OIL INDIA LIMITED
(A Govt. of India Enterprise)
P.O. Udayanvihar ,Narangi ,Guwahati ,Assam

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Tender No. & Date : SGG8603P16 Dated 17.9.2015

Tender Fee : INR 6000.00 OR USD 100.00

Bid Security Amount : INR 84000.00 USD 1400.00

Bidding Type : SINGLE STAGE COMPOSITE BID SYSTEM

Bid Closing on 9.12.2015 (at 11.00 Hrs. IST)
Bid Opening on 9.12.2015 (at 14.00 Hrs. IST)

Performance Guarantee : Applicable

OIL INDIA LIMITED invites Global Tenders for items detailed below:

Item No./Mat. Code	Material Description	QTY.	UOM
10	SUPPLY OF API 6D BALL VALVE FOR OVER GROUND USE IN PETROLEUM PRODUCT	1	No.
20	SUPPLY OF API 6D BALL VALVE FOR OVER GROUND USE IN PETROLEUM PRODUCT AS PER THE FOLLOWING ANNEXURE a) Detailed specification – Annexure - I. b) Bid Rejection Criteria (BRC) and Bid Evaluation Criteria – Annexure - II.	1	No.

	c) Technical & Commercial Check list vide Annexure - III		

(A)General Notes for e-tender :

1.The tender will be governed by "General Terms & Conditions" for e-Procurement as per Booklet No.MM/GLOBAL/E-01/2005 for E-procurement(ICB Tenders) including Amendment and Addendum.

2.The general details of tender can be viewed by opening the RFx [Tender] under RFx and Auctions. The details of items tendered can be found in the Item Data and details uploaded under Technical RFX.

3.Bid must be submitted electronically only through OIL's e-procurement portal. Bid submitted in any other form will be rejected.

4.Please note that all tender forms and supporting documents are to be submitted through OIL's e-Procurement site only except following documents which are to be submitted manually in sealed envelope super scribed with tender no. and due date to The Chief Materials Manager, Oil India Limited, P.O.-Udayan Vihar ,Narangi,Guwahati -781171 ,Assam, on or before 13:00 hrs (IST) on the Bid Closing Date mentioned in the Tender.

a)Original Bid Security.

b)Details Catalogue and any other document which have been specified to be submitted in original.

All documents submitted in physical form should be signed on all pages by the authorized signatory of the bidder and to be submitted in triplicate.

5.Bidders must ensure that their bid is uploaded in the system before the tender closing date and time. Also, they must ensure that above documents which are to be submitted in a sealed

envelope are also submitted at the above mentioned address before the bid closing date and time failing which the offer shall be rejected.

6.Bidders are requested to examine all instructions, forms, terms and specifications in the bid. Failure to furnish all information required as per the bid or submission of offers not substantially responsive to the bid

in every respect will be at the bidders risk and may result in the rejection of its offer without seeking any clarifications.

7.All the Bids must be Digitally Signed using “Class 3” digital certificate (e-commerce application) with organisation nameas per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India.

8.Please do refer the User Manual provided on the portal on the procedure How to create Response for submitting offer.

(C)Special Notes :

1.The items shall be brand new, unused & of prime quality. Bidder shall warrant (in the event of an order) that the product supplied will be free from all defects & fault in material, workmanship & manufacture and shall be in full conformity with ordered specifications. This clause shall be valid for 18 months from date of despatch/shipment or 12 months from date of receipt, which ever is earlier. In case of breakdown during the warranty period, a competent service engineer of the supplier shall make as many visits as shall be necessary to rectify the system. The supplier shall provide all spares required for making the system operational. Bidders must confirm the same while quoting.

2.Validity of the offers should be 120 days from the date of bid opening. Bids with lesser validity shall be summarily rejected.

3. The minimum FOB/FCA charges in case of partial order for reduced quantity/ items shall have to be indicated by the bidder. In case this is not indicated specifically, the charges quoted would be prorata calculated and the same will be binding on the bidder.

4.Commercial Check-List vide Annexure- B shall be filled-up and submitted along with the offer.

5.To ascertain the substantial responsiveness of the bid OIL reserves the right to ask the bidder for clarification in respect of clauses covered under BRC also and such clarifications fulfilling the BRC clauses in to must be received on or before the deadline given by the company, failing which the offer will be summarily rejected.

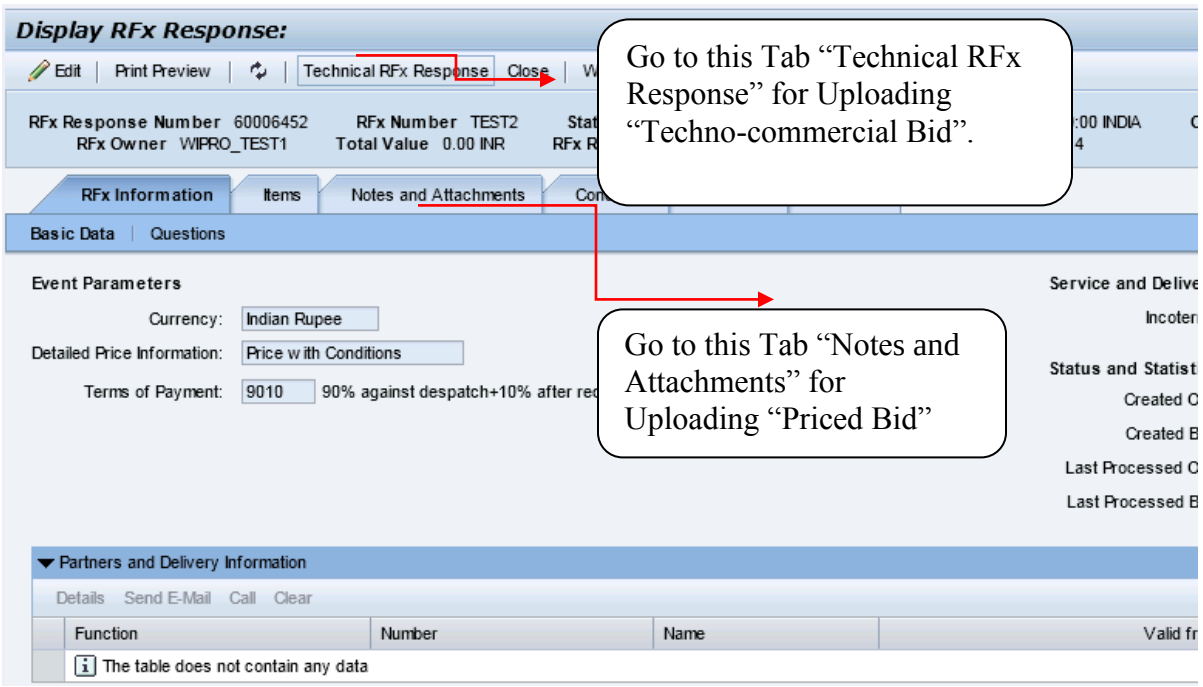
6.Other terms and conditions of the tender shall be as per "General Terms & Conditions" for e- Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders). However, if any of the Clauses of the Bid Rejection Criteria (BRC) / Bid Evaluation Criteria (BEC) mentioned here contradict the Clauses in the "General Terms & Conditions" for e- Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders) of the tender and/or elsewhere, those mentioned in this BEC / BRC shall prevail.

7.0 Nil custom duty shall not be applicable against this tender. Indigenous bidder are requested to quote non Deemed Export prices.

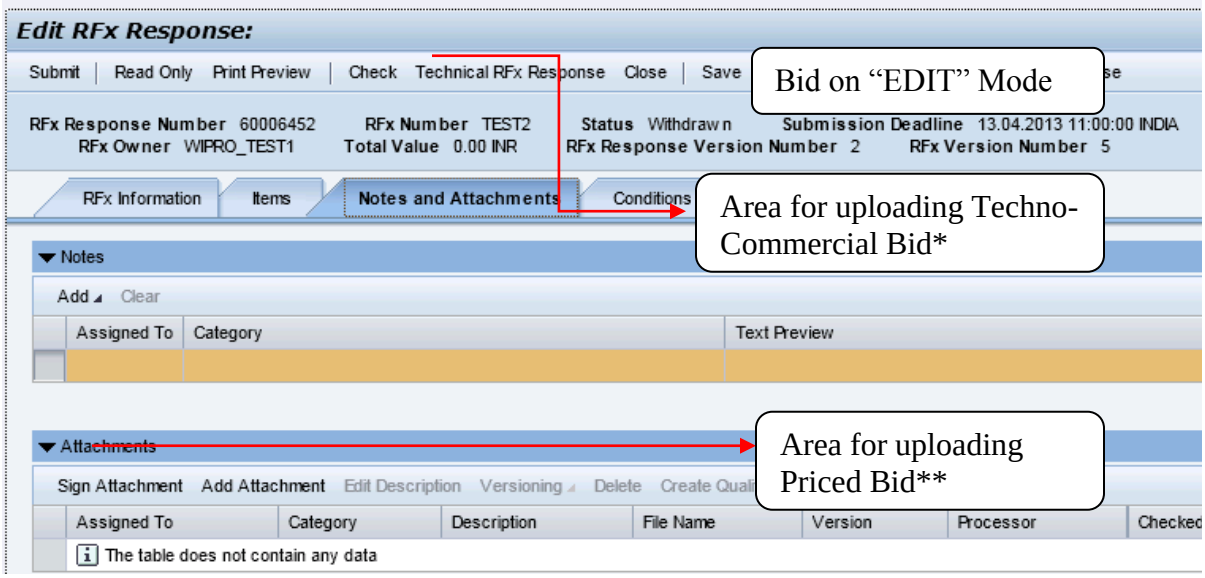
8 **Tender Fee and Bid Security can also be paid through payment gateway in the e-tender portal.** Please refer to Vendor User Manual updated in the e-tender portal as well for further details.

9.1 Bidders shall prepare and shall upload through electronic form in the OIL's e-Tender portal within the Bid Closing Date and Time stipulated in the e-Tender. The "Techno-commercial Bid" shall contain all technical and commercial details. **Details of prices as per price format in Appendix-I to be uploaded as attachment in the Attachment Tab "Notes and Attachments".**

9.2 A screen shot in this regard is given below.



On "EDIT" Mode- The following screen will appear. Bidders are advised to Upload "Techno-Commercial Unpriced Bid" and "Priced Bid" in the places as indicated above:



10.0 Other terms and conditions of the enquiry shall be as per General Terms and Conditions for Global Tender. However, if any of the Clauses of the Bid Rejection Criteria / Bid Evaluation Criteria (BEC / BRC) mentioned here contradict the Clauses in the General Terms & Conditions of Global Tender of the tender and/or elsewhere, those mentioned in this BEC / BRC shall prevail.

11.Vidders are requested to examine all instructions, forms, terms and specifications in the bid. Failure to furnish all information required as per the bidding document or submission of offers not substantially responsive to the bidding document in every respect will be at the bidders risk and may result in rejection of its offer without seeking any clarifications.

12.Any sum of money due and payable to the contractor (including Security Deposit refundable to them) under this or any other contract may be appropriated by Oil India Limited and set-off against any claim of Oil India Limited (or such other person or persons contracting through Oil India Limited) for payment of sum of money arising out of this contract or under any other contract made by the contractor with Oil India Limited (or such other person or persons contracting through Oil India Limited).

