



THE STATE TRADING CORPORATION OF INDIA LTD.

(A GOVT. OF INDIA ENTERPRISE)

Mogul's Court, 5th Floor, Basheerbagh, Hyderabad 500 001, India

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TENDER NO.: STC/HYD/GID/2015-16/03 DATED 08.02.2016

The State Trading Corporation of India Limited, Hyderabad Branch invites offers for import/supply and fabrication of following item(s)

Sl.No.	Name of the Equipment	Qty.
1	Fire Proximity Suits	544 Nos
2	Light weight, hand control, Modular, Nozzles (Hard Anodized) / with Selectable flow.	98 Nos
3	B.A. Sets	228 Nos
4	Hose ramp (Rubber)	152 Nos
5	Pneumatic Air Bags	38 Nos
6	Combi tool (Spreader & Cutter) Battery Operated	38 Nos
7	Bolt cutter 30 inch/14 inch	38 Nos
8	Circular Saw for concrete cutting	38 Nos
9	Exhaust Blower	39 Nos
10	Diamond Chain Saw	38 Nos
11	B.A. Set Compressor	1 Nos
12	High Expansion Foam Generator (AFFF)	1 Nos
13	Flow Meter for Testing	1 Nos
14	Jumping Cushion (30 Mtrs jumping Height for rescue)	1 Nos
15	Akron Nozzles	2 Nos
16	Smoke generator	1 Nos
17	A set of Cutting away gears Hydraulic/Battery operated – Battery operated Combi Tool, Hydraulic Ram, Power Unit for Hydraulic Tools, Hydraulic Combi Tool	1 set

For details, please visit websites www.stc.gov.in or www.tenders.gov.in or www.eprocure.gov.in. Interested bidders must submit their bids online using e-Procurement portal of NIC (eprocure.gov.in) in the prescribed formats along with all necessary documents and information requested herein.

You are requested to submit your most competitive offer for the above product range. Bids against this tender shall be received only electronically through the e-procurement Portal of NIC (eprocure.gov.in/eprocure).

“No bids shall be accepted in hard copy or in any other form.”

Any further Corrigendum/Addendum to the tender documents will be uploaded by STC only on website i.e. www.stc.gov.in, www.eprocure.gov.in or www.tenders.gov.in and no press advertisement shall be published for the same

Please Note –

- ***Separate offers are to be uploaded for different items.***
- ***Name & Number of the Item to be clearly mentioned.***
- ***EMD is to be submitted separately for different items.***

TERMS AND CONDITIONS

- 1) **Price - You are required to provide FOB, CIF Indian Port & FOR Vattinagulapally (Ranga Reddy District, Telangana) price as per Price Bid Format Attached (Schedule C)**

(Break-up of insurance, sea freight, Custom Clearance charges, Inland Insurance and Transportation Charges from Port to (Ranga Reddy District, Telangana) are to be given.

In case of local supplies the tenderer should give the FOR Vattinagulapally (Ranga Reddy District, Telangana) Prices giving the break-up of local taxes & levies in the Price Bid format as per Schedule 'C'. In case of goods being offered in foreign currency, the tenderer should give the CIF/CIP Prices, Rate of Import Custom Duty on assessable value for the item quoted with ITC HS Codes and Proof of rate of Import Custom Duty, Custom Clearance charges, Inland Insurance & Transportation charges upto Vattinagulapally etc. in the Price Bid Format as per Schedule 'C'.

In case of Imported equipment the following will be provided by STC:-

- (i) Authorization in favour of nominated custom clearing handling agent of the supplier,
 - (ii) Payment of import custom duty (if and as applicable) (upon receipt of copy of Bill of Entry filed with customs).
- 2) **Country of Origin** (Certificate Duly certified by Chamber of Commerce of the exporting country to be submitted at the time of shipment of goods)
- 3) **Delivery Schedule** – Immediate delivery is required.
- 4) **Payment terms** –.

I. For Imported Item

We operate on 90% TT Transfer/LC Basis. In case of LC, LC to be established for 100% value and 90% Payment under LC to be released against submission of documents pertaining to dispatch of goods along with certificate of satisfactory installation / demonstration of goods from the end – user department. In case of LC, all bank charges (including LC confirmation charges) payable outside India would be to Seller's account.

Payment Against the letter of Credit/Wire Transfer for 90% of the value will be available against presentation of the following documents and also on proof of evidencing of shipment.

- a. Complete set of Original Clean Bill of Lading. The Bill of Lading shall be in the name of **THE STATE TRADING CORPORATION OF INDIA LTD., GENERAL IMPORTS DIVISION, MOGUL'S COURT, 5TH FLOOR, BASHEERBAGH, HYDERABAD 500 001, INDIA AND MARKED FREIGHT PREPAID.**
- b. Signed invoice in three copies giving letter of credit No., Order No. and date respectively. The invoice shall be in the name of : **THE STATE TRADING CORPORATION OF INDIA LTD., GENERAL IMPORTS DIVISION, MOGUL'S COURT, 5TH FLOOR, BASHEERBAGH, HYDERABAD 500 001, INDIA**
- c. Certificate of satisfactory Pre-dispatch inspection report
- d. Certificate showing goods of **ORIGIN** issued by Chamber of Commerce or Equivalent Body in Duplicate.
- e. Specification and Packing list – three copies.
- f. Manufacturer's guarantee certificate – three copies.
- g. Certificate from the manufacturer to the effect that the goods conform to the manufacturers standards and are new (Production Month in Year 2015/16) and free from any latent or patent defects and are strictly as per Specifications mentioned in STC's Order
- h. Insurance Policy/ Certificate showing STC as beneficiary - one original and two copies.
- i. Copy of FAX MESSAGE (Fax No.00-91-040-23236768) marked to General Imports Division, sent by the seller within 24 hours of issuance of Bill of Lading to buyer notifying the details of the BL No., Goods freighted, total invoice value, Name of the Shipping Line loading port and date of departure of the vessel and expected time of its arrival at the Indian Port.

- j. Certificate by the seller that the freightment consists complete requirement as per list of goods given in the Annexure-I enclosed with the order.
- k. Certificate from the seller that one set of non-negotiable documents mentioned under (a) to (l) above has been airtailed/couriered to the following within 10 Days of departure of the vessel in addition to one set of non-negotiable document sent with the vessel to:

**THE STATE TRADING CORPORATION OF INDIA LTD.,
GENERAL IMPORTS DIVISION, MOGUL'S COURT, 5TH
FLOOR, BASHEERBAGH, HYDERABAD 500 001, INDIA**

Balance 10 (Ten) Percent payment under the LC shall be released/payable only after receipt of certificate of satisfactory installation, demonstration & training of the Equipment to be issued by the end-user department, after receipt and examination of equipment at their premises in India.

II. In case Manufacturer is based in India.

Payment for domestic supply via RTGS for 100% value will be available against presentation of the following documents

- a. Signed and stamped invoice (Three original) giving details of order number and date. The invoice shall be in the name of the end-user department as a Purchaser and consignee. Invoice shall be as per Annexure – I enclosed with our order.
- b. RECEIPT (FOR) GOODS RECEIVED & INSTALLATION CERTIFICATE as per Annexure “c” from the end-user department.
- c. Satisfactory Pre-Dispatch Inspection Report.
- d. Specification and Packing List – Two copies.
- e. Authorised Dealers / suppliers guarantee certificate – Two Copies.

- 4) **Validity of Price** – Your offer to be valid for acceptance by us up to 120 days from the Tender closing date.

6) **Airport/Port of Shipment.** – For Imported equipment supplier to mention Airport/Port of shipment

7) **Supplier's RTGS Bank Details** also to be mentioned in the offer.

8) **Guarantee Period** – The equipment(s) quoted for shall carry a guarantee for 24 calendar months and the manufacturer shall have to provide after sales service, as and when required at a short notice. The Guarantee period shall start only upon satisfactory Installation & Demonstration of the equipment at the end –user's premises. Also see Point (F) of Other Terms and Conditions.

9) **Inspection**

Articles supplied shall be strictly as per the approved specifications. Or else, such Articles shall be rejected and returned to the Bidder at his own cost for replacement within 30 days.

10) The detailed list of consumables and spares with FOR, Vattinagulapally prices, required for smooth functioning of the equipment, shall also be submitted along with tender offer.

11) **Submission of Samples**

Bidders are required to submit a sample & demonstrate the working of the equipment (quoted under the tender) to the technical evaluation team when called upon by STC. A separate communication will be issued to the bidders for presentation of the samples on defined date, place and time.

12). **Schedule to Tender :-**

- a) **Closing date & time for receipt of Offer :11.03.2016 at 03.00 PM**
- b) **Opening of Offers , Time & Date : 11.03.2016 at 03.30 PM**

13) **Offers invited under Two Bid System :**

All Bidders are required to submit their item-wise offers in two cover/part i.e. Technical Bid Part and Price Bid Part.

Please Note –

- ***Separate offers are to be uploaded for different items.***
- ***Name & Number of the Item to be clearly mentioned.***
- ***EMD is to be submitted separately for different items***

A. Following documents are required to be uploaded online as part of Technical Bid Part

1. No Deviation Certificate for the Item being offered is to be uploaded as per format enclosed. Schedule "E". Name & Number of the Item to be clearly mentioned.
2. Scanned Copy of Pay Order / Demand Draft/Bid Bond equivalent to 2% of total cost of items towards Earnest Money Deposit or Copy of NSIC Certificate mentioning the name of the item quoted. Name & Number of the Item to be clearly mentioned
3. Detailed Technical offer & specifications of the equipment offered to be supplied.
4. An undertaking by the company stating that it has not been blacklisted by any central, union territory and state govt./organization or any Govt. procurement agency as well as convicted by any court of law and the period of blacklisting is not enforced till the date of validity of this offer being submitted.
5. Letter of Authority, in case the bid is being submitted by local agent of the foreign supplier, as per Schedule-A

B. The" Price Bid" Part must contain Price Bid of the Item (Format enclosed) which must be duly signed & stamped.

Please Note: Offers having conditions/deviations are liable to be rejected at the sole discretion of STC. Your Price Bids shall be opened only if your Technical Bid is found in order. Your technical and price bid shall be valid for at least 120 days.

SPECIAL INSTRUCTIONS TO THE TENDER NOTICE FOR COMPLIANCE OF THE TENDER PARTICIPANTS:-

- A. All Equipments to be offered with installation, supervision and complete training to operating staff.
- B. Standard Products should be offered, be of latest models and meet **international specifications and norms of safety, environment, pollution etc.** Models and specifications should be clearly spelt out.
- C. It is mandatory to enclose Product literature with the bids.
- D. In case equivalent make/model/brand is offered, a comparative statement with the make/model/brand desired by customer should be enclosed with bid.
- E. Options on all machines to be offered for three year comprehensive warranty (parts, travel and labour included).
- F. Warranty/Guarantee on the items should be spelt out clearly.
- G. Service arrangements in / for India/ site should be mentioned clearly in the bids. Similarly services included in the price offered for equipment/machines should be mentioned.
- H. Specifications are indicative, better specification may be offered as optional.
- I. Names where ever mentioned are for reference purpose, equivalent or better specification/ brand may be offered.
- J. List of essential spares and consumables should be mentioned and prices offered for the same as optional items.

OTHER TERMS AND CONDITIONS

- (A) Having regard to STC's Corporate Policy, offers from Principal Manufacturer/Distributor or their Authorized agents with Tender Specific authorization by their principal Manufacturer/Distributor in their favour as per Schedule 'A' enclosed only shall be considered. Offers otherwise submitted, if any, are thus liable to be rejected summarily.
- (B) In case of imported equipment, the Authorized agents may quote the prices for and on behalf of their principal manufacturers in the respective foreign currencies. Accordingly, upon award of order STC shall be entering into direct contract with the Principal Manufacturer.

(C) Earnest Money Deposit

- i. All offers shall be submitted along with an Earnest Money Deposit (EMD) of 2% of total offer value in the Form of Pay Order / Demand Draft/ Bid Bond in favour of “The STC of India Ltd., Hyderabad”. However, for sake of convenience the foreign suppliers may submit the requisite EMD through their Indian Agents in equivalent Indian Currency, should they so desire. The EMD DD/Payorder/Bid Bond to be placed in a sealed envelope along with a covering letter duly superscribing the Tender No. Item & Name of Item addressed to The Deputy General Manager, STC of India Ltd., Mogul’s Court, 5th Floor, Basheerbagh, Hyderabad 500 001 and dropped in the Tender Box placed conspicuously on the 5th floor, Mogul’s Court, Basheerbagh, Hyderabad 500 001. Separate EMD’s may be forwarded for different items.
- ii. The Bidders are also requested to provide the RTGS Bank details for future refunds/Payments. EMD’s paid by Cheques are not acceptable. The format of Bid Bond is attached. (Schedule-D).
- iii. No interest will be applicable on the EMD payments
- iv. The units registered under Single Point Registration Scheme of NSIC are eligible for Exemption from payment of Earnest Money Deposit (EMD)
- v. The details of EMD entered during the bid submission, and those available in scanned copies, should tally with the EMD sent physically. Otherwise, the bid may be rejected.
- vi. Earnest Money Deposit (EMD) must reach STC before last date and time of bid submission
- vii. The EMD of the unsuccessful bidders would be returned within one month of signing of the Contract with the successful bidder.
- viii. EMD of the successful Bidder will be released only after the Bidder signs the Contract with STC and furnishes a Performance Bank Guarantee (PBG) in the format prescribed in the tender. Annexure
- ix. The EMD shall be forfeited by STC, in the following events: (a) Bidder withdraws its bid during the validity period specified in RFP or any extension thereof agreed by the bidder. (b) Bidder does not respond to requests for clarification of its bid. (c) Bidder fails to provide required information during the evaluation process. (d) In case of a successful Bidder, the said Bidder fails to sign the Contract; or furnish Performance Bank Guarantee in time.

