPORTION	Min	Max	REMARKS
	1"	1" (25.40 mm)	1:12	4.750" (120.65 mm)	4.910" (124.71 mm)	
	¾"	.750" (19.01 mm)	1:16	3.500" (88.90 mm)	3.605" (91.56 mm)	
F	15 mm	.591" (15.00 mm)	1:20.32	2.783" (70.69 mm)	2.845" (72.26 mm)	(See Note 1)
Fn3	15 mm	.591" (15.00 mm)	1:20.32	1.766" (44.85 mm)	1.793" (45.54 mm)	(See Note 2)
1:22		.533" (13.5 mm)	1:22.5	1.766" (44.85 mm)	1.793" (45.54 mm)	
1:24		.500" (12.7 mm)	1:24	1.766" (44.85 mm)	1.793" (45.54 mm)	
1:29		.414" (10.5 mm)	1:29	1.766" (44.85 mm)	1.793" (45.54 mm)	
#1	3/8"	.375" (9.52 mm)	1:32	1.766" (44.85 mm)	1.793" (45.54 mm)	
#1n3	3/8"	.375" (9.52 mm)	1:32	1.125" (28.6 mm)	1.167" (29.64 mm)	
O	1/4"	.250" (6.35 mm)	1:48	1.250" (31.75 mm)	1.285" (32.64 mm)	
On3	1/4"	.250" (6.35 mm)	1:48	.750" (19.05 mm)	.772" (19.61 mm)	
On30	1/4"	.250" (6.35 mm)	1:48	.649" (16.50 mm)	.672" (17.07 mm)	(See Note 3)
On2	1/4"	.250" (6.35 mm)	1:48	.500" (12.70 mm)	.522" (13.26 mm)	

NAME OF SCALE		SCALE		TRACK GAUGE		
Alpha Numeric	Common/ Fractional	TO FOOT	PROPORTION	Min	Max	REMARKS
S	3/16”	.188" (4.76 mm)	1:64	.883" (22.43 mm)	.905” (22.99 mm)	
Sn3	3/16”	.188" (4.76 mm)	1:64	.563" (14.30 mm)	.585” (14.86 mm)	
OO	4.0mm	.157” (4.0 mm)	1:76.2	.750" (19.05 mm)	.772” (19.61 mm)	(See Note 4)
HO	3.5mm	3.5 mm (.1378")	1:87.1	.649" (16.50 mm)	.672” (17.07 mm)	
HOn3	3.5mm	3.5mm (.1378")	1:87.1	.413” (10.49 mm)	.424” (10.77 mm)	
HOn2	3.5mm	3.5mm (.1378")	1:87.1	.276” (7.01mm)	.290” (7.37 mm)	
TT	1/10”	.100” (2.54 mm)	1:120	.470” (11.94 mm)	.483” (12.27 mm)	
N		.075 (1.91 mm)	1:160	.353” (8.97mm)	.367” (9.32 mm)	
Nn3		.075 (1.91 mm)	1:160	.256” (6.50 mm)	.260“ (6.60 mm)	
Nn2		.075 (1.91 mm)	1:160	.177” (4.50 mm)	.189” (4.80 mm)	
Z		.055” (1.40 mm)	1:220	.257” (6.53 mm)	.270” (6.86 mm)	

Notes:

1. Proto:20.32 and F are the same other than flange depth.

2. To ensure compatibility with #1 scale track, Fn3 uses #1 scale wheel and track geometries, as specified in S-3.2 and S-4.2. However the minimum tire width, maximum flange depth and minimum flange clearance differ between the two scales.

3. On30 uses HO scale wheel and track geometries, as specified in S-3.2 and S-4.2.

4. OO uses On3 scale wheel and track geometries, as specified in S-3.2 and S-4.2. There are several track gauges in common use for the OO scale market ranging from 16.5mm to 19.1mm. The NMRA Standards reflect a 4’9” track gauge. Manufacturers are encouraged to label both the scale and the gauge for these models.