



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT / VALVES
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)

Page : 1

PHONE :91-431-2577305
GRAMS : BHARATELEC
FAX NO: 91-431-2520383
E-mail : valpur@bheltry.co.in
WEB : http://mm.bheltry.co.in

Vendor Code : 23505 Vendor Name : M/S Open Tender Dummy Code	Enquiry No EN-SSV1224 - EN-SSV1224	Enquiry Date 14.06.2016	Due Date for Quotation 28.06.2016
Please quote Enquiry No, Date and due date in all correspondences. This is only a request for quotation and not an order			

Item	Description	Unit	Delivery Quantity	Schedule Date
10	964164330000 2V4S0213111/00 RAV-1202-CSC-I10U SPC:-SPEC:SL:0002/06	NO	6.00	13.09.16
20	964164340000 2V4S0313110/00 RAV-1000-CSC-I08U SPC:-SPEC:SL:0002/06	NO	3.00	13.09.16

General Note:

1. Payment will be made only thro E-Payment mode. Tenderer/s to furnish the necessary Bank A/c details clearly in their quotation without fail.
2. LD Applicable as per Std. Terms (ie)0.5% per week subject to maximum of 10% for total value of the order.
3. Delivery :-FOR-BHEL,TRICHY. Tenderer/s to confirm the DELIVERY TERMS clearly in their offer. DELIVERY PERIOD SHALL BE 02 MONTHS FROM THE DATE OF PO.
4. Payment Term:100% after 45 days on acceptance of material. Any other payment term is not acceptable.
5. Supplier should comply the technical spec/drawing enclosed along with the enquiry. If any deviation exists to BHEL Spec/drawing,it should be highlighted in techno commercial bid itself.
6. Offer should be submitted in two part bids.commercial-price bid will be opened on due date and technically suitable bidders will be intimated later for price bid opening.
7. Tender submission date is on or before 28.06.2016.

The offers should reach us before the time of opening the tenders.
The offers will be opened at 14.30 hours on the due date in the presence of the tenderers who may like to be present .
Late tenders are liable to be rejected .

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED

for *Ravi* 14/6/16
KAVIYARASAN
MANAGER / PURCHASE / VALVES
Dy. Engineer
Purchase / Valves
BHEL, TRICHY - 620 014



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EN-SSV1224 / 14.06.2016

23505

8.,,The Bidders shall submit the offer in TWO INNER ENVELOPES
i) PART-I Technical and Commercial bid ii) PART-II Price bid
in separate covers indicating Enquiry No, Due date and
Address.

9.Note:

„Drawings

„Terms & Condition

10. Offers should send to following addres:

„TENDER ROOM

„ROOM NO.26,

„24 BLDG,GROUND FLOOR

„BHEL, TRICHY-620014

„0431-2577742

11. EMAIL OFFER SEND TO: tender_cell@bheltry.co.in

The bidder along with its associate/ collaborators/
sub-contractors/sub-vendors/ consultants/ service providers shall strictly
adhere to BHEL fraud prevention policy displayed on BHEL website
<http://www.bhel.com> and shall immediately bring to the notice of BHEL
management about any fraud or suspected fraud as soon as it comes to their
notice.

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The offers will be opened at 14.30 hours on the due date in the presence of the
tenderers who may like to be present .
Late tenders are liable to be rejected .

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED

for

Ramesh 14/6/16
MANAGER / PURCHASE VALVES

N.KAVIPRASAN
Dy. Engineer
Purchase / Valves
BHEL, TRICHY - 620 014



BHARAT HEAVY ELECTRICALS LTD

Valves/Purchase, Tiruchirappalli-620014, INDIA

TERMS & CONDITIONS

Phone: 0431 257 7137/7424

Email: nkavi@bheltry.co.in

pldeo@bheltry.co.in

1. QUOTATIONS:

- a. **Submission of Tender:** Each offer should be sent in double cover separately and the same should be sealed and super scribed with correct Tender No., item of supply and due date of opening. Two or more quotations should not be sent in one cover. Price Bid should contain only Price in Rs per unit for each type. Tender should not be addressed to any individual's name but only by designation as below:

TENDER ROOM NO-26, BUILDING 24,
HIGH PRESSURE BOILER PLANT
BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, TAMILNADU, INDIA

- b. **Late tenders:** Late tenders shall not be considered under any circumstance.
- c. **Regulations:** Tender should be accompanied by detailed technical literature, Catalogue and detailed dimensional drawings in ENGLISH. Tenders should be free from CORRECTION AND ERASURES. Corrections if any must be attested. All amounts shall be indicated both in words as well as figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.
- d. **Two Bid Systems:** The offers are invited in twopart bid system (Techno commercial & price Bid). First the Techno Commercial bid will be opened. Techno-commercially suitable vendors alone will be intimated for price bid opening or Reverse Auction.
- e. **PVC:** Price Variation clause not acceptable. Prices should be firm.
- f. **Catalogue:** Manufacturer's name, Trade Mark or Patent No. if any should be specified. Illustrative leaflets giving technical particulars are required along with quotation wherever necessary.
- g. **Acceptance:** The purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any tender in part or full without assigning any reason whatsoever.
- h. **Samples:** Samples should be submitted separately if specially requested in tender before due date of the enquiry. They should be clearly marked with the enquiry No and date on the outside cover to facilitate identification.
- i. **Spares:** The tenderer should quote separately for spares that are required for two years trouble free operation. The spares offer should accompany the offer of main equipment; otherwise the quotation will be overlooked.

2. COMMERCIAL TERMS & CONDITIONS:

- a. **Terms of Payment:**
For Indigenous Suppliers: 100% after 45 days on satisfactory receipts and acceptance of material at BHEL stores/ Site acknowledgement.
For Import Suppliers: 100% payment against presentation of documents through Bank.
No other payment term is acceptable to BHEL.
- b. **Liquidated Damage:** A sum equivalent to 0.5% of price for every week up to a maximum of 10% for total PO values
- c. **Delivery Terms:**
For Indigenous Suppliers: EXW as mentioned in enquiry inclusive of freight and insurance. FOR BHEL TRICHY
For Import Suppliers: FOB nearest SEA Port/FCA nearest AIR port.
- d. **Validity of Offer:** Prices should be valid for 60 days.
- e. **Taxes & Duties:** If any Sales Tax is payable as extra to the quoted price, it should be specifically stated in quotation along with CST & T.N.G.S.T No. failing which the purchaser will not be liable for payment of Sales Tax. Our T.N.G.S.T No. 3550005 Dated 01-04-1995 C.S.T. No. 259383 Dt. 11.06.1991 . Quoted prices should be exclusive of taxes and duties.
- f. **Guarantee Clause:** The vendor shall give a guarantee for the performance of his supplies for a period of eighteen months from the date of dispatch or twelve months from the date of commissioning whichever is earlier.
- g. **Risk Purchase:** Alternatively the purchaser at their option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of seller either the whole of goods or any part which the supplier has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute therefore. Supplier shall be liable for any loss which the purchaser may sustain by reason for such risk purchases in addition to penalty at the rate mentioned in clause 2.b above.
- h. **Preferential Delivery:** If a contract is placed on a higher tender as a result of this invitation to tender in preference to the lowest acceptable offer in consideration of the earliest delivery, the seller will be liable to pay to the purchaser the difference between the contract rate and that of the lowest acceptable tender on the basis of final price FOR destination, including all elements of freight, sales tax, duties and other incidents, incidental in case of failure to