- (D) For the purpose of equitable comparison and evaluation of the offers, prices quoted in different currencies will be converted to a single currency viz., Indian Rupees as per the TT Selling Rate established by the State Bank of India as on the date of Price Bid Opening. The Comparison of prices & identification of L1 Bidder would be on FOR Destination Basis, duly delivered, commissioned etc. as the case may be on the date of opening of Price Bid.
- (E) The Financial Bids of the Tenderers whose Technical Bids are approved shall be opened subsequently.
- (F) Upon award of the Tender/Order to the successful bidder, a Performance Guarantee for due performance of the Contract, **valid up to the guarantee period** of the equipment, equivalent to 10% of the order value shall be submitted by the awardee in the prescribed format in favour of end-user department through a Nationalized Bank in India. As per Schedule B enclosed.
- (G) For Imported Item, STC would be selling the goods on High Seas Sales basis to the end user Department. All the custom Clearance documents including High Seas Sales Agreement along with Invoice etc. shall be submitted to the supplier's nominated Custom Clearing Agent.
- (H) The offers received (other than conditional offers) after opening of bid(s) shall be forwarded to the end-user department for their evaluation.
- (I) You are also requested to kindly give the details of after sales service arrangements in Telangana and India. The name of your Service representatives in Telangana and India along with his complete address and contact numbers may also be informed to us along with the offer so that the same could be notified to the end-user.
- (J) All the tools and facilities required for the inspection shall be arranged by the contractor free of cost.
- (K) No deviation, whatsoever, shall be acceptable. The tenderer has to certify that by duly signing and stamping the certificate as per Schedule
- (L) An undertaking/certificate stating that the rates quoted are uniform for all the Government Institutions in the country is to be provided. This certificate giving the reference of STC's Tender No. and Date along with your quoted item details may be submitted in original and the items if proprietary, a certificate to this effect may also be given.

- (M) In case of delay in supplies beyond the quoted delivery period, liquidated damages to the extent of 0.5% of the cost of the delayed supplies per week is applicable, subject to a maximum of 10%. Beyond this period, we reserve the right to either extend further or to cancel the contract.
- (N) Without any protests or demur, supplier indemnifies STC and its Branches and shall always keep STC fully indemnified and agrees to hold STC and its Branches harmless against any loss, claim, proceedings, damage, demurrage, costs, penalties, taxes, duties liabilities, legal cases, short shipment, quantity/quality/weight/purity, marking/specifications, etc of the material, costs or expenses of whatsoever nature, costs to STC on account of supplier/ handling agent/ omissions /negligence /mistake/misconduct breach or default and or non-fulfilment of terms and conditions of this agreement. The supplier shall keep STC indemnified at all times against any claims/liabilities/proceedings, etc from any third party or otherwise arising out/or in connection with this Tender.
- (O) Arbitration: Any dispute or difference whatsoever arising between the parties out of or relating to the construction, meaning, scope, operation or effect of this contract or the validity of the breach thereof shall be settled by arbitration in accordance with the Rules of Arbitration of the Indian Council of Arbitration and the award made in pursuance thereof shall be binding on the parties. The supplier hereto agree that the courts and tribunals at Hyderabad, Telangana State shall have exclusive jurisdiction to settle any or all disputes which may arise out of or in connection with the Tender. All disputes arising out of this tender shall be decided in accordance with the Laws of India.
- (P) STC may at its absolute discretion, reserve the right to shortlist, accept, disqualify, elect to abandon, reject any part or whole of the process without giving prior notice to the prospective party. STC reserve the right to cancel this tender in totality without assigning any reason at any point of time.
- (Q) Submission of Bids
- i. Bids against this Tender shall be received only electronically through the eProcurement Portal of NIC (eprocure.gov.in). No bids shall be accepted in hard copy or in any other form.
 - ii. For submission of bids, bidders are required to get themselves registered with eprocure.gov.in website using Class II / Class III Digital Signature Certificate.
 - iii. Earnest Money Deposit (EMD) must reach STC before last date and time of bid submission.
 - iv. The bidders are required to upload softcopies of the two parts of the bid viz. Technical & Financial.

- v. A bidder may modify, substitute or withdraw its e-bid after submission before the last date and time of bid submission. No bids shall be modified, substituted or withdrawn by the bidder on or after the last date and time of bid submission.
- vi. STC may ask the bidders to submit any or all the documents in original submitted as part of their online bid anytime during the bid process.
- vii. For modification of e-bids, bidder has to detach its old proposal from e-tendering portal and upload/resubmit digitally signed modified bid.
- viii. For any queries relating to the process of online bid submission or queries relating to Procurement Portal (eprocure.gov.in), the bidders may contact CPP Portal Helpdesk on Tel No"s.: 1800-3070-2232, 91-7878007972 and 91-7878007973.

HYDERABAD.
08.02.2016

BRANCH MANAGER
Tele No. – 040-23237389/23296460

UNDERTAKING TO BE SUBMITTED BY PRINCIPAL MANUFACTURER / DISTRIBUTOR

It is to certify that M/s_____ (Name & Address of Tenderer) is our Authorised Distributor / Dealer. They are Authorised to submit tender for _____(Name of Item) to the State Trading Corporation of India Ltd., Hyderabad against their Tender Notice No _____ Dated _____.

The Equipment / Item is Guaranteed for minimum 2 year Comprehensive free onsite Guarantee with Spare Parts from the date of completion of satisfactory testing, commissioning installation and Authorised Distributor / Dealer shall during the Guarantee period replace the parts if any, or rectify any manufacturing defect found during the above period so as to make the machinery operative and in perfect condition.

They are also Authorised to provide Annual Maintenance Contract and repairs contract for the period as desired by the purchase officer after the expiry of 2 year comprehensive Guarantee They will be responsible to ensure adequate regular supplies of spare parts, consumables, non- consumables needed for the same whether AMC or otherwise.

In case of change of Authorised Distributor / Dealer, we will inform the purchase officer accordingly within 15 days of change of authorized distributor/ Dealer. The new Dealer / Distributor will be responsible for after sales & service and annual maintenance and repairs contract as above. In case of failure of Authorised Dealer / Distributor we will be responsible for providing after sales service of the equipment as per terms and conditions of tender and contract.

If there is any defect M/s_____ shall replace or upgrade the defective part/faulty which shall also be subject to same guarantee as the original equipment. M/s_____ shall bear all costs, travel, labour, material cost which are required on rectification of defects onsite during the guarantee period.

**SIGNATURE OF THE PRINCIPAL MANUFACTURER/ DISTRIBUTOR
WITH RUBBER STAMP**

Note: This Undertaking should be Typed & Signed by Principal Manufacturer/ Distributor on his Original Letter Pad

PERFORMANCE BANK GUARANTEE FORMAT

(To be executed by any Nationalised Bank in India having their Branch in the State of End-user Department on stamp paper of Rs.100/-)

Name & Address of the Buyers(End-user Department)

1. Against Tender No. _____ dated _____ and Contract No. _____ Dated - _____(hereinafter called the Contract entered into between the STC of India Ltd., Hyderabad which expression shall, unless repugnant to the context or meaning, thereof include its successors, representatives & assigns for and on behalf of _____ (hereinafter called the Buyers/End user Department) and M/s. _____(Name and Complete Address) (hereinafter called the Sellers) which expression shall, unless repugnant to the context or meaning, thereof include its successors, representatives & assigns this is to certify that at the request of the Sellers, we _____ Bank unconditionally and irrevocably guarantee to pay to the Buyers immediately on first demand, the amount of US \$/Rupees _____(@ 10% of contract value) without any protest or demur or reference to the Sellers if the Sellers fail to perform all or any of their obligations under the said contract. The decision of the Buyer/End user _____or The STC of India Ltd., Hyderabad duly communicated in writing to the bank that the sellers have failed to perform all or any of the obligations under the contract shall not be questioned and be final and conclusive. The said amount of US \$/Rupee _____ will accordingly forthwith be paid without any conditions or requirement of our proof whatsoever failing which interest @ 15% p.a. on monthly rest basis shall be payable by the Bank to Buyer.
2. It is fully understood that this guarantee is effective for a period upto _____ (24 Months + Delivery Period) and that we _____ Bank undertake not to revoke this guarantee during its currency (upto claim period) without the consent in writing of the Buyers.
3. We _____ Bank, further agree that the buyer shall have the fullest liberty, without affecting in any manner or obligations hereunder to vary/extend any of the terms and conditions of the said contract or/extend time of performance by the Sellers from time to time or to postpone for any time or from time to time any of the powers exercisable by the Buyers against the said sellers and/or forebear to enforce any of the terms & conditions relating to the said contract and we, _____ Bank shall not be released from its liabilities under this guarantee by reasons of any such exercise,

variations or extension being granted to the said sellers or for any forbearance and/or commission on the part of the buyers, or any indulgence by the Buyers, to the said Sellers or by any other matter or thing whatsoever which under the law relating to the sureties would, but for this provision have the effect of so releasing us from our liability under

this performance guarantee. We further agree that the validity period of this Performance Bank Guarantee will be extended by us upon receipt of any such request in writing from the Buyer and any charges on account thereof shall be to the account of seller

4. We _____ Bank further agree that the guarantee herein contained shall not be affected / discharged by any change in the constitution of the said Sellers/Buyers/Bank.
5. The Guarantee will be governed by Indian Laws and will be subject to the jurisdiction of competent courts in the State of Buyer / End – user India alone.
6. No claim shall be admissible against the Buyer in respect of interest on Performance Guarantee regardless of the time of release.
7. The Bank further agrees that decision of the Buyer as to the failure on the part of - _____ to fulfill their obligations as aforesaid /or as to the amount payable by the bank to the Buyer shall be final, conclusive & binding on the Bank.
8. This Guarantee will remain in force up to _____(24 Months + Delivery Period) and any demand in respect thereof should reach Bank not later than 10 (Ten) working days (claim period) from the expiry of above validity date.
9. Notwithstanding anything entered hereto Banks liability under this Performance Bank Guarantee shall not exceed _____(in words. Bank is liable to pay the guaranteed amount if Buyer same upon in written claim/demand on of before the expiry date.

FOR _____ BANK

ACCEPTED

Witness:-

Price Bid
ON THE LETTER HEAD OF THE COMPANY

Tender No. & Date :
Name of the Item Quoted :
S.No. of Item in Tender Document :

Price Format for Imported Equipment

Details	Qty (in Nos.)	Total Amount (in Foreign Currency) (Amount to be provided in words as well)
Ex-Works Price		
FOB (Port /Airport) Price		
Insurance & Airfreight Charges upto Indian Port		
Total CIF Price, Indian Port		
Total FOR, Vattinagulapally (Ranga Reddy District, Telangana) India Price		

Price Format for Local Supplies

Details	Qty (in Nos.)	Total Amount (in INR) (Amount to be provided in words as well)
Ex-Works Price		
CST/VAT @%		
Inland Transportation & Transit Insurance Charges		
Total FOR, Vattinagulapally (Ranga Reddy District, Telangana) India Price		

We have carefully gone through the Terms and Conditions of the Tender Documents and hereby agree to abide by the same for the fulfillment of the contract. This is to also confirm that I am fully authorized by company for signing and submitting this price bid.

Place:

SIGNATURE OF THE TENDERER

Date:

NAME & DESIGNATION OF TENDERER

COMPANY SEAL

BID BOND PROFORMA

Schedule " D "

(To be executed by any first class international Bank through its branch office in Hyderabad (India) on stamp paper of Rs.100/-).

M/s. State Trading Corporation of India Limited,
5th Floor, Mogul's Court,
Basheerbagh,
Hyderabad-500 001.

