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Universal Servo Hydraulic Cylinder test Facility

About

Universal Servo Hydraulic Cylinder test Facility has been designed, manufactured, assembled and supplied by M/s Neometrix Engineering Pvt. Ltd based on Noida, India.



Universal Servo Hydraulic Cylinder test Facility used in sodium piping systems is designed for seismic loading to reduce the seismic induced forces on these piping systems. Nearly 500 numbers of Snubber are installed on various sodium piping with diameters ranging from 15 NB to 800 NB. Load capacity and stroke length of this Snubber vary from 17.5 KN to 240 KN and 140 mm to 245 mm respectively depending on the support locations and size of the piping system. Performance of this Snubber has been tested at factory as a part of quality assurance program during manufacturing. The Snubber is connected to the piping by means of yoke type clamps. In service inspection (ISI) of the installed Snubber needs to be conducted to ensure no degradation of their performance during the

NEOMETRIX DEFENCE LIMITED, E-148, Sector-63, Noida India 201301

Email – contact@neometrixgroup.com, Contact No.- +91-0120-4500800, 7777-876-876

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service life in the reactor. ISI of Snubber is done as per the guidelines of ASME BPVC Section XI Division 3 :- “Rules for Inspection and Testing of Components of Liquid Metal Cooled Plants”. Sample sets of specific number of Snubber are selected for the performance testing during inspection intervals specified as per the ISI program of the plant. A Snubber test facility needs to be installed for this purpose. This document gives the conceptual design and working principle of Snubber test facility for in service performance tests of the Snubber used in the plant.



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TECHNICAL DETAILS

Fully Automatic software Driven Universal Servo Hydraulic Cylinder test Facility.

- ❖ Snubber Designation: Hydraulic/Mechanical
- ❖ Load frame Stiffness: 1500 MN/m
- ❖ Test load: 25 Ton
- ❖ Velocity generating capacity: 0.1 mm/sec to 15 mm/sec
- ❖ Acceleration generating : 250 mm/sec²
- ❖ Length adjustment of the moving beam: 1200 mm
- ❖ Locking of Moveable Beam: positive hydraulic clamp which is locked without hydraulic pressure
- ❖ Stroke Length: 50 mm to 300 mm
- ❖ High precision Servo Actuator capacity: up to 50 Ton.
- ❖ Hydraulic Power Pack capacity: up to 300 bar.
- ❖ Software: Lab view
- ❖ Hardware: NI/PLC



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DESCRIPTION OF TEST

- ❖ Free working test and measurement of stroke.
- ❖ Measurement of drag and break away force.
- ❖ Measurement of blocking Speed and Activation level.
- ❖ Measurement of Drift Speed and Test load.
- ❖ Measurement of spring rate.
- ❖ Measurement of Lost Motion.



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Application

Hydraulic and Mechanical Snubbers are used extensively in sodium piping, nuclear plant, and critical power plant for seismic loading to reduce the seismic induced force on these piping, nuclear reactors etc.