13.In the event of receipt of only a single offer against the tender within B.C. date, OIL reserves the right to extend the B.C. date as deemed fit by the Company. During the extended period, the bidders who have already submitted the bids on or before the original B.C. date, shall not be permitted to revise their quotation

14.0 No press advt. will be published regarding amendment to Bidding Document or extension of BC Date. The same will be uploaded in OIL website and informed to all prospective bidders who have received the bidding documents. Bidders to keep themselves updated.

Yours Faithfully

Sd-
(BIMAL. BORA)
DEPUTY MANAGER MATERIALS (PL)
FOR CHIEF MANAGER MATERIALS (PL)
FOR : GROUP GENERAL MANAGER (PLS)

nnexure - I.

SCOPE OF SUPPLY

TECHNICAL SPECIFICATIONS

Sl. No.	Material Description	Quantity	Unit
10	STANDARD SPECIFICATION FOR API 6D BALL VALVE 450 MM(18") DIAMETER REDUCED BORE 150 CLASS RAISED FACE FLANGE (BOTH END) WITH ACTUATOR FOR OVERGROUND USE IN PETROLEUM PRODUCT SERVICE. STANDARD SPECIFICATION FOR BALL VALVE 1. SCOPE This specification covers the minimum requirements for design, manufacture, testing and supply of carbon steel ball valves of size 18" and 20" ANSI pressure rating Class 150# for use in onshore pipeline systems handling hydrocarbons in liquid phase. 2.0 REFERENCE DOCUMENTS 2.1 All valves shall be manufactured and supplied in accordance with the American Petroleum Institute (API) Specification 6D, Twenty Third edition, April 2008 / ISO 14313:2007, Petroleum and Natural Gas Industries — Pipeline Transportation Systems — Pipeline valves, with additions and modifications as indicated in the following sections of this specification. 2.2 Reference has also been made in this specification to the latest edition (edition enforce at the time of issue of enquiry) of the following Codes, Standards and Specifications. ASME B31.3 Process Piping. ASME B31.4 Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids.	1	No

	ASME B31.8 Gas Transmission and Distribution Piping Systems. ASME B16.5 Steel Pipe Flanges and Flanged Fittings. ASME B 16.10 Face-To-Face and End-To-End Dimensions of Valves. ASME B 16.25 Butt-welding Ends. ASME B16.34 Valves - Flanged, Threaded and Welding Ends. ASME BI 6.47 Large Diameter Steel Flanges. API 1104 Welding Pipelines and Related Facilities. ASME Sec VIII Boiler and Pressure Vessel Code - Rules for Construction of Pressure Vessels ASME Sec IX Boiler and Pressure Vessel Code - Welding and Brazing Qualifications ASTM A-370 Standard Test Methods and Definitions for Mechanical Testing of Steel Products. ASTM B 733 Auto catalytic Nickel Phosphorous Coating on Metals. MSS-SP-6 Standard Finishes for Contact Faces of Pipe Flanges and Connecting-end Flanges of Valves and Fittings. MSS-SP-44 Steel Pipeline Flanges. SSPC-VIS-1 Steel Structures Painting Council Visual Standard. In case of conflict between the requirements of this specification, API 6D and the Codes, Standards and Specifications referred in clause 2.2 above, the requirements of this specification shall govern. 3.0 MATERIALS 3.1 Material for major components of the valves shall be as indicated in Valve Data Sheet. Other components shall be as per Manufacturer's standard (suitable for the service conditions indicated in Data Sheet) and shall be subject to approval by Company. In addition, the material shall also meet the requirements specified hereinafter. All process-wetted parts, metallic and non-metallic, and lubricants shall be suitable for the service specified by the Company. Manufacturer shall confirm that all wetted parts are suitable for treated water/seawater environment, which may be used during field testing. Non-metallic parts of the valves (including 0-rings, soft seals etc.) intended for hydrocarbon gas service shall be resistant to explosive		

	decompression. 3.2 Carbon steel used for the manufacture of valves shall be fully killed. 3.3 The carbon equivalent (CE) of valve end connections which are subject to further field welding by Company shall not exceed 0.43 on check analysis for each heat of steel used, as calculated by the following formula: 3.4 For all such valves where Carbon Steel is used as ball material, the ball shall have 75 micrometers (.003 inches) thick Electroless Nickel Plating (ENP) as per ASTM B 733 with following classification: SC2, Type II, Class 2. The hardness of plating shall be minimum 50 RC. DESIGN AND CONSTRUCTION REQUIREMENTS 4.1 Valve design shall meet the requirements of API Specification 6D and shall be suitable for the service conditions indicated in the Valve Data Sheet. The ASME Boiler & Pressure Vessel Code, Section VIII, Division I shall be used to design the valve body. Allowable stress requirements shall comply the provisions of above code. In addition, corrosion allowance indicated in Valve Data Sheet shall be considered in valve design. The manufacturer shall have valid license to use API monogram on valves manufactured as per API 6D. 4.2 For above ground valves, body design shall be either fully welded or bolted type. 4.3 Ball shall be of single piece, solid type construction 4.4 Valves shall be Reduced bore (RB). 4.5 Ball mounting shall be trunnion or pivot type only. Valve design shall minimize the possibility of debris ingress into the trunnion as far as practicable. For valves with primary metal to metal contact and secondary soft seats, 0-rings or other seals if used for drip tight sealing shall be encased in a suitable groove in such a manner that it can not be removed from seat ring and there is no extrusion during opening or closing operation of valve at maximum differential pressure corresponding to valve class rating. The seat		

	rings shall be so designed as to ensure sealing at low as well as high differential pressures. For soft seated valves seat rings may be provided with soft insert. The same shall be positively locked in position. All such ball valves shall comply fire safe design and qualified by fire testing as per API 6FA specification for Fire Test for Valves. 4.7 Valves shall be designed to withstand a sustained internal vacuum of at least I (one) milli-bar in both open and closed positions. 4.8 Valves shall have double block and bleed feature to facilitate complete flush, drain and venting of the valve body cavity. 4.9 Reduced Bore valves of nominal valve shall have provision for secondary sealant injection under full line pressure for seat and stem seals. All sealant injection connections shall be provided with a block valve and internal non-return valve. Valve design shall have a provision to replace the sealant injection fitting under full line pressure 4.10 Valves shall be provided with vent and drain connections. Body vent and drain shall be provided with valves (Ball or Plug type). 4.11 Valve design shall ensure repair of stem seals/packing under full line pressure. 4.12 Reduced Bore valves shall be equipped with support foot and lifting lugs. Tapped holes and eyebolts shall not be used for lifting lugs. Height of support foot shall be kept minimum. The location and size of support foot/lifting lugs shall ensure unrestrictive operation of vent/drain valves. 4.13 Valve design shall be such as to avoid bimetallic corrosion between carbon steel and high alloy steel components. Suitable insulation shall be provided as required. 4.14 For valves to be used in liquid service, the body cavity over-pressure shall be prevented by self-relieving seat rings/assemblies. Self-relieving seat rings shall relieve at a body cavity differential pressure not exceeding 50% of the valve class rating pressure. 4.15 a) Valve ends shall be both ends flanged. Face to face/end to end dimensions shall conform to API 6D. b) Flanged ends, if specified, shall have flanges as per ASME B16.5. Flange face shall be raised face. Flange		

	face finish shall be serrated or smooth as indicated in Valve Data Sheet. 4.16 Valve shall be provided with ball position indicator and stops of rugged construction at the fully open and fully closed positions. 4.20 Operating Devices a. Valves shall have a power actuator and manual operator(hand wheel) as indicated in the Valve Data Sheet. Valve design shall be such that damage due to malfunctioning of the operator or its controls will only occur in the operator gear train or power cylinder and that damaged parts can be replaced without the valve cover being removed. b. The power actuator shall be in accordance with the Company Specification issued for the purpose and as indicated in the Valve and Actuator Data Sheet. Operating time shall be as indicated in Actuator Data Sheet. Valve operating time shall correspond to full close to full open /full open to full close under maximum differential pressure corresponding to the valve rating. For actuated valves, the actuator's rated torque output shall be 1.25 times the break torque required to operate the ball valve under the maximum differential pressure corresponding to the Valve Class Rating. c. For the manual operator of all valves, the diameter of the hand wheel shall be such that under the maximum differential pressure, the total force required to operate the valve does not exceed 350 N. However failing to meet above requirement, vendor shall offer Gear operated valves. Manufacturer shall also indicate the number of turns of hand wheel in case of gear operators (along with their offer) required for operating the valve from full open to full close position. The number of turns shall not exceed 250. d. Direction of operation of hand wheel or wrench shall be in clock-wise direction while closing the valve. Hand wheels shall not have protruding spokes. e) Gear operators, when provided, shall have a self-locking provision and shall be fully encased in water proof/splash proof enclosure and shall be filled with suitable grease.		

	4.21 The tolerance on internal diameter and out of roundness at the ends for welded ends valves shall be as per connected pipe specification as indicated in the Valve Data Sheet. 4.22 When indicated in Material Requisition, valves shall have locking devices to lock the valve either in full open (LO) or full close (LC) positions. Locking devices shall be permanently attached to the valve operator and shall not interfere with operation of the valve. 4.23 All welds shall be made by welders and welding procedures qualified in accordance with the provisions of ASME Section IX. The procedure qualification shall also include impact test and hardness test when required as per Clause 3.4 and 3.5 of this specification and shall meet the requirements as specified therein. 4.24 Repair by welding is not permitted for fabricated and forged body valves. However repair by welding as per ASME B16.34 is permitted for cast body valves. Such repairs shall be carried out at casting supplier's care only. Repair shall be carried out before any heat treatment ofcasting is done. Repair welding procedure qualification shall also include impact test and hardness test when required as per Clause 3.4 and 3.5 of this specification and shall meet the requirements as specified therein. Heat treatment and radiography shall be repeated after the weld repair. 4.25 No casting is permitted for stem and stem extension material of all valves. Valve stem shall be capable of withstanding the maximum operating torque required to operate the valve against the maximum differential pressure corresponding to applicable class rating. The combined stress shall not exceed the maximum allowable stresses specified in ASME section VIII, Division 1. For power actuated valves, the valve stem shall be designed for maximum output torque of the selected power actuator (including gear box, if any) at valve stem. 4.26 Wherever specified for the parts of valve in valve datasheets, minimum thickness of stelliting shall be 1.6 mm. 5.0 INSPECTION AND TESTS		