Dear Sirs,

1. WHEREAS M/s _____(BIDDER) has offered to supply _____ to STC, and the bidder is required to submit a Bid Bond at the rate of US\$ _____ along with the offer as a guarantee for fulfillment of all the terms and conditions of subsequent sale. We (Bank with full address) hereby unconditionally and irrevocably guarantee and undertake to pay the amount demanded by STC not exceeding the sum of US Dollars _____ only, in case the bidder fails to perform any or all the obligations, undertaken by him as per STC's acceptance, without any demur, protest and without any reference or recourse to the Bidder notwithstanding any dispute raised by the Bidder in any suit proceedings relating there to pending before any court or tribunal our liability under these presents being absolute and unequivocal. The payment shall be made to STC across the Counter of the Bank on the same day of receipt of invocation of this Bid Bond. Any such demand in writing made by STC, shall be final, conclusive and binding on us irrespective of any dispute or difference raised by the bidder.
2. Notwithstanding anything mentioned herein before, our liability under this guarantee is restricted to US\$ _____(US\$ _____ only) and it will remain in full force up to (one month from the last date of validity of offer). Unless a claim under the guarantee is filed against us on or before _____ all your rights under the said Guarantee shall be forfeited and we shall be relieved and discharged from all the liabilities there under. We, _____(Bank) further agree that the Guarantee hereunder contained shall not be affected by any change in the terms of purchase originally offered by the bidder and any change in the Constitution of said Bidder/ STC/ Bank.
3. This bond will be governed by Indian Laws and will be subject to the jurisdiction of courts at New Delhi in India alone.

DATE

FOR

PLACE

BANK

N.B. Bid Bond to be furnished in US Dollars only. Bid Bond in Indian Rupees will not be accepted.

CERTIFICATE

Certified that the enclosed offer against Tender No. STC/GID/HYD/2015-16/03 dated 08.02.2016 is in total conformity with tender terms & conditions including special instructions and specifications without any deviation, whatsoever.

Place:

SIGNATURE OF THE TENDERER

Date:

NAME & DESIGNATION OF TENDERER

COMPANY SEAL

TECHNICAL SPECIFICATIONS

ITEM NO. 1- FIRE PROXIMITY SUITS

MULTI LAYER FIRE FIGHTER TUNIC & TROUSER AS PER STANDARD EN 469:2005 LEVEL-2 WITH FIREMAN HELMET AS PER STANDARD EN 443 AND BOOTS AS PER EN-345-PART 2

1. Three layer Fire Suit/Proximity Suits Nomex Fire Proximity suit (Orange / Navi Blue Colour) consisting of coat and pant, hood, gloves, fireman helmet and fire fighting boot. The suit shall be of three layer, in two pieces Pant and Jacket. The suit material shall be NOMEX or of equivalent quality. The fabric used in the stitching of the suit should be of manufacturer of fiber (NOMEX) i.e., DUPONT or of equivalent quality. Copy of the certificate of the fabric must be sent along with the offer.
2. **STITCHING** : The stitching of the suit shall be of high quality and the thread used for stitching shall be of high strength made of flame resistant fiber like meta-aramid /Nomex or of equivalent quality. Heavy duty molded Open – end zippers with a single sider with Fire Resistant zipper tape, hook and loop Velcro fasteners of flame resistant type shall be used.
3. The retro-reflective tape of 50 mm wide shall be provided on specific portion of Jacket & Trouser.
 - (i) Design of the coat:
 - The three layer coat should have front fastening zip arrangement with a overlapping flap with Nomex Velcro or of equivalent quality.
 - The cuff has to be provided with additional Nomex or equivalent tight fit for better protection against flame
 - The coat has to be provided with a 2 internal and external pockets
 - The colour of coat will be (Orange / Navi Blue Colour).
 - Reflective tapes have to be provided around the body and sleeves must have high protective collar with throat guard.

(ii) Design of the pant:

- The three layer pant will have to be provided with heavy duty suspender with quick release snaps to the front
- The knee area will have to be reinforced with Kelvar feltor of equivalent quality
- The design on the pant is of standard type with 1 internal pocket
- Reflective tapes will be provided around the bottom of the let
- The colour of the pant will be (Orange / Navi Blue Colour)
- Pant should have concealed fly zip and top button closure.

...

(iii) Construction of coat and pant:

a) Description

- The suit should provide complete protection from conductive temperature of 1000⁰ c or more for at least one minute without spray of fog and radiant temperature of 1000⁰ c or more for longer duration.
- The suit should be deigned to be worn with self contained Breathing Apparatus which should be easy to fix and should have scope for adjustment of width.
- The suit when worn should give adequate freedom of movement and manner variability with free movement of arms and legs.
- outer layer shall be made of NOMEX Delta c fabric of 200gsm or of equivalent quality.
- middle layer (moisture barrier) shall be made out of SONTARA E89 with NOMEX or equivalent with an aerotex fire retardant breathable PU membrane or of equivalent quality
- inner layer (Thermal Barrier) shall be made from SONTARA E89 with NOMEX or equivalent as the thermal lining of 490 gsm or of equivalent quality
- Nomex or of equivalent quality threads will be used for stitching the suit the reflexives tape used will be flame resistance of scoth lite make in lime green/silver tri-colour on 50 mm wide

b) sizes –	Small	- 00 Nos.
	Extra Large	- 84 Nos.
	Large	- 400 Nos.
	Medium	- 50 Nos.
	Total:	-534 Nos

The overall shall be made in four sizes. The measurements which take into account the desirability of a loose fit for this type of clothing.

Measurement is in Millimeters

S.N	Size	Overall length (Tolerance)	Length waist to Ankles (Tolerance)	Leg length (tolerance)	Chest Girth Tolerance	Shoulder (Tolerance)	Hops. (Girth) tolerance	Sleeve length (Tolerance)	Collar Width (Tolerance)
		+20	+20	+10	+50	+20	+50	+20	+10
1	2	3	4	5	6	7	8	9	10
1.	Small	1480	920	660	1220	510	1220	610	120
2.	Medium	1520	970	710	1220	510	1220	610	120
3.	Large	1560	1020	760	1220	610	1320	660	150
4.	Extra Large	1650	1070	810	1420	660	1420	710	150

(iv) Knitted sock hood:

- Nomex or of equivalent quality knitted sock hood of superior resistance to high temperature and direct flame contact. the hood should be washable or dry cleaned and can be worn over a breathing face mask or under the fireman helmet.

(v) Flash Hood / Turnout Fire Hood / Balaclava

- It should comply to EN 13911 : 2004 + Annex A & B or equivalent.
- 230 gsm Aramid/Viscose FR/anti-static fibre.
- Excellent moisture management by rapid evaporation.
- Flat lock seam construction provides greater comfort & longevity.
- Low heat conductivity.
- All seams sewn with 100% aramid thread.
- Elasticated face opening reinforced with a bottom cover stitch
- Soft aramid inner lining to increase skin comfort
- Anti-static outer fibre
- Full shoulder cape.
- One size fits all.

(vi) Knitted gloves:

- Fire fighter gloves should comply EN 659 : 2004, EN 420, EN 407 and EN 388 or of equivalent quality.
- Certificate of the same must be submitted along with the offer. The gloves shall provide excellent protection against heat, cut, penetration of liquid.

4. Fireman Helmet:

- Fireman's helmet with neck curtain made of aluminized material with woolen padding and integrated internal visor complying to International Approvals- EN 443: 2008 type B or of equivalent quality.
- Face shield according to EN 14458 : 2004 or equivalent.
- High Resistance to impacts, radiant heat, flame and Chemical products.
- Having Shock absorption padding: Poly urethane with wool /aramide layer.

5. Boots:

- Rubber Fire Fighter Boots manufactured from flame retardant rubber with steel toe cap and inner lining of Nomex and Kevlar fabric or of equivalent quality for better insulation, should be of anti-skid sole of size : 14" (approval of ANSA/NFPA 1971-2000 Standard for fireman boots or of equivalent quality / EN 345-Part 2/ or of equivalent quality.

6. Approvals :

- The suit must comply to EN 469 : 2005 level 2 or other international approvals. certificate of approval of EN 469 : 2005 level 2 or other international approvals must be sent along with the offer.
- The offer should be supported with valid test certificate from reputed institute for testing and certification (from the country of manufacture) confirming to the composition of fabric.
- The test certificate should clearly indicate the offered model quoted in the bid.
- The offer should be supported with valid certification from M/s Dupont or other manufacturer confirming that the manufacturer of the suit has fulfilled the strongest criteria of Dupont quality program for Nomex Trade mark fiber or of equivalent quality and has acquired the license to use quality labels for their protective garments.

7. Party has to give guarantee / warrantee against any manufacturing defect of the suit.
8. The suit must be provided with the following accessories:
 - Underwear hood which protects head and neck.
 - It should be of universal size.
 - It must be knitted, elasticized, balaclava type and made from flame resistant fiber such as meta aramid or having similar properties.
9. It must be permanently antistatic, having minimum sweat absorption, breath ability, ideal for next to skin wear. The anti flash hood shall meet the functional requirement and stand as given in EN 340 standard or equivalent. Certificate of the same shall be submitted along with the offer.

NOTE:

- ❖ All the above equipment should be supplied with Operating, Technical/ Service manuals.
- ❖ All the above equipment should be supplied with essential/standard accessories.
- ❖ Comprehensive AMC charges for base equipment (includes natural calamities) should be quoted separately.
- ❖ Cost of equipment should be quoted inclusive taxes in rupee payment and also Dollar payment with Custom duty exemption.
- ❖ List of essential spares with their cost may be furnished separately.
- ❖ The specifications are general in nature and the department reserve the right to go for better specifications among the tenderers.
- ❖ The tenderer clearly specify the Make and Model including technical specifications enclosing detailed brochure for the equipment offered along with technical bid.

ITEM-II

SPECIFICATION FOR LIGHT WEIGHT, HAND CONTROL, MODULAR, NOZZLES (HARD ANODIZED) / WITH SELECTABLE FLOW.

Made of Aluminum alloy (hard anodized), light weight and easy handling having 63mm size male instantaneous inlet. Nozzle shall have Rubber moulded bumper and pistol grip handle, ball valve with shut off handle, Selectable flow capacity, nozzle flow rate settings of approx.200-250-350-475-600 lpm at 7 Kg/cm² with good range hollow jet and dense fogn spray position and having a arrangement of low and medium expansion foam attachment shall be of reputed make like Akron or equalent.

ITEM-III

SPECIFICATION FOR BREATHING APPARATUS

- Facepiece
- Communication System
- First Stage Pressure Reducer
- Lung Demand Valve (LDV)
- Backplate and Harness Assembly
- Monitoring: Electronic Monitoring Unit (EMU)

General

The breathing apparatus shall be approved to EN 137 (2006) type 2. All components of the SCBA shall be arranged to minimize interference when maneuvering in confined spaces and when passing through small openings. Components of the SCBA shall be easily removed for routine service and maintenance.

The breathing apparatus should accept a range of compressed air cylinders and have the option of twin cylinder configurations.

1 Facepiece

1.1 Body

- a. The facepiece shall utilize two independent sealing edges, providing three sealing rings. Should there be leakage in the outer sealing ring area, there are two additional sealing rings to maintain a seal.
- b. The facepiece shall adapt to all facial contours and provided excellent fit factors. The face mask must be available in 3 different sizes (S, M, L).
- c. The size of the face mask must be clearly identified on the mask body with the letters S, M, L.
- d. The facepiece body shall have a large chin support to locate and support the chin and provide an excellent seal
- e. With the LDV removed and the facepiece donned, the wearer shall be able to breathe freely.
- f. The pulling force of the head harness shall not be directly applied to the sealing rings to minimize deformation of the seal and prevent leakage.
- g. The facepiece body shall have only two openings, lens and front port connector, to minimize the possibility of leakage.

1.2 Nose Cup

- a. Nose cups shall come in three (3) different sizes, 1, 2, 3, (S, M, L).
- b. The facepiece shall have a nose cup fitted as standard that reduces CO₂ to an average value of less than 1% by volume.
- c. The nose cup shall be easily removed or replaced without the use of tools, for ease of cleaning and disinfecting.

- 1.3 **Lens**
- a. The effective field of vision shall be a minimum of 91%.
 - b. The facepiece shall be designed so that air from the cylinder passes over the face piece lens prior to inhalation to prevent fogging on the inside of the lens.
- 1.4 **Lens Frame**
- a. The lens frame material shall be a non conductive robust composite material for improved lens protection in the event of shock or vibration.
 - b. The lens frame shall be held together by two screws and two nuts for quick and easy lens replacement.
- 1.5 **Speech Diaphragm**
- a. The mask shall be fitted with a speech diaphragm
 - b. The speech diaphragm shall be protected from damage to prevent damage or puncturing. In the case of leakage in the area of the speech diaphragm, the mask will maintain positive pressure.
- 1.6 **Exhalation Valve**
- a. The exhalation valve shall be protected by a cover.
 - b. The exhalation valve cover can be secured by a stainless steel screw.
 - c. The exhalation valve cover and exhalation valve shall be easily removed without the use of special tools for ease of cleaning and decontamination.
- 1.7 **Head Harness**
- a. The head harness shall be made from chloroprene (CR) material
 - b. The head harness shall be ribbed in area of buckle contact to prevent inadvertent slippage or loosening.
 - c. The head harness straps shall be easily removable without the use of tools.
 - d. Optional material hairnet shall be available with 5 point adjustment.
- 1.8 **Mask Cowling and Communication System (Optional)**
- a. The facepiece shall include a mask cowling as standard to eliminate the collapse of the facepiece onto the wearer's face in the event of a fall.
 - b. The mask cowling must be easily removed without the need of special tools.
 - c. An optional voice amplifier communication mask cowling to be provided incorporating a fully integrated voice amplifier communication system.
 - d. The integrated voice amplifier communication system must have a speaker on both the left and right side of the cowling/mask to allow for "surround sound" amplification.
 - e. The speakers must be flush mounted to the cowling so not to protrude out from the mask.
 - f. The amplifier must be powered 2 AAA batteries.
 - g. The amplifier must have a on/off switch on the right side of the mask.
 - h. The amplifier must have a on/off light on the left side of the mask.
 - i. A speech transmission diaphragm is required to provide back up in the event of battery or communication unit failure.