BHARAT HEAVY ELECTRICALS LTD

Valves/Purchase, Tiruchirappalli-620014, INDIA

TERMS & CONDITIONS

Phone: 0431 257 7137/7424

Email: nkavi@bheltry.co.in

pldeo@bheltry.co.in

complete supplies in terms of such contract within the date of delivery specified in the tender and incorporated in the contract.

- i. **MODVAT/CREDIT:** If any Excise Duty is payable, the chapter head/sub-head reference and the rate of the duty should be quoted. If the tender is availing MODVAT credit for his input materials, the effect of proforma invoice should be passed on to the purchaser.
- j. **Miscellaneous:** Any Other conditions which might have been quoted by the seller and are in contravention to the terms prescribed, the order and which have not been specifically accepted in by Purchaser will not be applicable to the contract.
- k. **Delivery:** Delivery schedule shall be strictly as per BHEL tender requirement which are as indicated against each item in our tender. If supplier offers more than this delivery period BHEL will operate 0.5% loading factor for evaluation of their offer for every week delay.
- l. **Performance Bank Guarantee:** If tender Calls for Performance Bank Guarantee, Vendor should provide a performance bank guarantee (PBG) for 10% of the total Purchase order value valid for warranty/guarantee period with an additional claim period of 2 months.
- m. **Counter offer:** BHEL reserves the right to counter offer with vendors other than L1, in order to have broader vendor base for ensuring delivery. Counter offering will be restricted to 03 vendors, L1 vendors, as finalized, shall be counter offered to the other bidders. In case any bidders do not accept the L1 rates, the counter offer may be extended to other bidders.
 - (i) If one vendor alone accepting the counter offer rates, loading shall be 60:40 on L1:L2.
 - (ii) If two vendors are accepting the counter offer rates, loading shall be 50:30:20 on L1:L2:L3.
 - (iii) If three vendors are accepting the counter offer rates, loading shall be 40:30:20:10 on L1:L2:L3 & L4.
 - (iv) If four vendors are accepting the counter offer rates, loading shall be 40:20:15:15:10 on L1:L2:L3, L4 & L5.
 - (v) Highest rate bidder will not be considered for this tender, in case of more than four responses for each enquiry serial numbers.

- n. **Reverse Auction:** BHEL reserves the right to go for a Reverse Auction (RA) instead of Opening the price bid, which will be decided after techno-commercial bid evaluation. Information and general terms and conditions governing RA are given below:-

GENERAL TERMS AND CONDITIONS OF RA

Against this enquiry for the subject item/system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING ON INTERNET.

- a. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
- b. BHEL will engage the service provider who will provide all the necessary training and assistance before commencement of on line bidding on internet.
- c. BHEL will inform the vendor in writing in case of reverse auction, the details of Service Provider to enable them to contact & get trained.
- d. Business rules like event date, time, Start price, bid decrement value; extensions etc. also will be communicated through service provider for compliance.
- e. Vendors have to mail/fax the Compliance form in the prescribed format (provided by the Service provider) before the start of the Reverse auction. Without this, the vendor will not be eligible to participate in the event.
- f. BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the vendor to enable them to fill-in the price and keep it ready for keying in during the Auction.
- g. Reverse auction will be conducted on the scheduled date & time.
- h. At the end of Reverse Auction event, the lowest bidder value will be known on the network.
- i. The lowest bidder has to mail/fax the duly signed Filled-in prescribed format as provided on case-to-case basis to BHEL through Service provider within 24 hours of Auction without fail.
- j. Any variation between the on-line bid value and the signed document will be considered as sabotaging the tender process and will invite disqualification of vendor to conduct business with BHEL as per prevailing procedure.

3. GENERAL CONDITIONS

- a. All items shall be supplied as per the Purchase Specifications mentioned in our Enquiry to the latest applicable revision / Drawing
- b. BHEL reserves the right to finalize the tender as per item sl no wise or as a total package or project wise. Separate orders will be released for each project and documents should be supplied for each order separately.



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Valves/Purchase, Tiruchirappalli-620014, INDIA

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pdeo@bheltry.co.in

- c. BHEL reserves the right to increase or reduce or split the Tender Quantity and to NOT to order for some or all material based on the changes in project.
- d. BHEL shall have the right to visit vendor works during the execution of contract along with end customer for verifying status, inspection and testing of the material.
- e. BHEL reserves the right to negotiate or re-float the tender in case the quoted prices are not acceptable.
- f. Supplier shall arrange packing to avoid lose or damages during Road Transport, Site handling & Storage.
- g. Purchase Order, PO Item SI No, Material code, Quantity should marked the Packing clearly.
- h. Confirmation for compliance is to be given in the offer for all the conditions specified above and to the respective Purchase Specification.
- i. Vendors shall give dispatch schedule to BHEL for various items against the pending orders once in 15 days.

4. DOCUMENTATION:

For Indigenous suppliers:-

- a. **With Consignment:** Duplicate for transporter copy of Invoice, Packing List, Delivery Challan, O&M manual Material Test Certificate, Test Certificates, Calibration Report, Compliance Certificate & Guarantee/Warranty Certificate etc...
- b. **Online Submission:** Supplier should upload the soft copy of all Test Certificates in BHEL website <http://vis.bheltry.co.in/vis/index.jsp> at Vendor information system tab.
- c. **To Finance:** Original and Duplicate Invoice for payment with GR reference ,should be sent directly to
Sr Manager/Finance/Valves-Bills section
HPBP BHEL Tiruchirappalli-620014, Tamilnadu.

