MIL-V-22682A(SHIPS)
28 March 1961
SUPERSEDING
MIL-V-22682(SHIPS)
14 October 1960

MILITARY SPECIFICATION

VALVES, ASTERN (FOR SHIPBOARD USE)

1. SCOPE

1.1 Scope.- This specification covers manually operated astern valves for the control of steam to the astern element of a main propulsion turbine.

1.2 Classification.- Valve assemblies shall be one of the following compositions as specified (see 6.2):

Composition A:
Chromium - 2-1/4 percent.
Molybdenum - 1 percent.
Composition B:
Chromium - 1-1/4 percent.
Molybdenum - 1/2 percent.
Composition C:
Carbon Molybdenum steel.
Composition D:
Carbon steel.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on the date of invitation for bids, form a part of this specification to the extent specified herein:

SPECIFICATIONS

MILITARY

MIL-S-901 - *Shockproof Equipment*, Class HI (High-Impact), Shipboard Application, Tests for.
MIL-D-963 - Drawings, Electrical, Hull and Mechanical Equipment for Naval Shipboard Use.
MIL-M-15071 - Manual, Technical, for Mechanical and Electrical Equipment (Less Electronics).
MIL-P-15137 - Provisioning and Technical Documentation for Repair Parts for Electrical and Mechanical Equipment (Naval Shipboard Use).
MIL-R-17131 - Rods, Welding, Surfacing.
MIL-P-17286 - Propulsion and Auxiliary Steam Turbines and Gears (Including Repair Parts, Tools, Accessories and Instruments); Packaging of.
MIL-G-21032 - Gaskets, Metallic-Asbestos, Spiral Wound (For ASA Commercial Flanged Joints in Piping Systems) (Identification Symbol 2410).

STANDARDS

MILITARY

MIL-STD-167 - Mechanical Vibrations of Shipboard Equipment.
MIL-STD-271 - Nondestructive Testing Requirements for Metals.
MIL-STD-278 - Welding and Allied Processes for Machinery for Ships of the United States Navy.

DRAWINGS

BUREAU OF SHIPS

B-214 - Root Connections for Attaching Piping.

PUBLICATIONS

BUREAU OF SHIPS

NAVSHIPS 250-692-13 - Radiographic Standards for Steel Castings.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer).

2.2 Other publications.- The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Boiler and Pressure Vessel Code
Section I - Power Boilers.
Section II - Material Specification.
Section III - Rules for Construction of Unfired Pressure Vessels.

(Application for copies should be addressed to the *American Society of Mechanical Engineers*, 29 West 39th Street, New York 18, N.Y.)

AMERICAN SOCIETY FOR TESTING MATERIALS

A 105 - Forged or Rolled Steel Pipe Flanges. Forged Fittings and Valves and Parts for High-Temperature Service.

A 106 - Seamless Carbon-Steel Pipe for High-Temperature Service.
A 182 - Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service.
A 216 - Carbon-Steel Castings Suitable for Fusion Welding for High-Temperature Service.
A 217 - Alloy Steel Castings for Pressure Containing Parts Suitable for High-Temperature Service.
A 335 - Seamless Ferritic Alloy Steel Pipe for High-Temperature Service.

(Application for copies should be addressed to the American Society for Testing Materials, 1916 Race Street, Philadelphia, Pa.)

AMERICAN STANDARDS ASSOCIATION
B16.5 - Steel Pipe Flange and Flanged Fittings.

(Application for copies should be addressed to the American Standards Association, 70 East 45th Street, New York 17, N.Y.)

OFFICIAL CLASSIFICATION COMMITTEE
Uniform Freight Classification Rules.

(Application for copies should be addressed to the Official Classification Committee, 1 Park Avenue at 33rd Street, New York 16, N.Y.)

3. REQUIREMENTS

3.1 Materials. -

3.1.1 Materials shall be as specified in table I. - Materials for parts other than those listed in table I shall be suitable for the intended pressures and temperatures and shall be selected so as to prevent galling, seizing or excessive wear on operating parts. Clearances shall be such as to prevent interferences due to thermal expansion.

