

## **The relation between the change of terry towels machine type and its effect on the beat-up force**

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### **Abstract**

This research aims to study the effect of changing the type of terry towel machine with different beating mechanisms, and weft density on the beat-up force by measuring it with a measuring system which was adopted and used that was reused after developing the technique of recording and analyzing signals. The principle of this measuring system depends on measuring the change in voltage in a measuring circuit as an indication to the change in beating-up force. The change in voltage is resulting from the change in the electrical resistance of the strain gauge which is affected by the beat-up force. This system which consists of sensing element, measuring circuit, digital oscilloscope and pc computer.

There are many factors that affect the quality of the terry towels produced, including the mechanical adjustments on the different weaving machines, as we find that the beating force responsible for the movement of the threads directly affects the stresses on the threads and thus affects the quality of the produced fabrics.

Since the terry fabrics have many and varied uses, we must reach the optimal way to produce high quality terry woven fabrics according to the research variables (beating-up mechanism - weft density).

Because the reed is responsible of picking the repeated wefts to the fabric, the beating force must be related to the quality of the textiles produced on the weaving machine, and the weaving design, which is affected by the used number of warp and weft threads.

### **Keywords:**

Beat-up force, Terry towel machine, Electronic measuring system.