



Exploration & Production

GENERAL SPECIFICATION

PIPING VALVES VESSELS

GS PVV 149

Spring hangers and supports

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1. Scope

This specification completes the definition of the materials described in the requisitions issued by the Engineering Company and stipulates the particular conditions for the fabrication, inspection and shipment of variable-lift or constant-lift spring hangers and supports.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
MSS SP 58	Pipe Hangers and Supports - Material and Design

Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
ASME B 31.3	Code for Pressure Piping - Chemical Plant and Petroleum Refinery Piping

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
Not applicable	

3. Description of the materials

The main characteristics of the spring-type hangers and supports, which must appear in the spring hanger schedule issued by the Engineering Company, shall be as follows:

3.1 Identification

3.1.1 Identification number

Each spring-type hanger and support shall be identified by a mounting consisting of a serial number, the identification of the unit or section, and a symbol indicating whether the spring-type hanger and support is of the variable-lift (SV) or constant-lift (SC) type:

Example:

	14	SV	15
Unit or section number	_____	_____	_____
Variable-lift support and hanger	_____	_____	_____
Serial number	_____	_____	_____

3.1.2 Additional information

The identification of the line supported and the identification of the corresponding additional supporting shall be shown together with the identification number of each spring hanger and support.

3.2 Types of supports

- **Suspended support**

The support is installed between the supporting framework or structure and the piping supported (see figure ref. 1 - Appendix 1).

- **Rested support**

The support rests on a framework or structure, and the piping is suspended below it (see figure ref. 2 - Appendix 1).

- **Support under the load**

The support is placed on a framework or structure and the piping is placed on the support (see figure ref. 3 - Appendix 1).

Each of these three types of supports shall have a particular symbol that shall be followed by a letter indicating the principle of attachment, the principle of adjustment, or the position of the centreline of the springs of the hanger and support.

The symbol appearing in the Vendor 's catalogue may be used.

3.3 Displacement

This indicated displacement shall be that of the piping at the point of support when it moves from its erection position to the service position. This displacement may be negative (downward) or positive (upwards).

3.4 Unit load in service

The load indicated shall be that of the piping in service.

3.5 Load during hydraulic test

The load indicated is that to be supported with the piping undergoing the hydraulic test and the spring hanger and support blocked. The hydrostatic load shall be assumed as being equal to twice the operating load, unless specified otherwise on the Spring Hanger Schedule.

4. Details of design and fabrication

4.1 Safety factor

Except for the springs themselves, all parts (housing, accessor-housing, accessories, temporary locking system, etc.) shall be designed with a safety factor of 4.

4.2 Displacement

When the displacement of the piping, between the erection and the service position, at its point of support, is greater than 40 mm, constant-lift hangers and supports shall be given preference over variable-lift hangers and supports.

4.3 Unit load in service

4.3.1 Variable-lift spring hanger and support

The variation in the reaction of the spring between the erection position and the service position must not exceed 20% of the service load.

4.3.2 Constant-lift spring hanger and support

The load adjustment system allowing for a variation of $\pm 10\%$ of the nominal load shall be provided.

The maximum load variation for the anticipated travel must be less than or equal to $\pm 2.5\%$.

4.4 Calibration of the springs

The springs be calibrated at the works and immobilised in the erection position using a temporary locking system for the primary purpose of avoiding compression of the springs by the surcharge load imposed by the hydraulic test.

The system shall be design to withstand the static load of the hydraulic test. In the absence of information concerning this load, a load equal to twice the unit service load must be assumed.

The removable parts of the temporary locking system must be attached to the housing by a short chain.

4.5 Position markings

The spring hangers and support shall be provided with position indicators.

The erection and service positions and the corresponding load values shall be indelibly marked (stamped) on the housing of the spring hanger and support.

4.6 Accessories

The Engineering Company shall stipulate the spring hanger and support accessories (tensioners, studs, nuts, etc.), which shall be supplied by the Vendor.

5. Inspection

5.1 Quality control

This control, intended to confirm that the products meet the requirements of the order, shall be carried out in Vendor 's works by personnel of the works. The specially qualified personnel, shall be independent of the production departments of the plant.

The Inspection Agency shall conduct inspections in the Vendor 's plant so as to make sure of the proper execution of the order and of the quality control. It shall also witness final shop acceptance.

