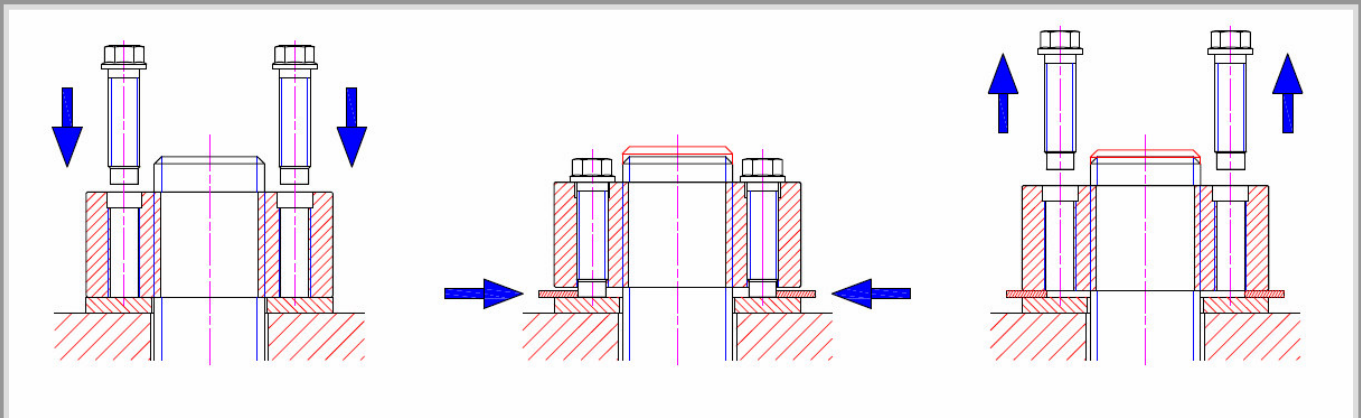


# StretchHold:

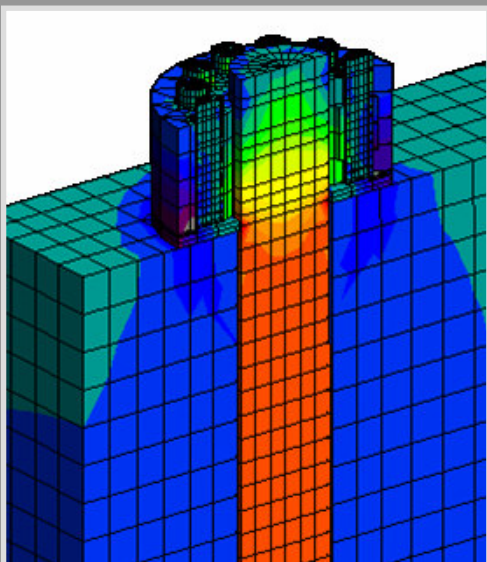
## THE SOLUTION TO GUARANTEE PRELOAD WITH GREAT PRECISION

The solution designed and patented by TSF guarantees the stretching of the bolt, and therefore the preload, in a screwed union.

**StretchHold** consists of a tractor head that couples into the bolt to be stretched and by use of smaller tractor bolts, which also mount into the tractor head, will provide a specific stretch to the main bolt. With the later assembly of a few calibrated shims, the permanent stretch of the bolt will be guaranteed.



### Tensional state in a bolt joint with StretchHold



With **StretchHold** the whole applied preload is used for elongating the bolt, friction loss does not exist, therefore a higher precision is obtained; higher preloads per bolt. Due to this fact, with **StretchHold** the number of bolts in a joint union can diminish, saving material and eliminating machining.

With **StretchHold**, preload losses over time do not exist (the maintenance can be considered to be void).

The **StretchHold** application would be calculated by our engineering, who will offer the best solution specific to every joint proposed by the client.

For the calculation of the unions, TSF's engineering has a powerful finite elements simulation tool. The program used is the prestigious one **MSC.MARC**.



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