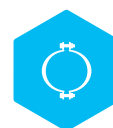


Installation Instructions for Anvil EPS Variable Spring Hangers





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PE-217-82C

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Prep By:

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Brian Matton

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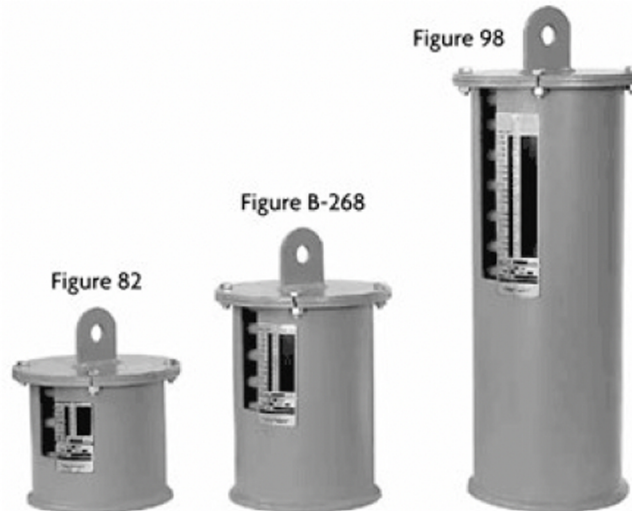
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Commercial Installation Instructions Variable Spring Hangers

Commercial Installation Instructions For



Variable Spring Hangers

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Anvil International to ASC Engineered Solutions



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General Notes

- 1.1 ASC Supports are designed and engineered to support piping systems and piping system components. Pipe supports are to be installed according to the Hanger Assembly Drawing at each support point. Each assembly shall be installed in the location shown on the Hanger Assembly Drawing within the listed tolerances. Any deviation outside the allowed tolerances shall be justified by the piping erector.



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

- 1.2 General support storage and installation instructions are specified in ANSI/MSS SP-58-2009 titled Pipe Hangers and Supports – Materials, Design, Manufacture, Selection, Application, and Installation (Manufacturers Standardization Society of the Valves and Fittings Industry, Inc.), and ASC 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.
 - b. For load couplings and other devices having sight holes, the male thread must be visible in the sight hole. For three hole



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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 tightened against each other to prevent loosening.



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 Hex nuts are supplied with numerous products to prevent threaded members from turning during erection, adjustment, and service. For proper performance, during installation the hex nuts should be hand tightened, and then tightened with a wrench, at least 1/8 of a turn. For course threads, where this requirement would be excessive, wrench tightening is sufficient. The security of the hex nut should be verified after hydrostatic testing.



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2.0 General Installation Instructions

- 2.1 The Variable Spring Hanger provides a supporting force for the piping system as it expands from its cold to operating position. With a Variable Spring Hanger, the supporting force varies according to the piping movement.

Dimensions and details of the Variable Spring Hangers are found in the ASC Pipe Hanger Catalog.

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.

ASC Variable Spring Hangers are pre-compressed to the desired cold setting and incorporate (2) travel stops (see page 6) to maintain this setting during shipment. During hydro testing, the travel stops will also allow the spring to be temporarily overloaded to twice the design load.



AT NO POINT PRIOR TO OR DURING THE INSTALLATION PROCESS SHOULD THE TRAVEL STOPS BE REMOVED. ATTEMPTING TO REMOVE THE TRAVEL STOPS WITHOUT ALL LOAD REMOVED FROM THE STOPS CAN RESULT IN PROPERTY DAMAGE OR PERSONAL INJURY.

Note: Variable Springs can be set in a Hot setting per customer request for operating conditions.