To Purchase:

- i. **FOR BHEL TRICHY case-**Copy of Invoice, Packing list, LWB and Delivery challan for reference, original IBR documents/Inspection despatch clearance certificates
- ii. **FOR Site case-** Original Excise Invoice, Original LWB, Original Packing List, Original IBR documents, Original despatch clearance Certificate, Original Inspection report, Test certificates as per PO,Original Site Acknowledgment etc...
- d. **Identification:**, Purchase Order, PO item SI No, Material code, quantity, Unique SI No if any should be provided in all despatch documents, materials and packing clearly.



BHARAT HEAVY ELECTRICALS LTD

VALVES PURCHASE
Trichy - 620 014. India

Terms and Conditions-Check list

<u>BHEL Terms and conditions</u>	<u>Vendor confirmation</u>
a. Terms of Payment: <u>Indigenous:</u> 100% payment after 45 days on acceptance of material.	
b. Liquidated Damage: A sum equivalent to 0.5% of price for each week of delay up to a maximum of 10% of the total value.	
c. Delivery Terms: Price should be quoted FOR BHEL Trichy only. Freight should be included in the offer.	
d. Validity of Offer: Prices should be valid for 120 days from the date of opening of this tender.	
e. Risk Purchase: Alternatively the purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of seller either the whole of goods or any part which the supplier has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute therefore. Supplier shall be liable for any loss which the purchaser may sustain by reason for such risk purchases in addition to penalty.	
f. Miscellaneous: Any condition which might have been quoted by the seller and are in contravention to the terms prescribed in order and which have not been specifically accepted by Purchaser will not be applicable to the contract.	
g. Delivery period: Delivery schedule shall be strictly as per BHEL tender requirement which are as indicated against each item in our tender.	
h. Inspection: material should be inspected as per standards/BHEL specification.	
i. Schedule of Deviation: Schedule of deviation should be signed and filled with offer in below format	

SCHEDULE OF DEVIATIONS

Enq Ref:

Offer Ref:

Date:

Commercial Deviation:

Clause No.	Description	Supplier Deviation

Technical Deviation:

Clause No.	Description	Supplier Deviation

We confirm acceptance of all the Technical and Commercial requirements as per BHEL Tender, except the above deviations.

Signature with Seal



BHARAT HEAVY ELECTRICALS LIMITED
(A Govt. of India Undertaking)
High Pressure Boiler Plant
Tiruchirapalli 620 014

PURCHASE VALVES
(To be filled and submitted along with Offer)

**BHEL Commercial Terms and Conditions for
INDIGENOUS SUPPLIERS FOR RC / NON RC – TWO BID SYSTEM
To be furnished along with offer**

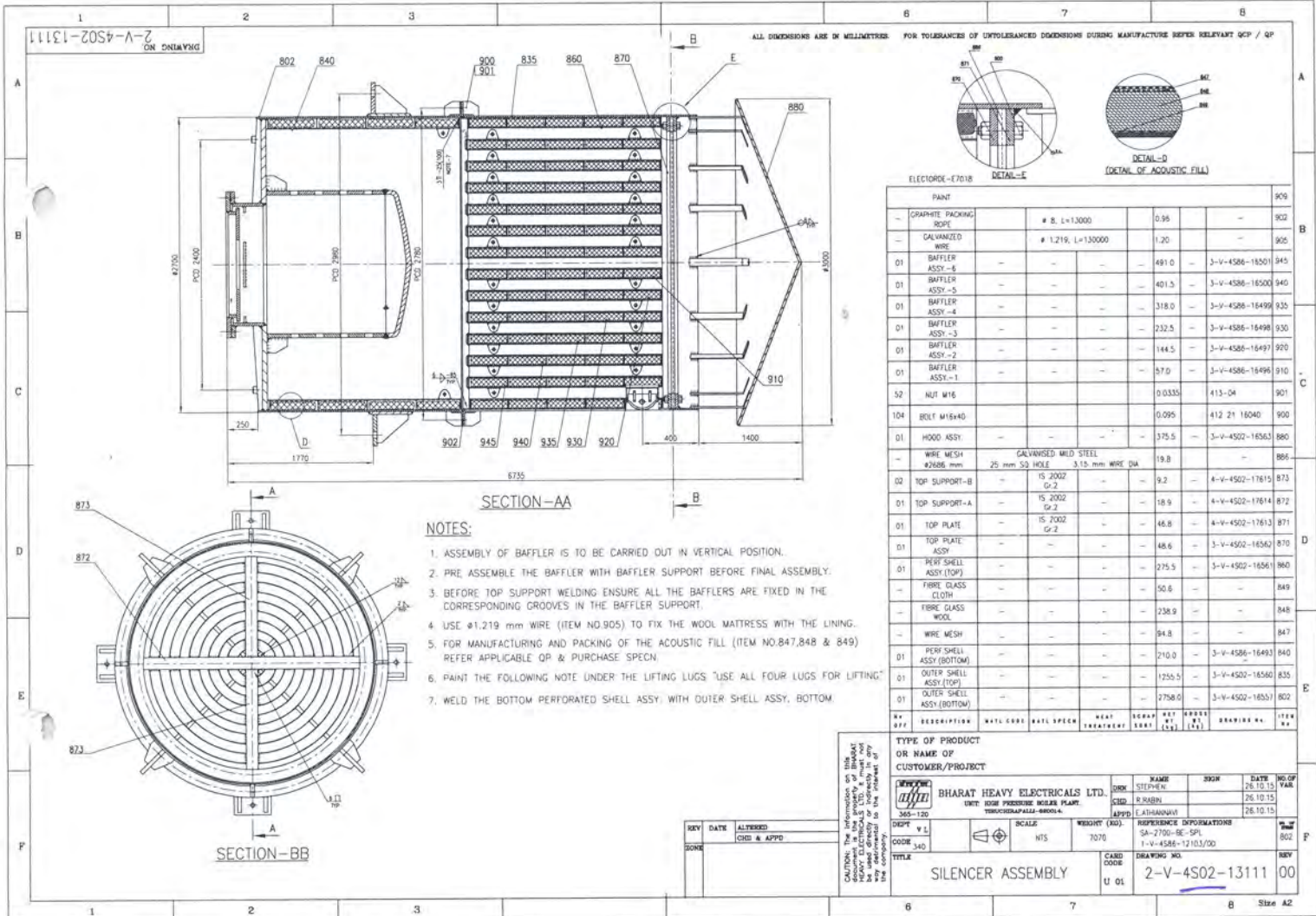
Technical confirmation to BHEL's Specification as called for in BHEL Format shall be furnished. If needed additional sheets shall be used.		Vendor's Confirmation / Comments
Tender opening Route :	Tender opening consists of two part systems viz: 1. Techno Commercial Bid & 2. Price Bid. Techno Commercial Bid will be opened First. After scrutiny and evaluation of Techno Commercial offers, the Price bid will be opened with due intimation to vendors.	
Offers :	Offers should be submitted only in a sealed cover super-scribing clearly the Enquiry No. and due date.	
Prices :	Prices shall be quoted item/s wise to BHEL Material code wise and FIRM PRICE basis only as per the BHEL Enquiry.	
Offers :	Offers should be submitted only in a sealed cover super-scribing clearly the Enquiry No. and Enquiry due date.	
Validity of offer for NON-RC Items.	<u>VALIDITY OF OFFER FOR NON--RC--ITEMS:</u> Minimum for a period of 120 days from the date of Tender opening (or) Finalization of tender.	
Validity of offer for RC items	<u>VALIDITY OF OFFER FOR RC--- ITEMS:</u> Minimum for a period of 1 year (One year) from the date of Tender opening (or) Finalization of tender.	
Delivery Terms :	FOR / BHEL / TRICHY basis only inclusive of P & F, Insurance and other charges if any.	
Delivery period :	Indicate the early delivery period in the offer	
Liquidated damages :	LD @ 0.5 % per week subject to a maximum of 10% of the order value shall be levied for Total PO value.	

