



Offshore Platforms

PT&P Solutions: Smaller - Lighter - Better Engineered

PT&P has a series of solutions for the Piping System that are ideally suited to the unique needs of off-shore platforms. Some of the unique needs of these platforms include:

- Space & Weight Limitations
- Highly Corrosive Environments
- Ongoing Water Hammer Issues



PT&P has a unique set of offerings that fits these requirements better than any other solutions in the marketplace. These include:

NANO-CONSTANT

Offshore platforms require the smallest possible footprint for Constant Spring Supports. The PT&P Nano-Constant is the world's smallest constant by a wide margin. The picture below shows the Nano-Constant featured in our launch which supported 765 lb. and 7" of movement in a 0.89 Cubic Foot envelope. In our first quote for an offshore application, we supported 7,000 lb. of load and 4" of movement in a 8" x 10" x 29" envelope. There is no other constant spring hanger in the market that is truly optimized for space and weight considerations.

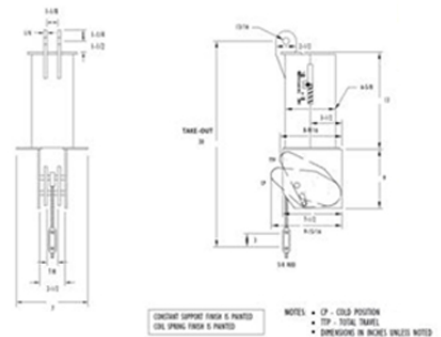
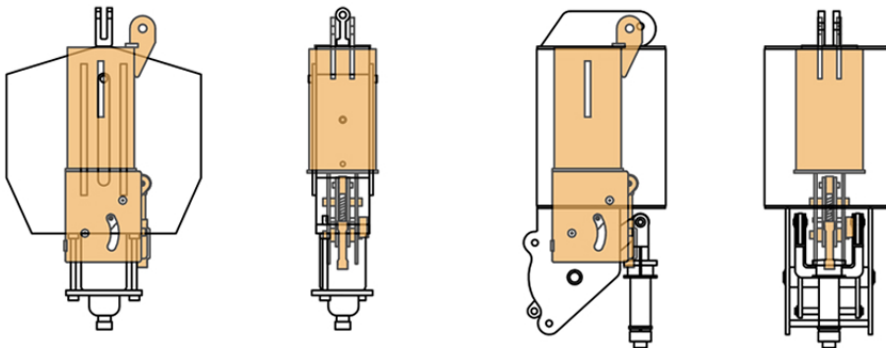


Figure 1 - Comparison of Nano-Constant Size to Leading Competitors



Front & Side View of Leading Competitor # 1 Front & Side View of Leading Competitor # 2



PT&P has the broadest offering of solutions for eliminating corrosion of piping at Pipe Supports. Key advantages of the PT&P's TPI Solution include:

Economical Pricing – PT&P's TPI offering is priced highly cost effective compared to other providers.

Highly Customizable – Our unique manufacturing approach allows us to customize far more easily than any other provider. Customization options include height/width/length of TPI, hole sizes, hole locations, and special shapes.

Complete Assemblies – PT&P reduces complexity in product selection by offering complete assemblies rather than just individual components. We are the ONLY provider of TPI type of solutions that is not a "point solution" provider. We are the ONLY global provider to integrate vibration pads and TPI into our assemblies. If you wanted to purchase a configuration for a clamp with both TPI equivalent and Vibration Pads, you would have to develop the design, source the materials with requests for customization, and assemble it yourself.

Assemblies that can be purchased include:

U-Bolts – including addition of Vibration Pads (optional) *see Figure 2

Clamps – PT&P's entire range of clamps can be integrated with TPI Clips as well as vibration pads – see Figure 3

Hold-Downs – PT&P's entire range of Hold-Downs can be integrated with TPI clips and rods as well as vibration pads

Figure 2 - U-Bolt with TPI & Vibration Pad



Figure 3 - Pipe Clamp with Vibration Pads



Extreme Loads and Temperature Requirements – PT&P has extensive experience supporting custom requirements. We can develop solutions for unique scenarios by selecting different materials and developing a custom design.

Proven Performance – the performance of PT&P TPI is comparable to or superior to other providers. We have supplied solutions to the largest Engineering, Procurement, and Construction (EPC) in the US as well as many major Oil and Gas and Chemical operating companies.

SNUBBERS

PT&P will be launching its Super Snubber in at the beginning of 2020. This will be the ONLY product that offers energy dampening for water hammers. Offshore platform operations are subject to vast closing valves which can lead to ongoing water hammer issues. Solutions on the market today focus on stiffening the piping system to absorb the energy of a water hammer. PT&P's solution will focus on converting 50%+ of the mechanical energy of a water hammer to heat. This will keep the energy from continuing to move down the piping system and will limit the strain on the piping system. It will also create a better environment for personnel on offshore platforms.

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