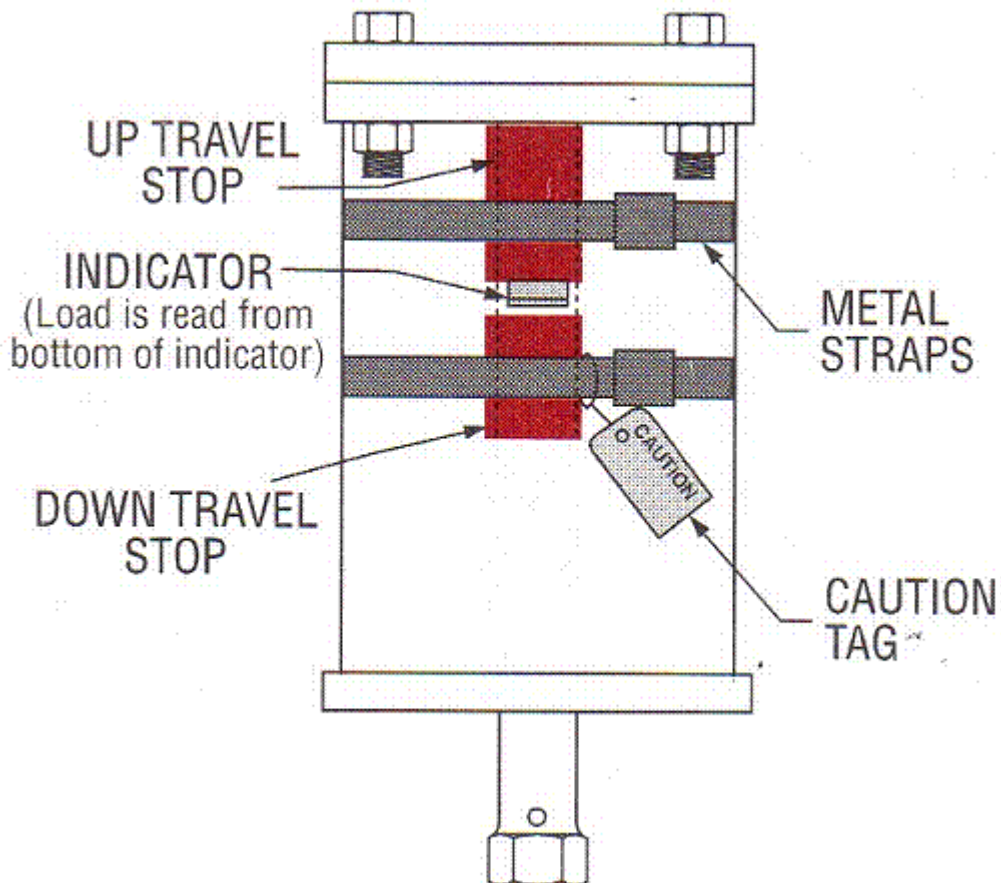


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3.0 Installation Instructions for type A, B, C, and G Springs

Type A, B, C, and G springs are designed to be suspended from the support steel using standard ASC structural attachments and hanger rods.

3.1 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 and attach the Variable Spring Hanger to the structural attachment as indicated on the Hanger Assembly Drawing.
- c. Connect the pipe attachment to the pipe when applicable.
- d. Attach the spring assembly to the pipe attachment as required by the Hanger Assembly Drawing.
- e. The hanger rod must be inclined no more than 4° from the vertical, unless otherwise specified on the Hanger Assembly Drawing.
- f. After all piping is installed and after hydrostatic testing at the 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 until the stops are loose and can easily be removed. It is suggested that the stops be wired to the hanger for possible future use.

NOTE:

Travel stops must be removed before any testing or cleaning of the system above ambient temperatures is done. Should this cause greater loading than the design loads, temporary supports must be provided.



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

- g. 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 factory set to the cold load, so no adjustment in load should be necessary.

If inspection indicates hanger is not at the “Cold” marking on the hanger casing, turn the load coupling of the Variable Spring until the load indicator is at the white “Cold” marker.

After performing the preceding step if any unit indicates an overload condition to the extent that the spring indicator either bottoms or tops out in the range of travel, the piping designer should be notified immediately. No substitution or modification should be made without specific instruction.

- h. Tighten all hex nuts as specified in Section 1.

4.0 Installation Instructions for Type D Springs

Type D springs are designed to rest on back to back channels with adequate clearance to suspend the hanger rod to the pipe between the channels. The Type D spring assembly is supplied with a pipe sleeve spacer and hex nuts. The spacer is placed inside the piston cap in the spring housing for shipment.



