

## MECHANICAL TENSIONERS

Tensioning bolts or components with FASTEC mechanical tensioners is one of the simplest procedures to bring high tensioning forces into a component connection.

In opposition to the common turning procedures, the tensioner makes the introduction of torsion-free tensioning force possible by a strictly axial input of force. Thus, a much better use of the component material is possible, which can be used to increase the safety of the component connection or to decrease the dimensions of the connection since frictional influences are minimized.

As the tensioners remain on the component to be tensioned, they are of the smallest design of constructional size, thus making use of the advantages of a strictly axial tensioning.



### FUNCTION

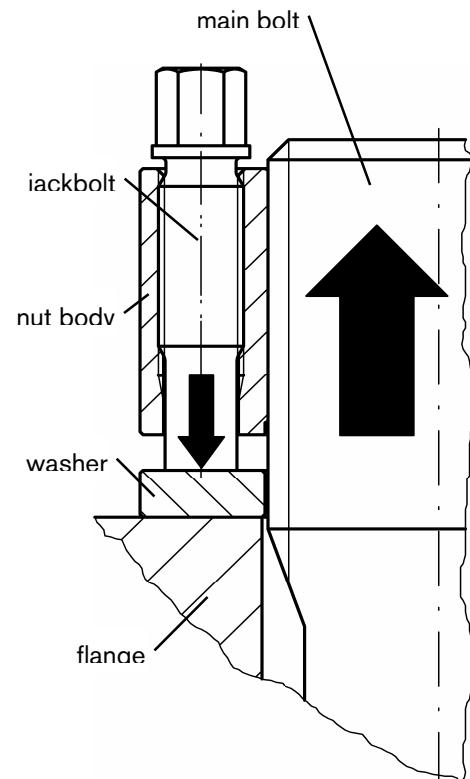
The functional principle is simple:

The required clamping force for the connection will be splitted to a lot of small jackbolts. Because of the small diameter of the jackbolts, their tightening torque is very low compared to the total clamping force. The nut body is needed to transfer the clamping force from the jackbolts to the main bolt. The hardened washer is used to transfer the force whilst protecting the flange face. The total clamping force is equal to the sum of the clamping forces of all jackbolts.

### DESIGN

- § nut body (heat-treated steel)
- § jackbolts (high-strength heat-treated steel, surface hardened)
- § hardened washer

The tensioners will be delivered completely assembled and lubricated - ready to use.



### ADVANTAGES

- § standard hex nuts can be replaced directly without design changes
- § low cost by simple design
- § simple handling
- § use of ordinary torque or impact wrenches even for very big connections, e.g. bolt threads > M100
- § cost saving (no special tools needed)
- § pure axial tensioning of main bolt (no torsion)
- § ideal solution for limited installation space applications (e.g. housing connections), no big tools necessary
- § can be used with all bolt qualities
- § suitable for high and low temperature applications

## DESIGN VERSIONS

Each case of application is unique.

Standard parts from a catalogue are in most cases a compromise with regard to technical and economical considerations. Based on our modular design system and years of experience with tensioning of large bolted connections we are able to offer you exactly what you need.

FASTECH mechanical tensioners are available

- § for all metric and imperial threads, with plain bore or bayonet locking (up to Ø1000 or bigger),
- § with size adjusted to required tensioning force and available space (modular design),
- § with steel bright, burnished, painted, nickel-plated or customer specified surface,
- § made of stainless material,
- § high and low temperature resistant,
- § without hardened washer,
- § with countersunk or captive mounted jackbolts,
- § as a pan head screw (head diameter smaller than nut design)
- § or how ever you need them ...

The combination of CAD - design variant technology and in - house CNC – manufacturing facilitates a fast and cost-effective delivery even of smallest quantities.

## FIELDS OF APPLICATION

- § general mechanical engineering
- § metal industry
- § structural and civil engineering
- § refineries, chemical industry
- § power plant technology
- § research technology
- § onshore / offshore

## QUALITY ASSURANCE

All mechanical tensioners are checked for material quality, dimensional accuracy and proper operation. They are subject to quality assurance measures during order execution and delivered with detailed documentation.

## CERTIFICATES AND ACCEPTANCE TESTS

- § material test reports
- § specific test reports
- § tensioning force test
- § certificates / acceptance test as per customer's specification

## EXAMPLES OF APPLICATION



mechanical tensioner M42



mechanical tensioner M56 for reduced bolt load (less jackbolts for faster tightening)



mechanical tensioner 1.5" BSP for countersunk use (with captive mounted jackbolts)



mechanical tensioner M100 (for press columns )



mechanical tensioner for press columns Ø450