Table I - Materials

Name of parts	Materials form	Composition A	Composition B	Composition C	Composition D
		Applicable documents			
Body	Forgings or Castings	ASTM Publication A 182, grade F22	ASTM Publication A 182, grade F11	ASTM Publication A 182, grade F11	ASTM Publication A 105, grade II
Bonnet		ASTM Publication A 217, grade WC-9	ASTM Publication A 217, grade WC6	ASTM Publication A 217, grade WC1	ASTM Publication A 216, grade WCB
Yoke	Forgings or Castings	ASTM Publication A 182, grades F 22 or F 11 ASTM Publication A 105, grade II			
Retaining ring		ASTM Publication A 217, grades WC 9 or WC 6 ASTM Publication A 216, grade WCB			
Gaskets (Bonnet)	Spiral wound	Specification MIL-G-21032, type I			
Nuts, Bolts, washers, bushings, liners and similar items	All materials used in the construction of these parts shall be of the quality best suited for the purpose and shall be strictly in accordance with the material specifications shown on the approved drawing.				
Valve trim	Unless otherwise specified in the contract or order, valve trim shall be as specified herein (see 3.2.12.3).				

3.1.2 The use of magnesium alloys is not permitted. Cast iron and aluminum may be used only with specific approval from the bureau or agency concerned.

3.2 Design and construction. -

3.2.1 Pressure - temperature ratings. - The design of valve bodies shall be in accordance with Section I, II and VIII of the ASME Boiler and Pressure Vessel Code. The design pressure shall be equal to 1.05 times system design pressure (see 6.2) and the design temperature shall be 10°F. plus system design temperature (see 6.2).

3.2.1.1 Maximum temperature limitations. - Maximum temperature limitations of valve materials shall be as follows: (see 6.2).

(a) Composition A - 1050°F.
(b) Composition B - 1000°F.
(c) Composition B or C - 875°F.
(d) Composition D - 775°F. and below.

3.2.2 End connections. - Whenever an astern valve is intended to be used as a piping system anchor point (see 6.2), the following design criteria shall apply:

(a) Valve end connections shall be designed to withstand the forces and moments imposed by the connecting pipe to which they are attached. For design purposes, the maximum value of the fiber stress in the connecting pipe produced by these forces and moments shall be considered to be equal to 0.2 percent offset yield stress of the piping material at design operating temperature.

When an astern valve is not to be employed as a piping anchor, the end connections shall be designed in accordance with the criteria specified in 3.2.1. Information as to whether or not the astern valve is to be used as an anchor point, should be furnished by the shipbuilder.

3.2.3 End preparation. - End preparation shall be as specified (see 6.2). Both welding end preparation (scarfing) or flanges shall be in accordance with ASA Publication B16.5.

3.2.4 Drain and leakoff connections. -

3.2.4.1 Size of drains. - Standard drain sizes shall be as shown in table II. Non-standard sizes shall be as specified (see 6.2).

Table II - Standard drain sizes

Valve size (inches)	Drain size (inches)	
	600 p.s.i. and below	Above 600 p.s.i.
5 and below	3/4	1
6 to 8	1	1
10 and higher	1-1/4	1-1/4

3.2.4.2 Location of drains. - There shall always be one above seat drain. A below seat drain will be required only when the valve shape or position will not permit drainage of below seat areas. These drains shall be located in a manner that will permit adequate drainage of all pressure containing parts.

3.2.4.3 Drain root connections. - Drain root connections shall be as shown on Drawing B-214 except that the materials for these lines shall be as follows:

(a) Composition A - ASTM Publication A-335, grade P22.
(b) Composition B - ASTM Publication A-335, grade P11.
(c) Composition D - ASTM Publication A-106, grade B.

