Ply (Folded) Yarn Resultant Count

Resultant linear density of a ply yarn from up to three component yarns in tex or Ne, with an allowance for twist take-up (contraction) on plying.

Method: Definitions and mass and energy balances: tex adds directly; Ne combines as $1/\Sigma Ne^{-1}$; plying twist shortens the yarn

Input parameters

Unit system: SI

Parameter	Value	Unit
Counts entered in	Ne (English cotton)	
Yarn 1 count	40.000	
Yarn 2 count	40.000	
Yarn 3 count (0 = none)	0	
Twist contraction on plying	2.0000	%

Calculated results

Parameter	Value	Unit
Resultant linear density	30.130	tex
Resultant Ne	19.600	

Formula and method

$$T_R = \frac{\sum T_i}{1 - c_t}, \quad Ne_R = \frac{590.54}{T_R}, \quad 590.54 = \frac{453.59237\ \text{g}}{840 \times 0.9144\ \text{m}} \times 1000$$

Variables

system	Counts entered in	-
N_1	Yarn 1 count	-
N_2	Yarn 2 count	-
N_3	Yarn 3 count (0 = none)	-
c_t	Twist contraction on plying	-
T_R	Resultant tex (g per km)	-
Ne_R	Resultant Ne	-

Method and standards

Linear density definitions.

Assumptions and limits

- Contraction as a length share.
- Yarn 3 is either 0 (none) or a real count of at least 0.5.
- Tex is shown as a plain number in g/km.

References

• Definitions and mass and energy balances: tex adds directly; Ne combines as $1/\Sigma Ne^{-1}$; plying twist shortens the yarn

Report details

Report reference	FCC-0D50-Y0E0 (the same inputs always give the same reference)
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Calculator	Ply (Folded) Yarn Resultant Count
Method last reviewed	13 November 2026
Software release	FireCAD Calc, release of 17 November 2026
Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/chemical/textile-rice-oil/ply-yarn-resultant-count

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.