5.2 Acceptance

The Inspection Agency shall check the quantities submitted and shall check the following characteristics by sampling:

- Shapes and nominal dimensions
- Dimensional tolerances
- Calibration and locking in the erection position
- Accessories
- Markings.

The non-conformity specifications of all or any of the products submitted for acceptance may give rise:

- Either to resubmission after the products have been brought up to specification, if possible
- Or to final rejection.

6. Preparation for shipment

6.1 Marking

The following information shall be marked by stamping on a plate securely attached to each spring hanger and support housing:

- The identification and type
- The unit load in service
- The hydrotest load
- The displacement
- The order number, including the identification of the contract
- The Vendor 's name.



6.2 Protection

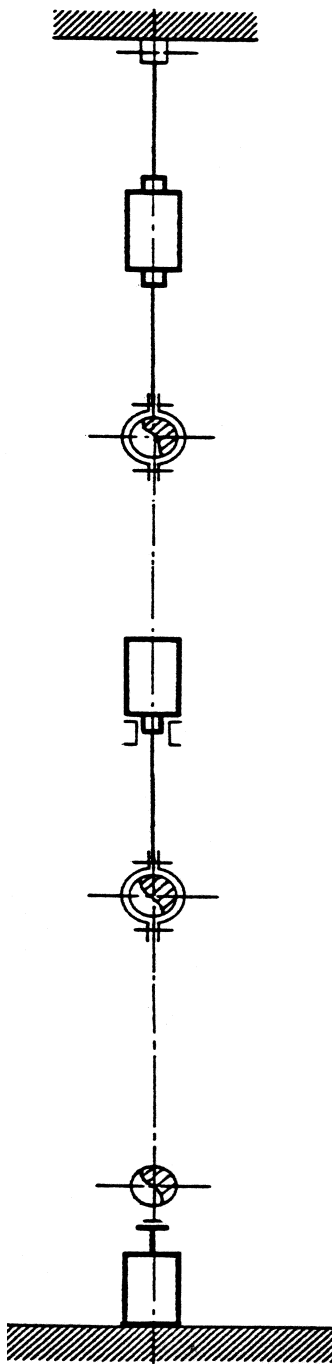
The housings shall be painted; the springs themselves and all threaded portions shall be greased.

6.3 Packing

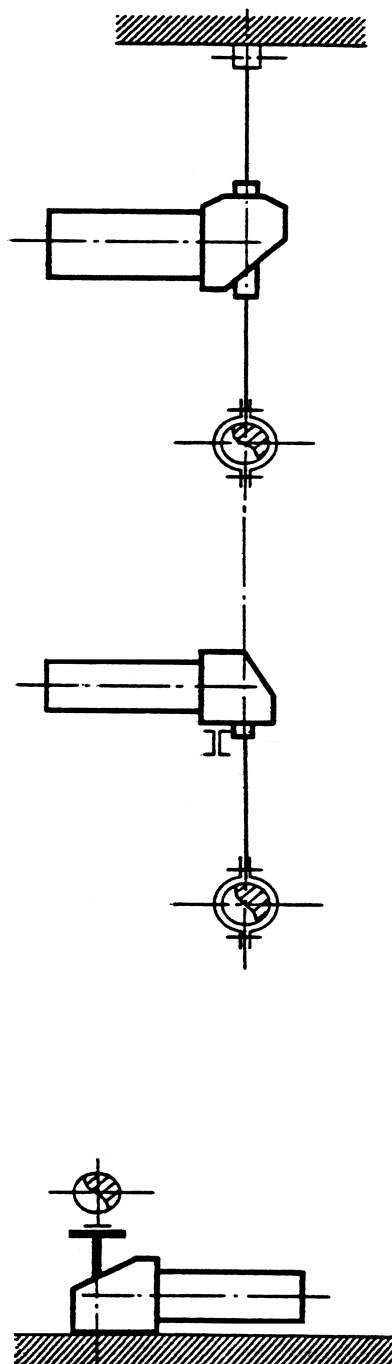
Spring hangers and supports and their accessories must be waterproof and meet the requirements of all stages of transport (rail, road, air and sea).

Appendix 1

Variable-lift spring hangers and supports



Constant lift spring hangers and supports



Figures - Ref. 1
Suspended support

Figures - Ref. 2
Rested support

Figures - Ref. 3
Support under the load