3.2.4.4 Leak-off connection. - Stuffing box leak-off connections shall be flanged root connections with a full penetration "J" type weld at the root connection and a socket weld connection at the flange. Root connections shall conform to Drawing B-214. The size, schedule and pressure-rating of pipe and flange shall be sized by the manufacturer based on leak-off flow.

3.2.5 Body pattern. - The body pattern, globe or angle, shall be as specified (see 6.2).

3.2.6 Port arrangement. - Unless otherwise specified (see 6.2), the port arrangement on globe valves shall be in-line.

3.2.7 Weights and center of gravity. - The vendor shall supply a calculated weight with his proposal. After completion of the first valve, a weighed dry weight shall be shown on the cross-section drawing. The vendor shall supply center of gravity information for valves weighing in excess of 200 pounds when required (see 6.2). The estimated center of gravity location shall be shown on the proposal drawing and the calculated center of gravity shall be shown on the design drawings submitted for approval to the bureau or agency concerned.

3.2.8 Face-to-face and end-to-end dimensions. - Face-to-face and end-to-end dimensions shall be dependent upon the requirements of installation and overall design of the valve body. They shall be kept to a minimum consistent with the manufacturers general design practices.

3.2.9 Shock and vibration. -

3.2.9.1 Shock. - The valve shall be designed so that it will not be damaged or caused to malfunction by the shock loadings encountered aboard ship, such as those resulting from noncontact underwater explosions.

3.2.9.1.1 Valves shall be shock tested as specified in 4.4.1.5.1.

3.2.9.1.2 When shock testing is not performed, shockproofness shall be verified by calculations based on the shock design numbers determined by multiplying the weight of the element by the shock design number shown on figure 1. Stresses due to shock forces are to be calculated for each of the three principal directions (vertical, athwartships and fore-and-aft). The stress for each direction shall be calculated separately and the stresses, due to different directions of shock, shall not be combined. Shock stresses shall be combined with design pressure stresses and stresses produced by continuous normal operation, but shall not be combined with thermal stresses produced by operations such as the opening and closing of a valve. Stress concentration factors need not be employed in shock stress calculations. Shock stresses combined with other stresses as described above shall not exceed the 0.2 percent offset yield strength of the material at operating temperature.

3.2.9.2 Vibration. - Valves shall be designed so that they will not be adversely effected by externally imposed vibrations of up to and including 33 cycles per second (c.p.s.) when tested as specified in 4.4.1.5.2.

3.2.10 Bonnet and yoke construction. -

3.2.10.1 Pressure seal and breech lock bonnets. - Valves with design pressure ratings higher than 600 pounds per square inch gage (p.s.i.g) or which are over 5 inches in size shall have pressure seal or breech lock bonnets.

3.2.10.1.1 Threads. - When retaining rings are threaded, the threads shall be either chromium or nickel plated.

3.2.10.1.2 Bonnet seal rings. - Bonnet seal rings shall be designed to provide a seal either by plastic or elastic expansion. Where a seal is obtained by means of plastic expansion, the seal ring shall be a Brinell hardness number (BHN) of 100 maximum. Where a seal is obtained by means of elastic expansion, the seal ring shall have a BHN of 130 maximum. The bonnet seal ring region of the valve body shall be inlayed with either stellite or corrosion-resisting steel. Where considered necessary by the manufacturer, the seal ring region of the bonnet shall also be provided with a stellite or corrosion-resisting steel overlay. When rings are not fabricated from a corrosion-resistant material, the rings shall be plated with either silver or nickel.

3.2.10.2 Flanged bonnets. - Valves rated at 600 p.s.i.g. and below, or are below 6 inches in size, shall have bonnets secured by stud bolts or through bolts that have relatively constant strength throughout their entire length. Valves with flanged bonnet construction shall incorporate the following features:

(a) Bonnet alignment shall be obtained by body guiding; that is, a close tolerance fit between the bonnet and valve body. The bonnet shall not be aligned by means of the bonnet studs.
(b) Flange face design shall assure proper compression of the flange gasket when the body and bonnet flanges are drawn up metal-to-metal.
(c) Spiral wound gaskets in accordance with table I.

