



# Pipe Hangers and Supports Pvt. Ltd

## NEWSLETTER- 11

### (Snubber - Chapter -3)

We have seen in the earlier issue “How snubber absorbs thermal movement”.

The 2nd function of snubber is to absorb the Dynamic load (+ve) tensile & (-ve) compressive:

#### **A2. How Dynamic load is absorbed?**

1. We have seen in the earlier issue, that the hydraulic oil flows from one chamber to the other chamber when the flow velocity is very low (happens in the case of thermal movements which are gradual).
2. But when piping experiences sudden surge load (being  $\pm$ , under dynamic condition), load acts very fast.
3. This force makes the hydraulic oil flow at very high velocity (Very Fast) from one chamber to the other.
4. But the fluid **ceases to flow** / does not **take place** as the port is very **TINY &** cannot allow it to flow fast.
5. This causes the Snubber to become RIGID like a strut & thus absorbs the dynamic load.

#### **A3. How Dynamic load is transferred from piping to structure?**

This is very simple to understand- At pipe end, the snubber is normally connected through stiff clamp or trunnion with rear bracket & at structure end connected through rear bracket welded to it. Thus the dynamic load is transferred from pipe to clamp assy through snubber, rear bracket to the structure.(refer illustration given)

Next Let us see –

#### **B. How snubber is selected for a given dynamic load & thermal movements.**

Before going to the selection of snubber, let us understand salient similarities between SPRING assembly & SNUBBER assembly.

<b>Similarities between Spring &amp; snubber for understanding</b>		
<b>Points</b>	<b>Spring Assembly</b>	<b>Snubber assembly</b>
1	Selected to take care of <b>static vertical</b> load in Kg or KN & thermal <b>vertical</b> travel(movement + ve or - ve)mm.	Selected for <b>Dynamic</b> load to which the snubber is to be subjected to {it will be tensile (+ve) & compressive (- ve)} in Kg or KN & the thermal movement ( $\pm$ in X or Y or Z) in the <b>load acting direction of snubber.</b>
2	The total vertical travel of the spring should be sufficiently greater than the given <b>vertical</b> travel (movement)so that it is not top up or bottom out under cold or hot condition.	Available travel(stroke) is sufficient to take care of the given thermal movement (with some travel reserve) ( $\pm$ )value in mm. {+ve in one thermal condition & -ve in another thermal condition}so that it allows the required thermal movement in the <b>load acting direction of snubber ( X or Y or Z)</b>
3	Assembly height is sufficient so that with the lateral & axial movement the angulations is within $\pm 4$ deg	Length of the snubber assembly selected is sufficient so that with the rest of the thermal movements(other than the direction of snubber) the angulations i within $\pm 4$ deg
4	The spring is connected to the pipe & structure by various components like clamp, tie rod, clevis etc.	The snubber is connected to the pipe & structure through Stiff clamp, Rear bracket or welded clevis
5	Spring has various loads & Travel ranges (refer to spring selection chart of any supplier catalogue) for proper selection	Snubber assembly has various loads & strokes (travels) available for appropriate selection. Has length that can accommodate the requirement with suitable extension to a reasonable length (refer to any snubber supplier catalogue selection chart)
6.	Spring takes Different load in hot & cold condition.	Snubber is designed to take Fixed dynamic load & is not the operating loads.

Let us see further in the next issue. Till then BYE!

**About Pipe Hangers:**

## **A Global Solution to Spring Hangers and Supports**

**We are the leading manufacturer of spring hangers, supports & accessories. Over the past 32 years we have supplied to major power plants, refineries, nuclear installations & process industries in India & several International projects.**