**BHEL Commercial Terms and Conditions for
INDIGENOUS SUPPLIERS FOR RC / NON RC – TWO BID SYSTEM
To be furnished along with offer**

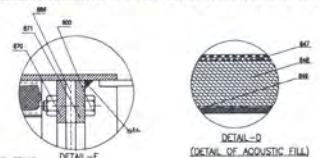
Confirmation to BHEL'S Drawing / Specn. / TDC	Item-wise confirmation to BHEL's Drawing/s / Specification / TDC is required in the offer itself.	
Inspection :	Final inspection by BHEL Inspector at BHEL, Trichy.	
Inspection Charges	Please indicate the Inspection charges if any in the offer itself and indicate the details of Inspection Agency.	
Payment Terms :	100% payment will be made after 45 days on acceptance of materials at our Stores.	
Excise Duty : (ED)	Indicate the Excise duty (ED) and Cess in the offer clearly if applicable. (ED 12.5%)	
CST Tax Details :	Indicate the CST - details in the offer clearly if applicable.	
VAT Tax Details :	Indicate the VAT - details in the offer clearly if applicable. (VAT 5% OR 14.5%)	
Risk Purchase clause	Risk Purchase shall be applicable as per BHEL Terms and Conditions. The Purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated or if the same were not available, the best and the nearest available substitute therefore.	
	The supplier shall be liable for any loss which the Purchaser may sustain by reason of such risk purchases	
Guarantee :	The equipment shall be guaranteed for a period of 12 months from the date of commissioning.	
Warranty	Any warranty replacement during warranty period shall be supplied free of cost on FOR / BHEL, Trichy basis.	
Documents:	The vendor shall provide necessary Invoice, Delivery challan, drawings, Test Certificates, Guarantee Certificates, Operating Maintenance Manuals and etc., as called for in the Technical Specification, in the required number of copies at no extra cost.	
NOTE :-	It is confirmed that all the terms and conditions stipulated in the Enquiry have been fully understood by us and all clarifications and details have been obtained.	

Signature & Office Seal of the vendor

4502



ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP



PAINT				909
-	GRAPHITE PACKING ROPE			902
-	CALVANIZED WIRE	# 8, L=13000	0.95	905
01	BAFFLER ASSY-6		491.0	3-V-4502-18501 945
01	BAFFLER ASSY-5		401.5	3-V-4502-18500 940
01	BAFFLER ASSY-4		318.0	3-V-4502-18499 935
01	BAFFLER ASSY-3		232.5	3-V-4502-18498 930
01	BAFFLER ASSY-2		144.5	3-V-4502-18497 920
01	BAFFLER ASSY-1		57.0	3-V-4502-18496 910
52	NUT M16		0.0335	413-04 901
104	BOLT M16x40		0.095	412 21 18040 900
01	HOOD ASSY		375.5	3-V-4502-18563 880
-	WIRE MESH #2686 mm	CALVANISED MILD STEEL 25 mm SQ HOLE 3.15 mm WIRE DIA	19.8	886
02	TOP SUPPORT-B	IS 2002 G-2	9.2	4-V-4502-17815 873
01	TOP SUPPORT-A	IS 2002 G-2	18.9	4-V-4502-17814 872
01	TOP PLATE	IS 2002 G-2	46.8	4-V-4502-17813 871
01	TOP PLATE ASSY		48.6	3-V-4502-18562 870
01	PERF SHELL ASSY (TOP)		275.5	3-V-4502-18561 860
-	FIBRE GLASS CLOTH		50.6	849
-	FIBRE GLASS WOOL		238.9	848
-	WIRE MESH		94.8	847
01	PERF SHELL ASSY (BOTTOM)		270.0	3-V-4502-18493 840
01	OUTER SHELL ASSY (TOP)		1250.5	3-V-4502-18560 835
01	OUTER SHELL ASSY (BOTTOM)		2758.0	3-V-4502-18559 802

- NOTES:**
1. ASSEMBLY OF BAFFLER IS TO BE CARRIED OUT IN VERTICAL POSITION.
 2. PRE ASSEMBLE THE BAFFLER WITH BAFFLER SUPPORT BEFORE FINAL ASSEMBLY.
 3. BEFORE TOP SUPPORT WELDING ENSURE ALL THE BAFFLERS ARE FIXED IN THE CORRESPONDING GROOVES IN THE BAFFLER SUPPORT.
 4. USE #1.219 mm WIRE (ITEM NO.905) TO FIX THE WOOL MATTRESS WITH THE LINING.
 5. FOR MANUFACTURING AND PACKING OF THE ACOUSTIC FILL (ITEM NO.847,848 & 849) REFER APPLICABLE QP & PURCHASE SPECN.
 6. PAINT THE FOLLOWING NOTE UNDER THE LIFTING LUGS 'USE ALL FOUR LUGS FOR LIFTING'.
 7. WELD THE BOTTOM PERFORATED SHELL ASSY WITH OUTER SHELL ASSY, BOTTOM.

