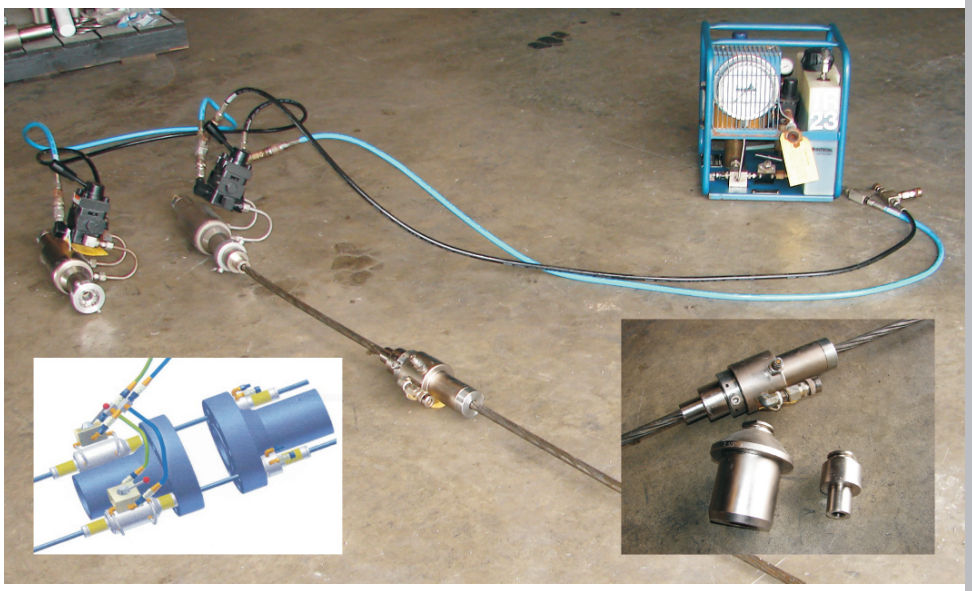
Hydraulic Lacing Slings

INTEGRA Technologies' Flange Pulling System

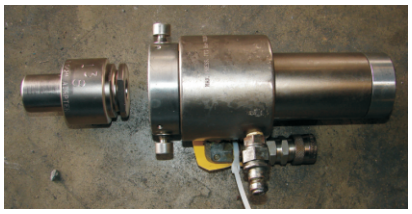
A visit to their Port of Iberia facility

So much for the wire rope and lift bag trick. Save it for little pipe. This sucker will pull 25 tons per jack. Got a 24" giving you grief? Not for long.



How to use them: You rig Flange Pullers on any two bolt holes 180 degrees apart on your flanges. You can deploy a single unit to straighten a cocked flange, or you can set up several of them for some serious pulling power. Bolt hole adapters range from 1.25 to 3.5 inches to accommodate flanges from a 4" 1500 series up to a 36" 900 series. Separate controls on the valve assemblies let you align uneven flange faces; you can pull on just one side if you need to. The pullers are pressured up from a topside hydraulic pump with two lines coming down to the work site. You control the jacks and draw the flanges together with a series of pulls. The units do not need to be picked up after each pull; unlike bolt stretchers, you reset them yourself on bottom by moving the valve handle the opposite way. Simple. Once the o-ring is captured and you've got some bolts in, reverse the flow and walk the valve assemblies off the wires, dismount everything, and have the tenders pick it up. It's some pricey looking stuff - tie good knots.

How they work: The wire is an 18 mm Dyeform wire that is flexible over a long length, but nearly rigid across a short span. It passes through the flanges and takes the valve assembly on one side and the reaction clamp on the other. Inside both units is a three-fingered gripping collet, two inside the valve assembly and one inside the reaction clamp. When pressured up, a piston inside the valve assembly moves away from the flanges, taking the outboard collet with it and pulling the wire and drawing the flanges together. The inboard collet remains slack until you reach the end of the piston's stroke and then it grips and holds the wire while the piston retracts. While the piston is alternately stroking out and then retracting, the reaction clamp remains pressured up keep a hold on the wire from it's end. It's not exactly fast; you'd have to be as dumb as a box of hammers to pinch your finger between flanges while using these things. Integra supplies Omega 95 biodegradable marine grease for field maintenance.



Pictures - Top: The Flange Puller we played with at the POI shop. Left insert, a drawing of the complete system in operation. Right insert, the reaction clamp with a 1.5 inch bolt hole adapter installed, a 3.5 and another 1.5 inch adapter next to it. Lower right: Another reaction clamp with a 1.5 inch adapter removed. The adapter slides in and twists to lock; the set screws on either side keep it in place. Lower left: One of the collets.

Got a critical joint? Integra's POI shop is run by Dan Carr who is no stranger to going offshore and getting the job done. Pretty much every Diver in the Gulf with some time in has used his bolting gear. It's not complicated but it's not simple, either. Dan says give him a call anytime you need to bring a few hands up to speed. He's happy to teach. (337) 367-2100 or dcarr@integratechnologies.com