

# Information Sheet

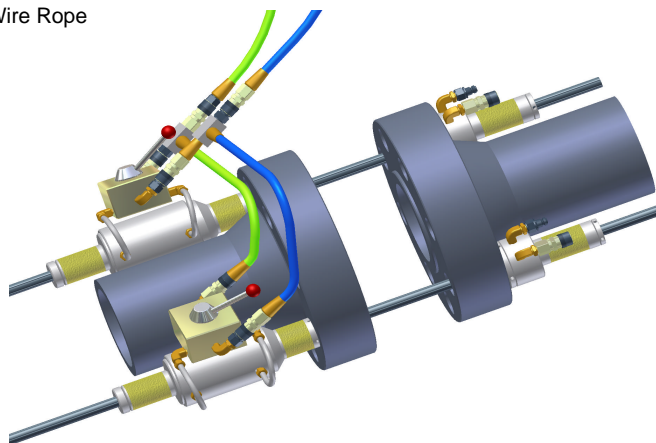
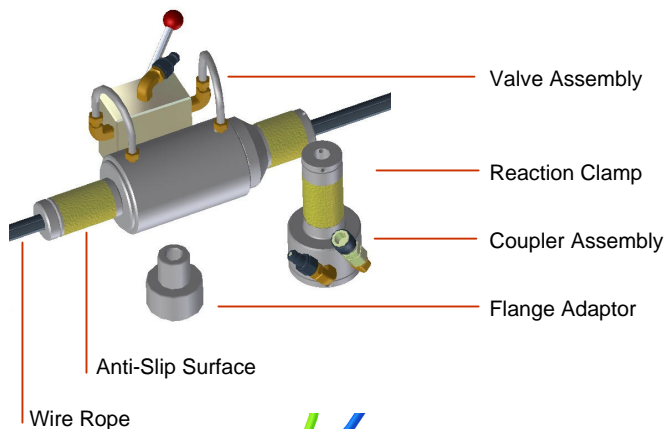


## Flange Pulling System - Introduction

The TITON Flange Pulling system has been developed for use on subsea flanged connections where speed, reliability and simple operation are essential. They are hydraulically operated tools being connected to a pump unit via a hydraulic harness assembly and downline.

The system comprises of a hydraulic pulling unit, hydraulic reaction clamp and length of wire rope. The wire rope is placed through corresponding bolt holes on each of the flanges. The reaction clamp is then located on the rope at the back of one of the flanges and acts as a reaction point for the system. The clamp 'grips' the rope via an integral hydraulically activated and de-activated collect system. The pulling unit is located at the opposite end of the wire rope (at the rear of the opposite flange). Collets located at the front and rear of the flange-pulling unit alternatively 'grip' the wire as the piston in the puller extends and retracts. As the piston extends the rear collect grips the rope and the puller moves forward bringing the flanges together. The piston is then retracted and front collets grip the rope holding the puller in position. This operation is repeated until the flanges are brought together. To bring the flanges together evenly and in alignment 2 pullers and clamps are normally used. A valve on the pullers allows each of them to be operated either in tandem or individually for accurate alignment. Once the flanges are brought together the clamps can be hydraulically de-activated and removed from the wire this then allows the puller units and the wires to be removed and recovered to the surface.

## Flange Pulling system



## Flange Adaptors

Used to assist in the alignment of flanges during the pulling operation.

Sizes available for all imperial & metric bolt holes

## Valve Assembly

Valve design incorporates a centre 'hold' position, allowing the downline to be disconnected and the puller units to stay in position. This will ensure there is no separation of the joint during periods of weather downtime or bell changeovers.

Valve design also permits the pullers to be operated simultaneously or individually, allowing the diver to control the alignment of the flanges during the pulling operation

## Reaction Clamps

Hydraulically activated and released reaction clamps eliminate collect lock-on and allow fast application and removal of the tool.

## Coupler Assembly

Simple 'quick disconnect' coupler system offers quick connection and removal of the harness assembly.

## Anti-Slip Surface

A renewable Anti-Slip grip surface improves tool handling.

## Wire Rope

18mm Dyform wire is used, the structure of the wire eliminates the possibility of the the strands failing under load preventing 'bird nesting' from taking place.

The wire is flexible over longer distances (2-3m) but becomes almost rigid over short lengths (around 12"), this aids in the alignment of flanges as they are drawn together.

TITON Manufacturing Ltd - Head Office  
24b Oak Road  
West Chirton North Ind. Est.  
North Shields, Tyne & Wear  
NE29 8SF  
United Kingdom

Tel: + 44 (0) 191 257 6777  
Fax: + 44 (0) 191 257 9526

Email: [sales@titonmanufacturing.co.uk](mailto:sales@titonmanufacturing.co.uk)  
Web: [www.titonmanufacturing.co.uk](http://www.titonmanufacturing.co.uk)