REV	DATE	ALTERED	BY	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		DRK	NAME	SRK	DATE	NO OF
BHARAT HEAVY ELECTRICALS LTD. UNIT 1006 PRESSURE BOILER PLANT, THIRUCHIRAPPALLI-60004.		DRK	R RABIN	SRK	26.10.15	VAR
365-120		APPD	E ADHANNANI		26.10.15	

DEPTH	V L	SCALE	NTS	WEIGHT (KG)	REFERENCE INFORMATION	REV
CODE	140	SCALE	NTS	7070	SA-2700-RE-SPI	802
TITLE				CARD CODE	DRAWING NO.	REV
SILENCER ASSEMBLY				U 01	2-V-4502-13111	00

CAUTION: The information on this drawing is the property of Bharat Heavy Electricals Ltd. & should not be disclosed or used in any way without the written consent of the company.

SILENCER ASSEMBLY STRUCTURE

TYPE No:		MODEL No:	DESCRIPTION	
4S02		SA-2700-BE-SPL	SAFETY VALVE SILENCER	
ASSY. DRAWING No:		ASSY.WT.:	SIZE	
2-V-4S02-13111		7070 kg	2700 mm	
ITEM NO	COMPONENT DRAWING NO	NO OFF	COMPONENT NAME	MATL. SPECIFICATION
802	3-V-4S02-16557	1	OUTER SHELL ASSY. (BOTTOM)	
804	4-V-4S02-17591	1	OUTER SHELL (BOTTOM)	IS 2002 Gr. 2
805	4-V-4S02-17592	1	BOTTOM PLATE	IS 2002 Gr. 2
806	4-V-4S02-17593	10	BOTTOM PLATE RIB	IS 2002 Gr. 2
807	4-V-4S86-17349	2	DRAIN TUBE	SA 106 Gr. B
808	3-V-4S02-16555	1	DIFFUSER ASSY.	
809	3-V-4S02-16556	1	DIFFUSER SHELL	IS 2002 Gr. 2
810	4-V-4S02-17594	1	END COVER	IS 2002 Gr. 2
814	4-V-4S02-17595	12	DIFFUSER SUPPORT	IS 2002 Gr. 2
815	3-V-4S02-16558	01	INLET TUBE ASSY.	
816	4-V-4S02-17596	1	INLET TUBE	IS 2002 Gr. 2
817	4-V-4S02-17597	4	STOPPER	IS 2002 Gr. 2
818	4-V-4S02-17598	1	RING	IS 2002 Gr. 2
819	4-V-4S02-17599	1	GUIDE TUBE	IS 2002 Gr. 2
820	4-V-4S02-17600	1	TOP FLANGE	IS 2002 Gr. 2
821	4-V-4S02-17601	1	BOTTOM FLANGE	IS 2002 Gr. 2
896	412-21-10x35	36	HEX BOLT M10	
897	413-04-10	36	HEX NUT M10	
898		--	GRAPHITE PACKING ROPE	
822	3-V-4S02-16559	4	SUPPORT ASSY.	
823	4-V-4S02-17602	1	SUPPORT PART - A	IS 2002 Gr. 2
824	4-V-4S02-17603	2	SUPPORT PART - B	IS 2002 Gr. 2
825	4-V-4S02-17604	1	SUPPORT PART - C	IS 2002 Gr. 2
828	4-V-4S02-17605	1	OUTER SHELL FLANGE	IS 2002 Gr. 2
829	4-V-4S02-17606	12	FLANGE SUPPORT (BOTTOM)	IS 2002 Gr. 2
835	3-V-4S02-16560	1	OUTER SHELL ASSY. (TOP)	
836	4-V-4S02-17607	1	OUTER SHELL (TOP)	IS 2002 Gr. 2
828	4-V-4S02-17605	1	OUTER SHELL FLANGE	IS 2002 Gr. 2
837	4-V-4S02-17608	12	FLANGE SUPPORT (TOP)	IS 2002 Gr. 2
826	4-V-4S02-17609	4	LIFTING LUG ASSY.	
827	4-V-4S02-17610	1	LIFTING LUG PART- A	IS 2002 Gr. 2
899	415-501	1	LIFTING EYE	
840	3-V-4S86-16493	1	PER. SHELL ASSY. (BOTTOM)	
841	4-V-4S86-17359	1	PERFORATED SHELL (BOTTOM)	SA240 TYPE 304
842	4-V-4S86-17360	32	VERTICAL RIB - A	IS 1079 Gr.0
843	4-V-4S86-17361	5	HORIZONTAL RIB	IS 1079 Gr.0
913	4-V-4S86-17362	2	SPACER	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
860	3-V-4S02-16561	1	PER. SHELL ASSY. (TOP)	
843	4-V-4S86-17361	5	HORIZONTAL RIB	IS 1079 Gr.0
844	4-V-4S86-17363	32	VERTICAL RIB - B	IS 1079 Gr.0
845	4-V-4S02-17611	1	BAFFLER SUPPORT-A	IS 2002 Gr. 2
846	4-V-4S02-17612	2	BAFFLER SUPPORT-B	IS 2002 Gr. 2
861	4-V-4S86-17366	1	PERFORATED SHELL (TOP)	SA240 TYPE 304
862	4-V-4S86-17367	8	VERTICAL RIB - C	IS 1079 Gr.0
913	4-V-4S86-17362	2	SPACER	IS 1079 Gr.0
847		-	WIRE MESH	