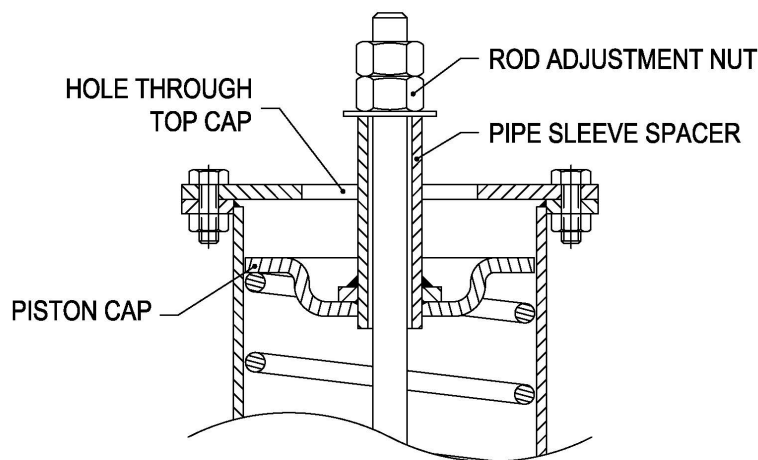
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4.1 Installing and setting the variable spring hanger:

- a. Refer to the Hanger Assembly Drawing for piping and structural attachment locations, general arrangements, etc.
- b. Place the Type D assembly on the support steel as indicated on Hanger Assembly Drawing. The spring housing can be welded to the support steel for stability but is not necessary for function.
- c. Remove the pipe sleeve spacer from the piston cap by reaching into the spring housing from above. Place the spacer with the long end pointing up back into the piston cap. Insert rod through spacer and secure with the rod adjustment (hex) nut. A cutaway view of the top of the spring with the pipe sleeve spacer can be found below
- d. Connect the pipe attachment to the pipe when applicable. Engage all lower components as detailed by the Hanger Assembly Drawing.

TYPE "D" CUTAWAY VIEW





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- e. The hanger rod must be inclined no more than 4° from the vertical, unless otherwise specified on the Hanger Assembly Drawing. Type D assemblies may accommodate less than 4° of rod swing depending on the application.
- f. 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 the rod adjustment nut until the stops are loose and can easily be removed. It is suggested that the stops be wired to the hanger for possible future use.

NOTE:

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



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

- g. 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 factory set to the cold load, so no adjustment in load should be necessary.

If inspection indicates hanger is not at the “Cold” marking on the hanger casing, turn the rod adjustment nut of the Variable Spring until the load indicator is at the white “Cold” marker. After performing the preceding step if any unit indicates an overload condition to the extent that the spring indicator either bottoms or tops out in the range of travel, the piping designer should be notified immediately. No



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substitution or modification should be made without specific instruction.

h. Tighten all hex nuts as specified in Section 1.

5.0 Installation Instructions for Type E Springs

Type E springs are designed to rest on back to back channels with adequate clearance to suspend the hanger rod between the channels to the pipe. The Type E assembly is supplied with a coupling that must be pinned in the field.

5.1 Installing and setting the variable spring hanger:

- a. Refer to the Hanger Assembly Drawing for piping and structural attachment locations, general arrangements, etc.
- b. Place the Type E assembly on the support steel as indicated on Hanger Assembly Drawing. The spring housing can be welded to the support steel for stability but is not necessary for function.
- c. Insert the rod into the piston cap and secure with a hex nut. Attach the coupling to the lower end of the rod.
- d. Connect the pipe attachment to the pipe when applicable. Attach the lower rod to the pipe attachment and hanger load coupling.



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NOTE:

The upper adjustment nut and the connection of the load coupling to the upper rod must be pinned by the customer.