3.2.10.3 Yoke construction. - All valves shall be of the outside screw and yoke design.

3.2.11 Valve stem seals. -

3.2.11.1 Type of valve stem seals. - Valve stem seals shall be of the labyrinth or smooth bore type.

3.2.12 Trim. -

3.2.12.1 Stem. - Valve stems and toggle stems, where provided for mechanical actuation, shall have Acme type threads.

3.2.12.2 Valve disc assembly. - The valve disc assembly shall consist of a main disc and pilot disc when a pilot disc is also provided. This assembly shall always be top guided and should be bottom guided when such construction is deemed necessary. The design of the assembly shall be governed by the requirements specified in 3.2.12 and 3.2.15.

3.2.12.2.1 Valves shall be designed so that steam pressure tends to close the valve and counter clockwise rotation of the handwheel opens the valve.

3.2.12.2.2 Semi-balanced disc design. - When semi-balanced design is provided, the main disc shall be a semi-balanced element with the unbalance such that steam pressure tends to close the valve. The pressure balance shall be controlled by means of an internal pilot which is operated by the valve stem. The amount of unbalance shall be adjustable and shall be controlled by a variable orifice in the balance chamber. Fixed orifice design shall be acceptable only when the valve has previously demonstrated satisfactory performance. For all new valve designs, the variable orifice design shall be mandatory. When variable orifice design is provided, the control of the orifice opening shall be obtained by external means. After the final adjustments have been made, the external control device shall be hermetically seal welded. Provision shall be made to permit this seal welding.

3.2.12.2.3 Main seat construction. - Seats may be of any of the following constructions (see 6.2):

(a) Integral
(b) Threaded
(c) Welded in

When threaded construction is used, the seat ring shall be seal welded circumferentially.

3.2.12.3 Valve trim material. - Unless otherwise specified (see 6.2), main and pilot valve trim materials shall be as follows:

Stem - Corrosion-resisting steel - Cr 13
Disc - Hard facing (HF)
Seat - HF

3.2.12.3.1 Hard facing. - Welding rods shall be in accordance with type MIL-RCoCr-A of Specification MIL-R-17131. The minimum finished thickness of HF seating surfaces shall be 3/32 inch.

3.2.13 Valve handwheels (operational requirements). - The valve shall be designed so that a force of not more than 30 pounds is required to open the valve. This force shall be measured at the rim of the handwheel which, for design purposes, shall be assumed to be 18 inches in diameter and located at the valve. The number of turns required to fully stroke the valve shall be a minimum of 15 and a maximum of 40.

3.2.13.1 If a design analysis indicates that these optimum operational requirements cannot be met without producing an adverse effect on the overall design of the valve, the bureau or agency concerned should be notified in order that a satisfactory compromise of this criteria can be made.

3.2.14 Valve stem indicator. - A valve stem indicator shall be provided on the valve and shall be located as approved by the bureau or agency concerned.

3.2.15 Design criteria. -

3.2.15.1 Capacity. - The valve capacity shall be specified by the turbine manufacturer (see 6.2).

3.2.15.2 Pressure drop. - The allowable pressure drop across the valve shall be specified by the turbine manufacturer (see 6.2).

3.2.16 Seat leakage. - Valves shall be tight when tested in accordance with 4.3.1.2.

3.2.17 Welding and fabrication. -

3.2.17.1 Welding. - Welding shall be in accordance with Standard MIL-STD-278.

3.2.17.2 Fabrication. - Fabricated assemblies shall be stress relieved as units prior to finish machining. The stress relieving shall be done in accordance with Standard MIL-STD-278.

3.3 Markings. -

3.3.1 Body markings. - All valve bodies shall have the pressure rating, a flow directional arrow and manufacturer's name or trademark cast of forged integral with the valve body. When necessary, metal stamping shall be permitted on the neck of the valve body or other similar surfaces not subjected to high stresses in service.

