Classic K'Nex: Thickness of Components

Thicknesses

The thickness of K'Nex components varies slightly between pieces, believe it or not. Measuring a sample of pieces with a micrometer, which is accurate to 1/100th of a millimetre, the results appear below:

Thickness of Pieces (mm)			
Piece		**Thickness**	**Average**
	Connector	6.05 – 6.20	6.15
	Silver Spacer	9.15 - 9.25	9.20
	Blue Spacer	3.02 - 3.04	3.03
	Tan Interlocking Clip	6.13 - 6.21	6.15
	Clip with Rod End	6.19 - 6.27	6.25
	Medium Gear	12.40	12.40
	Large Gear	9.40	9.40
	37½mm Wheel	5.94 - 6.25	6.20
	50mm Wheel	12.00	12.00

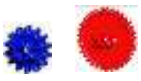
Available Rod Lengths

When a rod has a connector on each end, the exposed piece of the rod can have pieces slid onto it (such as a connector, spacer or wheel), or pushed onto it (such as a clip).

It can be useful to know how many of these pieces can fit onto a rod, but rather than work in millimetres it is easier to work in what might be called 'nominal units'.

A nominal unit is 3mm. This has been chosen because the thickness of K'Nex pieces are, fairly accurately, multiples of this (see the sizes in the table on the first page).

The table below shows the tickness of pieces in nominal units.

Thickness of Pieces (mm)			
Piece		**Thickness (mm)**	**Nominal Units**
	Connector	6	2
	Silver Spacer	9	3
	Blue Spacer	3	1
	Tan Interlocking Clip	6	2
	Black Rod/Connector	6	2
	Small / Medium Gear	12	4
	Large Gear	9	3
	37½mm Wheel	6	2
	50mm Wheel	12	4

Classic K'Nex: Thickness of Components

The available space on rods, in nominal units, is as follows:

Rod	Length	Nominal Units
Green	17½	-
White	33	6[1]
Blue	55	12
Yellow	86	22
Red	130	36[2]

Notes

[1] If there is a connector at each end, only 5 nominal units are available

[2] At a pinch, 37 nominal units are available

Examples

Q How many silver spacers could fit on a blue rod with a connector on each end?

A Nominal length of exposed rod = 12. Silver spacer has nominal thickness of 3. Therefore, the number of spacers is 12 / 3 = 4.

Q You are making a gearbox and the shaft which passes through the centre of the opposite faces of a blue-rod-sided block is to hold the following components:

- A large yellow gear (82 teeth)
- A small captive blue gear (14 teeth)
- Two tan clips for the gears

How many spacers will be needed to cover the rest of the rod?

A A yellow rod can be used as the shaft because the exposed part of it fits exactly between opposite sides of the block, and so the available length is 22 units. The large yellow gear is 3 units thick, the small blue gear is 4 units, and the tan clips are 2 units each—that's 11 units altogether. Therefore, the other 11 units will be filled with spacers. This could be done, say, with 3 silver spacers (which are 3 units thick) and 2 blue ones (which are 1 unit).