

Purchase Description for
One (1) Vertical Knee Mill

1. SCOPE.

1.1. SCOPE. This specification reflects those characteristics that are essential to the minimum needs of the Government for a Vertical Knee Mill. It is the Government's intent that a single (primary) contractor be awarded this contract and be responsible for the provision of equipment, and the accomplishment of all work detailed by this specification.

2. APPLICABLE DOCUMENTS

2.1. GENERAL. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed here in section 2.

2.2. GOVERNMENT DOCUMENTS.

2.2.1. SPECIFICATIONS, STANDARDS, AND HANDBOOKS. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

FEDERAL STANDARDS

FED-STD-H28A: Screw Thread Standards for Federal Service (1994)

(Copies available online at <https://assist.daps.dla.mil/quicksearch/>)

2.2.2. OTHER GOVERNMENT PUBLICATIONS. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

COMBINED FEDERAL REGULATIONS

29 CFR 1910: General Industry, OSHA Safety and Health Standards (2010)

29 CFR 1915: Occupational Safety and Health Standards for Shipyard Employment (2011)

40 CFR 82: Protection of Stratospheric Ozone

(Copies available online at <http://www.gpo.gov/fdsys>)

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2.3. NON-GOVERNMENT PUBLICATIONS. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

AMERICAN GEAR MANUFACTURING ASSOCIATION

AGMA 2015-1-A01: Accuracy Classification System - Tangential Measurements for Cylindrical Gears (2001, R2008)

(Copies available at <http://www.agma.org> or American Gear Manufacturers Association, 500 Montgomery Street, Suite 350, Alexandria, VA 22314)

NATIONAL FIRE PROTECTION AGENCY

NFPA70: National Electrical Code (2011)

NFPA 79: Electrical Standard for Industrial Machinery (2012)

(Copies available at <http://www.nfpa.org> or NFPA, 1 Batterymarch Park, Quincy, MA 02169)

AMERICAN NATIONAL STANDARD INSTITUTE, INC.

ANSI Z535.4: Product Safety Signs and Labels (2011)

NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION

NEMA MG 1: Motors and Generators (2011)

NEMA ICS 1: Industrial Control and Systems General Requirements (2000, R2008)

NEMA 250: Enclosures for Electrical Equipment (1000 Volts Maximum) (2008)

(Copies available at <https://www.nema.org/Standards/Pages/All-Standards.aspx> or National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1752, Rosslyn, VA 22209)

3. REQUIREMENTS

3.1. DESIGN. All equipment and systems covered by this specification shall be new and unused, without defects and free of repair, capable of performing cutting operations meeting the requirements specified herein when connected to the site-specific utilities identified herein. The equipment shall be one of the manufacturer's current production models which, on the date this solicitation is issued, has been designed, engineered, and sold, or is being offered for sale through advertisements or manufacturer's published catalogs or brochures. Products such as prototype, pre-production, or experimental models do not qualify. Replaceable parts shall be manufactured to definite standards, tolerances and clearances in order that such parts can be replaced or adjusted without modification of the equipment. The equipment shall be designed

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and constructed to permit maintenance personnel to service the equipment easily and effectively using a minimal number of tools. The equipment shall have access covers, as necessary, to facilitate inspection, cleaning and repair or replacement of internal parts.

3.1.1. USE OF ENGLISH. Wording on all components and sub-components such as electrical motors, diagrams, hydraulic components, coolant components, safety and informational charts/plates shall be written in American English. All installation diagrams, operator/users manuals, brochures and any other data supplied, as part of this Purchase Specification shall also be written in the English language.

3.1.2. CASTING AND FORGINGS. Castings and forgings shall be free from defects, scale and mismatching. Processes such as welding, peening, plugging, or filling with cold solders or metallic pastes shall not be used on castings or forgings for reclaiming any parts of the equipment.

3.1.3. WELDING, BRAZING AND SOLDERING. Welding, brazing or soldering shall be employed only where those operations are included in fabrication of the original design. These operations shall not be employed as repair measures for defective parts. Solder connections shall show evidence of good bonding in metal-to-metal contact. Cold solder joints, incomplete joining of solder and metal, excess or insufficient solder or damaged insulation shall be considered reason for rejection of the equipment. Any loose, spattered solder, flux, metal chips, insulation scrap or other foreign material shall be removed from the equipment. Flux for soldering shall be rosin or rosin and alcohol. No acid, acid salts or acid core solder shall be used in preparation for soldering of electrical connections.