3.3.2 Identification plates. - All valves shall bear an identification plate made of corrosion-resisting steel or brass. Identification plates shall be permanently fastened to a part of the valve not subjected to working pressure, preferably the yoke. Drawings of the proposed identification plates shall be approved by the bureau or agency concerned prior to their manufacture, and should include the following data or a space therefor:

(a) Manufacturer's name or trademark.
(b) Size of valve.
(c) Body material composition and rating.
(d) Valve trim identification (STEM-DISC-SEAT) (see 3.2.12.3).
(e) Manufacturer's identification number (optional).
(f) Manufacturer's drawing number.
(g) Specification MIL-V-22682(SHIPS).
(h) Hydrostatic pressure.

3.4 Repair parts. -

3.4.1 Repair parts shall be as specified in table III and shall be shipped as onboard repair parts upon receipt of stock numbers from the bureau or agency concerned.

Table III - Repair parts.

Item	Quantities
Gaskets, and bonnet seal rings.	Two sets of each applicable item per valve ordered.
Item Bushing	One per each valve ordered
Valve disc and stem assembly.	One complete assembly per ship.

3.4.2 Repair parts (and special tools if required). - When specified (see 6.2), repair parts (and special tools if required) shall be listed in accordance with Specification MIL-P-15137. Special tools are defined as those tools not listed in the Navy Stock List of General Stores. (Copies of this stock list may be consulted in the office of the Government inspector).

3.5 Drawings. -

3.5.1 Preliminary drawings. - Within 30-days after award of contract, the contractor shall submit to the bureau or agency concerned preliminary drawings in accordance with 3.5.2 that are sufficient to permit an evaluation of the design and approval of materials (see 3.5.1.1). These drawings shall be detail assembly drawings and shall show the following:

(a) A sectional assembly of the valve and details of the seat, disc, and stem assembly and nameplate.
(b) Bill of material, listing specifications, grade and condition, or other data adequate to identify the materials proposed.
(c) Dimensions - overall, accessibility space including disassembly clearances and all dimensions pertinent to installation.
(d) Surface finishes - show finish marks for all stellited areas and bearing surfaces.
(e) Note design and performance characteristics, weight (wet and dry), any limitation on installation and previous approval for shock and vibration when applicable.
(f) Note previous operational testing or actual usage.
(g) Welding procedure for seal rings shall include the following:

(1) Detail of weld.
(2) Welding process.
(3) Welding current (where applicable).
(4) Filler metal.
(5) Preparation.
(6) Interpass temperature.
(7) Technique.
(8) Post heat treatment.
(9) Provide a table listing size of weld, number of passes, electrode diameter and welding characteristics.

(h) Note visual, dimensional and non-destructive testing requirements.

3.5.1.1 If a contractor proposes to furnish equipment which previously has been supplied and for which the bureau or agency concerned has approved drawings on record, reference to the approved drawings will be acceptable in lieu of submitting preliminary drawings.

3.5.2 Final drawings. - When specified (see 6.2), detail assembly drawings shall be submitted to the bureau or agency concerned by the contractor for completion of contract or order. These drawings shall be in accordance with Specification MIL-D-963 except for the extent of detail. Only the information required on the preliminary drawings need be furnished. The cognizant inspector shall validate final drawings after receipt of approved preliminary drawing.

3.6 Technical manuals. - When specified (see 6.2), technical manuals shall be in accordance with type III of Specification MIL-M-15071.

4. QUALITY ASSURANCE PROVISIONS

4.1 The supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examination and tests shall be kept complete and available to the Government as specified in the contract or order. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Non-destructive inspection. -

4.2.1 Examination. - Each valve shall be examined to verify conformance with all the requirements of this specification not involving tests.

4.2.2 Pressure containing castings of valves shall be 100 percent radiographically inspected. Inspection shall be in accordance with Standard MIL-STD-271 and Publication NAVSHIPS 250-692-13. Sections less than 1 inch in thickness shall meet class 1 requirements of Publication NAVSHIPS 250-692-13. Sections with thickness 1 inch and over shall meet class 2 requirements of Publication NAVSHIPS 250-692-13.

