
Tension test

The tension test must always be performed after the torque test, and on the same part of the toy.

If the toy has to be clamped and the toy is made from soft material, damage can be caused. This will compromise the test. If this happens any other tests would have to be carried out on a new toy.

Teaching in industry

If the component is grippable, a suitable clamp is used.

The toy then has a weight attached and a force gradually applied for 5 seconds. The larger the item the greater the weight. The force must be maintained for 10 seconds.

A force of $10\text{N} \pm 2\text{N}$ is applied if the largest dimension is 6mm or less.

A force of $90\text{N} \pm 2\text{N}$ is applied if the largest dimension is greater than 6mm.

The component is then examined to see whether it has become detached.

If the seams are being tested the force is applied on the most susceptible place (e.g. seam joint between the leg and the body).



Teaching in school

You should make a sample of the part which you think is susceptible to tension problems. In school you could test the strength of a joint, adhesive or seam by physically pulling the attached parts by hand, remembering that you are likely to be stronger than a child.

After 10 seconds you should examine your component for signs of damage. You may have to rethink your joining technique.

Your results should be recorded, a conclusion drawn and a decision made regarding the attachment, part or feature.