3.1.4. FASTENING DEVICES. Screws, pins, bolts, and similar internal and external parts shall be installed with means for preventing change of tightness. Parts subject to removal or adjustment shall not be swaged, peened, staked, or otherwise permanently installed. Fastening devices shall be tightened to torque limits as established by the manufacturer's standard for tightening to preclude loosening by normal operation or vibration. Threaded parts shall conform to Federal Standard H28.

3.1.5. CORROSION CONTROL. All system components shall be protected against corrosion and deterioration by appropriate material selection, application of coatings and sealants. Lead based or chromium based paints are prohibited. The system and its parts shall be painted on all sides, prior to assembly. All surfaces shall be painted in conformance with the manufacturer's standard practices and good workmanship. Painting shall result in a highly wear-resistant finish, which guarantees continued protection to the surfaces covered against the specified environment under all service conditions. The manufacturer's standard color shall be provided. Exposed ferrous parts such as screws, bolts, nuts, washers, etc., shall resist corrosion in a salt-laden, moist, variable temperature atmosphere. Protection such as cadmium or chrome plating, galvanizing or other electrical/chemical process, or stainless steel is acceptable. Aluminum parts shall be anodized or chemically treated followed by two

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coats of weather-resistant exterior paint. Dissimilar metals shall not be used in direct contact with each other without suitable means for preventing electrolytic corrosion.

3.1.6. SURFACES. Surfaces of castings, forgings, molded parts, stampings and welded parts shall be cleaned and free from sand, dirt, fins, sprues, flux or other harmful or extraneous materials. External surfaces shall be smooth. Edges shall be rounded or beveled unless sharpness is required to perform a function.

3.1.7. GEARS. Gears used in the machine and its components shall be machined in either the inch or metric system. Gears shall meet the requirements of AGMA 2015-1-A01.

3.1.8. METER, TIME TOTALIZING. The equipment shall be fitted with a meter to measure operating (cycle on) time. The time totalizing meter shall be of the non-resetting analog type. It shall have a range of 0 to 99999.9 hours. The least significant digit on the meter readout shall be 0.1 hour. Upon reaching the maximum accumulative hours, the meter readout shall automatically revert to zero and continue to totalize time. The meter shall be designed to prevent entrance of dust and moisture and shall be mounted to withstand shock and vibration generated by the equipment. The meter shall be readily visible, but not subject to damage relative to the operating environment of the equipment.

3.1.9. LUBRICATION. Bearings (except sealed-for-life and self-lubricating type), mating gears and sliding parts shall be provided with means for lubrication. Reservoirs of splash-type systems shall be fitted with oil level sight gauges. Automatic force feed and manually operated force feed systems shall be supplied with a filter. Manually operated systems shall have control handles mounted in an accessible location convenient to the operator. Oil holes, grease fittings and filler caps shall be easily accessible. A lubrication plate shall be securely attached to the equipment, see paragraph 3.1.15.2 for details.

3.1.10. ELECTRICAL EQUIPMENT. Electrical components including motors, starters, relays, switches, and wiring shall conform to and be located in accordance with NFPA 79.

3.1.10.1. ELECTRIC POWER DISCONNECT. A supply circuit disconnect device shall be provided and installed on the equipment. All electrical components shall be fused or circuit breaker protected in each phase conductor for AC circuits. Overloads, fuses and circuit breakers shall be coordinated for maximum component protection and minimum circuit disruption. The device shall be either a fusible motor circuit switch or circuit breaker.

3.1.10.2. ENERGY ISOLATING DEVICES. The equipment shall be provided with energy isolation devices (e.g. power switches, safety devices, circuit breakers, valves) that protect personnel from the release of hazardous energy. The devices shall be designed and manufactured such that they can be padlocked in the OFF position. This includes both mechanical and electrical devices. An energy isolation device shall be installed as the first

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energy control device on all major components of the system such that the component can be isolated at the component level.