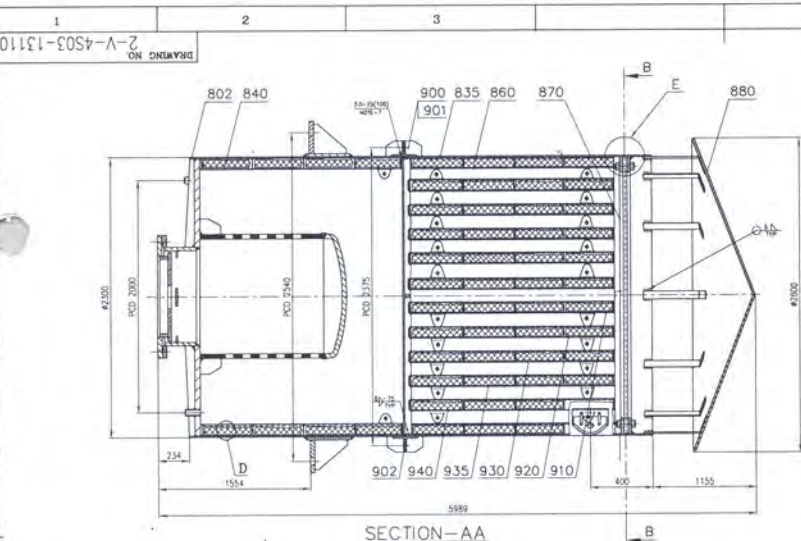
SILENCER ASSEMBLY STRUCTURE

TYPE No: 4S02		MODEL No: SA-2700-BE-SPL		DESCRIPTION SAFETY VALVE SILENCER
ASSY. DRAWING No: 2-V-4S02-13111		ASSY.WT.: 7070 kg		SIZE 2700 mm
ITEM NO	COMPONENT DRAWING NO	NO OFF	COMPONENT NAME	MATL. SPECIFICATION
848			FIBRE GLASS WOOL	-
849			FIBRE GLASS CLOTH	-
870	3-V-4S02-16562	1	TOP PLATE ASSY.	
871	4-V-4S02-17613	1	TOP PLATE	IS 2002 Gr. 2
901	413-04-16	52	HEX.NUT	
871	4-V-4S02-17613	1	TOP PLATE	IS 2002 Gr. 2
872	4-V-4S02-17614	1	TOP SUPPORT - A	IS 2002 Gr. 2
873	4-V-4S02-17615	2	TOP SUPPORT - B	IS 2002 Gr. 2
880	3-V-4S02-16563	1	HOOD ASSEMBLY	
889	3-V-4S02-16564	1	HOOD	IS 2002 Gr. 2
890	4-V-4S02-17616	16	HOOD SUPPORT	IS 2002 Gr. 2
886		--	WIRE MESH	
910	3-V-4S86-16496	1	BAFFLER ASSY. -1	
911	4-V-4S86-17371	1	OUTER SHELL -1	SA 340 TYPE 304
912	4-V-4S86-17372	6	HORIZONTAL RIB -1	IS 1079 Gr.0
913	4-V-4S86-17362	8	SPACER	IS 1079 Gr.0
914	4-V-4S86-17373	1	INNER SHELL -1	SA 240 TYPE 304
924	4-V-4S86-17374	8	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4S86-17375	2	VERTICAL RIB -E	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
920	3-V-4S86-16497	1	BAFFLER ASSEMBLY-2	
921	4-V-4S86-17376	1	OUTER SHELL-2	SA 240 TYPE 304
922	4-V-4S86-17377	6	HORIZONTAL RIB -2	IS 1079 Gr.0
923	4-V-4S86-17378	1	INNER SHELL -2	SA 240 TYPE 304
924	4-V-4S86-17374	16	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4S86-17375	4	VERTICAL RIB -E	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
913	4-V-4S86-17362	8	SPACER	IS 1079 Gr.0
930	3-V-4S86-16498	1	BAFFLER ASSEMBLY-3	
931	4-V-4S86-17379	1	OUTER SHELL -3	SA 240 TYPE 304
932	4-V-4S86-17380	1	INNER SHELL -3	SA 240 TYPE 304
933	4-V-4S86-17381	6	HORIZONTAL RIB -3	IS 1079 Gr.0
924	4-V-4S86-17374	20	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4S86-17375	5	VERTICAL RIB -E	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
913	4-V-4S86-17362	8	SPACER	IS 1079 Gr.0
935	3-V-4S86-16499	1	BAFFLER ASSY -4	
936	4-V-4S86-17382	1	OUTER SHELL -4	SA 240 TYPE 304
937	4-V-4S86-17383	1	INNER SHELL -4	SA 240 TYPE 304
938	4-V-4S86-17384	6	HORIZONTAL RIB -4	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	

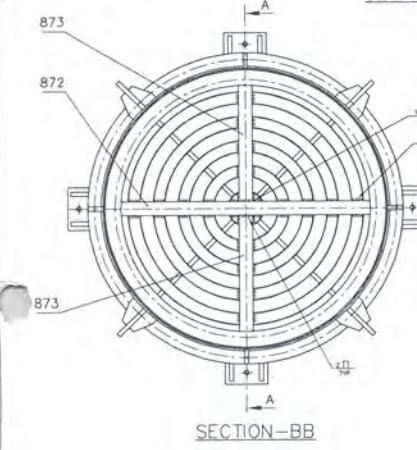
SILENCER ASSEMBLY STRUCTURE

TYPE No: 4S02		MODEL No: SA-2700-BE-SPL		DESCRIPTION SAFETY VALVE SILENCER
ASSY. DRAWING No: 2-V-4S02-13111		ASSY. WT.: 7070 kg		SIZE 2700 mm
ITEM NO	COMPONENT DRAWING NO	NO OFF	COMPONENT NAME	MATL. SPECIFICATION
924	4-V-4S86-17374	24	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4S86-17375	6	VERTICAL RIB - E	IS 1079 Gr.0
913	4-V-4S86-17362	8	SPACER	IS 1079 Gr.0
940	3-V-4S86-16500	1	BAFFLER ASSY -5	
941	4-V-4S86-17385	1	OUTER SHELL-5	SA 240 TYPE 304
942	4-V-4S86-17386	1	INNER SHELL-5	SA 240 TYPE 304
943	4-V-4S86-17387	6	HORIZONTAL RIB-5	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
924	4-V-4S86-17374	24	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4S86-17375	6	VERTICAL RIB - E	IS 1079 Gr.0
913	4-V-4S86-17362	8	SPACER	IS 1079 Gr.0
945	3-V-4S86-16501	1	BAFFLER ASSY -6	
946	4-V-4S86-17388	1	OUTER SHELL-6	SA 240 TYPE 304
947	4-V-4S86-17389	1	INNER SHELL-6	SA 240 TYPE 304
948	4-V-4S86-17390	6	HORIZONTAL RIB-6	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
924	4-V-4S86-17374	32	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4S86-17375	8	VERTICAL RIB - E	IS 1079 Gr.0
913	4-V-4S86-17362	8	SPACER	IS 1079 Gr.0
900	412-21-16x40	104	HEX. BOLT	
901	413- 04 -16	52	HEX. NUT	
902		--	GRAPHITE PACKING ROPE	
905		--	GALVANISED WIRE	
909		--	PAINT	
PRE	RABIN R			REV.No. 00 DATE: 23-12-2015
CHD	S. MADHULINGAM			ALTD CHD & APPD
APPD	E.ATHIANNAVI			

4503



SECTION-AA

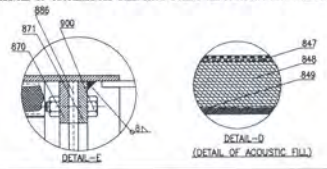


SECTION-BB

NOTES:

1. ASSEMBLY OF BAFFLER IS TO BE CARRIED OUT IN VERTICAL POSITION.
2. PRE ASSEMBLE THE BAFFLER WITH BAFFLER SUPPORT BEFORE FINAL ASSEMBLY.
3. BEFORE TOP SUPPORT WELDING ENSURE ALL THE BAFFLERS ARE FIXED IN THE CORRESPONDING GROOVES IN THE BAFFLER SUPPORT.
4. USE $\phi 1.219$ mm WIRE (ITEM NO.905) TO FIX THE WOOL MATTRESS WITH THE LINING.
5. FOR MANUFACTURING AND PACKING OF THE ACOUSTIC FILL (ITEM NO.847,848 & 849) REFER APPLICABLE OP & PURCHASE SPECN.
6. PAINT THE FOLLOWING NOTE UNDER THE LIFTING LUGS "USE ALL FOUR LUGS FOR LIFTING".
7. WELD THE BOTTOM PERFORATED SHELL ASSY. WITH OUTER SHELL ASSY. BOTTOM.

