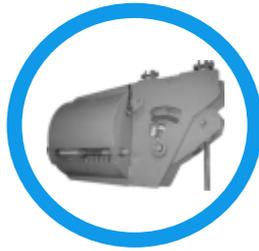
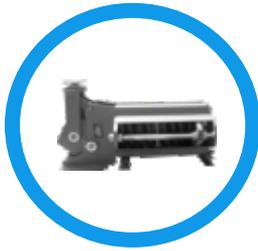


NEWSLETTER

JULY/2015



We at Pipe Hangers and Supports India have been in the field of support manufacture for more than three decades and are a pioneer in this field. In our latest initiative we have started a monthly Newsletter to keep our customers informed of the nuances of hanger and support engineering and also keep them abreast of any developments that we are making in our products and services

We have modelled the first Newsletter as a preamble which describes the basic concepts related to support engineering and the various types of supports.

Pipe supports play an important role in the proper operation of any plant. They have an impact not only on the piping that they support, but also on the equipment to which the piping is connected. It is all the more critical, if the equipment is a rotating equipment such as a pump or a turbine. Hence it is important that the hangers and supports are not only engineered diligently, but also backed up by products of reliable quality.

Hangers and supports engineering is interlinked with two other activities that constitute the mainstay of piping engineering, namely layout engineering and stress analysis. These three activities run concurrently and impact each other tremendously. A convergence of their results is necessary for a properly engineered and functioning piping system. While the functional aspect of supports has a link with stress analysis, the physical configuration relates to layout engineering.



Rigid Supports

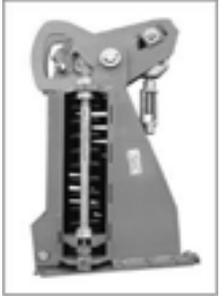
The primary objective of hangers and supports is to support the weight of the piping. This can be satisfied by using rigid supports, which constitute the simplest and least expensive of supports. This works very well for cold systems. The party spoiler in this case is the temperature. The piping systems are heated up by the fluid that they convey which causes the piping to expand. The amount of expansion depends on the property of the pipe material and the temperature of the medium. Rigid supports restrict this expansion, which results in the piping systems being subjected to high stresses. Hence there arises a requirement for other types of supports, which support the weight of the piping and allow the expansion either with or without offering resistance.

The two types of supports that come under this category are variable spring hangers and constant load hangers. Together, they are referred to as spring hangers, as the main component in the case of both these supports is the spring.



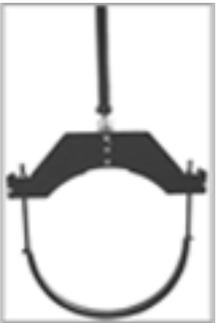
Variable Spring Hanger

The variable spring hanger consists of a simple spring that is directly loaded with the weight of the piping system. Any displacement of the piping system, due to thermal expansion, causes the compression of the spring to either decrease or increase, depending on the direction of the thermal expansion. This results in the spring exerting a force on the piping, the magnitude of which depends on the stiffness of the spring and the amount of thermal displacement. This force acts to limit the thermal displacement of the piping system.



Constant Load Hanger

The constant load hanger, on the other hand, uses a mechanism by which the supporting effort is kept constant, irrespective of the thermal displacement of the piping system. Hence a constant load hanger offers negligible resistance to the thermal movement of the pipe.



Rigid Struts

The traditional rigid supports, which were used to suspend the piping, were basically tie rods with related connecting components. This arrangement is capable of taking only tensile loads. In cases where the thermal displacement causes compressive forces on the support, rigid struts are used.



Snubbers

The piping systems are also subjected to sudden loads such as those due to steam hammer caused by sudden closure of the turbine stop valve, safety valve blowing and seismic events. These loads may require rigid supports to counter them, at locations where thermal expansion cannot be restricted. Shock absorbers or snubbers, as they are also called, are useful in such a situation. They are designed to allow gradual movement, like that caused due to thermal expansion, while restricting sudden movements.

Another widely used support type is the guide, which basically acts to permit the movement in a predetermined direction, while restricting movements in other directions.

We will deal with the individual elements that constitute a particular type of support in our subsequent Newsletters.

We request your valuable feedback on the contents of the Newsletter and also any suggestions for improvement. Please mail us on rc@pipehangers.in

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