3.1.10.3. MOTORS. Motors shall be rated for continuous duty and shall be equipped with ball bearings of the sealed and permanently lubricated type. All electrical motors shall meet NEMA-MG1 requirements.

3.1.10.4. ELECTRICAL CONNECTIONS. Electrical connections within the equipment shall be complete and shall be made via terminals on the components, terminals, or circuit boards and bussing. Splices between terminations are not permitted. Connections and terminals shall be supported and spaced without dependence upon the wiring in the components and braced as necessary to assure withstanding the distortion forces associated with available short-circuit currents. Proper identification of wiring, bussing, terminals and circuits for function, polarity, phasing, etc., shall be adhered to throughout the equipment. Identification shall be in the form of wire markers, color coding, permanently engraved plates, and permanent markings on the devices. Adequate spacing shall be maintained throughout to avoid excessive bending of cabling and wiring, to maintain adequate separation and creepage distance between electrical potentials and between these potentials and ground, and to permit ease in disconnecting wiring and cabling during trouble-shooting and repair. In no instance shall clearances and creepage distances be less than those prescribed under NEMA ICS, Part ICS 1-111.

3.1.10.5. GROUNDING. Exposed, non-current carrying metal parts on the equipment shall be maintained at common, zero ground potential. None of the primary circuits in the equipment shall be connected to ground. A ground stud or lug on the equipment shall provide means for grounding the equipment for safety to personnel. A NEMA approved grounding plug that effectively grounds the equipment shall be acceptable for cord connected equipment.

3.1.10.6. SOLID-STATE COMPONENTS. Solid-state design shall be employed throughout for electronic components. Use of selenium and other similar aging devices shall be permitted only in the application of voltage surge protection to other solid-state components. Solid-state components shall not be adversely affected when subjected to power line transients and surges typically experienced in industrial environments. Series and parallel connections of solid-state devices without forced sharing circuitry for voltage and current, respectively, is not permitted.

3.1.10.7. ELECTRICAL ENCLOSURE. Electrical components of the equipment shall be contained in an enclosure(s) of structural and sheet steel. Provisions shall be made for power cable entrance. The enclosure(s) shall be of drip-proof construction and of minimum size consistent with good design practices and ventilation of components, meeting the requirements of NEMA 250 Type 12.

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3.1.11. SAFETY AND HEALTH REQUIREMENTS. Covers, guards, or other safety devices shall be provided for all parts of equipment that present safety hazards. Safety devices shall not interfere with operation of the equipment. The devices shall prevent unintentional contact with the guarded part and shall be removable to facilitate inspection, maintenance and repair of the parts. Machine parts, components, mechanisms, and assemblies furnished on the unit shall comply with all specific requirements of "OSHA Safety and Health Standards (29 CFR 1910), General Industry" that are applicable to the equipment itself. Additional safety and health requirements shall be as specified in other paragraphs of this specification.

3.1.12. SAFETY SIGNS AND LABELS. Safety signs and labels in accordance with ANSI Z535.4 shall be securely attached to the equipment in visible locations, at the point of hazard(s), with any safety precautions to be observed by the operator or maintenance personnel permanently marked on the signs.

3.1.13. AUDIBLE NOISE LEVELS. - Audible noise emitted by the equipment shall not exceed 84 dB at the operator's work position, nor at any other point at a distance of 3 feet from the equipment under all operating and service conditions. Noise shall be measured on the "A" weighted scale of a standard sound level meter. Measurements shall be taken at the operator's work position and at each side and end of the equipment. For each measurement, the microphone shall be located on a straight line perpendicular to the surface or corner being measured. The height shall correspond to the point of highest noise level emitted from the surface or corner at the location and distance from the equipment specified herein. Noise generated by the work piece shall be excluded in determining compliance of the equipment with the 84 dB requirement.

3.1.14. HAZARDOUS MATERIAL EXCLUSIONS. Supplies or materials being provided as part of the equipment shall be free of known hazardous materials. Hazardous materials shall not be brought on site without prior approval of the Government Point of Contract and cognizant shipyard personnel. Hazardous materials not needed for this project are prohibited. Definitions of hazardous materials are specified in the latest version, including revisions adopted during the term of the contract, of Federal Standard No. 313. Notwithstanding any other hazardous material usage permitted in this contract, radioactive materials or instruments capable of producing ionizing radiation as well as materials which contain asbestos, mercury, cadmium, lithium, methylene chloride, lead (= or >0.06%), or polychlorinated biphenyls (PCB's) are prohibited. Nickel Metal Hydride and lithium batteries are permissible for memory backup. Class I Ozone Depleting Substances as defined in 40 CFR Part 82 shall not be used in the performance of this contract, or be provided as part of the equipment. Exceptions to the prohibition of these materials must be referred to the Contracting Officer in writing, for consideration after contract award and prior to any work being performed.