1.9 **Other**

- a. The facepiece shall have a provision for using spectacles without breaking the integrity of the facepiece seal or directly attaching to the lens.
- b. The spectacle kit shall not mount directly on the lens.
- c. The facepiece shall employ a flame retardant neck strap that has an extra button tab to position the facepiece on the wearer's chest to reduce the potential for dirt ingress when not donned or in use.
- d. The facepiece shall have an individual serial number permanently marked on the mask.

2. **First Stage Reducer**

- a. The first stage reducer shall be connected directly to the backplate via quick fit connection for easy fitting and removal of the pressure reducer assembly from the backplate.
- b. The first stage reducer should be available with either a standard DIN G 5/8 cylinder valve thread connection or a cylinder quick connect coupling for 300 bar cylinders.
- c. The cylinder quick connection system must be a simple push to connect operation. The disconnection of the cylinder from the first stage must be done by turning the hand wheel in a clock wise direction until it stops and then pushing down on the handgrip and simultaneously lifting the cylinder away from the latching mechanism.
- d. Standard (300 bar) compressed air cylinders with G 5/8 valve thread connection can be adapted for use with the cylinder quick connect coupling by using a quick connect adapter which screws in to the cylinder valve.
- e. The failure mode of the first stage reducer shall be such that the reducer fails safe and always delivers air to the user.
- f. Optional airline secondary supply connections shall be available for using SCBA as a supplied air respirator, or for use as an emergency escape system.
- g. The first stage reducer shall consist of a balanced piston assembly.
- h. The first stage reducer shall incorporate an integrated pressure relief valve to allow for any over pressurization of the medium pressure system.

3. **Lung Demand Valve (LDV)**

- a. The SCBA shall utilize a mask mounted LDV .The regulator shall be capable of being reset to the donning mode while connected to the SCBA to allow the user to keep the mask in a ready position at all times.
- b. The Lung Demand Valve (LDV) should be of the balanced type, offering second stage pressure reduction by means of a spring loaded piston to achieve a smooth and stable supply of air to the facemask. The use of small diameter internal bores should be avoided to reduce the risk of blockages from foreign material and dirt.

- c. The LDV shall utilize a quick release coupling on the right shoulder that enables the LDV to be disconnected from the medium pressure hose. The quick disconnect shall not be capable of being accidentally disconnected.
- d. The LDV should be first breath activated and switch-off should be via a button centrally located for easy location and minimum obscuring of vision from within the facemask visor.
- e. The LDV should feature a wraparound protective rubber cover.

4. Back Plate, Harness Assembly

- a. The back plate shall be a two-piece, anti-static composite construction with orthopedic design so as to evenly distribute the weight of the SCBA over the user's lumbar region, hips and shoulders.
- b. The back plate must have a 3 position multi height adjustment so as to customize the back plate to the wearer torso.
- c. The height adjustment of the back plate must be marked with size markings SML.
- d. The back plate waist belt shall be designed to move in a vertical up and down movement to provide maximum movement when bending forward and stretching. The waist comfort pad shall automatically set in the correct donning position.
- e. The waist pad shall swivel from side to side by approximately 30 degrees to increase comfort and stability when moving.
- f. The shoulder and waist padding must be constructed from a high abrasion resistant, high puncture resistant, slip resistant chloroprene rubber outer layer. The shoulder and waist padding shall be chemical resistant and fire retardant.
- g. The harness webbing shall be constructed of a heavy duty, high temperature resistant type material.
- h. The shoulder pads shall be designed with an ergonomic body contoured comfort style to maintain shape when worn, providing comfort and freedom of movement. Wide for optimal support. Shoulder and waist belt harnessing shall be independently adjustable.
- i. Shoulder and waist adjustment friction buckles shall be of stainless steel construction.
- j. Each shoulder and waist harness padding must be easily detached from the back plate by a quick release button only. This will allow for easy cleaning and disinfection of the harness if requires without the use of tools.
- k. To enable rapid donning without obstructing other wearers in ,for example, confined spaces or Fire Appliance cabs, the waist adjustment should be by means of twin 'pull forward' adjusting straps
- l. A cam-lock mechanism shall be used to secure the cylinder strap in place to ensure simple and secure operation.
- m. The cylinder strap shall accommodate a complete range of sizes of cylinders without the use of tools.
- n. The pneumatic system shall be easy to detach from the back plate and harness.
- o. Hoses shall be routed in hose channels inside the back plate to eliminate snag potential.
- p. Hoses going over the shoulder shall be covered by a protective hose sleeve that is reflective and luminescent.

5. Monitoring

The breathing apparatus should available complete with an electronic monitoring unit as described below:

5.1 Electronic Monitoring Unit (EMU)

- a. The EMU shall be located over the left shoulder of the SCBA and shall include the following functions:
 - Integrated Automatic Distress Signal Unit ADSU
 - Manual Distress Signaling
 - Visual & Acoustic Warnings and Alarms
 - Easy Push Button Operation
 - Digital and Analogue Display of Cylinder Pressure
 - Time Remaining (time to low pressure alarm)
 - User Configurable using PC Link Software
 - Text scrolling
 - Automatic Self Tests & System Tests
 - Datalog with personal ID

- b. The EMU PASS and electronic gauge device must be powered by a central battery supply integrated into the back plate.
- c. The electronic gauge display shall have a digital and analog display, and back lighted with the touch of a button.
- d. Actual real time breathing consumption rate shall be used to determine time to low pressure alarm.
- e. Central battery supply and electronic modules shall be housed in the “back” of the back plate.
- f. The battery supply shall utilize a battery pack consisting of 5 x AA alkaline batteries.
- g. Alkaline battery pack to provide a minimum of 12 months battery life based on 1 hour use per day during normal operation.
- h. The battery housing must be tamper resistant. The complete battery housing must be removable by the use of a release key.

6. GENERAL SPECIFICATION

Special Self Contained Breathing Apparatus with 6 ltr 300 bar light-weight Carbon composite cylinder with following specifications and Spare Cylinder.

- Should be approved to EN 137: 2006 Type 2 (Flame engulfment tested) suitable for fire-fighting.
- Should have soft padded harness made of flame retardant fabric
- Should have soft padded waist belt for added comfort
- Should have CE marked Face mask approved to EN 136
- Should have Quick-fit connection to the demand valve for quick donning

- Should have Demand Valve hose with quick release coupling connection to the medium pressure hose from Pressure reducer to quick change of demand valve in an emergency without having to remove the set.
- Low cylinder pressure warning device should be position close to the ear of the user above the chest region and in front of the user and it should activate at 55 +/- 5 bar residual cylinder pressure.
- Air loss to atmosphere for warning device operation should not exceed 5 LPM
- The set should be supplied with a 6 liter water capacity with 300 bar filling pressure lightweight Carbon composite cylinder
- The cylinder should be approved by PESO (CCE), Nagpur.
- Shall be reputed make like Drager, MSA, Interspiro Scott or equivalent

7. ACCESSORIES

The set should be supplied in complete with:

- Back plate with harness,
- Pressure reducer,
- Full vision face mask
- Demand valve with short hose & QRC.
- Warning device
- 6 ltr. 300 bar lightweight Carbon composite cylinder cylinder with valve.

8. TECHNICAL DATA

Weight of complete set with dragger FPS 7000 full-face mask, lung demand valve and dragger 6.8 litre carbon composite cylinder, 20 year design life (kg)	Not more than 12 Kgs
Input pressure (bar)	0-300
Normal 1 st stage output pressure (bar)	7.5
1 st stage output flow(l/min)	>1000
Pneumatic warning whistle activation pressure (bar)	50-60
Pneumatic whistle sound Level (dBA)	>90
Operating Temperature (°C)	-30 to +60

Optional Accessories

9. Radio Interface System

- a. The radio interface system shall connect directly to the voice amplifier system.
- b. The radio interface shall include an ear-speaker with a cable that will connect to a radio connector.
- c. A PTT button shall be mounted on left side of the mask.

10. Approval (European)

EN137; 2006 (Type 2), vfdb 0802

Atex I M 1 / II 1 GD IIC T6 (Ta -30°C to +60°C) – for the SCBA and Panorama
Nova masks with triplex visor or equivalent

I M 1 / II 1 GD IIB T6 (Ta -30°C to +60°C) – for SCBA with all other Safety
breathing apparatus masks or equivalent

ITEM-IV

SPECIFICATION FOR HOSE RAMP (RUBBER)

- 30 TONS LOAD BEARING CAPACITY SUITABLE FOR 2 LINES

ITEM -V

SPECIFICATION FOR PNEUMATIC LIFTING AIRBAGS (FLAT TYPE)-1 SET

1. The bags shall be supplied in the set form having lifting capacity of 3, 10, 30, 40, 60 ton capacity (Tolerance for capacity allowed is + 25%, -5%).
2. Working pressure shall be 8 bar and made from Kevlar reinforced nitrile rubber with 3 layers aramide reinforcement.
3. Non slip design, capable of being interlocked when 2 bags are placed on top of each other, quick connection with automatic double locking system.
4. Insertion thickness of the bag shall not be more than 25mm including profile.
5. Resistant to ozone and range of chemicals etc.,
6. The bags shall comply the following requirements.

Lifting capacity (Ton)	Minimum inflation height (MM)	Approx dimensions (MM)	Approx weight (Kgs)	Quantity (Nos.)
03	125	225 X 225	1.5	1
10	200	375 X 375	04	1
30	375	650 X 650	13	1
40	400	700 X 700	16	1

7. The airbags are to be supplied with the following accessories
 - 9.12.7.1 Pressure reducer 300 bar to 8 bar - 2 Nos.
 - 9.12.7.2 Dual Controller with pressure gauges - 1 No.
 - 9.12.7.3 Air Hose 5 Mtrs. With couplings - 2 Nos.
 - 9.12.7.4 Air Hose 10 mtrs. With coupling - 2 Nos.
 - 9.12.7.5 Single control unit - 1 No.
 - 9.12.7.6 Shut off hose with safety valve - 4 Nos.
 - 9.12.7.7 Connection piece to connect two air cylinder - 2 Nos.
8. The airbags and all its accessories shall comply the operating requirement and safety standard stipulated under EN 13731.
9. The bags shall be brand new and of reputed make like Vetter or equivalent .
10. The Dual controller, pressure reducer, single control unit, shut off hose and air hoses shall be supplied in a suitable carrying box.
11. Operation and maintenance manual.

ITEM -VI

SPECIFICATION FOR SPECIFICATION OF COMBITOOL (SPREADER & CUTTER) BATTERY OPERATED

- (i) This specification defines the technical and functional requirements for battery operated hydraulic Combitool to be used for rescue operation by fire brigades and special rescue teams in case of traffic accidents, building collapse and natural disasters confined space rescue , high rise building rescue etc.
- (ii) The specification comprises the technical basis for procurement, acceptance and testing of the hydraulic rescue set. The equipment shall be able to work without failure in heavy dust, high humidity, heavy tropical rain conditions and temperatures from -25°C to +55°C.
- (iii) The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by rechargeable high capacity Li-on Battery or an electric power connector.

I. PURPOSE

- (i) The rescue set is intended for use in life saving operations of persons entrapped in demolished structures, aircrafts and train wrecks and damaged vehicles by accomplishing the following:
 - (ii) Widening openings between movable ruins.
 - (iii) Cutting of building constructions steel rods, metal members, sewage pipes, water pipes, etc.
 - (iv) Creating cut outs in sheet metal panels by tearing the sheet metal or removal of the panel's hinges from their place.

II. RESCUE SET'S COMPOSITION

- (i) The Battery operated rescue set shall include the following components:
 - a) Combi-tool
 - b) Accessories
- (ii) All tools / equipment shall be tested for safety according to EN13204 (European standard) and for performance to NFPA 1936 (US standard).

