

Scale dimensions the easy way

THE diagram opposite is a nomogram. It may look complicated at first sight but it is really a very simple device which, in this case, gives you scale dimensions for any scale without having to make a single calculation. All you have to do to use the nomogram is draw a straight line with a pencil and ruler from the *full size* dimension to the actual *scale* you are interested in and then read off the corresponding *scale* dimensions where the line cuts the centre scale. It's as easy as that! And if you do not want to mark the nomogram, simply lay a ruler or straightedge in position without actually drawing the line and 'spot' the point to read off on the centre scale.

Now a word about the scales themselves. The left-hand scale, representing the *full size* dimension, is graduated in feet and fractions of a foot (e.g. $1\frac{1}{2}$ in. or 3 in. steps up to 15 ft.). From 15 to 20 ft. the graduations are in 6 in. steps. From 20 to 40 ft. the graduations are in ft.; and above 40 ft. in 2 ft. steps.

The centre scale, which gives the scale dimensions in *inches*, is graduated in inch fractions on one side and decimals on the other. This means that you can read off the scale dimension in either, as preferred.

On the right-hand side are shown the various scales divided into three separate groups. On the left are the usual *fractional inch* scales—i.e. 1 in. equals 1 ft., $\frac{2}{3}$ in. equals 1 ft., etc., down to $\frac{3}{32}$ in. equals 1 ft. Also on this side are the 'millimetre' scales—i.e. 15 mm. equals 1 ft., 14 mm. equals 1 ft., etc., down to 1 mm. equals 1 ft. On the other side, a further range of standard scales is given from 1/10th down to 1/200th.

There are various uses to which the nomogram can be put, both for finding true scale dimensions and comparing different scales and different scale dimensions. Also, given a full size dimension and a corresponding scale dimension you can find the scale involved. The following examples show typical uses.

Example 1: To find the true scale span of a 1/72nd scale model of an aeroplane of 38 ft. 4 in. span.

Connect 38 ft. 4 in. on the full size dimension scale to 1/72 point on the right-hand vertical line and read off the answer on the centre scale. Ans.: 6.4 in. approx. or $6\frac{1}{2}$ in. approx.

This is a simple way of checking the accuracy of the span of scale plastic kits!

Example 2: A particular model is made to 2 mm. scale. What other scales are very nearly the same and could be used for matching models?

This time, find the answer directly from the right-hand vertical line. Thus, 1/150th scale is very nearly the same as 2 mm. scale; 1/144th scale is also quite close.

Example 3: To find the scale dimension in 5 mm. scale for a full size dimension of 84 ft. $1\frac{1}{2}$ in.

This could be found in one from the nomogram scales, but for a more accurate answer tackle the problem in two parts.

First, find the scale dimension for, say, 80 ft. Ans.: $15\frac{1}{2}$ in.

This leaves another 4 ft. $1\frac{1}{2}$ in. dimension to be 'scaled', which is done on the lower part of the nomogram where the scale graduations are more widely spaced.

Scale dimension for 4 ft. $1\frac{1}{2}$ in. = $\frac{1}{16}$ in.

Now add the two together—

Scale dimensions for 80 ft. + 4 ft. $1\frac{1}{2}$ in.
= $15\frac{1}{2}$ in. + $\frac{1}{16}$ in.
= $16\frac{1}{32}$ in.

These are just a few examples of working. There are many others. In fact, this nomogram should save you all calculations normally necessary to arrive at scale dimensions.

