

Handweavers' Guild of Connecticut

Calculating Warps, Wefts and Setts

Length of Yarn on Cone:

- Length of yarn from McMorran balance x 100 = _____ yards/lb.
- Yds/lb x weight of yarn on cone = _____ yards on hand.

Shrinkage and Take-Up

- Measured length before finishing minus length after washing = shrinkage.
- Expressed as percentage: $\frac{\text{shrinkage}}{\text{original length}}$
- Add take-up.

Warp Length:

- Finished length per item plus hems or fringe multiplied by the number of items to be woven = total required length.
- Total required length divided by the reciprocal of the percentage shrinkage and take-up = length required for weaving.
- Add 3" per yard for stretching.
- Add loom waste (generally 24" for a small loom; 36" for a large loom).

Warp Width:

- Desired finished width divided by the reciprocal of the percentage of shrinkage only.
- Add estimated amount of draw in (1/2" - 2" per side, depending on width of piece).

Sett (also known as **ends per inch, epi**):

- Use tables.
- Wraps around the ruler.
- Industrial method: Square root of yds/lb x 0.9 = Y
Plain weave: $1/2 \times Y$ for maximum sett.
2/2 twill: $2/3 \times Y$ for maximum sett.
For less dense setts take 80% of the maximum sett.
(Suggested for worsted yarns; for woolen yarns take 65% of maximum sett).

Total yardage for warp:

- Total warp width x sett = Total # of ends.
- Total # of ends x Total warp length = Total yardage for warp.

Total yardage for weft:

- Total warp width divided by the reciprocal of the percent take-up = Total finished width.
- Total finished width x picks per inch = length required to weave one inch.
- Length required to weave one inch x total number of woven inches divided by 36 = Total weft in yards.