	5.1 The Manufacturer shall perform all inspection and tests as per the requirements of this specification and the relevant codes, prior to shipment, at his Works. Such inspection and tests shall be, but not limited to, the following: 5.1.1 All valves shall be visually inspected. The internal and external surfaces of the valves shall be free from any strikes, gouges and other detrimental defects. The surfaces shall be thoroughly cleaned and free from dirt, rust and scales. 5.1.2 Dimensional check on all valves shall be carried out as per the Company approved drawings. 5.1.3 Chemical composition and mechanical properties shall be checked as per this specification and relevant material standards, for each heat of steel used. 5.1.4 Non-destructive examination of individual valve material and component consisting of but not limited to castings, forgings, plates and assembly welds shall be carried out by the Manufacturer. a. Body castings of all valves shall be radiographically examined as per ASME B 16.34. Procedure and acceptance criteria shall be as per ASME BI6.34. Radiography shall be performed after the final heat treatment also. All castings shall be wet magnetic particle inspected 100% of the internal surfaces. Method and acceptance shall comply with ASME B16.34. b. All valves, with body fabricated from plates or made by forgings, shall be ultrasonically examined in accordance with the procedure and acceptance standard of Annexure E of ASME B 16.34. Method and acceptance shall comply with ASME B16.34. c) Bodies and bonnets made by welded assembly of segments of castings, forgings, plates or combinations thereof shall be examined, as applicable, by methods of 5.1.4 (a) for cast components or 5.1.4 (b) for forged components and plates. 5.1.5 Full inspection by radiography shall be carried out on all welds of pressure containing parts. Acceptance criteria shall be as per ASME B 31.4 or ASME B31.8 as applicable and API 1104. 5.1.6 Welds, which in Company's opinion cannot be inspected by radiographic methods, shall be checked		

	by ultrasonic or magnetic particle methods and acceptance criteria shall be as per ASME Sec. VIII, Division 1, Appendix 12 and Appendix 6 respectively. 5.1.7 a) All finished wrought weld ends subject to welding in field shall be 100% ultrasonically tested for lamination type defects for a distance of 50 mm from the end. Laminations shall not be acceptable. b) Weld ends of all cast valves subject to welding in field shall be 100% radiographically examined and acceptance criteria shall be as per ASME B16.34. c) After final machining, all bevel surfaces shall be inspected by dye penetrant or wet magnetic particle methods. All defects longer than 6.35 mm are rejected, as are the defects between 6.35 mm and 1.59 mm that are separated by a distance less than 50 times their greatest length. Rejectable defects must be removed. Weld repair of bevel surface is not permitted. 5.1.8 All valves shall be tested in compliance with the requirements of API 6D. During pressure testing, valves shall not have sealant lines and other cavities filled with sealant, grease or other foreign material. The drain, vent and sealant lines shall be either included in the hydrostatic shell test or tested independently. Test pressure shall be held for at least 30 minutes for both Shell & Seat test. No leakage is permissible during hydrostatic testing. The body cavity selfrelieving feature meeting the requirements of clause 4.14 of this specification shall also be checked. 5.1.9 A supplementary air seat test as per API 6D (Appendix C, Para C.3.3 Type II) shall be carried out for all valves. A bubble tight seal is required without the use of any sealant. No leakage is allowed. Test pressure shall be held for at least 15 minutes. 5.1.10 Valves shall be subjected to Operational Torque Test as per API 6D (Appendix C, Para C.6) under hydraulic pressure equal to maximum differential pressure corresponding to the applicable ANSI class rating of valve. It shall be established that the force required to operate the valve does not exceed the requirements stated in section 4.20 (c) of this specification. 5.1.11 Power actuated valves shall be tested after assembly of the valve and actuator, at the valve Manufacturer's works. At least five Open-Close-Open		

	cycles without internal pressure and five Open-Close-Open cycles with maximum differential pressure corresponding to the valve rating shall be performed on the valve actuator assembly. The time for Full Open to Full Close shall be recorded during testing. If required, the actuator shall be adjusted to ensure that the opening and closing time is with in the limits stated in Valve Data Sheet. Hand operator provided on the actuator shall also be checked after above testing, for satisfactory manual over-ride performance. These tests shall be conducted on minimum one valve out of a lot of five (5) valves of the same size, rating and the actuator model/type. In case, the tests do not meet the requirements, retesting/rejection of the lot shall be decided by the Company's Inspector. 5.1.12 Subsequent to successful testing as specified in clause 5.1.10 and 5.1.11 above, one (I) valve out of the total ordered quantity shall be randomly selected by the Company Representative for cyclic testing as mentioned below: a. The valve shall be subjected to at least 100 Open-Close-Open cycles with maximum differential pressure corresponding to the valve rating. b. Subsequent to the above, the valve shall be subjected to hydrostatic test and supplementary air seat test in accordance with clause 5.1.8 and 5.1.9. In case this valve fails to pass these tests, the valve shall be rejected and two more valves shall be selected randomly and subjected to testing as indicated above. If both valves pass these tests, all valves manufactured for the order (except the valve that failed) shall be deemed acceptable. If either of the two valves fails to pass these tests, all valves shall be rejected or each valve shall be tested at the option of manufacturer. Previously carried out test of similar nature shall be considered acceptable if the same has been carried out by Manufacturer in last two years. Valves of two sizes below and two sizes above the size of valve previously tested, and rating similar or one rating lower of valve tested previously, shall be qualified. 5.1.13 Checks shall be carried out to demonstrate that the dissimilar metals used in the valves are successfully insulated as per the requirement of clause		

	4.13 of this specification. 5.2 Company reserves the right to perform stage wise inspection and witness tests as indicated in clause 5.1 above at Manufacturer's works prior to shipment. Manufacturer shall give reasonable access and facilities required for inspection to the Company's Inspector. Company reserves the right to require additional testing at any time to confirm or further investigate a suspected fault. The cost incurred shall be to Manufacturer's account. In no case shall any action of Company or his inspector shall relieve the Manufacturer of his responsibility for material, design, quality or operation of valves. Inspection and tests performed/witnessed by the Company's Inspector shall in no way relieve the Manufacturer's obligation to perform the required inspection and tests. 6.0 TEST CERTIFICATES Manufacturer shall submit the following certificates: a. Mill test certificates relevant to the chemical analysis and mechanical properties of the materials used for the valve construction as per the relevant standards. b. Test certificates of hydrostatic and pneumatic tests complete with records of timing and pressure of each test. c. Test reports of radiograph and ultrasonic inspection. d. Test report on operation of valves conforming to clause 5.1.10, 5.1.11 and 5.1.12 of this specification. e) All other test reports and certificates as required by API 6D and this specification. those valves which have been certified by Company's Inspector shall be dispatched from Manufacturer's works. 7.0 PAINTING, MARKING AND SHIPMENT 7.1 Valve surface shall be thoroughly cleaned, freed from rust and grease and applied with sufficient coats of corrosion resistant paint. Surface preparation shall be carried out by shot blasting to SP-6 in accordance with "Steel Structures Painting Council - Visual Standard SSPC-VIS-1". For the valves to be installed underground, when indicated in Valve Data Sheet, the external surfaces of buried portion of the valve shall be		

	painted with three coats of suitable coal tar epoxy resin with a minimum dry film thickness of 300 microns. For coastal area, painting shall be suitable for highly corrosive environment. 7.2 All valves shall be marked as per API 6D. The units of marking shall be metric except nominal diameter, which shall be in inches. 7.3 Valve ends shall be suitably protected to avoid any damage during transit. All threaded and machined surfaces subject to corrosion shall be well protected by a coat of grease or other suitable material. All valves shall be provided with suitable protectors for flange faces, securely attached to the valves. Bevel ends shall be protected with metallic or high impact plastic bevel protectors. 7.4 All sealant lines and other cavities of the valve shall be filled with sealant before shipment. 7.5 Packaging and shipping instructions shall be as per API 6D. 7.6 On packages, following shall be marked legibly with suitable marking ink: a. Order Number b. Manufacturer's Name c. Valve size and rating d. Tag Number e) Serial Number 8.0 SPARES AND ACCESSORIES 8.1 Manufacturer shall furnish list of recommended spares and accessories for valves. 9.0 DOCUMENTATION Documentation to be submitted by Manufacturer to Company is summarized below. 9.1 At the time of bidding, Manufacturer shall submit the following documents: a) General arrangement/ Sectional drawing. Number of turns for Gear Operated valves shall be indicated in the GA or shall be furnished separately. b. Reference list of similar plug valves manufactured and supplied in last five years indicating all relevant details including project, year, client, location, size, rating, service etc. c. Torque curves for the power actuated valves along with the break torque and maximum allowable stem torque.		

	d. Copy of valid API 6D Certificate. e. Copy of Fire Safe test certificate of qualifying valve as per API 6FA carried out in last 10 years shall be furnished. f. List of recommended spares required during start-up and commissioning & 2 years of normal operation and maintenance. 9.2 After placement of order, the Manufacturer shall submit the following drawings, documents and specifications for Company's approval: a. Detailed sectional drawings showing all parts with reference numbers and materials specification. b. Assembly drawings with overall dimensions and features. Drawing shall also indicate the number of turns of hand wheel (in case of gear operators) required for operating the valve from full open to full close position and the painting scheme. Manufacture of valves shall commence only after approval of the above documents. Once, the approval has been given by Company, any changes in design, material and method of manufacture shall be notified to Company whose approval in writing of all changes shall be obtained before the valve is manufactured. 9.3 Within 30 days from the approval date, Manufacturer shall submit to Company the approved drawings, documents and specifications as listed in clause 9.2 above. 9.4 Prior to shipment, Manufacturer shall submit to Company, the following: a. Test certificates as listed in clause 6.0 of this specification. b. Manual for installation, erection, maintenance and operation instructions including a list of recommended spares for the valves. 9.5 All documents shall be in English language only. 10.0 THIRD PARTY INSPECTION: Valve shall be inspected by OIL enlisted Third Party Inspection Agency only.OIL personal may witness the testing/inspection . Scope for Third Party Inspection shall be as under. 10.1 To review heat number wise foundry certificates of castings and material certificates in order to ensure that the materials used are as per purchase order.		

	10.2 To ensure that valve body castings are procured from foundries as approved by M/s EIL or M/s Lloyds only. 10.3 To ensure that proper technique and procedure as per relevant API standard and Purchase Order are followed by the manufacturer. 10.4 To ensure that different components of the valve conform to purchase order, API 6D specification and all referred standard, codes and specifications in point 2.0 above of the special terms and conditions. 10.5 To ensure and check that valves are tested as per API 6D specifications 10.6 To documents and issue all inspection certificates. 10.7 To ensure that the valves inspected are fully embossed with API monogram and other markings as per API 6D specifications. 10.8 To witness hydraulic, pneumatic test for the body and seat on each specified valve as per API 6D standards. 10.9 To review and check the radiograph films of body and bonnet of all the valves. Certified radiography film shall be submitted along with the supplied valves. <u>SPECIFICATION FOR ACTUATOR</u> 1.0 SCOPE The scope of this specification covers design, manufacture, assembly, shop testing and supply of electrical motor operated valve actuators intended for fully/ partially opening and closing valve duty. This specification does not cover the actuators for flow regulating duty. 2.0 CODES AND STANDARDS 2.1 The equipment shall comply with the requirements of latest revision of the following standards issued by BIS (Bureau of Indian Standards) unless specified otherwise: IS 5 Colours for ready mixed paints and enamels IS 325 Three-phase Induction Motors IS 2148 Flameproof enclosures for electrical apparatus IS 4691 Degrees of protection provided by enclosure for rotating electrical machinery IS 4722 Rotating electrical machines- Specification		