IV) DESCRIPTION

- (i) The battery operated hydraulic rescue tools shall meet the following requirements:

- (ii) The Combi-tool shall operate on a working pressure of at least 700 bar. The Battery will be 4.1 Ah 28 A Lithium ion rechargeable battery. The battery will be click ON / click OFF type for quick changing of battery. The battery shall be capable of being recharged fully in max. 60 minutes. A LED power indicator showing the battery status shall be integrated in the battery.
- (iii) The Combi-tool shall be operated independently and shall provide the max. safety and protection for the operator and the causality. The Combi-tool shall be equipped with high capacity flash LED lights integrated in the handle to light up the working space in case of low visibility.
- (iv) The Combi-tool shall be a one-man operated light-weight tool, meaning that one person will be able to position, guide and operate the tools without needing assistance by another person.
- (v) The Combi-tool shall be provided with carrying handle which allows the operator to reposition the tool from one side to the other (left to right and back) without the need to reposition the hand or to release the handle in order to do so. The carrying handle should be mounted in such a way that the tool is fully balanced, even when the tool is picked up with one hand. The position of the carrying handle and the control handle shall allow easy operation for right-handed as well as left-handed operators.
- (vi) The Combi-tool shall be resistant against dust, heavy rain, spilling water under various temperature conditions.
- (vii) The Combi-tool shall be provided with a Twist dead man's control mechanism with automatic neutral position. The Control handle shall have minimum grip length of 75 mm to provide full grip for the operator hand (no finger or dumb control). The deadmans handle must be easy to operate in any situation and position of the tool.
- (viii) The control mechanism must be part of the handle in order to ensure a safe operation. The main valve will allow precise proportional operation in order to influence the working speed of the tools. To avoid confusion for the operators, the operation mode shall be similar for all tools. The dead-man's handle shall be easy to operate from any given position the tools or the operator may be in.
- (ix) The tool body shall be made out of high quality thermoplastic material that assures a solid construction combined with an acceptable (low) weight. The tool body shall assure highest stability and a long service lifetime.
- (x) All hinges, pins, levers, shall be made out of high tensile (heat treated) tool steel, and protected against corrosion. The blades of the cutter shall be of dropped-forged special steel alloy to ensure a long service lifetime.
- (xi) The arms of the spreader shall be made out of High alloy forged light metal. All movable parts shall be covered to ensure the highest safety for the operator. All tools

and accessories should be fully operational for longer periods at temperatures of -25°C up to +55°C.

(xii) Spare parts shall be available with the local dealer for at least 10 years.

VI) TECHNICAL SPECIFICATIONS OF BATTERY OPERATED HYDRAULIC COMBI-TOOL:

- (i) The combi-tool shall be capable of cutting of various sections such as solid round bar, hollow round bar, flat section, square tube, rectangular tube etc. It would also cut the door pillars of new generation cars and also be able to perform the spreading and pulling functions.
- (ii) The blades shall be of shock resistant non corroding alloy steel, hardened and ground and shall be exchangeable and regrind able.
- (iii) The combi tool shall have following specifications:

Spreading Distance	Not less than 350 mm
Spreading force measured at 25 mm from the tips as per EN 13204	Not less than 3.5 T
Spreading force	Not less than 21 T
Cutting force	Not less than 38 T
Squeezing force	Not less than 1000 mm
Pulling distance	Not less than 415 mm
Pulling force	Not less than 5 ton
Weight including battery	Not more than 20 kgs
Capable of cutting round steel bar	Not less than 32 mm
The material of the steel profiles shall conform to EN 10025-1-2000 table 5, type S 235	

VII. Accessories

Pulling Chains Set 10 mm - 1.5m + 3.0m	1 Set
Pulling Attachment Set	1 Set

Mains Power connector to connect the tool to any 220 V source	1 No
Battery charger	1 No
Battery Pouch	1 No
Carrying strap	1 No
Spare Battery	1 No

NOTE:

- ❖ All the above equipment should be supplied with Operating, Technical/ Service manuals.
- ❖ All the above equipment should be supplied with essential/standard accessories.
- ❖ Comprehensive AMC charges for base equipment (includes natural calamities) should be quoted separately.
- ❖ Cost of equipment should be quoted inclusive of all taxes in rupee payment.
- ❖ List of essential spares with their cost may be furnished separately.
- ❖ The specifications are general in nature and the department reserve the right to go for better specifications among the tenderers.
- ❖ The tenderer clearly specify the Make and Model including technical specifications enclosing detailed brochure for the equipment offered along with technical bid.
- ❖ The supply items should have at least 02 years of Warranty / Guaranty.
- ❖ All the tenderers should arrange live demonstration of the equipment offered with in two days from the date of opening of the tenders.

ITEM -VII

SPECIFICATION FOR BOLT CUTTER 30 INCH 1/4

- Size: Length 30”
- Cutting Jaws: Made of high tensile solid alloy steel, specially head treated with Centre cut heads
- Handle: With sufficient grip of Rubber for length of 6 to 8 Inches
- Application: Suitable for cutting hard material viz., Bolt, Iron rod of 10 to 14 dia metre

ITEM -VIII

SPECIFICATION FOR PETROL POWERED CIRCULAR SAW FOR CONCRETE

1	Engine Type	Air cooled, Two stroke, Single Cylinder Petrol Engine
2	Displacement	Minimum 64 cc
3	Power	Minimum 2.5 KW
4	Fuel	Mixed fuel to petrol and 2 stroke oil 4%
5	Carburetor	All position diaphragm type
6	Ignition	Electronically controlled magneto ignition
7	Air filter	Pre filter, Large Main Filter, Auxiliary Filter
8	Blades (cutting wheel)	300 mm diameter. Diamond Tipped Blade for cutting RCC, masonry bricks, concrete, abrasive material, etc Abrasive wheel for cutting metal. Abrasive wheel for cutting RCC, masonry bricks, concrete, abrasive material, etc.
9	Cutting Depth	Minimum 100 mm
10	Fuel Tank capacity	Minimum 1.5 Liter
11	Belt tension	Automatic
12	Dry weight	Not exceeding 13 Kg.
13	Safety Kit	Consisting of Hand Gloves, Hearing Protector, Nose muff, Goggle.
14	Additional Features	Wheel Guard: Quickly adjustable to suit the cutting position. Decompression valve: For easy starting. Control levers: Throttle trigger, trigger lock and control levers for start, run and stop are combined in the handle for easy operation and control. Recoil starter: The rope starter mechanism is shielded against dirt and dust hence avoids frequent maintenance.
15	Cutting Rate	Hard RCC – 10 TO 15 Sq. inch / min Medium RCC – 15 TO 20 Sq. inch / min Masonry, soft stone – 20 TO 30 Sq. inch / min Metal – 2 Sq. inch / min
16	Application	To cut concrete with reinforced bars (RCC), brick, stone, concrete block, metal sections (bar, angle, channel, plate) and many other building material.

ITEM : IX

Indian Standard

SPECIFICATION FOR BLOWER AND EXHAUSTER FOR FIRE FIGHTING

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 29 June 1985, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 The purpose of blower and exhauster is to provide the supply of fresh clean air to firemen who may be working in unventilated places or to exhaust accumulation of foul air, fumes and smoke from storage tanks, ships' holds, godowns, living rooms and the like.

0.3 This standard was first published in 1958 based on the type of equipment being imported from other countries. The first revision had been prepared to have the requirements based on the experience gained in the manufacture of this equipment in the country. This revision has been prepared so as to keep the design based on performance.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2 - 1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE - This standard lays down the requirements, regarding materials construction and performance of blower and exhauster used for fire fighting.

2. DESCRIPTION The blower and exhauster shall consist of the following parts:

- a. Impeller,
- b. Casing,
- c. Suction mouth with wire fabric,
- d. Exhaust pipe,
- e. Engine, and
- f. Frame with lifting handles.

Aluminium castings shall have a minimum thickness of 4 mm and aluminium sheet wherever used shall have a minimum thickness of 2.5 mm.

3. MATERIAL

3.1 The material used for the various parts shall be as given in Table 1.

TABLE 1 REQUIREMENTS OF THE MATERIALS OF COMPONENTS

Sl No.	Name of Parts	Name of Material	Conforming to
(1)	(2)	(3)	(4)
i)	Impeller	Aluminium	Grade 4423 of IS : 617-1975*
ii)	Casing	Aluminium	Grade 4423 of IS : 617-1975*
iii)	Suction mouth	Aluminium	Grade 4423 of IS : 617-1975*
iv)	Exhaust pipe	Canvas	IS : 1424-1977†
v)	a) Petrol engine of capacity 2.5 kW with 3 litre petrol tank; or	—	IS : 7347-1974‡
	b) Lightweight diesel engine of capacity 3.23 kW	—	IS 10001 : 1981
vi)	Frame with lifting handles	MS pipe	IS : 1239 (Part 1)-1979§
vii)	Wire fabric steel	Steel	IS : 4948-1974

*Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes (*second revision*).

†Specification for cotton canvas (*second revision*).

‡Specification for performance of small size spark ignition engines.

§Specification for mild steel tubes, tubulars, and other wrought steel fittings : Part 1 Mild steel tubes (*fourth revision*).

||Specification for Welded steel wire fabric for general use (*first revision*).

4. CONSTRUCTION

4.1 Impeller and engine shall be mounted together and the total weight of the unit with fuel shall not exceed 60 kg. Runner shall be of the overhung type to mount correctly and securely on the extension of the engine shaft. The details shall be as given in Fig. 1.

5. PERFORMANCE REQUIREMENT

5.1 The blower shall be tested accordingly to method given in 5.1.1 to 5.1.3, after removing the guard. The blower shall be capable of discharging safely and continuously 30 m³/minute of free air.

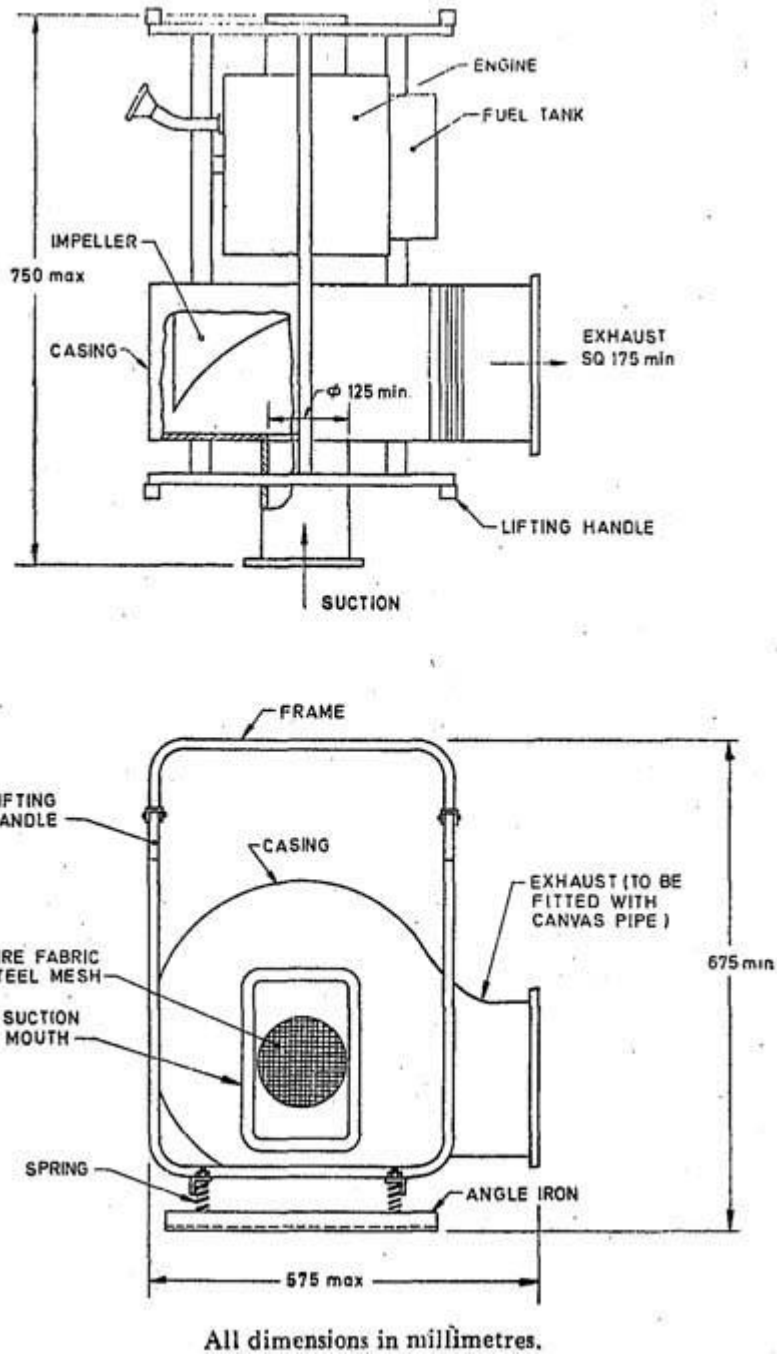


Fig. 1 Details of Blower and Exhauster

5.1.1 To the inlet side of the blower attach a cylindrical airway of diameter D not less than $1.5d$ where d is the diameter of orifice in which the impeller rotates (*see Fig. 2A*). To the inlet side of the airway shall be fitted a conical mouthpiece of length $D/4$ having an included angle of 60 degrees converging towards the blower, and a radial flange at its inlet end of width $D/25$. The total length of the test duct including the conical mouthpiece shall not be less than $2D$.

