

ANVIL EPS
ENGINEERED PIPE SUPPORTS

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Rev. 3
Date 3-1-10

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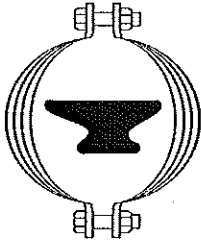
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TITLE:

**INSTALLATION INSTRUCTIONS FOR
ANVIL VARIABLE SPRING HANGERS**

**INSTALLATION INSTRUCTIONS
FOR
ANVIL VARIABLE SPRING HANGERS**



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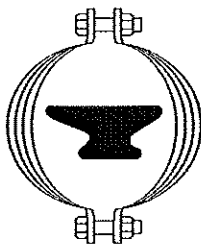
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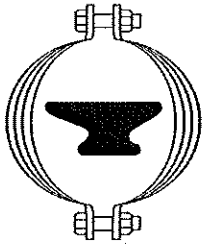
1.0 GENERAL

- 1.1 Anvil Standard Supports are designed and engineered to support piping systems and piping system components. Standard Pipe Supports, either singly or in combination with other standard or special supports, are arranged according to the Hanger Assembly Drawing at each support point. During installation, each assembly shall be installed in the location shown on the Hanger Assembly Drawing, within the tolerances listed. Any deviation outside the allowed tolerances shall be justified by the piping erector.



Use of pipe supports as erection devices or in any applications other than those for which they were designed can cause hanger failure resulting in property damage and personal injury. If in doubt concerning a particular application, contact your Anvil representative.

- 1.2 General support storage and installation instructions are specified in MSS SP-89, Pipe Hangers and Supports, Manufacture and Installation (Manufacturer's Standardization Society of the Valves and Fittings Industry, Inc.), and Anvil Procedure PE-217-1.
- 1.3 Hanger assemblies are pre-assembled as far as practical, except larger Variable Spring Hangers which are shipped separate from the rest of the assembly. Individual cartons, skids, or loose material may weigh up to 2000# per item and may be handled by fork lift.
- 1.4 After final adjustments of the support are made, all threaded fasteners shall have thread engagements which meet the following requirements.
- a. For nuts, clevises, forged turnbuckles, threaded eye nuts, and other similar devices, the male thread shall fully engage the female thread.



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- b. For load couplings and other devices having sight holes, the male thread must be visible in the sight hole. For three hole fabricated turnbuckles, the center hole should be clear. For single hole rod couplings, both male threaded parts must be visible in the sight hole and they must be tightened against each other to prevent loosening.

CAUTION

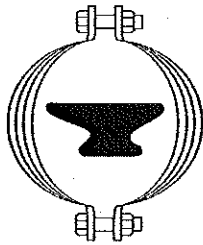
Failure to have proper thread engagement before application of load can result in release of load and possible property damage or personal injury.

- 1.5 Jam nuts are supplied with numerous products to prevent threaded members from turning during erection, adjustment, and service. For proper performance, the jam nuts should be installed hand tight and then wrench tightened at least 1/8 turn. For course threads, where this requirement would be excessive, wrench tight is sufficient. The secureness of the jam nut should be verified after hydrostatic testing.

2.0 VARIABLE SPRING HANGERS

- 2.1 The purpose of Variable Spring Hangers is to provide supporting force for a piping system as it expands from its cold to operating position. With a Variable Spring Hanger the supporting force varies with piping movement.

Dimensions and details of the Variable Spring Hangers are found in the Anvil Pipe Hanger Catalog and in the Anvil Pipe Hangers-Nuclear Qualified DRS/LCD Package.



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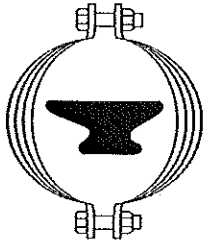
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Each Variable Spring hanger is furnished with a scale which indicates spring deflection and the spring load at that deflection.

A white marker is provided on the hanger to indicate the appropriate "COLD" spring deflection and load corresponding to the cold pipe position. A red marker is similarly placed to correspond with the "HOT" pipe position and load.

2.2 Installing and Setting the Variable Spring Hanger:

- a. Refer to the hanger assembly drawing for piping and structural attachment locations, general arrangements, etc.
- b. Attach the structural attachment to the building structure as indicated on the hanger assembly drawing and attach the Variable Spring Hanger to the structural attachment.
- c. Connect the pipe attachment to the pipe when applicable. Attach the lower rod to the pipe attachment and hanger load coupling. The lower rod for the type E must be pinned or tack welded to the upper nut and coupling.
- d. The hanger rod must be inclined no more than 4° from the vertical, unless otherwise specified on the Hanger Assembly Sketch. Types D and E may accommodate less than 4° of rod swing...depending on size, figure number, and application.



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- e. After all piping is installed, and after hydrostatic testing at ambient temperatures has been performed, all travel stops must be removed. (See *NOTE* below.) This is accomplished by a slight turning of the load coupling (For type D, turn the rod attachment nut at the top of the load column; for type F, turn the load column.) until the stops are loose and can be easily removed. It is suggested that the stops be wired to the hanger for possible future use.

NOTE:

Travel Stops must be removed prior to any testing or cleaning of the system done above ambient temperatures. If this causes greater loads than the design loads, temporary supports must be provided.

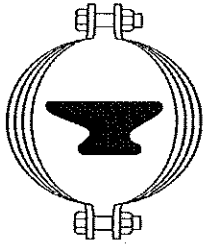
CAUTION

Attempting to remove travel stops without all load removed from the stops can result in property damage or personal injury.

- f. Just prior to the operation of the piping system, a final check of the cold load settings of the Variable Spring Hanger should be performed. The hangers are provided with travel stops factory set to the cold load, so no adjustment in load should be necessary.

If inspection indicates a hanger is not at the "Cold" marking on the hanger casing, turn the load coupling (rod attachment nut for Type D or load column for Type F) of the Variable Spring until the load indicator is at the white, "Cold" marker.

After performing the preceding step, any units which indicate an overload condition to the extent that the spring indicator comes up against either the top or bottom, the piping designer should be notified immediately. No substitution or modification should be made without specific instructions.



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- g. Tighten all jam nuts as specified in Section 1.

2.3 Maintenance

- a. Each hanger must be inspected annually to verify the correct setting of the load indicator. If required, the hangers should be adjusted to the appropriate cold or operating position by turning the load coupling.
- b. All dust, soot, and foreign objects which may impair hanger operation shall be removed. No further maintenance is required.

2.4 Disassembly

- a. Under no circumstances should a Anvil Variable Spring Support be disassembled. The compression spring is precompressed and can cause severe injury.