	IS 9334 Electric Motor Operated Actuators IS 13947 Low Voltage Switchgear and Control gear (Parts-L, 3. 4 & 5) 2.2 In case of imported equipment, the standards of the country of origin shall be applicable if these standards are equivalent or more stringent than the applicable Indian standards. 2.3 The equipment shall also conform to the provisions of Indian Electricity Rules and other statutory regulations currently in force in the country. 2.4 In case Indian standards are not available for any equipment, standards issued by IEe/ BS/ VDE/ IEEE/ NEMA or equivalent agency shall be applicable. 2.5 In case of any contradiction between various referred standards/ specifications! data sheets and statutory regulations, the following order of decreasing priority shall govern: Statutory regulations Data sheets Job specifications This specification Codes and standards. 3.0 GENERAL REQUlllEMENTS 3.1 The offered equipment shall be brand new with state of the art technology and a proven field track record. No prototype equipment shall be offered. 3.2 Vendor shall ensure availability of spare parts and maintenance support services for the offered equipment for at least 15 years from the date of supply. 3.3 Vendor shall give a notice of at least one year to the end user of equipment and ElL before phasing out the product/ spares to enable the end user to place order for spares and services. 3.4 The vendor shall be responsible for design, engineering and manufacturing of the complete actuator to fully meet the intent and requirements of this specification and attached data sheets. 4.0 SITE AND SYSTEM CONDITIONS The electrical motor operated valve actuators shall be suitable for operating under site conditions and system conditions as specified in the requisition and data sheet. If not specifically mentioned therein, a design ambient temperature of 40°C and an altitude		

	not exceeding lOOOm above mean sea level shall be considered. 5.0 POWER SUPPLY The electrical motor operated valve actuators shall be suitable for power supply at 415V ± 10 %, 50 Hz ± 3 %, 3 phase, unless specified otherwise in the data sheet. 6.0 TECHNICAL SPECIFICATION. Each MOV actuator shall include the motor, actuator unit, gears, position indicators, limit switches, handwheel, electrical starter and controls, terminal box etc. as a self-contained unit. The actuator shall be sized to provide adequate torque and/ or thrust to ensure the complete intended travel of the valve under the worst operating and electrical power supply conditions. 6.1 Motor 6.1.1 The motor shall be 3-phase squirrel cage induction type unless specified otherwise in the data sheet. It shall have totally enclosed, non-ventilated construction. 6.1.2 The motor shall be designed for valve actuator service with high starting torque and shall be suitable for Direct on line starting. It shall be rated for S2-15 minute duty and shall conform to IS 325 or equivalent international standards. 6.1.3 The motor shall be provided with thermister(s) embedded in the hot spots of motor winding for protecting the motor. 6.1.4 The motor shall be suitable for starting under required torque with 75 % of rated voltage at motor terminals. 6.1.5 The motor shall have class 'F' insulation with temperature rise limited to class 'B' limits.Motor winding shall be treated to resist corrosive agents and moisture. 6.1.6 Motor rotor shall preferably be of die-cast aluminium and, if brazed, shall be free from phosphorous. 6.2 Integral Starter and Control Transformer The reversing starter, control transformer and local controls shall be integral with the valve actuator, unless specified otherwise in the data sheet. Solid state control of valve actuator and electrically isolated interface for remote control requirement shall be provided, wherever these features exist in		

	manufacturer's design. The integral starter shall be supplied with the following devices: a. Electrically and mechanically interlocked reversing contactors for opening and closing operations b. Control transformer with necessary tappings and protected with suitable easily replaceable fuses c. Terminal block for external cable connection fully prewired for internal devices of valve actuator. d. MOV Actuators operating with AC power supply shall be provided with Instantaneous Phase reversal protection. 6.3 Integral Push Button, Selector switches, Indications and Control devices The following local control devices shall be provided integral with the MOV actuator: a. Push buttons for 'Opening/ Closing/ Stop' or alternatively 'Open/ Close' selector switch b. 'Local/ Off/ Remote' selector switch, pad-lockable in each position c. Local continuous position indication from 'Valve fully open' to 'Valve fully closed' position, which may be of analogue or digital type using mechanical indication/ Indicating lamps/ LEDs. 6.4 Torque and Travel Limit Switches Torque limit switches shall be provided to protect the motor from over-loading by cutting- off the power supply to motor during opening and closing operations. The limit switches shall be preset. However, it shall be possible to set the value of maximum torque during closing from 50 % to 100 % of rated torque of actuators. Travel limit switch shall be provided to cut-off the power supply to the motor at the end of preset limit of valve travel. The switches shall be provided with requisite number of potential-free contacts for valve actuator operation and for indication on remote panels as specified in data sheet. Instead of mechanical torque limit switches, magnetic pulse counter/encoders to measure and control the stroke of actuator may be provided, wherever this		

	feature exists in manufacturer's design. 6.5 Control Facilities The internal controls and monitoring circuits shall be incorporated within the integral starter along with transformer and control unit of valve actuator. Remote control facility shall be provided as a standard feature. The remote control circuits shall be powered from internally derived control supply voltage. Common status contact indicating the availability of the MOV actuator for remote control shall be provided by monitoring the following: --Loss of one or more phases of power supply --Loss of control circuit supply --Selector switch in local mode --Local stop push button set to 'Off' --Motor thermostat tripped --Any other local fault/ abnormal condition. Where applicable, one number hand-held infrared remote programming device required for site commissioning and reconfiguring (without the need of removal of the MOV cover) shall be supplied for each group of 10 valve actuators (subject to minimum one infrared remote setting device, even if number of valve actuators are less than ten). 6.6 Hand Operation A hand wheel with hand/ auto lockable lever shall be provided for emergency operation of the MOV. The energisation of the motor shall automatically re-engage power operation. 6.7 Two-Wire Control system Where specified in the data sheet, the MOV actuators shall be suitable for 2-wire control system. These actuators shall have individual field units connectable to a master station through a single 2-core cable loop for control and monitoring of the MOVs. The vendor shall indicate the maximum number of field units that can be connected to a master station and the maximum distance from the field unit to the master station. The vendor shall also indicate maximum number of control inputs and control/ status outputs from each field unit that can be handled through the 2-wire control system. Each field unit/ MOV actuator shall be addressable from the master station through a unique address code. All the field settable/ adjustable parameters of		

	the MOV actuator shall be settable from the master station. Similarly all the indications available on the MOV actuator shall be available at the master station. Full diagnostic features for the MOV actuators shall be available from the master station as well. Suitable redundancy feature shall be provided, such that in case of a fault at any location in the cable, the field unit continues to communicate with the master station. The master station shall be suitable for hook-up with the plant DCS system. 6.8 Remote Position Indicator If requirement of remote position indication is specified in the data sheet, a 4-20 mA remote position transmitter shall be provided in the valve actuator and a continuous position indicator for mounting in purchaser's remote panel shall be supplied as a loose item. The remote position indicator shall continuously indicate the position of travel of the valve. 6.9 Nameplate Each motorized valve actuator shall be provided with a stainless steel nameplate furnishing the following details, attached firmly to it at a place convenient for reading: a. Actuator tag number as per data sheet b. Motor kW rating, motor time rating, motor supply voltage, nominal motor phase current, auxiliary switch rating a. Maximum torque setting b. Actuator enclosure type, lubricant type c. Actuator type, wiring diagram number/ catalogue number, actuator serial number. A separate nameplate shall be provided for hazardous area application. 6.10 The enclosure of complete MOV actuator including motor, integral starter, control transformer unit and all control devices shall have minimum IP-65 degree of ingress protection. 6.11 Wiring and Terminals All devices provided in the actuator shall be wired up to the terminal block. The contacts for remote operation and indication shall also be wired up to the terminal block. Minimum 10% spare terminals shall be provided for future interlocks. Internal wiring for power and control circuits shall be appropriately sized		

	for MOV actuator rating. Each wire shall be identified at both ends using PVC ferrules. The terminal compartment shall be separated from the inner electrical components of the actuator by means of a watertight seal so that the actuator electrical components are protected from the ingress of moisture and foreign materials when the terminal cover is removed during installation and maintenance. 6.12 Vendor shall be solely responsible for the compatibility of the MOV actuator with the valve and for the selection and sizing of various electrical devices and components in the actuator. 6.13 The actuator shall be provided with minimum three adequately sized cable entries viz., one for power cable and two for control cables. However, the actual number of control cable entries in actuators with 2-wire control system shall be provided based on job requirements as specified in data sheets/specification for control systems for MOVs. Suitable double compression cable glands shall be provided with each actuator for all cable entries and sealing plugs for all control cable entries. The cable glands and plugs shall be made of Nickel-plated brass. 7.0 EQUIPMENT FOR CLASSIFIED HAZARDOUS AREAS 7.1 Actuators meant for hazardous areas shall meet the requirements of IS 2148, IEC 79 or equivalent international standards and shall be suitable for Gas groups and Temperature class as specified in the data sheet. Gas group IIB and Temperature class T3 (200°C) shall be considered if not indicated in data sheet. The manufacturer shall possess valid test certificates issued by a recognized independent test house (CIMFRI Baseefal LCIEI ULI FM or equivalent) for the offered actuators. All indigenous equipment shall conform to Indian standards and shall have been tested and certified by Indian testing agencies. All equipment (indigenous and imported) shall also have valid statutory approvals as applicable for the specified hazardous locations from Petroleum and Explosives Safety Organisation(PESO)1 CCE or any other applicable statutory authority. All indigenous flameproof equipment shall have valid BIS license and corresponding marking as required by statutory		

	authorities. 7.2 Apart from the nameplate indicating the Tag No., a separate nameplate shall also be provided on each actuator to indicate the details of the testing agency (CIMFR or equivalent), test certificate number with date, statutory approval number with date, approval agency (PESOI CCEI DGMS or equivalent), BIS license number with date, applicable Gas group and Temperature class etc. The nameplates shall be rivetedl fixed with screws and not pasted. In case any of the standard details listed above are embossed on the enclosures, the same need not be repeated. 8.0 FIREPROOFING 8.1 If specified in the Data Sheet, the MOV Actuators shall be provided with 'K-Mass' type or equivalent fireproofing. Unless specified otherwise, the fireproofing shall be rated for 30 minutes. The required certificates for the fireproof rating shall be furnished from an independent test laboratory. 8.2 MOV Actuators with fireproofing shall be suitable for termination of mica insulated fire survival type power and control cables. 9.0 INSPECTION, TESTING AND ACCEPTANCE 9.1 The equipment shall be subject to inspection by ElL! Owner or by an agency authorized by the owner. Manufacturer shall furnish all necessary information concerning the supply to ElL! Owner's inspector. During the course of manufacturing, the purchaser or his authorized representative shall be free to visit the works and assess the progress of work and the manufacturer shall render him all possible assistance to do so. 9.2 Following routine and acceptance tests shall be carried out at the manufacturers' works under his supervision and at his own cost for all the actuators:- 9.2.1 Functional and calibration test for torque and limit switches 9.2.2 Response time test 9.2.3 Variation of supply voltage 9.2.4 Variation of frequency 9.2.5 Tests for motor(As per relevant IS/IEC) 9.2.6 Life test 9.2.7 Test on output shaft Tests listed at Cl.nos.9.2.2, 9.2.3, 9.2.4, 9.2.5, 9.2.6 and 9.2.7 above are the		

	acceptance tests. Two weeks' notice shall be given to ElL! Owner for witnessing the final testing of the complete assembly to ensure satisfactory operation of the MOV actuators. Type test certificates shall be furnished with bids. Final acceptance of MOVs at site shall be subject to successful testing of the MOV actuators with the valves. 9.3 Type test certificates, original drawings referred in certificates and statutory approval certificates and BIS license, where applicable, shall be shown to the inspection agency on demand. The certificates and BIS license must be valid at the time of dispatch. 9.4 Test certificates of bought-out components shall be shown to the inspection agency on demand. 10.0 PACKING AND DESPATCH All the equipment shall be divided into multiple sections for protection and ease of handling during transportation. The equipment shall be properly packed for the selected mode of transportation, i.e. by ship, rail or trailer. The equipment shall be wrapped in polythene sheets before being placed in crates/ cases to prevent damage to finish. The crates/ cases shall have skid bottoms for handling. Special notations such as 'Fragile','This side up', 'Center of gravity', 'Weight', 'Owner's particulars', 'PO no.' etc. shall be clearly and indelibly marked on the packages together with other details as per purchase order. The equipment may be stored outdoors for long periods before installation. The packing shall be completely suitable for outdoor storage in areas with heavy rains and high ambient temperature unless otherwise agreed. In order to prevent movement of equipment/ components within the crates, proper packing supports shall be provided. A set of instruction manuals for erection, testing and commissioning, a set of operation and maintenance manuals and a set of final drawings shall be enclosed in a waterproof cover along with the shipment.		
20	API 6D BALL VALVE 500 MM(20") DIAMETER REDUCED BORE 150 CLASS RAISED FACE FLANGE (BOTH END) WITH ACTUATOR FOR OVERGROUND	1	No

USE IN PETROLEUM PRODUCT SERVICE.
STANDARD SPECIFICATION FOR BALL VALVE

1. SCOPE
This specification covers the minimum requirements for design, manufacture, testing and supply of carbon steel ball valves of size 18" and 20" ANSI pressure rating Class 150# for use in onshore pipeline systems handling hydrocarbons in liquid phase.

