ASSIGNMENT
CUSTOMER: Equalizer Norwegian Distributor - Verktoy to End User
LOCATION: Offshore Wind Farm – North Sea
DATE: March 2017

BACKGROUND
Our Norwegian distributor, Verktoy was contacted by a client for a solution to align flanges in various wind tower sections in a remote offshore location. Verktoy discussed the enquiry with our design team in our head office in Aberdeen as our standard TFA12TE could not align all 3 flanges in the tower.

PROBLEM
Bolt hole misalignment was causing problems on three different flange joints inside wind turbine tower sections.

Wind turbine towers are made up of pipe sections with internally bolted flange connections. During fabrication, transportation and the installation phase these sections can become ovalised. This can result in misalignment of the bolt holes and increases the complexity of the installation process. In turn this lengthens the time taken to assemble the towers therefore increasing risks and costs.

TRADITIONAL METHODS
Traditional methods of flange alignment can be simple hand tools such as pinch bars or more complicated rigging equipment involving chain pulls or turfers. All of which are time consuming resulting in increased installation time and costs. Most importantly they are not the safest methods available.
EQUALIZER SOLUTION

Instead of designing a new tool, Equalizer proposed a fast and cost effective solution consisting of a custom piston extension piece that can be attached to the TFA12TE, effectively extending the rise of the tool. See below:

The geometry of the third flange joint does not suit this tool as the PCD and flange ID are too wide apart.

The third flange joint shows the TFA12TE with the cylinder sleeve and piston fully extended however full alignment of the flanges has not been achieved; in other words, the 'Rise' (R) of the tool is not sufficient to align the flanges.

The below image shows the third flange joint fully aligned with use of TFA12TE and Piston Extension:

With this solution, the same tool can be used to align all three of the flange joints.

OUTCOME/MOVING FORWARD

Equalizer sold 2 TFA12TE’s complete with piston extensions to our Norwegian distributor for resale to the client. From the initial enquiry in our Aberdeen office, a proposal along with schematics and a detailed CTR was submitted to the client. From conception of the tool to a proposal and delivery to the client in Norway was a total of 7 days.

TECHNICAL ENQUIRY?
Please visit our website
www.equalizerinternational.com/contact

CUSTOMER BENEFITS
- Cost Effective
- Time Saving
- Safe
- Simple

ADDITIONAL INFO
Equalizer can also offer drop-leg extensions and bolt hole reducers to provide a solution for other applications.