4.2.3 Pressure containing forgings of valves shall be 100 percent magnetic particle inspected in accordance with Standard MIL-STD-271. Forgings shall be free from flaws such as seams, cracks, laps, porosity, scale, flakes, and all other defects detrimentally affecting the suitability of the forging for the service intended.

4.2.4 Defects to be repaired. - The following shall apply to those parts inspected in accordance with 4.2.3:

(a) Defects less than 0.030 inch in depth need not be repaired provided the bottom of the defect is rounded and visible and the minimum wall thickness is maintained.
(b) Defects greater than 0.030 inch in depth but less than 15 percent of the wall thickness shall be repaired by removing the defective material. This material shall be removed by drilling or grinding to a bottom radius of at least three times the depth of the defect. The depth of the finished repair shall be less than 15 percent of the undamaged wall thickness. All sharp corners shall be faired into

the base metal. Welding is not required to effect a repair of this nature, provided the minimum wall thickness is maintained.

(c) All defects greater than 15 percent of the wall thickness shall be repaired by removing the defective material and welding. The material shall be removed by grinding or drilling and then welded in accordance with 3.2.17.1. The crown of the weld shall be blended into the base metal.

4.2.5 Stellited seating. - Stellited seating surfaces and adjacent surfaces shall be liquid penetrant inspected in accordance with Standard MIL-STD-271 after rough machining and shall be free of cracks or crack like defects.

4.2.6 Material inspection. - Material inspection shall be determined as follows:

4.2.6.1 Pressure containing parts shall be inspected to determine their conformance with the applicable material specification.

4.2.6.2 The inspector shall normally accept certification that nonpressure containing parts conform to their applicable material specification providing that such certification contains actual test, inspection, or other verifiable quality data.

4.2.6.3 When there is a question relative to material identification, the inspector may make a chemical analysis and mechanical tests as he deems necessary to establish complete identity and overall quality.

4.3 Tests. -

4.3.1 Hydrostatic tests. - Each valve shall be subjected to the tests specified in 4.3.1.1 for strength and porosity and the tests specified in 4.3.1.2 for tightness. The water temperature for hydrostatic testing shall not exceed 100°F.

4.3.1.1 Shell test. - Valves shall be subjected to pressures determined by the following formula for a duration of 10 minutes (min). Any weeping, leakage, or permanent deformation shall be cause for rejection.

$$P_h = \frac{1.5(P_d \times S_r)}{S_o}$$

Where:

P_h = Required hydrostatic pressure (p.s.i.g.)
P_d = Design pressure of the valve (p.s.i.g.)
S_o = Allowable stress at design temperature (p.s.i.)
S_r = Allowable stress at room temperature (p.s.i.)

4.3.1.2 Seat tightness. - Valves shall be pressurized on the inlet side of the disc with steam and examined for seat tightness. Duration of the test shall be 3 minutes (minimum). Test pressure shall be equal to the design pressure of the valve. There shall be no visible signs of leakage. Any visible leakage shall be cause for rejection. The maximum allowable force to seat the valve during this test shall not exceed 30 pounds, measured at the rim of the handwheel on the valve.

4.4 Operational tests. - Operational tests shall be conducted at a laboratory satisfactory to the Bureau of Ships. These tests shall be those specified in 4.4.1, unless previous valves of the same or similar design have demonstrated satisfactory performance (see 6.2); in which case these tests shall not be required.

4.4.1 Operation. - Steam at system design pressure and temperature shall be passed through the valve in the open position for a period of 3 hours with flows simulating shipboard conditions where possible. The valve shall be cycled 50 times during the 3 hour steaming period. One cycle of operation is defined as a full opening and a full closing. The required stem operating force shall be checked periodically throughout the 50 cycle operation test.

4.4.1.1 Main seat leakage. - With valve in closed position, steam at system design pressure and temperature shall be applied to inlet side of disc. There shall be no visible steam leakage during this test.