2.0 REFERENCE DOCUMENTS
2.1 All valves shall be manufactured and supplied in accordance with the American Petroleum Institute (API) Specification 6D, Twenty Third edition, April 2008 / ISO 14313:2007, Petroleum and Natural Gas Industries — Pipeline Transportation Systems — Pipeline valves, with additions and modifications as indicated in the following sections of this specification.
2.2 Reference has also been made in this specification to the latest edition (edition enforce at the time of issue of enquiry) of the following Codes, Standards and Specifications.
ASME B31.3 Process Piping.
ASME B31.4 Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids.
ASME B31.8 Gas Transmission and Distribution Piping Systems.
ASME B16.5 Steel Pipe Flanges and Flanged Fittings.
ASME B 16.10 Face-To-Face and End-To-End Dimensions of Valves.
ASME B 16.25 Butt-welding Ends.
ASME B16.34 Valves - Flanged, Threaded and Welding Ends.
ASME BI 6.47 Large Diameter Steel Flanges.
API 1104 Welding Pipelines and Related Facilities.
ASME Sec VIII Boiler and Pressure Vessel Code - Rules for Construction of Pressure Vessels
ASME Sec IX Boiler and Pressure Vessel Code - Welding and Brazing Qualifications
ASTM A-370 Standard Test Methods and Definitions for Mechanical Testing of Steel Products.
ASTM B 733 Auto catalytic Nickel Phosphorous Coating on Metals.
MSS-SP-6 Standard Finishes for Contact Faces of Pipe Flanges and Connecting-end Flanges of Valves

	and Fittings. MSS-SP-44 Steel Pipeline Flanges. SSPC-VIS-1 Steel Structures Painting Council Visual Standard. In case of conflict between the requirements of this specification, API 6D and the Codes, Standards and Specifications referred in clause 2.2 above, the requirements of this specification shall govern. 3.0 MATERIALS 3.1 Material for major components of the valves shall be as indicated in Valve Data Sheet. Other components shall be as per Manufacturer's standard (suitable for the service conditions indicated in Data Sheet) and shall be subject to approval by Company. In addition, the material shall also meet the requirements specified hereinafter. All process-wetted parts, metallic and non-metallic, and lubricants shall be suitable for the service specified by the Company. Manufacturer shall confirm that all wetted parts are suitable for treated water/seawater environment, which may be used during field testing. Non-metallic parts of the valves (including 0-rings, soft seals etc.) intended for hydrocarbon gas service shall be resistant to explosive decompression. 3.2 Carbon steel used for the manufacture of valves shall be fully killed. 3.3 The carbon equivalent (CE) of valve end connections which are subject to further field welding by Company shall not exceed 0.43 on check analysis for each heat of steel used, as calculated by the following formula: 3.4 For all such valves where Carbon Steel is used as ball material, the ball shall have 75 micrometers (.003 inches) thick Electroless Nickel Plating (ENP) as per ASTM B 733 with following classification: SC2, Type II, Class 2. The hardness of plating shall be minimum 50 RC. DESIGN AND CONSTRUCTION REQUIREMENTS 4.1 Valve design shall meet the requirements of API Specification 6D and shall be suitable for the service conditions indicated in the Valve Data Sheet. The		

	ASME Boiler & Pressure Vessel Code, Section VIII, Division I shall be used to design the valve body. Allowable stress requirements shall comply the provisions of above code. In addition, corrosion allowance indicated in Valve Data Sheet shall be considered in valve design. The manufacturer shall have valid license to use API monogram on valves manufactured as per API 6D. 4.2 For above ground valves, body design shall be either fully welded or bolted type. 4.3 Ball shall be of single piece, solid type construction 4.4 Valves shall be Reduced bore (RB). 4.5 Ball mounting shall be trunnion or pivot type only. Valve design shall minimize the possibility of debris ingress into the trunnion as far as practicable. For valves with primary metal to metal contact and secondary soft seats, 0-rings or other seals if used for drip tight sealing shall be encased in a suitable groove in such a manner that it can not be removed from seat ring and there is no extrusion during opening or closing operation of valve at maximum differential pressure corresponding to valve class rating. The seat rings shall be so designed as to ensure sealing at low as well as high differential pressures. For soft seated valves seat rings may be provided with soft insert. The same shall be positively locked in position. All such ball valves shall comply fire safe design and qualified by fire testing as per API 6FA specification for Fire Test for Valves. 4.7 Valves shall be designed to withstand a sustained internal vacuum of at least I (one) milli-bar in both open and closed positions. 4.8 Valves shall have double block and bleed feature to facilitate complete flush, drain and venting of the valve body cavity. 4.9 Reduced Bore valves of nominal valve shall have provision for secondary sealant injection under full line pressure for seat and stem seals. All sealant injection connections shall be provided with a block valve and internal non-return valve. Valve design shall have a provision to replace the sealant injection fitting under full line pressure 4.10 Valves shall be provided with vent and drain connections. Body vent and drain shall be provided		

	with valves (Ball or Plug type). 4.11 Valve design shall ensure repair of stem seals/packing under full line pressure. 4.12 Reduced Bore valves shall be equipped with support foot and lifting lugs. Tapped holes and eyebolts shall not be used for lifting lugs. Height of support foot shall be kept minimum. The location and size of support foot/lifting lugs shall ensure unrestrictive operation of vent/drain valves. 4.13 Valve design shall be such as to avoid bimetallic corrosion between carbon steel and high alloy steel components. Suitable insulation shall be provided as required. 4.14 For valves to be used in liquid service, the body cavity over-pressure shall be prevented by self-relieving seat rings/assemblies. Self-relieving seat rings shall relieve at a body cavity differential pressure not exceeding 50% of the valve class rating pressure. 4.15 a) Valve ends shall be both ends flanged. Face to face/end to end dimensions shall conform to API 6D. b) Flanged ends, if specified, shall have flanges as per ASME B16.5. Flange face shall be raised face. Flange face finish shall be serrated or smooth as indicated in Valve Data Sheet. 4.16 Valve shall be provided with ball position indicator and stops of rugged construction at the fully open and fully closed positions. 4.20 Operating Devices a. Valves shall have a power actuator and manual operator(hand wheel) as indicated in the Valve Data Sheet. Valve design shall be such that damage due to malfunctioning of the operator or its controls will only occur in the operator gear train or power cylinder and that damaged parts can be replaced without the valve cover being removed. b. The power actuator shall be in accordance with the Company Specification issued for the purpose and as indicated in the Valve and Actuator Data Sheet. Operating time shall be as indicated in Actuator Data Sheet. Valve operating time shall correspond to full close to full open /full open to full close under maximum differential pressure corresponding to the valve rating. For actuated valves, the actuator's rated torque output shall be 1.25 times the break torque required to operate the ball valve under the maximum		

	differential pressure corresponding to the Valve Class Rating. c. For the manual operator of all valves, the diameter of the hand wheel shall be such that under the maximum differential pressure, the total force required to operate the valve does not exceed 350 N. However failing to meet above requirement, vendor shall offer Gear operated valves. Manufacturer shall also indicate the number of turns of hand wheel in case of gear operators (along with their offer) required for operating the valve from full open to full close position. The number of turns shall not exceed 250. d. Direction of operation of hand wheel or wrench shall be in clock-wise direction while closing the valve. Hand wheels shall not have protruding spokes. e) Gear operators, when provided, shall have a self-locking provision and shall be fully encased in water proof/splash proof enclosure and shall be filled with suitable grease. 4.21 The tolerance on internal diameter and out of roundness at the ends for welded ends valves shall be as per connected pipe specification as indicated in the Valve Data Sheet. 4.22 When indicated in Material Requisition, valves shall have locking devices to lock the valve either in full open (LO) or full close (LC) positions. Locking devices shall be permanently attached to the valve operator and shall not interfere with operation of the valve. 4.23 All welds shall be made by welders and welding procedures qualified in accordance with the provisions of ASME Section IX. The procedure qualification shall also include impact test and hardness test when required as per Clause 3.4 and 3.5 of this specification and shall meet the requirements as specified therein. 4.24 Repair by welding is not permitted for fabricated and forged body valves. However repair by welding as per ASME B16.34 is permitted for cast body valves. Such repairs shall be carried out at casting supplier's care only. Repair shall be carried out before any heat treatment ofcasting is done. Repair welding procedure qualification shall also include impact test and hardness test when required as per Clause 3.4 and 3.5 of this specification and shall meet the		

	requirements as specified therein. Heat treatment and radiography shall be repeated after the weld repair. 4.25 No casting is permitted for stem and stem extension material of all valves. Valve stem shall be capable of withstanding the maximum operating torque required to operate the valve against the maximum differential pressure corresponding to applicable class rating. The combined stress shall not exceed the maximum allowable stresses specified in ASME section VIII, Division 1. For power actuated valves, the valve stem shall be designed for maximum output torque of the selected power actuator (including gear box, if any) at valve stem. 4.26 Wherever specified for the parts of valve in valve datasheets, minimum thickness of stelliting shall be 1.6 mm. 5.0 INSPECTION AND TESTS 5.1 The Manufacturer shall perform all inspection and tests as per the requirements of this specification and the relevant codes, prior to shipment, at his Works. Such inspection and tests shall be, but not limited to, the following: 5.1.1 All valves shall be visually inspected. The internal and external surfaces of the valves shall be free from any strikes, gouges and other detrimental defects. The surfaces shall be thoroughly cleaned and free from dirt, rust and scales. 5.1.2 Dimensional check on all valves shall be carried out as per the Company approved drawings. 5.1.3 Chemical composition and mechanical properties shall be checked as per this specification and relevant material standards, for each heat of steel used. 5.1.4 Non-destructive examination of individual valve material and component consisting of but not limited to castings, forgings, plates and assembly welds shall be carried out by the Manufacturer. a. Body castings of all valves shall be radiographically examined as per ASME B 16.34. Procedure and acceptance criteria shall be as per ASME BI6.34. Radiography shall be performed after the final heat treatment also. All castings shall be wet magnetic particle inspected 100% of the internal surfaces. Method and acceptance shall comply with ASME		

