

VITAL TIPS ON
LIFE OF A NEEDLE

A good needle is like an egg. Even if a weight of 75 kg is applied on top of the butt with tip facing downwards (as in a normal sewing operation) the needle will not break. The point we are trying to make is a well made needle has a real long life if it can handle the rough and tumble of sewing. And only if it can cope with the various types of mechanical stress.

MECHANICAL STRESS ON THE NEEDLE

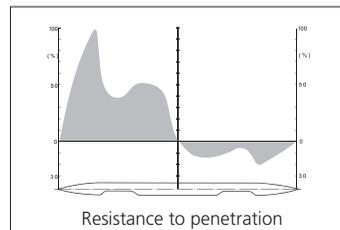
During sewing process, the needle is stressed by forces acting in two different directions:

1. Forces that cause a deflection of the needle from its proper stitching direction causing bending stress.
2. Forces that counteract the needle's penetration into the fabric causing buckling stress.

BENDING STRESS

The bending of a needle may be caused by -

- Lumps or non-homogeneousess of the fabric
- Sewing over cross-seams or pins
- High thread tension
- Pulling the fabric manually while stitching
- Removing the fabric from the machine without releasing the needle thread tension

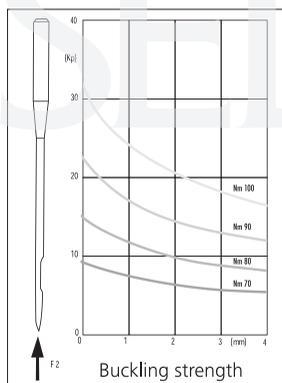


A bent needle may also hit the presser foot, throat plate, or even the looper/hook causing damage. Therefore, a bent needle causes a greater damage than the cost of the needle itself.

BUCKLING STRESS

Every time a needle penetrates the fabric, it is under buckling stress. This resistance depends upon the type of fabric, amount of plies, finish of fabric, needle size, and shape of point.

The resistance to penetration reaches its peak shortly before the eye immerses into the fabric. When penetrating and rising, the sewing machine needle is heated by the friction between the needle and the fabric. Depending upon sewing conditions, the heat may cross 400°C, when the hardness of the needle is affected and becomes worthless.



The mechanical loading capacity of the needle is reduced especially in the CAE/scarf area of the needle during stitching. When a needle breaks due to Buckling Stress it invariably breaks in the CAE area.