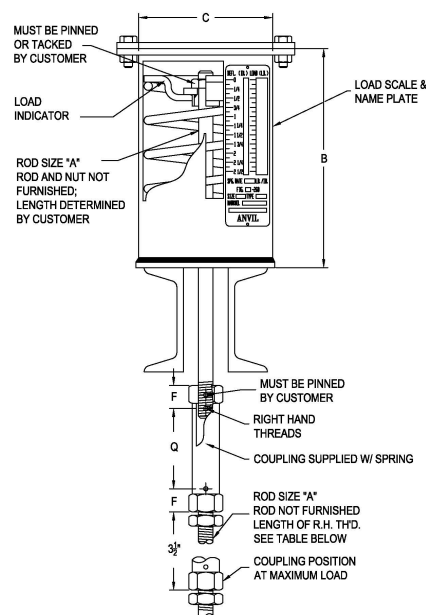


FIG. B-268 TYPE "E"

- e. The hanger rod must be inclined no more than 4° from the vertical, unless otherwise specified on the Hanger Assembly Drawing. Type E assemblies may accommodate less than 4° of rod swing depending on the application.
- f. 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 either the rod adjustment nut or load coupling until the stops are loose and can easily be removed. It is suggested that the stops be wired to the hanger for possible future use.



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NOTE:

Travel stops must be removed before any testing or cleaning of the system above ambient temperatures is done. Should this cause greater loading than the design loads, temporary supports must be provided.

CAUTION

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

- g. 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 factory set to the cold load, so no adjustment in load should be necessary.

If inspection indicates hanger is not at the “Cold” marking on the hanger casing, turn either the rod adjustment nut or the load coupling of the Variable Spring until the load indicator is at the white “Cold” marker.

After performing the preceding step if any unit indicates an overload condition to the extent that the spring indicator either bottoms or tops out in the range of travel, the piping designer should be notified immediately. No substitution or modification should be made without specific instruction.

- h. Tighten all hex nuts as specified in Section 1.



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6.0 Installation Instructions for Type F Springs

Type F springs are designed to be bolted or welded to concrete or support steel, and support the pipe from below.

6.1 Installing and setting the variable spring hanger:

- a. Refer to the Hanger Assembly Drawing for piping and structural attachment locations, general arrangements, etc...
- b. Place the spring assembly on the concrete or support steel and bolt down or weld the assembly base as indicated in the Hanger Assembly Drawing.
- c. Connect the pipe attachment to the pipe when applicable.
- d. 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 column until the stops are loose and can easily be removed. It is suggested that the stops be wired to the hanger for possible future use.

NOTE:

Travel stops must be removed before any testing or cleaning of the system above ambient temperatures is done. Should this cause greater loading than the design loads, temporary supports must be provided.



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



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- e. 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 factory set to the cold load, so no adjustment in load should be necessary.

If inspection indicates hanger is not at the “Cold” marking on the hanger casing, turn the load column of the Variable Spring until the load indicator is at the white “Cold” marker.

After performing the preceding step if any unit indicates an overload condition to the extent that the spring indicator either bottoms or tops out in the range of travel, the piping designer should be notified immediately. No substitution or modification should be made without specific instruction.

7.0 Maintenance

- a. Each hanger must be inspected annually to verify the correct setting of the load indicator. If required, the hangers should be adjusted as instructed in the previous sections.
- b. All dust, soot, and foreign objects which may impair hanger operation shall be removed. No further maintenance is required.

8.0 Disassembly

- a. Under no circumstances should an ASC Variable Spring Support be disassembled. The compression spring is pre-compressed and can cause severe injury.

Rev 1: Updated to reflect company name change from
Anvil International to ASC Engineered Solutions.

About ASC Engineered Solutions

ASC Engineered Solutions is defined by quality—in its products, services and support. With nearly 2,000 employees, the company's portfolio of precision-engineered piping support, valves and connections provides products to more than 4,000 customers across industries, such as mechanical, industrial, fire protection, oil and gas, and commercial and residential construction. Its portfolio of leading brands includes ABZ Valve®, AFCON®, Anvil®, Anvil EPS, Anvil Services, Basic-PSA, Beck®, Catawissa, Cooplet®, FlexHead®, FPPI®, Gruvlok®, J.B. Smith, Merit®, North Alabama Pipe, Quadrant®, SCI®, Sharpe®, SlideLOK®, SPF®, SprinkFLEX®, Trenton Pipe and VEP. With headquarters in Oak Brook, IL, ASC also has ISO 9001:2015 certified production facilities in PA, TN, IL, TX, AL, LA, KS, and RI.



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