



## CUSTOMIZATION: SPRING SUPPORTS

Variables - Constants - Big Tons - Compact Springs

### MATERIALS

- Stainless Steel
- Chromoly
- Super Alloys (Hastelloy, Incoloy, Inconel, Monel 400...)



STAINLESS STEEL CONSTANT SPRING SUPPORT



MONEL 400 CLAMPS

### FINISHES

- Galvanized (Standard)
- Paint / Primer
- Paint over Galvanized
- Red Oxide
- Neoprene Coating



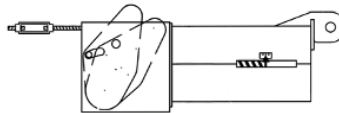
BIG TONS W/ 3-COAT URETHANE PAINT, CADMIUM PLATED COMPONENTS & FLUOROCARBON COATING



VARIABLE SPRINGS WITH RED OXIDE PRIMER DESIGNED FOR A FURNACE APPLICATION

### DIMENSIONS

The size can be optimized to specific dimension requirements, and customized to fit in restricted spacing.



NANO CONSTANT - THE WORLDS ONLY SIZE-OPTIMIZED CONSTANT SPRING



CUSTOM "MINI" BIG TON SPRING SUPPORTS

### LOAD

We can supply spring supports with custom load capabilities of 800,000 lb. + loads.

### LOAD ADJUSTMENT

Standard is +/- 10%, but we can customize up to +/- 60% Load Adjustment)



600,000 LOAD MEGA TON W/ BRONZPHITE® SLIDE PLATES



187,393 LB. LOAD BIG TON CONSTANT SPRINGS W/ BRONZPHITE® SLIDE PLATES

### TRAVEL

Catalog items show up to 14" travel, but we can customize up to 100" + of travel.

### TRAVEL STOPS

We can provide wire or chained travel stops.



CONSTANT SPRING SUPPORT W/ 46" OF MOVEMENT

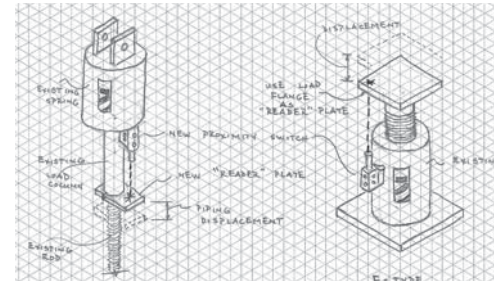


CHAINED TRAVEL STOPS ON VARIABLE SPRING SUPPORTS



## SENSORS FOR REMOTE MONITORING

We can provide sensors on spring supports to monitor the conditions remotely, and give warning alerts whenever a support does not perform as it should.



## UNPARALLELED CUSTOMIZATION FROM UNMATCHED MANUFACTURING CAPABILITIES

PT&P has developed a unique approach to its manufacturing operation that produces the broadest set of customization options with minimal impact to delivery timeframes. Most producers operate as smaller scale steel fabricators or highly standardized mass production organizations. PT&P is the only organization that is set up for both scales with over 500 production employees, customization capabilities, and artisan manufacturing skills. For example, PT&P is the only Major Global Supplier of both Expansion Joints and Engineered Pipe Supports. This unmatched manufacturing technique was achieved through proprietary systems, a highly engineered approach to manufacturing, and incorporating 10+ Industrial Engineers in the production operation.

### MANUFACTURING APPROACH FOR PIPE SUPPORT/EXPANSION JOINT MANUFACTURERS

	Steel Fabricator (Owner/Operator)	Mass Production	PT&P Mass Customization
Machinery	Simple	Scale	Scale and Artisan
Advanced Skills (e.g. TIG welding Inconel)	Varies	Limited	Yes
Systems	Limited	For Mass Production	Advanced Systems allow Management of Complexity
Customization/Flexibility	High	Low	High
Short Turnaround	Yes	No	Yes
Scale	Low	High	High
Outsourced Offshore	No	Yes	No
Engineering Knowledge	Low	Medium	High
Ability to Manage Contamination Across Materials	?	No	Yes
Breadth of Product Line	Medium	Low/Medium	Large
Target Customer	?	Major EPCs	All