

CHALLENGE 1

Identification of existing pretension stress in bolted connections



Background

Background

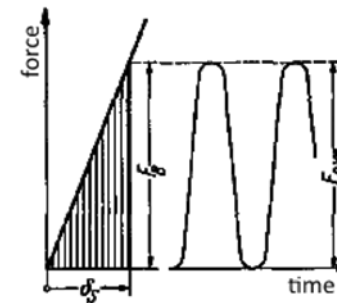
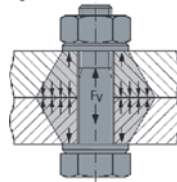
The lifetime of bolted connection is strongly depending on the right pretension over time. Dynamically loaded bolts with low pretension, suffer higher amplitudes, leading to a shortened lifetime, see "a"

Amplitudes reduces significantly by having desired pretension present, see "b". Even more by the use of expansion bolts, see sample "c". The pretension is being controlled by a bunch of different heavy tools during maintenance, but this approach does not always ensure the presence of pretension within specified parameters, due to influencing parameters (changing friction within thread, etc.)

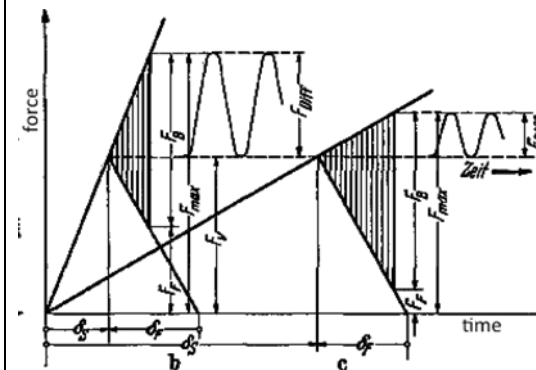
The Challenge

This project is asking for a device or method to measure the present stress within the elongated bolt, without knowing the initial length of the bolt.

The allowable stress is a design criteria and normally set as a certain amount of yield stress. The tool should be capable to determine the present stress.



a



b

c