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3.1.14.1. PCB CERTIFICATION. The Contractor shall provide written certification from the manufacturer that the equipment contains no detectable PCBs (less than two (2) parts-per-million (PPM)). The certification shall be on manufacturer's letterhead, and signed by a company official who is empowered to provide same. A label plate containing the PCB certification information shall be permanently affixed to the equipment.

3.1.14.2. ENVIRONMENTAL PROTECTION. The equipment shall not emit materials hazardous to the ecological system, as prescribed by federal, state and local statutes in effect at point of installation, under the operating, service, transportation and storage conditions described herein.

3.1.15. INFORMATIONAL PLATES. The following informational plates shall be engraved on wear and corrosion resistant metal, permanently affixed to the equipment, and located as near to the hour meter as practicable.

3.1.15.1. PCB LABEL PLATE. Shall state the PCB compliance certification.

3.1.15.2. LUBRICATION PLATE. The following information shall be on the plate:

- a. Points of application
- b. Service interval
- c. Type of lubricant
- d. Viscosity
- e. Federal or Military Specification Number (if available)

3.1.15.3. IDENTIFICATION PLATE. The following information shall be on the plate:

- a. Nomenclature
- b. Contractor's Name
- c. Manufacturer's Model Designation
- d. Manufacturer's Serial Number
- e. Electrical Utilities (Volts, H.P., Amps, Frequency, Phases, Short Circuit Current Rating, etc.)
- f. Other Utilities (GPM, CFM, PSI, etc.), as applicable
- g. Contract Number
- h. Date of Manufacture

3.1.15.4. IDENTIFICATION MARKING OF MILITARY PROPERTY. An Item Unique Identification Marking (IUID) shall be provided in accordance with MIL-STD-130N and all applicable documents within the standard with Machine Readable Information (MRI)

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for item identification marking and automatic data capture. The application of Human Readable Information (HRI) shall be used in combination with MRI and free text.

3.2. COMMERCIAL TECHNICAL DATA. – The following technical data, written in the English language, shall be furnished (at the time the Vertical Knee Mill is delivered), Three (3) bound copies shall be furnished. Each binder cover shall indicate in bold type the manufacturer's name, contract number, model number, and serial number of the unit.

3.2.1. TECHNICAL MANUALS. A set of three (3) technical manuals is required to cover each specific make, model year, and serial numbered piece of equipment scheduled for delivery under the terms of the contract. The manuals shall provide instructions, illustrations, and other associated data for operations, maintenance, repair, overhaul, including a complete catalog of parts used in the assembly of the end item enabling an average journeyman mechanic to operate, program, maintain, repair, and overhaul the equipment. The manuals provided shall contain complete instructions and information for all equipment, components, assemblies, subassemblies, attachments, and accessories assembled in the end item. The contents of a complete set of technical manuals shall include, as a minimum, the following:

- a. Operating instructions including start up, shut down and emergency shutdown procedures
- b. Maintenance, service, and overhaul instructions, including all preventive maintenance schedules and lubrication chart
- c. Trouble-shooting guides
- d. Parts list containing: illustrations, part numbers, part nomenclature, original manufacturer, cross reference numbers, and recommended spare parts including quantities
- e. Energy control procedure, in accordance with 29 CFR 1910.147, OSHA
- f. Energy Control Standard to bring equipment to a zero energy state for maintenance
- g. All mechanical and electrical schematics showing discrete components/block diagrams/wiring diagrams with inputs and outputs identified/system electrical interface documents and drawings for the specific model of all machine equipment/drives/controls supplied
- h. Programming requirements

3.3. COMPONENTS. The equipment shall consist of, but is not limited to the following described principal components, attachments and accessories necessary to meet the operational and performance requirements specified herein.

