

# The Optical Size Axis in Multiple Master Typefaces

In traditional metal typefounding, each style and size of a typeface was cut by hand. Subtle adjustments to letter proportion, weight, contrast, and spacing were made to optimize readability in every point size. Digital type technologies typically scale type using mathematical formulas that do not allow for the variation at different sizes that enhance readability. (Most digital type is optimized for use at 12 point text size. Smaller sizes require manually adding space for optimal reading; larger sizes need some space removed.)

Multiple master typefaces with an optical size axis make it possible to generate fonts that are optically adjusted for use at specific point sizes: the text sizes are clear and easy to read, and the display sizes are refined and elegant. The easiest way to think of the optical axis is to consider it a “*readability axis*.”

As the optical size increases in a multiple master typeface, the space between the characters (letterfit) tightens, the space within the characters (counterforms) becomes smaller, the serifs (if any) become finer, the overall weight becomes lighter, and the x-height (height of the lower case characters excluding the ascenders and descenders) gradually decreases in size.

The example shows 6-point and 72-point optically-sized instances of MinionMM type printed at the same size for comparison. The 6-point type has a larger x-height, heavier serifs and stems, wider characters, and looser letter fit.

When using multiple master typefaces which support an optical size axis, the rule of thumb is to simply match the optical size to the point size of the type you are using. For example, if you are using 10 point text, use a 10 point optical size. If you are using 96 point display text, use the closest optical size to 96, which is usually 72.

Unlike other multiple master axes, the optical size axis is non-linear. For example, this means that a 2 point change in optical size at the low end of the scale will have a more profound impact on the shapes of the characters than a 2 point change at the upper end. If you’re using 9 point type for a block of text, use a font with a 9 point optical size, and not 10 or 11. The discerning eye will see the difference.