4.4.1.2 Stem leakage flow. - With valve in the closed position, steam flow through stem leak-off shall be recorded.

4.4.1.3 Flow versus pressure drop data. - The flow versus pressure drop data shall be obtained at any convenient test conditions.

4.4.1.4 Examination after testing. - The test valve shall be disassembled and shall be visually and dimensionally examined for damage and wear.

4.4.1.5 Shock and vibration. -

4.4.1.5.1 Shock. - When specified (see 6.2) one valve of each new design shall be tested in accordance with Specification MIL-S-901.

4.4.1.5.2 Vibration. - When specified (see 6.2) valves shall be tested in accordance with Standard MIL-STD-167.

5. PREPARATION FOR DELIVERY

5.1 Domestic shipment and early equipment installation and for storage of shipboard repair parts. -

5.1.1 Valves.-

5.1.1.1 Preservation and packaging.- Preservation and packaging shall be sufficient to afford adequate protection against corrosion, deterioration and physical damage during shipment from the supply source to the using activity and until early installation.

5.1.1.2 Packing.- Packing shall be accomplished in a manner which will insure acceptance by common carrier and will afford protection against physical and mechanical damage during direct shipment from the supply source to the using activity for early installation. The shipping containers or method of packing shall conform to the Uniform Freight Classification Rules and Regulations or other carrier regulations as applicable to the mode of transportation.

5.1.1.3 Marking.- Shipment marking information shall be provided on interior packages and exterior shipping containers in accordance with the contractor's commercial practice. The information shall include nomenclature, Federal stock number or manufacturer's part number, contract or order number, contractor's name and destination.

5.1.2 Shipboard repair parts.- Shipboard repair parts shall be preserved and packaged level A; packed level C and marked levels A and C respectively in accordance with Specification MIL-P-17286.

5.2 Domestic shipment and storage or overseas shipment.- The requirements and levels of preservation, packaging, packing and marking for shipment shall be specified by the procuring activity (see 6.2).

(5.2.1 The following provides various levels of protection during domestic shipment and storage or overseas shipment, which may be required when procurement is made.

5.2.1.1 Preservation, packaging, packing and marking.- Valves, repair parts, tools, technical manuals and drawings shall be preserved, packaged, packed and marked for the levels specified in accordance with Specification MIL-P-17286).

6. NOTES

6.1 Intended use.- Globe or angle valves covered by this specification, are intended for use as astern throttle valves only.

6.2 Ordering data.- Procurement documents should specify the following:

(a) Title, number and date of this specification.
(b) Composition required (see 1.2).
(c) System design pressure and system design temperature (see 3.2.1).
(d) Maximum temperature limitations (see 3.2.1.1).
(e) When valve is to be used as a piping system anchor point (information to be furnished by the shipbuilder) (see 3.2.2).
(f) End preparation (see 3.2.3).
(g) Non-standard sizes of drains (see 3.2.4.1).
(h) Body pattern required (see 3.2.5).
(i) Port arrangement (see 3.2.6).
(j) When center of gravity information is required from vendor (see 3.2.7).
(k) Main seat construction (see 3.2.12.2.3).
(l) Valve trim materials (see 3.2.12.3).
(m) Capacity (to be furnished by the turbine manufacturer) (see 3.2.15.1).
(n) Allowable pressure drop across the valve (to be specified by the turbine manufacturer) (see 3.2.15.2).
(o) Repair parts (and special tools) listings (see 3.4.2).
(p) When final drawings are required (see 3.5.2).
(q) Technical manuals required (see 3.6).
(r) When operational tests are required (see 4.4).
(s) When shock tests should be performed (see 4.4.1.5.1).
(t) When vibration tests should be performed (see 4.4.1.5.2).
(u) Preservation, packaging, packing or marking requirements other than those required by paragraph 5.1 (see 5.2).