	B16.34. b. All valves, with body fabricated from plates or made by forgings, shall be ultrasonically examined in accordance with the procedure and acceptance standard of Annexure E of ASME B 16.34. Method and acceptance shall comply with ASME B16.34. c) Bodies and bonnets made by welded assembly of segments of castings, forgings, plates or combinations thereof shall be examined, as applicable, by methods of 5.1.4 (a) for cast components or 5.1.4 (b) for forged components and plates. 5.1.5 Full inspection by radiography shall be carried out on all welds of pressure containing parts. Acceptance criteria shall be as per ASME B 31.4 or ASME B31.8 as applicable and API 1104. 5.1.6 Welds, which in Company's opinion cannot be inspected by radiographic methods, shall be checked by ultrasonic or magnetic particle methods and acceptance criteria shall be as per ASME Sec. VIII, Division 1, Appendix 12 and Appendix 6 respectively. 5.1.7 a) All finished wrought weld ends subject to welding in field shall be 100% ultrasonically tested for lamination type defects for a distance of 50 mm from the end. Laminations shall not be acceptable. b) Weld ends of all cast valves subject to welding in field shall be 100% radiographically examined and acceptance criteria shall be as per ASME B16.34. c) After final machining, all bevel surfaces shall be inspected by dye penetrant or wet magnetic particle methods. All defects longer than 6.35 mm are rejected, as are the defects between 6.35 mm and 1.59 mm that are separated by a distance less than 50 times their greatest length. Rejectable defects must be removed. Weld repair of bevel surface is not permitted. 5.1.8 All valves shall be tested in compliance with the requirements of API 6D. During pressure testing, valves shall not have sealant lines and other cavities filled with sealant, grease or other foreign material. The drain, vent and sealant lines shall be either included in the hydrostatic shell test or tested independently. Test pressure shall be held for at least 30 minutes for both Shell & Seat test. No leakage is		

	permissible during hydrostatic testing. The body cavity selfrelieving feature meeting the requirements of clause 4.14 of this specification shall also be checked. 5.1.9 A supplementary air seat test as per API 6D (Appendix C, Para C.3.3 Type II) shall be carried out for all valves. A bubble tight seal is required without the use of any sealant. No leakage is allowed. Test pressure shall be held for at least 15 minutes. 5.1.10 Valves shall be subjected to Operational Torque Test as per API 6D (Appendix C, Para C.6) under hydraulic pressure equal to maximum differential pressure corresponding to the applicable ANSI class rating of valve. It shall be established that the force required to operate the valve does not exceed the requirements stated in section 4.20 (c) of this specification. 5.1.11 Power actuated valves shall be tested after assembly of the valve and actuator, at the valve Manufacturer's works. At least five Open-Close-Open cycles without internal pressure and five Open-Close-Open cycles with maximum differential pressure corresponding to the valve rating shall be performed on the valve actuator assembly. The time for Full Open to Full Close shall be recorded during testing. If required, the actuator shall be adjusted to ensure that the opening and closing time is with in the limits stated in Valve Data Sheet. Hand operator provided on the actuator shall also be checked after above testing, for satisfactory manual over-ride performance. These tests shall be conducted on minimum one valve out of a lot of five (5) valves of the same size, rating and the actuator model/type. In case, the tests do not meet the requirements, retesting/rejection of the lot shall be decided by the Company's Inspector. 5.1.12 Subsequent to successful testing as specified in clause 5.1.10 and 5.1.11 above, one (I) valve out of the total ordered quantity shall be randomly selected by the Company Representative for cyclic testing as mentioned below: a. The valve shall be subjected to at least 100 Open-Close-Open cycles with maximum differential pressure corresponding to the valve rating. b. Subsequent to the above, the valve shall be		

	subjected to hydrostatic test and supplementary air seat test in accordance with clause 5.1.8 and 5.1.9. In case this valve fails to pass these tests, the valve shall be rejected and two more valves shall be selected randomly and subjected to testing as indicated above. If both valves pass these tests, all valves manufactured for the order (except the valve that failed) shall be deemed acceptable. If either of the two valves fails to pass these tests, all valves shall be rejected or each valve shall be tested at the option of manufacturer. Previously carried out test of similar nature shall be considered acceptable if the same has been carried out by Manufacturer in last two years. Valves of two sizes below and two sizes above the size of valve previously tested, and rating similar or one rating lower of valve tested previously, shall be qualified. 5.1.13 Checks shall be carried out to demonstrate that the dissimilar metals used in the valves are successfully insulated as per the requirement of clause 4.13 of this specification. 5.2 Company reserves the right to perform stage wise inspection and witness tests as indicated in clause 5.1 above at Manufacturer's works prior to shipment. Manufacturer shall give reasonable access and facilities required for inspection to the Company's Inspector. Company reserves the right to require additional testing at any time to confirm or further investigate a suspected fault. The cost incurred shall be to Manufacturer's account. In no case shall any action of Company or his inspector shall relieve the Manufacturer of his responsibility for material, design, quality or operation of valves. Inspection and tests performed/witnessed by the Company's Inspector shall in no way relieve the Manufacturer's obligation to perform the required inspection and tests. 6.0 TEST CERTIFICATES Manufacturer shall submit the following certificates: a. Mill test certificates relevant to the chemical analysis and mechanical properties of the materials used for the valve construction as per the relevant standards. b. Test certificates of hydrostatic and pneumatic tests		

	complete with records of timing and pressure of each test. c. Test reports of radiograph and ultrasonic inspection. d. Test report on operation of valves conforming to clause 5.1.10, 5.1.11 and 5.1.12 of this specification. e) All other test reports and certificates as required by API 6D and this specification. those valves which have been certified by Company's Inspector shall be dispatched from Manufacturer's works. 7.0 PAINTING, MARKING AND SHIPMENT 7.1 Valve surface shall be thoroughly cleaned, freed from rust and grease and applied with sufficient coats of corrosion resistant paint. Surface preparation shall be carried out by shot blasting to SP-6 in accordance with "Steel Structures Painting Council - Visual Standard SSPC-VIS-1". For the valves to be installed underground, when indicated in Valve Data Sheet, the external surfaces of buried portion of the valve shall be painted with three coats of suitable coal tar epoxy resin with a minimum dry film thickness of 300 microns. For coastal area, painting shall be suitable for highly corrosive environment. 7.2 All valves shall be marked as per API 6D. The units of marking shall be metric except nominal diameter, which shall be in inches. 7.3 Valve ends shall be suitably protected to avoid any damage during transit. All threaded and machined surfaces subject to corrosion shall be well protected by a coat of grease or other suitable material. All valves shall be provided with suitable protectors for flange faces, securely attached to the valves. Bevel ends shall be protected with metallic or high impact plastic bevel protectors. 7.4 All sealant lines and other cavities of the valve shall be filled with sealant before shipment. 7.5 Packaging and shipping instructions shall be as per API 6D. 7.6 On packages, following shall be marked legibly with suitable marking ink: a. Order Number b. Manufacturer's Name c. Valve size and rating d. Tag Number e) Serial Number		

	8.0 SPARES AND ACCESSORIES 8.1 Manufacturer shall furnish list of recommended spares and accessories for valves. 9.0 DOCUMENTATION Documentation to be submitted by Manufacturer to Company is summarized below. 9.1 At the time of bidding, Manufacturer shall submit the following documents: a) General arrangement/ Sectional drawing. Number of turns for Gear Operated valves shall be indicated in the GA or shall be furnished separately. b. Reference list of similar plug valves manufactured and supplied in last five years indicating all relevant details including project, year, client, location, size, rating, service etc. c. Torque curves for the power actuated valves along with the break torque and maximum allowable stem torque. d. Copy of valid API 6D Certificate. e. Copy of Fire Safe test certificate of qualifying valve as per API 6FA carried out in last 10 years shall be furnished. f. List of recommended spares required during start-up and commissioning & 2 years of normal operation and maintenance. 9.2 After placement of order, the Manufacturer shall submit the following drawings, documents and specifications for Company's approval: a. Detailed sectional drawings showing all parts with reference numbers and materials specification. b. Assembly drawings with overall dimensions and features. Drawing shall also indicate the number of turns of hand wheel (in case of gear operators) required for operating the valve from full open to full close position and the painting scheme. Manufacture of valves shall commence only after approval of the above documents. Once, the approval has been given by Company, any changes in design, material and method of manufacture shall be notified to Company whose approval in writing of all changes shall be obtained before the valve is manufactured. 9.3 Within 30 days from the approval date, Manufacturer shall submit to Company the approved		

	drawings, documents and specifications as listed in clause 9.2 above. 9.4 Prior to shipment, Manufacturer shall submit to Company, the following: a. Test certificates as listed in clause 6.0 of this specification. b. Manual for installation, erection, maintenance and operation instructions including a list of recommended spares for the valves. 9.5 All documents shall be in English language only. 10.0 THIRD PARTY INSPECTION: Valve shall be inspected by OIL enlisted Third Party Inspection Agency only.OIL personal may witness the testing/inspection . Scope for Third Party Inspection shall be as under. 10.1 To review heat number wise foundry certificates of castings and material certificates in order to ensure that the materials used are as per purchase order. 10.2 To ensure that valve body castings are procured from foundries as approved by M/s EIL or M/s Lloyds only. 10.3 To ensure that proper technique and procedure as per relevant API standard and Purchase Order are followed by the manufacturer. 10.4 To ensure that different components of the valve conform to purchase order, API 6D specification and all referred standard, codes and specifications in point 2.0 above of the special terms and conditions. 10.5 To ensure and check that valves are tested as per API 6D specifications 10.6 To documents and issue all inspection certificates. 10.7 To ensure that the valves inspected are fully embossed with API monogram and other markings as per API 6D specifications. 10.8 To witness hydraulic, pneumatic test for the body and seat on each specified valve as per API 6D standards. 10.9 To review and check the radiograph films of body and bonnet of all the valves. Certified radiography film shall be submitted along with the supplied valves.		

SPECIFICATION FOR ACTUATOR

1.0 SCOPE

The scope of this specification covers design, manufacture, assembly, shop testing and supply of electrical motor operated valve actuators intended for fully/ partially opening and closing valve duty. This specification does not cover the actuators for flow regulating duty.

2.0 CODES AND STANDARDS

2.1 The equipment shall comply with the requirements of latest revision of the following standards issued by BIS (Bureau of Indian Standards) unless specified otherwise:

IS 5 Colours for ready mixed paints and enamels
IS 325 Three-phase Induction Motors
IS 2148 Flameproof enclosures for electrical apparatus
IS 4691 Degrees of protection provided by enclosure for rotating electrical machinery
IS 4722 Rotating electrical machines- Specification
IS 9334 Electric Motor Operated Actuators
IS 13947 Low Voltage Switchgear and Control gear (Parts-L, 3. 4 & 5)

2.2 In case of imported equipment, the standards of the country of origin shall be applicable if these standards are equivalent or more stringent than the applicable Indian standards.

2.3 The equipment shall also conform to the provisions of Indian Electricity Rules and other statutory regulations currently in force in the country.

2.4 In case Indian standards are not available for any equipment, standards issued by IEe/ BS/ VDE/ IEEE/ NEMA or equivalent agency shall be applicable.

2.5 In case of any contradiction between various referred standards/ specifications! data sheets and statutory regulations, the following order of decreasing priority shall govern:

Statutory regulations
Data sheets
Job specifications
This specification
Codes and standards.

