



Reactor Head Bolt Tensioner System

Tensor's bolt tensioning system is designed to in a simple way, using the highest technology, preload a bolted joint to the chosen preload level.

Briefly, the system consists of 6 basic elements:

HOIST

A quick hoist over each bolt tensioner with a low lowering speed.

BOLT TENSIONER

Steel in high tensile qualities.
High force and low weight.

CONSOLE

Easy manouvering, just two levers and a switch.

MANIFOLD - RELIEF VALVE

Quick relief of pressure 1000 bar down to 0 from up to 6 bolt tensioner in less than 5 seconds, 2 pressure gauges ϕ 160 mm.

MEASURING AND SURVEILLANCE INSTRUMENTS

Measuring instrument for measuring the pressure consists of:
Programmable electronic display with stop function.
Pressure sensor / gauge with high precision.
A chart recorder to register pressure / time.

PUMP UNIT

The pump unit is operated by a separate pressure sensor, a PLC controls and stops the pumps.

The pump unit consists of 3 high capacity pumps, all running with the high pressure pump at 100 % speed:

The low pressure pump stops at 350 bars

The medium pressure pump stops at 700 bars

The high pressure pump stops at 1000 bars



Bolt tensioner system

The high pressure pump can be runned separately at 75%, 50%, 25% capacity and will stop pumping in +/- 1 Bar from the requested pressure by the electronic display.

The pump unit uses a wateryglycol mixture, a leakage can be handled as water.

The ideal sequence looks as follows:

	Pro- mised	Achie- vable
1. Lowering the bolt tensioner, engage nut and stud.	60	40
2. Threading down the puller sleeve	50	25
3. Pressurizing, > 1000 Bars	30	20
4. Relief of pressure.	10	5
5. Threading up the puller sleeve	30	20
6. Lifting bolt tensioner	40	20
7. Moving bolt tensioner to the next stud.	110	50
Time (seconds) per sequence:	300	180