3.3.1. SPINDLE HEAD. The spindle head shall incorporate a variable speed drive system. Step pulleys are not an acceptable means of for changing spindle speeds. The spindle shall use

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rolling element bearings for rotation and a means of lubricating the bearing unless the bearings are of the sealed type. The spindle head shall have a means of rotating left and right, and up and down.

3.3.1.1. SPINDLE. The Vertical Mill shall be equipped with a 40 MT taper spindle.

3.3.1.2. SPINDLE BEARINGS. Spindle bearings shall be of Class 7 precision.

3.3.1.3. POWER DRAWBAR. A power drawbar shall be supplied for securing 40 MT collets in the spindle. The power draw bar shall be NFPA Certified.

3.3.1.4. QUILL. A chrome, precision ground quill shall be equipped.

3.3.2. HANDLES AND DIALS. The machine dials shall be incremented in inches. The handles for the X and Y axis shall have a means of folding or being placed inward to avoid a safety hazard while using the axis servo motors. The dials for the axes shall be incremented to the .001 of an inch. Handles for the quill and knee movement shall be removable. All axes shall have a means of securing the axis in place.

3.3.3. CONTROLS. Controls on the Vertical Mill shall be of low voltage and built with overload protection.

3.3.4. FEED MOTORS. The vertical mill shall be equipped with servo power-feeds in the X and Y axes meeting the feed rate requirements in Table I.

3.3.5. WAYS. Ways on the vertical mill shall be hardened and ground with Turcite. Additionally, front and rear ways shall have rubber covers.

3.3.6. LUBRICATION PUMP. The vertical mill shall be equipped with an automatic metered lubrication system.

3.3.7. COOLANT SYSTEM. A flood coolant system shall be equipped with the vertical mill.

3.3.8. DIGITAL READOUT. The vertical mill shall be equipped with a digital readout that measures movement in the X, Y and Z axes.

3.3.9. WORK LIGHT. A work light shall be mounted to the machine.

3.3.10. RISER BLOCK. A 6" riser block shall be provided with the machine.

3.3.11. CHIP PAN. The vertical mill shall be equipped with a chip pan.

3.3.12. TOOLING. The following tooling shall be the minimum provided with the Vertical Knee Mill.

3.3.12.1. COLLETS. Eighteen (18) 40 MT collets shall be provided ranging in sizes from 1/16 inch to 1 inch in 1/16 inch increments, as well as a 1 1/4" and 1 1/2".

3.3.12.2. COLLET TRAY. A collet tray shall be provided to hold the collets in an organized fashion.

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3.4. SIZES AND CAPACITIES. The equipment supplied under the requirements of this specification shall conform to the dimensions, sizes, and capacities stated in Table I. Unless otherwise specified all dimensions are in inches. Requirements cannot be less than those shown unless otherwise stated. Where a range is shown, the required performance is from the smaller figure, or less, to the larger figure, or more.

TABLE I Sizes, Capacities, and Performance

X-Axis Travel Distance (Table)	45 inches
Y-Axis Travel Distance (Saddle)	15 inches
Z-Axis Travel Distance (Knee)	20 inches
Servo Power-Feed Rate Range	1 - 28 inches per minute
Quill Travel Distance	6 inches
Ram Travel Distance	20 inches
Quill Diameter	4.125 inches
Spindle Taper	40 MT
Spindle HP	5 HP
Spindle RPM	60-3600 rpm
Head Tilt (X-Axis)	90 degrees - 0 degrees - 90 degrees
Table Size	59 inches x 12 inches
Table Capacity (Centered)	1,600 pounds
Saddle Width	32 inches
Vertical Knee Motor	2 HP
T-Slots	3
T-Slot Size	.625 inches
Fully Equipped Weight (Or less)	6,800 pounds

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Allowable Foot Print (Or less)	85 inches x 65 inches x 95 inches
Power Requirements	230 Volts; 3 Phase; 60 Hertz