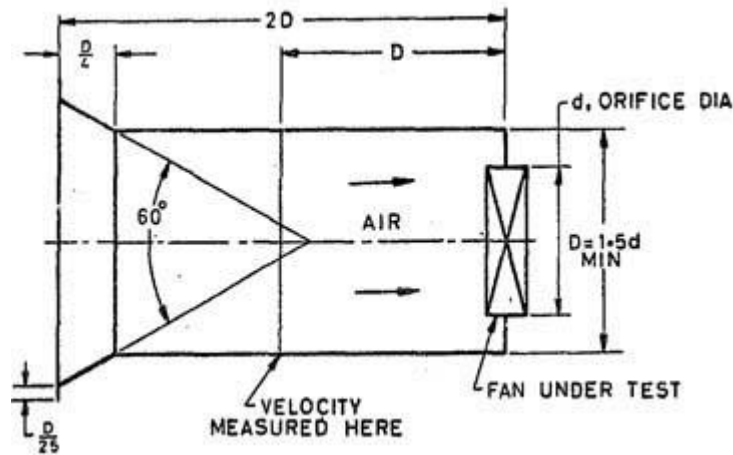


Fig. 2A Round Testing Duct for Propeller Fans

5.1.2 The average air velocity shall be determined by readings of a vane anemometer from measurements across a section D from the fan end of the cylindrical airway.

5.1.3 For the air delivery test, the cylindrical airway shall be considered to be divided into a number of equal square areas by lines parallel to the diameter D as shown in Fig. 2B. Measurements shall be taken with the centre of the anemometer vane wheel at the centre of each area, as shown in the Fig. 2B. The number of areas shall be determined by the ratio of D to the diameter of the ring surrounding the anemometer vanes, the relationship being shown in the table under Fig. 2B.

6. OPERATIONAL TEST

6.1 Blower and exhauster shall be run continuously for 2 hours It shall remain stable and shall not move from its place by more than 30 cm. All the components shall be checked and there shall not be any looseness.

7. FINISH

7.1 All parts shall be of good finish, clear of burrs and sharp edges. All casting shall be clean and sound and shall be free from plugging, welding or repair of any defects.

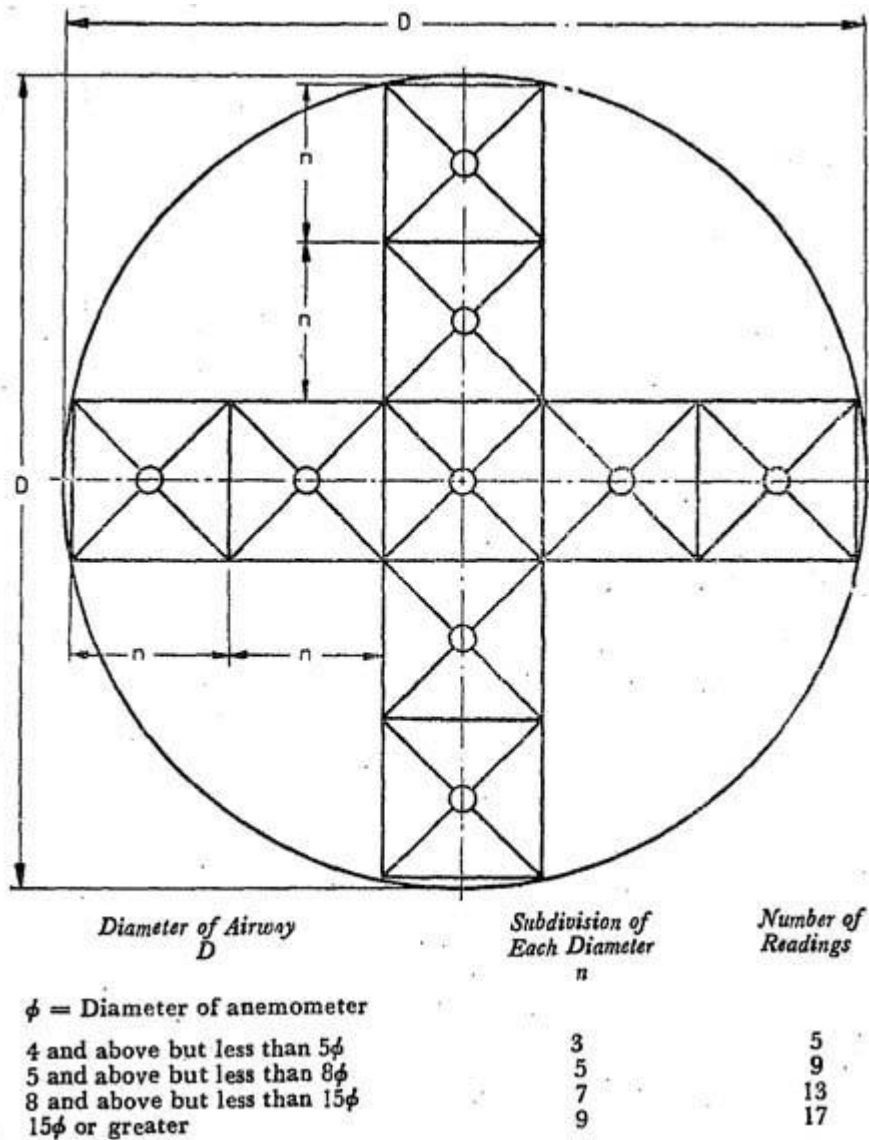


Fig. 2B Methods of Dividing the Area of Airway

8. PAINTING

8.1 Blower and exhauster except engine shall have two coats of paint after one coat of red oxide primer. The shade of paint for stand shall be black for body, fire red conforming to Shade No. 536 of IS : 5 - 1978*. Paint used shall be in accordance with IS : 2932 - 1974†.

*Specification for colours for ready mixed paints and enamels (*third revision*).

†Specification for enamel, synthetic exterior (a) under coating, (b) finishing (*first revision*).

9. MARKING

9.1 Each blower and exhauster shall be clearly and permanently marked with the following information:

- a. Manufacturer's name or trade-mark, and
- b. Year of manufacture.

9.1.1 The product may also be marked with Standard mark.

9.1.2 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

ITEM –X

SPECIFICATION OF DIAMOND CHAIN SAW (ENGINE DRIVEN)

1.0 GENERAL

The Diamond Chain Saw shall be capable of cutting RCC slabs in addition to other materials like masonry, brick and natural stone etc. the saw required to be used in situation arising out of disaster for providing immediate relief.

2.0 TECHNICAL DATA OF ENGINE

2.1 The diamond chain saw shall be driven by a self-powered two stroke air cooled gasoline engine (petrol driven). The starter shall be shielded from dust and water. It shall have electronic ignition protected from water having following technical requirements: -

Engine Type	:	2 Stroke, Single Cylinder Air Cooled
Displacement	:	80 CC minimum
Horse Power	:	5.5 HP minimum
Engine Speed	:	10,000-12,000 rpm max. 3200 rpm idle max
Bar Length	:	35 cm (14 inch)
Water Supply	:	1.5 bar (min. of 20 psi) shall be provided
Fuel Capacity	:	0.8-1.0 liters
Weight	:	Less than 10-12 Kgs (with bar & chain)
Noise Level	:	102 dB max at 1 mtr distance.
Diamond Chain	:	MAX Series.

2.2 FUNCTIONAL REQUIREMENT

- It shall be provided with extended drive sprocket adapter for easier chain assembly.
- It shall have rear port which keeps intake air flow slurry free.
- It shall have single nut bar clamp to provide simplified clamping and no parts to lose.
- It shall be provided with polyester air filter designed specifically for wet cutting.
- It shall be provided with wall walker for straight cuts and for less effort by the operator.
- It shall be provided with 35 cm (14 inch) guide bar for deep penetration.

- It shall be provided with full wrap handles, momentary contact. On off switches with 360° swivel hose connector, sprocket side cover and guard flap for operator safety.
- It shall be safe to use – no ‘Kick Back’
- It shall be able to cut square corners without over cuts.
- It shall be versatile and user friendly

3.0 DIAMOND CHAIN

- a). It shall be strongest, largest lasting diamond chain with higher tensile strength with pitch design to create the optional combination of weight and strength. The chain shall have water distribution feature allowing for better lubrication between bar and chain.
- b). It shall be provided with seal PRO@ O’ring and bumper design for smooth cutting performance and maximum life. 1 pc spare chain also to be provided.

4.0 GUIDE BAR

- a). It shall be designed to have laser cut internal water channels to keep the nose sprocket lubricated.
- b). A suitable water pump complete with hose and connections shall be provided of reputed make to operate diamond chain saw during wet cutting of RCC.
- c). The complete Diamond Chain Saw with water pump shall be supplied along with a pair of Boots, Hand Gloves, Dungaree, Safety Helmets, Ear Protector and safety Goggles.

5.0 Make should be from a reputed international manufacturer like ICS (USA) or equivalent

NOTE:

- ❖ All the above equipment should be supplied with Operating, Technical/ Service manuals.
- ❖ All the above equipment should be supplied with essential/standard accessories.
- ❖ Comprehensive AMC charges for base equipment (includes natural calamities) should be quoted separately.
- ❖ Cost of equipment should be quoted inclusive of all taxes in rupee payment.
- ❖ List of essential spares with their cost may be furnished separately.
- ❖ The specifications are general in nature and the department reserve the right to go for better specifications among the tenderers.
- ❖ The supply items should have at least 02 years of Warranty / Guaranty.
- ❖ All the tenderers should arrange live demonstration of the equipment offered with in two days from the date of opening of the tenders.

ITEM -XI

SPECIFICATION FOR BREATHING APPARATUS

Positive pressure open circuit compressed air self-contained BA set with extra mask (Rescue hood) having safe working duration of at least 35 minutes and 10 minutes safety margin. It should have approval from EN 137: 2006 Type 2 (Flame engulfment tested) and should bear mark of relevant specification. The set should operate efficiently in variety of harsh environment and capable of withstanding rough uses of fire brigade i.e. hot, cold, wet, humid, cramped and zero visibility and must be simple to wear. The weight and ergonomics of the set, when fitted with ancillary equipment should be so designed that it is spread over the frame of the human skeleton, and not to cause physical damage to the wearer and is comfortable. Design of set should allow for safe accessible stowage in appliance crew cabs or lockers. It should be as compact as possible with no sharp edges, burrs or protruding parts likely to be caught on projections and narrow passages. The apparatus shall continue to function satisfactorily after being submerged into the water to maximum depth of one meter.

The total weight of set with filled cylinder should not exceed 12kg.

1. BREATHING APPARATUS CYLINDER:

Seamless super light cylinder of adequate water capacity for 45 minute duration at filling pressure not exceeding 300 bar duly hydro-tested to 1.5 times of filling pressure, (must bear ISO/BS/DIN/NIOSH / EN mark on body of cylinder). Should have test certificate from authorized test station of the country from where it has been imported/manufactured. It must have approval from CCE, Nagpur and should be painted as per latest cylinder rules. The cylinder should be marked with photo luminescent strip in such a way that when set is assembled it is visible from back side to trace/follow the BA wearer in smoke filled compartment. Cylinders manufactured for more than one year shall not be acceptable.

2. CYLINDER VALVE:

The cylinder valve should be both hand operated, perpendicular to cylinder but should not protrude beyond cylinder width, having safety device to prevent accidentally closure of valve. The design of valve should be such that in case of spindle is broken it can be repaired when cylinder is full. Cylinder valve should bear mark of relevant specification and should have approval of BS / EN / DIN / NIOSH. A test certificate from authorized test lab &

approval of CCE, Nagpur should also be supplied. The valve assembly must include anti-debris tube for preventing the debris flowing from the cylinder to air circuit and should also have universal coupling for connecting different type of sets and air compressor. A blank cap should be provided to protect cylinder valve threads.

3. PRESSURE REDUCER:

Compact designed should reduce the cylinder pressure unto 7 to 10 bars to meet the design requirement of demand valve and should maintain the same reduced pressure even with decreasing cylinder pressure. It should have built in pressure relief valve, designed to prevent excess pressure in the low pressure circuit and also safety device to restrict the flow in high pressure circuit in case of failure / damage of high pressure hose . The pressure reducer also contains the suitable filter for filtering out particles unto size of 20 Microns or greater.

4. SECOND-MAN ATTACHMENT:

Provision for second man / airline attachment should be provided. The design should be such that through same connection air from another BA wearer can be fed and also the second face mask could be used. Coupling used should be quick release type. Suitable hose connection to feed air from one BA set to another BA set should be provided.

5. INTEGRATED CONTROL UNIT:

Water proof pressure gauge having luminous dial reading up to 400 bars should be positioned in such a way that it can be read by BA wearer conveniently. It should be mounted in stainless steel case having corrosion resistance and protected by rubber cover. Gauge dial should be photo luminescent and shatter proof polycarbonate glass. It should be mounted on left shoulder. The dial must be marked red to indicate low pressure in the cylinder, in addition to warning whistle set to operate at a pressure when it is left with a 10 minutes air in the cylinder. It should be protected by safety device including restriction valve that will limit the loss of air in event of damage of pressure gauge to 10 litres / minute maximum. The system incorporates a gauge to monitor the following:

- a) Pressure
- b) Temperature
- c) Remaining service time
- d) Battery capacity
- e) Motion sensor which gives alarm if the user is motion less

f) Alarm at low cylinder pressure

6. LOW PRESSURE WARNING WHISTLE:

BA set must be provided with low pressure warning whistle, which shall operate automatically, when cylinder pressure drops to a predetermined pressure (i.e. air in the cylinder is left for 10 minutes at the rate of 40 litres/minute) for safety margins. It should not be externally adjustable, and the consumption air by warning whistle should not exceed 5 litres/minute. It should be positioned at left shoulder for easy hearing and should not produce sound less than 90 db.

