

Comparing tensile forces with IMP-TENS measuring system

The IMP-TENS measuring system is a mobile measuring and analysis tool to compare tensile forces of threads or wires in rotating systems. The system is working PC-supported.

By patented measuring method only one sensor is needed for a multitude of measuring points.

The results are indicated as digital numerical value and can be saved in ASCII-Code. On the force-time line diagram temporal tensile force changes can be identified. When leaving the entered target value range, an alarm output signal is generated. So the quality of twisting and stranding is assured by tensile forces monitoring of all wires or threads.

The installation of few components on the machine needs only short setup time.

The system is designed as mobile unit for adjusting and checking the tensile forces. A permanent operation is not possible on every measuring condition.

Principle of tensile force measuring with IMP-TENS system

The tensile force measurement is based on defined deflection of material to be measured from the straight running direction.

The force which is applied to this deflection is being measured and proportional to the tensile force in the material to be measured. In order to give an information about the tensile force of the material the angle of deflection must be known.

This principle is generally called '3 roller system'. It is the basis of many tensile forces measuring systems.

According to this method it is possible to measure the tensile forces of wires of a rotating stranding machine by a stationary fixed sensor which is located outside (!).

By rotation of the machine every wire will arrive at the sensor. There it is running up and down a ramp. At the top level of the ramp there is a force sensor. The angle of deflection is defined here. The sensor is measuring the force within a split second.

For a precise measurement a deflection of about 5° will be sufficient, which is equivalent to a wrap angle around the sensor of 10° .

The mechanical load of the wires during this process is very small, so damages are nearly excluded.

Contactless operating indicators register the machine rotation and identify each single wire.

We like to advise you with your measuring task. Please fill in our form.

Terms:

All wires or threads to be measured must be arranged on the same revolution radius.

The rotational speed (peripheral speed) must not exceed 1 m/sec.

The angle of contact around the force sensor of every wire must not vary during the total measurement period.

Restrictions:

Wires with appropriate high tensile force up to max 4 mm diameter (copper wire) can be measured.

Only straight (not bended) wires can be measured.

During one machine rotation one measured value per wire or thread will be recorded.

Tensile forces of max. 32 wires or threads can be shown at once in a diagram.

A permanent operation is not possible on every measuring condition.