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP



ELECTORDE-E-7018									
QTY	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	REMARKS	REF (1)	REF (2)	REMARKS	ITEM **
-	PAINT								908
-	GRANITE PACKING ROPE		# B, L=11000		0.80				902
-	GALVANIZED WIRE		# 1.219, L=110000		1.01				905
01	BAFFLER ASSY-5				394.0			3-V-4503-16580	940
01	BAFFLER ASSY-4				300.5			3-V-4503-16579	935
01	BAFFLER ASSY-3				221.0			3-V-4503-16578	930
01	BAFFLER ASSY-2				138.0			3-V-4503-16577	920
01	BAFFLER ASSY-1				52.4			3-V-4503-16576	910
40	NUT M16				0.032			413-40	901
80	BOLT M16x40				0.092			412 21 16040	900
01	HOOD ASSY				273.6			3-V-4503-16571	880
-	WIRE MESH #2286 mm		GALVANISED MILD STEEL 25 mm SQ HOLE 3.15 mm WIRE DIA		16.8				886
02	TOP SUPPORT -B		IS 2002 Gr 2		7.7			4-V-4503-17641	873
01	TOP SUPPORT -A		IS 2002 Gr 2		16.1			4-V-4503-17640	872
01	TOP PLATE		IS 2002 Gr 2		39.6			4-V-4503-17639	871
01	TOP PLATE ASSY				41.0			3-V-4503-16570	870
01	PERF SHELL ASSY(TOP)				175.2			3-V-4503-16569	860
-	FIBRE GLASS CLOTH				39.0				849
-	FIBRE GLASS WOOL				184.2				848
-	WIRE MESH				53.3				847
01	PERF SHELL ASSY(BOTTOM)				157.2			3-V-4503-16575	840
01	OUTER SHELL ASSY(TOP)				964.0			3-V-4503-16568	835
01	OUTER SHELL ASSY(BOTTOM)				175.1			3-V-4503-16565	802

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
INDIAN ELECTRICITY BOARD PLANT, TRICHURAPALLI-680014.

DEPT: 305-120
SCALE: NTS
WEIGHT (KG): 4834
CARD CODE: U 01

DESIGNER: STEPHEN
CHECKER: R.RAJEN
APPROVER: EATHANNAIR

REFERENCE INFORMATION: SA-2300-9E-5PA, 1-V-4685-12080/01

DRAWING NO: 2-V-4503-13110

DATE: 26.10.15

REV: 00

REV	DATE	ALTERED BY	CHECKED BY

TITLE: SILENCER ASSEMBLY

2-V-4503-13110

SILENCER ASSEMBLY STRUCTURE

TYPE No: 4S03		MODEL No: SA-2300-BE-SPL		DESCRIPTION SAFETY VALVE SILENCER
ASSY. DRAWING No: 2-V-4S03-13110		ASSY. WT.: 4650 kg		SIZE 2300 mm
ITEM NO	COMPONENT DRAWING NO	NO OFF	COMPONENT NAME	MATL. SPECIFICATION
802	3-V-4S03-16565	1	OUTER SHELL ASSY. (BOTTOM)	
804	4-V-4S03-17617	1	OUTER SHELL (BOTTOM)	IS 2002 Gr. 2
805	4-V-4S03-17618	1	BOTTOM PLATE	IS 2002 Gr. 2
806	4-V-4S03-17619	8	BOTTOM PLATE RIB	IS 2002 Gr. 2
807	4-V-4685-16956	2	DRAIN TUBE	SA-210 Gr. A1
808	3-V-4S03-16573	1	DIFFUSER ASSY.	
809	3-V-4S03-16574	1	DIFFUSER SHELL	IS 2002 Gr. 2
810	4-V-4S03-17620	1	END COVER	IS 2002 Gr. 2
814	4-V-4S03-17621	6	DIFFUSER SUPPORT	IS 2002 Gr. 2
815	3-V-4S03-16566	1	INLET TUBE ASSY.	
816	4-V-4S03-17622	1	INLET TUBE	IS 2002 Gr. 2
817	4-V-4S03-17623	4	STOPPER	IS 2002 Gr. 2
818	4-V-4S03-17624	1	RING	IS 2002 Gr. 2
819	4-V-4S03-17625	1	GUIDE TUBE	IS 2002 Gr. 2
820	4-V-4S03-17626	1	TOP FLANGE	IS 2002 Gr. 2
821	4-V-4S03-17627	1	BOTTOM FLANGE	IS 2002 Gr. 2
896	412-21-10x35	16	HEX BOLT M10	
897	413-04-10	16	HEX NUT M10	
898		--	GRAPHITE PACKING ROPE	
822	3-V-4S02-16567	4	SUPPORT ASSY.	
823	4-V-4S03-17628	4	SUPPORT PART - A	IS 2002 Gr. 2
824	4-V-4S03-17629	8	SUPPORT PART - B	IS 2002 Gr. 2
825	4-V-4S03-17630	4	SUPPORT PART - C	IS 2002 Gr. 2
828	4-V-4S03-17631	1	OUTER SHELL FLANGE	IS 2002 Gr. 2
829	4-V-4S03-17632	8	FLANGE SUPPORT (BOTTOM)	IS 2002 Gr. 2
835	3-V-4S02-16568	1	OUTER SHELL ASSY. (TOP)	
836	4-V-4S03-17633	1	OUTER SHELL (TOP)	IS 2002 Gr. 2
828	4-V-4S03-17631	1	OUTER SHELL FLANGE	IS 2002 Gr. 2
837	4-V-4S03-17634	8	FLANGE SUPPORT (TOP)	IS 2002 Gr. 2
826	4-V-4S03-17635	4	LIFTING LUG ASSY.	
827	4-V-4S03-17636	1	LIFTING LUG PART- A	IS 2002 Gr. 2
899	415-501	1	LIFTING EYE	
840	3-V-4S03-16575	1	PER. SHELL ASSY. (BOTTOM)	
841	4-V-4T85-17176	1	PERFORATED SHELL (BOTTOM)	SA240 TYPE 304
842	4-V-4685-16975	18	VERTICAL RIB - A	IS 1079 Gr.0
843	4-V-4685-16976	4	HORIZONTAL RIB	IS 1079 Gr.0
913	4-V-4685-16977	2	SPACER	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
860	3-V-4S03-16569	1	PER. SHELL ASSY. (TOP)	
843	4-V-4685-16976	4	HORIZONTAL RIB	IS 1079 Gr.0
844	4-V-4685-16978	12	VERTICAL RIB - B	IS 1079 Gr.0
845	4-V-4S03-17637	1	BAFFLER SUPPORT-A	IS 2002 Gr. 2
846	4-V-4S03-17638	2	BAFFLER SUPPORT-B	IS 2002 Gr. 2
861	4-V-4T85-17182	1	PERFORATED SHELL (TOP)	SA240 TYPE 304
862	4-V-4685-16982	6	VERTICAL RIB - C	IS 1079 Gr.0
913	4-V-4685-16977	2	SPACER	IS 1079 Gr.0
847		-	WIRE MESH	

