



# Rod Load Measurement (RLM) of Pipe Hangers & Piping Loads

## IN-PLACE MEASUREMENT OF PIPING LOADS

Without interrupting your operation, we can measure spring support and rigid rod loads to ensure your pipes, headers, and equipment are being supported as designed.

### Do You Have:

- Bottomed-out spring hangers?
- Sagging high temperature steam lines?
- Broken hanger components?
- Lines “jumping” during startup or shutdown?

Piping design is performed to ensure that pipe stresses and displacements operate with adequate safety margins. To accomplish this, the spring supports, rigid rod supports, slides, etc. must operate as modeled and as expected. Over time, changes can occur and stresses, displacements, and damage can lead to leakage, pump or equipment damage, or failure. Measurement of the pipe support loads should be a regular part of your piping maintenance.

- Comprehensive pipe support service
- In-service, during normal hot or cold operation
- Measuring load and adjusting
- Pipe supports, equipment, and headers
- Detection of non-functioning support members
- Clear, detailed analysis and reporting
- Can give clear description of piping support conditions and the effect on piping life (hindcast or forecast)



*To provide best-in-class solutions to our customers, Stress Engineering Services acquired this innovative Pipe Hanger and Piping Load technology from FASTORQ® – a leading provider of bolt loading and removal solutions.*

## RLM is part of a “best in class” ASME B31.1 Covered Piping System (CPS) Assessment Program.

### ON-LINE TESTING AND ADJUSTMENTS

Stress Engineering Services has the methods and tooling to measure piping loads and spring hanger loads under plant operating conditions. Without disconnecting supports, our system will determine the loads. These results can be used to validate and verify system performance with piping models. The hydraulic tooling can be used to load, adjust, and monitor field adjustments made to the hanger system. This allows the correct load to be applied at the hot or cold travel position.

### ASSOCIATED SYSTEM TESTING

Our tooling is also used to weigh and adjust boiler headers and components that directly influence piping loads and movement. These problems are frequently associated with symptoms of more severe piping problems. An integral part of our capability is a close working relationship with our clients and their technical staffs. We have the unique capabilities to perform in-service load determination and testing of spring hangers and other support systems. Such testing can also detect non-functional support members that show no outward sign of distress or failure. If needed, we compliment that with our piping design engineers to calculate as found stress and creep stress life, ensure safe operation, and determine optimum reinspection intervals.



#### Our comprehensive pipe support service offers the following advantages:

1. Measuring both the dead weight of the pipe and the spring force at each location. This comparison of loads confirms the accuracy of the pipe hanger design loads and checks that all moving parts are functioning. (If needed, we can assist with your pipe modeling or a review of your piping design.)
2. Carrying out weighing in both the cold condition and while the system is on-line. This gives a complete picture of the loading distribution and fluctuation of the piping runs under various combinations of pressure and temperature.
3. Adjustments of the load, within the allowable range of each support unit, to achieve a satisfactory, acceptable balance of loading along a piping run.
4. A comprehensive report upon completion, commenting upon both the physical condition and loading on the pipe supports. Details of any adjustments made with the justification. All reports include results tables, conclusions, and recommendations for any further work to maintain the system in optimum working condition.
5. If needed, complementary services such as displacement, strain, or temperature measurement. This allows the piping stresses to be fully understood and for the piping models to be validated to give you confidence that the system is operating as expected and you can maximize life.

#### For more information on RLM of Pipe Hangers & Piping Loads, contact:

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