Preparing activity:
Navy - Ships
(Project 4820-N064Sh)

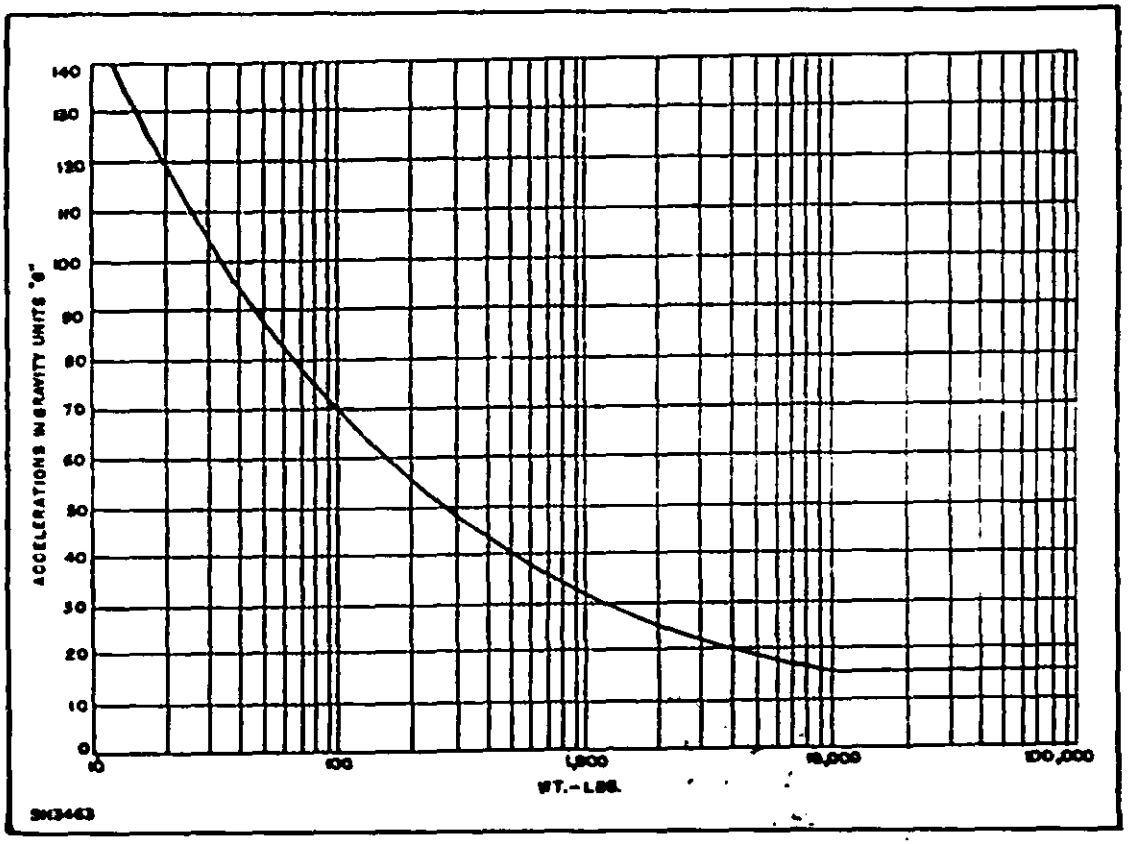

Figure 1 - HI shock design data.

SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 119-R004

INSTRUCTIONS

This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity *(as indicated on reverse hereof)*.

SPECIFICATION

ORGANIZATION *(Of submitter)*

CITY AND STATE

CONTRACT NO.

QUANTITY OF ITEM PROCURED

DOLLAR AMOUNT
$

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

a. GIVE PARAGRAPH NUMBER AND WORDING.

b. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

☐ YES ☐ NO IF "YES", IN WHAT WAY?

4. REMARKS *(Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)*

SUBMITTED BY *(Printed or typed name and activity)*

DATE

DD, FORM 1426 APR 63

REPLACES NAVSHIPS FORM 4863, WHICH IS OBSOLETE

PLATE NO. 15419