SILENCER ASSEMBLY STRUCTURE

TYPE No: 4S03		MODEL No: SA-2300-BE-SPL		DESCRIPTION SAFETY VALVE SILENCER
ASSY. DRAWING No: 2-V-4S03-13110		ASSY.WT.: 4650 kg		SIZE 2300 mm
ITEM NO	COMPONENT DRAWING NO	NO OFF	COMPONENT NAME	MATL. SPECIFICATION
848			FIBRE GLASS WOOL	-
849			FIBRE GLASS CLOTH	-
870	3-V-4S02-16562	1	TOP PLATE ASSY.	
871	4-V-4S02-17613	1	TOP PLATE	IS 2002 Gr. 2
901	413-04-16	40	HEX.NUT	
871	4-V-4S02-17613	1	TOP PLATE	IS 2002 Gr. 2
872	4-V-4S02-17614	1	TOP SUPPORT - A	IS 2002 Gr. 2
873	4-V-4S02-17615	2	TOP SUPPORT - B	IS 2002 Gr. 2
880	3-V-4S02-16563	1	HOOD ASSEMBLY	
889	3-V-4S02-16564	1	HOOD	IS 2002 Gr. 2
890	4-V-4S02-17616	12	HOOD SUPPORT	IS 2002 Gr. 2
886		--	WIRE MESH	
910	3-V-4S03-16576	1	BAFFLER ASSY. -1	
911	4-V-4T85-17189	1	OUTER SHELL -1	SA 340 TYPE 304 .
912	4-V-4685-16988	5	HORIZONTAL RIB -1	IS 1079 Gr.0
913	4-V-4685-16977	8	SPACER	IS 1079 Gr.0
914	4-V-4T85-17192	1	INNER SHELL -1	SA 240 TYPE 304 .
924	4-V-4685-16993	6	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4685-16994	2	VERTICAL RIB -E	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
920	3-V-4S03-16577	1	BAFFLER ASSEMBLY-2	
921	4-V-4T85-17193	1	OUTER SHELL-2	SA 240 TYPE 304 .
922	4-V-4685-16991	5	HORIZONTAL RIB -2	IS 1079 Gr.0
923	4-V-4T85-17195	1	INNER SHELL -2	SA 240 TYPE 304 .
924	4-V-4685-16993	12	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4685-16994	4	VERTICAL RIB -E	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
913	4-V-4685-16977	8	SPACER	IS 1079 Gr.0
930	3-V-4S03-16578	1	BAFFLER ASSEMBLY-3	
931	4-V-4T85-17198	1	OUTER SHELL -3	SA 240 TYPE 304 .
932	4-V-4T85-17199	1	INNER SHELL -3	SA 240 TYPE 304 .
933	4-V-4685-16997	5	HORIZONTAL RIB -3	IS 1079 Gr.0
924	4-V-4685-16993	15	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4685-16994	5	VERTICAL RIB -E	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
913	4-V-4685-16977	8	SPACER	IS 1079 Gr.0
935	3-V-4S03-16579	1	BAFFLER ASSY -4	
936	4-V-4T85-17201	1	OUTER SHELL -4	SA 240 TYPE 304 .
937	4-V-4T85-17202	1	INNER SHELL -4	SA 240 TYPE 304 .
938	4-V-4685-17000	5	HORIZONTAL RIB -4	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	

SILENCER ASSEMBLY STRUCTURE

TYPE No: 4S03		MODEL No: SA-2300-BE-SPL		DESCRIPTION SAFETY VALVE SILENCER
ASSY. DRAWING No: 2-V-4S03-13110		ASSY.WT.: 4650 kg		SIZE 2300 mm
ITEM NO	COMPONENT DRAWING NO	NO OFF	COMPONENT NAME	MATL. SPECIFICATION
924	4-V-4685-16993	15	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4685-16994	5	VERTICAL RIB - E	IS 1079 Gr.0
913	4-V-4685-16977	8	SPACER	IS 1079 Gr.0
940	3-V-4S86-16580	1	BAFFLER ASSY -5	
941	4-V-4T85-17204	1	OUTER SHELL-5	SA 240 TYPE 304
942	4-V-4T85-17205	1	INNER SHELL-5	SA 240 TYPE 304
943	4-V-4685-17003	5	HORIZONTAL RIB-5	IS 1079 Gr.0
847		-	WIRE MESH	
848		-	FIBRE GLASS WOOL	
849		-	FIBRE GLASS CLOTH	
924	4-V-4685-16993	18	VERTICAL RIB -D	IS 1079 Gr.0
925	4-V-4685-16994	6	VERTICAL RIB - E	IS 1079 Gr.0
913	4-V-4685-16977	8	SPACER	IS 1079 Gr.0
900	412-21-16x40	80	HEX. BOLT	
901	413- 04 -16	40	HEX. NUT	
902		--	GRAPHITE PACKING ROPE	
905		--	GALVANISED WIRE	
909		--	PAINT	
PRE	RABIN R			REV.No. 00 DATE: 23-12-2015
CHD	S. MADHULINGAM			ALTD CHD & APPD
APPD	E.ATHIANNAVI			