3.5. OSHA APPROVED CERTIFICATION. The equipment installation and its component parts shall be in compliance with the applicable Occupational Safety and Health Administration (OSHA) regulations in accordance with CFR Title 29, Chapter XVII, Part 1910 and installed in accordance with NEC/NFPA requirements. Approval shall be as specified under the “Approval” and “Acceptance” criteria in the OSHA regulations Subpart “O”, Machinery and Machine Guarding paragraph 1910.212 and Subpart “S” Electrical, paragraph 1910.303 and paragraph 1910.399. After equipment delivery and installation, and prior to testing, the contractor shall provide an OSHA Certification Report for approval by the Environmental, Safety, and Health Department at the Receiving Activity. Failure to provide this certification will delay acceptance of the equipment, and could result in rejection for failure to comply with the terms of the contract. The Vertical Knee Mill shall be listed or approved, and labeled by one of the following methods:

- The equipment specified herein shall be listed and labeled by an OSHA recognized and approved Nationally Recognized Testing Laboratory (NRTL). Test data reports shall be provided.
- The equipment and its installation specified herein shall be field inspected, approved, and labeled by an OSHA recognized and approved NRTL. Test data/field evaluation reports shall be provided

3.6. WARRANTY. Supplies and services furnished shall be covered by warranty from defects in design, materials and workmanship. The warranty shall be the manufacturer’s standard commercial warranty that shall conform to all the requirements of the contract. Acceptance of the manufacturer’s standard commercial warranty shall not minimize the rights of the Government under clauses in the contract, and in any conflict that arises between the terms and conditions of the contract and manufacturer’s warranty, the terms and conditions of the contract shall take precedence. A warranty period of twelve (12) months shall commence at final acceptance.

4. QUALITY ASSURANCE.

4.1. RESPONSIBILITY FOR INSPECTION. The contractor is responsible for performance of all inspection requirements specified herein. The contractor may utilize his own facility or any other commercial facility acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are

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deemed necessary to assure that supplies and services conform to the prescribed requirements. Only supplies that totally conform to the specifications shall be offered for inspection and test. The contractor's test schedule shall allow consecutive inspection and test of the supplies offered. The Government reserves the right to charge the contractor for any Government re-inspection cost when supplies are not ready at the time requested by the contractor or when necessitated by prior rejection.

4.2. MEASURING AND TESTING EQUIPMENT. The contractor shall provide and maintain gauges and other measuring and testing devices necessary to assure that supplies conform to the technical requirements. In order to assure continued accuracy, these devices shall be calibrated at established intervals against certified standards traceable to national standards. If production tooling, such as jigs, fixtures, templates and patterns, is used as a media of inspection, such devices shall also be proved for accuracy at established intervals. When required, the contractor's measuring and testing equipment shall be made available for use by the Government representative to determine conformance of product with contract requirements. In addition, if conditions warrant, contractor's personnel shall be made available for operation of such devices and verification of their accuracy and condition.

4.3. RESPONSIBILITY FOR COMPLIANCE - All items offered for inspection shall meet all requirements of sections 3 and 4. The inspection(s) set forth in this specification shall become part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the proposal. Sampling inspections, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

5. PREPARATION FOR DELIVERY. The supplies shall be prepared for shipment in accordance with the provisions identified herein. Yellow packaging, packing, preservation and marking, in any form or manner, regardless of the method of preparation specified, is prohibited.

5.1. PRESERVATION, PACKAGING AND PACKING

5.1.1. RESTRICTED COLORS. The Shipyard uses the colors magenta, yellow, red, and blue to identify specially controlled materials. The Contractor is specifically prohibited from using magenta, yellow, red, or blue colored plastic wrapping materials, bags, tape, or other covering materials.

5.1.2. PACKING MATERIAL. Use of shredded paper, whether newspaper, office scrap, computer sheets, or wax paper, in packing materials for shipment to Navy activities, is prohibited.

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5.2. MARKING OF SHIPMENTS. Shipments shall be marked in accordance with ASTM-D-3951.

5.2.1. SPECIAL MARKING. In addition to the requirements of ASTM-D-3951, marking shall further indicate "NOT FOR OUTSIDE STORAGE."

5.3. SPECIAL DELIVERY INSTRUCTIONS. The Contractor shall notify the receiving activity of the scheduled arrival date of the equipment and any special handling requirements. Notification shall be made not less than 72 hours prior to the delivery date.

5.3.1. SHIPMENT OF MATERIALS - Material transportation from the manufacturer's facility to the work site shall be the responsibility of the Contractor.