3.0 GENERAL REQUlllEMENTS

	3.1 The offered equipment shall be brand new with state of the art technology and a proven field track record. No prototype equipment shall be offered. 3.2 Vendor shall ensure availability of spare parts and maintenance support services for the offered equipment for at least 15 years from the date of supply. 3.3 Vendor shall give a notice of at least one year to the end user of equipment and ElL before phasing out the product/ spares to enable the end user to place order for spares and services. 3.4 The vendor shall be responsible for design, engineering and manufacturing of the complete actuator to fully meet the intent and requirements of this specification and attached data sheets. 4.0 SITE AND SYSTEM CONDITIONS The electrical motor operated valve actuators shall be suitable for operating under site conditions and system conditions as specified in the requisition and data sheet. If not specifically mentioned therein, a design ambient temperature of 40°C and an altitude not exceeding lOOOm above mean sea level shall be considered. 5.0 POWER SUPPLY The electrical motor operated valve actuators shall be suitable for power supply at 415V ± 10 %, 50 Hz ± 3 %, 3 phase, unless specified otherwise in the data sheet. 6.0 TECHNICAL SPECIFICATION. Each MOV actuator shall include the motor, actuator unit, gears, position indicators, limit switches, handwheel, electrical starter and controls, terminal box etc. as a self-contained unit. The actuator shall be sized to provide adequate torque and/ or thrust to ensure the complete intended travel of the valve under the worst operating and electrical power supply conditions. 6.1 Motor 6.1.1 The motor shall be 3-phase squirrel cage induction type unless specified otherwise in the data sheet. It shall have totally enclosed, non-ventilated construction. 6.1.2 The motor shall be designed for valve actuator service with high starting torque and shall be suitable for Direct on line starting. It shall be rated for S2-15		

	minute duty and shall conform to IS 325 or equivalent international standards. 6.1.3 The motor shall be provided with thermister(s) embedded in the hot spots of motor winding for protecting the motor. 6.1.4 The motor shall be suitable for starting under required torque with 75 % of rated voltage at motor terminals. 6.1.5 The motor shall have class 'F' insulation with temperature rise limited to class 'B' limits.Motor winding shall be treated to resist corrosive agents and moisture. 6.1.6 Motor rotor shall preferably be of die-cast aluminium and, if brazed, shall be free from phosphorous. 6.2 Integral Starter and Control Transformer The reversing starter, control transformer and local controls shall be integral with the valve actuator, unless specified otherwise in the data sheet. Solid state control of valve actuator and electrically isolated interface for remote control requirement shall be provided, wherever these features exist in manufacturer's design. The integral starter shall be supplied with the following devices: a. Electrically and mechanically interlocked reversing contactors for opening and closing operations b. Control transformer with necessary tappings and protected with suitable easily replaceable fuses c. Terminal block for external cable connection fully prewired for internal devices of valve actuator. d. MOV Actuators operating with AC power supply shall be provided with Instantaneous Phase reversal protection. 6.3 Integral Push Button, Selector switches, Indications and Control devices The following local control devices shall be provided integral with the MOV actuator: a. Push buttons for 'Opening/ Closing/ Stop' or alternatively 'Open/ Close' selector switch b. 'Local/ Off/ Remote' selector switch, pad-lockable in		

	each position c. Local continuous position indication from 'Valve fully open' to 'Valve fully closed' position, which may be of analogue or digital type using mechanical indication/ Indicating lamps/ LEDs. 6.4 Torque and Travel Limit Switches Torque limit switches shall be provided to protect the motor from over-loading by cutting- off the power supply to motor during opening and closing operations. The limit switches shall be preset. However, it shall be possible to set the value of maximum torque during closing from 50 % to 100 % of rated torque of actuators. Travel limit switch shall be provided to cut-off the power supply to the motor at the end of preset limit of valve travel. The switches shall be provided with requisite number of potential-free contacts for valve actuator operation and for indication on remote panels as specified in data sheet. Instead of mechanical torque limit switches, magnetic pulse counter/encoders to measure and control the stroke of actuator may be provided, wherever this feature exists in manufacturer's design. 6.5 Control Facilities The internal controls and monitoring circuits shall be incorporated within the integral starter along with transformer and control unit of valve actuator. Remote control facility shall be provided as a standard feature. The remote control circuits shall be powered from internally derived control supply voltage. Common status contact indicating the availability of the MOV actuator for remote control shall be provided by monitoring the following: --Loss of one or more phases of power supply --Loss of control circuit supply --Selector switch in local mode --Local stop push button set to 'Off' --Motor thermostat tripped --Any other local fault/ abnormal condition. Where applicable, one number hand-held infrared remote programming device required for site commissioning and reconfiguring (without the need of removal of the MOV cover) shall be supplied for each group of 10 valve actuators (subject to minimum one infrared remote setting device, even if number of valve		

	actuators are less than ten). 6.6 Hand Operation A hand wheel with hand/ auto lockable lever shall be provided for emergency operation of the MOV. The energisation of the motor shall automatically re-engage power operation. 6.7 Two-Wire Control system Where specified in the data sheet, the MOV actuators shall be suitable for 2-wire control system. These actuators shall have individual field units connectable to a master station through a single 2-core cable loop for control and monitoring of the MOVs. The vendor shall indicate the maximum number of field units that can be connected to a master station and the maximum distance from the field unit to the master station. The vendor shall also indicate maximum number of control inputs and control/ status outputs from each field unit that can be handled through the 2-wire control system. Each field unit/ MOV actuator shall be addressable from the master station through a unique address code. All the field settable/ adjustable parameters of the MOV actuator shall be settable from the master station. Similarly all the indications available on the MOV actuator shall be available at the master station. Full diagnostic features for the MOV actuators shall be available from the master station as well. Suitable redundancy feature shall be provided, such that in case of a fault at any location in the cable, the field unit continues to communicate with the master station. The master station shall be suitable for hook-up with the plant DCS system. 6.8 Remote Position Indicator If requirement of remote position indication is specified in the data sheet, a 4-20 mA remote position transmitter shall be provided in the valve actuator and a continuous position indicator for mounting in purchaser's remote panel shall be supplied as a loose item. The remote position indicator shall continuously indicate the position of travel of the valve. 6.9 Nameplate Each motorized valve actuator shall be provided with a stainless steel nameplate furnishing the following details, attached firmly to it at a place convenient for reading:		

	a. Actuator tag number as per data sheet b. Motor kW rating, motor time rating, motor supply voltage, nominal motor phase current, auxiliary switch rating a. Maximum torque setting b. Actuator enclosure type, lubricant type c. Actuator type, wiring diagram number/ catalogue number, actuator serial number. A separate nameplate shall be provided for hazardous area application. 6.10 The enclosure of complete MOV actuator including motor, integral starter, control transformer unit and all control devices shall have minimum IP-65 degree of ingress protection. 6.11 Wiring and Terminals All devices provided in the actuator shall be wired up to the terminal block. The contacts for remote operation and indication shall also be wired up to the terminal block. Minimum 10% spare terminals shall be provided for future interlocks. Internal wiring for power and control circuits shall be appropriately sized for MOV actuator rating. Each wire shall be identified at both ends using PVC ferrules. The terminal compartment shall be separated from the inner electrical components of the actuator by means of a watertight seal so that the actuator electrical components are protected from the ingress of moisture and foreign materials when the terminal cover is removed during installation and maintenance. 6.12 Vendor shall be solely responsible for the compatibility of the MOV actuator with the valve and for the selection and sizing of various electrical devices and components in the actuator. 6.13 The actuator shall be provided with minimum three adequately sized cable entries viz., one for power cable and two for control cables. However, the actual number of control cable entries in actuators with 2-wire control system shall be provided based on job requirements as specified in data sheets/specification for control systems for MOVs. Suitable double compression cable glands shall be provided with each actuator for all cable entries and sealing plugs for all control cable entries. The cable glands and plugs shall		

	be made of Nickel-plated brass. 7.0 EQUIPMENT FOR CLASSIFIED HAZARDOUS AREAS 7.1 Actuators meant for hazardous areas shall meet the requirements of IS 2148, IEC 79 or equivalent international standards and shall be suitable for Gas groups and Temperature class as specified in the data sheet. Gas group IIB and Temperature class T3 (200°C) shall be considered if not indicated in data sheet. The manufacturer shall possess valid test certificates issued by a recognized independent test house (CIMFRI Baseefal LCIEI ULI FM or equivalent) for the offered actuators. All indigenous equipment shall conform to Indian standards and shall have been tested and certified by Indian testing agencies. All equipment (indigenous and imported) shall also have valid statutory approvals as applicable for the specified hazardous locations from Petroleum and Explosives Safety Organisation(PESO)1 CCE or any other applicable statutory authority. All indigenous flameproof equipment shall have valid BIS license and corresponding marking as required by statutory authorities. 7.2 Apart from the nameplate indicating the Tag No., a separate nameplate shall also be provided on each actuator to indicate the details of the testing agency (CIMFR or equivalent), test certificate number with date, statutory approval number with date, approval agency (PESOI CCEI DGMS or equivalent), BIS license number with date, applicable Gas group and Temperature class etc. The nameplates shall be rivetedl fixed with screws and not pasted. In case any of the standard details listed above are embossed on the enclosures, the same need not be repeated. 8.0 FIREPROOFING 8.1 If specified in the Data Sheet, the MOV Actuators shall be provided with 'K-Mass' type or equivalent fireproofing. Unless specified otherwise, the fireproofing shall be rated for 30 minutes. The required certificates for the fireproof rating shall be furnished from an independent test laboratory. 8.2 MOV Actuators with fireproofing shall be suitable for termination of mica insulated fire survival type power and control cables. 9.0 INSPECTION, TESTING AND ACCEPTANCE		

	9.1 The equipment shall be subject to inspection by ElL! Owner or by an agency authorized by the owner. Manufacturer shall furnish all necessary information concerning the supply to ElL! Owner's inspector. During the course of manufacturing, the purchaser or his authorized representative shall be free to visit the works and assess the progress of work and the manufacturer shall render him all possible assistance to do so. 9.2 Following routine and acceptance tests shall be carried out at the manufacturers' works under his supervision and at his own cost for all the actuators:- 9.2.1 Functional and calibration test for torque and limit switches 9.2.2 Response time test 9.2.3 Variation of supply voltage 9.2.4 Variation of frequency 9.2.5 Tests for motor(As per relevant IS/IEC) 9.2.6 Life test 9.2.7 Test on output shaft Tests listed at Cl.nos.9.2.2, 9.2.3, 9.2.4, 9.2.5, 9.2.6 and 9.2.7 above are the acceptance tests. Two weeks' notice shall be given to ElL! Owner for witnessing the final testing of the complete assembly to ensure satisfactory operation of the MOV actuators. Type test certificates shall be furnished with bids. Final acceptance of MOVs at site shall be subject to successful testing of the MOV actuators with the valves. 9.3 Type test certificates, original drawings referred in certificates and statutory approval certificates and BIS license, where applicable, shall be shown to the inspection agency on demand. The certificates and BIS license must be valid at the time of dispatch. 9.4 Test certificates of bought-out components shall be shown to the inspection agency on demand. 10.0 PACKING AND DESPATCH All the equipment shall be divided into multiple sections for protection and ease of handling during transportation. The equipment shall be properly packed for the selected mode of transportation, i.e. by ship, rail or trailer. The equipment shall be wrapped in polythene sheets before being placed in crates/ cases to prevent damage to finish. The crates/ cases shall		

	have skid bottoms for handling. Special notations such as 'Fragile','This side up', 'Center of gravity', 'Weight', 'Owner's particulars', 'PO no.' etc. shall be clearly and indelibly marked on the packages together with other details as per purchase order. The equipment may be stored outdoors for long periods before installation. The packing shall be completely suitable for outdoor storage in areas with heavy rains and high ambient temperature unless otherwise agreed. In order to prevent movement of equipment/ components within the crates, proper packing supports shall be provided. A set of instruction manuals for erection, testing and commissioning, a set of operation and maintenance manuals and a set of final drawings shall be enclosed in a waterproof cover along with the shipment.		

Annexure - II.