7. HOSES:

Hoses should be impact resistant and flame resistant stainless steel braided over hydraulic covered hose and fitted with suitable coupling, or manufactured with suitable material to withstand desired operational objective.

8. DEMAND VALVE:

The valve should have compact design, low profile, automatic positive pressure, operable with first breath / quick fitting coupling when fixed with supply to wearer on demand to perform various nature of hard / strenuous job during fire fighting, rescue etc. in smoke / toxic, hot, humid and hazardous atmosphere. It should be quiet in operation to prevent disturbance during communication between BA wearers. It should also have a provision of by-pass valve to provide extra air in case wearer demands and should be totally independent from demand valve functioning (EN-137). It should continue to function satisfactorily after being submerged in water to a maximum depth of one meter, once worn by BA wearer. The provision of shut off button on demand valve assembly should also be made for stopping air flow in face mask, which should be capable of de-activating on next breath. The coupling should be of quick release mechanism type to unplug demand valve from the mask connector.

9. FULL FACE MASK:

The mask must be made from silicon or EPDM - rubber. It should be pan-seal including optically correct and with full view replaceable visor made from poly-carbonate having resistance to chemicals and shock and should be anti-scratch. The inner mask should allow the air to pass across the visor to keep it free from condensation and should reduce the

dead space within the face-mask to prevent accumulation of carbon-di-oxide to uncomfortable level. Speech diaphragm for effective communication should be provided. A safety device should be incorporated in the exhalation valve to release excess pressure in the face mask than the design positive pressure. It should be provided with suitable strap with locking for easy donning the face mask strap made of fire retardant material should also be provided. It should have double reflex sealing and quick fitting plug-in connection for demand valve. This mask should bear mark of relevant specification.

For preventing the deterioration of face-mask from the effect of ultra violet light and also from dust etc., a suitable black bag shall be provided with each face mask. Special adjustable rubber straps allow attaching the mask to the helmet quickly and securely, without need to take off the helmet. Similarly, the mask can be comfortably detached from the helmet if there is no longer a need for respiratory protection during work.

10. HARNESS:

The harness should be fire resistance, should not deteriorate or shrink in contact with water / moisture / water miscible substances or on contact with oil grease etc., and also provide resistance to chemicals, it should not built up static electricity nor should retain static charge. It should be fully adjustable to be worn by a fireman having variation in height and waist size. The design should be such that wearer could don the apparatus quickly without the aid of another person including the chest strap, if provided should be easily distinguishable by touch. The method of fastening should be of similar and also the adjustment. The buckles provided should be quick release type. The light weight webbing harness ensures optimal load distribution, balance, comfort and reduced wearer fatigue.

11. BACK PLATE:

Adjustable back plate with an innovative foldable protective foot made of composite material / light weight carbon fibre, ergonomically and ribbed design covered with flame retardant anti-slip neoprene to prevent the possibility of incurring radiant heat burn through the direct contact with metal and should give maximum safety to the wearer in all the difficult situations such as, rough working conditions during firefighting operations, cold, hot , wet / humid and cramped atmosphere. The back place should be designed to carry the different diameters of BA cylinders. The strap should have quick release coupling for changing cylinder. Back plate also includes strong carrying handle.

12. GENERAL SPECIFICATION

Sealed quotations are invited for Special Self Contained Breathing Apparatus with 6 ltr 300 bar light-weight Carbon composite cylinder with following specifications and Spare Cylinder.

- Should be approved to EN 137: 2006 Type 2 (Flame engulfment tested) suitable for fire-fighting.
- Should have soft padded harness made of flame retardant fabric
- Should have soft padded waist belt for added comfort
- Should have CE marked Face mask approved to EN 136
- Should have Quick-fit connection to the demand valve for quick donning
- Should have Demand Valve hose with quick release coupling connection to the medium pressure hose from Pressure reducer to quick change of demand valve in an emergency without having to remove the set.
- Low cylinder pressure warning device should be position close to the ear of the user above the chest region and in front of the user and it should activate at 55 +/- 5 bar residual cylinder pressure.
- Air loss to atmosphere for warning device operation should not exceed 5 LPM
- The set should be supplied with a 6 liter water capacity with 300 bar filling pressure lightweight Carbon composite cylinder
- The cylinder should be approved by PESO (CCE), Nagpur.
- Shall be reputed make like Drager, MSA, Interspiro Scott or equivalent

13. ACCESSORIES

The set should be supplied in complete with:

- Back plate with harness,
- Pressure reducer,
- Full vision face mask
- Demand valve with short hose & QRC.
- Warning device
- 6 ltr. 300 bar lightweight Carbon composite cylinder cylinder with valve.

14. TECHNICAL DATA

Weight of complete set with dragger FPS 7000 full-face mask, lung demand valve and dragger 6.8 litre carbon composite cylinder, 20 year design life (kg)	11.7
Input pressure (bar)	0-300
Normal 1 st stage output pressure (bar)	7.5
1 st stage output flow(l/min)	>1000
Pneumatic warning whistle activation pressure (bar)	50-60
Pneumatic whistle sound Level (dBA)	>90
Operating Temperature (°C)	-30 to +60

15. CARRYING CASE:

- (a) A strong carrying case to store complete assembled BA set along with BA cylinder should be provided. It should be designed in such a way that all parts of the assembled set could be placed in its proper position.
- (b) A black colour plastic bag to avoid deterioration due to the effect of ultra violet light and also to prevent mask being contaminated by oil, fuel, dust etc., It will be used to cover the face mask and then store it in the carrying case.

16. TEST CLAUSES:

Type of Test:

Any set of breathing apparatus offered in fulfillment of this specification should pass satisfactorily the following test as are relevant to the class of apparatus offered. It is intended that these tests should be made at the manufacturers'/ suppliers works or fire brigade or elsewhere, to be arranged by manufacturer / suppliers at their own cost.

17. TEST DETAILS:

(i) Performance:-

Two tests with each of two identical sets to ensure that the apparatus causes no undue discomfort to the average wearer for full period of 30 minutes. Each test should be carried-out by a different wearer. For these tests each wearer will walk at a regular rate of 6.4 kms / hour on level ground and also at higher speed to check the performance of demand valve.

(ii) Low Cylinder Pressure Warning Device:-

Tests to check that the warning device complies with the requirements laid down in EN specifications.

(iii) APPROVAL:-

The approval from any of the approved tests houses like DIN/BS/NIOSH/ EN - shall / will be essential.

(iv) **Tests of Acceptance :-**

- (a) Acceptance test should include a performance test, leakage test, flow test , safety devices functional test, low pressure warning test.
- (b) The apparatus shall continue to function satisfactorily after being submerged in water to a maximum depth of one meter

18. WORKMANSHIP AND FINISH:

It is essential that the standard of workmanship and finish of all parts is such that replacement parts can be supplied and that they will fit correctly and without difficulty. Exposed metal parts would have a finish which can be kept up without the use of metal polish or any other special preparation.

19. TOOLS:

Tools necessary for routine testing and servicing must be provided with each set along with one kit of consumable spares.

20. INSTRUCTION BOOK:

An instruction book in English, for the guidance of the user including both operating and normal maintenance procedure must be supplied. The book must include an itemized and illustrated spare parts list, giving reference numbers to all parts.

21. TRAINING:

The supplier shall provide training to selected staff / Officer for operation and maintenance of BA set.

22. SPARES:

Supplier shall ensure availability and supply of fast moving spares at short notice for at least five years. The Supplier shall provide a price list of such spares along with commercial bid.

ITEM -XII

SPECIFICATION OF HIGH EXPANSION FOAM GENERATOR (AFFF)

Water Turbine Foam Generator should consist of a fan, driven directly by the shaft of a foam water solution from spray nozzles which are supplied from the discharge of the water turbine, the foam concentrate being drawn into the water stream by means of a built-in-induction system. Its special feature is "by-pass" system, which allows the Generator to operate against a high back pressure due ducting or when forcing the foam to a height.

With the by-pass shut, all the water passing through the Generator is used for driving the turbine and for foam production thereby producing reduced expansion foam. In order to overcome high back pressure, which occurs when high expansion foam is inducted through long lengths of tubing, the by-pass is opened and some water is diverted to pass through the turbine to waste, leaving foam production. This results in a higher expansion foam and also increases the water flow to the turbine, speeding up the fan and consequently the airflow.

The Generator can also be used as a smoke extractor, in which case the valve controlling the foam solution supply to the spray nozzles is closed.

Performance Data

	Inlet Pressure	Total Water Flow	By-Pass Flow	Water Used For	Expanded Foam	
				Making Foam	Produced	Expansion
	Kg/cm ²	LPM	LPM	LPM	M3/min	
By-Pass Fully Open	4	170	60	110	90	800 to 1100
	6	210	75	135	125	
	7	230	85	145	145	
	8	245	90	155	165	
	10	265	95	175	195	
By-Pass Closed	4	160	NIL	160	80	500 to 750
	6	200		200	112	
	7	220		220	132	
	8	235		235	150	
	10	250		250	187.5	

Note:- Average foam pick-up rate -4-5 litres per min

ITEM -XIII

SPECIFICATION OF FLOW METER FOR TESTING

Description: A WW A Class 11 Turbine Meter.

AWWA Standard: Should Meet or exceed the performance required by AWWA Standard C701, most recent revision, for Class 11 Turbine Meters.

Introduction: Hydrant Meters should be designed to measure a wide variety of cold potable water flows from fire hydrants where flows are in one direction. These Meters should be light weight portable units designed for temporary installations.

Operation: Water flows through the turbine section causing the rotor to turn proportionately to the quantity of water flowing through the meter. A drive magnet transmits the motion of the rotor to a driven magnet located within the hermetically sealed register. The magnet is connected to a gear train which translates the rotations into volume totalization displayed on the register dial face. The only moving parts in the meter should be the rotor assembly and vertical shaft.

Construction: Hydrant Meters should consist of several basic components: light weight aluminum main case, turbine type measuring element assembly, sealed register, aluminum cover plate, stainless steel hardware, brass lid assembly, aluminum or brass swivel and nipple, aluminum or stainless steel handles, etc. The measuring element assembly should include the rotor assembly, vertical shaft and a calibration vane which eliminates the need for calibration change gears.

Restrictor plate: The standard Hydrant Meter should have a permanent flow restrictor machined into the main case. This limits the maximum flow of water through the meter and provides protection for the measuring element from being overrun when the meter discharges.

Strainers: Hydrant Meters should come standard with a large built-in 54 square inch strainer.

Connections: Hydrant Meters should be typically configured with bronze connections.

Main Case: Should be 3" constructed of lightweight aluminum, with lockable handle and stainless steel internal inlet strainer. Should be Equipped with 2.5" male NST swivel inlet coupling and 2.5" male NST outlet coupling. Bronze register retaining ring and lid are standard.

Measuring Chamber: Meter chamber assembly and turbine should be constructed of durable, engineering plastics for extended service life.

Magnetic Drive: A reliable, direct magnetic drive should provide linkage between measurement element and register. No intermediate gearing is required and no gearing should be exposed to water.

Register: Should be Standard direct read. A six-wheel odometer is standard. Registration is available in gallons or cubic feet.

Register Sealing: Direct read and DIALOG® System registers should be permanently sealed, with a tempered glass lens, stainless steel base and wrap-around gasket to prevent intrusion of dirt or moisture.

Test Circle: Large center sweep hand minimum registration unit, with each tenth marked.

Low Flow Detector: Center-mounted indicator with high sensitivity resulting from direct one to one linkage to the measuring element.

- Apparatus flow test kits should include Eight (8) Tips range from 3/4" to 2 1/2" in 1/8" increments. (3/4", 1", 1 1/8", 1 1/4", 1 1/2", 1 3/4", 2", 2 1/4", 2 1/2")
- 3 1/2" liquid filled 0-160 psi (0-1100 kpa) gauge
- Large, heavy duty carrying case (FK-230), 18 3/8" W x 14 1/4" D x 8" H
- 2 1/2" female swivel- Standard
- Certified calibrated gauges
- Large diameter flow test tips available
- Flow range: 25-1900 GPM (95-7100 LPM)

Maintenance: Hydrant Meters should be engineered and manufactured to provide long-term service and operate virtually maintenance free. If maintenance is necessary, provision should be made for the measuring element to be removed from the main

Conformance: Hydrant Meters should be tested and comply with AWWA C701 Class 11 performance standards.

