

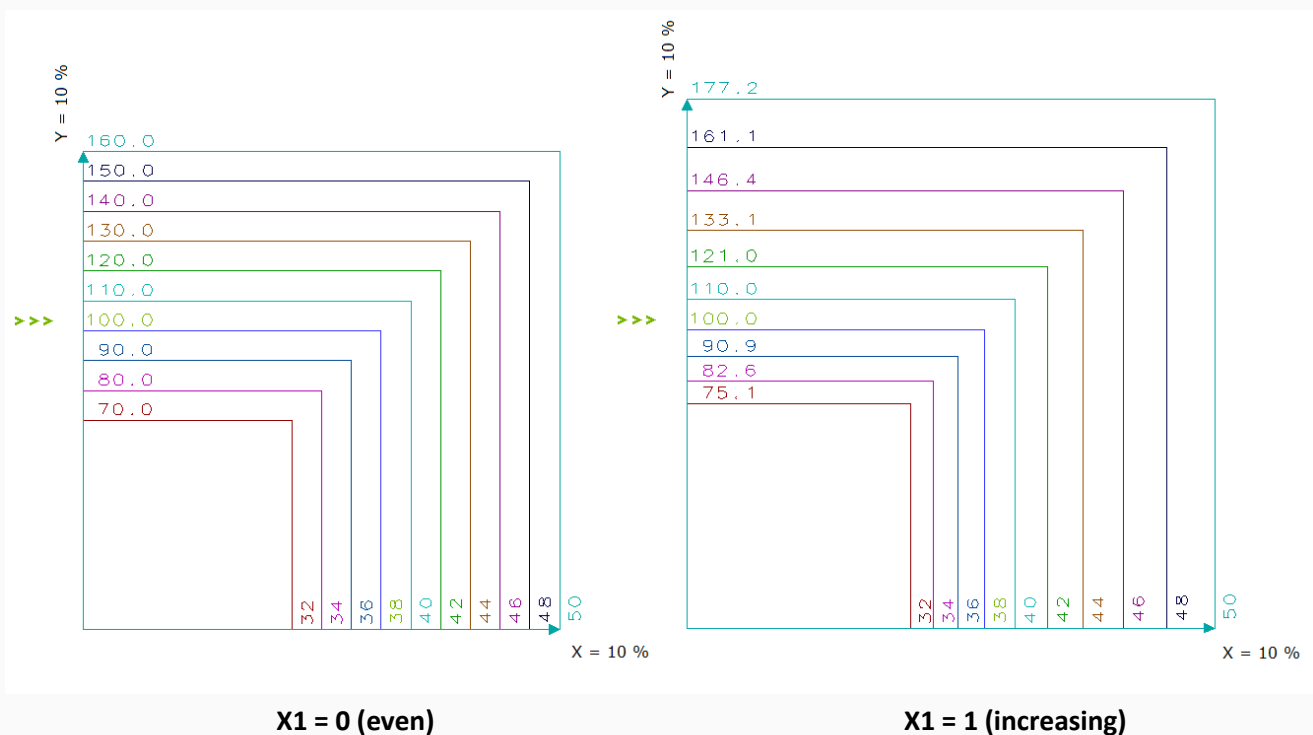
## Documentation for Pantograph 10

Pantograph 10 is a non-interactive tool for enlargement or reduction of parts beginning from the base size and an enlargement factor multiplied by a number of offsets from the base size. The pantograph is only useful for parts without grading information and where the shape is only available in the base size. This may be imported parts such as pieces for a brimmed hat for example.

The base size and the further sizes to be graded must be standard measurement charts of the same figure type. If the base size and the sizes to be graded are individual measurement charts, the x value reference of these sizes must be assigned accordingly.

Having called Pantograph 10, the part to be graded must be clicked at an appropriate point. This point becomes the grade centre from where the part is enlarged or reduced in x and y direction. Symbols such as notches are not altered in size!

### X value list of the construction



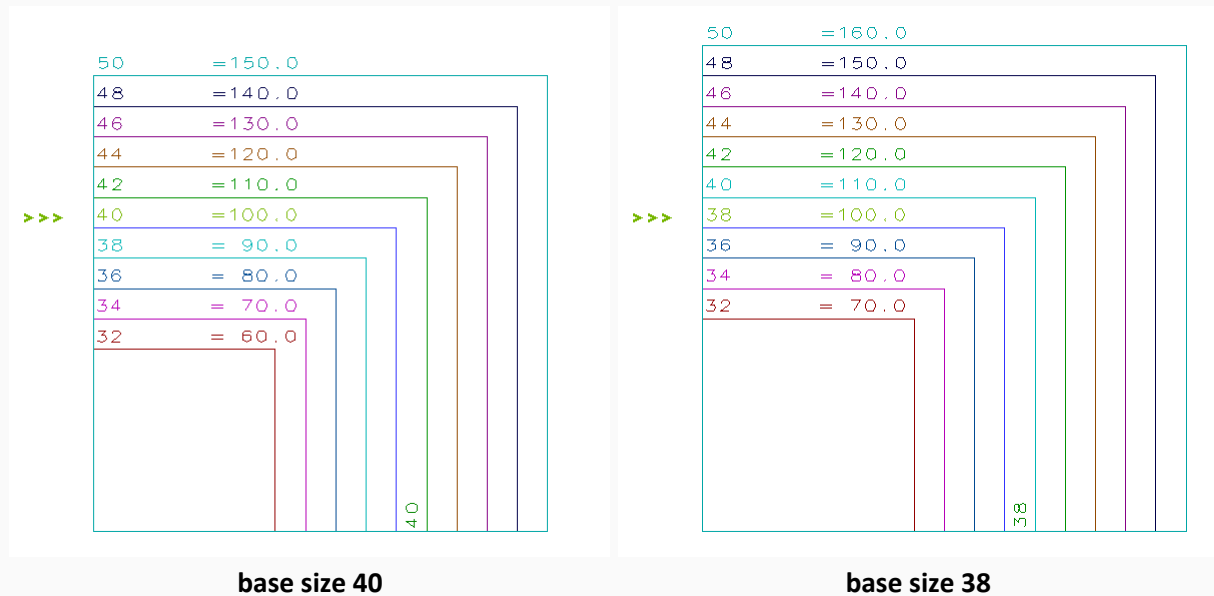
The x value list of this construction states the enlargement type and the enlargement factor for x and y direction in percent:

- X1** enlargement type (0=even, 1=increasing)  
Picture above: left - even (0) and right - increasing (1)
- X2** enlargement factor in x in percent
- X3** enlargement factor in y in percent

The values for x and y can be identical or different!  
If more than one part is graded with Pantograph 10, the length ratio remains consistent only if the enlargement factor in x and y is identical.

**Please note:**

Grading always starts from the current base size. If a new base size is entered, the number of offsets upwards and downwards also change. The enlargement result therefore changes for all sizes, as shown in the following picture.



With *Grade Rule Pattern* / *Extract Grade Rule Pattern* the graded stack can be converted to a grade rule pattern and subsequently treated as a grade rule pattern.

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