A. 1.0 BID EVALUATION CRITERIA
Agencies intending to participate shall meet the following qualification criteria:
1.1 Technical Criteria:

1.1.1 Bidder shall be a manufacturer of ball valves as per API Specification 6D and shall have a valid license to use API monogram for the proposed manufacturing plant.
1.1.2 Bidder shall be a regular manufacturer of ball valve for hydrocarbon industry for the past 15 years which shall be authenticated by documentary evidence submitted along with the bid.

1.1.3 The Bidder shall have designed, manufactured, tested and supplied, from the proposed manufacturing plant, at least one (1) number ball valve, identical in terms of design and equal or higher in terms of size and rating, as quoted for, in the last three (3) years reckoned from the bid due date.

1.1.4 The criteria as stated in 3.1.3 shall be independently applicable for each item quoted by the bidder.

1.2 General:
1.2.1 A job executed by a bidder for its own plant/projects cannot be considered as experience for the purpose of meeting requirement of BEC of the tender. However, jobs executed for Subsidiary/Fellow subsidiary/ Holding company will be considered as experience for the purpose of meeting BEC subject to submission of tax paid invoice(s) duly certified by Statutory auditor of the bidder towards payments of statutory tax in support of the job executed for Subsidiary/ Fellow subsidiary/Holding company. Such bidders shall submit these documents in addition to the documents specified in the bidding documents to meet BEC.
1.2.2 A job completed by a bidder as a sub-contractor shall be considered for the purpose of meeting the experience criteria of BEC subject to submission of following documents in support of meeting the "Bidder Qualification Criteria":
a) Copy of work order along with SOR issued by main contractor.
b) Copies of Completion Certificates from the end User/ Owner and also from the main Contractor. The Completion Certificates shall have details

like work order no. /date, brief scope of work, ordered & executed value of the job, completion date etc.

1.3 Documentation:
1.3.1 The Bidder shall furnish documentary evidence along with the bid, to establish the above technical qualification criteria as per cl. no. 3.1 above such as copies of purchase order, inspection release note, end user approved cross section drawings with blow up seat details of relevant previous supplies of valves, API 6D Licence to use API monogram.
1.3.2 Submission of authentic documents is the prime responsibility of the Bidder. Wherever OIL has concern or apprehension regarding the authenticity/ correctness of any document, OIL reserves a right of getting the document cross verified from the document issuing authority.
1.3.3 In absence of requisite document, OIL reserves the right to reject the bid without making any reference to the bidder.

1.4 LANGUAGE OF BID

1.4.1. The Bid prepared by the bidder, all correspondence/drawings and documents relating to the bid exchanged by the bidder with the Owner/Consultant shall be in English Language alone provided that any printed literature furnished by the bidder may be written in another language so long as accompanied by an English translation, in which case, for the purpose of interpretation of the bid, the English translation shall govern.

1.4.2 In the event of submission of any document/ certificate by the Bidder in a language other than English, the English translation of the same duly authenticated by Chamber of Commerce of Bidder's country shall be submitted by the Bidder.

B .COMMERCIAL:

1.Bids are invited under Single Stage Composite Bid System. Bidders shall quote accordingly under Single Stage Composite Bid System.

2.0Bid security of US $ 1400.00 or Rs. 84000.00 shall be furnished as a part of the TECHNICAL BID (refer Clause Nos.9.0 & 12.0 (Section A) of "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders)). A bid shall be rejected straightway if Original Bid Security is not received within the stipulated date & time mentioned in the Tender and/or if the Bid

Security validity is shorter than the validity indicated in Tender and/or if the Bid Security amount is lesser than the amount indicated in the Tender.

2.1For exemption for submission of Bid Security, please refer Clause No. 9.8 (Section A) of "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders).

2.2The Bank Guarantee towards Bid Security shall be valid upto 01.12.2016.

3.Validity of the bid shall be minimum 120 days from the date of Bid Closing Date. Bids with lesser validity will be straightway rejected.

4.Bidders must confirm that Goods, materials or plant(s) to be supplied shall be new of recent make and of the best quality and workmanship and shall be guaranteed for a period of 18 months from the date of shipment/dispatch or twelve(12) months from the date of receipt of the items at site, whichever is earlier against any defects arising from faulty materials, workmanship or design. Defective goods/materials or parts rejected by OIL shall be replaced immediately by the supplier at the supplier's expenses at no extra cost to OIL.

5.Successful bidder will be required to furnish a Performance Bank Guarantee @10% of the order value. The Performance Bank Guarantee must be valid for one year from the date of successful installation and commissioning of the item. Bidder must confirm the same in their Technical Bid. Offers not complying with this clause will be rejected.

6.Bidders are required to submit the summary of the prices in their price bids as per bid format (Summary), given below :

I)Price Bid Format (SUMMARY) for Foreign Bidders :

Appendix-I

Bidders are required to submit the summary of the prices in their commercial bids as per bid format
(Summary), given below :

Priced Bid Format (SUMMARY):

Sl. No.	Material Description & Material code No.	Qty.	Unit	Unit Price	Total Price
10	SUPPLY OF API 6D BALL VALVE FOR OVER GROUND USE IN PETROLEUM PRODUCT		1	No.	
20	SUPPLY OF API 6D BALL VALVE FOR OVER GROUND USE IN PETROLEUM PRODUCT		1	No.	

(i) Commercial Bid Format (SUMMARY) for Foreign Bidders :

(A) Total material cost (as in Serial no. 10, 20 above)
(B) Packing & FOB/FCA Charges
(C) Total FOB /FCA value, (A+B) above
(D) Ocean / Air Freight Charges upto Kolkata, India
(E) Insurance Charges @1% of Total FOB Port of Shipment value vide (C) above:
(F) Banking Charges @ 0.5% of Total FOB Value (C) above in case of payment through Letter of Credit (If confirmed L/C at buyer's account is required, 1.5% of Total FOB Value will be loaded).
(G)Total CIF Kolkata value, (C + D + E+F) above
(H) Total value in words :
(I) Gross Weight :
(J) Gross Volume :

(ii) Commercial Bid Format (SUMMARY) for Indigenous Bidders :

(A) Total material value (as in Serial no. 10,20 above)
(B) Packing and Forwarding Charges
(C) Total Ex-works value (A+B)
(D) Excise Duty including Cess, (Please indicate applicable rate of Duty)
(E) Total Ex-works value including Excise Duty & Cess (C+D)
(F) Sales Tax, (Please indicate applicable rate of Tax)
(G) Total FOR Despatching station value (E+F)
(H) Transportation charges to PHQ, Guwahati :

(I) Transit Insurance Charges
(J) Assam Entry tax
(K) Total FOR Guwahati value (G+H+I+J)
(L) Total value in words :
(M) Gross Weight :
(N) Gross Volume :

NOTE: 1. Banking charges in the country of the foreign bidder shall be borne by the bidder

7.The prices offered will have to be firm through delivery and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and rejected.

8.Bids received after the bid closing date and time will be rejected. Similarly, modifications to bids received after the bid closing date & time will not be considered.

9.Bids containing incorrect statement will be rejected.

(II)BID EVALUATION CRITERIA (BEC) :

Bids conforming to the specifications, terms and conditions stipulated in the tender and considered to be responsive after subjecting to the Bid Rejection Criteria will be considered for further evaluation as per the Bid Evaluation Criteria given below:

1)The evaluation of bids will be done as per the Priced Schedule (summary) detailed vide para

(6) of BRC (Commercial).

2)If there is any discrepancy between the unit price and total price, the unit price will prevail and the total price shall be corrected. Similarly, if there is any discrepancy between words and figure, the amounts in words shall prevail and will be adopted for evaluation.

3)For conversion of foreign currency into Indian currency, B.C. selling (Market) rate declared by State Bank of India, one day prior to the date of price bid opening shall be considered. However, if the time lag between the opening of the bids and final decision exceed 3(three) months, then B.C. Selling(Market) rate of exchange declared by SBI on the date prior to the date of final decision shall be adopted for conversion and evaluation.

4)To ascertain the inter-se-ranking, the comparison of the responsive bids will be made as under, subject to corrections / adjustments given herein.

Note: If the Government of India revises these evaluation criteria the same as applicable on the bid closing date will be adopted for evaluation of the offers.

5)Other terms and conditions of the enquiry shall be as per General Terms and Conditions for Global Tender. However, if any of the Clauses of the Bid Rejection Criteria/Bid Evaluation Criteria (BEC/BRC) mentioned here contradict the clauses in the General Terms & Conditions of Global Tender of the tender and/or elsewhere, those mentioned in this BEC/BRC shall prevail.

ANNEXURE-III

(A) COMMERCIAL CHECK-LIST

Sl. No.	PARAMETERS/REQUIREMENTS	BIDDER RESPONSE	REMARKS IF ANY
1.	Whether Original Signed quotation submitted?	YES/NO	
2.	Whether quoted as manufacturer?	YES/NO	
3.	Whether quoted as authorized dealer? [To Specify]	YES/NO	
4.	If quoted as authorized dealer,		
5.	(a)Whether submitted valid and proper authorization letter from manufacturer IN ORIGINAL confirming that bidder is their authorized dealer for the product offered?	YES/NO	
6.	(b)Whether manufacturer's back-up Warranty/Guarantee certificate submitted?	YES/NO	
7.	Whether ORIGINAL Bid Bond (not copy of Bid Bond) enclosed with the offer? If YES, provide details (a) Amount : (b) Name of issuing Bank : (c) Validity of Bid Bond :	YES/NO	
8.	Whether offered firm prices?	YES/NO	
9.	Whether quoted offer validity of 120 days from the date of closing of tender?	YES/NO	
10.	Whether quoted a firm delivery period?	YES/NO	
11.	Whether quoted as per NIT (without any deviations)?	YES/NO	
12.	Whether any deviation is there in the offer?	YES/NO	
13.	Whether deviation separately highlighted?	YES/NO	
14.	Whether agreed to the NIT Warranty clause?	YES/NO	
15.	Whether Price Bid submitted as per Price Schedule?	YES/NO	

16.	Whether indicated the country of origin for the items quoted?	YES/NO
17.	Whether all the items of tender quoted?	YES/NO
18.	Whether technical literature/catalogue/drawings enclosed?	YES/NO
19.	For Foreign Bidders - Whether offered FOB/FCA port of dispatch including sea/air worthy packing & forwarding?	YES/NO
20.	For Foreign Bidders – Whether port of shipment indicated? [To specify]	YES/NO
21.	For Foreign Bidders only - Whether indicated ocean freight up to C&F Kolkata port (Excluding marine insurance)?	YES/NO
22.	Whether Indian Agent applicable?	YES/NO
	If YES, whether following details of Indian Agent provided? (a) Name & address of the agent in India – To indicate (b) Amount of agency commission – To indicate (c) Whether agency commission included in quoted material value?	YES/NO
23.	Whether weight & volume of items offered indicated?	YES/NO
24.	Whether confirmed to submit PBG as asked for in NIT?	YES/NO
25.	Whether agreed to submit PBG within 30 days of placement of order?	YES/NO
26.	For Indian bidders – Whether place of dispatch indicated in the offer? [To specify]	YES/NO
27.	For Indian bidders – Whether road transportation charges up to Guwahati	YES/NO
28.	For Indian Bidders only - Whether offered Ex-works price including packing/forwarding charges?	YES/NO
29.	Whether quoted prices are exclusive of Excise duty?	YES/NO
30.	For Indian bidders only – whether import content indicated in the offer?	YES/NO
31.	For Indian Bidders only - whether all Taxes have been indicated categorically?	YES/NO
32.	Whether all BRC/BEC clauses accepted?	YES/NO