ITEM -XIV

SPECIFICATION OF JUMPING CUSHION {25 METRES JUMPING
HEIGHT} FOR RESCUE

SPECIFICATION DATA SHEET FOR INFLATABLE RESCUE
CUSHION
25 m / 80 ft.

Suitable for a jumping height of up to	25m / 80ft.
External measurements (Length/ Width / Height) max.	4.6 x 4.6 x 2.4 m / 181 x 181 x 94"
Storage size / wrapped and packed in a valise (L/W/H) should not exceed	110 x 63 x 45 cm 43 x 25 x 18"
Total weight (including compressed air-cylinder) must not be more than	94 kg / 2071bs
Operating pressure of the inflatable frame must be minimum	(built-in safety valve) 0.5 bar /7.25 psi
Inflation time must not exceed	66 seconds
Material of the inflatable frame:	Must be Polyamide fabric covered with Chloroprene-Rubber (CR Material)
"Polvchloroprene" with following material properties:	Surface weight must be minimum 600 g/m ²
Tensile strength according ISO 1421 and ASTM D751 /B:	Must be at least 300 daN/5cm
Tear resistance according to ISO 1421:	Min 13daN
Material of the side wall cover and jump cover (top):	inflammable-resistive, anti-tear material PVC-coated Polyester-fabric (PES Material)
PES fabric PVC coated with folloiNing material properties:	At least 1100 dtex fabric
Surface weight according to EN ISO 2286-2:	At least 400 g/m ²
Tensile strength according ISO 1421:	Must be at least 2200 N/5cm
Flame retardancy according to:	DIN 54333 part 1 must be reached/fulfilled
To be clearly visible and recognizable the design of the side wall cover must be	neon yellow colored
For psychological reason the design of the top (jumping area) must be:	Circled design, mainly blue colored or alternatively: black circle / cross
The jumping height of 25 m must be tested and by an independent / third party testing institute	According to DIN 14151 part 1 and part (Testing method must be based on DIN 14151- Test resultate must be provided)
The jumping cushion should be manufactured by:	Reputed international manufacturer

ITEM -XV

SPECIFICATION OF LIGHT WEIGHT, SELECTABLE FLOW, MODULAR, HAND CONTROL NOZZLES:

Nozzles (hard Anodized) Light weight & Easy handling having 63mm size male instantaneous inlet, Nozzle shall have rubber moulded bumper & Pistol grip handle selectable flow capacity Nozzle flow rate settings at appr. 20~5-600/LPM at 7kg/cm² with good range hollow jet, and dense fog in spray position and having an arrangement of low and medium expansion foam attachment. The make should be of a reputed manufacturer like Akron or equivalent

ITEM –XVI

SPECIFICATIONS OF SMOKE GENERATOR

Design: The CO₂ gas under pressure when applied on the smoke fluid into mist form and the same is fed into a heat exchanger where the mist is transformed into vapour. The vapour condenses into visible smoke when exposed to the atmosphere

Application:

- Breathing Apparatus Training and all areas of Survival Training.
- Evaluation Training and Fire Simulation .
- Leakage Testing of buildings, ductwork, enclosures etc.
- Air Flow Visualisation Tests.
- Visual Effects for television, theatre, film studios and discotheques

Technical Specification	
Smoke out-put	20m ³ /min.
Colour of smoke	White
Gas used	CO ₂ (Carbon Dioxide) to IS:307
Gas capacity	2kgs.
Running time	30 min.
Fluid	Non toxic.
Fluid capacity	One litre
Warm-up time	15 min.
Operating temperature	180°C.
Dimensions: <ul style="list-style-type: none">•Length•Height•Width	500mm 400mm 150mm.
Voltage	230 volt
Power consumption	750 watt Operating Switch,

Controls	Gas Control Valve,
Protective Devices	Smoke Release Valve Fuse - 3 amp
Finish	Safety disc for cylinder
Weigh	Thermostat operating at 300°C

ITEM –XVII

**SPECIFICATIONS ALL TYPE OF CUTTING AWAY GEARS. HYDRAULIC /
BATTERY OPERATED**

1.	<p>Hydraulic Combi Tools as per the following specs</p> <p>Spreading force on the open arm - not less than 20 Ton</p> <p>Spreading distance - not less than 350mm</p> <p>Spreading force arm closed - not less than 3.5 Ton measured 25 mm from the tips,</p> <p>Squeezing force - not less ,thqll.7 5 Ton</p> <p>Pulling length - not less than 400 mm,</p> <p>Pulling force - not less than 5 Ton,</p> <p>Maximum cutting force in recess - not less than 35 ton</p> <p>Cutting opening - not less than 225</p> <p>Capable of cutting round bar - not less than 32 mm dia. Weight approx 15 kgs,</p> <p>It should have well serrated tips for perfect grip during spreading & squeezing, sharp cutting tips with optimal angle. The tool should preferably have Slim arms, Yoke & slim bolt design for easy penetration in confined places and the carrying handle should preferably have integrated lighting, accurate spring return to neutral position, maximum rotation to the right and to the left only 22 degree, built in double check valves, full protection against overload with all accessories like pulling chains, chain adaptors, with a maintenance kit. The equipment & accessories should be new, unused and should conform to latest design and specifications. The tool should have only 1 quick coupler directly connected to the tool without hoses</p>	1 nos
2.	<p>Hydraulic Telescopic Ram as per the following specs</p> <p>Spreading force of 1st plunger - not less than 22 Ton</p> <p>Spreading force of 2nd plunger - not less than 8 Ton, Length retracted including cross head -less than 630 mm</p> <p>Total Length including cross head - not more than 1300 mm,</p> <p>Stroke of 1st plunger - not less than 350 mm</p> <p>Stroke of 2nd plunger - not less than 320 mm</p> <p>Weight - maximum 21 Kg</p>	1 no.

	<p>It should have rotating cross head for easy positioning & perfect grip in every right and to the left only 22 degree, full protection against overload, with all accessories like maintenance kit. The equipment & accessories should be new, unused and should conform to latest design and specifications. The tool should have only 1 quick coupler directly connected to the tool without hoses</p>	
3.	<p>Hydraulic Door Opener as per the following specs:-</p> <p>The door opener shall be hydraulically operated with two toes, one fixed and one moving and it shall be suitable to force open doors of building that open to the inside and that can be reinforced or blocked.</p>	1 no
	<p>The spreading force shall be 100 kN [10.2 ton].</p> <p>The door opener shall be single acting, spring return type, driven by hand - or foot pump, working on non - toxic mineral based hydraulic oil.</p> <p>The Insertion height up to the first groove shall not be more than 3mm, whilst the stroke length of the door opener shall not be less than 128 mm.</p> <p>The back of the fixed toe shall be designed with a flat face to be used a hammering base. The door opener must be available with a carrying and positioning handle that automatically keeps the tool from twisting when positioning the tools. The carrying and positioning handle would be finished with a black epoxy optimal grip.</p> <p>The door opener must be available with a swivel connection that must be on the back of the tool for optimal maneuverability of the tool and connection hose.</p> <p>Dimension of the tool shall be [I X w X hJ 300 X 120 X 105 mm approx. & weight would not be more than 7 kg.</p> <p>The door opener shall be supplied with the accessories such as 30 cm pigtail hose</p>	

	<p>and quick coupler, that can also fitted with the additional positioning & carrying handle with a 360 degree rotation elbow, 30 cm pigtail hose and quick coupler,</p> <p>supplied in a synthetic storage box.</p> <p>The door opener shall be able to be operated by a two stage hand pump shall be supplied along with the door opener with 5 mtrs of suitable hose.</p>	
4.	<p>Hydraulic pump for 2 tools simultaneous operation with 15 mtrs long hose the following specifications :-</p> <p>Engine - Petrol engine</p> <p>Capacity oil tank (effective / usable) - The petrol tank capacity shall be such that, it allows the engine to run for minimum one hour when the tools are in operation.</p> <p>Pump type - 3 stage axial pump</p> <p>Weight -Not more than 25 kgs</p> <p>No. of tools connected - Two</p> <p>No. of tools to be operated simultaneously -</p> <p>The capacity of Hydraulic oil tank shall be sufficient to supply the oil to two tools</p> <p>simultaneously with ample reserve capacity for the recirculation of oil to avoid the overheating in prolonged operation.</p>	1 no

SPECIFICATION OF COMBITOOL (BATTERY OPERATED)

I. GENERAL

- (i) This specification defines the technical and functional requirements for battery operated hydraulic Combitool to be used for rescue operation by fire brigades and special rescue teams in case of traffic accidents, building collapse and natural disasters confined space rescue, high rise building rescue etc.
- (ii) The specification comprises the technical basis for procurement, acceptance and testing of the hydraulic rescue set. The equipment shall be able to work without failure in heavy dust high humidity, heavy tropical rain conditions "

II PURPOSE

- a. The rescue set is intended for use in life saving operations of persons entrapped in demolished structures, aircrafts and train wrecks and damaged vehicles by accomplishing the following:

- b. Widening openings between movable ruins
- c. Cutting of building constructions steel rods, metal members, sewage pipes, water pipes, etc.
- d. Creating cut outs in sheet metal panels by tearing the sheet metal or removal of the panel's hinges from their place.

III RESCUE SET'S COMPOSITION

- i. The Battery operated rescue set shall include the following components:
 - a) Combi-tool
 - b) Accessories
- ii. All tools / equipment shall be tested for safety according to EN13204 (European standard) and for performance to NFPA 1936 (US standard).

IV) DESCRIPTION

- (i) The battery operated hydraulic rescue tools shall meet the following requirements:
- (ii) The Combitool shall operate on a working pressure of at least 700 bar. The Battery will be 4.1 Ah 28 A Lithium ion rechargeable battery. The battery will be click ON / click OFF type for quick changing of battery. The battery shall be capable of being recharged fully in max. 60 minutes. A LED power indicator showing the battery status shall be integrated in the battery.
- (iii) The Combitool shall be operated independently and shall provide the max. safety and protection for the operator and the causality. The Combitool shall be equipped with high capacity flash LED lights integrated in the handle to light up the working space in case of low visibility.
- (iv) The Combitool shall be a one-man operated light-weight tool, meaning that one person will be able to position, guide and operate the tools without needing assistance by another person.
- (v) The Combitool shall be provided with carrying handle which allows the operator to reposition the tool from one side to the other (left to right and back) without the need to reposition the hand or to release the handle in order to do so. The carrying handle should be mounted in such a way that the tool is fully balanced, even when the tool is picked up with one hand. The position of the carrying handle and the control handle shall allow easy operation for right-handed as well as left-handed operators.
- (vi) The Combitool shall be resistant against dust, heavy rain, spilling water under various temperature conditions.
- (vii) The Combitool shall be provided with a Twist dead man's control mechanism with automatic neutral position. The Control handle shall have minimum grip length of 75 mm to provide full grip for the operator hand (no finger or thumb control). The deadman's handle must be easy to operate in any situation and position of the tool.

- viii) The control mechanism must be part of the handle in order to ensure a safe operation. The main valve will allow precise proportional operation in order to influence the working speed of the tools. To avoid confusion for the operators; the operation mode shall be similar for all tools. The dead- man's handle shall be easy to operate from any given position the tools or the operator may be in.
- (ix) The tool body shall be made out of high quality thermoplastic material that assures a solid construction combined with an acceptable (low) weight. The tool body shall assure highest stability and a long service lifetime.
- (x) All hinges, pins, levers, shall be made out of high tensile (heat treated) tool steel, and protected against corrosion. The blades of the cutter shall be of dropped-forged special steel alloy to ensure a long service lifetime.
- (xi) The arms of the spreader shall be made out of High alloy forged light metal. All movable parts shall be covered to ensure the highest safety for the operator. All tools and accessories should be fully operational for longer periods at temperatures of -25°C up to +55°C.
- (xii) Spare parts shall be available with the local dealer for at least 10 years.

VI) TECHNICAL SPECIFICATIONS OF BATTERY OPERATED HYDRAULIC COMBI- TOOL:

- (i) The combi tool shall be capable of cutting of various sections such as solid round bar, hollow round bar, flat section, square tube, rectangular tube etc. It would also cut the door pillars of new generation cars and also be able to perform the spreading and pulling functions.
- (ii) The blades shall be of shock resistant non corroding alloy steel, hardened and ground and shall be exchangeable and regrind able.
- (iii) The combi tool shall have following specifications:

Spreading Distance	Not less than 350 mm
Spreading force measured at 25 mm from the as per EN 13204	Not less than 3.5 T
Spreading force	Not less than 21 T
Cutting force	Not less than 38 T
Squeezing force	Not less than 1000 mm

Pulling distance	Not less than 415 mm
Pulling force	Not less than 5 ton
Weight including battery	Not more than 20 kgs
Capable of cutting round steel bar	Not less than 32 mm
The material of the steel profiles shall conform EN 10025-1-2000 table 5, type S	

VII. Accessories

Pulling Chains Set 10 mm - 1.5m + 3.0m	1 Set
Pulling Attachment Set	1 Set
Mains Power connector to connect the tool to V source	1 No
Battery charger	1 No
Battery Pouch	1 No
Carrying strap	1 No
Spare Battery	1 No